

CRUMBL COOKIES - LEE'S SUMMIT

1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081

ISSUE DATE:
JULY 22, 2021

PROJECT NUMBER
21-202

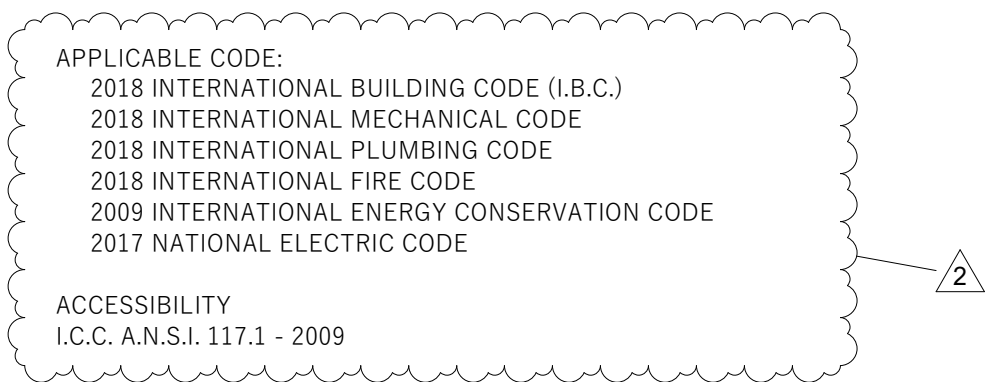
REVISIONS:

No.	Date	Description
2	9/03/2021	Fire and Building Comments

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DESIGN CRITERIA



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 OF ELECTRICAL SERVICE PANEL AND EXISTING ROOF TOP UNIT.

PROJECT DIRECTORY

OWNER
CRUMBL COOKIES
STEVE WALLACE
(801) 380-1551
geraldstevenswallace@yahoo.com

ARCHITECT
JZW ARCHITECTS
TYLER WALLS
SARA CASH
45 E. CENTER ST, SUITE 202
NORTH SALT LAKE, UT 84054
(385) 324-9050
tylerw@jzw-a.com

MECHANICAL/PLUMBING ENGINEER
PVE
TIM CANTRELL
1040 N 2200 W, STE. 100
SALT LAKE CITY, UT 84116
(801) 359-3158
ptcantrell@pue-ut.com

ELECTRICAL ENGINEER
BNA CONSULTING
TREY HILLS
635 S. STATE ST.
SALT LAKE CITY, UT 84111
(801) 352-2196
trey@bnaconsulting.com

DEFERRED SUBMITTALS

FIRE ALARM SYSTEM
FIRE SPRINKLER SYSTEM

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.

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.

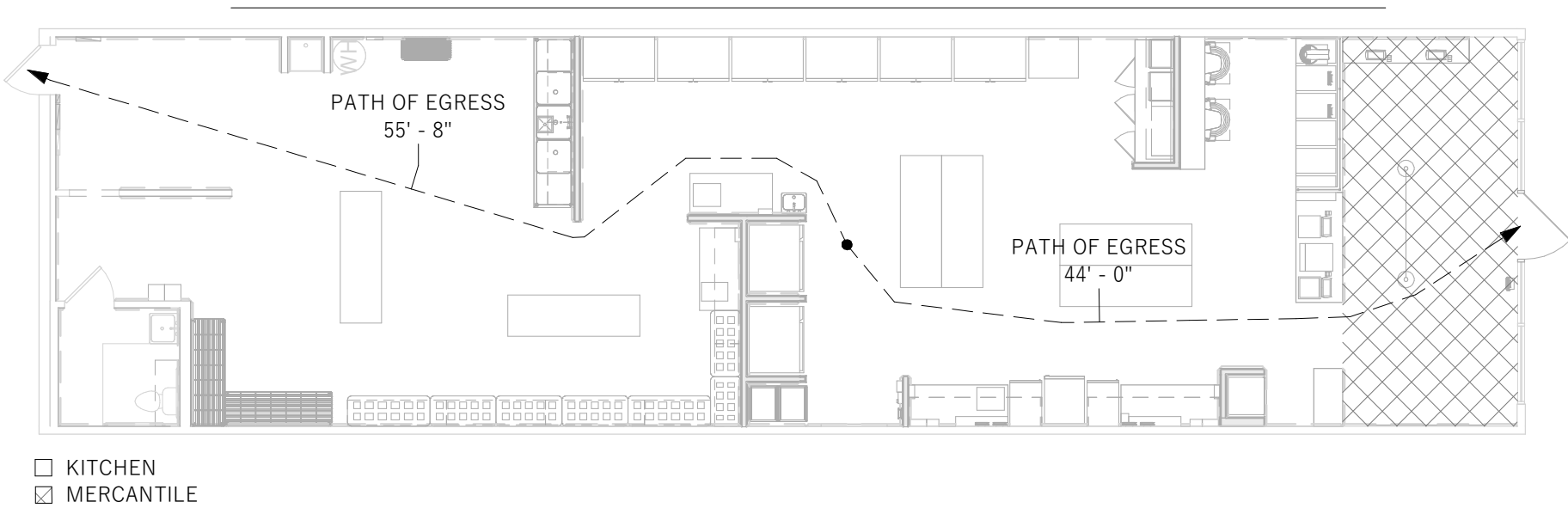
GENERAL PLUMBING, ELECTRICAL, EQUIPMENT NOTES

- 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



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	257 SF	5
KITCHENS, COMMERCIAL:	200 GROSS	1784 SF	9
OCCUPIED SPACE		2041 SF	14
EMPLOYEE RESTROOM	NA	65 SF	NA
TOTAL AREA		2106 SF	14

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

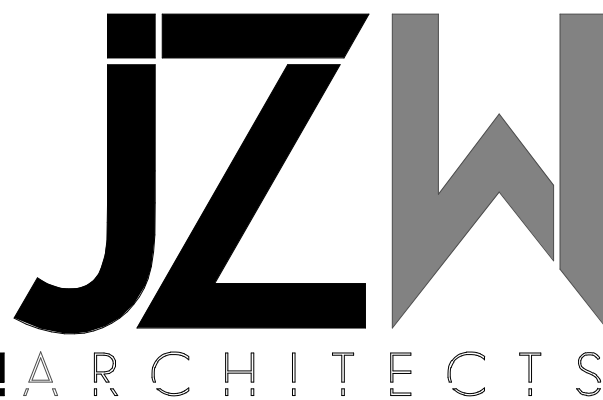
2902 MINIMUM PLUMBING FACILITIES
2902.1 MINIMUM NUMBER OF FIXTURES.
MINIMUM NUMBER IN TABLE 2902.1
BUSINESS = 1 PER 25 FOR FIRST 50

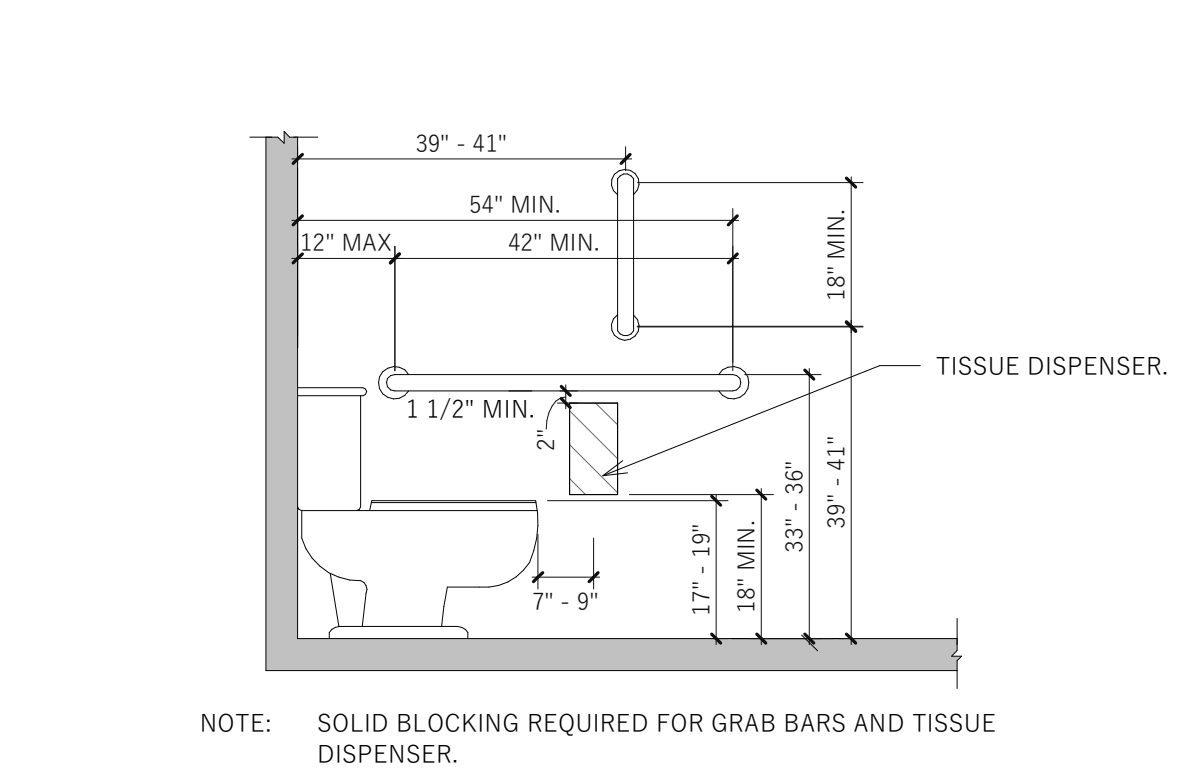
2902.2 SEPARATE FACILITIES.
EXCEPTION 2: SEPARATE FACILITIES SHALL NOT BE REQUIRED IN STRUCTURES OR TENANT SPACES WITH A TOTAL OCCUPANT LOAD, INCLUDING BOTH EMPLOYEES AND CUSTOMERS, OF 15 OR FEWER.
2902.3 EMPLOYEE AND PUBLIC TOILET FACILITIES.
EXCEPTION 2: PUBLIC TOILET FACILITIES SHALL NOT BE REQUIRED 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 - LEE'S SUMMIT

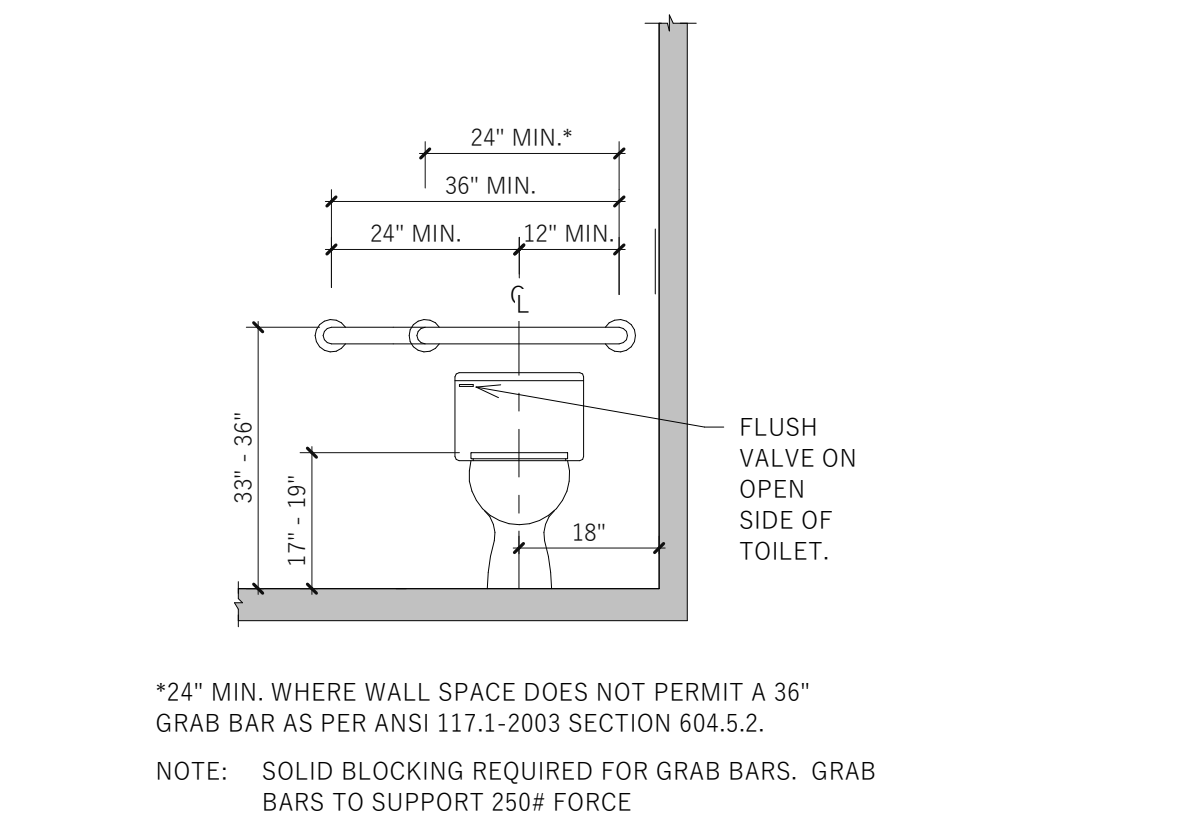


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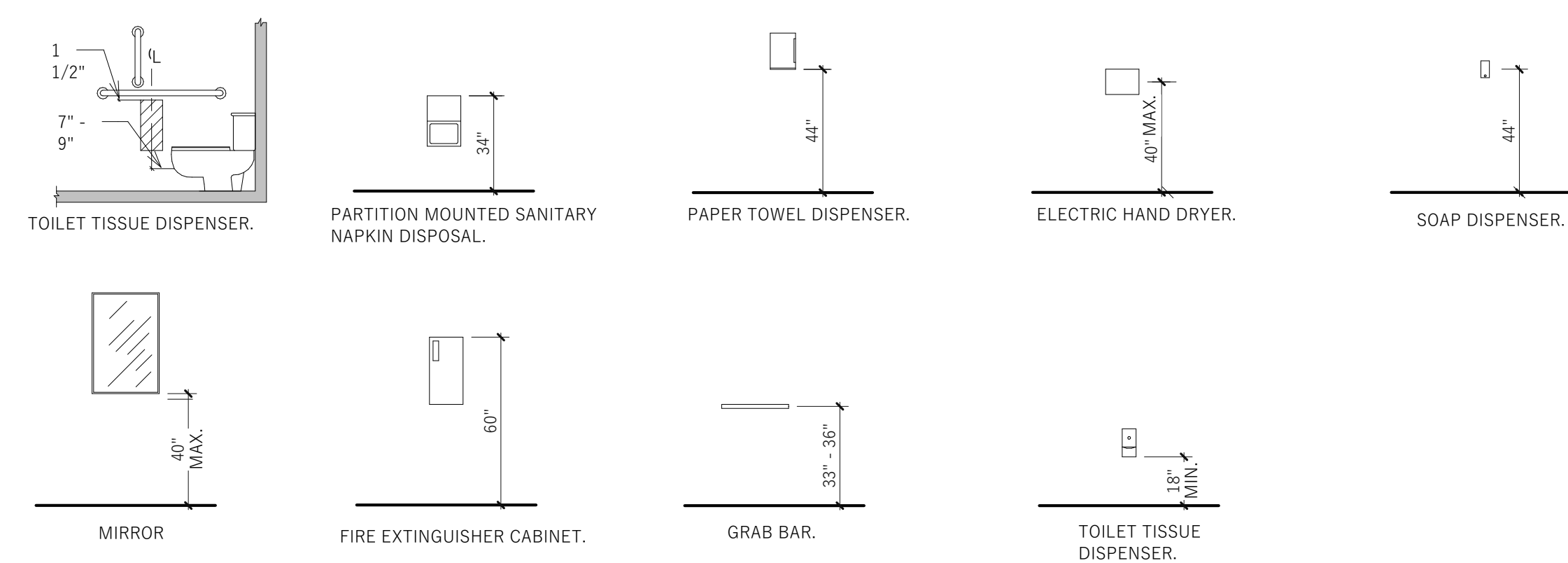




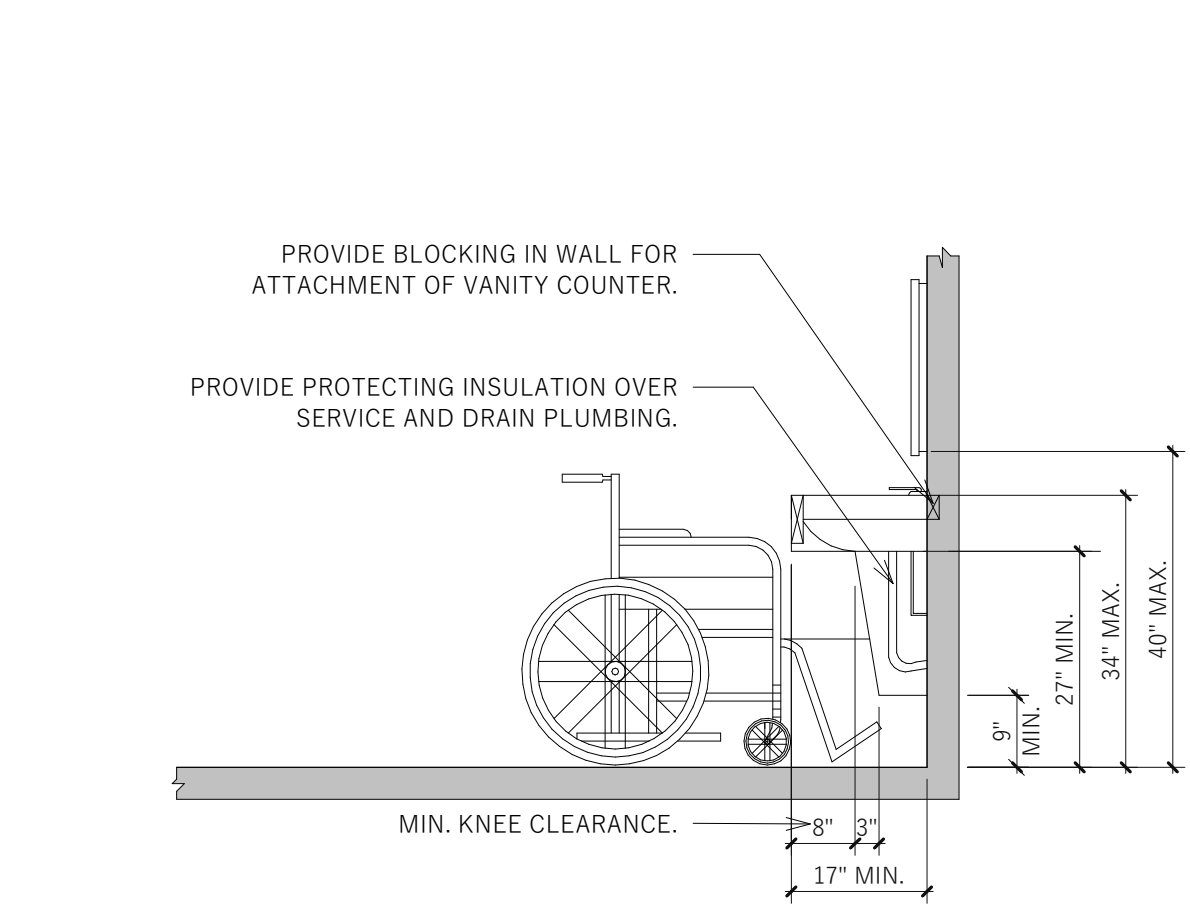
1
G1.1
TYPICAL WATER CLOSET - SIDE VIEW
1/2" = 1'-0"



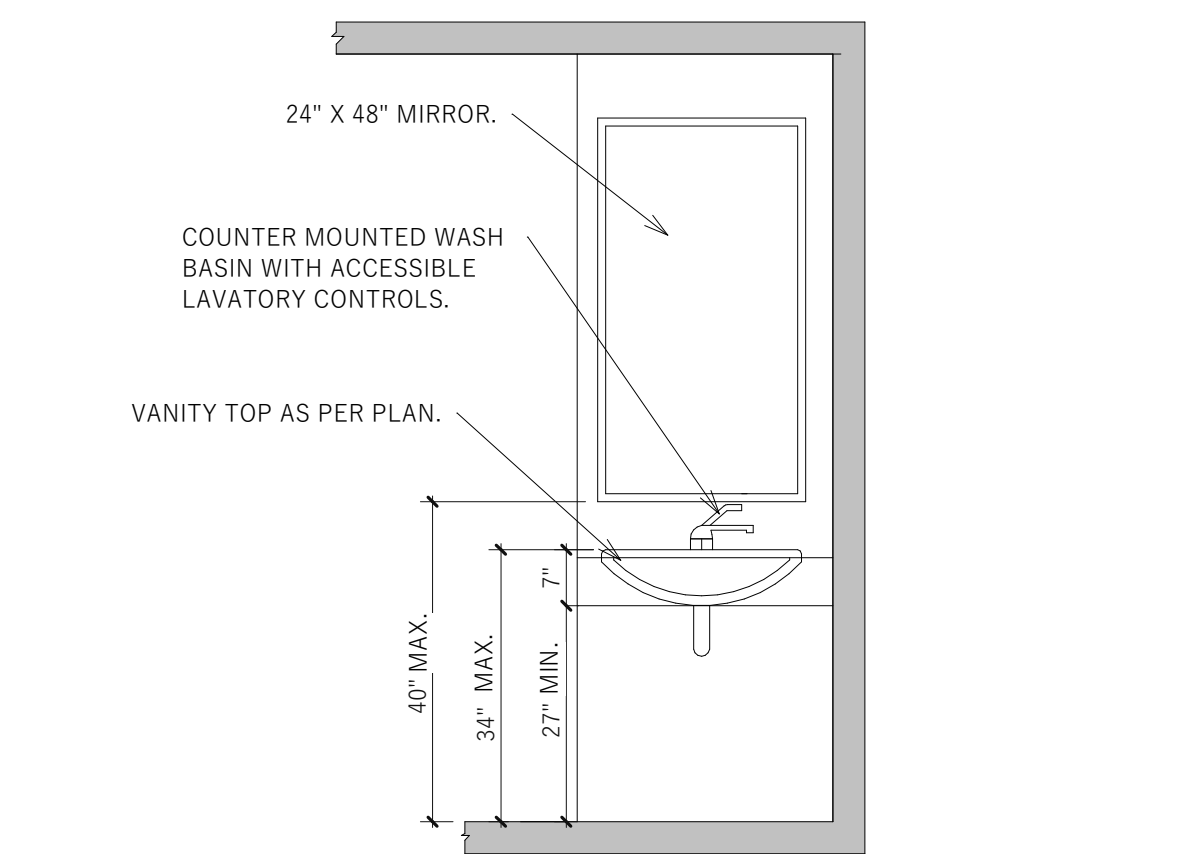
2
G1.1
TYPICAL WATER CLOSET - FRONT VIEW
1/2" = 1'-0"



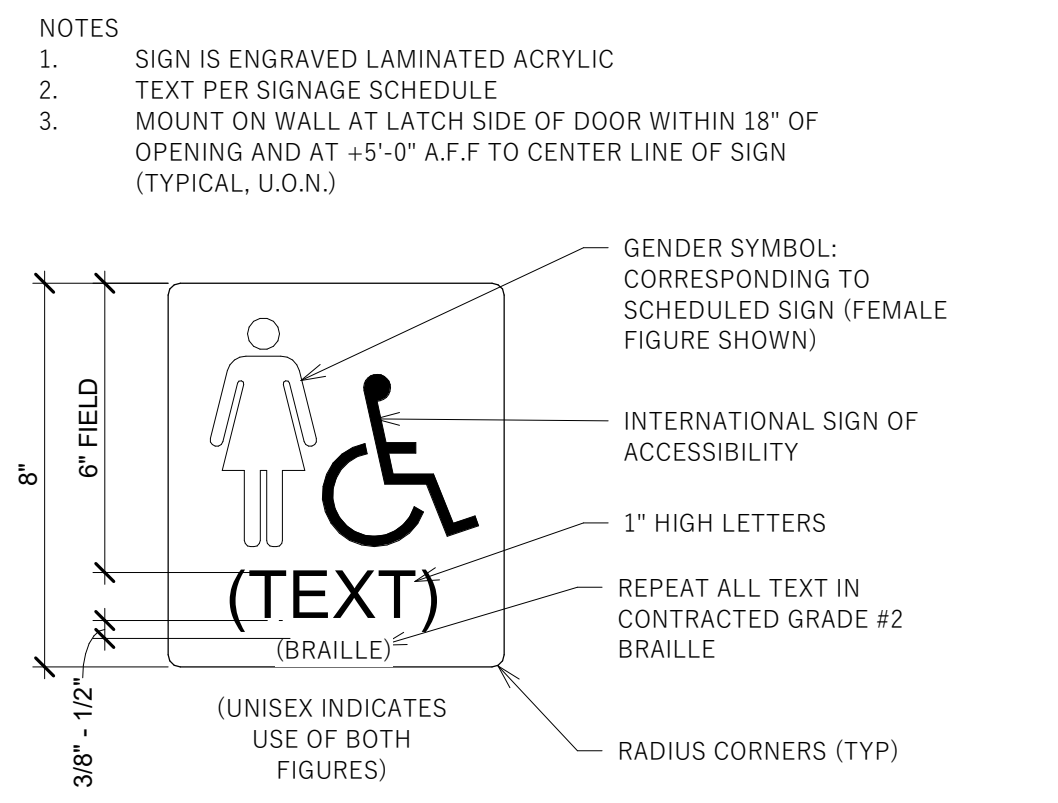
3
G1.1
MOUNTING HEIGHTS AND TOILET ROOM ACCESSORIES
1/4" = 1'-0"



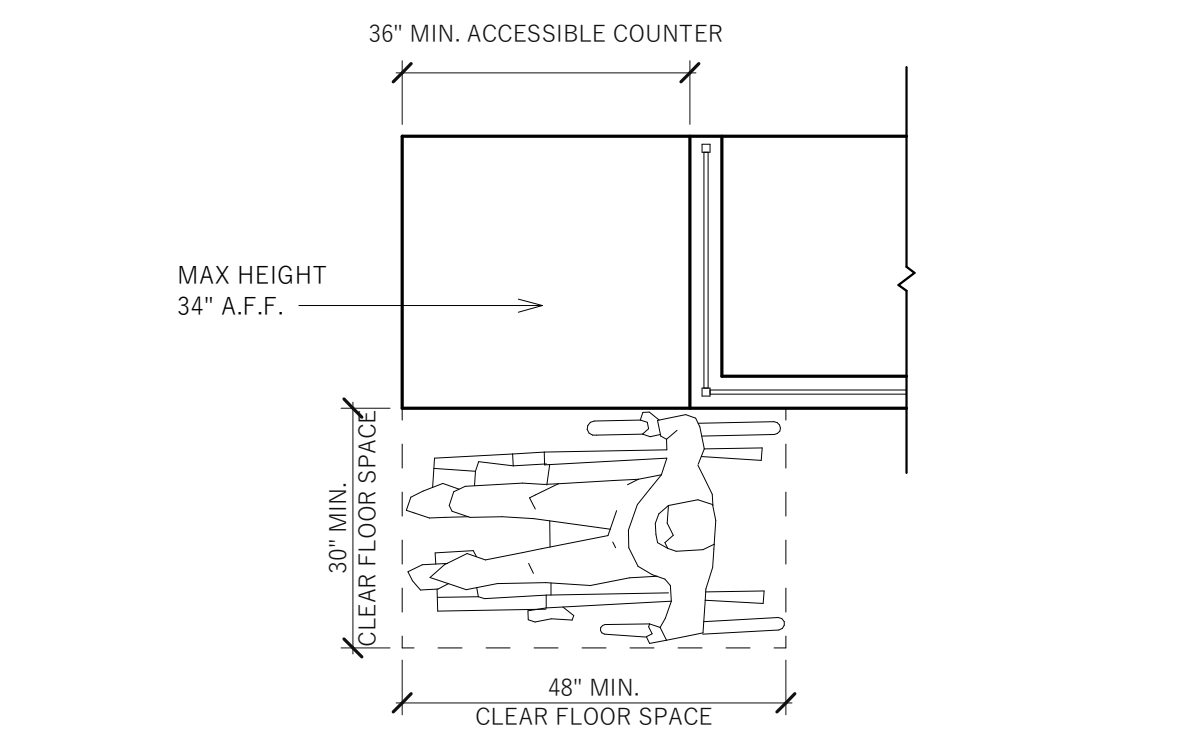
4
G1.1
TYPICAL VANITY DETAIL
1/2" = 1'-0"



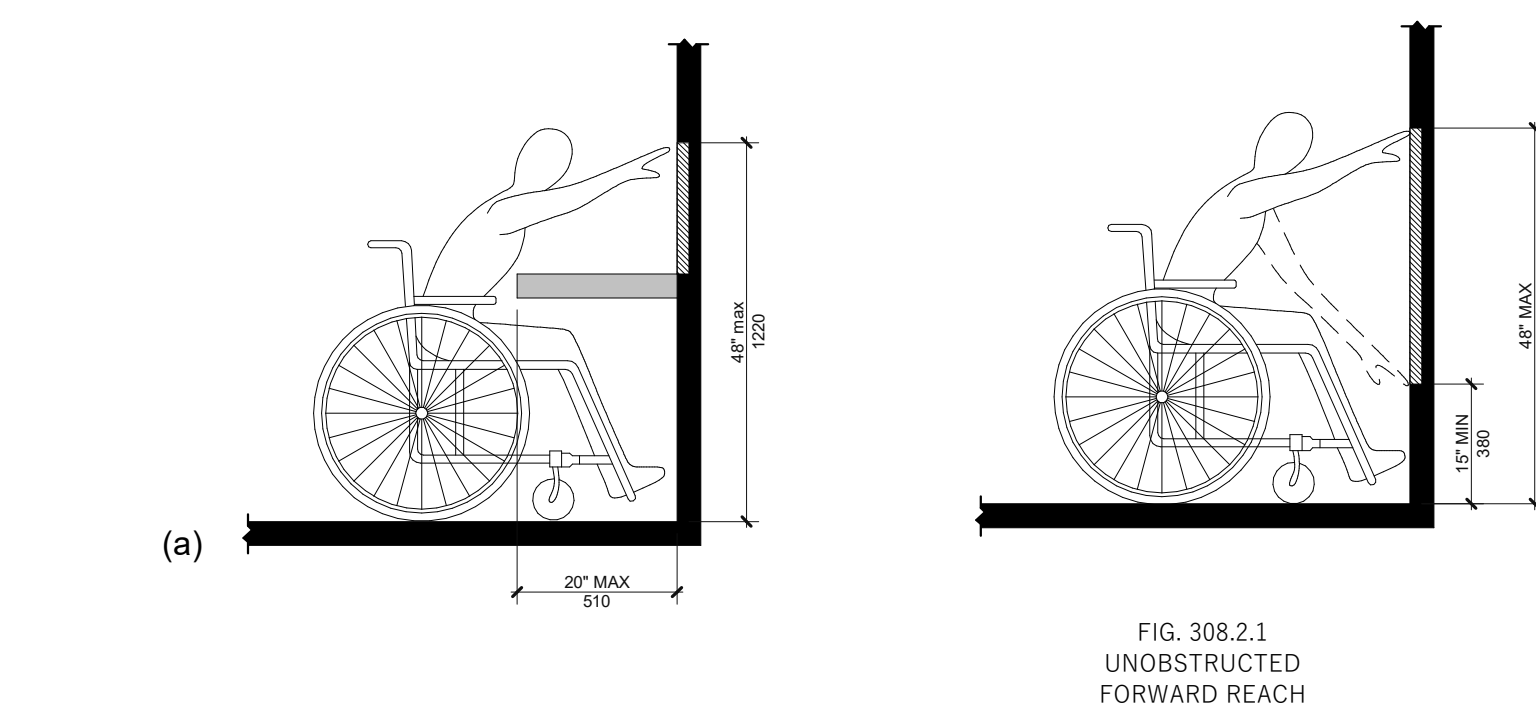
5
G1.1
TYPICAL VANITY ELEVATION
1/2" = 1'-0"



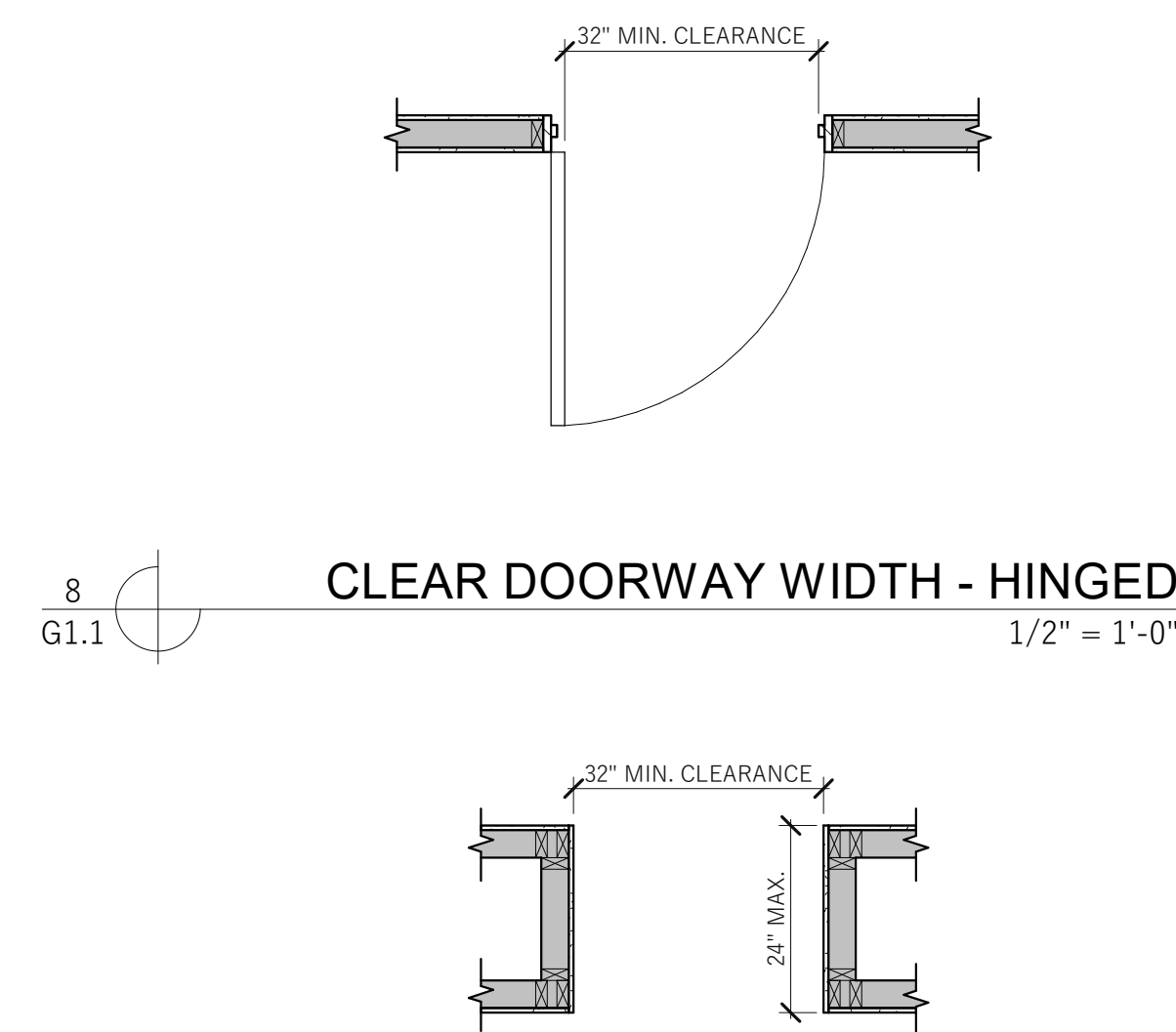
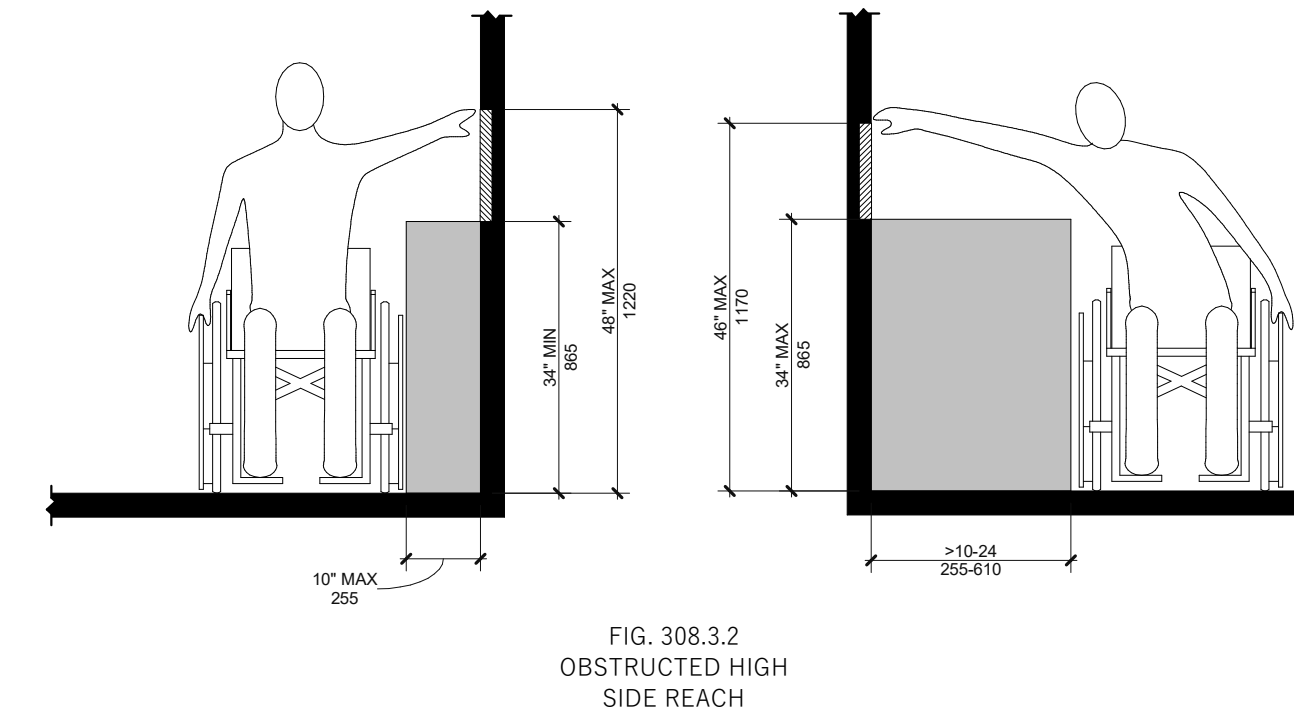
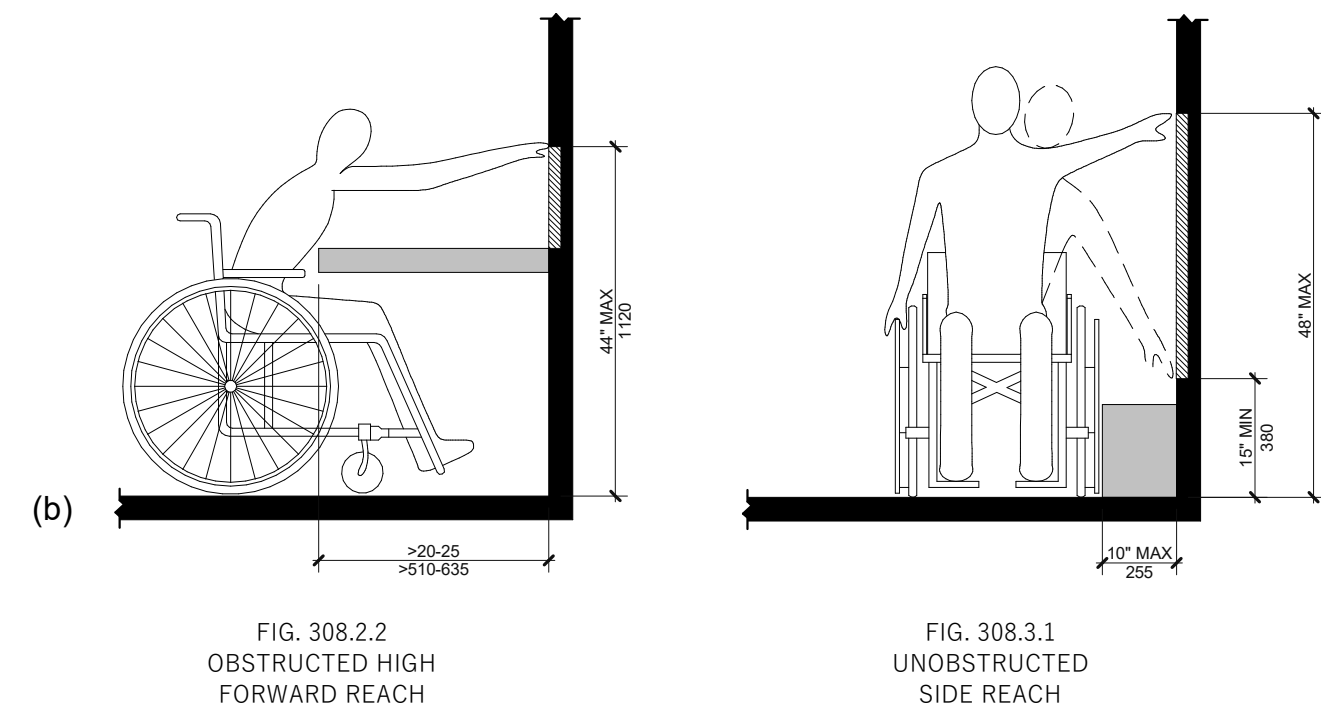
6
G1.1
RESTROOM SIGNAGE
3" = 1'-0"



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



10
G1.1
TYPICAL REACH RANGES
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"

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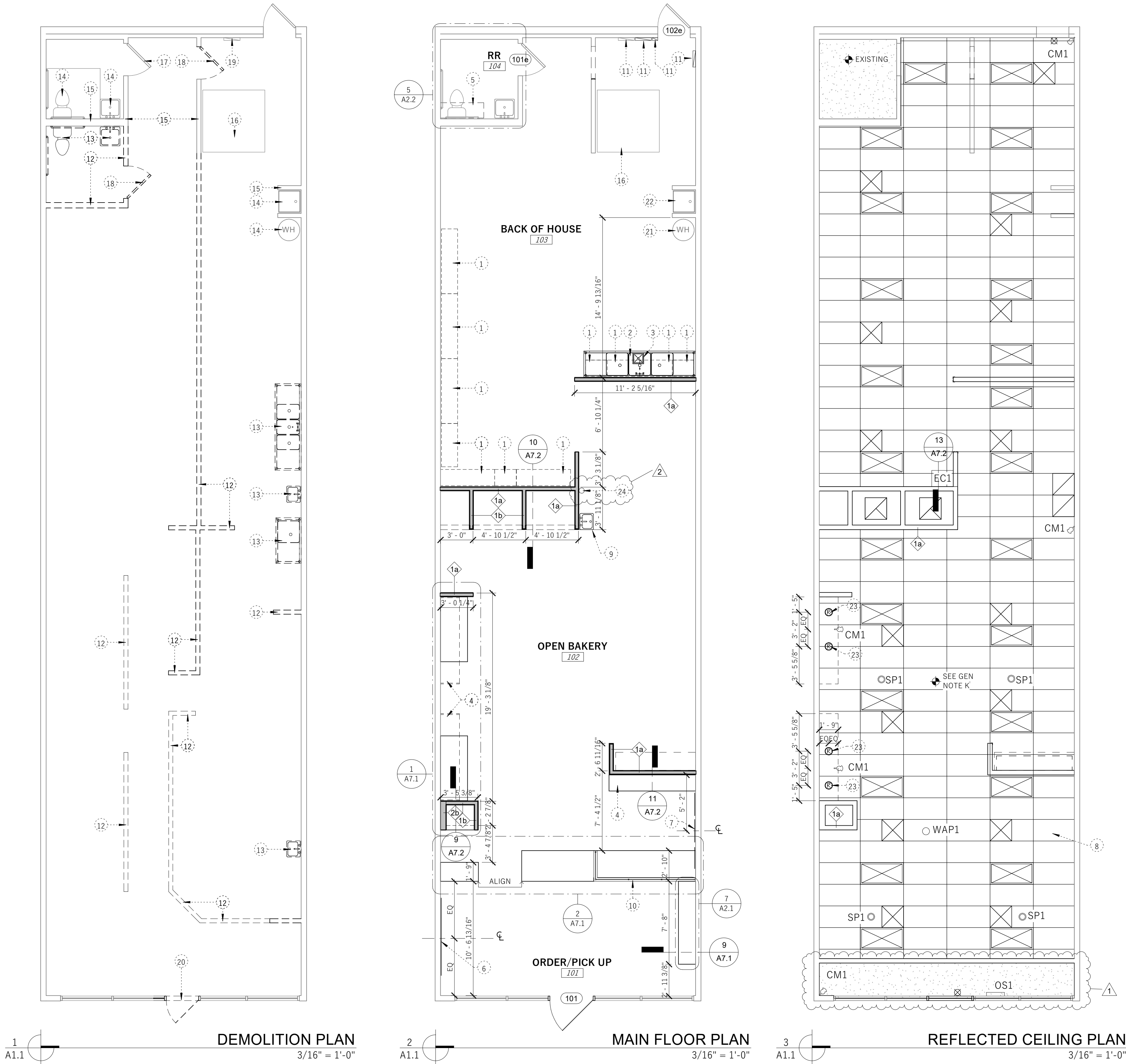


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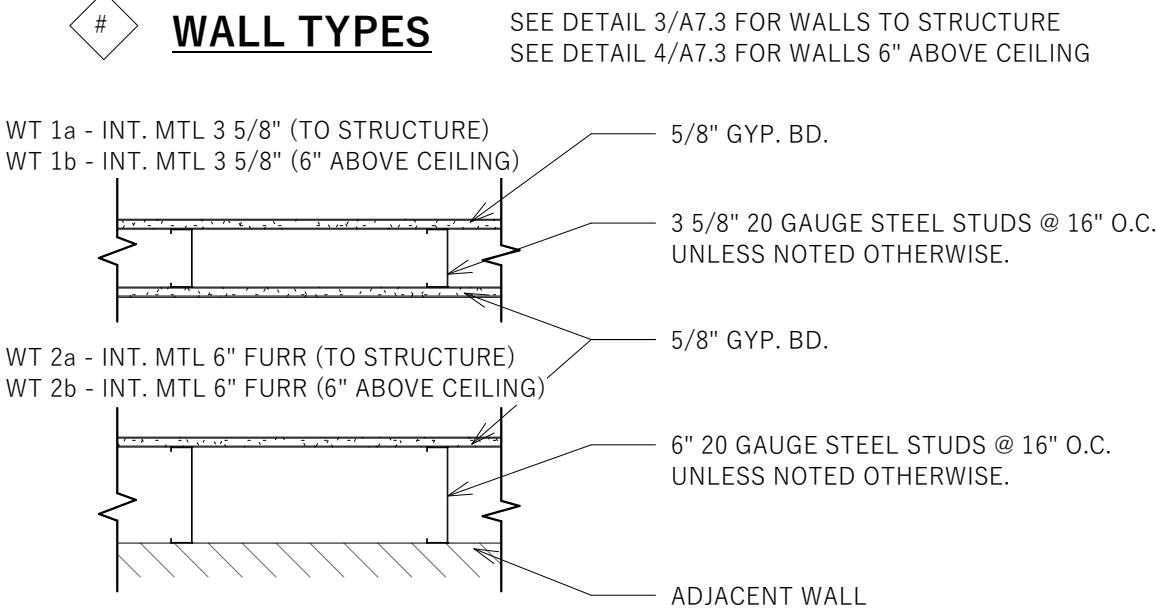
ACCESSIBILITY
DETAILS

G1.1

JZW
ARCHITECTS



- SYMBOL LEGEND**
- RECESSED CAN LIGHT FIXTURE
 - 2 X 4 LED LAY-IN LIGHT
 - VENTILATION FAN
 - EXIT SIGN
 - RETURN AIR
 - SUPPLY AIR
 - VENTILATION FAN
 - 2 X 4 LAY-IN CEILING
 - GYP. BOARD CEILING
 - SPEAKER (SEE EQUIPMENT SCHEDULE A6.1)
 - SECURITY CAMERA (SEE EQUIPMENT SCHEDULE A6.1)



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	18" WIRE WALL MOUNTED STORAGE SHELVING. CONTINUOUS PLYWOOD BACKING BEHIND SHEETROCK. SEE DETAILS.
2	NEW 3-COMPARTMENT SINK
3	FLOOR SINK, COORDINATE WITH PLUMBING
4	SOLID SURFACE FLOATING SHELF. SEE DETAILS
5	18" WIRE MOUNTED STORAGE SHELVING ABOVE TOILET WITH 6" - 8" CLEAR BELOW. PROVIDE CONTINUOUS PLYWOOD BACKING BEHIND SHEETROCK. SEE DETAILS.
6	BAKERHEAD LOGO SIGN, DIMENSIONED TO CENTER LINE. SEE DETAILS FOR SIGNAGE INSTALLATION.
7	COOKIE SIGNAGE DIMENSIONED FROM FINISHED WALL FACE TO CENTER LINE. SEE DETAILS FOR SIGNAGE INSTALLATION.
8	SEE DETAIL 2/A7.3 FOR SUSPENDED CEILING GRID
9	ALIGN SIDE SPLASH OF HAND SINK WITH END OF WALL
10	FRAMED WALL AT REAR OF CABINERY; SEE DETAILS ON SHEET A7.1
11	SEE ELECTRICAL PLANS FOR EQUIPMENT INFORMATION.
12	EXISTING WALL TO BE REMOVED
13	EXISTING PLUMBING FIXTURE TO BE REMOVED
14	EXISTING PLUMBING FIXTURES TO REMAIN
15	EXISTING WALL TO REMAIN
16	EXISTING FREEZER/COOLER TO REMAIN
17	EXISTING DOOR TO REMAIN
18	EXISTING DOOR TO BE REMOVED
19	EXISTING ELECTRICAL PANEL TO REMAIN
20	EXISTING STOREFRONT TO BE REMOVED. PREPARE FOR ADDITION OF NEW STOREFRONT SYSTEM
21	EXISTING WATER HEATER TO REMAIN
22	EXISTING MOP SINK TO REMAIN
23	UNDERSHELF LIGHTING, SEE DETAILS
24	FIRE EXTINGUISHER.

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1	8/10/2021	Landlord Change
2	9/03/2021	Fire and Building Comments

CONSULTANT

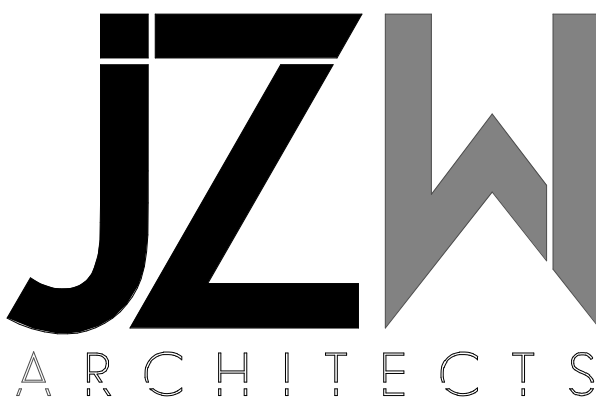
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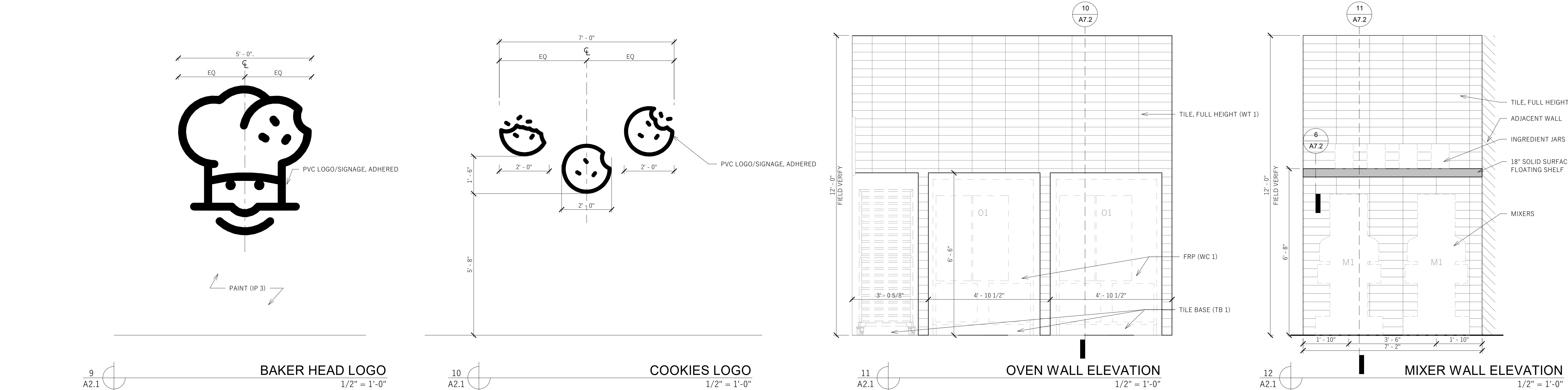
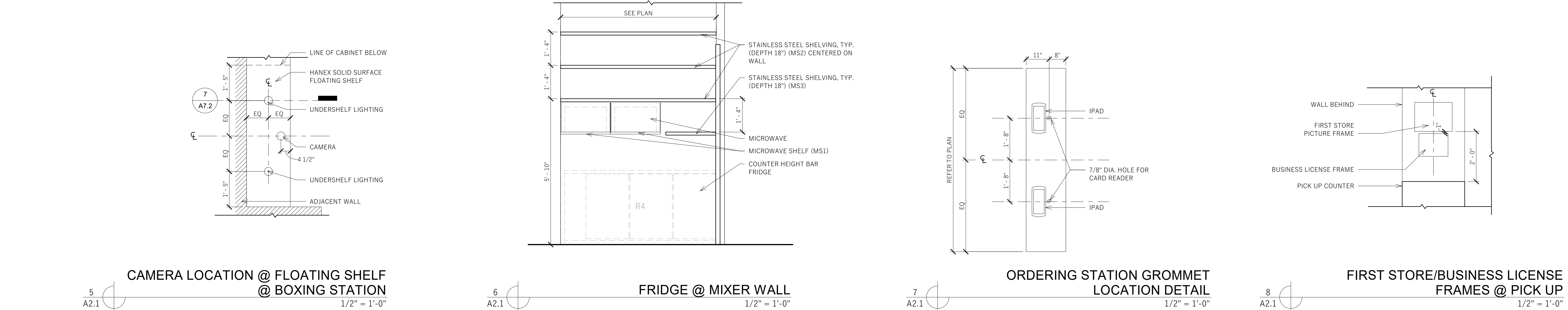
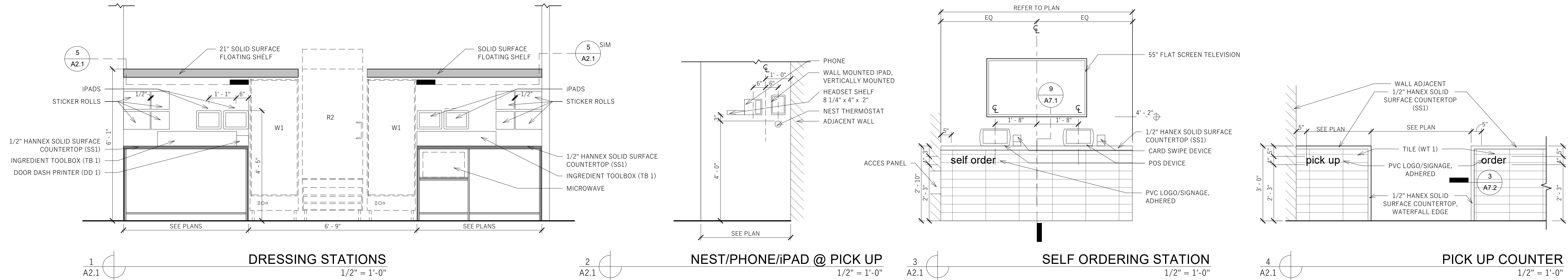


9/3/2021

DEMOLITION PLAN,
REMODEL FLOOR
PLAN & RCP

A1.1





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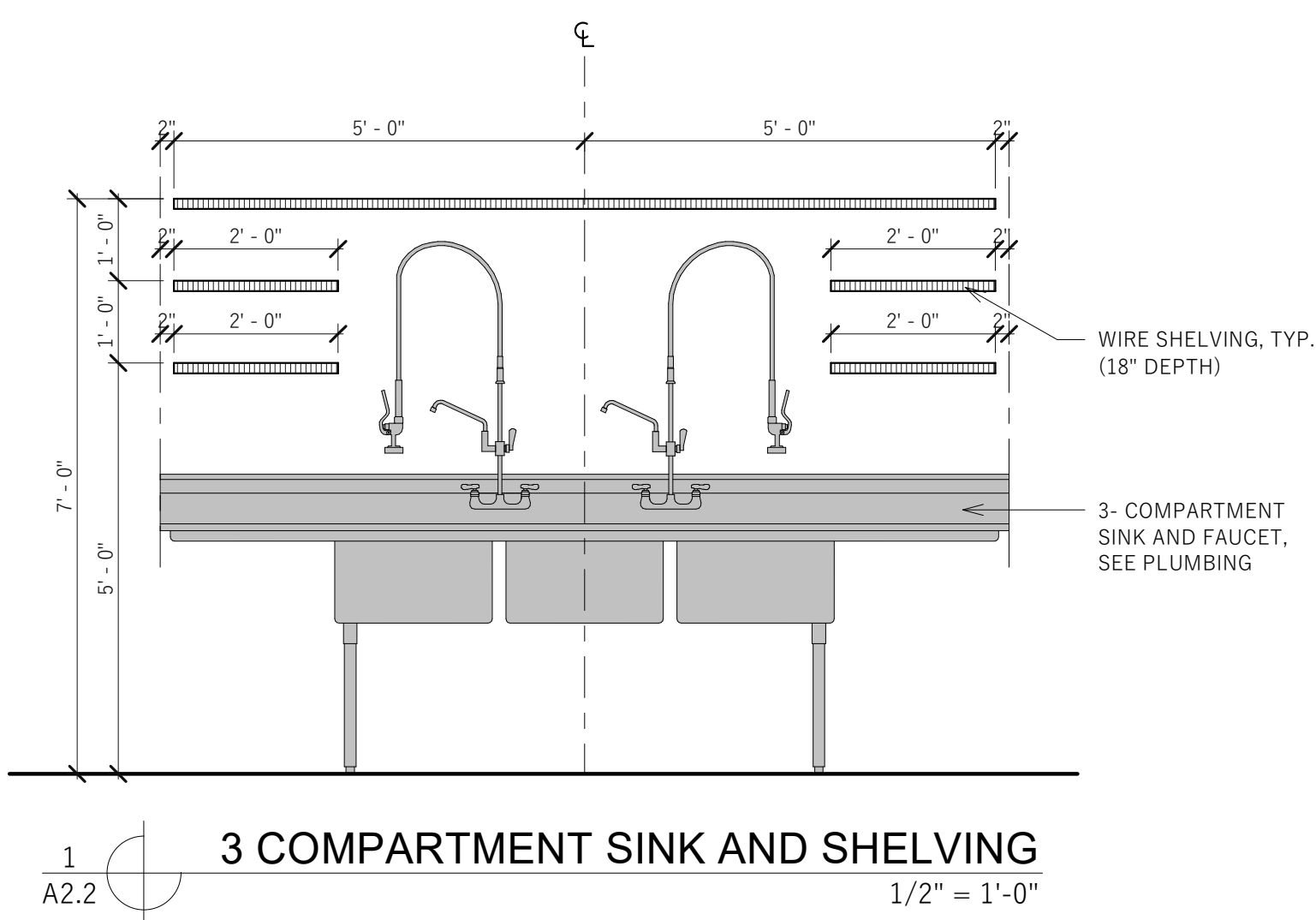


9/3/2021

INTERIOR
ELEVATIONS

A2.1

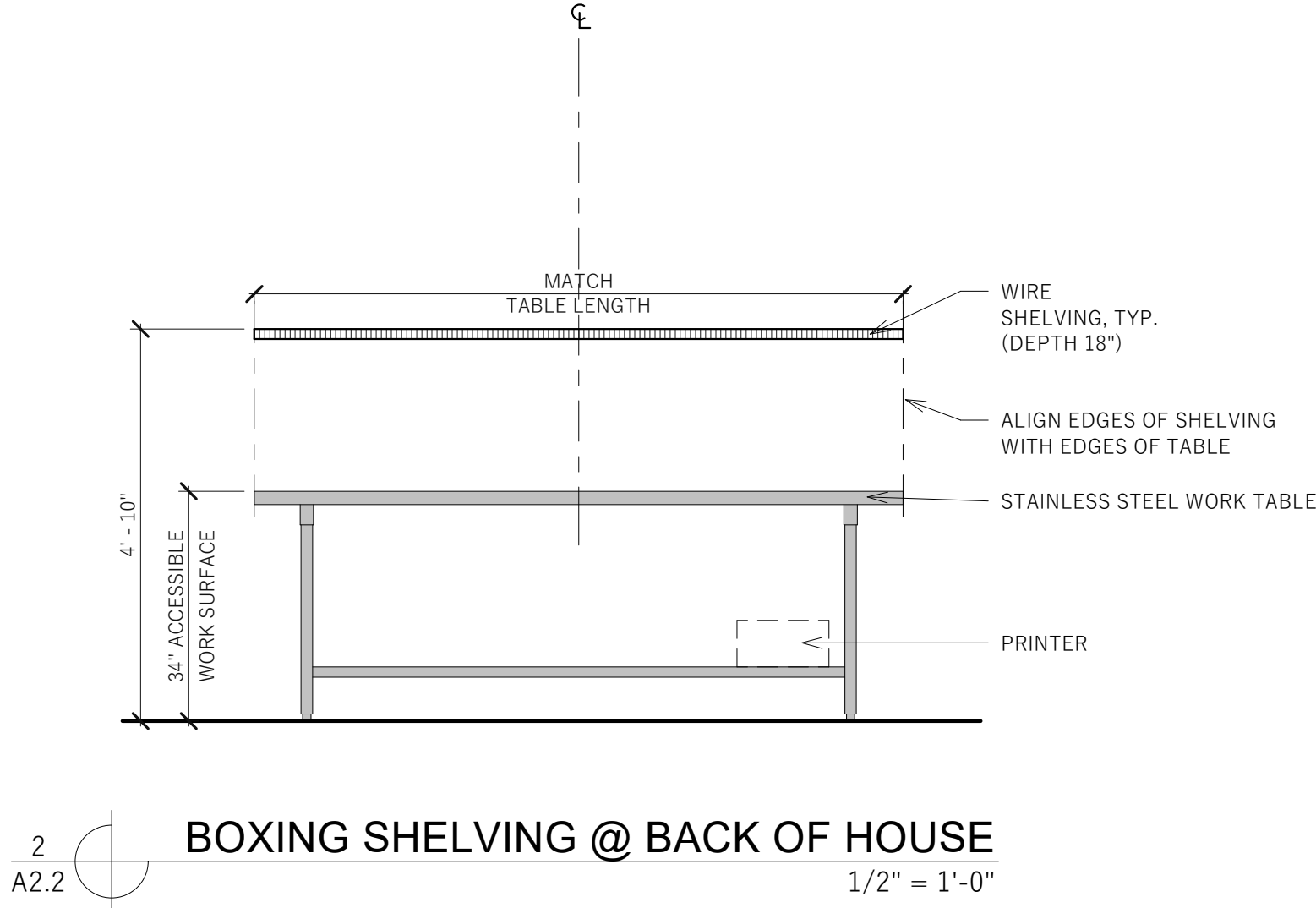
JZW
ARCHITECTS



1
A2.2

3 COMPARTMENT SINK AND SHELVING

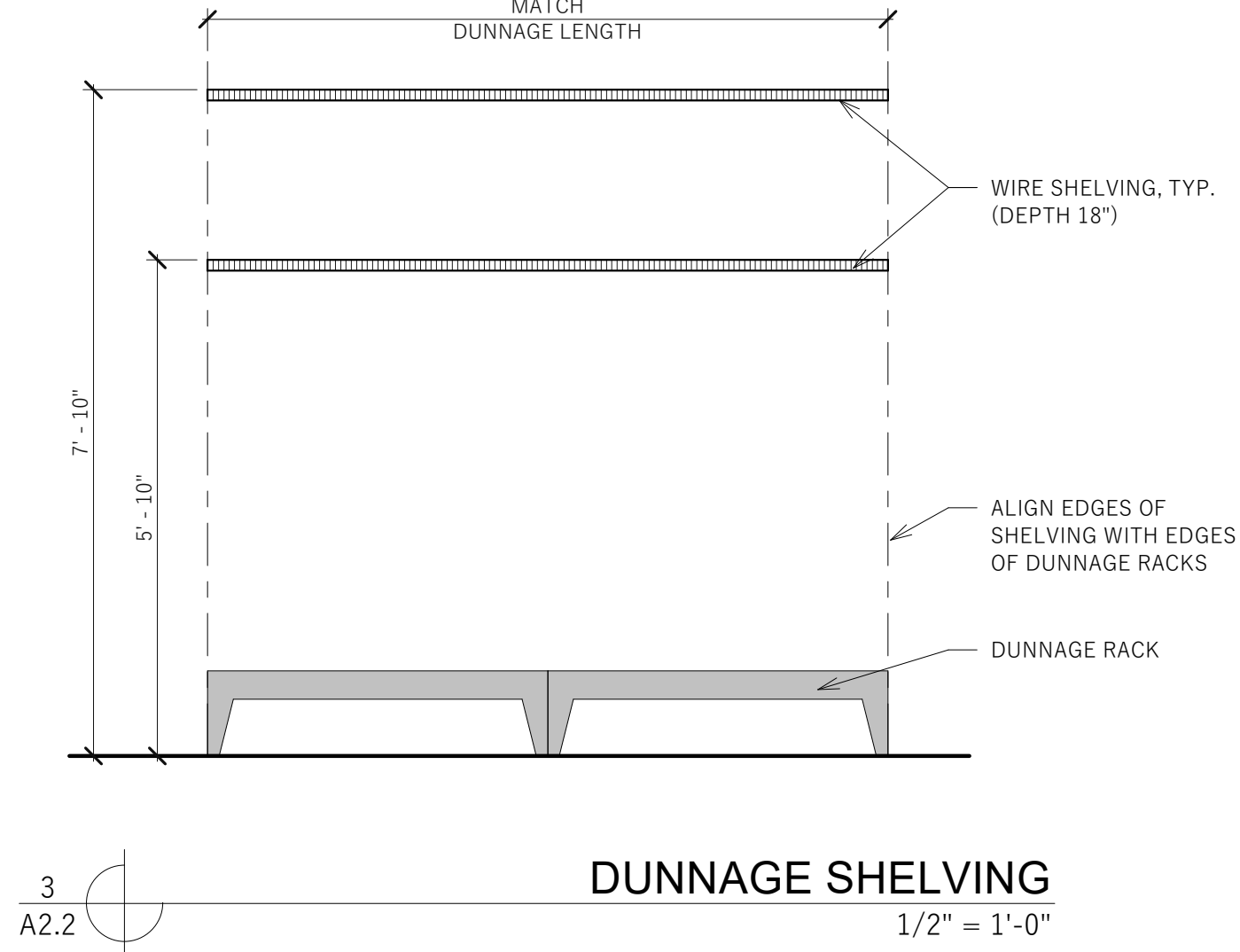
1/2" = 1'-0"



2
A2.2

BOXING SHELVING @ BACK OF HOUSE

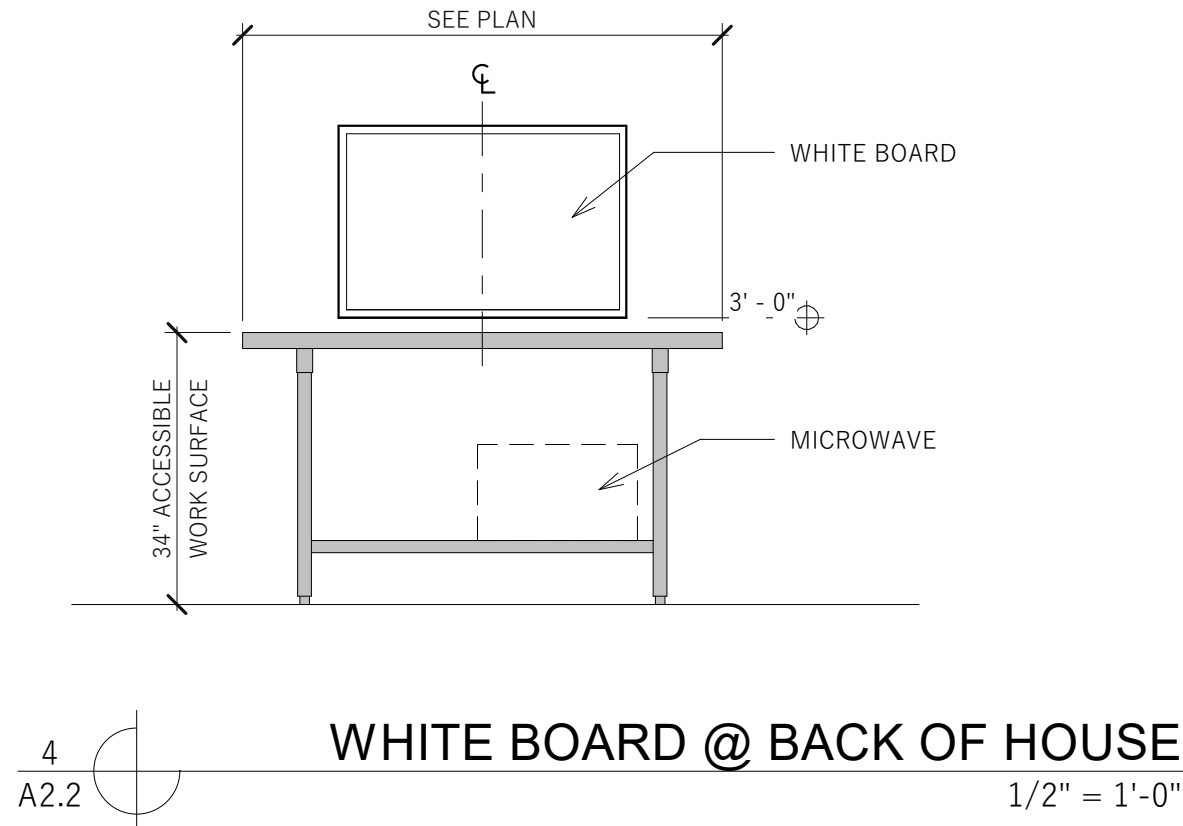
1/2" = 1'-0"



3
A2.2

DUNNAGE SHELVING

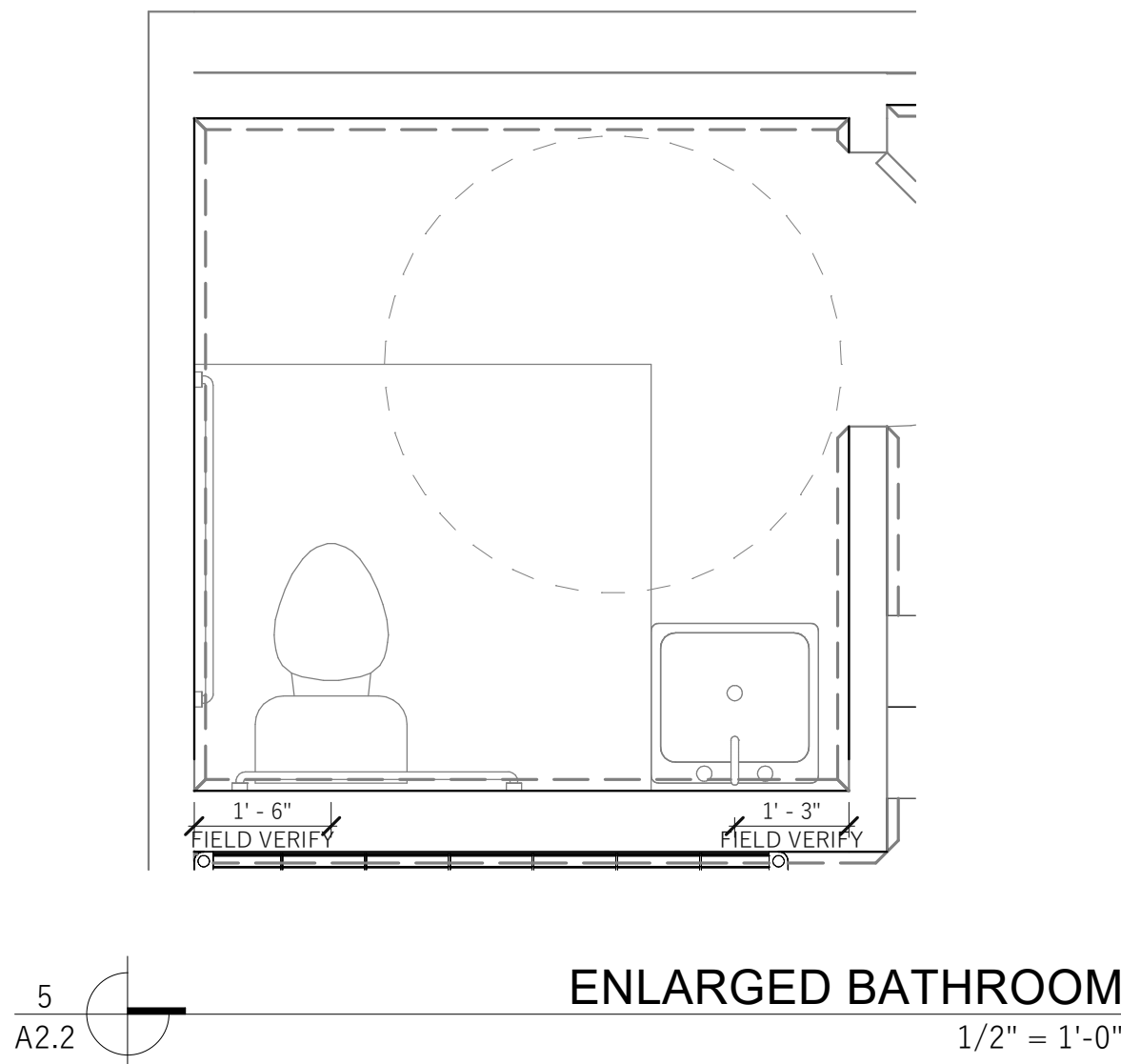
1/2" = 1'-0"



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"

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INTERIOR
ELEVATIONS

A2.2

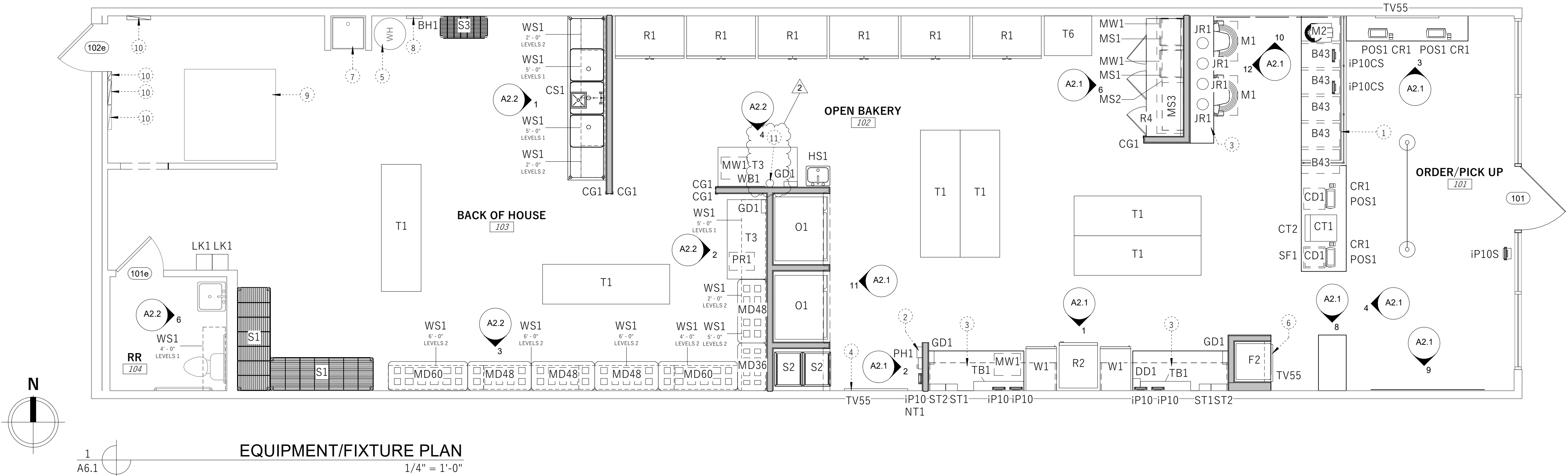
JZW
ARCHITECTS

WIRE SHELVING SCHEDULE						
ITEM NUMBER	LINEAR FEET	DESCRIPTION	DIMENSIONS	PROVIDER	INSTALLER	ADDITIONAL NOTES
WS1	85' - 0"	STAINLESS STEEL WIRE SHELVING	18" D	GC	GC	CONTACT LENNY AT LDOUGLAS@BARGREEN.COM

EQUIPMENT/FIXTURE SCHEDULE						
ITEM NUMBER	QTY	DESCRIPTION	DIMENSIONS	PROVIDER	INSTALLER	ADDITIONAL NOTES
B43	6	43 GALLON INGREDIENT BIN	SEE BUILD OUT GUIDE	OWNER	OWNER	
BH1	1	BROOM HANGER	SEE EQUIPMENT GUIDE	OWNER	GC	
CD1	2	CASH DRAWER	SEE EQUIPMENT GUIDE	OWNER	OWNER	
CM1	5	SECURITY CAMERA	SEE EQUIPMENT GUIDE	OWNER	GC	POWER OVER ETHERNET 802.3af
CR1	4	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
F2	1	GLASS DOOR FREEZER	27 1/8" L X 26 1/4" D X 85 3/8" H	OWNER	GC	
GD1	4	GLOVE DISPENSER	9" L X 3" D X 18" H	OWNER	GC	
HS1	1	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	4	DUNNAGE RACK	48" L X 22" D X 12" H	OWNER	GC	
MD60	2	DUNNAGE RACK	60" (W) 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 SHELF	84" L X 16" D	GC	GC	CONTACT LENNY AT LDOUGLAS@BARGREEN.COM
MS3	1	STAINLESS STEEL SHELF	36" 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	4	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	89" L X 28" D X 40" H	OWNER	GC	
S1	2	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	6	STAINLESS STEEL WORK TABLE	96" L X 30" D X 34" H	OWNER	OWNER	
T3	2	STAINLESS STEEL WORK TABLE	60" L X 30" D X 34" H	OWNER	OWNER	
T6	1	STAINLESS STEEL WORK TABLE	36" 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	
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



KEYED NOTES

- 1 SNEEZE GUARD
- 2 HEADSET SHELF. SEE DETAIL ON A2.1
- 3 SOLID SURFACE FLOATING SHELF, SEE DETAILS
- 4 55" WALL MOUNTED TELEVISION, BOTTOM OF TV AT 6'-6"
- 5 EXISTING WATER HEATER TO REMAIN
- 6 TV MOUNTED VERTICALLY B.O. TV @ 7'-6" AFF
- 7 EXISTING MOP SINK TO REMAIN
- 8 WALL MOUNTED MOP HANGER.
- 9 EXISTING FREEZER/COOLER TO REMAIN
- 10 SEE ELECTRICAL PLANS FOR EQUIPMENT INFORMATION.
- 11 FIRE EXTINGUISHER.

PROJECT NUMBER

21-202

ISSUE DATE:

JULY 22, 2021

REVISIONS:

No.	Date	Description
2	9/03/2021	Fire and Building Comments

CONSULTANT

CRUMBL COOKIES - LEE'S

SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081

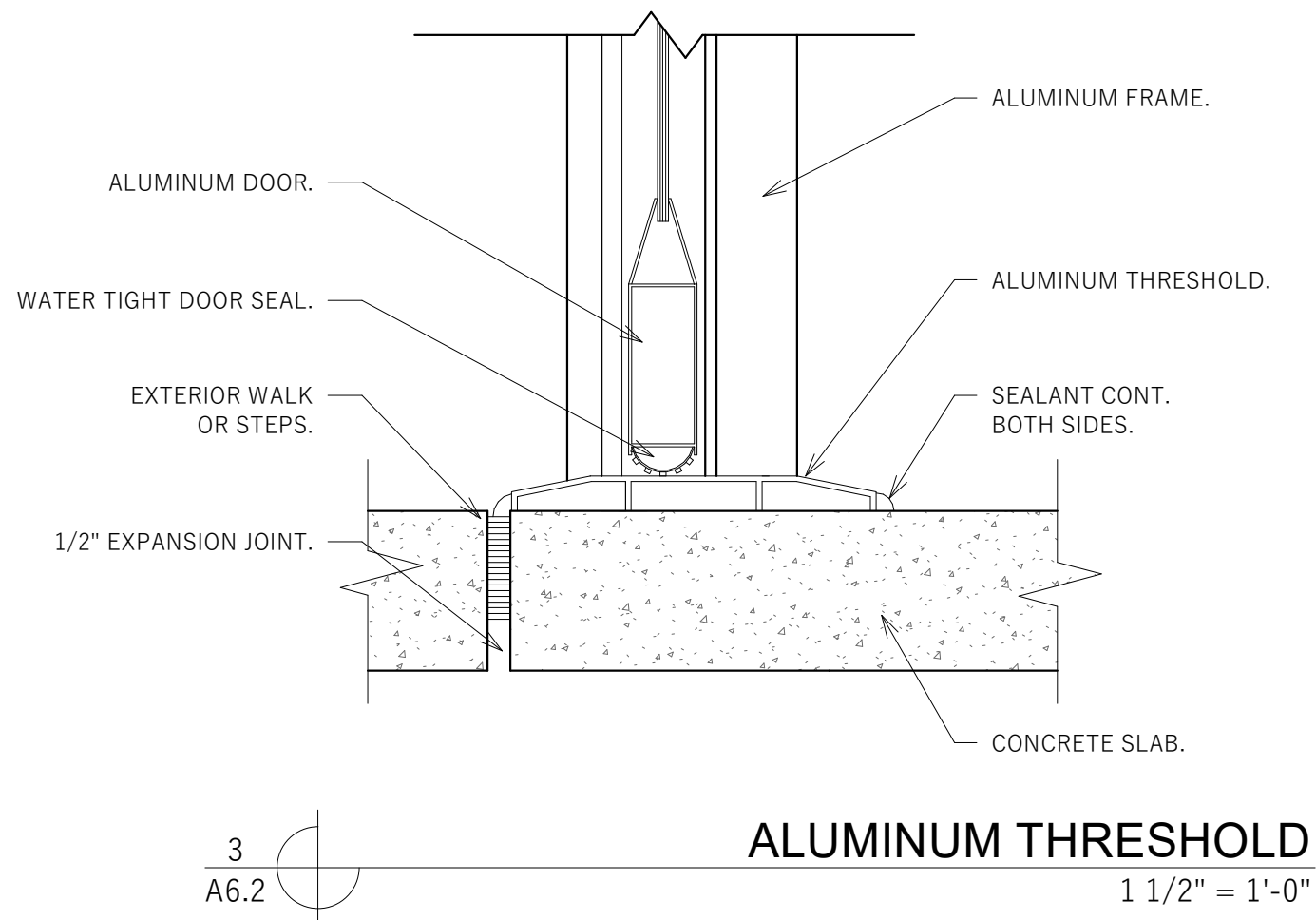


9/3/2021

EQUIPMENT PLAN
AND SCHEDULES

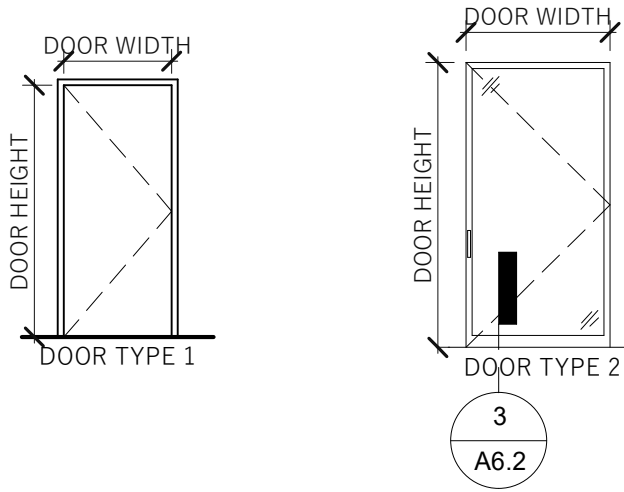
A6.1

JZW
ARCHITECTS



DOOR SCHEDULE									
DOOR #	WIDTH	HEIGHT	DOOR		FRAME		DOOR TYPE	HARDWARE GROUP	REMARKS
			MATERIAL	FINISH	MATERIAL	FINISH			
101	4' - 0"	7' - 11"	METAL	MANUF	METAL	MANUF	2	1	
101e	3' - 0"	7' - 0"	WOOD	PAINT	METAL	PAINT	1	--	EXISTING, ENSURE COMPLIANCE TO ANSI 117.1 2009
102e	3' - 0"	7' - 0"	METAL	PAINT	METAL	PAINT	1	--	EXISTING, ENSURE COMPLIANCE TO ANSI 117.1 2009

NOTE: OWNER TO SELECT DOOR MANUFACTURER.



DOOR HARDWARE:

- 1. CONTINUOUS HINGE
- DOOR PULL
- SURFACE CLOSER
- THRESHOLD
- PERIMETER SEALS
- THUMB TURN

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

PROJECT NUMBER

21-202

ISSUE DATE:

JULY 22, 2021

REVISIONS:

No. Date Description

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CONSULTANT

CRUMBL COOKIES - LEE'S

SUMMIT

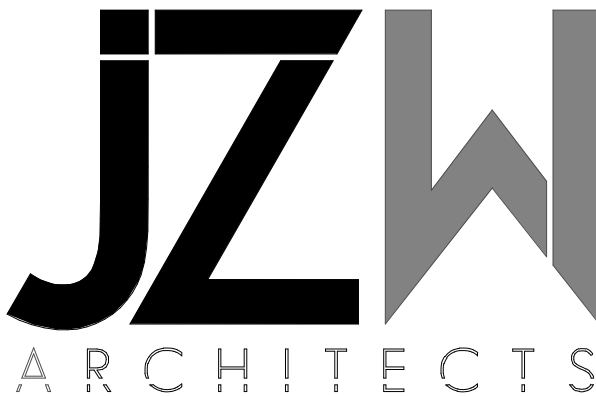
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



9/3/2021

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.

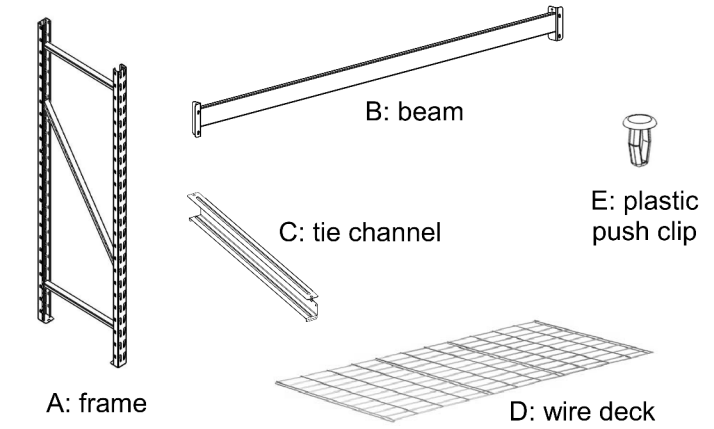
After assembly re-check each beam for proper engagement.

Items you might find helpful

Rubber Mallet, Gloves



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 manufacture'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.

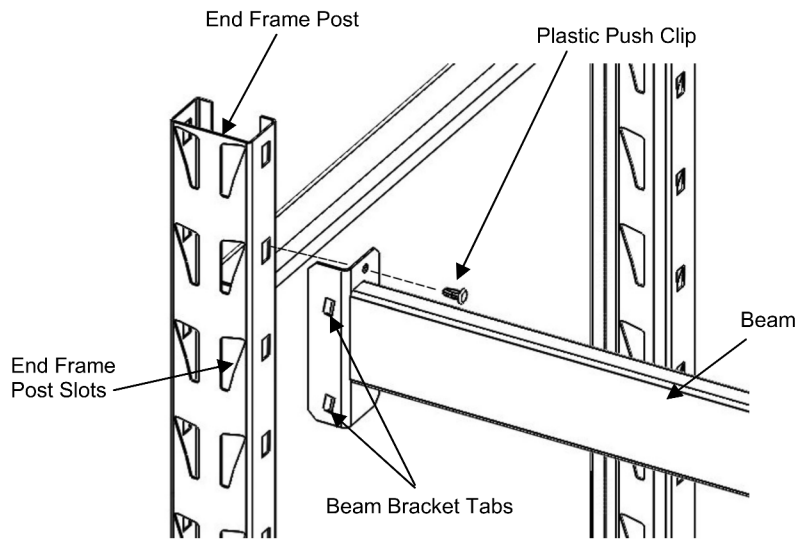
Evenly distribute the weight on each level and always keep the heavier loads on the bottom.



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).

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

Figure 2

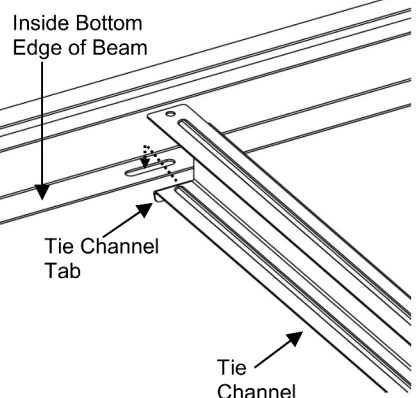
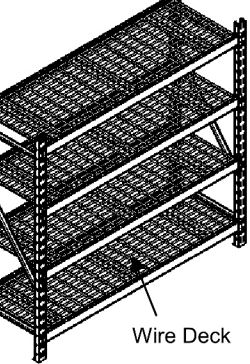


Figure 3



- 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

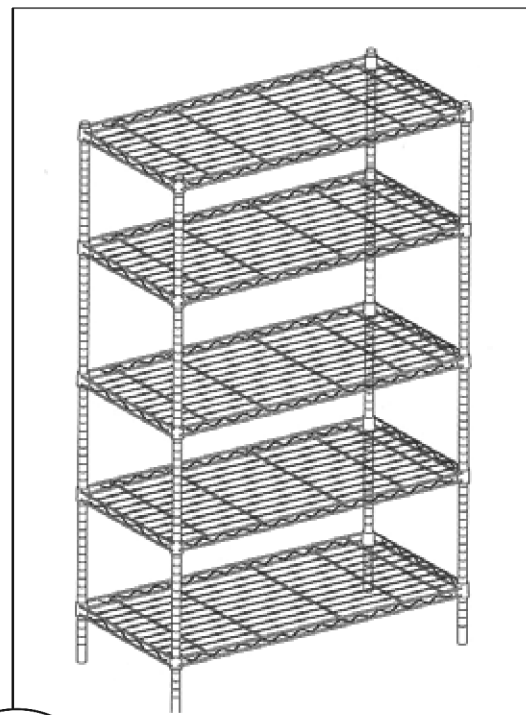
Rev: C050918_V3-4

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



NSF®

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	
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Caution Warnings.....	2
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Helpful Hints.....	2
Accessory Parts List.....	2
Assembly.....	3

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

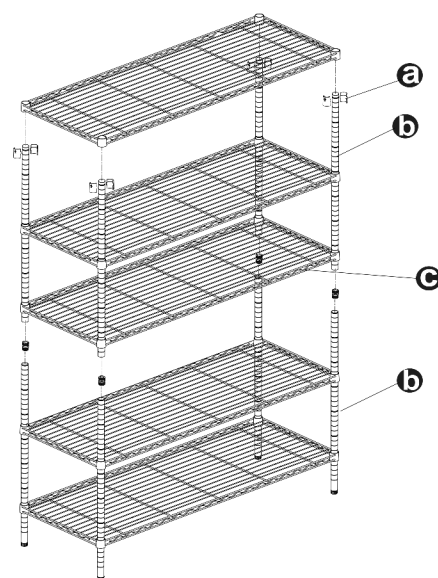
Product weight	36.63 lbs.
Product width	36 in.
Product depth	16 in.
Product height	72 in.

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 jointers 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 jointers are pre-installed for your convenience. Screw the posts (1 long & short) tightly together. (See Diagram #1)

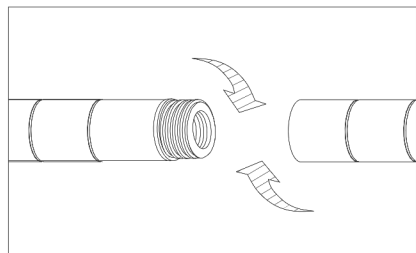


Diagram #1

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.

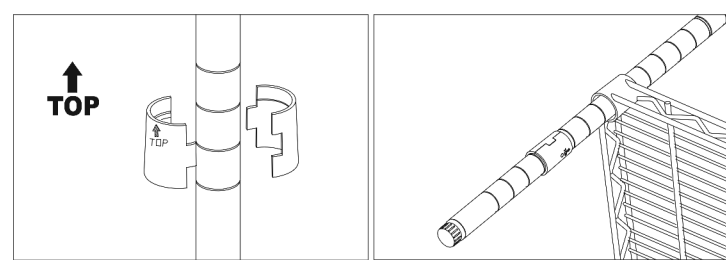


Diagram #2

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.

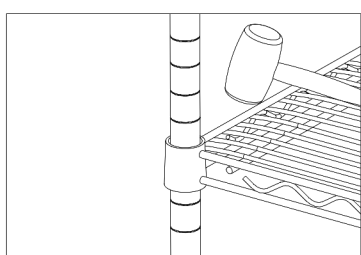


Diagram #4

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

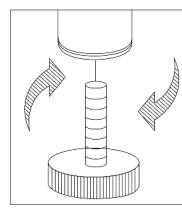
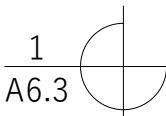
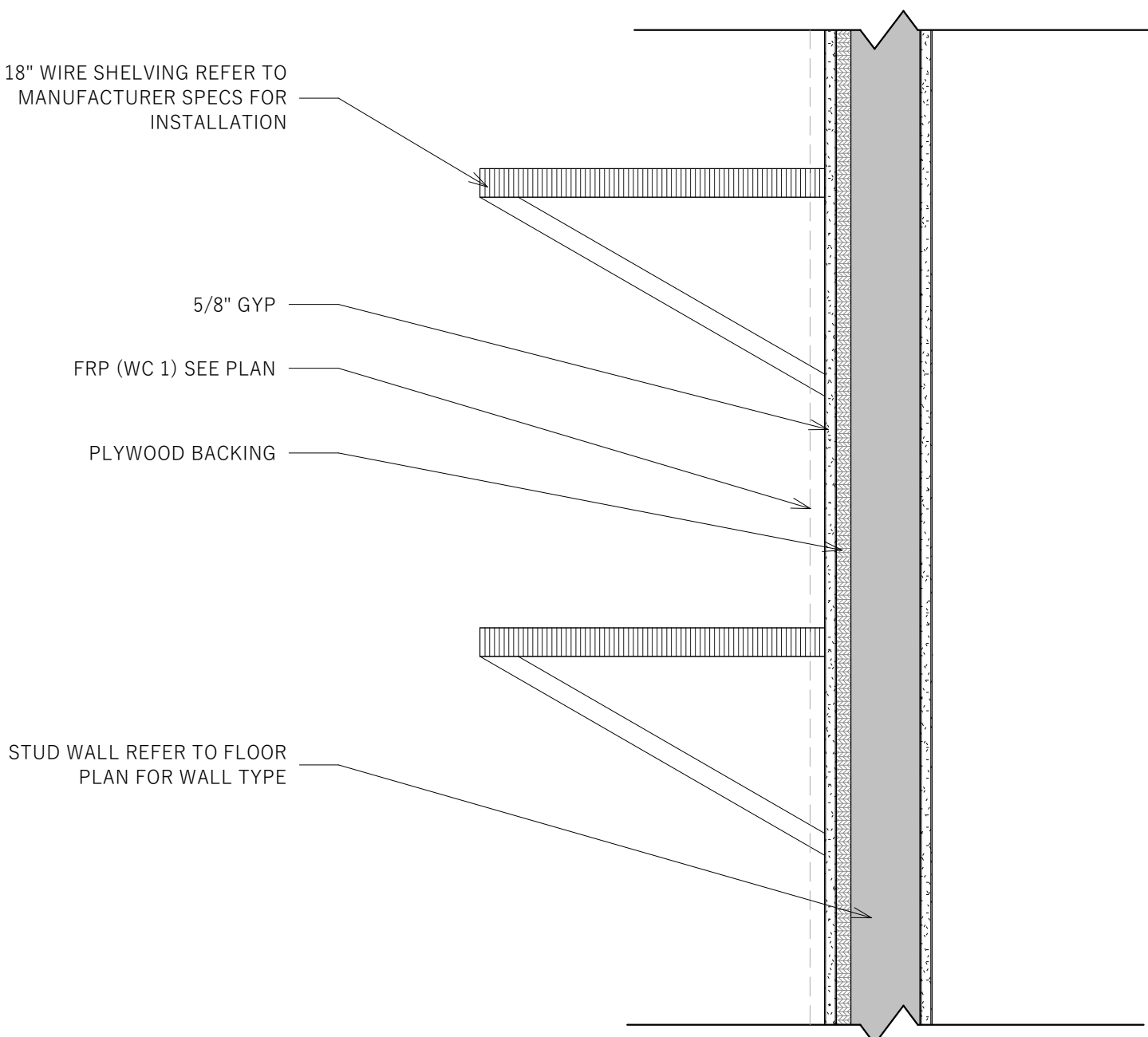


Diagram #5

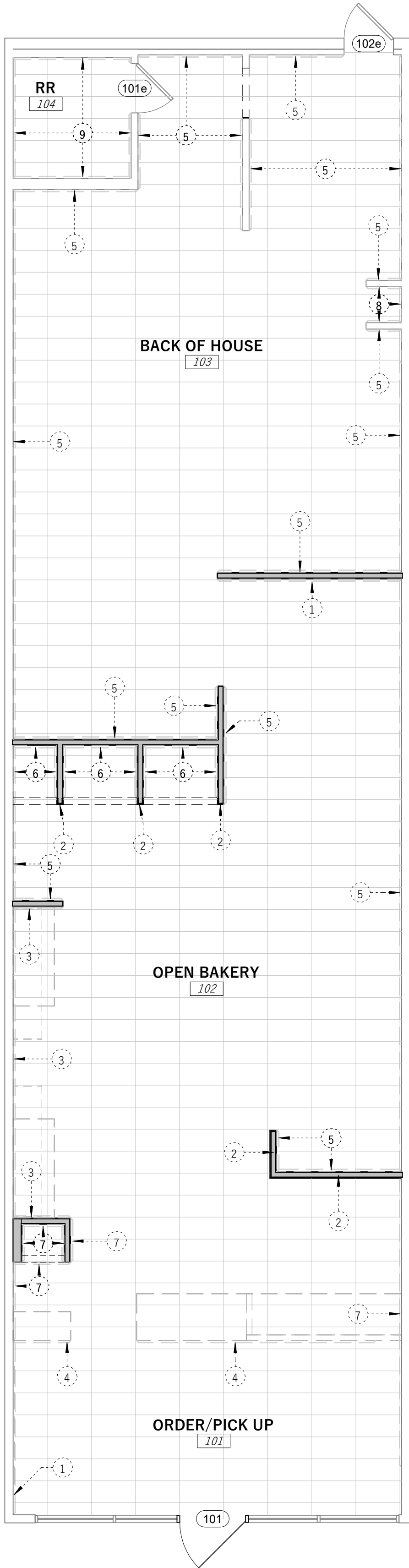


PLYWOOD BACKING DETAIL

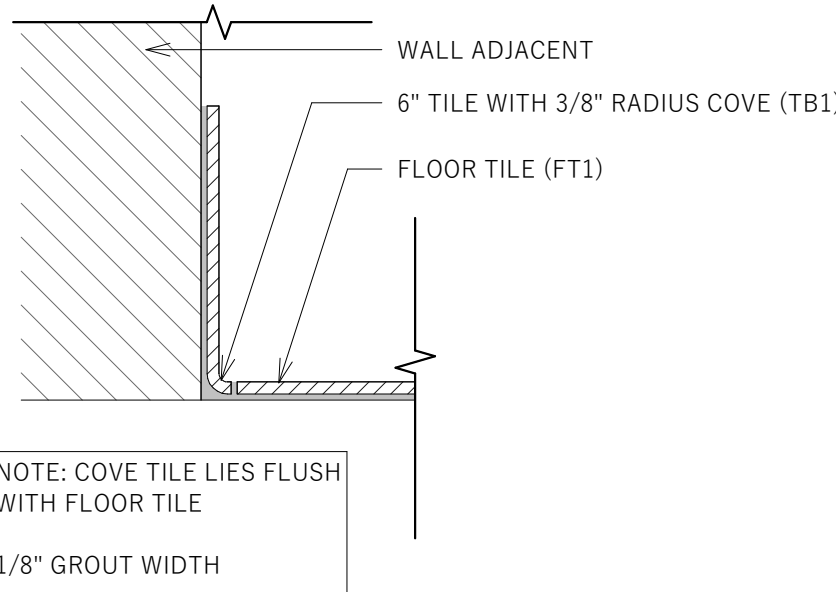
1 1/2" = 1'-0"



No.	Date	Description



MAIN FLOOR FINISH PLAN
3/16" = 1'-0"



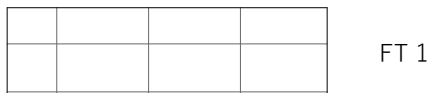
COVE TILE DETAIL
3" = 1'-0"

INTERIOR MATERIAL SCHEDULE					
CODE	DESCRIPTION	MFR.	NAME/NUMBER	COLOR/FINISH	COMMENTS
FLOORS					
FS 1	FLOOR SETTING	LATICRETE	ZLC0279-0030-21	TRI-LITE GREY	PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
FT 1	FLOOR TILE	EMSER TILE	A40NETWGR1223	NETWORK GREY	12"x23", STACK BOND, THROUGHOUT. crumbl@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	HIGH 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	CATCH ICE F14CATCIC0416P	WHITE GLOSS	4"x16" FIELD TILE, STACK BOND W/ EMSER TRIM @ EXPOSED EDGES. crumbl@emser.com, WHITE TILE FROM FLOOR TO CEILING WHERE APPLIED.
BASE					
GT 3	BASE GROUT	LATICRETE	ZLC3122-0001-2	SPECTRALOCK 1 MIDNIGHT BLACK	AT COVE BASE. PURCHASE WITH TILE PACKAGE FROM EMSER. REQUIRED FOR WARRANTY.
TB 1	TILE BASE	EMSER TILE	D99SHADBL0612CBM	SATIN BLACK COVE BASE	6"x12 w/ 3/8" COVE. THROUGHOUT. crumbl@emser.com
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"
MILLWORK					
SS 1	SOLID SURFACE	HANEX	HL-003	N-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		FLOOR	WALLS	BASE FINISH	CEILING FINISH	NOTES
NUMBER	NAME					
101	ORDER/PICK UP	FT 1	IP 1 / IP 3 / WT 1	TB1	C1	SEE KEYED NOTES.
102	OPEN BAKERY	FT 1	WC 1 / WT 1	TB1	C1	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.
103	BACK OF HOUSE	FT 1	WC 1	TB1	C1	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.
104	RR	FT 1	WC 1	TB1	C1	IP 1 ABOVE WC 1 TO CEILING, SEE KEYED NOTES.

FLOOR FINISH LEGEND



KEYED NOTES

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



FEATURES	BENEFITS
Stainproof*	Locks in color, blocks out stains
10X stronger than other pre-mixed grouts	More durability, minimizing application failures
No mixing required, resealable packaging	Reduces waste and material costs
Meets ANSI A118.3†	As strong as epoxy; excellent stain and chemical resistance
Light foot traffic within 6 hours	Complete projects in less time
Submerged and intermittent wet applications	Ready to submerge in 14 days; Showers ready for use next day*
No efflorescence	Uniform color consistency; eliminating discoloring, blotches, and shading
Low VOC and low odor	Easy and safe to use with no epoxy resins
Optional SPECTRALOCK® DAZZLE™ component	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*



Snap for more information and the SPECTRALOCK 1 story.



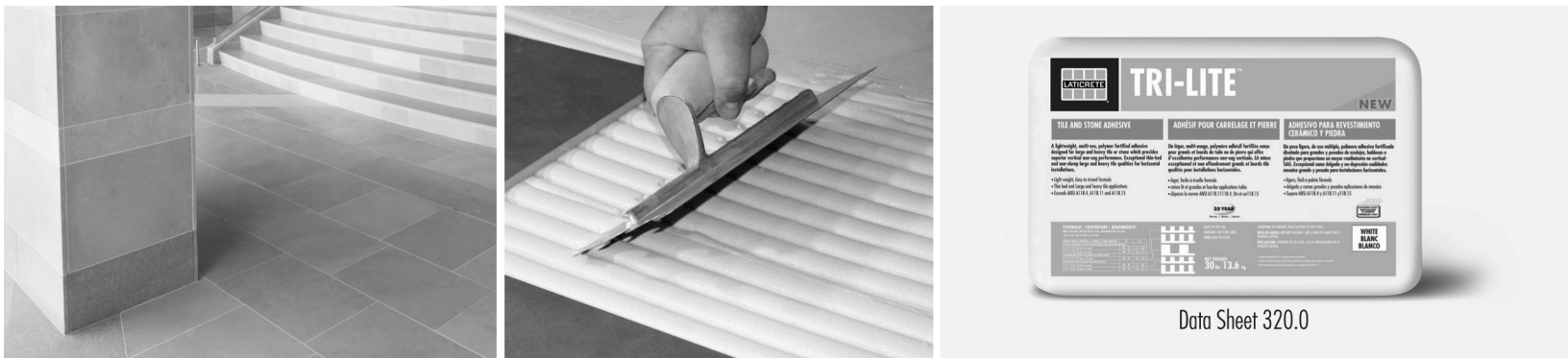
LATICRETE International, Inc. • One LATICRETE Park North, Bethany, CT 06524-3423 USA • 1.800.243.4788 • +1.203.393.0010 • www.laticrete.com



Globally Proven Construction Solutions

TRI-LITE™

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



25 YEAR

Warranty

FEATURES	BENEFITS
Lightweight mortar	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.
Smooth creamy consistency	Lightweight consistency is easy to trowel providing unmatched workability.
Versatility	One mortar for large heavy tile, thin-bed and wall installations.
Nonsag, non-slump	Meets the challenging demands of installing large and heavy tile on both walls and floors. Fast and easy vertical installations.
Exceeds ANSI A118.15	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.
A component of the LATICRETE® 25 year system warranty*	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

Testing

- Meets or exceeds the following standards:
- ANSI A118.4, A118.11 and A118.15
- ISO 13007 - C2TES1P1

Suitable Substrates

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

Packaging

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

Available Colors

Grey and white

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)



Snap for more information.

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SUMMIT

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9/3/2021

FINISH PLAN AND DETAILS

A6.4

JZW
ARCHITECTS

KEYED NOTES	
1	CABINETY FRAMING BELOW. SEE DETAILS.
2	HEADSET SHELF. SEE DETAIL ON A2.1
3	SOLID SURFACE FLOATING SHELF. SEE DETAILS
4	WALL FINISH WT 1 ON BACK OF CABINETY WALL
5	SNEEZE GUARD

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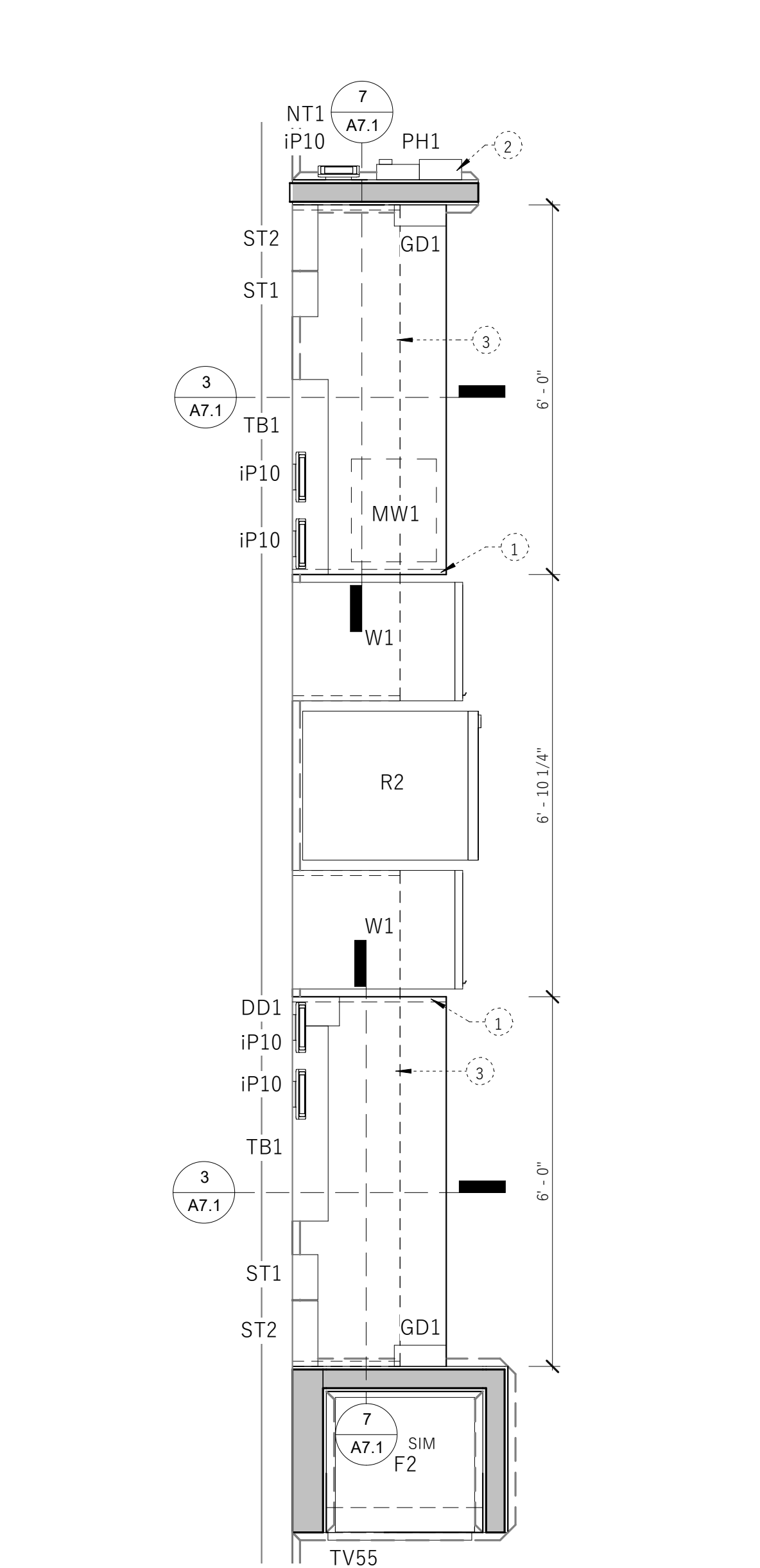


9/3/2021

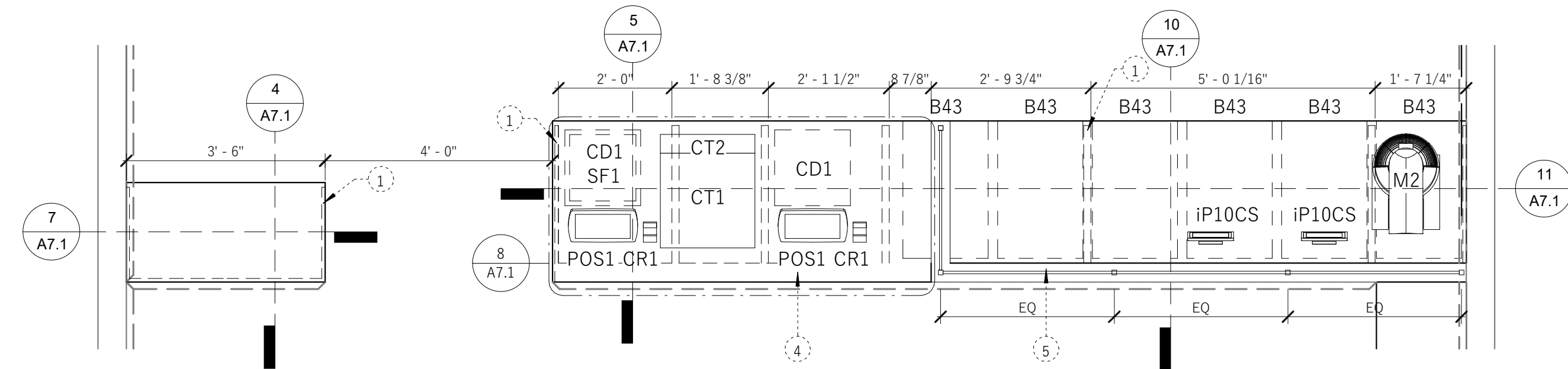
CABINETY PLAN
AND SECTIONS

A7.1

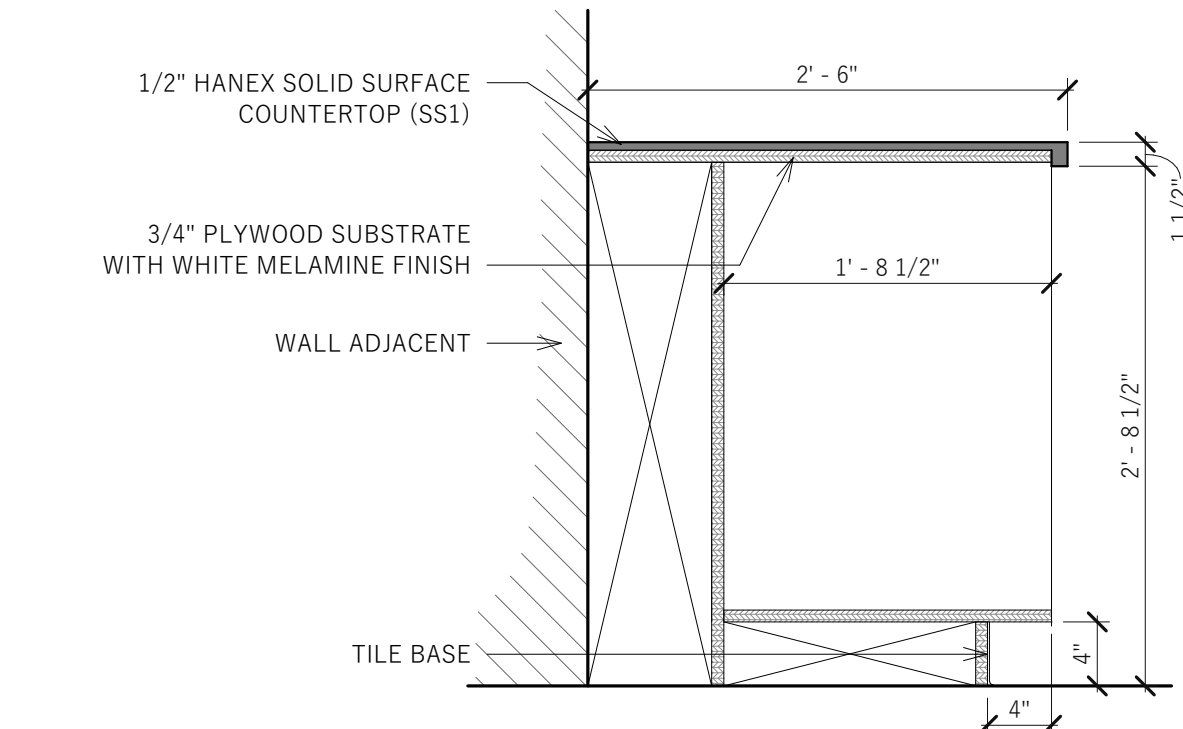
JZW
ARCHITECTS



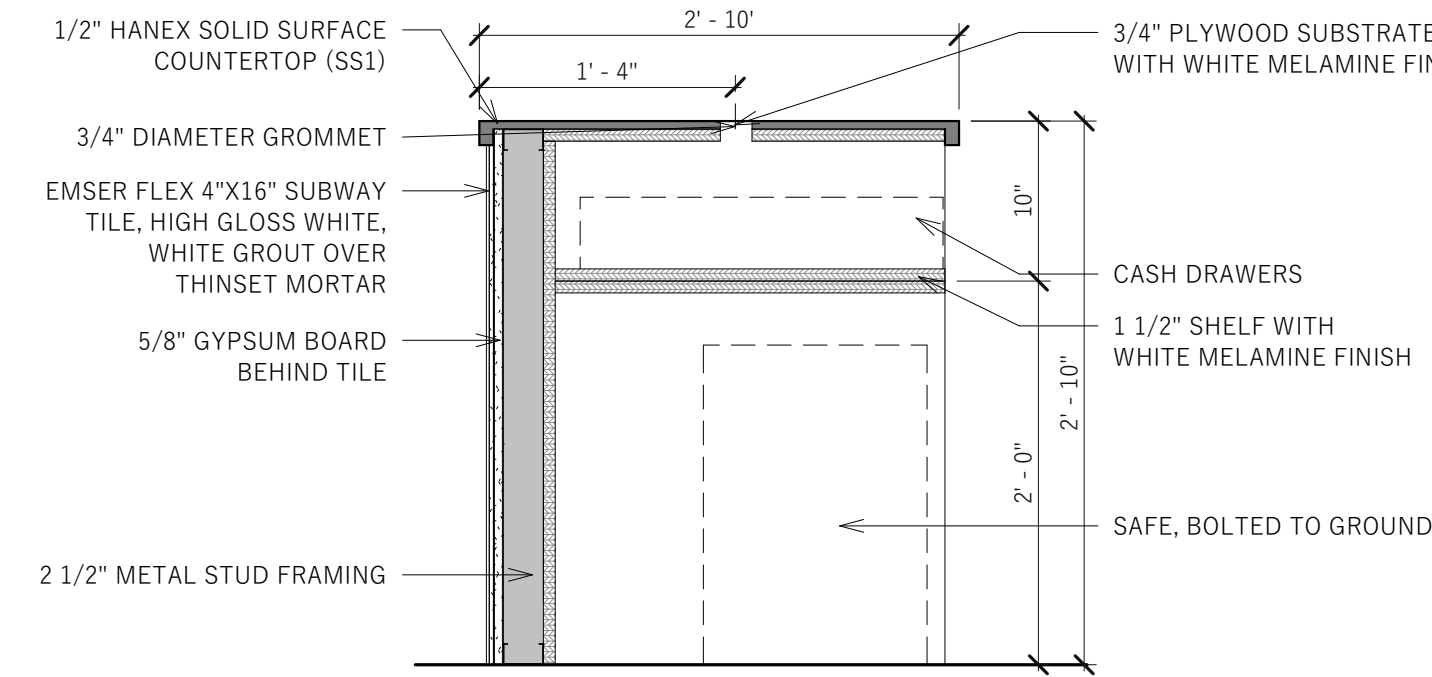
1
A7.1
ENLARGED PLAN @ DRESSING STATION
1/2" = 1'-0"



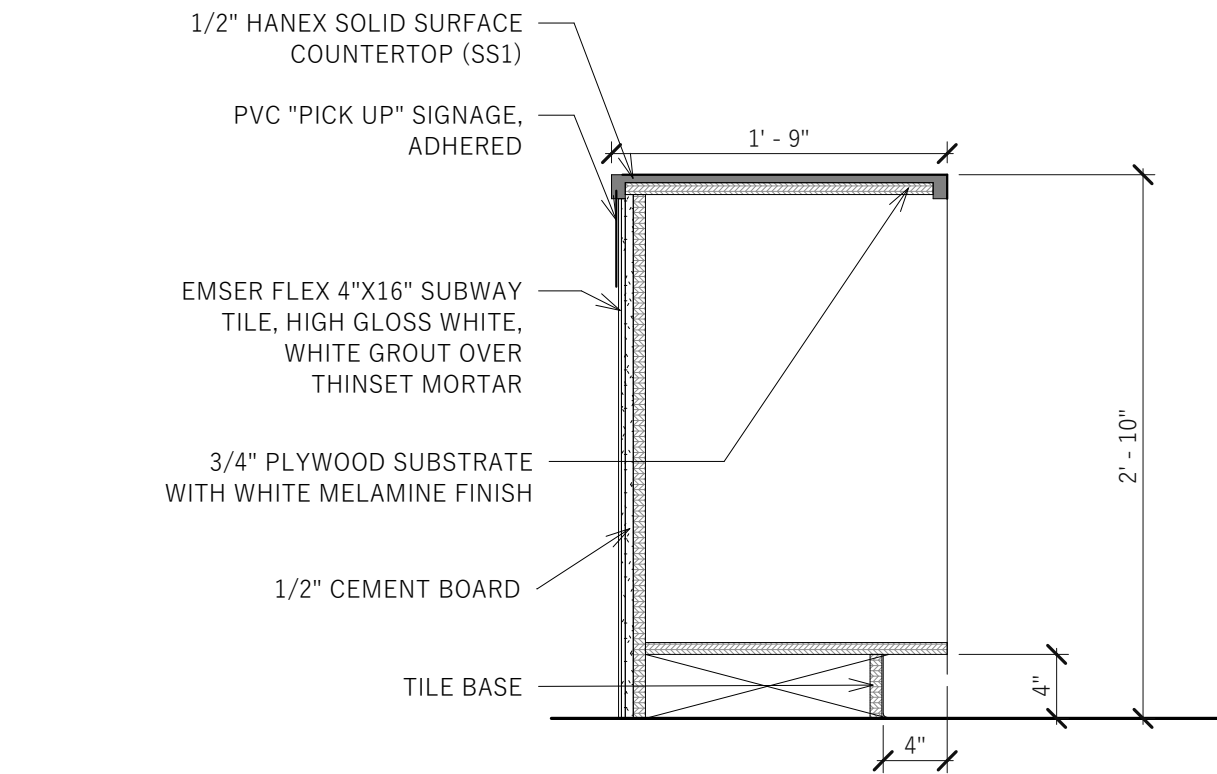
2
A7.1
ENLARGED PLAN @ PREP COUNTER
1/2" = 1'-0"



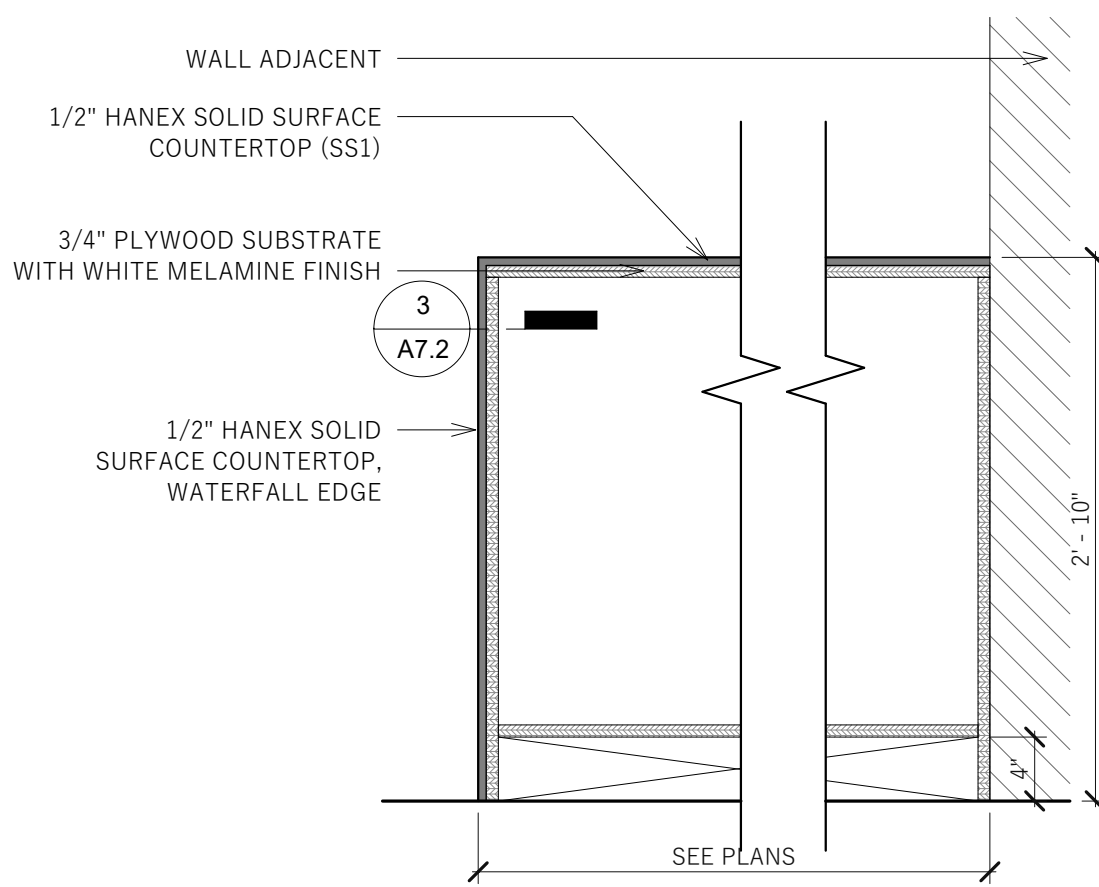
3
A7.1
BOXING COUNTER @ BOX STORAGE - CABINETY
1" = 1'-0"



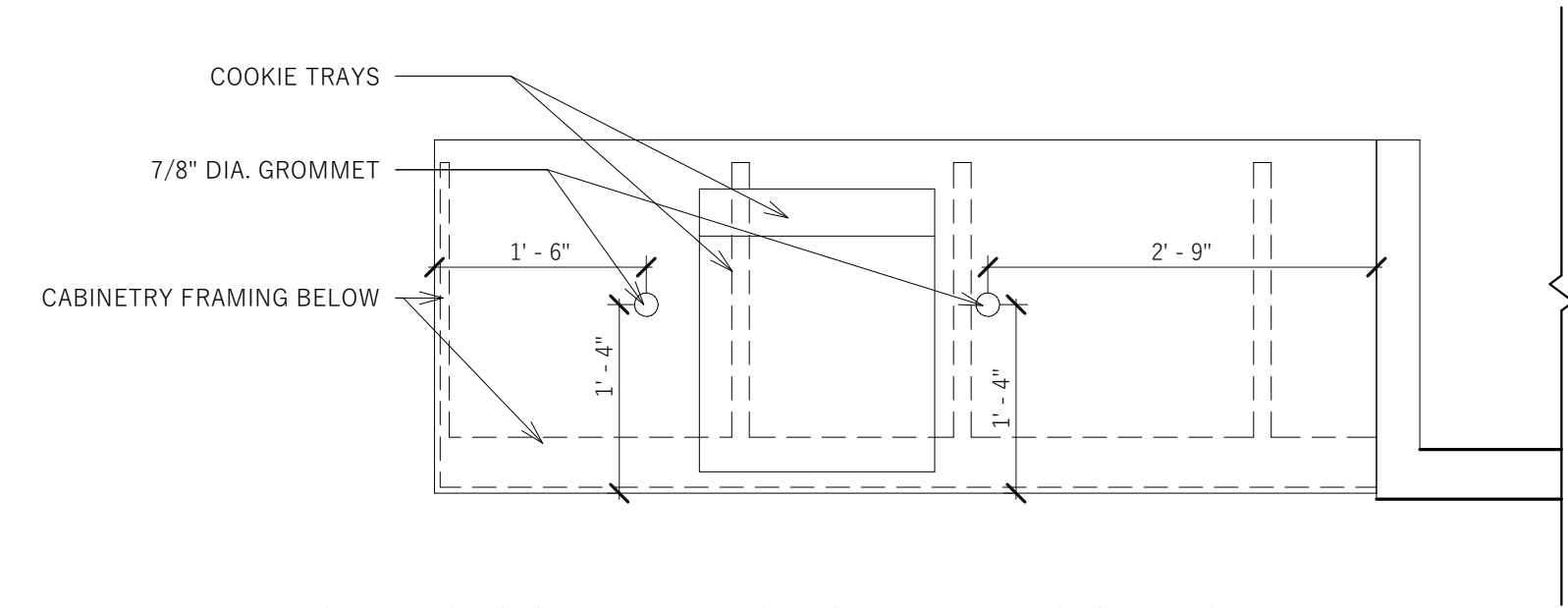
5
A7.1
POS @ BOX STORAGE SAFE - CABINETY
1" = 1'-0"



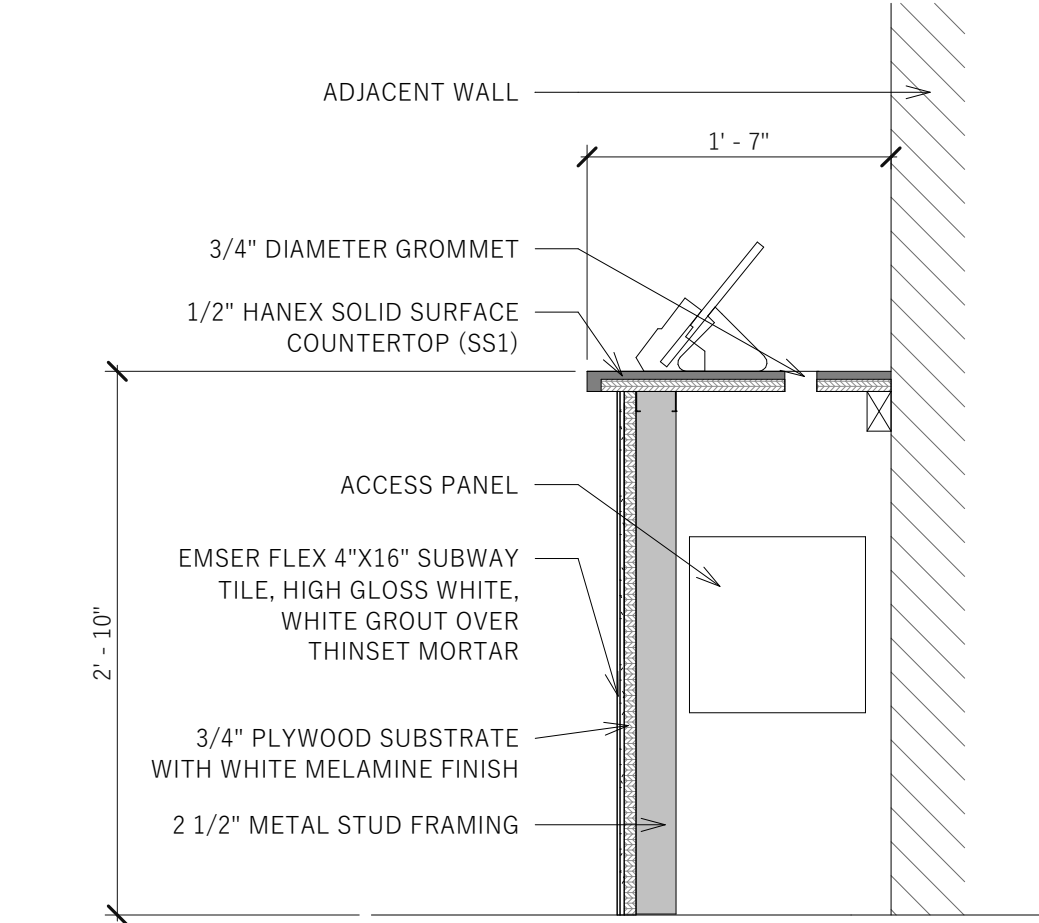
4
A7.1
PICK-UP COUNTER - CABINETY
1" = 1'-0"



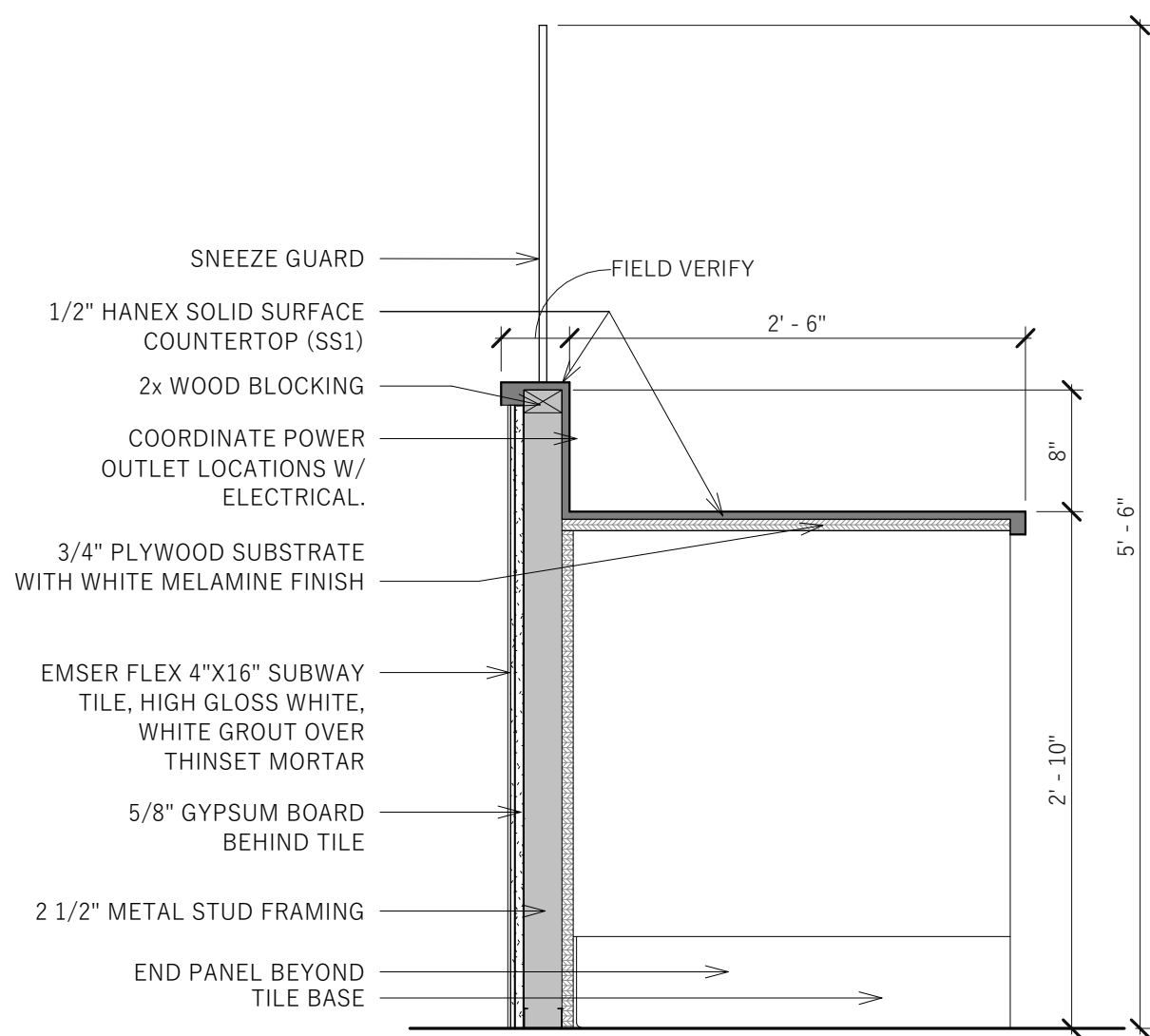
7
A7.1
WATERFALL EDGE @ CABINETY
1" = 1'-0"



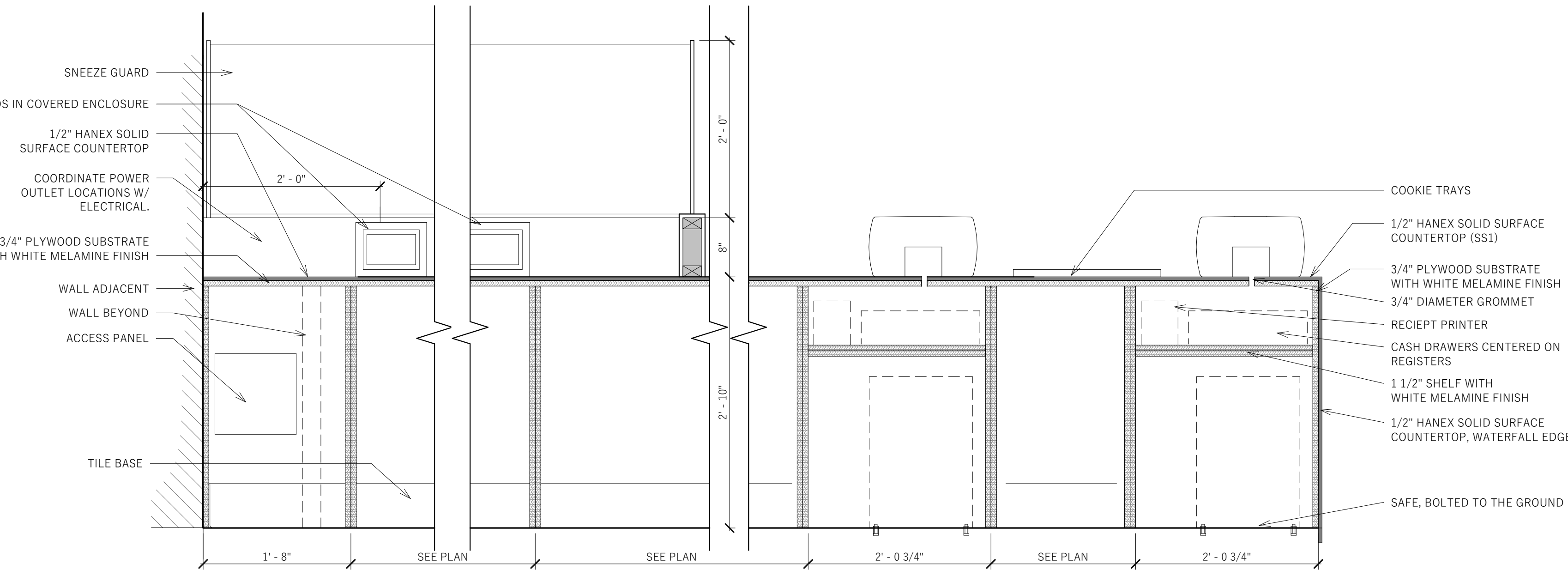
8
A7.1
SALES COUNTER GROMMET LOCATION
DETAIL
3/4" = 1'-0"



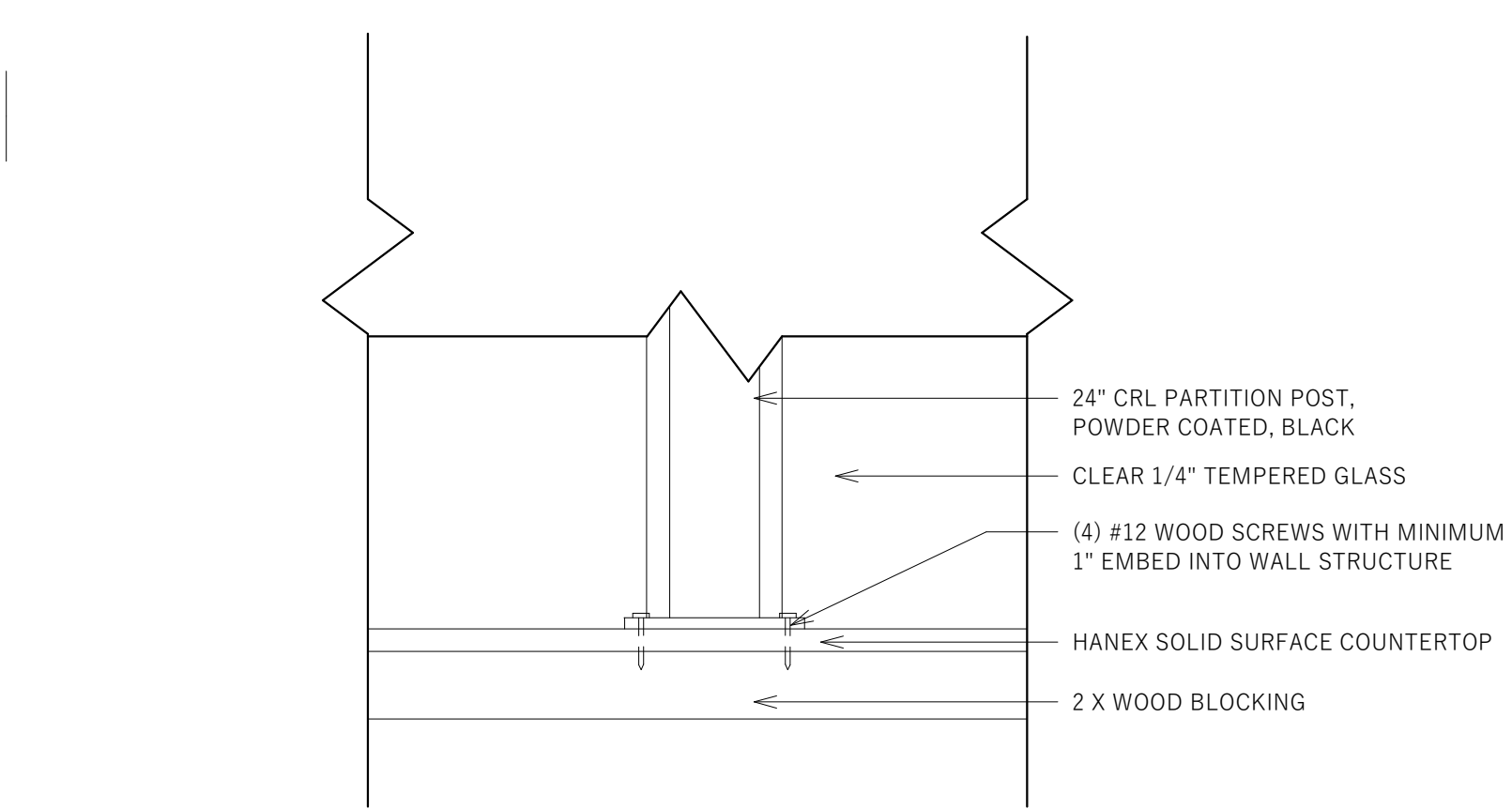
9
A7.1
ORDERING STATION
1" = 1'-0"



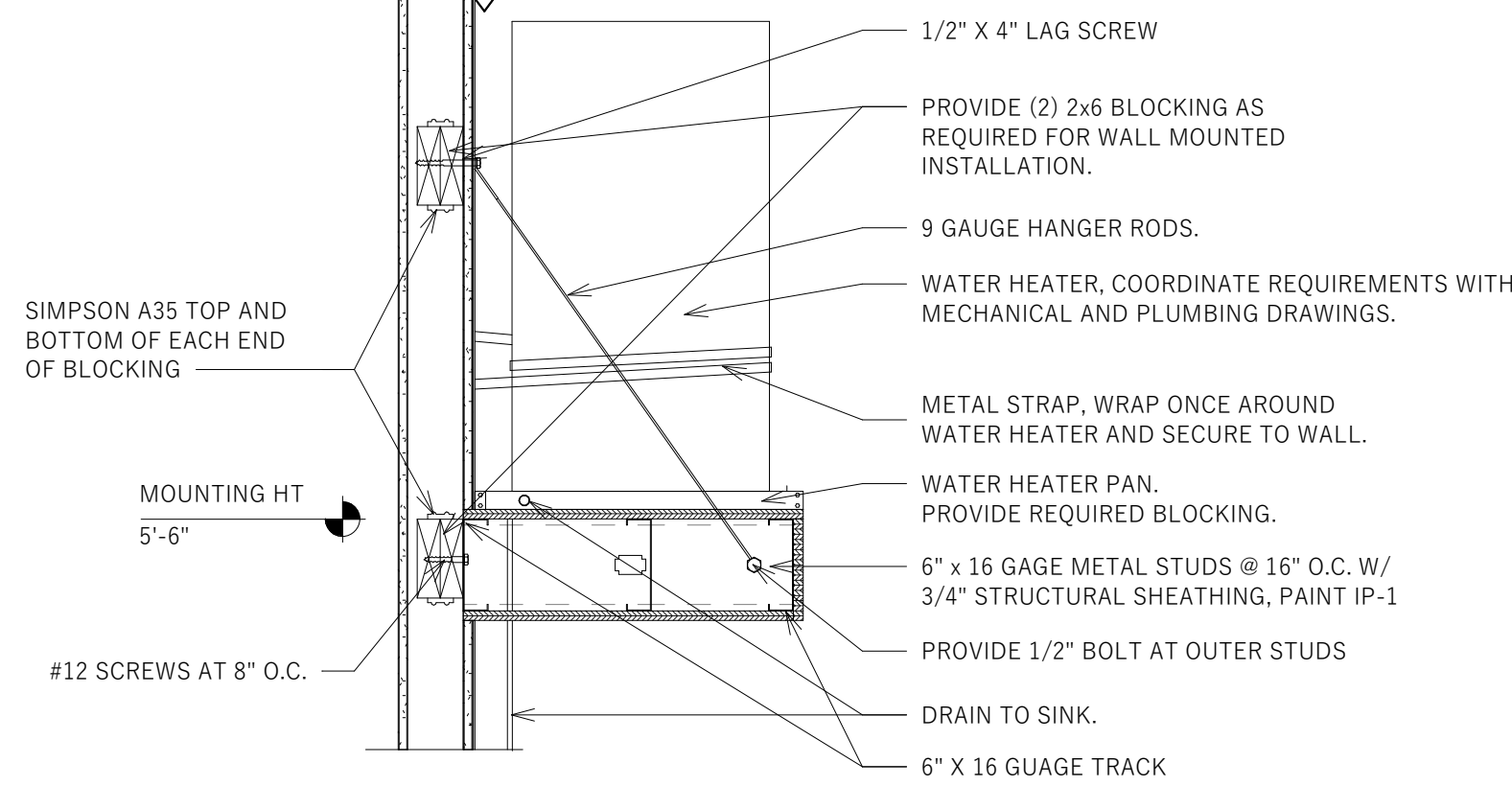
10
A7.1
PREP COUNTER @ BINS - CABINETY
1" = 1'-0"



11
A7.1
PREP COUNTER - CABINETY
1" = 1'-0"

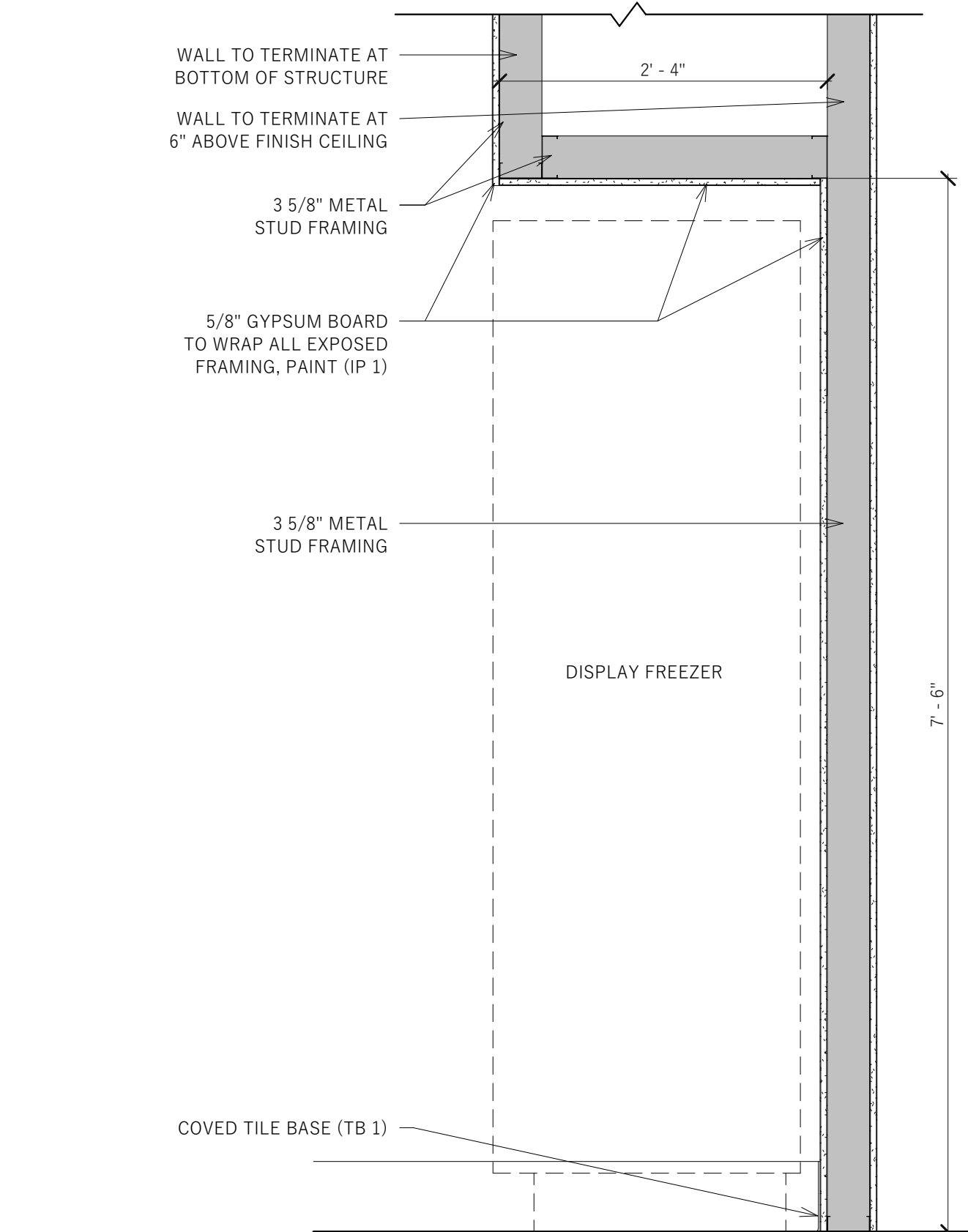


1
A7.2
SNEEZE GUARD ATTACHMENT DETAIL
3" = 1'-0"

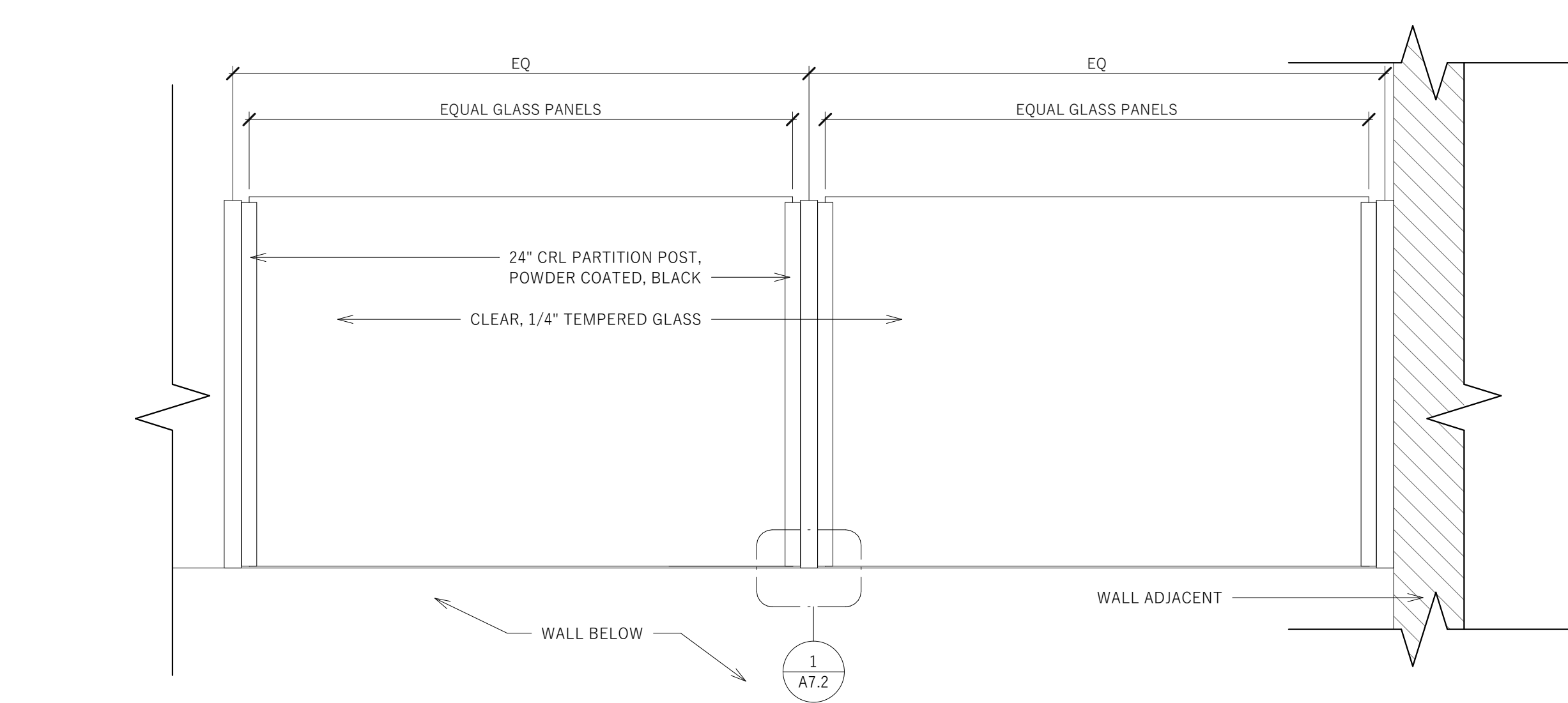


NOTES:
GENERAL CONTRACTOR TO PROVIDE WATERTIGHT PAN AND DRAIN BELOW WATER HEATER

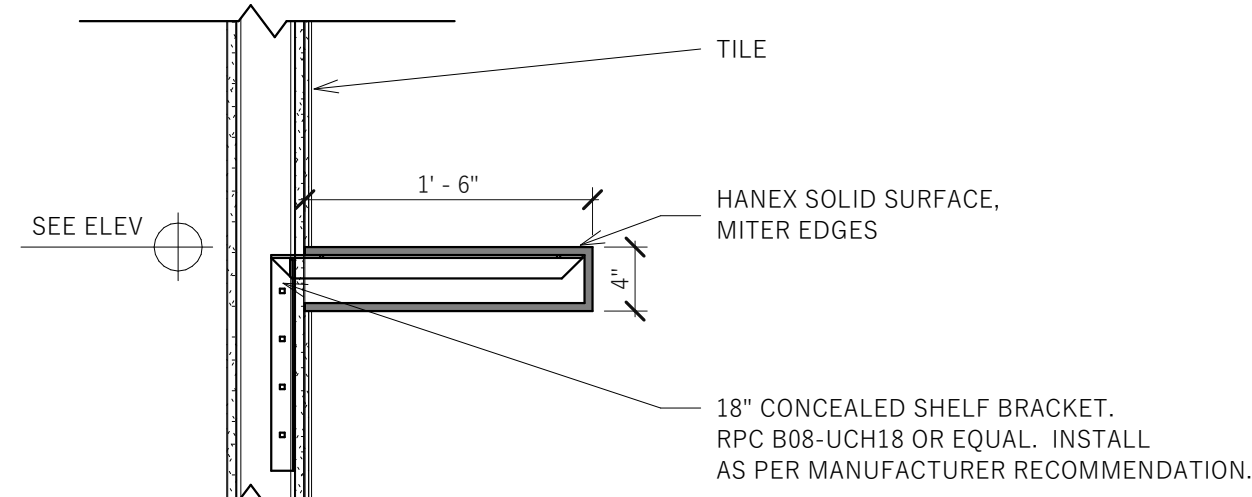
5
A7.2
WATER HEATER
1" = 1'-0"



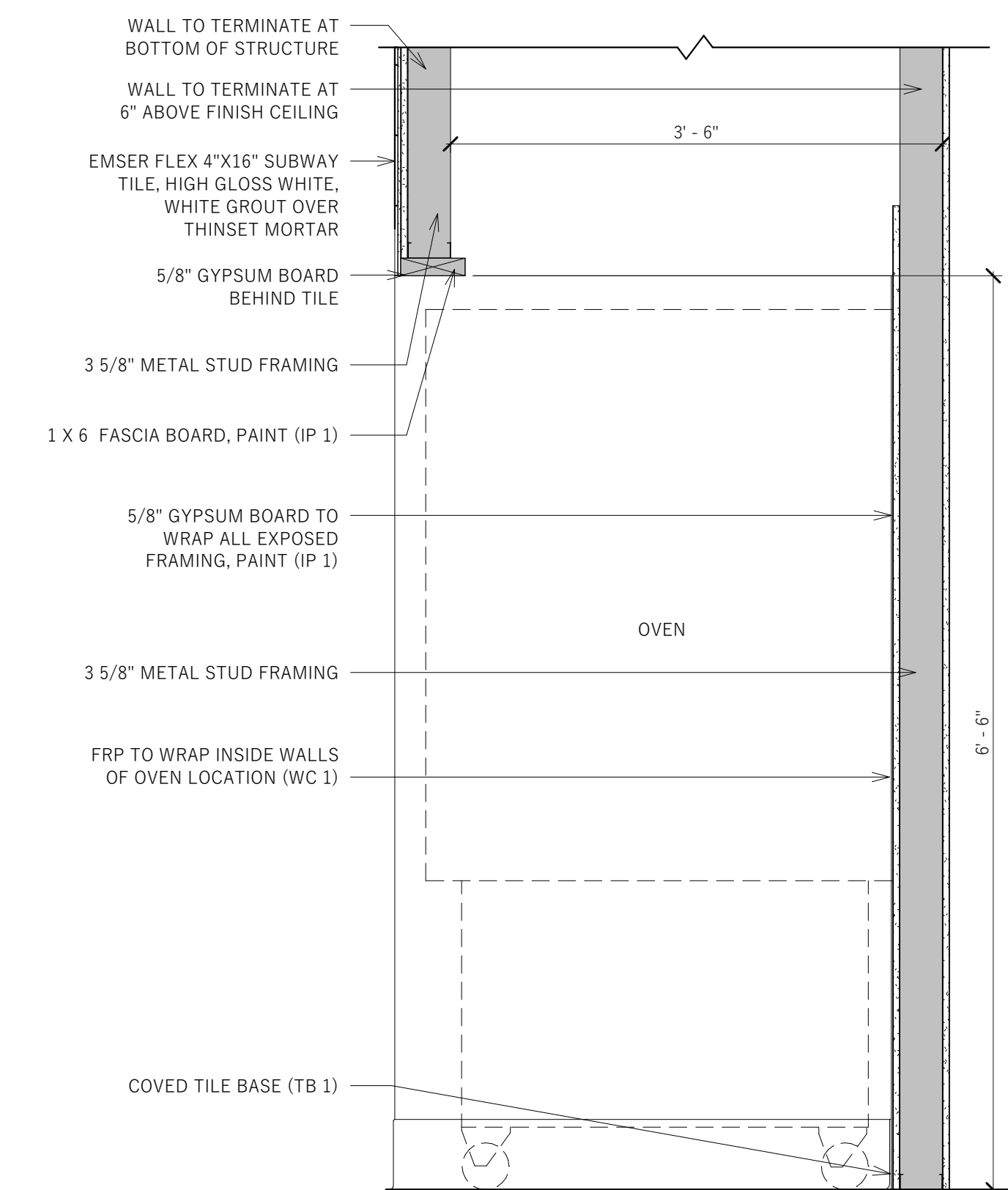
9
A7.2
DISPLAY FREEZER WALL
1" = 1'-0"



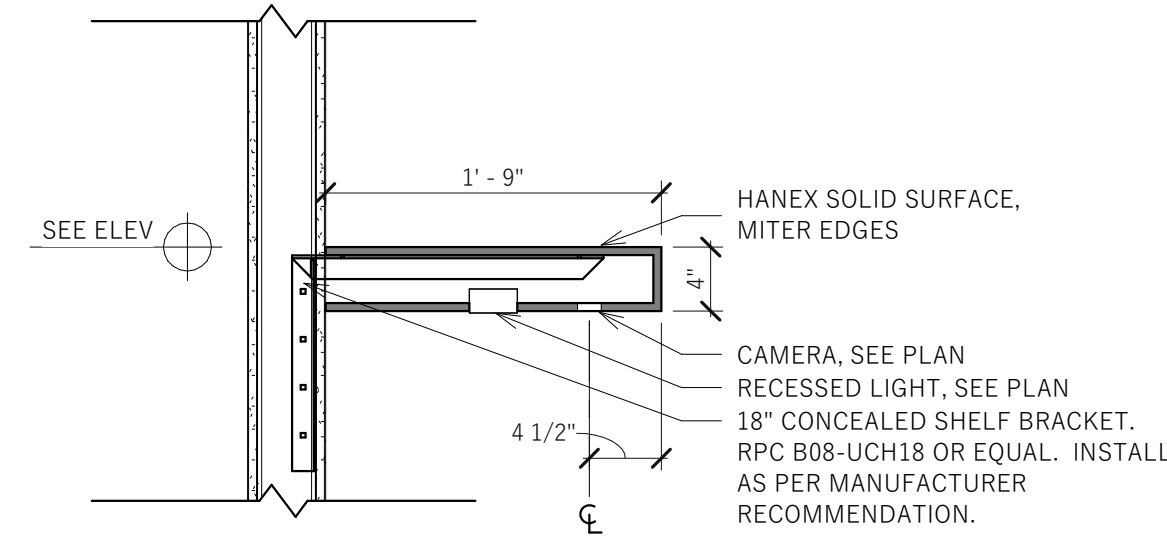
2
A7.2
SNEEZE GUARD
1 1/2" = 1'-0"



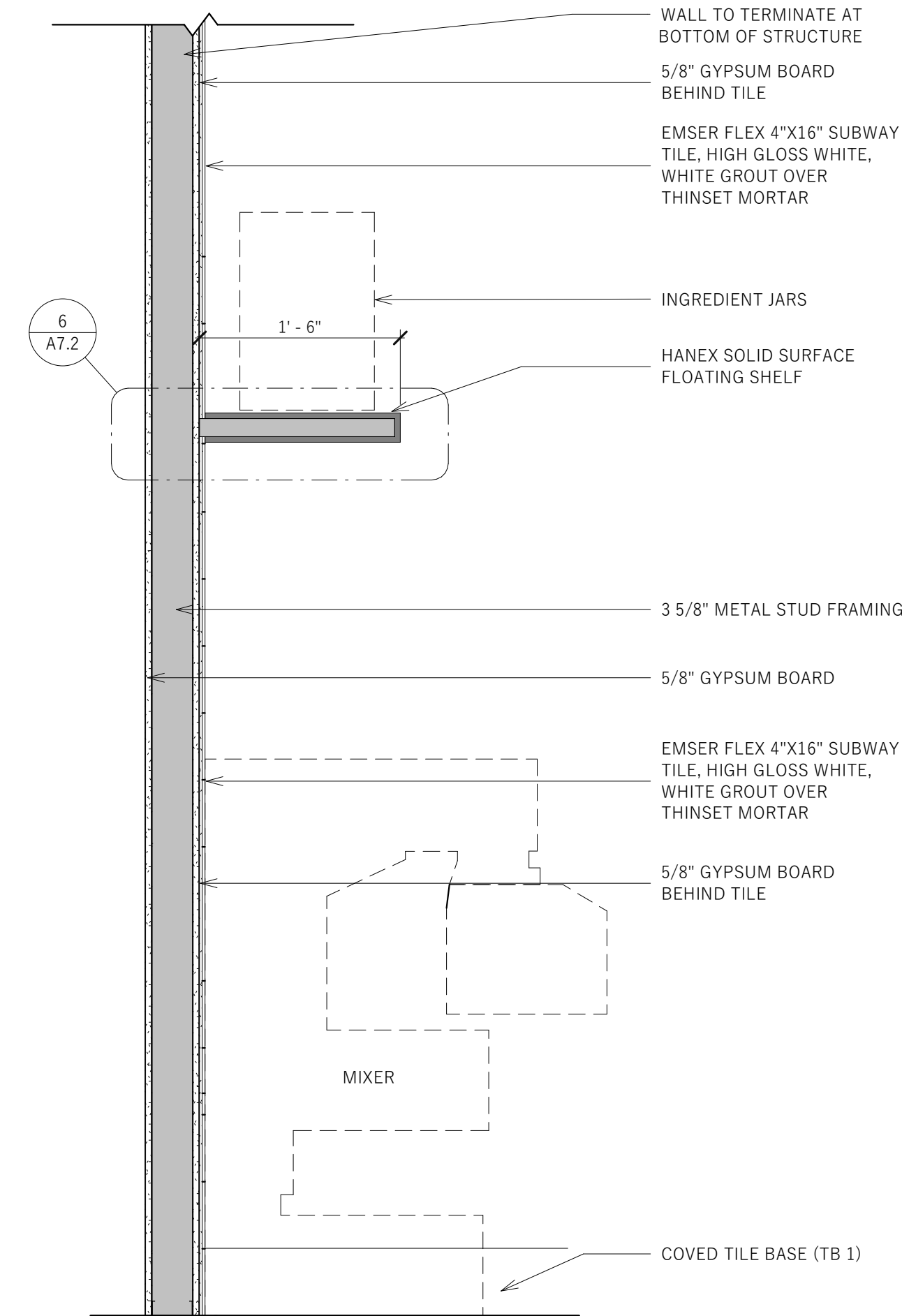
6
A7.2
18" INGREDIENT SHELF
1" = 1'-0"



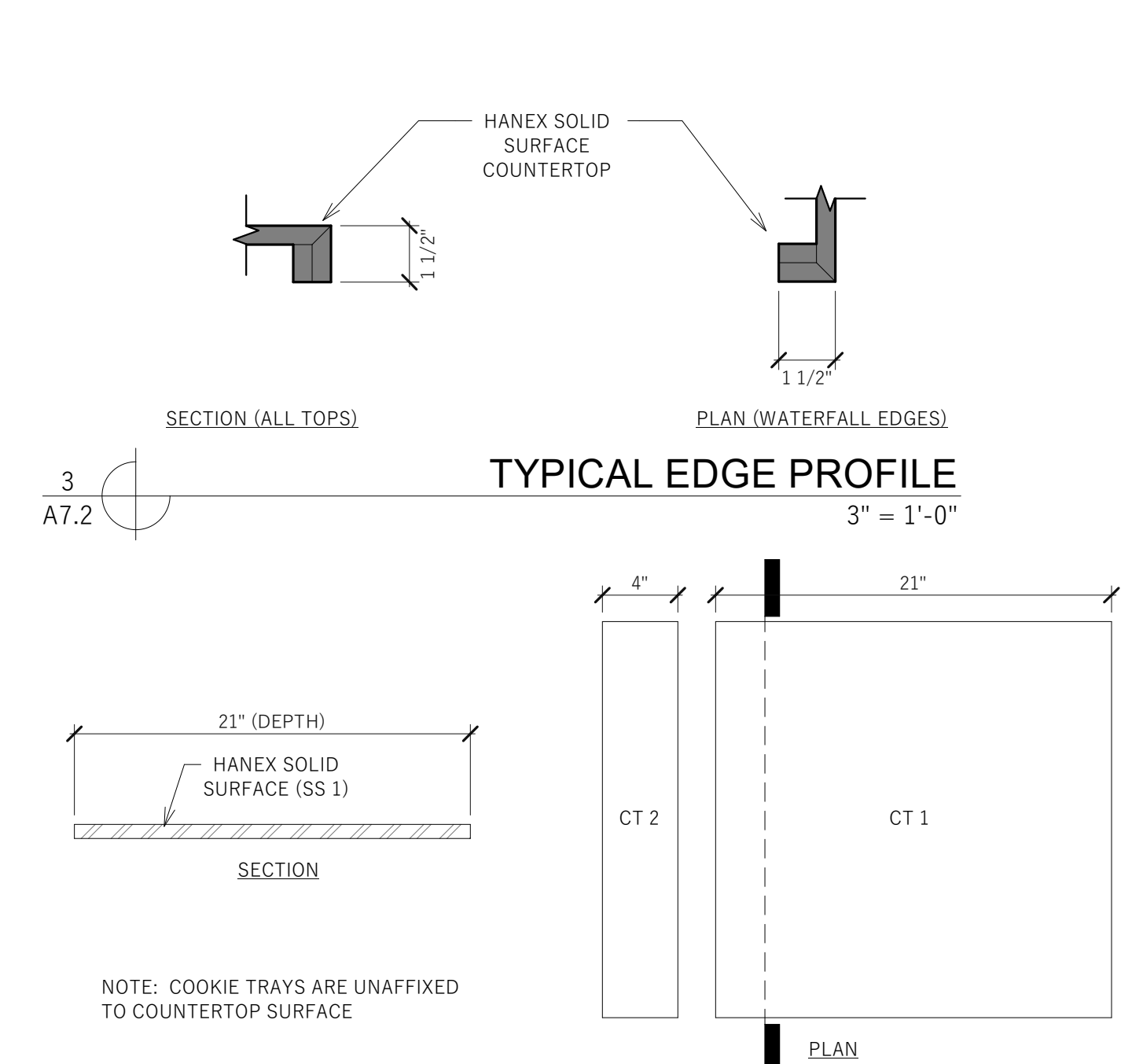
10
A7.2
OVEN WALL
1" = 1'-0"



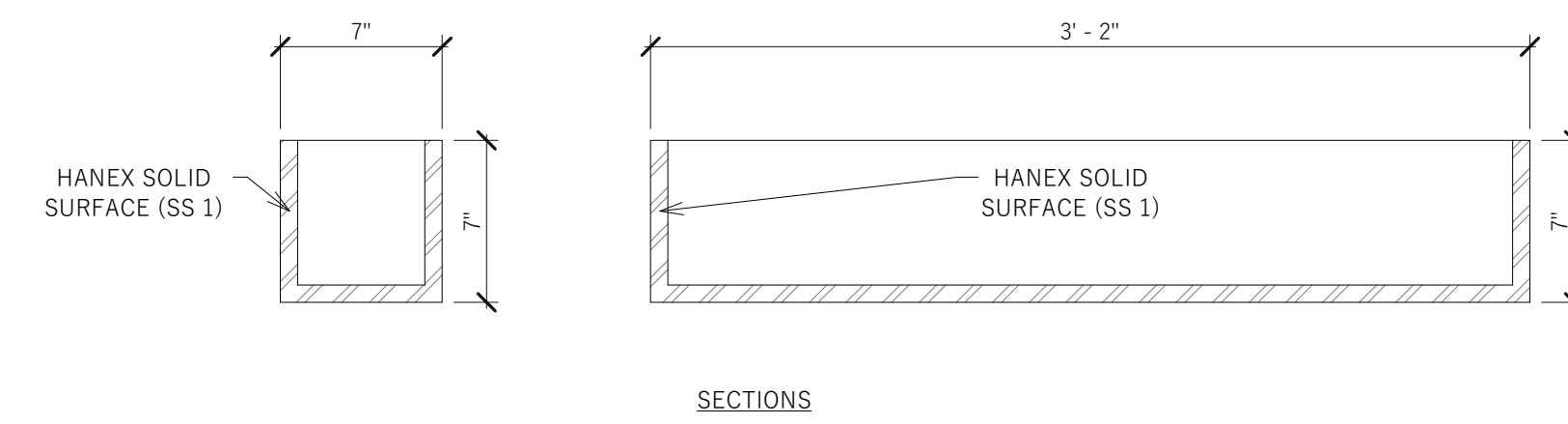
7
A7.2
21" BOX SHELF
1" = 1'-0"



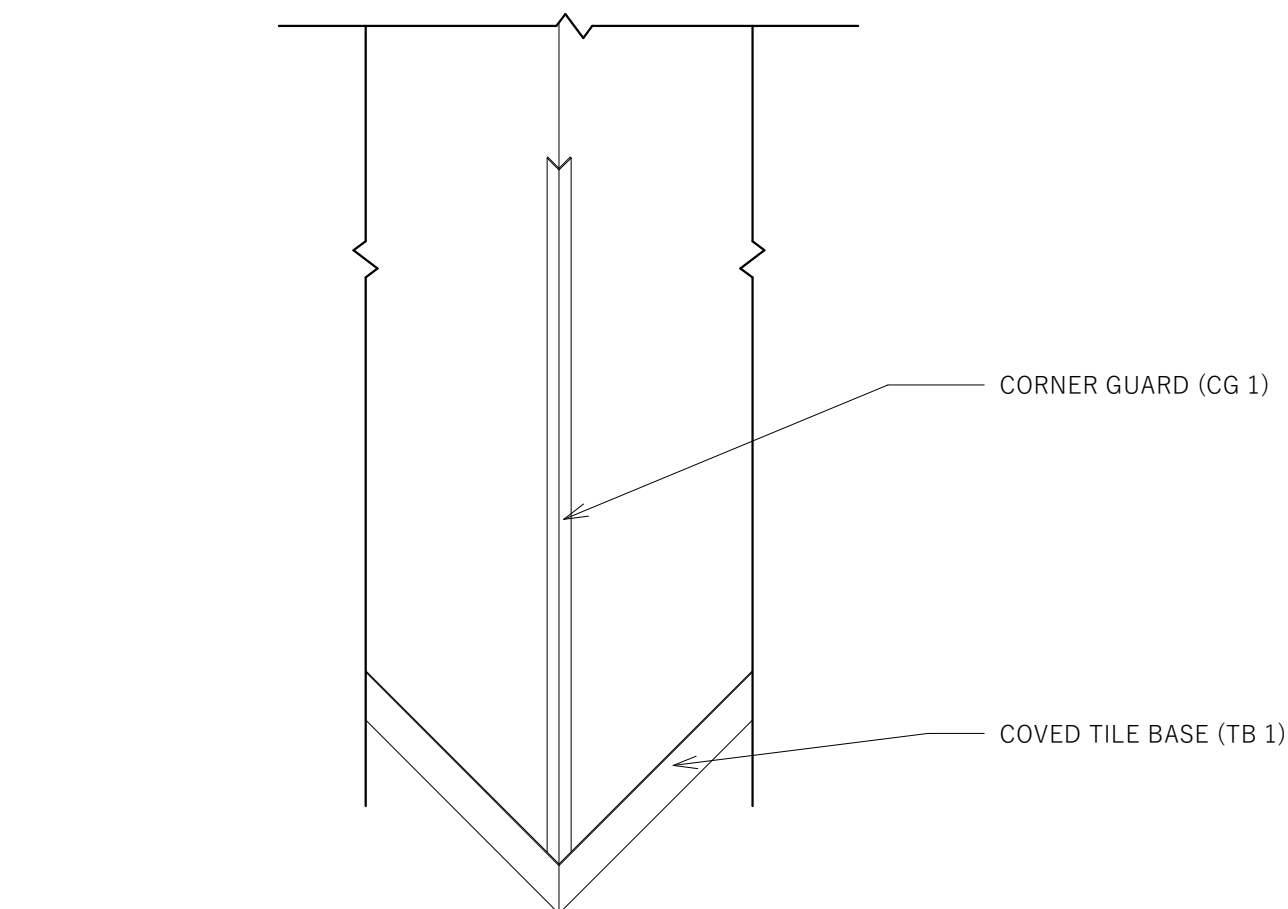
11
A7.2
MIXER WALL
1" = 1'-0"



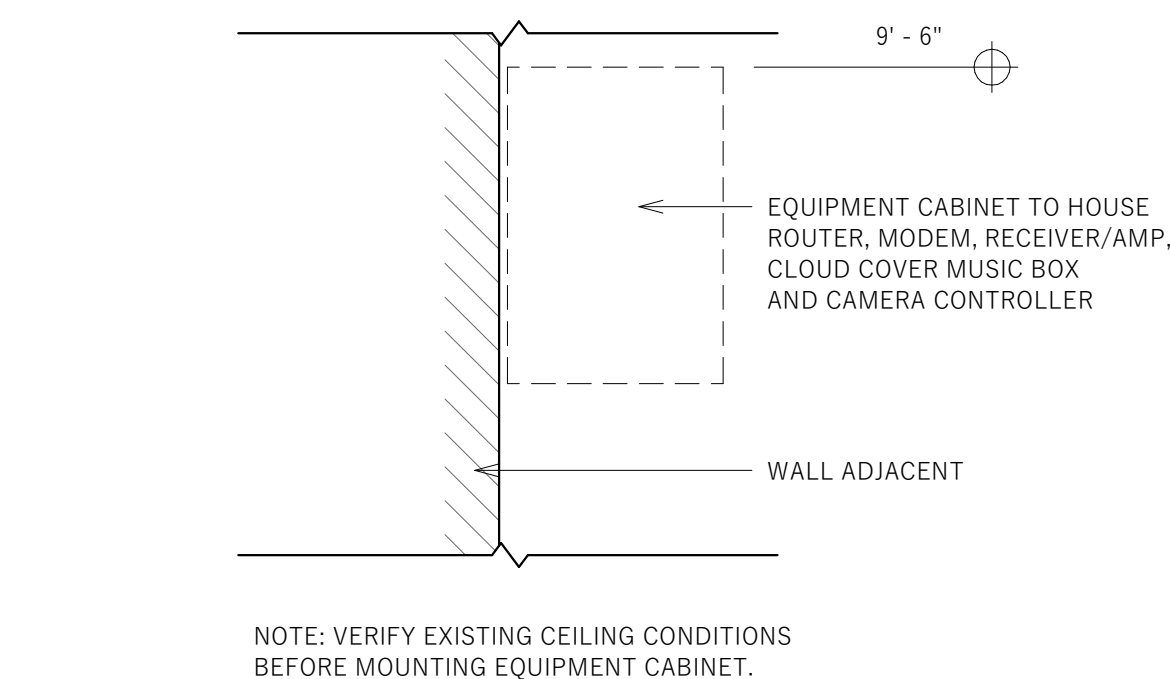
4
A7.2
COOKIE TRAY DETAILS
1 1/2" = 1'-0"



8
A7.2
INGREDIENT TOOLBOX (TB 1)
1 1/2" = 1'-0"



12
A7.2
CORNER GUARD DETAIL
3/4" = 1'-0"



13
A7.2
EQUIPMENT CABINET DETAIL
3/4" = 1'-0"

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SECTIONS AND
DETAILS

A7.2

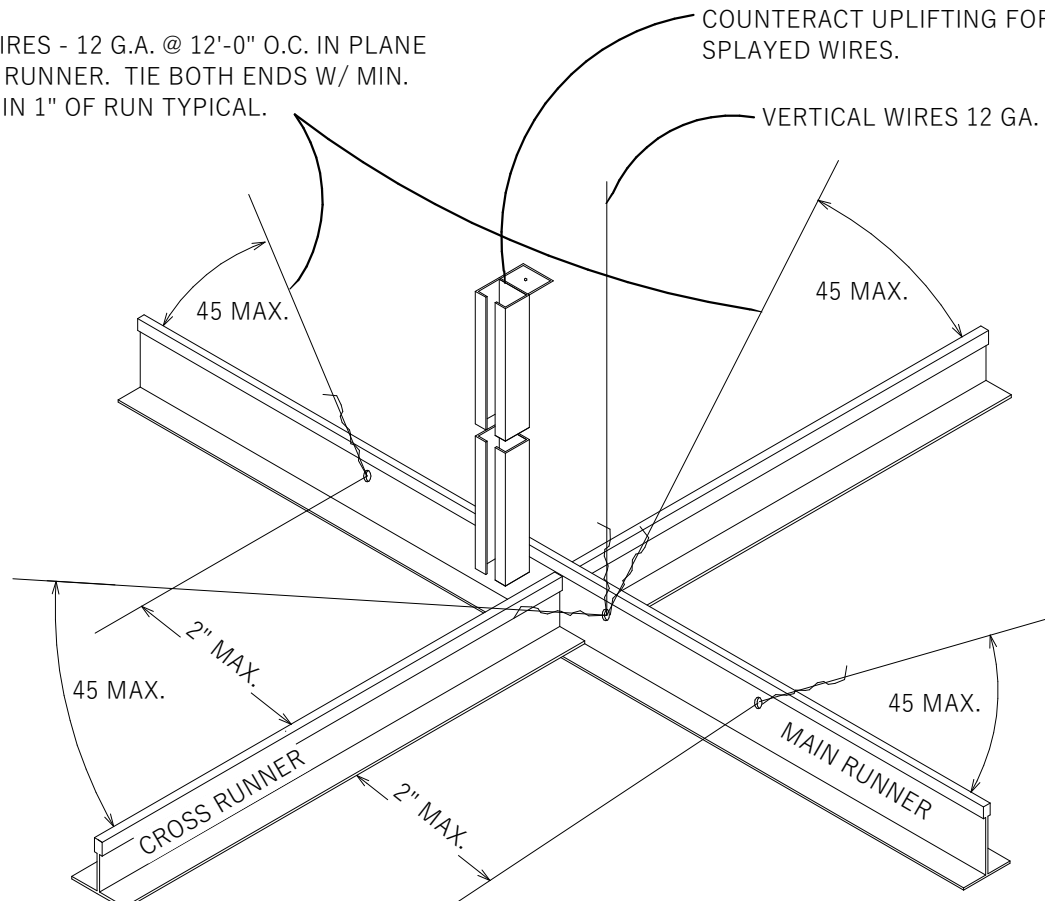
JZW
ARCHITECTS

FASTEN WIRES TO BOTTOM OF TRUST CORD WITH HILTI EYE LAG CEILING HANGER - 1/4" EL WS. OR APPROVED EQUAL.

SPLAY WIRES - 12 G.A. @ 12'-0" O.C. IN PLANE OF EACH RUNNER. TIE BOTH ENDS W/ MIN. 3 TURNS IN 1" OF RUN TYPICAL.

PROVIDE VERTICAL STRUT OF CONTINUOUS LENGTH OF CEILING GRID MATERIAL OR OTHER APPROVED LIGHT METAL FRAMING MATERIAL ATTACHED TO MAIN RUNNER AND TO STRUCTURE ABOVE TO COUNTERACT UPLIFTING FORCES OF SPLAYED WIRES.

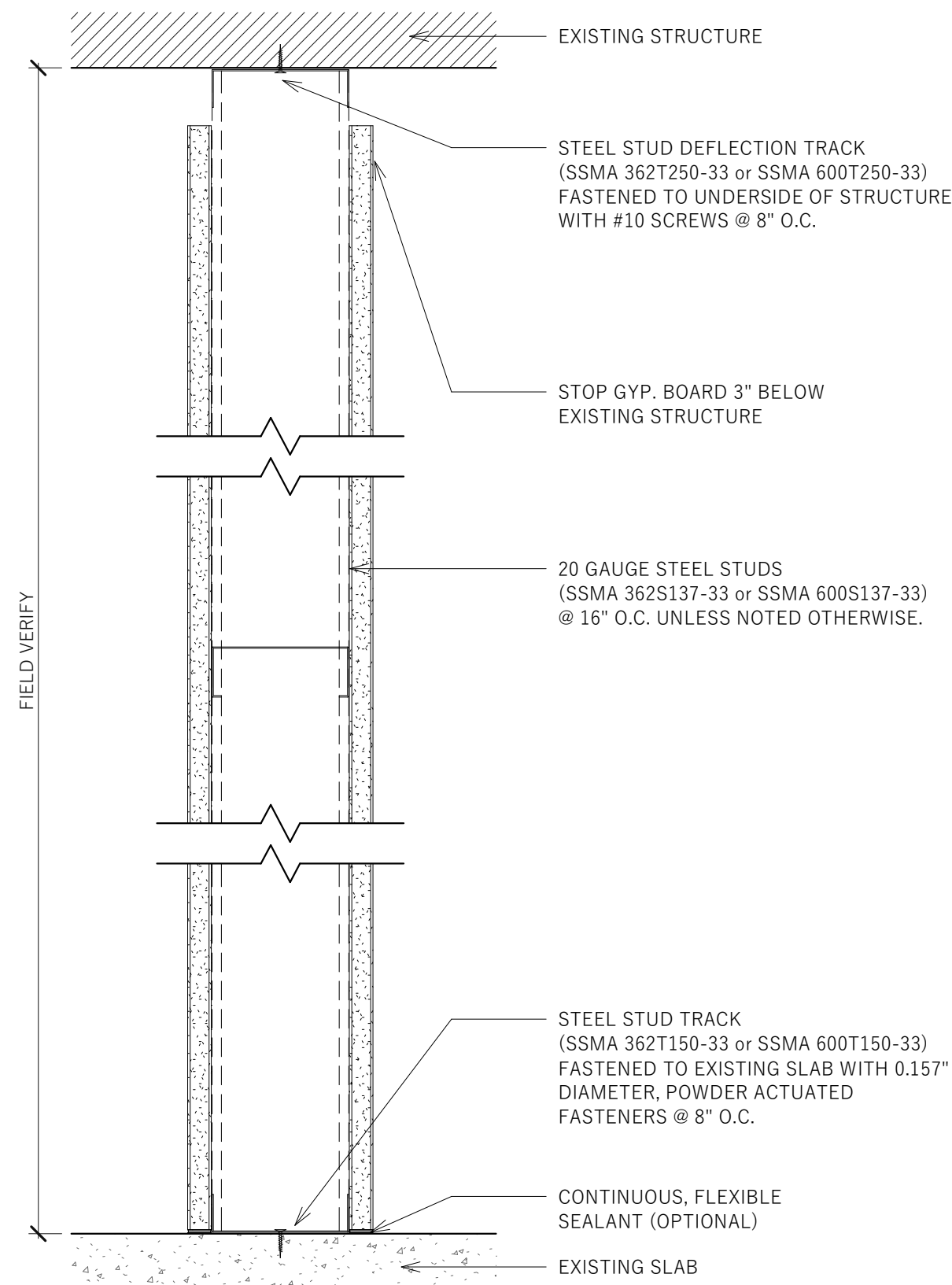
VERTICAL WIRES 12 GA. @ 4'-0" O.C.



ALL CEILING MOUNTED LIGHT FIXTURES SHALL BE ATTACHED TO SUSPENDED CEILING GRID, IN ADDITION 12 GA. HANGER WIRES SHALL BE ATTACHED TO THE GRID WITHIN 3" OF EACH CORNER OF THE FIXTURE. TWO ADDITIONAL WIRES SHALL BE CONNECTED TO THE LIGHT HOUSING AND TO THE STRUCTURE ABOVE (THESE WIRES MAY BE SLACK).

WIRES SHALL NOT ATTACH TO OR BEND AROUND INTERFERING MATERIAL OR EQUIPMENT, NOR SHALL THEY BE CLOSER THAN 5" FROM ANY UN-BRACED HORIZONTAL PIPING OR DUCTWORK. A TRAPEZE OR SIMILAR DEVICE SHALL BE USED WHERE OBSTRUCTIONS OCCUR.

1 SEISMIC BRACING DETAIL
A7.3 3/8" = 1'-0"

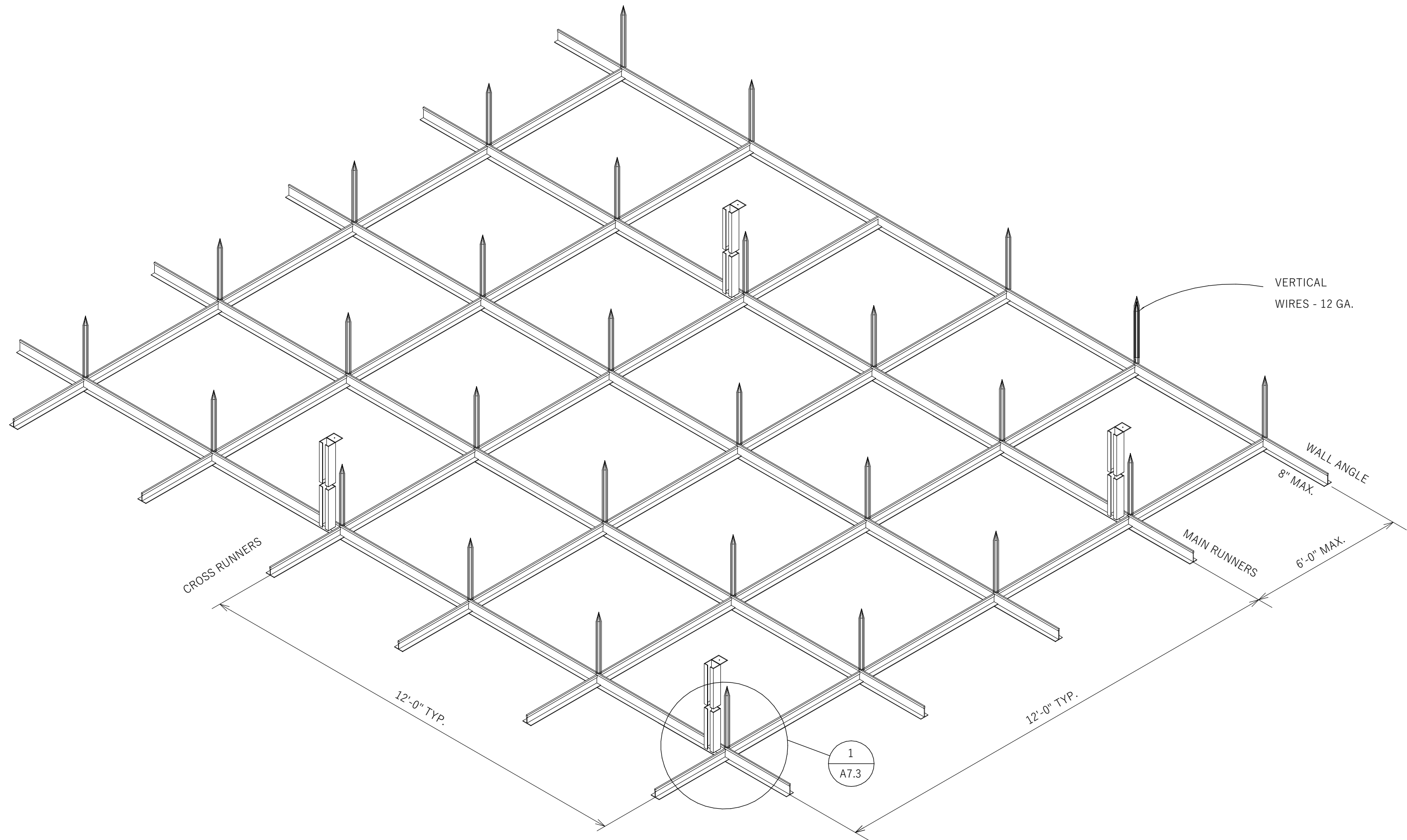


3 INTERIOR WALLS DETAIL - TO STRUCTURE
A7.3 3" = 1'-0"

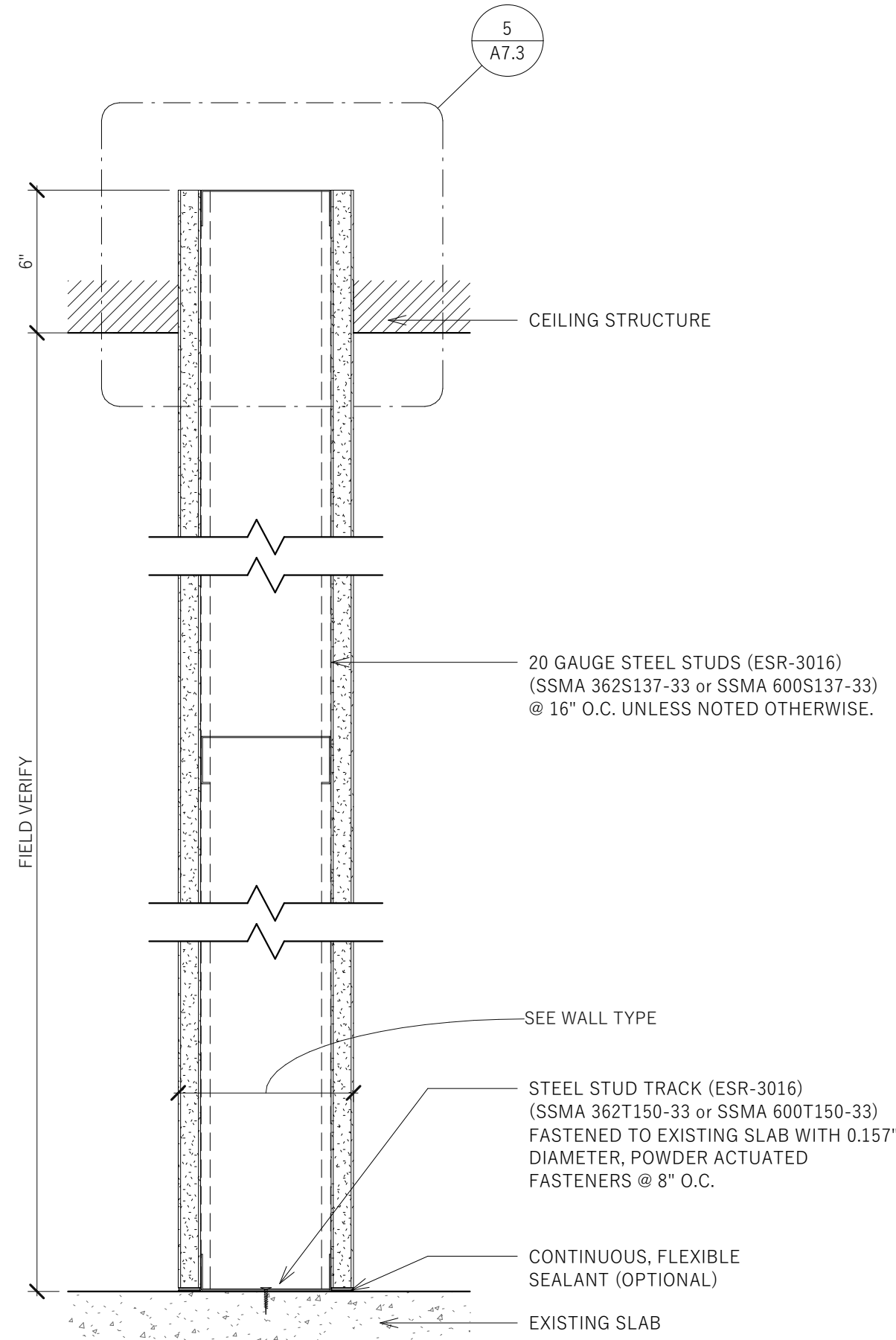
CEILING AREAS OF 144 SQ. FT. OR LESS SURROUNDED BY WALLS WHICH CONNECT DIRECTLY TO THE STRUCTURE ABOVE SHALL NOT REQUIRE THE DIAGONAL BRACING WIRES. EACH VERTICAL WIRE SHALL BE ATTACHED EACH END WITH MIN. 3 TURNS. CEILING GRID SHALL BE INSTALLED LEVEL TO WITHIN 1/8" IN 12'. ALL WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT. FOR CEILING AREAS EXCEEDING 1,000 S.F. HORIZONTAL RESTRAINT OF THE CEILING TO THE STRUCTURE SHALL BE PROVIDED.

CABLE TRAYS AND ELECTRICAL CONDUITS SHALL BE INDEPENDENTLY SUPPORTED AND BRACED INDEPENDENTLY OF THE CEILING. SUSPENDED CEILING SHALL BE SUBJECT TO THE SPECIAL INSPECTION REQUIREMENTS OF SECTION 1704. SUSPENDED CEILING SHALL BE SUBJECT TO THE SPECIAL INSPECTION REQUIREMENTS OF SECTION 1704. CEILING AREAS OF 1000 SQ. FT. OR LESS SURROUNDED BY WALLS WHICH CONNECT DIRECTLY TO THE STRUCTURE ABOVE SHALL NOT REQUIRE THE DIAGONAL BRACING WIRES. EACH VERTICAL WIRE SHALL BE ATTACHED EACH END WITH MIN. 3 TURNS.

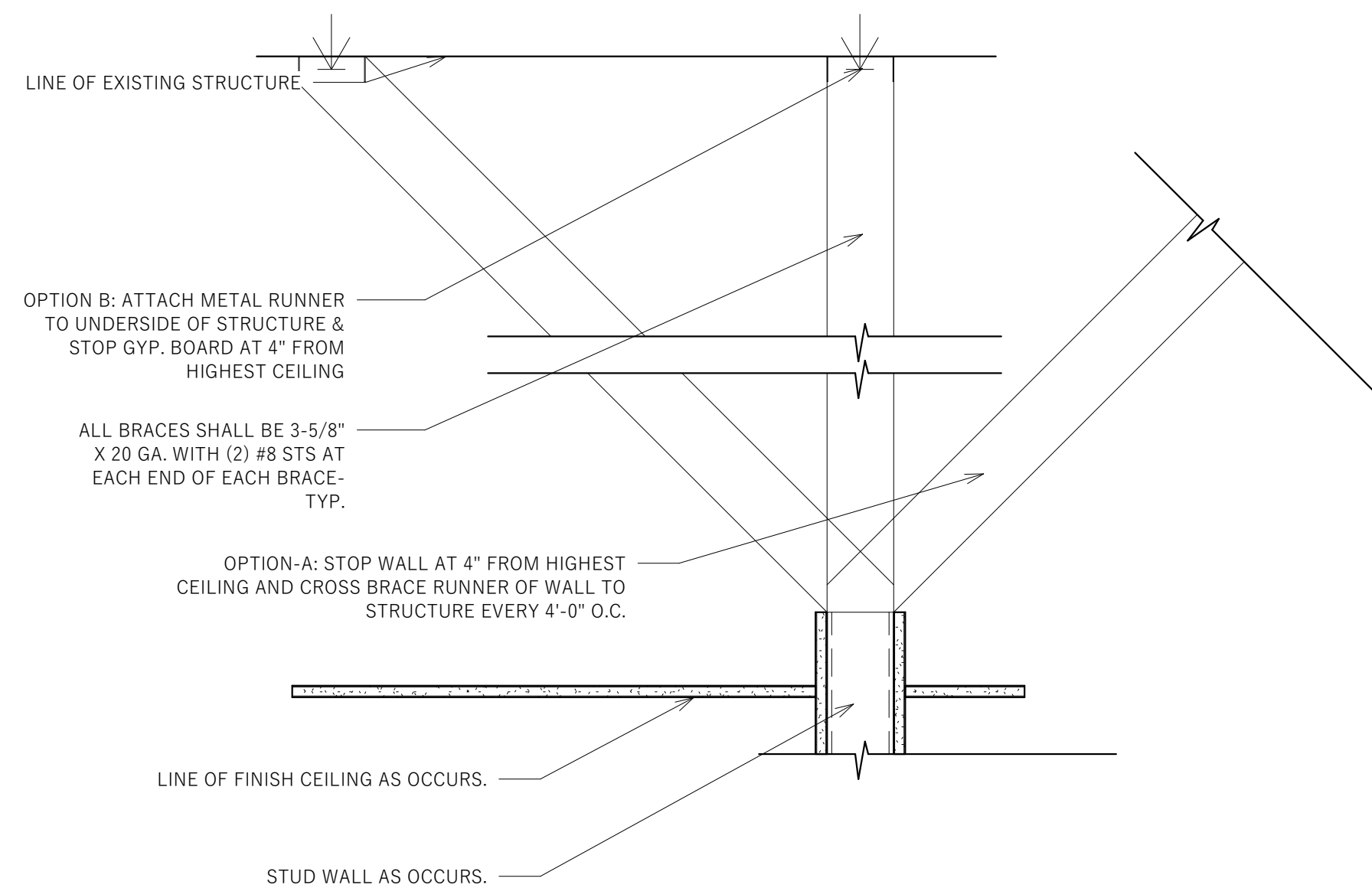
CEILING GRID SHALL BE INSTALLED LEVEL TO WITHIN 1/8" IN 12'. LOCAL KINKS OR BENDS SHALL NOT BE MADE IN HANGER WIRES AS A MEANS OF LEVELING MAIN RUNNERS. ALL WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT. A HEAVY DUTY T-BAR SYSTEM SHALL BE USED. THE WIDTH OF THE PERIMETER SUPPORTING CLOSURE ANGLE SHALL NOT BE LESS THAN 2 INCHES. IN EACH ORTHOGONAL HORIZONTAL DIRECTION, ONE END OF THE CEILING GRID SHALL BE ATTACHED TO THE CLOSURE ANGLE. THE OTHER END IN EACH HORIZONTAL DIRECTION SHALL HAVE A 0.75 INCH CLEARANCE FROM THE WALL AND SHALL REST UPON AND BE FREE TO SLIDE ON THE CLOSURE ANGLE.



2 SUSPENDED CEILING BRACING
A7.3 1/8" = 1'-0"



4 INTERIOR WALLS DETAIL - 6" ABOVE CEILING
A7.3 3" = 1'-0"



5 WALL BRACING DETAIL - 6" ABOVE CEILING
A7.3 1 1/2" = 1'-0"

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WALL & CEILING
DETAILS

A7.3

JZW
ARCHITECTS

PIPING LEGEND			
GATE VALVE		CHILLED WATER SUPPLY	CWS
OS & Y PATTERN GATE VALVE		CHILLED WATER RETURN	CWR
BALL VALVE		CONDENSER WATER SUPPLY	CS
BUTTERFLY VALVE		CONDENSER WATER RETURN	CR
MOTORIZED BUTTERFLY VALVE		HEATING WATER SUPPLY	HWS
HEAT TRACING		HEATING WATER RETURN	HWR
DEIONIZED WATER	DI	WATER TREATMENT	WT
CHECK VALVE (SWING OR LIFT AS REQ'D)		FIRE DEPT. HORN & LIGHT	
SOLENOID VALVE		HOT GAS	HG
AUTOMATIC CONTROL VALVE (2-WAY)		FLEXIBLE PIPE CONNECTION	
AUTOMATIC CONTROL VALVE (3-WAY)		REDUCED PRESSURE BACKFLOW PREVENTER	RFBP
PRESSURE REDUCING VALVE		DIRECTION OF FLOW	
PRESSURE INDEPENDENT VALVE		ELBOW DOWN	
P & T RELIEF VALVE		ELBOW UP	
AIR VENT (AUTOMATIC)		PIPE CAP	
REFRIGERANT LIQUID	RL	TEE DOWN	
REFRIGERANT SUCTION	RS	UNION	
THERMAL EXPANSION VALVE		DOMESTIC COLD WATER	---
STRAINER		DOMESTIC HOT WATER	---
CIRCUIT SETTER		HOT WATER CIRC.	---
FLOW METER		TEMPERED WATER	T
PET COCK OR GAUGE COCK		SANITARY (PLBG) VENT	-----
PRESSURE GAUGE W/GAUGE COCK		SANITARY SEWER ABOVE GRADE	---
THERMOMETER		SANITARY SEWER BELOW GRADE	---
TEMPERATURE & PRESSURE TEST PLUG		DRAIN	D
IN-LINE PUMP		ROOF DRAIN PIPING	RD
FLOW SWITCH		OVERFLOW DRAIN PIPING	OD
AQUASTAT		STORM DRAIN PIPING ABOVE GRADE	SD
HOSE BIBB OR SILL COCK		STORM DRAIN PIPING BELOW GRADE	SD
VACUUM	V	FIRE SERVICE	F
FLOOR DRAIN		NATURAL GAS	G
FLOOR SINK		COMPRESSED AIR	CA
HOT GAS BYPASS	HGBP	VENT THROUGH ROOF	
WALL CLEANOUT		STEAM	S
FLOOR OR GRADE CLEANOUT		CONDENSATE	C
GRADE CLEANOUT W/ CONCRETE PAD		GREASE WASTE	GW
		SNOWMELT PIPING @ 8" O.C.	-----
		ROOF DRAIN WITH SNOWMELT PIPING INSTALLED INSIDE PIPE	

MECHANICAL LEGEND	
RETURN OR EXHAUST DUCT DOWN	
RETURN OR EXHAUST DUCT UP	
SUPPLY AIR DUCT DOWN	
SUPPLY AIR DUCT UP	
SPIN-IN FITTING W/WD	
FLEXIBLE DUCT CONNECTION	
CEILING SLOT DIFFUSER	
CEILING DIFFUSER	
CEILING EXHAUST GRILLE	
CEILING GRILLE	
ACCESS PANEL	
MANUAL VOLUME DAMPER	
MOTORIZED DAMPER	
FIRE DAMPER	
THERMOSTAT OR TEMP SENSOR	
POINT OF CONNECTION TO EXISTING	
DETAIL TAG	DETAIL NO. DRAWING NO.
KEYED NOTE	NOTE NO.
SECTION CUT LINE	SECTION NO. DRAWING NO.
CONTROL TRANSFORMER	
FIRE DAMPER (FUSIBLE LINK)	
WALL RATING (SEE PLANS)	1 THR
COMBINATION FIRE/SMOKE DAMPER	
MOTORIZED 120v POWER	2 THR
WALL RATING (SEE PLANS)	1 THR
SMOKE DAMPER	
MOTORIZED 120v POWER	2 THR
WALL RATING (SEE PLANS)	1 THR
MOTORIZED CONTROL DAMPER	
TYP. 24V POWER (SEE PLANS)	
OPPOSED BLADE DAMPER (NO MOTOR)	
W/ INTERLOCKING SEALS AND BLADES	
IRIS DAMPER (NO MOTOR)	
FOR USE ON ROUND DUCTS	
BACK DRAFT DAMPER (NO MOTOR)	
W/ INTERLOCKING SEALS AND BLADES	
COUNTERWEIGHTED DAMPER (NO MOTOR)	
W/ INTERLOCKING SEALS AND BLADES	

GENERAL NOTES:

- ⊙ INDICATES POINT OF CONNECTION OF NEW TO EXISTING MECHANICAL, EQUIPMENT, PIPING OR DUCTWORK.
- COORDINATE ALL FIRE SPRINKLER HEADS AND AIR DEVICE LOCATIONS WITH REFLECTED CEILING PLANS AND ELECTRICAL DRAWINGS.
- ALL RIGID ROUND DUCTWORK SHALL RECEIVE 2" - 0.75 LBS/CU.FT. FIBERGLASS DUCT WRAP - MIN. R-5. ALL LOW PRESSURE RECTANGULAR DUCT SHALL RECEIVE 1" - 1.5 LBS/CU.FT. DUCT LINER. ATTACH TO DUCT WITH MECHANICAL FASTENERS AND TRIM AND SEAL JOINTS. LOW PRESSURE ROUND FLEXIBLE DUCT TO BE 1-1/2" THICK INSULATED AND A MAXIMUM OF 5 FT. LONG. ALL INSULATION TO MEET NFPA 90 PER UL 181-CLASS 1. NO DUCT BOARD ALLOWED. ALL DUCT IS TO BE UNWRAPPED UP TO THE VAV'S. DUCTWORK DOWNSTREAM OF THE VAV'S IS TO BE LINED OR UNWRAPPED IF ROUND.
- DUCTWORK AND PIPE ROUTING AS SHOWN ON DRAWINGS IS DIAGNOSTIC AND IS NOT TO BE SCALED. WHERE ALTERNATE ROUTING, OFFSETS AND TRANSITIONS ARE REQUIRED FOR COORDINATION OF WORK, THIS CONTRACTOR SHALL MAKE CHANGES WITHOUT ADDITIONAL COSTS.
- THIS CONTRACTOR SHALL CLOSELY COORDINATE NEW MECHANICAL WITH NEW AND EXISTING MECHANICAL, ELECTRICAL, ARCHITECTURAL AND BUILDING STRUCTURE.
- THIS CONTRACTOR SHALL FIELD VERIFY ALL MECHANICAL ITEMS PRIOR TO STARTING NEW WORK. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
- THIS CONTRACTOR SHALL USE SMACNA DUCT CONSTRUCTION STANDARDS FOR SHEET METAL DUCTS. ALL HIGH PRESSURE DUCTWORK UPSTREAM OF VAV TERMINAL BOXES SHALL BE CONSTRUCTED FOR 2" W.C. STATIC PRESSURE, SEAL CLASS "A". ALL OTHER DUCTWORK (UNLESS OTHERWISE NOTED ON FLOOR PLANS) SHALL BE CONSTRUCTED OF 1" W.C. SEAL CLASS "B".
- ALL MECHANICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT ADOPTED EDITION OF THE BUILDING CODES, FIRE CODES, MECHANICAL CODES AND PLUMBING CODES.
- THIS CONTRACTOR SHALL PROVIDE SUBMITTALS ON ITEMS LISTED IN MECHANICAL EQUIPMENT LIST TO THE ENGINEER FOR REVIEW PRIOR TO THE ORDER, PURCHASE OR INSTALLATION.
- ALL VAV BOXES, RTU's, WATER FLOW RATES AND DIFFUSERS MUST BE BALANCED TO THE VALUES INDICATED ON THE FLOOR PLANS. PROVIDE BALANCE REPORT TO ENGINEER PRIOR TO PROJECT CLOSEOUT.
- DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.
- FIRE SPRINKLER CONTRACTOR SHALL ADD AND/OR RELOCATE SPRINKLER HEADS PER REFLECTED CEILING PLAN AND THE CURRENT ADOPTED EDITION OF NFPA AND BUILDING CODE.
- PIPING MATERIAL REQUIREMENTS:
DOMESTIC COLD WATER PIPING - TYPE "L" COPPER OR PEX
DOMESTIC HOT WATER PIPING - TYPE "L" COPPER OR PEX
WASTE AND VENT PIPING - CAST IRON OR SCH. 40 PVC
ROOF AND OVERFLOW DRAIN PIPING - CAST IRON OR SCH. 40 PVC
STEAM PIPING - SCH. 40 (80) STEEL PIPING OR COPPER - THREADED OR WELDED.
REFRIGERANT PIPING - TYPE "K" COPPER - 100% BRAZED, NOT SOLDERING ALLOWED.
NATURAL GAS PIPING - SCH. 40 BLACK IRON - 2" AND BELOW THREADED, 2.5" AND ABOVE WELDED.
+ NO PLASTIC PIPING IS ALLOWED IN RETURN AIR PLenums +
- VENT THE HIGH POINTS OF NEW MECHANICAL PIPING.
- PROVIDE INSULATION FOR THE FOLLOWING:
a. DOMESTIC HOT WATER PIPING:
1" THICK FOR ALL PIPE SIZES.
b. DOMESTIC COLD WATER PIPING:
1/2" THICK FOR PIPE SIZES 1/2" TO 6".
(PROVIDE CONTINUOUS VAPOR BARRIER.)
c. ROOF AND OVERFLOW DRAINS:
1" THICK FOR ALL PIPE SIZES
INSULATION ONLY REQUIRED ON HORIZONTAL PRIMARY DRAINS AND ALL DRAIN BOULDS
f. REFRIGERANT SUCTION LINE PIPING
1-1/2" THICK FOR ALL PIPE SIZES.
- INSULATE PIPING WITH FIBERGLASS PIPE COVERING WITH ALL SERVICE JACKET AND SELF-CAP SEAL. FITTINGS SHALL BE MITERED PIPING COVERING OR GLASS FIBER MOLDED FITTINGS FOR USE IN A RETURN AIR PLenum. THERMAL CONDUCTIVITY SHALL BE A MAXIMUM OF .05/INCH THICKNESS AT 75°F.
- INDICATES EXISTING OR FUTURE. --- INDICATES NEW MATERIAL. IF THERE ARE ANY DISCREPANCIES AS TO WHAT IS NEW AND WHAT IS EXISTING, CONTRACTOR IS TO CONTACT THE ARCHITECT AND/OR MECHANICAL ENGINEER. THE EXISTING SHELL DOCUMENTS ARE AVAILABLE THROUGH THE ARCHITECT. ADDITIONAL COSTS WILL NOT BE TOLERATED FOR THE CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SHELL AND SITE CONDITIONS.
- MECHANICAL CONTRACTOR IS TO COORDINATE WITH ELECTRICAL ON SIZE/QUANTITY OF MOTORIZED DAMPERS. I. E. FIRE/SMOKE DAMPERS, FIRE DAMPERS, MOTORIZED DAMPERS, ETC.
- EACH TRADE IS RESPONSIBLE THEIR OWN FIRE CAULKING. ALL PENETRATIONS THROUGH ALL RATED WALLS MUST BE PROPERLY SEALED AND CAULKED FOR THE APPROPRIATE WALL RATING AND UL SYSTEM.
- DIVISION IS MUST PROVIDE AND INSTALL ALL ACCESS DOORS FOR FCU's, VALVES, FLOW METERS, ETC. COORDINATE LOCATION WITH GENERAL CONTRACTOR.
- HOUSEKEEPING PADS FOR ALL EQUIPMENT IS PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
- ALL TAKE-OFF'S THROUGHOUT THE ENTIRE BUILDING SHALL BE HIGH EFFICIENCY TAKE-OFF'S (HET's). NO EXCEPTIONS TAKEN.
- DIVISION IS TO SUBMIT TO ENGINEER ALL AS-BUILDS OF BUILDINGS MECHANICAL AND PLUMBING SYSTEMS PRIOR TO JOB COMPLETION AND FINAL PAYMENT.
- ALL VFD'S ARE TO BE PROVIDED BY MECHANICAL AND WIRED UP BY ELECTRICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- ALL EXPOSED PIPING IS TO BE INSULATED AND WEATHERPROOFED. SEE SPEC SECTION 15080.
- ALL INVERT ELEVATIONS SHOWN ON PLANS ARE BASED OFF OF FINISHED FLOOR ELEVATION AT 1000.0'. CONTRACTOR TO COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS FOR EXACT INVERT ELEVATIONS OF ALL LEVELS.
- ALL FLOOR DRAINS / FLOOR SINKS THROUGH-OUT THE ENTIRE BUILDING ARE TO HAVE TRAP SEAL PRIMER VALVES PROVIDED / INSTALL BY PLUMBING CONTRACTOR. TRAP GUARDS MAY ALSO BE USED WHERE ALLOWED BY THE LOCAL JURISDICTION.
- ALL GAS METER REGULATORS ARE TO BE VENTED TO THE OUTSIDE OF THE BUILDING BY THE MECHANICAL CONTRACTOR OR PROVIDE / INSTALL VENTLESS REGULATORS IF ALLOWED BY THE LOCAL JURISDICTION. NONE OF THE VENT PIPING OFF THE REGULATORS ARE SHOWN ON THE PLANS FOR CLARITY.
- ALL FIRE DAMPERS SHOWN ON PLANS SHALL COMPLY WITH THE REQUIREMENTS OF UL 555. ALL SMOKE DAMPERS SHOWN ON PLANS SHALL COMPLY WITH UL 555S. ALL COMBINATION FIRE / SMOKE DAMPERS SHOWN ON PLANS ARE TO COMPLY WITH BOTH UL 555 AND UL 555S. FOR ALL FIRE DAMPERS CONTRACTOR IS TO PROVIDE / INSTALL "NCA MODEL FD-1" (OR EQUAL) TO MEET STANDARD UL 555 RATING. FOR ALL SMOKE DAMPERS AND COMBINATION FIRE SMOKE DAMPERS CONTRACTOR IS TO PROVIDE / INSTALL "NCA MODEL FSD-3V-211" (OR EQUAL) TO MEET STANDARD UL 555 AND UL 555S RATINGS.
- THE MECHANICAL CONTRACTOR IS TO HAVE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EACH TYPE OF FIRE DAMPER, SMOKE DAMPER AND COMBO FIRE / SMOKE DAMPERS ON THE JOB SITE AT TIME OF INSPECTIONS.
- ALL DUCTWORK THAT IS LOCATED IN UNCONDITIONED SPACES (MEANING EXPOSED TO THE OUTSIDE OR IN ATTICS) IS TO HAVE MIN. OF R-8 INSULATION INSTALLED.
- ALL T-STATS MUST BE MOUNTED AT 48" A.F.F. TO THE TOP OF THE STAT AND TO HAVE FULL DIGITAL DISPLAY READOUT OF CURRENT TEMPERATURE AND TEMPERATURE SET POINTS.
- ALL DUCT ELBOUS ARE TO BE PROVIDED / INSTALLED WITH RADIUS ELBOUS. ANY ALTERATIONS OR CHANGES IN DUCTWORK FROM WHAT IS SHOWN ON THE PLANS MUST BE PRE-APPROVED BY THE ENGINEER IN WRITING PRIOR TO ORDERING, FABRICATION, OR INSTALLATION.
- ALL EXTERIOR WALL VENTS, GRILLES, OR PIPING IS TO BE PAINTED BY THE GENERAL CONTRACTOR TO MATCH THE ADJACENT SURFACE.
- ALL DUCTWORK IS TO BE COMPLETELY SEALED USING DESIGN POLYMERS DPI/010 DUCT SEALER OR APPROVED EQUAL.
- CONTRACTORS TO COMPLY WITH MANUFACTURER'S INSTRUCTIONS, INCLUDING EACH STEP IN SEQUENCE. WHEN MANUFACTURERS' INSTRUCTIONS CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT/ENGINEER BEFORE PROCEEDING WITH ANY WORK. IF THIS IS NOT DONE, ITS THE CONTRACTORS FULL RESPONSIBILITY TO COVER ALL COSTS.

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CODES AND STANDARDS (MISSOURI)

PLUMBING: 2018 IPC
MECHANICAL: 2018 IMC
ENERGY: 2018 IECC
ELEVATION: 1000'

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21-202

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CONSULTANT



1040 N 2200 WEST
SALT LAKE CITY UTAH
T:801.359.3158
www.pve-ut.com

CRUMBL COOKIES - LEE'S
SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



MECHANICAL
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SCHEDULES

MP0.1

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PLUMBING FIXTURE CONNECTION SCHEDULE						
PLAN CODE	DESCRIPTION	CONNECTION SIZE				SPECIFICATIONS
		COLD WATER	HOT WATER	WASTE	VENT	
L-1	LAVATORY, HAND WASH WALL MOUNT, MANUAL FAUCET	1/2"	1/2"	3"	1 1/2"	SINK: AMERICAN STANDARD-LUCERNE, WALL HUNG, VITREOUS CHINA. FAUCET: MOEN 8413 FAUCET AND COVERS FOR ALL EXPOSED PIPING. PROVIDE W/ THERMOSTATIC MIXING VALVE.
S-1	HAND SINK	1/2"	1/2"	3"	1 1/2"	SINK: REGENCY 600H912SP SINGLE BOUL, STAINLESS STEEL. FAUCET: REGENCY 600FA12 FAUCET AND SAFETY COVERS FOR ALL EXPOSED PIPING. PROVIDE W/ THERMOSTATIC MIXING VALVE.
S-2	3 - COMPARTMENT SINK	1/2"	1/2"	3"	1 1/2"	SINK: REGENCY 3 COMPARTMENT, STAINLESS STEEL SINK. FAUCET: REGENCY 600FFR38 FAUCET AND SAFETY COVERS FOR ALL EXPOSED PIPING. PROVIDE W/ THERMOSTATIC MIXING VALVE.
ED-1	FLOOR DRAIN	N/A	N/A	SEE PLANS	N/A	J. R. SMITH 2005 w/ A05NB NICKEL/BRONZE STRAINER * PROVIDE WITH MIFAB TRAP PRIMER.
ES-1	FLOOR SINK SQUARE 12.5" x 12.5" x 10"	N/A	N/A	SEE PLANS	SEE PLANS	J. R. SMITH 3161Y-12 W/ NICKEL/BRONZE TOP/ 1/2 GRATE * PROVIDE WITH MIFAB TRAP PRIMER.
SS-1	SERVICE SINK SQUARE 12.5" x 12.5" x 10"	3/4"	3/4"	3"	1 1/2"	SINK: FIAT MODEL M5B-2424 FAUCET: MODEL FAUCET: CHICAGO FAUCET - 814VBCF PROVIDE WITH THERMOSTATIC MIXING VALVE.
WC-1	WATER CLOSET (ADA ACCESSIBLE)	1 1/2"	N/A	4"	2"	TOTO DRAKE MODEL C6T744SL 1.6 GPF, ADA ACCESSIBLE, WHITE W/ SEAT

NOTE: ALL PLUMBING FIXTURES ARE TO HAVE 1/4 TURN STOPS INSTALLED (NO EXCEPTIONS TAKEN). ALL PLUMBING FIXTURES THAT HAVE EXPOSED SUPPLY LINES I.E., WATER CLOSETS, WALL HUNG LAVS, ETC., CONTRACTOR IS TO PROVIDE / INSTALL STAINLESS STEEL BRAIDED HOSES. IF THE SUPPLY LINES ARE NOT EXPOSED (HIDDEN BELOW CASEWORK ETC.), THEY CAN BE PLASTIC, RIGID, OR STAINLESS STEEL BRAIDED.

* COORDINATE ALL FIXTURE FINISHES WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO ORDERING

* NOTE: NOT ALL FIXTURES MAY BE USED. SEE DRAWINGS FOR ALL PLUMBING FIXTURES AND CALLOUTS.

DIFFUSERS & GRILLE SCHEDULE									
PLAN CODE	TYPE & DUTY	NECK SIZE	CEILING TYPE	N.C. LEVEL MAX	MAX. CFM	MANUFACTURER & MODEL NO.	REMARKS	GRILLE NUMBER	
								GRILLE CM1	GRILLE CM1
1	12" x 12" PERF. EXHAUST	SEE PLANS	See Plans	20	244	PRICE PDR SERIES 8"/12"x12"/AFDDR1/B12	PROVIDE ROUND DUCT CONNECTION AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		
2	24" x 24" PERF. EXHAUST	SEE PLANS	See Plans	19	785	PRICE PDR SERIES 12"/24"x24"/APDDR1/B12	PROVIDE ROUND DUCT CONNECTION AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		
3	24" x 24" PERF. RETURN	22" x 22"	See Plans	26	2353	PRICE PDR SERIES 10" x 22"/12"x24"/PDR1/B12	PROVIDE ROUND DUCT CONNECTION AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		
4	12" x 12" SQ. SUPPLY	6" x 6" 6"ø or 8"ø	See Plans	31	2000	PRICE 9MD SERIES 6"x6"/12"x12"/9MD/3P/4A/B12	PROVIDE W/ SQUARE TO ROUND ADAPTER AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		
5	24" x 24" SQ. SUPPLY 3 SLOT	9" x 9" 8"ø	See Plans	29	279	PRICE 9MD SERIES 8"/24"x24"/9MD/3P/4A/B12	PROVIDE W/ SQUARE TO ROUND ADAPTER AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		
6	24" x 24" SQ. SUPPLY 3 SLOT	12" x 12" 10"ø	See Plans	28	382	PRICE 9MD SERIES 10"/24"x24"/9MD/3P/4A/B12	PROVIDE W/ SQUARE TO ROUND ADAPTER AND OBD WHERE APPLICABLE PROVIDE OFF WHITE FINISH UNLESS OTHERWISE SPECIFIED BY OWNER		

* NOTE: NOT ALL GRILLES MAY BE USED

EXHAUST FAN SCHEDULE (EF)																
PLAN CODE	AREA SERVED	TYPE	CFM @ ELEV.	ESP. @ ELEV. (in. w.g.)	FAN RPM	MOTOR				DAMPER	METHOD OF CONTROL	WHEEL DIA. / ROOF OPENING (IN.)	MAX. SONES	OPER. WEIGHT (lbs)	MANUFACTURER & MODEL NO	REMARKS
						BHP Oper.	BHP Standard	H.P.	VOLTAGE & PHASE							
EF-1	EXHAUST RELIEF	IN-LINE CENTRIFUGAL	700	0.2"	957	0.08	0.08	1/8	115/1	BACKDRAFT DAMPER	INTERLOCKED WITH LIGHTS BY ELECTRICAL CONTRACTOR	WHEEL DIA. 12.25"	7.5	106#	TWIN CITY DSI 100A	* PROVIDE W/ BIRDScreen AND SPEED CONTROLLER

NOTE: ALL VALUES ARE RATED AT 150 F. ELEVATION.

NOTE: ALL STARTERS PROVIDED AND INSTALLED BY ELECTRICAL.

OUTSIDE AIR BALANCING SCHEDULE			
PLAN CODE	AREA SERVED	BALANCE CFM	COMMENTS
RTU-2	DICKEYS BBQ	700	OA TO BE PROVIDED THROUGH RTU VIA ECONOMIZER

EXISTING PACKAGED ROOF TOP UNIT RTU-													
PLAN CODE	MODEL/SIZE	SUPPLY CFM	ESP	EER	CAPACITY	ELECTRICAL		COOLING CAPACITY			HEATING CAPACITY		
					TONNAGE	VOLTS/PHASE	MCA	TOTAL	EAT	LAT	TOTAL	EAT	LAT
RTU-2	LGH102HR1M LENNOX - 8.5 TON	3400	0.75" WC	14.0	8.5	208/3	44	101.2 MBH	77.3	56.7	144 MBH	69	105

FULL SERVICE AND A COMPONENT CHECK SHALL BE PERFORMED FOR EACH EXISTING ROOF TOP UNIT. IT SHALL BE PERFORMED FOR A MINIMUM OF TWO HOURS (ON SITE) PER UNIT. THIS SHALL INCLUDE BUT IS NOT LIMITED TO:

- REFRIGERANT LEAK TEST
- VERIFICATION OF REFRIGERANT CHARGE
- A VISUAL INSPECTION OF COILS
- REPLACEMENT OF ALL BELTS (LEAVE ONE SPARE OF EACH SIZE)
- REPLACEMENT OF FILTERS
- CHECKING ALL MOTORS AND FANS (INCLUDING THE CONDENSER FAN MOTOR)
- CHECKING ALL CAPACITORS AND CONTACTORS
- CHECKING THE FUNCTIONALITY OF ECONOMIZER (IF APPLICABLE)
- CHECKING THERMOSTAT OPERATION AND CONTROL
- VERIFICATION THAT ENTERING AND LEAVING AIR TEMPERATURE OF ALL STAGES OF COOLING AND HEATING ARE WITHIN SPECIFICATIONS
- CLEANING OF EVAPORATOR COILS BY MANUFACTURER RECOMMENDED PROCEDURE
- CHECKING THE CONTROLS
- CLEANING THE CONDENSATE PANS/DRAINS
- CHECKING ACCESS AND MAINTENANCE DOOR HINGES AND LATCHES
- VERIFY THAT THE UNIT IS CAPABLE OF BRINGING IN THE OUTSIDE AIR INDICATED IN OUTSIDE AIR BALANCING SCHEDULE

TESTS SHOULD ONLY BE PERFORMED WHEN OUTSIDE AIR TEMPERATURE IS WITHIN RECOMMENDED RANGE. IT MAY BE NECESSARY TO PERFORM HEATING AND/OR COOLING TESTS ON A DIFFERENT DAY WHEN THE TEMPERATURE IS WITHIN THE ACCEPTABLE RANGE.

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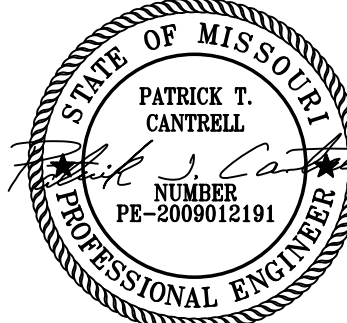
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**PVE**

1040 N 2200 WEST
SALT LAKE CITY UTAH
T:801.359.3158
www.pve-ut.com

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SUMMIT
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LEE'S SUMMIT, MO 64081


08-02-2021

MECHANICAL
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MP0.2

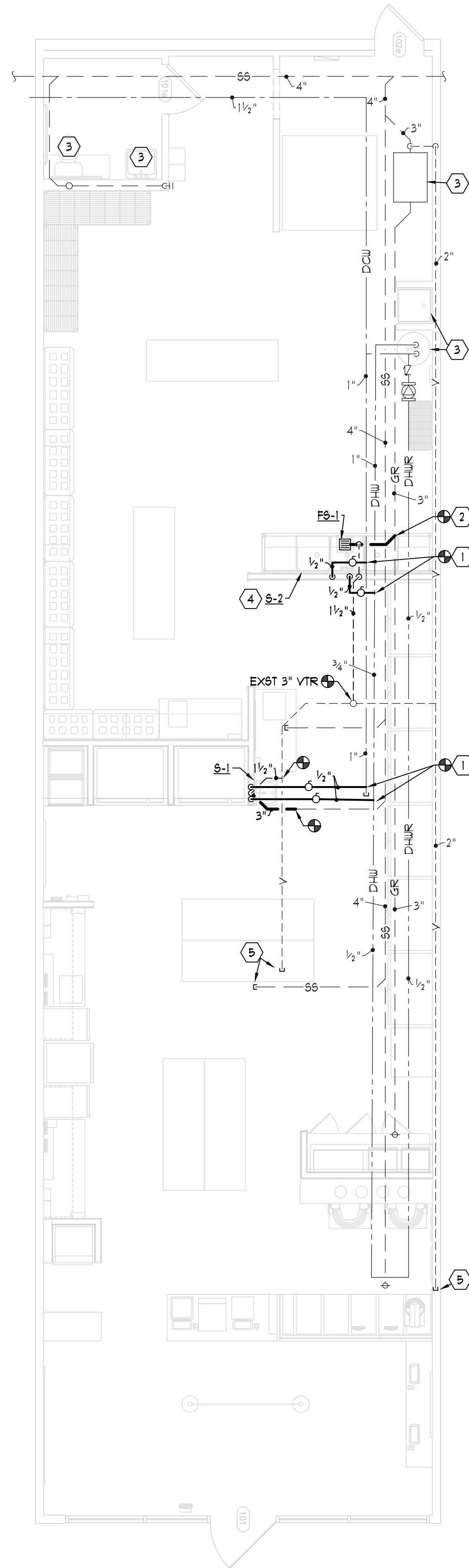
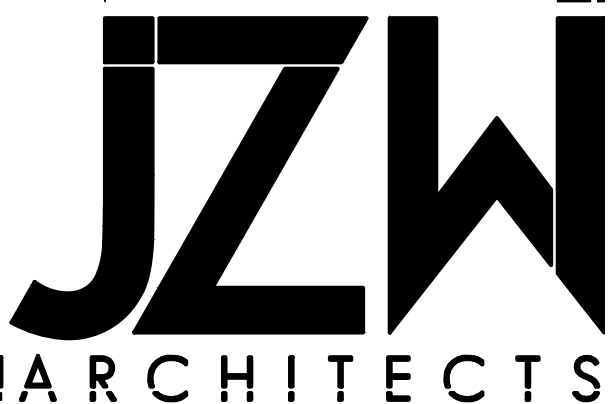
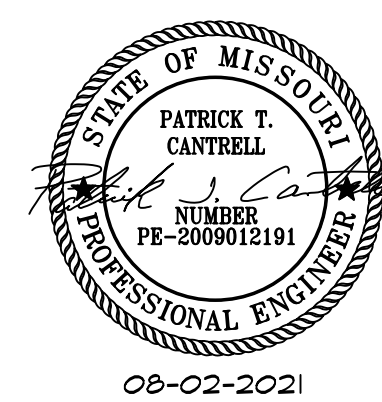
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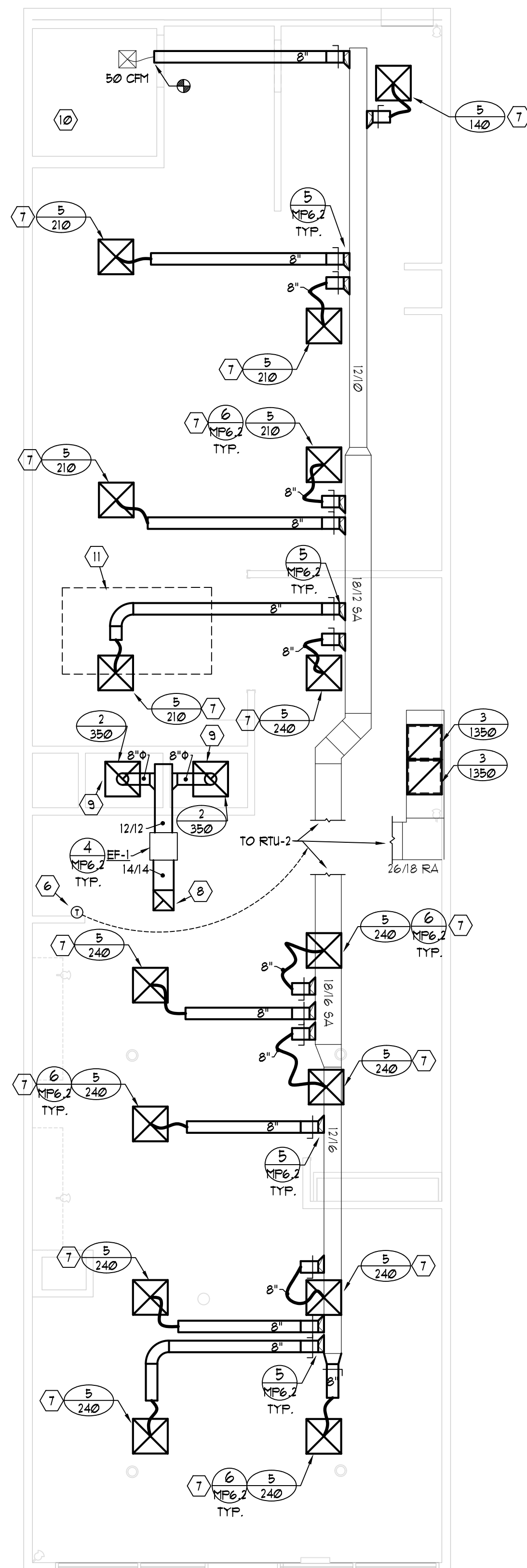
1040 N 2200 WEST
SALT LAKE CITY UTAH
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SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



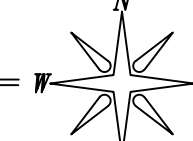
1 PLUMBING FLOOR PLAN

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



2 MECHANICAL CEILING PLAN

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



MECHANICAL/PLUMBING KEYED NOTES:

- CONNECT INTO CLOSEST EXISTING DOMESTIC COLD OR HOT WATER LINE AS LABELED. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE BEFORE CONNECTING.
- CONNECT NEW SANITARY SEWER/GREASE LINE INTO CLOSEST EXISTING SANITARY SEWER OR GREASE AS SHOWN. FIELD VERIFY EXACT LOCATION, SIZE, AND DIRECTION OF FLOW BEFORE CONNECTING.
- EXISTING PLUMBING FIXTURE TO REMAIN. RECONNECT ALL NECESSARY PIPING TO THEIR CORRECT LINES.
- ROUTE WASTE LINE FROM 3-COMPARTMENT SINK TO FLOOR SINK AND TERMINATE WITH 1" AIR GAP.
- CAP ALL UNNECESSARY/ABANDONED PLUMBING LINES.
- PROVIDE/INSTALL NEST 7-DAY PROGRAMMABLE THERMOSTAT AT 48" AFF. CONFIRM FINAL LOCATION WITH OWNER'S REPRESENTATIVE.
- INSPECT EXISTING MECHANICAL SYSTEM/DUCTWORK. IF ACCEPTABLE KEEP, AND REPLACE DIFFUSERS WITH THOSE SPECIFIED. BALANCE ACCORDINGLY AND CONNECT TO EXISTING SUPPLY/RETURN DUCTWORK WHERE NECESSARY USING HIGH EFFICIENCY TAKEOFFS FOR ALL CONNECTIONS.
- RISE EXHAUST DUCT UP THROUGH ROOF AND TERMINATE WITH BACKDRAFT DAMPER AND OWNER APPROVED TERMINATION. KEEP EXHAUST TERMINATION 3' AWAY FROM ANY OPERABLE BUILDING OPENING AND 10' AWAY FROM MECHANICAL FRESH AIR INTAKES.
- THE OVENS IN THIS PROJECT ARE LIGHT DUTY ELECTRIC COOKING APPLIANCES AND DON'T PRODUCE GREASE OR SMOKE AS A RESULT OF THE COOKING PROCESS, THEREFORE THE OVENS DO NOT REQUIRE A TYPE I HOOD. PER 2015 IMC 508.1 TYPE II IS NOT REQUIRED BECAUSE THE HEAT AND MOISTURE LOADS HAVE BEEN INCORPORATED INTO THE HVAC DESIGN. THE KITCHEN AREA HAS AN EXHAUST FAN THAT HAS BEEN SIZED TO 0.7 CFM/SF AND THE MAKE UP AIR IS VIA OUTSIDE AIR INTAKE ON RTU.
- CONTRACTOR IS TO VERIFY THAT RESTROOM HAS EXISTING EXHAUST FAN FOR VENTILATION. IF RESTROOM DOES NOT HAVE EXISTING EXHAUST CONTRACTOR IS TO PROVIDE/INSTALL A FANASONIC FV-05-11VKS1 EXHAUST FAN, BALANCE TO 80 CFM AND PROVIDE 8" ROUND DUCT VENTED TO ROOF WITH BACKDRAFT DAMPER AND OWNER APPROVED TERMINATION.
- RTU-1 (12.5 TON LENOX GC915-150-270-1Y) IS TO BE ABANDONED. KEEP DUCT DROPS IN CASE OF FUTURE NEEDS.

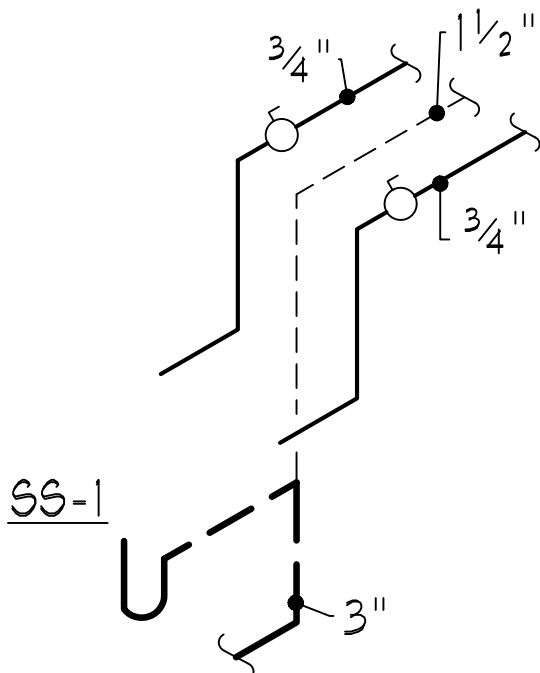
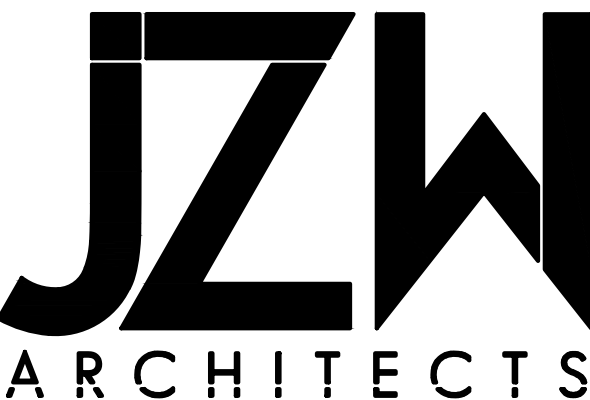
GENERAL NOTES:

- ALL EXHAUST DUCTWORK IS TO BE UNRAFFED WITH INSULATION MIN. 10" FROM THE EXHAUST FANS FOR SOUND ATTENUATION.
- CONTRACTOR TO PROVIDE / INSTALL ALL DUCTWORK AS HIGH UP AS POSSIBLE. COORDINATE ALL DUCTWORK WITH ARCHITECTURAL CEILING HEIGHTS. CONTRACTOR TO OFFSET DUCTWORK AS REQUIRED AND ROUTE THROUGH JOISTS AS REQUIRED. ALL OFFSETS SHOULD NOT EXCEED A 45° ANGLE.
- CONTRACTOR IS TO PROVIDE / INSTALL ALL DUCTWORK WITH RADIUS ELBOWS WHERE EVER POSSIBLE. IF A 90° ELBOW MUST BE USED, CONTRACTOR IS TO INSTALL LONG RADIUS TURNING VANES IN ELBOWS.
- CONTRACTOR IS TO FIELD COORDINATE ALL DUCTWORK AND HEIGHTS WITH ARCHITECTURAL CEILING PLANS.
- ALL RTU's, MAU's, and CRU's ARE TO HAVE A FACTORY INSTALLED & WIRED WATER-LEVEL DETECTION & MONITORING DEVICE INSIDE THE PRIMARY DRAIN THAT WILL SHUT OFF THE EQUIPMENT IN THE EVENT THE PRIMARY DRAIN LINE IS BLOCKED.
- WATER, SEWER, AND VENT LINES SHALL NOT BE ROUTED IN DEMISING WALLS. A PLUMBING WALL SHALL BE REQUIRED WHERE THESE LINES ARE SHOWN IN DEMISING WALLS.

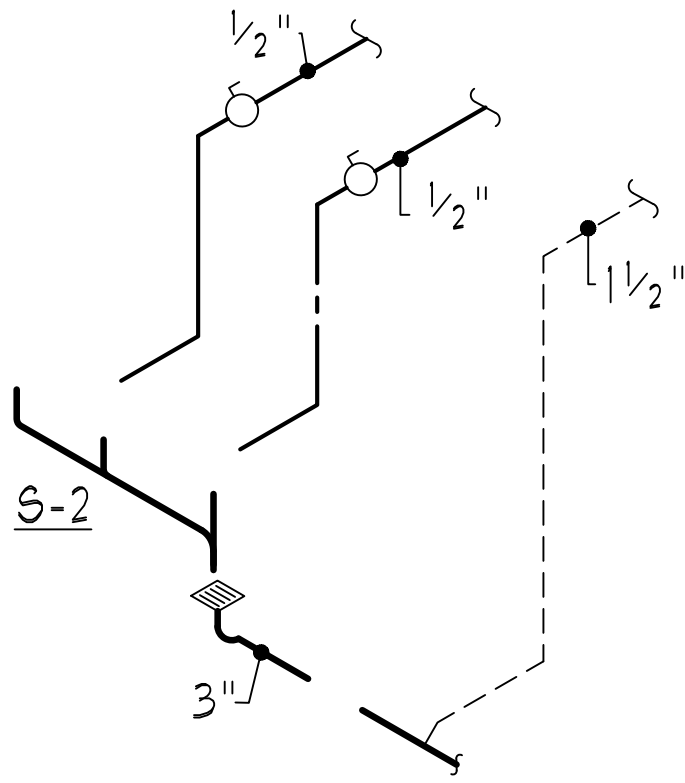
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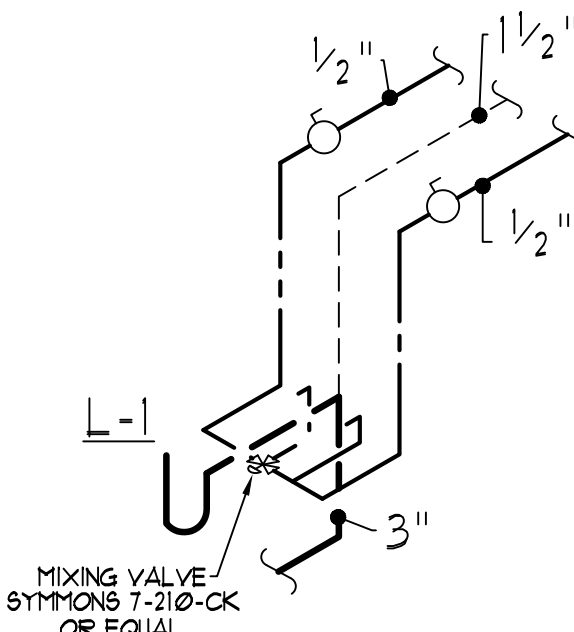
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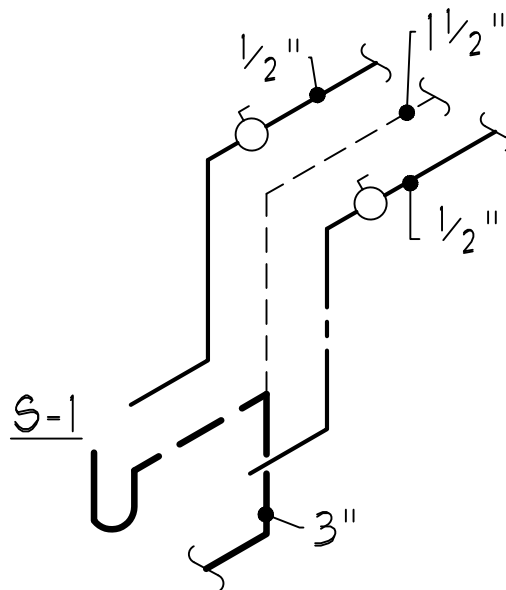
4 SERVICE SINK ISOMETRIC
MPI.2 SCALE: NOT TO SCALE



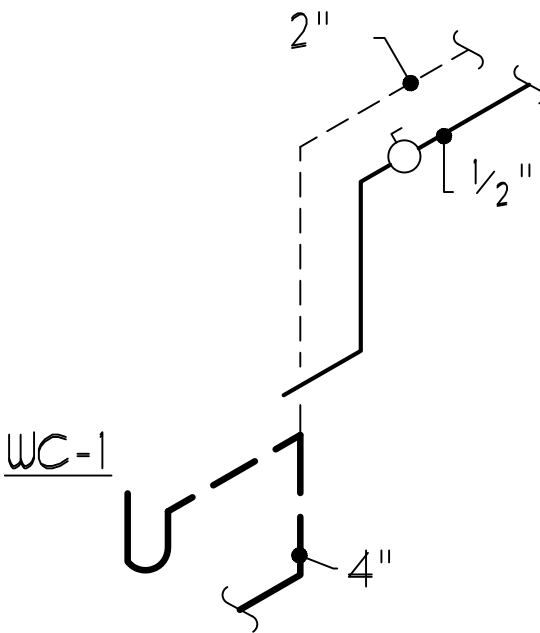
5 3 COMPARTMENT SINK ISOMETRIC
MPI.2 SCALE: NOT TO SCALE



1 LAVATORY ISOMETRIC
MPI.2 SCALE: NOT TO SCALE



2 HAND SINK ISOMETRIC
MPI.2 SCALE: NOT TO SCALE



3 WATER CLOSET ISOMETRIC
MPI.2 SCALE: NOT TO SCALE

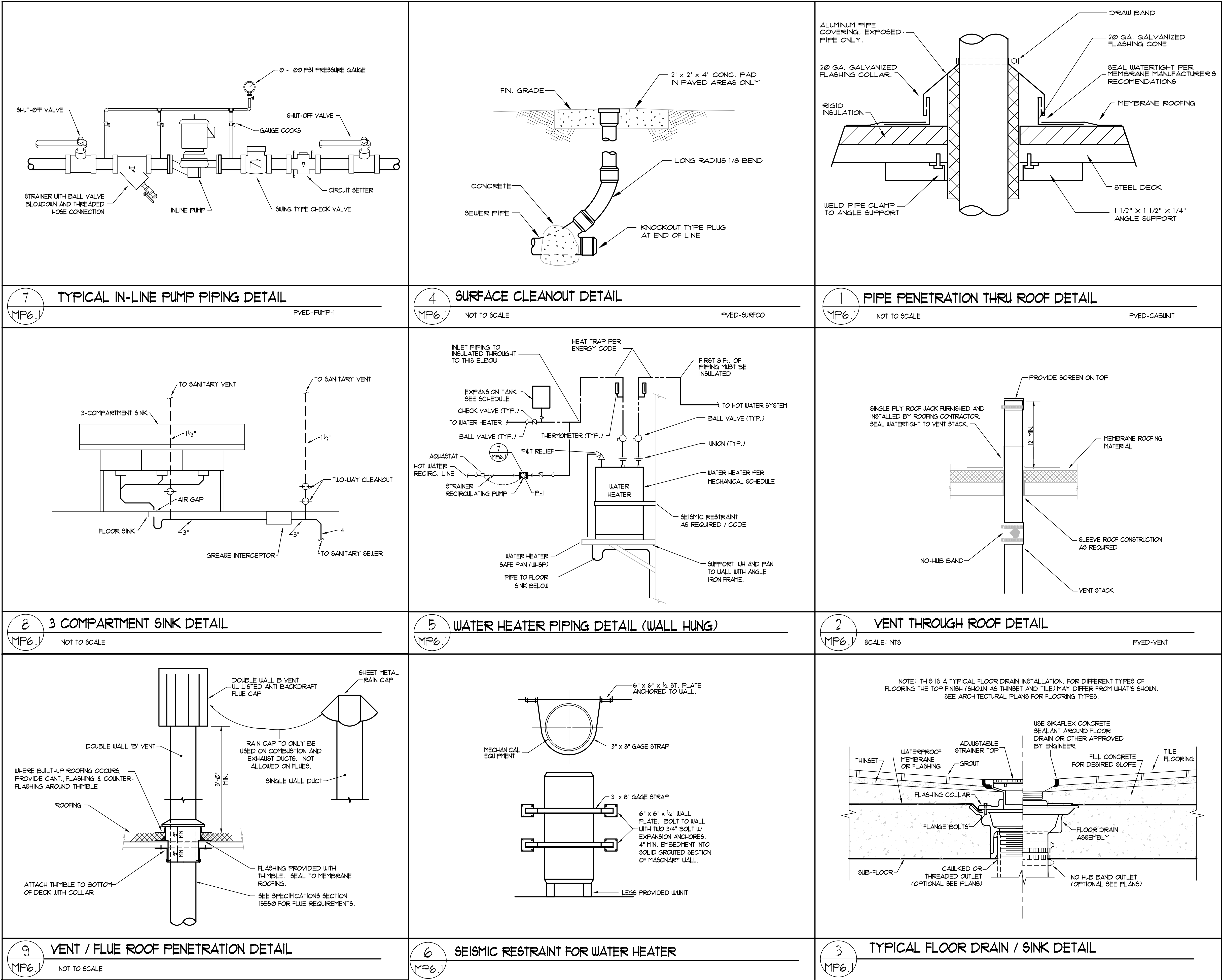
WATER SUPPLY FIXTURE UNIT COUNT			
FIXTURE	QTY.	WSFU PER FIXTURE	TOTAL WSFU
3-COMPARTMENT SINK	1	4	4
HAND WASH SINK	1	2	2
LAVATORY	1	1	1
MOP SINK	1	3	3
WATER CLOSET	1	2.5	2.5
BOTTLE STATION	0	0.5	0
PER 2018 IPC TABLE E103.3(2)		TOTAL	12.5

DRAINAGE FIXTURE UNIT COUNT			
FIXTURE	QTY.	DFU PER FIXTURE	TOTAL DFU
3-COMPARTMENT SINK	1	4	4
HAND WASH SINK	1	2	2
LAVATORY	1	1	1
MOP SINK	1	2	2
WATER CLOSET	1	4	4
FLOOR DRAIN	0	2	0
BOTTLE STATION	0	0.5	0
PER 2018 IPC TABLE E103.1		TOTAL	13

KITCHEN EXHAUST	
KITCHEN = 910 SF	
VENTILATION = 0.7 CFM/SF	
910 SF x 0.7 CFM/SF = 637 CFM	
CALCULATED USING INTERNATIONAL MECHANICAL CODE TABLE 403.3.1.1	

APPLIANCE LOAD CALCS			
APPLIANCE/OBJECT	LOAD PER	QTY.	TOTAL
PEOPLE	250 BTU/H	32	8000 BTU/H
REFRIGERATOR	2660 BTU/H	7	18620 BTU/H
FREEZER	4570 BTU/H	2	9140 BTU/H
FOOD WARMER 93%(E)	700 BTU/H	2	1400 BTU/H
MIXER	2915 BTU/H	2	5830 BTU/H
OVEN 93%(E)	4300 BTU/H	2	8600 BTU/H
TOTAL			51590 BTU/H 4.3 TONS
AREA LOAD CALCS (DELTA T = 35°F)			
DIRECTION	SQUARE FOOTAGE	U-VALUE	LOAD
EAST WALL	140	0.064	314 BTU/H
EAST GLASS	220	1.2	3240 BTU/H
WEST WALL	360	0.064	806 BTU/H
ROOF	2090	0.035	2561 BTU/H
TOTAL			12921 BTU/H 1.08 TONS
TOTAL LOAD = 4.3 + 1.08 = 5.38 TONS			

OUTSIDE AIR CALCULATIONS	
KITCHEN = 910 SF	
FPL = 1000 x 910 = 910	
PER PERSON = 7.5 CFM/PERSON	
PER/SF = 0.12 CFM/SF	
910 SF x 0.12 CFM/SF + 19 PEOPLE x 7.5 CFM/PERSON = 282 CFM	
PICKUP = 255 SF	
FPL = 1000 x 255 = 255	
PER PERSON = 5 CFM/PERSON	
PER/SF = 0.06 CFM/SF	
255 SF x 0.06 CFM/SF + 3 PEOPLE x 5 CFM/PERSON = 31 CFM	
BACK OF HOUSE = 925 SF	
FPL = 1000 x 925 = 925	
PER PERSON = 5 CFM/PERSON	
PER/SF = 0.18 CFM/SF	
925 SF x 0.18 CFM/SF + 10 PEOPLE x 5 CFM/PERSON = 217 CFM	
TOTAL OUTSIDE AIR = 500 CFM	
CALCULATED USING INTERNATIONAL MECHANICAL CODE TABLE 403.3.1.1	



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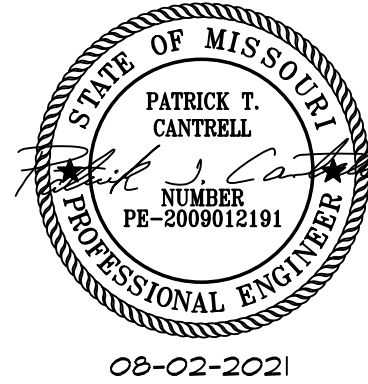
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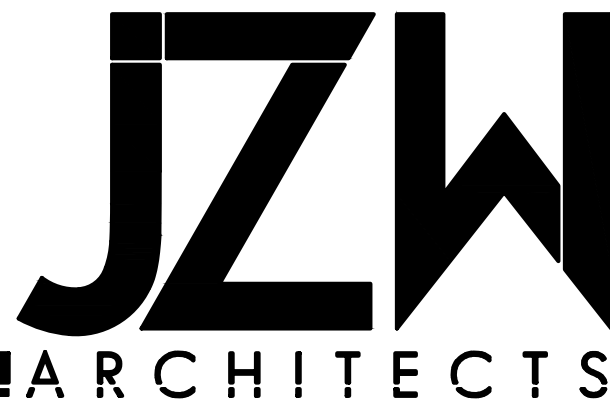


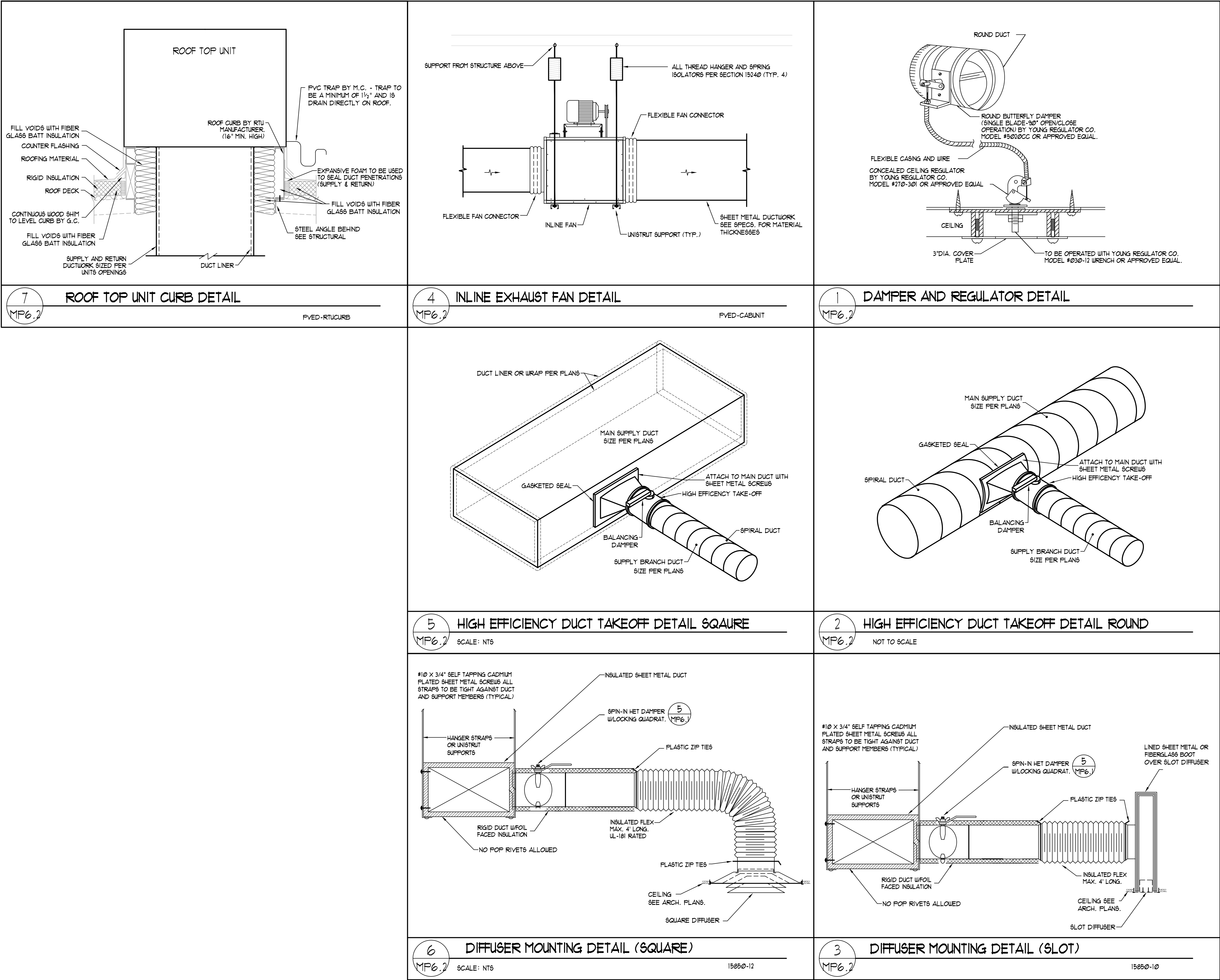
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MECHANICAL
& PLUMBING
DETAILS

MP6.1





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PVE
1040 N 2200 WEST
SALT LAKE CITY UTAH
T:801.359.3158
www.pve-ut.com

CRUMBL COOKIES - LEE'S SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081

STATE OF MISSOURI
PATRICK T. CANTRELL
NUMBER PR-2009016191
PROFESSIONAL ENGINEER
08-02-2021

MECHANICAL
& PLUMBING
DETAILS

MP6.2

JZW
ARCHITECTS

DIVISION 15 - MECHANICAL

SECTION 153000
MECHANICAL GENERAL PROVISIONS

A. GENERAL CONDITIONS

- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS ARE A PART OF THIS CONTRACT AND APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.
- THE CONTRACTOR FOR THIS WORK IS REQUIRED TO READ THE ENTIRE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL OTHER TRADES.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS SUBCONTRACTORS WITH A FULL SET OF BID SET DOCUMENTS (INCLUDING SPECIFICATIONS) AND THE COORDINATION OF HIS WORK AND INSPECTIONS AND THE WORK AND INSPECTIONS OF HIS SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE CONFORMING TO THE GENERAL CONTRACTOR'S TIME SCHEDULE.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO DETERMINE CONDITIONS AFFECTING THE WORK. BIDS SHALL SERVE AS EVIDENCE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
- WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND INSTALLED" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TENANT" WHICH MEANS "FURNISHED ONLY" (INSTALLED BY CONTRACTOR), EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

B. GENERAL REQUIREMENTS

- THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE LANDLORD, AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE AND LOCATION ETC. OF EXISTING PIPE AND DUCTS IN THE TENANT SPACE PRIOR TO BID.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF CONTRACT.
- WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE LANDLORD'S TENANT CRITERIA, THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING THE SYSTEM AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.
- THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD. PATCHING SHALL MATCH FINISH OF SURROUNDING AREA.

C. CODES

- ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES. ALL WORK SHALL CONFORM TO THE LANDLORD'S ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES, AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. THE CONTRACTOR SHALL INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENANT TO THE CONTRACTOR.

D. LICENSES, PERMITS, INSPECTIONS & FEES

- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS, AND FEES REQUIRED OR RELATED TO HIS WORK.
- FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT SUBSTANTIAL COMPLETION DATE OF PROJECT.

E. DRAWINGS

- DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPING OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED.
- THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN HIS BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK SHOWING ALL SUCH MODIFICATIONS AND CHANGES. HIS PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.

F. EXISTING SHELL SPACE CONDITIONS

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANICAL WORK SHOWN ON THE MECHANICAL DRAWINGS AND THE MECHANICAL DEMOLITION SHOWN ON THE ARCHITECTURAL DRAWINGS.
- THE CONTRACTOR SHALL INCLUDE, AND WILL BE HELD RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FAN, ETC., AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED UNLESS NOTED FOR REUSE OR RECONFIGURATION OF PLANS. ROOF PATCHING SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF (ABOVE THIS SPACE) NOT APPLICABLE TO THE NEW WORK OR PART OF THE LANDLORD'S OR ANOTHER TENANT'S ACTIVE SYSTEM MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. IF REQUIRED BY LANDLORD OR CODES, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.
- ACTIVE LANDLORD OR OTHER TENANT SERVICES ENCOUNTERED IN WORK SHALL BE PROTECTED AND SUPPORTED. IF EXISTING SERVICES NOT ANTICIPATED REQUIRE RELOCATION, CONTACT THE TENANT'S CONSTRUCTION MANAGER IMMEDIATELY. ALL COSTS FOR REPAIR OF DAMAGES TO ACTIVE LANDLORD OR OTHER TENANT SERVICES DURING CONSTRUCTION SHALL BE PAID FOR BY THE CONTRACTOR CAUSING THE DAMAGE.
- Tie-ins and modifications to existing LANDLORD services must be done with minimum interruption of LANDLORD operation and during hours specified by the LANDLORD. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING HIS BID. THE CONTRACTOR SHALL INCLUDE IN HIS BID, ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.
- DISCREPANCIES IN DOCUMENTS
- DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE GENERAL CONTRACTOR IN WRITING, PRIOR TO SUBMITTAL OF BID. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ADVISE THE TENANT'S CONSTRUCTION MANAGER, IN WRITING, OTHERWISE, TENANT'S CONSTRUCTION MANAGER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.
- TRADE NAMES AND MANUFACTURERS

- WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL FOR THE BID BE A MINIMUM STANDARD FOR THE BASE BID. MANUFACTURERS CONSIDERED AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO ACCEPTANCE. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

I. SHOP DRAWINGS

- SUBMIT COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT. SUBMISSIONS MUST BE EARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER EIGHT WORKING DAYS FOR REVIEW WITHOUT CAUSING DELAYS OR CONFLICTS TO THE JOB'S PROGRESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS USING THE MANUFACTURER'S LISTED ON THE DRAWINGS. SHOP DRAWINGS SHALL INCLUDE ALL DATA THAT PERTAINS TO THE REQUIREMENTS SET FORTH ON THE DRAWINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT LIMITED TO CUTS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL SHOW MAJOR DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROP, CODE COMPLIANCE, MOTOR AND DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBMITTALS SHALL BEAR THE STAMP OF THE GENERAL AND SUB-CONTRACTOR SHOWING THAT HE HAS REVIEWED AND CONFIRMED THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS OR INDICATE WHERE EXCEPTIONS TAKE PLACE. LACK OF SUCH CONTRACTOR'S REVIEW AND APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY TENANT'S CONSTRUCTION MANAGER. ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.
 - TENANT'S CONSTRUCTION MANAGER'S REVIEW OF SHOP DRAWINGS OR SCHEDULES SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEFICIENCIES OR DEVIATIONS IN THE SHOP DRAWING FROM THE CONTRACT DRAWINGS AND SPECIFICATIONS.
- J. RECORD DRAWINGS
- THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS:
 - LOCATION OF CONCEALED PIPING VALVES AND DUCTS.
 - REVISIONS, ADDENDUMS, AND CHANGE ORDERS.
 - SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.
 - EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER FLOOR.
 - AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, THE CONTRACTOR SHALL MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. THE DRAWINGS ARE TO BE TURNED OVER TO THE TENANT.

K. GUARANTEE

- THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORK UNDER HIS CONTRACT AND SHALL MAKE GOOD, REPAIR OR REPLACE AT HIS OWN EXPENSE, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION BY THE TENANT'S CONSTRUCTION MANAGER. PROVIDE EXTENDED WARRANTIES AS SPECIFIED WITH INDIVIDUAL EQUIPMENT. IN CASE OF REPLACEMENT OR REPAIR OR EQUIPMENT DUE TO FAILURE WITHIN GUARANTEE PERIOD, GUARANTEE ON THAT PORTION OF WORK SHALL BE EXTENDED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUCH REPLACEMENT OR REPAIR.

L. OPERATIONS MANUALS

- ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON JOB SHALL BE COLLECTED AND INSERTED IN A 3" THREE RING BINDER AND TURNED OVER TO THE TENANT. EACH NOTEBOOK SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS, PamPHLETS OR BROCHURES APPROVED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MANUFACTURER OF PRINCIPAL ITEMS OF EQUIPMENT.

M. SLEEVES

- THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR.
- ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, 3M" FIRE RATED SEALANTS OR EQUAL SO AS TO RETAIN THE FIRE RATING OF THE FLOOR OR WALL. CONFORM TO U.L. ASSEMBLY RATING OF FLOOR OR WALL.
- SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.
- DUCT SLEEVES TO BE MINIMUM 14 GAUGE STEEL.

N. HANGERS

- HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.
- HANGER SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK UNLESS PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF JOIST JOIST. WHERE INTERFERENCE'S OCCUR IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE CONTRACTOR MUST INSTALL TRAFFEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPMENT SERVICE REQUIREMENTS AND/OR OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE SUBJECT TO LANDLORD CRITERIA.
- HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG 5/16" DIA GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.
- HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED FROM ONE ANOTHER.

O. ACCESS DOORS

- FURNISH STEEL ACCESS DOORS AND FRAMES, MIN 16" X 20" OR AS SHOWN ON DRAWINGS, TO GENERAL CONTRACTOR FOR ALL LOCATIONS WHERE NECESSARY TO PROVIDE ACCESS TO CONCEALED VALVES, AND OTHER EQUIPMENT REQUIRING SERVICE OR INSPECTION. LOCATION, TYPE, SIZE AND NUMBER AS DETERMINED BY CONTRACTOR AND APPROVED BY TENANT CONSTRUCTION MANAGER TO SUIT EQUIPMENT REQUIREMENTS. GENERAL CONTRACTOR WILL INSTALL ACCESS DOORS AND FRAMES.
- ACCESS DOORS LOCATED IN FIRE-RATED WALL, FLOOR, CEILING-FLOOR OR CEILING-ROOF ASSEMBLIES SHALL BE FIRE RATED, UNDERWRITER'S LABORATORIES, INC., LISTED AND LABELED.
- ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM NO. 14 GAUGE STEEL, COMPLETE WITH FLUSH FLANGE TYPE FRAMES MANUFACTURED FROM NO. 16 GAUGE STEEL, PROVIDED WITH ANCHORS. ACCESS DOORS SHALL BE SUITABLE FOR INSTALLATION IN WALL OR CEILING MATERIALS SHOWN IN ROOM FINISH SCHEDULES.

P. ELECTRICAL MOTORS

- FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THE EQUIPMENT. UNLESS THEY ARE FACTORY INSTALLED ON THE UNIT, ALL STARTERS AND ASSOCIATED WIRING AND SAFETY SWITCHES FOR SUCH MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL DIVISION OF THE SPECIFICATIONS.
- DESIGN CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA ANSI, IEEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10%, 40 DEGREES C AMBIENT TEMPERATURE; HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.

Q.

- LOW VOLTAGE (24 VOLT) WIRING
- THE MECH CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR HIS EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.
- ALL WORK IS TO CONFORM TO THE LATEST ADDITION N.E.C. AND TO DIVISION 16 ELECTRICAL SPECIFICATIONS.
- ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.

DIVISION 15 - MECHANICAL

SECTION 153000
FIRE PROTECTION

A. SCOPE OF WORK

- THE F.P. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE SPRINKLER SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: (REFER TO RESPONSIBILITY SCHEDULE FOR EXACT RESPONSIBILITIES)
 - INSTALLATION OF NEW WET SPRINKLER SYSTEM AS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH NFPA-13, LOCAL CODES, LANDLORD'S CRITERIA, AND INSURANCE CARRIERS FOR THE BUILDING AND TENANT.
 - TAPS, RISER, LATERALS, BRANCHES, VALVES, ALARMS, SPRINKLER HEADS AND ALL COMPONENTS REQUIRED FOR A COMPLETE SYSTEM.
 - DESIGN DRAWINGS, CALCULATIONS, SUBMITTALS AND APPROVALS.
 - PERMITS, FEES, AND CHARGES.
 - TESTS AND TEST CERTIFICATES.
 - COST FOR SHUT DOWN FEES.
- THE CONTRACTOR THAT DOES THE ACTUAL SPRINKLER WORK IS REQUIRED TO BE A LANDLORD APPROVED SPRINKLER CONTRACTOR.
- BEFORE STARTING WORK, THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE FIRE PROTECTION SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFRONTATIONS.
- RELOCATION OF EXISTING MAINS, LATERALS, BRANCHES AND RISER TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOSAL.

B. SHOP DRAWINGS

- THE FIRE PROTECTION CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS AND CALCULATIONS FOR HIS WORK. SUBMIT SIX (6) COPIES TO GENERAL CONTRACTOR FOR APPROVAL. NO WORK SHALL BEGIN UNTIL TENANT'S CONSTRUCTION MANAGER APPROVES HEAD AND PIPING LOCATIONS.
- THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR SUBMITTING COORDINATED DRAWINGS, CALCULATIONS, HEAD TYPES AND COLORS TO ALL AUTHORITIES HAVING JURISDICTION FOR APPROVAL. NO WORK SHALL BEGIN UNTIL ALL APPROVALS HAVE BEEN RECEIVED.
- A COPY OF THE LETTER OF APPROVAL FROM THE LANDLORD'S INSURANCE RATING BUREAU SHALL BE FORWARDED TO THE LANDLORD'S AGENT AND TO THE TENANT'S CONSTRUCTION MANAGER.

C. EQUIPMENT

- SPRINKLER HEADS:
 - ALL SPRINKLER HEADS SHALL BE NEW (EXISTING HEADS IN EXISTING STORES TO BE REPLACED), U.L., F.M., LISTED AND APPROVED AUTOMATIC SPRAY TYPE AS MANUFACTURED BY CENTRAL SPRINKLER CO., GLOBE, GRINNELL, RELIABLE, STAR, OR YKKING.
 - ALL SPRINKLER HEADS SHALL BE RATED FOR 165°F UNLESS INDICATED OTHERWISE ON DRAWINGS OR REQUIRED BY LOCAL CODES.
 - ALL SALES FLOORS HEADS ARE TO HAVE BE FACTORY APPLIED COLOR FINISH TO MATCH ARCHITECTURAL CEILING FINISH. VERIFY HEAD TYPES AND COLORS WITH TENANT'S CONSTRUCTION MANAGER AND SUBMIT WITH SPRINKLER DRAWING FOR PERMIT.
- SPRINKLER HEAD TYPES SHALL BE AS FOLLOWS:
 - FINISHED CEILING - FULLY RECESSED TYPE.
 - NO-CEILING - BRASS UPRIGHT TYPE - DON'T NEED TO BE FINISHED.
 - NON-SALES: - BRASS PENDANT COVERS SHOULD MATCH ADJACENT CEILING COLORS.

D. GENERAL PIPING

- A FIRE PROTECTION SYSTEM STUD IN SHALL BE FURNISHED BY THE LANDLORD. SPRINKLER SPACING SHALL NOT EXCEED 150 SQ. FT. IN "OFFICE" AREAS, 130 SQ. FT. IN "SALES" AREAS AND 100 SQ. FT. IN "STOCK" AREAS. COMPLY WITH LANDLORD'S DESIGN CRITERIA. PIPE SIZING SHALL BE BASED ON NFPA ORDINARY HAZARD.
- ALL SPRINKLER LINES SHALL BE INSTALLED CONCEALED, AVOIDING INTERFERENCE WITH LIGHTS, DUCTS, PIPES, STORAGE DUCK, ETC. FIRE PROTECTION CONTRACTOR SHALL PREPARE COORDINATED SHOP DRAWINGS INDICATING THE LOCATIONS OF ALL SPRINKLER HEADS, SPRINKLER LINES, LIGHTS, DIFFUSERS, GRILLES AND REGISTERS PRIOR TO INSTALLATION. HORIZONTAL SPRINKLER RUNS AT SOFFITS SHALL BE PLACED INSIDE SOFFIT STRUCTURE. VERTICAL DROPS FROM CEILING TO SOFFIT SHALL BE LOCATED FLUSH AGAINST CEILING WALLS.
- WHERE POSSIBLE, REWORK THE EXISTING SPRINKLER SYSTEM TO MEET THE NEW REQUIREMENTS OF THIS DESIGN. RELOCATE ALL MAINS AND BRANCHES INTERFERING WITH CEILING HEIGHTS, EQUIPMENT, AND MAJOR COMPONENTS INCLUSIVE OF ADJACENT TENANTS AND COMMON AREAS. REMOVE ALL UNUSED PIPING.
- LOCATIONS OF ALL HEADS SHOULD BE APPROVED BY THE LOCAL FIRE PROTECTION OFFICIAL AND THE TENANT'S CONSTRUCTION MANAGER BEFORE INSTALLATION. HEADS MUST BE LOCATED IN THE CENTER OF CEILING TILES AND IN A SYMMETRICAL PATTERN WITH OTHER CEILING FIXTURES. ADDITIONAL MONIES WILL NOT BE ALLOCATED FOR ADDITIONAL HEADS REQUIRED BY FIELD FIRE INSPECTOR AFTER BIDS ARE ACCEPTED. HEADS IN BAYS SHALL BE CENTERED SIDE TO SIDE AND FRONT TO BACK.
- PROVIDE AND INSTALL A VALVED TEST CONNECTION FOR THE SPRINKLER SYSTEM AS REQUIRED OR REQUESTED BY THE LOCAL INSPECTOR OR INSURANCE CARRIER. COORDINATE LOCATION WITH TENANT'S CONSTRUCTION MANAGER AND LOCAL FIRE PROTECTION OFFICIAL PRIOR TO ROUGH-IN.
- SPRINKLER HEADS LOCATED IN STOCK, CORRIDOR ON TOILET ROOM CEILINGS OR WALLS BELOW 8'-0" ABOVE THE FINISHED FLOOR ARE TO BE PROTECTED WITH APPROVED GUARDS.

E. PIPING

- SCHEDULE 40, BLACK STEEL PIPE, ASTM A-53 FOR FERROUS PIPING, WELDED AND SEAMLESS, ANSI B-36-10-70 FOR URGHOUT STEEL PIPE.
- CAST IRON OR MALLEABLE IRON SCREWED FITTINGS FOR PIPES 2 INCHES AND SMALLER. SCREWED OR CAST IRON FLANGED JOINTS FOR PIPES LARGER THAN 2 INCHES.
- GALVANIZED OR BLACK MALLEABLE IRON WITH BRASS SEAT SCREWED UNIONS FOR PIPES 2 INCHES AND SMALLER.
- VITACULIC TYPE COUPLINGS ARE ACCEPTABLE, WHERE APPROVED BY CODE AND THE LANDLORD.

F. TESTS

- WHEN COMPLETED, THE ENTIRE FIRE PROTECTION PIPING SYSTEM SHALL BE HYDROSTATIC ALLY TESTED AS REQUIRED BY THE RULES AND REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION. SYSTEM SHALL SHOW NO SIGNS OF LEAKAGE OR OTHER DEFECTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF THE OTHER CONTRACTORS OR TO THE BUILDING, OR TO ITS CONTENTS, PEOPLE, ETC., CAUSED BY LEAKS IN ANY OF THE EQUIPMENT INSTALLED BY HIM. ALL REPAIRS OR REPLACEMENT OF DAMAGES SHALL BE AT THIS CONTRACTOR'S EXPENSE.

- PROPERLY COMPLETED AND SIGNED "SPRINKLER CONTRACTOR'S MATERIAL AND TEST CERTIFICATES" SHALL BE FURNISHED TO THE LANDLORD. AUTHORITIES HAVING JURISDICTION, AND TENANT'S CONSTRUCTION MANAGER.

DIVISION 15 - MECHANICAL

SECTION 153000
HEATING, VENTILATION, AND AIR CONDITIONING

A. SCOPE OF WORK

- THE HVAC CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETIONS AND TESTING OF ALL THE WORK FOR THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: (REFER TO RESPONSIBILITY SCHEDULE FOR EXACT RESPONSIBILITIES)
 - HVAC UNITS, EQUIPMENT, AND APPURTENANCES.
 - DUCTWORK, FITTINGS, DAMPERS, AND INSULATION.
 - HYDRONIC PIPING AND INSULATION (AS APPLICABLE, REFER TO PLANS).
 - REFRIGERANT PIPING (AS APPLICABLE, REFER TO PLANS).
 - DIFFUSERS, GRILLES, AND REGISTERS.
 - CURBS AND STEEL FRAMING FOR SUPPORT (AS APPLICABLE, REFER TO PLANS).
 - TESTING, ADJUSTING, AND BALANCING.
 - OPERATIONS MANUALS.
 - TEMPERATURE CONTROLS AND RELATED DIAGRAMS.
 - SEQUENCE OF OPERATION.
 - CONNECTION TO ANY LANDLORD ENERGY MANAGEMENT SYSTEM.
- BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFRONTATIONS.

B. HVAC EQUIPMENT

- PRIMARY HEATING, VENTILATION AND AIR CONDITIONING UNITS.
 - PRIMARY HEATING, VENTILATION AND AIR CONDITIONING UNITS ARE TO BE AS SCHEDULED. ALL COMPRESSORS ARE TO INCLUDE A 5-YEAR EXTENDED WARRANTY.
 - EQUAL EQUIPMENT FROM OTHER MANUFACTURERS ARE ACCEPTABLE.
 - ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES, AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.
 - CONDITIONING EQUIPMENT MUST HAVE A CONDENSATE DRAIN AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURERS DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.
 - SECONDARY DRAIN PANS ARE REQUIRED TO BE INSTALLED BENEATH ALL INDOOR AIR CONDITIONING EQUIPMENT WITH THE EXCEPTION OF VAV BOXES. SECONDARY FANS ARE TO PROTECT ENTIRE UNIT. PROVIDE CONDENSATE PUMPS, AS REQUIRED. CONDENSATE SHALL BE DIRECTED TO MOP SINK OR AS SPECIFIED ON PLANS.
- VARIABLE AIR VOLUME BOXES (VAV) - IF APPLICABLE
- WHERE SHOWN ON DRAWINGS, PROVIDE VAV BOXES COMPLETE WITH CONTROLS, HEATING COILS (FANS AS REQUIRED). ALL DUCT CONNECTIONS FLEXIBLE DUCT / PIPE CONNECTIONS SHALL BE PROVIDED BY THE CONTRACTOR.
- TOILET EXHAUST FANS
- WHERE SHOWN ON DRAWINGS, PROVIDE A TOILET EXHAUST FAN UNIT COMPLETE WITH GRAVITY BACK DRAFT DAMPERS. ALL DUCTWORK, ROOF OPENINGS AND CAPS NECESSARY TO PROVIDE A COMPLETE EXHAUST SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.
- BASEBOARDS, CABINET, AND UNIT HEATERS
- WHERE SHOWN ON DRAWINGS, PROVIDE ELECTRIC HEATERS COMPLETE WITH ELECTRIC HEATING COIL, CONTROLS, AND INTEGRAL THERMOSTAT.
- INLINE PUMPS
- WHERE SHOWN ON DRAWINGS PROVIDE AN INLINE CLOSE COUPLED PUMP(S). BRONZE FITTED, PUMPS SHALL BE FURNISHED WITH BRONZE CASE WEARING RINGS, BRONZE SHAFT SLEEVE AND MECHANICAL SHAFT SEAL RATED FOR. PUMPS TO BE SO CONSTRUCTED THAT THEY MAY BE MOUNTED IN A HORIZONTAL OR VERTICAL PIPE LINE. MOTOR TO BE 1750 RPM UNLESS NOTED OTHERWISE.
- VIBRATION ISOLATION DEVICES
 - VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND STRUCTURE.
 - VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES.
 - EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.
 - CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND AT THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.
 - CONSULT MANUFACTURER FOR APPLICATION DATA.
- CURBS AND STEEL FRAMING FOR SUPPORT
- THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC EQUIPMENT AS DESCRIBED OR IMPLIED ON THE DRAWINGS. CURBS SHALL BE A MINIMUM OF 14" HIGH, OF THE SAME MANUFACTURER OF THE EQUIPMENT SUPPORTED. INSULATE UNDER THE COMPRESSOR SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT TOP OF CURBS ARE "DEAD" LEVEL. ALL PENETRATIONS OF EXISTING STRUCTURE SHALL BE DONE IN ACCORDANCE TO THE LANDLORD'S GUIDELINES AT THIS CONTRACTOR'S EXPENSE.
- METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED

- NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. SIGNIFICANT DEVIATIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT WORKS ARE TO BE RECTANGULAR UNLESS NOTED OTHERWISE. ALL DUCT BRANCHES TO DIFFUSERS ARE TO BE ROUND RIGID DUCT. (FLEXIBLE DUCT CONNECTIONS TO THE DIFFUSER ARE NOT TO EXCEED 5' - 0").
- EXCEPT AS OTHERWISE INDICATED, FABRICATE AND INSTALL RECTANGULAR DUCTS WITH GALVANIZED SHEET STEEL, IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" OF THIS LATEST EDITION. CONFORM TO THE STANDARDS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.
- EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO THE FOLLOWING PRESSURE CLASSIFICATIONS: (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE).
 - SUPPLY DUCTS: 2 INCHES WATER GAUGE, POSITIVE PRESSURE.
 - RETURN AND EXHAUST DUCTS: 2 INCHES WATER GAUGE, NEGATIVE PRESSURE.
- PRESSURE TEST DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 5% LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA STANDARDS.
- AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY DEEP ON 12" CENTERS TO PREVENT VIBRATIONS.
- INSTALL DOUBLE THICKNESS TURNING VANES IN ALL RIGHT ANGLE ELBOWS.
- INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA STANDARDS. SUPPORT HORIZONTAL DUCTS WITH 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERIOR JOINTS ON EACH SIDE OF STRAP HANGERS ON EACH SIDE OF DUCTS. SUPPORT VERTICAL DUCTS AT A MINIMUM INTERVAL OF 16 FEET AND AT EACH FLOOR. NO WOOD SHALL BE USED TO SUPPORT OF BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND LOCAL CODES OR BY LANDLORD.
- WHERE DUCTS PASS THROUGH ROOFS AND FLOORS, PROVIDE AS MINIMUM 1½" x 1½" x 1½" STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNULAR SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY ASSEMBLY FIRE RATING. REFER TO SHELL DUGS.
- ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR TIGHT WITH DAP CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.
- SOFT ELASTOMER BUTYL GASKET WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.
- DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
- PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, CONTROLS, AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE OR INSPECTION. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA, IT MUST BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, GRILLES AND REGISTERS WITH PLASTER FRAMES MAY BE USED AS ACCESS LOCATIONS.
- FLEXIBLE CONNECTIONS

- FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND DUCTS OR CASINGS. ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
- FLEXIBLE CONNECTIONS SHALL CONSTRUCTED OF NEOPRENE-COATED FLAMPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.
- FLEXIBLE CONNECTION IS TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.
- FLEXIBLE AIR DUCT
 - FLEXIBLE AIR DUCT SHALL BE 1.25" INSULATED CLASS 1 AND RATED FOR THE OPERATING PRESSURE OF THE SYSTEM. DUCT CONSTRUCTION MATERIAL (PLASTIC, CLOTH, ALUMINUM) MUST ASHERE TO LOCAL CODES AND LANDLORD'S REQUIREMENTS AND BE INCLUDED AS SUCH IN THE BID.
 - FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM TENANT'S CONSTRUCTION MANAGER.
 - FLEXIBLE DUCT SHALL NOT EXTEND OVER 5'-0" IN LENGTH AT ANY ONE LOCATION.
- SUPPLY AIR TAKE-OFF FITTINGS
 - PROVIDE HET, CONICAL OR "BELL-MOUTH" TAKE-OFFS FROM MAIN DUCTWORK TO ROUND BRANCHES. INSTALL PE MANUFACTURER'S INSTRUCTIONS.
 - PROVIDE HET OR 45° RECTANGULAR TAKE-OFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.

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August 2, 2021

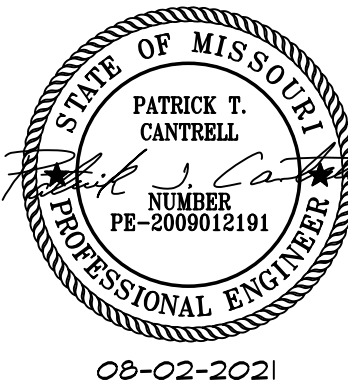
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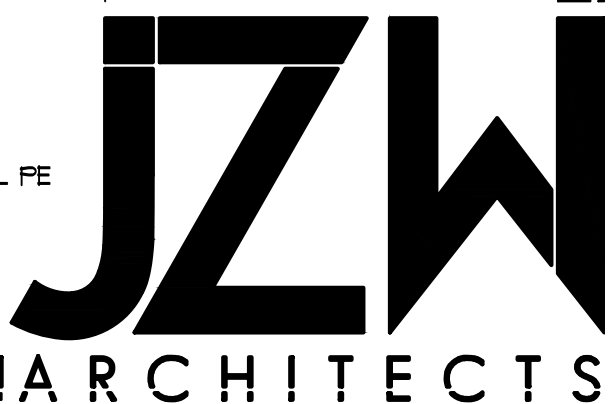


CRUMBL COOKIES - LEE'S
SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



MECHANICAL
& PLUMBING
SPECIFICATIONS

MP7.1



FIRE DAMPERS AND FIRE BLANKETS: ALL GRILLES INSTALLED IN FIRE RATED CEILINGS, WALLS, AND PARTITION SHALL BE PROVIDED WITH FIRE DAMPERS AND FIRE RESISTANT MINERAL WALL BLANKETS. SEE DETAILS ON THE DRAWINGS.

SINGLE ZONE ROOFTOP AIR CONDITIONING UNIT:

GENERAL: FURNISH AND INSTALL WHERE SHOWN ON THE DRAWINGS A ROOFTOP A.C. UNIT. UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED, PROPERLY WIREED, TESTED AND SHIPPED IN ONE PIECE WITH A SINGLE POINT POWER CONNECTION, OUTSIDE AIR SYSTEM, RETURN AIR SYSTEM, FILTERS, SWITCHES, SUPPLY AIR FAN SYSTEM AND ALL STANDARD OPERATING SAFETY CONTROLS SHALL BE FURNISHED AND FACTORY INSTALLED. UNITS SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR ROOFTOP APPLICATION AND INCLUDE A WEATHERPROOF CABINET.

UNIT SHALL BE FOR DIRECT EXPANSION COOLING WITH NATURAL GAS HEAT. ALL UNITS SHALL BE SHIPPED FULLY CHARGED WITH REFRIGERANT 22.

UNIT SHALL HAVE DECALS AND TAGS TO INDICATE CAUTION AREAS AND AID UNIT SERVICE. AN ELECTRICAL WIRING DIAGRAM SHALL BE ATTACHED TO CONTROL PANELS. INSTALLATION AND MAINTENANCE BULLETINS SHALL BE SUPPLIED WITH EACH UNIT. UNITS SHALL BE APPROVED BY U.L. OR A.G.A.

CABINET CASING AND FRAME: THE CABINET SHALL BE CONSTRUCTED FROM HEAVY GAUGE GALVANIZED STEEL, TREATED WITH A FOUR STEP METAL PREPARATION INCLUDING PHOSPHATE AND CHROMIC WASHED AND FINISHED WITH A BAKED ACRYLIC ENAMEL. UNIT SHALL BE EQUIPPED WITH INDIVIDUALLY REMOVABLE EXTERIOR PANELS AND AN ELECTRIC COMPARTMENT HINGED ACCESS PANEL WITH QUICK RELEASE FASTENERS TO PROVIDE A POSITIVE WEATHER TIGHT SEAL. UNIT SHALL BE DESIGNED FOR BOTTOM SUPPLY AND RETURN. HEAVY DENSITY FIBERGLASS INSULATION SHALL BE PERMANENTLY FASTENED TO THE CABINET INTERIOR AND COATED WITH NEOPRENE.

REFRIGERATION SYSTEM: UNIT SHALL BE FURNISHED WITH A DIRECT EXPANSION SYSTEM INCLUDING A FACTORY CHARGE OF R-22, COILS FABRICATED OF ALUMINUM FINN BONDED TO SEAMLESS COPPER TUBES, REFRIGERANT METERING DEVICE AND LIQUID LINE FILTER-DRIER. COMPRESSOR SHALL BE HEAVY DUTY RECIPROCATING FULL OR SEMI-HERMETIC TYPE WITH INTERNAL OVERLOAD PROTECTION, CRANKCASE HEATERS, OIL FAILURE PROTECTION AND HIGH AND LOW PRESSURE CUTOITS.

UNIT SHALL BE PROTECTED FROM SHORT CYCLING BY A FACTORY INSTALLED TIMING CIRCUIT THAT PREVENTS COMPRESSOR RESTART FOR A PERIOD OF FIVE MINUTES. LOW AMBIENT OPERATION TO 0 DEGREES F. SHALL BE PROVIDED.

UNIT SHALL BE PROVIDED WITH PROPERLY SIZED SUCTION LINE FILTER-DRIERS AND REFRIGERATION CONTROLS TO PROVIDE RECYCLING PUMP DOWN.

HEATING SYSTEM: HEATER SHALL BE AN INDIRECT FIRED, MULTIPLE MODULE GAS FURNACE WITH AUTOMATIC SPARK IGNITION, SUITABLE FOR NATURAL GAS OPERATION. FURNACE SHALL HAVE A POWER FORCED DRAFT COMBUSTION SYSTEM WITH VENT OR FAN ON INLET TO HEAT EXCHANGER, OUT OF THE HOT GAS AIRSTREAM.

CONTROLS SHALL INCLUDE A PILOT VALVE, AUTOMATIC COMBINATION MAIN GAS VALVE AND PRESSURE REGULATOR, COMBINATION FAN CYCLE CONTROL THERMOSTAT, VENT OR MOTOR PROTECTION BY CENTRIFUGAL SWITCHES, HIGH LIMIT THERMOSTAT FLAME SENSOR AND AUTOMATIC RELIGHT SYSTEM.

GAS HEATING UNIT SHALL BE AGA APPROVED.

SUPPLY FAN SECTION: SUPPLY FAN SHALL BE FORWARD CURVED, DOUBLE INLET CENTRIFUGAL TYPE. UNIT SHALL BE BELT DRIVEN BY A PERMANENTLY LUBRICATED MOTOR WITH INHERENT OVERLOAD PROTECTION. THE MOTOR SHALL HAVE A VARIABLE FITCH SHAVE AND ADJUSTABLE BASE FOR PROPER ALIGNMENT AND BELT TENSION ADJUSTMENT.

FILTER SECTION: THE FILTER SECTION SHALL BE SUPPLIED COMPLETE WITH GALVANIZED STEEL FILTER RACKS AS AN INTEGRAL PART OF THE UNIT. PANEL FILTERS SHALL BE 2" THICK THROUAWAY GLASS FIBER, 95% EFFICIENT PLEATED, MOUNTED IN A GALVANIZED STEEL FILTER FRAME.

OUTSIDE AIR SECTION: SHALL BE ARRANGED WITH ECONOMIZER CONTROL. 0 TO 100% OUTSIDE AIR ECONOMIZER CONTROL SHALL CONSIST OF LOW LEAK OUTSIDE, RETURN AIR ADM EXHAUST AIR DAMPERS, ADJUSTABLE POTENTIOMETER, DAMPER MOTOR AND AN ADJUSTABLE ENTHALPY CONTROLLER MOUNTED IN THE OUTSIDE AIRSTREAM. THE ADJUSTABLE POTENTIOMETER SHALL CONTROL THE MINIMUM OUTSIDE AIR DAMPER POSITION FOR FRESH AIR REQUIREMENTS. AN ENTHALPY CONTROLLER SHALL BE PROVIDED TO SENSE THE DRY BULB TEMPERATURE AND RELATIVE HUMIDITY OF THE OUTSIDE AIR FOR USE IN COOLING. THE ENTHALPY CONTROLLER SHALL PREVENT COMPRESSOR OPERATION WHEN THE OUTSIDE AIR TEMPERATURE AND HUMIDITY CAN SATISFY THE COOLING LOAD. THE DAMPER MOTOR SHALL BE OF THE MODULATING SPRING RETURN TYPE TO CLOSE THE OUTSIDE AIR DAMPER WHEN THE UNIT IS NOT OPERATING.

A SINGLE SPEED CENT. RELIEF FAN SHALL BE PROVIDED FOR THE ECONOMIZER SYSTEMS AND SHALL BE LOCATED IN THE RETURN AIR SECTION TO EXHAUST RETURN AIR OUT THE BACK OF THE UNIT. EXHAUST LOUVERS AND BIRD SCREEN SHALL BE PROVIDED TO PREVENT INFILTRATION. EXHAUST DAMPERS SHALL BE ALIGNED WITH URETHANE GASKETING ON THE CONTACT EDGES.

ELECTRICAL: UNIT SHALL BE WIRED AND TESTED AT THE FACTORY BEFORE SHIPMENT. WIRING SHALL COMPLY WITH NEC REQUIREMENTS AND SHALL CONFORM TO ALL APPLICABLE U.L. STANDARDS. ALL WIRING SHALL BE NUMBER CODED PER THE ELECTRICAL WIRING DIAGRAMS. ALL ELECTORAL COMPONENTS SHALL BE LABELED ACCORDING TO THE ELECTORAL DIAGRAM AND BE U.L. RECOGNIZED WHERE APPLICABLE. EACH UNIT SHALL HAVE A 24 VOLT CONTROL CIRCUIT TRANSFORMER AND CONTROL CIRCUIT FUSE.

THE SUPPLY AIR FAN, COMPRESSOR AND CONDENSER FAN MOTOR BRANCH CIRCUITS SHALL BE FURNISHED FOR EACH COMPRESSOR AND CONDENSER FAN MOTOR. THE SUPPLY AIR FAN MOTORS SHALL HAVE CONTRACTOR AND OVERLOAD PROTECTION. MAIN CONTROL PANELS SHALL BE OF WEATHERPROOF CONSTRUCTION WITH HINGED ACCESS PANEL AND QUICK-RELEASE LATCHES.

A TERMINAL BOARD SHALL BE PROVIDED FOR THE LOW VOLTAGE CONTROL WIRING. KNOCKOUTS SHALL BE PROVIDED IN THE BOTTOM OF THE MAIN CONTROL PANEL FOR FIELD ENTRANCE.

A DISCONNECT SWITCH SHALL BE PROVIDED TO CUT POWER TO THE ENTIRE UNIT FOR SERVICING.

TEMPERATURE CONTROLS: UNITS SHALL BE PROVIDED WITH ELECTROMECHANICAL TEMPERATURE CONTROL SYSTEMS. ALL TEMPERATURE CONTROL SYSTEM COMPONENTS SHALL BE COMPLETELY FACTORY WIRED AND TESTED WITH WALL THERMOSTAT.

ROOM THERMOSTAT SHALL BE PROGRAMMABLE TYPE, ONE STAGE HEATING AND ONE STAGE COOLING.

ROOF CURB: PREFABRICATED 14 GAUGE GALVANIZED STEEL ROOF CURB DESIGNED AND MANUFACTURED BY THE UNIT MANUFACTURER SHALL BE PROVIDED FOR FIELD INSTALLED ON THE CURB, TO FORM A POSITIVE WEATHER TIGHT SEAL BETWEEN THE CURB AND UNIT. DESIGN SHALL COMPLY WITH ALL REQUIREMENTS WITH THE NATIONAL ROOF CURB CONTRACTORS ASSOCIATION. CURB SHALL BE OF THE FULL PERIMETER TYPE.

ACCEPTABLE MANUFACTURERS: MCQUAY, TRANE, CARRIER, YORK, AND LENNOX.

EVAPORATIVE COOLING UNIT (IF APPLICABLE):

FURNISH AND INSTALL ON THE ROOF AS SHOWN ON THE DRAWINGS AN EVAPORATIVE COOLING UNIT. CAPACITY AS SCHEDULED ON THE DRAWINGS.

CABINETS SHALL BE CONSTRUCTED OF HOT DIP GALVANIZED STEEL. WATER RESERVOIR SHALL BE OF 18 GAUGE STEEL WITH WELDED SEAMS. THE INTERIOR OF THE WATER RESERVOIR SHALL BE TREATED WITH A RUST INHIBITING UNDERCOATING.

THE EVAPORATIVE MEDIA SHALL BE EIGHT INSULAR THICK CROSS-CORRUGATED CELLULOSE PADS.

WATER SHALL BE DISTRIBUTED TO PADS VIA LARGE DIAMETER BUTYRATE PLASTIC CONDUIT AND TWO TIERS OF WATER TROUGS. PUMPS SHALL BE EVAPORATIVE COOLER PUMPS WITH CENTRIFUGAL IMPELLER. PUMP SHALL BE UL LISTED. MAKE-UP WATER SHALL BE THROUGH A METERING FLOAT VALVE.

PROVIDE FACTORY SET WATER BLEED KIT OT PURGE WATER TO REDUCE SOLIDS.

FAN SHALL BE FORWARD CURVED, DOUBLE INLET CENTRIFUGAL TYPE WITH HEAVY DUTY 18 GAUGE STEEL BLADES, WITH WELDED AND RIVETED JOINT OF BLADE TO OUTER RIM. WHEEL SHALL BE KEYED TO THE SHAFT.

V-BELT DRIVE SHALL BE OF THE HEAVY DUTY TYPE WITH TWO GROOVE SHEAVES AND TWO V-BELTS.

MOTOR SHALL BE 3 PHASE, 60 HERTZ, 460 VOLT, 1750 RPM DESIGNED FOR USE IN EVAPORATIVE COOLERS. CONFIRM WITH PLANS IF 208/3.

CAPACITY SHALL BE AS SCHEDULED ON THE DRAWINGS.

ACCEPTABLE MANUFACTURERS: CHAMPION, MCGRAW EDISON, ARCTIC CIRCLE, ALPINE.

ROOFTOP RELIEF AIR HOOD RH-1.

GENERAL: PROVIDE ROOF LOUVERS HOUSES AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED. SIZES SHALL BE AS SHOWN ON THE DRAWINGS.

FRAMES: 6" DEEP CHANNEL, 0.081" THICK 6063-T5 EXTRUDED ALUMINUM ALLOY.

BLADES: 0.081" THICK 6063-T5 EXTRUDED ALUMINUM ALLOY 6-3" SPACING BETWEEN BLADES.

BIRD SCREEN: 1/2" BASKET WEAVE 0.063" DIAMETER ALUMINUM WIRE IN AN EXTRUDED ALUMINUM FRAME, SECURE TO INTERIOR SIDE OF LOUVERS WITH STAINLESS STEEL SHEET METAL SCREWS.

ROOF: 0.081" THICK 3003-H14 ALUMINUM WITH ASBESTOS MEMBRANE UNDERCOATING; 12 GAUGE ALUMINUM ROOF CORNER POSTS. PROVIDE ADDITIONAL ROOF SUPPORTS AS REQUIRED.

FINISH: STANDARD MILL.

ROOF CURBS: PROVIDE SELF-FLASHING ROOF CURBS TO ACCEPT THE LOUVER HOUSES CONSTRUCTED OF 0.064" THICK ALUMINUM WITH 6" WIDE FLASHING FLANGE WITH 1-3/4" WIDE TOP "U" TYPE FLANGE, WITH 1/4" THICK GASKET ON TOP WITH BOTTOM FLANGE TO FIT THE SLOPE OF THE ROOF. ALL WELDED CONSTRUCTION. CURBS MAY BE FACTORY OR FIELD FABRICATED. COORDINATE WITH THE ROOFING CONTRACTOR.

ACCEPTABLE MANUFACTURERS: COOK, AMERICAN WARMING, PENN, AIROLITE AND JENN-AIR.

ALL OTHER MATERIALS:

NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR COMPLETE AND OPERATING FACILITY, SHALL BE NEW FIRST QUALITY OF THEIR RESPECTIVE KINDS AND SUBJECT OT THE APPROVAL OF THE ARCHITECT AND/OR ENGINEER.

PART 3 - EXECUTION

SURFACE CONDITION:

INSPECTION: PRIOR TO WORK OF THIS SECTION, CAREFULLY INSPECT THE INSTALLED WORK OF OTHER TRADES AND VERIFY THAT ALL WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE. VERIFY THAT THE WORK OF THIS SECTION MAY BE INSTALLED IN ACCORDANCE WITH PERTINENT CODES AND REGULATIONS AN THE REVIEWED SHOP DRAWINGS.

DISCREPANCIES: DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

COVERING: DO NOT COVER UP OR ENCLOSE WORK UNTIL IT HAS BEEN PROPERLY AND COMPLETELY TESTED, INSPECTED AND APPROVED.

INSTALLATION OF DUCTS:

FABRICATION: INSTALL DUCTS IN ACCORDANCE WITH THE DRAWINGS AND THE REFERENCED STANDARDS. ON SHEET METAL DUCTS, CROSS-BREAK OR KINK FLAT SURFACES TO PREVENT VIBRATION AND PULSATION.

DUCT LAYOUT: DUCT SIZES SHOWN ON THE DRAWINGS ARE NET DIMENSIONS INSIDE THE INSULATION; WHEREVER OBSTRUCTION REQUIRE A CHANGE IN DUCT SHAPE, MAINTAIN EQUIVALENT AREAS.

MAKE DUCT ELBOWS RIGHT ANGLE TYPE WITH AIR FOIL ELBOW TURNS OR MAKE ELBOWS WITH A RADIUS OF 1-1/2 TIMES THE DUCT WIDTH. FURNISH AND INSTALL SHEET METAL DOORS IN DUCTS WHERE SHOWN ON THE DRAWINGS AND AT EACH OTHER POINT WHERE REQUIRED FOR ACCESS.

SEALING: SEAL ALL JOINTS AND CONNECTIONS IN LOW PRESSURE SHEET METAL DUCT BY THE USE OF TWO PARTS OF AN EPOXY RESIN TYPE ADHESIVE INSTALLED WITH "HARDCAST HC-20" ADHESIVE ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

DUCT HANGERS AND SUPPORTS: HANG DUCTS WITH STRIPS OF 18 GAUGE GALVANIZED STEEL ONE INCH WIDE. ANCHOR DUCTS SECURELY TO STRUCTURE IN SUCH A MANNER AS TO PREVENT TRANSMISSION OF VIBRATION.

FLEXIBLE CONNECTIONS: PROVIDE FLEXIBLE CONNECTIONS IN THE SUPPLY AND RETURN AIR DUCTS TO ALL FAN UNITS.

MATERIAL 20 OZ. CLOSELY WOVEN GLASS FABRIC, DOUBLE COATED WITH NEOPRENE AND UL APPROVED, DURO DYNE "FM" OR VENTGLASS.

PAINT: APPLY FLAT BLACK PAINT TO ALL INTERIOR AREAS OF DUCTS VISIBLE THROUGH REGISTERS, GRILLES AND DIFFUSERS.

ACCESS DOORS: DUCTWORK SHALL BE LOCATED AS REQUIRED FOR SERVICE OF FIRE DAMPERS, AUTOMATIC DAMPERS AND OTHER ITEMS REQUIRING MAINTENANCE OR INSPECTION. PROVIDE VENTLOCK NO 100 LATCH WITH NO 150 HINGES AND FELT GASKETS.

INSTALLATION OF ROUND FLEXIBLE ACOUSTICAL DUCT:

INSTALL THESE DUCTS STRICTLY IN ACCORDANCE WITH GENEFLEX INSTRUCTIONS, THEIR BULLETIN 1978-A-101-049. COPY OF THIS BULLETIN IS ON FILE IN THE ENGINEER'S OFFICE. INSTALLATION OF ACOUSTICAL DUCT LINER:

LINE ALL RECTANGULAR SUPPLY AIR RETURN AIR DUCTS AND OUTSIDE AIR DUCTS. LINE ALL RECTANGULAR SUPPLY AIR AND RETURN AIR FLENUMS. INSULATION SHALL BE SECURED TO CLEANED SHEET METAL DUCT WITH A CONTINUOUS 100% COAT OF MIRACLE FP96 OR 3M 1A4320 FIREPROOF ADHESIVE AND FURTHER SECURED WITH MECHANICAL FASTENERS ON 12" CENTERS. ALL DUCT LINER SHALL BE PINNED.

(A) MECHANICAL FASTENERS SHALL CONFORM TO MECHANICAL FASTENER STANDARD MF-1971. (B) FASTENERS SHALL BE OMARK DISHED HEAD "INSUL-PINS" OR DURO DYNE. GRIP NAILS MAY BE USED PROVIDING EACH NAIL IS INSTALLED BY "GRIP NAIL AIR HAMMER" OR BY "AUTOMATIC FASTENER EQUIPMENT" IN COMPLETE ACCORDANCE WITH MANUFACTURE'S RECOMMENDATION.

LINER SHALL BE ACCURATELY CUT AND ENDS THOROUGHLY COATED WITH ADHESIVE. JOINTS SHALL BE BUTTED TO FORM TIGHTLY FITTED JOINTS. TOP AND BOTTOM SECTIONS OF INSULATION SHALL OVERLAP THE SIDES.

DUCT LINER SHALL BE KEPT CLEAN AND FREE FROM DUST. AT THE COMPLETION OF THE PROJECT, IF DUCT LINER IS FOUND WITH DUST OR DIRT THEREON, IT SHALL BE VACUUM CLEANED.

DUCT DIMENSIONS SHOWN ON THE DRAWINGS ARE FOR FREE AREA INSIDE INSULATION.

IF INSULATION IS INSTALLED WITHOUT ALL HORIZONTAL, LONGITUDINAL AND END JOINTS BUTTED TOGETHER THE INSULATION WILL BE REJECTED AND THE WORK SHALL BE REMOVED AND REPLACED WITH NEW WORK THAT CONFORMS TO THIS SPECIFICATION.

INSTALLATION OF DIFFUSERS AND GRILLE BOXES:

PROVIDE SHEET METAL BOXES FOR ALL CEILING DIFFUSERS AND CEILING GRILLES AS DETAILED ON THE DRAWINGS. LINE BOXES WITH 1" THICK ACOUSTICAL DUCT LINER USING 100% ADHESIVE AND MECHANICALLY PINNED ON 12" CENTERS.

FASTEN DIFFUSERS AND GRILLES SECURELY TO THE ADJACENT SURFACES. PROVIDE FIRE DAMPERS AND FIRE BLANKET AS DETAILED ON THE DRAWINGS.

INSTALLATION OF WEATHER LOUVERS:

PAINT ALL SURFACES OF THE LOUVERS COMING INTO CONTACT WITH CONCRETE OF BRICKWORK A HEAVY COAT OF ASPHALTUM PAINT. FASTEN LOUVERS SECURELY INTO THE WALL OPENINGS.

INSTALLATION OF ROOFTOP HOODS:

SET PREFABRICATED CURB ON THE ROOF AND ANCHOR SECURELY, COORDINATED WITH OTHER TRADES. SET HOODS ON CURBS, ANCHOR TO CURB SECURELY AND CONNECT TO DUCTWORK.

INSTALLATION OF DAMPERS:

INSTALL DAMPERS IN DUCTS WHERE SHOWN. FASTEN SECURELY WITH BOLTS OR SHEET METAL SCREWS. DO NOT RACK. DAMPER BLADES MUST OPERATE FREELY. CAULK AROUND DAMPERS OT PREVENT AIR LEAKAGE.

INSTALLATION OF GAS FIRED UNIT HEATERS:

SUSPEND UNIT FROM ROOF CONSTRUCTION ABOVE BY MEANS OF STEEL RODS. VENT THROUGH THE ROOF. MOUNT AND WIRE THE THERMOSTAT. CONNECT TO GAS LINE.

INSTALLATION OF ROOF TYPE EXHAUST FANS:

SET PREFABRICATED CURB ON THE ROOF AND ANCHOR SECURELY, COORDINATED WITH OTHER TRADES. SET FANS ON CURB, ANCHOR TO CURB SECURELY AND CONNECT TO DUCTWORK AND ELECTRICAL CONTROLS.

INSTALLATION OF CEILING TYPE EXHAUST FANS:

SUSPEND AT THE PROPER ELEVATION IN THE CEILING CONSTRUCTION. CONNECT TO DUCT AND WALL OR ROOF CAP AS SHOWN ON THE DRAWINGS.

INSTALLATION OF ROOFTOP HEATING AND COOLING UNITS:

SET THE ROOF MOUNTING FRAME ON ROOF AT PROPER LOCATION, ANCHOR TO THE ROOF. THE ROOFING CONTRACTOR WILL ROOF-IN THE FRAME. SET UNIT ON MOUNTING FRAME AND ANCHOR SOLIDLY. CONNECT TO NATURAL GAS LINE AN TO AIR DUCTS AS REQUIRED.

CLEANING:

DUCTWORK: REMOVE DEBRIS AND TRASH FROM DUCTWORK AND VACUUM CLEAN DUCTS WHERE ACCESSIBLE. PAINT INSIDE OF ALL DUCTS VISIBLE THROUGH GRILLES AND REGISTERS WITH FLAT BLACK ENAMEL. RUN SUPPLY AND EXHAUST THROUGH GRILLES AND REGISTERS ARE INSTALLED AND BEFORE CEILINGS AND WALLS ARE PAINTED. ROOF SURFACES SOILED FROM CONSTRUCTION DUST IN DUCTWORK SHALL BE CLEANED OR REPAINTED AT NO ADDITIONAL COST TO OWNER. REMOVE SHIPPING LABELS AND OTHER TAGS AND WIPE ALL EQUIPMENT CLEAN.

AIR SYSTEM BALANCING:

GENERAL: AT THE COMPLETION OF THE JOB THE CONTRACTOR SHALL PERFORM THE TESTING AND BALANCING OF THE AIR DISTRIBUTION AND AIR EXHAUST SYSTEMS. THE CONTRACTOR HAS THE OPTION OF EMPLOYING A BALANCING FIRM TO DO THIS WORK.

TOOLS, EQUIPMENT, INSTRUMENTS: PROVIDE ALL TOOLS, EQUIPMENT AND INSTRUMENTS REQUIRED FOR HE TEST AND BALANCING PROCEDURES.

REPORTS AND RECORDS: SUBMIT THREE COPIES OF COMPLETE TEST AND BALANCING ON FORMS WHICH HAVE BEEN APPROVED BY THE ENGINEER. PROVIDE WITH THE REPORT TWO COMPLETE SETS OF MARKED BALANCING DRAWINGS SHOWING AIR OPENING NUMBERS AND FLOW STATION NUMBERS THAT CORRESPOND TO THE NUMBERING SYSTEM IN THE BALANCING LOGS.

VERIFICATION OF REPORTS: CONTRACTOR SHALL PROVIDE HIS BALANCING PEOPLE FOR A TOTAL PERIOD OF SIX (6) HOURS TO THE ENGINEER FOR SPOT VERIFICATION OF THE RESULTS SHOWN IN THE TEST AND BALANCING REPORT.

TESTING AND BALANCING SYSTEM: IDENTIFY AND LIST SIZE, TYPE AND MANUFACTURER OF ALL AIR DISTRIBUTION DEVICES. USE MANUFACTURERS PUBLISHED RATINGS ON ALL EQUIPMENT TO MAKE REQUIRED CALCULATIONS. MAKE ALL CHANGES IN DAMPERS AND DRIVES AS REQUIRED TO OBTAIN THE DESIGN AIR QUANTITIES. AIR QUANTITIES SHALL BE WITHIN PLUS OR MINUS 5% OF DESIGN.

1. RECORD NAMEPLATE DATA, VOLTAGE, AND ACTUAL RUNNING AMPERES FOR EACH MOTOR.
2. ALL SUPPLY AIR FANS: RECORD CFM, STATIC PRESSURE AND RPM.
3. ALL RETURN AIR GRILLES: RECORD CFM, STATIC PRESSURE AND RPM.
4. ALL EXHAUST AIR FANS: RECORD CFM, STATIC PRESSURE AND RPM.
5. ALL EXHAUST AIR GRILLES: RECORD CFM.
6. ALL RETURN AIR GRILLES: RECORD CFM.
7. ALL SUPPLY AIR DIFFUSERS: RECORD CFM.

TEMPERATURE CONTROL:

THE CONTROLS ARE SPECIFIED ABOVE WITH THE FURNACES. THIS CONTRACTOR SHALL COMPLETELY INSTALL ALL CONTROLS INCLUDING CONDUIT, CONDUCTORS, ETC.

FURNISH AND INSTALL FOR EACH ROOM THERMOSTAT A GYMNASIUM TYPE GUAR WITH KEYED LOCK. FASTEN SOLIDLY TO THE WALLS.

THE CEILING TYPE EXHAUST FANS SHALL BE TIED INTO THE LIGHT SWITCHES.

ALL WIRING SHALL CONFORM WITH ALL LOCAL CODES AND THE N.E.C.

SECTION 15300 FIRE PROTECTION

SCOPE OF WORK

THE F.P. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, AND REASONABLY IMPROD AND INCIDENTAL TO THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE SPRINKLER SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: (REFER TO RESPONSIBILITY SCHEDULE FOR EXACT RESPONSIBILITIES) INSTALLATION OF NEW UET SPRINKLER SYSTEM AS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH NFPA-13, LOCAL CODES, LANDLORD'S CRITERIA, AND INSURANCE CARRIERS FOR THE BUILING AND TENANT. TAPS, RISER, LATERALS, BRANCHES, VALVES, ALARMS, SPRINKLER HEADS AND ALL COMPONENTS REQUIRED FOR A COMPLETE SYSTEM. DESIGN DRAWINGS, CALCULATIONS, SUBMITTALS AND APPROVALS. PERMITS, FEES, AND CHARGES. TESTS AND TEST CERTIFICATES. COST FOR SHUT DOWN FEES.

THE CONTRACTOR THAT DOES THE ACTUAL SPRINKLER WORK IS REQUIRED TO BE A LANDLORD APPROVED SPRINKLER CONTRACTOR.

BEFORE STARTING WORK, THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF THE FIRE PROTECTION SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFRONTATIONS.

RELOCATION OF EXISTING MAINS, LATERALS, BRANCHES AND RISER TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOSAL.

SHOP DRAWINGS

THE FIRE PROTECTION CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS AND CALCULATIONS FOR HIS WORK. SUBMIT SIX (6) COPIES TO GENERAL CONTRACTOR FOR APPROVAL. NO WORK SHALL BEGIN UNTIL TENANT'S CONSTRUCTION MANAGER APPROVES HEAD AND PIPING LOCATIONS.

THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR SUBMITTING COORDINATED DRAWINGS, CALCULATIONS, HEAD TYPES AND COLORS TO ALL AUTHORITIES HAVING JURISDICTION FOR APPROVAL. NO WORK SHALL BEGIN UNTIL ALL APPROVALS HAVE BEEN RECEIVED.

A COPY OF THE LETTER OF APPROVAL FROM THE LANDLORD'S INSURANCE RATING BUREAU SHALL BE FORWARDED TO THE LANDLORD'S AGENT AND TO THE TENANT'S CONSTRUCTION MANAGER.

EQUIPMENT

SPRINKLER HEADS: ALL SPRINKLER HEADS SHALL BE NEW (EXISTING HEADS IN EXISTING STORES TO BE REPLACED) U.L., F.M. LISTED AND APPROVED AUTOMATIC SPRAY TYPE AS MANUFACTURED BY CENTRAL SPRINKLER CO., GLOBE, GRINNELL, RELIABLE, STAR OR VIKING. ALL SPRINKLER HEADS SHALL BE RATED FOR 165°F UNLESS INDICATED OTHERWISE ON DRAWINGS OR REQUIRED BY LOCAL CODES. ALL SALES FLOORS HEADS ARE TO HAVE BE FACTORY APPLIED COLOR FINISH TO MATCH ARCHITECTURAL CEILING FINISH. VERIFY HEAD TYPES AND COLORS WITH TENANT'S CONSTRUCTION MANAGER AND SUBMIT WITH SPRINKLER DRAWING FOR PERMIT. SPRINKLER HEAD TYPES SHALL BE AS FOLLOWS: FINISHED CEILING - FULLY RECESSED TYPE. NO-CEILING - BRASS UPRIGHT TYPE - DON'T NEED TO BE FINISHED. NON-SALES: - BRASS PENDANT COVERS SHOULD MATCH ADJACENT CEILING COLORS.

GENERAL PIPING

A FIRE PROTECTION SYSTEM STUD IN SHALL BE FURNISHED BY THE LANDLORD. SPRINKLER SPACING SHALL NOT EXCEED 150 SQ. FT. IN "OFFICE" AREAS, 130 SQ. FT. IN "SALES" AREAS AND 100 SQ. FT. IN "STOCK" AREAS. COMPLY WITH LANDLORD'S DESIGN CRITERIA. PIPE SIZING SHALL BE BASED ON NFPA ORDINARY HAZARD.

ALL SPINKLER LINES SHALL BE INSTALLED CONCEALED, AVOIDING INTERFERENCE WITH LIGHTS, DUCTS, PIPES, STORAGE DECK, ETC. FIRE PROTECTION CONTRACTOR SHALL PREPARE COORDINATED SHOP DRAWINGS INDICATING THE LOCATIONS OF ALL SPRINKLER HEADS, SPRINKLER LINES, LIGHTS, DIFFUSERS, GRILLES AND REGISTERS PRIOR TO INSTALLATION. HORIZONTAL SPRINKLER RUNS AT SOFFITS SHALL BE PLACED INSIDE SOFFIT STRUCTURE. VERTICAL DROPS FROM CEILING TO SOFFIT SHALL BE LOCATED FLUSH AGAINST DENISING WALLS.

WHERE POSSIBLE, REWORK THE EXISTING SPRINKLER SYSTEM TO MEET THE NEW REQUIREMENTS OF THIS DESIGN. RELOCATE ALL MAINS AND BRANCHES INTERFERING WITH CEILING HEIGHTS, EQUIPMENT, AND MAJOR COMPONENTS INCLUSIVE OF ADJACENT TENANTS AND COMMON AREAS. REMOVE ALL UNUSED PIPING.

LOCATIONS OF ALL HEADS SHOULD BE APPROVED BY THE LOCAL FIRE PROTECTION OFFICIAL AND THE TENANT'S CONSTRUCTION MANAGER BEFORE INSTALLATION. HEADS MUST BE LOCATED IN THE CENTER OF CEILING TILES AND IN A SYMMETRICAL PATTERN WITH OTHER CEILING FIXTURES. ADDITIONAL MONIES WILL NOT BE ALLOCATED FOR ADDITIONAL HEADS REQUIRED BY FIELD FIRE INSPECTOR AFTER BIDS ARE ACCEPTED. HEADS IN BAYS SHALL BE CENTERED SIDE TO SIDE AND FRONT TO BACK.

PROVIDE AND INSTALL A VALVED TEST CONNECTION FOR THE SPRINKLER SYSTEM AS REQUIRED OR REQUESTED BY THE LOCAL INSPECTOR OR INSURANCE CARRIER. COORDINATE LOCATION WITH TENANT'S CONSTRUCTION MANAGER AND LOCAL FIRE PROTECTION OFFICIAL PRIOR TO ROUGH-IN.

SPRINKLER HEADS LOCATED IN STOCK, CORRIDOR ON TOILET ROOM CEILINGS OR WALLS BELOW 8'-0" ABOVE THE FINISHED FLOOR ARE TO BE PROTECTED WITH APPROVED GUARDS.

PIPING

SCHEDULE 40, BLACK STEEL PIPE, ASTM A-93 FOR FERROUS PIPING, WELDED AND SEAMLESS, ANSI B-36-10-70 FOR WROUGHT STEEL PIPE. CAST IRON OR MALLEABLE IRON SCREWED FITTINGS FOR PIPES 2 INCHES AND SMALLER. SCREWED OR CAST IRON FLANGED JOINTS FOR PIPES LARGER THAN 2 INCHES. GALVANIZED OR BLACK MALLEABLE IRON WITH BRASS SEAT SCREWED UNIONS FOR PIPES 2 INCHES AND SMALLER. VICTAULIC TYPE COUPLINGS ARE ACCEPTABLE, WHERE APPROVED BY CODE AND THE LANDLORD.

TESTS

WHEN COMPLETED, THE ENTIRE FIRE PROTECTION PIPING SYSTEM SHALL BE HYDROSTATICALLY TESTED AS REQUIRED BY THE RULES AND REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION. SYSTEM SHALL SHOW NO SIGNS OF LEAKAGE OR OTHER DEFECTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF THE OTHER CONTRACTORS OR TO THE BUILDING, OR TO ITS CONTENTS, PEOPLE, ETC., CAUSED BY LEAKS IN ANY OF THE EQUIPMENT INSTALLED BY HIM. ALL REPAIRS OR REPLACEMENT OF DAMAGES SHALL BE AT THIS CONTRACTOR'S EXPENSE.

PROPERLY COMPLETED AND SIGNED "SPRINKLER CONTRACTOR'S MATERIAL AND TEST CERTIFICATES" SHALL BE FURNISHED TO THE LANDLORD. AUTHORITIES HAVING JURSDICTION, AND TENANT'S CONSTRUCTION MANAGER.

CONTROLS

CONTROLS SHALL BE LONMARK COMPLIANT AND CERTIFIED. CONTROLLERS SHALL BE INSTALLED AND WIRED WITH APPROPRIATE CONTROL APPLICATION COMMISSIONED AND OPERATING. CONTROLS SHALL FURNISH XIP FILES FOR EACH TYPE OF BAGNET DEVICE BEING PROVIDED. ROOM SENSORS SHALL BE MOUNTED AT 57" AND SHALL INCLUDE COMMUNICATIONS JACK, SETPOINT ADJUST AND LOCAL OVERRIDE. THE LON BASED CONTROLS SHALL BE CONNECTED TO THE EXISTING LON NETWORK TRUNK IN THE BUILDING BY A 1/PR 22AUG BLUE UTP CAT4 TYPE CMP/MFP COMMUNICATION TRUNK (LONMARK DAISY CHAIN SPECIFICATIONS TO THE JACE CONTROLLER FURNISHED BY THE SYSTEMS INTEGRATOR) AND SHALL DEMONSTRATE THAT EACH LON NODE COMMUNICATES BEFORE CONNECTION. THE SYSTEMS INTEGRATION SHALL INCLUDE JACE CONTROLLERS AS REQUIRED AS WELL AS THE COST ASSOCIATED WITH INTEGRATING THE CONTROL HARDWARE INTO THE BUILDING. A GRAPHICAL INTERFACE SHAL BE PROVIDED INCLUDING THE PROGRAMMING AND IMPLEMENTATION OF WEB PAGES TIED INTO THE EXISTING BUILDING MANAGEMENT SYSTEM. THE GRAPHICAL INTERFACE SHALL INCLUDE THE FOLLOWING:

1. SOFTWARE, INCLUDING WEB PAGES, GRAPHICS, FOR EACH TERMINAL DEVICE.
2. INTEGRATION OF BAGNET NODES.
3. ETHERNET CONNECTION TO BACKBONE.
4. MONITORING OF CONTROLLER.
5. SCHEDULING OF OCCUPIED AND UNOCCUPIED HOURS.
6. AFTER-HOURS TENANT BILLING PACKAGE.
7. ALARMING AND ALARM ACKNOWLEDGMENT.
8. GRAPHICAL FLOOR PLAN LAYOUTS.
9. ANIMATED GRAPHICAL EQUIPMENT REPRESENTATION.

PROJECT NUMBER

21-202

ISSUE DATE:

August 2, 2021

REVISIONS:

No.	Date	Description

CONSULTANT

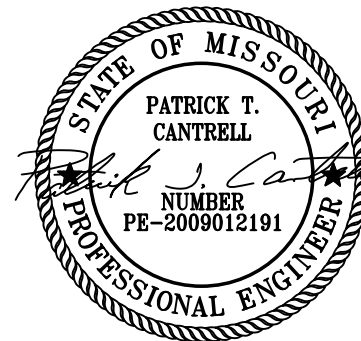


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MECHANICAL
& PLUMBING
SPECIFICATIONS

MP7.5

JZW
ARCHITECTS

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ABBREVIATIONS INDEX			
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
#	NUMBER	MH	MANHOLE
AC	ALTERNATING CURRENT	MIC	MICROPHONE
A.F.F.	ABOVE FINISH FLOOR	MIN	MINIMUM
AIC	AMPS INTERRUPTING CAPACITY	MTO	MOUNTING
AM	AMPS METER	MTR	MOTOR
AMP	AMPERE	N/A	NOT APPLICABLE
ANN	ANNUNCIATOR	NC	NORMALLY CLOSED
ATS	AUTOMATIC TRANSFER SWITCH	NEC	NATIONAL ELECTRICAL CODE
AUX	AUXILIARY	NEMA	NATIONAL ELECT. MANUFAC. ASSOC.
AWG	AMERICAN WIRE GAUGE	NFC	NATIONAL FIRE CODE
BC	BARE COPPER	NFPA	NATIONAL FIRE PROTECTION ASSOC.
BFG	BELOW FINISH GRADE	N.I.C.	NOT IN CONTRACT
C	CONDUIT	NO	NORMALLY OPENED
CAB	CABINET	NTS	NOT TO SCALE
CATB	COMMUNITY ANTENNA TELEVISION	OS & Y	OUTSIDE SCREW & YOKE
CATV	CABLE TELEVISION	PB	PUSHBUTTON
CKT	CIRCUIT	PF	POWER FACTOR
CLG	CEILING	PFR	PHASE FAILURE RELAY
CNTR	CONTRACTOR	PNL	PANEL
C.O.	CONDUIT ONLY	PT	POTENTIAL TRANSFORMER
CRT	COMPUTER TERMINAL	PVC	POLYVINYL CHLORIDE CONDUIT
CT	CURRENT TRANSFORMER	(R)	RELOCATE
CU	COPPER	RECEP	RECEPTACLE
C/W	COMPLETE WITH	RCSO	RECESSED
DB	DECIBEL	REQ	REQUIREMENT
DC	DIRECT CURRENT	RLA	RATED LOAD AMPS
DWG	DRAWING	RMS	ROOT MEAN SQUARE
(E)	EXISTING	SE	SERVICE ENTRANCE
EC	EMPTY CONDUIT	SPEC	SPECIFICATIONS
EG	EMERGENCY GENERATOR	SPKR	SPEAKER
EMT	ELECTRICAL METALLIC TUBING	SS	SELECTOR SWITCH
EX	EXPLOSION PROOF	SW	SWITCH
FACP	FIRE ALARM CONTROL PANEL	SWB	SWITCHBOARD
FC	FOOT CANDLE	SWGR	SWITCHGEAR
FT	FOOT	TB	TELEPHONE TERMINAL BOARD
GFI	GROUND FAULT INTERRUPTER	TT	TELEPHONE TERMINAL CABINET
GRD	GROUND	TV	TELEVISION
GRC	GALVANIZED RIGID CONDUIT	TYP	TYPICAL
HP	HORSE POWER	UG	UNDERGROUND
HZ	HERTZ	UPS	UNINTERRUPTED POWER SUPPLY
IFC	INTERNATIONAL FIRE CADE	V	VOLT (KV=KILOVOLT)
IG	ISOLATED GROUND	VA/R	VOLT-AMPS/REACTIVE
IMC	INTERMEDIATE METALLIC CONDUIT	VM	VOLT METER
IN	INCH	W	WATTS
J-BOX	JUNCTION BOX	W/	WITH
KV	KILOVOLT	WH	WATTHOUR METER
KVA	KILOVOLT AMPERES	W/O	WITHOUT
KVAR	KILOVARS	WP	WEATHERPROOF
KW	KILOWATT	XFMR	TRANSFORMER
LRA	LOCKED ROTOR AMPS	XFMR SW	TRANSFER SWITCH
LTC	LIGHTING	XP	EXPLOSION PROOF
MNF	MANUFACTURER	1P	SINGLE-PHASE
MAX	MAXIMUM	2P	TWO-POLE
MB	MAIN BUS	3P	THREE-POLE
MCC	MOTOR CONTROL CENTER	4P	FOUR-POLE
MCM	1000 CIRCULAR MILLS	ø	PHASE

GENERAL NOTES

- CONSULT ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES.
- VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO INSURE NEC CODE CLEARANCES REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
- CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF ALL EQUIPMENT FURNISHED UNDER ALL DIVISIONS, INCLUDING ALL EXISTING EQUIPMENT TO BE RE-USED. REVIEW ALL SHOP DRAWINGS AND EXISTING EQUIPMENT BEFORE BEGINNING ROUGH IN.
- SEE SECTION 265100 (16510) OF THE SPECIFICATION REQUIRED COORDINATION MEETINGS WITH MECHANICAL AND CEILING CONTRACTORS.
- SEE APPLICABLE SHOP DRAWINGS FOR ROUGH IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC. WHERE APPLICABLE MOUNT ALL WIRING DEVICES ABOVE BACK SPLASH EXCEPT THOSE SERVING UNDER COUNTER EQUIPMENT.
- SEE SPECIFICATION FOR ENERGY SAVING LAMP AND BALLAST REQUIREMENTS.
- FINISHES OF ALL LIGHT FIXTURES SHALL BE AS SELECTED BY ARCHITECT.
- THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THRU ELECTRICAL ROOMS OR SPACES, OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN OTHER AREAS.
- ELECTRICAL BOXES SHALL NOT BE LOCATED IN MASONRY COLUMNS IN BRICK WALLS OR IN GROUTED CELLS ADJACENT TO OPENINGS. COORDINATE LOCATION OF BOXES WITH MASONRY CONTRACTOR.
- ALL PENETRATIONS OF FIRE RATED FLOORS, WALLS, AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL TO MAINTAIN FIRE RATING OF SURFACE PENETRATED.
- CONTRACTOR SHALL VERIFY FURNITURE LAYOUT PRIOR TO ANY FLOORBOX OR POKE-THRU INSTALLATION. COORDINATE EXACT LOCATION OF FLOOR BOX OR POKE-THRU WITH OWNER AND FURNITURE PROVIDER PRIOR TO ROUGH-IN.
- CIRCUITS EXTENDING OVER 70' FOR 120 VOLT AND 115' FOR 277 VOLT 20 AMP CIRCUITS SHALL BE RUN WITH CONDUCTORS PER TABLE BELOW.

20 AMP MINIMUM BRANCH CIRCUIT CONDUCTOR SIZING			
CONDUCTOR LENGTH (FT)	BRANCH CIRCUIT VOLTAGE		
	120 VOLT	277 VOLT	
<70	MIN. #12 AWG	MIN. #12 AWG	
70 - 115	MIN. #10 AWG	MIN. #12 AWG	
115 - 170	MIN. #8 AWG	MIN. #10 AWG	
170 - 270	MIN. #6 AWG	MIN. #8 AWG	
271 - 380	NOTE B	MIN. #8 AWG	
>380	NOTE B	NOTE B	

- THESE ARE BASED ON MAXIMUM LENGTH OF CIRCUIT.
- PERFORM VOLTAGE DROP CALCULATIONS AND PROVIDE CONDUCTOR SIZE TO KEEP BRANCH CIRCUIT VOLTAGE DROP LESS THAN 3% WITH A 15 AMP LOAD.
- CONTRACTOR SHALL ENSURE THAT THE INSTALLATION OF EACH BRANCH CIRCUIT STAYS WITHIN 3% VOLTAGE DROP FOR A 15 AMP LOAD. IF NECESSARY, CONTRACTOR SHALL INCREASE WIRE AND CONDUIT SIZE TO MEET THE STANDARD AT NO ADDITIONAL COST TO OWNER.

DEMOLITION NOTES

- COORDINATE ALL NEW ELECTRICAL EQUIPMENT REQUIREMENTS AND MAKE CONNECTION TO EXISTING SYSTEMS. THIS INCLUDES LIGHTING, POWER, SIGNAL, RACEWAY AND OTHER SYSTEMS INCLUDED UNDER DIVISION 26 (16).
- RELOCATE, REWIRE AND/OR RECONNECT EXISTING ELECTRICAL DEVICES AND/OR EQUIPMENT THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION.
- CONCEAL ALL RACEWAY AND WIRING IN EXISTING WALLS, CEILINGS, FLOORS, ETC. EXCEPT WHERE THE USE OF SURFACE METAL RACEWAYS (E.G. WIRE MOLD) IS INDICATED ON DRAWINGS OR IN SPEC.
- LEAVE ALL EXISTING EQUIPMENT, IN PORTIONS OF THE BUILDING NOT BEING REMODELED, IN WORKING CONDITION. RESTORE ALL INTERRUPTED BRANCH CIRCUITS, FEEDERS, ETC. TO WORKING CONDITION.
- EXISTING RACEWAYS MAY BE REUSED (IN PLACE) WHERE POSSIBLE, AND WHERE IN COMPLIANCE WITH THE SPECIFICATIONS AND THE INTENT OF THE CONTRACT DOCUMENTS. INSURE INTEGRITY OF EXISTING RACEWAY BEFORE REUSE.
- REMOVE ALL RACEWAYS, CONDUCTORS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE NOT TO BE REUSED.
- REMOVE EXISTING LIGHT FIXTURES WHICH ARE NOT TO BE REUSED, PLACE IN CARTON, LABEL APPROPRIATELY, AND RETURN TO OWNER, OR PROPERLY DISPOSE OF FIXTURES THAT THE OWNER CHOOSES NOT TO KEEP.
- DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOFS, ETC.
- DISCONNECT AND RECONNECT ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. REQUIRED FOR PROPER COMPLETION OF THE WORK.

INDEX OF ELECTRICAL DRAWINGS

E0.1	SYMBOLS, SCHEDULES AND NOTES
E1.1	POWER AND LIGHTING PLANS
E5.1	ELECTRICAL ELEVATIONS
E5.2	ELECTRICAL DETAILS
E5.3	ELECTRICAL DETAILS
E6.1	ELECTRICAL SCHEDULES
E7.1	ELECTRICAL SPECIFICATIONS
E7.2	LIGHTING COMCHECK

ELECTRICAL SYMBOL SCHEDULE

1. SEE FIXTURE SCHEDULE FOR TYPE, MOUNTING AND WATTAGE. 2. HEIGHT MEASURED TO CENTER LINE OF THE BOX FROM THE FINISH FLOOR. 3. REFER TO DRAWINGS FOR DIRECTIONAL ARROWS. 4. SUBSCRIPT KEYS SWITCH TO FIXTURES CONTROLLED. 5. NEMA TYPE "ND" NON-FUSED UNLESS NOTED "F" (FUSED). USE "HD" 480V. 6. HEIGHT MEASURED TO TOP OF THE BOX FROM FINISHED FLOOR. 7. PROVIDE H.O.A. AND S.S. PUSHBUTTONS AS REQUIRED. 8. DOUBLE ARROWS DENOTE A DOUBLE FACE UNIT. 9. COORDINATE WITH MILLWORK SHOP DRAWINGS AND ELEVATIONS FOR HEIGHT.				10. SUBSCRIPT DENOTES NEMA CONFIGURATION. 11. HEIGHT MEASURED TO BOTTOM OF THE BOX FROM FINISH FLOOR. 12. COORDINATE WITH DOOR HARDWARE SUPPLIER. 13. FOR WATER COOLER LOCATION, SEE DIAGRAM R002. FOR ALL OTHER LOCATIONS MOUNT AT +16" TO BOTTOM OF THE BOX FROM FINISH FLOOR, OR AS NOTED.			
* TYPICAL SYMBOL SCHEDULE. SOME SYMBOLS MAY NOT BE USED IN THIS SET OF DRAWINGS.							
STANDARD MOUNTING HEIGHT UNLESS OTHERWISE NOTED ON PLANS							
SYMBOL	DESCRIPTION	MOUNTING HEIGHT	NOTES	SYMBOL	DESCRIPTION	MOUNTING HEIGHT	NOTES
	ONE CIRCUIT, HOME RUN TO PANEL				CLOCK OUTLET	+7'-6"	8.
	TWO CIRCUIT, HOME RUN TO PANEL				FLOOR BOX - SEE SCHEDULE	FLOOR	SEE DIAGRAM, SPEC.
	THREE CIRCUIT, HOME RUN TO PANEL				POKE THRU - SEE SCHEDULE	FLOOR	SEE DIAGRAM, SPEC.
	CONDUIT RUN CONCEALED IN WALL OR CEILING				FLIP-TOP BOX		9.
	CONDUIT RUN CONCEALED IN FLOOR OR GROUND				JUNCTION BOX ('F' IN FLOOR)	AS NOTED	
	CONDUIT UP				MOTOR OUTLET	TO SUIT EQUIP.	
	CONDUIT DOWN				PUSHBUTTON	+4'-0"	6.
	CONDUIT STUB LOCATION	CAP CONDUIT			NON-FUSED DISCONNECT SWITCH	+5'-0"	5.
	CONDUIT/CIRCUIT CONTINUATION				FUSED DISCONNECT SWITCH	+5'-0"	5.
	CABLE TRAY	AS NOTED			MANUAL STARTER THERMAL OVERLOAD SWITCH WITH PILOT LIGHT	+4'-0"	6.
	CEILING LIGHT FIXTURE	CEILING	1.		MAGNETIC STARTER	+5'-0"	7.
	WALL LIGHT FIXTURE	AS NOTED	1.		MAGNETIC STARTER / DISCONNECT COMBINATION	+5'-0"	
	RECESSED DOWNLIGHT FIXTURE	CEILING	1.		VARIABLE FREQUENCY DRIVE	+6'-6"	
	RECESSED WALL-WASH FIXTURE	CEILING	1.		PANEL BOARD	TOP AT +6'-0"	
	LIGHT FIXTURE	AS NOTED	1		MAIN DISTRIBUTION PANEL		
	EGRESS LIGHT FIXTURE	AS NOTED	UNSWITCHED		TELEPHONE TERMINAL BOARD		
	AREA LIGHT POLE AND FIXTURE	CONCRETE BASE	SEE DIAGRAM		GROUND BUS BAR		
	FLOOD OR TRACK FIXTURE	AS NOTED			EQUIPMENT CABINET/RACK		CIRCUIT TO 120V
	CEILING/WALL MOUNTED EXIT LIGHT	CEILING/ AS NOTED	1. 3. 8.		BELL	+7'-6"	
	SINGLE POLE SWITCH	+4'-0"	4. 6.		CHIME	+7'-6"	
	THREE-WAY SWITCH	+4'-0"	6.		FIRE ALARM MANUAL STATION	+4'-0"	6.
	FOUR-WAY SWITCH	+4'-0"	6.		FIRE ALARM SIGNAL HORN/STROBE	+8'-0"	6.
	KEY OPERATED SWITCH	+4'-0"	6.		CONCEALED FIRE ALARM SIGNAL HORN/STROBE	CEILING	
	SWITCH WITH PILOT LIGHT	+4'-0"	6.		CONCEALED FIRE ALARM SIGNAL HORN/STROBE WALL	+8'-0"	6.
	VARIABLE INTENSITY DIMMER SWITCH	+4'-0"	6.		FIRE ALARM SIGNAL SPEAKER/STROBE	+8'-0"	6.
	TIMER SWITCH	+4'-0"	6.		CONCEALED FIRE ALARM SIGNAL SPEAKER/STROBE	CEILING	
	MOMENTARY CONTACT SWITCH, CENTER POSITION OFF	+4'-0"	6.		CONCEALED FIRE ALARM SIGNAL SPEAKER/STROBE WALL	+8'-0"	6.
	LOW VOLTAGE WALL STATION (SUBSCRIPT INDICATES CONFIGURATION & CONTROL SEQUENCE) SEE DIAGRAM	+4'-0"	6.		FIRE ALARM STROBE	+8'-0"	6.
	DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR (PROVIDE WITH ALL ROOM CONTROLLERS)	CEILING	SEE DIAGRAM, SPEC.		CONCEALED FIRE ALARM SIGNAL STROBE	CEILING	
	DUAL TECHNOLOGY WALL MOUNTED OCCUPANCY SENSOR (SUBSCRIPT D=DIMMING AND DAY-LIGHT CONTROL)	+4'-0"	SEE DIAGRAM, SPEC.		CONCEALED FIRE ALARM SIGNAL STROBE WALL	+8'-0"	6.
	POWER PACK	ABOVE CEILING	SEE DIAGRAM, SPEC.		FIRE ALARM SPEAKER ONLY	+8'-0"	6.
	DIGITAL ROOM CONTROLLER (SUBSCRIPT INDICATES NUMBER OF RELAYS, #E INDICATES EM ENABLED RC)	ABOVE CEILING	SEE DIAGRAM, SPEC.		FIRE ALARM SIGNAL STROBE WITH BLUE COLORED LENS (GO VISUAL ALARM)	+8'-0"/ CEILING	MOUNT AS PER. MAN
	EMERGENCY LIGHTING CONTROL UNIT	ABOVE CEILING	SEE DIAGRAM, SPEC.		ASPIRATING SMOKE DETECTION SYSTEM	CEILING	MOUNT AS PER. MAN
	RECEPTACLE SWITCH PACK	ABOVE CEILING	SPEC.		SMOKE DETECTOR	CEILING	
	AUTOMATIC RELAY PACK	ABOVE CEILING	SEE DIAGRAM, SPEC.		SMOKE/CARBON MONOXIDE DETECTOR	CEILING	
	LOW VOLTAGE TRANSFORMER				CARBON MONOXIDE DETECTOR	CEILING	
	PHOTO-ELECTRIC CONTROL	AS NOTED	TORK 2000A		HEAT DETECTOR	CEILING	
	DIGITAL DAYLIGHT SENSOR	CEILING	SEE DIAGRAM SPECIFICATION		DUCT SMOKE DETECTOR		MTD. IN DUCT
	TIME CLOCK	+5'-0"	2.		FIRE/SMOKE DAMPER		
	DUPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		DOOR HOLDER	AS NOTED	
	SIMPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		FLOW SWITCH		
	SIMPLEX RECEPTACLE WITH USB OUTLET	+16" OR AS NOTED	9. 11.		TAMPER SWITCH		
	DUPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		WATER FLOOD INDICATOR		
	DUPLEX RECEPTACLE WITH USB OUTLET	+16" OR AS NOTED	9. 11.		O.S. & Y. VALVE		SEE DIAGRAM
	DUPLEX RECEPTACLE WITH CONTROL	+16" OR AS NOTED	9. 11.		FIRE ALARM RELAY OR SECURITY RELAY		
	DUPLEX RECEPTACLE		9.		FIRE ALARM CONTROL MODULE		
	5mA GFCI CIRCUIT BREAKER PROTECTED RECEPTACLE		13.		FIRE ALARM MONITOR MODULE		
	WEATHERPROOF RECEPTACLE	+24" OR AS NOTED	2. 9.		TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR PANEL	+4'-0"	6.
	ISOLATED GROUND RECEPTACLE	+16" OR AS NOTED	9. 11.		TWO-WAY COMMUNICATION CALL STATION	+4'-0"	6.
	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		DURESS PUSHBUTTON	+4'-0"	6.
	DUPLEX RECEPTACLE EMERGENCY POWER (RED)	+16" OR AS NOTED	9. 11.		SECURITY SYSTEM DOOR SWITCH	DOOR JAMB	
	FOURPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		SECURITY SYSTEM OVERHEAD DOOR SWITCH	CEILING	MOUNT AS PER. MAN
	GROUND FAULT INTERRUPTER FOURPLEX RECEPTACLE	+16" OR AS NOTED	9. 11.		MAGNETIC SHEAR LOCK		
	FOURPLEX RECEPTACLE EMERGENCY POWER (RED)	+16" OR AS NOTED	9. 11.		SECURITY SYSTEM KEYED ACCESS SWITCH	+4'-0"	6.
	TVSS PROTECTED RECEPTACLE	+16" OR AS NOTED	9. 11.		SECURITY SYSTEM KEYED PAD	+4'-0"	6.
	SPECIAL PURPOSE OUTLET	+16" OR AS NOTED	10. WITH CAP. 11.		INFRARED SENSOR	AS NOTED	
	CORD DROP		SEE DIAGRAM		SECURITY MOTION DETECTOR		MOUNT AS PER. MAN
	CORD REEL		SEE DIAGRAM		SECURITY SYSTEM POP-IT		MOUNT AS PER. MAN
	TOMBSTONE RECEPTACLE				GLASS BREAK DETECTOR	CEILING	
	PLUGMOLD	+46" OR AS NOTED			ELECTRIC DOOR STRIKE		12.
	TELEVISION OUTLET	+16" OR AS NOTED	11.		ELECTRIC DOOR LOCK		12.
	POWER POLE				ACCESS CONTROL SYSTEM, REQUEST TO EXIT		
	FLAT PANEL DISPLAY WALL BOX, TVSS RECEPT., DATA AND OTHER DEVICES, REFER TO DIAGRAMS	AS NOTED	SEE DIAGRAM & SPEC. 26 2726		ACCESS CONTROL CARD READER	+4'-0"	6.
	CEILING PROJECTION SYSTEM CEILING BOX	ABOVE CEILING	SEE DIAGRAM AND SPEC.		ACCESS CONTROL BIOMETRIC READER	+4'-0"	6.
	DATA OUTLET W/(1) CABLE (SEE SPECIFICATION)	+16" OR AS NOTED	9. 11.		CAMERA - SEE SCHEDULE	AS NOTED	SEE DIAGRAM, SPEC.
	DATA OUTLET W/(2) CABLES (SEE SPECIFICATION)	+16" OR AS NOTED	9. 11.		DOOR POSITION INDICATING SWITCH		
	DATA OUTLET W/(3) CABLES (SEE SPECIFICATION)	+16" OR AS NOTED	9. 11.		LIGHT FIXTURE (LETTER DESIGNATES TYPE)		
	DATA OUTLET W/MORE THAN (3) CABLES (SEE SPEC)	+16" OR AS NOTED	9. 11.		EQUIPMENT NUMBER		
	AV DATA OUTLET (SEE SPECIFICATION)	+16" OR AS NOTED	9. 11. 13.		ARCHITECTURAL ROOM NUMBER		
	WIRELESS ACCESS POINT, W/(2) CABLES (SEE SPEC)	CEILING			DEVICE/EQUIPMENT (TEXT DESIGNATES TYPE) SEE SCHEDULE		
	CALL SWITCH	+4'-0"	6.				

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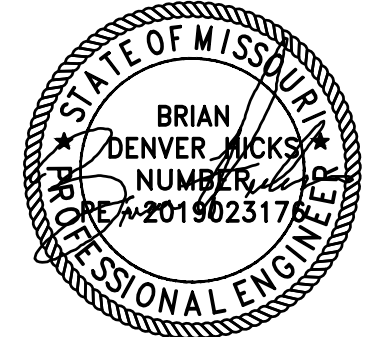
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No.	Date	Description

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635 South State Street
Salt Lake City, Utah 84111
P.801.532.2196
F.801.532.2305
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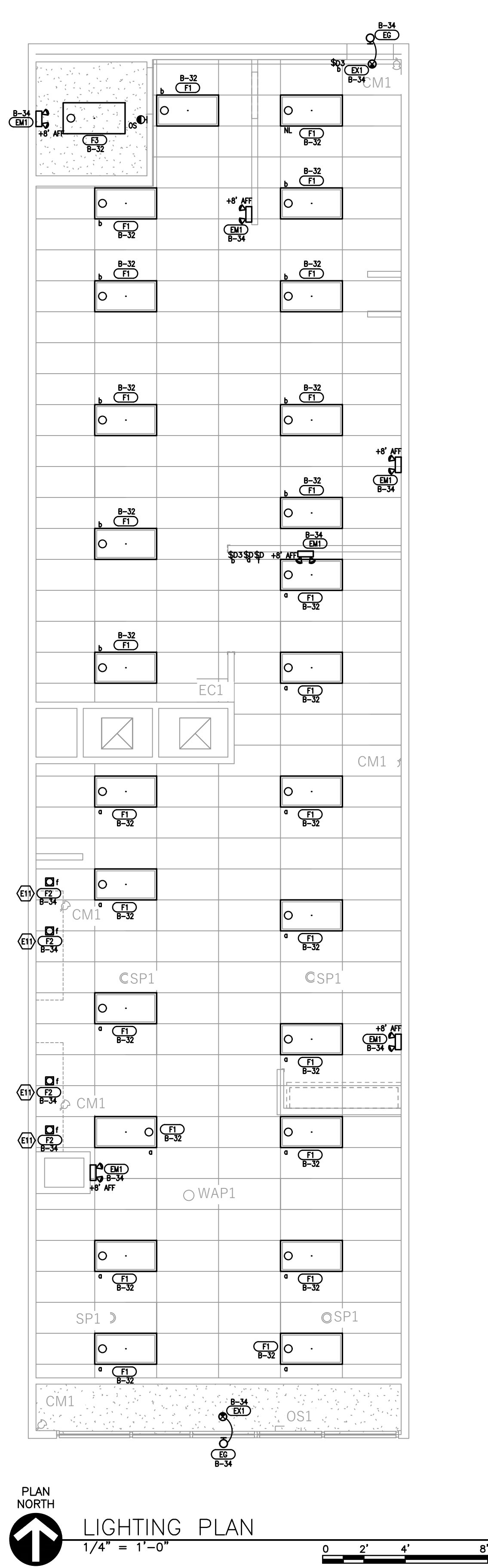
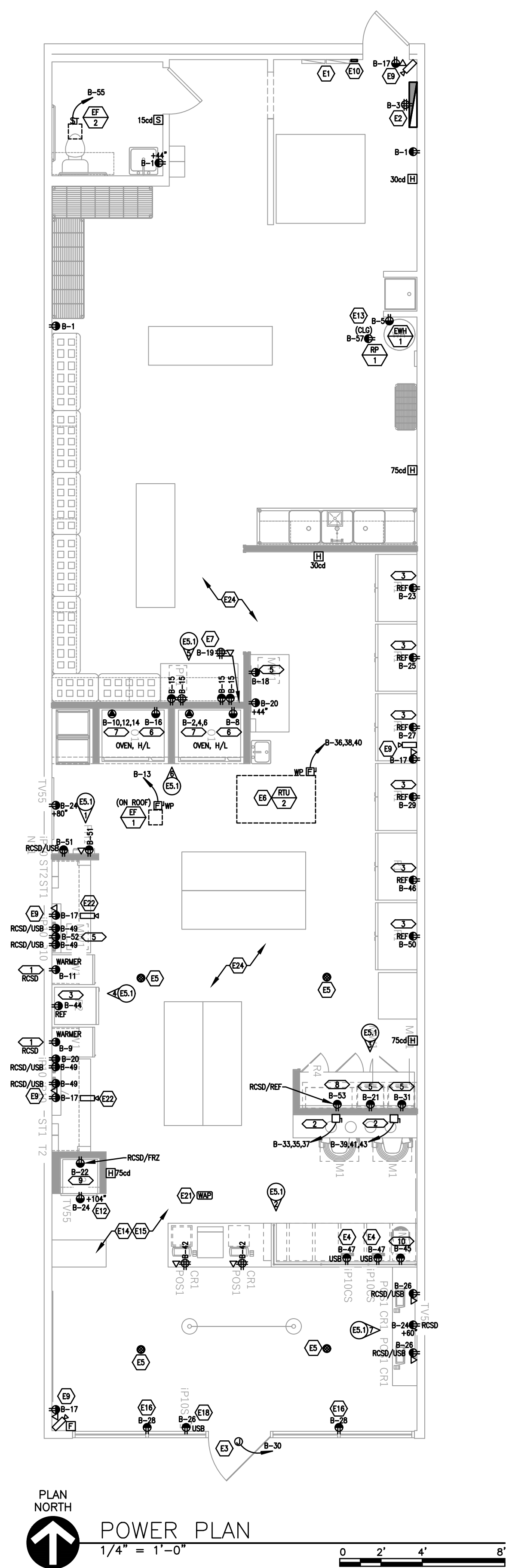
CRUMBL COOKIES - LEE'S
SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



SYMBOLS,
SCHEDULES
AND NOTES

E0.1





SHEET KEYNOTES

- E1 EXISTING 400A 120/208V 2-SECTION PANELBOARD, RENAMED PANEL 'B'. SEE PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
- E2 COMMUNICATION BOARD, CONNECT TO EXISTING TELEPHONE CONDUIT IN SPACE. REFER TO COMMUNICATIONS RISER DIAGRAM.
- E3 SIGN POWER JUNCTION BOX. UTILIZE FOR SIGN AND CONTROL VIA TIME CLOCK.
- E4 OUTLET TO BE PLACED HORIZONTALLY AND HEIGHT TO BE DETERMINED PRIOR TO ROUGH-IN.
- E5 SPEAKER POLK AUDIO MC60. PROVIDE AND INSTALL WESTPENN CABLE AS SHOWN IN SOUND RISER DIAGRAM #1. ON ES.2. OWNER TO PROVIDE ALL EQUIPMENT EXCEPT CABLEING. CONTRACTOR TO INSTALL ALL SOUND EQUIPMENT INCLUDING RECEIVER, SPEAKERS AND REMOTE POWER SUPPLY AND MAKE ALL POWER AND SPEAKER WIRED CONNECTIONS FOR AN OPERATIONAL SYSTEM. FOR RECEIVER LOCATION SEE KEYED NOTE #7.
- E6 EXISTING RTU. PROVIDE NEW ELECTRICAL CIRCUIT AS SHOWN TO EXISTING DISCONNECT. VERIFY EXACT LOCATION ON ROOF. VERIFY ELECTRICAL INFO WITH SHOP DRAWINGS AND/OR EQUIPMENT NAME PLATE INFORMATION. IF THERE IS A DISCREPANCY IN THE ELECTRICAL LOAD OF THE UNIT, NOTIFY THE ELECTRICAL AND MECHANICAL ENGINEERS BEFORE PROCEEDING.
- E7 RECEPTACLE FOR SONY MULTI CHANNEL AV RECEIVER STR-DH590. VERIFY MOUNTING HEIGHT WITH OWNER.
- E9 CAMERA SYSTEM PROVIDED BY OWNER INSTALLED BY CONTRACTOR. SYSTEM SHALL BE A UNIFI VIDEO BOARD SYSTEM WITH P.O.E. CAMERAS AND A CLOUD BASED STORAGE. PROVIDE POWER AND DATA RECEPTABLES, MOUNTING OF CAMERAS AND CONNECTION TO POWER AND DATA RECEPTABLES. OUTLETS TO BE INSTALLED 4" BELOW CEILING GRID AND 4" FROM CORNER.
- E10 TIME CLOCK AND CONTACTORS FOR EXTERIOR SIGNAGE AND FOR DISPLAY WINDOW RECEPTABLES. REFER TO ES.2/LIGHTING CONTROL DETAIL.
- E11 RECESSED CAN LIGHT IN SHELF ABOVE BOXING STATION. CONTROL WITH SEPARATE DIMMER SWITCH.
- E12 POWER FOR DISPLAY ABOVE FREEZER. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT AND ARCHITECTURAL DRAWINGS.
- E13 RECEPTACLE FOR GAS-FIRED WATER HEATER AND RECEPTACLE FOR CIRCULATION PUMP. COORDINATE LOCATIONS FOR BOTH WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- E14 ALL USB RECEPTABLES SHALL BE 20 AMP DUAL CHARGING PORTS TYPE A AND C. PROVIDE MANUFACTURER LEVITON CATALOG NUMBER T5833 FOR LEGRAND PTT20ACUSBW NO SUBSTITUTION ALLOWED. REFER TO ELECTRICAL ELEVATION DRAWINGS FOR EXACT IPAD AND RECEPTABLES HEIGHT. PRIOR TO ROUGH-IN, ALL RECESSED BOXES (RCSB) SHALL BE OF THE LEGRAND TYPE TWYMLVKTWCC2. REFER TO ES.3 FOR RECEPTACLE AND BOX CUT SHEETS.
- E15 REFER ELECTRICAL ELEVATION DRAWINGS FOR EXACT IPAD HEIGHT OF RECEPTABLES PRIOR TO ROUGH-IN.
- E16 RECEPTACLE TO BE MOUNTED 4" BELOW GRID CEILING.
- E18 LOCATION AND HEIGHT OF RECEPTACLE TO BE DETERMINED AND VERIFIED BY OWNER PRIOR TO ROUGH-IN.
- E19 POWER IN-LINE EXHAUST FAN THROUGH LIGHTING CIRCUIT TO ACTIVATE WHEN LIGHTS COME ON.
- E20 RECEPTACLE TO BE MOUNTED ABOVE HEADSET SHELF.
- E21 WIRELESS ACCESS POINT (WAP). PROVIDE DATA CABLE AND INSTALLATION OF WAP IN CEILING. REFER TO COMMUNICATIONS RISER DIAGRAM.
- E22 CAMERA TO BE INSTALLED UNDER BOXING STATION. REFER TO ELECTRICAL ELEVATIONS SHEET ES.1. DETAIL CALLOUT ES.1-9.
- E24 ALL KITCHEN RECEPTABLES ARE TO HAVE GFCI PROTECTION AS PER NEC 210.8. REFER TO PANEL SCHEDULE FOR GFCI BREAKERS AS SHOWN.

PERFORMANCE NOTES

1. CONTRACTOR TO INCORPORATE ALL PAGES OF THIS DOCUMENT IN THE CONSTRUCTION OF THE CRUMBEL SPACE TO INCLUDE BUT NOT LIMITED TO GENERAL NOTES SHEET E1.1, POWER AND LIGHTING PLANS WITH KEYED NOTES SHEET E1.1, ELECTRICAL EXPLANATIONS SHEET E5.1, ELECTRICAL DETAILS SHEETS E5.2 AND 5.3, ELECTRICAL SCHEDULES E6.1 AND ELECTRICAL SPECIFICATIONS SHEET E7.1. E.C. BID SHALL PROVIDE FOR A COMPLETE AND WORKING SYSTEM.
2. PROVIDE ALL CIRCUITING AS SHOWN ON PLANS. DEVIATION WILL CAUSE FAILURE IN EQUIPMENT TO CHARGE PROPERLY OR TO MAINTAIN PROGRAMMING.
3. 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 PERSONEL TO VERIFY STARTUP WITH OWNER AND CORRECT ANY PROBLEMS IN WIRING OR POWER.
4. 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.
5. ALL NEW FIRE ALARM DEVICES SHOWN ARE TO BE TIED INTO EXISTING BUILDING FIRE ALARM DETECTION SYSTEM. COORDINATE WITH THE LANDLORD FOR SYSTEM HEAD-END LOCATION.
6. CONTRACTOR SHALL INSTALL OCCUPANCY SENSORS TO PROVIDE COVERAGE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. CONSULT WITH LIGHTING CONTROL MANUFACTURER AND DISTRIBUTOR FOR ADDITIONAL REQUIREMENTS. RECOMMENDATIONS: crumbel@cednationalsaccounts.com; 562-926-7202.
7. 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.
8. PROVIDE CAT6 DATA CABLEING FOR ALL DATA LOCATIONS.

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F: 801.532.2305
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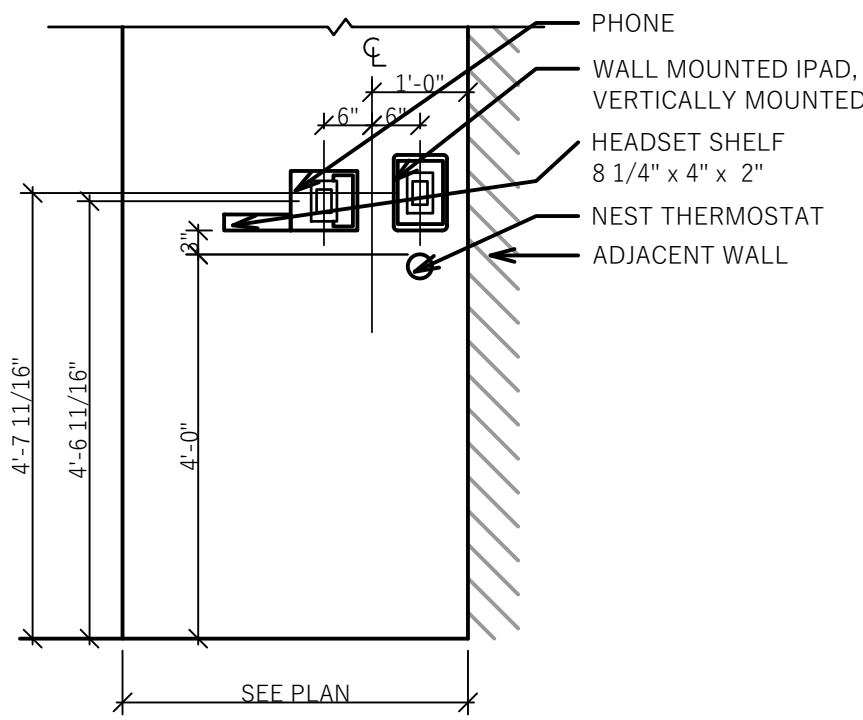
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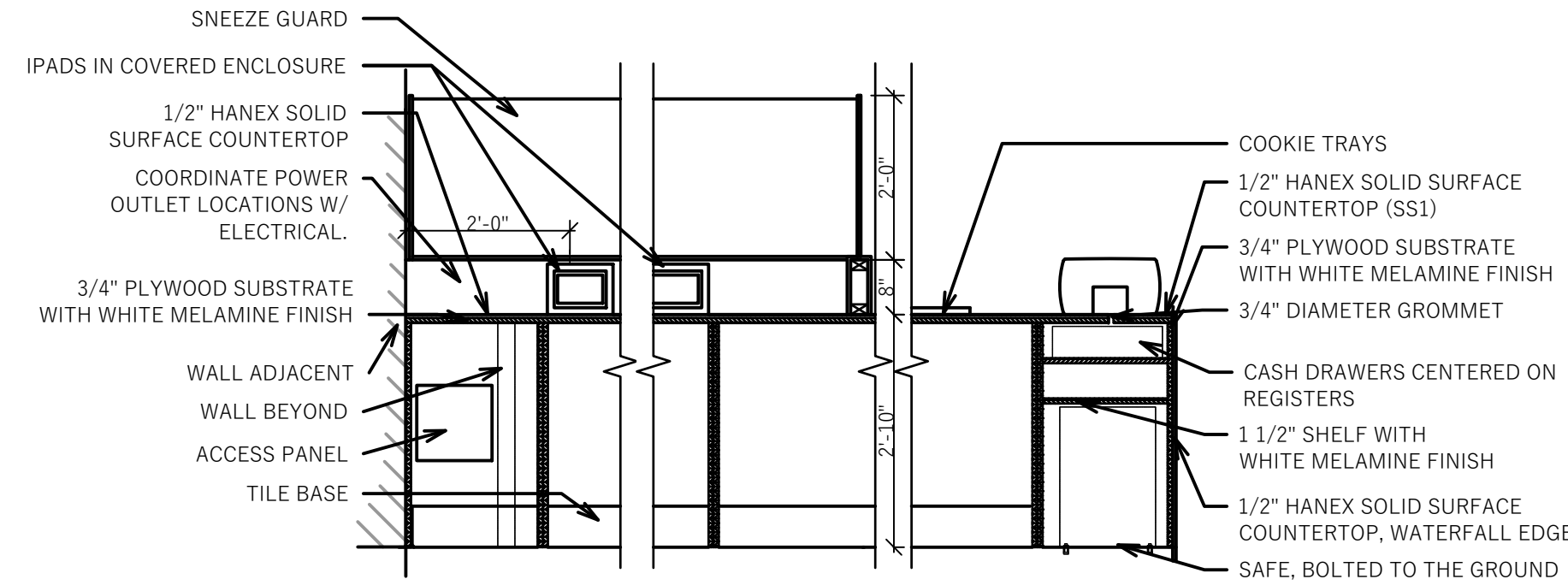
REMODEL FLOOR PLAN & RCP

E1.1

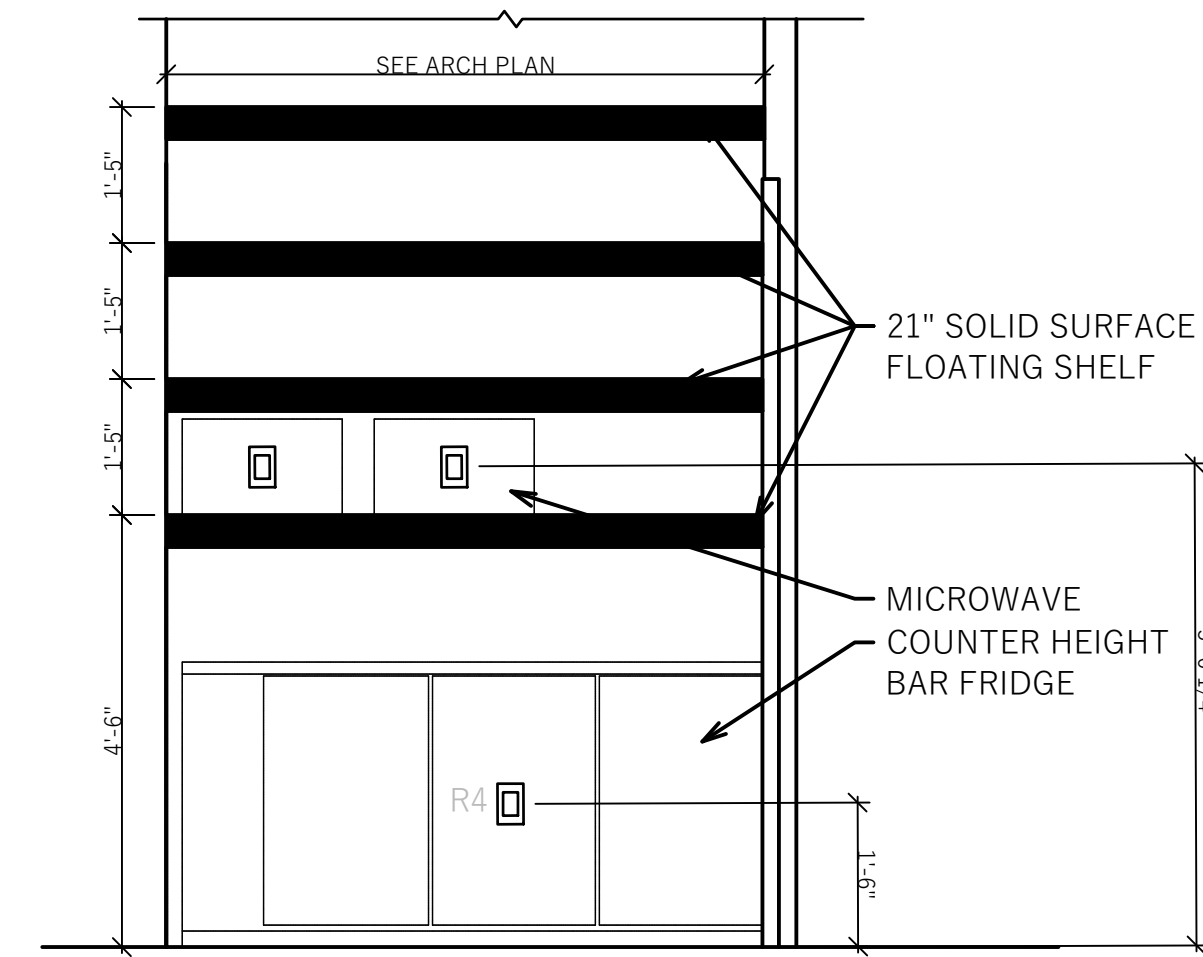
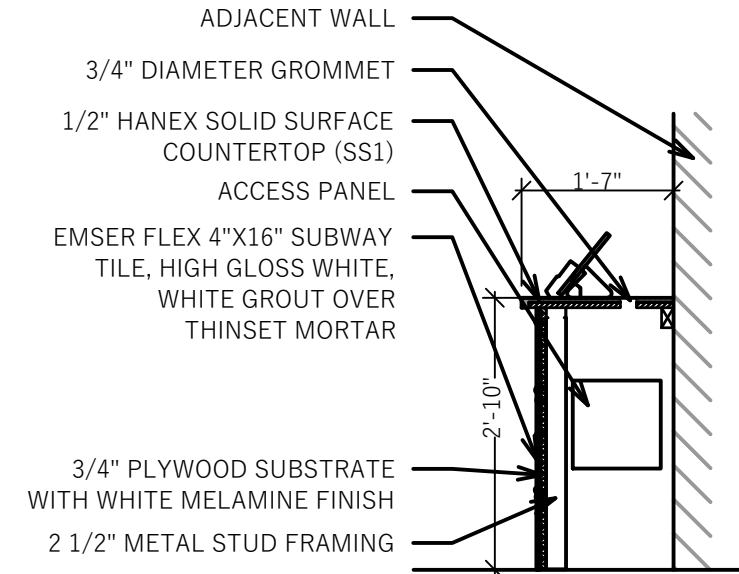
JZW
ARCHITECTS



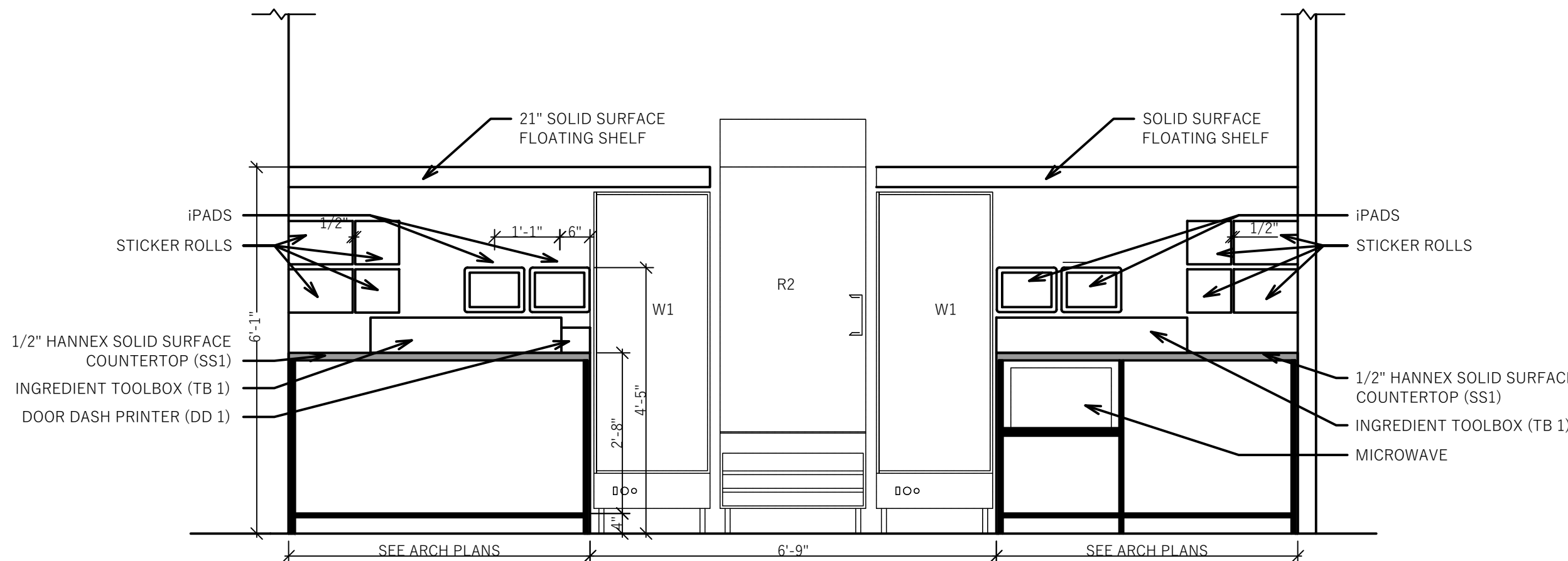
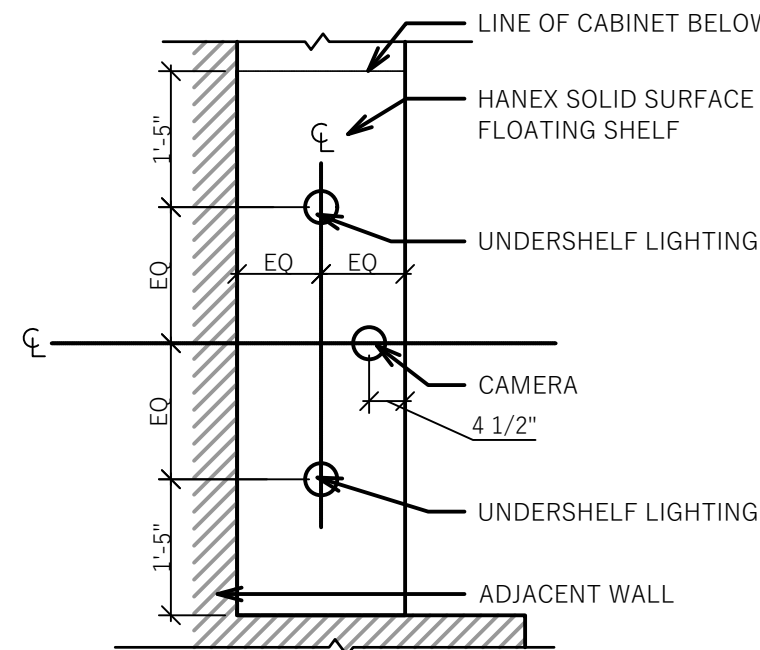
1 NEST/PHONE/IPAD @ PICK UP
E5.1 1/2" = 1'-0"



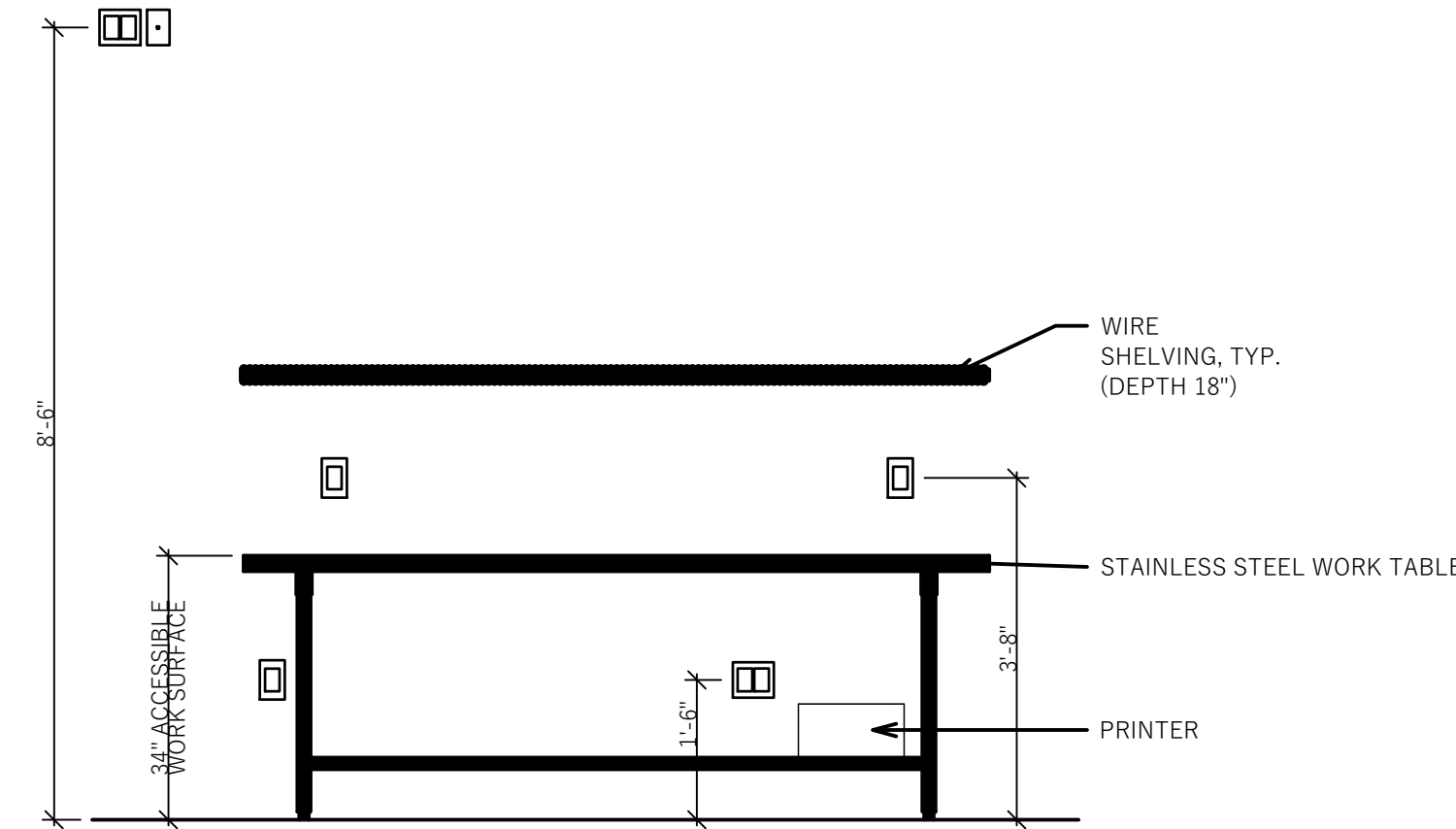
2 PREP COUNTER - CABINETRY
E5.1 1/2" = 1'-0"



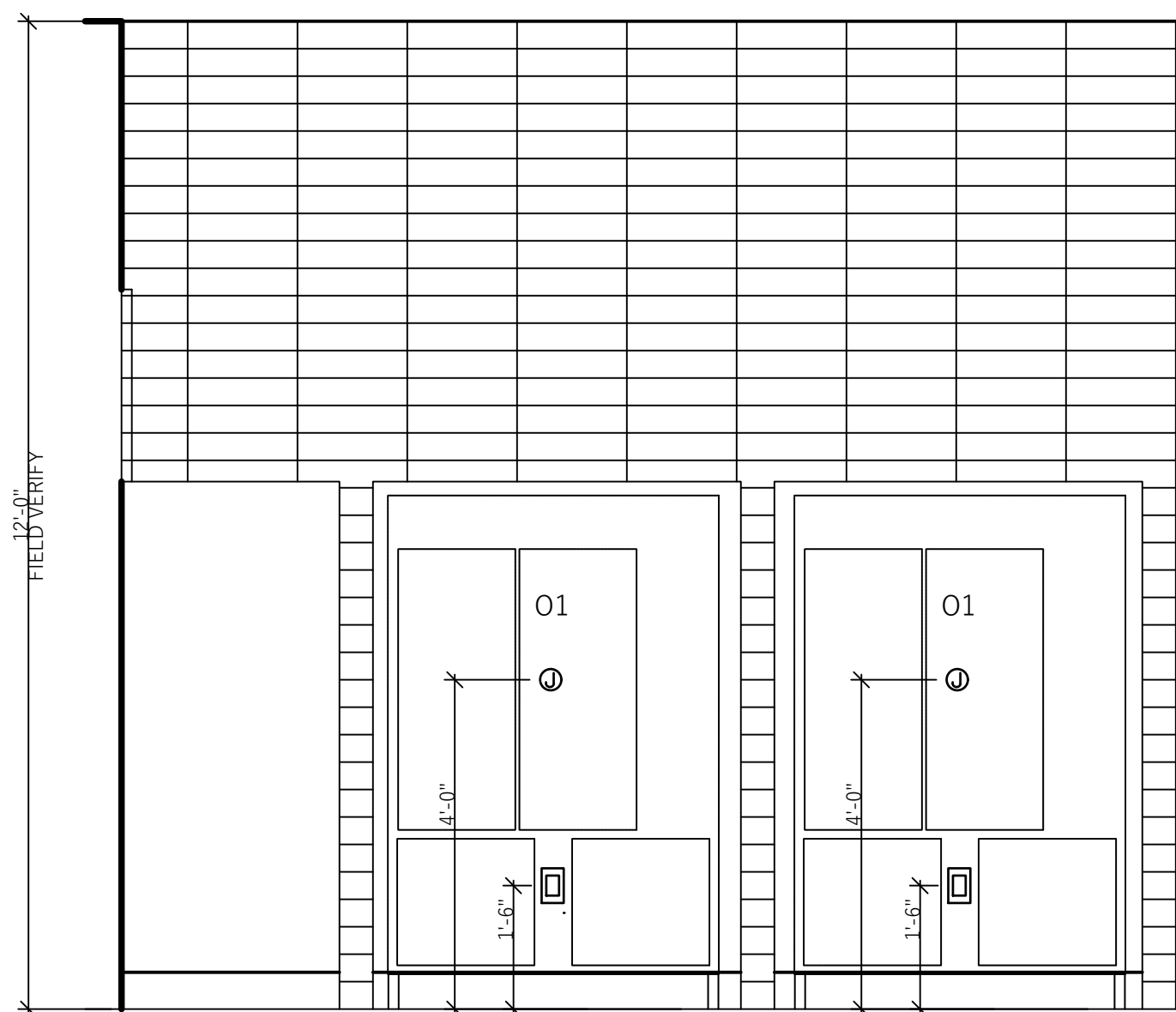
3 FRIDGE AT MIXER WALL
E5.1 1/2" = 1'-0"



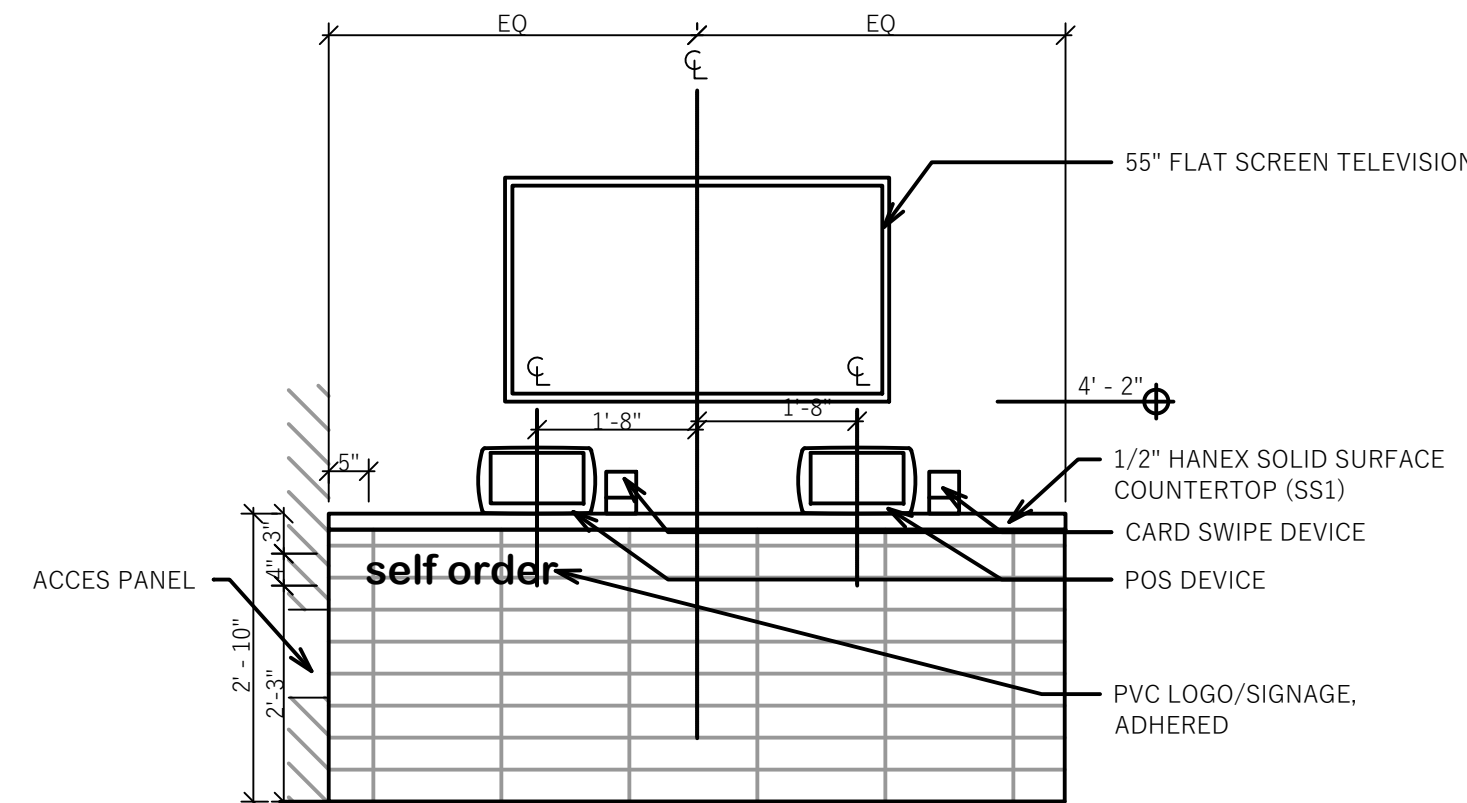
4 DRESSING STATIONS
E5.1 1/2" = 1'-0"



5 BOXING SHELVING @ BACK OF HOUSE
E5.1 1/2" = 1'-0"



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



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

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P: 801.532.2196
F: 801.532.2305
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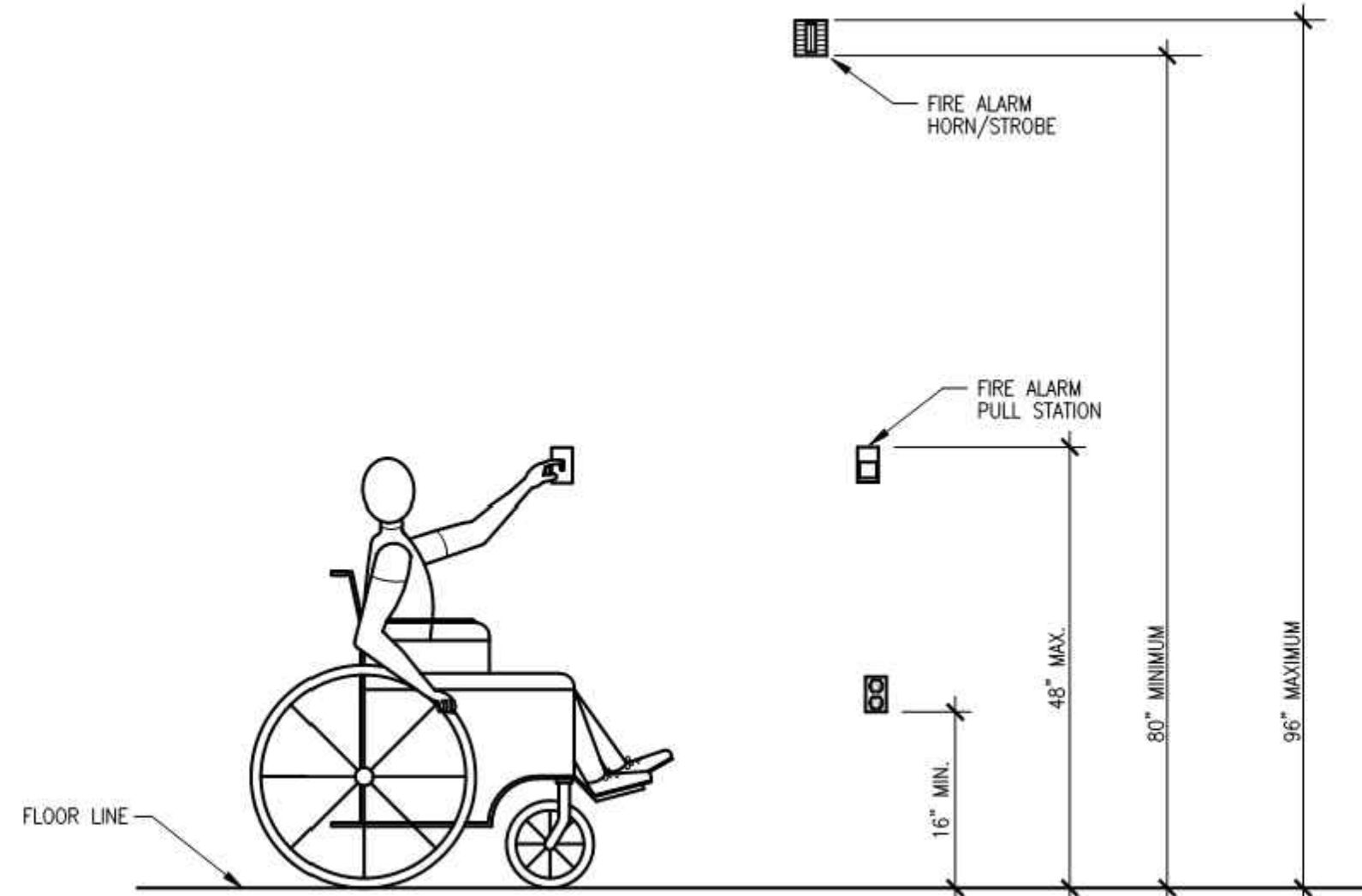


ELECTRICAL
ELEVATIONS

E5.1

JZW
ARCHITECTS

No.	Date	Description



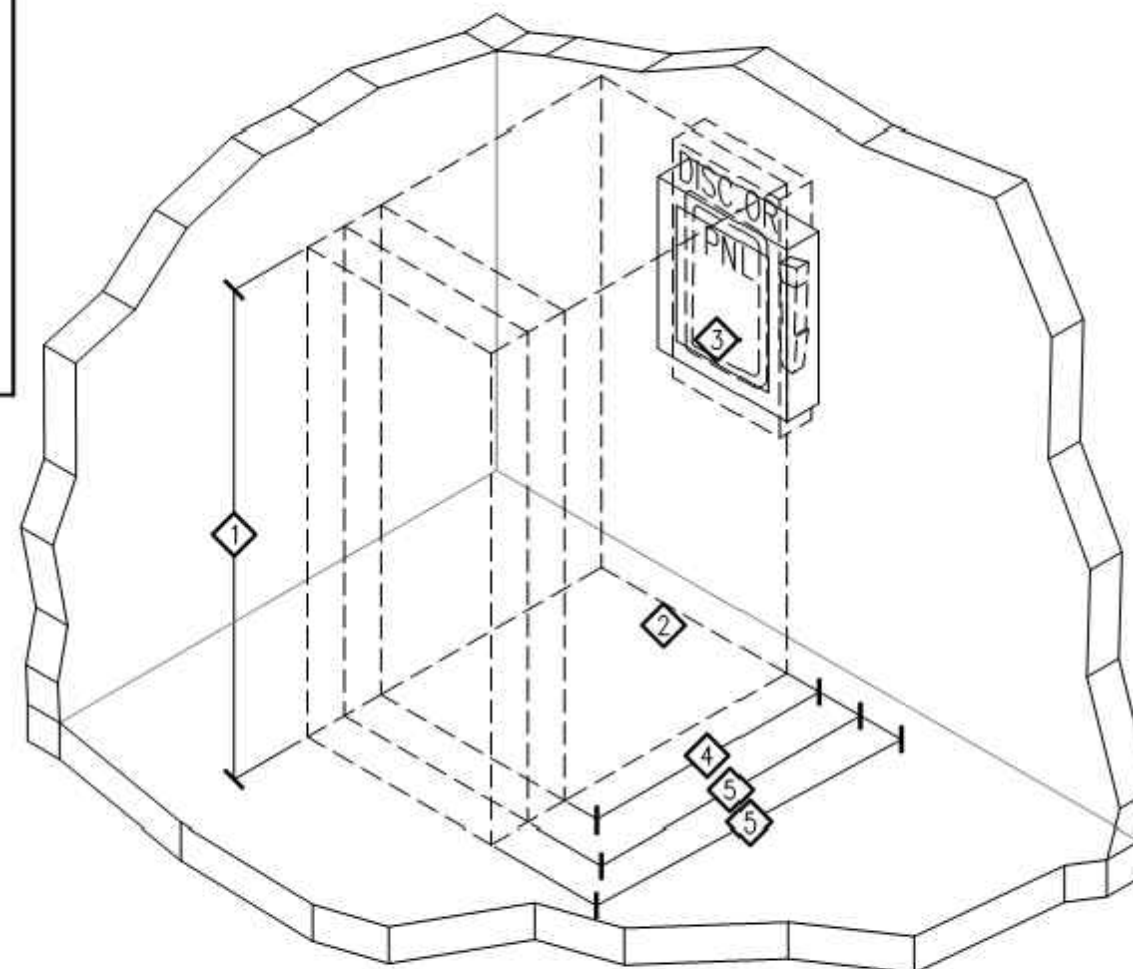
7 DEVICE MOUNTING HEIGHTS INSTALLATION DETAIL
SCALE: NTS

KEYED NOTES:

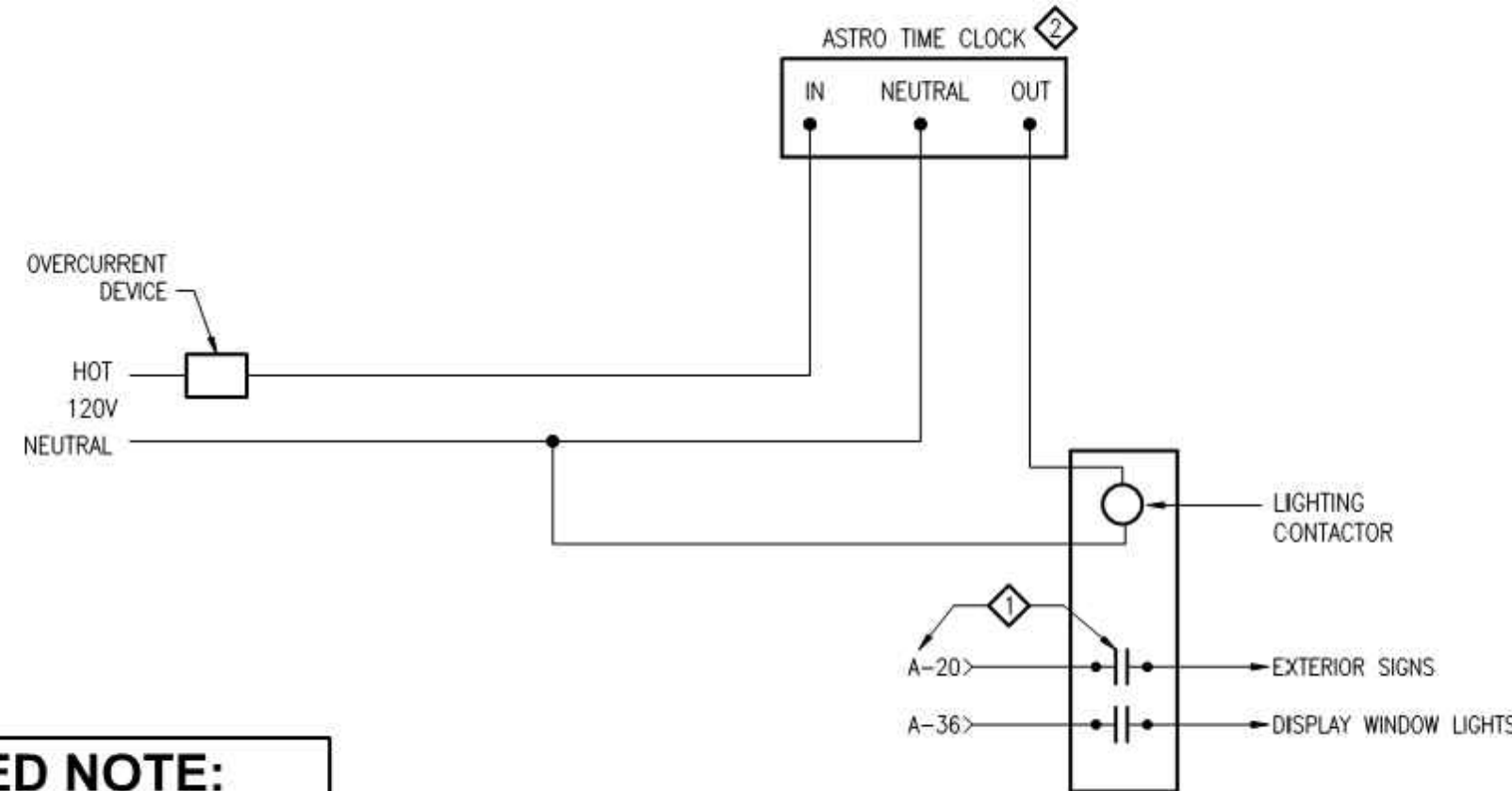
- THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6½ FT.
- THE WIDTH OF THE WORKING SPACE SHALL BE THE WIDTH OF THE EQUIPMENT OR 30 IN., WHICHEVER IS GREATER. THE PANEL DOOR SHALL OPEN AT LEAST 90 DEGREES.
- ALL CIRCUIT BREAKERS OR DISCONNECT HANDLES SHALL BE NOT MORE THAN 6 FT 7 IN. ABOVE THE FLOOR WHEN IN THEIR HIGHEST POSITION.
- 3 FT CLEARANCE IF 0-150V TO GROUND
- 3.5FT CLEARANCE IF 151-600V TO GROUND. 4FT IF EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

GENERAL NOTE:

- ALL WORKING SPACE CLEARANCE FROM FACE OF PANEL.



4 ELECTRICAL EQUIPMENT WORK SPACE CLEARANCES
SCALE: NTS



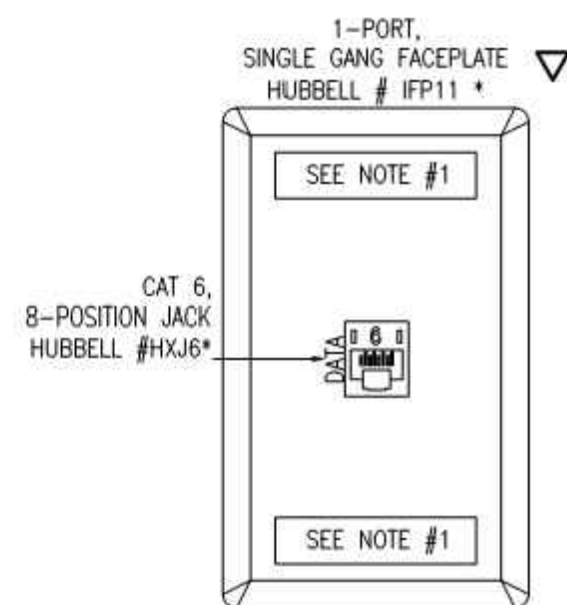
KEYED NOTE:

- CONTRACTOR AMPERAGE SHALL BE COMPATIBLE WITH CIRCUIT AMPERAGE
- TIME CLOCK SHALL BE CAPABLE OF RETAINING PROGRAMMING AND TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST 10 HOURS.

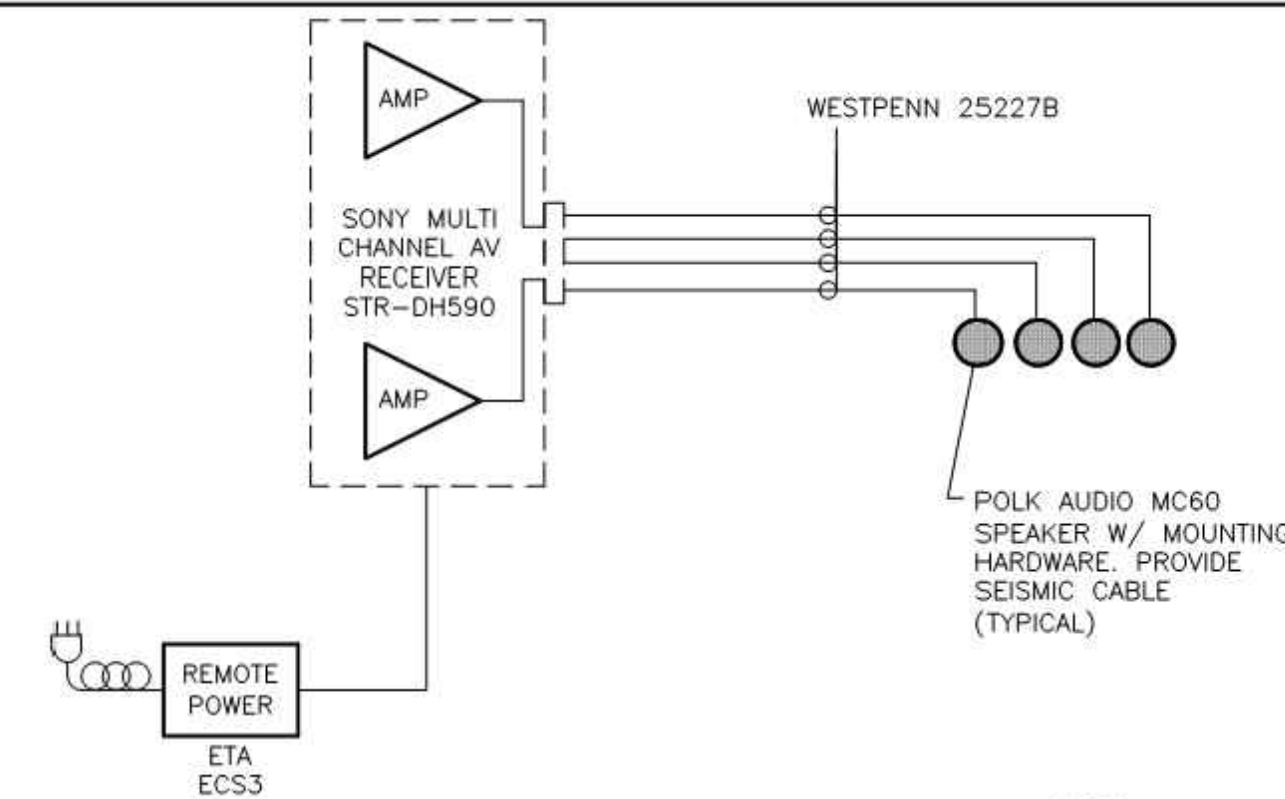
5 LIGHTING CONTROL WIRING DIAGRAM
SCALE: NTS

ELECTRICAL GENERAL NOTES:

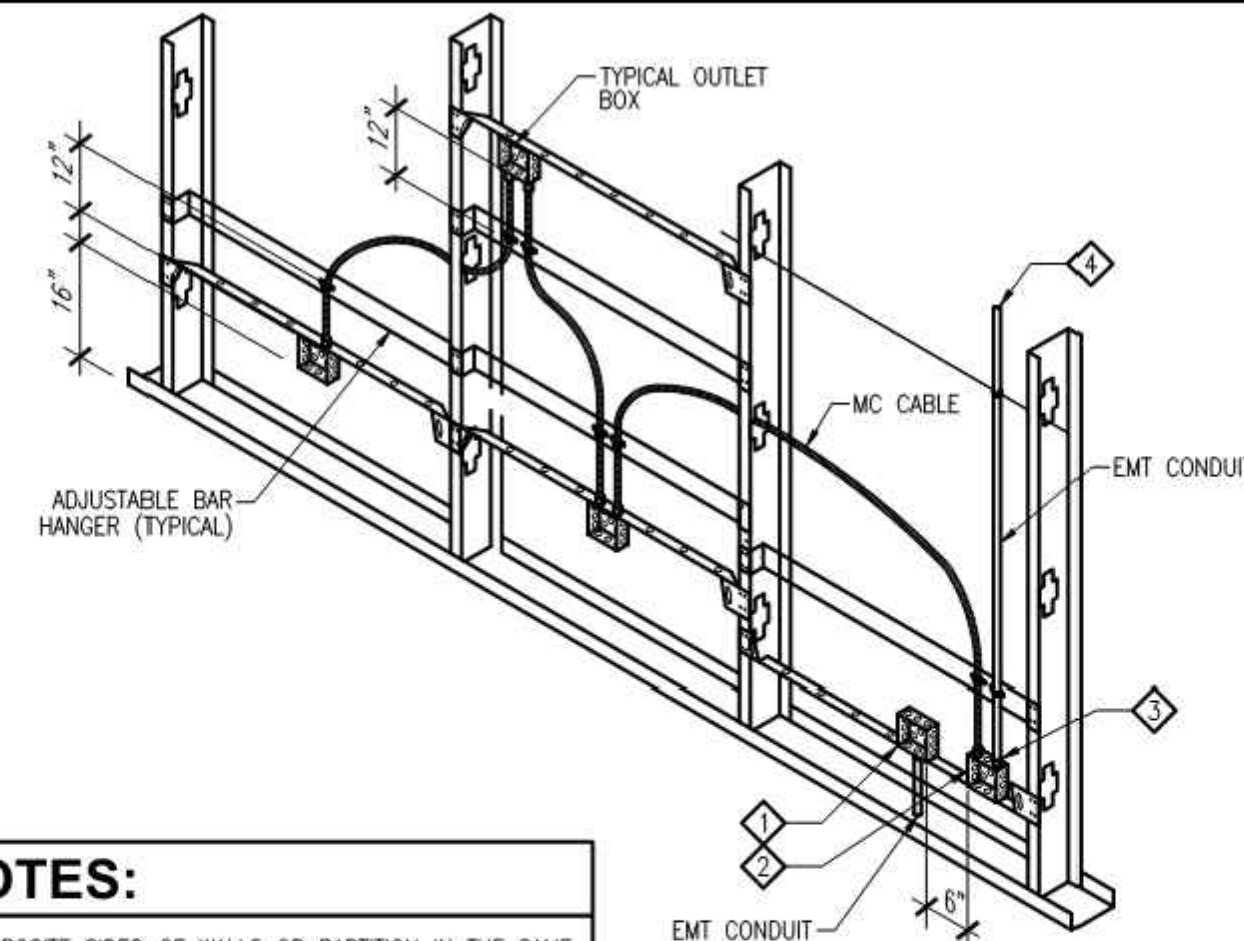
- COORDINATE STATION AND PORT LABELING WITH OWNER.
- ALL PATCH CABLES AND STATION CABLES SHALL BE PROVIDED AND INSTALLED BY EC.
- ALL PATCHING AND/OR CROSS CONNECTION SHALL BE PERFORMED BY THE EC.
- MATCH FACEPLATE COLOR TO RECEPTACLES.



6 DATA/VOICE JACK INSTALLATION DETAIL
SCALE: NTS



1 SOUND SYSTEM RISER DIAGRAM
SCALE: NTS



KEYED NOTES:

- OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITION IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 6\"/>

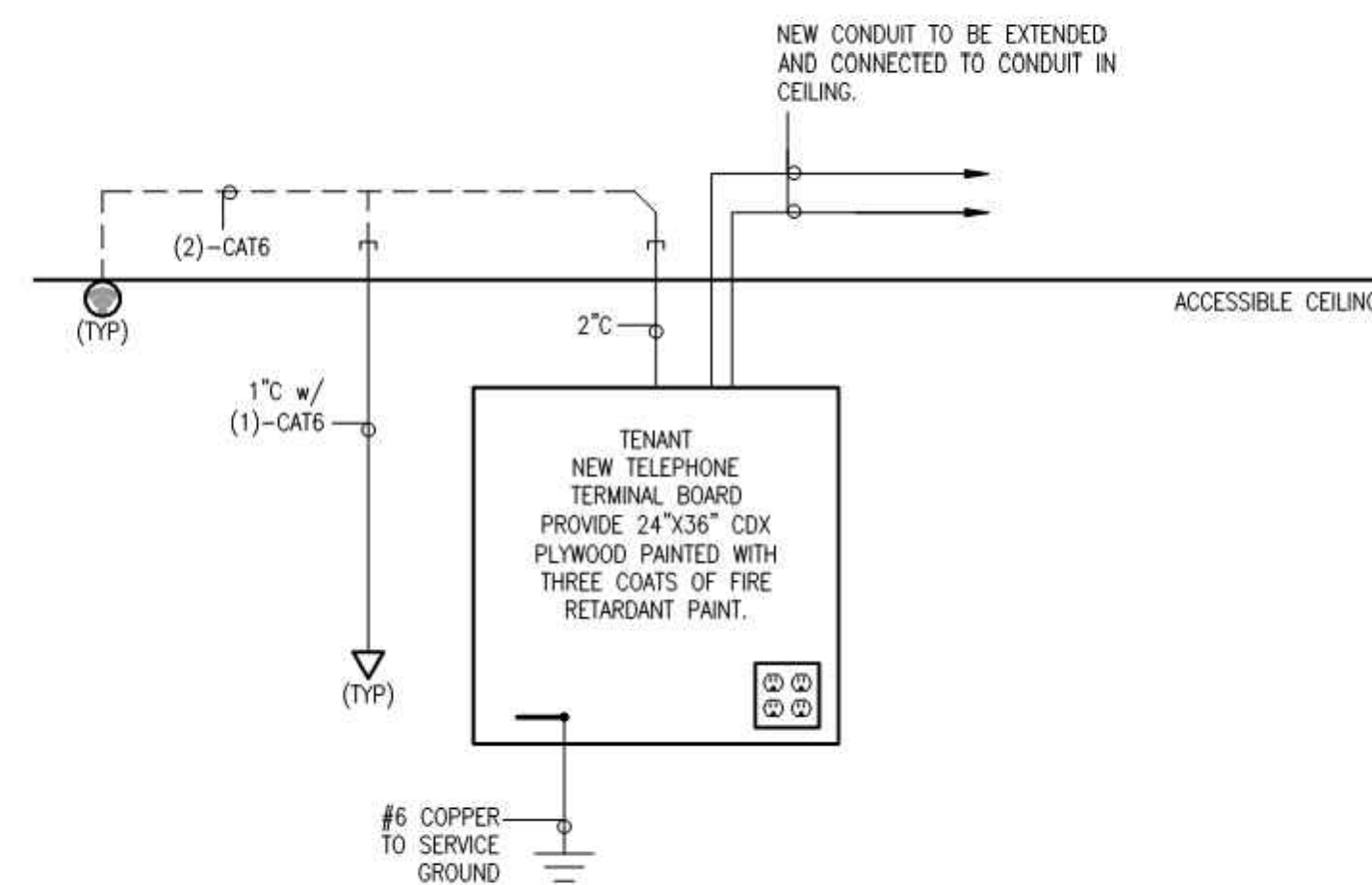
GENERAL NOTES:

- TYPICAL FOR WOOD AND METAL STUD ROUGH IN.
- PLASTER RINGS NOT SHOWN. COORDINATE RING DEPTH TO BE FLUSH WITH FINAL FINISH SURFACE.
- LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.

2 ROUGH-IN DETAIL FOR MC CABLE
SCALE: NTS

NOTES:

- CONNECT FROM NEW PHONE BOARD TO EXISTING TELEPHONE BOX WEST SIDE OF BUILDING 1-1/2\"/>



3 COMMUNICATIONS RISER DIAGRAM
SCALE: NTS



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, 50mAmps 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



Decora® Wall Switch Multi-Technology Occupancy Sensor

OSSMT-GDW

PASS & SEYMOUR® Recessed TV Boxes Old Work

TV1WMTVSSWCC2, TV1WMLVKITWCC2, 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 metal electrical box with four concentric 1/2" & 3/4" knockouts which accept Romex, MC cable or conduit, and two Romex entries with integral clamps.
- Recessed support frame mounts into rectangular wall cut-out via metallic wiring brackets.
- Polycarbonate frame.
- UL Listed.

FIELD USES/VERTICAL MARKETS

- Single Family Home
- Multiple Dwelling
- Retail/Office

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

PASS & SEYMOUR® Recessed TV Boxes Old Work

TECHNICAL INFORMATION

Catalog Number	Description	Cabinet Inches	Length	Width	Height	Wire Fill
TV1WMTVSSWCC2	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
TV1WMLVKITWCC2	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
- Flexcon® Wire Mesh Grips

Electrical Wiring Systems
P.O. Box 4822
Syracuse, NY 13221-4822
Phone 1-800-775-4035
www.legrand.us/passandseymour
UL Approved Component
Weymouth, Ontario, Canada
Phone 905-768-1115
www.legrand.ca

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Product Guide



	T5635	T5633	T5833	T5633
USB Charger	6A	5.1A	5.1A	3.6A
Total Charging Power	30W	25+W	25+W	18W
Single Port Charging Power	30W	15W	15W	12W
Outlet Power	15A	15A	20A	15A
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
Wiring	Back and side wiring	Back and side wiring	Back and side wiring	Back and side wiring

LEVITON T5833 USB CHARGING RECEPTACLE

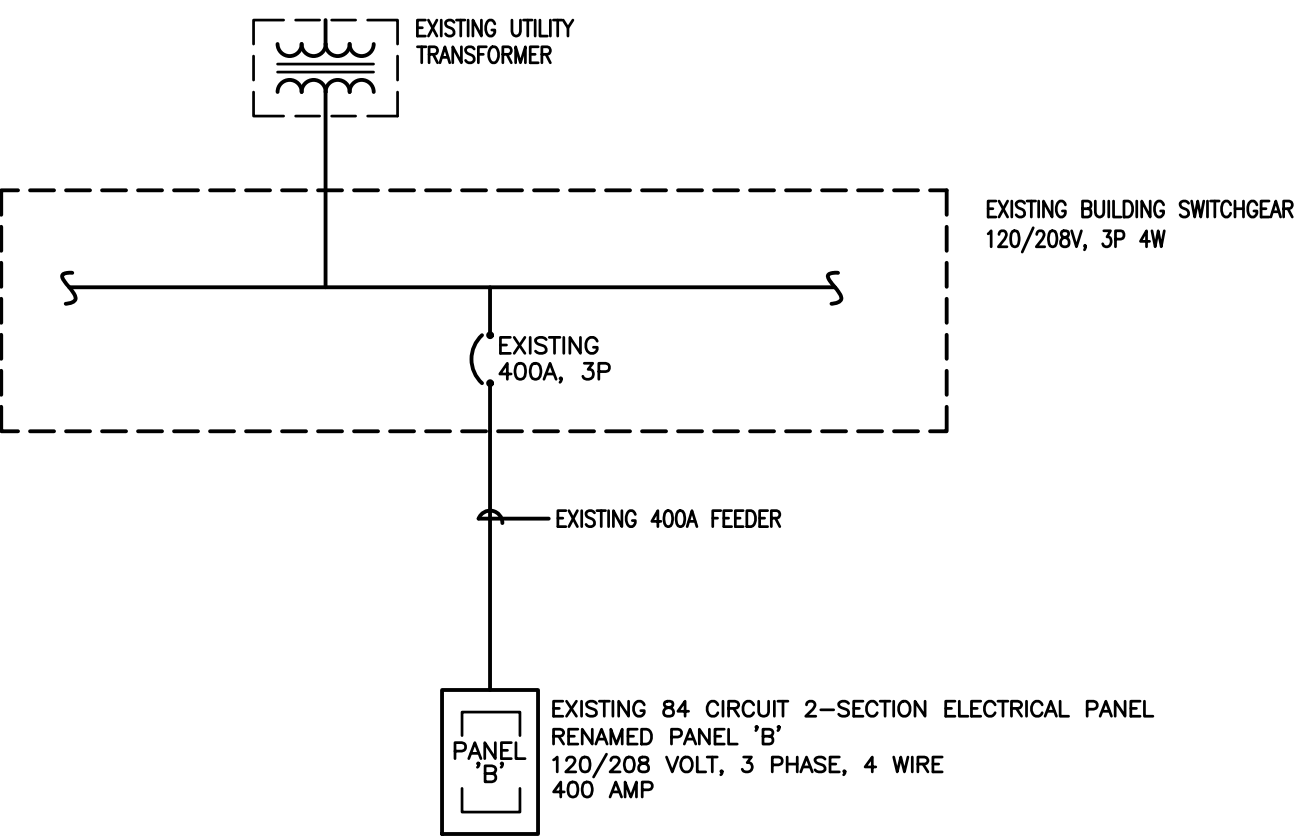
ALUMINUM CONDUCTOR & CONDUIT SCHEDULE					
TYPE	AMP.	COND. SIZE	CONDUCTOR QUAN.	INSULATION SIZE	EQ. GND. COND.(AL)
31X	120	2"	3	1/0	XHHW-2 4
41X	120	2"	4	1/0	XHHW-2 4
51X	96	2"	5*	1/0	XHHW-2 4
32X	135	2"	3	2/0	XHHW-2 4
42X	135	2"	4	2/0	XHHW-2 4
52X	108	2"	5*	2/0	XHHW-2 4
33X	155	2"	3	3/0	XHHW-2 4
43X	155	2"	4	3/0	XHHW-2 4
53X	124	3"	5*	3/0	XHHW-2 4
34X	180	2"	3	4/0	XHHW-2 4
44X	180	3"	4	4/0	XHHW-2 4
54X	144	3"	5*	4/0	XHHW-2 2
325	205	2"	3	250	XHHW-2 2
425	205	3"	4	250	XHHW-2 2
525	164	3"	5*	250	XHHW-2 2
330	230	3"	3	300	XHHW-2 2
430	230	3"	4	300	XHHW-2 2
530	184	3"	5*	300	XHHW-2 2
335	250	3"	3	350	XHHW-2 2
435	250	3"	4	350	XHHW-2 2
535	200	3"	5*	350	XHHW-2 2
340	270	3"	3	400	XHHW-2 2
440	270	3"	4	400	XHHW-2 2
540	216	3"	5*	400	XHHW-2 2
350	310	4"	3	500	XHHW-2 1
450	310	4"	4	500	XHHW-2 1
550	248	4"	5*	500	XHHW-2 1
375	385	4"	3	750	XHHW-2 1
475	385	4"	4	750	XHHW-2 1
575	308	4"	5*	750	XHHW-2 1

ALUMINUM CONDUCTOR & CONDUIT SCHEDULE FOR PARALLEL RUNS							
TYPE	MAX. O. C. PROT.	COND. AMPS	SETS	CONDUCTOR QUAN.	SIZE	CONDUIT SIZE	EQ. GND. COND.(AL)
325-2	400	410	2	3	250	2-1/2"	2/0
425-2	400	410	2	4	250	2-1/2"	2/0
535-2	400	400	2	5*	350	3"	2/0
450-2	600	620	2	3	500	3"	2/0
450-2	600	620	2	4	500	3"	2/0
535-3	600	600	3	5*	350	3"	2/0
340-3	800	810	3	3	400	2-1/2"	3/0
440-3	800	810	3	4	400	3"	3/0
535-4	800	800	4	5*	350	4"	3/0
375-3	1000	1155	3	3	750	4"	4/0
475-3	1000	1155	3	4	750	4"	4/0
535-5	1000	1000	5	5*	350	4"	4/0
450-4	1200	1240	4	3	500	4"	250
450-4	1200	1240	4	4	500	4"	250
550-5	1200	1240	5	5*	500	4"	250
340-6	1600	1620	6	3	400	4"	350
440-6	1600	1620	6	4	400	4"	350
550-7	1600	1736	7	5*	500	4"	350
475-6	2000	2310	6	4	750	4"	400
475-7	2500	2695	7	4	750	5"	600
475-8	3000	3080	8	4	750	5"	600
475-11	4000	4235	11	4	750	5"	750

NOTES:
IN PARALLEL RUNS SIZE GND. COND. IN
ACCORDANCE WITH NEC PARA. 250-122.
GND. CONDUCTOR MAY BE DELETED ON
SERVICE ENTRANCE CONDUCTORS
* 200% NEUTRAL, DERATED TO 80% BASED ON
NEC 310.15.B(5)(c)
** COPPER CONDUCTOR (XHHW)
PROVIDE COMPACT STRANDED ALUMINUM ASSOCIATION
8000 SERIES ALLOY CONDUCTORS.
PROVIDE TERMINATION FOR ALUMINUM-ALLOY
CONDUCTORS OF HYDRAULIC COMPRESSION TYPE ONLY
LISTED UNDER UL 486-B MARKED "AL7CU" FOR 75°
RATED CIRCUITS.
PROVIDE ALL ELECTRICAL EQUIPMENT WITH PROPER
SIZING TO ACCOMMODATE ALUMINUM CONDUCTORS,
COORDINATE WITH EQUIPMENT SUPPLIER.

COPPER CONDUCTOR & CONDUIT SCHEDULE					
TYPE	AMP.	COND. SIZE	CONDUCTOR QUAN.	INSULATION SIZE	EQ. GND. COND.(AL)
20	30	3/4"	2	10	THHN THWN 10
30	30	3/4"	3	10	THHN THWN 10
40	30	3/4"	4	10	THHN THWN 10
28	40	1"	2	8	THHN THWN 10
38	40	1"	3	8	THHN THWN 10
48	40	1"	4	8	THHN THWN 10
26	55	1"	2	6	THHN THWN 8
36	55	1"	3	6	THHN THWN 8
46	55	1"	4	6	THHN THWN 8
24	70	1"	2	4	THHN THWN 8
34	70	1-1/4"	3	4	THHN THWN 8
44	70	1-1/4"	4	4	THHN THWN 8
23	85	1-1/4"	2	3	THHN THWN 8
33	85	1-1/4"	3	3	THHN THWN 8
43	85	1-1/2"	4	3	THHN THWN 8
32	95	1-1/2"	3	2	THHN THWN 6
42	95	1-1/2"	4	2	THHN THWN 6

NOTES:
1. THE CUSTOMER IS NOT ABLE TO PROVIDE EXISTING GEAR SHORT CIRCUIT RATINGS. BEFORE ORDERING ELECTRICAL GEAR, CONTRACTOR SHALL VERIFY THE AIC RATING OF THE EXISTING BUILDING ELECTRICAL SYSTEM EQUIPMENT. IF EXISTING SYSTEM AIC RATING CANNOT BE DETERMINED, ALL NEW ELECTRICAL GEAR SHALL BE FULLY RATED AT 65KAIC.



1 ONE-LINE DIAGRAM
NO SCALE



PlugTail® Commercial
Specification Grade 20A USB
Charging Receptacles, White

PTTR20ACUSBW

LEGRAND PTTR20ACUSBW
USB CHARGING RECEPTACLE

PROJECT NUMBER
21-202

ISSUE DATE:
JULY 22, 2021

REVISIONS:

No.	Date	Description

CONSULTANT

BNA
CONSULTING

635 South State Street
Salt Lake City, Utah 84111
P:801.532.2196
F:801.532.2305
www.bnaconsulting.com
© 2021 BNA CONSULTING SALT LAKE CITY, UTAH

CRUMBL COOKIES - LEE'S
SUMMIT
1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



ELECTRICAL
DETAILS

E5.3

JZW
ARCHITECTS

LIGHT FIXTURE SCHEDULE NOTES

LIGHT FIXTURE ABBREVIATION SCHEDULE			
A.F.F. WALL@CLG CCBA	ABOVE FINISH FLOOR WALL MOUNT AT CORNER OF WALL AND CEILING CUSTOM PAINTED COLOR AS SELECTED BY THE ARCHITECT	SCBA CFBA SFBA	STANDARD PAINTED COLOR AS SELECTED BY THE ARCHITECT CUSTOM FINISH AS SELECTED BY THE ARCHITECT STANDARD FINISH AS SELECTED BY THE ARCHITECT

LIGHT FIXTURE GENERAL NOTES

- REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF LIGHT FIXTURES. BRING ALL DISCREPANCIES OF LOCATIONS AND QUANTITIES TO THE ATTENTION OF THE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO BIDDING.
- REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS AND LOCATIONS OF LIGHT FIXTURES. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO BIDDING.
- REFER TO THE SPECIFICATIONS FOR OTHER LIGHT FIXTURE, FUSING, BALLAST, AND LAMP REQUIREMENTS AND ACCEPTABLE MANUFACTURERS.
- CONFIRM AVAILABLE MOUNTING DEPTHS OF ALL LIGHT FIXTURES AND COMPARE WITH DEPTHS SHOWN ON SHOP DRAWINGS. BRING ALL POTENTIAL CONFLICT AREAS TO THE ATTENTION OF THE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO RELEASE.
- REFER TO LIGHTING PLANS FOR ALL LINEAR FIXTURE LENGTHS. THE CATALOG NUMBER IS BASED ON THE FIXTURE SPECIFIED AND MAY NOT REFLECT THE QUANTITY OR OVERALL LENGTH OF LINEAR FIXTURES REQUIRED. CONTRACTOR TO NOTE THAT VARIOUS FIXTURE LENGTHS MAY BE REQUIRED TO ACHIEVE THE OVERALL RUN LENGTH.
- REFER TO LIGHTING PLANS FOR ALL UNDERCABINET FIXTURE LENGTHS. THE CATALOG NUMBER IS BASED ON THE FIXTURE SPECIFIED AND MAY NOT REFLECT THE QUANTITY OR OVERALL LENGTH OF UNDERCABINET FIXTURES REQUIRED. CONTRACTOR TO NOTE THAT VARIOUS FIXTURE LENGTHS MAY BE REQUIRED TO ACHIEVE THE OVERALL RUN LENGTH OR TO FIT WITHIN THE MILLWORK. COORDINATE FIXTURE LAYOUT WITH MILLWORK SHOP DRAWINGS PRIOR TO LIGHTING SUBMITTALS.
- WHEN A CONTRADICTION EXISTS BETWEEN A SPECIFIC MODEL NUMBER AND THE DESCRIPTION, THE DESCRIPTION SHALL GOVERN.
- PRIOR APPROVALS SHALL BE SUBMITTED TO THE ELECTRICAL ENGINEER'S OFFICE AT LEAST (8) EIGHT WORKING DAYS BEFORE THE BID. PRIOR APPROVALS RECEIVED AFTER THIS TIME PERIOD SHALL BE REJECTED.
- REFER TO SPECIFICATIONS.
- VALUE ENGINEERING CONDUCTED WITHOUT THE DESIGN TEAM IE; ARCHITECT, OWNER, ENGINEER & LIGHTING CONSULTANT/DESIGNER WILL NOT BE ALLOWED, REVIEWED OR APPROVED.

FIXTURE SCHEDULE

						Project Manager: TREY HILLS
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTS	TOTAL WATTS	LAMPS
EG	EMERGENCY EGRESS LIGHT; VERIFY FINISH WITH ARCHITECT	LITHONIA	AFB OEL DDBTXDUV/OLT LTP WT CW	UNV	11	LED; INCLUDED
EM1	2-HEAD EM WALL PACK; IVORY WHITE SURFACE MOUNTED	LITHONIA	ELZL M12	UNV	1	LED; INCLUDED
EX1	2-HEAD EM WALL PACK; SURFACE MOUNTED; GREEN LETTERING; WITH EXIT SIGN	LITHONIA	EGS LED M6	UNV	3	LED; INCLUDED
F1	LED 2X4 LAY-IN FIXTURE; 5000K DAY LIGHT BRIGHT; 9200 LUMENS - NO SUBSTITUTIONS	LITHONIA	2GTL4 88L EZ1 LP850	UNV	65	LED; INCLUDED
F2	4" SWITCHABLE WHITE COLOR TEMPERATURE; CAULESS LED RECESSED KIT ON SEPARATE DIMMER SWITCH IN SHELF ABOVE BOXING STATION	LITHONIA	WF4 LED 30K40K50K 90CRI MW	UNV	10	LED; INCLUDED
F3	LED 2X4 FIXTURE WITH DRY WALL KIT; 5000K DAY LIGHT BRIGHT; 3000 LUMENS; ORDER DRY WALL FLANGE KIT - NO SUBSTITUTIONS	LITHONIA	2GTL4 30L EZ1 LP850 DGA24	UNV	23	LED; INCLUDED

KITCHEN EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	SERVICE		DISCONNECT		LOAD			MOUNTING HEIGHT	REMARKS
		VOLTS	PHASE	SIZE	NEMA	HP/TON	VA	AMPS		
<1>	WARMER	120V	1	PLUG/CORD	5-15P		1,440	12A		
<2>	MIXER	208V	3	30A NEMA 1	-	2.5 HP	2,302	6.39A		
<3>	REFRIGERATOR	120V	1	PLUG/CORD	5-15P	1 HP	1,320	11A		
<4>	FREEZER	120V	1	PLUG/CORD	5-15P		1,320	11A		
<5>	MICROWAVE	120V	1	PLUG/CORD	5-15P		1,000	8.3A		
<6>	OVEN L	120V	1	PLUG/CORD	5-20P		480	4A		
<7>	OVEN H	208V	3	PLUG/CORD	15-60P		18,734	52A		
<8>	U.C. REFRIGERATOR	120V	1	PLUG/CORD	5-15P		1000	11A		
<9>	SMALL FREEZER	120V	1	PLUG/CORD	5-15P		1,056	8.8A		
<10>	PLANETARY MIXER	120V	1	PLUG/CORD	5-15P		1,100	10A		

- 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 422.31(B).
 - DISCONNECTING MEANS NOT REQUIRED FOR APPLIANCES NOT OVER 300 VA. SEE NEC 422.31(A).

PANELBOARD SCHEDULE

PANEL		B (EXIST)		TYPE		NQ		120/208		VOLTS		3		PH		4		W	

GENERAL PROVISIONS

- A. REFERENCE
1. THE GENERAL CONDITIONS AND OTHER CONTRACT DRAWINGS AS SET FORTH IN THE FOREGOING PAGES ARE HEREBY INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR WORK UNDER THIS TITLE, INsofar AS THEY APPLY HERETO
 1. ALL SPECIFICATIONS UNDER THIS DIVISION TITLE ARE DIRECTED TO AND ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, UNLESS OTHER TRADES OR PERSONS ARE SPECIFICALLY MENTIONED. "ELECTRICAL CONTRACTOR" IS INFERRED AND INTENDED.
- B. CONTRACT DRAWINGS
1. THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS IF CALLED FOR BY BOTH.
 2. CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF EQUIPMENT, CONDUIT AND WIRING AND MAKE MINOR ADJUSTMENTS IN LOCATIONS TO SECURE COORDINATION.
 3. WIRING LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS.
 4. OTHER THAN MINOR ADJUSTMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING WITH THE WORK.
- C. JOB-SITE COPY OF DOCUMENTS
1. MAINTAIN AT THE SITE, ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA APPROVED SHOP DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS. IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE. THE DRAWINGS MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE FOR THE OWNER UPON COMPLETION OF THE WORK. AN ADDITIONAL SET OF DRAWINGS WILL BE FURNISHED BY THE OWNER'S REPRESENTATIVE FOR THIS PURPOSE UPON REQUEST.
- D. MANUFACTURER'S DRAWINGS
1. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR REVIEW (6) COPIES OF MANUFACTURER'S DRAWINGS AND WIRING DIAGRAMS. THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS (AS INDICATED BELOW) WITH RESPECT TO THE ABILITY OF THE DETAILED WORK, WHEN COMPLETE, TO BE A PROPERLY FUNCTIONING INTEGRAL ELEMENT OF THE OVERALL SYSTEM DESIGNED BY THE ENGINEER. BEFORE SUBMITTING A SHOP DRAWING OF ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR. APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT; AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER SHALL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION UNLESS CONTRACTOR ADVISES ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY ENGINEER IN WRITING. THE ITEMS, TYPES OF SUBMITTALS AND RELATED MATERIAL (IF ANY) CALLED FOR ARE INDICATED BELOW:
- | ITEMS | TYPE SUBMITTALS REQUESTED |
|---------------------------|---------------------------|
| LIGHTING AND POWER PANELS | SHOP DRAWINGS |
| LIGHTING FIXTURES | CATALOG CUTS |
- E. GUARANTEES
1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND REPLACEMENTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY THE OWNER'S REPRESENTATIVE. PRODUCT GUARANTEES GREATER THAN ONE (1) YEAR SHALL BE PASSED ALONG TO THE OWNER FOR FULL BENEFIT OF THE MANUFACTURER'S WARRANTY.

WORK INCLUDED

- A. INSTALLATION, MATERIALS AND WORKMANSHIP
1. FURNISH AND INSTALL ALL NECESSARY ANCHORS, SUPPORTS, STRAPS, BOXES, FITTINGS AND OTHER SIMILAR APPURTENANCES NOT INDICATED ON THE DRAWINGS BUT WHICH ARE REQUIRED FOR A COMPLETE AND PROPERLY INSTALLED SYSTEM CONSISTENT WITH THE ARCHITECTURAL TREATMENT OF THE BUILDING.
 2. THE ELECTRICAL CONTRACTOR, INsofar AS THE WORK IS CONCERNED, SHALL AT ALL TIMES KEEP THE PREMISES IN A NEAT AND ORDERLY CONDITION. AND AT THE COMPLETION OF THE WORK, SHALL PROPERLY CLEAN UP AND CART AWAY DEBRIS AND EXCESS MATERIALS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF DUMPSTER AND REFUSED DISPOSAL AS REQUIRED FOR ELECTRICAL WORK.
 3. ALL MATERIALS SHALL BE NEW AND UNDETERIORATED AND OF A QUALITY NOT LESS THAN THE MINIMUM SPECIFIED.
- B. COORDINATION OF PLANS AND SPECIFICATIONS
1. CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY IF THERE ARE ANY QUESTIONS REGARDING THE MEANING OR INTENT OF EITHER PLANS OF SPECIFICATIONS, OR UPON NOTICING ANY DISCREPANCIES OR OMISSIONS IN EITHER PLANS OR SPECIFICATIONS.
- C. CUTTING AND PATCHING
1. ALL ELECTRICAL EQUIPMENT SHALL BE KEPT DRY AND CLEAN DURING THE CONSTRUCTION PERIOD. INTERIOR OF ALL ENCLOSURES SHALL BE CLEANED OF DIRT AND DEBRIS BEFORE INSTALLING TRIM OR COVERS.
 2. ALL FINISHED SURFACES OF EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE THOROUGHLY CLEANED OF DIRT AND ALL SCRATCHED OR DAMAGED SURFACES SHALL BE TOUCHED UP WITH MATCHING MATERIALS BEFORE FINAL ACCEPTANCE OF THE WORK.
 3. WHEN ALL WORK IS COMPLETED AND ALL WORK HAS BEEN SATISFACTORILY TESTED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE, ALL CONDUIT AND OTHER EXPOSED SURFACES SHALL BE THOROUGHLY CLEANED.

CODES AND FEES

- A. CODES:
1. ALL WORK PERFORMED UNDER THIS SPECIFICATION SHALL BE DONE IN ACORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS PREPARED AND PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION AND ANY APPLICABLE STATE OR LOCAL CODES.
- B. FEES:
1. OBTAIN AND PAY FOR ANY AND ALL PERMITS REQUIRED BY ALL LAWS AND REGULATIONS AND PUBLIC AUTHORITY HAVING SUCH JURISDICTION.

TESTS AND INSPECTIONS

- A. OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES, RULES, REGULATIONS OR PUBLIC AUTHORITY HAVING JURISDICTION AND OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE OWNER'S REPRESENTATIVE. PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREIN. OBTAIN OCCUPANCY PERMIT AS REQUIRED BY OWNER. FINAL PAYMENT SHALL NOT BE MADE UNTIL OCCUPANCY PERMIT IS OBTAINED.
- B. WORK SHALL BE UNACCEPTABLE WHEN FOUND TO BE DEFECTIVE OR CONTRARY TO THE PLANS SPECIFICATIONS, CODES SPECIFIED OR ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
- C. THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK FOUND UNACCEPTABLE BY THE OWNER'S REPRESENTATIVE WHETHER OBSERVED BEFORE OR AFTER SUBSTANTIAL COMPLETION AND WHETHER OR NOT FABRICATED, INSTALLED OR COMPLETED. THE CONTRACTOR SHALL BEAR ALL COSTS OF CORRECTING SUCH UNACCEPTABLE WORK, INCLUDING COMPENSATION FOR THE OWNER'S REPRESENTATIVE ADDITIONAL SERVICES MADE NECESSARY THEREBY.

CONDUIT

- A. FURNISH AND INSTALL ALL CONDUITS, BOXES, FITTINGS, ETC., FOR A COMPLETE AND WORKING SYSTEM.
- B. ALL WIRING SHALL BE RUN IN EMT CONDUIT OR MC CABLE WITH GROUND CONDUCTOR UNLESS OTHERWISE NOTED.
- C. ALL CONDUIT SIZES STATED HEREIN OR MARKED ON THE DRAWINGS ARE MINIMUM SIZE AND SHALL BE NO LESS THAN 1/2" UNLESS OTHERWISE NOTED.
- D. ALL CONDUIT SHALL BE SUBSTANTIALLY SUPPORTED BY PIPE STRAPS OR SUITABLE CLAMPS OR HANGERS ATTACHED TO THE ELEMENTS OF THE BUILDING STRUCTURE TO PROVIDE RIGID INSTALLATION; IN NO CASE SHALL CONDUIT BE ATTACHED OR SUPPORTED FROM ADJOINING PIPE OR INSTALLED IN SUCH A MANNER AS TO PREVENT THE READY REMOVAL OF OTHER PIPE FOR REPAIRS.

WIRE AND CABLE

- A. ALL CONDUCTORS SHALL BE COPPER AND OF THE AWG SIZE AND TYPE SHOWN ON THE DRAWINGS, WHERE NO SIZE OR TYPE IS SHOWN, CONDUCTORS SHALL NOT BE LESS THAN #12 TYPE XHHW, THHN OR THWN. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED COPPER AND HAVE 600 VOLT INSULATION; BE UL LABELED AND OF AMERICAN MANUFACTURER.
- B. ALL CONNECTIONS ARE TO BE MADE USING PRESSURE TYPE TERMINALS.
- C. THE FOLLOWING COLOR CODE SHALL BE USED:
- | | 120/240 VOLT | 120/208 VOLT | 277/480 VOLT |
|---------|--------------|--------------|--------------|
| PHASE A | BLACK | BLACK | BLACK |
| PHASE B | RED | RED | ORANGE |
| PHASE C | BLUE | YELLOW | |
| NEUTRAL | WHITE | WHITE | WHITE |
| GROUND | GREEN | GREEN | GREEN |
- D. CONDUCTORS NO. 10 AWG OR SMALLER SHALL HAVE INSULATION COLORED AS NOTED ABOVE.
- E. CONDUCTORS NO. 8 AWG OR LARGER SHALL HAVE INSULATION COLORED AS NOTED ABOVE OR COLORED TAPE, MINIMUM SIZE 1/2", WRAPPED TWICE AROUND AT THE FOLLOWING POINTS:
1. AT EACH TERMINAL.
 2. AT EACH CONDUIT ENTRANCE.
 3. AT INTERVALS NOT MORE THAN 12 INCHES APART IN ALL BOXES, PANEL TUBS, SWITCHBOARDS, ETC.
- G. ALL BRANCH CIRCUITS SHALL BE MARKED IN THE PANEL BOARD GUTTERS. MARKERS SHALL INDICATE CORRESPONDING BRANCH CIRCUIT NUMBERS.
- H. EACH BRANCH CIRCUIT REQUIRING A NEUTRAL SHALL BE FURNISHED WITH A SEPARATE INDIVIDUAL NEUTRAL CONDUCTOR.

BOXES AND PLATES

- A. FURNISH AND INSTALL ALL OUTLET, JUNCTION, AND PULL BOXES AS INDICATED ON THE DRAWINGS AND AS NECESSARY TO INSTALL THE REQUIRED CONDUIT AND WIRING IN A NEAT AND WORKMANLIKE MANNER.
- B. PULL BOXES AND JUNCTION BOXES SHALL BE GALVANIZED AND OF THE CORRECT SIZE AND GAUGE, SIZED IN ACCORDANCE WITH CODE REQUIREMENTS AND SHALL BE U.L. LABELED.
- C. BOXES AT EXTERIOR AREAS TO BE WATER-TIGHT AND DUST-TIGHT WITH CASKETING COVERS.
- D. ALL BOXES FOR EXPOSED WORK IN FINISHED SPACES SHALL BE "FS" TYPE WITH THREADED HUBS WITH RIGID CONDUIT RISER (DEEP WIRE MOLD BOXES).
- E. ALL BOXES SHALL BE RIGIDLY SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM. BOXES CAST INTO MASONRY OR CONCRETE ARE CONSIDERED TO BE RIGIDLY SUPPORTED.
- F. FLOOR BOXES:
1. DESCRIPTION: FLOOR BOXES COMPATIBLE WITH FLOOR BOX SERVICE FITTINGS PROVIDED IN ACCORDANCE WITH THE WIRING DEVICES SECTION OF THIS SPECIFICATION; WITH PARTITIONS TO SEPARATE MULTIPLE SERVICES; FURNISHED WITH ALL COMPONENTS, ADAPTERS, AND TRIMS REQUIRED FOR COMPLETE INSTALLATION.
 2. USE CAST IRON OR NONMETALLIC FLOOR BOXES WITHIN SLAB ON GRADE.
 3. USE SHEET-STEEL, CAST IRON, OR NONMETALLIC FLOOR BOXES WITHIN SLAB ABOVE GRADE.
 4. METALLIC FLOOR BOXES: FULLY ADJUSTABLE (WITH INTEGRAL MEANS FOR LEVELING ADJUSTMENT PRIOR TO AND AFTER CONCRETE POUR).
 5. MANUFACTURER: SAME AS MANUFACTURER OF FLOOR BOX SERVICE FITTINGS.
- G. UNDERGROUND BOXES/ENCLOSURES:
1. DESCRIPTION: IN-GROUND, OPEN BOTTOM BOXES FURNISHED WITH FLUSH, NON-SKID COVERS WITH LEGEND INDICATING TYPE OF SERVICE AND STAINLESS STEEL TAMPER RESISTANT COVER BOLTS.
 2. SIZE: AS INDICATED ON THE DRAWINGS.
 3. DEPTH: AS REQUIRED TO EXTEND BELOW FRONT LINE TO PREVENT FROST UPHEAVAL, BUT NOT LESS THAN 12 INCHES.
 4. APPLICATIONS:
 - a. SIDEWALKS AND LANDSCAPED AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC; USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 8 LOAD RATINGS.
 - b. PARKING LOTS. IN AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC: USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 15 LOAD RATING.
 - c. DO NOT USE POLYMER CONCRETE ENCLOSURES IN AREAS SUBJECT TO DELIBERATE VEHICULAR TRAFFIC.
- H. COMPOSITE UNDERGROUND BOXES/ENCLOSURES: COMPLY WITH SCTE 77.

WIRING DEVICES

- A. WIRING DEVICES SHALL BE SIMILAR TO THOSE LISTED BELOW AND OF SPECIFIED AMPERAGE. OTHER SPECIAL PURPOSE DEVICES SHALL BE AS SPECIFIED ON THE DRAWINGS.
- B. DUPLEX GROUNDING TYPE RECEPTACLE - 20 AMP, 125 VOLT
1. HUBBELL 5352
 2. ARROW HART 5352
- C. SINGLE POLE SWITCHES - 20 AMP, 120 VOLT
- D. WEATHERPROOF RECEPTACLES - 20 AMP, 125 VOLT - NEMA 5-20R
1. HUBBELL 5352 WITH 5205 COVER INTERMATIC GUARDIAN
 2. I SERIES, NEMA 3R COVER
 3. ARROW HART 5352 WITH 4500 COVER
- E. GFCI RECEPTACLE - 20 AMP, 124 VOLT - NEMA 5-20R
1. HUBBELL GF 5262 WITH MATCHING BYLON COVER PLATE OR WO-26 W.P. COVER
- F. GROUND ALL RECEPTACLES IN ACCORDANCE WITH ARTICLE 250.146 OF NEC AND AS INDICATED ON THE GROUNDING SECTION OF THIS SPECIFICATION.

IDENTIFICATION

- A. EACH PIECE OF SERVICE EQUIPMENT AND INDIVIDUAL SWITCHES, ALL DISCONNECTS, STARTERS, ALL EXHAUST FAN MANUAL STARTING SWITCHES.
- B. IDENTIFICATION SHALL BE IN THE FORM OF LAMINATE PLASTIC NAMEPLATES, BLACK RACE, WITH THE LETTERS ENGRAVED INTO THE WHITE BACKGROUND, MINIMUM 1/4" HIGH. PLATES SHALL BE DRILLED ON EACH END FOR SHEET METAL SCREW ATTACHMENT, TO "DYMCO" OR SIMILAR TYPE LABELS WILL BE ALLOWED.
- C. PANEL BOARD DIRECTORY: A TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED INDICATING LOCAL AREA SERVED AND LOCATION FOR EACH BRANCH CIRCUIT.

GROUNDING

- A. ALL FEEDERS AND BRANCH CIRCUITS OVER 100 VOLTS SHALL INCLUDE A GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC TABLE 250-122, EXCEPT NOT BE SMALLER THAN #12 FOR POWER AND LIGHTING CIRCUITS AND #14 FOR CONTROL CIRCUITS. ALL GROUND CONDUCTORS SHALL BE GREEN, OR AS SPECIFIED UNDER THE WIRE AND CABLE SECTION OF THIS SPECIFICATION.
- B. ALL GROUND CLAMPS SHALL BE PENN-UNION "GPL" TYPE OR SIMILAR BY O.Z. OR BURNDY.
- C. CONDUIT FOR SOLID BARE CONDUCTORS SHALL BE RIGID SCHEDULE 40 PVC NON-METALLIC ELECTRICAL CONDUIT WITH U.L. LABEL SOLITARY GROUND CONDUCTORS SHALL NOT BE PLACED THROUGH METALLIC SLEEVES OR CONDUITS AND SHALL NOT BE COMPLETELY ENCIRCLED BY METALLIC HANGERS OR SUPPORTS.
- D. THE GROUND CONDUCTOR SHALL BE CONNECTED TO THE NEUTRAL IN ONLY TWO LOCATIONS- ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT MEANS PER NEC-250-24 AND ON SEPARATELY DERIVED SYSTEMS PER NEC 250-30.
- E. AT EACH RECEPTACLE BOX, THE GROUND CONDUCTOR SHALL ENTER AND CONNECT, WITH NORMAL WIRING CONNECTOR, TO: 1) THE GROUND PIGTAIL TO RECEPTACLE; 2) THE GROUND PIGTAIL TO THE BOX GROUND SCREW; AND 3) THE OUTGOING GROUND CONDUCTOR TO NEXT DEVICE, IF NOT AT END OF RUN. METAL TO METAL CONTACT BETWEEN THE DEVICE YOKE AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND FOR EITHER SURFACE MOUNTED BOXES OR FLUSH TYPE BOXES.

LIGHTING FIXTURES

- A. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING FIXTURES AS INDICATED IN THE FIXTURE SCHEDULE SHOWN ON DRAWINGS, AND SPECIFIED HEREIN.
- B. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
- C. ALL LIGHTING FIXTURES INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE FURNISHED COMPLETE WITH AS INDICATED ON THE FIXTURE SCHEDULE.
- D. ANY LIGHTING FIXTURES SCRATCHED, BENT, CRACKED OR IN ANY WAY DAMAGED BEFORE ACCEPTANCE BY OWNER SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE.
- E. ALL LIGHTING FIXTURES SHALL BE IN WORKING ORDER AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
- F. ALL LIGHTING FIXTURES ARE TO BE GROUNDED ON THE INTERIOR OF THE FIXTURE HOUSING, ON CLEAN BARE METAL (FREE OF PAINT) BY USE OF PIGTAIL AND FASTENED BY A SCREW USED FOR NO OTHER PURPOSE.

TELEPHONE/DATA SYSTEMS

- A. SUMMARY
1. INCLUDES BUT NOT LIMITED TO
 - a. FURNISH AND INSTALL BUILDING TELEPHONE AND COMPUTER NETWORK RACEWAY AND CABLE SYSTEM AS DESCRIBED IN CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, RACEWAY, OUTLETS, MODULAR JACKS, DEVICE PLATES, CABLES, PUNCH DOWN BLOCKS, PATCH PANELS, GROUNDING AND OTHER MISCELLANEOUS ITEMS REQUIRED FOR A COMPLETE SYSTEM.
- B. COMPONENTS
1. TELEPHONE OUTLET BOX SHALL BE SINGLE DEVICE BOX.
 2. BUILDING TELEPHONE AND COMPUTER NETWORK SYSTEM CABLE
 - a. 23 GAUGE, SOLID TINNED COPPER, FOUR TWISTED PAIRS, CATEGORY 6
 - b. USE PLENUM-RATED CABLE IN CEILINGS AND AREAS USED FOR PLENUM AIR RETURN
 3. TELEPHONE TERMINATION BLOCKS
 - a. UL VERIFIED CATEGORY 6
 - b. 110 TERMINATION WITH TIN LEAD PLATED IDC
 4. TELEPHONE/NETWORK JACKS
 - a. WALL JACKS
 - 1) CAT5 - HUBBELL HXJ6 OR ALTERNATE MANUFACTURER WITH EQUIVALENT PERFORMANCE STANDARD.
 - b. PLATES
 - 1) HUBBELL - IFP SERIES (PORT QUANTITY AS REQUIRED, COLOR BY ARCHITECT)
 5. NETWORK PATCH PANELS
 - a. UL VERIFIED CATEGORY 6
 - b. 110 TERMINATION WITH TIN LEAD PLATED IDC.
 - c. 19" RACK MOUNT WITH BACKBOARD MOUNTING FRAME.
 6. CONNECTOR BLOCKS FOR CATEGORY 6 AND UP CABLEING: TYPE 110 INSULATION DISPLACEMENT CONNECTORS; CAPACITY SUFFICIENT FOR CABLES TO BE TERMINATED PLUS 25 PERCENT SPARE.
- C. INSTALLATION
1. TERMINATE CABLES AT EACH OUTLET WITH SPECIFIED MODULAR JACK ASSEMBLY.
 2. TERMINATE CABLES ON PUNCH DOWN BLOCKS OR PATCH PANELS AT TERMINAL BOARD.
 3. PROVIDE TYPED LABELS AT ALL JACKS CORRESPONDING TO TYPED NUMBERING SYSTEM AT TERMINAL STRIP.
- D. QUALITY ASSURANCE
1. COMPLY WITH APPLICABLE PORTIONS OF NEC ANSI/EIA/TIA 568 AS TO TYPE PRODUCTS USED AND INSTALLATION OF COMPONENTS. PROVIDE PRODUCTS WITH HAVE BEEN UL LISTED AND LABELED.

ALARM & DETECTION SYSTEMS

- A. SUMMARY
1. INCLUDES BUT NOT LIMITED TO: FURNISH AND INSTALL NAC PANEL AND ADDITIONAL NOTIFICATION DEVICES ON EXISTING SYSTEM.
- B. SYSTEM DESCRIPTION
1. THE FIRE ALARM SYSTEM SHALL COMPLY WITH REQUIREMENTS OF NFPA STANDARD NO. 72 FOR PROTECTED PREMISES SIGNALING SYSTEMS EXCEPT AS MODIFIED AND SUPPLEMENTED BY THIS SPECIFICATION. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED AND MONITOR THE INTEGRITY OF ALL CONDUCTORS.
- C. QUALITY ASSURANCE
1. REGULATORY REQUIREMENTS
 - a. SYSTEM SHALL MEET APPROVAL OF AUTHORITY HAVING JURISDICTION (AHJ). CHANGES OR ADDITIONS SHALL BE MADE TO THE SYSTEM AS REQUIRED WITHOUT ADDITIONAL COST TO OWNER.
 - b. EQUIPMENT, DEVICES, AND CABLE SHALL BE UL OR FACTORY MUTUAL LISTED FOR USE IN FIRE ALARM SYSTEMS.
 - c. DESIGNER QUALIFICATIONS: NICET LEVEL III OR IV (3 OR 4) CERTIFIED FIRE ALARM TECHNICIAN OR REGISTERED FIRE PROTECTION ENGINEER, EMPLOYED BY FIRE ALARM CONTROL PANEL MANUFACTURER, CONTRACTOR, OR INSTALLER.
 - d. INSTALLER QUALIFICATIONS: FIRM WITH MINIMUM 3 YEARS DOCUMENTED EXPERIENCE INSTALLING FIRE ALARM SYSTEMS OF THE SPECIFIED TYPE AND PROVIDING CONTRACT MAINTENANCE SERVICE AS A REGULAR PART OF THEIR BUSINESS.
 - 1) AUTHORIZED REPRESENTATIVE OF CONTROL UNIT MANUFACTURER; SUBMIT MANUFACTURER'S CERTIFICATION THAT INSTALLER IS AUTHORIZED, INCLUDE NAME AND TITLE OF MANUFACTURER'S REPRESENTATIVE MAKING CERTIFICATION.
 - 2) INSTALLER PERSONNEL: FACTORY TRAINED AND CERTIFIED WITH AT LEAST 2 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
 - 3) SUPERVISOR: NICET LEVEL III OR IV (3 OR 4) CERTIFIED FIRE ALARM TECHNICIAN; FURNISH NAME AND ADDRESS.
- D. FACP COMPONENTS
1. EQUIPMENT AND ACCESSORIES FURNISHED UNDER TERMS OF THIS SPECIFICATION SHALL BE STANDARD PRODUCTS OF SINGLE MANUFACTURER, OR INCLUDE WRITTEN STATEMENT BY CONTROL PANEL MANUFACTURER CONFIRMING COMPATIBILITY OF COMPONENTS AND INCLUSION OF THESE COMPONENTS UNDER SYSTEM WARRANTY.
 2. AUDIBLE HORN ALARM ANNUNCIATION
 - a. PROVIDE SEPARATE AND DISTINCT ALARM SIGNALS FOR ALARM AND TROUBLE CONDITIONS.
 - b. ALARM SIGNAL SHALL ALSO OPERATE STROBE LIGHTS, IF SPECIFIED.
 - c. PROVIDE ALARM SILENCE SWITCHES AT CONTROL PANEL.
 - d. TROUBLE ALARM SHALL BE HORN INTEGRAL TO CONTROL PANEL.
 - e. SUPERVISORY ALARM MAY BE SAME AUDIBLE ALARM AS TROUBLE ALARM, BUT WITH SEPARATE VISUAL ANNUNCIATION.
- E. FIELD MOUNTED SYSTEM COMPONENTS
1. FIRE ALARM ACTUATING DEVICES
 - a. NOTIFICATION APPLIANCES
 - 1) LOW PROFILE HORN-STROBES
 - a) AUDIBLE OUTPUT OF 92 DBA AT 10 FT. WHEN MEASURED IN REVERBERATION ROOM PER UL-464.
 - b) INTEGRALLY MOUNTED FLASHING LIGHT UNIT WITH BLOCK LETTERS "FIRE"; MULTI-CANDELA WITH FIELD-SELECTABLE SETTINGS OF 15CD, 30CD, 60CD, 75CD & 110CD, AND FLASH RATE BETWEEN ON AND THREE HERTZ. ALL UNITS SHALL FLASH IN SYNCHRONIZATION WITH EACH OTHER.
 - c) THE HORN SHALL HAVE A SELECTABLE STEADY OR SYNCHRONIZED TEMPORAL OUTPUT.
 - d) IN AND OUT SCREW TERMINALS SHALL BE PROVIDED FOR WIRING.
 - 2) LOW PROFILE STROBES
 - a) PROVIDE LOW PROFILE WALL MOUNTED STROBES AT THE LOCATIONS SHOWN ON THE DRAWINGS. IN AND OUT SCREW TERMINALS SHALL BE PROVIDED FOR WIRING. STROBES SHALL PROVIDE SYNCHRONIZED FLASH OUTPUTS. STROBE OUTPUT SHALL BE DETERMINED AS REQUIRED BY ITS SPECIFIC LOCATION AND APPLICATION FROM A FAMILY OF 15CD, 30CD, 60CD, 75CD, OR 110CD DEVICES. LOW PROFILE STROBES SHALL MOUNT IN A NORTH AMERICAN 1-GANG BOX.
 2. INSTALLATION
 - a. INSTALL FIRE ALARM AND DETECTION SYSTEMS AS INDICATED, IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS, AND COMPLYING WITH APPLICABLE PORTIONS OF NEC, NFPA AND NECA'S "STANDARD OF INSTALLATION"
 2. INSTALL WIRING, RACEWAYS, CONDUCTORS, ELECTRICAL BOXES AND FITTINGS IN ACCORDANCE WITH CONDUIT, WIRE AND CABLE, AND BOXES AND PLATES SECTION OF THIS SPECIFICATION.
 3. LABEL PULL AND JUNCTION BOXES "FIRE ALARM" WITH RED INDELIBLE INK.
 4. LOOP WIRES THROUGH EACH DEVICE ON ZONE FOR PROPER SUPERVISION. TEE-TAPS NOT PERMITTED.
 5. PROVIDE DUST PROTECTION FOR INSTALLED SMOKE DETECTORS UNTIL FINISH WORK IS COMPLETED AND BUILDING IS READY FOR OCCUPANCY.
 6. PROTECT CONDUCTORS FROM CUTS, ABRASIONS AND OTHER DAMAGE DURING CONSTRUCTION.
 7. MINIMUM CONDUCTOR SIZE SHALL BE 14 AWG UNLESS OTHERWISE SPECIFIED.
 8. DO NOT INSTALL CEILING MOUNTED DETECTORS WITHIN 3 FEET OF AIR DISCHARGE GRILLS.
 9. POST COPY OF WIRE IDENTIFICATION LIST INSIDE FIRE ALARM PANEL DOOR OR OTHER AREA ACCESSIBLE TO FIRE ALARM SERVICE PERSONNEL.

PROJECT NUMBER

21-202

ISSUE DATE:

JULY 22, 2021

REVISIONS:

No.	Date	Description

CONSULTANT

BNA
CONSULTING

635 South State Street
Salt Lake City, Utah 84111
P:801.532.2196
F:801.532.2305
www.bnaconsulting.com
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CRUMBL COOKIES - LEE'S

SUMMIT

1736 NW CHIPMAN RD
LEE'S SUMMIT, MO 64081



ELECTRICAL
SPECIFICATIONS

E7.1

JZW
ARCHITECTS



COMcheck Software Version 4.1.5.3
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Crumbl Cookies - Lee's Summit, MO
Project Type: New Construction

Construction Site: 1736 NW Chipman Rd
Lee's Summit, MO 64081
Owner/Agent: Trey Hills
BNA Consulting
635 South State Street
Salt Lake City, UT 84111
801-532-2196
trey@bnaconsulting.com
Designer/Contractor: Trey Hills
BNA Consulting
635 South State Street
Salt Lake City, UT 84111
801-532-2196
trey@bnaconsulting.com

Credits: 1.0 Required 1.0 Provided
Reduced Lighting Power: 1.0 credit

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	2087	0.85	1991
Total Allowed Watts = 1991			

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 copy 1: EM1: 2 HEAD WALL PACK: Other:	1	6	1	6
LED 1 copy 2: EX1: 2 HEAD EM WALL PACK: Other:	1	2	3	6
LED 1 copy 3: F1: 2X4 LAY-IN: Other:	1	25	65	1625
LED 1 copy 4: F2: ULTRA SLIM 3": Other:	1	4	10	40
LED 1 copy 5: F3: 2X4 FIXTURE: Other:	1	1	23	23
Total Proposed Watts = 1700				

Interior Lighting PASSES: Design 15% 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 2018 IECC requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Trey Hills - Project Manager
Name - Title Signature Date 7/28/2021

Project Title: Crumbl Cookies - Lee's Summit, MO
Data filename: J:\2021\332\Lighting\COMcheck\20210728 COMcheck.cck
Report date: 07/28/21
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COMcheck Software Version 4.1.5.3
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Crumbl Cookies - Lee's Summit, MO
Project Type: New Construction
Exterior Lighting Zone: 2 (Neighborhood business district (LZZ))

Construction Site: 1736 NW Chipman Rd
Lee's Summit, MO 64081
Owner/Agent: Trey Hills
BNA Consulting
635 South State Street
Salt Lake City, UT 84111
801-532-2196
trey@bnaconsulting.com
Designer/Contractor: Trey Hills
BNA Consulting
635 South State Street
Salt Lake City, UT 84111
801-532-2196
trey@bnaconsulting.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	6 ft of door	14	Yes	84
Total Tradable Watts (a) =				84
Total Allowed Watts =				84
Total Allowed Supplemental Watts (b) =				400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Pedestrian and vehicular entrances and exits (6 ft of door width): Tradable Wattage				
LED 1: EG: EGRESS LIGHT: Other:	1	2	11	22
Total Tradable Proposed Watts =				22

Exterior Lighting PASSES: Design 95% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Trey Hills - Project Manager
Name - Title Signature Date 7/28/2021

Project Title: Crumbl Cookies - Lee's Summit, MO
Data filename: J:\2021\332\Lighting\COMcheck\20210728 COMcheck.cck
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COMcheck Software Version 4.1.5.3
Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% 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
C103.2 [PR4] ¹	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.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C103.2 [PR8] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C406 [PR9] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐ Complies ☐ Does Not ☐ Not Observable ☐ 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
C303.3, C408.2.5, 2 [F117] ³	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.4.1 [F118] ³	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.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	See the Interior Lighting fixture schedule for values.
C405.5.1 [F119] ³	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	See the Exterior Lighting fixture schedule for values.
C408.1.1 [F157] ³	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.5.1 [F116] ³	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.3 [F133] ³	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐ Complies ☐ Does Not ☐ Not Observable ☐ 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 - Lee's Summit, MO
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Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22] ³	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.2.1.1 [EL18] ³	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.2.1.2 [EL19] ³	Occupancy sensors control function in warehouses: In warehouses, the lighting in aislesways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C405.2.1.3 [EL20] ³	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C405.2.2.2 [EL21] ³	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.

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
C405.2.3.1, C405.2.3.2 [EL23] ³	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C405.2.4 [EL26] ³	Separate lighting control devices for specific uses installed per approved lighting plans.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.2.4 [EL27] ³	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.2.5 [EL28] ³	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.3 [EL6] ³	Exit signs do not exceed 5 watts per face.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.6 [EL26] ³	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C405.7 [EL27] ³	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C405.8.2.1 [EL28] ³	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C405.9 [EL29] ³	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐ Complies ☐ Does Not ☐ Not Observable ☐ 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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