

CRUMBL COOKIES - FORD RD

42049 FORD RD
CANTON, MICHIGAN 48187

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DESIGN CRITERIA

APPLICABLE CODE:
 2015 MICHIGAN BUILDING CODE (I.B.C.)
 2015 INTERNATIONAL MECHANICAL CODE
 2015 INTERNATIONAL PLUMBING CODE
 2015 INTERNATIONAL FIRE CODE
 2015 MICHIGAN ENERGY CODE
 2017 NATIONAL ELECTRIC CODE

ACCESSIBILITY
 I.C.C. A.N.S.I. 117.1 - 2009

SCOPE OF WORK

CONSTRUCTION OF INTERIOR PARTITION WALLS, TRANSACTION COUNTERS AND NEW FINISHES, INSTALLATION OF KITCHEN EQUIPMENT AND MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS AS REQUIRED BY RETAIL BAKERY FUNCTIONS AND APPLICABLE CODES. SCOPE OF WORK TO INCLUDE THE REUSE OR REPLACEMENT OF ELECTRICAL SERVICE PANEL AND EXISTING ROOF TOP UNIT.

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PROJECT INFORMATION

THESE DRAWINGS ARE PART OF A SET OF CONSTRUCTION DOCUMENTS. THE CONSTRUCTION DOCUMENTS CONSIST OF ONE OR MORE OF THE FOLLOWING ELEMENTS:

- CONSTRUCTION DRAWINGS
- SPECIFICATIONS
- STRUCTURAL CALCULATIONS
- CONTRACT FORMS AND CONDITIONS
- ADDENDA
- MODIFICATIONS AND REVISIONS

CONTRACTORS, SUBCONTRACTORS, AND OTHERS WHO PROVIDE LABOR AND/OR MATERIALS REFERENCING THESE DRAWINGS ARE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL CURRENT CONSTRUCTION DOCUMENTS.

CONTRACTORS, SUBCONTRACTORS, AND OTHERS ARE TO REPORT ANY DISCREPANCIES OR ERRORS TO JZW ARCHITECTURE, INC. IMMEDIATELY. ANY CHANGES TO THE PROJECT WILL BE VERIFIED WITH THE OWNER BY THE ARCHITECT AND REVISIONS WILL BE ISSUED BY ARCHITECT. CONTRACTORS ARE NOT TO MAKE ALTERATIONS OF ANY KIND WITHOUT THE PRIOR WRITTEN CONSENT OF ARCHITECT. DISCREPANCIES NOT REPORTED IMMEDIATELY ARE RESPONSIBILITY OF CONTRACTOR.

CONTRACTORS SHALL NOT SCALE FROM DRAWINGS. DIMENSIONS ARE PROVIDED TO ALLOW FOR ACCURATE CONSTRUCTION OF BUILDING. QUESTIONS ARISING FROM DIMENSIONS SHOULD BE RESOLVED BY CONTACTING ARCHITECT.

DEFERRED SUBMITTALS

- FIRE ALARM SYSTEM
- FIRE SPRINKLER SYSTEM

GENERAL PROJECT NOTES

GENERAL PROJECT NOTES

- ALL DIMENSIONS TO NEW WALLS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE. ALL DIMENSIONS TO EXISTING WALLS ARE TO FACE OF FINISH. EXISTING DIMENSIONS WERE PROVIDED BY OWNER. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.
- CONTRACTOR TO VERIFY EXISTING CONDITIONS. DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. CONTRACTOR SHALL SUBMIT SPECIFIC DISCREPANCIES FOR ARCHITECT REVIEW.
- IN ALL AREAS OF CONSTRUCTION, PROTECT ALL EXISTING WALLS, CEILINGS, FLOORING FINISHES, EQUIPMENT, FURNITURE, ACCESSORIES, AND ALL EXISTING BUILDING ELEMENTS TO REMAIN FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING, REPAIR, AND/OR REPLACEMENTS OF ALL SUCH ITEMS AT NO EXPENSE TO OWNER IF DAMAGE OCCURS.

GENERAL FRAMING NOTES

- ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED BY CONTRACTOR PRIOR TO ANY WORK.
- ALL INTERIOR WALLS TO BE 3 5/8" METAL STUDS AT 16" O.C. UNLESS NOTED OTHERWISE. PROVIDE ALL BACKING FOR EQUIPMENT AS REQUIRED.
- ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE NOTED EDITION OF THE INTERNATIONAL BUILDING CODE (I.B.C.), AND LOCAL ORDINANCES.
- ALL STRUCTURAL PLYWOOD SHALL BE STRUCTURAL GRADE I OR STRUCTURAL GRADE II.

GENERAL THERMAL, MOISTURE, AND ACOUSTICAL PROTECTION NOTES

- AIRTIGHT DRYWALL SYSTEMS SHALL BE USED (USE VAPOR BARRIERS AT ALL EXTERIOR WALLS AND CEILINGS).
- SEAL AROUND ALL ELECTRICAL, PLUMBING, OR MECHANICAL PENETRATIONS AT EXTERIOR WALL AND IN CEILING/FLOOR OR CEILING ROOF ASSEMBLIES.
- ALL EXTERIOR WALL INSULATION TO MATCH EXISTING.

GENERAL DOOR NOTES

- COORDINATE WITH OWNER FOR DOOR MANUFACTURER.
- DOORS TO BE SOLID CORE, PAINT GRADE, COLOR TO BE SELECTED BY OWNER.
- DOOR HARDWARE TO BE SELECTED BY OWNER.

GENERAL FINISH NOTES

- ALL INTERIOR WALLS TO BE WRAPPED WITH 5/8" GYPSUM WALL BOARD, TAPED, FILLED, AND FINISHED AS PER ROOM FINISH SCHEDULE AND OWNER.
- SEE FLOOR PLANS AND/OR FINISH SCHEDULE FOR FINISH FLOOR MATERIALS.
- OWNER TO SELECT ALL HARDWARE, FIXTURES, APPLIANCES, ETC. CONTRACTOR TO INSTALL AS PER OWNER.
- ALL SPECIAL ACCESSIBILITY FACILITIES SHALL BE IDENTIFIED WITH APPROPRIATE SIGNAGE.
- IN ALL AREAS SCHEDULED TO RECEIVE NEW WALL FINISH, CLEAN, PATCH, AND REPAIR ALL WALLS IN PREPARATION FOR NEW PAINT OR FINISH. COORDINATE REMOVAL OF EXISTING WALL ITEMS AND ACCESSORIES WITH OWNER.
- AT WALL TRANSITIONS FROM NEW TO EXISTING WALLS, PATCH REPAIR AND/OR REPLACE GYP. BOARD AS REQUIRED TO PROVIDE FLUSH TRANSITION BETWEEN NEW AND EXISTING WALL SURFACES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND LOCATE ELECTRICAL, DATA, AND PHONE RECEPTACLES, SWITCHES, ETC. TO AVOID CASEWORK, DOORS ETC.

GENERAL PLUMBING, ELECTRICAL, EQUIPMENT NOTES

- EXISTING CONDITIONS FOR ALL BUILDING SYSTEMS: PLUMBING, MECHANICAL, ELECTRICAL, SEWER, FIRE PROTECTION, STRUCTURAL, ETC. WERE PROVIDED BY OWNER. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- ALL ELECTRICAL FINISH HARDWARE TO BE SELECTED BY OWNER.
- PROVIDE (2) SEISMIC STRAPS (MIN.) FOR EVERY WATER HEATER.
- IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ASSURE REQUIRED PLUMBING AND ELECTRICAL SERVICE TO ALL FIXTURES AS INDICATED ON PLANS AND AS REQUIRED BY BUILDING CODE AND OWNER.
- THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE WITH ALL TRADES, SIZES, AND LOCATIONS OF ALL OPENINGS FOR MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, EQUIPMENT PADS FOR BASES, AS WELL AS ELECTRIC POWER, WATER AND DRAIN INSTALLATIONS, BEFORE PROCEEDING WITH WORK. CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS FOR PROPER PLACEMENT OF ALL TRADES WORK. ANY CONCERNS, SPACE LIMITATIONS OR STRUCTURAL CONFLICTS, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. A REASONABLE RESPONSE TIME SHALL BE ALLOWED.

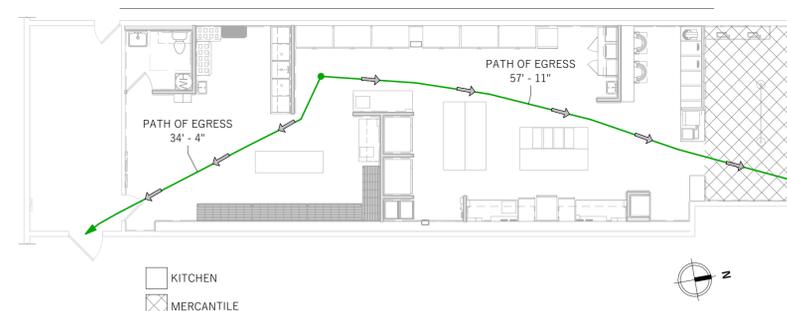
PROJECT LOCATION



PROJECT LOCATION

NOT TO SCALE

EGRESS PLAN



CODE ANALYSIS

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

302 CLASSIFICATION, BUSINESS: GROUP B
 304 BUSINESS GROUP B
 FOOD PROCESSING ESTABLISHMENTS AND COMMERCIAL KITCHENS NOT ASSOCIATED WITH RESTAURANTS, CAFETERIAS AND SIMILAR DINING FACILITIES NOT MORE THAN 2,500 SF IN AREA

CHAPTER 6: TYPES OF CONSTRUCTION

TYPE II-B

CHAPTER 9: FIRE PROTECTION SYSTEMS

903 AUTOMATIC SPRINKLER SYSTEM
 EXISTING: EQUIPPED WITH AUTOMATIC SPRINKLER
 NFPA 13 FIRE SPRINKLER SYSTEM PROVIDED IN BUILDING

CHAPTER 10: MEANS OF EGRESS

1004 OCCUPANT LOAD
 1004.1 DESIGN OCCUPANT LOAD - TABLE 1004.1.2

FUNCTION OF SPACE	LOAD FACTOR	AREA	# OCC.
MERCANTILE:	60 GROSS	231 SF	4
KITCHENS, COMMERCIAL:	200 GROSS	1575 SF	8
OCCUPIED SPACE		1806 SF	12
EMPLOYEE RESTROOM	NA	67 SF	NA
TOTAL AREA		1873 SF	12

1005 MEANS OF EGRESS SIZING

1005.2 MINIMUM WIDTH BASED ON COMPONENT
 MIN 36" PROVIDED

1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS

TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY
 OCCUPANCY 'B'
 OCCUPANT LOAD OF SPACE: <30
 COMMON PATH OF EGRESS TRAVEL DISTANCE W/ FS: <100FT
 ONE EXIT REQUIRED FROM EACH SPACE
 ONE EXIT PROVIDED FROM EACH SPACE

CHAPTER 29: PLUMBING SYSTEMS

2902 MINIMUM PLUMBING FACILITIES
 2902.1 MINIMUM NUMBER OF FIXTURES,
 MINIMUM NUMBER IN TABLE 2902.1
 BUSINESS = 1 PER 25 FOR FIRST 50
 2902.2 SEPARATE FACILITIES.
 EXCEPTION 2: SEPARATE FACILITIES SHALL NOT BE REQUIRED IN STRUCTURES OR TENANT SPACES WITH A TOTAL OCCUPANT LOAD, INCLUDING BOTH EMPLOYEES AND CUSTOMERS, OF 15 OR FEWER.
 2902.3 EMPLOYEE AND PUBLIC TOILET FACILITIES
 EXCEPTION 2: PUBLIC TOILET FACILITIES SHALL NOT BE REQUIRED FOR STRUCTURES AND TENANT SPACES INTENDED FOR QUICK TRANSACTIONS, INCLUDING TAKEOUT, PICKUP AND DROP-OFF, HAVING A PUBLIC ACCESS AREA LESS THAN OR EQUAL TO 300 SF.

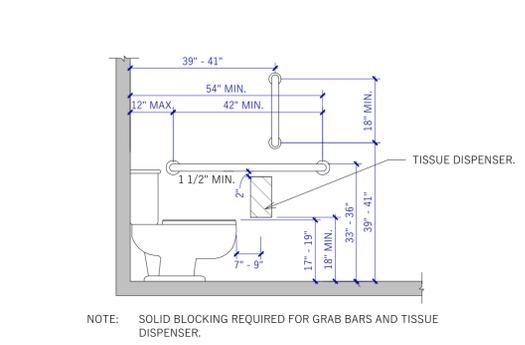
CRUMBL COOKIES - FORD RD



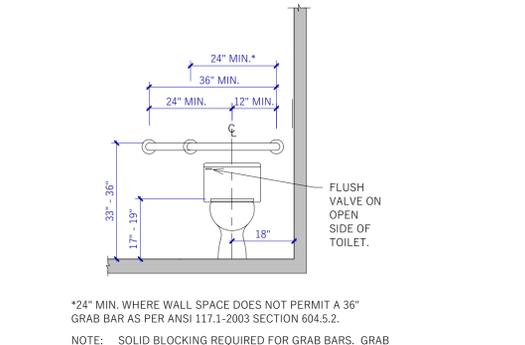
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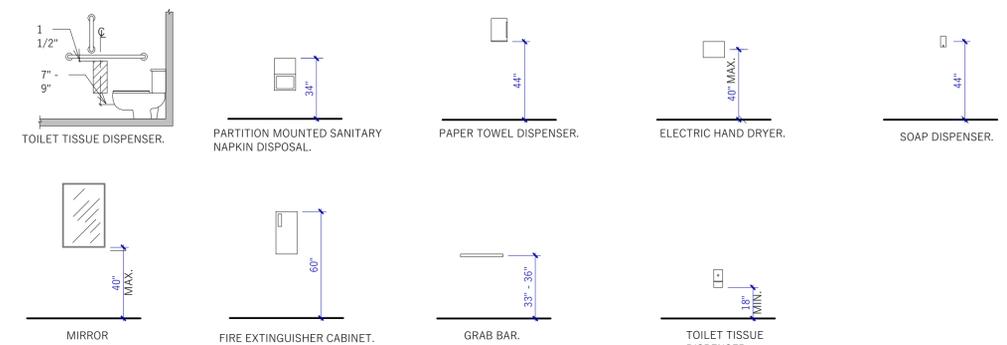
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NOTE: SOLID BLOCKING REQUIRED FOR GRAB BARS AND TISSUE DISPENSER.



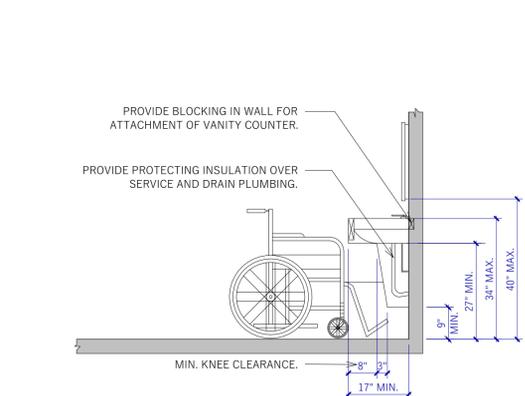
*24" MIN. WHERE WALL SPACE DOES NOT PERMIT A 36" GRAB BAR AS PER ANSI 117.1-2003 SECTION 604.5.2.
NOTE: SOLID BLOCKING REQUIRED FOR GRAB BARS. GRAB BARS TO SUPPORT 250# FORCE



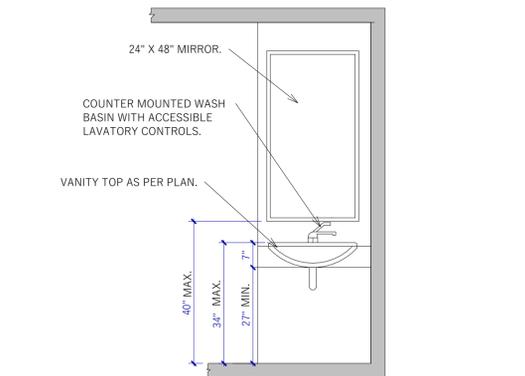
MOUNTING HEIGHTS AND TOILET ROOM ACCESSORIES
1/4" = 1'-0"

1
G1.1 TYPICAL WATER CLOSET - SIDE VIEW
1/2" = 1'-0"

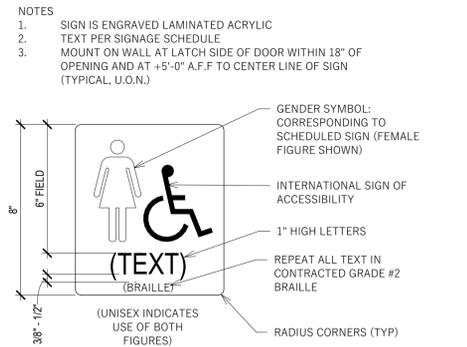
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G1.1 TYPICAL WATER CLOSET - FRONT VIEW
1/2" = 1'-0"



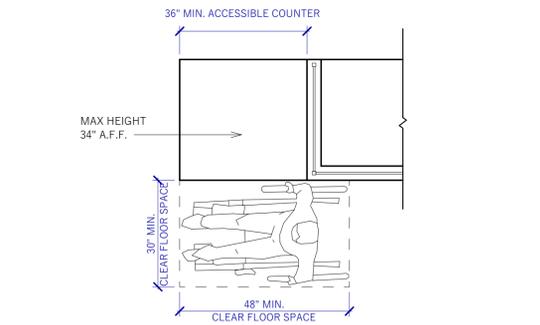
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G1.1 TYPICAL VANITY DETAIL
1/2" = 1'-0"



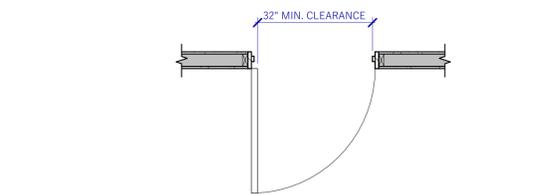
5
G1.1 TYPICAL VANITY ELEVATION
1/2" = 1'-0"



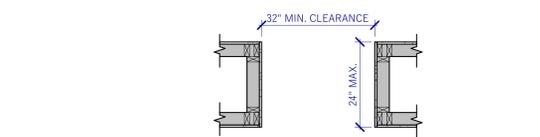
6
G1.1 RESTROOM SIGNAGE
3" = 1'-0"



7
G1.1 SALES AND SERVICE COUNTER DETAIL
1/2" = 1'-0"



8
G1.1 CLEAR DOORWAY WIDTH - HINGED
1/2" = 1'-0"



9
G1.1 CLEAR PASSAGEWAY WIDTH - MAX. DEPTH
1/2" = 1'-0"

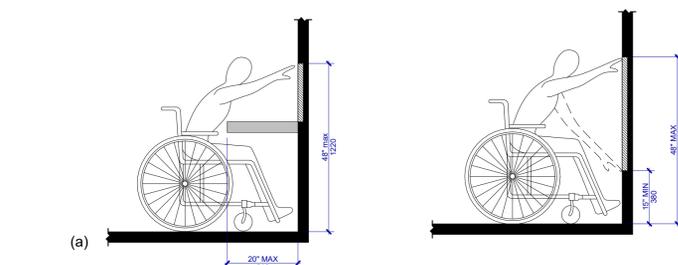


FIG. 308.2.1 UNOBSTRUCTED FORWARD REACH

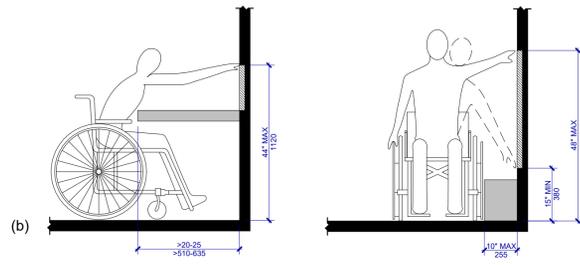


FIG. 308.2.2 OBSTRUCTED HIGH FORWARD REACH

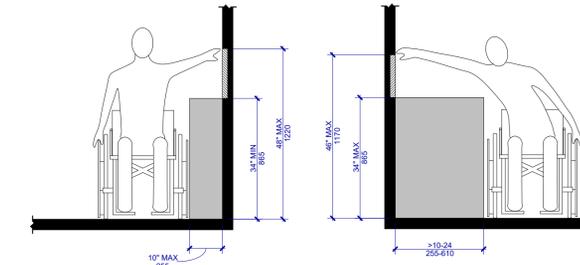


FIG. 308.3.1 UNOBSTRUCTED SIDE REACH

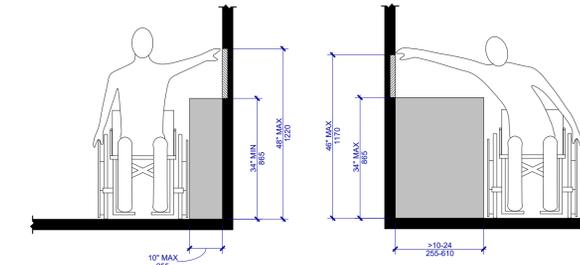


FIG. 308.3.2 OBSTRUCTED HIGH SIDE REACH

10
G1.1 TYPICAL REACH RANGES
1/2" = 1'-0"

No.	Date	Description



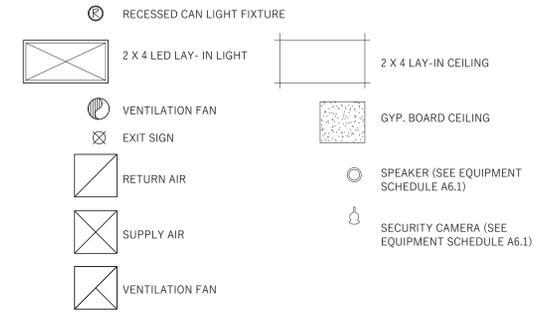
GENERAL NOTES - PLAN

- A COORDINATE ALL MECHANICAL, PLUMBING, & ELEC. DEMOLITION AND/OR REUSE W/OWNER.
- B CONTRACTOR TO DISPOSE ALL DEMOLITION ITEMS AS PER LOCAL CODES & REGULATIONS.
- C UNKNOWN CONDITIONS MAY EXIST. DEMOLITION SHALL BE DONE W/ CARE TO ENSURE THAT THERE IS NO DAMAGE TO UNSEEN COMPONENTS OR MATERIALS THAT MAY NEED TO REMAIN OR BE RELOCATED.
- D ANY PENETRATIONS THROUGH CONCRETE FLOOR SLABS, CONCRETE WALLS, OR CONCRETE COLUMNS WILL NEED TO BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING, PRIOR TO COMMENCING WORK.
- E PROVIDE BLOCKING, WHERE APPLIES, IN NEW AND EXISTING WALLS AS NEEDED FOR NEW MILLWORK (COORDINATE WITH MILLWORK CONTRACTORS).
- F FIELD VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- G ALL DIMENSIONS FROM EXISTING WALLS ARE FROM EDGE OF EXISTING WALL FINISH.
- H ALL DIMENSIONS FROM NEW WALLS ARE MEASURED TO EDGE OF STUD.
- I SEE SHEET A 6.1 FOR EQUIPMENT AND A6.4 FOR FINISH INFORMATION.
- J ALL EXISTING WALL, FLOOR, AND CEILING FINISHES TO BE REMOVED DURING DEMOLITION UNLESS NOTED OTHERWISE.
- K DESIRED CEILING HEIGHT TO BE AS HIGH AS POSSIBLE IF NOT ABLE TO BE PLACED AT 12'-0" AFF AS REQUIRED. GENERAL CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.

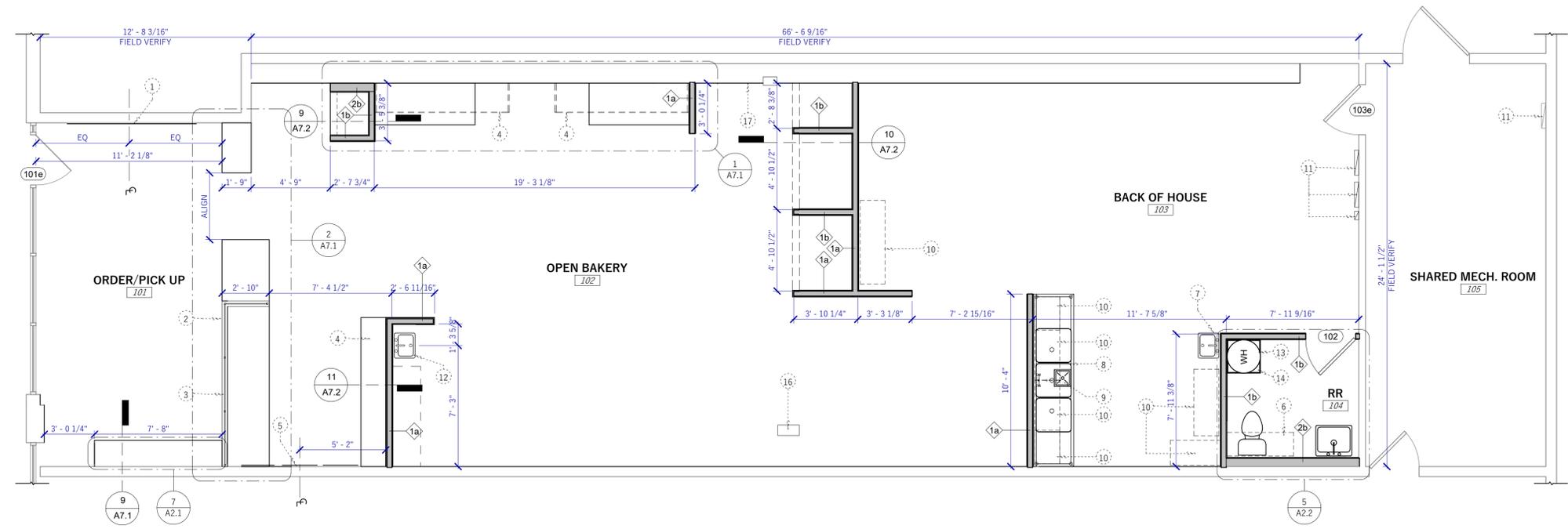
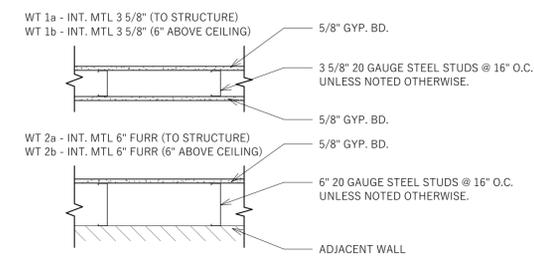
KEYED NOTES

- 1 BAKERHEAD LOGO SIGN, DIMENSIONED TO CENTER LINE. SEE DETAILS FOR SIGNAGE INSTALLATION.
- 2 FRAMED WALL AT REAR OF CABINETS. SEE DETAILS ON SHEET A7.1
- 3 SNEEZE GUARD
- 4 SOLID SURFACE FLOATING SHELF, SEE DETAILS
- 5 COOKIE SIGNAGE DIMENSIONED FROM FINISHED WALL FACE TO CENTER LINE. SEE DETAILS FOR SIGNAGE INSTALLATION.
- 6 18" WIRE MOUNTED STORAGE SHELVING ABOVE TOILET WITH 6" - 8" CLEAR BELOW. PROVIDE CONTINUOUS PLYWOOD BACKING BEHIND SHEETROCK. SEE DETAILS.
- 7 ALIGN SIDE SPLASH OF HAND SINK WITH END OF WALL
- 8 NEW 3-COMPARTMENT SINK
- 9 FLOOR SINK, COORDINATE WITH PLUMBING
- 10 18" WIRE WALL MOUNTED STORAGE SHELVING. CONTINUOUS PLYWOOD BACKING BEHIND SHEETROCK. SEE DETAILS.
- 11 SEE ELECTRICAL PLANS FOR EQUIPMENT INFORMATION.
- 12 NEW HAND SINK
- 13 NEW WATER HEATER.
- 14 NEW MOP SINK
- 15 UNDERSHELF LIGHTING, SEE DETAIL 5/A2.1
- 16 EXISTING STRUCTURE
- 17 FIRE EXTINGUISHER.

SYMBOL LEGEND

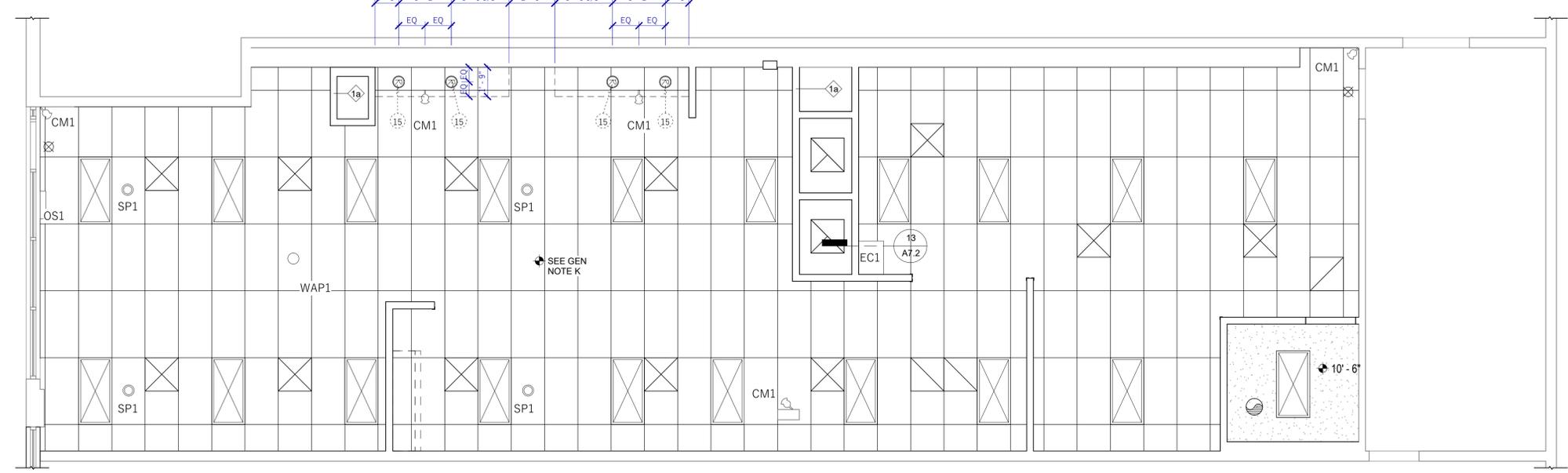


WALL TYPES



MAIN FLOOR PLAN

1/4" = 1'-0"



REFLECTED CEILING PLAN

1/4" = 1'-0"

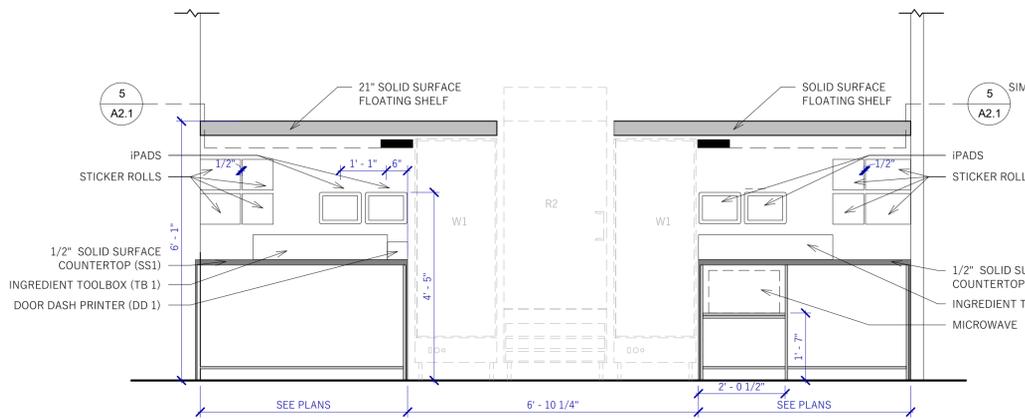
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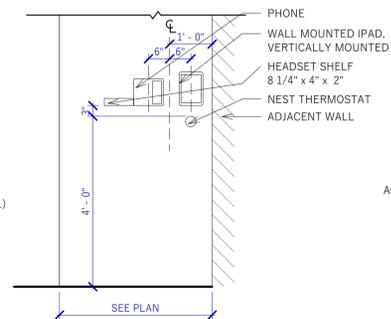
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INTERIOR
ELEVATIONS

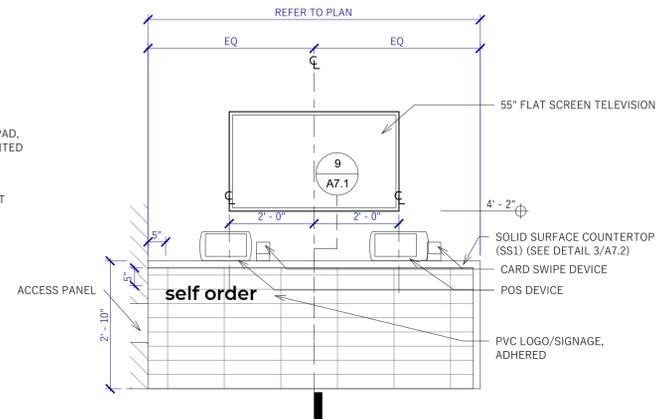
A2.1



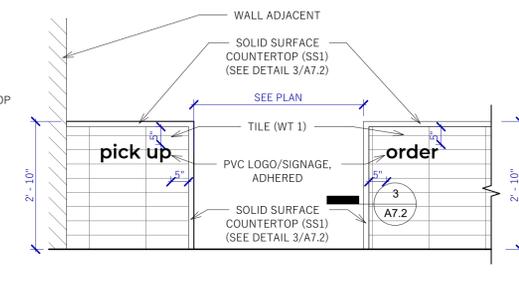
1
A2.1 **DRESSING STATIONS**
1/2" = 1'-0"



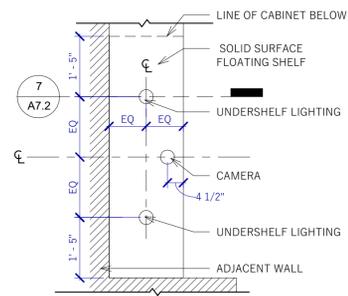
2
A2.1 **NEST/PHONE/IPAD @ PICK UP**
1/2" = 1'-0"



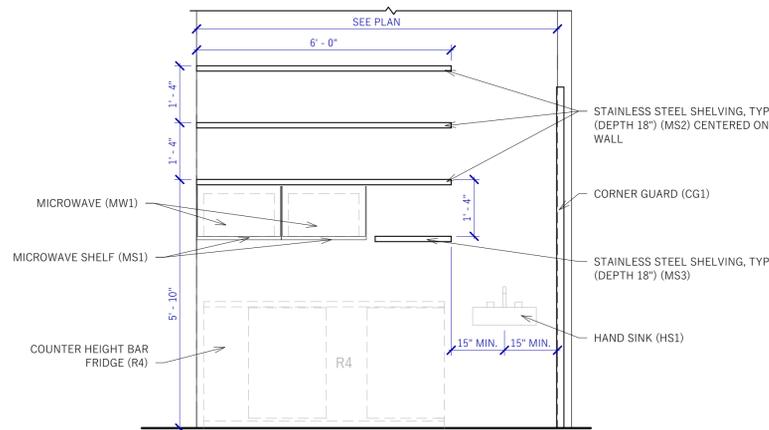
3
A2.1 **SELF ORDERING STATION**
1/2" = 1'-0"



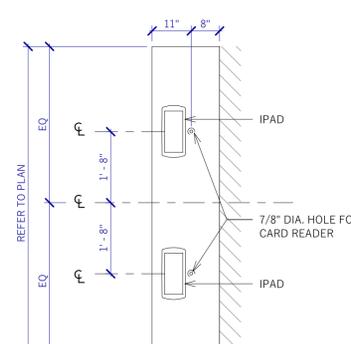
4
A2.1 **PICK UP COUNTER**
1/2" = 1'-0"



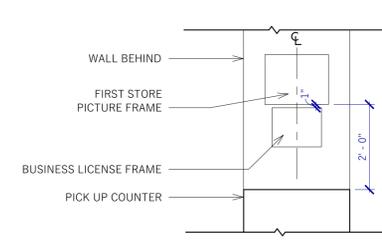
5
A2.1 **CAMERA LOCATION @ FLOATING SHELF @ BOXING STATION**
1/2" = 1'-0"



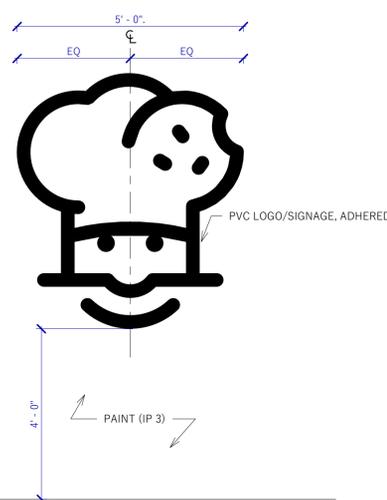
6
A2.1 **FRIDGE @ MIXER WALL**
1/2" = 1'-0"



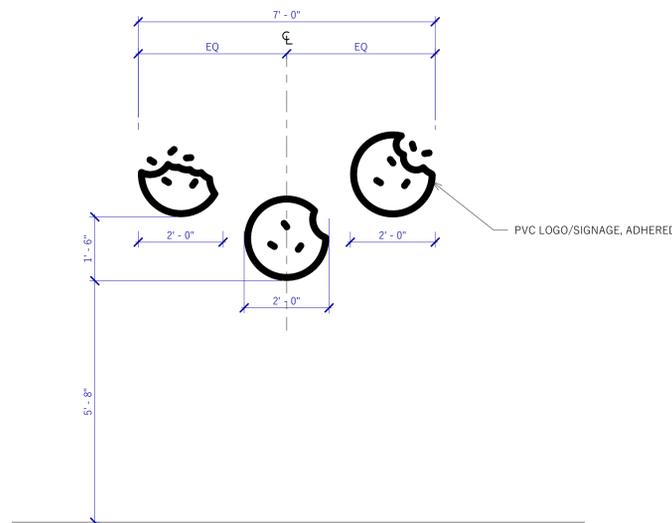
7
A2.1 **ORDERING STATION GROMMET LOCATION**
1/2" = 1'-0"



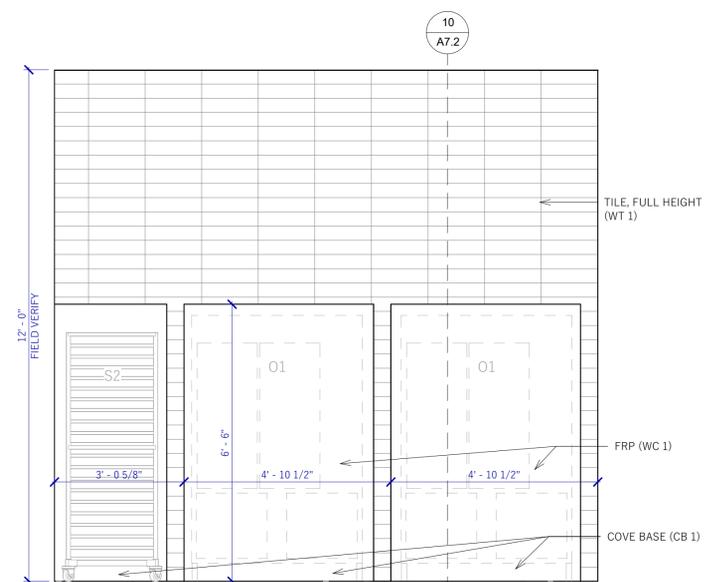
8
A2.1 **FIRST STORE/BUSINESS LICENSE FRAMES @ PICK UP**
1/2" = 1'-0"



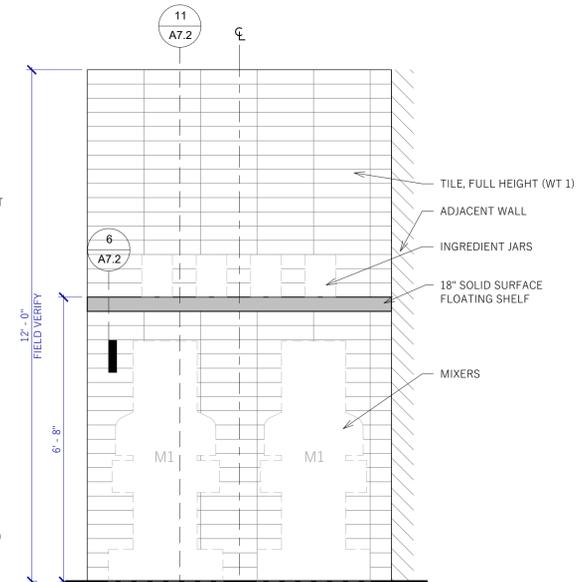
9
A2.1 **BAKER HEAD LOGO**
1/2" = 1'-0"



10
A2.1 **COOKIES LOGO**
1/2" = 1'-0"



11
A2.1 **OVEN WALL ELEVATION**
1/2" = 1'-0"



12
A2.1 **MIXER WALL ELEVATION**
1/2" = 1'-0"

No.	Date	Description

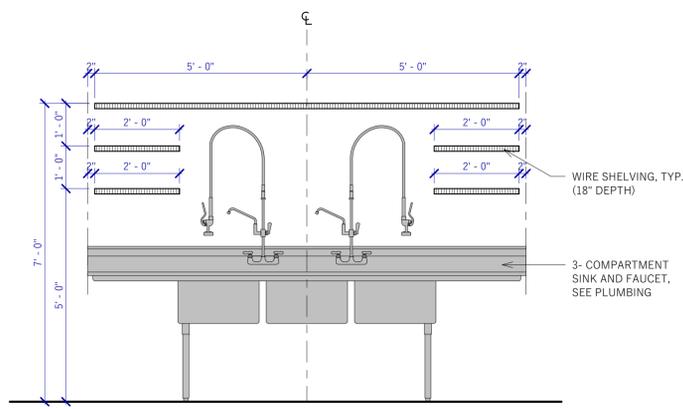
CONSULTANT

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CANTON, MICHIGAN 48187

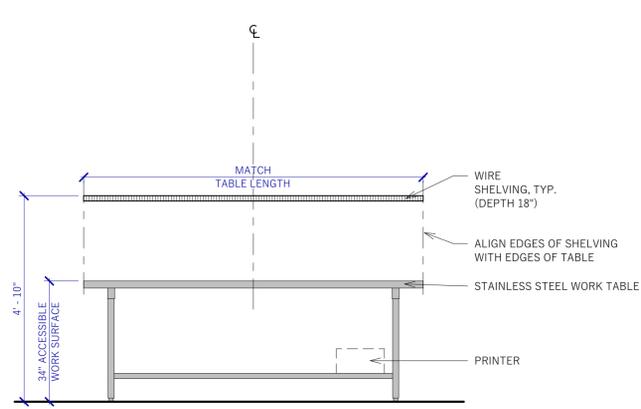


INTERIOR
ELEVATIONS

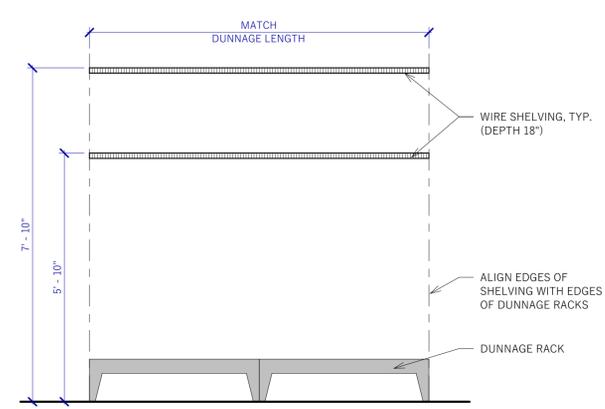
A2.2



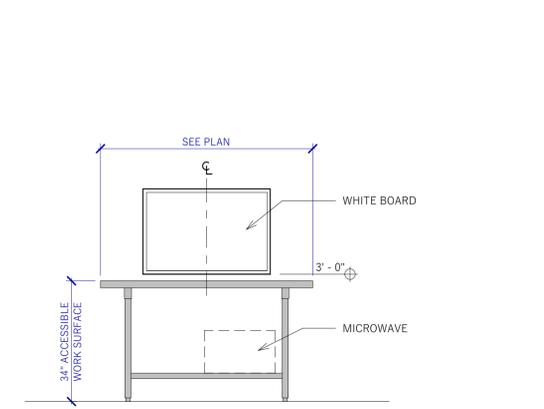
1
A2.2 **3 COMPARTMENT SINK AND SHELVING**
1/2" = 1'-0"



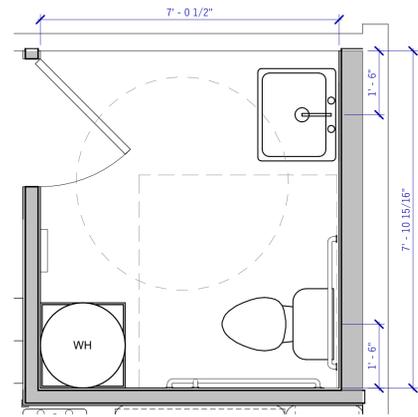
2
A2.2 **BOXING SHELVING @ BACK OF HOUSE**
1/2" = 1'-0"



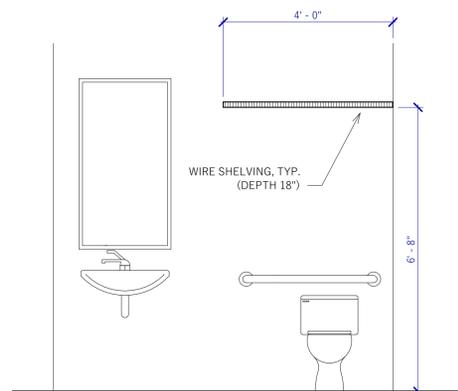
3
A2.2 **DUNNAGE SHELVING**
1/2" = 1'-0"



4
A2.2 **WHITE BOARD @ BACK OF HOUSE**
1/2" = 1'-0"



5
A2.2 **ENLARGED BATHROOM**
1/2" = 1'-0"



6
A2.2 **BATHROOM SHELVING**
1/2" = 1'-0"

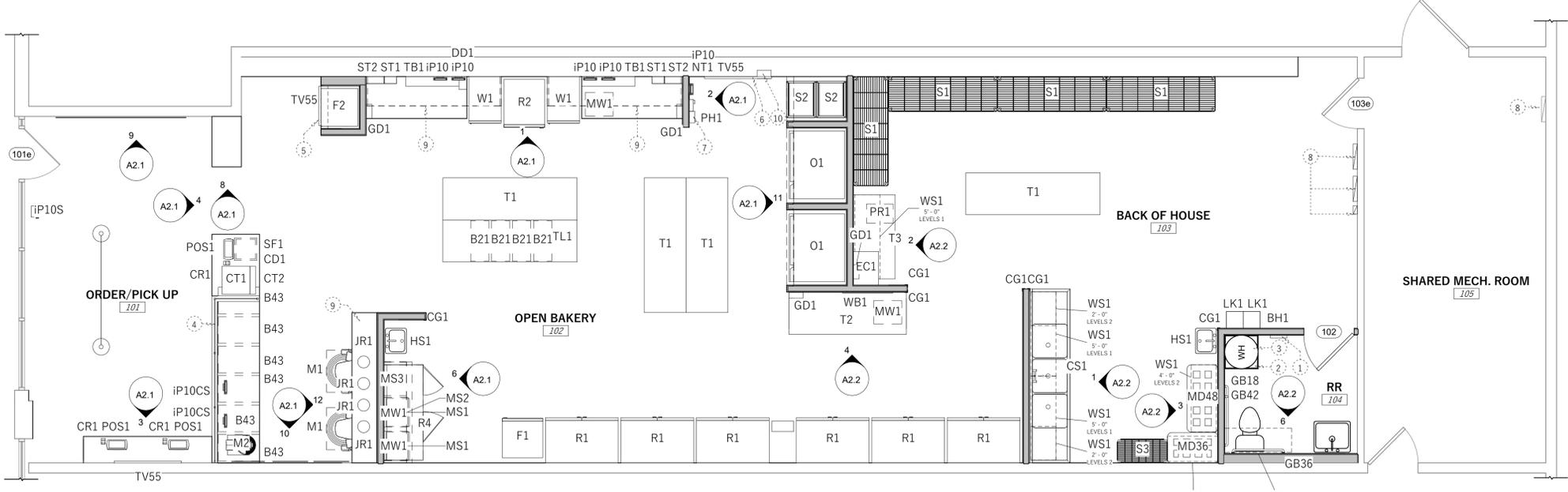
WIRE SHELVING SCHEDULE						
ITEM NUMBER	LINEAR FEET	DESCRIPTION	DIMENSIONS	PROVIDER	INSTALLER	ADDITIONAL NOTES
WS1	41' - 0"	STAINLESS STEEL WIRE SHELVING	18" D	GC	GC	CONTACT LENNY AT LDOUGLAS@BARGREEN.COM

KEYED NOTES	
1	WALL MOUNTED MOP HANGER.
2	NEW MOP SINK
3	NEW WATER HEATER.
4	SNEEZE GUARD
5	TV MOUNTED VERTICALLY CENTERED BETWEEN WALL OPENING AND CEILING
6	55" WALL MOUNTED TELEVISION, BOTTOM OF TV AT 6'-6"
7	HEADSET SHELF. SEE DETAIL ON A2.1
8	SEE ELECTRICAL PLANS FOR EQUIPMENT INFORMATION.
9	SOLID SURFACE FLOATING SHELF, SEE DETAILS
10	FIRE EXTINGUISHER.

EQUIPMENT/FIXTURE SCHEDULE						
ITEM NUMBER	QTY	DESCRIPTION	DIMENSIONS	PROVIDER	INSTALLER	ADDITIONAL NOTES
B21	4	21 GALLON INGREDIENT BIN	SEE BUILD OUT GUIDE	OWNER	OWNER	
B43	6	43 GALLON INGREDIENT BIN	SEE BUILD OUT GUIDE	OWNER	OWNER	
BH1	1	BROOM HANGER	SEE EQUIPMENT GUIDE	OWNER	GC	
CD1	1	CASH DRAWER	SEE EQUIPMENT GUIDE	OWNER	OWNER	
CM1	5	SECURITY CAMERA	SEE EQUIPMENT GUIDE	OWNER	GC	POWER OVER ETHERNET 802.3af
CR1	3	CARD READER	8 3/4" L X 5" D X 8 5/8" H	OWNER	GC	
CS1	1	STAINLESS STEEL THREE COMPARTMENT SINK	SEE PLUMBING FIXTURE SCHEDULE	GC	GC	SEE PLUMBING FIXTURE SCHEDULE
CT1	1	COOKIE TRAY	SEE DETAILS	OWNER	OWNER	
CT2	1	SMALL COOKIE TRAY	SEE DETAILS	OWNER	OWNER	
DD1	1	DOOR DASH LABEL PRINTER	5.7" L X 9.2" D X 5" H	OWNER	OWNER	
EC1	1	EQUIPMENT CABINET	SEE BUILD OUT GUIDE	OWNER	GC	MUSIC RECEIVER, INTERNET MODEM, CLOUD COVER MUSIC BOX, CAMERA CONTROLLER
F1	1	REACH-IN FREEZER	29" L X 25 1/2" D X 82 1/2" H	OWNER	GC	
F2	1	GLASS DOOR FREEZER	27 1/8" L X 26 1/4" D X 85 3/8" H	OWNER	GC	
GB18	1	BOBRICK STAINLESS STEEL GRAB BAR	18" L X 1 1/2" DIA.	GC	GC	SEE G1.1 FOR GRAB BAR INSTALLATION
GB36	1	BOBRICK STAINLESS STEEL GRAB BAR	36" L X 1 1/2" DIA.	GC	GC	SEE G1.1 FOR GRAB BAR INSTALLATION
GB42	1	BOBRICK STAINLESS STEEL GRAB BAR	42" L X 1 1/2" DIA.	GC	GC	SEE G1.1 FOR GRAB BAR INSTALLATION
GD1	4	GLOVE DISPENSER	9" L X 3" D X 18" H	OWNER	GC	
HS1	2	STAINLESS STEEL HAND SINK	SEE PLUMBING FIXTURE SCHEDULE	GC	GC	SEE PLUMBING FIXTURE SCHEDULE
IP10	5	10.2 INCH WALL MOUNTED IPAD	SEE BUILD OUT GUIDE	OWNER	GC	
IP10CS	2	10.2 INCH COUNTER STAND	SEE BUILD OUT GUIDE	OWNER	GC	
IP10S	1	10.2 INCH IPAD ON INDEPENDENT STAND	SEE BUILD OUT GUIDE	OWNER	GC	
JR1	4	INGREDIENT JAR	SEE BUILD OUT GUIDE	OWNER	OWNER	
LK1	2	EMPLOYEE LOCKERS	SEE BUILD OUT GUIDE	OWNER	OWNER	
M1	2	HOBART LEGACY HL600-1 MIXER	31" L X 47" D X 61" H	OWNER	GC	
M2	1	AVANTCO PLANETARY STAND MIXER (20 QT)	17 1/8" W X 21" D X 30 1/2" H	OWNER	GC	
MD36	1	DUNNAGE RACK	36" L X 22" D X 12" H	OWNER	GC	
MD48	1	DUNNAGE RACK	48" L X 22" D X 12" H	OWNER	GC	
MS1	2	REGENCY STAINLESS STEEL MICROWAVE SHELF	24" L X 18" D	GC	GC	LOCATE ON WEBSAURANTSTORE.COM, MODEL #600MS1824
MS2	3	STAINLESS STEEL WALL SHELF	72" L X 16" D	GC	GC	CONTACT LENNY AT LDOUGLAS@BARGREEN.COM
MS3	1	STAINLESS STEEL SHELF	24" L X 16" D	GC	GC	CONTACT LENNY AT LDOUGLAS@BARGREEN.COM
MW1	4	1000W COMMERCIAL MICROWAVE	20" L X 18.5" D X 12" H	OWNER	GC	
NT1	1	NEST THERMOSTAT	SEE BUILD OUT GUIDE	OWNER	GC	MOUNT @ 48" A.F.F. MAX
O1	2	BLODGETT XR8-E	48 1/4" L X 45" D X 75" H	OWNER	GC	
OS1	1	OPEN SIGN	SEE EQUIPMENT GUIDE	OWNER	GC	
PH1	1	PHONE	SEE EQUIPMENT GUIDE	OWNER	GC	POWER OVER ETHERNET 802.3af
POS1	3	STRIPE REGISTER KIT	SEE BUILD OUT GUIDE	OWNER	GC	
PR1	1	PRINTER	SEE EQUIPMENT GUIDE	OWNER	OWNER	
R1	6	REACH-IN REFRIGERATOR	54" L X 33 1/4" D X 82 1/2" H	OWNER	GC	
R2	1	REACH-IN REFRIGERATOR	29" L X 32 1/4" D X 82 1/2" H	OWNER	GC	
R4	1	Counter Height Solid Door Back Bar Refrigerator	68" L X 28" D X 40" H	OWNER	GC	
S1	4	STAINLESS STEEL 4-LEVEL STEEL STORAGE RACK	SEE EQUIPMENT GUIDE	OWNER	OWNER	
S2	2	BUN PAN/SHEET PAN RACKS	26" L X 20" D X 70" H	OWNER	OWNER	
S3	1	5 SHELF STORAGE UNIT	SEE EQUIPMENT GUIDE	OWNER	OWNER	
SF1	1	SAFE	SEE EQUIPMENT GUIDE	OWNER	GC	
SP1	4	SPEAKER	SEE BUILD OUT GUIDE	GC	GC	AMAZON BASICS 16 GAUGE AUDIO STEREO SPEAKER WIRE
ST1	4	SMALL STICKER ROLL	8 3/4" L X 5" D X 8 5/8" H	OWNER	GC	
ST2	4	LARGE STICKER ROLL	12 3/4" L X 5" D X 8 5/8" H	OWNER	GC	
T1	4	STAINLESS STEEL WORK TABLE	96" L X 30" D X 34" H	OWNER	OWNER	
T2	1	STAINLESS STEEL WORK TABLE	84" L X 30" D X 34" H	OWNER	OWNER	
T3	1	STAINLESS STEEL WORK TABLE	60" L X 30" D X 34" H	OWNER	OWNER	
TB1	2	BOXING STATION TOOL BOX	38" L X 7" D X 7" H	OWNER	OWNER	
TL1	1	18 GAUGE STAINLESS STEEL WORK TABLE W/ UNDERSHELF	96" L X 30" W X 34" H W/ 90" L X 24" W UNDERSHELF	OWNER	GC	UNDERSHELF MODEL #600UT3072S
TV55	3	55 INCH FLAT SCREEN TELEVISION	<varies>	OWNER	GC	
W1	2	WARMING CABINET	23 1/8" L X 33 3/16" D X 66 1/2" H	OWNER	GC	
WAP1	1	WIFI ACCESS POINT	SEE EQUIPMENT GUIDE	OWNER	GC	POWER OVER ETHERNET 802.3af
WB1	1	WHITE BOARD	SEE EQUIPMENT GUIDE	OWNER	GC	

NOTE: SEE PLANS FOR PLACEMENT OF ALL EQUIPMENT AND FIXTURES.

NOTE: SEE CORPORATE BUILD OUT GUIDE



1
A6.1
EQUIPMENT/FIXTURE PLAN
1/4" = 1'-0"

PROJECT NUMBER
21-418

ISSUE DATE:
MARCH 07, 2022

REVISIONS:

No.	Date	Description

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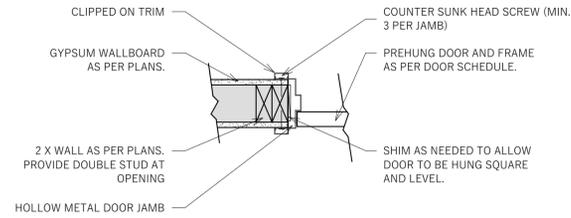
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RD
 42049 FORD RD
 CANTON, MICHIGAN 48187



EQUIPMENT PLAN
AND SCHEDULES

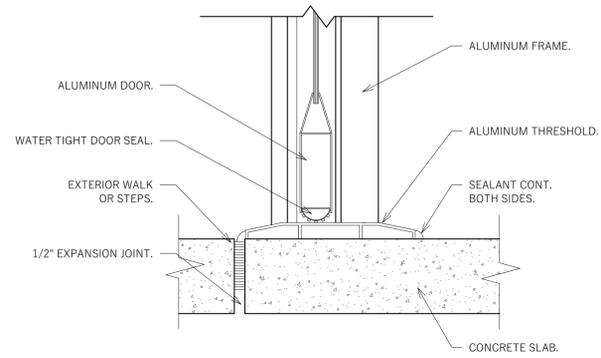
A6.1





INTERIOR DOOR JAMB AND NON-BEARING HEAD HOLLOW METAL

1
A6.2
1 1/2" = 1'-0"

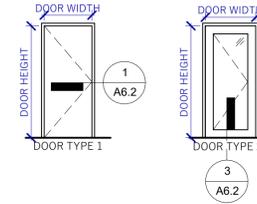


ALUMINUM THRESHOLD

3
A6.2
1 1/2" = 1'-0"

DOOR SCHEDULE									
DOOR #	WIDTH	HEIGHT	DOOR		FRAME		DOOR TYPE	HARDWARE GROUP	REMARKS
			MATERIAL	FINISH	MATERIAL	FINISH			
101e	3' - 0"	7' - 11"	METAL	MANUF	METAL	MANUF	2	--	EXISTING, ENSURE COMPLIANCE TO ANSI 117.1 2009
102	3' - 0"	7' - 0"	WOOD	PAINT	METAL	PAINT	1	1	
103e	3' - 0"	7' - 0"	WOOD	PAINT	METAL	PAINT	1	--	EXISTING, ENSURE COMPLIANCE TO ANSI 117.1 2009

NOTE: OWNER TO SELECT DOOR MANUFACTURER.



DOOR HARDWARE:

- 1. PRIVACY LOCKSET
- WALL BUMPER
- CLOSER
- SOUND SEAL

NOTE: ALL DOOR HARDWARE TO BE LEVER TYPE HARDWARE AS PER ANSI A117.1. HARDWARE TO BE SELECTED BY OWNER.

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CRUMBL COOKIES - FORD RD
42049 FORD RD
CANTON, MICHIGAN 48187



03-07-2022

DOOR SCHEDULE

A6.2





4-LEVEL WELDED STEEL STORAGE RACK
77"W x 24"D x 78"H

Warranty

GUARANTEED FOREVER. If your Husky tool or storage unit ever fails bring it back and we will replace it for free. This full warranty gives you specific rights which vary from state to state. If this product is defective contact the manufacturer for repair or replacement parts.

Contents

Description	Quantity	Part Number
A: frame	2	ERF7824BLK
B: beam	8	ERB72BLKN
C: tie channel	12	ER-V4-TB
D: wire deck	4	RWD2472SF
E: plastic push clip	16	BBC.118B

General Instructions

Assembly of this unit is done by fitting the brackets of the beams into the slots of the post frames.

A rubber mallet should be used on the ledge of the beams to properly seat the beam brackets. If a hammer is used care should be taken to protect the beam surface to avoid damage by using a protective cloth or block of wood.

The stepped surface of the beam ledge is the top, and should face upwards. This is the surface that the wire deck will rest on.

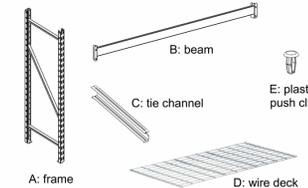
A bracket should engage and fit firmly into the tapered slot of the post frame. This engagement is a tight swaged fit and will apply resistance as it fully engages. A visual inspection should be made to show that the bracket is properly engaged in the slot.

After assembly re-check each beam for proper engagement.

Items you might find helpful



Components



Safety Instructions

This unit should be placed on a level surface. Failure to do so can result in poor product performance or create a possible safety hazard.

This unit should be securely anchored to a wall or floor with suitable fasteners, which are not included.

Do not use this unit for anything other than the manufacturer's intended purpose.

DO NOT STAND ON ANY PART OF THE UNIT, OR USE IT AS A LADDER.

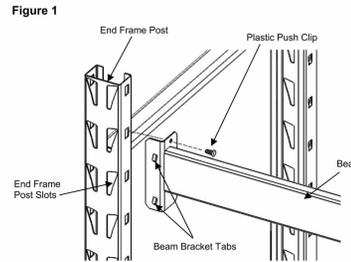
Use care when working with metal parts. Wear gloves for protection.

Evenly distribute the weight on each level and always keep the heavier loads on the bottom.

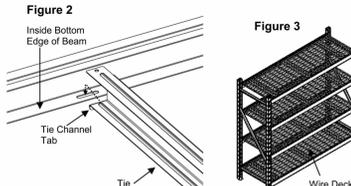


Assembly Instructions

- Attach the beams to the welded end frame posts (see figure 1) starting at the bottom level by using both end frames to establish the left and the right sides of the units.
- After a beam has been placed in both end frame post slots, tap the beam down at both ends with a rubber mallet to help drive the beam bracket tabs into the slots to secure the beam. Continue assembling each level from bottom to top level (front and back).
- If the beam bracket tabs become bent due to mishandling, it may be necessary to adjust the tabs back to their proper form.
- Place a plastic push clip into the hole of the beam end bracket, then tap the plastic clip with a mallet to drive it into the square hole of the end frame post to secure the beam to the end frame (see figure 1).



- The completed unit should have four (4) levels evenly spaced for maximum stability.
- Although the beams are adjustable in height, it's recommended to evenly space them so that the stability of the unit is not compromised.
- Install (3) tie channels in each level by inserting the tab located on both ends of the tie channel into the slot holes located along the inside bottom edge of the beams (see figure 2).
- Insert wire deck on each level (figure 3).
- Assembly is now complete



- Husky Welded Storage Rack is engineered to offer maximum flexibility as well as ease and quickness of assembly. The rack units can stand individually, or for greater stability, be joined together using the common post.
- Individual beams can be adjusted without disturbing the beams in adjoining units.
- These instructions should be followed exactly. All parts supplied must be used as shown. Any alteration or deviation from this instruction sheet can result in unit failure.
- After the unit is assembled, it must be placed on a level surface for safety, and optimal product performance.

Questions, problems, damage or missing part? Contact Husky's partnered manufacturer for assistance:

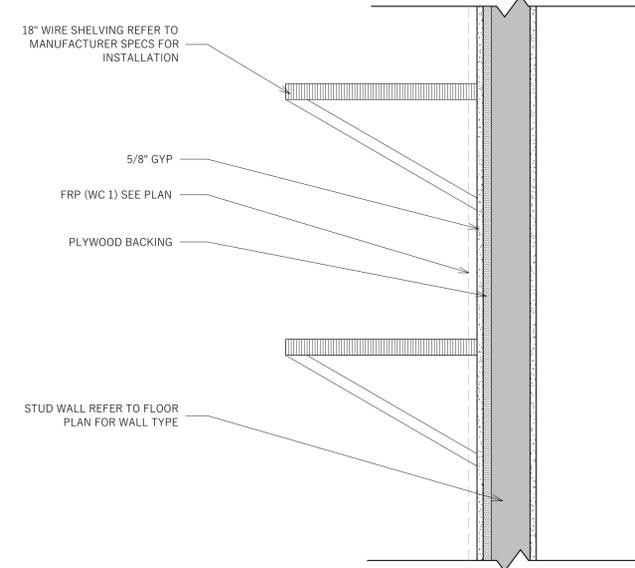
Chat: www.edsal.com/chat or www.edsal.com/contact

Email: support@edsal.com

Phone: 773-475-3131

To obtain replacement parts please provide: Model Number, Part Number & Description, Location Purchased, and Date Purchased

Edsal Manufacturing
Chicago, IL 60609
US Patents & Patents Pending
Assembled in USA using global components
Rev: C050918_V3-4



PLYWOOD BACKING DETAIL
1 1/2" = 1'-0"

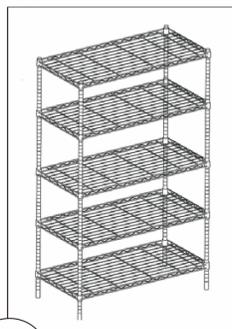
HDX™ SKU # 1001 298 075
Model # 21656CPS

USE AND CARE GUIDE

5 Shelf Storage Unit
Unité de rangement à cinq tablettes
Unidad para Almacenamiento de 5 Estantes

Questions, problems, missing parts?
Before returning to the store, call
Customer Service
8 a.m – 6 p.m., EST, Monday-Thursday
8 a.m – 5 p.m., EST, Friday
888-449-5520

WWW.HOMEDEPOT.COM



THANK YOU

We appreciate the trust and confidence you have placed in HDX through the purchase of this Storage Unit. We strive to continually create quality products designed to enhance your home. Visit us online to see our full line of products available for your home improvement needs. Thank you for choosing HDX!

Table of Contents

Table of Contents.....	2	Helpful Hints.....	2
Note.....	2	Accessory Parts List.....	2
Caution Warnings.....	2	Assembly.....	3
Specifications.....	2		

Note

Please dispose of loose, round plastic pieces. These are used to separate the shelves for shipping purposes.

Caution Warnings

- Two adults are recommended for ease of assembly. Use care when handling.
- Do not allow children to climb or play in or around the shelves.
- Assembly recommended on a soft surface, such as carpet, to avoid scratching flooring finish.
- Each shelf holds up to 350 lbs. evenly distributed.

Specifications

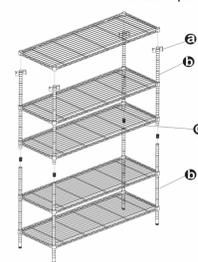
Product weight	36.63 lbs.
Product width	36 in.
Product depth	16 in.
Product height	72 in.

Helpful Hints

- Carefully read all instructions and caution warnings before beginning assembly.
- Determine shelving heights prior to assembly to avoid dismantling for adjustment.
- When placing the plastic tapered sleeves onto the posts (step 2-ii), slide tapered sleeves up or down on the post until you feel it "snap" into the lines or grooves of the post.

Accessory Parts List

- a) (40) plastic tapered sleeves (2) replacements
- b) (8) posts (with 4 threaded post joiners pre-installed in posts, 4 foot levelers pre-installed in bottom of posts)
- c) (5) shelves



Assembly

Step 1: Post Assembly

- The top post section has a plastic endcap on one end and the bottom post has a foot leveler attached. Threaded post joiners are pre-installed for your convenience. Screw the posts (1 long & short) tightly together. (See Diagram #1)

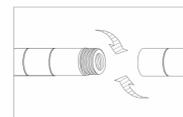


Diagram #1

Step 2: Bottom Shelf Assembly

- Locate the desired position of the bottom shelf.
- Insert four plastic tapered sleeves into the appropriate post groove, one in each post. Ensure tapered end is up. See arrow on lock. (See Diagram #2)
- Place shelf on its side and slide each post with tapered sleeves through the bottom of the shelf until snug. (See Diagram #3)
- After all posts are in place, position the unit in the upright position.
- Push down on each corner of the shelf, ensuring that the shelf is in the fully locked position.

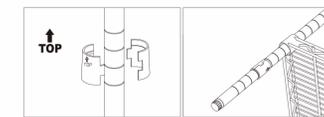


Diagram #2

Diagram #3

Step 3: Additional Shelves Assembly (See Diagram #4)

- Locate the desired position of the next lowest shelf and insert the tapered sleeves into the posts.
- Slide the shelf down from the top of the posts and onto the tapered sleeves. Push down on each shelf corner, ensuring that the shelf is in the fully locked position.
- Repeat for the remaining shelves.

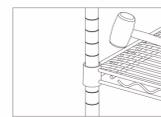


Diagram #4

Step 4: Adjust the foot levelers in or out at the bottom of the posts to attain proper leveling. (See Diagram #5)



Diagram #5

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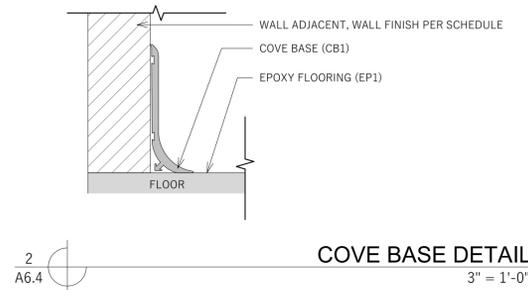


03-07-2022

WIRE SHELVING
DETAILS

A6.3





COVE BASE DETAIL
3" = 1'-0"

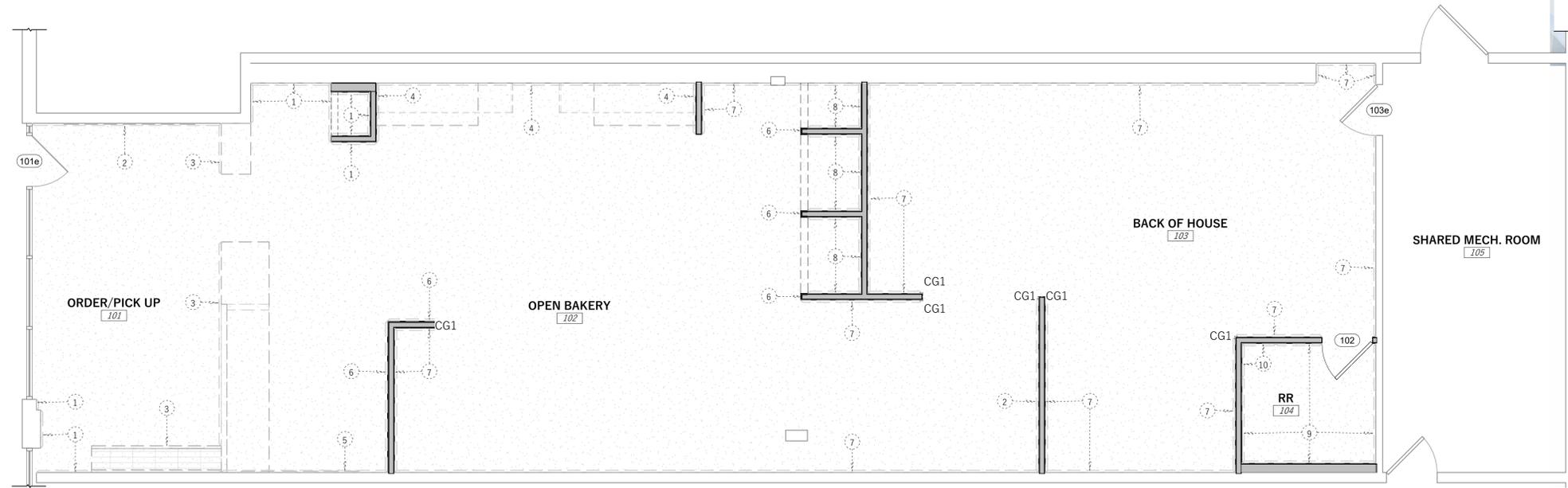
INTERIOR MATERIAL SCHEDULE					
CODE	DESCRIPTION	MFR.	NAME/NUMBER	COLOR/FINISH	COMMENTS
FLOORS					
EP 1	EPOXY	LATICRETE	SPARTACOTE CHIP System	LIGHT GREY / GREYSTONE 1/16"	
FT 1	FLOOR TILE	EMSER TILE	A40NETWGR1223	NETWORK GREY	12"x23", STACK BOND, THROUGHOUT, crumb@emser.com
GT 2	FLOOR GROUT	LATICRETE	ZLC3122-0001-2	SPECTRALOCK 1 DUSTY GREY	AT FLOOR TILE. PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
WALLS					
CG1	CORNER GUARD	KSC	#A673	BRIGHT WHITE	3/4" X 3/4" X 8' - 0"
GT 1	WALL GROUT	LATICRETE	ZLC1644-0025-2	1600 UNSAND BRIGHT WHITE	AT WALL TILE. PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
IP 1	LATEX BASE PAINT	SHERWIN WILLIAMS	H REFLECTIVE WHITE SW7757	SEMI-GLOSS	ON ALL WALLS U.N.O., LEVEL 5 FINISH
IP 3	LATEX BASE PAINT	BEHR	FUNNY FACE M140-2	SEMI-GLOSS	AS NOTED ON PLAN, LEVEL 5 FINISH
TT 1	EDGE PROTECTOR	EMSER TILE	ZBL300-450-10025	WHITE/POWDER COATED	3/8", ALUMINUM
WC 1	FRP	--	--	SMOOTH, BRIGHT WHITE	UP TO 4'-6", 2'-0" AWAY FROM ALL PLUMBING FIXTURES UNLESS SHOWN OTHERWISE
WS 1	WALL SETTING	LATICRETE	ZLC0279-0030-22	TRI-LITE WHITE	PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
WT 1	FIELD TILE	EMSER TILE	FLEX WHITE	FLEX WHITE GLOSS	4"x16" FIELD TILE, STACK BOND W/ EMSER TRIM @ EXPOSED EDGES, crumb@emser.com, WHITE TILE FROM FLOOR TO CEILING WHERE APPLIED.
BASE					
CB 1	COVE BASE	EASYCOVE	EC-EZ1X4P	--	INSTALL AS PER MANUFACTURER SPECIFICATIONS.
GT 3	BASE GROUT	LATICRETE	ZLC3122-0001-2	SPECTRALOCK 1 MIDNIGHT BLACK	AT COVE BASE. PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
CEILING					
C1	GRID CEILING	--	VINYL TILE	WHITE	WHITE VINYL TILE WITH WHITE GRID
IP 2	LATEX BASE PAINT	SHERWIN WILLIAMS	TRICORN BLACK SW6258	EGGSHELL	EXPOSED CEILING COLOR/WALLS ABOVE 12' - 0"
IP 4	LATEX BASE PAINT	SHERWIN WILLIAMS	HIGH REFLECTIVE WHITE SW7757	EGGSHELL	RESTROOM CEILING
MILLWORK					
SS 1	SOLID SURFACE	HI-MACS BY LX HAUSYS	S028	ALPINE WHITE	WATERFALL EDGE WHERE OCCURRING, BUILT UP EDGE
DOORS					
DP	LATEX BASED PAINT	SHERWIN WILLIAMS	HIGH REFLECTIVE WHITE SW7757	SEMI-GLOSS	

NOTE: COORDINATE WITH OWNER FOR FINAL SELECTION AND APPLICATION OF ALL FINISHES.

ROOM FINISH SCHEDULE						
ROOM NUMBER	ROOM NAME	FLOOR	WALLS	BASE FINISH	CEILING FINISH	NOTES
101	ORDER/PICK UP	EP1	IP 1 / IP 3 / WT 1	CB1	C1	SEE KEYED NOTES.
102	OPEN BAKERY	EP1	WC 1 / WT 1 / IP1 / IP3	CB1	C1	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.
103	BACK OF HOUSE	EP1	WC 1	CB1	C1	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.
104	RR	EP1	WC 1	CB1	IP4	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.
105	SHARED MECH. ROOM	--	--	--	--	EXISTING SPACE TO REMAIN.

KEYED NOTES	
1	WALL FINISH IP 1
2	WALL FINISH IP 3
3	WALL FINISH WT 1 ON BACK OF CABINETRY WALL
4	WALL FINISH WC 1 UP TO BOTTOM OF FLOATING SHELF
5	WALL FINISH WC 1 UP TO 3' - 6" A.F.F.
6	WALL FINISH WT 1, TO TERMINATE AT T.O. WALL.
7	WALL FINISH WC 1, UP TO 8'-0" AFF.
8	WALL FINISH WC 1 UP TO 7'-0" A.F.F.
9	WALL FINISH WC 1 IN BATHROOM, UP TO 4'-6" A.F.F.
10	WALL FINISH WC 1 UP TO B.O. CEILING ADJACENT TO WATER HEATER.

FLOOR FINISH LEGEND



MAIN FLOOR FINISH PLAN
1/4" = 1'-0"



SPECTRALOCK® 1

Pre-Mixed Grout with Epoxy Performance

NEW



FEATURES

- Stainproof*
- 10X stronger than other pre-mixed grouts
- No mixing required, resealable packaging
- Meets ANSI A118.3†
- Light foot traffic within 6 hours
- Submerged and intermittent wet applications
- No efflorescence
- Low VOC and low odor
- Optional SPECTRALOCK® DAZZLE™ component

BENEFITS

- Locks in color, blocks out stains
- More durability, minimizing application failures
- Reduces waste and material costs
- As strong as epoxy, excellent stain and chemical resistance
- Complete projects in less time
- Ready to submerge in 14 days; Showers ready for use next day*
- Uniform color consistency; eliminating discoloring, blotches, and shading
- Easy and safe to use with no epoxy resins
- Compliments tile and stone design

Uses

- Ceramic tile, glass tile and stone
- Residential and commercial
- Interior and exterior floors and walls**
- Ideal for re-grouting applications
- Submerged and intermittent wet areas

Available Colors

- All 40 LATICRETE colors*
- 12 SPECTRALOCK® DAZZLE™ options

Packaging

- 1 (3.8L) gallon*



Scan for more information and the SPECTRALOCK 1 story.





*Stainproof considered installation only to ceramic household showers, tubs and other grout. Clear of spalls immediately. **Meets or exceeds ANSI A118.3 grout and adhesive class. †Refer to Data Sheet 3618P-0 for limitations and complete packaging information. **For exterior finishes. Refer to SPECTRALOCK® Grout Color Chart, Data Sheet 254.3 for complete color selection information. *See Data Sheet 320.0 for complete warranty information.



TRI-LITE™

A lightweight, high performance tri-purpose mortar designed for large and heavy tile, thin-bed and wall installations



FEATURES

- Lightweight mortar
- Smooth consistency
- Versatility
- Non-sag, non-slump
- Exceeds ANSI A118.15
- A component of the LATICRETE® 25 year system warranty*

BENEFITS

- Lighter to transport, easier to trowel. A 30 lb (13.6 kg) bag provides the same coverage as a 50 lb (22.7 kg) bag of standard mortar.
- Lightweight consistency is easy to trowel providing unmatched workability.
- One mortar for large heavy tile, thin-bed and wall installations.
- Meets the challenging demands of installing large and heavy tile on both walls and floors. Fast and easy vertical installations.
- Exceeds the industry's highest performance standard for a cementitious based adhesive mortar. Superior bond strength for worry-free installations of ceramic tile, porcelain tile and stone.
- Backed by LATICRETE means peace of mind for trouble-free installations in both interior and exterior installations.

Uses

- Large and heavy ceramic tile, porcelain tile and stone
- Wall installations, interior and exterior, of ceramic tile, porcelain tile and stone
- Ideal for most types of thin-set applications

Suitable Substrates

- Exterior Glue Plywood*
- Concrete
- Concrete Block
- Ceramic Tile and Stone
- Gypsum Wallboard**
- Cement Backer Board**
- Brick and Concrete Masonry

Approximate Coverage: 30 lb (13.6 kg) bag

Trowel Size	ft² (m²)
1/4" x 1/4" (6 mm x 6 mm) notched trowel	80 - 95 (7.4 - 8.8)
1/4" x 3/8" (6 mm x 9 mm) notched trowel	60 - 70 (5.6 - 6.5)
1/2" x 1/2" (12 mm x 12 mm) notched trowel	40 - 47 (3.7 - 4.4)

Packaging
30 lb (13.6 kg) bag, 56 bags per pallet

Available Colors
Grey and white



Scan for more information.

PROJECT NUMBER
21-418

ISSUE DATE:
MARCH 07, 2022

REVISIONS:

No.	Date	Description

CONSULTANT

CRUMBL COOKIES - FORD
RD
42049 FORD RD
CANTON, MICHIGAN 48187



03-07-2022

FINISH PLAN AND DETAILS



KEYED NOTES	
1	CABINERY FRAMING BELOW. SEE DETAILS.
2	SOLID SURFACE FLOATING SHELF. SEE DETAILS.
3	SNEEZE GUARD
4	FRAMED WALL AT REAR OF CABINERY. SEE DETAILS ON SHEET A7.1
5	HEADSET SHELF. SEE DETAIL ON A2.1

PROJECT NUMBER
21-418

ISSUE DATE:
MARCH 07, 2022
REVISIONS:

No.	Date	Description

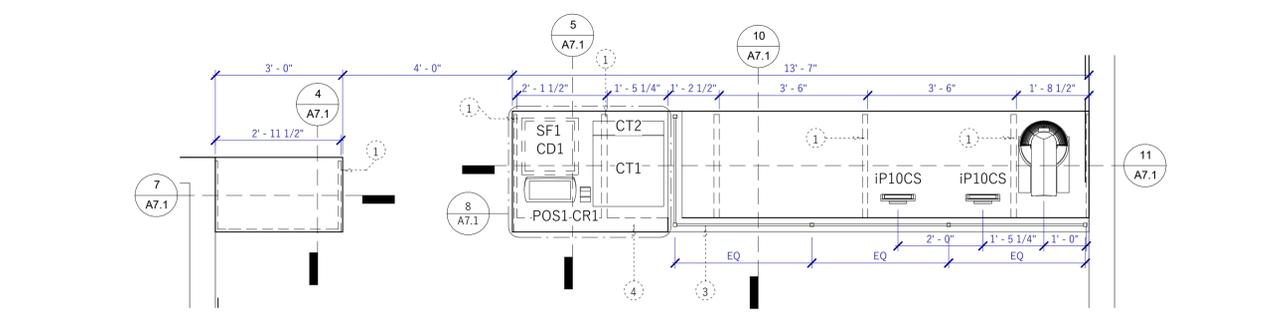
CONSULTANT

CRUMBL COOKIES - FORD
RD
42049 FORD RD
CANTON, MICHIGAN 48187

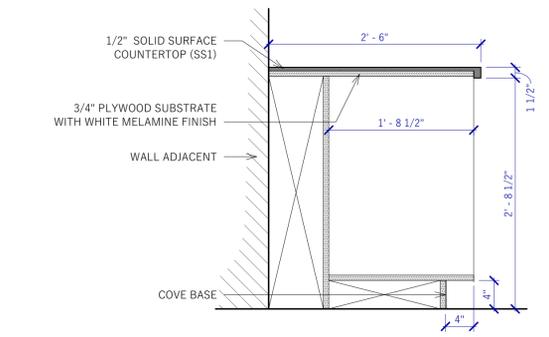


03-07-2022
CABINERY PLAN AND SECTIONS

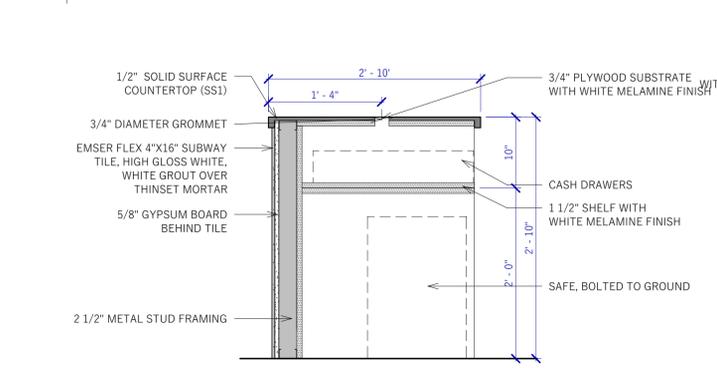
A7.1



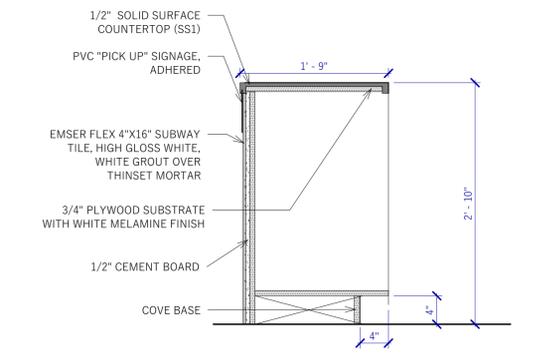
ENLARGED PLAN @ PREP COUNTER
1/2" = 1'-0"



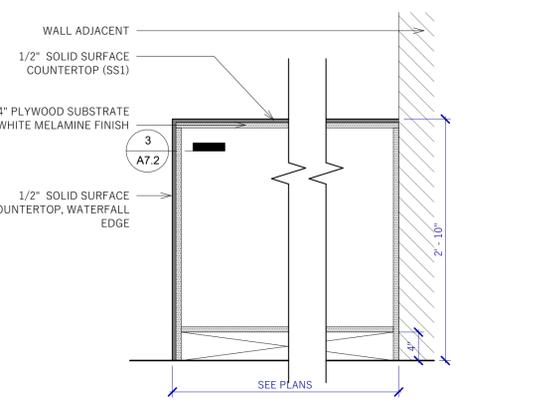
BOXING COUNTER @ BOX STORAGE - CABINERY
1" = 1'-0"



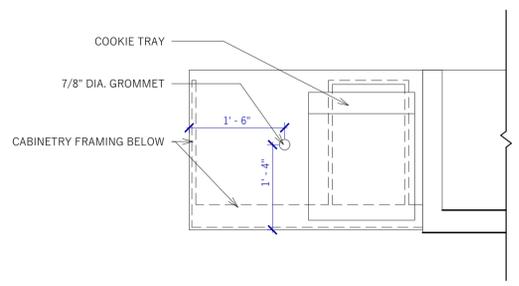
POS @ BOX STORAGE SAFE - CABINERY
1" = 1'-0"



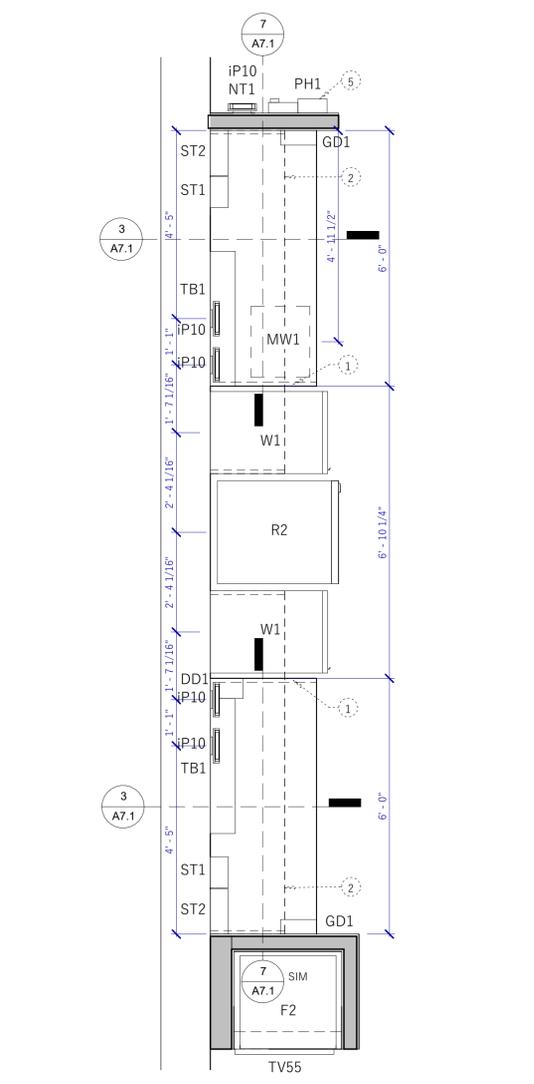
PICK-UP COUNTER - CABINERY
1" = 1'-0"



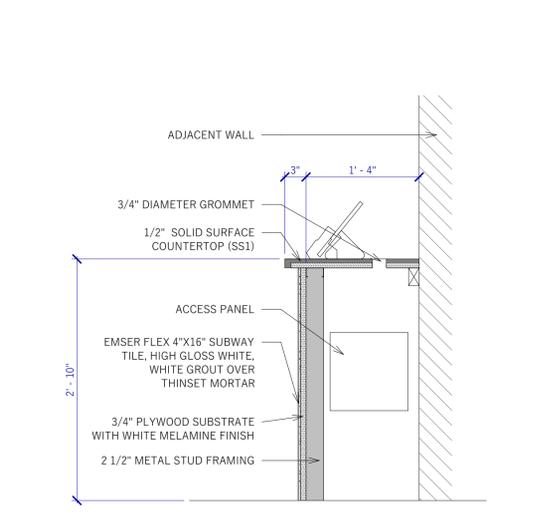
WATERFALL EDGE @ CABINERY
1" = 1'-0"



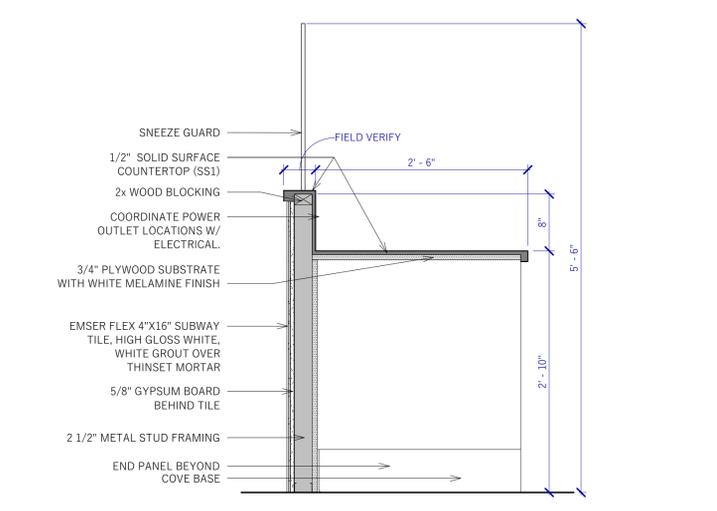
SALES COUNTER GROMMET LOCATION DETAIL
3/4" = 1'-0"



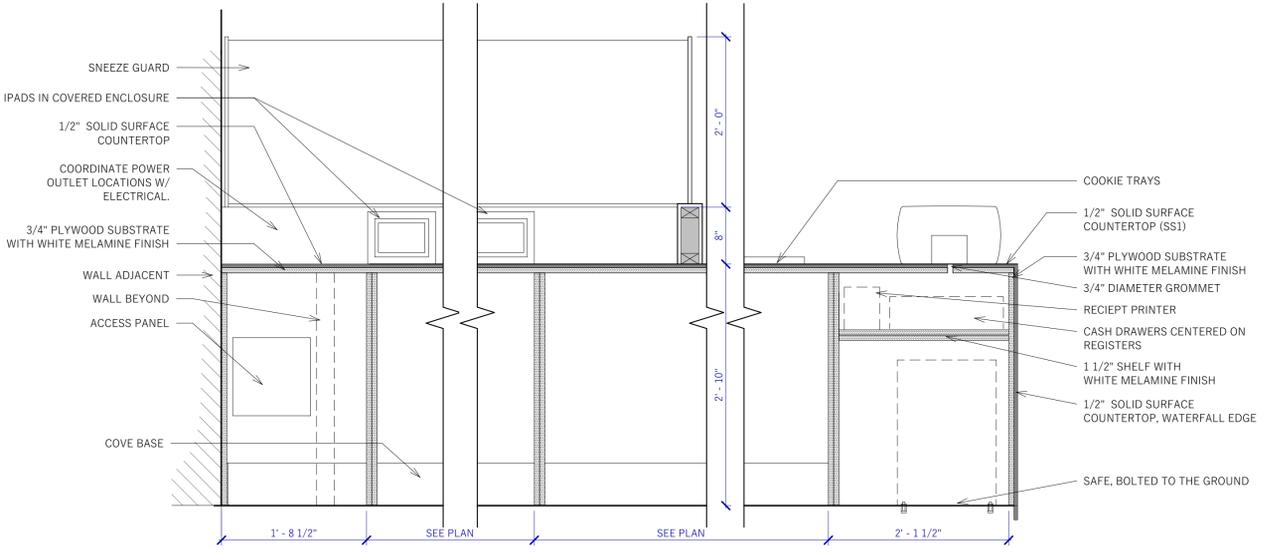
ENLARGED PLAN @ DRESSING STATION
1/2" = 1'-0"



ORDERING STATION1
1" = 1'-0"

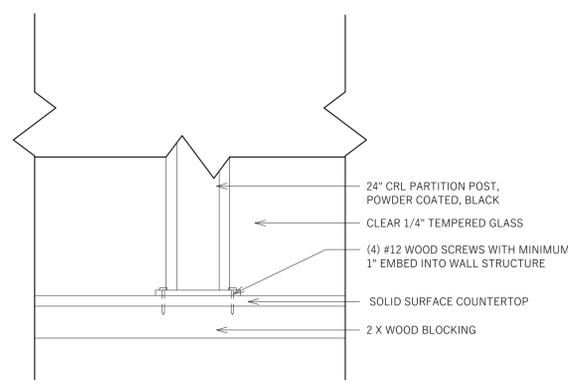


PREP COUNTER @ BINS - CABINERY
1" = 1'-0"

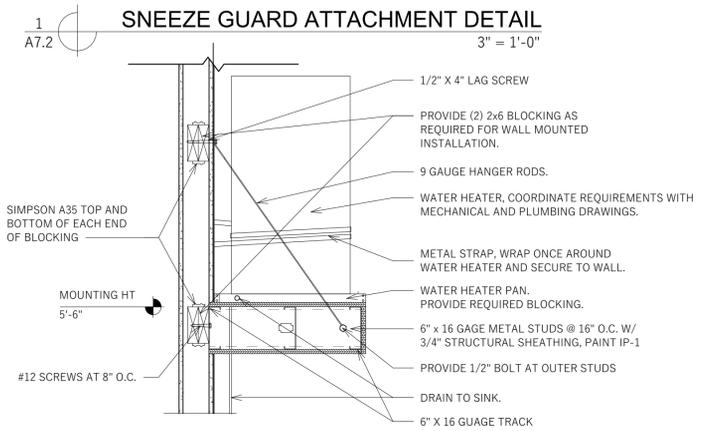


PREP COUNTER - CABINERY
1" = 1'-0"

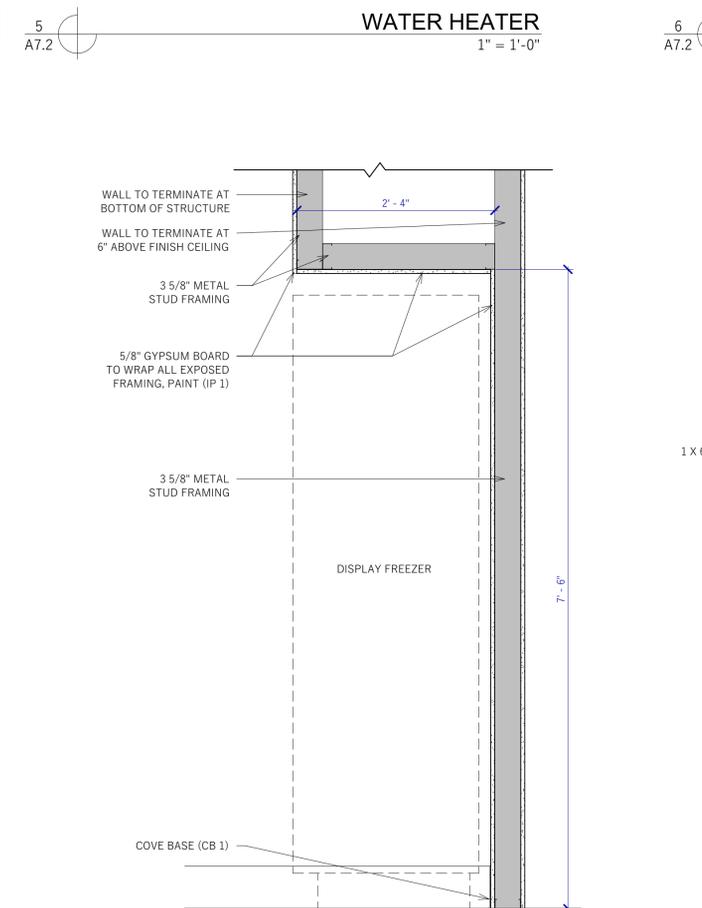
No.	Date	Description



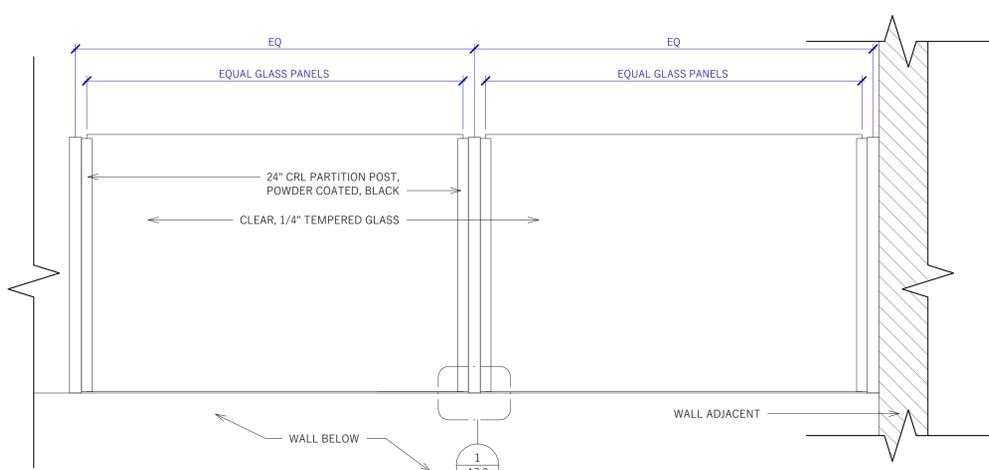
SNEEZE GUARD ATTACHMENT DETAIL
3" = 1'-0"



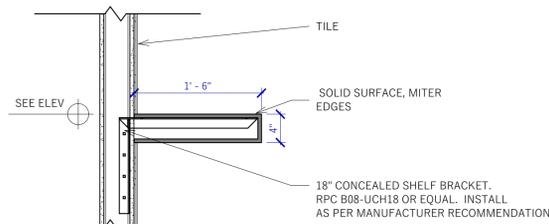
WATER HEATER
1" = 1'-0"



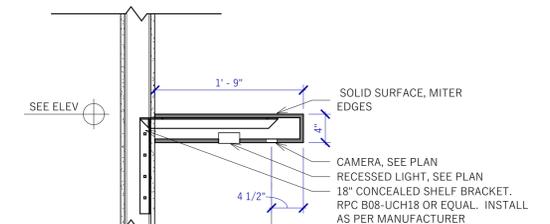
DISPLAY FREEZER WALL
1" = 1'-0"



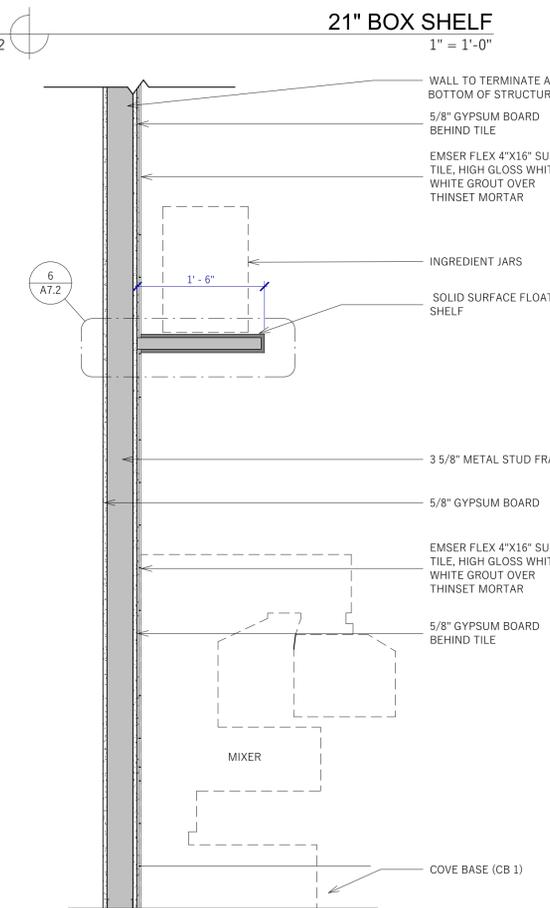
SNEEZE GUARD
1 1/2" = 1'-0"



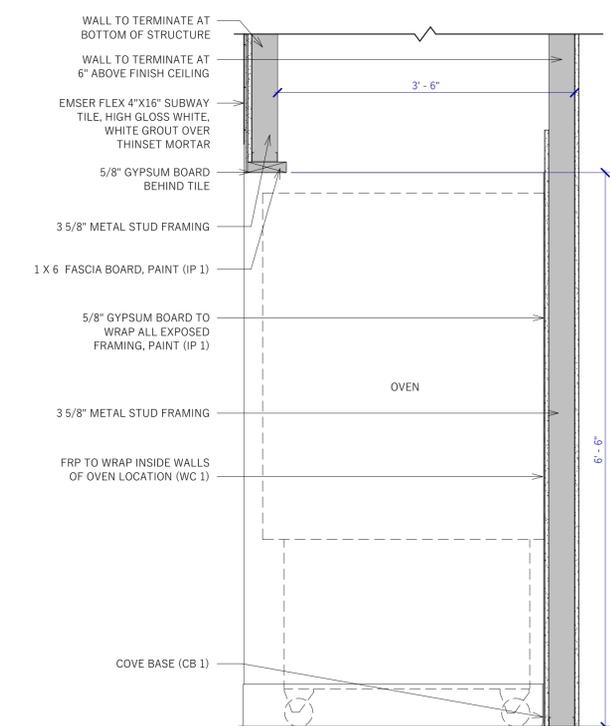
18" INGREDIENT SHELF
1" = 1'-0"



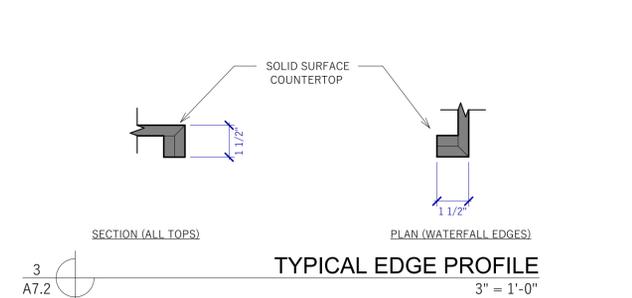
21" BOX SHELF
1" = 1'-0"



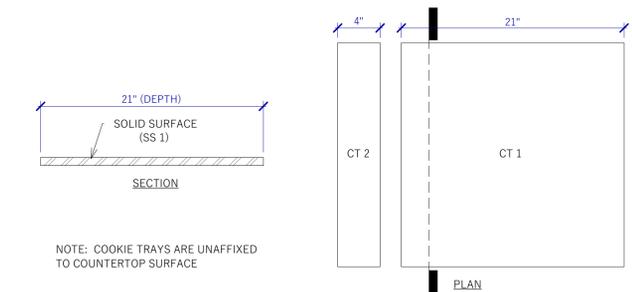
MIXER WALL
1" = 1'-0"



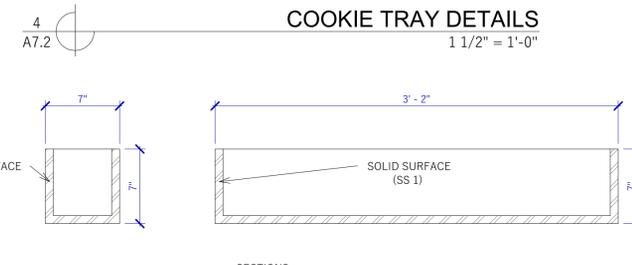
OVEN WALL
1" = 1'-0"



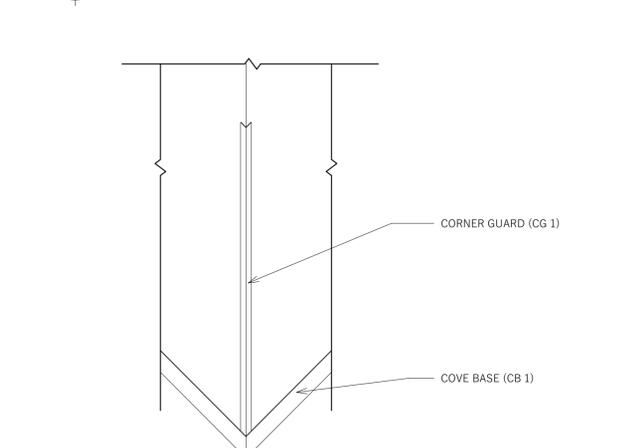
TYPICAL EDGE PROFILE
3" = 1'-0"



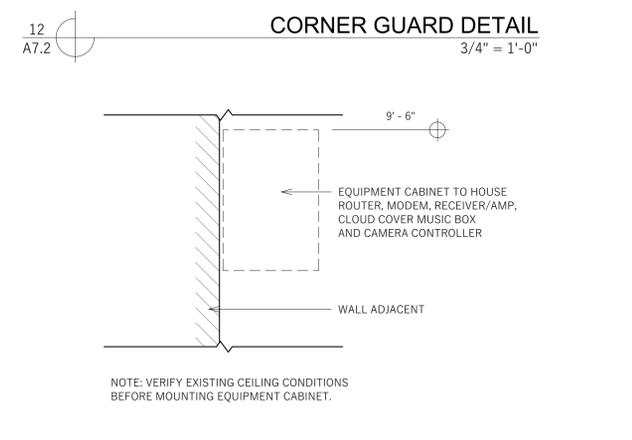
COOKIE TRAY DETAILS
1 1/2" = 1'-0"



INGREDIENT TOOLBOX (TB 1)
1 1/2" = 1'-0"

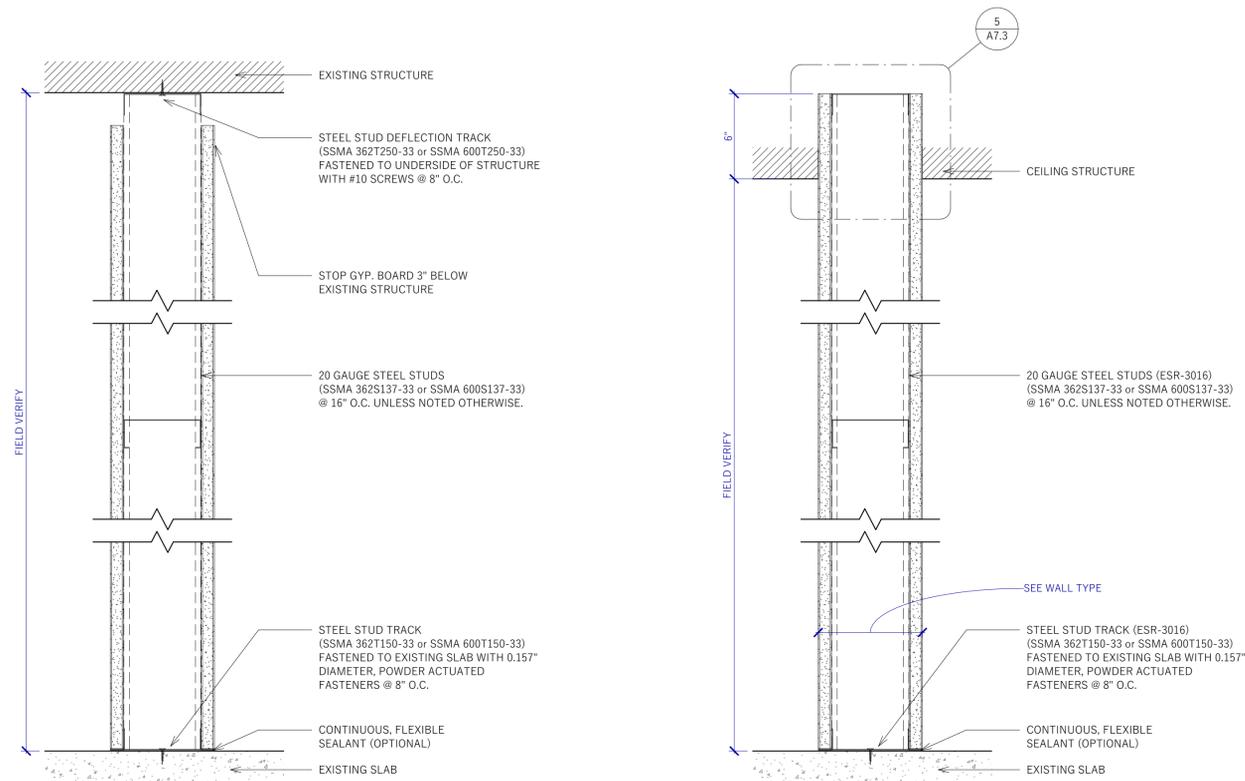


CORNER GUARD DETAIL
3/4" = 1'-0"



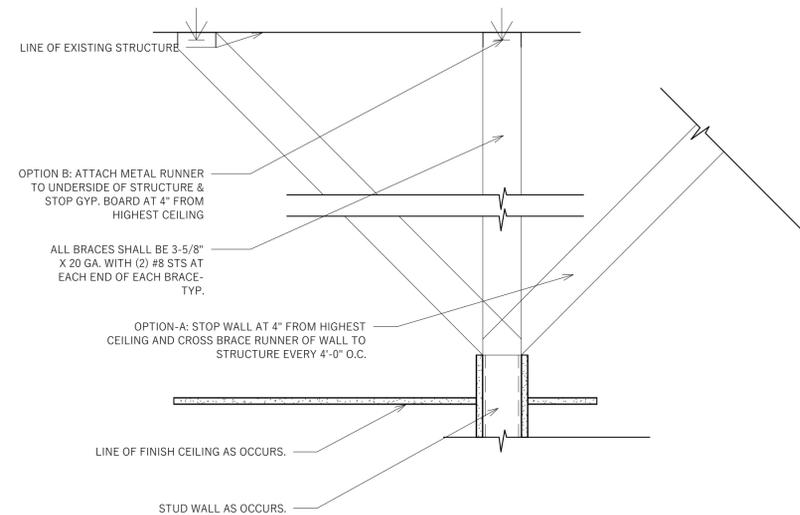
EQUIPMENT CABINET DETAIL
3/4" = 1'-0"

No.	Date	Description



INTERIOR WALLS DETAIL - TO
STRUCTURE

INTERIOR WALLS DETAIL - 6" ABOVE
CEILING



WALL BRACING DETAIL

3
A7.3

4
A7.3

5
A7.3

No.	Date	Description



CRUMBL COOKIES - FORD RD
42049 FORD RD
CANTON, MICHIGAN 48187



Pathik B. Shah, P.E.
MI License No: 53724

HVAC SPECIFICATIONS AND SYMBOLS

MO.1



MECHANICAL NOTES AND SPECIFICATIONS

- I. GENERAL
 - A. CONTRACTOR SHALL PERFORM ALL WORK AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
 - B. CONTRACTOR TO EXAMINE THE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE MECHANICAL WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS NOTED ON THE PLANS.
 - C. DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGNOSTIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF DUCTWORK, PIPING, DIFFUSERS, APPARATUS, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
 - D. DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, CONSTRUCTED WITH NEW AND FIRST QUALITY MATERIALS AND EQUIPMENT, LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
 - E. SCRAP, DEBRIS AND ABANDONED HVAC EQUIPMENT/DUCTWORK/SUPPORTS/CONTROLS AND ACCESSORIES SHALL, EXCEPT AS OTHERWISE SPECIFIED, BE REMOVED FROM THE SITE AND DISPOSED OF BY THIS CONTRACTOR.
 - F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP OF ALL SYSTEMS.
 - G. ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPULING AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING WORK OPERATIONS.
 - H. CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO THE ARCHITECT FOR APPROVAL (MINIMUM (5) COPIES). THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OBLIGATION TO COMPLY WITH THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS.
 - I. CONTRACTOR SHALL COORDINATE CONNECTIONS TO STREET WITH LOCAL UTILITY COMPANIES).
 - J. CONTRACTOR SHALL FILE, SECURE AND PAY FOR ANY NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
 - K. ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE 2015 MICHIGAN BUILDING CODE, 2015 MICHIGAN MECHANICAL CODE AND 2015 MICHIGAN ENERGY CODE.
 - L. PRIOR TO TESTING, CONTRACTOR SHALL MAKE ALL SYSTEM ADJUSTMENTS REQUIRED FOR PROPER OPERATION. ADJUSTMENTS SHALL INCLUDE AIR BALANCING, HYDRONIC BALANCING, ETC.
 - M. ALL SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE 2015 MICHIGAN MECHANICAL CODE AND MICHIGAN FIRE PREVENTION CODE. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
 - N. CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING ALL FACILITIES IN AREAS INDICATED FOR DEMOLITION ON THE ARCHITECTURAL DRAWINGS.
 - O. WHERE DEMOLITION OF EXISTING SERVICES RESULTS IN THE INTERRUPTION OF DUCTWORK, MECHANICAL PIPING, ETC. SERVING AREAS WHICH ARE TO REMAIN, INSTALL BYPASS CONNECTIONS AS REQUIRED TO RESTORE REMAINING SERVICES TO OPERATION. SIZING, MATERIAL, JOINTINGS AND INSULATION OF BYPASS CONNECTIONS SHALL MATCH EXISTING INSTALLATION.
 - P. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF WORK.
 - Q. THE CONTRACTOR'S PROPOSAL AND BASE BID MUST COVER ALL ITEMS IN THE PLANS AND SPECIFICATIONS/NOTES EXACTLY AS DRAWN, NOTED, SCHEDULED, DETAILED AND SPECIFIED. TO RECEIVE CONSIDERATION FOR A SUBSTITUTION OF MATERIALS AND/OR EQUIPMENT, THE CONTRACTOR MUST INCLUDE THE FOLLOWING INFORMATION WITH HIS BASE BID:
 - DOCUMENTATION OF EQUALITY. A SIDE-BY-SIDE COMPARISON OF PERFORMANCE AND CONSTRUCTION MATERIALS BETWEEN THE SPECIFIED ITEM AND THE PROPOSED SUBSTITUTION.
 - THE DOLLAR VALUE FOR CREDIT ASSOCIATED WITH THE SUBSTITUTED ITEM(S), SHALL BE ITEMIZED IN THE BASE BID.
 - R. ALL MATERIALS IN THE CEILING PLENUM SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 123.

2. SCOPE OF WORK
 - A. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
 - A. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
 - B. FURNISH AND INSTALL ALL NEW SUPPLY, RETURN AND EXHAUST AIR DUCTWORK.
 - C. FURNISH AND INSTALL INSULATION FOR ALL SUPPLY & RETURN AIR DUCTWORK.
 - D. FURNISH AND INSTALL, AS SHOWN ON DRAWINGS ALL WALL MOUNTED THERMOSTATS. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY WIRING REQUIRED FOR THERMOSTATS.
 - E. FURNISH AND INSTALL ALL SUPPLY AIR DIFFUSERS, RETURN AIR GRILLES, RETURN AIR REGISTERS AND EXHAUST AIR REGISTERS (SIZES AS SHOWN ON SCHEDULES AND PLANS).
 - F. FURNISH AND INSTALL ALL CENTRIFUGAL INLINE FANS AS SHOWN ON DRAWINGS AND SPECIFIED IN SCHEDULES.
 - G. FURNISH AND INSTALL ALL CENTRIFUGAL CEILING FANS AS SHOWN ON DRAWINGS AND SPECIFIED IN SCHEDULES.
 - H. FURNISH AND INSTALL ALL HANGERS AND SUPPORTS.
 - I. FURNISH AND INSTALL MANUAL VOLUME DAMPERS AS SHOWN ON DRAWINGS.
 - J. FURNISH AND INSTALL ALL GRAVITY RELIEF HOODS, GRAVITY INTAKE HOODS, AND ROOF CAPS AS SHOWN ON DRAWINGS.
 - K. SHOP DRAWINGS.
 - L. ENGAGE THE SERVICES OF AN APPROVED INDEPENDENT AIR BALANCING COMPANY TO BALANCE THE SYSTEMS AND ISSUE AN AIR BALANCING REPORT. THE INDEPENDENT AIR BALANCING COMPANY SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IF NECESSARY, PROVIDE MANUAL VOLUME DAMPERS AT BRANCH DUCTWORK TO ASSURE PROPER AIR BALANCE.
 - M. ALTERATIONS, REMOVALS, AND DISPOSAL.
 - N. CUTTING AND ROUGH PATCHING.
 - O. OBTAINING AND PAYING FOR ALL NECESSARY PERMITS, INSPECTIONS AND CERTIFICATES REQUIRED IN CONNECTION WITH THIS WORK: AIR DUCTWORK.
 - P. FURNISH AND INSTALL AS SHOWN ON DRAWINGS ALL INTERNAL ACOUSTIC LINING FOR SUPPLY AND RETURN DUCTWORK AS WHERE CALLED FOR.
 - Q. FURNISH AND INSTALL DUCT MOUNTED SMOKE DETECTORS AS REQUIRED, WIRED BY ELECTRICAL CONTRACTOR.
 - R. GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM THE FINAL DATE OF ACCEPTANCE.

3. WORK NOT INCLUDED

THE FOLLOWING ITEMS OF WORK SHALL BE PROVIDED UNDER OTHER CONTRACTS:

 - A. FINISHED PATCHING AND PAINTING.
4. NOISE CONTROL
 - A. ALL INSTALLATION SHALL BE IN A MANNER THAT THE NOISE CRITERIA LEVEL IN THE SPACE SHALL NOT EXCEED NC-35. NOISE LEVELS ABOVE THIS LIMIT WILL NOT BE ACCEPTABLE AND SHOULD BE CORRECTED BY THIS CONTRACTOR AT NO EXPENSE TO THE OWNER.
 - B. ALL SUPPLY AND RETURN DUCTWORK SHALL BE PROVIDED WITH 1" INTERNAL ACOUSTIC LINING AT LEAST 20" FROM EACH AIR HANDLING UNIT. ALL DUCTWORK DIMENSIONS NOTED ON THE PLANS ARE CLEAR INSIDE DIMENSIONS.
5. VIBRATION CONTROL
 - A. ALL INSTALLATIONS SHALL BE IN SUCH A MANNER THAT VIBRATION FROM ROTATING EQUIPMENT IS ISOLATED FROM DUCTWORK, PIPING AND THE BUILDING STRUCTURE.
 - B. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT ALL LOCATIONS WHERE RIGID DUCTWORK CONNECTS TO FANS, AIR HANDLERS, OR OTHER EQUIPMENT CAPABLE OF PRODUCING OBJECTIONABLE VIBRATION. FLEXIBLE CONNECTIONS SHALL BE 30 OZ. NEOPRENE COATED FABRIC SECURED WITH HEAVY DUTY BANDS OR CRIMPS.
 - C. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT ALL LOCATIONS WHERE PIPING CONNECTS TO PUMPS OR OTHER EQUIPMENT CAPABLE OF PRODUCING OBJECTIONABLE VIBRATION.
 - D. ALL EQUIPMENT SUPPORTED FROM THE BUILDING STRUCTURE SHALL BE PROVIDED WITH SPRING-TYPE VIBRATION ISOLATORS.
6. SHEET METAL DUCTWORK
 - A. ALL RECTANGULAR DUCTWORK (UNLESS OTHERWISE NOTED) SHALL BE BUILT FROM GALVANIZED SHEET METAL AND THOROUGHLY BRACED & STIFFENED. ALL DUCTWORK DIMENSIONS NOTED ON THE PLANS ARE CLEAR INSIDE DIMENSIONS.
 - B. FABRICATION OF SHEET METAL DUCTS SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE, LATEST EDITION, OR AS PER SMACNA DUCT CONSTRUCTION MANUAL(S). ALL BRANCH DUCTWORK AND TAKE-OFFS SHALL BE PROVIDED WITH VOLUME DAMPERS.
 - C. CONTRACTOR SHALL SEAL ALL DUCTWORK JOINTS WITH 3M EC-800 OR APPROVED EQUAL.
 - D. ALL DUCTWORK GAUGES, AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS.
 - E. ACCESS DOORS IN DUCTWORK SHALL BE DOUBLE PANEL NO. 20 GAUGE GALVANIZED STEEL FILLED WITH 1/2" RIGID FIBERGLASS 3 LB. DENSITY INSULATION WITH NO. 20 GAUGE GALVANIZED STEEL FRAME SECURELY FASTENED TO DUCT AND FORMED TO RECEIVE ACCESS DOOR. PROVIDE TWO LATCHES AND TWO HINGES PER DOOR. WHERE SPACE CONDITIONS DO NOT PERMIT HINGING OF DOORS, PROVIDE FOUR LATCHES PER DOOR FOR REMOVAL.
 - F. CHANGES IN SHAPE AND DIMENSION SHALL CONFORM TO THE FOLLOWING: EXCEPT WHERE OTHERWISE NOTED, FOR INCREASES IN CROSS-SECTIONAL AREA, THE SHAPE OF THE TRANSFORMATION SHALL NOT EXCEED 1" IN 1" SPACE CONDITIONS PERMITTING. EXCEPT WHERE OTHERWISE NOTED, FOR REDUCTIONS IN AREA, THE SLOPE SHALL NOT BE LESS THAN 1" IN 1" SPACE CONDITIONS PERMITTING.
 - G. THE CONSTRUCTION FOR LOW PRESSURE RECTANGULAR SHEET METAL DUCTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE GUIDE, LATEST EDITION, OR AS PER SMACNA MANUAL BUT NOT LESS THAN THE FOLLOWING HEIGHTS AND CONSTRUCTION:

LOW PRESSURE, RECTANGULAR DUCTWORK STANDARDS

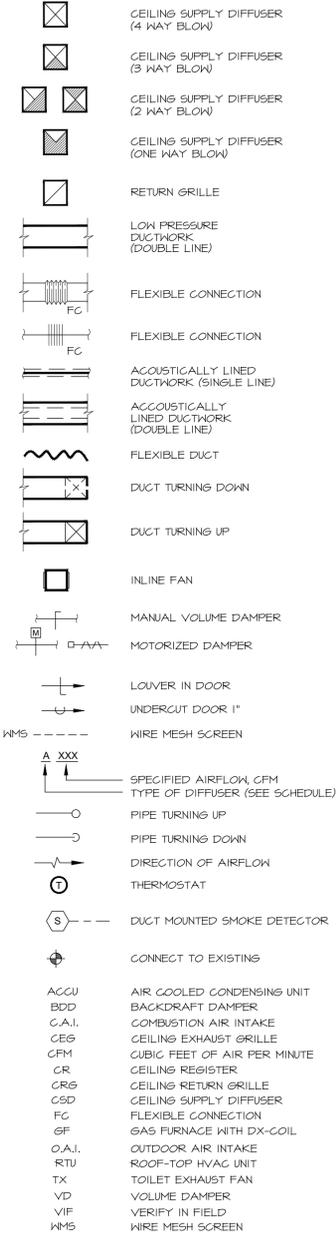
DIMENSION OF LONGEST SIDE OF DUCT (INCHES)	MINIMUM GAUGE OF SHEET METAL FOR ALL FOUR SIDES OF DUCT		TRANSVERSE REINFORCING AT AND BETWEEN DUCT JOINTS
	STEEL (GAUGE)	ALUMINUM THICKNESS (INCHES)	
18 THRU 12	26	0.020	1" POCKET LOCK 24 GAUGE, STANDING SEAM JOINT 24 GAUGE, 1" STANDING S SLIP 24 GAUGE. JOINT MAX. ON 8 FT. CENTERS.
18 THRU 18	24	0.025	1" POCKET LOCK 24 GAUGE, STANDING SEAM JOINT 24 GAUGE, 1" STANDING S SLIP 24 GAUGE. JOINT MAX. ON 8 FT. CENTERS.
18 THRU 30	24	0.025	1" POCKET LOCK 22 GAUGE, JOINTS MAX. ON 8 FT. CENTERS WITH 1 x 1 x 1/8 IN. ANGLES 4 FEET FROM JOINT.
31 THRU 42	22	0.032	1" POCKET LOCK 22 GAUGE, JOINTS MAX. ON 8 FT. CENTERS WITH 1 x 1 x 1/8 IN. ANGLES 4 FEET FROM JOINT.

- H. FLAT AREAS OF DUCT OVER 18 IN. WIDE SHALL BE STIFFENED BY CROSS BREAKING OF BEADING.
- I. ALL JOINTS SHALL HAVE CORNER CLOSURES.
- J. PROVIDE 3M CO-5 GASKET EC-1202 GASKET AT FLANGED JOINTS AND ALL SLIP JOINTS SHALL BE SEALED WITH 3M CO-5 EC-800. JOINTS SHALL BE MAXIMUM ON 8 FEET CENTERS.
- K. ALL JOINTS IN A DUCT SYSTEM MUST BE TIGHT IN ORDER TO ENSURE PROPER AIR DISTRIBUTION AND STRUCTURAL INTEGRITY. DUCT SUPPORT SHALL NOT EXCEED 10 FEET.
- T. FLEXIBLE DUCTWORK
 - A. FLEXIBLE DUCTWORK SHALL BE PERMITTED FOR USE BETWEEN BRANCH DUCTWORK AND CEILING DIFFUSERS IN LENGTHS NOT EXCEEDING 6'-0".
 - B. LOW PRESSURE FLEXIBLE DUCTWORK SHALL BE A FACTORY ASSEMBLY OF LOW FRICTION, POLYMER INNER LINER APPLIED OVER A MECHANICALLY INTERLOCKED, GALVANIZED STEEL HELIX. INSULATION SHALL BE FIBERGLASS WITH A THERMAL CONDUCTANCE OF NOT MORE THAN 0.23. THE OVERALL ASSEMBLY SHALL BE JACKETED WITH A POLYETHYLENE VAPOR BARRIER HAVING A PERMEANCE OF NOT GREATER THAN 0.1 WHEN TESTED IN ACCORDANCE WITH ASTM E96. PROCEDURE A ASSEMBLY SHALL BE RATED FOR A MAXIMUM WORKING PRESSURE OF 6" HG. POSITIVE, 4" HG. NEGATIVE, 4000 FPM MAXIMUM VELOCITY AND -20°F TO 250°F OPERATING TEMPERATURE. MINIMUM BURST PRESSURE SHALL BE NOT LESS THAN 250% OF RATED WORKING PRESSURE. DUCT SHALL BE LISTED AS "CLASS 0" OR "CLASS 1" FLEXIBLE AIR DUCT UNDER UL 181 AND SHALL BE SO IDENTIFIED. FLAME SPREAD RATING SHALL BE LESS THAN 25. UL SMOKE DEVELOPED RATING SHALL BE LESS THAN 50. LOW PRESSURE FLEXIBLE DUCT SHALL BE "TYPE 4-INSULATED" AS MANUFACTURED BY FLEDMASTER USA, INC., OR ENGINEER APPROVED EQUAL.
 - C. ALL FLEXIBLE DUCTWORK SHALL BE SECURED USING HEAVY DUTY, STAINLESS STEEL CLAMPS.
 - D. ALL FLEXIBLE DUCTWORK SHALL CONFORM WITH THE REQUIREMENTS OF UL 181 FOR CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS AND TO BE IDENTIFIED AS SUCH.

- B. INSULATION
 - A. ALL DUCT INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET FACING AND ADHESIVE USED TO ADHERE JACKET OR FACING TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E-24, NFPA 255 AND UL 123, NOT EXCEEDING FLAME SPREAD OF 25, FUEL CONTRIBUTED OF 50 AND SMOKE DEVELOPED OF 50. ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES AND CLOTHS FOR FITTINGS SHALL HAVE COMPONENT RATINGS AS LISTED ABOVE.
 - B. THE MATERIALS AS SPECIFIED BELOW HAVE BEEN SELECTED FROM THE CATALOG OF OWENS-CORNING FIBERGLASS CORPORATION AND ARE REPRESENTATIVE OF THE QUALITY, DESIGN AND FINISH AS DESIRED. INSULATION AS MANUFACTURED BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE PRODUCTS MEET FULLY IN ALL RESPECTS (SUCH AS DENSITY, MOISTURE ABSORPTION, ALKALINITY, THERMAL CONDUCTIVITY, JACKET, ETC.) TO THE MATERIALS AS DELINEATED BELOW.
 - C. INSULATE ALL NEW SUPPLY & RETURN DUCTWORK WITH 1/2" FIBERGLASS BLANKET AND VAPOR BARRIER.
 - D. INSULATE ALL NEW SUPPLY, RETURN AND OUTDOOR AIR INTAKE DUCTWORK EXPOSED IN ATTICS, CRANAL SPACES, BOILER ROOMS, ETC. WITH 1/2" FIBERGLASS BLANKET AND VAPOR BARRIER.
 - E. PIPE INSULATION SHALL BE HEAVY DENSITY FIBERGLASS SECTIONAL PIPE INSULATION WITH A MAXIMUM K FACTOR OF 0.23 AT 75 DEGREES F MEAN TEMPERATURE WITH FACTORY APPLIED ALL SERVICE VAPOR BARRIER JACKET. DENSITY SHALL BE NOT LESS THAN 3 LBS. PER CUBIC FEET.
 - F. INSULATE ALL REFRIGERANT LINES WITH 1/2" FIBERGLASS INSULATION WITH VAPOR BARRIER.
9. SHOP DRAWINGS
 - A. PRIOR TO ISSUING SHOP DRAWING SUBMITTALS FOR THE ENGINEER'S REVIEW, THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL OF THE SUBMITTAL DATA. THE CONTRACTOR SHALL STAMP EACH SHOP DRAWING CERTIFYING THAT THE CONTRACTOR'S REVIEW HAS BEEN COMPLETED AND THAT COORDINATION HAS BEEN ESTABLISHED.
 - B. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. ALL SHOP DRAWINGS SHALL ILLUSTRATE THAT COORDINATION HAS BEEN ESTABLISHED. FOR SHEET METAL PIPING AND EQUIPMENT LAYOUTS COMPOSITE DRAWINGS SHALL BE SUBMITTED. FIELD RELATED CONFLICTS SHALL BE RESOLVED BY THIS CONTRACTOR.
 - C. SUBMIT SHOP DRAWINGS (PROVIDE A MINIMUM OF FIVE COPIES TO ARCHITECT FOR ENGINEER'S APPROVAL) COVERING THE FOLLOWING ITEMS:
 1. DUCTWORK.
 2. DUCT INSULATION.
 3. DIFFUSERS, REGISTERS AND GRILLES.
 4. FANS.
 5. CONTROLS.
 6. FILTERS.
 7. AIR BALANCING REPORT.
 - D. THE ENGINEER'S SHOP DRAWING APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH ALL OF THE INFORMATION INDICATED IN THE CONTRACT DOCUMENTS (E.G. PLANS, SCHEDULES, DETAILS, NOTES AND SPECIFICATIONS ETC.).

10. TESTS AND BALANCING
 - A. THE WORK OF THIS CONTRACTOR SHALL INCLUDE THE FURNISHING OF ALL TESTING INSTRUMENTS, GAUGES, AND OTHER EQUIPMENT REQUIRED FOR NECESSARY TESTS REQUIRED BY LAW, RULES AND REGULATIONS AND AS SPECIFIED.
 - B. NO VISIBLE LEAKS, LOSSES IN PRESSURE, OR INCREASE IN VACUUM SHALL OCCUR DURING TEST PERIOD.
 - C. PROVIDE ALL OTHER TESTS REQUIRED BY BUILDING DEPARTMENT, FIRE DEPARTMENT AND ALL OTHER PUBLIC AGENCIES HAVING JURISDICTION.
 - D. TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF THE ARCHITECT AND SUCH OTHER PARTIES AS MAY HAVE LEGAL JURISDICTION.
 - E. OPERATE THE INSTALLATION AFTER COMPLETION FOR PERIOD NECESSARY TO MAKE ALL REQUIRED ADJUSTMENTS FOR AUTOMATIC CONTROLS, AIR OUTLETS AND FANS, UNTIL ALL PERFORMANCE CHARACTERISTICS ARE MET.
 - F. G.G. TO PROVIDE BASE BID TO ISSUE AN AIR BALANCING REPORT FOR ENGINEER'S APPROVAL. G.G. TO PROVIDE ALTERNATE BID TO ENGAGE THE SERVICES OF APPROVED INDEPENDENT AIR BALANCING COMPANY TO BALANCE THE SYSTEM AND ISSUE AN AIR BALANCING REPORT FOR ENGINEER'S APPROVAL. THE INDEPENDENT BALANCING COMPANY SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. THE TEST SHALL BE PERFORMED BY A PERSON HAVING A MINIMUM OF 5 YEARS EXPERIENCE IN TESTING AND BALANCING AIR SYSTEMS.
 - G. UPON COMPLETION OF THE INSTALLATION, THE AIR AND HYDRONIC BALANCE AND TESTING, SUBCONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS TO BALANCE THE SYSTEM. PROVIDE ANY EXTRA MANUAL VOLUME DAMPERS REQUIRED FOR PROPER AIR BALANCE.
 - H. AT THE COMPLETION OF THE TEST, THE CONTRACTOR SHALL FURNISH THE ARCHITECT SEVEN (7) COPIES OF THE FINAL TEST REPORT.
11. GUARANTEE
 - A. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED WILL BE FREE FROM ANY AND ALL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF COMPLETION AND ACCEPTANCE OF WORK.

HVAC SYMBOLS



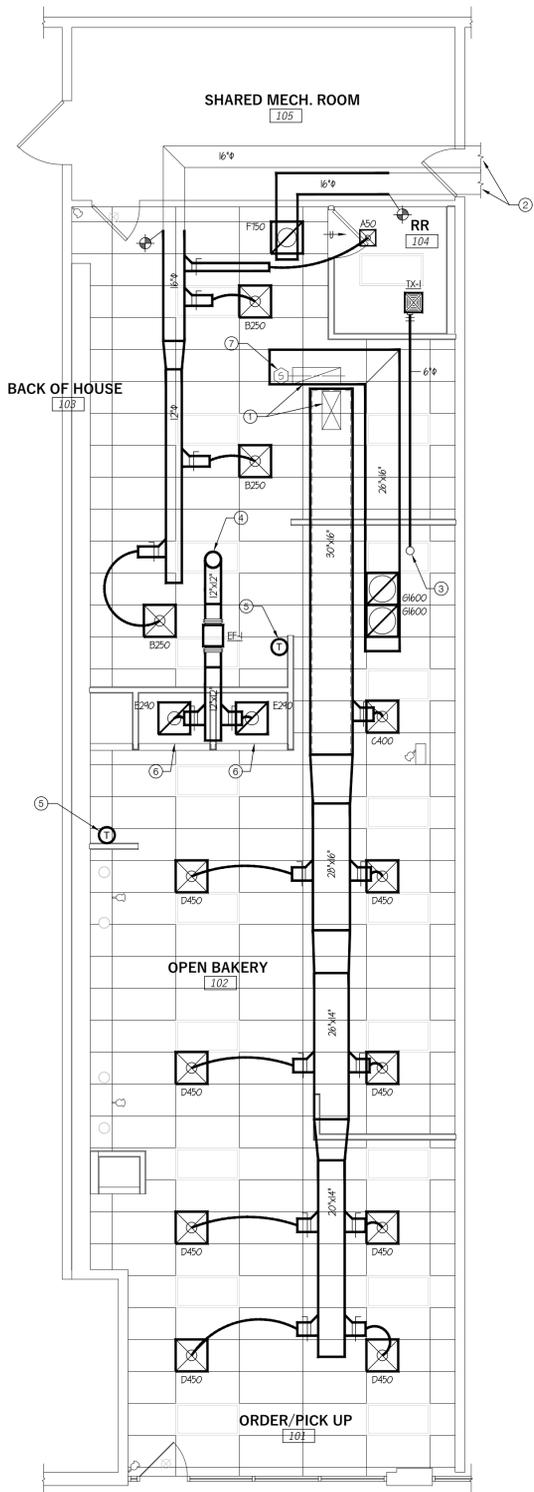
SHEET INDEX: HVAC

SHEET NO.	DESCRIPTION
MO.1	HVAC SPECIFICATIONS AND SYMBOLS
M1.1	HVAC PLAN AND SCHEDULES
M5.1	HVAC DETAILS
M5.2	HVAC DETAILS

No.	Date	Description



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MI License No: 53724



HVAC PLAN
SCALE: 3/16" = 1'-0"

SCHEDULE OF NEW FANS													
GENERAL						FAN DATA				MOTOR		REMARKS	
UNIT NO.	SERVICE	LOCATION	MANUFACTURER MODEL No.	TYPE/DESIGN	WEIGHT LBS.	TOTAL AIR QUANTITY	STAT. PRESS. (IN. WG)	FAN RPM	TYPE DRIVE	MIN. SIZE (H.P.)	VOLT PHASE CYCLE	DAMPER TYPE	REMARKS
TX-1	RESTROOM	CEILING	GREENHECK SP-B10	CENTRIFUGAL	15	75	0.25	144	DIRECT	80 W	115/60	B.D.D.	SEE NOTES: 1 THRU 7
EF-1	OVENS	FLENUM	GREENHECK 50-45-V6	CENTRIFUGAL	60	580	0.375	1523	DIRECT	1/6	115/60	B.D.D.	SEE NOTES: 1, 2, 3, 6, 8, 9, 10

- NOTES:
1. PROVIDE UNIT WITH DISCONNECT SWITCH. INDOOR FAN SHALL BE PROVIDED WITH NEMA 'T' TYPE DISCONNECT. OUTDOOR FANS SHALL BE PROVIDED WITH NEMA '3R' TYPE DISCONNECT.
 2. ALL FANS SHALL BE LICENSED TO BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE. ALL FANS TO BE UL LISTED.
 3. PROVIDE FAN WITH GRAVITY BACKDRAFT DAMPER.
 4. FAN SHALL BE CONTROLLED BY OCCUPANCY SENSOR CONTROLLING LIGHTS IN THE TOILET.
 5. PROVIDE UNIT WITH FLEXIBLE DUCT CONNECTION.
 6. PROVIDE FAN WITH SOLID STATE SPEED CONTROL.
 7. PROVIDE FAN WITH ALUMINUM/DESIGNER GRILLE.
 8. INTERLOCK FAN WITH ROOFTOP UNIT.
 9. PROVIDE SPRING HANGING ISOLATORS AND BRACKETS.
 10. PROVIDE VARI-GREEN DIAL ON EXTERIOR FAN HOUSING.

NEW DIFFUSER/REGISTER SCHEDULE							
DESIGNATION	RANGE CFM	NECK SIZE (N.)	FLEX CONNECTION (N.)	FACE SIZE (N.)	FUNCTION	MANUFACTURER & MODEL NO.	REMARKS
A	UP TO 100	6"φ	6"φ	12"x12"	C.S.D.	TITUS OMNI	SEE NOTES: 1, 2, 3, 4
B	UP TO 275	8"φ	8"φ	24"x24"	C.S.D.	TITUS OMNI	SEE NOTES: 1, 2, 3, 4
C	280 - 400	10"φ	10"φ	24"x24"	C.S.D.	TITUS OMNI	SEE NOTES: 1, 2, 3, 4
D	405 - 550	12"φ	12"φ	24"x24"	C.S.D.	TITUS OMNI	SEE NOTES: 1, 2, 3, 4
E	UP TO 350	10"φ	10"φ	24"x24"	C.R.R./C.R.G.	TITUS PAR	SEE NOTES: 1, 2, 3, 4
F	UP TO 800	22"x22"	14"φ	24"x24"	C.R.R./C.R.G.	TITUS PAR	SEE NOTES: 1, 2, 3, 4, 5
G	UP TO 1600	22"x22"	20"φ	24"x24"	C.R.R./C.R.G.	TITUS PAR	SEE NOTES: 1, 2, 3, 4, 5

- NOTES:
1. ALL PERFORMANCE DATA SHALL BE IN ACCORDANCE WITH ANSI/ASHRAE STANDARD 10-1991.
 2. UNLESS OTHERWISE NOTED, ALL DIFFUSERS/REGISTERS/GRILLES SHALL HAVE NC RATINGS LESS THAN 30.
 3. CONTRACTOR SHALL COORDINATE FRAME TYPE WITH ARCHITECTURAL, REFLECTED CEILING, PLANS.
 4. COLOR TO BE SPECIFIED BY ARCHITECT.
 5. PROVIDE SQUARE TO ROUND CONNECTION IN NECK OF DIFFUSER.

VENTILATION SCHEDULE

ROOM	AREA SQUARE FEET (A ₂)	NO. OF OCCUPANTS (P ₂)	CFM/PERSON (R _{1p})	CFM/50 FT. (R _{2a})	ZONE SUPPLY CFM	REQUIRED ZONE OUTDOOR AIRFLOW (V _{o2})	PROVIDED ZONE OUTDOOR AIRFLOW CFM	UNIT PROVIDING SUPPLY AIR	MECHANICAL EXHAUST CFM REQUIRED	MECHANICAL EXHAUST CFM PROVIDED	REMARKS
BACK OF HOUSE	520	5	5	0.06	750	51	150	2 TON RTU			
RESTROOM	56	0	0	0	50	0	10	2 TON RTU/EX-1	75	75	
OPEN BAKERY	823	8	5	0.06	2200	90	440	10 TON RTU/EX-1	571	580	
SALES AREA	378	4	5	0.06	1800	43	360	10 TON RTU			

KEY NOTES

1. EXISTING 10 TON ROOFTOP UNIT AND ASSOCIATED SUPPLY AND RETURN DUCT DROPS FROM ROOF TO REMAIN. VERIFY EXACT LOCATION IN FIELD. BALANCE RTU TO 4000 CFM SUPPLY AIR, 3200 CFM RETURN AIR AND 800 CFM OUTSIDE AIR.
2. EXISTING SUPPLY AND RETURN DUCT FROM 2 TON ROOFTOP UNIT TO REMAIN. VERIFY EXACT LOCATION IN FIELD. BALANCE RTU TO 800 CFM SUPPLY AIR, 640 CFM RETURN AIR AND 160 CFM OUTSIDE AIR.
3. 6"φ EXHAUST DUCT UP THRU ROOF WITH GOOSENECK AND BRODSCREEN.
4. 12"φ EXHAUST DUCT UP THRU ROOF WITH GOOSENECK AND BRODSCREEN.
5. PROVIDE AND INSTALL NEST T-DAY PROGRAMMABLE THERMOSTAT. FIELD VERIFY THERMOSTAT LOCATION WITH OWNER'S REPRESENTATIVE. INSTALL THERMOSTAT AT 48" A.F.F.
6. THE OVENS INSTALLED ARE LIGHT DUTY ELECTRIC COOKING APPLIANCE AND DON'T PRODUCE GREASE OR SMOKE AS A RESULT OF THE COOKING PROCESS. THEREFORE, THESE OVENS DO NOT REQUIRE A TYPE I HOOD PER IBC 2015 SECTION 507.2. TYPE I HOOD IS NOT REQUIRED BECAUSE THE HEAT AND MOISTURE LOADS HAVE BEEN INCORPORATED INTO THE HVAC DESIGN PER IBC 2015 SECTION 507.3. THE KITCHEN AREA HAS AN EXHAUST FAN THAT HAS BEEN SIZED FOR MIN. 0.1 CFM/SF AND THE MAKE-UP AIR IS VIA OUTSIDE AIR INTAKE OF ROOFTOP UNIT.
7. VERIFY OPERATION OF EXISTING DUCT SMOKE DETECTOR AND REPLACE IF NECESSARY.

No.	Date	Description



CRUMBL COOKIES - FORD RD
 42049 FORD RD
 CANTON, MICHIGAN 48187



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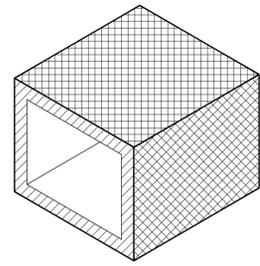
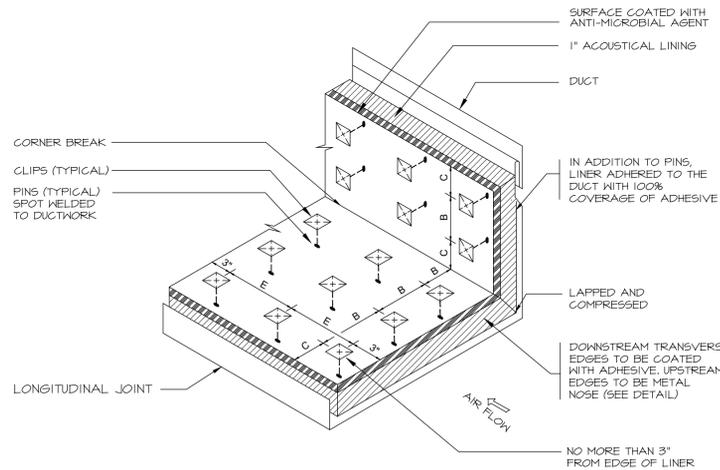


FIG. A



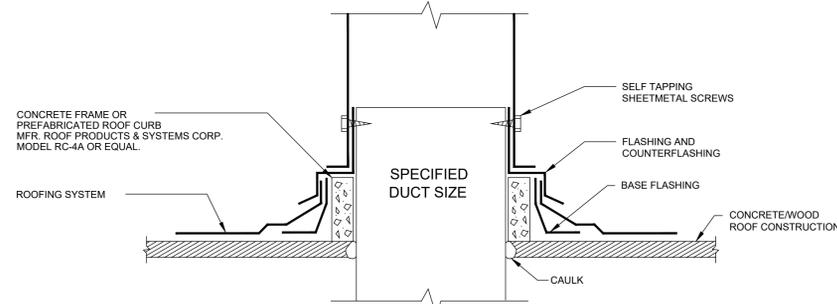
VELOCITY	DIMENSIONS		
	B	C	E
0 - 2500 FPM	12"	4"	18"
2501 - 6000 FPM	6"	4"	16"

GENERAL NOTES:

- ALL DUCT DIMENSIONS SHOWN ON THE PLANS ARE CLEAR INSIDE DIMENSIONS. CONTRACTOR SHALL ADJUST DUCT SIZES ON SHEET METAL SHOP DRAWING SUBMITTAL TO ACCOUNT FOR ACOUSTICAL LINER. UNLESS OTHERWISE NOTED ON THE PLANS, ALL ACOUSTICAL LINER MATERIAL SHALL BE 1" MINIMUM THICKNESS.
- DUCTS SHALL BE ACOUSTICALLY LINED ON ALL SIDES.
- ACOUSTICAL LINER SURFACE (AIR STREAM SIDE/FACE) SHALL BE TREATED WITH AN EPA REGISTERED ANTI-MICROBIAL AGENT, IN ACCORDANCE WITH ASTM G-21/G-22.
- ACOUSTICAL LINER SHALL BE MANUFACTURED BY EITHER OF THE FOLLOWING MANUFACTURERS: OKEN CORNING, JOHN MANVILLE, CERTANTEED. PERFORMANCE DATA (MINIMUM): DENSITY = 1.5 PCF, R-VALUE = 4.2, K-VALUE = .24
- DUCT LINER THERMAL PERFORMANCE SHALL BE TESTED IN ACCORDANCE WITH ASTM C 510. ACOUSTICAL PERFORMANCE SHALL BE IN ACCORDANCE WITH ASTM C 423.
- DUCT LINER SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 90A/90B.
- NOSING SHALL BE ATTACHED TO DUCTWORK WITH RIVETS/SCREWS/WELDS. NOSING SHALL BE 24 GAUGE FOR DUCT DIMENSIONS UP TO 48". OVER 48", GAUGE OF NOSING SHALL EQUAL DUCT GAUGE.

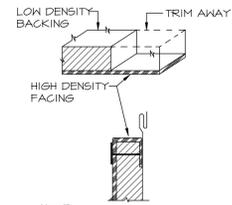
ACOUSTICAL DUCT LINING DETAIL

(N.T.S.)



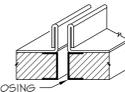
NOTE: UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS, ROOF PATCHING/REPAIR SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR. THE ROOFING MATERIAL SHALL MATCH THE EXISTING ROOFING SYSTEM. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION INDICATING THAT ANY EXISTING GUARANTEE (ASSOCIATED WITH THE EXISTING ROOFING SYSTEM) WILL BE MAINTAINED AFTER WORK IS COMPLETED.

DETAIL OF DUCT PENETRATION THRU ROOF (N.T.S.)



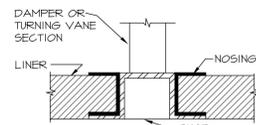
NOTE: FOLD OVER HIGH DENSITY FACINGS ON ALL LONGITUDINAL JOINTS & SECURE WITH MECH. FASTENERS

LONGITUDINAL JOINT DETAIL

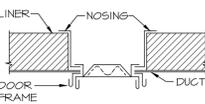


NOTE: ENTERING, BUTTING & TRAILING EDGES OF LINER AT TRANSVERSE JOINTS TO BE COVERED BY NOSING

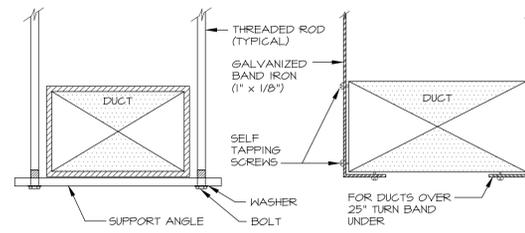
TRANSVERSE JOINT DETAIL



NOTE: HAT SECTION INSTALLED WITH NOSING TO CONCEAL LINER EDGES. DETAIL AT DAMPERS AND TURNING VANES



ACCESS DOOR NOSING DETAIL



FOR 30" OR WIDER

OPTIONAL FOR 30" OR SMALLER

METHOD OF HANGING DUCTWORK

(N.T.S.)

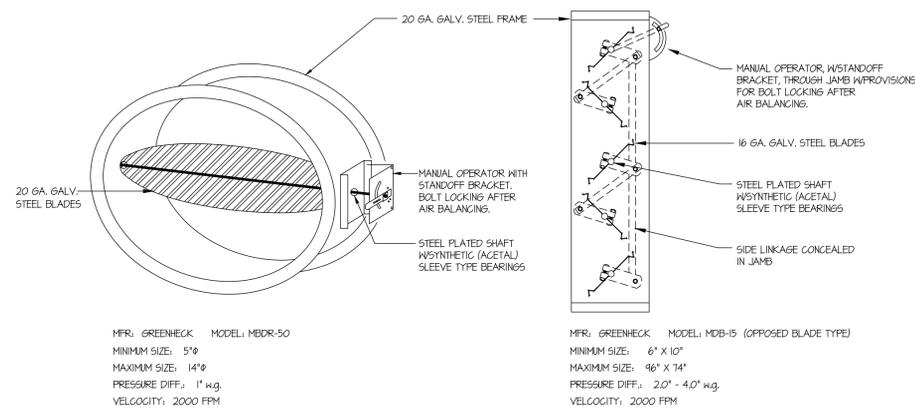
DUCT WIDTH	ROD DIAMETER	SUPPORT ANGLE OR EQUIVALENT CHANNEL	MAXIMUM SPACING
25" TO 30"	3/8"	1 1/2" x 1 1/2" x 1/8"	8'-0" O.C.
31" TO 42"	3/8"	1 1/2" x 1 1/2" x 1/8"	6'-0" O.C.
42" TO 60"	1/2"	1 1/2" x 1 1/2" x 1/8"	6'-0" O.C.
61" TO 82"	1/2"	2" x 2" x 1/4"	4'-0" O.C.

DIMENSION OF LONGEST SIDE, INCHES	SHEET METAL GAGE (ALL FOUR SIDES)	MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINT & /OR INTERMEDIATE REINFORCING	TRANSVERSE REINFORCING (1)				
			MIN. H. IN.	PLAIN S SLIP	HEM'D S SLIP	REIN-FORCED BAR SLIP	
UP THRU 12	26	NONE REQUIRED	1	26	26	24	24
13 - 18	24	NONE REQUIRED	1	24	24	24	24
19 - 30	24	1" X 1" X 1/8" @ 60 IN	1	24	24	24	24
31 - 42	22	1" X 1" X 1/8" @ 60 IN	1	22	22	22	22

(1) TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

DUCT CONSTRUCTION DETAIL

NO SCALE



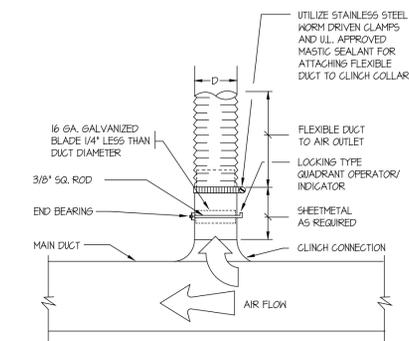
MFR: GREENHECK MODEL: MDR-50
MINIMUM SIZE: 5"φ
MAXIMUM SIZE: 14"φ
PRESSURE DIFF.: 1" w.g.
VELOCITY: 2000 FPM

MFR: GREENHECK MODEL: MDR-15 (OPPOSED BLADE TYPE)
MINIMUM SIZE: 6" X 10"
MAXIMUM SIZE: 96" X 14"
PRESSURE DIFF.: 2.0" - 4.0" w.g.
VELOCITY: 2000 FPM

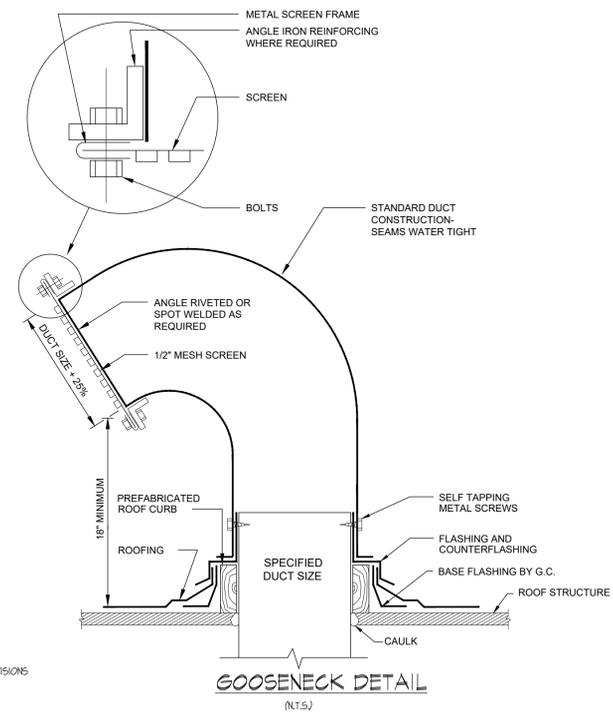
NOTES:

- DAMPER RATINGS AND TESTING SHALL BE IN ACCORDANCE WITH AMCA STANDARD 500.
- FOR MOTOR OPERATED DAMPERS USE MODEL: VCDR-50/53 (ROUND) AND MODEL VCD-23 (RECTANGULAR).
- DAMPER OPERATORS SHALL BE AS MANUFACTURED BY HONEYWELL, MODUTROL IV MOTORS. CONTRACTOR SHALL COORDINATE VOLTAGE, STROKE (FIXED/ADJUST), OPERATION (2-POSITION/PROPORTIONAL) AND TORQUE REQUIREMENTS WITH THE HVAC CONTROL SPECIFICATIONS, MECHANICAL AND ELECTRICAL DRAWINGS.

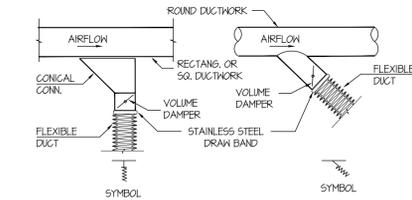
MANUAL AND MOTORIZED VOLUME CONTROL DAMPER DETAIL (NO SCALE)



CIRCULAR BRANCH CONNECTION TO SINGLE AIR OUTLET (N.T.S.)



GOOSENECK DETAIL (N.T.S.)

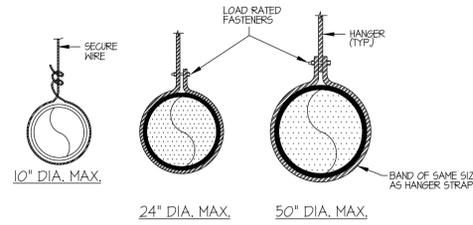


FLEXIBLE DUCT CONNECTIONS (N.T.S.)

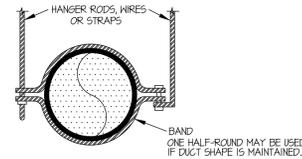
No.	Date	Description



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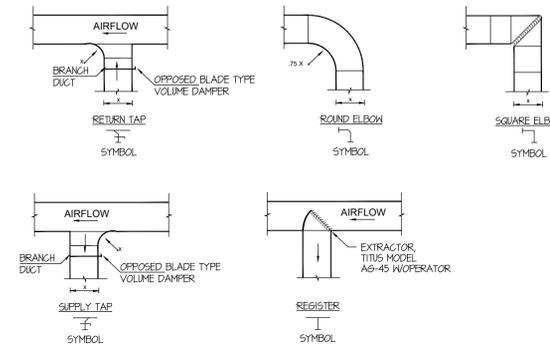


NOTE: HANGERS MUST NOT DEFORM DUCT SHAPE.

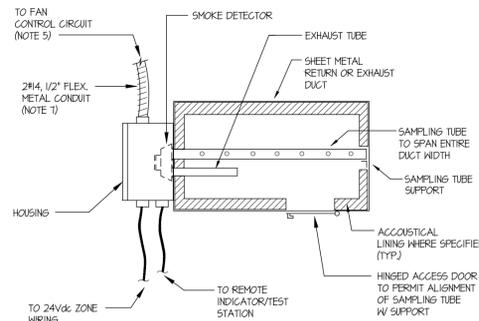


METHOD OF HANGING ROUND DUCTWORK
(N.T.S.)

DUCT DIAMETER	ROD DIAMETER	STRAP	WIRE DIAMETER	MAXIMUM SPACING
UP TO 10"	1/4"	1" X 22 ga.	ONE (1) 12 ga.	12'-0" O.C.
11" TO 18"	1/4"	1" X 22 ga.	THO (2) 12 ga. ONE (1) 8 ga.	12'-0" O.C.
19" TO 24"	1/4"	1" X 22 ga.	THO (2) 10 ga.	12'-0" O.C.
25" TO 36"	3/8"	1" X 20 ga.	THO (2) 8 ga.	12'-0" O.C.
37" TO 50"	(2) 3/8"	THO (2) 1" X 20 ga.	-	12'-0" O.C.
51" TO 60"	(2) 3/8"	THO (2) 1" X 18 ga.	-	12'-0" O.C.
61" TO 84"	(2) 3/8"	THO (2) 1" X 16 ga.	-	12'-0" O.C.



BRANCH DUCT DETAILS
(N.T.S.)



SECTION
(N.T.S.)

DUCT SMOKE DETECTOR COMPONENTS

COMPONENT	EDWARDS MODEL NO.	NOTES
• HOUSING	SD SERIES SUPERDUCT	
• SMOKE DETECTOR	SD SERIES SUPERDUCT	IONIZATION TYPE
• SAMPLING TUBE	SD-T8,T18,T24,T36,T42,T60,T18,T20	LENGTH AS REQUIRED
• EXHAUST TUBE	INCLUDED W/SAMPLING TUBE	
• INDICATOR/ TEST STATION	SD-TRK4	SEE NOTE 1
• RELAY	INCLUDED WITH SD SERIES SUPERDUCT	SEE NOTE 2

- NOTES:
- INSTALL IN ACCESSIBLE LOCATION REMOTE FROM DUCT DETECTOR HOUSING.
 - INSTALL IN DUCT DETECTOR HOUSING.
 - DETECTOR SHALL BE LOCATED IN THE EXHAUST DUCT OR MAIN RETURN AIR DUCT DOWNSTREAM OF ALL BRANCHES BUT UPSTREAM OF ANY FILTERS, AIR CLEANERS OR DECONTAMINATION EQUIPMENT.
 - WHEN POSSIBLE, MAINTAIN SIX DUCT WIDTHS BETWEEN DETECTOR AND ANY UPSTREAM DUCT OPENINGS, TURNING VANES, SHARP BENDS OR BRANCH DUCT CONNECTIONS.
 - FAN CONTROL CIRCUIT WIRING SHALL BE CONSIDERED AS A "SAFETY CONTROL" CIRCUIT, FAILURE OF WHICH INTRODUCES A HAZARD TO LIFE OR PROPERTY". AS SUCH, WIRING AND RACEWAY SHALL BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE #125-B.
 - DUCT SMOKE DETECTOR SHALL BE INSTALLED IN COMPLIANCE WITH NFPA #12E-4-4.
 - FLEXIBLE METAL CONDUIT SHOWN IS FOR VIBRATION ISOLATION ONLY. SEE GENERAL DRAWING NOTES FOR BRANCH CIRCUIT AND LOW VOLTAGE CONTROL CONDUCTOR AND RACEWAY TYPES.

SUPERVISED DUCT SMOKE DETECTOR
INTERNATIONAL MECHANICAL CODE COMPLIANCE
(N.T.S.)

PLUMBING NOTES AND SPECIFICATIONS

- GENERAL**
- CONTRACTOR SHALL PERFORM ALL WORK SO AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
 - CONTRACTOR SHALL EXAMINE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE PLUMBING WORK.
 - DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF PIPING, FIXTURES, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE, PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
 - DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
 - SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THIS CONTRACTOR.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND START-UP OF THE SYSTEM.
 - ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPAILLONS AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING INSTALLATION.
 - CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO ARCHITECT FOR APPROVAL (MINIMUM FIVE (5) COPIES).
 - COORDINATE CONNECTIONS TO STREET WITH LOCAL UTILITY COMPANY (S).
 - CONTRACTOR SHALL FILE, SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
 - ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY OWNER.
 - ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 MICHIGAN BUILDING CODE, 2018 MICHIGAN PLUMBING CODE, 2015 INTERNATIONAL FUEL GAS CODE AND 2015 MICHIGAN ENERGY CODE.
 - THE PLUMBING SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE 2018 MICHIGAN BUILDING CODE & 2018 INTERNATIONAL FUEL GAS CODE. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
 - WHERE DEVICES REQUIRING ACCESS (VALVES, CLEANOUTS, ETC.) WOULD OTHERWISE BE RENDERED INACCESSIBLE BY BUILDING CONSTRUCTION, PROVIDE FRAMED ACCESS DOOR. ACCESS DOORS FINISHES SHALL BE COORDINATED WITH ARCHITECT. IN GENERAL, ACCESS DOORS SHALL BE PRIMED, PAINTABLE, STEEL WHEN LOCATED IN DRYWALL CONSTRUCTION. ACCESS DOORS IN TOILET ROOM TILE WAINSCOT SHALL BE STAINLESS STEEL. ACCESS DOORS IN EXTERIOR WALLS SHALL BE PROVIDED WITH INSULATED DOORS. ACCESS DOORS IN COLUMN ENCLOSURES OR FIRE RESISTIVE WALLS SHALL BE FIRE RATED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.
 - COORDINATE LOCATIONS OF ALL VALVES AND CONNECTIONS TO APPLIANCES WITH EQUIPMENT SUPPLIER.

SCOPE OF WORK

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL FIXTURES, MATERIALS, PIPING AND COMPONENTS AS REQUIRED FOR A COMPLETE AND OPERATIONALLY FUNCTIONAL SYSTEM. SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO:

- CUTTING OF PAVEMENT OR CONCRETE SURFACES AS REQUIRED.
- EXCAVATION AND TRENCHING.
- BEDDING FOR UNDERGROUND PIPING.
- STABILIZATION OF TRENCH BEDS WHERE REQUIRED DUE TO SOIL CONDITIONS.
- INSTALLATION AND TESTING OF UNDERGROUND PIPING.
- BACKFILLING AND COMPACTION.
- INSTALLATION OF UNDERGROUND AND ABOVE GROUND SANITARY DRAIN WASTE AND VENT PIPING.
- INSTALLATION OF CLEANOUTS IN SANITARY DRAINAGE SYSTEMS.
- INSTALLATION OF FLOOR DRAINS AS INDICATED ON THE DRAWINGS.
- INSTALLATION OF DOMESTIC HOT AND COLD WATER PIPING INCLUDING ANTI-WATER HAMMER SHOCK ABSORBERS, VALVES, STOP VALVES, FLEX-SUPPLIES, DIELECTRIC UNIONS BETWEEN DISSIMILAR PIPING MATERIALS, ETC.
- INSTALLATION OF DOMESTIC WATER HEATERS INCLUDING ASME APPROVED, ASA RATED TEMPERATURE AND PRESSURE RELIEF VALVES, GATE VALVES, UNIONS, REGULATION PUMPS, CHECK VALVES, CONTROLS, ETC.
- INSTALLATION OF BACKFLOW PREVENTORS, PRESSURE REDUCING AND RELIEF VALVES AS INDICATED ON THE DRAWINGS.
- INSTALLATION OF TRAP PRIMERS AS SHOWN ON THE DRAWINGS.
- INSTALLATION OF WALL HYDRANTS, HOSE BIBBS AND OTHER DEVICES AS SHOWN ON THE DRAWINGS.
- INSTALLATION OF FIXTURES INCLUDING WALL HANGERS, SUPPORTS, STOP VALVES, FLEX-SUPPLIES, DRAINS, TRAPS, STRAINERS, FAUCETS, SOAP DISPENSERS, ESCUTCHEONS, SEATS AND OTHER DEVICES AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SCHEDULE OF PLUMBING FIXTURES.
- TESTING OF THE PLUMBING SYSTEM INCLUDING AIR OR WATER TEST OF DRAINAGE SYSTEM ROUGHINGS, SMOKE TEST OF FINISHED DRAINAGE SYSTEM AND PRESSURE TEST OF DOMESTIC WATER SYSTEMS.
- DISINFECTION OF THE DOMESTIC WATER SUPPLY SYSTEM.
- HEAT TRACING FOR LINES EXPOSED TO FREEZING.
- PIPING SUPPORT INCLUDING SEISMIC RESTRAINT SWAY BRACING IN ACCORDANCE WITH IBC 2018.
- INSTALLATION OF FIBERGLASS INSULATION, FITTING COVERS AND JACKETS ON ALL HOT AND COLD DOMESTIC WATER PIPING.
- CUTTING AND PATCHING AS REQUIRED.
- PERMITS, INSPECTIONS, APPROVALS AND CERTIFICATES, INCLUDING FEES.
- GUARANTEE.

- UNDERGROUND PIPING**
- UNDERGROUND SANITARY AND STORM DRAINAGE PIPING AND FITTINGS SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND PVC PIPING SHALL BE PROVIDED WITH A COMPACTED SAND BED 6" BELOW 6" ABOVE AND 6" TO EACH SIDE OF LINE. PIPING BED SHALL BE INSTALLED ON VIRGIN TRENCH BOTTOM ONLY. PVC PIPING AND PIPING BED SHALL NOT BE LAID ON DISTURBED OR BACKFILLED SOIL.
 - TRENCHES SHALL BE EXCAVATED TO PROPER DEPTH AS REQUIRED TO ACCOMMODATE PIPING INVERTS OR BURIAL DEPTHS AS SHOWN ON THE LINES OR PITCH AS REQUIRED BY THE NSFC. COORDINATE INVERTS OF UTILITY LINES AND MANHOLES WITH THE SITE ENGINEER'S DRAWINGS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE SAFETY PRECAUTIONS ON SITE INCLUDING SHORING OR SLOPING OF TRENCH WALLS.
 - WHERE LINES ARE TO BE LAID ON VIRGIN TRENCH BEDS, CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT TRENCH BOTTOM PROVIDES SOLID AND CONTINUOUS BEARING ALONG ENTIRE LENGTH OF PIPE. PROVIDE BELLHOLES AT THE POINTS WHERE HUB AND SPIGOT PIPING ARE JOINED.
 - WHERE EXCAVATION OF TRENCHES DO NOT PROVIDE FOR CONTINUOUS BEARINGS, PROVIDE COMPACTED SAND BED.
 - WHERE ROCK IS ENCOUNTERED IN, REMOVE TO A POINT AT LEAST 6" BELOW BOTTOM OF TRENCH. BACKFILL AND COMPACT WITH SAND TO PROVIDE A UNIFORM BEARING SURFACE. CARE SHALL BE EXERCISED TO ENSURE THAT PIPING DOES NOT REST ON ROCK AT ANY POINT.

- IF SOIL CONDITIONS AT THE BOTTOM OF THE TRENCH ARE FOUND TO PROVIDE INADEQUATE BEARING FOR PIPING, STABILIZE AS FOLLOWS:
 - OVEREXCAVATE TO SOLID BEARINGS.
 - BACKFILL TO 6" BELOW PIPING WITH CRUSHED STONE.
 - BACKFILL AND COMPACT WITH SAND TO PROPER BED ELEVATION.
- BACKFILL AND COMPACT IN 6" LAYERS UNTIL THE LINES ARE COVERED BY AT LEAST 2'-0". BACKFILL MATERIAL SHALL BE LOOSE SOIL, FREE OF ROCKS, CONSTRUCTION DEBRIS, METALLIC OBJECTS, ORGANIC MATERIALS, GYPSSUM BOARD, FROZEN CHUNKS, CANDERS, ETC. BACKFILL SHALL BE PLACED AND COMPACTED EVENLY ON BOTH SIDES OF PIPING IN ORDER TO MAINTAIN PROPER ALIGNMENT.
- JOINTS IN CAST IRON UNDERGROUND PIPING SHALL BE MOLDED ELASTOMERIC PUSH-ON TYPE AS MANUFACTURED BY FERRO, INC., U.S. PIPE OR APPROVED EQUAL. PREPARE PIPE ENDS, INSTALL GASKETS AND LUBRICATE IN ACCORDANCE WITH THE JOINT MANUFACTURER'S RECOMMENDATIONS. USE ASSEMBLY TOOLS AND PROCEDURES AS RECOMMENDED BY THE JOINT MANUFACTURER.
- WRAP UNDERGROUND IRON AND STEEL PIPING WITH VINYL, POLYETHYLENE OR VINYL-BUTYL TAPES.
- MAINTAIN A MINIMUM 1'-0" SEPARATION BETWEEN DOMESTIC WATER SERVICE LINES AND BUILDING SEWERS.
- PROVIDE WATERPROOF SLEEVE WHERE ALL PIPING PENETRATES EXTERIOR WALLS, SLABS, FOUNDATIONS, ETC.
- PRESSURE TEST ALL UNDERGROUND PIPING PRIOR TO BACKFILLING. TEST PRESSURES AND TIMES SHALL BE AS FOLLOWS:

SANITARY DRAINAGE	5 PSI FOR 15 MINUTES
DOMESTIC WATER SERVICE	150 PSI FOR 30 MINUTES

- SANITARY DRAINAGE**
- ABOVE GROUND SANITARY WASTE, VENT AND ROOF DRAIN PIPING SHALL BE DWV SCHEDULE 40.
 - CLEANOUTS FOR SANITARY DRAINAGE SYSTEMS SHALL BE LOCATED IN ACCORDANCE WITH ARTICLE 5.4 OF THE NATIONAL STANDARD PLUMBING CODE.
 - ALL VENT PENETRATIONS THROUGH BUILDING ROOF SHALL BE MADE WATER-TIGHT BY THE USE OF PROPER FLASHING MATERIALS. SUBMIT FLASHING DETAILS FOR APPROVAL BY THE ARCHITECT.
 - VENTS THRU ROOF SHALL NOT BE LESS THAN 3" TO PREVENT FROST CLOSURE. WHERE VENTS SMALLER THAN 3" ARE INDICATED ON THE DRAWINGS, INCREASE TO 3" SIZE AT LEAST 12" BELOW ROOF.
 - VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF. VENTS SHALL NOT TERMINATE BELOW OR WITHIN 10' HORIZONTALLY OF ANY DOOR, WINDOW, FRESH AIR INTAKE OR OTHER VENTILATION OPENING, WHERE 10' HORIZONTAL CLEARANCE CANNOT BE MAINTAINED, EXTEND VENT TO AT LEAST 2' ABOVE VENTILATION OPENING.
 - PVC PIPING AND FITTINGS SHALL BE AS MANUFACTURED BY R46 SLOANE OR ENGINEER APPROVED EQUAL.
 - FITTINGS FOR PVC PIPING SHALL BE COMPATIBLE WITH THE PIPING MATERIALS EMPLOYED AND SHALL HAVE NO LEDGES, SHOULDERS OR DIAMETER REDUCTIONS WHICH CAN RETARD OR OBSTRUCT FLOW.
 - SOLVENTS AND CEMENTS FOR PVC PIPING SHALL BE MANUFACTURED, APPLIED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

- DOMESTIC WATER**
- DOMESTIC COLD AND HOT WATER PIPING SHALL BE COPPER TYPE "L" FITTINGS SHALL BE WROUGHT COPPER, 95%-5% SOLDER SHALL BE USED.
 - ALL POTABLE WATER PIPING SHALL BE DISINFECTED AS PER ANHA STANDARD C601-54 AND AS REQUIRED BY THE LOCAL BUILDING AND HEALTH DEPARTMENT CODES.
 - ANTI WATER-HAMMER SHOCK ABSORBERS SHALL BE JAY R. SMITH "HYDROTRON" SIZED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - PROVIDE STOP VALVES FOR ALL DOMESTIC WATER CONNECTIONS TO FIXTURES EXCEPT WHERE GATE VALVES ARE INDICATED ON THE DRAWINGS.
 - PROVIDE CHROME PLATED, BRASS ANGLED STOP VALVES FOR ALL WATER CLOSETS, LAVS, SINKS, ETC.
 - PROVIDE ASME TEMPERATURES AND PRESSURE RELIEF VALVES FOR ALL DOMESTIC WATER HEATERS.
 - DISCHARGE OF ALL RELIEF VALVES SHALL BE PIPED TO THE FLOOR TO PREVENT ACCIDENTAL SCALDING.
 - PROVIDE TWO (2) GATE VALVES AND TWO (2) UNIONS AND DRAIN VALVE WITH HOSE THREAD FOR EACH DOMESTIC WATER HEATER.

- HANGERS AND SUPPORTS**
- ALL FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE PIPING SYSTEM. SEE "FIXTURES" SECTION OF "NOTES AND SPECIFICATIONS" AND FIXTURE SCHEDULE NOTES.
 - MAXIMUM SPACING OF SUPPORTS FOR VERTICAL PIPING SHALL NOT EXCEED:

TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL LINES	AT BASE AND EACH STORY
THREADED STEEL PIPE	AT EVERY OTHER STORY
COPPER TUBE	AT 10'-0" INTERVALS
PVC PIPING	AT 4'-0" INTERVALS
 - PROVIDE RISER CLAMPS, WALL BRACKET HANGER, ETC. AS REQUIRED. HANGERS FOR PVC PIPING SHALL BE AS APPROVED BY THE MANUFACTURER.
 - MAXIMUM SPACING OF SUPPORTS FOR HORIZONTAL PIPING SHALL NOT EXCEED:

TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL PIPE	AT 5'-0" (10'-0" FOR 10' LENGTHS)
THREADED STEEL PIPE (3/4" LESS	AT 10'-0" INTERVALS
THREADED STEEL PIPE (1" & LARGER)	AT 12'-0" INTERVALS
COPPER TUBE (1/4" & LESS)	AT 6'-0" INTERVALS
COPPER TUBE (1/2" & LARGER)	AT 10'-0" INTERVALS
PVC PIPING (1/2" & LESS)	AT 3'-0" INTERVALS
PVC PIPING (2" & LARGER)	AT 4'-0" INTERVALS
 - ALL RISERS SHALL BE SUPPORTED AT THE BASE.
 - PROVIDE CAPABILITY FOR EXPANSION AND CONTRACTION IN ALL PIPING AS INDICATED BELOW:

TYPE OF PIPING	TYPE OF PROVISIONS
DRAIN LINES IN UNHEATED AREAS	EXPANSION FITTINGS @ 125'
DOMESTIC HOT WATER LINES	EXPANSION LOOP @ 100'

- PROVIDE SEISMIC RESTRAINT SWAY BRACING FOR ALL PIPING AS FOLLOWS:
 - GAS PIPING 1" AND LARGER WITH HANGERS 12" OR LONGER.
 - ALL BOILER ROOM AND MECHANICAL ROOM PIPING 1 1/4" LARGER WITH HANGERS 12" OR LONGER.
 - ALL PIPING 2 1/2" & LONGER WITH HANGERS 12" OR LONGER.
- LONGITUDINAL SWAY BRACING SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 80'-0" LATERAL SWAY BRACING SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 40'-0".

- INSULATION**
- THE FOLLOWING PIPING SHALL BE INSULATED:
 - DOMESTIC COLD WATER
 - DOMESTIC HOT WATER
 - CONDENSATE DRAINS
 - ALL HEAT TRACED PIPING
 - INSULATION SHALL BE RIGID FIBERGLASS AND SHALL BE MANVILLE "MICRO-LOK" OR APPROVED EQUAL. PROVIDE JACKETS AS SPECIFIED BELOW.

SERVICE	PIPE SIZE	INSULATION THICKNESS
a. DOMESTIC COLD WATER	ALL	1"
b. DOMESTIC HOT WATER	UP TO 1-1/4"	1"
c. DOMESTIC HOT WATER	1-1/2" AND ABOVE	1.5"
d. CONDENSATE DRAIN	ALL	1"
e. HEAT TRACED PIPING	ALL	1.5"
 - JACKETS FOR GENERAL PURPOSE, INDOOR USE SHALL BE MANVILLE "AP-T PLUS" PRESSURE SENSITIVE LAP SEALING SYSTEM OR APPROVED EQUAL.
 - JACKETS FOR OUTDOOR USE SHALL BE MANVILLE "ZESTON 2000" PVC WITH "PERMA-WELD" ADHESIVE OR APPROVED EQUAL.
 - VALVES, FLANGES, ELBOWS, TEES, HUBS AND OTHER FITTINGS SHALL BE INSULATED USING MANVILLE "HI-LO TEMP" FIBERGLASS INSERTS WITH MANVILLE "ZESTON 2000" PVC FITTING COVERS SECURED WITH MANVILLE "PERMA-WELD" ADHESIVE.
 - ALL INSULATION SYSTEMS, INCLUDING INSULATION ADHESIVES AND JACKETS SHALL BE CERTIFIED IN ACCORDANCE WITH ASTM E84 FOR FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS.
- FIXTURES**
- SEE FIXTURE SCHEDULE FOR FIXTURE TYPES AND CONNECTION SIZES.
 - COORDINATE EXACT FIXTURE LOCATIONS FOR ROUGHING WITH THE ARCHITECTURAL DRAWINGS.
 - WHERE ARCHITECTURAL DRAWINGS INDICATE TOILET ROOMS TO BE HANDICAPPED ACCESSIBLE OR HANDICAPPED ADAPTABLE COORDINATE FIXTURE CLEARANCE WITH I.A.C.C. 5-23-1, "BARRIER - FREE SUBCODE".
 - UNLESS OTHERWISE INDICATED, ALL FIXTURES SHALL BE "WHITE". COORDINATE ALL FIXTURE COLORS WITH THE ARCHITECT.
 - PROVIDE POP-UP DRAIN AND OVERFLOW FOR ALL LAVS.

- TESTING AND DISINFECTION**
- ALL NEW PLUMBING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE NSFC.
 - SANITARY DRAINAGE SYSTEMS ROUGHING SHALL BE PRESSURE TESTED AT NOT LESS THAN 5 PSI FOR A PERIOD OF 15 MINUTES. PROVIDE TEST TEES, TEST PLUGS AND COMPRESSOR AS REQUIRED. THE FINAL SANITARY DRAINAGE SYSTEM SHALL BE SMOKE TESTED. WHERE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION, PEPPERMINT MAY BE USED IN LIEU OF SMOKE TESTS.
 - DOMESTIC WATER SYSTEMS SHALL BE HYDROSTATIC TESTED A 150 PSI FOR NOT LESS THAN ONE HOUR.
 - ALL NEW DOMESTIC WATER SYSTEMS SHALL BE DISINFECTED USING A WATER CHLORINE SOLUTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF NSFC ARTICLE 110.4.

SHEET INDEX: PLUMBING

SHEET NO.	DESCRIPTION
P0.1	PLUMBING SPECIFICATIONS AND SYMBOLS
P1.1	PLUMBING PLANS
P5.1	PLUMBING SCHEDULES AND RISER DIAGRAMS
P6.1	PLUMBING DETAILS
P7.1	PLUMBING COMCHECK

PLUMBING SYMBOLS

PIPING

SANITARY SYSTEMS

STORM DRAINAGE SYSTEMS

DOMESTIC WATER SYSTEMS

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BTU	BRITISH THERMAL UNITS
CAI	CONSTRUCTION AIR INTAKE
CI	CAST IRON
CU	COPPER
CUFT.	CUBIC FEET
DN	COLD WATER
DI	DUCTILE IRON
ELEV	ELEVATION
FPS	FEET PER SECOND
FPAL	GALLONS
FPD	GALLONS PER DAY
FPH	GALLONS PER HOUR
FPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
HW	HOT WATER
ID	INSIDE DIAMETER
IPS	INTERNATIONAL PIPE SIZE
LF	LINEAR FEET
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
REG/RC	REGULATION
SWGI	SERVICE WEIGHT CAST IRON
WTR	WATER
XGCI	EXTRA HEAVY CAST IRON

PROJECT NUMBER
21-418

ISSUE DATE:
MARCH 2, 2022

REVISIONS:

No.	Date	Description

CONSULTANT



CRUMBL COOKIES - FORD RD
42049 FORD RD
CANTON, MICHIGAN 48187



Pathik B. Shah, P.E.
MI License No: 53724

PLUMBING SPECIFICATIONS AND SYMBOLS

P0.1



No.	Date	Description



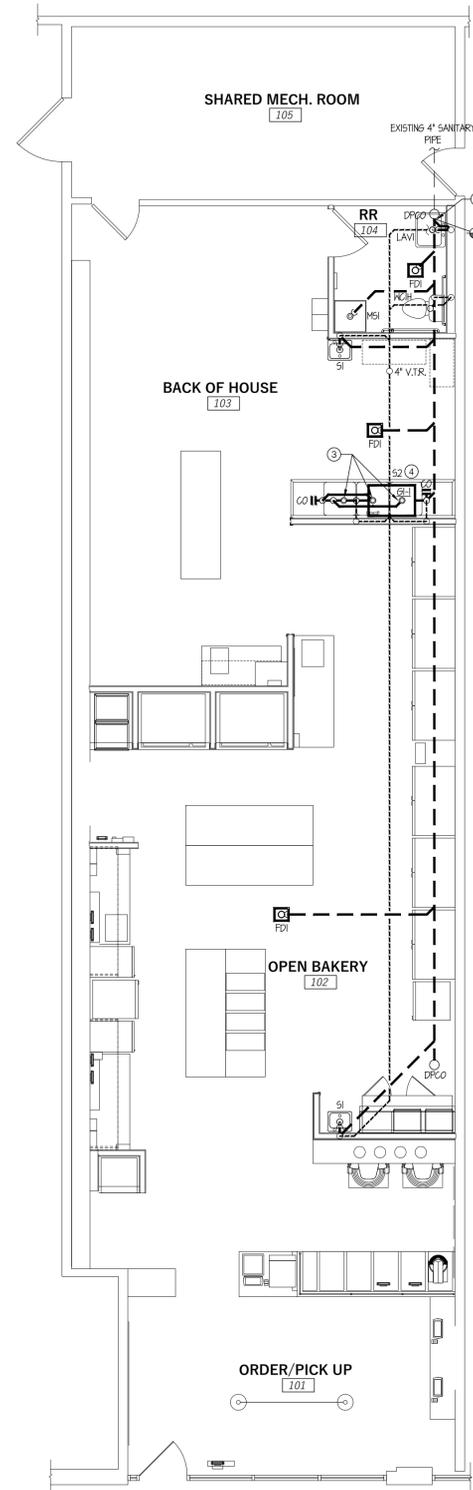
CRUMBL COOKIES - FORD RD
 42049 FORD RD
 CANTON, MICHIGAN 48187



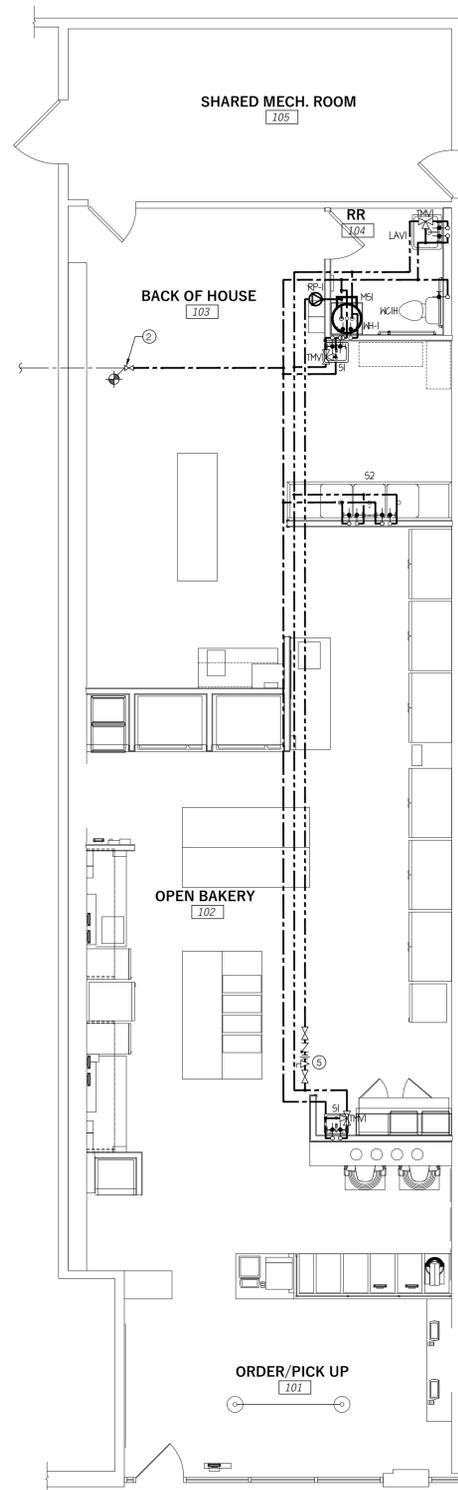
Pathik B. Shah, P.E.
 MI License No: 53724



- KEY NOTES**
- CONNECT TO EXISTING 4" SANITARY LINE IN THIS AREA. FIELD VERIFY EXISTING SANITARY PIPE LOCATION.
 - CONNECT TO EXISTING 2" DOMESTIC WATER PIPE. FIELD VERIFY EXACT LOCATION.
 - ROUTE 1/2" INDIRECT WASTE FROM 3-COMPARTMENT SINK BOWL TO FLOOR SINK WITH AIR GAP.
 - PROPOSED LOCATION OF ABOVE GROUND GREASE INTERCEPTOR. FIELD VERIFY EXACT LOCATION WITH OWNER'S REPRESENTATIVE.
 - GRIGITSOLVER ASSEMBLY MODEL "CS1A-1/2-140-CV1".



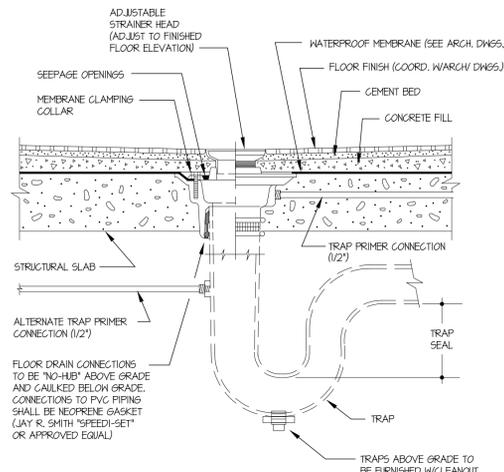
SANITARY PLAN
 SCALE: 3/16" = 1'-0"



WATER PLAN
 SCALE: 3/16" = 1'-0"



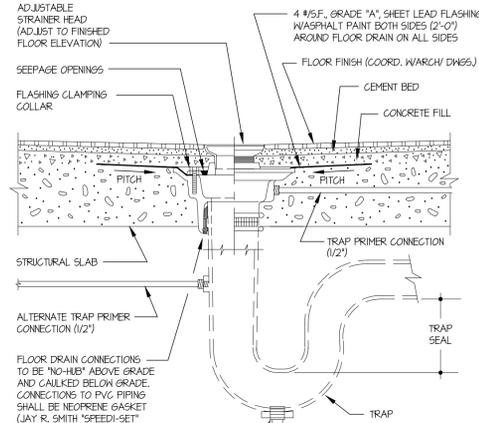
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TYPICAL FLOOR DRAIN DETAIL FOR FINISHED FLOORS WITH MEMBRANES (N.T.S.)

- NOTES: 1. TRAP SEAL SHALL BE MINIMUM 2" FOR FLOOR DRAINS EQUIPPED WITH TRAP PRIMER SUPPLY. 2. WHERE FLOOR DRAINS ARE NOT INDICATED ON PLAN TO BE FURNISHED WITH TRAP PRIMER SUPPLY, PROVIDE DEEP SEAL TRAP WITH MINIMUM 4" TRAP SEAL.

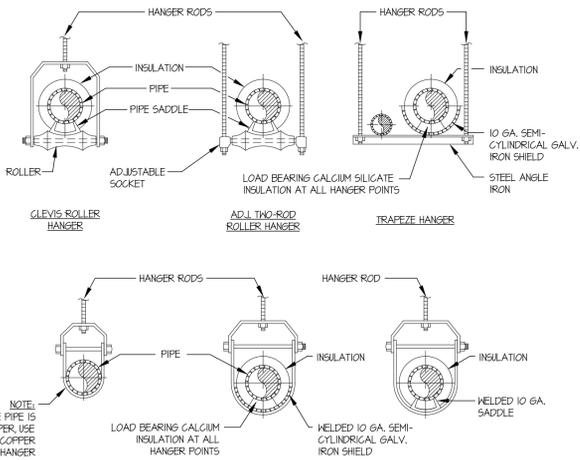
Table with 2 columns: TRAP SIZE, CLEANOUT SIZE. Rows: 1 1/2", 2", 3", 4".



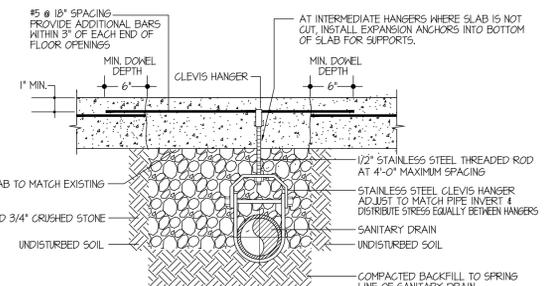
TYPICAL FLOOR DRAIN DETAIL FOR FINISHED FLOORS WITHOUT MEMBRANES (N.T.S.)

- NOTES: 1. TRAP SEAL SHALL BE MINIMUM 2" FOR FLOOR DRAINS EQUIPPED WITH TRAP PRIMER SUPPLY. 2. WHERE FLOOR DRAINS ARE NOT INDICATED ON PLAN TO BE FURNISHED WITH TRAP PRIMER SUPPLY, PROVIDE DEEP SEAL TRAP WITH MINIMUM 4" TRAP SEAL.

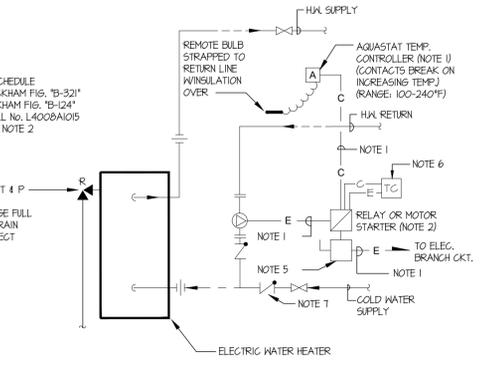
Table with 2 columns: TRAP SIZE, CLEANOUT SIZE. Rows: 1 1/2", 2", 3", 4".



PIPE HANGING DETAIL (N.T.S.)

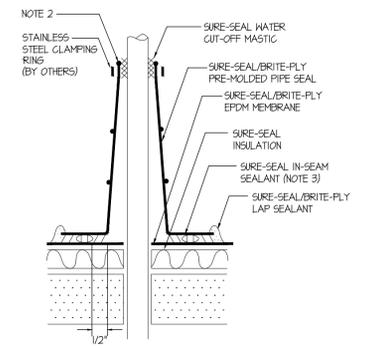


TYPICAL CLEVIS HANGER DETAIL BELOW 1ST FLR. (N.T.S.)



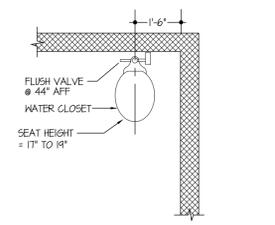
TYPICAL WATER HEATER DETAIL WITH RE-CIRCULATING PUMP (N.T.S.)

- NOTES: 1. ALL ELECTRICAL BRANCH CIRCUIT & CONTROL WIRING IS FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. 2. PROVIDE SWITCHING RELAYS, WHERE REQUIRED, AS FOLLOWS: a. 20V, 1/8 HP USE HONEYWELL NO. RA32A1074. b. 208/240V, 1/8 HP TO AND INCLUDING 1/3 HP, USE HONEYWELL NO. RA 832A1074. c. OVER 1/3 HP, PROVIDE FUSED DISCONNECT SWITCH TYPE MOTOR STARTER WITH RERUAL OVERLOAD RELAY & FUSED CONTROL TRANSFORMER. 3. CIRCULATOR SHALL BE BRONZE BODY WITH BRASS IMPELLER AND BRONZE SLEEVE BEARINGS. 4. ALL PUMP MOTORS 1/3 HP AND SMALLER SHALL BE PROVIDED WITH INTEGRAL THERMAL OVERLOAD PROTECTION. 5. DISCONNECT SWITCH IS FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR FOR PUMP MOTORS RATED 1/3 HP AND LESS. DISCONNECT SWITCH NOT REQUIRED FOR MOTORS RATED OVER 1/3 HP (SEE NOTE 2c). 6. TIME CLOCK SHALL BE TORK # H00 FOR 120V INSTALLATIONS AND TORK #K202 FOR 208/240V INSTALLATIONS. 7. DRILL 1/8" DIAMETER HOLE IN CHECK VALVE CLAPPER.

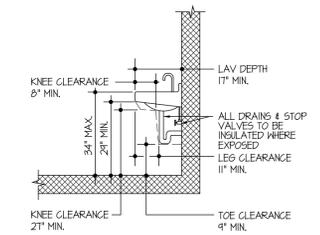


FLASHING DETAIL FOR PIPES 4" & SMALLER THRU ROOF (BASED ON CARLISLE) (N.T.S.)

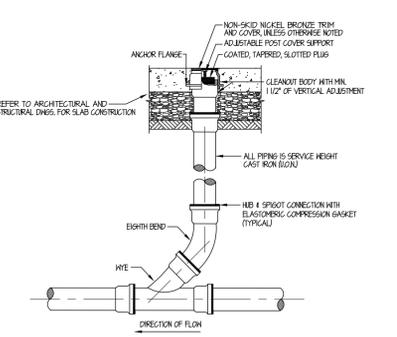
- NOTES: 1. REMOVE ALL LEAD AND OTHER FLASHINGS. 2. PRE-MOLDED PIPE SEAL MUST HAVE INTACT RIB AT TOP EDGE, REGARDLESS OF PIPE DIAMETER. 3. APPLY IN-SEAM SEALANT 1/2 INCH FROM INSIDE EDGE OF PIPE SEAL FLANGE.



ADULT, ACCESSIBLE W.C. DETAIL (N.T.S.)

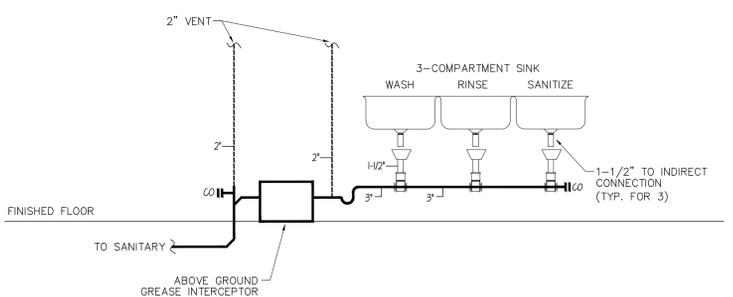


ADULT, ACCESSIBLE LAVATORY DETAIL (N.T.S.)



DECK PLATE CLEANOUT DETAIL (N.T.S.)

- NOTE: 1. HEAVY DUTY CLEANOUT IS SIMILAR, REFER TO HDGO DETAIL FOR BODY AND COVER DETAILS.



3-COMPARTMENT SINK SANITARY DETAIL (N.T.S.)

COMcheck Software Version 4.1.5.1
Mechanical Compliance Certificate

Project Information
 Energy Code: 90.1 (2013) Standard
 Project Title: Crumbl Cookies - Ford Rd
 Location: Ann Arbor, Michigan
 Climate Zone: 5a
 Project Type: New Construction

Construction Site: 42049 Ford Rd, Canton, MI 48187
 Owner/Agent:
 Designer/Contractor: Mr. Pathik Shah, P.E., PBS Consulting Engineers, Inc., 312 Rahway Road, Edison, NJ 08820, pathik@pbs-engineers.com

Mechanical Systems List
Quantity System Type & Description
 1 WH-1:
 Electric Storage Water Heater, Capacity: 50 gallons w/ Circulation Pump
 Proposed Efficiency: 0.84 SL, %/h (if > 12 kW), Required Efficiency: 0.84 SL, %/h (if > 12 kW)

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 90.1 (2013) Standard requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

Project Title: Crumbl Cookies - Ford Rd Report date: 01/23/22
 Data filename: C:\PBS Consulting Engineers Inc\Project Documents\2022\22008-Crumbl Cookies - Ford Rd, Page 1 of 7
 Canton, MI\22008 Comcheck.cck

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
6.4.3.4.5 [ME39]³	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 90% or less of design capacity.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.3.2.1 [ME40]²	DX cooling systems >= 75 kBtu/h (>= 65 kBtu/h effective 1/2016) and chilled-water and evaporative cooling fan motor hp >= 1/2 designed to vary indoor fan airflow as a function of load and comply with operational requirements.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values.
6.5.7.1.5 [ME49]¹	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
7.4.2 [ME36]²	Service water heating equipment meets efficiency requirements.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
6.4.3.9 [ME63]³	Heating for vestibules and air curtains include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating systems controlled by a thermostat in the vestibule with setpoint <= 60F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.10 [ME73]³	Doors separating conditioned space from the outdoors have controls that disable/reset heating and cooling system when open.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Building entrances have automatic closing devices.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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COMcheck Software Version 4.1.5.1
Inspection Checklist
 Energy Code: 90.1 (2013) Standard

Requirements: 91.0% were addressed directly in the COMcheck software
 Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2, 7.7.1, 10.4.2 [PR3]²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2, 8.4.1.1, 8.4.1.2, 8.7 [PR6]²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder conductors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10]²	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
10.4.1 [EL9]²	Electric motors meet requirements where applicable.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
7.4.4.1 [PL2]¹	Temperature controls installed on service water heating systems (<=120°F to maximum temperature for intended use).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
7.4.4.2 [PL3]¹	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
7.4.4.3 [F111]¹	Public lavatory faucet water temperature <=110°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
7.4.4.4 [F112]¹	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
10.4.3 [F124]²	Elevators are designed with the proper lighting, ventilation power, and standby mode.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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PROJECT NUMBER

21-418

ISSUE DATE:

MARCH 2, 2022

REVISIONS:

No. Date Description

CONSULTANT



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PLUMBING
 COMCHECK

P7.1



ELECTRICAL NOTES AND SPECIFICATIONS

GENERAL

- CONTRACTOR SHALL PERFORM ALL WORK AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
- ALL WORK SHALL BE IN STRICT CONFORMANCE WITH 2017 NATIONAL ELECTRICAL CODE, 2015 MICHIGAN BUILDING CODE, 2012 INTERNATIONAL FIRE CODE AND 2015 MICHIGAN ENERGY CODE.
- ALL NUMERICAL "NEC" REFERENCES CITED HEREIN ARE DERIVED FROM THE NATIONAL ELECTRICAL CODE, 2017 EDITION.
- CONTRACTOR TO EXAMINE THE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE ELECTRICAL WORK.
- DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF OUTLETS, CONDUIT, EQUIPMENT, APPARATUS, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
- DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
- SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DEPOSED OF BY THIS CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP OF ALL SYSTEMS.
- ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPAVING AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING WORK OPERATIONS.
- CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO THE ARCHITECT FOR APPROVAL (MINIMUM (5) COPIES).
- COORDINATE PRIMARY CONNECTIONS TO STREET WITH LOCAL UTILITY COMPANIES.
- CONTRACTOR SHALL FILE, SECURE AND PAY FOR ANY NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
- PRIOR TO TESTING, CONTRACTOR SHALL MAKE ALL SYSTEM ADJUSTMENTS REQUIRED FOR PROPER OPERATION. ADJUSTMENTS SHALL INCLUDE TRANSFORMER TAPS, CIRCUIT BREAKER MAGNETIC SETTINGS, GROUND FAULT RELAY TRIP SETTINGS, BALLAST TAP SETTINGS, ETC.
- ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF WORK.
- ALL ELECTRICAL SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE AND 2012 INTERNATIONAL FIRE CODE. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND MAKING SAFE ALL ELECTRICAL FACILITIES IN EXISTING STRUCTURE PRIOR TO DEMOLITION.
- ALL WIRING, CABLE AND RACEWAYS IN CEILING PLENUM SHALL BE LISTED AND LABELED AS PLENUM RATED.

PANEL BOARDS AND CIRCUIT BREAKERS

- EQUIPMENT INTERRUPTING RATINGS SHOWN ON SCHEDULES ARE BASED ON UL LISTED SERIES RATINGS FOR 50,000A AVAILABLE SHORT CIRCUIT CURRENT AT THE SERVICE. CONTRACTOR SHALL INCREASE INTERRUPTING RATINGS AS REQUIRED FOR NON-SERIES RATED EQUIPMENT.
- PANELBOARDS SHALL BE OF DEAD FRONT CONSTRUCTION WITH AUTOMATIC OVERCURRENT DEVICES, VOLTAGE AND CURRENT RATINGS AS SHOWN. CIRCUIT BREAKERS SHALL BE DOL-TYPE UNLESS OTHERWISE NOTED. PANELBOARDS SHALL BE UL LISTED AS MANUFACTURED BY SQUARE D, GE OR WESTINGHOUSE.
- ALL CIRCUIT BREAKERS SUPPLYING HVAC EQUIPMENT SHALL BE UL LISTED TYPE HACR.

SAFETY SWITCHES

- SAFETY SWITCHES SHALL BE GENERAL DUTY, FUSED OR UNFUSED, RATINGS AS SHOWN ON THE DRAWINGS.
- ALL SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK OPERATION AND SHALL HAVE PADLOCKING PROVISIONS.
- ALL SWITCHES SHALL BE FURNISHED IN NEMA ENCLOSURES SUITABLE FOR USE IN THE LOCATION SHOWN. SWITCHES SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, WESTINGHOUSE OR EQUAL.

BOXES

- BOXES FOR BRANCH CIRCUIT WIRING DEVICES AND BRANCH CIRCUIT SPLICES SHALL BE AS INDICATED BELOW.

FLUSH WIRING DEVICES ON METAL STUDS	RACO #1121/131/14 (4" SQUARE)
FLUSH WIRING DEVICES ON WOOD STUDS	RACO #504/565 GANGABLE
FLUSH WIRING DEVICES IN MASONRY WALLS	RACO #640 (1 GANG)
GANG BOXES	RACO #615/653/653/654/655
CEILING BAR BOX (HANG CEILING)	RACO #280/417
CEILING BAR BOX (WOOD JOIST)	RACO #326
SURFACE WIRING DEVICES (DRY AREAS)	RACO #142 (4" SQUARE)
SURFACE WIRING DEVICES (WET AREAS, 1 GANG)	BELL 270-L/273-L (F.S. TYPE)
SURFACE WIRING DEVICES (WET AREAS, 2 GANG)	BELL 276-4L/ 271-4L (F.S. TYPE)

THE ABOVE MODEL NUMBERS ARE TYPICAL OF THE PRODUCTS REQUIRED. CONTRACTOR SHALL ADJUST MODEL NUMBERS AS REQUIRED TO SUIT JOB CONDITIONS, WALL THICKNESS, DEVICE REQUIREMENTS, ETC.

- PULL AND JUNCTION BOXES SHALL BE GAGE GAUGE ENAMELED STEEL, NEMA "1" WITH SCREEN FASTENED COVERS WHEN USED IN INDOOR, DRY AREAS. STEEL GAUGE SHALL BE IN ACCORDANCE WITH NEG ARTICLE #34.40.
- PULL AND JUNCTION BOXES UTILIZED IN INDOOR AREAS WHICH MAY BECOME DAMP (BOILER ROOMS, UTILITY ROOMS, CONNECTIONS TO UNDERGROUND RACEWAYS, ETC) SHALL BE GALVANIZED TYPE NEMA "1".
- PULL AND JUNCTION BOXES FOR USE OUTDOORS SHALL BE GALVANIZED AND OF NEMA "3R" CONSTRUCTION.
- ALL PULL BOXES FASTENED TO EXTERIOR BLOCKS OR MASONRY WALLS SHALL BE PROVIDED WITH 1/2" CHANNEL FRAMING SPACERS ORIENTED VERTICALLY AT REAR OF ENCLOSURE TO ENSURE AIR CIRCULATION BEHIND ENCLOSURE.
- OUTLET, SWITCH AND JUNCTION BOXES FOR BRANCH CIRCUIT WORK SHALL BE SIZED IN ACCORDANCE WITH NEG ARTICLE #34.46-#34.50.
- PULLBOXES AND LARGER JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH NEG ARTICLE #34.
- WHERE USE OF KNOCKOUTS IS DISCONTINUED BY CHANGES IN WORK, INSTALL PROPERLY SIZED KNOCKOUT SEALS BY THOMAS AND BETTS, RACO, APPLETON OR EQUAL.

CONDUCTORS

- UNLESS OTHERWISE NOTED, CONDUCTOR TYPES SHALL BE AS INDICATED BELOW.

LOCATION	CONDUCTORS
BRANCH CIRCUITS AND FEEDERS IN CONDUIT	THINWATHN
CONCEALED BRANCH CIRCUITS	TYPE "AC" CABLE
UNDERGROUND OUTDOORS	RHINWATHN
UNDERGROUND SERVICE ENTRANCE	RHNUSE
FIXTURE CONNECTIONS	SF-2
TEMPORARY LIGHT AND POWER	TYPE "NM" CABLE

- ALL WIRE AND CABLE SHALL BE COPPER CONDUCTORS. CONDUCTORS #10W AND SMALLER MAY BE SOLID; CONDUCTORS LARGER THAN #10W SHALL BE STRANDED.
- CONDUCTORS #10W AND SMALLER MAY BE SPLICED USING NYLON SELF-INSULATED WIRE NUTS AS MANUFACTURED BY 3M "SCOTLOK", IDEAL "WIRE-NUT" OR APPROVED EQUAL.
- CONDUCTORS LARGER THAN #10W SHALL BE SPLICED USING SPLIT BOLT CONDUCTORS WITH TAPED JACKET, PRE-MANUFACTURED SPLICES BY ESOO OR MAG PRODUCTS OR BY HYDRAULICALLY APPLIED COMPRESSION SPLICES. MANUFACTURER'S TOOLING, DIES AND RECOMMENDATIONS SHALL GOVERN HYDRAULICALLY APPLIED COMPRESSION SPLICES.
- EXCEPT WHERE EQUIPMENT, SUCH AS MOLDED CASE CIRCUIT BREAKERS, ARE SUPPLIED WITH FACTORY INSTALLED SET SCREW LUGS, ALL CONNECTIONS FOR CABLES #10 AND LARGER SHALL BE MADE USING NEMA 2 BOLT CONPRESSION LUGS. LUGS SHALL BE HYDRAULICALLY APPLIED USING MANUFACTURER'S TOOLING, DIES AND RECOMMENDED PROCEDURES.
- CONTROL WIRING FOR HVAC EQUIPMENT UTILIZING CONTROL CIRCUIT VOLTAGES OF LESS THAN 60VAC SHALL BE #18WAG MULTI-CONDUCTOR NEG. TYPE "10L2". WHEN INSTALLED IN ENVIRONMENTAL AIR PLENUMS, LOW VOLTAGE CONTROL WIRING SHALL BE NEG. TYPE "10L2P". LOW VOLTAGE CONTROL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH NEG ARTICLE #12.
- CONTROL WIRING FOR HVAC EQUIPMENT AND OTHER EQUIPMENT UTILIZING 120V CONTROLS SHALL BE #18WAG TYPE THINWATHN INSTALLED IN RACEWAYS.
- WHERE ISOLATED GROUND RECEPTACLES ARE INDICATED ON THE DRAWINGS, INSTALL AN INSULATED (GREEN) GROUND CONDUCTOR WITH THE BRANCH CIRCUIT. IN CONCEALED LOCATIONS, TYPE "MC" CABLE SHALL BE UTILIZED FOR SUPPLY OF ISOLATED GROUND OUTLETS.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND HOME RUNS ARE 2 #12WAG AND 1 #12WAG GROUND.
- ADJUST BRANCH CONDUCTOR SIZES AS REQUIRED FOR VOLTAGE DROP. MAXIMUM BRANCH CIRCUIT LENGTHS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:

	#12	#10	#8
120V, 1 PHASE, 15A	55'	85'	125'
120V, 1 PHASE, 20A	40'	65'	95'
208V, 1 PHASE, 20A	65'	110'	175'
208V, 3 PHASE, 20A	75'	125'	200'

THE ABOVE LENGTHS REPRESENT "ONE-WAY" CIRCUIT LENGTH (NOT WIRE LENGTH) AND INCLUDE ALL VERTICAL RISES AND DROPS.

- CONDUCTOR INSULATIONS SHALL BE COLOR CODED AS FOLLOWS:

	120/280V	277/480V
PHASE A	BLUE	BROWN
PHASE B	RED	ORANGE
PHASE C	BLACK	YELLOW
NEUTRAL	WHITE	WHITE
GROUND	GREEN	GREEN

WHERE CONDUCTORS ARE NOT AVAILABLE WITH COLOR CODED INSULATION, COLORED TAPE SHALL BE APPLIED TO THE ENTIRE EXPOSED LENGTH OF CABLES IN PULL BOXES, SWITCHBOARDS, EQUIPMENT, ETC.

- CONTROL CABLE CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH IEC4 STANDARDS.

LIGHTING

- COORDINATE FIXTURE LOCATIONS WITH INSTALLED DUCTWORK, SPRINKLERS, ARCHITECTURAL SOFFITS, ETC.
- FIXTURES INSTALLED IN CLOSETS SHALL COMPLY WITH NEG ARTICLE #40-8 FOR LOCATION AND TYPE OF CONSTRUCTION.
- ALL FIXTURES WEIGHING IN EXCESS OF 50 LBS. SHALL BE SUPPORTED INDEPENDENTLY OF THE OUTLET BOX (SEE NEG).
- WHERE TROFFERS ARE INSTALLED IN SUSPENDED CEILINGS, FIXTURES SHALL BE SECURELY FASTENED TO GRID WITH CONCEALED BOLTS, SCREWS, RIVETS, OR THE BAR CLIPS. WHERE CEILING SUPPORT IS NOT ADEQUATE (ONE WIRE IN EACH CORNER OF THE FIXTURE), SUPPORT FIXTURE HOUSING INDEPENDENTLY OF THE GRID.
- FIXTURE HOUSINGS SHALL NOT BE USED AS RACEWAYS, EXCEPT THOSE DESIGNED FOR INSTALLATION IN CONTINUOUS ROWS. MAKE BRANCH CIRCUIT SPLICES IN 4" SQUARE BOXES WITH BLANK COVER PLATES (NEG #40-3).
- ALL BALLASTS FOR FLUORESCENT, BIAX AND OCTRON LAMPS SHALL BE OF THE RAPID START, CLASS "P", THERMALLY PROTECTED, HIGH POWER FACTOR, ENERGY SAVING TYPE AS MANUFACTURED BY GENERAL ELECTRIC, UNIVERSAL, ADVANCE OR APPROVED EQUAL. BALLASTS SHALL BE UL LISTED, CBM CERTIFIED AND CARRY A MINIMUM 2 YEAR WARRANTY.
- RECESSED FIXTURES SHALL MAINTAIN A MINIMUM CLEARANCE OF 1/2" TO COMBUSTIBLE CONSTRUCTION AND 3" TO THERMAL INSULATION UNLESS UL LISTED FOR DIRECT CONTACT WITH THESE MATERIALS (SEE NEG).
- CONNECTIONS TO FLUORESCENT TROFFERS SHALL CONSIST OF HIGH TEMPERATURE WIRING (SEE CONDUCTORS SECTION) IN FLEXIBLE METAL CONDUIT. CONNECTION SHALL NOT BE LESS THAN 4", NOR GREATER THAN 6" IN LENGTH.
- PROTECT ALL LAMPS, LENSES AND LOUVERS DURING CONSTRUCTION. ALL LAMPS, FIXTURE HOUSING, LENSES AND LOUVERS SHALL BE CLEANED UPON COMPLETION OF WORK BY ALL TRADES. REPLACE DEFECTIVE OR DAMAGED LAMPS, LENSES, LOUVERS AND BALLASTS AS REQUIRED AT THE TIME OF CLEANING.
- LIGHTING SHALL BE MOUNTED ON STRIKE SIDE OF DOOR WITH TOP OF FIXTURE ALIGNED WITH THE TOP OF THE DOOR.
- ALL INTERIOR FLUORESCENT FIXTURES IN UNHEATED ROOMS OR UNHEATED AREAS SHALL BE PROVIDED WITH RAPID START LAMP/BALLAST COMBINATIONS SUITABLE FOR STARTING AT 0 DEGREES F.

RACEWAYS

- UNLESS OTHERWISE NOTED, RACEWAY TYPES SHALL BE AS INDICATED BELOW.

LOCATION	RACEWAY
1. OUTDOORS, ABOVE GRADE. . .	GALVANIZED RIGID STEEL (GRS)
2. INDOOR FEEDERS AND SUB FEEDERS NOT EXPOSED TO PHYSICAL DAMAGE. . .	ELECTRICAL METALLIC TUBING (EMT)
3. INDOOR BRANCH CIRCUITS EXPOSED IN UTILITY AREAS. . .	ELECTRICAL METALLIC TUBING (EMT)
4. INDOOR BRANCH CIRCUITS CONCEALED. . .	(SEE "CONDUCTORS" SECTION)
5. INDOOR FIXTURE AND VIBRATING EQUIPMENT CONNECTIONS. . .	FLEXIBLE METALLIC CONDUIT
6. INDOOR AND OUTDOOR MOTOR CONNECTIONS. . .	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
7. MOTOR CONNECTIONS IN ENVIRONMENTAL AIR PLENUMS. . .	FLEXIBLE METAL CONDUIT
8. UNDERGROUND. . .	TYPE "DB", SCHEDULE 40 RIGID (PVC), NON METALLIC CONDUIT
9. UNDERGROUND PENETRATION. . .	GALVANIZED RIGID STEEL (GRS) THROUGH GRADE

- GALVANIZED RIGID STEEL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI #800 AND UL #6. INSTALLATION OF GALVANIZED RIGID STEEL CONDUIT SHALL BE IN STRICT CONFORMANCE WITH NEG ARTICLE #34.4.
- EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI #800.3 AND UL #91L. INSTALLATION OF ELECTRICAL METALLIC TUBING SHALL BE IN STRICT CONFORMANCE WITH NEG ARTICLE #35.0. BENDING RADIUS SHALL NOT BE LESS THAN REQUIRED BY NEG TABLE #35.4.24. SUPPORT SPACING SHALL NOT EXCEED 10'-0". ALL EMT COUPLINGS AND CONNECTORS SHALL BE OF THE CONCRETE-TIGHT AND RAIN-TIGHT TYPE. SET SCREW CONNECTORS SHALL NOT BE USED.
- FLEXIBLE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH UL #11. INSTALLATION OF FLEXIBLE CONDUIT SHALL BE IN STRICT CONFORMANCE WITH NEG #34.6 AND SHALL BE LIMITED TO 6'-0" MAXIMUM LENGTHS FOR CONNECTIONS TO LIGHTING FIXTURES AND VIBRATING EQUIPMENT. BENDING RADIUS FOR FLEXIBLE METAL CONDUIT SHALL NOT BE LESS THAN THOSE PERMITTED FOR CONDUCTOR BENDING RADIUS. CONNECTORS FOR FLEXIBLE METAL CONDUIT SHALL BE OF SINGLE SCREW MALLEABLE IRON CLAMPING TYPE THOMAS & BETTS SERIES #250). FLEXIBLE METAL CONDUIT AND CONNECTORS SHALL BE UL LISTED AND APPROVED FOR SHEATH GROUNDING FOR BRANCH CIRCUITS OF 20A OR LESS IN LENGTHS NOT TO EXCEED 6'-0". PROVIDE A GROUNDING CONDUCTOR SIZED TO MEET NEG TABLE #35.012 WHERE A CIRCUIT OVERCURRENT PROTECTION EXCEEDS 20A.
- LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH NEG ARTICLE #35.0 AND SHALL BE LIMITED TO 3'-0" LENGTHS FOR CONNECTIONS TO MOTORS, OUTDOOR VIBRATING EQUIPMENT AND OTHER EQUIPMENT IN WET AREAS. LIQUID-TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS SHALL BE APPROVED FOR GROUNDING PURPOSES. PROVIDE A SEPARATE EXTERNAL BONDING CONDUCTOR WHERE ANY OF THE FOLLOWING CONDITIONS EXIST:
 - CONDUIT SIZE EXCEED 1/4" TRADE SIZE.
 - 1/2" CONDUIT HOSES A CIRCUIT PROTECTED IN EXCESS OF 20A.
 - 3/4" THRU 1/4" CONDUIT HOSES A CIRCUIT PROTECTED IN EXCESS OF 60A.

FITTINGS FOR LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE THOMAS & BETTS "VERSA-GROUND" WITH OR WITHOUT EXTERNAL GROUND LUG AS REQUIRED ABOVE.

- INTERMEDIATE METAL CONDUIT, MANUFACTURED IN ACCORDANCE WITH UL #1242 MAY BE SUBSTITUTED FOR GALVANIZED RIGID STEEL CONDUIT IN ABOVE GRADE, INDOOR APPLICATIONS. IMC SHALL NOT BE PERMITTED IN ABOVE OR BELOW GRADE OUTDOOR APPLICATIONS. ALL OTHER REQUIREMENTS FOR GALVANIZED RIGID STEEL CONDUIT SHALL APPLY.

- USE OF LIQUID-TIGHT FLEXIBLE METAL CONDUIT OR LIQUID NON-METALLIC SHALL NOT BE PERMITTED IN ENVIRONMENTAL AIR PLENUMS, INCLUDING RETURN AIR CEILING PLENUMS.
- EXCEPT FOR SURFACE METAL AND SURFACE NON-METALLIC, ALL RACEWAYS SHALL BE INSTALLED CONCEALED WITH THE EXCEPTION OF BOILER ROOMS, UTILITY ROOMS, GARAGES AND OTHER AREAS SPECIFICALLY APPROVED BY THE ARCHITECT.

GROUNDING

- SERVICE ENTRANCE GROUNDING ELECTRODES SHALL INCLUDE THE FOLLOWING:
 - REINFORCING BARS IN FOOTINGS.
 - DOMESTIC WATER SERVICE.
 - AT LEAST ONE 3/4" X 1/2" COPPERHELD GROUND ROD DRIVEN OUTSIDE BUILDING AS NEAR TO SERVICE ENTRANCE EQUIPMENT AS POSSIBLE.
- GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEG TABLE #250.102(C).
- PROVIDE GROUNDING JUMPER AROUND WATER METER. JUMPER TO BE BARE STRANDED COPPER SIZED TO MATCH GROUNDING ELECTRODE CONDUCTOR SIZE. GROUNDING CLAMPS FOR WATER PIPING SHALL BE THOMAS AND BETTS SERIES 3400 "1" BOLT CLAMP. PROVIDE MALLEABLE IRON CONDUIT HUB WHERE CONDUCTOR IS HOUSED IN CONDUIT FOR PHYSICAL PROTECTION.
- ALL GROUNDING CONNECTIONS TO REINFORCEMENT BARS AND GROUND RODS AND ALL UNDERGROUND GROUNDING CABLE SPLICES SHALL BE EXOTHERMIC WELDS BY CADWELD OR APPROVED EQUAL.
- THE FOLLOWING COMPONENTS SHALL BE BONDED WITH A BARE COPPER CONDUCTOR SIZED IN ACCORDANCE WITH NEG TABLE #250.66:
 - SERVICE RACEWAYS.
 - METER ENCLOSURES.
 - SERVICE DISCONNECT ENCLOSURE.
 - GROUNDING ELECTRODES.

SERVICE RACEWAYS SHALL BE BONDED BY USE OF GROUNDING BUSHINGS AT ALL TERMINATIONS UP TO AND INCLUDING THE SUPPLY SIDE OF SERVICE DISCONNECT(S).
- WHERE MULTIPLE SERVICE DISCONNECTING MEANS ARE PROVIDED, THE GROUNDING ELECTRODE CONDUCTOR SHALL BE EXTENDED TO AND BONDED TO THE ENCLOSURE OF EACH DISCONNECTING MEANS.
- THE FOLLOWING ITEMS SHALL BE BONDED TO THE SERVICE EQUIPMENT GROUND BUS USING CABLES SIZED IN ACCORDANCE WITH NEG TABLE #250.66:
 - INTERIOR STEEL FRAME.
 - STRUCTURAL STEEL FRAME.
 - METAL SIDING (WHERE APPLICABLE).
- GROUNDING OF ELECTRICAL EQUIPMENT AND ENCLOSURES DOWNSTREAM OF THE SERVICE DISCONNECT SHALL BE LOCATED BY THE METALLIC RACEWAY SYSTEM WHERE PERMITTED BY THE NEG. PROVIDE SUPPLEMENTARY GROUNDING CONDUCTORS WHERE REQUIRED DUE TO LENGTHS OF FLEXIBLE METAL CONDUIT, DISCONTINUOUS ENCLOSURES, ETC.
- RECEPTACLE MOUNTING YOKE SHALL NOT BE USED FOR GROUNDING PURPOSES WITH RECESSED OUTLET BOXES. PROVIDE INSULATED GROUNDING JUMPER FROM OUTLET BOXES TO RECEPTACLE GROUNDING TERMINAL. DOES NOT APPLY FOR ISOLATED GROUND RECEPTACLES.

WIRING DEVICES

- ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE INDICATED. THE FOLLOWING WIRING DEVICES ARE RECOMMENDED. DISREGARD DEVICES NOT REQUIRED FOR PROJECT. MODEL NUMBERS IN PARENTHESES DESIGNATE "DECORATOR" STYLES. CHOOSE STANDARD OR DECORATOR.
- REFER TO ELECTRICAL PLANS DETAIL SHEETS FOR RECEPTACLE AND RECEPTACLE/WEB MODELS. NO SUBSTITUTIONS ARE ALLOWED.
- WHERE SINGLE POLE, 3-WAY OR 4-WAY SWITCHES ARE GROUPED WITH DIMMERS OR FAN SPEED CONTROLS, PROVIDE LINEAR SLIDE SWITCHES BY LITTON AS SPECIFIED ABOVE. PROVIDE MULTI-GANG COMMON WALL PLATE BY LITTON. INDIVIDUALLY MOUNTED CONTROLS SHALL NOT BE ACCEPTED. CONTRACTOR SHALL DESIGNATE DIMMERS IN ACCORDANCE WITH MANUFACTURER'S PROCEDURE FOR GANGED INSTALLATIONS.
- WHERE GANGED RECEPTACLES INCLUDE A GROUND FAULT CIRCUIT INTERRUPTER, PROVIDE DECORATOR STYLE CONVENIENCE OUTLETS AND MULTI-GANG DECORATOR COVERPLATE.
- WIRING DEVICE MOUNTING HEIGHTS SHALL BE AS FOLLOWS:

DEVICE	MOUNTING HEIGHT
RECEPTACLES (GENERAL AREAS)	1'-3" AFF. TO BOTTOM
RECEPTACLES (ABOVE COUNTERS)	6" ABOVE BACKSPASH
RECEPTACLES (UTILITY AREAS)	4'-0" AFF. TO TOP
LIGHT SWITCHES (ALL AREAS)	4'-0" AFF. TO TOP
THEMOSTAT 4 HVAC CONTROLS	4'-0" TO TOP

MOUNTING HEIGHTS FOR OTHER DEVICES NOT SPECIFIED ABOVE SHALL BE IN ACCORDANCE WITH NAC #5-23-7, "BARRIER FREE SUBCODE".

- ALL RECEPTACLES INSTALLED WITHIN 6'-0" OF SINKS OR LAVATORIES SHALL BE PROVIDED WITH GROUND FAULT PROTECTION OR GROUND FAULT FEED THRU.
- ALL RECEPTACLES INSTALLED IN TOILET ROOMS SHALL BE PROVIDED WITH GROUND FAULT PROTECTION OR GROUND FAULT FEED THRU.
- ALL RECEPTACLES INSTALLED IN UNFINISHED BASEMENTS, GARAGES, CRAWL SPACES AND OUTDOORS AT GRADE SHALL BE PROVIDED WITH GROUND FAULT PROTECTION OR GROUND FAULT FEED THRU.
- COVERPLATES FOR SURFACE MOUNTED WIRING IN UTILITY AREAS SHALL BE OF THE RAISED COVER TYPE AS MANUFACTURED BY MILBERRY, RACO OR APPROVED EQUAL.
- COVERPLATES FOR WEATHERPROOF DUPLEX RECEPTACLES SHALL BE BELL #223-V WITH GASKET. COVERPLATES FOR WEATHERPROOF SWITCH SHALL BE BELL #224-V WITH GASKET.
- ALL SWITCHES SHALL BE MOUNTED AT THE STRIKE SIDE OF DOORS. COORDINATE FINAL DOOR SWINGS WITH THE ARCHITECTURAL DRAWINGS.
- WHERE OUTLETS ARE LOCATED IN COLUMN CLOSURES, PANELED WALLS, CUSTOM CABINETS, ETC., COORDINATE WITH ARCHITECTURAL ELEVATION DRAWINGS TO ENSURE THAT OUTLETS ARE CENTERED IN PANELS AND LOCATED ON FLAT PANELS.

FIRE ALARM

- ALL FIRE ALARM WORK SHALL BE IN STRICT CONFORMANCE WITH NFPA #12 AND ARTICLES 760 AND 800 OF THE NEC.
- WHERE SPECIFIED FIRE ALARM SIGNALING SYSTEMS ARE UL LISTED AS POWER LIMITED OUTPUTS IN ACCORDANCE WITH NEG ARTICLE 760, WIRING MAY BE OF POWER LIMITED TYPE. ALL OTHER WIRING SHALL BE NON-POWER LIMITED.
- POWER LIMITED CABLES FOR INITIATING AND NOTIFICATION APPLIANCE CIRCUITS SHALL BE AS FOLLOWS:

LOCATION	NEG TYPE
CONCEALED, NON-PLENUM SPACES	FPL
IN EXPOSED OR CONCEALED CONDUIT	FPL
RISER CABLE	FPLR
CONCEALED, PLENUM SPACES	FPLP

- NON-POWER LIMITED CABLES FOR INITIATING AND NOTIFICATION APPLIANCE CIRCUITS SHALL BE BELDEN #502FN, OR APPROVED EQUAL.
- WALL MOUNTED STROBE LIGHTS SHALL BE WHEELOCK SERIES "RSP", MULTI-CANDELA TYPE, MODEL #RSP-24KCA-FR AND SHALL BE FIELD ADJUSTABLE FOR 15, 30, 75 OR 110 CD OUTPUT AND FOR SYNCHRONIZED, OR UNSYNCHRONIZED OPERATION. STROBES SHALL BE MOUNTED ON DOUBLE GANG, FLUSH BACKBOX.
- WALL MOUNTED, WEATHERPROOF HORN/STROBE LIGHTS SHALL BE WHEELOCK SERIES "ASHP".
- WHEN TWO OR MORE STROBE LIGHTS ARE VISIBLE FROM A SINGLE VANTAGE POINT, THOSE DEVICES SHALL BE SYNCHRONIZED.
- PERFORM FULL FIRE ALARM ACCEPTANCE TEST IN THE PRESENCE OF THE FIRE SUBCODE OFFICIAL.

ELECTRICAL SYMBOLS

WIRING DEVICES

	DUPLEX CONVENIENCE RECEPTACLE 120V, 20A, GROUNDED	
	DUPLEX CONVENIENCE RECEPTACLE 120V, 20A, GROUNDED, WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER, TEST AND RESET CONTROLS	
	GANG CONVENIENCE RECEPTACLE 120V, 20A, GROUNDED, WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER, TEST AND RESET CONTROLS	
	RECESSED DUPLEX CONVENIENCE RECEPTACLE 120V, 20A, GROUNDED	
	DUPLEX CONVENIENCE RECEPTACLE 120V, 20A, GROUNDED WITH USB PORT	
	SPECIAL RECEPTACLE, NEMA #, VOLTAGE & CURRENT AS INDICATED	
	TOGGLE SWITCH 120V, 20A	3W INDICATES 3-WAY SWITCH 4W INDICATES 4-WAY SWITCH 1P INDICATES 1-POLE SWITCH 2P INDICATES 2-POLE SWITCH K INDICATES KEY OPERATED SWITCH LV INDICATES LOW VOLTAGE SWITCH T INDICATES TIMER SWITCH

RACEWAY/WIRING

	JUNCTION BOX
	PULL BOX
	BRANCH CIRCUIT WIRING. SMALL SLASHES INDICATE NUMBER OF PHASE CONDUCTORS. LARGE SLASHES INDICATE NUMBER OF NEUTRAL CONDUCTORS.
	EXPOSED OR CONCEALED CONDUIT RUN
	BRANCH CIRCUIT HOME RUN
	EMBEDDED OR BURIED CONDUIT
	CONDUIT TURNING DOWN
	WIRING TROUGH WITH SCREEN COVERS, DIMENSIONS AS SHOWN

PROTECTIVE DEVICES

	FLUSH PANELBOARD	PP, LP, LVCP	POWER PANEL LIGHTING PANEL LOW VOLTAGE CONTROL PANEL
	SURFACE PANELBOARD	PP, LP, LVCP	POWER PANEL LIGHTING PANEL LOW VOLTAGE CONTROL PANEL
	SAFETY SWITCH VOLTS, AMPS, POLES, FUSED OR UNFUSED AS NOTED		
	MOTOR STARTER WITH DISCONNECT SWITCH		

FIRE & SMOKE ALARMS

	FIRE ALARM CONTROL PANEL
	ADDRESSABLE FIRE ALARM PULL STATION
	AUDIOVISUAL FIRE ALARM HORN & STROBE LIGHT COMBINATION
	FIRE ALARM STROBE LIGHT
	CARBON MONOXIDE DETECTOR

PROJECT NUMBER

21-418

ISSUE DATE:

MARCH 2, 2022

REVISIONS:

No.	Date	Description

CONSULTANT



PBS Consulting Engineers Inc.
312 Railway Road
Edison, NJ 08820
T (732) 895-5800
F (732) 730-5182
publi@pbs-engineers.com

CRUMBL COOKIES - FORD RD

42049 FORD RD
CANTON, MICHIGAN 48187



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ELECTRICAL
SPECIFICATIONS
AND SYMBOLS

E0.1

JZW
ARCHITECTS

No.	Date	Description

CONSULTANT



CRUMBL COOKIES - FORD RD

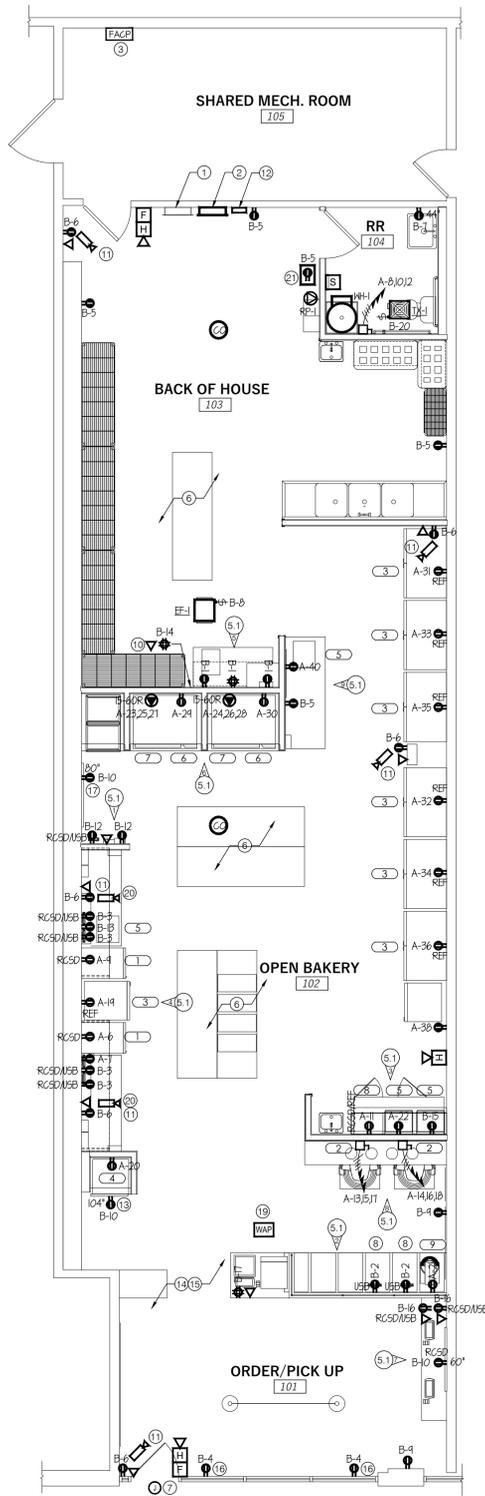
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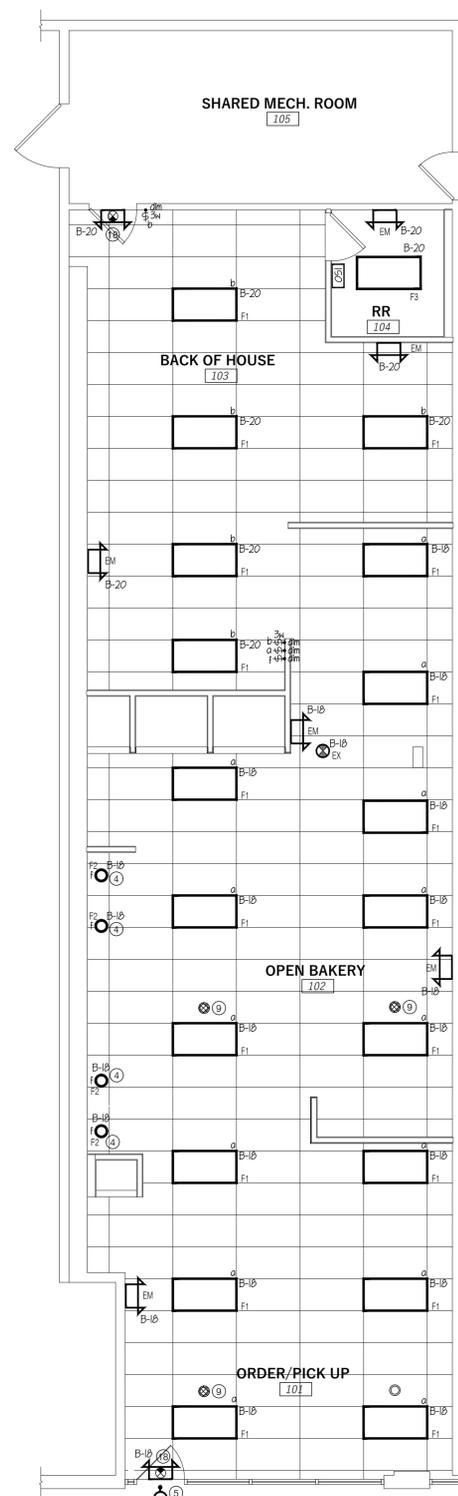
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ELECTRICAL PLANS

E1.1



POWER PLAN
SCALE: 3/16" = 1'-0"



LIGHTING PLAN
SCALE: 3/16" = 1'-0"

KEY NOTES

- EXISTING PANEL "A" TO REMAIN.
- NEW PANEL "B".
- EXISTING FIRE ALARM CONTROL PANEL.
- RECESSED CAN LIGHT IN SHELF ABOVE BOXING STATION CONTROL WITH SEPARATE DIMMER SWITCH.
- EXISTING REMOTE EGRESS LIGHT TO REMAIN AS IS.
- ALL KITCHEN RECEPTACLES ARE TO HAVE GFCI PROTECTION AS PER NEC 2020 ARTICLE 210.62(B). REFER TO PANEL SCHEDULE FOR GFCI BREAKERS.
- SIGNAGE POWER VIA PHOTOCELL AND TIMECLOCK.
- RECEPTACLE TO BE INSTALLED HORIZONTALLY AND HEIGHT TO BE DETERMINED IN FIELD PRIOR TO ROUGH-IN.
- SPEAKER POLK AUDIO M640. PROVIDE AND INSTALL WESTPENN CABLE AS SHOWN IN SOUND RISER DIAGRAM #1 ON E5.2. OWNER TO PROVIDE ALL EQUIPMENT EXCEPT CABLING. CONTRACTOR TO INSTALL ALL SOUND EQUIPMENT INCLUDING RECEIVER, SPEAKERS AND REMOVE POWER SUPPLY AND MAKE ALL POWER AND SPEAKER WIRE CONNECTIONS FOR AN OPERATIONAL SYSTEM. FOR RECEIVER LOCATION SEE KEYED NOTE # 10.
- RECEPTACLE FOR SONY MULTI CHANNEL AV RECEIVER STR-DH640. VERIFY MOUNTING HEIGHT WITH OWNER.
- CAMERA SYSTEM PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. SYSTEM SHALL BE A UNIFIED VIDEO BOARD SYSTEM WITH 12:1 CAMERAS AND A CLOUD BASED STORAGE. PROVIDE POWER AND DATA RECEPTACLES, MOUNTING OF CAMERAS AND CONNECTION TO POWER AND DATA PORTS. RECEPTACLES AND DATA TO BE INSTALLED 4" BELOW CEILING GRID AND 4" FROM CORNER.
- THE CLOCK AND CONTACTORS FOR EXTERIOR SIGNAGE AND FOR DISPLAY WINDOW RECEPTACLES. REFER TO E5.2/ LIGHTING CONTROL DETAIL.
- POWER FOR DISPLAY ABOVE FREEZER. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT AND ARCHITECTURAL DRAWINGS.
- ALL USB RECEPTACLES SHALL BE 20 AMP DUAL CHARGING PORTS TYPE A AND C. PROVIDE MANUFACTURER LEVITON CATALOG #19595-N OR LEGRAND P173020CUBEN. NO SUBSTITUTION ALLOWED. REFER TO ELECTRICAL ELEVATION DRAWINGS FOR EXACT IPAD AND RECEPTACLES HEIGHT PRIOR TO ROUGH-IN. ALL RECESSED BOXES SHALL BE OF THE LEGRAND TYPE TVN14MLW1K11G22. REFER TO E5.3 FOR RECEPTACLE AND BOX CUT SHEETS.
- REFER TO ELECTRICAL ELEVATION DRAWINGS FOR EXACT IPAD HEIGHT OF RECEPTACLES PRIOR TO ROUGH-IN.
- SHOW WINDOW RECEPTACLES TO BE MOUNTED 4" BELOW CEILING GRID.
- CENTER OUTLET FOR THE MENU TV ABOVE THE BOXING SHELF.
- EXISTING EXT-EMERGENCY COMBO LIGHT TO REMAIN AS IS.
- WIRELESS ACCESS POINT (WAP). PROVIDE DATA CABLE AND INSTALLATION OF WAP IN CEILING. REFER TO COMMUNICATIONS RISER DIAGRAM.
- CAMERA TO BE INSTALLED UNDER BOXING STATION REFER TO ELECTRICAL ELEVATION SHEET E5.1 DETAIL GALLOW E5J-4.
- RECEPTACLE ABOVE CEILING FOR RE-CIRCULATING PUMP.

PERFORMANCE NOTES

- CONTRACTOR TO INCORPORATE ALL PAGES OF THIS DOCUMENT IN THE CONSTRUCTION OF THE CRUMBL SPACE TO INCLUDE BUT NOT LIMITED TO GENERAL NOTES AND SPECIFICATIONS SHEET E1.1, POWER AND LIGHTING PLANS WITH KEYED NOTES SHEET E1.1, ELECTRICAL ELEVATIONS SHEET E5.1, ELECTRICAL DETAILS SHEETS E5.2 AND E5.3, ELECTRICAL SCHEDULES E6.1, E.C. BID SHALL PROVIDE FOR A COMPLETE AND WORKING SYSTEM.
- PROVIDE ALL CIRCUITING AS SHOWN ON PLANS. DEVIATION WILL CAUSE FAILURE IN EQUIPMENT TO CHARGE PROPERLY OR TO MAINTAIN PROGRAMMING.
- ALL EQUIPMENT PROVIDED BY THE OWNER AND SEND TO THE JOBSITE WILL BE INSTALLED BY THE E.C., E.C. TO PROVIDE A FULLY OPERATIONAL AND TESTED SYSTEM WITH REGARDS TO THE DATA/TELE, SPEAKER/AV RECEIVER, AND CAMERA SYSTEMS, E.C. SHALL PROVIDE ONSITE PERSONNEL TO VERIFY STARTUP WITH OWNER AND CORRECT ANY PROBLEMS IN WIRING OR POWER.
- FIRE/SMOKE DAMPERS ARE NOT SHOWN ON THE ELECTRICAL DRAWINGS. COORDINATE ANY AND ALL FIRE/SMOKE DAMPERS AND REQUIREMENTS WITH THE MECHANICAL DRAWINGS AND CONTRACTOR. PROVIDE 120V POWER FOR ALL DAMPERS.
- ROOFTOP UNIT ELECTRICAL CONNECTIONS TO REMAIN. ELECTRICAL DISCONNECTS TO REMAIN. ROOF GFCI RECEPTACLES TO REMAIN.
- CONTRACTOR SHALL INSTALL OCCUPANCY SENSORS TO PROVIDE COVERAGE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. CONSULT WITH LIGHTING CONTROL MANUFACTURER AND DISTRIBUTOR FOR ADDITIONAL REQUIREMENTS AND RECOMMENDATIONS: crumb@cednotationaccounts.com; 562-926-7202.
- LIGHTING TO BE 0-10V DIMMING. PROVIDE ALL WIRING, COMPONENTS AND LABOR FOR A COMPLETE AND WORKING SYSTEM. SEE SHEET E5.3 FOR DIMMING SWITCHES AND OTHER DIMMING REQUIREMENTS.
- PROVIDE CAT6 DATA CABLING FOR ALL DATA LOCATIONS.

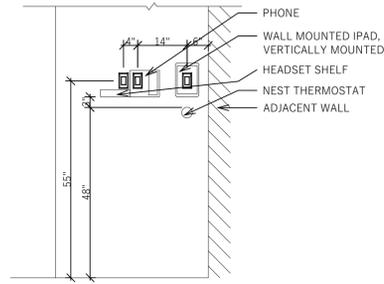
GFCI CIRCUITS

- ALL SINGLE PHASE RECEPTACLES RATED 150V TO GROUND OR LESS, 50 AMPS OR LESS AND THREE PHASE RECEPTACLES RATED 150V TO GROUND OR LESS, 100 AMPS OR LESS INSTALLED IN KITCHEN AREA SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR PERSONNEL.
- THE GROUND-FAULT CIRCUIT INTERRUPTER SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION PER NEC 2017 ARTICLE 210.6. GFCI RECEPTACLE BEHIND ANY EQUIPMENT SHALL NOT BE CONSIDERED TO BE IN READILY ACCESSIBLE LOCATION AND SHALL BE PROVIDED WITH GFCI BREAKER IN PANEL.

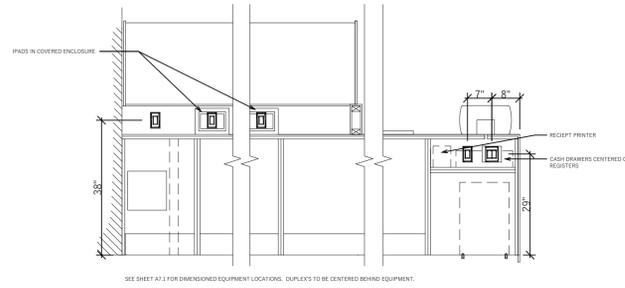
FIRE ALARM NOTES:

- FIRE ALARM DEVICES SHOWN HERE ARE BASED ON BASE BUILDING PLANS PROVIDED BY LANDLORD. ELECTRICAL CONTRACTOR SHALL COORDINATE FIRE ALARM TIE-IN WITH LANDLORD'S BUILDING FIRE ALARM SYSTEM INSTALLER.
- NEW FIRE ALARM DEVICES TO MATCH EXISTING BUILDING STANDARDS AND SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM.
- ELECTRICAL CONTRACTOR SHALL VERIFY ALL EXISTING/RELOCATED FIRE ALARM DEVICES ARE OPERATIONAL AND REPLACE IF NECESSARY.
- ELECTRICAL CONTRACTOR SHALL INSTALL WIRING AS REQUIRED BY BUILDING FIRE ALARM INSTALLER AND APPLICABLE BUILDING CODES.

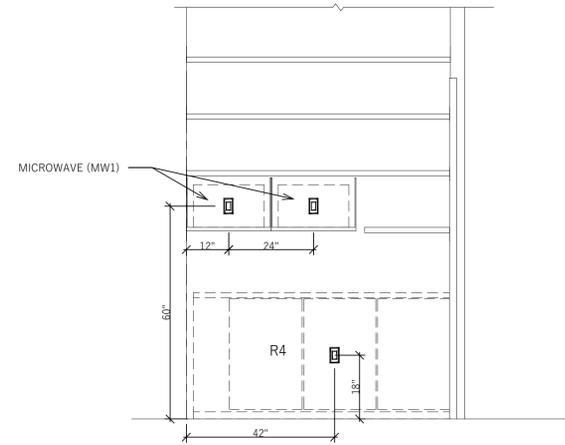
No.	Date	Description



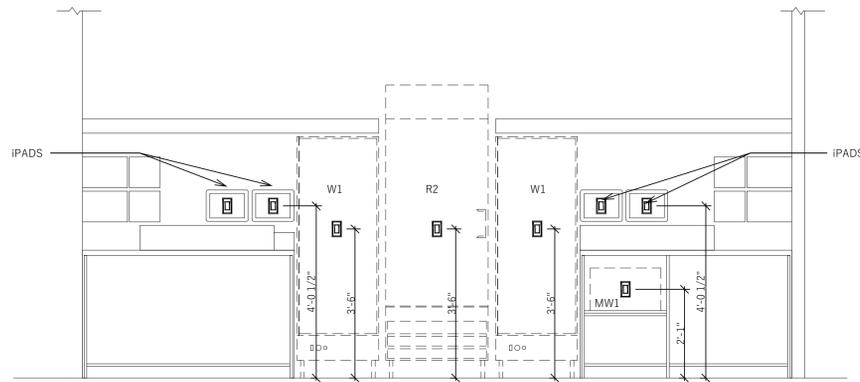
1 NEST/PHONE/IPAD @ PICK UP
E5.1 SCALE: 1/2" = 1'-0"



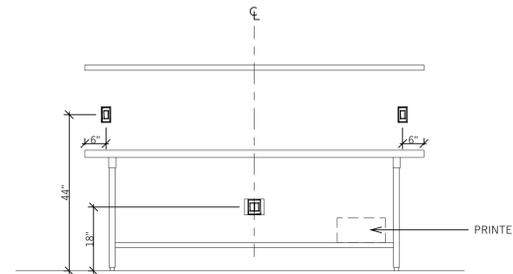
2 PREP COUNTER - CABINETRY
E5.1 SCALE: 1/2" = 1'-0"



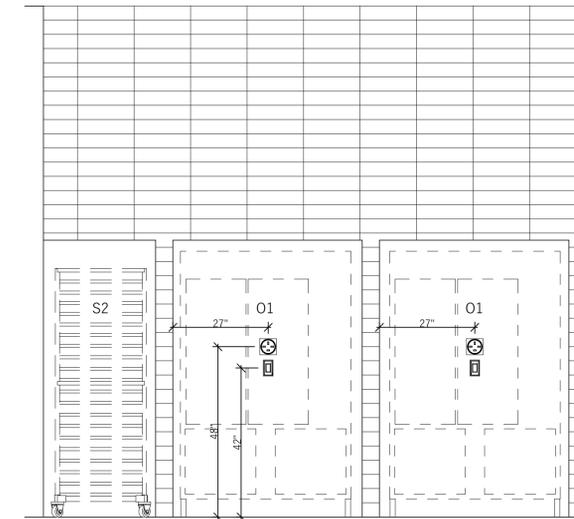
3 FRIDGE AT MIXER WALL
E5.1 SCALE: 1/2" = 1'-0"



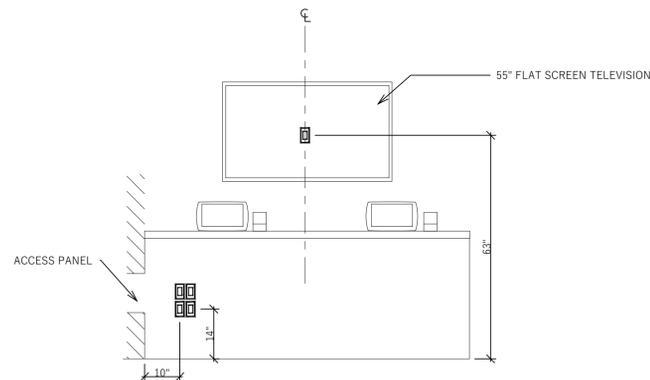
4 DRESSING STATIONS
E5.1 SCALE: 1/2" = 1'-0"



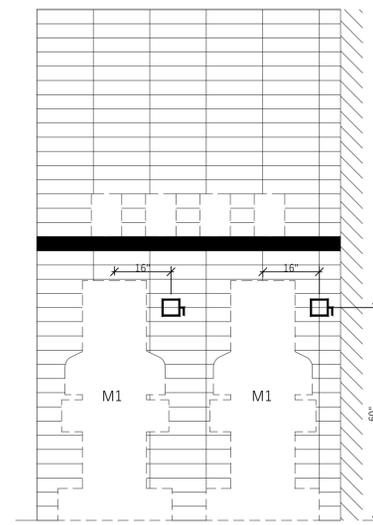
5 BOX SHLEIVING @ BACK OF HOUSE
E5.1 SCALE: 1/2" = 1'-0"



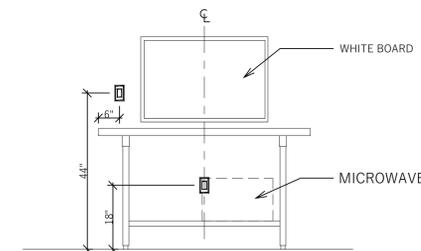
6 OVEN WALL ELEVATION
E5.1 SCALE: 1/2" = 1'-0"



7 SELF ORDERING STATION
E5.1 SCALE: 1/2" = 1'-0"



8 MIXER WALL
E5.1 SCALE: 1/2" = 1'-0"



9 WHITE BOARD @ BACK OF HOUSE
E5.1 SCALE: 1/2" = 1'-0"

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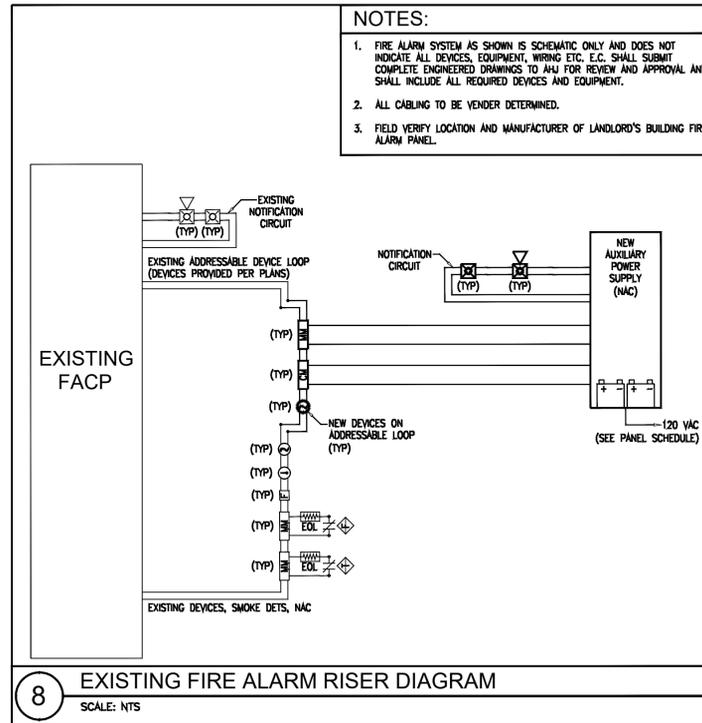
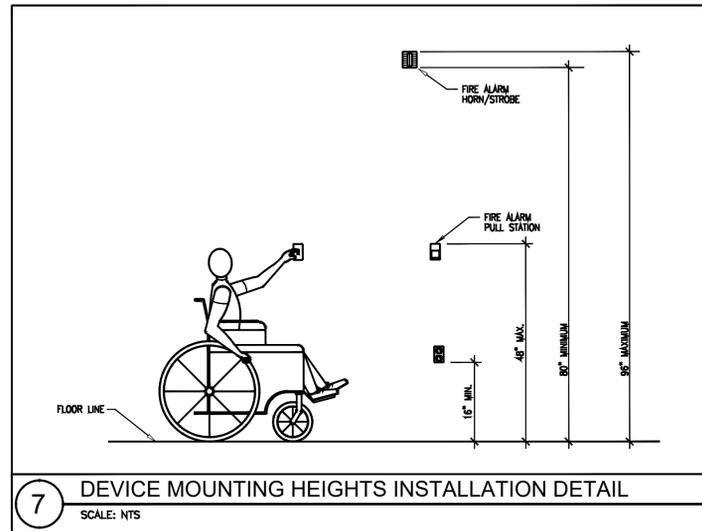
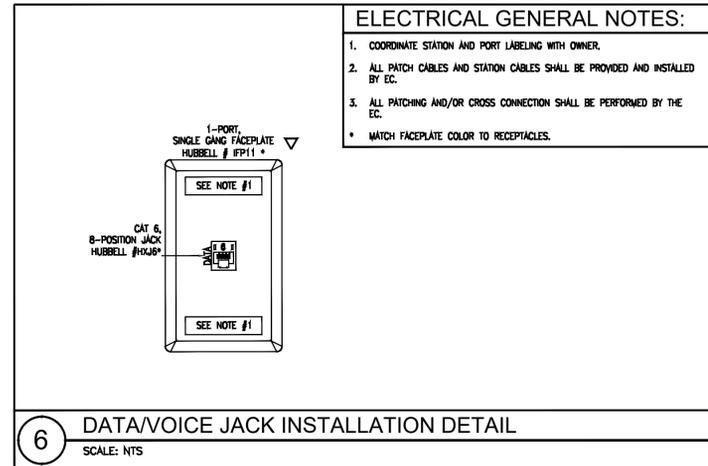
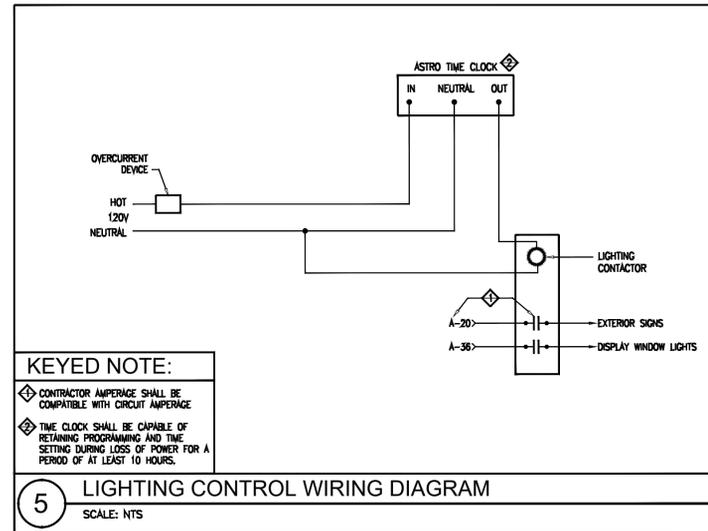
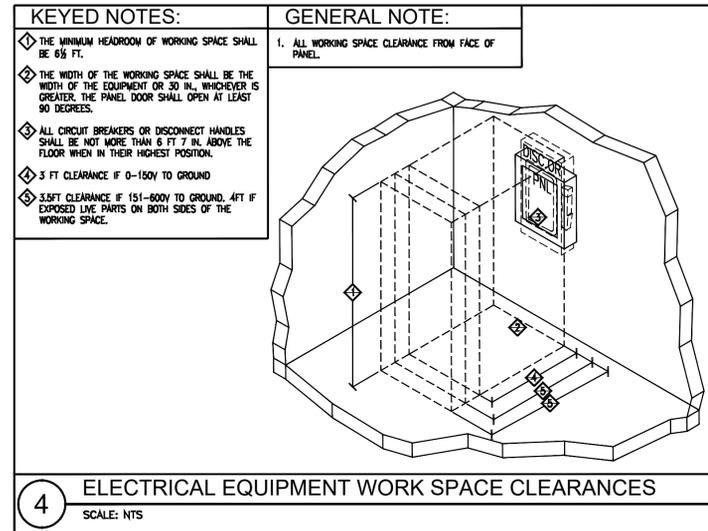
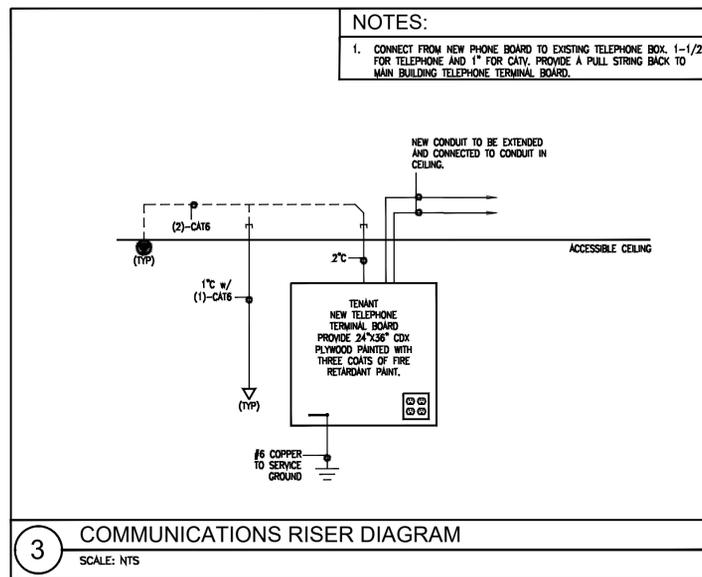
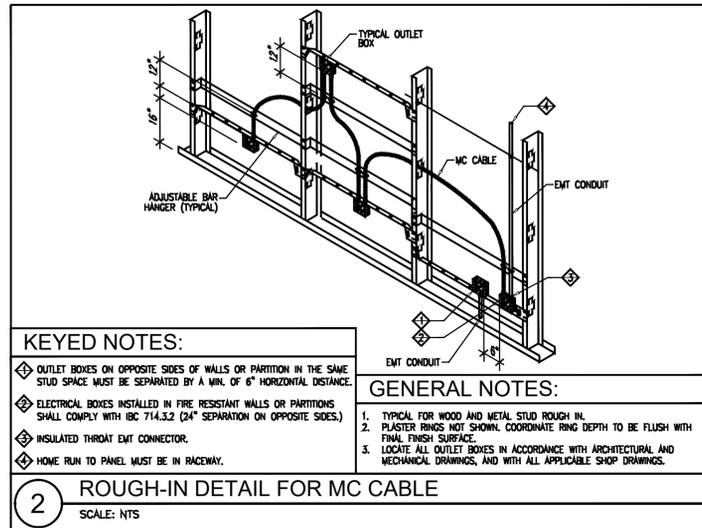
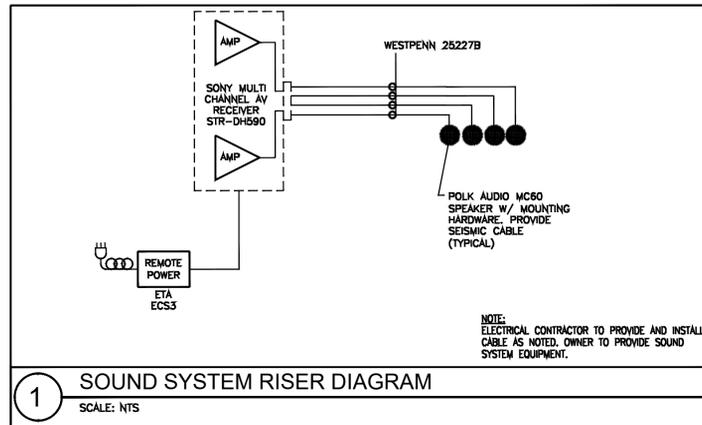
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ELECTRICAL ELEVATIONS

E5.1



No.	Date	Description



LEVITON

IP710-D0Z

IlumaTech Slide Dimmer for LED 0-10V Power Supplies, 1200VA, 10A LED, 120/277 VAC

IlumaTech Slide Preset Electro-Mechanical 0-10V Slide Dimmer for use with LED or Fluorescent Ballasts and Power Supplies, suitable for use with Class 1 or Class 2 wiring, 1200VA @ 120VAC, 1500VA @ 277VAC, 10A LED/Electronic Ballast 120/277VAC, 60Hz, 50Amps maximum sinking current, single pole or 3-way control when used with 3-way switch - White, Ivory & Light Almond

- INNOVATIVE – Designed for use with LED fixtures using 0-10V power supplies
- ADVANCED – No power pack required for switching
- EXCEPTIONAL – Superior quality and dimming performance
- FLEXIBLE – Can be used in a single-pole or 3-way installation (with a 3-way switch, sold separately)

UPC Code : 078477943557
Country Of Origin : Please Contact Customer Service.

PRODUCT DATA

LEVITON

Decora® Wall Switch Multi-Technology Occupancy Sensor

OSSMT - GDW

OSSMT-MD/GD

legrand

PASS & SEYMOUR®
PlugTail® Commercial Specification Grade USB Charging Receptacles 15 & 20A, 125V

Connect with the future of mobile charging with the PlugTail® USB Receptacle.

PTTR15ACUSB, PTTR20ACUSB, PTTR15HACUSB, PTTR20HACUSB

Pass & Seymour PlugTail® Commercial Specification Grade USB Charging Receptacles provide the convenience of mobile charging – without the need for a bulky AC adapter. This device is a perfect match for the constant needs of today's mobile environment and is rugged enough to withstand hard-use commercial applications. It comes equipped with two UL Fed Spec AC receptacles and two USB charging ports for mobile devices – one Type-A port and one Type-C port for newer products. An efficient, 15.5W power supply provides ample power needed for charging mobile phones and tablets. The PlugTail® termination provides a more productive, secure, and safer installation and allows you to connect with the future of wiring device innovations.

Features & Benefits

- AC receptacles are tamper resistant as standard – patented shutter system prevents improper insertion of foreign objects
- Efficient, 15.5W power supply for fast charging of mobile phones and tablets
- Triple-wipe, brass line contacts for 15 & 20A commercial applications
- 5Vdc Type-A USB port to charge USB Type-A compatible mobile devices
- Multiple color options available
- Zinc-plated steel for corrosion resistance
- 5Vdc Type-C USB port to charge USB Type-C compatible mobile devices
- PlugTail termination allows for more productive, finger-safe installation and added future flexibility
- Stainless steel auto-ground clips assure positive ground
- Available in 15 & 20A, Specification Grade and Hospital Grade configurations

Compliance

cULus Listed, UL Fed Spec Listed. Complies with test requirements UL 498, UL 1310, Fed Spec WC596, CSA C22.2 No. 42, CSA C22.2 No. 223

SF20220 – February 2017 – For latest specs visit www.legrand.us

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PASS & SEYMOUR®
Recessed TV Boxes
Old Work

TV1WMTVSSWC2, TV1WMLVKITWC2, TV3WMTVSSW

Old Work Recessed TV Frame with M118W Metal Electrical Box

The TV1WMTVSS, TV1WMLVKIT and TV3WMTVSSW Old Work Boxes are designed for remodeling jobs updating spaces to take advantage of wall-mounted TVs in an existing wall. They are single-gang and three-gang models with metallic electrical boxes, and are available in kits that include surge-protection devices, wall plates, screwless finish plates, and low-voltage connectors. They have a molded-in rectangular cut-out template to make installation easy and they fit in a standard 2x4 wall cavity. The boxes are designed to provide a snug-to-wall placement for old-work applications in hospitality, education, commercial, and residential environments. They are ideal for flat-screen TVs and reducing the clutter associated with a variety of cabling. Plugs and multimedia connections are conveniently recessed behind the wall surface.

FEATURES & BENEFITS

- TV Frame** Supports line voltage and/or low voltage devices.
- M118W steel electrical box** with four concentric 1/2" & 3/4" knockouts which accept Romex, MC cable or conduit, and two Romex entries with integral clamp.
- Recessed support frame** mounts into rectangular wall cut-out via metallic swing brackets.
- Polycarbonate frame.**
- cULus Listed.**

FIELD USES/VERTICAL MARKETS

- Single Family Home
- Multiple Dwelling
- Retail/Office

SF20141 – December 2013 – For latest specs visit www.legrand.us/passandseymour

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PASS & SEYMOUR®
Recessed TV Boxes
Old Work

TECHNICAL INFORMATION

Catalog Number	Description	Cubic Inches	Length	Width	Height	Wire Fill
Old Work TV Recessed Box & Frame						
TV1WMTVSSWC2	Old Work Television Frame 1 Gang Surge Protective Device Kit with Metal Box	18	8	5	3.5	9 No. 4 8 No. 12 7 No. 10
TV1WMLVKITWC2	Old Work Television Frame 1 Gang Low Voltage Device Kit with Metal Box	18	8	5	3.5	9 No. 4 8 No. 12 7 No. 10
TV3WMTVSSW	Old Work Television Frame 3 Gang Surge Protective Device Kit with Metal Box	18	8	7	3.5	9 No. 14 8 No. 12 7 No. 10

ALSO AVAILABLE...

- Hospital Grade Devices
- PlugTail® Devices
- SPD & Isolated Ground Devices
- Ground Continuity Monitoring (GCM)
- Straight Blade Plugs & Connectors
- Turnlok® Locking Devices
- Weatherproof Boxes & Covers
- IEC 309 Industrial Products
- Flexcor® Wire Mesh Grips

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Electrical Wiring Systems
P.O. Box 4822
Syracuse, NY 13221-4822
Phone: 1.800.776.4025
www.legrand.us/passandseymour
570 Applewood Crescent
Vaughan, Ontario L4K 4B4
Phone: 905.738.9195
www.legrand.ca

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Product Guide

LEVITON

	QUSB1 SmartLockPro® Self-Test GFCI Combination Type A	GUSB2 SmartLockPro® Self-Test GFCI Combination Type A	T5635 Dual Type-C with Power Delivery (PD)	T5835 Dual Type-C with Power Delivery (PD)	T5633 Type A and Type-C	T5833 Type A and Type-C	T5632 Dual Type A	T5832 Dual Type A	USB4P 4-Port Type A
USB Charger	4.8A	4.8A	6A	6A	5.1A	5.1A	3.6A	3.6A	4.2A
Total Charging Power	24W	24W	30W	30W	25+W	25+W	18W	18W	24W
Single Port Charging Power	12W	12W	30W	30W	15W	15W	12W	12W	12W
Outlet Power	15A	20A	15A	20A	15A	20A	15A	20A	n/a
USB Cable Compatible	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1	3.1, 3.0, 2.0, 1.1
Wiring	Wire leads	Wire leads	Back and side wiring	Back and side wiring	Back and side wiring	Back and side wiring	Back and side wiring	Back and side wiring	Wire leads

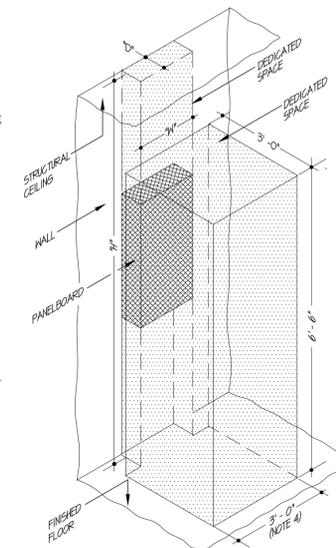
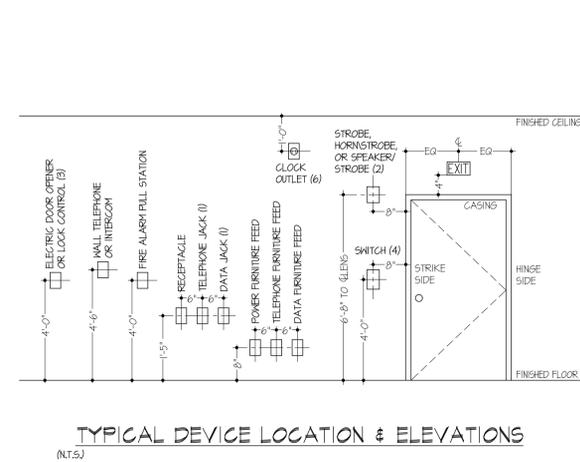
TR Tamper-Resistant (TR) Outlets

All Leviton USB In-Wall Charger Outlets are Tamper-Resistant, helping to provide protection against injury. A specialized shutter mechanism inside the outlet blocks access to the contacts, preventing foreign objects from being inserted into outlets.

Colors available:

- White (W)
- Ivory (I)
- Light Almond (L)
- Gray (G)
- Black (C)
- Brown (B)

LEVITON T5835 USB CHARGING RECEPTACLE



DEDICATED SPACE AROUND ELECTRICAL PANELS
(NOT TO SCALE, DIMENSIONS AS NOTED)

- NOTES:**
- DIMENSIONS 12" AND 14" ARE ELECTRICAL PANEL DEPTH AND WIDTH, RESPECTIVELY. COORDINATE THESE DIMENSIONS WITH THE ELECTRICAL EQUIPMENT SHOP DRAWINGS.
 - DIMENSION 14" SHALL BE THE DISTANCE FROM FINISHED FLOOR TO STRUCTURAL CEILING, OR 25'-0", WHICHEVER IS LESS.
 - NO PIPING, DUCTS, ARCHITECTURAL APPURTENANCES OR OTHER ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED WITHIN THE "DEDICATED SPACE".
 - THE THREE FOOT WIDE SECTION OF THE DEDICATED SPACE SHALL BE PERMITTED TO OVERLAP WITH THE "DEDICATED SPACE" REQUIREMENT FOR ADJACENT PANELBOARDS.
 - SUSPENDED ACOUSTICAL CEILINGS SHALL NOT BE CONSIDERED TO BE STRUCTURAL.

PROJECT NUMBER

21-418

ISSUE DATE:

MARCH 2, 2022

REVISIONS:

No. Date Description

No.	Date	Description

CONSULTANT



CRUMBL COOKIES - FORD RD

42049 FORD RD
CANTON, MICHIGAN 48187



Pathik B. Shah, P.E.
MI License No: 53724

ELECTRICAL DETAILS

E5.3



No.	Date	Description



Pathik B. Shah, P.E.
MI License No: 53724

ELECTRICAL
SCHEDULES AND
RISER DIAGRAM

E6.1



LIGHTING FIXTURE SCHEDULE

SYMBOL	MANUFACTURER	VOLTAGE	CATALOG NO.	LAMPS	WATTS	DESCRIPTION	MOUNTING HEIGHT
F1	LITHONIA	120V	26TL4 8AL EZ LP850	5000K LED	65	2'X4' LAY-IN LED FIXTURES, UL LISTED, NO SUBSTITUTIONS.	MOUNTED IN CEILING. REFER TO ARCHITECTURAL RCP FOR CEILING HEIGHTS.
O2	LITHONIA	120V	HF4 LED 30K40K50K 400RI H4	LED	105	4" SWITCHABLE WHITE COLOR TEMPERATURE LED LIGHT; CANLESS LED RECESSED KIT IN SHELF ABOVE BOXING STATION, UL LISTED, NO SUBSTITUTIONS.	MOUNTED IN CEILING. REFER TO ARCHITECTURAL RCP FOR CEILING HEIGHTS.
F3	LITHONIA	120V	26TL4 3XL EZ LP850 D6A24	5000K LED	233	2'X4' LAY-IN LED FIXTURES WITH DRYWALL KIT, UL LISTED, NO SUBSTITUTIONS.	MOUNTED IN CEILING. REFER TO ARCHITECTURAL RCP FOR CEILING HEIGHTS.
EX	LITHONIA	120V	EXR LED EL M6	LED	1	EXIT LIGHT WITH BACK-UP BATTERY UNIT, BATTERY CAPACITY TO LIT FIXTURE FOR MINIMUM 1-1/2 HOURS.	UNDER SIDE OF CEILING FOR CEILING MOUNTED FIXTURES, 6" ABOVE DOOR JAMB FOR WALL MOUNTED FIXTURES.
EM	LITHONIA	120V	ELZL M2	LED	6	EMERGENCY LIGHTING DUAL HEAD BACK-UP BATTERY UNIT, BATTERY CAPACITY TO LIT FIXTURE FOR MINIMUM 1-1/2 HOURS.	MOUNTED AT 8'-0" AFF.
EXEM	LITHONIA	120V	EG6 LED M6	LED	3	EMERGENCY/EXIT LIGHT COMBO WITH LED EXIT AND TWO HEAD EMERGENCY LIGHTS WITH BACK-UP BATTERY UNIT, BATTERY CAPACITY TO LIT FIXTURE FOR MINIMUM 1-1/2 HOURS.	UNDER SIDE OF CEILING FOR CEILING MOUNTED FIXTURES, 6" ABOVE DOOR JAMB FOR WALL MOUNTED FIXTURES.

SCHEDULE OF SWITCHES & OCCUPANCY SENSOR COMPONENTS

SYMBOL	COMPONENT	MFR./MODEL #	INPUT VOLTAGE	REMARKS
OS1	OCCUPANCY SENSOR	LEVITON # 055MT-SDM	120V	DUAL TECHNOLOGY, WHITE FINISH, AUTO ON/AUTO OFF OCCUPANCY SENSOR.
dim 3/4	HALL MOUNTED DIMMING SWITCH	LEVITON # IP110-DOZ	120V	HALL MOUNTED ON/OFF SWITCH WITH LINEAR-SLIDE DIMMER. "3/4" INDICATES 3-WAY SWITCHING, UL LISTED.

- NOTES:
- ALL OCCUPANCY SENSORS SHALL BE ADJUSTABLE FOR AMBIENT LIGHT LEVEL AND "OFF" TIME DELAY.
 - FINISH COLOR OF DEVICES ARE TO BE SELECTED BY ARCHITECT.
 - ATTACH POWER PACKS TO CONCEALED ELECTRICAL ENCLOSURES WITH MINIMUM 1/2 INCH KNOCKOUTS.
 - MOUNT POWER SUPPLY/SWITCHING RELAYS AND SLAVE SWITCHING RELAYS ON 4" SQUARE JUNCTION BOX IN CEILING FLENUM.
 - SLAVE SWITCHING RELAYS APPLY ONLY WHERE MULTIPLE CIRCUITS ARE TO BE CONTROLLED BY COMMON OCCUPANCY SENSORS.

SCHEDULE OF TIME CONTROLS

TAG	SERVES	LOCATION	MFR./MODEL #	PWR. SUPPLY VOLTAGE	LOAD VOLTAGE	CYCLE	CONTACTS	CONTINUOUS AMPERES	ENCLOSURE TYPE	CONTROL LOGIC	REMARKS
T/C-1	INTERIOR LIGHTS	ELEC ROOM	TORX #120L	120V	120V	DAILY	SPDT	20	NOTE 3	CHANNEL 1: TIME ON, TIME OFF	SEE NOTE 1, 2, 3

- NOTES:
- SET TIME CLOCK FOR TIME SWITCH PER OPERATING HOURS.
 - TIMECLOCK EQUIPPED WITH MANUAL OVERRIDE UNTIL NEXT SCHEDULED OPERATION.
 - PROVIDE UNIT WITH NEMA TYPE I ENCLOSURE.

SCHEDULE OF CONTACTORS

TAG	SERVES	LOCATION	MFR./MODEL #	PWR. SUPPLY VOLTAGE	LOAD VOLTAGE	NUMBER OF POLES	CONTINUOUS AMPERES	ENCLOSURE TYPE	CONTROL LOGIC	REMARKS
CT-1	INTERIOR LIGHTS	ELEC ROOM	ASCO #M1B-4-20-3-1-C	120V	120V	4	20	NEMA 1	TIMECLOCK T/C-1	-

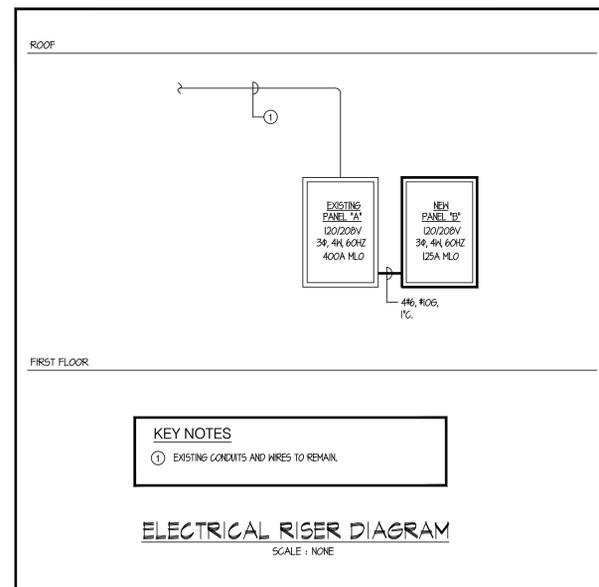
EXISTING PANEL "A"														
VOLTAGE/PHASE: 120/208 VAC, 3-PH., 4-WIRE RECESSED		AMPERAGE/MAINS: 400A MLO EXISTING												
CIR NO.	ITEM	VA/PHASE			W I R E	A M P S	P O L E S	A M P S	W I R E	VA/PHASE			ITEM	CIR NO.
		A	B	C						A	B	C		
1	EXISTING 10 TON RTU	6005			EXIST.	60	3	25	EXIST.	1980			EXISTING 2 TON RTU	1
3	EXISTING 10 TON RTU	6005			EXIST.	60	3	25	EXIST.	1980			EXISTING 2 TON RTU	2
5		6005						20	3#12	1440			WARMER	3
7	DRESSING STATION RECEPTACLE	180			3#12	20	1	3	35	3000				4
9	WARMER	1440			3#12	20	1	3	35	3000			WATER HEATER "WH-1"	5
11	FRONT U.C. REFRIGERATOR	310			3#12	20	1	3	35	3000				6
13		1200						3	30	1200				7
15	MIXER	1200			4#10	30	3	3	30	1200			MIXER	8
17		1200						3	30	1200				9
19	REFRIGERATOR	525			3#12	20	1	1	20	1015			FREEZER	10
21	PLANETARY MIXER	1100			3#12	20	1	1	20	1000			MICROWAVE	11
23		6240						1	20	6240				12
25	OVEN GF1	6240			3#6 #10G	60	3	3	60	6240			OVEN GF1	13
27		6000						3	60	6000				14
29	OVEN GF1	1800			3#12	20	1	1	20	1800			OVEN GF1	15
31	REFRIGERATOR	525			3#12	20	1	1	20	525			REFRIGERATOR	16
33	REFRIGERATOR	525			3#12	20	1	1	20	525			REFRIGERATOR	17
35	REFRIGERATOR	525			3#12	20	1	1	20	525			REFRIGERATOR	18
37		4100						1	20	525			REACH-IN FREEZER	19
39	NEW PANEL "B"	3700			4#6 #10G	60	3	1	20	1000			MICROWAVE	20
41		4230						1	20					21
SUBTOTAL B		18775	19970	20310						14485	14705	14205		
SUBTOTAL A										18775	19970	20310		
SUBTOTAL B										33260	34675	34515		
TOTAL										102450	VA			
TOTAL CONNECTED LOAD =										285	AMPS			
TOTAL CONNECTED AMPS =										285	AMPS			

NEW PANEL "B"														
VOLTAGE/PHASE: 120/208 VAC, 3-PH., 4-WIRE RECESSED		AMPERAGE/MAINS: 125A MLO 22,000												
CIR NO.	ITEM	VA/PHASE			W I R E	A M P S	P O L E S	A M P S	W I R E	VA/PHASE			ITEM	CIR NO.
		A	B	C						A	B	C		
1	BACK COUNTER RECEPTACLES	900			3#12	20	1	1	20	360			FRONT COUNTER RECEPTACLES	2
3	FRONT COUNTER RECEPTACLES	720			3#12	20	1	1	20	360			SHOW WINDOW RECEPTACLES	3
5	BACK OF HOUSE RECEPTACLES	900			3#12	20	1	1	20	500			CAMERAS AND SPEAKERS	4
7	RESTROOM GF1	180			3#12	20	1	1	20	510			EXHAUST FAN "EF-1"	5
9	FRONT STORE RECEPTACLES	540			3#12	20	1	1	20	540			TV RECEPTACLES	6
11	BUILDING SIGN	1200			3#12	20	1	1	20	360			FRONT COUNTER RECEPTACLES	7
13	MICROWAVE	1000			3#12	20	1	1	20	720			EQUIPMENT CABINET	8
15	MICROWAVE	1000			3#12	20	1	1	20	540			FRONT STORE RECEPTACLES	9
17	POS STATION	360			3#12	20	1	1	20	910			LIGHTS VIA CONTACTOR CT-1	10
19	SPARE							1	20	430			LIGHTS VIA CONTACTOR CT-1	11
21	SPARE							1	20				SPARE	12
23	SPARE							1	20				SPARE	13
25	SPACE												SPACE	14
27	SPACE												SPACE	15
29	SPACE												SPACE	16
SUBTOTAL B		2080	2260	2460						2020	1440	1770		
SUBTOTAL A										2080	2260	2460		
SUBTOTAL B										4100	3700	4230		
TOTAL										12030	VA			
TOTAL CONNECTED LOAD =										34	AMPS			
TOTAL CONNECTED AMPS =										34	AMPS			

KITCHEN EQUIPMENT SCHEDULE									
SYMBOL	DESCRIPTION	SERVICE		DISCONNECT		LOAD		REMARKS	
		VOLTS	PHASE	SIZE	NEMA	HP	VA		AMPS
W	WARMER	120V	1	PLUS/CORD	5-15P		1,440	12A	
M	MIXER	208V	3	30A NEMA 1	-	2.7 HP	3,603	10A	
R	REFRIGERATOR	115V	1	PLUS/CORD	5-15P	1/4 HP	525	4.56A	
G	GLASS DOOR FREEZER	115V	1	PLUS/CORD	5-15P		1,012	8.8A	
MI	MICROWAVE	120V	1	PLUS/CORD	5-15P		1,000	8.3A	
O	OVEN L	120V	1	PLUS/CORD	5-20P		1,800	15A	
O	OVEN H	208V	3	PLUS/CORD	15-60P		18,734	52A	
S	SMALL REFRIGERATOR	115V	1	PLUS/CORD	5-15P		310	2.7A	
P	PLANETARY MIXER	120V	1	PLUS/CORD	5-15P		1,100	9.17A	

NOTES:

- VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS (i.e. VOLTAGE, PHASE, FLA, ETC.) WITH KITCHEN DRAWINGS/SUBMITTALS BEFORE ACTUAL EQUIPMENT INSTALL.
- ALL FUSES SHALL BE DUAL ELEMENT TIME DELAY. FINAL BREAKER/FUSE AND DISCONNECT SIZE SHALL BE DETERMINED BY MANUFACTURER'S RECOMMENDATION FOR ACTUAL EQUIPMENT INSTALL.
- MAXIMUM VALUES INDICATED.
- DISCONNECTING MEANS NOT REQUIRED FOR EQUIPMENT WITHIN SIGHT (AS DEFINED IN NEC) OF BRANCH PANEL SERVING EQUIPMENT. SEE NEC ARTICLE 422.31(B).
- DISCONNECTING MEANS NOT REQUIRED FOR APPLIANCES NOT OVER 300 VA. SEE NEC ARTICLE 422.31(A).



COMcheck Software Version 4.1.5.1
Interior Lighting Compliance Certificate

Project Information

Energy Code: 90.1 (2013) Standard
 Project Title: Crumbl Cookies - Ford Rd
 Project Type: New Construction

Construction Site: 42049 Ford Rd, Canton, MI 48187
 Owner/Agent:
 Designer/Contractor: Mr. Pathik Shah, P.E., PBS Consulting Engineers, Inc., 312 Rahway Road, Edison, NJ 08820, pathik@pbs-engineers.com

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B X C)
1-Retail	1987	1.26	2504
Total Allowed Watts =			2504

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Retail				
LED 1: F1: Other:	1	19	65	1235
LED 2: F2: Other:	1	4	10	42
LED 3: F3: Other:	1	1	23	23
Total Proposed Watts =				1300

Interior Lighting PASSES: Design 48% better than code

Interior Lighting Compliance Statement

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 90.1 (2013) Standard requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

Project Title: Crumbl Cookies - Ford Rd Report date: 01/23/22
 Data filename: C:\PBS Consulting Engineers Inc\Project Documents\2022\22008-Crumbl Cookies - Ford Rd, Page 1 of 5
 Canton, MI\22008 Comcheck.cck

COMcheck Software Version 4.1.5.1
Inspection Checklist

Energy Code: 90.1 (2013) Standard

Requirements: 91.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2, 8.4.1.1, 8.4.1.2, 8.7 [PR6]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
4.2.2, 9.4.3, 9.7 [PR4]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Crumbl Cookies - Ford Rd Report date: 01/23/22
 Data filename: C:\PBS Consulting Engineers Inc\Project Documents\2022\22008-Crumbl Cookies - Ford Rd, Page 2 of 5
 Canton, MI\22008 Comcheck.cck

Section # & Req.ID	Rough-in Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
9.4.1.1 [EL1]	Automatic control requirements prescribed in Table 9.6.1, for the appropriate space type, are installed. Mandatory lighting controls (labeled as "REQ") and optional choice controls (labeled as "ADD1" and "ADD2") are implemented.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.1 [EL2]	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.4.1.2 [EL1]	Parking garage lighting is equipped with required lighting controls and daylight transition zone lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
9.4.1.1f [EL13]	Daylight areas under skylights and roof monitors that have more than 150 W combined input power for general lighting are controlled by photocontrols.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
9.4.1.3 [EL4]	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.6.2 [EL8]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Crumbl Cookies - Ford Rd Report date: 01/23/22
 Data filename: C:\PBS Consulting Engineers Inc\Project Documents\2022\22008-Crumbl Cookies - Ford Rd, Page 3 of 5
 Canton, MI\22008 Comcheck.cck

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
8.7.1 [F116]	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
8.7.2 [F117]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
9.2.2.3 [F118]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Crumbl Cookies - Ford Rd Report date: 01/23/22
 Data filename: C:\PBS Consulting Engineers Inc\Project Documents\2022\22008-Crumbl Cookies - Ford Rd, Page 4 of 5
 Canton, MI\22008 Comcheck.cck

PROJECT NUMBER

21-418

ISSUE DATE:

MARCH 2, 2022

REVISIONS:

No. Date Description

CONSULTANT



CRUMBL COOKIES - FORD RD

42049 FORD RD
 CANTON, MICHIGAN 48187



Pathik B. Shah, P.E.
 MI License No: 53724

LIGHTING
 COMCHECK

E7.1

