# US DRIVE-THRU ONLY (DTO) MODEL 19353 VERNIER ROAD HARPER WOODS, MI 48225

PROJECT NO.: TH919728 **COLOUR SCHEME: WELCOME 2022-US ARENA** 

# **DRAWING LIST**

**COVER SHEET** RESPONSIBILITY SCHEDULE ARCHITECTURAL SITE PLAN MENU SIGN DETAILS DRIVE-THRU SITE DETAILS - TRASH ENCLOSURE FLOOR PLAN AND SCHEDULES **EQUIPMENT PLAN AND SCHEDULES** REFLECTED CEILING PLAN AND DETAILS ROOF PLAN AND DETAILS EXTERIOR ELEVATIONS **EXTERIOR ELEVATIONS BUILDING SECTIONS** A6.1 WALL SECTIONS A6.2 WALL SECTIONS Α7 **SECTION DETAILS** A7.1 PLAN DETAILS A7.2 PLAN AND SECTION DETAILS DETAILS INTERIOR ELEVATIONS A9.2 WASHROOM DETAILS A10 FINISH PLAN AND SCHEDULE A11 DOOR AND WINDOW SCHEDULES A12 CONTACT LIST S1.1 FOUNDATION PLAN AND SECTIONS FOUNDATION PLAN AND SECTIONS S2.1 FRAMING PLAN AND DESIGN CRITERIA S3.1 FRAMING SECTIONS

E0.1 ELECTRICAL SITE PLAN E1.0 **ELECTRICAL SYMBOLS AND NOTES** 

E1.1 LIGHTING PLAN E2.1 POWER PLAN E2.2 ROOF POWER PLAN

E3.1 PANEL SCHEDULES AND RISER DIAGRAM E3.2 KITCHEN EQUIPMENT SCHEDULE E4.1 ELECTRICAL DETAILS AND SCHEDULES

E4.2 ELECTRICAL DETAILS E5.1 TELEPHONE PLAN

M1.1

**CONTRACTORS** 

TO SPECIFICATION DRAWINGS.

**ENERGY CALCULATIONS** 

M2.1 HVAC SCHEDULES M3.1 EXHAUST HOOD SHOP DRAWINGS

CONTRACTORS ARE TO CONTACT THE CONSTRUCTION PROJECT MANAGER AS INDICATED IN THE WRITTEN SCOPE OF WORK FOR BIDDERS LIST. FOR APPROVED

SUPPLIERS LIST, NATIONAL ACCOUNT PHONE NUMBERS AND CONTRACTORS REFER

HVAC PLAN AND DETAILS

PLUMBING SCHEDULES AND NOTES SANITARY WASTE AND VENT PLAN PLUMBING DOMESTIC WATER PLAN PLUMBING NATURAL GAS PLAN

ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS

MS1.1 MECHANICAL SPECIFICATIONS MS1.2 MECHANICAL SPECIFICATIONS MS1.3 MECHANICAL SPECIFICATIONS

> PLUMBING SPECIFICATIONS PLUMBING SPECIFICATIONS

# PLUMBING DETAILS PLUMBING DETAILS SP3 SP4 SP5 ARCHITECTURAL SPECIFICATIONS **ELECTRICAL SPECIFICATIONS** ES1.2 **ELECTRICAL SPECIFICATIONS** ES1.3 **ELECTRICAL SPECIFICATIONS** ES1.4 **ELECTRICAL SPECIFICATIONS**

# **KEY PLAN**

U/S:

WRM:

# **ARCHITECT**

# Mosure L.L.C

2221 SCHROCK ROAD COLUMBUS, OH 43229

TELEPHONE: (614) 898.7100

# STRUCTURAL ENGINEER

# Mosure L.L.C

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# **CIVIL ENGINEER**

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# **ABBREVIATIONS**

**BACK OF HOUSE COMPLETE WITH** CENTER LINE CONCRETE CPM: CONSTRUCTION PROJECT MANAGER EQ: **EQUAL** FRONT OF HOUSE GENERAL CONTRACTOR MAX. MAXIMUM MIN.: MINIMUM NOT APPLICABLE ON CENTER P-LAM: PLASTIC LAMINATE STORE FIXTURE COMPANY S.F.C: SPEC: SPECIFICATION T/O: TOP OF TBD: TO BE DETERMINED TYP.: TYPICAL

UNDERSIDE

WASHROOM

NO PARKING	
	BEACONSFIELD FROM BOOK COME COME COME COME COME COME COME COME
	BEACONSFIELD
VERNIER AD PUBLICLY DEDICATED  ASSMALT PAVEMENT W, CONC. CURB  WIDE)	

# **ELECTRICAL ENGINEER**

# Mosure L.L.C

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# MECHANICAL ENGINEER

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THE ARCHITECT NOTED ABOVE HAS EXERCISED

NOT REQUIRED

NOT REQUIRED

RESPONSIBLE CONTROL WITH RESPECT TO

**CODE INFORMATION** FIRM NAME: MS CONSULTANTS INC 2221 SCHROCK ROAD COLUMBUS, OH 43229

TIM HORTONS - US DRIVE-THRU ONLY (DTO) MODEL

19353 VERNIER ROAD, HARPER WOODS, MI 48225

ALLOWED: 40'-0" HIGH

URINALS

TYPE 2

KITCHEN HOODS

HOOD SUPPRESSION

DRINKING FOUNTAIN

NOT APPLICABLE

APPLICABLE CODES BUILDING: 2015 MICHIGAN BUILDING CODE **PLUMBING** 2015 MICHIGAN PLUMBING CODE 2015 INTERNATIONAL FUEL AND GAS CODE 2015 MICHIGAN MECHANICAL CODE MECHANICAL ELECTRICAL: 2017 NATIONAL ELECTRICAL CODE ACCESSIBILITY 2019 ACCESSIBLE AND USABLE BUILDING & FACILITIES 2009 MICHIGAN UNIFORM ENERGY CODE (ASHRAE 2013) ENERGY: ZONING CLASSIFICATION C1 - COMMERCIAL OCCUPANCY CLASSIFICATION A2 - (RESTAURANT) WITH NO MIXED USE OCCUPANCIES COMBUSTIBLE MATERIALS LINPROTECTED CONSTRUCTION TYPE BUILDING AREA ALLOWED: 6000 SQ FT. PROVIDED: 878 SQ F BUILDING HEIGHT

SCOPE OF WORK STATMENT NEW BUILD, CONSTRUCTION OCCUPANCY CALCULATIONS OCCUPANT LOAD | NUMBER OF | NUMBER OF FLOOR SQUARE FOOTAGE USE FACTOR OCCUPANTS SEATS 1 OF 1 KITCHEN 497 SQ. FT 1 OF 1 RESTROOMS 58 SQ. FT 1 OF 1 UNOCCUPIED AREAS 210 SQ. FT 0 TOTAL NUMBER OF OCCUPANTS: UNOCCUPIED AREAS INCLUDE: WALK-IN FREEZER/COOLER, WALLS, AND WASHROOM VESTIBULE MIN. EGRESS WIDTH TOTAL OCCUPANTS EGRESS CALCULATION CALCULATED MIN. EGRESS (1005.1) REQUIRED .20" X 3 = .60" (32" MIN.) TOTAL REQUIRED: 1 TOTAL PROVIDED : EGRESS WIDTH PER EXIT: 38" CLEAR OSS OF ONE REQUIRED MEANS OF EGRESS SHALL NOT REDUCE THE EGRESS CAPACITY TO LESS THAN 50% OF REQUIRED. EXTERIOR BEARING WALL: (0 HOUR) FIRE RESISTIVE REQUIREMENTS ROOF CONSTRUCTION: CEILING SPRINKLER SYSTEM \_ ENTIRE BUILDING (EXISTING) \_\_\_\_ IN LIEU OF ROOF RATING BASEMENT ONLY X NOT REQUIRED FIRE ALARM NOT REQUIRED 200' (250' WITH SPRINKLER SYSTEM) MAX. TRAVEL DISTANCE PLUMBING REQUIREMENT FEMALE MALE WATER CLOSETS 1 REQUIRED FOR MALE 1 REQUIRED FOR FEMALE LAVATORIES 1 REQUIRED FOR MALE 1 REQUIRED FOR FEMALE

NOT REQUIRED

NOT REQUIRED

APPROVED BY ISSUE DATE

07/12/2022

LRK

DRAWN BY

CHECKED BY

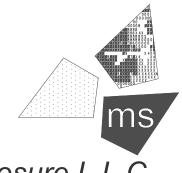
**ISSUE** DESCRIPTION # DATE PERMIT SET 07/12/22

**REVISIONS** 

# DATE DESCRIPTION

NOTICE

THIS ARCHITECTURAL AND ENGINEERING DRAWING IS GIVEN IN CONFIDENCE AND OF COPYRIGHT AND OTHERWISE ARE



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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728

ARCHITECT 1301068763

PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

SHEET TITLE:

**COVER SHEET** 

RESPONSIBILITY SCHEDULE												
	FURNISHED	INS	STA	LLED	NOTES:		FUF	RNISI	HED	INSTA	LLED	NOTES:
					ALL ITEMS NOT FOUND IN THIS MATRIX ARE TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR							ALL ITEMS NOT FOUND IN THIS MATRIX ARE TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR
				۵ ا	G.C. TO SUPPLY AND INSTALL ALL BLOCKING AND ATTACHMENTS AS REQUIRED FOR INSTALLATION OF ALL OWNER SUPPLIED ITEMS				<u>م</u>		۵ ا	G.C. TO SUPPLY AND INSTALL ALL BLOCKING AND ATTACHMENTS AS REQUIRED FOR INSTALLATION OF ALL OWNER SUPPLIED ITEMS
	R	R	1.5	S S	ALL BLOCKING TO BE FIRE RETARDANT TREATED		ER	4:	OR		.   OR	ALL BLOCKING TO BE FIRE RETARDANT TREATED
	WNE G.C.	Z	9.0		G.C. REQUIRED TO NOTIFY OWNER W/ IN 24 HOURS IF DAMAGED PARTS ARE RECEIVED OR IF PARTS ARE MISSING		N N	<b>G</b> .0		NA C	;   글	G.C. REQUIRED TO NOTIFY OWNER W/ IN 24 HOURS IF DAMAGED PARTS ARE RECEIVED OR IF PARTS ARE MISSING
	OWI G.	6		A	G.C. TO REFER TO OWNER SUPPLIED MATERIALS FOR CONTACT NAME AND PHONE NUMBER		Ó		K	0	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	G.C. TO REFER TO OWNER SUPPLIED MATERIALS FOR CONTACT NAME AND PHONE NUMBER
ITEM	-			-	PROPRIETARY VENDOR / COMMENTS	ITEM	1		-		-	PROPRIETARY VENDOR / COMMENTS
DIVISION 01 - GENERAL REQUIREMENTS					TROTRICIANT VERDON / COMMILITO	DIVISION 11 - EQUIPMENT						TROTRICIANT VENDOR / COMMILITO
PERMITS, FEES, INSURANCE CERTIFICATES, ETC.	•	N/A	<u> </u>	T	PERMIT APPLIED FOR BY OWNER / PICKED UP AND PAID FOR BY G.C.	KITCHEN EQUIPMENT	•		Τ	•	<u> </u>	OWNER PURCHASED THROUGH SCHEDULE A AND WASSERSTROM, GC TO SET EQUIPMENT IN PLACE. GC TO HOOK UP
TEMP. UTILITIES AND EQUIPMENT	•		•		INCLUDE 3 CLEANINGS IN BID ( 1 MAJOR FOR PUNCH, 2 LIGHT FOR TOUCH-UP AT TURNOVER AND OPENING)							EQUIPMENT.START UP AND CALIBRATION BY OWNER
RECEIVING AND UNLOADING OWNER SUPPLIED MATERIALS	•		•		INCLUDE 6" Ø PLAN STORAGE TUBE							
FINAL PROFESSIONAL CLEANUP AND TRASH REMOVAL	•		•			DIVISION 12 - FURNISHINGS			1			
CERTIFICATE OF OCCUPANCY	•		•		POSTED IN 8 1/2" X 11" FRAME	PATIO FURNITURE	•					OWNER PURCHASED. G.C TO INSTALL. ALL ITEMS MUST BE APPROVED BY TDL
DIVISION 02 - EXISTING CONDITIONS		1										
DEMOLITION AND HAUL OFF	•		•									
IRRIGATION SYSTEM	•		•									
LANDSCAPE PLANT MATERIAL	•		•		G.C TO REMEDIATE BASE FOR EXISTING SIGNAGE FOUNDATIONS AS REQUIRED IF SITE IS AN EXISTING TIM HORTONS SITE ONLY	DIVISION 13 - SPECIAL CONSTRUCTION - (NOT USED)						
CONCRETE SIGNAGE FOUNDATIONS SIGNAGE FASCIA	• •	•	•		OWNER'S SIGNAGE VENDOR TO INSTALL NEW SIGNAGE FACES ON EXISTING LOCATIONS	DIVISION 14 / DIVISION 20 - (NOT USED)						
DIVISION 03 - CONCRETE					OWNERS SIGNAGE VERDOR TO INSTALL NEW SIGNAGE FACES ON EXISTING ECCATIONS	DIVISION 22 - PLUMBING / DIVISION 23 - HVAC						
CONCRETE FOUNDATIONS & FLOOR SLABS / INFILL (BUILDING)	•		•			GAS SERVICE		•	Τ		•	PROVIDED BY LOCAL GAS COMPANY
CONCRETE SLAB CUTTING, PATCHING/INFILL, AND LEVELING	•		•		CREATE SMOOTH LEVEL SURFACE (G.C. TO CARRY ALLOWANCE IN BID FOR FLOOR PREP.)	PLUMBING STUBS ( SAN., DCW, VENT)		•			•	
CONCRETE CURBS & SIDEWALK PAVING	•		•			PLUMBING WORK & FIXTURES/APPURTENANCES REQUIRED FOR ROUGH-IN		•	1		•	
OUTDOOR DIGITAL MENU BOARD FOUNDATIONS	•		•		G.C TO REMOVE EXISTING FOUNDATIONS AND TO INSTALL NEW FOUNDATION AND ANCHOR BOLTS FOR EXTERIOR MENU BOARD, PRE-SELL MENU BOARD, SPEAKER POST AND ODMB CANOPY FOUNDATIONS & ANCHOR BOLTS	PLUMBING FIXTURES		•	1		<u> </u>	
DIVISION 04 - MASONRY				<u> </u>	,	WATER METER		•				PROVIDED BY "CITY WATER DEPARTMENT" TO BE VERIFIED BY G.C. OR OTHERWISE INDICATED
MASONRY					NOT APPLICABLE	MECHANICAL EQUIPMENT / HVAC UNIT / EXHAUST FAN		•			)	RATIONAL OVEN HOOD AND/OR TOASTER HOOD PURCHASED BY OWNER THROUGH SCHEDULE A. GC TO INSTALL
STONE VENEER					NOT APPLICABLE	ROOF CURBS		•				
DIVISION 05 - METALS		1				ALL DUCTWORK (LOW AND MEDIUM PRESSURE,FLEXIBLE DUCT, ETC.)		•				
STRUCTURAL AND LIGHT GAUGE METAL FRAMING	•		•			AIR DEVICES - DIFFUSERS GRILLES AND BAFFLES		•				PROVIDE CUT SHEETS WITH AIR BALANCE REPORT
						MANUAL BALANCING DAMPER		•		•		
DIVISION OF WOODS DI ASTICS AND COMPOSITES						HVAC PIPING / REFRIGERANT LINES		•				
DIVISION 06 - WOODS, PLASTICS AND COMPOSITES  ROUGH FRAMING, BLOCKING AND FURRING				T	REFER TO PLANS AND DETAILS FOR LOCATION, HEIGHT AND TYPE	DUCT SMOKE DETECTORS  TEMPERATURE CONTROL SYSTEM		•				FACTORY INSTALLED IN RETURN AIR
STAINLESS STEEL CABINETS		•			STAINLESS STEEL WORKTABLES- PURCHASED THROUGH SCHEDULE A, INSTALLED BY G.C.	TOILET EXHAUST FAN						
SHEATHING	•		•			TOILET EXHAUST DUCTWORK AND ROOF CAP		•				
WOOD TRUSSES	•		•			AIR BALANCE REPORT		•			•	
						HOT WATER TANK OR IHWH		•			•	
DIVISION 07 - THERMAL AND MOISTURE PROTECTION		L				CARBON MONOXIDE DETECTORS		•		•	•	INSTALLED BY G.C
BATT INSULATION	•		•		PROVIDE AT EXPOSED EXTERIOR WALLS	WATER FILTRATION SYSTEM & WATER TEST	•				•	WATER TEST TO BE DONE BY OWNER, WATER FILTRATION PREP AND INSTALLATION OF FILTRATION SYSTEM TO BE COMPLETED BY G.C. PURCHASED BY OWNER THROUGH WASSERSTROM
SOUND / ATTENUATION			•			PIPE PORTAL FOR PCL LINES						
	•					FIFE FORTAL FOR FOL LINES		•			<u> </u>	
	•		•			DIVISION 24 / DIVISION 25 - (NOT USED)		•			<u> </u>	
FIRE PROOFING / STOPPING			•			DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION	ATIONS	/ DIVISI	ION 28 -	- ELECTRON	IC SAFET	Y AND SECURITY
FIRE PROOFING / STOPPING SEALANTS	•		•		FIRE RATED SEALANT - PER LOCAL CODE	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION SWITCH GEAR	ATIONS	/ DIVISI	ION 28 -		•	
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER	•		•		FIRE RATED SEALANT - PER LOCAL CODE  PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION  SWITCH GEAR  ELECTRICAL METER / SERVICES	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING	•		•			DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING	ATIONS	/ DIVISI	ION 28 -		•	
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING	•		•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION	ATIONS	/ DIVISI	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT	ATIONS	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS	ATIONS	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP	ATIONS	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DRIVE THRU WINDOW			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES			•		PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA  CABINET  SOUND SYSTEM & WIRING	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNIC, SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICATION SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING	•	•	ION 28 -		•	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CEMENT BOARD					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE	•	•	ION 28 -			PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CEMENT BOARD  CORNER GUARDS					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE	•	•	ION 28 -			PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILIWICK VIA OWNER
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CEMENT BOARD  CORNER GUARDS					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH KNOTWOOD AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE	•	•	ION 28 -			PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILIWICK VIA OWNER
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CEMENT BOARD  CORNER GUARDS  INTERIOR WINDOW FILM					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE  WIFI ACCESS POINT						PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CORNER GUARDS  INTERIOR WINDOW FILM  DIVISION 10 - SPECIALTIES					PURCHASED THROUGH STO CORP. AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICAL SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE		•				PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILIWICK VIA OWNER
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FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CORNER GUARDS  INTERIOR WINDOW FILM  DIVISION 10 - SPECIALTIES  SIGNAGE AND AWNINGS  DRIVE-THRU CANOPY					PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  SUPPLIED BY SOLAR TINT  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE  WIFI ACCESS POINT   GENERAL NOTES  1. THIS RESPONSIBILITY MATRIX DELINEATES:  OWNER, LANDLORD AND GG SUPPLIED ITEMS  OWNER, LANDLORD AND GG SUPPLIED ITEMS  OWNER, LANDLORD AND GG SUPPLIED ITEMS	• • • • • • • • • • • • • • • • • • •	FINI  PRINTED/SELIVER TO FRUCK UNLEREATER DE	SUPPLIED - PROJECT, ITS SOTHER ETAIL.	NS - MEANS SUPPLY A FREIGHT ON BOAF		PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  KEYNOTES  1. G.C. TO VERIFY EXISTING CONDITION IS ACCEPTABLE FOR ALL NEW WORK.  2. G.C. TO VERIFY EXISTING CONDITION IS ACCEPTABLE FOR ALL NEW WORK.  2. G.C. TO COORDINATE SCHEDULE
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DRIVE THRU WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CORNER GUARDS  INTERIOR WINDOW FILM  DIVISION 10 - SPECIALTIES  SIGNAGE AND AWNINGS  DRIVE-THRU CANOPY  BLOCKING FOR SIGNAGE AND DRIVE-THRU CANOPY					PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  SUPPLIED BY SOLAR TINT  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE  WIFI ACCESS POINT  GENERAL NOTES  1. THIS RESPONSIBILITY MATRIX DELINEATES:  OWNER, LANDLORD AND GG SUPPLIED ITEMS OWNER, LANDLORD AND GG SUPPLIED ITEMS OWNER, LANDLORD AND GG INSTALLED ITEMS ITEMS TO BE PURCHASED THROUGH DESIGNATED NATIONAL SUPPLIER	DE  1. FU DE TR GR 2. INS	FINI  JRNISHED/S ELIVER TO F ROJECT FRO COMPLET	SUPPLIED - PROJECT, I ESTAIL.  DESCRIBES OM INSPECTION IN PLA	NS - MEANS SUPPLY A FREIGHT ON BOAF RWISE DEFINED IN		PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL1W AND CL2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILIWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  INSTALLED BY BAILIWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  I. G.C. TO VERIFY EXISTING CONDITION IS ACCEPTABLE FOR ALL NEW WORK.  2. G.C. IS RESPONSIBLE FOR UNIL CADING OWNER SUPPLIED CONSTRUCTION ITEMS. G.C. TO COORDINATE SCHEDULE AND DELIVERY WITH SUPPLIER STANDARD SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING COSTS AND PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER. S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER S.C. IS RESPONSIBLE FOR ANY EXPERIENTED SHIPPING PROVIDED BY OWNER S.C. IS RESPONSIBLE FOR ANY EXPERIENTED.
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CORNER GUARDS  INTERIOR WINDOW FILM  DIVISION 10 - SPECIALTIES  SIGNAGE AND AWNINGS  DRIVE-THRU CANOPY  BLOCKING FOR SIGNAGE AND DRIVE-THRU CANOPY  TOILET ROOM ACCESSORIES					PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  SUPPLIED BY SOLAR TINT  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE  WIFI ACCESS POINT  THIS RESPONSIBILITY MATRIX DELINEATES:  OWNER, LANDLORD AND GC SUPPLIED ITEMS  TIEMS TO BE PURCHASED THROUGH DESIGNATED NATIONAL SUPPLIER  EXISTING LANDLORD WORK TO BE VERIFIED BY G.C.  2. SEE M.E.P. DRAWINGS FOR ADDITIONAL INFORMATION  3. NO SUBSTITUTIONS OF ANY MATERIALS OR ITEMS SPECIFIED IN THE	• • • • • • • • • • • • • • • • • • •	FINI  JRNISHED/S ELIVER TO FE RUCK UNLE REATER DE STALLED - I ROJECT FRE D COMPLET TENDED US	SUPPLIED - PROJECT, I ESS OTHER ETAIL.  DESCRIBES OM INSPECTION IN PLA SE.	MEANS SUPPLY A FREIGHT ON BOAF RWISE DEFINED IN S OPERATIONS AT CTION AND UNLOA ACE, READY FOR	ADING	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILIWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  KEYNOTES  1. G.C. TO VERIFY EXISTING CONDITION IS ACCEPTABLE FOR ALL NEW WORK  2. G.C. IS RESPONSIBLE FOR UNLOADING OWNER SUPPLIED CONSTRUCTION ITEMS. G.C. TO COORDINATE SCHEDULE AND DELIVERY WITH SUPPLIER STANDARD SHIPPING PROVIDED BY OWNER, G.C. IS RESPONSIBLE FOR ANY EXPERIENCE SHIPPING SONS AND EQUIPMENT ITEMS. ALL DELIVERIES REQUIRED TO HAVE LIFT GATES BY OWNER.
FIRE PROOFING / STOPPING  SEALANTS  FLUID APPLIED MEMBRANE AIR BARRIER  MEMBRANE ROOFING  BOARD AND BATTEN SIDING  EXTRUDED ALUMINUM SIDING  MINERAL- FIBER CEMENT SIDING  MINERAL- FIBER CEMENT SIDING  DIVISION 08 - OPENINGS  DOORS, FRAMES AND HARDWARE  ACCESS PANELS  STOREFRONT GLAZING SYSTEM  LOCK CORES (EXTERIOR AND INTERIOR DOORS)  WALK-UP WINDOW  DIVISION 09 - FINISHES  CEILINGS  PAINT  FIBERGLASS-REINFORCED PANELS  TILE  WALL BASE  WALL TRIMS  SPECIAL FINISHES  GYPSUM BOARD  CORNER GUARDS  INTERIOR WINDOW FILM  DIVISION 10 - SPECIALTIES  SIGNAGE AND AWNINGS  DRIVE-THRU CANOPY  BLOCKING FOR SIGNAGE AND DRIVE-THRU CANOPY  TOILET ROOM ACCESSORIES  SHELVING / HANGING SYSTEM					PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  PURCHASED THROUGH JAMES HARDIE AND INSTALLED BY APPROVED INSTALLER  REFER TO DOOR SCHEDULE  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  PURCHASED FROM QUICKSERV  SUPPLIED BY SOLAR TINT  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL  SIGNAGE AND AWNINGS F/I BY TDL APPROVED SIGN VENDOR (ALLEN, CAPITAL OR CUSTOM), VENDOR MUST BE APPROVED BY TDL	DIVISION 24 / DIVISION 25 - (NOT USED)  DIVISION 26 - ELECTRICAL / DIVISION 27 - COMMUNICA  SWITCH GEAR  ELECTRICAL METER / SERVICES  TELEPHONE SERVICE TO THE BUILDING  TELEPHONE WIRING / CONDUIT  ELECTRICAL PANELS  ELECTRICAL TRANSFORMERS  HVAC POWER CONNECTION  HVAC DISCONNECT  CONDUIT, WIRING AND DEVICES FOR HVAC  LIGHTING FIXTURES / LAMPS  LIGHTING AND SIGNAGE CONTROLS  VEHICLE DETECTOR LOOP  C-CHANNEL LIGHT BAND  DATA CONDUIT  TELEPHONE AND DATA CABLING QUICK SERVE (WIRE ONLY)  DATA WIRE PULL & TERMINATE FROM INTERIOR MENU BOARDS TO MEDIA CABINET  SOUND SYSTEM & WIRING  FIRE ALARM SYSTEM  CLOSED CIRCUIT SECURITY SYSTEM EQUIPMENT  CLOSED CIRCUIT SECURITY SYSTEM CONDUIT WIRING  DIGITAL MENU BOARDS (INTERIOR & EXTERIOR)  CAT 6 CABLE/ ELECTRICAL FOR DIGITAL MENU BOARDS  ELECTRICAL FOR EXTERIOR BUILDING SIGNAGE  ELECTRICAL SITE CONDUIT WIRING FOR SIGNAGE  WIFI ACCESS POINT  THIS RESPONSIBILITY MATRIX DELINEATES:  OWNER, LANDLORD AND GC (INSTALLED ITEMS  OWNER, LANDLORD AND GC (INSTALLED ITEMS  ITEMS TO BE PURCHASED THROUGH DESIGNATED NATIONAL SUPPLIER  EXISTING LANDLORD WORK TO BE VERIFIED BY G.C.  2. SEE M.E.P. DRAWINGS FOR ADDITIONAL INFORMATION  3. NO SUBSTITUTIONS OF ANY MATERIALS OR ITEMS SPECIFIED IN THE DOCUMENTS ARE PERMITTED, U.N.O. & APPROVED BY THE OWNER.	DE  1. FU DE TR GR 2. INS	FINI  JRNISHED/S ELIVER TO FE RUCK UNLE REATER DE STALLED - I ROJECT FRE D COMPLET TENDED US	SUPPLIED - PROJECT, I ESS OTHER ETAIL.  DESCRIBES OM INSPER ION IN PLA SE.  EANS FURN	NS - MEANS SUPPLY AFREIGHT ON BOAF WISE DEFINED IN SOPERATIONS AT CTION AND UNLOA	ADING	PROVIDED BY LOCAL POWER COMPANY  OWNER TO COORDINATE WITH TELEPHONE COMPANY  MOST FIXTURES ORDERED DIRECT FROM VISO  INCLUDE DIGITAL MENU BOARD  BOTH CL-1W AND CL-2 ARE ORDERED ON SCHEDULES A  POS, MONITORS & EXTERIOR MENU BOARDS  POS, MONITORS & EXTERIOR MENU BOARDS  INSTALLED BY BAILLWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  INSTALLED BY BRILLWICK VIA OWNER  LOCATION TO ALIGN WITH APPROVED SIGNAGE VENDOR DRAWINGS  I. G.C. TO VERIFY EXISTING CONDITION IS ACCEPTABLE FOR ALL NEW WORK.  2. G.C. IS RESPONSIBLE FOR UNLOADING OWNER SUPPLIED CONSTRUCTION ITEMS. G.C. TO COORDINATE SCHEDULE AND DELIVERY WITH SUPPLIER STANDARD SHIPPING PROVIDED BY OWNER, G.C. IS RESPONSIBLE FOR ANY EXPEDITED SHIPPING COSTS AND PROVIDING LABOR AND EQUIPMENT ITEMS. ALL DELIVERIES REQUIRED TO HAVE LIFT GATES BY OWNER.  3. G.C. REQUIRED TO PURCHASE FROM SPECIFIED VENDOR AND RESPONSIBLE FOR COORDINATION AND DELIVERY
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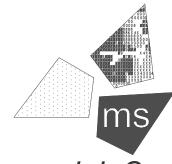
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**REVISIONS** 

#	DATE	DESCRIPTION

NOTICE

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

SHEET TITLE:

RESPONSIBILITY SCHEDULE

SHEET:

G0.1

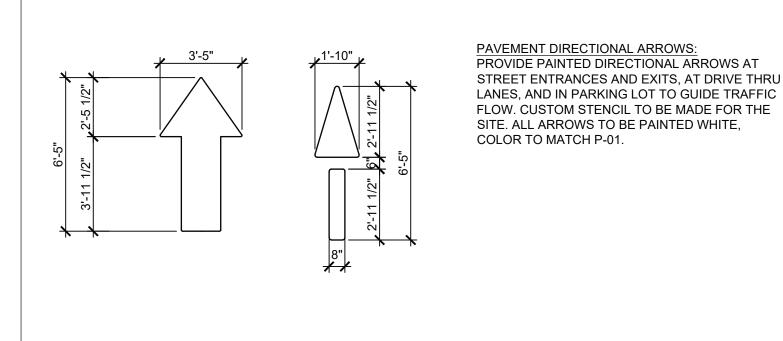
# **NOTES**

- 1 DT DIGITAL PRE-SELL MENU BOARD LOCATION. SEE INSTALLATION DETAILS ON SHEET AS2.1.
- 2 DT DIGITAL MENU BOARD LOCATION. SEE INSTALLATION DETAILS ON SHEET AS2.1.
- TIM HORTON'S RESTAURANT DRIVE THRU WINDOW LOCATION. SEE FLOOR PLAN ON SHEET A1 FOR ADDITIONAL INFORMATION.
- 6" STEEL PIPE BOLLARD. SEE DETAIL ON SHEET 5/AS2.2, FLOOR PLAN A1 AND EXTERIOR ELEVATIONS A5.1.
- TIM HORTON'S RESTAURANT WALK-UP WINDOW LOCATION. SEE FLOOR PLAN ON SHEET A1 FOR ADDITIONAL INFORMATION.
- 6 APPROXIMATE LOCATION OF GREASE INTERCEPTOR BELOW SITE PAVING. COORDINATE WITH PLUMBING & CIVIL DRAWINGS.
- 7 TIM HORTON'S DUMPSTER ENCLOSURE. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. REFER TO ARCHITECTURAL SITE DETAILS AS2.2 FOR CONSTRUCTION.
- 8 PATIO SEATING / SLAB. REFER TO CIVIL SITE PLAN DRAWINGS FOR LOCATION AND DIMENSIONS.
- 9 VEHICLE LOOP. SEE AS2.1 FOR DETAIL.
- ALL PATIO AND LANDSCAPE DESIGN BY CIVIL ENGINEER TO BE APPROVED BY TIM HORTONS DESIGN.
- TIM HORTONS DESIG
- 11 EXISTING PLYON SIGN

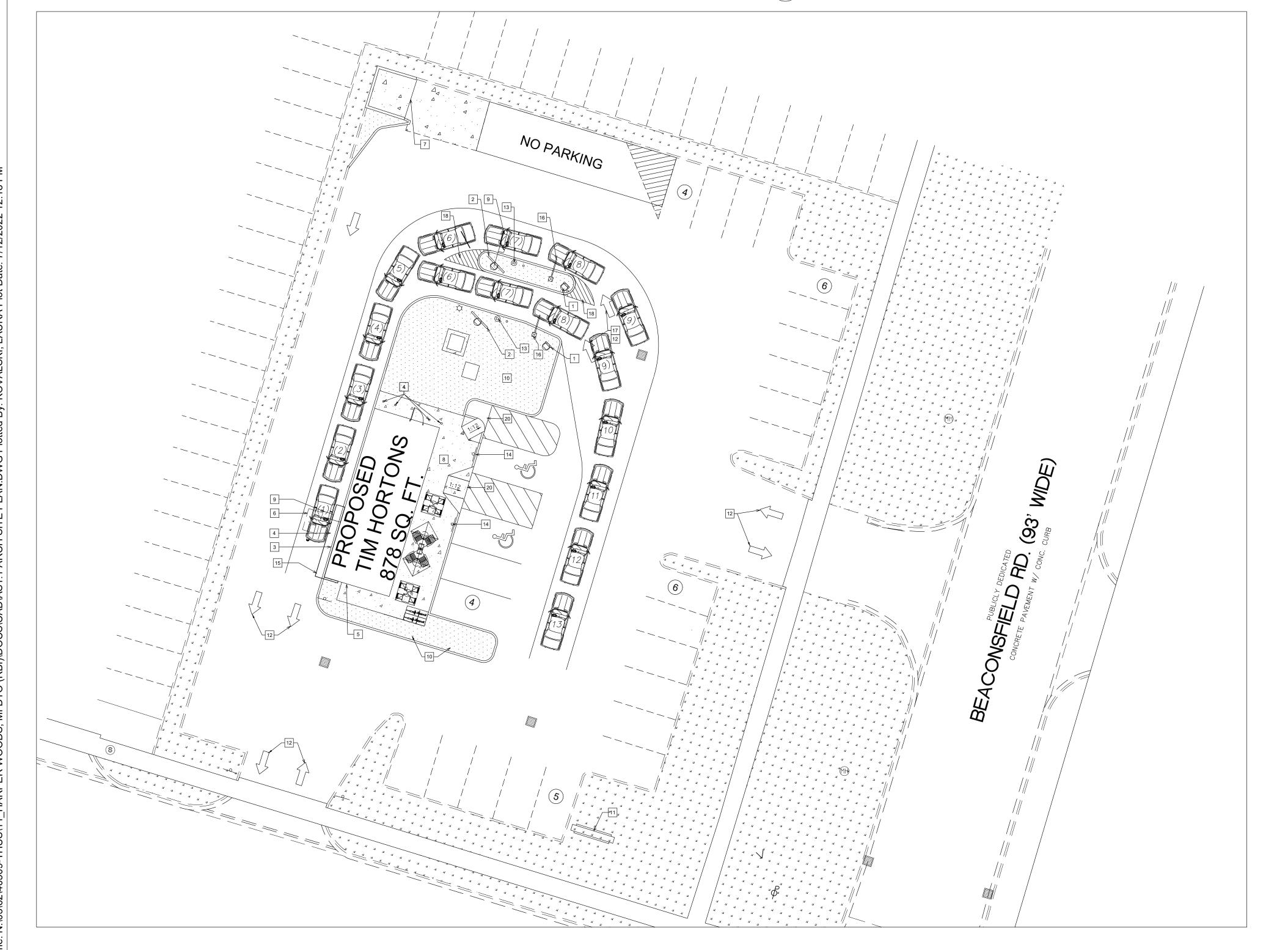
- DRIVE THRU DIRECTIONAL SIGNAGE GRAPHIC. NOTE: AOR/CIVIL TO NOT PLACE GRAPHICS ON TURNS. REFER TO DETAIL 2/AS1.1.
- 13 SPEAKER POST. REFER TO DETAILS ON SHEET AS2.1.
- 14 SIGN POLE 15' MIN. MOBILE ORDER PICKUP' FOR A PARKING SPOT.
- 15 CANOPY OVER THE DRIVE THRU WINDOW.
- 16 THUS CLEARANCE BAR AT 9'-4". REFER TO DETAILS ON SHEET 11/AS2.1.
- GRAPHIC SHOULD NOT BE PLACED WHERE WHEELS ARE TURNING ONLY WHERE CARS ARE ADVANCING FORWARD IN A STRAIGHT LINE.
- HATCHED AREA INDICATES PAINTED LINES. NOTE: PEOPLE NEED TO BE ABLE TO ENTER THE SECOND LANE FROM THE MAIN AREA.
- 19 NOT USED
- 20 CURB CUTS/RAMP FOR ADA SPOTS AND DELIVERIES.
- HOT BOX LOCATION TO BE COORDINATED WITH SITE SPECIFIC CIVIL DRAWINGS. PAINT P-24. SEE PLUMBING DRAWINGS FOR MORE INFORMATION

# **GENERAL NOTE**

ARCHITECTURAL SITE PLAN IS TO BE USED FOR GUIDELINE REFERENCE ONLY. ALL SITE SPECIFIC INFORMATION AND REQUIREMENTS IS TO BE COORDINATED WITH ARCHITECT, MECHANICAL/ELECTRICAL AND CIVIL ENGINEER OF RECORD. CIVIL ENGINEER/ARCHITECT TO PROVIDE TIM HORTONS DESIGN COMPLETE CIVIL PACKAGE WITH LANDSCAPE PLAN FOR APPROVALS.



2 DRIVE THRU SIGNAGE
AS1.1 SCALE: 1/4" = 1'-0"



# ODMB BEST PRACTICE RECOMMENDATION GUIDE

- INSTALL NEW FOUNDATIONS PER SPECIFICATIONS IF NEEDED.
   SPEAKER POST IS 18" OFF CURB FACE TO SPEAKER POST.
- INSTALL ¾" AND 2" CONDUIT FROM BUILDING TO FOUNDATION LOCATIONS PER NEC, LOCAL CODES, SPECIFICATIONS, AND ODMB CONDUIT REQUIREMENTS.
- INSTALL THE REQUIRED CONDUIT TO SPEAKER FOUNDATION.
- INSTALL A 20-AMP DEDICATED CIRCUIT FOR EACH ODMB FROM CIRCUIT PANEL TO ODMBS.
- INSTALL 7 OUTDOOR CAT6 CABLES FROM NETWORK SWITCH TO MENU BOARD.
- INSTALL 5 OUTDOOR CAT6 CABLES FROM NETWORK SWITCH TO PRE-SALE.
- RETURN SITE TO AS CLOSE AS POSSIBLE OF THE CONDITION PRIOR TO START OF WORK.
- ELECTRICIAN WILL NEED TO BE ON-SITE DAY OF INSTALL TO COMPLETE ELECTRICAL WORK.

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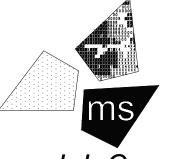
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### STICE

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Mosure L.L.C.

engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

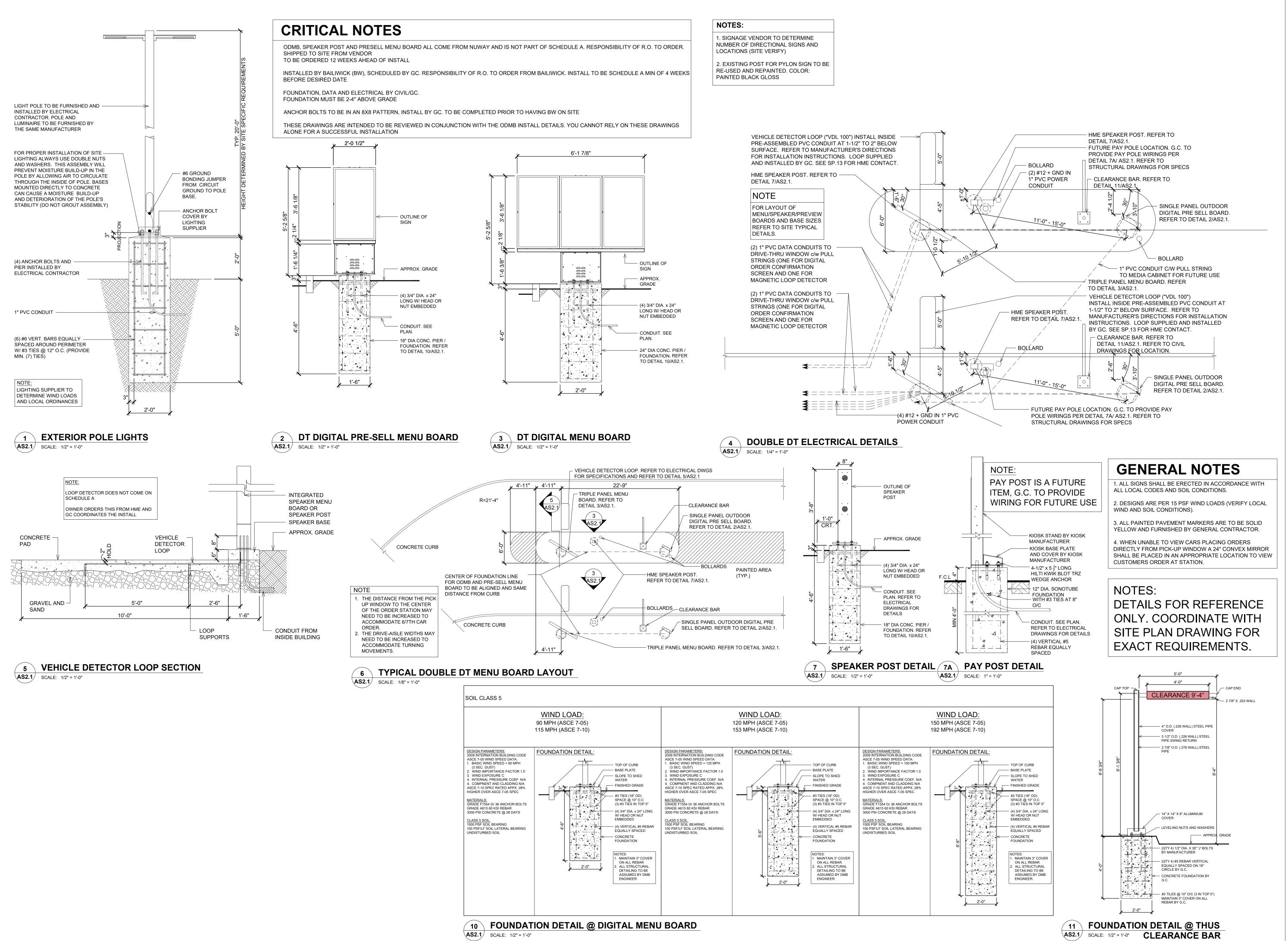
ARCHITECTURAL

SITE PLAN

\_\_\_\_

AS1.1

1 SITE PLAN
AS1.1 SCALE: 1/16" = 1'-0"



DRAWN BY

ISSUE DATE

LRK

CHECKED BY

APPROVED BY AMD/MAR

07/12/2022

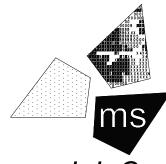
ISSUE DESCRIPTION # DATE 07/12/22 PERMIT SET

REVISIONS

# DATE DESCRIPTION

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

SHEET TITLE: MENU SIGN DETAILS DRIVE-THRU

SHEET:

AS2.1

# TIM HORTONS

# 19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

# EASTPOINTE | Silver | Silver

SURVEY	1 OF 1
SITE DEMOLITION PLAN	C-3.0
SITE DIMENSION PLAN	C-4.0
SITE GRADING AND DRAINAGE PLAN	C-5.0
SITE UTILITY PLAN	C-6.0
SITE NOTES AND DETAILS	C-7.0
SITE NOTES AND DETAILS	C-7.1
SITE NOTES AND DETAILS	C-7.2
SITE NOTES AND DETAILS	C-7.3
SITE NOTES AND DETAILS	C-7.4
SWPPP PLAN	C-8.0
SWPPP NOTES & DETAILS	C-9.0
LANDSCAPE PLAN	L-1.1
SITE SPECIFICATIONS AND LANDSCAPE NOTES	SD500
PHOTOMET PLAN	1 OF 1

**SHEET INDEX** 

COVER SHEET

C-1.0

# **LEGEND**

EXISTING	PROPOSED	DESCRIPTION
	LOD LOD	- CONSTRUCTION LIMITS
P/L P/L		BOUNDARY LINE
ESMT ESMT		EASEMENT
X		FENCE
<b>\$</b>	曱	LIGHT POLE
Q	·	UTILITY POLE
OE OE		OVERHEAD ELECTRIC LINE
——— UE ———— UE ————	——— UE ———— UE ———	UNDERGROUND ELECTRIC LINE
	FR	ELECTRICAL STRUCTURE
	UT UT	UNDERGROUND TELECOMMUNICATION LINE
——— GAS———— GAS———		GAS LINE
<b>©</b>		GAS METER
W	w	- WATER LINE
⊗ W ⋈	⊕ ⋈	WATER STRUCTURE
X	**	FIRE HYDRANT
— — SAN — — SAN — — SAN —	SAN SAN	- SANITARY LINE
S ⊕	S • <sup>co</sup>	SANITARY STRUCTURE
	00	SANITARY GREASE TRAP
ST ST	ST ST	- STORM LINE
		STORM STRUCTURE
	RD	ROOFDRAIN / UNDERDRAIN
—— —— —— —— ——— ——————————————————————	950	- CONTOUR
×950.00 EX. 949.50 EX.	×950.00 949.50	TOP OF CURB TOP OF PAVEMENT
949.30 EX. 950.00 EX.	×950.00	FINISHED GRADE SPOT ELEVATION
	_1.00%	GRADE SLOPE
	<u>HP HP</u>	HIGH POINT
		SEEDING/LANDSCAPE AREA
		CONCRETE
		HEAVY DUTY ASPHALT PAVEMENT
		HEAVY DUTY CONCRETE PAVEMENT
		ROCK AREA
	+ + + + + + + + + + + + + + + + + + + +	PERVIOUS CONCRETE

# **OWNER**

TIM HORTONS US,
RESTAURANT BRANDS INTERNATIONAL INC.
5707 BLUE LAGOON DR
MIAMI, FL 33126
PHONE: (614) 791-4200
CONTACT: NICOLAS HENRICH
EMAIL: nhenrich@rbi.com

# **ENGINEER**

USGS GROSSE POINTE 7.5' QUADRANGLE

MICHIGAN - WAYNE COUNTY 1" = 2000'

Mosure L.L.C.
2221 SCHROCK RD
COLUMBUS, OH 43229-1547
PHONE: (614) 898-7100
CONTACT: IAN AULTMAN
EMAIL: iaultman@msconsultants.com

# **BENCHMARK**

CHX NE BOLT LP BASE:
NORTHING: 349274.3620
EASTING: 13511088.2950
ELEVATION = 594.82
BASIS OF BEARINGS:
GRID NORTH SPC (3103 NY W)
NAD\_83 (2011)(EPOCH:2010.0000)
NAVD 88 FROM GNSS OBSERVATIONS
AND OPUS POST PROCESSING
AVERAGE COMBINED FACTOR: 0.99991677
DISTANCES SHOWN HEREIN ARE GRID DISTANCES

# **SURVEYOR**

NOWAK & FRAUS ENGINEERS 46777 WOODWARD AVE PONTIAC, MI 48342-5032 PHONE: (248) 332-7931 FAX: (248) 332-8257

# FLOOD INFORMATION

THIS PROPERTY IS LOCATED WITHIN AN AREA HAVING ZONE DESIGNATIONS OF "X" BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 26163C0135F, WITH A MAP EFFECTIVE DATE OF OCTOBER 21, 2021 IN WAYNE COUNTY, STATE OF MICHIGAN, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED.

REVISION/DATE/DESCRIPTION

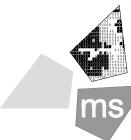
100% SET 05/05/22 PERMIT SET 07/12/22

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MOSURE L.L.C.

engineers, architects, planners 2221 Schrock Road Columbus, OH 43229-1547 p 614.898.7100 f 614.898.7570

PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

COVER SHEET



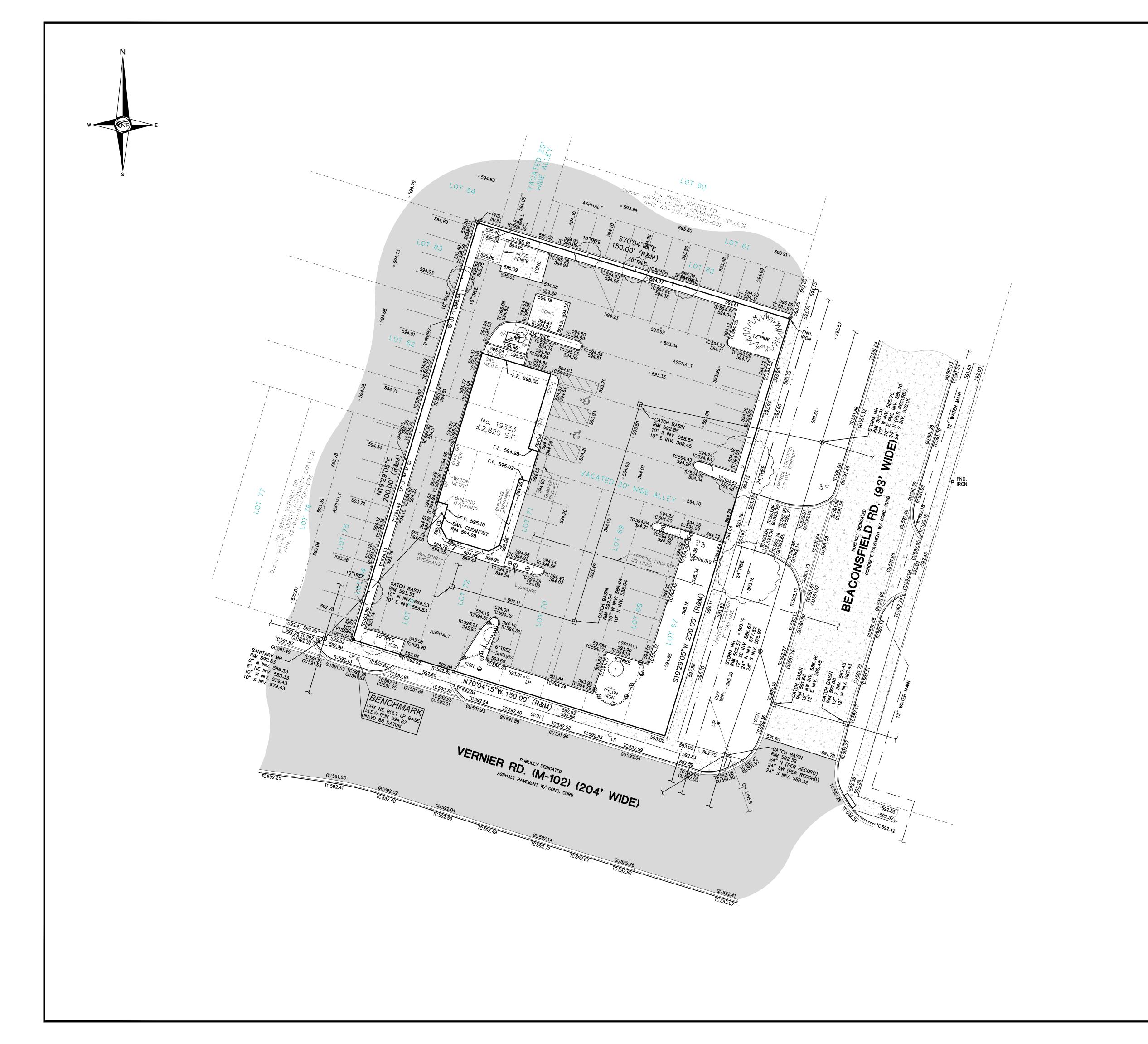
DRAWN BY: JJC

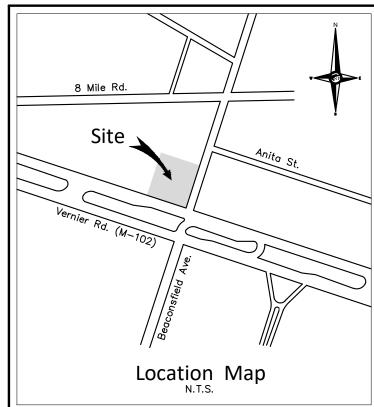
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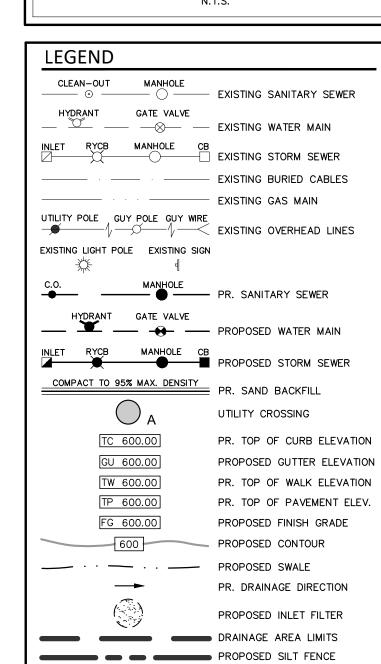
PROJECT NO: 40509-11

DRAWING

C-1.0







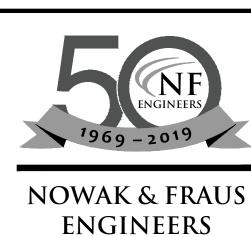
# LEGAL DESCRIPTION

LAND BIENG PART OF PRIVATE CLAIM #F-F, GRATIOT TWP. (NOW CITY OF HARPER WOODS), WAYNE COUNTY, MICHIGAN, BEING MORE

LIMITS OF SOIL DISRUPTION

PART OF LOTS 63 TO 74, ALSO PART OF LOTS 82 AND 83 AND VACATED ALLEYS OF "OBENAUER-BARBER-LAING CO.'S LAFAYETTE SUBDIVISION", AS RECORDED IN LIBER 59 OF PLATS, PAGE 19, WAYNE COUNTY RECORDS, BEGINNING AT THE INTERSECTION OF THE NORTH LINE OF VERNIER RD (204 FEET WIDE) AND THE WEST LINE OF BEACONSFIELD AVE (93 FEET WIDE).

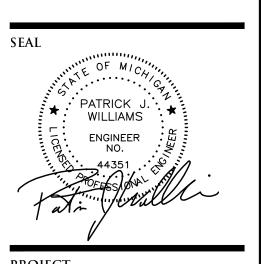
CONTAINING 0.69 ACRES.



**CIVIL ENGINEERS** LAND SURVEYORS

LAND PLANNERS

NOWAK & FRAUS ENGINEERS 46777 WOODWARD AVE. PONTIAC, MI 48342-5032 TEL. (248) 332-7931 FAX. (248) 332-8257 WWW.NOWAKFRAUS.COM



PROJECT Tim Hortons 19353 Vernier Rd.

CLIENT Arkinetics 3723 Pearl Road Cleveland, OH 44109

Contact: Cynthia Ivary Ph: (216) 749-7800

PARTICULARLY DESCRIBED AS:

ALSO DESCRIBED AS BEGINNING AT THE SOUTHEAST CORNER OF LOT 67; THENCE NORTH 70 DEGREES 04 MINUTES 15 SECONDS WEST, 150.00 FEET; THENCE NORTH 19 DEGREES 29 MINUTES 05 SECONDS EAST, 200.00 FEET; THENCE SOUTH 70 DEGREES 04 MINUTES 15 SECONDS EAST, 150.00 FEET; THENCE SOUTH 19 DEGREES 29 MINUTES 05 SECONDS WEST, 200.00 FEET TO THE POINT OF BEGINNING.

PROJECT LOCATION Part of P.C. #F-F City of Harper Woods, Wayne County, Michigan

Boundary / Topographic / Tree Survey



DATE ISSUED/REVISED

# FLOOD HAZARD NOTE

THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE X OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP

# COVID-19 PANDEMIC CONDITION

DUE TO THE UNPRECEDENTED COVID-19 PANDEMIC CONDITION AND RESTRICTIONS THE STANDARD DATA WHICH IS OBTAINED FROM MISS DIG / CALL 811 HAS BEEN RESTRICTED TO CRITICAL
INFRASTRUCTURE ONLY. NFE WILL MAKE EVERY EFFORT TO OBTAIN
CURRENT REFERENCE DATA FROM THE GOVERNING AGENCIES;
HOWEVER, THIS DATA MAY BE PARTIAL OR INCOMPLETE. NFE WILL
ISSUE THIS SURVEY WITH THE BEST AVAILABLE INFORMATION FROM OUR FIELD SURVEY AND OTHER AVAILABLE REFERENCE DATA. NFE WILL NOT BE RESPONSIBLE FOR INCOMPLETE OR PARTIAL DATA PROVIDED BY THIRD PARTY FACILITY OWNERS.

ALL SURVEYS BEING UTILIZED FOR DESIGN PURPOSES BY OTHERS; IT WILL BE THE CLIENT'S OBLIGATION TO UPDATE THE UTILITY INFORMATION AS IT BECOMES AVAILABLE. NFE IS NOT RESPONSIBLE FOR BURIED UTILITIES FOR WHICH PLANS WERE NOT FURNISHED OR CANNOT BE OBSERVED IN THE FIELD.

# MISS DIG / UTILITY DISCLAIMER NOTE

A MISS DIG TICKET NUMBER A003000148, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY. DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON NOVEMBER 23, 2020. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

TOPOGRAPHIC SURVEY NOTES ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE

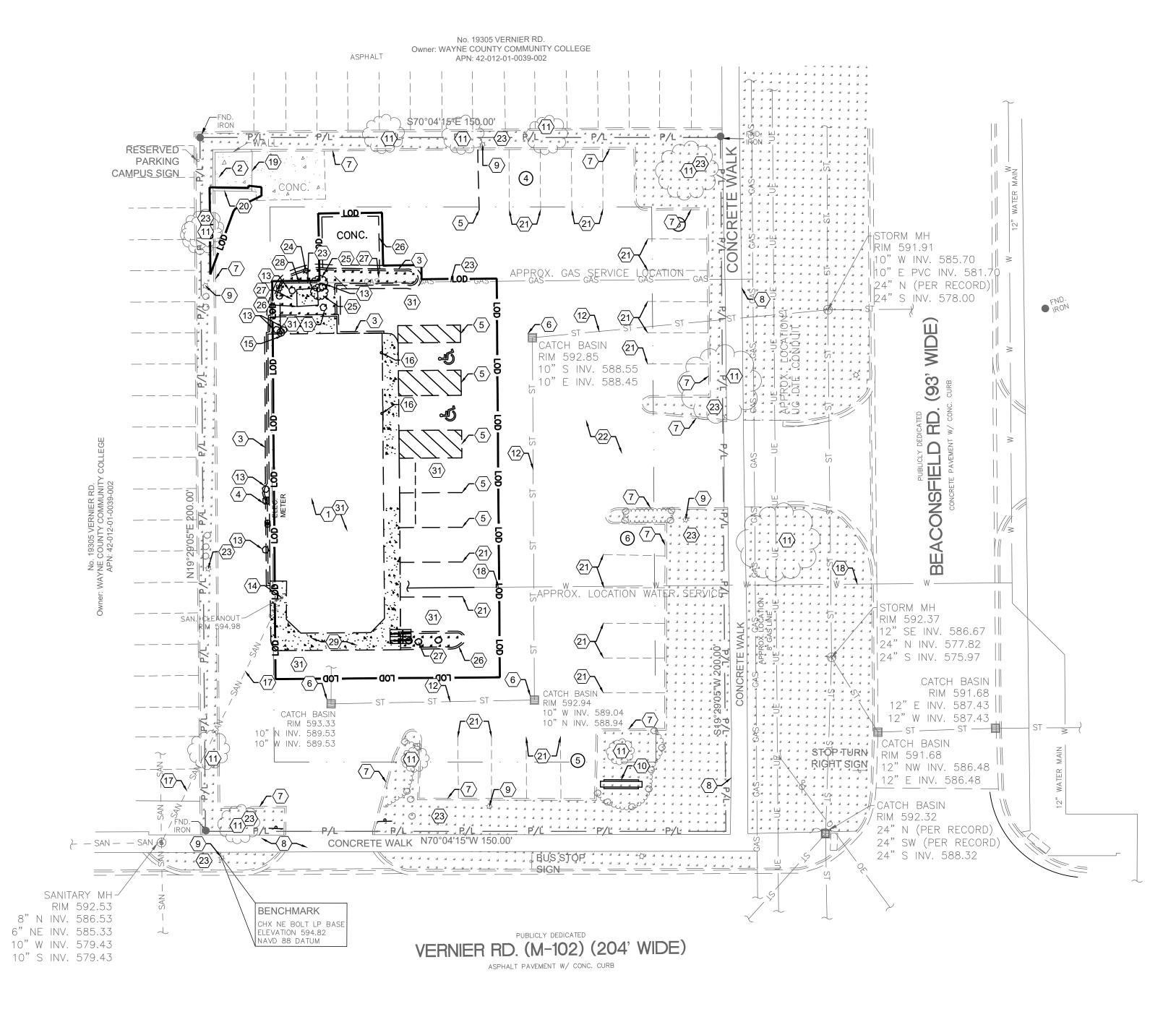
UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

02-16-21 Revised per Owner NO. 26163C0150E BEARING AN EFFECTIVE DATE OF 02-02-2012. DRAWN BY: A. Eizember **DESIGNED BY:** A. Wiseman APPROVED BY: P. Williams DATE: January 18, 2021 SCALE: 1'' = 20'SHEET NO.

M063

**C-01** 



# **LEGEND**

EXIS	TING	DESCRIPTION		
——— OE ——	—— OE ———	OVERHEAD ELECTRIC LINE		
UE	UE	UNDERGROUND ELECTRIC LINE		
		CURB		
——— GAS——	—— GAS———	GAS LINE		
	SAN — SAN —	SANITARY SEWER		
	ST	STORM SEWER		
	W ———	WATER MAIN		
		PAVEMENT MARKINGS		
——— ESMT——	—— ESMT———	EASEMENT		
LOD	— LOD ——	CONSTRUCTION LIMITS		
		BUILDING OUTLINE		
⊖ (		SANITARY STRUCTURE		
		STORM STRUCTURE		
₩ (W		WATER STRUCTURE		
Ž,	7	FIRE HYDRANT		
3	9	GAS METER		
X,	X	LIGHT POLE		
>	2	UTILITY POLE		
	3	TREES AND SHUBBERY		
[0	<u>a</u>	ELECTRIC METER		
(		BOLLARD		
Δ Δ	40~	CONCRETE PAVEMENT		
, 4				

**GRASS/LANDSCAPE** 

# **GENERAL NOTES:**

- A. ALL EXISTING CONDITIONS, TOPOGRAPHY, UTILITIES AND PROPERTY INFORMATION ARE TAKEN FROM A SURVEY OF LAND SITUATED IN THE CITY OF HARPER WOODS, COUNTY OF WAYNE AND STATE OF MICHIGAN, BY SURVEYOR: NOWAK & FRAUS ENGINEERS, 46777 WOODWARD AVE., PONTIAC, MI 48342, PHONE: (248) 332-7931. B. AT START OF PROJECT AND PRIOR TO DEMOLITION OF EXISTING CONDITIONS, CONTRACTOR SHALL BE IN CONTACT WITH ADJACENT PROPERTY OWNERS, CITY REPRESENTATIVE, UTILITY REPRESENTATIVE, AND OWNER REPRESENTATIVE TO COORDINATE DEMOLITION TIMING.
- C. CONTRACTOR TO REMOVE AND DISPOSE OF ALL DEBRIS AND OTHER MATERIALS RESULTING FROM DEMOLITION AND CONSTRUCTION OPERATIONS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS GOVERNING SUCH
- D. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION PHASES OF THIS PROJECT. CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR DAMAGE TO NEIGHBORING PROPERTIES OCCURRING AS A RESULT OF CONSTRUCTION ACTIVITIES.
- E. ALL EXISTING UTILITIES ARE SHOWN HEREIN AS REFERENCE ONLY AND ARE BASED ON RECORD OF THE VARIOUS UTILITY COMPANIES, A FIELD SURVEY AND EXISTING PLANS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS OF ALL UTILITIES PRIOR TO DEMOLITION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION.
- F. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HOURS BEFORE CONSTRUCTION IS TO START, TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH) SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES WHEN EXCAVATION IS AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION.
- G. CONTRACTOR SHALL CONFINE ALL STOCKPILING OF DEMOLITION MATERIAL TO WITHIN THE LIMITS OF THE SUBJECT PROPERTY.

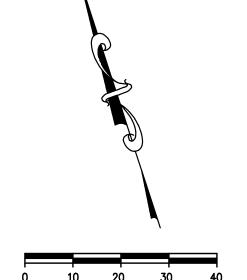
NOTE: CONTRACTOR SHALL SALVAGE THE EXISTING ELECTRIC PANELS DURING THE DEMO OF THE BUILDING. NOTIFY THE ENGINEER WHEN THE PANELS HAVE BEEN REMOVED, DOCUMENTING THEIR TYPE AND CONDITION.

# **KEYED NOTES:**

- EXISTING ONE-STORY BUILDING AND FOUNDATION TO BE REMOVED AND
  - EXISTING DUMPSTER TO REMAIN.
- EXISTING CONCRETE CURB TO BE REMOVED AND DISPOSED OF.
- EXISTING ELECTRIC METER TO BE REMOVED AND DISPOSED OF.
- EXISTING PAVEMENT MARKINGS TO BE REMOVED (TYP.)
- EXISTING INLETS TO REMAIN.
- EXISTING CONCRETE CURB TO REMAIN.
- EXISTING CONCRETE SIDEWALK TO REMAIN.
- EXISTING LIGHTPOLE TO REMAIN. FIXTURES TO BE REPLACED, SEE LIGHTING
- EXISTING PYLON SIGN TO BE REPLACED AND DISPOSED OF. BASE TO
- EXISTING TREE TO REMAIN (TYP.).
- EXISTING STORM LINE TO REMAIN.
- EXISTING BOLLARDS TO BE REMOVED AND DISPOSED OF (TYP).
- EXISTING CLEANOUT TO REMAIN.
- EXISTING GAS METER TO REMAIN.
- ADA PARKING SIGN TO BE REMOVED AND REPLACED.
- EXISTING SANITARY SEWER LINE TO REMAIN. CONTRACTOR TO VERIFY LOCATION IN THE FIELD.
- EXISTING WATER LINE PER ARCHITECTURAL AS-BUILT TO REMAIN.
- CONTRACTOR TO VERIFY LOCATION IN THE FIELD.
- DUMPSTER WOOD FENCING TO REMAIN.
- EXISTING PAVEMENT MARKINGS TO REMAIN (TYP.).

EXISTING DUMPSTER ENCLOSURE TO REMAIN.

- EXISTING ASPHALT TO REMAIN.
- EXISTING GAS LINE TO REMAIN.
- EXISTING LIGHTPOLE TO BE RELOCATED.
- EXISTING TREE TO BE REMOVED AND DISPOSED OF.
- EXISTING CONCRETE TO BE REMOVED AND DISPOSED OF.
- EXISTING LANDSCAPING TO BE REMOVED AND DISPOSED OF.
- EXISTING GAS LINE TO BE REMOVED AND DISPOSED OF.
- EXISTING CONCRETE SIDEWALK TO BE REMOVED AND DISPOSED OF.
- EXISTING BUMPER BLOCKS TO BE REMOVED AND DISPOSED OF.
- EXISTING PAVEMENT WITHIN CONSTRUCTION LIMITS TO BE REMOVED AND



SCALE: 1"=20'



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REVISION/DATE/DESCRIPTION

PERMIT SET 07/12/22

05/05/22

100% SET

NOTICE



MOSURE L.L.C.

engineers, architects, planners 2221 Schrock Road Columbus, OH 43229-1547 p 614.898.7100 f 614.898.7570

PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225

WAYNE COUNTY

SHEET TITLE

SITE DEMOLITION PLAN



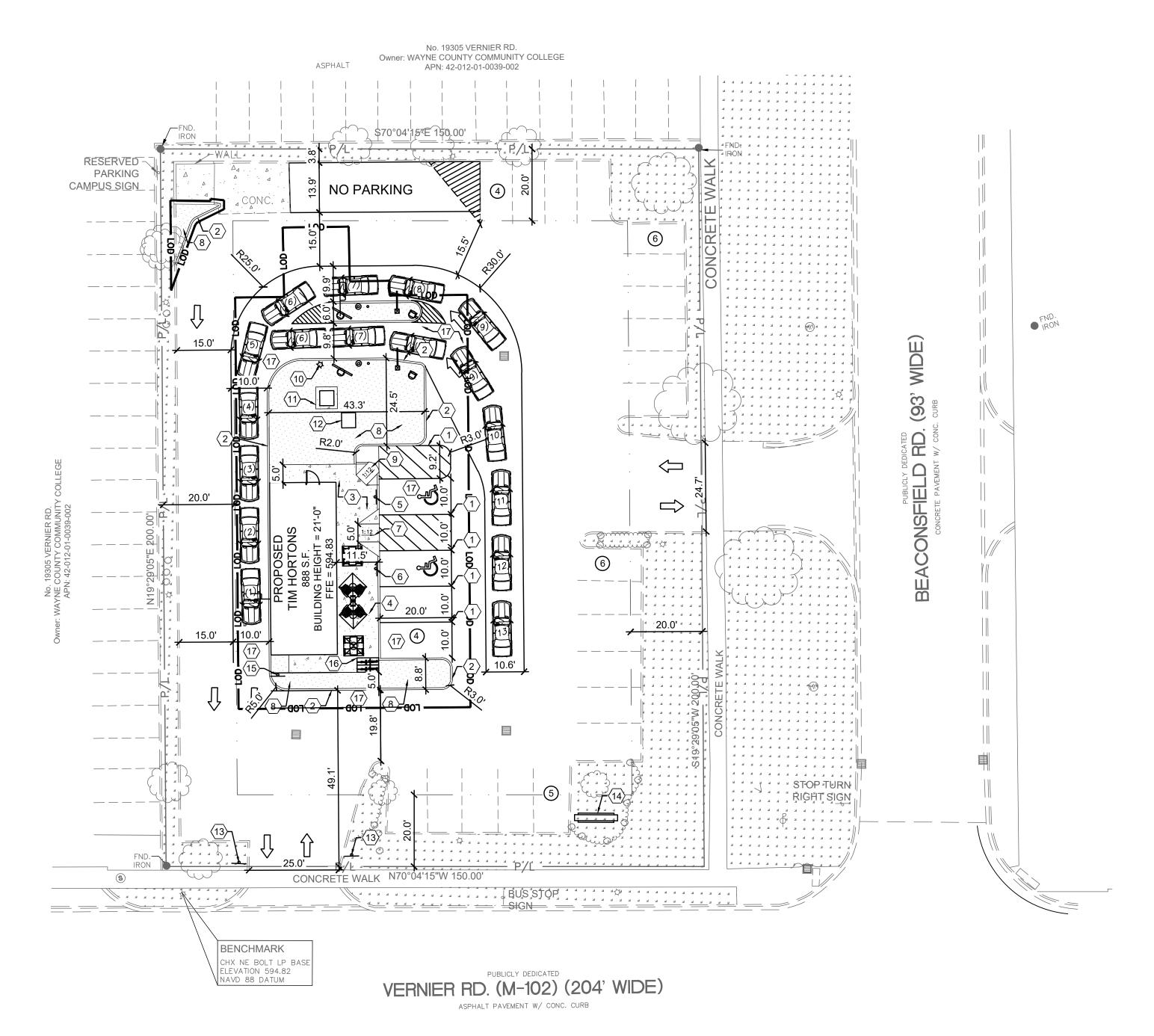
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40509-11

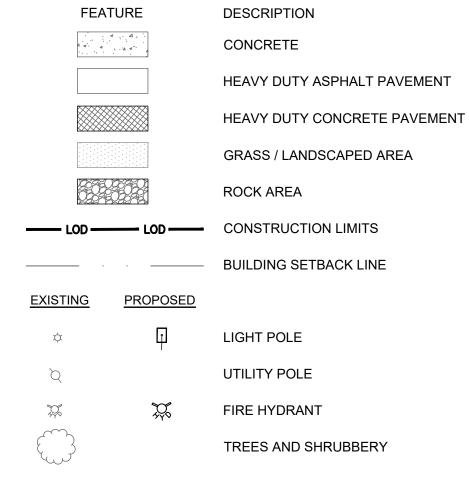
PROJECT NO:

DRAWING

C - 3.0



# **LEGEND**



PARKING DATA				
	REQUIRED*	PROVIDED		
STANDARD	9	23		
HANDICAP**	1	2		
TOTAL	10	25		
* 1 SPACE FOR EVERY 100 S.F. OF FLOOR AREA. MINIMUM OF 25 SPACES.				
** H.C. SPACES: 1 PER 2	5 STANDARD SP.	ACES		

SITE DATA					
	SQ. FT.	ACRES	PERCENT		
TOTAL SITE AREA	30,056	0.69	-		
BUILDING	888	0.02	3.0		
PAVEMENT AND WALK	1,004	0.02	3.3		
EXISTING PERVIOUS	5,302	0.12	17.6		
EXISTING IMPERVIOUS	24,754	0.57	82.4		
TOTAL PROPOSED PERVIOUS	6,438	0.15	21.4		
TOTAL PROPOSED IMPERVIOUS	23,618	0.54	78.6		

# **GENERAL NOTES:**

- ALL EXISTING CONDITIONS, TOPOGRAPHY, UTILITIES AND PROPERTY INFORMATION ARE TAKEN FROM A SURVEY OF LAND SITUATED IN THE CITY OF HARPER WOODS, COUNTY OF WAYNE AND STATE OF MICHIGAN, BY SURVEYOR: NOWAK & FRAUS ENGINEERS, 46777 WOODWARD AVE., PONTIAC, MI 48342, PHONE: (248) 332-7931.
- PROVIDE SMOOTH TRANSITION FROM NEWLY PAVED AREAS TO EXISTING PAVED AREAS AS NECESSARY. THE EXISTING EDGE OF PAVEMENT SHALL BE FREE OF ALL LOOSE DEBRIS AT ALL AREAS WHERE PROPOSED PAVEMENT MEETS EXISTING PAVEMENT. THE EDGE OF EXISTING ASPHALT PAVEMENT SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL IN ALL AREAS WHERE NEW ASPHALT PAVEMENT IS INDICATED TO JOIN
- ALL DIMENSIONS TO FACE OF CURB AND/OR EDGE OF PAVEMENT UNLESS OTHERWISE
- REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS AND ADDITIONAL
- ALL CONSTRUCTION METHODS AND MATERIALS MUST CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE FEDERAL, STATE, COUNTY, CITY OR LOCAL REQUIREMENTS, WHICHEVER HAS JURISDICTION.
- ALL EXCAVATED AREAS TO BE SEEDED AND/OR SODDED AFTER FINISH GRADING UNLESS OTHERWISE NOTED. ALL NEWLY SEEDED/SODDED AREAS SHALL HAVE A MINIMUM OF 4" OF TOPSOIL. HOLD SOIL DOWN 1" FROM PAVEMENT ELEVATION. CONTRACTOR TO SUPPLY STRAW MULCH WHERE GRASS SEED HAS BEEN PLANTED.
- THERE IS NO INCREASE IN THE IMPERVIOUS COVER FOR THE PROJECT. THEREFORE, THERE WILL BE NO NEED FOR ADDITIONAL STORMWATER MANAGEMENT FACILITIES REQUIRED FOR THE PROJECT. ALL EXISTING INLETS AND RELATED STORMWATER PIPING SHALL REMAIN AND BE UTILIZED FOR THE PROPOSED PROJECT.
- ALL EXISTING LIGHT POLES SHALL BE UTILIZED IN THE PROPOSED CONDITION. ALL NEW LIGHT FIXTURES SHALL BE THE 90 DEGREE CUT-OFF TYPE.

# **KEYED NOTES:**

- PROPOSED PAINTED PARKING STRIPING (TYPICAL). ALL PARKING STRIPES ARE TO BE 4" PAINTED WHITE, UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS OR SPECIFICATIONS.
- PROPOSED 6" CONCRETE CURB. SEE DETAIL ON SHEET C-7.0.
- PROPOSED CONCRETE SIDEWALK. SEE DETAIL ON SHEET C-7.0.
- PROPOSED CONCRETE PATIO. SEE DETAIL ON SHEET C-7.0.
- GENERAL CONTRACTOR TO PROVIDE AND INSTALL (1) POLE-MOUNTED HANDICAP PARKING SIGNS. SIGNS PROVIDED BY CONTRACTOR TO MEET LOCAL REQUIREMENTS, SEE DETAIL ON SHEET C-7.0.
- GENERAL CONTRACTOR TO PROVIDE AND INSTALL (1) POLE-MOUNTED HANDICAP VAN PARKING SIGNS. SIGNS PROVIDED BY CONTRACTOR TO MEET LOCAL REQUIREMENTS, SEE DETAIL ON SHEET C-7.0.
- PROPOSED CURB RAMP. SEE DETAIL ON SHEET C-7.0
- PROPOSED GRASS AREA.
- PROPOSED LOADING RAMP.
- PROPOSED RELOCATED LIGHT POLE.
- PROPOSED RELOCATED TRANSFORMER
- PROPOSED HOT BOX.
- PROPOSED DO NOT ENTER SIGN ON EXISTING BASE.
- PROPOSED PYLON SIGN ON EXISTING BASE.
- PROPOSED DO NOT ENTER SIGN.
- PROPOSED BIKE RACK.
- PROPOSED NEW ASPHALT PAVEMENT



REVISION/DATE/DESCRIPTION

PERMIT SET 07/12/22

05/05/22

100% SET

NOTICE

NEERING DRAWING IS GIVEN IN

ONLY PURSUANT TO THE AGREE-

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OR DUPLICATION MAY BE MADE

WITHOUT PRIOR WRITTEN CONSENT

OF THE ARCHITECT. ALL COMMON

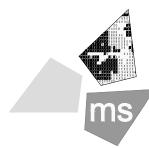
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CONFIDENCE AND SHALL BE USED



MOSURE L.L.C.

engineers, architects, planners 2221 Schrock Road Columbus, OH 43229-1547 p 614.898.7100 f 614.898.7570

PROJECT

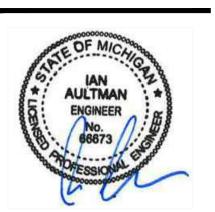
TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225

WAYNE COUNTY

SHEET TITLE

PROPOSED SITE PLAN



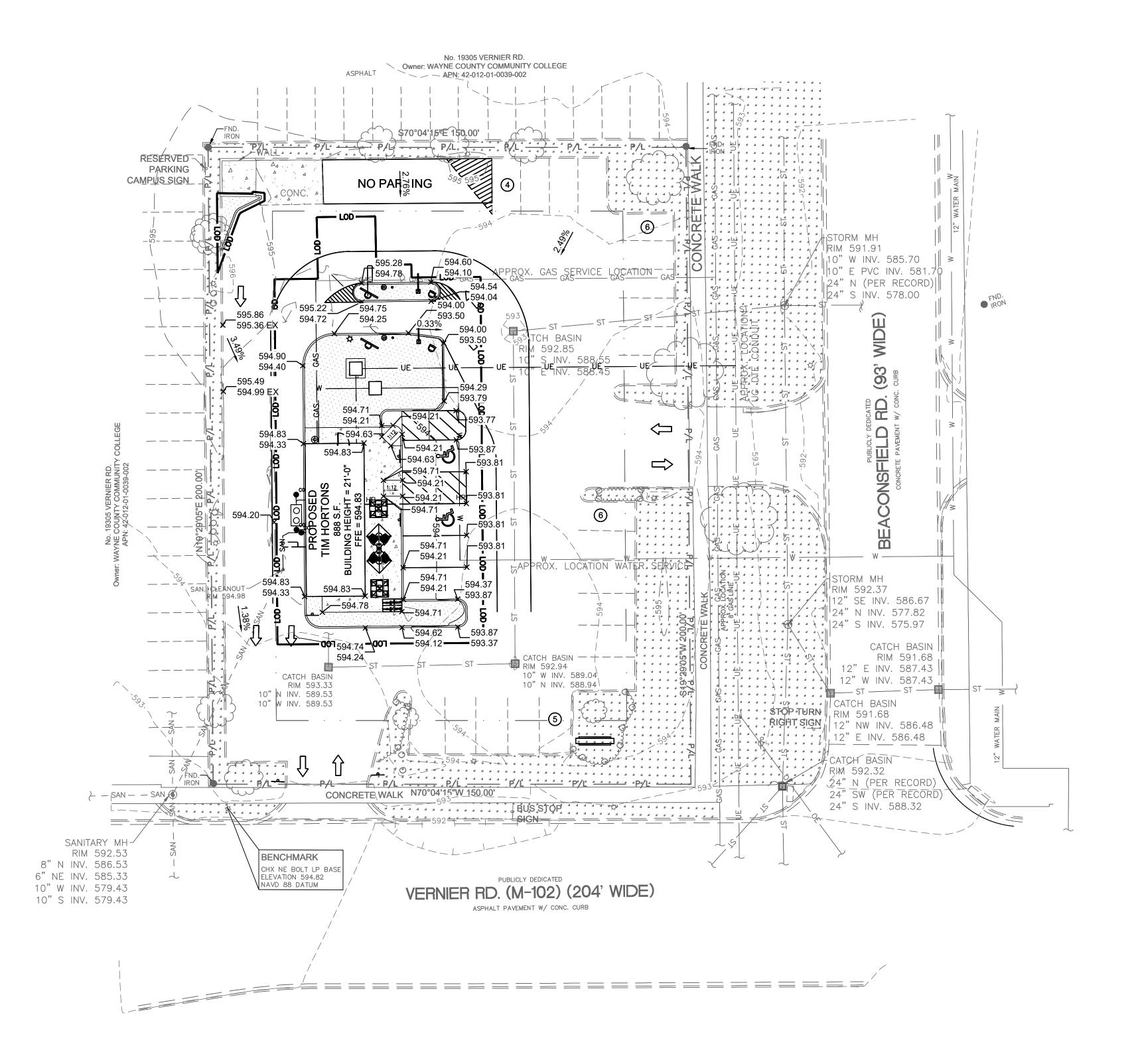
DRAWN BY: CHECKED BY: 40509-11

DRAWING

PROJECT NO:

C-4.0

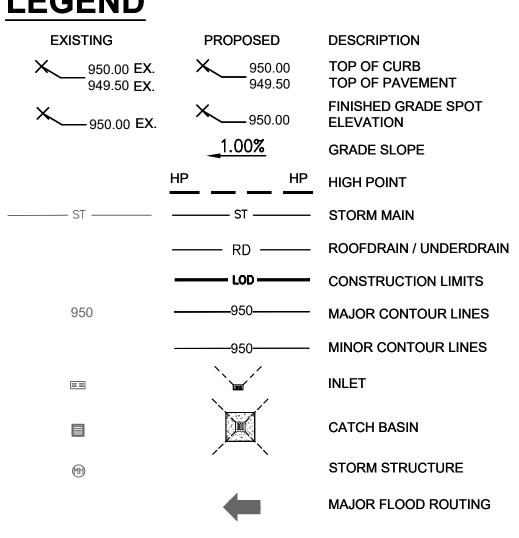
SCALE: 1"=20'



# **GENERAL NOTES:**

- BY GRAPHICAL PLOTTING ONLY, THIS SITE IS SITUATED IN FEMA FLOOD ZONE X PER FIRM #39049C0152K, EFFECTIVE JUNE 17, 2008.
- ALL EXISTING CONDITIONS, TOPOGRAPHY, UTILITIES AND PROPERTY INFORMATION ARE TAKEN FROM A SURVEY OF LAND SITUATED IN THE CITY OF HARPER WOODS, COUNTY OF WAYNE AND STATE OF MICHIGAN, BY SURVEYOR: NOWAK & FRAUS ENGINEERS, 46777 WOODWARD AVE., PONTIAC, MI 48342, PHONE: (248) 332-7931.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION, AND IS RESPONSIBLE FOR ANY DAMAGE TO THEM DURING CONSTRUCTION
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- ALL CONSTRUCTION METHODS AND MATERIALS MUST CONFORM TO CURRENT CITY OF DAYTON CONSTRUCTION AND MATERIALS SPECIFICATIONS MANUAL.
- ALL EXCAVATED AREAS TO BE SEEDED AND/OR SODDED AFTER FINISH GRADING UNLESS OTHERWISE NOTED. ALL NEWLY SEEDED/SODDED AREAS SHALL HAVE A MINIMUM OF 4" OF TOPSOIL. HOLD SOIL DOWN 1" FROM PAVEMENT ELEVATION. CONTRACTOR TO SUPPLY STRAW MULCH WHERE GRASS SEED HAS BEEN PLANTED.
- THE ABOVE DISTURBANCE IS UNDER THE MINIMUM REQUIREMENTS FOR DETENTION OF CREATING 10,000 SQ.FT. OR LESS OF DISTURBANCE AND/OR NOT CREATING MORE THAN 2,000 SQ.FT. OF NEW, NET IMPERVIOUS AREA. HOWEVER, FOR ANY FUTURE DEVELOPMENTS ON THIS SITE, THE ABOVE DISTURBANCE WILL BE ADDED TO ANY NEW DISTURBANCE PROPOSED, AND HENCE ALL DEVELOPMENT WILL BE CUMULATIVE.

# **LEGEND**



REVISION/DATE/DESCRIPTION

100% SET 05/05/22 PERMIT SET 07/12/22

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MOSURE L.L.C.

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PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

SITE GRADING PLAN

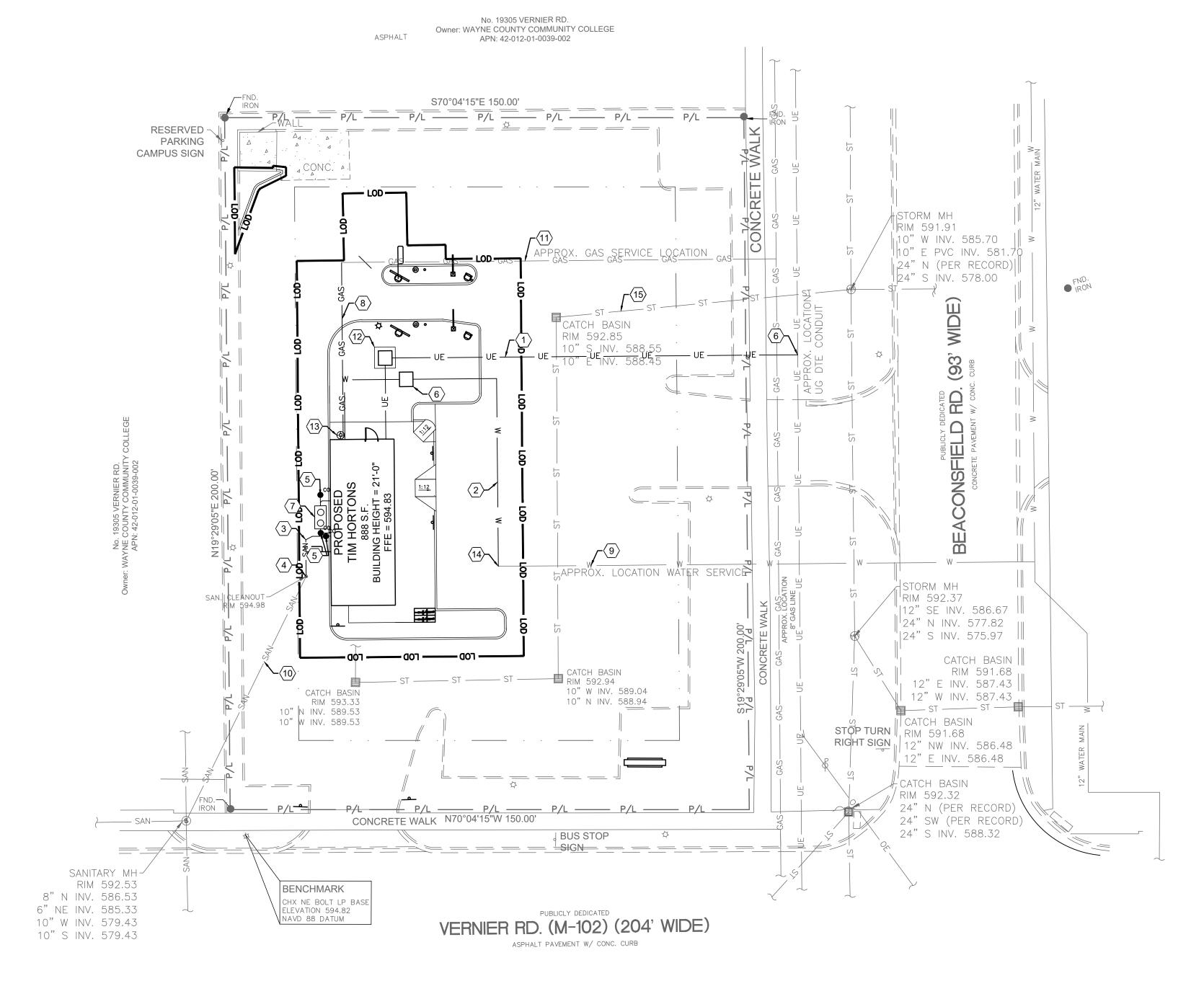


DRAWN BY: CHECKED BY: 40509-11 PROJECT NO:

DRAWING

C-5.0

SCALE: 1"=20'



# **GENERAL NOTES:**

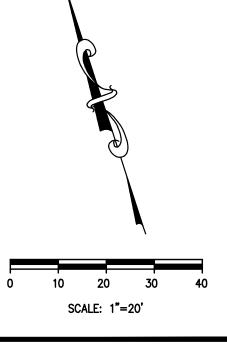
- A. ALL EXISTING UTILITIES, ARE TAKEN FROM SURVEY AND DO NOT NECESSARILY REPRESENT ALL UNDERGROUND UTILITIES ADJACENT TO OR UPON PREMISES SHOWN ON PLAN.
- B. CONTRACTOR RESPONSIBLE FOR MAINTAINING A MIN. COVER OF 4' OVER PROPOSED WATER SERVICE.
- C. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION, AND IS RESPONSIBLE FOR ANY DAMAGE TO THEM DURING CONSTRUCTION.
- D. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A MINIMUM VERTICAL CLEARANCE OF 18" AND HORIZONTAL CLEARANCE OF 10' BETWEEN WATERLINE AND SANITARY SEWER LINES.
- E. ALL CLEANOUTS IN PAVEMENT AREAS ARE TO BE H-20 RATED. CLEANOUTS SHALL COMPLY WITH APPLICABLE STANDARD DRAWINGS.
- F. CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING UTILITY LINES. PROPOSED UTILITIES SHOULD TIE INTO EXISTING UTILITIES AT A POINT INDICATED ON PLANS. COORDINATE UTILITY CONNECTIONS WITH UTILITY OWNERS.
- G. SEE MEP PLANS FOR CONTINUATION OF UTILITY LINES INTO BUILDING.
- H. STORM SEWER SHOWN HERE FOR REFERENCE ONLY.
- I. CONTRACTOR TO COORDINATE NEW LIGHT POLE FIXTURE CONNECTIONS WITH ARCHITECTURAL AND ELECTRICAL PLANS.
- J. SEE PLUMBING PLANS FOR CONTINUATION OF UTILITY LINES INTO BUILDING. PLUMBING CONTRACTOR IS RESPONSIBLE TO A POINT 5' OUTSIDE OF BUILDING.
- K. SEE ELECTRICAL PLANS FOR DETAILED CONDUIT LAYOUT.
- L. ALL WATER SERVICE TO BE PER ALL GOVERNING CODES. CONTRACTOR MUST VERIFY REQUIREMENTS OF LOCAL CODES, UTILITY COMPANY, AND GOVERNING OFFICIALS. INCLUDE IN BASE BID ALL ADDITIONAL VALVES, PIPES, STRUCTURES, ETC. THAT WILL BE REQUIRED. SEE PLUMBING PLANS FOR CONTINUATION INTO BUILDING
- M. WATER METER/BACKFLOW LOCATED IN THE BUILDING. SEE MECHANICAL/PLUMBING PLANS.
- N. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES DURING CONSTRUCTION AND ALL DAMAGE SHALL BE REPAIRED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER OR CITY.
- O. ALL CONSTRUCTION METHODS AND MATERIAL MUST CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE FEDERAL, STATE, COUNTY, CITY OR LOCAL REQUIREMENTS, WHICHEVER HAS JURISDICTION.
- P. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS TO NOT CAUSE DAMAGE.
- Q. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HOURS BEFORE CONSTRUCTION IS TO START, TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH) SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATION IS AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION.

# **KEYED NOTES:**

- PROPOSED PRIMARY UNDERGROUND ELECTRICAL SERVICE. CONTRACTOR TO
- COORDINATE CONNECTION WITH UTILITY OWNER.
- PROPOSED TYPE K COPPER 1.5" DOMESTIC WATER SERVICE LINE. INCLUDE IN BASE BID ALL VALVES, PIPING, STRUCTURES, ETC. THAT WILL BE REQUIRED. SEE MEP PLANS FOR CONTINUATION INTO BUILDING.
- PROPOSED 6" SANITARY SEWER. ASTM D3034, SDR-26. SEWER TO HAVE MINIMUM SLOPE PER HARPER WOODS DESIGN STANDARDS. CONTRACTOR TO MAINTAIN A MINIMUM OF 48" OF COVER OVER SEWER LINES.
- PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING CLEANOUT PER CITY OF HARPER WOODS STANDARDS.
- PROPOSED SANITARY CLEANOUT (TYP.). SEE DETAIL ON SHEET C-7.0.
- 6 PROPOSED ELECTRICAL CONNECTION.
- 7 PROPOSED GREASE TRAP. SEE PLUMBING PLANS FOR DETAILS.
- 8 PROPOSED GAS LINE.
- (9) EXISTING DOMESTIC WATER LINE.
- (10) EXISTING 6" SANITARY SEWER LINE.
- EXISTING GAS LINE.
- PROPOSED ELECTRICAL TRANSFORMER.
- 13 PROPOSED GAS METER.
- PROPOSED CONNECTION TO EXISTING WATERLINE
- (15) EXISTING 10" STORM SEWER LINE.

# **LEGEND**

EXISTING	PROPOSED	DESCRIPTION
	LOD	CONSTRUCTION LIMITS
ST ST	ST ST	STORM LINE
	——— RD ———	ROOFDRAIN/UNDERDRAIN
SAN	SAN	SANITARY LINE
•	● <sup>co</sup>	SANITARY CLEANOUT
<b>(S</b> )	S	SANITARY MANHOLE
	00	SANITARY GREASE TRAP
W	w	WATER LINE
***	**	FIRE HYDRANT
W	•	WATER METER
——— UE ———	UE	UNDERGROUND ELECTRIC LINE
	FR	ELECTRIC TRANSFORMER
	UT	UNDERGROUND TELEPHONE LINE
Þ		UTILITY POLE
	曱	LIGHT POLE



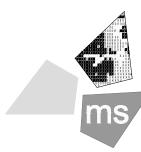
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PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225

WAYNE COUNTY

SHEET TITLE

SITE UTILITY PLAN



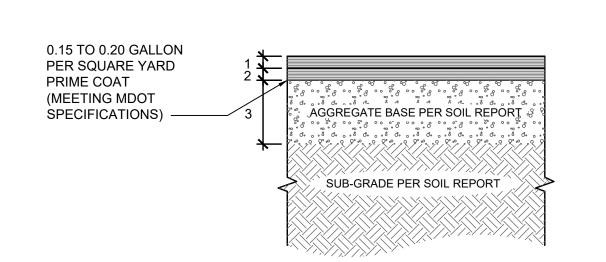
DRAWN BY: JJC

CHECKED BY: SEG

PROJECT NO: 40509-11

DRAWING

C-6.0



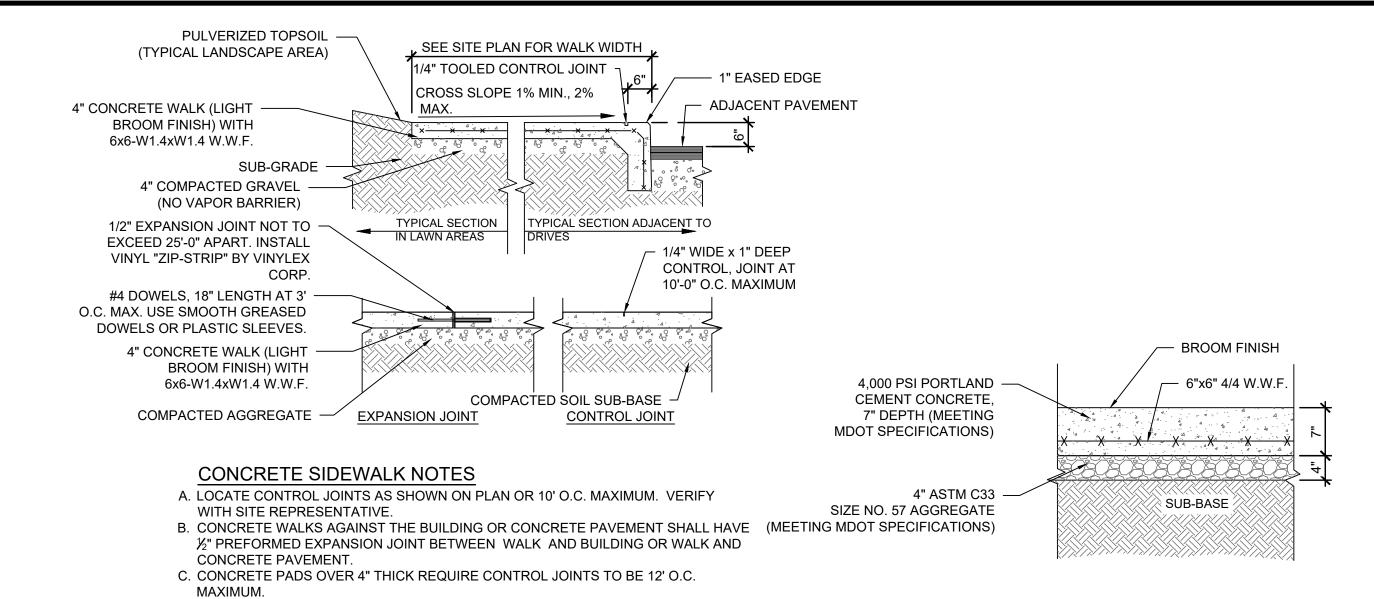
## **PAVING**

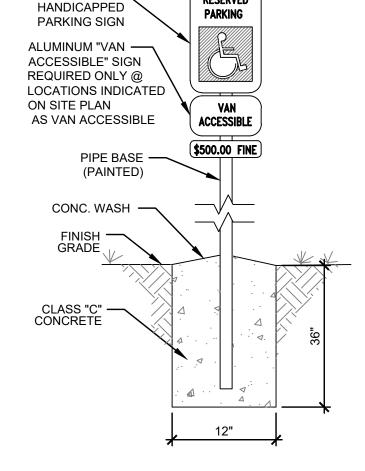
1 = 1.5" SURFACE COURSE (MEETING MDOT SPECIFICATIONS) 2 = 2.5" INTERMEDIATE COURSE (MEETING MDOT SPECIFICATIONS) 3 = 8" OF AGGREGATE BASE (MEETING MDOT SPECIFICATIONS)

A. SUB-GRADE COMPACTION: CBR=3

- B. BASE COURSE TO CONFORM TO MDOT STANDARDS FOR BASE COURSE COMPACTED TO 100% OF THE MODIFIED PROCTOR
- (ASTM D-1557) MAXIMUM DRY DENSITY C. ALL SUB-GRADE AND PAVEMENT OPERATIONS AND MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS OF THE SOILS REPORT

A ASPHALT PAVING SECTION C7.0 N.T.S.





ALUMINUM —

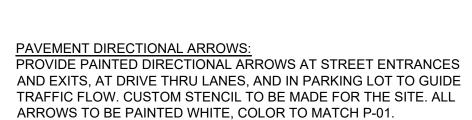
HANDICAP PARKING SIGN

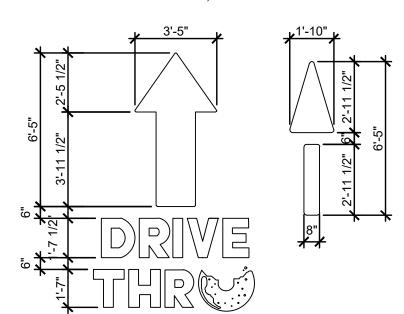
\*\*SIDE FLARES -

SLOPED AT 1:10 MAX.

\*\*SIDE FLARES

SLOPED AT 1:10 MAX.





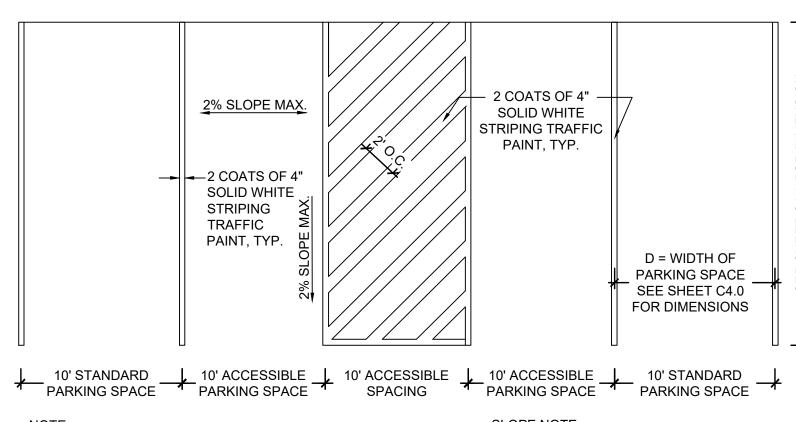
CONSTRUCTION JOINT

SECOND POUR -

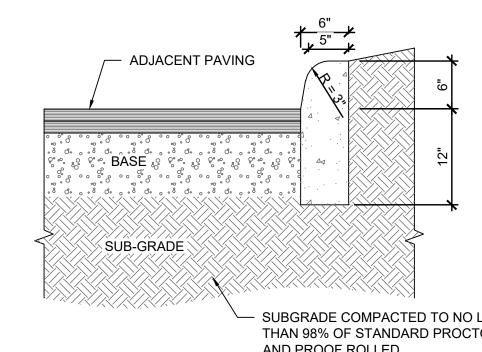
AGGREGATE BASE

(MEETING MDOT

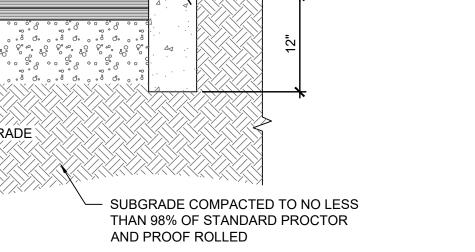
SPECIFICATIONS) FIRST POUR

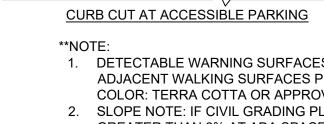


SLOPE NOTE: IF CIVIL GRADING PLAN INDICATES A SEE DIMENSIONAL CONTROL PLAN FOR PARKING DIMENSIONS. DIMENSIONS CROSS SLOPE GREATER THAN 2% AT SHOWN ARE MINIMUM REQUIRED. ADA SPACES, CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER FOR CLARIFICATION AND PLAN REVISION.



C TRASH ENCLOSURE APRON DETAIL C7.0 N.T.S.





**VARIES** 

AT 1:12 MAX.

12% MAX CROSS SLOPE

\*\*RAMP SLOPED

| 2% MAX

CROSS SLOPE

AT 1:12 MAX.

12% MAX **†CROSS SLOPE** 

TYP CURB RAMP ELEVATION

CURB RAMP AT ACCESSIBLE ROUTI

\*\*RAMP SLOPED

AT 1:12 MAX.

← 6" CURB

2% MAX

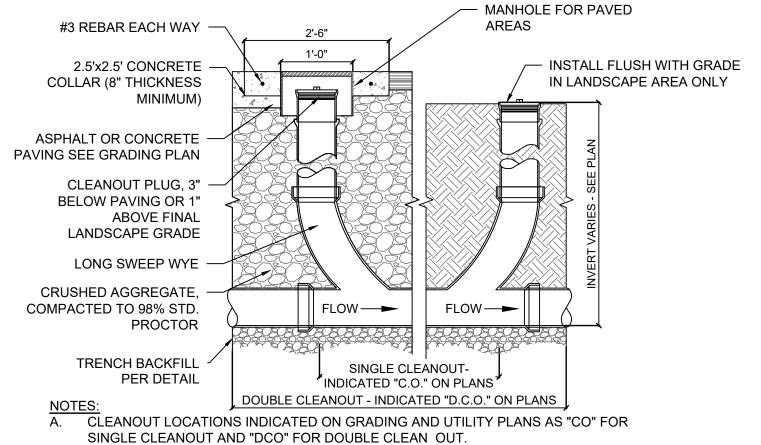
MAX. 1:10 <del>/</del>

AT CURB/

CROSS SLOPE

1. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES PER CURRENT ADA SPECIFICATIONS. COLOR: TERRA COTTA OR APPROVED COLOR BY OWNER. 2. SLOPE NOTE: IF CIVIL GRADING PLAN INDICATES A CROSS SLOPE GREATER THAN 2% AT ADA SPACES, CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER FOR CLARIFICATION AND PLAN REVISION.





A. SUB-GRADE COMPACTION PER SOILS REPORT. B. ALL SUB-GRADE AND PAVEMENT OPERATIONS AND MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS OF THE CURRENT MDOT SPECIFICATIONS.

— 3/4" DOWELS, 14" LENGTH AT 1'-0"

GREASED DOWELS OR PLASTIC

1/4" WIDE x 1/4 PAVEMENT

AT 15'-0" O.C. MAXIMUM

CONFORMING TO ASTM D

APPLY JOINT SEALER

6690, TYPE II

4,000 PSI CONCRETE

SUB-GRADE PER SOILS REPORT

- MOISTURE CONDITIONED

DEPTH DEEP CONTROL JOINT

O.C. MAXIMUM. USE SMOOTH

SLEEVES

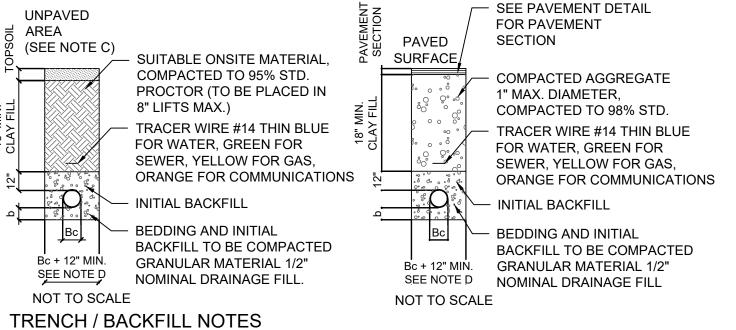
C. ANY CONCRETE WITHIN PUBLIC RIGHT-OF-WAY SHALL MEET MDOT SPECIFICATIONS.

HEAVY DUTY CONCRETE PAVEMENT

PROVIDE CLEANOUTS AS SPECIFIED: ZURN Z-1400 CLEANOUTS IN NON-TRAFFIC AREAS AND SIDEWALKS ZURN-1449 CLEANOUTS IN LANDSCAPED AREAS

ZURN Z-1400 HD CLEANOUTS IN TRAFFIC AREAS WITH A "SERVICE STATION" TYPE MANHOLE, OPW #104 A12 - DOVER CORP./OPW DIV.





A. BEDDING THICKNESS UNDER PIPE BARREL b, SHALL BE 1/8 OF Bc; 6" MIN. Bc IS OUTSIDE DIAMETER OF PIPE AT BELL. B. THE HAUNCH AREA OF THE PIPE MUST BE FULLY SUPPORTED; THEREFORE THE BEDDING

MATERIAL SHALL BE HAND PLACED AND COMPACTED UNDER THE PIPE HAUNCH. C. IF UNPAVED AREA IS WITHIN 10' OF PAVEMENT OR STRUCTURE THEN FOLLOW TRENCH GUIDELINES FOR PAVED AREA.

D. PIPE DIAMETER OF 4" OR SMALLER SHALL HAVE A MAXIMUM TRENCH WIDTH OF 12". E. BEDDING AND INITIAL BACKFILL SHALL BE SAND FOR ALL UTILITY CONDUIT CARRYING WATER, ELECTRIC, GAS, AND TELEPHONE.

K TRENCH BACKFILL DETAIL

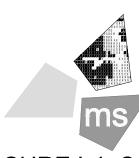


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2221 Schrock Road Columbus, OH 43229-1547 p 614.898.7100 f 614.898.7570

PROJECT

**TIM HORTONS** HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

SITE DETAILS



DRAWN BY: SEG CHECKED BY:

40509-11 PROJECT NO:

DRAWING

# **GENERAL NOTES**

- CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO BID TO DETERMINE THE EXTENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR
- ALL EXISTING MATERIALS TO REMAIN WHICH ARE DAMAGED OR OTHERWISE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE PATCHED OR REPAIRED TO MATCH THE EXISTING ADJACENT MATERIALS, SO THAT THE REPAIR IS IMPERCEPTIBLE.
- DURING THE COURSE OF CONSTRUCTION, IF THE CONTRACTOR UNCOVERS ANY CODE VIOLATION KNOWN TO HIM OR ANY DISCREPANCY WITH THE DESIGN, CONTRACTOR SHALL NOTIFY THE ARCHITECT OF SUCH IMMEDIATELY.
- CONTRACTOR SHALL ASSEMBLE AND INSTALL MATERIALS/ PRODUCTS IN STRICT ACCORDANCE WITH THE MANUF'S RECOMMENDATIONS AND INDUSTRIAL/ASSOCIATION STANDARDS.
- CONTACT ARCHITECT AND COORDINATE WITH TENANT ANY ADDITIONAL SPECIFICATIONS NOT SPECIFIED HEREIN AND/OR CLARIFICATIONS REGARDING THE CONTRACT DOCUMENTS.
- NO CURRENT SURVEY WAS PERFORMED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, IN WRITING, OF ANY DISCREPANCIES OR OMISSIONS TO THE TOPOGRAPHIC INFORMATION. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION (HORIZONTAL/VERTICAL) OF ANY BURIED CABLES, CONDUITS, PIPES, AND STRUCTURES (STORM SEWER, SANITARY SEWER, WATER, GAS, TELEVISION, TELEPHONE, ETC.) WHICH IMPACT THE CONSTRUCTION SITE. THE CONTRACTOR(S) SHALL NOTIFY THE OWNER AND ENGINEER IN WRITING IF ANY DISCREPANCIES ARE FOUND BETWEEN THE ACTUAL CONDITIONS VERSUS THE DATA CONTAINED IN THE CONSTRUCTION PLANS. ANY COSTS INCURRED AS THE RESULT OF NOT CONFIRMING THE ACTUAL LOCATION (HORIZONTAL/VERTICAL) OF SAID CABLES, CONDUITS, PIPES, AND STRUCTURES SHALL BE BORNE BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR(S) SHALL NOTIFY THE OWNER AND ENGINEER IN WRITING IF ANY ERRORS OR DISCREPANCIES ARE FOUND ON THE CONSTRUCTION DOCUMENTS (PS&E), WHICH NEGATIVELY IMPACT THE PROJECT. THE ENGINEER AND OWNER SHALL BE INDEMNIFIED OF PROBLEMS AND/OR COST WHICH MAY RESULT FROM THE CONTRACTOR'S FAILURE TO NOTIFY THE ENGINEER AND OWNER.
- ANY KIND BE SIGNED PRIOR TO RECEIVING AND THOROUGHLY REVIEWING ALL APPROVALS FROM ALL OF THE REGULATORY AUTHORITIES HAVING JURISDICTION OVER THIS PROJECT.

IT IS STRONGLY RECOMMENDED THAT NO CONTRACTUAL AGREEMENT OF

# **BUILDING CODE SUMMARY**

APPLICABLE BUILDING CODE: MICHIGAN BUILDING CODE,

APPLICABLE ELECTRICAL CODE: NATIONAL ELECTRICAL CODE,

2015 EDITION

2017 EDITION

USE GROUP: A2 - ASSEMBLY BUILDING DEPARTMENT PHONE NO: (937) 748-9791

NEW SIGNAGE AREA TO BE ADDED: 0 SQ FT

EXISTING SIGNAGE AREA TO BE REMOVED: 0 SQ FT

PROJECT ADDRESS: 19353 VERNIER RD HARPER WOODS, MI 48225

# SITE NOTES

- ALL DIMENSIONS SHOWN ARE TO FACE OF CURB UNLESS NOTED OTHERWISE. 2. BASES, ANCHOR BOLTS, CONDUIT, AND WIRING FOR ALL SIGNS ARE BY THE GENERAL CONTRACTOR.
- EXISTING MENU BOARDS AND PRE- SALE BOARDS TO BE REMOVED FROM BASES, REMOVED FROM SITE, AND DISPOSED UNLESS DIRECTED BY BAILIWICK, CONDUITS TO BE CAPPED TO PREVENT MOISTURE ENTRANCE.

# UTILITY NOTES

- ALL ELECTRICAL/CONDUIT RUNS ARE SCHEMATIC ONLY. CONDUIT SIZES AND ROUTING PROVIDED BY BAILIWICK.
- IT SHALL BE THE SIGN INSTALLER'S RESPONSIBILITY TO ENSURE THE PROPOSED SIGN LOCATION DOES NOT INTERFERE WITH ANY UTILITIES AND COMPLIES WITH ALL APPLICABLE CITY CODES. SIGN INSTALLER SHALL ALSO OBTAIN APPROVAL FROM THE APPROPRIATE ENTITIES PRIOR TO INSTALLING THE SIGN OVER ANY EXISTING EASEMENTS.
- REFER TO THE BUILDING ELECTRICAL DRAWINGS FOR UTILITY SERVICE ENTRANCE LOCATIONS, SIZES, AND CIRCUITING.

# **DEMOLITION NOTES**

- CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE TO EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO: DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
- ALL WORK ON THIS PLAN SHALL BE DONE IN STRICT ACCORDANCE WITH SITE WORK SPECIFICATIONS.
- CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURE. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, OR OTHER MEANS OF PROTECTION, INCLUDING BUT IS NOT LIMITED TO, ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO: CONSTRUCTION FENCING, BARRICADES, SIGNAGE, ETC.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES AND NOTIFYING THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL

# EXISTING UTILITIES PRIOR TO CONSTRUCTION. SCOPE OF WORK

REMOVE EXISTING MENU BOARDS AND CAP CONDUIT PER SITE NOTES. INSTALL NEW MENU BOARDS AND ALL REQUIRED CONDUIT AND WIRING. REFER TO MANUFACTURERS BOARD PUBLISHED INSTALLATION INSTRUCTIONS.





THREE PANEL MENU BOARD 34.5 SQ FT

SIDE VIEW

# NEW MENU BOARDS AND PRE-BROWSE BOARDS

NOT TO SCALE



SINGLE FACE



PRE-BROWSE 21 SQ FT

SINGLE FACE 5-PANEL BUILT-IN SPEAKER 33 SQ FT

# EXISTING MENU BOARDS TO BE REMOVED

NOT TO SCALE

REVISION/DATE/DESCRIPTION

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PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 **WAYNE COUNTY** 

SHEET TITLE

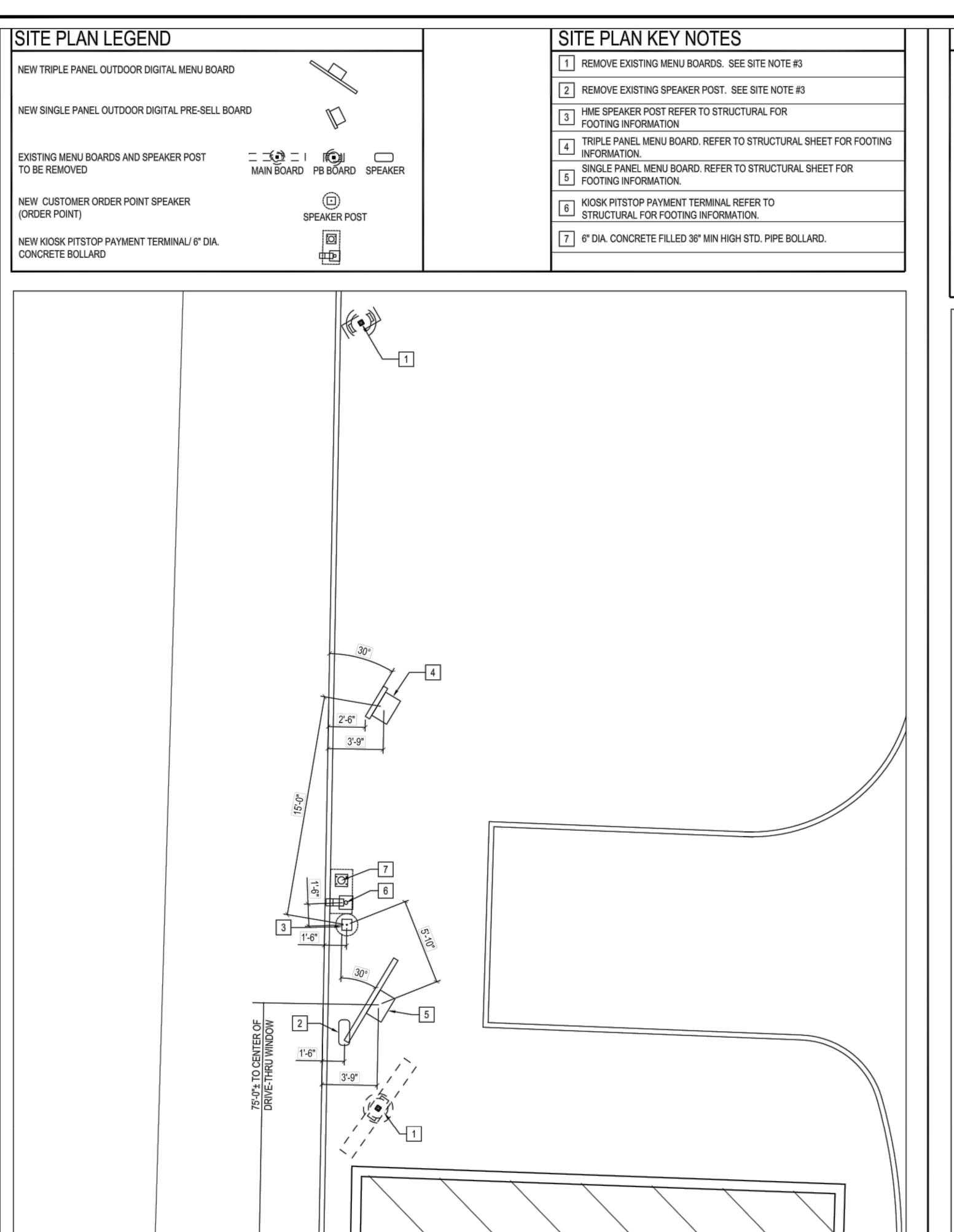
SITE DETAILS AND NOTES



DRAWN BY: CHECKED BY:

40509-11 PROJECT NO:

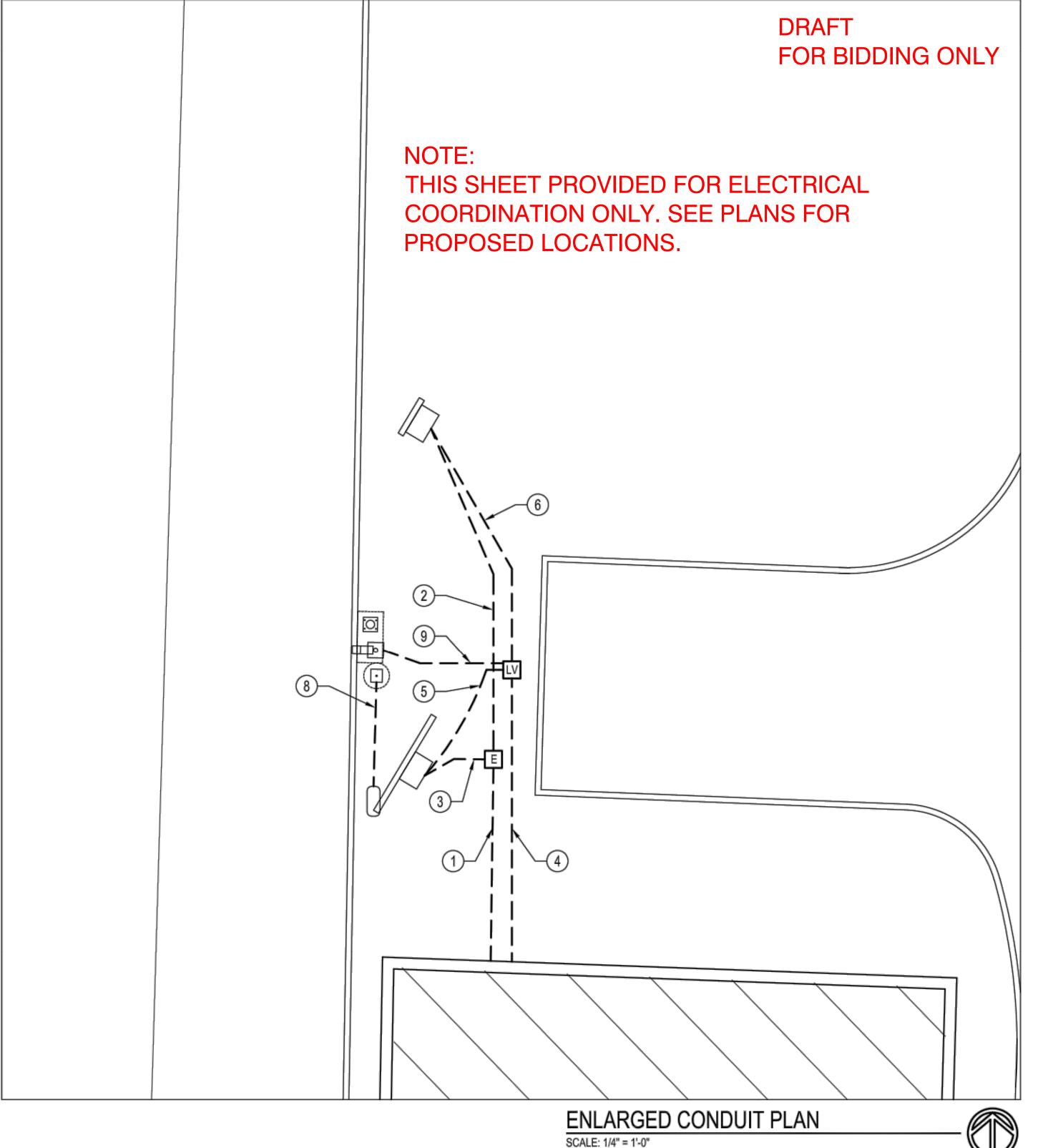
DRAWING



ENLARGED SITE PLAN

SCALE: 1/4" = 1'-0"

ELECTRICAL PLAN NOTES CONDUIT PLAN KEY NOTES ONE 3/4" PVC CONDUIT (4-#12, 1-#12 GRD, 1-#12 IG) FROM PANEL CP TO J-BOX INTENT OF DESIGN: DISCONNECT POWER AND DATA FEEDS FROM EXISTING MENU BARDS AND PRE-SALE BOARDS, REMOVE AND DISPOSE. ONE 3/4" PVC CONDUIT (2-#12, 1-#12 GRD, 1-#12 IG) FROM J-BOX TO NEW PRE-SELL BOARD CONTRACTORS ARE TO INSTALL NEW CONDUIT, ELECTRICAL WIRE AND DATA CABLE. NOTED CIRCUIT NUMBERS DERIVED FROM EXISTING PANEL DIRECTORY INSERTS, CONTRACTOR TO FIELD VERIFY ONE 3/4" PVC CONDUIT (2-#12, 1-#12 GRD, 1-#12 IG) FROM J-BOX TO NEW MAIN MENU BOARD AND UTILIZE EXISTING BRANCH CIRCUITS FEEDING THE PRIMARY (BRANCH CIRCUIT 1) AND SECONDARY (BRANCH CIRCUIT 2) MENU BOARDS AND PRE-BROWSE BOARDS. ONE 2" PVC CONDUIT (CAT6 DATA CABLES)
FROM BUILDING TO J-BOX COORDINATE ALL CONDUIT AND CIRCUITING SIZE REQUIREMENTS WITH MANUFACTURERS INSTALL REQUIREMENTS ALL NEW PULLBOXES / HANDHOLDS SHALL BE A MINIMUM OF TIER 8 QUAZITES BOX OR APPROVED EQUAL. ONE 2" PVC CONDUIT (CAT6 DATA CABLES) FROM J-BOX TO MENU BOARD PROVIDE DEDICATED NEUTRAL FOR ALL CIRCUITS, NO SHARED NEUTRALS ALLOWED. 6 ONE 2" PVC CONDUIT (CAT6 DATA CABLES) FROM J-BOX TO PRE-SALE BOARD (7) NOT USED ONE 3/4"" PVC CONDUIT (SPEAKER WIRE) FROM EXIST SPEAKER TO NEW SPEAKER LOCATION ONE 2" PVC CONDUIT (CAT6 DATA CABLES)
 FROM KIOSK TO J-BOX



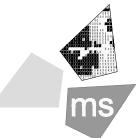
0 20' 30' 1"=20'-0" REVISION/DATE/DESCRIPTION

100% SET 05/05/22 PERMIT SET 07/12/22

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PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

SITE DETAILS AND NOTES



DRAWN BY:

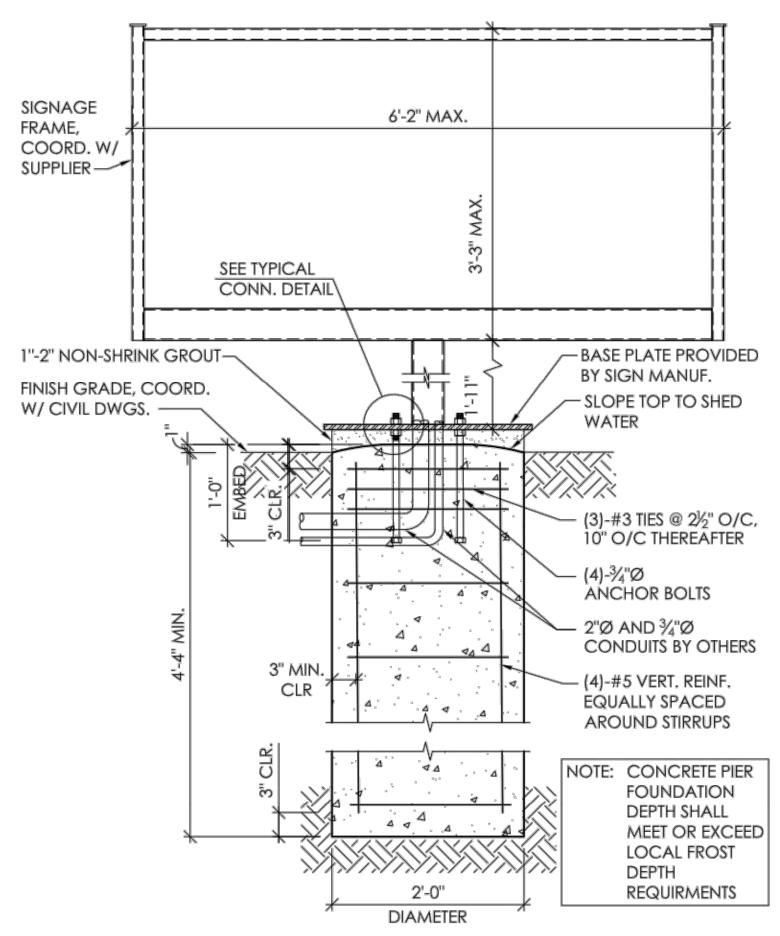
CHECKED BY:

PROJECT NO: 40

DRAWING

10' 15'

# FOUNDATION SECTION (PRE-SELL BOARD)



# FOUNDATION SECTION (MENU BOARD)

ANCHOR BOLT, NUT NOTE: \*DIMENSIONS SHALL BE VERIFIED WITH SIGN HEAVY ¾" HEX FRAME AND BASE PLATE PRIOR TO CONCRETE TOP NUT (GALV.)-AND WASHER NOTES: 2½"X2½"X¾" TOP OF PIERS SHALL BE SLOPED SUCH **HEAVY STEEL** 

NOT TO SCALE

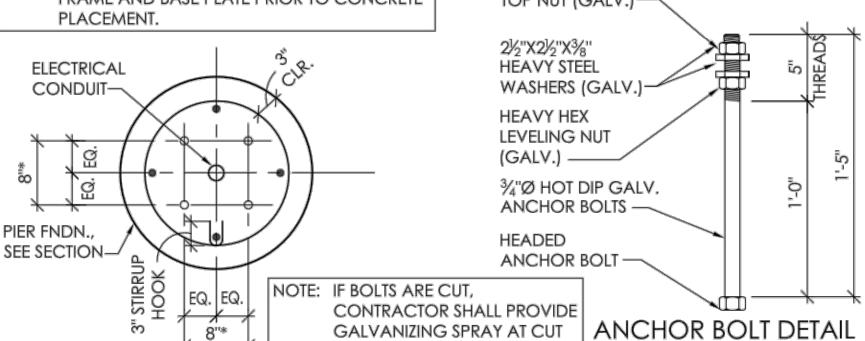
TIGHTEN TOP NUT 1/2 TURN

**BEYOND HAND-TIGHT** 

(MIN 60°, MAX 80°)\_

FLAT WASHERS

(TURN OF NUT METHOD)



BOLTS TO AVOID RUSTING.

# TYPICAL ANCHOR BOLT PATTERN

NOT TO SCALE

NOTE: COORDINATE CONDUIT PLACEMENT INSIDE SIGN BASE PRIOR TO CONCRETE PLACEMENT. (4) SLOTTED BOLT HOLES (COORD, W/ SIGN PROVIDER) -Ø [] Ø **6" STEEL BASE** COORD. HOLE IN PLATE PER BASE PLATE W/ MANUF. **ELECT. CONDUITS** 22" (COORD, W/ SIGN PROVIDER)

# TYPICAL SIGN BASE PLATE DETAIL

NOT TO SCALE

7¾" MAX.

1X/X/X/X/X//X//

DIAMETER

FOUNDATION ELEVATION (SPEAKER)

# TYPICAL CONNECTION DETAIL NOT TO SCALE

PLATE SHALL BE NO GREATER THAN 2".

FOUNDATION TO THE BOTTOM OF THE BASE

NOTE: THE DISTANCE FROM THE TOP OF THE

ON TOP OF FOUNDATION.

USE F1554 GRADE 36 BOLTS MINIMUM.

ACCORDANCE WITH ASTM A-123.

ACCORDANCE WITH AISC CODE OF

ANCHOR BOLTS, NUTS AND WASHERS

SHALL BE SHIPPED AS AN ASSEMBLY

DO NOT CUT ANCHOR BOLTS AFTER

LEVELING NUT

USE HOT-DIP GALVANIZED BOLTS IN

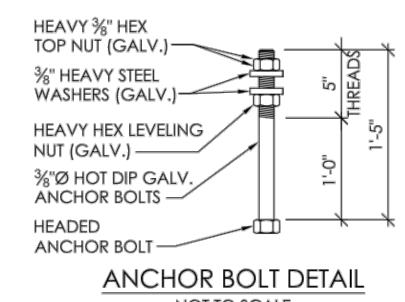
4. ANCHOR BOLTS TO BE SET IN

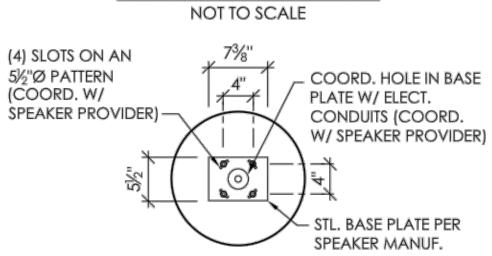
STANDARD PRACTICE.

FROM THE SIGN/LIGHTING

INSTALLATION OF FRAME,

MANUFACTURER.





# TYPICAL SPEAKER BASE PLATE DETAIL

NOT TO SCALE

# STEEL NOTES:

1" = 1'-0"

SPEAKER FRAME,

1"-2" NON-SHRINK

CONDUITS

BY OTHERS-

COORD. W/

SUPPLIER-

GROUT-

- 1. REINFORCEMENT: GRADE 60.
- ALL HARDWARE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123 UNLESS OTHERWISE NOTED.

NOTE: CONCRETE PIER

-SEE TYPICAL

FOUNDATION

FROST DEPTH

REQUIRMENTS

CONNECTION DETAIL

-BASE PLATE PROVIDED

-FINISH GRADE, COORD.

· (3)-#3 TIES @ 2½" O/C

BY SIGN MANUF.

W/ CIVIL DWGS.

AT TOP, 10" O/C

-(4)-%"Ø HEADED

ANCHOR BOLTSW/

MIN, EMBED, = 12"

(4)-#5 VERT. REINF.

**EQUALLY SPACED** 

AROUND STIRRUPS

INTO PIER FDN.

THEREAFTER

DEPTH SHALL MEET

OR EXCEED LOCAL

- 3. ANCHOR RODS, NUTS, AND WASHERS SHALL BE SHIPPED AS AN ASSEMBLY FROM THE SIGN/LIGHTING MANUFACTURER. COORDINATE WITH MANUFACTURER.
  - A. ANCHOR BOLTS: ASTM F1554, GRADE 36
  - B. WASHERS: ASTM F-436
  - C. NUTS: A563DH OR A194-2H
- FIELD HEATING TO BEND STEEL SHALL NOT BE ALLOWED.
- 5. ANCHOR BOLTS TO BE CUT TO APPROPRIATE HEIGHT AFTER INSTALLATION OF POLE, APPLY COLD GALVANIZING TO CUT BOLT ENDS.
- 6. CONTRACTOR (INSTALLER) IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION IN REGARDS TO JOBSITE SAFETY.
- 7. STRUCTURAL SIGN FRAME AND BASE PLATE DETAILS ARE PROVIDED BY SIGN MANUFACTURER. COORDINATE ALL ATTACHMENTS OF SIGN WITH MANUFACTURER, REFER TO SIGN MANUFACTURER DRAWINGS AND INSTRUCTIONS FOR ADDITIONAL INFORMATION

# **GENERAL NOTES:**

- THE FOLLOWING CODES WERE USED IN DESIGN: 2017 OHIO BUILDING CODE WITH AUGUST 2018 UPDATE ERRATA 02-08-19, IBC 2015 AND ASCE-7 (2010).
- THAT MOISTURE CANNOT ACCUMULATE | 2. STRUCTURAL LOADINGS:

FROST DEPTH

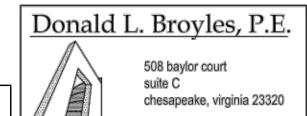
WIND (3 SECOND GUST)  $.V_{IIIT} = 115 MPH$  $V_{ASD} = 90 MPH$ EXPOSURE.. RISK CATEGORY WIND BASE SHEAR.  $..V_b = 400 LBS (PRE-SELL BOARD)$  $V_b = 700 LBS (MENU BOARD)$ SEISMIC: SEISMIC IMPORTANCE FACTOR (Ie). MAPPED SPECTRAL RESPONSE ACCELERATIONS..Ss......0.145a DESIGN SPECTRAL RESPONSE ACCELERATIONS Sps......0.155g S<sub>D1</sub>.....0.117a SITE CLASS... SEISMIC DESIGN CATEGORY SEISMIC RESPONSE COEFFICIENT (Cs). COMPONENT RESPONSE MODIFICATION FACTOR (Rp)..3.5 SEISMIC DESIGN FORCE (Fp)... ..0.01 KIPS (PRE-SELL BOARD) 0.03 KIPS (MENU BOARD)

- 3. ALL FOOTING EXCAVATIONS ARE TO BE CLEAR OF WATER AND FOREIGN MATTER BEFORE PLACING CONCRETE.
- PRESUMPTIVE MINIMUM ALLOWABLE LATERAL SOIL BEARING PRESSURE (S₀) OF 100 PSF. CONTRACTOR SHALL CONFIRM AN ALLOWABLE BEARING PRESSURE (Sb.) OF 1500 PSF. ALLOWABLE BEARING PRESSURE SHALL BE VERIFIED PRIOR TO CONCRETE PLACEMENT.
- 5. FOUNDATION SHALL NOT BE PLACED ON OR AT THE TOP OF A SLOPE EXCEEDING 3:1 WITHOUT EVALUATION BY A PROFESSIONAL LICENSED IN THAT STATE, DO NOT PLACE FOUNDATION IN FILL MATERIAL
- DEPTH OF PIER FOUNDATIONS MAY BE LOWERED IF NEEDED TO OBTAIN LOCAL FROST DEPTH ELEVATIONS OR IF REQUIRED DUE TO POOR SOIL CONDITIONS. VERIFY FROST DEPTH ELEVATIONS WITH LOCAL CODE OFFICIAL
- 7. ELECTRICAL CONTRACTOR TO PROVIDE INFORMATION ON CONDUIT AND ELECTRICAL REQUIREMENTS AND CONTRACTOR (INSTALLER) SHALL COORDINATE PLACEMENT TO MAINTAIN 2" CLEAR TO ANCHOR BOLTS.
- 8. COORDINATE LOCATIONS OF SIGNS AND FOUNDATIONS WITH SITE PLAN.
- 9. CONTRACTOR SHALL CUT EXCESS SONOTUBE FROM AROUND THE PERIMETER OF THE PIER FOUNDATION AFTER PLACEMENT OF BOARD (PRIOR TO LEAVING SITE)
- CONTRACTOR SHALL NOT DEVIATE FROM STRUCTURAL DRAWING WITHOUT PRIOR WRITTEN CONSENT AND INSTRUCTIONS REGARDING ANY CHANGE TO THE CONTRACT DRAWINGS. ANY DEVIATION FROM THIS DESIGN OR FROM ANY PART OF THIS DRAWING WITHOUT PRIOR WRITTEN CONSENT OF THIS ENGINEER SHALL VOID ALL LIABILITY ASSOCIATED WITH THIS WORK.
- SPECIAL INSPECTIONS ARE NOT REQUIRED FOR THESE SIGN FOUNDATIONS.

# CONCRETE NOTES:

- ALL FOOTINGS SHALL BEAR ON FIRM UNDISTURBED RESIDUAL SOIL AND/OR EARTH FILL COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D698 (STANDARD PROCTOR) UNLESS NOTED OTHERWISE. CONTRACTOR SHALL CONFIRM SOIL CAPACITY PRIOR TO CONCRETE PLACEMENT.
- 2. ALL PIERS TO EXTEND TO FROST DEPTH AS DETERMINED BY LOCAL JURISDICTION, VERIFY WITH LOCAL BUILDING OFFICIAL.
- 3. TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
- 4. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- 5. ALL CAST-IN-PLACE CONCRETE SHALL ATTAIN AN ULTIMATE COMPRESSIVE STRENGTH (fc) OF 3000 PSI AT AN AGE OF 28 DAYS UNLESS OTHERWISE NOTED.
- 6. ALL REINFORCING STEEL SHALL BE ASTM A 615, GRADE 60 DEFORMED BARS, UNLESS OTHERWISE NOTED.
- CONCRETE PROTECTION FOR REINFORCING AS WELL AS PLACING AND FABRICATION OF REINFORCING SHALL BE IN ACCORDANCE WITH THE "THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS" (ACI
- 8. ALL CAST-IN-PLACE CONCRETE SHALL BE AIR-ENTRAINED TO 6% (±1½%). WATER/CEMENT RATIO SHALL NOT
- 9. THE MINIMUM CONCRETE COVER FOR THE PROTECTION OF REINFORCEMENT SHALL BE AS NOTED.
- BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY PLACED, ACCURATELY POSITIONED. AND MAINTAINED SECURELY IN PLACE, NO "WET SETTING" IS ALLOWED.
- 11. AGGREGATES IN NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33 (HARDROCK).
- 12. PORTLAND CEMENT SHALL BE TYPE II FOR ALL CONCRETE CONFORMING TO ASTM C150, LOW ALKALI.
- 13. FLY ASH OR OTHER POZZOLANS CONFORMING TO ASTM C618 CLASS N OR F MAY BE USED AS A PARTIAL SUBSTITUTION FOR PORTLAND CEMENT UP TO A MAXIMUM OF 25% TOTAL CEMENTITIOUS MATERIALS BE WEIGH IF THE MIX DESIGN IS PROPORTIONED PER ACI318, SECTION 5.3. CONTRACTOR SHALL FORWARD DESIGN MIX TO ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.
- CONCRETE MIXING OPERATIONS, ETC. SHALL CONFORM TO ASTM C94.
- 15. DO NOT USE ANY CONCRETE OR GROUT CONTAINING CHLORIDES. WATER USED IN MIX SHALL BE CLEAN AND POTABLE.

1" = 1'-0"

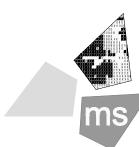


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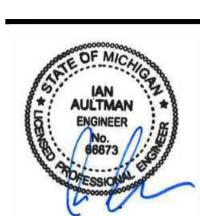
PROJECT

**TIM HORTONS** HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 **WAYNE COUNTY** 

SHEET TITLE

SITE DETAILS AND NOTES



CHECKED BY:

40509-11

DRAWING



CHECKED BY:

1" = 1'-0"

Donald L. Brovles, P.E.

508 baylor court

chesapeake, virginia 23320

DRAWING

C-7.4

40509-11

05/05/22

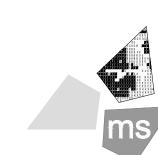
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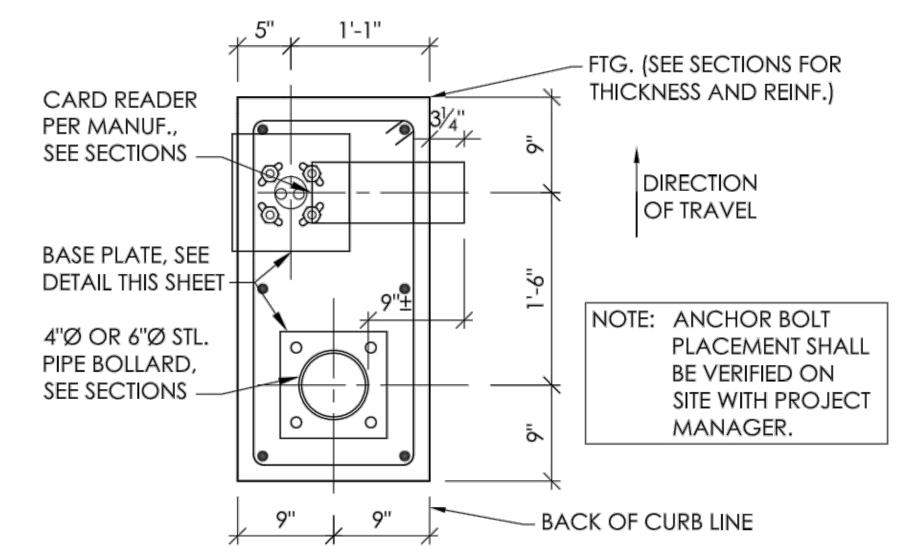
SHEET TITLE

SITE DETAILS AND NOTES



ADHESIVE ANCHOR, NUT AND WASHER NOTES:

- TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE ON TOP OF FOUNDATION.
- 2. ADHESIVE ANCHORS SHALL BE HILTI HVA OR APPROVED EQUAL BY THE ENGINEER OF RECORD.
- PROVIDE HOT-DIP GALVANIZED ADHESIVE ANCHORS IN ACCORDANCE WITH ASTM A-123.
- DO NOT CUT REINFORCING IN FOOTING WHEN DRILLING, ADJUST LOCATION OF ADHESIVE ANCHORS AS REQUIRED TO AVOID CONFLICT.



TYPICAL ANCHOR BOLT PATTERN

NOT TO SCALE

# STEEL NOTES:

- ALL HARDWARE SHALL BE HOT-DIP GALVANIZED UNLESS OTHERWISE NOTED.
- NO FIELD HEATING TO BEND STEEL SHALL BE ALLOWED.
- CONTRACTOR (INSTALLER) IS RESPONSIBLE FOR THE MEANS AND METHODS OF
- AFTER ERECTION OF STEEL BOLLARD.

- REINFORCEMENT: GRADE 60.
- NUTS: A563DH OR A194-2H.
- WASHERS: ASTM F-436.

- WELDING SHALL BE MADE WITH E70XX ELECTRODES BY PROFESSIONAL WELDERS QUALIFIED IN ACCORDANCE WITH AWS STANDARDS WITHIN THE PREVIOUS TWO YEARS.
- CONSTRUCTION IN REGARDS TO JOBSITE SAFETY.
- STEEL BOLLARDS SHALL BE PAINTED WITH TNEMEC HI-BUILD EPOXY PAINT (OSHA YELLOW) UNLESS OTHERWISE DIRECTED BY BAILIWICK PROJECT MANAGER.
- 9. CONTRACTOR SHALL FILL PIPE BOLLARD FULL AND WITH CROWN TO SLOPE WATER

FOUNDATIONS MAY HEAVE IF FROST DEPTH IS BELOW INDICATED DEPTH OF FOOTING. CONCRETE NOTES:

NOTED.

GENERAL NOTES:

STRUCTURAL LOADINGS:

 ALL FOOTINGS SHALL BEAR ON FIRM UNDISTURBED RESIDUAL SOIL AND/OR ENGINEERED EARTH FILL COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D698 (STANDARD PROCTOR) UNLESS NOTED OTHERWISE. FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 2,000 PSF.

UPON ARRIVING ON SITE, CONTRACTOR SHALL VERIFY SITE CONDITIONS AND BOLLARD

OF THE BAILIWICK PROJECT MANAGER OR ENGINEER OF RECORD.

LOCATION(S). CONTRACTOR SHALL UTILIZE TYPICAL STRUCTURAL DETAIL THAT IS APPROPRIATE

NO FIELD INVESTIGATION HAS BEEN CONDUCTED BY THE ENGINEER OF RECORD AND SHALL BE

LOCATION AND POSITIONING OF NEW PIPE BOLLARDS IS BEYOND THE STRUCTURAL SCOPE.

STRUCTURAL DRAWINGS PROVIDE GENERIC DETAILS OF PIPE BOLLARD AND CARD READER

SUPPORT ONLY. STRUCTURAL ENGINEER OF RECORD SHALL NOT BE HELD LIABLE FOR ANY

CONTRACTOR (INSTALLER) IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION.

KEEP JOBSITE FREE FROM DEBRIS THAT MAY BE HARMFUL TO EMPLOYEES OR CUSTOMERS.

CONTRACTOR SHALL COORDINATE LOCATION AND SIZE OF PIPE BOLLARD WITH SITE

PIPE BOLLARD FOUNDATIONS ARE NOT DESIGNED FOR LOCAL FROST DEPTH CRITERIA.

CONTRACTOR AND BAILIWICK PROJECT MANAGER.

CONTRACTOR SHALL PERFORM ALL INSTALLATION IN A SAFE AND ORDERLY FASHION AND SHALL

DAMAGES OR OTHER ISSUES THAT MAY OCCUR DUE TO THE INSTALLATION OF SYSTEM.

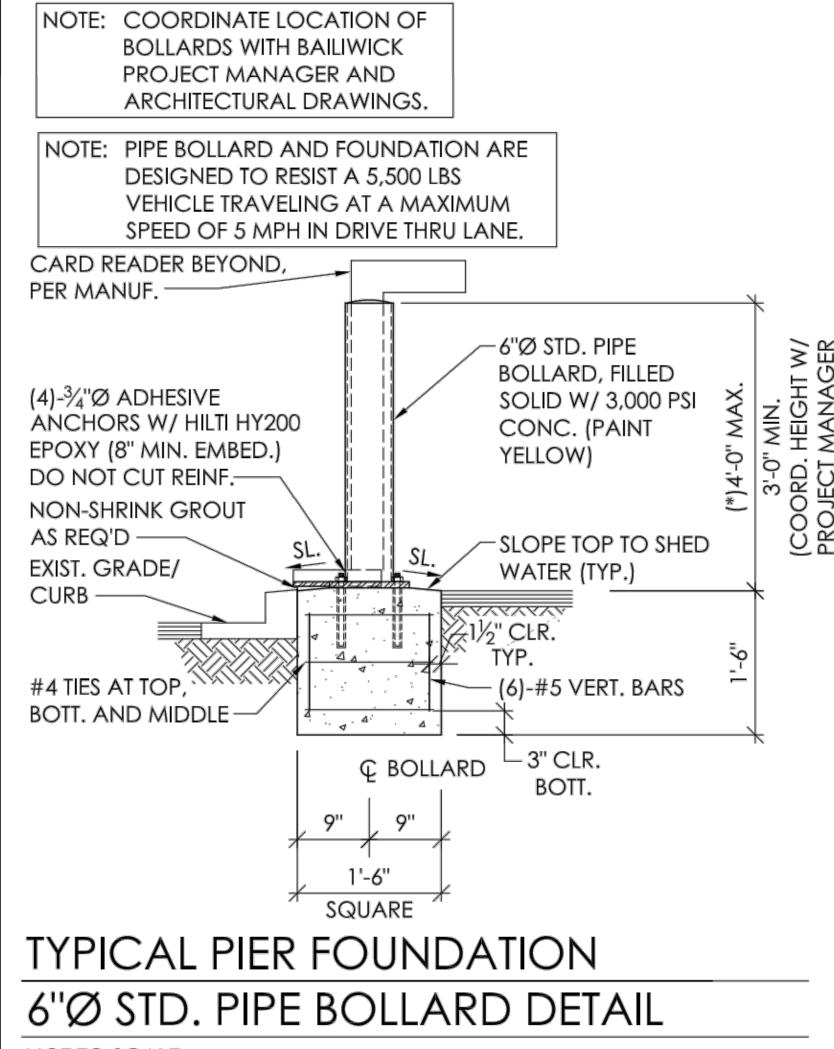
ACCORDING TO THESE DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION

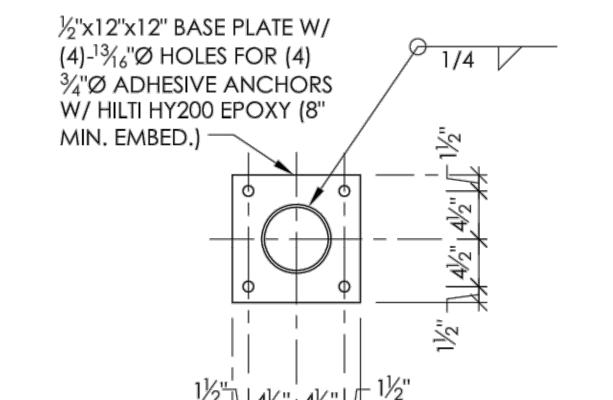
THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SUCH INFORMATION TO THE ENGINEER OF

RECORD AND BAILIWICK PROJECT MANAGER. ANALYSIS OF EXISTING SITE AND DETERMINATION

...30 PSF (ULT.) AT CARD READER

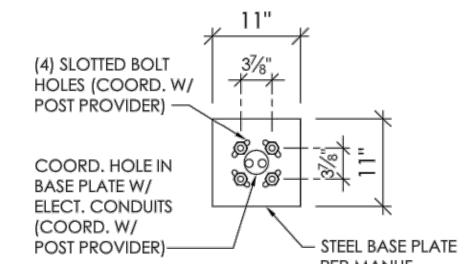
- 2. TOP OF FOOTING SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE ON TOP OF
- ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- 4. ALL CAST-IN-PLACE CONCRETE SHALL ATTAIN AN ULTIMATE COMPRESSIVE STRENGTH (fc) OF 3000 PSI AT AN AGE OF 28 DAYS UNLESS OTHERWISE NOTED.
- 5. ALL REINFORCING STEEL SHALL BE ASTM A 615, GRADE 60 DEFORMED BARS, UNLESS OTHERWISE
- 6. CONCRETE PROTECTION FOR REINFORCING AS WELL AS PLACING AND FABRICATION OF REINFORCING SHALL BE IN ACCORDANCE WITH THE "THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS" (ACI 318).
- 7. ALL CAST-IN-PLACE CONCRETE SHALL BE AIR-ENTRAINED TO 6% (±1½%). WATER/CEMENT RATIO SHALL NOT EXCEED 0.48.
- 8. THE MINIMUM CONCRETE COVER FOR THE PROTECTION OF REINFORCEMENT SHALL BE AS NOTED.
- 9. BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY PLACED, ACCURATELY POSITIONED, AND MAINTAINED SECURELY IN PLACE. NO "WET SETTING" IS ALLOWED.
- AGGREGATES IN NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33 (HARDROCK).
- 11. PORTLAND CEMENT SHALL BE TYPE II FOR ALL CONCRETE CONFORMING TO ASTM C150, LOW ALKALI.
- 12. FLY ASH OR OTHER POZZOLANS CONFORMING TO ASTM C618 CLASS N OR F MAY BE USED AS A PARTIAL SUBSTITUTION FOR PORTLAND CEMENT UP TO A MAXIMUM OF 25% TOTAL CEMENTITIOUS MATERIALS BE WEIGHT IF THE MIX DESIGN IS PROPORTIONED PER ACI318, SECTION 5.3. CONTRACTOR SHALL FORWARD DESIGN MIX TO ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.
- 13. CONCRETE MIXING OPERATIONS, ETC. SHALL CONFORM TO ASTM C94.
- 14. DO NOT USE ANY CONCRETE OR GROUT CONTAINING CHLORIDES. WATER USED IN MIX SHALL BE CLEAN AND POTABLE.





TYPICAL BASE PLATE DETAIL (6"Ø STD.)

NOT TO SCALE



TYPICAL CARD READER

BASE PLATE DETAIL

NOT TO SCALE

# **KEYED NOTES:**

- (1) INLET PROTECTION, SEE DETAIL B ON SHEET C-9.0.
- CONCRETE WASHOUT, SEE DETAIL ON SHEET C-9.0. A MANUFACTURED OUTPAK CONCRETE WASHOUT BIN OR OTHER APPROVED EQUAL MAY BE UTILIZED TO LIMIT DISTURBANCE OF SURROUNDING AREAS.

# **LEGEND**

EXISTING	PROPOSED	DESCRIPTION
<u> </u>	1015	— CONTOUR
		INLET PROTECTION
		CONCRETE WASHOUT

REVISION/DATE/DESCRIPTION

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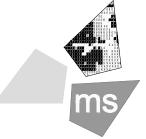
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PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

STORMWATER
POLLUTION
PREVENTION PLAN



DRAWN BY: JJC

CHECKED BY: SEG

PROJECT NO: 40509-11

DRAWING

C-8.0

# PERMANENT SEEDING

PERENNIAL VEGETATION IS ESTABLISHED ON AREAS THAT WILL NOT BE RE-DISTURBED FOR PERIODS LONGER THAN 12 MONTHS. PERMANENT SEEDING INCLUDES SITE PREPARATION, SEEDBED PREPARATION, PLANTING SEED, MULCHING, IRRIGATION AND MAINTENANCE.

PERMANENT VEGETATION IS USED TO STABILIZE SOIL, REDUCE EROSION, PREVENT SEDIMENT POLLUTION, REDUCE RUNOFF BY PROMOTING INFILTRATION, AND PROVIDE STORMWATER QUALITY BENEFITS OFFERED BY DENSE GRASS COVER.

### SPECIFICATION FOR PERMANENT SEEDING

### SITE PREPARATION:

SUBSOILER, PLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.

- 2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
- 3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

### SEEDBED PREPARATION:

- 1. TEST THE SOIL CONDITIONS FOR FEEDING BEFORE STARTING SEEDING AND MULCHING. 2. LIME—AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A
- SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 POUNDS PER 1,000-SQ. FT. OR 2 TONS PER ACRE 3. FERTILIZER—FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. CONTRACTOR SHALL
- 4. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

PERFORM LAB TESTING ON SOIL AND PROVIDE A CERTIFIED FERTILIZER RATIO FOR THE SITE SOILS AND

### SEEDING DATES AND SOIL CONDITIONS:

SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THE ABOVE SPECIFIED DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING. SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

- 1. SEEDINGS SHOULD NOT BE MADE FROM OCTOBER 1 THROUGH NOVEMBER 20. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER. 2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
- 2.1. FROM OCTOBER 1 THROUGH NOVEMBER 20, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20, AND BEFORE MARCH 15, BROADCAST THE SELECTED SEED MIXTURE. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING
- 2.2. FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
- APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED.
- WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR WHERE FEASIBLE.

- MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL. 2. MATERIALS:
- 2.1. STRAW—IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2 TONS PER ACRE OR 90 POUNDS (TWO TO THREE BALES) PER 1,000-SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SQ.-FT. SECTIONS AND SPREAD TWO 45-LB. BALES OF STRAW IN EACH SECTION.
- 2.2. HYDROSEEDERS—IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 2,000 LB./AC. OR 46
- 2.3. OTHER—OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.
- 3. STRAW AND MULCH ANCHORING METHODS-STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO
- MINIMIZE LOSS BY WIND OR WATER: 3.1. MECHANICAL—A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN 6 INCHES.
- 3.2. MULCH NETTING—NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER FS RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- 3.3. ASPHALT EMULSION—ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURE OR AT THE RATE OF 160 GALLONS PER ACRE.
- 3.4. SYNTHETIC BINDERS—SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET. TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.
- WOOD CELLULOSE FIBER—WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

# IRRIGATION:

PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH. IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF. CONTRACTOR SHALL MAINTAIN PERMANENT SEEDING FOR UP TO ONE YEAR FROM SUBSTANTIAL COMPLETION TO FIX, REPAIR, WATER, REFERTILIZE AND/OR RESEED GRASSED AREAS.

OFFD MIV	SEE	DING RATE	NOTEC
SEED MIX	LBS/ACRE	LBS/1,000 SF	NOTES
	GE1	NERAL USE	
CREEPING RED FESCUE	20-40	<b>½</b> −1	FOR CLOSE MOWING AND FOR WATERWAYS WITH <2.0 FT/SEC
DOMESTIC RYEGRASS	10-20	1/4-1/2	VELOCITY
KENTUCKY BLUEGRASS	20-40	<b>½</b> −1	
TALL FESCUE	40-50	1-11/4	
TURF-TYPE (DWARF) FESCUE	90	21/4	
	STEEP BANK	KS OR CUT SLOPES	
TALL FESCUE	40-50	1-11/4	
CROWN VETCH	10-20	1/4-1/2	DO NOT SEED LATER THAN
TALL FESCUE	20-30	1/2-3/4	AUGUST
FLAT PEA	20-25	1/2-3/4	DO NOT SEED LATER THAN
TALL FESCUE	20-30	1/2-3/4	AUGUST
	ROAD DITC	HES AND SWALES	
TALL FESCUE	40-50	1-1 <del>1</del>	
TURF-TYPE (DWARF) FESCUE	90	21/4	
KENTUCKY BLUE GRASS	5	1/10	
		LAWNS	
KENTUCKY BLUEGRASS	100-120	2	
PERENNIAL RYEGRASS		2	
KENTUCKY BLUEGRASS	100-120	2	FOR SHADED AREAS
CREEPING RED FESCUE		1-1/2	

# TEMPORARY SEEDING

TEMPORARY SEEDINGS ESTABLISH TEMPORARY COVER ON DISTURBED AREAS BY PLANTING APPROPRIATE RAPIDLY GROWING ANNUAL GRASSES OR SMALL GRAINS. TEMPORARY SEEDING PROVIDES EROSION CONTROL ON AREAS IN BETWEEN CONSTRUCTION OPERATIONS. GRASSES, WHICH ARE QUICK GROWING, ARE SEEDED AND USUALLY MULCHED TO PROVIDE PROMPT. TEMPORARY SOIL STABILIZATION. IT EFFECTIVELY MINIMIZES THE AREA OF A CONSTRUCTION SITE PRONE TO EROSION AND SHOULD BE USED EVERYWHERE THE SEQUENCE OF CONSTRUCTION OPERATIONS ALLOWS VEGETATION TO BE ESTABLISHED.

### SPECIFICATIONS FOR TEMPORARY SEEDING:

	TEMPORARY SEEDING SPE	CIES SELECTION	IES SELECTION		
SEEDING DATES	SPECIES	LB/1000 SF	LB/ACREA		
MAR 1 TO AUG 15	OATS	3	128-4 BUSHEL		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
	PERENNIAL RYGRASS	1	40		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
	ANNUAL RYEGRASS	1.25	55		
	PERENNIAL RYEGRASS	3.25	142		
	CREEPING RED FESCUE	0.40	17		
	KENTUCKY BLUEGRASS	0.40	17		
	OATS	3	128-3 BUSHEL		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
AUG 16 TO NOV	RYE	3	112-3 BUSHEL		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
	WHEAT	3	120-2 BUSHEL		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
	PERENNIAL RYE	1	40		
	TALL FESCUE	1	40		
	ANNUAL RYEGRASS	1	40		
	ANNUAL RYEGRASS	1.25	40		
	PERENNIAL RYEGRASS	3.25	40		
	CREEPING RED FESCUE	0.40	40		
	KENTUCKY BLUEGRASS	0.40			
NOV 1 TO FEB 29	USE MULCH ONLY OR DOR	MANT SEEDING			

- STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE
- TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 21 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDED WITHIN 7 DAYS AFTER GRADING.
- 3. THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- 4. SOIL AMENDMENTS—TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- 5. SEEDING METHOD—SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

# **MULCHING TEMPORARY SEEDING:**

APPROXIMATELY 6 INCHES.

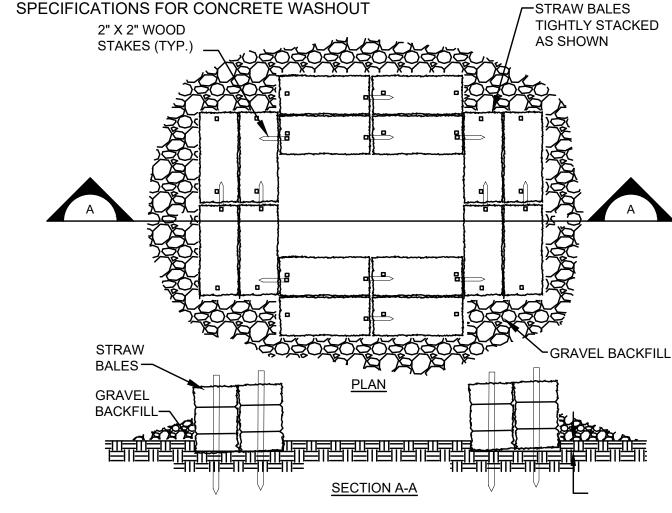
- 1. APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH. WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION. MATERIALS:
- 2.1. STRAW—IF STRAW IS USED, IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS./ 1,000 SQ. FT. (2-3 BALES) HYDROSEEDERS—IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000
- LBS./ AC. OR 46 LB./ 1.000-SQ.-FT. OTHER—OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER FS RECOMMENDATIONS OR WOOD CHIPS APPLIED
- AT 6 TON/ AC. 3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. **ANCHORING METHODS:**
- 3.1. MECHANICAL—A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF
- 3.2. MULCH NETTING—NETTING SHALL BE USED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- 3.3. SYNTHETIC BINDERS—SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TRACK OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
- 3.4. WOOD-CELLULOSE FIBER—WOOD-CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB./AC. THE WOOD-CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB. / 100 GAL.

# DUST CONTROL

DUST CONTROL INVOLVES PREVENTING OR REDUCING DUST FROM EXPOSED SOILS OR OTHER SOURCES DURING LAND DISTURBING, DEMOLITION AND CONSTRUCTION ACTIVITIES TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES WHICH MAY PRESENT HEALTH HAZARDS. TRAFFIC SAFETY PROBLEMS OR HARM ANIMAL OR PLANT LIFE.

### SPECIFICATIONS FOR DUST CONTROL

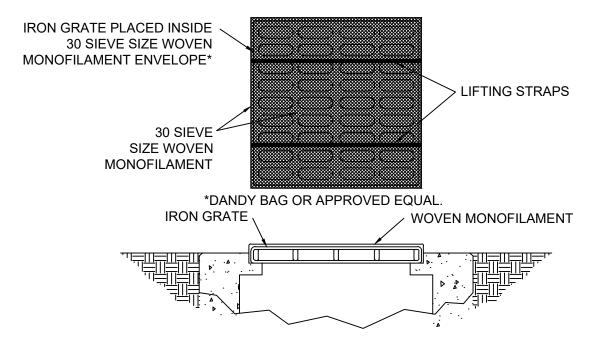
- 1. VEGETATIVE COVER AND/MULCH APPLY TEMPORARY OR PERMANENT SEEDING AND MULCH TO AREAS THAT WILL REMAIN IDLE FOR OVER 21 DAYS. SAVING EXISTING TREES AND LARGE SHRUBS WILL ALSO REDUCE SOIL AND AIR MOVEMENT ACROSS DISTURBED AREAS. SEE TEMPORARY SEEDING; PERMANENT SEEDING: MULCHING PRACTICES: AND TREE AND NATURAL AREA PROTECTION PRACTICES.
- WATERING SPRAY SITE WITH WATER UNTIL THE SURFACE IS WET BEFORE AND DURING GRADING AND REPEAT AS NEEDED, ESPECIALLY ON HAUL ROADS AND OTHER HEAVY TRAFFIC ROUTES. WATERING SHALL BE DONE AT A RATE THAT PREVENTS DUST BUT DOES NOT CAUSE SOIL EROSION. WETTING
- AGENTS SHALL BE UTILIZED ACCORDING TO MANUFACTURERS INSTRUCTIONS. SPRAY-ON ADHESIVES – APPLY ADHESIVE ACCORDING TO THE FOLLOWING TABLE OR MANUFACTURER'S INSTRUCTIONS.
- 4. STONE GRADED ROADWAYS AND OTHER SUITABLE AREAS WILL BE STABILIZED USING CRUSHED STONE OR COARSE GRAVEL AS SOON AS PRACTICABLE AFTER REACHING AN INTERIM OR FINAL GRADE. CRUSHED STONE OR COARSE GRAVEL CAN BE USED AS A PERMANENT COVER TO PROVIDE CONTROL OF SOIL EMISSIONS.
- BARRIERS EXISTING WINDBREAK VEGETATION SHALL BE MARKED AND PRESERVED. SNOW FENCING OR OTHER SUITABLE BARRIER MAY BE PLACED PERPENDICULAR TO PREVAILING AIR CURRENTS AT INTERVALS OF ABOUT 15 TIMES THE BARRIER HEIGHT TO CONTROL AIR CURRENTS AND BLOWING SOIL.
- OPERATION AND MAINTENANCE WHEN TEMPORARY DUST CONTROL MEASURES ARE USED; REPETITIVE TREATMENT SHOULD BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL. STREET CLEANING - PAVED AREAS THAT HAVE ACCUMULATED SEDIMENT FROM CONSTRUCTION SHOULD BE CLEANED DAILY, OR AS NEEDED, UTILIZING A STREET SWEEPER OR BUCKET -TYPE END LOADER OR SCRAPER.



- THE RESIDUE OR CONTENTS OF ALL CONCRETE MIXERS, DUMP TRUCKS, OTHER CONVEYANCE EQUIPMENT AND FINISHING TOOLS SHALL BE WASHED INTO CONCRETE CLEAN-OUT STRUCTURES CONSISTING OF A STRAW BALE BARRIER WITH GRAVEL BACKFILL. THE LENGTH AND WIDTH OF THESE STRUCTURES SHALL BE AS DETERMINED BY THE CONTRACTOR TO FACILITATE THE PARTICULAR EQUIPMENT USED. THESE STRUCTURES SHALL BE CONSTRUCTED ON LEVEL GROUND AT LEAST 100' FROM THE NEAREST WATERCOURSE, DRAINAGE SWALE OR INLET. AT NO TIME SHALL THE STRUCTURE BE ALLOWED TO BE MORE THAN 50% FULL. THE CONTRACTOR SHALL MAINTAIN THESE PONDS UNTIL ALL CONCRETE PLACEMENT IS COMPLETE FOR THE PROJECT.
- 2. EMBED THE STRAW BALES 4" INTO THE SOIL. PROVIDE TWO ROWS OF BALES, AS SHOWN ON THE DETAIL, WITH ENDS AND CORNERS TIGHTLY ABUTING. ORIENT THE STRAW BALES LENGTHWISE WITH BINDINGS AROUND THE SIDES OF THE BALES SO THE WIRE DOES NOT CONTACT THE SOIL. DRIVE 2"X2" WOOD STAKES THROUGH EACH BALE, TO SECURELY ANCHOR THE BALE AND CONNECT ADJACENT BALES. GRAVEL BACKFILL SHALL BE PROVIDED AND TAMPED AROUND THE OUTSIDE PERIMETER OF THE BALES TO PREVENT EROSION AND FLOW AROUND THE BALES.
- THE INTENT OF THESE STRUCTURES IS TO COLLECT ALL CONCRETE WASH OUT WATER AND ALLOW IT TO DRY TO A SOLID MATERIAL. AFTER DRYING, THE SOLID MATERIAL CAN BE REMOVED WITH A LOADER OR EXCAVATOR FOR PROPER DISPOSAL. WASH OUT WILL NOT BE PERMITTED IN ANY OTHER AREAS.
- USE THE MINIMUM AMOUNT OF WATER TO WASH THE VEHICLES AND EQUIPMENT. NEVER DISPOSE OF WASH OUT INTO THE STREET, STORM INLET, DRAINAGE SWALE OR WATERCOURSE. DISPOSE OF SMALL AMOUNTS OF EXCESS DRY CONCRETE, GROUT AND MORTAR IN THE TRASH. ANY SOAPS THAT ARE UTILIZED SHALL BE PHOSPHATE-FREE AND BIODEGRADABLE.
- ADDITIONAL CONCRETE CLEAN-OUT STRUCTURES SHALL BE CONSTRUCTED WITHIN THE SPECIFIED AREA AS NEEDED BASED UPON THE VOLUME OF WASH OUT GENERATED DAILY.

STORM DRAIN INLET PROTECTION DEVICES REMOVE SEDIMENT FROM STORM WATER BEFORE IT ENTERS STORM SEWERS AND DOWNSTREAM AREAS. INLET PROTECTION DEVICES ARE SEDIMENT BARRIERS THAT MAY BE CONSTRUCTED OF WASHED GRAVEL OR CRUSHED STONE. GEOTEXTILE FABRICS AND OTHER MATERIALS THAT ARE SUPPORTED AROUND OR ACROSS STORM DRAIN INLETS

INLET PROTECTION IS INSTALLED TO CAPTURE SOME SEDIMENT AND REDUCE THE MAINTENANCE OF STORM SEWERS AND OTHER UNDERGROUND PIPING SYSTEMS PRIOR TO THE SITE BEING STABILIZED. DUE TO THEIR POORER EFFECTIVENESS, INLET PROTECTION IS CONSIDERED A SECONDARY SEDIMENT CONTROL TO BE USED IN CONJUNCTION WITH OTHER MORE EFFECTIVE CONTROLS.



INSTALLATION AND MAINTENANCE GUIDELINES

THE EMPTY BAG SHOULD BE PLACED OVER THE GRATE AS THE GRATE STANDS ON END. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN POUCH, ON THE BOTTOM (BELOW-GRADE SIDE) OF THE UNIT. ATTACH ABSORBENT PILLOW TO TETHER LOOP. TUCK THE ENCLOSURE FLAP INSIDE TO COMPLETELY ENCLOSE THE GRATE. HOLDING THE LIFTING DEVICES (DO NOT RELY ON LIFTING DEVICES TO SUPPORT THE ENTIRE WEIGHT OF THE GRATE), PLACE THE GRATE INTO ITS FRAME.

REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT. REMOVE SEDIMENT THAT HAS ACCUMULATED WITHIN THE CONTAINMENT AREA OF THE BAG AS NEEDED. IF USING OPTIONAL OIL ABSORBENTS; REMOVE AND REPLACE ABSORBENT PILLOW WHEN NEAR SATURATION.

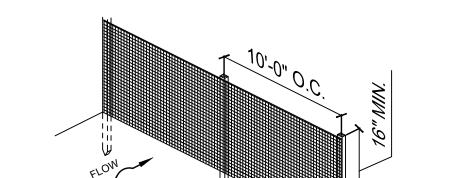


- THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.
- THE HEIGHT OF A SEDIMENT FENCE SHALL NOT EXCEED 36-INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
- THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
- POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 16 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE. POST SPACING SHALL NOT EXCEED 6 FEET.
- 5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER
- WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1-INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 16 INCHES ABOVE THE ORIGINAL GROUND
- THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8-INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO **EXISTING TREES.**
- 8. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSURE POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL
- OTHER PROVISIONS OF ITEM NO. 6 APPLYING. 9. THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER
- 10. SEDIMENT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
- 11. 12-INCH FILTER SOCKS ARE AN ACCEPTABLE ALTERNATIVE TO SILT FENCING.

- SEDIMENT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- 2. SHOULD THE FABRIC ON A SEDIMENT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED
- 3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. 4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SEDIMENT FENCE

OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO

CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED.





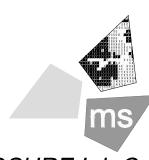
REVISION/DATE/DESCRIPTION

100% SET 05/05/22 PERMIT SET 07/12/22

NOTICE

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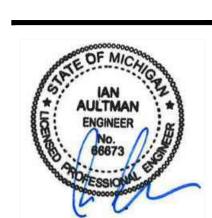
TIM HORTONS HARPER WOODS, MI

HARPER WOODS, MI 48225 **WAYNE COUNTY** 

19353 VERNIER RD

SHEET TITLE

SWPPP NOTES AND DETAILS



DRAWN BY: SEG CHECKED BY:

PROJECT NO:

DRAWING

40509-11

# **GENERAL SOD NOTE:**

- 1. ALL LAWN AREAS DESIGNATED TO BE SODDED, SHALL BE SODDED WITH A BLENDED DURABLE BLUEGRASS SOD, TYPICALLY GROWN IN THE REGION. ALL TURF SHALL BE PLACED ON A MINIMUM 3" PREPARED TOPSOIL, AND WATERED DAILY UNTIL ESTABLISHMENT. IN AREAS SUBJECT TO EROSION, SODDED LAWN SHALL BE STABILIZED WHERE NECESSARY, AND LAID PERPENDICULAR TO
- 2. SOD INSTALLATION SHALL OCCUR ONLY: SPRING: APRIL1 TO JUNE1 FALL: AUGUST 15 TO OCTOBER 15

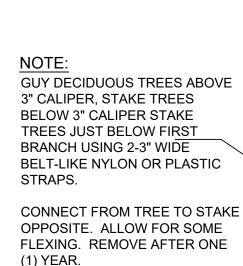
# **GENERAL SEED NOTE:**

- 1. ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDRO-SEEDED WITH SPECIFIED BLENDS, AND STABILIZED WITH WOOD CELLULOSE FIBER MULCH (2,000 LBS PER ACRE). IN AREAS SUBJECT TO EROSION, SEEDED LAWN SHALL BE FURTHER STABILIZED WHERE NECESSARY WITH BIODEGRADABLE EROSION BLANKET AND STAKED UNTIL ESTABLISHED.
- 2. ALL SEED SHALL BE APPLIED OVER A MINIMUM 3" PREPARED TOPSOIL, AND SHALL BE KEPT MOIST AND WATERED DAILY UNTIL ESTABLISHED. 3. SEEDING INSTALLATION SHALL OCCUR ONLY
- SPRING: APRIL1 TO JUNE1 FALL: AUGUST 15 TO OCTOBER 15

# TYPICAL SEEDED LAWN MIX:

- 1. ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDROSEEDED WITH TYPICAL DROUGHT TOLERANT, DURABLE BLENDED SEED MIX, AT A RATE OF 220 LBS PER ACRE
- 2. MIX IS COMPRISED OF 30% NITE HAWK PERENNIAL RYE 30% KENTUCKY BLUEGRASS 20% CREEPING RED FESCUE 10% MERIT KENTUCKY BLUEGRASS

10% NEWPORT KENTUCKY BLUEGRASS



**GUY DECIDUOUS TREES ABOVE** 

(1) YEAR.

TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 6" ABOVE GRADE IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY

DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.

REMOVE ALL TAGS, STRING, PLASTIC AND OTHER MATERIALS.

**GENERAL LANDSCAPE NOTES** 

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT

AND RELATED WORK. IN CASE OF DISCREPANCY

BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL

GOVERN QUANTITIES. CONTACT THE LANDSCAPE

2. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL

ON HIS/HER PHASE OF WORK. ANY DAMAGE OR

3. THE CONTRACTOR SHALL COORDINATE ALL RELATED

REPRESENTATIVE PRIOR TO COMMENCEMENT.

4. PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN

HEALTHY VIGOROUS GROWING CONDITION.

ONE (1) YEAR FOLLOWING PLANTING.

FOREIGN MATERIAL, AND STONE.

RATES.

INCONSISTENT SIZE.

REPRESENTATIVE.

5. PLANTS SHALL BE WATERED BEFORE AND AFTER

6. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES

"AMERICAN STANDARDS FOR NURSERY STOCK".

SOIL SHALL BE SCREENED AND FREE OF DEBRIS,

8. SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE

9. AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL

DEPTH AS INDICATED IN PLANTING DETAILS.

10. ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED

11. NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR

THE LANDSCAPE ARCHITECT OR OWNERS

CONDITIONS PRIOR TO INSTALLATION.

14. THE LANDSCAPE ARCHITECT OR OWNERS

TO EQUAL OR GREATER CONDITION.

AUTOMATIC UNDERGROUND SYSTEM.

PLANT PITS BEFORE BEING BACKFILLED. APPLICATION

CONSIST OF 1/3 SCREENED TOPSOIL, 1/3 SAND, AND 1/3

"DAIRY DOO" COMPOST, MIXED WELL AND SPREAD TO A

HARDWOOD BARK, SPREAD TO A DEPTH OF 3" FOR TREES

AND SHRUBS, AND 2" ON ANNUALS, PERENNIALS, AND

FROM DEBRIS AND FOREIGN MATERIAL, AND PIECES ON

PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF

GROUNDCOVER PLANTINGS. MULCH SHALL BE FREE

12. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY

DISCREPANCIES BETWEEN THE PLANS AND FIELD

13. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE

FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.

REPRESENTATIVE SHALL HAVE THE RIGHT TO REJECT

ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS.

15. THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH

DESIGNATED AS SUCH ON THE PLANS, THROUGHOUT THE

CONTRACT LIMITS. FURTHER, THE CONTRACTOR SHALL

BE RESPONSIBLE FOR RESTORING AREAS DISTURBED

16. ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE

LAWN AREAS OR AROUND TREES AND SHRUBS. 17. ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN

DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS,

THAT PREVENTS EXCESSIVE WATER FROM PONDING ON

OR SOD (AS INDICATED ON PLANS) ALL AREAS

SHALL BE AT THE MANUFACTURERS RECOMMENDED

7. CONTRACTOR WILL SUPPLY FINISHED GRADE AND

ESTABLISHED IN THE MOST RECENT EDITION OF THE

EXCAVATE AS NECESSARY TO SUPPLY PLANT MIX DEPTH

IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS

AND A DEPTH OF 4" IN ALL LAWN AREAS. PROVIDE CLEAN BACKFILL SOIL. USING MATERIAL STOCKPILED ON-SITE.

ACTIVITIES WITH OTHER TRADES, AND SHALL REPORT

PLANTING IS COMPLETE. ALL TREES MUST BE STAKED

FERTILIZED AND MULCHED AND SHALL BE GUARANTEED

ANY UNACCEPTABLE SITE CONDITIONS TO THE OWNER'S

INTERRUPTION OF SERVICES SHALL BE THE

RESPONSIBILITY OF THE CONTRACTOR.

ARCHITECT WITH ANY CONCERNS.

EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING

ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION

# - PLANTING MIX TO BE AMENDED PER

TREE PIT = 3X

ROOTBALL WIDTH

-USE 3 HARDWOOD STAKES PER TREE, 36" ABOVE GROUND FOR UPRIGHT, 18" IF ANGLED. DRIVE STAKES INTO UNDISTURBED SOIL 6-8" OUTSIDE ROOTBALL TO A DEPTH OF 18" BELOW TREE PIT. REMOVE AFTER ONE (1) YEAR. WIRE OR ROPE THROUGH A HOSE SHALL NOT BE ALLOWED.

- MULCH 3" DEPTH WITH SHREDDED HARDWOOD BARK. MULCH SHALL BE NATURAL IN COLOR. LEAVE 3" CLEAR AROUND BASE OF TREE. MOUND TO FORM 3" EARTH SAUCER

-REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE ROOTBALL CUT DOWN WIRE BASKET AND FOLD DOWN ALL BURLAP FROM 1/2 OF

SITE CONDITIONS AND REQUIREMENTS OF THE PLANT MATERIAL SCARIFY SUBGRADE AND PLANTING

PIT SIDES. RECOMPACT PIT BASE TO

DECIDUOUS TREE PLANTING DETAIL TREE SHALL BEAR SAME

NTS

LANDSCAPE REQUIREMENTS REMOVE ALL TAGS, STRING, PLASTIC AND OTHER MATERIALS

RELATION TO FINISH GRADE

AS IT BORE ORIGINALLY.

TREE SHALL BEAR SAME

AS IT BORE ORIGINALLY.

BRANCHES.

RELATION TO FINISH GRADE

DO NOT PRUNE TERMINAL LEADER

PRUNE ONLY DEAD OR BROKEN

PLASTIC AND OTHER MATERIALS

HEDGE PLANTING DETAIL

REMOVE ALL TAGS, STRING,

UPRIGHT EVERGREEN SHRUB PLANTING DETAIL

REQUIRED: 150 L.F. - 25 L.F. (DRIVEWAY) / 40 L.F. = 3 TREES REQUIRED 150 L.F. - 25 L.F. /40 L.F. X 6 = 19 SHRUBS REQUIRED PROVIDED: 1 EXISTING TREE, 2 PROPOSED TREES, 1 EXISTING SHRUB, 18 PROPOSED SHRUBS

BEACONSFIELD ROAD:

EXISTING SITE AREA: 30,000 S.F. OR 0.69 ACRES

1 TREE AND 6 SHRUBS PER 40 L.F. OF ROAD FRONTAGE

LANDSCAPE ABUTTING A R.O.W.

EXISTING SITE ZONING: C-2

REQUIRED:

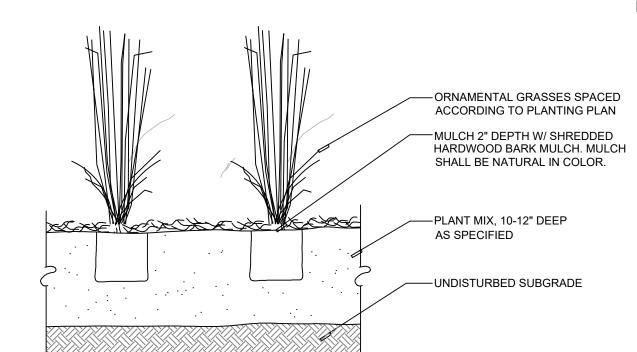
**VERNIER ROAD:** 

REQUIRED: 200 L.F. - 25 L.F. (DRIVEWAY) / 40 L.F. = 4 TREES REQUIRED 200 L.F. - 25 L.F. /40 L.F. X 6 = 26 SHRUBS REQUIRED PROVIDED: 1 EXISTING TREE, 3 PROPOSED TREES, 26 PROPOSED SHRUBS

PARKING LOT LANDSCAPE REQUIREMENTS 20 S.F. OF INTERIOR LANDSCAPING FOR EACH SPACE OVER 15 1 TREE PER 100 S.F. OF REQUIRED AREA 25 PKG SPACES -15 = 10 SPACES X 20 S.F. = 200 S.F. 200 S.F. / 100 S.F. = 2 TREES REQUIRED PROVIDED: 3 EXISTING TREES

GENERAL SITE LANDSCAPE AREA 6% OF SITE AREA SHALL BE LANDSCAPE W/ 1 TREE PER 2,000 S.F. REQUIRED: 30,000 X 6% = 1,800S.F. 1,800 / 2,000 = 1 TREE

PROVIDED: 6,438 S.F. AND 2 EXISTING TREES



- MAINTAIN 2" CLEAR AREA FROM STEM

- MULCH 3" DEPTH W/ SHREDDED

SHALL BE NATURAL IN COLOR.

PLANTING MIX, AS SPECIFIED

1/3 OF ROOTBALL.

SCARIFY SUBGRADE

UNDISTURBED SOIL

- EARTH SAUCER AROUND SHRUB

HARDWOOD BARK MULCH. MULCH

REMOVE ALL NON-BIODEGRADABLE

MATERIALS FROM THE ROOTBALL.

FOLD DOWN ALL BURLAP FROM TOP

NATURAL IN COLOR. LEAVE 3" CLEAR

- MULCH 3" DEPTH WITH SHREDDED

AROUND BASE OF TREE.

ROOTBALL

HARDWOOD BARK. MULCH SHALL BE

MOUND TO FORM 3" EARTH SAUCER

-REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE ROOTBALL

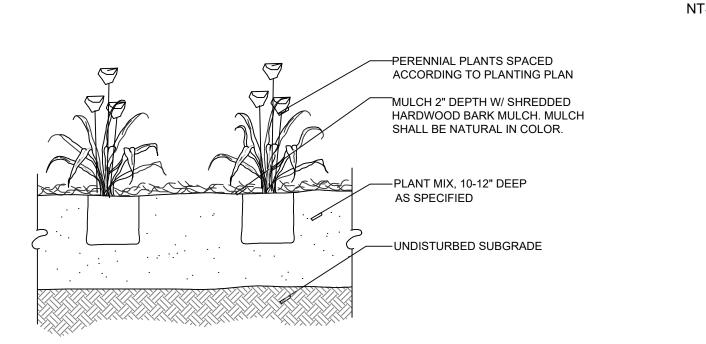
CUT DOWN WIRE BASKET AND FOLD

DOWN ALL BURLAP FROM 1/3 OF

PLANTING MIX AS SPECIFIED

- UNDISTURBED SOIL

# ORNAMENTAL GRASS PLANTING DETAIL



PERENNIAL PLANTING DETAIL

# LEGEND

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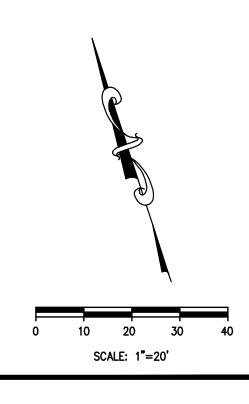
**PROPOSED** 

**DESCRIPTION** 

CONCRETE

**HEAVY DUTY ASPHALT PAVEMENT** 

GRASS / LANDSCAPED AREA TO BE IRRIGATED



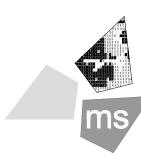
NTS

REVISION/DATE/DESCRIPTION

100% SET 05/05/22 PERMIT SET 07/12/22

CONFIDENCE AND SHALL BE USED ONLY PURSUANT TO THE AGREE MENT WITH THE ARCHITECT NO OTHER USE, DISSEMINATIO OR DUPLICATION MAY BE MADE VITHOUT PRIOR WRITTEN CONSEN OF THE ARCHITECT. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHERWISE ARE HEREBY SPECIFI CALLY RESERVED.





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PROJECT

**TIM HORTONS** HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 **WAYNE COUNTY** 

SHEET TITLE

LANDSCAPE PLAN



DRAWN BY: SEG CHECKED BY:

40509-11

DRAWING

PROJECT NO:

L-1.0

SECTION 2A: CLEARING THE SITE

 SCOPE: FURNISH ALL MATERIALS, EQUIPMENT AND LABOR, CLEARING, EXCAVATING, REMOVAL OF RUBBISH, TRASH AND OTHER NOTED ITEMS, FILLING, GRADING AND RELATED ITEMS NECESSARY TO COMPLETE CLEARING OF SITE WHERE SHOWN AND SPECIFIED.

### PERFORMAN

REFER TO THE SITE PLAN AND GRADING PLAN TO DETERMINE EXTENT OF WORK NECESSARY UNDER THIS HEADING. WHERE DEMOLITION OF BUILDINGS AND REMOVAL OF TREES IS REQUIRED, A DEMOLITION PLAN SHOWING THE LOCATION OF THE NEW BUILDING, FINISH FLOOR ELEVATION, AND ITEMS TO REMAIN WHERE APPLICABLE.

FIRES, STORAGE OF MATERIALS, DEBRIS, OR PARKING OF EQUIPMENT SHALL NOT BE PERMITTED WITHIN THE SPREAD OF BRANCHES OF TREES TO REMAIN.

SECTION 2B: SITE DRAINAGE

GENERAL PROVISIONS

SCOPE: FURNISH AND INSTALL STORM DRAIN PIPES, CATCH BASINS, CURB INLETS, GRATING FRAMES, MANHOLES, AND RELATED ITEMS.

MATERIALS AND PERFORMANCE

- CONCRETE PIPE SHALL CONFORM TO ASTM SPECIFICATIONS C76 CLASS III EXCEPT PIPE OVER 18" IN DIAMETER SHALL BE CLASS III AND/OR CLASS IV WHERE SURCHARGES REQUIRE.
- 2. CORRUGATED METAL PIPE SHALL CONFORM TO ASTM A-760, A761, OR A-762. FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH AISI SPECIFICATIONS.
- 3. MANHOLES, YARD DRAINS, CURB INLETS, AND CATCH BASINS SHALL BE CONSTRUCTED OF CAST-IN-PLACE AND/OR PRECAST REINFORCED CONCRETE. GRATING AND FRAMES SHALL BE OF CAST IRON. PRECAST MANHOLES SHALL BE PER ASTM SPECIFICATION C-478.
- 4. VITRIFIED CLAY PIPE SHALL CONFORM TO ASTM SPECIFICATION C-200 FOR EXTRA STRENGTH PIPE.
- 5. THE HEIGHTS OF STORM DRAINAGE STRUCTURES SHALL BE ADJUSTED SO THAT THE SITE DRAINS PROPERLY AS INTENDED ON THE DRAWINGS WITHIN THE SLOPE LIMITS

SECTION 2C: EARTHWORK

GENERAL PROVISIONS

- SCOPE: FURNISH AND INSTALL/PERFORM ALL GENERAL EXCAVATION,
  FOOTING EXCAVATION, FILLING, BACKFILLING, STRIPPING OF TOPSOIL, SITE
  GRADING, AND RELATED ITEMS NECESSARY TO BRING THE SUB-GRADE TO
  PROPER CONTOUR.
- 2. QUALITY CONTROL: TO ASSURE COMPLIANCE WITH THE FILLING AND BACKFILLING COMPACTION REQUIREMENTS, A SOIL TESTING LABORATORY SHALL BE NOTIFIED BY THE CONTRACTOR TO CHECK COMPACTION WHEN SO INSTRUCTED BY THE OWNER OR HIS AGENT. PROVIDE THE OWNER WITH A COPY OF THE COMPACTION TEST RESULTS.
- 3. A SOIL REPORT WILL BE CONDUCTED AND FURNISHED BY OWNER AND SHALL BE REFERENCED FOR SPECIFIC SITE, SOIL, AND FOUNDATION MODIFICATIONS.

MATERIAL AND PERFORMANCE

 FOOTING EXCAVATION: ALL FOOTING EXCAVATION SHALL EXTEND INTO UNDISTURBED VIRGIN SOIL OF 2000 PSF MINIMUM BEARING CAPACITY, TO THE DEPTH OF THE FOOTING SHOWN, OR TO A MINIMUM DEPTH REQUIRED BY LOCAL CODE TO MEET FROST LINE OR OTHER RESTRICTIONS, WHICHEVER IS GREATER.

ALL EXCAVATION BELOW THE BOTTOM OF THE FOOTING SHALL BE BACKFILLED WITH 2000 PSI CONCRETE, BUT EXCAVATION SHALL NOT EXCEED 10' WITHOUT THE APPROVAL OF THE ENGINEER.

ALL FOUNDATION EXCAVATIONS SHALL BE FREE OF MUD, WATER, AND ALL FOREIGN MATERIAL PRIOR TO POURING.

PROVIDE ADEQUATE PROTECTION AGAINST CAVE-IN.

EXCAVATION FOR PLUMBING, HEATING, AND ELECTRICAL WORK SHALL BE DONE BY THE TRADES INVOLVED.

2. GRADING: THE ENTIRE SITE SHALL BE GRADED TO DRAIN PROPERLY. EXISTING AND FINISH GRADES ARE SHOWN ON THE GRADING PLAN. GRADE AND PROVIDE NECESSARY CUT OR FILL TO BRING THE SUB-GRADE TO THE REQUIRED LEVEL FOR THE BUILDING AND PARKING LOT. ALL FILL MATERIAL AND COMPACTION SHALL BE AS RECOMMENDED IN SOIL ENGINEER'S REPORT. IN THE EVENT THAT NO SOIL ENGINEER'S REPORT IS PROVIDED, ALL FILL MATERIAL AND COMPACTION SHALL BE CLEAN YELLOW SAND OR OTHER BORROW MATERIAL AS SPECIFICALLY APPROVED IN WRITING BY THE OWNER.

IN THE EVENT OF CONFLICT BETWEEN GRADES ESTABLISHED ON THE POPEYE'S SITE AND EXISTING GRADES ON ADJACENT PROPERTIES, THE OWNER SHALL BE NOTIFIED IMMEDIATELY.

3. FILL MATERIAL: REFER TO SOIL REPORT FOR FILL MATERIAL AND COMPACTION SPECIFICATIONS. IF NO SOIL REPORT IS PROVIDED, FOR EACH TYPE OF BORROW MATERIAL DELIVERED TO THE SITE, ONE (1) OPTIMUM MAXIMUM DENSITY CURVE SHALL BE ESTABLISHED BY AN ACCEPTED LABORATORY. THESE DENSITIES SHALL BE DETERMINED BY ASTM D1557, MODIFIED PROCTOR DENSITY. COMPACTION SHALL BE 95% OF MAXIMUM DENSITY WITH MOISTURE CONTENT WITHIN 3% OF OPTIMUM AND CAPABLE OF SUPPORTING 2000 PSF. FILL MATERIAL TO BE LACED IN 6 TO 8

SECTION 2D: SOIL POISONING

GENERAL REQUIREMENTS

INCH LIFTS.

- SCOPE: FURNISH AND INSTALL CHEMICAL TREATMENT TO PREVENT TERMITE INFESTATION FOR AREAS TO BE COVERED BY BUILDING SLABS, FOOTINGS, AND SIDEWALKS.
- 2. GUARANTEE: FURNISH WRITTEN GUARANTEE PROVIDING THAT (A)
  CHEMICAL AS APPLIED MEETS CONCENTRATION REQUIREMENTS AND
  APPLICATION RATE SPECIFIED HEREIN, (B) SOIL IS EFFECTIVELY TREATED
  AGAINST TERMITE INFESTATION FOR A PERIOD OF FIVE (5) YEARS FROM
  DATE OF TREATMENT, AND (C) IF ANY EVIDENCE OF INFESTATION OCCURS
  WITHIN FIVE (5) YEARS, ENTIRE PROJECT WILL BE COMPLETELY RETREATED
  AND ALL CONSTRUCTION DAMAGE CAUSED BY TERMITES WILL BE REPAIRED
  AT NO COST TO OWNER.

SOIL AREAS DESIGNATED SHALL BE TREATED BY ON OF THE FOLLOWING CHEMICALS AT NOT LESS THAN THE CONCENTRATIONS AS SHOWN BELOW:

CHEMICAL CONCENTRATION

ALDRIN .5% IN WATER EMULSION
CHLORIANE 1.0% IN WATER EMULSION
DIELDRIN .5% IN WATER EMULSION

PERFORMANCE

HELPTACHLOR

BECAUSE OF THE TOXIC NATURE OF THESE MATERIALS, THEY SHALL BE APPLIED CAREFULLY TO ONLY THE DESIGNATED AREAS BY AN EXPERIENCED APPLICATOR.

.5% IN WATER EMULSION

FOUNDATION, WALLS 4 GALLONS PER 10 MIX TO A DEPTH OF PIERS, ETC. LINEAR FEET 1'0" MIN.
UNIT MASONRY AND 2 GALLONS PER 10 APPLY NEAR BOTTOM PIERS UNDER LINEAR FEET OF FOUNDATION FLOOR SLABS

1.5 GALLONS PER 10 UNIFORM COVERAGE SQ. FT.

APPLY JUST PRIOR TO INSTALLATION OF VAPOR BARRIER. IF NECESSARY FOR COMPLETE PROTECTION, SUBSEQUENT TREATMENT SHALL BE MADE BEFORE SLABS AND SIDEWALKS ARE POURED OR IF SOIL IS DISTURBED BY LATER FXCAVATION

SECTION 2E: ROADS AND WALKS

GENERAL REQUIREMENTS

1. SCOPE: FURNISH AND INSTALL ALL CURBS AND GUTTERS, PAVING, MARKING STRIPES, AND SIDEWALKS AS SHOWN ON THE SITE PLAN AND NOTED HEREIN.

2. QUALITY CONTROL:

BE USED IN THE WORK.

A. SAMPLING AND TESTING:

(1) THE OWNER IS TO EMPLOY AN INDEPENDENT LABORATORY TO CORE THE PARKING LOT ON THE DAY IT IS INSTALLED.
(2) THE OWNER IS TO ADVISE THE GENERAL CONTRACTOR OF THE TESTING LABORATORY.
(3) THE GENERAL CONTRACTOR SHALL NOTIFY THE TESTING COMPANY OF THE DATE OF THE PAVING, WITH A MINIMUM OF ONE (1) WEEK'S ADVANCE NOTICE.
(4) THE GENERAL CONTRACTOR IS TO INFORM THE PAVING CONTRACTOR THAT HE IS TO INCLUDE IN HIS PRICE THE REPLACEMENT OF THE CORES AS SPECIFIED IN SECTION 2E: PERFORMANCE: ASPHALT: D. TO ENSURE THE INTEGRITY OF THE PAVEMENT AND FULL WARRANTY.
(5) IF REQUESTED BY THE OWNER, FURNISH FOR TEST AND ANALYSIS REPRESENTATIVE SAMPLES OF THE MATERIALS TO

B. SMOOTHNESS: THE SURFACE OF THE COMPLETED WORKS, WHEN TESTED WITH A 10' STRAIGHT EDGE, SHALL NOT CONTAIN IRREGULARITIES IN EXCESS OF 1/4 INCH.

MATERIALS

1. CONCRETE: CAST-IN-PLACE CONCRETE AS HEREINAFTER SPECIFIED IN SECTION 3A: CONCRETE.

2. ASPHALT PAVEMENT:

A. ASPHALT MATERIAL AND APPLICATION SHALL BE ACCORDING TO DESIGN SPECIFICATIONS PROVIDED BY SOIL ENGINEERS REPORT.

(1) ALL MATERIAL AND CONSTRUCTION PROCEDURES ARE TO MEET STATE HIGHWAY DEPARTMENT SPECIFICATIONS.

(2) PAVEMENT SECTION

- 6 INCHES AGGREGATE BASE COURSE 2 INCHES ASPHALT BINDER
- 1 INCH ASPHALT SURFACE COURSE
  (3) PRIME COAT OF APPROXIMATELY 0.3 GALLONS PER SQUARE YARD
  OF CUT BACK ASPHALT PRIMER SHALL BE APPLIED TO SURFACE OF
  STONE BASE COURSE.
- TRAFFIC MARKING PAINT: MARK ALL PARKING BAYS, ARROWS AND OTHER TRAFFIC MARKINGS INDICATED ON THE SITE PLAN, PAINT "TRAFFIC YELLOW" REFER TO SITE PLAN. ALL PAINT PRODUCTS TO COMPLY WITH STATE HIGHWAY SPECIFICATIONS.

4. SEALER: TARFLEX WATER-BASED BLACKTOP SEALER.

PERFORMANCE

1. CONCRETE:

A. EXTERIOR CONCRETE: CURBS AND GUTTERS SHALL BE ACCORDING TO DETAILS ON PLANS. SIDEWALKS AND PATIO SLABS SHALL BE POURED 4" THICK OVER WELL TAMPED EARTH BASE, WITH OUTSIDE EDGES THICKENED AND REINFORCED AS SHOWN. SLOPE TO DRAIN. AFTER SCREEDING AND TROWELING, TO PROVIDE A UNIFORM SURFACE, BROOM LIGHTLY BEFORE FINAL SET. PROVIDE CONTROL JOINTS AS SHOWN. CURE IN ACCORDANCE WITH SECTION 3A: CONCRETE.

WHERE REQUIRED BY LOCAL CODE OR HIGHWAY DEPARTMENT REGULATIONS, PROVIDE CONCRETE APPROACHES FROM STREET IN COMPLIANCE WITH SUCH REGULATIONS. ANY ALTERATIONS TO EXISTING SIDEWALKS REQUIRED FOR PROPER APPROACHES ARE TO BE CONSIDERED PART OF THE CONTRACT.

B. PAVEMENT PREPARATION FOR SUBGRADE - THE BOTTOM OF THE EXCAVATION OR THE TOP OF THE FILL SHALL BE KNOWN AS THE PAVEMENT SUBGRADE AND SHALL CONFORM TO THE LINES, GRADE, AND CROSS SECTIONS SHOWN IN THE PLANS. ALL SOFT AND YIELDING MATERIAL AND PORTIONS OF THE SUBGRADE THAT WILL NOT COMPACT READILY WHEN ROLLED OR TAMPED SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL. THE SUBGRADE SHALL BE BROUGHT TO A FIRM AND UNYIELDING CONDITION BY COMPACTING IT TO UNIFORM DENSITY. SOIL SHOULD BE COMPACTED AT OR SLIGHTLY ABOVE STANDARD OPTIMUM MOISTURE. ALL UTILITY TRENCHES AND STRUCTURE EXCAVATIONS SHALL BE BACKFILLED TO NATURAL OR FINISHED GRADE WITH GRANULAR MATERIAL AS SOON AS CONDITIONS PERMIT. ALL BACKFILL SHALL BE COMPACTED WITH MECHANICAL TAMPERS IN LAYER NOT OVER 6" IN COMPACTED THICKNESS TO DENSITIES SIMILAR TO THAT OF SURROUNDING SOILS. CONCRETE SHALL NOT BE PLACED ON A SOFT, SPONGY, FROZEN, OR OTHERWISE UNSUITABLE SUBGRADE. THE SUBGRADE SHALL BE MOIST WHEN CONCRETE IS PLACED.

C. CONCRETE PLACEMENT AND FINISHING - READY-MIXED CONCRETE HAULED IN TRUCK MIXERS OR TRUCK AGITATORS SHALL BE DEPOSITED IN PLACE WITHIN NINETY (90) MINUTES FROM THE TIME WATER IS ADDED TO THE MIX. BEFORE PLACING CONCRETE, FREESTANDING WATER, SNOW, ICE, OR OTHER FOREIGN MATERIALS SHALL BE REMOVED FROM SUBGRADE. ALL FORMS SHALL BE THOROUGHLY CLEANED, SECURED IN POSITION, AND COATED WITH A FORM-RELEASE AGENT. CONCRETE SHALL BE PLACE, STRUCK OFF, CONSOLIDATED, AND FINISHED TO PLAN GRADE WITH A MECHANICAL FINISHING MACHINE, VIBRATING SCREED, OR BY HAND-FINISHING METHODS WHEN APPROVED. IN LIEU OF FIXED FORMS, THE CONTRACTOR MAY PLACE CONCRETE WITH A SLIPFORM PAVER DESIGNED TO SPREAD, CONSOLIDATE, SCREED, AND FLOAT FINISH THE FRESHLY PLACED CONCRETE IN ONE (1) COMPLETE PASS OF THE MACHINE. PAVEMENT SHALL BE PITCHED TO AREA DRAINS OR PERIMETER AREAS TO REMOVE WATER.

AFTER CONCRETE HAS BEEN STRUCK OFF AND CONSOLIDATED, A BULLFLOAT MAY BE USED TO REMOVE ANY HIGH OR LOW SPOTS. BULLFLOAT USE SHALL BE CONFINED TO A MINIMUM. A FINAL SKID-RESISTANT FINISH SHALL BE MADE WITH A BURLAP DRAG OR BROOM.

D. JOINTS - UNLESS SHOWN ON THE PROJECT DRAWINGS, A JOINTING PLAN SHALL BE PREPARED BY THE CONTRACTOR AND APPROVED BEFORE PAVING BEGINS.

CONTROL JOINTS OR CONTRACTION JOINTS SHALL BE FORMED BY ONE

(1) OF THE FOLLOWING METHODS: SAWING, FORMING BY HAND, FORMING PREMOLDED FILLER, OR USING FULL-DEPTH CONSTRUCTION JOINTS. JOINT DEPTH SHALL BE A MINIMUM OF 1/4 THE SLAB THICKNESS. HAND-FORMED JOINTS SHALL HAVE A MAXIMUM EDGE RADIUS OF 1/4" SAWING OF JOINTS SHALL BEGIN AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT SAWING WITHOUT EXCESSIVE RAVELING. ALL JOINTS SHALL BE COMPLETED BEFORE UNCONTROLLED SHRINKAGE CRACKING OCCURS. JOINTS SHALL BE CONTINUOUS ACROSS THE SLAB, UNLESS INTERRUPTED BY FULL-DEPTH PREMOLDED JOINT FILLER. JOINTS SHALL EXTEND COMPLETELY THROUGH THE CURB. JOINT OPENINGS WIDER THAN 1/4" SHALL BE CLEANED AND SEALED BEFORE OPENING PARKING AREA TO TRAFFIC.

ISOLATION JOINTS (EXPANSION JOINTS) SHALL BE USED TO ISOLATE FIXED OBJECTS ABUTTING OR WITHIN THE PAVED AREA. THEY SHALL CONTAIN PREMOLDED JOINT FILLER FOR THE FULL DEPTH OF THE SLAB.

WHEN APPROVED, THE CONTRACTOR SHALL BE PERMITTED TO MAKE MINOR ADJUSTMENTS IN JOINT LOCATION TO MAKE THEM COINCIDE WITH DRAINAGE OR OTHER STRUCTURES.

DOWELS 18" LONG SHALL BE USED ON ALL JOINTS ON 18" CENTERS.

E. DURING - CONCRETE SHALL BE CURED BY PROTECTING IT AGAINST LOSS OF MOISTURE, RAPID TEMPERATURE CHANGE, AND MECHANICAL INJURY FOR AT LEAST THREE (3) DAYS AFTER PLACEMENT. MOIST CURING, WATERPROOF PAPER, WHITE POLYETHYLENE SHEETING, WHITE LIQUID MEMBRANE COMPOUND, OR A COMBINATION THEREOF MAY BE USED. AFTER FINISHING OPERATIONS HAVE BEEN COMPLETED, THE ENTIRE SURFACE OF THE NEWLY-PLACED CONCRETE SHALL BE COVERED BY WHATEVER CURING MEDIUM IS APPLICABLE TO LOCAL CONDITIONS AND APPROVED BY THE ENGINEER. THE EDGES OF CONCRETE SLABS EXPOSED BY THE REMOVAL OF FORMS SHALL BE PROTECTED IMMEDIATELY TO PROVIDE THESE SURFACES WITH CONTINUOUS CURING TREATMENT EQUAL TO THE METHOD SELECTED FOR CURING THE SLAB AND CURB SURFACE. THE CONTRACTOR SHALL HAVE AT HAND AND READY TO INSTALL BEFORE ACTUAL PLACEMENT BEGINS THE EQUIPMENT NEEDED FOR ADEQUATE CURING.

F. OPENING TO TRAFFIC - THE ENGINEER SHALL DECIDE WHEN THE PAVEMENT SHALL BE OPENED TO TRAFFIC. IT SHALL NOT BE OPENED TO TRAFFIC UNTIL THE FIELD-CURED CONCRETE HAS ATTAINED A FLEXURAL STRENGTH OF 550 PSI, OR A COMPRESSIVE STRENGTH OF 3,500 PSI. IF SUCH TEST ARE NOT CONDUCTED, THE PAVEMENT SHALL NOT BE OPENED TO TRAFFIC UNTIL FOURTEEN (14) DAYS AFTER THE CONCRETE WAS PLACED. BEFORE OPENING TO TRAFFIC, THE PAVEMENT SHALL BE CLEANED.

2. ASPHALT:

A. PAVEMENT PREPARATION FOR SUBGRADE: MATERIAL IN SOFT SPOTS SHALL BE REMOVED TO THE DEPTH REQUIRED TO PROVIDE A FIRM FOUNDATION AND REPLACED WITH A MATERIAL EQUAL TO THE BEST SUB-GRADE MATERIAL ON SITE. LOOSELY BONDED SUB-GRADE SHALL BE PRIMED WITH AN ASPHALT PRIMING MATERIAL. THE ENTIRE SUB-GRADE AREA SHALL BE COMPACTED BY AT LEAST FIVE (5) COVERAGES OF A PNEUMATIC-TIRED ROLLER. THE SURFACE OF THE SUB-GRADE AFTER COMPACTION SHALL BE HARD, UNIFORM, SMOOTH AND TRUE TO GRADE AND CROSS SECTION. IF ANY QUESTIONS ARISE AS TO THE CONDITION OF SUB-GRADE, A SOILS ENGINEERING FIRM EMPLOYED BY THE OWNER WILL DETERMINE CONDITION OF SUB-GRADE PRIOR TO PAVING AT THE REQUEST OF THE CONTRACTOR.

B. SPREADING BASE AND SURFACE COURSES - ASPHALT BASE AND SURFACE: FOR ALL AREAS OF MORE THAN 1000 SQUARE YARDS, ASPHALT BASE AND SURFACE COURSES SHALL BE SPREAD AND STRUCK OFF WITH A PAVER. ANY IRREGULARITIES IN SURFACE OF PAVEMENT COURSE SHALL BE CORRECTED DIRECTLY BEHIND THE PAVER. EXCESS MATERIAL FORMING HIGH SPOTS SHALL BE REMOVED WITH A SHOVEL OR LUTE. INTENDED AREAS SHALL BE FILLED WITH HOT MIX AND SMOOTHED WITH A LUTE OR THE EDGE OF A SHOVEL BEING PULLED OVER THE SURFACE. CASTING OF MIX OVER SUCH AREAS SHALL NOT BE PERMITTED.

C. COMPACTION - ASPHALT BASE AND SURFACE: ROLLING SHALL START AS SOON AS THE HOT MIX MATERIAL CAN BE COMPACTED WITHOUT DISPLACEMENT. ROLLING SHALL CONTINUE UNTIL THOROUGHLY COMPACTED AND ALL ROLLER MARKS HAVE DISAPPEARED.

D. SPECIFICATIONS FOR SAMPLING AND PATCHING NEW ASPHALTIC CONCRETE

- 1. AT COMPLETION OF PAVING, TEST CORES SHALL BE TAKEN BY AN INDEPENDENT LABORATORY SELECTED AND PAID BY THE OWNER, TO VERIFY THAT THE THICKNESS OF THE PAVING MATERIALS MEETS THE MINIMUM SPECIFICATION REQUIREMENTS.
- 2. SUFFICIENT CORES SHALL BE TAKEN IN BOTH PARKING STALLS AND DRIVES TO ENSURE REPRESENTATIVE SAMPLING. HOWEVER, NO LESS THAN FOUR (4) LOCATIONS SHALL BE TESTED.
- 3. THE TESTING LABORATORY SHALL NOTIFY THE GENERAL CONTRACTOR AT LEAST TWO (2) DAYS PRIOR TO CORING.
- 4. THE PAVING CONTRACTOR SHALL PATCH CORE HOLES IMMEDIATELY UPON COMPLETION.
- 5. IF THE ASPHALTIC CONCRETE PATCH CANNOT BE INSTALLED IMMEDIATELY AFTER COMPLETION OF CORING, A MINIMUM OF 5" OF PORTLAND CEMENT CONCRETE SHOULD BE PLACED IN THE TEST HOLE, SUCH THAT THE SURFACE CONCRETE SHOULD HAVE A MINIMUM TWENTY EIGHT (28) DAYS' COMPRESSIVE STRENGTH OF 3,000 PSI, WITH PROPER AIR ENTRAINMENT. SIX (6) TEST HOLES WITH DEPTH IN EXCESS OF 6" MAY BE BACKFILLED TO THE REQUIRED PATCH DEPTH WITH COMPACTED CRUSHED STONE OR PORTLAND CEMENT CONCRETE.

6. PATCHING METHOD:

A. A TACK COAT SHALL BE APPLIED TO THE SIDES OF THE CORE HOLES. THE TACK COAT MAY CONSIST OF SS-1, SS-1H, CSS-1H, RS-1, CRS-1, EMULSIFIED ASPHALT OR RC-70 CUTBACK ASPHALT.

B. AN ASPHALTIC CONCRETE PATCH WITH A MINIMUM THICKNESS EQUAL TO THE ORIGINAL ASPHALTIC CONCRETE OR 3", WHICHEVER IS GREATER, SHOULD BE INSTALLED IN THE CORE HOLE, FLUSH WITH THE EXISTING PAVEMENT SURFACE. THE MINIMUM THICKNESS MAY BE REDUCED TO 1" IF A TEMPORARY CONCRETE PATCH IS UTILIZED AS IN (5) ABOVE.

C. THE ASPHALTIC CONCRETE MAY CONSIST OF HOT MIX PLACED AT A TEMPERATURE OF AT LEAST 285 DEGREES F, OR COLD MIX UTILIZING EMULSIFIED OR CUTBACK ASPHALT. THE ASPHALTIC CONCRETE SHOULD MEET THE APPROPRIATE STATE SPECIFICATIONS FOR ASPHALTIC CONCRETE SURFACE COURSE, AND SHOULD BE PROPERLY COMPACTED.

- D. PATCHING SHOULD BE PERFORMED AT TEMPERATURES ABOVE 40 DEGREES F TO ENSURE PROPER SETTING OF THE PORTLAND CEMENT CONCRETE, IF USED, AND CURING OF THE ASPHALTIC CONCRETE, IF COLD MIX IS USED.
- 3. MARKING: MARK ALL PARKING BAYS, ARROWS, AND OTHER TRAFFIC MARKINGS INDICATED ON SITE PLAN. PAINT TRAFFIC YELLOW REFER TO SITE PLAN. ALL PAINT PRODUCTS TO COMPLY WITH STATE HIGHWAY DEPARTMENT SPECIFICATIONS.

SECTION 2F: OPENING SOON SIGN (OPTIONAL)

GENERAL PROVISIONS

1. SCOPE: FURNISH AND INSTALL WOOD POSTS AND INSTALL SIGN FURNISHED BY OWNER.

MATERIALS

1. "OPENING SOON" LOGO SIGN: SUPPLIED AND SHIPPED TO THE SITE BY THE OWNER. THE SIGN CONSIST OF TWO (2) 4' X 8' WOOD SHEETS. INSTALL ON THREE (3) 4" X 4" X 8' WOOD POST IN "V" SHAPE SO THE SIGN MAY BE READ FROM EITHER DIRECTION. INSTALL THE DAY RECEIVED IN A LOCATION TO ENSURE PRIME VISIBILITY.

SECTION 2G: LANDSCAPING

GENERAL PROVISIONS

1. SCOPE: FURNISH AND INSTALL TOPSOIL TO PROPER CONTOUR FOR ALL AREAS NOTED ON THE SITE PLAN TO BE LANDSCAPED.

2. NOTES

A. PLANTING MATERIALS AND INSTALLATION SHALL BE PROVIDED UNDER SEPARATE CONTRACT BY THE OWNER.

B. COORDINATE THE TIMING OF THE PLACEMENT OF TOPSOIL WITH THE OWNER IN ORDER TO PREVENT EROSION OF TOPSOIL.

MATERIALS

1. TOPSOIL: 6" MINIMUM TOPSOIL.

PERFORMANCE

THE TOPSOIL FILL SHALL BE PLACED AFTER THE COMPLETION OF ALL FOUNDATION AND SITE UTILITY WORK WHEN CONSTRUCTION IS NEARING COMPLETION. RAKE SMOOTH IN PREPARATION OF PLANT MATERIAL INSTALLATION, AND REMOVE ALL LUMPS AND TRASH. TOPSOIL SHALL BE BACKFILLED TO ALL PERIMETER CURBS, AND TO ANY PAVING. TOPSOIL SHALL BE PLACED IN THE OUTSIDE PLANTER.

2. NO MULCH SHALL BE USED WITHIN 5'-0" OF BUILDING ENVELOPE . USE VOLCANIC ROCK OR NON-FLAMMABLE MULCH WITHIN 5'-0". MULCH CAN BE USED OUTSIDE THIS DIMESION.A

REVISION/DATE/DESCRIPTION

100% SET 05/05/22 PERMIT SET 07/12/22

NOTICE

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2221 Schrock Road

PROJECT

TIM HORTONS HARPER WOODS, MI

19353 VERNIER RD HARPER WOODS, MI 48225 WAYNE COUNTY

SHEET TITLE

SPECIFICATIONS AND LANDSCAPE NOTES



DRAWN BY:

CHECKED BY:

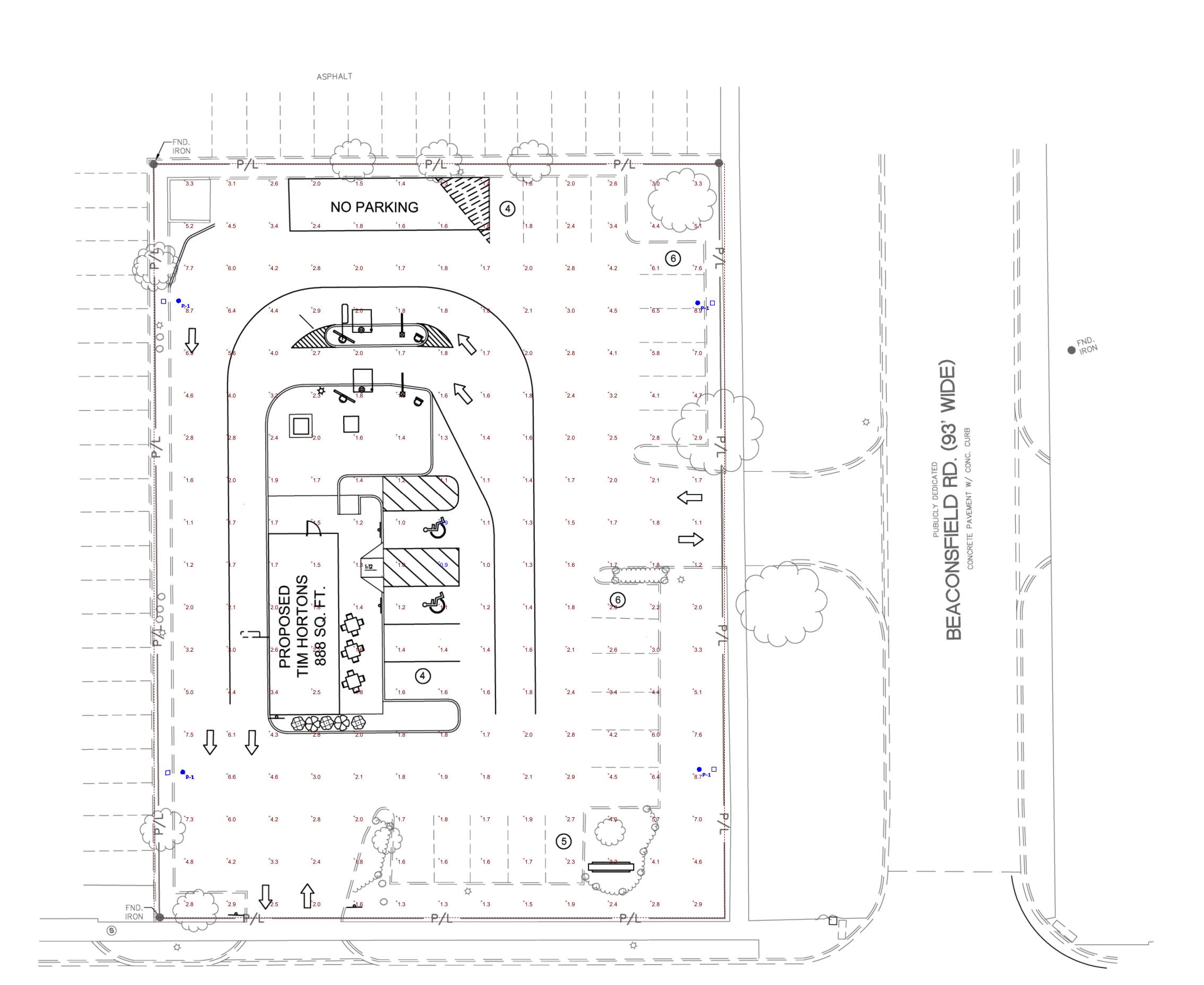
SEG

40509-11

PROJECT NO:

DRAWING

SD500



VERNIER RD. (M-102) (204' WIDE)

ASPHALT PAVEMENT W/ CONC. CURB

Schedule											
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	P-1	4	SIGNIFY GARDCO		EcoForm Area LED ECF - Small, 48 LED's, 4000K CCT, TYPE 4 OPTIC, No Shield	(3) LEDGINE SLD LIGHT ARRAY(S) DRIVEN AT 1200mA	1	ecf-s-48l-1.2a- nw-g2-4.ies	23178	0.95	182.71

Plan View
Scale - 1" = 12ft

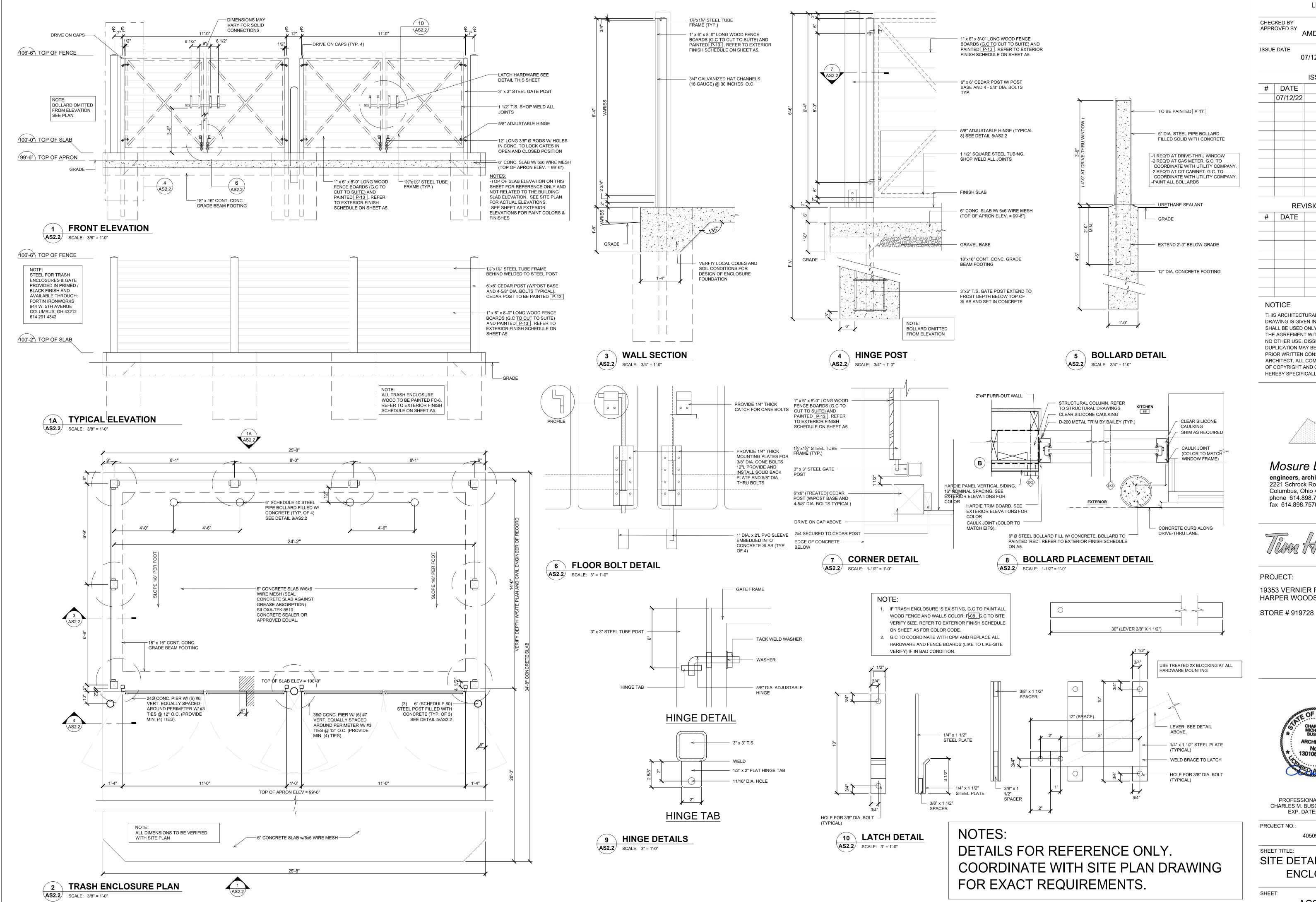
Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	2.8 fc	9.1 fc	0.9 fc	10.1:1	3.1:1

Designer

Date
4/27/2022
Scale
Not to Scale
Drawing No.

Summary

1 of 1



DRAWN BY

CHECKED BY

ISSUE DATE

07/12/2022

ISSUE

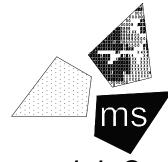
LRK

# DATE DESCRIPTION PERMIT SET

REVISIONS # DATE DESCRIPTION

NOTICE

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Mosure L.L.C engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 130106876 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

SITE DETAILS - TRASH **ENCLOSURE** 

AS2.2

### EXTERIOR WALL AT JAMES HARDIE SIDING HARDIE PANEL VERTICAL SIDING AT 16" O.C TO EXTERIOR ELEVATIONS FOR COLOR 3/8" VERTICAL WOOD FURRING 16" O.C. 2"x4" WOOD STUDS LAID FLAT AND PLACED VERTICALLY @ 32" O.C STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION, ROUGH STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION, ROUGH OPENINGS, SHEATHING JOINTS, FLASHINGS, WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO OPENINGS. SHEATHING JOINTS. FLASHINGS. WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR 1 LAYER ½" EXTERIOR GRADE PLYWOOD 2"X6" WOOD STUDS @16" O.C. 2"X6" WOOD STUDS @16" O.C UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP. UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP FSK FOIL FACED FLAME SPREAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP. FSK FOIL FACED FLAME SPRÈAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP. UNFACED BATT INSULATION (R-20) FROM U/S OF DECK TO 18" MIN. ABOVE DECK. I LAYER OF $^\prime\!\!\!/_{\!\!2}$ " GYPSUM BOARD SHEATHING ON CONTINUOUS 6 MIL. POLYETHYLENE VAPOR BARRIER TO (U/S 2"X4" WOOD STUDS @16" O.C. TO U/S OF DECK OF DECK) ½" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) PROVIDE 1/2" CEMENTITIOUS BACKER BOARD INSTEAD OF GYPSUM BOARD TO 2'-0" ABOVE FLOOR SLAB C/W 1/2" DUROCK NEXT GEN CEMENT BOARD UP TO 2'-0" A.F.F. AND 1/2" MOLD RESISTANT GYPSUM BOARD FROM ACOUSTICAL SEALANT AT BASE. EXTERIOR WALL AT JAMES HARDIE VERTICAL SIDING - HARDIE PANEL VERTICAL SIDING AT 16" O.C EXTERIOR WALL AT ALUMINUM SIDING (KNOTWOOD) - 3/8" VERTICAL WOOD FURRING 16" O.C. KNOTWOOD ALUMINUM SIDING WITH $rac{1}{2}$ " REVEAL JOINTS (STAGGERED) C/W PRE FINISHED TRIM PIECES. REFER 1" RIGID INSULATION TO EXTERIOR ELEVATIONS FOR COLOR. - STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION, ROUGH 2"x4" WOOD STUDS LAID FLAT AND PLACED VERTICALLY @ 32" O.C. OPENINGS. SHEATHING JOINTS. FLASHINGS. WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION, ROUGH RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR OPENINGS, SHEATHING JOINTS, FLASHINGS, WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR 1 LAYER ½" EXTERIOR GRADE PLYWOOD 2"X6" WOOD STUDS @16" O.C. 1 LAYER ½" EXTERIOR GRADE PLYWOOD UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP. 2"X6" WOOD STUDS @16" O.C. FSK FOIL FACED FLAME SPREAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP. UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP. - UNFACED BATT INSULATION (R-20) FROM U/S OF DECK TO 18" MIN. ABOVE DECK. FSK FOIL FACED FLAME SPREAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP 1 LAYER OF 1/2" GYPSUM BOARD SHEATHING ON CONTINUOUS 6 MIL. POLYETHYLENE VAPOR BARRIER TO (U/S UNFACED BATT INSULATION (R-20) FROM U/S OF DECK TO 18" MIN. ABOVE DECK. OF DECK) 2"X4" WOOD STUDS @16" O.C. TO U/S OF DECK - PROVIDE $1\!\!/_2$ " CEMENTITIOUS BACKER BOARD INSTEAD OF GYPSUM BOARD TO 2'-0" ABOVE FLOOR SLAB C/W ½" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) ACOUSTICAL SEALANT AT BASE. $lag{1}{2}$ " DUROCK NEXT GEN CEMENT BOARD UP TO 2'-0" A.F.F. AND $rac{1}{2}$ " MOLD RESISTANT GYPSUM BOARD FROM EXTERIOR WALL AT JAMES HARDIE HORIZONTAL SIDING - HORIZONTAL, 24" PANELS WITH 1/2" REVEAL CHANNEL W1\* INTERIOR WALL AT WASHROOM: - %" DUROCK NEVY OF A CENTER - 3/8" VERTICAL WOOD FURRING 16" O.C. 1" RIGID INSULATION ½" DUROCK NEXT GEN CEMENT BOARD (WASHROOM SIDE) - STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION. ROUGH // PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) OPENINGS, SHEATHING JOINTS, FLASHINGS, WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO WOOD STUDS @ 16" O.C RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR ½" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) 1/2" DUROCK NEXT GEN CEMENT BOARD UP TO 2'-0" A.F.F. AND 1/2" MOLD RESISTANT GYPSUM BOARD 1 LAYER ½" EXTERIOR GRADE PLYWOOD FROM 2'-0" A.F.F. (KITCHEN SIDE) - 2"X6" WOOD STUDS @16" O.C. UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP. INTERIOR 48" HALF HEIGHT WALL WITH DROPPED SECTION AT FRONT WINDOWS - FSK FOIL FACED FLAME SPREAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP. $rac{1}{2}$ " DUROCK NEXT GEN CEMENT BOARD $rac{1}{2}$ " PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL UNFACED BATT INSULATION (R-20) FROM U/S OF DECK TO 18" MIN. ABOVE DECK. MOUNTED EQUIPMENTS) 1 LAYER OF "" GYPSUM BOARD SHEATHING ON CONTINUOUS 6 MIL. POLYETHYLENE VAPOR BARRIER TO (U/S OF DECK). 1/2" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) · PROVIDE $1\!\!/_{\!\!2}$ " CEMENTITIOUS BACKER BOARD INSTEAD OF GYPSUM BOARD TO 2'-0" ABOVE FLOOR SLAB C/W ${}_2^{\prime\prime}$ DUROCK NEXT GEN CEMENT BOARD UP TO 2'-0" A.F.F. AND ${}_2^{\prime\prime}$ " MOLD RESISTANT GYPSUM BOARD ACOUSTICAL SEALANT AT BASE. FROM 2'-0" A.F.F. EX4 EXTERIOR WALL AT JAMES HARDIE SIDING VERTICAL WIDING & INTERIOR WALL INTERIOR 78" HALF HEIGHT WALL - HARDIE PANEL VERTICAL SIDING AT 16" O.C $rac{1}{2}$ " DUROCK NEXT GEN CEMENT BOARD $rac{1}{2}$ " PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL - 3/8" VERTICAL WOOD FURRING 16" O.C. 1" RIGID INSULATION WOOD STUDS @ 16" O.C STO GOLD COAT FLUID APPLIED MEMBRANE AIR BARRIER. ALL TRANSITIONS AT FOUNDATION, ROUGH ½" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) OPENINGS, SHEATHING JOINTS, FLASHINGS, WALL PENETRATIONS AND PARAPETS TO BE SEALED W/ STO $\frac{1}{2}$ " DUROCK NEXT GEN CEMENT BOARD UP TO 2'-0" A.F.F. AND $\frac{1}{2}$ " MOLD RESISTANT GYPSUM BOARD RAPID GUARD PER MANUFACTURERS SPECS PRIOR TO APPLICATION OF FLUID APPLIED MEMBRANE AIR BARRIER. - 1 LAYER ½" EXTERIOR GRADE PLYWOOD 2"X6" WOOD STUDS @16" O.C. — — — DOTTED LINE INDICATES LOCATION OF FIBERGLASS REINFORCED PANEL (FRP) LOCATION. - UNFACED BATT INSULATION (R-20) UP TO 10'-0" MAX C/W 2"X6" FIRE STOP. - FSK FOIL FACED FLAME SPRÈAD 25 BATT INSULATION (R-20) FROM 10'-0" TO U/S OF DECK C/W 2"X6" FIRE STOP HIDDEN LINE INDICATES LOCATION OF BLOCKING IN BETWEEN THE STUDS FOR WALL MOUNTED - UNFACED BATT INSULATION (R-20) FROM U/S OF DECK TO 18" MIN. ABOVE DECK. \_\_\_\_ 1 LAYER OF ½" GYPSUM BOARD SHEATHING ON CONTINUOUS 6 MIL. POLYETHYLENE VAPOR BARRIER TO (U/S EQUIPMENT. REFER TO INTERIOR ELEVATIONS FOR LOCATION OF DECK). - PROVIDE $\frac{1}{2}$ " CEMENTITIOUS BACKER BOARD INSTEAD OF GYPSUM BOARD TO 2'-0" ABOVE FLOOR SLAB C/W "a" DENOTES "b" DENOTES ACOUSTICAL SEALANT AT BASE. - 2"X4" WOOD STUDS @16" O.C. TO U/S OF DECK 2 X 4 WOOD 2 X 6 WOOD ½" PLYWOOD BACKING (BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENTS) STUDS STUDS

### SYMBOL LEGEND **ELEVATION NUMBER DETAIL NUMBER** DRAWING NUMBER DRAWING NUMBER 101 DOOR NUMBER SECTION NUMBER $\left(\begin{array}{c} 1 \\ A1 \end{array}\right)$ DRAWING NUMBER WINDOW NUMBER BUILDING SECTION NUMBER DRAWING NUMBER ROOM NAME & NUMBER STORAGE NOTE REFERENCE

½" DUROCK NEXT GEN CEMENT BOARD (WASHROOM SIDE)

# **FLOOR PLAN NOTES**

- G.C TO PROVIDE AND INSTALL 2" X 2" (4FT LIGHT DUTY 20 GAUGE "#4 BRUSHED") S/S CORNER GUARDS FROM 4" A.F.F AND 1 1/2" X 1 1/2" PLASTIC CORNER GUARDS (FROM FRP SUPPLIER) FROM 4'-4" TO U/S OF CEILINGS AND
- G.C TO COORDINATE WITH UTILITY COMPANIES FOR PLACEMENT / LOCATION OF BOLLARDS . G.C TO PROVIDE 6" DIA. METAL BOLLARD FILL W/ CONCRETE AND PAINTED. REFER TO DETAIL 1/A7.1 & EXTERIOR ELEVATIONS A5/A5.1 FOR PAINT COLOR AND TYPE.
- PROVIDE PLYWOOD BACKING / BLOCKING IN WALL AS REQUIRED TO SUPPORT WALL MOUNTED MONITOR. REFER TO INTERIOR ELEVATION 5/A9 & 6/A9
- 6" DIA. METAL BOLLARD FILL W/ CONCRETE AND PAINTED. REFER TO DETAIL 1/A7.1 & EXTERIOR ELEVATIONS A5/A5.1 FOR PAINT COLOR AND TYPE.
- NO TILE FLOORING REQUIRED ON FLOOR AT FREEZER. FREEZER TO HAVE INSULATED FLOOR. G.C TO PROVIDE & INSTALL 2" RIGID INSULATION UNDER SLAB FOR ENTIRE AREA OF COOLER / FREEZER. G.C TO COORDINATE
- PROVIDE 1/2" PLYWOOD FROM FINISHED FLOOR TO 8'-0" BEHIND ELECTRICAL PANEL. PAINT PLYWOOD W/ 1 COAT OF PRIMERX PEEL BONDING PRIMER & 2 FINISH COATS OF WHITE LATEX PAINT W/ CLASS A RATING (BY SHERWIN WILLIAMS).
- ROOF LADDER. REFER TO DETAIL 1/A8
- 8" DEEP x 4'-2" WIDE x 6" HIGH CONCRETE HOUSE KEEPING PAD @ LOCATION OF ELECTRICAL PANELS. PROVIDE TILE FLOORING ON HORIZONTAL & VERTICAL SURFACES OF CONCRETE PAD. PROVIDE SAME FINISH AS ADJACENT FLOORING
- OVERHEAD SHELVING. REFER TO DETAILS 11/A8 &12/A8 FOR SHELVING SUPPORT. REFER TO STRUCTURAL DRAWINGS. RESTAURANT OWNER TO ENSURE IN A NON-SPRINKLER BUILDING ALL BOXES STACKED ON OVERHEAD SHELVING SHOULD LEAVE A SPACE OF MIN. 18" FROM FINISHED CEILING (TYP.)
- TANKLESS WALL MOUNTED WATER HEATER. REFER TO PLUMBING DRAWINGS
- 11 G.C TO PROVIDE AND INSTALL SURFACE MOUNTED MOP SINK. WALLS AROUND MOP SINK TO RECEIVE ½" CEMENTITIOUS BACKER BOARD FROM FLOOR TO 4'-0" A.F.F. REFER TO MECHANICAL DWGS
- GAS METER. REFER TO MECHANICAL DRAWINGS. COORDINATE LOCATION WITH CIVIL DRAWINGS AND LOCAL UTILITY COMPANY.
- FURR OUT WALL W/ 1 LAYER ½" CEMENTITIOUS BACKER BOARD ON 2"X4" WOOD STUDS @ 24" O.C. COMPLETE WITH ½" PLYWOOD BACKING BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENT. CARRY STUDS & CEMENT BOARD 4" ABOVE CEILING.
- FURR OUT WALL W/ 1 LAYER ½" DUROCK NEXT GEN CEMENT BOARD ON 2"X4" WOOD STUDS @ 24" O.C. COMPLETE WITH 1/2" PLYWOOD BACKING BETWEEN STUDS @ LOCATION OF WALL MOUNTED EQUIPMENT. CARRY
- PROVIDE PLYWOOD BACKING IN WALL AS REQUIRED TO SUPPORT WALL MOUNTED BRACKETS FOR EXHAUST HOOD 72.14. REFER TO ELEVATION 6/A9.11/A9 & DETAIL 5/A8.
- METAL RAILING SUPPLIED AND INSTALLED BY G.C (ONLY IF REQUIRED) ARCHITECT TO COORDINATE WITH CIVIL ENGINEER ON THE SITE PLAN. REFER TO DETAIL 9A/A8
- 8 INSTALL FLOOR TILE AFTER INSTALLATION OF COOLER UNIT. G.C TO COORDINATE WITH COOLER/ FREEZER MANUFACTURER
- PROVIDE & INSTALL 10'-6" STRIP OF CONCRETE BOARD (C/W MOLD RESISTANT TAPE AND COMPOUND) INSTEAD OF GYPSUM BOARD AT THE BASE OF EXTERIOR/INTERIOR WALL AROUND COOLER/ FREEZER LOCATION TO PREVENT MOLD GROWTH.
- |20| NOT USED
- ADVANCED WATER FILTRATION SYSTEM. WATER FILTRATION SYSTEM TO BE INSTALLED TIGHT AGAINST WALL TO MAXIMIZE FLOOR SPACE
- $\mathbb{C}^{2}$  REFER TO SHEET A9.2 FOR WASHROOM ELEVATIONS.
- PREFABRICATED CANOPY AT DRIVE-THRU WINDOW, REFER TO EXTERIOR ELEVATIONS ON SHEETS A5 & A5.1 AND TO DETAIL 1/A7.2
- |24| DASHED LINE INDICATES LOCATION OF FROST SLAB. REFER TO STRUCTURAL DRAWINGS FOR SIZE.
- 25 G.C TO PROVIDE CONCRETE CURB ALONG DRIVE-THRU LANE. CURB TO PROJECT 8" FROM FACE OF SIDING AND LENGTH OF CURB IS EXTENT OF FEATURE WALL. REFER TO DETAIL 12/A7.
- 🖟 C/T CABINET & ELECTRICAL METER. REFER TO ELECTRICAL DRAWINGS. COORDINATE ACCESS WITH LOCAL UTILITY COMPANY AND VERIFY EQUIPMENT TO BE INSTALLED
- $ec{ec{ec{v}}}$  WALL MOUNTED FIRE EXTINGUISHER TO BE SUPPLIED BY G.C. G.C. TO VERIFY LOCATION WITH FIRE MARSHALL
- $_{
  m 28}|$  PROVIDE PLYWOOD BEHIND PORTAL OFFICE CABINET. REFER TO INTERIOR ELEVATION 1/A9
- 29 MANUAL WALK-UP WINDOW. G.C TO SUPPLY AND INSTALL.
- $_{
  m 0}$  G.C. TO PROVIDE AND INSTALL WOOD BLOCKING BEHIND WALL MOUNTED EQUIPMENT. REFER TO INTERIOR ELEVATION ON A9.
- AUTOMATIC DRIVE THRU WINDOW C/W BODY SENSOR. G.C TO COORDINATE WITH EQUIPMENT SUPPLIER. G.C. TO COORDINATE WITH RESTAURANT OWNER TO IDENTIFY WHICH DRIVE-THRU WINDOW TO BE INSTALLED (MANUAL OR AUTOMATIC). REFER TO DRIVE-THRU SPECS ON SHEET A11.
- $32\mid$  PROVIDE MIN. 2" AIR SPACE BETWEEN COOLER / FREEZER AND FACE OF WALL.
- 33 COOLER / FREEZER UNIT PROVIDED & INSTALLED BY MANUFACTURER. INTERIOR RAMP TO BE PROVIDED INSIDE FREEZER UNIT BY MANUFACTURER. G.C TO COORDINATE
- CROSS HATCH INDICATES LOCATION OF SHEAR WALLS. REFER TO STRUCTURAL DRAWINGS.
- 36 G.C. TO PROVIDE AND INSTALL S/S PANELS BEHIND AND BESIDE RATIONAL OVENS/ EGG STATION AS INDICATED. REFER TO DETAIL 4/A8 AND INTERIOR ELEVATIONS 1/A9
- TELEPHONE PANEL BOARD. REFER TO ELECTRICAL DRAWINGS
- 38 NOT USED
- 39 NOT USED
- 40 NOT USED
- 41 G.C. TO PROVIDE AND INSTALL WOOD BLOCKING BEHIND EGG STATION SHELVING. REFER TO INTERIOR ELEVATION ON 1/A9.
- 42 HOSE BIB. REFER TO EXTERIOR ELEVATIONS AND MECHANICAL DRAWINGS.

# **GENERAL NOTES:**

- IN ADDITION TO THESE GENERAL NOTES, THE CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR OTHER SPECIFIC INSTRUCTIONS AS THEY MAY AFFECT THE GENERAL CONSTRUCTION OF THIS PROJECT. DISCREPANCIES BETWEEN PORTIONS OF THE CONTRACT DOCUMENTS ARE NOT INTENDED. THE CONTRACTOR IS TO CLARIFY WITH THE ARCHITECT AND OWNER ANY SUCH DISCREPANCIES PRIOR TO COMMENCING WORK
- ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE BUILDING CODES AND LOCAL RESTRICTIONS. CONTRACTORS MUST COMPLY WITH CONTRACTOR REGISTRATION REQUIREMENTS OF ALL GOVERNING
- AUTHORITIES. ALL REQUIRED CITY / COUNTY / STATE PERMITS SHALL BE ACQUIRED BEFORE COMMENCING ANY CONSTRUCTION. APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF
- PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS IN GOOD CONDITION ON THE PREMISES AT ALL TIMES. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO ANY WORK AND SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUBCONTRACTORS AND
- STATED DIMENSIONS TAKE PRECEDENCE OVER GRAPHICS. DO NOT SCALE DRAWINGS TO DETERMINE LOCATIONS. THE ARCHITECT SHALL BE NOTIFIED PRIOR TO CONTINUING WITH WORK IF ANY DISCREPANCIES CONTRACTOR SHALL REFER AND CONFORM TO ALL RECOMMENDATIONS AND FINDINGS AS SET FORTH IN GEOTECHNICAL REPORT. THE OWNER AND/OR ARCHITECT ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY

OF THE FINDINGS, OR FOR THE FINAL RECOMMENDATIONS, GRADING, TRENCHING, ETC. - CONTACT OWNER FOR INSTRUCTIONS PRIOR TO THE CONTINUATION OF WORK SHOULD ANY UNUSUAL CONDITIONS BECOME

- APPARENT DURING GRADING OR FOUNDATION CONSTRUCTION. EXISTING ELEVATIONS AND LOCATIONS TO BE JOINTED SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IF THEY DIFFER FROM THOSE SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OWNER SO THAT MODIFICATIONS CAN BE MADE BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREIN OR NOT AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR THE EXPENSE OF
- REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THE WORK.
- IF CODE INFORMATION INDICATES THAT BUILDING IS FIRE SPRINKLERED, PROVIDE FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13 AND SHOWN HEREIN. FIRE SPRINKLER CONTRACTOR IS TO SUBMIT COMPLETE SHOP DRAWINGS, HYDRAULIC CALCULATIONS, LAYOUT AND RELATED DATA TO FIRE MARSHAL FOR APPROVAL PRIOR TO INSTALLATION., SHOP DRAWINGS SHALL BE CERTIFIED BY LICENSED ENGINEER IN
- MEANS, METHODS, SAFETY MEASURES AND TEMPORARY SERVICES REQUIRED DURING CONSTRUCTION SHALL BE AT THE SOLE EXPENSE/ RESPONSIBILITY OF G.C. . ALL INTERIOR NON-STRUCTURAL PARTITION SHALL BE 2 X 4 WOOD STUDS @ 24" O.C. FROM SLAB TO 6" ABOVE FINISHED CEILING, UNLESS NOTED OTHERWISE. DIAGONALLY BRACE TOP OF WALL TO ROOF STRUCTURE
- AS REQUIRED TO SUPPORT ADDITIONAL LOADS . REFER TO SITE PLAN FOR LOCATION & EXTENTS OF SIDEWALKS ETC.
- 2. ALL EXTERIOR WALLS SHALL BE FRAMED WITH 2 X6 STUDS @ 16" O.C. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR LAYOUT, DIMENSIONS, DETAILS, MATERIAL INFORMATION & SPECIFIC STRUCTURAL DESIGN REQUIREMENTS.
- 13. G.C TO PROVIDE SOLID WOOD BLOCKING BEHIND ALL WALL MOUNTED FIXTURES AND ACCESSORIES.
- 14. FOR ANOMALIES, REFER TO WALL SECTIONS REFERENCE KEYED ON PLANS. 15. GYPSUM BOARD, PLYWOOD & CEMENTITIOUS BACKER BOARD TO EXTEND TO 4" ABOVE T-BAR CEILING & TO U/S OF CEILING IN LOCATIONS WITH GYPSUM BOARD CEILING.
- 6. FINISH WALLS AS PER FINISH SCHEDULE ON SHEET A10.
- . REFER TO MANUFACTURE SPECIFICATIONS FOR ALL INSTALLATION PROCEDURE. 18. G.C TO PERFORM AN AIR BARRIER TEST (LEAKAGE TEST) ON THE BUILDING ENVELOPE PRIOR TO THE COMPLETION OF CONSTRUCTION, IN ACCORDANCE WITH THE NYS ENERGY CODE.
- 19. G.C TO SEAL/CAULK ALL BUILDING PENETRATIONS PRIOR TO PERFORMING AN AIR BARRIER TEST.
- 20. PROVIDE FIRE CAULKING ALL PIPES, CONDUITS, WIRES AND FRAMING PENETRATIONS THROUGH FIRE RATED SEPARATIONS. FIRE CAULK TOP & BOTTOM OF FIRE RATED SEPARATIONS. HILTI USA FS-ONE MAX FIRESTOP
- INTUMESCENT SEALANT, HILTI USA 1-800-879-8000 FIRE CAULK TOP & BOTTOM OF FIRE RATED SEPARATIONS.
- 21. G.C TO PROVIDE & INSTALL 1/2" CEMENTITIOUS BACKER BOARD INSTEAD OF GYPSUM BOARD TO 2-0" ABOVE FLOOR SLAB ( FOR ALL INTERIOR PARTITIONS).
- 22. EXTERIOR DIMENSIONS ARE FROM FACE OF SHEATHING TO FACE OF SHEATHING UNLESS NOTED OTHERWISE.
- 23. REFER TO STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS.
- 24. THE SANITARY AND WATER ON THE PLUMBING PLANS NEED TO GO OUT TO THE SITE SANITARY AND WATER. THE ELECTRIC AND DATA CONDUITS TO THE MENU BOARDS SHOULD GO OUT THE BACK OF THE BUILDING
- TOWARDS THOSE BOARDS, NOT OUT AT THE DRIVE THRU WINDOW SIDE AND WRAP AROUND THE BUILDING
- 25. PROVIDE FULL PLYWOOD BACKING INSTEAD OF DRYWALL IN BACK OF HOUSE WHERE PERMITTED BY CODE.
- 26. G.C TO ENSURE THE FOLLOWING SHOP DRAWINGS ARE SUBMITTED: ROOF ACCESS LADDER/CAGE/ROOF HATCH (P. ENG. STAMPED)
- LIST OF HARDWARE / DOORS DRIVE THRU WINDOW
- ROOFING MATERIALS
- . REFER ALSO TO SPECIFICATION SECTIONS FOR SHOP DRAWINGS REQUIREMENTS
- 9. PRIME CONSULTANT TO REQUEST THE FOLLOWING SHOP DRAWINGS TO THE RELATED VENDOR FOR REVIEW: REFRIGERATION BOXES
- . REFER TO MECHANICAL, ELECTRICAL AND STRUCTURAL DRAWINGS FOR MECHANICAL, ELECTRICAL AND STRUCTURAL REQUIREMENTS
- 1. ALL BUTT JOINTS IN THE MILLWORK (VERTICAL AND HORIZONTAL) BETWEEN MILLWORK AND ADJACENT WALLS WILL BE CAULKED WILL CLEAR SILICONE CAULKING BY MILLWORK INSTALLER.

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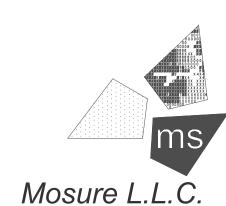
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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225 STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

SHEET:







# NOTE

1. G.C TO INSTALL ALL UNDER COUNTER EQUIPMENT THAT IS SUPPLIED FROM SCHEDULE A ON WHEELS / CASTERS. REFER TO SPEC SHEETS.

2. ARCHITECT OF RECORD TO ENSURE AND COORDINATE THAT ALL INTERIOR AND EXTERIOR COMPLIES WITH ADA REQUIREMENTS AS WELL AS LOCAL JURISDICTIONS.

# COLOR SCHEME:

WELCOME 2022 - US ARENA

# RESTAURANT OWNER SUPPLIED EQUIPMENT

OFFICE FURNITURE (DESK, PEDESTAL, CHAIR ETC) BY RESTAURANT OWNER SUGGESTED SIZING AS FOLLOWS: DESK: 2'-6" X 3'-6"

DESK CHAIR: 1'-4" X 1'-8" MUSIC SYSTEM (OPTIONAL)

BLINDS

SIGNAGE EXTERIOR DIGITAL MENU BOARD (PURCHASE AND INSTALL)

# STORAGE SHELVING LEGEND

SHELVING TYPE	TARRISON ITEM - DEPTH - LENGTH -TIERS	QT
DRAIN BOARD #88 (REFER TO DETAIL 12/A8)	88-18-36-2	2
SHELVING FOR WALK-INS #49 (REFER TO DETAIL 16/A8)	49-21-36-3	2
	49-21-42-3	2
	49-21-42-4	2
OVERHEAD SHELVING #63	63-24-30	3
	63-24-36	1
	63-24-42	2
	63-24-48	5
	63.1-24-24	1
	63.1-24-36	1
	63.1-24-42	5
DRY STORAGE SHELVING #64 W/ WALL CLIPS/ DRY STORAGE	64-18-24-4	1
SHELVING #64.2 ATTACHED TO THE CEILING (REFER TO DETAIL 13/A8 & 15/A8)	64.2-24-30-4	1
(NEI EN TO DETAIL TOTAL & TOTAL)	64.2-24-42-4	1
	64.2-24-54-4	1
GARMENT RACK - 36"W X 18"D	64G-18-36-5	1

REFER TO INTERIOR ELEVATIONS ON SHEET A9 FOR SHELVING HEIGHTS.

PROVIDE BLOCKING / BACKING IN WALLS & CEILING AS REQUIRED FOR SHELVING SUPPORT.

NO.	DESCRIPTION	QTY.	TDL# (STAINLESS STEEL
TH029	5'-9" WORK TABLE W/ SINK	1[N]	
TH030	6'-9" WORK TABLE W/UC REFRIGERATOR	1[N]	
TH031	44" POS TABLE	1[N]	
TH032	8'-9" WORK TABLE W/ SINK	1[N]	
TH033	36" WORK TABLE	1[N]	
TH034	36" WORK TABLE	1[N]	
TH035	6'-9" BEVERAGE TABLE	1[N]	
TH036	7'-0" BEVERAGE TABLE	1[N]	
TH037	36" EGG COOKING TABLE	1[N]	

# CDADUIC DANIEL CCHEDITIE

GRAPHIC PANEL EQ.#	APPLICATION	CONTENT	MATERIAL	SIZE	QTY.
G13US		EXTERIOR STAMP - UNITED STATES		4'-6"(H) x 5'-4" (H)	1

. REFER TO EXTERIOR ELEVATION ON SHEET A5.1 FOR GRAPHIC ELEVATIONS AND INSTALLATION HEIGHTS. 2. GRAPHICS TO BE SUPPLIED BY TDL (VARIES BASED UPON PROJECT SOW) THROUGH MAXXIT AND INSTALLED BY G.C.. REFER TO SHEET SP13 FOR CONTACT INFORMATION. 3. GRAPHIC G13US TOWN NAME TO BE: HARPER WOODS

# **NEW / FUTURE EQUIPMENT SCHEDULE**

CONTRACTOR SHOULD REFER TO MANUFACTURER SPECIFICATIONS FOR ALL SERVICE REQUIREMENTS AND PROPER CONNECTIONS.

F	FUTURE EQUI		GENERAL CONTRACTOR APPROVED INSTALLER	TDL TDL GROUP LTD OPT. OPTIONAL ## NEW EQUIPMENT ## FUTURE EQUIPMENT
NO.	INST'D	DESCRIPTION	· · · · · · · · · · · · · · · · · · ·	ORDER DETAILS & NOTES
.3	G.C.	MIRROR - WASHROOM - ASI (STANDARD)  TOILET PAPER DISPENSER	1 [N] 1 [N]	SUPPLIED BY G.C. SUPPLIED BY G.C.
.4	G.C.	HAND DRYER - XLERATOR (STANDARD)	1 [N]	REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS AND CONTACT LIST FOR HOW TO PURCH
<u> </u>	G.C.	GRAB BARS - US	1 [N]	EACH SET CONSISTS OF 3 BARS. REFER TO SHEET A9.2. SUPPLIED BY G.C
.6	G.C.	SOAP AND SANITIZER DISPENSER - WALL MOUNTED	5 [N]	SCHEDULE 'A'
Х	G.C.	SOAP DISPENSER - COUNTERTOP	2 [N]	ORDERED THROUGH WASSERSTROM
).4	G.C.	3-COMP SINK - 57"	1 [N]	SCHEDULE 'A'
2.2	G.C.	FIRE EXTINGUISHER - 5LB (STANDARD US)	2 [N]	REFER TO MECHANICAL DRAWINGS & SUPPLIED BY G.C
5	G.C.	MOBILE KEEPER RACK	3 [N]	ORDERED THROUGH WASSERSTROM
6.07R	G.C.	FINISHING TABLE - FONDANT RIGHT - WITH CASTORS - BOH - 72"	1 [N]	MILLWORK (SCHEDULE 'A')
7.4 7.6	A.I	MONITOR - 10" - FLUSH MOUNTED  MONITOR - 17" - CRASHPOINT	2 [N]	SCHEDULE 'A'  SCHEDULE 'A'
7.7 7.7	A.I	MONITOR - 17 - CRASHPOINT  MONITOR - 23" - SERVICE AREA (STANDARD)	2 [N] 2 [N]	SCHEDULE 'A'
9.4	G.C.	PAPER TOWEL DISPENSER - TOUCHLESS	2 [N]	ORDERED THROUGH WASSERSTROM
9.X	G.C.	PAPER TOWEL DISPENSER - COUNTERTOP	1 [N]	ORDERED THROUGH WASSERSTROM
I.1	A.I	WIRELESS BELT PACK - HME	1 [N]	SCHEDULE 'A'
2	A.I	BATTERY CHARGER	1 [N]	SCHEDULE 'A'
7.14	A.I	POS CASH STATION - DRIVE THRU CASH	1 [N]	SCHEDULE 'A'
.15	A.I	POS CASH STATION - DRIVE THRU ORDER	2 [N]	SCHEDULE 'A'
.19L	G.C.	SANDWICH UNIT 27" DELFIED LEFT(US)	1 [N]	SCHEDULE 'A'
1.4	G.C.	LID DISPENSER - STEPPED (STANDARD)	6 [N]	ORDERED THROUGH WASSERSTROM
).5	G.C.	WINCO HOT CUP DISPENSER (US)	2 [N]	ORDERED THROUGH WASSERSTROM
5.7	G.C	TOASTER - HI-SPEED - Wx6225 (STANDARD)	1 [N]	ORDERED THROUGH WASSERSTROM
.6	G.C.	SINGLE STREAM OUTDOOR WASTE BIN(US)	1 [N]	SCHEDULE 'A'
.7	G.C.	20"D X 30.5"H RUBBERMAID TRASHCAN W/ CASTORS	1 [N]	PURCHASED AND INSTALLED BY G.C.
8	G.C.	TRASH CAN (ULINE) #S-13527GR	2 [N]	PURCHASED AND INSTALLED BY G.C.
10	A.I	SIGNAGE  MAPLE LEAF SIGN	2 [N]	PROCURED BY OWNER THROUGH APPROVED THUSA SUPPLIER - SEE EXT. ELEV. FOR DETAILS
10 6	A.I G.C.	VANITY - MURRO STANDARD	1 [N]	PROCURED BY OWNER THROUGH APPROVED THUSA SUPPLIER - SEE EXT. ELEV. FOR DETAILS  PURCHASED AND INSTALLED BY G.C.
2	G.C.	FONDANT WARMER - STANDARD	1 [N]	ORDERED THROUGH WASSERSTROM
.18	G.C.	ICE MACHINE - STANDALONE - SCOTSMAN CO522MA-1 (STANDARD)	1 [N] 1 [N]	SCHEDULE 'A'
.11	G.C.	DAIRY DISPENSER - DUAL PRODUCT - NEXT-GEN (STANDARD CANADA)	3 [N]	ORDERED THROUGH WASSERSTROM
8	G.C.	HOT POWERED DRINK MACHINE (STANDARD)	1 [N]	ORDERED THROUGH WASSERSTROM
21	A.I	COFFEE BREWER - SINGLE INFUSION ICB (STANDARD)	2 [N]	SCHEDULE 'A'
6	G.C.	SUGAR DISPENSER - NARROW (OPTIONAL)	1 [N]	ORDERED THROUGH WASSERSTROM
10	G.C.	EXHAUST HOOD - ISLAND TOASTER	1 [F]	SCHEDULE 'A'
14	G.C.	EXHAUST HOOD - COMBI OVEN	1 [N]	SCHEDULE 'A'
5	G.C.	HAND SINK - BOH - SOURCED - (STANDARD)	2 [N]	SCHEDULE 'A'
.3	G.C.	U/C REFRIGERATOR (US)	1 [N]	SCHEDULE 'A'
.3L	G.C.	U/C REFRIGERATOR - LEFT HINGE	1 [N]	SCHEDULE 'A'
.3R	G.C.	U/C REFRIGERATOR - RIGHT HINGE	1 [N]	SCHEDULE 'A'
.5	G.C.	ICED CAPP - COUNTERTOP- TAYLOR 390 - HIGH VOLUME - SINGLE WHIP	1 [N]	ORDERED THROUGH WASSERSTROM
5	A.I	LANE TIMER - MONITOR	2 [N]	SCHEDULE 'A'
7.9	G.C.	SAFE - UNDERCOUNTER - AMSEC DSF2516 (STANDARD US)	1 [N]	SCHEDULE 'A'
8.2	G.C.	BAGEL SABRE (STANDARD)	1 [N]	ORDERED THROUGH WASSERSTROM
9 2	G.C.	GLAZER - TABLE TOP  MOBILE DISH CART	1 [N]	MILLWORK (SCHEDULE 'A')  SCHEDULE 'A'
2 8.1	A.I	OFFICE COMPUTER	1 [N]	SCHEDULE 'A'
3.1 3.1	A.I	MEDIA CABINET -12U - (STANDARD)	1 [N]	SCHEDULE 'A'
6.1	G.C.	SOUP SHELF - SMALL	1 [N] 1 [N]	MILLWORK (SCHEDULE 'A')
7	G.C.	SANDWICH SHELF	1 [N]	ORDERED BY OWNER THROUGH APPROVED THUSA SUPPLIER
0.4	G.C.	ICED COFFEE - DISPENSER - NARROW (STANDARD)	4 [N]	ORDERED THROUGH WASSERSTROM
).6R	A.I	NITRO DISPENSER - RIGH SIDE NITRO TAP (SITE SPECIFIC)	1 [N]	SCHEDULE 'A'
0.8	A.I	ICE COFFEE BREWER - IC3-DBC (US)	1 [N]	ORDERED THROUGH WASSERSTROM
5.3	G.C.	HOT HOLDING UNIT - 2Hx2W (STANDARD)	2 [N]	ORDERED THROUGH WASSERSTROM
6.9	G.C.	EVERSYS ESPRESSO MACHINE (US)	1 [N]	SCHEDULE 'A'
7.1	G.C.	WASTE DISPOSAL BIN	1 [N]	G.C. TO PURCHASE
7.X	G.C.	FEMININE DISPOSAL BIN	1 [N]	SUPPLIED BY G.C. AS PER PLUMBING SPECIFICATION
8	G.C.	TOASTER STAND	1 [N]	MILLWORK (SCHEDULE 'A')
1.3	G.C.	SYRUP CADDY - 5 BOTTLES	4 [N]	ORDERED THROUGH WASSERSTROM
5.1	G.C.	EYE WASH STATION (STANDARD)	2 [N]	SUPPLIED BY G.C.
6.11	G.C.	THERMAL SEALED AXIOM CARAFE (US)	2 [N]	WASSERSTROM
6.5	G.C.	CARAFE STAND - THERMO AXIOM	1 [N]	WASSERSTROM
6.7S	G.C.	ICB INFUSION STAND - SINGLE	2 [N]	SCHEDULE 'A'
5.01	G.C.	COSTA BISTRO CAFE CHAIR	8 [N]	SCHEDULE 'A'
5.02	G.C.	WERZALIT CLASSIC PONDEROSA GREY 24" PATIO TABLE  UMBRELLA	4 [N]	SCHEDULE 'A'
5.07A	G.C.	RED BEAVER SPRINGS MODERN MUSKOKA CHAIR	4 [N]	SCHEDULE 'A'  SCHEDULE 'A'
.07A .09	G.C.	PATIO COFFEE TABLE	4 [N] 2 [N]	SCHEDULE 'A'  SCHEDULE 'A'
5.03	G.C.	48" WALL MOUNT SSO (US)	2 [N]	ORDERED THROUGH WASSERSTROM
3.1R	G.C.	OVEN - RATIONAL XS - RIGHT HINGE	2 [N]	SCHEDULE 'A' C/W ELECTRICAL, WATER AND DRAINAGE CONNECTION (REFER TO MEP DRAWINGS)
8.3	G.C.	RINSER - IN-COUNTER WITH DRAIN PAN (STANDARD)	1 [N]	ORDERED THROUGH WASSERSTROM
8.5	G.C.	RINSER - /W ICE BIN (US)	1 [N]	ORDERED THROUGH WASSERSTROM  ORDERED THROUGH WASSERSTROM
2.1B	G.C.	RATIONAL OVEN COMPONENT - STAND AND TRIM FOR 2 XS OVENS	1 [N]	SCHEDULE 'A'
8.01	G.C.	RECEIPT PRINTER - STICKY PAPER	1 [N]	SCHEDULE 'A'
3.01	G.C.	TABLE TOP EGG COOKER	1 [N]	ORDERED THROUGH WASSERSTROM
CH-1			2 [N]	UNISTRUT ADAPTER FOR TRUSS CEILINGS - ACC550 BY PEERLESS INDUSTRIES. PURCHASED AND INSTAL
	G.C.	ABOVE CEILING MONITOR MOUNT	1 [N]	G.C.
CH-2	1	MONITOR MOUNT UNDER MONITOR		3M ADJUSTABLE MONITOR LAPTOP STAND, 16" X 12" BLACK. PURCHASED AND INSTALLED BY G.C.

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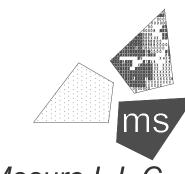
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Mosure L.L.C. engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

SHEET TITLE:

40509-11

**EQUIPMENT PLAN** AND SCHEDULES

SHEET:

A2

# **CEILING PLAN NOTES**

- 1 NO CEILING TILE REQUIRED ABOVE WALK-IN FREEZER & COOLER.
- 2 G.C. TO PROVIDE ACT EDGE 'L' SUPPORT ALONG FACE OF WALK-IN FREEZER AND COOLER AT T-BAR CEILING. SEE DETAIL 2/A3.
- FUTURE EXHAUST HOODS #72.3 (IF REQUIRED). REFER TO DETAIL 4/A8 & 5/A8. REFER TO MECHANICAL DRAWINGS. EXACT LOCATION OF BAGEL TOASTER TO BE CONFIRMED PRIOR TO INSTALLATION OF HOOD.
- 4 OVERHEAD SHELVING. REFER TO DETAILS 11/A8 & 12/A8 FOR SHELVING SUPPORT. REFER TO STRUCTURAL DRAWINGS. RESTAURANT OWNER TO ENSURE IN A NON-SPRINKLER BUILDING ALL BOXES STACKED ON OVERHEAD SHELVING SHOULD LEAVE A SPACE OF MIN. 18" FROM FINISHED CEILING (TYP.)
- 5 LOCATION OF MEDIA CABINET. REFER TO DETAIL 9/A8.
- 6 G.C TO INSTALL CL-2 AND CL-1W, BRACKET SUPPORT, LED STRIP LIGHTS AND DRIVERS.
- PREFABRICATED CANOPY AT DRIVE-THRU WINDOW C/W DOWN LIGHT. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING SPECS. REFER TO EXTERIOR ELEVATIONS ON SHEETS A5 & A5.1 AND TO DETAIL 1/A7.2.
- 8 LOCATION OF MONITOR MOUNTS. SEE DETAIL 3/A3

# NOTE:

- THE GENERAL CONTRACTOR IS TO ENSURE THE FOLLOWING ITEMS ARE BUILT IN ACCORDANCE WITH STRUCTURAL DRAWINGS AND TO MEET CODE REQUIREMENTS (INCLUDING SEISMIC AND LATERAL RESTRAINT) AS REQUIRED:
- SUSPENDED SHELVING SUPPORTS - SEISMIC AND LATERAL RESTRAINT FOR DUCTWORK
- SUSPENDED CEILING PANELS, GYPSUM BOARD / T-BAR CEILINGS IN RELATION TO SEISMIC AND LATER RESTRAINT.
- . THE GENERAL CONTRACTOR IS RESPONSIBLE THAT ALL SUB-TRADES HAVE RETAINED A QUALIFIED STRUCTURAL ENGINEER TO REVIEW THEIR APPROPRIATE WORK. STRUCTURAL ENGINEER(S) TO ISSUE LETTER (ON THEIR LETTERHEAD) STATING THAT ALL WORK MEETS THE REQUIREMENT OF BUILDING CODE FOR SEISMIC RESTRAINTS.

# **SECURITY CAMERA LEGEND (16.3)**

CAP INDEX	SECURITY PACKAGE #	CAMERA #S
0<100	1	1-4
100<250	2	1-8
>250	3	1-12
NOTES		

- WITH PACKAGE #2 AND #3, 4 EXTRA CAMERAS ARE AVAILABLE TO BE LOCATED AT THE OWNERS DISCRETION \* IF A CAMERA IS INSTALLED IN STAFF AREA, OWNER IS TO INFORM STAFF. \* CAMERAS # NUMBER OF CAMERAS

# SYMBOL LEGEND

DENOTES CEILING HT & MATERIAL

DRAWING NUMBER NOTE REFERENCE

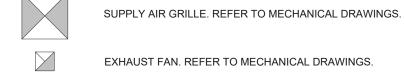
HVAC DUCTWORK WITH AIR GRILLE. REFER TO MECHANICAL DRAWINGS.

LGB LAY-IN GYPSUM BOARD

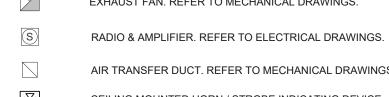


RETURN AIR GRILLE. REFER TO MECHANICAL DRAWINGS.





EXHAUST FAN. REFER TO MECHANICAL DRAWINGS.



AIR TRANSFER DUCT. REFER TO MECHANICAL DRAWINGS.

CEILING MOUNTED HORN / STROBE INDICATING DEVICE. REFER TO ELECTRICAL DRAWINGS. CEILING MOUNTED STROBE ONLY DEVICE. REFER TO

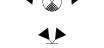
# **ELECTRICAL SCHEDULE**



2'-0" X 2'-0" RECESSED FIXTURE

EXTERIOR SPOTLIGHT. REFER TO ELECTRICAL DRAWINGS.

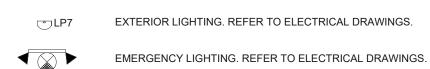
EXTERIOR LIGHTING. REFER TO ELECTRICAL DRAWINGS.



EMERGENCY LIGHTING. REFER TO ELECTRICAL DRAWINGS.

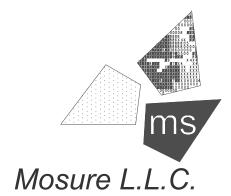






EMERGENCY LIGHTING. REFER TO ELECTRICAL DRAWINGS.

REFER TO SPECIFICATIONS ON SHEET SP13 FOR CONTACT INFORMATION



engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



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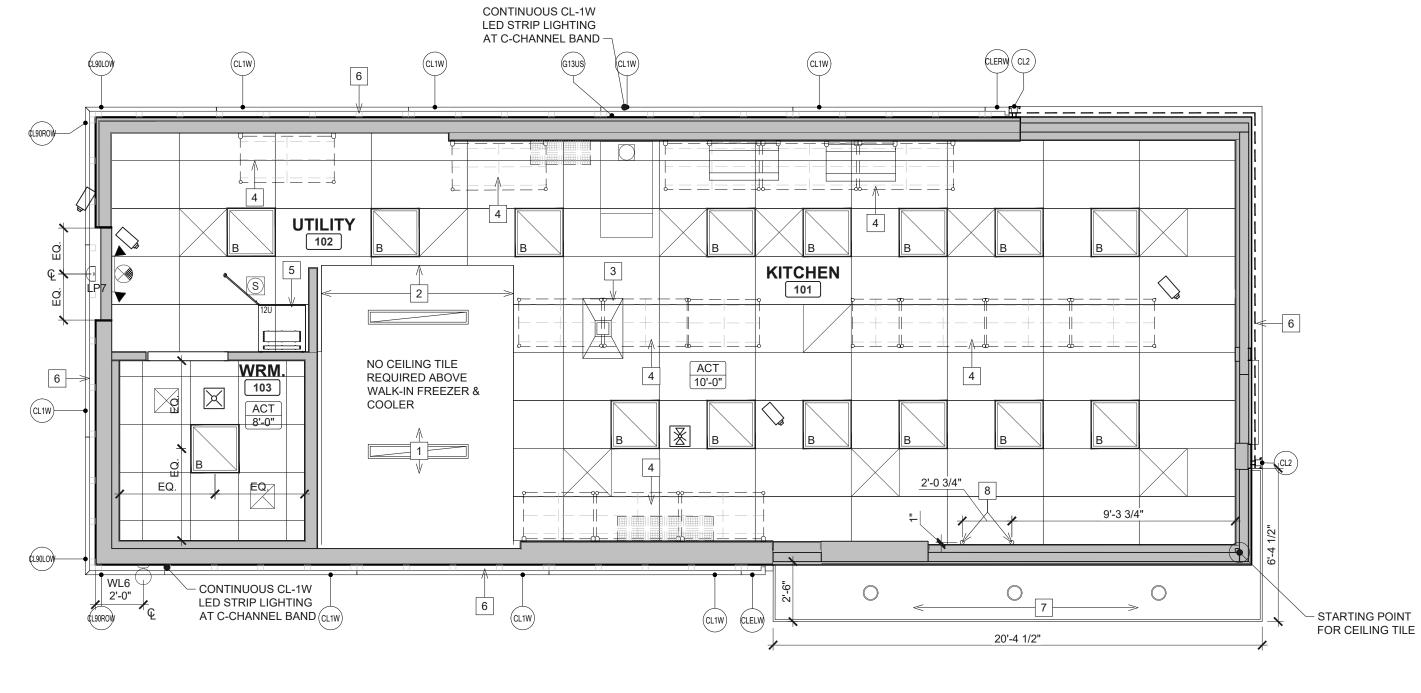
PROJECT NO.:

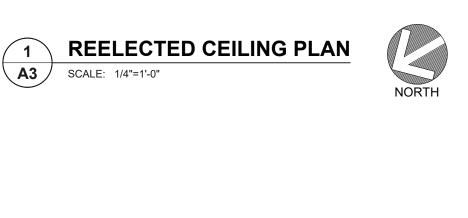
40509-11

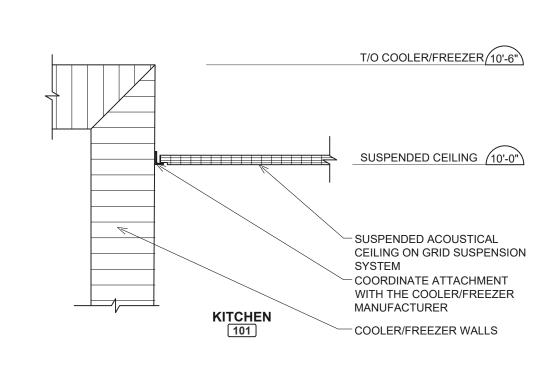
SHEET TITLE: REFLECTED CEILING

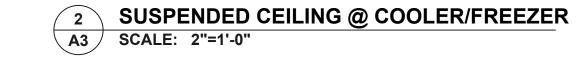
SHEET:

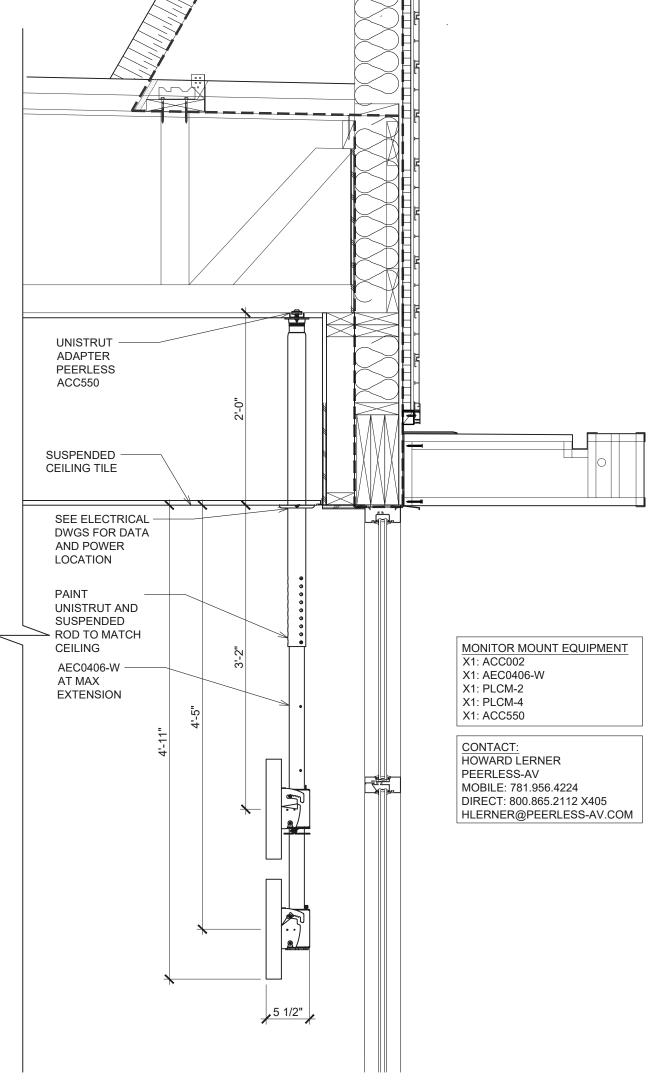
PLAN AND DETAILS



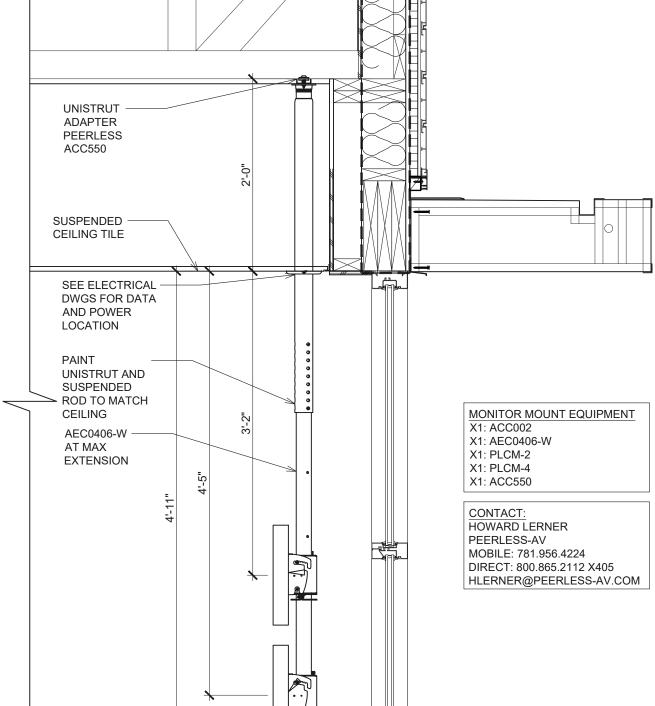








DTO MONITOR MOUNT DETAIL A3 SCALE: 1"=1'-0"



# **ROOF PLAN NOTES**

- ROOF LADDER TO MATCH PRE-FINISHED METAL CAP FLASHING. REFER TO DETAIL 1/A8.
- PREFABRICATED CANOPY AT DRIVE-THRU WINDOW. REFER TO EXTERIOR ELEVATIONS ON SHEETS A5 & A5.1 AND TO DETAIL 1/A7.2. REFER TO STRUCTURAL DRAWINGS FOR DRIVE-THRU CANOPY STRUCTURAL BLOCKING/BACKING SUPPORT.
- 3 LINE OF PARAPET. REFER TO DETAIL ON SHEET A7.2.
- 4 LINE OF TOWER PARAPET. REFER TO DETAIL ON SHEET A7.2.
- 5 LINE OF WALL BELOW.
- WHITE ULTRAPLY TPO MEMBRANE BY FIRESTONE (OR APPROVED EQUAL). REFER TO ROOF TYPE SCHEDULE & SPECIFICATIONS.
- PRE-FINISHED COLLECTOR BOX & DOWNSPOUT. REFER TO DETAIL 2/A4.
- 8 H.V.A.C UNITS AND EXHAUST FANS AS PER MECHANICAL DRAWINGS. PROVIDE CURB WHERE REQUIRED. REFER TO DETAIL
- 9 PRE-FINISHED METAL CAP FLASHING. REFER TO EXTERIOR FINISH SCHEDULE ON SHEET A5 FOR COLOR AND TYPE.
- PROVIDE SLEEPERS FOR WALK-IN COOLER/FREEZER CONDENSER. SLEEPERS TO SPAN ACROSS JOISTS BELOW. REFER TO
- 1 G.C TO PROVIDE AND INSTALL DOUBLE PIPE PORTAL (PART NO. 36002) C/W C-126 & C-212 CAP FOR PCL LINES FOR WALK-INS. ROOF OPENING (2'-3<sup>5</sup>/<sub>2</sub>" x1'-0") AND ROOF CURBS TO BE PROVIDED AND FURNISHED BY G.C. REFER TO DETAIL 3/A4 & 6/A4.
- 12 PROVIDE & INSTALL 3M NON-SLIP TAPE ON FLASHING AT LADDER LOCATION.
- HARDIE HORIZONTAL SIDING PANELS TO WRAP ON ALL TOWER WALL SIDES. REFER TO EXTERIOR ELEVATIONS AND DETAILS
- 14 EXTEND ROOF MEMBRANE UP PARAPET WALL AND OVER TOP OF FRAMING (TYP.). SECURE PREFABRICATED ROOF EDGE CLEATS THROUGH MEMBRANE AS SPECIFIED BY MANUFACTURER. REFER TO WALL SECTIONS AND DETAILS.
- CROSS HATCH INDICATES TAPERED INSULATION OVER SPECIFIED RIGID THERMAL INSULATION (TYP.) FIELD VERIFY ROOF DRAIN LOCATIONS PRIOR TO INSTALLATION & INSTALL PER ROOF MANUFACTURER SPECIFICATIONS. G.C TO COORDINATE ACTUAL EXTENTS OF TAPERED INSULATION MATERIALS WITH ROOF INSTALLER & VERIFY INSTALLED COUNTER SLOPE OF 1/2" PER FOOT (MIN., AS MEASURED FROM LEVEL PLANE) TO DIRECT STORM WATER TOWARD ROOF DRAINS AS INDICATED ON
- 16 VENTS. REFER TO MECHANICAL DRAWINGS & DETAIL 5/A4.
- 7 TPO WALK WAY PADS OR X-TREADS. REFER TO SPECIFICATIONS. CUT TPO WALK WAY PAD ROLLS TO MAXIMUM OF 9'-10". LEAVE A GAP OF 1" BETWEEN PIECES TO ALLOW FOR WATER DRAINAGE.
- THRU-WALL SCUPPER W/ METAL FLANGE BY ROOFING MANUFACTURER. HOLD TOP OF COLLECTOR BOX 1" BELOW ROOF DECK TO ALLOW FOR SECONDARY OVERFLOW DRAINAGE. SECONDARY ROOF DRAIN SYSTEMS SHALL HAVE THE END POINT OF DISCHARGE SEPARATE FROM THE PRIMARY SYSTEM. DISCHARGE SHALL BE ABOVE GRADE. VERIFY OPENING REQUIREMENTS

HORIZONTAL ROOF SURFACE (S.F)

(SIZE OF VERTICAL CONDUCTORS AND LEADERS)

(PER FIGURE 1106.1, OHIO PLUMBING CODE)

(PER TABLE 1106.2(2), OHIO PLUMBING CODE

REQUIRED OVERFLOW SCUPPER SIZE (SINGLE) 1" X 10.7"

VERTICAL LEADER SIZE (RECTANGULAR)

SPECIFIED LEADER CAPACITY (SINGLE)

VERTICAL SURFACE AREA (S.F) TOTAL PROJECTED ROOF AREA (S.F)

100 YEAR, 1 HOUR RAIN FALL (IN.)

DRAINAGE CALCULATIONS:

**CALCULATED ROOF AREA** 

800

3-1/2" X 4"

5300 S.F

19 APPROX. LOCATION OF ROOF KICKERS. REFER TO STRUCTURAL DRAWINGS

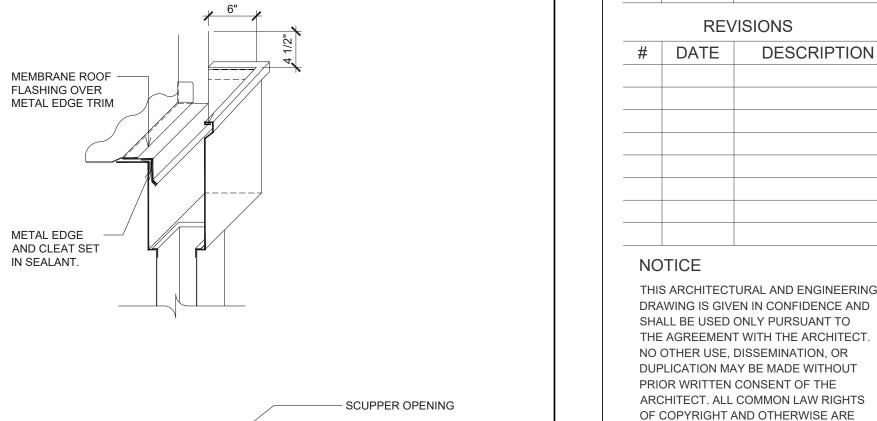
ALL ROOFING TO BE IN STRICT ACCORDANCE WITH THE NATIONAL ROOFING CONTRACTORS ASSOCIATION ROOFING MANUAL

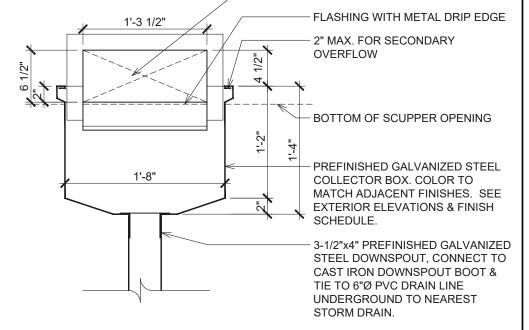
G.C IS RESPONSIBLE FOR SEALING ALL ROOF PENETRATIONS UPON COMPLETION OF THE PROJECT.

# **ROOF TYPE LEGEND**

- MAS 60mil WHITE ULTRAPLY TPO MEMBRANE (OR APPROVED EQUAL)
- 2 LAYERS OF RIGID INSULATION (R-27.7 MIN.) - 10mil VAPOUR RETARDER

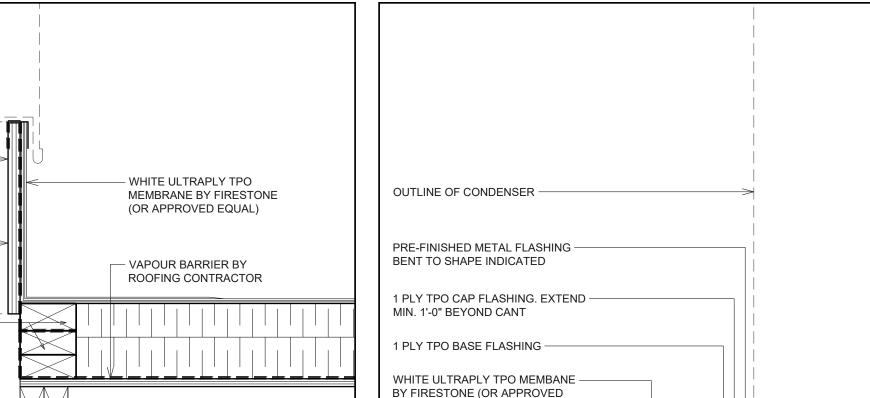
- WOOD ROOF DECK - WOOD TRUSS (AS PER NRCA STANDARDS)

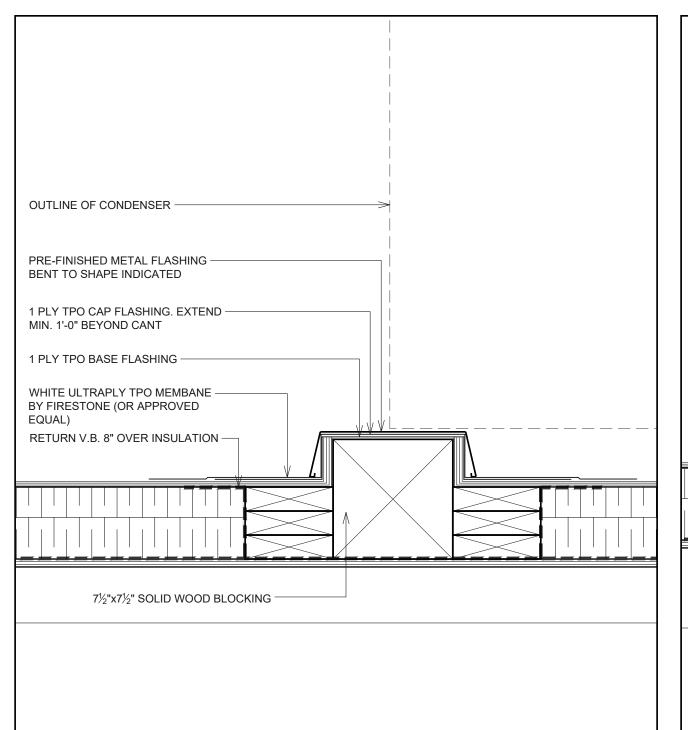




# **A4** SCALE: 1"=1'-0"

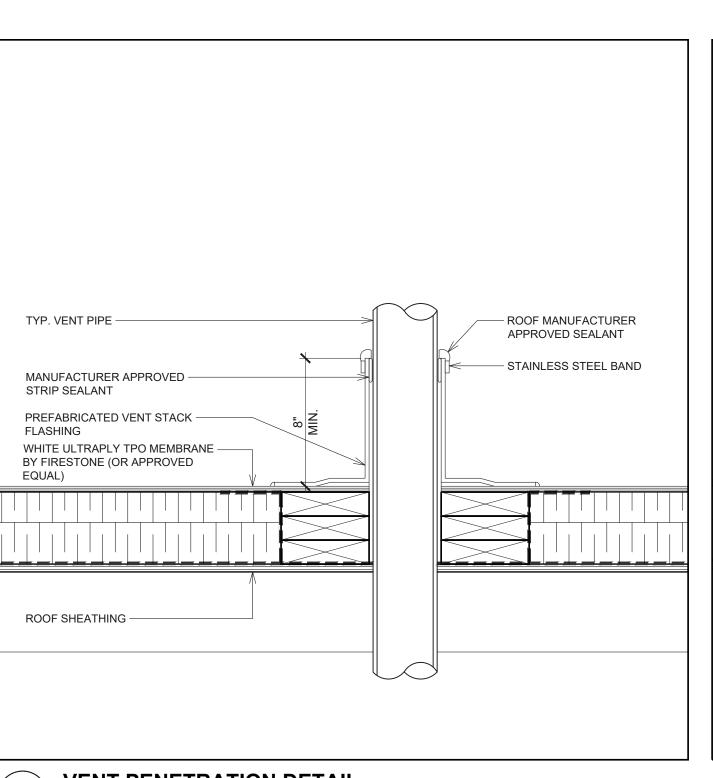






TYPICAL SLEEPER DETAIL

SCALE: 2"=1'-0"

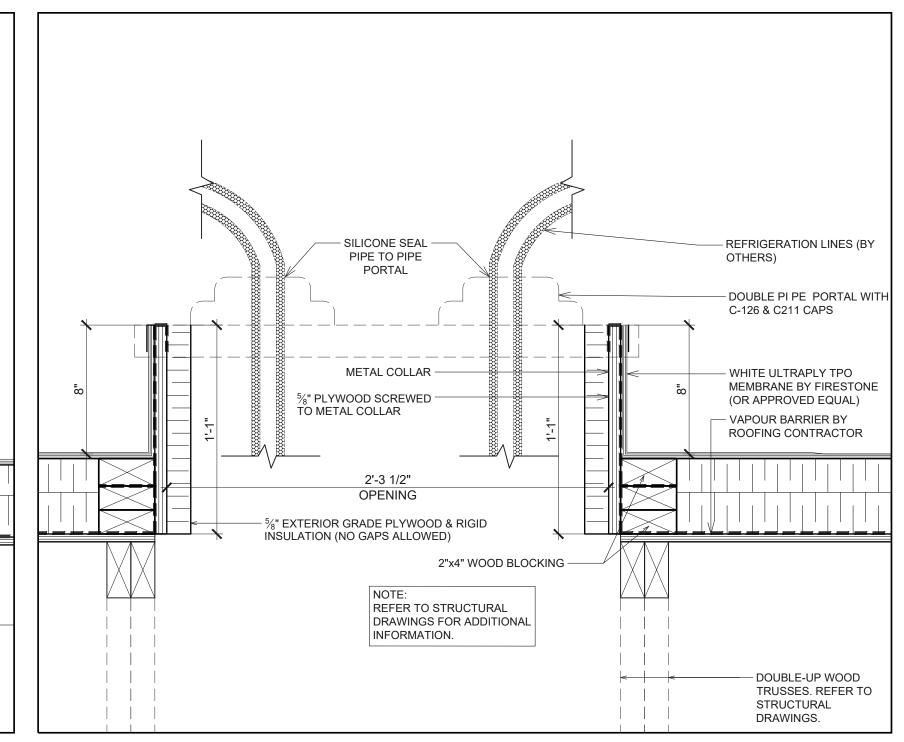


SYMBOL

**LEGEND** 

DETAIL NUMBER DRAWING NUMBER

NOTE REFERENCE



**VENT PENETRATION DETAIL** A4 / SCALE: 2"=1'-0"

TYPICAL ROOF OPENING DETAIL AT PIPE PORTAL **A4** SCALE: 2"=1'-0"

PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

DRAWN BY

CHECKED BY

APPROVED BY

ISSUE DATE

# DATE

07/12/22

LRK

AMD/MAR

07/12/2022

**ISSUE** 

REVISIONS

HEREBY SPECIFICALLY RESERVED.

Mosure L.L.C

2221 Schrock Road

phone 614.898.7100

19353 VERNIER ROAD

STORE # 919728

HARPER WOODS, MI 48225

fax 614.898.7570

PROJECT:

engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION

PERMIT SET

DESCRIPTION

SHEET TITLE:

**ROOF PLAN AND** 

40509-11

ARCHITECT

1301068763

SHEET:

Α4

METAL COLLAR -

5/8" PLYWOOD SCREWED

2"x4" WOOD BLOCKING -

REFER TO STRUCTURAL

INFORMATION.

**A4** SCALE: 2"=1'-0"

DRAWINGS FOR ADDITIONAL

<del>- | -</del>

TYPICAL ROOF CURB DETAIL

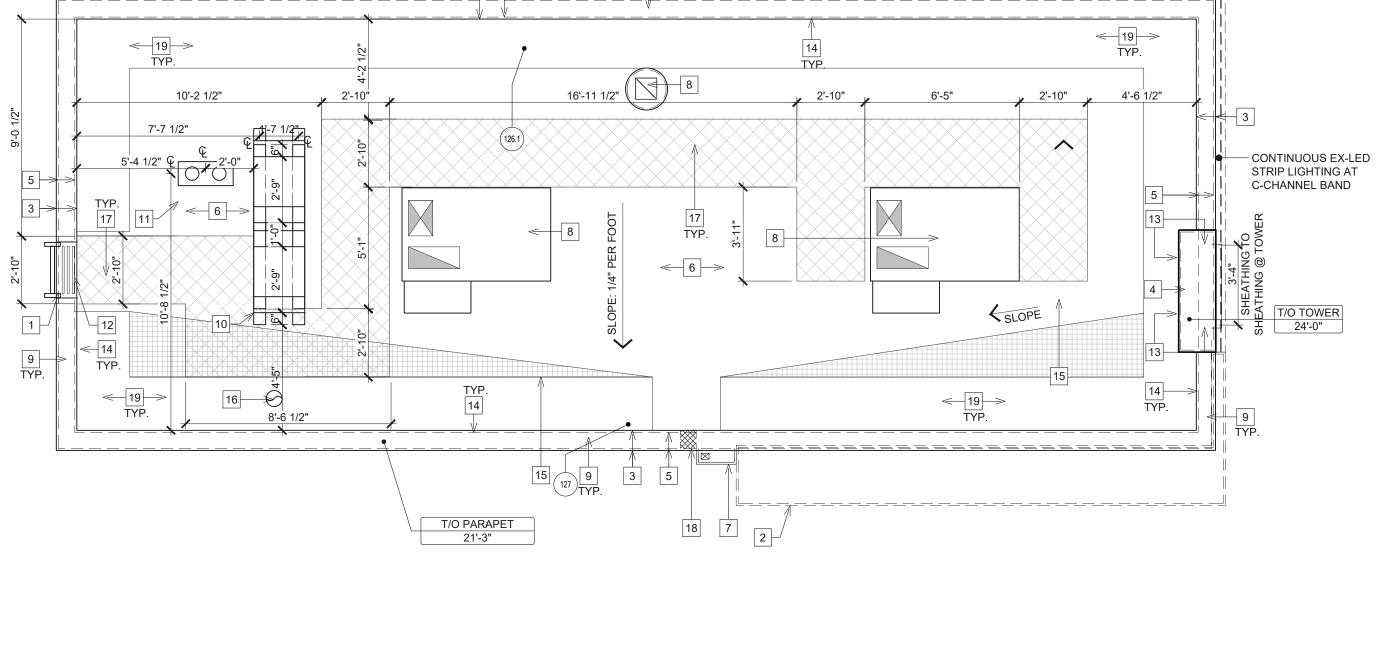
– DOUBLE-UP WOOD

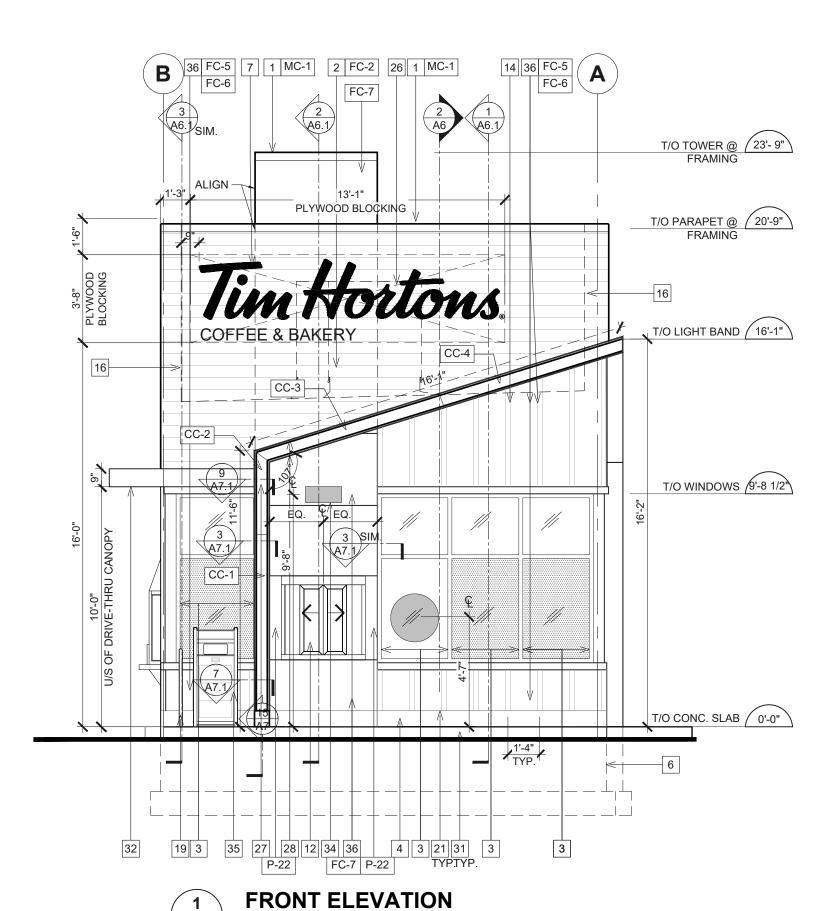
STRUCTURAL

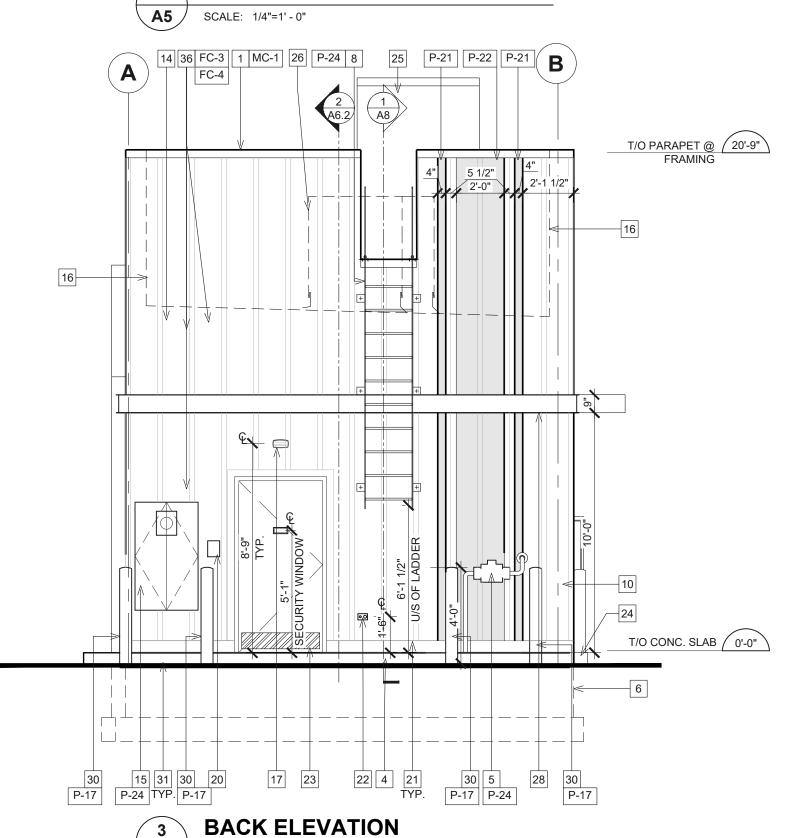
TRUSSES. REFER TO

TO METAL COLLAR

**DETAILS** 







# **SIGNAGE** SCHEDULE

SIGNAGE	QTY.
15 MIN. MOBILE ORDER PICKUP (QUANTITY PENDING SITE PLAN)	2
TIM HORTONS MAPLE LEAF (3'-7" x 3'-5 1/2") (WITH LOGO)	1
STORE ADDRESS NUMBER VINYL ADHESIVE	1
TIM HORTONS (2'-0" DIA.) VINYL ADHESIVE	1
TIM HORTONS SCRIPT (36") WITH COFFEE AND BAKERY (6")	2
WASHROOM SIGNAGE STAFF	1

# **CL-2 LIGHTBAND** PANEL SCHEDULE

PANLE SCILLO	JLL
PANEL	QTY.
CC-1 8'-0" PANEL	2
CC-2 3'-5" PANEL (ANGLE CUT)	2
CC-3 8'-0" PANEL (ANGLE CUT)	1
CC-4 7'-8" PANEL (ANGLE CUT)	1
CC-5 7'-10" PANEL (ANGLE CUT)	1
CC-6 3'-9" PANEL	1
CL-2 100'-0" RUNNING LENGTH	1
ALL ANGLES AND CUTS FOR LEKTRON LIGHT CL-2 TO BE CUT ON SITE BY GC	BAND

# **CL-1W LIGHTBAND** PANEL SCHEDULE

I / III CONTED				
PANEL	QTY.			
CL1W - 8FT SECTION	8			
CL90LOW - 90deg LEFT OUTSIDE CORNER	2			
CL90ROW - 90deg RIGHT OUTSIDE CORNER	2			
CLELW - LEFT END SECTION	1			
CLERW - RIGHT END SECTION	1			
CL1W - 86'-8" RUNNING LENGTH	1			
MOUNTING BRACKETS	68			
MOUNTING BRACKETS TO BE LOCATED 16" O.C. ON APPLIED HARDIE TRIM				

SYMBOL LEGEND

FINISH TYPE

FN#

1. SEALANT / CAULKING AROUND DOOR / WINDOW FRAMES. COLOR: TO MATCH WINDOW / DOOR FRAMES.

2. THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND FOLLOW ALL DRAWINGS AND SPECIFICATIONS.

**GENERAL NOTES** 

NOTE REFERENCE

REFER TO ELEVATION NOTES

HARDIE VERTICAL SIDING AND TRIM BOARDS  HARDIE VERTICAL SIDING  EXTRUDED ALUMINUM  EXTRUDED ALUMINUM SIDING  EXTRUDED ALUMINUM SIDING  EXTRUDED ALUMINUM SIDING  HARDIE PANEL VERTICAL JAMES HARDIE  SIDING  JAMES HARDIE  SIDING CONTACT: DRANGE MOOTH BATTEN BOARDS  JAMES HARDIE  HARDIE PANEL VERTICAL JAMES HARDIE  HARDIE PANEL VERTICAL JAMES HARDIE  HARDIE PANEL VERTICAL SIDING  HARDIE PANEL VERTICAL SIDING  JAMES HARDIE  SIDING SIDING  JAMES HARDIE  SIDING SIDING COOR: ARTIC WHITE CORRESPONDING TRIM COLOR TO MATCH.  SIDING  HARDIE PANEL VERTICAL SIDING  HARDIE PANEL VERTICAL JAMES HARDIE  SIDING SIDING COOR: ARTIC WHITE CORRESPONDING TRIM COLOR TO MATCH.  SIDING  HARDIE PANEL VERTICAL JAMES HARDIE  SIDING SIDING COOR: ARTIC WHITE CORRESPONDING TRIM COLOR TO MATCH.  SIDING  HARDIE PANEL VERTICAL JAMES HARDIE  SIDING SIDING COLOR: ARTIC WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIDING COOR: ARTIC WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COOR: ARTIC WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COOR: ARTIC WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COLOR: GRAY SLATE CORRESPONDING VERTICAL SIDING COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COLOR: ARTIC WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COLOR: GRAY SLATE COLOR: GRAY SLATE COLOR: GRAY SLATE COURS STRIP WHITE CORRESPONDING TRIM COLOR: TO MATCH.  SIZE 3E'S TALL PANELS WITH 12' REVEALS SURFACE SMOOTH.  COLOR: GRAY SLATE COLOR: GRAY SLATE COORS SPACED 16' CO.  C	PATTERN & COLOR SUPPLIER/ CONTACT	MANUF.	PRODUCT	AG
HARDIE VERTICAL SIDING AND TRIM BOARDS  HARDIE VERTICAL SIDING AND TRIM BOARDS  PAPEL SIDING  HARDIE VERTICAL SIDING AND TRIM BOARDS  PAPEL SIDING  EXTERIOR METAL PAINTS  & METAL RAILING  EXTERIOR METAL PAINTS  & METAL RAILING  EXTRUDED ALLUMINUM  SIDING  EXTRUDED AND THE AND THE ADD T	CONTACT: DEAN GIVELAD	SHERWIN WILLIAMS	BOLLARD	P-17
AND TRIM BOARDS / PANEL SIDING  EXTERIOR METAL PAINTS & METAL PAINTS & METAL PAINTS & METAL RAILING  EXTERIOR METAL PAINTS & METAL PAINTS & METAL RAILING  EXTRUDED ALUMINUM SIDING  EXTRUDED ALUMINUM SIDING SIZE: 6" NOMINAL SPACING WITH 1/2" REVEAL JOINTS, COLOR: CANADIAN SHIELD (GC TO TOUGH UP IN FIELD) PATTERNS STACKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGGERED AT PRIZED AT HEALTH STOCKED AT VERTICAL BIUMP OUTS AND STAGET BARRY BRITTER BOARDS AND AND STAGET BARRY BRITTER BOARDS SIZE: 25" WIDE SPACED 16" OC. COLOR: GRAY SLATE CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  HARDIE TRIM BOARDS  JAMES HARDIE  SURFACE: SMOOTH COLOR: ARTIC WHITE. CORRESPONDING TRIM COLOR TO MATCH:  HARDIE PANEL VERTICAL  HARDIE PANEL SIDING  JAMES HARDIE  SURFACE: SMOOTH COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH:  COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH COLOR: GRAY SLATE. REFER TO WALL SECTIONS FOR SPACING.  PREFINISHED METAL FLASHING  PREFINISHED METAL FLASHING  FRESTONE BUILDING PRODUCTS  FRESTONE BUILDING FROM THE CORRESPOND WEATHER MASTER SEALANT COLOR: WHITE  FRESTONE BUILDING FRESTONE SHAMMOND WEATHER MASTER SEALANT COLOR: WHITE  FRESTONE BUILDING FRESTONE SHAMMOND WEATHER MASTER SEALANT COLOR: WHITE	6 'EXTRA WHITE' HIGH GLOSS FINISH, MIN. 2 COATS SPRAY  EMAIL: DEAN.GIVELAS@SHERWIN.COM TEL: 416-432-6975	SHERWIN WILLIAMS		P-21
MATCH SURROUNDING COLORS WHERE NECESSARY.  COLOR: SW 7087 CITYSCAPE  EXTRUDED ALUMINUM SIDING  SIZE: 6" NOMINAL SPACING WITH 1/2" REVEAL JOINTS, COLOR: CANADIAN SHELD (G.C TO TOUCH UP IN FIELD) PATTERN: STACKED AT VERTICAL BUMP OUTS AND STAGGERED AT HORIZONTAL BUMP OUTS CHOINEY OB BE INSTALLED WITH KNOTWOOD ALUMINUM TRIM PIECES, STARTER CLIPS & JOINTS (COLOR: MATCH 'CANADIAN SHIELD')  HARDIE PANEL VERTICAL SIDING  HARDIE PANEL VERTICAL SIDING  JAMES HARDIE  SWEFACE: SMOOTH COLOR: GRAY SLATE CORRESPONDING TRIM COLOR TO MATCH.  HARDIE TRIM BOARDS  JAMES HARDIE  SMOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: GRAY SLATE CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  HARDIE PANEL VERTICAL SIDING  JAMES HARDIE  SWOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING TRIM COLOR TO MATCH.  HARDIE TRIM BOARDS  JAMES HARDIE  SWOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  HARDIE PANEL SIDING  JAMES HARDIE  SWOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  PREFINISHED METAL ELASHING  FIRESTONE BUILDING PRODUCTS  SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: GH121 BLACK  PREFINISHED METAL ELASHING  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  ANDOIZED ALUMINUM (EXTERIOR STOREFRONT)  ANDOIZED ALUMINUM (EXTERIOR STOREFRONT)  ANDOIZED ALUMINUM (EXTERIOR SERVE)  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  THE CONTACT: BRARY SR  TELL (1000/1592 FARTH SEAL ST  TELL (2000/1592 FARTH SEAL ST  TELL (		SHERWIN WILLIAMS	AND TRIM BOARDS /	P-22
SIDING  SHIELD (G.C. TO TOUCH UP IN FIELD), PATTERN: STACKED AT VERTICAL BUMP OUTS AND STAGEGERD AT PHORIZONTAL PHOP OUTS AND STAGE SEARCH OF THE (800)459-7099, (C BARY) BRY ANT STAGE SEARCH OF THE (800)459-7099, (C BARY) BRY	INDING COLORS WHERE NECESSARY.			P-24
SIDING  COLOR: GRAY SLATE CORRESPONDING TRIM COLOR TO MATCH.  CONTACT: DAN OZELI TEL: (440) 570-8071 TEL:	GERED AT HORIZONTAL BUMP OUTS. NOTE: SIDING TO BE KNOTWOOD ALUMINUM TRIM PIECES, STARTER CLIPS & BARRY BRYANT@H.ICINC.COM			FC-2
COLOR: GRAY SLATE CORRESPONDING VERTICAL SIDING COLOR TO MATCH.  HARDIE PANEL VERTICAL SIDING  JAMES HARDIE  SURFACE: SMOOTH COLOR: ARTIC WHITE. CORRESPONDING TRIM COLOR TO MATCH:  HARDIE TRIM BOARDS  JAMES HARDIE  SMOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH  HARDIE PANEL SIDING  JAMES HARDIE  SIZE: 36" TALL PANELS WITH 1/2" REVEALS, SURFACE: SMOOTH. COLOR: GRAY SLATE. REFER TO WALL SECTIONS FOR SPACING.  PREFINISHED METAL FLASHING  FIRESTONE BUILDING PRODUCTS  FIRESTONE BUILDING PRODUCTS  COLOR: MATTE BLACK "SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK "SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  EMAIL:FILIPE2@VISOI  KAWNEER (OR APPROVED ALT. PER SP4)  ANODIZED ALUMINUM (EXTERIOR STOREFRONT)  ANODIZED ALUMINUM QUIKSERV  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCCTEL INTERIOR SPOTLED  CONTACT: BRIAN MCCTEL INTERIOR SPOTLED	ATE CONTACT: DAN OZELLO	o, aneo i i, a ebie		FC-3
SIDING  COLOR: ARTIC WHITE. CORRESPONDING TRIM COLOR TO MATCH:  HARDIE TRIM BOARDS  JAMES HARDIE  SMOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH  HARDIE PANEL SIDING  JAMES HARDIE  SIZE: 36" TALL PANELS WITH 1/2" REVEALS, SURFACE: SMOOTH. COLOR: GRAY SLATE. REFER TO WALL SECTIONS FOR SPACING.  PREFINISHED METAL FLASHING  PREFINISHED METAL FLASHING  PREFINISHED METAL FLASHING  PRODUCTS  COLOR: MATTE BLACK "SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK "SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  ANODIZED ALUMINUM (EXTERIOR STOREFRONT)  KAWNEER (OR APPROVED ALT. PER SP4)  ANODIZED ALUMINUM QUIKSERV  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  COLOR: TO MATCH WINDOW MULLION, WHITE FLASHING  KAWNEER ATTENTION: CHERYL TEL: (770)449-5555	ATE	0, 11.120 1 11 11 12 12	HARDIE TRIM BOARDS	FC-4
COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH  HARDIE PANEL SIDING  JAMES HARDIE  SIZE: 36" TALL PANELS WITH 1/2" REVEALS, SURFACE: SMOOTH. COLOR: GRAY SLATE. REFER TO WALL SECTIONS FOR SPACING.  PREFINISHED METAL FLASHING  PRESTONE BUILDING PRODUCTS  COLOR: MATTE BLACK *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK  PREFINISHED METAL FLASHING  PREFINISHED METAL FLASHING  PRODUCTS  COLOR: TO MATCH WINDOW MULLION, WHITE *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  KAWNEER (OR APPROVED ALT. PER SP4)  KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN 2"X4 ½" WITH 1" KAWNEER APPROVED ALT. PER SP4)  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC. THE WALL SPOTLIGHT OF MATCH WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC. THE WALL SPOTLIGHT OF MATCH WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC. THE WALL SPOTLIGHT OF MATCH WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC. THE WALL SPOTLIGHT OF MATCH WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC. THE WALL SPOTLIGHT OF MATCH WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES				FC-5
PREFINISHED METAL FLASHING  PRODUCTS  FIRESTONE BUILDING PRODUCTS  COLOR: MATTE BLACK *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  EMAIL:FILIPE2@VISOI  KAWNEER (OR APPROVED ALT. PER SP4)  KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN 2"X4 ½" WITH 1" INSULATED CLASS LOW E GLASS UNIT (BONE WHITE)  *ANODIZED ALUMINUM QUIKSERV  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC TOTAL TRIPS AND CONTACT: BRIAN MCC TELL (772)940 5992			HARDIE TRIM BOARDS	FC-6
FLASHING  BUILDING PRODUCTS  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK  PREFINISHED METAL FIRESTONE BUILDING PRODUCTS  FIRESTONE BUILDING PRODUCTS  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  EMAIL:FILIPE2@VISOI  ANODIZED ALUMINUM (EXTERIOR STOREFRONT)  KAWNEER (OR APPROVED ALT. PER SP4)  ANODIZED ALUMINUM  QUIKSERV  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  COLOR: MATTE BLACK  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  **SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  ***SEALA			HARDIE PANEL SIDING	FC-7
PREFINISHED METAL FLASHING  BUILDING PRODUCTS  COLOR: TO MATCH WINDOW MULLION, WHITE  *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE  WALL SPOTLIGHT  VISO INC.  LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE  EMAIL:FILIPE2@VISOI  ANODIZED ALUMINUM (EXTERIOR STOREFRONT)  KAWNEER (OR APPROVED ALT. PER SP4)  KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN 2"X4 ½" WITH 1" INSULATED CLASS LOW E GLASS UNIT (BONE WHITE)  KAWNEER ATTENTION: CHERYL TEL: (770)449-5555  CONTACT: BRIAN MCC		BUILDING		MC-1
ANODIZED ALUMINUM (EXTERIOR STOREFRONT)  KAWNEER (OR APPROVED ALT. PER SP4)  ANODIZED ALUMINUM  QUIKSERV  KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN 2"X4 ½" WITH 1" INSULATED CLASS LOW E GLASS UNIT (BONE WHITE)  KAWNEER ATTENTION: CHERYL TEL: (770)449-5555  CONTACT: BRIAN MCC		BUILDING		MC-2
(EXTERIOR STOREFRONT)  APPROVED ALT. PER SP4)  INSULATED CLASS LOW E GLASS UNIT (BONE WHITE)  ATTENTION: CHERYL TEL: (770)449-5555  ANODIZED ALUMINUM  QUIKSERV  BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES  CONTACT: BRIAN MCC	SPOTLIGHT. FINISH: BLACK MATTE EMAIL:FILIPE2@VISOINC.COM	VISO INC.	WALL SPOTLIGHT	WL6
ANODIZED ALUMINUM QUIKSERV BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES TELL (712)940 5002	SS LOW E GLASS UNIT (BONE WHITE)  ATTENTION: CHERYL WILKERSON	APPROVED ALT.		
ORDER LEAD TIME: 10 WEEKS	DLOR: PAINTED TIM HORTONS RED #870/C47D ME: 10 WEEKS  TEL: (713)849-5882	QUIKSERV	ANODIZED ALUMINUM (DRIVE-THRU WINDOW)	
ANODIZED ALUMINUM (WALK-UP WINDOW)  QUIKSERV  MANUAL BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES, SELF-CLOSING SLIDER, COLOR: PAINTED TIM HORTONS RED #870/C47D ORDER LEAD TIME: 10 WEEKS  CONTACT: BRIAN MCC TEL: (713)849-5882	F-CLOSING SLIDER, COLOR: PAINTED TIM HORTONS RED			
C-CHANNEL PERIMETER INTEGRATED LIGHTING BRANDING SOLUTIONS CUSTOM LENGTH, ALL ANGLES AND CUTS FOR LEKTRON LIGHTBAND CL-2 TO BE CUT ON SITE BY GC. COLOR: WHITE.		BRANDING		CL-1W

# **EXTERIOR ELEVATION NOTES**

BRANDING

SOLUTIONS

CUSTOM SIGN

1 PRE-FINISHED METAL CAP FLASHING C/W DRIP.

C-CHANNEL PERIMETER

INTEGRATED LIGHTING

DRIVE-THRU CANOPY

CL-2

- 2 EXTRUDED ALUMINUM SIDING. REFER TO EXTERIOR FINISH SCHEDULE.
- 3 PRE-FINISHED 'BONE WHITE' ALUMINUM STOREFRONT SYSTEM WITH INSULATED GLAZING.
- 4 EXPOSED FOUNDATION TO BE PARGED AND FREE OF IMPERFECTIONS. TO BE PAINTED BLACK ON AREAS ADJACENT TO FC-5 AND PAINTED TO MATCH FC-3 ON AREAS ADJACENT TO FC-3

CUSTOM LENGTH, ALL ANGLES AND CUTS FOR LEKTRON LIGHTBAND CL-2

CONTACT: CHRISTINA GREEN

CHRISTINA@CUSTOMSIGNCENTER.COM

- 5 GAS UTILITY METER.
- 6 REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION WALL AND FOOTING DETAILS.
- INTERNALLY ILLUMINATED BUILDING SIGNAGE PROVIDED AND INSTALLED BY SIGN COMPANY "COFFEE AND BAKERY" SCRIPT LETTERS ARE "WHITE". G.C TO PROVIDE AND INSTALL 3/1 EXTERIOR GRADE PRESSURE TREATED PLYWOOD BACKING AND ALL FINAL ELECTRICAL CONNECTION. SIGN MANUFACTURER SHALL OBTAIN STRUCTURALLY SEALED DRAWINGS AND SIGNAGE PERMITS FROM THE CITY BASED ON LOCAL REQUIREMENTS. G.C SHALL VERIFY ACTUAL LOCATION & SIZE OF SIGNS WITH SIGN MANUFACTURER'S APPROVED DRAWINGS AND COORDINATE LOCATIONS OF BLOCKING AND UTILITIES. G.C TO COORDINATE WITH SIGN INSTALLER TO USE VHM DRILL BIT WHILE DRILLING FOR ELECTRICAL FEED LINES AND SIGNAGE FASTENERS. ALL ELEMENTS PROVIDED BY SIGNAGE FABRICATOR TO BE REVIEWED AND APPROVED BY TDL PRIOR TO PRODUCTION.
- 8 GALVANIZED STEEL ROOF ACCESS LADDER TO BE PRIMED AND PAINTED.
- 9 LOCATION OF STAMP GRAPHIC BY SIGN COMPANY. (TOWN NAME TO BE SPECIFIED PER LOCATION).
- 10 PROVIDE & INSTALL 6" DIAMETER STEEL PIPE BOLLARD AT DRIVE-THRU WINDOW. G.C. TO PAINT "RED". REFER TO EXTERIOR FINISH SCHEDULE.

TO BE CUT ON SITE BY GC. COLOR: BLACK.

- AUTOMATIC DRIVE THRU WINDOW C/W BODY SENSOR. G.C. TO COORDINATE WITH RESTAURANT OWNER TO IDENTIFY WHICH DRIVE-THRU WINDOW TO BE INSTALLED. COLOR TO MATCH POWDERCOAT TIM HORTONS RED #807/C47D BY INTERNATIONAL PAINT. CONTACT QUIKSERV FOR INTERNATIONAL PAINT REPRESENTATIVE. REFER TO DRIVE-THRU SPECS ON SHEET A11.
- MANUAL WALK-UP WINDOW, POWDERCOAT TIM HORTONS RED #807/C47D BY INTERNATIONAL PAINT. CONTACT QUIKSERV FOR INTERNATIONAL PAINT REPRESENTATIVE. GC TO COORDINATE.
- RE-FINISHED GALVANIZED STEEL DOWNSPOUT & COLLECTOR BOX. G.C. TO COORDINATE WITH CIVIL ENGINEERS TO CONFIRM IF DOWNSPOUTS ARE SPLASHING ON CONCRETE PAD OR TIED TO THE STORM SEWER LINE. REFER TO MECHANICAL DRAWINGS.
- 14 DASHED LINE INDICATES U/S OF DECK BEHIND PARAPET.
- 15 C/T CABINET/ DISCONNECT SWITCH AND ELECTRICAL METER.
- 16 LINE OF PARAPET WALLS BEYOND.
- | 17 | GENERAL PURPOSE EXTERIOR LIGHTING FIXTURES.
- 18 WRAP STRUCTURE IN BRAKE METAL TO MATCH STOREFRONT SYSTEM.
- 19 NOT USED
- KNOX BOX SUPPLIED AND INSTALLED BY G.C. TYPE AND LOCATION TBD BY LOCAL FIRE DEPARTMENT. G.C TO COORDINATE.
- 21 ALL BASE FLASHING TO MATCH ADJACENT MATERIAL COLORS. BASE HEIGHT FOR ENTIRE BUILDING TO BE ADJUSTED BY ARCHITECT TO BEST SUIT LOCAL WEATHER CONDITIONS.
- HOSE BIB. G.C. TO PAINT. COLOR TO MATCH ADJACENT SIDING COORDINATE EXACT LOCATION WITH G.C. REFER TO MECHANICAL DRAWINGS.
- 23 G.C TO PROVIDE & INSTALL S/S KICK PLATES (AT BOTTOM PANELS) ON BOTH SIDES OF MAIN ENTRANCE/EXIT DOOR. REFER TO SHEET A11 FOR SPECS.
- 24 G.C TO PROVIDE CONCRETE CURB ALONG DRIVE-THRU LANE. CURB TO PROJECT 8" FROM FACE OF PANELS AND LENGTH OF CURB IS EXTENT OF FEATURE WALL. 25 TPO ROOF MEMBRANE ON BACK OF PARAPET WALLS. REFER TO SPECIFICATIONS.
- 26 HVAC UNITS.
- 7 LIGHTBAND FURNISHED BY THUSA VIA SCH. A AND INSTALLED BY G.C., BRACKET SUPPORT, LED STRIP LIGHTS AND DRIVERS (TO BE SUPPLIED BY LEKTRON BRANDING SOLUTIONS). G.C TO PROVIDE AND INSTALL PRE FINISHED BRAKE METAL TRIM (COLOR: MATCH WINDOW FRAMES) BEHIND THE ENTIRE LENGTH OF LEKTRON BAND AND WIDTH TO BE MATCH LEKTRON BAND SIZE (5 ½") TO PROVIDE POWER AND JUNCTION BOX FOR ELECTRICAL WIRING. G.C TO COORDINATE DETAILS WITH MANUFACTURER.
- G.C TO PROVIDE & INSTALL APPROXIMATELY 100'-0" RUNNING LENGTH OF EXTERIOR ILLUMINATED C-CHANNEL LED STRIP LIGHTING ( CL-2 BY LEKTRON BRANDING SOLUTIONS ). REFER TO SHEET 28 SP7 FOR CONTACT INFORMATION (COORDINATE WITH LEKTRON BRANDING SOLUTIONS) AND DETAIL 2/A7 FOR INSTALLATION OF LED STRIP LIGHT AND C-CHANNEL PANNEL SCHEDULE ON A5.
- 29 WALL SPOTLIGHT. REFER TO EXTERIOR FINISH SCHEDULE. GC TO ADJUST BEAM SPREAD TO FEATURE THE DRIVE-THRU LOCKUP SIGN.
- G.C. TO COORDINATE WITH UTILITY COMPANIES FOR PLACEMENT/ LOCATION FOR BOLLARDS. G.C. TO PROVIDE 6" DIA. METAL BOLLARD FILL W/ CONCRETE AND PAINTED. G.C. TO PAINT "RED". REFER TO EXTERIOR FINISH SCHEDULE.
- 31 CONCRETE SIDEWALK (BY G.C). REFER TO SITE PLAN.
- 2 PREFABRICATED DRIVE-THRU CANOPY. G.C. TO ENSURE THE CANOPY IS ALIGNED WITH C-CHANNEL. REFER TO EXTERIOR FINISH SCHEDULE FOR TYPE AND FINISH AND TO DETAIL 1/A7.2 FOR INSTALLATION. REFER TO STRUCTURAL DRAWINGS FOR CANOPY SUPPORT.
- 34 SIGN FABRICATOR TO PROVIDE AND INSTALL (MIN. 8" HIGH) ADDRESS VINYL ADHESIVE. G.C. TO COORDINATE W/ SIGN FABRICATOR. ALL ELEMENTS PROVIDED BY SIGNAGE FABRICATOR TO BE REVIEWED AND APPROVED BY TDL PRIOR TO PRODUCTION.
- 35 EXTERIOR WASTE UNIT SUPPLIED BY TDL GROUP LTD. & INSTALLED BY G.C.
- 36 HARDIE VERTICAL SIDING BOARD AND BATTEN. SEE EXTERIOR FINISH SCHEDULE

ARCHITECT 1301068763

PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

DRAWN BY

CHECKED BY APPROVED BY

ISSUE DATE

# DATE

# DATE

NOTICE

07/12/22

LRK

07/12/2022

**ISSUE** 

REVISIONS

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STORE # 919728

HARPER WOODS, MI 48225

PROJECT:

engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION

PERMIT SET

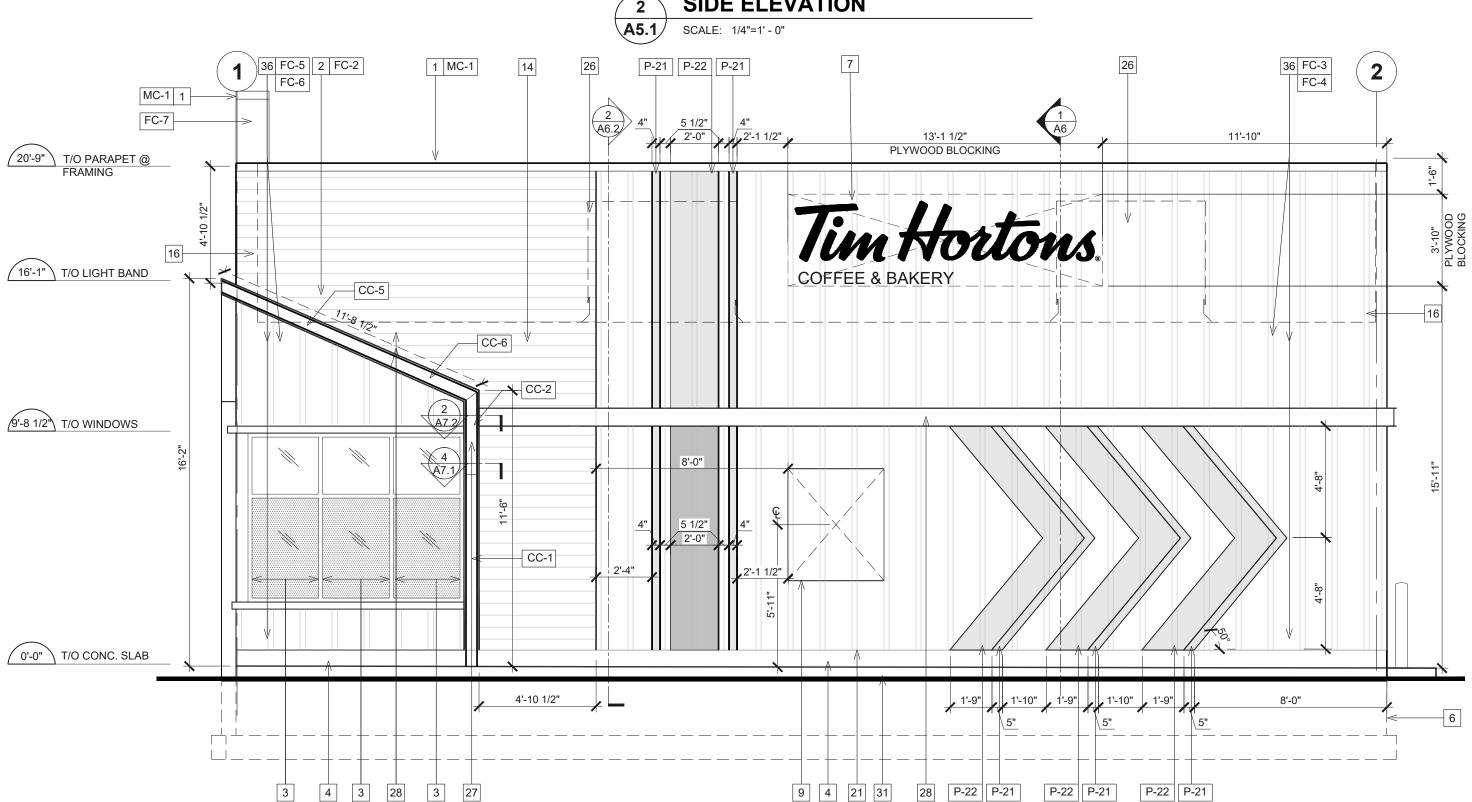
DESCRIPTION

**EXTERIOR** 

40509-11

SHEET:





SIDE ELEVATION

# **GENERAL NOTES**

- 1. SEALANT / CAULKING AROUND DOOR / WINDOW FRAMES. COLOR: TO MATCH WINDOW / DOOR FRAMES.
- 2. THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND FOLLOW ALL DRAWINGS AND SPECIFICATIONS.

FINISH TYPE

NOTE REFERENCE REFER TO ELEVATION NOTES FN#

P-17	BOLLARD	SHERWIN WILLIAMS	COLOR: #SW6868 'REAL RED' MIN. 2 COATS SPRAY APPLICATION	SHERWIN WILLIAMS (NORTH AMERICA) CONTACT: DEAN GIVELAD
P-21	HARDIE VERTICAL SIDING AND TRIM BOARDS	SHERWIN WILLIAMS	COLOR: #SW7006 'EXTRA WHITE' HIGH GLOSS FINISH, MIN. 2 COATS SPRAY APPLICATION	EMAIL: DEAN.GIVELAS@SHERWIN.COM TEL: 416-432-6975
P-22	HARDIE VERTICAL SIDING AND TRIM BOARDS / PANEL SIDING	SHERWIN WILLIAMS	COLOR: #SW6868 'REAL RED' , MIN. 2 COATS SPRAY APPLICATION. BUILDING STRIPING TO BE HIGH GLOSS FINISH	
P-24	EXTERIOR METAL PAINTS & METAL RAILING	SHERWIN WILLIAMS	PAINT FOR FASCIAS AND/OR EXTERIOR METALS (SOFFITS, TRIM, ETC.) TO MATCH SURROUNDING COLORS WHERE NECESSARY. COLOR: SW 7067 CITYSCAPE	
FC-2	EXTRUDED ALUMINUM SIDING	KNOTWOOD	SIZE: 6" NOMINAL SPACING WITH 1/2" REVEAL JOINTS, COLOR: CANADIAN SHIELD (G.C TO TOUCH UP IN FIELD), PATTERN: STACKED AT VERTICAL BUMP OUTS AND STAGGERED AT HORIZONTAL BUMP OUTS. NOTE: SIDING TO BE INSTALLED WITH KNOTWOOD ALUMINUM TRIM PIECES, STARTER CLIPS & JOINTS (COLOR: MATCH 'CANADIAN SHIELD')	HAINES, JONES & CADBURY LLC CONTACT: BARRY BRYANT TEL: (800)459-7099, (C) 479-899-3555 BARRY.BRYANT@HJCINC.COM
FC-3	HARDIE PANEL VERTICAL SIDING	JAMES HARDIE	SURFACE: SMOOTH COLOR: GRAY SLATE CORRESPONDING TRIM COLOR TO MATCH.	JAMES HARDIE BUILDING PRODUCTS, INC. CONTACT: DAN OZELLO TEL: (440) 570-8071 DANIEL.OZELLO@JAMESHARDIE.COM
FC-4	HARDIE TRIM BOARDS	JAMES HARDIE	SMOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: GRAY SLATE CORRESPONDING VERTICAL SIDING COLOR TO MATCH.	
FC-5	HARDIE PANEL VERTICAL SIDING	JAMES HARDIE	SURFACE: SMOOTH COLOR: ARTIC WHITE. CORRESPONDING TRIM COLOR TO MATCH:	
FC-6	HARDIE TRIM BOARDS	JAMES HARDIE	SMOOTH BATTEN BOARDS. SIZE: 2.5" WIDE SPACED 16" OC. COLOR: ARTIC WHITE. CORRESPONDING VERTICAL SIDING COLOR TO MATCH	
FC-7	HARDIE PANEL SIDING	JAMES HARDIE	SIZE: 36" TALL PANELS WITH 1/2" REVEALS, SURFACE: SMOOTH. COLOR: GRAY SLATE. REFER TO WALL SECTIONS FOR SPACING.	
MC-1	PREFINISHED METAL FLASHING	FIRESTONE BUILDING PRODUCTS	COLOR: MATTE BLACK *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: 61121 BLACK	
MC-2	PREFINISHED METAL FLASHING	FIRESTONE BUILDING PRODUCTS	COLOR: TO MATCH WINDOW MULLION, WHITE *SEALANT: TITEBOND WEATHER MASTER SEALANT COLOR: WHITE	
WL6	WALL SPOTLIGHT	VISO INC.	LED EXTERIOR SPOTLIGHT. FINISH: BLACK MATTE	EMAIL:FILIPE2@VISOINC.COM
	ANODIZED ALUMINUM (EXTERIOR STOREFRONT)	KAWNEER (OR APPROVED ALT. PER SP4)	KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN 2"X4 ½" WITH 1" INSULATED CLASS LOW E GLASS UNIT (BONE WHITE)	KAWNEER ATTENTION: CHERYL WILKERSON TEL: (770)449-5555
	ANODIZED ALUMINUM (DRIVE-THRU WINDOW)	QUIKSERV	BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES "PW-54E-TH", COLOR: PAINTED TIM HORTONS RED #870/C47D ORDER LEAD TIME: 10 WEEKS	CONTACT: BRIAN MCCLOSKEY TEL: (713)849-5882
	ANODIZED ALUMINUM (WALK-UP WINDOW)	QUIKSERV	MANUAL BI-PARTING WINDOW WITH 2 CENTERED MOVING PANELS AND 2 SIDELITES, SELF-CLOSING SLIDER, COLOR: PAINTED TIM HORTONS RED #870/C47D ORDER LEAD TIME: 10 WEEKS	CONTACT: BRIAN MCCLOSKEY TEL: (713)849-5882
CL-1W	C-CHANNEL PERIMETER INTEGRATED LIGHTING	LEKTRON BRANDING SOLUTIONS	CUSTOM LENGTH, ALL ANGLES AND CUTS FOR LEKTRON LIGHTBAND CL-2 TO BE CUT ON SITE BY GC. COLOR: WHITE.	
CL-2	C-CHANNEL PERIMETER INTEGRATED LIGHTING	LEKTRON BRANDING SOLUTIONS	CUSTOM LENGTH, ALL ANGLES AND CUTS FOR LEKTRON LIGHTBAND CL-2 TO BE CUT ON SITE BY GC. COLOR: BLACK.	
	DRIVE-THRU CANOPY	CUSTOM SIGN CENTER		CONTACT: CHRISTINA GREEN CHRISTINA@CUSTOMSIGNCENTER.COM

PATTERN & COLOR

- PRE-FINISHED METAL CAP FLASHING C/W DRIP.
- EXTRUDED ALUMINUM SIDING. REFER TO EXTERIOR FINISH SCHEDULE.
- 3 PRE-FINISHED 'BONE WHITE' ALUMINUM STOREFRONT SYSTEM WITH INSULATED GLAZING.

**EXTERIOR FINISH SCHEDULE** 

MANUF.

TAG

PRODUCT

- 4 EXPOSED FOUNDATION TO BE PARGED AND FREE OF IMPERFECTIONS. TO BE PAINTED BLACK ON AREAS ADJACENT TO FC-5 AND PAINTED TO MATCH FC-3 ON AREAS ADJACENT TO FC-3
- 6 REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION WALL AND FOOTING DETAILS.
- INTERNALLY ILLUMINATED BUILDING SIGNAGE PROVIDED AND INSTALLED BY SIGN COMPANY "COFFEE AND BAKERY" SCRIPT LETTERS ARE "WHITE". G.C TO PROVIDE AND INSTALL 3" EXTERIOR GRADE PRESSURE TREATED PLYWOOD BACKING AND ALL FINAL ELECTRICAL CONNECTION. SIGN MANUFACTURER SHALL OBTAIN STRUCTURALLY SEALED DRAWINGS AND SIGNAGE PERMITS
  FROM THE CITY BASED ON LOCAL REQUIREMENTS. G.C SHALL VERIFY ACTUAL LOCATION & SIZE OF SIGNS WITH SIGN MANUFACTURER'S APPROVED DRAWINGS AND COORDINATE LOCATIONS OF BLOCKING AND UTILITIES. G.C TO COORDINATE WITH SIGN INSTALLER TO USE VHM DRILL BIT WHILE DRILLING FOR ELECTRICAL FEED LINES AND SIGNAGE FASTENERS. ALL ELEMENTS PROVIDED BY SIGNAGE FABRICATOR TO BE REVIEWED AND APPROVED BY TDL PRIOR TO PRODUCTION.
- 8 GALVANIZED STEEL ROOF ACCESS LADDER TO BE PRIMED AND PAINTED.
- 9 LOCATION OF STAMP GRAPHIC BY SIGN COMPANY. (TOWN NAME TO BE SPECIFIED PER LOCATION).
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- MANUAL WALK-UP WINDOW, POWDERCOAT TIM HORTONS RED #807/C47D BY INTERNATIONAL PAINT. CONTACT QUIKSERV FOR INTERNATIONAL PAINT REPRESENTATIVE. GC TO COORDINATE.
- PRE-FINISHED GALVANIZED STEEL DOWNSPOUT & COLLECTOR BOX. G.C. TO COORDINATE WITH CIVIL ENGINEERS TO CONFIRM IF DOWNSPOUTS ARE SPLASHING ON CONCRETE PAD OR TIED TO THE STORM SEWER LINE. REFER TO MECHANICAL DRAWINGS.
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- 16 LINE OF PARAPET WALLS BEYOND.
- 17 GENERAL PURPOSE EXTERIOR LIGHTING FIXTURES.
- 18 WRAP STRUCTURE IN BRAKE METAL TO MATCH STOREFRONT SYSTEM.
- 19 NOT USED
- 20 KNOX BOX SUPPLIED AND INSTALLED BY G.C. TYPE AND LOCATION TBD BY LOCAL FIRE DEPARTMENT. G.C TO COORDINATE.
- 21 ALL BASE FLASHING TO MATCH ADJACENT MATERIAL COLORS. BASE HEIGHT FOR ENTIRE BUILDING TO BE ADJUSTED BY ARCHITECT TO BEST SUIT LOCAL WEATHER CONDITIONS.
- 22 HOSE BIB. G.C. TO PAINT. COLOR TO MATCH ADJACENT SIDING COORDINATE EXACT LOCATION WITH G.C. REFER TO MECHANICAL DRAWINGS.
- 23 G.C TO PROVIDE & INSTALL S/S KICK PLATES (AT BOTTOM PANELS) ON BOTH SIDES OF MAIN ENTRANCE/EXIT DOOR. REFER TO SHEET A11 FOR SPECS.
- G.C TO PROVIDE CONCRETE CURB ALONG DRIVE-THRU LANE. CURB TO PROJECT 8" FROM FACE OF PANELS AND LENGTH OF CURB IS EXTENT OF FEATURE WALL.
- 25 TPO ROOF MEMBRANE ON BACK OF PARAPET WALLS. REFER TO SPECIFICATIONS.
- 26 HVAC UNITS.
- IJ LIGHTBAND FURNISHED BY THUSA VIA SCH. A AND INSTALLED BY G.C., BRACKET SUPPORT, LED STRIP LIGHTS AND DRIVERS (TO BE SUPPLIED BY LEKTRON BRANDING SOLUTIONS). G.C TO PROVIDE AND INSTALL PRE FINISHED BRAKE METAL TRIM (COLOR: MATCH WINDOW FRAMES) BEHIND THE ENTIRE LENGTH OF LEKTRON BAND AND WIDTH TO BE MATCH LEKTRON BAND SIZE (5 2") TO PROVIDE POWER AND JUNCTION BOX FOR ELECTRICAL WIRING. G.C. TO COORDINATE DETAILS WITH MANUFACTURER.
- 🖯 G.C TO PROVIDE & INSTALL APPROXIMATELY 100'-0" RUNNING LENGTH OF EXTERIOR ILLUMINATED C-CHANNEL LED STRIP LIGHTING ( CL-2 BY LEKTRON BRANDING SOLUTIONS ). REFER TO SHEET SP7 FOR CONTACT INFORMATION (COORDINATE WITH LEKTRON BRANDING SOLUTIONS) AND DETAIL 2/A7 FOR INSTALLATION OF LED STRIP LIGHT AND C-CHANNEL PANNEL SCHEDULE ON A5.
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- SIGN FABRICATOR TO PROVIDE AND INSTALL (MIN. 8" HIGH) ADDRESS VINYL ADHESIVE. G.C. TO COORDINATE W/ SIGN FABRICATOR. ALL ELEMENTS PROVIDED BY SIGNAGE FABRICATOR TO BE
- REVIEWED AND APPROVED BY TDL PRIOR TO PRODUCTION.
- 25 EXTERIOR WASTE UNIT SUPPLIED BY TDL GROUP LTD. & INSTALLED BY G.C. 36 HARDIE VERTICAL SIDING BOARD AND BATTEN. SEE EXTERIOR FINISH SCHEDULE

DRAWN BY

**SUPPLIER/ CONTACT** 

CHECKED BY

ISSUE DATE

# DATE

NOTICE

07/12/22

APPROVED BY

LRK

07/12/2022

**ISSUE** 

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fax 614.898.7570

PROJECT:

engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION PERMIT SET

**EXTERIOR** 

PROJECT NO.:

SHEET:

ARCHITECT

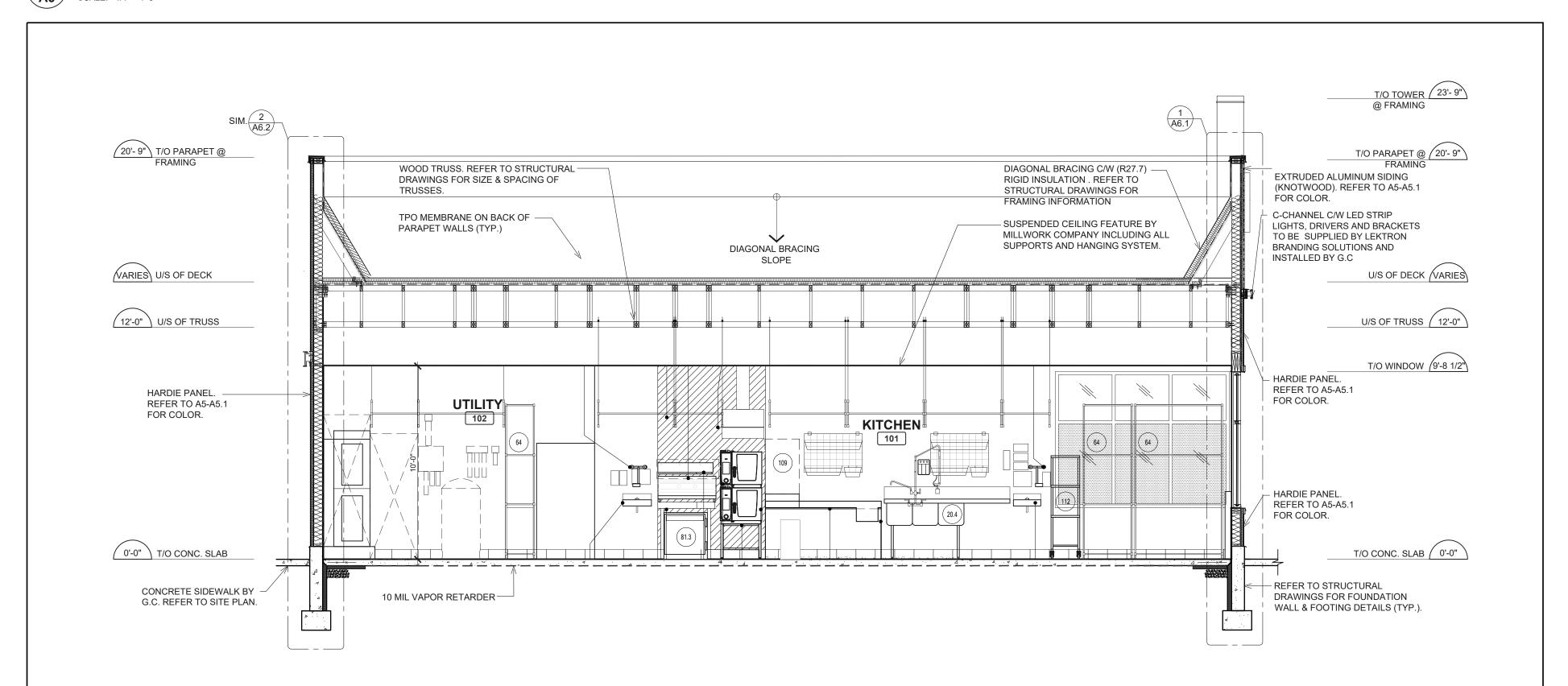
1301068763

PROFESSIONAL OF RECORD:

CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

40509-11

**BUILDING SECTION A6** SCALE: 1/4" = 1'-0"



**BUILDING SECTION A6** SCALE: 1/4" = 1'-0"

NOTE:

**CONTINUE GYPSUM BOARD** TO U/S OF DECK & **BETWEEN TRUSSES AT EXTERIOR WALLS (TYP.).** 

ISSUE DATE 07/12/2022 ISSUE DESCRIPTION # DATE 07/12/22 PERMIT SET

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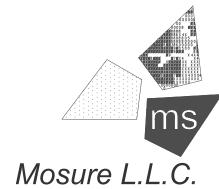
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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

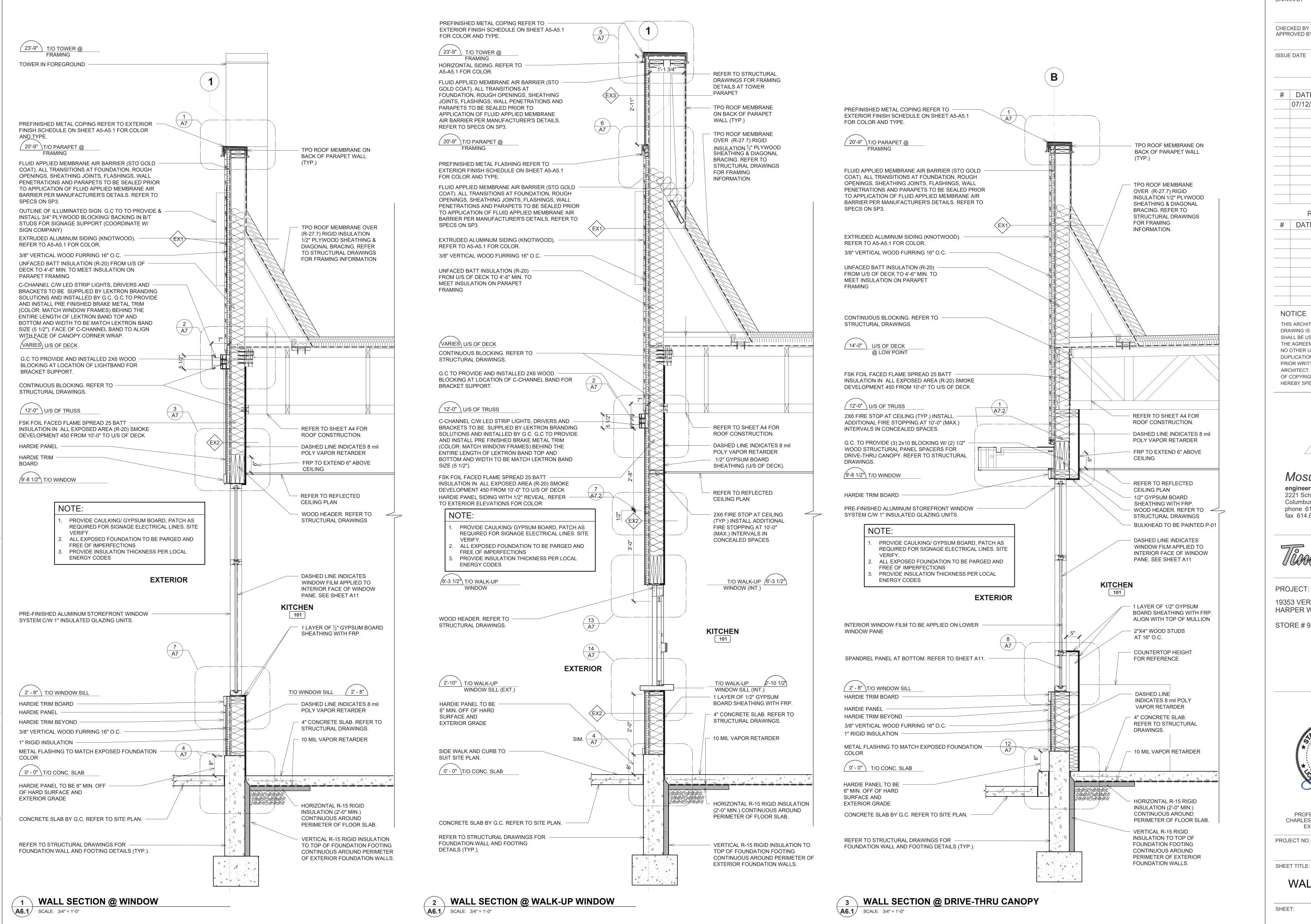
PROJECT NO.:

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SHEET TITLE:

**BUILDING SECTIONS** 

SHEET:



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**ISSUE** 

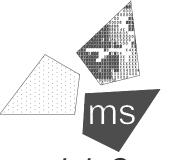
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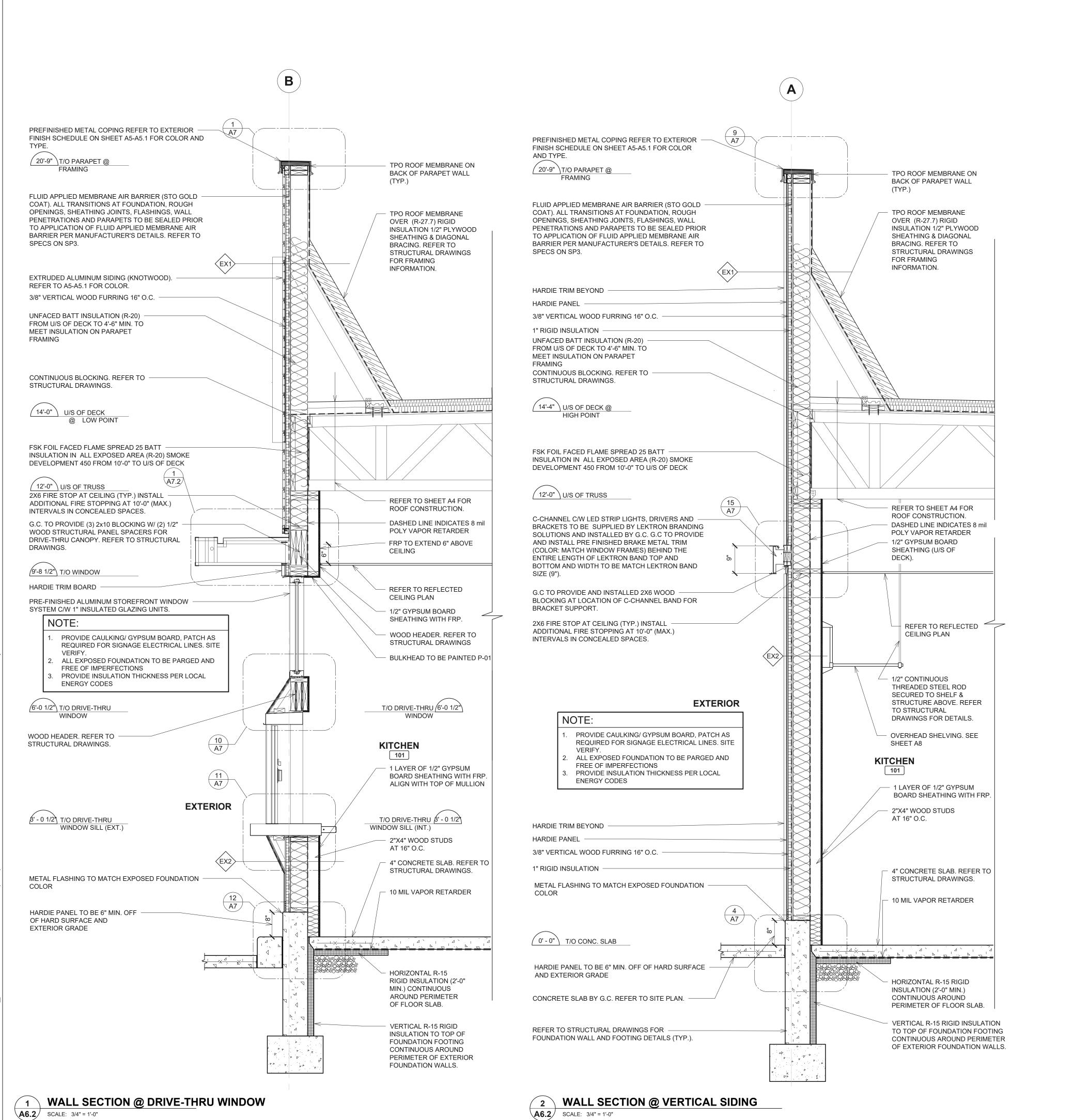
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SHEET TITLE:

WALL SECTIONS

SHEET:

A6.1



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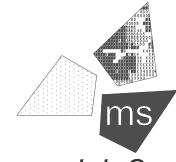
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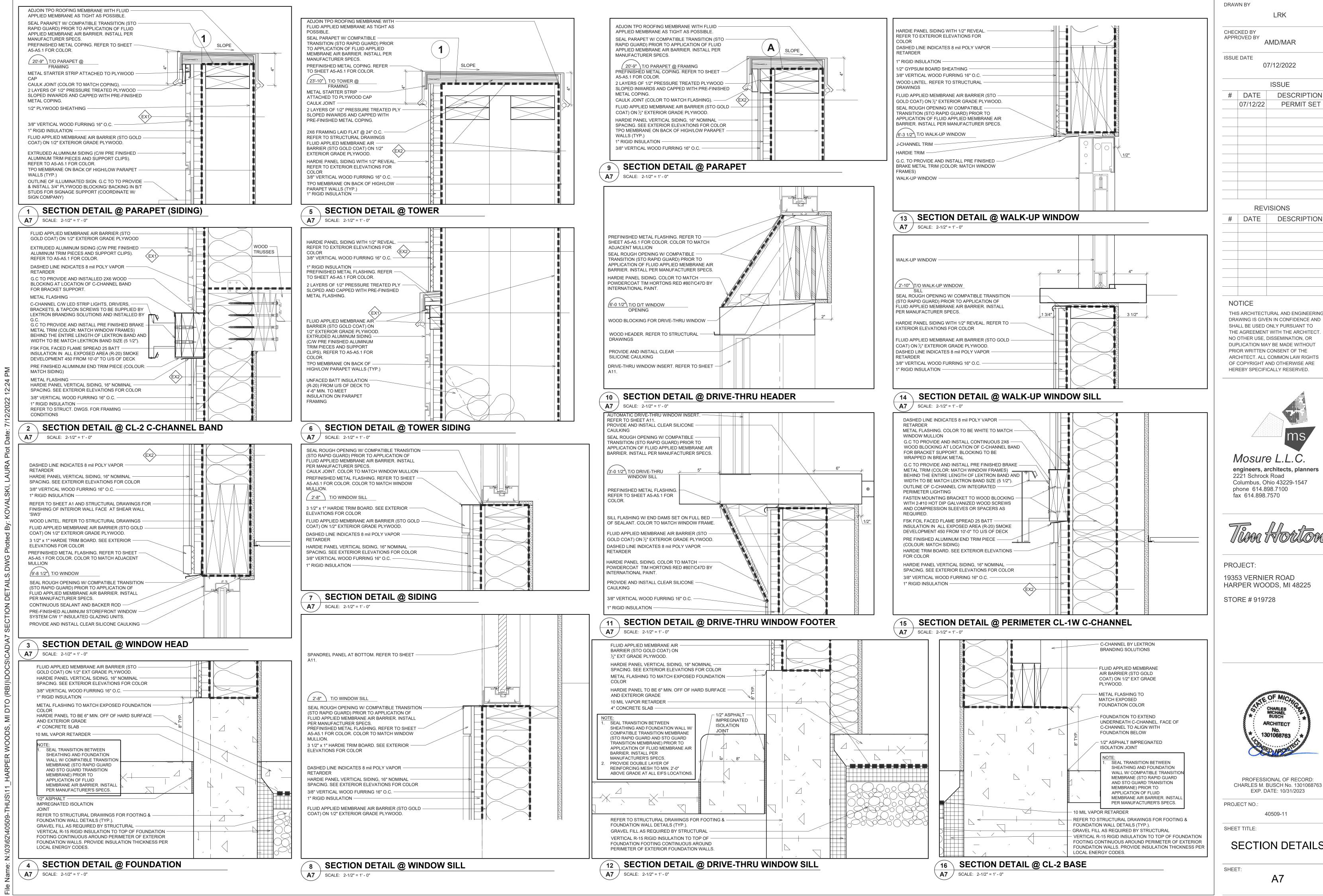
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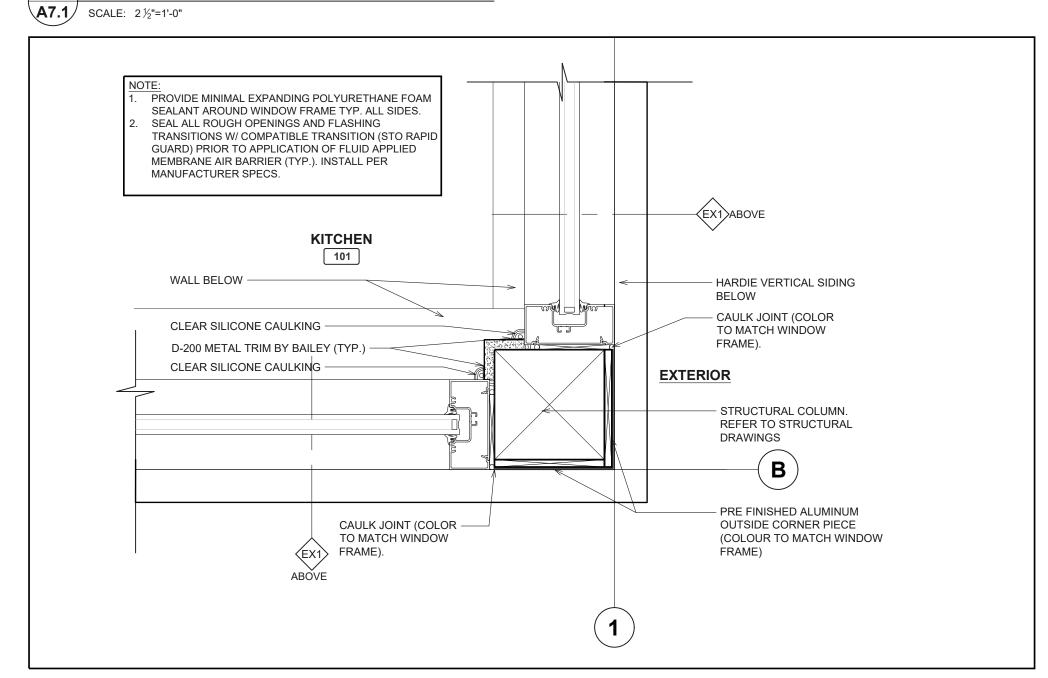
WALL SECTIONS

SHEET:

A6.2



# 1 PLAN DETAIL @ DRIVE-THRU WINDOW

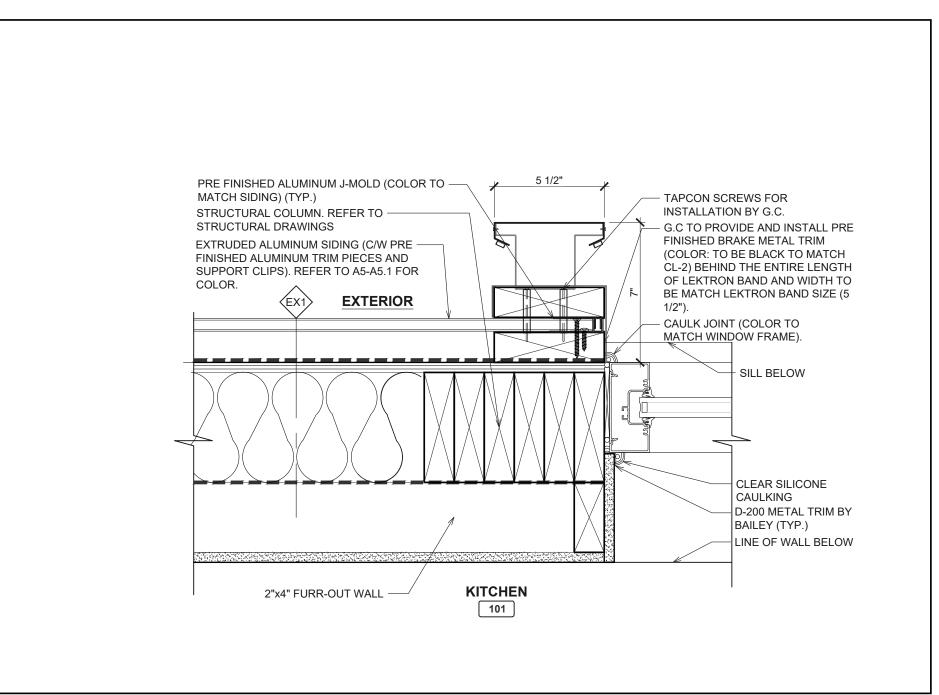


# **PLAN DETAIL @ STOREFRONT**

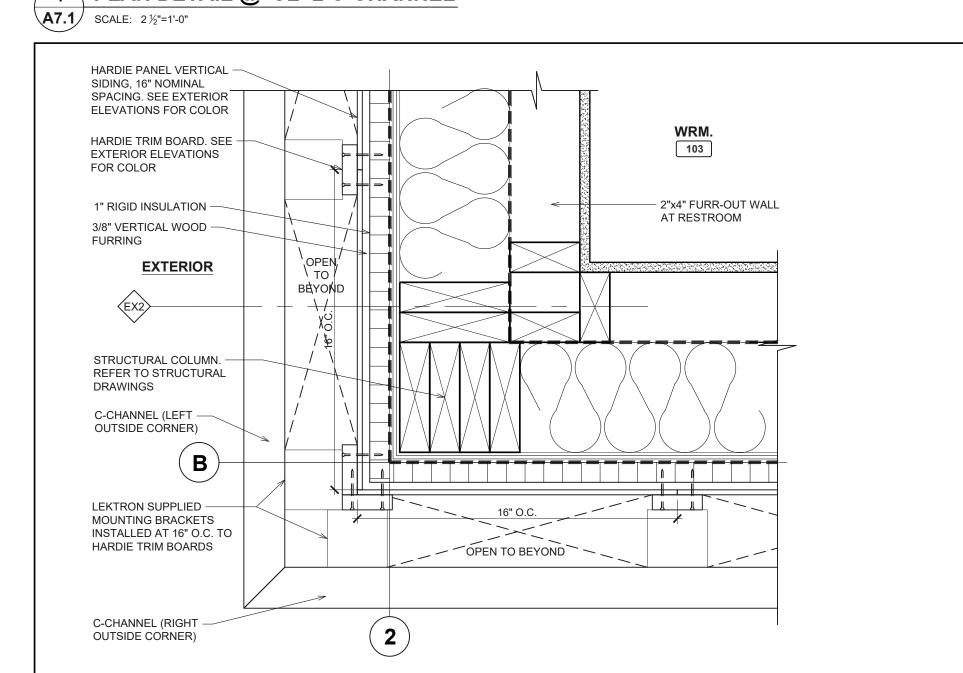
**A7.1** SCALE: 2½"=1'-0" EXTERIOR SILL BELOW INTERIOR SILL - CAULK JOINT (COLOR TO MATCH WINDOW FRAME). CLEAR SILICONE CAULKING -D-200 METAL TRIM BY BAILEY **EXTERIOR** (TYP.) HARDIE PANEL SIDING WITH 1/2" REVEAL. REFER TO EXTERIOR ELEVATIONS FOR COLOR - J-CHANNEL TRIM **KITCHEN** 101 - G.C TO PROVIDE AND INSTALL PRE FINISHED BRAKE METAL TRIM (COLOR: BLACK) BEHIND THE PROVIDE MINIMAL EXPANDING ENTIRE LENGTH OF LEKTRON BAND POLYURETHANE FOAM AND WIDTH TO BE MATCH LEKTRON SEALANT AROUND WINDOW BAND SIZE (5 1/2"). FRAME TYP. ALL SIDES. - C-CHANNEL C/W LED STRIP LIGHTS, SEAL ALL ROUGH OPENINGS AND FLASHING TRANSITIONS DRIVERS AND BRACKETS TO BE SUPPLIED BY LEKTRON BRANDING W/ COMPATIBLE TRANSITION (STO RAPID GUARD) PRIOR TO SOLUTIONS AND INSTALLED BY G.C APPLICATION OF FLUID - FLUID APPLIED MEMBRANE AIR APPLIED MEMBRANE AIR BARRIER (STO GOLD COAT) ON BARRIER (TYP.). INSTALL PER 1/2" EXTERIOR GRADE MANUFACTURÉR SPECS. PLYWOOD. - G.C TO PROVIDE AND INSTALLED STRUCTURAL COLUMN. REFER — 2X6 WOOD BLOCKING AT LOCATION TO STRUCTURAL DRAWINGS OF C-CHANNEL BAND FOR BRACKET SUPPORT. D-200 METAL TRIM BY BAILEY (TYP.) — CAULK JOINT (COLOR TO CLEAR SILICONE CAULKING -MATCH WINDOW FRAMES). CANOPY LINE ABOVE TO ALIGN WITH FACE OF C-CHANNEL

PLAN DETAIL @ WINDOW TRIM (SIDING) / CL-2 C-CHANNEL BAND

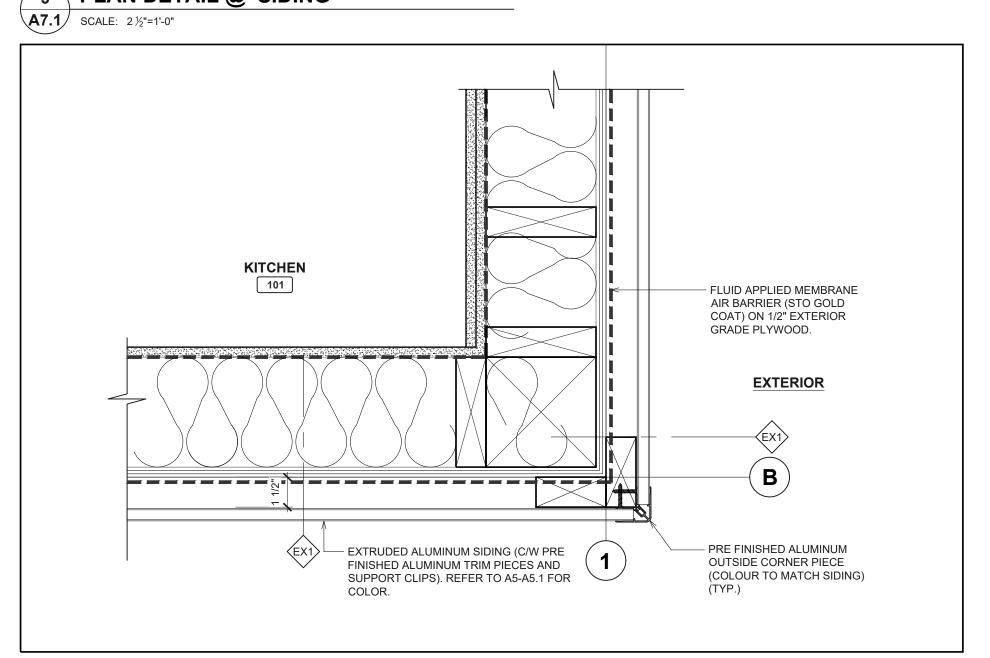
**A7.1** SCALE: 21/2"=1'-0"



# 4 PLAN DETAIL @ CL-2 C-CHANNEL

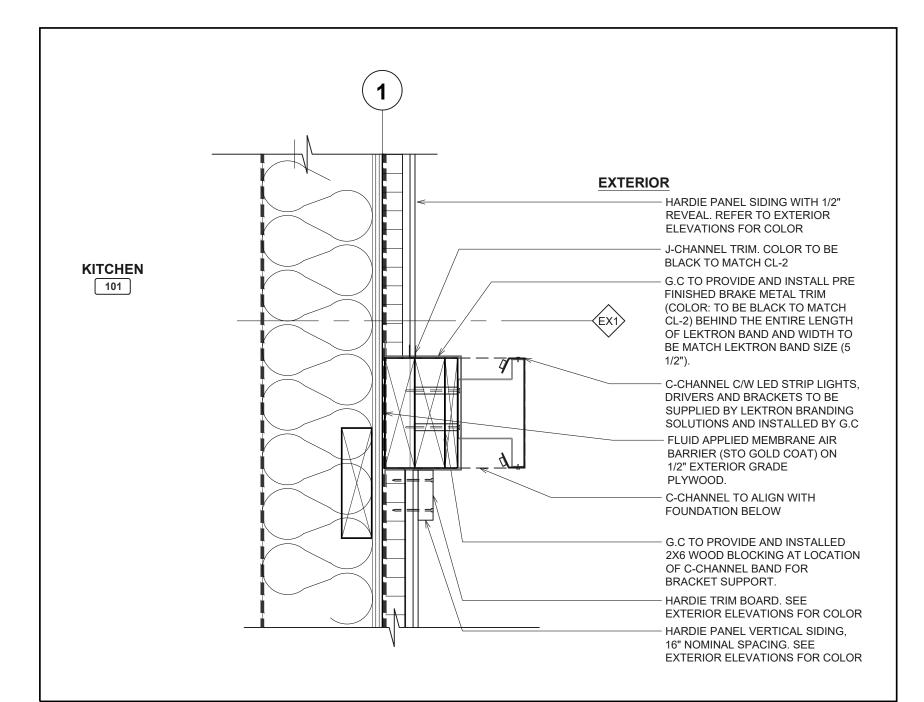


# 5 PLAN DETAIL @ SIDING



# 6 PLAN DETAIL @ SIDING CORNER (TYP.)

**A7.1** SCALE: 2½"=1'-0"

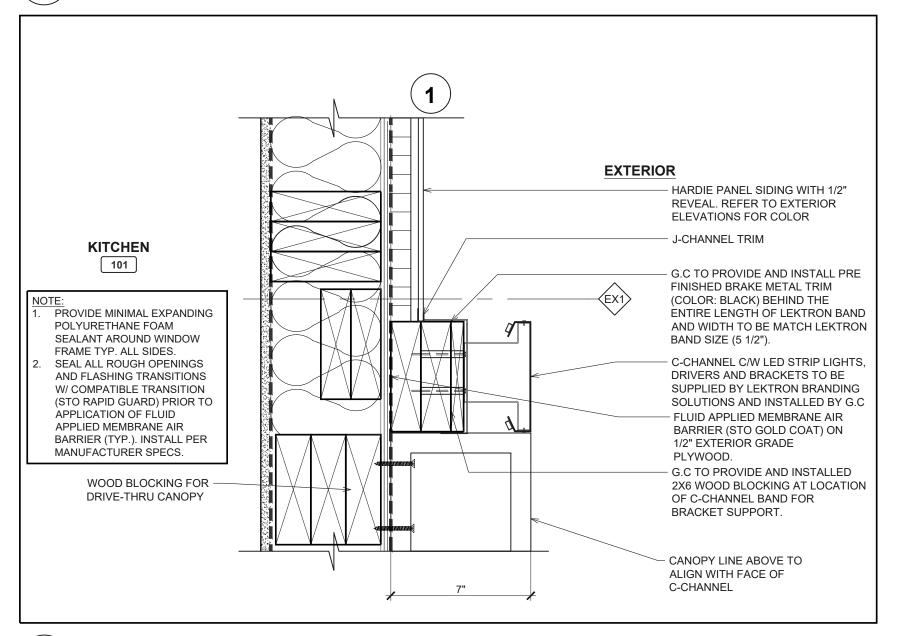


# 7 PLAN DETAIL @ CL-2 C-CHANNEL BAND AND CANOPY A7.1 SCALE: 2½"=1'-0"

**KITCHEN** —— 1" RIGID INSULATION 2"x4" FURR-OUT WALL 16" O.C.
SIDING
HARDIE PANEL VERTICAL SIDING, 16"
NOMINAL SPACING. SEE EXTERIOR ELEVATIONS FOR COLOR 3/8" VERTICAL WOOD FURRING 16" O.C. — **EXTERIOR** - HARDIE TRIM BOARD. SEE EXTERIOR -**ELEVATIONS FOR COLOR** PRE FINISHED ALUMINUM J-MOLD (COLOR TO — MATCH SIDING) (TYP.) EXTRUDED ALUMINUM SIDING (C/W PRE FINISHED ALUMINUM TRIM — PIECES AND SUPPORT CLIPS). REFER TO A5-A5.1 FOR COLOR.

# 8 PLAN DETAIL @ SIDING

**A7.1** SCALE: 2½"=1'-0"



# PLAN DETAIL @ CL-2 C-CHANNEL & DRIVE-THRU CANOPY

**A7.1** SCALE: 2½"=1'-0"

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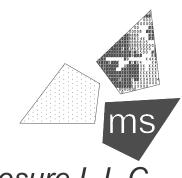
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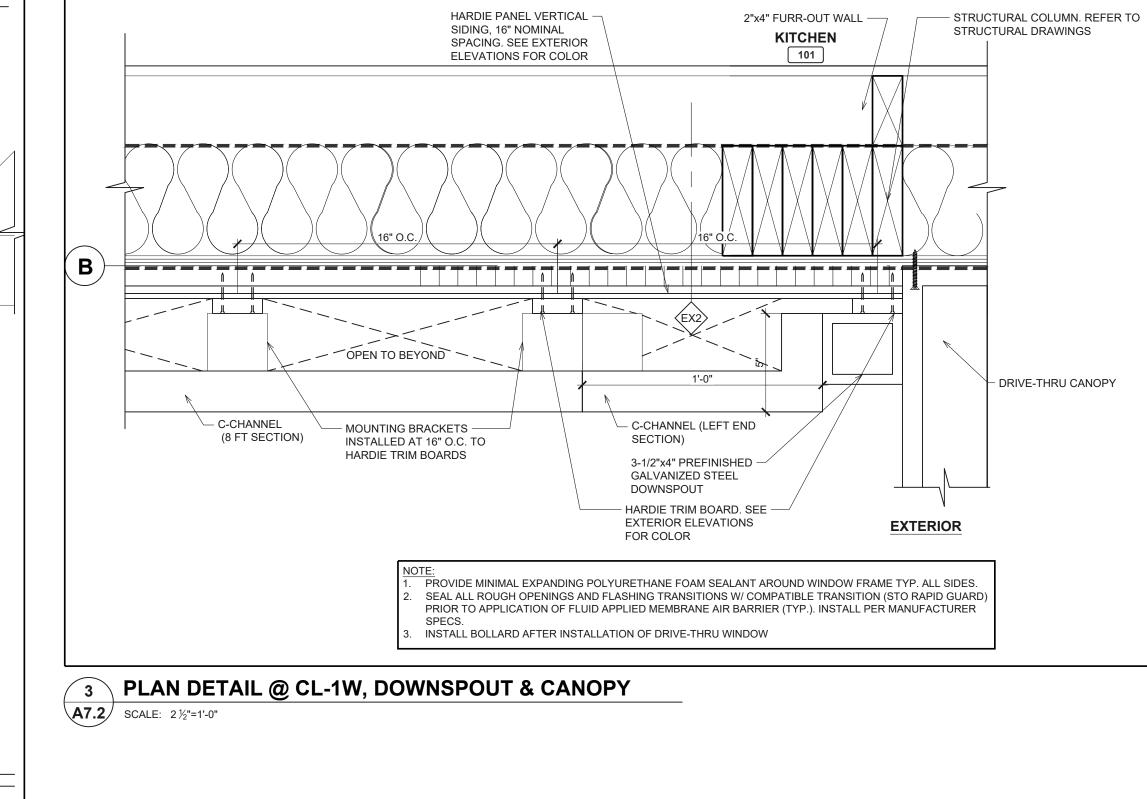
SHEET TITLE:

40509-11

PLAN DETAILS

SHEET:

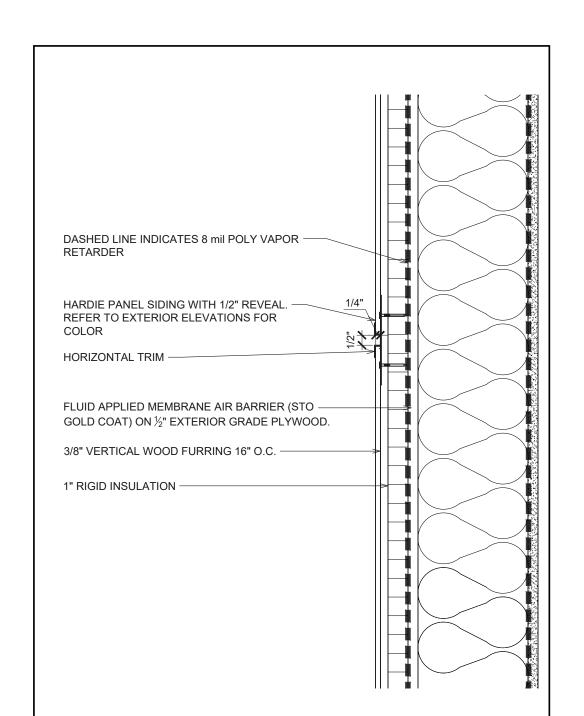
A7.1



**EXTERIOR** C-CHANNEL (RIGHT END SECTION) -— G.C TO PROVIDE AND INSTALL PRE FINISHED BRAKE METAL TRIM
(COLOR: MATCH WINDOW FRAMES) | MOUNTING BRACKETS -BEHIND THE ENTIRE LENGTH OF LEKTRON BAND AND WIDTH TO BE MATCH LEKTRON BAND SIZE (5  $\frac{1}{2}$ "). - PRE FINISHED ALUMINUM J-MOLD (COLOR TO MATCH SIDING) (TYP.) HARDIE TRIM BOARD. SEE EXTERIOR ELEVATIONS FOR COLOR - HARDIE PANEL VERTICAL SIDING, 16" NOMINAL SPACING. SEE EXTERIOR ELEVATIONS FOR COLOR - 3/8" VERTICAL WOOD FURRING 16" O.C. - 1" RIGID INSULATION EXTRUDED ALUMINUM SIDING (C/W PRE FINISHED ALUMINUM TRIM PIECES AND SUPPORT CLIPS). REFER TO A5-A5.1 FOR KITCHEN 101 STRUCTURAL COLUMN. REFER TO -STRUCTURAL DRAWINGS 2"x4" FURR-OUT WALL -

PLAN DETAIL @ CL-2 & CL-1W C-CHANNEL

SCALE: 2½"=1'-0"



4 SECTION DETAIL @ HORIZONTAL PANEL REVEAL SCALE: 2½"=1'-0"



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SHEET:

A7.2

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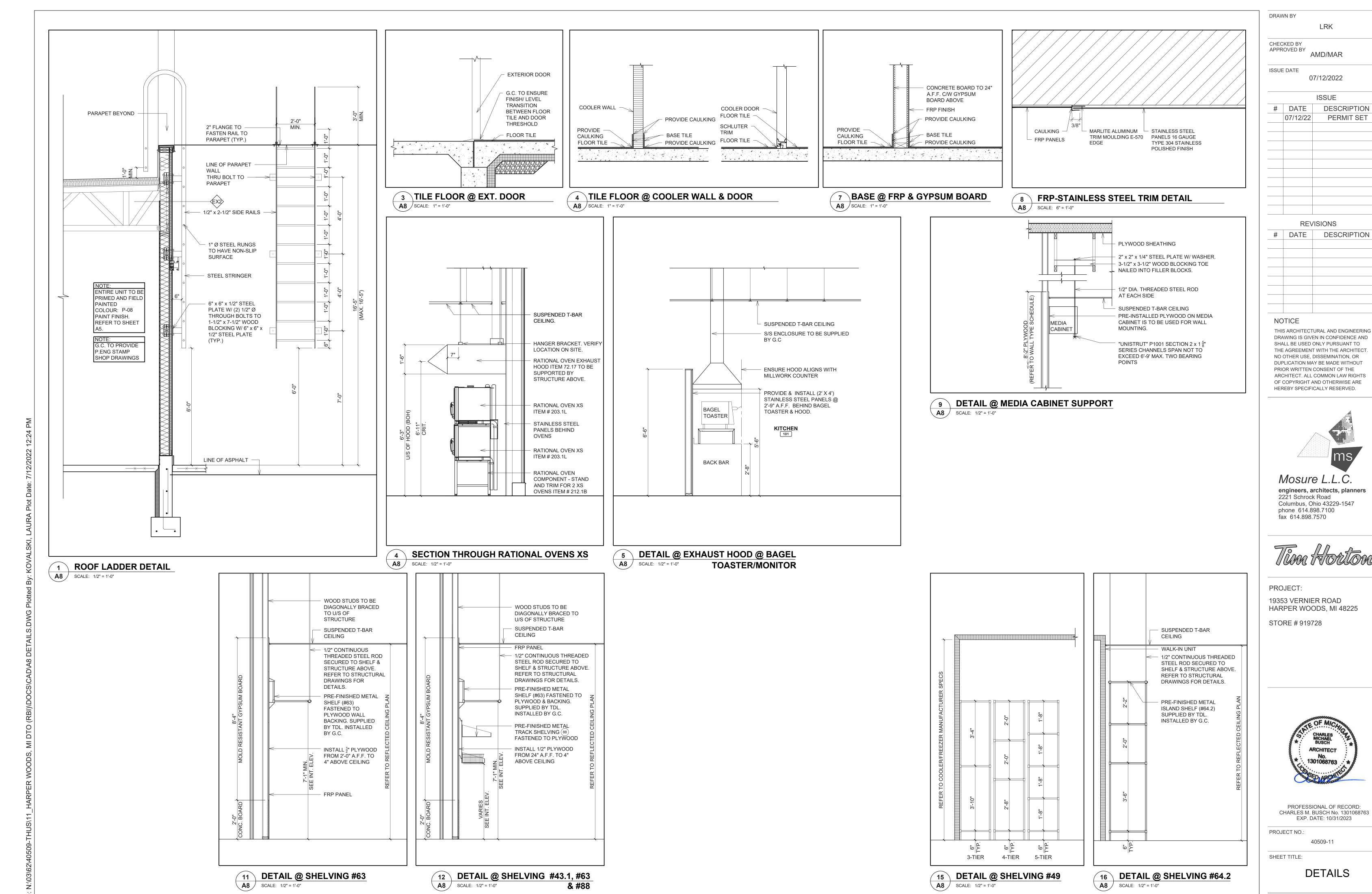
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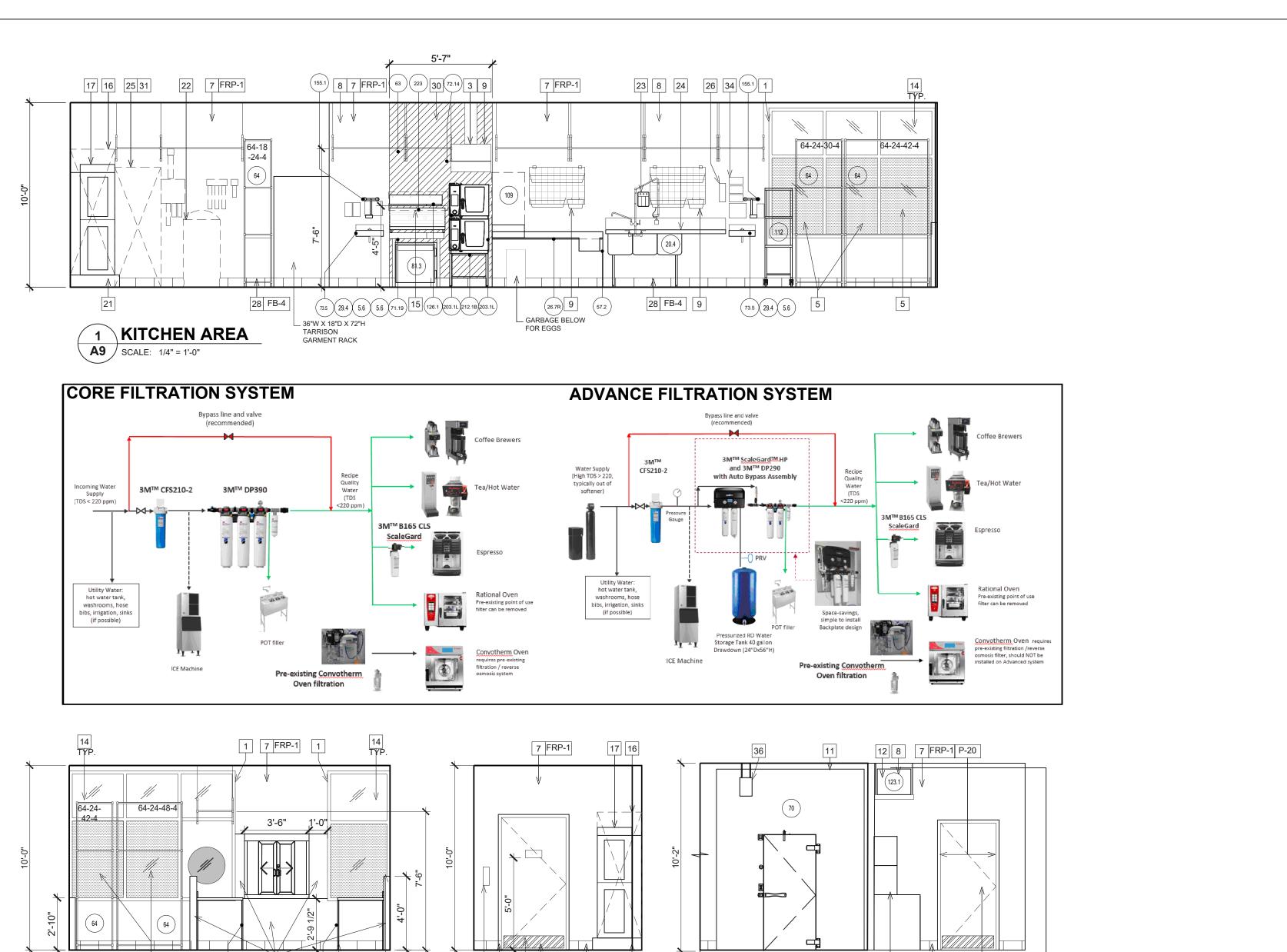
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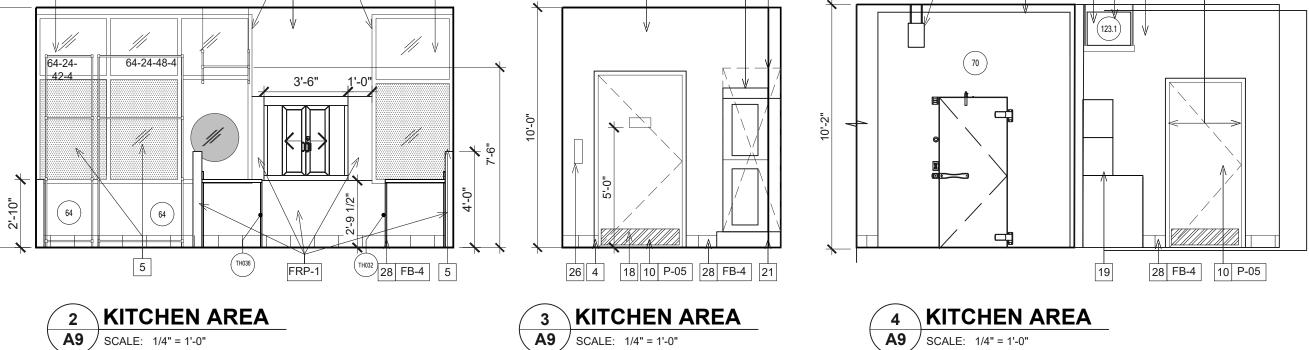
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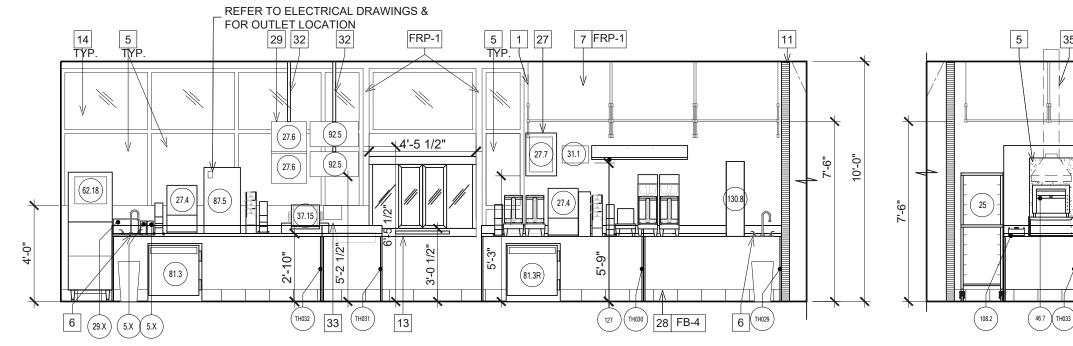
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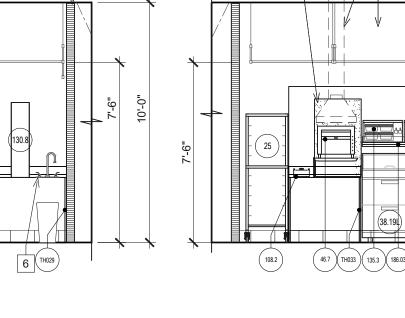


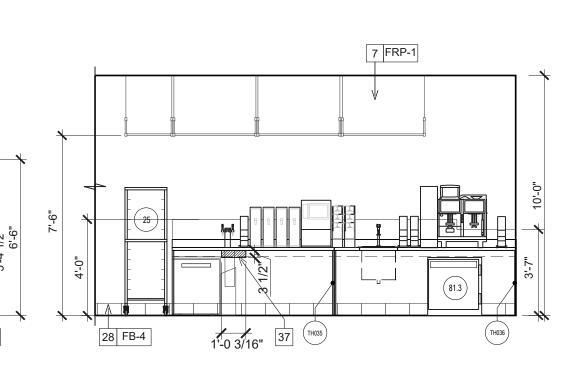
SHEET:













6 KITCHEN AREA **A9** / SCALE: 1/4" = 1'-0"

7 KITCHEN AREA **A9** / SCALE: 1/4" = 1'-0"

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	LRK	
INTERIOR ELEVATION NOTES	CHECKED BY	
1 CONTINUE FINISHES AROUND CORNER TO WINDOW FRAME AND ALL OPENINGS .	CHECKED BY APPROVED BY AMD/MAR	
D HOT WATER TANK C/W EXPANSION TANK ON CONCRETE PLATFORM. REFER TO MECHANICAL DRAWINGS.		
3 EXHAUST HOODS. REFER TO MECHANICAL DRAWINGS.	ISSUE DATE	
4 ENTRANCE AND EXIT DOOR AND FRAMES. REFER TO SHEET A11.	07/12/2022	
5 G.C TO INSTALL WINDOW FILM ON BOTTOM GLAZING PANE ON INTERIOR FACE	ISSUE	
6 FAUCETS. REFER TO MECHANICAL DRAWINGS.	# DATE DESCRIPTIO	
7 FIBERGLASS REINFORCED PANEL (FRP). REFER TO SHEET A10.	07/12/22 PERMIT SE	
PROVIDE PLYWOOD BACKING (IN BETWEEN STUDS) IN WALL AS REQUIRED TO SUPPORT WALL MOUNTED EQUIPMENT AND SHELVING. REFER TO DETAILS ON SHEET A8.		
9 PROVIDE PLYWOOD BACKING IN WALL TO ACCOMMODATE WIRED BASKET & EXHAUST HOOD 72.14. PROVIDE ADEQUATE SIZE. REFER TO DETAIL.		
10 PAINT FINISH FOR DOORS. REFER TO FINISH SCHEDULES ON SHEET A10 & A11 FOR TYPE.		
11 NO FRP REQUIRED ON WALL BEHIND COOLER/FREEZER.		
12 MEDIA CABINET. REFER TO DETAIL 15/A8.		
13 DRIVE-THRU WINDOW. REFER TO SHEET A11.		
14 GLAZING AND FRAMES. REFER TO WINDOW SCHEDULE ON SHEET A11.		
15 NOT USED		
16 ELECTRICAL PANEL. REFER TO ELECTRICAL DRAWINGS.	DEVISIONS	
PROVIDE PLYWOOD BACKING TO ACCOMMODATE ELECTRICAL PANEL.PAINT PLYWOOD W/ 1 COAT OF PRIMERX PEEL BONDING PRIMER & 2 FINISH COATS OF WHITE LATEX PAINT W/ CLASS A RATING (BY SHERWIN WILLIAMS).	REVISIONS  # DATE DESCRIPTION	
G.C TO PROVIDE & INSTALL STAINLESS STEEL KICK PLATE (AT BOTTOM PANELS) ON BOTH SIDES FOR MAIN ENTRANCE DOORS, & EXIT DOORS. REFER TO SHEET A11 FOR SPECS.		
19 OFFICE PORTAL UNIT TO BE PURCHASED BY RESTAURANT OWNER AND INSTALLED BY G.C.		
20 PROVIDE PLYWOOD BACKING TO ACCOMMODATE TELEPHONE BOARD PANEL.		
21 CONCRETE PLATFORM C/W TILE FINISH @ LOCATION OF ELECTRICAL PANEL.		
ADVANCED WATER FILTRATION SYSTEM BY 3M. REFER TO MEP DRAWINGS. WATER FILTRATION SYSTEM TO BE INSTALLED TIGHT AGAINST THE WALL TO MAXIMIZE FLOOR SPACE. REFER TO DYNAMITE PACKAGE FOR EXACT DIMENSIONS AND INSTALLATION GUIDELINES FOR FILTRATION SYSTEM		
23 DILUTION CENTER. REFER TO MECHANICAL DRAWINGS.		
24 ENSURE PLYWOOD BACKING ON WALL DIRECTLY BEHIND AREA OF 3-COMP SINK.	NOTICE	

25 LOCATION OF TELECOM EQUIPMENT AND FIRE ALARM PANEL. AREA TO BE 30" WIDE MINIMUM. REFER TO ELECTRICAL DRAWINGS.

30 G.C TO PROVIDE AND INSTALL S/S PANELS BEHIND RATIONAL OVENS/ EGG STATION AS INDICATED. REFER TO DETAIL 4/A8 & 8/A8.

27 G.C TO INSTALL #27.7 MONITORS ON ARM. OWNER TO PURCHASE THROUGH TECHNOLOGY VENDOR.

26 FIRE EXTINGUISHER.

31 NOT USED

34 GLOVE BOXES

35 LOCATION OF FUTURE HOOD

28 COVE FLOOR TILE BASE. REFER TO SHEET A10.

32 MONITOR ARMS TO BE MOUNTED ABOVE CEILING. SEE DETAIL 3/A3

DESIGNATED ELECTRICAL AREA FOR NITRO MACHINE.

33 TIMER SIGNAL PROCESSOR TO BE MOUNTED TO WALL BEHIND POS AND ORDER TAKER

TIMER AND WIRING TO BE INSTALLED ON THE OUTSIDE OF WALK-IN COOLER/FREEZER.

29 G.C TO INSTALL #27.6 MONITOR ON ARM.

(xX) EQUIPMENT REFERENCE REFER TO SHEET A2 NOTE REFERENCE REFER TO ELEVATION NOTES

# NOTE:

 REFER TO SHEET A10 FOR FINISHES.
 PROVIDE CLEAR SILICONE CAULKING AT ALL MILLWORK / WALL INTERSECTION AFTER COMPLETION OF PAINTING AND FINAL CLEAN UP
3. PROVIDE CLEAR SILICONE AT ALL TILE INTERSECTIONS



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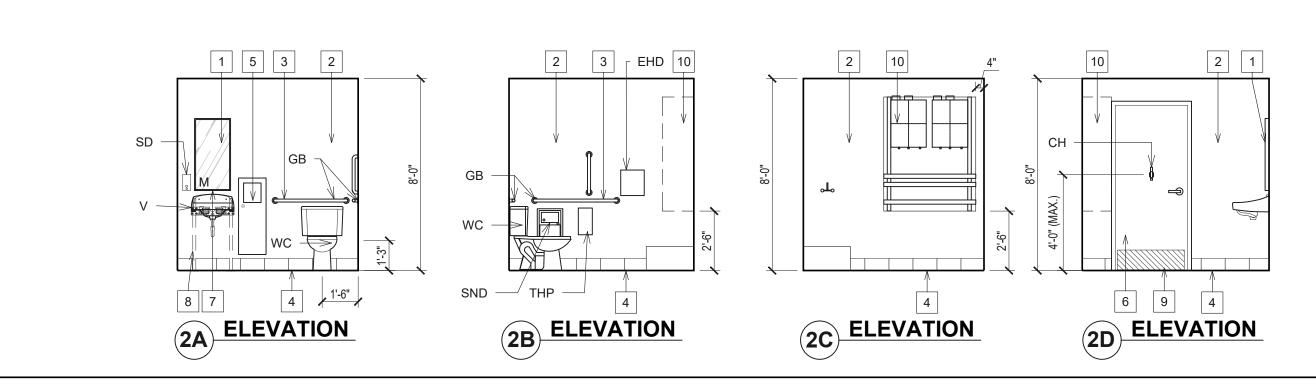
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SHEET TITLE:

INTERIOR ELEVATIONS

SHEET:

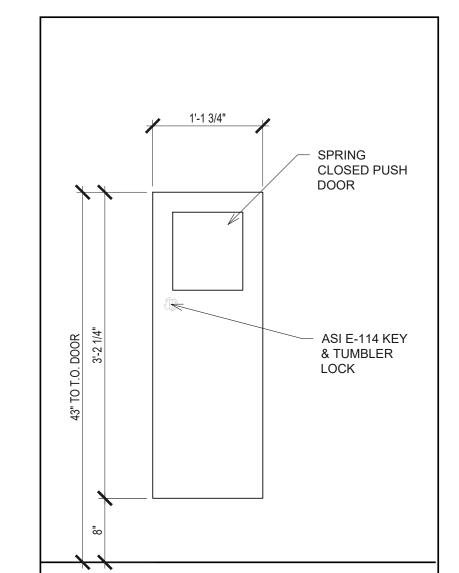
**A9** 

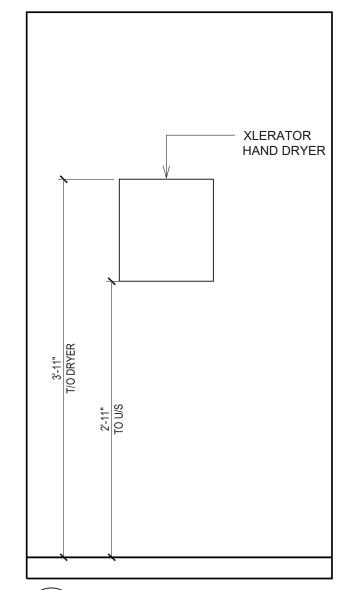


**PLAN WASHROOM A9.2** SCALE: 1/4" = 1'-0"

**ELEVATIONS WASHROOM A9.2** SCALE: 1/4" = 1'-0"

SIGNAGE SHALL COMPLY FULLY WITH ALL ACCESSIBILITY REQUIREMENTS AS DESCRIBED IN ANSI A117.1. -ALL WASHROOMS SIGNAGE TO BE ALSO GRADE 2 BRAILLE (TYP.) TYPESTYLE: GRADE 2 BRAILLE (TYP.) INSTALLATION HEIGHT ADA/ANSI COMPLIANT SIGNS





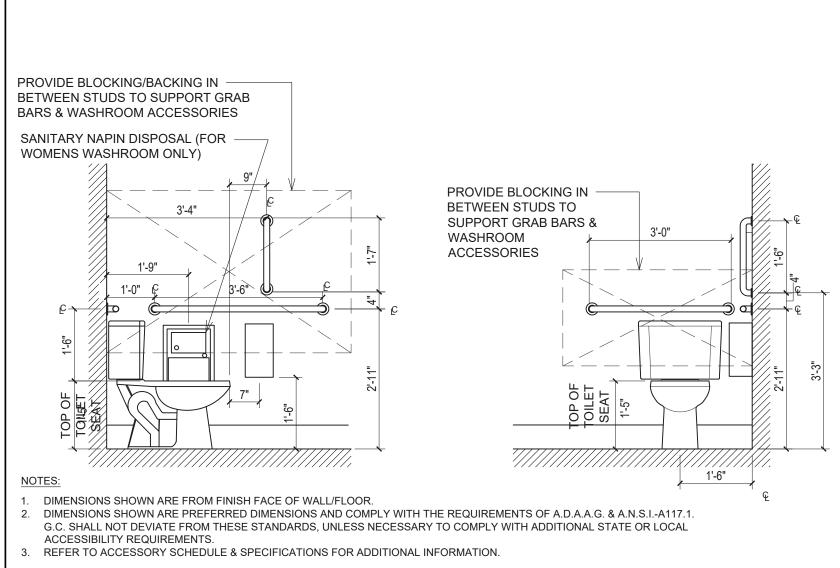
ACCESSIBILITY SIGNAGE. **A9.2** SCALE: 1" = 1'-0"

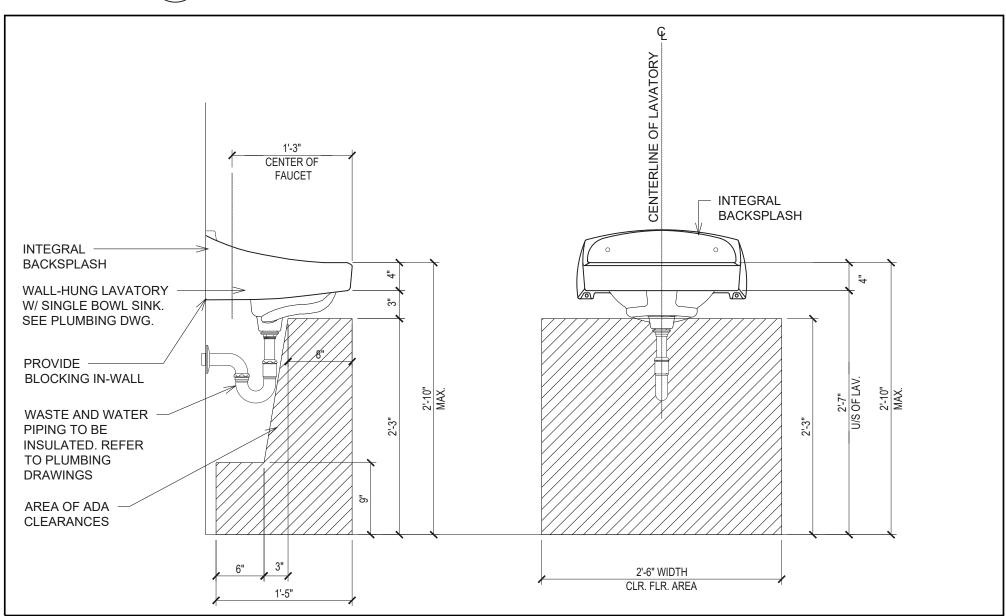
DETAIL @ GRAB BARS

**A9.2** SCALE: 1/2" = 1'-0"

DETAIL @ SEMI-RECESSED **A9.2** SCALE: 1" = 1'-0" GARBAGE

5 DETAIL @ HAND DRYER **A9.2** SCALE: 1" = 1'-0"





7 DETAIL @ VANITY A9.2 SCALE: 1" = 1'-0"

# INTERIOR ELEVATION NOTES

- MIRROR IN PUBLIC WASHROOMS TO BE 1'-6" x 3'-0". MIRROR TO BE CENTERED ABOVE VANITIES & SURFACE MOUNTED ON WALL FINISH. SEE DRAWING A2 FOR SPECIFICATION BOTTOM AND ONE OF THE VERTICAL SIDE FRAMES TO BE PRE-DRILLED & SCREWED TO WALL. REMAINDER OF FRAMES AND MIRROR TO BE ADHERED W/ APPROVED MIRROR ADHESIVE OR SILICONE. REFER TO DETAIL 14/A9.2
- 2 FLOOR TO CEILING FRP WALLS, TO BE INSTALLED BY GC PER MANUFACTURE
- PROVIDE PLYWOOD BACKING IN BETWEEN STUDS TO ACCOMMODATE GRAB BARS. PROVIDE ADEQUATE SIZE. REFER TO DETAIL 12/A9.2.
- 4 COVE FLOOR TILE BASE REFER TO FINISH SCHEDULES ON SHEET A10
- PROVIDE OPENING IN WALL TO ACCOMMODATE SEMI-RECESSED GARBAGE. REFER TO DETAIL 9/A9.2.
- 6 DOORS & FRAMES. REFER TO FINISH SCHEDULES ON SHEET A10 FOR FINISHES & A11 FOR TYPE.
- 7 VANITY REFER TO DETAIL 13/A9.2.
- 8 LAVATORY CARRIER SEE PLUMBING SCHEDULE
- 9 G.C TO PROVIDE AND INSTALL KICK PLATE. REFER TO HARDWARE SCHEDULE ON SHEET A11.
- 10 TANKLESS WATER HEATER- REFER TO PLUMBING DRAWINGS

# SYMBOL LEGEND

NOTE REFERENCE REFER TO ELEVATION NOTES

# WASHROOM ACCESSORIES

-TOILET PAPER HOLDER

-GRAB BAR

-MIRROR

-SEMI-RECESSED GARBAGE BIN EHD -ELECTRIC HAND DRYER

-SOAP DISPENSER

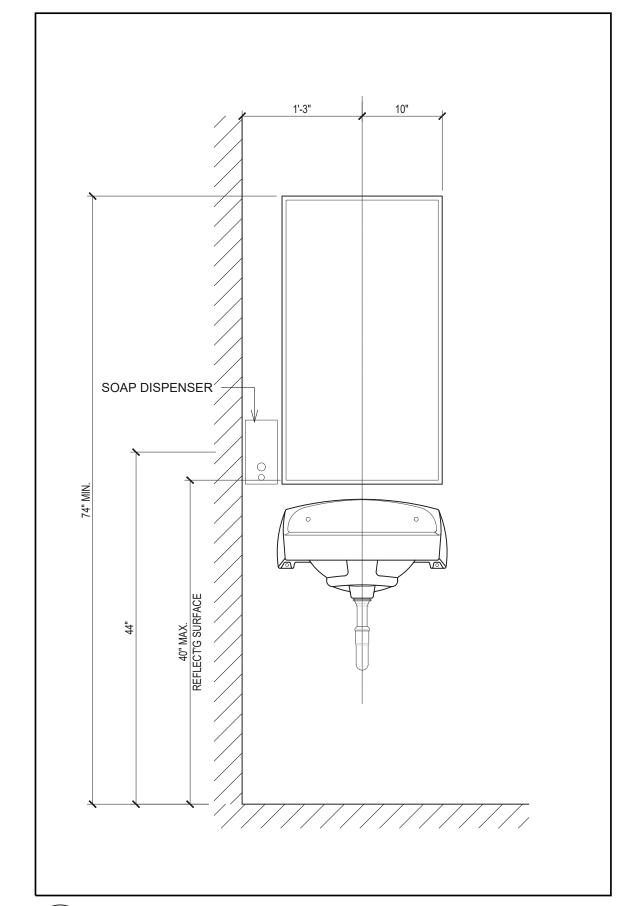
-VANITY

-WATER CLOSET -COAT HOOK

-SANITARY NAPKIN DISPENSER

# **NOTES**

- REFER TO TYPICAL ACCESSORIES DETAILS FOR MOUNTING HEIGHTS AND OTHER SPECIFIC
- REFER TO FINISHES SCHEDULE ON SHEET A10
- FOR FINISHES. . G.C SHALL PROVIDE ADDITIONAL SOLID WOOD
- BLOCKING IN WALL AS NEEDED FOR PROPER INSTALLATION AND STRUCTURAL SUPPORT OF ACCESSORY ITEMS
- G.C. TO PROVIDE CLEAR CAULKING AT ALL WASHROOM FIXTURES AND FILE INTERSECTIONS



MIRROR AND SOAP DISPENSER DETAIL

**A9.2** SCALE: 1" = 1'-0"

# NOTES

- 1. DIMENSIONS SHOWN ARE FROM FINISH FACE OF WALL/FLOOR.
- 2. DIMENSION SHOWN ARE PREFERRED DIMENSIONS AND COMPLY WITH THE REQUIREMENTS OF A.D.A.A.G AND A.N.S.I -A117.1 G.C SHALL NOT DEVIATE FROM THESE STANDARDS

FIXTURES AND WALL INTERSECTIONS.

OR LOCAL ACCESSIBILITY REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION 4. G.C TO PROVIDE CLEAR CAULKING AT ALL WASHROOM

UNLESS NECESSARY TO COMPLY WITH ADDITIONAL STATE

SHEET:

A9.2



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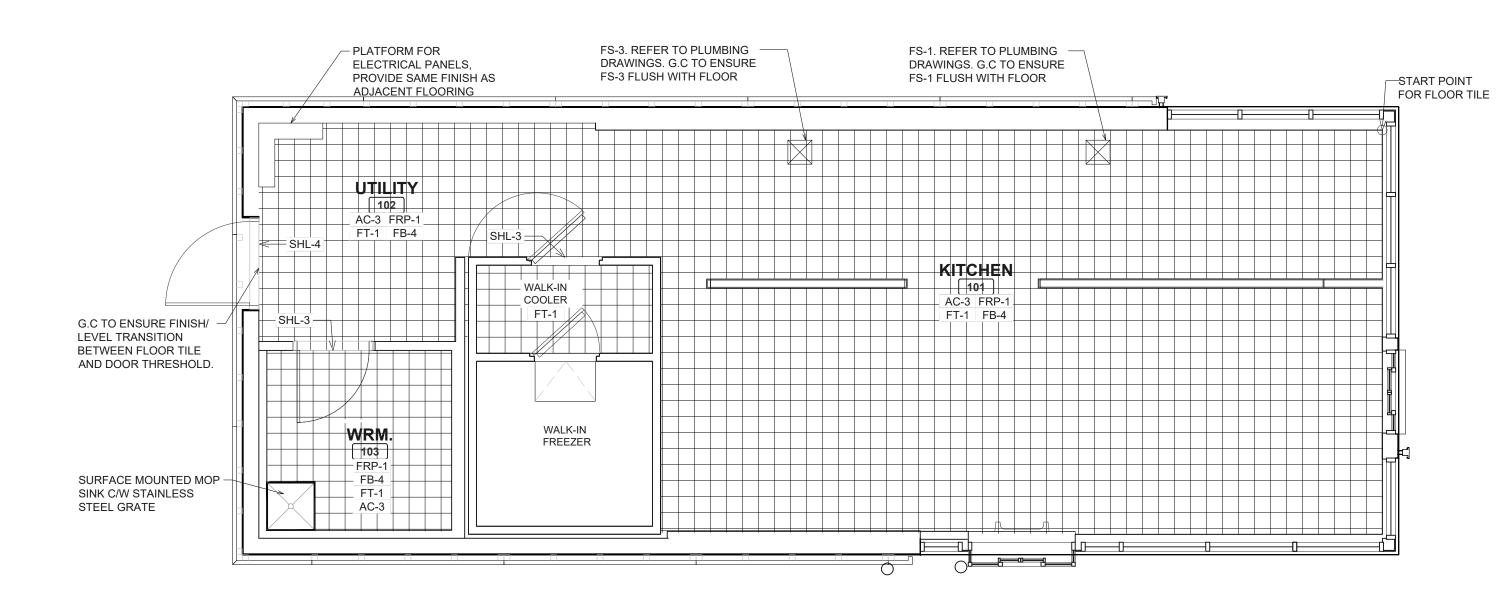
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PROJECT NO.:

40509-11 SHEET TITLE:

> WASHROOM **DETAILS**



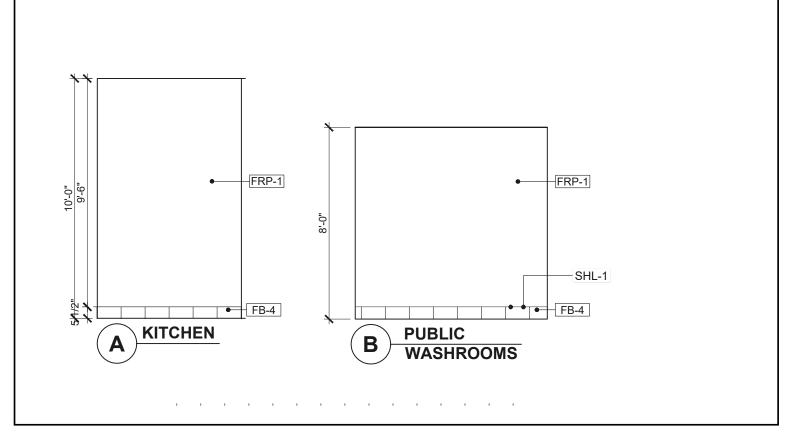




R	ROOM FINISH SCHEDULE  • SEE INTERIOR ELEVATIONS FOR LOCATION AND TYPE OF INTERIOR FINISHES.								
RO	OM	FLO	FLOORS		VALLS		CEILINGS		
		FINIS	H BASE						
NO.	NAME	FT-1	FB-4	FRP-1		P-01	AC-3	HEIGHT	
101	KITCHEN	•	•	•		•	•	10'-0"	
102	STORAGE	•	•	•			•	10'-0"	
103	WASHROOM	•	•	•			•	8'-0"	
NOTE:	NOTE: COOLER/FREEZER FINISHES BY G.C.								

# NOTES

- GENERAL CONTRACTOR TO PROVIDE MINIMUM 1 CASE OF EACH SET OF FLOOR TILES, CEILING TILES AND 1 GALLON OF EACH PAINT COLOUR FOR FUTURE USE.
- THESE MATERIALS ARE TO BE LEFT ON SITE WITH THE RESTAURANT OWNER. PROVIDE & INSTALL SCHLUTER-DILEX-KSN AT LOCATION OF FLOOR AT DELIVERY DOOR. REFER TO FINISHING SCHEDULE.
- . G.C. TO SEAL ALL MILLWORK / MILLWORK AND GWB / MILLWORK JOINTS WITH CLEAR SILICONE CAULKING AFTER COMPLETION OF PAINTING, WAINSCOTING AND FINAL
- PROVIDE & INSTALL SCHLUTER-DILEX-KSN AT LOCATION OF FLOOR TILE AT DELIVERY DOOR. REFER TO FINISHING SCHEDULE.



**TYPICAL INTERIOR ELEVATIONS** 

A10 SCALE: 1/4"=1'-0"

FINISHING SCHEDULE (WELCOME 2022)						
NO.	PRODUCT	MANUF.	PATTERN & COLOUR	#COATS	PAINT TYPE	SUPPLIER/CONTACT
AC-3	CEILING TILE	USG/CGC INC	LAY-IN CEILING TILES FOR BACK OF HOUSE ( CLEANABLE/ WIPEABLE FINISH	BOH), COLOUR: WHITE; SIZE:	24"x48" (NOMINAL), 15/16" GRID	USG/CGC INC SEAN GERTH SGERTH@USG.COM TEL: (416)804-8019
P-01	PAINT - BULKHEAD	SHERWIN WILLIAMS	COLOUR: 'SNOWBOUND' SW 7004	2 COAT, SPRAY APPLICATION	FINISH: EGGSHELL	SHERWIN WILLIAMS (NORTH AMERICA) CONTACT: DEAN GIVELAD EMAIL: DEAN.GIVELAS@SHERWIN.COM
P-05	PAINT - WASHROOM DOOR		COLOUR: 'DOVETAIL' SW7018	2 COAT, SPRAY APPLICATION	FINISH: SEMI-GLOSS	TEL: 416-432-6975
P-13	PAINT - GARBAGE ENCLOSURE		COLOUR: 'IRON ORE' SW 7069	2 COAT, SPRAY APPLICATION	FINISH: MATTE	NOTE: ALL BULKHEADS AND DRYWALL CEILINGS TO BE FINISHED TO CLASS FIVE (5)
P-17	PAINT - BOLLARD PAINT		COLOUR: 'REAL RED' SW 6868	2 COAT, SPRAY APPLICATION		
FB-4	WALL BASE TILE - BOH BASE OF WALLS	KAREN PEARSE GLOBAL DIRECT	MATERIAL: GRAFITO COVEBASE; COMPOSITI 03 00001-S INSIDE CORNER- 5546 CER 03 00002-S OUTSIDE CORNER - 5546 CER 03 00003-S	ON: PORCELAIN; FINISH: NAT	URAL; SIZE: 8" X 8' X 8"; ITEM#: 5546 CER	KAREN PEARSE GLOBAL DIRECT RIHAM LARUSSA EMAIL:RIHAM.LARUSSA@KPGD.COM T: 212-477-9330 X 203 & 631-241-7298
FRP-1	FRP PANEL	EM PLASTIC & ELECTRIC PRODUCTS	SERIES: PANOLAM FRP, PEBBLED (0.090"), CL COLOUR: WHITE FOR PANELS AND WHITE FO SIZE: (4'-0") WIDE x (9'-0") HIGH TRIM ACCESSORIES: JOINER STRIP, INSIDE (	OR TRIMS	EM PLASTIC COREY GRAHAM CGRAHAM@EMPLASTIC.COM TEL: (905)913-3000 X 3011	
FT-1	FLOOR TILE	KAREN PEARSE GLOBAL DIRECT	MATERIAL NAME: RODEO ; COLOR: GRAFITO; THICKNESS: 3/8" x 12" x 12"; ITEM CODE: 4714		N; FINISH: NATURAL;	KAREN PEARSE GLOBAL DIRECT RIHAM LARUSSA EMAIL:RIHAM.LARUSSA@KPGD.COM TEL: 212-477-9330 X 203 & 631-241-7298
SHL-1	SCHLUTER TRIM (BASE AT WALL TILE / FLOOR TILE)	SCHLUTER SYSTEMS	SCHLUTER - DILEX - AHK (ANODIZED ALUMINUM COVE)			SCHLUTER SYSTEMS CONTACT: JOHN HARRIGAN TEL: 1-800-267-0817 EXT. 3069 (C) 416-433-0061
SHL-3	SCHLUTER TRIM (FLOOR TILE TRANSITION)		SCHLUTER - DECO (ANODIZED ALUMINUM)			
SHL-4	SCHLUTER TRIM (MOVEMENT JOINT AT DELIVERY DOOR)	SCHLUTER SYSTEMS	SCHLUTER - DILEX - KSN			

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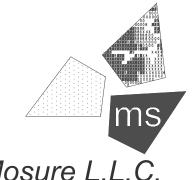
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ISSUE # DATE DESCRIPTION 07/12/22 PERMIT SET

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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100

fax 614.898.7570

PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

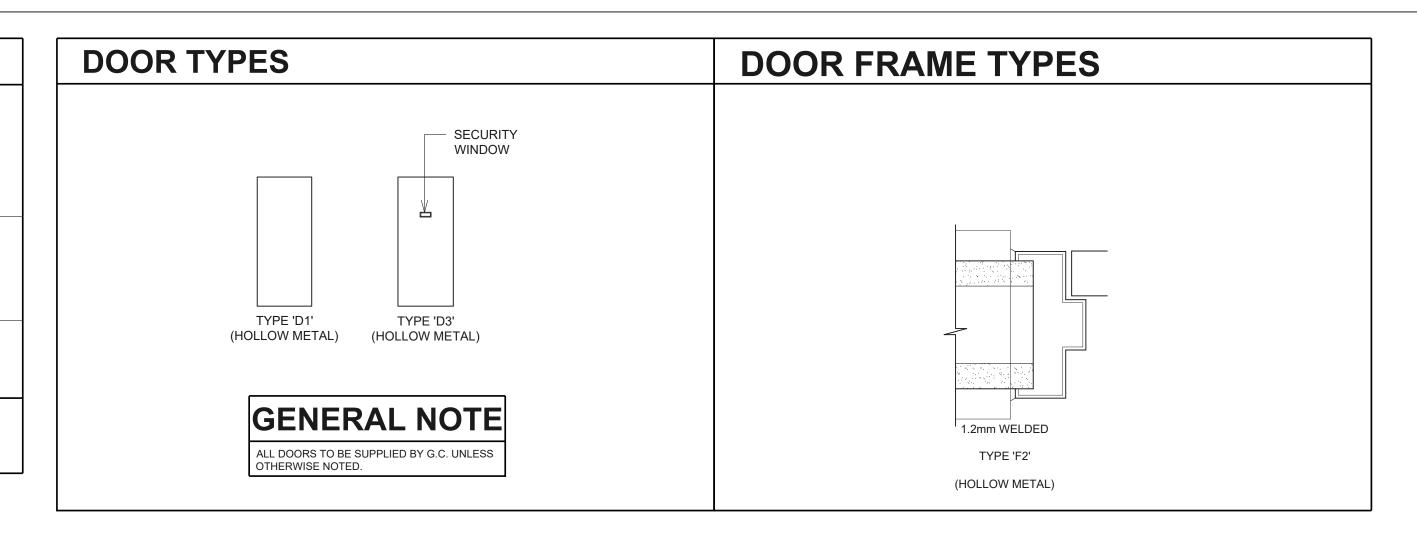
40509-11

SHEET TITLE:

FINISH PLAN AND SCHEDULE

SHEET:

A10



#### DOOR HARDWARE SCHEDULE QTY. DESCRIPTION | MANUFACTURER | MODEL # | FINISH | REMARKS SET-01 **HAGER CONTINUOUS ROTON HINGES** 780210HD DORMA 8PO3 626 NIGHT LATCH DORMA 319 320 DORMA LATCH HINGE PLATE FOR FRAME DON-JO FF45 HINGE PLATE FOR DOOR DON-JO THRESHOLD PEMKO 2565A PANIC DEVICE DORMA 8300B 0001 CRASH CHAIN **IVES** KICK PLATE **HAGER** 190S 24X34 32D LITE KIT SWEEP PEMKO 315CN36 **PULL PLATE** HAGER 35DU5283.5X15 CLOSER DORMA PERIMETER GASKETING PEMKO **BULB TYPE** SET-02 1-1/2 PAIR HINGES BAHCO US26D PRIVACY LOCKSET DORMA CL540 626 KICK PLATE DON-JO FLOOR STOP DON-JO ALL REMAINING HARDWARE TO BE DOOR MANUFACTURER'S STANDARD HARDWARE UNLESS OTHERWISE INDICATED: THRESHOLD, (1850 MS HOOK

BOLT LOCK - CYLINDER THUMB TURN AND KEYED), (DOR-O-MATIC / FALCON 1790 TOUCH BAR RIM EXIT DEVICE), OVERHEAD CONCEALED CLOSER, DOOR PULL, WEATHERSTRIPPING AND SWEEP, FLOOR MTD. STOP. STOREFRONT HARDWARE TO BE BLACK ANODIZED.

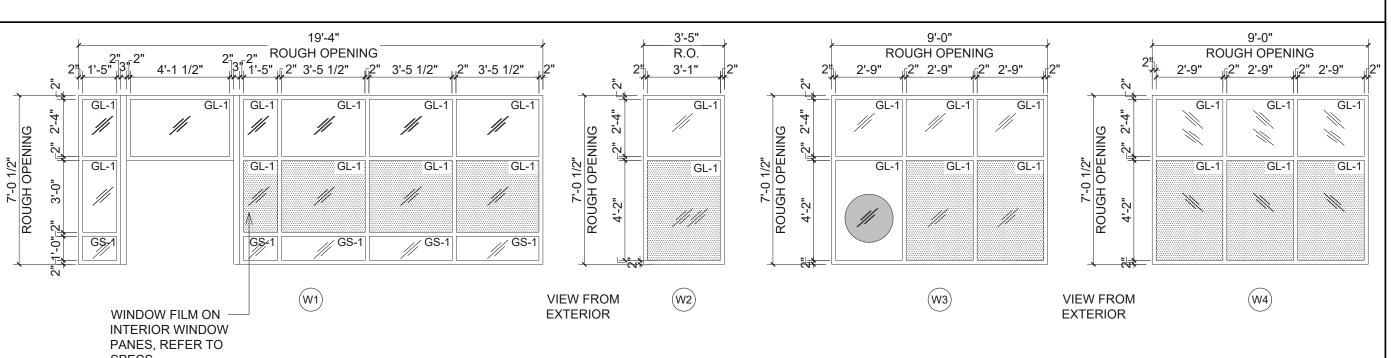
# **HARDWARE SCHEDULE NOTES:**

- 1. ALL HARDWARE IS NEW UNLESS OTHERWISE NOTED.
- 2. ALL DOOR LOCKSETS / LATCHES SHALL BE "LEVER TYPE" IN COMPLIANCE WITH A.D.A.A.G. SECTION 4.1.3.9).
- 3. ALL DOOR HANDLES, PULLS, LATCHES, LOCKS, AND/OR OTHER OPERATING DEVICES SHALL BE INSTALLED BETWEEN 34" MINIMUM AND 48" MAXIMUM ABOVE FINISHED FLOOR.
- SECONDS TO MOVE TO A POINT 3 INCHES FROM THE LATCH, MEASURED TO THE LEAD EDGE (A.D.A.A.G. 4.13.10).
- 4. ALL DOOR THRESHOLDS SHALL BE IN 1/2" HIGH MAXIMUM. 5. ALL DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM THE OPEN POSITION OF 70 DEGREES, THE DOOR WILL TAKE AT LEAST 3

# **EXTERIOR WINDOW SCHEDULE**

WINDOW TYPE PRIMARY MANUFACTURER - KAWNEER - KAWNEER TRIFAB VERSAGLAZE 451T THERMALLY BROKEN 2"x4 ½" - LOW 'E' INSULÂTED ALL GLAZING IN DOORS TO BE SAFETY HEAT TREATED. REFER TO SP4 FOR APPROVED ALTERNATE ALL CAULKING TO MATCH FRAMES (TREMCO DYMONIC) MAXIMUM U-FACTOR OF FIXED GLAZING ASSEMBLY (GLASS UNIT & ALUMINUM FRAMING) -0.38

GLAZING TYPE: - (GL-1) 1" INSULATED GLAZING PANEL, CLEAR GLASS REFER TO SPECIFICATION SECTION 08 8000 MAX. SHGC (GLASS ONLY) - 0.40 -(GS-1) 1" INSULATED WHITE SPANDRAL GLAZING PANEL



# **WINDOW SCHEDULE**

MARK	R.O. SIZE	TYPE	CONST.	GLASS TYPE	HEAD HEIGHT	REMARKS
W1	19'-4" x 7'-0 1/2"	2" x 4D" STOREFRONT	ALUM	GL-1	10'-0"	AAMA 2605: COLOR BONE WHITE
W2	3'-5" x 7'-0 1/2"	2" x 4D" STOREFRONT	ALUM	GL-1	10'-0"	AAMA 2605: COLOR BONE WHITE
W3	9'-0" x 7'-0 1/2"	2" x 4D" STOREFRONT	ALUM	GL-1	10'-0"	AAMA 2605: COLOR BONE WHITE
W4	9'-0" x 7'-0 1/2"	2" x 4D" STOREFRONT	ALUM	GL-1	10'-0"	AAMA 2605: COLOR BONE WHITE

SIDE VIEW

# **WINDOW SCHEDULE NOTES:**

- REFER TO WINDOW ELEVATIONS FOR SPECIFIC DIMENSIONS AND ADDITIONAL DETAIL INFORMATION.
- WINDOW CONTRACTOR SHALL FIELD VERIFY ALL ROUGH OPENINGS FOR ALL WINDOWS PRIOR TO PREPARATION OF SHOP DRAWINGS.

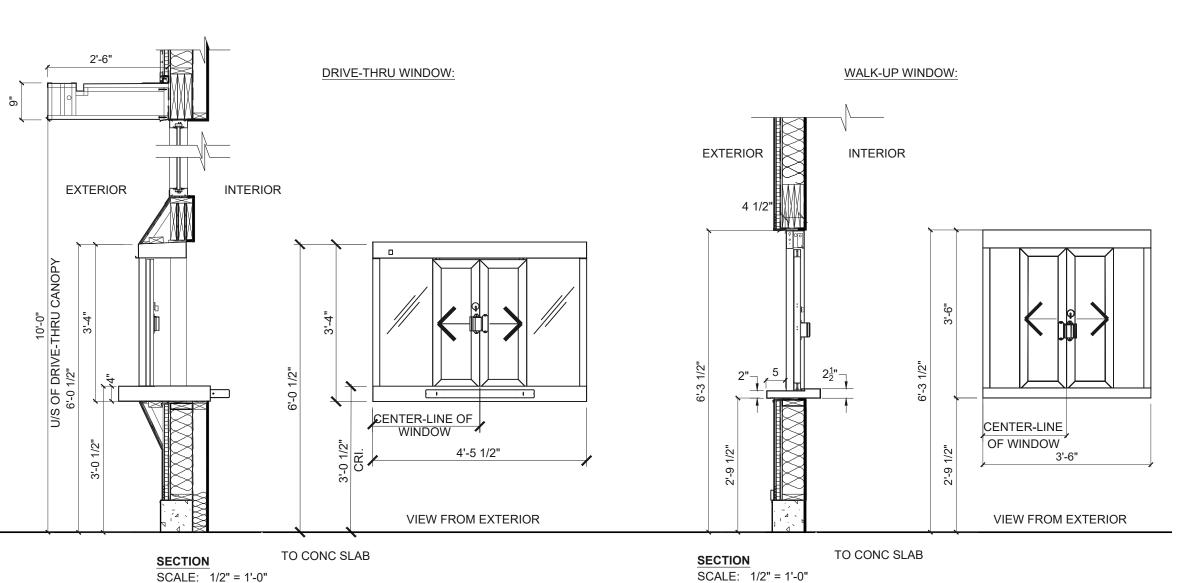
# DRIVE-THRU AND WALK-UP WINDOW SCHEDULE/DRIVE-THRU CANOPY SCHEDULE

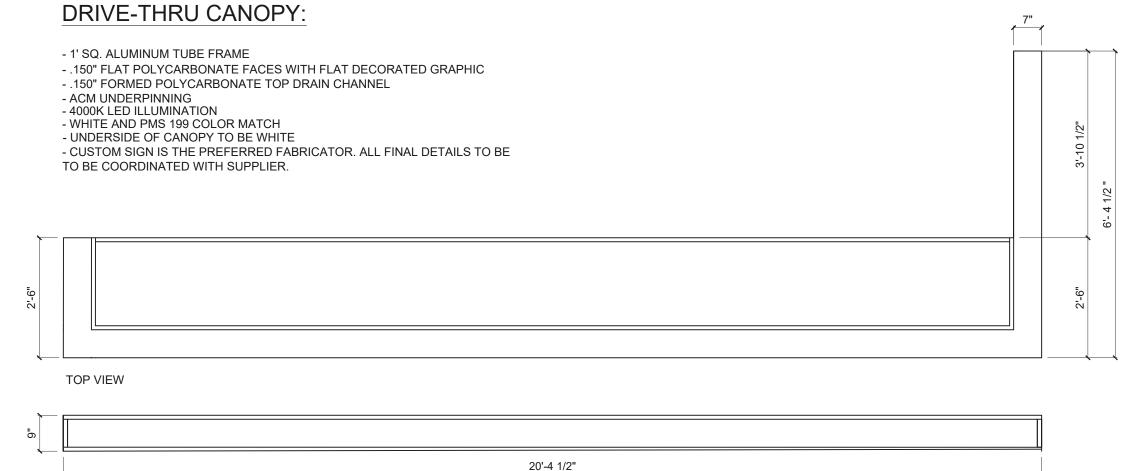
# **DRIVE-THRU WINDOW:**

- QUIKSERV AUTOMATIC WINDOW MODEL (TIM HORTONS PW-54E-TH) - TIM HORTON'S RED #807/C47D BY INTERNATIONAL PAINT, ALUMINUM - CUSTOM PW-54E-TH. **LEAD TIME IS 10 WEEKS** AUTOMATIC WINDOW C/W BODY SENSOR - G.C TO PURCHASE FROM QUIKSERV (INSIDE SALES CONTACT INFO) 713-849-5882. - RESTAURANT OWNER CAN SWITCH TO MANUAL WINDOW MODEL (BPSC-5440) OR CUSTOM FRAMED FULL HEIGHT WINDOW, IF DESIRED

# WALK-UP WINDOW:

- QUICKSERV MANUAL WALK-UP WINDOW MODEL (TIM HORTONS BPSC-4242) - TIM HORTON'S RED #807/C47D BY INTERNATIONAL PAINT, ALUMINUM - G.S. TO COORDINATE SPECIALITY PAINT WITH 10 WEEK LEAD TIME
- G.C TO PURCHASE FROM QUIKSERV (INSIDE SALES CONTACT INFO) 713-849-5882. - ALTERNATE OPTIONS AVAILABLE IF REQUESTED BY OWNER
- 1. REFER TO SECTION 08 56 19 FOR SPECIFICATIONS FOR ADDITIONAL INFORMATION 2. REFER TO ELECTRICAL DRAWINGS FOR DRIVE-THRU WINDOW REQUIREMENTS





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Mosure L.L.C

2221 Schrock Road

phone 614.898.7100 fax 614.898.7570

19353 VERNIER ROAD

STORE # 919728

HARPER WOODS, MI 48225

PROJECT:

engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION

PERMIT SET

DESCRIPTION

DOOR AND WINDOW

**SCHEDULES** 

ARCHITECT 1301068763

40509-11

SHEET:

A11

#### TIM HORTONS PROJECT TEAM

# FRANCHISOR

THE TDL GROUP CORP.

TORONTO, ON M5X 1E1

130 KING ST. W SUITE 300, P.O. BOX 339

#### ARCHITECT:

MS CONSULTANTS, INC. 2221 SCHROCK ROAD COLUMBUS, OH 43229

CONTACTS:

KEVIN DROZIN T: 412-264-8701 EXT. 18154

E: KDROZIN@MSCONSULTANTS.COM

#### MELISSA RATERMANN

T: 614-898-7100 EXT. 10235

E: MRATERMANN@MSCONSULTANTS.COM

#### **APPROVED VENDORS:**

QUICK SERVICE

#### P.O.S. (INCLUDING CAMERA & HEADSETS):

CONTACT: TIM BONIN

T: 1-800-657-9436 X 2254

#### HEADSETS (DRIVE THRU TIMER/LOOP DETECTOR):

CONTACT: JOAN MCDONALD

T: 1-858-848-2777

# SOUND SYSTEM:

DYNAMIC MEDIA CONTACT: JAMIE WALDIE

T: 1-800-684-7050 EXT. 1096, 586-693-1096 (DIRECT)

E MAIL: JWALDIE@DM-US.COM

PRIESMEYER NATIONAL SAFE

OFFICE SAFE:

T: 800-430-6529

#### SIGNAGE:

CAPITAL SIGNS CONTACT: RANDALL FONTENOT, AMANDA OGLESBY

T: 318-346-9898, EXT. 102, EXT. 107

E: RANDALL@CCESIGNS.COM

E: AMANDA@CCESIGNS.COM

CUSTOM SIGNS

CONTACT: JUDY SHEEHY, CHRISTINA GREEN, OR JAMES BROOKS

T: 614-279-6700

E: JUDY@CUSTOMSIGNCENTER.COM

E: JAMES@CUSTOMSIGNCENTER.COM E: CHRISTINA@CUSTOMSIGNCENTER.COM

WWW.CUSTONSIGNCENTER.COM

#### ENTERA SIGNS

CONTACT: ALAN BRYANT

T: 850-392-0799

E: ALAN.BRYANT@ENTERABRANDING.COM

ALLEN INDUSTRIES

CONTACT: ELLIOT GODDEN

E: ELLIOT@MAXXITSYSTEMS.COM

T: 289-668-7268

#### **APPROVED VENDORS:**

# OVEN SUPPLIER:

RATIONAL CONTACT: JOHN ULRICH

T: 630-363-3991

E: J.ULRICH@RATIONAL-ONLINE.COM

#### TARRISON (STORE SHELVING PACKAGE):

CONTACT: ERICA IRWIN

T: 905-825-9665 X 230

## WALK IN FREEZER / COOLER MANUFACTURERS:

INTERIOR: KOLPAK/ WELBILT CONTACT: SCOTT ROGERS

M: 731-733-0576 , F: 731-847-5387

E: SCOTT.ROGERS@WELBILT.COM

#### LIGHTING:

VISO INC. FILIPE2@VISOINC.COM

EXTERIOR LIGHTING:

CONTACT: SASHA HORTH T: 416-627-2477

E: SASHA@VISOINC.COM

# **HOT WATER HEATER:**

TANK - RHEEM: CONTACT: LAKITA JORDON

T: 334-450-2087 E: LAKITA.JORDAN@RHEEM.COM

# TDL EQUIPMENT SUPPORT (FOR WARRANTY ISSUES AFTER STORE OPENING):

T: 1-866-679-0072

# FRONT OF HOUSE DECOR (INCLUDING FURNITURE)

VENDOR: TBC- PENDING RFP COMPLETION

# MILLWORK VENDOR:

H&K DETAILS

CONTACT: HEATHER VALVERDE

EMAIL: HEATHER.VALVERDE@HKI.COM

#### **APPROVED VENDORS:**

# STOREFRONT GLAZING AND DOORS:

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engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION

PERMIT SET

KAWNEER

CONTACT: CHERYL WILKERSON

T: 770-449-5555

CRL-US ALUMINUM

T: 1-800-421-6144 EXT. 17780

YKK AP COMMERCIAL

T: 687-838-6000

SCHULTER SYSTEMS CONTACT: JOHN HARRIGAN T: 1-800-267-0817 EXT. 3069

C: 416-433-0061

## EXTRUDED ALUMINUM SIDING (KNOTWOOD):

HAINES, JONES AND CADBURY LLC CONTACT: BARRY BRYANT

E: BARRY.BRYANT@HJCINC.COM

T: (800) 459-7099 , (C) 479-899-3555

# HARDIE PANEL

JAMES HARDIE

CONTACT: DAN OZELLO

T: 440-570-8071

E: DANIEL.OZELLO@JAMESHARDIE.COM

#### **DIGITAL MENU BOARDS:**

T: 847-298-7710 EXT. 3009

NUWAY CONTACT: PAT MURPHY

E: MURPHYP@NU-WAY.NET

CONTACT: ELLIS MILLER

## E: MILLERE@NU-WAY.NET

T: 941-219-5237

DMB'S INSTALLATION: BIILIWICK



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

40509-11

**CONTACT LIST** 

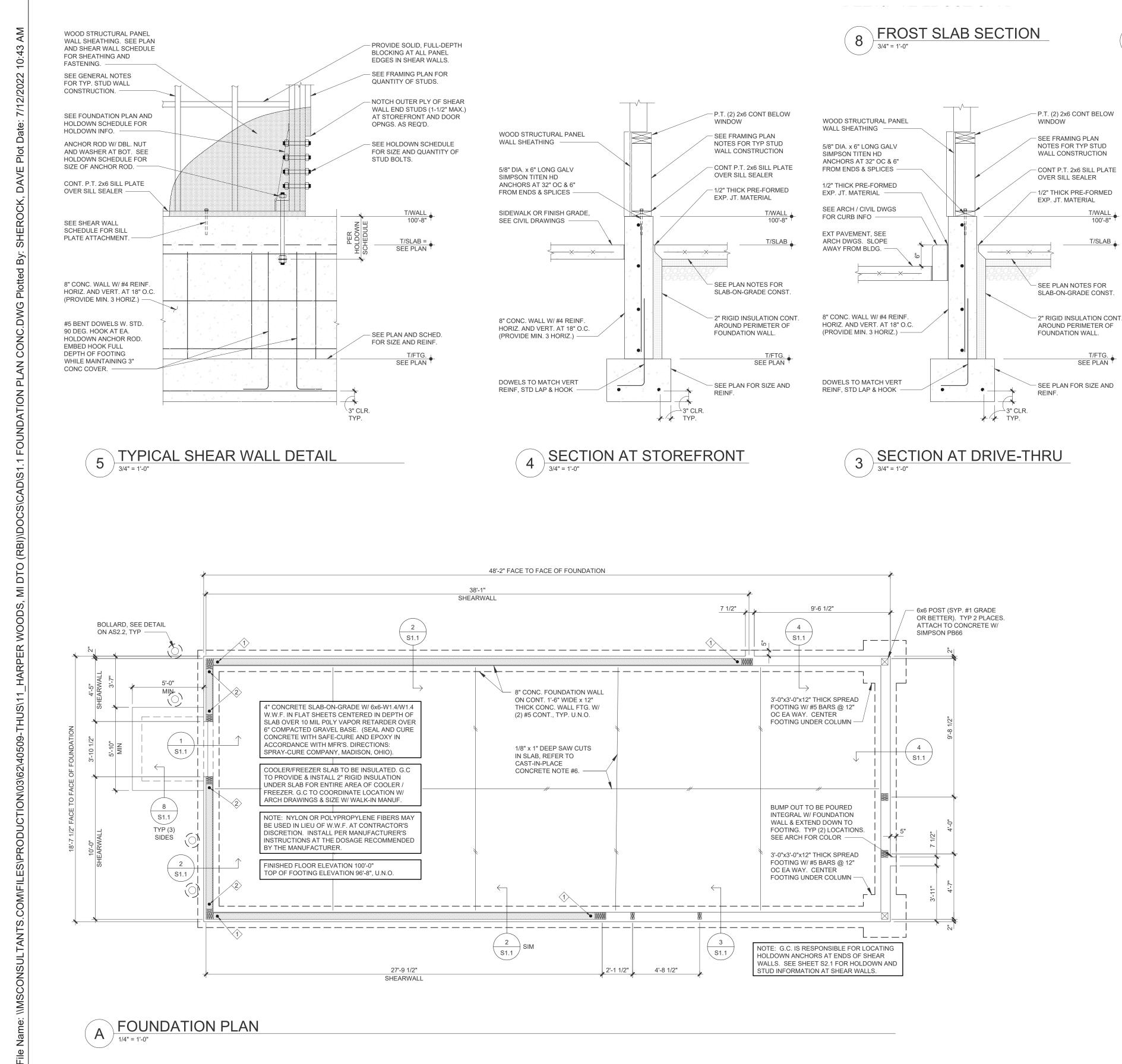
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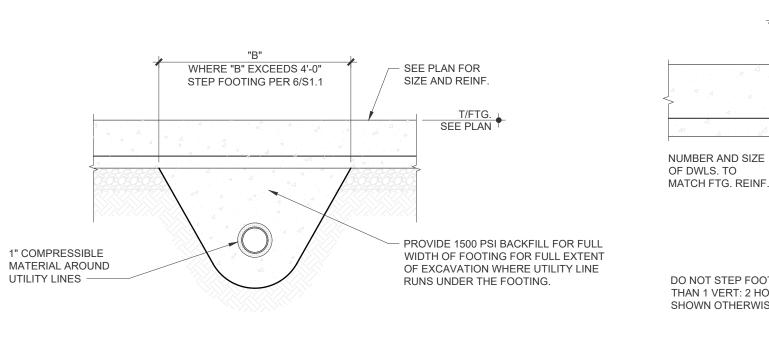
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SHEET:

A12

TEL: 214-818-3521 CONTACT: MINDY DALY CONTACT: BETSY SWAN T: 336-615-8791 T: 800-935-8840 E: MDALY@BAILIWICK.COM C: 336-314-3064 WATER FILTRATION VENDOR: DRIVE THRU WINDOW PROVIDER: MEDIA KIT AND CONTENT: QUICKSERV CONTACT: JIM NEWTON - SENIOR ACCOUNT REPRESENTATIVE STRATACACHE SEPARATION AND PURIFICATION SCIENCES DIVISION INSIDE SALES CONTACT INFO CONTACT: T: 1 (800) 265 1840, M: 1 (416) 458 3778 T: 713-849-5882 (OFFICE) T: 800-244-8915 E: SALES@QUICKSERV.COM E: JMNEWTON@MMM.COM E: DMBINSTALLS-THUSA@STRATACACHE.COM ECOLAB (STORE CLEANING PRODUCTS): DRIVE-THRU WINDOW CANOPY: NOTE: IN THE EVENT THAT YOU HAVE DIFFICULTY CONTACTING EITHER BAILIWICK OR STRATACACHE PLEASE CONTACT PAT MURPHY OR ELLIS MILLER AT NU-WAY. ALLEN INDUSTRIES CONTACT: CUSTOMER SERVICE CONTACT: BETSY SWAN T: 1-800-842-2341 EXTERIOR LED STRIP LIGHTING: T: 336-314-3064 LEKTRON BRANDING SOLUTIONS E: BETSY.SWAN@ALLENINDUSTRIES.COM SCOTSMAN ICE (ICE MAKER): CONTACT: JENNY LAW CONTACT: NICK MARTIN OFFICE: (918) 622-4978 & CELL: (918) 810-0936 T: 847-215-4500 EXT. 15529 E: WWW.LEKTRONINC.COM HVAC PROVIDER: LENNOX INDUSTRIES (OR APPROVED ALTERNATE) WINDOW FILMS CONTACT: ERIC LAWSON SOLAR TINT T: 972-497-6194 CONTACT: BRENDAN JENKINS E: ERIC.LAWSON@LENNOXIND.COM T: 614-721-0175 E: BJENKINS@SOLARTINT.COM SWITCH GEAR PROVIDER: WR CONTROLS-WESCO (OR APPROVED ALTERNATE) CONTACT: BEN FACTOR T: 614-934-6403 E: BFACTOR@WESCO.COM **EXTERIOR GRAPHICS VENDOR:** MAXXIT SYSTEMS INC.





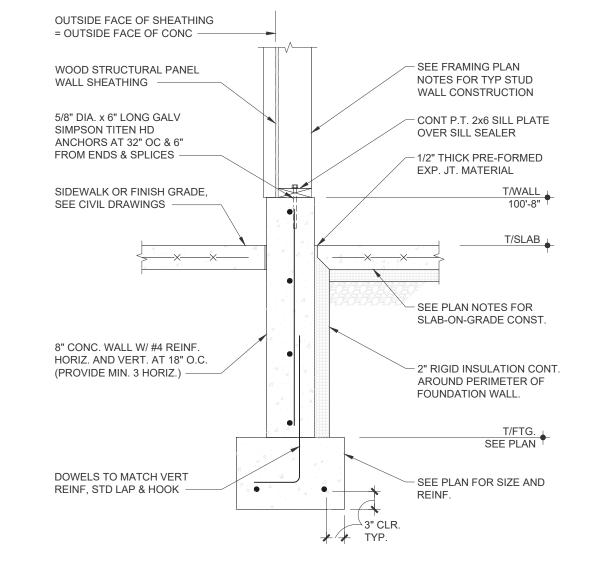
TYPICAL BACKFILL DETAIL BELOW 7 WALL FOOTINGS AT UTILITY LINES

- 6" S.O.G. W/ #4 AT 12" O.C. E.W. AT MID-DEPTH. SLOPE

SEE ARCH. DWGS.

#4 CONT.

EXT. SLAB AWAY FROM BLDG.



HOLDOWN SCHEDULE

CONN. TO

(3) 3/4" DIA.

STUD BOLTS

MARK

TYPE

SIMPSON HD7B

SIMPSON HD12

ANCHOR

ROD

7/8" DIA. W/ HEAVY

HEX NUT

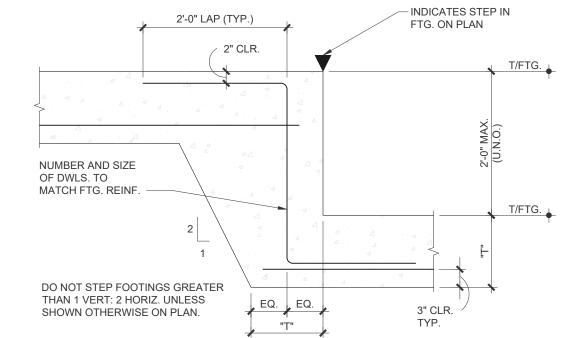
1-1/8" DIA. W/

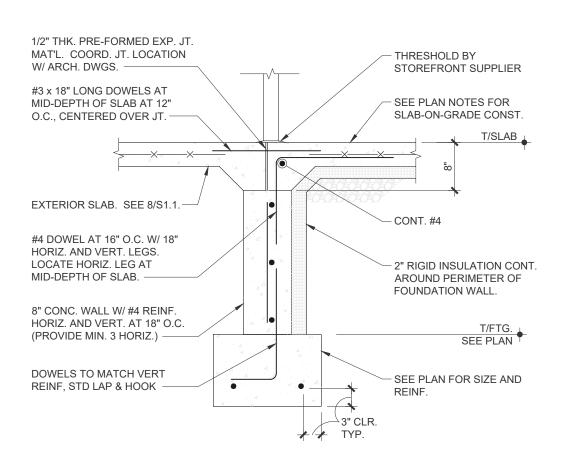
HEAVY HEX NUT

ANCHOR ROD

**EMBEDMENT** 

12"





# **CAST-IN PLACE CONCRETE**

1. CONFORM TO ACI 318 BUILDING CODE (EDITION LISTED IN APPLICABLE BUILDING CODE) REQUIREMENTS FOR REINFORCED 2. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS U.N.O.

LOCATION	COMPRESSIVE STRENGTH
SLAB-ON-GRADE	3500 PSI
FOOTINGS	3000 PSI
FOUNDATION WALL	3000 PSI
LEAN BACKFILL	1500 PSI

- MAXIMUM SLUMP IS TO BE 5". - CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR-ENTRAINMENT

- OF 5% +/- 1.5%. . ALL REINFORCING STEEL SHALL BE ASTM A615 YIELD STRENGTH OF
- 4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 "WELDED
- STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT." 5. CONCRETE COVER FOR REINFORCING STEEL BARS AND PLACING
- TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 318 (EDITION LISTED IN APPLICABLE BUILDING CODE). 6. SAWCUT SLAB-ON-GRADE TO A DEPTH OF 1" AS SHOWN ON PLAN WITHIN 6 HOURS OF POURING. MAX. SPACING = 10'-0"
- NOTE: CONCRETE FOUNDATION WALLS TO BE INTEGRAL COLOR 908 ULTRA

CARBON BLACK. SEE SPECS FOR MORE INFORMATION.

# **EXCAVATING AND BACKFILLING**

- FOUNDATION DESIGN IS BASED ON AN ALLOWABLE SOIL PRESSURE OF 2500 PSF BASED ON THE GEOTECHNICAL REPORT PERFORMED BY DRIESENGA & ASSOCIATES, INC., PROJECT NO. 2220073.3A, DATED APRIL 13, 2022. IF ACTUAL CONDITIONS DO NOT MEET THIS VALUE, REMEDIATE THE SOIL TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER OR CONTACT THE ENGINEER FOR A REANALYSIS OF THE FOUNDATIONS.
- 2. SITE WORK SHALL BE PERFORMED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER OR SOILS TECHNICIAN. PREPARATION OF THE SITE, INCLUDING INITIAL UNDERCUTTING, PROOF ROLLING, FILL AND BACKFILL MATERIAL AND PLACEMENT, SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. COMPACTION OF STRUCTURAL FILL MATERIALS SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, BUT NOT LESS THAN 95 PERCENT MODIFIED PROCTOR METHOD.
- 4. EXTEND EXTERIOR FOOTINGS TO A MIN. OF 3'-6" BELOW FINISH GRADE. VERIFY WITH LOCAL AUTHORITIES. . PLACE ALL FOOTINGS ON ORIGINAL UNDISTURBED SOIL. REFER TO GEOTECHNICAL REPORT FOR INSTRUCTIONS. BEFORE POURING FOOTINGS, SOIL QUALITY MUST BE APPROVED BY A GEOTECHNICAL ENGINEER.
- . THE FOUNDATION WALL ELEVATIONS SHOWN ARE NOMINAL. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR EXTENDING THE BOTTOM OF THE FOOTING DOWN TO UNDISTURBED SUITABLE SOIL. THE LINE OF SLOPE BETWEEN THE ADJACENT EXCAVATIONS FOR FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10. MAXIMUM STEP APPROXIMATELY 24". . SEE 7/S1.1 FOR TYPICAL DETAIL WHERE UTILITY LINES PASS BELOW FOOTINGS AND 6/S1.1 FOR TYPICAL FOOTING STEP DETAIL.



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Columbus, Ohio 43229-1547

DESCRIPTION

PERMIT SET

DESCRIPTION

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CRAIG E. METZGER No. 6201065359 EXP. DATE: 10/31/23

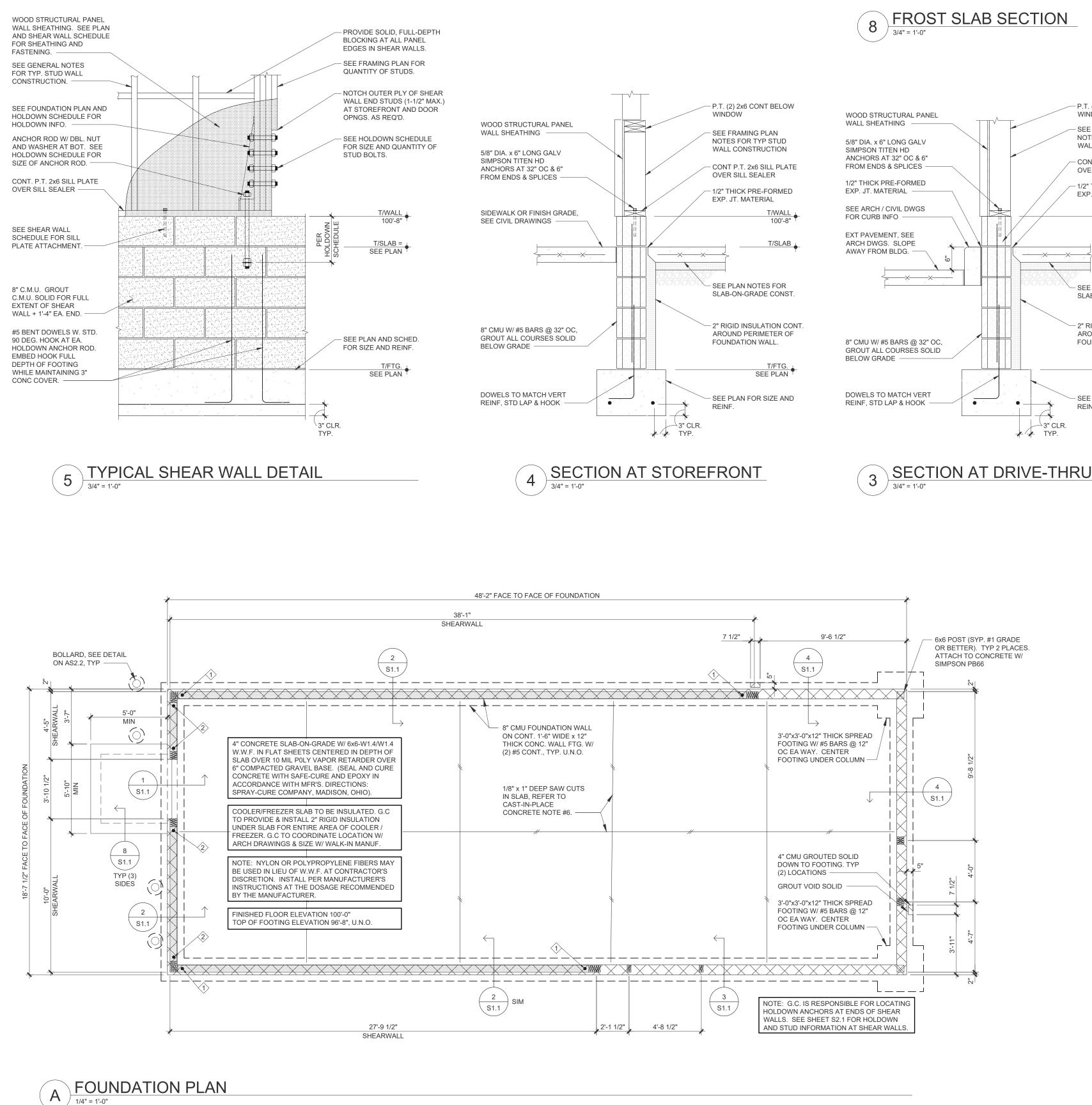
40509-11

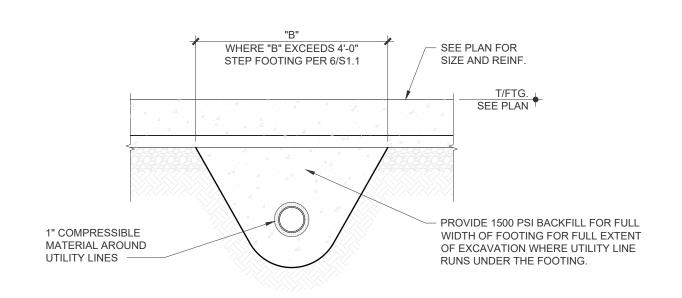
PROJECT NO.:

SHEET TITLE:

**FOUNDATION PLAN** AND SECTIONS

S1.1





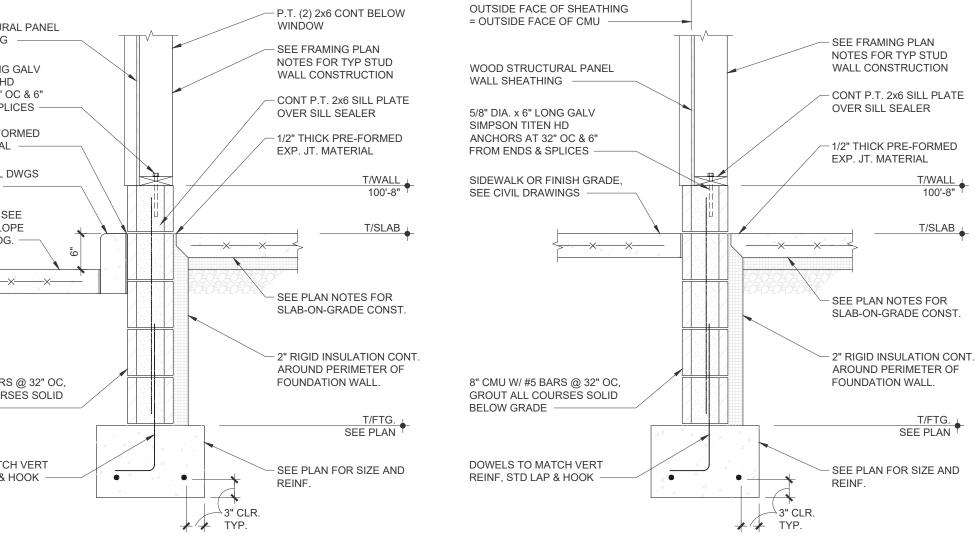
TYPICAL BACKFILL DETAIL BELOW 7 WALL FOOTINGS AT UTILITY LINES

- 6" S.O.G. W/ #4 AT 12" O.C. E.W. AT MID-DEPTH. SLOPE

SEE ARCH. DWGS.

8" #4 CONT.

EXT. SLAB AWAY FROM BLDG.



HOLDOWN SCHEDULE

(3) 3/4" DIA.

STUD BOLTS

MARK

TYPE

SIMPSON HD7B

SIMPSON HD12

ANCHOR

ROD

7/8" DIA. W/ HEAVY

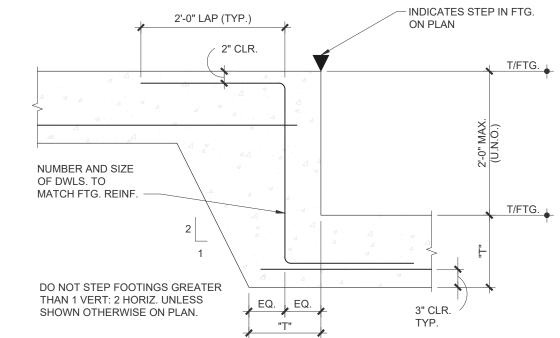
HEX NUT

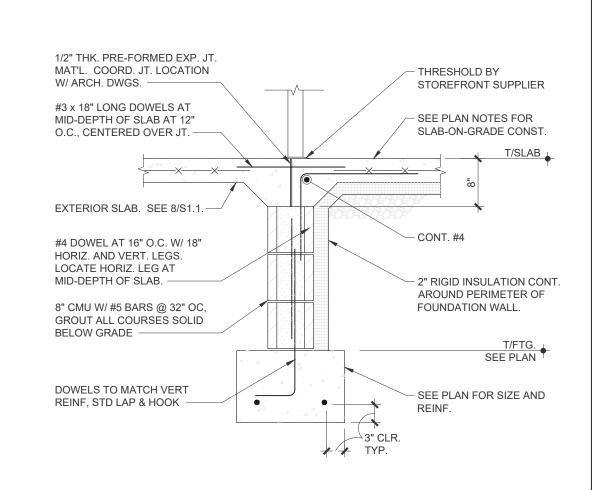
1-1/8" DIA. W/

HEAVY HEX NUT

ANCHOR ROD

**EMBEDMENT** 





. CONFORM TO ACI 318 BUILDING CODE (EDITION LISTED IN APPLICABLE BUILDING CODE) REQUIREMENTS FOR REINFORCED 2. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS U.N.O.

LOCATION	COMPRESSIVE STRENGTH
SLAB-ON-GRADE	3500 PSI
FOOTINGS	3000 PSI
FOUNDATION WALL	3000 PSI
LEAN BACKFILL	1500 PSI

- MAXIMUM SLUMP IS TO BE 5". - CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR-ENTRAINMENT

- OF 5% +/- 1.5%. . ALL REINFORCING STEEL SHALL BE ASTM A615 YIELD STRENGTH OF
- 4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 "WELDED
- STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT." 5. CONCRETE COVER FOR REINFORCING STEEL BARS AND PLACING

TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 318 (EDITION

- LISTED IN APPLICABLE BUILDING CODE). 6. SAWCUT SLAB-ON-GRADE TO A DEPTH OF 1" AS SHOWN ON PLAN
- WITHIN 6 HOURS OF POURING. MAX. SPACING = 10'-0"

NOTE: CONCRETE FOUNDATION WALLS TO BE INTEGRAL COLOR 908 ULTRA CARBON BLACK. SEE SPECS FOR MORE INFORMATION.

# **EXCAVATING AND BACKFILLING**

- FOUNDATION DESIGN IS BASED ON AN ALLOWABLE SOIL PRESSURE OF 2500 PSF BASED ON THE GEOTECHNICAL REPORT PERFORMED BY DRIESENGA & ASSOCIATES, INC., PROJECT NO. 2220073.3A, DATED APRIL 13, 2022. IF ACTUAL CONDITIONS DO NOT MEET THIS VALUE, REMEDIATE THE SOIL TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER OR CONTACT THE ENGINEER FOR A REANALYSIS OF THE FOUNDATIONS.
- SITE WORK SHALL BE PERFORMED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER OR SOILS TECHNICIAN. PREPARATION OF THE SITE, INCLUDING INITIAL UNDERCUTTING, PROOF ROLLING, FILL AND BACKFILL MATERIAL AND PLACEMENT, SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. COMPACTION OF STRUCTURAL FILL MATERIALS SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, BUT NOT LESS THAN 95 PERCENT MODIFIED PROCTOR METHOD.
- EXTEND EXTERIOR FOOTINGS TO A MIN. OF 3'-6" BELOW FINISH GRADE. VERIFY WITH LOCAL AUTHORITIES. . PLACE ALL FOOTINGS ON ORIGINAL UNDISTURBED SOIL. REFER TO GEOTECHNICAL REPORT FOR INSTRUCTIONS. BEFORE POURING FOOTINGS, SOIL QUALITY MUST BE APPROVED BY A GEOTECHNICAL ENGINEER.
- . THE FOUNDATION WALL ELEVATIONS SHOWN ARE NOMINAL. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR EXTENDING THE BOTTOM OF THE FOOTING DOWN TO UNDISTURBED SUITABLE SOIL. THE LINE OF SLOPE BETWEEN THE ADJACENT EXCAVATIONS FOR FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10. MAXIMUM STEP APPROXIMATELY 24". SEE 7/S1.1 FOR TYPICAL DETAIL WHERE UTILITY LINES PASS BELOW FOOTINGS AND 6/S1.1 FOR TYPICAL FOOTING STEP DETAIL.



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Columbus, Ohio 43229-1547

DESCRIPTION

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CRAIG E. METZGER No. 6201065359 EXP. DATE: 10/31/23

PROJECT NO.:

SHEET TITLE:

**FOUNDATION PLAN** AND SECTIONS

40509-11

1. WHERE SHEATHING IS ONE SIDE ONLY, APPLY SHEATHING TO FACE OF WALL BY SYMBOL. 2. LOCATE ALL PANEL EDGES ON STUDS, FULL-DEPTH BLOCKING OR TOP/BOTTOM PLATES. 3. PROVIDE HOLDOWNS AND MULTIPLE STUDS AT ENDS OF SHEAR WALLS PER CODED NOTES AND SECTION 5/S1.1.

## GENERAL NOTES

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2221 Schrock Road

phone 614.898.7100 fax 614.898.7570

19353 VERNIER ROAD

STORE # 919728

HARPER WOODS, MI 48225

PROJECT:

engineers, architects, planners

Columbus, Ohio 43229-1547

DESCRIPTION

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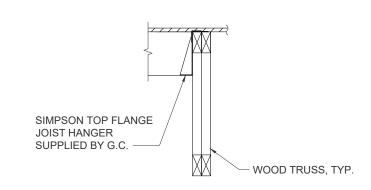
- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
- "X" INDICATES NUMBER OF BEARINGS STUDS REQUIRED FOR BEAM END SUPPORT, TYPICAL UNLESS NOTED OTHERWISE.
- "X" INDICATES NUMBER OF JACK BEARING STUDS REQUIRED FOR HEADER "Y" INDICATES NUMBER OF FULL-HEIGHT KING STUDS REQUIRED FOR HEADER SUPPORT.
- WOOD STRUCTURAL PANEL ROOF SHEATHING TO BE 5/8" (NOMINAL) APA RATED SHEATHING, 40/20, EXPOSURE 1. FASTEN SHEATHING TO FRAMING WITH 10d COMMON NAILS SPACED AT 6" O.C., UNLESS NOTED OTHERWISE, AT ALL PANEL EDGES AND SPACED AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS. INSTALL LONG DIMENSION OF ROOF SHEATHING PANELS PERPENDICULAR TO SPAN OF ROOF TRUSSES. STAGGER PANEL END JOINTS A MINIMUM OF (1) TRUSS SPACE.
- 4. FRAME ALL EXTERIOR STUD WALLS WITH 2x6 AT 16" O.C.
- 5. ALL WOOD FRAMING TO BE SPF No. 1/No. 2 GRADE.
- MAXIMUM DEFLECTION OF ROOF FRAMING UNDER TOTAL LOAD SHALL NOT EXCEED L/180 OF THE SPAN; DEFLECTION SHALL NOT EXCEED 1/240 OF THE SPAN UNDER
- SAWN LUMBER SHALL CONFORM TO AMERICAN SOFTWOOD STANDARD PS20 (EDITION LISTED IN APPLICABLE BUILDING CODE).
- ROOF TRUSS AND LVL SHOP DRAWINGS SHALL BE SINGLE SOURCE AND SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR DESIGN AND
- LICENSED TO PRACTICE IN STATE OF THIS PROJECT. PROVIDE TEMPORARY HORIZONTAL AND CROSS BRACINGS TO HOLD TRUSSES PLUMB
- AND IN SAFE CONDITION UNTIL PERMANENT BRACING IS INSTALLED. 10. INSTALL PERMANENT BRACING AND RELATED COMPONENTS PRIOR TO APPLICATION OF LOADS TO TRUSSES.
- 11. DO NOT CUT OR REMOVE ANY TRUSS MEMBER.
- 12. EACH TRUSS TO BE ANCHORED TO WOOD PLATES AND SHEATHING WITH TENSION ANCHORS BY SIMPSON OR EQUAL.
- 13. FASTEN BUILT-UP WOOD POSTS AND BEAMS TOGETHER WITH 10d NAILS SPACED NOT MORE THAN 12" O.C. OR 3/8" DIAMETER BOLTS FITTED WITH WASHERS AND SPACED NOT MORE THAN 18" O.C.
- 4. WOOD STRUCTURAL PANEL WALL SHEATHING TO BE 15/32" (1/2" NOMINAL) APA RATED SHEATHING, 32/16, EXPOSURE 1. FASTEN SHEATHING TO FRAMING WITH 10d NAILS SPACED AT 6" O.C. AT ALL PANEL EDGES AND SPACED AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
- 15. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF SLOPES AND DRAINAGE.
- 16. MAINTAIN MINIMUM CLEARANCE AROUND EXHAUST FAN OPENINGS. ADJUST TRUSS SPACING TO SUIT.
- 17. SEE 1/S2.1 FOR TYPICAL SUSPENDED LOAD DETAIL.
- 18. TYP. TRUSS BEARING ELEVATION = 12'-0" A.F.F.
- 19. LVL (LAMINATED VENEER LUMBER) HEADERS DISTRIBUTED AS MICRO-LAM, PARALLAM AND TIMBER MAX LVL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. LVL HEADERS SHALL HAVE A MINIMUM DESIGN STRESS VALUE AS FOLLOWS: Fb = 2600 PSI BENDING
- Fv = 285 PSI HORIZONTAL SHEAR Fc<sup>⊥</sup> = 750 PSI COMPRESSION PERPENDICULAR TO GRAIN E = 1,900,000 PSI MODULUS OF ELASTICITY
- 20. MULTIPLE LVL HEADERS SHALL BE FASTENED TOGETHER AS FOLLOWS: 12" AND SMALLER MEMBERS; THREE PIECE MEMBERS 2 ROWS OF 16d NAILS (3.5") AT 12" OC. NAIL FROM BOTH SIDES

## DESIGN CRITERIA

2015 MICHIGAN BUILDING CODE MINIMUM DESIGN LOADS PER ASCE 7-10

F. SPECIAL LOADS INTERIOR PARTITIONS: GUARDRAILS:

50 PLF / 200 POUNDS G. MIN. FROST DEPTH (BELOW GRADE): 42 INCHES



FRAME END OF HEADER TO

FACE OF 6x6 POST W/ SIMPSON HUCQ610-SDS.

NOTCH 2x6 PLY AS REQ'D.

6x6 POST (SYP. #1 GRADE

OR BETTER), TYP 2 PLACES

PRE-FABRICATED CANOPY.

CANOPY CONN. TO WALL BY

CANOPY MANUFACTURER.

DESIGN OF CANOPY AND

S3.1

(2.2)

(3) 1 3/4 x 11 7/8 LVL

CONT. (2) 2x8

∖ S3.1 ∠

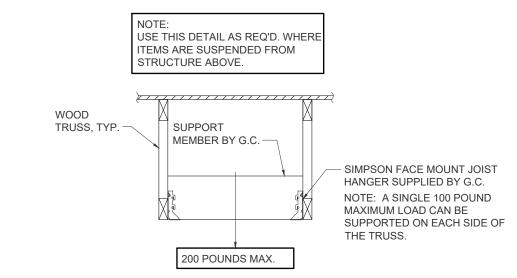
2 SPA. AT 2'-8"

LEDGER ---

(3) 1 3/4 x 11 7/8 LVL

20'-0 1/2"





1 SUSPENDED LOAD DETAIL N.T.S.

A. FLOOR LIVE LOADS (SLAB-ON-GRADE):	125 PSF
B. ROOF LIVE LOAD (MINIMUM):	20 PSF
C. ROOF SNOW LOAD: GROUND SNOW LOAD (Pg): FLAT-ROOF SNOW LOAD (Pf):	20 PSF 20 PSF PLUS DRIFTING
SNOW EXPOSURE FACTOR (Ce): SNOW LOAD IMPORTANCE FACTOR (Ct): THERMAL FACTOR:  1. THE EFFECTS OF DRIFTING SNOW HAVE BEEN INCL 2. THE ROOF STRUCTURE HAS BEEN DESIGNED FOR T INDICATED ABOVE SUCH THAT AN ADEQUATE ROOF SYSTEM ARE REQUIRED TO PREVENT PONDING LOATHE DESIGN ROOF LOADS.	THE ROOF LOADINGS SLOPE AND DRAINAGE
WIND IMPORTANCE FACTOR:	ASED ON A MINIMAL
E. SEISMIC DESIGN CRITERIA  SEISMIC IMPORTANCE FACTOR: RISK CATEGORY: MAPPED SPECTRAL RESPONSE ACCELERATIONS: a. SHORT PERIODS: b. 1 SECOND PERIOD: SITE CLASS: SPECTRAL RESPONSE COEFFICIENTS: a. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS: b. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1 SECOND PERIOD: SEISMIC DESIGN CATEGORY: BASIC SEISMIC-FORCE-RESISTING-SYSTEM: LIGHT SHEATHED WITH WOOD STRUCTURAL PANEL RATED DESIGN BASE SHEAR: SEISMIC RESPONSE COEFFICIENT, CS: RESPONSE MODIFICATION FACTOR, R: ANALYSIS PROCEDURE:	

PROFESSIONAL OF RECORD: CRAIG E. METZGER No. 6201065359 EXP. DATE: 10/31/23

PROJECT NO.:

40509-11

FRAMING PLAN, AND DESIGN CRITERIA

S2.1

A ROOF FRAMING PLAN

1/4" = 1'-0"

S3.1

CONT. (2) 2x8

LEDGER

NOTE: TRUSS MANUFACTURER TO VERIFY TRUSS LAYOUT AND PROVIDE ENGINEERED SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED ENGINEER REGISTERED IN THE STATE OF THE PROJECT PRIOR TO INSTALLATION. CONTRACTOR SHALL INSTALL TRUSSES PER THE MANUFACTURER'S DRAWINGS. THIS SHEET IS PROVIDED FOR BIDDING

47'-10" OUT TO OUT OF STUD WALL

INSTALL WOOD STRUCTURAL

PANEL WALL SHEATHING ON

ALL EXTERIOR WALLS, U.N.O. -

HATCH INDICATES DIAGONAL

5 SPA. AT 2'-8"

BRACING FOR PARAPETS. -

14'-4 1/4" A.F.F.

RTU-2

1,400

4'-8 1/2"

3A S3.1

SHEARWALL

PROVIDE ADD'L. 2x6 **BLOCKING BELOW** 

EQUIP. CURBS, TYP.

— (2) 2x6 HEADERS EA. SIDE

SEE 2/S2.1 FOR CONN. TO

CU, MAX WT

– CU, MAX WT.

TOP OF TRUSS 14'-0" A.F.F.

SHEARWALL

= 300 LBS.

RTU-1

S3.1

= 300 LBS.

OF ROOF OPENINGS.

TRUSSES E.E., TYP.

PURPOSES ONLY.

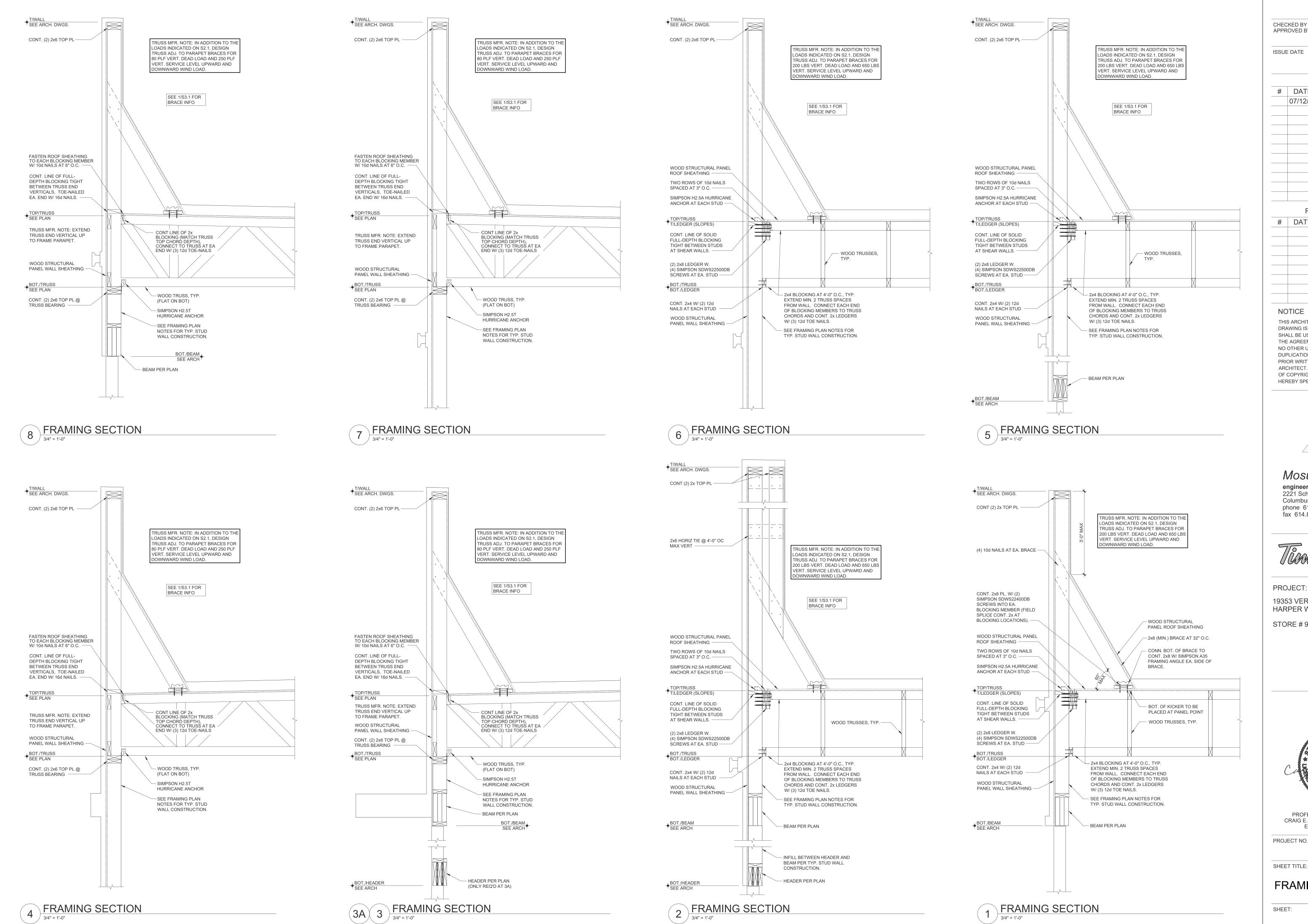
2x4 BLOCKING AT TOP AND BOTTOM OF

TRUSSES AT 4'-0" O.C. (MAX.). EXTEND

BLOCKING A MIN. OF 3 TRUSS SPACES

FROM END WALL. SEE 1/S3.1 FOR

CONNECTION TO FRAMING, TYP. -



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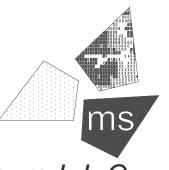
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PROJECT:

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STORE # 919728

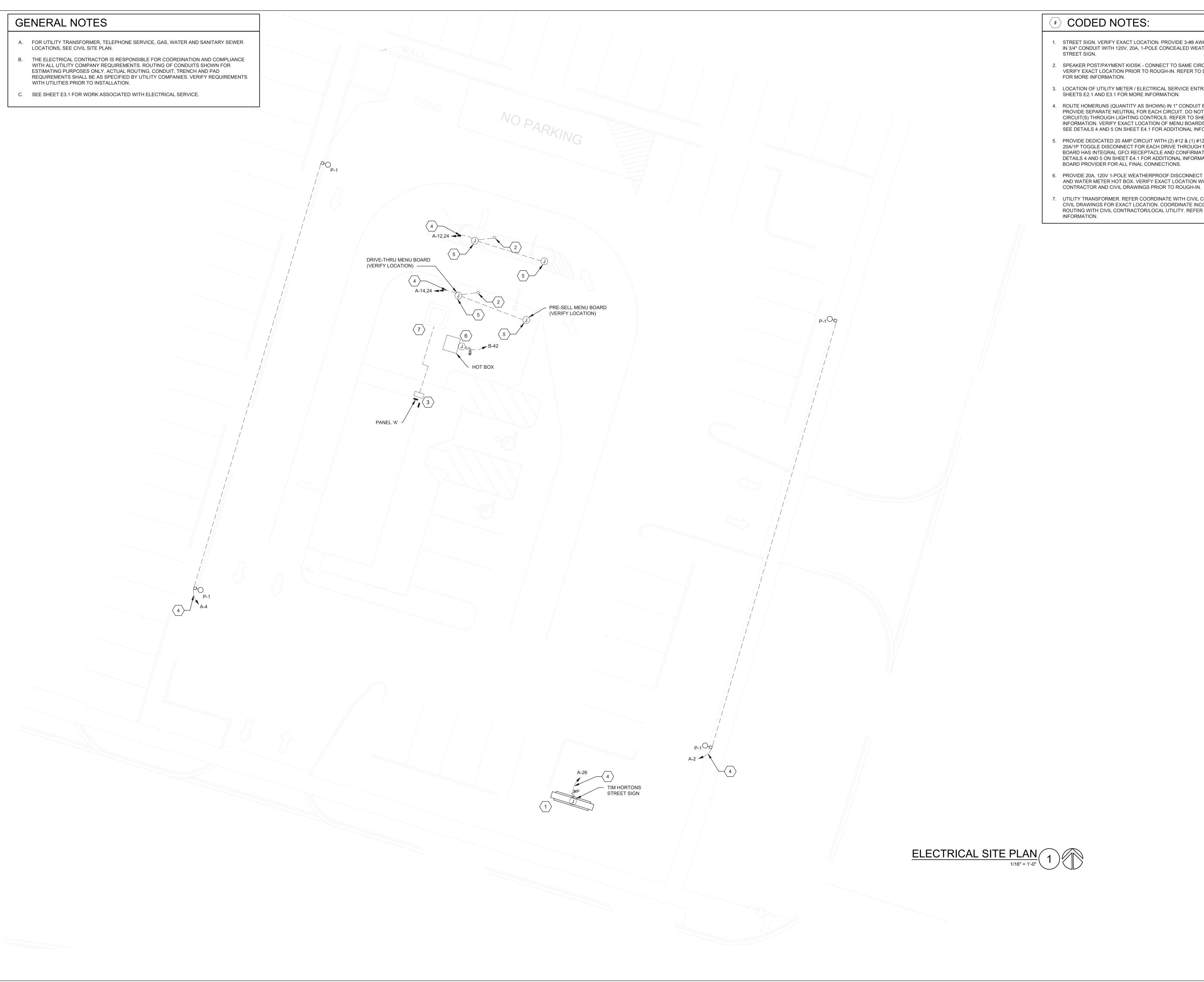


PROFESSIONAL OF RECORD: CRAIG E. METZGER No. 6201065359 EXP. DATE: 10/31/23

PROJECT NO.:

40509-11

FRAMING SECTIONS



- 1. STREET SIGN. VERIFY EXACT LOCATION. PROVIDE 3-#8 AWG COPPER XHHW CONDUCTORS IN 3/4" CONDUIT WITH 120V, 20A, 1-POLE CONCEALED WEATHERPROOF DISCONNECT FOR
  - 2. SPEAKER POST/PAYMENT KIOSK CONNECT TO SAME CIRCUIT AS PREVIEW MENU BOARD. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN. REFER TO DETAILS 3 AND 4 ON SHEET E4.1
  - 3. LOCATION OF UTILITY METER / ELECTRICAL SERVICE ENTRANCE EQUIPMENT. REFER TO SHEETS E2.1 AND E3.1 FOR MORE INFORMATION.
- 4. ROUTE HOMERUNS (QUANTITY AS SHOWN) IN 1" CONDUIT BACK TO ELECTRICAL PANEL. PROVIDE SEPARATE NEUTRAL FOR EACH CIRCUIT. DO NOT SHARE NEUTRALS. ROUTE CIRCUIT(S) THROUGH LIGHTING CONTROLS. REFER TO SHEET E3.1 FOR MORE INFORMATION. VERIFY EXACT LOCATION OF MENU BOARDS WITH TDL REPRESENTATIVE. SEE DETAILS 4 AND 5 ON SHEET E4.1 FOR ADDITIONAL INFORMATION.
- 5. PROVIDE DEDICATED 20 AMP CIRCUIT WITH (2) #12 & (1) #12 GROUND IN 1" CONDUIT WITH 20A/1P TOGGLE DISCONNECT FOR EACH DRIVE THROUGH MENU/PREVIEW BOARD. EACH BOARD HAS INTEGRAL GFCI RECEPTACLE AND CONFIRMATION ORDER SCREEN. SEE DETAILS 4 AND 5 ON SHEET E4.1 FOR ADDITIONAL INFORMATION. COORDINATE WITH MENU
- 6. PROVIDE 20A, 120V 1-POLE WEATHERPROOF DISCONNECT FOR BACKFLOW PREVENTER AND WATER METER HOT BOX. VERIFY EXACT LOCATION WITH CIVIL/PLUMBING
- 7. UTILITY TRANSFORMER. REFER COORDINATE WITH CIVIL CONTRACTOR AND REFER TO CIVIL DRAWINGS FOR EXACT LOCATION. COORDINATE INCOMING PRIMARY CONDUCTOR ROUTING WITH CIVIL CONTRACTOR/LOCAL UTILITY. REFER TO SHEET E3.1 FOR MORE

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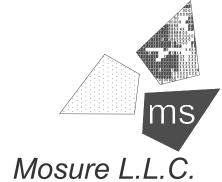
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Tum Hortons

PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

SHEET TITLE:

ELECTRICAL SITE PLAN

E0.1

ALL MOUNTING HEIGHTS SHALL BE AS INDICATED, UNLESS NOTED OTHERWISE. ALL MOUNTING HEIGHTS FOR KITCHEN EQUIPMENT SHALL BE AS INDICATED ON THE KITCHEN EQUIPMENT WIRING SCHEDULE, SHEET E4.1. (T) THERMOSTAT @ 48" WALL MOUNTED PUSH BUTTON @ 48" WALL MOUNTED OCCUPANCY SENSOR @ 48" CEILING MOUNTED OCCUPANCY SENSOR. CEILING MOUNTED PHOTO/IONIZATION DETECTOR WITH CARBON MONOXIDE DETECTOR DUCT MOUNTED PHOTO/IONIZATION DETECTOR CEILING MOUNTED HORN/STROBE CEILING MOUNTED STROBE ONLY DEVICE FIRE ALARM CONTROL PANEL FIRE ALARM ANNUNCIATOR PANEL (REMOTE) REMOTE ANNUNCIATOR/TEST STATION @ 60" SINGLE PHASE MOTOR THREE PHASE MOTOR 120 VOLT SIMPLEX RECEPTACLE @ 16" 120 VOLT DUPLEX RECEPTACLE @ 16" WP = WEATHERPROOF GFI = GROUND FAULT INTERRUPTER IG = ISOLATED GROUND 120 VOLT DOUBLE DUPLEX (QUAD) RECEPTACLE @ 16" 120 VOLT SIMPLEX CEILING MOUNTED RECEPTACLE 120 VOLT DUPLEX RECEPTACLE WITH 2-USB PORTS DATA/TELEPHONE OUTLET BOX @ 16" DATA OUTLET BOX @ 16" TELEPHONE OUTLET BOX @ 16" 208V OR 120/208V RECEPTACLE @16" JUNCTION OR PULL BOX EQUIPMENT DISCONNECT SWITCH @ 60" LIGHTING/POWER PANELBOARD, TOP BREAKER @72" PHOTOCELL MOUNTED ON ROOF FACING NORTH TIMECLOCK MUSIC SYSTEM RADIO, AMPLIFIER EQUIPMENT CEILING MOUNTED AUDIO SYSTEM SPEAKER

NOTE: ALL ELECTRICAL COVERPLATES SHALL MATCH ADJACENT WALL COLOR. REFER TO ARCHITECTURAL SHEET A10 FOR WALL COLORS.

CEILING MOUNTED SURFACE/RECESSED LIGHTING FIXTURE

QUADRANT INDICATES ILLUMINATED FACE ARROW INDICATES

WALL MOUNTED EMERGENCY EXIT SIGN SHADED QUADRANT

CEILING MOUNTED EMERGENCY EXIT SIGN SHADED

INDICATES ILLUMINATED FACE ARROW INDICATES

WALL/CEILING MOUNTED EMERGENCY LIGHTING

REMOTE MOUNTED EMERGENCY LIGHTING FIXTURE.

CEILING MOUNTED SURFACE/RECESSED LIGHTING

FIXTURE-EMERGENCY/NIGHT TYPE AS INDICATED.

CEILING/WALL MOUNTED SURFACE TRACK LIGHTING FIXTURE

CEILING MOUNTED SURFACE/RECESSED LIGHTING FIXTURE,

CEILING MOUNTED SURFACE/RECESSED LIGHTING FIXTURE,

CEILING MOUNTED SURFACE/RECESSED LIGHTING FIXTURE,

WALL SWITCH, NUMBER INDICATES 2, 3, OR 4 POLE, LETTER

INDICATES FIXTURE(S) TO BE CONTROLLED BY SWITCH @ 48"

WALL/CEILING MOUNTED COMBINATION EMERGENCY

LIGHTING / EXIT SIGN FIXTURE-BATTERY TYPE. SHADED
QUADRANT INDICATES ILLUMINATED FACE, ARROW INDICATES

'DIRECTIONAL ARROW" POSITION(S).

"DIRECTIONAL ARROW" POSITION(S).

'DIRECTIONAL ARROW" POSITION(S).

TYPE AS INDICATED. NIGHT LIGHT.

TYPE AS INDICATED. NIGHT LIGHT.

TYPE AS INDICATED. NIGHT LIGHT.

POLE MOUNTED LIGHTING FIXTURE

CIRCUIT RUN TO PANELBOARD DESIGNATION.

CONDUIT RUN BELOW GRADE OR IN CONCRETE SLAB.

CIRCUIT RUN TO PANELBOARD

INDICATES CIRCUIT NUMBERS

LOW-VOLTAGE CONDUIT RUN

ABOVE FINISHED FLOOR

N.T.S. NOT TO SCALE

NIGHT LIGHT

**EMERGENCY** 

- INDICATES PANEL DESIGNATION.

CONDUIT RUNS ABOVE GRADE.

PP1-1,3,5

FIXTURE-BATTERY TYPE.

ASSEMBLY.

ELECTRICAL SYMBOLS

# GENERAL NOTES

- A. UNLESS OTHERWISE NOTED, ALL CONDUITS SHALL BE 1-1/2" STEEL FLEX OR PLASTIC STUBBED OUT ABOVE THE WALL LINE AND TERMINATED INTO A STANDARD JUNCTION BOX FLUSH WITH WALL AND CAPABLE OF ACCEPTING A FACEPLATE COVER.
- B. ALL JUNCTION BOXES SHALL BE INSTALLED IN SUCH A WAY SO THAT THEY ARE NOT BLOCKED BY OTHER EQUIPMENT OR STRUCTURAL COMPONENTS.
- C. ALL CABLE ACCESS OPENINGS THROUGH STAINLESS STEEL SHALL HAVE RUBBER OR PLASTIC GROMMETS INSTALLED.
- D. INSTALL ALL COMMUNICATION AND DATA CONDUITS INCLUDING PULL WIRE BETWEEN
- E. VERIFY WITH REGISTER SYSTEM SUPPLIER AND MENUBOARD SUPPLIER THE LOCATIONS AND SIZES OF ALL CONDUITS RELATING TO THAT SYSTEM
- AND SIZES OF ALL CONDUITS RELATING TO THAT SYSTEM.
- F. SEE SHEET AS2.1 FOR MENU BOARD, PREVIEW BOARD, AND SPEAKER MOUNTING DETAILS AND CONDUIT REQUIREMENTS.
- G. ACTUAL SITE CONDITIONS MAY CAUSE AN ADJUSTMENT OF LAYOUT. LAYOUT SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

H. VERIFY SIGN LOCATION AND LAYOUT WITH OWNER.

SHOWN ON DRAWINGS.

- I. RECEPTACLE LOCATIONS MAY BE ADJUSTED AS NECESSARY TO AVOID CONFLICTS WITH STUDS AND PLUMBING PIPING.
- J. PROVIDE A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND
- DESCRIBED HEREIN.
- K. ELECTRIC WORK SHALL COMPLY WITH THE LATEST LOCALLY ADOPTED NATIONAL ELECTRIC CODE AS WELL AS STATE AND LOCAL CODES.
- L. PAY FOR ALL PERMITS AND INSPECTIONS AND PROVIDE CERTIFICATE OF INSPECTION.
- M. PROVIDE REQUIRED SERVICE AND EQUIPMENT GROUNDING SYSTEMS. CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS AND SHALL BE SAFELY GROUNDED AT THE DISTRIBUTION PANEL. ALL DEVICES SHALL BE BONDED TO THE CONDUIT SYSTEM. PROVIDE A SEPARATE GROUNDING CONDUCTOR IN EACH CONDUIT, #12 MINIMUM OR AS
- N. MATERIALS SHALL BE NEW WITH MANUFACTURER'S NAME PRINTED THEREON AND UNDERWRITER'S LABORATORY LISTED. THE SELECTION OF MATERIALS AND EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT SHALL BE IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL 4 COPIES OF EQUIPMENT AS FOLLOWS: MAIN DISTRIBUTION PANEL. PANELBOARDS, DISCONNECT SWITCHES AND LIGHTING FIXTURES.
- O. IDENTIFY DISCONNECT SWITCHES WITH LAMINATED PHENOLIC NAMEPLATES WITH 1/4" MINIMUM HEIGHT LETTERS.
- P. PROVIDE POWER WIRING AND HOOKUP FOR EACH MECHANICAL AND KITCHEN EQUIPMENT ITEM. THIS CONTRACTOR SHALL MOUNT, PROVIDE WIRING, AND MAKE FINAL CONNECTIONS TO EQUIPMENT CONTROL PANELS (WHICH INCLUDE PREWIRED STARTERS, RELAYS, ETC.) PROVIDE ALL STARTERS WHICH ARE NOT FURNISHED AS PART OF MECHANICAL EQUIPMENT.
- Q. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE IN NEMA 1 ENCLOSURE OR EQUAL BY SQUARE D OR EATON. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERATED AND INTERLOCKED.
- R. SWITCHES SHALL BE 20 AMP HUBBELL 1221-1 SINGLE POLE OR 1223-1 THREE WAY. DUPLEX RECEPTACLES SHALL BE 20 AMP HUBBELL 5362-1. PASS AND SEYMOUR, AND ARROW-HART SHALL BE CONSIDERED AS EQUAL. GROUND FAULT INTERRUPTING SHALL BE LEVITON. GFTR2-T. COVER PLATES SHALL BE SIERRA (PASS AND SEYMOUR). SWITCH PLATES TO BE SERIES #S-IN, DUPLEX PLATES TO BE SERIES #S-IN. DUPLEX PLATES IN DINING ROOM TO BE #P-8 ETC. ALL COVER PLATES SHALL HAVE SATIN FINISH #302 STAINLESS STEEL (EXCEPT DINING ROOM PLATES).
- S. TEST ELECTRICAL SYSTEM FOR SHORT CIRCUITS AND MEGGER TEST FEEDERS AND BRANCH CIRCUIT WIRING. ENSURE LOW IMPEDANCE GROUND SYSTEM.
- T. VERIFY ELECTRICAL SERVICE TO SITE PRIOR TO BIDDING. PROVIDE CONDUIT, CABLE, CONCRETE, CONNECTIONS AND OTHER EQUIPMENT REQUIRED FOR AN UNDERGROUND ELECTRICAL SYSTEM FROM POWER COMPANY EQUIPMENT TO DISTRIBUTION SWITCHBOARD "DB1". COORDINATE ELECTRICAL SERVICE ENTRANCE WORK AND REQUIREMENTS WITH POWER COMPANY. SECURE CONTRACTS WITH POWER COMPANY FOR INSTALLATION OF PRIMARY ENTRANCE. INCLUDE CHARGES BY POWER COMPANY IN BID. PERFORM WORK REQUIRED BY POWER COMPANY IN ACCORDANCE WITH POWER COMPANY RULES AND REGULATIONS TO ENSURE A COMPLETE ELECTRICAL SERVICE.
- U. FOR SERVICE AND PANEL FEEDER WIRING, USE TYPE THHN/THWN CABLE. USE THWN CABLE FOR INTERIOR BRANCH CIRCUIT WIRING EXCEPT AS NOTED. DESIGN IS BASED ON COPPER CONDUCTORS AND ALL WIRING SHALL BE COPPER, MINIMUM #12 AWG. WIRING SHALL BE IN CONDUIT. SPLICE WIRES #6 AWG. AND LARGER WITH APPROVED SOLDERLESS CONNECTORS SUCH AS ILSCO PROPERLY TAPED AND INSULATED. SPLICE SMALLER WIRES WITH MECHANICAL CONNECTORS SUCH AS 3M "SCOTCHLOCK" TYPE R.
- V. PROVIDE RIGID GALVANIZED STEEL HEAVY WALL CONDUIT/OR SCHEDULE 80 PLASTIC CONDUIT FOR SERVICE AND PANEL FEEDER CONDUITS. FITTINGS SHALL BE STEEL, THREADED, SET-SCREW TYPE WITH INSULATED THROATS. FURNISH EMT CONDUIT FOR INTERIOR WIRING WHERE PHYSICAL DAMAGE IS NOT A CONSIDERATION. MINIMUM CONDUIT SIZE IS 3/4" EXCEPT FOR FLEXIBLE RUNOUTS TO FIXTURES, MOTORS, ETC. WHICH MAY BE 1/2".
- W. CONDUIT SHALL BE CONCEALED WHEREVER POSSIBLE AND SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND CEILINGS.
- X. CONDUIT INSTALLED IN OR BELOW SLAB SHALL BE GALVANIZED RIGID CONDUIT OR PLASTIC CONDUIT. NO CONDUIT LARGER THAN 1 1/2" DIA. WILL BE INSTALLED IN SLAB.
- Y. PROVIDE STRUCTURAL STEEL FRAMEWORK AND HANGING RODS WITH BRACES AND ACCESSORIES WHERE REQUIRED TO HOLD EQUIPMENT IN FINAL POSITION. PROVIDE STEEL SHAPES AND FRAMES TO SUPPORT WALL MOUNTED EQUIPMENT WHERE NORMAL WALL STRENGTH MAY BE INADEQUATE.
- Z. ELECTRICAL DEVICES, MOTOR STARTERS, DISCONNECT SWITCHES, ETC. SHALL BE SUPPORTED INDEPENDENT OF AND ISOLATED FROM EQUIPMENT VIBRATION.
- AA. COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER ALL INTERIOR WIRING CONNECTIONS NEEDED DURING ASSEMBLY OF KITCHEN EQUIPMENT.
- AB. PROVIDE FIXTURES AS LISTED ON LIGHTING FIXTURE SCHEDULE. PROVIDE NECESSARY MOUNTING HARDWARE FOR A COMPLETE INSTALLATION. PROVIDE LAMPS, BALLASTS AND SPECIAL CONTROLS.
- AC. PROVIDE EMPTY CONDUIT, OUTLETS AND BACKBOARD TO ACCOMMODATE TELEPHONE COMPANY WIRING AND EQUIPMENT AS SHOWN ON DRAWINGS. WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH TELEPHONE COMPANY REQUIREMENTS.
- AD. GUARANTEE WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS, USUAL WEAR EXPECTED, AND SHOULD ANY SUCH DEFECTS OCCUR WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.

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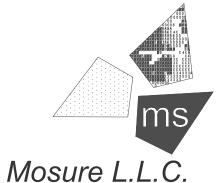
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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

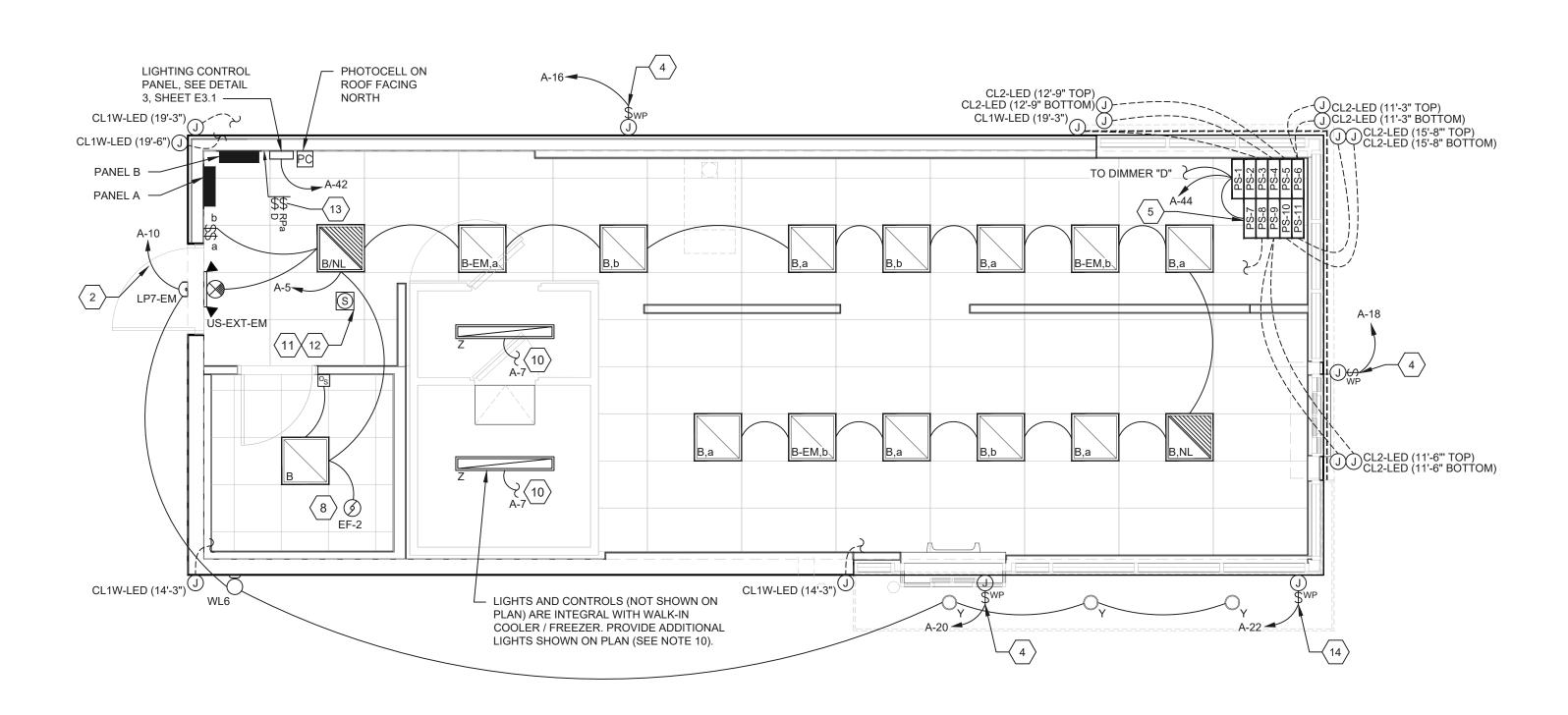
SHEET TITLE:

ELECTRICAL SYMBOLS
AND NOTES

SHEET:

1.0

	LIGHTING FIXTURE SCHEDULE  ALL LIGHTING FIXTURES TO BE PURCHASED FROM VISO, UNLESS NOTED OTHERWISE.								
FIXTURE DESIGNATION	QUANTITY	MANUFACTURER	GENERAL DESCRIPTION	VISO CATALOG NUMBER	INPUT WATTAGE	REMARKS			
А	0	VISO	2'X4' RECESSED LED TROFFER FOR T-BAR CEILING (TAA24-40W-FP-3500K) 120 DEGREE, 125 LM/W, 80 CRI,0.5A, 120V, 22 LBS	NA.TDL-VIS-A	40W	BOH ONLY.			
В	15	VISO	2'X2' RECESSED LED TROFFER FOR T-BAR CEILING (TAA22-40W-FP-3500K) 120 DEGREE, 125 LM/W, 80 CRI, 0.4A, 120V, 12 LBS	NA.TDL-VIS-B	40W	SERVICE AREA.			
LP7	1	VISO	LED EXTERIOR PACK, 7.6"L X 4.4"D X 3.9"H, BRONZE FINISH, 1080LM, 4000K, 70-IP65 CRI, 7.1 LBS	NA.TDL-VIS-LP7	10W				
WL6	1	VISO	EXTERIOR LED SPOT LIGHT, 4.5"DIA X 8.2"H X 8.2"W, 4000K, 1600LM, 80 CRI, 120/277V, 6 LBS	NA.TDL-VIS-WL6	20W	COORDINATE MOUNTING HEIGHT AND FINAL AIMMING WITH ARCHITECTURAL ELEVATIONS.			
CL2-LED	102'-4"	LEKTRON BRANDING SOLUTIONS	LED NEON STRIP, EXTERIOR, DC24V, 2700/3000K, IP67 WITH CHANNEL PANELS AND DRIVERS INCLUDED. SEE SHOP DRAWINGS.	LEKTRON LUMILINE 600-10XX	3.7W/FT	COORDINATE EXACT FIXTURE LENGTH AND LOCATIONS WITH ARCHITECTURAL ELEVATIONS AND LIGHTING SUPPLIER SHOP DRAWINGS.			
CL1W-LED	85'-6"	LEKTRON BRANDING SOLUTIONS	LED NEON STRIP, EXTERIOR, DC24V, 2700/3000K, IP67 WITH CHANNEL PANELS AND DRIVERS INCLUDED. SEE SHOP DRAWINGS.	LEKTRON LUMILINE 600-10XX	3.7W/FT	COORDINATE EXACT FIXTURE LENGTH AND LOCATIONS WITH ARCHITECTURAL ELEVATIONS AND LIGHTING SUPPLIER SHOP DRAWINGS.			
US-EXT	1	VISO	EXIT SIGN, WHITE FINISH, 120V, 120 MIN EMERGENCY DURATION, SUITABLE FOR SINGLE OR DOUBLE-SIDED APPLICATIONS, 3.2 LBS	NA.TDL-VIS-US-EXT	2W				
-EM			WHERE LIGHT FIXTURE IS FOLLOWED BY "-EM" PROVIDE WITH EMERGENCY LIGHTING BATTERY PACK (90 MIN ILLUMINATION) FRONT OF HOUSE ONLY	NA.TDL-VIS-EBP		SEE GENERAL NOTE A.			
Υ	3	NORA LIGHTING	6" LED RECESSED DOWNLIGHT WITH SQUARE REFLECTOR, 3000K, BLACK FINISH	MODEL NHIC-6LMRAT HOUSING WITH NOXAC-563230WW REFLECTOR	12W	PROVIDED BY GENERAL CONTRACTOR. PURCHASE THROUGH ALLEN INDUSTRIES.			
Z	2	KASON	SUPPLEMENTAL LED WALK-IN LIGHT FIXTURE	MODEL 11809000003	30W	PROVIDED BY GENERAL CONTRACTOR			
P-1	4	SIGNIFY GARDCO	ECOFORM AREA LED ECF - SMALL, 48 LED'S, 4000K CCT, TYPE 4 OPTIC, NO SHIELD	ECF-S-48L-1.2A-NW-G2-4	182.71	FOR PRICING CONTACT ROBERT BRAHIER AT BRIGHT FOCUS SALES, BBRAHIER@BRIGHTSALES.COM PHONE: 614-293-2611			



NOTE: ALL ELECTRICAL COVERPLATES SHALL MATCH ADJACENT WALL COLOR. REFER TO ARCHITECTURAL SHEET A10 FOR WALL COLORS.



## GENERAL NOTES

- A. "EM" UNITS SHALL OPERATE ON 120 VOLT SINGLE PHASE WITH NUMBER OF HEADS AS INDICATED ON PLAN. UNITS SHALL BE PLUG-IN TYPE WITH SEALED PURE LEAD BATTERIES. CHARGER SHALL BE COMPLETELY AUTOMATIC SOLID STATE TYPE CAPABLE OF FULLY RECHARGING DISCHARGED BATTERY IN 24 HOURS. TRANSFER DEVICE SHALL AUTOMATICALLY SWITCH LOAD ON AT POWER FAILURE AND OFF ON RETURN OF NORMAL POWER. UNITS SHALL HAVE LOW VOLTAGE DISCONNECT FEATURE. CONNECT TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL SWITCHING.
- B. CONNECT EXIT SIGNS, EMERGENCY AND NIGHT LIGHTS TO UNSWITCHED LIGHTING CIRCUIT, NOT CONTROLLED BY OCCUPANCY SENSORS, SWITCHES OR CONTACTORS.
- C. ALL CIRCUITS SHALL HAVE AN INDIVIDUAL NEUTRAL CONDUCTOR. NO SHARED NEUTRALS ARE PERMITTED.
- D. UPON COMPLETION OF ALL WORK (INCLUDING WORK BY TDL FORCES OR OTHER SYSTEM PROVIDERS), PROVIDE ALL STAINLESS STEEL COVER PLATES, INCLUDING BLANKS AND THOSE REQUIRED FOR DATA CABLES.
- E. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND DETAILS FOR LOCATION OF LIGHTING FIXTURES AND OTHER EQUIPMENT INSTALLED IN CEILING SYSTEM. VERIFY MOUNTING HEIGHTS AND FINISHES WITH ARCHITECT PRIOR TO ROUGH-IN.
- F. PROVIDE (2) ADDITIONAL #12 CONDUCTORS FOR ALL 0-10V DIMMING CIRCUITS.

## (#) CODED NOTES:

- NOTE NOT USED.
- 2. CIRCUIT TO BE CONTROLLED BY LIGHTING CONTROL PANEL. REFER TO DETAIL 2 ON SHEET
- 3. NOTE NOT USED.
- 4. PROVIDE WEATHERPROOF JUNCTION BOX WITH CONCEALED 20A/1P DISCONNECT FOR BUILDING SIGN. USE VHM DRILL BIT (SPECIALLY DESIGNED FOR PLASTICS, THERMOPLASTICS AND PLEXIGLASS) WHILE DRILLING FOR ELECTRICAL FEED LINES. JUNCTION BOX SHALL BE LOCATED UNDER ROOF DECK WITHIN 6' OF SIGN. COORDINATE EXACT LOCATION WITH SIGN SHOP DRAWINGS PRIOR TO ROUGH-IN.
- 5. REMOTE POWER SUPPLIES (MEAN WELL HLG-185H-SPEC TYPE B OR EQUAL) WITH 0-10V DIMMING FOR EXTERIOR LED STRIP LIGHTING AT PERIMETER OVERHANG (ABOVE AND BELOW) AND CHANNEL LIGHTING. MOUNT IN ACCESSIBLE LOCATION AS HIGH AS POSSIBLE ON WALL ABOVE SUSPENDED CEILING FEATURE CONCEALED FROM PUBLIC VIEW BELOW. POWER SUPPLY MUST BE LOCATED WITHIN 64' OF END OF STRIP IT IS SUPPLYING. COORDINATE EXACT LOCATION WITH OWNER'S CONSTRUCTION MANAGER PRIOR TO ROUGH-IN. SEE SHEET A5 SERIES FOR EXACT LOCATION OF LED STRIP LIGHTING. REFER TO DETAIL 3 ON SHEET E4.2.
- 6. NOTE NOT USED.
- 7. NOTE NOT USED.
- 8. PROVIDE FINAL CONNECTION FOR CEILING MOUNTED EXHAUST FAN. FAN SHALL BE CONTROLLED BY ROOM LIGHT CONTROL. REFER TO DETAIL 2 ON SHEET E4.2.
- 9. NOTE NOT USED.
- 10. ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL LED LIGHT FIXTURE(S) SHOWN. CONNECT FIXTURE(S) TO SAME CIRCUIT AS INTEGRAL WALK-IN LIGHTS. SEE POWER PLAN FOR ELECTRICAL CONNECTION OF WALK-IN LIGHT FIXTURES.
- 11. CEILING MOUNTED MUSIC SYSTEM SPEAKER. COORDINATE SPEAKER INSTALLATION WITH CEILING TYPE. PROVIDE BACKBOX IF NEEDED AND 1/2" EMPTY CONDUIT WITH PULLSTRING ROUTED BACK TO MUSIC SYSTEM IN OFFICE AREA FOR SPEAKER CABLING.
- 12. MUSIC SYSTEM MOUNTED IN OFFICE AREA. REFER TO DETAIL 4 ON SHEET E4.2.
- REMOTE DIMMER SWITCH FOR EXTERIOR LED STRIP LIGHTING AND TIMECLOCK OVERRIDE SWITCH. REFER TO DETAIL 1 ON SHEET E3.1.
- 14. PROVIDE WEATHERPROOF JUNCTION BOX WITH CONCEALED 20A/1P DISCONNECT FOR INTEGRAL CANOPY LIGHTING. USE VHM DRILL BIT (SPECIALLY DESIGNED FOR PLASTICS, THERMOPLASTICS AND PLEXIGLASS) WHILE DRILLING FOR ELECTRICAL FEED LINES. JUNCTION BOX SHALL BE LOCATED UNDER ROOF DECK WITHIN 6' OF SIGN. COORDINATE EXACT LOCATION WITH SIGN SHOP DRAWINGS PRIOR TO ROUGH-IN.

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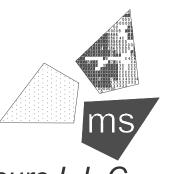
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Nosure L.L.C.

engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

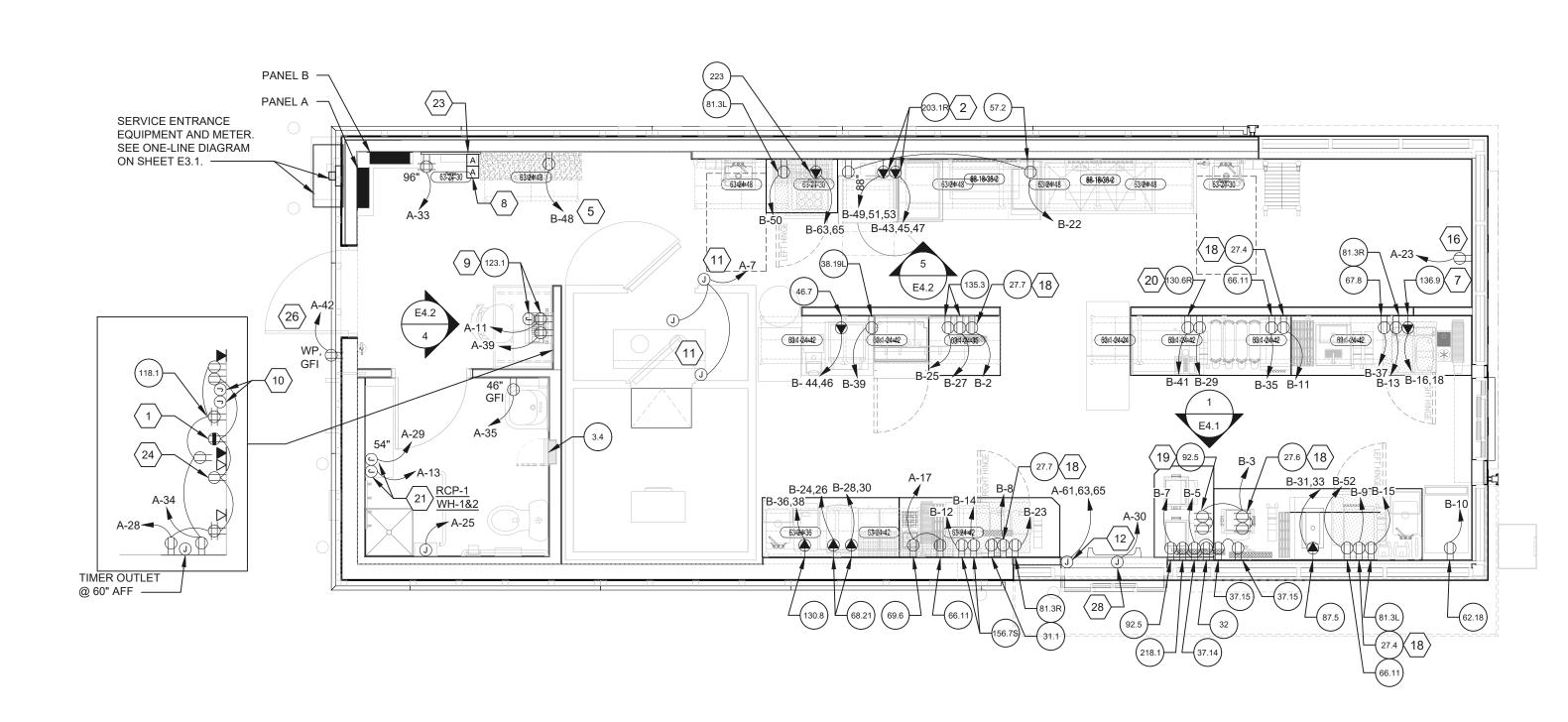
40509-11

SHEET TITLE:

LIGHTING PLAN

SHEET:

E1.1



#### **GENERAL NOTES**

- A. COORDINATE POWER REQUIREMENTS WITH ALL TRADES AND INCLUDE WORK REQUIRED TO POWER ALL KITCHEN EQUIPMENT, HVAC EQUIPMENT, COOLER/FREEZER, PLUMBING EQUIPMENT, SIGNAGE, LIGHTING, AND ALL OTHER EQUIPMENT/DEVICE REQUIRING POWER IN THE CONTRACT DOCUMENTS.
- B. VERIFY ALL ROUGH-IN DIMENSIONS AND POWER REQUIREMENTS WITH KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- C. VERIFY FAULT CURRENT FROM PRIMARY SERVICE AND ENSURE COMPATIBILITY OF DISTRIBUTION PANEL.
- D. ENSURE ADEQUATE CONDUIT SIZE FOR ELECTRICAL AND PHONE WIRING ON SITE AND INTO
- E. HEIGHTS INDICATED FOR RECEPTACLES AND JUNCTION BOXES ARE MEASURED FROM FINISHED FLOOR TO CENTER OF BOX.
- F. PROVIDE ALL TELEPHONE LINES. TELEPHONE LINES SHALL BE CATEGORY 6.
- G. ALL CIRCUITS MAY BE MODIFIED TO THE LEAST AMOUNT OF CONDUIT RUN UNLESS NOTED
- H. SEE SHEET E5.1 FOR REGISTER SYSTEM CONDUITS AND SHEET E4.1/2 FOR DETAILS. I. SEE KITCHEN EQUIPMENT WIRING SCHEDULE ON SHEET E3.2 FOR WIRING REQUIREMENTS
- AND MOUNTING HEIGHTS.
- J. ALL 120 VOLT, 15 AND 20 AMP RECEPTACLES IN THE KITCHEN SHALL BE GFCI PROTECTED PER CODE USING GFCI TYPE PERSONNEL PROTECTION BREAKERS.
- K. ALL CIRCUITS SHALL HAVE AN INDIVIDUAL NEUTRAL CONDUCTOR. NO SHARED NEUTRALS ARE PERMITTED.
- L. COLOR OF ALL PUBLIC AREA RECEPTACLES AND COVER PLATES SHALL MATCH ADJACENT WALL COLOR. REFER TO ARCHITECTURAL PLANS FOR WALL COLORS. M. ALL WIRING UNDER SLAB, IN WALLS, ABOVE INACCESSIBLE CEILINGS, OR AS REQUIRED BY

CODE SHALL BE IN CONDUIT. WHERE LINE VOLTAGE WIRING IS NOT REQUIRED TO BE IN

- CONDUIT, PROVIDE JUNCTION BOX AND TRANSITION TO MC CABLE. WHERE LOW VOLTAGE WIRING IS NOT REQUIRED TO BE IN CONDUIT, PROVIDE BUSHING ON OPEN END OF
- N. UPON COMPLETION OF ALL WORK (INCLUDES WORK BY TDL FORCES SYSTEMS PROVIDER) PROVIDE ALL STAINLESS STEEL COVER PLATES, INCLUDING BLANKS AND THOSE REQUIRED FOR DATA CABLES.
- O. IF ALLOWED BY THE AUTHORITY HAVING JURISDICTION, MC CABLE MAY BE USED FOR BRANCH CIRCUIT RUNS, EXCEPT FIRST SEGMENT FROM ELECTRICAL PANEL TO NEAREST JUNCTION BOX. THIS SEGMENT SHALL USE HARD CONDUIT.
- P. DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLAN IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.
- Q. ELECTRICAL RECEPTACLES MOUNTED BELOW COUNTER BEHIND FULL COUNTER-DEPTH KITCHEN EQUIPMENT (I.E. UNDERCOUNTER REFRIGERATORS, SANDWICH UNITS, ICE MACHINES, ETC) SHALL BE COUNTERSUNK INTO WALL TO ALLOW FRONT OF EQUIPMENT TO BE FLUSH WITH MILLWORK AND NOT STICK OUT BEYOND FRONT OF COUNTER.

#### CODED NOTES:

- PROVIDE COMBINATION USB CHARGER, TAMPER-RESISTANT RECEPTACLES BY PASS & SEYMOUR MODEL #TR536IUSBLA OR APPROVED EQUAL. MOUNT VERTICALLY. COORDINATE EXACT LOCATION WITH OWNER'S CONSTRUCTION MANAGER PRIOR TO ROUGH-IN.
- INSTALLATION.
- 3. NOTE NOT USED.
- 4. NOTE NOT USED.
- 5. PROVIDE RECEPTACLE FOR FILTRATION SYSTEM. COORDINATE REQUIREMENTS AND
- 6. NOTE NOT USED.
- 7. RECEPTACLE FOR EQUIPMENT SHALL BE SURFACE-MOUNTED AND CONCEALED WITHIN MILLWORK. ROUTE CONDUIT CONCEALED WITHIN MILLWORK BACK TO NEAREST FULL-HEIGHT WALL AND BACK TO ELECTRICAL PANEL. COORDINATE RECEPTACLE LOCATIONS AND ROUTING OF CONDUIT WITH MILLWORK CONTRACTOR AND TIM HORTONS CONSTRUCTION MANAGER PRIOR TO COMMENCING WORK.
- 8. PROVIDE REMOTE ANNUNCIATOR FOR RTU DUCT SMOKE DETECTOR. COORDINATE LOCATION WITH AUTHORITY HAVING JURISDICTION. MAKE ALL REQUIRED INTERCONNECTIONS. COORDINATE ANNUNCIATOR REQUIREMENTS WITH RTU
- 10. 4"x4"x4" JUNCTION BOX. REFER TO DETAIL 4, SHEET E4.2 FOR MORE INFORMATION.
- GROUND IN 1/2" CONDUIT TO J-BOX WITH BLANK COVER PLATE. CAP AND LABEL CONDUCTORS ACCORDINGLY. FIELD VERIFY LOCATION PRIOR TO ROUGH-IN.
- 13. NOTE NOT USED.
- 15. NOTE NOT USED.
- 16. RECEPTACLE SHALL BE WALL MOUNTED CENTERED 12" ABOVE WINDOW.
- 18. PROVIDE DUPLEX RECEPTACLE, SINGLE GANG J-BOX FOR DATA AND SINGLE GANG OUTLET BOX FOR MONITOR. REFER TO "KITCHEN EQUIPMENT WIRING SCHEDULE" ON SHEET E3.2
- SINGLE GANG OUTLET BOX FOR MONITOR. REFER TO "KITCHEN EQUIPMENT WIRING SCHEDULE" ON SHEET E3.2 FOR ADDITIONAL INFORMATION.
- 20. LOCATE OUTLET FOR NITRO REFRIGERATOR AND TOWER CONCEALED WITHIN MILLWORK ON BACK WALL OF NITRO CUBBY ON SAME SIDE AS CUT OUT FOR TOWER ON BACK WALL UPPER CORNER - OPPOSITE CORNER WHERE FRIDGE WILL BE LOCATED, BUT NOT BEHIND CONTROL PANEL. COORDINATE WITH MILLWORK AND EQUIPMENT LAYOUT. COORDINATE LOCATION AND ELECTRICAL REQUIREMENTS FOR NITRO SYSTEM COMPRESSOR WITH MANUFACTURER'S INSTRUCTIONS IN FIELD.
- 22. NOTE NOT USED.
- RECEPTACLE MOUNTED AT BOTTOM OF BOARD. MOUNT TIGHT TO CEILING. PROVIDE #6 THHN GROUND CONDUCTOR, TERMINATED AT GROUNDING ELECTRODE CONDUCTOR, CONFORMING TO N.E.C. 800.40 AND LOCAL UTILITY REQUIREMENTS.
- 25. NOTE NOT USED.

- 28. PROVIDE 20A, 120V J-BOX WITH 20A/1P TOGGLE DISCONNECT MOUNTED AT +36" AFF FOR DRIVE-THRU WINDOW POWER.

- 2. REFER TO DETAIL 5 ON SHEET E4.2 FOR MORE INFORMATION ON EQUIPMENT RECEPTACLE
- LOCATION WITH PLUMBING CONTRACTOR.
- MANUFACTURER.
- 9. PROVIDE 20A RECEPTACLE AND SEPARATE JUNCTION BOX FOR MEDIA CABINET. VERIFY EXACT LOCATION IN FIELD. MOUNT APPROXIMATELY 9" BELOW CEILING. REFER TO DETAIL
- 11. CONNECT 120 VOLT CIRCUIT FOR LIGHTING/HEATER CIRCUIT FROM PANEL TO JUNCTION BOX (FIELD LOCATE). CIRCUIT BREAKER SHALL BE GFCI TYPE. MAKE ALL REQUIRED CONNECTIONS IN JUNCTION BOX. LABEL JUNCTION BOX WITH CIRCUIT NUMBER.
- 12. PROVIDE ROUGH-IN FOR 20A, 208V, 3PH FUTURE AIR CURTAIN. ROUTE 3-#12 AND #12
- 14. NOTE NOT USED.
- 17. NOTE NOT USED.
- FOR MOUNTING HEIGHT.
- 19. PROVIDE CEILING MOUNTED DUPLEX RECEPTACLE, SINGLE GANG J-BOX FOR DATA AND
- 21. PROVIDE (2) 20A, 120V CIRCUITS WITH 20A/1P TOGGLE DISCONNECTS FOR GAS WATER HEATERS AND RECIRCULATION PUMP. COORDINATE EXACT LOCATION WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.

- 24. OFFICE PRINTER SHALL BE SOURCED, PROCURED AND INSTALLED BY THE OWNER. MOUNT RECEPTACLE FOR PRINTER AT +36" AFF.
- 26. PROVIDE 20A, 120V WEATHERPROOF, GFI RECEPTACLE FOR BACKFLOW PREVENTER AND WATER METER HOT BOX. VERIFY EXACT LOCATION WITH PLUMBING CONTRACTOR AND CIVIL DRAWINGS PRIOR TO ROUGH-IN.
- 27. NOTE NOT USED.

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07/12/22

PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

40509-11

POWER PLAN

PROJECT NO.:

SHEET TITLE:



OF COPYRIGHT AND OTHERWISE ARE HEREBY SPECIFICALLY RESERVED. 23. PROVIDE 30" X 72"' X 5/8" PLYWOOD SURFACE MOUNTED BACKBOARD ON WALL WITH QUAD engineers, architects, planners

2221 Schrock Road

phone 614.898.7100 fax 614.898.7570

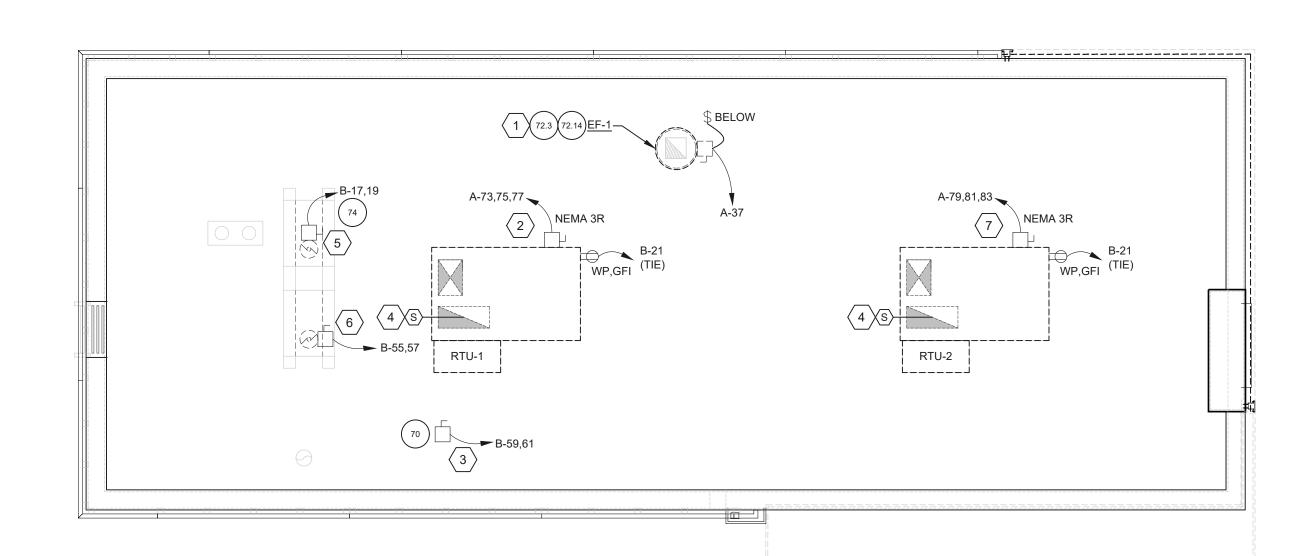
19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728

PROJECT:

Columbus, Ohio 43229-1547

NOTICE



## GENERAL NOTES

AND MOUNTING HEIGHTS.

- A. COORDINATE POWER REQUIREMENTS WITH ALL TRADES AND INCLUDE WORK REQUIRED TO POWER ALL KITCHEN EQUIPMENT, HVAC EQUIPMENT, COOLER/FREEZER, PLUMBING EQUIPMENT, SIGNAGE, LIGHTING, AND ALL OTHER EQUIPMENT/DEVICE REQUIRING POWER IN THE CONTRACT DOCUMENTS.
- IN THE CONTRACT DOCUMENTS.

  B. VERIFY ALL ROUGH-IN DIMENSIONS AND POWER REQUIREMENTS WITH KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- C. VERIFY FAULT CURRENT FROM PRIMARY SERVICE AND ENSURE COMPATIBILITY OF DISTRIBUTION PANEL.
- D. ENSURE ADEQUATE CONDUIT SIZE FOR ELECTRICAL AND PHONE WIRING ON SITE AND INTO BUILDING.
- HEIGHTS INDICATED FOR RECEPTACLES AND JUNCTION BOXES ARE MEASURED FROM FINISHED FLOOR TO CENTER OF BOX.
- F. PROVIDE ALL TELEPHONE LINES. TELEPHONE LINES SHALL BE CATEGORY 6.
- G. ALL CIRCUITS MAY BE MODIFIED TO THE LEAST AMOUNT OF CONDUIT RUN UNLESS NOTED OTHERWISE.
- H. SEE SHEET E5.1 FOR REGISTER SYSTEM CONDUITS AND SHEET E4.1/2 FOR DETAILS.
  I. SEE KITCHEN EQUIPMENT WIRING SCHEDULE ON SHEET E3.2 FOR WIRING REQUIREMENTS
- J. ALL 120 VOLT, 15 AND 20 AMP RECEPTACLES IN THE KITCHEN SHALL BE GFCI PROTECTED PER CODE USING GFCI TYPE PERSONNEL PROTECTION BREAKERS.
- K. ALL CIRCUITS SHALL HAVE AN INDIVIDUAL NEUTRAL CONDUCTOR. NO SHARED NEUTRALS ARE PERMITTED.
- L. COLOR OF ALL PUBLIC AREA RECEPTACLES AND COVER PLATES SHALL MATCH ADJACENT WALL COLOR. REFER TO ARCHITECTURAL PLANS FOR WALL COLORS.
- M. ALL WIRING UNDER SLAB, IN WALLS, ABOVE INACCESSIBLE CEILINGS, OR AS REQUIRED BY CODE SHALL BE IN CONDUIT. WHERE LINE VOLTAGE WIRING IS NOT REQUIRED TO BE IN CONDUIT, PROVIDE JUNCTION BOX AND TRANSITION TO MC CABLE. WHERE LOW VOLTAGE WIRING IS NOT REQUIRED TO BE IN CONDUIT, PROVIDE BUSHING ON OPEN END OF CONDUIT.
- N. UPON COMPLETION OF ALL WORK (INCLUDES WORK BY TDL FORCES SYSTEMS PROVIDER) PROVIDE ALL STAINLESS STEEL COVER PLATES, INCLUDING BLANKS AND THOSE REQUIRED FOR DATA CABLES.
- O. IF ALLOWED BY THE AUTHORITY HAVING JURISDICTION, MC CABLE MAY BE USED FOR BRANCH CIRCUIT RUNS, EXCEPT FIRST SEGMENT FROM ELECTRICAL PANEL TO NEAREST JUNCTION BOX. THIS SEGMENT SHALL USE HARD CONDUIT.
- P. DEFINITIONS: <u>FURNISH</u> MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. <u>INSTALL</u> MEANS TO PLAN IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. <u>PROVIDE</u> MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.
- Q. ELECTRICAL RECEPTACLES MOUNTED BELOW COUNTER BEHIND FULL COUNTER-DEPTH KITCHEN EQUIPMENT (I.E. UNDERCOUNTER REFRIGERATORS, SANDWICH UNITS, ICE MACHINES, ETC) SHALL BE COUNTERSUNK INTO WALL TO ALLOW FRONT OF EQUIPMENT TO BE FLUSH WITH MILLWORK AND NOT STICK OUT BEYOND FRONT OF COUNTER.

## CODED NOTES:

- 1. EXHAUST FAN #1: 120V 1PH. RUN 2 #12, 1 #12 GROUND IN 3/4" CONDUIT THROUGH DISCONNECT SWITCH LOCATED AT UNIT (BY MANUFACTURER) TO 20A-1P CIRCUIT BREAKER IN PANEL. FAN SHALL BE CONTROLLED BY 20A/1P WALL SWITCH. SWITCH SHALL BE LABELED "EXHAUST HOODS".
- 2. ROOFTOP UNIT #1: 208V 3PH. RUN 4 #10, 1 #10 GROUND IN 1" CONDUIT THROUGH DISCONNECT SWITCH LOCATED AT UNIT (BY MANUFACTURER) TO CIRCUIT BREAKER IN PANEL. RTU SERVICE RECEPTACLE FURNISHED WITH UNIT TO BE WIRED BY ELECTRICAL.
- 3. PROVIDE 20A, 208V 1PH CONNECTION TO STANDARD UNIT FREEZER PER MANUFACTURER'S INSTRUCTIONS AND 208V 1PH, 20A DISC. SW. FIELD VERIFY ELECTRICAL REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.
- 4. DUCT MOUNTED SMOKE DETECTOR IN RETURN PLENUM AT UNIT PROVIDED IN UNIT BY MANUFACTURER. PROVIDE 24V TRANSFORMER, AND CONNECT TO NEARBY RECEPTACLE CIRCUIT. WIRE ROOFTOP UNIT CONTROL CIRCUIT THROUGH AUXILIARY CONTACTS IN SMOKE DETECTOR. MAKE ALL FINAL CONNECTIONS.
- 5. COOLER CONDENSING UNIT ON ROOF: 208V 1PH. 3W. RUN 2 #12, 1 #12 GROUND IN 3/4" CONDUIT FROM DISCONNECT SWITCH TO CIRCUIT BREAKER IN PANEL. FIELD VERIFY ELECTRICAL REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.
- FREEZER CONDENSING UNIT ON ROOF: 208V 1PH. 3W. RUN 2 #10, 1 #10 GROUND IN 3/4"
   CONDUIT FROM DISCONNECT SWITCH TO CIRCUIT BREAKER IN PANEL. FIELD VERIFY
   ELECTRICAL REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.
- 7. ROOFTOP UNIT #2: 208V 3PH. RUN 4 #8, 1 #10 GROUND IN 1" CONDUIT THROUGH DISCONNECT SWITCH LOCATED AT UNIT (BY MANUFACTURER) TO CIRCUIT BREAKER IN PANEL. RTU SERVICE RECEPTACLE FURNISHED WITH UNIT TO BE WIRED BY ELECTRICAL.

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

SHEET TITLE:

**ROOF POWER PLAN** 

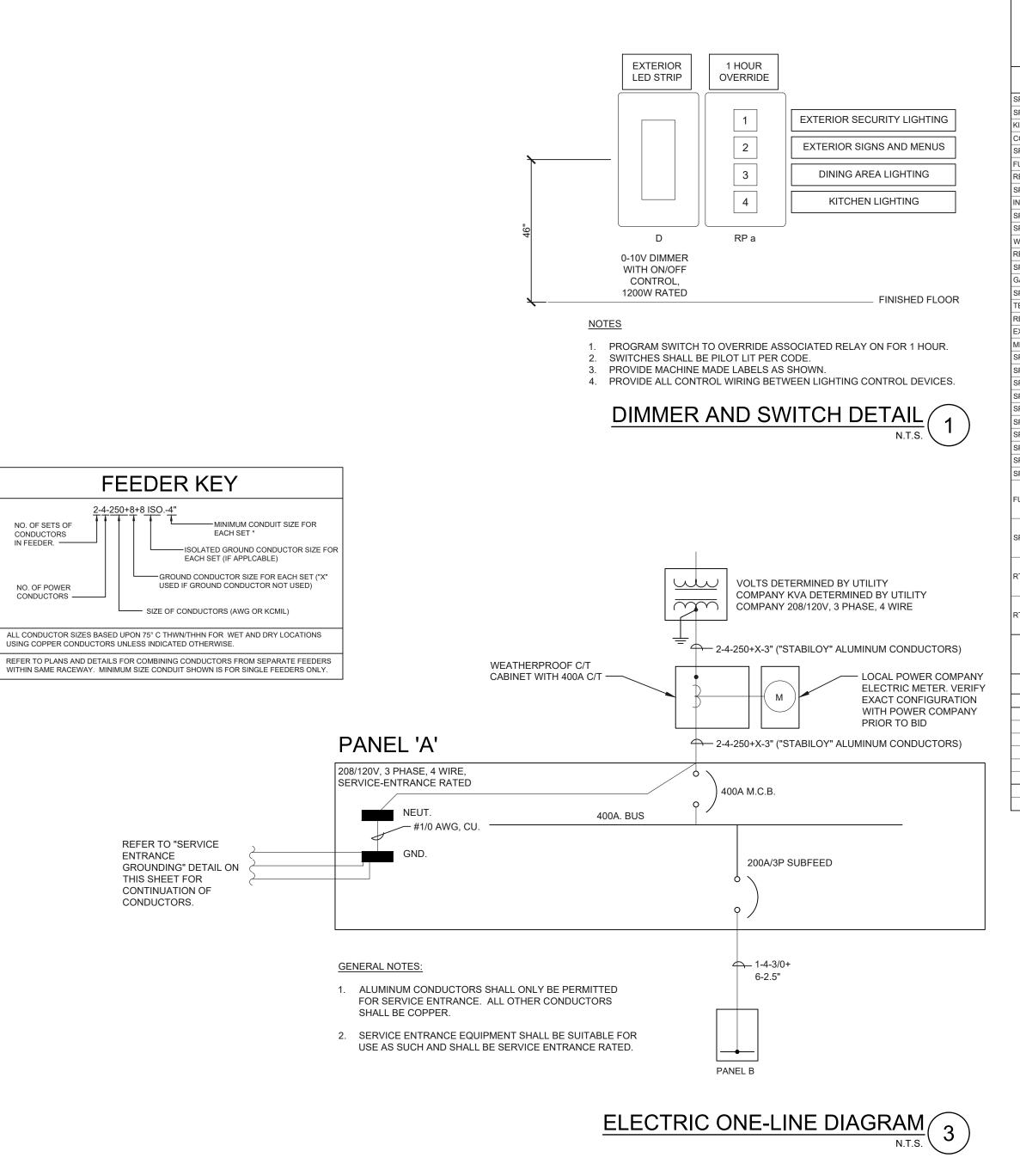
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2.2

ROOF POWER PLAN

1/4" = 1'-0"

1



CADWELD CONNECTION TO RODS AND GROUND CONDUCTORS —

#1/0 COPPER ----

- EQUAL TO DEPTH

OF DRIVEN ROD.

COPPER GROUND CONNECTED TO MAIN COLD WATER

INSTALL #1/0 JUMPER AROUND WATER METER. ——

PIPE AHEAD OF MAIN WATER SHUT-OFF VALVE.

(MINIMUM).

(3) 5/8" BY 10' LONG COPPER CLAD

CONCRETE ENCASED GROUNDING

ELECTRODE (1/2" STEEL REINFORCING

ROD OR #1/0 BARE CU CONDUCTOR)

(FOR NEW CONSTRUCTION ONLY) -

GROUND ROD INSIDE PVC PIPE

EXTERIOR SERVICE

DISCONNECT

AS APPLICABLE FOR

PROJECT.

NEUTRAL BUS

**GROUND BUS** 

SERVICE ENTRANCE EQUIPMENT

➤#1/0 COPPER GROUND WIRE

**GENERAL NOTES:** 

1. BOND GAS PIPE PER N.E.C.

2. INTERIOR WATER SYSTEM IS

ELIMINATED IF INCOMING

WATER PIPE IS ALSO

3. BUILDING IS WOOD FRAME

NON-METALLIC.

CONTAIN STEEL.

SERVICE ENTRANCE GROUNDING

NON-METALLIC (PEX). BONDING

CONSTRUCTION AND DOES NOT

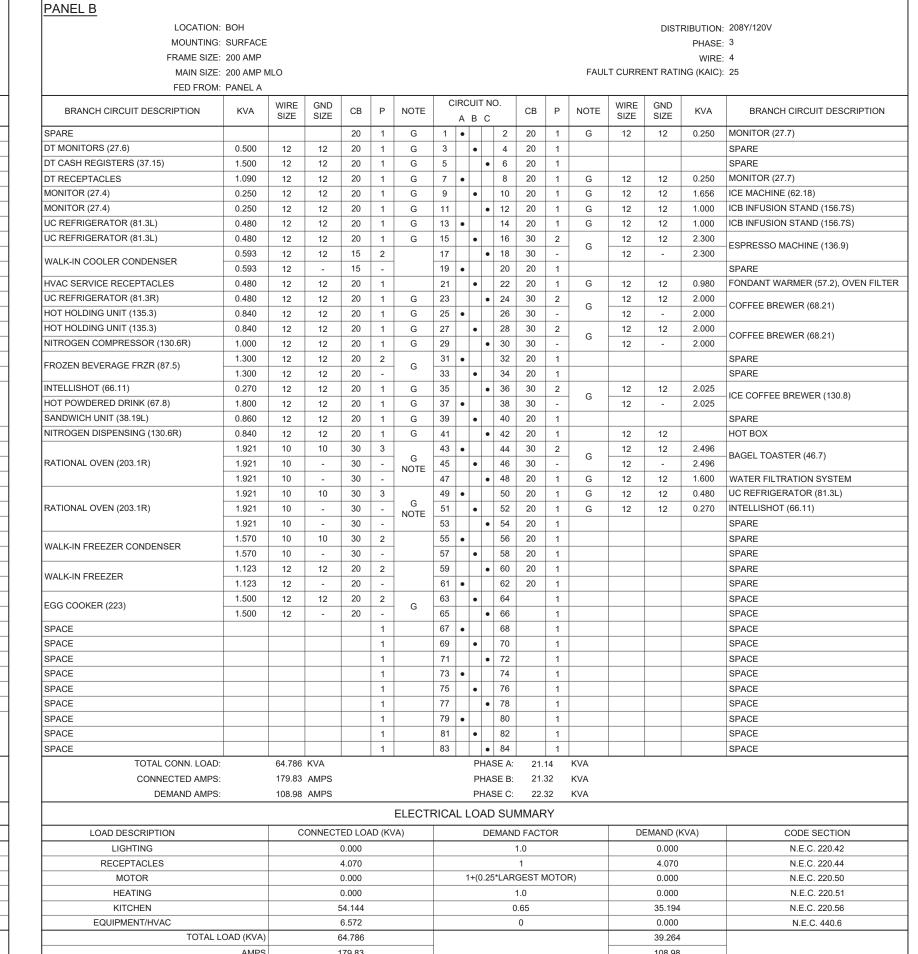
OF WATER SYSTEM MAY BE

BOND ALL INTERIOR METALLIC PIPING, INCLUDING, BUT NOT LIMITED TO WATER PIPING, GAS PIPING AND AUTOMATIC FIRE

SPRINKLER PIPING PER N.E.C. 250-104.

**BONDING JUMPER** 

LOCATION: MOUNTING: FRAME SIZE: MAIN SIZE: FED FROM:	SURFACE 400 AMP 400 AMP I													FAUL	T CURRE		RIBUTION: PHASE: WIRE: NG (KAIC):	4
BRANCH CIRCUIT DESCRIPTION	KVA	WIRE	GND SIZE	СВ	Р	NOTE	C	IRCI	UIT B (		(	СВ	Р	NOTE	WIRE SIZE	GND SIZE	KVA	BRANCH CIRCUIT DESCRIPTION
SPARE				20	1		1	1.		2	+:	20	1	C1	10	10	0.365	SITE POLE LIGHTS
SPARE				20	1		3		•	4	_	20	1	C1	10	10	0.365	SITE POLE LIGHTS
KITCHEN/RR LIGHTS/EF-2	0.600	12	12	20	1	R4	5		٠,	• 6	_	20	1		-	-		SPARE
COOLER/FREEZER LIGHTS	0.060	12	12	20	1	G	7	•		8	- 2	20	1		-	-		SPARE
SPARE				20	1		9		•	10	, 2	20	1	C2	12	12	0.120	EXTERIOR BUILDING LIGHTS
FUTURE MEDIA CABINET	1.800	12	12	20	1	G	11		١,	• 12	2 2	20	1	C2	10	10	1.200	EXTERIOR MENU BOARD
RECIRCUILATION PUMP	0.080	12	12	20	1	C3	13	•		14	. 2	20	1	C2	10	10	1.200	EXTERIOR MENU BOARD
SPARE				20	1		15		•	16	; 2	20	1	C2	12	12	1.200	STOREFRONT SIGN
INTELLISHOTS/SUGAR DISP.	0.342	12	12	20	1	G	17			• 18	; 2	20	1	C2	12	12	1.200	STOREFRONT SIGN
SPARE				20	1		19	•		20	) 2	20	1	C2	12	12	1.200	STOREFRONT SIGN
SPARE				20	1		21		•	22	2 2	20	1	C2	12	12	1.000	ILLUMINATED CANOPY
WINDOW RECEPTACLES	0.180	12	12	20	1	C2	23			• 24	1 2	20	1	C2	10	10	1.200	PREVIEW BOARD/SPEAKER POST
RESTROOM HAND DRYER	1.000	12	12	20	1	L	25	•		26	j 2	20	1	C2	10	10	1.200	STREET SIGN
SPARE				20	1		27		•	28	, 2	20	1		12	12	1.080	OFFICE RCPTS
GAS WATER HEATER	0.480	12	12	20	1		29		-	• 30	1 2	20	1	G	12	12	0.500	DRIVE THRU WINDOW
SPARE				20	1		31	•		32	! 2	20	1					SPARE
TELEPHONEBOARD	0.360	12	12	20	1	G	33		•	34	- 2	20	1		12	12	0.900	OFFICE RCPTS
RESTROOM RCPT	0.180	12	12	20	1	G	35			• 36	<i>i</i>		3					
EXHAUST FAN EF-1	1.176	12	12	20	1		37	•		38	_		-					SPACE
MEDIA CABINET	1.800	12	12	20	1	G	39		•	40	_		-					
SPARE				20	1		41			• 42	_	20	1		12	12	0.100	LIGHTING CONTROLS
SPARE				20	1		43	•		44	_	20	1	C2	12	12	1.520	EXTERIOR LED STRIP
SPARE				20	1		45		•	46	_	20	1					SPARE
SPARE		-		20	1		47			• 48	_	20	1					SPARE
SPARE				20	1		49	•		50	_		1					SPACE
SPACE		-		20	1		51		•	52	_		1					SPACE
SPACE					1		53	$\Box$		• 54	_		1					SPACE
SPACE SPACE					1		55 57	•	•	56	_		1					SPACE SPACE
SPACE					1		59	$\Box$	_	• 60	_		1					SPACE
SFACE	1.787	12	12	20	3		61		-   '	62	_		1					SPACE
FUTURE AIR CURTAIN	1.787	12	-	20	-	_	63	H	•	64	_		1					SPACE
TOTONE / III CONTINUE	1.787	12	_	20	_	-	65		-	• 66	_		1					SPACE
				30	3		67			68	_		1					SPACE
SPARE				30	-		69		•	70	_		1					SPACE
				30	-		71		٠,	• 72	_		1					SPACE
	3.700	10	10	30	3		73	•	$\dagger$	74	_		1					SPACE
RTU-1	3.700	10	-	30	-	1	75	$\Box$	•	76	_		1					SPACE
	3.700	10	-	30	-	1	77	$\Box$	1	• 78	3		1					SPACE
	2.882	10	10	30	3		79	•		80	) 2	200	3				21.139	
RTU-2	2.882	10	-	30	-	]	81		•	82	2	200	-				21.324	PANEL B
	2.882	10	-	30	-		83			• 84	2	200	-				22.323	
TOTAL CONN. LOAD:		0.000	KVA						PH	IASE A	٨:							SPACE
CONNECTED AMPS:		0.00	AMPS						PH	IASE E	3:							SPACE
DEMAND AMPS:		182.47	AMPS						PH	ASE (	): 							SPACE
						ELECT	RICA	AL L	OA	D SI	JMN	MAR)	Y					
LOAD DESCRIPTION		<u> </u>	ONNECT	ED LOA	ND (K)	/A)			Г	DEMA	ND F	ACTO	)R		DE	EMAND (F	(VA)	CODE SECTION
LIGHTING				11.331	- ////	-7					1.0					11.331		N.E.C. 220.42
RECEPTACLES				12.070					10	+ (50°		MAIN	ING)			11.035		N.E.C. 220.44
MOTOR				6.617										₹)		7.957		N.E.C. 220.50
HEATING				0.000			1+(0.25*LARGEST MOTOR) 1.0					0.000		N.E.C. 220.51				
KITCHEN				54.486							0.65					35.416		N.E.C. 220.56
EQUIPMENT/HVAC				27.798							0.00					0.000		N.E.C. 440.6
		1					1											



# CAT 5 CABLING TO OVERRIDE SWITCH -4 POLE LIGHTING CONTROL PANEL ACUITY CONTROLS ENCLOSURE: GR1404 LT ENC SM NE1 INTERIOR: GR1404 LT INT 4 NCL DTC DV -RELAY R1, PHOTOCELL ON PHOTOCELL OFF -RELAY R2, PHOTOCELL ON TIMECLOCK OFF -RELAY R3, TIMELCLOCK ON TIMECLOCK OFF RELAY R4, TIMELCLOCK ON TIMECLOCK OFF -CIRCUITS TO PANELBOARD AS INDICATED ON PLANS AND SCHEDULES — <u>NOTES</u>

ACUITY CONTROLS PCELL 2WO BB - TIMECLOCK OVERRIDE SWITCH ACUITY CONTROLS CH4 BWH PWH → NEUTRAL PROVIDE CONTACTORS WITH NUMBER OF POLES AS REQUIRED. SEE PANELBOARD SCHEDULE (TYP) TO PARKING LOT LIGHTING TO BUILDING MOUNTED LIGHTING \_ \_' '\_\_ \_\_ ✓ EXTERIOR LED STRIP TO DINING AREA LIGHTING TO DINING AREA EMERGENCY AND NIGHT LIGHTS TO KITCHEN LIGHTING TO RESTROOM LIGHTING, KITCHEN EMERGENCY AND NIGHT LIGHTS 1. NOT ALL LOADS AND CONTROLS ARE SHOWN. THIS DIAGRAM IS INTENDED TO PROVIDE GENERAL WIRING AND CONTROL INTENT ONLY. PROGRAM LIGHTING CONTROL PANEL AS DIRECTED BY OWNER.

3. MINIMUM INTERRUPTING RATING FOR ALL RELAYS AND CONTACTORS SHALL BE 10,000 A.I.C.

LIGHTING CONTROL DIAGRAM 2

# PANEL SCHEDULE NOTES

CONTRACTOR TO FURNISH TWO "HANDLE PADLOCK ATTACHMENTS" FOR CIRCUIT BREAKERS. ATTACHMENT PIECES TO BE PROVIDED TO THE OWNER OR TO BE INSTALLED IN THE PANELBOARD FOR EASY ACCESS BY AN ELECTRICAL CONTRACTOR PERFORMING MAINTENANCE ON ELECTRICAL EQUIPMENT REQUIRING A DISCONNECTING MEANS, CAPABLE OF BEING PADLOCKED.

#### BALANCE PANELS WITHIN 10% PHASE TO PHASE. Circuit Key Notes:

General Notes:

L HANDLE LOCK "OFF/ON" CLAMP DEVICE C# / R# ROUTE CIRCUIT THROUGH CONTACTOR / RELAY INDICATED CL ROUTE CIRCUIT THROUGH CURRENT LIMITER PANEL FOR ENERGY CODE COMPLIANCE

HACR HEATING, AIR CONDITION AND REFRIGERATION RATED BREAKER FV FIELD VERIFY ELECTRICAL REQUIREMENTS OF KITCHEN EQUIPMENT ITEM INSTALL BREAKER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. GFCI BREAKER WILL

HAVE NEUTRAL PIGTAIL. KITCHEN EQUIPMENT VOLTAGE IS 208V/3PH SO EQUIPMENT NOTE FEEDER DOES NOT HAVE A LOAD NEUTRAL. FOR PROPER WIRING OF GFCI BREAKER UNDER 208V/3PH CONDITIONS, BREAKER'S NEUTRAL PIGTAIL SHOULD BE CONNECTED TO PANEL'S NEUTRAL BAR PER MANUFACTURER'S INSTRUCTIONS. G GROUND FAULT CIRCUIT INTERRUPTING BREAKER

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STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

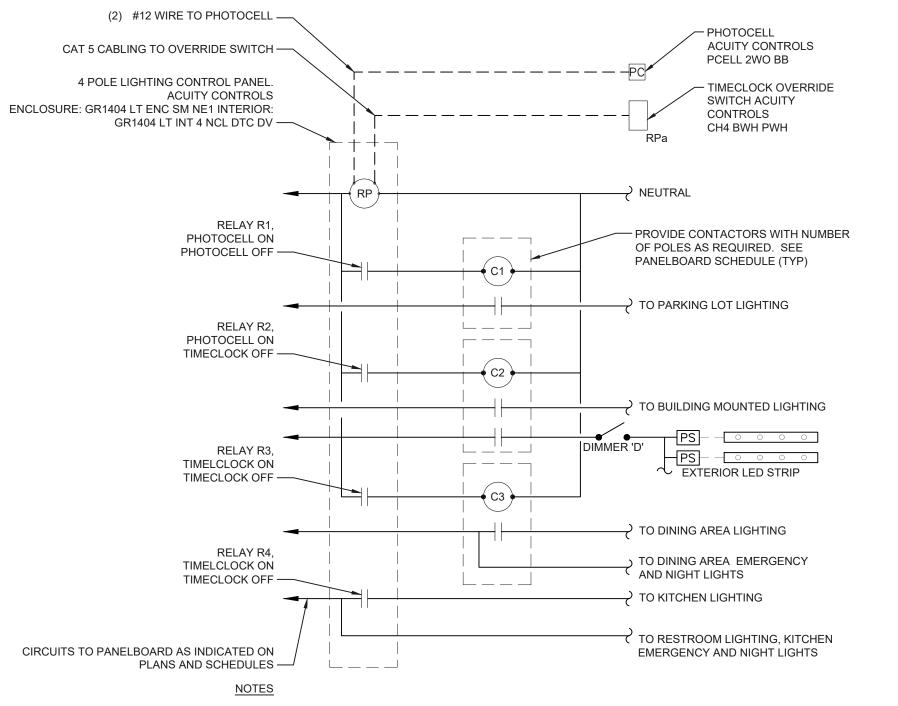
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PROJECT NO.:

SHEET TITLE:

PANEL SCHEDULES AND RISER DIAGRAM

SHEET:



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SYM.	ITEM	VOLTAGE PHASE	HP	KW	FLA	FEEDERS		TYPE OF CONNECTION	BRANCH BREAKER	MOUNTING HEIGHT	REMARKS
	HAND DRYER	120V, 1Ø		4.0		WIRE 2 #10 &	COND.	DIRECT		42"	COORDINATE JUNCTION BOX MOUNTING HEIGHTS WITH
3.4	HAND DRYER			1.0		1 #10 GRD		DIRECT	20A/1P		UNIT REQUIREMENTS.
27.4	10" MONITOR	120V, 1Ø		0.25		1 #12 GRD	*	PLUG-CORD	20A/1P	40"	COORDINATE RECEPTACLE
27.6	CRASH POINT MONITOR	120V, 1Ø		0.36		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	CLG	LOCATION WITH MONITOR COLUMN MOUNT
27.7	23" MONITOR	120V, 1Ø		0.25		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	72"	<b></b>
31.1	WIRELESS BASE STATION	120V, 1Ø		0.18		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	72"	<b>♦</b>
32	BATTERY CHARGER	120V, 1Ø		0.18		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	48"	<b>♦</b>
37.14 37.15	CASH REGISTER	120V, 1Ø		0.5		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	20"	6 AT DRIVE-THRU
38.19L	SANDWICH UNIT	120V, 1Ø		0.48		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	20"	DO NOT MOUNT ANY RECEPTACLES BEHIND THIS UNIT
46.7	BAGEL TOASTER	208V, 1Ø		4.992		2 #10 & 1 #10 GRD	*	PLUG-CORD	30A/2P	48"	1 NEMA 6-30R
57.2	FONDANT WARMER	120V, 1Ø		0.80		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	20"	<b></b>
62.18	ICE MACHINE	120V, 1Ø		1.656		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	20"	1>9
66.11	INTELLISHOT DAIRY DISPENSER	120V, 1Ø		0.27		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	40"	$\Diamond$
67.8	HOT POWDERED DRINK MACHINE	120V, 1Ø		1.8		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	40"	$\Diamond$
68.21	COFFEE BREWER	120V/208V 1Ø, 3W		4.0		3 #10 \$ 1 #10 GRD	*	PLUG-CORD	30A/2P	48"	4 PRONG PLUG, 3' CORD, L14-30R RECEPTACLE, #10 COND AT DRIVETHRU
69.6	SUGAR DISPENSER	120V, 1Ø		0.072		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	40"	<b></b>
70	WALK-IN FREEZER	208V, 1PH			10.8	2#12 & 1 #12 GRD	*	DIRECT	20A/2P	-	FIELD VERIFY ELECTRICAL REQUIREMENTS OF ITEM PRIOR COMMENCING WORK.
72.14 72.3	EXHAUST HOOD FANS	120V, 1Ø		0.75		2 #12 & 1 #12 GRD	*	DIRECT	20A/1P	-	EF-1
74	WALK-IN COOLER	120V, 1PH			1.7	2#12 & 1 #12 GRD	*	DIRECT	20A/1P	-	FIELD VERIFY ELECTRICAL REQUIREMENTS OF ITEM PRIOR COMMENCING WORK.
81.3R 81.3L	UNDERCOUNTER REFRIGERATOR	120V, 1Ø		0.48		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	20"	1 9
87.5	ICE CAPP MACHINE	208V, 1Ø		2.6		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/2P	40"	NEMA 6-20R LOCATED IN VENTILATION AREA ABOVE COUNTER
92.5	LANE TIMER MONITOR	120V, 1Ø				2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	CLG	COORDINATE RECEPTACLE LOCATION WITH MONITOR COLUMN MOUNT
118.1	PORTAL COMPUTER - OFFICE	120V, 1Ø		0.6		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P		
123.1	MEDIA ENGINE CABINET	120V, 1Ø				2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P		$\Diamond$
130.6R	NITRO DISPENSER	120V, 1Ø		0.84		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	26"	1\8\9
130.8	ICE COFFEE BREWER	120/208V 1Ø, 3W		4.050		3 #10 & 1 #10 GRD	*	PLUG-CORD	30A/2P	48"	4 PRONG PLUG, 6' CORD, L14-30R RECEPTACLE
135.3	HOT HOLDING	120V, 1Ø		0.84		2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	61"	$\Diamond$
136.9	UNIT - 2X2 ESPRESSO MACHINE	208V, 1Ø		4.6		2 #10 & 1 #10 GRD	*	PLUG-CORD	30A/2P	40"	NEMA L6-30R
156.7S	ICB INFUSION STAND - SINGLE	120V, 1Ø				2 #12 & 1 #12 GRD	*	PLUG-CORD	20A/1P	48"	$\Diamond$
203.1R	DATIONAL VC	208V, 3Ø, 4W		5.7		3 #10 & 1 #10 GRD	*	PLUG-CORD	30A/3P	18"/48"	NEMA 15-30R RECEPTACLE (5)
218.1	RECEIPT PRINTER	120V, 1Ø		0.18		2 #12 &	*	PLUG-CORD	20A/1P	20"	<u> </u>
	- STICKY PAPER					1 #12 GRD					

# \* KITCHEN SCHEDULE CODED NOTES:

- 1. RECEPTACLE NEMA CONFIGURATION FOR EQUIPMENT SHALL MATCH PLUG TYPE PROVIDED WITH POWER CORD. COORDINATE WITH EQUIPMENT SUPPLIER FOR REQUIREMENTS.
- PROVIDE PLUG AND CORD.
- 3. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF ELECTRICAL CONNECTIONS. VERIFY MOUNTING HEIGHTS IN FIELD WITH PROJECT MANAGER, MILLWORK AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- 4. MOUNT AT 48" A.F.F. EXCEPT FOR BACK COUNTER EQUIPMENT WHICH SHALL BE MOUNTED AT +14" A.F.F.
- 5. SEE DETAIL 5 ON SHEET E4.2.
- 6. PROVIDE DUPLEX RECEPTACLE ONLY WITH MOUNTING ROOM FOR TRANSFORMER.
- 7. INSTALLATION OF FREEZER/COOLER SHALL BE BY OWNER. ALL WIRING BY EC.
- 8. MOUNT RECEPTACLE FOR TOWER AND REFRIGERATOR TO UPPER CORNER WALL OF MILLWORK. SEE 7/A9 FOR ADDITIONAL DETAILS. PROVIDE ADDITIONAL ELECTRICAL CONNECTION FOR NITRO COMPRESSOR. COORDINATE LOCATION AND ELECTRICAL REQUIREMENTS IN FIELD.
- 9. ELECTRICAL RECEPTACLE FOR EQUIPMENT MOUNTED BELOW COUNTER BEHIND FULL COUNTER-DEPTH KITCHEN EQUIPMENT (I.E. UNDERCOUNTER REFRIGERATORS, SANDWICH UNITS, ICE MACHINES, ETC) SHALL BE COUNTERSUNK INTO WALL TO ALLOW FRONT OF EQUIPMENT TO BE FLUSH WITH MILLWORK AND NOT STICK OUT BEYOND FRONT OF COUNTER.

\* ALL CONDUITS SHALL BE MINIMUM 3/4", OR 1" WHERE UNDER SLAB OR AS OTHERWISE NOTED.

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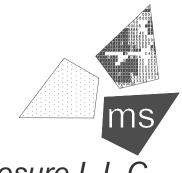
# DATE DESCRIPTION 07/12/22 PERMIT SET

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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570

PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

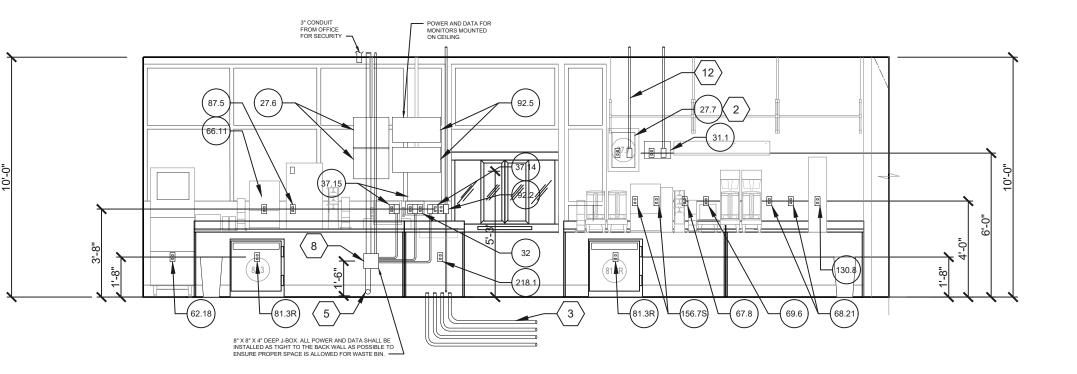
PROJECT NO.:

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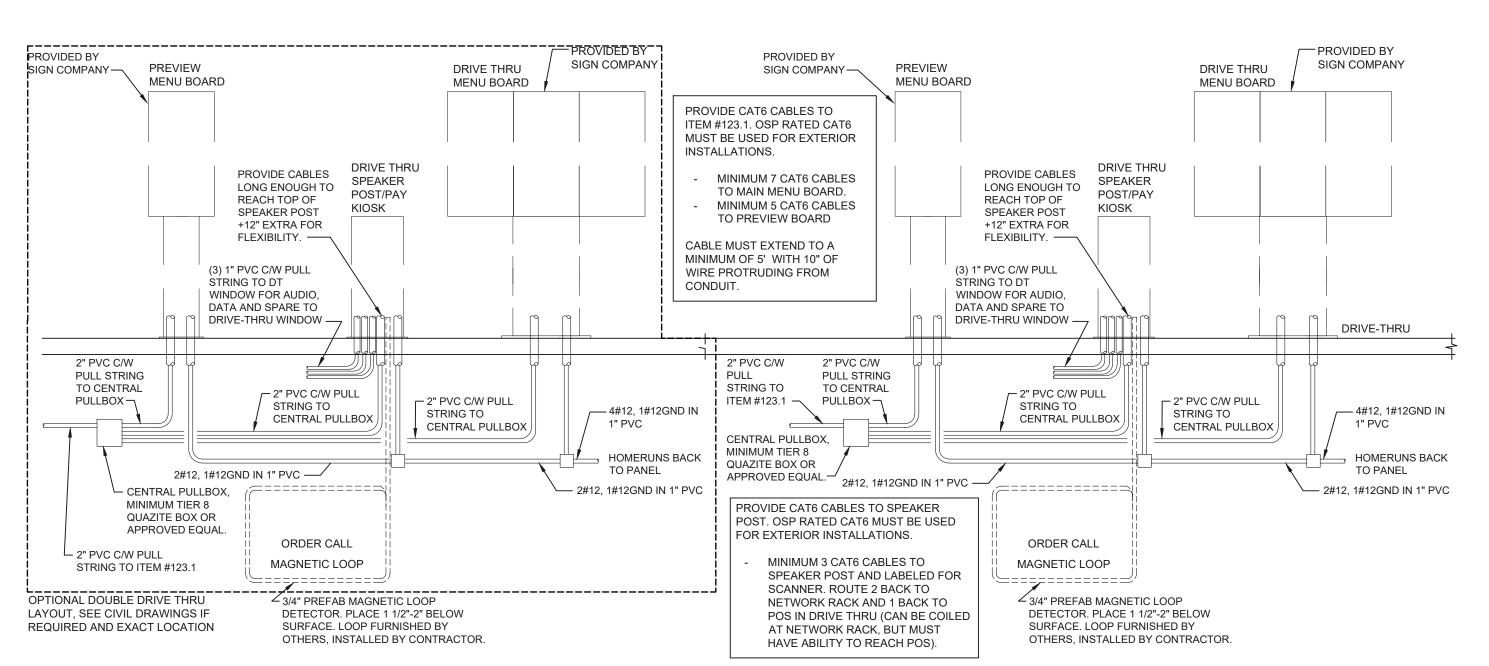
SHEET TITLE:

KITCHEN EQUIPMENT SCHEDULE

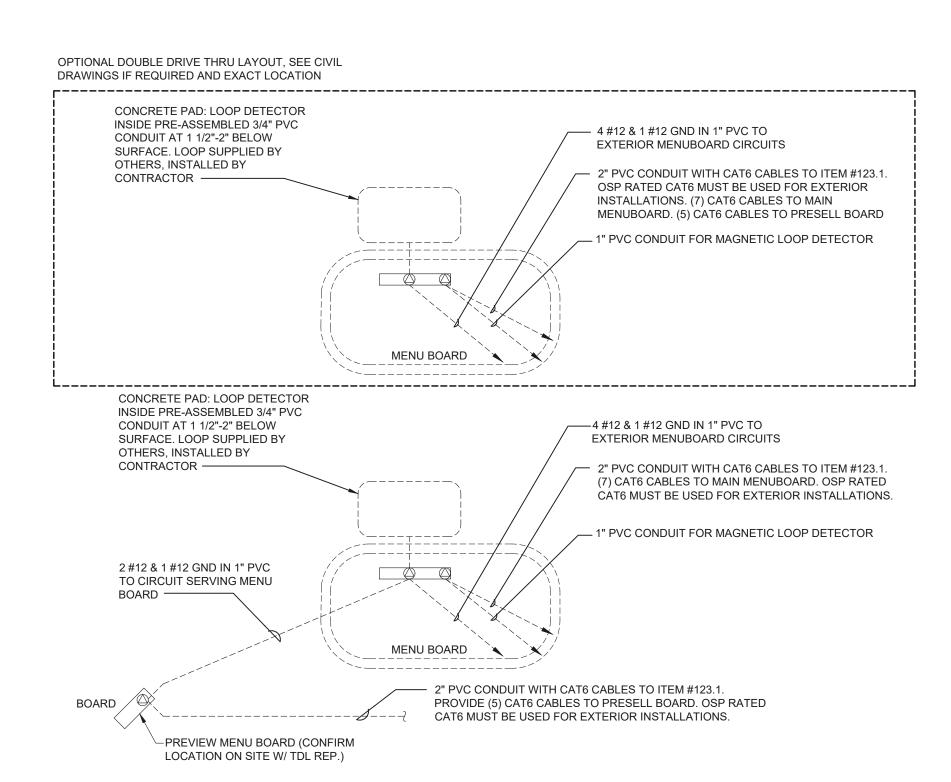
- A. ALL DETAILS ARE DIAGRAMMATIC ONLY. CONTRACTOR TO REVIEW SITE SPECIFIC MILLWORK SHOP DRAWINGS PRIOR TO ROUGH IN AND COORDINATE ROUGH IN LOCATIONS WITH MILLWORK ACCESS.
- B. MILLWORK AND DEVICES SHOWN FOR REFERENCE ONLY. MOUNT DEVICES IN EXTERIOR WALL ONLY WHERE ACCESSIBLE THROUGH MILLWORK. FIELD VERIFY WITH MILLWORK SUPPLIER FOR EXACT SIZES, LOCATIONS AND REQUIREMENTS.



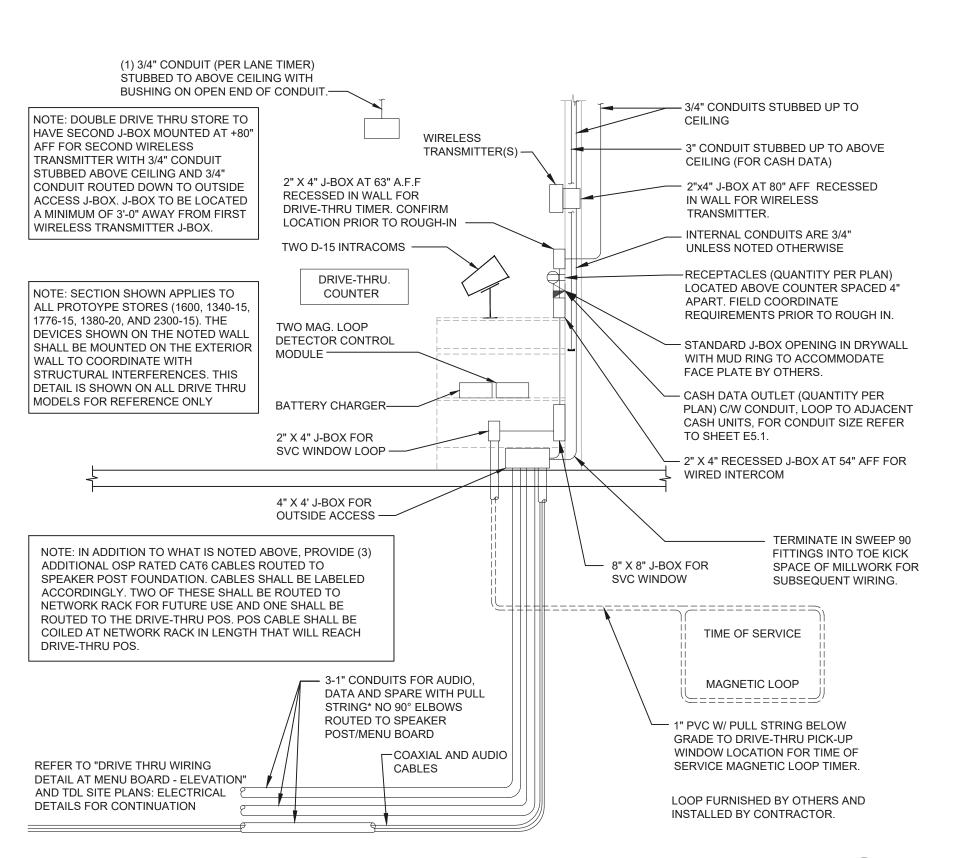
DRIVE-THRU WINDOW DETAIL



DRIVE-THRU WIRING DETAIL AT MENU BOARD - ELEVATION



DRIVE-THRU WIRING DETAIL AT MENU BOARD- PLAN 5



DRIVE-THRU WIRING DETAIL AT D.T. COUNTER 3

**DETAILS CODED NOTES:** 

NOTE NOT USED.

2. WALL MOUNT MONITOR BRACKET PROVIDED BY TDL. ENSURE ADEQUATE PLYWOOD BACKING IN WALL FOR SUPPORT.

3. (1) 1" CONDUIT TO TIMER LOOP AND (3) 1" TO EXTERIOR D/T SPEAKER POST/MENU BOARD (PER DRIVE THRU LANE) STUBBED OUT OF FLOOR IN KICK SPACE OF CABINET.

NOTE NOT USED.

5. 3" CONDUIT FROM 8" X 8" JUNCTION BOX TO KICK SPACE IN CABINET.

NOTE NOT USED.

NOTE NOT USED.

8. 8" X 8" JUNCTION BOX MUST BE MOUNTED IN 1ST COMPARTMENT, SINCE 2ND IS NOT ACCESSIBLE.

NOT NOT USED.

10. DETAIL IS DIAGRAMMATIC ONLY. REFER TO ARCHITECTURAL DRAWINGS AND SITE SPECIFIC MILLWORK SHOP DRAWINGS PRIOR TO ROUGH IN AND ADJUST TO SUIT.

11. ALL CONDUIT ABOVE GROUND SHALL BE EMT.

12. 1" CONDUIT FROM CEILING TERMINATING IN SINGLE GANG JUNCTION BOX WITH COVER

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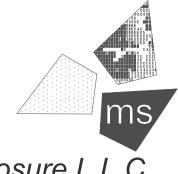
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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100

PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728

fax 614.898.7570



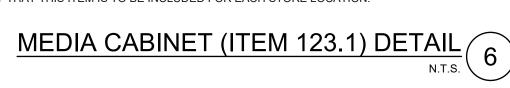
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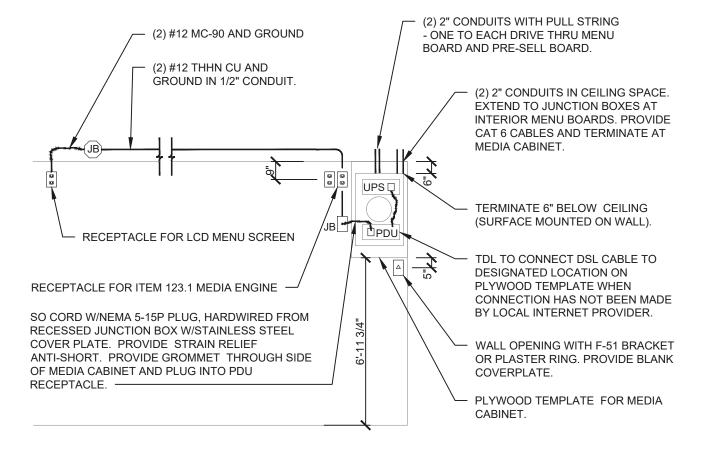
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SHEET TITLE:

40509-11

**ELECTRICAL DETAILS** AND SCHEDULES





RATIONAL OVEN (ITEM 203.1R) DETAIL 5

NOTE: DETAIL IS DIAGRAMMATIC ONLY. CONTRACTOR TO REVIEW

SITE SPECIFIC MILLWORK SHOP

SPECIFICATIONS PRIOR TO ROUGH

RECEPTACLES MUST BE LOCATED WITHIN 3' OF OVENS TO ALLOW FOR

SINGLE GANG OUTLET BOX WITH 1" CONDUIT TO ABOVE ACCESSIBLE

CONNECTION OF EQUIPMENT

PLUGS WHICH ARE 54" CORDS.

DRAWINGS AND EQUIPMENT

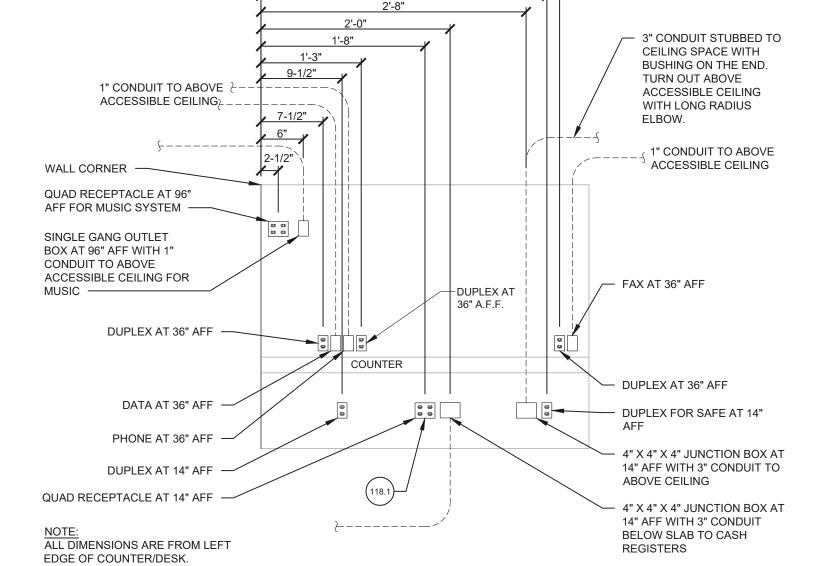
IN AND ADJUST TO SUIT.

CEILING

NOTES: 1. MAXIMUM MOUNTING HEIGHT OF 7'-5" TO UNDERSIDE OF PLYWOOD TEMPLATE. 2. ALL EQUIPMENT WITHIN THE MEDIA CABINET IS SUPPLIED BY TDL, SYSTEM PROVIDER. 3. G.C. TO VERIFY THAT THIS ITEM IS TO BE INCLUDED FOR EACH STORE LOCATION.

OFFICE AREA ELEVATION

OCCUPANCY SENSOR WIRING DETAIL 2



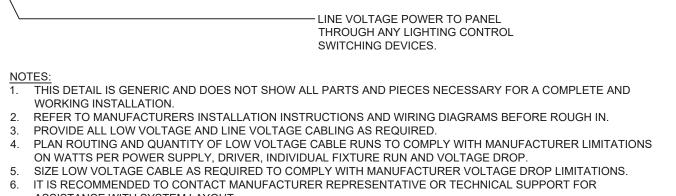


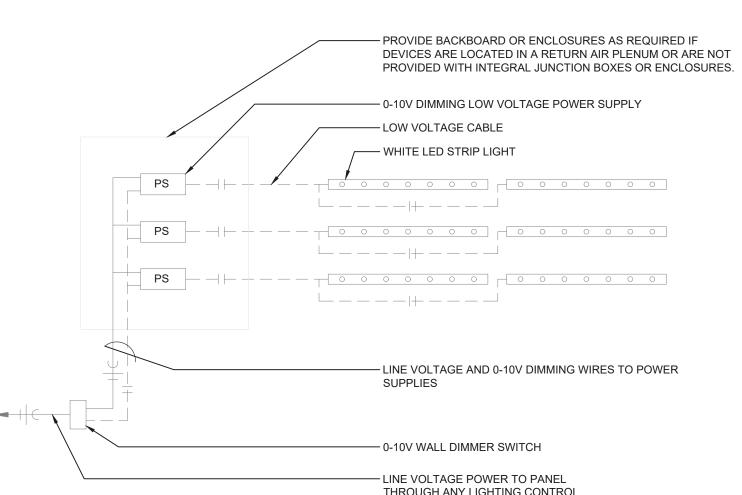


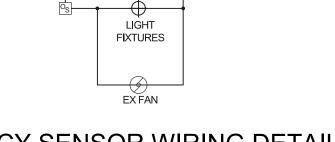
6. IT IS RECOMMENDED TO CONTACT MANUFACTURER REPRESENTATIVE OR TECHNICAL SUPPORT FOR ASSISTANCE WITH SYSTEM LAYOUT.











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STORE # 919728



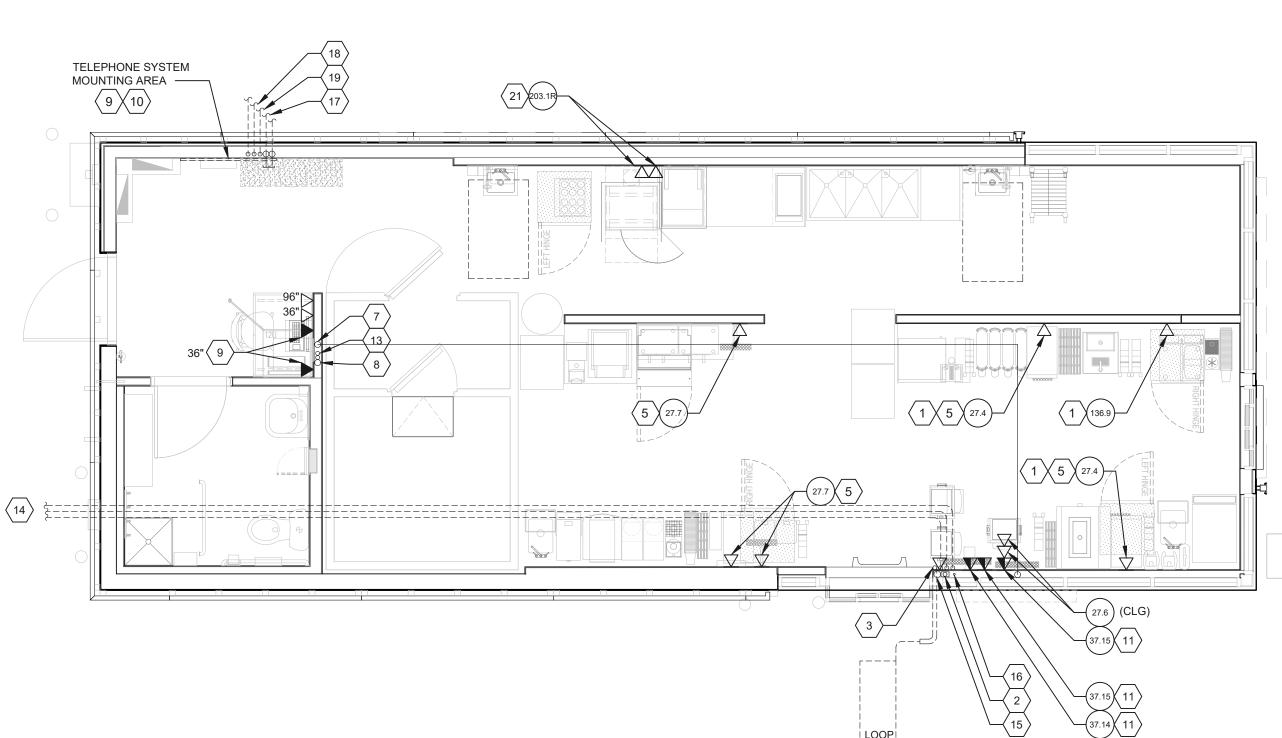
PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

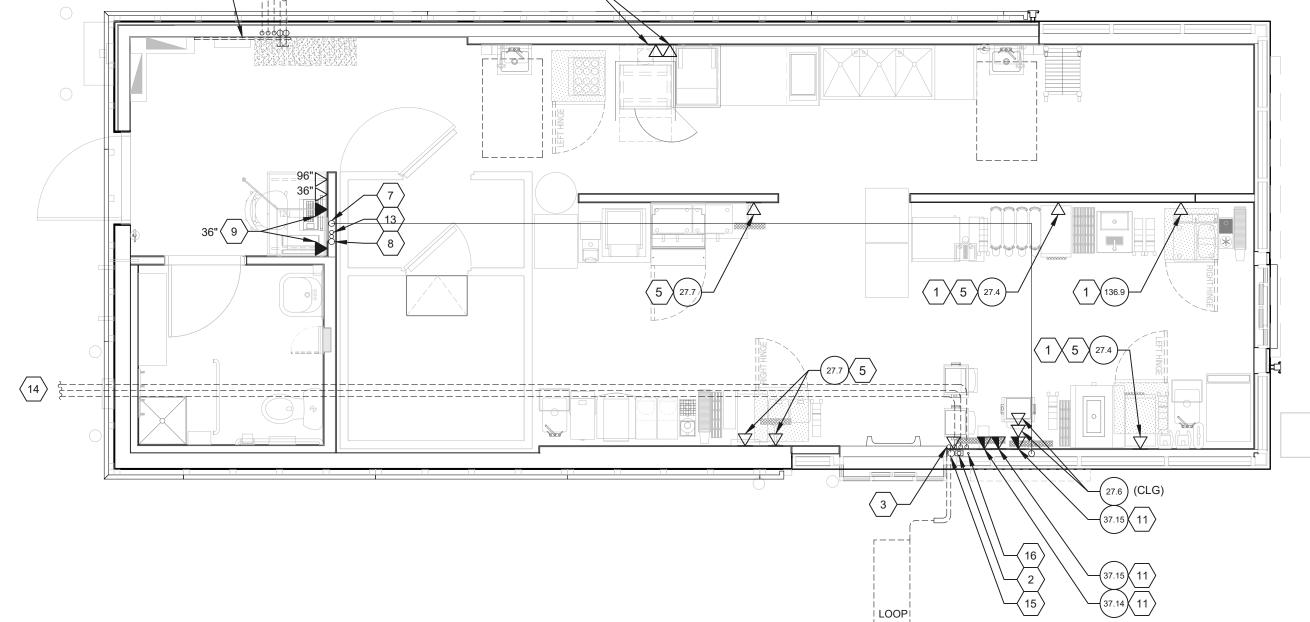
PROJECT NO.:

40509-11

SHEET TITLE:

**ELECTRICAL DETAILS** 





**#** CODED NOTES:

DEVICE MOUNTED ON INSIDE OF MILLWORK. COORDINATE EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS AND MILLWORK SHOP DRAWINGS. WIRING TO DEVICE TO BE ROUTED CONCEALED WITHIN CASEWORK THROUGH JUNCTION BOX (SEE NOTE 6).

1" CONDUIT WITH SINGLE GANG MINIMUM SIZE JUNCTION BOX FOR HEADSET AT 60" A.F.F. TO ABOVE CEILING.

1" CONDUIT WITH SINGLE GANG MINIMUM SIZE JUNCTION BOX AT 2" A.F.F. UNDER COUNTER TO

DRIVE-THRU WINDOW.

NOTE NOT USED.

EXTEND (1) 1" EMPTY CONDUIT WITH PULLSTRING FROM MONITOR JUNCTION BOX UP THROUGH CEILING FOR DATA CABLES TO KITCHEN ORDER PROCESSOR. REFER TO KITCHEN EQUIPMENT SCHEDULE ON E3.1 FOR DATA OUTLET MOUNTING HEIGHT. COORDINATE EXACT LOCATION OF PROCESSOR WITH OWNER PRIOR TO ROUGH-IN.

NOTE NOT USED.

ROUTE 3" CONDUIT WITH PULL STRING OVERHEAD FOR SECURITY WITH 4" X 4" X 4" MINIMUM SIZE JUNCTION BOX AT 14" A.F.F TO DRIVE-THRU COUNTER. REFER TO DETAIL 4 ON SHEET E4.2.

3" CONDUIT WITH 4" X 4" X 4" MINIMUM SIZE JUNCTION BOX AT 14" A.F.F. TO ABOVE ACCESSIBLE LAY-IN CEILING. INSTALL BUSHING ON CONDUIT END. REFER TO DETAIL 4 ON SHEET E4.2.

ROUTE IN-HOUSE PHONE LINES FROM TELEPHONE SYSTEM TO TELEPHONE OUTLETS. LINES SHALL

. INSTALL TELEPHONE EQUIPMENT IN THIS 4' X 4' SPACE, KEEPING EQUIPMENT AS HIGH AND AS

COMPACT AS POSSIBLE. 4' HEIGHT IS TO BE MEASURED STARTING AT THE CEILING AND THEN DOWN 4'. PHONE JACK FOR CREDIT CARD MACHINE INSTALLED AT 1'-0" A.F.F.. ELECTRICAL CONTRACTOR SHALL RUN IN HOUSE PHONE LINES FROM TELEPHONE SYSTEM TO PHONE JACK. PHONE LINES

2. NOTE NOT USED.

SHALL BE CATEGORY 6.

3. 2" CONDUIT FROM MEDIA CABINET TO MENU BOARD, SPEAKER POST AND PRE-SELL BOARD. USE LONG RADIUS ELLS FOR ALL BENDS. SEE DETAIL 4/E4.2 FOR FURTHER INFORMATION.

PROVIDE (3) 1" CONDUITS FROM DRIVE-THRU WINDOW TO MENU BOARD/SPEAKER POST - ONE FOR COAX/AUDIO, ONE FOR DATA AND ONE FOR SPARE. CONDUITS TO TERMINATE AT KICK PLATE OF MILLWORK IN ORDER TO NOT INTERFERE WITH MILLWORK COUNTER. MILLWORK COMPANY TO PROVIDE ACCESS PANEL. REFER TO SHEETS E4.1 AND AS2.1 FOR DETAILS. CONTRACTOR TO COORDINATE ROUTING OF CONDUITS TO OUTDOOR MENUBOARDS IN FIELD BASED ON ACTUAL SITE CONDITIONS.

3/4" CONDUIT FROM ABOVE CEILING TO JUNCTION BOX AT 72" A.F.F. FOR TIMER. THEN DOWN TO BELOW COUNTER AT NOTE 3.

16. READER, 3/4" CONDUIT TO ABOVE CEILING.

7. ONE 1" CONDUIT TO MENU BOARDS FOR POWER. EXTEND POWER CONDUIT TO PANEL. REFER TO SHEET AS2.1 AND E4.1 FOR DETAILS.

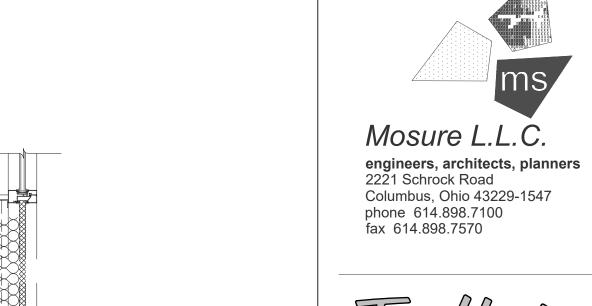
18. TWO 3" CONDUITS FOR TELEPHONE SERVICE. SEE SITE PLAN FOR CONTINUATION.

19. 2" CONDUIT TO MENU BOARD, SPEAKER POST AND PRE-SELL BOARD. VERIFY LOCATION WITH CIVIL PLANS BEFORE ROUGH-IN.

20. NOTE NOT USED.

SEE DETAIL 1 ON SHEET A7.1 FOR MORE INFORMATION

INSTALL DATA OUTLET WITH 1" CONDUIT TO ABOVE ACCESSIBLE CEILING RATIONAL OVEN. REFER TO DETAIL 5 ON SHEET E4.2.



- DIMENSION POINT

OUTSIDE FACE OF CONCRETE FOUNDATION

DIMENSION POINT DETAIL

PROJECT:

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19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

SHEET TITLE:

TELEPHONE PLAN

E5.1

TELEPHONE AND REGISTER SYSTEMS PLAN 2

#### **Project Information**

Energy Code: 2015 IECC Project Title: 40509-11 THUS Harper Woods, MI Project Type: **New Construction** 

Construction Site: Owner/Agent: 19353 Vernier Road ms consultants, inc Harper Woods, Michigan 48225 2221 Schrock Road Columbus, Ohio 43229 614-878-7100

Designer/Contractor: Tim Hortons

Additional Efficiency Package(s) Credits: 1.0 Required 1.0 Proposed

Reduced Lighting Power, 1.0 credit **Allowed Interior Lighting Power** 

Floor Area (ft2)	Allowed Watts / ft2	Allowed Watts
733	1.09	799
58	0.88	51
То	tal Allowed Watts =	850
	( <b>ft2)</b> 733 58	(ft2) Watts / ft2 733 1.09

# Proposed Interior Lighting Power

A Fixture ID: Description / Lamp / Wattage Per Lamp / Ballast	Lamps/ Fixture	# of Fixture	Fixture Watt.	(C X D)
1-Common Space Types: Food Preparation			tone	
LED: B: Other:	1	14	40	560
LED: Z: Other:	1	2	30	60
2-Common Space Types: Restrooms				
LED: B: Other:	1	1	40	40
	To	tal Propose	660	

# nterior Lighting PASSES: Design 22% better than code

Interior Lighting Compliance

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Project Title: 40509-11 THUS Harper Woods, MI Report date: 06/30/22 Data filename: Page 1 of 12

06/30/22

# COMcheck Software Version COMcheckWeb **Exterior Lighting Compliance Certificate**

#### Project Information

Energy Code: 2015 IECC Project Title: 40509-11 THUS Harper Woods, MI Project Type: New Construction Exterior Lighting Zone 2 (Residential mixed use area (LZ2))

Construction Site: Owner/Agent: 19353 Vernier Road ms consultants, inc Harper Woods, Michigan 48225

Tim Hortons 2221 Schrock Road Columbus, Ohio 43229

Designer/Contractor:

#### Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)	
Parking area	33287 ft2	0.06	Yes	1997	
Drive-up windows/doors	1 windows	400	No	400	
Main entry	3 ft of door	20	Yes	60	
		Total Tradabl	e Watts (a) =	2057	
		Total Allowed Watts =			
	Total Allowed	600			

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces. (b) A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

614-878-7100

#### **Proposed Exterior Lighting Power**

A Fixture ID: Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	# of Fixture		(C X D)	
Parking area (33287 ft2): Tradable Wattage				erana a	
LED: PL-1: Other:	1	4	183	731	
LED: CL2-LED: Other:	1	1	379	379	
LED: CL1W-LED: Other:	1	1	316	316	
Drive-up windows/doors (1 windows or doors): Non-tradable Wattage					
LED: WL6: Other:	1	1	20	20	
LED: Y: Other:	1	3	12	36	
Main entry (3 ft of door width); Tradable Wattage					
LED: LP7: Other:	1	1	10	10	
	Total Tradat	Total Tradable Proposed Watts			

#### cterior Lighting PASSES: Design 46% better than code

**Exterior Lighting Compliance** 

Statement Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Project Title: 40509-11 THUS Harper Woods, MI Report date: 06/30/22 Data filename: Page 2 of 12

# COMcheck Software Version COMcheckWeb Mechanical Compliance Certificate

## Project Information

2015 IECC Energy Code: 40509-11 THUS Harper Woods, MI Project Title: Location: Harper Woods, Michigan Climate Zone: Project Type: New Construction

Construction Site: Owner/Agent: 19353 Vernier Road ms consultants, inc Harper Woods, Michigan 48225 2221 Schrock Road Columbus, Ohio 43229 Designer/Contractor: Tim Hortons

## Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed Reduced Lighting Power, 1.0 credit

## **Mechanical Systems List**

Quantity System Type & Description

1 RTU-1 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et or 78% AFUE Cooling: 1 each - Single Package DX Unit, Capacity = 61 kBtu/h, Air-Cooled Condenser, Air Economizer

614-878-7100

Proposed Efficiency = 16.10 SEER, Required Efficiency = 14.00 SEER Proposed Part Load Efficiency = 0.00, Required Part Load Efficiency = 0.00 Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP and fan efficiency method): Passes

FAN 1 Supply, Constant Volume, 1750 CFM, 1.4 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP

RTU-2 (Single Zone):

Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et or 78% AFUE Cooling: 1 each - Single Package DX Unit, Capacity = 47 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 16.10 SEER, Required Efficiency = 14.00 SEER
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00

Fan System: FAN SYSTEM 2 - Compliance (Motor nameplate HP and fan efficiency method) : Passes

FAN 2 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP

## Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Project Title: 40509-11 THUS Harper Woods, MI Report date: 06/30/22 Data filename:

COMcheck Software Version COMcheckWeb **Envelope Compliance Certificate** 

#### **Project Information**

2015 IECC Energy Code:

Project Title: 40509-11 THUS Harper Woods, MI Harper Woods, Michigan Location: Climate Zone: 5a

Project Type: New Construction Vertical Glazing / Wall Area: 15%

Construction Site: Owner/Agent: 19353 Vernier Road ms consultants, inc Harper Woods, Michigan 48225 2221 Schrock Road Columbus, Ohio 43229

#### Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed

Reduced Lighting Power, 1.0 credit	
Building Area	Floor Area
1-A2 - Restaurant (Retail) : Nonresidential	888

614-878-7100

#### **Envelope Assemblies**

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U Factor <sub>(a)</sub>
Roof: Insulation Entirely Above Deck, [Bldg. Use 1 - A2 - Restaurant]	800		27.7	0.035	0.032
Floor: Unheated Slab-On-Grade, Vertical 3 ft., [Bldg. Use 1 - A2 - Restaurant] (c)	134		15.0	0.480	0.540
NORTH					
Ext. Wall - Rear: Wood-Framed, 16in. o.c., [Bldg. Use 1 - A2 - Restaurant]	275	20.0	5.0	0.047	0.064
Door 102: Insulated Metal, Swinging, [Bldg. Use 1 - A2 - Restaurant]	27			0.167	0.370
<u>AST</u> Ext. Wall - Front: Wood-Framed, 16in. o.c., [Bldg. Use 1 - A2 -	712	20.0	5.0	0.047	0.064
Restaurant]	712	20.0	5.0	0.047	0.004
Window Type W4: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID Kawneer Trifab Versaglaze 451T, SHGC 0.40, [Bldg. Use 1 - A2 - Restaurant] (b)	63			0.380	0.380
<u>OUTH</u>					
Ext. Wall - Walk-Up: Wood-Framed, 16in. o.c., [Bldg. Use 1 - A2 Restaurant]	266	20.0	5.0	0.047	0.064
Nindow Type W2 & W3: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID Kawneer Trifab Versaglaze 451T, SHGC 0.40, PF 0.08, [Bldg. Use 1 - A2 - Restaurant] (b)	87			0.380	0.380
Window - Walk-Up: Metal Frame with Thermal Break: Operable, Perf. Specs.: Product ID Solarban 60, SHGC 0.30, [Bldg. Use 1 - A2 - Restaurant] (b)	10			0.270	0.450
<u>VEST</u>					
Ext. Wall - Drive-Thru: Wood-Framed, 16in. o.c., [Bldg. Use 1 -	587	20.0	5.0	0.047	0.064
Project Title: 40509-11 THUS Harper Woods, MI				Report da	te: 07/08/

Designer/Contractor:

Tim Hortons

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor <sub>(a)</sub>
2 - Restaurant] /indow Type W1: Metal Frame with Thermal Break: Fixed,	96			0.380	0.380
erf. Specs.: Product ID Kawneer Trifab Versaglaze 451T, SHGC 40, PF 0.34, [Bldg. Use 1 - A2 - Restaurant] (b)	30			0.500	0.000
findow Drive-Thru: Metal Frame with Thermal Break: perable, Perf. Specs.: Product ID Solarban 60, SHGC 0.30, PF	15			0.270	0.450

0.34, [Bldg. Use 1 - A2 - Restaurant] (b) (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation. (c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

# Envelope PASSES: Design 13% better than code

Project Title: 40509-11 THUS Harper Woods, MI

Data filename:

## **Envelope Compliance Statement**

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

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Page 2 of 8

Page 1 of 8

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2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

SHEET TITLE:

40509-11

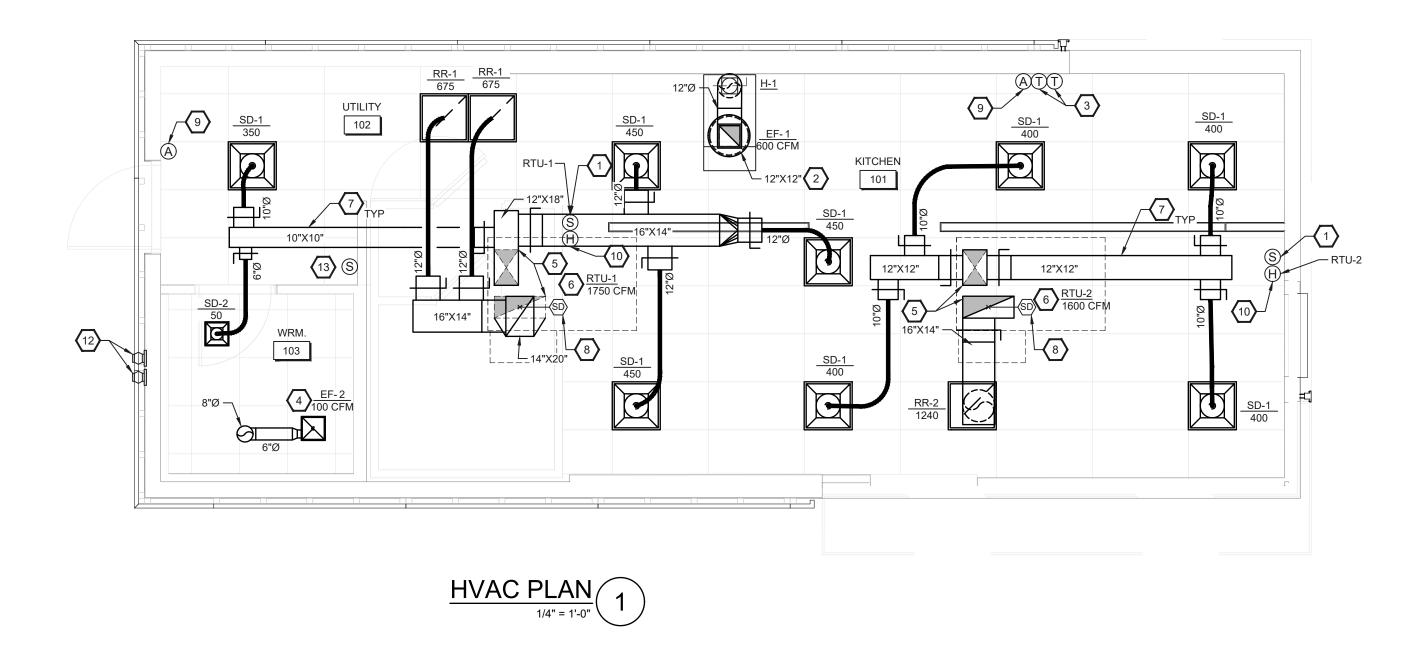
**ENERGY** CALCULATIONS

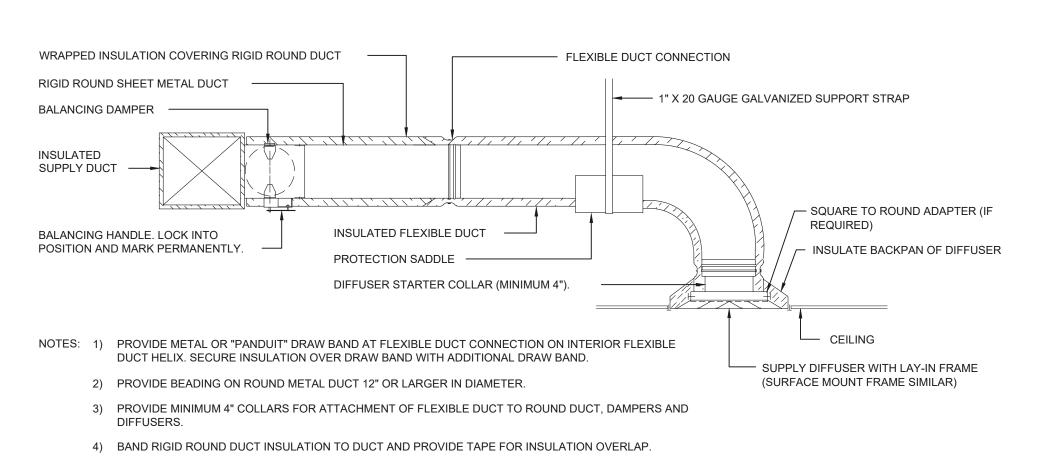
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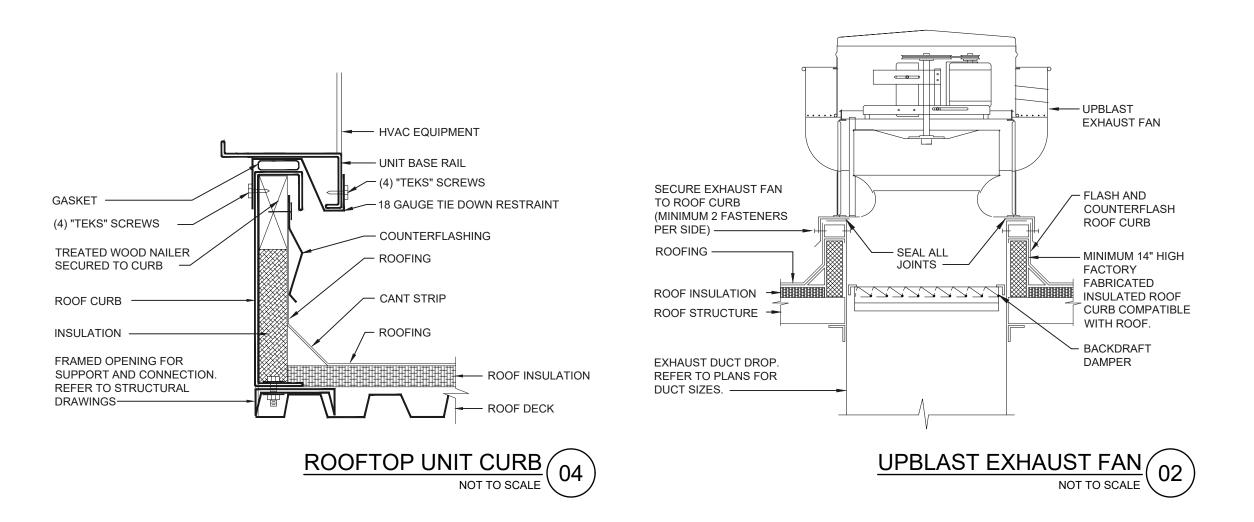
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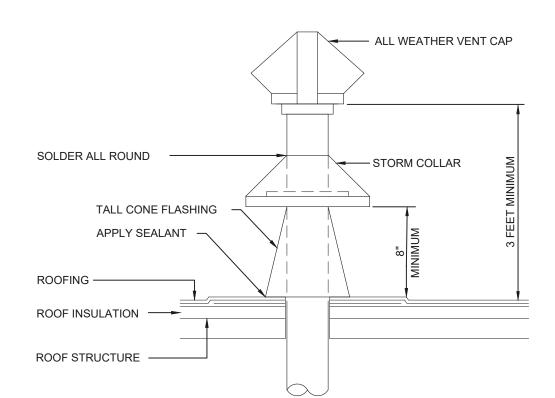
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# DIFFUSER CONNECTION DETAIL





#### GENERAL NOTES

- THIS CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS, (USUAL WEAR IS EXPECTED), AND SHOULD SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF BUILDING BY OWNER. THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND ALL DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO OWNER.
- DEFINITIONS: <u>FURNISH</u> MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. <u>INSTALL</u> MEANS TO PLAN IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. <u>PROVIDE</u> MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED
- SPIN-IN FITTING WITH DAMPER SHALL BE FLEXAIRE RF OR METALAIRE MBSD, TYPICAL OF ALL BRANCH DUCT RUNS. MANUAL BALANCING DAMPERS SHALL BE IN ACCESSIBLE LOCATION. COORDINATE LOCATION AND ACCESS WITH GENERAL CONTRACTOR.
- DUCTWORK DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHOWN SHALL BE INSULATED WITH 2" DUCT WRAP, INCLUDING TOP OF THE DIFFUSERS. INSULATION
- COMPLETED INSTALLATIONS SHALL CONFORM TO APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO THE LATEST EDITIONS OF THE
- PROVIDE COMPLETE BALANCE OF THE HVAC SYSTEM BY AN INDEPENDENT CONTRACTOR WHILE IN THE PRESENCE OF OWNER'S REPRESENTATIVE. PROVIDE COMPLETE BALANCE REPORT. REPORT SHALL INCLUDE AIR BALANCE OF ALL ROOFTOP UNITS, EXHAUST FANS, REGISTERS AND DIFFUSERS TO SPECIFIED AIR FLOWS. CONTRACTOR SHALL TEST THE COMPLETE OPERATION AND SEQUENCES OF OPERATION FOR ALL HVAC EQUIPMENT.
- 7. ALL DUCTWORK SHALL BE INSTALLED PER SMACNA SPECIFICATIONS.

FOLLOWING: STATE BUILDING CODE, NFPA-90A, NFPA-96 AND NFPA-101.

SHALL HAVE MINIMUM INSTALLED R-VALUE OF 6.

- 8. ALL 90 DEGREE BENDS IN SHEET METAL SUPPLY AIR DUCTS SHALL HAVE TURNING VANES.
- 9. DUCTWORK SHALL BE ROUTED ABOVE SUSPENDED CEILING. WHENEVER POSSIBLE, DUCTWORK RUNNING PARALLEL TO ROOF JOIST SHALL BE RAISED UP AND RUN BETWEEN 10. RECEIVE AND SET ROOF MOUNTED CONDENSING UNITS FOR FREEZERS AND COOLERS AND
- PROVIDE MOUNTING RAILS. SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF ROOF MOUNTED EQUIPMENT CURBS AND RAIL DETAILS.
- 11. RETURN DROPS FROM ROOFTOP UNITS SHALL HAVE INTERNALLY LINED INSULATION, PINNED AND GLUED PER SMACNA, WITH MINIMUM INSTALLED R-VALUE OF 6.
- 12. SUPPLY AND RETURN AIR DUCT DROPS FROM ROOFTOP UNITS SHALL BE ISOLATED FROM UNIT VIBRATION WITH FLEXIBLE DUCT CONNECTORS.
- 13. PROVIDE ALL LOW VOLTAGE CONTROL WIRING. SEE TEMPERATURE AND LIGHTING CONTROL SCHEMATIC FOR ADDITIONAL REQUIREMENTS. 14. SEE ARCHITECTURAL REFLECTED CEILING PLAN IN ARCHITECTURAL SET FOR MORE
- 15. PROVIDE ROOFTOP UNITS. REFER TO ARCHITECTURAL ROOF PLAN FOR APPROXIMATE

- LOCATION OF ROOFTOP UNITS. PURCHASE HVAC EQUIPMENT THROUGH OWNER'S NATIONAL
- 16. SLOPE EXHAUST FAN DUCTWORK BACK TOWARD HOOD TO PREVENT MOISTURE FROM BUILDING UP IN THE DUCTWORK.
- 17. ALL AIR DEVICES, EXPOSED DUCTWORK, AND EXPOSED EXHAUST VENTING SHALL MATCH COLOR OF TILE OR DRYWALL CEILING.
- 18. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE HEATING AND VENTILATING WORK INDICATED ON THE DRAWINGS AND AS REQUIRED BY LOCAL CODES AND ORDINANCES.
- 19. DIFFUSERS, REGISTERS, LOUVERS SHALL BE AS PER MODEL AND SIZE INDICATED ON DRAWINGS. NO SUBSTITUTES SHALL BE ACCEPTED UNLESS APPROVED BY OWNER OR ARCHITECT IN WRITING. DIFFUSERS AND LOUVERS NOT MEETING SPECIFICATION AS SHOWN ON DRAWINGS SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE.
- 20. UNLINED SUPPLY AND RETURN AIR DUCTWORK SHALL BE WRAPPED WITH EXTERNAL INSULATION WITH A FLAME SPREAD RATING NOT EXCEEDING TWENTY-FIVE (25) AND A SMOKE DEVELOPED RATING NOT EXCEEDING FIFTY (50) INSULATION SHALL BE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE. AND HAVE MINIMUM INSTALLED R-VALUE OF 6.0. INSULATION SHALL NOT BE APPLIED UNTIL GENERAL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO ENSURE AGAINST PHYSICAL OR MOISTURE DAMAGE TO INSULATION. INSULATION DAMAGED THROUGH FAILURE TO OBSERVE THIS DIRECTIVE SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE. INSTALL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- 21. BEFORE FINAL ACCEPTANCE BY OWNER, AN OWNER'S REPRESENTATIVE SHALL INSPECT THE ENTIRE HVAC SYSTEM AND SUBMIT A WRITTEN REPORT TO THE OWNER. FINAL BALANCE OF HVAC SYSTEM SHALL BE PERFORMED BY AN INDEPENDENT CONTRACTOR WITH COSTS INCLUDED IN GENERAL CONTRACTOR'S BID. NO FINAL PAYMENT WILL BE MADE UNTIL THE ABOVE REPORT HAS BEEN RECEIVED AND THE HVAC SYSTEMS ARE IN BALANCE.
- 22. INSTALL SENSORS COMPLETE WITH ALL NECESSARY WIRING AND CONTROLS, LOCATION AS INDICATED ON THE DRAWINGS. THERMOSTAT SHALL PROVIDE FOR AUTOMATIC AND MANUAL
- 23. ADJUST ALL CONTROLS AND EQUIPMENT FOR PROPER OPERATION. LUBRICATE AND CLEAN ALL EQUIPMENT PRIOR TO ACCEPTANCE BY OWNER.
- 24. COORDINATE ALL WORK WITH OTHER CONTRACTORS.

FAN OPERATION.

25. FURNISH THE OWNER WITH ALL OPERATING MANUALS AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT INSTALLED.

26. NOTIFY OTHER CONTRACTORS OF REQUIRED CHANGES IN ROOF OPENINGS FOR ROOFTOP

- UNITS DUE TO CHANGE IN EQUIPMENT SIZE. 27. NOTIFY OTHER CONTRACTORS OF CHANGES IN ELECTRICAL AND GAS REQUIREMENTS FOR
- THE ROOF TOP UNITS, FANS, AND DUCTWORK DUE TO CHANGES IN EQUIPMENT CAPACITIES OR SITE CONDITIONS.
- 28. INSTALL ALL HVAC UNITS WITH CLEARANCES TO ADJACENT WALLS AS REQUIRED TO CONFORM TO LOCAL CODES AND INSPECTION REQUIREMENTS. NOTE: ALL WALLS SHOWN ON DRAWINGS ARE ASSUMED TO BE OF COMBUSTIBLE CONSTRUCTION

# SYMBOLS & ABBREVIATIONS LEGEND

Ð	HUMIDITY SENSOR	<b>✓</b>	FLEXIBLE DUCTWORK	ARCH	ARCHITECT	F. DPR	FIRE DAMPER	PC	PLUMBING
1	THERMOSTAT			BDD	BACKDRAFT DPR.	FLEX	FLEXIBLE	5.4	CONTRACTOR
(S)	SENSOR		SUPPLY DIFFUSER	BEL	BELOW	FLR	FLOOR	RA	RETURN AIR
				BLDG	BUILDING	GC	GENERAL	RTU	ROOFTOP UNIT
A	ANNUNCIATOR	/	RETURN GRILLE	CFM	CUBIC FEET PER MINUTE		CONTRACTOR	SA	SUPPLY AIR
(SD)	× DUCT SMOKE			CLG	CEILING	HC	HEATING	TV	TURNING VANES
	DETECTOR		EXHAUST GRILLE	CONT	CONTINUATION		CONTRACTOR	TYP	TYPICAL
<u> </u>	DUCT OFFSET		2,417,661,614,222	CONTR	CONTRACTOR	HP	HORSEPOWER	WH	WATER HEATER
		J <sup>†</sup> Τ	SPIN-IN FITTING	COORD	COORDINATE	MAX	MAXIMUM	W/	WITH
	SUPPLY DUCT - UP	٦,,	SI IN-INTTING	CUH	CABINET UNIT	MCA	MAX CIRCIUT		
$\sim$	SUPPLY DUCT - DN	, T <sup>4</sup> T	SPIN-IN FITTING W/		HEATER		AMPACITY		
	RA OR EXH. DUCT UP	<b>ĕ</b> ,	MAN. BAL. DPR.	DIFF	DIFFUSER	MECH	MECHANICAL		
				DISC	DISCONNECT	MFR	MANUFACTURER		
ا ا	RA OR EXH. DUCT DN	X"Ø	ROUND DUCT	DN	DOWN	MIN	MINIMUM		
	ELBOW TURNING VANES	AB	ABOVE	DPR	DAMPER	MOCP	MAX OVERCURRENT		
1 13	FIDE DAMPED (F.D.)	ACU	AIR CURTAIN UNIT	EA	EACH		PROTECTION		
	FIRE DAMPER (F.D.)	A/C	AIR CONDITIONING	EC	ELECTRICAL	MTD	MOUNTED		
l <del>-  </del>	₹ MANUAL BALANCE	AD	ACCESS DOOR	20	CONTRACTOR	NTS	NOT TO SCALE		
	DAMPER	AFF	ABOVE FINISHED FLOOR	EX	EXISTING	OA	OUTSIDE AIR		
	₹ TRANSITION	AHU	AIR HANDLING UNIT	EXH	EXHAUST				

# CODED NOTES:

INFORMATION.

- REMOTE TEMPERATURE SENSOR FOR RTU MOUNTED AT 5'-0" AFF. COORDINATE WITH OWNER AND EQUIPMENT PLAN PRIOR TO ROUGH-IN. EXTEND CONTROL WIRING TO THERMOSTAT.
- PROVIDE EXHAUST DUCT UP TO EXHAUST FAN. TRANSITION AT HOODS AND FAN. PROVIDE FLEXIBLE CONNECTION AT FAN. ALL DUCT ASSOCIATED WITH EF-1 SHALL BE 22 GAUGE TYPE 304 STAINLESS STEEL WITH SEAMS CONTINUOUSLY WELDED LIQUID TIGHT.
- 3. JOHNSON CONTROLS THERMOSTAT MODEL #T9100 WITH INTEGRAL WI-FI AND REMOTE SENSORS (SEE NOTE 1 FOR SENSOR LOCATIONS) FOR RTU'S.
- 4. EXHAUST FAN MOUNTED IN CEILING. EXTEND 6"Ø DUCT FROM EXHAUST FAN TO 8"Ø EXHAUST DUCT AND RISE UP THRU ROOF. PROVIDE WITH ROOF JACK, STORM COLLAR, AND ALL-WEATHER CAP. SEAL ROOF WATER TIGHT.
- 5. FULL SIZE SUPPLY AND RETURN DUCTS UP TO ROOFTOP UNIT WITH FLEXIBLE DUCT

CONNECTIONS. SEE PLAN FOR SIZING. TRANSITION AS REQUIRED.

- PROVIDE ROOFTOP UNIT AND CURB. SHIM UNIT AND CURB LEVEL FOR PROPER CONDENSATE DRAINAGE. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS. TRANSITION TO DUCT SIZES SHOWN. SEE ARCHITECTURAL SET FOR ADDITIONAL INFORMATION, COORDINATE LOCATION WITH OTHER TRADES, EXHAUST DISCHARGES SHALL BE LOCATED MINIMUM TEN FEET FROM OUTSIDE AIR INTAKES.
- 7. ROUTE DUCTWORK AS HIGH AS POSSIBLE. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION, COORDINATE WITH OTHERS.
- 8. PROVIDE DUCT SMOKE DETECTOR IN ROOFTOP UNIT RETURN AIR DUCT. UPON ACTIVATION THE SMOKE DETECTOR SHALL SHUT DOWN RTU AND ACTIVATE VISIBLE OR AUDIBLE SIGNAL IN AN APPROVED LOCATION AND SHALL BE IDENTIFIED AS AN AIR DUCT DETECTOR.
- 9. PROVIDE REMOTE ANNUNCIATOR (VISIBLE AND AUDIBLE) FOR RTU DUCT SMOKE DETECTORS.
- 10. REMOTE HUMIDITY SENSOR FOR RTU MOUNTED AT 5'-0" AFF. COORDINATE WITH OWNER PRIOR TO ROUGH-IN. EXTEND CONTROL WIRING TO CONTROLS IN RTU.. 11. NOTE NOT USED.
- 12. WATER HEATER CONCENTRIC VENT THROUGH WALL.
- 13. PROVIDE UL 2075 LISTED CARBON MONOXIDE DETECTOR/ALARM ON WALL. MOUNT AT 5'-0" ABOVE FINISHED FLOOR. UPON ACTIVATION THE CARBON MONOXIDE SHALL EMIT A VISIBLE AND AUDIBLE SIGNAL IN AN APPROVED LOCATION AND SHALL BE IDENTIFIED AS A WALL MOUNTED CARBON MONOXIDE DETECTOR.

**REVISIONS** # DATE DESCRIPTION

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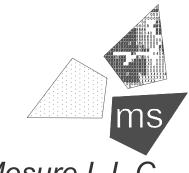
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engineers, architects, planners

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

40509-11

PROJECT NO.:

SHEET TITLE:

**HVAC PLAN & DETAILS** 

M1.

	OUTSIDE AIR REQUIREMENT SCHEDULE												
OCCUPANCY CATEGORY	2015	SYSTEM	ACT OA										
	OCCUPANT CLASS	SQ. FT.	OCCUPANT DENSITY (P/1000 SQ.FT.)	OCCUPANT LOAD	CFM PER OCCUPANT	CFM PER SQUARE FOOT	AIR DISTRIBUTION EFFECTIVENESS	OA CFM REQD.	MARK	CFM/ UNIT			
RETAIL	STORAGE ROOM	80				0.12	0.8	12	RTU-1	80			
KITCHEN	KITCHEN (COOKING)	540					0.8	0	RTU-1&2	680			
					TOTALS:			12		760			

	AIF	R BALANCI	E SCHEDU	ILE	
MARK	SUPPLY AIR	RETURN AIR	OUTSIDE AIR	EXHAUST AIR	RESULTING PRESSURE
RTU-1	1750	1350	400		+400
RTU-2	1600	1240	360		+360
<u>EF-1</u>				-600	-600
<u>EF-2</u>				-100	-100
TOTALS	3350	2590	+760	-700	+60

# HVAC EQUIPMENT & MATERIAL PACKAGE

FOR QUOTATION ON THE FOLLOWING EQUIPMENT SEE ARCHITECTURAL SHEET FOR CONTACT INFORMATION.

RTU-1 AND RTU-2, AS PER SCHEDULE THIS SHEET. IF DESIGN CONDITIONS DIFFER FROM THOSE LISTED, CONTACT OWNER

INCLUDES CURBS (KNOCK-DOWN FOR RTU'S ONLY) FOR RTU-1, RTU-2, AND EF-1. ALL CURBS ARE INSULATED AND COMPLY WITH NFPA 96 REQUIREMENTS FOR HEIGHT.

#### AIR DEVICE PACKAGE:

ALL AIR DEVICES SHALL BE PROVIDED BY GENERAL CONTRACTOR.

GENERAL CONTRACTOR FURNISHES RTUS, HUMIDITY SENSOR, THERMOSTATS, CURBS, EXHAUST FANS, AND HOODS. THIS CONTRACTOR TO SCHEDULE DELIVERY, RECEIVE, SET, INSTALL AND MAKE OPERATIONAL ALL EQUIPMENT AND DEVICES FURNISHED BY OWNER. CONTRACTOR TO PROVIDE ALL OTHER MATERIAL AND EQUIPMENT.

EQUIPMENT AND MATERIAL PACKAGES ARE IN STOCK AND SHOULD BE ORDERED IMMEDIATELY UPON RECEIPT OF CONTRACT TO

ROOFTOP HVAC UNIT SCHEDULE CARRIER MANUFACTURER IS BASIS OF DESIGN. EQUALS BY TRANE, LENNOX, AAON AND YORK MAY BE USED PROVIDED ALTERNATE UNITS MEET ALL DESIGN CRITERIA SET FORTH IN DRAWINGS.

LINUT	MFR.,			БУТ		COC	OLING DATA				MOTOR	₹	HE	ATING DA	·ΤΑ						
UNIT NO.	MODEL NO.	CFM	O.A. CFM	S.P.	AMBIENT OAT (°F)	EAT (°FDB/WB)	TOTAL COOLING MBH	SENSIBLE COOLING MBH	EER (SEER)	WATTS	R.P.M.	VOLTS PHASE	STAGES	HEAT OUTPUT MBH	HEAT INPUT MBH	TONNAGE	WEIGHT	FILTERS	MCA	МОСР	REMARKS
RTU-1	CARRIER 48GCEA06	1,750	400	0.75"	95	80/67	61.6	44.9	(16.1)	1.4		208	2	66 / 93	82 / 110	5	800 lbs	2"	29	40	1 2 3 4 5 6 7 8 9 10
RTU-2	CARRIER 48GCEA05	1,600	360	0.75"	95	80/67	47.6	34.2	(16.1)	1.0		208	2	66 / 93	82 / 110	4	750 lbs	2"	24	30	1 2 3 4 5 6 7 8 9 10

- 1) FURNISH UNIT WITH FACTORY INSTALLED LOW-LEAK ECONOMIZER WITH DUAL ENTHALPY CONTROLLER, FAULT DETECTION AND DIAGNOSTICS, AND WEATHER HOOD WITH BIRD SCREEN AT UNIT INLET.
- 2 PROVIDE UNITS WITH 18" HIGH KNOCK-DOWN CURB, FACTORY MOUNTED DISCONNECT SWITCH, AND FACTORY INSTALLED NON-POWERED GFI DUPLEX RECEPTACLE.
- (3) PROVIDE UNITS WITH FACTORY INSTALLED FRESH AIR TEMPERING KITS.
- 4 SET MINIMUM OUTSIDE AIR AS SPECIFIED ABOVE. FIELD SET 2 MINIMUM POSITIONS TO MAINTAIN SCHEDULED OUTSIDE AIR FLOW RATE AT SUPPLY FAN MINIMUM AND MAXIMUM SPEEDS. OUTSIDE AIR DAMPER SHALL FULLY CLOSE ON UNIT SHUTDOWN.
- 5 PROVIDE WITH FACTORY INSTALLED HOT GAS REHEAT DEHUMIDIFICATION & REMOTE WALL MOUNTED HUMIDITY
- 6 PROVIDE UNIT WITH FACTORY MOUNTED AND WIRED VARIABLE FREQUENCY DRIVE FOR 2-SPEED FAN
- 7 PROVIDE UNIT WITH CONDENSER COIL HAIL GUARDS.
- PROVIDE UNIT WITH FACTORY MOUNTED AND WIRED CONDENSATE OVERFLOW SWITCH.
- 9 PROVIDE UNIT WITH BAROMETRIC RELIEF DAMPERS.
- (10) ROOFTOP UNITS SHALL HAVE A 5 YEAR COMPRESSOR AND A 10 YEAR HEAT EXCHANGER WARRANTY.

			EX	(HAUST H	OOD SCH	IEDULE	
MA	ARK	MODEL NUMBER	SIZE	EXHAUST OPENING	ROOF OPENING (5)	DUCT AT CURB 5	REMARK
Н	<u>l-1</u>	HALTON HOOD FOR OVEN	48"x26"x18"	8"x8"	11.25x11.25	10"x10"	1 2 3 4 5 6

- 1) ALL DUCTWORK SHALL BE FABRICATED ACCORDING TO NFPA 96 & LOCAL CODES.
- TDL EXHAUST HOOD PACKAGE.
  COORDINATE DELIVERY OF THIS PACKAGE WITH OWNER REPRESENTATIVE.
  INSTALLATION BY THIS CONTRACTOR.
- 2 FINAL BALANCING OF THE SYSTEM SHALL BE PERFORMED AS OUTLINED IN INSTRUCTION SHEET FURNISHED BY HOOD
- 5 VERIFY DIMENSIONS WITH THE SUPPLIER.
- (3) EXHAUST AIR OPENINGS SHALL BE CUT IN FACTORY AND BALANCING DAMPERS SHALL BE INSTALLED. ALL HOODS SHALL BE UL CERTIFIED AND LABELED. TRANSITION TO DUCTWORK IN FIELD

AS REQUIRED.

(6) TYPE 2 HOOD.

	EXHAUST FAN SCHEDULE										
UNIT NO.	MFR., 1 MODEL NO.	TYPE	C.F.M.	S.P. IN. W.G.	WHEEL R.P.M.		MOT RPM	OR VOLTS PHASE	SERVING	LOCATION	REMARKS
<u>EF-1</u>	JENCO FAN TXD1250SC	ROOF DIRECT DRIVE	600	0.875	1320	1/2	1750	120 1	KITCHEN EXHAUST HOOD H-1	ROOF	1 2 3 4 6
<u>EF-2</u>	BROAN L100MG	CEILING DIRECT DRIVE	100	0.25	760	 87	1750	120 1	RESTROOM EXHAUST	RESTROOM	1 3 4 5 6

- 1 FANS AND CURBS WILL BE SUPPLIED BY GENERAL CONTRACTOR.
- $\langle 2 \rangle$  UNIT SHALL BE FURNISHED FROM FACTORY WITH DISCONNECT SWITCH AND BIRDSCREEN.
- 4 MAINTAIN 10'-0" MINIMUM CLEARANCE FROM ROOFTOP UNIT. 5 FAN SHALL BE CONTROLLED THROUGH LIGHTING CIRCUIT.

(3) UNIT SHALL BE FURNISHED FROM FACTORY WITH SPEED CONTROL

(6) UNIT SHALL BE FURNISHED FROM FACTORY WITH BACKDRAFT DAMPER.

											Alf	R D	EVI	CE S	SCH	IED	ULE		
		TY	PE		BOR	DER		THE	ROW		M	ATERI	AL	ACC	CESSC	RY	SYMBOL KEY -	SECOND LETTER: I	UPPLY R-RETURN E-EXHAUST D-DIFFUSER R-REGISTER G-GRILLE
TAG	SER	BEGISTER GRILLE GRILLE LINEAR SURFACE MTD LAY-IN 1-WAY 2-WAY 3-WAY						NUM	JI.	ER	L. GRID	ER.		KEY TAG —	<u>SD-1</u> 600CFM				
	DIFFUSER	REGIS	GRILL	DIFFU	SURF/	LAY-IN	1-WAY	2-WAY	3-WAY	4-WAY	STEEL	ALUMINUM	PLASTIC	DAMPER	EQUAL	FIRE DAMPER	MODEL NO.	SIZE FACE NECK	REMARKS
<u>SD-1</u>																	EA3	24"x24" PER PLAI	V (1)(2)(3)(6)
<u>SD-2</u>																	EA3	12"x12" PER PLAI	1 2 3 5 6 7
<u>RR-1</u>																	EFAREC	24"x24" 12"Ø	1 3 4 6
<u>RR-2</u>																	EFAREC	24"x24" 18"Ø	1 3 4 6

1 BASED ON EGER.

- 5 DAMPERS TO BE OPPOSED BLADE.
- 2 PROVIDE DIFFUSER WITH NECK SIZE INDICATED ON PLAN. NECK SIZE SHALL MATCH BRANCH DUCT SIZE.
- $\stackrel{\textstyle <}{6}$  AIR DEVICE TO MATCH COLOR OF CEILING.
- 3 VERIFY ARRANGEMENT WITH CEILING TYPE (LAY-IN, SURFACE MOUNT, ETC.)
- 4 FURNISH SQUARE TO ROUND NECK TRANSITION PIECE WHERE REQUIRED.
- 7 PROVIDE WITH DRYWALL/PLASTER FRAME.

PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

40509-11

PROJECT NO.:

SHEET TITLE:

DRAWN BY

CHECKED BY APPROVED BY

ISSUE DATE

# DATE

# DATE

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07/12/22

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STORE # 919728

HARPER WOODS, MI 48225

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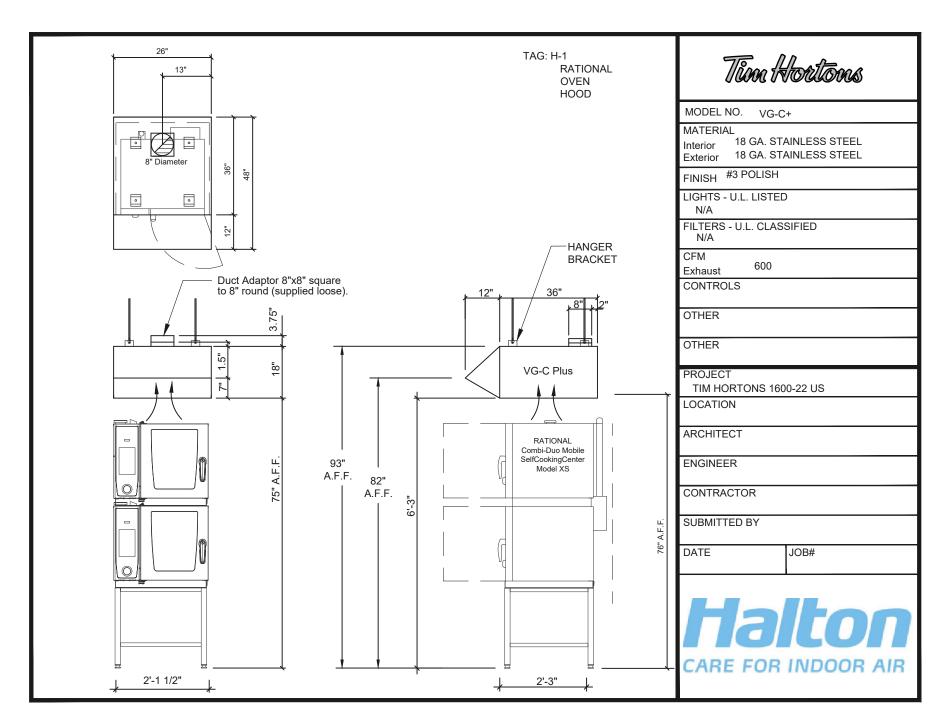
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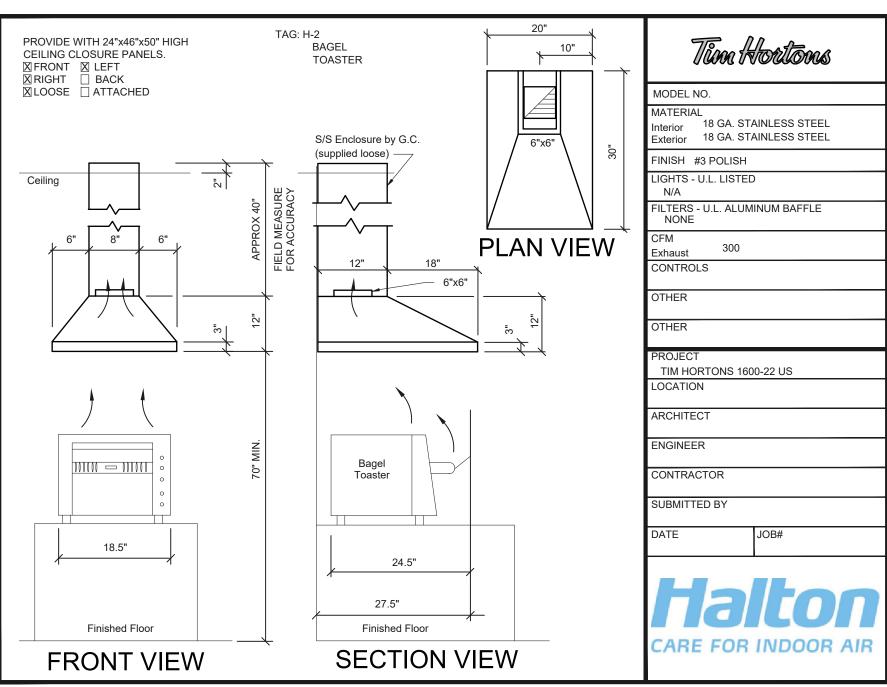
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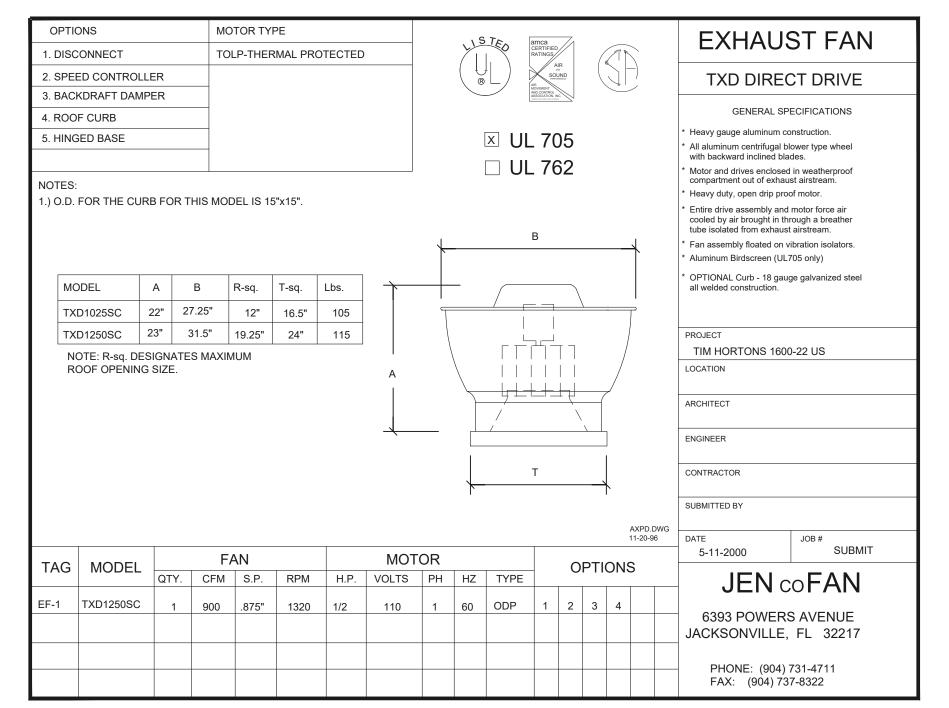
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**HVAC SCHEDULE** 

M2.1







## HOOD & FAN PACKAGE NOTES

- PROVIDE ALL WORK TO INSTALL KITCHEN HOODS AND EXHAUST FANS AS SHOWN ON THE DRAWINGS.
- 2. HEATING AND COOLING UNITS AS INDICATED ON THE DRAWINGS TO BE INSTALLED BY THIS CONTRACTOR AND PURCHASED BY THIS CONTRACTOR FROM OWNER VENDOR. HEATING AND COOLING UNITS INDICATED ON THE DRAWINGS AND HEREINAFTER SPECIFIED ARE DESIGNED TO MEET ASHRAE 90.1 BASED ON COLUMBUS, OHIO DESIGN CONDITIONS OF 90°F SUMMER AND 0°F WINTER.
- 3. ALL EXHAUST FANS MUST BE INSTALLED LEVEL AND PLUMB.
- 4. EXHAUST AIR VOLUMES ARE RECOMMENDED FOR THE PROPER FUNCTION OF THE COOKING EQUIPMENT SPECIFIED.
- 5. VERIFY ALL DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN.
- 6. PROVIDE HOOD WITH BALANCING DAMPER AT DUCT COLLAR. DAMPER SHALL BE LISTED FOR USE AS PART OF TYPE II EXHAUST SYSTEM.

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APPROVED BY KFF

ISSUE DATE 07/12/2022

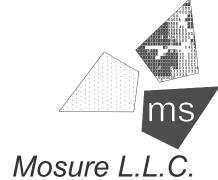
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# REVISIONS # DATE DESCRIPTION

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engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570



PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

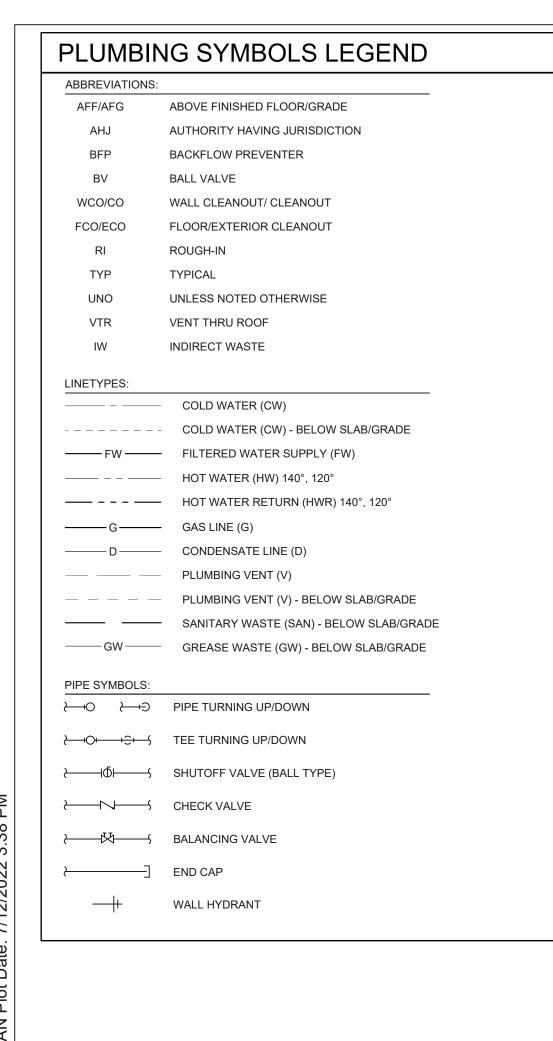
PROJECT NO.:

40509-11

EXHAUST HOOD SHOP
DRAWINGS

SHEET:

M3.1



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#### **GENERAL NOTES**

- PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO EXECUTE THE PLUMBING WORK INDICATED ON THE DRAWINGS, AND AS REQUIRED BY LOCAL CODES
- PAY ALL FEES AND ARRANGE FOR EXECUTION OF ALL TAPS, METERS WITH REQUIRED ENCLOSURES (IF ANY), ETC. INHERENT TO THE INSTALLATION OF NEW PLUMBING
- PLUMBING WORK INCLUDES ALL PIPING FOR DOMESTIC HOT AND COLD WATER LINES. VENT AND SANITARY LINES, HOOK-UP OF ALL FIXTURES SCHEDULED ON THE DRAWINGS, AND INSULATION OF DESIGNATED PIPING RUNS. WORK SHALL ALSO INCLUDE ALL GAS
- ALL ITEMS SUCH AS FITTINGS, ETC. NOT MENTIONED BUT UNDERSTOOD TO BE NECESSARY TO COMPLETE THE PLUMBING SYSTEM SHALL BE INCLUDED.

PIPING AND EQUIPMENT CONNECTIONS WHERE REQUIRED.

TYPE APPROVED BY LOCAL CODES.

- SOIL, WASTE, AND VENT PIPING SHALL BE OF MATERIAL APPROVED BY LOCAL CODES. PVC, DWV PIPING AND FITTINGS SHALL BE SCHEDULE 40 AS A MINIMUM.
- PROVIDE CLEANOUTS FOR SOIL AND WASTE LINES AS SHOWN ON DRAWINGS, AND OF
- ALL WATER SUPPLY PIPING BELOW GROUND SHALL BE PEX PIPING UNLESS PROHIBITED BY LOCAL CODES IN WHICH CASE COPPER TUBING SHALL BE USED. (AVOID FITTINGS BELOW SLAB WHENEVER POSSIBLE). ALL WATER SUPPLY PIPING ABOVE GROUND SHALL BE TYPE L HARD COPPER TUBING UNLESS NOTED OTHERWISE. PEX PIPING PASSING THROUGH CONCRETE SLABS SHALL BE SLEEVED WITH PVC BEND SUPPORT BY MANUFACTURER. PROVIDE UPONOR/WIRSBO SERIES: A5500500 FOR 1/2", PEX A5500750 FOR 3/4" PEX, A5501000 FOR 1" PEX. PROVIDE CORRUGATED PVC TUBING (1) PIPE DIAMETER LARGER THAN THE PEX TUBING FOR SIZES LARGER THAN 1" PEX.
- PROVIDE FOR DRAINING WATER SYSTEM, AND CAP ALL STUBS UNTIL FINISH WORK IS INSTALLED. INSTALL DRAIN VALVE AT WATER METER WITH 3/4" HOSE THREAD AND VACUUM BREAKER
- PROVIDE STOPS ON WATER SUPPLIES TO EACH FIXTURE & EQUIPMENT.
- GAS PIPING FOR HEATING SYSTEMS WITH GAS-FIRED EQUIPMENT SHALL BE INCLUDED IN THIS CONTRACT. GAS PIPING SHALL BE STANDARD WEIGHT, BLACK STEEL PIPE, SCHEDULE 40. PIPING EXPOSED TO ATMOSPHERE OR RUN BELOW GRADE SHALL HAVE POLYETHYLENE PLASTIC COATING. ALL GAS PIPING, FITTINGS AND INSTALLATION SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANY AND ALL GOVERNING
- INSULATE ALL COLD AND HOT WATER PIPING PER SPECIFICATIONS. WATER LINES SHOULD NOT BE INSTALLED IN EXTERIOR WALLS TO PREVENT FREEZING. INSULATION SHALL MEET FLAME SPREAD AND SMOKE DEVELOPED RATINGS REQUIRED BY LOCAL
- PLUMBING FIXTURES SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS. ALL FIXTURE FITTINGS AND EXPOSED FIXTURE PIPING SHALL BE BRASS CHROMIUM PLATED. ALL TRAPS SHALL BE CAST BRASS. ALL FIXTURES SHALL BE EQUAL IN ALL RESPECTS TO FIXTURES SPECIFIED.
- M. PROVIDE WATER METER TYPE AS REQUIRED BY LOCAL UTILITY COMPANY.
- ROUGH-IN AND FINAL CONNECTIONS OF REQUIRED WASTE, VENT, AND WATER SUPPLY PIPING BY THIS CONTRACTOR. ALL SUPPLY PIPING SHALL BE VALVED.
- O. HOSE BIBBS SHALL BE FREEZELESS AUTOMATIC DRAINING TYPE. REFER TO SCHEDULE.
- P. COORDINATE ALL WORK WITH OTHER CONTRACTORS.
- THIS CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS (USUAL WEAR IS EXPECTED), AND SHOULD ANY SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE ITEMS AND ALL DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.
- PROVIDE BACKFLOW PREVENTER WHEN REQUIRED BY LOCAL CODE.
- S. SEE PLUMBING SHEETS FOR KITCHEN EQUIPMENT SCHEDULE, FIXTURE SCHEDULE, DETAILS AND SANITARY ISOMETRIC.
- THE DIRECTION OF THE SANITARY MAIN AND THE LOCATION OF THE GREASE INTERCEPTOR SHALL BE COORDINATED WITH CIVIL DRAWINGS PRIOR TO ROUGH-IN.
- U. ALL COLD, HOT, AND FILTERED WATER LINES SHALL BE INSTALLED UNDER SLAB UNLESS NOTED OTHERWISE. COORDINATE WITH OTHER TRADES PRIOR TO ROUGH-IN OF PIPING TO PREVENT CONFLICT.
- COORDINATE LOCATION AND ROUGH-IN HEIGHT OF KITCHEN EQUIPMENT WITH OWNER AND MILLWORK PRIOR TO ROUGH-IN.
- W. MAKE ALL CONNECTIONS TO KITCHEN AND MECHANICAL EQUIPMENT UNLESS OTHERWISE NOTED. USE MILL HARDWOOD 30B35 BRAIDED FLEXIBLE HOSES FOR ALL COUNTERTOP EQUIPMENT.
- PROVIDE WATER HAMMER ARRESTORS AT THE END RUN OF ALL WATER PIPING. SIZE AS RECOMMENDED BY PLUMBING AND DRAINAGE INSTITUTE, AND AS RECOMMENDED BY
- Y. ALL PIPING (GAS AND WATER) SHALL BE CONCEALED IN WALL SPACE WHEN POSSIBLE.
- Z. ALL SHUT-OFF VALVES SHALL BE 1/4 TURN VALVES.
- AA. THIS CONTRACTOR TO INSTALL PEX MANIFOLDS UNDER COUNTER SPACE AND SHALL BE MOUNTED AT 12" A.F.F. UNLESS NOTED OTHERWISE. COORDINATE LOCATION WITH
- AB. DAMAGE TO EXISTING WALLS, FLOORS, FINISHES ETC. BY THIS CONTRACTOR SHALL BE REPAIRED AT THIS CONTRACTOR'S EXPENSE.
- AC. PROVIDE CUT TO LENGTH PEX PIPING SIZED PER EQUIPMENT CONNECTION SCHEDULE. EXTEND FILTERED WATER PEX FROM SHUTOFF VALVE ABOVE CEILING TO EQUIPMENT'S CONNECTION. INSTALL CONNECTION ENDS ON PEX SIZE AND TYPE TO COORDINATE WITH EQUIPMENT CONNECTION. SEE PEX RISERS AND KITCHEN CONNECTION SCHEDULE FOR MORE INFORMATION FOR INSTALLATION DETAILS. COORDINATE WITH OWNER'S REPRESENTATIVE & MILLWORK. SUPPORT PEX AT PROPER INTERVALS TO PREVENT SAGGING.
- AD. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED AT 1/4" PER FOOT FOR PIPE SIZES 3" AND SMALLER, 1/8" PER FOOT FOR PIPE SIZES 4"-6", AND 1/16" PER FOOT FOR PIPE SIZES 8" OR LARGER UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON DRAWINGS. GREASE LADEN WASTE LINES AND SAND/OIL WASTE LINES SHALL BE INSTALLED AT NO LESS THAN AT 1/4" PER FOOT FALL.

## GAS FIRED WATER HEATER SCHEDULE

SYMBOL	MANUF.	MODEL	вти	GAS PRESSURE	TEMP RISE (°F)	SET POINT (°F)	NOTES (#)
<u>WH-1</u>	RINNAI	CU199	199,000	3.5-10.5" W.C.	100	140	(1), (2)
<u>WH-2</u>	RINNAI	CU199	199,000	3.5-10.5" W.C.	100	140	(1), (2)
NOTES:							

1. INSTANTANEOUS TYPE WATER HEATER WITH CONCENTRIC FLUE/AIR INTAKE SYSTEM (WALL-TYPE), DIRECT ELECTRONIC IGNITION SYSTEM, REMOTE ELECTRONIC CONTROLS AND INTEGRAL DIAGNOSTICS. MEETS CURRENT EDITION OF ASHRAE 90.1B AND IECC TABLE C404.2. UNIT HAS A RATED ENERGY FACTOR (EF) OF 0.96. PRIVIDE WITH MANUFACTURER'S RACKING SYSTEM.

2. FURNISH WITH EXPANSION TANK AS SPECIFIED ON PLANS.

## EXPANSION TANK SCHEDULE

SYMBOL	MANUF.	MODEL	GAL.	ACCEPT. GAL.	CONN. LOC.	CONN. SIZE	MOUNTING	NOTES (#)
<u>ET-1</u>	AMTROL	ST-8	4.4	3.2	TOP	3/4"	ABOVE <u>WH-1</u>	(1), (2)

- 1. EXPANSION TANK: STEEL SHELL, HEAVY DUTY BUTYL NSF/ANSI 61, FACTORY PRECHARGED TO
- 50 PSIG. MAX OPERATING TEMPERATURE 200°, MAX OPERATING PRESSURE 150 PSI, 1 YEAR MANUFACTURER'S WARRANTY. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- 2. FIELD CHARGE EXPANSION TANK TO SYSTEM PRESSURE BEFORE CONNECTION TO DOMESTIC WATER SYSTEM. FIELD VERIFY PRESSURE REQUIREMENTS.

# PUMP SCHEDULE

SYMBOL	MANUF.	MODEL	GPM	HEAD (FT)	V	PH	Α	W	NOTES (#)
RCP	GRUNDFOS	ALPHA2	5	12	115	1	0.65	5 - 65	(1)
NOTEC:		-	-						

1. RECIRCULATING PUMP: BRONZE BODY RECIRCULATING PUMP WITH "AUTOADAPT" VARIABLE SPEED MOTOR. INSTALL NEAR WATER HEATER PER MANUFACTURER'S INSTRUCTIONS. PROVIDE WITH ALPHA 3-PRONG PLUG AND COORDINATE CONNECTION WITH ELECTRICAL CONTRACTOR. PROVIDE WITH HONEYWELL L6006C SURFACE MOUNT AQUASTAT SET TO 5°F BELOW WATER HEATER OPERATING TEMPERATURE.

## GREASE INTERCEPTOR SCHEDULE

SYMBOL	MANUF.	MODEL	FLOW RATE (GPM)	GREASE CAPACITY (LBS.)	LIQUID CAPACITY (GAL.)	NOTES (#)
<u>GI</u>	SCHIER	GB-250	100	1,895	277	(1), (2), (3)

#### NOTES:

- 1. CONTRACTOR SHALL SUBMIT PROPOSED GREASE INTERCEPTOR INSTALLATION PLANS AND SPECIFICATIONS TO LOCAL AUTHORITIES FOR THEIR APPROVAL BEFORE ACQUISITION. SEE MANUFACTURER INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS.
- 2. PROVIDE WITH C24HP H20 LOAD RATED PICKABLE CAST IRON LIDS WITH "SAFE MANWAY" FALL PROTECTION COVER.
- 3. PROVIDE WITH AK1 ANCHOR KIT.

# BACKFLOW PREVENTER SCHEDULE

LOCATION	TAG	MODEL	ASSE
MAIN WATER SUPPLY	RPZ	WATTS LF009-QT-S	1013
ESPRESSO MACHINE	DCV-1	WATTS SD-3	1022
COFFEE BREWERS	DCV-2	WATTS SD-2	1022
OTHER EQUIPMENT	DCV-3	WATTS SERIES 7	1024

VERIFY BACKFLOW VALVE REQUIREMENTS AND APPROVAL FOR ALL EQUIPMENT WITH AUTHORITIES HAVING JURISDICTION PRIOR TO INSTALLATION.

## KITCHEN EQUIPMENT CONNECTION SCHEDULE

ITEM	DESCRIPTION	FW	CW	HW (110°)	HW (140°)	WASTE	VENT	REMARKS
20.4	3-COMP. SINK		1/2"		1/2"	INDIRECT	1½"	(2), (4)
62.18	ICE MACHINE	1/2"				INDIRECT		(2), (4), (5)
69.9	HOT POWDERED DRINK MACHINE	1/2"						(2), (5)
68.21	COFFEE BREWER	1/2"						(2), (5)
70	WALK-IN FREEZER					INDIRECT		
74	WALK-IN COOLER					INDIRECT		(2)
130.8	ICED COFFEE BREWER	1/2"						(2), (5),
136.9	ESPRESSO	1/2"				INDIRECT		(2), (4), (5)
203.1R	STACKED OVENS		1/2"			INDIRECT		(1), (3), (4), (5), (7), (8)
208.3	RINSER - IN COUNTER WITH DRAIN PAN		1/2"			INDIRECT		(4), (5)
208.5	RINSER - W/ ICE BIN		1/2"			INDIRECT		(4), (5)

DESCRIPTION

ASSIST TANK. ADA WATER CLOSET WITH TANK LOCKING DEVICE.

PROVIDE LEVER ON ACCESSIBLE SIDE IN ACCORDANCE TO ADA

ACCESSIBILITY REQUIREMENTS. MOUNT WATER AT 12"+/- AFE.

#TEL105-D10E POLISHED CHROME, SINGLE HOLE, ECOPOWER

DECK MOUNTED FAUCET WITH 0.09GPC DISCHARGE (10 SECOND

FLOOR MOUNTED, MOLDED STONE BASIN, 24" X 24" X 10" DEEP.

DRAIN AND STOPPER SHALL BE INCLUDED WITH SINK. MOUNT

THERMOSTATIC CONTROLLER WITH INTEGRAL CHECKS, ALL

COMBINATION MEMBRANE CLAMP, AND ADJUSTABLE COLLAR.

2" SQUARE TOP FLOOR SINK WITH 6" DEEP ACID RESISTANT

12" SQUARE TOP FLOOR SINK W/8" DEEP PVC/CAST IRON BODY &

ENAMEL CAST IRON BODY AND 3"OUTLET WITH ½ NICKEL BRONZE

ADJUSTABLE PVC BODY WITH INTEGRAL THREADED PLUG AND

PVC BODY WITH PVC PLUG AND THREADED BRASS INSERT FOR

PVC BODY WITH PVC PLUG AND THREADED BRASS INSERT FOR

POLISHED CHROME. 4" CENTERSET. GOOSENECK FAUCET WITH

GOOSENECKFAUCET WITH 2.2 GPM DISCHARGE. MOUNT WASTE

DROP IN SINK, 17"x13", STAINLESS STEEL. ZURN #Z812A1-XL

2.2 GPM DISCHARGE. MOUNT WASTE INLET AT 18" AFF.

WALL MOUNT SINK 15"x17", STAINLESS STEEL ZURN

#Z8112A1-XL-TWM POLISHED CHROME, 4" CENTERSET,

RASS BODY WITH DUAL STAINLESS STEEL STRAINER, VANDAL

WALL HUNG, 201/2"x181/4", WHITE VITREOUS CHINA. TOTO

ANTI-SIPHON, AUTOMATIC DRAINING, WALL HYDRANT

INTERIOR PARTS, KEY OPERATED, 3/4" SOLDER INLET

RESISTANT TEMPERATURE ADJUSTMENT HANDLE.

#ZN415-3NH-5M-P-V CAST IRON BODY, 7" DIAMETER BRONZE SERIES C STRAINER,

3" BOTTOM OUTLET (CAST IRON OPTIONAL)

NON-FREEZE INTEGRAL VACUUM BREAKER, ALL BRONZE

CYCLE). MOUNT WASTE INLET AT 18" AFF.

WATER LINES AT 30" AFF.

SCREW DOWN COVER.

INLET AT 18" AFF.

CO2530 ROUND ACCESS COVER

CO2530 ROUND ACCESS COVER.

FLOOR MOUNT, WHITE VITREOUS CHINA, 1,1 GPF PRESSURE

- INSTALL ASSE BACKFLOW PREVENTER PER LOCAL CODES AND SPECIFICATIONS.
- PROVIDE CUT TO LENGTH PEX PIPING FROM MANIFOLD SHUTOFF TO EQUIPMENT CONNECTION. INSTALL ENDS ON PEX SIZED PER EQUIPMENT CONNECTION.
- STACKED OVENS COME WITH STAINLESS STEEL DRAIN KIT. KIT IS TO BE INSTALLED WITH AN INDIRECT DRAIN WITH TRAP FROM SINGLE POINT CONNECTION AND EXTEND TO DRAIN.
- INDIRECT WASTE TO DRAIN W/AIR GAP PER CODE.

PLUMBING FIXTURE SCHEDULE

**AMERICAN** 

STANDARD

**AMERICAN** 

STANDARD

WOODFORD

FIAT

ZURN

ZURN

ZURN

ZURN

ZURN

ZURN

ZURN

POLAR WARE

POLAR WARE

4142.601/901

#0356.421.020

LUCERNE

MODEL 65

MSB2424

ZW3870XLT /

ZW1070XL

#FD2370-PV3

W/ZN1900-2

#CO2455-PV4

#Z1400-K

#CO2412-PVC

#173.4.2

#141-OC

SYMBOL FIXTURE TYPE MANUFACTURER

WATER CLOSET

(ACCESSIBLE)

LAVATORY

(ACCESSIBLE)

FROST PROOF

WALL HYDRANT

MOP SINK

MIXING VALVE

FLOOR DRAIN

FLOOR SINK

FLOOR SINK

FLOOR CLEAN OUT

EXTERIOR CLEAN

WALL CLEAN OUT

KITCHEN SINK

KITCHEN SINK

<u>FPWH</u>

WCO

KS-1

KS-2

- PROVIDE BACKFLOW PROTECTION PER BACKFLOW PREVENTOR SCHEDULE. COORDINATE BACKFLOW INSTALLATION WITH KITCHEN EQUIPMENT PROVIDER.
- MOUNT WASTE INLET AT 18" AFF.
- CHEMICAL FEED UNITS AND INSTALLATION KITS FURNISHED BY OWNER'S REPRESENTATIVE AND INSTALLED BY CONTRACTOR. FEED STATIONS ARE LOCATED BELOW OVEN RACK. CONNECT ONE CHEMICAL UNIT TO EACH OVEN AND LABEL WHICH CHEMICAL UNIT SERVES WHICH OVEN. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE SHUT-OFF VALVE WITH 1/2" HOSE TO EACH OVEN, AND LABEL VALVE 'TREATED WATER'. EXTEND AN ADDITIONAL 3/4" COLD WATER LINE FROM PEX MAIN TO 36" AFF AND PROVIDE SHUT-OFF VALVE WITH 1/2" FLEXIBLE HOSE TO EACH OVEN PER MANUFACTURER'S RECOMMENDATIONS, AND LABEL VALVE 'UNTREATED WATER'. INSTALL PER MANUFACTURER'S RECOMMENDATIONS, MAKE ALL FINAL CONNECTIONS. INSTALL TUBING KITS AND WATER FILTRATION SYSTEM AS FURNISHED BY OWNER'S REPRESENTATIVE. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE & MILLWORK PRIOR TO ROUGH-IN. PROVIDE PEX FOR COLD WATER AND FILTERED WATER LINES AS REQUIRED.

DRAWN BY NWO CHECKED BY PROVIDE WITH QUARTER TURN BRASS ANGLE COMPRESSION APPROVED BY STOP WITH LOOSE KEY HANDLE, STAINLESS BRAIDED SUPPLY PROVIDE WITH QUARTER TURN BRASS ANGLE COMPRESSION ISSUE DATE 07/12/2022 SUPPLIES CHROME SUPPLY AND DRAIN ESCUTCHEONS CHROME GRID STRAINER DRAIN WITH TAILPIECE, CHROME PLATED CAST BODY P-TRAP WITH CLEANOUT, AND ZURN #Z-1231-81 LAVATORY

ACCESSORIES/OPTIONS

STOPS WITH LOOSE KEY HANDLES. STAINLESS BRAIDED

MOUNT 18" ABOVE FINISHED GRADE. PROVIDE APPROPRIATE

PROVIDE WITH FIAT #830-AA FAUCET, HOSE AND BRACKET

#832-AA, AND CHROME PLATED WALL NIPPLES AND

SET TO 105°F. MOUNT IN ACCESSIBLE LOCATION.

SEAL DEVICE SHALL BE TRAP PROSET TRAPGUARD OR

APPROVED EQUAL. INSTALL PER MANUFACTURER'S

WITH VANDAL RESISTANT SCREWS.

SET FLOOR SINK LEVEL WITH FINISH FLOOR.

MODEL FOR WALL THICKNESS AND SITE SPECIFIC TEMPERATURE

PROVIDE WITH ASSE 1072 APPROVED TRAP SEAL DEVICE. TRAP

RECOMMENDATIONS. PROVIDE DRAINS IN CUSTOMER AREAS

PROVIDE WITH QUARTER TURN BRASS ANGLE COMPRESSION

SUPPLIES. CHROME SUPPLY AND DRAIN ESCUTCHEONS. CHROME

SUPPLIES, CHROME SUPPLY AND DRAIN ESCUTCHEONS, CHROME

STOPS WITH LOOSE KEY HANDLES, STAINLESS BRAIDED

TAILPIECE, AND CHROME PLATED CAST IRON P-TRAP WITH

STOPS WITH LOOSE KEY HANDLES, STAINLESS BRAIDED

TAILPIECE, AND CHROME PLATED CAST IRON P-TRAP WITH

PROVIDE WITH QUARTER TURN BRASS ANGLE COMPRESSION

AND CHROME SUPPLY ESCUTCHEON.

"LAV-GUARD2" #101-EZ.

REQUIREMENTS.

ESCUTCHEONS.

CLEANOUT.

CI FANOUT

CARRIER. INSULATE WASTE AND WATER PIPING WITH TRUEBRO ISSUE # DATE DESCRIPTION

07/12/22

PERMIT SET

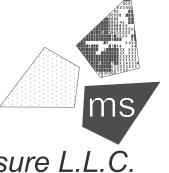
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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

40509-11

PROJECT NO.:

SHEET TITLE:

PLUMBING SCHEDULES AND NOTES

PLUMBING PLAN - SANITARY WASTE & VENT 1

\* CODED NOTES:

- 1. EXTEND SANITARY LINE AS SHOWN PER PLANS. REFER TO CIVIL DRAWINGS FOR CONTINUATION. FIELD VERIFY EXACT LOCATION PRIOR TO STARTING WORK.
- 2. PROVIDE EXTERIOR GREASE INTERCEPTOR. LOCATE CLEAR OF DRIVE-THRU LANE. REFER TO CIVIL DRAWINGS FOR FINAL LOCATION. REFER TO "GREASE INTERCEPTOR" DETAIL.
- 3. PROVIDE SANITARY VENT THROUGH ROOF PER "VENT THRU ROOF (VTR)" DETAIL. LOCATE VENT MINIMUM OF 10'-0" AWAY FROM AIR INTAKES ON ROOF. UNLESS APPROVED BY ENGINEER PRIOR TO INSTALLATION. VTR SHALL BE EXTENDED HIGHER THAN AIR INTAKES. LOCATE PER ROOF PLAN.
- 4. EVAPORATOR INSIDE WALK-IN COOLER/FREEZER SHALL BE DRAINED TO NEAREST INDIRECT DRAIN RECEPTOR. USE 1" DIAMETER COPPER LINE AND 45° ELBOWS WHEN CHANGING DIRECTION. HEAT TRACING INSIDE FREEZER SHALL BE PROVIDED, CONNECTED AND INSTALLED BY GENERAL CONTRACTOR. ENTIRE LENGTH OF PIPE SHALL BE INSULATED, PROTECTED BY GUARD AND TAGGED FOR CAUTION FOR HEAT TAPE UNDER INSULATION. THE GENERAL CONTRACTOR SHALL PROVIDE POWER. DRAINAGE AND HEAT TRACING INSTALLATION AS PER MANUFACTURER'S RECOMMENDATIONS. RUN TIGHT TO FREEZER/COOLER WALLS.
- 5. STACKED OVENS SHALL BE DRAINED TO FLOOR SINK WITH 2" LINE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE INDIRECT CONNECTION. SANITARY DRAIN PIPING WITHIN 6'-0" SHALL BE OF CAST IRON CONSTRUCTION. LOCATE CENTER OF DRAIN 12" FROM BACK
- 6. INDIRECT WASTE FROM RINSER AND ESPRESSO MACHINE INSIDE CABINET. ROUTE WITHIN CABINET TO BACK OF COUNTER AND ACROSS TO FLOOR SINK WITH AIR GAP. MOUNT PVC TO BE OUT OF SIGHT AND ALLOW ACCESS TO ALL EQUIPMENT UNDER COUNTER. VERIFY ROUTING WITH CONSTRUCTION MANAGER.
- 7. FLOOR CLEANOUTS SHALL BE LEVEL AND FLUSH WITH SURROUNDING FLOOR. DO NOT SLOPE FLOOR TO CLEAN OUT.

FIXTURE	QTY.	DFU	TOTAL
WATER CLOSET (FLUSH)	1	4	4
LAVATORY	1	1	1
MOP BASIN	1	2	2
HAND SINK	4	1	4
3-COMP SINK	1	3	3
3" HUB DRAIN	1	5	5
3" FLOOR SINK	4	5	20
3" FLOOR DRAIN (EMERGENCY)	6	-	-
*DFU VALUES GIVEN	PER IPC*	DFU TOTAL	39.0

DRAWN BY

NWO

CHECKED BY APPROVED BY

ISSUE DATE 07/12/2022

ISSUE # DATE DESCRIPTION

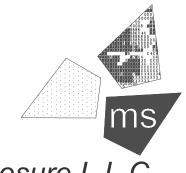
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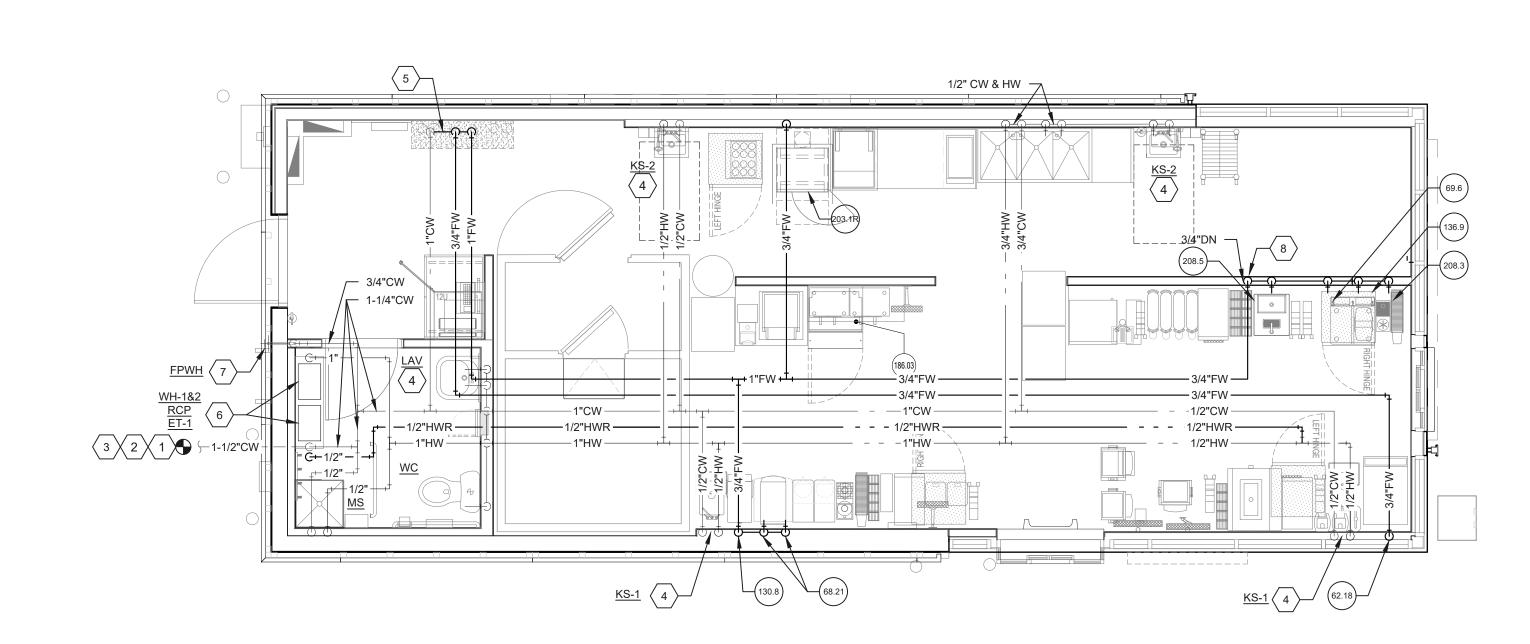
PROJECT NO.:

40509-11

SHEET TITLE:

SANITARY WASTE AND **VENT PLAN** 

P1.1



(#) CODED NOTES:

- STUB DOMESTIC WATER LINE 5'-0" OUTSIDE BUILDING. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
  - 2. WATER METER AND BACKFLOW PREVENTOR TO BE LOCATED IN EXTERIOR HEATED METER ENCLOSURE. COORDINATE FINAL LOCATION. COORDINATE DOMESTIC WATER SERVICE, METER AND BACKFLOW REQUIREMENTS WITH CIVIL DRAWINGS.
  - 3. COORDINATE METER AND BACKFLOW REQUIREMENTS WITH CIVIL DRAWINGS.
  - 4. PROVIDE INDIVIDUAL MIXING VALVE MV FOR ALL HAND SINKS AND LAVATORIES IN AN ACCESSIBLE LOCATION.
  - 5. EXTEND 1" COLD WATER LINE, ¾" ICE MAKER LINE, AND 1" FILTERED WATER LINE TO FILTRATION SYSTEM (BY OTHERS) IN UTILITY AREA. PROVIDE ALL CHECK VALVES AND SHUT-OFF VALVES AND TERMINATE BELOW CEILING FOR CONNECTION BY OTHERS. VENDOR TO HOOK UP AND COMMISSION WATER FILTRATION SYSTEM PER MANUFACTURER'S RECOMMENDATIONS. REFER TO "WATER FILTRATION SYSTEM" DETAIL.
  - 6. DROP 1" HW AND CW AND ½" HWR LINES DOWN TO WATER HEATER MANIFOLD. REFER TO "LARGE WATER HEATER", "RECIRCULATION PUMP", AND "SMALL EXPANSION TANK" DETAILS. DISCHARGE T&P RELIEF VALVE AND OVERFLOW TO DRAIN. PROVIDE VALVE AND UNION ON INLET AND OUTLET.
  - 7. ROUTE  $\frac{1}{2}$ " CW LINE TO FREEZE-PROOF WALL HYDRANT. VERIFY EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS.
  - 8. ROUTE PEX PIPING UNDER COUNTER AND UP THROUGH MILLWORK TO EQUIPMENT CONNECTION.

FIXTURE	QTY.	WSFU	TOTAL
WATER CLOSET (TANK)	1	5.0	5.0
LAVATORY	1	2.0	2.0
MOP BASIN	1	3.0	3.0
HAND SINK	4	2.0	8.0
3-COMP SINK	1	4.0	4.0
BEVERAGE STATION	2	1.0	2.0
ICE MAKER	1	1.0	1.0
STACKED OVEN	2	1.0	2.0
KITCHEN EQUIPMENT (BREWER OR DISPENSER)	7	1.0	7.0
HOSE BIBB	1	3.0	3.0
*WSFU VALUES GIVEN	PER IPC*	WSFU TOTAL	37.0

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

SHEET TITLE:

PLUMBING DOMESTIC WATER PLAN

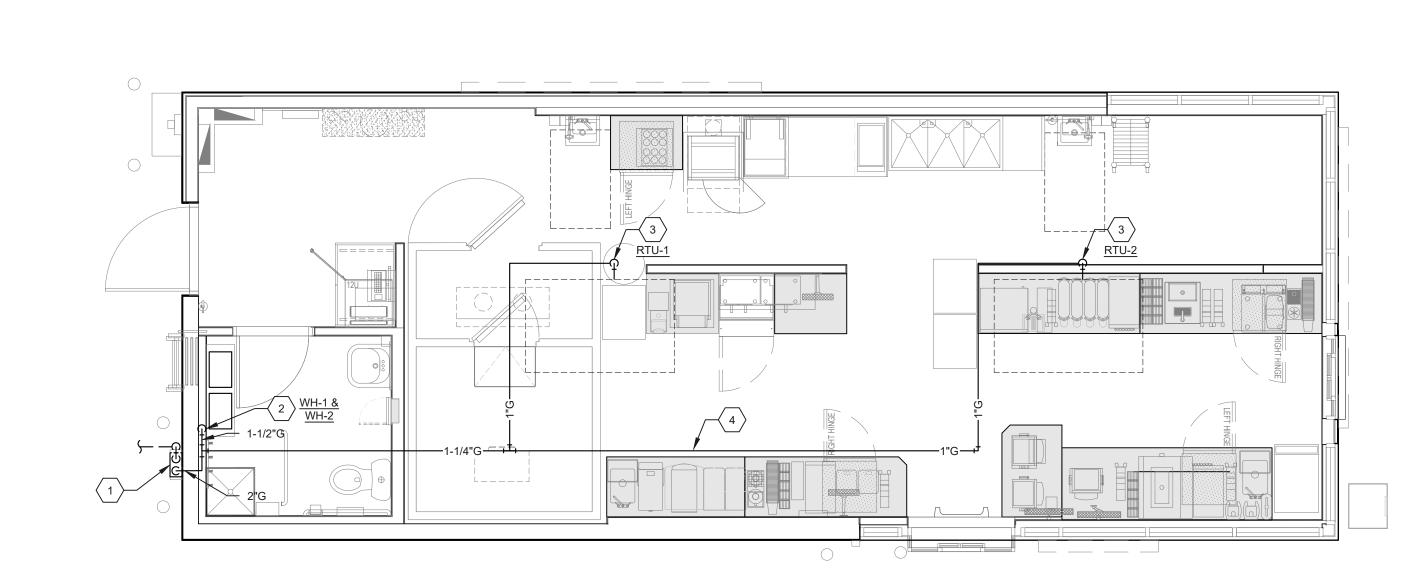
SHEET:

P1.2

PLUMBING PLAN - DOMESTIC WATER

1/4" = 1'-0"

1



PLUMBING PLAN - NATURAL GAS

(#) CODED NOTES:

1. GAS SERVICE AND METER SETTING SIZED PER GAS COMPANY REQUIREMENTS FOR MAX CONNECTED LOADS AS SHOWN IN "NATURAL GAS CALCULATIONS" TABLE WITH TOTAL DEVELOPED LENGTH, INCLUDING FITTINGS, VALVES, ETC. OF 70 LINEAR FEET AND TOTAL SYSTEM PRESSURE DROP OF 0.3" W.C. WITH 14" W.C. DELIVERED AT THE METER. HOLD GAS METER AND NATURAL GAS LINES TIGHT TO BUILDING. ROUTE GAS PIPING UP WALL AND ENTER BUILDING. SEAL PENETRATION WATER TIGHT. REFER TO GAS SERVICE DETAIL 09/P4.1.

2. ROUTE 1-1/2" NATURAL GAS LINE DOWN TO WATER HEATERS. PROVIDE 6" DIRT LEG, GAS COCK, AND UNION AT EACH WATER HEATER. PROVIDE CONCENTRIC VENT AIR INTAKE ROOF TERMINATION KIT. ROUTE VENT/INTAKE PIPING AS SHOWN. INSTALL TO MEET CODE AND MANUFACTURER'S REQUIREMENTS. MAKE ALL FINAL INTAKE/EXHAUST CONNECTIONS. COORDINATE LOCATION OF ROOF OPENING WITH ARCHITECT AND OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.

 ROUTE NATURAL GAS UP THROUGH ROOF TO ROOFTOP EQUIPMENT AS SHOWN PER PLAN. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION. REFER TO "ROOFTOP UNIT GAS CONNECTION" DETAIL. PAINT GAS LINES ON ROOF SAFETY YELLOW. ROUTE GAS LINES TO ALLOW FULL ACCESS TO RTU EQUIPMENT.

GAS LINES ON ROOF SAFETY YELLOW. ROUTE GAS LINES TO ALLOW FULL ACCESS TO RTU EQUIPMENT.

4. ROUTE GAS PIPING TIGHT TO STRUCTURE ABOVE.

NATURAL GAS CALCULATIONS		
EQUIPMENT	МВН	
RTU-1	110	
RTU-2	110	
<u>WH-1</u>	199	
<u>WH-2</u>	199	
TOTAL GAS LOAD (MBH)	618	

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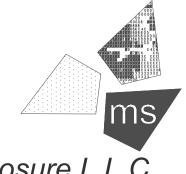
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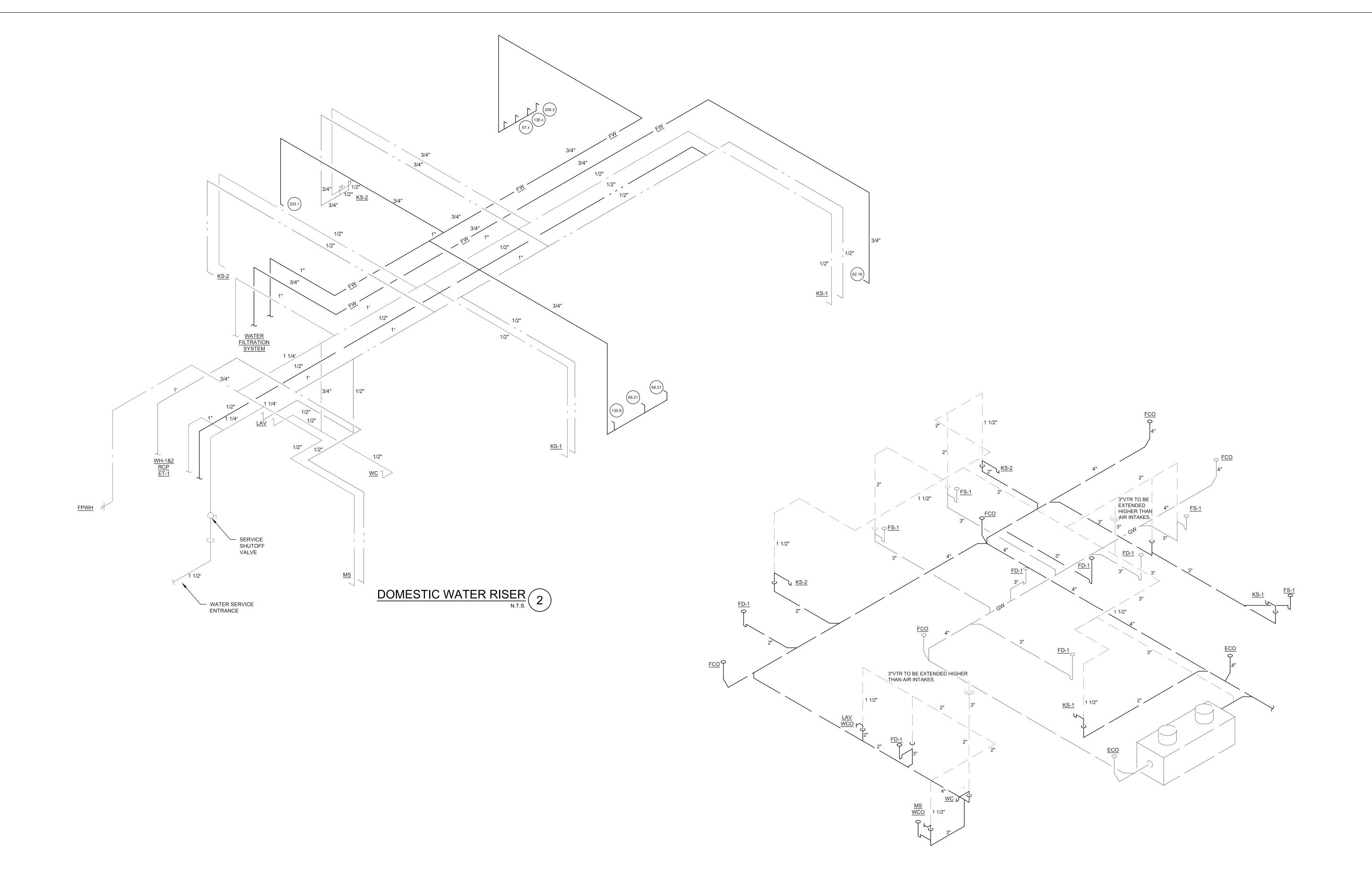
40509-11

SHEET TITLE:

PLUMBING NATURAL GAS PLAN

SHEET:

P1.3



SANITARY WASTE & VENT RISER
N.T.S. 1

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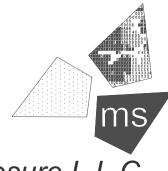
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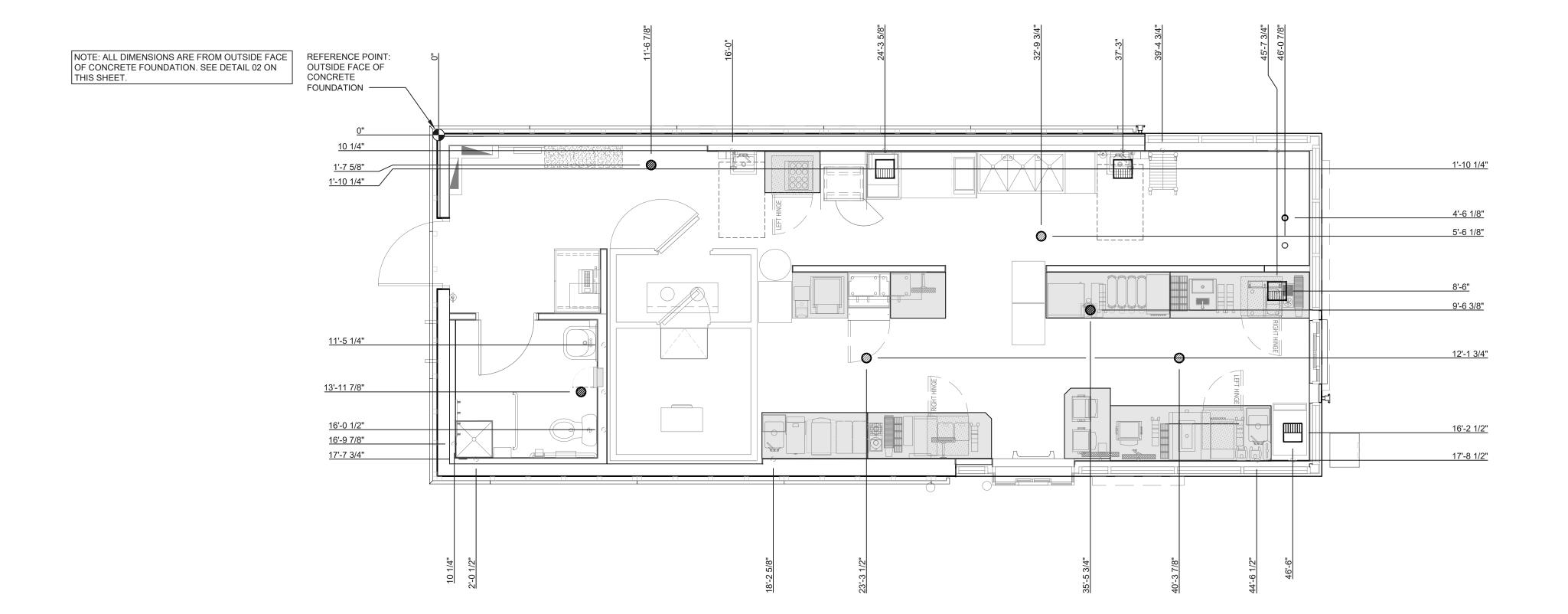
PROJECT NO.:

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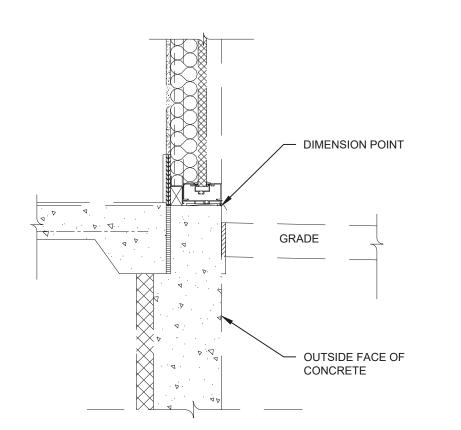
PLUMBING RISERS

P2.1



DIMENSIONS ARE FOR REFERENCE ONLY.
GENERAL CONTRACTOR TO COORDINATE FINAL LOCATIONS WITH TIM HORTONS REPRESENTATIVE, KITCHEN EQUIPMENT VENDOR, MILLWORK VENDOR, AND ALL OTHER TRADES PRIOR TO STARTING WORK.

PLUMBING PLAN - ROUGH-IN 1



SEE DETAIL ON SHEET A7 FOR MORE DETAILS

DIMENSION POINT DETAIL 02

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07/12/2022

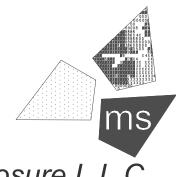
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PLUMBING ROUGH-IN PLAN

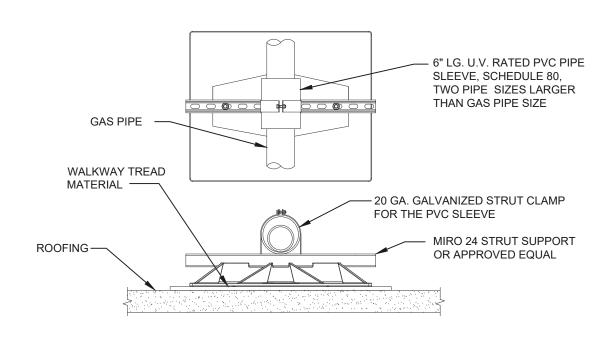
SHEET:

P3.1

PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. MAKE PIPE SAME SIZE AS TANK FITTING. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION PROCEDURE. VERIFY PROPER OPERATION WHEN INSTALLED.

EXPANSION TANK INSTALLATION SHALL OCCUR ONLY WHEN THERE IS A BACKFLOW PREVENTION DEVICE INSTALLED WITHIN THE BUILDING WATER SYSTEM.

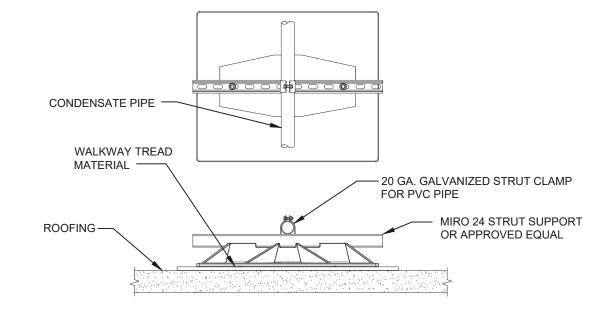




1. SUPPORT REQUIRED 10'-0" O.C. AND AT ALL CHANGES IN DIRECTION.

INCREASE IN HEIGHT AS REQUIRED FOR ROUTING ABOVE ROOF MOUNTED ACCESSORIES SUCH AS EXPANSION JOINTS AND TO ACCOMMODATE SLOPE.

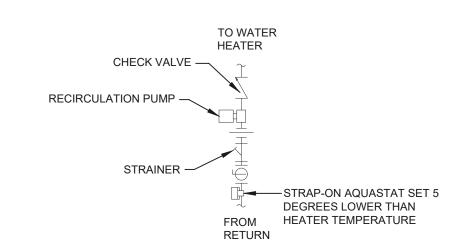




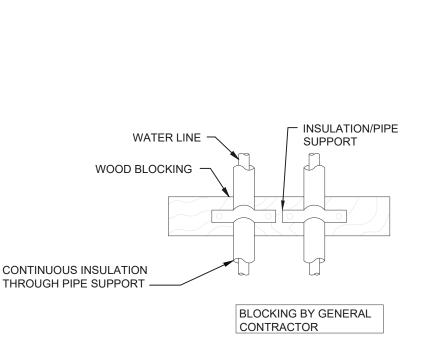
1. SUPPORT REQUIRED 10'-0" O.C. AND AT ALL CHANGES IN DIRECTION.

INCREASE IN HEIGHT AS REQUIRED FOR ROUTING ABOVE ROOF MOUNTED ACCESSORIES SUCH AS EXPANSION JOINTS AND TO ACCOMMODATE SLOPE.

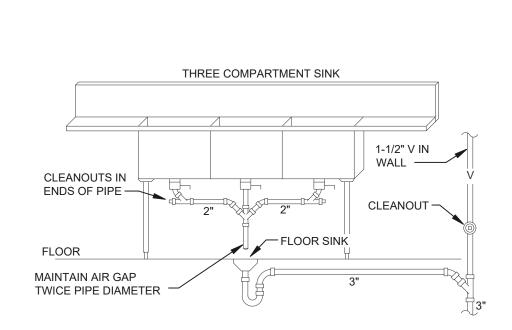
ROOF CONDENSATE PIPE SUPPORT 18 NOT TO SCALE



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS.

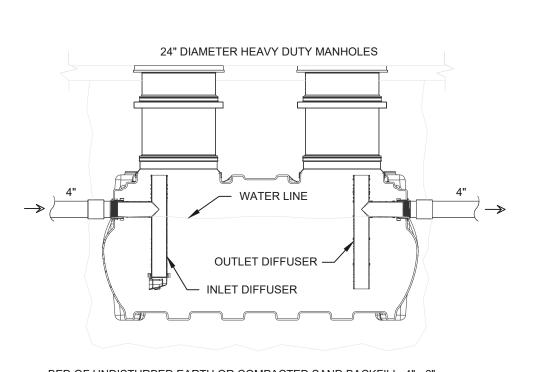


# PIPE SUPPORT (IN-WALL)



ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS AND TO MEET APPLICABLE CODE REQUIREMENTS. UTILIZE HUBLESS CAST IRON PIPE, FITTINGS AND CONNECTORS FOR SINK CONNECTIONS.

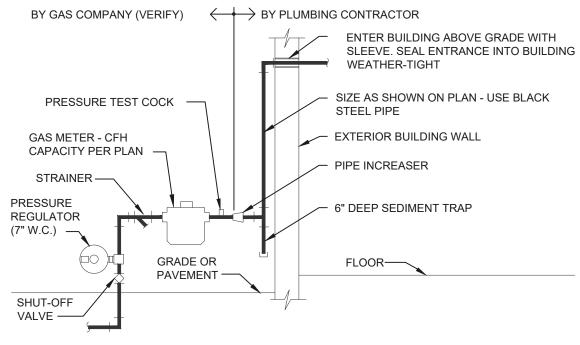




BED OF UNDISTURBED EARTH OR COMPACTED SAND BACKFILL: 4" - 6"

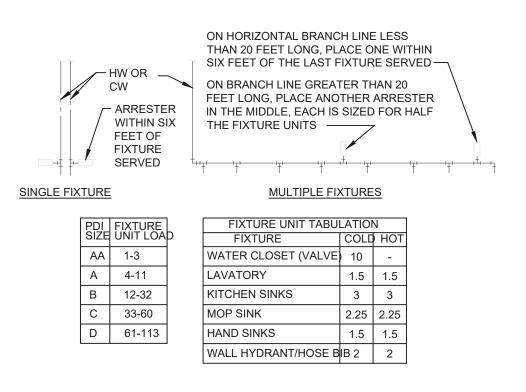
GB-250 - 100 GPM - 277 GALLON CAPACITY: DETAIL SHOWS GENERAL SCHEMATIC REQUIREMENTS. CONTRACTOR SHALL SUBMIT PROPOSED GREASE INTERCEPTOR INSTALLATION PLANS AND SPECIFICATIONS TO LOCAL AUTHORITIES FOR THEIR APPROVAL BEFORE ACQUISITION. SEE MANUFACTURER INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS.





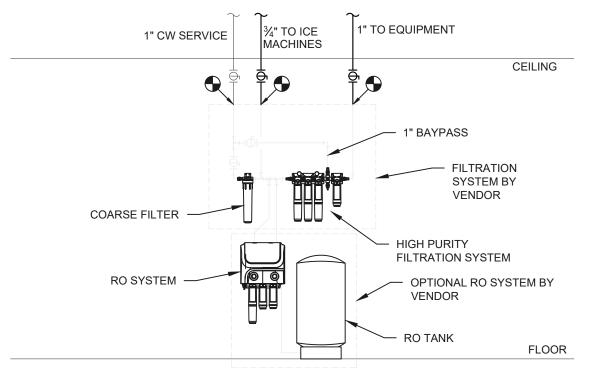
VERIFY REQUIREMENTS FOR METERING AND PIPING WITH GAS COMPANY. GAS COMPANY SHALL EXCAVATE, BACKFILL, AND REPAIR PAVING AND SOD FOR GAS SERVICE LINE INSTALLATION FROM MAIN TO BUILDING. PLUMBING CONTRACTOR TO PAY ALL GAS COMPANY FEES FOR THIS INSTALLATION. USE WELDED OR SCREWED PIPE AND FITTINGS PER SPECIFICATIONS. PAINT EXPOSED METAL GAS PIPE, FITTINGS AND ITEMS TO MATCH BUILDING.

#### GAS SERVICE NOT TO SCALE



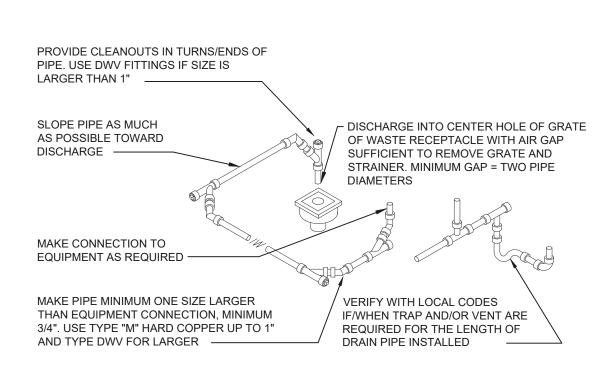
PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND 0-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 OR ANSI #A112.26.1M CERTIFICATION. SIZE AND INSTALL PER PDI #WH-201 STANDARD OR MANUFACTURER'S INSTRUCTION. THE TABLES ABOVE ARE BASED ON THE SIOUX CHIEF PRODUCT LINE. IF PRESSURE IS IN EXCESS OF 65 PSIG THEN UPSIZE THE ARRESTER BY ONE (EXAMPLE: AN 'A' ARRESTER WOULD BECOME A 'B' ARRESTER.)

## WATER HAMMER ARRESTOR NOT TO SCALE \



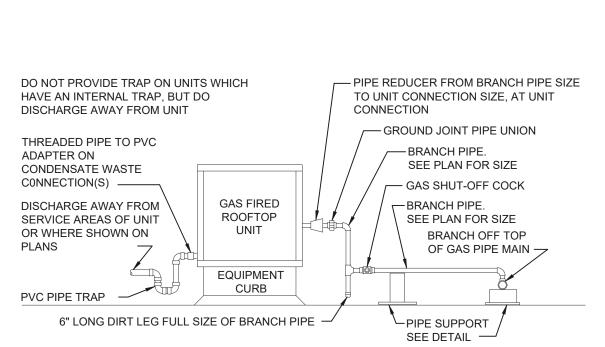
PROVIDE COLD AND FILTERED WATER STUBS TO FUTURE FILTRATIONS SYSTEM LOCATION AS SHOWN PER PLANS FOR CONNECTION BY OTHERS. FILTRATION, OPTIONAL RO SYSTEM. ASSOCIATED PIPING, CW BYPASS TO BE PROVIDED BY VENDOR. FIELD VERIFY FILTRATION PACKAGE SYSTEM SELECTED PRIOR TO STARTING WORK. SYSTEM SHOWN IS FOR REFERENCE ONLY.

> FILTRATION SYSTEM NOT TO SCALE \



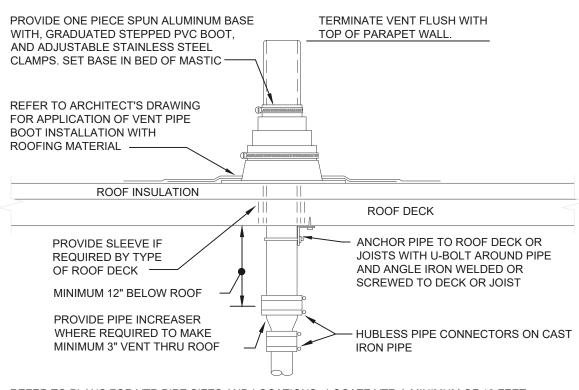
ROUTE PIPE INCONSPICUOUSLY AND UNOBTRUSIVELY. HANG PIPE AS REQUIRED. DO NOT INSULATE INDIRECT DRAIN PIPE WHEN INSTALLED EXPOSED IN FOOD SERVICE FACILITY. REFER TO LOCAL CODES FOR FURTHER INFORMATION.





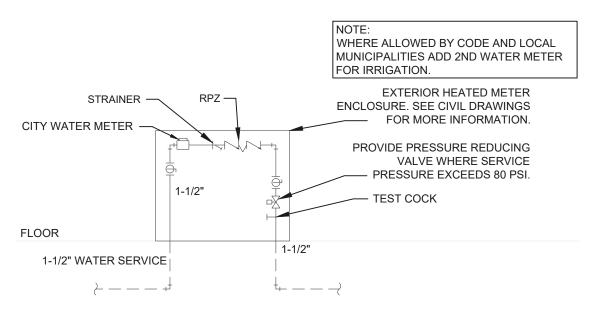
PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED

# ROOFTOP UNIT CONNECTIONS 05 NOT TO SCALE

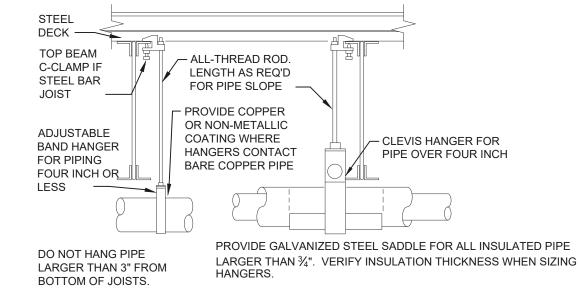


REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VTR A MINIMUM OF 10 FEET HORIZONTAL (UNLESS APPROVED BY ENGINEER PRIOR TO INSTALLATION) OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, AND ONE FOOT FROM ANY VERTICAL SURFACE. PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET ON VENT PIPE INSIDE BUILDING WITHIN SIX FEET OF VENT THRU ROOF LOCATION. VERIFY FLASHING AND COUNTERFLASHING WITH ROOFING CONTRACTOR.

#### VENT THROUGH ROOF DETAIL NOT TO SCALE



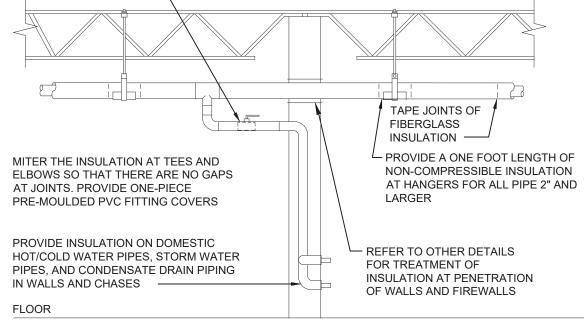
DETAIL SHOWS GENERAL SCHEMATIC REQUIREMENTS. PROVIDE BACKFLOW PREVENTER OF TYPE AND MANUFACTURER APPROVED BY LOCAL AUTHORITIES. PROVIDE PRESSURE REDUCING VALVE ONLY IF PRESSURE EXCEEDS 80 PSI - VERIFY. STRAINER AND REDUCING VALVE MAY BE INSTALLED IN VERTICAL PIPE IF SPACE LIMITATIONS REQUIRE IT. CLEAN STRAINER BEFORE TURNING BUILDING OVER TO OWNER. PROVIDE ANY REQUIRED CERTIFICATION OF TEST OF BACKFLOW PREVENTER TO LOCAL AUTHORITIES.



PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. HANGER SPACING FOR PIPE SIZE: COPPER: 4"=12'-0"; 3"=11'-0"; 2\%"=10'-0"; 2"=9'-0"; 1\%"=8'-0"; 1¼"=7'-0"; 1" & ¾"=6'-0"; ½"=5'-0". CAST IRON: 10'-0" AND ONE NEAR ALL JOINTS. STEEL: 4"=14'-0"; 3"=12'-0"; 2½"=11'-0"; 2"=10'-0"; 1½"=9'-0"; 1"=7'-0"; ½"=6'-0"; ½"=5'-0". LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.

# PIPE HANGERS

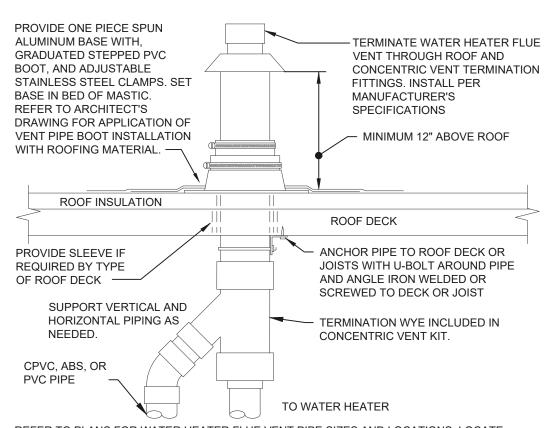
NOT TO SCALE



COVER VALVE BODIES WITH INSULATION. BUT NOT UNIONS

PROVIDE FIBERGLASS INSULATION WITH ALL-SERVICE JACKET WITH VAPOR BARRIER ON ALL COLD/HOT WATER PIPING AND CONDENSATE DRAIN PIPE. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING INSULATION. INSTALL ALL ITEMS PER SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS. MAINTAIN VAPOR BARRIER ON COLD PIPING BY MEANS OF SEALANT AND TAPE. FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES SHALL NOT EXCEED 25/50. SEAL EXPOSED ENDS OF FIBERGLASS INSULATION WITH ADHESIVE MASTIC.

# PIPE INSULATION (02) NOT TO SCALE



REFER TO PLANS FOR WATER HEATER FLUE VENT PIPE SIZES AND LOCATIONS. LOCATE CONCENTRIC VENT A MINIMUM OF 10 FEET HORIZONTAL (UNLESS APPROVED BY ENGINEER PRIOR TO INSTALLATION) AND ONE FOOT FROM ANY VERTICAL SURFACE. VERIFY FLASHING AND COUNTERFLASHING WITH ROOFING CONTRACTOR.

> CONCENTRIC VENT NOT TO SCALE \

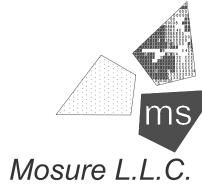
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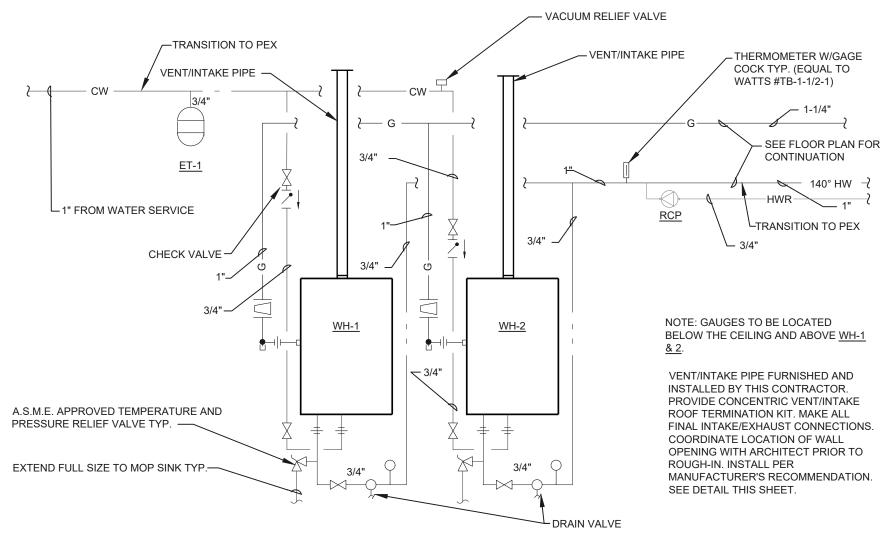
PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

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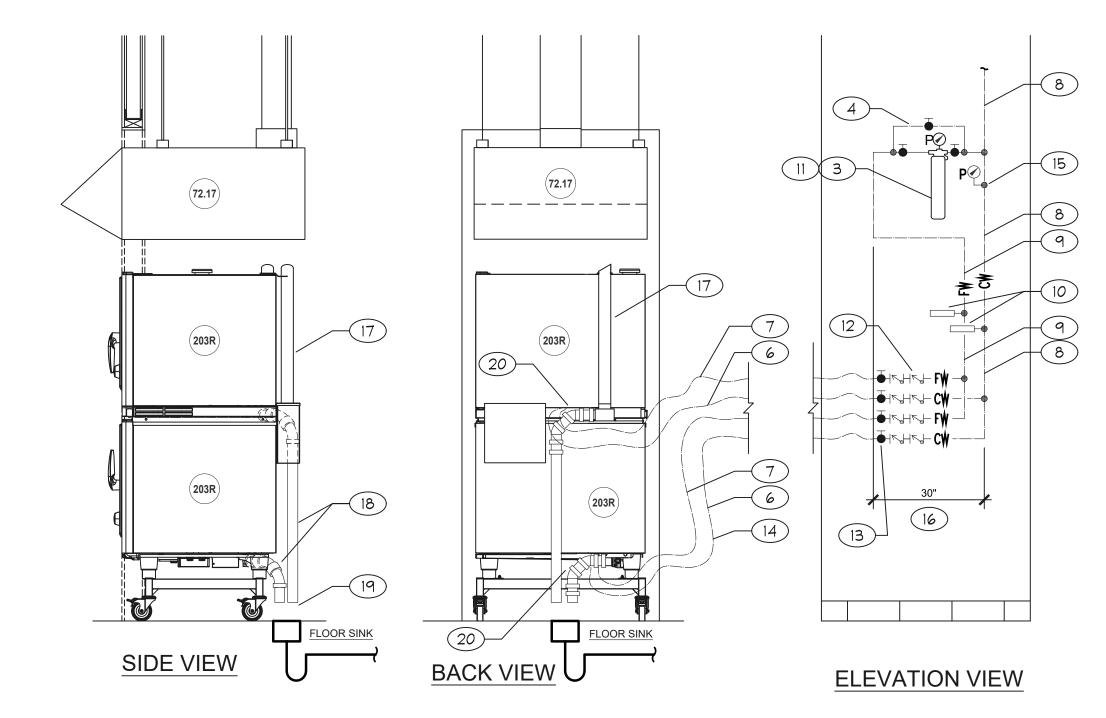
PLUMBING DETAILS

40509-11

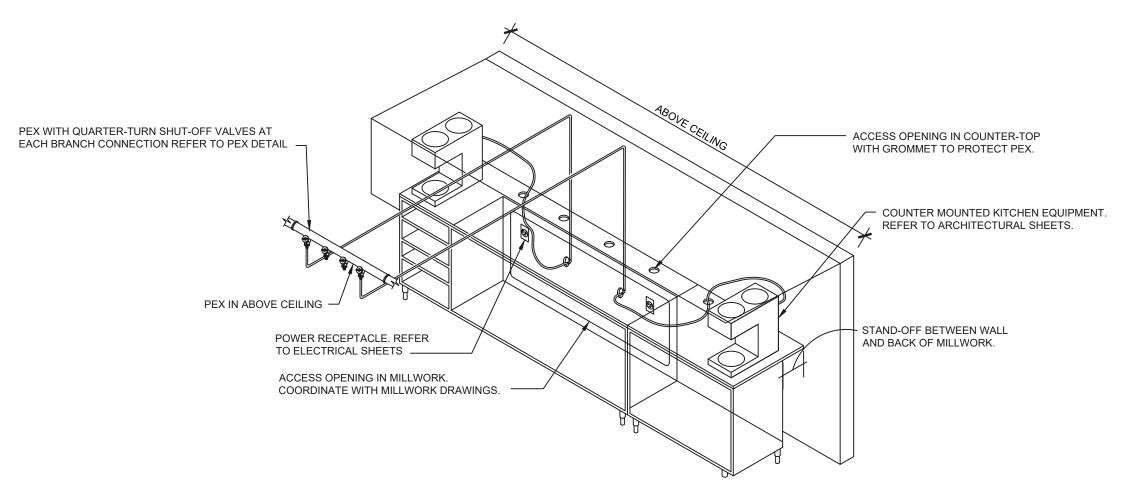


GAS-FIRED WATER HEATER DETAIL 05

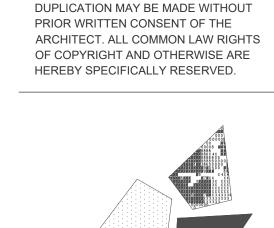
- DETAIL IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL REVIEW SITE SPECIFIC DRAWINGS PRIOR TO ROUGHING IN AND ADJUST TO SUIT.
- 2. GENERAL CONTRACTOR SHALL PERFORM A PRESSURE TEST ON INCOMING WATER LINE AND DOWNSTREAM OF WATER TREATMENT SYSTEM FOR OVEN(S) AND SUBMIT THE RESULTS BACK TO THE ENGINEER AND TIM HORTON'S PROJECT MANAGER FOR REVIEW.
- 3. WATER TREATMENT SYSTEM (3M) FURNISHED WITH OVEN AND INSTALLED BY GENERAL CONTRACTOR.
- 4. 3/4" BY-PASS LINE CW BY-PASS VALVES ON WATER TREATMENT SYSTEM PROVIDED BY GENERAL CONTRACTOR.
- 5. ALL PIPING SHOWN SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- 6. CW: COLD WATER LINE.
- 7. FW: FILTERED WATER LINE.
- 8. 3/4" COLD WATER LINE PROVIDED BY GENERAL CONTRACTOR.
- 9. 3/4" FILTERED WATER LINE PROVIDED BY GENERAL CONTRACTOR.
- 10. WATER HAMMER ARRESTOR WATTS MODEL LF15M2 SIZE: 3/4". PROVIDED BY GENERAL CONTRACTOR
- 11. MAINTAIN MINIMUM 3" CLEARANCE BELOW FILTER CARTRIDGES UPON COMPLETION OF ALL WORK FOR REMOVAL/INSTALLATION OF FILTERS
- 12. DUAL CHECK VALVE "APOLLO 4N-300 SERIES" OR "WATTS 7 SERIES". (TYP. FOR 4)
- 13. TERMINATE CW & FW PIPING DOWNSTREAM OF D.U.C. CW SHUT-OFF VALVE AND 3/4" M.P.T. CONNECTION. THIS CONTRACTOR SHALL PROVIDE FINAL CONNECTION OF PRE-INSTALLED WATER PIPING FURNISHED WITH RATIONAL OVENS DOWNSTREAM OF SHUT-OFF VALVES. GENERAL CONTRACTOR SHALL FIELD VERIFY DISTANCE FROM OVEN TO LOCATION OF WATER TREATMENT SYSTEM AND PROVIDE ADDITIONAL LENGTH OF 1/2" PEX CW 3/4" N.P.T. FITTINGS WHERE REQUIRED TO SUIT. (TYP. FOR 4)
- 14. 1/2" WATER LINE PROVIDED WITH OVEN, TERMINATED WITH 3/4" F.P.T. CONNECTION. PIPING PRE-INSTALLED ON OVEN. (TYP. FOR 4)
- 15. PRESSURE GAUGE BOSHART INDUSTRIES MODEL PGS-100-G (MAXIMUM 100 P.S.I.) PROVIDED BY GENERAL CONTRACTOR.
- 16. ENSURE ALL PLUMBING FITTINGS, GAUGES, BACK FLOW PREVENTERS AND PIPING TO BE INSTALLED WITHIN THE WALL SPACE AS NOTED ON THE DETAIL.
- 17. PRE-INSTALLED STAINLESS STEEL VENT PIPE FOR THE BOTTOM OVEN. GENERAL CONTRACTOR TO PROVIDE PRE-MOULDED GLASS-FIBER INSULATION WITH ZESTON 2000 PVC JACKETING.
- 18. 2" COPPER DWV CW PRE-MOULDED GLASS-FIBER INSULATION WITH ZESTON 2000 PVC JACKETING. INSTALL HORIZONTAL SECTIONS OF DRAIN LINE WITH MINIMUM 5% / 3° SLOPE. SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR
- 19. MAINTAIN MINIMUM 1" AIR GAP AT <u>FD-3</u>.
- 20. THREE (3) 45° ELBOWS ARE REQUIRED. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR DETAILS.







PEX CABINET INSTALLATION NOT TO SCALE 02



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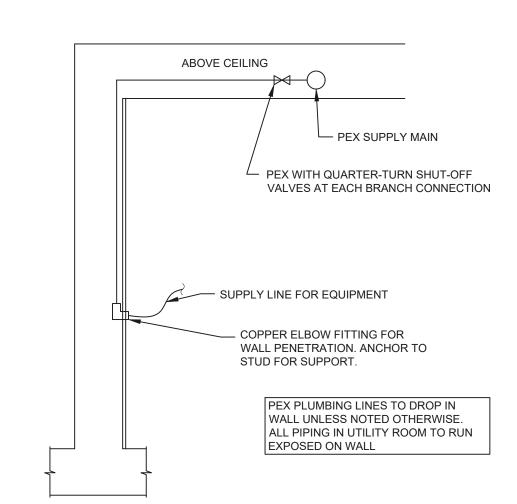
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40509-11

PLUMBING DETAILS

SHEET:

P4.2



PEX WALL INSTALLATION 03

**DIVISION 02 - EXISTING CONDITIONS** (NOT INCLUDED) **DIVISION 03 - CONCRETE** 

REINFORCED CONCRETE SECTION 03 30 00 COLORED CONCRETE **DIVISION 04 - MASONRY DIVISION 05 - METALS** DECORATIVE METAL RAILING SECTION 05 73 00

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES ROUGH CARPENTRY SECTION 06 10 00

SHEATHING SECTION 06 16 00 SHOP FABRICATED WOOD SECTION 06 17 53 TRUSSES FINISH CARPENTRY SECTION 06 20 00

THERMAL INSULATION

STOREFRONT WINDOWS

PASS-THRU WINDOWS

DOOR HARDWARE

WINDOW FILM

**DIVISION 07 - THERMAL AND MOISTURE** SECTION 07 21 00

**SECTION 08 56 19** 

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SECTION 08-87-00

FLUID APPLIED MEMBRANE SECTION 07 27 26 EXTRUDED ALUMINUM SIDING SECTION 07 46 16 MINERAL-FIBER CEMENT SIDING SECTION 07 46 4 MEMBRANE ROOFING SECTION 07 50 00 SHEET METAL FLASHING SECTION 07 62 00 GUTTERS AND DOWNSPOUTS SECTION 07 71 23 FIRESTOPPING SECTION 07 84 00 JOINT SEALANTS SECTION 07 92 00 **DIVISION 08 - OPENINGS** METAL DOORS AND FRAMES SECTION 08 11 00

GLAZING SECTION 08 80 00 **DIVISION 09 - FINISHES** 

ALUMINUM ENTRANCES AND SECTION 08 41 1:

GYPSUM BOARD ASSEMBLIES SECTION 09 21 00 ACOUSTIC TILE CEILINGS SECTION 09 51 23 CERAMIC TILING SECTION 09 67 23 FIBERGLASS REINFORCED SECTION 09 77 50 PAINTING SECTION 09 91 00 **DIVISION 10 - SPECIALTIES** 

**SECTION 10 14 23** 

SECTION 10 26 00 WALL PROTECTION TOILET ACCESSORIES SECTION 10 28 00 SECTION 10 44 00 **DIVISION 12 - WINDOW TREATMENTS** 

SECTION 08 87 00

SEE MECHANICAL DRAWINGS

SEE MECHANICAL DRAWINGS

**DIVISION 23 - HEATING, VENTILATING** AND AIR CONDITIONING

**DIVISION 26 - ELECTRICAL** 

**DIVISION 22 - PLUMBING** 

APPROVED SUPPLIERS LIST

**DIVISION 01 - GENERAL REQUIREMENTS** WORK OF CONTRACT

1.1 CONTRACT DOCUMENTS A. THE CONSTRUCTION CONTRACT DOCUMENT WILL BE PREPARED BY THE TDL GROUP CORPORATION. A COPY MAY NOT BE BOUND WITH THESE DOCUMENTS.

PART 1 - GENERAL

B THE STANDARD FORM OF GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT CCDC 2, 2008, AND SUPPLEMENTARY CONDITIONS THERETO FORM AN INTEGRAL PART OF THE SPECIFICATIONS.

C. PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS UNDER ONE D. AN EXECUTED CCDC CONTRACT WILL BE REQUIRED BEFORE APPLICATION OF PERMIT.

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INCLUSION OF ALL WORK REQUIRED FOR COMPLETION OF THE PROJECT AND SHALL CO-ORDINATE THE WORK OF HIS SUBCONTRACTORS SO THAT IT IS ACCOMPLISHED.

B. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND REPORT AND DISCREPANCIES TO THE OWNER PRIOR TO SUBMITTING TENDER.

C. THE CONTRACTOR IS RESPONSIBLE FOR CO-ORDINATION OF ALL SUB-TRADES AS OUTLINED IN INSTRUCTIONS TO BIDDERS

D. THE CONTRACTOR SHALL OFF-LOAD KITCHEN EQUIPMENT SUPPLIED BY STORE FIXTURE COMPANY AND THE TDL GROUP CORPORATION. E. THE CONTRACTOR IS TO CLEAN THE SITE AND BUILDING BEFORE THE STORE FIXTURES AND THE TDL GROUP CORPORATION EQUIPMENT DELIVERY.

F. CONTRACTOR AND SUB-TRADES TO BE ON SITE AT ALL TIMES DURING EQUIPMENT G. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING REFUSE REMOVAL FOR DURATION OF PROJECT.

H. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ROOF OF ALL DEBRIS AT THE END THE CONTRACTOR SHALL KEEP THE SITE CLEAN AND ORDERLY CLEAN THE BUILDING

1.3 CONSTRUCTION STANDARDS A. CONSTRUCTION WORK TO EQUAL OR EXCEED MINIMUM STANDARDS SPECIFIED FOR MATERIALS, INSTALLATION METHODS, WORKMANSHIP AND CONSTRUCTION IN PART 3 OF THE BUILDING CODE LATEST EDITION EXCEPT WHERE ADDITIONAL OR MORE STRINGENT REQUIREMENTS ARE IMPOSED BY REFERENCE TO OTHER PARTS OF THE NATIONAL BUILDING CODE OF CANADA, BY PROVINCIAL CODES, BY LOCAL JURISDICTIONAL AUTHORITIES, OR BY THE DRAWINGS, SPECIFICATIONS, SPECIFIED

AND SITE AT THE END OF EACH DAY DURING THE CONSTRUCTION PERIOD.

1.4 GENERAL CONTRACTOR A. GENERAL CONTRACTOR TO CO-ORDINATE AND OBTAIN ALL REQUIRED INSPECTION CERTIFICATES AND DELIVER TO THE OWNER A FINAL OCCUPANCY PERM B. GENERAL CONTRACTOR TO OBTAIN ALL REQUIRED SURVEYS TO MEET BUILDING LAYOUT AND BUILDING PERMIT REQUIREMENTS.

RELATION TO, THE CONTRACT DOCUMENTS FOR THIS PROJECT.

C. GENERAL CONTRACTOR TO OBTAIN A REGISTERED SURVEY FOR THE BUILDING AND SITE PRIOR TO RELEASE OF FINAL PAYMENT AS NOTED IN THE INSTRUCTION TO 1.5 SECURITY

A. GENERAL CONTRACTOR TO BE RESPONSIBLE FOR SECURITY OF ALL AREAS AFFECTED BY WORK OF THIS CONTRACT UNTIL TAKEN OVER BY THE TDL GROUP LTD TO TAKE STEPS TO PREVENT ENTRY TO THE WORK BY UNAUTHORIZED PERSONS AND GUARD AGAINST THEFT, FIRE AND DAMAGE BY ANY CAUSE.

B. GENERAL CONTRACTOR IS RESPONSIBLE FOR THE PREVENTION OF VANDALISM AND FT OF ALL TOOLS, EQUIPMENT, MATERIALS AND OWNER'S CONTENTS A. BE GOVERNED BY PERTINENT SAFETY REQUIREMENTS OF FEDERAL, PROVINCIAL OR

MUNICIPAL BODIES HAVING AUTHORITY. PARTICULARLY THE CONSTRUCTION SAFETY WITH THE PROPER SAFETY ASSOCIATIONS OPERATING UNDER THE AUTHORITY OF EACH JURISDICTION. B. PROTECT OWNER, OWNER'S EMPLOYEES, THE PUBLIC AND THOSE EMPLOYED ON THE

WORK FROM BODILY INJURY AND TO PROTECT ADJACENT PUBLIC, PRIVATE AND OWNER'S PROPERTY FROM DAMAGE. C. FURNISH AND MAINTAIN PROTECTION, SUCH AS WARNING SIGNS, TARPAULINS, GUARD RAILS. BARRIERS. NIGHT LIGHTS, RAILINGS AROUND SHAFTS, PIT AND STAIRWELLS, ETC. AS REQUIRED. REMOVE TEMPORARY PROTECTIVE MEASURES WHEN NO

1.7 SHOP DRAWINGS A. SUBMIT SHOP DRAWINGS FOR ALL NON-SPECIFIED MATERIALS AND PRODUCTS IN CONFORMANCE WITH INDUSTRY STANDARDS.

B. REFER TO DIVISION AND SECTIONS OF THE SPECIFICATION FOR WORK REQUIRIN SHOP DRAWING SUBMISSION. SUCH WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: ROOF JOISTS, ROOFING MATERIAL LIST, DOORS AND FRAMES, HARDWARE, ELECTRICAL PANELS AND CIRCUITING. 1.8 SHOP DRAWINGS

A. A. THE CONTRACTOR TO PROVIDE AS BUILT DRAWINGS AND MAINTENANCE

**DIVISION 03 - CONCRETE** REINFORCED CONCRETE 03 30 00 PART 1 - GENERAL

A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST, ADOPTED EDITIONS OF THE STANDARDS AND MATERIAL SPECIFICATIONS REFERENCED HEREIN B. REFERENCE STANDARDS BY THE AMERICAN CONCRETE INSTITUTE (ACI)

1. ACI 301. "SPECIFICATIONS FOR STRUCTURAL CONCRETE." EXCEPT AS SPECIFICALLY MODIFIED IN THE SPECIFICATIONS AND/OR HEREIN. 2. ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

3. ACI 305, "HOT WEATHER CONCRETING" AND ACI 306, "COLD WEATHER 4. ACI 315. "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.

1.2 ACTION SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

B. DESIGN MIXTURES: FOR EACH CONCRETE MIXTURE. C. STEEL REINFORCEMENT SHOP DRAWINGS: PLACING DRAWINGS THAT DETAIL FABRICATION, BENDING, AND PLACEMENT.

D. FORMWORK SHOP DRAWINGS: PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER DETAILING FABRICATION, ASSEMBLY, AND SUPPORT OF FORMWORK 1.3 INFORMATIONAL SUBMITTALS

B. MATERIAL CERTIFICATES C. MATERIAL TEST REPORTS. D. FLOOR SURFACE FLATNESS AND LEVELNESS MEASUREMENTS.

A. WELDING CERTIFICATES.

1.4 QUALITY ASSURANCE A. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURIN READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94/C 94M

REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT. 1. MANUFACTURER CERTIFIED ACCORDING TO NRMCA'S "CERTIFICATION OF READY MIXED CONCRETE PRODUCTION FACILITIES." B. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY, J ACCEPTABLE TO

AUTHORITIES HAVING JURISDICTION, QUALIFIED ACCORDING TO ASTM C 1077 AND ASTM E 329 FOR TESTING INDICATED C. WELDING QUALIFICATIONS: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO

AWS D1.4/D 1.4M. "STRUCTURAL WELDING CODE - REINFORCING STEEL. D. ACLIPUBLICATIONS: COMPLY WITH THE FOLLOWING UNLESS MODIFIED BY REQUIREMENTS IN THE CONTRACT DOCUMENTS:

1. ACI 301. "SPECIFICATIONS FOR STRUCTURAL CONCRETE." 2. ACI 117, "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND E. CONCRETE TESTING SERVICE: ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY

TO PERFORM MATERIAL EVALUATION TESTS AND TO DESIGN CONCRETE MIXTURES. PART 2 - PRODUCTS 2.1 MATERIALS

SEE STRUCTURAL DRAWINGS FOR CLASS, LOCATION, AND COMPRESSIVE STRENGTH OF CONCRETE AND BACKFILL. B. REINFORCING BARS AND WELDED WIRE FABRIC

A. STRUCTURAL CONCRETE

SEE STRUCTURAL DRAWINGS FOR SPECIFICATION BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING SUPPORTING, AND FASTENING REINFORCING BARS AND WELDED WIRE REINFORCEMENT IN PLACE. MANUFACTURE BAR SUPPORTS FROM STEEL WIR PLASTIC, OR PRECAST CONCRETE ACCORDING TO CRSI'S "MANUAL OF STANDARD

2.2 FIELD MANUAL: PROVIDE AT LEAST ONE COPY OF THE ACI FIELD EFERENCE MANUAL, SP-15, IN THE FIELD OFFICE AT ALL TIMES 2.3 FOOTINGS AND FOUNDATION WALLS

A. PROVIDE AND INSTALL DOWELS IN CONCRETE FOOTINGS TO MATCH VERTICAL FOUNDATION WALL REINFORCING. 1. WHERE CONCRETE IS CONSTRUCTED ON TOP OF FOOTINGS PROVIDE 48 BAR IAMETER REINFORCING LAP SPLICES BETWEEN DOWELS AND VERTICAL WALL

REINFORCING. B. INSTALL CORNER BARS AT FOUNDATION WALL AND FOOTING CORNERS TO MATCH HORIZONTAL REINFORCING. LAP CORNER BARS WITH HORIZONTAL WALL AND FOOTING REINFORCING A MINIMUM OF 48 BAR DIAMETERS.

C. INSTALL LEAN CONCRETE (CLASS IV) UNDER FOUNDATIONS FOR ACCIDENTAL R-EXCAVATION, SOFT SPOTS AND TRENCHES. D. CONCRETE FOUNDATION WALLS ARE NOT DESIGNED TO BE STABLE DURING CONSTRUCTION. THE CONTRACTOR SHALL INSTALL, IN A TIMELY MANNER TO PREVENT COLLAPSE OF THE WALLS, ADEQUATE BRACING DESIGNED TO RESIST ALL APPLICABLE DADS OR FORCES. BRACING SHALL REMAIN IN PLACE UNTIL ALL STRUCTURAL

IS PROVIDING LATERAL SUPPORT FOR THE WALLS ARE IN PLACE AND THE 2.4 PROVIDE 48 BAR DIAMETER LAP SPLICES AT ENDS OF CONTINUOUS HORIZONTAL AND CONTINUOUS VERTICAL REINFORCING. 2.5 CONCRETE COVER: UNLESS NOTED OTHERWISE, DETAIL REINFORCING TO PROVIDE

A. CONCRETE CAST AGAINST AN PERMANENTLY EXPOSED TO EARTH 3 INCHES B. CONCRETE EXPOSED TO EARTH OR WEATHER #5 BARS AND SMALLER INCHES

2.6 VAPOR RETARDERS A. SHEET VAPOR RETARDER: ASTM E 1745. INCLUDE MANUFACTURER'S RECOMMENDED ADHESIVE OR PRESSURE-SENSITIVE TAPE

B. SHEET VAPOR RETARDER: POLYETHYLENE SHEET, ASTM D 4397, NOT LESS THAN 10 PART 3 - EXECUTION

1 FORMWORK A. DESIGN, ERECT, SHORE, BRACE, AND MAINTAIN FORMWORK, ACCORDING TO ACI 301 O SUPPORT VERTICAL, LATERAL, STATIC, AND DYNAMIC LOADS, AND CONSTRUCTION LOADS THAT MIGHT BE APPLIED, UNTIL STRUCTURE CAN SUPPORT SUCH LOADS. B CONSTRUCT FORMWORK SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE

SHAPE, ALIGNMENT, ELEVATION, AND POSITION INDICATED, WITHIN TOLERANCE LIMITS EMBEDDED ITEMS A PLACE AND SECURE ANCHORAGE DEVICES AND OTHER EMBEDDED ITEMS REQUIRED

FOR ADJOINING WORK THAT IS ATTACHED TO OR SUPPORTED BY CAST-IN-PLACE CONCRETE. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED. 3.3 VAPOR RETARDERS

A. SHEET VAPOR RETARDERS: PLACE, PROTECT, AND REPAIR SHEET VAPOR RETARDER ACCORDING TO ASTM E 1643 AND MANUFACTURER'S WRITTEN INSTRUCTIONS 1. LAP JOINTS 6 INCHES AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE

A. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR PLACING REINFORCEMENT 1. DO NOT CUT OR PUNCTURE VAPOR RETARDER. REPAIR DAMAGE AND RESEAL VAPOR RETARDER BEFORE PLACING CONCRETE.

3.5 JOINTS A. GENERAL: CONSTRUCT JOINTS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE.

B. CONSTRUCTION JOINTS: INSTALL SO STRENGTH AND APPEARANCE OF CONCRETE ARE NOT IMPAIRED, AT LOCATIONS INDICATED OR AS APPROVED BY ARCHITECT CONTRACTION JOINTS IN SLABS-ON-GRADE: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED ON FOUNDATION PLAN: GROOVED JOINTS: FORM CONTRACTION JOINTS AFTER INITIAL FLOATING BY

ELIMINATE GROOVER TOOL MARKS ON CONCRETE SURFACES. SAWED JOINTS: FORM CONTRACTION JOINTS WITH POWER SAWS EQUIPPED WITH HATTERPROOF ABRASIVE OR DIAMOND-RIMMED BLADES. CUT 1/8-INCH-WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE, OR

GROOVING AND FINISHING EACH EDGE OF JOINT TO A RADIUS OF 1/8 INCH. REPEAT

OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION CRACKS. D. ISOI ATION JOINTS IN SI ABS-ON-GRADE: AFTER REMOVING FORMWORK, INSTALL JOINT-FILLER STRIPS AT SLAB JUNCTIONS WITH VERTICAL SURFACES, SUCH AS COLUMN PEDESTALS, FOUNDATION WALLS, GRADE BEAMS, AND OTHER LOCATIONS, AS

E. WATERSTOPS: INSTALL IN CONSTRUCTION JOINTS AND AT OTHER JOINTS INDICATED

A. BEFORE PLACING CONCRETE, VERIFY THAT INSTALLATION OF FORMWORK REINFORCEMENT, AND EMBEDDED ITEMS IS COMPLETE AND THAT REQUIRED

ACCORDING TO ACI 301

C. COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1

D. HOT-WEATHER PLACEMENT: COMPLY WITH ACI 301.

SUCH THICKNESS THAT NO NEW CONCRETE WILL BE PLACED ON CONCRETE THAT HAS IARDENED ENOUGH TO CAUSE SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS INDICATED DEPOSIT CONCRETE TO AVOID SEGREGATION. 1. CONSOLIDATE PLACED CONCRETE WITH MECHANICAL VIBRATING EQUIPMENT

3.7 FINISHING FORMED SURFACES D. CURING COMPOUND FOR COLORED CONCRETE: CURING COMPOUND SHALL COMPLY WITH A. ROUGH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING ASTM C309 AND BE APPROVED BY COLOR ADDITIVE MANUFACTURER FOR USE WITH MATERIAL WITH TIE HOLES AND DEFECTS REPAIRED AND PATCHED. REMOVE FINS AN COLORED CONCRETE. PROVIDE W-1000 CLEAR CURE & SEAL, MANUFACTURED BY DAVID OTHER PROJECTIONS THAT EXCEED SPECIFIED LIMITS ON FORMED-SURFACE

E. FORM FACING MATERIALS: 1. APPLY TO CONCRETE SURFACES INOT EXPOSED TO PUBLIC VIEWI < INSERT LOCATIONS: FOR FORMED COLORED CONCRETE SURFACES, PROVIDE NON-POROUS SURFACE SUCH B SMOOTH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING AS STEEL, PLASTIC, OR HIGH-DENSITY OVERLAID PLYWOOD WITH WATERTIGHT JOINT MATERIAL, ARRANGED IN AN ORDERLY AND SYMMETRICAL MANNER WITH A MINIMUM OF SEALS TO PREVENT LEAKAGE. F. SEALANTS FOR COLORED CONCRETE: PROVIDE IN COLOR TO MATCH COLORED CONCRETE PROJECTIONS THAT EXCEED SPECIFIED LIMITS ON FORMED-SURFACE IRREGULARITIES.

R MANUFACTURER'S RECOMMENDATION 2.2 CONCRETE MIX DESIGNS FINISH,] [TO BE COVERED WITH A COATING OR COVERING MATERIAL APPLIED DIRECTLY CONCRETE MIX DESIGN SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN SECTION 03 C. RUBBED FINISH: APPLY THE FOLLOWING TO SMOOTH-FORMED FINISHED AS-CAST CONCRETE

30 30, CAST-IN-PLACE CONCRETE, AND THE FOLLOWING ADDITIONAL REQUIREMENTS: . MATCH THE SAMPLE AVAILABLE IN THE ENGINEER'S OFFICE, UTILIZING THE CEMENT AGGREGATES. AND PIGMENTED ADDITIVE SPECIFIED IN THE CONTRACT DOCUMENT 2. USE OF ADMIXTURES, IN ADDITION TO PIGMENTED ADDITIVE ITSELF, SHALL BE SUBJECT TO THE WRITTEN APPROVAL OF THE COLOR ADDITIVE MANUFACTURES 3. DOSAGE RATE OF COLOR ADDITIVE SHALL NOT EXCEED 10 PERCENT OF WEIGHT OF ?. GROUT-CLEANED FINISH: WET CONCRETE SURFACES AND APPLY GROUT OF A CONSISTENC' CEMENTITIOUS MATERIALS IN MIX.

B. MAINTAIN WATER CONTENT AND CONTROL SLUMP TO MAINTAIN CONSTANT COLOR

COMPOUND MANUFACTURER'S INSTRUCTIONS. APPLY CURING COMPOUND AT

END OF SECTION 03 33 50

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION.

ALL MASONRY CONSTRUCTION SHALL CONFORM TO THE LATEST. ADOPTED EDITIONS

2. ACI 530.1/ASCE 6/TMS 602, "SPECIFICATION FOR MASONRY STRUCTURES."

B. STORE AND HANDLE MASONRY UNITS OFF THE GROUND, UNDER COVER, AND IN A DRY

BECOME WET. DO NOT PLACE UNTIL UNITS ARE IN AN AIR-DRIED CONDITION.

C. STORE CEMENTITIOUS MATERIALS OFF THE GROUND, UNDER COVER, AND IN DRY

PROTECTION OF MASONRY: DURING ERECTION, COVER TOPS OF WALLS,

MORTAR, AND SOIL THAT COMES IN CONTACT WITH SUCH MASONF

LOCATION TO PREVENT THEIR DETERIORATION OR DAMAGE DUE TO MOISTURE.

STORE AGGREGATES WHERE GRADING AND OTHER REQUIRED CHARACTERISTICS CAN

STORE MASONRY ACCESSORIES INCLUDING METAL ITEMS TO PREVENT CORROSION

PROJECTIONS, AND SILLS WITH WATERPROOF SHEETING AT END OF EACH DAY'S WORK

COVER PARTIALLY COMPLETED MASONRY WHEN CONSTRUCTION IS NOT IN PROGRESS.

1. EXTEND COVER A MINIMUM OF 24 INCHES DOWN BOTH SIDES AND HOLD COVER

STAIN PREVENTION: PREVENT GROUT, MORTAR, AND SOIL FROM STAINING THE FACE

MEANS OF COVERINGS SPREAD ON GROUND AND OVER WALL SURFACE.

2. PROTECT SILLS, LEDGES, AND PROJECTIONS FROM MORTAR DROPPINGS.

3 PROTECT SURFACES OF WINDOW AND DOORFRAMES AS WELL AS SIMILAR

STANDARD FOR COLD-WEATHER CONSTRUCTION AND THE FOLLOWING:

D. HOT-WEATHER CONSTRUCTION: COMPLY WITH REFERENCED UNIT MASONRY

A. CONCRETE BLOCK: ASTM C90, MINIMUM NET AREA COMPRESSIVE STRENGTH OF

ASTM SPECIFICATION FOR CONCRETE MASONRY UNITS.

DO NOT LAY MASONRY UNITS THAT ARE WET OR FROZEN.

REMOVE MASONRY DAMAGED BY FREEZING CONDITIONS.

CONCRETE MASONRY UNITS: 2,500 PSI

STRENGTH: 2,500 PSI.

CO. - CONN; "DRY-BLOCK"

OF MASONRY TO BE LEFT EXPOSED OR PAINTED. REMOVE IMMEDIATELY ANY GROUT

PROTECT BASE OF WALLS FROM RAIN-SPLASHED MUD AND MORTAR SPLATTER BY

PRODUCTS WITH PAINTED AND INTEGRAL FINISHES FROM MORTAR DROPPINGS.

BOND BEAM AND CORE FILL: ASTM C476, COARSE TYPE, MINIMUM COMPRESSIVE

INDICATED BELOW FOR SIZES THAT ARE MANUFACTURED TO SPECIFIED FACI

3. CONCRETE MASONRY UNITS: MANUFACTURED TO SPECIFIED DIMENSIONS OF 3/8

INCH LESS THAN NOMINAL WIDTHS BY NOMINAL HEIGHTS BY NOMINAL LENGTHS

. CONCRETE MASONRY UNITS WITH INTEGRAL WATER REPELLANT: WHERE SHOWN,

PROVIDE UNITS MADE WITH LIQUID POLYMERIC. INTEGRAL WATER-REPELLANT

ADMIXTURE THAT DOES NOT REDUCE FLEXURAL BOND STRENGTH FOR EXPOSE

UNITS; PRODUCT: GRACE CONSTRUCTION PRODUCTS, A UNIT OF W.R. GRACE &

BRICK; TO COMPLY WITH ASTM C 216, SEVERE WEATHERING GRADE, TYPE FBS.

DIMENSIONS WITHIN TOLERANCES SPECIFIED IN THE APPLICABLE REFERENCED

2. SIZE: PROVIDE CONCRETE MASONRY UNITS COMPLYING WITH REQUIREMENTS

A. DELIVER MASONRY MATERIALS TO PROJECT IN UNDAMAGED CONDITION

BE MAINTAINED AND CONTAMINATION AVOIDED

AND ACCUMULATION OF DIRT AND OIL.

ACI 530/ASCE 5/TMS 402, "BUILDING CODE REQUIREMENTS FOR MASONRY

a. CONFORM COLD WEATHER MASONRY CONSTRUCTION TO PARAGRAPH 1.8.C.

b. CONFORM HOT WEATHER MASONRY CONSTRUCTION TO PARAGRAPH 1.8.D.

OF THE STANDARDS AND MATERIAL SPECIFICATIONS REFERENCED HEREIN

ADMIXTURE AND WATER. ADD WHITE PORTLAND CEMENT IN AMOUNTS DETERMINED BY C. COLOR ADDITIVES: MIX IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. MIX UNTIL TRIAL PATCHES SO COLOR OF DRY GROUT WILL MATCH ADJACENT SURFACES, SCRUB COLOR ADDITIVES ARE UNIFORMLY DISPERSED THROUGHOUT AND DISINTEGRATING BAGS, IF GROUT INTO VOIDS AND REMOVE EXCESS GROUT, WHEN GROUT WHITENS, RUB SURFACE NITH CLEAN BURLAP AND KEEP SURFACE DAMP BY FOG SPRAY FOR AT LEAST 36 HOUR: USED. HAVE DISINTEGRATED. D. PATCHING MIX: IF ANY PATCHING IS PERMITTED. MIX ACCORDING TO PIGMENTED ADDITIVE CORK-FLOATED FINISH: WET CONCRETE SURFACES AND APPLY A STIFF GROUT, MIX ONE MANUFACTURER'S WRITTEN INSTRUCTIONS. PART PORTLAND CEMENT AND ONE PART FINE SAND WITH A 1:1 MIXTURE OF BONDING

PATCHES SO COLOR OF DRY GROUT WILL MATCH ADJACENT SURFACES. COMPRESS GROUT ITO VOIDS BY GRINDING SURFACE. IN A SWIRLING MOTION, FINISH SURFACE WITH A CORK A. REFER TO SECTIONS 03 30 30, CAST-IN-PLACE CONCRETE FOR GENERAL REQUIREMENTS A. RELATED UNFORMED SURFACES: AT TOPS OF WALLS. HORIZONTAL OFFSETS, AND SIMILAR UNFORMED SURFACES ADJACENT TO FORMED SURFACES, STRIKE OFF SMOOTH AND FINISH FOR FINISHING AND CURING CONCRETE WITH A TEXTURE MATCHING ADJACENT FORMED SURFACES. CONTINUE FINAL SURFACE B. FINISHING AND CURING OF COLORED CONCRETE REATMENT OF FORMED SURFACES UNIFORMLY ACROSS ADJACENT UNFORMED SURFACES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.2 BRICK (AS APPLICABLE)

C. SAMPLES FOR VERIFICATION:

WEEP HOLES AND VENTS

FILL CORES SOLIDLY AROUND ANCHOR RODS.

BARNARD, DUR-O-WAL, NATIONAL WIRE PRODUCTS CORP

LESS THAN NOMINAL WALL THICKNESS.

MESH WITH 1/2 INCH OPENINGS

2. CORRUGATED METAL VENEER TIES SHALL NOT BE USED.

A. HORIZONTAL JOINT REINFORCEMENT:

MASONRY VENEER ANCHORS:

A. MORTAR: TYPE S, MINIMUM COMPRESSIVE STRENGTH: 1,800 PSI

B. FILL VERTICAL COLLAR JOINTS BELOW GRADE SOLIDLY WITH MORTAR

MASONRY WALLS ARE NOT DESIGNED TO BE STABLE DURING CONSTRUCTION. THE

BRACING SHALL REMAIN IN PLACE LINTIL ALL STRUCTURAL ELEMENTS PROVIDIN

C. LAY HOLLOW MASONRY UNITS WITH FULL MORTAR COVERAGE ON HORIZONTAL AND

FILLED WITH GROUT. LAY SOLID UNITS WITH FULL HEAD AND BED JOINTS.

D. WHERE MASONRY UNITS OF DIFFERING WIDTHS ARE CONSTRUCTED ON ONE ANOTHER,

HORIZONTAL JOINT REINFORCEMENT, WALL TIES AND ANCHORS MANUFACTURERS: HOHMANN

1. EYE AND PINTLE TYPE RODS SPACED NOT MORE THAN 16 INCHES ON CENTER

CLASS B-2, HOT DIPPED GALVANIZED, WITH 9 GAGE SIDE RODS. SIZE, 2 INCHES

MORE THAN 16 INCHES ON CENTER, CLASS B-2, HOT DIPPED GALVANIZED, WITH 9

a. CONCRETE BLOCK LATERAL SUPPORT ANCHORS: 1/8 INCH THICK X 1-1/4 INCH

b. WIRE MESH WALL TIES SHALL BE 16 GAGE HOT-DIPPED GALVANIZED WIRE

GALV. ADJUSTABLE VENEER ANCHOR WITH TWO CADMIUM COATED SCREWS, 14

GAGE ANCHOR AND 3/16 INCH DIAMETER STEEL TIES. PROVIDE ONE ANCHOR FOR

3/4 INCH OF FACE MASONRY. ANCHORS MUST BE FASTENED DIRECTLY TO METAL

WIDE X 16 INCH LONG, MILL GALVANIZED WITH DOWN-TURNED END BENDS.

FREE STANDING COMPOSITE WALLS: LADDER DESIGN, CROSS RODS SPACED NOT

GAGE SIDE RODS. SIZE, 2 INCHES LESS THAN NOMINAL WALL THICKNESS.

INSTALL AT LEAST ONE FULL COURSE OF 100% SOLID OR SOLIDLY-GROUTED MASONF FOR THE WIDER OF THE TWO UNITS, CONTINUOUSLY ALONG THE TRANSITION (FOR

VERTICAL FACE SHELLS. PROVIDE FULL MORTAR COVERAGE FOR ALL WEBS IN THE

STARTING COURSE ON FOOTINGS, AND WHEN ADJACENT TO CELLS OR CAVITIES TO BE

CONTRACTOR SHALL INSTALL. IN A TIMELY MANNER TO PREVENT COLLAPSE OF THE

WALLS, ADEQUATE BRACING DESIGNED TO RESIST ALL APPLICABLE LOADS OR FORCES.

LATERAL SUPPORT FOR THE WALLS ARE IN PLACE AND THE WALLS HAVE ATTAINED THE

2.1 MATERIALS

DELIVERY, STORAGE, AND HANDLING

3.8 FINISHING FLOORS AND SLABS A GENERAL COMPLY WITH ACL 302 1R RECOMMENDATIONS FOR SCREEDING RESTRAIGHTENING AND FINISHING OPERATIONS FOR CONCRETE SURFACES. DO NOT WET CONCRETE SURFACES. B. FLOAT FINISH: CONSOLIDATE SURFACE WITH POWER-DRIVEN FLOATS OR BY HAND FLOATING IF REA IS SMALL OR INACCESSIBLE TO POWER DRIVEN FLOATS. RESTRAIGHTEN, CUT DOWN HIG SPOTS, AND FILL LOW SPOTS. REPEAT FLOAT PASSES AND RESTRAIGHTENING UNTIL SURFACE IS LEFT WITH A UNIFORM, SMOOTH, GRANULAR TEXTURE

. APPLY FLOAT FINISH TO INTERIOR SLAB SURFACES. C. TROWEL AND FINE-BROOM FINISH: APPLY A FIRST TROWEL FINISH TO EXTERIOR SLAF SURFACES. WHILE CONCRETE IS STILL PLASTIC, SLIGHTLY SCARIFY SURFACE WITH A FINE . COMPLY WITH FLATNESS AND LEVELNESS TOLERANCES FOR TROWEL-FINISHED FLOOR SURFACES.

SEAMS. REPAIR AND PATCH TIE HOLES AND DEFECTS. REMOVE FINS AND OTHER

TO CONCRETE1 <INSERT LOCATIONS>...

OTHER THAN THAT CREATED BY THE RUBBING PROCES

WHERE INDICATED:

UNLESS OTHERWISE INDICATED.

1. APPLY TO CONCRETE SURFACES [EXPOSED TO PUBLIC VIEW.] ITO RECEIVE A RUBBED

SMOOTH-RUBBED FINISH: NOT LATER THAN ONE DAY AFTER FORM REMOVAL, MOISTEN

ONCRETE SURFACES AND RUB WITH CARBORUNDUM BRICK OR ANOTHER ABRASIV

UNTIL PRODUCING A UNIFORM COLOR AND TEXTURE. DO NOT APPLY CEMENT GROUT

OF THICK PAINT TO COAT SURFACES AND FILL SMALL HOLES. MIX ONE PART PORTLAND

AGENT AND WATER. ADD WHITE PORTLAND CEMENT IN AMOUNTS DETERMINED BY TRIAL

CEMENT TO ONE AND ONE-HALE PARTS FINE SAND WITH A 1:1 MIXTURE OF BONDING

3.9 CONCRETE PROTECTING AND CURING A GENERAL PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. COMPLY WITH ACI 306.1 FOR COLD-WEATHER PROTECTION AND ACI 301 FOR HOT-WEATHER PROTECTION DURING CURING

B EVAPORATION RETARDER: APPLY EVAPORATION RETARDER TO UNFORMED CONCRETE SURFACES IF HOT, DRY, OR WINDY CONDITIONS CAUSE MOISTURE LOSS APPROACHING 0.2 B/SQ. FT. X H BEFORE AND DURING FINISHING OPERATIONS. APPLY ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AFTER PLACING, SCREEDING, AND BULL FLOATING

OR DARBYING CONCRETE, BUT BEFORE FLOAT FINISHIN

C. CURE CONCRETE ACCORDING TO ACI 308.1, BY ONE OR A COMBINATION OF THE FOLLOWING MOISTURE CURING: KEEP SURFACES CONTINUOUSLY MOIST FOR NOT LESS THAN SEVEN

MOISTURE-RETAINING COVER FOR CURING CONCRETE, PLACED IN WIDEST PRACTICABLE WIDTH, WITH SIDES AND ENDS LAPPED AT LEAST 12 INCHES, AND SEALED BY WATERPROOF TAPE OR ADHESIVE CURE FOR NOT LESS THAN SEVEN DAYS, IMMEDIATELY REPAIR ANY HOLES OR TEARS DURING CURING PERIOD USING COVER MATERIAL AND WATERPROOF

3 CURING COMPOUND: APPLY UNIFORMLY IN CONTINUOUS OPERATION BY POWER SPRAY OR ROLLER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN THREE HOURS AFTER INITIAL APPLICATION. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD a. REMOVAL: AFTER CURING PERIOD HAS ELAPSED, REMOVE CURING COMPOUND WITHOUT AGING CONCRETE SURFACES BY METHOD RECOMMENDED BY CURING COMPOUNI MANUFACTURER.

4. CURING AND SEALING COMPOUND: APPLY UNIFORMLY TO FLOORS AND SLABS INDICATED IN CONTINUOUS OPERATION BY POWER SPRAY OR ROLLER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN THREE HOURS AFTER INITIAL APPLICATION. REPEAT PROCESS 24 HOURS LATER AND APPLY A SECOND COAT. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD

3 10 CONCRETE SURFACE REPAIRS A. DEFECTIVE CONCRETE: REPAIR AND PATCH DEFECTIVE AREAS WHEN APPROVED B ARCHITECT. REMOVE AND REPLACE CONCRETE THAT CANNOT BE REPAIRED AND PATCHED TO ARCHITECT'S APPROVAL. 3.11 FIELD QUALITY CONTROL

A. TESTING AND INSPECTING: OWNER WILL ENGAGE A QUALIFIED TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.

END OF SECTION 03 30 00

COLORED CONCRETE PART 1 - GENERAL 1.1 DESCRIPTION

A. THIS SECTION INCLUDES REQUIREMENTS FOR INTEGRALLY COLORED CONCRETE. A PROVISIONS HEREIN AUGMENT REQUIREMENTS SPECIFIED UNDER SECTIONS 03:30:00 CAST IN-PLACE CONCRETE, TO ADD PROVISIONS SPECIFIC TO INTEGRALLY COLORED CONCRETE.

1.3 REFERENCES A. ASTM INTERNATIONAL (ASTM): 1. C309 - LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE

2. C979 - PIGMENTS FOR INTEGRALLY COLORED CONCRETE 1.4 SUBMITTALS A. SUBMIT PRODUCT DATA AND MANUFACTURER'S INSTRUCTIONS FOR COLOR ADDITIVES

2. CURING COMPOUNDS

B. SUBMIT SAMPLES FOR COLOR VERIFICATION 1. SUBMIT 8 INCH BY 10 INCH BY 2 INCH SAMPLES (OR COMPARABLE SIZE APPROVED BY THE ENGINEER) OF SPECIFIED COLORS INDICATING COLOR ADDITIVE NUMBER(S) AND REQUIRED DOSAGE RATE(S).

USED THROUGHOUT PROJECT AT COLOR CONCRETE.

C. CONCRETE MIX DESIGNS: SUBMIT UNDER SECTION 03 30 00, CAST-IN-PLACE CONCRETE. 1.5 QUALITY ASSURANCE A. MAINTAIN CONSISTENCY IN WORKMANSHIP THROUGHOUT COLORED CONCRETE WORK. B. INSTALLER QUALIFICATIONS: COLORED CONCRETE WORK SHALL BE PERFORMED BY FIRM WITH FIVE YEARS EXPERIENCE WITH WORK OF SIMILAR SCOPE AND QUALITY.

C. COLORED CONCRETE MOCK-UP: 1. PROVIDE FULL-SCALE MOCK-UP, CONSTRUCT AT LEAST ONE MONTH BEFORE START OF OTHER CONCRETE WORK TO ALLOW CONCRETE TO CURE BEFORE OBSERVATION. 2. AT LOCATION SELECTED BY THE ENGINEER, PLACE AND FINISH 4 FOOT BY 4 FOOT AREA FOR EACH CONCRETE COLOR AND FINISH, DEMONSTRATE METHODS OF OBTAINING CONSISTENT VISUAL APPEARANCE, INCLUDING EACH FORMING AND FI REQUIRED ON PROJECT USING MATERIALS, WORKMANSHIP, JOINT TREATMENT, FORM ES, CURING METHOD, SEALANTS, JOINT SEALANTS, AND PATCHING TECHNIQUES TO BE

3. RETAIN SAMPLES OF CEMENTS, SANDS, AGGREGATES, AND COLOR ADDITIVES USED IN MOCK-UP FOR COMPARISON WITH MATERIALS USED IN REMAINING WORK. MAKE AVAILABLE TO THE ENGINEER UPON REQUEST.

4. ACCEPTED MOCK-UP AREAS WILL BE THE VISUAL STANDARD FOR WORK OF SECTION. 5. REMOVE WHEN NO LONGER REQUIRED FOR COMPARISON WITH FINISHED WORK

1 6 DELIVERY. STORAGE AND HANDLING A. COLOR ADDITIVES: COMPLY WITH MANUFACTURER'S INSTRUCTIONS. DELIVER COLOR ADDITIVES IN ORIGINAL, UNOPENED PACKAGING. STORE IN DRY CONDITIONS.

A. COLORED CONCRETE ENVIRONMENTAL REQUIREMENT . SCHEDULE PLACE TO MINIMIZE EXPOSURE TO WIND AND HOT SUN BEFORE CURING MATERIALS ARE APPLIED. 2 AVOID PLACING CONCRETE IF RAIN, SNOW, OR FROST IS FORECAST WITHIN 24 HOURS.

PROTECT FRESH CONCRETE FROM MOISTURE AND FREEZING B. SCHEDULE DELIVERY OF CONCRETE TO PROVIDE CONSISTENT MIX TIMES FROM BATCHING UNTIL DISCHARGE. PART 2 - PRODUCTS

2.1 MATERIALS A. CEMENT, WATER, AND OTHER ADMIXTURES: REFER TO SECTION 03300, CAST-IN-PLACE CONCRETE. OBTAIN EACH MATERIAL, INCLUDING CEMENT AND AGGREGATES, FROM SAME SOURCE THROUGHOUT COLOR CONCRETE WORK B. CEMENT: CEMENT SHALL BE GREY OR WHITE. AS SPECIFIED IN THE CONTRACT DOCUMENTS AND AS REQUIRED TO MATCH SAMPLES AVAILABLE AT THE ENGINEER'S OFFICE C. INTEGRAL COLOR CONCRETE PIGMENT: CONFORMING TO ASTM C979, RESISTANT TO LIME

AND OTHER ALKALI, RESISTANT TO SUNLIGHT, AND INORGANIC, PROVIDE READY-TO-USE

INTEGRAL COLOR MATERIAL. INTEGRAL COLOR MATERIAL SHALL BE ULTRA CARBON BLACK SOLOMAN COLORS (800) 624-0261; SCOFIELD COMPANY (800) 800-9900; DAVIS COLORS, (800) 356-4848 OR FOLIAL COLOR ADDITIVES SHALL CONTAIN PURE CONCENTRATED MINERAL PIGMENTS SPECIALLY PROCESSED FOR MIXING INTO CONCRETE. 1. COLORS: TO MATCH SAMPLES, UTILIZING CEMENT, AGGREGATES, AND PIGMENTED ADDITIVE SPECIFIED IN THE CONTRACT DOCUMENTS.

NONMETALLIC EXPANSION JOINT STRIPS: PREMOLDED FILLER STRIPS COMPLYING WITH ASTM D 1056, TYPE 2 (CLOSED CELL), CLASS A (CELLULAR RUBBER AND RUBBER-LIKE MATERIALS WITH SPECIFIC RESISTANCE TO PETROLEUM BASE OILS GRADE 1 (COMPRESSION-DEFLECTION RANGE OF 2-5 PSI). COMPRESSIBLE LIP TO 35 RCENT, OF WIDTH AND THICKNESS INDICATED, FORMULATED FROM THE FOLLOWING MATERIAL: NEOPRENE.

OF THE FOLLOWING:

PREFORMED CONTROL JOINT GASKETS: MATERIAL AS INDICATED BELOW, DESIGNED O FIT STANDARD SASH BLOCK AND TO MAINTAIN LATERAL STABILITY IN MASONRY WALL: SIZE AND CONFIGURATION AS INDICATED. 1. STYRENE-BUTADIENE RUBBER COMPOUND: ASTM D 2000, DESIGNATION 2AA-805

BOND BREAKER STRIPS: ASPHALT-SATURATED ORGANIC ROOFING FELT COMPLYING WITH ASTM D 226, TYPE I (NO. 15 ASPHALT FELT). WEEP/VENT PRODUCTS: USE RECTANGULAR PLASTIC WEEP/VENT TUBING: CLEAR BUTYRATE, 3/8" BY 1-1/2" BY 3-1/2" LONG. SPACE AS SHOWN BUT NOT LESS THAN 2'-0"

2.7 THRU WALL FLASHING A. COPPER/PAPER FLASHING: 3 OZ. COPPER SHEET LAMINATED BETWEEN 2 SHEETS OF BITUMINOUS IMPREGNATED CREPE KRAFT PAPER OR SATURATED FABRIC PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS SPECIFIED, PROVIDE ONE

AFCO PRODUCTS, INC., "COP-A-BOND DUPLEX" PHOENIX BUILDING PRODUCTS, INC.; "DUPLEX COP-R FLASH" YORK MANUFACTURING, INC.; "COP-R-TEX DUPLEX" ADHESIVE FOR FLASHING; TYPE RECOMMENDED BY MANUFACTURER OF FLASHING

W.R. GRACE & CO., "PERMA-A-BARRIER"

MATERIAL FOR USE INDICATED.

2.8 MASONRY CLEANERS A. JOB-MIXED DETERGENT SOLUTION: SOLUTION OF TRISODIUM PHOSPHATE (1/2-CUP 1. FINISH IN ACCORDANCE WITH COLOR ADDITIVE MANUFACTURER'S WRITTEN DRY MEASURE) AND LAUNDRY DETERGENT (1/2-CUP DRY MEASURE) DISSOLVED IN ONE GALLON OF WATER. 2. COLORED CONCRETE: CURE IN ACCORDANCE WITH COLOR ADDITIVE MANUFACTURER'S PART 3 - EXECUTION

3.2 INSTALLATION, GENERAL

A. EXAMINE CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH

**DIVISION 04 - MASONRY** PIPING CONNECTIONS PRIOR TO INSTALLATION DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. UNIT MASONRY 04 20 00

> INDICATED APPLICABLE TO EACH TYPE OF INSTALLATION INCLUDED IN PROJECT. B. THICKNESS: BUILD SINGLE-WYTHE WALLS TO THE ACTUAL THICKNESS OF THE MASONRY UNITS, USING UNITS OF NOMINAL THICKNESS INDICATED. GUILD CHASES AND RECESSES AS SHOWN OR REQUIRED TO ACCOMMODATE ITEMS SPECIFIED IN THIS AND OTHER SECTIONS OF THE SPECIFICATIONS. PROVIDE NOT LESS THAN 8 INCHES OF MASONRY BETWEEN CHASE OR RECESS AND JAMB OF

OPENINGS AND BETWEEN ADJACENT CHASES AND RECESSES. LEAVE OPENINGS FOR FOLIPMENT TO BE INSTALLED BEFORE COMPLETION OF IASONRY. AFTER INSTALLATION OF EQUIPMENT, COMPLETE MASONRY TO MATCH CONSTRUCTION IMMEDIATELY ADJACENT TO THE OPENING.

CUT MASONRY LINITS WITH MOTOR-DRIVEN SAWS TO PROVIDE CLEAN, SHARP

REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER SPECIFIC CONDITIONS

. FOR THE RECORD, PREPARE WRITTEN REPORT, ENDORSED BY INSTALLER

B. EXAMINE ROUGH-IN AND BUILT-IN CONSTRUCTION TO VERIFY ACTUAL LOCATIONS OF

A. COMPLY WITH REFERENCED UNIT MASONRY STANDARD AND OTHER REQUIREMENTS

LISTING CONDITIONS DETRIMENTAL TO PERFORMANCE OF UNIT MASONRY

AND OTHER CONDITIONS AFFECTING PERFORMANCE OF UNIT MASONRY

UNCHIPPED EDGES. CUT UNITS AS REQUIRED TO PROVIDE CONTINUOUS PATTERN AND TO FIT ADJOINING CONSTRUCTION. USE FULL-SIZE UNITS WITHOUT CUTTING WHERE POSSIBLE. CONSTRUCTION TOLERANCES COMPLY WITH CONSTRUCTION TOLERANCES OF REFERENCED UNIT MASONRY

3.4 LAYING MASONRY WALLS LAY OUT WALLS IN ADVANCE FOR ACCURATE SPACING OF SURFACE BOND PATTERNS WITH UNIFORM JOINT WIDTHS AND FOR ACCURATE LOCATING OF PENINGS, MOVEMENT-TYPE JOINTS, RETURNS, AND OFFSETS. AVOID THE USE O LESS-THAN-HALF-SIZE UNITS AT CORNERS, JAMBS, AND WHERE POSSIBLE AT OTHER

LAY UP WALLS TO COMPLY WITH SPECIFIED CONSTRUCTION TOLERANCES, WITH COURSES ACCURATELY SPACED AND COORDINATED WITH OTHER CONSTRUCTION. BOND PATTERN FOR EXPOSED MASONRY: LAY EXPOSED MASONRY IN THE FOLLOWING BOND PATTERN; DO NOT USE UNITS WITH LESS THAT NOMINAL 4-INCH HORIZONTAL FACE DIMENSIONS AT CORNERS OR JAMBS. 1. ONE-HALF RUNNING BOND WITH VERTICAL JOINT IN EACH COURSE CENTERED

ON UNITS IN COURSES ABOVE AND BELOW. LAY CONCEALED MASONRY WITH ALL UNITS IN A WYTHE IN RUNNING BOND OR ONDED BY LAPPING NOT LESS THAN 2 INCHES. BOND AND INTERLOCK EACH COURSE OF EACH WYTHE AT CORNERS. DO NOT USE UNITS WITH LESS THAN OMINAL 4-INCH HORIZONTAL FACE DIMENSIONS AT CORNERS OR JAMBS. STOPPING AND RESUMING WORK: IN EACH COURSE, RACK BACK 1/2-UNIT LENGTH FOR ONE-HALF RUNNING BOND OR 1/3-UNIT LENGTH FOR ONE-THIRD RUNNING BOND; DO NOT TOOTH. CLEAN EXPOSED SURFACES OF SET MASONRY, WET CL

MASONRY UNITS LIGHTLY (IF REQUIRED), AND REMOVE LOOSE MASONRY UNITS AND MORTAR PRIOR TO LAYING FRESH MASONRY. NDER THIS AND OTHER SECTIONS OF THE SPECIFICATIONS. FILL IN SOLIDLY WITH

MASONRY AROUND BUILT-IN ITEMS. 1. FILL SPACE BETWEEN HOLLOW METAL FRAMES AND MASONRY SOLIDLY WITH MORTAR, UNLESS OTHERWISE INDICATE WHERE BUILT-IN-ITEMS ARE TO BE EMBEDDED IN CORES OF HOLLOW MASONRY UNITS, PLACE A LAYER OF METAL LATH IN THE JOINT BELOW AND ROD MORTAR

3.5 MORTAR BEDDING AND JOINTING A. LAY HOLLOW CONCRETE MASONRY UNITS AS FOLLOWS

WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS TOOL FINISHED JOINT TO SLIGHT CONCAVE SECTION FORMING UNIFORMLY BED WEBS IN MORTAR IN STARTING COURSE ON FOOTINGS AND IN AL COURSES OF PIERS AND WHERE ADJACENT TO CELLS OR CAVITIES TO BE

FILLED WITH GROUT 3. FOR STARTING COURSE ON FOOTINGS WHERE CELLS ARE NOT GROUTED, SPREAD OUT FULL MORTAR BED INCLUDING AREAS UNDER CELLS. CUT JOINTS FLUSH FOR MASONRY WALLS TO BE CONCEALED OR TO BE COVERED BY OTHER MATERIALS, UNLESS OTHERWISE INDICATED

REPOINT MORTAR JOINTS ADJOINING GLAZED SURFACES OF PREFACED CONCRET MASONRY UNITS WITH CHEMICAL-RESISTANT, WATER-CLEANABLE, EPOXY GROUT. AFTER BEDDING MORTAR HAS BECOME FIRM BUT BEFORE IT HARDENS OR SETS WITH CHEMICAL-RESISTANT, WATER-CLEANABLE, EPOXY GROUT, TOOL FINISHED OINT TO SLIGHTLY CONCAVE SECTION FORMING UNIFORMLY DENSE GROUT

5. COLOR: ABSOLUTE BLACK, SUBMIT SAMPLES FOR APPROVAL. MORTAR COLOR TO 3.6 MOVEMENT (CONTROL AND EXPANSION) JOINTS A. GENERAL: INSTALL CONTROL AND EXPANSION JOINTS IN UNIT MASONRY WHERE INDICATED. BUILD IN RELATED ITEMS AS THE MASONRY PROGRESSES. DO NO STANDARD FACE BRICK AS MANUFACTURED BY BORAL, GENERAL SHALE, OR BELDEN FORM A CONTINUOUS SPAN THROUGH MOVEMENT JOINTS UNLESS PROVISIONS ARE MADE TO PREVENT IN-PLANE RESTRAINT OF WALL OR PARTITION MOVEMENT.

B. BRICK COLOR: SEE THE EXTERIOR FINISH SCHEDULE FORM CONTROL JOINTS IN CONCRETE MASONRY AS FOLLOWS INSTALL PREFORMED CONTROL JOINT GASKETS DESIGNED TO FIT STANDARD FACE BRICK, IN THE FORM OF STRAPS OF FIVE OR MORE BRICKS. COLOR FOR COMPARISON TO EXISTING IF APPLICABLE 3.7 REPAIRING, POINTING, AND CLEANING 3. SPECIAL SHAPES AS REQUIRED TO COMPLETE THE WORK AS DESCRIBED IN THE

A. REMOVE AND REPLACE MASONRY UNITS THAT ARE LOOSE, CHIPPED, BROKEN STAINED. OR OTHERWISE DAMAGED OR IF UNITS DO NOT MATCH ADJOINING UNITS. ALL NEW UNITS TO MATCH ADJOINING UNITS AND IN FRESH MORTAR OR GROUT, POINTED TO ELIMINATE EVIDENCE OF REPLACEMENT. POINTING: DURING THE TOOLING OF JOINTS, ENLARGE ANY VOIDS OR HOLES. XCEPT WEEP HOLES, AND COMPLETELY FILL WITH MORTAR. POINT-UP ALL JOINTS NCLUDING CORNERS, OPENINGS, AND ADJACENT CONSTRUCTION TO PROVIDE A NEAT, UNIFORM APPEARANCE, PREPARED FOR APPLICATION OF SEALANTS.

FINAL CLEANING: AFTER MORTAR IS THOROUGHLY SET AND CURED, CLEAN

EXPOSED MASONRY AS FOLLOWS 1. TEST CLEANING METHODS ON SAMPLE WALL PANEL: LEAVE 1/2 PANEL UNCLEANED FOR COMPARISON PURPOSES. OBTAIN ASSOCIATE'S APPROVA OF SAMPLE CLEANING BEFORE PROCEEDING WITH CLEANING OF MASONR CLEAN CONCRETE MASONRY BY MEANS OF CLEANING METHOD INDICATED IN NCMA TEK 45 APPLICABLE TO TYPE OF STAIN PRESENT ON EXPOSED

PROTECTION: PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS, IN A MANNER ACCEPTABLE TO INSTALLER THAT ENSURES UNIT MASONRY IS WITHOUT AMAGE AND DETERIORATION AT TIME OF CONTRACT COMPLETION. END OF SECTION 04 20 00

**DIVISION 5 - METALS** 

STEEL AND IRON DECORATIVE RAILINGS.

1.1 SUMMARY

A. SECTION INCLUDES

PART 2 - PRODUCTS

PART 3 - EXECUTION

2.1 LUMBER PRODUCTS

A. SPECIES: SPRUCE PINE FIR.

DECORATIVE METAL RAILINGS SECTION 05 73 00 PART 1 - GENERAL

1.2 ACTION SUBMITTALS A. PRODUCT DATA: FOR THE FOLLOWING 1. MANUFACTURER'S PRODUCT LINES OF RAILINGS ASSEMBLED FROM STANDARD

COMPONENTS. 2. GROUT, ANCHORING CEMENT, AND PAINT PRODUCTS. B. SHOP DRAWINGS: INCLUDE PLANS, ELEVATIONS, SECTIONS, AND ATTACHMENT DETAILS.

SAMPLES: FOR EACH TYPE OF EXPOSED FINISH REQUIRED D. DELEGATED-DESIGN SUBMITTAL: FOR INSTALLED PRODUCTS INDICATED TO COMPLY TH PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR

INFORMATIONAL SUBMITTALS A. QUALIFICATION DATA: FOR [PROFESSIONAL ENGINEER] [TESTING AGENCY] B. PRODUCT TEST REPORTS: BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY A QUALIFIED TESTING AGENCY, ACCORDING TO ASTM E 894 AND

C. PRECONSTRUCTION TEST REPORTS. D. EVALUATION REPORTS: FOR POST-INSTALLED ANCHORS, FROM ICC-ES.

2.1 MANUFACTURERS A. STEEL AND IRON DECORATIVE RAILINGS: MANUFACTURER: c. FORTRESS RAILING PRODUCTS, OR ACCEPTED EQUIVALENT AS SUPPLIED B'

HAINES, JONES, AND CADBURY. B. PRODUCT OPTIONS: INFORMATION ON CIVIL DRAWINGS AND IN SPECIFICATIONS ESTABLISHES REQUIREMENTS FOR SYSTEM'S AESTHETIC EFFECTS AND PERFORMANCE CHARACTERISTICS. 1. DO NOT MODIFY INTENDED AESTHETIC EFFECTS, AS JUDGED SOLELY BY OWNER

EXCEPT WITH OWNER'S APPROVAL 2.2 METALS, GENERAL BRACKETS, FLANGES, FASTENERS, AND ANCHORS: SAME METAL AND FINISH AS SUPPORTED RAILS AS PROVIDED FROM FORTRESS RAILING PRODUCTS BY HAINES, JONES, AND CADBURY.

2.3 STEEL AND IRON A. TUBING, BARS, PLATES, AND OTHER CAST IRON MEMBERS PER ICC AC-273 2.5 STEEL AND IRON FINISHES A. GALVANIZED RAILINGS:

1. PRE GALVANIZED EXTERIOR STEEL AND IRON RAILINGS. INCLUDING HARDWARE

AFTER FABRICATION. 3. DO NOT QUENCH OR APPLY POST-GALVANIZING TREATMENTS THAT MIGHT INTERFERE WITH PAINT ADHESION.

3.1 INSTALLATION A. FIT EXPOSED CONNECTIONS TOGETHER TO FORM TIGHT, HAIRLINE JOINTS B. PERFORM CUTTING, DRILLING, AND FITTING REQUIRED FOR INSTALLING RAILINGS. SET

ESTABLISHED LINES AND LEVELS AND FREE OF RACK. SET POSTS PLUMB WITHIN A TOLERANCE OF 1/16 INCH IN 3 FEET ALIGN RAILS PER MANUFACTURER'S INSTRUCTIONS C. TOUCHUP PAINTING: IMMEDIATELY AFTER ERECTION, CLEAN FIELD WELDS, BOLTED

TOUCHING UP SHOP-PAINTED SURFACES.

END OF SECTION 05 73 00

THE SAME MATERIAL USED FOR SHOP PAINTING TO COMPLY WITH SSPC-PA 1 FOR

DNNECTIONS, AND ABRADED AREAS OF SHOP PAINT, AND PAINT EXPOSED AREAS WITH

DIVISION 6 - WOOD, PLASTICS, AND **COMPOSITES** ROUGH CARPENTRY **SECTION 06 10 00** 

PART 1 - GENERAL A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION 1.2 DELIVERY, STORAGE AND HANDLING

A. DELIVERY AND STORAGE: KEEP MATERIALS UNDER COVER AND DRY, PROTECT AGAINST EXPOSURE TO WEATHER AND CONTACT WITH DAMP OR WET SURFACES. STACK LUMBER AS WELL AS PLYWOOD AND OTHER PANELS FLAT WITH SPACERS RETWEEN EACH BLINDLE: PROVIDE FOR AIR CIRCUIT ATION WITHIN AND AROUND STACKS AND UNDER TEMPORARY COVERINGS INCLUDING POLYETHYLENE AND SIMILAR MATERIALS.

A. ALL STRUCTURAL LUMBER CONSTRUCTION SHALL CONFORM TO THE LATEST, ADOPTED EDITIONS OF THE STANDARDS AND MATERIAL SPECIFICATIONS PART 2 - PRODUCTS

A GENERAL: ALL LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF DOC PS 20. FURNISH LUMBER WITH EACH PIECE FACTORY-MARKED WITH GRADE STAMF OF INSPECTION AGENCY VERIFYING COMPLIANCE WITH GRADING RULE REQUIREMENTS AND IDENTIFYING GRADING AGENCY, GRADE, SPECIES. MOISTURE CONTENT AND MILL. 1 FOR EXPOSED LUMBER INDICATED TO RECEIVE A STAINED OR NATURAL

FINISH, MARK GRADE STAMP ON END OR BACK OF EACH PIECE OR PROVIDE CERTIFICATE OF GRADE COMPLIANCE ISSUED BY GRADING PROVIDE DRESSED LUMBER, S4S, UNLESS OTHERWISE INDICATED. B. INSPECTION AGENCIES: INSPECTION AGENCIES AND THE ABBREVIATIONS USED REFERENCE THEM WITH LUMBER GRADES AND SPECIES PER SPIB -

SOUTHERN PINE INSPECTION BUREAU. C. GRADE STAMPS: PROVIDE LUMBER WITH EACH PIECE FACTORY-MARKED WITH GRADE STAMP OF INSPECTION AGENCY EVIDENCING COMPLIANCE WITH GRADING RULE REQUIREMENTS AND IDENTIFYING GRADING AGENCY, GRADE, SPECIES, MOISTURE CONTENT AT TIME OF SURFACING, AND MILL. DIMENSION LUMBER AND BOARDS FOR CONCEALED CONDITIONS

B. MOISTURE CONTENT: S-DRY, KD 19 OR MC 19 (19 PERCENT MAXIMUM MOISTURE C. GRADE: STRUCTURAL LUMBER: NO. 2 OR STANDARD GRADE. BOARDS: NO. 2, 2 COMMON, OR CONSTRUCTION BOARDS. 2.3 FIRE RETARDANT-TREATED MATERIALS

A. GENERAL: COMPLY WITH PERFORMANCE REQUIREMENTS IN AWPA C20

(LUMBER) AND AWPA C27 (PLYWOOD). 1. USE EXTERIOR TYPE FOR EXTERIOR LOCATIONS AND WHERE INDICATED. 2. USE INTERIOR TYPE A, HIGH TEMPERATURE (HT) FOR ENCLOSED ROOF FRAMING, FRAMING IN ATTIC SPACES AND WHERE INDICATED. CONSTRUCTION PANELS A STANDARDS: COMPLY WITH REQUIREMENTS OF DOC PS 1 VOLUNTARY

PRODUCT STANDARD "CONSTRUCTION INDUSTRIAL PLYWOOD" FOR VENEER PLYWOOD AND APA PRP-108 "PERFORMANCE STANDARDS AND POLICIES FOR STRUCTURAL-USE PANELS" FOR PERFORMANCE-RATED PANELS. TRADEMARI TRADEMARK FOR GRADE SPECIFIED. B. MISCELLANEOUS CONCEALED PANELS: APA-RATED SHEATHING, EXPOSURE 1 SPAN RATING TO SUIT FRAMING IN EACH LOCATION.

C. ELECTRICAL/TELEPHONE BACKING PANELS: APA-RATED SHEATHING, EXPOSURE

1, FIRE-RETARDANT TREATED, THICKNESS AS INDICATED BUT NOT LESS THAN

MISCELLANEOUS LUMBER A. GENERAL: PROVIDE LUMBER FOR SUPPORT OR ATTACHMENT OF OTHER CONSTRUCTION INCLUDING ROOFTOP EQUIPMENT CURBS AND SUPPOR BASES, CANT STRIPS, BUCKS, NAILERS, BLOCKING, FURRING, GROUNDS, STRIPPING AND SIMILAR MEMBERS B. UNLESS NOTED OTHERWISE. INSTALL MINIMUM DOUBLE JACK BEARING STUDS

UNDER EACH END OF ALL BEAMS AND GIRDER TRUSSES, BUT NOT LESS THAN THE NUMBER REQUIRED TO PROVIDE FULL-WIDTH SOLID BEARING OF THE SUPPORTED MEMBERS C. FABRICATE MISCELLANEOUS LUMBER FROM DIMENSION LUMBER OF SIZES INDICATED AND INTO SHAPES SHOWN D. INSTALL STANDARD THREE-STUD CORNER CONSTRUCTION AT INSIDE AN

DUTSIDE CORNERS, PROVIDING NAILING SURFACES FOR SHEATHING. INSTALL

E. INSTALL ONE LAYER OF 1/2" THICK WOOD STRUCTURAL PANEL BETWEEN EACH MEMBER OF DIMENSIONAL LUMBER HEADERS F. TREAT ALL EXTERIOR LUMBER OR LUMBER IN CONTACT WITH CONCRETE OR MASONRY WITH PRESERVATIVE IN ACCORDANCE WITH AWPA APPLICATION UNLESS INDICATED OTHERWISE THAT COMPLY WITH

EQUIREMENTS SPECIFIED IN THIS ARTICLE FOR MATERIAL AND MANUFACTURE WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER. IN GROUND CONTACT. OR IN AREA OF HIGH RELATIVE HUMIDITY, PROVIDE FASTENERS WITH A HOT-DIP ZINC COATING PER ASTM A 153 OR OF AISI TYPE 304 STAINLESS STEEL. B. PROVIDE FASTENERS FOR USE WITH METAL FRAMING ANCHORS THAT COMPLY WITH WRITTEN RECOMMENDATIONS OF METAL FRAMING MANUFACTURER

G. BOLTS, NUTS, AND WASHERS: ASTM A 307, GRADE A; WITH ASTM A563 HEX NUTS

C. CONCEALED JOINT FASTENERS: THREADED STEEL D. NAILS, WIRE, BRADS, AND STAPLES: ASTM F 1667 E. POWER DRIVEN FASTENERS: NATIONAL EVALUATION REPORT NER - 272. F. WOOD SCREWS: FLAT HEAD, CONFORMING TO ANSI/ASME B18.6.1

H. CONNECTIONS: AS A MINIMUM, CONFORM CONNECTIONS FOR STRUCTURAL MEMBERS TO THE FASTENING SCHEDULE LISTED IN LOCAL BUILDING CODES.

1 PROVIDE GALVANIZED CONNECTORS BY THE SIMPSON STRONG-TIE CO. INSTALL ALL CONNECTORS IN ACCORDANCE WITH THE MANUFACTURER'S

2. WOOD STRUCTURAL PANELS TO WOOD ROOF RAFTERS AND TRUSSES NAILED, USE 10d COMMON NAILS SPACED AT 6 INCHES O.C. AT PANE EDGES AND 12 INCHES O.C. AT INTERMEDIATE SUPPORTS. PROVIDE SOLID 2x4 (MINIMUM) BLOCKING BETWEEN ROOF FRAMING MEMBERS AT ALL WOOD STRUCTURAL PANELS TO WOOD STUDS: USE 8d COMMON NAILS

NTERMEDIATE SUPPORTS. BLOCK ALL PANEL EDGES WITH SOLID FULL-DEPTH BLOCKING. 4. PROVIDE GALVANIZED FASTENERS FOR ALL EXTERIOR APPLICATIONS AND FOR ALL FIRE-RETARDANT TREATED OR WOOD-PRESERVATIVE TREATED

SPACED AT 6 INCHES O.C. AT PANEL EDGES AND 12 INCHES O.C. AT

a. HOT-DIP GALVANIZE ALL STEEL CONNECTORS AND PRODUCTS 14 GA AND THICKER AFTER FABRICATION THAT ARE IN CONTACT WITH PRESERVATIVE-TREATED WOOD. PROVIDE MINIMUM 2.0 OZ. COATING ALL SIDES, PER ASTM A123. PROVIDE HOT-DIPPED GALVANIZED CONNECTORS PER ASTM A153 OR STAINLESS STEEL CONNECTORS b. HOT-DIP GALVANIZE ALL STEEL CONNECTORS AND PRODUCTS LESS

THAN 14 GA. THICK AFTER FABRICATION THAT ARE IN CONTACT WITH

PRESERVATIVE-TREATED WOOD. PROVIDE MINIMUM 1.85 OZ.

COATING, ALL SIDES, PER ASTM A653, PROVIDE HOT-DIPPED

GALVANIZED CONNECTORS PER ASTM A153 OR STAINLESS STEEL CONNECTORS. PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. DISCARD UNITS OF MATERIAL WITH DEFECTS THAT IMPAIR QUALITY OF ROUGH ARPENTRY CONSTRUCTION AND THAT ARE TOO SMALL TO USE IN FABRICATING ROUGH CARPENTRY WITH MINIMUM JOINTS OR OPTIMUM JOINT

PLUMB AND TRUE TO LINE AND CUT AND FITTED. C. FIT ROUGH CARPENTRY TO OTHER CONSTRUCTION: SCRIBE AND COPE AS BLOCKING, GROUNDS, AND SIMILAR SUPPORTS TO ALLOW ATTACHMENT OF

SECURELY ATTACH ROUGH CARPENTRY WORK TO SUBSTRATE BY ANCHORING AND FASTENING AS INDICATED AND IN ACCORDANCE WITH TABLE 2304.9.1 FASTEN SCHEDULE" IN ICC'S INTERNATIONAL BUILDING CODE.

B. SET ROUGH CARPENTRY TO REQUIRED LEVELS AND LINES, WITH MEMBERS

E. PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS AND TRIM. F PROVIDE FIRE BLOCKING IN FURRED SPACES, STUD SPACES AND OTHER

CONCEALED CAVITIES AS INDICATED AND AS FOLLOWS:

1. FURRED SPACES OF WALLS, AT EACH FLOOR LEVEL AND AT CEILINGS. 2. CONCEALED SPACES OF WOOD FRAMED WALLS AND PARTITIONS AT EACH LOOR LEVEL AND AT CEILING LINE OF TOP STORY 3. CONCEALED SPACES BETWEEN FLOOR SLEEPERS AND TO SOLIDLY FILL

SPACE BELOW PARTITIONS. 4. CONCEALED SPACES BEHIND COMBUSTIBLE CORNICES AND EXTERIOR

WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS A. INSTALL WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS WHERE SHOW! AND WHERE REQUIRED FOR SCREEDING OR ATTACHMENT OF OTHER WORK. FORM TO SHAPES AS SHOWN AND CUT AS REQUIRED FOR TRUE LINE AND LEVEL

B. ATTACH TO SUBSTRATES AS REQUIRED TO SUPPORT APPLIED LOADING. COUNTER SINK BOLTS AND NUTS FLUSH WITH SURFACES, UNLESS OTHERWISE INDICATED BUILD INTO MASONRY DURING INSTALLATION OF MASONRY WORK. WHERE POSSIBLE ANCHOR TO FORM WORK BEFORE CONCRETE PLACEMENT. 3.3 CONSTRUCTION PANELS

END OF SECTION 06 10 00

OF WORK TO BE ATTACHED. COORDINATE LOCATION WITH OTHER WORK

A. COMPLY WITH APPLICABLE INSTALLATION RECOMMENDATIONS IN APA FORM E30 DESIGN/CONSTRUCTION GUIDE - RESIDENTIAL AND COMMERCIAL.

SHEATHING **SECTION 06 16 00** PART 1 - GENERAL 1.1 SUMMARY A. SECTION INCLUDES

WALL SHEATHING

ROOF SHEATHING 1.2 ACTION SUBMITTALS A PRODUCT DATA: FOR EACH TYPE OF PROCESS AND FACTORY-FABRICATED PRODUCT INDICATE COMPONENT MATERIALS AND DIMENSIONS AND INCLUDE CONSTRUCTION

AND APPLICATION DETAILS. INCLUDE DATA FOR WOOD-PRESERVATIVE TREATMENT FROM CHEMICAL TREATMENT MANUFACTURER AND CERTIFICATION BY TREATING PLANT THAT TREATED PLYWOOD COMPLIES WITH REQUIREMENTS. INCLUDE DATA FOR FIRE-RETARDANT TREATMENT FROM CHEMICAL TREATMENT

B. MANUFACTURER QUALIFICATIONS: A QUALIFIED MANUFACTURER THAT IS CERTIFIED FOR CHAIN OF CUSTODY BY AN FSC-ACCREDITED CERTIFICATION BODY. C. VENDOR QUALIFICATIONS: A VENDOR THAT IS CERTIFIED FOR CHAIN OF CUSTODY BY

MANUFACTURER AND CERTIFICATION BY TREATING PLANT THAT TREATED

D. ALL STRUCTURAL LUMBER CONSTRUCTION SHALL CONFORM TO THE LATEST ADOPTED EDITIONS OF THE STANDARDS AND MATERIAL SPECIFICATIONS REFERENCED HEREIN. A. NDS, "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" BY THE AMERICAN FOREST & PAPER ASSOCIATION (AF & PA).

PART 2 - PRODUCTS 2.1 WOOD PANEL PRODUCTS A. GENERAL: ALL LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF DOC PS 20 SH LUMBER WITH EACH PIECE FACTORY-MARKED WITH GRADE STAMP OF INSPECTION AGENCY VERIFYING COMPLIANCE WITH GRADING RULE REQUIREMENTS

B ALL WOOD STRUCTURAL PANELS SHALL COMPLY WITH REQUIREMENTS OF DOC PS 1 OOC PS 2, HPVA HP I AND APA PDS. FACTORY-MARK ALL WOOD STRUCTURAL PANELS WITH A GRADING STAMP OF THE INSPECTION AGENCY. EMISSIONS: PRODUCTS SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF

AND IDENTIFYING GRADING AGENCY, GRADE, SPECIES, MOISTURE CONTENT AND

THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES' "STANDARD PRACTICE FOR THE TESTING OF VOLATILE ORGANIC EMISSIONS FROM VARIOUS SOURCES USING SMALL-SCALE ENVIRONMENTAL CHAMBERS." WALL SHEATHING

A. 15/32" (1/2" NOMINAL), APA RATED SHEATHING, 32/16, EXPOSURE 1. 2.3 ROOF SHEATHING A. 19/32" (5/8" NOMINAL), APA RATED SHEATHING, 40/20, EXPOSURE 1, U.N.O. 2.4 FASTENERS

A. FOR FASTENER SPECIFICATIONS, SEE

ROUGH CARPENTRY - SECTION 06 10 00

CORNERS, PROVIDING NAILING SURFACES FOR SHEATHING. INSTALL BLOCKING AS B. INSTALL ONE LAYER OF 1/2" THICK WOOD STRUCTURAL PANEL BETWEEN EACH MEMBER OF DIMENSIONAL LUMBER HEADERS.

MASONRY WITH PRESERVATIVE IN ACCORDANCE WITH AWPA.

D. INSTALL WOOD STRUCTURAL PANEL WALL SHEATHING ON ALL EXTERIOR WALLS. PART 3 - EXECUTION A. DO NOT USE MATERIALS WITH DEFECTS THAT IMPAIR QUALITY OF SHEATHING OR PIECES THAT ARE TOO SMALL TO USE WITH MINIMUM NUMBER OF JOINTS OR OPTIMUM JOINT ARRANGEMENT. ARRANGE JOINTS SO THAT PIECES DO NOT SPAN

C. TREAT ALL EXTERIOR LUMBER OR LUMBER IN CONTACT WITH CONCRETE OR

BETWEEN FEWER THAN THREE SUPPORT MEMBERS. B. CUT PANELS AT PENETRATIONS, EDGES, AND OTHER OBSTRUCTIONS OF WORK: FIT TIGHTLY AGAINST ABUTTING CONSTRUCTION UNLESS OTHERWISE INDICATED. C. SECURELY ATTACH TO SUBSTRATE BY FASTENING AS INDICATED, COMPLYING WITH THE FOLLOWING: 1. NES NER-272 FOR POWER-DRIVEN FASTENERS

2. TABLE 2304.9.1, "FASTENING SCHEDULE," IN ICC'S "INTERNATIONAL BUILDING 3. TABLE R602.3(1), "FASTENER SCHEDULE FOR STRUCTURAL MEMBERS," AND ABLE R602.3(2), "ALTERNATE ATTACHMENTS," IN ICC'S "INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS."

JOINT-SEALANT INSTALLATION SO THESE MATERIALS ARE INSTALLED IN SEQUENCE

AND MANNER THAT PREVENT EXTERIOR MOISTURE FROM PASSING THROUGH E. DO NOT BRIDGE BUILDING EXPANSION JOINTS; CUT AND SPACE EDGES OF PANELS TO MATCH SPACING OF STRUCTURAL SUPPORT ELEMENTS WOOD STRUCTURAL PANEL INSTALLATION

COORDINATE WALL AND ROOF SHEATHING INSTALLATION WITH FLASHING AND

A. GENERAL: COMPLY WITH APPLICABLE RECOMMENDATIONS IN APA FORM NO. E3 ENGINEERED WOOD CONSTRUCTION GUIDE," FOR TYPES OF STRUCTURAL-USE PANELS AND APPLICATIONS INDICATED. B. FASTENING METHODS: FASTEN PANELS AS INDICATED BELOW: WALL AND ROOF SHEATHING:

> FRAMING MEMBERS AT EDGES OF WALL SHEATHING PANELS. b. SPACE PANELS 1/8 INCH APART AT EDGES AND ENDS. END OF SECTION 06 16 00

a. NAIL TO WOOD FRAMING. APPLY A CONTINUOUS BEAD OF GLUE TO

NOTICE THIS ARCHITECTURAL AND ENGINEERING DRAWING IS GIVEN IN CONFIDENCE AND SHALL BE USED ONLY PURSUANT TO THE AGREEMENT WITH THE ARCHITECT NO OTHER USE, DISSEMINATION, OR DUPLICATION MAY BE MADE WITHOUT PRIOR WRITTEN CONSENT OF THE ARCHITECT. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHERWISE ARE HEREBY SPECIFICALLY RESERVED.

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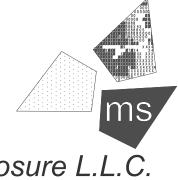
07/12/2022

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DESCRIPTION

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DESCRIPTION



engineers, architects, planners 2221 Schrock Road Columbus, Ohio 43229-1547 phone 614.898.7100 fax 614.898.7570

HARPER WOODS, MI 48225 STORE # 919728

19353 VERNIER ROAD

PROJECT:

ARCHITECT 1301068763

PROFESSIONAL OF RECORD:

40509-11

CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

ARCHITECTURAL

SHEET TITLE:

PROJECT NO.:

1. SHOW LOCATION, PITCH, SPAN, CAMBER, CONFIGURATION, AND SPACING 2. INDICATE SIZES, STRESS GRADES, AND SPECIES OF LUMBER. 3. INDICATE LOCATIONS, SIZES, AND MATERIALS FOR PERMANENT BRACING

REQUIRED TO PREVENT BUCKLING OF INDIVIDUAL TRUSS MEMBERS DUE 4. INDICATE TYPE, SIZE, MATERIAL, FINISH, DESIGN VALUES, ORIENTATION AND LOCATION OF METAL CONNECTOR PLATES AND HANGER CONNECTOR

TRUSS MEMBERS. IN AREAS WHERE TRUSS TOP CHORDS AND/OR BOTTOM CHORDS DO NOT RECEIVE SHEATHING, INDICATE THE REQUIRED CHORD BRACING AND BRACE SPACINGS FOR ALL APPLICABLE LOAD CASES INDICATE ANCHORAGE OF "CAP" TRUSSES AND/OR "OVERLAY" TRUSSES 6. SHOW SPLICE DETAILS AND BEARING DETAILS. 7. SUBMIT TRUSS SHOP DRAWINGS WHICH EXHIBIT THE SEAL OF THE ENGINEER RESPONSIBLE FOR THE TRUSS DESIGN

DELEGATED-DESIGN SUBMITTAL: FOR METAL-PLATE-CONNECTED WOOD TRUSSES INDICATED TO COMPLY WITH PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR DESIGN AND INFORMATIONAL SUBMITTALS

A. PRODUCT CERTIFICATES B. EVALUATION REPORTS: FOR THE FOLLOWING, FROM ICC-ES: METAL-PLATE CONNECTORS

2. METAL TRUSS ACCESSORIES .4 QUALITY ASSURANCE A. METAL CONNECTOR-PLATE MANUFACTURER QUALIFICATIONS: A MANUFACTURER THAT IS A MEMBER OF TPI AND THAT COMPLIES WITH QUALITY-CONTROL PROCEDURES IN TPI 1 FOR MANUFACTURE OF CONNECTOR

> 1. MANUFACTURER'S RESPONSIBILITIES INCLUDE PROVIDING PROFESSIONAL ENGINEERING SERVICES NEEDED TO ASSUME ENGINEERING 2. ENGINEERING RESPONSIBILITY: PREPARATION OF SHOP DRAWINGS AND COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL

A. FABRICATOR QUALIFICATIONS: SHOP THAT PARTICIPATES IN A RECOGNIZED QUALITY-ASSURANCE PROGRAM THAT COMPLIES WITH QUALITY-CONTROI PROCEDURES IN TPI 1 AND THAT INVOLVES THIRD-PARTY INSPECTION BY AN INDEPENDENT TESTING AND INSPECTING AGENCY ACCEPTABLE TO ARCHITECT AND AUTHORITIES HAVING JURISDICTION AND IS CERTIFIED FOR CHAIN OF CUSTODY BY AN FSC-ACCREDITED CERTIFICATION BODY DELIVERY. STORAGE, AND HANDLING

A. HANDLE AND STORE TRUSSES TO COMPLY WITH RECOMMENDATIONS IN TPI BCSI. BUILDING COMPONENT SAFETY INFORMATION: GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, & BRACING METAL PLATE CONNECTED WOOD PART 2 - PRODUCTS

ALL LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF DOC PS 20. FURNIS

REQUIREMENTS FOR MISCELLANEOUS LUMBER IN SECTION 06 10 00 "ROUGH

A. USE GALVANIZED SHEET STEEL CONFORMING WITH ASTM A653, COATING CLASS G60

B. THE TRUSS MANUFACTURER SHALL DESIGN, DETAIL, PROVIDE AND INSTALL ALL

A. THE TRUSS MANUFACTURER SHALL DESIGN AND DESIGNATE ALL TRUSS-TO-TRUS

PROVIDE AND INSTALL TEMPORARY AND PERMANENT BRACING FOR

MANUFACTURER'S APPROVED SHOP DRAWINGS.

PRODUCE DESIGN CAMBER INDICATED.

AND IS BRACED AND SECURED

ASSEMBLE TRUSSES BEFORE INSTALLING.

WHERE TERMINATING AT WALLS OR BEAMS.

JOINTS BY OUT-OF-PLANE BENDING OR OTHER CAUSES.

FASTENING SCHEDULES AND WRITTEN INSTRUCTIONS.

PART 3 - EXECUTION

INSTALLATION

HANGERS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRUSS-TO-TRUSS

HANGERS IN ACCORDANCE WITH THE HANGER MANUFACTURER'S SPECIFICATION

PRE-ENGINEERED, PRE-FABRICATED WOOD TRUSSES AS INDICATED ON THE TRUSS

ASSEMBLE TRUSS MEMBERS IN DESIGN CONFIGURATION INDICATED: USE JIGS OR

1. FABRICATE WOOD TRUSSES WITHIN MANUFACTURING TOLERANCES IN TPI 1

SECURELY EMBEDDED SIMULTANEOUSLY IN BOTH SIDES OF WOOD MEMBERS BY

A. INSTALL WOOD TRUSSES ONLY AFTER SUPPORTING CONSTRUCTION IS IN PLACE

HOIST TRUSSES IN PLACE BY LIFTING EQUIPMENT SUITED TO SIZES AND TYPES OF

TRUSSES REQUIRED, EXERCISING CARE NOT TO DAMAGE TRUSS MEMBERS OR

INSTALL AND BRACE TRUSSES ACCORDING TO TPI RECOMMENDATIONS AND AS

ANCHOR TRUSSES SECURELY AT BEARING POINTS: USE METAL TRUSS TIE-DOWNS

FASTENER HOLE IN METAL FRAMING ANCHORS ACCORDING TO MANUFACTURER'S

SECURELY CONNECT EACH TRUSS PLY REQUIRED FOR FORMING BUILT-UP GIRDER

INSTALL AND FASTEN PERMANENT BRACING DURING TRUSS ERECTION AND BEFORE

CONSTRUCTION LOADS ARE APPLIED. ANCHOR ENDS OF PERMANENT BRACING

1. INSTALL BRACING TO COMPLY WITH SECTION 06 10 00 "ROUGH CARPENTRY."

WEB OF PARALLEL-CHORD FLOOR TRUSSES AT CENTERS INDICATED.

H. INSTALL WOOD TRUSSES WITHIN INSTALLATION TOLERANCES IN TPI 1.

2. INSTALL AND FASTEN STRONGBACK BRACING VERTICALLY AGAINST VERTICAL

DO NOT ALTER TRUSSES IN FIELD. DO NOT CUT, DRILL, NOTCH, OR REMOVE TRUSS

REPLACE WOOD TRUSSES THAT ARE DAMAGED OR DO NOT MEET REQUIREMENTS

OR FLOOR TRUSS HANGERS AS APPLICABLE. INSTALL FASTENERS THROU

B. IF TRUSSES ARE DELIVERED TO PROJECT SITE IN MORE THAN ONE PIECE,

B. CONNECT TRUSS MEMBERS BY METAL CONNECTOR PLATES LOCATED ANI

OTHER MEANS TO ENSURE UNIFORMITY AND ACCURACY OF ASSEMBLY WITH JOINTS

CLOSELY FITTED TO COMPLY WITH TOLERANCES IN TPI 1. POSITION MEMBERS TO

INTERNAL TRUSS COMPONENT CONNECTIONS

A. FOR FASTENER SPECIFICATIONS, SEE

METAL TRUSS-TO-TRUSS HANGERS

ROUGH CARPENTRY - SECTION 06 10 00.

MANUFACTURE WITH HOLES, PLUGS, TEETH, OR PRONGS UNIFORMLY SPACED

PERMANENT BRACING: PROVIDE WOOD BRACING THAT COMPLIES WITH

METAL CONNECTOR PLATES

LUMBER WITH EACH PIECE FACTORY-MARKED WITH GRADE STAMP OF INSPECTION

IDENTIFYING GRADING AGENCY, GRADE, SPECIES, MOISTURE CONTENT AND MILL

APPLY FINISH PAINT TO ALL EXPOSED SURFACES OF PRIME COATED PERFORMANCE REQUIREMENTS MATERIALS INSTALLED ON EXTERIOR OF PROJECT. A. SEE STRUCTURAL DRAWINGS FOR TRUSS DESIGN LOADS AND DEFLECTION E. CELLULAR PVC TRIM: EXTRUDED, EXPANDED PVC WITH SMALL CELI CRITERIA FROM ORIGINAL SPECIFICATION INFORMATION. MICROSTRUCTURE, MADE FROM UV- AND HEAT-STABILIZED, RIGID MATERIAL. IN SECTION 014000 "QUALITY REQUIREMENTS," TO DESIGN AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS

METAL-PLATE-CONNECTED WOOD TRUSSES. PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: STRUCTURAL PERFORMANCE: PROVIDE METAL-PLATE-CONNECTED WOOD TRUSSES CAPABLE OF WITHSTANDING DESIGN LOADS WITHIN LIMITS AND UNDER CONDITIONS INDICATED. COMPLY WITH REQUIREMENTS IN TPI 1 UNLESS MORE STRINGENT PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDI ONE OF THE FOLLOWING: REQUIREMENTS ARE SPECIFIED BELOW a. PLY-TRIM, INC.; DURABOARD. DIMENSION LUMBER B. ROYAL MOULDINGS LIMITED: PRO SERIES EXTERIOR MOUL

FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 DELIVERY, STORAGE AND HANDLING

1.4 REGULATORY REQUIREMENTS

PART 2 - PRODUCTS

SECTION 06 20 00

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION.

A. DELIVERY AND STORAGE: KEEP MATERIALS UNDER COVER AND DRY. PROTECT

A. PERFORM WORK IN ACCORDANCE WITH AWI ARCHITECTURAL WOODWORK

C. FABRICATORS: COMPANY SPECIALIZING IN FABRICATING THE PRODUCTS

SPECIFIED IN THE SECTION WITH MINIMUM TEN YEARS DOCUMENTED

A. CONFORM TO APPLICABLE LOCAL CODE FOR FIRE RETARDANT REQUIREMENTS.

A. LUMBER: DOC PS 20 AND APPLICABLE GRADING RULES OF INSPECTION AGENCIES

MEI AMIME-FACED PARTICI EBOARD: PARTICI E BOARD COMPLYING WITH ANSI

MELAMIME-IMPREGNATED DECORATIVE PAPER COMPLYING WITH LMA SAT-1.

A. LUMBER: COMPLY WITH PERFORMANCE REQUIREMENTS IN AWPA C20, INTERIOR

B. PLYWOOD: COMPLY WITH PERFORMANCE REQUIREMENTS IN AWPA C27, INTERIOR

TYPE A. KILN DRY TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

TYPE A. KILN DRY TO A MAXIMUM MOISTURE CONTENT OF 18 PERCENT.

R PROVIDE KILN-DRIED LUMBER SIDING COMPLYING WITH DOC PS 20, FACTORY

COATED WITH EXTERIOR ALKYD PRIMER, UNLESS OTHERWISE NOTED.

C. SPECIES AND GRADE: WESTERN RED CEDAR, CLEAR HEART, AWI PREMIUM

MOLDINGS: WMMPA WM 4 P-GRADE WOOD MOLDINGS. WITHOUT FINGER

1. SPECIES AND GRADE: WESTERN RED CEDAR, CLEAR HEART, AWI PREMIUM

OINTING. MADE FROM KILN-DRIED STOCK TO PATTERNS INCLUDED IN WMMPA

1. SPECIES AND GRADE: WESTERN RED CEDAR, CLEAR HEART, AWI PREMIUM

. MANUFACTURED POLYURETHANE TRIM: MOLDED HIGH DENSITY POLYURETHANE

FOAM WITH INTERIM PROTECTIVE BARRIER COAT PRIMER, RESISTANT TO UV

AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS

PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT

PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE

a. FYPON, LTD.: PROFILES AS INDICATED ON DRAWINGS

A. PROVIDE SIDING PER THIS SECTION, UNLESS OTHERWISE INDICATED.

A. PROVIDE TRIM PER THIS SECTION, UNLESS OTHERWISE NOTED

MAXIMUM MOISTURE CONTENT: 15 PERCENT

4. MATERIAL SUITABLE FOR TRANSPARENT FINISH.

2. MAXIMUM MOISTURE CONTENT: 15 PERCENT

3. MATERIAL SUITABLE FOR TRANSPARENT FINISH

ARE NOT LIMITED TO, THE FOLLOWING:

FACE SURFACE: SURFACED (SMOOTH)

A208.1. GRADE M-2. FINISHED ON BOTH SIDES WITH THERMALLY FUSE

2.1 MATERIALS GENERAL: UNLESS OTHERWISE INDICATED, PROVIDE MATERIALS THAT

COMPLY WITH THE CRITERIA SPECIFIED IN THIS SECTION.

E. PARTICLE BOARD: ANSI A208.1, GRADE M-2 EXTERIOR GLUE.

CERTIFIED BY ALSC'S BOARD OF REVIEW.

B. SOFTWOOD PLYWOOD: DOC PS

C. HARDBOARD: AHA A135.4.

22 FIRE-RETARDANT-TREATED MATERIALS

2.4 EXTERIOR STANDING AND RUNNING TRIM

B. LUMBER TRIM:

2.3 LUMBER SIDING

D. MDF: ANSI A208.2, GRADE 130

B. FABRICATORS: MUST BE PRE-APPROVED BY THE ARCHITECT.

QUALITY STANDARDS, PREMIUM GRADE AND WIC MANUAL OF MILLWORK.

AGAINST EXPOSURE TO WEATHER AND CONTACT WITH DAMP OR WET SURFACES. STACK LUMBER AS WELL AS PLYWOOD AND OTHER PANELS FLAT WITH SPACERS

ETWEEN EACH BUNDLE. PROVIDE FOR AIR CIRCULATION WITHIN AND AROUND

STACKS AND UNDER TEMPORARY COVERINGS INCLUDING POLYETHYLENE AND

c. VYCOM CORP.; AZEK 3. DENSITY: NOT LESS THAN 31 LB/CU. FT. (500 KG/CU. M.) 4. HEAT DEFLECTION TEMPERATURE: NOT LESS THAN 130° F (54° C), PER

5. FLAME-SPREAD INDEX: 75 OR LESS, PER ASTM E 84. 2.5 INTERIOR STANDING AND RUNNING TRIM

PROVIDE TRIM PER THIS SECTION, UNLESS OTHERWISE INDICATED SPECIES AND GRADE: EASTERN WHITE PINE; AWI PREMIUM GRADE. MAXIMUM MOISTURE CONTENT: 15 PERCENT

3. FACE SURFACE: SURFACED (SMOOTH). 4. MATERIAL SUITABLE TO RECEIVE TRANSPARENT FINISH. C. HARDWOOD LUMBER TRIM:

. SPECIES AND GRADE: SELECT WHITE BIRCH, MILL CLEAR, AWI PREMIUM 2. MAXIMUM MOISTURE CONTENT: 9 PERCENT

3. FACE SURFACE: SURFACED (SMOOTH 4. MATERIAL SUITABLE TO RECEIVE TRANSPARENT FINISH. D. SOFTWOOD MOLDINGS: WMMPA WM 4, N-GRADE WOOD MOLDINGS. MAKE PATTERNS INCLUDED IN WMMPA WM 12.

 SPECIES AND GRADE: EASTERN WHIT PINE: AWI PREMIUM GRADE MAXIMUM MOISTURE CONTENT: 15 PERCENT.

MATERIAL SUITABLE TO RECEIVE TRANSPARENT FINISH E. HARDWOOD MOLDINGS: WMMPA HWM 2, N-GRADE WOOD MOLDINGS. MAKE PATTERNS INCLUDED IN WMMPA WM 12. . SPECIES AND GRADE: SELECT WHITE BIRCH, MILL CLEAR, AWI PREMIUM

2. MAXIMUM MOISTURE CONTENT: 9 PERCENT. 3. MATERIAL SUITABLE TO RECEIVE TRANSPARENT FINISH.

A. PROVIDE SHEET MATERIAL PER THIS SECTION, UNLESS OTHERWISE B. INTERIOR SOFTWOOD PLYWOOD:

1. SPECIES AND GRADE: DOUGLAS FIR, AWI PREMIUM GRADE 2. FACE SURFACE: SURFACED (SMOOTH) PLUGGED AND SANDED

C. EXTERIOR MEDIUM DENSITY OVERLAY PLYWOOD: GRADE: PS 1-95 AWI PREMIUM VENEER GRADE

VENEER CORE. 3. TYPE OF GLUE: AS RECOMMENDED FOR APPLICATION.

4. PAPER SATURATED WITH PHENOLIC RESIN SOLID FACE (PAPER

SATURATED FACE ONE SIDE ONLY AND EQUAL TO TOSENBERG MDO B

ROSEBURG FORREST PRODUCTS. FURNISH FACTORY PRIMED (2) SIDES

2.7 MISCELLANEOUS MATERIALS A. FOR FASTENER SPECIFICATIONS, SEE

ROUGH CARPENTRY - SECTION 06 10 00

2.6 SHEET MATERIALS

B. GLUE: ALIPHATIC-RESIN, POLYURETHANE, OR RESORCINOL WOOD GLUE. 1. USE WOOD GLUE THAT HAS A VOC CONTENT OF 30 G/L OR LESS WHEN

CALCULATED ACCORDING TO 40 CRF 59, SUBPART D (EPA METHOD 24).

C. ACCESSORIES LUMBER FOR SHIMMING, BLOCKING, AND MISCELLANEOUS USE OFTWOOD LUMBER OF DOUGLAS FIR, UTILITY GRADE SPECIES. SIZE AS REQUIRED FOR CONDITION UNLESS SHOWN OTHERWISE.

2 PLASTIC EDGE TRIM: EXTRUDED CONVEX SHAPE; SMOOTH FINISH; SELF LOCKING SERRATED TONGUE; WIDTH TO MATCH COMPONENT THICKNESS; COLOR AS SELECTED BY ARCHITECT. 3. PRIMER: ALKYD PRIMER SEALER TYPE. PRIME IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENT AND PER SECTION 09900 (PAINTING).

4. WOOD FILLER: OIL BASE, TINTED TO MATCH SURFACE FINISH COLOR. D. HARDWARE

BHMA A156.9 AS FOLLOWS: ALL HARDWARE TO BE AS SHOWN ON DRAWINGS IF NOT SHOWN PROVIDE HARDWARE AS DIRECTED F OWNER AND/OR AS REQUIRED FOR A COMPLETE INSTALLATION. E. FABRICATION:

 FABRICATE TO AWI PREMIUM STANDARDS. 2. SHOP ASSEMBLE WORK FOR DELIVERY TO SITE, PERMITTING PASSAGE FIT INTERIOR EXPOSED SHEET MATERIAL EDGES WITH PLASTIC EDGING WHERE SHOWN (NEVER LEAVE IN FINISHED EDGE EXPOSED TO VIEW).

4. WHEN NECESSARY TO CUT AND FIT ON SITE, PROVIDE MATERIALS WITH

AMPLE ALLOWANCE FOR CUTTING. PROVIDE TRIM FOR SCRIBING AND

SAND WORK SMOOTH AND SET EXPOSED NAILS AND SCREWS.

3. ON ITEMS TO RECEIVE TRANSPARENT FINISHES, USE WOOD FILLER WHICH MATCHES SURROUNDING SURFACES AND OF TYPES RECOMMENDED FOR APPLIED FINISHES. 4. FINISH WORK IN ACCORDANCE WITH AWI AS SHOWN ON DRAWINGS AND AS DIRECTED BY OWNER.

PART 3 - EXECUTION A. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. B. VERIFY ADEQUACY OF BACKING AND SUPPORT FRAMING.

APPLY WOOD FILLER IN EXPOSED NAIL AND SCREW INDENTATIONS

VERIFY MECHANICAL, ELECTRICAL, AND BUILDING ITEMS AFFECTING WORK OF THIS SECTION ARE PLACED AND READY TO RECEIVE THIS WORK. 3.2 INSTALLATION A. INSTALL WORK IN ACCORDANCE WITH AWI PREMIUM QUALITY STANDARD.

B. SET AND SECURE MATERIALS AND COMPONENTS IN PLACE, PLUMB, AND LEVEL C. CAREFULLY SCRIBE WORK ABUTTING OTHER COMPONENTS, WITH MAXIMUM GAPS OF 1/32 INCH (1 MM). DO NOT USE ADDITIONAL OVERLAY TRIM TO CONCEAL LARGER GAPS. D. MITER 90 DEGREES EXTERIOR CORNERS OF MDO EXTERIOR PLYWOOD.

E. INSTALL HARDWARE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS F. SET EXPOSED FASTENERS. APPLY WOOD FILLER IN EXPOSED FASTENER INDENTATIONS. 3.3 ERECTION TOLERANCES

A. MAXIMUM VARIATION FROM TRUE POSITION: 1/16 INCH (1.5 MM) B. MAXIMUM OFFSET FROM TRUE ALIGNMENT WITH ABUTTING MATERIALS: 1/32 INCH END OF SECTION 06 20 00

**DIVISION 7 - THERMAL & MOISTURE PROTECTION** 

THERMAL INSULATION **SECTION 07 21 00** PART 1 - GENERAL 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. A. SINGLE-SOURCE RESPONSIBILITY FOR INSULATION PRODUCTS: OBTAIN EACH TYPE OF BUILDING INSULATION FROM A SINGLE SOURCE WITH RESOURCES TO PROVID ONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES WITHOUT DELAYING

PROGRESS OF THE WORK DELIVERY, STORAGE AND HANDLING A PROTECT INSULATION MATERIALS FROM PHYSICAL DAMAGE AND FROM DETERIORATION BY MOISTURE, SOILING, AND OTHER SOURCES. STORE INSIDE AND IN A DRY LOCATION COMPLY WITH MANUFACTURER'S RECOMMENDATIONS FOR HANDLING, STORAGE, AND PROTECTION DURING INSTALLATION

B. PROTECT PLASTIC INSULATION AS FOLLOWS: DO NOT EXPOSE TO SUNLIGHT, EXCEPT TO EXTENT NECESSARY FOR PERIOD OF INSTALLATION AND CONCEALMENT. PROTECT AGAINST IGNITION AT ALL TIMES. DO NOT DELIVER PLASTIC INSULATING MATERIALS TO PROJECT SITE AHEAD OF INSTALLATION TIME. COMPLETE INSTALLATION AND CONCEALMENT OF PLASTIC MATERIALS AS RAPIDLY AS POSSIBLE IN EACH AREA OF CONSTRUCTION

PART 2 - PRODUCTS MANUFACTURERS

A. EXTRUDED POLYSTYRENE BOARD INSULATION: OWENS CORNING OR DOW CHEMICAL COMPANY OR DIVERSIFOAM PRODUCTS. B. BATT INSULATION: OWENS CORNING OR JOHNS MANVILLE INTERNATIONAL, INC. OR CERTAINTEED PRODUCTS CORPORATION. 2.2 INSULATING MATERIALS

A. GENERAL: PROVIDE INSULATING MATERIALS AS SCHEDULED IN THE DRAWINGS. THAT COMPLY WITH REQUIREMENTS AND WITH REFERENCED STANDARDS. PREFORMED UNITS: SIZES TO FIT APPLICATIONS INDICATED, SELECTED FROM MANUFACTURER'S STANDARD THICKNESS, WIDTHS AND LENGTHS. B. EXTRUDED POLYSTYRENE BOARD INSULATION: RIGID, CELLULAR POLYSTYRENE

THERMAL INSULATION WITH CLOSED-CELLS AND INTEGRAL HIGH DENSITY SKIN, FORMED BY THE EXPANSION OF POLYSTYRENE BASE RESIN IN AN EXTRUSION PROCESS TO COMPLY WITH ASTM C 578 FOR TYPE INDICATED; WITH 5-YEAR AGED R-VALUES OF 5. AND 5 AT 40 AND 75 DEG F (4.4 AND 23.9 DEG C), RESPECTIVELY; AND TYPE IV. 1.6-PCF MAXIMUM FLAME SPREAD AND SMOKE DEVELOPMENT VALUES OF 75 AND 450. RESPECTIVELY. FOR EXPOSED INSULATION FLAME SPREAD SHALL NOT EXCEED 25. C. BATT INSULATION: GLASS FIBER BLANKET TYPE INSULATION: TYPE III, FOIL-SCRIM-KRAF LAMINATE FACED, CLASS A, ASTM C665 AND FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPMENT OF 50 OR LESS. MANUFACTURER'S STANDARD LENGTHS AND WIDTHS

REQUIRED TO COORDINATE WITH SPACES INSULATED. D. MINERAL FIBER FIRESTOPPING INSULATION: UNITED STATES GYPSUM CO. "THERMAFIBER SAFING INSULATION" OR AN APPROVED EQUAL, TYPE 1 UNFACED. MANUFACTURER'S STANDARD LENGTHS, WIDTHS AND THICKNESS. PROVIDE MANUFACTURER'S STANDARD IMPALING STYLE GALVANIZED STEEL SAFING INSULATION CLIPS AND BRACKETS MATERIALS SHALL BE RATED NON-COMBUSTIBLE AS DEFINED BY NFPA WHEN TESTED IN ACCORDANCE WITH ASTM E136.

2.3 VAPOR RETARDERS A. POLYETHYLENE VAPOR RETARDER: ASTM D4397. 8 MILS THICK WITH MAXIMUM PERM

BY VAPOR-RETARDER MANUFACTURER FOR SEALING JOINTS AND PENETRATIONS A GENERAL: PROTECT INSTALLATION AND VAPOR RETARDERS FROM DAMAGE DUE TO HARMFUL WEATHER EXPOSURES, PHYSICAL ABUSE, AND OTHER CAUSES. PROVID

TEMPORARY COVERINGS OR ENCLOSURES WHERE INSULATION WILL BE SUBJECT TO ABUSE AND CANNOT BE CONCEALED AND PROTECTED BY PERMANENT CONSTRUCTION

PART 3 - EXECUTION 3.1 INSTALLATION

A. INSTALL INSULATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR CONDITIONS OF INSTALLATION INDICATED

B. EXTEND INSULATION FULL THICKNESS OVER ENTIRE AREA TO BE INSULATED. CUT AND FIT TIGHTLY AROUND OBSTRUCTIONS. FILL ALL VOIDS. C. INSTALL INSULATION IN SINGLE LAYER OF REQUIRED THICKNESS. DO NOT INSTALL BROKEN RIGID BOARD PANELS OR TORN BLANKET INSULATION

D. PROVIDE INSULATION CONTINUOUS BEHIND ELECTRICAL BOXES, CONDUIT AND PIPING

E. INSTALL BLANKET TYPE INSULATION WITH TIGHT FITTING BUTT JOINTS. INSTALL FOIL 1.8 QUALITY ASSURANCE FACING VAPOR BARRIER EXPOSED TO THE INTERIOR. PROVIDE SUPPLEMENTAR SUPPORT WHEN REQUIRED TO MAINTAIN INSULATION IN PERMANENT PROPER

F. INSTALL BLANKET TYPE INSULATION LOCATED NEAR BOTTOM CHORD OF ROOF TRUSS OVER A WIRE MESH SUPPORT PLANE WHICH IS SECURED TO THE ROOF TRUSS MEMBER INSTALL FOIL FACING VAPOR BARRIER EXPOSED TO THE INTERIOR. WIRE MESH TO BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE BLANKET TYPE INSULATION MANUFACTURER'S RECOMMENDATIONS G. INSTALL FIRESTOPPING MATERIALS IN ACCORDANCE WITH MANUFACTURER'S

B. CONTRACTOR REQUIREMENTS INSTRUCTIONS TO MAINTAIN FIRE SEPARATIONS INDICATED. INSTALL FIRESTOPPING 1. KNOWLEDGEABLE IN THE PROPER USE AND HANDLING OF INSULATION OF PROPER SIZES AND THICKNESS' WITH BRACKETS OR SAFING CLIPS SPACED AS NEEDED AND NOT MORE THAN 24" ON CENTER. FILL SAFE-OFF AREA. FILI ALL VOIDS. PROVIDE CONTINUITY OF FIRE SAFETY SYSTEMS AS INDICATED. EMPLOY SKILLED MECHANICS WHO ARE EXPERIENCED AND

END OF SECTION 07 21 00

FLUID APPLIED MEMBRANE AIR BARRIER SECTION 07 27 26

1.2 DEFINITIONS

1.3 PRE-INSTALLATION MEETINGS

1.4 REFERENCES

SECTION INCLUDES MATERIALS AND INSTALLATION OF VAPOR PERMEABLE FLUID APPLIED AIR AND MOISTURE BARRIER MEMBRANE OVER VERTICAL ABOVE GRADE CONCRETE WALLS, CONCRETE MASONRY WALLS, AND WALL SHEATHING.

A. AIR BARRIER MATERIAL: A PRIMARY ELEMENT THAT PROVIDES A

B. AIR BARRIER ACCESSORY: A TRANSITIONAL COMPONENT OF THE

AIR BARRIER AUXILIARY MATERIAL: A TRANSITIONAL COMPONENT

CONTINUOUS BARRIER TO THE MOVEMENT OF AIR.

AIR BARRIER THAT PROVIDES CONTINUITY

RELATED SECTIONS INCLUDE THE FOLLOWING

A. MAINTAIN AMBIENT AND SURFACE TEMPERATURES ABOVE 40 EGREES F (4 DEGREES C) DURING APPLICATION AND DR PERIOD. MINIMUM 24 HOURS AFTER APPLICATION OF AIR AND B. PROVIDE SUPPLEMENTARY HEAT FOR INSTALLATION IN

GROUND IN A DRY LOCATION.

1.11 PROJECT/SITE CONDITIONS

B. COLOUR: BLACK

B. ACCESSORY MATERIALS

TEMPERATURES LESS THAN 40 DEGREES F (4 DEGREES C) OR IF SURFACE TEMPERATURE IS LIKELY TO FALL BELOW 40 DEGREES F C. PROVIDE PROTECTION OF SURROUNDING AREAS AND ADJACENT

B. PROTECT COATINGS (PAIL PRODUCTS) FROM FREEZING

(32 DEGREES C). STORE AWAY FROM DIRECT SUNLIGHT.

D. PROTECT AND STORE ACCESSORY AND AUXILIARY PRODUCTS IN

TEMPERATURES AND TEMPERATURES IN EXCESS OF 90 DEGREES F

PROTECT PORTLAND CEMENT BASED MATERIALS (BAG PRODUCTS

FROM MOISTURE AND HUMIDITY. STORE UNDER COVER OFF THE

ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

SURFACES FROM APPLICATION OF MATERIALS. 1.12 WARRANTY A. PROVIDE MANUFACTURER'S STANDARD WARRANTY

IPLE LAYER ŠPUNBONDED POLYPROPYLENE WITH A NOMINAL

WITH THE CAN/ULC S741-08 AND THE MEMBRANE SYSTEM MUST

CLASSIFICATION OF "A1" [AT A 1 IN 50 HOURLY WIND PRESSURE

DIFFERENCE OF 650PA, 12 METRES ABOVE GRADE]. SRP

A. PRIMARY AIR BARRIER MATERIAL: STOGUARD WITH STO

APPLIED AIR AND MOISTURE BARRIER MATERIAL

SHEATHING JOINT TREATMENTS

2. ROUGH OPENING TREATMENTS

TRANSITION DETAIL COMPONENTS

CONSTRUCTION.

C. AUXILIARY MATERIALS

2.3 PERFORMANCE REQUIREMENTS

SEALANTS

2. PRE-CURED SEALANT TAPE: DOW 123

AIROUTSHIELD SA280 1 866 533 0233 WWW.SRPCANADA.CA

EMERALDCOAT - READY-MIXED FLEXIBLE SPRAY OR ROLLER

STO RAPIDGUARD™: ONE COMPONENT STPE RAPID

OTHER TRANSITIONS IN ABOVE GRADE WALL CONSTRUCTION.

DRYING GUN-APPLIED TREATMENT FOR SHEATHING JOINTS

ROUGH OPENINGS, SEAMS, CRACKS, PENETRATIONS AN

a. STO RAPIDGUARD™: ONE COMPONENT STPE RAPID

ROUGH OPENINGS, SEAMS, CRACKS, PENETRATIONS AND

DRYING GUN-APPLIED TREATMENT FOR SHEATHING JOINTS,

OTHER TRANSITIONS IN ABOVE GRADE WALL CONSTRUCTION.

a. STOGUARD TRANSITION MEMBRANE: FLEXIBLE AIR AND

MOISTURE BARRIER MEMBRANE FOR CONTINUITY AT STATIC TRANSITIONS: SHEATHING TO FOUNDATION, DISSIMILAR

SLAB OR CEILING. AND SHINGLE LAP TRANSITIONS TO

HROUGH WALL JOINTS IN MASONRY OR FRAME

WET SEALANT: DOW CORNING 758, 790, 791, AND 795

4. SPRAY FOAM: DOW GREAT STUFF FOR GAPS AND CRACKS

STO LEVELER: POLYMER MODIFIED CEMENTITIOUS PATCH

AND LEVELING MATERIAL FOR PREPARED CONCRETE AND

MASONRY SURFACES FOR LEVELING UP TO 1/4 INCH (6 MM)

PARED CONCRETE AND MASONRY SURFACES FOR

CEMENTITIOUS PATCH AND LEVELING MATERIAL FOR

TREATMENT AND PRIMARY AIR BARRIER MATERIAL, COMPLY WITH

SPRAY ADHESIVE: 3M SUPER 77 SPRAY ADHESIVE

D. PATCH AND LEVELING MATERIAL FOR CONCRETE AND MASONRY

2. STO BTS-XTRA: POLYMER MODIFIED LIGHTWEIGHT

LEVELING UP TO 1/8 INCH (3 MM).

A DURABILITY RESISTANCE TO AGING WATER AND WATER

PENETRATION RESISTANCE, STRUCTURAL LOADING: JOINT

DEFLECTION JOINTS, MASONRY CONTROL JOINTS, AND

MATERIALS (CMU TO FRAME WALL), WALL TO BALCONY FLOOR

STOGUARD PRIMER: RUBBER RESIN EMULSION PRIMER

FOR USE WITH STOGUARD TAPE TO ENHANCE ADHESION.

COMPLY WITH CAN/ULC S742-11 AND HAVE AN AIR LEAKAGE RATE

NSMISSION OF 1373 NG/PA.Ś.M2 (24 PERMS) AS PER ASTM E96

THICKNESS OF 0.60MM (24 MILS) AND WATER VAPOUR

METHOD B. MEMBRANES MUST COMPLY

THAT PROVIDES AIR BARRIER CONTINUITY FURNISHED BY A SOURCE OTHER THAN THE PRIMARY AIR BARRIER MANUFACTURER PART 2 - PRODUCTS AIR BARRIER ASSEMBLY: THE COLLECTION OF AIR BARRIER 2.1 MANUFACTURERS AN OPAQUE WALL. INCLUDING JOINTS AND JUNCTIONS TO A. PRODUCTS: VAPOUR PERMEABLE AIR BARRIER MEMBRANE, SELI ADHERED FOR IRAIN SCREEN SYSTEMSI ISLOPED ROOFING!

ABUTTING CONSTRUCTION, TO CONTROL AIR MOVEMENT THROUGH

A. PRE-INSTALLATION CONFERENCE REVIEW AIR BARRIER INSTALLATION REQUIREMENTS AND INSTALLATION DETAILS, MOCK-UPS, TESTING REQUIREMENTS, PROTECTION, AND SEQUENCING OF WORK.

 B. ASTM STANDARD D 4541-09 TEST METHOD FOR PULL-OFF STRENGTH OF COATINGS USING PORTABLE ADHESION TESTERS E 84-98 TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIAL

A. BUILDING CODE AND MATERIAL EVALUATION SERVICE STANDARDS

E 96-00 TEST METHOD FOR WATER VAPOR TRANSMISSION OF E 779-10 STANDARD TEST METHOD FOR DETERMINING AIR LEAKAGE RATE BY FAN PRESSURIZATION E 783-02 STANDARD TEST METHOD FOR FIELD MEASUREMEN OF AIR LEAKAGE THROUGH INSTALLED EXTERIOR WINDOWS AND

E 1186-03 (2009) STANDARD PRACTICES FOR AIR LEAKAGE SITE DETECTION IN BUILDING ENVELOPES AND AIR BARRIER 1E 1827-96 (2007) STANDARD TEST METHODS FOR DETERMINING AIR TIGHTNESS OF BUILDINGS USING AN ORIFICE BLOWER DOOR 1E 2178-03 TEST METHOD FOR AIR PERMEANCE OF BUILDING

MATERIALS 15.E 2357-05 STANDARD TEST METHOD FOR DETERMINING AIR LEAKAGE OF AIR BARRIER ASSEMBLIES AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC. (ASHRAE) 2005 ASHRAE HANDBOOK FUNDAMENTALS ASHRAE 90.1 2016, ENERGY STANDARD

FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) NFPA 285 STANDARD FIRE TEST METHOD FOR EVALUATION OF FIRE NON-LOAD-BEARING WALL ASSEMBLIES CONTAINING COMBUSTIBLE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1113 (2007) ARCHITECTURAL COATINGS

COORDINATE INSTALLATION OF FOUNDATION WATERPROOFING, ROOFING MEMBRANE WINDOWS DOORS AND OTHER WAI PENETRATIONS TO PROVIDE A CONTINUOUS AIR BARRIER

 B. PROVIDE PROTECTION OF ROUGH OPENINGS BEFORE INSTALLING WINDOWS, DOORS, AND OTHER PENETRATIONS THROUGH THE

BEFORE WINDOWS AND DOORS ARE INSTALLED. INSTALL WINDOW AND DOOR HEAD FLASHING IMMEDIATELY AFTER VINDOWS AND DOORS ARE INSTALLED.

ASSEMBLY TO DIRECT WATER TO THE EXTERIOR. COPINGS AND SILLS TO PREVENT WATER ENTRY INTO THE WALL

COMPLIANCE WITH THE IBC, IRC, AND IECC AS AN AIR BARRIER AND

D. SAMPLES FOR APPROVAL AS DIRECTED BY ARCHITECT OR OWNER.

ANSITIONS, PENETRATIONS, CORNERS, TERMINATIONS, AND

MANUFACTURER OF EXTERIOR WALL AIR AND MOISTURE

2. ISO 9001:2008 CERTIFIED QUALITY SYSTEM AND ISO 14001:2004

KNOWLEDGEABLE IN WATERPROOFING AND AIR BARRIER

PROVIDE THE PROPER EQUIPMENT, MANPOWER AND

PRIMARY AIR BARRIER AND JOINT TREATMENT

APPLICATION, AND FAMILIAR WITH THE REQUIREMENTS OF

SUPERVISION ON THE JOB-SITE TO INSTALL THE AIR BARRIER

ASSEMBLY IN COMPLIANCE WITH THE PROJECT PLANS &

SPECIFICATIONS, SHOP DRAWINGS, AND STO'S PUBLISHED

a. LISTED BY IBC AND RECOGNIZED FOR USE ON ALI

S OF CONSTRUCTION. REFER TO ICC ESR 1233 FOR

b. COMPLY WITH VOC REQUIREMENTS OF SCAQMD RULI

COMPLY WITH AIR BARRIER MATERIAL REQUIREMENTS

COMPLY WITH AIR BARRIER MATERIAL REQUIREMENTS

e. COMPLY WITH 2012 AND 2015 IRC REQUIREMENT FOR A

f. COMPLY WITH AIR BARRIER MATERIAL REQUIREMENTS

BUILD STAND-ALONE SITE MOCK UP OR SAMPLE WALL AREA

WALL CONSTRUCTION, TYPICAL DETAILS COVERING

A. CONDUCT TESTING BY QUALIFIED TEST AGENCY OR BUILDING

2. CONDUCT ADHESION TESTING TO SUBSTRATES IN

QUALITY CONTROL TEST PROCEDURE.

CONDUCT WET SEALANT COMPATIBILITY TESTING IN

ACCORDANCE WITH ASTM D 4541

SUBSTRATE JOINTS, CRACKS, FLASHING TRANSITIONS

PENETRATIONS, CORNERS, TERMINATIONS, TIE-INS WITH

CONDUCT ASSEMBLY AIR LEAKAGE TESTING IN ACCORDANCE

ACCORDANCE WITH SEALANT MANUFACTURER'S FIELD

4. NOTIFY DESIGN PROFESSIONAL MINIMUM 7 DAYS PRIOR TO

A DELIVER ALL MATERIALS IN THEIR ORIGINAL SEALED CONTAINERS

BEARING MANUFACTURER'S NAME AND IDENTIFICATION OF

SEPARATE MATERIALS THAT FORM PART OF THE AIR BARRIER

CERTIFIED ENVIRONMENTAL MANAGEMENT SYSTEM.

BARRIER MATERIALS FOR A MINIMUM OF 30 YEARS IN NORTH

TIE-INS WITH ADJOINING CONSTRUCTION AND INTERFACES WITH

SEPARATE MATERIALS THAT FORM PART OF THE AIR BARRIER

SHOP DRAWINGS: SUBSTRATE JOINTS, CRACKS, FLASHING

G. INSTALL CLADDING WITHIN 180 DAYS OF AIR AND MOISTURE

MANUFACTURER'S ICC EVALUATION REPORT CONFIRMIN

B. MANUFACTURER'S STANDARD WARRANTY

WATER-RESISTIVE BARRIER.

A. MANUFACTURER REQUIREMENTS

THE SPECIFIED WORK.

C. REGULATORY COMPLIANCE

LIMITATIONS.

D. MOCK-UPS

1.9 PRE-CONSTRUCTION TESTING

ENVELOPE CONSULTANT.

1.10 DELIVERY, STORAGE AND HANDLING

WITH ASTM E 783.

SPECIFICATIONS AND DETAILS.

REINFORCEMENT MATERIALS:

OF ASHRAE 90.1 - 2010, 2013

OF ASHRAE 189.1 - 2009

CONTINUOUS AIR BARRIER

OF 2012 AND 2015 IBC AND IECC

B. FLEXIBILITY: ASTM D 522, PRIMARY AIR BARRIER MATERIAL, NO CRACKING OR DELAMINATION BEFORE AND AFTER AGING USING 1/8 INCH (3 MM) MANDREL AT 14° F (10° C) C. NAIL SEALABILITY: ASTM D 1970, 7.9.1, PRIMARY AIR BARRIER A. MANUFACTURER'S SPECIFICATIONS, DETAILS AND PRODUCT DATA.

D. RESISTANCE TO MOLD: ASTM D 3273, NO MOLD GROWTH AFTER 28 DAY EXPOSURE E. ADHESION: JOINT TREATMENT AND PRIMARY AIR BARRIER MATERIAL, ASTM C 297 OR D 4541, > 30 PSI (207 KPA), OR EXCEEDS STRENGTH OF GLASS MAT FACING ON GLASS MAT GYPSUM

F. SURFACE BURNING: ASTM E 84, JOINT TREATMENT AND PRIMARY AIR BARRIER MATERIAL FLAME SPREAD < 25, SMOKE DEVELOPED < 450, CLASS A BUILDING MATERIAL

G. WATER VAPOR PERMEANCE: ASTM E 96 METHOD B, > 10 PERMS (570 H FIELD ADHESION TESTING: ASTM D 4541, > 30 PSI (207 KPA) OR

EXCEEDS STRENGTH OF GLASS MAT FACING ON GLASS MAT GYPSUM SUBSTRATES FIRE RESISTANCE: ASTM E 119. PERMITTED FOR USE IN EXTERIOR WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION ASSEMBLIES.

J. BUILDING ENVELOPE AIR LEAKAGE: ASTM E 779 OR 1827, < 0.4 K. MATERIAL AIR LEAKAGE: ASTM E 2178, PRIMARY AIR BARRIER AND JOINT TREATMENT < 0.004 CFM/FT2 AT 1.57 PSF (0.02 L/SM2 AT 75 PA)

ASSEMBLY AIR LEAKAGE: ASTM E 2357, < 0.04 CFM/FT2 (0.2 L/S·M2) AIR LEAKAGE AFTER CONDITIONING PROTOCOL ALL TYPES OF CONSTRUCTION. REFER TO ICC-ESR 1233.

N. VOLATILE ORGANIC COMPOUNDS: SCAQMD RULE 1113, JOINT TREATMENT AND PRIMARY AIR BARRIER MATERIAL < 100 G/L O. WATER-RESISTIVE BARRIER: ICC ES 212, JOINT TREATMENT AND PRIMARY AIR BARRIER MATERIAL COMPLY AND ARE LISTED IN A

2.4 DESIGN CRITERIA A. STRUCTURAL (WIND AND AXIAL LOADS DESIGN FOR MAXIMUM ALLOWABLE DEFLECTION NORMAL TO THE PLANE OF THE WALL: L/240, WHERE CLADDING DICTATES

STIFFER DEFLECTION CRITERIA USE CLADDING DESIGN RITERIA FOR MAXIMUM ALLOWABLE DEFLECTION. 2. DESIGN FOR WIND LOAD IN CONFORMANCE WITH CODE REQUIREMENTS.

 PREVENT THE ACCUMULATION OF WATER IN THE WALL SSEMBLY AND BEHIND THE EXTERIOR WALL CLADDING: STO

a. MINIMIZE CONDENSATION WITHIN THE ASSEMBLY b. DRAIN WATER DIRECTLY TO THE EXTERIOR WHERE IT IS LIKELY TO PENETRATE COMPONENTS IN THE WALL ASSEMBLY (WINDOWS AND DOORS, FOR EXAMPLE). PROVIDE CORROSION RESISTANT FLASHING TO DIRECT WATER TO THE EXTERIOR IN ACCORDANCE WITH CODE

REQUIREMENTS, INCLUDING: ABOVE WINDOW AND DOOR

HEADS, BENEATH WINDOW AND DOOR SILLS, AT ROOF/WALL

NTERSECTIONS, FLOOR LINES, DECKS, INTERSECTIONS OF

LOWER WALLS WITH HIGHER WALLS, AND AT THE BASE OF

C. AIR BARRIER CONTINUITY: PROVIDE CONTINUOUS AIR BARRIER ASSEMBLY OF COMPATIBLE AIR BARRIER COMPONENTS.

> 1. CONCRETE MASONRY UNITS: PROVIDE CMU SURFACES IN CONFORMANCE WITH THE APPLICABLE BUILDING CODE. AND ACHIEVED, PROVIDE NORMAL WEIGHT UNITS WITH FLUS JOINTS (STRUCK FLUSH WITH THE SURFACE) AND ALLOW FOR A MINIMUM OF 2 COATS OF THE PRIMARY AIR BARRIER MATERIAL APPLIED BY SPRAY OR ROLLER ALTERNATIVELY, FOR "ROUGH" CMU WALL SURFACES ALLOW FOR A CEMENTITIOUS PARGE COAT TO FILL AND LEVEL IRREGULAR SURFACES, PRIOR TO 1 COAT OF THE PRIMARY AIR BARRIER

2. CONCRETE: PROVIDE CONCRETE IN CONFORMANCE WITH THE APPLICABLE BUILDING CODE.

SHEATHING: PROVIDE GYPSUM SHEATHING IN COMPLIANCE WITH ASTM C 1177, PROVIDE APA EXTERIOR OR EXPOSURE WOOD-BASED SHEATHING, AND PROVIDE SHEATHING THAT MEETS REQUIRED DESIGN WIND PRESSURES.

E. MECHANICAL VENTILATION: MAINTAIN PRESSURIZATION AND INDOOR HUMIDITY LEVELS IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE (SEE 2005 ASHRAE HANDBOOK--FUNDAMENTALS).

PART 3 EXECUTION 3.1 EXAMINATION

> A. INSPECT CONCRETE AND CONCRETE MASONRY SURFACES FOR CONTAMINATION - ALGAE, DIRT, DUST, EFFLORESCENCE  ${\tt FORM\ OIL,\ FUNGUS,\ GREASE,\ MILDEW\ OR\ OTHER\ FOREIGN}$

2. SURFACE DEFICIENCIES - WEAK, FRIABLE, CHALKINESS, LAITANCE, BUGHOLES, AND SPALLS.

3. CRACKS - MEASURE CRACK WIDTH AND RECORD LOCATION

 DAMAGE OR DETERIORATION. 5. MOISTURE CONTENT AND MOISTURE DAMAGE - USE A MOISTURE METER TO DETERMINE IF THE SURFACE IS DRY ENOUGH TO RECEIVE THE WATERPROOF AIR BARRIER AND RECORD ANY AREAS OF MOISTURE DAMAGE OR EXCESS

6. FLUSH MASONRY MORTAR JOINTS COMPLETELY FILLED WITH B. INSPECT SHEATHING APPLICATION FOR COMPLIANCE WITH APPLICABLE REQUIREMENT

 EXTERIOR GRADE AND EXPOSURE I WOOD BASED SHEATHING: E30U-2007, ENGINEERED WOOD CONSTRUCTION GUIDE, AND THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE. 2. GLASS MAT FACED GYPSUM SHEATHING IN COMPLIANCE WITH

ASTM C 1177: CONSULT MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND ICC ES REPORT. CONFORM WITH PROJECT REQUIREMENTS FOR WIND LOAD RESISTANCE. 3 CEMENTITIOUS SHEATHING - CONSULT MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND ICC ES REPOR CONFORM WITH PROJECT REQUIREMENTS FOR WIND LOAD

C. REPORT DEVIATIONS FROM THE REQUIREMENTS OF PROJECT SPECIFICATIONS OR OTHER CONDITIONS THAT MIGHT ADVERSELY AFFECT THE AIR AND MOISTURE BARRIER INSTALLATION. DO NOT START WORK UNTIL DEVIATIONS ARE CORRECTED. 3.2 SURFACE PREPARATION

A. CONCRETE MASONRY

SURFACE MUST BE STRUCTURALLY SOUND AND FREE OF LAITANCE OR SPALLS. SURFACE MUST BE CLEAN, DRY SUCH AS DUST, DIRT, OIL, ALGAE, MILDEW, SALTS. MORTAR JOINTS MUST BE STRUCK FLUSH WITH THE

2. REMOVE EXCESS MORTAR FROM MASONRY TIES, LINTELS

REMOVE LOOSE OR DAMAGED MATERIAL BY VATER-BLASTING, SANDBLASTING OR MECHANICAL WIR BRUSHING, REMOVE SURFACE CONTAMINATION SUCH AS MEANS, REPAIR SURFACE DEFECTS SUCH AS SPALLS, VOIDS AND HOLES WITH STO BTS XTRA (UP TO 1/8 INCH [3 MM] THICK) OR STO LEVELER (UP TO 1/4 INCH [6 MM] THICK).

REPAIR NON-STRUCTURAL CRACKS UP TO 1/8 INCH (3 MM WIDE BY RAKING WITH A SHARP TOOL TO REMOVE LOOSE RIABLE MATERIAL AND BLOW CLEAN WITH OIL-FREE COMPRESSED AIR, APPLY JOINT TREATMENT MATERIAL OVER CRACK, EMBED REINFORCEMENT (WHERE APPLICABLE), AND SMOOTH JOINT TREATMENT MATERIAL WITH A TROWE DRYWALL OR PUTTY KNIFE TO COVER THE REINFORCEMENT

B. CONCRETE SURFACE MUST BE STRUCTURALLY SOUND AND FREE OF WEAK OR DAMAGED SURFACE CONDITIONS SUCH AS LAITANCE, BUGHOLES, OR SPALLS. SURFACE MUST BE CLEAN. DRY, FROST-FREE, AND FREE OF ANY BOND-INHIBITING

MATERIALS SUCH AS DUST, DIRT, OIL, FORM RELEASE, ALGAE MILDEW, SALTS, EFFLORESCENCE, OR ANY OTHER SURFACE REMOVE PROJECTING FINS, RIDGES, FORM TIES, AND HIGH SPOTS BY MECHANICAL MEANS REMOVE LOOSE OR DAMAGED MATERIAL BY WATER-BLASTING, SANDBLASTING OR MECHANICAL WIRE BRUSHING, REMOVE FORM RELEASE BY CHEMICAL OR

HONEYCOMBS, PITTING, SPALLS, VOIDS OR HOLES WITH STO BTS XTRA (UP TO 1/8 INCH [3 MM] THICK) OR STO LEVELER (UP TO 3/8 INCH [9 MM] THICK). REPAIR NON-STRUCTURAL CRACKS UP TO 1/8 INCH (3 MM WIDE BY RAKING WITH A SHARP TOOL TO REMOVE LOOSE FRIABLE MATERIAL AND BLOW CLEAN WITH OIL-FREE DMPRESSED AIR. APPLY JOINT TREATMENT MATERIAL OVE CRACK, EMBED REINFORCEMENT (WHERE APPLICABLE), AND

MECHANICAL MEANS. REPAIR SURFACE DEFECTS SUCH AS

SMOOTH JOINT TREATMENT MATERIAL WITH A TROWE DRYWALL OR PUTTY KNIFE TO COVER THE REINFORCEMENT C. SHEATHING

1. REMOVE AND REPLACE DAMAGED SHEATHING. MOCK-UP: PROVIDE A MOCK-UP FOR EVALUATION OF SURFACE SPOT SURFACE DEFECTS SUCH AS OVER-DRIVEN FASTENERS KNOT HOLES, OR OTHER VOIDS IN SHEATHING WITH KNIFE

SPOT FASTENERS WITH KNIFE GRADE OR COATING JOINT TREATMENT MATERIAL

3.3.1 AIR/MOISTURE BARRIER INSTALLATION OVER EXTERIOR OR EXPOSURE I SHEATHING IN COMPLIANCE WITH ASTM C 1177, CONCRETE, AND CONCRETE A. COORDINATE WORK WITH OTHER TRADES TO ENSURE AIR BARRIER CONTINUITY WITH CONNECTIONS AT FOUNDATION, FLOOR LINES,

FLASHINGS, LINTELS AND SHELF ANGLES, OPENINGS AND PENETRATIONS SUCH AS PIPES, VENTS, WINDOWS AND DOORS, MASONRY ANCHORS, RAFTERS OR BEAMS, JOINTS IN CONSTRUCTION, PROJECTIONS SUCH AS DECKS AND BALCONIES, AND ROOF LINE. B. TRANSITION DETAILING: DETAIL TRANSITION AREAS WITH STO RAPIDGUARD OR STOGUARD TRANSITION MEMBRANE TO ACHIEVE AIR BARRIER CONTINUITY. FOR ILLUSTRATIONS OF INSTALLATION,

INSTALLATION GUIDE (WWW.STOCORP.COM). C. ROUGH OPENING PROTECTION INSTALL ROUGH OPENING PROTECTION. REFER TO STO DETAILS AND APPLICABLE STO PRODUCT BULLETINS.

REFER TO STO GUIDE DETAILS AND STO RAPIDGUARD

INSTALL JOINT TREATMENT MATERIAL SHEATHING JOINTS REFER TO STO DETAILS AND APPLICABLE STO PRODUCT

E. AIR AND MOISTURE BARRIER COATING CONCRETE - INSTALL ONE COAT OF STO EMERALDCOAT BY SPRAY OR ROLLER IN A UNIFORM, CONTINUOUS WET FILM OF 10 MILS TO THE PREPARED CONCRETE SUBSTRATE, DO NOT INSTALL OVER WORKING OR MOVING JOINT SEALANTS.

2. CONCRETE MASONRY - INSTALL ONE LIBERAL COAT OF STO EMERALDCOAT BY SPRAY OR ROLLER IN A UNIFORM, CONTINUOUS FILM TO THE PREPARED CONCRETE MASONRY SUBSTRATE. BACKROLL SPRAY APPLICATIONS. ALLOW TO DRY INSTALL A SECOND LIBERAL COAT IN A UNIFORM CONTINUOUS FILM, AND BACKROLL SPRAY APPLICATIONS, TO ACHIEVE A VOID AND PINHOLE FREE SURFACE, DEPENDING ON THE CONDITION OF THE SURFACE A MINIMUM OF 10 WET MILS UP TO A MAXIMUM OF 30 WET MILS PER COAT IS REQUIRED. APPLY ADDITIONAL COATS IF NEEDED TO ACHIEVE A VOID AND PINHOLE FREE SURFACE. DO NOT INSTALL OVER WORKING OR MOVING JOINT SEALANTS.

COAT OF STO EMERALDCOAT BY SPRAY OR ROLLER IN A UNIFORM, CONTINUOUS FILM OF 10 WET MILS TO THE PREPARED GLASS MAT GYPSUM SUBSTRATE TO ACHIEVE A VOID AND PINHOLE FREE SURFACE. DO NOT INSTALL OVER WORKING OR MOVING JOINT SEALANTS. b. PLYWOOD SHEATHING: INSTALL ONE COAT OF STO IERALDCOAT BY SPRAY OR ROLLER IN A UNIFORM CONTINUOUS FILM OF 10 WET MILS TO THE PREPARED

a. GLASS MAT FACED GYPSUM SHEATHING: INSTALL ONE

SUBSTRATE TO ACHIEVE A VOID AND PINHOLE FR SURFACE. DO NOT INSTALL OVER WORKING OR MOVING JOINT c. OSB SHEATHING: INSTALL ONE COAT OF STO MERALDCOAT BY SPRAY OR ROLLER IN A UNIFORM CONTINUOUS FILM OF 10 WET MILS TO THE PREPARED

INSPECT SURFACE AND TOUCH-UP WITH A SECOND COAT AT

AISED WOOD STRANDS. DO NOT INSTALL OVER WORKING OR

A OWNER'S QUALIFIED TESTING AGENCY OR BUILDING ENVELOPE

MOVING JOINT SEALANTS.

B INSPECTIONS: AIR BARRIER MATERIALS ARE SUBJECT TO PECTION TO VERIFY COMPLIANCE WITH REQUIREMENTS CONDITION OF SUBSTRATES AND SUBSTRATE PREPARATION. 2 INSTALLATION OF PRIMARY AIR BARRIER MATERIAL

ACCESSORY MATERIALS, AND COMPATIBLE AUXILIARY MATERIALS OVER STRUCTURALLY SOUND SUBSTRATES AND IN CONFORMANCE WITH ARCHITECTURAL DESIGN DETAILS,

MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND HOLES AT FOUNDATION, FLOOR LINES, FLASHINGS, LINTELS AND SHELF ANGLES, OPENINGS AND PENETRATIONS SUCH AS PIPES, VENTS, WINDOWS AND DOORS, MASONRY ANCHORS, RAFTERS OR BEAMS, JOINTS IN CONSTRUCTION PROJECTIONS SUCH AS DECKS AND BALCONIES, AND ROOI

TESTS: AIR BARRIER MATERIALS AND ASSEMBLY ARE SUBJECT TO TESTS TO VERIFY COMPLIANCE WITH PERFORMANCE REQUIREMENTS:

ADHESION TEST: ASTM D 4541

REQUIREMENTS.

REQUIREMENTS.

ATTENTION

END OF SECTION 07 27 26

1.1 PERFORMANCE REQUIREMENTS

SUPPORT FRAMING

PANEL SYSTEM.

3.5 PROTECTION AND CLEANING

4. QUALITATIVE ADHESION AND COMPATIBILITY TESTING: WET

D. REPAIR NON-CONFORMING SUBSTRATES AND AIR BARRIER

A. PROTECT AIR BARRIER MATERIALS FROM DAMAGE DURING

MATERIAL INSTALLATION TO CONFORM WITH PROJECT

E. TAKE CORRECTIVE ACTION TO REPAIR AND REPLACE, REINSTALL

CONFORM WITH PROJECT PERFORMANCE REQUIREMENTS.

HIGH HUMIDITY, OR PROLONGED EXPOSURE TO SUN LIGHT.

3. PROTECT AIR BARRIER MATERIALS FROM DAMAGE FROM TRADES

VANDALS, AND WATER INFILTRATION DURING CONSTRUCTION.

REPAIR DAMAGED MATERIALS TO MEET PROJECT SPECIFICATION

CONSTRUCTION MATERIALS THAT WILL BE EXPOSED IN THE

CLEAN SPILLS, STAINS, SOILING FROM FINISHES OR OTHER

E. REMOVE ALL MASKING MATERIALS AFTER WORK IS COMPLETED

EXTRUDED ALUMINUM SIDING SECTION 07 46 16

A. COMPONENTS: DESIGN AND SIZE COMPONENTS TO WITHSTAN

IN ACCORDANCE WITH APPLICABLE CODE

DEAD AND LIVE LOADS CAUSED BY POSITIVE AND NEGATIVE WIND

B. MOVEMENT: ACCOMMODATE MOVEMENT WITHIN SYSTEM WITHOUT

MOVEMENT BETWEEN SYSTEM AND PERIMETER COMPONENT

MOISTURE ENTERING OR CONDENSATION OCCURRING WITHIN

WHEN SUBJECT TO SEASONAL TEMPERATURE CYCLING: DYNAMIC

LOADING AND RELEASE OF LOADS: DEFLECTION OF STRUCTURAL

DAMAGE TO COMPONENTS OR MOVEMENT WITHIN SYSTEM:

DRAINAGE: PROVIDE POSITIVE DRAINAGE TO EXTERIOR FOR

A. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH

STORAGE AND HANDLING REQUIREMENTS AND

B. SHOP DRAWINGS: INDICATE DIMENSIONS, LAYOUT, JOINTS

PREPARATION INSTRUCTIONS AND RECOMMENDATIONS

EXPANSION JOINTS, CONSTRUCTION DETAILS, METHODS OF

COMPLETE SETS OF COLOR CHIPS REPRESENTING THE

. VERIFICATION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED

E. MANUFACTURER'S CERTIFICATES: CERTIFY PRODUCTS MEET OR

MAINTENANCE INSTRUCTIONS THAT INCLUDE RECOMMENDATIONS

FOR PERIODIC CLEANING AND MAINTENANCE OF COMPONENTS.

EXPERIENCE PRODUCING ALUMINUM FINISHES OF THE TYPES

TWO SAMPLES, MINIMUM SIZE 2 INCHES (51MM) BY 3-1/2 INCHES

ACTUÀL PRÓDUCT, COLOR AND

ANCHORAGE, AND INTERFACE WITH ADJACENT MATERIALS

SELECTION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED. TWO

MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS AND

PRODUCT TO BE USED, INCLUDING:

RECOMMENDATIONS.

EXCEED SPECIFIED REQUIREMENTS.

1.2 QUALITY ASSURANCE

F CLOSFOUT SUBMITTALS: PROVIDE MANUFACTURER'S

A. MANUFACTURER'S QUALIFICATIONS: MINIMUM TEN YEARS'

B INSTALLER: COMPANY SPECIALIZING IN PERFORMING WORK OF

PREPARATION TECHNIQUES AND APPLICATION WORKN

DO NOT PROCEED WITH REMAINING WORK UNTIL

3. REFINISH MOCK-UP AREA AS REQUIRED TO PRODUCE

THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED

WORKMANSHIP, COLOR, AND GLOSS ARE APPROVED BY

SPECIFIED IN AAMA 2604 AND 2605 CERTIFIED.

1. FINISH AREAS DESIGNED BY ARCHITECT

A PACKAGE AND STORE PRODUCTS UNDER COVER IN

PROTECT PANELS FROM ACCELERATED WEATHERING BY

REMOVING OR VENTING SHEET PLASTIC SHIPPING WRAP.

PROVIDE VENTILATION. SLOP METAL SHEETS TO ENSURE

. PREVENT CONTACT WITH MATERIALS CAPABLE OF CAUSING

AND VENTILATION) WITHIN LIMITS RECOMMENDED BY

PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE

A. COORDINATE WORK WITH INSTALLATION OF WINDOWS, LOUVERS,

KNOTWOOD'S LIMITED LIFETIME WARRANTY AGAINST CRACKING

STATED BY THE AMERICAN ALUMINUM MANUFACTURERS

a. AMMA 2064 (5 YEAR FLORIDA) 15 YEAR

A. ACCEPTABLE MANUFACTURER: KNOTWOOD LLC. , WHICH IS

LOCATED AT: 10914 NE 39TH/ STREET SUITE B-3

FILM FINISH IS EXTRUDED ALUMINUM.

BONDED FILM FINISH IS EXTRUDED ALUMINUM.

FINISH IS EXTRUDED ALUMINUM.

EXTRUDED ALUMINUM.

FINISHES

VANCOUVER, WA 98682: INFO AT SALES@KNOTWOOD.COM WEB:

C. REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED IN

ACCORDANCE WITH PROVISIONS OF SECTION 01600.

A. EXTRUDED ALUMINUM SIDING AND SOFFITS: KNOTWOOD WOOD

B. EXTRUDED ALUMINUM VENTED SOFFIT: KNOTWOOD WOOD GRAIN ALUMINUM VENTED SOFFITS WITH ALLUMINATE BONDED FILM

GRAIN ALUMINUM TRIM AND ACCESSORIES WITH ALLUMINATE

EXTRUDED ALLIMINUM SHUTTER BLADE, SLAT, SMALL INFILL, AND

FIXED LOUVER SECTIONS: KNOTWOOD WOOD GRAIN ALUMINUM

TRIM AND ACCESSORIES WITH ALLUMINATE BONDED FILM FINISH IS

GRAIN ALUMINUM SIDING AND SOFFITS WITH ALLUMINATE BONDED

MANUFACTURER'S WARRANTY

PEELING AND GLOSS/COLOR RETENTION WITHIN THE GUIDELINES

a. DULUX DURATEC - AAMA 2604 (5 YEAR FLORIDA) 15 YEAR

b. DULUX FLUOROSET - AAMA 2605 (10 YEAR FLORIDA) 20

WEATHER. TO PREVENT TWISTING, BENDING, OR ABRASION, AND

MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY

ACCEPTABLE WORK.

TRANSPORT AND INSTALLATION.

DISCOLORATION OR STAINING.

MANUFACTURER'S ABSOLUTE LIMITS.

ASSOCIATION (AAMA).

WOOD GRAINS

PART 2 PRODUCTS

2.2 MATERIALS

WWW.KNOTWOOD.COM

AND ADJACENT COMPONENTS OR MATERIALS.

1.4 PROJECT CONDITIONS

1.3 DELIVERY, STORAGE, AND HANDLING

3. INSTALLATION METHODS

PRESSURE ACTING NORMAL TO PLANE OF WALLS AS CALCULATED

COMPLETED WORK WITH COMPATIBLE CLEANERS

SEAL OPENINGS, GAPS, OR OTHER SOURCES OF AIR LEAKAGE TO

CONSTRUCTION CAUSED BY WIND, RAIN, FREEZING, CONTINUOUS

SEALANT MANUFACTURER'S FIELD QUALITY CONTROL

1. QUALITATIVE AIR LEAKAGE TEST: ASTM E 1186 SUPER DURABLE POWDER COATINGS: ALLUMINATE PREMIUM 2. QUANTITATIVE AIR LEAKAGE TEST: ASTM E 779, E 783, AND E WOOD FINISHES USE A POLYURETHANE POWDER COAT WITH INK BASED WOOD GRAIN PATTERNS SUBLIMATED INTO THE BASE OWDER EFFECTIVELY TATTOOING THE POWDER. THE COMBINE

> VHILE OFFERING THE SAME ENVIRONMENTAL ADVANTAGES O POWDER COATED FINISHES. 1. WOOD GRAINED CUSTOM FINISH AS APPROVED BY CLIENT. 2.4 FABRICATION

DISPOSAL TO THE SANITARY SEWER

PRETREATMENT: E-CLPS CHROME FREE FIVE STAGER ALUMINUM

ARE APPROVED TO AAMA 2604 PERFORMANCE STANDARD.

1. GLOSS LEVEL: STANDARD GLOSS IS 30 PERCENT, PLUS OR

EFFECT CREATES ALL THE AESTHETIC ASPECTS OF REAL WOOD

SUITABLE FOR TRANSIT AND COVERED SITE STORAGE WITHOUT

PREPARE SURFACES, PRE-TREAT AND COAT COMPONENTS IN ACCORDANCE WITH AAMA 2604 AND 2605 QUALITY STANDARDS A APPLICABLE EUROPEAN STANDARDS FOR THE COATING MATERIAL WRAP AND PACKAGE COATED COMPONENTS USING METHODS

PART 3 EXECUTION

3.1 EXAMINATION

A. DO NOT BEGIN INSTALLATION UNTIL COLORS HAVE BEEN VERIFIED

B. VERIFY FRAMING MEMBERS ARE READY TO RECEIVE PANEL

C. IF PREPARATION IS THE RESPONSIBILITY OF ANOTHER INSTALLER NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE

3.2 PREPARATION

3.3 INSTALLATION

A. CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION.

PREPARE SURFACES USING METHODS RECOMMENDED BY THE MANUFACTURER.

INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION B. BARRIER PROTECTION: DO NOT INSTALL OVER CEMENTITIOUS

MATERIALS, DISSIMILAR METALS OR PRESSURE TREATED MATERIA WITHOUT ADEQUATE BARRIER PROTECTION. . INSTALL BUILDING PAPER HORIZONTALLY ON WALLS TO RECEIVE METAL SIDING. WEATHER LAP EDGES 6 INCHES (150MM) AND ENDS MINIMUM

6 INCHES (150MM) STAGGER VERTICAL JOINTS F EACH LAYER SECURELY STAPLE, NAIL IN PLACE. FASTEN SIDING TO STRUCTURAL SUPPORTS; ALIGNED, LEVEL, AND PLUMB.

USE CONCEALED FASTENERS UNLESS OTHERWISE APPROVED BY INSTALL SOFFITS, AND ACCESSORIES IN ACCORDANCE WITH BEST PRACTICE

INSTALL EXPANSION CONTROL JOINTS WHERE NEEDED. GC TO COORDINA

OCATIONS OF EXPANSION/ SPLICE JOINTS WITH CONSTRUCTION PROJECT

3.4 FIELD QUALITY CONTROL AFTER INSTALLATION OF SOFFITS, CHECK ENTIRE SURFACE FOR OBVIOUS

LOCATE JOINTS OVER SUPPORTS

WITH ALL JOINT MEMBERS PLUMB AND TRUE.

REPLACE AND REPAIR ANY PROBLEM AREAS, PAYING CLOSE ATTENTION TO THE SUBSTRATE FOR CAUSES OF THE PROBLEM.

AFTER APPLICATION OF SOFFITS, CLEAN AS NECESSARY TO REMOVE ALL FINGERPRINTS AND SOILED AREAS. UPON COMPLETION OF SOFFIT APPLICATION, CLEAN ENTIRE AREA, REMOVING ALL SCRAP, PACKAGING AND UNUSED MATERIALS RELATED TO THIS WORK

3.6 PROTECTION PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTI/

END OF SECTION 07 46 16.

PRETREATMENT SYSTEM COMPLIES WITH AAMA 2604 AND AAMA 2605 SUPERIOR PERFORMANCE STANDARD AND MEETS EPA, OSH STATE AND LOCAL ENVIRONMENTAL REQUIREMENTS AND CONTAINS NO CHROMATES, CYANIDES, OR OTHER HEAVY METALS VASTE TREATMENT IS USUALLY A SIMPLE PH NEUTRALIZATION A B. DULUX GROUP MANNEX BASE COAT AND DURATEC SERIES ELECTROSTATIC APPLIED ARCHITECTURAL POWDER COATINGS

ISSUE DATE 07/12/2022

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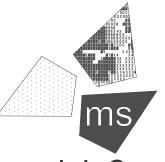
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REVISIONS

# DATE DESCRIPTION

NOTICE

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STORE # 919728

PROJECT: 19353 VERNIER ROAD HARPER WOODS, MI 48225



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

40509-11

SHEET TITLE:

PROJECT NO .:

MINERAL-FIBER CEMENT SIDING SECTION 07 46 46 1.1 SUMMARY A. SECTION INCLUDES: MINERAL-FIBER CEMENT SIDING AND TRIM. TRIM, ANCHORAGE, AND ACCESSORIES. 1.2 SUBMITTALS

- 1. PRODUCT DATA: INDICATE PROFILES, SIZES, FASTENING METHODS, SURFACE TEXTURE, AND FINISH.
- WARRANTY: SAMPLE WARRANTY FORM. B. SUSTAINABLE DESIGN SUBMITTALS

EXPERIENCES IN WORK OF THIS SECTION.

REGIONAL MATERIALS

A. SUBMITTALS FOR REVIEW

#### 1.3 QUALITY ASSURANCE A. INSTALLER QUALIFICATIONS: MINIMUM 3 YEARS DOCUMENTED

FURNISH MANUFACTURER'S WARRANTY, MADE OUT IN OWNER'S NAME WITH COPY TO OWNER, PROVIDING COVERAGE AGAINST

CRACKING, ROTTING, OR DELAMINATING OF SIDING

#### PART 2 - PRODUCTS

2.1 MANUFACTURERS A. ACCEPTABLE MANUFACTURERS

## JAMES HARDIE BUILDING PRODUCTS INC

2. APPROVED WQUAL- TO BE CONSIDERED AND APPROVED BY

#### 2.2 MATERIALS

A. MATERIAL-FIBER CEMENT SIDING

- ASTM C1186, GRADE II, TYPE A; FORMULATED FROM PORTLAND CEMENT, GROUND SAND, CELLULOSE FIBERS ADDITIVES, AND WATER: FORMED UNDER PRESSURE TO
- 2. FINISH; FACTORY PRIME PAINTED.

REQUIRED PROFILE

- 3. FIRE HAZARD CLASSIFICATION: CLASS A, TESTED TO ASTM
- VERTICAL SIDING
- a. SIZE: 4 FEET WIDE X 12 FEET LONG (SEE DRAWINGS). b. THICKNESS: 0.312 INCH.
- c. SURFACE TEXTURE: SMOOTH
- 5. TRIM: a. SIZE: 2.5 AND 3.5 INCHES WIDE (SEE DRAWINGS) X
- MAXIMUM PRACTICAL LENGTH.
- b. THICKNESS: 0.75 INCH c. SURFACE TEXTURE: SMOOTH.

#### 2.3 ACCESSORIES

- A. FASTENERS: TYPE RECOMMENDED BY SIDING MANUFACTURER. B. SHEET METAL FLASHING AND TRIM: SPECIFIED IN SECTION 07 62 00
- C. JOINT SEALERS: SPECIFIED IN SECTION 07 92 00

#### PART 3- EXECUTION

3.1 INSTALLATION- VERTICAL SIDING

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS B. INSTALL SIDING ABOVE FINISH GRADE MINIMUM 6 INCHES (SEE DRAWINGS)
- C. LAP SIDING FOR NATURAL WATER SHED.
- D. BUTT JOINTS TIGHT
- F. CUT SIDING TO FIT AT PERIMETER AND AROUND PENETRATIONS WITH MAXIMUM  $\frac{1}{4}$  INCH CAPS. SMOOTH BUT EDGES.
- G. POSITION CUT ENDS OVER BEARING SURFACES. H. INSTALL CORNER STRIPS, CLOSURES, AND TRIM AS SHOWN ON
- FASTEN AT MAXIMUM 12 INCHES ON CENTER. BLIND NAIL EXCEPT
- FASTEN AT 12 INCHES ON CENTER MAXIMUM.
- APPLY JOINT SEALER BETWEEN SIDING AND TRIM AND ADJACENT SURFACES AS SPECIFIED IN SECTION 07 92 00. ENSURE

#### 3.2 INSTALLATION- TRIM A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

- B. BUTT JOINTS TIGHT C. SET PLUMB AND LEVEL
- D. CUT TO FIT AT PERIMETER AND AROUND PENETRATIONS

## END OF SECTION 07 46 46

MEMBRANE ROOFING **SECTION 07 50 00** 

## 1.0 GENERAL

- 1 REFERENCE: COMPLY WITH GENERAL CONDITIONS OF THE CONTRACT AND WITH SECTION 010100 GENERAL REQUIREMENTS.
- COMPLY WITH THE GENERAL REQUIREMENTS OF THE NBC. PROVINCIAL BUILDING CODE LATEST EDITION, LOCAL CODES, AND SAFETY ACTS. RELATED WORK SPECIFIED ELSEWHERE:
- .1 SUPPLY OF ROOF HOPPERS, ROOF DRAINS, PLUMBING, AND CONNECTIONS TO R.W.L. - SECTION 220000.
- .2 SHEET METAL FLASHING MATERIALS SECTION 076000. REFERENCE STANDARDS: .1 ALL ROOFING TO BE COMPLETE IN ACCORDANCE WITH THE NATIONAL
- ROOFING CONTRACTORS ASSOCIATION ROOFING MANUAL
- .2 SCOPE OF WORK INCLUDES:
- SUBSTRATE PREPARATION. WOOD BLOCKING.
- ROOFING ACCESSORY INSTALLATION VAPOUR RETARDER INSTALLATION.
- 5 INSULATION INSTALLATION 6 MEMBRANE INSTALLATION
- MEMBRANE FLASHING. .8 METAL FLASHING. .9 ROOF HATCH.
- 1.3 DESCRIPTION: FURNISH AND INSTALL A FIRESTONE MECHANICALLY FASTENED ULTRAPL TPO ROOFING SYSTEM AND RELATED ROOFING ACCESSORIES IN STRICT ACCORDANCE WITH SPECIFICATIONS AND DETAILS APPROVED BY FIRESTONE. INSULATION IS TO BE MECHANICALLY FASTENED OVER A VAPOUR RETARDER TO THE ROOF DECK ACCORDING TO MANUFACTURER REQUIREMENTS. TPO MEMBRANE SHEETS ARE TO BE MECHANICALLY ASTENED TO THE ROOF DECK WITH MANUFACTURER MEMBRANE FASTENERS AND HEAT WELDED TOGETHER.
- .4 QUALITY ASSURANCE THE ROOF AND PROPOSED ROOF CONSTRUCTION IS TO MEET ALL THE "ROOF DESIGN CONSIDERATIONS" REQUIREMENTS DETAILED IN MEMBRANE MECHANICALLY FASTENED ROOF SYSTEM, UNLESS SPECIFICALLY APPROVED IN WRITING BY MANUFACTURER.

GENERAL CONTRACTOR SHALL RESTRICT ACCESS TO THE ROOF BY ALL

- OTHER TRADES DURING AND AFTER THE ROOFING SYSTEM CONSTRUCTION. GENERAL CONTRACTOR SHALL ENSURE THAT OTHER TRADE PERSONNEL PERMITTED ACCESS TO THE ROOF TAKE PROPER CARE TO PREVENT DAMAGE TO WORK DONE UNDER THIS SECTION. . ROOFING CONTRACTOR SHALL BE AN APPROVED APPLICATOR OF
- FIRESTONE ROOFING SYSTEMS AS DETERMINED BY FIRESTONE BUILDING 4. WORKMEN SHALL BE TRAINED AND EXPERIENCED IN THE INSTALLATION OF THIS TYPE OF ROOFING SYSTEM AND SHALL BE UNDER FULL TIME COMPETEN
- I.5 SUBMITTALS: SHOP DRAWINGS ARE TO BE PREPARED DETAILING ROOF SIZE, MEMBRANE
- SHEET PLACEMENT, OLIANTITY, TYPE AND SPACING OF MEMBRANE RETARDER, INSULATION AND INSULATION FASTENER TO BE USED. SUBMIT SHOP DRAWINGS AND ANY PROPOSED NON-STANDARD DETAILS TO FIRESTONE A MINIMUM OF TWO WEEKS PRIOR TO JOB START FOR
- SUBMIT SHOP DRAWINGS, CURRENT MANUFACTURER INSTALLATION INSTRUCTIONS AND DETAIL DRAWINGS BEING USED ON THIS PROJECT TO
- 1.6 DELIVERY, STORAGE & HANDLING: DELIVER ALL ROOFING MATERIALS IN ORIGINAL, UNOPENED CONTAINERS COMPLETE WITH LABELS INDICATING BRAND NAME, CONTENTS, USAGE INSTRUCTIONS AND SAFETY PRECAUTIONS. MEMBRANE ROLLS ARE TO BE

LEFT IN THEIR UNOPENED PACKAGING UNTIL IMMEDIATELY PRIOR TO USE. 2 PROTECT MEMBRANES FROM CLITS, ABRASION OR OTHER ABUSE THAT MIGHT ADVERSELY AFFECT PERFORMANCE IN SERVICE. 3. WHIMS SAFETY BULLETINS ON ALL HAZARDOUS PRODUCTS ARE TO BE READILY AVAILABLE TO THE WORK CREW AT ALL TIMES.

4. ADHESIVES, SEALANTS AND FLASHING ACCESSORIES ARE TO BE STORED IN

KPOSED TO A LOWER TEMPERATURE, RESTORE TO AN ACCEPTABLE LEVEL

A CLEAN, DRY AREA AT A TEMPERATURE BETWEEN 5°C AND 27°C. IF

5. DO NOT WORK DURING PERIODS OF RAIN, FOG, SLEET, SNOW OR COLD

6. ENSURE INSULATION AND MEMBRANE FASTENERS WILL NOT DAMAGE OR

1. CONTRACTOR SHALL ENTER PRE-INSTALLATION NOTICE WITH FIRESTONE IN

WARRANTY HAS BEEN REQUESTED FOR THIS PROJECT AND THE PROBABLE

VARRANTY ON SUPPLIER'S STANDARD FORM FOR A PERIOD OF 20 YEARS

LEAKS OR WORKMANSHIP DEFECTS FOR A PERIOD OF 5 YEARS FROM THE

PRODUCT SUBSTITUTIONS MUST BE APPROVED IN ADVANCE BY BOTH TH

SPECIFIER AND THE ROOFING SYSTEM SUPPLIER TO VERIFY COMPATIBILITY

AND ACCEPTABILITY. THE MANUFACTURER OF THE SUBSTITUTE PRODUC

. MINIMUM 10 MIL THICK POLYETHYLENE VAPOUR RETARDER MEETING CGSB

51-34-M86 AND WITH A MOISTURE VAPOUR TRANSMISSION RATE LESS THAN

.4 NG/PAS M2 (0.04 PERMS) WHEN TESTED IN ACCORDANCE WITH ASTM

2. ACCEPTABLE PRODUCT FOR WOOD OR METAL DECKS:FIRESTONE

PRE-ASSEMBLED INSULATION FASTENERS TREATED WITH CX-5 COATING,

PROVIDE OVERALL THERMAL RESISTANCE FOR ROOFING

INSTALL USING A MINIMUM OF TWO LAYERS. CONFIGURATION

MUST SPECIFICALLY RECOMMEND THEIR PRODUCT FOR THIS TYPE OF

WRITING A MINIMUM OF TWO WEEKS PRIOR TO JOB START THAT A

2. ROOFING SYSTEM SUPPLIER SHALL PROVIDE A WRITTEN WATERTIGH

3 ROOFING CONTRACTOR SHALL PROVIDE A WRITTEN WARRANTY AGAINST

PENETRATE UNDER DECK WIRES, CONDUITS, PIPES ETC.

FROM THE DATE OF ROOFING SYSTEM COMPLETION.

DATE OF ROOFING SYSTEM COMPLETION.

BEFORE USING.

1.7 WARRANTY:

2.0 PRODUCTS

2.1 SUBSTITUTIONS:

2.2 VAPOUR RETARDER

E-96, PROCEDURE B.

2.3 INSULATION FASTENERS:

MINIMUM OF 38 MM (1.5").

A. INSULATION

2.5 ROOFING MEMBRANE SYSTEM

SEALANT.PACKAG

OR SPLIT PIPE BOOTS.

2.6 WOOD NAILERS:

2.7 FLASHING:

2.9 ROOF DRAINS

2.10 ROOF HATCH:

2.8 FLASHING ACCESSORIES:

COMPLETE WITH METAL STRESS PLATE.

SYSTEM AS FOLLOWS

INITIAL SRI VALUE: 82; 3 YEAR AGED SRI VALUE: 64.

2.2.1. CUT TO APPROPRIATE WIDTHS AND LENGTHS.

5. MEMBRANE CLEANER: ULTRAPLY TPO SEAM CLEANER

WOOD PLANK A MINIMUM OF 38 MM (1.5")].

12. TERMINATION BAR: FIRESTONE TERMINATION BAR

1. REFER TO SECTION 076000 - SHEET METAL FLASHING.

APPROPRIATE ELASHING FOR EACH APPLICATION

1. TO SUIT ROOFING. REFER TO MECHANICAL.

CURB WITHOUT IMPEDING DOOR OPERATION

2.11 KITCHEN EXHAUST VENTS:

1. REFER TO MECHANICAL

3.0 EXECUTION

INSTALLATION.

6. CUT MEMBRANE EDGE SEALANT: ULTRAPLY TPO CUT EDGE

8. BONDING ADHESIVES: ULTRAPLY TPO BONDING ADHESIVE.

7 MEMBRANE FASTENERS: STEEL OR WOOD DECKS: MEMBRANE

2.2.1, WIDTH LIMITED AS REQUIRED BY MANUFACTURER.

a. MINIMUM R-VALUE: 27.

AS INDICATED ON THE DRAWINGS.

1. MEMBRANE: WHITE. 1.5 MM THICK POLYESTER SCRIM REINFORCED

SPECIFIED IN MANUFACTURERS "MECHANICALLY FASTENED FIRESTONE

REFLECTIVE INDEX (SRI) VALUES FOR LOW SLOPED ROOF (< 2:12) TO BE:

. PERIMETER SHEETS: ULTRAPLY TPO MEMBRANE SHEETS AS DESCRIBED IN

. PARAPET / WALL FLASHING: ULTRAPLY TPO MEMBRANE AS DESCRIBED IN

FASTENERS (PRE-ASSEMBLED OR LOOSE), TREATED WITH CX-5 COATING

AND COMPLÈTE WITH 60 MM (2-3/8") DIAMÉTER BARBED LAP PLATE.

FASTENER MUST BE OF SUFFICIENT LENGTH TO PENETRATE PLATE,

STRUCTURAL [STEEL OR PLYWOOD DECK A MINIMUM OF 13 MM (0.5");

9. WATER CUT-OFF MASTIC: ULTRAPLY TPO GENERAL PURPOSE SEALANT.

11. TERMINATION SEALER TAPE: ULTRAPLY TERMINATION SEALER TAPE.

13. PIPE / CONDUIT FLASHINGS: ULTRAPLY TPO PRE-FORMED PIPE BOOTS

14. IRREGULAR ROOF PROTRUSIONS: ULTRAPLY TPO GENERAL PURPOSE

15. TRAFFIC PADS: ULTRAPLY TPO PREMIUM WALKWAY PADS OR X-TREDS

WOOD NAILERS SHALL BE NEW. #2 WOOD OR BETTER WOOD, FACTORY

IS FLUSH WITH THE TOP OF THE MEMBRANE UNDERLAYMENT + 5 MM

1. HVAC & ELECTRICAL FLASHINGS: TO BE FABRICATED FROM SEAMLESS

SPUN ALUMINIUM, COMPLETE WITH PRIMER COATED FLANGES. USE

1. 762 X 914MM BILCO TYPE S ROOF HATCH 14 GA PRIMER COATER

GALVANIZED STEEL COMPLETE WITH 75MM BEADED FLANGE. NEATLY

PRIMER COATED METAL LINER - 22 GA. THICKNESS. PROVIDE 300MM

INTEGRAL CAP FLASHING. HATCH SHALL BE COMPLETELY ASSEMBLED

NEOPRENE DRAFT SEAL. LATCHING MECHANISM, PADLOCK HASP AND AN

AUTOMATIC HOLD-OPEN HANDLE WITH RUBBER GRIP. ALL HARDWARE

R COATED WITH 20 MIL PVC, COLOR COATED ROOF SAFETY GREEN

WITH HEAVY DUTY PINTLE HINGES, TORSION BAR OPERATED DOOR

SHALL BE CADMIUM PLATED, SAFETY BAR: 35 MM DIAMETER SAFETY

SAFETY BAR SHALL BE MOUNTED ON THE RIGHT CORNER OF HATCH

1. REFER TO MECHANICAL FOR PIPING, DUCTING, ETC. SUPPORTS.

2. REFER TO ROOF DETAILS ON DRAWINGS FOR SLEEPER DETAILS.

COMPLETELY AND PROPERLY COVERED BY THE WATERPROO

PROTECT THE ROOF MEMBRANE AT ALL TIMES FROM HIGH HEA

SOURCES SUCH AS CIGARETTE BUTTS OR SPARKS FROM NEARBY

1. EXAMINE ROOF DECK TO VERIFY PROPER PLACEMENT OF ALL ROOF

OPENINGS, PIPES, CURBS, SLEEVES, DUCTS, VENTS AND DRAINS

ISURE ALL WOOD BLOCKING IS INSTALLED WHERE REQUIRED

ENSURE ROOF DECK IS CLEAN, DRY AND FREE FROM DEBRIS THA

MIGHT BE DETRIMENTAL TO THE PERFORMANCE OF THE VAPOUR

1. INSTALL VAPOUR RETARDER MEMBRANE ACCORDING TO THE VAPOUR

RETARDER MEMBRANE IS COMPLETELY SEALED TO ALL ROOF

2. FASTEN NAILERS WHERE SHOWN ON THE SHOP DRAWINGS. WOOD

1 POSITION THE APPROVED INSUI ATION PANELS WITH THEIR LONGEST

DIMENSION PERPENDICULAR TO THE DIRECTION OF THE MEMBRANE

SEAMS AND WITH THEIR ENDS STAGGERED. ON FLUTED STEEL DECKS

PARALLEL WITH THE FLUTES PANELS ARE TO BE BUTT-EDGED TIGHTLY

TOGETHER WITH A MAXIMUM SPACE BETWEEN PANELS OF 2 MM. VOIDS

THE LONGER DIMENSION OF THE INSULATION PANELS SHOULD RUN

IN THE INSULATION ARE TO BE FILLED WITH FIRESTONE SEALANT OF

ANOTHER COMPATIBLE FILLER. INSULATION INSTALLED IN MULTIPLE

INCLUDING FACER DELAMINATION OR COLLAPSE, SHALL BE CUT OUT

2 ALL INSULATION PANELS MUST BE MECHANICALLY ATTACHED TO THE

STRUCTURAL DECK WITH FIRESTONE INSULATION FASTENERS AS PER

LAYERS SHALL HAVE ALL EDGES STAGGERED FROM THE ADJACENT

LAYER. INSULATION THAT HAS BECOME DAMAGED IN ANY WAY,

AND REPLACED WITH STRUCTURALLY SOUND INSULATION.

MANUFACTURER MINIMUM REQUIREMENTS. REFER TO

RETARDER SLIPPI IER'S INSTALLATION INSTRUCTIONS. ENSURE VAPOUR

NAILERS SHALL BE FASTENED TO RESIST A MINIMUM FORCE OF 300 KG/M

2. COMPLY WITH CURRENT FIRESTONE PUBLISHED INSTALLATION

MEMBRANE BY THE END OF EACH WORK PERIOD.

RETARDER. INSULATION OR MEMBRANE.

3.3 VAPOUR RETARDER & NAILER INSTALLATION

PROTRUSIONS AND AROUND THE PERIMETER.

3.4 INSULATION INSTALLATION:

1. ONLY INSTALL AS MUCH VAPOUR RETARDER AND INSULATION AS CAN BE

TRUCTIONS AND DETAILS THROUGHOUT THE ROOFING MEMBRANE

3 THERE SHALL BE NO SMOKING BY ANY PERSONNEL WHILE ON THE ROOF

WOOD IS NOT ACCEPTABLE. NAILERS ARE REQUIRED AT ALL ROOF

10 POLIRABLE SEALER: ULTRAPLY TPO GENERAL PURPOSE SEALANT

MEMBRANE, INSULATION, VAPOUR RETARDER, EXISTING ROOF AN

4. CORNER & PROTRUSION FLASHING: ULTRAPLY TPO NON-REINFORCED

TEMPERATURES (BELOW - 15°C).

START DATE OF ROOFING WORK.

- 3.5 POSITIONING & FASTENING OF MEMBRANE 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUITABILITY OF THE SUBSTRATE SURFACE TO ACCEPT THE MEMBRANE. ENSURE INSULATION SURFACE OR SUBSTRATE IS CLEAN, FLAT AND FREE FROM DIRT, DEBRIS OR SHARP OBJECTS THAT MIGHT BE DETRIMENTAL TO
  - THE PERFORMANCE OF THE MEMBRANE. 2. MEMBRANE SHEETS SHALL BE INSTALLED IN ACCORDANCE WITH FIRESTONE REQUIREMENTS - REFER TO MANUFACTURERS SPECIFICATIONS & FACTORY MUTUAL. IF USING FIRESTONI EQUIREMENTS, PERIMETER SHEETS MUST BE FASTENED IN PICTURE FRAME PATTERN AROUND THE PERIMETER. FIELD SHEETS SHALL BE INSTALLED PERPENDICULAR TO THE UNDERLYING INSULATION'S GREATER DIMENSION AND, IF ON A STEEL DECK ERPENDICULAR TO THE FLUTE DIRECTION UNLESS THE DECK SLOPE EXCEEDS 3:1, WHEREUPON THE FIELD SHEETS MUST BE INSTALLED PERPENDICULAR TO THE SLOPE.

3. FASTENERS MUST BE A MINIMUM OF 15 CM (6") FROM INSULATION

ANEL'S EDGE. BOARDS MUST CONFORM TO THE DECK SURFACE.

THOSE OF FIRESTONE, THEY MUST BE USED IN LIEU OF FIRESTONE'S

IRREGULAR SURFACES WILL REQUIRE ADDITIONAL FASTENERS. IF THE

- 3. UNROLL MEMBRANE SHEETS AND POSITION ACCORDING TO THE APPROVED SHOP DRAWINGS. OUTSIDE PERIMETER SHEETS SHALL BE BROUGHT FLUSH TO THE BASE OF THE PERIMETER PARAPET OR WALL, OR IN THE CASE OF A ROOF EDGE, EXTEND OVER THE OUTSIDE EDGE A MINIMUM OF 75 MM (3"). ADJOINING SHEETS ARE TO OVERLAP A MINIMUM OF 140 MM (5.5") ON SIDES AND WHEREVER FASTENERS ARE INCLUDED WITHIN THE SEAM. END LAPS WITHOUT FASTENERS ARE TO E LAPPED A MINIMUM OF 6 CM (2"). EXTEND MEMBRANE UP AND OVER A PARAPET WALL OR A ROOF EDGE & SECURE IT ALONG THE SECUREMENT.
- 4. FIRESTONE MEMBRANE FASTENERS FOR THE TYPE OF DECK ARE TO BE FASTENED 50 MM (2") IN FROM THE SIDE EDGE OF BOTH PERIMETER AND FIELD MEMBRANE SHEETS. ON MAXIMUM 305 MM (12") CENTRES. ASTENER PLATES AND HEADS SHALL BE FLUSH WITH THE MEMBRAN AND SHALL PENETRATE THE MEMBRANE, INSULATION (EXISTING ROOF IF APPLICABLE) AND STRUCTURAL DECK ACCORDING TO THE SPECIFIC REQUIREMENTS OF THE TYPE OF FASTENER. DO NOT OVERDRIVE FASTENERS TO THE POINT WHERE THE MEMBRANE PLATE IS
- 5. EACH MEMBRANE SHEET SHALL BE COMPLETELY FASTENED BEFORE PROCEEDING TO THE NEXT SHEET.
- . STRUCTURAL STEEL OR WOOD DECKS: INSULATION SECUREMENT SCREW 3.6 SPLICING MEMBRANE SHEETS: ARE TO BE FACTORY MUTUAL LISTED AND APPROVED #12 DIAMETER WITH 1. FIELD SEAMS MUST BE WELDED WITH AN AUTOMATIC HOT AIR WELDER ROUND OR FLAT HEAD, CORROSION TREATED TO WITHSTAND 30 CYCLES O OPERATED BY AN INDIVIDUAL THOROUGHLY TRAINED AND COMPETENT THE KESTERNICH TEST WITH ONLY A MINIMUM AMOUNT OF RED RUST N THE MACHINE'S OPERATION. SMALL WORK AND REPAIRS CAN BE IOWING. FASTENER MUST BE OF SUFFICIENT LENGTH TO PENETRAT DONE EFFICIENTLY WITH A HAND WELDER HOWEVER HAND-HELD PLATE, INSULATION, VAPOUR RETARDER, EXISTING ROOF AND STRUCTURAL WELDERS ARE NOT AN ACCEPTED MEANS OF FIELD SEAMING TEEL OR PLYWOOD DECK A MINIMUM OF 13 MM (0.5"): WOOD PLANK A 2. HOT AIR WELD ALL SEAMS A MINIMUM OF 38 MM (1.5") WIDE.
  - 3. DIRTY, DUSTY OR CONTAMINATED MEMBRANE OR MEMBRANE CLEANED WITH TPO WEATHERED MEMBRANE CLEANER. WITH A CLEAN AGGRESSIVELY SCRUB THE SEAM AREA OF THE ROOF MEMBRANE FOLLOW WITH A FINAL ONE SWIPE PASS, BEING CAREFUL NOT TO RF-DEPOSIT CONTAMINANTS BACK ONTO THE CLEANED AREA. ENSURE THE CLEANER AND ADJACENT BONDING ADHESIVE HAS COMPLETELY FLASHED OFF BEFORE WELDING. FOLLOW STANDARD. WELDING PROCEDURES WITH A 20% REDUCTION IN SPEED. 4. ALL SPLICES ARE TO BE PROBED ALONG THEIR ENTIRE LENGTH WITH A
  - SEAM PROBING TOOL TO VERIFY THAT THE WELDER IS OPERATING EFFECTIVELY. THE MEMBRANE MUST BE ALLOWED TO COOL PRIOR TO ESTING. IN ADDITION, THERE SHOULD BE A DESTRUCTIVE PEEL STRENGTH TEST PERFORMED AT THE START OF EACH DAY AND EACH TIME THE ROBOT WELDER IS REUSED AFTER BEING ALLOWED TO COOL. THE DESTRUCTIVE TEST SAMPLE SHOULD BE 5 CM (2") WIDE AND SHOULD SHOW MEMBRANE DELAMINATION FROM THE SCRIM PRIOR TO WELD FAILURE.
  - 5. CUT MEMBRANE EDGES SHALL BE SEALED BY APPLYING TPO CUT EDGE SEALANT ALONG THE EXPOSED EDGE.
  - 3.7 PERIMETER FLASHING & SECUREMENT INSTALL THE [ROOF EDGE SYSTEM; GRAVEL STOP; DRIP EDGE] ACCORDING TO AN APPROVED MANUFACTURER'S DETAIL AND IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. NAILERS ARE REQUIRED AT ALL ROOF EDGES, GRAVEL STOPS OR DRIP EDGES. 2. DIRECT FASTENER PERIMETER SECUREMENT METHOD: ULTRAPLY WALLS, EXPANSION JOINTS, CURBS AND ALL OTHER ROOF PENETRATIONS THAT EXCEED 60 CM (24") IN ANY DIMENSION AND BE MECHANICALLY FASTENED PARALLEL TO THE PERIMETER THROUGH
  - THE INSULATION, VAPOUR RETARDER [EXISTING ROOFING] TO THE STRUCTURAL DECK ON 30 CM (12") CENTRES WITH MEMBRANE CENTRED NO FURTHER THAN 150 MM (6") FROM THE PERIMETER. 3. ULTRAPLY QUICKSEAM REINFORCED PERIMETER FASTENING (RFP) STRIP: UNROLL THE ULTRAPLY QUICKSEAM REINFORCED PERIMETER FASTENING STRIP (UPQSRPF STRIP) WITH THE RELEASE PAPER UP AND THE TAPER PORTION FARTHEST AWAY FROM THE WALL OR PENETRATION. ANCHOR UPQSRPF STRIP USING HEAVY DUTY OR HEAVY DUTY PLUS SEAM PLATES AND FASTENERS 12" (305MM) O.C MAXIMUM PER CURRENT BASE TIE-IN DETAILS. POSITION ULTRAPLY FPO MEMBRANE OVER UPQSRPF STRIP WITH RELEASE PAPER IN PLACE AND ALLOW MEMBRANE TO RELAX. FOLD BACK ULTRAPLY TPO MEMBRANE TO EXPOSE THE TAPE. PRIME THE ULTRAPLY TPO TO BE SPLICED TO THE TAPE USING ULTRAPLY QUICKPRIME AND QUICKSCRUBBER OR QUICKSCRUBBER PLUS PAD AND HANDLE PER IRRENT PROCEDURES. USE TOUCH-PUSH TEST TO DETERMINI WHEN THE ULTRAPLY QUICKPRIME IS READY TO BE MATED WITH THE APE. REMOVE THE RELEASE PAPER. ROLL THE PRIMED ULTRAPL
  - BONDING ADHESIVE OR WATER-BASED BONDING ADHESIVE. ROLL THE I TRAPLY TPO MEMBRANE OVER THE LIPOSRPE STRIP WITH A 1 (51MM) WIDE SILICONE HAND ROLLER TO ENSURE PROPER ADHESION. REFER TO INSTALLATION INSTRUCTIONS FOR SPECIFICS 4. REINFORCED FLASHING MEMBRANE SHALL BE EXTENDED UP AL PARAPET WALLS, CURBS, ROOF EDGES, ETC. IF USING THE DIRECT FASTENER METHOD OF PERIMETER SECUREMENT, THE FLASHING MEMBRANE MUST EXTEND A MINIMUM OF 51 MM (2") BEYOND THE

TPO MEMBRANE INTO THE TAPE. THE PORTION OF THE UPQSRPF

WITHOUT TAPE MAY BE BONDED TO THE MEMBRANE USING ULTRAPLY

- PERIMETER FASTENER PLATES OUT ONTO THE FLAT AREA OF THE .5 WHERE REQUIRED, ENHANCED SECUREMENT IN PERIMETER AREAS MAY BE ACHIEVED BY SECURING THE MEMBRANE UNDER COVER STRIPS OR WITH DOUBLE P.S. STRIPBOND STRIPS
- 6. ADHERING ULTRAPLY TPO TO CONCRETE, WOOD, METAL OR ACCEPTABLE INSULATIONS: ELASHING MEMBRANE IS TO BE FULLY ONDED TO ALL VERTICAL WALLS AND PARAPETS. APPLY TP BONDING ADHESIVE WITH A ROLLER TO THE UNDERSIDE OF THE FLASHING MEMBRANE AND TO THE SUBSTRATE AT THE NET COVERAGE RATE OF 5.7 M2 (60 SO ET ) / GALLON DO NOT APPLY THE BONDING ADHESIVE TO AREAS ON THE MEMBRANE THAT ARE TO BE HEA WELDED APPLY ADHESIVE EVENLY WITHOUT GLOBS OR PUDDLES STRING WHEN TOUCHED WITH A DRY FINGER. ROLL THE MEMBRANE ONTO THE SUBSTRATE, BEING CAREFUL NOT TO WRINKLE THE MEMBRANE OR BRIDGE IT AT THE VERTICAL / HORIZONTAL JUNCTURE (CREASE THE MEMBRANE FIRST). BRUSH THE MEMBRANE HEAVILY WITH A PUSH BROOM TO ASSURE COMPLETE CONTACT OVER ALL
- BONDED AREAS. 7. UNLESS APPROVED DETAIL SHOWS OTHERWISE, MEMBRANE MUST EITHER TERMINATE IN A REGLET, BE FASTENED ACCORDING TO PARAGRAPH 3.6.6 BELOW, OR BE CARRIED OVER TOP OF WALL OR PARAPET AND COUNTER-FLASHED WITH SHEET METAL OR A STONE CAP. ALL METAL WORK MUST BE INSTALLED TO BE WIND RESISTAN AND SEALED AND WATERPROOFED IN AN ACCEPTABLE MANNER 8. IF TERMINATING MEMBRANE PART WAY UP A WALL OR PARAPET
- APPLY TERMINATION SEALER TAPE TO BACKSIDE OF MEMBRANE EDGE. RESS MEMBRANE AGAINST WALL AND ROLL WITH A STEEL HAND ROLLER. FASTEN TERMINATION BAR ALONG THE UPPER EDGE OF THE CM (6") CENTRES. APPLY ALL PURPOSE SEALANT ALONG UPPER EDGE OF BAR AND OVER TOP OF ALL FASTENER HEADS.
- 3.8 PROTRUSION & CORNER FLASHINGS . INSTALL PRE-FORMED METAL FLASHINGS, DRAIN HOPPERS ETC. ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. OLD EXISTING FLASHINGS MUST BE THOROUGHLY CLEANED OF ALL CONTAMINANTS OR REPLACED WITH NEW FLASHINGS. DO NOT FLASH
- 2. FLASH ALL CORNERS, VENT PIPES, POSTS, CURBS AND PRE-FORMED FLASHINGS IN STRICT ACCORDANCE WITH CURRENT FIRESTONE NSTALLATION INSTRUCTIONS AND DETAILS. USE ADHESIVES AND SEALANTS IN CONJUNCTION WITH PRE-MOLDED FLASHINGS. INSTALLED N ACCORDANCE WITH INSTALLATION REQUIREMENTS AND DETAILS. DO NOT APPLY ADHESIVES TO AREAS ON THE FLASHING THAT ARE TO BE SEAMED. SEAM AS PER SECTION 3.5 ABOVE. 3. ALL FLASHING SHALL BE MECHANICALLY FASTENED AT THE TOP,
- JNDER OR THROUGH APPROPRIATE COUNTERFLASHING WITH APPROVED FASTENERS AND IN ACCORDANCE WITH MANUFACTURERS PURPOSE SEALANT OR TERMINATION SEALER TAPE AND CLAMPED
- WITH A CLAMPING RING TO ASSURE A 100% CONTINUOUS SEAL, AS PER MANUFACTURER DETAILS. FIELD SEAMS SHALL NOT RUN THROUGH 3.9 TRAFFIC WALKWAYS . ENSURE MEMBRANE TO RECEIVE TRAFFIC PADS IS CLEAN AND DRY. IF THE MEMBRANE IS NOT CLEAN AND DRY, FOLLOW THE STEPS IN
- SECTION 3.5.3 BEFORE PROCEEDING WITH THE REMAINDER OF THIS 2. POSITION THE WALKWAY PAD AND CUT TO DESIRED LENGTH. WHEREVER POSSIBLE, WALKWAY PAD SHALL NOT COVER SEAMS WHEN INSTALLED ADJACENT TO A SEAM. THE PAD SHOULD BE KEPT A MINIMUM 50 MM (2") FROM THE EDGE OF THE SEAM ON THE BOTTON SHEET AND 15 CM (6") AWAY FROM THE EDGE OF THE SEAM ON THE SHOULD BE COMPLETED PER SECTION 3.5 ABOVE AND THOROUGHLY ROBED, WITH ANY DEFICIENCIES CORRECTED PRIOR TO PAD
- 3. WELD THE PERIMETER OF THE WALKWAY PAD TO THE MEMBRANE FOLLOWING STANDARD WELDING PROCEDURES. LEAVE 25 MM TO 50 MM (1" TO 2") GAPS IN THE WELD ON THE LOW SLOPE EDGE EVERY 60 CM (2 FT.) TO PREVENT THE ACCUMULATION OF WATER UNDER THE

PADS TO A UNIFORM LENGTH AND SPACE THE SECTIONS 50 MM (2")

INSTALLATION. WHERE DRAINAGE AROUND THE PADS IS DESIRED. CUT

- 3.10 TEMPORARY NIGHT SEAL: 1. AT THE END OF EACH DAY OR AT THE THREAT OR ONSET OF NCLEMENT WEATHER, THE INSULATION SHALL BE PROTECTED BY EXTENDING THE MEMBRANE BEYOND THE INSULATION AND SEALING IT O THE DECK WITH MANUFACTURER NIGHT SEALANT OR ANOTHER APPROVED TEMPORARY SEALANT. ENSURE MEMBRANE EDGE IS EITHER MECHANICALLY FASTENED OR SUFFICIENTLY BALLASTED TO PROTECT AGAINST WIND UPLIFT.
- 2. WHEN RESUMING WORK, CUT AND DISPOSE OF PORTION OF MEMBRANE CONTAMINATED WITH THE NIGHT SEALANT.

REMOVE ALL CUT PIECES, WRAPPINGS, WASTE AND DEBRIS FROM THE

2. ENSURE THAT THE MEMBRANE IS CLEANED OF ALL SPILLED HESIVES OR RESIDUES AND PRESENTS AN AESTHETICALL' ATTRACTIVE APPEARANCE.

1.1 SECTION INCLUDES

1.2 RELATED SECTIONS

1.3 REFERENCES

A. DIVISION 7

1.4 DESIGN REQUIREMENTS

1.5 PROJECT CONDITIONS

PART 2 - PRODUCTS

2.1 MANUFACTURERS

2.4 FABRICATION

PART 3 - EXECUTION

A. DIMENSIONAL METALS INC.

MANUFACTURING CO.

A. PRE-FINISHED GALVANIZED STEEL, DOWNSPOUTS, GUTTERS, COLLECTOR BOXES

A. ASTM A526/A526M-STANDARD SPECIFICATION FOR STEEL SHEET, ZINC COATED

A. CONFORM TO APPLICABLE CODE FOR SIZE AND METHOD OF RAINWATER

(GALVANIZED) BY HOT-DIP PROCESS, COMMERCIAL QUALITY.

A. COORDINATE THE WORK WITH DOWNSPOUT DISCHARGE PIPE INLET.

APPROVED EQUALS BY PETERSON ALUMINUM CO. OR BERRIDGE

PRE-FINISHED GALVANIZED STEEL SHEET: ASTM A361/A361M, ASTM A446/A446M

PRE-COATED WITH THERMO-CURED FLUOROCARBON "KYNAR" 500 RESIN

A. GUTTERS, COLLECTOR BOXES AND SCUPPERS: SMACNA PROFILE TO MATCH

C. ANCHORS AND SUPPORTS: PROFILED TO SUIT GUTTERS AND DOWNSPOUTS.

FASTENERS: SAME MATERIAL AND FINISH AS GUTTERS AND DOWNSPOUTS.

C. FORM SECTIONS SQUARE, TRUE, AND ACCURATE IN SIZE, IN MAXIMUM POSSIBLE

LENGTHS. FREE OF DISTORTION OR DEFECTS DETRIMENTAL TO APPEARANCE OR

A. FORM GUTTERS AND DOWNSPOUTS OF PROFILES AND SIZE INDICATED

E. FABRICATE GUTTER AND DOWNSPOUT ACCESSORIES; SEAL WATERTIGH

B. PRIMER COAT: FINISH CONCEALED SIDE OF METAL SHEETS WITH WASH COAT

A. PAINT CONCEALED METAL SURFACES AND SURFACES IN CONTACT WITH

A. INSTALL GUTTERS, DOWNSPOUTS, AND ACCESSORIES AS SPECIFIED.

C. SLOPE GUTTERS TO DOWNSPOUTS (PROVIDE POSITIVE DRAINAGE TO

WHERE DOWNSPOUTS DO NOT TIE INTO A STORM SEWER.

THE "SYSTEM PERFORMANCE REQUIREMENTS" ARTICLE:

ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

COMPLYING WITH THE FOLLOWING REQUIREMENTS:

IRECTORY." BY WAMOCK HERSEY

REQUIREMENTS:

INSPECTING AGENCY.

INDICATED FROM A SINGLE MANUFACTURER.

A, SECTION 1, "POLARIZED LIGHT MICROSCOPY.

FROST, CONDENSATION, OR OTHER CAUSES.

ON TESTING AND FIELD EXPERIENCE.

LIMITED TO THE FOLLOWING ITEMS:

b. CERAMIC FIBER.

FIRE-RATED FORMBOARD.

2.2 MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

e. JOINT FILLERS FOR JOINT SEALANTS.

DELIVERY, STORAGE AND HANDLING

DETERIORATION

OTHER CAUSES.

AIR CIRCULATION.

FIRESTOPPING, GENERAL

1.4 PROJECT CONDITIONS

AND PRIMER COMPATIBLE WITH FINISH SYSTEM, AS RECOMMENDED BY FINISH

DISSIMILAR METALS WITH PROTECTIVE BACKING PAINT TO A MINIMUM DRY FILM

SHEET METAL: JOIN LENGTHS WITH SEAMS SEALED WATERTIGHT. FLASH AND

SEAL CONNECTION WATERTIGHT. PROVIDE SPLASH BLOCKS AT ALL LOCATIONS

SECTION 07 84 00

SEAL GUTTERS TO DOWNSPOUTS (PROVIDE POSITIVE DRAINAGE TO

D. CONNECT DOWNSPOUTS TO DOWNSPOUT BOOTS AT STORM SEWER SYSTEM

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION.

COMPLIES WITH THE FOLLOWING REQUIREMENTS AND THOSE SPECIFIED UNDER

FIRESTOPPING TESTS ARE PERFORMED BY A QUALIFIED TESTING AND

FOLLOW-UP INSPECTION SERVICES FOR FIRESTOP SYSTEMS THAT IS

THROUGH-PENETRATION FIRESTOP SYSTEMS ARE IDENTICAL TO THOSE

PRESSURE DIFFERENTIAL OF AT LEAST 0.01 INCH OF WATER IS MAINTAINED

A DISTANCE OF 0.78 INCH BELOW THE FILL MATERIALS SURROUNDING THE

THROUGH-PENETRATION FIRESTOP SYSTEMS CORRESPOND TO

CONDITIONS WHERE THE POSITIVE FURNACE PRESSURE DIFFERENTIAL IS

INCH OF WATER, AS MEASURED 0.78 INCH FROM THE FACE EXPOSED TO

URNACE FIRE. PROVIDE SYSTEMS COMPLYING WITH THE FOLLOWING

a. FIRE-RESISTANCE RATINGS OF JOINT SEALANTS: AS INDICATED BY

JOINT SEALANTS, INCLUDING BACKING MATERIALS, BEAR

DMPLETED FIRESTOPPING THAT IS SIMILAR IN MATERIAL, DESIGN, AND EXTENT

TO THAT INDICATED FOR PROJECT AND THAT HAS PERFORMED SUCCESSFULLY.

SINGLE-SOURCE RESPONSIBILITY: OBTAIN THROUGH-PENETRATION FIRESTOP

PROVIDE FIRESTOPPING PRODUCTS CONTAINING NO DETECTABLE ASBESTOS AS

DETERMINED BY THE METHOD SPECIFIED IN 40 CFR PART 763, SUBPART F,

DELIVER FIRESTOPPING PRODUCTS TO PROJECT SITE IN ORIGINAL, UNOPENED

IDENTIFYING PRODUCT AND MANUFACTURER; DATE OF MANUFACTURE; LOT

AGENCY'S CLASSIFICATION MARKING APPLICABLE TO PROJECT: CURING TIME

OR DAMAGE DUE TO MOISTURE, TEMPERATURE CHANGES, CONTAMINANTS, OR

ENVIRONMENTAL CONDITIONS: DO NOT INSTALL FIRESTOPPING WHEN AMBIENT

VENTILATION: VENTILATE FIRESTOPPING PER FIRESTOPPING MANUFACTURERS

INSTRUCTIONS BY NATURAL MEANS OR, WHERE THIS IS INADEQUATE, FORCED

COMPATIBILITY: PROVIDE FIRESTOPPING COMPOSED OF COMPONENTS THAT ARE

ITEMS, IF ANY, PENETRATING THE FIRESTOPPING UNDER CONDITIONS OF SERVICE

ACCESSORIES: PROVIDE COMPONENTS FOR EACH FIRESTOPPING SYSTEM THAT

PERFORMANCE REQUIREMENTS" ARTICLE IN PART 1. USE ONLY COMPONENTS

SPECIFIED BY THE FIRESTOPPING MANUFACTURER AND APPROVED BY THE

RE-RESISTANCE-RATED SYSTEMS. ACCESSORIES INCLUDE BUT ARE NOT

1. PERMANENT FORMING/DAMMING/BACKING MATERIALS INCLUDING THE

a. SEMIREFRACTORY FIBER (MINERAL WOOL) INSULATION.

A. INTUMESCENT WRAP STRIPS: SINGLE-COMPONENT, ELASTOMERIC SHEET WITH

SEALANTS USED IN COMBINATION WITH OTHER FORMING/DAMMING

MATERIALS TO PREVENT LEAKAGE OF FILL MATERIALS IN LIQUID

QUALIFIED TESTING AND INSPECTING AGENCY FOR THE DESIGNATED

RE NEEDED TO INSTALL FILL MATERIALS AND TO COMPLY WITH "SYSTEN

COMPATIBLE WITH EACH OTHER. THE SUBSTRATES FORMING OPENINGS, AND THE

ND APPLICATION, AS DEMONSTRATED BY FIRESTOPPING MANUFACTURER BASED

FIRESTOPPING MANUFACTURERS OR WHEN SUBSTRATES ARE WET DUE TO RAIN,

NUMBER: SHELF LIFE, IF APPLICABLE: QUALIFIED TESTING AND INSPECTING

AND MIXING INSTRUCTIONS FOR MULTICOMPONENT MATERIALS.

STORE AND HANDLE FIRESTOPPING MATERIALS TO PREVENT THEIR

OR SUBSTRATE TEMPERATURES ARE OUTSIDE LIMITS PERMITTED

CONTAINERS OR PACKAGES WITH INTACT AND LEGIBLE MANUFACTURERS' LABELS

STEMS FOR EACH KIND OF PENETRATION AND CONSTRUCTION CONDITION

INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WHO HAS

REFERENCE TO DESIGN DESIGNATIONS LISTED BY UL IN THEIR "FIR

RESISTANCE DIRECTORY" OR BY ANOTHER QUALIFIED TESTING AND

THOSE INDICATED BY REFERENCE TO THROUGH-PENETRATION

SYSTEM DESIGNATIONS LISTED BY UL IN THEIR "FIRE RESISTANCE

CLASSIFICATION MARKING OF QUALIFIED TESTING AND INSPECTING

ESTED PER ASTM E 814 UNDER CONDITIONS WHERE POSITIVE FUI

a. THROUGH-PENETRATION FIRESTOP SYSTEM PRODUCTS BEAR

FIRE-RESISTIVE JOINT SEALANT SYSTEMS ARE IDENTICAL TO THOSE

FOR FIRE-RESPONSE CHARACTERISTICS PER ASTM E 119 UNDER

INSPECTING AGENCY. A QUALIFIED TESTING AND INSPECTING AGENCY IS

JL. WAMOCK HERSEY. OR ANOTHER AGENCY PERFORMING TESTING AND

PERFORMANCE. ALLOW FOR EXPANSION AT JOINTS.

A. THERMO CURED FLUOROCARBON "KYNAR 500" RESIN COATING

A. VERIFY THAT SURFACES ARE READY TO RECEIVE WORK

B. DOWNSPOUTS: SMACNA PROFILE TO MATCH EXISTING.

GUTTER SUPPORTS: SPIKES AND FERRULES.

DOWNSPOUT SUPPORTS: STRAPS.

B. FABRICATE WITH REQUIRED CONNECTION PIECE

D. HEM EXPOSED EDGES OF METAL MIN 1/2" FOLD OVER

SYSTEM MANUFACTURER.

THICKNESS OF 15 MIL.

DOWNSPOUTS).

**FIRESTOPPING** 

PART 1 - GENERAL

GRADE A, OR ASTM A526/A526M, G90 ZINC COATING; 24 GAUGE CORE STEEL, SHOP

COATING. COLOR: TO BE CHOSEN BY OWNER. SUBMIT SAMPLE TO OWNER FOR

ANCHORING DEVICES: IN ACCORDANCE WITH SMACNA REQUIREMENTS.

3.12 WARRANTY INSPECTION UPON COMPLETION OF THE ROOFING SYSTEM, AN AUTHORIZED FIRESTONE REPRESENTATIVE WILL MAKE AN INSPECTION OF THE INSTALLATION FOR WARRANTY ACCEPTANCE.

3.13 SCUPPERS: PROVIDE PRE-FINISHED METAL SCUPPERS, TO MATCH METAL

FLUSHING, AT LOCATIONS AND AS DETAILED ON 2. MOP ROOF FELTS INTO SCUPPERS TO FORM WATERTIGHT PENETRATION THROUGH PARAPET WALL.

END OF SECTION 07 50 00 SHEET METAL FLASHING AND TRIM SECTION 07 62 00

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. A COLINTER FLASHINGS: FRY REGLET: TYPE M-A MASONRY SPRINGLOCK FLASHING

- OR CHENEY: TYPE B, SNAPLOCK SYSTEM OR O'KEEFFE'S, INC.: TYPE MI, B. PARAPET CAP/COPINGS: PAC-CLAD PETERSON ALUMINUM; PAC-CONTINUOUS
- C. VENTED SOFFIT: DIMENSIONAL METALS, INC. OR PETERSON ALUMINUM CORPORATION OR ATLAS ALUMINUM INC. 2.2 SHEET METAL FLASHING AND TRIM MATERIALS
- A. ZINC-COATED STEEL: COMMERCIAL QUALITY WITH 0.20 PERCENT COPPER. ASTM A526, EXCEPT ASTM A527 FOR LOCK FORMING, G90 HOT-DIPPED GALVANIZED, MILL PHOSPHATISED WHERE INDICATED FOR PAINTING.
- B. MATERIAL GAUGES TO BE AS FOLLOWS METAL FLASHING: 26 GA.
- METAL CAP/COPING: 24 GA. MISCELLANEOUS TRIM: 24 GA. LOUVER RAIN HOODS: 22 GA.
- C. ALL FLASHINGS AND COPINGS TO BE SELF-LOCKING WITH PERMANENT HOLD-DOWN CLIPS. ALL EXPOSED EDGES TO BE HEMMED. D. ALL EXPOSED METALS SHALL BE PRE-FINISHED IN "KYNAR 500" AND SHALL HAVE A
- YEAR LIMITED PAINT WARRANTY. COLOR: AS INDICATED ON DRAWINGS OR AS CHOSEN BY ARCHITECT FROM MANUFACTURER'S STANDARD SELECTION. MISCELLANEOUS MATERIALS AND ACCESSORIES
- A. SOLDER: FOR USE WITH STEEL OR COPPER, PROVIDE 50-50 TIN/LEAD SOLDER NON-CORROSIVE METAL AS RECOMMENDED BY SHEET MANUFACTURER. MATCH
- FINISH OF EXPOSED HEADS WITH MATERIAL BEING FASTENED. C. BITUMINOUS COATING: SSPC - PAINT 12, SOLVENT TYPE BITUMINOUS MASTIC, NOMINALLY FREE OF SULFUR, COMPOUNDED OF 15 MIL DRY FILM THICKNESS PER
- NON-DRYING, NON-MIGRATING SEALAN E. ELASTOMERIC SEALANT: GENERIC TYPE RECOMMENDED BY MANUFACTURER OF METAL AND FABRICATED COMPONENTS BEING SEALED AND COMPLYING WITH REQUIREMENTS FOR JOINT SEALANTS AS SPECIFIED IN DIVISION 7 - SEALANTS F. EPOXY SEAM SEALER: TWO-PART NON-CORROSIVE METAL SEAM CEMENTING

D. MASTIC SEALANT: POLYISOBUTYLENE: NON-HARDENING. NON-SKINNING.

- COMPOUND, RECOMMENDED BY THE METAL MANUFACTURER FOR XTERIOR/INTERIOR NON-MOVING JOINTS INCLUDING RIVETED JOINTS G. ADHESIVE: TYPE RECOMMENDED BY FLASHING SHEET MANUFACTURER FOR
- WEATHERPROOF/WEATHER-RESISTANT SEAMING AND ADHESIVE APPLICATION H. PAPER SLIP SHEET: 5-LB. ROSIN - SIZED BUILDING PAPER. POLYETHYLENE UNDERLAYMENT: MINIMUM 6 MIL CARBONATED POLYETHYLENE
- FILM; RESISTANT TO DECAY WHEN TESTED IN ACCORDANCE WITH ASTM E154. REGLETS: METAL UNITS OF TYPE AND PROFILE INDICATED, COMPATIBLE WITH FLASHING INDICATED, NON-CORROSIVE. K. METAL ACCESSORIES: PROVIDE SHEET METAL CLIPS, STRAPS, ANCHORING DEVICES, AND SIMILAR ACCESSORY UNITS AS REQUIRED FOR INSTALLATION OF WORK, MATCHING OR COMPATIBLE WITH MATERIAL BEING INSTALLED,
- ELASTIC FLASHING FILLER: CLOSED CELL POLYETHYLENE OR OTHER SOFT CELL MATERIAL RECOMMENDED BY ELASTIC FLASHING MANUFACTURER AS FILLER UNDER FLASHING LOOPS TO ENSURE MOVEMENT WITH MINIMUM STRESS ON FLASHING SHEET M. ROOFING CEMENT: ASTM D2822, ASPHALTIC
- 2.4 FABRICATED UNITS A. GENERAL METAL FABRICATION: COMPLY WITH DETAILS SHOWN AND WITH APPLICABLE REQUIREMENTS OF SMACNA "ARCHITECTURAL SHEET METAL MANUAL" AND OTHER RECOGNIZED INDUSTRY PRACTICES. FARRICATE WATERPROOF AND WEATHER RESISTANT PERFORMANCE: WITH EXPANSIO PROVISIONS FOR RUNNING WORK SUFFICIENT TO PERMANENTLY PREVENT LEAKAGE, DAMAGE, OR DETERIORATION OF THE WORK. FORM WORK TO SUBSTRATES. COMPLY WITH MATERIAL MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR FORMING MATERIAL. FORM EXPOSED SHEET METAL WORK WITHOUT EXCESSIVE OIL-CANNING, BUCKLING OR TOOL MARKS, TRUE TO LINE AND LEVELS INDICATED WITH ALL EXPOSED EDGES FOLDED BACK TO FORM
- B. SEAMS: FABRICATE NON-MOVING SEAMS IN SHEET METAL WITH FLAT-LOCK SEAMS. TIN EDGES TO BE SEAMED, FORM SEAMS, AND SOLDER. C. EXPANSION PROVISIONS: WHERE LAPPED OR BAYONET-TYPE EXPANSION ROVISIONS IN WORK CANNOT BE USED, OR WOULD NOT BE SUFFICIENTLY WATER/WEATHERPROOF FORM EXPANSION JOINTS OF INTERMESHING HOOKED
- FLANGES, NOT LESS THAN 1 INCH DEEP, FILLED WITH MASTIC SEALANT D. SEALANT JOINTS: WHERE MOVABLE, NON-EXPANSION TYPE JOINTS ARE INDICATED OR REQUIRED FOR PROPER PERFORMANCE OF WORK, FORM METAL TO PROVIDE FOR PROPER INSTALLATION OF ELASTOMERIC SEALANT, IN
- COMPLIANCE WITH SMACNA STANDARDS. E. SEPARATIONS: PROVIDE FOR SEPARATION OF METAL FROM NONCOMPATIBLE METAL OR CORROSIVE SUBSTRATE BY COATING CONCEALED SURFACES AT LOCATIONS OF CONTACT, WITH BITUMINOUS COATING OR OTHER PERMANENT

- 3.1 INSTALLATION A. GENERAL: UNLESS OTHERWISE INDICATED, COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AND WITH SMACNA "ARCHITECTURAL SHEET METAL MANUAL". ANCHOR UNITS OF WORK SECURELY IN PLACE BY METHODS INDICATED, PROVIDING FOR THERMAL EXPANSION OF METAL UNITS: CONCEAL FASTENERS WHERE POSSIBLE, SET UNITS TRUE TO LINE AND LEVEL AS INDICTED. INSTALL WORK WITH LAPS, JOINTS, AND SEAMS TO BE PERMANENTLY AND WEATHERPROOF.
- B. UNDERLAYMENT: WHERE STAINLESS STEEL OR ALUMINUM IS TO BE INSTALLED RECTLY ON CEMENT OR WOOD SUBSTRATES, INSTALL A SLIP SHEET OF RED ROSIN PAPER AND A COURSE OF POLYETHYLENE UNDERLAYMENT. C. BED FLANGES OF WORK IN A THICK COAT OF BITUMINOUS ROOFING CEMENT WHERE REQUIRED FOR WATERPROOF PERFORMANCE.
- D. INSTALL REGLETS TO RECEIVE COUNTERFLASHING IN A MANNER AND BY METHODS INDICATED. WHERE SHOWN IN CONCRETE, FURNISH REGLETS TO TRADES OF CONCRETE WORK FOR INSTALLATIONS WORK OF DIVISION 3. WHERE SHOWN IN MASONRY, FURNISH REGLETS TO TRADES OF MASONRY WORK, FOR INSTALLATION AS WORK OF DIVISION 4. INSTALL COUNTERFLASHING IN REGLETS, EITHER BY SNAP-IN SEAL
- ARRANGEMENT, OR BY WELDING IN PLACE OF ANCHORAGE AND FILLING REGLET WITH MASTIC OR ELASTOMERIC SEALANT. AS INDICATED AND DEPENDING ON DEGREE OF SEALANT EXPOSURE. E. INSTALL ELASTIC FLASHING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. WHERE REQUIRED, PROVIDE FOR MOVEMENT AT JOINTS BY FORMING LOOPS OF BELLOWS IN WIDTH OF FLASHING. LOCATE COVER OR FILLER

STRIPS AT JOINTS TO FACILITATE COMPLETE DRAINAGE OF WATER FROM

- FLASHING. SEAM ADJACENT FLASHING SHEETS WITH ADHESIVE, SEAL AND ANCHOR EDGES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS
- A. CLEAN EXPOSED METAL SURFACES, REMOVING SUBSTANCES THAT MIGHT CAUSE CORROSION OF METAL OR DETERIORATION OF FINISHES. ADVISE THE CONTRACTOR OF REQUIRED PROCEDURES FOR SURVEILLANCE AND PROTECTION OF FLASHING AND SHEET METAL WORK DURING CONSTRUCTION, TO ENSURE THAT WORK WILL BE WITHOUT DAMAGE OR DETERIORATION, OTHER THAT NATURAL WEATHERING AT TIME OF SUBSTANTIAL COMPLETION. END OF SECTION 07 62 00

- GUTTERS AND DOWNSPOUTS SECTION 07 71 23 B. SILICONE FOAM: TWO-COMPONENT, SILICONE-BASED LIQUID ELASTOMER THAT. WHEN MIXED, EXPANDS AND CURES IN PLACE TO PRODUCE A FLEXIBLE,
  - SILICONE SEALANT: MOISTURE-CURING, SINGLE-COMPONENT, SILICONE-BASED NEUTRAL-CURING ELASTOMERIC SEALANT OF NONSAG GRADE FOR OPENINGS IN
  - /ERTICAL AND OTHER SURFACES. D. <u>INTUMESCENT WRAP STRIPS:</u> PROVIDE ONE OF THE FOLLOWING PRODUCTS TOP INTUMESCENT WRAP STRIP 2002 BY DOW CORNING CORP. OR CS2420
  - INTUMESCENT WRAP BY HILTI CONSTRUCTION CHEMICALS. INC. OR FIRE BARRIER FS-195 WRAP/STRIP, 3M FIRE PROTECTION PRODUCTS.
  - SILICONE FOAMS: FIRE STOP FOAM 2001 BY DOW CORNING CORP. OR PENSIL 200 OAM BY GENERAL ELECTRIC CO. F. <u>SILICONE SEALANTS:</u> FIRESTOP SEALANT 2003 BY DOW CORNING CORP. OR
  - 00 FIRESTOP SEALANT BY GENERAL ELECTRIC CO. OR CS240 FIRESTOP SEALANT BY HILTI CONSTRUCTION CHEMICALS, INC. 2.3 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS
  - A FLASTOMERIC SEALANT STANDARD: PROVIDE MANUFACTURER'S STANDARI MICALLY CURING, ELASTOMERIC SEALANTS OF BASE POLYMER INDICATED HAT COMPLIES WITH ASTM C 920 REQUIREMENTS. INCLUDING THOSE SPECIFIED IN THIS SECTION APPLICABLE TO FIRE-RESISTIVE JOINT SEALANTS
  - B. SEALANT COLORS: PROVIDE COLOR OF EXPOSED JOINT SEALANT, COLOR ECTIONS MADE BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF STANDARD COLORS FOR PRODUCTS OF TYPE INDICATED. SINGLE-COMPONENT NEUTRAL-CURING SILICONE SEALANT: TYPE S: GRADE NS: CLASS 25: EXPOSURE-RELATED USE NT, AND JOINT-SUBSTRATE-RELATED USES
  - G, A, AND (AS APPLICABLE TO JOINT SUBSTRATES INDICATED) O. ADDITIONAL MOVEMENT CAPABILITY: PROVIDE SEALANT WITH THE CAPABILITY TO WITHSTAND THE FOLLOWING PERCENTAGE CHANGES IN IOINT WIDTH EXISTING AT TIME OF INSTALLATION, WHEN TESTED FOR ADHESION AND COHESION UNDER MAXIMUM CYCLIC MOVEMENT PER ASTM C 719. AND REMAIN

I COMPLIANCE WITH OTHER REQUIREMENTS OF ASTM C 920 FOR USES

100 PERCENT MOVEMENT IN EXTENSION AND 50 PERCENT MOVEMENT IN COMPRESSION FOR A TOTAL OF 150 PERCENT MOVEMENT. SINGLE-COMPONENT, NEUTRAL-CURING, SILICONE SEALANT: DOW CORNING 790 BY DOW CORNING CORP. OR SPECTRUM 1 BY TREMCO.

#### PART 3 - EXECUTION

A. EXAMINE SUBSTRATES AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR OPENING CONFIGURATIONS PENETRATING ITEMS, SUBSTRATES, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF FIRESTOPPING. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

# 3.2 PREPARATION

- A. SURFACE CLEANING: CLEAN OUT OPENINGS AND JOINTS IMMEDIATELY PRIOR TO INSTALLING FIRESTOPPING TO COMPLY WITH RECOMMENDATIONS OF RESTOPPING MANUFACTURER AND THE FOLLOWING REQUIREMENTS: REMOVI ALL FOREIGN MATERIALS FROM SURFACES OF OPENING AND JOINT SUBSTRATES AND FROM PENETRATING ITEMS THAT COULD INTERFERE WITH ADHESION OF FIRESTOPPING. CLEAN OPENING AND JOINT SUBSTRATES AND PENETRATING ITEMS TO PRODUCE CLEAN, SOUND SURFACES CAPABLE OF DEVELOPING OPTIMUM BOND WITH FIRESTOPPING. REMOVE LOOSE PARTICLES REM ROM CLEANING OPERATION. REMOVE LAITANCE AND FORM RELEASE AGENTS
- PRIMING: PRIME SUBSTRATES WHERE RECOMMENDED BY FIRESTOPPIN MANUFACTURER USING THAT MANUFACTURER'S RECOMMENDED PRODUCTS AND METHODS. CONFINE PRIMERS TO AREAS OF BOND: DO NOT ALLOW SPILLAGE
- AND MIGRATION ONTO EXPOSED SURFACES MASKING TAPE: USE MASKING TAPE TO PREVENT FIRESTOPPING FROM CONTACTING ADJOINING SURFACES THAT WILL REMAIN EXPOSED UPON COMPLETION OF WORK AND THAT WOULD OTHERWISE BE PERMANENTLY TAINED OR DAMAGED BY SUCH CONTACT OR BY CLEANING METHODS USED T REMOVE SMEARS FROM FIRESTOPPING MATERIALS. REMOVE TAPE AS SOON AS IT IS POSSIBLE TO DO SO WITHOUT DISTURBING FIRESTOPPING'S SEAL WITH
- 3.3 INSTALLING THROUGH-PENETRATION FIRESTOPS
- A. GENERAL: COMPLY WITH THE "SYSTEM PERFORMANCE REQUIREMENTS" ARTICLE IN PART 1 AND THE THROUGH-PENETRATION FIRESTOP MANUFACTURER'S NSTALLATION INSTRUCTIONS AND DRAWINGS PERTAINING TO PRODUCTS AND APPLICATIONS INDICATED.
- B. INSTALL FORMING/DAMMING MATERIALS AND OTHER ACCESSORIES OF TYPES. REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE THE CROSS-SECTIONAL SHAPES AND DEPTHS. REQUIRED TO ACHIEVE FIRE RATINGS OF DESIGNATED THROUGH-PENETRATION IRESTOP SYSTEMS. AFTER INSTALLING FILL MATERIALS, REMOVE COMBUSTIBLE ORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOP SYSTEMS
- 3.4 INSTALLING FIRE-RESISTIVE JOINT SEALANTS A. GENERAL: COMPLY WITH THE "SYSTEM PERFORMANCE REQUIREMENTS" ARTICLE IN PART 1, WITH ASTM C 1193 AND WITH THE SEALANT MANUFACTURER'S ISTALLATION INSTRUCTIONS AND DRAWINGS PERTAINING TO PRODUCTS AND APPLICATIONS INDICATED.
- INSTALL JOINT FILLERS TO PROVIDE SUPPORT OF SEALANTS DURING SHAPES AND DEPTHS OF INSTALLED SEALANTS RELATIVE TO JOINT WIDTHS THAT LLOW OPTIMUM SEALANT MOVEMENT CAPABILITY AND DEVELOP FIRE-RESISTANCE RATING REQUIRED. INSTALL SEALANTS BY PROVEN TECHNIQUES THAT RESULT IN SEALANTS DIRECTLY CONTACTING AND FULLY WETTING JOINT SUBSTRATES, COMPLETELY
- FILLING RECESSES PROVIDED FOR EACH JOINT CONFIGURATION, AND PROVIDING UNIFORM, CROSS-SECTIONAL SHAPES AND DEPTHS RELATIVE TO JOINT WIDTH THAT OPTIMUM SEALANT MOVEMENT CAPABILITY. INSTALL SEALANTS AT THE SAME TIME JOINT FILLERS ARE INSTALLED.
- A. CLEAN OFF EXCESS FILL MATERIALS AND SEALANTS ADJACENT TO OPENINGS AND JOINTS AS WORK PROGRESSES BY METHODS AND WITH CLEANIN MATERIALS APPROVED BY MANUFACTURERS OF FIRESTOPPING PRODUCTS AND OF PRODUCTS IN WHICH OPENING AND JOINTS OCCUR. PROTECT FIRESTOPPING DURING AND AFTER CURING PERIOD FROM CONTACT
- WITH CONTAMINATING SUBSTANCES OR FROM DAMAGE RESULTING FROM DETERIORATION OR DAMAGE AT TIME OF CONTRACT COMPLETION. IF, DESPIT ICH PROTECTION, DAMAGE OR DETERIORATION OCCURS, CUT OUT AND REMOVE DAMAGED OR DETERIORATED FIRESTOPPING IMMEDIATELY AND INSTALL NEW MATERIALS TO PRODUCE FIRESTOPPING COMPLYING WITH SPECIFIED REQUIREMENTS

#### END OF SECTION 07 84 00 JOINT SEALANTS SECTION 07 92 00

- PART 1 GENERAL 1.1 RELATED DOCUMENTS
- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. 1.2 QUALITY ASSURANCE
- A INSTALLER OLIALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WHO HAS CLASSIFICATION MARKING OF QUALIFIED TESTING AND INSPECTION COMPLETED JOINT SEALANT APPLICATIONS SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR PROJECT THAT HAVE RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.
  - SINGLE SOURCE RESPONSIBILITY FOR JOINT SEALANT MATERIALS: OBTAIN JOINT SEALANT MATERIALS FROM A SINGLE MANUFACTURER FOR EACH DIFFERENT PRODUCT REQUIRED. PRODUCT TESTING: PROVIDE COMPREHENSIVE TEST DATA FOR EACH TYPE OF OINT SEALANT BASED ON TESTS CONDUCTED BY A QUALIFIED INDEPENDEN TESTING LABORATORY ON CURRENT PRODUCT FORMULATIONS WITHIN A
    - RESULTS TO ASSOCIATE. TEST ELASTOMERIC SEALANTS FOR COMPLIANCE WITH REQUIREMENTS SPECIFIED BY REFERENCE TO ASTM C 920. INCLUDE TEST RESULTS FOR HARDNESS: STAIN RESISTANCE, ADHESION AND COHESION UNDER CYCLIC MOVEMENT (PER ASTM C 719), LOW-TEMPERATURE FLEXIBILITY, AND MODULUS OF ELASTICITY AT 100 PERCENT STRAIN, EFFECTS OF HEAT AGING, AND EFFECTS OF ACCELERATED WEATHERING.

MONTH PERIOD PRECEDING DATE OF CONTRACTOR'S SUBMITTAL OF TEST

- INCLUDES TEST RESULTS PERFORMED ON JOINT SEALANTS AFTER THEY HAVE CURED FOR 1 YEAR. PRECONSTRUCTION FIELD TESTING: PRIOR TO INSTALLATION OF JOINT SEALANTS, FIELD-TEST THEIR ADHESION TO JOINT SUBSTRATES AS FOLLOWS LOCATE TEST JOINTS WHERE INDICATED OR, IF NOT INDICATED, AS DIRECTED BY ASSOCIATE. CONDUCT FIELD TESTS FOR EACH APPLICATION INDICATED FOR
- 1.3 DELIVERY, STORAGE AND HANDLING A. DELIVER MATERIALS TO PROJECT SITE IN ORIGINAL UNOPENED CONTAINERS OR BUNDLES WITH LABELS INDICATING MANUFACTURER, PRODUCT NAME AND SIGNATION, COLOR, EXPIRATION PERIOD FOR USE, POT LIFE, CURING TIME, AND MIXING INSTRUCTIONS FOR MULTICOMPONENT MATERIALS.

EACH TYPE OF ELASTOMERIC SEALANT AND JOINT SUBSTRATE INDICATED.

B. STORE AND HANDLE MATERIALS IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS TO PREVENT THEIR DETERIORATION OR DAMAGE DUE TO MOISTURE, HIGH OR LOW TEMPERATURES, CONTAMINANTS, OR OTHER CAUSES SPECIAL INSTALLER'S WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH

INSTALLER AGREES TO REPAIR OR REPLACE JOINT SEALANTS THAT DO NOT

COMPLY WITH PERFORMANCE AND OTHER REQUIREMENTS SPECIFIED IN THIS

1. WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL SPECIAL MANUFACTURER'S WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH JOINT-SEALANT MANUFACTURER AGREES TO FURNISH JOINT SEALANTS TO REPAIR OR REPLACE THOSE THAT DO NOT COMPLY WITH PERFORMANCE AND OTHER REQUIREMENTS SPECIFIED IN THIS SECTION WITHIN SPECIFIED

SECTION WITHIN SPECIFIED WARRANTY PERIOD.

SPECIAL WARRANTIES SPECIFIED IN THIS ARTICLE EXCLUDE DETERIORATION OR FAILURE OF JOINT SEALANTS FROM THE FOLLOWING: 1 MOVEMENT OF THE STRUCTURE CAUSED BY STRUCTURAL SETTLEMENT OR ERRORS ATTRIBUTABLE TO DESIGN OR CONSTRUCTION RESULTING IN STRESSES ON THE SEALANT EXCEEDING SEALANT MANUFACTURER'S WRITTEN SPECIFICATIONS FOR SEALANT ELONGATION AND COMPRESSION.

XCEEDING DESIGN SPECIFICATIONS.

OUTSIDE AGENTS. 4. CHANGES IN SEALANT APPEARANCE CAUSED BY ACCUMULATION OF DIRT

DISINTEGRATION OF JOINT SUBSTRATES FROM NATURAL CAUSES

3. MECHANICAL DAMAGE CAUSED BY INDIVIDUALS, TOOLS, OR OTHER

2.1 MATERIALS, GENERAL

- A. COMPATIBILITY: PROVIDE JOINT SEALANTS, BACKINGS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY JOINT-SEALANT MANUFACTURER, BASED ON TESTING AND
- B. LIQUID-APPLIED JOINT SEALANTS: COMPLY WITH ASTM C 920 AND OTHER REQUIREMENTS INDICATED FOR EACH LIQUID-APPLIED JOINT SEALANT SPECIFIED, INCLUDING THOSE REFERENCING ASTM C 920 CLASSIFICATIONS FOR TYPE.
- GRADE, CLASS, AND USES RELATED TO EXPOSURE AND JOINT SUBSTRATES STAIN-TEST-RESPONSE CHARACTERISTICS: WHERE SEALANTS ARE SPECIFIED TO
- E NONSTAINING TO POROUS SUBSTRATES, PROVIDE PRODUCTS THAT HAV UNDERGONE TESTING ACCORDING TO ASTM C 1248 AND HAVE NOT STAINED OROUS JOINT SUBSTRATES INDICATED FOR PROJECT. SUITABILITY FOR CONTACT WITH FOOD: WHERE SEALANTS ARE INDICATED FOR

JOINTS THAT WILL COME IN REPEATED CONTACT WITH FOOD, PROVIDE

- RODUCTS THAT COMPLY WITH 21 CFR 177.2600. COLORS OF EXPOSED JOINT SEALANTS: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.
- SILICONE JOINT SEALANTS A. 'JS-1'-SINGLE-COMPONENT, NONSAG, NEUTRAL-CURING SILICONE JOINT SEALANT: ASTM C 920, TYPE S, GRADE NS, CLASS 50, FOR USE NT.
- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE
- ONE OF THE FOLLOWING:
- a. GE ADVANCED MATERIALS SILICONES; SILPRUF SCS2000. b. PECORA CORPORATION; 898.
- c. POLYMERIC SYSTEMS, INC.; PSI-641 d. TREMCO INCORPORATED; SPECTREM 3
- JOINT SEALANT: ASTM C 920, TYPE S, GRADE NS, CLASS 25, FOR USE NT. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:

'JS-2'-SINGLE-COMPONENT, MILDEW RESISTANT, NEUTRAL-CURING SILICON

- PECORA CORPORATION; 898. TREMCO INCORPORATED; TREMSIL 200 CLEAR. 2.3 URETHANE JOINT SEALANTS
  - A. 'JS-3'- SINGLE-COMPONENT, NONSAG, URETHANE JOINT SEALANT: ASTM C 920, TYPE S, GRADE NS, CLASS 100/50, FOR USE NT 1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: a. POLYMERIC SYSTEMS, INC.; PSI-901.
  - c. TREMCO INCORPORATED; VULKEM 921 OR DYMONIC FO 'JS-4'- SINGLE-COMPONENT, POURABLE, MOISTURE CURING, POLYURETHAN JOINT SEALANT: ASTM C 920, TYPE S, GRADE P, CLASS 100/50, FOR USE NT. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE

SIKA CORPORATION, CONSTRUCTION PRODUCTS DIVISION

- ONE OF THE FOLLOWING: a. DOW CORNING CORPORATION; 890-SL. b. PECORA CORPORATION; 300 PAVEMENT SEALANT (SELF-LEVELING). c. TREMCO INCORPORATED; VULKEM 45. 2.4 LATEX JOINT SEALANTS
- ASTM C 834, TYPE OP, GRADE NF. 1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: BOSTIK, INC.; CHEM-CALK 600.

b. PECORA CORPORATION; AC-20+

ONE OF THE FOLLOWING:

TREMCO INCORPORATED: TREMFLEX 834.

A. 'JS-5'- LATEX JOINT SEALANT: ACRYLIC LATEX OR SILICONIZED ACRYLIC LATEX,

- 2.5 METALLIC PUTTY SEALANTS A. 'JS-7' - METALLIC PUTTY: RIGID, TWO-PART EPOXY RESIN BASED PUTTY SYSTEM PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE
- a. PEERLESS INDUSTRIAL SYSTEMS; EPIGEM 2008. b. EQUAL PRODUCTS AS APPROVED BY ARCHITECT. 2.6 ACOUSTICAL JOINT SEALANTS ACOUSTICAL JOINT SEALANT: MANUFACTURER'S STANDARD NONSAG, PAINTABLE, NONSTAINING LATEX SEALANT COMPLYING WITH ASTM C 834. PRODUCT
- IOINTS AND OPENINGS IN BUILDING CONSTRUCTION AS DEMONSTRATED BY TESTING REPRESENTATIVE ASSEMBLIES ACCORDING TO ASTM E 90. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE

EFFECTIVELY REDUCES AIRBORNE SOUND TRANSMISSION THROUGH PERIMETE

- a. PECORA CORPORATION; AC-20 FTR OR AIS-919. b. USG CORPORATION; SHEETROCK ACOUSTICAL SEALAN GENERAL: PROVIDE SEALANT BACKINGS OF MATERIAL AND TYPE THAT ARE
- NON-STAINING: ARE COMPATIBLE WITH JOINT SUBSTRATES. SEALANTS, PRIMERS ND OTHER JOINT FILLERS; AND ARE APPROVED FOR APPLICATIONS INDICATED BY SEALANT MANUFACTURER BASED ON FIELD EXPERIENCE AND LABORATORY CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, TYPE C (CLOSED-CELL MATERIAL WITH A SURFACE SKIN) OR ANY TYPE, AS APPROVED IN WRITING B

JOINT-SEALANT MANUFACTURER FOR JOINT APPLICATION INDICATED, AND OF

SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE

- TO PRODUCING OPTIMUM SEALANT PERFORMANCE. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE AS RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT WHERE SUCH ADHESION WOULD RESULT IN SEALANT FAILURE PROVIDE SELE-ADHESIVE TAPE WHERE APPLICABLE
- A. PRIMER: MATERIAL RECOMMENDED BY JOINT SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT SEALANT-SUBSTRATE TESTS AND CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS. FREE OF
- OILY RESIDUES OR OTHER SUBSTANCES CAPABLE OF STAINING OR HARMING IN ANY WAY JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS WITH JOINT
- MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS. PART 3 - EXECUTION

INSTALLATION OF JOINT SEALANTS

2.8 MISCELLANEOUS MATERIALS

3.1 EXAMINATION EXAMINE JOINTS INDICATED TO RECEIVE JOINT SEALANTS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR JOINT CONFIGURATION INSTALLATION TOLERANCES, AND OTHER CONDITIONS AFFECTING JOINT SEALANT PERFORMANCE DO NOT PROCEED WITH INSTALLATION OF JOINT SEALANTS

UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED

A. GENERAL: COMPLY WITH JOINT SEALANT MANUFACTURER'S PRINTED

- SURFACE CLEANING OF JOINTS: CLEAN OUT JOINTS IMMEDIATELY BEFORE NSTALLING JOINT SEALANTS TO COMPLY WITH RECOMMENDATIONS OF JOINT SEALANT MANUFACTURER.
- INDICATED, EXCEPT WHERE MORE STRINGENT REQUIREMENTS APPLY. SEALANT INSTALLATION STANDARD: COMPLY WITH RECOMMENDATIONS OF ASTMC 1193 FOR USE OF JOINT SEALANTS AS APPLICABLE TO MATERIALS, APPLICATIONS, AND CONDITIONS INDICATED.

A. CLEAN OFF EXCESS SEALANTS OR SEALANT SMEARS ADJACENT TO JOINTS AS

END OF SECTION 07 92 00

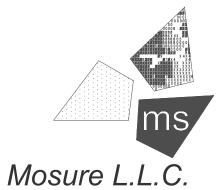
WORK PROGRESSES BY METHODS AND WITH CLEANING MATERIALS APPROV

BY MANUFACTURERS OF JOINT SEALANTS AND OF PRODUCTS IN WHICH JOINTS  $\,$ 

REVISIONS # DATE DESCRIPTION

#### NOTICE

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HARPER WOODS, MI 48225

STORE # 919728

19353 VERNIER ROAD

PROJECT:



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

40509-11 SHEET TITLE:

PROJECT NO.:

SHEET:

ARCHITECTURAL

**ISSUE** DESCRIPTION # DATE 07/12/22 PERMIT SET

LRK

07/12/2022

DRAWN BY

CHECKED BY

ISSUE DATE

APPROVED BY

HEREBY SPECIFICALLY RESERVED.

1.6 SUBMITTALS

**SECTION 08 11 00** 

A. SHOP DRAWINGS

B. PRODUCT DATA:

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

(770) 449-5555

F. CRL-US ALUMINUM

G. YKK AP COMMERCIAL

(687) 838-6000

C. EXTERIOR STOREFRON

D. INTERIOR STOREFRONT

2.2 MATERIALS

X 4-1/2" WITH 1/4" GLASS.

08800. OF THESE SPECIFICATIONS.

STEEL, IN ACCORDANCE WITH ASTM A 164.

SPLINED GROMMET NUTS.

ANODIZED FINISH TO MATCH STOREFRONT

APPLICABLE).

COLOR: BONE WHITE

BY STRUCTURAL LOADS.

MECHANICAL FINISH.

PART 3 - EXECUTION

REINFORCING MEMBERS AS REQUIRED

2.3 ALUMINUM FINISHES

MEMBER OR HARDWARE BEING FASTENED

E. CONCEALED FLASHING: 0.040-INCH-THICK ALUMINUM BRAKE METAL TRIM.

F. BRACKETS AND REINFORCEMENTS: HIGH-STRENGTH ALUMINUM BRACKETS

G. CONCRETE AND MASONRY INSERTS: CAST IRON, MALLEABLE IRON, OR

COMPRESSION WEATHER-STRIPPING: MANUFACTURER'S STANDARD

A. PAINTED ALUMINUM SURFACE: AA- M12C12RAX NON-SECULAR AS FABRICATED

PERCENT POLYVINYLIDENE FLUORIDE RESIN.

B. STOREFRONT FRAMING SYSTEM: PROVIDE STOREFRONT AND ENTRANCE

SIZE AND PROFILE INDICATED. INCLUDE SUBFRAMES AND OTHER

PREFABRICATION: COMPLETE FABRICATION, ASSEMBLY, FINISHING

COATING; WITH ORGANIC COATING.

1. HIGH PERFORMANCE ORGANIC COATING: FLUOROPOLYMER COATING

RAMING SYSTEMS FABRICATED FROM EXTRUDED ALUMINUM MEMBERS OF

GENERAL: FABRICATE ALUMINUM ENTRANCE AND STOREFRONT COMPONENTS

INDICATED STANDARDS. SIZES AND PROFILE REQUIREMENTS ARE INDICATED

AND MINIMUM DIMENSIONS REQUIRED, TO ACHIEVE DESIGN REQUIREMENTS

HARDWARE APPLICATION, AND OTHER WORK TO THE GREATEST EXTENT

COMPONENTS ONLY AS NECESSARY FOR SHIPMENT AND INSTALLATION.

PERFORM FABRICATION OPERATIONS, INCLUDING CUTTING, FITTING

DAMAGE TO EXPOSED FINISH SURFACES. COMPLETE THESE

2. PREGLAZE DOOR AND FRAME UNITS TO GREATEST EXTENT POSSIBLE.

SMOOTH TO REMOVE WELD SPATTER AND WELDING OXIDES. RESTORE

NECESSARY FOR PERFORMANCE REQUIREMENTS, SAG RESISTANCE AND

DISSIMILAR METALS: SEPARATE DISSIMILAR METALS WITH BITUMINOUS PAINT

TAPE, OR A GASKET BETWEEN THE SURFACES. DO NOT USE COATINGS

CONTINUITY: MAINTAIN ACCURATE RELATION OF PLANES AND ANGLE WITH

B. VERIFY ALL MEASUREMENTS/OPENINGS BY FIELD MEASUREMENTS BEFORE

A. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS

B. SET UNITS PLUMB. LEVEL. AND TRUE TO LINE. WITHOUT WARP OR RACK OF

STOREFRONT TO COMPLY WITH THE FOLLOWING TOLERANCES:

LENGTH OR 1/4 INCH IN ANY TOTAL LENGTH.

INLINE SHALL NOT EXCEED 1/64 INCH.

VARIATION FROM PLANE: DO NOT EXCEED 1/8 INCH IN 12 FEET OF

3. DIAGONAL MEASUREMENTS: THE MAXIMUM DIFFERENCE IN DIAGONAL

OURCES OF CORROSION OR ELECTROLYTIC ACTION AT POINTS OF CONTACT

4. OFFSET AT CORNERS: THE MAXIMUM OUT-OF-PLANE OFFSET OF

FRAMING AT CORNERS SHALL NOT EXCEED 1/32 INCH.

2. OFFSET FROM ALIGNMENT: THE MAXIMUM OFFSET FROM TRUE

MEASUREMENTS SHALL NOT EXCEED 1/16 INCH.

FABRICATION. COORDINATE W/ FABRICATION SCHEDULE AND CONSTRUCTION

MING MEMBERS, DOORS, OR GLAZING PANELS. INSTALL COMPONENTS IN

ALIGNMENT BETWEEN TWO IDENTICAL MEMBERS ABUTTING END TO END

PROPER ALIGNMENT AND RELATION TO ESTABLISHED LINES AND GRADES

INDICATED. PROVIDE PROPER SUPPORT AND ANCHOR SECURELY IN PLACE

INDICATED IN THE SAMPLE PAIR SUBMITTAL.

G. FASTENERS: CONCEAL FASTENERS WHEREVER POSSIBLE.

PROGRESS TO AVOID CONSTRUCTION DELAYS.

FOR INSTALLATION.

R A SUITABLE SEALANT, OR A NON-ABSORPTIVE PLASTIC OR ELASTOMERIO

WEATHERPROOF HAIRLINE FIT OF CONTACTING MEMBERS. LINIFORMITY OF

METAL FINISH: ABUTTING EXTRUDED ALUMINUM MEMBERS SHALL NOT HAVI

AN INTEGRAL COLOR TEXTURE VARIATION GREATER THAN HALF THE RANGE

C WELDING: COMPLY WITH AWS RECOMMENDATIONS. GRIND EXPOSED WELDS

D. REINFORCING: INSTALL REINFORCING AS REQUIRED FOR HARDWARE AND AS

DRMING, DRILLING AND GRINDING OF METAL WORK TO PREVENT

OPERATIONS FOR HARDWARE PRIOR TO APPLICATION OF FINISHES.

TO DESIGNS. SIZES AND THICKNESSES INDICATED AND TO COMPLY WITH

SYSTEM COMPLYING WITH AAMA 2604-2605 TO COAT, WITH MINIMUM 70

NONMAGNETIC STAINLESS STEEL OR HOT-DIP GALVANIZED STEEL COMPLYING

HOT-DIP GALVANIZED STEEL INSERTS COMPLYING WITH ASTM A 123 (WHERE

REPLACEABLE COMPRESSIBLE WEATHER-STRIPPING GASKETS OF MOLDED

NEOPRENE COMPLYING WITH ASTM D 2000 OR MOLDED PVC COMPLYING WITH

MECHANICAL FINISH, CHEMICALLY CLEANED, AND PREPARED FOR

ATTENTION: CHERYL WILKERSON

(800) 421-6144, EXT. 17780

INDICATE CONFIGURATION SIZES ROUGH-IN MOUNTING CONSTRUCTION

AND GLAZING DETAILS AS WELL AS INSTALLATION CLEARANCES AND

INDICATING MATERIALS, OPERATION CHARACTERISTICS AND FINISHES.

SUBMIT TWO SAMPLES, 4 X 4INCES (100 X 100MM) IN SIZE ILLUSTRATING

KAWNEER TRIFAB VERSAGLAZE 451T, THERMALLY BROKEN, 2" X 4 1/2"

BROKEN, 2" X 4-1/2" WITH 1" INSULATED CLASS LOW E GLASS UNIT.

CRL-US ALUMINUM SERIES IT451 STOREFRONT SYSTEM, THERMALLY

3. YKK AP YES 45 FI Center Set Flush Glazed Storefront System, Thermally

2. CRL-US ALUMINUM SERIES 451 STOREFRONT SYSTEM, NON-THERMAL, 2"

GLAZING ADAPTER, NON-THERMAL, 2" X 4-1/2" WITH 1/4" GLASS.

FOR STRENGTH, CORROSION RESISTANCE, AND APPLICATION OF REQUIRED

FINISH; EXTRUSIONS SHALL BE 6063 T5 ALLOY AND TEMPER TO COMPLY WITH

ASTM B 221 FOR ALUMINUM EXTRUSIONS ASTM B 209 FOR ALUMINUM SHEE

COMPLY WITH ASTM A 36 FOR STRUCTURAL SHAPES, PLATES AND BARS, ASTM

A 611 FOR COLD ROLLED SHEET AND STRIP, OR ASTM A 570 FOR HOT ROLLED

WITH ALUMINUM OR NONMAGNETIC STAINLESS STEEL TO RECEIV

EXPOSED FASTENERS: DO NOT USED EXPOSED FASTENERS EXCEPT

FOR APPLICATION OF HARDWARE. FOR APPLICATION OF HARDWARE, USE PHILLIPS FLAT-HEAD MACHINE SCREWS THAT MATCH THE FINISH OF

CARBON STEEL REINFORCEMENT OF ALUMINUM FRAMING MEMBERS SHALL

OR PLATE, AND ASTM B 211 FOR ALUMINUM BARS, RODS AND WIRE.

Broken, 2" x 4-1/2" with 1" Insulated Class Low E Glass Unit.

KAWNEER TRIFAB VERSAGLAZE 451, 2" X 4 1/2" WITH 1/4" GLASS.

3. YKK AP 45 FI CENTER SET FLUSH GLAZED STOREFRONT SYSTEM W/

ALUMINUM MEMBERS: ALLOY AND TEMPER RECOMMENDED BY THE

WITH 1" INSULATED CLASS LOW E GLASS UNIT.

SUBMIT MANUFACTURER'S PRODUCT DATA FOR SPECIFIED PRODUCTS.

METAL FINISHES FOR EACH FINISH SPECIFIED

2.4 DOORS (AS APPLICABLE)

A. EXTERIOR DOORS: 1-3/4" THICK, FLUSH TYPE, ANSI/SDI-100, GRADE III,

AVY-DUTY, MODEL 4, MINIMUM 18-GAGE GALVANIZED STEEL FACES WIT

ACCORDANCE WITH FINAL SHOP DRAWINGS, MANUFACTURERS DATA, AND AS

ERECTION INSTRUCTIONS FOR STEEL FRAMES," UNLESS OTHERWISE INDICATED

PRIME COAT TOUCH-UP: IMMEDIATELY AFTER ERECTION, SAND SMOOTH ANY

RUSTED OR DAMAGED AREAS OF PRIME COAT AND APPLY TOUCH-UP OF

END OF SECTION 08 11 00

SECTION 08 41

PLACING FRAMES: COMPLY WITH PROVISIONS OF SDI-105 "RECOMMENDED

POLYSTYRENE CORE INSULATION, ETC. AND MANUFACTURED AS FRAMES

PART 3 - EXECUTION 3.1 INSTALLATION A GENERAL: INSTALL STANDARD STEEL FRAMES AND ACCESSORIES IN

ADJUST AND CLEAN

COMPATIBLE

AIR-DRYING PRIMER

PROTECTIVE PLASTIC WRAPPINGS FROM PREFINISHED DOORS. FINAL ADJUSTMENTS: CHECK AND READJUST OPERATING HARDWARE ITEMS LEAVING STEEL DOORS AND FRAMES UNDAMAGED AND IN COMPLETE AND PROPER OPERATING CONDITION. ALUMINUM ENTRANCES AND STOREFRONT WINDOWS PART 1 - GENERAL RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. QUALITY ASSURANCE INSTALLER QUALIFICATIONS: ENGAGE AN EXPERIENCED INSTALLER WITH NOT LESS THAN 5 YEARS SUCCESSFUL EXPERIENCE WHO HAS COMPLETED INSTALLATIONS OF ALUMINUM STOREFRONT AND ENTRANCES SIMILAR IN DESIGN AND EXTENT TO THOSE REQUIRED FOR THE PROJECT AND WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFU IN-SERVICE PERFORMANCE. FARRICATOR QUALIFICATIONS: PROVIDE ALUMINUM ENTRANCES AND

SYSTEMS THAT ARE SIMILAR TO THOSE INDICATED FOR THIS PROJECT, AND THAT HAVE A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE. THE FABRICATOR SHALL HAVE SUFFICIENT PRODUCTION CAPACITY TO PRODUCE COMPONENTS REQUIRED WITHOUT CAUSING DELAY IN PROGRESS OF THE SINGLE SOURCE RESPONSIBILITY: OBTAIN ALLIMINUM ENTRANCE, OPERATING HARDWARE, AND STOREFRONT SYSTEMS FROM ONE SOURCE AND FROM A SINGLE MANUFACTURER, UNLESS NOTED OTHERWISE DESIGN CRITERIA: THE DRAWINGS INDICATE THE SIZE, PROFILE AND DIMENSIONAL REQUIREMENTS OF ALUMINUM ENTRANCE AND STOREFRON WORK REQUIRED AND ARE BASED ON THE SPECIFIC TYPES AND MODELS SYSTEM PERFORMANCE REQUIREMENTS

STRUCTURAL PERFORMANCE: DESIGN, ENGINEER, FABRICATE, AND THE GLAZED ALUMINUM CURTAIN WALL SYSTEM TO WITHSTAND THE OF A WIND LOAD OF SPEED AT HEIGHT OF INSTALLATION AS REQUIRED BY HE APPLICABLE BUILDING CODE, WITH NO MATERIAL FAILURES OR PERMANENT DEFORMATION OF STRUCTURAL MEMBERS. STRUCTURAL TEST PRESSURE SHALL BE FOUND TO 150 PERCENT OF THE INWARD AND OUTWARD ACTING DESIGN WIND PRESSURES b. MAXIMUM DEFLECTION SHALL BE 1/175 OF THE SPAN. ALLOWABLE STRESS WITH A SAFETY FACTOR OF 1.65.

MANUFACTURER SHALL PROVIDE INTERNAL STEEL REINFORCING S REQUIRED FOR INDICATED SPANS AND CODE REQUIRED WIND

AIR INFILTRATION RATE SHALL NOT EXCEED 0.06 CFM/FT(2) AT A STATIC PRESSURE DIFFERENTIAL OF 6.24 PSF, PER ASTM E283. WATER RESISTANCE: SYSTEM SHALL COMPLY WITH ASTM E331. THERE BE NO AIR LEAKAGE AT A MIN. STATIC AIR PRESSURE DIFFERENTIAL OF 8

PSI AS DEFINED IN AAMA 501. DELIVERY, STORAGE AND HANDLING DELIVER ALLIMINUM ENTRANCE AND STOREFRONT COMPONENTS IN THE

MANUEACTURER AGREEING TO REPAIR OR REPLACE LINITS THAT FAIL IN

MATERIALS OR WORKMANSHIP WITHIN THE SPECIFIED WARRANTY PERIOD

2. EXCESSIVE DEFLECTION. EXCESSIVE LEAKAGE OR AIR INFILTRATION.

WARRANTY PERIOD: FIVE (5) YEARS AFTER THE DATE OF SUBSTANTIAL

FAILURES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:

STRUCTURAL FAILURE OF FRAMING MEMBERS.

DETERIORATION OF GASKETS AND SEALS

FAILURE OF SEALANT

COMPLETION.

D. SEPARATE ALUMINUM AND OTHER CORRODIBLE METAL SURFACES FROM MANUFACTURER'S ORIGINAL PROTECTIVE PACKAGING. STORE ALUMINUM COMPONENTS IN A CLEAN DRY LOCATION AWAY FROM

WITH OTHER MATERIALS. 1. ZINC OR CADMIUM PLATE STEEL ANCHORS AND OTHER UNEXPOSED FASTENERS AFTER FABRICATION UNCURED MASONRY OR CONCRETE. COVER COMPONENTS WITH WATERPROOF PAPER, TARPAULIN OR POLYETHYLENE SHEETING IN A MANNER TO PERMIT ALUMINUM. CIRCULATION OF AIR. STACK FRAMING COMPONENTS IN A MANNER THAT WILI PREVENT BENDING AND AVOID SIGNIFICANT OR PERMANENT DAMAGE. PROJECT CONDITIONS OTHER MASONRY WITH ALKALI RESISTANT COATING FIELD MEASUREMENTS: SHOW RECORD MEASUREMENTS ON SHOP DRAWINGS.

2. PAINT DISSIMILAR METALS WHERE DRAINAGE FROM THEM PASSES OVER 3. PAINT ALUMINUM SURFACES IN CONTACT WITH MORTAR, CONCRETE OR OR GASKETS AS INDICATED TO PROVIDE WEATHER TIGHT CONSTRUCTION CHECK OPENINGS BY ACCURATE FIELD MEASUREMENT BEFORE FABRICATIO COMPLY WITH REQUIREMENTS OF DIVISION 7 FOR SEALANTS, FILLERS, AND COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO

SET SILL MEMBERS IN BED OF SEALANT AS INDICATED. OR WITH JOINT FILLERS A. CLEAN THE COMPLETED SYSTEM, INSIDE AND OUT, PROMPTLY AFTER INSTALLATION, EXERCISING CARE TO AVOID DAMAGE TO COATINGS.

CLEAN GLASS SURFACES AFTER INSTALLATION, COMPLYING WITH EQUIREMENTS CONTAINED IN SECTION 08800 FOR CLEANING AN MAINTENANCE. REMOVE EXCESS GLAZING AND SEALANT COMPOUNDS. DIRT AND OTHER SUBSTANCES FROM ALUMINUM SURFACES.

A. INSTITUTE PROTECTIVE MEASURES REQUIRED THROUGHOUT THE REMAINDER OF THE CONSTRUCTION PERIOD TO ENSURE THAT ALUMINUM ENTRANCES AND STOREFRONTS WILL BE WITHOUT DAMAGE OR DETERIORATION, OTHER THAN NORMAL WEATHERING, AT TIME OF ACCEPTANCE.

END OF SECTION 08 41 13

PASS-THRU WINDOWS SECTION 08 56 19 PART 1 - GENERAL

1.1 SUMMARY A. SECTION INCLUDES: 1. AUTOMATIC AND MANUAL OPERATED PASS WINDOW UNITS.

MISCELLANEOUS GLAZING MATERIALS: PROVIDE MATERIAL, SIZE, AND SHAPE COMPLYING WITH REQUIREMENTS OF GLASS MANUFACTURERS, AND WITH A B. RELATED SECTIONS DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS

2.2 WINDOW COMPONENTS

A. GLASS:

B. FLASHING

C. WELDING MATERIALS

A. MANUFACTURERS:

A. INSULATING GLASS:

2.5 SECURITY DEVICE ACCESSORIES

2.4 GLAZING

QUICK SERVICE

MODEL PW-54E-TH AUTOMATIC.

DESIGN PRESSURE INDICATED

2.3 MANUAL PASS, SERVICE AND TELLER WINDOW UNITS

1. INSULATED GLASS: 5/8 INCH THICK OVERALL THICKNESS

OR GASKET MANUFACTURER.

B. TRACK/SLIDES: STAINLESS STEEL BALL BEARING SLIDES ALL WINDOWS AND

PROVEN RECORD OF COMPATIBILITY WITH SURFACES CONTACTED IN

2. SETTING BLOCKS: ELASTOMERIC MATERIAL WITH A TYPE A SHORE

TYPE A SHORE DUROMETER HARDNESS REQUIRED BY GLASS

D. ANCHORS, CLIPS, AND WINDOW ACCESSORIES: STAINLESS STEEL; HOT-DIP,

DUROMETER HARDNESS OF 85, PLUS OR MINUS 5.

GLASS LATERAL MOVEMENT (SIDE WALKING)

C. SERVICE OPENING: 18 1/4 INCHES (W) X 31 1/2 INCHES (H).

D. ROUGH OPENING: 53 7/8 INCHES (W) X 40 3/8 INCHES (H).

E. GLAZING: 1" INSULATED GLASS WITH SOLARBAN 60 LOW-E

E2189 FOR RESISTANCE TO FOGGING

A. SECURITY LOCK BAR: SLIDING ALUMINUM LOCK BAR.

THE FACTORY IS INDICATED.

VEATHERPROOF. FULLY WELD CORNERS.

SURFACES BY DESCALING OR GRINDING

REQUIRED FOR APPLICATIONS INDICATED.

a CONFORM TO AAMA 2603

B. DPC TM 10.219- PCI POWDER SMOOTHNESS.

CEMENTITIOUS OR DISSIMILAR MATERIALS.

DuPONT POWDER COATING TEST MEDTHOD

HICKNESS GRADE 85, 2.0 OZ/SQ FT (610 GM/SQ M).

C. STAINLESS STEEL: 304 STAINLESS STEEL WITH NAAMM NO. 3 FINISH

WEATHER STRIPPING: FACTORY APPLIED.

2.8 SHOP FINISHING

A. PAINTED FINISH

F. EXTENT OF FINIS

PART 3 - EXECUTION

3.1 EXAMINATION

3.3 INSTALLATION

3.4 ADJUSTING

ASSEMBLIES.

WINDOW INSTALLATION.

HAVE BEEN CORRECTED.

E. SEAL PERIMETER JOINTS.

B. ALIGN PRODUCTS PLUMB. LEVEL AND SQUARE

DRAWERS AND ACCESSORIES

BENT AND SPOT WELDED CORNERS.

B. HOOK-LOCK: MAXIMUM SECURITY ADAMS RITE STYLE HOOK LOCK ON ALL

B. FABRICATE WINDOWS, DRAWERS AND ACCESSORIES TO PROVIDE A COMPLETE

SYSTEM FOR ASSEMBLY OF COMPONENTS AND ANCHORAGE OF WINDOW,

PROVIDE UNITS THAT ARE REGLAZABLE FROM THE SECURE SIDE

PREPARE SECURITY WINDOWS FOR GLAZING UNLESS PREGLAZING AT

SECURITY WINDOWS TO CONDUCT INFILTRATING WATER TO THE EXTERIOR.

REINFORCEMENT, MAKE JOINTS AND CONNECTIONS FLUSH, HAIRLINE, AND

1. FABRICATE FRAMING WITH MANUFACTURER'S STANDARD, INTERNAL

PREPARE COMPONENTS WITH REINFORCEMENT REQUIRED FOR HARDWARE

CONCEALED LOCATIONS TO MINIMIZE DISTORTION OR DISCOLORATION OF

FINISH. REMOVE WELD SPATTER AND WELDING OXIDES FROM EXPOSED

METAL PROTECTION: SEPARATE DISSIMILAR METALS TO PROTECT AGAINST

H. FACTORY-CUT OPENINGS IN GLAZING FOR SPEAKING APERTURES

SALVANIC ACTION BY PAINTING CONTACT SURFACES WITH PRIMER OR E

PREGLAZED FABRICATION: PREGLAZE WINDOW UNITS AT FACTORY, WHERE

BOTTOM SILLS: STAINLESS STEEL CONSTRUCTION, NO BOTTOM TRACKS AND

HANDLES: STAINLESS STEEL, MANUFACTURER'S STANDARD PROFILE AND

A AA-M12C12R1 y NON-SECLILAR AS FARRICATED MECHANICAL FIN

C. COLOR: CUSTOM COLOR- PAINTED TIM HORTONS RED #870/C47D

B. CONCEALED STEEL ITEMS: GALVANIZED IN ACCORDANCE WITH ASTM A123 TO

E. TOUCH-UP PRIMER FOR GALVANIZED STEEL SURFACES: SSPC PAINT 20 ZINC

APPLY BITUMINOUS PAINT TO CONCEALED METAL SURFACES IN CONTACT WITH

APPLY FACTORY COATING TO ALL SURFACES EXPOSED AT COMPLETED

NATURAL ALUMINUM IS VISIBLE IN COMPLETED ASSEMBLIES, INCLUDING

MANUFACTURER FOR FIELD APPLICATION TO CUT ENDS AND MINOR

2 APPLY FINISH TO SURFACES CUT DURING FABRICATION SO THAT NO

APPLY TOUCH-UP MATERIALS RECOMMENDED BY COATING

A. VERIFY CONSTRUCTION IS READY TO RECEIVE PRODUCTS SPECIFIED IN THIS

B. VERIFY ROUGH OPENINGS ARE CORRECT SIZE AND IN CORRECT LOCATION.

EXAMINE ROUGHING-IN FOR EMBEDDED AND BUILT-IN ANCHORS TO VERIF

INSPECT BUILT-IN AND CAST-IN ANCHOR INSTALLATIONS, BEFORE INSTALLING

REMOVE AND REPLACE ANCHORS WHERE INSPECTIONS INDICATE THAT

2. PERFORM ADDITIONAL INSPECTIONS TO DETERMINE COMPLIANCE OF

PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS

INSTALLATION IN SURROUNDING PARTITION AND CASEWORK CONSTRUCTION.

A. FURNISH FRAMES AND ANCHORS TO OTHER SECTIONS AS REQUIRED FOR

A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

RIGIDLY SECURE PRODUCTS TO ADJACENT SUPPORTING CONSTRUCTION.

D. GLAZE WINDOWS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

PROTECTION: WHERE DISSIMILAR METALS WILL CONTACT EACH OTHER.

PROTECT AGAINST GALVANIC ACTION BY PAINTING CONTACT SURFACES WITH

PRIMER OR BY APPLYING SEALANT OR TAPE RECOMMENDED IN WRITING BY

MANUFACTURER FOR THIS PURPOSE. WHERE ALUMINUM WILL CONTACT

CONCRETE OR MASONRY PROTECT AGAINST CORROSION BY PAINTING

A. ADJUST HORIZONTAL-SLIDING, TRANSACTION SECURITY WINDOWS TO PROVIDE

A TIGHT FIT AT CONTACT POINTS FOR SMOOTH OPERATION AND A SECURE

F. CONNECT ELECTRICAL COMPONENTS TO POWER SOURCE.

CONTACT SURFACES WITH BITUMINOUS PAINT.

ACTUAL LOCATIONS OF SECURITY WINDOW CONNECTIONS BEFORE SECURITY

SECURITY WINDOWS, TO VERIFY THAT ANCHOR INSTALLATIONS COMPLY WITH

REPLACED OR ADDITIONAL WORK. PREPARE ANCHOR INSPECTION

DAMAGE TO FACTORY APPLIED FINISH.

REQUIREMENTS. PREPARE INSPECTION REPORTS.

AFTER REPAIRS OR REPLACEMENTS ARE MADE.

FOR GLAZING MATERIALS WHOSE ORIENTATION IS CRITICAL FOR

PERFORMANCE, VERIFY INSTALLATION ORIENTATION.

CHEMICALLY CLEANED AND PREPARED FOR APPLIED COATING; WITH ORGANIC

ORGANIC COATING: MANUFACTURER'S STANDARD POWDER COAT FINISH.

APPLYING SEALANT OR TAPE RECOMMENDED BY MANUFACTURER FOR THIS

F WELDING: TO GREATEST EXTENT POSSIBLE WELD BEFORE FINISHING AND IN

OPAQUE ARMORING IN THICKNESSES REQUIRED FOR SECURITY

VINDOWS TO COMPLY WITH BALLISTICS-RESISTANCE PERFORMANCE

WITHOUT DISMANTLING THE NONSECURE SIDE OF FRAMING

PROVIDE WEEP HOLES AND INTERNAL WATER PASSAGES FOR EXTERIOR

RIGIDLY FIT AND SECURE JOINTS AND CORNERS WITH INTERNAL

A. FABRICATE WINDOW TO DIMENSIONS INDICATED ON DRAWINGS.

F. FINISH: ALUMINUM, TIM HORTONS RED #807/C47D BY INTERNATIONAL PAINT

INSULATING GLASS: ASTM E2190 CERTIFIED BY INSULATING GLASS

CERTIFICATION COUNCIL AND INSULATING GLASS MANUFACTURERS

ACCORDANCE WITH ASTM E2188 FOR UNIT PERFORMANCE AND ASTM

EDGE SEAL: PURGE INTERPANE SPACE WITH DRY AIR: TESTED IN

ALLIANCE; WITH LOW E COATING ON SURFACE 2 AND GLASS ELASTOMER

a. INSULATING GLASS UNIT EDGE SEAL CONSTRUCTION: ALUMINUM,

1. CLEANERS, PRIMERS, AND SEALERS: TYPE RECOMMENDED BY SEALANT

. SPACERS: ELASTOMERIC BLOCKS OR CONTINUOUS EXTRUSIONS WITH A

4. EDGE BLOCKS: ELASTOMERIC MATERIAL OF HARDNESS NEEDED TO LIMIT

INC-COATED STEEL OR IRON, OF SUFFICIENT STRENGTH TO WITHSTAND

MANUFACTURER TO MAINTAIN GLASS LITES IN PLACE FOR INSTALLATION

1.2 REFERENCES A. AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION SPECIFICATIONS B. AMERICAN SOCIETY MECHANICAL ENGINEERS STANDARDS SPECIFICATIONS C. ASTM INTERNATIONAL SPECIFICATIONS

 D. CONSUMER PRODUCTS SAFETY COMMISSION. E. DUPONT POWDER COATING TEST METHOD

F. H.P. WHITE LABORATORY, INC G. NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS H. SAE INTERNATIONAL I. STEEL STRUCTURES PAINTING COUNCIL J. UNDERWRITERS LABORATOR'

1.3 PERFORMANCE REQUIREMENTS A. SYSTEM DESIGN: DESIGN AND SIZE COMPONENTS TO WITHSTAND DEAD LOADS LIVE LOADS CAUSED BY PRESSURE AND NEGATIVE WIND LOADS ACTING NORMAL TO PLANE OF WINDOW AS CALCULATED IN ACCORDANCE WITH APPLICABLE CODE B. SYSTEM INTERNAL DRAINAGE: DRAIN WATER ENTERING JOINTS. ONDENSATION OCCURRING IN GLAZING CHANNELS, AND MIGRATING

MOISTURE OCCURRING WITHIN SYSTEM, TO EXTERIOR BY WEEP DRAINAGE C. AIR AND VAPOR SEAL MAINTAIN CONTINUOUS AIR BARRIER AND VAPOR RETARDER THROUGHOUT ASSEMBLY, PRIMARILY IN LINE WITH [INSIDE] PANE OF GLASS AND HEFT BEAD OF GLAZING COMPOUND. [POSITION THERMAL INSULATION ON EXTERIOR OF AIR BARRIER AND VAPOR RETARDER.]

PROVIDE GLASS AND GLAZING MATERIALS FOR CONTINUITY OF BUILDING ENCLOSURE VAPOR RETARDER AND AIR BARRIEF 1. TO UTILIZE THE INNER PANE OF MULTIPLE PANE SEALED UNITS FOR THE CONTINUITY OF THE AIR BARRIER AND VAPOR RETARDER SEAL.

G. GLASS AND GLAZING MATERIALS: COMPLY WITH REQUIREMENTS OF SECTION E. SHOP DRAWINGS: H. FASTENERS: PROVIDE FASTENERS OF ALUMINUM, NONMAGNETIC STAINLESS INDICATE CONFIGURATION, SIZES, ROUGH-IN, MOUNTING, CONSTRUCTION AND GLAZING DETAILS AS WELL AS INSTALLATION CLEARANCES AND REINFORCEMENT: WHERE FASTENERS SCREW-ANCHOR INTO ALUMINUM F. PRODUCT DATA: MEMBERS LESS THAN 0.125 INCHES THICK, REINFORCE THE INTERIOR 1 SUBMIT MANUFACTURER'S PRODUCT DATA FOR SPECIFIED PRODUCTS SCREW THREADS, OR PROVIDE STANDARD NONCORROSIVE PRESSED-IN INDICATING MATERIALS, OPERATION CHARACTERISTICS, AND FINISHES.

1.4 SUBMITTALS

SUBMIT TWO SAMPLES, 4 X 4 INCHES (100 X 100 MM) IN SIZE ILLUSTRATING METAL FINISHES FOR EACH FINISH SPECIFIED

D. MANUFACTURER'S INSTALLATION INSTRUCTIONS 1. SUBMIT INSTALLATION INSTRUCTIONS WITH REQUIREMENTS TO ACCOMMODATE SPECIFIC SITE CONDITIONS.

1.5 QUALITY ASSURANCE A. PRODUCTS REQUIRING ELECTRICAL CONNECTION: LISTED AND CLASSIFIED BY UL OR TESTING FIRM ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.

A. MANUFACTURER: EASISERV CORPORATION, (604) 422-8611. B. INSTALLER: COMPANY SPECIALIZING IN INSTALLATION OF WINDOW SYSTEMS SPECIFIED WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE. 1.7 DELIVERY, STORAGE, AND PROTECTION A. ORDERING: TO AVOID CONSTRUCTION DELAYS COMPLY WITH ORDERING

INSTRUCTIONS AND LEAD TIME REQUIREMENTS AS SET BY WINDOW SYSTEM B PACK WINDOW LINITS AND ACCESSORIES IN MANUFACTURER'S STANDARD SHIPPING CONTAINERS AND PROTECTIVE PACKAGING. DELIVER UNITS IN ORIGINAL PACKAGING AND UNOPENED CONTAINERS WITH IDENTIFICATION

STORE WINDOW UNITS AND ACCESSORIES ON RAISED BLOCKS TO PREVEN MOISTURE DAMAGE PROTECTED FROM EXPOSURE TO WEATHER AND 1.8 FIELD MEASUREMENTS

VERIFY FIELD MEASUREMENTS PRIOR TO FABRICATION AND RECORD ON SHOP 1.9 COORDINATION A. COORDINATE WORK WITH ADJACENT MATERIALS SPECIFIED IN OTHER

SECTIONS AND AS INDICATED ON DRAWINGS AND APPROVED SHOP DRAWINGS B. COORDINATE INSTALLATION OF ANCHORAGES FOR SECURITY WINDOWS. SETTING DRAWINGS, TEMPLATES, AND DIRECTIONS FOR INSTALLING ANCHORAGES, INCLUDING SLEEVES, CONCRETE INSERTS, ANCHOR BOLTS, AND ITEMS WITH INTEGRAL ANCHORS, THAT ARE TO BE EMBEDDED IN CONCRETE

ITEMS TO PROJECT SITE IN TIME FOR INSTALLATION. A FURNISH MANUFACTURER'S STANDARD WARRANTY DOCUMENT EXECUTED BY AN AUTHORIZED QUIKSERV CORP. OFFICER IN WHICH MANUFACTURER AGREES OR REPLACE WINDOWS, DRAWERS AND AIR CURTAINS THAT FAIL IN MATERIAL OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. THIS WARRANTY IS TO, AND NOT A LIMITATION OF OTHER RIGHTS OWNER HAS UNDER THE

 WARRANTY PERIOD: a. ONE YEAR PARTS AND LABOR FROM DATE OF INSTALLATION. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. DETERIORATION OF METALS, METAL FINISHES, AND OTHER MATERIALS BEYOND NORMAL WEATHERING AND USE. b. STRUCTURAL FAILURES INCLUDING DEFLECTIONS EXCEEDING 1/4

 c. FAILURE OF WELDS. d. EXCESSIVE AIR LEAKAGE. e. FAULTY OPERATION OF SLIDING WINDOW HARDWARE. f. FAULTY OPERATION OF TRANSACTION DRAWERS.

g. FAULTY OPERATION OF AIR CURTAINS. PART 2 - PRODUCTS

2.1 MATERIALS EXAMINE SUBSTRATES AND SUPPORTS, WITH THE INSTALLER PRESENT, FOI A. ALUMINUM EXTRUSIONS: ASTM B221/B221M. PROVIDE ALLOY AND TEMPER COMPLIANCE WITH REQUIREMENTS INDICATED, INSTALLATION TOLERANCES ECOMMENDED BY MANUFACTURER FOR STRENGTH, CORROSIO AND OTHER CONDITIONS THAT AFFECT INSTALLATION OF ALUMINUM RESISTANCE, AND APPLICATION OF REQUIRED FINISH, BUT NOT LESS THAN ENTRANCES AND STOREFRONTS. CORRECT UNSATISFACTORY CONDITIONS 22,000-PSI (150-MPA) ULTIMATE TENSILE STRENGTH AND NOT LESS THAN 0.125 BEFORE PROCEEDING WITH THE INSTALLATION. DO NOT PROCEED WITH INCH (3.2 MM) THICK AT ANY LOCATION NSTALLATION UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED. FOR MAIN FRAME AND SASH MEMBERS

B. STEEL PLATES, SHAPES, AND BARS: ASTM A36/A36M. C. METALLIC-COATED STEEL SHEET GALVANIZED) COATING DESIGNATION

1. ASTM A653/A653M, CS (COMMERCIAL STEEL), TYPE B; WITH G90 (Z275)ZINC 2. AMS5511, STEEL, CORROSION-RESISTANT, SHEET, STRIP, AND PLATE, 19CR - 9.5NI (304L), SOLUTION HEAT TREATED. 3. AMS5513, STEEL, CORROSION-RESISTANT, SHEET, STRIP, AND PLATE 19CR 9.2NI (SAE 30304) SOLUTION HEAT TREATED.

. STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BARS: 1. ASTM A666, AUSTENITIC STAINLESS STEEL, TYPE 304, STRETCHER-STANDARD OF FLATNESS.

. ASME SA-240/SA-240M, CHROMIUM AND CHROMIUM-NICKEL STAINLESS STEEL PLATE, SHEET, AND STRIP FOR GENERAL APPLICATIONS. E. CONCEALED BOLTS: ASTM A307, GRADE A UNLESS OTHERWISE INDICATED. F. CAST-IN-PLACE ANCHORS IN CONCRETE: FABRICATED FROM ORROSION-RESISTANT MATERIALS CAPABLE OF SUSTAINING, WITHOUT FAILURE, A LOAD EQUAL TO FOUR TIMES THE LOAD IMPOSED, AS DETERMINED BY TESTING PER ASTM E488, CONDUCTED BY A QUALIFIED TESTING AGENCY

ASTM A27/A27M CAST STEEL OR ASTM A47/A47M MALLEABLE IRON PROVIDE BOLTS, WASHERS, AND SHIMS AS REQUIRED; HOT-DIP GALVANIZED PER ASTM A153/A153M OR ASTM F2329. G. EMBEDDED PLATE ANCHORS: FABRICATED FROM STEEL SHAPES AND PLATES

3/16 INCH (4.8 MM) THICK; WITH MINIMUM 1/2-INCH- (12.7-MM-) DIAMETER, HEADED STUDS WELDED TO BACK OF PLATE. WELDING RODS AND BARE ELECTRODES: SELECT ACCORDING TO AWS SPECIFICATIONS FOR METAL ALLOY WELDED.

BITUMINOUS PAINT: COLD-APPLIED, ASPHALT-MASTIC PAINT COMPLYING WITH SSPC-PAINT 12 REQUIREMENTS EXCEPT CONTAINING NO ASBESTOS; (0.76-MM) THICKNESS PER COAT

SEALANTS: FOR SEALANTS REQUIRED WITHIN EARRICATED SECURITY WINDOWS, PROVIDE TYPE RECOMMENDED BY MANUFACTURER FOR JOINT SIZE AND MOVEMENT. SEALANT SHALL REMAIN PERMANENTLY ELASTIC, NONSHRINKING, AND NONMIGRATING GASKETS: FOR GASKETS REQUIRED WITHIN FABRICATED SECURITY WINDOWS.

ADJUST TRANSACTION DRAWERS TO PROVIDE A TIGHT FIT AT CONTACT POINTS. OR SMOOTH OPERATION AND IWEATHERTIGHT AND SECURE ENCLOSURE. REMOVE AND REPLACE DEFECTIVE WORK, INCLUDING SECURITY WINDOWS PROVIDE TYPE RECOMMENDED BY MANUFACTURER FOR JOINT SIZE AND THAT ARE WARPED BOWED OR OTHERWISE UNACCEPTABLE MOVEMENT, GASKETS SHALL REMAIN PERMANENTLY ELASTIC, NONSHRINKING

DOOR HARDWARE

PART 1 - GENERAL

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS (01700 EXECUTION REQUIREMENTS): REQUIREMENTS FOR CLEANING.

B. REMOVE PROTECTIVE MATERIAL FROM FACTORY FINISHED SURFACES C. WASH SURFACES BY METHOD RECOMMENDED AND ACCEPTABLE TO SEALANT AND WINDOW MANUFACTURER; RINSE AND WIPE SURFACES CLEAN. REMOVE EXCESS SEALANT BY MODERATE USE OF MINERAL SPIRITS OR OTHER OLVENT ACCEPTABLE TO SEALANT AND WINDOW MANUFACTUREF

C. CLEAN METAL AND GLASS SURFACES TO POLISHED CONDITION. LUBRICATE SLIDING SECURITY WINDOW HARDWARE. LUBRICATE TRANSACTION DRAWER HARDWARE

F. PROVIDE TEMPORARY PROTECTION TO ENSURE THAT SECURITY WINDOWS ARE WITHOUT DAMAGE AT TIME OF SUBSTANTIAL COMPLETION. END OF SECTION 08 56 19

SECTION 08 70 00

1.1 SUMMARY A. DEFINITION: "FINISH HARDWARE" INCLUDES ITEMS KNOWN COMMERCIALLY AS NISH HARDWARE WHICH ARE REQUIRED FOR SWING, SLIDING AND FOLDING DOORS, EXCEPT SPECIAL TYPES OF UNIQUE AND NON-MATCHING HARDWARI PECIFIED IN THE SAME SECTION AS THE DOOR AND DOOR FRAME B. PROVIDE LABOR, MATERIALS, TRANSPORTATION, SERVICES AND APPLIANCES

NECESSARY TO COMPLETE THE FOLLOWING WORK: FINISH DOOR HARDWARE INSTALLATION INCLUDING NECESSARY SCREWS, BOLTS, SPECIAL FASTENERS, EXPANSION SHIELD AND OTHER DEVICES NECESSARY AND REQUIRED FOR PROPER HARD WARE APPLICATION AND USE. FURNISH AND INSTALL CYLINDERS AND LATCHES AT EXTERIOR STOREFRONT ENTRANCE AS INDICATED. COORDINATING KEYING WITH

3. PROVIDE TEMPORARY LOCKSETS AT EXTERIOR DOORS DURING CONSTRUCTION. 4. IF ITEMS OF HARDWARE ARE NOT DEFINITELY SPECIFIED BUT REQUIRED FOR COMPLETION OF THE WORK, FURNISH ITEMS OF TYPE OF QUALITY SUITABLE TO THE SERVICE AND FUNCTION REQUIRED AND COMPARABLE O ADJACENT HARDWARE

OTHER LOCKSETS.

A. THIS SPECIFICATION CONTEMPLATES PROVIDING PROPER HARDWARE, IN WITH APPLICABLE CODES FOR ALL DOORS AS LISTED. FINISH HARDWARE ONTRACTOR'S RESPONSIBILITY IS TO EXAMINE PLANS AND SPECIFICATIONS AND CALL CONFLICTS. OMISSIONS OR OBVIOUS REQUIREMENTS NOT LISTED TO HE ATTENTION OF THE GENERAL CONTRACTOR OR ARCHITECT FOR INSTRUCTIONS

1.3 QUALITY ASSURANCE A. ALL HARDWARE SHALL MEET ALL STATE AND LOCAL CODES, AND COMPLY WITH

A. SUPPLIERS SHALL SUBMIT FOR APPROVAL SIX (6) COPIES OF A PROPOSED HARDWARE SCHEDULE LISTING COMPLETE ARCHITECTURAL FINISH HARDWARE DERIVED FROM THE DRAWINGS AND THESE SPECIFICATIONS.

A. SUPPLIER IS RESPONSIBLE FOR DELIVERY OF PROPER ITEMS TO PROPER INSTALLER, WITH TAG ATTACHED IDENTIFYING: CATALOG NUMBER, SPECIFIC LOCATION, AND MANUFACTURER.

> A. THIS CONTRACTOR SHALL WARRANT AND GUARANTEE ALL MATERIALS FOR IS RESPONSIBLE UNDER THIS SECTION THAT ALL MATERIALS WILL BE FREI FROM DEFECTS OF MATERIAL. WORKMANSHIP AND FUNCTION FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE. THIS CONTRACTOR FURTHER AGREES THAT HE WILL AT HIS OWN EXPENSE REPLACE ANY DEFECTIVE ITEMS AND DAMAGED ARTICLES RESULTING FROM SUCH DEFECTIVE MATERIALS. THIS CONTRACTOR MUST NOTIFY THE GENERAL CONTRACTOR IN WRITING IF ANY OF THE MATERIALS AND/OR ITEMS HE HAS SUPPLIED HAVE BEEN DAMAGED BY OTHER TRADES ON THE PROJECT.

PART 2 - PRODUCTS 2.1 MATERIALS AND FABRICATION

> A. HARDWARE SUPPLIER SHALL FURNISH PAPER TEMPLATES WITH COPIES OF APPROVED HARDWARE SCHEDULE TO INSTALLER. B. MISCELLANEOUS ITEMS: FURNISH HARDWARE WITH ALL INCIDENTAL ITEMS, I.E. SCREWS BOLTS EXPANSION SLEEVES OR SHIELDS ANCHORS AND OTHER FASTENERS, AS RECOMMENDED BY MANUFACTURER TO INSURE HEAVY USAGE INSTRUCTIONS: FULL MANUFACTURER'S PRINTED INSTRUCTIONS AND SPECIAL

INFORMATION NEEDED FOR THE PROPER INSTALLATION AND ADJUSTMENT OF HARDWARE AND ANY ASSISTANCE NECESSARY TO MAKE HARDWARE FUNCTION AS INTENDED SHALL BE PROVIDED BY THE SUPPLIER TO INSURE

A. SUBJECT TO CODE COMPLIANCE AND THESE SPECIFICATIONS. PROVID HARDWARE BY MANUFACTURERS SCHEDULED ON DRAWINGS 2.3 HINGES, BUTTS AND PIVOTS

A. SCREWS: FURNISH PHILLIPS FLAT-HEAD OR MACHINE SCREWS FOR SCREWS FOR INSTALLATION INTO WOODS. FINISH SCREW HEADS TO MATCH SURFACE OF HINGES OR PIVOTS. B. HINGE PINS: EXCEPT AS OTHERWISE INDICATED, PROVIDE HINGE PINS AS

 HINGES: FIVE-KNUCKLE. EXTERIOR DOORS: NON-REMOVABLE PINS. 3. NUMBER OF HINGES: PROVIDE NUMBER OF HINGES INDICATED BUT

NOT LESS THAN 3 FOR DOOR LEAF 90" OR LESS IN HEIGHT AND ONE ADDITIONAL HINGE FOR EACH 30" OF ADDITIONAL HEIGHT A. GENERAL: SUPPLIER WILL MEET WITH OWNER TO FINALIZE KEYING AND OBTAIN FINAL INSTRUCTIONS IN WRITING.

B. ALL LOCKABLE DOORS TO RECEIVE INTERCHANGEABLE CORES KEYED TO OWNERS EXISTING SYSTEM. KEYING: PROVIDE A MASTER-KEYED SYSTEM WITH KEYING ARRANGEMENTS

AS SCHEDULED PROVIDE THREE (3) MASTER KEYS AND THREE (3) KEYS PER LOCK CLEARLY LABELED WITH LOCATION OF LOCKSET THEY OPERATE. A. PROVIDE SOUND STRIPPING AT ALL TOILET AND MECHANICAL ROOM DOORS.

2.6 MISCELLANEOUS PROVISIONS A. SILENCERS: PROVIDE THREE (3) SILENCERS PER DOOR UNLESS OTHERWISE B. PROVIDE ONE PAIR OF FLUSH BOLTS AT INACTIVE LEAF OF ALL DOUBLE DOORS.

C. PROVIDE A WALL STOP AT EACH DOOR UNLESS A FLOOR STOP IS REQUIRED OR OTHERWISE SPECIFIED.

 D. NO STICK-ON ADHERED WEATHERSTRIPPING WILL BE ACCEPTED. 2.7 HARDWARE SCHEDULE - REFER TO SCHEDULE ON DRAWINGS.

PART 3 - EXECUTION 3.1 INSTALLATION

A. MOUNT HARDWARE UNITS AT HEIGHTS INDICATED IN "RECOMMENDED FRAMES" BY THE DOOR AND HARDWARE INSTITUTE, EXCEPT AS SPECIFICALL' INDICATED OR REQUIRED TO COMPLY WITH GOVERNING REGULATIONS, AND AS MAY BE OTHERWISE DIRECTED BY ARCHITECT.

B. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH THE MANUFACTURER'S NSTRUCTION AND RECOMMENDATIONS USING FULLY EXPERIENCED AND QUALIFIED PERSONNEL. WHEREVER CUTTING AND FITTING IS REQUIRED TO INSTALL HARDWARE ONTO OR INTO SURFACES WHICH ARE LATER TO BE PAINTED OR FINISHED IN ANOTHER WAY, COORDINATE REMOVAL, STORAGE AND REINSTALLATION OR APPLICATION OF SURFACE PROTECTION WITH FINISHING WORK SPECIFIED IN DIVISION 9 SECTIONS DO NOT INSTALL SURFACE-MOUNTED ITEMS UNTIL FINISHES HAVE BEEN COMPLETED ON THE

C. COORDINATE WITH DOOR AND FRAME SUPPLIERS TO ORTAIN DOORFRAM HARDWARE INSTALLATIONS WHICH ARE LISTED BY APPROVED TESTING D. SET UNITS LEVEL, PLUMB AND TRUE TO LINE LOCATION. ADJUST AND

REINFORCE THE ATTACHMENT SUBSTRATE NECESSARY FOR PROPER E. ALL SURFACE MOUNTED CLOSER TO BE MOUNTED ON THE ROOM SIDE OF DOORS IN

ALL CORRIDORS, LOBBIES AND OTHER PUBLIC SPACES.

 PROVIDE ARCHITECTURAL BINDING (SEX) BOLTS FOR MOUNTING. 3.2 ADJUST AND CLEAN TO ENSURE PROPER OPERATION OF FUNCTION OF EVERY UNIT. REPLACE UNITS THAT CANNOT BE ADJUSTED TO OPERATE FREELY AND SMOOTHLY AS DETERMINED BY THE ARCHITECT 1 LIPON COMPLETION, DOOR SHALL LATCH WITHOUT FORCING AND

CLOSE LATCH UNDER THE FORCE OF THE CLOSER. 2. PROVIDE DOOR CONTROL EQUIPMENT AS REQUIRED. MOUNT QUIPMENT SO AS TO PERMIT MAXIMUM DOOR OPENING, BUT TO PREVENT CONTACT OF THE DOOR WITH BUILDING CONSTRUCTION AND B. REMOVE ALL HARDWARE FROM DOORS PRIOR TO PAINTING.

C. CLEAN ADJACENT SURFACES SOILED BY HARDWARE INSTALLATION D. FINAL ADJUSTMENT: WHEREVER HARDWARE INSTALLATION IS MADE MORE THAN ONE MONTH PRIOR TO ACCEPTANCE OR OCCUPANCY OF A SPACE OR THE WORK DURING THE WEEK PRIOR TO ACCEPTANCE OR OCCUPANCY, AND MAKE FINAL CHECK AND ADJUSTMENT OF ALL HARDWARE ITEMS IN SUCH SPACE OR AREA. CLEAN OPERATING ITEMS AS NECESSARY TO RESTORE FUNCTION AND FINISH OF HARDWARE AND DOORS. ADJUST DOOR DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING

E. INSTRUCT OWNER'S PERSONNEL IN PROPER ADJUSTMENT AND MAINTENANCE F. PROVIDE TO THE OWNER SIX (6) DOOR ADJUSTMENT TOOLS AT THE PROJECT END OF SECTION 08 70 00

SECTION 08 80 00

GLAZING PART 1 - GENERAL

1.1 RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION

MANUFACTURER IS USED IN THIS SECTION TO REFER TO A FIRM THAT PRODUCES PRIMARY GLASS OR FABRICATED GLASS AS DEFINED IN THE REFERENCED GLAZING STANDARD. B. DETERIORATION OF INSULATING GLASS: FAILURE OF THE HERMETIC SEA

JNDER NORMAL USE DUE TO CAUSES OTHER THAN GLASS BREAKAGE AND IMPROPER PRACTICES FOR MAINTAINING, AND CLEANING INSULATING GLAS EVIDENCE OF FAILURE IS THE OBSTRUCTION OF VISION BY DUST, MOISTURE OR FILM ON THE INTERIOR SURFACES OF GLASS. IMPROPER PRACTICES FOR MAINTAINING AND CLEANING GLASS DO NOT COMPLY WITH THE MANUFACTURER'S DIRECTIONS. 1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. GENERAL: PROVIDE GLAZING SYSTEMS THAT ARE PRODUCED, FABRICATED,

AND IMPACT LOADING (WHERE APPLICABLE), WITHOUT FAILURE INCLUDING MANUEACTURE FARRICATION AND INSTAULATION: FAILURE OF SEALANTS OF MATERIALS: AND OTHER DEFECTS IN CONSTRUCTION. B. GLASS DESIGN: GLASS THICKNESSES INDICATED ON DRAWINGS ARE FOR DETAILING ONLY. CONFIRM GLASS THICKNESSES BY ANALYZING PROJECT OADS AND IN-SERVICE CONDITIONS. PROVIDE GLASS LITES FOR THE VARIOUS IZE OPENINGS IN THE THICKNESSES AND STRENGTHS (ANNEALED OR HEAT-TREATED) TO MEET OR EXCEED THE FOLLOWING CRITERIA:

1. MINIMUM GLASS THICKNESS, NOMINALLY, OF LITES IN EXTERIOR WALLS IS 6.0 MM (0.23 INCH). MINIMUM GLASS THICKNESSES OF LITES WHETHER COMPOSED OF NNEALED OR HEAT-TREATED GLASS, ARE SELECTED SO THE WORST-CASE PROBABILITY OF FAILURE DOES NOT EXCEED THI OWING: 8 LITES PER 1000 FOR LITES SET VERTICALLY OR NOT OVER 15 DEGREES OFF VERTICAL AND UNDER WIND ACTION. DETERMINE MINIMUM THICKNESS OF MONOLITHIC ANNEALED GLASS ACCORDING TO ASTM E 1300. FOR OTHER THAN MONOLITHIC NNEALED GLASS, DETERMINE THICKNESS PER GLASS

 NORMAL THERMAL MOVEMENTS RESULTS FROM AMBIENT AND SURFACE TEMPERATURES CHANGES ACTING ON GLASS-FRAMING MEMBERS AND GLAZING COMPONENTS. BASE ENGINEERING CALCULATION ON MATERIALS' ACTUAL SURFACE TEMPERATURES DUE O BOTH SOLAR HEAT GAIN AND NIGHTTIME SKY HEAT LOSS. a. TEMPERATURE CHANGE: 120 DEG F (67 DEG C), AMBIENT; 180 DEG F

APPLYING ADJUSTMENT FACTORS TO ASTM E 1300 BASED ON TYPE OF

MANUFACTURER'S STANDARD METHOD OF ANALYSIS INCLUDIN

GLAZING PUBLICATIONS: COMPLY WITH PUBLISHED RECOMMENDATIONS OF GLASS STRINGENT REQUIREMENTS ARE INDICATED. REFER TO THESE PUBLICATIONS FOR

(100 DEG C), MATERIAL SURFACES.

 FGMA PUBLICATIONS: "FGMA GLAZING MANUAL." 2. SIGMA PUBLICATIONS: TM-3000 "VERTICAL GLAZING GUIDELINES" AND TB-3001 SLOPED GLAZING GUIDELINES." (IF APPLICABLE) B. SAFETY GLASS: PRODUCTS COMPLYING WITH ANSI Z97.1 AND TESTING REQUIREMENTS OF 16 CFR PART 1201 FOR CATEGORY II MATERIALS.

C. FIRE-RESISTIVE GLAZING PRODUCTS FOR DOOR AND INTERIOR WINDOW ASSEMBLIES

PRODUCTS IDENTICAL TO THOSE TESTED PER ASTM E 152, LABELED AND LISTED BY UL OR ANOTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING D. FIRE-RESISTIVE GLAZING PRODUCTS FOR WINDOW ASSEMBLIES: PRODUCTS IDENTICAL O THOSE TESTED PER ASTM E 163, LABELED AND LISTED BY UL OR ANOTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION. E. INSULATING GLASS CERTIFICATION PROGRAM: PROVIDE INSULATING GLASS UNITS

ERMANENTLY MARKED EITHER ON SPACERS OR AT LEAST ONE COMPONENT LIFE OF UNITS WITH APPROPRIATE CERTIFICATION LABEL OF THE INSULATING GLASS F. GLAZIER QUALIFICATIONS: ENGAGE AN EXPERIENCED GLAZIER WHO HAS COMPLETI GLAZING SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR PROJECT WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.

G. SINGLE-SOURCE RESPONSIBILITY FOR GLASS: OBTAIN GLASS FROM ONE SOURCE FOR EACH PRODUCT INDICATED BELOW: PRIMARY GLASS OF EACH (ASTM C 1036) TYPE AND CLASS INDICATED.

2. HEAT-TREATED GLASS OF EACH (ASTM C 1048) CONDITION INDICATED. INSULATING GLASS OF EACH CONSTRUCTION INDICATED H. SINGLE-SOURCE RESPONSIBILITY FOR GLAZING ACCESSORIES: OBTAIN GLAZING ACCESSORIES FROM ONE SOURCE FOR EACH PRODUCT AND INSTALLATION METHOD

1.5 DELIVERY, STORAGE AND HANDLING A. PROTECT GLAZING MATERIALS TO COMPLY WITH MANUFACTURER'S DIRECTIONS AND AS NEEDED TO PREVENT DAMAGE TO GLASS AND GLAZING MATERIALS FROM ONDENSATION, TEMPERATURE CHANGES, DIRECT EXPOSURE TO SUN OR OTHE CAUSES. 1.6 PROJECT CONDITIONS

A. ENVIRONMENTAL CONDITIONS: DO NOT PROCEED WITH GLAZING WHEN AMBIENT AND

GLAZING MATERIALS MANUFACTURER OR WHEN GLAZING CHANNEL SUBSTRATES ARE WET FROM RAIN, FROST, CONDENSATION, OR OTHER CAUSES.

PART 2 - PRODUCTS 2.1 MANUFACTURERS

A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS FROM ONE OF THE FOLLOWING: PPG, OR OLDCASTLE.

2.2 INSULATING GLASS PRODUCTS - GENERAL A. SEALED INSULATING GLASS UNITS: PREASSEMBLED UNITS CONSISTING OF ORGANICALLY SEALED LITES OF GLASS SEPARATED BY DEHYDRATED AIR SPACES COMPLYING WITH ASTM E 774 AND WITH OTHER REQUIREMENTS INDICATED. 1. FOR PROPERTIES OF INDIVIDUAL GLASS LITES MAKING UP UNITS, REFER TO

REQUIREMENTS SPECIFIED ELSEWHERE IN THIS SECTION APPLICABLE TO TYPES CLASSES, KINDS, AND CONDITIONS OF GLASS PRODUCTS COMPRISING LITES OF INSULATING GLASS UNITS. 2. PROVIDE HEAT-TREATED, COATED FLOAT GLASS OF KIND FT (FULLY TEMPERED). 3. SAFETY GLAZING LABELING: WHERE SAFETY GLAZING IS INDICATED, PERMANENTLY

MARK GLAZING WITH CERTIFICATION LABEL. LABEL SHALL INDICATE MANUFACTURER'S NAME, TYPE OF GLASS, THICKNESS AND SAFETY GLAZING STANDARD WITH WHICH GLASS COMPLIES. 4. U-VALUES ARE EXPRESSED AS BTU/HOUR X SQ. FT. X DEG F 5. INSULATING-GLASS CERTIFICATION PROGRAM: PERMANENTLY MARKED ON

SPACERS WITH CERTIFICATION LABEL OF IGCC. 2.3 1-INCH, CLEAR, INSULATED GLASS: GL-1 A. CLASSIFICATION OF UNITS: CLASS C, B, A PER ASTM E 774 (WITHDRAWN). B. AIR SPACE WIDTH: NOMINAL 1/2 INCH MEASURED PERPENDICULARLY FROM SURFACES OF GLASS LITES AT UNIT'S EDGE.

C. GAS FILLING: AIR. D. SEALING SYSTEM: DUAL SEAL, PRIMARY AND SECONDARY SEALANTS: MANUFACTURER'S STANDARD SEALANTS. E. SPACER SPECIFICATIONS: ALUMINUM WITH MILL OR CLEAR-ANODIZED FINISH. F. DESSICANT: EITHER MOLECULAR SIEVE OR SILICA GEL OR BLEND OF BOTH.

G. CORNER CONSTRUCTION: MANUFACTURER'S STANDARD CORNER CONSTRUCTION. H. THICKNESS OF EACH LITE: 6.0 MM (0.23 INCH) INDOOR LITE: CLEAR

1. KIND: ANNEALED FLOAT GLASS: ASTM C 1036, TYPE 1, CLASS 1 (CLEAR), J. OUTDOOR LITE: CLEAR WITH "SOLARBAN 60" LOW-E PYROLYTIC COATED ON SURFACE 2, BY PPG INDUSTRIES, INC. 1. KIND: ANNEALED FLOAT GLASS: ASTM C 1036, COATED, TYPE 1, CLASS 2,

 OLDCASTLE GLASS. PPG INDUSTRIES, INC. 2.4 1-INCH, CLEAR, INSULATED, TEMPERED GLASS: GL-2 A. CLASSIFICATION OF UNITS: CLASS C, B, A PER ASTM E 774 (WITHDRAWN).

B. AIR SPACE WIDTH: NOMINAL 1/2 INCH MEASURED PERPENDICULARLY FROM SURFACES OF GLASS LITES AT UNIT'S EDGE. C. GAS FILLING: AIR. D. SEALING SYSTEM: DUAL SEAL, PRIMARY AND SECONDARY SEALANTS: MANUFACTURER'S STANDARD SEALANTS.

E. SPACER SPECIFICATIONS: ALUMINUM WITH MILL OR CLEAR-ANODIZED FINISH. F. DESSICANT: EITHER MOLECULAR SIEVE OR SILICA GEL OR BLEND OF BOTH G. CORNER CONSTRUCTION: MANUFACTURER'S STANDARD CORNER CONSTRUCTION. H. THICKNESS OF EACH LITE: 6.0 MM (0.23 INCH).

1. KIND: FULLY TEMPERED FLOAT GLASS: ASTM C 1048, KIND FT (FULLY TEMPERED), TYPE 1, CLASS 1 (CLEAR), QUALITY-Q3. J. OUTDOOR LITE: CLEAR WITH "SOLARBAN 60" LOW-E PYROLYTIC COATED ON SURFACE 2, BY PPG INDUSTRIES, INC. 1. KIND: FULLY TEMPERED FLOAT GLASS: ASTM C 1048, KIND FT (FULLY TEMPERED), COATED, TYPE 1, CLASS 2, QUALITY-Q3.

PPG INDUSTRIES, INC 2.5 1/4-INCH, CLEAR GLASS: GL-3 A. CLASS: CLASS 1. B. AVAILABLE MANUFACTURERS: OLDCASTLE GLASS.

PPG INDUSTRIES, INC

K. AVAILABLE MANUFACTURER(S)

OLDCASTLE GLASS.

INDOOR LITE: CLEAR

K. AVAILABLE MANUFACTURER(S)

2.6 1/4-INCH, CLEAR, TEMPERED GLASS: GL-4 A. CLASS: CLASS 1, FULLY TEMPERED.

A. SPANDREL GLASS PANEL WITH FACTORY APPLIED, FIRE FUSED LEAD FREE CERAMIC FRIT

A. GENERAL: PROVIDE PRODUCTS OF TYPE INDICATED, COMPLYING WITH THE FOLLOWING

PRODUCTS, SEALS OF INSULATING GLASS UNITS, AND GLAZING CHANNEL

SUBSTRATES, UNDER CONDITIONS OF INSTALLATION AND SERVICE, AS

RECOMMENDATIONS FOR SELECTING GLAZING SEALANTS AND TAPES THAT ARE

SUITABLE FOR APPLICATIONS INDICATED AND CONDITIONS EXISTING AT TIME OF

PROVIDE SELECTIONS MADE BY ARCHITECT FROM MANUFACTURER'S FULL RANG

3. PROVIDE COLOR OF EXPOSED JOINT SEALANTS TO COMPLY WITH THE FOLLOWING

MANUFACTURERS: PROVIDE PRODUCTS FROM ONE OF THE FOLLOWING: SPECTRUM BY

1. COMPATIBILITY: SELECT GLAZING SEALANTS AND TAPES OF PROVEN

2. SUITABILITY: COMPLY WITH SEALANT AND GLASS MANUFACTURER'S

OF STANDARD COLORS FOR PRODUCTS OF TYPE INDICATED.

C. ELASTOMERIC GLAZING SEALANT STANDARD: PROVIDE MANUFACTURER'S STANDARD

CHEMICALLY CURING, ELASTOMERIC SEALANTS OF BASE POLYMER INDICATED THA

SEALANT PRODUCT DATA SHEET AT THE END OF THIS SECTION. INCLUDING THOSE

REFERENCING ASTM CLASSIFICATIONS FOR TYPE, GRADE, CLASS AND USES.

D. GLAZING SEALANT FOR FIRE-RESISTANT GLAZING PRODUCTS: IDENTICAL TO PRODUCT

A. EXPANDED CELLULAR GLAZING TAPE: CLOSED-CELL, POLYVINYL CHLORIDE FOAM TAPE

B. SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS AS FOLLOWS.

A. GENERAL: PROVIDE PRODUCTS OF MATERIAL, SIZE, AND SHAPE COMPLYING WITH

B. CLEANERS, PRIMERS AND SEALERS: TYPE RECOMMENDED BY SEALANT OR GASKET

SPACERS: ELASTOMERIC BLOCKS OR CONTINUOUS EXTRUSIONS WITH A SHORE A

DUROMETER HARDNESS REQUIRED BY GLASS MANUFACTURER TO MAINTAIN

E. EDGE BLOCKS: ELASTOMERIC MATERIAL OF HARDNESS NEEDED TO LIMIT GLASS

F. PERIMETER INSULATION FOR FIRE-RESISTIVE GLAZING: IDENTICAL TO PRODUCT

FABRICATE GLASS AND OTHER GLAZING PRODUCTS IN SIZES REQUIRED TO

GLAZE OPENINGS INDICATED FOR PROJECT, WITH EDGE AND FACE CLEARANCES,

RECOMMENDATIONS OF PRODUCT MANUFACTURER AND REFERENCED GLAZING

LITES IN A MANNER THAT PRODUCES SQUARE EDGES WITH SLIGHT KERFS AT

A. EXAMINE GLASS FRAMING, WITH GLAZIER PRESENT, FOR COMPLIANCE WITH THE

4. EFFECTIVE SEALING BETWEEN JOINTS OF GLASS-FRAMING MEMBERS

B. DO NOT PROCEED WITH GLAZING UNTIL UNSATISFACTORY CONDITIONS HAVE

A. CLEAN GLAZING CHANNELS AND OTHER FRAMING MEMBERS RECEIVING GLASS

IMMEDIATELY BEFORE GLAZING. REMOVE COATINGS THAT ARE NOT FIRMLY

A. COMPLY WITH COMBINED RECOMMENDATIONS OF MANUFACTURERS OF GLASS

NECESSARY BITE ON GLASS, MINIMUM EDGE AND FACE CLEARANCES, AN

B. GLAZING CHANNEL DIMENSIONS AS INDICATED ON DRAWINGS PROVIDE

AS REQUIRED BY PROJECT CONDITIONS DURING INSTALLATION.

SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, EXCEPT WHERE MORE

ADEQUATE SEALANT THICKNESSES, WITH REASONABLE TOLERANCES. ADJUST

PROTECT GLASS FROM EDGE DAMAGE DURING HANDLING AND INSTALLATION AS

USE A ROLLING BLOCK IN ROTATING GLASS UNITS TO PREVENT DAMAGE

2. REMOVE DAMAGED GLASS FROM PROJECT SITE AND LEGALLY DISPOSE

SEALANTS. AS DETERMINED BY PRECONSTRUCTION SEALANT-SUBSTRATE

INSTALL ELASTOMERIC SETTING BLOCKS IN SILL RABBETS, SIZED AND LOCATED

REQUIRED BY GLASS MANUFACTURER. SET BLOCKS IN THIN COURSE OF

F. DO NOT EXCEED EDGE PRESSURES STIPULATED BY GLASS MANUFACTURERS

G. PROVIDE SPACER'S FOR GLASS SIZES LARGER THAN 50 UNITED INCHES (LENGTH

PLUS HEIGHT) AS FOLLOWS: LOCATE SPACERS INSIDE, OUTSIDE, AND DIRECTLY

OPPOSITE EACH OTHER. INSTALL CORRECT SIZE AND SPACING TO PRESERVE

ARE USED THAT HAVE DEMONSTRATED ABILITY TO MAINTAIN REQUIRED FACE

LEARANCES AND COMPLY WITH SYSTEM PERFORMANCE REQUIREMENTS.

PROVIDE 1/8-INCH MINIMUM BITE OF SPACERS ON GLASS AND USE THICKNESS

EQUAL TO SEALANT WIDTH. WITH GLAZING TAPE, USE THICKNESS SLIGHTLY

H. PROVIDE EDGE BLOCKING TO COMPLY WITH REQUIREMENTS OF REFERENCED

GLAZING PUBLICATIONS, UNLESS OTHERWISE REQUIRED BY GLASS

A. POSITION TAPES ON FIXED STOPS SO THAT WHEN COMPRESSED BY GLASS

THEIR EXPOSED EDGES ARE FLUSH WITH OR PROTRUDE SLIGHTLY ABOVE

B. INSTALL TAPES CONTINUOUSLY BUT NOT IN ONE CONTINUOUS LENGTH. DO NOT

C. WHERE FRAMING JOINTS ARE VERTICAL, COVER THESE JOINTS BY APPLYING

D. PLACE JOINTS IN TAPES AT CORNERS OF OPENING WITH ADJOINING LENGTHS

E. DO NOT REMOVE RELEASE PAPER FROM TAPE UNTIL JUST BEFORE EACH LITE IS

CENTER GLASS LITES IN OPENINGS ON SETTING BLOCKS AND PRESS FIRMLY

GASKET APPLICATIONS AT CORNERS AND WORK TOWARD CENTERS OF

AT EXTERIOR EXPOSURES, APPLY CAP BEAD OF ELASTOMERIC GLAZING

AGAINST TAPE BY INSERTING DENSE COMPRESSION GASKETS FORMED AND

INSTALLED TO LOCK IN PLACE AGAINST FACES OF REMOVABLE STOPS. START

PES TO HEADS AND SILLS FIRST AND THEN TO JAMBS. WHERE FRAMING

BUTTED TOGETHER, NOT LAPPED. SEAL JOINTS IN TAPES WITH COMPATIBLE SEALANT APPROVED BY TAPE MANUFACTURER.

JOINTS ARE HORIZONTAL, COVER THESE JOINTS BY APPLYING TAPES TO JAMBS

EQUIRED FACE CLEARANCES, EXCEPT WHERE GASKETS AND GLAZING TAPES

D. APPLY PRIMERS TO JOINT SURFACES WHERE REQUIRED FOR ADHESION C

PERFORMANCE AND APPEARANCE.

COMPATIBLE SEALANT SUITABLE FOR HEEL BEAD

LESS THAN FINAL COMPRESSED THICKNESS OF TAPE.

STRETCH TAPES TO MAKE THEM FIT OPENING

SEALANT OVER EXPOSED EDGE OF TAPE.

AND THEN TO HEADS AND SILLS.

FOR INSTALLING GLASS LITES.

MANUFACTURER.

3.4 TAPE GLAZING

TO GLASS COMERS. DO NOT IMPACT GLASS WITH METAL FRAMING. USE

OR DRIFT GLASS WITH A PRY BAR. ROTATE GLASS LITES WITH FLARES OR

BEVELS ON BOTTOM HORIZONTAL EDGES SO EDGES ARE LOCATED AT TO

OF OPENING, UNLESS OTHERWISE INDICATED BY MANUFACTURER'S LABEL

OF OFF SITE. DAMAGED GLASS IS GLASS WITH EDGE DAMAGE OR OTHER

IMPERFECTIONS THAT, WHEN INSTALLED, WEAKEN GLASS AND IMPAIR

TRINGENT REQUIREMENTS ARE INDICATED, INCLUDING THOSE IN REFERENCED

FOR SIZE, SQUARENESS, OFFSETS AT CORNERS.

2. PRESENCE AND FUNCTIONING OF WEEP SYSTEM.

. MINIMUM REQUIRED FACE OR EDGE CLEARANCE

1. MANUFACTURING AND INSTALLATION TOLERANCES, INCLUDING THOSE

USED IN TEST ASSEMBLY TO OBTAIN FIRE-RESISTIVE RATING

EDGE AND SURFACE CONDITIONS. AND BITE COMPLYING WITH

STANDARD AS REQUIRED TO COMPLY WITH SYSTEM PERFORMANCE

B. CLEAN CUT OR FLAT GRIND VERTICAL EDGES OF BUTT-GLAZED MONOLITHIC

JUNCTIONS WITH INDOOR AND OUTDOOR FACES.

SETTING BLOCKS: ELASTOMERIC MATERIAL WITH A SHORE A DUROMETER

FACTORY COATED WITH ADHESIVE ON BOTH SURFACES. PACKAGED ON ROLLS WITH

RELEASE LINER PROTECTING ADHESIVE, AND COMPLYING WITH AAMA 800 FOR PRODUCT

REFERENCED GLAZING STANDARD. REQUIREMENTS OF MANUFACTURERS OF GLASS ANI

OTHER GLAZING MATERIALS INVOLVED FOR GLAZING APPLICATION INDICATED, AND WITH

A PROVEN RECORD OF COMPATIBILITY WITH SURFACES CONTACTED IN INSTALLATION.

USED IN TEST ASSEMBLY TO OBTAIN FIRE-RESISTIVE RATING.

NORSEAL V-980 CLOSED-CELL GLAZING TAPE, NORTON COMPAN

COMPLY WITH ASTM C 920 REQUIREMENTS INDICATED ON EACH ELASTOMERIC GLAZING

ADDITIONAL MOVEMENT CAPABILITY: WHERE ADDITIONAL MOVEMENT CAPABIL

RODUCTS. WHEN TESTED FOR ADHESION AND COHESION UNDER MAXIMUM

CYCLIC MOVEMENT PER ASTM C 719 WITH THE CAPABILITY TO WITHSTAND THE

SPECIFIED PERCENTAGE CHANGE IN THE JOINT WIDTH EXISTING AT TIME OF

IS SPECIFIED IN ELASTOMERIC GLAZING SEALANT PRODUCT DATA SHEET, PROVIDE

INSTALLATION AND REMAIN IN COMPLIANCE WITH OTHER REQUIREMENTS OF ASTM

TREMCO OR 790 BUILDING SEALANT BY DOW CORNING, INC

C 920 FOR USES INDICATED.

HARDNESS OF 85 PLUS OR MINUS 5.

IN PLACE FOR INSTALLATION INDICATED

LATERAL MOVEMENT (SIDE-WALKING).

2.11 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

2.9 GLAZING TAPES

PART 3 - EXECUTION

BEEN CORRECTED.

GLAZING PUBLICATIONS.

2.10 MISCELLANEOUS GLAZING MATERIALS

DEMONSTRATED BY TESTING AND FIELD EXPERIENCE.

PAINT FOR SURE WITH INSULATING GLASS APPLICATION

COLOR: WHITE TO MATCH STOREFRONT

PPG INDUSTRIES, INC.

2.7 1 INCH, SPANDREL, INSULATED GLASS: GS--1

U-VALUE: 0.31

2.8 ELASTOMERIC GLAZING SEALANTS

REQUIREMENTS:

B. AVAILABLE MANUFACTURERS:

OLDCASTLE GLASS

PPG INDUSTRIES, INC.

3.5 PROTECTION AND CLEANING PROTECT EXTERIOR GLASS FROM BREAKAGE IMMEDIATELY AFTER INSTALLATION BY ATTACHING CROSSED STREAMERS TO FRAMING HELD AWAY FROM GLASS. DO NOT APPLY MARKERS TO GLASS SURFACE. REMOVE NONPERMANENT B. AVAILABLE MANUFACTURERS: ABELS, AND CLEAN SURFACE OLDCASTLE GLASS.

PROTECT GLASS FROM CONTACT WITH CONTAMINATING SUBSTANCES RESULTING FROM CONSTRUCTION OPERATIONS INCLUDING WELD SPLATTER. IF DESPITE SUCH PROTECTION, CONTAMINATING SUBSTANCES DO COME INTO CONTACT WITH GLASS, REMOVE THEM IMMEDIATELY AS RECOMMENDED BY

EXAMINE GLASS SURFACES ADJACENT TO OR BELOW EXTERIOR CONCRETE AND OTHER MASONRY SURFACES AT FREQUENT INTERVALS DURING CONSTRUCTION BUT NOT LESS THAN ONCE A MONTH, FOR BUILD-UP OF DIRT, SCUM, ALKALI DEPOSITS, OR STAINS, AND REMOVE AS RECOMMENDED BY GLASS MANUFACTURER. REMOVE AND REPLACE GLASS THAT IS BROKEN, CHIPPED, CRACKED, ABRADED, OR DAMAGED IN ANY WAY, INCLUDING NATURAL CAUSES, ACCIDENTS AND

VANDALISM, DURING CONSTRUCTION PERIOD. WASH GLASS ON BOTH FACES IN EACH AREA OF PROJECT NOT MORE THAN AYS PRIOR TO DATE SCHEDULED FOR INSPECTIONS THAT ESTABLISH DATE OF CONTRACT COMPLETION. WASH GLASS AS RECOMMENDED BY GLASS MANUFACTURER. END OF SECTION 08 80 00

**SECTION 08 87 00** WINDOW FILMS

TBD - PRODUCT TO BE SELECTED BY TDI

REVISIONS

LRK

AMD/MAR

07/12/2022

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DESCRIPTION

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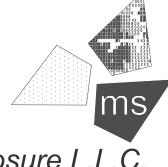
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07/12/22

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PROJECT:

STORE # 919728

19353 VERNIER ROAD HARPER WOODS, MI 48225



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.: 40509-11

SHEET TITLE: ARCHITECTURAL

**DIVISION 09 - FINISHES** GYPSUM BOARD ASSEMBLIES SECTION 09 21 PART 1 - GENERAL

1.1 RELATED DOCUMENTS C. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS

- 1.2 DEFINITIONS A. GYPSUM BOARD CONSTRUCTION TERMINOLOGY: REFER TO ASTM C 11 AND
- GA-505 FOR DEFINITIONS OF TERMS FOR GYPSUM BOARD ASSEMBLIES NOT DEFINED IN THIS SECTION OR IN OTHER REFERENCED STANDARD
- A. FIRE RESISTANCE: PROVIDE GYPSUM BOARD ASSEMBLIES WITH FIRE-RESISTANCE RATINGS INDICATED.
- SINGLE-SOURCE RESPONSIBILITY FOR PANEL PRODUCTS: OBTAIN FACH TYPE OF GYPSUM BOARD AND OTHER PANEL PRODUCTS FROM A SINGLE MANUFACTURER SINGLE-SOURCE RESPONSIBILITY FOR FINISHING MATERIALS: OBTAIN
- SUPPLIES GYPSUM BOARD AND OTHER PANEL PRODUCTS OR FROM A MANUFACTURER ACCEPTABLE TO GYPSUM BOARD MANUFACTURER. FIRE-TEST-RESPONSE CHARACTERISTICS: WHERE FIRE-RESISTANCE-RATED GYPSUM BOARD ASSEMBLIES ARE INDICATED, PROVIDE GYPSUM BOARD
- THE FOLLOWING REQUIREMENTS: FIRE-RESISTANCE RATINGS: AS INDICATED BY GA FILE NUMBERS IN GA-600 'FIRE RESISTANCE DESIGN MANUAL" OR DESIGN DESIGNATIONS IN UL "FIRE RESISTANCE DIRECTORY" OR IN THE LISTING OF ANOTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
- DELIVER MATERIALS IN ORIGINAL PACKAGES, CONTAINERS, OR BUNDLES BEARING BRAND NAME AND IDENTIFICATION OF MANUFACTURER OR
- STORE MATERIALS INSIDE UNDER COVER AND KEEP THEM DRY AND PROTECTED AGAINST DAMAGE FROM WEATHER, DIRECT SUNLIGHT. SURFACI CONTAMINATION, CORROSION, CONSTRUCTION TRAFFIC, AND OTHER CAUSES. NEATLY STACK GYPSUM PANELS FLAT TO PREVENT SAGGING.
- 1.6 PROJECT CONDITIONS ENVIRONMENTAL CONDITIONS, GENERAL: ESTABLISH AND MAINTAIN TO COMPLY WITH ASTM C 840 REQUIREMENTS OR GYPSUM BOARD MANUFACTURER'S RECOMMENDATIONS, WHICHEVER
- TO FRAMING, MAINTAIN NOT LESS THAN 40 DEG F. FOR ADHESIVE ATTACHMENT AND FINISHING OF GYPSLIM BOARD, MAINTAIN NOT LESS THAN 50 DEG F FOR 48 HOURS BEFORE APPLICATION AND CONTINUOUSLY AFTER INTIL DRY. DO NOT EXCEED 95 DEG F WHEN USING TEMPORARY HEAT
- VENTILATION: VENTILATE BUILDING SPACES AS REQUIRED TO DRY JOINT PREVENT FINISHING MATERIALS FROM DRYING TOO RAPIDLY.
- PART 2 PRODUCTS 2.1 MANUFACTURERS
- SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS FROM ONE OF THE FOLLOWING: NATIONAL GYPSUM COMPANY, GOLD BOND BUILDING PRODUCTS DIVISION, OR UNITED STATES GYPSUM CO. 2.2 GYPSUM BOARD PRODUCTS
- GENERAL: PROVIDE GYPSUM BOARD OF TYPES INDICATED IN MAXIMUM ENGTHS AVAILABLE THAT WILL MINIMIZE END-TO-END BUTT JOINTS IN EACH AREA INDICATED TO RECEIVE SYPSUM BOARD APPLICATION. WIDTHS: PROVIDE GYPSUM BOARD IN WIDTHS OF 48 INCHES.
- B. GYPSUM WALLBOARD: ASTM C 36 AND AS FOLLOWS: TYPE: TYPE X. TYPE: MOISTURE-RESISTANT.
- TYPE: SAG-RESISTANT TYPE FOR CEILING SURFACES. 4. EDGES: TAPERED AND FEATURED (ROUNDED OR BEVELED) FOR
- THICKNESS: 1/2 INCH, UNLESS OTHERWISE INDICATED. CEMENTITIOUS BACKER UNITS: ANSI A118.9 AND ASTM C 1288 OR 1325, WITH MANUFACTURER'S STANDARD EDGES MOLD RESISTANCE: ASTM D 3273, SCORE OF 10 AS RATED ACCORDING
- TO ASTM D 3274. GYPSUM BOARD BASE LAYER(S) FOR MULTI-LAYER APPLICATIONS: GYPSUM ASTM C 36, AND AS FOLLOWS
- TYPE: TYPE X. 2. TYPE: SAG-RESISTANT TYPE FOR CEILING SURFACES, UNLESS
- EDGES: MANUFACTURER'S STANDARI
- 4. THICKNESS: 1/2 INCH, UNLESS OTHERWISE INDICATED TRIM ACCESSORIES
- ACCESSORIES FOR INTERIOR INSTALLATION: CORNERBEAD, EDGE TRIM, AND JOINTS COMPLYING WITH ASTM C 1047 AND FORMED METAL OR PLASTIC, WITH METAL COMPLYING WITH THE FOLLOWING REQUIREMENTS: 1. STEEL SHEET ZINC COATED BY HOT-DIP PROCESS OR ROLLED ZINC
- CORNERBEAD ON OUTSIDE CORNERS, UNLESS OTHERWISE INDICATED. LC-BEAD WITH BOTH FACE AND BACK FLANGES: FACE FLANGE FORMED TO RECEIVE JOINT COMPOUND. USE LC-BEADS FOR EDGE TRIM, UNLESS

SHAPES INDICATED BELOW BY REFERENCE TO FIG. 1 DESIGNATIONS IN

OTHERWISE INDICATED. ONE-PIECE CONTROL JOINT FORMED WITH V-SHAPED SLOT AND REMOVABLE STRIP COVERING SLOT OPENING

SUSPEND CEILING HANGERS PLUMB AND FREE FROM CONTACT WITH

INSULATION OR OTHER OBJECTS WITHIN CEILING PLENUM THAT ARE

NOT PART OF SUPPORTING STRUCTURAL OR CEILING SUSPENSION

OBSTRUCTIONS AND OFFSET RESULTING HORIZONTAL FORCES BY

BRACING, COUNTERSPLAYING, OR OTHER EQUALLY EFFECTIVE MEANS

WHERE WIDTH OF DUCTS AND OTHER CONSTRUCTION WITHIN CEILING

PLENLIM PRODUCES HANGER SPACINGS THAT INTERFERE WITH THE

DEVICES. SIZE SUPPLEMENTAL SUSPENSION MEMBER AND HANGERS

SYSTEM. SPLAY HANGERS ONLY WHERE REQUIRED TO MISS

LOCATION OF HANGERS REQUIRED TO SUPPORT STANDARD USPENSION SYSTEM MEMBERS, INSTALL SUPPLEMENTAL SUSPENSION

MEMBERS AND HANGERS IN FORM OF TRAPEZES OR EQUIVALENT

TO SUPPORT CEILING LOADS WITHIN PERFORMANCE LIMITS

ATTACH HANGERS TO STRUCTURAL MEMBERS. DO NOT SUPPORT

CEILINGS FROM OR ATTACH HANGERS TO PERMANENT METAL FORMS.

WIRE-TIE FURRING CHANNELS TO SUPPORTS AS REQUIRED TO COMPLY

GRID SUSPENSION SYSTEM: ATTACH PERIMETER WALL TRACK OR

MEMBERS TO EACH OTHER AND BUTT-CUT TO FIT INTO WALL TRACK.

WHERE STUDS ARE INSTALLED DIRECTLY AGAINST EXTERIOR WALLS,

EXTEND PARTITION FRAMING FULL HEIGHT TO STRUCTURAL SUPPORTS

OR SUBSTRATES ABOVE SUSPENDED CEILINGS, EXCEPT WHERE

ANGLE WHERE GRID SUSPENSION SYSTEM MEETS VERTICAL SURFACES. MECHANICALLY JOIN MAIN BEAM AND CROSS FURRING

STEEL DECK TABS, STEEL ROOF DECKS, DUCTS, PIPES, OR CONDUIT

ESTABLISHED BY REFERENCED STANDARDS

WITH REQUIREMENTS FOR ASSEMBLIES INDICATED.

ISOLATION STRIP BETWEEN STUDS AND WALL.

SCREW FURRING TO WOOD FRAMING.

- JOINT TREATMENT MATERIALS OR SUPPORTING SUBSTRATE. GENERAL: PROVIDE JOINT TREATMENT MATERIALS COMPLYING WITH ASTM 475 AND THE RECOMMENDATIONS OF BOTH THE MANUFACTURERS OF SHEE
  - VISUAL EFFECT.
  - A. GENERAL: TREAT GYPSUM BOARD JOINTS, INTERIOR ANGLES, FLANGES OF CORNER-BEAD, EDGE TRIM, CONTROL JOINTS, PENETRATIONS, FASTENER HEADS SURFACE DEFECTS, AND ELSEWHERE AS REQUIRED TO PREPARE GYPSUM BOARD SURFACES FOR DECORATION. B. PREFILL OPEN JOINTS, ROUNDED OR BEVELED EDGES, AND DAMAGED AREAS
  - JSING SETTING-TYPE JOINT COMPOUND
  - C. APPLY JOINT TAPE OVER GYPSUM BOARD JOINTS, EXCEPT THOSE WITH-TRIM ACCESSORIES HAVING FLANGES NOT REQUIRING TAPE. D. LEVELS OF GYPSUM BOARD FINISH: PROVIDE THE FOLLOWING LEVELS OF
  - GYPSUM BOARD FINISH PER GA-214. LEVEL 4 FOR GYPSUM BOARD SURFACES, UNLESS OTHERWISE INDICATED. E. USE THE FOLLOWING JOINT COMPOUND COMBINATION AS APPLICABLE TO THE
  - FINISH LEVELS SPECIFIED: 1. EMBEDDING AND FIRST COAT: READY-MIXED, DRYING-TYPE, ALL-PURPOSE OR TAPING COMPOUND.
  - 2. FILL (SECOND) COAT: READY-MIXED, DRYING-TYPE, ALL-PURPOSE OR TOPPING COMPOUND. 3. FINISH (THIRD) COAT: READY-MIXED, DRYING-TYPE, ALL-PURPOSE OR
  - TOPPING COMPOUND. FOR LEVEL 4 GYPSUM BOARD FINISH, EMBED TAPE IN JOINT COMPOUND AND PPLY FIRST, FILL (SECOND), AND FINISH (THIRD) COATS OF JOINT COMPOUND OVER JOINTS, ANGLES, FASTENER HEADS, AND ACCESSORIES. TOUCH UP AND AND BETWEEN COATS AND AFTER LAST COAT AS NEEDED TO PRODUCE A
  - SURFACE FREE OF VISUAL DEFECTS AND READY FOR DECORATION. BASE FOR ACOUSTICAL TILE: WHERE GYPSUM BOARD IS INDICATED AS A BASE FOR ADHESIVELY APPLIED ACOUSTICAL TILE, INSTALL JOINT TAPE AND A 2-COAT COMPOUND TREATMENT, WITHOUT SANDING.
  - 3.8 FIELD QUALITY CONTROL A. ABOVE-CEILING OBSERVATION: THE OWNER'S FIELD REPRESENTATIVE WILL CONDUCT AN ABOVE-CEILING OBSERVATION PRIOR TO INSTALLATION OF GYPSUM BOARD CEILINGS AND REPORT ANY DEFICIENCIES IN THE WORK OBSERVED. D NOT PROCEED WITH INSTALLATION OF GYPSUM BOARD TO CEILING SUPPORT
  - RAMING UNTIL DEFICIENCIES HAVE BEEN CORRECTED. 3.9 CLEANING AND PROTECTION
  - A. PROMPTLY REMOVE ANY RESIDUAL JOINT COMPOUND FROM ADJACENT B. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS. IN A MANNER
  - ACCEPTABLE TO INSTALLER. ENSURE THAT GYPSUM BOARD ASSEMBLIES ARI WITHOUT DAMAGE OR DETERIORATION AT THE TIME OF CONTRACT COMPLETION. END OF SECTION 09 21 00

PARTITIONS ARE INDICATED TO TERMINATE AT SUSPENDED CEILINGS FRAME AROUND DUCTS PENETRATING PARTITIONS ABOVE CEILING TO PROVIDE SUPPORT FOR GYPSUM BOARD

- FRAME DOOR OPENINGS TO COMPLY WITH GA-600 AND WITH GYPSUM BOARD MANUFACTURER'S APPLICABLE WRITTEN RECOMMENDATIONS UNLESS OTHERWISE INDICATED. SCREW VERTICAL STUDS AT JAMBS O JAMB ANCHOR CLIPS ON DOOR FRAMES; INSTALL RUNNER TRACK SECTION (FOR CRIPPLE STUDS) AT HEAD AND SECURE JAMB STUDS. a. INSTALL TWO STUDS AT EACH JAMB, UNLESS OTHERWISE
- b. EXTEND JAMB STUDS THROUGH SUSPENDED CEILINGS AND ATTACH TO UNDERSIDE OF FLOOR OR ROOF STRUCTURE ABOVE. 4. FRAME OPENINGS OTHER THAN FLOOR OPENINGS THE SAME AS EQUIRED FOR DOOR OPENINGS, UNLESS OTHERWISE INDICATED INSTALL FRAMING BELOW SILLS OF OPENINGS TO MATCH FRAMING
- REQUIRED ABOVE DOOR HEADS. D. Z-FURRING MEMBERS: ERECT INSULATION VERTICALLY AND HOLD IN PLACE ITH Z-FURRING MEMBERS
- 1. UNTIL GYPSUM BOARD IS INSTALLED, HOLD INSULATION IN PLACE WITH 10-INCH (250-MM) STAPLES FABRICATED FROM 0.0625-INCH- (1.59-MM-) DIAMETER, TIE WIRE AND INSERTED THROUGH SLOT IN WEB OF
- POLYETHYLENE VAPOR RETARDER: INSTALL TO COMPLY WITH REQUIREMENTS SPECIFIED IN DIVISION 7 SECTION "BUILDING INSULATION."
- 3.4 APPLYING AND FINISHING GYPSUM BOARD, GENERAL A GYPSLIM BOARD APPLICATION AND FINISHING STANDARDS: INSTALL AND
- INSTALL CEILING BOARD PANELS ACROSS FRAMING TO MINIMIZE THE NUMBER OF ABUTTING END JOINTS AND TO AVOID ABUTTING END JOINTS IN THE CENTRAL AREA OF EACH CEILING. STAGGER ABUTTING END JOINTS OF ADJACENT PANELS NOT LESS THAN ONE FRAMING MEMBER.

INISH GYPSUM PANELS TO COMPLY WITH ASTM C840 AND GA-216.

- INSTALL GYPSUM PANELS WITH FACE SIDE OUT. DO NOT INSTALL IMPERFECT PANELS. BUTT PANELS TOGETHER FOR A LIGHT CONTACT AT EDGES AND ENDS WITH NOT MORE THAN 1/16 INCH OF OPEN SPACE BETWEEN PANELS. DO NOT FORCE INTO PLACE.
- D. LOCATE BOTH EDGE OR END JOINTS OVER SUPPORTS. EXCEPT IN CEILING APPLICATIONS WHERE INTERMEDIATE SUPPORTS OR GYPSUM BOARD BACK BLOCKING IS PROVIDED BEHIND END JOINTS. DO NOT PLACE TAPERED EDGES AGAINST CUT EDGES OR ENDS. STAGGER VERTICAL JOINTS ON OPPOSITE SIDES OF PARTITIONS. AVOID JOINTS OTHER THAN CONTROL JOINTS AT CORNERS OF FRAMED OPENINGS WHERE POSSIBLE. ATTACH GYPSUM PANELS TO STUDS SO LEADING EDGE OR END OF EACH PANEL IS ATTACHED TO OPEN (UNSUPPORTED) EDGES OF STUD FLANGES
- F. ATTACH GYPSUM PANELS TO FRAMING PROVIDED AT OPENINGS AND
- FIRE TAPE, SPACKLE, AND FIRE CAULK ALL PENETRATIONS INTO RATED AND/OR SHAFT WALLS. FORM CONTROL AND EXPANSION JOINTS AT LOCATIONS INDICATED AND AS
- WELL AS SUPPORTING FRAMING BEHIND GYPSUM PANELS. ISOLATE PERIMETER OF NONLOAD-BEARING GYPSLIM BOARD PARTITIONS AT STRUCTURAL ABUTMENTS, EXCEPT FLOORS, PROVIDE 1/4- TO 1/2-INCH-WIDE SPACES AT THESE LOCATIONS AND TRIM EDGES WITH LC-BEAD EDGE TRIM WHERE EDGES OF GYPSUM PANELS ARE EXPOSED. SEAL JOINTS BETWEEN
- EDGES AND ABUTTING STRUCTURAL SURFACES WITH ACOUSTICAL SEALANT SPACE FASTENERS IN GYPSUM PANELS ACCORDING TO REFERENCED GYPSUM BOARD APPLICATION AND FINISHING STANDARD AND ANUFACTURER'S RECOMMENDATIONS.
- SPACE SCREWS A MAXIMUM OF 12 INCHES O.C. FOR VERTICAL APPLICATIONS.
- 3.5 GYPSUM BOARD APPLICATION METHODS A. SINGLE-LAYER APPLICATION: INSTALL GYPSUM WALLBOARD PANELS AS FOLLOWS: ON CEILINGS, APPLY GYPSUM PANELS PRIOR TO WALL/PARTITION BOARI APPLICATION TO THE GREATEST EXTENT POSSIBLE AND AT RIGHT ANGLES TO FRAMING, UNLESS OTHERWISE INDICATED. ON PARTITIONS/WALLS, APPLY GYPSUM PANELS VERTICALLY (PARALLEL TO FRAMING), UNLES

OTHERWISE INDICATED, AND PROVIDE PANEL LENGTHS THAT WILL MINIMIZE

- B. MULTILAYER APPLICATION ON CEILINGS: APPLY GYPSUM BOARD INDICATED FOR BASE LAYERS PRIOR TO APPLYING BASE LAYERS ON WALLS/PARTITIONS. APPLY PSUM WALLBOARD FACE LAYERS IN SAME SEQUENCE. OFFSET FACE-LAYER JOINTS ONE FRAMING MEMBER, 16 INCHES MINIMUM, FROM PARALLEL BASE-LAYER
- MULTILAYER APPLICATION ON PARTITIONS/WALLS: APPLY GYPSUM BOARD INDICATED FOR BASE LAYERS AND GYPSUM WALLBOARD FACE LAYERS VERTICALLY (PARALLEL TO FRAMING) WITH JOINTS OF BASE LAYERS LOCATED OVER STUD OR FURRING MEMBER AND FACE-LAYER JOINTS OFFSET AT LEAST ONE STUD OR FURRING
- MEMBER WITH BASE-LAYER JOINTS. STAGGER JOINTS ON OPPOSITE SIDES OF PARTITIONS ACOUSTICAL TILE BASE: WHERE GYPSUM PANELS FORM THE BASE FOR ADHESIVELY APPLIED ACOUSTICAL TILE, INSTALL GYPSUM WALLBOARD PANELS
- WITH TAPERED EDGES TAPED AND FINISHED TO PRODUCE A FLAT SURFACE E. SINGLE-LAYER FASTENING METHODS: APPLY GYPSUM PANELS TO SUPPORTS
- F. MULTILAYER FASTENING METHODS: APPLY BASE LAYERS OF GYPSUM PANELS AND FACE LAYER TO BASE LAYERS. FASTEN BOTH BASE LAYERS AND FACE LAYERS SEPARATELY TO SUPPORTS WITH SCREWS. DIRECT-BONDING TO SUBSTRATE: WHERE GYPSUM PANELS ARE INDICATED AS DIRECTLY ADHERED TO A SUBSTRATE (OTHER THAN STUDS, JOISTS, FURRING
- EMBERS OR BASE LAYER OF GYPSLIM BOARD) COMPLY WITH GYPSLIM BOAL MANUFACTURER'S RECOMMENDATIONS. AND TEMPORARILY BRACE OR FASTEN GYPSUM PANELS UNTIL FASTENING ADHESIVE HAS SET. 3.6 INSTALLING TRIM ACCESSORIES
- GENERAL: FOR TRIM ACCESSORIES WITH BACK FLANGES, FASTEN TO FRAMING WITH THE SAME FASTENERS USED TO FASTEN GYPSUM BOARD. OTHERWISE, FASTEN TRIM ACCESSORIES ACCORDING TO ACCESSORY MANUFACTURER'S
- B. INSTALL CORNER BEAD AT EXTERNAL CORNERS. INSTALL EDGE TRIM WHERE EDGE OF GYPSUM PANELS WOULD OTHERWISE BE EXPOSED PROVIDE EDGE TRIM TYPE WITH FACE FLANGE FORMED TO RECEIVE JOINT COMPOUND, EXCEPT WHERE OTHER TYPES
- 1 INSTALL I C-READ WHERE GYPSLIM PANELS ARE TIGHTLY ABLITTED TO
- HER CONSTRUCTION AND BACK FLANGE CAN BE ATTACHED TO FRAMING INSTALL CONTROL JOINTS ACCORDING TO ASTM C840 AND MANUFACTURER'S RECOMMENDATIONS AND IN SPECIFIC LOCATIONS APPROVED BY ASSOCIATE FOR 3.7 FINISHING GYPSUM BOARD ASSEMBLIES
  - MEMBERS AND HANGERS TO SUPPORT CEILING LOADS WITHIN PERFORMANCE LIMITS ESTABLISHED BY REFERENCED STANDARDS. SECURE WIRE HANGERS BY LOOPING AND WIRE-TYING, EITHER DIRECTLY TO STRUCTURES OR TO INSERTS, EYESCREWS, OR OTHER DEVICES THAT ARE
  - SECURE AND APPROPRIATE FOR SUBSTRATE, AND IN A MANNER THAT WILL NOT CAUSE THEM TO DETERIORATE OR OTHERWISE FAIL DUE TO AGE, CORROSION, OR ELECTED TEMPERATURES. DO NOT ATTACH HANGERS TO STEEL ROOF DECK. ATTACH HANGERS TO
  - SUPPORTED DIRECTLY FROM HANGERS, UNLESS OTHERWISE SHOWN, AND ROVIDE HANGERS NOT MORE THAN 8 INCHES FROM ENDS OR EACH MEMBER.
  - C. AND NOT MORE THAN 3 INCHES FROM ENDS, LEVELING WITH CEILING SUSPENSION SYSTEM TO TOLERANCE OF 1/8 INCH IN 12'-0". MITER CORNERS ACCURATELY AND CONNECT SECURELY.
  - INSTALL ACOUSTICAL PANELS IN COORDINATION WITH SUSPENSION SYSTEM, WITH TO FIT ACCURATELY AT BORDERS AND AT PENETRATIONS.
  - CLEAN EXPOSED SURFACES OF ACOUSTICAL CEILINGS, INCLUDING TRIM, EDGE MOLDINGS, AND SUSPENSION MEMBERS. COMPLY WITH MANUFACTURER'S REPLACE WORK THAT CANNOT BE SUCCESSFULLY CLEANED AND REPAIRED TO PERMANENTLY ELIMINATE EVIDENCE OF DAMAGE.

END OF SECTION 09 51 23

CERAMIC TILING PART 1 - GENERAL PART 1 - GENERAL

1.1 RELATED DOCUMENTS

SECTION 09 51 23

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT APPLY TO THIS SECTION. 1.2 QUALITY ASSURANCE REFERENCE STANDARDS

INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS SUCCESSFULLY LETED ACOUSTICAL CEILING SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR PROJECT, WITH A MINIMUM OF 5 YEARS EXPERIENCE. FIRE PERFORMANCE CHARACTERISTICS (IF REQUIRED): PROVIDE ACOUSTICAL CEILINGS THAT ARE IDENTICAL TO THOSE TESTED FOR THE FOLLOWING FIRE PERFORMANCE CHARACTERISTICS. PER ASTM TEST METHOD INDICATED BELOW. BY UL OR OTHER

STING AND INSPECTING ORGANIZATIONS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION. IDENTIFY ACOUSTICAL CEILING COMPONENTS WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AND INSPECTING ORGANIZATION. SURFACE BURNING CHARACTERISTICS: FLAME SPREAD OF 25 OR LESS AN SMOKE DEVELOPED OF 50 OR LESS, TESTED PER ASTM E84 AND COMPLYING WITH ASTM E 1264 FOR CLASS A PRODUCTS.

SINGLE-SOURCE RESPONSIBILITY FOR CEILING UNITS: OBTAIN EACH TYPE OF COUSTICAL CEILING UNIT FROM A SINGLE SOURCE WITH RESOURCES TO PROVIDE PRODUCTS OF CONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES /ITHOUT DELAYING PROGRESS OF THE WORK

SINGLE-SOURCE RESPONSIBILITY FOR SUSPENSION SYSTEM: OBTAIN EACH TYPE OF SUSPENSION SYSTEM FROM A SINGLE SOURCE WITH RESOURCES TO PROVIDE RODUCTS OF CONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES WITHOUT DELAYING PROGRESS OF THE WORK. COORDINATION OF WORK: COORDINATE LAYOUT AND INSTALLATION OF ACOUSTICAL

- EILING UNITS AND SUSPENSION SYSTEM COMPONENTS WITH OTHER CONSTRUCTIO THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES HVAC EQUIPMENT, FIRE-SUPPRESSION SYSTEM COMPONENTS, AND PARTITION SYSTEM 1.3 DELIVERY, STORAGE, AND HANDLING DELIVER ACOUSTICAL CEILING UNITS TO PROJECT SITE IN ORIGINAL, UNOPENEI
- PACKAGES AND STORE THEM IN A FULLY ENCLOSED SPACE WHERE THEY WILL BE PROTECTED AGAINST DAMAGE FROM MOISTURE, DIRECT SUNLIGHT, SURFACE ONTAMINATION, AND OTHER CAUSES BEFORE INSTALLING ACOUSTICAL CEILING UNITS, PERMIT THEM TO REACH ROOM
- TEMPERATURE AND A STABILIZED MOISTURE CONTENT. HANDLE ACOUSTICAL CEILING UNITS CAREFULLY TO AVOID CHIPPING EDGES OR
- SPACE ENCLOSURE: DO NOT INSTALL INTERIOR ACOUSTICAL CEILINGS UNTIL SPACE IS ENCLOSED AND WEATHERPROOF, WET WORK IN SPACE IS COMPLETED AND NOMINALLY DRY, WORK ABOVE CEILINGS (BY OTHER TRADES) IS COMPLETE, AND AMBIENT ONDITIONS OF TEMPERATURE AND HUMIDITY WILL BE CONTINUOUSLY MAINTAINED AT ALUES NEAR THOSE INDICATED FOR FINAL OCCUPANCY
- FURNISH EXTRA MATERIALS FOR OWNER'S FUTURE USE, IN FULL OPENED BOXES, TEN PERCENT (10%) OF EACH TYPE AND PATTERN OF ACOUSTIC MATERIAL INSTALLED. DELIVER IN PLAINLY MARKED BOXES. STORE AS DIRECTED BY OWNER.
- PART 2 PRODUCTS ACOUSTIC CEILING TILES AND SUSPENSION SYSTEM

ACOUSTIC TILE CEILINGS

PART 1 - GENERAL

RELATED DOCUMENTS

- SEE FINISH PLAN AND SCHEDULE FOR MANUFACTURER AND MATERIAL SIZE, COLOR INFORMATION, AND INSTALLATION LOCATION. ACCESSORY MATERIALS
- A. ATTACHMENT DEVICES: SIZE FOR 5 TIMES DESIGN LOAD INDICATED IN ASTM C635, TABLE 1. DIRECT HUNG UNLESS OTHERWISE INDICATED WIRE HANGERS AND TIES: ASTM A641, CLASS 1 ZINC COATING, SOFT TEMPER, SIZED SO STRESS AT 3 TIMES HANGER DESIGN LOAD (ASTM C635, TABLE 1, DIRECT-HUNG), WILL BE LESS THAN YIELD STRESS OF WIRE, BUT PROVIDE NOT LESS THAN 0.106 INCH DIAMETER
- EDGE MOLDINGS AND TRIM: METAL OR EXTRUDED ALUMINUM OF TYPES AND PROFILES NDICATED OR, IF NOT INDICATED, MANUFACTURER'S STANDARD MOLDINGS FOR EDGES ID PENETRATIONS THAT FIT TYPE OF EDGE DETAIL AND SUSPENSION SYSTEM
- LAY-IN PANELS WITH REVEAL EDGE DETAILS: STEPPED EDGE MOLDING THAT PANEL AND FLANGE AT EXPOSED SUSPENSION MEMBER. CIRCULAR PENETRATIONS OF CEILING: PROVIDE EDGE MOLDINGS FABRICATED TO
- AMETER REQUIRED TO FIT PENETRATION EXACTLY NARROW FACED SUSPENSION SYSTEMS: SUSPENSION SYSTEM MANUFACTURER'S STANDARD EDGE MOLDINGS THAT MATCH WIDTH AND CONFIGURATION OF EXPOSED RUNNER.
- SUSPENSION SYSTEM SHALL NOT BE LESS IN SIZE AND STRENGTH THAN REQUIRED TO SUPPORT ITSELF AND SHALL BE INCREASED IN SIZE AND STRENGTH AS NECESSARY TO SUPPORT THE LIGHT FIXTURES, ACOUSTICAL UNITS AND RELATED ITEMS WITHOUT DEFLECTING MORE THAN 1/360 OF THE SPAN WHEN TESTED AS A SIMPLE BEAM, ENDS
- PART 3 EXECUTION ATTACHES OR ABUTS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH
- REQUIREMENTS SPECIFIED IN THIS AND OTHER SECTIONS THAT AFFECT INSTALLATION AND ANCHORAGE OF CEILING SYSTEM. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. COORDINATION: FURNISH LAYOUTS FOR PRESET INSERTS, CLIPS, AND OTHER CEILING ANCHORS WHOSE INSTALLATION IS SPECIFIED IN OTHER SECTIONS
- FURNISH INSERTS AND SIMILAR DEVICES TO OTHER TRADES FOR INSTALLATION WELL IN ADVANCE OF TIME NEEDED FOR COORDINATION OF OTHER WORK. BALANCE BORDER WIDTHS AT OPPOSITE EDGES OF EACH CEILING. AVOID USE OF LESS-THAN-HALF-WIDTH UNITS AT BORDERS, AND COMPLY WITH REFLECTED CEILING
- INSTALLATION GENERAL: INSTALL ACOUSTICAL CEILING SYSTEMS IN ACCORDANCE WITH ASTM C636 REQUIREMENTS, MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CISCA "CEILING
  - ARRANGE ACOUSTICAL UNITS AND ORIENT DIRECTIONALLY PATTERNED UNITS IN MANNER SHOWN BY REFLECTED CEILING PLANS. SUSPEND CEILING HANGERS FROM BUILDING STRUCTURAL MEMBERS AND AS FOLLOWS: INSTALL HANGERS PLUMB AND FREE FROM CONTACT WITH INSULATION OR OTHER
  - OBJECTS WITHIN CEILING PLENUM THAT ARE NOT PART OF SUPPORTING STRUCTURAL OR CEILING SUSPENSION SYSTEM. SPLAY HANGERS ONLY WHERE EQUIRED TO MISS OBSTRUCTIONS AND OFFSET RESULTING HORIZONTAL FORCES BY BRACING, COUNTER-PLAYING, OR OTHER EQUALLY EFFECTIVE MEANS WHERE WIDTH OF DUCTS AND OTHER CONSTRUCTION WITHIN CEILING PLENUM PRODUCES HANGER SPACINGS THAT INTERFERE WITH THE LOCATION OF
  - MEMBERS, INSTALL SUPPLEMENTAL SUSPENSION MEMBERS AND HANGERS IN FORM OF TRAPEZES OR EQUIVALENT DEVICES. SIZE SUPPLEMENTAL SUSPENSION

  - SPACE HANGERS NOT MORE THAN 4 FEET ON CENTER ALONG EACH MEMBER
- A. INSTALL EDGE MOLDINGS OF TYPE INDICATED AT PERIMETER OF ACOUSTICAL CEILING AREA AND WHERE NECESSARY TO CONCEAL EDGES OF ACOUSTICAL UNITS. SCREW-ATTACH MOLDINGS TO SUBSTRATE AT INTERVALS NOT OVER 16 INCHES
- DGES CONCEALED BY SUPPORT OF SUSPENSION MEMBERS. SCRIBE AND CUT PANEL
- NSTRUCTIONS FOR CLEANING AND TOUCH-UP OF MINOR FINISH DAMAGE. REMOVE AND

FIBERGLASS REINFORCED PANELS SECTION 09 77 50

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS 1.2 QUALITY ASSURANCE

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

SINGLE-SOURCE RESPONSIBILITY FOR PANEL PRODUCTS: OBTAIN EACH TYPE OF PANEL PRODUCTS FROM A SINGLE MANUFACTURER. DELIVERIES, STORAGE, AND HANDLING

A. DELIVER MATERIALS TO THE JOB SITE IN THE MANUFACTURER'S ORIGINAL

A. WALL PANELS: PROVIDE FIBERGLASS REINFORCED PANELS WITH A FINISHED

E. ALTERNATE PRODUCTS SHALL MEET OR EXCEED THE FOLLOWING PROPERTIES:

UNDERWRITERS LABORATORIES (U.L.) LISTED-EMBOSSED FXI 0.09"

2. CLASS A FLAME SPREAD OF LESS THAN 25, SMOKE DEVELOPED LESS

3. BARCOL HARDNESS (SCRATCH RESISTANCE) OF 55 AS PER ASTM D-2583.

PANELS WILL EXHIBIT NO MORE THAN A 0.038% WEIGHT LOSS AFTER A

GARDNER IMPACT STRENGTH OF 22 IN./LBS (25.6 CM/KG) PER ASTM

FMRC (FACTORY MUTUAL RESEARCH CENTER) APPROVED, SUBJECT TO

E CONDITIONS OF APPROVAL AS DESCRIBED IN FMRC REPORT

A MEANS OF FRONTSIDE IDENTIFICATION AND CONFIRMATION OF

DIVISION BARS, CORNER TRIM: PROVIDE MANUFACTURER'S STANDARD LENGTH

EXTRUDED VINYL PIECES; LONGEST LENGTH POSSIBLE TO ELIMINATE END

G. ADHESIVE AND SEALANTS ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH

A FXAMINE BACKLIP SURFACES TO DETERMINE THAT CORNERS ARE PLUMB AND

STRAIGHT, SURFACES ARE SMOOTH, UNIFORM, CLEAN AND FREE FROM

A. DO ALL CUTTING WITH CARBIDE TIPPED SAW BLADES OR DRILL BITS, OR CUT

B. INSTALL PANELS WITH MANUFACTURER'S RECOMMENDED GAP FOR PANEL FIELD

C. FASTENER HOLES IN THE PANELS MUST BE PREDRILLED 1/8" (3.2 MM) OVERSIZE.

E. USING PRODUCTS ACCEPTABLE TO MANUFACTURER, INSTALL THE FRP PANEL

F. USE SOLVENT BASED ADHESIVE ACCEPTABLE TO MANUFACTURER FOR DIRECT

REMOVE ANY ADHESIVE OR EXCESSIVE SEALANT FROM PANEL FACE USING

SECTION 09 91 00

END OF SECTION 09 77 50

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION.

A APPLICATOR QUALIFICATIONS: FNGAGE AN EXPERIENCED APPLICATOR WHO

CONSTRUCTION RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE

REQUIRED TO COMPLETE THE PAINTING OF BUILDING AS SPECIFIED

PRODUCED BY THE SAME MANUFACTURER AS THE FINISH COATS.

A. DELIVER MATERIALS TO THE JOB SITE IN THE MANUFACTURER'S ORIGINAL

AND LABEL, AND THE FOLLOWING INFORMATION:

PRODUCT NAME OR TITLE OF MATERIAL.

THINNING INSTRUCTIONS

APPLICATION INSTRUCTIONS.

COLOR NAME AND NUMBER.

(10 DEG C) AND 90 DEG F (32 DEG C).

(7 DEG C) AND 95 DEG F (35 DEG C)

BETWEEN 45 DEG F

PART 2 - PRODUCTS

2.1 MANUFACTURERS

2.2 PAINT MATERIALS, GENERAL

WELL-VENTILATED AREA AT A

HAS COMPLETED PAINTING SYSTEM APPLICATIONS SIMILAR IN MATERIAL AND

APPLICATOR SHALL FURNISH ALL MATERIALS, LABOR, TOOLS, AND EQUIPMENT

SINGLE-SOURCE RESPONSIBILITY: PROVIDE PRIMERS AND UNDERCOAT PAINT

UNOPENED PACKAGES AND CONTAINERS BEARING MANUFACTURER'S NAME

2. PRODUCT DESCRIPTION (GENERIC CLASSIFICATION OR BINDER TYPE).

3. MANUFACTURER'S STOCK NUMBER AND DATE OF MANUFACTURE.

4. CONTENTS BY VOLUME, FOR PIGMENT AND VEHICLE CONSTITUENTS

STORE MATERIALS NOT IN USE IN TIGHTLY COVERED CONTAINERS IN A

CONTAINERS USED IN STORAGE IN A CLEAN CONDITION, FREE OF FOREIGN

PROTECT FROM FREEZING. KEEP STORAGE AREA NEAT AND ORDERLY.

AND HEALTH HAZARDS RESULTING FROM HANDLING, MIXING, AND

APPLY WATER-BASED PAINTS ONLY WHEN THE TEMPERATURE OF SURFACES TO

BE PAINTED AND SURROUNDING AIR TEMPERATURES ARE BETWEEN 50 DEG F

HUMIDITY EXCEEDS 85 PERCENT: OR AT TEMPERATURES LESS THAN 5 DEG F (3)

6. PAINTING MAY CONTINUE DURING INCLEMENT WEATHER IF SURFACES

MATERIAL COMPATIBILITY: PROVIDE BLOCK FILLERS, PRIMERS, FINISH COAT

MATERIALS, AND RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE

ANOTHER AND THE SUBSTRATES INDICATED UNDER CONDITIONS OF SERVICE

AND APPLICATION, AS DEMONSTRATED BY THE MANUFACTURER BASED ON

AND AREAS TO BE PAINTED ARE ENCLOSED AND HEATED WITHIN

TEMPERATURE LIMITS SPECIFIED BY THE MANUFACTURER DURING

APPLY SOLVENT-THINNED PAINTS ONLY WHEN THE TEMPERATURE OF

C. DO NOT APPLY PAINT IN SNOW, RAIN, FOG. OR MIST: OR WHEN THE RELATIVE

DEG C) ABOVE THE DEW POINT; OR TO DAMP OR WET SURFACES.

APPLICATION AND DRYING PERIODS.

A. PAINT: PROVIDE PAINT AS SCHEDULED ON DRAWINGS.

TESTING AND FIELD EXPERIENCE.

SURFACES TO BE PAINTED AND SURROUNDING AIR TEMPERATURES ARE

REMOVE OILY RAGS AND WASTE DAILY. TAKE NECESSARY MEASURES TO

MINIMUM AMBIENT TEMPERATURE OF 45 DEG F (7 DEG C). MAINTAIN

XTENT TO THOSE INDICATED FOR THE PROJECT THAT HAVE RESULTED IN A

SYSTEM IN ACCORDANCE WITH PANEL MANUFACTURER'S PRINTED

D. FOR TROWEL TYPE AND APPLICATION OF ADHESIVE, FOLLOW ADHESIVE

B. DO NOT BEGIN INSTALLATION UNTIL BACKUP SURFACES ARE PUT INTO

FOREIGN MATTER, NAILS, COUNTERSUNK JOINTS AND CRACKS FILLED FLUSH

MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

AND SMOOTH WITH THE ADJOINING SURFACE.

MANUFACTURER'S RECOMMENDATION

INSTRUCTIONS.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 QUALITY ASSURANCE

1.3 DELIVERIES STORAGE AND HANDLING

INSTALLATION ON MASONRY.

INSTALLATION AND WHILE IN SERVICE (WITHOUT LABELS) EMBOSSED FXI

MEETING CLASS I (A) INTERIOR FINISH REQUIREMENTS AFTER

D. USE OF "CLASS A" OR "CLASS C" MATERIALS, SEE FINISH SCHEDULE.

EMBOSSED TEXTURE AND THICKNESS OF 0.09".

25-CYCLE TABER ABRASION TEST.

2B2A2.AM-EMBOSSES FXI 0.09" ONLY.

MEETS USDA/FSIS REQUIREMENTS

ICBO REPORT NUMBER ER-4583

C. SIZE: 4' x 8', 4' x 10'

PART 3 - EXECUTION

3.1 PREPARATION

UNOPENED PACKAGES AND CONTAINERS BEARING MANUFACTURER'S NAME

B. STORE MATERIALS IN A DRY PLACE AT THE PROJECT SITE. REMOVE FOREIGN MATTER FROM FACE OF PANELS BY USE OF A SOFT BRISTLE BRUSH, AVOIDING ABRASIVE ACTION.

4. ANSI A 136.1 "ORGANIC ADHESIVES FOR INSTALLATION OF CERAMIC TILE" ANSI A 137.1 - 2012 "CERAMIC TILE" 1.4 PROJECT CONDITIONS B. ASTM C144 "AGGREGATE FOR MASONRY MORTAR" AND ASTM C150 "PORTLAND

A. INSTALLATION SHALL NOT BEGIN UNTIL BUILDING IS ENCLOSED, PERMANANT TILE COUNCIL OF AMERICA (TCA): TCA "HANDBOOK FOR CERAMIC TILE AND COOLING EQUIPMENT IS IN OPERATION AND RESIDUAL MOISTURE FROM NSTALLATION", CURRENT EDITION

CONFORM TO STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE DURING INSTALLATION AND FOR NOT LESS THAN 48 HOURS BEFORE, MAINTAIN AS SPECIFIED AND APPLICABLE TO TILE WORK IN THIS PROJECT AND AN AMBIENT TEMPERATURE AND RELATIVE HUMIDITY WITHIN LIMITS REQUIRED RECOMMENDATIONS OF THE TILE COUNCIL OF AMERICA. BY TYPE OF ADHESIVE USED AND RECOMMENDATION OF ADHESIVE

MANUFACTURER. INSTALLER MUST BE APPROVED BY TILE MANUFACTURER, AND MUST HAVE A C. PROVIDE VENTILATION TO DISPERSE FUMES DURING APPLICATION OF ADHESIVE MINIMUM OF 5 YEARS INSTALLATION EXPERIENCE. AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. THE CERAMIC WALL TILE INSTALLER SHALL GUARANTEE HIS INSTALLATION PART 2 - PRODUCTS AGAINST BOND FAILURE, CRACKING OR OTHER DEFECTS RESULTING FROM POOF

ONE-YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. A. MARLITE TEXTURED FIBERGLASS REINFORCED PLASTIC PANELS OR APPROVED DELIVERY, STORAGE AND HANDLING A. DELIVER ALL PRODUCTS TO JOB SITE IN MANUFACTURER'S UNOPENED, ORIGINAL 2.2 MATERIALS GENERAL CONTAINERS WITH STANDARD GRADE MARKINGS INTACT.

WORKMANSHIP, INFERIOR OR INCOMPATIBLE MATERIALS, ETC. FOR A PERIOD OF

1. ANSI A 108.5 "CERAMIC TILE INSTALLED WITH DRY-SET PORTLAND CEMENT

ANSI A 108.10 "INSTALLATION OF GROUT IN TILEWORK

ANSI A 118.4 "LATEX-PORTLAND CEMENT MORTAR"

MORTAR"

B. PROTECT MATERIALS FROM DAMAGE 1.5 JOB CONDITIONS MAINTAIN TEMPERATURE AT 50 DEGREES F MINIMUM DURING INSTALLATION OF TILE WORK AND FOR

SEVEN (7) DAYS AFTER COMPLETION

PROHIBIT ALL FOOT AND WHEEL TRAFFIC FROM USING NEWLY TILED FLOORS FOR AT LEAST THREE (3) DAYS PREFERABLY SEVEN (7) DAYS WHEN TRAFFIC IS JNAVOIDABLE, USE LARGE FLAT BOARDS FOR WALKWAYS FOR SEVEN (7) DAY AND INSTALLED IN MANNER TO PREVENT DAMAGE OR MARRING OF TILE. REPAIR AND REPLACE DAMAGED UNITS.

1.6 EXTRA MATERIALS FURNISH EXTRA MATERIALS FOR OWNER'S FUTURE USE. FLOOR, BASE, & WALI TILE: ONE FULL BOX. OF EACH TYPE AND PATTERN OF TILE MATERIAL INSTALLED DELIVER IN PLAINLY MARKED BOXES. INCLUDE GROUT IN QUANTITIES TO MATCH TILE. STORE AS DIRECTED BY OWNER.

2.1 MANUFACTURERS

 A. CERAMIC TILE: AS SCHEDULED ON FLOOR FINISH PLAN(S). MORTAR, GROUT, AND ADHESIVE: SUBJECT TO COMPLIANCE WITH REQUIREMENTS HEREIN, PROVIDE PRODUCTS FROM ONE OF THE FOLLOWING LATICRETE INTERNATIONAL, INC. OR MAPEI CORPORATION PER FLOOR FINISH PLAN(S).

A. SETTING BED MATERIALS: FOR STANDARD THIN-SET METHOD ON CONCRETE OR MASONRY PRE-SANDED. FACTORY MIXED DRY-SET MORTAR PER ANSI A 118.1 OR LATEX/CEMENT MORTAR PER ANSI A 118.4. FOR WATERPROOFING THIN-SET METHOD: APPLIED POLYMERS OF

AMERICA, INC. "TILE-TITE", A TROWEL-APPLIED, ONE PART POLYURETHANE VATERPROOFING MEMBRANE ADHESIVI DISTRIBUTED BY AMERICAN OLEAN TILE COMPANY SETTING MATERIAL SHALL BE AN ORGANIC ADHESIVE (ANSI A 136.1) YPE II. USE TYPE I IN SHOWER ROOMS, TUB ROOMS, TOILET ROOMS, AND

ALL SPACES SUBJECT TO DAMP OR WET CONDITIONS.

FOR CERAMIC WALL TILE, GROUT SHALL BE LATEX AND WHITE WATERPROOF PORTLAND CEMENT FOR CERAMIC FLOOR TILE, GROUT SHALL BE GROUT AND JOINT FILLER FORTIFIED WITH A STAINLES ADMIX AND CHEMICAL RESISTANCE AS RECOMMENDED BY THE

> CONTROL, WEATHERPROOFING, TILE INSTALLATION AND GROUTING/POINTING MATERIALS SHALL BE AS SUPPLIED BY MANUFACTURER RECOMMENDED BY THE CERAMIC TILE SUPPLIER. COLOR CHOSEN BY THE OWNER'S REPRESENTATIVE.

LOOR TILE MANUFACTURER. ALL RENDERING, SCREEDING, SOUND

PROVIDE NECESSARY CAPS, STOPS, RETURNS, TRIMMERS AND OTHER SHAPES TO COMPLETE INSTALLATION COLOR AND FINISH TO MATCH WALL TILE

2. WP-900 HYDRO BLOC WATERPROOF AND CRACK ISOLATION MEMBRANE.

2.3 ACCESSORIES

FROM: SCHLUTER SYSTEMS LP, JOLLY AND RONDEC. PART 3 - EXECUTION INSPECTION AND PREPARATION A. INSPECT SURFACES TO RECEIVE TILE WORK AND REPORT DEFECTS OR

JNSATISFACTORY CONDITIONS TO THE ARCHITECT IN WRITING. CLEAN AND PREPARE SURFACES AS REQUIRED TO ASSURE PROPER BONDING. LAY OUT TILE WORK SO AS TO MINIMIZE CUT TILE LESS THAN ONE-HALF TILE IN

SEAL SURFACE OF TAPED JOINTS ON WATER RESISTANT GYPSUM BOAR BACKING TO PREVENT WATER DAMAGE. WHEN RECOMMENDED BY ADHESIVE MANUFACTURER, PRIME SURFACES BEFORE APPLYING ADHESIVES. EXCEPT AS OTHERWISE SHOWN OR DIRECTED BY ARCHITECT OR OWNER'S REPRESENTATIVE, MAKE JOINTS IN FLOOR TILE PERPENDICULAR AND PARALLEI

TO WALLS AND EVENLY SPACED. ALIGN UNITS FOR STRAIGHT GROUT LINES. VERIFY LAYOUT WITH OWNER.

FIT TILE CAREFULLY AT TRIM PENETRATIONS AND BUILT-IN ITEMS BACK-UP BOARD FOR CERAMIC WALL TILE SHALL BE WATER-RESISTANT GYPSUM RENOVATIONS - CRACKED WALL TILE

REMOVAL OF THE BROKEN TILES; STAGGERING ALONG THE LINE OF THE CRACK, SCRAP, AND CLEAN. B. APPLY A TRANSITION MAPEI FIBERGLASS MESH TO THE JOINT OF THE

APPLY A LAYER OF WP-900 HYDRO BLOC WATERPROOF AND CRACK ISOLATION D. SET TILE AND GROUT 3.4 SETTING OF TILE USE THIN-BED SETTING FOR ALL TILE WORK. PROVIDE LEVEL FINISHED SURFACE

OF TILE WITH ALL UNITS ALIGNED. IF NECESSARY, PROVIDE LEVELING COAT TO ASSURE TOP QUALITY INSTALLATION USING A LEVELING COMPOUND COMPATIBLE WITH RELATED WORK AND AS RECOMMENDED BY TILE

B. MIX AND APPLY SETTING MATERIAL PER MANUFACTURER'S INSTRUCTIONS 3.5 GROUTING OF TILE

GROUT TILE JOINTS WITH TYPE AND COLOR OF GROUT MATERIALS SPECIFIED AND APPROVED BY THE OWNER'S REPRESENTATIVE B. MIX AND APPLY GROUT PER MANUFACTURER'S INSTRUCTIONS. 3.6 CLEANING A. CLEAN SETTING BED AND GROUT MATERIALS FROM TILE SURFACES TO REMAIN

B. CLEAN ALL EXPOSED SURFACES OF TILE AFTER INSTALLATION AND CURING OF USE NO ACID, AGENT, OR DEVICE THAT WILL MAR TILE SURFACES. RINSE TILE WORK THOROUGHLY WITH CLEAN WATER AFTER USE OF CLEANING

EXPOSED AS SOON AS POSSIBLE AS WORK PROGRESSES.

END OF SECTION 09 30 13

3.7 PROTECTION

A. PROTECT TILE FROM DAMAGE AS REQUIRED UNTIL SUBSTANTIAL COMPLETION

B. MATERIAL QUALITY: PROVIDE THE MANUFACTURER'S BEST-QUALITY TRADE SALE PAINT MATERIAL OF THE VARIOUS COATING TYPES SPECIFIED. PAINT MATERIAL CONTAINERS NOT DISPLAYING MANUFACTURER'S PRODUCT IDENTIFICATION WILL

C. THE PAINT MANUFACTURERS LISTED IN THESE SPECIFICATIONS IS INCLUDED TO ESTABLISH A BASIS OF QUALITY FOR EACH RELATED PAINT MATERIAL. THE CONTRACTOR IS TO PROVIDE ALL PAINT MATERIAL AS SHOWN ON THE DRAWINGS AND WHICH IS OF THE SAME QUALITY AS THE MANUFACTURER'S PAINT MATERIAL LISTED HEREIN.

A. PRIMERS: PROVIDE THE MANUFACTURER'S RECOMMENDED FACTORY-FORMULATED PRIMERS THAT ARE COMPATIBLE WITH THE SUBSTRATE AND FINISH COATS

B. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING GYPSUM DRYWALL PRIMER: BENJAMIN MOORE: #201 LATEX QUICKDRY 2.4 EXTERIOR FINISH PAINT MATERIAL

A. FINISH PAINT: PROVIDE BENJAMIN MOORE: RECOMMENDED FACTORY-FORMULATED FINISH-COAT MATERIALS THAT ARE COMPATIBLE WITH THE SUBSTRATE AND UNDERCOATS INDICATED.

FINISH PAINT: PROVIDE BENJAMIN MOORE: RECOMMENDED FACTORY-FORMULATED FINISH-COAT MATERIALS THAT ARE COMPATIBLE WITH THE SUBSTRATE AND UNDERCOATS INDICATED. PART 3 - EXECUTION

A. EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH PAINTING WILL BE PERFORMED FOR COMPLIANCE WITH PAINT APPLICATION REQUIREMENTS. SURFACES RECEIVING PAINT MUST BE THOROUGHLY DRY BEFORE PAINT IS

START OF PAINTING WILL BE CONSTRUED AS THE APPLICATOR ACCEPTANCE OF SURFACES AND CONDITIONS WITHIN A PARTICULAR AREA. 3. IF THE PAINTING CONTRACTOR HAS BEEN INSTRUCTED BY THE GENERAL CONTRACTOR TO BEGIN PAINTING UNDER CONDITIONS AND CIRCUMSTANCES HE BELIEVES COULD RESULT IN POOR PERFORMANCE AND EARLY FAILURE OF THE COATINGS, HE SHALL REQUEST A DECISION IN WRITING FROM TIM

1. DO NOT BEGIN TO APPLY PAINT UNTIL UNSATISFACTORY CONDITIONS HAVE

B COORDINATION: REVIEW OTHER SECTIONS IN WHICH PRIMERS ARE PROVIDED TO ENSURE COMPATIBILITY OF THE TOTAL SYSTEM FOR VARIOUS SUBSTRATES. VERIFY ALL FACTORY PRIMED ITEMS FOR COMPATIBILITY WITH SCHEDULE FINISHED COATINGS. IF FACTORY APPLIED PRIMER IS INCOMPATIBLE WITH FINISH COATINGS SPECIFIED, EITHER REMOVE FACTORY APPLIED PRIMER OR PROVID INTERMEDIATE PRIMER THAT IS COMPATIBLE WITH BOTH FACTORY APPLIED PRIMER

A. GENERAL: REMOVE HARDWARE AND HARDWARE ACCESSORIES, PLATES MACHINED SURFACES LIGHTING FIXTURES, AND SIMILAR ITEMS ALREADY INSTALLED THAT ARE NOT TO BE PAINTED, OR PROVIDE SURFACE-APPLIED PROTECTION PRIOR TO SURFACE PREPARATION AND PAINTING. REMOVE THESE ITEMS, IF NECESSARY, TO COMPLETELY PAINT THE ITEMS AND ADJACENT SURFACES FOLLOWING COMPLETION OF PAINTING OPERATIONS IN EACH SPACE OR AREA, HAVE ITEMS REINSTALLED BY WORKERS SKILLED IN THE TRADES

COATINGS. REMOVE OIL AND GREASE PRIOR TO CLEANING. SCHEDULE CLEANING AND PAINTING SO DUST AND OTHER CONTAMINANTS FROM THE CLEANING PROCESS WILL NOT FALL ON WET, NEWLY PAINTED SURFACES. SURFACE PREPARATION: CLEAN AND PREPARE SURFACES TO BE PAINTED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS FOR EACH PARTICULAR

SUBSTRATE CONDITION AND AS SPECIFIED.

B. CLEANING: BEFORE APPLYING PAINT OR OTHER SURFACE TREATMENTS, CLEAN

THE SUBSTRATES OF SUBSTANCES THAT COULD IMPAIR THE BOND OF THE VARIOUS

PROVIDE BARRIER COATS OVER INCOMPATIBLE PRIMERS OR REMOVE AND

RE-PRIME. NOTIFY OWNER IN WRITING ABOUT ANTICIPATED PROBLEMS USING THE SPECIFIED FINISH-COAT MATERIAL WITH SUBSTRATES PRIMED B CEMENTITIOUS MATERIALS: PREPARE CONCRETE CONCRETE MASONRY BLOCK, CEMENT PLASTER, AND MINERAL-FIBER-REINFORCED CEMENT PANEL SURFACES TO BE PAINTED. REMOVE FEEL ORESCENCE, CHALK DUST, DIRT GREASE, OILS, AND RELEASE AGENTS. ROUGHEN, AS REQUIRED, TO REMOV GLAZE (EXCEPT PRE-GLAZED UNITS). DETERMINE ALKALINITY AND MOISTURE CONTENT OF SURFACES BY PERFORMING APPROPRIATE TESTS. IF SURFACES ARE SUFFICIENTLY ALKALINE TO

CAUSE THE FINISH PAINT TO BLISTER AND BURN, CORRECT THIS CONDITION

FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THA HAVE NOT BEEN SHOP-COATED: REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICA CLEANING METHODS THAT COMPLY WITH RECOMMENDATIONS OF THE STEEL STRUCTURES PAINTING COUNCIL (SSPC). TOUCH-UP BARE AREAS AND SHOP-APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE-BRUSH CLEAN WITH SOLVENTS RECOMMENDED BY THE PAINT MANUFACTURER, AND

CONTENT EXCEEDS THAT PERMITTED IN MANUFACTURER'S PRINTED

GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO THAT THE SURFACE IS FREE OF O AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY

TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.

D. MATERIALS PREPARATION: CAREFULLY MIX AND PREPARE PAINT MATERIALS

ACCORDING TO MANUFACTURERS DIRECTIONS.

MAINTAIN CONTAINERS USED IN MIXING AND APPLYING PAINT IN A CLEAN CONDITION, FREE OF FOREIGN MATERIALS AND RESIDUE. STIR MATERIAL BEFORE APPLICATION TO PRODUCE A MIXTURE OF UNIFORM DENSITY: STIR AS REQUIRED DURING APPLICATION. DO NOT STIR SURFACE FILM INTO MATERIAL. REMOVE FILM AND, IF NECESSARY, STRAIN MATERIAL BEFORE USING.

3. USE ONLY THINNERS APPROVED BY THE PAINT MANUFACTURER AND ONLY WITHIN RECOMMENDED LIMITS. TINTING: TINT EACH UNDERCOAT A LIGHTER SHADE TO FACILITATE IDENTIFICATION OF EACH COAT WHERE MULTIPLE COATS OF THE SAME MATERIAL ARE APPLIED. TINT UNDERCOATS TO MATCH THE COLOR OF THE FINISH COAT, BUT PROVIDE SUFFICIENT DIFFERENCES IN SHADE OF UNDERCOATS TO DISTINGUISH EACH

SEPARATE COAT. 3.3 APPLICATION A. GENERAL: APPLY PAINT ACCORDING TO MANUFACTURER'S DIRECTIONS. USE APPLICATORS AND TECHNIQUES BEST SUITED FOR SUBSTRATE AND TYPE OF

MATERIAL BEING APPLIED

DIRECTIONS.

B. DO NOT PAINT OVER DIRT, RUST, SCALE, GREASE, MOISTURE, SCUFFED SURFACES, OR CONDITIONS DETRIMENTAL TO FORMATION OF A DURABLE PAINT 1. PAINT COLORS, SURFACE TREATMENTS, AND FINISHES ARE INDICATED IN PROVIDE FINISH COATS THAT ARE COMPATIBLE WITH PRIMERS USED.

3. THE NUMBER OF COATS AND THE FILM THICKNESS REQUIRED ARE THE SAME

REGARDLESS OF THE APPLICATION METHOD. DO NOT APPLY SUCCEEDING COATS UNTIL THE PREVIOUS COAT HAS CURED AS RECOMMENDED BY THE MANUFACTURER. SAND BETWEEN APPLICATIONS WHERE SANDING IS REQUIRED TO PRODUCE A SMOOTH EVEN SURFACE ACCORDING TO THE MANUFACTURER'S DIRECTIONS. 4. APPLY ADDITIONAL COATS IF UNDERCOATS, STAINS, OR OTHER CONDITIONS SHOW THROUGH FINAL COAT OF PAINT UNTIL PAINT FILM IS OF UNIFORM FINISH, COLOR, AND APPEARANCE. GIVE SPECIAL ATTENTION TO ENSURE THAT SURFACES, INCLUDING EDGES, CORNERS, CREVICES

5. THE TERM EXPOSED SURFACES INCLUDES AREAS VISIBLE WHEN PERMANENT

FASTENERS, RECEIVE A DRY FILM THICKNESS

OR BUILT-IN FIXTURES, CONVECTOR COVERS, COVERS FOR FINNED TU RADIATION, GRILLES, AND SIMILAR COMPONENTS ARE IN PLACE. EXTEND INTEGRITY AND PROVIDE DESIRED PROTECTION. C. SCHEDULING PAINTING: APPLY FIRST COAT TO SURFACES THAT HAVE BEEN LEANED, PRETREATED, OR OTHERWISE PREPARED FOR PAINTING AS SOON AS

PRACTICABLE AFTER PREPARATION AND BEFORE SUBSEQUENT SURFACE

APPLICATION PROCEDURES: APPLY PAINTS AND COATINGS BY BRUSH, ROLLER,

SPRAY, OR OTHER APPLICATORS ACCORDING TO THE MANUFACTURER'S

**EQUIVALENT TO THAT OF FLAT SURFACES** 

DETERIORATION. 1. ALLOW SUFFICIENT TIME BETWEEN SUCCESSIVE COATS TO PERMIT PROPER DRYING. DO NOT RECOAT UNTIL PAINT HAS DRIED TO WHERE IT FEELS FIRM, DOES NOT DEFORM OR FEEL STICKY UNDER MODERATE THUMB PRESSURE, AND WHERE APPLICATION OF ANOTHER COAT OF PAINT DOES NOT CAUSE THE UNDERCOAT TO LIFT OR LOSE ADHESION.

E. MINIMUM COATING THICKNESS: APPLY MATERIALS NO THINNER THAN THE FILM THICKNESS OF THE ENTIRE SYSTEM AS RECOMMENDED BY THE

RATE TO ENSURE COMPLETE COVERAGE WITH PORES FILLED.

G. PRIME COATS: BEFORE APPLYING FINISH COATS, APPLY A PRIME COAT OF

F. BLOCK FILLERS: APPLY BLOCK FILLERS TO CONCRETE MASONRY BLOCK AT A

MATERIAL, AS RECOMMENDED BY THE MANUFACTURER, TO MATERIAL THAT IS

REQUIRED TO BE PAINTED OR FINISHED AND THAT HAS NOT BEEN PRIME-COATED BY OTHERS. RECOAT PRIMED AND SEALED SURFACES WHERE EVIDENCE OF SUCTION SPOTS OR UNSEALED AREAS IN FIRST COAT APPEARS, TO ENSURE A FINISH COAT WITH NO BURN-THROUGH OR OTHER DEFECTS DUE TO H. PIGMENTED (OPAQUE) FINISHES: COMPLETELY COVER TO PROVIDE A SMOOTH, OPAQUE SURFACE OF UNIFORM FINISH, COLOR, APPEARANCE, AND COVERAGE

OR OTHER SURFACE IMPERFECTIONS WILL NOT BE ACCEPTABLE.

. COMPLETED WORK: MATCH APPROVED SAMPLES FOR COLOR, TEXTURE, AND

COVERAGE. REMOVE, REFINISH, OR REPAINT WORK NOT COMPLYING WITH

SPECIFIED REQUIREMENTS. A. CLEANUP: AT THE END OF EACH WORK DAY, REMOVE EMPTY CANS, RAGS, RUBBISH AND OTHER DISCARDED PAINT MATERIALS FROM THE SITE. AFTER COMPLETING PAINTING CLEAN GLASS AND PAINT-SPATTERED SURFACES. REMOVE SPATTERED PAINT BY WASHING AND SCRAPING. BE CAREFUL NOT TO SCRATCH OR DAMAGE

ADJACENT FINISHED SURFACES.

A. PROTECT WORK OF OTHER TRADES, WHETHER BEING PAINTED OR NOT AGAINST DAMAGE BY PAINTING. CORRECT DAMAGE BY CLEANING, REPAIRING OR REPLACING, AND REPAINTING, AS ACCEPTABLE TO ARCHITECT. B. PROVIDE "WET PAINT" SIGNS TO PROTECT NEWLY PAINTED FINISHES. REMOVE TEMPORARY PROTECTIVE WRAPPINGS PROVIDED BY OTHERS TO PROTECT

1. AT COMPLETION OF CONSTRUCTION ACTIVITIES OF OTHER TRADES

END OF SECTION 09 91 00

TOUCH UP AND RESTORE DAMAGED OR DEFACED PAINTED SURFACES.

THEIR WORK AFTER COMPLETING PAINTING OPERATIONS

**DIVISION 10 - SPECIALTIES** 

SIGNAGE **SECTION 10 14 23** PART 1 - GENERAL

A. SECTION INCLUDES: ILLUMINATED PANEL SIGNS

ACTION SUBMITTALS PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

ROOM-IDENTIFICATION SIGNS.

B. SHOP DRAWINGS: FOR PANEL SIGNS. INCLUDE FABRICATION AND INSTALLATION DETAILS AND ATTACHMENTS TO OTHER WORK.

SHOW SIGN MOUNTING HEIGHTS, LOCATIONS OF SUPPLEMENTAR' SUPPORTS TO BE PROVIDED BY OTHERS. AND ACCESSORIES. SHOW MESSAGE LIST, TYPESTYLES, GRAPHIC ELEMENTSI, INCLUDING SED CHARACTERS AND BRAILLE], AND LAYOUT FOR EACH SIGN A LEAST [HALF SIZE] <INSERT SCALE>.

4. SHOW LOCATIONS OF ELECTRICAL SERVICE CONNECTIONS INCLUDE DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING SAMPLES: FOR EACH EXPOSED PRODUCT AND FOR EACH COLOR AND

TEXTURE SPECIFIED. SIGN SCHEDULE: USE SAME DESIGNATIONS SPECIFIED OR INDICATED ON DRAWINGS OR IN A SIGN SCHEDULE.

1.3 INFORMATIONAL SUBMITTALS A. SAMPLE WARRANTY 1.4 CLOSEOUT SUBMITTALS

1.5 WARRANTY SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE

COMPLETION. PART 2 - PRODUCTS

> MANUFACTURER: APPROVED TDL SIGNAGE MANUFACTURER PANEL SIGN: SIGN WITH SMOOTH, UNIFORM SURFACES; WITH MESSAGE AND

COMPONENTS OF SIGNS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN

WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL

HARACTERS HAVING UNIFORM FACES, SHARP CORNERS, AND PRECISELY FORMED LINES AND PROFILES; AND AS FOLLOWS: ILLUMINATED PANEL SIGN: BACKLIT CONSTRUCTION LIGHTING NCLUDING TRANSFORMERS, INSULATORS, AND/OR OTHER ACCESSORIES FOR OPERABILITY, WITH PROVISION FOR SERVICING ND CONCEALING CONNECTIONS TO BUILDING ELECTRICAL SYSTEM. USE TIGHT OR SEALED JOINT CONSTRUCTION TO PREVENT NINTENTIONAL LIGHT LEAKAGE. SPACE LAMPS APART FROM EAG OTHER AND AWAY FROM SIGN SURFACES AS NEEDED TO ILLUMINATE

a. POWER: AS INDICATED ON ELECTRICAL DRAWINGS. MOUNTING: MANUFACTURER'S STANDARD METHOD FOR SUBSTRATES

RESTROOM-IDENTIFICATION SIGN: SIGN WITH SMOOTH, UNIFORM SURFACES: /ITH MESSAGE AND CHARACTERS HAVING UNIFORM FACES, SHARP CORNERS, AND PRECISELY FORMED LINES AND PROFILES; AND AS FOLLOWS LAMINATED-SHEET SIGN: FACE SHEET WITH RAISED GRAPHICS LAMINATED TO BACKING SHEET TO PRODUCE COMPOSITE SHEET

NDICATED ON EXTERIOR ELEVATIONS

PART 3 - EXECUTION GENERAL: INSTALL SIGNS USING MOUNTING METHODS INDICATED AND CCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS

a. COLOR AS PER AUTHORITIES HAVING JURISDICTION.

MOUNTING: SURFACE MOUNTED TO WALL WITH ADHESIVE.

OTHER DEFECTS IN APPEARANCE. INSTALL SIGNS SO THEY DO NOT PROTRUDE OR OBSTRUCT ACCORDING TO THE ACCESSIBILITY STANDARD. BEFORE INSTALLATION, VERIFY THAT SIGN SURFACES ARE CLEAN ND FREE OF MATERIALS OR DEBRIS THAT WOULD IMPAIR

INSTALL SIGNS LEVEL, PLUMB, TRUE TO LINE, AND AT LOCATIONS AND

HEIGHTS INDICATED, WITH SIGN SURFACES FREE OF DISTORTION AND

4. CORROSION PROTECTION: COAT CONCEALED SURFACES OF ALUMINUM IN CONTACT WITH GROUT, CONCRETE, MASONRY, WOOD, OR DISSIMILAR METALS, WITH A HEAVY COAT OF BITUMINOUS PAINT. MOUNTING METHODS:

INSTALLATION.

EXTERIOR ILLUMINATED BUILDING SIGNS: MOUNTING METHOD TO BE PROVIDED BY MANUFACTURER. RESTROOM-IDENTIFICATION SIGN a. ADHESIVE: CLEAN BOND-BREAKING MATERIALS FROM SURFACE AND REMOVE LOOSE DEBRIS. APPLY LINEAR BEADS OR SPOTS OF ADHESIVE SYMMETRICALLY TO BACK OF SIGN AND OF SUITABLE QUANTITY TO SUPPORT WEIGHT OF SIGN FTER CURE WITHOUT SLIPPAGE, KEEP ADHESIVE AWAY FRO AND TO PREVENT VISIBILITY OF CURED ADHESIVE AT SIGN.

EDGES. PLACE SIGN IN POSITION, AND PUSH TO ENGAGE

VISIBILITY AT SIGN EDGES. PLACE SIGN IN POSITION, AND PUSH

ADHESIVE. TEMPORARILY SUPPORT SIGN IN POSITION UNTIL ADHESIVE FULLY SETS. TWO-FACE TAPE: CLEAN BOND-BREAKING MATERIALS FROM SUBSTRATE SURFACE AND REMOVE LOOSE DEBRIS, APPLY TAPE STRIPS SYMMETRICALLY TO BACK OF SIGN AND OF SUITABLE QUANTITY TO SUPPORT WEIGHT OF SIGN WITHOU SLIPPAGE. KEEP STRIPS AWAY FROM EDGES TO PREVENT

REMOVE TEMPORARY PROTECTIVE COVERINGS AND STRIPPABLE FILMS AS

TO ENGAGE TAPE ADHESIVE.

END OF SECTION 10 14 23

SIGNS ARE INSTALLED.

LRK

AMD/MAR

07/12/2022

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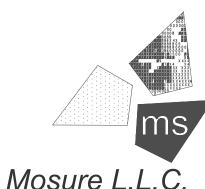
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PROJECT:



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.: 40509-11

ARCHITECTURAL

WALL PROTECTION SECTION 10 26 00 A. GENERAL: A MAXIMUM 1-1/2 INCH DIAMETER. UNOBTRUSIVE STAMPED LOGO OF PART 1 - GENERAL MANUFACTURER, AS APPROVED BY ARCHITECT, IS PERMITTED ON EXPOSED FACE OF TOILET OR BATH ACCESSORY UNITS. ON EITHER INTERIOR SURFACE NOT 1.1 SUMMARY EXPOSED TO VIEW OR BACK SURFACE, PROVIDE ADDITIONAL IDENTIFICATION B MEANS OF EITHER A PRINTED, WATERPROOF LABEL OR A STAMPED NAMEPLATE, A. SECTION INCLUDES: INDICATING MANUFACTURER'S NAME AND PRODUCT MODEL NUMBER. CORNER GUARDS. B. SURFACE-MOUNTED TOILET ACCESSORIES, GENERAL: EXCEPT WHERE 1.2 ACTION SUBMITTALS OTHERWISE INDICATED, FABRICATE UNITS WITH TIGHT SEAMS AND JOINTS, EXPOSED EDGES ROLLED. HANG DOORS OR ACCESS PANELS WITH CONT. A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. STAINLESS STEEL PIANO HINGE. PROVIDE CONCEALED ANCHORAGE WHEREVER B. SAMPLES: FOR EACH EXPOSED PRODUCT AND FOR EACH COLOR AND TEXTURE SPECIFIED, 12 INCHES LONG. C. KEYS: PROVIDE UNIVERSAL KEYS FOR ACCESS TO TOILET ACCESSORY UNITS 1.3 INFORMATIONAL SUBMITTALS REQUIRING INTERNAL ACCESS FOR SERVICING, RE-SUPPLY, ETC. PROVIDE MINIMUM OF SIX KEYS TO OWNER'S REPRESENTATIVE. A. MATERIAL CERTIFICATES PART 3 - EXECUTION B. MATERIAL TEST REPORTS C. WARRANTY: SAMPLE OF SPECIAL WARRANTY 3.1 INSTALLATION A. INSTALL TOILET ACCESSORY UNITS IN ACCORDANCE WITH MANUFACTURER'S 1.4 CLOSEOUT SUBMITTALS INSTRUCTIONS, USING FASTENERS APPROPRIATE TO SUBSTRATE AS A. MAINTENANCE DATA. RECOMMENDED BY MANUFACTURER. INSTALL UNITS PLUMB AND LEVEL, FIRMLY 1.5 QUALITY ASSURANCE B. IN LOCATIONS MARKED FOR HANDICAPPED ACCESSIBILITY, INSTALL TOILET A INSTALLER QUALIFICATIONS: AN EMPLOYER OF WORKERS TRAINED AND ACCESSORIES IN COMPLIANCE WITH REQUIREMENTS OF THE AMERICAN WITH APPROVED BY MANUFACTURER. DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG). C. SECURE MIRRORS TO WALLS IN CONCEALED, TAMPERPROOF MANNER WITH IDENTICAL PRODUCTS PER ASTM E 84, NFPA 255, OR UL 723 BY UL OR SPECIAL HANGERS, TOGGLE BOLTS OR SCREWS. SET UNITS PLUMB, LEVEL, AND SQUARE AT LOCATIONS INDICATED, IN ACCORDANCE WITH MANUFACTURER'S ANOTHER QUALIFIED TESTING AGENCY. INSTRUCTION FOR TYPE OF SUBSTRATE INVOLVED. A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH D. INSTALL GRAB BARS TO WITHSTAND A DOWNWARD LOAD OF AT LEAST 250 LBF, MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF IMPACT-RESISTANT WALL PROTECTION UNITS THAT FAIL IN MATERIALS OR COMPLYING WITH ASTM F446. 3.2 ADJUSTING AND CLEANING WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. A. ADJUST TOILET ACCESSORIES FOR PROPER OPERATION AND VERIFY THAT 1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: MECHANISMS FUNCTION SMOOTHLY. REPLACE DAMAGED OR DEFECTIVE ITEMS. a. STRUCTURAL FAILURES. B. CLEAN AND POLISH ALL EXPOSED SURFACES IN STRICT ACCORDANCE WITH b. DETERIORATION OF PLASTIC AND OTHER MATERIALS BEYOND MANUFACTURER'S RECOMMENDATIONS AFTER REMOVING TEMPORARY LABELS NORMAL USE. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL END OF SECTION 10 28 00 PART 2 - PRODUCTS 2.1 MATERIALS FIRE PROTECTION SPECIALTIES SECTION 10 44 00 A. PVC PLASTIC: ASTM D 1784, CLASS 1, TEXTURED, CHEMICAL- AND (AS APPLICABLE) STAIN-RESISTANT, HIGH-IMPACT-RESISTANT PVC OR ACRYLIC-MODIFIED VINYL PLASTIC WITH INTEGRAL COLOR THROUGHOUT. PART 1 - GENERAL 1. IMPACT RESISTANCE TO MEET ASTM D 256, TEST METHOD A. 1.1 RELATED DOCUMENTS CHEMICAL AND STAIN RESISTANCE PER ASTM STANDARDS. A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. 3. SELF-EXTINGUISHING WHEN TESTED ACCORDING TO ASTM D 635. FLAME-SPREAD INDEX: 25 OR LESS. A. SINGLE-SOURCE RESPONSIBILITY: OBTAIN EXTINGUISHERS AND CABINETS FROM A SINGLE MANUFACTURER. SMOKE-DEVELOPED INDEX: 450 OR LESS. B. COORDINATION: VERIFY THAT CABINETS ARE SIZED TO ACCOMMODATE TYPE AND B. POLYCARBONATE PLASTIC SHEET: ASTM D 6098, S-PC01, CLASS 1 OR 2, ABRASION RESISTANT; WITH A MINIMUM IMPACT-RESISTANCE RATING PER OF EXTINGUISHERS INDICATED. ASTM D 256, TEST METHOD A. C. UL-LISTED PRODUCTS: FIRE EXTINGUISHERS SHALL BE UL LISTED WITH UL FASTENERS: ALUMINUM, NONMAGNETIC STAINLESS-STEEL, OR OTHER LISTING MARK FOR TYPE, RATING, AND CLASSIFICATION OF FIRE EXTINGUISHER. NONCORROSIVE METAL SCREWS, BOLTS, AND OTHER FASTENERS COMPATIBLE WITH ITEMS BEING FASTENED. USE SECURITY-TYPE D. NFPA COMPLIANCE: FABRICATE AND LABEL FIRE EXTINGUISHERS TO COMPLY FASTENERS WHERE EXPOSED TO VIEW. WITH NFPA 10, "STANDARD FOR PORTABLE FIRE EXTINGUISHERS". ADHESIVE: AS RECOMMENDED BY IMPACT-RESISTANT PLASTIC WALL PROTECTION MANUFACTURER AND WITH A VOC CONTENT OF [70] <INSERT E. FIRE EXTINGUISHERS: LISTED AND LABELED FOR TYPE. RATING. AND CLASSIFICATION BY AN INDEPENDENT TESTING AGENCY ACCEPTABLE TO VALUE> G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, AUTHORITIES HAVING JURISDICTION. SUBPART D (EPA METHOD 24). PART 2 - PRODUCTS 2.2 CORNER GUARDS 2.1 MANUFACTURERS A. SURFACE-MOUNTED, RESILIENT, CORNER GUARDS: ASSEMBLY CONSISTING OF COVER INSTALLED OVER CONTINUOUS RETAINER; INCLUDING MOUNTING A. PORTABLE FIRE EXTINGUISHES AND CABINETS: SUBJECT TO COMPLIANCE WITH HARDWARE: FABRICATED WITH 90-DEGREE TURN. REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: POTTER CRANE COMPOSITES, INC. 2.2 MATERIALS MARLITE PRODUCTS, INC. A. COLD-ROLLED STEEL SHEET: CARBON STEEL, COMPLYING WITH ASTM B. COLOR AND TEXTURE (TO BE VERIFIED WITH OWNER): A366/A366M, COMMERCIAL QUALITY, STRETCHED LEVELED, TEMPER ROLLED. STAINLESS STEEL. B. ALUMINUM: ALLOY AND TEMPER RECOMMENDED BY ALUMINUM PRODUCER AND MANUFACTURER FOR TYPE OF USE AND FINISH INDICATED AS FOLLOWS: PVC PLASTIC - WHITE C. RETAINER CLIPS: MANUFACTURER'S STANDARD IMPACT-ABSORBING CLIPS. EXTRUDED SHAPES: ASTM B221. 1. TOP AND BOTTOM CAPS: PREFABRICATED, INJECTION-MOLDED PLASTIC; COLOR MATCHING COVER; FIELD ADJUSTABLE FOR CLOSE ALIGNMENT STAINLESS-STEEL SHEET: ASTM A666, TYPE 302 OR TYPE 304 ALLOY. 2.3 PORTABLE FIRE EXTINGUISHERS PART 3 - EXECUTION A. GENERAL: PROVIDE FIRE EXTINGUISHERS OF TYPE, SIZE, AND CAPACITY FOR EACH 3.1 INSTALLATION CABINET AND OTHER LOCATIONS INDICATED. A. GENERAL: INSTALL IMPACT-RESISTANT WALL PROTECTION UNITS LEVEL, PLUMB, B. MULTIPURPOSE DRY-CHEMICAL TYPE: UL-RATED 4-A:60-B:C, 10-LB NOMINAL CAPACITY, AND TRUE TO LINE WITHOUT DISTORTIONS. DO NOT USE MATERIALS WITH CHIPS, CRACKS, VOIDS, STAINS, OR OTHER DEFECTS THAT MIGHT BE VISIBLE IN THE FINISHED WORK. CABINET CONSTRUCTION: PROVIDE MANUFACTURER'S STANDARD BOX (TUB), WITH INSTALL IMPACT-RESISTANT WALL PROTECTION UNITS IN LOCATIONS AND TRIM, FRAME, DOOR, AND HARDWARE TO SUIT CABINET TYPE, TRIM STYLE, AND DOOR AT MOUNTING HEIGHTS INDICATED ON DRAWINGS. STYLE INDICATED. WELD JOINTS AND GRIND SMOOTH. MITER AND WELD PERIMETER PROVIDE SPLICES, MOUNTING HARDWARE, ANCHORS, AND OTHER DOOR FRAMES. CONTRACTOR TO VERIFY COLOR SELECTION OF ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. FIRE-PROTECTION CABINETS WITH OWNER PRIOR TO ANY WORK. 1. FIRE-RATED CABINETS: LISTED AND LABELED TO MEET REQUIREMENTS OF a. PROVIDE ANCHORING DEVICES TO WITHSTAND IMPOSED LOADS. IMMEDIATELY AFTER COMPLETION OF INSTALLATION, CLEAN PLASTIC COVERS CONSTRUCTION FIRE-RATED CABINETS WITH DOUBLE WALLS FABRICATED INCH THICK, FIRE-BARRIER MATERIAL. PROVIDE FACTORY DRILLED MOUNTING REMOVE EXCESS ADHESIVE USING METHODS AND MATERIALS RECOMMENDED IN WRITING BY MANUFACTURER. CABINET METAL: ENAMELED STEEL HOLES. B. CABINET TYPE: SUITABLE FOR FIRE EXTINGUISHER. END OF SECTION 10 26 00 CABINET MOUNTING: PROVIDE SEMI-RECESSED CABINET BOX PARTIALLY TO SUIT STYLE OF TRIM INDICATED. LOCATE CABINET PER ADAG'S REACH REQUIREMENTS. FOR AN UNOBSTRUCTED APPROACH, THE MAXIMUM REACH IS 48 INCHES (1220 MM) **TOILET ACCESSORIES** SECTION 10 28 00 ABOVE THE FLOOR. THE MAXIMUM REACH FOR A SIDE APPROACH IS 54 INCHES (1370 PART 1 - GENERAL D. CABINET TRIM STYLE: FABRICATE TRIM IN ONE PIECE WITH CORNERS MITERED, RELATED DOCUMENTS WELDED, AND GROUND SMOOTH. EXPOSED TRIM: ONE-PIECE COMBINATION TRIM A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT APPLY TO THIS SECTION. AND PERIMETER DOOR FRAME OVERLAPPING SURROUNDING WALL SURFACE WITH EXPOSED TRIM FACE AND WALL RETURN AT OUTER EDGE (BACKEND). ROLLED-EDGE QUALITY ASSURANCE TRIM: 2-1/2 INCH BACKBEND DEPTH SINGLE-SOURCE RESPONSIBILITY: PROVIDE PRODUCTS OF SAME E. CABINET TRIM MATERIAL: MANUFACTURER'S STANDARD, SAME METAL AND FINISH AS MANUFACTURER FOR EACH TYPE OF ACCESSORY UNIT AND FOR UNITS EXPOSED TO VIEW IN SAME AREAS. F. DOOR MATERIAL: MANUFACTURER'S STANDARD, SHEET METAL. PROJECT CONDITIONS G. DOOR STYLE: MANUFACTURER'S STANDARD DESIGN, SOLID OPAQUE PANEL WITH COORDINATION: COORDINATE ACCESSORY LOCATIONS, INSTALLATION, AND SEQUENCING WITH OTHER WORK TO AVOID INTERFERENCE AND TO ASSURE PROPER INSTALLATION, OPERATION, ADJUSTMENT, CLEANING, AND SERVICING OF H. DOOR CONSTRUCTION: FABRICATE DOORS ACCORDING TO MANUFACTURER'S TOILET ACCESSORY ITEMS. STANDARDS, OF MATERIALS INDICATED, AND COORDINATED WITH CABINET TYPES AND TRIM STYLES SELECTED. PART 2 - PRODUCTS DOOR HARDWARE: PROVIDE MANUEACTURER'S STANDARD DOOR-OPERATING MANUFACTURERS HARDWARE OF PROPER TYPE FOR CABINET TYPE, TRIM STYLE, AND DOOR MATERIAL AND STYLE INDICATED. PROVIDE EITHER LEVER HANDLE WITH CAM-ACTION LATCH, OR EXPOSED OR CONCEALED DOOR PULL AND FRICTION LATCH. PROVIDE A. SEE EQUIPMENT PLAN AND SCHEDULE FOR TOILET ACCESSORIES INFORMATION. 2.2 MATERIALS GENERAL CONCEALED OR CONTINUOUS-TYPE HINGE PERMITTING DOOR TO OPEN 180 DEGREES. A. STAINLESS STEEL: AISI TYPE 302/304, WITH POLISHED NO. 4 FINISH, 22 GAUGE 2.5 ACCESSORIES (.034 INCH) MINIMUM THICKNESS. A. MOUNTING BRACKETS: MANUFACTURER'S STANDARD STEEL, DESIGNED TO SECURE BRASS: LEADED AND UNLEADED, FLAT PRODUCTS, ASTM B19; RODS, SHAPES, EXTINGUISHER, OF SIZES REQUIRED FOR TYPES AND CAPACITIES OF EXTINGUISHERS FORGINGS, AND FLAT PRODUCTS WITH FINISHED EDGES, ASTM B16; CASTINGS, INDICTED, WITH PLATED OR BAKED ENAMEL FINISH. 1. PROVIDE BRACKETS FOR EXTINGUISHERS NOT LOCATED IN CABINETS. CHROMIUM PLATING: NICKEL AND CHROMIUM ELECTRO-DEPOSITED ON BASE 2. PROVIDE BRACKETS FOR EXTINGUISHERS LOCATED IN CABINETS. METAL, ASTM B 456, TYPE SC2. B. IDENTIFICATION: PROVIDE LETTERING TO COMPLY WITH AUTHORITIES HAVING FASTENERS: SCREWS, BOLTS, AND OTHER DEVICES OF SAME MATERIAL AS JURISDICTION FOR LETTER STYLE, COLOR, SIZE, SPACING, AND LOCATION. LOCATE ACCESSORY UNIT OR OF GALVANIZED STEEL WHERE CONCEALED. AS DIRECTED BY THE OWNERS REPRESENTATIVE. E. ALL STEEL PRODUCTS SHALL BE FABRICATED UTILIZING ONLY DOMESTICALLY 1. IDENTIFY FIRE EXTINGUISHER IN CABINET WITH THE WORDS "FIRE EXTINGUISHER" APPLIED TO DOOR. APPLY BLACK VINYL LETTERS, RECESSED SANITARY NAPKIN DISPOSAL HORIZONTALLY. SATIN-FINISH STAINLESS STEEL. SEAMLESS BEVELED FLANGE. DOOR HAS 2.6 COLORS AND TEXTURES TUMBLER LOCK. SELF-CLOSING PANEL COVERS DISPOSAL OPENING. A. COLORS AND TEXTURES: AS SELECTED BY OWNER FROM MANUFACTURER'S FULL REMOVABLE, LEAK-PROOF, 1.2 GAL. PLASTIC RECEPTACLE.

RANGE FOR CHARACTERISTICS

APPLYING AND DESIGNATION FINISHES.

ASSEMBLED OR INSTALLED TO MINIMIZE CONTRAST.

SOUND FOUNDATION FOR FIELD-APPLIED TOPCOATS DESPITE PROLONGED EXPOSURE.

BAKED-ENAMEL PAINT FOR THE FOLLOWING:

EXTERIOR OF CABINETS AND DOORS.

2. INTERIOR OF CABINETS AND DOORS.

STANDARD METHODS.

THICKNESS OF 2 MILS.

2.8 STEEL FINISHES

A. COMPLY WITH NAAMM'S "METAL FINISHES MANUAL" FOR RECOMMENDATIONS FOR

APPLYING A STRIPPABLE, TEMPORARY PROTECTIVE COVERING BEFORE SHIPPING. APPEARANCE OF FINISHED WORK: VARIATIONS IN APPEARANCE OF ABUTTING OR

ADJACENT PIECES ARE ACCEPTABLE IF THEY ARE WITHIN ONE-HALF OF THE RANGE

ACCEPTABLE IF THEY ARE WITHIN THE RANGE OF THE APPROVED SAMPLES AND ARE

OF APPROVED SAMPLES. NOTICEABLE VARIATIONS IN THE SAME PIECE ARE NOT

ACCEPTABLE VARIATIONS IN APPEARANCE OF OTHER COMPONENTS ARE

A. SURFACE PREPARATION: CLEANING SURFACES OF DIRT, OIL, GREASE, MILL SCALE,

B. FACTORY PRIMING FOR FIELD PAINTED FINISH: APPLY SHOP PRIMER SPECIFIED

BELOW IMMEDIATELY AFTER SURFACE PREPARATION AND PRETREATMENT.

BAKED-ENAMEL FINISH: IMMEDIATELY AFTER CLEANING PRETREATING, APPLY MANUFACTURER'S STANDARD TWO-COAT, BAKED-ENAMEL FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT. COMPLY WITH PAINT MANUFACTURER'S

RUST, AND CONTAMINANTS THAT COULD IMPAIR PAINT BOND USING MANUFACTURER'S

1. SHOP PRIMER: MANUFACTURER'S OR FABRICATOR'S STANDARD, FAST-CURING,

LEAD AND CHROMATE-FREE. UNIVERSAL PRIMER. SELECTED FOR RESISTANCE

TO NORMAL ATMOSPHERIC CORROSION, FOR COMPATIBILITY TO PROVIDE A

WRITTEN INSTRUCTIONS FOR APPLYING AND BAKING TO ACHIEVE A MINIMUM DRY FILM

1. COLOR AND GLOSS: AS SELECTED BY OWNER FROM MANUFACTURER'S FULL

D. CABINET AND DOOR FINISHES: PROVIDE MANUFACTURER'S STANDARD

B. PROTECT MECHANICAL FINISHES ON EXPOSED SURFACES FROM DAMAGE BY

TYPE 304 STAINLESS STEEL ALLOY 18-8 WITH SATIN FINISH. 18 GAUGE DOOR

TUMBLER. 20 GAUGE PUSH DOOR WITH INTERNATIONAL GRAPHIC SYMBOL

IDENTIFYING WASTE DISPOSAL

LONG GRAB BAR: PER RESTROOM.

REQUIRED OVER EACH TOILET ROOM SINK.

MISCELLANEOUS ACCESSORIES

HAND DRYER

MOUNTED ON STAINLESS STEEL PIANO HINGE AND SHALL BE HELD CLOSED WITH

STAINLESS STEEL TYPE: PROVIDE GRAB BARS WITH WALL THICKNESS NOT LESS

THAN 0.05 INCH (18 GAUGE). MOUNTING: CONCEALED, MANUFACTURER'S

STANDARD FLANGES AND ANCHORAGE. MOUNTING PER MANUFACTURER'S

STANDARD FLANGES AND ANCHORAGE. CLEARANCE: 1-1/2 INCH CLEARANCE

MANUFACTURER'S STANDARD. HEAVY-DUTY SIZE: OUTSIDE DIAMETER OF 1-1/2

INCHES. PROVIDE ONE 18" LONG GRAB BAR; ONE 36" LONG GRAB BAR; ONE 42"

BETWEEN WALL SURFACE AND INSIDE FACE OF BAR. GRIPPING SURFACES

SURFACE MOUNTED. RECESSED KIT. POWER SOURCE 110/120V, 12.5AMP.

STAINLESS STEEL FRAMED MIRROR UNITS: FABRICATE FRAME WITH ANGLE

A. MOP AND BROOM HOLDER: WALL MOUNTING. 0.062 INCH (16 GAUGE) STAINLESS

PROVIDE UNIT 24 INCHES LONG AND COMPLETE WITH FOUR MOP/BROOM

DOUBLE-PRONG ROBE HOOK: HEAVY-DUTY SATIN FINISHED STAINLESS STEEL

FOR CONCEALED MOUNTING. ONE REQUIRED FOR EACH TOILET ROOM.

STEEL WITH SPRING-LOADED, RUBBER HAT, CAM-TYPE MOP/BROOM HOLDERS.

SHAPES NOT LESS THAN 0.05 INCH (18 GAUGE), WITH SQUARE CORNERS MITERED.

WELDED, AND GROUND SMOOTH. PROVIDE IN NO. 4 SATIN POLISHED FINISH. ONE

WARM AIR, RAPID DRYING, ENERGY EFFICIENT ELECTRIC HAND DRYER.

PART 3 - EXECUTION 3.2 INSTALLATION 3.3 ADJUSTING, CLEANING AND PROTECTION 3.4 FIRE-PROTECTION CABINET SCHEDULE

A. EXAMINE WALLS ROUGH-IN FOR HOSE VALVES, HOSE RACKS, AND CABINETS TO

B. EXAMINE WALLS AND PARTITIONS FOR SUITABLE FRAMING DEPTH AND BLOCKING

REMOVE AND REPLACE DAMAGE, DEFECTIVE, OR UNDERCHARGED UNITS.

PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE

B. INSTALL IN LOCATIONS AND AT MOUNTING HEIGHTS INDICATED OR. IF NOT INDICATED.

1. PREPARE RECESSES FOR CABINETS AS REQUIRED BY TYPE AND SIZE OF

REFINISH OR REPLACE CABINETS AND DOORS DAMAGED DURING INSTALLATION.

PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE THAT CABINETS AND DOORS ARE WITHOUT DAMAGE OR DETERIORATION AT THE TIME OF

A. FIRE-PROTECTION CABINET PROVIDE FIRE-PROTECTION CABINET COMPLYING WITH

2. CABINET MATERIAL: STEEL-COLD ROLLED STEEL W/ RECOATABLE WHITE

6. CABINET TRIM MATERIAL: SAME MATERIAL AND FINISH AS CABINET.

9. ACCESSORIES: MOUNTING BRACKETS, AND INDENTIFICATION LETTERING.

END OF SECTION 10 44 00

DOOR MATERIAL: SAME MATERIAL AND FINISH AS CABINET.

DOOR STYLE: FULL GLASS W/ TEMPERED SAFETY GLASS.

2. FASTEN MOUNTING BRACKETS TO STRUCTURE AND CABINETS, SQUARE AND

LOCATIONS OF PIPING CONNECTIONS BEFORE CABINET INSTALLATION.

WHERE RECESSED AND SEMI-RECESSED CABINETS ARE TO INSTALLED.

C. EXAMINE FIRE EXTINGUISHERS FOR PROPER CHARGING AND TAGGING.

A. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLING

AT HEIGHTS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

3. FASTEN CABINETS TO STRUCTURE, SQUARE AND PLUMB.

ADJUST CABINET DOORS THAT DO NOT SWING OR OPERATE FREELY.

BEEN CORRECTED.

FIRE-PROTECTION

THE FOLLOWING:

CONSTRUCTION: NONRATED.

POLYESTER FINISH.

TYPE: FIRE EXTINGUISHER.

MOUNTING: SEMIRECESSED.

TRIM STYLE: EXPOSED, 2 INCH.

CABINET AND TRIM STYLE.

SPECIALTIES.

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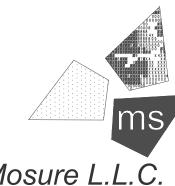
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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: CHARLES M. BUSCH No. 1301068763 EXP. DATE: 10/31/2023

PROJECT NO.:

40509-11

ARCHITECTURAL **SPECIFICATIONS** 

#### 1.2 SUMMARY

- A. THIS SECTION INCLUDES THE FOLLOWING:
  - COMPONENTS AS THEY ARE CONSTRUCTED. ELECTRICAL EQUIPMENT COORDINATION AND INSTALLATION.

#### 2. COMMON ELECTRICAL INSTALLATION REQUIREMENTS.

#### 1.3 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED

#### 1.4 COORDINATION

A. COORDINATE ARRANGEMENT, MOUNTING, AND SUPPORT OF ELECTRICAL EQUIPMENT:

- TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS THAT
- REDUCE HEADROOM ARE INDICATED. TO PROVIDE FOR EASE OF DISCONNECTING THE EQUIPMENT WITH MINIMUM
- INTERFERENCE TO OTHER INSTALLATIONS. TO ALLOW RIGHT OF WAY FOR PIPING AND CONDUIT INSTALLED AT REQUIRED SLOPE
- 4. SO CONNECTING RACEWAYS, CABLES, WIREWAYS, CABLE TRAYS, AND BUSWAYS WILL BE CLEAR OF OBSTRUCTIONS AND OF THE WORKING AND ACCESS SPACE OF OTHER EQUIPMENT.
- B. COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN CAST-IN-PLACE CONCRETE, MASONRY WALLS AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
- C. COORDINATE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE BEHIND FINISHED SURFACES OR OTHERWISE CONCEALED. ACCESS DOORS AND PANELS ARE SPECIFIED IN DIVISION 8 SECTION "ACCESS DOORS AND FRAMES."
- D. COORDINATE ELECTRICAL TESTING OF ELECTRICAL, MECHANICAL, AND ARCHITECTURAL ITEMS, SO EQUIPMENT AND SYSTEMS THAT ARE FUNCTIONALLY INTERDEPENDENT ARE TESTED TO DEMONSTRATE SUCCESSFUL INTEROPERABILITY.

#### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:
- 1 AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED.

## 2.2 SLEEVES FOR RACEWAYS AND CABLES

- A. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, PLAIN ENDS
- B. COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRESTOPPING

## PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. COMPLY WITH NECA 1.
- B. MEASURE INDICATED MOUNTING HEIGHTS TO BOTTOM OF UNIT FOR SUSPENDED ITEMS AND TO CENTER OF UNIT FOR WALL-MOUNTING ITEMS
- C. HEADROOM MAINTENANCE: IF MOUNTING HEIGHTS OR OTHER LOCATION CRITERIA ARE NOT INDICATED, ARRANGE AND INSTALL COMPONENTS AND EQUIPMENT TO PROVIDE MAXIMUM POSSIBLE HEADROOM CONSISTENT WITH THESE REQUIREMENTS.
- D. EQUIPMENT: INSTALL TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS OF BOTH ELECTRICAL EQUIPMENT AND OTHER NEARBY INSTALLATIONS. CONNECT IN SUCH A WAY AS TO FACILITATE FUTURE DISCONNECTING WITH MINIMUM INTERFERENCE WITH OTHER ITEMS IN THE VICINITY.
- E. RIGHT OF WAY: GIVE TO RACEWAYS AND PIPING SYSTEMS INSTALLED AT A REQUIRED SLOPE.

## 3.2 FIRESTOPPING

A. APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY

## 3.3 FIELD QUALITY CONTROL

A. INSPECT INSTALLED SLEEVE AND SLEEVE-SEAL INSTALLATIONS AND ASSOCIATED FIRESTOPPING FOR DAMAGE AND FAULTY WORK.

END OF SECTION 26 05 00

#### CONDUCTORS AND CABLES **SECTION 26 05 19** PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS

## 1.2 SUMMARY

- A. THIS SECTION INCLUDES THE FOLLOWING:
- BUILDING WIRES AND CABLES RATED 600 V AND LESS. 2. CONNECTORS, SPLICES, AND TERMINATIONS RATED 600 V AND LESS.
- 3. SLEEVES AND SLEEVE SEALS FOR CABLES. 1.3 SUBMITTALS

#### A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED

#### 1.4 QUALITY ASSURANCE

- A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. ARTICLE 100. BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
  - CONDUCTORS.
- 1.5 COORDINATION A. SET SLEEVES IN CAST-IN-PLACE CONCRETE MASONRY WALLS, AND OTHER STRUCTURAL

#### PART 2 - PRODUCTS

#### 2.1 CONDUCTORS AND CABLES

B. COMPLY WITH NFPA 70.

- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- 1. ALCAN PRODUCTS CORPORATION; ALCAN CABLE DIVISION
- AMERICAN INSULATED WIRE CORP.; A LEVITON COMPANY
- 3. GENERAL CABLE CORPORATION. SENATOR WIRE & CABLE COMPANY.

SERVICE ENTRANCE ONLY).

- SOUTHWIRE COMPANY. B. ALUMINUM AND COPPER CONDUCTORS: COMPLY WITH NEMA WC 70. (ALUMINUM APPROVED FOR
- C. CONDUCTOR INSULATION: COMPLY WITH NEMA WC 70 FOR TYPES THHN-THWN, XHHW AND SO.

#### 2.2 CONNECTORS AND SPLICES

- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- AFC CABLE SYSTEMS, INC. HUBBELL POWER SYSTEMS, INC. O-Z/GEDNEY; EGS ELECTRICAL GROUP LLC.
- 4. 3M; ELECTRICAL PRODUCTS DIVISION. 5. TYCO ELECTRONICS CORP.
- B. DESCRIPTION: FACTORY-FABRICATED CONNECTORS AND SPLICES OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED.

#### 2.3 SLEEVES FOR CABLES A. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E,

- GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS.
  - APPLICATION WITH SELECTION AND APPLICATION OF FIRESTOPPING

#### PART 3 - EXECUTION

#### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- SMALLER; STRANDED FOR NO. 8 AWG AND
- B. BRANCH CIRCUITS: COPPER. SOLID FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG
- C. SERVICE ENTRANCE: ALUMINUM. SEE ELECTRICAL RISER DIAGRAM FOR SIZING.

## 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR

## APPLICATIONS AND WIRING METHODS

- A. SERVICE ENTRANCE: TYPE XHHW, SINGLE CONDUCTORS IN RACEWAY
- C. FEEDERS CONCEALED IN CEILINGS. WALLS. PARTITIONS. AND CRAWLSPACES: TYPE
- THHN-THWN, SINGLE CONDUCTORS IN RACEWAY. D. FEEDERS CONCEALED IN CONCRETE, BELOW
- E. EXPOSED BRANCH CIRCUITS, INCLUDING IN CRAWLSPACES: TYPE THHN-THWN, SINGLE
- CONDUCTORS IN RACEWAY. F. BRANCH CIRCUITS CONCEALED IN CEILINGS, WALLS, AND PARTITIONS: TYPE THHN-THWN,
- G. BRANCH CIRCUITS CONCEALED IN CONCRETE,
- H. CORD DROPS AND PORTABLE APPLIANCE WITH STAINLESS-STEEL. WIRE-MESH, STRAIN RELIEF DEVICE AT TERMINATIONS TO SUIT

## 3.3 INSTALLATION OF CONDUCTORS AND CABLES

APPLICATION.

- A. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
- B. USE MANUFACTURER-APPROVED PULLING COMPOUND USED MUST NOT DETERIORATE MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE
- C. USE PULLING MEANS, INCLUDING FISH TAPE, GRIPS, THAT WILL NOT DAMAGE CABLES OR RACEWAY.
- PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.

#### E. IDENTIFY AND COLOR-CODE CONDUCTORS ACCORDING TO LOCAL CUSTOM.

# 3.4 CONNECTIONS

A. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT

#### INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.

B. MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED

 USE OXIDE INHIBITOR IN EACH SPLICE, TERMINATION, AND TAP FOR ALUMINUM

C. WIRING AT OUTLETS: INSTALL CONDUCTORS AT EACH OUTLET, WITH AT LEAST 6 INCHES OF

## 3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION
- B. FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT CABLE PENETRATIONS.

**SECTION 26 05 26** 

#### A. APPLY FIRESTOPPING TO ELECTRICAL

PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY

#### END OF SECTION 26 05 19 **GROUNDING AND BONDING**

## PART 1 - GENERAL

1.1 RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND

SUPPLEMENTARY APPLY TO THIS SECTION.

#### 1.2 SUMMARY

A. THIS SECTION INCLUDES METHODS AND MATERIALS FOR GROUNDING SYSTEMS AND

#### 1.3 SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT
- B. OTHER INFORMATIONAL SUBMITTALS: PLANS SHOWING DIMENSIONED AS-BUILT LOCATIONS OF GROUNDING FEATURES SPECIFIED IN PART 3 "FIELD QUALITY CONTROL" ARTICLE, INCLUDING THE FOLLOWING:

A. ELECTRICAL COMPONENTS, DEVICES, AND

ACCEPTABLE TO AUTHORITIES HAVING

B. COMPLY WITH UL 467 FOR GROUNDING AND

BONDING MATERIALS AND EQUIPMENT.

A. INSULATED CONDUCTORS: COPPER WIRE OR

REQUIRED BY APPLICABLE CODE OR

AUTHORITIES HAVING JURISDICTION.

SOLID CONDUCTORS: ASTM B 3.

STRANDED CONDUCTORS: ASTM B 8.

A. LISTED AND LABELED BY A NATIONALLY

RECOGNIZED TESTING LABORATORY

ACCEPTABLE TO AUTHORITIES HAVING

JURISDICTION FOR APPLICATIONS IN WHICH

USED AND FOR SPECIFIC TYPES SIZES AND

COMBINATIONS OF CONDUCTORS AND OTHER

1. PIPE CONNECTORS: CLAMP TYPE, SIZED FOR

MANUFACTURER FOR MATERIALS BEING JOINED

C. WELDED CONNECTORS: EXOTHERMIC-WELDING

A. GROUND RODS: COPPER-CLAD 10'-0" IN LENGTH

A. CONDUCTORS: INSTALL SOLID CONDUCTOR FOR

CONDUCTORS FOR NO. 8 AWG AND LARGER,

INSTALL BARE COPPER CONDUCTOR, NO. 3/0 AWG

1. BURY AT LEAST 24 INCHES BELOW GRADE.

TELEPHONE EQUIPMENT ROOMS, IN ROOMS

HOUSING SERVICE EQUIPMENT, AND ELSEWHERE

1. INSTALL BUS ON INSULATED SPACERS 1 INCH,

MINIMUM, FROM WALL 6 INCHES ABOVE

FINISHED FLOOR, UNLESS OTHERWISE

D. CONDUCTOR TERMINATIONS AND CONNECTIONS

C. GROUNDING BUS: INSTALL IN ELECTRICAL AND

NO. 10 AND SMALLER, AND STRANDED

B. UNDERGROUND GROUNDING CONDUCTORS:

UNLESS OTHERWISE INDICATED.

KITS OF TYPES RECOMMENDED BY KIT

AND INSTALLATION CONDITIONS.

B. BARE COPPER CONDUCTORS:

ITEMS CONNECTED.

BY 3/4" IN DIAMETER.

AS INDICATED.

PART 3 - EXECUTION

3.1 APPLICATIONS

CABLE INSULATED FOR 600 V UNLESS OTHERWISE

ACCESSORIES: LISTED AND LABELED AS DEFINED

IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY

JURISDICTION, AND MARKED FOR INTENDED USE

- 1. TEST WELLS. GROUND RODS.
- GROUND RINGS 4. GROUNDING ARRANGEMENTS AND CONNECTIONS FOR SEPARATELY DERIVED

SYSTEMS

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.2 CONNECTORS

2.1 CONDUCTORS

B. COORDINATE SLEEVE SELECTION AND

A. FEEDERS: COPPER. SOLID FOR NO. 10 AWG AND

- B. EXPOSED FEEDERS: TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY
- B. BOLTED CONNECTORS FOR CONDUCTORS AND SLABS-ON-GRADE, AND UNDERGROUND: TYPE PIPES: COPPER OR COPPER ALLOY, BOLTED THHN-THWN, SINGLE CONDUCTORS IN RACEWAY. PRESSURE-TYPE, WITH AT LEAST TWO BOLTS.
- SINGLE CONDUCTORS IN RACEWAY. BELOW SLABS-ON-GRADE, AND UNDERGROUND: 2.3 GROUNDING ELECTRODES TYPE THHN-THWN, SINGLE CONDUCTORS IN
- CONNECTIONS: TYPE SO, HARD SERVICE CORD

- COMPOUND OR LUBRICANT WHERE NECESSARY; CONDUCTOR OR INSULATION. DO NOT EXCEED
- CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE D. INSTALL EXPOSED CABLES PARALLEL AND
  - PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED
    - CONNECTORS 2. UNDERGROUND CONNECTIONS: WELDED CONNECTORS, EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED. 3. CONNECTIONS TO GROUND RODS AT TEST

WELLS: BOLTED CONNECTORS.

WELDED CONNECTORS.

4. CONNECTIONS TO STRUCTURAL STEEL:

AND GROUND BUS.

3.2 GROUNDING AT THE SERVICE

A. EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE CONNECTED TO THE GROUND BUS. INSTALL A MAIN BONDING JUMPER BETWEEN THE NEUTRAL

#### 3.3 EQUIPMENT GROUNDING

CIRCUITS.

- A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS AND BRANCH
- B. INSTALL EQUIPMENT GROUNDING CONDUCTORS WITH THE FOLLOWING ITEMS, IN ADDITION TO THOSE REQUIRED BY NFPA 70:

3. ARMORED AND METAL-CLAD CABLE RUNS.

- LIGHTING AND RECEPTACLE CIRCUITS. 2. ALL MOTOR AND APPLIANCE BRANCH
- C. AIR-DUCT EQUIPMENT CIRCUITS: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTOR TO DUCT-MOUNTED ELECTRICAL DEVICES OPERATING AT 120V AND MORE, INCLUDING HEATERS, DAMPERS, HUMIDIFIERS, AND OTHER DUCT ELECTRICAL EQUIPMENT. BOND
- AND CONNECT METALLIC PIPING. D. WATER HEATER AND HEAT-TRACING: INSTALL A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR TO EACH ELECTRIC WATER HEATER AND HEAT-TRACING CABLE. BOND CONDUCTOR TO HEATER UNITS, PIPING, CONNECTED

EQUIPMENT, AND COMPONENTS.

CONDUCTOR TO EACH UNIT AND TO AIR DUCT

E. POLES SUPPORTING OUTDOOR LIGHTING FIXTURES: INSTALL GROUNDING ELECTRODE AND A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO GROUNDING CONDUCTOR INSTALLED WITH BRANCH-CIRCUIT CONDUCTORS. F. SIGNAL AND COMMUNICATION EQUIPMENT: FOR

TELEPHONE, ALARM, VOICE AND DATA, AND

OTHER COMMUNICATION EQUIPMENT, PROVIDE

LOCATION, TERMINAL CABINET, WIRING CLOSET

NO. 6 AWG MINIMUM INSULATED GROUNDING

CONDUCTOR IN RACEWAY FROM GROUNDING

AND CENTRAL EQUIPMENT LOCATION. SERVICE AND CENTRAL EQUIPMENT LOCATIONS AND WIRING CLOSETS: TERMINATE GROUNDING CONDUCTOR ON A

ELECTRODE SYSTEM TO EACH SERVICE

#### 1/4-BY-2-BY-12-INCH GROUNDING BUS. 3.4 INSTALLATION

- A. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE, UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE.
- B. GROUND RODS: DRIVE RODS UNTIL TOPS ARE 2 INCHES BELOW FINISHED FLOOR OR FINAL GRADE, UNLESS OTHERWISE INDICATED.

INTERCONNECT GROUND RODS WITH

BELOW GRADE AND AS OTHERWISE INDICATED. MAKE CONNECTIONS WITHOUT EXPOSING STEEL OR DAMAGING COATING, IF C. TEST WELLS: GROUND ROD DRIVEN THROUGH DRILLED HOLE IN BOTTOM OF HANDHOLE. HANDHOLES ARE SPECIFIED IN DIVISION 2

GROUNDING ELECTRODE CONDUCTOR

STRUCTURES," AND SHALL BE AT LEAST 12 INCHES DEEP, WITH COVER. 1. TEST WELLS: INSTALL AT LEAST ONE TEST WELL FOR EACH SERVICE, UNLESS OTHERWISE INDICATED. INSTALL AT THE GROUND ROD ELECTRICALLY CLOSEST TO SERVICE ENTRANCE. SET TOP OF TEST WELL

FLUSH WITH FINISHED GRADE OR FLOOR.

SECTION "UNDERGROUND DUCTS AND UTILITY

- D. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE, EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.
- CARE NOT TO PENETRATE ANY ADJACENT 2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED

1. BONDING TO STRUCTURE: BOND STRAPS

DIRECTLY TO BASIC STRUCTURE, TAKING

3. USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR LOCATIONS BUT IF A DISCONNECT-TYPE CONNECTION IS

#### REQUIRED, USE A BOLTED CLAMP. E. GROUNDING AND BONDING FOR PIPING:

**EQUIPMENT** 

- 1. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS. IN CONDUIT. FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES, USING A BOLTED CLAMP CONNECTOR OR BY BOLTING A LUG-TYPE CONNECTOR TO A PIPE FLANGE, USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO CONDUCTOR AT
- F. CONCRETE-ENCASED GROUNDING ELECTRODE (UFER GROUND): FABRICATE ACCORDING TO NFPA 70, USING A MINIMUM OF 20 FEET OF BARE COPPER CONDUCTOR NOT SMALLER THAN NO. 4
- BOND GROUNDING CONDUCTOR TO REINFORCING STEEL IN AT LEAST FOUR LOCATIONS. EXTEND GROUNDING CONDUCTOR BELOW GRADE AND CONNECT TO BUILDING GROUNDING GRID OR TO GROUNDING ELECTRODE EXTERNAL TO CONCRETE.

## 3.5 FIELD QUALITY CONTROL

EACH END.

- A. PERFORM THE FOLLOWING TESTS AND INSPECTIONS AND PREPARE TEST REPORTS: 1. AFTER INSTALLING GROUNDING SYSTEM BUT
  - BEFORE PERMANENT ELECTRICAL CIRCUITS HAVE BEEN ENERGIZED. TEST FOR COMPLIANCE WITH REQUIREMENTS.

#### 2. TEST COMPLETED GROUNDING SYSTEM AT METAL WIREWAYS SERVICE DISCONNECT ENCLOSURE

GROUNDING TERMINAL.

RESISTANCE.

PREPARE DIMENSIONED DRAWINGS

a. MEASURE GROUND RESISTANCE NOT

LESS THAN TWO FULL DAYS AFTER LAST

TRACE OF PRECIPITATION AND WITHOUT

SOIL BEING MOISTENED BY ANY MEANS

MEANS OF REDUCING NATURAL GROUND

OTHER THAN NATURAL DRAINAGE OR

SEEPAGE AND WITHOUT CHEMICAL

TREATMENT OR OTHER ARTIFICIAL

b. PERFORM TESTS BY FALL-OF-POTENTIAL

METHOD ACCORDING TO IEEE 81.

LOCATING EACH TEST WELL, GROUND ROD

AND GROUND ROD ASSEMBLY, AND OTHER

GROUNDING ELECTRODES. IDENTIFY EACH

BY LETTER IN ALPHABETICAL ORDER, AND

OBSERVATIONS. INCLUDE THE NUMBER OF

RODS DRIVEN AND THEIR DEPTH AT EACH

LOCATION, AND INCLUDE OBSERVATIONS OF

WEATHER AND OTHER PHENOMENA THAT

MAY AFFECT TEST RESULTS, DESCRIBE

MEASURES TAKEN TO IMPROVE TEST

B. REPORT MEASURED GROUND RESISTANCES THAT

C. EXCESSIVE GROUND RESISTANCE: IF RESISTANCE

NOTIFY ARCHITECT PROMPTLY AND INCLUDE

**SECTION 26 05 33** 

TO GROUND EXCEEDS SPECIFIED VALUES,

RECOMMENDATIONS TO REDUCE GROUND

A. DRAWINGS AND GENERAL PROVISIONS OF THE

A. THIS SECTION INCLUDES RACEWAYS, FITTINGS,

BOXES, ENCLOSURES, AND CABINETS FOR

D. LFMC: LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

A. PRODUCT DATA: FOR SURFACE RACEWAYS

A. AVAILABLE MANUFACTURERS: SUBJECT TO

MAY BE INCORPORATED INTO THE WORK

INCLUDE, BUT ARE NOT LIMITED TO, THE

COMPLIANCE WITH REQUIREMENTS,

AFC CABLE SYSTEMS, INC

INTERNATIONAL LTD. CO.

3. ALLIED TUBE & CONDUIT; A TYCO

MANHATTAN/CDT/COLE-FLEX.

9. WHEATLAND TUBE COMPANY.

B. RIGID STEEL CONDUIT: ANSI C80.1.

D. IMC: ANSI C80.6. AND UL 1242

E. EMT: ANSI C80.3. AND UL 797

F. FMC: ZINC-COATED STEEL.

INSTALLED.

CONDUCTIVITY.

FOLLOWING:

CANTEX INC.

ELECSYS, INC.

8. ELECTRI-FLEX CO.

PRODUCTS.

OTHERWISE INDICATED.

2.4

2.2 NONMETALLIC CONDUIT AND TUBING

MAVERICK TUBE CORPORATION.

O-Z GEDNEY: A UNIT OF GENERAL SIGNAL

C. ALUMINUM RIGID CONDUIT: ANSI C80.5. AND UL6

G. LFMC: FLEXIBLE STEEL CONDUIT WITH PVC

H. FITTINGS FOR CONDUIT (INCLUDING ALL TYPES

RACEWAY WITH WHICH USED, AND FOR

COMPRESSION TYPE.

AND FLEXIBLE AND LIQUIDTIGHT), EMT, AND

APPLICATION AND ENVIRONMENT IN WHICH

CABLE: NEMA FB 1; LISTED FOR TYPE AND SIZE

1. FITTINGS FOR EMT: STEEL SET-SCREW OR

JOINT COMPOUND FOR RIGID STEEL CONDUIT OR

IMC: LISTED FOR USE IN CABLE CONNECTOR

A. AVAILABLE MANUFACTURERS: SUBJECT TO

MAY BE INCORPORATED INTO THE WORK

5. CERTAINTEED CORP.; PIPE & PLASTICS

9. LAMSON & SESSIONS; CARLON ELECTRICAL

INCLUDE, BUT ARE NOT LIMITED TO, THE

COMPLIANCE WITH REQUIREMENTS.

. AFC CABLE SYSTEMS, INC.

6. CONDUX INTERNATIONAL, INC.

10. MANHATTAN/CDT/COLE-FLEX.

12. THOMAS & BETTS CORPORATION.

B. RNC: NEMA TC 2, TYPE EPC-40-PVC, UNLESS

C. FITTINGS FOR RNC: NEMA TC 3; MATCH TO

CONDUIT OR TUBING TYPE AND MATERIAL.

11. RACO: A HUBBELL COMPANY.

ARNCO CORPORATION.

ASSEMBLIES. AND COMPOUNDED FOR USE TO

LUBRICATE AND PROTECT THREADED RACEWAY

JOINTS FROM CORROSION AND ENHANCE THEIR

MANUFACTURERS OFFERING PRODUCTS THAT

2. ANAMET ELECTRICAL, INC.; ANACONDA METAL

WIREWAYS AND FITTINGS, FLOOR BOXES,

HINGED-COVER ENCLOSURES, AND CABINETS.

MANUFACTURERS OFFERING PRODUCTS THAT

4. ANAMET ELECTRICAL, INC.; ANACONDA METAL

SUPPLEMENTARY CONDITIONS APPLY TO THIS

CONTRACT, INCLUDING GENERAL AND

EXCEED THE FOLLOWING VALUES:

RESISTANCE.

**RACEWAY AND BOXES** 

1.1 RELATED DOCUMENTS

SECTION

ELECTRICAL WIRING.

A. EMT: ELECTRICAL METALLIC TUBING

E. RNC: RIGID NONMETALLIC CONDUIT.

IMC: INTERMEDIATE METAL CONDUIT.

B. FMC: FLEXIBLE METAL CONDUIT.

PART 1 - GENERAL

1.2 SUMMARY

1.3 DEFINITIONS

1.4 SUBMITTALS

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

FOLLOWING:

ALFLEX INC.

ELECTRI-FLEX CO.

END OF SECTION 26 05 26

KEY TO THE RECORD OF TESTS AND

- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- B. FOLLOWING:
- COOPER B-LINE, INC.
- HOFFMAN. 3. SQUARE D; SCHNEIDER ELECTRIC.
- C. DESCRIPTION: SHEET METAL SIZED AND SHAPED AS INDICATED, NEMA 250, TYPE 1, UNLESS OTHERWISE INDICATED.
- D. FITTINGS AND ACCESSORIES: INCLUDE COUPLINGS, OFFSETS, ELBOWS, EXPANSION JOINTS, ADAPTERS, HOLD-DOWN STRAPS, END CAPS, AND OTHER FITTINGS TO MATCH AND MATE WITH WIREWAYS AS REQUIRED FOR COMPLETE
- E. WIREWAY COVERS: SCREW-COVER TYPE
- F. FINISH: MANUFACTURER'S STANDARD ENAMEL

#### 2.5 BOXES, ENCLOSURES, AND CABINETS

COMPANY

- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
- 1. COOPER CROUSE-HINDS; DIV. OF COOPER INDUSTRIES, INC.
- EGS/APPLETON ELECTRIC. ERICKSON ELECTRICAL EQUIPMENT
- 4. HOFFMAN 5. HUBBELL INCORPORATED; KILLARK ELECTRIC
- MANUFACTURING CO. DIVISION. 6. O-Z/GEDNEY; A UNIT OF GENERAL SIGNAL RACO: A HUBBELL COMPANY.
- 8. ROBROY INDUSTRIES, INC.; ENCLOSURE 9. SCOTT FETZER CO.; ADALET DIVISION.

10. SPRING CITY ELECTRICAL MANUFACTURING

11. THOMAS & BETTS CORPORATION. 12. WALKER SYSTEMS, INC.; WIREMOLD

COMPANY (THE)

INDUSTRIES, INC. SUBSIDIARY. B. SHEET METAL OUTLET AND DEVICE BOXES: NEMA

13. WOODHEAD, DANIEL COMPANY; WOODHEAD

- C. CAST-METAL OUTLET AND DEVICE BOXES: NEMA FB 1, FERROUS ALLOY, TYPE FD, WITH GASKETED
- D. FLOOR BOXES: AS SPECIFIED ON DRAWINGS.
- NEMA OS 1. F. HINGED-COVER ENCLOSURES: NEMA 250, TYPE 1, WITH CONTINUOUS-HINGE COVER WITH FLUSH

E. SMALL SHEET METAL PULL AND JUNCTION BOXES:

LATCH, UNLESS OTHERWISE INDICATED. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S

# STANDARD ENAMEL.

G. CABINETS: NEMA 250. TYPE 1. GALVANIZED-STEEL BOX WITH REMOVABLE INTERIOR PANEL AND REMOVABLE FRONT, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD

2. HINGED DOOR IN FRONT COVER WITH FLUSH

#### LATCH AND CONCEALED HINGE. 3. KEY LATCH TO MATCH PANELBOARDS.

ENAMEL.

- PART 3 EXECUTION 3.1 RACEWAY APPLICATION
  - A. OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW, UNLESS OTHERWISE INDICATED:
  - 1. EXPOSED CONDUIT: RIGID STEEL CONDUIT. CONCEALED CONDUIT, ABOVEGROUND: EMT UNDERGROUND CONDUIT: RNC, TYPE
- NEMA 250, TYPE 3R. B. COMPLY WITH THE FOLLOWING INDOOR

4. BOXES AND ENCLOSURES, ABOVEGROUND:

APPLICATIONS, UNLESS OTHERWISE INDICATED:

EPC-40-PVC, DIRECT BURIED.

- 1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: FMT. 2. EXPOSED AND SUBJECT TO PHYSICAL DAMAGE: RIGID STEEL CONDUIT
- WALLS AND PARTITIONS: EMT 4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.

EXCEPT USE NEMA 250, TYPE 3R] IN

5. BOXES AND ENCLOSURES: NEMA 250, TYPE 1,

3. CONCEALED IN CEILINGS AND INTERIOR

- OUTDOOR LOCATIONS. C. MINIMUM RACEWAY SIZE: 1/2-INCH TRADE SIZE.
- RACEWAYS AND SUITABLE FOR USE AND LOCATION. 1. RIGID AND INTERMEDIATE STEEL CONDUIT:

D. RACEWAY FITTINGS: COMPATIBLE WITH

FITTINGS, UNLESS OTHERWISE INDICATED 2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THAT MATERIAL. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY

USE THREADED RIGID STEEL CONDUIT

CONTACT WITH CONCRETE.

E. DO NOT INSTALL ALUMINUM CONDUITS IN

FITTING MANUFACTURER.

# 3.2 INSTALLATION

A. COMPLY WITH NECA 1 FOR INSTALLATION REQUIREMENTS APPLICABLE TO PRODUCTS SPECIFIED IN PART 2 EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER.

B. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM

PARALLEL RUNS OF FLUES AND STEAM OR

HOT-WATER PIPES. INSTALL HORIZONTAL

RACEWAY RUNS ABOVE WATER AND STEAM C. COMPLETE RACEWAY INSTALLATION BEFORE

STARTING CONDUCTOR INSTALLATION.

- D. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE THE FINISHED
- E. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED.
- F. CONCEAL CONDUIT AND EMT WITHIN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
- G. THREADED CONDUIT JOINTS. EXPOSED TO WET DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADS OF RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- H. RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS, INCLUDING CONDUCTORS SMALLER THAN NO. 4 AWG.
- I. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE.
- J. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE.
- K. INSTALL RACEWAY SEALING FITTINGS AT SUITABLE, APPROVED, AND ACCESSIBLE LOCATIONS AND FILL THEM WITH LISTED SEALING COMPOUND. FOR CONCEALED RACEWAYS, INSTALL EACH FITTING IN A FLUSH STEEL BOX WITH A BLANK COVER PLATE HAVING A FINISH SIMILAR TO THAT OF ADJACENT PLATES OR SURFACES. INSTALL RACEWAY SEALING FITTINGS AT THE FOLLOWING POINTS:

1. WHERE CONDUITS PASS FROM WARM TO

REFRIGERATED SPACES.

COLD LOCATIONS, SUCH AS BOUNDARIES OF

- 2. WHERE OTHERWISE REQUIRED BY NFPA 70. L. FLEXIBLE CONDUIT CONNECTIONS: USE MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR RECESSED AND SEMIRECESSED LIGHTING FIXTURES, EQUIPMENT SUBJECT TO VIBRATION NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS.
- USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE.

#### M. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CELL OF MASONRY BLOCK AND INSTALL BOX FLUSH WITH SURFACE OF

3.3 FIRESTOPPING A. APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR AND WALL

ASSEMBLIES TO RESTORE ORIGINAL

N. SET FLOOR BOXES LEVEL AND FLUSH WITH

FINISHED FLOOR SURFACE.

# FIRE-RESISTANCE RATING OF ASSEMBLY

3.4 PROTECTION

A. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE COATINGS, FINISHES, AND CABINETS ARE WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL

1. REPAIR DAMAGE TO GALVANIZED FINISHES

WITH ZINC-RICH PAINT RECOMMENDED BY

2. REPAIR DAMAGE TO PVC OR PAINT FINISHES

WITH MATCHING TOUCH-UP COATING RECOMMENDED BY MANUFACTURER.

END OF SECTION 26 05 33

COMPLETION.

MANUFACTURER

DRAWN BY NWO

CHECKED BY

APPROVED BY

ISSUE DATE 07/12/2022 ISSUE

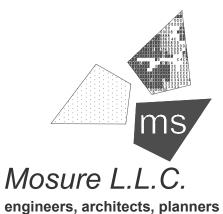
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40509-11

SHEET TITLE:

PROJECT NO.:

# ES1.

**SECTION 26 05 53** 

B. RELATED DOCUMENTS:

 DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS SECTION.

A. PRODUCT DATA: FOR EACH ELECTRICAL IDENTIFICATION PRODUCT INDICATED.

#### 1.3 QUALITY ASSURANCE

COMPLY WITH NFPA 70.

B. COMPLY WITH ANSI A13.1 AND NFPA 70 FOR COLOR-CODING.

#### PART 2 - PRODUCTS

#### 2.1 RACEWAY AND CABLE LABELS

A. COMPLY WITH ANSI A13.1, TABLE 3, FOR MINIMUM SIZE OF LETTERS FOR LEGEND AND FOR MINIMUM LENGTH OF COLOR FIELD FOR EACH RACEWAY AND CABLE SIZE.

1. COLOR: BLACK LETTERS ON ORANGE FIELD. 2. LEGEND: INDICATES VOLTAGE AND SERVICE.

B. VINYL LABELS: PRE-PRINTED, FLEXIBLE SELF-ADHESIVE VINYL WITH LEGEND OVER-LAMINATED WITH A CLEAR, WEATHER- AND CHEMICAL-RESISTANT COATING WITH MATCHING WRAPAROUND CLEAR ADHESIVE TAPE FOR SECURING BOTH ENDS OF LEG LABEL.

C. PRE-TENSIONED, WRAPAROUND PLASTIC SLEEVES: FLEXIBLE, PREPRINTED COLOR-CODED, ACRYLIC BAND SIZED TO SUIT THE DIAMETER OF THE LINE IT IDENTIFIES AND ARRANGED TO STAY IN PLACE BY PRE-TENSIONED GRIPPING ACTION WHEN PLACED

D. COLORED ADHESIVE TAPE: SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS THICK BY 1 TO 2 INCHES WIDE (0.08 MM THICK BY 25 TO 51 MM

E. TAPE MARKERS: VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND TYPE WITH PRE-PRINTED NUMBERS AND LETTERS.

F. PLASTICIZED CARD-STOCK TAGS: VINYL CLOTH WITH PRE-PRINTED AND FIELD-PRINTED LEGENDS ORANGE BACKGROUND, UNLESS OTHERWISE INDICATED, WITH EYELET FOR FASTENER.

#### 2.2 NAMEPLATES AND SIGNS

A. SAFETY SIGNS: COMPLY WITH 29 CFR, CHAPTER XVII, PART 1910.145.

B. ENGRAVED PLASTIC NAMEPLATES AND SIGNS: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE, MINIMUM 1/16 INCH (1.6 MM) THICK FOR SIGNS UP TO 20 SQ. IN. (129 SQ. CM) AND 1/8 INCH (3.2 MM) THICK FOR LARGER SIZES.

1. ENGRAVED LEGEND WITH BLACK LETTERS ON WHITE FACE. 2. PUNCHED OR DRILLED FOR MECHANICAL

FASTENERS.

C. FASTENERS FOR NAMEPLATES AND SIGNS: SELF-TAPPING, STAINLESS-STEEL SCREWS OR NO. 10/32, STAINLESS-STEEL MACHINE SCREWS WITH NUTS AND FLAT AND LOCK WASHERS.

## 2.3 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. CABLE TIES: FUNGUS-INERT, SELF-EXTINGUISHING, ONE-PIECE, SELF-LOCKING,

MINIMUM WIDTH: 3/16 INCH (5 MM). TENSILE STRENGTH: 50 LB (22.3 KG) MINIMUM. TEMPERATURE RANGE: MINUS 40 TO PLUS 185 DEG F (MINUS 40 TO PLUS 85 DEG C). 4. COLOR: ACCORDING TO COLOR-CODING.

B. PAINT: FORMULATED FOR THE TYPE OF SURFACE AND INTENDED USE.

1. PRIMER FOR GALVANIZED METAL: SINGLE-COMPONENT ACRYLIC VEHICLE FORMULATED FOR GALVANIZED SURFACES

HEAVY-DUTY-RESIN BLOCK FILLER. PRIMER FOR CONCRETE: CLEAR. ALKALI-RESISTANT, BINDER-TYPE SEALER. 4. ENAMEL: SILICONE-ALKYD OR ALKYD

2. PRIMER FOR CONCRETE MASONRY UNITS:

URETHANE AS RECOMMENDED BY PRIMER

#### MANUFACTURER. PART 3 - EXECUTION

FINISH WORK

## 3.1 INSTALLATION

A. IDENTIFICATION MATERIALS AND DEVICES: INSTALL AT LOCATIONS FOR MOST CONVENIENT VIEWING WITHOUT INTERFERENCE WITH OPERATION AND MAINTENANCE OF EQUIPMENT

LETTERING, COLORS, AND GRAPHICS: COORDINATE NAMES, ABBREVIATIONS, COLORS, AND OTHER DESIGNATIONS WITH CORRESPONDING DESIGNATIONS IN THE CONTRACT DOCUMENTS OR WITH THOSE REQUIRED BY CODES AND STANDARDS. USE CONSISTENT DESIGNATIONS THROUGHOUT PROJECT.

SEQUENCE OF WORK: IF IDENTIFICATION IS APPLIED TO SURFACES THAT REQUIRE FINISH

D. SELF-ADHESIVE IDENTIFICATION PRODUCTS:

CLEAN SURFACES BEFORE APPLYING.

INSTALL IDENTIFICATION AFTER COMPLETING

E. INSTALL PAINTED IDENTIFICATION ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND

1. CLEAN SURFACES OF DUST, LOOSE MATERIAL, AND OILY FILMS BEFORE PAINTING

2. PRIME SURFACES USING TYPE OF PRIMER SPECIFIED FOR SURFACE. 3. APPLY ONE INTERMEDIATE AND ONE FINISH COAT OF ENAMEL.

F. COLOR BANDING RACEWAYS AND EXPOSED

CABLES: BAND EXPOSED AND ACCESSIBLE RACEWAYS OF THE SYSTEMS LISTED BELOW

1. BANDS: PRE-TENSIONED, WRAPAROUND PLASTIC SLEEVES; COLORED ADHESIVE TAPE: OR A COMBINATION OF BOTH. MAKE EACH COLOR BAND 2 INCHES (51 MM) WIDE, COMPLETELY ENCIRCLING CONDUIT. AND PLACE ADJACENT BANDS OF TWO-COLOR

MARKINGS IN CONTACT, SIDE BY SIDE. 2. BAND LOCATIONS: AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND FLOORS, AT 50-FOOT (15-M) MAXIMUM INTERVALS IN STRAIGHT RUNS, AND AT 25-FOOT (7.6-M) MAXIMUM INTERVALS IN

3. APPLY THE FOLLOWING COLORS TO THE SYSTEMS LISTED BELOW:

a. FIRE ALARM SYSTEM: RED. b. FIRE-SUPPRESSION SUPERVISORY AND

CONTROL SYSTEM: RED AND YELLOW. c. COMBINED FIRE ALARM AND SECURITY SYSTEM: RED AND BLUE.

d. SECURITY SYSTEM: BLUE AND YELLOW.

e. MECHANICAL AND ELECTRICAL SUPERVISORY SYSTEM: GREEN AND f. TELECOMMUNICATION SYSTEM: GREEN AND YELLOW.

G. CAUTION LABELS FOR INDOOR BOXES AND ENCLOSURES FOR POWER AND LIGHTING: INSTALL PRESSURE-SENSITIVE. SELF-ADHESIVE LABELS IDENTIFYING SYSTEM VOLTAGE WITH BLACK LETTERS ON ORANGE BACKGROUND. INSTALL ON EXTERIOR OF DOOR OR COVER.

H. COLOR-CODING OF SECONDARY PHASE CONDUCTORS: USE THE FOLLOWING COLORS FOR SERVICE, FEEDER AND BRANCH-CIRCUIT PHASE CONDUCTORS:

1. 208/120-V CONDUCTORS:

a. PHASE A: BLACK

b. PHASE B: RED c. PHASE C: BLUE

2. FACTORY APPLY COLOR THE ENTIRE LENGTH OF CONDUCTORS, EXCEPT THE FOLLOWING FIELD-APPLIED. COLOR-CODING METHODS MAY BE USED INSTEAD OF FACTORY-CODED WIRE FOR SIZES LARGER THAN NO. 10 AWG:

a. COLORED, PRESSURE-SENSITIVE PLASTIC TAPE IN HALF-LAPPED TURNS FOR A DISTANCE OF 6 INCHES (150 MM) FROM TERMINAL POINTS AND IN BOXES WHERE SPLICES OR TAPS ARE MADE. APPLY LAST TWO TURNS OF TAPE WITH NO TENSION TO PREVENT POSSIBLE UNWINDING. USE 1-INCH (25-MM) WIDE TAPE IN COLORS SPECIFIED. ADJUST TAPE BANDS TO AVOID OBSCURING CABLE IDENTIFICATION MARKINGS.

I. APPLY IDENTIFICATION TO CONDUCTORS AS

1. MULTIPLE POWER OR LIGHTING CIRCUITS IN THE SAME ENCLOSURE: IDENTIFY EACH CONDUCTOR WITH SOURCE, VOLTAGE, CIRCUIT NUMBER, AND PHASE. USE COLOR-CODING TO IDENTIFY CIRCUITS' **VOLTAGE AND PHASE** 

2. MULTIPLE CONTROL AND COMMUNICATION CIRCUITS IN THE SAME ENCLOSURE: IDENTIFY EACH CONDUCTOR BY ITS SYSTEM AND CIRCUIT DESIGNATION. USE A CONSISTENT SYSTEM OF TAGS, COLOR-CODING, OR CABLE MARKING TAPE.

J. APPLY WARNING, CAUTION, AND INSTRUCTION SIGNS AS FOLLOWS:

WARNINGS, CAUTIONS, AND INSTRUCTIONS INSTALL TO ENSURE SAFE OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS AND OF ITEMS TO WHICH THEY CONNECT. INSTALL ENGRAVED PLASTIC-LAMINATED INSTRUCTION SIGNS WITH APPROVED LEGEND WHERE INSTRUCTIONS ARE NEEDED FOR SYSTEM OR EQUIPMENT OPERATION.

INSTALL METAL-BACKED BUTYRATE SIGNS FOR OUTDOOR ITEMS. . EMERGENCY OPERATION: INSTALL ENGRAVED LAMINATED SIGNS WITH WHITE LEGEND ON RED BACKGROUND WITH MINIMUM 3/8-INCH- (9-MM-) HIGH I FTTERING FOR EMERGENCY INSTRUCTIONS ON POWER

TRANSFER AND OTHER EMERGENCY OPERATIONS. K. EQUIPMENT IDENTIFICATION LABELS: ENGRAVED PLASTIC LAMINATE, INSTALL ON EACH UNIT OF EQUIPMENT, INCLUDING CENTRAL OR MASTER UNIT OF EACH SYSTEM. THIS INCLUDES POWER, LIGHTING, COMMUNICATION, SIGNAL, AND ALARM SYSTEMS, UNLESS UNITS ARE SPECIFIED WITH THEIR OWN SELF-EXPLANATORY IDENTIFICATION. UNLESS OTHERWISE INDICATED, PROVIDE A

SINGLE LINE OF TEXT WITH 1/2-INCH- (13-MM-) HIGH LETTERING ON 1-1/2-INCH- (38-MM-) HIGH LABEL; WHERE TWO LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES (50 MM) HIGH. USE WHITE LETTERING ON BLACK FIELD. APPLY LABELS FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF EQUIPMENT USING MECHANICAL FASTENERS:

1. PANELBOARDS, ELECTRICAL CABINETS, AND ENCLOSURES.

2. EMERGENCY SYSTEM BOXES AND ENCLOSURES.

3. DISCONNECT SWITCHES. 4. ENCLOSED CIRCUIT BREAKERS.

MOTOR STARTERS CONTACTORS.

 CONTROL DEVICES TRANSFORMERS. 9. CLOCK/PROGRAM MASTER EQUIPMENT. 10. FIRE ALARM MASTER STATION OR CONTROL

11. SECURITY-MONITORING MASTER STATION OR CONTROL PANEL.

## END OF SECTION 26 05 53

#### LIGHTING CONTROL DEVICES **SECTION 26 09 23** PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS SECTION.

## 1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING

LIGHTING CONTROL DEVICES:

 TIME SWITCHES. 2. OUTDOOR PHOTOELECTRIC SWITCHES. 3. MULTI-POLE CONTACTORS.

B. RELATED SECTIONS INCLUDE THE FOLLOWING: 1. DIVISION 26 SECTION "WIRING DEVICES" FOR OCCUPANCY SENSORS AND MANUAL LIGHT

#### 1.3 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT

INDICATED. B. FIELD QUALITY-CONTROL TEST REPORTS.

C. OPERATION AND MAINTENANCE DATA: FOR EACH TYPE OF PRODUCT TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

#### 1.4 QUALITY ASSURANCE

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. ARTICLE 100. BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

A. COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.

#### 2.1 MANUFACTURERS

PART 2 - PRODUCTS

A. MANUFACTURER/MODEL # SHALL BE AS SPECIFIED ON DRAWINGS OR EQUAL. REFER TO CONSTRUCTION DRAWINGS FOR EQUIPMENT

#### PART 3 - EXECUTION

3.1 WIRING INSTALLATION

A. WIRING METHOD: COMPLY WITH DIVISION 26 SECTION "CONDUCTORS AND CABLES." MINIMUM CONDUIT SIZE SHALL BE 1/2 INCH (13 MM).

B. WIRING WITHIN ENCLOSURES: BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS. SEPARATE POWER-LIMITED AND NON-POWER-LIMITED CONDUCTORS ACCORDING TO CONDUCTOR MANUFACTURER'S WRITTEN INSTRUCTIONS.

C. SIZE CONDUCTORS ACCORDING TO LIGHTING CONTROL DEVICE MANUFACTURER'S WRITTEN INSTRUCTIONS, UNLESS OTHERWISE INDICATED. D. SPLICES, TAPS, AND TERMINATIONS: MAKE CONNECTIONS ONLY ON NUMBERED TERMINAL

STRIPS IN JUNCTION, PULL, AND OUTLET BOXES:

ENCLOSURES. E. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A.

TERMINAL CABINETS; AND EQUIPMENT

A. IDENTIFY COMPONENTS AND POWER AND CONTROL WIRING ACCORDING TO DIVISION 26 SECTION "ELECTRICAL IDENTIFICATION."

B. LABEL TIME SWITCHES AND CONTACTORS WITH A UNIQUE DESIGNATION.

#### 3.3 FIELD QUALITY CONTROL

A. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:

1. AFTER INSTALLING TIME SWITCHES AND SENSORS, AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, ADJUST AND TEST FOR COMPLIANCE WITH REQUIREMENTS.

2. OPERATIONAL TEST: VERIFY ACTUATION OF EACH SENSOR AND ADJUST TIME DELAYS.

B. REMOVE AND REPLACE LIGHTING CONTROL DEVICES WHERE TEST RESULTS INDICATE THAT THEY DO NOT COMPLY WITH SPECIFIED REQUIREMENTS.

C. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

## END OF SECTION 26 09 23

**SECTION 26 24 16** 

PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS

## 1.2 SUMMARY

1.3 DEFINITIONS

A. THIS SECTION INCLUDES THE FOLLOWING:

1. DISTRIBUTION PANELBOARDS. 2. LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS.

#### 3. TRANSIENT VOLTAGE SUPPRESSION PANELBOARDS.

A. EMI: ELECTROMAGNETIC INTERFERENCE.

B. GFCI: GROUND-FAULT CIRCUIT INTERRUPTER.

C. RFI: RADIO-FREQUENCY INTERFERENCE.

E. SPDT: SINGLE POLE, DOUBLE THROW.

D. RMS: ROOT MEAN SQUARE.

1.4 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PANELBOARD, OVERCURRENT PROTECTIVE DEVICE, TRANSIENT VOLTAGE SUPPRESSION DEVICE. ACCESSORY, AND COMPONENT INDICATED. INCLUDE DIMENSIONS AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, AND FINISHES.

B. SHOP DRAWINGS: FOR EACH PANELBOARD AND RELATED EQUIPMENT.

1. DIMENSIONED PLANS, ELEVATIONS, SECTIONS, AND DETAILS. SHOW TABULATIONS OF INSTALLED DEVICES. EQUIPMENT FEATURES, AND RATINGS. INCLUDE THE FOLLOWING:

a. ENCLOSURE TYPES AND DETAILS FOR TYPES OTHER THAN NEMA 250, TYPE 1.

PROTECTIVE DEVICES.

d. FEATURES, CHARACTERISTICS, RATINGS,

AND AUXILIARY COMPONENTS.

PANELBOARDS. SUBMIT FINAL VERSIONS AFTER

PANELBOARDS AND COMPONENTS TO INCLUDE IN

EMERGENCY, OPERATION, AND MAINTENANCE

MAINTENANCE DATA," INCLUDE THE FOLLOWING:

MANUFACTURER'S WRITTEN INSTRUCTIONS

OVERCURRENT PROTECTIVE DEVICES.

OVERCURRENT PROTECTIVE DEVICE.

SELECTABLE RANGES FOR EACH TYPE OF

COMPONENTS, AND ACCESSORIES THROUGH ONE

PROFILES, AND DIMENSIONAL REQUIREMENTS OF

PANELBOARDS AND ARE BASED ON THE SPECIFIC

ACCESSORIES: LISTED AND LABELED AS DEFINED

IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY

JURISDICTION, AND MARKED FOR INTENDED USE

MANUALS. IN ADDITION TO ITEMS SPECIFIED IN

C. PANELBOARD SCHEDULES: FOR INSTALLATION IN

D. OPERATION AND MAINTENANCE DATA: FOR

DIVISION 1 SECTION " OPERATION AND

FOR TESTING AND ADJUSTING

2. TIME-CURRENT CURVES, INCLUDING

A. SOURCE LIMITATIONS: OBTAIN PANELBOARDS,

SOURCE FROM A SINGLE MANUFACTURER.

B. PRODUCT OPTIONS: DRAWINGS INDICATE SIZE,

SYSTEM INDICATED. REFER TO DIVISION 1

SECTION "PRODUCT REQUIREMENTS."

C. ELECTRICAL COMPONENTS, DEVICES, AND

ACCEPTABLE TO AUTHORITIES HAVING

D. COMPLY WITH NEMA PB 1.

E. COMPLY WITH NFPA 70.

INDICATED:

OVERCURRENT PROTECTIVE DEVICES,

LOAD BALANCING.

1.5 QUALITY ASSURANCE

AND FACTORY SETTINGS OF INDIVIDUAL

OVERCURRENT PROTECTIVE DEVICES

b. BUS CONFIGURATION, CURRENT, AND VOLTAGE RATINGS c. SHORT-CIRCUIT CURRENT RATING OF PANELBOARDS AND OVERCURRENT

AND RECEIVING EQUIPMENT.

CHANGES AND SUBMIT TEST RECORDS 4. TOLERANCE: DIFFERENCE EXCEEDING 20 PERCENT BETWEEN PHASE LOADS. WITHIN A PANELBOARD, IS NOT ACCEPTABLE. REBALANCE AND RECHECK AS NECESSARY TO MEET THIS MINIMUM REQUIREMENT

INTERIOR AND EXTERIOR OF PANELBOARDS. REMOVE PAINT SPLATTERS AND OTHER SPOTS. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING REPAIR EXPOSED SURFACES TO MATCH ORIGINAL

# WIRING DEVICES

PART 1 - GENERAL

CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS

RECEPTACLES. RECEPTACLES WITH

 WALL-BOX MOTION SENSORS SNAP SWITCHES AND WALL-BOX DIMMERS. PENDANT CORD-CONNECTOR DEVICES. CORD AND PLUG SETS.

#### 1.3 DEFINITIONS

1.6 PROJECT CONDITIONS A. GFCI: GROUND-FAULT CIRCUIT INTERRUPTER. A. ENVIRONMENTAL LIMITATIONS: RATE EQUIPMENT B. PIGTAIL: SHORT LEAD USED TO CONNECT A FOR CONTINUOUS OPERATION UNDER THE DEVICE TO A BRANCH-CIRCUIT CONDUCTOR. FOLLOWING CONDITIONS, UNLESS OTHERWISE

1. AMBIENT TEMPERATURE: NOT EXCEEDING 104 DEG F

# 2. ALTITUDE: NOT EXCEEDING 6600 FEET.

1.7 COORDINATION A. COORDINATE LAYOUT AND INSTALLATION OF PANELBOARDS AND COMPONENTS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM, INCLUDING ELECTRICAL AND OTHER TYPES OF EQUIPMENT, RACEWAYS, PIPING. AND ENCUMBRANCES TO WORKSPACE CLEARANCE REQUIREMENTS.

## 1.8 EXTRA MATERIALS

A. FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

1. KEYS: SIX SPARES FOR EACH TYPE OF PANELBOARD CABINET LOCK

## PART 2 - PRODUCTS

2.1 MANUFACTURER A. MANUFACTURER/MODEL # SHALL BE AS SPECIFIED ON THE DRAWINGS EQUAL TO SQUARE D, EATON, SIEMENS OR GE. REFER TO CONSTRUCTION DRAWINGS FOR FOUIPMENT CLARIFICATIONS.

#### PART 3 - EXECUTION 3.1 INSTALLATION

A. INSTALL PANELBOARDS AND ACCESSORIES ACCORDING TO NEMA PB 1.1.

B. MOUNT TOP OF TRIM 74 INCHES ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED.

C. MOUNT PLUMB AND RIGID WITHOUT DISTORTION

OF BOX. MOUNT RECESSED PANELBOARDS WITH FRONTS UNIFORMLY FLUSH WITH WALL FINISH. D. INSTALL OVERCURRENT PROTECTIVE DEVICES

AND CONTROLLERS. SET FIELD-ADJUSTABLE SWITCHES AND

CIRCUIT-BREAKER TRIP RANGES. E. INSTALL FILLER PLATES IN UNUSED SPACES.

F. ARRANGE CONDUCTORS IN GUTTERS INTO

#### GROUPS AND BUNDLE AND WRAP WITH WIRE TIES AFTER COMPLETING LOAD BALANCING.

3.2 IDENTIFICATION A. IDENTIFY FIELD-INSTALLED CONDUCTORS,

INTERCONNECTING WIRING, AND COMPONENTS. B. CREATE A DIRECTORY TO INDICATE INSTALLED CIRCUIT LOADS AFTER BALANCING PANELBOARD LOADS. OBTAIN APPROVAL BEFORE INSTALLING. USE A COMPUTER OR TYPEWRITER TO CREATE DIRECTORY; HANDWRITTEN DIRECTORIES ARE NOT ACCEPTABLE.

C. PANELBOARD NAMEPLATES: LABEL EACH PANELBOARD WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.

#### 3.3 CONNECTIONS A. GROUND EQUIPMENT ACCORDING TO DIVISION 26

SECTION "CONDUCTORS AND CABLES." 3.4 FIELD QUALITY CONTROL A. LOAD BALANCING: AFTER SUBSTANTIAL COMPLETION, BUT NOT MORE THAN 60 DAYS

NORMAL SYSTEM LOADING.

CHANGES OUTSIDE NORMAL

2. PERFORM LOAD-BALANCING CIRCUIT

SECTION "GROUNDING AND BONDING."

B. CONNECT WIRING ACCORDING TO DIVISION 26

AFTER FINAL ACCEPTANCE, MEASURE LOAD BALANCING AND MAKE CIRCUIT CHANGES. 1. MEASURE AS DIRECTED DURING PERIOD OF FACILITY AND AT TIME DIRECTED. AVOID DISRUPTING CRITICAL 24-HOUR SERVICES

SUCH AS FAX MACHINES AND ON-LINE DATA PROCESSING, COMPUTING, TRANSMITTING, 3. AFTER CIRCUIT CHANGES, RECHECK LOADS DURING NORMAL LOAD PERIOD. RECORD ALL LOAD READINGS BEFORE AND AFTER

OCCUPANCY/WORKING SCHEDULE OF THE

**SECTION 26 27 26** 

A. ON COMPLETION OF INSTALLATION, INSPECT

#### END OF SECTION 26 24 16

1.1 RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF THE

A. THIS SECTION INCLUDES THE FOLLOWING:

INTEGRAL GFCI, AND ASSOCIATED DEVICE TWIST-LOCKING RECEPTACLES.

FLOOR SERVICE OUTLETS, SERVICE POLES, AND MULTIOUTLET ASSEMBLIES.

# 1.4 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. B. SHOP DRAWINGS: LIST OF LEGENDS AND

DESCRIPTION OF MATERIALS AND PROCESS USED

FOR PREMARKING WALL PLATES. C. OPERATION AND MAINTENANCE DATA: FOR WIRING DEVICES TO INCLUDE IN ALL MANUFACTURERS' PACKING LABEL WARNINGS AND INSTRUCTION MANUALS THAT INCLUDE

#### LABELING CONDITIONS. 1.5 QUALITY ASSURANCE

A. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER. INSOFAR AS THEY ARE AVAILABLE, OBTAIN ALL WIRING DEVICES AND ASSOCIATED WALL PLATES FROM A SINGLE MANUFACTURER AND ONE SOURCE.

B. ELECTRICAL COMPONENTS. DEVICES. AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING

JURISDICTION, AND MARKED FOR INTENDED USE. C. COMPLY WITH NFPA 70.

# 1.6 COORDINATION

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. RECEPTACLES FOR OWNER-FURNISHED EQUIPMENT: MATCH PLUG CONFIGURATIONS. 1. CORD AND PLUG SETS: MATCH EQUIPMENT

# 1.7 EXTRA MATERIALS

BUT NO FEWER THAN ONE

A. MANUFACTURERS' NAMES: SHORTENED

IN OTHER PART 2 ARTICLES:

2.2 STRAIGHT BLADE RECEPTACLES

. FLOOR SERVICE OUTLET ASSEMBLIES: ONE

FOR EVERY 5, BUT NO FEWER THAN ONE.

VERSIONS (SHOWN IN PARENTHESES) OF THE

COOPER WIRING DEVICES; A DIVISION OF

COOPER INDUSTRIES, INC. (COOPER).

3. LEVITON MFG. COMPANY INC. (LEVITON).

HUBBELL INCORPORATED; WIRING

DEVICE-KELLEMS (HUBBELL).

FOLLOWING MANUFACTURERS' NAMES ARE USED

REQUIREMENTS.

A. FURNISH EXTRA MATERIALS DESCRIBED IN 2. DESCRIPTION: SINGLE POLE, WITH FACTORY-SUPPLIED KEY IN LIEU OF SWITCH SUBPARAGRAPHS BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. 1. SERVICE/POWER POLES: ONE FOR EVERY 10

A. CEILING MOUNT SENSORS: DUAL TECHNOLOGY, WITH BOTH PASSIVE-INFRARED- AND MICRO PHONE ACOUSTIC DETECTION, 120/277 V, ADJUSTABLE TIME DELAY UP TO 30 MINUTES, 360-DEGREE FIELD OF VIEW, AND A MINIMUM BE SELF-CONTAINED AND ACCEPT CLASS 1 WIRING DIRECTLY WITHOUT THE USE OF A

1. AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: a. SENSOR SWITCH; CMR-PDT.

#### 4. PASS & SEYMOUR/LEGRAND; WIRING DEVICES & ACCESSORIES (PASS & SEYMOUR).

A. CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, AND UL 498.

1. AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. COOPER: 5351 (SINGLE), 5352 (DUPLEX).

c. LEVITON; 5891 (SINGLE), 5352 (DUPLEX).

b. HUBBELL; HBL5351 (SINGLE), CR5352

#### d. PASS & SEYMOUR; 5381 (SINGLE), 5352 (DUPLEX).

2.3 GFCI RECEPTACLES

(DUPLEX).

A. GENERAL DESCRIPTION: STRAIGHT BLADE, FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6, UL 498, AND UL 943, CLASS A, AND INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED.

B. DUPLEX GFCI CONVENIENCE RECEPTACLES, 125

 AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. COOPER; GF20. b. PASS & SEYMOUR; 2084.

#### 2.4 TWIST-LOCKING RECEPTACLES

A. SINGLE CONVENIENCE RECEPTACLES, 125 V, 20 A: WD 1, NEMA WD 6 CONFIGURATION L5-20R, AND

 AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PRODUCTS THAT MAY BE INCORPORATED

THE WORK INCLUDE, BUT ARE NOT LIMITED TO,

a. COOPER; L520R. b. HUBBELL; HBL2310. c. LEVITON: 2310.

HEAVY-DUTY GRADE.

2.5 PENDANT CORD-CONNECTOR DEVICES A. DESCRIPTION: MATCHING, LOCKING-TYPE PLUG AND RECEPTACLE BODY CONNECTOR; NEMA WD 6

CONFIGURATIONS L5-20P AND L5-20R,

TO CABLE DIAMETER, AND WITH

CORRESPONDING CONNECTOR.

d. PASS & SEYMOUR; L520-R.

 BODY: NYLON WITH SCREW-OPEN CABLE-GRIPPING JAWS AND PROVISION FOR ATTACHING EXTERNAL CABLE GRIP. 2. EXTERNAL CABLE GRIP: WOVEN WIRE-MESH TYPE MADE OF HIGH-STRENGTH

GALVANIZED-STEEL WIRE STRAND, MATCHED

ATTACHMENT PROVISION DESIGNED FOR

# 2.6 CORD AND PLUG SETS

A. DESCRIPTION: MATCH VOLTAGE AND CURRENT RATINGS AND NUMBER OF CONDUCTORS TO REQUIREMENTS OF EQUIPMENT BEING CONNECTED.

 CORD: RUBBER-INSULATED. STRANDED-COPPER CONDUCTORS, WITH TYPE SOW-A JACKET; WITH GREEN-INSULATED GROUNDING CONDUCTOR AND EQUIPMENT-RATING AMPACITY PLUS A MINIMUM OF 30 PERCENT.

2. PLUG: NYLON BODY AND INTEGRAL CABLE-CLAMPING JAWS. MATCH CORD AND RECEPTACLE TYPE FOR CONNECTION.

#### 2.7 SNAP SWITCHES A. COMPLY WITH NEMA WD 1 AND UL 20.

B. SWITCHES, 120/277 V, 20 A: 1. AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT

> LIMITED TO, THE FOLLOWING: a. COOPER; 2221 (SINGLE POLE), 2222 (TWO POLE), 2223 (THREE WAY), 2224 (FOUR

> b. HUBBELL; CS1221 (SINGLE POLE), CS1222 (TWO POLE), CS1223 (THREE WAY), CS1224 (FOUR WAY) c. LEVITON; 1221-2 (SINGLE POLE), 1222-2

(TWO POLE), 1223-2 (THREE WAY), 1224-2

#### d. PASS & SEYMOUR; 20AC1 (SINGLE POLE), 20AC2 (TWO POLE), 20AC3 (THREE WAY), 20AC4 (FOUR WAY).

LIMITED TO, THE FOLLOWING:

d. PASS & SEYMOUR; PS20AC1-L.

a. COOPER; 2221L.

(FOUR WAY)

C. KEY-OPERATED SWITCHES, 120/277 V, 20 A: 1. AVAILABLE PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PRODUCTS THAT MAY BE INCORPORATED

INTO THE WORK INCLUDE. BUT ARE NOT

#### b. HUBBELL; HBL1221L. c. LEVITON; 1221-2L.

HANDLE. 2.8 OCCUPANCY SENSORS COVERAGE AREA OF 450 SQ. FT. SENSORS SHALL

POWER PACK.

## 2.9 WALL PLATES

2.10 FINISHES

3.1 INSTALLATION

A. SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.

1. PLATE-SECURING SCREWS: METAL WITH

THICK, NYLON OR POLYCARBONATE.

HEAD COLOR TO MATCH PLATE FINISH.

MATERIAL FOR FINISHED SPACES: 0.035-INCH-

#### MATERIAL FOR UNFINISHED SPACES GALVANIZED STEEL 4. WET-LOCATION, WEATHERPROOF WHILE IN USE COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R

A. COLOR: WIRING DEVICE CATALOG NUMBERS IN

SECTION TEXT DO NOT DESIGNATE DEVICE

COLOR. COLOR SHALL BE AS SELECTED AS

## PART 3 - EXECUTION

A. COMPLY WITH NECA 1, INCLUDING THE MOUNTING HEIGHTS LISTED IN THAT STANDARD, UNLESS OTHERWISE NOTED.

B. COORDINATION WITH OTHER TRADES:

1. TAKE STEPS TO INSURE THAT DEVICES AND

SCHEDULED ON DRAWINGS.

THEIR BOXES ARE PROTECTED. DO NOT PLACE WALL FINISH MATERIALS OVER DEVICE BOXES AND DO NOT CUT HOLES FOR BOXES WITH ROUTERS THAT ARE GUIDED BY RIDING AGAINST OUTSIDE OF THE BOXES. 2. KEEP OUTLET BOXES FREE OF PLASTER,

DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND 3. INSTALL DEVICE BOXES IN BRICK OR BLOCK

WALLS SO THAT THE COVER PLATE DOES NOT CROSS A JOINT UNLESS THE JOINT IS TROWELED FLUSH WITH THE FACE OF THE

4. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION, INCLUDING PAINTING, IS COMPLETE.

## C. CONDUCTORS:

 DO NOT STRIP INSULATION FROM CONDUCTORS UNTIL JUST BEFORE THEY ARE SPLICED OR TERMINATED ON DEVICES.

STRIP INSULATION EVENLY AROUND THE CONDUCTOR USING TOOLS DESIGNED FOR THE PURPOSE. AVOID SCORING OR NICKING OF SOLID WIRE OR CUTTING STRANDS FROM STRANDED WIRE

THE LENGTH OF FREE CONDUCTORS AT **OUTLETS FOR DEVICES SHALL MEET** PROVISIONS OF NFPA 70, ARTICLE 300,

## D. DEVICE INSTALLATION:

WITHOUT PIGTAILS

 REPLACE ALL DEVICES THAT HAVE BEEN IN TEMPORARY USE DURING CONSTRUCTION OR THAT SHOW SIGNS THAT THEY WERE INSTALLED BEFORE BUILDING FINISHING OPERATIONS WERE COMPLETE KEEP EACH WIRING DEVICE IN ITS PACKAGE

3. DO NOT REMOVE SURFACE PROTECTION,

TO CONNECT CONDUCTORS.

SUCH AS PLASTIC FILM AND SMUDGE COVERS. UNTIL THE LAST POSSIBLE MOMENT 4. CONNECT DEVICES TO BRANCH CIRCUITS USING PIGTAILS THAT ARE NOT LESS THAN 6 INCHES IN LENGTH. 5. WHEN THERE IS A CHOICE, USE SIDE WIRING

WITH BINDING-HEAD SCREW TERMINALS.

7. WHEN CONDUCTORS LARGER THAN NO. 12

AWG ARE INSTALLED ON 15- OR 20-A

WRAP SOLID CONDUCTOR TIGHTLY

OR OTHERWISE PROTECTED UNTIL IT IS TIME

CLOCKWISE, 2/3 TO 3/4 OF THE WAY AROUND TERMINAL SCREW. 6. USE A TORQUE SCREWDRIVER WHEN A TORQUE IS RECOMMENDED OR REQUIRED BY THE MANUFACTURER.

DEVICE CONNECTIONS. 8. TIGHTEN UNUSED TERMINAL SCREWS ON THE 9. WHEN MOUNTING INTO METAL BOXES, REMOVE THE FIBER OR PLASTIC WASHERS USED TO HOLD DEVICE MOUNTING SCREWS

IN YOKES, ALLOWING METAL-TO-METAL

CONTACT.

E. RECEPTACLE ORIENTATION:

CIRCUITS, SPLICE NO. 12 AWG PIGTAILS FOR

 INSTALL GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES UP, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO F. DEVICE PLATES: DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES

AND REMOUNT OUTLET BOXES WHEN STANDARD

DEVICE PLATES DO NOT FIT FLUSH OR DO NOT

G. ARRANGEMENT OF DEVICES: UNLESS OTHERWISE

INDICATED, MOUNT FLUSH, WITH LONG

COVER ROUGH WALL OPENING.

#### DIMENSION VERTICAL AND WITH GROUNDIN TERMINAL OF RECEPTACLES ON TOP. GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG

IDENTIFICATION.

OUTLET BOXES.

PREPARE TEST REPORTS.

ACCEPTABLE.

WALL PLATES. 3.2 IDENTIFICATION A. COMPLY WITH DIVISION 26 SECTION "ELECTRICAL

#### 3.3 FIELD QUALITY CONTROL A. PERFORM TESTS AND INSPECTIONS AND

RECEPTACLES: DIGITAL WIRING ANALYZER

1. RECEPTACLES: IDENTIFY PANELBOARD AND

CIRCUIT NUMBER FROM WHICH SERVED LISE

DURABLE WIRE MARKERS OR TAGS INSIDE

WITH DIGITAL READOUT OR ILLUMINATED LED INDICATORS OF MEASUREMENT.

B. TESTS FOR CONVENIENCE RECEPTACLES:

OHMS ARE ACCEPTABLE.

1. TEST INSTRUMENT FOR CONVENIENCE

1. LINE VOLTAGE: ACCEPTABLE RANGE IS 105 2. PERCENT VOLTAGE DROP UNDER 15-A LOAD: A VALUE OF 6 PERCENT OR HIGHER IS NOT

3. GROUND IMPEDANCE: VALUES OF UP TO 2

4. GFCI TRIP: TEST FOR TRIPPING VALUES

SPECIFIED IN UL 1436 AND UL 943.

5. USING THE TEST PLUG, VERIFY THAT THE DEVICE AND ITS OUTLET BOX ARE SECURELY MOUNTED. 6. THE TESTS SHALL BE DIAGNOSTIC, INDICATING DAMAGED CONDUCTORS, HIGH RESISTANCE AT THE CIRCUIT BREAKER, POOR CONNECTIONS, INADEQUATE FAULT CURRENT PATH, DEFECTIVE DEVICES, OR SIMILAR PROBLEMS. CORRECT CIRCUIT CONDITIONS, REMOVE MALFUNCTIONING UNITS AND REPLACE WITH NEW ONES, AND

END OF SECTION 26 27 26

RETEST AS SPECIFIED ABOVE.

NOTICE

# DATE

DRAWN BY

CHECKED BY

ISSUE DATE

# DATE

07/12/22

APPROVED BY

NWO

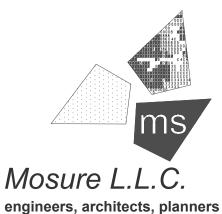
07/12/2022

ISSUE

DESCRIPTION

PERMIT SET

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PROJECT:

SHEET TITLE:

EXP. DATE: 03/17/2023

40509-11

19353 VERNIER ROAD

PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051

**REVISIONS** 

DESCRIPTION

PROJECT NO.:

#### 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS APPLY TO THIS

#### 1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING INDIVIDUALLY MOUNTED, ENCLOSED SWITCHES

AND CIRCUIT BREAKERS: 1. FUSIBLE SWITCHES.

NONFUSIBLE SWITCHES

- MOLDED-CASE CIRCUIT BREAKERS. MOLDED-CASE SWITCHES.
- 5. ENCLOSURES.

#### 1.3 DEFINITIONS

- A. GD: GENERAL DUTY
- B. GFCI: GROUND-FAULT CIRCUIT INTERRUPTER.
- C. HD: HEAVY DUTY.
- D. RMS: ROOT MEAN SQUARE.
- E. SPDT: SINGLE POLE, DOUBLE THROW.

#### 1.4 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF ENCLOSED SWITCH, CIRCUIT BREAKER, ACCESSORY, AND COMPONENT INDICATED. INCLUDE DIMENSIONED ELEVATIONS, SECTIONS, WEIGHTS, AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, AND FINISHES.

OTHER THAN NEMA 250, TYPE 1. 2. CURRENT AND VOLTAGE RATINGS

1. ENCLOSURE TYPES AND DETAILS FOR TYPES

SHORT-CIRCUIT CURRENT RATING. 4. FEATURES, CHARACTERISTICS, RATINGS AND FACTORY SETTINGS OF INDIVIDUAL OVERCURRENT PROTECTIVE DEVICES AND AUXILIARY COMPONENTS.

#### 1.5 QUALITY ASSURANCE

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. ARTICLE 100. BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

#### B. COMPLY WITH NFPA 70.

#### 1.6 PROJECT CONDITIONS

A. ENVIRONMENTAL LIMITATIONS: RATE EQUIPMENT FOR CONTINUOUS OPERATION UNDER THE FOLLOWING CONDITIONS, UNLESS OTHERWISE

- AMBIENT TEMPERATURE: NOT LESS THAN MINUS 22 DEG F AND NOT EXCEEDING 104 2. ALTITUDE: NOT EXCEEDING 6600 FEET.
- 1.7 COORDINATION

A. COORDINATE LAYOUT AND INSTALLATION OF SWITCHES, CIRCUIT BREAKERS, AND COMPONENTS WITH OTHER CONSTRUCTION, INCLUDING CONDUIT, PIPING, EQUIPMENT, AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.

## 1.8 EXTRA MATERIALS

B. FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

1. SPARES: FOR THE FOLLOWING:

a. FUSES FOR FUSIBLE SWITCHES: (3) FOR EACH AMPERAGE USED.

# PART 2 - PRODUCTS

# 2.1 MANUFACTURERS

A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS. THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:

AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK ARE LIMITED TO, MANUFACTURERS

## 2.2 FUSIBLE AND NONFUSIBLE SWITCHES

## A. MANUFACTURERS:

1. EATON CORPORATION; CUTLER-HAMMER PRODUCTS.

2. SQUARE D/GROUP SCHNEIDER.

B. FUSIBLE SWITCH, 1200 A AND SMALLER: NEMA KS 1, TYPE HD, WITH CLIPS OR BOLT PADS TO ACCOMMODATE SPECIFIED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

NONFUSIBLE SWITCH, A AND SMALLER: NEMA KS 1. TYPE HD LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

## D. ACCESSORIES:

1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS. NEUTRAL KIT: INTERNALLY MOUNTED: INSULATED, CAPABLE OF BEING GROUNDED, AND BONDED: AND LABELED FOR COPPER

AND ALUMINUM NEUTRAL CONDUCTORS.

## 2.3 ENCLOSURES

A. NEMA AB 1 AND NEMA KS 1 TO MEET **ENVIRONMENTAL CONDITIONS OF INSTALLED** LOCATION.

- 1. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R. 2. KITCHEN AREAS: NEMA 250, TYPE 4X,
- STAINLESS STEEL 3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE

#### PART 3 - EXECUTION 3.1 EXAMINATION

- A. EXAMINE ELEMENTS AND SURFACES TO RECEIVE ENCLOSED SWITCHES FOR COMPLIANCE WITH INSTALLATION TOLERANCES AND OTHER
- B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED

CONDITIONS AFFECTING PERFORMANCE.

- A. COMPLY WITH APPLICABLE ORTIONS OF NECA 1, NEMA PB 1.1, AND NEMA PB 2.1 FOR INSTALLATION OF ENCLOSED SWITCHES AND CIRCUIT
- B. MOUNT INDIVIDUAL WALL-MOUNTING SWITCHES AND CIRCUIT BREAKERS WITH TOPS AT UNIFORM HEIGHT, UNLESS OTHERWISE INDICATED.

#### 3.3 INDENTIFICATION

A. ENCLOSURE NAMEPLATES: LABEL EACH ENCLOSURE WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE.

#### 3.4 CLEANING

- A. UPON COMPLETION OF INSTALLION, VACUUM DIRT AND DEBRIS FROM INTERIORS; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING.
- B. INSPECT EXPOSED SURFACES AND REPAIR DAMAGED FINISHES.

END OF SECTION 26 28 16

**SECTION 26 51 00** 

## INTERIOR LIGHTING

#### PART 1 - GENERAL 1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION: SPECIFICATION SECTIONS, APPLY TO THIS SECTION

#### 1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING:

- 1. INTERIOR LIGHTING FIXTURES, LAMPS, AND BALLASTS.
- 2. EMERGENCY LIGHTING UNITS. 3. EXIT SIGNS. 4. LIGHTING FIXTURE SUPPORTS.

#### 1.3 DEFINITIONS

- A. BF: BALLAST FACTOR. B. CRI: COLOR-RENDERING INDEX.
- C. CU: COEFFICIENT OF UTILIZATION. . HID: HIGH-INTENSITY DISCHARGE. LER: LUMINAIRE EFFICACY RATING.
- F. LUMINAIRE: COMPLETE LIGHTING FIXTURE INCLUDING BALLAST HOUSING IF PROVIDED G. RCR: ROOM CAVITY RATIO.

#### 1.4 SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF LIGHTING FIXTURE, ARRANGED IN ORDER OF FIXTURE DESIGNATION. INCLUDE DATA ON FEATURES, ACCESSORIES, FINISHES, AND THE FOLLOWING:
- PHYSICAL DESCRIPTION OF LIGHTING FIXTURE INCLUDING DIMENSIONS.
- 2. EMERGENCY LIGHTING UNITS INCLUDING BATTERY AND CHARGER. BALLAST.
- 4 FNFRGY-FFFICIENCY DATA 5. LIFE, OUTPUT, AND ENERGY-EFFICIENCY
- DATA FOR LAMPS 6. PHOTOMETRIC DATA, IN IESNA FORMAT, BASED ON LABORATORY TESTS OF EACH LIGHTING FIXTURE TYPE, OUTFITTED WITH LAMPS. BALLASTS. AND ACCESSORIES IDENTICAL TO THOSE INDICATED FOR THE LIGHTING FIXTURE AS APPLIED IN THIS PROJECT.
- a. PHOTOMETRIC DATA SHALL BE CERTIFIED BY A MANUFACTURER'S LABORATORY WITH A CURRENT ACCREDITATION UNDER THE NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) FOR ENERGY EFFICIENT LIGHTING PRODUCTS.
- B. SHOP DRAWINGS: SHOW DETAILS OF NONSTANDARD OR CUSTOM LIGHTING FIXTURES. INDICATE DIMENSIONS, WEIGHTS, METHODS OF FIELD ASSEMBLY, COMPONENTS, FEATURES, AND ACCESSORIES.
- C. QUALIFICATION DATA: FOR AGENCIES PROVIDING PHOTOMETRIC DATA FOR LIGHTING FIXTURES.
- D. FIELD QUALITY-CONTROL TEST REPORTS.
- E. OPERATION AND MAINTENANCE DATA: FOR LIGHTING EQUIPMENT AND FIXTURES TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE
- F. WARRANTIES: SPECIAL WARRANTIES SPECIFIED IN THIS SECTION.

## 1.5 QUALITY ASSURANCE

A. LUMINAIRE PHOTOMETRIC DATA TESTING LABORATORY QUALIFICATIONS: PROVIDED BY MANUFACTURERS' LABORATORIES THAT ARE ACCREDITED UNDER THE NATIONAL VOLUNTEER LABORATORY ACCREDITATION PROGRAM FOR ENERGY EFFICIENT LIGHTING PRODUCTS.

ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE

B. ELECTRICAL COMPONENTS, DEVICES, AND

## 1.6 COORDINATION

C. COMPLY WITH NFPA 70.

A. COORDINATE LAYOUT AND INSTALLATION OF LIGHTING FIXTURES AND SUSPENSION SYSTEM WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING HVAC EQUIPMENT, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.

# 1.7 WARRANTY

A. SPECIAL WARRANTY FOR EMERGENCY LIGHTING BATTERIES: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER OF BATTERY-POWERED EMERGENCY LIGHTING UNIT AGREES TO REPAIR OR REPLACE COMPONENTS OF RECHARGEABLE BATTERIES THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.

- WARRANTY PERIOD FOR EMERGENCY LIGHTING UNIT BATTERIES: 10 YEARS FROM DATE OF SUBSTANTIAL COMPLETION. FULL WARRANTY SHALL APPLY FOR FIRST YEAR, AND PRORATED WARRANTY FOR THE REMAINING NINE YEARS.
  - 2. WARRANTY PERIOD FOR EMERGENCY SELE-POWERED EXIT SIGN BATTERIES: SEVEN YEARS FROM DATE OF SUBSTANTIAL COMPLETION. FULL WARRANTY SHALL APPLY FOR FIRST YEAR, AND PRORATED WARRANTY FOR THE REMAINING SIX YEARS
  - B. SPECIAL WARRANTY FOR BALLASTS: MANUFACTURER'S STANDARD FORM IN WHICH BALLAST MANUFACTURER AGREES TO REPAIR OR REPLACE BALLASTS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY
  - 1. WARRANTY PERIOD FOR ELECTRONIC BALLASTS: FIVE YEARS FROM DATE OF
  - SUBSTANTIAL COMPLETION. 2. WARRANTY PERIOD FOR ELECTROMAGNETIC BALLASTS: THREE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
  - C. SPECIAL WARRANTY FOR T5 AND T8 FLUORESCENT LAMPS: MANUFACTURER'S STANDARD FORM, MADE OUT TO OWNER AND SIGNED BY LAMP MANUFACTURER AGREEING TO REPLACE LAMPS THAT FAIL IN MATERIALS OR WORKMANSHIP, F.O.B. THE NEAREST SHIPPING POINT TO PROJECT SITE, WITHIN SPECIFIED WARRANTY PERIOD INDICATED BELOW.
  - WARRANTY PERIOD: TWO YEARS FROM DATE SUBSTANTIAL COMPLETION.

#### 1.8 EXTRA MATERIALS

A. FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

1. LAMPS: 10 FOR EVERY 100 OF EACH TYPE AND RATING INSTALLED. FURNISH AT LEAST ONE OF EACH TYPE. 2. PLASTIC DIFFUSERS AND LENSES: 1 FOR EVERY 100 OF EACH TYPE AND RATING

INSTALLED. FURNISH AT LEAST ONE OF EACH

3. BALLASTS: 1 FOR EVERY 100 OF EACH TYPE AND RATING INSTALLED. FURNISH AT LEAST ONE OF EACH TYPE.

#### PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. MANUFACTURER/MODEL # SHALL BE FURNISHED

BY OWNER THROUGH NATIONAL ACCOUNT VENDOR. REFER TO CONSTRUCTION DRAWINGS FOR EQUIPMENT CLARIFICATIONS.

## PART 3 - EXECUTION

- 3.1 INSTALLATION A. LIGHTING FIXTURES: SET LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS. INSTALL LAMPS IN EACH FIXTURE.
- B. SUPPORT FOR LIGHTING FIXTURES IN OR ON GRID-TYPE SUSPENDED CEILINGS: USE GRID AS A SUPPORT ELEMENT.
- INSTALL A MINIMUM OF FOUR CEILING SUPPORT SYSTEM RODS OR WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 6 INCHES FROM LIGHTING FIXTURE CORNERS. 2. SUPPORT CLIPS: FASTEN TO LIGHTING FIXTURES AND TO CEILING GRID MEMBERS

AT OR NEAR EACH FIXTURE CORNER WITH

CLIPS THAT ARE UL LISTED FOR THE APPLICATION. 3. FIXTURES OF SIZES LESS THAN CEILING GRID: INSTALL AS INDICATED ON REFLECTED CEILING PLANS OR CENTER IN ACOUSTICAL PANEL, AND SUPPORT FIXTURES INDEPENDENTLY WITH AT LEAST TWO 3/4-INCH METAL CHANNELS SPANNING AND SECURED TO CEILING TEES.

## C. SUSPENDED LIGHTING FIXTURE SUPPORT:

- 1. STEM-MOUNTED, SINGLE-UNIT FIXTURES: SUSPEND WITH TWIN-STEM HANGERS. CONTINUOUS ROWS: USE TUBING OR STEM FOR WIRING AT ONE POINT AND TUBING OR ROD FOR SUSPENSION FOR EACH UNIT LENGTH OF FIXTURE CHASSIS, INCLUDING ONE AT EACH END.
- D. ADJUST AIMABLE LIGHTING FIXTURES TO PROVIDE REQUIRED LIGHT INTENSITIES.
- E. CONNECT WIRING ACCORDING TO DIVISION 26 SECTION "CONDUCTORS AND CABLES."

## 3.2 FIELD QUALITY CONTROL

A. TEST FOR EMERGENCY LIGHTING: INTERRUPT POWER SUPPLY TO DEMONSTRATE PROPER OPERATION. VERIFY TRANSFER FROM NORMAL POWER TO BATTERY AND RETRANSFER TO

B. PREPARE A WRITTEN REPORT OF TESTS, INSPECTIONS, OBSERVATIONS, AND VERIFICATIONS INDICATING AND INTERPRETING RESULTS. IF ADJUSTMENTS ARE MADE TO LIGHTING SYSTEM. RETEST TO DEMONSTRATE COMPLIANCE WITH STANDARDS.

END OF SECTION 26 51 00

## COMMUNICATIONS HORIZONTAL CABLING SECTION

## PART 1 - GENERAL

- A. SECTION INCLUDES: 1 PATHWAYS
- UTP CABLING 3. MULTIUSER TELECOMMUNICATIONS OUTLET ASSEMBLIES.
- 4. CABLE CONNECTING HARDWARE, PATCH PANELS, AND CROSS-CONNECTS. TELECOMMUNICATIONS OUTLET/CONNECTORS.

6. CABLING IDENTIFICATION PRODUCTS.

- 7. CABLE MANAGEMENT SYSTEM. 1.2 DEFINITIONS
- A. BASKET CABLE TRAY: A FABRICATED STRUCTURE CONSISTING OF WIRE MESH BOTTOM AND SIDE
- B. BICSI: BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL. C. CHANNEL CABLE TRAY: A FABRICATED

STRUCTURE CONSISTING OF A ONE-PIECE. VENTILATED-BOTTOM OR SOLID-BOTTOM CHANNEL.

APPLICATION.

COMPLY WITH TIA/EIA-569-A.

1.7 DELIVERY, STORAGE, AND HANDLING

D. TELECOMMUNICATIONS PATHWAYS AND SPACES

E. GROUNDING: COMPLY WITH ANSI-J-STD-607-A.

A. TEST CABLES UPON RECEIPT AT PROJECT SITE.

2. TEST OPTICAL FIBER CABLES WHILE ON

REELS. USE AN OPTICAL TIME DOMAIN

REFLECTOMETER TO VERIFY THE CABLE

LENGTH AND LOCATE CABLE DEFECTS,

3. TEST EACH PAIR OF UTP CABLE FOR OPEN

A. ENVIRONMENTAL LIMITATIONS: DO NOT DELIVER

MATERIALS UNTIL WET WORK IN SPACES IS

SYSTEM IS OPERATING AND MAINTAINING

AMBIENT TEMPERATURE AND HUMIDITY

A. COORDINATE LAYOUT AND INSTALLATION OF

EQUIPMENT AND SERVICE SUPPLIERS.

A. FURNISH EXTRA MATERIALS THAT MATCH

B. COORDINATE TELECOMMUNICATIONS

COMPLETE AND DRY. AND TEMPORARY HVAC

REMAINDER OF THE CONSTRUCTION PERIOD.

CONDITIONS AT OCCUPANCY LEVELS DURING THE

TELECOMMUNICATIONS PATHWAYS AND CABLING

WITH OWNER'S TELECOMMUNICATIONS AND LAN

OUTLET/CONNECTOR LOCATIONS WITH LOCATION

OF POWER RECEPTACLES AT EACH WORK AREA.

PRODUCTS INSTALLED AND THAT ARE PACKAGED

IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

CONNECTING BLOCKS: ONE OF EACH TYPE.

DEVICE PLATES: TEN OF EACH TYPE.

ASSEMBLIES: SIX OF EACH TYPE.

A. CABLE SUPPORT: NRTL LABELED FOR SUPPORT

2. LACING BARS, SPOOLS, J-HOOKS, AND

PREVENT DEGRADATION OF CABLE

STRAPS AND OTHER DEVICES.

B. CONDUIT AND BOXES: COMPLY WITH

CONDUIT SHALL NOT BE USED.

INCHES DEEP.

REQUIREMENTS IN DIVISION 26 SECTION

"RACEWAYS AND BOXES." FLEXIBLE METAL

DAMAGE CABLE

D-RINGS

OF CATEGORY 6 (CAT6) CABLING, DESIGNED TO

PERFORMANCE AND PINCH POINTS THAT COULD

1. SUPPORT BRACKETS WITH CABLE TIE SLOTS

FOR FASTENING CABLE TIES TO BRACKETS.

3. MULTIUSER TELECOMMUNICATIONS OUTLET

WITH PROTECTIVE COVERING FOR STORAGE AND

OR INSTALL CABLES AND CONNECTING

SPLICES, AND CONNECTOR; INCLUDING THE

AND INCLUDE THE RECORD IN MAINTENANCE

LOSS VALUE OF EACH. RETAIN TEST DATA

OPTICAL LOSS TEST SET.

AND SHORT CIRCUITS.

1.8 PROJECT CONDITIONS

1.9 COORDINATION

1.10 EXTRA MATERIALS

PART 2 - PRODUCTS

2.1 PATHWAYS

1. TEST OPTICAL FIBER CABLES TO DETERMINE

THE CONTINUITY OF THE STRAND END TO

END. USE OPTICAL FIBER FLASHLIGHT OR

- D. CONSOLIDATION POINT: A LOCATION FOR INTERCONNECTION BETWEEN HORIZONTAL CABLES EXTENDING FROM BUILDING PATHWAYS AND HORIZONTAL CABLES EXTENDING INTO FURNITURE PATHWAYS
- E. CROSS-CONNECT: A FACILITY ENABLING THE TERMINATION OF CABLE ELEMENTS AND THEIR INTERCONNECTION OR CROSS-CONNECTION.
- F. EMI: ELECTROMAGNETIC INTERFERENCE.
- G. IDC: INSULATION DISPLACEMENT CONNECTOR. H. LADDER CABLE TRAY: A FABRICATED STRUCTURE CONSISTING OF TWO LONGITUDINAL SIDE RAILS CONNECTED BY INDIVIDUAL TRANSVERSE

#### LAN: LOCAL AREA NETWORK.

MEMBERS (RUNGS).

- J. MUTOA: MULTIUSER TELECOMMUNICATIONS OUTLET ASSEMBLY, A GROUPING IN ONE LOCATION OF SEVERAL TELECOMMUNICATIONS OUTLET/CONNECTORS.
- K. OUTLET/CONNECTORS: A CONNECTING DEVICE IN THE WORK AREA ON WHICH HORIZONTAL CABLE OR OUTLET CABLE TERMINATES.
- L. RCDD: REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER.

N. TROUGH OR VENTILATED CABLE TRAY: A

M. SOLID-BOTTOM OR NONVENTILATED CABLE TRAY: A FABRICATED STRUCTURE CONSISTING OF LONGITUDINAL SIDE RAILS AND A BOTTOM WITHOUT VENTILATION OPENINGS.

FABRICATED STRUCTURE CONSISTING OF

LONGITUDINAL SIDE RAILS AND A BOTTOM HAVING

OPENINGS FOR THE PASSAGE OF AIR. O. UTP: UNSHIELDED TWISTED PAIR.

## 1.3 HORIZONTAL CABLING DESCRIPTION

- A. HORIZONTAL CABLE AND ITS CONNECTING HARDWARE PROVIDE THE MEANS OF TRANSPORTING SIGNALS BETWEEN THE TELECOMMUNICATIONS OUTLET/CONNECTOR AND THE HORIZONTAL CROSS-CONNECT LOCATED IN THE COMMUNICATIONS EQUIPMENT ROOM. THIS CABLING AND ITS CONNECTING HARDWARE ARE CALLED "PERMANENT LINK." A TERM THAT IS USED IN THE TESTING PROTOCOLS.
- OF TWO TELECOMMUNICATIONS OUTLET/CONNECTORS BE INSTALLED FOR FACH WORK AREA 2. HORIZONTAL CABLING SHALL CONTAIN NO MORE THAT ONE TRANSITION POINT OR CONSOLIDATION POINT BETWEEN THE HORIZONTAL CROSS-CONNECT AND THE

1. TIA/EIA-568-B.1 REQUIRES THAT A MINIMUM

OUTLET/CONNECTOR 3. BRIDGED TAPS AND SPLICES SHALL NOT BE INSTALLED IN THE HORIZONTAL CABLING. 4. SPLITTERS SHALL NOT BE INSTALLED AS PART OF THE OPTICAL FIBER CABLING.

**TELECOMMUNICATIONS** 

B. THE MAXIMUM ALLOWABLE HORIZONTAL CABLE LENGTH IS 295 FEET (90 M). THIS MAXIMUM ALLOWABLE LENGTH DOES NOT INCLUDE AN ALLOWANCE FOR THE LENGTH OF 16 FEET (4.9 M) TO THE WORKSTATION EQUIPMENT. THE MAXIMUM ALLOWABLE LENGTH DOES NOT INCLUDE AN ALLOWANCE FOR THE LENGTH OF 16 FEET (4.9 M) IN THE HORIZONTAL CROSS-CONNECT.

## 1.4 PERFORMANCE REQUIREMENTS

A. GENERAL PERFORMANCE: HORIZONTAL CABLING SYSTEM SHALL COMPLY WITH TRANSMISSION STANDARDS IN TIA/EIA-568-B.1. WHEN TESTED ACCORDING TO TEST PROCEDURES OF THIS STANDARD.

## 1.5 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. B. SHOP DRAWINGS:

1. SYSTEM LABELING SCHEDULES: ELECTRONIC

- COPY OF LABELING SCHEDULES. IN SOFTWARE AND FORMAT SELECTED BY
- 2. CABLING ADMINISTRATION DRAWINGS AND PRINTOUTS. C. QUALIFICATION DATA: FOR QUALIFIED LAYOUT
- TECHNICIAN, INSTALLATION SUPERVISOR, AND FIELD INSPECTOR.
- D. SOURCE QUALITY-CONTROL REPORTS.
- E. FIELD QUALITY-CONTROL REPORTS. F. MAINTENANCE DATA: FOR SPLICES AND CONNECTORS TO INCLUDE IN MAINTENANCE
- G. SOFTWARE AND FIRMWARE OPERATIONAL DOCUMENTATION:
- SOFTWARE OPERATING AND UPGRADE
- MANUALS. 2. PROGRAM SOFTWARE BACKUP: ON

MAGNETIC MEDIA OR COMPACT DISK,

#### COMPLETE WITH DATA FILES. DEVICE ADDRESS LIST. PRINTOUT OF SOFTWARE APPLICATION AND GRAPHIC SCREENS.

## 1.6 QUALITY ASSURANCE

- A. INSTALLER QUALIFICATIONS: CABLING INSTALLER MUST HAVE PERSONNEL CERTIFIED BY BICSI ON 1. LAYOUT RESPONSIBILITY: PREPARATION OF
- DRAWINGS, AND FIELD TESTING PROGRAM DEVELOPMENT BY AN RCDD. 2. INSTALLATION SUPERVISION: INSTALLATION SHALL BE UNDER THE DIRECT SUPERVISION OF LEVEL 2 INSTALLER, WHO SHALL BE

PRESENT AT ALL TIMES WHEN WORK OF THIS

SHOP DRAWINGS, CABLING ADMINISTRATION

SECTION IS PERFORMED AT PROJECT SITE. 3. TESTING SUPERVISOR: CURRENTLY CERTIFIED BY BICSI AS AN RCDD TO SUPERVISE ON-SITE TESTING.

DETERMINED BY TESTING IDENTICAL PRODUCTS

ACCORDING TO ASTM E 84 BY A QUALIFIED

APPROPRIATE MARKINGS OF APPLICABLE

TESTING AGENCY. IDENTIFY PRODUCTS WITH

B. SURFACE-BURNING CHARACTERISTICS: AS

TESTING AGENCY. 1. FLAME-SPREAD INDEX: 25 OR LESS. 2. SMOKE-DEVELOPED INDEX: 50 OR LESS.

- C. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. BY A QUALIFIED TESTING AGENCY. AND MARKED FOR INTENDED LOCATION AND
  - PLUS 25 PERCENT SPARE. INTEGRAL WITH CONNECTOR BODIES, INCLUDING PLUGS AND JACKS WHERE INDICATED.
  - D. CROSS-CONNECT: MODULAR ARRAY OF **BUILDING CABLES AND PERMIT**

  - E. PATCH PANEL: MODULAR PANELS HOUSING 24 NUMBERED JACK UNITS WITH IDC-TYPE CONNECTORS AT EACH JACK FOR PERMANENT
  - F. JACKS AND JACK ASSEMBLIES: MODULAR, COLOR-CODED, EIGHT-POSITION MODULAR RECEPTACLE UNITS WITH INTEGRAL IDC-TYPE TERMINALS.
  - G. PATCH CORDS: FACTORY-MADE, FOUR-PAIR
  - PATCH CORDS SHALL HAVE BEND-RELIEF-COMPLIANT BOOTS AND COLOR-CODED ICONS TO ENSURE CATEGORY 6 (CAT6) PERFORMANCE. PATCH CORDS SHALL HAVE LATCH GUARDS TO PROTECT AGAINST SNAGGING.

#### 2.4 TELECOMMUNICATIONS OUTLET/CONNECTORS

B WORKSTATION OUTLETS:

- A. JACKS: 100-OHM, BALANCED, TWISTED-PAIR CONNECTOR; FOUR-PAIR, EIGHT-POSITION MODULAR. COMPLY WITH TIA/EIA-568-B.1.
- TWO-PORT-CONNECTOR ASSEMBLIES MOUNTED IN SINGLE FACEPLATE.
- COMPLYING WITH REQUIREMENTS IN DIVISION 26 SECTION "WIRING DEVICES." 2. FOR USE WITH SNAP-IN JACKS ACCOMMODATING ANY COMBINATION OF UTP

#### USING ADHESIVE-TAPE LABEL.

- SECTION "GROUNDING AND BONDING" FOR
- B. COMPLY WITH ANSI-J-STD-607-A.

A. COMPLY WITH TIA/EIA-606-A AND UL 969 FOR A SYSTEM OF LABELING MATERIALS, INCLUDING LABEL STOCKS, LAMINATING ADHESIVES, AND

3.1 WIRING METHODS

2.6 IDENTIFICATION PRODUCTS

A. CABLE WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

INKS USED BY LABEL PRINTERS.

#### 1. OUTLET BOXES SHALL BE NO SMALLER THAN 2 INCHES WIDE, 3 INCHES HIGH, AND 2-1/2

- 2.2 UTP CABLE A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK
  - INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: 1. BELDEN CDT INC.; ELECTRONICS DIVISION. BERK-TEK; A NEXANS COMPANY.
  - COMMSCOPE, INC. 4. GENESIS CABLE PRODUCTS; HONEYWELL INTERNATIONAL, INC. KRONE INCORPORATED

MOHAWK; A DIVISION OF BELDEN CDT.

- 7. NORDEX/CDT; A SUBSIDIARY OF CABLE DESIGN TECHNOLOGIES. 8. SUPERIOR ESSEX INC. 9. SYSTIMAX SOLUTIONS; A COMMSCOPE, INC.
- BRAND. 11. TYCO ELECTRONICS/AMP NETCONNECT; TYCO INTERNATIONAL LTD.
- B. DESCRIPTION: 100-OHM, 4-PAIR UTP, COVERED WITH A BLUE THERMOPLASTIC JACKET. COMPLY WITH ICEA S-90-661 FOR

MECHANICAL PROPERTIES.

WITH REQUIREMENTS. AVAILABLE

DYNACOM CORPORATION.

SIEMON CO. (THE).

HUBBELL PREMISE WIRING

- 2. COMPLY WITH TIA/EIA-568-B.1 FOR PERFORMANCE SPECIFICATIONS. 3. COMPLY WITH TIA/EIA-568-B.2, CATEGORY 6 4. LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AS COMPLYING WITH UL 444
- AND NFPA 70 FOR THE FOLLOWING TYPES: C. COMMUNICATIONS, PLENUM RATED: TYPE CMP, COMPLYING WITH NFPA 262.

MANUFACTURERS OFFERING PRODUCTS THAT

MAY BE INCORPORATED INTO THE WORK

#### 2.3 UTP CABLE HARDWARE A. MANUFACTURERS: SUBJECT TO COMPLIANCE

- INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: 1. AMERICAN TECHNOLOGY SYSTEMS INDUSTRIES, INC.
- KRONE INCORPORATED. LEVITON VOICE & DATA DIVISION. NORDEX/CDT; A SUBSIDIARY OF CABLE DESIGN TECHNOLOGIES. PANDUIT CORP.

9. TYCO ELECTRONICS/AMP NETCONNECT;

B. GENERAL REQUIREMENTS FOR CABLE CONNECTING HARDWARE: COMPLY WITH TIA/EIA-568-B.2, IDC TYPE, WITH MODULES DESIGNED FOR PUNCH-DOWN CAPS OR TOOLS. CABLES SHALL BE TERMINATED WITH CONNECTING HARDWARE OF SAME CATEGORY OR HIGHER.

TYCO INTERNATIONAL LTD.

- C. CONNECTING BLOCKS: 110-STYLE IDC FOR CATEGORY 6 (CAT6). PROVIDE BLOCKS FOR THE NUMBER OF CABLES TERMINATED ON THE BLOCK,
- CONNECTING BLOCKS ARRANGED TO TERMINATE INTERCONNECTION BETWEEN CABLES.
- 1. NUMBER OF TERMINALS PER FIELD: ONE FOR EACH CONDUCTOR IN ASSIGNED CABLES.
- TERMINATION OF PAIR GROUPS OF INSTALLED
- CABLES IN 36-INCH LENGTHS; TERMINATED WITH EIGHT-POSITION MODULAR PLUG AT EACH END.

- 1. METAL FACEPLATE: STAINLESS STEEL,
- WORK AREA CORDS. 3. LEGEND: MACHINE PRINTED, IN THE FIELD,

A. COMPLY WITH REQUIREMENTS IN DIVISION 26 GROUNDING CONDUCTORS AND CONNECTORS.

- 2.7 SOURCE QUALITY CONTROL
- B. PREPARE TEST AND INSPECTION REPORTS. PART 3 - EXECUTION
  - AND COUNTERS AND EXCEPT IN ACCESSIBLE CEILING SPACES. IN ATTICS. AND IN GYPSUM BOARD PARTITIONS WHERE UNENCLOSED WIRING METHOD MAY BE USED. CONCEAL RACEWAY AND CABLES EXCEPT IN UNFINISHED SPACES.

WIRING METHOD: INSTALL CABLES IN RACEWAYS

EXCEPT WITHIN CONSOLES, CABINETS, DESKS,

1. COMPLY WITH REQUIREMENTS FOR RACEWAYS AND BOXES SPECIFIED IN **DIVISION 26 SECTION "RACEWAYS AND** 

B. WIRING METHOD: CONCEAL CONDUCTORS AND

CABLES IN ACCESSIBLE CEILINGS, WALLS, AND FLOORS WHERE POSSIBLE C. WIRING WITHIN ENCLOSURES: BUNDLE, LACE AND TRAIN CABLES TO TERMINAL POINTS WITH NO EXCESS AND WITHOUT EXCEEDING MANUFACTURER'S LIMITATIONS ON BENDING

#### RADII. PROVIDE AND USE LACING BARS AND DISTRIBUTION SPOOLS.

- 3.2 INSTALLATION OF PATHWAYS A. COMPLY WITH TIA/EIA-569-A FOR PULL-BOX SIZING AND LENGTH OF CONDUIT AND NUMBER OF
- B. COMPLY WITH REQUIREMENTS IN DIVISION 26 SECTION "RACEWAYS AND BOXES" FOR INSTALLATION OF CONDUITS AND WIREWAYS.

BENDS BETWEEN PULL POINTS.

 PATHWAY INSTALLATION IN COMMUNICATIONS EQUIPMENT ROOMS:

a. POSITION CONDUIT ENDS ADJACENT TO

A CORNER ON BACKBOARD WHERE A

SINGLE PIECE OF PLYWOOD IS INSTALLED. b. SECURE CONDUITS TO BACKBOARD WHEN ENTERING ROOM FROM

c. EXTEND CONDUITS 3 INCHES ABOVE

## FINISHED FLOOR

3.3 INSTALLATION OF CABLES

OVERHEAD

A. COMPLY WITH NECA 1. B. GENERAL REQUIREMENTS FOR CABLING:

1. COMPLY WITH TIA/EIA-568-B.1.

MANUFACTURER.

**ERMINATION PRACTICES."** 3. TERMINATE CONDUCTORS; NO CABLE SHALL CONTAIN UNTERMINATED ELEMENTS. MAKE TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND PATCH PANELS.

4. CABLES MAY NOT BE SPLICED. SECURE AND

2. COMPLY WITH BICSI ITSIM, CH. 6, "CABLE

SUPPORT CABLES AT INTERVALS NOT EXCEEDING 30 INCHES AND NOT MORE THAN 6 INCHES FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS. 5. INSTALL LACING BARS TO RESTRAIN CABLES, TO PREVENT STRAINING CONNECTIONS, AND TO PREVENT BENDING CABLES TO SMALLER

RADII THAN MINIMUMS RECOMMENDED BY

6. BUNDLE, LACE, AND TRAIN CONDUCTORS TO

TERMINAL POINTS WITHOUT EXCEEDING

MANUFACTURER'S LIMITATIONS ON BENDING RADII. BUT NOT LESS THAN RADII SPECIFIED IN BICSI ITSIM, "CABLING TERMINATION PRACTICES" CHAPTER. INSTALL LACING BARS AND DISTRIBUTION SPOOLS.

- 7. DO NOT INSTALL BRUISED, KINKED, SCORED, DEFORMED, OR ABRADED CABLE. DO NOT SPLICE CABLE BETWEEN TERMINATION, TAP, OR JUNCTION POINTS. REMOVE AND DISCARD CABLE IF DAMAGED DURING INSTALLATION AND REPLACE IT WITH NEW CABLE.
- 8. COLD-WEATHER INSTALLATION: BRING CABLE TO ROOM TEMPERATURE BEFORE DEREELING. HEAT LAMPS SHALL NOT BE
- USED FOR HEATING. 9. IN THE COMMUNICATIONS EQUIPMENT ROOM,
- INSTALL A 10-FOOT- LONG SERVICE LOOP ON EACH END OF CABLE. 10. PULLING CABLE: COMPLY WITH BICSI ITSIM, CH. 4, "PULLING CABLE." MONITOR CABLE

#### PULL TENSIONS. C. UTP CABLE INSTALLATION:

- COMPLY WITH TIA/EIA-568-B.2 2. DO NOT UNTWIST UTP CABLES MORE THAN 1/2 INCH FROM THE POINT OF TERMINATION TO MAINTAIN CABLE GEOMETRY.
- D. OPEN-CABLE INSTALLATION:
- INSTALL CABLING WITH HORIZONTAL AND VERTICAL CABLE GUIDES IN TELECOMMUNICATIONS SPACES WITH TERMINATING HARDWARE AND INTERCONNECTION EQUIPMENT.
- 2. SUSPEND UTP CABLE NOT IN A WIREWAY OR PATHWAY A MINIMUM OF 8 INCHES ABOVE CEILINGS BY CABLE SUPPORTS NOT MORE THAN 60 INCHES APART. 3. CABLE SHALL NOT BE RUN THROUGH

STRUCTURAL MEMBERS OR IN CONTACT

WITH PIPES, DUCTS, OR OTHER POTENTIALLY

- DAMAGING ITEMS.
- E. SEPARATION FROM EMI SOURCES: 1. COMPLY WITH BICSI TDMM AND TIA/EIA-569-A FOR SEPARATING UNSHIELDED COPPER VOICE AND DATA COMMUNICATION CABLE FROM POTENTIAL EMI SOURCES, INCLUDING **ELECTRICAL POWER LINES AND EQUIPMENT**
- 2. SEPARATION BETWEEN OPEN COMMUNICATIONS CABLES OR CABLES IN NONMETALLIC RACEWAYS AND UNSHIELDED POWER CONDUCTORS AND ELECTRICAL **EQUIPMENT SHALL BE AS FOLLOWS:**

a. ELECTRICAL EQUIPMENT RATING LESS

b. ELECTRICAL EQUIPMENT RATING

3. SEPARATION BETWEEN COMMUNICATIONS

AND UNSHIELDED POWER LINES OR

BETWEEN 2 AND 5 KVA: A MINIMUM OF 12 c. ELECTRICAL EQUIPMENT RATING MORE THAN 5 KVA: A MINIMUM OF 24 INCHES.

THAN 2 KVA: A MINIMUM OF 5 INCHES.

ELECTRICAL EQUIPMENT SHALL BE AS a. ELECTRICAL EQUIPMENT RATING LESS THAN 2 KVA: A MINIMUM OF 2-1/2 INCHES. b. ELECTRICAL EQUIPMENT RATING

BETWEEN 2 AND 5 KVA: A MINIMUM OF 6

CABLES IN GROUNDED METALLIC RACEWAYS

THAN 5 KVA: A MINIMUM OF 12 INCHES. 4. SEPARATION BETWEEN COMMUNICATIONS CABLES IN GROUNDED METALLIC RACEWAYS AND POWER LINES AND ELECTRICAL

**FOUIPMENT LOCATED IN GROUNDED** 

BE AS FOLLOWS:

c. ELECTRICAL EQUIPMENT RATING MORE

a. ELECTRICAL EQUIPMENT RATING LESS THAN 2 KVA: NO REQUIREMENT b. ELECTRICAL EQUIPMENT RATING BETWEEN 2 AND 5 KVA: A MINIMUM OF 3

c. ELECTRICAL EQUIPMENT RATING MORE

5. SEPARATION BETWEEN COMMUNICATIONS

6. SEPARATION BETWEEN COMMUNICATIONS

CABLES AND FLUORESCENT FIXTURES: A

THAN 5 KVA: A MINIMUM OF 6 INCHES

METALLIC CONDUITS OR ENCLOSURES SHALL

CABLES AND ELECTRICAL MOTORS AND TRANSFORMERS, 5 KVA OR HP AND LARGER: A MINIMUM OF 48 INCHES.

MINIMUM OF 5 INCHES.

#### A. COMPLY WITH TIA/EIA-569-A, ANNEX A, "FIRESTOPPING."

3.4 FIRESTOPPING

SYSTEMS" ARTICLE. 3.5 GROUNDING

A. INSTALL GROUNDING ACCORDING TO BICSI TDMM,

WALL ALLOWING AT LEAST 2-INCH CLEARANCE

GROUNDING BUS BAR WITH A MINIMUM NO. 4 AWG

BEHIND THE GROUNDING BUS BAR. CONNECT

GROUNDING ELECTRODE CONDUCTOR FROM

GROUNDING BUS BAR TO SUITABLE ELECTRICAL

"GROUNDING, BONDING, AND ELECTRICAL

B. COMPLY WITH BICSI TDMM, "FIRESTOPPING

B. COMPLY WITH ANSI-J-STD-607-A. C. LOCATE GROUNDING BUS BAR TO MINIMIZE THE LENGTH OF BONDING CONDUCTORS. FASTEN TO

PROTECTION" CHAPTER.

#### D. BOND METALLIC EQUIPMENT TO THE GROUNDING BUS BAR, USING NOT SMALLER THAN NO. 6 AWG

BUILDING GROUND.

3.6 IDENTIFICATION A. IDENTIFY SYSTEM COMPONENTS, WIRING, AND

CABLING COMPLYING WITH TIA/EIA-606-A.

B. COMPLY WITH REQUIREMENTS IN DIVISION 9

VISUALLY INSPECT UTP CABLE JACKET

MARKINGS. INSPECT CABLING

MATERIALS FOR NRTL CERTIFICATION

TERMINATIONS IN COMMUNICATIONS

INSPECT CABLING CONNECTIONS FOR

**EQUIPMENT ROOMS FOR COMPLIANCE WITH** 

COLOR-CODING FOR PIN ASSIGNMENTS, AND

EQUIPMENT GROUNDING CONDUCTOR.

OVER MANUFACTURER'S LABEL 3.7 FIELD QUALITY CONTROL A. TESTS AND INSPECTIONS:

SECTION "PAINTING" FOR PAINTING BACKBOARDS

FOR FIRE-RESISTANT PLYWOOD, DO NOT PAINT

COMPLIANCE WITH TIA/EIA-568-B.1. 2. VISUALLY CONFIRM CATEGORY 6 (CAT6), MARKING OF OUTLETS, COVER PLATES, OUTLET/CONNECTORS, AND PATCH PANELS.

CABLE TERMINATION, GROUNDING AND

BONDING, EQUIPMENT AND PATCH CORDS,

4. UTP PERFORMANCE TESTS:

AND LABELING OF ALL COMPONENTS.

3. VISUALLY INSPECT CABLE PLACEMENT,

a. TEST FOR EACH OUTLET. PERFORM THE FOLLOWING TESTS ACCORDING TO TIA/EIA-568-B.1 AND TIA/EIA-568-B.2: WIRE MAP. 2) LENGTH (PHYSICAL VS.

INSERTION LOSS.

(ELFEXT).

8) RETURN LOSS.

10) DELAY SKEW.

END OF SECTION 27 15 00

5) POWER SUM NEAR-END

PROPAGATION DELAY.

NEAR-END CROSSTALK (NEXT)

- **CHECKED BY** ELECTRICAL, AND LENGTH REQUIREMENTS).
  - APPROVED BY

DRAWN BY

ISSUE DATE

NWO

ISSUE

DESCRIPTION

PERMIT SET

07/12/2022

CROSSTALK (PSNEXT) LOSS. 6) EQUAL-LEVEL FAR-END CROSSTALK 7) POWER SUM EQUAL-LEVEL FAR-END CROSSTALK (PSELFEXT). # DATE 07/12/22

B. DOCUMENT DATA FOR EACH MEASUREMENT DATA FOR SUBMITTALS SHALL BE PRINTED IN A SUMMARY REPORT THAT IS FORMATTED SIMILAR TO TABLE 10.1 IN BICSI TDMM, OR TRANSFERRED FROM THE INSTRUMENT TO THE COMPUTER, SAVED AS TEXT FILES, AND PRINTED AND C. PREPARE TEST AND INSPECTION REPORTS.

# DATE DESCRIPTION

**REVISIONS** 

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SHEET TITLE:

PROJECT NO.: 40509-11

NOTICE THIS ARCHITECTURAL AND ENGINEERING DRAWING IS GIVEN IN CONFIDENCE AND SHALL BE USED ONLY PURSUANT TO THE AGREEMENT WITH THE ARCHITECT NO OTHER USE, DISSEMINATION, OR DUPLICATION MAY BE MADE WITHOUT PRIOR WRITTEN CONSENT OF THE ARCHITECT. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHERWISE ARE

# 1.1 SUMMARY

A. THIS SECTION INCLUDES WIRE, CABLE, CONNECTING DEVICES, INSTALLATION, AND TESTING FOR WIRING SYSTEMS TO BE USED AS SIGNAL PATHWAYS FOR VOICE AND HIGH-SPEED DATA TRANSMISSION.

#### 1.2 DEFINITIONS

- A. EMI: ELECTROMAGNETIC INTERFERENCE.
- B. IDC: INSULATION DISPLACEMENT CONNECTOR.
- C. LAN: LOCAL AREA NETWORK
- D. PVC: POLYVINYL CHLORIDE.
- E. STP: SHIELDED TWISTED PAIR.
- F. UTP: UNSHIELDED TWISTED PAIR.

#### 1.3 SUBMITTALS

- A. PRODUCT DATA: INCLUDE DATA ON FEATURES, RATINGS, AND PERFORMANCE FOR EACH COMPONENT SPECIFIED.
- B. SHOP DRAWINGS: INCLUDE DIMENSIONED PLAN AND ELEVATION VIEWS OF EACH INDIVIDUAL COMPONENT. SHOW EQUIPMENT ASSEMBLIES. METHOD OF FIELD ASSEMBLY, WORKSPACE REQUIREMENTS, AND ACCESS FOR CABLE CONNECTIONS.

## 1.4 QUALITY ASSURANCE

- A. INSTALLER QUALIFICATIONS: SYSTEM INSTALLER MUST HAVE ON STAFF A REGISTERED COMMUNICATION DISTRIBUTION DESIGNER CERTIFIED BY BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
- C. COMPLY WITH NFPA 70.

#### 1.5 COORDINATION

- A. COORDINATE LAYOUT AND INSTALLATION OF VOICE AND DATA COMMUNICATION CABLING WITH OWNER'S TELECOMMUNICATIONS AND LAN EQUIPMENT SUPPLIERS.
- 1. MEET JOINTLY WITH TELECOMMUNICATIONS AND LAN EQUIPMENT SUPPLIERS, AND OWNER TO EXCHANGE INFORMATION AND AGREE ON DETAILS OF EQUIPMENT ARRANGEMENTS AND INSTALLATION INTERFACES.
- 2. RECORD AGREEMENTS REACHED IN MEETINGS AND DISTRIBUTE TO OTHER PARTICIPANTS.
- 3. ADJUST ARRANGEMENTS AND LOCATIONS OF DISTRIBUTION FRAMES AND CROSS-CONNECT AND PATCH PANELS IN **EQUIPMENT ROOMS AND WIRING CLOSETS** TO ACCOMMODATE AND OPTIMIZE ARRANGEMENT AND SPACE REQUIREMENTS OF TELEPHONE SWITCH AND LAN EQUIPMENT.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE

- a. BELDEN INC.; ELECTRONICS DIVISION. b. BERK-TEK; AN ALCATEL COMPANY. c. BRAND-REX CO.; UNIT OF BICC CABLES
- d. GENERAL CABLE CORPORATION. e. LUCENT TECHNOLOGIES; GLOBAL
- SERVICE PROVIDER. f. MOHAWK/CDT; A DIVISION OF CABLE
- DESIGN TECHNOLOGIES. g. MONTROSE/CDT; A DIVISION OF CABLE DESIGN TECHNOLOGIES.
- OPTICAL CABLE CORPORATION. PANDUIT CORP.
- PRESTOLITE WIRE CORP. REMEE PRODUCTS CORP. SIFCOR
- m. SUPERIOR ESSEX; SUPERIOR TELECOMMUNICATIONS INC.
- 2. TERMINAL AND CONNECTOR COMPONENTS AND DISTRIBUTION RACKS:
- a. AMP INCORPORATED; A TYCO INTERNATIONAL LTD. COMPANY.
- b. HUBBELL PREMISE WIRING. c. LEVITON TELECOM. d. LUCENT TECHNOLOGIES; GLOBAL
- SERVICE PROVIDER. PANDUIT CORP.
- THOMAS & BETTS CORPORATION. g. CHATSWORTH PRODUCTS.

# 2.2 SYSTEM REQUIREMENTS

A. GENERAL: COORDINATE THE FEATURES OF MATERIALS AND EQUIPMENT SO THEY FORM AN INTEGRATED SYSTEM. MATCH COMPONENTS AND INTERCONNECTIONS FOR OPTIMUM FUTURE PERFORMANCE.

B. EXPANSION CAPABILITY: UNLESS OTHERWISE

INDICATED, PROVIDE SPARE CONDUCTOR PAIRS IN CABLES, POSITIONS IN CROSS-CONNECT AND PATCH PANELS, AND TERMINAL STRIPS TO ACCOMMODATE 20 PERCENT FUTURE INCREASE IN ACTIVE WORKSTATIONS.

## 2.3 MOUNTING ELEMENTS

- A. RACEWAYS AND BOXES: COMPLY WITH DIVISION 26 SECTION "RACEWAYS AND BOXES."
- B. BACKBOARDS: 3/4-INCH, INTERIOR-GRADE, FIRE-RETARDANT-TREATED PLYWOOD.
- C. DISTRIBUTION RACKS: WALL-MOUNTED, MODULAR-STEEL UNITS DESIGNED FOR TELECOMMUNICATIONS TERMINAL SUPPORT AND COORDINATED WITH DIMENSIONS OF UNITS TO BE SUPPORTED.
- 1. APPROXIMATE MODULE DIMENSIONS: 36 INCHES HIGH BY 22 INCHES WIDE. 2. FINISH: BAKED-POLYESTER POWDER COAT.

- 2.4 TWISTED-PAIR CABLES, CONNECTORS, AND TERMINAL
  - A. CABLES: LISTED AS COMPLYING WITH CATEGORY 6 (CAT6) OF TIA/EIA-568-A. CATEGORY 6 (CAT6) FOR VOICE (RJ-11 JACKS) AND FOR DATA.
  - B. CONDUCTORS: SOLID COPPER.
- C. UTP CABLE: COMPLY WITH TIA/EIA-568-A. FOUR, THERMOPLASTIC-INSULATED, INDIVIDUALLY TWISTED PAIRS OF CONDUCTORS; NO. 24 AWG, COLOR-CODED; ENCLOSED IN PVC JACKET.
- D. UTP PLENUM CABLE: LISTED FOR USE IN AIR-HANDLING SPACES. FEATURES ARE AS SPECIFIED FOR CABLES, CONDUCTORS, AND UTP CABLE, EXCEPT MATERIALS ARE MODIFIED AS REQUIRED FOR LISTING.
- E. UTP CABLE CONNECTING HARDWARE: COMPLY WITH TIA/EIA-568-A. IDC TYPE, USING MODULES DESIGNED FOR PUNCH-DOWN CAPS OR TOOLS.
- 1. IDC TERMINAL BLOCK MODULES: INTEGRAL WITH CONNECTOR BODIES, INCLUDING PLUGS AND JACKS WHERE INDICATED. 2. IDC CONNECTING HARDWARE: CONSISTENT
- THROUGHOUT PROJECT. F. PATCH PANEL: MODULAR PANELS HOUSING MULTIPLE-NUMBERED JACK UNITS WITH IDC-TYPE CONNECTORS AT EACH JACK FOR PERMANENT TERMINATION OF PAIR GROUPS OF INSTALLED
- NUMBER OF JACKS PER FIELD: ONE FOR EACH FOUR-PAIR UTP CABLE INDICATED.
- MOUNTING: RACK. G. JACKS AND JACK ASSEMBLIES FOR UTP CABLE: MODULAR, COLOR-CODED, RJ-45 RECEPTACLE UNITS WITH INTEGRAL IDC-TYPE TERMINALS. USE KEYED JACKS FOR DATA SERVICE.
- H. UTP PATCH CORDS: FOUR-PAIR CABLES IN 48-INCH LENGTHS, TERMINATED WITH RJ-45 PLUG AT EACH END. USE KEYED PLUGS FOR DATA
- WORKSTATION OUTLETS: DUAL JACK-CONNECTOR ASSEMBLIES, AS INDICATED IN SCHEDULE, MOUNTED IN SINGLE-GANG FACEPLATE.
- 1. FACEPLATE: BRUSHED STAINLESS STEEL 302. MOUNTING: FLUSH, UNLESS OTHERWISE
- INDICATED. 3. LEGEND: FIELD-LABELED, PER SCHEDULE ON

#### 2.5 IDENTIFICATION PRODUCTS

- A. COMPLY WITH DIVISION 26 SECTION "BASIC ELECTRICAL MATERIALS AND METHODS" AND THE FOLLOWING:
- CABLE LABELS: SELF-ADHESIVE VINYL OR VINYL-CLOTH WRAPAROUND TAPE MARKERS, MACHINE PRINTED WITH ALPHANUMERIC CABLE DESIGNATIONS.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

A. EXAMINE PATHWAY ELEMENTS INTENDED FOR CABLES, CHECK RACEWAYS, AND OTHER ELEMENTS FOR COMPLIANCE WITH SPACE ALLOCATIONS, INSTALLATION TOLERANCES. HAZARDS TO CABLE INSTALLATION, AND OTHER CONDITIONS AFFECTING INSTALLATION. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

## 3.2 APPLICATION OF MEDIA

- A. HORIZONTAL CABLE FOR DATA SERVICE: USE UTP CATEGORY 6 (CAT6) CABLE FOR RUNS BETWEEN COMMUNICATION SERVICE ENTRANCE AND WORKSTATION OUTLETS.
- B. HORIZONTAL CABLE FOR VOICE SERVICE: USE UTP CATEGORY 6 (CAT6) CABLE FOR RUNS BETWEEN COMMUNICATION SERVICE ENTRANCE AND WORKSTATION OUTLETS, EXCEPT DEDICATED VOICE OUTLETS (RJ-11 JACKS) MAY BE CATEGORY

## 3.3 INSTALLATION

- A. WIRING METHOD: INSTALL WIRING IN RACEWAY EXCEPT WITHIN CONSOLES, CABINETS, DESKS, AND COUNTERS AND EXCEPT IN ACCESSIBLE CEILING SPACES WHERE UNENCLOSED WIRING, SUPPORTED ON J-HOOKS MAY BE USED. USE UL-LISTED PLENUM CABLE FOR ALL RUNS. CONCEAL RACEWAY AND CABLES EXCEPT IN UNFINISHED SPACES.
- B. INSTALL CABLES USING TECHNIQUES, PRACTICES, AND METHODS THAT ARE CONSISTENT WITH CATEGORY RATING OF COMPONENTS AND THAT ENSURE APPROPRIATE CATEGORY 6 (CAT6) PERFORMANCE OF COMPLETED AND LINKED SIGNAL PATHS, END TO END.
- C. INSTALL CABLES WITHOUT DAMAGING CONDUCTORS, SHIELD, OR JACKET.
- D. DO NOT BEND CABLES, IN HANDLING OR IN INSTALLING, TO SMALLER RADII THAN MINIMUMS RECOMMENDED BY MANUFACTURER.
- E. PULL CABLES WITHOUT EXCEEDING CABLE MANUFACTURER'S RECOMMENDED PULLING

TENSIONS.

OR RACEWAY.

 PULL CABLES SIMULTANEOUSLY IF MORE THAN ONE IS BEING INSTALLED IN SAME

2. USE PULLING COMPOUND OR LUBRICANT IF

- NECESSARY. USE COMPOUNDS THAT WILL NOT DAMAGE CONDUCTOR OR INSULATION. 3. USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE OR CABLE GRIPS, THAT WILL NOT DAMAGE MEDIA
- F. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OR EXPOSED STRUCTURAL MEMBERS AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.
- G. SECURE AND SUPPORT CABLES AT INTERVALS NOT EXCEEDING 30 INCHES AND NOT MORE THAN 6 INCHES FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS.
- H. WIRING WITHIN WIRING CLOSETS AND ENCLOSURES: PROVIDE CONDUCTORS OF ADEQUATE LENGTH. TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. USE LACING BARS TO RESTRAIN CABLES, TO PREVENT STRAINING CONNECTIONS, AND TO PREVENT BENDING CABLES TO SMALLER RADII THAN MINIMUMS RECOMMENDED BY MANUFACTURER.

- SEPARATION OF WIRES: COMPLY WITH TIA/EIA-569-A RULES FOR SEPARATING UNSHIELDED COPPER VOICE AND DATA COMMUNICATION CABLING FROM POTENTIAL EMI SOURCES, INCLUDING ELECTRICAL POWER LINES AND EQUIPMENT.
- J. MAKE SPLICES, TAPS, AND TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND CROSS-CONNECT AND PATCH PANELS.
- K. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH MEDIA TYPES.

#### 3.4 GROUNDING

- A. COMPLY WITH DIVISION 26 SECTION "GROUNDING AND BONDING".
- B. GROUND CABLE SHIELDS, DRAIN CONDUCTORS, AND EQUIPMENT TO ELIMINATE SHOCK HAZARD AND TO MINIMIZE GROUND LOOPS, COMMON-MODE RETURNS, NOISE PICKUP, CROSS TALK. AND OTHER IMPAIRMENTS.
- C. BOND SHIELDS AND DRAIN CONDUCTORS TO GROUND AT ONLY ONE POINT IN EACH CIRCUIT.
- D. SIGNAL GROUND TERMINAL: LOCATE IN EACH EQUIPMENT ROOM AND WIRING CLOSET; ISOLATE FROM POWER SYSTEM AND EQUIPMENT GROUNDING.
- E. SIGNAL GROUND BUS: MOUNT ON WALL OF MAIN EQUIPMENT ROOM WITH STANDOFF INSULATORS.

#### 3.5 INSTALLATION IN EQUIPMENT ROOMS AND WIRING

- A. INSTALL PLYWOOD BACKBOARDS ON WALLS OF EQUIPMENT ROOMS AND WIRING CLOSETS FROM FLOOR TO CEILING.
- B. MOUNT PATCH PANELS, ETC. IN RACKS.
- C. GROUP CONNECTING HARDWARE FOR CABLES INTO SEPARATE LOGICAL FIELDS.
- D. USE PATCH PANELS TO TERMINATE CABLES ENTERING THE SPACE, UNLESS OTHERWISE INDICATED.

#### 3.6 INSTALLATION STANDARDS

A. COMPLY WITH REQUIREMENTS IN TIA/EIA-568-A AND TIA/EIA-569-A.

#### 3.7 IDENTIFICATION

- A. IN ADDITION TO REQUIREMENTS IN THIS ARTICLE, COMPLY WITH APPLICABLE REQUIREMENTS IN DIVISION 26 SECTION "BASIC ELECTRICAL MATERIALS AND METHODS" AND TIA/EIA-606.
- B. SYSTEM: USE A UNIQUE, THREE-GROUP, ALPHANUMERIC DESIGNATION FOR EACH CABLE, AND LABEL CABLE AND JACKS, CONNECTORS, AND TERMINALS TO WHICH IT CONNECTS WITH SAME DESIGNATION. USE LOGICAL AND SYSTEMATIC DESIGNATIONS FOR FACILITY'S ARCHITECTURAL ARRANGEMENT.
- C. WORKSTATION: LABEL CABLES WITHIN OUTLET
- D. DISTRIBUTION RACKS AND FRAMES: LABEL EACH UNIT AND FIELD WITHIN THAT UNIT.
- E. WITHIN CONNECTOR FIELDS IN EQUIPMENT ROOMS AND WIRING CLOSETS: LABEL EACH CONNECTOR AND EACH DISCRETE UNIT OF CABLE-TERMINATING AND CONNECTING
- F. CABLES, GENERAL: LABEL EACH CABLE WITHIN 4 INCHES OF EACH TERMINATION AND TAP, WHERE T IS ACCESSIBLE IN A CABINET OR JUNCTION OR OUTLET BOX, AND ELSEWHERE AS INDICATED.
- G. EXPOSED CABLES AND CABLES IN WIRE TROUGHS: LABEL EACH CABLE AT INTERVALS NOT EXCEEDING 15 FEET.
- H. CABLE SCHEDULE: POST IN PROMINENT LOCATION IN EACH EQUIPMENT ROOM AND WIRING CLOSET. LIST INCOMING AND OUTGOING CABLES AND THEIR DESIGNATIONS, ORIGINS, AND DESTINATIONS. PROTECT WITH RIGID FRAME AND CLEAR PLASTIC COVER. FURNISH AN ELECTRONIC COPY OF FINAL COMPREHENSIVE SCHEDULES FOR PROJECT, IN SOFTWARE AND FORMAT SELECTED BY OWNER.
- I. SEPARATION OF WIRES: COMPLY WITH TIA/EIA-569-A RULES FOR SEPARATING UNSHIELDED COPPER VOICE AND DATA COMMUNICATION CABLING FROM POTENTIAL EMI SOURCES, INCLUDING ELECTRICAL POWER LINES AND EQUIPMENT.
- J. MAKE SPLICES, TAPS, AND TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND CROSS-CONNECT AND PATCH PANELS.
- K. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH MEDIA TYPES.

END OF SECTION 27 51 23

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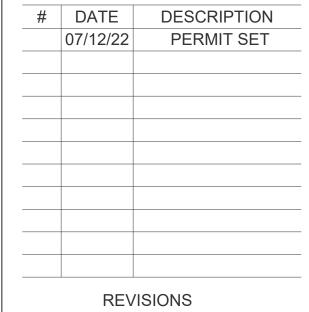
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DESCRIPTION

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40509-11

PROJECT NO.:

SHEET TITLE:

ES1.4

- 1.1 SECTION INCLUDES
- A. GENERAL REQUIREMENTS
- B. MOTORS. C. VIBRATION ISOLATION
- D. STEM-TYPE THERMOMETERS.
- E. MECHANICAL IDENTIFICATION.

#### 1.2 QUALITY ASSURANCE

- A. GUARANTEE: EACH CONTRACTOR SHALL **GUARANTEE EACH COMPLETE SYSTEM FOR A** PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK BY THE OWNER TO BE FREE OF DEFECTS OF MATERIAL AND WORKMANSHIP AND THAT ANY FALILTY MATERIAL OF WORKMANSHIP WILL BE REPAIRED OR REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.
- B. MATERIAL AND EQUIPMENT: ALL MATERIAL AND EQUIPMENT SHALL BE NEW AND OF THE BEST QUALITY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE AND SHALL BE THE STANDARD PRODUCT OF REPUTABLE MANUFACTURERS. THE MATERIAL AND EQUIPMENT MUST MEET APPROVAL OF STATE AND LOCAL CODES IN THE AREA IT IS BEING USED.
- C. WARRANTIES: EQUIPMENT AND DEVICES SHALL BE PROVIDED WITH THE WARRANTY AS SPECIFIED HEREIN. AT FINAL ACCEPTANCE, DELIVER TO THE OWNER ALL WARRANTIES WITH TERMS EXTENDING BEYOND THE ONE YEAR GUARANTEE PERIOD. EACH WARRANTY INSTRUMENT SHALL BE ADDRESSED TO THE OWNER AND STATING COMMENCEMENT DATE AND TERM.
- D. NOISE CRITERIA: MAINTAIN ASHRAE CRITERIA FOR AVERAGE NOISE CRITERIA CURVES FOR ALL **EQUIPMENT AT FULL LOAD CONDITION. EQUIPMENT** NOISE SHALL MEET OWNER'S SATISFACTION AT FINAL ACCEPTANCE.

#### 1.3 MECHANICAL GENERAL REQUIREMENTS

- A. THIS SECTION APPLIES TO ALL MECHANICAL WORK. THE CONTRACTORS INVOLVED SHALL CHECK ALL SECTIONS OF THE SPECIFICATIONS IN ADDITION TO THE PARTICULAR SECTION COVERING THEIR SPECIFIC TRADE. EACH DISTINCT SECTION OF THE SPECIFICATIONS AIMED FOR ONE TRADE MAY HAVE DETAILED INFORMATION WITH REGARDS TO OTHER TRADES. THEREFORE, IT IS IMPERATIVE THAT ALL OTHER TRADES COORDINATE FUNCTIONS AND WORK REQUIRED.
- B. THE OWNER DRAWINGS, WHICH CONSTITUTE AN INTEGRAL PART OF THIS CONTRACT, SHALL SERVE AS THE WORKING PLANS. THEY INDICATE THE GENERAL LAYOUT OF THE COMPLETE MECHANICAL
- 1. FIELD VERIFICATION OF SCALED DIMENSIONS ON PLANS IS DIRECTED SINCE ACTUAL LOCATIONS, DISTANCES, AND LEVELS WILL BE GOVERNED BY ACTUAL FIELD CONDITIONS. ALL MEASUREMENTS SHALL BE VERIFIED AT THE
- 2. THE MECHANICAL CONTRACTORS SHALL CHECK ARCHITECTURAL, STRUCTURAL, PLUMBING, HEATING, VENTILATION, AIR CONDITIONING, AND ELECTRICAL PLANS TO AVERT POSSIBLE INSTALLATION CONFLICTS. SHOULD DRASTIC CHANGES FROM THE ORIGINAL PLANS BE NECESSARY TO RESOLVE SUCH CONFLICT, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND SECURE WRITTEN APPROVAL AND AGREEMENT ON NECESSARY ADJUSTMENT BEFORE THE INSTALLATION IS STARTED.
- 3. DISCREPANCIES SHOWN BETWEEN PLANS, OR BETWEEN PLANS AND ACTUAL FIELD CONDITIONS, OR BETWEEN PLANS AND SPECIFICATIONS SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER FOR A DECISION
- 4. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COVER THE COMPLETED INSTALLATION OF SYSTEMS TO FUNCTION AS DESCRIBED. THE OMISSION OF THE EXPRESSED REFERENCE TO ANY ITEM OF LABOR AND MATERIAL NECESSARY TO COMPLY TO PRACTICE CODES, ORDINANCES, ETC. SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING SUCH ADDITIONAL LABOR AND MATERIAL 5. THE CONTRACT DRAWINGS SERVE AS WORKING
- DRAWINGS FOR THE GENERAL LAYOUT OF THE VARIOUS SERVICES. HOWEVER, LAYOUT OF EQUIPMENT ACCESSORIES, SPECIALTIES, PIPING SYSTEMS, AND CONDUIT RUNS ARE DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED AND DO NOTE NECESSARILY INDICATE EVERY REQUIRED VALVE, FITTING, TRANSITION, TURNING VANE, ETC. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE FIELD VERIFICATION OF ALL SERVICES, SYSTEMS, ETC. AS PART OF THE TOTAL WORK REQUIRED AND THE COST TO BE INCLUDED IN THIS BASE BID.
- C. ACCESSIBILITY: DO NOT LOCATE TRAPS, CONTROLS, UNIONS, ETC IN ANY SYSTEM AT A LOCATION THAT WILL BE INACCESSIBLE AFTER CONSTRUCTION IS COMPLETED. MAINTAIN ACCESSIBILITY FOR ALL COMPONENTS IN MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS. D. CUTTING AND PATCHING: ALL CUTTING REQUIRED
- SHALL BE DONE BY THE CONTRACTOR WHOSE WORK IS INVOLVED WITHOUT EXTRA COST TO THE OWNER. ALL PATCHING AND RESTORATION INCLUDING THE FINISHING AND INSTALLATION OF ACCESS PANELS IN THE CEILING, WALLS, ETC. WITHIN THE BUILDING LINES SHALL BE DONE BY THE RESPECTIVE, RESPONSIBLE CONTRACTOR, NO CUTTING OF STRUCTURAL STEEL, CONCRETE, OR WOOD SHALL BE DONE WITHOUT PRIOR APPROVAL AND EXPLICIT DIRECTIONS OF THE ARCHITECT AND THE OWNER. ALL DUCT OPENINGS IN WALLS, FLOORS, CEILINGS, AND ROOF SHALL BE CUT AND PATCHED BY THE RESPECTIVE, RESPONSIBLE CONTRACTOR.
- RELOCATION OF EXISTING CONDUITS, DUCTWORK, PIPES, AND UTILITIES: THE CONTRACTOR, UNDER WHOSE JURISDICTION THE WORK MAY FALL. SHALL PROVIDE LABOR, MATERIALS, AND TOOLS REQUIRED TO CUT, REPAIR, PROTECT, CAP, OR RELOCATE EXISTING PIPES, CONDUITS, OR UTILITIES INTERFERING WITH OR UNCOVERED DURING WORK PER REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION.
- DAMAGE TO OTHER WORK: EACH CONTRACTOR SHALL BE HELD RIGIDLY RESPONSIBLE FOR ALL DAMAGES TO THEIR OWN OR ANY OTHER TRADE'S WORK RESULTING FROM THE EXECUTION OF THE INVOLVED CONTRACTOR'S WORK.
- G. ROUGH-IN FOR CONNECTION OF EQUIPMENT: IT

- SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO STUDY THE ARCHITECTURAL STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS, CONFERRING WITH THE VARIOUS TRADES INVOLVED AND CHECKING WITH THE SUPPLIER OF EQUIPMENT IN ORDER TO PROPERLY ROUGH-IN FOR ALL EQUIPMENT.
- H. PERFORMANCE OF WORK: ALL WORK OUTLINED IN THE VARIOUS MECHANICAL AND ELECTRICAL SECTIONS SHALL BE DONE BY THE CONTRACTOR UNDER WHOSE JURISDICTION THE WORK MAY FALL. SEE DRAWINGS AND SPECIFICATIONS.
- I. ELECTRICAL WIRING: SEE ELECTRICAL SPECIFICATIONS, DIVISION 26.
- J. TESTING: ALL TESTING RESULTS SHALL BE IN THE FORM OF WRITTEN REPORTS.

#### 1.4 SUPPLEMENTARY CONDITIONS

- A. REFER TO OTHER REQUIREMENTS OF MECHANICAL AND ELECTRICAL WORK IN DIVISION 26 WITHOUT
- B. PERMITS, INSPECTIONS, AND TESTS: ALL WORK IS TO BE EXECUTED IN COMPLIANCE WITH, AND EACH CONTRACTOR IS TO OBSERVE AND ABIDE BY, ALL APPLICABLE LAWS, REGULATIONS, ORDINANCES, AND RULES OF THE NATIONAL, STATE, COUNTY, AND LOCAL GOVERNING AGENCIES OR ANY DULY CONSTITUTED PUBLIC AUTHORITY. EACH CONTRACTOR WILL. AT ALL TIMES. MAINTAIN PROPER FACILITIES AND PROVIDE SAFE ACCESS FOR INSPECTION OF ALL PARTS OF THE WORK AND TO THE SHOPS WHEREIN THE WORK IS IN PREPARATION. NO WORK WILL BE ENCLOSED OR COVERED UNTIL APPROVED BY THE ARCHITECT AND SHOULD ANY WORK BE ENCLOSED OR COVERED BEFORE ALL NECESSARY INSPECTIONS ARE COMPLETED, SAME WILL BE OPENED FOR EXAMINATION AT THE CONTRACTOR'S EXPENSE. ALL FEES, LICENSES, TEST COSTS, ETC. ARE THE CONTRACTOR'S RESPONSIBILITY.

#### C. RULES, REGULATIONS, AND CODES:

- ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO THE STANDARDS, WHERE AVAILABLE, OF THE NATIONAL ELECTRICA MANUFACTURER'S ASSOCIATION (NEMA). NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), NATIONAL ELECTRICAL CODE (NEC) UNDERWRITERS LABORATORIES (UL), AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS (ASHRAE) SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION (SMACNA), AND AMERICAN WATER WORKS ASSOCIATION (AWWA).
- FEDERAL, STATE, AND LOCAL CODES AND UTILITY COMPANIES' REGULATIONS D. WORKMANSHIP AND INSTALLATION: THE OWNER SHALL DECIDE WHETHER OR NOT THE FINISHED WORK IS SATISFACTORY IN THEIR JUDGMENT. IF ANY MATERIAL AND/OR EQUIPMENT HAS NOT BEEN PROPERLY INSTALLED OR FINISHED, THIS CONTRACTOR IS OBLIGATED TO REPLACE THE MATERIAL AND/OR EQUIPMENT WHENEVER

REQUIRED AND TO REINSTALL THE MATERIAL AND

**EQUIPMENT IN A MANNER ENTIRELY SATISFACTORY** 

2. ALL WORK SHALL CONFORM TO ALL APPLICABLE

WITHOUT ADDITIONAL COST TO THE OWNER. E. COOPERATION: THERE SHALL BE COMPLETE COOPERATION WITH ALL TRADES IN THE MATTER OF PLANNING AND EXECUTION OF THE WORK. EVERY REASONABLE EFFORT SHALL BE MADE TO PREVENT CONFLICT AS TO SPACE REQUIREMENTS, DIMENSIONS, LOCATIONS, LEAVING OF OPENINGS OR OTHER MATTERS THAT OBSTRUCT OR DELAY

## PART 2 - PRODUCTS - REFER TO DRAWINGS

## 2.1 MOTORS

- A. ELECTRIC SERVICE: REFER TO DIVISION 26.
- B. MOTORS: NEMA MG1, CONTINUOUS RATED. OPEN. BALL-BEARING, SQUIRREL CAGE, INDUCTION WITH CLASS B INSULATION. HIGH OR PREMIUM EFFICIENCY UNLESS OTHERWISE NOTED.
- C. SINGLE PHASE MOTORS, LESS THAN 1/3 HORSEPOWER: SPLIT PHASE.
- D. SINGLE PHASE MOTORS, 1/3 HORSEPOWER OR LARGER: CAPACITOR START.
- E. NOMINAL NAMEPLATE HORSEPOWER: NOT LESS THAN 115% OF EQUIPMENT HORSEPOWER REQUIRED FOR SPECIFIC PERFORMANCE.

## 2.2 VIBRATION ISOLATION

- A. VIBRATION ISOLATORS:
- 1. HANGERS: OPEN SPRING MOUNT WITH STIFF SPRINGS, HEAVY MOUNTING FRAME, AND LIMIT
- 2. PADS: NEOPRENE WAFFLE PADS, 30 DUROMETER, 1/2" THICK MINIMUM, MAXIMUM LOADING OF 40 PSI.

## 2.3 STEM-TYPE THERMOMETERS

A. ASTM E1, RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH, 9 INCH SCALE, LEXAN WINDOW, BRASS STEM, 2 PERCENT ACCURACY, SCALE IN DEGREES

## 2.4 MECHANICAL IDENTIFICATION

- A. PLASTIC TAGS: LAMINATED PLASTIC WITH **ENGRAVED LETTERS ON CONTRASTING** BACKGROUND COLOR. TAG SIZE MINIMUM OF 1-1/2" SQUARE
- B. STENCILED TAGS: SEMI-GLOSS ENAMEL PAINTED, MINIMUM 2" HIGH LETTERS.
- C. PLASTIC TAPE PIPE MARKERS: FLEXIBLE, VINYL FILM TAPE WITH PRESSURE SENSITIVE ADHESIVE BACKING AND PRINTED MARKINGS.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
- B. PROVIDE VIBRATION ISOLATION ON MOTOR DRIVEN EQUIPMENT AND CONNECTED PIPING AND/OR DUCTWORK.
- C. PROVIDE SPRING ISOLATORS ON PIPING CONNECTED TO ISOLATED EQUIPMENT AS FOLLOWS:
- 1. UP TO 4" DIAMETER: ISOLATORS ON FIRST 3 POINTS OF SUPPORT.
- 2. 5" TO 8" DIAMETER: ISOLATORS ON FIRST 4 POINTS OF SUPPORT.
- 3. 10" DIAMETER AND LARGER: ISOLATORS ON FIRST 6 POINTS OF SUPPORT. 4. STATIC DEFLECTION OF THE FIRST POINT OF

- THE ISOLATED EQUIPMENT. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SHORT COUPLINGS. ENLARGE PIPES SMALLER THAN
- 2-1/2" FOR INSTALLATION OF THERMOMETER SOCKETS. ENSURE SOCKETS ALLOW CLEARANCE INSTALL GAUGES AND THERMOMETERS IN
  - LOCATIONS WHERE THEY ARE EASILY READ FROM OPERATING LEVEL. INSTALLATION SHALL BE BETWEEN 0 AND 45 DEGREES FROM VERTICAL.

SUPPORT SHALL BE TWICE THE DEFLECTION OF

F. IDENTIFY ROOFTOP UNITS WITH STENCILED TAGS. G. IDENTIFY AIR HANDLING UNITS, PUMPS, HEAT

TRANSFER EQUIPMENT, TANKS, AND WATER

TREATMENT DEVICES WITH PLASTIC TAGS.

H. SMALLER DEVICES, SUCH AS IN-LINE PUMPS, MAY BE IDENTIFIED WITH PLASTIC TAPE MARKERS. I. IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC

#### END OF SECTION

SUPPORTS AND ANCHORS SECTION 23 05 29

# PART 1 - GENERAL

## 1.1 SECTION INCLUDES

- A. PIPE, EQUIPMENT HANGERS, AND SUPPORTS.
- B. SLEEVES AND SEALS.
- C. FLASHING AND SEALING EQUIPMENT AND PIPE
- D. EQUIPMENT CURBS.

PART 2 - PRODUCTS

## 2.1 PIPE HANGERS AND SUPPORTS

- A. MANUFACTURERS
- GRINNELL
- B. PLUMBING PIPING: CONFORM TO ASME B31.9. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2":
- MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT 3. HANGERS FOR PIPE SIZES 2" AND LARGER: CARBON STEEL, ADJUSTABLE, CLEVIS.
- 4. MULTIPLE OR TRAPEZE HANGERS: STEE CHANNELS WITH WELDED SPACERS AND HANGER RODS
- 5. WALL SUPPORT FOR PIPE SIZES 3" AND SMALLER: CAST IRON HOOK. 6. WALL SUPPORT FOR PIPE SIZES 4" AND LARGER:
- WELDED STEEL BRACKET AND WROUGHT STEEL 7. VERTICAL SUPPORT: STEEL RISER CLAMP, ANGLE RING 8. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE
- SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT 9. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.

# STANDARDS.

A. HANGER RODS: MILD STEEL THREADED BOTH ENDS THREADED ONE END, OR CONTINUOUS THREADED.

C. DUCTWORK: IN ACCORDANCE WITH SMACNA

- A. METAL FLASHING: 26 GAUGE GALVANIZED STEEL.
- B. METAL COUNTER FLASHING: 22 GAUGE GALVANIZED C. LEAD FLASHING:
- WATERPROOFING: 5 LB./FT.2 SHEET LEAD. 2. SOUNDPROOFING: 1 LB./FT.2 SHEET LEAD.
- D. FLEXIBLE FLASHING: 47 MIL THICK SHEET BUTYL, COMPATIBLE WITH ROOFING.
- E. CAPS: STEEL, 22 GAUGE MINIMUM, 16 GAUGE AT FIRE RESISTANT ELEMENTS.

F. ARCHITECTURAL SPECIFICATIONS SUPERCEDE

THESE FLASHING REQUIREMENTS.

## 2.4 SLEEVES

- A. SLEEVES FOR PIPES THROUGH NON-FIRE RATED FLOORS: 18 GAUGE GALVANIZED STEEL.
- B. SLEEVES FOR PIPES THROUGH FIRE RATED AND FIRE RESISTIVE FLOORS AND WALLS AND FIRE PROOFING: PREFABRICATED FIRE RATED SLEEVES INCLUDING SEALS, UL LISTED.
- C. SLEEVES FOR ROUND DUCTWORK: GALVANIZED
- D. SLEEVES FOR RECTANGULAR DUCTWORK:
- GALVANIZED STEEL OR WOOD. E. STUFFING INSULATION: GLASS FIBER TYPE,
- NON-COMBUSTIBLE. F. SEALANT: ACRYLIC.

## 2.5 EQUIPMENT CURBS

- A. CURBS SUPPLIED BY EQUIPMENT MANUFACTURER WHERE INDICATED.
- B. FABRICATION: WELDED 18 GAUGE GALVANIZED STEEL SHELL AND BASE, MITERED 3" CANT, SLOPED TO MATCH ROOF, 1-1/2" THICK INSULATION, FACTORY INSTALLED WOOD NAILER.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. SUPPORT HORIZONTAL PIPING AS SCHEDULED. C. PLACE HANGERS WITHIN 12 INCHES OF EACH
- HORIZONTAL ELBOW. D. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL
- ADJUSTMENT. E. SUPPORT HORIZONTAL CAST IRON PIPE ADJACENT TO EACH HUB WITH 5 FEET MAXIMUM SPACING

BETWEEN HANGERS.

F. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE

- MULTIPLE OR TRAPEZE HANGERS.
- G. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.
- H. PROVIDE COPPER PLATED HANGER AND SUPPORTS FOR COPPER PIPING.
- I. DESIGN HANGER FOR PIPE MOVEMENT WITHOUT
- DISENGAGEMENT OF SUPPORTED PIPE. J. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS.
- K. PROVIDE FLEXIBLE FLASHING AND METAL COUNTER FLASHING WHERE PIPING AND DUCTWORK PENETRATE WEATHER OR WATERPROOFED WALLS, FLOORS, AND ROOFS.
- L. FLASH VENT AND SOIL PIPES PROJECTING 3 INCHES MINIMUM ABOVE FINISHED ROOF SURFACE WITH LEAD WORKED 1 INCH MINIMUM INTO HUB. 8 INCHES MINIMUM CLEAR ON SIDES WITH 24" X 24" SHEET SIZE. FOR PIPES THROUGH OUTSIDE WALLS, TURN FLANGES BACK INTO WALL THEN CAULK, METAL COUNTER FLASH, AND SEAL.
- M. SEAL FLOOR AND MOP SINK DRAINS WATERTIGHT TO ADJACENT MATERIALS.
- N. PROVIDE CURBS FOR MECHANICAL ROOF **INSTALLATIONS 14 INCHES MINIMUM ABOVE** ROOFING SURFACE. FLASH AND COUNTERFLASH WITH SHEET METAL AND SEAL WATERTIGHT, ATTACH COUNTERFLASHING TO MECHANICAL EQUIPMENT AND LAP BASE FLASHING ON ROOF CURBS. FLATTEN AND SOLDER JOINTS.
- O. ADJUST STORM COLLARS TIGHT TO PIPE WITH BOLTS AND CAULK AROUND TOP EDGE. USE STORM COLLARS ABOVE ROOF JACKS. SCREW VERTICAL FLANGE SECTION TO FACE OF CURB.
- P. SET SLEEVES IN POSITION IN FORMWORK. PROVIDE REINFORCING AROUND SLEEVES. Q. SIZE SLEEVES LARGE ENOUGH TO ALLOW FOR

MOVEMENT DUE TO EXPANSION AND CONTRACTION.

- PROVIDE FOR CONTINUOUS INSULATION WRAPPING. R. WHERE PIPING OR DUCTWORK PENETRATES FLOOR, CEILING, OR WALL, CLOSE OFF SPACE BETWEEN PIPE OR DUCT AND ADJACENT WORK WITH FIRE STOPPING INSULATION AND CAULK. PROVIDE CLOSE FITTING METAL COLLAR OR ESCUTCHEON COVERS AT BOTH SIDES OF PENETRATION.
- S. INSTALL CHROME PLATED STEEL ESCUTCHEONS AT FINISHED SURFACES.

A. HANGER SPACING AND HANGER ROD SIZES: MAX. HANGER HANGER

ROD		
CHES)	SPACING (FEET) DIAME	TER
CHES)		
1/2 TO 1-1/2	6-1/2	3/8
1-1/2 TO 2	10	3/8
2-1/3 TO 3	10	1/2
4 TO 6	10	5/8
PVC	6	3/8
C.I.	BELL & SPIGOT	5
	1/2	

#### (OR NO-HUB) AND AT JOINTS

# **END OF SECTION**

TESTING ADJUSTING AND BALANCING SECTION 23 05 93

## 1.1 SECTION INCLUDES

OF AIR SYSTEMS.

1.2 SUBMITTALS FOR REVIEW A. GENERAL CONTRACTOR TO SUBMIT COPIES OF PRE-START REPORT FOR REVIEW PRIOR TO COMMENCEMENT OF TEST AND BALANCE AND FINAL ACCEPTANCE OF PROJECT. THE PROJECT'S TEST AND BALANCE CONTRACTOR TO PROVIDE FINAL COPIES OF CERTIFIED TEST AND BALANCE REPORT TO ARCHITECT/ENGINEER, AND FOR INCLUSION IN

A. PRE-START, TESTING, ADJUSTING AND BALANCING

OPERATING AND MAINTENANCE MANUALS. 1.3 QUALIFICATIONS: MECHANICAL CONTRACTOR RESPONSIBLE FOR PRE-START OF MECHANICAL SYSTEMS, EQUIPMENT AND TESTING AND BALANCING SHALL BE PERFORMED BY THE AIR BALANCE CONTRACTOR.

# PART 2 - EXECUTION

2.1 PRE-START REQUIREMENTS (BY MECHANICAL CONTRACTOR)

- B. VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE PRIOR TO COMMENCEMENT OF TEST AND BALANCE. ENSURE THE FOLLOWING CONDITIONS:
- SYSTEMS ARE STARTED AND OPERATING IN SAFE AND NORMAL CONDITION. HEATING AND A/C EQUIPMENT PROPERLY CHARGED AND HEATING SECTION FIRING CORRECTLY. RTU POWER EXHAUST, SMOKE DETECTORS
- AND ECONOMIZER SET-UP COMPLETED PER MANUFACTURERS RECOMMENDATIONS. 3. PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE FOR ELECTRICAL EQUIPMENT. 4. FINAL FILTERS ARE CLEAN AND IN PLACE. IF
- REQUIRED, INSTALL TEMPORARY MEDIA IN ADDITION TO FINAL FILTERS. 5. DUCT SYSTEMS ARE CLEAN OF DEBRIS. FANS ARE ROTATING CORRECTLY.
- 7. FIRE AND VOLUME DAMPERS ARE IN PLACE AND 8. AIR COIL FINS ARE CLEANED AND COMBED. 9. ACCESS DOORS ARE CLOSED AND DUCT ENDS
- ARE IN PLACE. 10. AIR OUTLETS ARE INSTALLED AND CONNECTED. 11. DUCT SYSTEM LEAKAGE IS MINIMIZED. 12. SUBMIT FIELD REPORTS. REPORT DEFECTS AND DEFICIENCIES NOTED DURING PERFORMANCE OF SERVICES WHICH PREVENT SYSTEM

## 2.2 PREPARATION

- A. TEST AND ADJUST ALL MECHANICAL SYSTEMS AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH THE MOST CURRENT NEBB OR AABC, AND ASHRAE STANDARDS. ELIMINATE OBJECTIONABLE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. BALANCING CONTRACTOR SHALL BE AN INDEPENDENT CERTIFIED TEST AND BALANCE CONTRACTOR. WITH NEBB OR AABC CERTIFICATION. SUBMIT COMPLETED AND CERTIFIED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE.
- B. PROVIDE INSTRUMENTS REQUIRED FOR TESTING, ADJUSTING, AND BALANCING OPERATIONS. ALL INSTRUMENTS SHALL BE RECENTLY TESTED AND

CALIBRATED.

# REQUIRED.

C. PROVIDE ADDITIONAL BALANCING DEVICES AS

2.3 INSTALLATION TOLERANCES A. AIR HANDLING SYSTEMS: ADJUST TO WITHIN ±5 PERCENT OF DESIGN FOR SUPPLY SYSTEMS AND WITHIN ±10 PERCENT OF DESIGN FOR RETURN AND

- EXHAUST SYSTEMS. B. AIR OUTLETS AND INLETS: ADJUST TOTAL TO WITHIN PLUS 10 PERCENT AND MINUS 5 PERCENT OF DESIGN

#### 2.4 AIR SYSTEM PROCEDURE

TO SPACE.

- A. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE REQUIRED SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES.
- B. MAKE AIR QUANTITY MEASUREMENTS IN DUCTS BY PITOT TUBE TRAVERSE OF ENTIRE CROSS SECTIONAL AREA OF DUCT.
- C. MEASURE AIR QUANTITIES AT AIR INLETS AND
- SPACE TEMPERATURES FREE FROM OBJECTIONABLE DRAFTS AND NOISE. USE VOLUME CONTROL DEVICES TO REGULATE AIR QUANTITIES ONLY TO THE EXTENT THAT ADJUSTMENTS DO NOT CREATE OBJECTIONABLE AIR

D. ADJUST DISTRIBUTION SYSTEM TO OBTAIN UNIFORM

F. VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTMENT OF FAN SPEEDS. PROVIDE DRIVE CHANGES IF REQUIRED. VARY MAIN TRUNK DUCT AIR QUANTITIES BY DAMPER REGULATION.

MOTION OR SOUND LEVELS.

RETURN AIR. AND EXHAUST DAMPERS FOR DESIGN CONDITIONS. SETTINGS OF FRESH AIR INTAKES SHALL MEET APPROPRIATE CODES. H. MEASURE TEMPERATURE CONDITIONS ACROSS

OUTSIDE AIR, RETURN AIR, AND EXHAUST DAMPERS

G. ADJUST AUTOMATIC DAMPERS, OUTSIDE AIR

#### END OF SECTION

PART 1 - GENERAL

MECHANICAL PIPING AND DUCT INSULATION SECTION 23 07 19

# 1.1 SECTION INCLUDES

TO CHECK LEAKAGE.

- A. PIPING INSULATION.
- B. DUCT INSULATION. C. JACKETS AND ACCESSORIES

#### PART 2 - PRODUCTS 2.1 PIPE INSULATION

- A. CELLULAR FOAM MANUFACTURER/MODEL:
- a. ARMSTRONG ARMAFLEX 22. OWENS CORNING O-C. c. CERTAINTEED CORP

ARMSTRONG 520

2. ASTM C534, FLEXIBLE, CELLULAR ELASTOMERIC MOLDED SHEET JOINTS: SEALED WITH WATERPROOF ADHESIVE. 4. ADHESIVES MANUFACTURER/MODEL:

# b. OWENS CORNING 500.

- B. GLASS FIBER 1. INSULATION: ASTM C547, RIGID MOLDED, NON-COMBUSTIBLE.
- a. 'K' VALUE: ASTM C177, 0.24 AT 75° F. b. MAXIMUM SERVICE TEMPERATURE: 850° c. MAXIMUM MOISTURE ABSORPTION: 0.2
- PERCENT BY VOLUME. VAPOR BARRIER JACKET: a. ASTM C921, WHITE KRAFT PAPER WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM.
- b. MOISTURE BARRIER TRANSMISSION: ASTM E96, 0.02 PERM-INCHES. 3. TIE WIRE: 0.048 INCH STAINLESS STEEL WITH TWISTED ENDS ON MAXIMUM 12 INCH CENTERS 4. VAPOR BARRIER LAP ADHESIVE: COMPATIBLE

b. BLANKET: 1.0 LB./FT.^3 DENSITY.

WITH INSULATION. 5. INSULATING CEMENT/MASTIC: ASTM C195, HYDRAULIC SETTING ON MINERAL WOOL. FIBROUS GLASS FABRIC

a. CLOTH: UNTREATED, 9 OZ/YD^2 WEIGHT.

#### c. WEAVE: 5X5. 2.2 DUCTWORK INSULATION

A. GLASS FIBER, FLEXIBLE: MANUFACTURER/MODEL: OWENS

CORNING/SOFTR DUCT WRAP.

- 2. OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS: a. KNAUF. b. JOHNS MANVILLE
- 3. INSULATION: ASTM C553, FLEXIBLE, NON-COMBUSTIBLE BLANKET. a. INSTALLED 'K' VALUE: ASTM C518, 0.25 AT
- b. MAXIMUM SERVICE TEMPERATURE: 250° c. MAXIMUM MOISTURE ABSORPTION: 0.2 PERCENT BY VOLUME. VAPOR BARRIER JACKET:
  - a. ASTM C921, WHITE KRAFT PAPER WITH GLASS FIBER YARN, BONDED TO ALUMINIZED FILM. b. MOISTURE BARRIER TRANSMISSION: ASTM E96, 0.02 PERM-INCHES.
- c. SECURE WITH PRESSURE SENSITIVE VAPOR BARRIER TAPE: a. KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO

ALUMINIZED FILM WITH PRESSURE

SENSITIVE RUBBER BASED ADHESIVE

WEAVE COTTON TREATED WITH DILUTE

B. JACKETS: CANVAS JACKET: UL LISTED. a. FABRIC: ASTM C921, 6 OZ/YD^2, PLAIN

## FIRE RETARDANT LAGGING ADHESIVE. 2.3 INSULATION RATINGS

A. FLAME SPREAD SHALL BE 25 OR LESS IN

B. SMOKE DEVELOPED SHALL BE 50 OR LESS IN

ACCORDANCE WITH ASTM E84.

ACCORDANCE WITH ASTM E84. PART 3 - EXECUTION 3.1 INSTALLATION

A. INSTALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

B. ALL PIPE FITTINGS TO BE INSULATED WITH MITER CUT PIECES OF CELLULAR FOAM INSULATION ASSEMBLED ON SITE USING SPECIFIED ADHESIVE.

D. DO NOT INSTALL INSULATION AND COVERINGS UNTIL

DUCTWORK OR PIPING HAVE BEEN TESTED OR

E. ENSURE SURFACES ARE CLEAN AND DRY PRIOR TO

H. ENSURE INSULATION IS CONTINUOUS INSIDE WALLS.

F. LOCATE INSULATION SEAMS IN LEAST VISIBLE

G. FINISH INSULATION NEATLY AT HANGERS,

SUPPORTS, AND OTHER PROTRUSIONS.

a. DOMESTIC HOT WATER,

b. CONDENSATE DRAINS

a. DOMESTIC HOT WATER,

b. CONDENSATE DRAINS

FLEXIBLE FIBERGLASS

a. RECTANGULAR AND ROUND

A. SECTION INCLUDES COMMISSIONING PROCESS

REQUIREMENTS FOR HVAC&R SYSTEMS,

A. COMMISSIONING PLAN: A DOCUMENT THAT

D. SYSTEMS, SUBSYSTEMS, EQUIPMENT, AND

OUTLINES THE ORGANIZATION, SCHEDULE,

ALLOCATION OF RESOURCES, AND DOCUMENTATION

REQUIREMENTS OF THE COMMISSIONING PROCESS.

C. HVAC&R: HEATING, VENTILATING, AIR CONDITIONING,

COMPONENTS: WHERE THESE TERMS ARE USED

TOGETHER OR SEPARATELY, THEY SHALL MEAN

"AS-BUILT" SYSTEMS, SUBSYSTEMS, EQUIPMENT,

B. CERTIFICATES OF COMPLETION OF INSTALLATION,

A. LABOR, INSTRUMENTATION, TOOLS, AND EQUIPMENT

"SCHEDULE OF ALLOWANCES" ARTICLE IN

A. COMMISSIONING TESTING ALLOWANCE MAY BE

ADJUSTED UP OR DOWN BY THE "LIST OF UNIT

PRICES" ARTICLE IN SECTION 012200 "UNIT PRICES"

WHEN ACTUAL MAN-HOURS ARE COMPUTED AT THE

SECTION 012100 "ALLOWANCES."

END OF COMMISSIONING TESTING.

A. PERFORM COMMISSIONING TESTS AT THE

B. ATTEND CONSTRUCTION PHASE CONTROLS

REVIEW AND COORDINATION MEETING.

C. ATTEND TESTING, ADJUSTING, AND BALANCING

D. PARTICIPATE IN HVAC&R SYSTEMS, ASSEMBLIES,

E. PROVIDE INFORMATION REQUESTED BY THE CXA

FOR FINAL COMMISSIONING DOCUMENTATION.

F. PROVIDE MEASURING INSTRUMENTS AND LOGGING

DEVICES TO RECORD TEST DATA, AND PROVIDE

DATA ACQUISITION EQUIPMENT TO RECORD DATA

FOR THE COMPLETE RANGE OF TESTING FOR THE

CHECKLISTS AND COMMISSIONING PROCESS TEST

ASSEMBLIES, EQUIPMENT, AND COMPONENTS TO BE

PROCEDURES FOR ACTUAL HVAC&R SYSTEMS,

FURNISHED AND INSTALLED AS PART OF THE

C. VERIFY TESTING, ADJUSTING, AND BALANCING OF

D. PROVIDE TEST DATA, INSPECTION REPORTS, AND

A. PROVIDE THE FOLLOWING INFORMATION TO THE

2. IDENTIFICATION OF INSTALLED SYSTEMS

DURING THE CONSTRUCTION PHASE.

1. PLAN FOR DELIVERY AND REVIEW OF

DOCUMENTS AND REPORTS.

CXA FOR INCLUSION IN THE COMMISSIONING PLAN:

SUBMITTALS, SYSTEMS MANUALS, AND OTHER

ASSEMBLIES, EQUIPMENT, AND COMPONENTS

INCLUDING DESIGN CHANGES THAT OCCURRED

CERTIFICATES IN SYSTEMS MANUAL.

A. PROVIDE PROJECT-SPECIFIC CONSTRUCTION

EQUIPMENT, AND COMPONENT MAINTENANCE

ORIENTATION AND INSPECTION AS DIRECTED BY THE

1.6 CONTRACTOR'S RESPONSIBILITIES

DIRECTION OF THE CXA.

COORDINATION MEETING.

REQUIRED TEST PERIOD.

CONSTRUCTION CONTRACT.

B. DIRECT COMMISSIONING TESTING.

WORK ARE COMPLETE.

1.8 COMMISSIONING DOCUMENTATION

1.7 CXA'S RESPONSIBILITIES

COSTS FOR TECHNICIANS FOR THE PERFORMANCE

OF COMMISSIONING TESTING ARE COVERED BY THE

PRESTART, AND STARTUP ACTIVITIES.

ASSEMBLIES, AND EQUIPMENT

B. CXA: COMMISSIONING AUTHORITY.

AND REFRIGERATION.

AND COMPONENTS

1.3 INFORMATIONAL SUBMITTALS

1.4 ALLOWANCES

1.5 UNIT PRICES

A. CERTIFICATES OF READINESS.

SUPPLY DUCT ABOVE CEILINGS

b. ROUND RETURN DUCT ABOVE CEILINGS

COLD WATER, AND HOT

WATER RECIRCULATION

T<u>HICKNESS</u>

2. PRE-FORMED GLASS FIBER

COLD WATER, AND HOT

WATER RECIRCULATION

C. FIBER DUCTWORK IS NOT ACCEPTABLE.

APPROVED.

A. PIPING INSULATION

CELLULAR FOAM

B. DUCTWORK INSULATION

END OF SECTION

COMMISSIONING OF HVAC

PART 1 - GENERAL

1.2 DEFINITIONS

3.2 SCHEDULES

- TO BE VERIFIED AND TESTED. 4. CERTIFICATE OF READINESS, SIGNED BY THE
- COMPONENTS, AND ASSOCIATED CONTROLS ARE READY FOR TESTING. INSTALLATION, PRESTART CHECKS, AND
- 5. CERTIFICATE OF COMPLETION CERTIFYING THAT STARTUP PROCEDURES HAVE BEEN COMPLETED.
- 6. CERTIFICATE OF READINESS CERTIFYING THAT HVAC&R SYSTEMS, SUBSYSTEMS, EQUIPMENT AND ASSOCIATED CONTROLS ARE READY FOR
- 7. TEST AND INSPECTION REPORTS AND CERTIFICATES
- 8. CORRECTIVE ACTION DOCUMENTS. VERIFICATION OF TESTING, ADJUSTING, AND BALANCING REPORTS.
- PART 2 EXECUTION 2.1 TESTING PREPARATION A. CERTIFY THAT HVAC&R SYSTEMS, SUBSYSTEMS

AND EQUIPMENT HAVE BEEN INSTALLED

B. CERTIFY THAT HVAC&R INSTRUMENTATION AND CONTROL SYSTEMS HAVE BEEN COMPLETED AND CALIBRATED, THAT THEY ARE OPERATING ACCORDING TO THE CONTRACT DOCUMENTS, AND THAT PRETEST SET POINTS HAVE BEEN RECORDED.

CALIBRATED, AND STARTED AND ARE OPERATING

ACCORDING TO THE CONTRACT DOCUMENTS.

- C. CERTIFY THAT TESTING, ADJUSTING, AND BALANCING PROCEDURES HAVE BEEN COMPLETED AND THAT TESTING, ADJUSTING, AND BALANCING REPORTS HAVE BEEN SUBMITTED, DISCREPANCIES CORRECTED. AND CORRECTIVE WORK APPROVED
- OPERATING MODE TO BE TESTED (E.G., NORMAL SHUTDOWN, NORMAL AUTO POSITION, NORMAI MANUAL POSITION, UNOCCUPIED CYCLE, EMERGENCY POWER, AND ALARM CONDITIONS).

D. SET SYSTEMS, SUBSYSTEMS, AND EQUIPMENT INTO

DEVICE AND INTERLOCK IDENTIFIED ON CHECKLISTS. F. CHECK SAFETY CUTOUTS, ALARMS, AND INTERLOCKS WITH SMOKE CONTROL AND

LIFE-SAFETY SYSTEMS DURING EACH MODE OF

INSPECT AND VERIFY THE POSITION OF EACH

G. TESTING INSTRUMENTATION: INSTALL MEASURING INSTRUMENTS AND LOGGING DEVICES TO RECORD

OPERATION.

BALANCING WORK, PROVIDE COPIES OF REPORTS. SAMPLE FORMS, CHECKLISTS, AND CERTIFICATES TO THE CXA.

TEST DATA AS DIRECTED BY THE CXA.

A. PRIOR TO PERFORMANCE OF TESTING AND

2.2 TESTING AND BALANCING VERIFICATION

BALANCING WORK. PROVIDE TECHNICIANS, INSTRUMENTATION, AND TOOLS TO VERIFY TESTING AND BALANCING OF HVAC&R SYSTEMS AT THE DIRECTION OF THE CXA

B. NOTIFY THE CXA AT LEAST 10 DAYS IN ADVANCE OF

TESTING AND BALANCING WORK. AND PROVIDE

ACCESS FOR THE CXA TO WITNESS TESTING AND

1. THE CXA WILL NOTIFY TESTING AND BALANCING CONTRACTOR10 DAYS IN ADVANCE OF THE DATE OF FIELD VERIFICATION. NOTICE WILL NOT INCLUDE DATA POINTS TO BE VERIFIED. THE TESTING AND BALANCING CONTRACTOR SHALL USE THE SAME INSTRUMENTS (BY MODEL

READINGS. A DEVIATION OF 3 DB SHALL RESULT

BACKGROUND NOISE MUST BE CONSIDERED.

REMEDY THE DEFICIENCY AND NOTIFY THE CXA

IN REJECTION OF FINAL TESTING. VARIATIONS IN

AND SERIAL NUMBER) THAT WERE USED WHEN ORIGINAL DATA WERE COLLECTED. 3. FAILURE OF AN ITEM INCLUDES, OTHER THAN SOUND, A DEVIATION OF MORE THAN 10 PERCENT. FAILURE OF MORE THAN 10 PERCENT OF SELECTED ITEMS SHALL RESULT IN REJECTION OF FINAL TESTING, ADJUSTING, AND BALANCING REPORT. FOR SOUND PRESSURE

#### SO VERIFICATION OF FAILED PORTIONS CAN BE PERFORMED.

2.3 GENERAL TESTING REQUIREMENTS

DIRECTION OF THE CXA.

- A. PROVIDE TECHNICIANS, INSTRUMENTATION, AND TOOLS TO PERFORM COMMISSIONING TEST AT THE
- B. SCOPE OF HVAC&R TESTING SHALL INCLUDE ENTIRE HVAC&R INSTALLATION, FROM CENTRAL EQUIPMENT FOR HEAT GENERATION AND REFRIGERATION THROUGH DISTRIBUTION SYSTEMS TO EACH CONDITIONED SPACE. TESTING SHALL INCLUDE MEASURING CAPACITIES AND EFFECTIVENESS OF

OPERATIONAL AND CONTROL FUNCTIONS.

C. TEST ALL OPERATING MODES, INTERLOCKS, CONTROL RESPONSES, AND RESPONSES TO ABNORMAL OR EMERGENCY CONDITIONS, AND VERIFY PROPER RESPONSE OF BUILDING AUTOMATION SYSTEM CONTROLLERS AND SENSORS.

D. THE CXA ALONG WITH THE HVAC&R CONTRACTOR.

TESTING AND BALANCING CONTRACTOR, AND

CONTRACTOR SHALL PREPARE DETAILED TESTING

HVAC&R INSTRUMENTATION AND CONTROL

PLANS, PROCEDURES, AND CHECKLISTS FOR HVAC&R SYSTEMS, SUBSYSTEMS, AND EQUIPMENT. E. TESTS WILL BE PERFORMED USING DESIGN

CONDITIONS WHENEVER POSSIBLE.

- SIMULATED CONDITIONS MAY NEED TO BE IMPOSED USING AN ARTIFICIAL LOAD WHEN IT IS NOT PRACTICAL TO TEST UNDER DESIGN CONDITIONS. BEFORE SIMULATING CONDITIONS, CALIBRATE TESTING INSTRUMENTS. PROVIDE EQUIPMENT TO SIMULATE LOADS. SET SIMULATED CONDITIONS AS DIRECTED BY THE CXA AND DOCUMENT SIMULATED CONDITIONS AND METHODS OF SIMULATION. AFTER TESTS, RETURN SETTINGS TO NORMAL OPERATING CONDITIONS.
- G. THE CXA MAY DIRECT THAT SET POINTS BE ALTERED WHEN SIMULATING CONDITIONS IS NOT PRACTICAL. H. THE CXA MAY DIRECT THAT SENSOR VALUES BE

I. IF TESTS CANNOT BE COMPLETED BECAUSE OF A

POINTS ARE NOT PRACTICAL.

DEFICIENCY OUTSIDE THE SCOPE OF THE HVAC&R

ALTERED WITH A SIGNAL GENERATOR WHEN DESIGN

OR SIMULATING CONDITIONS AND ALTERING SET

CONTRACTOR, CERTIFYING THAT HVAC&R SYSTEMS, ASSEMBLIES, EQUIPMENT.

3. PROCESS AND SCHEDULE FOR COMPLETING

CHECKLISTS FOR HVAC&R SYSTEMS,

MANUFACTURER'S PRESTART AND STARTUP

ASSEMBLIES, EQUIPMENT, AND COMPONENTS

CONSTRUCTION CHECKLISTS AND

- - DATA, INSPECTOR RECORD, AND BOILER CERTIFICATION TO THE CXA.
    - B. HVAC&R INSTRUMENTATION AND CONTROL SYSTEM TESTING: FIELD TESTING PLANS AND TESTING REQUIREMENTS ARE SPECIFIED IN SECTION 230923 "DIRECT DIGITAL CONTROL (DDC) SYSTEM FOR HVAC" AND SECTION 230993.11 "SEQUENCE OF
    - C. PIPE SYSTEM CLEANING, FLUSHING, HYDROSTATIC TESTS, AND CHEMICAL TREATMENT REQUIREMENTS ARE SPECIFIED IN HVAC PIPING SECTIONS, HVAC&R CONTRACTOR SHALL PREPARE A PIPE SYSTEM CLEANING, FLUSHING, AND HYDROSTATIC TESTING PLAN. PROVIDE CLEANING, FLUSHING, TESTING, AND TREATING PLAN AND FINAL REPORTS TO THE CXA. PLAN SHALL INCLUDE THE FOLLOWING: 1. SEQUENCE OF TESTING AND TESTING
    - BE TESTED, IDENTIFIED BY PIPE ZONE OR SECTOR IDENTIFICATION MARKER, MARKERS EACH DESIGNATED PIPE TEST SECTION. SHALL BE FORMATTED TO ALLOW EACH SECTION OF PIPING TO BE PHYSICALLY LOCATED AND IDENTIFIED WHEN REFERRED TO
    - TREATMENT PLAN. 2. DESCRIPTION OF EQUIPMENT FOR FLUSHING OPERATIONS.

4. TRACKING CHECKLIST FOR MANAGING AND

ENSURING THAT ALL PIPE SECTIONS HAVE BEEN

3. MINIMUM FLUSHING WATER VELOCITY.

TESTED, AND CHEMICALLY TREATED. D. ENERGY SUPPLY SYSTEM TESTING: PROVIDE TECHNICIANS, INSTRUMENTATION, TOOLS, AND FOLIPMENT TO TEST PERFORMANCE OF GAS SYSTEMS AND EQUIPMENT AT THE DIRECTION OF

SEQUENCE OF TESTING AND TESTING PROCEDURES

FOR EACH EQUIPMENT ITEM AND PIPE SECTION TO

- E. REFRIGERATION SYSTEM TESTING: PROVIDE TECHNICIANS, INSTRUMENTATION, TOOLS, AND **EQUIPMENT TO TEST PERFORMANCE OF CHILLERS** COOLING TOWERS, REFRIGERANT COMPRESSORS AND CONDENSERS, HEAT PUMPS, AND OTHER REFRIGERATION SYSTEMS. THE CXA SHALL DETERMINE THE SEQUENCE OF TESTING AND TESTING PROCEDURES FOR EACH EQUIPMENT ITEM
- EXHAUST; AND OTHER DISTRIBUTION SYSTEMS, INCLUDING HVAC&R TERMINAL EQUIPMENT AND UNITARY EQUIPMENT

F. HVAC&R DISTRIBUTION SYSTEM TESTING: PROVIDE

TECHNICIANS, INSTRUMENTATION, TOOLS, AND

EQUIPMENT TO TEST PERFORMANCE OF AIR. STEAM

AND HYDRONIC DISTRIBUTION SYSTEMS; SPECIAL

END OF SECTION

J. IF THE TESTING PLAN INDICATES SPECIFIC **CHECKED BY** SEASONAL TESTING, COMPLETE APPROPRIATE APPROVED BY INITIAL PERFORMANCE TESTS AND DOCUMENTATION

AND SCHEDULE SEASONAL TESTS. 2.4 HVAC&R SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

SYSTEM, DOCUMENT THE DEFICIENCY AND REPORT

IT TO THE OWNER. AFTER DEFICIENCIES ARE

RESOLVED, RESCHEDULE TESTS.

- A. BOILER TESTING AND ACCEPTANCE PROCEDURES TESTING REQUIREMENTS ARE SPECIFIED IN HVAC BOILER SECTIONS. PROVIDE SUBMITTALS, TEST
- OPERATIONS FOR HVAC DDC." ASSIST THE CXA WITH PREPARATION OF TESTING PLANS.
- PROCEDURES FOR EACH SECTION OF PIPE TO SHALL BE KEYED TO DRAWINGS FOR EACH PIPE SECTOR, SHOWING THE PHYSICAL LOCATION O DRAWINGS KEYED TO PIPE ZONES OR SECTORS
- HYDROSTATIC TESTING, AND CHEMICAL

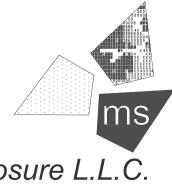
IN PIPE SYSTEM CLEANING, FLUSHING,

- CLEANED, FLUSHED, HYDROSTATICALLY THE CXA. THE CXA SHALL DETERMINE THE
- AND PIPE SECTION TO BE TESTED.
- G. VIBRATION AND SOUND TESTS: PROVIDE TECHNICIANS, INSTRUMENTATION, TOOLS, AND
- EQUIPMENT TO TEST PERFORMANCE OF VIBRATION ISOLATION AND SEISMIC CONTROLS.

BE TESTED.

**REVISIONS** # DATE DESCRIPTION

THIS ARCHITECTURAL AND ENGINEERING DRAWING IS GIVEN IN CONFIDENCE AND SHALL BE USED ONLY PURSUANT TO THE AGREEMENT WITH THE ARCHITECT NO OTHER USE, DISSEMINATION, OR DUPLICATION MAY BE MADE WITHOUT



JASON EDWARD CHRISTOFF

PROFESSIONAL OF RECORD:

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SHEET TITLE:

# MS1.1

- A. SHEET METAL DUCTWORK.
- B. FLEXIBLE DUCTWORK.
- C. DUCT SEALANT.
- D. DUCT LINER.
- E. DUCT ACCESSORIES
- F. GRILLES, REGISTERS, AND DIFFUSERS.
- G. DUCT CLEANING.

#### 1.2 QUALITY ASSURANCE

- A. PERFORM WORK IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
- B. TEST DUCT LEAKAGE IN ACCORDANCE WITH SMACNA - HVAC AIR DUCT LEAKAGE TEST MANUAL, SEAL CLASS "A".

#### 1.3 REGULATORY REQUIREMENTS

A. CONSTRUCT DUCTWORK TO NFPA 90A STANDARDS.

QUALITY, HAVING G60 ZINC COATING OR

GREATER IN CONFORMANCE WITH ASTM A90.

#### PART 2 - PRODUCTS

#### 2.1 DUCTWORK

A. MATERIALS:

- 1. GALVANIZED STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK-FORMING
- 2. FLEXIBLE DUCTS: UL 181, CLASS 1, TWO PLY ALUMINIZED FOIL FILM SUPPORTED BY HELICALLY WOUND SPRING STEEL WIRE FIBERGLASS INSULATION, VAPOR BARRIER FILM. PRESSURE RATING: 10 INCHES W.C. POSITIVE AND 0.75 INCHES W.C. NEGATIVE RATED FOR PLENUM SERVICE WITH FLAME SPREAD BELOW 25 AND SMOKE PRODUCTION BELOW 50. MINIMUM INSULATION VALUE R-6.0.
- PVC COATED STEEL DUCTS: G90 GALVANIZED STEEL DUCT COATED WITH POLYVINYL CHLORIDE PLASTIC, 4 MIL THICK ON OUTSIDE. MANUFACTURED BY FOREMOST

## B. METAL DUCTWORK:

- FABRICATE AND SUPPORT IN ACCORDANCE WITH ASHRAE AND SMACNA - HVAC DUCT CONSTRUCTION STANDARDS - METAL AND
- 2. SHEETMETAL DUCTWORK SHALL BE FABRICATED AND INSTALLED FOR 1" W.G. PRESSURE CLASS, SEAL CLASS "A". 3. CONSTRUCT T'S, BENDS, AND ELBOWS WITH
- MANUFACTURED BY TITUS OR BARBER-COLEMAN.

RADIUS 1-1/2 TIMES THE WIDTH OF DUCT ON

CENTER LINE OR PROVIDE TURNING VANES

- EXCEEDING 30 DEGREES DIVERGENCE AND 45 DEGREES CONVERGENCE.
- 5. WEIGHT OF RECTANGULAR SHEET METAL DUCT (IN UNITED STATES STANDARD GAUGE):
- a. UP TO 12 INCHES: 26 GAUGE. b. 13 TO 30 INCHES: 24 GAUGE.
- c. 31 TO 54 INCHES: 22 GAUGE.
- 5. WEIGHT OF ROUND SHEET METAL DUCT (IN UNITED STATES STANDARD GAUGE):
- a. UP TO 8 INCHES: 28 GAUGE. b. 9 TO 14 INCHES: 26 GAUGE.
- c. 5 TO 26 INCHES: 24 GAUGE
- d. 27 TO 36 INCHES: 22 GAUGE. e. 37 TO 50 INCHES: 20 GAUGE.
- 6. HORIZONTAL AND VERTICAL SURFACES OF DUCTWORK SHALL HAVE STIFFENER ANGLES OF SIZE, WEIGHT, AND SPACING AS FOLLOWS:
- a. UP TO 24 INCHES: TRANSVERSE JOINT CONNECTIONS OF S DRIVE SOCKET OR BAR SLIPS ON 7 FOOT 10 INCH CENTERS.
- b. 25 TO 40 INCHES: TRANSVERSE JOINT CONNECTIONS OF 1 INCH POCKET OR BAR SLIPS ON 7 FOOT 10 INCH CENTERS WITH 1
- c. 41 TO 60 INCHES: TRANSVERSE JOINT CONNECTIONS OF 1-1/2 INCH POCKET OR BAR SLIPS WITH 1-3/8 X 1/8 INCH BAR REINFORCING ON 7 FOOT 10 INCH CENTERS WITH 1-1/2 X 1-1/2 X 1/2 ANGLE

X 1 X 1/8 ANGLE BRACING 4 FEET FROM

d. RIVETING OF SHEETS TO STIFFENER ANGLES SHALL NOT EXCEED 6 INCHES ON

BRACING 4 FEET FROM JOINTS.

THE SPACING OF STIFFENERS ON ELBOWS AND CURVES SHALL NOT EXCEED 30 INCHES.

## 2.2 FLEXIBLE DUCTS

- A. INSULATION: COMPLY WITH UL 181, CLASS 1. FACTORY FABRICATED, INSULATED ROUND DUCT WITH AN OUTER JACKET ENCLOSING R-6 GLASS FIBER INSULATION AROUND A CONTINUOUS INNER
  - a. REINFORCEMENT: STEEL WIRE HELIX ENCAPSULATED IN INNER LINER. b. OUTER JACKET: BI-DIRECTIONAL
  - FIBERGLASS SCRIM REINFORCED ALUMINUM FOIL.
  - INNER LINER: ACOUSTICALLY RATED BLACK CPE CORE PERMANENTLY BONDED TO COATED STEEL WIRE HELIX.
  - d. PRESSURE RATING: 6 INCH W.C. POSITIVE, 1/2 INCH W.C. NEGATIVE.

#### 2.3 DUCT SEALANT

A. DUCT SEALANT: PROVIDE WATER BASED SYNTHETIC LATEX EMULSION PERMANENTLY FLEXIBLE HIGH VELOCITY DUCT SEALANT, DUCTMATE INDUSTRIES, INC. PRO SEAL OR EQUAL SEALANT TO BE LOW VOC LEED COMPLIANT CAPABLE OF 15" W.G., NFPA 90A AND 90B APPROVED, UL 181B-M LISTED AND UL 723 CLASSIFIED. INSTALL PER MANUFACTURER INSTRUCTIONS, SEALANT SHALL BE APPROVED FOR PLENUM INSTALLATIONS AND MEET FLAME SPREAD AND SMOKE DEVELOPED RATINGS FOR PLENUM APPLICATIONS

#### 2.4 DUCT LINER

A. DUCT LINER (PROVIDE ON ALL RECTANGULAR RETURN DUCT): PROVIDE MINIMUM 2" THICK, 3 PCF DENSITY, LONG TEXTILE FIBER TYPE DUCT LINER. WITH COATING ON THE AIR STREAM SIDE CONFORMING TO NFPA 90A, DUCT LINER SHALL BE SECURED TO DUCT WITH BOTH ADHESIVE AND MECHANICAL FASTENERS. ADHESIVE SHALL BE LEED COMPLIANT LOW VOC AS RECOMMENDED BY DUCT LINER MANUFACTURER, AND SHALL COMPLY WITH ASTM C-916. DUCT LINER FASTENERS SHALL COMPLY WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION. THERMAL CONDUCTIVITY SHALL BE EQUAL TO OR LESS THAN 0.23 AT 75°F.

#### 2.5 DUCT ACCESSORIES

- A. VOLUME CONTROL DAMPERS:
  - a. FABRICATION: SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND
  - b. SPLITTER DAMPERS: SAME GAUGE AS DUCT TO 24 INCHES SIZE AND TWO GAUGES HEAVIER FOR LARGER SIZES.
  - c. SINGLE BLADE DAMPERS: FABRICATE FOR DUCT SIZES TO 12 X 30 INCHES.
  - d. END BEARINGS: PROVIDE EXCEPT IN **ROUND DUCTWORK 12 INCHES AND SMALLER**
- B. BACKDRAFT DAMPERS: FABRICATE MULTI-BLADE. PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF GALVANIZED STEEL OR EXTRUDED ALUMINUM WITH CENTER PIVOTED BLADES LINKED
- C. FLEXIBLE DUCT CONNECTIONS: UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, APPROXIMATELY 3 INCHES WIDE, CRIMPED INTO METAL EDGING STRIP.
- MANUFACTURING CO., SOUTHFIELD MI, MODEL 2.6 GRILLES, REGISTERS, AND DIFFUSERS
  - A. REFER TO SCHEDULE ON DRAWINGS.

## 2.7 FIRE DAMPERS

- A. MANUFACTURERS: NAILOR, PREFCO, RUSKIN, SAFEAIR.
- B. FABRICATE IN ACCORDANCE WITH NFPA 90A AND UL 555 AND AS INDICATED.

C. CEILING DAMPERS: GALVANIZED STEEL 22 GAUGE

- FRAME AND 16 GAUGE FLAP, TWO LAYERS OF 1/8 INCH CERAMIC FIBER ON TOP SIDE AND ONE LAYER ON BOTTOM SIDE FOR ROUND FLAPS WITH LOCKING CLIP.
- D. HORIZONTAL DAMPERS: GALVANIZED STEEL 22 GAUGE FRAME, STAINLESS STEEL CLOSURE SPRING, AND LIGHTWEIGHT HEAT RETARDANT NON-ASBESTOS FABRIC BLANKET.
- E. CURTAIN TYPE DAMPERS: GALVANIZED STEEL WITH INTERLOCKING BLADES. PROVIDE STAINLESS STEEL CLOSURE SPRINGS AND LATCHES FOR HORIZONTAL INSTALLATIONS. CONFIGURE WITH BLADES OUT OF AIR STREAM EXCEPT FOR 1.0 INCH PRESSURE CLASS DUCTS UP TO 12 INCHES IN
- F. MULTIPLE BLADE DAMPERS: 16 GAUGE GALVANIZED STEEL FRAME AND BLADES, OIL IMPREGNATED BRONZE OR STAINLESS STEEL SLEEVE BEARINGS AND PLATED STEEL AXLES, 1/8 X ½ INCH PLATED STEEL CONCEALED LINKAGE, STAINLESS STEEL CLOSURE SPRING, BLADE STOPS, AND LOCK.
- G. FUSIBLE LINKS: UL 33. SEPARATE TO 160° F WITH ADJUSTABLE LINK STRAPS FOR COMBINATION FIRE/BALANCING DAMPERS.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. ALL DUCTWORK SHALL BE ERECTED IN A FIRST CLASS WORKMANLIKE MANNER.
- B. USE OF FIBER DUCTWORK IS NOT ACCEPTABLE.
- C. OFFSET AS REQUIRED FOR COORDINATION WITH STRUCTURE AND OTHER TRADES. ANGLE OF OFFSETS SHALL BE AS SMALL AS POSSIBLE.
- D. DUCT SIZES INDICATED ON DRAWINGS ARE INSIDE "FREE AND CLEAR" DIMENSIONS.
- E. EQUIVALENT DUCT SIZES MAY BE USED FOR ECONOMY OR TO AVOID STRUCTURAL INTERFERENCES.
- F. THE ENTIRE DUCTWORK SYSTEM THROUGHOUT THE BUILDING SHALL BE RIGIDLY SUPPORTED AND SO CONSTRUCTED TO ELIMINATE VIBRATION AND OBJECTIONABLE NOISE.
- EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES. H. TAPE JOINTS OF PVC COATED METAL DUCTWORK

G. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND

- WITH PVC TAPE. I. SEAL AROUND DUCTS THAT PASS THROUGH WALLS
- OR PARTITIONS WITH NON-COMBUSTIBLE
- J. ACCESS PANELS: PROVIDE TIGHT SHEET METAL ACCESS DOORS WITH GASKETS, HINGES, AND LOCKS WHERE ACCESS TO PLENUM SPACES OR DUCTS IS NECESSARY. ACCESS DOORS SHALL BE OF ADEQUATE SIZE AND INSTALLED PER LOCAL
- K. VOLUME CONTROLS FOR BALANCING: AMPLE PROVISION SHALL BE MADE FOR CONTROL AND

- FOR BALANCING THE VENTILATION SYSTEMS BY INSTALLATION OF DAMPERS, REGULATORS, AND
- L. PAINTING: PAINT ALL DUCTWORK VISIBLE THROUGH GRILLES, REGISTERS, AND DIFFUSERS WITH A FLAT BLACK TOP COAT. PAINT ALL GRILLES, REGISTERS, AND DIFFUSERS (SUPPLY AND RETURN) INSTALLED IN GYPSUM BOARD WALLS AND/OR CEILINGS TO MATCH SURROUNDINGS UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL SPECIFICATIONS FOR PAINTING.
- M. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, AND FANS, AS WELL AS AT AUTOMATIC DAMPERS, FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND ELSEWHERE AS
- N. PROVIDE DUCT TEST HOLES WHERE INDICATED AND REQUIRED FOR TESTING AND BALANCING PURPOSES.
- O. PROVIDE FIRE DAMPERS AT LOCATIONS INDICATED, WHERE DUCTS PASS THROUGH FIRE RATED COMPONENTS, AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. INSTALL WITH REQUIRED PERIMETER MOUNTING ANGLES, SLEEVES, BREAKAWAY DUCT CONNECTIONS, CORROSION RESISTANT SPRINGS, BEARINGS BUSHINGS, AND HINGES.
- P. INSTALL FIRE DAMPERS IN ACCORDANCE WITH
- Q. DEMONSTRATE RESETTING OF FIRE DAMPERS TO OWNER'S REPRESENTATIVE.

#### 3.2 DUCTWORK CLEANING

- A. ALL DUCTWORK SHALL BE THOROUGHLY CLEANED OUT MANUALLY BY THE CONTRACTOR.
- B. AFTER MANUAL CLEANING IS COMPLETED, BLOW OUT THE ENTIRE SYSTEM WITH BUILT-UP VELOCITY SO AS TO PROPERLY CLEAN OUT THE INTERIOR OF ALL DUCTWORK, LEAVING IT FREE FROM ALL FOREIGN MATTER.
- C. THE ABOVE WORK SHALL BE DONE BEFORE ANY PAINTING IS DONE OR ACOUSTIC CEILING INSTALLED.

END OF

SECTION 23 34 16

#### SECTION

**CENTRIFUGAL FANS** 

#### PART 1 - GENERAL 1.1 SECTION INCLUDES

- A. BACKWARD INCLINED CENTRIFUGAL FANS.
- B. FORWARD CURVED CENTRIFUGAL FANS.
- C. INLINE CENTRIFUGAL FANS.
- E. FAN ACCESSORIES.

D. MOTORS AND DRIVES.

#### 1.2 DELIVERY, STORAGE, AND PROTECTION

A. PROTECT MOTORS, SHAFTS, AND BEARINGS FROM WEATHER AND CONSTRUCTION DUST.

A. DO NOT OPERATE FANS FOR ANY PURPOSE UNTIL

## 1.3 ENVIRONMENTAL REQUIREMENTS

- DUCTWORK IS CLEAN, FILTERS IN PLACE, BEARINGS LUBRICATED, AND FAN HAS BEEN TEST RUN UNDER OBSERVATION.
- PART 2 PRODUCTS

## 2.1 MANUFACTURERS / MODELS

A. REFER TO SCHEDULE ON DRAWINGS.

- A. PERFORMANCE RATINGS: CONFORM TO AMCA 210 AND BEAR THE AMCA CERTIFIED RATING SEAL.
- B. SOUND RATINGS: AMCA 301, TESTED TO AMCA 300 AND BEAR AMCA CERTIFIED SOUND RATING SEAL.
- C. FABRICATION: CONFORM TO AMCA 99.
- D. TEMPERATURE LIMIT: MAXIMUM 300° F.
- E. STATIC AND DYNAMIC BALANCE: ELIMINATE VIBRATION OR NOISE TRANSMISSION TO OCCUPIED

## 2.3 WHEEL AND INLET

- A. BACKWARD INCLINED: STEEL OR ALUMINUM CONSTRUCTION WITH SMOOTH CURVED INLET FLANGE; HEAVY BACK PLATE, BACKWARDLY CURVED BLADES WELDED OR RIVETED TO FLANGE AND BACK PLATE; CAST IRON OR STEEL HUB RIVETED TO BACK PLATE AND KEYED TO SHAFT WITH SET SCREWS.
- B. FORWARD CURVED: BLACK ENAMELED STEEL CONSTRUCTION WITH INLET FLANGE, BACK PLATE. SHALLOW BLADES WITH INLET AND TIP CURVED FORWARD IN DIRECTION OF AIRFLOW; MECHANICALLY SECURED TO FLANGE AND BACK PLATE; STEEL HUB SWAGED TO BACK PLATE AND KEYED TO SHAFT WITH SET SCREWS.
- C. AIRFOIL WHEEL: STEEL CONSTRUCTION WITH SMOOTH CURVED INLET FLANGE, HEAVY BACK PLATE, DIE FORMED HOLLOW AIRFOIL SHAPED BLADES CONTINUOUSLY WELDED AT TIP FLANGE AND BACK PLATE, CAST IRON OR STEEL HUB WELDED TO BACK PLATE AND KEYED TO SHAFT WITH SET SCREWS.

## 2.4 HOUSING

- A. HEAVY GAGE STEEL, SPOT WELDED, ADEQUATELY BRACED, DESIGNED TO MINIMIZE TURBULENCE WITH SPUN INLET BELL AND SHAPED CUT-OFF.
- B. FACTORY FINISH BEFORE ASSEMBLY TO MANUFACTURER'S STANDARD FOR FANS HANDLING AIR DOWNSTREAM OF HUMIDIFIERS.

HORIZONTAL FLANGED SPLIT HOUSING WHERE

C. PROVIDE BOLTED CONSTRUCTION WITH

D. FABRICATE PLUG FANS WITHOUT VOLUTE HOUSING, IN LINED STEEL CABINET.

#### 2.5 BEARINGS AND DRIVES

- A. BEARINGS: HEAVY DUTY PILLOW BLOCK TYPE, SELF-ALIGNING, GREASE LUBRICATED BALL BEARINGS, WITH ABMA L-10 LIFE OF AT LEAST 50.000 HOURS.
- B. SHAFTS: HOT ROLLED STEEL, GROUND AND POLISHED, WITH KEYWAY, PROTECTIVE COATING OF LUBRICATING OIL, AND SHAFT GUARD.
- C. DRIVES: V-BELT, CAST IRON OR STEEL SHEAVES, DYNAMICALLY BALANCED, KEYED. VARIABLE AND ADJUSTABLE PITCH SHEAVES ON MOTORS 15 HP AND UNDER AND SELECTED SO REQUIRED RPM IS OBTAINED WITH SHEAVES SET AT MID-POSITION FIXED PITCH SHEAVES ON MOTORS LARGER THAN 15 HP. DIRECT DRIVE AS INDICATED ON DRAWINGS.
- D. BELT GUARD: FABRICATE TO SMACNA STANDARD; 0.106 INCH THICK, 3/4 INCH DIAMOND MESH WIRE SCREEN WELDED TO STEEL ANGLE FRAME OR EQUIVALENT; PRIME COATED. SECURE TO FAN OR FAN SUPPORTS WITHOUT SHORT CIRCUITING VIBRATION ISOLATION WITH PROVISION FOR ADJUSTMENT OF BELT TENSION, LUBRICATION, AND USE OF TACHOMETER WITH GUARD IN PLACE.

#### 2.6 ACCESSORIES

- REFER TO SCHEDULE ON DRAWINGS.
- B. INLET / OUTLET SCREENS: GALVANIZED STEEL WELDED GRID.

#### PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL FANS WITH RESILIENT MOUNTINGS AND FLEXIBLE ELECTRICAL LEADS.
- B. INSTALL FLEXIBLE CONNECTIONS BETWEEN FAN INLET AND DISCHARGE DUCTWORK. ENSURE METAL BANDS OF CONNECTORS ARE PARALLEL WITH MINIMUM ONE INCH FLEX BETWEEN DUCTWORK AND FAN WHILE RUNNING.
- C. INSTALL FAN RESTRAINING SNUBBERS. ADJUST SNUBBERS TO PREVENT TENSION IN FLEXIBLE CONNECTORS WHEN FAN IS OPERATING.
- D. PROVIDE SHEAVES REQUIRED FOR FINAL AIR E. PROVIDE SAFETY SCREEN WHERE INLET OR

OUTLET IS EXPOSED.

F. PIPE SCROLL DRAINS TO NEAREST FLOOR DRAIN.

G. PROVIDE BACKDRAFT DAMPERS ON DISCHARGE OF

EXHAUST FANS AS INDICATED. H. DO NOT OPERATE FANS IN NORMAL OPERATION UNTIL DUCTWORK IS CLEAN, FILTERS ARE IN PLACE, BEARINGS ARE LUBRICATED, AND FAN HAS

BEEN RUN UNDER OBSERVATION.

#### **END OF SECTION**

DIFFUSERS, REGISTERS, AND GRILLES SECTION 23 37 13

## PART 1 - GENERAL

- 11 SLIMMARY
- A. SECTION INCLUDES: ROUND CEILING DIFFUSERS.
- 2. RECTANGULAR AND SQUARE CEILING DIFFUSERS.
- FIXED FACE GRILLES.
- B. RELATED SECTIONS: 1. SECTION 089116 "OPERABLE WALL LOUVERS" AND SECTION 089119 "FIXED LOUVERS" FOR FIXED AND ADJUSTABLE LOUVERS AND WALI VENTS, WHETHER OR NOT THEY ARE
- CONNECTED TO DUCTS. 2. SECTION 233300 "AIR DUCT ACCESSORIES" FOR FIRE AND SMOKE DAMPERS AND VOLUME-CONTROL DAMPERS NOT INTEGRAL

## TO DIFFUSERS, REGISTERS, AND GRILLES.

2.1 CEILING DIFFUSERS

A. ROUND CEILING DIFFUSER

- 1.2 ACTION SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED, INCLUDE THE FOLLOWING: DATA SHEET: INDICATE MATERIALS OF CONSTRUCTION, FINISH, AND MOUNTING
  - AND NOISE RATINGS. 2. DIFFUSER, REGISTER, AND GRILLE SCHEDULE: INDICATE DRAWING DESIGNATION, ROOM LOCATION, QUANTITY, MODEL NUMBER, SIZE,

DETAILS; AND PERFORMANCE DATA INCLUDING

THROW AND DROP, STATIC-PRESSURE DROP,

AND ACCESSORIES FURNISHED. B. SAMPLES: FOR EACH EXPOSED PRODUCT AND FOR EACH COLOR AND TEXTURE SPECIFIED.

#### RESTRAINTS. PART 2 - PRODUCTS 6. WIRING DIAGRAMS: POWER, SIGNAL, AND

- 1. DEVICES SHALL BE SPECIFICALLY DESIGNED FOR VARIABLE-AIR-VOLUME FLOWS.
- MATERIAL: STEEL/ALUMINUM.
- 3. FINISH: BAKED ENAMEL, COLOR SELECTED BY ARCHITECT/ANODIZED ALUMINUM
- FACE STYLE: CONE. MOUNTING: DUCT CONNECTION.
- 6. PATTERN: FULLY ADJUSTABLE 7. DAMPERS: RADIAL OPPOSED BLADE/BUTTERFLY.

ACCESSORIES:

- EQUALIZING GRID. b. PLASTER RING.
- c. SAFETY CHAIN. d. WIRE GUARD.
- e. SECTORIZING BAFFLES. f. OPERATING ROD EXTENSION.
- B. RECTANGULAR AND SQUARE CEILING DIFFUSERS DEVICES SHALL BE SPECIFICALLY DESIGNED FOR VARIABLE-AIR-VOLUME FLOWS.

- 2. MATERIAL: STEEL/ALUMINUM. 3. FINISH: BAKED ENAMEL, COLOR SELECTED BY
- 4. FACE SIZE: 24 BY 24 INCHES 20 BY 20 INCHES 12

[PLAQUE].

6. MOUNTING: T-BAR.

ACCESSORIES:

2.2 REGISTERS AND GRILLES

A. FIXED FACE GRILLE

ARCHITECT.

5. FRAME: 1 INCH WIDE.

ACCESSORY: FILTER.

MOUNTING: LAY IN.

2.3 SOURCE QUALITY CONTROL

LEVEL AND PLUMB.

FINAL LOCATION.

AIR BALANCING.

KITCHEN HOODS.

FILTERS/BAFFLES.

LIGHTING FIXTURES.

1.2 ACTION SUBMITTALS

3.2 ADJUSTING

KITCHEN HOODS

1.1 SUMMARY

PART 1 - GENERAL

PART 3 - EXECUTION

7. PATTERN: ADJUSTABLE.

BLADE/BUTTERFLY.

EQUALIZING GRID.

b. PLASTER RING.

c. SAFETY CHAIN.

d. WIRE GUARD.

e. SECTORIZING BAFFLES.

MATERIAL: STEEL/ALUMINUM.

f. OPERATING ROD EXTENSION.

3. FACE ARRANGEMENT: 1/2-1/2-1/2-INCH.

4. CORE CONSTRUCTION: REMOVABLE.

A. VERIFICATION OF PERFORMANCE: RATE

FINISH: BAKED ENAMEL, COLOR SELECTED BY

DIFFUSERS, REGISTERS AND GRILLES ACCORDING

TO ASHRAE 70, "METHOD OF TESTING FOR RATING

THE PERFORMANCE OF AIR OUTLETS AND INLETS."

DRAWINGS INDICATE GENERAL ARRANGEMENT OF

DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET

AND INLET LOCATIONS HAVE BEEN INDICATED TO

A. INSTALL DIFFUSERS, REGISTERS, AND GRILLES

ACHIEVE DESIGN REQUIREMENTS FOR AIR

VOLUME, NOISE CRITERIA, AIRFLOW PATTERN

THROW, AND PRESSURE DROP. MAKE FINAL

LOCATIONS WHERE INDICATED. AS MUCH AS

PRACTICAL. FOR UNITS INSTALLED IN LAY-IN

CEILING PANELS, LOCATE UNITS IN THE CENTER OF

PANEL. WHERE ARCHITECTURAL FEATURES OR

OTHER ITEMS CONFLICT WITH INSTALLATION,

C. INSTALL DIFFUSERS, REGISTERS, AND GRILLES

AIR EXTRACTORS, AND FIRE DAMPERS.

A. AFTER INSTALLATION, ADJUST DIFFUSERS,

REGISTERS, AND GRILLES TO AIR PATTERNS

END OF SECTION

A. THIS SECTION INCLUDES TYPE II COMMERCIAL

B. SHOP DRAWINGS: SIGNED AND SEALED BY A

QUALIFIED PROFESSIONAL ENGINEER.

1. SHOW PLAN VIEW, ELEVATION VIEW,

SECTIONS, ROUGHING-IN DIMENSIONS

2. SHOW COOKING EQUIPMENT PLAN AND

ELEVATION TO CONFIRM MINIMUM

3. INDICATE PERFORMANCE, EXHAUST AND

AT ACTUAL PROJECT-SITE ELEVATION.

DESIGN CALCULATIONS:CALCULATE

CODE-REQUIRED OVERHANG.

EACH FIELD CONNECTION.

B. MANUFACTURER SEISMIC QUALIFICATION

AND SEISMIC CONTROLS FOR HVAC."

C. FIELD QUALITY-CONTROL TEST REPORTS.

A. ELECTRICAL COMPONENTS, DEVICES, AND

ACCEPTABLE TO AUTHORITIES HAVING

A. STAINLESS-STEEL SHEET: ASTM A 666, TYPE 304.

1. MINIMUM THICKNESS: 0.037 INCH- 0.050 INCH

2. FINISH: COMPLY WITH SSINA'S "FINISHES FOR

STAINLESS STEEL" FOR RECOMMENDATIONS

FOR APPLYING AND DESIGNATING FINISHES.

a. FINISH SHALL BE FREE FROM TOOL AND

CERTIFICATION: SUBMIT CERTIFICATION THAT

COMMERCIAL KITCHEN HOODS, ACCESSORIES,

AND COMPONENTS WILL WITHSTAND SEISMIC

FORCES DEFINED IN SECTION 230548 "VIBRATION

ACCESSORIES: LISTED AND LABELED AS DEFINED

IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY

JURISDICTION, AND MARKED FOR INTENDED USE.

CONTROL WIRING.

1.3 INFORMATIONAL SUBMITTALS

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 HOOD MATERIALS

A. WELDING CERTIFICATES.

SERVICE REQUIREMENTS, DUCT CONNECTION

SIZES, AND ATTACHMENTS TO OTHER WORK.

MAKEUP AIR AIRFLOW, AND PRESSURE LOSS

4. DETAIL EQUIPMENT ASSEMBLIES AND INDICATE

DIMENSIONS, WEIGHTS, LOADS, REQUIRED

CLEARANCES, METHOD OF FIELD ASSEMBLY

COMPONENTS, AND LOCATION AND SIZE OF

REQUIREMENTS FOR SELECTING SEISMIC

A. PRODUCT DATA: FOR THE FOLLOWING:

INDICATED, OR AS DIRECTED, BEFORE STARTING

**SECTION 23 38 13** 

NOTIFY ARCHITECT FOR A DETERMINATION OF

WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO

ALLOW SERVICE AND MAINTENANCE OF DAMPERS,

B. CEILING-MOUNTED OUTLETS AND INLETS:

8. DAMPERS: RADIAL OPPOSED

- BY 12 INCHES
- EACH PIECE. 5. FACE STYLE: [THREE CONE] [FOUR CONE]
  - 3. CONCEALED STAINLESS-STEEL SURFACES: ASTM A 480/A 480M, NO. 2B FINISH (BRIGHT, COLD-ROLLED, UNPOLISHED FINISH).
  - 4. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 2B FINISH (BRIGHT, COLD-ROLLED,
  - UNPOLISHED).
  - 5. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 3
  - FINISH (INTERMEDIATE POLISHED SURFACE).

DIE MARKS AND STRETCH LINES AND

FREE OF CROSS SCRATCHES. GRAIN

SHALL RUN WITH LONG DIMENSION OF

SHALL HAVE UNIFORM, DIRECTIONALLY

TEXTURED, POLISHED FINISH INDICATED,

- 6. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 4
- FINISH (DIRECTIONAL SATIN).
- 7. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 6
- FINISH (DULL SATIN). 8. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 7
- FINISH (REFLECTIVE, DIRECTIONAL POLISH). 9. EXPOSED SURFACES: ASTM A 480/A 480M, NO. 8 FINISH (MIRRORLIKE REFLECTIVE,
- NONDIRECTIONAL POLISH). 10. WHEN POLISHING IS COMPLETED, PASSIVATE AND RINSE SURFACES. REMOVE EMBEDDED FOREIGN MATTER AND LEAVE SURFACES

CHEMICALLY CLEAN.

COME IN CONTACT WITH FOOD.

- B. ZINC-COATED STEEL SHAPES: ASTM A 36/A 36M, ZINC COATED ACCORDING TO ASTM A 123/A 123M REQUIREMENTS.
- C. SEALANT: ASTM C 920; TYPE S, GRADE NS, CLASS 25, USE NT. ELASTOMERIC SEALANT SHALL BE NSF CERTIFIED FOR COMMERCIAL KITCHEN HOOD APPLICATION. SEALANTS, WHEN CURED AND WASHED, SHALL COMPLY WITH REQUIREMENTS IN 21 CFR, SECTION 177.2600, FOR USE IN AREAS THAT
- 1. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.

2. BACKER ROD: CLOSED-CELL POLYETHYLENE,

- IN DIAMETER LARGER THAN JOINT WIDTH. D. SOUND DAMPENING: NSF-CERTIFIED, NONABSORBENT, HARD-DRYING SOUND-DEADENING COMPOUND FOR PERMANENT ADHESION TO METAL IN MINIMUM 1/8-INCH THICKNESS THAT DOES NOT CHIP, FLAKE, OR
- E. GASKETS: NSF CERTIFIED FOR END-USE APPLICATION INDICATED; OF RESILIENT RUBBER, NEOPRENE, OR PVC THAT IS NONTOXIC, STABLE, ODORLESS, NONABSORBENT, AND UNAFFECTED BY EXPOSURE TO FOODS AND CLEANING COMPOUNDS, AND THAT PASSES TESTING ACCORDING TO UL 710.

#### 2.2 GENERAL HOOD FABRICATION REQUIREMENTS A. WELDING: USE WELDING ROD OF SAME COMPOSITION AS METAL BEING WELDED. USE

BLISTER.

METHODS THAT MINIMIZE DISTORTION AND DEVELOP STRENGTH AND CORROSION RESISTANCE OF BASE METAL. MAKE DUCTILE WELDS FREE OF MECHANICAL IMPERFECTIONS SUCH AS GAS HOLES, PITS, OR CRACKS. 1. WELDED BUTT JOINTS: FULL-PENETRATION

WELDS FOR FULL-JOINT LENGTH. MAKE JOINTS

FLAT, CONTINUOUS, AND HOMOGENOUS WITH

SHEET METAL WITHOUT RELYING ON STRAPS

- UNDER SEAMS, FILLING IN WITH SOLDER, OR SPOT WELDING . GRIND EXPOSED WELDED JOINTS FLUSH WITH
- ADJOINING MATERIAL AND POLISH TO MATCH ADJOINING SURFACES. 3. WHERE FASTENERS ARE WELDED TO UNDERSIDE OF EQUIPMENT, FINISH REVERSE

SIDE OF WELD SMOOTH AND FLUSH.

4. COAT CONCEALED STAINLESS-STEEL WELDED

"KITCHEN VENTILATION SYSTEMS & FOOD SERVICE

- JOINTS WITH METALLIC-BASED PAINT TO PREVENT CORROSION. B. FOR METAL BUTT JOINTS, COMPLY WITH SMACNA'S
- **EQUIPMENT GUIDELINES."** C. FORM METAL WITH BREAK BENDS THAT ARE NOT FLAKY, SCALY, OR CRACKED IN APPEARANCE; WHERE BREAKS MAR UNIFORM SURFACE
- GRINDING, POLISHING, AND FINISHING.
- D. SHEARED METAL EDGES: FINISH FREE OF BURRS, FINS, AND IRREGULAR PROJECTIONS.

APPEARANCE OF MATERIAL, REMOVE MARKS BY

E. IN FOOD ZONES, AS DEFINED IN NSF, FABRICATE SURFACES FREE FROM EXPOSED FASTENERS. F. CAP EXPOSED FASTENER THREADS, INCLUDING THOSE INSIDE CABINETS, WITH STAINLESS-STEEL LOCK WASHERS AND STAINLESS-STEEL CAP

(ACORN) NUTS.

G. FABRICATE PIPE SLOTS ON EQUIPMENT WITH TURNED-UP EDGES SIZED TO ACCOMMODATE SERVICE AND UTILITY LINES AND MECHANICAL CONNECTIONS. H. FABRICATE ENCLOSURES, INCLUDING PANELS,

HOUSINGS, AND SKIRTS, TO CONCEAL SERVICE

MECHANICAL AND ELECTRICAL DEVICES INCLUDING

THOSE INSIDE CABINETS, UNLESS OTHERWISE I. FABRICATE SEISMIC RESTRAINTS ACCORDING TO SMACNA'S "KITCHEN VENTILATION SYSTEMS &

FOOD SERVICE EQUIPMENT GUIDELINES,"

APPENDIX A, "SEISMIC RESTRAINT DETAILS."

LINES, OPERATING COMPONENTS, AND

J. FABRICATE EQUIPMENT EDGES AND BACKSPLASHES ACCORDING TO SMACNA'S "KITCHEN VENTILATION SYSTEMS & FOOD SERVICE EQUIPMENT GUIDELINES."

K. FABRICATE ENCLOSURE PANELS TO CEILING AND

1. FABRICATE PANELS WITH SAME MATERIAL AS HOOD, AND EXTEND FROM CEILING TO TOP OF HOOD CANOPY AND FROM CANOPY TO WALL.

WALL AS FOLLOWS:

2.3 TYPE II EXHAUST HOOD FABRICATION

FQUIPMENT.

FABRICATE ACCORDING TO SMACNA'S "KITCHEN VENTILATION SYSTEMS & FOOD SERVICE EQUIPMENT GUIDELINES," WITH MINIMUM 0.0625-INCH- THICK, STAINLESS-STEEL SHELF TOPS.

A. FABRICATE HOODS ACCORDING TO NSF 2, "FOOD

3. WALL SHELVES AND OVERSHELVES:

2. WALL OFFSET SPACER: MINIMUM OF 3 INCHES.

B. FABRICATE HOODS TO COMPLY WITH SMACNA'S

- "HVAC DUCT CONSTRUCTION STANDARDS: METAL AND FLEXIBLE."
- C. HOOD CONFIGURATION: EXHAUST ONLY.
- D. HOOD TYPE: [HEAT AND VAPOR] [CONDENSATE] REMOVAL
- E. HOOD STYLE: [WALL-MOUNTED CANOPY] [SINGLE-ISLAND CANOPY] [DOUBLE-ISLAND CANOPY] [BACK SHELF] [EYEBROW] [PASS OVER].
- F. CONDENSATE HOOD BAFFLES: REMOVABLE, STAINLESS-STEEL BAFFLES TO DRAIN INTO A HOOD DRAIN TROUGH, AND STAINLESS-STEEL DRAIN PIPING.
- PART 3 EXECUTION

#### 3.1 INSTALLATION

- A. COMPLETE FIELD ASSEMBLY OF HOODS WHERE
  - 1. MAKE CLOSED BUTT AND CONTACT JOINTS THAT DO NOT REQUIRE FILLER.
- 2. GRIND FIELD WELDS ON STAINLESS-STEEL EQUIPMENT SMOOTH, AND POLISH TO MATCH ADJACENT FINISH, COMPLY WITH WELDING REQUIREMENTS IN PART 2 "GENERAL HOOD FABRICATION REQUIREMENTS" ARTICLE. B. INSTALL HOODS AND ASSOCIATED SERVICES WITH
- CLEARANCES AND ACCESS FOR MAINTAINING, CLEANING, AND SERVICING HOODS, FILTERS/BAFFLES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

RUN SERVICE LINES AND TO MAKE FINAL

TO UL 1978. SECURELY ANCHOR AND ATTACH ITEMS AND ACCESSORIES TO WALLS, FLOORS, OR BASES WITH STAINLESS-STEEL FASTENERS, UNLESS

MAKE CUTOUTS IN HOODS WHERE REQUIRED TO

CONNECTIONS, AND SEAL OPENINGS ACCORDING

OTHERWISE INDICATED. E. INSTALL HOODS TO OPERATE FREE FROM

VIBRATION.

F. INSTALL SEISMIC RESTRAINTS ACCORDING TO SMACNA'S "KITCHEN VENTILATION SYSTEMS & FOOD SERVICE EQUIPMENT GUIDELINES," APPENDIX A, "SEISMIC RESTRAINT DETAILS."

G. INSTALL TRIM STRIPS AND SIMILAR ITEMS

REQUIRING FASTENERS IN A BED OF SEALANT. FASTEN WITH STAINLESS-STEEL FASTENERS AT 48 INCHES O.C. MAXIMUM. H. INSTALL SEALANT IN JOINTS BETWEEN EQUIPMENT AND ABUTTING SURFACES WITH CONTINUOUS

JOINT BACKING, UNLESS OTHERWISE INDICATED.

PROVIDE AIRTIGHT, WATERTIGHT, VERMIN-PROOF

I. SET INITIAL TEMPERATURES, AND CALIBRATE SENSORS.

SANITARY JOINTS.

J. SET FIELD-ADJUSTABLE SWITCHES. K. CONNECT DUCTS ACCORDING TO REQUIREMENTS IN SECTION 233300 "AIR DUCT ACCESSORIES." INSTALL FLEXIBLE CONNECTORS ON MAKEUP AIR SUPPLY DUCT. WELD EXHAUST-DUCT

CONNECTIONS WITH CONTINUOUS LIQUID TIGHT

#### A. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT, TEST, AND ADJUST COMPONENTS,

3.2 FIELD QUALITY CONTROL

WRITING.

TESTING.

B. PERFORM TESTS AND INSPECTIONS. 1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT COMPONENTS. ASSEMBLIES, AND EQUIPMENT INSTALLATIONS,

ASSEMBLIES, AND EQUIPMENT INSTALLATIONS,

INCLUDING CONNECTIONS. REPORT RESULTS IN

C. TESTS AND INSPECTIONS: 1. TEST EACH EQUIPMENT ITEM FOR PROPER OPERATION. REPAIR OR REPLACE EQUIPMENT

INCLUDING CONNECTIONS, AND TO ASSIST IN

THAT IS DEFECTIVE. INCLUDING UNITS THAT

OPERATE BELOW REQUIRED CAPACITY OR

THAT OPERATE WITH EXCESSIVE NOISE OR VIBRATION. 2. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING

CONTROLS AND EQUIPMENT.

JURISDICTION.

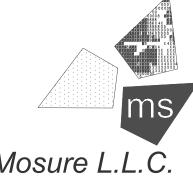
4. PREPARE TEST AND INSPECTION REPORTS

END OF SECTION

3. PERFORM HOOD PERFORMANCE TESTS

REQUIRED BY AUTHORITIES HAVING

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JASON EDWARD CHRISTOFF

PROFESSIONAL OF RECORD:

40509-11

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HARPER WOODS, MI 48225

PROJECT:

JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

A. PACKAGED AIR CONDITIONING UNITS.

B. MAINTENANCE SERVICE.

1.2 REGULATORY REQUIREMENTS

A. PRODUCTS REQUIRING ELECTRICAL CONNECTION: LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES INC. AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

1.3 DELIVERY, STORAGE, AND PROTECTION

A. PROTECT UNITS FROM PHYSICAL DAMAGE BY STORING OFF SITE UNTIL ROOF MOUNTING CURBS ARE IN PLACE AND READY FOR IMMEDIATE INSTALLATION OF UNITS.

#### 1.4 WARRANTY

A. PROVIDE FIVE-YEAR MANUFACTURER WARRANTY FOR ENTIRE UNIT.

# 1.5 MAINTENANCE SERVICE

A. FURNISH SERVICE AND MAINTENANCE OF PACKAGED AIR CONDITIONING UNITS FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.

#### PART 2 - PRODUCTS

2.1 MANUFACTURERS / MODELS

A. REFER TO SCHEDULE ON DRAWINGS.

#### 2.2 AIR CONDITIONING UNITS

- A. GENERAL: ROOF MOUNTED UNITS HAVING GAS
- B. DESCRIPTION: SELF-CONTAINED, PACKAGE, FACTORY ASSEMBLED AND PRE-WIRED, CONSISTING OF CABINET AND FRAME, SUPPLY FAN. HEAT EXCHANGER AND BURNER, CONTROLS, AIR FILTERS, REFRIGERANT COOLING COIL AND COMPRESSOR, CONDENSER COIL AND CONDENSER FAN.

BURNER AND ELECTRIC REFRIGERATION.

C. ELECTRICAL CHARACTERISTICS AND ACCESSORIES: REFER TO DRAWINGS.

#### 2.3 FABRICATION

- A. CABINET: STEEL WITH BAKED ENAMEL FINISH, ACCESS DOORS OR REMOVABLE ACCESS PANELS WITH QUICK FASTENERS - SCREWDRIVER OPERATED FLUSH CAM TYPE. STRUCTURAL MEMBERS SHALL BE 18 GAGE WITH ACCESS DOORS OR REMOVABLE PANELS OF MINIMUM 20 GAGE.
- B. INSULATION: THICK NEOPRENE COATED GLASS FIBER WITH EDGES PROTECTED FROM EROSION.
- C. HEAT EXCHANGERS: STAINLESS STEEL, WELDED CONSTRUCTION.
- D. SUPPLY FAN: FORWARD CURVED CENTRIFUGAL TYPE, RESILIENTLY MOUNTED WITH V-BELT DRIVE, ADJUSTABLE VARIABLE PITCH MOTOR PULLEY, AND RUBBER ISOLATED HINGE MOUNTED HIGH EFFICIENCY MOTOR, DIRECT DRIVE AS INDICATED.
- E. AIR FILTERS: REFER TO DRAWINGS.

## 2.4 BURNER

- A. GAS BURNER: INDUCED DRAFT TYPE BURNER WITH ADJUSTABLE COMBUSTION AIR SUPPLY, PRESSURE REGULATOR, GAS VALVES, MANUAL SHUT-OFF, INTERMITTENT SPARK OR GLOW COIL IGNITION, FLAME SENSING DEVICE, AND AUTOMATIC 100 PERCENT SHUT-OFF PILOT.
- B. GAS BURNER SAFETY CONTROLS: ENERGIZE IGNITION, LIMIT TIME FOR ESTABLISHMENT OF FLAME, PREVENT OPENING OF GAS VALVE UNTIL PILOT FLAME IS PROVEN, STOP GAS FLOW ON IGNITION FAILURE, ENERGIZE BLOWER MOTOR, AND AFTER AIR FLOW PROVEN AND SLIGHT DELAY, ALLOW GAS VALVE TO OPEN.
- C. HIGH LIMIT CONTROL: TEMPERATURE SENSOR WITH FIXED STOP AT MAXIMUM PERMISSIBLE SETTING, DE-ENERGIZE BURNER ON EXCESSIVE BONNET TEMPERATURE AND ENERGIZE BURNER WHEN TEMPERATURE DROPS TO LOWER SAFE VALUE.
- D. SUPPLY FAN CONTROL: TEMPERATURE SENSOR SENSING BONNET TEMPERATURES AND INDEPENDENT OF BURNER CONTROLS, WITH PROVISIONS FOR CONTINUOUS FAN OPERATION.

## 2.5 EVAPORATOR COIL

- A. PROVIDE COPPER TUBE ALUMINUM FIN COIL ASSEMBLY WITH GALVANIZED STEEL DRAIN PAN AND CONNECTION.
- B. PROVIDE CAPILLARY TUBES OR THERMOSTATIC EXPANSION VALVES FOR UNITS 6 TONS COOLING CAPACITY OR LESS, AND THERMOSTATIC EXPANSION VALVES AND ALTERNATE ROW CIRCUITING FOR UNITS 7.5 TONS COOLING CAPACITY AND GREATER.

## 2.6 COMPRESSOR

- A. PROVIDE HERMETIC COMPRESSORS, 3600 RPM MAXIMUM, RESILIENTLY MOUNTED WITH POSITIVE LUBRICATION, CRANKCASE HEATER, HIGH AND LOW PRESSURE SAFETY CONTROLS, MOTOR OVERLOAD PROTECTION, SUCTION AND DISCHARGE SERVICE VALVES AND GAGE PORTS, AND FILTER DRIER.
- B. FIVE MINUTE TIMED OFF CIRCUIT TO DELAY COMPRESSOR START.

## 2.7 CONDENSER

- A. PROVIDE COPPER TUBE ALUMINUM FIN COIL ASSEMBLY WITH SUB COOLING ROWS AND COIL GUARD.
- B. PROVIDE DIRECT DRIVE CONDENSER FANS, RESILIENTLY MOUNTED WITH FAN GUARD, MOTOR OVERLOAD PROTECTION, AND WIRED TO OPERATE WITH COMPRESSOR.

C. PROVIDE REFRIGERANT PRESSURE SWITCHES TO CYCLE CONDENSER FANS.

- A. DAMPERS: REFER TO DRAWINGS.
- B. GASKETS: PROVIDE TIGHT FITTING DAMPERS WITH EDGE GASKETS (MAXIMUM LEAKAGE RATE 5 PERCENT AT 2 INCHES W.C. {500 PA} PRESSURE DIFFERENTIAL).

#### 2.9 PERFORMANCE

- A. REFER TO DRAWINGS.
- B. SCHEDULED PERFORMANCE:
- COOLING CAPACITY: ARI 210 TEST CONDITIONS.
- 2. SOUND RATING NUMBERS: ARI 270.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. VERIFY THAT ROOF IS READY TO RECEIVE WORK AND OPENING DIMENSIONS ARE AS ILLUSTRATED BY THE MANUFACTURER.
- B. VERIFY THAT PROPER POWER SUPPLY IS

#### 3.2 INSTALLATION

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, NFPA 90A, AND NFPA 90B.

**END OF SECTION** 

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PROJECT:

19353 VERNIER ROAD HARPER WOODS, MI 48225

STORE # 919728



PROFESSIONAL OF RECORD: JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

PROJECT NO.:

40509-11

SHEET TITLE:

**MECHANICAL** 

MS1.3

1.1 RELATED DOCUMENTS DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS

#### 1.2 SUMMARY

- PIPING MATERIALS AND INSTALLATION
- A. THIS SECTION INCLUDES THE FOLLOWING INSTRUCTIONS COMMON TO MOST PIPING
  - 2. TRANSITION FITTINGS
  - DIELECTRIC FITTINGS.
  - MECHANICAL SLEEVE SEALS
  - SLEEVES.
  - ESCUTCHEONS.

  - PLUMBING DEMOLITION.
  - 9. EQUIPMENT INSTALLATION REQUIREMENTS COMMON TO EQUIPMENT SECTIONS.
- 10. PAINTING AND FINISHING.
- 11. CONCRETE BASES. SUPPORTS AND ANCHORAGES.
- 1.3 DEFINITIONS
- FINISHED SPACES: SPACES OTHER THAN MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS, FURRED SPACES, PIPE CHASES, UNHEATED SPACES IMMEDIATELY BELOW ROOF, SPACES ABOVE CEILINGS, UNEXCAVATED SPACES, CRAWLSPACES, AND TUNNELS
- EXPOSED, INTERIOR INSTALLATIONS: EXPOSED TO VIEW INDOORS, EXAMPLES INCLUDE FINISHED OCCUPIED SPACES AND MECHANICAL EQUIPMENT
- EXPOSED, EXTERIOR INSTALLATIONS: EXPOSED TO VIEW OUTDOORS OR SUBJECT TO OUTDOOR AMBIENT TEMPERATURES AND WEATHER CONDITIONS. EXAMPLES INCLUDE ROOFTOP LOCATIONS.
- CONCEALED, INTERIOR INSTALLATIONS: CONCEALED FROM VIEW AND PROTECTED FROM PHYSICAL CONTACT BY BUILDING OCCUPANTS. EXAMPLES INCLUDE ABOVE CEILINGS AND IN
- CONCEALED, EXTERIOR INSTALLATIONS: CONCEALED FROM VIEW AND PROTECTED FROM WEATHER CONDITIONS AND PHYSICAL CONTACT BY BUILDING OCCUPANTS BUT SUBJECT TO OUTDOOR AMBIENT TEMPERATURES. EXAMPLES INCLUDE INSTALLATIONS WITHIN UNHEATED
- THE FOLLOWING ARE INDUSTRY ABBREVIATIONS FOR PLASTIC MATERIALS:
  - 1. ABS: ACRYLONITRILE-BUTADIENE-STYRENE
- 2. CPVC: CHLORINATED POLYVINYL CHLORIDE PLASTIC:
- PE: POLYETHYLENE PLASTIC. 4. PVC: POLYVINYL CHLORIDE PLASTIC
- THE FOLLOWING ARE INDUSTRY ABBREVIATIONS
- FOR RUBBER MATERIALS: EPDM: ETHYLENE-PROPYLENE-DIENE
- TERPOLYMER RUBBER.
- 2. NBR: ACRYLONITRILE-BUTADIENE RUBBER.
- 1.4 SUBMITTALS
- A. PRODUCT DATA: FOR THE FOLLOWING: TRANSITION FITTINGS.
  - DIELECTRIC FITTINGS. 3. MECHANICAL SLEEVE SEALS.
  - ESCUTCHEONS.
- B. WELDING CERTIFICATES.
- 1.5 QUALITY ASSURANCE STEEL SUPPORT WELDING: QUALIFY PROCESSES
- AND OPERATORS ACCORDING TO AWS D1.1, "STRUCTURAL WELDING CODE--STEEL." STEEL PIPE WELDING: QUALIFY PROCESSES AND
- OPERATORS ACCORDING TO ASME BOILER AND PRESSURE VESSEL CODE: SECTION IX. "WELDING AND BRAZING QUALIFICATIONS. COMPLY WITH PROVISIONS IN ASME B31
  - SERIES, "CODE FOR PRESSURE PIPING."
- CERTIFY THAT EACH WELDER HAS PASSED AWS QUALIFICATION TESTS FOR WELDING PROCESSES INVOLVED AND THAT CERTIFICATION IS CURRENT.
- CHARACTERISTICS MAY BE FURNISHED PROVIDED SUCH PROPOSED EQUIPMENT IS APPROVED IN WRITING AND CONNECTING ELECTRICAL SERVICES, CIRCUIT BREAKERS, AND CONDUIT SIZES ARE APPROPRIATELY MODIFIED. IF MINIMUM ENERGY RATINGS OR EFFICIENCIES ARE SPECIFIED, EQUIPMENT SHALL COMPLY WITH REQUIREMENTS.

ELECTRICAL CHARACTERISTICS FOR PLUMBING

**EQUIPMENT: EQUIPMENT OF HIGHER ELECTRICAL** 

- 1.6 DELIVERY, STORAGE, AND HANDLING DELIVER PIPES AND TUBES WITH
  - FACTORY-APPLIED END CAPS. MAINTAIN END CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE END DAMAGE AND TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND
  - STORE PLASTIC PIPES PROTECTED FROM DIRECT SUNLIGHT. SUPPORT TO PREVENT SAGGING AND

# 1.7 COORDINATION

- ARRANGE FOR PIPE SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION. TO ALLOW FOR PLUMBING INSTALLATIONS. COORDINATE INSTALLATION OF REQUIRED
- SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED. COORDINATE REQUIREMENTS FOR ACCESS
- PANELS AND DOORS FOR PLUMBING ITEMS REQUIRING ACCESS THAT ARE CONCEALED BEHIND FINISHED SURFACES, ACCESS PANELS AND DOORS ARE SPECIFIED IN DIVISION 08

- BASIC MECHANICAL MATERIALS AND METHODS SECTION 22 00 00 PART 2 PRODUCTS
  - 2.1 MANUFACTURERS
    - A. IN OTHER PART 2 ARTICLES WHERE SUBPARAGRAPH TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY FOR PRODUCT SELECTION:

SECTION "ACCESS DOORS AND FRAMES."

- 1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE MANUFACTURERS SPECIFIED.
- 2. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS PROVIDE PRODUCTS BY THE MANUFACTURERS SPECIFIED.
- 2.2 PIPE, TUBE, AND FITTINGS
- PIPE THREADS: ASME B1.20.1 FOR FACTORY-THREADED PIPE AND PIPE FITTINGS.

#### 2.3 JOINING MATERIALS

- PIPE-FLANGE GASKET MATERIALS: SUITABLE FOR CHEMICAL AND THERMAL CONDITIONS OF PIPING SYSTEM CONTENTS
  - ASME B16.21, NONMETALLIC, FLAT, ASBESTOS-FREE, 1/8-INCH MAXIMUM THICKNESS UNLESS THICKNESS OR SPECIFIC MATERIAL IS INDICATED.
  - a. FULL-FACE TYPE: FOR FLAT-FACE, CLASS 125, CAST-IRON AND CAST-BRONZE FLANGES.
  - NARROW-FACE TYPE: FOR RAISED-FACE, CLASS 250, CAST-IRON AND STEEL FLANGES.
- 2. AWWA C110, RUBBER, FLAT FACE, 1/8 INCH THICK. UNLESS OTHERWISE INDICATED: AND FULL-FACE OR RING TYPE, UNLESS OTHERWISE INDICATED.
- B. FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL, UNLESS OTHERWISE INDICATED.
- PLASTIC, PIPE-FLANGE GASKET, BOLTS, AND NUTS: TYPE AND MATERIAL RECOMMENDED BY PIPING SYSTEM MANUFACTURER, UNLESS OTHERWISE INDICATED.
- D. SOLDER FILLER METALS: ASTM B 32, LEAD-FREE ALLOYS. INCLUDE WATER-FLUSHABLE FLUX ACCORDING TO ASTM B 813.
- BRAZING FILLER METALS: AWS A5.8, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR GENERAL-DUTY BRAZING, UNLESS OTHERWISE INDICATED; AND AWS A5.8, BAG1, SILVER ALLOY FOR REFRIGERANT PIPING, UNLESS OTHERWISE WELDING FILLER METALS: COMPLY WITH AWS
- D10.12 FOR WELDING MATERIALS APPROPRIATE FOR WALL THICKNESS AND CHEMICAL ANALYSIS OF STEEL PIPE BEING WELDED. G. SOLVENT CEMENTS FOR JOINING PLASTIC PIPING:
- ABS PIPING: ASTM D 2235.
  - 2. CPVC PIPING: ASTM F 493.
  - 3. PVC PIPING: ASTM D 2564. INCLUDE PRIMER ACCORDING TO ASTM F 656.
  - 4. PVC TO ABS PIPING TRANSITION: ASTM D
- H. FIBERGLASS PIPE ADHESIVE: AS FURNISHED OR RECOMMENDED BY PIPE MANUFACTURER.

# 2.4 TRANSITION FITTINGS

- AWWA TRANSITION COUPLINGS: SAME SIZE AS AND WITH PRESSURE RATING AT LEAST EQUAL TO AND WITH ENDS COMPATIBLE WITH, PIPING TO BE
  - MANUFACTURERS:

  - a. CASCADE WATERWORKS MFG. CO.
  - b. DRESSER INDUSTRIES, INC.; DMD DIV. c. FORD METER BOX COMPANY. INCORPORATED (THE); PIPE PRODUCTS
  - d. JCM INDUSTRIES
  - e. SMITH-BLAIR, INC.
  - f. VIKING JOHNSON. 2. UNDERGROUND PIPING NPS 1-1/2 AND SMALLER: MANUFACTURED FITTING OR
  - COUPLING 3. UNDERGROUND PIPING NPS 2 AND LARGER: AWWA C219, METAL SLEEVE-TYPE
  - COUPLING.
  - 4. ABOVEGROUND PRESSURE PIPING: PIPE FITTING.
- B. PLASTIC-TO-METAL TRANSITION FITTINGS: CPVC AND PVC ONE-PIECE FITTING WITH MANUFACTURER'S SCHEDULE 80 EQUIVALENT

DIMENSIONS; ONE END WITH THREADED BRASS

- INSERT, AND ONE SOLVENT-CEMENT-JOINT END. MANUFACTURERS:
- a. ESLON THERMOPLASTICS.
- C. PLASTIC-TO-METAL TRANSITION ADAPTORS: ONE-PIECE FITTING WITH MANUFACTURER'S SDR 11 EQUIVALENT DIMENSIONS; ONE END WITH THREADED BRASS INSERT, AND ONE SOLVENT-CEMENT-JOINT END.
  - MANUFACTURERS:
  - a. THOMPSON PLASTICS, INC.
- D. PLASTIC-TO-METAL TRANSITION UNIONS: MSS SP-107, CPVC AND PVC FOUR-PART UNION. INCLUDE BRASS END. SOLVENT-CEMENT-JOINT END, RUBBER O-RING, AND UNION NUT.
- MANUFACTURERS:
- NIBCO INC.
- b. NIBCO, INC.; CHEMTROL DIV. FLEXIBLE TRANSITION COUPLINGS FOR
- UNDERGROUND COMPRESSOR DRAINAGE PIPING: ASTM C 1173 WITH ELASTOMERIC SLEEVE, ENDS SAME SIZE AS PIPING TO BE JOINED. AND CORROSION-RESISTANT METAL BAND ON EACH
- MANUFACTURERS: a. CASCADE WATERWORKS MFG. CO.
- b. FERNCO, INC.
- c. MISSION RUBBER COMPANY. d. PLASTIC ODDITIES, INC.
- 2.5 DIELECTRIC FITTINGS
- A. DESCRIPTION: COMBINATION FITTING OF COPPER ALLOY AND FERROUS MATERIALS WITH

- THREADED, SOLDER-JOINT, PLAIN, OR WELD-NECK END CONNECTIONS THAT MATCH PIPING SYSTEM MATERIALS.
- FLUID, PRESSURE, AND TEMPERATURE.

a. CAPITOL MANUFACTURING CO.

b. CENTRAL PLASTICS COMPANY

e. HART INDUSTRIES, INTERNATIONAL, INC.

g. ZURN INDUSTRIES, INC.; WILKINS DIV.

f. WATTS INDUSTRIES, INC.; WATER

C. DIELECTRIC UNIONS: FACTORY-FABRICATED UNION ASSEMBLY. FOR 250-PSIG MINIMUM

WORKING PRESSURE AT 180 DEG F.

MANUFACTURERS:

c. ECLIPSE, INC.

MANUFACTURERS:

MANUFACTURERS:

b. CALPICO, INC.

PRESSURES.

MANUFACTURERS:

MANUFACTURERS:

MANUFACTURERS:

b. CALPICO, INC.

c. METRAFLEX CO.

2.6 MECHANICAL SLEEVE SEALS

2.7 SLEEVES

2.8 ESCUTCHEONS

FINISH

CALPICO, INC.

b. LOCHINVAR CORP.

G. DIELECTRIC NIPPLES: ELECTROPLATED STEEL

NIPPLE WITH INERT AND NON CORROSIVE.

GROOVED ENDS: AND 300-PSIG MINIMUM

d. VICTAULIC CO. OF AMERICA.

A. DESCRIPTION: MODULAR SEALING ELEMENT UNIT,

NNULAR SPACE BETWEEN PIPE AND SLEEV

DESIGNED FOR FIELD ASSEMBLY. TO FILL

WORKING PRESSURE AT 225 DEG F.

PERFECTION CORP.

THERMOPLASTIC LINING: PLAIN. THREADED. OR

b. PRECISION PLUMBING PRODUCTS, INC.

c. SIOUX CHIEF MANUFACTURING CO., INC.

a. ADVANCE PRODUCTS & SYSTEMS, INC.

d. PIPELINE SEAL AND INSULATOR, INC.

LINKS SHAPED TO FIT SURFACE OF PIPE.

INCLUDE TYPE AND NUMBER REQUIRED FOR

INCLUDE TWO FOR EACH SEALING ELEMENT.

COATING OF LENGTH REQUIRED TO SECURE

PRESSURE PLATES TO SEALING ELEMENTS.

INCLUDE ONE FOR EACH SEALING ELEMENT.

2. SEALING ELEMENTS: EPDM INTERLOCKING

PIPE MATERIAL AND SIZE OF PIPE.

PRESSURE PLATES: CARBON STEEL

A. GALVANIZED-STEEL SHEET: 0.0239-INCH MINIMUM

SCHEDULE 40, GALVANIZED, PLAIN ENDS.

C. CAST IRON: CAST OR FABRICATED "WALL PIPE"

EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE,

WITH PLAIN ENDS AND INTEGRAL WATER STOP,

CAST-IRON SLEEVE WITH INTEGRAL CLAMPING

FLANGE. INCLUDE CLAMPING RING AND BOLTS

1. UNDER DECK CLAMP: CLAMPING RING WITH

MOLDED PVC: PERMANENT, WITH NAILING FLANGE

SHAPED. AND SMOOTH-OUTER SURFACE WITH

CEILING ESCUTCHEONS AND FLOOR PLATES.

OD THAT COMPLETELY COVERS OPENING.

B. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN,

C. ONE-PIECE, CAST-BRASS TYPE: WITH SET SCREW.

FINISH: POLISHED CHROME-PLATED.

BOX-SHAPED BRASS WITH POLISHED

SPLIT-CASTING, CAST-BRASS TYPE: WITH

CONCEALED HINGE AND SET SCREW.

E. ONE-PIECE. STAMPED-STEEL TYPE: WITH SET

1. FINISH: POLISHED CHROME-PLATED.

SCREW OR SPRING CLIPS AND CHROME-PLATED

CHROME-PLATED FINISH.

WITH AN ID TO CLOSELY FIT AROUND PIPE, TUBE

AND INSULATION OF INSULATED PIPING AND AN

NAILING FLANGE FOR ATTACHING TO WOODEN

B. STEEL PIPE: ASTM A 53, TYPE E, GRADE B,

UNLESS OTHERWISE INDICATED.

SET SCREWS.

D. STACK SLEEVE FITTINGS: MANUFACTURED,

AND NUTS FOR MEMBRANE FLASHING.

FOR ATTACHING TO WOODEN FORMS

G. MOLDED PE: REUSABLE, PE, TAPERED-CUP

A. DESCRIPTION: MANUFACTURED WALL AND

F. PVC PIPE: ASTM D 1785, SCHEDULE 40.

LONGITUDINAL JOINT

THICKNESS; ROUND TUBE CLOSED WITH WELDED

4. CONNECTING BOLTS AND NUTS: CARBON

STEEL WITH CORROSION-RESISTANT

DEG F.

c. EPCO SALES, INC.

PRODUCTS DIV.

OR PHENOLIC GASKET. PHENOLIC OR

E. DIELECTRIC-FLANGE KITS: COMPANION-FLANGE

POLYETHYLENE BOLT SLEEVES, PHENOLIC

WASHERS, AND STEEL BACKING WASHERS.

c. CENTRAL PLASTICS COMPANY.

ASSEMBLY FOR FIELD ASSEMBLY. INCLUDE

d. EPCO SALES, INC.

PRODUCTS DIV.

D. DIELECTRIC FLANGES: FACTORY-FABRICATED,

COMPANION-FLANGE ASSEMBLY, FOR 150- OR

a. CAPITOL MANUFACTURING CO.

b. CENTRAL PLASTICS COMPANY

d. WATTS INDUSTRIES, INC.; WATER

FLANGES, FULL-FACE- OR RING-TYPE NEOPRENE

a. ADVANCE PRODUCTS & SYSTEMS, INC.

d. PIPELINE SEAL AND INSULATOR, INC.

STEEL BOLTS AND NUTS SHALL HAVE 150-

OR 300-PSIG MINIMUM WORKING PRESSURE

SEPARATE COMPANION FLANGES AND

WHERE REQUIRED TO SUIT SYSTEM

THERMOPLASTIC LINING; THREADED ENDS; AND

300-PSIG MINIMUM WORKING PRESSURE AT 225

DIELECTRIC COUPLINGS: GALVANIZED-STEEL

COUPLING WITH INERT AND NON CORROSIVE

300-PSIG MINIMUM WORKING PRESSURE AS

REQUIRED TO SUIT SYSTEM PRESSURES.

- B. INSULATING MATERIAL: SUITABLE FOR SYSTEM

- F. SPLIT-PLATE. STAMPED-STEEL TYPE: WITH CONCEALED HINGE, SET SCREW OR SPRING CLIPS, AND CHROME-PLATED FINISH.
  - G. ONE-PIECE, FLOOR-PLATE TYPE: CAST-IRON
  - SPLIT-CASTING, FLOOR-PLATE TYPE: CAST BRASS WITH CONCEALED HINGE AND SET SCREW.

  - DESCRIPTION: ASTM C 1107, GRADE B, NON SHRINK AND NONMETALLIC, DRY HYDRAULIC-CEMENT GROUT.
  - 1. CHARACTERISTICS: POST-HARDENING VOLUME-ADJUSTING, NON STAINING, NON CORROSIVE, NONGASEOUS, AND RECOMMENDED FOR INTERIOR AND
  - PENETRATIONS IN FINISHED SPACES EXTERIOR APPLICATIONS. SPLIT-CASTING, CAST-BRASS TYPE WITH CHROME-PLATED FINISH. 2. DESIGN MIX: 5000-PSI, 28-DAY COMPRESSIVE
  - 3. PACKAGING: PREMIXED AND FACTORY PACKAGED

STRENGTH.

#### PART 3 - EXECUTION

- 3.1 PLUMBING DEMOLITION
  - A. REFER TO DIVISION 01 SECTION "CUTTING AND PATCHING" AND DIVISION 02 SECTION "SELECTIVE STRUCTURE DEMOLITION" FOR GENERAL DEMOLITION REQUIREMENTS AND PROCEDURES.
  - B. DISCONNECT, DEMOLISH, AND REMOVE PLUMBING SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED.
    - 1. PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL
    - PIPING AND CAP OR PLUG PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL. 3. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE

2. PIPING TO BE ABANDONED IN PLACE: DRAIN

- EQUIPMENT 4. EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT: WHEN APPROPRIATE REINSTALL, RECONNECT, AND MAKE
- **EQUIPMENT OPERATIONAL** 5. EQUIPMENT TO BE REMOVED AND SALVAGED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT AND DELIVER TO OWNER.
- C. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND

## 3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

- INSTALL PIPING ACCORDING TO THE FOLLOWING REQUIREMENTS AND DIVISION 22 SECTIONS SPECIFYING PIPING SYSTEMS. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED
- CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS. INSTALL PIPING IN CONCEALED LOCATIONS. UNLESS OTHERWISE INDICATED AND EXCEPT IN

LOCATIONS AND ARRANGEMENTS WERE USED TO

SIZE PIPE AND CALCULATE FRICTION LOSS,

EXPANSION, PUMP SIZING, AND OTHER DESIGN

- FOLIPMENT ROOMS AND SERVICE AREAS D. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS, DIAGONAL RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED
- OTHERWISE INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL
- REMOVAL. F. INSTALL PIPING TO PERMIT VALVE SERVICING.
- INSTALL PIPING AT INDICATED SLOPES. INSTALL PIPING FREE OF SAGS AND BENDS.
- INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.
- INSTALL PIPING TO ALLOW APPLICATION OF INSULATION. SELECT SYSTEM COMPONENTS WITH PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM OPERATING PRESSURE.
- INSTALL ESCUTCHEONS FOR PENETRATIONS OF WALLS, CEILINGS, AND FLOORS ACCORDING TO THE FOLLOWING:
- NEW PIPING a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.
- b. CHROME-PLATED PIPING: ONE-PIECE CAST-BRASS TYPE WITH POLISHED CHROME-PLATED FINISH. c. INSULATED PIPING: ONE-PIECE,
- d. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED CHROME-PLATED FINISH.

STAMPED-STEEL TYPE WITH SPRING

e. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, STAMPED-STEEL TYPE. f. BARE PIPING AT CEILING

SPACES: ONE-PIECE OR SPLIT-CASTING,

CAST-BRASS TYPE WITH POLISHED

PENETRATIONS IN FINISHED

- CHROME-PLATED FINISH. g. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE. STAMPED-STEEL TYPE OR SPLIT-PLATE, STAMPED-STEEL TYPE WITH CONCEALED HINGE AND SET SCREW.
- h. BARE PIPING IN UNFINISHED SERVICE SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED CHROME-PLATED i. BARE PIPING IN UNFINISHED SERVICE

SPACES: ONE-PIECE, STAMPED-STEEL

TYPE WITH CONCEALED OR

SCREW OR SPRING CLIPS.

EXPOSED-RIVET HINGE AND SET

BARE PIPING IN EQUIPMENT ROOMS: ONE-PIECE, CAST-BRASS TYPE.

k. BARE PIPING IN EQUIPMENT ROOMS: ONE-PIECE, STAMPED-STEEL TYPE WITH SET SCREW OR SPRING CLIPS.

FLOOR-PLATE TYPE.

a. CHROME-PLATED PIPING:

AND SPRING CLIPS.

e. BARE PIPING AT CEILING

BARE PIPING AT CEILING

SPLIT-CASTING, CAST-BRASS TYPE

CONCEALED OR EXPOSED-RIVET HINGE

WITH CHROME-PLATED FINISH.

b. INSULATED PIPING: SPLIT-PLATE,

STAMPED-STEEL TYPE WITH

c. BARE PIPING AT WALL AND FLOOR

d. BARE PIPING AT WALL AND FLOOR

PENETRATIONS IN FINISHED SPACES

SPLIT-PLATE, STAMPED-STEEL TYPE

PENETRATIONS IN FINISHED SPACES:

PENETRATIONS IN FINISHED SPACES:

SPLIT-PLATE, STAMPED-STEEL TYPE

SPACES: SPLIT-CASTING, CAST-BRASS

TYPE WITH POLISHED CHROME-PLATED

SPACES: SPLIT-PLATE, STAMPED-STEEL

WITH CONCEALED HINGE AND SET

g. BARE PIPING IN UNFINISHED SERVICE

h. BARE PIPING IN UNFINISHED SERVICE

**EXPOSED-RIVET HINGE AND SET** 

BARE PIPING IN EQUIPMENT ROOMS

SPLIT-CASTING, CAST-BRASS TYPE.

SPLIT-PLATE, STAMPED-STEEL TYPE

WITH SET SCREW OR SPRING CLIPS.

IN EQUIPMENT ROOMS: SPLIT-CASTING,

k. BARE PIPING AT FLOOR PENETRATIONS

FLOOR-PLATE TYPE.

N. PERMANENT SLEEVES ARE NOT REQUIRED FOR

CONCRETE AND MASONRY WALLS AND

CONCRETE FLOOR AND ROOF SLABS.

CONCRETE AND MASONRY WALLS.

FLOOR AND ROOF SLABS.

CONSTRUCTED.

SLEEVE MATERIALS:

HOLES FORMED BY REMOVABLE SLEEVES.

INSTALL SLEEVES FOR PIPES PASSING THROUGH

INSTALL SLEEVES FOR PIPES PASSING THROUGH

CUT SLEEVES TO LENGTH FOR MOUNTING

INSTALLED IN FLOORS OF MECHANICAL

SLEEVE FITTINGS BELOW FLOOR SLAB

AS REQUIRED TO SECURE CLAMPING

**EQUIPMENT AREAS OR OTHER WET** 

AREAS 2 INCHES ABOVE FINISHED

FLOOR LEVEL. EXTEND CAST-IRON

FLUSH WITH BOTH SURFACES.

a. EXCEPTION: EXTEND SLEEVES

RING IF RING IS SPECIFIED.

SLABS AS NEW WALLS AND SLABS ARE

**ENOUGH TO PROVIDE 1/4-INCH ANNULAR** 

a. STEEL PIPE SLEEVES: FOR PIPES

6 AND LARGER, PENETRATING

c. STACK SLEEVE FITTINGS: FOR PIPES

FLASHING BETWEEN CLAMPING

FLANGES, INSTALL SECTION OF

CAST-IRON SOIL PIPE TO EXTEND

MEMBRANE WATERPROOFING, SECURE

SLEEVE TO 2 INCHES ABOVE FINISHED

SECTION "SHEET METAL FLASHING AND

FLOOR LEVEL. REFER TO DIVISION 07

PENETRATING FLOORS WITH

GYPSUM-BOARD PARTITIONS

CLEAR SPACE BETWEEN SLEEVE AND PIPE

OR PIPE INSULATION. USE THE FOLLOWING

b. STEEL SHEET SLEEVES: FOR PIPES NPS

2. INSTALL SLEEVES IN NEW WALLS AND

3. INSTALL SLEEVES THAT ARE LARGE

SMALLER THAN NPS 6.

TRIM" FOR FLASHING.

FITTINGS WITH GROUT.

LOCATION OF JOINT, REFER TO SECTION

"JOINT SEALANTS" FOR MATERIALS AND

INSTALLATION.

DIAMETER.

ABOVE GROUND, EXTERIOR-WALL PIPE

PENETRATIONS: SEAL PENETRATIONS USING

SLEEVES AND MECHANICAL SLEEVE SEALS.

SELECT SLEEVE SIZE TO ALLOW FOR 1-INCH

THAN 6 INCHES IN DIAMETER.

2. INSTALL CAST-IRON "WALL PIPES" FOR

SLEEVES 6 INCHES AND LARGER IN

MECHANICAL SLEEVE SEAL INSTALLATION:

SELECT TYPE AND NUMBER OF SEALING

FLEMENTS REQUIRED FOR PIPE MATERIAL

AND SIZE. POSITION PIPE IN CENTER OF

SEALS AND INSTALL IN ANNULAR SPACE

BETWEEN PIPE AND SLEEVE. TIGHTEN

PENETRATIONS: INSTALL CAST-IRON "WALL PIPES"

FOR SLEEVES. SEAL PIPE PENETRATIONS USING

1. MECHANICAL SLEEVE SEAL INSTALLATION:

SELECT TYPE AND NUMBER OF SEALING

ELEMENTS REQUIRED FOR PIPE MATERIAL

AND SIZE. POSITION PIPE IN CENTER OF

SLEEVE. ASSEMBLE MECHANICAL SLEEVE

SEALS AND INSTALL IN ANNULAR SPACE

BOLTS AGAINST PRESSURE PLATES THAT

BETWEEN PIPE AND SLEEVE. TIGHTEN

MECHANICAL SLEEVE SEALS. SELECT SLEEVE

SIZE TO ALLOW FOR 1-INCH ANNULAR CLEAR

SPACE BETWEEN PIPE AND SLEEVE FOR

INSTALLING MECHANICAL SLEEVE SEALS.

MAKE WATERTIGHT SEAL.

UNDERGROUND, EXTERIOR-WALL PIPE

BOLTS AGAINST PRESSURE PLATES THAT

CAUSE SEALING ELEMENTS TO EXPAND AND

SLEEVE. ASSEMBLE MECHANICAL SLEEVE

ANNULAR CLEAR SPACE BETWEEN PIPE AND

SLEEVE FOR INSTALLING MECHANICAL SLEEVE

1. INSTALL STEEL PIPE FOR SLEEVES SMALLER

GYPSUM-BOARD PARTITIONS, AND CONCRETE

HOLES.

M. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED

BARE PIPING IN EQUIPMENT ROOMS

TYPE WITH CONCEALED OR

SCREW OR SPRING CLIPS.

SPLIT-CASTING, CAST-BRASS TYPE

WITH CHROME-PLATED FINISH.

WITH CONCEALED HINGE AND SPRING

- FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, I. BARE PIPING AT FLOOR PENETRATIONS CEILINGS, AND FLOORS AT PIPE PENETRATIONS. IN EQUIPMENT ROOMS: ONE-PIECE, SEAL PIPE PENETRATIONS WITH FIRE STOP MATERIALS. REFER TO DIVISION 07 SECTION "PENETRATION FIRE STOPPING" FOR MATERIALS. EXISTING PIPING: USE THE FOLLOWING:
  - VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN
  - REFER TO EQUIPMENT SPECIFICATIONS IN OTHER

MAKE WATERTIGHT SEAL.

- SECTIONS OF THESE SPECIFICATIONS FOR ROUGHING-IN REQUIREMENTS.

CAUSE SEALING ELEMENTS TO EXPAND AND

#### 3.3 PIPING JOINT CONSTRUCTION

- JOIN PIPE AND FITTINGS ACCORDING TO THE **FOLLOWING REQUIREMENTS AND DIVISION 22** SECTIONS SPECIFYING PIPING SYSTEMS.
- REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. BEVEL PLAIN ENDS OF STEEL PIPE.

REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM

TUBE HANDBOOK," USING LEAD-FREE SOLDER

INSIDE AND OUTSIDE OF PIPE AND FITTINGS

- BEFORE ASSEMBLY. SOLDERED JOINTS: APPLY ASTM B 813, WATER-FLUSHABLE FLUX, UNLESS OTHERWISE INDICATED, TO TUBE END. CONSTRUCT JOINTS ACCORDING TO ASTM B 828 OR CDA'S "COPPER
- ALLOY COMPLYING WITH ASTM B 32. BRAZED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWS'S "BRAZING HANDBOOK," "PIPE AND TUBE' CHAPTER. USING COPPER-PHOSPHORUS BRAZING FILLER METAL COMPLYING WITH AWS A5.8.
- THREADED JOINTS: THREAD PIPE WITH TAPERED PIPE THREADS ACCORDING TO ASME B1.20.1. CU THREADS FULL AND CLEAN USING SHARP DIES REAM THREADED PIPE ENDS TO REMOVE BURRS AND RESTORE FULL ID. JOIN PIPE FITTINGS AND VALVES AS FOLLOWS:
- 1. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS UNLESS DRY SEAL THREADING IS SPECIFIED. 2. DAMAGED THREADS: DO NOT USE PIPE OR

PIPE FITTINGS WITH THREADS THAT ARE

CORRODED OR DAMAGED. DO NOT USE PIPE

- SECTIONS THAT HAVE CRACKED OR OPEN WELDED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWS D10.12, USING QUALIFIED PROCESSES AND WELDING OPERATORS
- H. FLANGED JOINTS: SELECT APPROPRIATE GASKET MATERIAL. SIZE. TYPE. AND THICKNESS FOR SERVICE APPLICATION, INSTALL GASKET CONCENTRICALLY POSITIONED. USE SUITABLE LUBRICANTS ON BOLT THREADS.

ACCORDING TO PART 1 "QUALITY ASSURANCE"

AND DRY JOINING SURFACES. JOIN PIPE AND FITTINGS ACCORDING TO THE FOLLOWING: 1. COMPLY WITH ASTM F 402 FOR SAFE-HANDLING PRACTICE OF CLEANERS,

PLASTIC PIPING SOLVENT-CEMENT JOINTS: CLEAN

2. ABS PIPING: JOIN ACCORDING TO ASTM D 2235 AND ASTM D 2661 APPENDIXES. 3. CPVC PIPING: JOIN ACCORDING TO ASTM D 2846/D 2846M APPENDIX.

PRIMERS, AND SOLVENT CEMENTS.

- 4. PVC PRESSURE PIPING: JOIN SCHEDULE NUMBER ASTM D 1785, PVC PIPE AND PVC SOCKET FITTINGS ACCORDING TO ASTM D 2672. JOIN OTHER-THAN-SCHEDULE-NUMBER PVC PIPE
- 5. PVC NON PRESSURE PIPING: JOIN ACCORDING TO ASTM D 2855.

AND SOCKET FITTINGS ACCORDING TO

6. PVC TO ABS NON PRESSURE TRANSITION

FITTINGS: JOIN ACCORDING TO ASTM D 3138 APPENDIX PLASTIC PRESSURE PIPING GASKETED JOINTS:

ASTM D 2855.

- JOIN ACCORDING TO ASTM D 3139. PLASTIC NON PRESSURE PIPING GASKETED
- PE PIPING HEAT-FUSION JOINTS: CLEAN AND DRY JOINING SURFACES BY WIPING WITH CLEAN CLOTH OR PAPER TOWELS. JOIN ACCORDING TO ASTM D 2657. 1. PLAIN-END PIPE AND FITTINGS: USE BUTT

JOINTS: JOIN ACCORDING TO ASTM D 3212.

- 2. PLAIN-END PIPE AND SOCKET FITTINGS: USE SOCKET FUSION. M. FIBERGLASS BONDED JOINTS: PREPARE PIPE
- d. SEAL SPACE OUTSIDE OF SLEEVE ENDS AND FITTINGS, APPLY ADHESIVE, AND JOIN ACCORDING TO PIPE MANUFACTURER'S WRITTEN 4. EXCEPT FOR UNDERGROUND WALL PENETRATIONS, SEAL ANNULAR SPACE 3.4 PIPING CONNECTIONS BETWEEN SLEEVE AND PIPE OR PIPE INSULATION, USING JOINT SEALANTS A. MAKE CONNECTIONS ACCORDING TO THE APPROPRIATE FOR SIZE, DEPTH, AND FOLLOWING, UNLESS OTHERWISE INDICATED:
  - FOUIPMENT 2. INSTALL FLANGES, IN PIPING NPS 2-1/2 AND LARGER, ADJACENT TO FLANGED VALVES AND AT FINAL CONNECTION TO EACH PIECE

1. INSTALL UNIONS, IN PIPING NPS 2 AND

SMALLER, ADJACENT TO EACH VALVE AND

AT FINAL CONNECTION TO EACH PIECE OF

3. DRY PIPING SYSTEMS: INSTALL DIFLECTRIC UNIONS AND FLANGES TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS. 4. WET PIPING SYSTEMS: INSTALL DIELECTRIC

COUPLING AND NIPPLE FITTINGS TO

CONNECT PIPING MATERIALS OF DISSIMILAR

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

POSSIBLE HEADROOM UNLESS SPECIFIC

A. INSTALL FOUIPMENT TO ALLOW MAXIMUM

METALS.

- MOUNTING HEIGHTS ARE NOT INDICATED INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, UNLESS OTHERWISE
- INSTALL PLUMBING EQUIPMENT TO FACILITATE SERVICE. MAINTENANCE. AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS. EXTEND GREASE FITTINGS TO ACCESSIBLE LOCATIONS.
- INSTALL EQUIPMENT TO ALLOW RIGHT OF WAY FOR PIPING INSTALLED AT REQUIRED SLOPE.

A. PAINTING OF PLUMBING SYSTEMS, EQUIPMENT

3.6 PAINTING

- AND COMPONENTS IS SPECIFIED IN ARCHITECTURAL SPECIFICATION SECTIONS "INTERIOR PAINTING" AND "EXTERIOR PAINTING."
- B. DAMAGE AND TOUCHUP: REPAIR MARRED AND DAMAGED FACTORY-PAINTED FINISHES WITH MATERIALS AND PROCEDURES TO MATCH ORIGINAL FACTORY FINISH.

#### 3.7 CONCRETE BASES

- A. CONCRETE BASES: ANCHOR EQUIPMENT TO CONCRETE BASE ACCORDING TO EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS AND ACCORDING TO SEISMIC CODES AT PROJECT.
- CONSTRUCT CONCRETE BASES OF DIMENSIONS INDICATED, BUT NOT LESS THAN 4 INCHES LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT.
- 2. INSTALL DOWEL RODS TO CONNECT CONCRETE BASE TO CONCRETE FLOOR UNLESS OTHERWISE INDICATED, INSTALL DOWEL RODS ON 18-INCH CENTERS AROUND THE FULL PERIMETER OF THE

3. INSTALL EPOXY-COATED ANCHOR BOLTS

FOR SUPPORTED EQUIPMENT THAT EXTEND THROUGH CONCRETE BASE, AND ANCHOR INTO STRUCTURAL CONCRETE FLOOR. 4. PLACE AND SECURE ANCHORAGE DEVICES. USE SUPPORTED EQUIPMENT MANUFACTURER'S SETTING DRAWINGS,

TEMPLATES, DIAGRAMS, INSTRUCTIONS

AND DIRECTIONS FURNISHED WITH ITEMS

- TO BE EMBEDDED. 5. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT.
- 6. INSTALL ANCHOR BOLTS ACCORDING TO ANCHOR-BOLT MANUFACTURER'S WRITTEN INSTRUCTIONS. USE 3000-PSI, 28-DAY

COMPRESSIVE-STRENGTH CONCRETE AND

REINFORCEMENT AS SPECIFIED IN DIVISION

CAST-IN-PLACE CONCRETE." 3.8 ERECTION OF METAL SUPPORTS AND ANCHORAGES

03 SECTION "MISCELLANEOUS

- A. REFER TO DIVISION 05 SECTION "METAL FABRICATIONS" FOR STRUCTURAL STEEL
- B. CUT, FIT, AND PLACE MISCELLANEOUS METAL SUPPORTS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR PLUMBING MATERIALS AND EQUIPMENT.
- 3.9 ERECTION OF WOOD SUPPORTS AND ANCHORAGES A. CUT, FIT, AND PLACE WOOD GROUNDS, NAILERS,

C. FIELD WELDING: COMPLY WITH AWS D1.1.

ANCHOR PLUMBING MATERIALS AND EQUIPMENT. B. SELECT FASTENER SIZES THAT WILL NOT PENETRATE MEMBERS IF OPPOSITE SIDE WILL BE EXPOSED TO VIEW OR WILL RECEIVE FINISH MATERIALS. TIGHTEN CONNECTIONS BETWEEN MEMBERS. INSTALL FASTENERS WITHOUT

BLOCKING, AND ANCHORAGES TO SUPPORT, AND

A. MIX AND INSTALL GROUT FOR PLUMBING

**EQUIPMENT BASE BEARING SURFACES. PUMP** 

PROVIDE FORMS AS REQUIRED FOR PLACEMENT

AND OTHER EQUIPMENT BASE PLATES, AND

C. ATTACH TO SUBSTRATES AS REQUIRED TO

SPLITTING WOOD MEMBERS.

SUPPORT APPLIED LOADS.

- B. CLEAN SURFACES THAT WILL COME INTO CONTACT WITH GROUT.
- OF GROUT. D. AVOID AIR ENTRAPMENT DURING PLACEMENT OF
- E. PLACE GROUT, COMPLETELY FILLING EQUIPMENT F. PLACE GROUT ON CONCRETE BASES AND

G. PLACE GROUT AROUND ANCHORS.

PROVIDE SMOOTH BEARING SURFACE FOR

## H. CURE PLACED GROUT.

END OF SECTION

EQUIPMENT.

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07/12/2022

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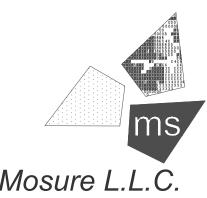
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SHEET TITLE:

PROJECT NO.:

HANGERS AND SUPPORTS SECTION 22 05 29

## 1.1 SECTION INCLUDES

PART 1 - GENERAL

- A. PIPE, EQUIPMENT HANGERS, AND SUPPORTS
- B. SLEEVES AND SEALS.
- C. FLASHING AND SEALING EQUIPMENT AND PIPE
- D. EQUIPMENT CURBS.

#### PART 2 - PRODUCTS

#### 2.1 PIPE HANGERS AND SUPPORTS

- A. MANUFACTURERS:
- B-LINE.
- GRINNELL. B. PLUMBING PIPING:
- 1. CONFORM TO ASME B31.9. 2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2": MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT
- 3. HANGERS FOR PIPE SIZES 2" AND LARGER:
- CARBON STEEL, ADJUSTABLE, CLEVIS. 4. MULTIPLE OR TRAPEZE HANGERS: STEEL
- CHANNELS WITH WELDED SPACERS AND HANGER RODS. 5. WALL SUPPORT FOR PIPE SIZES 3" AND
- SMALLER: CAST IRON HOOK. 6. WALL SUPPORT FOR PIPE SIZES 4" AND
- LARGER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
- VERTICAL SUPPORT: STEEL RISER CLAMP, ANGLE RING. 8. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR
- 9. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.

FLANGE, AND CONCRETE PIER OR STEEL

#### 2.2 ACCESSORIES

A. HANGER RODS: MILD STEEL THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUS THREADED

#### 2.3 FLASHING

- A. METAL FLASHING: 26 GAUGE GALVANIZED STEEL.
- B. METAL COUNTER FLASHING: 22 GAUGE GALVANIZED STEEL.
- C. LEAD FLASHING:
- 1. WATERPROOFING: 5 LB./FT.2 SHEET LEAD. 2. SOUNDPROOFING: 1 LB./FT.2 SHEET LEAD.
- D. FLEXIBLE FLASHING: 47 MIL THICK SHEET BUTYL, COMPATIBLE WITH ROOFING.
- E. CAPS: STEEL, 22 GAUGE MINIMUM, 16 GAUGE AT FIRE RESISTANT ELEMENTS.
- F. ARCHITECTURAL SPECIFICATIONS SUPERCEDE THESE FLASHING REQUIREMENTS.

# 2.4 SLEEVES

- A. SLEEVES FOR PIPES THROUGH NON-FIRE RATED 18 GAUGE GALVANIZED STEEL.
- B. SLEEVES FOR PIPES THROUGH FIRE RATED AND FIRE RESISTIVE FLOORS AND WALLS AND FIRE PROOFING: PREFABRICATED FIRE RATED SLEEVES INCLUDING SEALS, UL LISTED.
- C. STUFFING INSULATION: GLASS FIBER TYPE. NON-COMBUSTIBLE.
- D. SEALANT: ACRYLIC.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. SUPPORT HORIZONTAL PIPING AS SCHEDULED.
- C. PLACE HANGERS WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.
- D. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.
- E. SUPPORT HORIZONTAL CAST IRON PIPE ADJACENT
- TO EACH HUB WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS. F. WHERE SEVERAL PIPES CAN BE INSTALLED IN

PARALLEL AND AT SAME ELEVATION, PROVIDE

- MULTIPLE OR TRAPEZE HANGERS. G. SUPPORT RISER PIPING INDEPENDENTLY OF
- CONNECTED HORIZONTAL PIPING. H. PROVIDE COPPER PLATED HANGER AND SUPPORTS FOR COPPER PIPING.
- I. DESIGN HANGER FOR PIPE MOVEMENT WITHOUT
- DISENGAGEMENT OF SUPPORTED PIPE.
- J. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS.
- K. PROVIDE FLEXIBLE FLASHING AND METAL COUNTER FLASHING WHERE PIPING AND DUCTWORK PENETRATE WEATHER OR WATERPROOFED WALLS, FLOORS, AND ROOFS.
- L. FLASH VENT AND SOIL PIPES PROJECTING 3 INCHES MINIMUM ABOVE FINISHED ROOF SURFACE WITH LEAD WORKED 1 INCH MINIMUM INTO HUB, 8 INCHES MINIMUM CLEAR ON SIDES WITH 24" X 24" SHEET SIZE. FOR PIPES THROUGH OUTSIDE WALLS, TURN FLANGES BACK INTO WALL THEN CAULK, METAL COUNTER FLASH, AND SEAL.
- M. SEAL FLOOR AND MOP SINK DRAINS WATERTIGHT TO ADJACENT MATERIALS.
- N. ADJUST STORM COLLARS TIGHT TO PIPE WITH BOLTS AND CAULK AROUND TOP EDGE. USE STORM

- COLLARS ABOVE ROOF JACKS. SCREW VERTICAL FLANGE SECTION TO FACE OF CURB.
- O. SET SLEEVES IN POSITION IN FORM WORK. PROVIDE REINFORCING AROUND SLEEVES.
- P. SIZE SLEEVES LARGE ENOUGH TO ALLOW FOR MOVEMENT DUE TO EXPANSION AND CONTRACTION. PROVIDE FOR CONTINUOUS INSULATION WRAPPING.
- Q. WHERE PIPING OR DUCTWORK PENETRATES FLOOR, CEILING, OR WALL, CLOSE OFF SPACE BETWEEN PIPE OR DUCT AND ADJACENT WORK WITH FIRE STOPPING INSULATION AND CAULK. PROVIDE CLOSE FITTING METAL COLLAR OR ESCUTCHEON COVERS AT BOTH SIDES OF PENETRATION.
- R. INSTALL CHROME PLATED STEEL ESCUTCHEONS AT FINISHED SURFACES.

#### 3.2 SCHEDULES

A. HANGER SPACING AND HANGER ROD SIZES:

PIPE SIZE (IN)	MAX. HANGER SPACING (FT)	HANGER ROD DIAMETER (IN)
1/2 TO 1-1/2	6-1/2	3/8
1-1/2 TO 2	10	3/8
2-1/3 TO 3	10	1/2
4 TO 6	10	5/8
PVC	6	3/8
CI NO-HUB	5	1/2

END OF SECTION

SECTION 22 07 19

# PLUMBING PIPE INSULATION

## PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

A. PIPING INSULATION. B. JACKETS AND ACCESSORIES

#### PART 2 - PRODUCTS

#### 2.1 PIPE INSULATION

- A. CELLULAR FOAM
- MANUFACTURER/MODEL:
- ARMSTRONG ARMAFLEX 22.
- b. OWENS CORNING O-C. c. CERTAINTEED CORP.
- 2. ASTM C534, FLEXIBLE, CELLULAR ELASTOMERIC MOLDED SHEET. 3. JOINTS: SEALED WITH WATERPROOF
- ADHESIVE. 4. ADHESIVES MANUFACTURER/MODEL:
  - a. ARMSTRONG 520. b. OWENS CORNING 500.
- B. GLASS FIBER
- 1. INSULATION: ASTM C547, RIGID MOLDED,
  - NON-COMBUSTIBLE. a. 'K' VALUE: ASTM C177, 0.24 AT 75° F.
  - b. MAXIMUM SERVICE TEMPERATURE: 850°
  - c. MAXIMUM MOISTURE ABSORPTION: 0.2 PERCENT BY VOLUME.
- VAPOR BARRIER JACKET ASTM C921, WHITE KRAFT PAPER WITH
  - GLASS FIBER YARN, BONDED TO ALUMINIZED FILM.
- b. MOISTURE BARRIER TRANSMISSION:
- ASTM E96, 0.02 PERM-INCHES.
- 3. TIE WIRE: 0.048 INCH STAINLESS STEEL WITH TWISTED ENDS ON MAXIMUM 12 INCH
- CENTERS. 4. VAPOR BARRIER LAP ADHESIVE: COMPATIBLE
- WITH INSULATION.
- 5. INSULATING CEMENT/MASTIC: ASTM C195, HYDRAULIC SETTING ON MINERAL WOOL.
- 6. FIBROUS GLASS FABRIC:
- a. CLOTH: UNTREATED, 9 OZ/YD^2 WEIGHT.
- b. BLANKET: 1.0 LB./FT.^3 DENSITY
- c. WEAVE: 5X5.
- 2.3 INSULATION RATINGS A. FLAME SPREAD SHALL BE 25 OR LESS IN
- B. SMOKE DEVELOPED SHALL BE 50 OR LESS IN ACCORDANCE WITH ASTM E84.

ACCORDANCE WITH ASTM E84.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. INSTALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- B. ALL PIPE FITTINGS TO BE INSULATED WITH MITER CUT PIECES OF CELLULAR FOAM INSULATION ASSEMBLED ON SITE USING SPECIFIED ADHESIVE.
- C. FIBER DUCTWORK IS NOT ACCEPTABLE.
- D. DO NOT INSTALL INSULATION AND COVERINGS UNTIL DUCTWORK OR PIPING HAVE BEEN TESTED OR APPROVED.
- E. ENSURE SURFACES ARE CLEAN AND DRY PRIOR TO INSULATING.
- F. LOCATE INSULATION SEAMS IN LEAST VISIBLE LOCATION.
- G. FINISH INSULATION NEATLY AT HANGERS, SUPPORTS, AND OTHER PROTRUSIONS.

H. ENSURE INSULATION IS CONTINUOUS INSIDE

#### A. PIPING INSULATION T<u>HICKNESS</u>

3.2 SCHEDULES

- CELLULAR FOAM
  - a. DOMESTIC HOT WATER, COLD WATER, AND HOT WATER RECIRCULATION

- 2. PRE-FORMED GLASS FIBER
  - a. DOMESTIC HOT WATER,

b. CONDENSATE DRAINS

- COLD WATER, AND HOT WATER RECIRCULATION
- b. CONDENSATE DRAINS

#### END OF SECTION SECTION 22 11 16

#### PART 1 - GENERAL 1.1 SECTION INCLUDES

4. NATURAL GAS

PLUMBING PIPING

1/2"

- A. PIPE, PIPE FITTINGS, VALVES, AND CONNECTIONS FOR PIPING SYSTEMS
- SANITARY WASTE AND VENT 2. DOMESTIC WATER 3. STORM WATER

#### 5. CONDENSATE DRAINS PART 2 - PRODUCTS

- 2.1 SANITARY WASTE PIPING, BURIED WITHIN 5 FEET OF BUILDING BELOW FLOOR
  - A. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT.
  - FITTINGS: CAST IRON. 2. JOINTS: HUB-AND-SPIGOT, CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKETS OR LEAD AND OAKUM.
  - B. ABS PIPE: ASTM D2661.
  - FITTINGS: ASTM D2661. ABS. 2. JOINTS: ASTM D2235, SOLVENT WELD.
  - C. PVC PIPE: ASTM D2665.
  - 1. FITTINGS: ASTM D2665, PVC. 2. JOINTS: ASTM D2855, SOLVENT WELD WITH
- ASTM D2564 SOLVENT CEMENT.
- 2.2 SANITARY WASTE PIPING, ABOVE GRADE, ANY SIZE A. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT.
- 1. FITTINGS: CAST IRON.

2. JOINTS: ASTM C564 NEOPRENE GASKETS OR

- LEAD AND OAKUM. B. ABS PIPE: ASTM D2661 - AS ALLOWED BY LOCAL
- 1. FITTINGS: ASTM D2661, ABS.

2. JOINTS: ASTM D2235, SOLVENT WELD.

- C. PVC PIPE: ASTM D2665 AS ALLOWED BY LOCAL
- 1. FITTINGS: ASTM D2665, PVC. 2. JOINTS: ASTM D2855, SOLVENT WELD WITH
- ASTM D2564 SOLVENT CEMENT.
- D. COPPER PIPE: ASTM B42, ASTM B88, TYPE DWV. 1. FITTINGS: ASME B16.18, CAST COPPER ALLOY
- OR ASME B16.22 WROUGHT COPPER AND 2. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 2.3 STORM WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING
- A. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT.
- FITTINGS: CAST IRON.
- 2. JOINTS: ASTM C564 NEOPRENE GASKETS OR LEAD AND OAKUM.
- B. ABS PIPE: ASTM D2661.
- 1. FITTINGS: ASTM D2661, ABS. 2. JOINTS: ASTM D2235, SOLVENT WELD.
- C. PVC PIPE: ASTM D2665.
- 1. FITTINGS: ASTM D2665, PVC. 2. JOINTS: ASTM D2855. SOLVENT WELD WITH
- ASTM D2564 SOLVENT CEMENT.

#### 2.4 STORM WATER PIPING, BURIED BEYOND 5 FEET OF BUILDING

- A. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT.
- 1. FITTINGS: CAST IRON. 2. JOINTS: ASTM C564 NEOPRENE GASKETS OR
- LEAD AND OAKUM.
- B. COPPER TUBE: ASTM B306 DWV. 1. FITTINGS: ASME B16.23, CAST BRONZE OR ASME B16.29, WROUGHT COPPER.
- 2. JOINTS: ASTM B32, SOLDER, GRADE 50B. C. VITRIFIED CLAY PIPE: ASTM C700 STANDARD
- FITTINGS: CLAY. 2. JOINTS: ASTM C425, BELL-AND-SPIGOT WITH LEAD AND OAKUM, NEOPRENE GASKETS, OR
- D. PVC PIPE: ASTM D2665 OR ASTM D3034.

NEOPRENE GASKET AND CLAMP SYSTEM.

- 1. FITTINGS: PVC, ASTM D2665 OR ASTM D3034. 2. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.
- 2.5 STORM WATER PIPING, ABOVE GRADE
- A. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT.
- FITTINGS: CAST IRON. 2. JOINTS: HUB-AND-SPIGOT, CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKETS OR LEAD AND OAKUM.
- B. ABS PIPE: ASTM D2661.
- 1. FITTINGS: ASTM D2661, ABS.

- 2. JOINTS: ASTM D2235, SOLVENT WELD.
- C. PVC PIPE: ASTM D2665.
  - FITTINGS: ASTM D2665, PVC.
- - 2. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.
- 2.6 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING
- A. PIPE 1-1/2 INCHES AND SMALLER: ASTM F876, CROSSLINKED POLYETHYLENE TUBING (PEX). JOINTS SHALL NOT BE MADE BELOW SLAB.
- B. PIPE 2 INCHES AND LARGER: COPPER PIPE, ASTM 3.2 INSTALLATION
- B88, TYPE K, HARD DRAWN. 1. FITTINGS: ASME B16.18, CAST COPPER ALLOY

OR ASME B16.22, WROUGHT COPPER AND

- 2. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 2.7 WATER PIPING, ABOVE GRADE
  - A. COPPER PIPE: ASTM B88, TYPE L, HARD DRAWN. C. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN

PART 3 - EXECUTION

3.1 PREPARATION

- 1. FITTINGS: ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND D. INSTALL PIPING AS HIGH AS POSSIBLE TO MAINTAIN 2. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 2.8 NATURAL GAS PIPING, BURIED WITHIN 5 FEET OF
- A. STEEL PIPE: ASTM A53, SCHEDULE 40 BLACK. FITTINGS: ASTM A234/A234M, FORGED STEEL WELDING TYPE
- POLYETHYLENE JACKET AND DOUBLE LAYER, HALF-LAPPED 10 MIL POLYETHYLENE TAPE ON FITTINGS ONLY, OR IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTION.

3. JACKET: AWWA C105 FACTORY APPLIED

JOINTS: ANSI B31.1, WELDED.

- B. POLYETHYLENE PIPE: ASTM D2513, SDR 11.5. 1. FITTINGS: ASTM D2683 OR ASTM D2513 SOCKET
- 2. JOINTS: FUSION WELDED.

2.9 NATURAL GAS PIPING, ABOVE GRADE

- A. STEEL PIPE: ASTM A53, SCHEDULE 40 BLACK. 1. FITTINGS: ASME B16.3, MALLEABLE IRON OR
- ASTM A234/A234M, FORGED STEEL WELDING 2. JOINTS: NFPA 54, THREADED OR WELDED TO ANSI B31.1
- B. CORRUGATED STAINLESS STEEL TUBING: ASTM

1. JACKETING: TENITE YELLOW POLYETHYLENE

MEETING REQUIREMENTS OF ASTM E84 FOR FLAME SPREAD AND SMOKE DENSITY. 2. FITTINGS: SAE CA360 BRASS DOUBLE WALL FLARE FOR SEALING AND JACKET CAPTURING.

2.10 CONDENSATE DRAIN PIPING: INSIDE THE BUILDING TO

- BE COPPER, OUTSIDE THE BUILDING TO BE CPVC AND PAINTED WITH TWO COATS OF WHITE LATEX PAINT.
- A. COPPER PIPE: ASTM B88, TYPE L, HARD DRAWN. 1. FITTINGS: ASME B16.18, CAST COPPER ALLOY
- 2. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 1. FITTINGS: ASME D-2466.
- 2. JOINTS: ASTM F-493, SOLVENT WELD.

B. CPVC ASTM D-1784, SCHEDULE 40.

2.11 FLANGES, UNIONS, AND COUPLINGS

THREADED UNIONS.

- A. PIPE SIZE 3 INCHES AND OVER: 1. FERROUS PIPE: CLASS 150 MALLEABLE IRON
- 2. COPPER TUBE AND PIPE: CLASS 150 BRONZE UNIONS WITH SOLDERED JOINTS.

COUPLINGS:

B. PIPE SIZE OVER 1 INCH: 1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED OR FORGED STEEL SLIP-ON

FLANGES, PREFORMED NEOPRENE GASKETS.

- 2. COPPER TUBE AND PIPE: CLASS 150 SLIP-ON FLANGES; PREFORMED NEOPRENE GASKETS. C. GROOVED AND SHOULDERED PIPE END
- 1. HOUSING: MALLEABLE IRON CLAMPS TO ENGAGE AND LOCK, DESIGNED TO PERMIT SOME ANGULAR DEFLECTION, CONTRACTION, AND EXPANSION; STEEL BOLTS, NUTS, AND WASHERS; GALVANIZED FOR GALVANIZED
- 2. SEALING GASKET: "C" SHAPE COMPOSITION SEALING GASKET.

GALVANIZED OR PLATED STEEL THREADED END,

COPPER SOLDER END, WATER IMPERVIOUS

ISOLATION BARRIER.

2.12 BALL VALVES

A. MANUFACTURER: WATTS MODEL WBVS.

D. DIELECTRIC CONNECTIONS: UNION WITH

- B. OTHER ACCEPTABLE MANUFACTURERS OFFERING **EQUIVALENT PRODUCTS:**
- CRANE. ITT GRINNELL HAMMOND.

APOLLO.

STOCKHAM.

C. CONSTRUCTION, 4 INCHES AND SMALLER: CLASS 150, 400 PSI CWP, BRONZE, TWO-PIECE BODY, CHROME PLATED BRASS BALL, REGULAR FULL PORT, TEFLON SEATS AND STUFFING BOX RING, BLOW-OUT PROOF STEM, LEVER HANDLE, SOLDER OR THREADED ENDS WITH UNION.

- A. ASSE 1018; BRONZE BODY WITH INTEGRAL VACUUM BREAKER, NON-LIMING INTERNAL OPERATING

A. REAM PIPE AND TUBE ENDS. REMOVE BURRS.

BEFORE ASSEMBLY

INSTRUCTIONS.

TO WALLS

WITH FLANGES OR UNIONS.

B. REMOVE SCALE AND DIRT ON INSIDE AND OUTSIDE

C. PREPARE PIPING CONNECTIONS TO EQUIPMENT

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S

CONNECTIONS WHEREVER JOINTING DISSIMILAR

GRADIENT. ROUTE PARALLEL AND PERPENDICULAR

HEADROOM, CONSERVE SPACE, AND NOT

F. INSTALL PIPING TO ALLOW FOR EXPANSION AND

G. PROVIDE CLEARANCE IN HANGERS AND FROM

INSULATION AND ACCESS TO VALVES AND

H. PROVIDE ACCESS WHERE VALVES AND FITTINGS

I. INSTALL VENT PIPING PENETRATING ROOFED

J. PROVIDE SUPPORT FOR UTILITY METERS IN

ACCORDANCE WITH REQUIREMENTS OF UTILITY

K. GAS PIPING SYSTEMS WITHIN A BUILDING SHALL BE

L. PREPARE EXPOSED, UNFINISHED PIPE, FITTINGS,

SUPPORTS, AND ACCESSORIES FOR FINISH

M. INSTALL BELL AND SPIGOT PIPE WITH BELL END

N. INSTALL VALVES WITH STEMS UPRIGHT OR

O. SLEEVE PIPES PASSING THROUGH PARTITIONS,

WALLS, AND FLOORS. WHERE EXPOSED PIPING

CHROME PLATED ESCUTCHEONS OR OTHER FINISH ACCEPTABLE TO ARCHITECT, WHERE FINISH IS NOT

CRITICAL, SUITABLE PLATES SHALL BE PROVIDED

TO ASSURE EFFECTIVENESS OF CONSTRUCTION

P. ALL PIPING SHALL BE FREE OF RUST INSIDE AND

SHALL BE INSTALLED BY TRAINED PERSONNEL

Q. ALL CORRUGATED STAINLESS STEEL TUBING

WITH STRIKE PROTECTION AS REQUIRED.

R. THE TOTAL SYSTEM SHALL MEET OWNER'S

PASSES THROUGH FINISHED WORK, PROVIDE

HORIZONTAL, NOT INVERTED.

AS A FIRE STOP.

END OF SECTION

PLUMBING SPECIALTIES

1.1 SECTION INCLUDES

B. TRAP PRIMERS.

C. CLEANOUTS.

D. HOSE BIBS.

E. HYDRANTS.

PART 2 - PRODUCTS

2.1 ROOF DRAINS

2.2 FLOOR DRAINS

2.3 TRAP PRIMERS

A. ROOF AND FLOOR DRAINS.

F. BACKFLOW PREVENTERS.

G. WATER HAMMER ARRESTORS.

1.2 DELIVERY, STORAGE, AND PROTECTION

H. WATER PRESSURE REDUCING VALVES.

I. ACCEPT SPECIALTIES ON SITE IN ORIGINAL

FACTORY PACKAGING. INSPECT FOR DAMAGE.

A. ASME A112.21.2M; COATED CAST IRON BODY, DOME,

DECK CLAMP, AND ROOF SUMP RECEIVER.

NICKEL-BRONZE STRAINER.

B. PROVIDE TRAP PRIMERS IF REQUIRED BY

AUTHORITY HAVING JURISDICTION.

MEMBRANE FLASHING CLAMP, EXTENSION, UNDER

FLANGE, WEEP HOLES, AND ROUND, ADJUSTABLE

PART 1 - GENERAL

ELECTRICALLY CONTINUOUS AND BONDED TO A

GROUNDED ELECTRODE AS DEFINED BY NFPA 70.

AREAS TO MAINTAIN INTEGRITY OF ROOF

E. GROUP PIPING WHEREVER PRACTICAL AT COMMON

CONTRACTION WITHOUT STRESSING PIPE, JOINTS,

STRUCTURE OR EQUIPMENT FOR INSTALLATION OF

INTERFERE WITH USE OF SPACE.

OR CONNECTED EQUIPMENT.

ARE NOT EXPOSED.

ASSEMBLY.

COMPANIES.

B. PROVIDE NON-CONDUCTING DIELECTRIC

- 2.4 CLEANOUTS
- ASSEMBLY, GASKETED BRONZE COVER.

DRAWINGS

- A. MANUFACTURER/MODEL: REFER TO SCHEDULE ON
- 2.5 HOSE BIBS

A. INTERIOR:

 BRONZE OR BRASS, WALL MOUNTED, REPLACEABLE HEXAGONAL DISC. HOSE THREAD SPOUT, CHROME PLATED WHERE EXPOSED. LOCK SHIELD. REMOVABLE KEY

AND INTEGRAL VACUUM BREAKER IN

CONFORMANCE WITH ASSE 1011.

- B. INTERIOR MIXING:
- . BRONZE OR BRASS, WALL MOUNTED, DOUBLE SERVICE FAUCET, HOSE THREAD SPOUT, CHROME PLATED WHERE EXPOSED, INTEGRAL STOPS, LOCK SHIELD, REMOVABLE KEY, AND INTEGRAL VACUUM BREAKER IN

CONFORMANCE WITH ASSE 1011.

- 2.6 HYDRANTS
- A. WALL HYDRANT: 1. ASSE 1019; NON-FREEZE, SELF-DRAINING TYPE

WITH CHROME PLATED, LOCKABLE RECESSED

- BOX, HOSE THREAD SPOUT. 2.7 BACKFLOW PREVENTERS
- A. REDUCED PRESSURE BACKFLOW PREVENTERS:
- 1. MANUFACTURER/MODEL: REFER TO SCHEDULE ON DRAWINGS. 2. ASSE 1013; BRONZE BODY WITH BRONZE INTERNAL PARTS, STAINLESS STEEL SPRINGS TWO INDEPENDENTLY OPERATING SPRING LOADED CHECK VALVES, DIAPHRAGM TYPE DIFFERENTIAL PRESSURE RELIEF VALVE LOCATED BETWEEN CHECK VALVES. THIRD CHECK VALVE THAT OPENS UNDER BACK PRESSURE IN CASE OF DIAPHRAGM FAILURE NON-THREADED VENT OUTLET, ASSEMBLED
- FOUR TEST COCKS.
- 1. MANUFACTURER/MODEL: REFER TO SCHEDULE ON DRAWINGS.

B. DOUBLE CHECK VALVE BACKFLOW PREVENTERS:

WITH TWO GATE VALVES, STRAINER, AND

2. ASSE 1012; BRONZE BODY, CORROSION RESISTANT INTERNAL PARTS, STAINLESS STEEL SPRINGS, TWO INDEPENDENTLY OPERATING CHECK VALVES WITH

INTERMEDIATE ATMOSPHERIC VENT

APPROVED TO ASSE 1052.

 HOSE CONNECTIONS: 1.1. PREVENTER CONFORMING AND

2.8 WATER HAMMER ARRESTERS

2.9 WATER PRESSURE REDUCING VALVES

C. SPECIAL PURPOSE PREVENTERS:

- A. ASSE1010; STAINLESS STEEL CONSTRUCTION, BELLOWS TYPE SIZED IN ACCORDANCE WITH PD WH201, PRE-CHARGED SUITABLE FOR OPERATION IN TEMPERATURE RANGE -100° F TO 300° F AND MAXIMUM 150 PSI WORKING PRESSURE.
- A. ASSE 1003; BALANCED PISTON DESIGN, CAST BRONZE BODY WITH ACCESS COVERS, STAINLESS
- PART 3 EXECUTION 3.1 INSTALLATION

STEEL SCREEN, AND ADJUSTABLE DOWNSTREAM

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. B. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH MIXTURE OF GRAPHITE AND LINSEED

OIL. ENSURE CLEARANCE AT CLEANOUT FOR

RODDING OF DRAINAGE SYSTEM.

FLUSH WITH GRADE.

D. INSTALL FLOOR CLEANOUTS AT ELEVATION TO ACCOMMODATE FINISHED FLOOR. INSTALL WITH DOUBLE EIGHTH BENDS IN SEWER LINE.

E. INSTALL APPROVED POTABLE WATER PROTECTION

CONTAMINATION OF DOMESTIC WATER MAY

DEVICES ON PLUMBING LINES WHERE

C. ENCASE EXTERIOR CLEANOUTS IN CONCRETE

OCCUR. F. PIPE RELIEF FROM BACKFLOW PREVENTER TO NEAREST DRAIN.

G. INSTALL WATER HAMMER ARRESTORS COMPLETE

WITH ACCESSIBLE ISOLATION VALVE ON HOT AND

SECTION 22 42 13

H. PROVIDE AUTOMATIC TRAP PRIMERS WHERE REQUIRED BY THE AUTHORITY HAVING

COLD WATER SUPPLY PIPING.

JURISDICTION.

PART 1 - GENERAL A. ASME A112.6.3; PVC BODY WITH DOUBLE DRAINAGE

END OF SECTION

PLUMBING FIXTURES

A. WATER CLOSETS.

B. URINALS.

C. LAVATORIES.

1.1 SECTION INCLUDES

- D. SINKS. E. SERVICE SINKS.
  - F. ELECTRIC WATER COOLERS.
  - 1.2 REGULATORY REQUIREMENTS

PRODUCTS.

- A. INSTALL FIXTURES IN ACCORDANCE WITH
- AMERICANS WITH DISABILITIES ACT WHERE INDICATED.
- B. PRODUCTS REQUIRING ELECTRICAL CONNECTIONS: LISTED AND CLASSIFIED BY UNDERWRITER LABORATORIES INC. AS SUITABLE

FOR THE PURPOSE SPECIFIED AND INDICATED.

- 1.3 DELIVERY, STORAGE, AND PROTECTION
  - A. TRANSPORT, HANDLE, STORE, AND PROTECT
- B. ACCEPT FIXTURES ON SITE IN FACTORY
- C. PROTECT INSTALLED FIXTURES FROM DAMAGE BY SECURING AREA AND BY LEAVING FACTORY

PACKAGING IN PLACE TO PREVENT USE.

PACKAGING. INSPECT FOR DAMAGE.

- 1.4 WARRANTY
- A. PROVIDE FIVE-YEAR MANUFACTURER WARRANTY

FOR ELECTRIC WATER COOLER.

- PART 2 PRODUCTS REFER TO DRAWINGS
- PART 3 EXECUTION
- 3.1 EXAMINATION A. VERIFY THAT WALLS AND FLOOR FINISHES ARE
  - PREPARED AND READY FOR INSTALLATION OF B. VERIFY THAT ELECTRIC POWER IS AVAILABLE WITH
- THE CORRECT CHARACTERISTICS. C. CONFIRM THAT MILLWORK IS CONSTRUCTED WITH ADEQUATE PROVISION FOR THE INSTALLATION OF
- 3.2 INSTALLATION
- A. INSTALL EACH FIXTURE WITH TRAP, EASILY REMOVABLE FOR SERVICING AND CLEANING.

COUNTER TOP LAVATORIES AND SINKS.

B. PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO FIXTURES WITH WHEEL STOPS, REDUCERS, ESCUTCHEONS.

C. INSTALL COMPONENTS LEVEL AND PLUMB.

WALL SUPPORTS AND BOLTS. E. SEAL FIXTURES TO WALL AND FLOOR SURFACES

F. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH

AND SIZE OF FIXTURES AND OPENINGS BEFORE

SECTION 22 33 00

A. CLEAN PLUMBING FIXTURES AND EQUIPMENT.

D. INSTALL AND SECURE FIXTURES IN PLACE WITH

WITH SEALANT, COLOR TO MATCH FIXTURE.

- LAG SCREWS. LEAD FLASHING IS NOT INTENDED TO HOLD FIXTURE IN PLACE.
- 3.3 INTERFACE WITH OTHER PRODUCTS A. REVIEW MILLWORK AND OWNER PROVIDED FIXTURE SHOP DRAWINGS. CONFIRM LOCATION

ROUGH-IN AND INSTALLATION.

- 3.4 CLEANING
- END OF SECTION

PLUMBING WATER HEATERS

A. WATER HEATERS.

1.2 QUALITY ASSURANCE

1.1 SECTION INCLUDES

PART 1 - GENERAL

A. ENSURE PRODUCTS AND INSTALLATION OF SPECIFIED PRODUCTS ARE IN ACCORDANCE WITH RECOMMENDATIONS AND REQUIREMENTS OF THE

1. NATIONAL SANITATION FOUNDATION (NSF).

2. NATIONAL ELECTRICAL MANUFACTURER'S

ASSOCIATION (NEMA). 3. UNDERWRITERS LABORATORIES INC. (UL).

1.3 DELIVERY, STORAGE, AND PROTECTION

FOLLOWING ORGANIZATIONS:

A. TRANSPORT, HANDLE, STORE, AND PROTECT PRODUCTS. B. PROVIDE TEMPORARY INLET AND OUTLET CAPS.

MAINTAIN CAPS IN PLACE UNTIL INSPECTION.

A. PROVIDE FIVE-YEAR MANUFACTURER WARRANTY

C. ACCEPT FIXTURES ON SITE IN FACTORY

PACKAGING. INSPECT FOR DAMAGE.

1.4 WARRANTY

PART 2 -

ELECTRIC WATER HEATERS

A. TYPE: FACTORY ASSEMBLED AND WIRED

FOR WATER HEATERS.

PRODUCTS

AUTOMATIC, ELECTRIC HEATER WITH VERTICAL GLASS LINED AND INSULATED STORAGE TANK AND MAGNESIUM ANODES FOR CORROSION PROTECTION.

- B. REFER TO DRAWINGS FOR ELECTRICAL CHARACTERISTICS, CAPACITY, HEATING ELEMENT SIZE, AND ACCESSORIES.
- C. HEATER SHALL BE SUITABLE FOR A MAXIMUM CHECKED BY WORKING PRESSURE OF 150 PSIG. HEATER SHALL APPROVED BY BE UL LISTED AND LABELED, MEET THE EFFICIENCY REQUIREMENTS OF ASHRAE 90.1, AND BE CERTIFIED BY THE CALIFORNIA ENERGY
- D. RELIEF VALVE: ASME AND/OR AGA RATED PRESSURE AND TEMPERATURE SAFETY RELIEF

VALVE, PIPED FULL SIZE TO APPROVED RECEPTOR.

PART 3 - EXECUTION

REQUIREMENTS.

COMMISSION.

- 3.1 INSTALLATION A. INSTALL WATER HEATERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND TO UL
- B. PROVIDE ALL REQUIRED PIPING AND VALVES. C. DOMESTIC HOT WATER DISCHARGE TEMPERATURE
- SHALL BE SET AT 110° F. END OF SECTION 22 33 00

NOTICE

DRAWN BY

ISSUE DATE

# DATE

# DATE

07/12/22

NWO

07/12/2022

ISSUE

DESCRIPTION

PERMIT SET

DESCRIPTION

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JASON EDWARD CHRISTOFF

JASON E. CHRISTOFF No. 6201061051 EXP. DATE: 03/17/2023

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