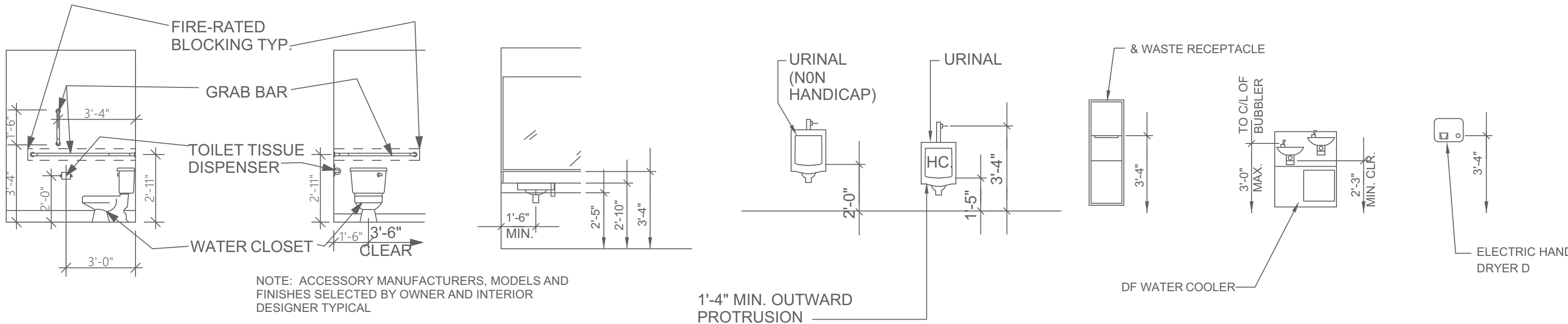


CHRIST CHURCH ANN ARBOR



BARRIER FREE DETAILS

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

GENERAL NOTES:

1. Field verify existing conditions. Notes and drawings may pertain to both new, existing to remain and existing to be removed.
2. Provide measures necessary to project the health, safety and well-being of users in area of construction.
3. Equipment and furnishings by owner, verify locations as they relate to connections, electrical outlets, telephone jacks, plumbing etc. Provide blocking where required.
4. Follow local building codes requirements for all construction. Provide and install fire detection, fire extinguisher, emergency and exit lights: as required and located by local inspector. Building is not required to be fire sprinkled. Conform to all applicable ADA and barrier-free requirements per ANSI A117.1-2009.
5. All work performed shall be in accordance with AIA document A201 and product manufacturer's standard specifications and instructions.
- 6.. Drawings are furnished for general architectural intent. The contractor and each sub-contractor shall make his own inspections and measurements. Refer to the building owner's drawings, site verification and other information for existing building systems.
7. Color of finishes to be selected by owner unless otherwise noted.
8. Jarratt Architecture, Inc. takes no responsibility for existing building conditions & current building code violations in areas that are not being renovated and that are design-build.
9. Provide fire alarm if and as required by code.
10. Coordinate with owner all owner supplied/installed by items.
11. Add exit signs where directed by fire marshal.
12. Existing conditions will vary, during demolition notify Architect of varying conditions. Additional construction details can be provided as requested during construction.

PLAN NOTES:

1. NEW WALLS ARE SHOWN SHADED TYPICAL - SEE TYPICAL WALL DETAILS
2. ALL NEW FINISHES TO BE MEET FLAMESPREAD REQUIREMENTS OF THE MICHIGAN BUILDING CODE. CLASS 1 TYPICAL
3. REUSE EXISTING ELECTRICAL CIRCUITS TYPICAL
4. ALL BLOCKING TO BE OF NON-COMBUSTIBLE OR FIRE-RETARDANT TREATED WOOD
5. PATCH CONCRETE SLAB WHERE NEW PLUMBING LINES ARE TO BE LOCATED WITH 6MIL VAPOR BARRIER 4000 PSI REINFORCED CONCRETE
8. SEE ALSO TYPICAL BARRIER FREE DETAILS

CODE RELATED NOTES

All new work shall conform to the 2015 Michigan Building Code
 2015 Rehab Code
 2015 Michigan Mechanical Code, MMC 2015
 2018 Michigan Plumbing Code, MPC 2015
 2017 Michigan Electrical & NEC 2017 with Part 8 Code Rules
 2015 International Fuel Gas Code, IFGC 2015
 Accessibility: Michigan Barrier Free Design Law, P.A. 1966 as amended and the 2009 ICC/ANSI A117.1 standard as referenced from Chapter 11 of the 2015 Michigan Building Code

The existing building is steel roof and wall structure, and concrete slab on grade. It is non fire sprinkled.

The bathroom shall meet all requirements of 2009 ANSI 117 barrier-free design with required grab bars, 5' turnaround area, sink clearances etc.

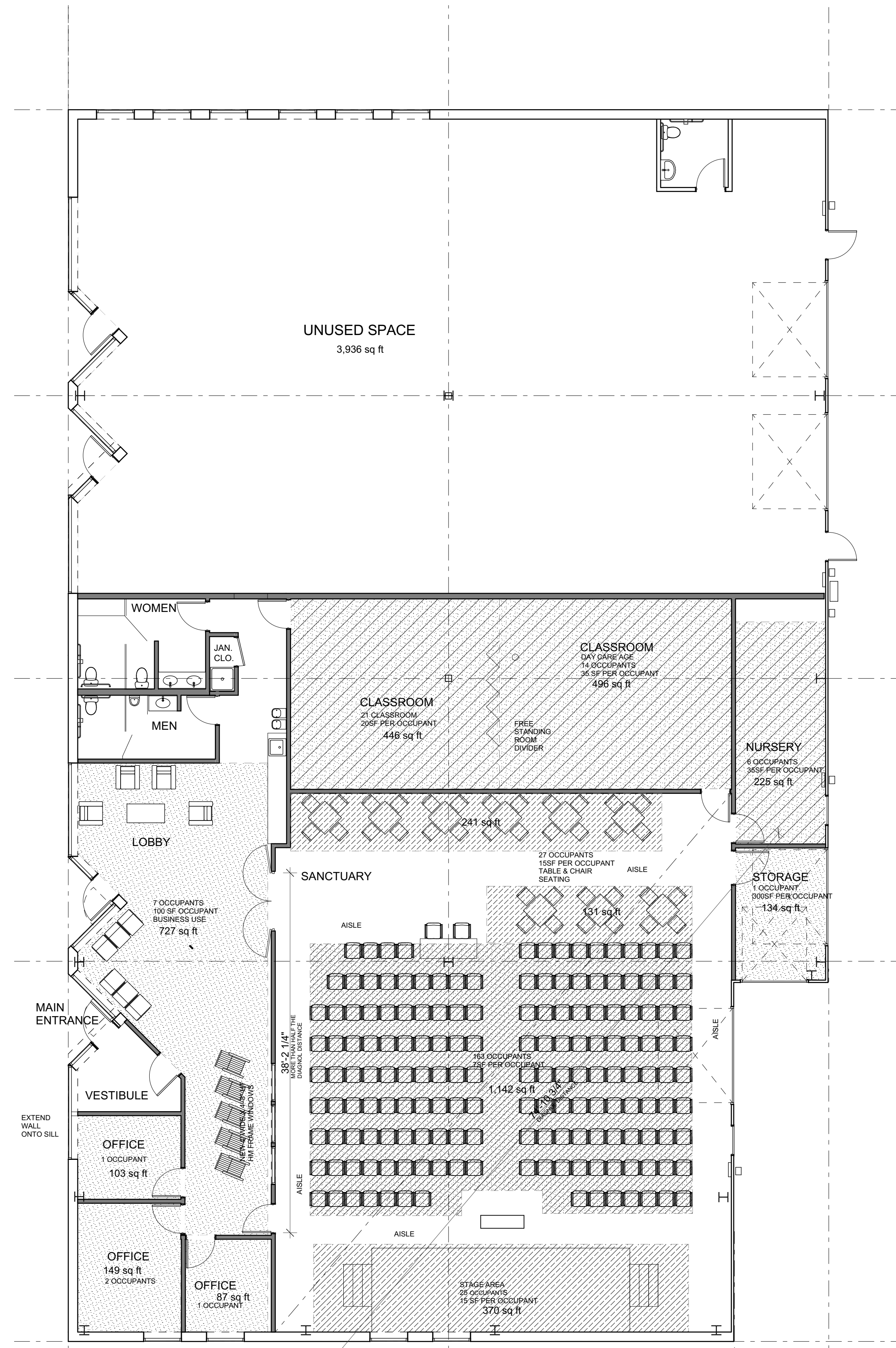
The existing building is Type 2B construction with 2-hour rated fire separation demising walls. Non fire sprinkled

Building Use Group A3, 2-hr fire separation required, less than 300 occupants, non fire -sprinkled

Occupant Load - 270, see occupant plan
 Two bathrooms is required.
 Drinking fountain is required
 Janitor sink is required

DOOR NOTES:

1. EXIT DOORS MUST BE OPERABLE FROM INSIDE WITHOUT A KEY OR SPECIAL KNOWLEDGE, ALL DOORS MUST BE KEYLESS IN THE DIRECTION OF EXIT/EGRESS TRAVEL. PROVIDE CODE APPROVED SANCTUARY AND CLASSROOM DOORS THAT ARE SPRING HINGED SELF CLOSING NO LATCH W/ ADA PULL HANDLE
2. 1/2" MAX. THRESHHOLDS TYPICAL
3. DOORS SHALL COMPLY WITH ANSI 117.1 AND SHALL HAVE 3'-0" MIN. DOOR, LEVER OPERATED OR EQUAL HARDWARE, 18" CLEAR ON THE PULL SIDE, A MAXIMUM 8.5LB FORCE TO OPEN ON ALL HINGED EXTERIOR DOORS AND A 5LB. MAXIMUM FORCE TO OPEN ON ALL HINGED INTERIOR DOORS
4. ALL DOORS TO BE PAINTED HOLLOW METAL DOORS AND FRAMES
4. ALL GLASS IN DOORS, SIDELIGHTS AND GLASS WITHIN 18" OF DOOR TO BE SAFETY GLASS TYPICAL.



Occupant Load First Floor Plan

SCALE: 1/8" = 1'-0"

Bill Jarratt
 248-446-1100
 billj@jarrattarchitecture.com
www.JarrattArchitecture.com
 108 N. Lafayette
 South Lyon, MI 48178

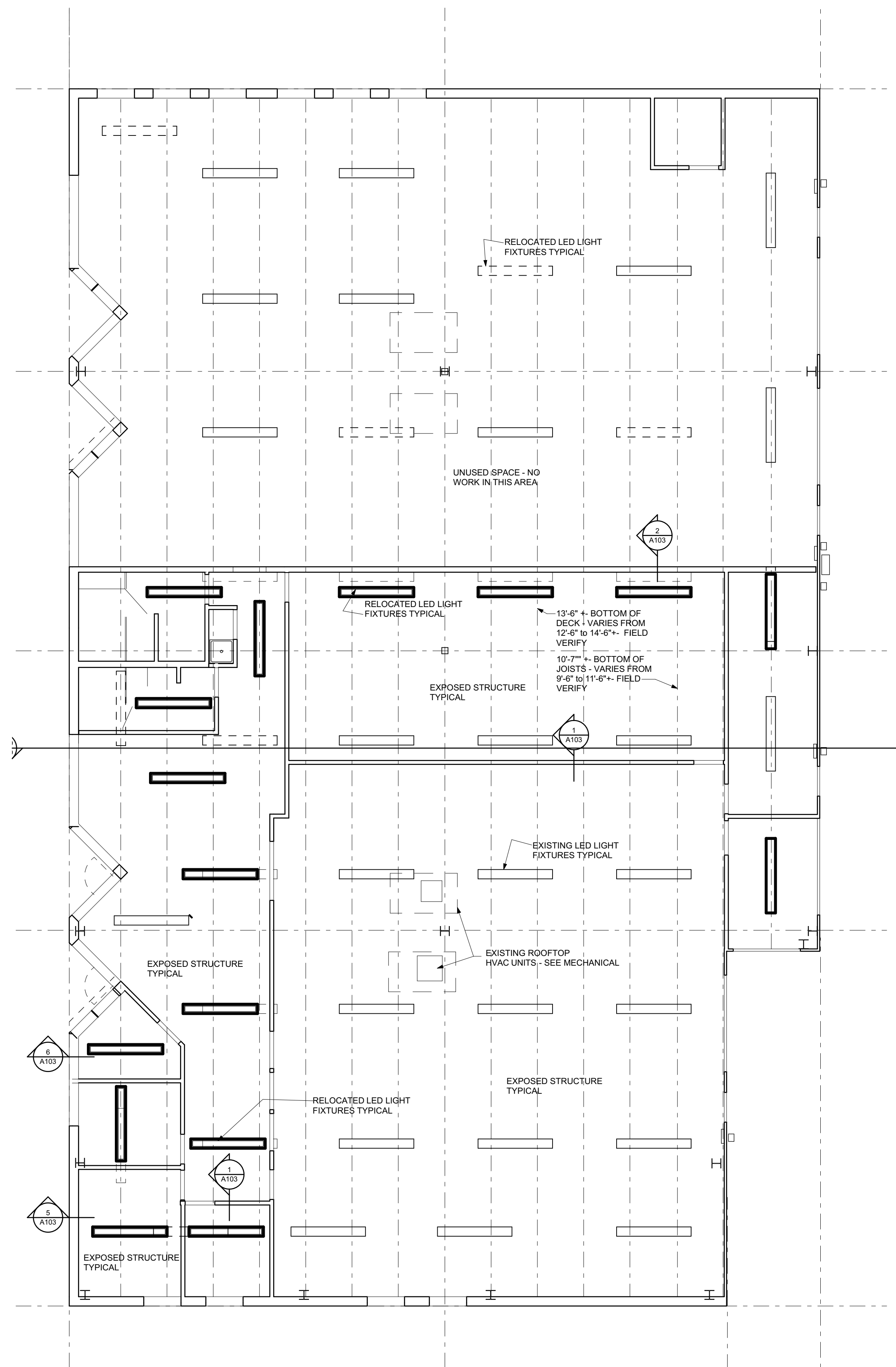
William T. Jarratt
 Licensed Architect
 Michigan 41752

Christ Church Ann Arbor
 2301 S. Industrial
 Ann Arbor, MI

11-16-22

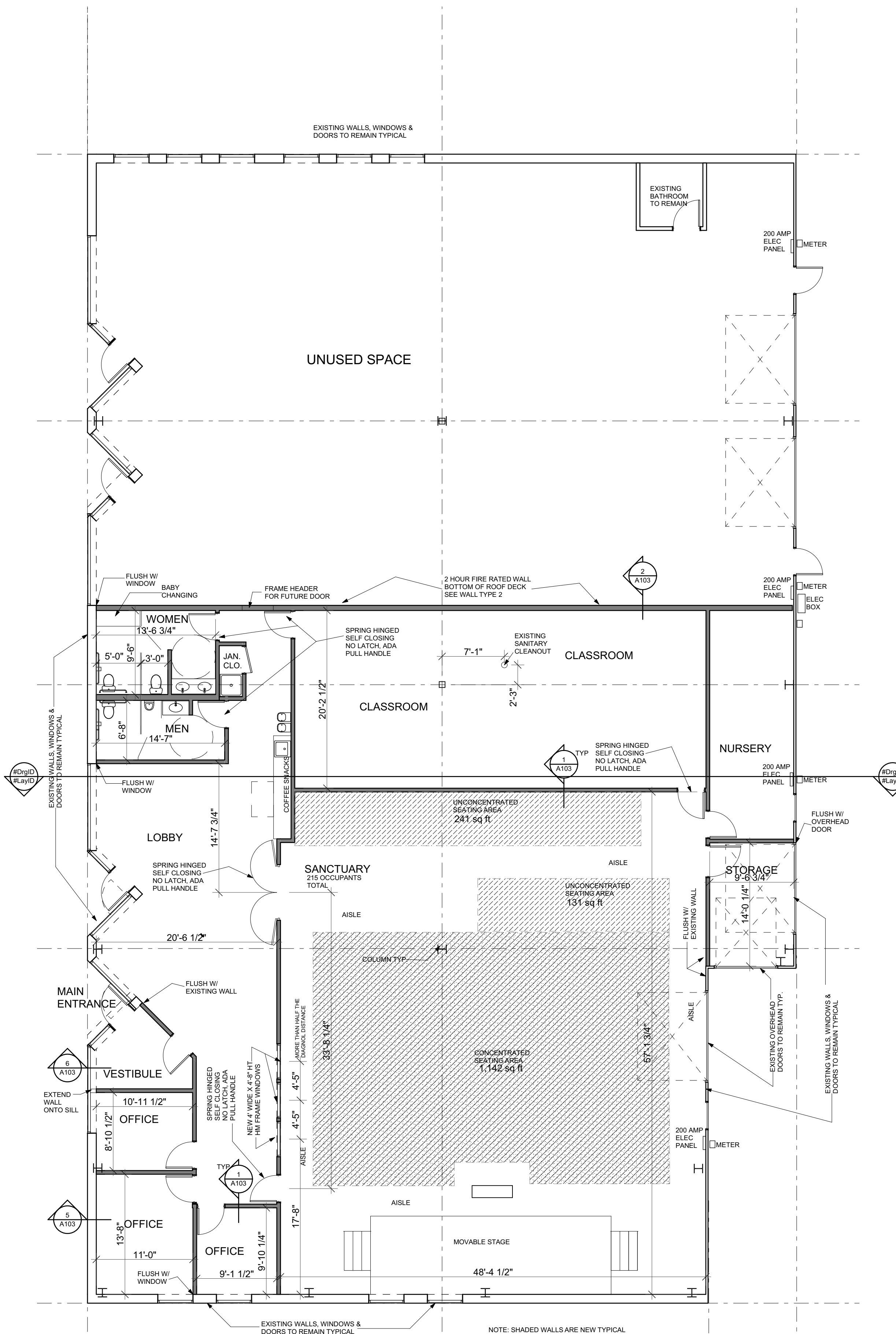
SHEET TITLE
Occupant Loads and Code Info

A-101



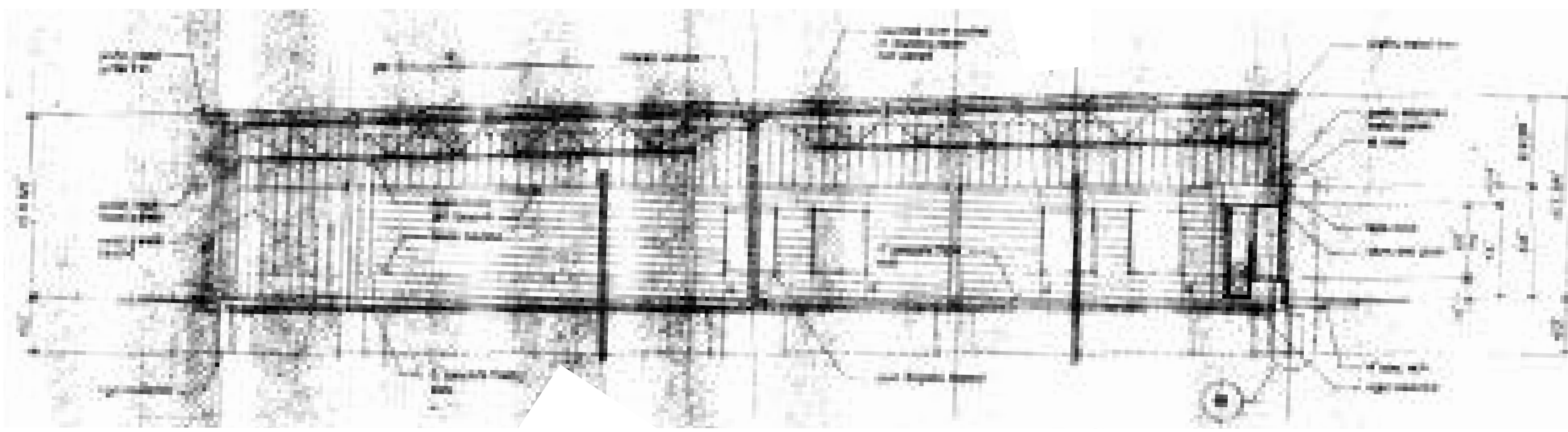
First Floor RCP

SCALE: 1/8" = 1'-0"



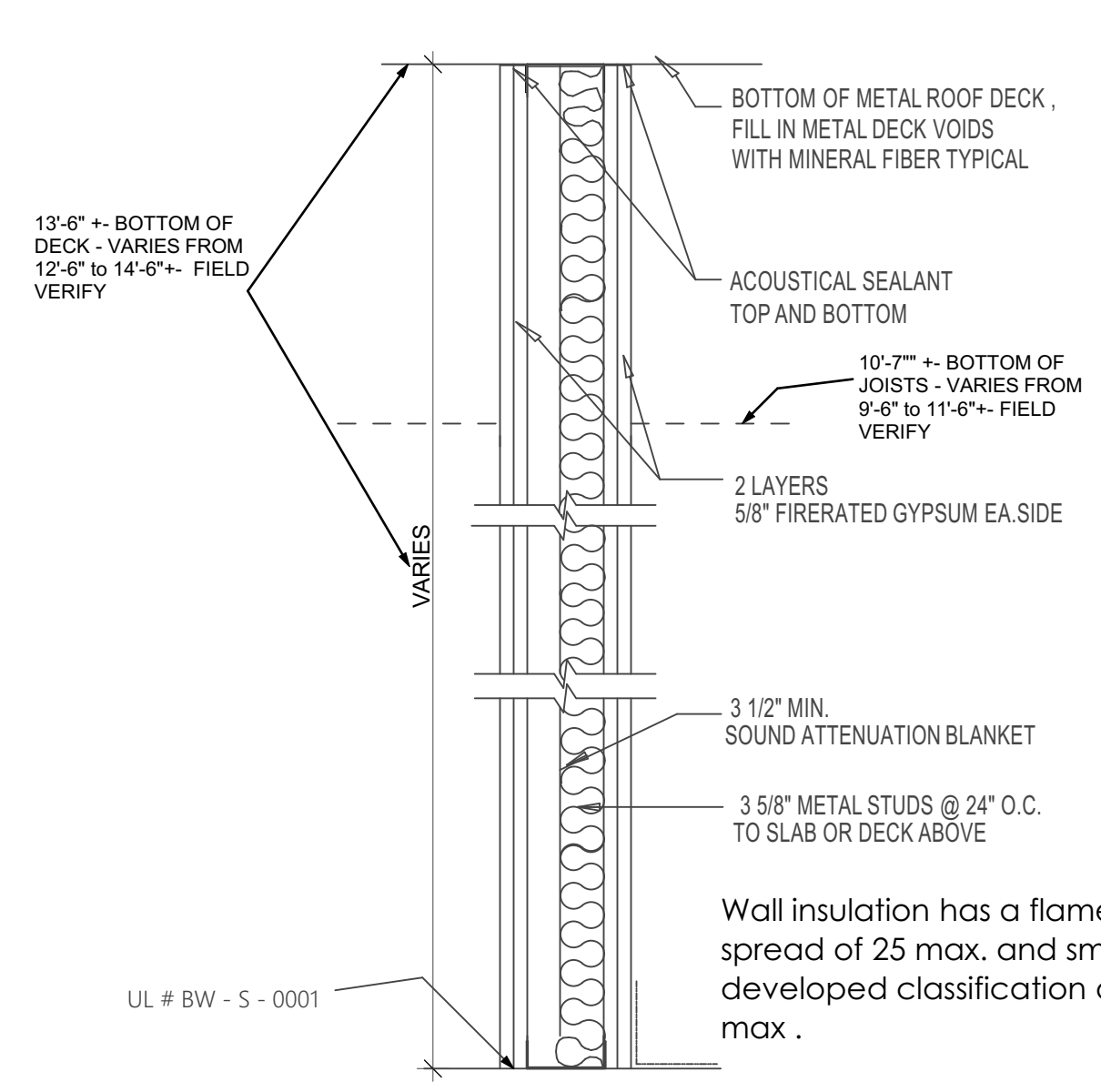
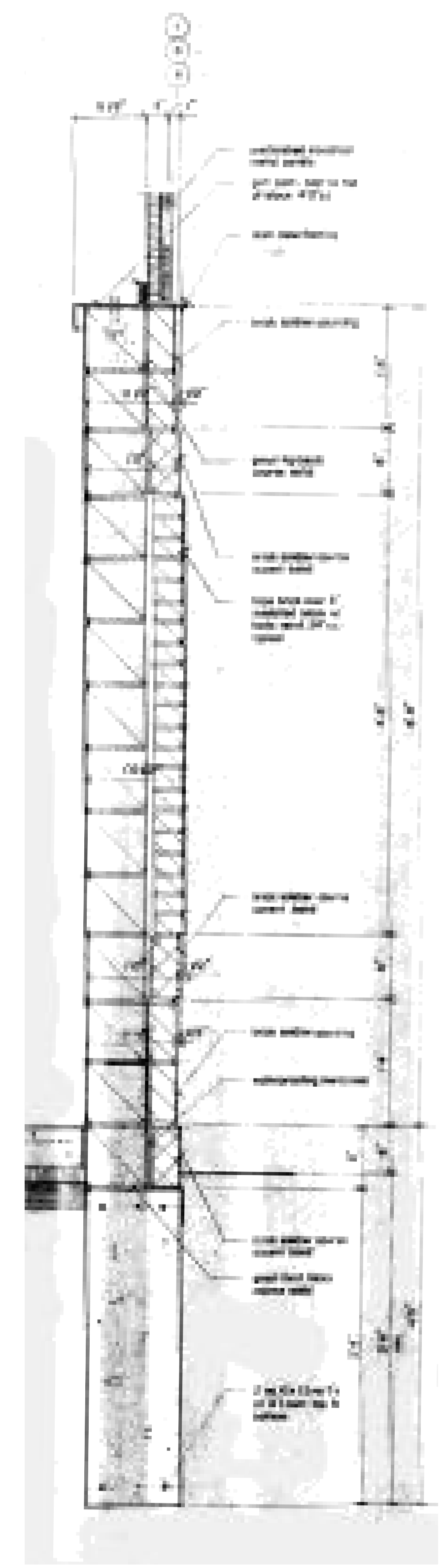
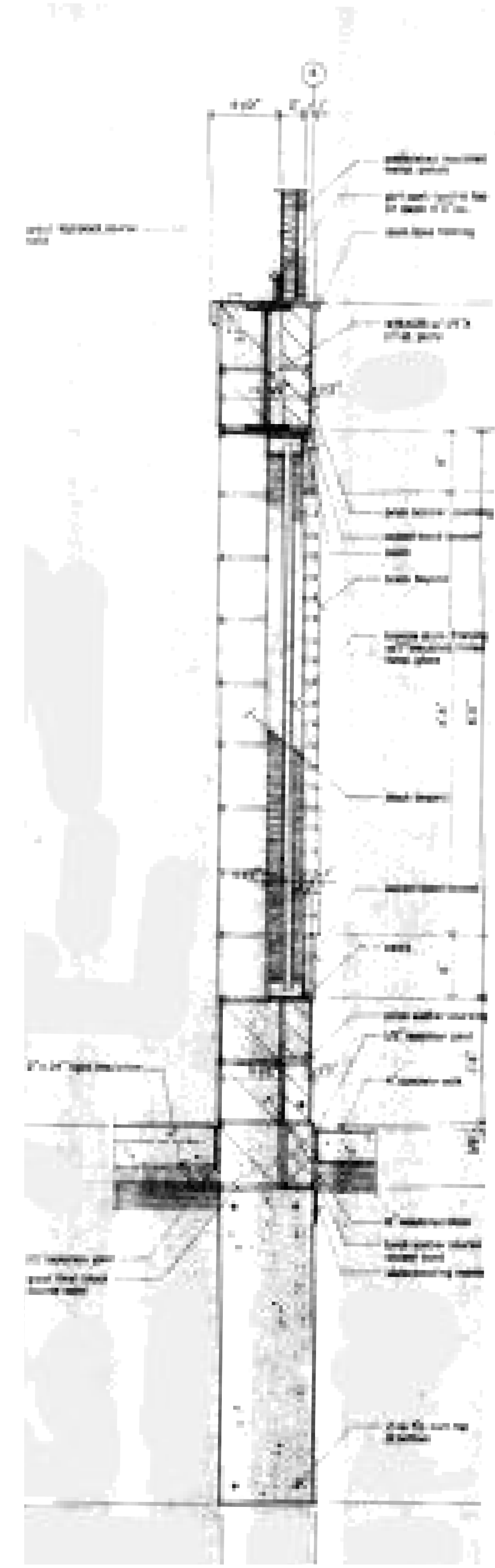
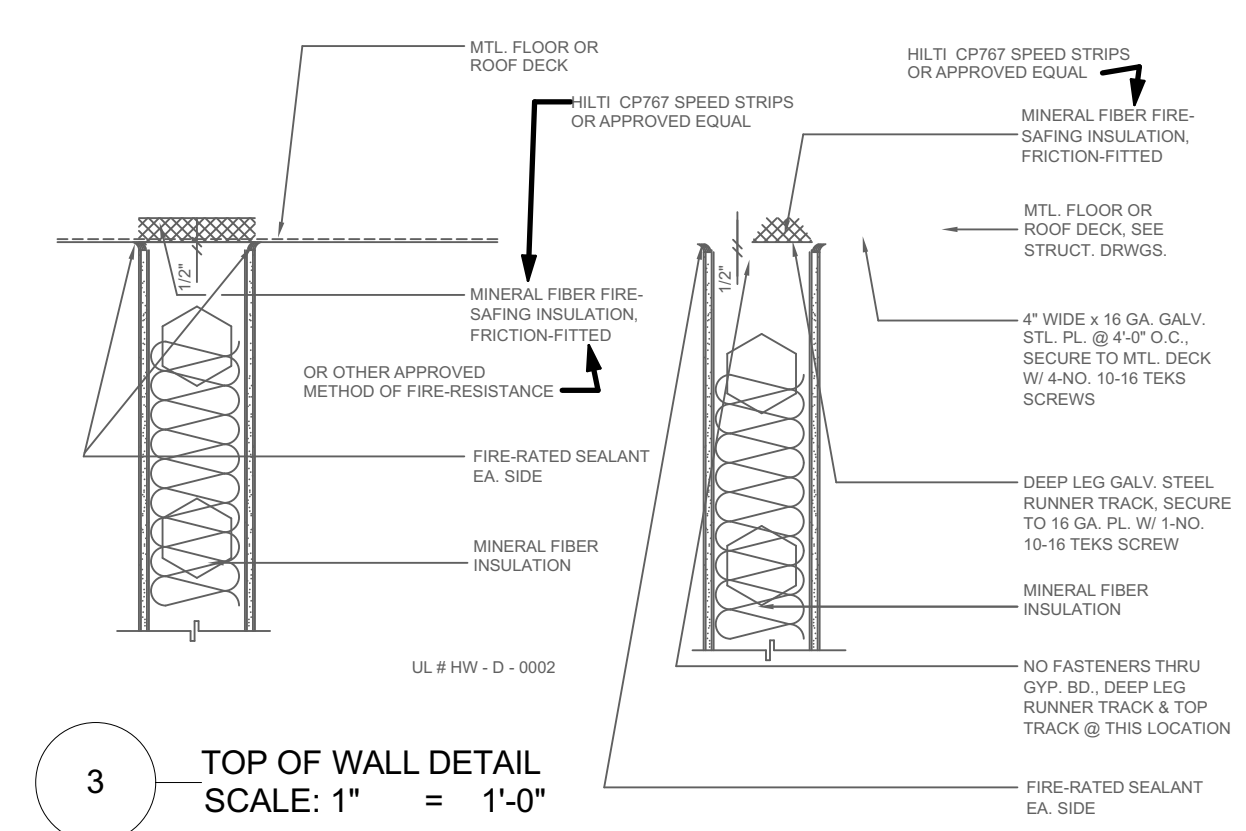
First Floor Plan

SCALE: 1/8" = 1'-0"

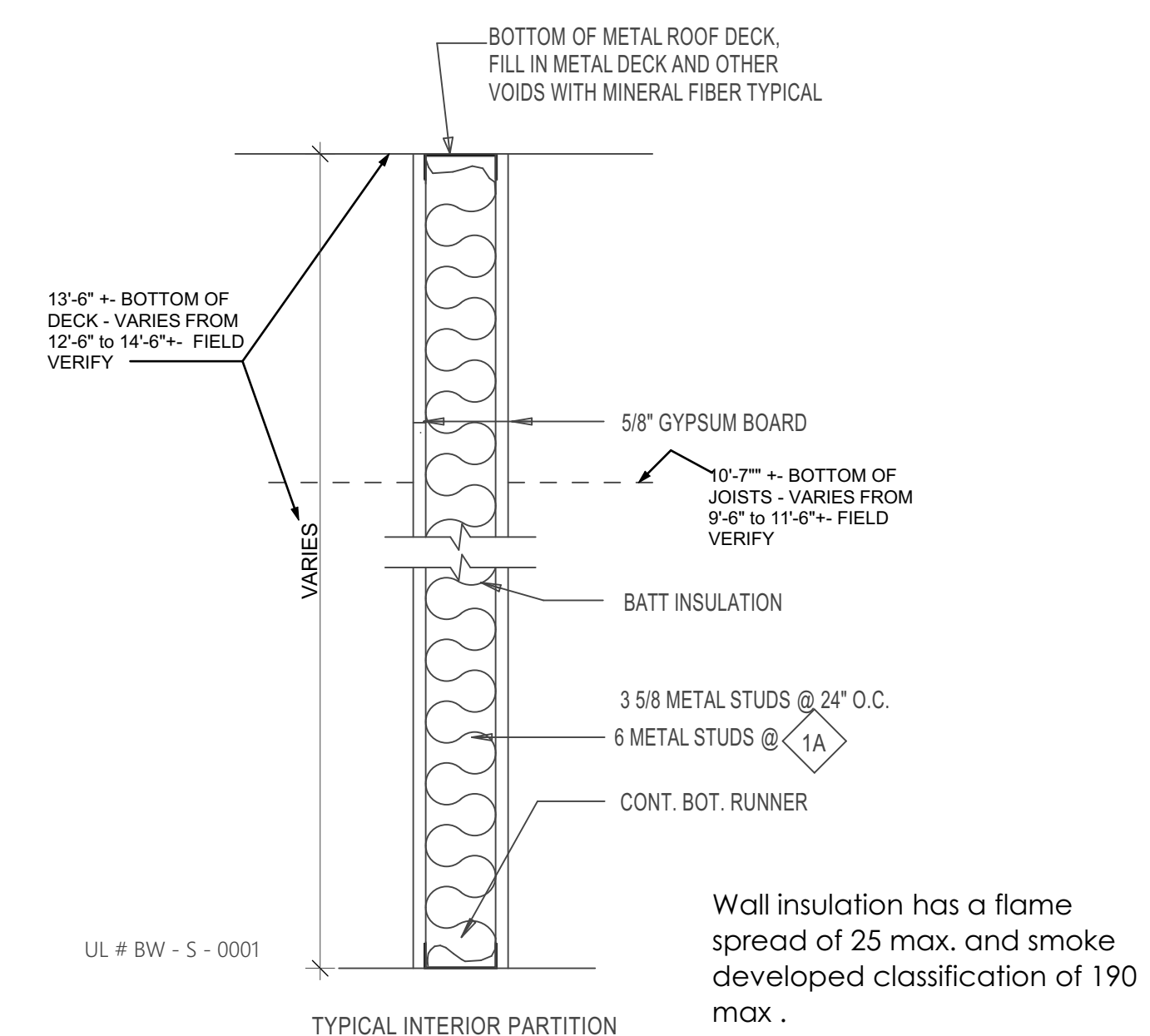


NOTE: THE EXISTING EXTERIOR WALLS AND ROOF ARE TO REMAIN AS IS

4 EXISTING SECTION SCALE: 1/8" = 1'-0"

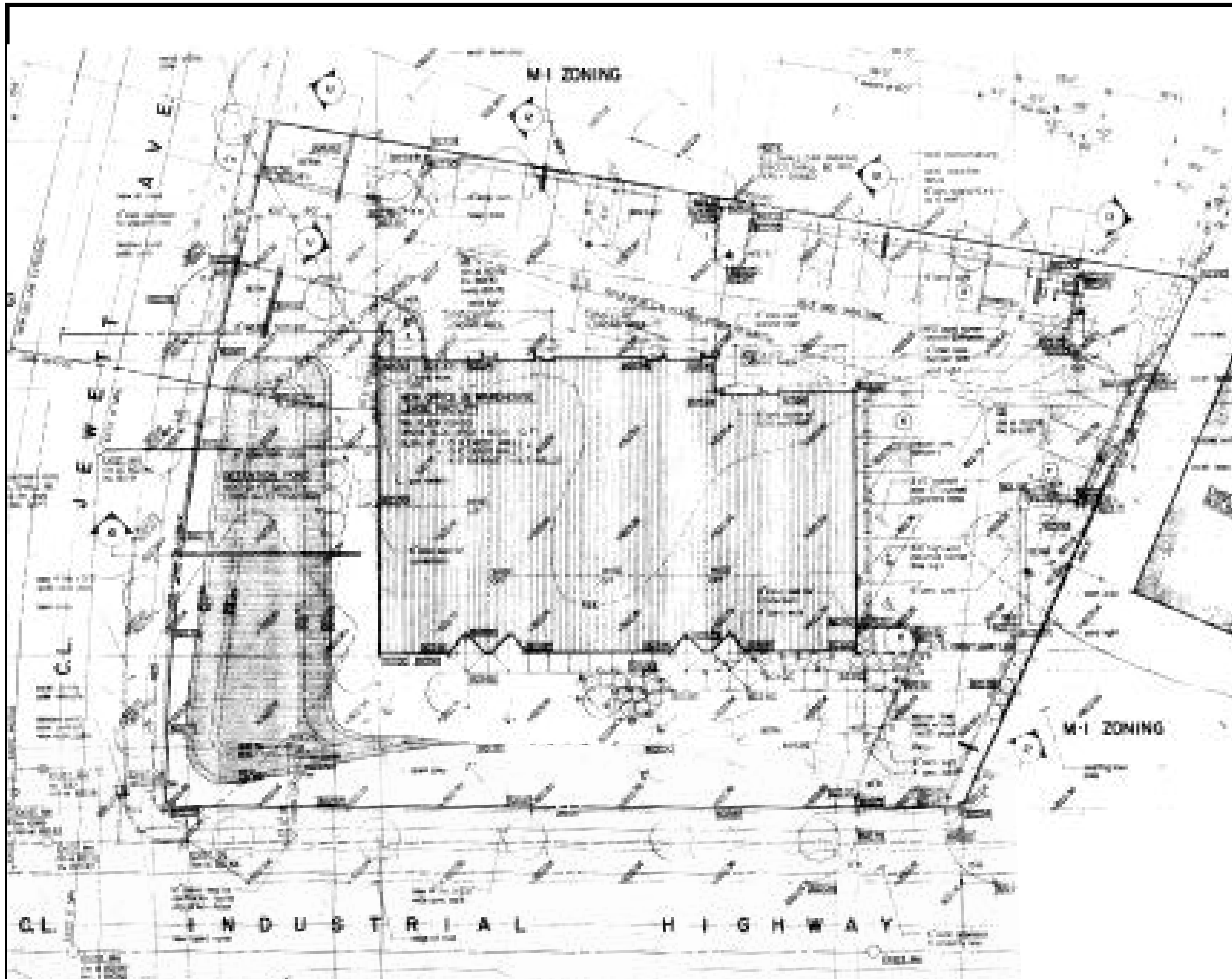


2 HOUR PARTITION		
2	FIRE RATING:	2 HR
	S.T.C. RATING:	50
DESIGN:		UL U411

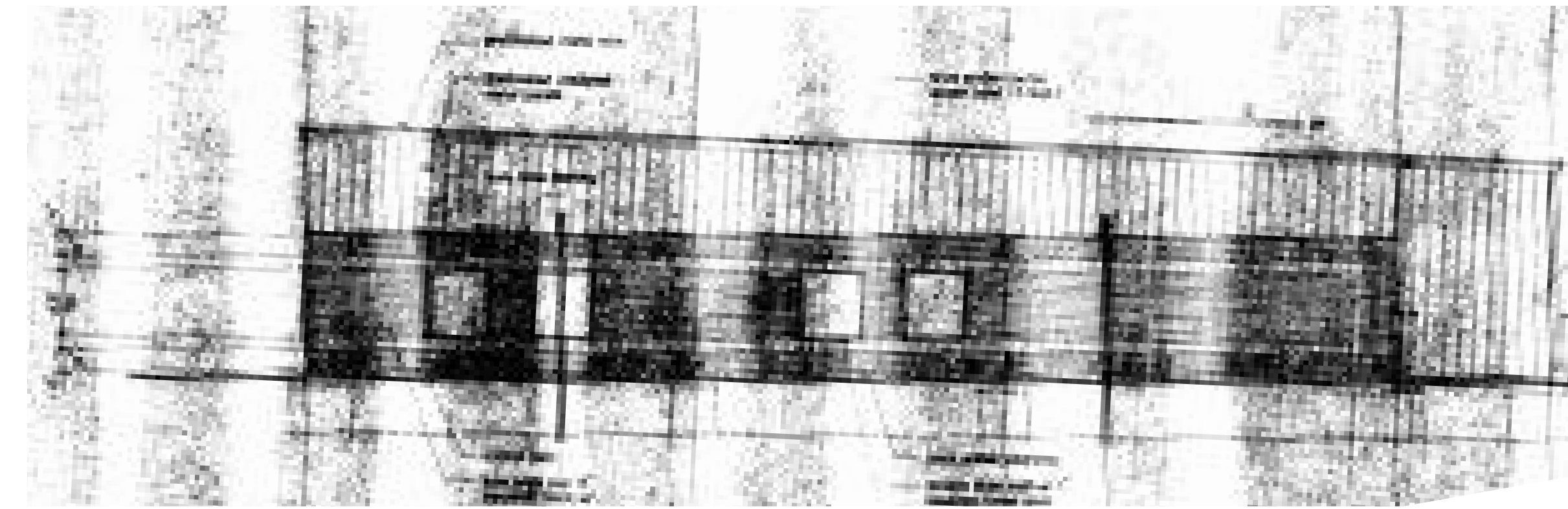


TYPICAL INTERIOR PARTITION		
1	FIRE RATING:	1 HR
	S.T.C.:	35-39
DESIGN:		UL U432
TESTING NO.:		1A

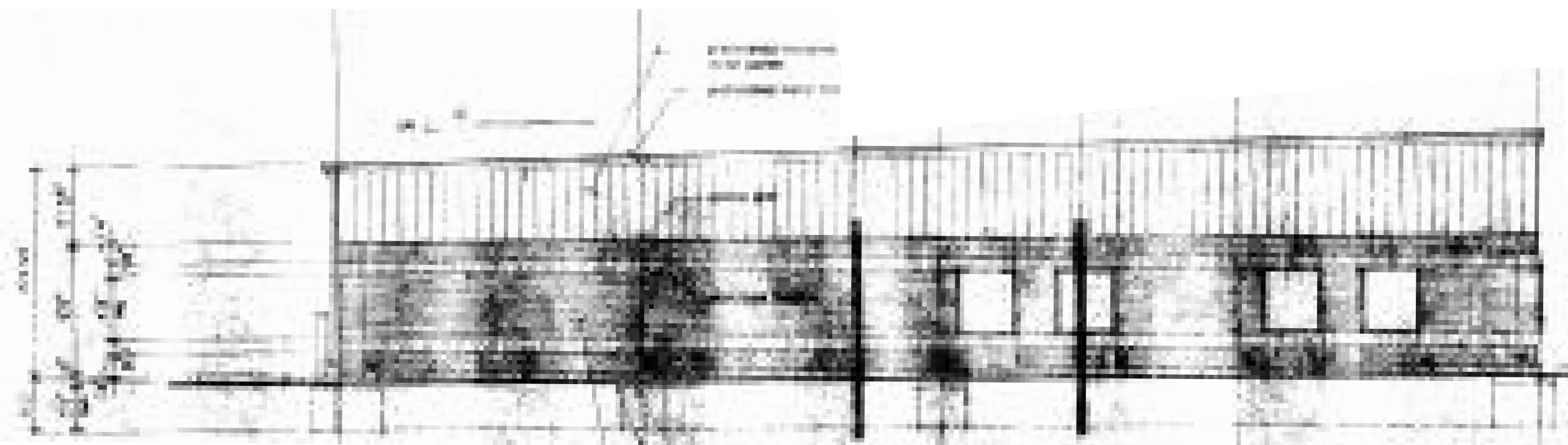
NOTE: THE EXISTING EXTERIOR WALLS AND ROOF ARE TO REMAIN AS IS



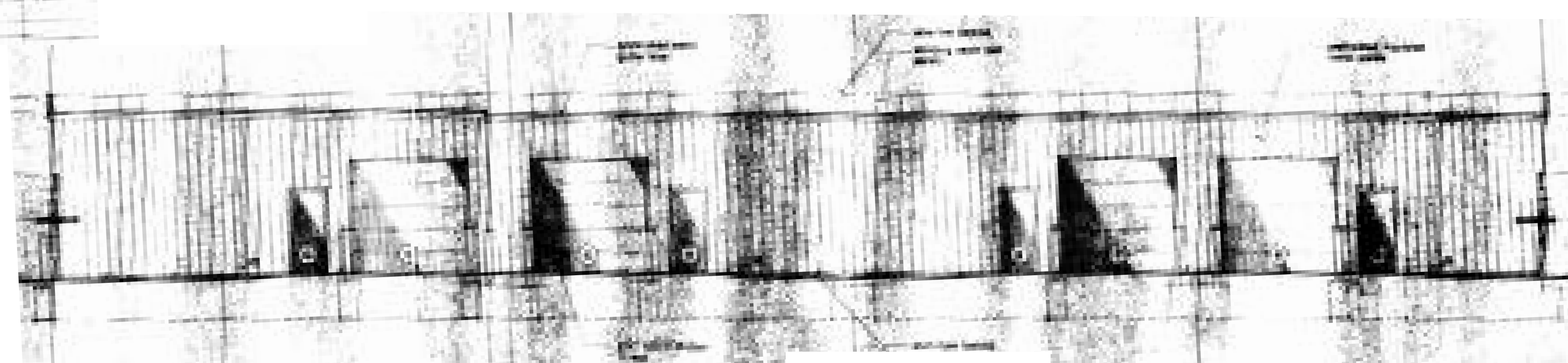
EXISTING SITE PLAN
SCALE: 1" = 20'



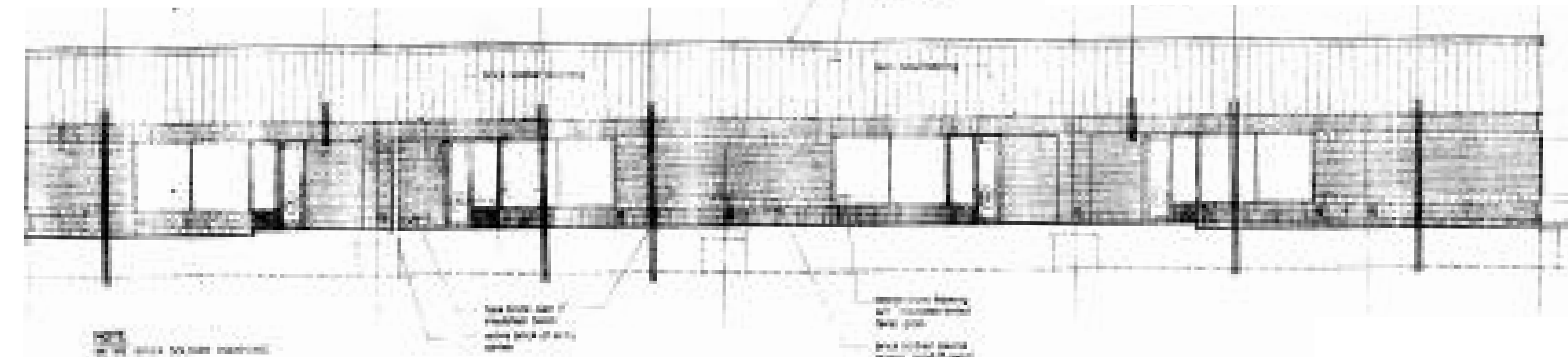
EXISTING SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



EXISTING NORTH ELEVATION
SCALE: 1/8" = 1'-0"

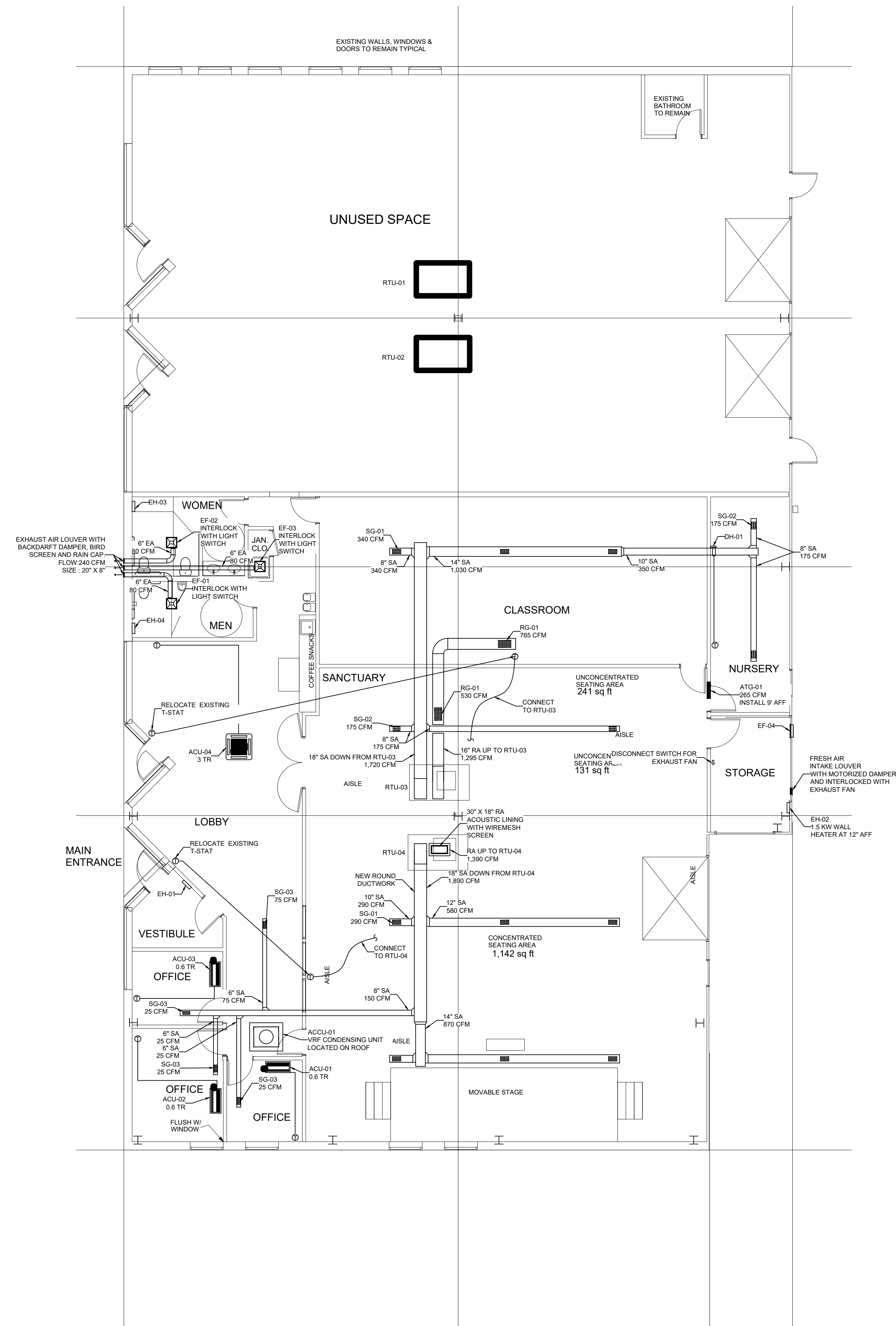


EXISTING EAST ELEVATION
SCALE: 1/8" = 1'-0"



EXISTING WEST ELEVATION

NOTE: THE EXISTING EXTERIOR ELEVATIONS AND SITE ARE TO REMAIN AS IS



LEVEL 01 HVAC PLAN
SCALE: 1/8"=1'-0"

SCOPE OF WORK:

1. RTU 1 & 4 - HEATING CAPACITY - 120,000 BTUH INPUT
COOLING CAPACITY - 75,000 BTUH OR 6.25 TR
208/230 , 3Ø, 60 HZ, 1,900 CFM
2. RTU 2 & 3 - HEATING CAPACITY - 90,000 BTUH INPUT
COOLING CAPACITY - 60,000 BTUH OR 5 TR
208/230 , 3Ø, 60 HZ, 1,800 CFM
3. UNUSED SPACE:
EXIST. RTU - 1&2 SHALL REMAIN WITH ASSOCIATED T-STAT.
4. CLASS ROOM
 - REMOVE CONCENTRIC SUPPLY & RETURN GRILLES WITH ASSOCIATED DUCT UP TO THE UNIT OPENING.
 - HVAC CONTRACTOR SHALL EITHER REMOVE THE UNITS FROM CURB, INSTALL SEPARATE SUPPLY & RETURN DUCTWORK OR INSTALL DUCTWORK FROM BOTTOM OF THE UNIT THRU CONCENTRIC SUPPLY & RETURN DUCTWORK OPENINGS.
 - PROVIDE NEW ROUND SUPPLY & RETURN DUCTWORK AS PER THE DRAWINGS.
 - PROVIDE GRILLES IN ROUND SUPPLY DUCTWORK.
 - RELOCATE EXIST T-STAT AS SHOWN IN THE DRAWING.
 - EXTEND DUCTWORK TO NURSERY AS SHOWN IN THE DRAWING.
 - FIELD VERIFY EXIST CONDITIONS & NEW MODIFY NEW SUPPLY & RETURN DUCTWORK IF NECESSARY TO AVOID INTERFERENCES.
5. NURSERY:
 - EXTEND DUCTWORK FROM CLASSROOM UNIT DUCTWORK TO NURSERY. INSTALL NEW DUCT HEATER OF CAPACITY AS SHOWN ON THE DRAWING.
 - INSTALL RETURN AIR TRANSFER GRILLE IN THE WALL @ 9'-0" AFF.
6. STORAGE:
 - INSTALL 1.5 KW ELECTRIC WALL HEATER WILL BUILT IN T-STAT.
 - INSTALL WALL MOUNTED SUPPLY FAN & MOTORIZED FRESH AIR LOUVER FOR SUMMER VENTILATION INTERLOCK EXHAUST FAN WITH FRESH AIR LOUVERS MOTORIZED DAMPER.
7. TOILETS:
 - INSTALL TWO SEPARATE CEILING MOUNTED EXHAUST FANS & INTERLOCK WITH LIGHT SWITCH.
 - INSTALL ELECTRIC WALL MOUNTED HEATER IN EACH TOILET AS PER DRAWING.
8. JANITOR'S CLOSET:
 - INSTALL ONE CEILING MOUNTED EXHAUST FAN. INTERLOCK WITH LIGHT SWITCH. TERMINATE EXHAUST ON EXTERIOR WALL.
9. VESTIBULE:
 - INSTALL ONE WALL MOUNTED ELECTRIC HEATER WITH 500 WATTS CAPACITY WITH BUILT IN T-STAT.
10. OFFICES:
 - INSTALL MULTI ZONE VRF SYSTEM AS SHOWN ON THE DRAWING. INDOOR UNIT SHALL BE WITH INBUILT CONDENSATE DRAINAGE PUMP. DISCHARGE CONDENSATE DRAINAGE TO JANITOR SINK.
11. MAIN PRAYER HALL:
 - REMOVE CONCENTRIC SUPPLY & RETURN GRILLES WITH ASSOCIATED DUCT UP TO THE UNIT OPENING.
 - HVAC CONTRACTOR SHALL EITHER REMOVE THE UNITS FROM CURB, INSTALL SEPARATE SUPPLY & RETURN DUCTWORK OR INSTALL DUCTWORK FROM BOTTOM OF THE UNIT THRU CONCENTRIC SUPPLY & RETURN DUCTWORK OPENINGS.
 - PROVIDE NEW ROUND SUPPLY & RETURN DUCTWORK AS PER THE DRAWINGS.
 - PROVIDE GRILLES IN ROUND SUPPLY DUCTWORK.
 - RELOCATE EXIST T-STAT AS SHOWN IN THE DRAWING.
 - EXTEND DUCTWORK TO NURSERY AS SHOWN IN THE DRAWING.
 - FIELD VERIFY EXIST CONDITIONS & NEW MODIFY NEW SUPPLY & RETURN DUCTWORK IF NECESSARY TO AVOID INTERFERENCES.

NOTE:

FOLLOWING RE THE FRESH AIR REQUIREMENT

1. MAIN HALL - 570 CFM
 2. CLASS ROOM - 135 CFM
 3. DAY CARE - 100 CFM
 4. NURSERY - 85 CFM
- CONTRACTOR TO RE-BALANCE RTU-3 TO DELIVER 1,720 CFM WITH 425 CFM OUTDOOR UNIT.
- CONTRACTOR TO RE-BALANCE RTU-4 TO DELIVER 1,890 CFM WITH 500 CFM OUTDOOR UNIT.

DATE:	11/16/2022
ISSUED FOR PERMIT	
REVISIONS:	A

PROJECT:	CHRIST CHURCH
LOCATION:	ANN ARBOR
ADDRESS:	2301 S. INDUSTRIAL
CITY:	ANN ARBOR, MI

VARIABLE REFRIGERANT FLOW SYSTEM SCHEDULE																																		
MARK	QUANTITY	TYPE OF UNIT	ROOM NAME	LOCATION	REFRIGERANT TYPE	DESIRED ROOM TEMPERATURE		OUTSIDE AIR CONDITION		COOLING COIL DATA			HEATING COIL DATA		REF. PIPE			OUTDOOR UNIT (POWER SUPPLY)			BC CONTROLLER					INDOOR UNIT				MAX. OPERATING WEIGHT (LB)	MAX. DIMENSIONS (H x W x D) (IN)	MANUFACTURER	MODEL NO.	REMARKS
						SUMMER (F)	WINTER (F)	SUMMER DB / WB (F)	WINTER DB (F)	TOTAL CAPACITY (TR)	SENSIBLE CAPACITY (TR)	SUPPLY AIRFLOW RANGE (CFM)	MIN. HEATING (MBH)	GAS PIPE (ø IN)	LIQUID PIPE (ø IN)	MCA (A)	MOPC (A)	V/Ph/Hz	MARK	MCA (A)	MOPC (A)	V/Ph/Hz	MANUFACTURER	MODEL NO.	TYPE	POWER INPUT (W)	CURRENT (A)	V/Ph/Hz						
ACCU-01	1	WORKING OUTDOOR UNIT		ROOF	R-410A	-	-	-	-	6.0	-	-	80.0	5/8	3/4	33	50	208/3/60	-	-	-	-	-	-	-	-	-	-	-	-	TRANE-MITSUBISHI	PURY-P72TNU-A(BS)	SIMULTANEOUSLY HEATING AND COOLING	
ACU-01	1	WORKING INDOOR UNIT	OFFICE	-	-	74	72			0.6	0.4	300	9.0	1/2	1/4	-	-	-												TRANE-MITSUBISHI	PMFY-P08NBMU-ER5	-		
ACU-02	1	WORKING INDOOR UNIT	OFFICE	-	-	74	72	89 / 73	-17	0.6	0.4	300	9.0	1/2	1/4	-	-	-	BC-01	0.65	15.0	230/1/60	TRANE-MITSUBISHI	TOMBO0106S11N4					TRANE-MITSUBISHI	PMFY-P08NBMU-ER5	-			
ACU-03	1	WORKING INDOOR UNIT	OFFICE	-	-	74	72			0.6	0.4	300	9.0	1/2	1/4	-	-	-												TRANE-MITSUBISHI	PMFY-P08NBMU-ER5	-		
ACU-04	1	WORKING INDOOR UNIT	LOBBY	-	-	74	72			3.0	2.0	1095	13.5	5/8	3/8	-	-	-												TRANE-MITSUBISHI	PLFY-EP36NEMU-E	-		

- NOTES: -
- EQUIPMENT VENDOR AND CONTRACTOR SHALL SUPPLY AND INSTALL EQUIPMENT IN ACCORDANCE WITH THE SCHEDULE.
 - EQUIPMENT SCHEDULE SHALL BE READ IN CONJUNCTION WITH DRAWINGS.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO OUTDOOR UNIT.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE POWER NEAR TO THE INDOOR UNIT.
 - MECHANICAL CONTRACTOR TO CONNECT POWER CABLE OF INDOOR UNIT.
 - PROVIDE 12" HIGH STAND FOR OUTDOOR UNITS LOCATED ON ROOF.
 - EACH UNIT SHALL HAVE SINGLE POINT POWER CONNECTION.
 - ALL INTERNAL POWER WIRING REQUIRED SHALL BE FACTORY WIRED OR FIELD WIRED. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE NECESSARY STARTERS ALONG WITH ALL ACCESSORIES INTERLOCKS, CONTROL WIRING ETC.
 - MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION, COMMISSIONING AND OPERATION OF ENTIRE SYSTEM
 - CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING OF REFRIGERENT PIPE BASED ON MANUFACTURERS RECOMMENDATION.
 - PROVIDE BUILT-IN CONDENSATE DRAINAGE PUMP FOR ALL INDOOR UNITS.
 - MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY CONTROLS REQUIRED FOR OPERATION OF ENTIRE SYSTEM
 - UNIT SHALL BE ENERGY EFFICIENT AS PER IECC-2015 REQUIREMENTS (INCLUDING HSPF & SEER RATING)
 - DESIGN IS BASED ON SPECIFIED MANUFACTURER.
 - IF CONTRACTOR SELECTS EQUIPMENT FROM ANOTHER MANUFACTURER AND IF IT REQUIRES MODIFICATION OF STRUCTURE, ELECTRICAL, ARCHITECTURE, PIPING, DUCTWORK, CONTROLS ETC. THEN CONTRACTOR SHALL BE RESPONSIBLE FOR NEW DESIGN AND MODIFICATION COST. CLIENT SHALL NOT BE RESPONSIBLE FOR EXTRA COST ASSOCIATED WITH ANY MODIFICATION.
 - CONTRACTOR SHALL PROVIDE NECESSARY STRUCTURAL FRAMING AROUND WALL AND ROOF OPENINGS TO SUPPORT PENETRATIONS.

AIR TERMINAL SCHEDULE						
MARK	TYPE	NECK SIZE (IN)	MODULE SIZE (IN)	MAX AIRFLOW (CFM)	BASED ON MANUFACTURER MODEL	REMARK
SG-01	CURVED GRILLE FOR SPIRAL DUCT	12x6	14x8	300	PRICE - SDGR	
SG-02	CURVED GRILLE FOR SPIRAL DUCT	10x6	12x6	200	PRICE - SDGR	
SG-03	CURVED GRILLE FOR SPIRAL DUCT	10x4	12x6	75	PRICE - SDGR	
RG-01	RETURN - CURVED GRILLE FOR SPIRAL DUCT	18x10	20x12	800	PRICE - SDGR	
ATG-01	AIR TRANSFER GRILLE	24X16	26X18	350	STG/ATG	

- NOTES: -
- PROVIDE FOUR WAY DIFFUSER WITH ROUND NECK WITH BUILT-IN VOLUME CONTROL DAMPER.
 - PROVIDE GRILLE WITH BUILT-IN VOLUME CONTROL DAMPER.
 - SUPPLY DIFFUSER SHALL BE WITH ADJUSTABLE CONE TO ACHIEVE REQUIRED VERTICAL THROW.
 - DAMPER SHALL BE OPERABLE FROM THE FACE OF THE DIFFUSER BY UNLATCHING THE DIFFUSER FACE.
 - THE DIFFUSER SHALL BE DESIGNED SUCH THAT COMPLETE REMOVAL OF THE FACE IS NOT REQUIRED DURING DAMPER ADJUSTMENT.
 - ALL AIR TERMINAL SHALL HAVE VOLUME CONTROL DAMPER. IF VOLUME CONTROL DAMPER IS NOT AVAILABLE WITH AIR TERMINAL THAN PROVIDE MANUAL DAMPER IN BRANCH CONNECTED TO AIR TERMINAL.

ELECTRIC HEATER SCHEDULE										
MARK	QTY	LOCATION	TYPE	ELECTRICAL DATA		MAXIMUM DIMENSIONS (L X W X H) (INCH)	MAXIMUM WEIGHT (LB)	BASED ON MANUFACTURER	MODEL	REMARKS
				HEATING CAPACITY (KW)	V/Ph/Hz					
EH-01	1	VESTIBULE	WALL MOUNTED - SEMI RECESSED TYPE	0.5	120/1/60	15 X 4 X 20	40	MARKEL	3320-SERIES	
EH-02	1	STORAGE	WALL MOUNTED - SEMI RECESSED TYPE	1.5	208/1/60	15 X 4 X 20	40	MARKEL	3320-SERIES	
EH-03, EH-04	1	MEN & WOMEN TOILET	WALL MOUNTED - SEMI RECESSED TYPE	1.5	208/1/60	15 X 4 X 20	40	MARKEL	3320-SERIES	

- NOTES:
- EQUIPMENT VENDOR AND CONTRACTOR SHALL SUPPLY AND INSTALL EQUIPMENT IN ACCORDANCE WITH THE SCHEDULE.
 - EQUIPMENT SCHEDULE SHALL BE READ IN CONJUNCTION WITH DRAWINGS.
 - UNIT SHALL BE PROVIDED WITH INBUILT THERMAL OVERLOAD PROTECTION & T-STAT.
 - FACTORY MOUNTED DISCONNECT SWITCH.
 - DESIGN IS BASED ON SPECIFIED MANUFACTURER.
 - IF CONTRACTOR SELECTS EQUIPMENT FROM ANOTHER MANUFACTURER AND IF IT REQUIRES MODIFICATION OF STRUCTURE, ELECTRICAL, ARCHITECTURE, PIPING, DUCTWORK, CONTROLS ETC. THEN CONTRACTOR SHALL BE RESPONSIBLE FOR NEW DESIGN AND MODIFICATION COST. CLIENT SHALL NOT BE RESPONSIBLE FOR EXTRA COST ASSOCIATED WITH ANY MODIFICATION.

FAN SCHEDULE													
MARK	QTY.	AREA/SYSTEM SERVED	LOCATION	ACTUAL AIRFLOW OF EACH FAN (CFM)	EXTERNAL STATIC PRESSURE (IN WC)	FAN RPM	DRIVE TYPE	MOTOR DATA			MANUFACTURER	MODEL	REMARKS
								MAX. MOTOR (WATT)	V/Ph/Hz	STARTER			
EF-01, EF-02	2	MEN & WOMEN TOILET	CEILING	80	0.4	880	EC MOTOR	21.5	120/1/60	EC MOTOR	GREENHECK	SP-AP	
EF-03	1	JANITOR'S SINK	CEILING	80	0.4	880	EC MOTOR	21.5	120/1/60	EC MOTOR	GREENHECK	SP-AP	
EF-04	1	STORAGE	WALL MOUNTED - AXIAL	125	0.1	1,050	DIRECT DRIVE	50	230/1/60	EC-VARI GREEN MOTOR	GREENHECK	S1-8-440-E	

- NOTES: -
- EQUIPMENT VENDOR AND CONTRACTOR SHALL SUPPLY AND INSTALL EQUIPMENT IN ACCORDANCE WITH THE SCHEDULE.
 - EQUIPMENT SCHEDULE SHALL BE READ IN CONJUNCTION WITH DRAWINGS.
 - FAN SHALL HAVE AMCA SEAL & U.L CERTIFIED.
 - SAFETY DISCONNECT SWITCH
 - DESIGN IS BASED ON SPECIFIED MANUFACTURER.
 - IF CONTRACTOR SELECTS EQUIPMENT FROM ANOTHER MANUFACTURER AND IF IT REQUIRES MODIFICATION OF STRUCTURE, ELECTRICAL, ARCHITECTURE, PIPING, DUCTWORK, CONTROLS ETC. THEN CONTRACTOR SHALL BE RESPONSIBLE FOR NEW DESIGN AND MODIFICATION COST. CLIENT SHALL NOT BE RESPONSIBLE FOR EXTRA COST ASSOCIATED WITH ANY MODIFICATION.
 - CONTRACTOR SHALL PROVIDE NECESSARY STRUCTURAL FRAMING AROUND WALL AND ROOF OPENINGS TO SUPPORT PENETRATIONS.

ELECTRIC DUCT HEATER SCHEDULE										
MARK	QTY.	LOCATION	AIR FLOW (CFM)	ELECTRICAL DATA				DUCT SIZE (WxH) (IN)	BASED ON MANUFACTURER MODEL	REMARKS
				HEATING CAPACITY (KW)	CONTROL TYPE	POWER (KW)	V/Ph/Hz			
DH-01	1	NURSERY	350	2.0	SCR	2.0	120/1/60	10	GREENHECK-IDHE	PROVIDE FLOW SWITCH AND OTHER SAFETIES.

- NOTES: -
- MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE OPERATING SYSTEM.
 - ELECTRIC DUCT HEATER SHALL BE FLANGE TYPE.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE SINGLE POINT POWER SUPPLY.
 - ALL INTERNAL POWER WIRING SHALL BE FACTORY WIRED / FIELD WIRED BY MANUFACTURER. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NECESSARY POWER PANEL, ACCESSORIES, INTERLOCKS, NECESSARY CONTROL WIRING, TRANSFORMER, ETC. AS REQUIRED.
 - DESIGN IS BASED ON SPECIFIED MANUFACTURER.
 - IF CONTRACTOR SELECTS EQUIPMENT FROM ANOTHER MANUFACTURER AND IF IT REQUIRES MODIFICATION OF STRUCTURE, ELECTRICAL, ARCHITECTURE PIPING, DUCTWORK, CONTROLS ETC. THEN CONTRACTOR SHALL BE RESPONSIBLE FOR NEW DESIGN AND MODIFICATION COST. CLIENT SHALL NOT BE RESPONSIBLE FOR EXTRA COST ASSOCIATED WITH ANY MODIFICATION.

11180 Rivering Trce.
 17101 Michigan Ave.
 Dearborn, MI 48126
 Tel: 313-441-3000 (ext 285)
 e-mail: climatek2007@yahoo.com

SEAL:

PRELIMINARY, NOT FOR CONSTRUCTION

ISSUED FOR PERMIT
11/16/2022

REVISIONS:

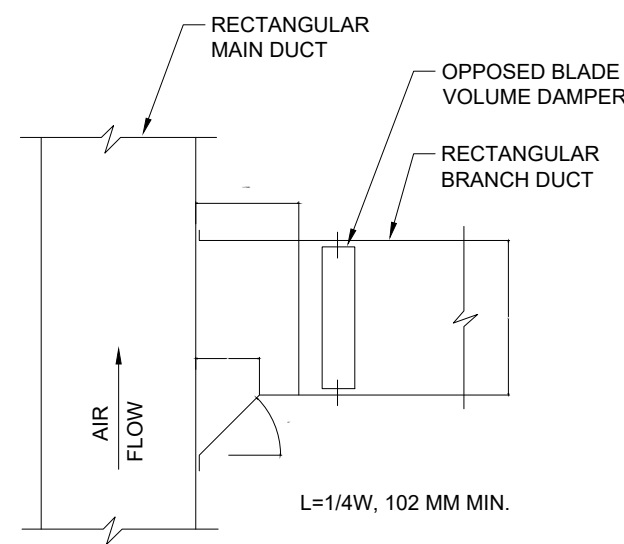
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CHRIST CHURCH
ANN ARBOR

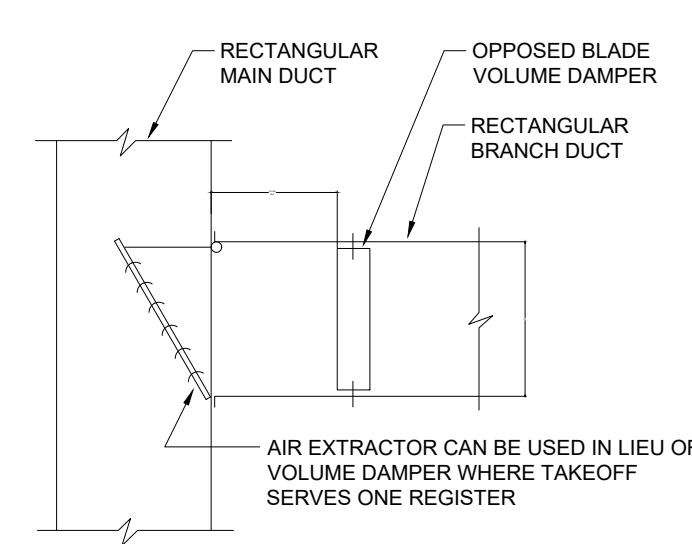
MECHANICAL HVAC SCHEDULES
2301 S. INDUSTRIAL
ANN ARBOR, MI

DATE:
11/16/2022

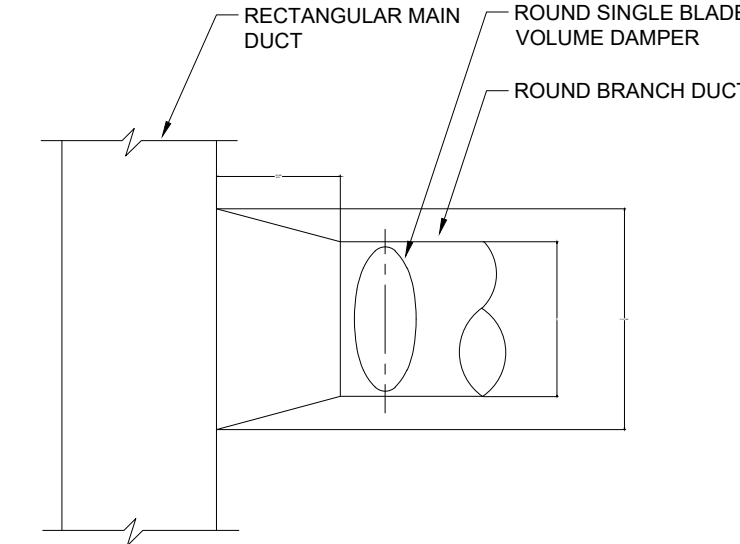
SHEET NO.
MO-02



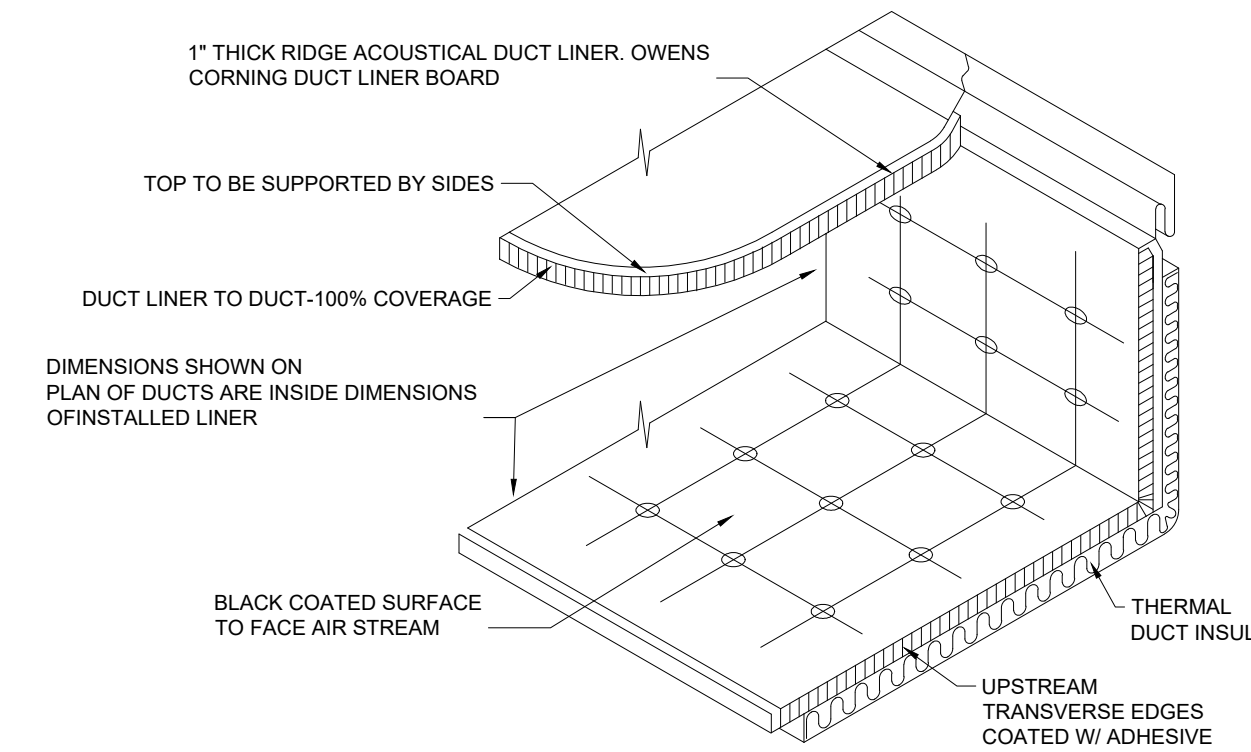
1 RECTANGULAR TO RECTANGULAR BRANCH
SCALE : N.T.S.



2 RECTANGULAR TO RECTANGULAR BRANCH
SCALE : N.T.S.



3 RECTANGULAR TO ROUND BRANCH
SCALE : N.T.S.



4 ACOUSTICAL DUCT LINER DETAIL
SCALE : N.T.S.

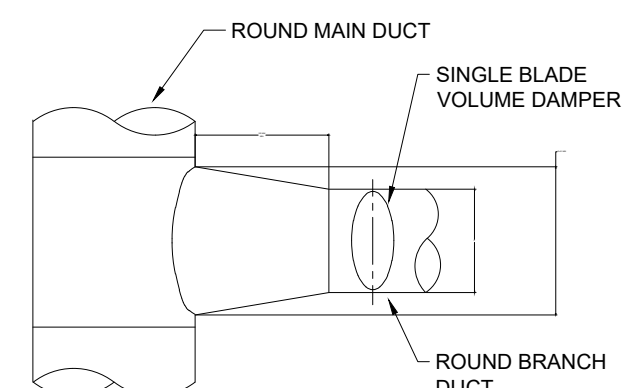
DUCT FITTING PROVISIONS					
SYSTEM	SYSTEM VELOCITY	MAIN DUCT	FITTING DESCRIPTION	FITTING TYPE	KEYED NOTES
SUPPLY	MEDIUM	RECTANGULAR	RECTANGULAR BRANCH	1	3
SUPPLY	MEDIUM	RECTANGULAR	ROUND BRANCH	3, 4	1, 3
SUPPLY	MEDIUM	ROUND	ROUND BRANCH	6	3
SUPPLY	MEDIUM	RECTANGULAR	SPLIT	7, 8	2, 3
SUPPLY	MEDIUM	RECTANGULAR	ELBOW	11, 16, 17	2
SUPPLY	MEDIUM	ROUND	ELBOW	12, 13	
SUPPLY	LOW	RECTANGULAR	RECTANGULAR BRANCH	1, 2	
SUPPLY	LOW	RECTANGULAR	ROUND BRANCH	3, 4	1
SUPPLY	LOW	ROUND	ROUND BRANCH	5	
SUPPLY	LOW	RECTANGULAR	SPLIT	7, 8	
SUPPLY	LOW	RECTANGULAR	ELBOW	11, 16, 17	
SUPPLY	LOW	ROUND	ELBOW	12, 13	
RETURN/EXHAUST	LOW	RECTANGULAR	RECTANGULAR BRANCH	1	
RETURN/EXHAUST	LOW	RECTANGULAR	ROUND BRANCH	3, 4	1
RETURN/EXHAUST	LOW	ROUND	ROUND BRANCH	5	
RETURN/EXHAUST	LOW	RECTANGULAR	SPLIT	8	
RETURN/EXHAUST	LOW	RECTANGULAR	ELBOW	17	
RETURN/EXHAUST	LOW	ROUND	ELBOW	12, 13	
KITCHEN HOOD EXHAUST	MEDIUM/HIGH	RECTANGULAR	RECTANGULAR BRANCH	1	3, 4
KITCHEN HOOD EXHAUST	MEDIUM/HIGH	RECTANGULAR	ROUND BRANCH	3, 4	1, 3, 4
KITCHEN HOOD EXHAUST	MEDIUM/HIGH	RECTANGULAR	SPLIT	8	3, 4
KITCHEN HOOD EXHAUST	MEDIUM/HIGH	RECTANGULAR	ELBOW	11	4

GENERAL NOTES:

- FOR MEDIUM VELOCITY DUCT SYSTEMS, AIR VELOCITY IS GREATER THAN 10 MTS/SEC. FOR LOW VELOCITY DUCT SYSTEMS, AIR VELOCITY IS LESS THAN 10 MTS/SEC.
- WHERE SEVERAL FITTINGS ARE LISTED, FITTINGS ARE INTERCHANGEABLE SUBJECT TO KEYED NOTES.
- PROVIDE FOR OFFSETS, OBSTRUCTIONS, AND TRANSITIONS AS SHOWN ON THIS SHEET.
- DUCT FITTINGS SHALL BE PROVIDED IN ACCORDANCE WITH "DUCT FITTING PROVISIONS" AS SHOWN ON THIS SHEET AND THE LATEST SMACNA STANDARDS FOR DUCT CONSTRUCTION AND SUPPORT.

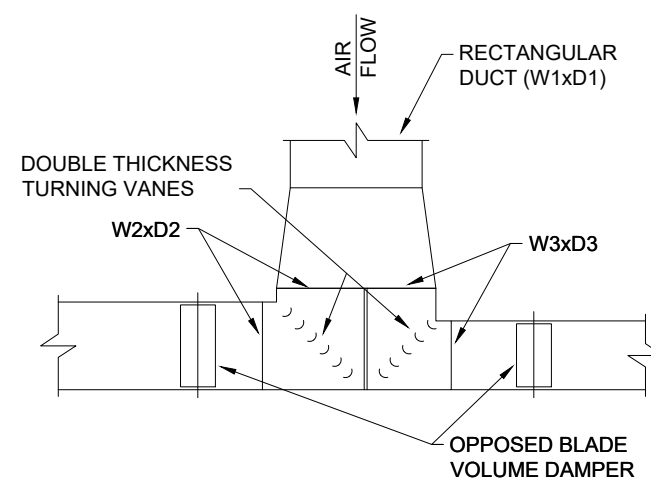
KEYED NOTES:

- PROVIDE "AB" IF ROUND DUCT CONNECTION IS GREATER THAN MAIN DUCT HEIGHT.
- DO NOT USE VANED ELBOWS WHERE DUCT VELOCITIES EXCEED 15 MTS/SEC.
- DELETE VOLUME DAMPERS.
- KITCHEN HOOD EXHAUST DUCT: WELDED BLACK STEEL DUCT SERVING GREASE PRODUCING KITCHEN EXHAUST.



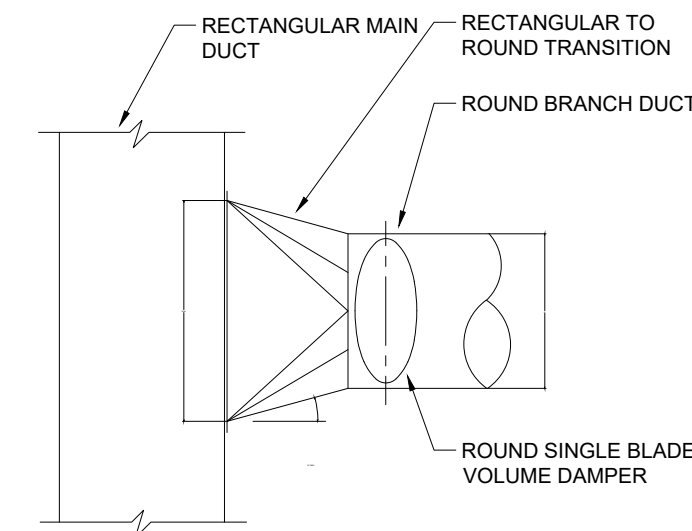
5 ROUND TO ROUND BRANCH
SCALE : N.T.S.

- NOTES:**
- ROUND BRANCH FITTINGS MAY BE WELDED PREFABRICATED FITTINGS, FLANGED TAPS, OR SADDLE TAPS.

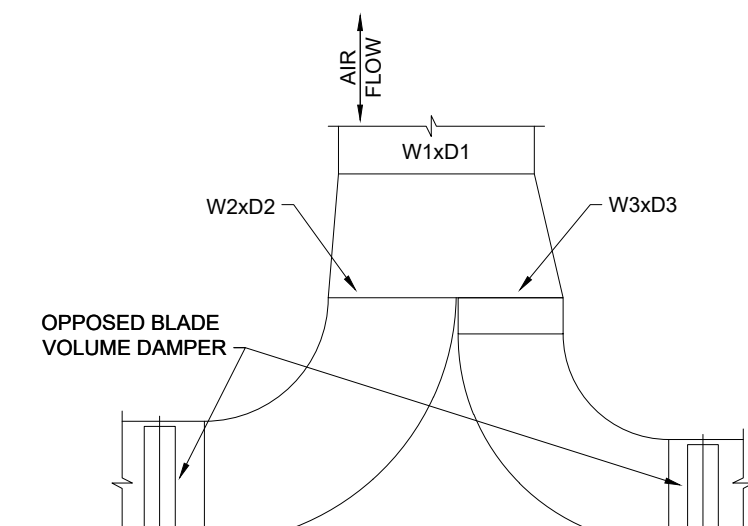


6 MITERED ELBOW SPLIT
SCALE : N.T.S.

- NOTES:**
- W3 IS LESS THAN W2.
 - D2=D3 (OR PROVIDE SEPARATE TRANSITION FITTING).
 - RECTANGULAR FITTINGS ARE ILLUSTRATED AS TWO-WAY SPLITS AT 180°, 3-WAY SPLITS AND 2-WAY 90° SPLITS HAVE SIMILAR REQUIREMENTS.

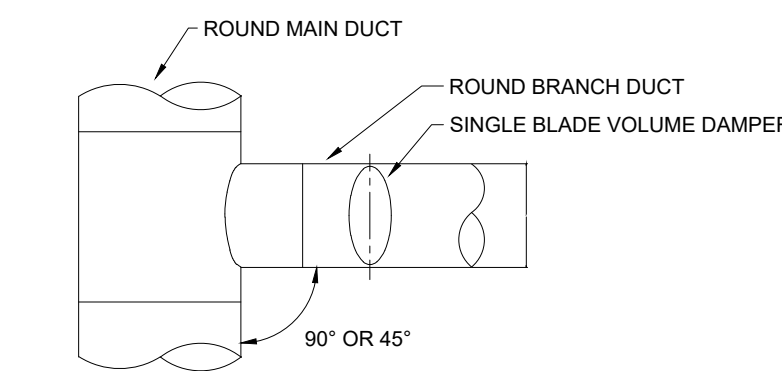


7 RECTANGULAR TO ROUND BRANCH
SCALE : N.T.S.



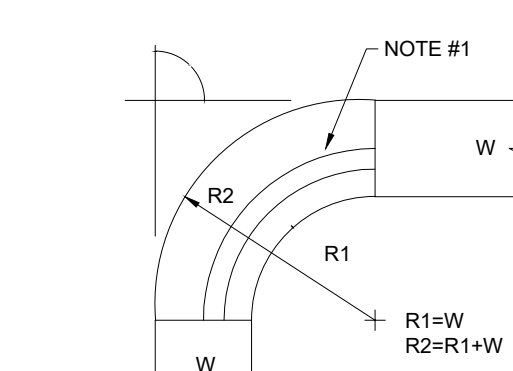
8 RADIUS ELBOW SPLIT
SCALE : N.T.S.

- NOTES:**
- D2=D3 (OR PROVIDE SEPARATE FITTING).
 - RECTANGULAR FITTINGS ARE ILLUSTRATED AS TWO-WAY SPLITS AT 180°, 3-WAY SPLITS AND 2-WAY 90° SPLITS HAVE SIMILAR REQUIREMENTS.



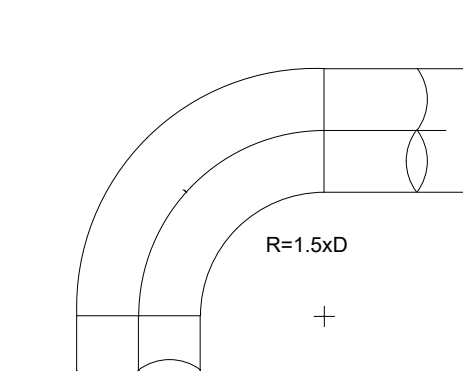
9 ROUND TO ROUND BRANCH
SCALE : N.T.S.

- NOTES:**
- ROUND BRANCH FITTINGS MAY BE WELDED PREFABRICATED FITTINGS, FLANGED TAPS, OR SADDLE TAPS.

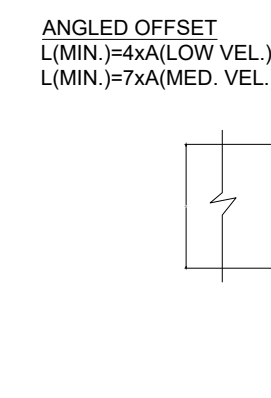


10 RADIUS RECTANGULAR ELBOW
SCALE : N.T.S.

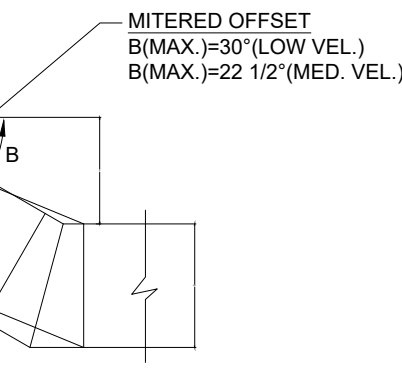
- NOTES:**
- WHERE R1 IS REQUIRED TO BE LESS THAN W (SHORT RADIUS), PROVIDE SINGLE THICKNESS VANES AS SHOWN.
 - IN KITCHEN HOOD EXHAUST SYSTEMS, DO NOT INSTALL TURNING VANES.



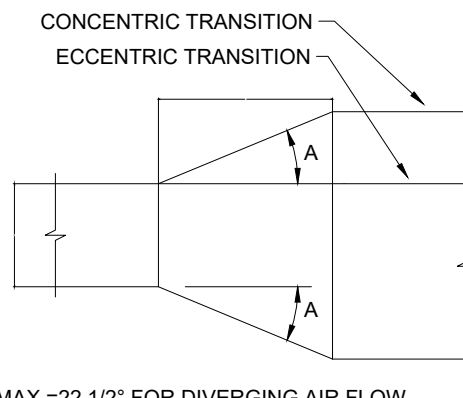
11 SINGLE PIECE ROUND ELBOW
SCALE : N.T.S.



12 OFFSETS
SCALE : N.T.S.

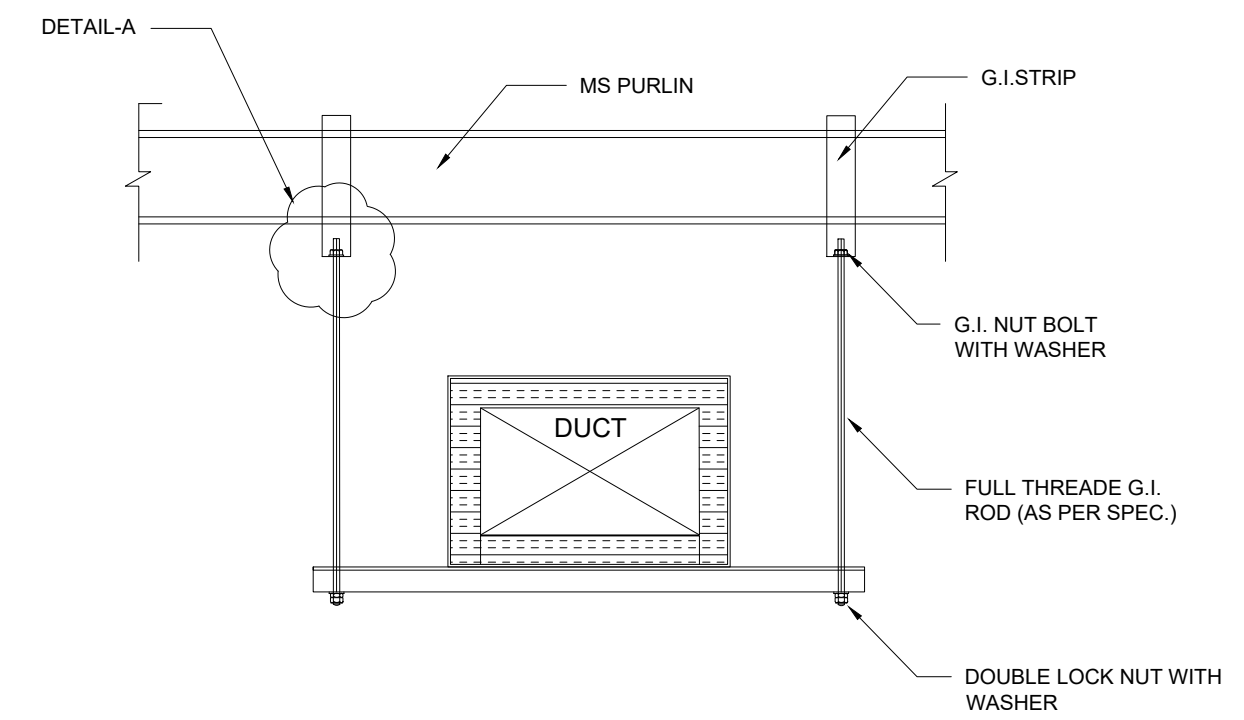


13 DUCT TRANSITIONS
SCALE : N.T.S.



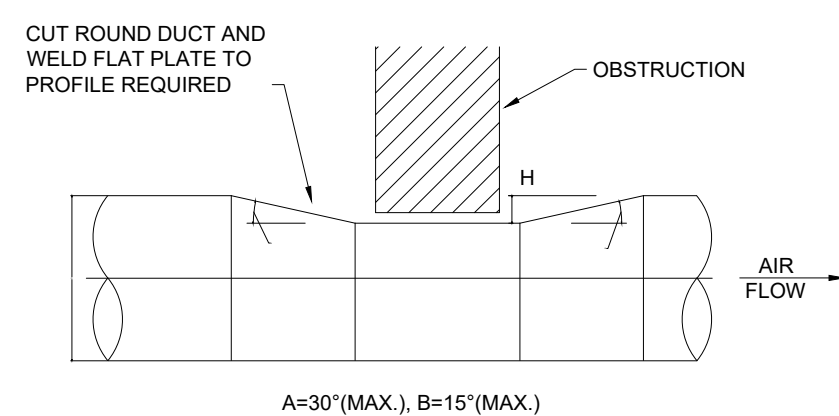
14 MULTIPLE PIECE ROUND ELBOW
SCALE : N.T.S.

- NOTES:**
- WHERE R=1.0xD (SHORT RADIUS), 90° ELBOW SHALL HAVE 4 SEGMENTS AND 45° SHALL HAVE 2 SEGMENTS.



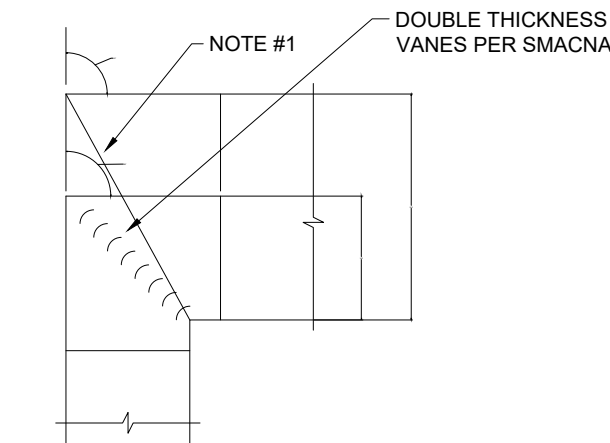
15 DUCT SUPPORT DETAIL
N.T.S.

- NOTE:**
- D = INSULATION THICKNESS (AS PER SPECIFICATIONS)



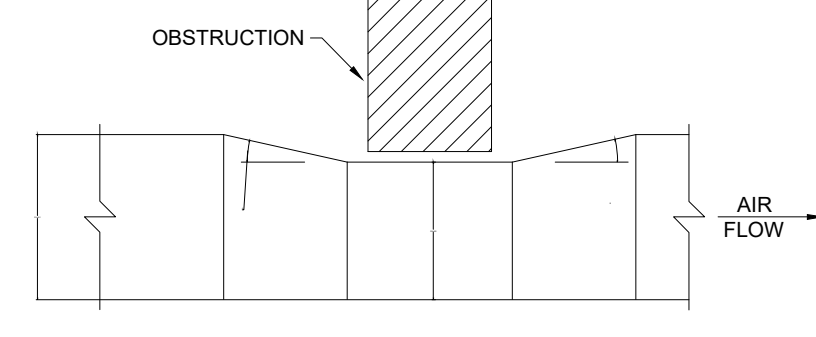
16 OBSTRUCTION - ROUND DUCT
SCALE : N.T.S.

- NOTES:**
- DEPTH OF SLICE "H" EQUALS 0.25"D".



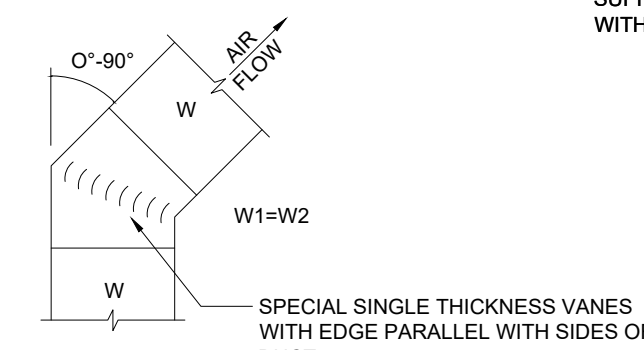
17 MITERED ELBOW
SCALE : N.T.S.

- NOTES:**
- WHERE W1 IS LESS THAN W2, PROVIDE SPECIAL SINGLE THICKNESS TURNING VANES WITH EDGES PARALLEL TO SIDES OF DUCT.



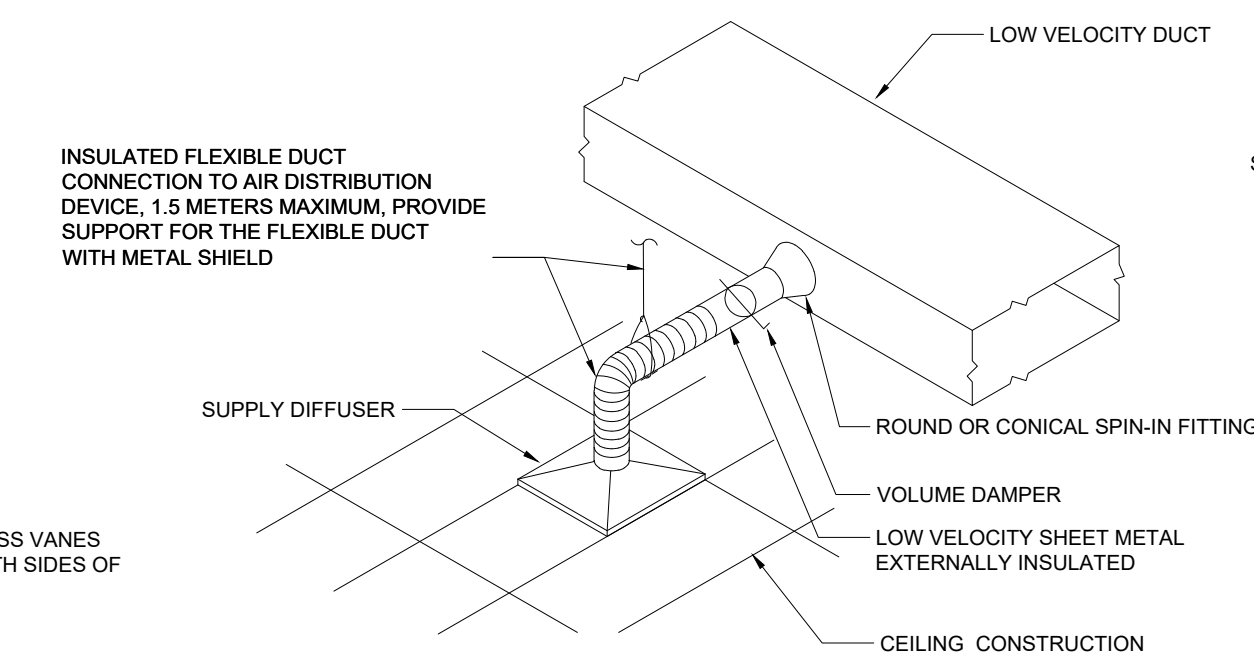
18 OBSTRUCTION - RECTANGULAR DUCT
SCALE : N.T.S.

- NOTES:**
- D2A/2<(0.8)D1A(W1)
 - A AND B LESS THAN 20'(D2A/W2).

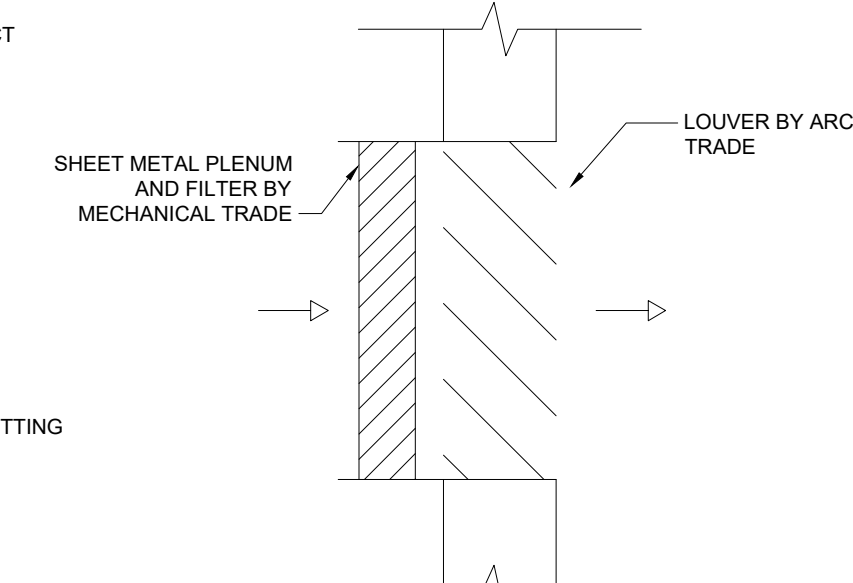


19 MITERED ELBOW (LESS THAN 90°)
SCALE : N.T.S.

- NOTES:**
- LOW VELOCITY: NO VANES REQUIRED FOR ANGLES LESS THAN 30°.
 - MEDIUM VELOCITY: NO VANES REQUIRED FOR ANGLES LESS THAN 22 1/2°.



20 TYPICAL DIFFUSER CONNECTION DETAIL
SCALE : N.T.S.



21 TYPICAL ARCH LOUVER AND PLENUM CONNECTION DETAIL
SCALE : N.T.S.

MECHANICAL DETAILS
SCALE : NTS

Climatex
Mechanical Engineering, Inc.
17101 Michigan Ave.
Dearborn, MI 48126
Tel: 313-441-3000 (ext 265)
e-mail: climatex2007@yahoo.com

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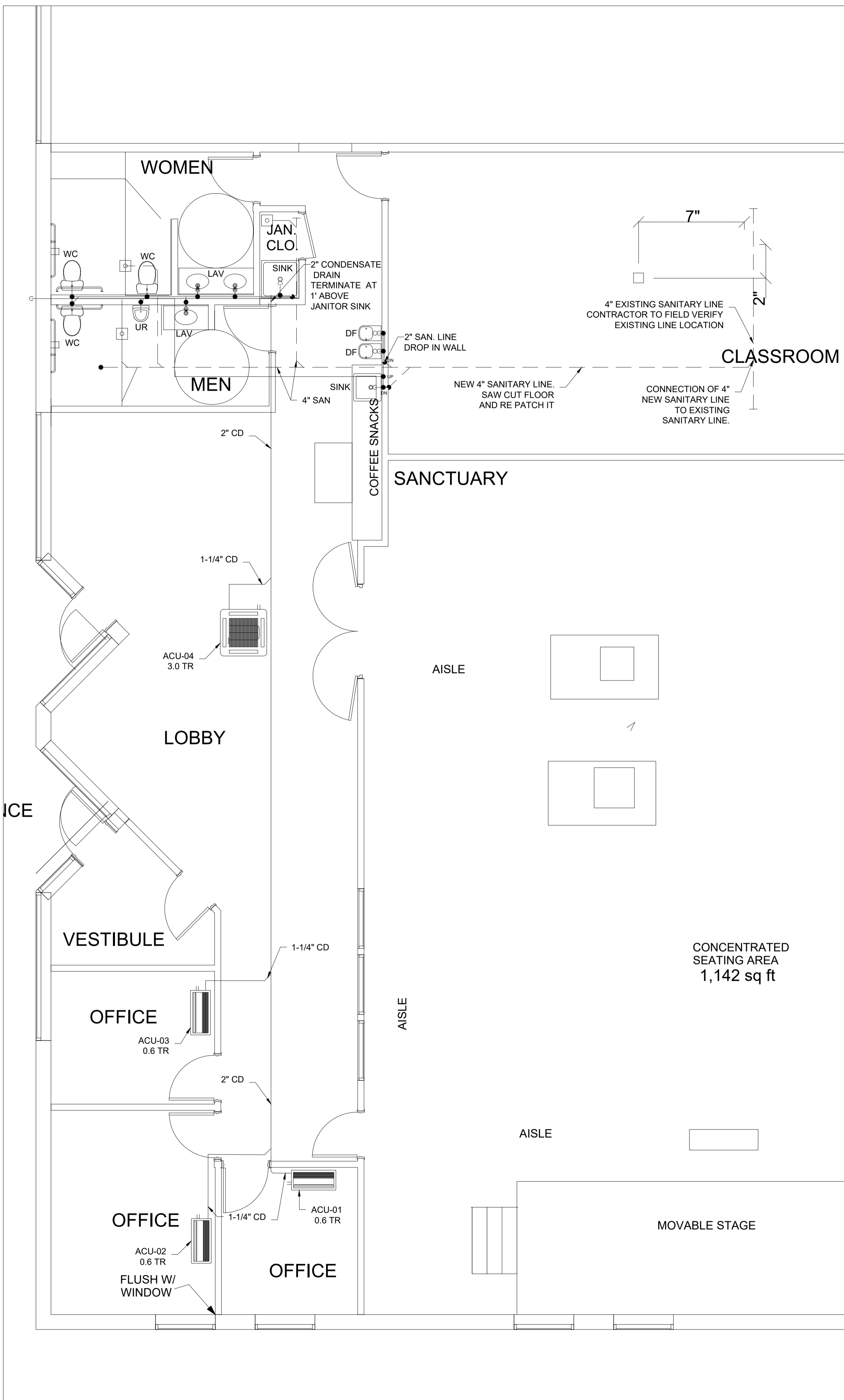
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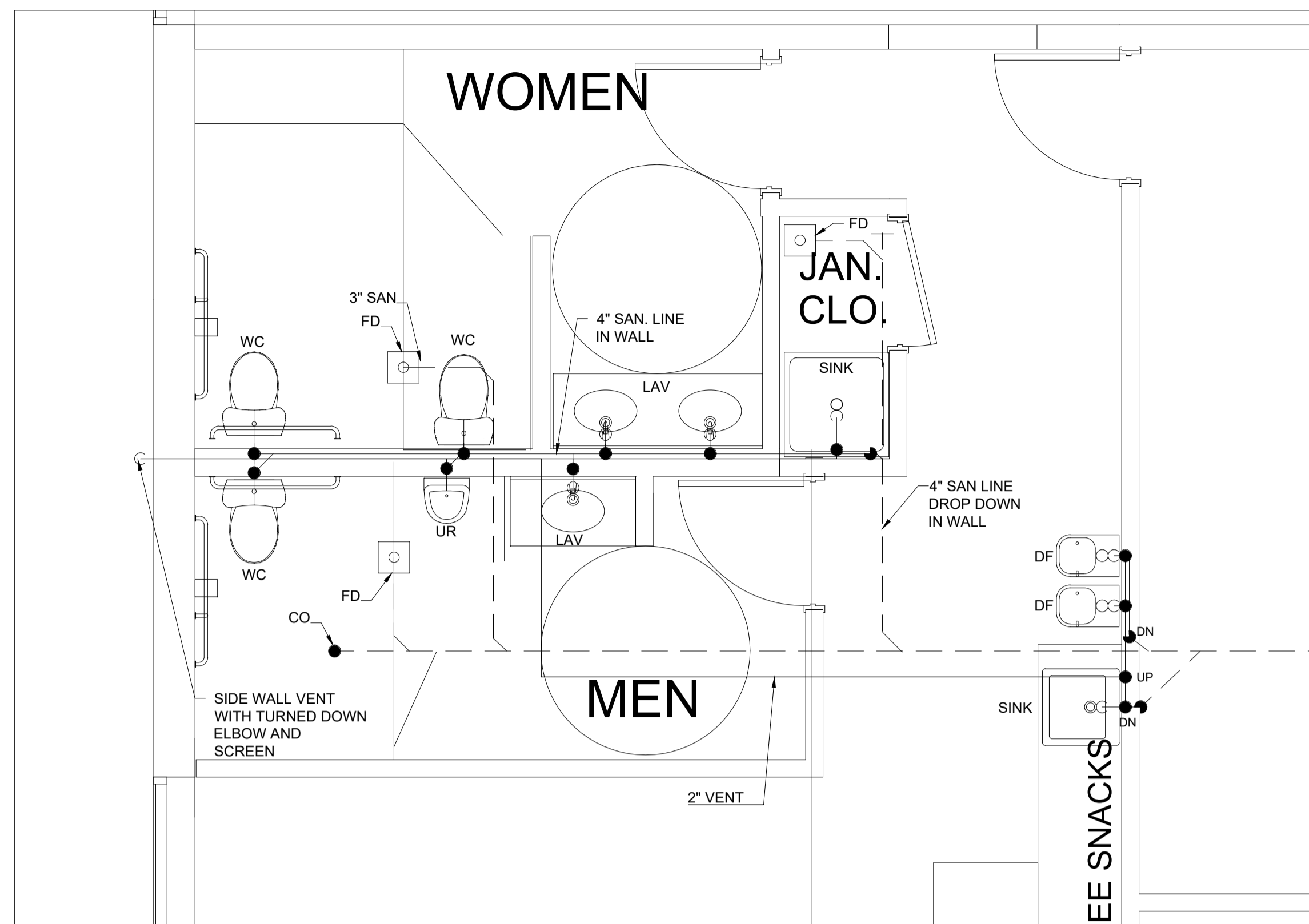
CHRIST CHURCH
ANN ARBOR
2301 S. INDUSTRIAL
ANN ARBOR, MI

MECHANICAL HVAC
DETAILS

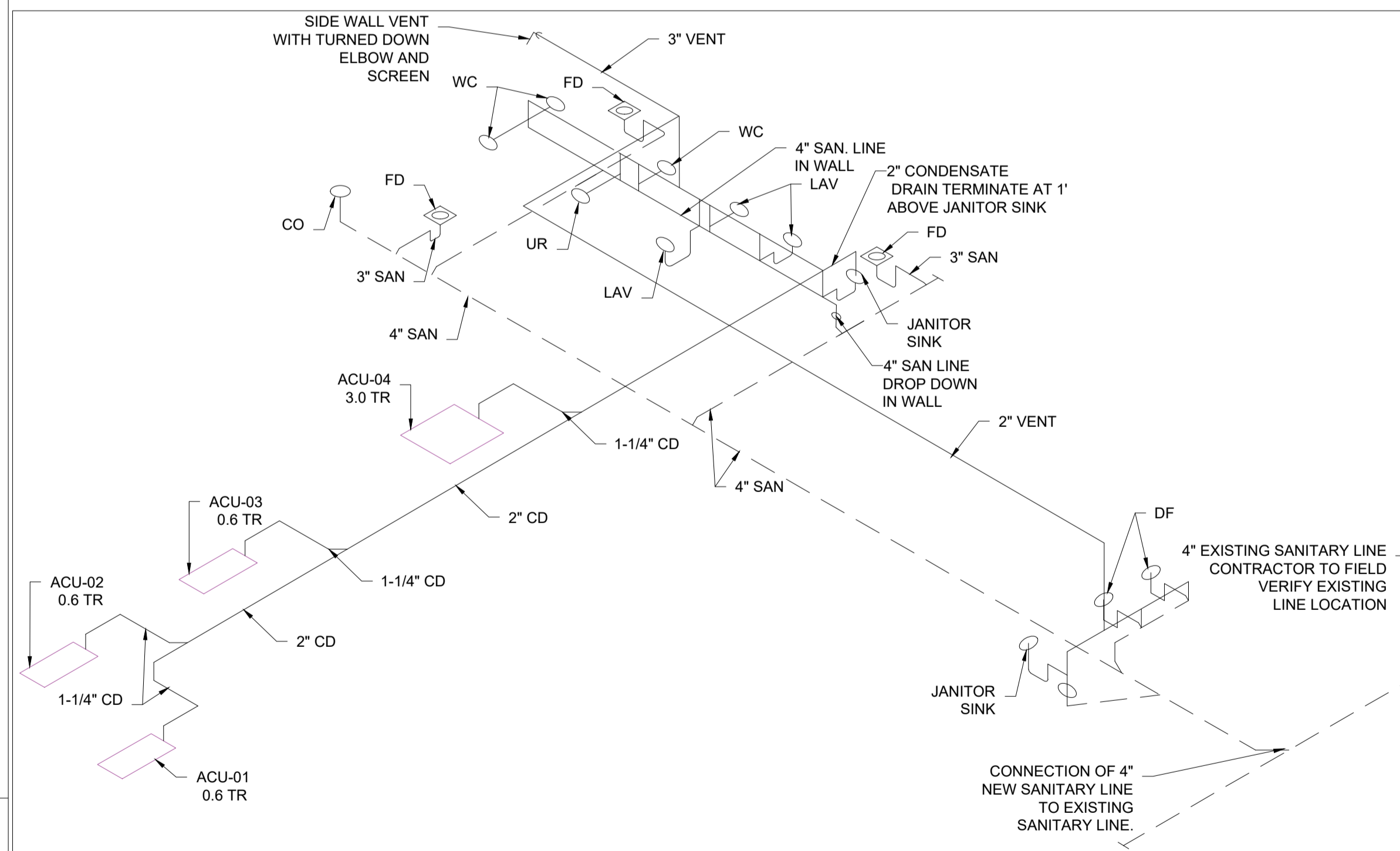
DATE: 11/16/2022
SHEET NO. MO-03



PLUMBING SANITARY PLAN - FIRST FLOOR
SCALE 1:40



PLUMBING SANITARY PLAN - ENLARGE PLAN
SCALE :- 1:30



PLUMBING SANITARY RISER DIAGRAM
SCALE :- NTS

SANITARY PIPE SIZING TABLE		
PIPE DIA INCH	MAXIMUM DFU	
	1 %	2 %
3"	36	42
4"	180	216
6"	700	840
8"	1600	1920

WATER PIPE SIZING TABLE	
SFU RANGE	MINIMUM PIPE SIZES (INTERNAL DIA.)
0-1	3/4"
1-2	1"
2-6	1 1/2"
7-15	1 3/4"
16-70	2"
71-150	2 1/2"
151-375	3"
376-1000	4"

FIXTURE	WATER SUPPLY FIXTURE UNIT (WSFU)			DFU
	COLD	HOT	TOTAL	
WC (TANK TYPE)	5	-	5	4
LAV	1.5	1.5	2	1
KITCHEN SINK	3	3	4	2
JANITOR SINK	2.25	2.25	3	2
DRINKING FOUNTAIN	0.25	-	0.25	1/2
FD	-	-	-	2

NOTES:
WSFU - WATER SUPPLY FIXTURE UNIT
DFU - DRAINAGE FIXTURE UNIT

PLUMBING FIXTURE PIPE CONNECTION SIZE				
FIXTURE	DCW	DHWS	SAN	VENT
WC	1/2"	-	4"	2"
LAV	1/2"	1/2"	2"	1 1/2"
JANITOR SINK	1/2"	1/2"	2"	1 1/2"
KITCHEN SINK	1/2"	1/2"	2"	1 1/2"
FD	-	-	3"	-

Climatek Engineering, Inc.
17101 Michigan Ave.
Dearborn, MI 48126
Tel: 313-441-3000 (x285)
e-mail: climatek2007@yahoo.com

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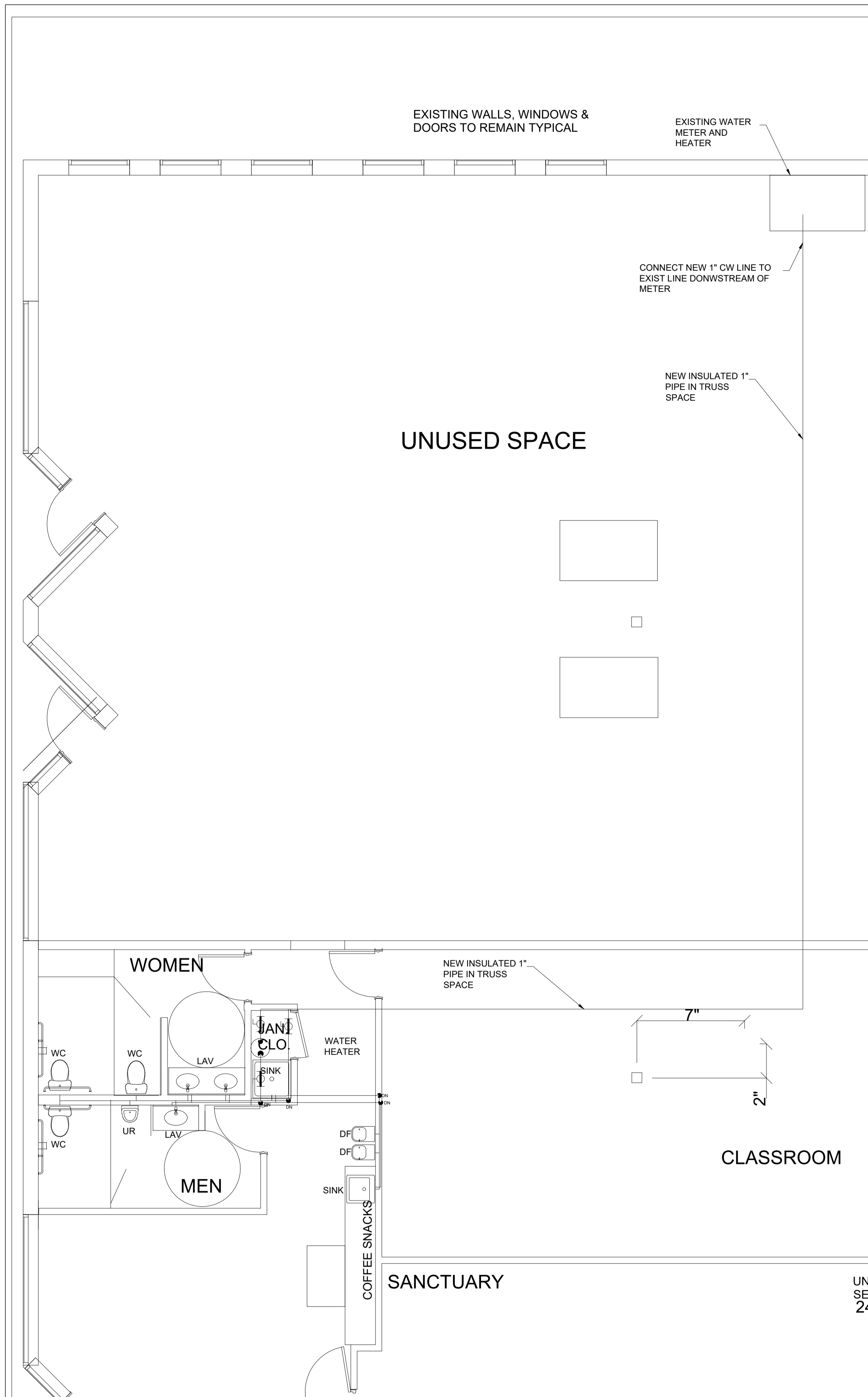
ISSUED FOR PERMIT: 11/16/2022

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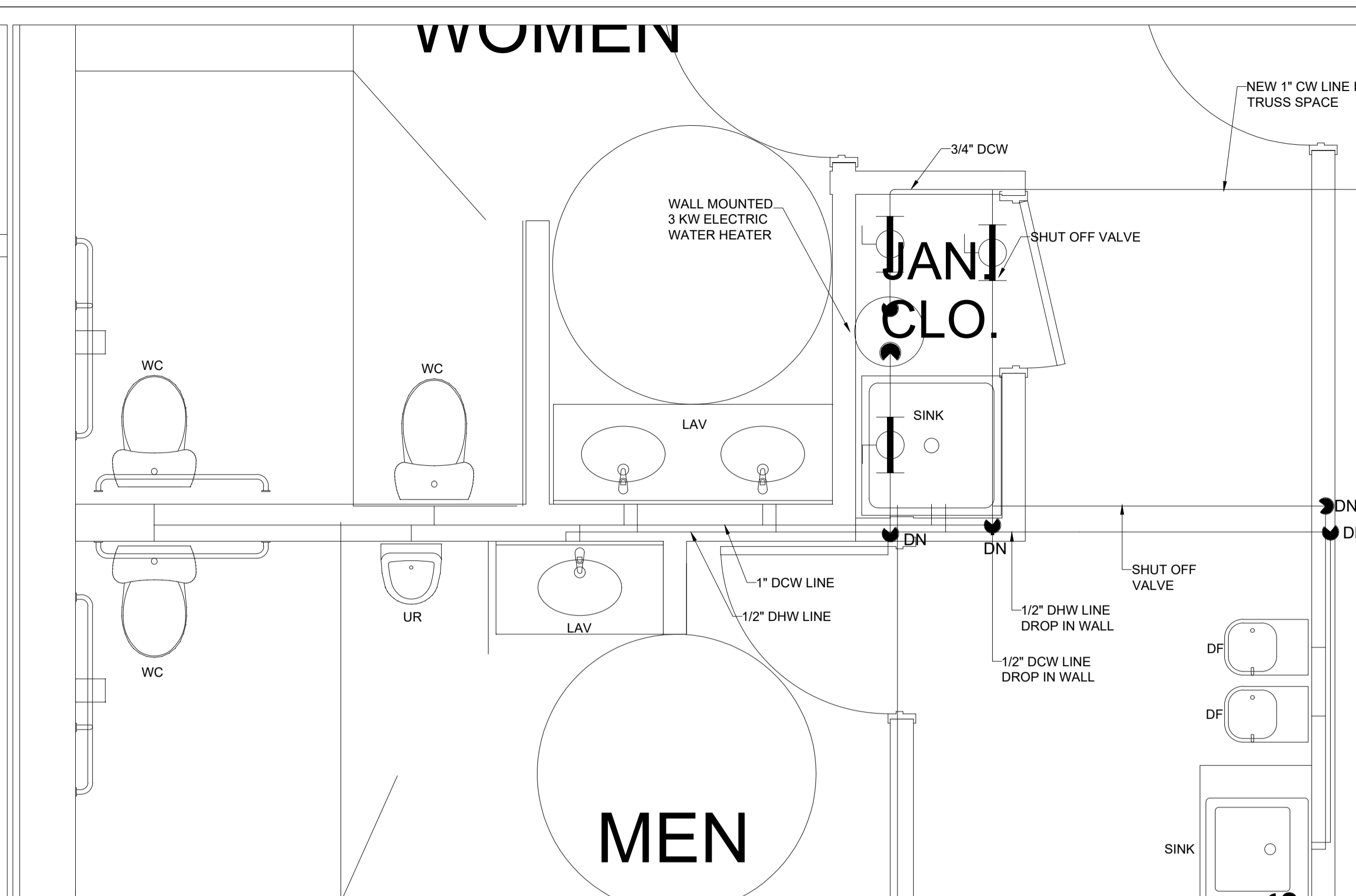
CHRIST CHURCH
ANN ARBOR
2301 S. INDUSTRIAL
ANN ARBOR, MI

PLUMBING SANITARY PLAN & RISER DIAGRAM

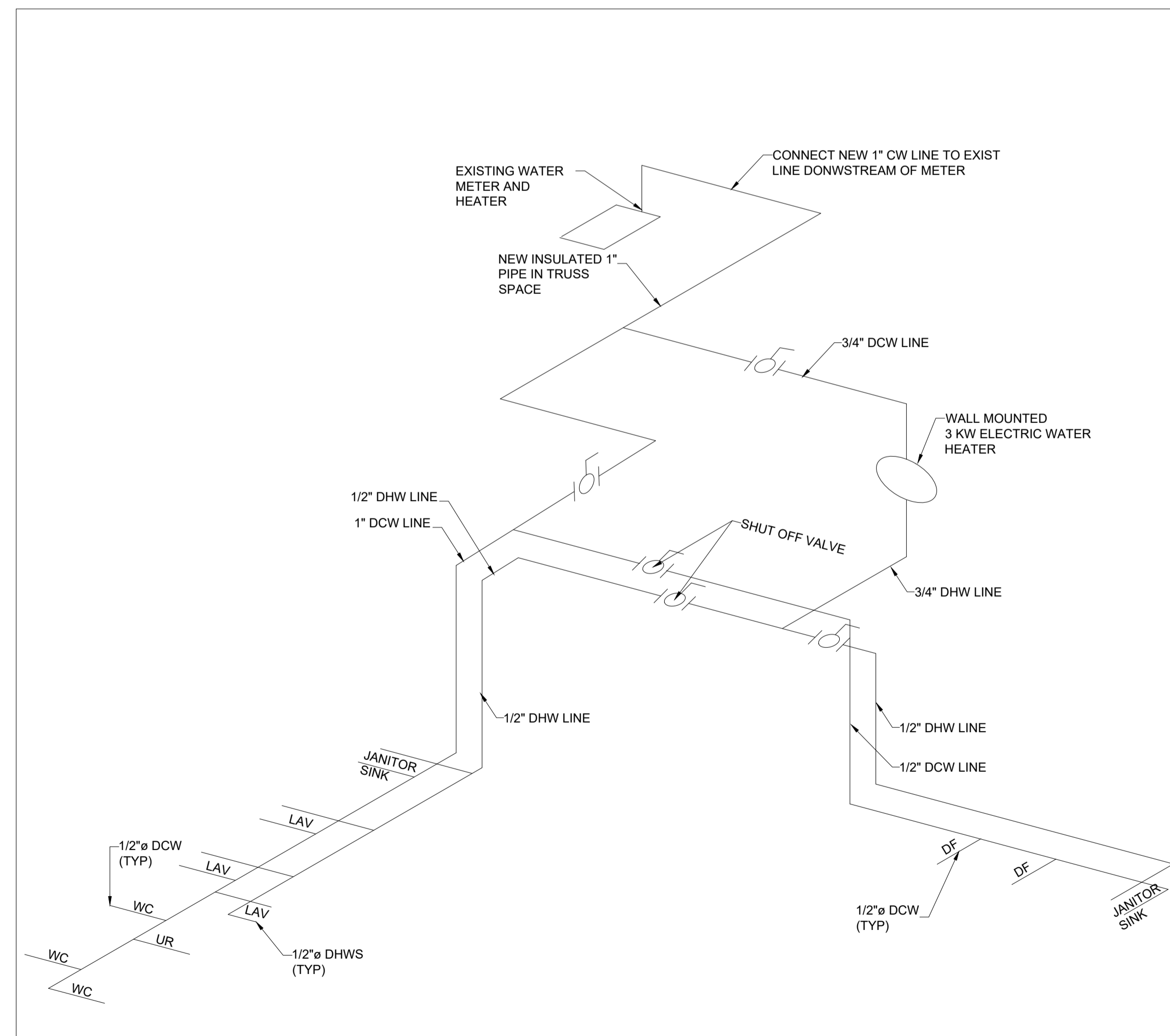
DATE: 11/16/2022
SHEET NO. P0-01



PLUMBING DCW & DHW PLAN - FIRST FLOOR
SCALE:-1:50



PLUMBING - TOILET DCW & DHW ENLARGE PLAN
SCALE 1:20



PLUMBING - TOILET DCW & DHW RISER DIAGRAM
SCALE:-NTS

SANITARY PIPE SIZING TABLE		
PIPE DIA	MAXIMUM DFU	
INCH	SLOPE	
	1 %	2 %
3"	36	42
4"	180	216
6"	700	840
8"	1600	1920

WATER PIPE SIZING TABLE	
SFU RANGE	MINIMUM PIPE SIZES (INTERNAL DIA.)
0-1	3/4"
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16-70	2"
71-150	2 1/2"
151-375	3"
376-1000	4"

FIXTURE	WATER SUPPLY FIXTURE UNIT (WSFU)			DFU
	COLD	HOT	TOTAL	
WC (TANK TYPE)	5	-	5	4
LAV	1.5	1.5	2	1
KITCHEN SINK	3	3	4	2
JANITOR SINK	2.25	2.25	3	2
DRINKING FOUNTAIN	0.25	-	0.25	1/2
FD	-	-	-	2

NOTES:
WSFU - WATER SUPPLY FIXTURE UNIT
DFU - DRAINAGE FIXTURE UNIT

PLUMBING FIXTURE PIPE CONNECTION SIZE				
FIXTURE	DCW	DHWS	SAN	VENT
WC	1/2"	-	4"	2"
LAV	1/2"	1/2"	2"	1 1/2"
JANITOR SINK	1/2"	1/2"	2"	1 1/2"
KITCHEN SINK	1/2"	1/2"	2"	1 1/2"
FD	-	-	3"	-

Climatek Engineering, Inc.
17101 Michigan Ave.
Dearborn, MI 48126
Tel: 313-441-3000 (x285)
E-mail: climatek2007@yahoo.com

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CHRIST CHURCH
ANN ARBOR
2301 S. INDUSTRIAL
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
PLUMBING DOMESTIC
WATER SUPPLY PLAN
AND RISER DIAGRAM

DATE: 11/16/2022
SHEET NO. PO-02

ELECTRIC WATER HEATER SCHEDULE											
Sr. No.	Unit No.	Qty	Location	Storage Capacity (Gallons)	Input Power		Dimensions in Inch		Model Number	Make	Remarks
					Maximum kW	V/Ph/H	Height	Dia.			
1	EW-H-01	1	J.C./ELEC. 108	10	3	208/1/60	24"	18"	EGSP10	RHEEM	PROVIDE WALL MOUNTING BRACKETS

- NOTES: -
1. PROVIDE TAP RELIEF VALVE AND CONTROL ACCESSORIES.
 2. DESIGN IS BASED ON SPECIFIED MANUFACTURER. IF CONTRACTOR SELECTS EQUIPMENT FROM ANOTHER MANUFACTURER AND IF IT REQUIRES MODIFICATION OF STRUCTURE, ELECTRICAL, ARCHITECTURAL, PIPING, DUCT WORK, CONTROLS ETC. THEN CONTRACTOR SHALL BE RESPONSIBLE FOR NEW DESIGN AND MODIFICATION COST. CLIENT SHALL NOT BE RESPONSIBLE FOR PAYMENT ASSOCIATED WITH ANY MODIFICATION.

DRINKING FOUNTAIN SCHEDULE											
Sr. No.	Unit No.	Qty	Location	FLOW (GPH)	ELECTRIC POWER		PHASE	VOLTAGE	BASED ON MANUFACTURER MODEL	REFERENCE IMAGE	COMMENTS
					WATTS						
1	DRINKING FOUNTAIN	1	LEVEL 01	8	370		1	115 V	ELKAY - EZ00TLWSSK		BI-LEVEL WATER COOLER WITH BOTTLE FILLER

PLUMBING FIXTURE SCHEDULE			
ITEM	TAG NO.	DESCRIPTION	REFERENCE IMAGE
WATER CLOSET	WC	FLOOR-MOUNT TWO-PIECE ELONGATED 1.28 GPF TOILET. LEFT HAND POLISHED CROME TRIP LEVER. COMBINATION CONSISTS OF THE TANK AND BOWL. PURE FRESH ELONGATED TOILET SEAT PER ADA. LOW-PROFILE BOLT CAPS. DRAIN TREATMENT. DISABILITY WC SHALL BE MOUNTED HIGH AS PER ADA GUIDELINES. MAKE - KOHLER MODEL NO - K3575	
UNDER COUNTER LAV	LAV	UNDER COUNTER LAV - OVAL SHAPE WITH OVERFLOW DRAIN OF SIZE 1/4"x1/4" WITH ASSOCIATED FITTINGS LIKE DRAIN, P TRAP, STRAINER ANGLE VALVES ETC. MAKE - KOHLER MODEL NO - CAXTON K-2210	
HOT AND COLD WATER FAUCET FOR LAV		HOT AND COLD WATER FAUCET FOR LAVATORY WITH 1.2 GPM AND MINIMUM PRESSURE COMPENSATING ARRESTOR. ANGLE VALVES. FAUCET SHALL BE WITH MINIMUM 2" LEVER HANDLE. MAKE - KOHLER MODEL NO - HMT K-97093-4	
JANITOR SINK	JANITOR SINK	FLOOR MOUNTED SERVICE SINK, 24" x 24" x 10". THE UNIT SHALL HAVE 10" HIGH WALLS WITH NOT LESS THAN 1" WIDE. A COMBINATION DOME STRAINER AND LMT BASKET MADE FROM STAINLESS STEEL SHALL BE INCLUDED WITH FACTORY INSTALLED STAINLESS STEEL DRAIN BODY FOR CALLED JOINT TO ACCEPT A 3" PIPE. MAKE - MOLDED STONE MODEL NO - MSB 2424	
JANITOR SINK FAUCET		ERVICE FAUCET (830-AA) : CHROME PLATED WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACE, PAIL HOOK AND 3/4" HOSE THREAD ON SPOUT. WIDESPREAD FAUCET HOLES. SINGLE COMPARTMENT. SUPPLY ACCESSORIES LIKE DRAIN, P TRAP, STRAINER ETC. MAKE - MOLDED STONE MODEL NO - 830 AA	
KITCHEN SINK	KITCHEN SINK	STAINLESS STEEL 35-3/4" x 18-1/2" x 10" EQUAL DOUBLE BOWL UNDERMOUNT SINK KIT. SINK MANUFACTURED FROM 18 GAUGE 304 STAINLESS STEEL WITH A LAUSTROUS STAIN FINISH. REAR CENTER DRAIN PLACEMENT, AND SIDES AND BOTTOM PADS. SUPPLY ASSOCIATED ACCESSORIES AND FAUCET, OR EQUAL, REFER TO DRAWING FOR DETAIL. MAKE - ELKAY MODEL NO - ELUH981710D9G	
KITCHEN SINK FAUCET		KITCHEN SINK FAUCET WITH 1.75 GPM LOW FLOW. SOLID BRASS CONSTRUCTION AND REMOVABLE CARTRIDGE THE SPOUT TYPE SHALL BE OF PULL-OUT SPRAY TYPE THE FAUCET SHALL BE WITH CHROME FINIS. MAKE - ELKAY MODEL NO - LKGT1041CR	
GARBAGE DISPOSAL	GARBAGE DISPOSAL	GARBAGE DISPOSAL "BADGER" UNDERNEATH OF KITCHEN SINK 1/2 HP 120/1/60 WITH SOUNDSEAL TECHNOLOGY.	
FLOOR DRAIN	FD	CAST IRON BODY WITH DOUBLE DRAINAGE FLANGE, WEEPHOLES, ADJUSTABLE 6" POLISHED NICKEL-BRONZE ROUND STRAINER, REMOVABLE BRASS SEDIMENT CUP.	

- NOTES
1. SCHEDULE COVERS MAJOR PLUMBING FIXTURES, FITTINGS AND ACCESSORIES.
 2. CONTRACTOR SHALL SUPPLY AND INSTALL ALL FITTINGS, ACCESSORY, ETC SHOWN ON DRAWING.
 3. CONTRACTOR SHALL SUPPLY AND INSTALL THE COMPLETE OPERATING SYSTEM.
 4. IMAGES ARE SHOWN FOR REFERENCE ONLY. PLUMBING CONTRACTOR SHALL COORDINATE WITH OTHER TRADES.

GENERAL NOTES(ALL NOTES MAY NOT BE APPLICABLE)

ELECTRICAL CONTRACTOR SHALL TREAT THIS AS A DESIGN BUILD PROJECT. FIELD VERIFY THE EXISTING CONDITIONS / INSTALLATION AND COORDINATE THE NEW INSTALLATION WITH DESIGN INTENT SHOWN ON THE DRAWINGS.

1. CODES AND STANDARDS

- THE INSTALLATION SHALL COMPLY WITH THE FOLLOWING, BUT NOT LIMITED TO, CODES AND STANDARDS.
 - NATIONAL ELECTRICAL CODE (NEC) RECESSED CEILING CONSTRUCTION.
 - UNDERWRITERS LABORATORIES (U.L.).
 - NFPA, NEMA, ANSII, IES AND IEEE STANDARDS.
 - MICHIGAN ENERGY CONSERVATION CODE.

2. GENERAL NOTES

- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF CONDUIT, BOXES, EQUIPMENT, FIXTURES AND OTHER WORK. DRAWINGS DO NOT NECESSARILY INDICATE EVERY FITTING, JUNCTION BOX, PULL BOX OR OTHER ITEMS REQUIRED FOR A COMPLETE SYSTEM.
- DO NOT SCALE DRAWINGS.
- FIELD VERIFY EXISTING CONDITIONS AND ACTUAL DIMENSIONS PRIOR TO START OF WORK.
- THOROUGHLY COORDINATE ELECTRICAL WORK WITH OTHER TRADES TO AVOID PHYSICAL CONFLICTS AND CONFLICTS WITH WORK SEQUENCE.
- REFER TO ARCHITECTURAL DRAWINGS FOR WALLS WITH SPECIAL WALL FINISHES.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE POWER FEED(S) TO ANY/ALL MECHANICAL EQUIPMENT THAT REQUIRE POWER, UNLESS OTHERWISE NOTED. COORDINATE WITH MECHANICAL DRAWINGS AND MECHANICAL TRADES ON SITE.
- REFER TO ARCHITECTURAL DRAWINGS FOR WALLS TO BE PROVIDED WITH INSULATION FOR ACOUSTICAL PURPOSES.
- COORDINATE ACCESS PANEL REQUIREMENT IN AREAS WITH GYPSUM BOARD CEILINGS TO ALLOW ACCESS TO PULL/JUNCTION BOXES WITH ARCHITECTURAL TRADES. ACCESS PANEL SHALL BE INSTALLED BY THE CEILING INSTALLER. ACCESS PANEL LOCATIONS SHALL BE APPROVED BY THE ARCHITECT.
- PROVIDE LISTED FIRE STOP AT ANY WALL PENETRATION TO MAINTAIN INTEGRITY OF FIRE WALL AS APPLICABLE.
- CIRCUIT NUMBERS ARE INDICATED FOR CIRCUIT QUANTITIES AND GENERAL CONFIGURATION ONLY. ACTUAL CIRCUIT NUMBERS MAY VARY. FIELD VERIFY. PROVIDE ACTUAL CIRCUIT NUMBERS ON AS-BUILTS.
- PROVIDE FIELD LABELING OF ALL NEW BRANCH CIRCUITS AND ALL NEW RECEPTACLE DEVICES TO INDICATE PANEL BOARD AND CIRCUIT NUMBER OF SOURCE.
- COORDINATE SEQUENCING AND TEMPORARY REQUIREMENTS TO MAINTAIN LIGHTING SYSTEM OPERATION DURING CONSTRUCTION.
- MATERIALS AND EQUIPMENT SHALL BE NEW AND UL LABELED. MATERIALS AND EQUIPMENT OF THE SAME GENERAL TYPE SHALL BE OF THE SAME MANUFACTURER THROUGHOUT THE PROJECT FOR UNIFORM APPEARANCE, OPERATION AND MAINTENANCE. EACH MAJOR ELECTRICAL COMPONENT SHALL HAVE A MANUFACTURER'S NAMEPLATE.

3. WIRING DEVICES

- ALL OUTLETS SHALL BE 5-20R UNLESS NOTED OTHERWISE ON PLANS.
- LIGHT SWITCHES SHALL BE PROVIDED IN THE TYPES, CHARACTERISTICS, NUMBER OF POLES AS INDICATED ON THE DRAWINGS. ALL SWITCHES SHALL BE RATED 20 AMPERE AT 125 VOLT.
- WHERE GFCI PROTECTION IS INDICATED, A GFCI TYPE RECEPTACLE SHALL BE PROVIDED AT EACH LOCATION. LOAD SIDE PROTECTION OF DOWN STREAM DEVICES WILL NOT BE ACCEPTABLE.
- GROUND FAULT RECEPTACLES SHALL BE RATED 20 AMPERES AT 125 VOLTS HAVING NEMA 5-20R CONFIGURATION WITH INTEGRAL "TEST" AND "RESET" BUTTON AND VISUAL TRIP INDICATION.
- ELECTRICAL DEVICE OUTLETS SHALL NOT BE LOCATED BACK TO BACK WITHIN THE SAME STUD SPACE IN INTERIOR WALLS, WHICH ARE INSULATED. THE DEVICES IN ONE ROOM SHALL BE OFFSET TO THE NEXT STUD SPACE.
- MULTITANG DEVICES SHALL BE GANGED UNDER SINGLE MULTITANG COVERPLATE.
- ELECTRICAL TRADES SHALL PROVIDE RROUGH IN FOR COMMUNICATION SYSTEMS AS INDICATED ON PLANS. COMMUNICATION DEVICES, DEVICE PLATES, CABLING, TESTING, TERMINATION, COMMUNICATION EQUIPMENT, ABOVE CEILING WIRE SUPPORTS AND ASSOCIATED INSTALLATION WILL BE BY THE OWNER'S TELECOMMUNICATION CONTRACTOR.
- PROVIDE LABELING ON DEVICE COVER PLATE OR J-BOX COVER.

4. WIRES AND CABLE

- ALL WIRING SYSTEMS INSTALLED (INCLUDING SERVICE CONDUCTORS, SUB-FEED CONDUCTORS, BRANCH CIRCUIT CONDUCTORS, LOW VOLTAGE CONDUCTORS AND CONTROL WIRING) SHALL BE COPPER.
- 600 VOLT WIRE AND CABLE FOR BRANCH CIRCUITS AND FEEDERS SHALL BE SINGLE CONDUCTOR COPPER #12 MINIMUM EXCEPT WHERE NOTED OTHERWISE. WIRE #1 AND SMALLER (EXCEPT FIXTURE WIRE) SHALL BE SOLID OR STRANDED.
- WIRE #8 AND LARGER SHALL BE STRANDED. ALL CONTROL WIRING, FIXTURE WIRE AND ALL CONNECTIONS TO VIBRATING EQUIPMENT SHALL USE STRANDED CONDUCTORS.
- TYPE THHN/THWN 600 VOLT INSULATION SHALL BE PROVIDED FOR ALL ABOVE GRADE CONDUCTORS ROUTED IN CONDUIT EXCEPT WHERE SPECIAL CONDITIONS OR LOCATIONS DICTATE USE OF OTHER TYPES OF INSULATION.
- TYPE XHHW 480 VOLT INSULATION SHALL BE PROVIDED FOR ALL CONDUCTORS ROUTED IN CONDUIT BELOW GRADE AND IN EXTERIOR CONDITIONS. WIRE FOR CONTROL CIRCUITS SHALL BE #14 AWG MINIMUM.
- METAL CLAD CABLE MAY BE USED FOR BRANCH CIRCUITS ONLY FROM THE LAST J-BOX TO THE DEVICES WHERE PERMISSIBLE BY LOCAL CODE. TYPE MC CABLE SHALL BE CONCEALED IN WALL AND CEILING SPACES WITH ACCESSIBLE CEILING ONLY.
- ALL CONDUIT AND WIRING SHALL BE CONCEALED IN WALL OR CEILING CAVITY EXCEPT FOR EXISTING BLOCK WALLS, AREAS WITH EXPOSED CEILING CONSTRUCTION OR CEILING CONSTRUCTION.
- ALL AREAS WITH NEW WALLS OR RECONSTRUCTED WALLS SHALL HAVE CONDUIT AND WIRING CONCEALED IN WALL CAVITY.
- CONDUCTORS SIZED FOR VOLTAGE DROP THAT ARE TOO LARGE FOR LUGS SHALL BE REDUCED USING STRAIGHT PIN TERMINALS WITH STRANDED PIGTAIL AND INSULATING COVERS. USE STRANDED BI-METALLIC PIN TERMINALS.
- BRANCH CIRCUIT WIRING SHALL BE DERATED PER NEC 310-15. DUE TO HARMONIC LOADING THE NEUTRAL CONDUCTOR SHALL BE CONSIDERED AS CURRENT CARRYING CONDUCTOR FOR DERATING PURPOSES.
- ALL EMERGENCY WIRING SHALL BE IN SEPARATE CONDUIT FROM NON-EMERGENCY WIRING (EXCEPT AT FINAL CONNECTION TO LIGHT FIXTURES).

5. CONDUIT AND FITTINGS

- ALL EMPTY CONDUITS SHALL BE DEBURRED, CLEANED, TAGGED AND PROVIDED WITH A NYLON PULL STRING.
- REFER TO ONE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES. EXISTING ONE LINE DIAGRAM WAS CREATED FROM AVAILABLE DRAWINGS AND INFORMATION. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND LOCATIONS PRIOR TO START OF WORK.
- PROVIDE CONDUIT CONNECTOR OR BUSHING ON END OF CONDUIT FOR ALL CONDUIT STUB OFFS.
- PROVIDE PULL BOXES AS REQUIRED TO INTERCEPT FEEDER AND BRANCH CIRCUITS AND EXTEND TO NEW PANEL LOCATION.
- ALL CONDUITS SHALL BE PER NATIONAL ELECTRIC CODE.
- CONDUIT SHALL BE MINIMUM OF 3/4 INCH.
- PROVIDE IMC CONDUIT FOR ALL EXTERIOR ABOVE GRADE EXPOSED INSTALLATION.
- ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. PROVIDE PVC COATED BENDS/ELBOWS AND STUBUPS WHERE REQUIRED.
- ALL CONNECTIONS TO MOTORS, TRANSFORMERS, CONTROLS AND OTHER VIBRATING EQUIPMENT SHALL USE LIQUID TIGHT FLEXIBLE METAL CONDUIT.
- ALL CONNECTIONS TO RECESSED LIGHTING FIXTURES SHALL BE FLEXIBLE METAL TUBING PER NATIONAL ELECTRICAL CODE AND LOCAL AMENDMENTS AND ORDINANCES.
- CONCEALED CONDUITS SHALL BE EMT. UNDERGROUND CONDUITS OF CONDUITS INSTALLED IN CONCRETE SLAB SHALL BE MINIMUM 1" SIZE.
- PROVIDE CONDUIT EXPANSION FITTINGS PER CODE WHERE REQUIRED.

6. GROUNDING

- INSTALL ELECTRICAL GROUNDING AND BONDING AS INDICATED, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NATIONAL ELECTRICAL CODE, COMPLIANCE WITH LOCAL CODES AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
- INCLUDE REMOVABLE LINK IN THE NEUTRAL BUS OF SERVICE ENTRANCE EQUIPMENT. BOND NEUTRAL BUS TO THE ENCLOSURE ON LINE SIDE OF THE LINK.
- GROUND EACH SEPARATELY DERIVED SYSTEM NEUTRAL WITH AN INSULATED GROUNDING ELECTRODE CONDUCTOR SIZED PER N.E.C.
- INSTALL A BRAIDED TYPE BONDING JUMPER WITH CODE-SIZED GROUND CLAMPS ON WATER METER PIPING SO AS TO ELECTRICALLY BYPASS THE WATER METER.
- INSTALL A SEPARATE GREEN INSULATED EQUIPMENT GROUND COPPER CONDUCTOR IN ALL BRANCH CIRCUIT AND FEEDER RACEWAYS. TERMINATE EQUIPMENT GROUND CONDUCTORS AT GROUNDING BUSSES, LUGS OR BUSHINGS.
- BOND AT EACH END ALL GROUND CONDUCTORS ROUTED IN METALLIC CONDUIT.
- INSTALL ALL GROUNDING AND BONDING CONDUCTORS IN ONE CONTINUOUS LENGTH WITHOUT SPLICES.
- GROUND RODS: STEEL WITH COPPER CLAD EXTERIOR, MINIMUM 3/4 INCH DIAMETER BY 10 FEET LONG.
- ALL GROUNDING MATERIAL SHALL BE LISTED FOR GROUNDING APPLICATION.



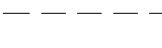
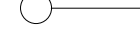

3. TESTING

- INSULATION: PERFORM INSULATION RESISTANCE TEST ON ALL FEEDER CABLES. APPLY A TEST VOLTAGE OF 1000 VOLTS DC FOR ONE MINUTE. REPORT ANY INSULATION RESISTANCE MEASUREMENT.
- PHASE BALANCING: VERIFY THAT ALL PANELBOARD LOADS ARE DISTRIBUTED EQUALLY ON ALL PHASES.
- PANELBOARDS: INSULATION RESISTANCE TEST, PHASE-TO-PHASE AND PHASE-TO-GROUND ON EACH BUS. APPLY A TEST VOLTAGE OF 1000 VOLTS DC FOR ONE MINUTE. REPORT ANY INSULATION RESISTANCE MEASUREMENT LESS THAN 100 MEGOHM TO THE ENGINEER.








DEMOLITION GENERAL NOTES:

- REFER TO ARCHITECTURAL PLANS FOR SPACES DESIGNATED TO BE DEMOLISHED AND REWORKED.
- DISCONNECT POWER TO ELECTRICAL INSTALLATION PRIOR TO ANY DEMOLITION WORK. PROVIDE SEPARATE TEMPORARY CONSTRUCTION POWER FOR AS NECESSARY.
- ALL REMOVED ELECTRICAL EQUIPMENT, DEVICES AND ACCESSORIES SHALL REMAIN PROPERTY OF THE OWNER. LEGALLY DISPOSE OF ALL THE REMOVED ELECTRICAL EQUIPMENT, DEVICES AND ACCESSORIES DESIGNATED TO BE DISCARDED BY OWNER. ALL ELECTRICAL EQUIPMENT, DEVICES AND ACCESSORIES DESIGNATED TO BE REUSED BY THE OWNER SHALL BE STORED IN A SAFE DRY LOCATION.
- PROTECT ALL POWER AND FIRE ALARM DEVICES TO REMAIN FROM DUST AND PHYSICAL DAMAGE DURING DEMOLITION AND CONSTRUCTION PHASES.
- EXISTING RECEPTACLES HAVE NOT BEEN SHOWN ON THE DEMOLITION OR THE POWER PLANS DUE TO NON AVAILABILITY OF AS BUILT DOCUMENTS. USE EXISTING RECEPTACLES WHERE AVAILABLE FOR NEW CONSTRUCTION IN THE REWORKED SPACES.
- MOUNTING HEIGHT OF NEW ELECTRICAL AND FIRE ALARM DEVICES SHALL MATCH EXISTING INSTALLATION.
- REMOVE AND RELOCATE THE EXISTING LIGHT FIXTURES. REFER TO THE LIGHTING PLAN FOR NEW LOCATION OF THE EXISTING LIGHT FIXTURES.
- REMOVE EXISTING WALL LIGHT SWITCHES ON THE WALL DESIGNATED TO BE DEMOLISHED AS PER THE SITE CONDITION. THE EXISTING LIGHT SWITCHES IN "NIC" AREA SHALL REMAIN IN PLACE. REMOVED UNUSED FIXTURES SHALL BE HANDED OVER TO OWNER.





WIRING/RECEWAY SYMBOL LIST:

-  FLEXIBLE CONNECTION
-  CONDUIT RUN ABOVE GROUND
-  CONDUIT RUN UNDERGROUND
-  CONDUIT UP
-  CONDUIT DOWN

SWITCHING SYMBOL LIST:


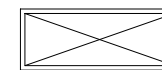





-  SINGLE POLE SWITCH
-  FOUR WAY SWITCH
-  SINGLE POLE SWITCH WITH THERMAL ELEMENT
-  LOW VOLTAGE SWITCH
-  WALL MOUNTED PIR OCCUPANCY SENSOR W/ SWITCH
-  WALL MOUNTED DIMMABLE SWITCH
-  OCCUPANCY SENSOR

POWER SYMBOL LIST:

-  DUPLEX RECEPTACLE
 -  QUADPLEX RECEPTACLE
 -  MOTOR
 -  JUNCTION BOX
- DEVICE IDENTIFIERS:**
- A ABOVE COUNTER
 - C CEILING MOUNTED
 - GFCI GROUND FAULT CIRCUIT INTERRUPTER
 - WP WEATHERPROOF

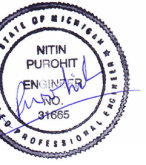
LIGHTING SYMBOL LIST:

SEE LIGHTING FIXTURE SCHEDULE FOR INFORMATION

-  LIGHT FIXTURE
-  LIGHT FIXTURE (NL-NIGHT LIGHT)
-  SINGLE FACE EXIT SIGN
-  DOUBLE FACE EXIT SIGN
-  WALL MOUNT EXIT SIGN
-  EMERGENCY LED LIGHT WITH 2 LAMPS
-  WALL MOUNT EMERGENCY LIGHT



SEAL:



ISSUED FOR PERMIT 11/16/2022

REVISIONS: A

CHRIST CHURCH
ANN ARBOR
2301 S. INDUSTRIAL
ANN ARBOR, MI

ELECTRICAL SYMBOL
GENERAL NOTES
AND ABBREVIATION

DATE: 11/11/22

SHEET NO.

E0-01

LIGHTING FIXTURES SCHEDULE :

TYPE	SYMBOL	FIXTURE PICTURE	DESCRIPTION	VOLTAGE	WATTAGE	MOUNTING	TYPE/SERIES	MANUFACTURER
L1			48" LED LINER SUSPENDED LIGHT, 4000LM, 5000K WITH STANDARD DRIVER	120V	30 WATT	SUSPENDED @10'7"	UFIT SERIES	LITHONIA LIGHTING
L2			96" LED LINER SUSPENDED LIGHT, 8000LM, 5000K WITH STANDARD DRIVER	120V	61 WATT	SUSPENDED @10'7"	UFIT SERIES	LITHONIA LIGHTING
L3			24" LED LINER SUSPENDED LIGHT, 800LM, 4000K WITH STANDARD DRIVER	120V	7.5 WATT	SUSPENDED @10'7"	WL2 SERIES	LITHONIA LIGHTING
EL1			EMERGENCY LED LIGHT WITH 2 LAMPS WITH SCRATCH AND CORROSION PROOF THERMO PLASTIC HOUSING, WITH 90 MINUTE BATTERY BACKUP, 1100 LUMENS, 4000K	120V	10.6 WATT	WALL MOUNT@7'-0" ABOVE FFL	AP2SQLED	SURE-LITES/ COOPPER LIGHTING
EL2			OUTDOOR GENERAL PURPOSE LED WALL PACK, DIE-CAST ALUMINUM MAIN BODY,2900 LUMENS OUTPUT WITH INTEGRAL PHOTOCELL AND EMERGENCY BATTERY PACK, SUITABLE FOR WET LOCATION, WITH STANDARD DRIVER.	120V	24 WATT	WALL MOUNT@1'ABOVE DOOR	WPX1 LED P1-50K-MVOLT-E14WC-PE-DBLXD	LITHONIA LIGHTING
X1/X2/X3/X4			LED EXIT LIGHT FIXTURE , WITH STANDARD DRIVER.	120V	3 WATT	SUSPENDED/ WALL MOUNTED	LQM-S-W-3-R-120/277-X2	LITHONIA LIGHTING

LIGHTING FIXTURE SCHEDULE NOTES

- COORDINATE REQUIRED ACCESSORIES FOR FIXTURE INSTALLATION WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- THE EXIT AND EMERGENCY FIXTURES SHALL COMPLY WITH N.E.C AND LOCAL CODES.
- FIXTURES SHALL BE APPROVED FOR THE MOUNTING METHOD USED.
- VERIFY THE TYPE OF CEILING PRIOR TO ORDERING FIXTURES. PROVIDE REQUIRED ACCESSORIES FOR PROPER INSTALLATION TO SUIT CEILING TYPE. FIXTURES WHICH ARE SHIPPED TO THE PROJECT AND DO NOT FIT OR OTHERWISE MATCH THE CEILING SYSTEM SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT LOCATION OF THE LIGHTING FIXTURES.
- FIXTURE TRIM AND COLOR SHALL BE COORDINATED WITH AND APPROVED BY ARCHITECT. SUBMIT SHOP DRAWINGS.
- SUBSTITUTE FIXTURE MANUFACTURERS FOR ALL FIXTURE TYPES AS MENTIONED IN THE FIXTURE SCHEDULES SHALL BE APPROVED BY ARCHITECT PRIOR TO PURCHASE AND INSTALLATION. FOR REMAINING LIGHT FIXTURES THE APPROVED LIGHTING FIXTURE MANUFACTURERS ARE: LITHONIA, SURE-LITES, TECH LIGHTING, COOPER, FOCAL POINT
- ALL LUMINAIRES SHALL BE WITH INTEGRAL SPD

LIGHTING CONTROL MATRIX

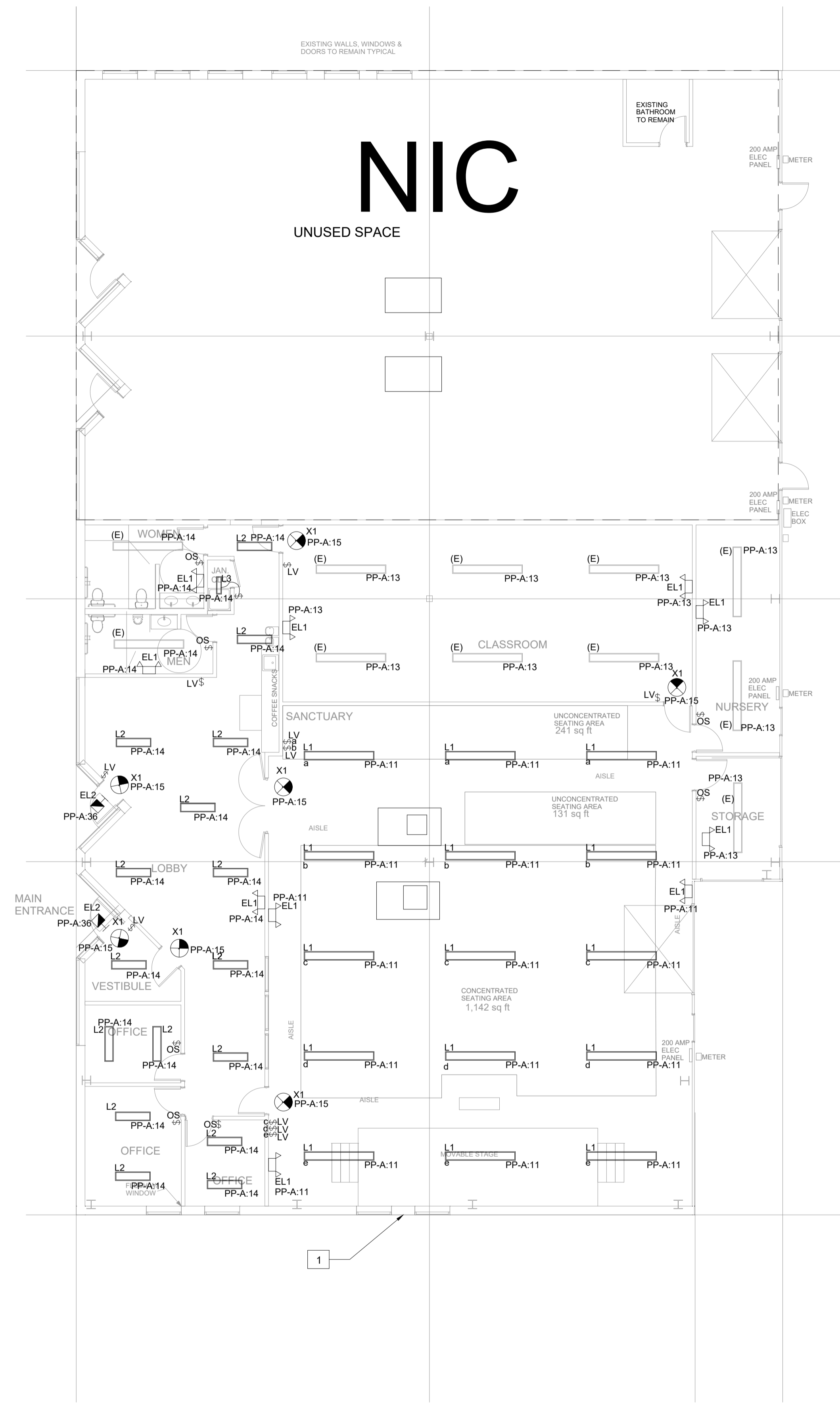
SPACE	OCCUPANCY SENSOR	DIMMING	LOCAL SWITCHING	SCHEDULE ON-OFF	PHOTOCELL	REMARKS
CLASS ROOM				YES		
NURSERY	YES		YES			
STORAGE	YES		YES			
SANCTURY				YES		
WOMEN	YES		YES			INTERLOCK WITH EXHAUST FAN
MEN	YES		YES			INTERLOCK WITH EXHAUST FAN
LOBBY				YES		
VESTIBULE			YES			
OFFICE	YES		YES			
JAN. CLOSET			YES			
BUILDING MOUNTED EXTERIOR LIGHT					YES	
PARKING LOT LIGHTS					YES	

LIGHTING CONTROL SYSTEM:

- MICROPROCESSOR BASED SOLID STATE LIGHTING CONTROL SYSTEM CONSISTING OF RECESSED MAIN DIMMING PANEL, TOUCH SCREENS, LIGHTING CONTROL SUB PANEL, WALL STATIONS, AND COMMUNICATION LINKS FOR NUMBER OF ZONES INDICATED ON THE DRAWINGS. THE SYSTEM SHALL COMPLY WITH CODES AND REGULATIONS.
- ALL RELAYS TO INCLUDE MANUAL OVERRIDE LEVER.
- ALL RELAYS SHALL BE INDIVIDUALLY PROGRAMMABLE.
- PROVIDE ALL THE REQUIRED DATA CABLING AND RACEWAY FOR THE LIGHTING CONTROL INSTALLATION.
- MANUFACTURERS: CRESTRON, ACUITY/LITHONIA, OR AS APPROVED BY OWNER.
- AREA MENTIONED BELOW SHALL BE CONTROL VIA LIGHTING CONTROL PANEL.
 - CLASS ROOM,
 - SANCTURY

KEY NOTES: #

- BUILDING MOUNTED EXTERIOR LIGHTS AND PARKING LOT LIGHTING ARE EXISTING TO REMAIN. FIELD VERIFY EXISTING INSTALLATION. PROVIDE PHOTOCELL CONTROL AND RE-CIRCUIT AS INDICATED ON PANEL SCHEDULE.



ELECTRICAL LIGHTING PLAN
SCALE: 1/8"=1'-0"



PRELIMINARY, NOT FOR CONSTRUCTION

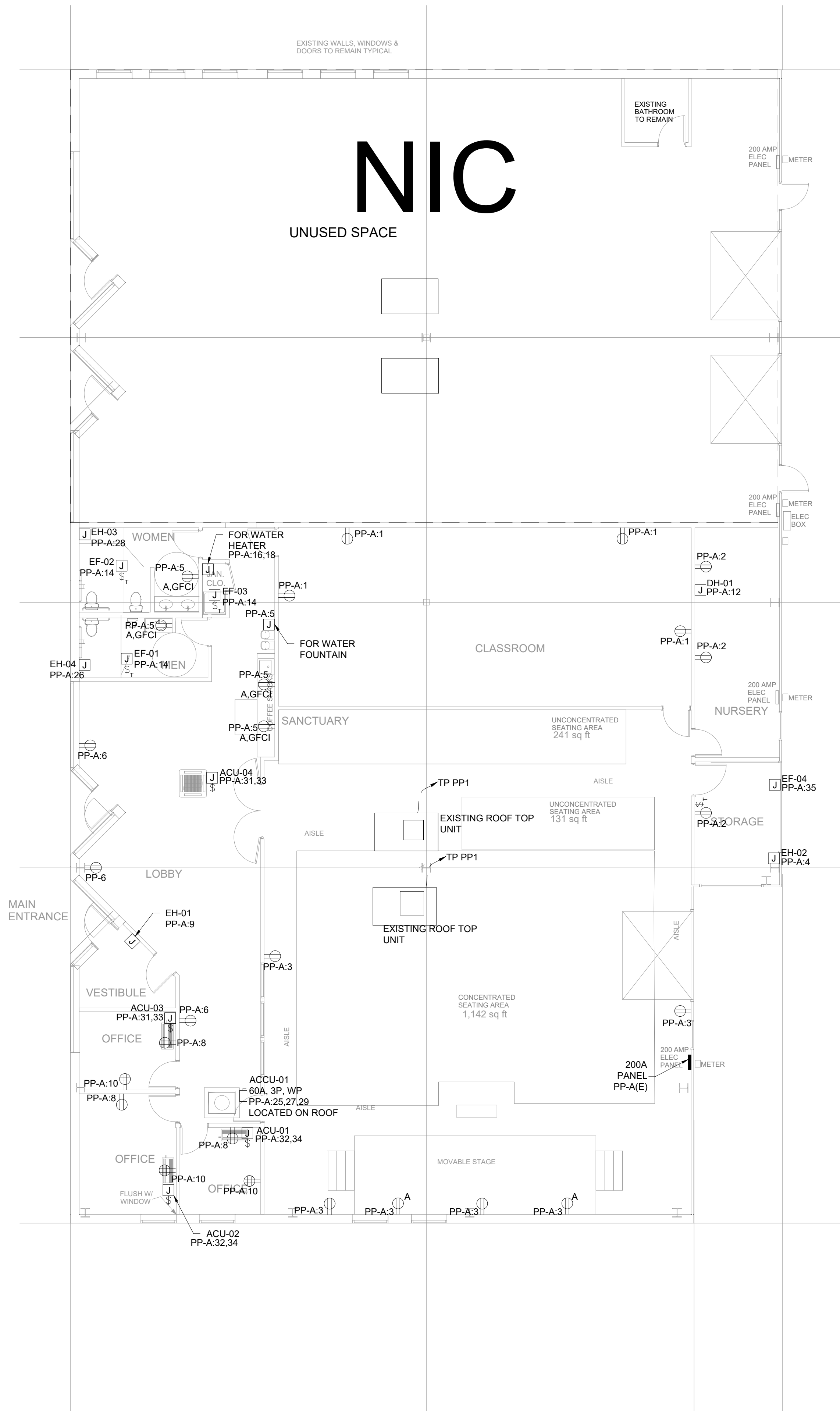
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**CHRIST CHURCH
ANN ARBOR**
2301 S. INDIANTRIAL
ANN ARBOR, MI

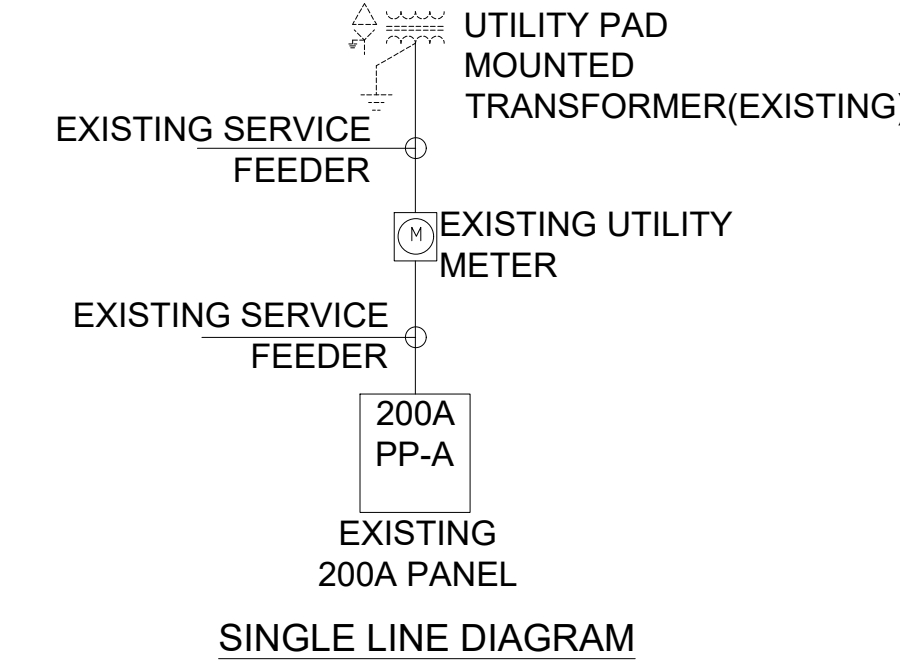
ELECTRICAL PLAN

DATE: 11/11/22

SHEET NO. EL1-01



ELECTRICAL POWER PLAN
SCALE: 1/8"=1'-0"



SINGLE LINE DIAGRAM NOTES:

1. REUSE EXISTING SERVICE PANEL PP-1 TO CONNECT NEW ELECTRICAL DEVICES AND MECHANICAL EQUIPMENT. FIELD VERIFY THE EXISTING PANEL INSTALLATION. REUSE EXISTING CIRCUITS (CONDUIT AND WIRE) TO THE EXTENT PRACTICAL. PROVIDE NEW CIRCUIT BREAKERS AS REQUIRED TO MATCH THE EXISTING INSTALLATION. PROVIDE UPDATED PANEL SCHEDULE.

PANEL SCHEDULE

PANEL NAME		LOCATION			MOUNTING			SUPPLIED FROM			VOLTAGE			BUS		MAIN				
PP-A(EXISTING)		BUILDING EXTERIOR			SURFACE			EXISTING UTILITY TRANSFORMER			208 / 120V, 3PH, 4W			200		200 AMP, MCB				
CKT NO	LOAD DESCRIPTION	VA LOAD			CODE	P	TR	BUS			TR	P	CODE	VA LOAD			LOAD DESCRIPTION	CKT NO		
		PH A	PH B	PH C				A	B	C				PH A	PH B	PH C				
1	RECEPTACLE (CLASSROOM)	900			R	1	20	*			20	1	R	540			RECEPTACLE (NURSERY, STORAGE)	2		
3	RECEPTACLE (CONCENTRATED SEATING AREA)		1080		R	1	20		*		20	1	E		1500			EH-02 (STORAGE)	4	
5	GFCI RECEPTACLE (COFEE/SNACK)			920	R	1	20		*		20	1	R			540			RECEPTACLE (LOBBY)	6
7	SPARE					1	20	*			20	1	R	540					RECEPTACLE (OFFICE)	8
9	EH-01 (VESTIBULE)		1500		E	1	20		*		20	1	R		1080				QUADPLEX RECEPTACLE (OFFICE)	10
11	LIGHTING CIRCUIT			947	L	1	20		*		25	1	E			2000			DH-01 (NURSERY)	12
13	LIGHTING CIRCUIT	590			L	1	20	*			20	1	L	642					LIGHTING CIRCUIT	14
**	15 LIGHTING CIRCUIT (EXT LIGHTS)		21		L	1	20		*		25	1	E		1500					16
17	SPARE					1	20		*		25	1	E		1500					18
19	EXISTING HVAC UNIT (REWIRED TO THIS PANEL)	2634			E	1	40	*			50	1	E	3500					EXISTING HVAC UNIT (REWIRED TO THIS PANEL) (6.5 TON)	20
21			2634		E	1	40		*		50	1	E		3500					22
23				2634	E	1	40		*		50	1	E		3500					24
25		3170			E	1	60	*			20	1	E	1500						26
27	ACCU-01			3170	E	1	60		*		20	1	E		1500					28
29				3170	E	1	60		*		20	1	E							30
31	ACU-03, ACU-04	55			E	1	20	*			20	1	E	40						32
33			55		E	1	20		*		20	1	E		40					34
35	EF-04			40	E	1	20		*		20	1	L			200				36
37	PARKING LOT CIRCUIT	200			L	1	20	*			20	1								38
39	SPARE					1	20		*											40
41	SPARE					1	20		*											42
LOAD DESCRIPTION		CONNECTED (KVA)			DEMAND (KVA)			SUBFED LOADS (KVA)			CONNECTED			VA						
LIGHTING		2.6			1.00			2.6			CONNECTED			PH A		14311				
RECEPT		5.6			*			5.6			DEMAND			PH B		17580				
EQUIPMENT		39.1			1.00 C			39.1						PH C		15451				
TOTAL		47.3																		
		L LIGHTING			R RECEPTACLE						TOTAL + SUBFED			KVA		AMPS				
		E EQUIPMENT			S SUBFED						CONNECTED			47.3		131.4				
											DEMAND			47.3		131.4				
X	GROUND BUS							X			100% NEUTRAL BUS			INTEGRAL SPD -						
NO	ISOLATED GROUND BUS							NO			200% NEUTRAL BUS			ISC = -						

* DEMAND FACTOR FOR RECEPTACLES IS 100% UP TO 10KVA AND 50% FOR REMAINING LOADS PER NFPA70
** LOCKABLE BREAKER SHALL BE PROVIDED.

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