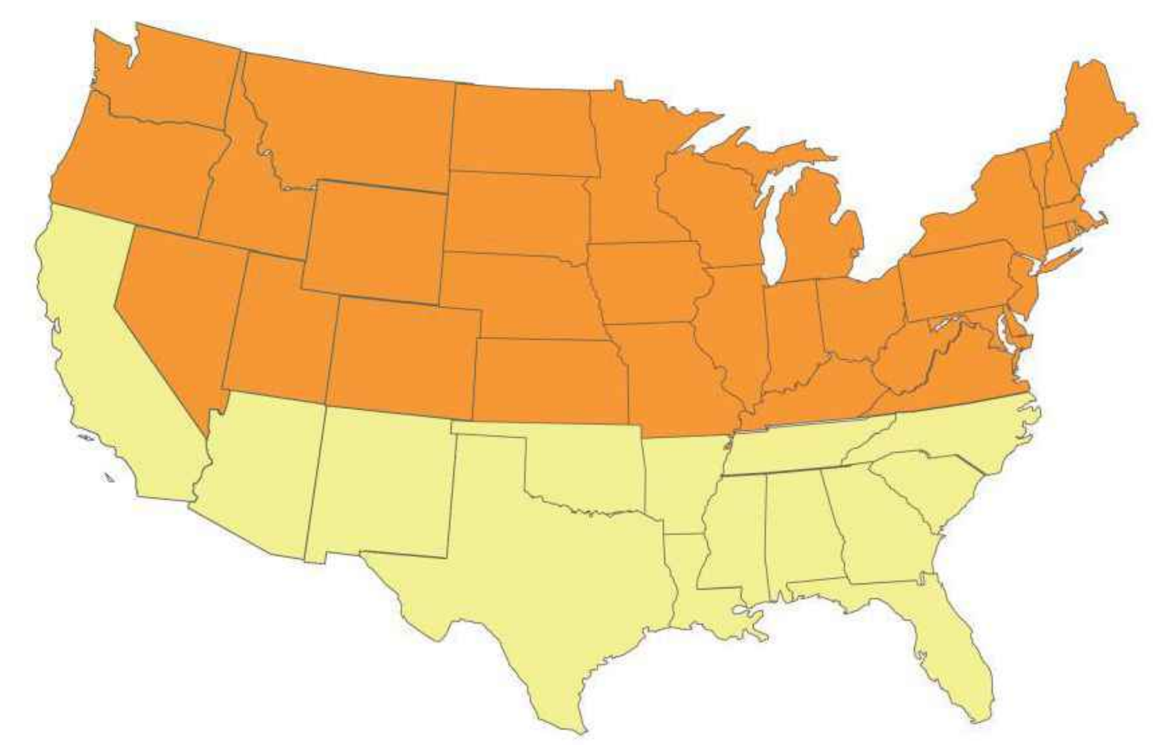
HARBOR FREIGHT TOOLS

46 SHRIJI LN. ERWIN, NC 28339

SIGN VENDOR LIST

Harbor Freight Tools
Sign Vendor Territories

Vendors
- Northern US – **Urban Neon**
- Southern US – **Atlas Sign Industries**



SIGN VENDOR (NORTHERN)	SIGN VENDOR (SOUTHERN)
URBAN SIGN GROUP 500 PINE STREET SUITE 3A HOLMES, PA 19043 CONTACT: SEBASTIAN CARPENTER T: (610) 522-5555 EMAIL: scarpenter@urbansigngroup.com	ATLAS SIGN INDUSTRIES 1077 W. BLUE HERON BLVD. WEST PALM BEACH, FL 33404 CONTACT: JODY KLUTTZ T: (980) 781-3097 EMAIL: jody.k@atlasbtw.com

NOTE:
ALL SIGNAGE AND PERMITS FOR SIGNAGE ARE BY OTHERS AND NOT PART OF THE BUILDING PERMIT PACKAGE. NO BUILDING SIGNAGE WORK TO BE PERFORMED AS PART OF THIS PROJECT PERMIT.

VENDOR LIST

IT VENDOR	IT CHECKLIST	FLOORING VENDORS			LVT VENDOR
RETAIL TECH INC. MAIN CONTACT: CRISTIN BELSITO T: (952) 356-1775 X 2007 C: (440) 263-2270 EMAIL: cbelsito@retailtechinc.com	MUST HAVE CHECK LIST: ☐ PROJECT MANAGERS CONTACT INFORMATION INCLUDING EMAIL ADDRESS ☐ CONTRACTOR INFORMATION 1 WEEK BEFORE CONSTRUCTION STARTS (PROTRACK TRIGGER VIA EMAIL) ☐ GENERAL CONTRACT INFO INCLUDING EMAIL ADDRESSES ☐ SITE FOREMAN INFO INCLUDING EMAIL ADDRESS ☐ CONFIRMED ADDRESS WITH MPOE LOCATION (CLOSET, DMARK, ETC) ☐ STANDARD STORE SET UP IS 2 LINES IN A HUNT GROUP, 1 LINE FOR BACK UP COMMUNICATION, AND 1 ALARM LINE. IF WE NEED MORE DEDICATED ALARM LINES TO PASS CITY CODE, NEED TO KNOW THAT UPFRONT	DIAMA-SHIELD, LLC 32401 INDUSTRIAL DRIVE MADISON HEIGHTS, MI 48071 CONTACT: TRAVIS SIBLEY T: (313) 510-6149 EMAIL: tsibley@diamashield.com	ROCKERZ INC. 100 COMMONWEALTH DR. WARRENDALE, PA 15086 CONTACT: TERRY KRISHER T: (724) 272-4419 EMAIL: tkrisher@rockerzinc.com	PREFERRED GLOBAL CONTACT: MATTHEW NEWCOMER T: (371) 601-7284 EMAIL: mnewcomer@preferredglobal.net CONTACT: DEREK BROWN T: (371) 869-3712 EMAIL: dbrown@preferredglobal.net	MATTER SURFACES CONTACT: DAVE BOLINGER T: (260) 341-4949 EMAIL: dbolinger@selected-service.com CONTACT: COREY HALL T: (404) 735-0799
CABLING VENDOR		**RACKING VENDOR**	**LIGHTING VENDOR**	**BI-PARTING DOOR VENDOR**	**OVERHEAD DOOR VENDOR**
RETAIL TECH INC. MAIN CONTACT: CRISTIN BELSITO T: (952) 356-1775 X 2007 C: (440) 263-2270 EMAIL: cbelsito@retailtechinc.com		MADIX, INC. 500 AIRPORT ROAD TERRELL, TX 75160 CONTACT: SCOTT NELSON T: (805) 529-6457 C: (805) 795-9386 EMAIL: snelson@madixinc.com	CAPITOL LIGHT 270 LOCUST ST. HARTFORD, CT 06114 CONTACT: BETH RIBE T: (860) 449-4502 EMAIL: beth.ribe@capitollight.com	DORMAKABA DORMA DRIVE, DRAWER AC REAMSTOWN, PA 17567 CONTACT: ANTHONY RODRIGUEZ T: (847) 390-2213 EMAIL: anthony.rodriguez@dormakaba.com	CORNELL IRON 140 MAFFET STREET WILKES-BARRE, PA 18705 CONTACT: KRISTA BONAVINA T: (800) 882-6773 X 1620 EMAIL: kbonavina@cornellstorefronts.com

DOOR HARDWARE VENDORS / RESTROOM ACCESSORIES	FIRE AND SECURITY ALARM MONITORING VENDOR	ADDRESS VERIFICATION / METER SERVICES	PAINT VENDOR		
COOK AND BOARDMAN, LLC 345 MASON ROAD LaVERGNE, TN 37086 CONTACT: AMY BAKER T: (855) 447-8600 x4508 EMAIL: harborfreightteam@cookandboardman.com	ADT SECURITY 4221 W JOHN CARPENTER FWY IRVING, TX 75063 CONTACT: STEPHANIE NYSTROM T: (214) 277-7175 EMAIL: snystrom@adt.com CONTACT: DAN BITCON EMAIL: dbitcon@adt.com	COST CONTROL ASSOCIATES 310 BAY ROAD QUEENSBURY, NY 12804 CONTACT: DAVE SADLOCHA T: (518) 824-0311	SHERWIN WILLIAMS 2100 WEST ORANGEWOOD, SUITE 100 ORANGE, CA 92868 CONTACT: LENA GARCIA T: (714) 404-8212 EMAIL: lena.n.garcia@sherwin.com		
HVAC VENDOR	**EMS VENDOR**	**EMS SHIELDED CABLE VENDOR**	**RACKING ENGINEER**		
LENNOX INDUSTRIES NATIONAL ACCOUNTS CONTACT: GARRY BAKER T: (972) 497-6665 EMAIL: LennoxNationalAccounts@Lennox.com	SIEMENS CONTACT: EMELY CORDON T: (512) 751-5942 EMAIL: emely.cordon@siemens.com PROJECT MANAGER: EMELY CORDON T: (512) 751-5942 EMAIL: emely.cordon@siemens.com ENGINEERING MANAGER: JUAN CABRERA T: (512) 567-7455 EMAIL: juancabrera@siemens.com	WINDY CITY WIRE CONTACT: KIMBERLY DEPAOLA T: (800) 379-1191 X 2811 C: (630) 633-4811 EMAIL: kdepaola@smartwire.com	GARY K. MUNKELT AND ASSOCIATES 1180 WELSH ROAD, SUITE 190 NORTH WALES, PA 19454 CONTACT: FRANK KOOSHYAR T: (215) 855-8713 EMAIL: frank.kooshyar@gkmassoc.com EMAIL: denise.bailey@gkmassoc.com EMAIL: brenda.rojohn@gkmassoc.com		

NOTE: SUBSTITUTE PRODUCTS -OR- ALTERNATES TO THOSE SPECIFIED ON PLANS WILL **NOT** BE ACCEPTED WITHOUT HFT'S EXPRESS CONSENT. ANY PROPOSED SUBSTITUTIONS MUST BE SUBMITTED TO ARCHITECT FOR REVIEW AND APPROVAL.

PROJECT DIRECTORY

BLDG. DEPT. CONTACT	FIRE DEPT. CONTACT	HARBOR FREIGHT TOOLS	HARBOR FREIGHT TOOLS
HARNETT COUNTY BUILDING DEPARTMENT 420 MCKINNEY PARKWAY LILLINGTON, NC 27546 CONTACT: DONNA JOHNSON T: (910) 814-6431 EMAIL: djohnson@harnett.org	HARNETT COUNTY FIRE MARSHAL 420 MCKINNEY PARKWAY LILLINGTON, NC 27546 CONTACT: DONNA JOHNSON T: (910) 893-7525 EMAIL: djohnson@harnett.org	HARBOR FREIGHT TOOLS 26677 AGOURA ROAD CALABASAS, CA 91302 CONTACT: ADAM STEECE Senior Director of Construction T: (818) 519-7503 EMAIL: asteece@harborfreight.com	HARBOR FREIGHT TOOLS 26677 AGOURA ROAD CALABASAS, CA 91302 CONTACT: DOUG HORROCKS Senior Construction Manager T: (805) 407-1961 EMAIL: dhorrocks@harborfreight.com
HARBOR FREIGHT TOOLS	**HARBOR FREIGHT TOOLS**	**HARBOR FREIGHT TOOLS**	**ARCHITECT CONTACT**
HARBOR FREIGHT TOOLS 26677 AGOURA ROAD CALABASAS, CA 91302 CONTACT: JAKE MATTERN Construction Manager T: (818) 309-9137 EMAIL: jmattern@harborfreight.com	HARBOR FREIGHT TOOLS 26677 AGOURA ROAD CALABASAS, CA 91302 CONTACT: BRADY ROTHGEB Construction Manager T: (818) 307-1904 EMAIL: brothgeb@harborfreight.com	HARBOR FREIGHT TOOLS 26677 AGOURA ROAD CALABASAS, CA 91302 CONTACT: KYLE NIX Construction Manager T: (213) 561-0921 EMAIL: knix@harborfreight.com	ADA ARCHITECTS, INC. 17710 DETROIT AVE. CLEVELAND, OH 44107 CLIENT MANAGER: BRYAN MATTHEWS PROJECT MANAGER: BRYAN MATTHEWS T: (216) 521-5134 F: (216) 521-4824 EMAIL: bmatthews@adaarchitects.com

LIFE SAFETY SUMMARY

LANDLORD TO PROVIDE A FULLY SUPPRESSED WARM DARK SHELL WITH 6" MINIMUM MAIN LOCATED ALONG THE SOUTH ELEVATION OF THE BUILDING, ADJACENT TO THE O.H. DOOR. LANDLORD WILL DELIVER THE SYSTEM WITH HEADS TURNED UP TOWARDS STRUCTURE. HFT TO MODIFY HEADS AS REQUIRED FOR NEW CONSTRUCTION.

PER 2018 NORTH CAROLINA BUILDING CODE, SECTION 907.2.7, A MANUAL FIRE ALARM SYSTEM IS NOT REQUIRED. G.C. TO COORDINATE WITH AUTHORITY HAVING JURISDICTION, LANDLORD AND BV PM FOR ANY LOCAL MONITORING REQUIREMENTS. G.C. TO SUPPLY AND INSTALL ANY REQUIRED FIRE ALARM COMPONENTS.

FIRE ALARM NOTES

(IF REQUIRED)

APPROVED PANELS:
FIRE-LITE MODEL #'S MS-9600, ES-50, AND ES-200X

SILENT KNIGHT MODEL #'S SK6700, SK6808, SK6820, AND SK5208.

NOTE: FIRE ALARM VENDOR SHALL CLEARLY LABEL THE FIRE ALARM CONTROL PANEL IN THE FIELD. FIRE ALARM MONITORING IS VIA CELLULAR ANNUNCIATOR-NAPCO # SLE-LTEV-FIRE OR SLE-LTEA-FIRE. REFER TO SHEET **E2.2** FOR ADDITIONAL INFORMATION. FA SUBCONTRACTOR TO PROVIDE & INSTALL CELLULAR ANNUNCIATOR & PANEL. G.C. TO VERIFY WEEK ONE OF CONSTRUCTION WITH FIRE INSPECTOR IF A CELLULAR COMMUNICATOR IS ACCEPTABLE AS THE PRIMARY POINT OF CONNECTION FOR THE FIRE ALARM SYSTEM.

CODE AND BUILDING DATA

PROJECT SCOPE:

INTERIOR BUILD OUT OF NEWLY CONSTRUCTED COLD DARK SHELL. INTERIOR ALTERATIONS INCLUDE NEW OFFICES, RESTROOMS, BREAK ROOM WITH CABINETS, AND VESTIBULE. NEW EXTERIOR SIGNAGE (UNDER SEPARATE PERMIT). THE BUILDING IS 2024 CONSTRUCTION.

DEFERRED SUBMITTALS:
- EXTERIOR SIGNAGE (INCLUDING TEMPORARY SIGN BANNER)
- AUTOMATIC SPRINKLER SYSTEM MODIFICATIONS
- FIRE ALARM SYSTEM MODIFICATIONS
- MERCHANDISE RACKING

APPLICABLE CODES:

BUILDING CODE:	2018 NORTH CAROLINA STATE BUILDING CODE
ENERGY CODE:	2018 NORTH CAROLINA STATE ENERGY CODE
MECHANICAL CODE:	2018 NORTH CAROLINA STATE MECHANICAL CODE
ELECTRICAL CODE:	2020 ELECTRICAL CODE
PLUMBING CODE:	2018 NORTH CAROLINA STATE PLUMBING CODE
FIRE CODE:	2018 NORTH CAROLINA STATE FIRE CODE
ACCESSIBILITY:	2018 NORTH CAROLINA STATE ADA STANDARDS WITHIN NORTH CAROLINA STATE BUILDING CODE / 2009 ANSI A117.1

USE and OCCUPANCY CLASSIFICATION:

M - MERCANTILE

CONSTRUCTION CLASSIFICATION (TYPE):

IIB - FULLY SPRINKLERED

FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS):

STRUCTURAL FRAME:	0 HOURS	INTERIOR BEARING WALLS:	0 HOURS
EXTERIOR BEARING WALLS:	0 HOURS	FLOOR CONSTRUCTION:	0 HOURS
INTERIOR BEARING WALLS/COLUMNS:	0 HOURS	ROOF CONSTRUCTION:	0 HOURS

ALLOWABLE HEIGHT and BUILDING AREAS:

ALLOWABLE AREA:	50,000 SQ. FT.
SALES AREA:	9,381 SQ. FT.
NON-SALES AREA:	6,619 SQ. FT.
GROSS LEASED AREA:	16,000 SQ. FT.
ALLOWABLE HEIGHT:	75'-0"
ACTUAL HEIGHT:	27'-8"

OCCUPANT LOAD:

ACTUAL INTERIOR AREA BUILDING: 16,000 SQ. FT.

FUNCTION OF SPACE	FLR. AREA/ OCC.	CALCULATION	ALLOWABLE
M - SALES	60 GROSS	9,381 SQ. FT.	164 OCCUPANTS
B - CORE AREA	100 GROSS	660 SQ. FT.	7 OCCUPANTS
S-1 - STOCK	300 GROSS	5,959 SQ. FT.	20 OCCUPANTS
			191 OCCUPANTS

ANTICIPATED OCCUPANT LOAD FOR HARBOR FREIGHT TOOLS: 150 MAX FROM HISTORICAL DATA

EGRESS REQUIREMENTS:

REQUIRED EGRESS WIDTH:	191 OCC. x 0.20 = 38.2" (44" MIN)
PROVIDED EGRESS WIDTH:	(1) BREAK-AWAY SINGLE SLIDING DOOR @ 45", (2) H.M. DOOR @ 34" = 113"
REQUIRED EXIT ACCESS TRAVEL DISTANCE:	250'
PROVIDED EXIT ACCESS TRAVEL DISTANCE:	LESS THAN 250'
MIN. NUMBER OF EXITS REQUIRED / PROVIDED:	2 EXITS REQUIRED / 3 EXITS PROVIDED

PLUMBING FIXTURE REQUIREMENTS:

PLUMBING FIXTURE	CALCULATION	REQUIRED	PROVIDED
WATER CLOSETS, MEN:	1 PER 500 OCC.	1	1
WATER CLOSETS, WOMEN:	1 PER 500 OCC.	1	1
LAVATORIES, MEN:	1 PER 750 OCC.	1	1
LAVATORIES, WOMEN:	1 PER 750 OCC.	1	1
DRINKING FOUNTAINS:	1 PER 1,000 OCC.	1	1 (HI-LOW)
MOP SINK:	1 SERVICE SINK/USE GROUP	1	1

HFT VENDOR SCOPE OF WORK SUMMARY

FIXTURES / FURNISHINGS:
- FURNISH AND INSTALL SALES AREA CASH WRAPS
- FURNISH AND INSTALL FRONT OF HOUSE AND BACK OF HOUSE FIXTURES
- FURNISH AND INSTALL EXTERIOR CART CORRAL (IF APPLICABLE)

DOORS AND STOREFRONT:
- FURNISH DOORS, FRAMES, AND HARDWARE. SEE SHEET **A5.0** FOR FURTHER INFORMATION.
- FURNISH AND INSTALL OVERHEAD DOOR AT RECEIVING AREA. SEE SHEET **A5.0** FOR FURTHER INFORMATION.
- FURNISH AND INSTALL HFT BI-PARTING AND SINGLE SLIDING DOOR PACKAGES. SEE SHEET **A5.0** FOR FURTHER INFORMATION.
- FURNISH AND INSTALL SECURITY GATES. SEE SHEET **A1.1** FOR FURTHER INFORMATION.
- FURNISH AND INSTALL COOLVU WINDOW TINT (IF APPLICABLE)

SIGNAGE:
- FURNISH AND INSTALL EXTERIOR SIGNAGE. POWER AND BLOCKING BY G.C.
- FURNISH ALL INTERIOR SIGNAGE.

FLOOR FINISHES:
- FURNISH AND INSTALL GRINDING AND POLISHING OF CONCRETE FLOORS

ELECTRICAL:
- FURNISH AND INSTALL TELEPHONE / DATA WIRING. VERIFY IF WIRING IS TO BE PLENUM RATED
- FURNISH AND INSTALL SOUND SYSTEM
- FURNISH AND INSTALL CAMERAS
- FURNISH LIGHT FIXTURES AND LAMPS
- FURNISH LIGHTING DIMMING SYSTEM COMPONENTS (IF APPLICABLE, SEE **E1.1A**)
- FURNISH AND INSTALL EMS COMPONENTS

MECHANICAL:
- FURNISH HVAC ROOFTOP UNITS. G.C. TO COORDINATE SCHEDULE AND DELIVERY

RESTROOM ACCESSORIES:
- FURNISH GRAB BARS. BLOCKING BY G.C.
- FURNISH SANITARY NAPKIN DISPOSAL
- FURNISH TOILET PARTITIONS (IF APPLICABLE)

NOTE: G.C. SHALL MANAGE ALL WARRANTY ITEMS AND REMEDIES INCLUDING MANAGING SUB-CONTRACTORS, VENDORS AND HFT VENDORS FOR A PERIOD OF (1) YEAR FROM TURNOVER

HFT FURNISHED ITEMS, G.C. TO INSTALL

FIXTURES / FURNISHINGS:
- MILLWORK KIT FOR OFFICES
- FIRE EXTINGUISHERS
- PLASTIC BOLLARD COVERS
- EYE WASH STATION AND CARTRIDGE
- CORNER GUARDS
- POWER POLES
- FORKLIFT BATTERY CHARGER STATION AND WATER TANK
- MOP SINK SHELVES
- UPRIGHT FRAME PROTECTORS
- BOX RAILS
- BOLT DOWN BOLLARDS
- INPRO WALL GUARD
- DOCK FAN AND MOUNTING KIT (IF APPLICABLE)
- TURNSTILES (IF APPLICABLE)

ELECTRICAL:
- BURGLAR ALARM PANEL
- WIRED ZONE EXPANDER
- KEY PAD
- SIREN
- CEILING MOUNTED MOTION DETECTOR
- GLASSBREAK DETECTOR
- MOTION DETECTOR
- MICROWAVE DETECTOR
- EXTERIOR DOOR CONTACTS
- OVERHEAD DOOR CONTACT
- EMPLOYEE TIME CLOCK
- DOOR BELL AND BUTTON

MECHANICAL:
- DIGITAL DIFFUSERS
- 12" X 12" SQUARE PLAQUE DIFFUSERS
- CABINET UNIT HEATER (IF APPLICABLE)
- RECEIVING AREA UNIT HEATER (IF APPLICABLE)

PLUMBING FIXTURES:
- DRINKING FOUNTAIN AND STAINLESS STEEL WALL GUARDS
- MOP SINK, FAUCET AND ACCESSORIES
- BREAK ROOM SINK AND FAUCET
- RESTROOM LAVATORIES, FAUCETS AND CARRIERS
- WATER HEATER AND PAN
- EXPANSION TANK

RESTROOM ACCESSORIES:
- HAND DRYERS AND WALL GUARDS
- TOILET PAPER HOLDERS
- MIRRORS
- TOILET SEAT COVER DISPENSERS

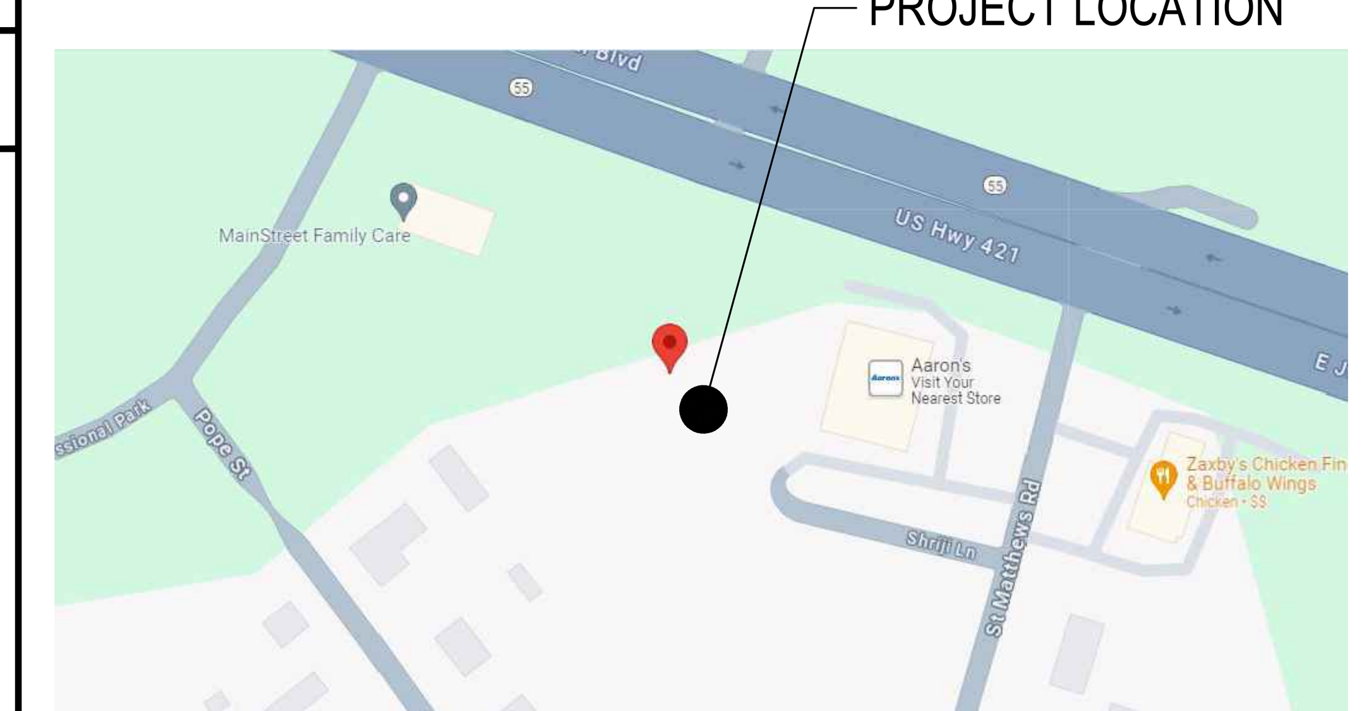
FLOOR FINISHES:
- VESTIBULE CARPET TILE
- LVT FLOORING
- WALL BASE

NOTE: G.C. TO PROVIDE (2) 40'-0" CONEX CONTAINERS FOR TEMPORARY STORAGE OF HFT SUPPLIED ITEMS. COORDINATE DELIVERY / PLACEMENT WITH HFT PM.

LIST OF DRAWINGS

SITE VICINITY MAP

PROJECT LOCATION



SITE VICINITY MAP
SCALE = NTS

NORTH CAROLINA PROFESSIONAL SEAL 5433 ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS, INC. REGISTERED ARCHITECTURAL CORPORATION 53855 NORTH CAROLINA LAKEWOOD, OHIO

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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COVER SHEET

DATE 05/17/24
JOB NO. 23475

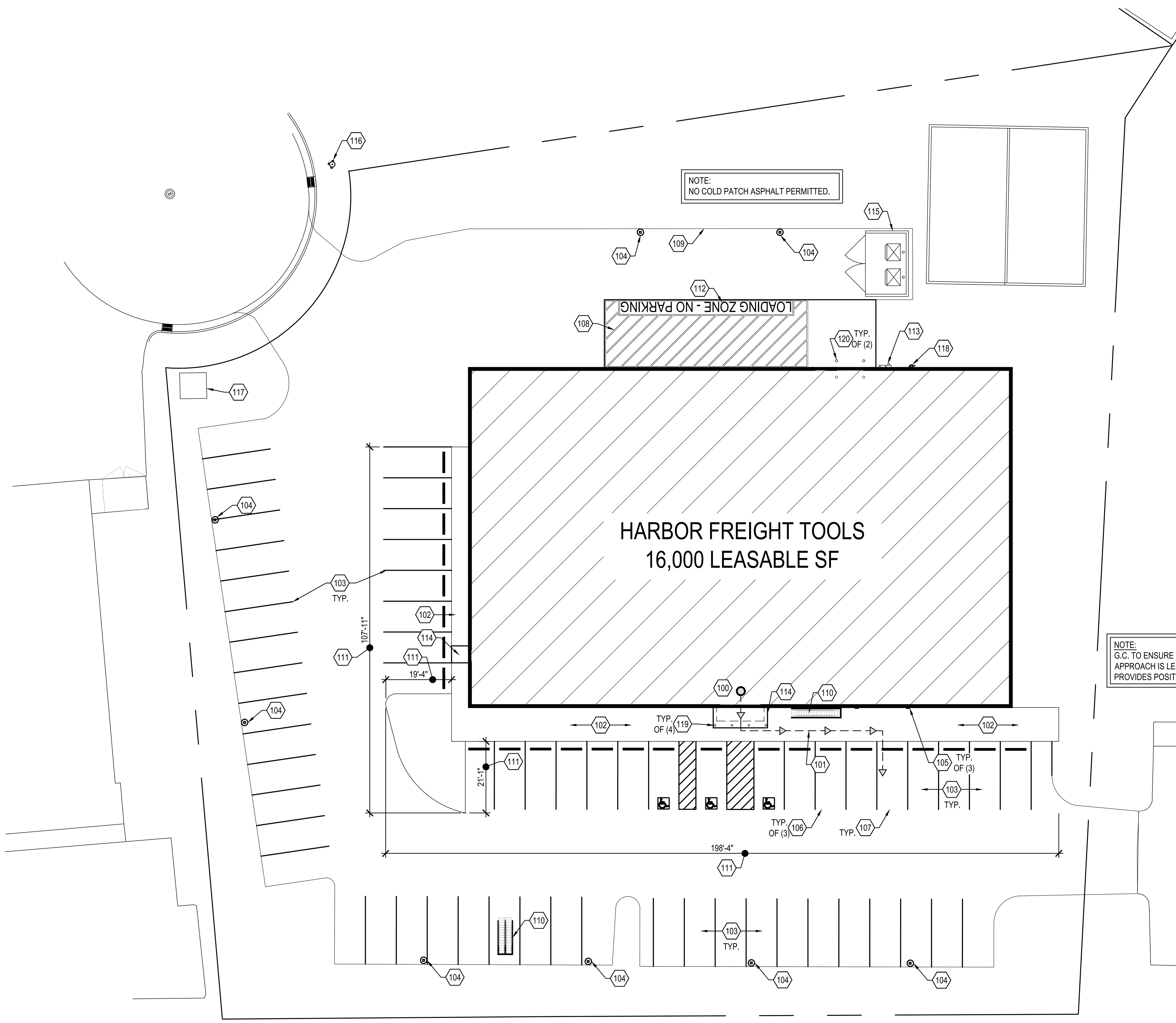
A0.0
SHEET NO.

GENERAL NOTES

1. NO ADDITIONAL SITE CHANGES ARE REQUIRED, EXCEPT WHERE NOTED OTHERWISE ON ARCHITECTURAL FLOOR PLANS.

100 SERIES SITE PLAN KEY NOTES

100. MAIN TENANT ENTRANCE DOORS. SEE SHEET **A1.1** AND **A5.0** FOR ADDITIONAL INFORMATION.
101. ACCESSIBLE PATH OF TRAVEL.
102. EXISTING CONCRETE SIDEWALK BY LANDLORD UNDER A SEPARATE PERMIT.
103. EXISTING PARKING STRIPING.
104. EXISTING SITE LIGHTING BY LANDLORD UNDER A SEPARATE PERMIT.
105. EXISTING ACCESSIBLE PARKING SIGNAGE BY LANDLORD UNDER A SEPARATE PERMIT.
106. EXISTING ACCESSIBLE PARKING SYMBOL TO REMAIN.
107. EXISTING ACCESSIBLE AISLE STRIPING TO REMAIN.
108. AREA OF STRIPING TO DESIGNATE NO PARKING. STRIPING SHALL BE 4" WIDE, COLOR: **P-7**. DIAGONAL STRIPING @ 45°, 3'-0" O.C.
109. EXISTING CURB AT REAR OF DRIVE.
110. APPROXIMATE LOCATION OF CART CORRAL.
111. PAINT VERTICAL FACE OF CURB AND 6" HORIZONTAL EDGE OF CURB **P-7**.
112. PAINT 3'-0" HIGH WHITE LETTERING STATING "LOADING ZONE - NO PARKING," FONT: ARIAL NARROW.
113. APPROXIMATE LOCATION OF ELECTRIC METER AND DISCONNECT. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
114. LOCATION OF EXISTING FROST SLAB BY LANDLORD UNDER A SEPARATE PERMIT.
115. EXISTING DUMPSTER LOCATION BY LANDLORD UNDER A SEPARATE PERMIT.
116. EXISTING FIRE HYDRANT.
117. EXISTING PAD MOUNTED TRANSFORMER.
118. APPROXIMATE LOCATION OF GAS METER. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
119. 6" Ø BOLLARD. SEE SHEET **A1.1** AND DETAIL **3/A4.1** FOR ADDITIONAL INFORMATION.
120. 8"Ø BOLLARD. SEE SHEET **A1.1** AND DETAIL **3/A4.1** FOR ADDITIONAL INFORMATION.



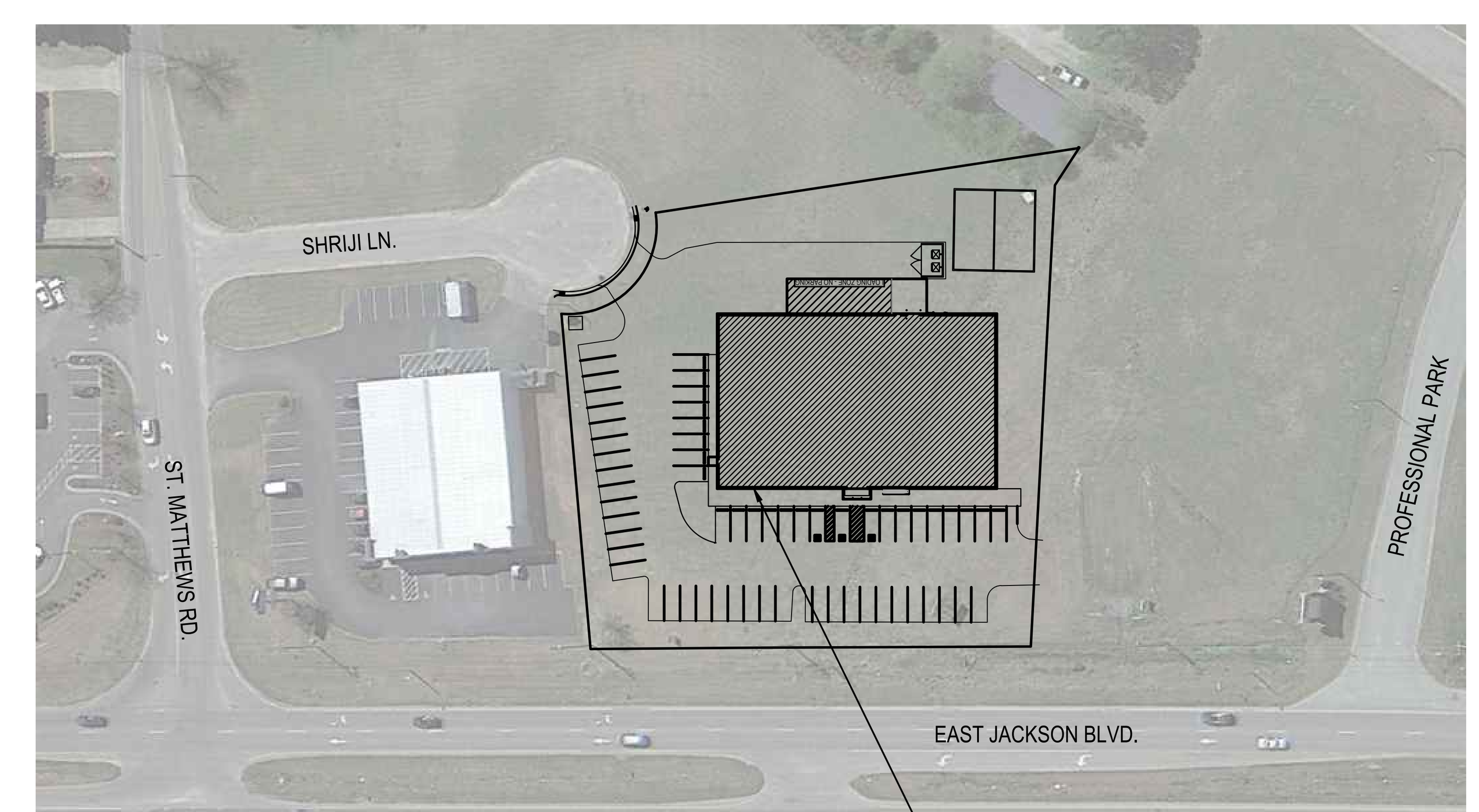
NOTE:
G.C. TO ENSURE TRANSITION AT ENTRY APPROACH IS LESS THAN 1/8" AND PROVIDES POSITIVE DRAINAGE.

NOTE:
LANDLORD IS RESPONSIBLE FOR THE ACCESSIBLE COMPLIANCE OF THE SITE, INCLUDING BUT NOT LIMITED TO APPROACH TO BUILDING AND ROUTE TO THE PUBLIC WAY, REQUIRED PARKING STALLS, AISLES AND SIGNAGE, SLOPES, CROSS SLOPE AND REQUIRED ELEMENTS.

EAST JACKSON BOULEVARD (US 421 S)

ARCHITECTURAL SITE PLAN

SCALE: 1" = 20'



HARBOR FREIGHT TOOLS

OVERALL SITE PLAN

NOT TO SCALE

DO NOT SCALE THESE DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL 15473 ARCHITECT BRIAN E QUINN

05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
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ARCHITECTURAL SITE PLAN

DATE 05/17/24
JOB NO. 23475

AS1.0
SHEET NO.

1. ALL WORK AND MATERIALS DESCRIBED HEREIN ARE THE RESPONSIBILITY OF EITHER THE LANDLORD OR THE TENANT'S GENERAL CONTRACTOR. THE TERMS "GENERAL CONTRACTOR", "CONTRACTOR", OR "SUBCONTRACTOR" REFER TO THOSE ENGAGED (SEE WORK RESPONSIBILITY CHART) TO PERFORM THE WORK.

2. ALL RULES AND REGULATIONS, SCOPE OF WORK AND PROCEDURES INDICATED WILL BE PERFORMED BY THE SPECIFIC GENERAL CONTRACTOR, THEIR AGENTS, SUBCONTRACTORS, AND SUPPLIERS TO PROVIDE A TOTAL AND COMPLETE PROJECT FOR THE TENANT. WORK SHOWN IN THESE NOTES IS TO BE PERFORMED BY THE SPECIFIC GENERAL CONTRACTOR OR SUBCONTRACTORS, AGENTS AND / OR SUPPLIERS ONLY, WHETHER OR NOT THE WORK IS DELINEATED PROPERLY.

3. BOTH THE LANDLORD AND THE TENANT'S GENERAL CONTRACTOR ARE REQUIRED TO HAVE ALL SUBCONTRACTORS REVIEW THESE NOTES PRIOR TO BIDDING AND TO FAMILIARIZE ALL PERSONS AND SUBCONTRACTORS WORKING ON THIS PROJECT WITH THESE GENERAL NOTES AND THE CONTRACT DOCUMENTS NOTED, LANDLORD'S DESIGN CRITERIA (IF APPLICABLE) AND THE EXECUTED LEASE AGREEMENT BETWEEN LANDLORD AND TENANT. ANY DISCREPANCY BETWEEN THESE CONTRACT DOCUMENTS AND THE LEASE OR DESIGN CRITERIA INFORMATION IS TO BE REPORTED TO TENANT'S ARCHITECT PRIOR TO THE START OF ANY WORK. BOTH GENERAL CONTRACTORS SHALL BE RESPONSIBLE FOR FULLY ACQUAINTING THEMSELVES WITH THE CONTENT AND SCOPE OF THESE DOCUMENTS. WORK DECLARED UNACCEPTABLE BY THE TENANT AND LANDLORD SHALL BE CORRECTED IN A MANNER AND TO A DEGREE OF QUALITY AS ACCEPTABLE BY THE TENANT AND LANDLORD.

4. BOTH GENERAL CONTRACTORS, AS APPLICABLE, AND ALL SUBCONTRACTORS ARE REQUIRED TO CHECK AND VERIFY ALL DIMENSIONS AND FIELD CONDITIONS AT BUILDING SITE AND PREMISES AND NOTIFY THE LANDLORD, THE LANDLORD'S REPRESENTATIVE AND TENANT'S PROJECT ARCHITECT OR TENANT'S CONSTRUCTION REPRESENTATIVE OF ANY AND ALL DISCREPANCIES AND LIST ANY WORK NOT YET COMPLETED BEFORE STARTING WORK. IF A GENERAL CONTRACTOR IS REQUIRED TO INSTALL A BARRICADE DURING THE CONSTRUCTION PHASE OF THIS PROJECT, SUCH BARRICADE TO MEET THE LATEST BARRICADE DESIGN REQUIREMENTS OF THE TENANT, INCLUDING THE PAINTING OF SUCH BARRICADE AND ANY SIGNAGE ADDITIONALLY, THIS BARRICADE MUST BE MOVED OUT AS REQUIRED FOR WORK AND / OR REMOVED AT THE END OF THE CONSTRUCTION TIME PERIOD. CHECK WITH THE LANDLORD TO VERIFY IF A BARRICADE HAS PREVIOUSLY BEEN INSTALLED ON THESE PREMISES IN ANTICIPATION OF CONSTRUCTION BY THE TENANT; IF THIS IS THE CASE, DO NOT INCLUDE ANY COST FOR THE ACTUAL BARRICADE BUT DO INCLUDE COSTS FOR MOVING SUCH BARRICADES IN AND OUT.

5. ALL CONTRACTORS SHALL CHECK AND VERIFY ALL FIELD CONDITIONS AND SHALL HAVE SOLE RESPONSIBILITY FOR VERIFICATION OF CLEAR HEIGHTS WITHIN THE PREMISES; ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY. A GENERAL CONTRACTOR IS TOTALLY RESPONSIBLE FOR ALL "HOLD" DIMENSIONS AND IS TO CONTACT THE ARCHITECT, THE TENANT AND THE TENANT'S CONSTRUCTION REPRESENTATIVE OF ANY DISCREPANCIES VERBALLY AND ALSO IN WRITING, FIRST, PRIOR TO BUILDING WALLS, IF THERE IS A QUESTION. TENANT'S FIXTURES FIT INTO PLACE WITH NO ROOM FOR ERROR. CONTRACTOR MUST REVIEW ENTIRE SET OF CONTRACT DOCUMENTS FOR CEILING HEIGHTS.

6. WHEN BIDDING THIS PROJECT, EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE PRIOR TO BIDDING AND VERIFYING EXISTING CONDITIONS AS REFLECTED IN THESE CONTRACT DOCUMENTS. ANY EXTRA WORK REQUIRED BUT NOT INCLUDED IN THE DOCUMENTS SHALL BE REPORTED TO THE TENANT OR TENANT'S ARCHITECT IMMEDIATELY.

7. ALL WORK ON THIS PROJECT SHALL BE IN ACCORDANCE WITH ALL CODES, SUB-CODES, BUILDING DEPARTMENT REQUIREMENTS AND HEALTH DEPARTMENT REQUIREMENTS. GENERAL CONTRACTOR TO CONTACT LOCAL BUILDING OFFICIALS FOR SPECIFIC REQUIREMENTS FOR THIS USE.

8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT, INCLUDING ANY AND ALL OSHA REQUIREMENTS, UNLESS CONTRACT DOCUMENTS GIVE OTHER SPECIFIC INSTRUCTIONS CONCERNING THESE MATTERS.

9. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AND THE SUBCONTRACTORS FOR THE GENERAL CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED FOR THE WORK NOTED ON THESE PLANS. THIS INCLUDES COSTS FOR ALL INSPECTIONS BY AUTHORITIES HAVING JURISDICTION, BUILDING DEPARTMENT AND HEALTH DEPARTMENT PERMIT COSTS, AND PERMIT COSTS FOR FIXTURING SUPPLIED BY TENANT (IF APPLICABLE).

10. ALL CLEARANCES OF PIPES AND DUCTWORK INSTALLED BY THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, OR SUBCONTRACTORS MUST BE MAINTAINED FOR ADEQUATE HEIGHTS REQUIRED FOR CEILING SYSTEM AND LIGHT FIXTURES. CONTRACTOR MUST REVIEW ENTIRE SET OF CONTRACT DOCUMENTS FOR CEILING HEIGHTS. GENERAL CONTRACTOR (OR DESIGNATED AUTHORIZED CONTRACTOR AT GENERAL CONTRACTOR'S EXPENSE) TO REMOVE OR REPLACE AS REQUIRED ANY AND ALL EXISTING P.V.C. PIPING WITH LOCAL CODE ALLOWABLE MATERIALS THROUGHOUT LEASED PREMISES.

11. ALL WORK TO BE COMPLETED FOLLOWING LANDLORD'S CONSTRUCTION "RULES AND REGULATIONS", IF APPLICABLE. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS RESPONSIBLE DURING THE BIDDING PROCEDURES, FOR CONTACTING THE LANDLORD'S REPRESENTATIVE FOR A COPY OF THESE "RULES AND REGULATIONS" AND TO INCLUDE ANY COSTS IN THE WORK QUOTED TO THE LANDLORD.

12. GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AGREES THAT IN THE PERFORMANCE OF TENANT'S WORK AT THE PREMISES, ALL WORK SHALL BE PERFORMED IN A MANNER WHICH WILL NOT CREATE ANY WORK STOPPAGE, PICKETING, LABOR DISRUPTION OR DISPUTE OR VIOLATE LANDLORD'S LABOR CONTRACTS AFFECTING THE BUILDING OR INTERFERE WITH THE BUSINESS OF LANDLORD. IN THE EVENT OF THE OCCURRENCE OF ANY WORK STOPPAGE, PICKETING, LABOR DISRUPTION OR DISPUTE RESULTING FROM ACTIONS OR OMISSIONS OF GENERAL CONTRACTOR OR SUBCONTRACTORS OR ANY SUBTENANT OR CONCESSIONAIRE, OR THEIR RESPECTIVE EMPLOYEES, CONTRACTORS OR SUBCONTRACTORS, GENERAL CONTRACTOR SHALL, IMMEDIATELY UPON NOTICE FROM TENANT, CEASE THE CONDUCT GIVING RISE TO SUCH CONDITION. THIS CLAUSE MUST BE PART OF ALL GENERAL CONTRACTOR / SUBCONTRACTOR AGREEMENTS AND IF SUCH CLAUSE IS NOT INCLUDED, IT WILL NOT RELIEVE THE GENERAL CONTRACTOR OF THE REQUIREMENTS OR WORK STATED HEREIN.

13. ALL CONTRACTORS, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL BE BONDED, LICENSED CONTRACTORS POSSESSING GOOD LABOR RELATIONS AND MUST BE CAPABLE OF QUALITY WORKMANSHIP, IN HARMONY WITH OTHER CONTRACTORS WORKING ON THE PROJECT. THE TENANT IS TO BE NOTIFIED IN WRITING OF THE NAMES, ADDRESSES, DAYTIME PHONE, FAX, AND EMERGENCY PHONE NUMBERS OF ALL SUBCONTRACTORS AND SUPPLIERS WORKING ON THIS PROJECT. GENERAL CONTRACTOR MUST ATTEST THAT NO PRODUCTS CONTAINING ASBESTOS OR HAZARDOUS MATERIAL WERE KNOWINGLY USED ON THIS PROJECT.

14. PRIOR TO COMMENCEMENT OF ANY WORK, THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL CONTACT AND MEET WITH LANDLORD'S TENANT COORDINATOR AND TENANT'S PROJECT MANAGEMENT REPRESENTATIVE FOR A PRE CONSTRUCTION MEETING, AT WHICH TIME, HE /SHE WILL PRESENT TO ALL PARTIES A LIST OF NAMES, ADDRESSES, BUSINESS PHONE, FAX AND EMERGENCY TELEPHONE NUMBERS OF THE SUBCONTRACTORS FOR THIS PROJECT. THE GENERAL CONTRACTOR WILL COMPLETE THE CHECKLIST FORM (CONTRACTOR INFORMATION FORM) REQUIRED FOR EACH TENANT'S SPACE THAT CONTRACTOR WILL BE WORKING ON AS REQUIRED UNDER LEASE OBLIGATION. THE CHECKLIST FORM INCLUDING SCHEDULE INFORMATION AS WELL AS GENERAL CONTRACTOR AND SUBCONTRACTORS INFORMATION IS TO BE SUBMITTED TO THE LANDLORD'S REPRESENTATIVE UPON ARRIVAL AT THE JOB SITE.

15. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL HAVE AT ALL TIMES, AT THE PREMISES, LANDLORD APPROVED CONTRACT DOCUMENTS, BUILDING DEPARTMENT AND HEALTH DEPARTMENT (IF APPLICABLE) APPROVED PERMIT DRAWINGS.

16. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS TO ARRANGE WITH THE LANDLORD FOR THE BUILDING, WHERE BUILDING EQUIPMENT AND MATERIALS ARE TO BE LOCATED AND HOW TRUCK TRAFFIC IS TO BE ROUTED TO AND FROM THE BUILDING.

17. AN APPROVAL BY THE TENANT WILL ONLY BE VALID IF IN WRITING AND SIGNED BY THE TENANT OR BY THE TENANT'S DESIGNATED REPRESENTATIVE FOR SUCH PURPOSE. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, WILL BE RESPONSIBLE FOR OBTAINING APPROVAL FROM TENANT'S ARCHITECT ON ALL STRUCTURAL CHANGES DURING THE COURSE OF THE CONSTRUCTION PHASE OF PROJECT, AS WELL AS VERIFICATION OF CORRECT INSTALLATION AND SPECIFICATION FOR MISCELLANEOUS STEEL FOR MECHANICAL SYSTEMS, STEEL FOR MEZZANINES (IF APPLICABLE), DUCTS, ETC. THE LANDLORD'S ARCHITECT AND THE LANDLORD ARE NOT INVOLVED NOR WILL THEY TAKE ANY RESPONSIBILITY FOR TENANT'S STRUCTURE. ANY STRUCTURAL WORK ON PROJECT TO INCLUDE BUT NOT BE LIMITED TO MECHANICAL EQUIPMENT SUPPORTS, HANGING SYSTEMS, CONCRETE SLABS, COSTS, ETC.

18. ALL FINISH AND EXPOSED WOOD SHALL BE KILN DRIED, MILL QUALITY FINISH AND SHALL RECEIVE A FIRE RETARDANT COATING OR TREATMENT IF REQUIRED BY CODE OR THE LOCAL FIRE MARSHALL. NO WOOD OR COMBUSTIBLE MATERIAL SHALL BE USED ABOVE THE SUSPENDED CEILING UNLESS NONCOMBUSTIBLE LUMBER IS USED AND IS SPECIFICALLY ALLOWED BY APPLICABLE BUILDING CODES, THE FIRE MARSHALL AND ALL AGENCIES HAVING JURISDICTION. IF FIRE TREATED WOOD IS REQUIRED FOR FIXTURING ITEMS, THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS RESPONSIBLE FOR EXECUTING THIS WORK AS PER BUILDING OFFICIALS' REQUIREMENTS.

19. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL FURNISH AND INSTALL, AS REQUIRED, BEGINNING WITH THE CONSTRUCTION PHASE, HAND OPERATED FIRE EXTINGUISHERS, U.L. RATED, AS PER LOCAL CODE REQUIREMENTS: PLACEMENT AS APPROVED BY TENANT AND LOCAL BUILDING OFFICIAL.

20. ALL CEILINGS SHALL BE UNDERWRITERS APPROVED AND OF THE NON COMBUSTIBLE TYPE. SEE CEILING SPECIFICATION WITHIN THE CONTRACT DOCUMENTS.

21. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL BE RESPONSIBLE FOR DAILY REMOVAL, OR AS REQUIRED BY LANDLORD, OF TRASH, RUBBISH AND SURPLUS MATERIALS RESULTING FROM CONSTRUCTION. THE CONTRACTORS AND SUBCONTRACTORS PARTICIPATING IN THE PERFORMANCE OF TENANT'S WORK SHALL REMOVE AND DISPOSE OF, AT LEAST ONCE A WEEK AND MORE FREQUENTLY AS TENANT MAY DIRECT, ALL DEBRIS AND RUBBISH CAUSED BY OR RESULTING FROM THE PERFORMANCE OF TENANT'S WORK AND, UPON COMPLETION THEREOF, REMOVE ALL TEMPORARY STRUCTURES, SURPLUS MATERIALS, DEBRIS AND RUBBISH OF WHATEVER KIND REMAINING IN THE BUILDING WHICH HAD BEEN BROUGHT IN OR CREATED BY THE CONTRACTOR AND SUBCONTRACTORS IN THE PERFORMANCE OF TENANT'S WORK. THIS CONTRACTOR MUST MAINTAIN A CLEAR PATH OF EGRESS FROM THE PREMISES FREE FROM TRASH AND RUBBISH AT ALL TIMES. ALL REMOVAL OF CONSTRUCTION DEBRIS TO AN APPROVED DUMPING SITE TO BE INCLUDED IN THE GENERAL CONTRACTOR'S WORK.

22. ALL EXITS SHALL BE UNOBSTRUCTED AT ALL TIMES DURING CONSTRUCTION AND OCCUPANCY.

23. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL FURNISH AND PAY FOR ALL TEMPORARY UTILITY SERVICES DURING THE COURSE OF CONSTRUCTION.

24. EACH CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AND SUBCONTRACTOR PARTICIPATING IN THE PERFORMANCE OF TENANT'S WORK SHALL (A) MAKE APPROPRIATE ARRANGEMENTS WITH LANDLORD FOR TEMPORARY UTILITY CONNECTIONS INCLUDING WATER AND ELECTRICITY, AS AVAILABLE WITHIN THE BUILDING, WHICH CONNECTIONS SHALL BE AT SUCH LOCATIONS AS SHALL BE DETERMINED BY LANDLORD, (B) PAY THE COST OF THE CONNECTIONS AND OF PROPER MAINTENANCE AND REMOVAL OF SAME, AND (C) PAY ALL UTILITY CHARGES INCURRED AT THE PREVAILING RATES OF THE UTILITY COMPANY PROVIDING SUCH SERVICE TO THE BUILDING, DURING THE COURSE OF CONSTRUCTION UP TO AND INCLUDING THE DATE OF "TURN OVER" TO THE TENANT.

25. IT IS THE GENERAL CONTRACTOR'S REQUIREMENT, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, THROUGH ITS SUBCONTRACTORS, TO RECONFIGURE AND BRING IN NEW UTILITY SERVICES AS REQUIRED, TO MEET THE NEEDS OF THESE SPECIFIC CONTRACT DOCUMENTS.

26. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AND ALL SUBCONTRACTORS WORKING ON THIS PROJECT ARE RESPONSIBLE FOR CONTACTING THE PUBLIC UTILITY COMPANIES SUPPLYING UTILITIES TO THE AREA WHERE THE PROJECT IS LOCATED, IN ORDER TO VERIFY LOCATIONS OF UTILITIES, UNDERGROUND OR OVERHEAD, AND SECURE THE PROPER PROCEDURES WHILE WORKING ADJACENT TO, ABOVE OR NEAR SUCH UTILITIES TO AVOID ANY PROBLEMS WITH EXPLOSIONS, DISCONNECTION, REMOVALS, ETC.

27. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL APPLY FOR ALL UTILITY METERS AND NOTIFY THE UTILITY COMPANY OF THE NAME, ADDRESS AND PHONE NUMBERS OF THE TENANT FOR PERMANENT SERVICES. TENANT'S G.C. UNLESS OTHERWISE NOTED SHALL BRING IN ALL ADDITIONAL SERVICES, ADEQUATE FOR TENANT'S NEEDS AS REQUIRED ,INCLUDING, BUT NOT LIMITED TO ELECTRIC, SPRINKLER, SOIL (WASTE), AND DOMESTIC WATER LINES (WHEN APPLICABLE).

28. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AND / OR IT'S ELECTRICAL SUBCONTRACTOR SHALL VERIFY ALL EQUIPMENT SPECIFICATIONS AND REQUIREMENTS WITH THE TENANT OR THE TENANT'S CONSTRUCTION REPRESENTATIVE PRIOR TO START OF CONSTRUCTION. THIS CONTRACTOR TO VERIFY AMPERAGE / VOLTAGE SPECIFICATIONS, WIRING SIZES AND REQUIREMENTS (SERVICE AND PANEL SPECIFICATION) WITH THE EQUIPMENT SUPPLIERS.

29. ALL PLUMBING AND ELECTRICAL ROUGH-IN TO BE NEW AND ELECTRICAL SERVICE CONDUIT AND WIRE TO THE DEMISED PREMISES TO BE EXTENDED TO THE POINT OF NEW PANELS BY THE CONTRACTOR AS NECESSARY IS SHOWN ON CONTRACT DOCUMENTS. GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, TO FIELD VERIFY THAT THESE UTILITY LINES ARE AT OR ADJACENT TO TENANT'S SPACE AS NOTED AND AT THE SIZE SPECIFIED, BASED ON GENERAL CONTRACTOR'S OR SUBCONTRACTOR'S PRE-BID REVIEW OF PREMISES. IF THE UTILITIES ARE NOT IN LOCATIONS AS NOTED ON THE CONTRACT DOCUMENTS OR OF A SIZE LARGER OR SMALLER THAN NOTED, THIS CONTRACTOR IS TO MODIFY THE SERVICE ACCORDINGLY WITH EITHER NEW CONDUIT AND / OR NEW COPPER SERVICE WIRE EXTENDING BACK TO LANDLORD'S ELECTRICAL / METER ROOM SERVICE POINT, AND INCLUDE SUCH COSTS IN THE BID TO THE TENANT.

30. THE ELECTRICAL SUBCONTRACTOR IS TO PROVIDE A CIRCUIT DIRECTORY WITH PROPER PHASING AND BALANCING, WHICH IS TO CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND UNDERWRITER'S CODE. THE SIGN(S) JUNCTION BOX PERMIT IS TO BE INCLUDED IN THE WORK FOR THE ELECTRICAL SUBCONTRACTOR AND THE BOX IS TO BE SUPPLIED BY THIS CONTRACTOR AND PROPERLY LABELED.

31. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS TO PROVIDE SHOP DRAWINGS OF ALL MILLWORK AND FIXTURES, PRIOR TO START OF CONSTRUCTION, FOR APPROVAL BY THE TENANT'S ARCHITECT.

32. THE PROPER RECEIPT OF ALL NEW MATERIALS AND EQUIPMENT AT THE JOB SITE IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AND / OR ITS SUBCONTRACTORS (IF ANY). SECURE AND SAFE STORAGE OF ALL NEW AND EXISTING MATERIALS AND EQUIPMENT TO REMAIN (IF ANY) WILL BE PROVIDED BY THE GENERAL CONTRACTOR. GENERAL CONTRACTOR TO IMMEDIATELY ADVISE TENANT OR TENANT'S REPRESENTATIVE OF ALL DAMAGED OR DEFICIENT SHIPMENTS OF MATERIALS AND EQUIPMENT, WHETHER SUPPLIED BY TENANT OR DIRECTLY BY CONTRACTOR OR IT'S SUPPLIERS. GENERAL CONTRACTOR TO COMPLETE AND SUBMIT ALL NECESSARY PAPERWORK AND ARRANGE INSPECTIONS OF DAMAGED GOODS AS PER TENANT CONSTRUCTION DEPT. REQUIREMENTS. NOTIFY TENANT, OR TENANT'S REPRESENTATIVE OF ANY POSSIBLE DELAYS. INCOMPLETE ORDERS AND DELAYS ARE TO BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE SUPPLIER AND THE ARCHITECT. SUBMIT CONFIRMATION OF ALL ORDERS, DELIVERY DATES, AND A FULL WRITTEN SCHEDULE TO TENANT'S ARCHITECT.

33. ALL EXISTING TO REMAIN AND NEW BUILDING ENTRY GLASS AND DOORS, STOREFRONT AND INTERIOR GLAZING, IF APPLICABLE, MUST COMPLY WITH ALL APPLICABLE CODES, LANDLORD'S CRITERIA, LANDLORD'S AND TENANT'S CONTRACT DOCUMENTS AND SAFETY GLAZING STANDARDS. GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, TO VERIFY IN FIELD ALL EXISTING GLAZING TO REMAIN MEETS OR EXCEEDS SUCH CODES, STANDARDS, ETC.. INCLUDING BUT NOT LIMITED TO TYPE, SUPPORT, FRAMING METHODS, ETC.. AND UPGRADE IF OR AS REQUIRED. ALL STOREFRONTS TO BE INSTALLED BY GLAZING SUBCONTRACTORS CAREFULLY FOLLOWING REQUIREMENTS AND DETAILS FOR DESIGN AGAINST WIND LOAD CONSIDERATIONS, EVEN THOUGH SUCH INSTALLATION OF STOREFRONT GLAZING MAY BE IN AN ENCLOSED BUILDING. GENERAL CONTRACTOR TO VERIFY EXISTING STRUCTURAL SUPPORT/ HANGING CONDITIONS FOR STOREFRONT AND IF STRUCTURAL SPANS ABOVE FOR SUCH HANGING EXCEED NORMAL HANGING SUPPORT DETAILS OR SPAN AND / OR WIND LOAD CALCULATIONS ARE REQUIRED DUE TO LOCAL BUILDING DEPARTMENT REQUIREMENTS, THIS CONTRACTOR IS TO HIRE A LOCAL STRUCTURAL CONSULTANT TO DESIGN SUCH SUPPORT SYSTEM HANGERS AND COMPLETE ALL STRUCTURAL CALCULATIONS / DRAWINGS IN THOSE AREAS WHERE SUCH INFORMATION IS REQUIRED AND TO INCLUDE SUCH COSTS IN THE BID TO THE TENANT.

34. ANY SUBSTITUTIONS OF FINISH MATERIALS MUST BE APPROVED BY THE TENANT'S ARCHITECT IN WRITING. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS RESPONSIBLE FOR SUBMITTING TWO (2) SAMPLES OF EACH SUBSTITUTION.

35. ALL THE FLOOR FINISHES, WITHIN THE PREMISES, OR AT THE TRANSITION BETWEEN LANDLORD FLOOR FINISHES AND TENANT'S FLOOR FINISHES (AT ENTRY OR REAR DOOR, IF APPLICABLE) ARE TO BE SMOOTH AND LEVEL TO AVOID TRIPPING HAZARDS AND BE WITHIN THE REQUIREMENTS OF BARRIER FREE DESIGN. IF AN EXPANSION JOINT COVER IS REQUIRED, SUCH COVER IS TO BE LEVEL AND SMOOTH WITH TENANT'S FLOOR FINISH ELEVATION AND WILL NOT PROJECT ABOVE SUCH FLOOR FINISH ELEVATION. IF THE EXISTING SLABS ARE NOT LEVEL, THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS REQUIRED TO COMPLETE FLASH PATCHING THROUGHOUT TO OBTAIN A SMOOTH AND LEVEL CONCRETE SLAB.

36. SHOULD AN EXPANSION JOINT OCCUR IN THE LEASED PREMISES, GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS RESPONSIBLE FOR ALL CONSTRUCTION AFFECTED BY SUCH JOINT, INCLUDING FURNISHING AND INSTALLING A LEVEL, SLAB HEIGHT EXPANSION JOINT COVER, INCLUDING FLOOR, WALLS AND CEILING. GENERAL CONTRACTOR SHALL MAINTAIN INTEGRITY OF ALL SUCH EXPANSION JOINTS IN A MANNER CONSISTENT WITH ACCEPTABLE CONSTRUCTION DESIGN PRACTICES.

37. ANY SCAFFOLDING, SAFETY RAILINGS, BARRICADES AND / OR PROTECTION DEVICES REQUIRED FOR THE PROJECT WILL BE FURNISHED AND PAID FOR BY THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, AS PART OF THE BASE BID. PROTECTION OF WORK IN PLACE - WORK IN PLACE THAT IS SUBJECT TO DAMAGE BECAUSE OF OPERATIONS BEING CARRIED ON ADJACENT THERETO SHALL BE COVERED, BOARDED UP, OR SUBSTANTIALLY ENCLOSED WITH ADEQUATE PROTECTION. ALL FORMS OF PROTECTION SHALL BE CONSTRUCTED IN A MANNER SUCH THAT, UPON COMPLETION, THE ENTIRE WORK WILL BE DELIVERED TO THE OWNER IN PROPER, WHOLE, AND UNBLEMISHED CONDITION. ALL SUCH WORK SHALL BE COORDINATED WITH THE TENANT'S REPRESENTATIVE. THE TENANT'S ARCHITECT IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR EXISTING CONDITIONS AT THE JOB SITE AND SINCE ALL WORK IS BY GENERAL CONTRACTOR FOR THE TENANT "FIT-OUT", THEIR REPRESENTATIVES WILL BE REQUIRED TO DO ALL SUPERVISION, OBSERVATIONS AND JOB SITE SAFETY.

38. THE STRUCTURAL SYSTEM OF THE BUILDING HAS BEEN DESIGNED TO CARRY A MAXIMUM LIVE LOAD AS SPECIFIED IN THE LANDLORD'S CRITERIA, AND THE LANDLORD'S OR TENANT'S GENERAL CONTRACTOR AND / OR THEIR SUBCONTRACTOR AND / OR ANY AND ALL MATERIAL SUPPLY HANDLERS SHALL NOT IMPOSE ANY LOADING FOR ANY OF THE TENANT'S WORK ON A TEMPORARY OR PERMANENT BASIS WHICH CAN EXCEED SUCH SPECIFIED LOAD.

39. ANY ALTERATIONS, ADDITIONS, DRILLING, WELDING OR OTHER ATTACHMENT OR REINFORCEMENTS TO LANDLORD'S STRUCTURE TO ACCOMMODATE TENANT'S WORK SHALL NOT BE PERFORMED WITHOUT, IN EACH INSTANCE, GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, OBTAINING LANDLORD'S PRIOR WRITTEN APPROVAL, AND THIS CONTRACTOR SHALL LEAVE LANDLORD'S STRUCTURE AS STRONG AS, OR STRONGER THAN, THE ORIGINAL DESIGN AND WITH FINISHES UNIMPAIRED. ONLY UTILIZE LANDLORD'S DESIGNATED ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS, FLASHING AND COUNTER FLASHING.

40. SPRINKLER SYSTEM DESIGN AND / OR LAYOUT MODIFICATION, (IF APPLICABLE) TO BE PROVIDED BY THE DESIGNATED SPRINKLER SUBCONTRACTOR AND ALL SUBMISSIONS TO THE FIRE MARSHAL AND BUILDING INSPECTOR FOR THE NECESSARY APPROVAL ARE THE RESPONSIBILITY OF THE SPRINKLER SUBCONTRACTOR. GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, TO VERIFY WITH THE LANDLORD OR LANDLORD'S CRITERIA IF SPRINKLER CONTRACTOR IS TO BE LANDLORD'S APPROVED OR DESIGNATED CONTRACTOR. APPROVALS BY LANDLORD, LANDLORD'S INSURANCE UNDERWRITER AND THE BUILDING INSPECTOR AND FIRE MARSHAL WILL BE REQUIRED.

41. THE MECHANICAL SUBCONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE PRIOR TO SUBMITTING A BID FOR THE WORK ON THIS PROJECT. THE CONTRACTOR MUST BECOME FAMILIARIZED WITH THE FIELD CONDITIONS, AND THE SCOPE OF WORK. CONTRACTOR TO ENGINEER, FURNISH AND INSTALL ANY / ALL REQUIRED FIRE ALARM, SMOKE EVACUATION, SMOKE DETECTION SYSTEMS, INCLUDING ANY / ALL PARTS AND LABOR (OR MODIFY EXISTING AS REQUIRED), TO MEET LOCAL CODES, LANDLORD REQUIREMENTS AND FIRE MARSHAL SPECIFICATION, WHETHER SUCH WORK IS OR IS NOT SHOWN IN THE CONSTRUCTION DOCUMENTS. IF A SMOKE EVACUATION AND / OR DETECTION SYSTEM OCCURS FOR THIS SPACE, IT SHALL BE LEFT INTACT DURING CONSTRUCTION AND ANY NEW WORK, MODIFICATION AND REWIRING TO BE COMPLETED DURING CONSTRUCTION PHASE TO POINT OF NEW PANELS. IF SMOKE DETECTORS ARE REQUIRED TO BE HARD WIRED TO LANDLORD FIRE ALARM SYSTEM, THEY ARE TO BE PER LANDLORD'S SYSTEM . CONTRACTOR TO CONTACT LANDLORD OR APPROVED AGENTS FOR PURCHASE AND INSTALLATION OF DETECTORS AT G.C. EXPENSE. G.C. AND / OR ITS FIRE ALARM SUBCONTRACTOR TO CONTACT LANDLORD FOR FINAL POINT OF CONNECTION TO LANDLORD'S FIRE ALARM JUNCTION BOX AND PERFORM WORK AT CONTRACTOR'S EXPENSE.

42. THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, WILL FURNISH AND INSTALL A COMPLETE MECHANICAL SYSTEM TO INCLUDE BUT NOT BE LIMITED TO MECHANICAL EQUIPMENT, INSTALLED AND MOUNTED WITH DISCONNECT AND WIRING, HANGERS AND DUNNAGE FOR SAME (INCLUDING THE HIRING OF A LOCAL STRUCTURAL ENGINEER TO DESIGN SUCH DUNNAGE HANGERS), DUCTWORK, COLLARS, DIFFUSERS, REGISTERS, CONTROLS, TIME CLOCKS, ETC.., WHETHER OR NOT SUCH WORK IS OR IS NOT SHOWN OR DELINEATED IN THE CONTRACT DOCUMENTS. GENERAL CONTRACTOR'S MECHANICAL CONTRACTOR(S) ARE REQUIRED TO COORDINATE WITH ALL OTHER CONTRACTORS ON JOB TO MAINTAIN TENANT'S CEILING HEIGHT, LIGHT FIXTURE LOCATION, SPRINKLER BRANCH LINES, ETC..

43. ALL METAL FRAMING, GYPSUM BOARD, PARTITIONS, SOFFITS AND FACADES BY THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, UNLESS OTHERWISE NOTED.

44. ALL GYPSUM BOARD TO BE FIRE TAPED AND SPACKLED THREE (3) COATS, SANDED AND READY TO RECEIVE PAINT OR WALL COVERING. ALL EXISTING GYPSUM BOARD TO BE REPAIRED TO "LIKE NEW" CONDITION.

45. ALL SWITCH, OUTLET PLATES, COVERS, GRILLES, DIFFUSERS, METAL TRIM (BUCKS, ETC.), ACCESSORIES TO BE FINISHED IN SAME COLOR / WALL COVERING AS ADJACENT WALL FINISHES, UNLESS NOTED OTHERWISE.

46. ALL WORK THAT NEEDS TO BE COMPLETED BY THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, BELOW OR ABOVE THE PREMISES MAY HAVE TO BE DONE IN OTHER TENANT'S DEMISED PREMISES AND SUCH WORK NEEDS TO BE DONE IN COORDINATION WITH THE TENANTS BELOW, OR ABOVE, INCLUDING ANY OVERTIME WORK OR PAYMENT FOR SECURITY THAT MAY BE NECESSARY. THE COST FOR THIS WORK, INCLUDING OVERTIME, MUST BE INCORPORATED IN THE BASE BID.

47. THE CONSTRUCTION DRAWINGS LISTED IN THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON THE BEST INFORMATION AVAILABLE TO TENANT DURING PREPARATION OF THE CONTRACT DOCUMENTS. IN THE EVENT THAT PROBLEMS ARISE DURING THE COURSE OF THE PROJECT, DUE TO UNKNOWN SITE CONDITIONS OR CODE AND LANDLORD REQUIREMENTS (IF ANY) THAT CONFLICT WITH THE CONTRACT DOCUMENTS, THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL INFORM THE TENANT'S ARCHITECT IMMEDIATELY. ANY CHANGES THAT WILL BE REQUIRED, WILL BE DELINEATED BY TENANT ARCHITECT.

48. QUALITY STANDARDS: ALL SUCH WORK SHALL BE PERFORMED IN A FIRST-CLASS WORKMANLIKE MANNER AND SHALL BE IN GOOD AND USABLE CONDITION AT THE DATE OF COMPLETION THEREOF. GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, SHALL REQUIRE ANY PERSON PERFORMING ANY SUCH WORK TO GUARANTEE THE SAME TO BE FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND MATERIALS FOR ONE (1) YEAR FROM THE DATE OF ISSUANCE OF THE CERTIFICATE OF OCCUPANCY. TENANT SHALL ALSO REQUIRE ANY SUCH PERSON TO BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR WITHOUT ADDITIONAL CHARGE, OF ANY AND ALL WORK DONE OR FURNISHED BY OR THROUGH SUCH PERSON, WHICH SHALL BECOME DEFECTIVE WITHIN ONE (1) YEAR AFTER COMPLETION OF THE WORK. THE CORRECTION OF SUCH WORK SHALL INCLUDE, WITHOUT ADDITIONAL CHARGE, ALL EXPENSES AND DAMAGES IN CONNECTION WITH SUCH REMOVAL, REPLACEMENT OR REPAIR OF ANY PART OF THE WORK WHICH MAY BE DAMAGED OR DISTURBED THEREBY. ALL WARRANTIES OR GUARANTEES AS TO MATERIALS OR WORKMANSHIP ON OR WITH RESPECT TO TENANT'S WORK SHALL BE CONTAINED IN THE CONTRACT OR SUBCONTRACT WHICH SHALL INSURE TO THE BENEFIT OF BOTH LANDLORD AND TENANT, AS THEIR RESPECTIVE INTERESTS APPEAR AND CAN BE DIRECTLY ENFORCED BY EITHER. GENERAL CONTRACTOR TO HAVE THIS CLAUSE IN EVERY SUBCONTRACTOR AGREEMENT FOR THE PROJECT AND IF SUCH CLAUSE IS NOT INCLUDED, IT WILL NOT RELIEVE THE GENERAL CONTRACTOR OF THE REQUIREMENTS OR WORK STATED HEREIN. **G.C. SHALL MANAGE ALL WARRANTY ITEMS AND REMEDIES INCLUDING MANAGING SUB-CONTRACTORS, VENDORS AND HFT VENDORS FOR A PERIOD OF ONE YEAR FROM TURNOVER.**

49. TENANT'S WORK SHALL BE COORDINATED WITH THAT OF LANDLORD AND OTHER TENANTS IN THE BUILDING TO SUCH EXTENT THAT TENANT'S WORK WILL NOT INTERFERE WITH OR DELAY COMPLETION OF OTHER CONSTRUCTION WORK IN THE BUILDING.

50. UPON COMPLETION OF ALL CONSTRUCTION AND PRIOR TO TURNOVER OF THE SPACE, THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, IS RESPONSIBLE FOR HAVING THE SPACE CLEANED. ANY CLEANING WHICH IS NOT DONE AT THE TIME OF TURNOVER AND NEEDS TO BE DONE BY THE TENANT, WILL BE BACK CHARGED TO THE GENERAL CONTRACTOR.

51. ALL OF THE SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR, WHETHER WORKING FOR THE LANDLORD OR THE TENANT, FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.

52. CONSTRUCTION SHOWN TO REMAIN AS EXISTING SHALL BE REPAIRED, IF NECESSARY, IN A MANNER THAT WILL BE CONSISTENT WITH THE NEW CONSTRUCTION, AND PAINTED TO MATCH THE OVERALL COLOR SCHEME, UNLESS OTHERWISE NOTED.

53. THE CONSTRUCTION SITE SHALL BE CLEANED AND TRASH REMOVED DAILY.

54. ALL FINISHES TO BE AS NOTED AND SHALL NOT HAVE SMOKE DEVELOPED RATINGS GREATER THAN 450.

55. INTERIOR FINISHES OF WALLS AND CEILINGS IN ALL ROOMS OR ENCLOSED SPACES SHALL HAVE A CLASS C FLAME SPREAD INDEX 76-200; SMOKE DEVELOPED INDEX 0-450. INTERIOR FINISHES OF EXIT ENCLOSURES AND EXIT PASSAGEWAYS SHALL HAVE A CLASS B FLAME SPREAD INDEX 26-75; SMOKE DEVELOPED INDEX 0-450. ASTM E 84. IFC TABLE 803.3.

56. MATERIALS USED AS INTERIOR TRIM SHALL HAVE A MINIMUM CLASS C FLAME SPREAD AND SMOKE DEVELOPED INDEX AND SHALL COMPLY WITH ASTM E 84. COMBUSTIBLE TRIM SHALL NOT EXCEED 10% OF THE AGGREGATE WALL OR CLG. ARE IN WHICH IT IS LOCATED. IFC 804

57. INTERIOR WALL AND CEILING FINISHES SHALL COMPLY WITH NFPA 286 TESTING MEASURES. INTERIOR FLOOR FINISHES SHALL COMPLY WITH NFPA 253 WITH A CLASS 2 CRITICAL RADIANT FLUX > 0.22 WATTS / CM2. FLOOR FINISHES IN EXIT / ACCESS CORRIDORS SHALL BE CLASS 1 CRITICAL RADIANT FLUX > 0.45 WATTS / CM2.

58. INTERIOR FINISH MATERIALS SHALL BE APPLIED SO THAT THEY WILL NOT BECOME READILY DETACHED WHERE SUBJECTED TO 200 DEGREES F. FOR NOT LESS THAN 30 MINUTES. IFC 803.2.

59. THE REQUIRED FLAME SPREAD OR SMOKE DEVELOPED INDEX OF SURFACES IN EXISTING BUILDINGS MAY BE ACHIEVED BY APPLICATION OF APPROVED FIRE RETARDANT COATINGS AND SHALL COMPLY WITH NFPA 703. IFC 803.4.

60. FIRE EXTINGUISHERS SHALL BE LOCATED AT THE DIRECTION OF THE FIRE DEPARTMENT, PROVIDED & INSTALLED BY HFT GENERAL CONTRACTOR.

61. AT THE TIME OF SUBMITTING A BID, THE GENERAL CONTRACTOR IS TO HAVE CONFIRMED ALL FIELD MEASUREMENTS AND HAVE REVIEWED ALL FIELD CONDITIONS.

62. G.C. SHALL VERIFY ALL RELEVANT DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS BEFORE PROCEEDING WITH THE AFFECTED WORK AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY. ALL DISCREPANCIES SHALL BE RESOLVED PRIOR TO CONTRACTOR PROCEEDING WITH AFFECTED WORK.

63. THE CONTRACT WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, TOOLS, LABOR AND SERVICES NECESSARY FOR COMPLETION OF THE PROJECT.

64. THE GENERAL CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMITY WITH THOSE LAWS HAVING JURISDICTION WHETHER OR NOT SUCH WORK IS SPECIFICALLY SHOWN ON THESE DRAWINGS, INCLUDING ALL SEISMIC REQUIREMENTS. THE GENERAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY BUILDING PERMITS AND SHALL BE REIMBURSED FOR GENERAL BUILDING PERMIT COSTS BY OWNER. BUSINESS LICENSE COSTS ARE NOT REIMBURSABLE.

65. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FOR THE QUALITY OF WORKMANSHIP AND FOR COMPLIANCE WITH THE DESIGN. THE GENERAL CONTRACTOR SHALL CORRECT ALL ERRORS AND DEVIATIONS AS REQUESTED BY THE OWNER.

66. THE GENERAL CONTRACTOR SHALL CONTACT THE OWNER / HFT IMMEDIATELY IF THEY ENCOUNTER ANY HAZARDOUS MATERIALS.

67. EXACT LOCATIONS OF PIPING, DUCTWORK, CONDUIT AND FIXTURES SHALL BE COORDINATED BETWEEN CONTRACTORS AND SUBCONTRACTORS TO AVOID INTERFERENCE.

68. ALL SPRINKLER HEADS SHOWN ARE CONCEPTUAL ONLY. GENERAL CONTRACTOR TO HIRE A LICENSED SPRINKLER CONTRACTOR TO DESIGN AND INSTALL / MODIFY SPRINKLER SYSTEM. HEAD REPLACEMENT TO MEET ALL LOCAL AND NATIONAL CODES INCLUDING NFPA-13.

69. AFTER COMPLETION OF THE WORK, PARTS OF THE BUILDING SHALL BE CLEANED WHERE EVER SUCH CLEANING IS REQUIRED, INCLUDING AREAS OF THE BUILDING MADE DIRTY BY CONSTRUCTION WORK. THE GENERAL CONTRACTOR SHALL REMOVE FROM THE PREMISES TRASH, RUBBISH, TOOLS, EQUIPMENT AND EXCESS MATERIALS. THE BUILDING IS TO BE LEFT IN PERFECTLY CLEAN CONDITION.

70. ALL ELECTRICAL WORK SHALL CONFORM TO LOCAL CODES, THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, & NFPA 72.

71. EACH CONTRACTOR SHALL COORDINATE ARCHITECTURAL DRAWINGS WITH THE PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS AND ALL SPECIFICATIONS BEFORE PROCEEDING WITH THE WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IMMEDIATELY. ALL DISCREPANCIES SHALL BE RESOLVED PRIOR TO THE CONTRACTOR PROCEEDING WITH AFFECTED WORK.

72. ALL ADDITIONAL MATERIALS, EQUIPMENT, LABOR, ETC. NOT SHOWN BUT REQUIRED FOR PROPER COMPLETION OF PROJECT SHALL BE PROVIDED BY THE CONTRACTOR.

73. EXIST. PORTIONS OF THE BUILDING SHALL COMPLY WITH PROVISIONS OF EXISTING OCCUPANCIES, AS PER SET FORTH IN NFPA 101 LIFE SAFETY CODE, IBC CHAPTER 34 OR IEBC AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

74. GENERAL CONTRACTOR SHALL DISTRIBUTE ALL NECESSARY DRAWINGS AND/OR COPIES OF CONSTRUCTION DOCUMENTS FOR REVISIONS AND/ OR DISTRIBUTION TO PARTIES DURING CONSTRUCTION PHASE AT NO ADDITIONAL COST TO THE OWNER.

75. GENERAL CONTRACTOR IS TO PROVIDE A SCHEDULE AND PROJECT CALENDAR TO HFT PROJECT MANAGER TO SHARE WITH OTHER VENDORS (E.G.-FIXTURE SUPPLIER, FLOORING SUPPLIER/INSTALLER, SIGNAGE MANUFACTURER, LIGHTING SUPPLIER AND MISCELLANEOUS LOW VOLTAGE INSTALLERS).

76. GENERAL CONTRACTOR TO FURNISH THE HFT REP. WITH AS-BUILT DRAWINGS UPON COMPLETION OF PROJECT.

77. UPON COMPLETION OF CONSTRUCTION, GENERAL CONTRACTOR TO SUBMIT RECORD DRAWINGS OF THE PREMISES TO LANDLORD. THIS SUBMITTAL SHALL ALSO INCLUDE TEST AND BALANCE REPORTS WITH THE HFT ARCHITECT / ENGINEER OF RECORD APPROVAL.

78. SIGNAGE PERMITTING DRAWINGS TO BE SUBMITTED SEPARATELY. ALL SIGNAGE TO COMPLY WITH LANDLORD TENANT CRITERIA AND STATE/LOCAL CODES. COORDINATE WITH SIGNAGE VENDOR FOR ANY SPECIFIC CRITERIA TO BE USED.

79. GENERAL CONTRACTOR SHALL ENGAGE A PROFESSIONAL CLEANING COMPANY TO CLEAN THE ENTIRE STORE THREE TIMES TO INCLUDE PRIOR TO FIXTURING, PRIOR TO MERCHANDISING AND THE NIGHT BEFORE SOFT OPENING. MAINTAIN AN ACCEPTABLE LEVEL OF CLEANLINESS AT ALL TIMES IN BETWEEN. GC TO ENSURE ALL CONSTRUCTION MATERIALS ARE REMOVED. FLOORS ARE CLEANED WITH A WALK-BEHIND SCRUBBER, HIGH-DUSTING OF LIGHT FIXTURES IS PERFORMED AND ALL ROOMS TO BE CLEANED. GC SHALL COORDINATE AND MANAGE THE CLEANING OF ALL FLOORING WITH THE APPROPRIATE WALK-BEHIND SCRUBBER THE NIGHT BEFORE GRAND OPENING. GC SHALL COORDINATE ALL CLEANINGS WITH STORE OPERATIONS.

LVT INSTALLATION NOTES:

BEFORE STARTING THE JOB:

1. SUBFLOOR PREPARATIONS SHOULD BE DONE WITH THE PERMANENT HVAC SET AT A MINIMUM OF 68°F (20°C).
2. IT IS RECOMMENDED THAT LVT FLOOR COVERING INSTALLATION SHALL NOT BEGIN UNTIL ALL OTHER TRADES ARE COMPLETED.

STORAGE AND HANDLING:

1. THE BUILDING MUST BE ENCLOSED AND THE HVAC IN CONTINUOUS OPERATION. THE LVT AND ADHESIVE MUST BE CONDITIONED TO ROOM TEMPERATURE FOR 7 DAYS PRIOR TO INSTALLATION, DURING THE INSTALLATION AND CONTINUOUS FOLLOWING COMPLETION OF THE INSTALLATION. THE AMBIENT AIR RELATIVE HUMIDITY MUST BE BETWEEN 10% - 65% WITH THE FLOOR AND ROOM TEMPERATURE BETWEEN 55 - 85 DEGREES FAHRENHEIT. THE INDOOR TEMPERATURE SHOULD NEVER FALL BELOW 55 DEGREES FAHRENHEIT OR ABOVE 85 DEGREES FAHRENHEIT REGARDLESS OF THE AGE OF THE INSTALLATION.
2. STORE CARTONS OF TILE OR PLANK PRODUCTS FLAT AND SQUARELY ON TOP OF ONE ANOTHER. PREFERABLY, LOCATE MATERIAL IN THE "CENTER" OF THE INSTALLATION AREA (I.E. AWAY FROM VENTS, DIRECT SUNLIGHT, ETC.) STORING CARTONS IN DIRECT SUNLIGHT MAY AFFECT PROPER ACCLIMATION BY INDUCING THERMAL EXPANSION / CONTRACTION.

JOB SITE CONDITIONS:

1. AREAS TO RECEIVE LVT FLOORING SHOULD BE ADEQUATELY ILLUMINATED DURING ALL PHASES OF THE INSTALLATION PROCESS.
2. CONTROLLED ENVIRONMENTS ARE CRITICAL. **DO NOT** INSTALL LVT FLOORING PRODUCTS UNTIL THE WORK AREA CAN BE TEMPERATURE CONTROLLED.
3. PORTABLE HEATERS ARE NOT ACCEPTABLE.
4. KEROSENE HEATERS SHOULD NEVER BE USED WHERE FLOOR COVERING PRODUCTS WILL BE INSTALLED. THEY HEAT THE AIR, NOT THE SUBSTRATE. THEY ALSO LEAVE A RESIDUE ON THE SUBSTRATE.
5. THE PERMANENT HVAC SYSTEM MUST BE OPERATIONAL AND FUNCTIONAL AND SET TO A MINIMUM OF 55°F OR A MAXIMUM OF 85°F FOR A MINIMUM OF 7 DAYS PRIOR TO, DURING, AND CONTINUOUS AFTER INSTALLATION. THE INDOOR TEMPERATURE SHOULD NEVER FALL BELOW 55 DEGREES FAHRENHEIT OR ABOVE 85 DEGREES FAHRENHEIT REGARDLESS OF THE AGE OF THE INSTALLATION.

BRIAN E QUINN
ARCHITECT

05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

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GENERAL NOTES

DATE 05/17/24
JOB NO. 23475
SHEET NO. A0.2

DO NOT SCALE THESE DRAWINGS

Harbor Freight Tools Retrofit Concrete Repair Specification

PART 1 GENERAL

1.01 SCOPE
This specification covers the furnishing of all labor, equipment and materials required to repair or replace spalled, deteriorated or structurally damaged concrete surfaces. Depth of repairs shall be adequate to restore concrete member or slab to original dimensions after proper preparation to sound concrete. Full depth slab replacements shall be anchored to adjacent slabs per ACI requirements. The General Contractor shall repair or replace all concrete surfaces as shown on contract drawings or as specified herein.

1.02 REFERENCES
A. Applicable Standards and Codes:
1. ACI 302, "Guide for Concrete Floor and Slab Construction."
2. ACI 304, "Guide for Measuring, Mixing, Transporting and Placing Concrete."
3. ACI 305, "Hot Weather Concreting."
4. ACI 306, "Cold Weather Concreting."
5. ACI 318, "Standard Building Code Requirements for Reinforced Concrete."
6. ACI 503, "Standard Specification for Repairing Concrete with Epoxy Mortars."
7. ACI 504, "Guide to Sealing Joints in Concrete Structures."
8. ACI 506, "Guide to Shotcrete."
9. ACI 546, "Guide for Repair of Concrete Bridge Superstructures."
10. ICRI Guideline 3732, "Selecting and Specifying Concrete Surface Preparation."
11. ICRI Guideline 3733, "Guide for Selecting and Specifying Materials for Repair of Concrete Surfaces."

1.03 QUALITY ASSURANCE
A. Material manufacturers shall be ISO 9001/9002 registered or provide proof of documented quality assurance system. Quality system must be independent auditing registrar. ISO 9001/9002 certification shall be included with material submittals. The material supplier shall provide job service as required to assure proper handling and installation of materials. The field representative shall instruct as needed to assure that handling, mixing, placing, finishing, and curing of materials are in accordance with specification.

B. The General Contractor shall have experience and proficiency specific to the repair type and shall be approved by Harbor Freight.

C. Prior to the start of concrete repairs or slab replacement, the General Contractor shall conduct a meeting to review the detailed requirements for scope of work. Surface preparation, proposed equipment, procedures, material mixing, placing and finishing procedures and site conditions shall be discussed and approved by the Harbor Freight project manager and architect, prior to beginning work.

The General Contractor shall require the attendance of all involved parties including but not limited to the General Contractor's superintendent, repair contractor, concrete contractor, ready mix producer, testing laboratory, material supplier representative and proposed equipment supplier representative.

Minutes of the meeting shall be recorded, typed, and printed by the General Contractor and distributed to all parties concerned, including the Harbor Freight and Architect, within 5 days of the meeting.

1.04 PRE-BID INSPECTION
A. The General Contractor shall visit the site prior to bid submittal to determine the extent of the required repairs or slab replacement. Final bid shall include all required repairs, including total quantities and unit costs for each repair, or a total cost for slab replacement.

1.05 MATERIAL STORAGE AND HANDLING
A. Materials shall be delivered in the original, unopened containers. It shall be labeled with the manufacturer's name, product name and lot number. Store materials at the job site under dry conditions and at temperatures between 50oF (10oC) and 90oF (32oC).

1.06 SITE CONDITIONS
A. Job conditions shall be maintained at standards that allow material placement within temperature and cleanliness requirements. Unusual conditions as uncovered during work shall be brought to the attention of Harbor Freight for analysis and disposition. These conditions include but are not limited to poor quality base concrete, severely corroded reinforcing steel, random cracks, and deep oil penetration.

1.07 ENVIRONMENTAL CONDITIONS
A. Repair materials shall not be applied without protection in temperature below 45°F (7°C), or when the temperature is expected to fall below 45°F (7°C) during the curing period unless otherwise specified by the material manufacturer. Patching material shall not be applied to frozen surfaces.

B. All materials used for the repair work must be VOC compliant. The manufacturer shall supply the appropriate material safety data sheets upon request.

1.08 SHORING AND SUPPORT
A. When removal and patching of deteriorated structural concrete may cause temporary weakness, excessive deflections, or structural instability, shoring or other suitable supports shall be provided until completion and adequate curing of repairs.

PART 2 PRODUCTS

2.01 MATERIALS
A. Horizontal Repairs and Overlays:
1. Thicknesses Less Than 1/2" (13mm): Product shall be a one component, trowel applied, latex and micro-silica modified cementitious base compound. Provide the following:
"Thin-Top Supreme" by Euclid Chemical

2. Thicknesses Greater Than 1/2" (13mm): Product shall be a one component, trowel applied, latex and micro-silica modified cementitious base compound. Provide the following:
"Concrete Top Supreme" by Euclid Chemical

3. Rapid Repairs: Product shall be a one component, cementitious material for patching and repairing concrete, meeting the requirements of ASTM C-928. Provide the following:
"Versa-Speed" by Euclid Chemical

4. Repair of Existing Trench In-Fills over 1" Thick (25mm): Product shall be a one part, microsilica modified patching and repair material for concrete. Provide the following:
"Eucocrete" by Euclid Chemical

5. Underlayment for Soft Floor Coverings: Product shall be a one component, free-flowing, self-leveling, pumpable compound designed as an underlayment for subsequent placement of floor coverings. Provide the following:
"EucoFloor SL160" by Euclid Chemical

6. Self-Leveling, Polishable Wearing Surface: Product shall be a one component, free flowing, self-leveling cementitious based compound designed as an underlayment for subsequent placement of floor coverings or as a wearing surface. Provide the following:
"LevelTop" by Increte Systems (Euclid Chemical)

B. Vertical/Overhead Repairs
1. General Repairs: Product shall be a one component, trowel applied, and latex modified cementitious base compound. Provide the following:
"Euco V-100" by Euclid Chemical

C. Accessory Products
1. Bonding Agents:
a. Epoxy/Cement Bonding Agent (and Protective Coating for Reinforcing Steel): Product shall be a water-based epoxy resin designed for bonding repair materials to existing concrete or for adhesion and corrosion protection of reinforcing members (24 hour maximum open time). Provide the following:
"Duralprep AC" by Euclid Chemical

b. Polyvinyl Acetate, Rewettable Type: Product shall be a resin adhesive for bonding repair materials to existing concrete when the repair is interior and dry conditions will exist after the repair is complete. Provide the following:
"Tammsweld" by Euclid Chemical

c. Latex, Non-Rewettable Type: Product shall be an acrylic latex bonding adhesive to bond the repair material to existing concrete. Provide the following:
"Akkro-7T" by Euclid Chemical

d. Latex, Non-Rewettable Type: Product shall be a styrene butadiene copolymer bonding adhesive to bond the repair material to existing concrete. Provide the following:
"SBR Latex" by Euclid Chemical

e. Epoxy Adhesive: The compound shall be a two component, 100 percent solids, 100 percent reactive compound suitable for use on dry or damp surfaces and meet the requirements of ASTM C 881. Provide the following:
"Dural #452 Epoxy" by Euclid Chemical

2. Curing and Sealing Compound: The compound shall meet the moisture retention, solids content, and non-yellowing requirements of ASTM C-309 or C-1315 when applied at the manufacturer's recommended application rate per gallon. Provide the following:
a. Interior Cure: "Kurez DR VOX" by Euclid Chemical
b. Exterior Cure: "Super Aqua Cure VOX" or "Super Diamond Clear VOX" by Euclid Chemical

3. Joint / Crack Materials:
a. Single Component Polyurethane (Gun and Pourable Grade): Provide the following:
"Eucolastic 1 NS / SL" by Euclid Chemical
b. Polyurea Joint Filler: The product shall conform to the requirements of ACI 302, and be a UV resistant, fast setting, semi-rigid, polyurea. Provide the following:
"Euco QWIKjoint UVR" by Euclid Chemical
c. Crack Repair: Two-component, low viscosity hybrid urethane repair liquid used to mend cracks in concrete, repair spalled joints and repair damaged or uneven concrete surfaces.
"Euco QWIKstitch" by Euclid Chemical

PART 3 EXECUTION

Unless otherwise specified, the General Contractor shall apply all materials in strict accordance with the manufacturer's instructions which are made part of this specification.

3.01 ESTIMATING
A. Refer to manufacturer's literature for material yields and coverage rate. Actual usage will vary depending on the profile and planeness of the repair surface and should be verified by the General Contractor. The General Contractor shall install the material at the thicknesses specified herein or on drawings and shall be familiar with site conditions to determine appropriate material quantities.

3.02 PREPARATION
A. Cleaning: The surface of the existing concrete should be clean and the pores free of any dirt or material that will be detrimental to the bond of the repair material.

B. Surface Preparation: Concrete surfaces must be clean and rough. All oil, dirt, debris, paint, and unsound concrete must be removed. The surface must be prepared mechanically using a scabbler, bush hammer, chipping hammer, shotblast or scarifier which will give a surface profile of a minimum 1/8" (3 mm) and expose the coarse aggregate of the concrete. For overlays, the concrete surface shall be roughened to the correct CSP profile (Concrete Surface Profile) and thickness recommended by the International Concrete Repair Institute (ICRI) Publication 03732, "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays." The final step in cleaning shall be the complete removal of all dust, dirt, and residue by pressure washing and/or vacuum.

C. Cracks: All cracks greater than 1/8" in width shall be routed to a minimum 3/8" by 3/8". Thoroughly clean with oil free compressed air or vacuum and place bond breaker tape along the bottom of the joint. Crack must be dry before installation of the sealant. Do not rout cracks less than 1/8" width.

D. Joints: Existing joints shall be maintained by forming at joint locations or saw cutting over joint locations. Edges shall be sawcut to 1/4" (6 mm) deeper than the overlay thickness and notched at the edge of the overlay to provide a locked in perimeter. Chip the edge with a handheld chipping hammer to provide the wedge-shaped notch.

3.03 BONDING/PRIMING
A. After the concrete surface has been prepared, cleaned and dry, prime all areas with the bonding agent specified by the manufacturer. Apply bonding agent (or a product bond coat) by scrubbing the material into the concrete surface to penetrate the pores of the concrete. Follow the manufacturer's recommended coverage rate. Rougher surfaces may require a stiff broom to apply the bonding agent while a relatively smooth surface will allow use of roller or squeegee application.

3.04 MIXING OF REPAIR MATERIAL
A. Follow the mixing instructions provided by the material manufacturer. Small quantities may be mixed with a drill and "jiffy" mixer. Use a paddle type mortar mixer for typical jobs. For large or pumped jobs, bulk bagged material mixed in a ready-mix truck or a mixer/pump combination may be used where material workability permits. All materials should be in the proper temperature range of 60°F (15°C) to 90°F (32°C). Add the appropriate amount of water for the batch size and then add the dry product. Mix for 3 to 5 minutes. If pea gravel is added, mix an additional 2-3 minutes after its addition. The mixed product should be transported by buggy or pumped to the repair area and placed immediately. For multiple component materials, be sure the proper ratios of Part A, Part B and Part C are thoroughly mixed.

3.05 PLACING OF REPAIR MATERIAL
A. Trench In-fill:
1. In-fill trenches with "Eucocrete" pre-packaged concrete by Euclid Chemical or 4000 psi ready mixed concrete. Trench shall exhibit straight, full-depth sawcuts at the interface of existing concrete to in-fill area. Install 15 mil vapor barrier by Stego at base of area to be in-filled. In-fill concrete shall be doweled into existing slab using #4 bars spaced 16" on center. Bars shall have minimum 4" embedment in existing concrete and come to within 3" of the opposite face of existing concrete. Place, consolidate, finish and cure in-fill concrete to match finish, color and elevation of adjacent concrete. Honor all control joints per ACI 302 recommendations. Use an evaporation retarder under hot or windy conditions to prevent surface drying.

B. Self- Leveling Wear Surface:
1. Surface Prep: The concrete surface must be free of unbound cementitious by-products, loose dirt, oil, grease, or other contamination. Any animal or petroleum contamination should be removed with Increte Systems' Grease-A-Way. Exterior surfaces should be acid etched using a 5 to 1 solution of water to muriatic acid. Interior surfaces should be prepared by mechanical means

05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

ERWIN, NC 28339

46 SHRIJI LANE

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CONCRETE SPECIFICATIONS

DATE 05/17/24

JOB NO. 23475

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SHEET NO.

(shot-blast, sand-blast or by rotary sander). Before installing Level Top, all concrete subfloors must be primed with two coats of Increte Systems Bond-Crete primer. Alternately, the concrete can be primed with Increte HP EPOXY and broadcast to refusal with clean and dry silica sand. Once the epoxy has dried, remove excess silica sand. Level Top SP should only be installed when ambient and substrate surface temperatures are between 50º F and 90º F. Optimum temperature installation is approximately 70º F.

2. Application: Add one 50-pound bag of LEVEL TOP to 5 quarts of cool water. Mix in a clean damp paddle mixer (mortar mixer). Mix for a minimum three minutes and adjust the water by adding up to 1 pint, as required. A drill and paddle mixer may also be used. Add colorant to water prior to the addition of powder when using integral colorants.

3. Thickness: For maximum economy, set gauge rake at 1/8-inch thickness. LEVEL TOP may be applied up to an inch thick as is. For pours greater than 1 inch use with extender aggregates. LEVEL TOP may also be used as an excellent patch/repair compound.

4. Staining/Sealing/Polishing: LEVEL TOP shall be chemically hardened with Increte's Pro-Polish Densifiers and polished to a high gloss finish. Use Pro-Polish Guard to protect your polished floors

C. Vertical/Overhead Trowel Applied: Product should be placed in lifts 1" (25mm) to 2" (50 mm) in thickness. Trowel into place and allow stiffening before the next lift. Multiple lifts may be placed if the previous lift is well textured. If additional lifts will be placed after the product has hardened, crosshatch the surface of the previous lift to provide for a secure bond for the next lift.

D. Joints: Fill joints with joint filler no sooner than 28 days after material placement. Install joint sealant in accordance with printed instructions. Moving joints, as in the case of expansion joints, should be brought up through the overlay by saw-cutting or with the use of a divider strip

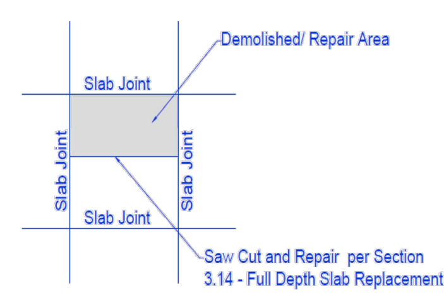
3.06 FULL DEPTH, PARTIAL SLAB REPAIR (INTERIOR OR EXTERIOR)

A. Slab defects that exhibit severe pitting or spalling, which exceeds a third of the slab panel area or ¾" in depth, or as recommended by Harbor Freight and Architect. The "Suggested Concrete Mix for Full Depth Slab Replacement" (see Section 3.07), may be used upon approval of Harbor Freight and Architect. Avoid traffic on newly placed concrete for a minimum of 7 days. If early turnaround is required, the "Alternate High Strength – Early Set Concrete Mix" (this section), may be used upon approval of Harbor Freight and Architect.

B. Preparation: Submit all procedures and products to Harbor Freight and Architect for review and approval prior to starting work.

C. The intent of the slab replacement is that the repair area shall be encompassed by existing slab joints on at least 3 adjacent sides (See sketch of floor plan). Verify exact repair area size and location with Harbor Freight and Architect before commencing work. Saw cut at outer edges of pitted or spalled areas. The cuts should be symmetrical in nature and made perpendicular and parallel to the slab joints creating a rectangular repair area. The General Contractor should avoid any over-cutting at saw cut intersections.

D. Repair:
1. Normal set concrete shall be designed to meet 4000 psi compressive strength within 28 days. (see concrete mix requirements - Section 3.07).
2. Alternate "High Strength-Early Set" concrete mix shall meet 4000 psi compressive strength within 24 hours (see below).
3. Compact existing subgrade, if required.
4. Replace vapor retarder, if required.
5. Construction joints in slab on ground shall be butt joints with round smooth dowels, epoxy adhered to existing slab, and greased on the other half for new slab installation. All dowels



greased on the other half for new slab installation. All dowels shall be installed straight and evenly spaced per manufacturer's instructions
5. Install concrete flush with the surface of the floor. Apply finish to match adjacent concrete. Do not add additional water to the surface during the finishing operation. If additional liquid is required, use a finishing aid.
6. Curing and Protection: Cure all concrete surfaces with one of the curing compounds specified herein. Keep repair area protected from other trades and weather for a minimum of 3 days after material is placed.
7. Re-cut original joint through repair. Repair material shall not permanently bridge joints. Either maintain original joint during repair with and insert or cut as soon as repair material will not ravel or dislodge from sawing.
8. Re-fill control joints and re-seal expansion joints

Suggested Concrete Mix for Full Depth Complete Slab Replacement

Materials	Concrete mix
Cement	517-564 lbs.
Fly ash/slag	Prohibited
Coarse aggregate	12 cubic feet +/- .50 (#57 stone)
Fine aggregate	7 cubic feet +/- (adjust as necessary)
Water content	250 – 300lbs.
Air content **(Entrapped Air - Interior Only)**	3.0% (max.)
Air Content **(Entrained Air -Exterior Only)**	5.0% +/- 1.0% (Max.)
Water Reducer (Type A/F)	3oz.-10oz./100wt +/- (Mid-Range)
Water / Cement Ratio	0.53 (max.)
Macro Synthetic Fiber (Tuf-Strand SF)	3.0 lbs – 5.0 lbs / cubic yard (min.) **
Initial Slump (Water)	2"
Final slump (with water reducer)	5.5" (max.)
Maximum Shrinkage	$\leq$ 0.04% @ 28 days
**Macro Synthetic Fiber dosage as specified, unless otherwise noted by Engineer or Record	

3.10 CLEAN-UP

A. For cementitious repair materials, clean tools and equipment with brush and water before the material hardens. For repair materials containing epoxy, clean with solvent, such as xylene, xylol or toluene. Do not allow the epoxy to harden on equipment.

END OF SECTION

shall be installed straight and spaced evenly per manufacturer's instructions.
6. Install concrete flush with the surface of the floor. Apply finish to match adjacent concrete. Do not add additional water to the surface during the finishing operation. If additional liquid is required, use a finishing aid.
7. Curing and Protection: Cure all concrete surfaces with one of the curing compounds specified herein. Keep repair area protected from other trades and weather for a minimum of 3 days after material is placed.
8. Re-cut original joint through repair. Repair material shall not permanently bridge joints. Either maintain original joint during repair with and insert or cut as soon as repair material will not ravel or dislodge from sawing.
9. Re-fill control joints and re-seal expansion joints

Alternate High Strength – Early Set Concrete Mix

Materials	**Prototype Concrete Mix**
Cement	728-800 lbs.
Coarse Aggregate	11 Cubic Feet +/- .50
Fine Aggregate	7 Cubic Feet +/- (Adjust as Necessary)
Water Content	291 – 320 lbs.
Air Content (Entrapped Air - **Interior Only**)	3.0% (Max.)
Air Content (Entrained Air - **Exterior Only**)	5.0% +/- 1.0% (Max.)
Mid-Range Water Reducing Admixture (Type A/F)	3oz - 10oz/100wt +/-
High-Range Water Reducing Admixture (Type F/G)	3oz - 6oz/100wt +/- (Polycarboxylate)
Non-Chloride Accelerating Admixture	28oz - 40oz/100wt +/- (add at jobsite)
W/cm	0.40 (Max)
Initial Slump (Water)	2"
Final Slump	5.5" (Max)

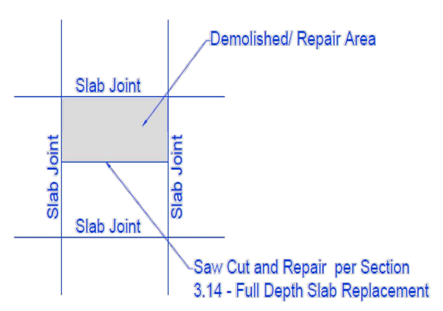
3.07 FULL DEPTH, COMPLETE SLAB REPLACEMENT (INTERIOR)

A. Slab defects that exhibit severe pitting or spalling over most of the interior slab surface, or as directed by Harbor Freight and Architect. Avoid traffic on newly placed concrete for a minimum of 7 days. The "Suggested Concrete Mix for Full Depth Complete Slab Replacement" mix may be used upon approval of Harbor Freight and Architect (see information in this section).

B. Preparation: Submit all procedures and products to Harbor Freight and Architect for review and approval prior to starting work.

C. The intent of slab replacement is that the repair area shall be encompassed by existing slab joints on at least 3 adjacent sides (See sketch of floor plan). Verify exact repair area size and location with Harbor Freight and Architect before commencing work. Saw cut at outer edges of pitted or spalled areas. The cuts should be symmetrical in nature and made perpendicular and parallel to the slab joints creating a rectangular repair area. The General Contractor should avoid any over-cutting at saw cut intersections.

D. Repair:
1. Concrete shall be designed to meet 4000 psi compressive strength within 28 days (see concrete mix below).
2. Compact existing subgrade, if required.
3. Replace vapor retarder, if required.
4. Construction joints in slab on ground shall be butt joints with round smooth dowels, epoxy adhered to existing slab, and



POLISHED CONCRETE SPECIFICATION

PART I - GENERAL

1.01 SUMMARY, THIS SPECIFICATION INCLUDES THE FOLLOWING:

INTERIOR CONCRETE JOINT FILLER, LIQUID DENSIFIER / SEALER AND POLISHING PROCESS

A. GENERAL: DO NOT COMMENCE INSTALLATION OF SEMI-RIGID POLYUREA JOINT FILLER, LIQUID DENSIFIER / SEALER AND POLISHING PROCESSES UNTIL THE BUILDING IS COMPLETELY ENCLOSED, PERMANENT POWER AND LIGHTING IS OPERATING AND THE BUILDING IS THERMOSTATICALLY CONTROLLED. INSTALLATION OF THESE MATERIALS SHALL COMMENCE APPROXIMATELY TWO WEEKS PRIOR TO "FIXTURE DATE."

PART II - EXECUTION

2.01 JOINT FILLER INSTALLATION: COMPLY WITH ACI 302 AS APPLICABLE TO MATERIALS, APPLICATIONS, AND CONDITIONS.

A. SURFACE CLEANING OF JOINTS: CLEAN JOINTS IMMEDIATELY BEFORE INSTALLING JOINT FILLER. REMOVE FOREIGN MATERIAL THAT COULD INTERFERE WITH ADHESION OF JOINT FILLER BY BRUSHING, GRINDING, BLAST CLEANING, MECHANICAL ABRADING, OR A COMBINATION OF THESE METHODS TO PRODUCE A CLEAN, SOUND SUBSTRATE CAPABLE OF DEVELOPING OPTIMUM BOND WITH JOINT FILLER. REMOVE LOOSE PARTICLES REMAINING FROM ABOVE CLEANING OPERATIONS BY VACUUMING OR BLOWING OUT JOINTS WITH OIL-FREE COMPRESSED AIR. ALSO REMOVE ALL LAITANCE AND FORM-RELEASE AGENTS FROM CONCRETE SURFACE. CLEAN NONPOROUS SURFACES WITH CHEMICAL CLEANERS OR OTHER MEANS THAT DO NOT STAIN, HARM SUBSTRATES, OR LEAVE RESIDUES COULD INTERFERE WITH ADHESION OF JOINT SEALANTS. ALL SURFACES TO BE FILLED SHALL BE CLEAN AND DRY.

B. MIXING: JOINT FILLER IS A TWO-PART PRODUCT REQUIRING MACHINE MIXING AND PLACING. PREMIX PART "B" SEPARATELY BEFORE USING. FOLLOW PUMP MANUFACTURER'S EQUIPMENT INSTRUCTIONS.

C. PLACEMENT: FOR PROPER LOAD TRANSFER, JOINTS MUST BE FILLED FULL DEPTH, BUT IN NO CASE SHOULD THE JOINT FILLER BE ANY LESS THAN 1" DEEP IN THE JOINT. NO BACKER ROD IS ALLOWED. JOINTS SHOULD BE OVERFILLED AND SHAVED LEVEL WITH THE SURFACE, GIVING THE FLOOR JOINTS A FLAT, SMOOTH APPEARANCE.

D. JOINT FILLER SEPARATION: THE APPROVED JOINT FILLING APPLICATOR SHALL INCLUDE IN THEIR BID A COST PER LINEAR FOOT TO MAKE ONE RETURN TRIP TO REFILL JOINTS IF JOINT FILLER SIDEWALL SEPARATION OR SPLITTING EXCEEDS 1/16", OR IF SURFACE PROFILE IS CONCAVE, CHATTERED OR IF VOIDS OCCUR. THIS SHALL TAKE PLACE ONE WEEK PRIOR TO GRAND OPENING, OR AT OWNER'S REQUEST.

2.02 INITIAL CLEANING FOR LIQUID DENSIFIER AND SEALER APPLICATION: THOROUGHLY CLEAN THE INTERIOR SALES FLOOR SLAB PRIOR TO THE INITIAL APPLICATION OF LIQUID DENSIFIER/SEALER AND POLISHING PROCESS. COMPLETELY REMOVE THE REMNANTS OF THE DISSIPATING OR REMOVABLE CURING COMPOUND FROM THE FLOOR SURFACE. THE FOLLOWING FLOOR STRIPPER OR REMOVAL SOLUTION SHALL BE APPLIED TO THE FLOOR AT THE PROPER RATIO TO THOROUGHLY STRIP, CLEAN AND REMOVE ALL CURING COMPOUND RESIDUE:
1. KUREZ DR VOX (SLAB FIRST): EUCLID "EUCO CLEAN & STRIP"
1. KUREZ RC (SLAB LAST): EUCLID "KUREZ OFF"

2.03 POLISHING PROCESS AND APPLICATION OF LIQUID DENSIFIER / SEALER: PRIOR TO APPLICATION, INSPECT INTERIOR SALES FLOOR SLAB TO ENSURE THAT SLAB IS CLEAN AND FREE OF DUST, GREASE, OILS, OR OTHER CONTAMINANTS THAT MIGHT PROHIBIT THE PROPER APPLICATION AND PENETRATION OF THE LIQUID DENSIFIER AND SEALER.

A. MOCK-UP TEST SLAB: THE FOLLOWING PROCESS IS PROVIDED AS A GUIDE. MANY FACTORS, INCLUDING, BUT NOT LIMITED TO INTERIOR FLOOR SLAB FINISH, HARDNESS AND FLATNESS WILL DETERMINE THE INITIAL RESIN BOND DIAMOND TOOLING, INCLUDING ADDITIONAL GRINDING AND/OR POLISHING OPERATIONS REQUIRED TO MEET THE REQUIREMENTS SPECIFIED HEREIN. TRAINED APPLICATOR SHALL PROVIDE A MOCK-UP TEST SLAB, INCLUDING APPLICATION OF LIQUID DENSIFIER/SEALER TO A DESIGNATED AREA OF THE INTERIOR FLOOR SLAB (BACK OF BUILDING), USING THE SAME EQUIPMENT, RESIN BOND DIAMOND TOOLING, AND METHODS AS WILL BE USED TO POLISH THE INTERIOR FLOOR SLAB. INTERIOR SALES FLOOR POLISHING AND APPLICATION OF LIQUID DENSIFIER/SEALER SHALL NOT COMMENCE UNTIL OWNER HAS ACCEPTED THE MOCK-UP TEST SLAB.
1. VERIFY PRESENCE OF CURING AND SEALING COMPOUND BY APPLYING WATER TEST TO THE SURFACE OF SLAB.
   a. IF WATER BEADS, CURING AND SEALING COMPOUNDS ARE PRESENT AND MUST BE REMOVED FROM THE SLAB. COMPLETELY REMOVE THE REMNANTS OF THE DISSIPATING OR REMOVABLE CURING COMPOUND FROM THE FLOOR SURFACE. THE FOLLOWING FLOOR STRIPPER OR REMOVAL SOLUTION SHALL BE APPLIED TO THE FLOOR AT THE PROPER RATIO TO THOROUGHLY STRIP, CLEAN AND REMOVE ALL CURING COMPOUND RESIDUE: "EUCO CLEAN & STRIP" BY EUCLID CHEMICAL
   b. IF WATER SOAKS INTO THE SURFACE INDICATING CURING AND SEALING COMPOUNDS ARE NOT PRESENT, MOVE TO STEP 3.
2. GRINDING/POLISHING EQUIPMENT SHALL BE EQUIPPED WITH 200 GRIT RESIN BOND DIAMOND TOOLING TO VERIFY IF SURFACE WILL OPEN TO ACCEPT LIQUID DENSIFIER/SEALER. IF SLAB OPENS TO ACCEPT LIQUID DENSIFIER/SEALER, PROCEED WITH PROJECT. IF SLAB DOES NOT OPEN, DROP TO LOWER GRIT RESIN BOND DIAMOND TOOLING, AND REPEAT (100 GRIT, 80 GRIT, 50 GRIT). FOLLOW PROCESS AND DROP RESIN BOND DIAMOND TOOLING AS NEEDED UNTIL SLAB ACCEPTS DENSIFIER.
3. ALL GRIND, HONE AND POLISH STEPS SHALL INCLUDE A 2 PASS PROCESS OVERLAPPING PREVIOUS PASS BY A MINIMUM OF 6".

B. INITIAL GRIND AND HONE PROCESS:
1. START INITIAL GRIND WITH APPROPRIATE RESIN BOND DIAMOND TOOLING AS DETERMINED FROM MOCK-UP TEST SLAB.
2. OPERATE MACHINES AT 400 SQUARE FEET AN HOUR (WALK PACE), WITH HIGH TO MAXIMUM DRUM AND HEAD SPEED (TYPICALLY 300 RPM ON DRUM AND 1250 RPM ON PLANETARIES).
3. ONCE COMPLETED, CLEAN OPENED FLOOR THOROUGHLY, AND THEN APPLY EUCO DIAMOND HARD TO REJECTION. ALLOW THE SURFACE TO DRY.
4. RESIN BOND DIAMOND TOOLING SHALL BE INCREASED AT SAME OUTPUT RATES AND HEAD SPEEDS UP TO 400 GRIT HONING.

C. FINAL POLISHING PROCESS:
1. CLEAN FLOOR AND MACHINE OF ACCUMULATED LAITANCE.
2. MOUNT 800 GRIT RESIN BOND DIAMOND TOOLING AND RUN MACHINES AT 300 SQUARE FEET AN HOUR PACE WITH DRUM AND HEAD SPEEDS AT HIGH TO MAXIMUM.
3. APPLY EUCO DIAMOND HARD LIGHTLY AT 700 SQUARE FEET PER GALLON JUST PRIOR TO BURNISHING.
4. CLEAN FLOOR AND BURNISH WITH 1500 GRIT DIAMOND PAD AT 500 SQUARE FEET PER HOUR WITH A 27" BURNISHER AT 2500 RPM.

D. POLISH RESULTS: PERFORM POLISHING PROCESS TO REACH A SPECIFIED OVERALL GLOSS VALUE (SOGV) OF $\geq$35 AS MEASURED WITH A HORIBA IG-320, AND A SPECIFIED MINIMUM GLOSS READING (SMGV) OF $\geq$30. THE APPROVED APPLICATOR SHALL TAKE FOUR GLOSS MEASUREMENT READINGS AT 90° FROM EACH OTHER, AND THEN AVERAGED FOR ONE READING AT EACH LOCATION. A MINIMUM OF 25 READINGS SHALL BE TAKEN THROUGHOUT THE INTERIOR SALES FLOOR. THE OVERALL MEASUREMENT SHALL BE REPORTED TO GENERAL CONTRACTOR WITHIN 24 HOURS OF THE POLISHING PROCESS. GLOSS SHALL BE CONSIDERED A QUANTITATIVE VALUE THAT EXPRESSES THE DEGREE OF REFLECTION WHEN LIGHT HITS THE CONCRETE FLOOR SURFACE. GLOSS MEASUREMENTS WILL BE TAKEN INDEPENDENT OF AMBIENT LIGHTING AND WILL BE TAKEN WITHIN A SEALED MEASUREMENT WINDOW LOCATED BENEATH THE TEST UNIT.

DUSTING MINIMIZATION PROCESS TO BE PERFORMED ON ALL FLORIDA PROJECTS AND AS NEEDED AT OTHER LOCATIONS:

A. **DUSTING FLOOR:** DUSTING IS AN ASPECT OF WEAK CONCRETE AT THE SURFACE OF A FLOOR OR SLAB. DUSTING (THE DEVELOPMENT OF A FINE, POWDERY MATERIAL THAT EASILY RUBS OFF THE SURFACE OF HARDENED CONCRETE), IS THE RESULT OF A THIN, WEAK SURFACE LAYER, CALLED LAITANCE, WHICH IS COMPOSED OF WATER, CEMENT, AND FINE PARTICLES. THIS LAITANCE, THE WEAKEST, MOST PERMEABLE AND LEAST WEAR-RESISTANT MATERIAL IS AT THE TOP SURFACE, EXACTLY WHERE THE STRONGEST, MOST IMPERMEABLE, AND MOST WEAR-RESISTANT CONCRETE IS NEEDED. IF IT IS DETERMINED THAT THE PROJECT FLOOR IS DUSTING, USE THE FOLLOWING PROCEDURE TO HELP MINIMIZE A DUSTING SURFACE.

1. APPLICATION OF WATER-BASED MAGNESIUM SILICOFLUORIDE DUSTPROOFER AND DENSIFIER:

a. COAT DILUTION
1. 1ST COAT 1 PART SURFHARD TO 2 PARTS WATER
2. 2ND COAT 1 PART SURFHARD TO 1 PART WATER
3. 3RD COAT 2 PARTS SURFHARD TO 1 PART WATER

b. COVERAGE RATE	**UNDILUTED SURFHARD**	**DILUTED SURFHARD**
1. 1ST COAT:	900 FT^2/GAL (22.1 M^2L)	300 FT^2/GAL (7.4 M^2L
2. 2ND COAT:	400 FT^2/GAL (9.8 M^2L)	200 FT^2/GAL (4.9 M^2L)
3. 3RD COAT:	225 FT^2/GAL (5.5 M^2L)	150 FT^2/GAL (3.7 M^2/L)

c. **SURFACE PREPARATION:** THE SURFACE TO BE TREATED SHOULD BE CLEAN, FREE OF CURING COMPOUNDS, SEALERS, PAINT OR ANY OTHER CONTAMINANTS THAT COULD PROHIBIT PENETRATION OF SURFHARD. FOR BEST PERFORMANCE, CONCRETE SHOULD BE DRY BEFORE APPLYING SURFHARD. NEW CONCRETE SURFACES SHOULD BE AT LEAST 7 DAYS OLD PRIOR TO APPLICATION. EXTREMELY SOFT AND POROUS SURFACES SHOULD BE SATURATED WITH WATER PRIOR TO APPLICATION. WHEN THE SURFACE IS DRY, APPLY THE 1ST COAT OF SURFHARD AND PROCEED AS INDICATED UNDER PLACEMENT BELOW. THIS PRE-WETTING CONCENTRATES THE CHEMICAL AT THE TOP LEVEL OF THE CONCRETE. THE FINAL APPLICATION WILL HARDEN AT THE TOP SURFACE AND YIELD MAXIMUM WEARING AND RESISTANCE QUALITIES. IN SOME INSTANCES, OR IN SOME SELECTED AREAS, A SURFACE MAY REQUIRE AN ADDITIONAL APPLICATION OF UNDILUTED SURFHARD TO COMPLETE HARDENING AND DUSTPROOFING.

d. **MIXING:** SURFHARD IS EASILY DILUTED IN WATER WITH MILD AGITATION.

e. **PLACEMENT:** FLOOD EACH COAT OF SURFHARD ONTO THE SURFACE AND SPREAD WITH A SOFT FIBER BROOM, SQUEEGEE, OR MOP. ALLOW THE SOLUTION TO SOAK INTO THE CONCRETE FOR 10 TO 15 MINUTES AND REDISTRIBUTE ANY PUDDLES THAT REMAIN. TREATED SURFACES SHOULD BE THOROUGHLY DRY BETWEEN COATS. DRYING TIME MAY VARY FROM 4 TO 12 HOURS DEPENDING ON TEMPERATURE, HUMIDITY, AND WHETHER THE CONCRETE IS INDOORS OR OUTDOORS. AS VARIOUS COATS OF SURFHARD ARE APPLIED, EACH SUCCEEDING COAT WILL YIELD INCREASED COVERAGE BECAUSE THE CONCRETE SURFACE IS IN THE PROCESS OF HARDENING. AFTER THE THIRD COAT THE FLOOR SHOULD BE THOROUGHLY FLUSHED WITH WATER AND SCRUBBED WITH A STIFF BROOM TO REMOVE ANY RESIDUAL MATERIAL. IF THE FLOOR SHOULD SHOW PATCHES OF WHITE UPON DRYING, IMMEDIATELY FLOOD WITH WATER AND SCRUB THE FLOOR WITH A MECHANICAL SCRUBBER, RINSE AND DRY. DO NOT ATTEMPT FURTHER TREATMENT.

f. **NOTE:** ALL THREE COATS MAY NOT BE NECESSARY TO HARDEN THE FLOOR. IF THE FLOOR SHOULD SHOW PATCHES OF WHITE ON DRYING, IMMEDIATELY FLOOD WITH WATER AND SCRUB THE FLOOR WITH A MECHANICAL SCRUBBER, RINSE AND DRY. DO NOT ATTEMPT FURTHER TREATMENT.

2. APPLICATION OF PENETRATING EPOXY SEALER:

a. CONCRETE SURFACE	**FIRST COAT**	**SECOND COAT**
TROWELED SMOOTH	250 TO 300 (6.1 TO 7.4)	400 TO 600 (9.8 TO 14.7)

b. **MATERIAL REQUIREMENTS:** A TWO COAT APPLICATION USING A COVERAGE RATE OF 200 FT2/GAL (4.9 M2/L) WILL REQUIRE APPROXIMATELY 5 GAL (18.9 L) OF MATERIAL PER 1000 FT2 (92.9 M2) OF AREA. TWO COATS ARE RECOMMENDED FOR BEST RESULTS. THE CONCRETE SURFACE TEXTURE GREATLY AFFECTS COVERAGE RATES AND FINAL APPEARANCE. DO NOT APPLY AT LESS THAN 150 FT2/GAL (3.7 M2/L). APPLY A SECOND COAT IF A THICKER FILM IS DESIRED. ALLOW THE FIRST COAT TO DRY TACK FREE (BUT WAIT NO MORE THAN 24 HOURS) BEFORE THE SECOND COAT IS APPLIED.

c. **SURFACE PREPARATION:** NEW CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD AND POSSESS AN OPEN SURFACE TEXTURE WITH ALL CURING COMPOUNDS AND SEALERS REMOVED. THE CONCRETE MUST BE CLEAN AND SOUND. ALL OIL, DIRT, DEBRIS, PAINT AND UNSOUND CONCRETE MUST BE REMOVED. PRESSURE WASHING AND/OR POWER SCRUBBING IS RECOMMENDED. THE CONCRETE SURFACE CAN BE DAMP OR DRY AT THE TIME OF APPLICATION OF EUCO #512 VOX EPOXY SEALER. HOWEVER, BEST RESULTS ARE OBTAINED WHEN THE CONCRETE IS DAMP WITH ALL PUDDLES REMOVED.

d. **MIXING:** ALL MATERIALS SHOULD BE IN THE PROPER TEMPERATURE RANGE OF 60°F TO 90°F (16°C TO 32°C). PRE-MIX PART A AND ADD THE ENTIRE CONTAINER OF PART B TO ALL THE PART A. MIX FOR 2 TO 3 MINUTES USING A MECHANICAL (DRILL) MIXER. THE EPOXY MUST BE WELL MIXED TO ENSURE PROPER CHEMICAL REACTION. AFTER MIXING, PLACE IMMEDIATELY.

e. **PLACEMENT:** TO APPLY THE SEALER TO CONCRETE, USE A PUMP-UP OR AIRLESS SPRAYER FOR BEST RESULTS. A SHORT NAP ROLLER OR LAMB'S WOOL APPLICATOR MAY ALSO BE USED.

f. **CLEAN-UP:** CLEAN TOOLS AND EQUIPMENT WITH WARM, SOAPY WATER BEFORE THE MATERIAL DRIES.

NORTH CAROLINA PROFESSIONAL SEAL
ARCHITECT
BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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CONCRETE SPECIFICATIONS

DATE 05/17/24

JOB NO. 23475

A0.4

SHEET NO.

DO NOT SCALE THESE DRAWINGS

WALL LEGEND

SYMBOL	DESCRIPTION
(double line)	EXISTING WALL
(cross-hatched)	MASONRY WALL INFILL. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
(hatched)	NEW WALL. SEE WALL TYPES ON SHEET **A4.1** FOR ADDITIONAL INFORMATION.
(X in diamond)	WALL TYPE DESIGNATION. SEE SHEET **A4.1** FOR ADDITIONAL INFORMATION

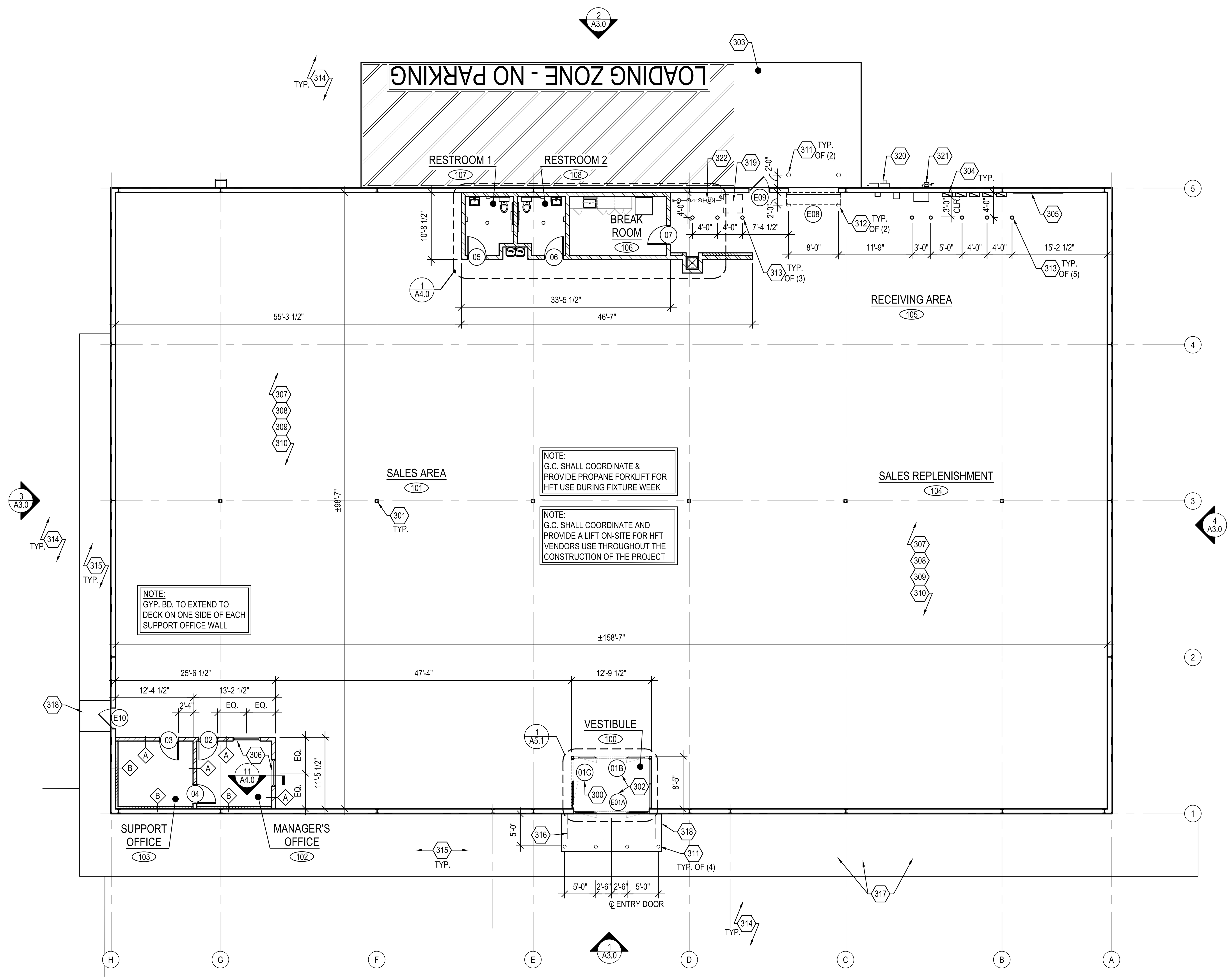
NOTE:
1. ALL WALLS BRACED TO STRUCTURE ABOVE @ 4'-0" O.C. MAX.
2. ALL WALLS TO BE PAINTED TO 6" ABOVE CEILING, TO UNDERSIDE OF DECK (IF CEILING IS OPEN TO STRUCTURE), AND BEHIND ALL WALL FIXTURES BY CONTRACTOR.

FLOOR PLAN NOTES

1. REFER TO GENERAL NOTES ON SHEET **A0.2** FOR ADDITIONAL INFORMATION
2. HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
3. HFT GENERAL CONTRACTOR IS TO PROVIDE FULL TIME SUPERVISION OF PROJECT. NOTIFY HFT PROJECT MANAGER OF TYPICAL WORK HOURS.
4. HFT GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND TIMING OF ALL HFT VENDOR INSTALLATIONS. COORDINATE WITH HFT PROJECT MANAGER FOR LIST AND MILESTONE TIMING.
5. HFT GENERAL CONTRACTOR IS RESPONSIBLE FOR UNLOADING AND HANDLING ALL OWNER SUPPLIED MATERIAL AND DISPOSAL OF ALL PACKING MATERIALS AT THE JOB SITE.
6. HFT GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR QUALITY AND FIT OF ALL MATERIALS, INCLUDING, BUT NOT LIMITED TO, ALL REFURBISHED MATERIALS. ALL REFURBISHED MATERIALS TO APPEAR NEW.
7. HFT GENERAL CONTRACTOR TO COORDINATE WITH HFT'S FIXTURE MANUFACTURE TO ENSURE FINISHES TO MATCH.
8. IF THE CONTRACTOR CONSIDERS ANY SURFACE UNSUITABLE FOR A PROPER FINISH, HE SHALL NOTIFY HFT AND ARCHITECT OF THE CONDITION AND NOT COMMENCE WORK UNTIL DIRECTED BY HFT OR ARCHITECT.
9. HFT GENERAL CONTRACTOR TO NOTIFY OWNER OF ANY DAMAGES / SHORTAGES WITHIN 48 HOURS OF RECEIPT OR BEAR RESPONSIBILITY FOR REPLACEMENT OF SUCH.
10. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE PUBLISHED INSTALLATION SPECIFICATIONS AND PROCEDURES OF THE MANUFACTURER OF THE MATERIAL USED.
11. PROTECT OTHER WORK AND MERCHANDISE AS REQUIRED TO PREVENT ANY DAMAGE.
12. PROVIDE A CLEAN SMOOTH CONCRETE SURFACE FOR PROPER INSTALLATION OF ALL FLOOR FINISHES.
13. APPLICATIONS OF PAINT SHALL BE ONE COAT PRIMER AND TWO COATS PAINT (U.N.O.). PRIMER SHALL BE SPECIFIED OR RECOMMENDED BY PAINT MANUFACTURER.
14. ALL ADHESIVES TO BE SUPPLIED BY HFT GENERAL CONTRACTOR. THE TYPE TO BE USED AS RECOMMENDED BY WALL COVERING MANUFACTURER SELECTED FOR THE TYPE OF INSTALLATION.
15. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO INSPECT ALL WALL COVERING FOR QUALITY AND DEFECTS PRIOR TO INSTALLATION.
16. ALL SURFACES TO RECEIVE FABRIC OR WALL COVERING AS SELECTED SHALL BE PROPERLY PREPARED AND SIZED AS RECOMMENDED BY WALL COVERING MANUFACTURER SELECTED FOR THE TYPE OF INSTALLATION. CONTRACTOR SHALL NOTIFY HFT OF ANY SURFACE NOT SUITABLE FOR PROPER APPLICATION OF WALL COVERING. DO NOT APPLY ANY MATERIAL UNTIL SITUATION IS RESOLVED.
17. HFT GENERAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF BLOCKING FOR ALL WALL AND CEILING SUPPORTED ITEMS IN STORE. REVIEW ITEMS THOROUGHLY. COORDINATE WITH VENDOR AS NECESSARY.
18. HFT GENERAL CONTRACTOR TO ENSURE TIGHT, SECURE, AND PROPER FASTENING OF ALL STANDARDS TO METAL STUDS.
19. ALL DIMENSIONS ARE FROM FACE OF GYP. BD. U.N.O.
20. ALL INTERIOR DOORS ARE 6" OFF WALL U.N.O.
21. ALL EXPOSED WALLS TO UNDERSIDE OF STRUCTURE SHALL BE BUILT TIGHTLY AROUND STRUCTURE, PIPING, ETC.

300 SERIES FLOOR PLAN KEY NOTES

300. AUTOMATIC SINGLE SLIDING DOOR PACKAGE. SEE SHEETS **A5.0** AND **A5.1** FOR ADDITIONAL INFORMATION.
301. EXISTING STEEL COLUMNS. PREP AND PAINT (P-8). SEE SHEET **A1.3** FOR FINISHES.
302. AUTOMATIC BI-PARTING DOOR PACKAGE. SEE SHEETS **A5.0** AND **A5.1** FOR ADDITIONAL INFORMATION.
303. EXISTING CONCRETE PAD BY LANDLORD UNDER A SEPARATE PERMIT.
304. LOCATION OF ELECTRICAL PANELS AND EQUIPMENT. MAINTAIN A 3'-0" CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
305. 4'-0" X 8'-0" FIRE RATED PLYWOOD TO HOUSE ALL ELECTRICAL AND OWNER'S EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
306. 4'-0" WIDE X 3'-0" HIGH ONE WAY GLASS W/ 2" H.M. FRAME CENTERED IN WALL FACING CASH WRAP AREA, BTM. OF WINDOW TO BE @ 40" A.F.F. SEE **A5.0** FOR ADDITIONAL INFORMATION.
307. SEE FIXTURE PLAN ON **A1.2** FOR FIXTURE LAYOUT & ADDITIONAL NOTES.
308. SEE FINISH PLAN ON **A1.3** FOR ALL FLOOR, WALL, AND CEILING FINISHES.
309. EXISTING CONCRETE SLAB. PATCH AND REPAIR TO ENSURE A SMOOTH AND LEVEL SLAB. PREP. SLAB TO RECEIVE NEW FINISHES. SEE SHEET **A0.3 & A0.4** FOR ADDITIONAL INFORMATION.
310. NOTIFY HFT PROJECT MANAGER **AT START OF CONSTRUCTION** IF A LEVEL FLOOR CANNOT BE OBTAINED.
311. 6 "Ø STEEL PIPE BOLLARD BY LANDLORD UNDER A SEPARATE PERMIT.
312. 8"Ø STEEL PIPE BOLLARD. BY LANDLORD UNDER A SEPARATE PERMIT.
313. 6"Ø BOLT DOWN BOLLARD PROVIDED BY HFT. SEE SHEET **A1.12** FOR ADDITIONAL INFORMATION.
314. EXISTING CONCRETE PAVEMENT BY LANDLORD UNDER A SEPARATE PERMIT.
315. EXISTING CONCRETE SIDEWALK BY LANDLORD UNDER A SEPARATE PERMIT.
316. LINE OF EXISTING CANOPY ABOVE. SEE SHEET **A3.0** FOR ADDITIONAL INFORMATION.
317. CONCRETE ACCESSIBLE ENTRY RAMP BY LANDLORD UNDER A SEPARATE PERMIT.
318. FROST SLAB @ CENTER LINE OF DOOR BY LANDLORD UNDER A SEPARATE PERMIT.
319. LOCATION OF EXISTING SPRINKLER MAIN BY LANDLORD UNDER A SEPARATE PERMIT. SEE FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION.
320. EXISTING ELECTRIC METER AND DISCONNECT BY LANDLORD UNDER A SEPARATE PERMIT. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
321. EXISTING GAS METER BY LANDLORD UNDER A SEPARATE PERMIT. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
322. APPROXIMATE LOCATION OF WATER METER AND BACK FLOW PREVENTER. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.



FLOOR PLAN
SCALE 3/32" = 1'-0"

DO NOT SCALE THESE DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL ARCHITECT BRIAN E QUINN

05/17/24

ADA ARCHITECTS

17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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FLOOR PLAN

DATE 05/17/24

JOB NO. 23475

SHEET NO. A1.1

OCCUPANCY CALCULATIONS

USE and OCCUPANCY CLASSIFICATION:

USE: M - MERCANTILE
CLASS: IIB - FULLY SPRINKLERED

APPLICABLE CODES:

BUILDING CODE:	2018 NORTH CAROLINA STATE BUILDING CODE
ENERGY CODE:	2018 NORTH CAROLINA STATE ENERGY CODE
MECHANICAL CODE:	2018 NORTH CAROLINA STATE MECHANICAL CODE
ELECTRICAL CODE:	2020 ELECTRICAL CODE
PLUMBING CODE:	2018 NORTH CAROLINA STATE PLUMBING CODE
FIRE CODE:	2018 NORTH CAROLINA STATE FIRE CODE
ACCESSIBILITY:	2018 NORTH CAROLINA STATE ADA STANDARDS WITHIN NORTH CAROLINA STATE BUILDING CODE / 2009 ANSI A117.1

OCCUPANT LOAD:

ACTUAL INTERIOR AREA BUILDING: 16,000 SQ. FT.

FUNCTION OF SPACE	FLR. AREA/ OCC.	CALCULATION	ALLOWABLE
M - SALES	60 GROSS	9,381 SQ. FT.	164 OCCUPANTS
B - CORE AREA	100 GROSS	660 SQ. FT.	7 OCCUPANTS
S-1 - STOCK	300 GROSS	5,959 SQ. FT.	20 OCCUPANTS
			191 OCCUPANTS

ANTICIPATED OCCUPANT LOAD FOR HARBOR FREIGHT TOOLS: 150 MAX FROM HISTORICAL DATA

EGRESS REQUIREMENTS:

REQUIRED EGRESS WIDTH:	191 OCC. x 0.20 = 38.2" (44" MIN)
PROVIDED EGRESS WIDTH:	(1) BREAK-AWAY SINGLE SLIDING DOOR @ 45", (2) H.M. DOOR @ 34" = 113"
REQUIRED EXIT ACCESS TRAVEL DISTANCE:	250'
PROVIDED EXIT ACCESS TRAVEL DISTANCE:	LESS THAN 250'
MIN. NUMBER OF EXITS REQUIRED / PROVIDED:	2 EXITS REQUIRED / 3 EXITS PROVIDED

AREA OCCUPANT LOAD ALLOWANCES AND EGRESS DOOR OCCUPANT LOAD CALCULATIONS

SALES AREA OCCUPANCY:

SALES AREA.......... 9,381 / 60 = 164 OCCUPANTS
RESTROOMS (ACCESSORY).......... (2) SINGLE OCCUPANCY = 2 OCCUPANTS
OFFICE (ACCESSORY).......... 308 S.F. / 100 = 3 OCCUPANTS

TOTAL =.......... **169** OCCUPANTS
169 OCCUPANTS / 2 EXITS = **85** OCCUPANTS

SALES REPLENISHMENT AREA OCCUPANCY:

STOCK AREA.......... 5,959 / 300 = 20 OCCUPANTS
BREAK ROOM (ACCESSORY).......... 176 S.F. / 100 = 2 OCCUPANTS

TOTAL =.......... **22** OCCUPANTS
22 OCCUPANTS / 1 EXIT = **22** OCCUPANTS

EXIT SEPARATION

OVERALL DIAGONAL DIMENSION OF SALES AREA: 141'-3"

SEPARATION DISTANCE REQUIRED OF EXITS:
1/3 OF MAXIMUM OVERALL BUILDING DIMENSION
(SPACE IS FULLY EQUIPPED WITH AUTOMATIC SPRINKLERS)

CALCULATED MINIMUM SEPARATION DISTANCE: 47'-1"

MINIMUM SEPARATION DISTANCE OF EXITS PROVIDED: 78'-8" (COMPLIES)

LEGEND

	EGRESS PATHWAY
	EXIT SIGN, SEE LIGHTING PLAN
	EMERGENCY LIGHT LOCATIONS, SEE LIGHTING PLAN
	EMERGENCY EXTERIOR LIGHT LOCATIONS, SEE LIGHTING PLAN
• F.E.	FIRE EXTINGUISHER, ABC, CLASS 2A: 20BC (MIN.) WALL MOUNTED FIRE EXTINGUISHER PER CODE. FIRE EXTINGUISHERS LOCATED TO PROVIDE MAXIMUM FLOOR AREA PER UNIT OF 3,000 S.F. AND A MAXIMUM TRAVEL DISTANCE OF 50' AS SHOWN. CONTRACTOR TO VERIFY FINAL LOCATIONS WITH FIRE MARSHAL.

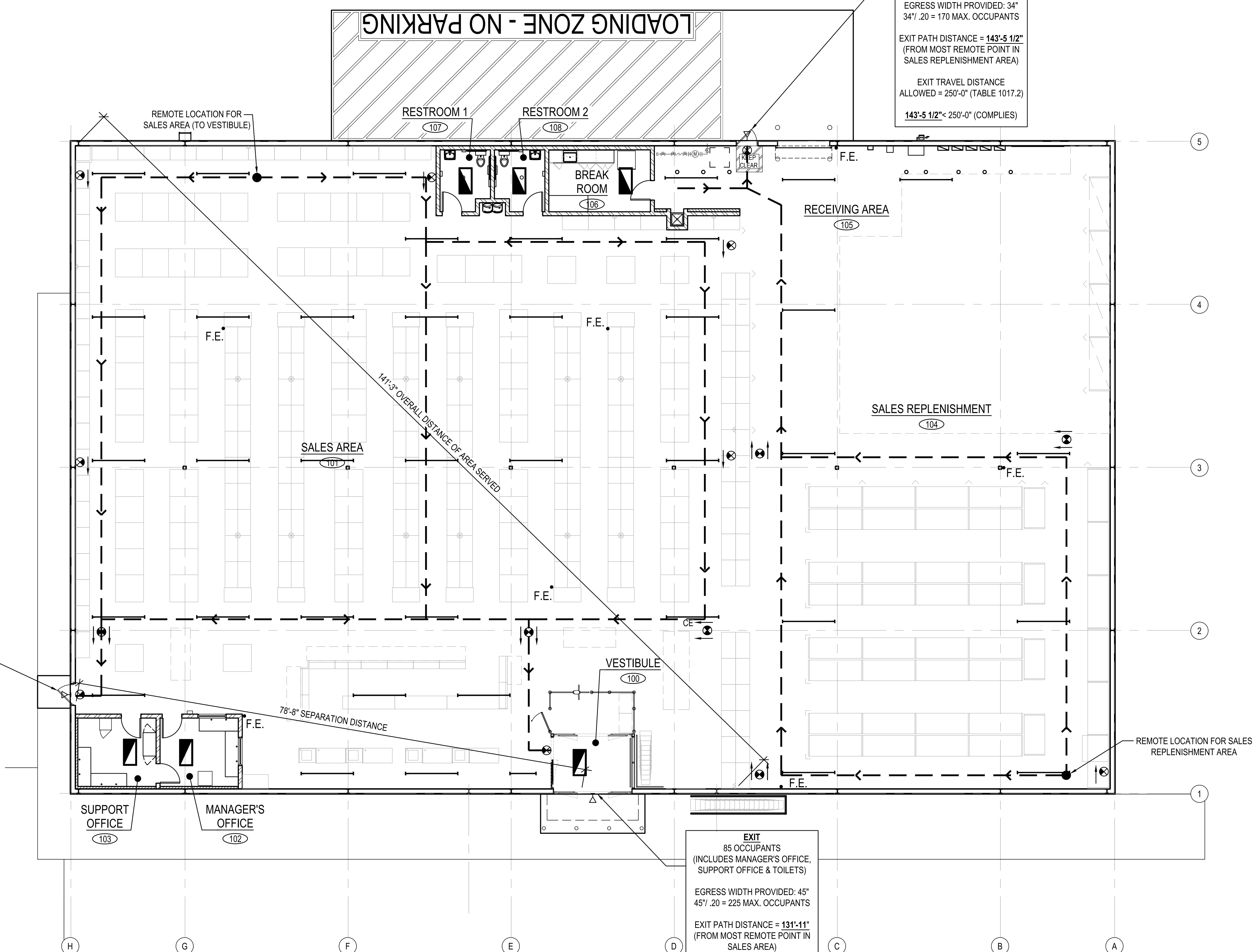
EXIT
22 OCCUPANTS
(INCLUDES BREAK ROOM)

EGRESS WIDTH PROVIDED: 34"
34"/ .20 = 170 MAX. OCCUPANTS

EXIT PATH DISTANCE = **143'-5 1/2"**
(FROM MOST REMOTE POINT IN SALES REPLENISHMENT AREA)

EXIT TRAVEL DISTANCE
ALLOWED = 250'-0" (TABLE 1017.2)

143'-5 1/2"< 250'-0" (COMPLIES)



EXIT
85 OCCUPANTS
(INCLUDES MANAGER'S OFFICE, SUPPORT OFFICE & TOILETS)

EGRESS WIDTH PROVIDED: 34"
34"/ .20 = 170 MAX. OCCUPANTS

EXIT PATH DISTANCE = **108'-4 1/2"**
(FROM MOST REMOTE POINT IN SALES AREA)

EXIT TRAVEL DISTANCE
ALLOWED = 250'-0" (TABLE 1017.2)

108'-4 1/2"< 250'-0" (COMPLIES)

EXIT
85 OCCUPANTS
(INCLUDES MANAGER'S OFFICE, SUPPORT OFFICE & TOILETS)

EGRESS WIDTH PROVIDED: 45"
45"/ .20 = 225 MAX. OCCUPANTS

EXIT PATH DISTANCE = **131'-11"**
(FROM MOST REMOTE POINT IN SALES AREA)

EXIT TRAVEL DISTANCE
ALLOWED = 250'-0" (TABLE 1017.2)

131'-11" < 250'-0" (COMPLIES)

LIFE SAFETY PLAN
SCALE 3/32" = 1'-0"

DO NOT SCALE THESE DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

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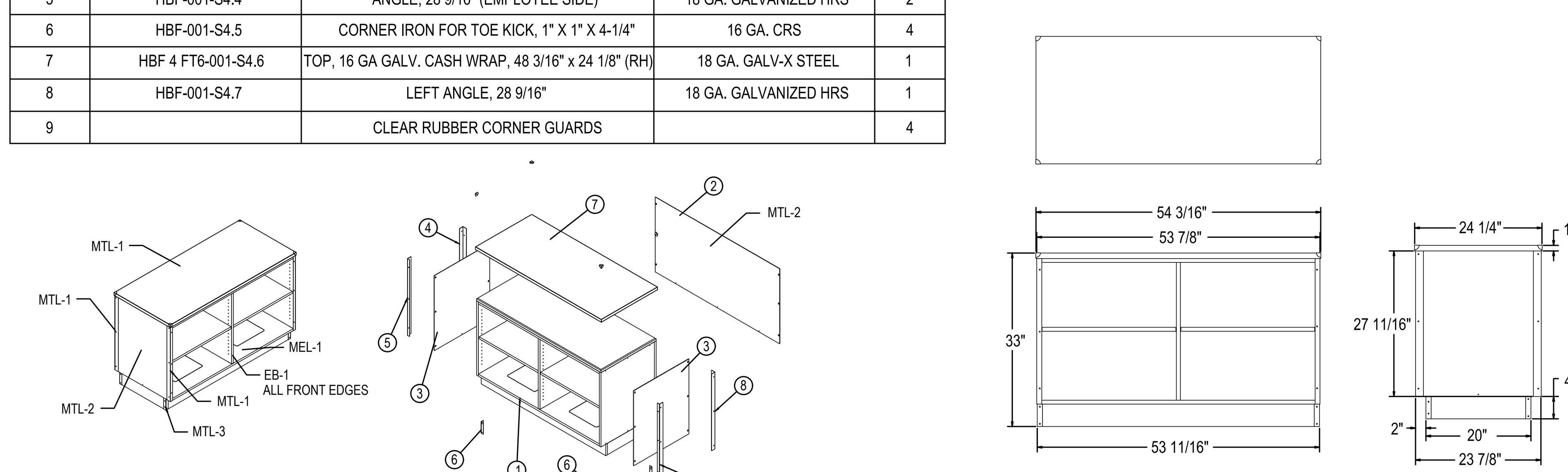
LIFE SAFETY PLAN

DATE 05/17/24
JOB NO. 23475

A1.1A
SHEET NO.

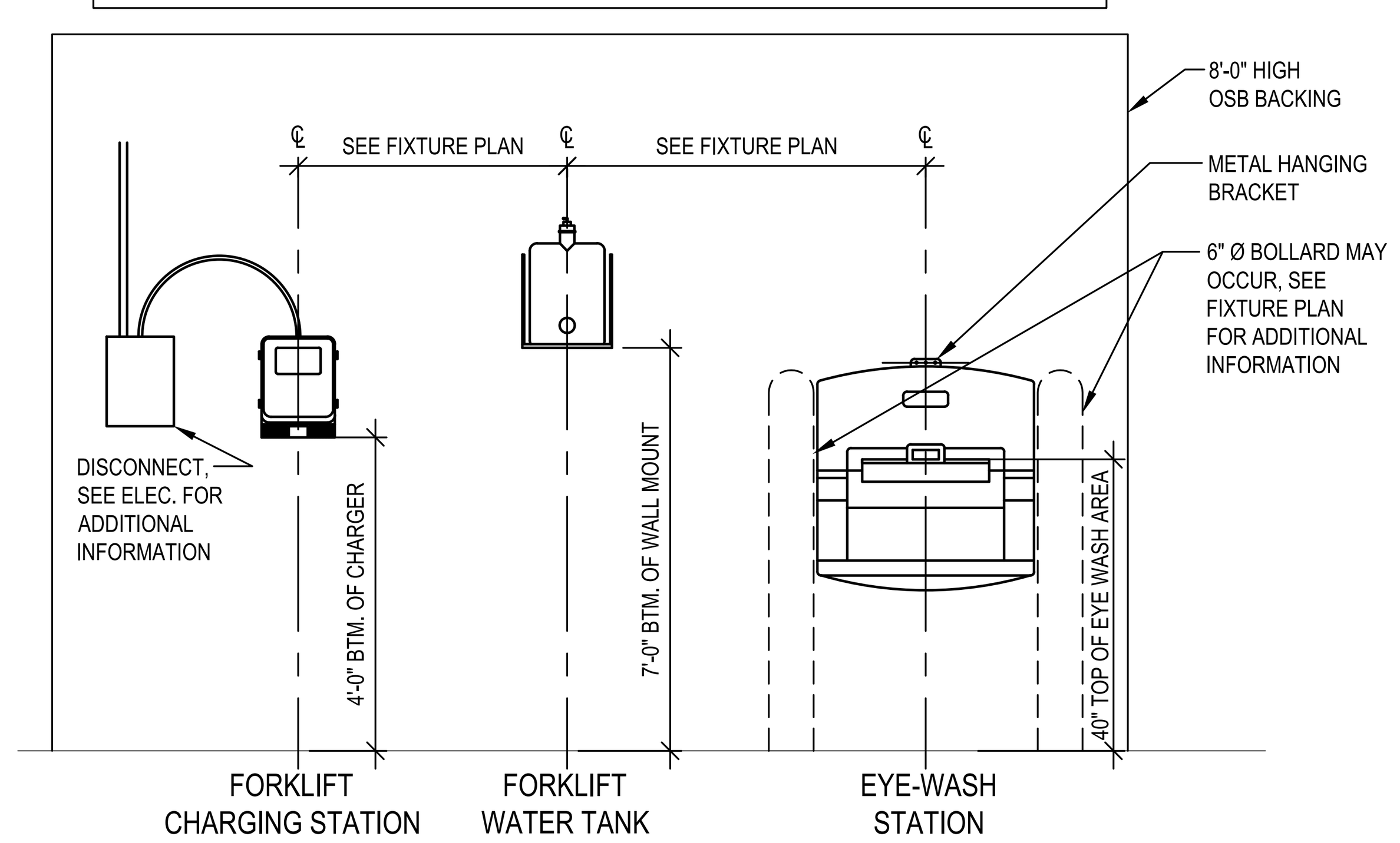
ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY.
1	HBF 4 FT6-001-S1	CASH WRAP 4 FEET 6 INCH RIGHIT HAND	3/4"THK.MDF	1
2	HBF 4 FT6-001-S4.1	DIAMOND PLATE, 47 9/16" x 27 15/16" (FRONT PANEL)	0.0625" ALUMINUM DIAMOND PLATE (TREADBRITE)	1
3	HBF-001-S4.2	DIAMOND PLATE, 23 13/16" X 27 15/16" (TALL END PANEL)	0.0625" ALUMINUM DIAMOND PLATE (TREADBRITE)	2
4	HBF-001-S4.3	RIGHT ANGLE, 28 9/16"	18 GA. GALVANIZED HRS	1
5	HBF-001-S4.4	ANGLE, 28 9/16" (EMPLOYEE SIDE)	18 GA. GALVANIZED HRS	2
6	HBF-001-S4.5	CORNER IRON FOR TOE KICK, 1" X 1" X 4-1/4"	16 GA. CRS	4
7	HBF 4 FT6-001-S4.6	TOP, 16 GA GALV. CASH WRAP, 48 3/16" x 24 1/8" (RH)	18 GA. GALV-X STEEL	1
8	HBF-001-S4.7	LEFT ANGLE, 28 9/16"	18 GA. GALVANIZED HRS	1
9		CLEAR RUBBER CORNER GUARDS		4



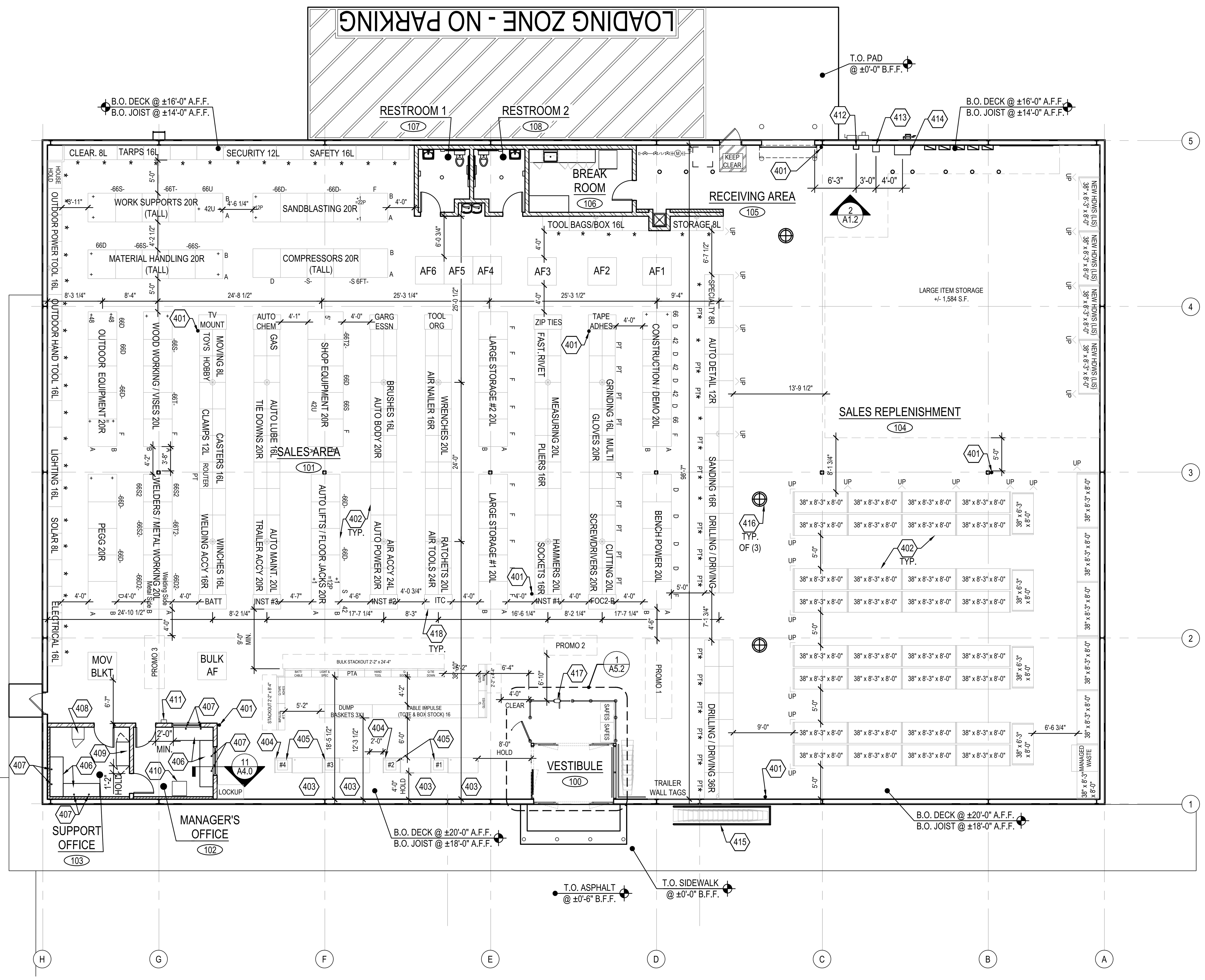
MATERIAL NOTES:
3/4"THK.MDF
0.0625" ALUMINUM DIAMOND PLATE (TREADBRITE)
18 GA. GALVANIZED HRS
18 GA. GALV-X STEEL

1 / A1.2 ACCESSIBLE TRANSACTION COUNTER
SCALE: 1/2" = 1'-0"

NOTES:
HFT TO PROVIDE AND GENERAL CONTRACTOR TO INSTALL CHARGER, WATER TANK AND EYEWASH STATION. CHARGER TO BE HARDWIRED. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



2 / A1.2 FORKLIFT CHARGER AND EYEWASH STATION ELEV.
SCALE: 1/2" = 1'-0"



FIXTURE PLAN
SCALE 3/32" = 1'-0"

GENERAL NOTES

1. REFER TO GENERAL NOTES ON SHEET **A0.2** FOR ADDITIONAL INFORMATION
2. HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
3. HFT GENERAL CONTRACTOR TO PROVIDE NON-COMBUSTIBLE CEILING AND WALL BLOCKING AS NECESSARY.
4. HFT GENERAL CONTRACTOR TO INSTALL POWER POLES FOR CASH WRAPS. LOCATIONS INDICATED ON PLAN. PRIOR TO INSTALLATION COORDINATE WITH FIXTURE FABRICATOR.
5. HFT GENERAL CONTRACTOR TO FIELD SURVEY AND COORDINATE ACCESS OF ALL MILLWORK WITH HARBOR FREIGHT TOOLS OPERATIONS / STORE DESIGN.
6. HFT GENERAL CONTRACTOR AND FIXTURE FABRICATOR TO COORDINATE WITH APPROVED FIXTURE DRAWINGS.
7. HFT GENERAL CONTRACTOR TO COORDINATE WITH THE HARBOR FREIGHT TOOLS CONSTRUCTION MANAGER FOR NEW FIXTURE DROP LOCATIONS, TYPES, AND QUANTITIES.
8. ONLY GRAPHIC REPRESENTATIONS OF FIXTURES ARE SHOWN. ALL DIMENSIONS ARE APPROXIMATE. COORDINATE WITH FIXTURE DESIGNER AND FOLLOW ALL GOVERNING CODES FOR FINAL LOCATIONS AND PLACEMENT.
9. FIXTURE INSTALLER TO ADJUST FIXTURE LAYOUT AS REQUIRED TO PROVIDE 44" CLEAR PAST ANY COLUMN U.N.O.

400 SERIES FIXTURE PLAN KEY NOTES

401. ABC, CLASS 2A: 20BC (MIN.) WALL MOUNTED FIRE EXTINGUISHER PER CODE. FIRE EXTINGUISHERS LOCATED TO PROVIDE MAXIMUM FLOOR AREA PER UNIT OF 3,000 S.F. AND A MAXIMUM TRAVEL DISTANCE OF 50' AS SHOWN. CONTRACTOR TO VERIFY FINAL LOCATIONS WITH FIRE MARSHAL.
402. FRONT/BACK OF HOUSE FIXTURES ANCHORED TO SLAB PER MANF. INSTRUCTIONS. VERIFY ADDITIONAL REQUIREMENTS WITH THE HARBOR FREIGHT TOOLS CONSTRUCTION MANAGER. SEE **A1.4**, **1.5**, **1.6**, **1.7**, **1.8**, **1.9** AND **1.10** FOR ADDITIONAL INFORMATION. SHELVING AT SALES REPLENISHMENT RACKING TO BE OPEN WIRE SHELVES.
403. CASH WRAP. HFT GENERAL CONTRACTOR TO VERIFY EXACT LOCATIONS WITH THE HARBOR FREIGHT TOOLS CONSTRUCTION MANAGER. REFER TO THE ELECTRICAL DRAWINGS FOR ELECTRICAL REQUIREMENTS. INSTALL ALL CASH WRAPS WITH A MAXIMUM COUNTER HEIGHT OF 34" A.F.F. FOR A MINIMUM COUNTER LENGTH OF 36" PER ACCESSIBILITY CODES. SEE DETAIL **1/A1.2** FOR ADDITIONAL INFORMATION.
404. APPROXIMATE POWER POLE LOCATION. APPROXIMATE DECK AT POWER POLE IS **19'-9"** IN HEIGHT. HFT GENERAL CONTRACTOR TO CONFIRM CASH WRAP IS IN PROPER LOCATION PRIOR TO POWER POLE INSTALLATION AND FINAL HOOK UP. E.C. TO PROVIDE AND INSTALL UNI-STRUT ATTACHED TO STRUCTURE FOR SECURING POWER POLE IN PLACE. PAINT UNI-STRUT TO MATCH EXPOSED STRUCTURE.
405. CASH REGISTER
406. (1) 6'-0" AND (1) 7'-0" FACTORY GRAY COUNTER TOP FOR THE MANAGERS OFFICE DESK AND (2) 6'-0" FACTORY GRAY COUNTER TOP FOR THE SUPPORT OFFICE DESK. SEE DETAIL **11/A4.0** FOR ADDITIONAL INFORMATION.
407. GRAY GROMMET IN COUNTER BY HFT GENERAL CONTRACTOR. VERIFY EXACT LOCATION W/ HFT.
408. APPROXIMATE LOCATION OF SAFE BY HFT.
409. APPROXIMATE LOCATION OF IT CABINET BY HFT.
410. PRINTER.
411. "KRONOS SERIES 4000" TIME CLOCK. MOUNT CENTERED BETWEEN MANAGER OFFICE DOOR & WINDOW @ **44" A.F.F**.
412. LOCATION OF HFT FORKLIFT BATTERY CHARGER. SEE ELECTRICAL DRAWINGS & DETAIL **2/A1.2** FOR ADDITIONAL INFORMATION.
413. LOCATION OF HFT FORKLIFT WATER TANK. SEE DETAIL **2/A1.2**.
414. LOCATION OF HFT EYE-WASH STATION. SEE DETAIL **2/A1.2**.
415. APPROXIMATE LOCATION OF CART CORRAL.
416. 26" ULINE FULL DOME AND HALF DOME SAFETY MIRROR TO BE MOUNTED FOR VISIBILITY AROUND FIXTURES. SEE SHEET **A2.0** FOR ADDITIONAL INFORMATION.
417. SECURITY TURNSTILE AND RAILING. G.C. TO COORDINATE TURNSTILE AND RAILING INSTALLATION WITH HFT OPERATIONS. SEE SHEET **A5.2** FOR ADDITIONAL INFORMATION.
418. ENDCAPS TO BE 50.25" WIDE (TYP.) ALL GONDOLAS TO BE ANCHORED TO SLAB

CLEARANCE HEIGHTS CHART

AREA	CLEARANCE	HIGH POINT	LOW POINT
SALES	BOTTOM OF DECK	±20'-0" A.F.F.	±16'-0" A.F.F.
	BOTTOM OF STRUCTURE	±18'-0" A.F.F.	±14'-0" A.F.F.
	SPRINKLER LINES	L.P. OF STRUCTURE	
SALES REPLENISHMENT	BOTTOM OF DECK	±20'-0" A.F.F.	±16'-0" A.F.F.
	BOTTOM OF STRUCTURE	±18'-0" A.F.F.	±14'-0" A.F.F.
	SPRINKLER LINES	L.P. OF STRUCTURE	
RECEIVING AREA	CLEARANCE @ O.H. DOOR	±14'-0" A.F.F.	

SQUARE FOOTAGE BREAKDOWN

SALES AREA SQUARE FOOTAGE	9,381 S.F.
SALES REPLENISHMENT SQUARE FOOTAGE	5,959 S.F.
OFFICE AREA SQUARE FOOTAGE	660 S.F.
TOTAL OVERALL LEASE SQUARE FOOTAGE	16,000 S.F.

FIXTURE PLAN KEY

SYMBOL	DESCRIPTION	HEIGHT
AW	ADVERTISING 4 WAY	4'-0" A.F.F.
AF	ADVERTISING FLAT	0'-0" A.F.F.
G	GONDOLA	7'-0" A.F.F. (Consider all unmarked fixtures to be Gondola's)
D	DOUBLE TABLE	1'-9" A.F.F. - 3'-6" A.F.F.
S	SINGLE TABLE	3'-6" A.F.F.
F	FLAT DISPLAY MAT	0'-0" A.F.F.
XP	EXTENDED PEG PANEL	7'-0" A.F.F.
PT	POWER TOOL DISPLAY	7'-0" A.F.F.
AT	AIR TOOL DISPLAY	7'-0" A.F.F.
MPR	MOTOR/ PUMP RACK	7'-0" A.F.F.
B	BOX STOCK ON DISPLAY FLAT	-----
UP	UPRIGHT PROTECTOR	-----

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NORTH CAROLINA PROFESSIONAL ARCHITECT SEAL BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

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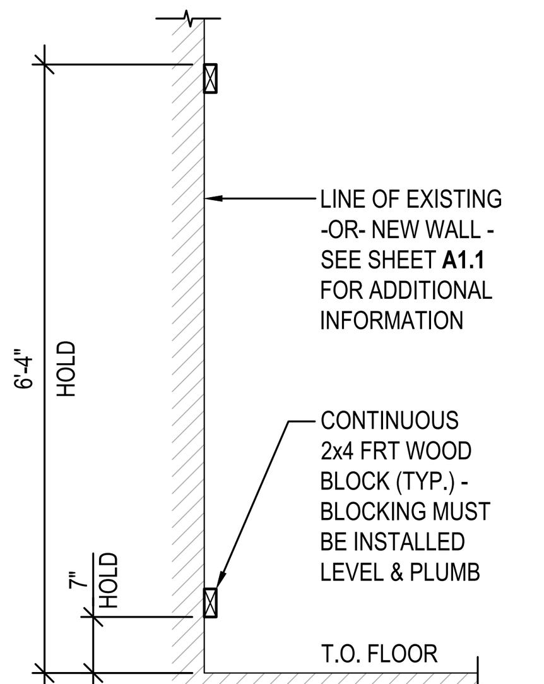
FIXTURE PLAN

DATE 05/17/24
JOB NO. 23475

A1.2
SHEET NO.



NOTES:
DO **NOT** ANCHOR 2x4 WOOD BLOCKING WITHIN **1'-0"** FROM ENDS OF THE 2x4s

BLOCKING SHALL BE ATTACHED TO FIXTURE WALL USING A MINIMUM OF 6 SCREWS -OR- ANCHORS EVERY 10'-0"

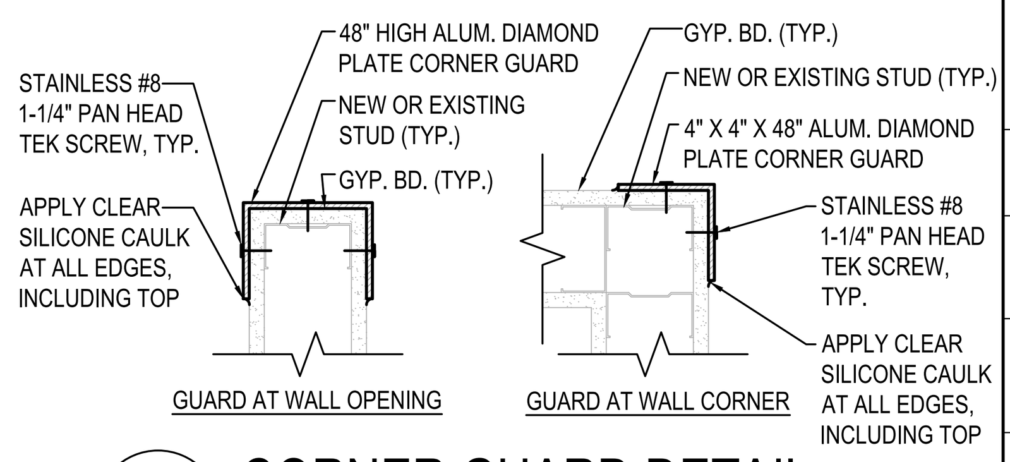
4" LAG SCREWS SHALL BE USED WHEN ATTACHING BLOCKING TO STUD WALL

AFTER INSTALLATION OF FIXTURES, SAWCUT EXCESS 2X4 BLOCKING AND PAINT NEWLY EXPOSED END **P-1.**

1/A1.3 FIXTURE WALL BLOCKING DETAIL
SCALE: 1/2" = 1'-0"

CORNER GUARD TO BE FULLY ADHERED TO WALL PER MANUFACTURER'S STANDARDS.

FASTEN CORNER GUARD TO WALL IN THE CENTER OF EACH FACE @ 0'-6" A.F.F, 1'-6" A.F.F., 2'-6" A.F.F & 3'-6" A.F.F.



2/A1.3 CORNER GUARD DETAIL
SCALE: 1-1/2" = 1'-0"

TAG SCHEDULE

TAG	DESCRIPTION
WG	DENOTES 700 WALL GUARD, AS MANUFACTURED BY INPRO, "SHIPROCK, 0280." CENTERLINE OF RAIL MOUNTED @ **32"** A.F.F. PER MANF. RECOMMENDATIONS. **MIN. RUN 1'-6".** HOLD WALL GUARD 2" FROM DOOR FRAMES AND CORNER GUARDS SEE DETAIL **3/A1.3** FOR ADDITIONAL INFORMATION. TERMINATE GUARDS WITH 701 END CAPS.
BR	MCCUE ZINC PLATED STEEL BOXRAIL HEAVY DUTY FLOOR BUMPER INSTALLED PER MANF. RECOMMENDATIONS.
FB	LINE INDICATES FRT WOOD BLOCKING FOR WALL FIXTURES. SHADED AREA INDICATES LOCATION OF WALL FIXTURES. SEE DETAIL **1/A1.3** FOR ADDITIONAL INFORMATION.
OW	SHADED LINE DESIGNATES AREAS TO RECEIVE 1/2" OSB WAINSCOT TO 8'-0" A.F.F. OSB TO BE ORIENTED VERTICALLY. SEE PLAN FOR ADDITIONAL INFORMATION.
C_	CORNER GUARD. SEE DETAIL **2/A1.3** FOR ADDITIONAL INFORMATION. TYPES: A, B, C, D, E CA- GUARD AT CORNER CB- 5" AT OPENING CC- 5-1/2" AT OPENING CD- 7-3/8" AT OPENING CE- 7-7/8" AT OPENING
VB	EXTEND BASE "**VB-1**" WITHIN SALES REPLENISHMENT AREA, DIMENSIONED LOCATION ONLY
TB	INSTALL 1x3 WOOD BLOCKING AT 6'-6", 5'-0" AND 3'-6" A.F.F. TO TOP OF BOARD, DIMENSIONED LOCATION ONLY. PAINT TO MATCH **P-1**.
SP	DENOTES AREA OF FLOOR PAINTING AT STOCK EGRESS DOOR. SEE DETAIL **4/A1.3** FOR ADDITIONAL INFORMATION.

DIMENSIONS SHOWN FOR ESTIMATION OF MATERIALS PURPOSES ONLY (TYP.)

ROOM SCHEDULE

NO.	ROOM NAME	WALL	BASE	FLOOR	CEILING
100	VESTIBULE	P-1	N/A	C-1	ACT-2
101	SALES AREA	P-1A	VB-1	CON-1	OPEN TO STRUCTURE (PAINT P-5) TO 12" BELOW LOW POINT OF STRUCTURE
102	MANAGER OFFICE	P-1A	VB-1	LVT-1	ACT-1
103	SUPPORT OFFICE	P-1A	VB-1	LVT-1	ACT-1
104	SALES REPLENISHMENT	P-1A	AS NOTED	CON-1	OPEN TO STRUCTURE (PAINT P-5) TO 12" BELOW LOW POINT OF STRUCTURE
105	RECEIVING AREA	P-1A	AS NOTED	CON-1	OPEN TO STRUCTURE (PAINT P-5) TO 12" BELOW LOW POINT OF STRUCTURE
106	BREAK ROOM	P-1A	VB-1	LVT-1	ACT-1
107	RESTROOM 1	WC-1	VB-1	LVT-1	ACT-2
108	RESTROOM 2	WC-1	VB-1	LVT-1	ACT-2

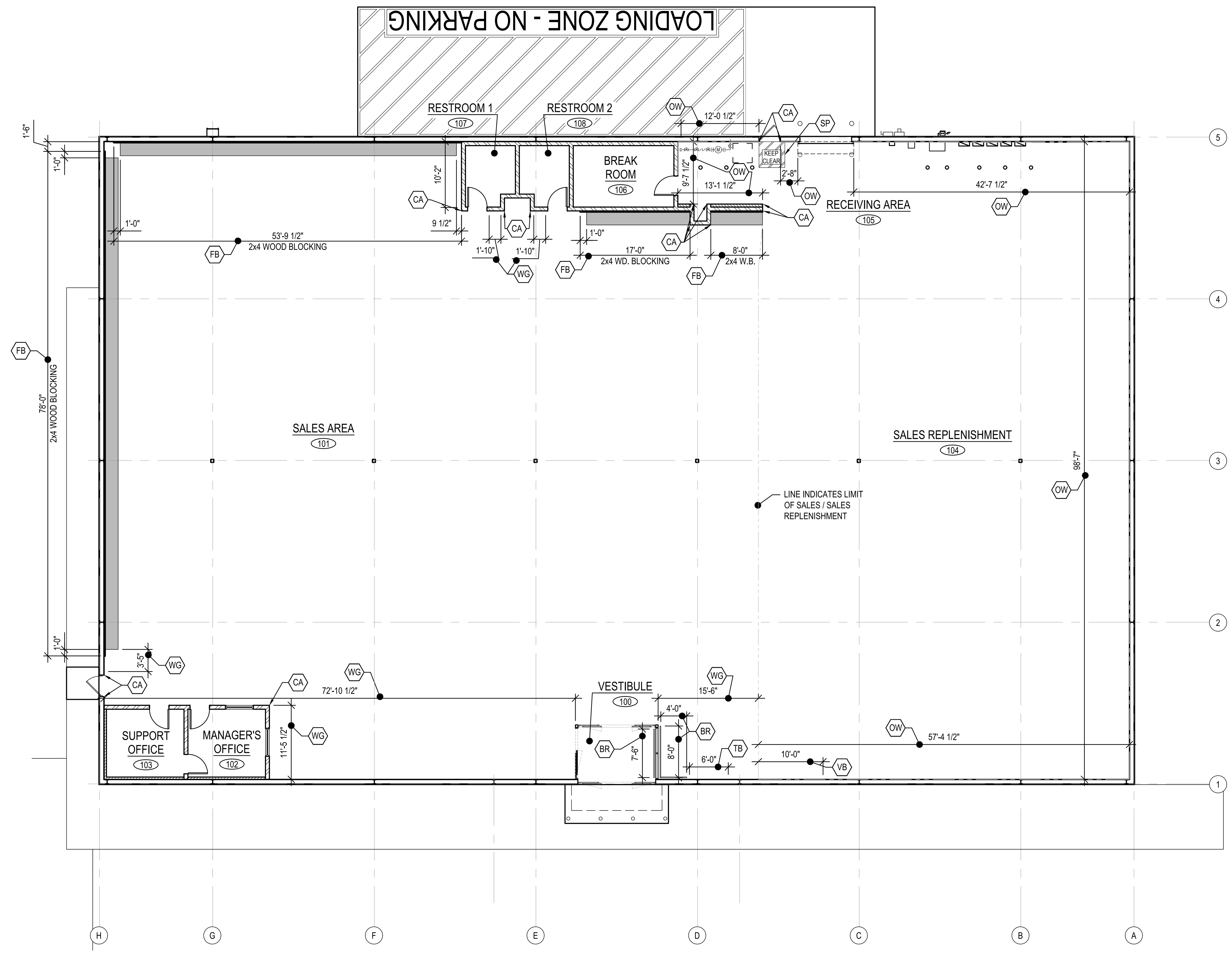
NOTES:
1. STRUCTURE ABOVE TO BE CLEANED AND CLEARED OF DEBRIS. ALL EXPOSED STEEL STRUCTURE AND DECK TO BE PAINTED **P-5**. COLUMNS TO BE PAINTED **P-8**.
2. ALL PREVIOUSLY PAINTED ITEMS TO BE PAINTED INCLUDING PIPING, DUCTWORK, CONDUIT, ETC.
3. ALL NEW WORK TO BE PAINTED, **EXCLUDING** NEW DUCTWORK / NEW HVAC DIFFUSERS. NEW CONDUIT TO BE PAINTED IF ADJACENT SURFACE IS TO BE PAINTED.
4. ALL DOORS AND FRAMES TO BE PAINTED **P-8**.
5. ALL GYPSUM BOARD SURFACES TO BE PAINTED **P-1** OR **P1-A**.
6. ALL PREVIOUSLY PAINTED CMU (or CONCRETE) SURFACES TO BE PRIMED **P-6**, PAINTED **P-2**.
7. ALL BARE CMU (or CONCRETE) SURFACES TO BE PRIMED **P-6A**, PAINTED **P-2**.
8. PROVIDE A CLEAN, SMOOTH CONCRETE SURFACE FOR PROPER INSTALLATION OF ALL FLOOR FINISHES.
9. APPLICATIONS OF PAINT SHALL BE ONE COAT PRIMER AND TWO COATS PAINT (U.N.O.) PRIMER SHALL BE SPECIFIED OR RECOMMENDED BY PAINT MANUFACTURER.
10. ALL MECHANICAL GRILLES / REGISTERS FACING INTO SALES AND STOCK AREAS TO BE PAINTED TO MATCH ADJACENT WALL SURFACE.

FINISH SCHEDULE

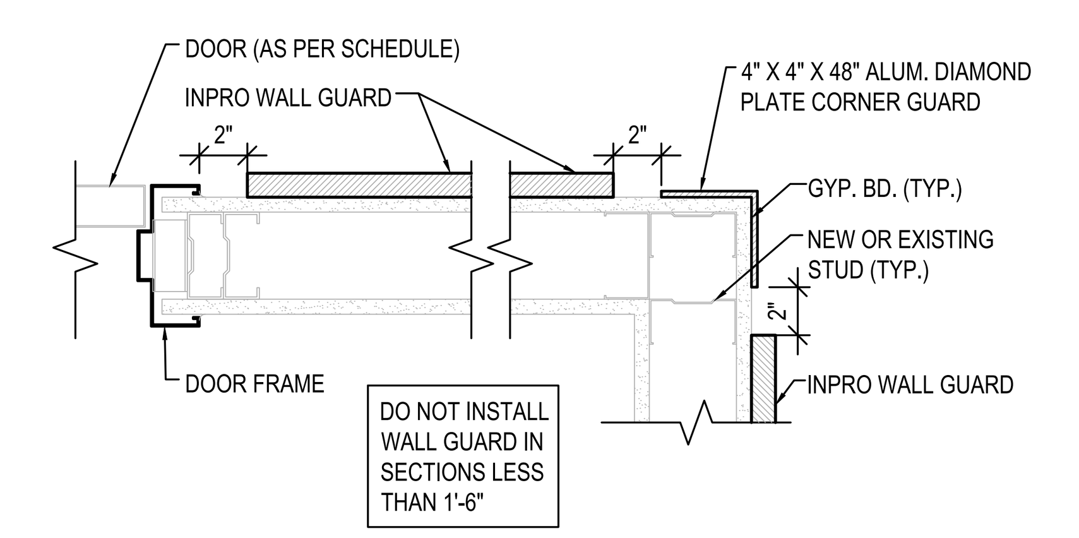
KEY		MATERIAL	MFR.	COLOR	REMARKS
WALL FINISH	P-1	PAINT	SHERWIN - WILLIAMS	SW7067 CITYSCAPE (EGGSHELL)	UTILIZE PROMAR 200 (0 VOC) - NO SUBSTITUTIONS
	P-1A	PAINT	SHERWIN - WILLIAMS	SW7006 EXTRA WHITE (EGGSHELL)	UTILIZE PROMAR 200 (0 VOC) - NO SUBSTITUTIONS
	P-2	LATEX PAINT	SHERWIN - WILLIAMS	SW7067 CITYSCAPE (SEMI-GLOSS)	UTILIZE PROMAR 200 (0 VOC) - NO SUBSTITUTIONS
	P-6	PAINT - PRIMER	SHERWIN - WILLIAMS	WHITE	PREPRITE PROBLOCK PRIMER- NO SUBSTITUTIONS
	P-6A	PAINT - PRIMER	SHERWIN - WILLIAMS	WHITE	PROMAR BLOCK FILLER- NO SUBSTITUTIONS
	WC-1	FIBER REINFORCED PLASTIC (FRP) TO CEILING	MARLITE (NO SUBSTITUTIONS)	WHITE FACTORY FINISH	TRIM AND CUT AROUND ALL DISPENSERS & MIRRORS WHICH OVERLAP FRP AND CAULK EDGES. PROVIDE PVC TRIM MOLDING AT WALL BASE, DIVISION SEAMS, INSIDE AND OUTSIDE CORNERS AND EDGES. MITER TRIM AT ALL CORNERS AND CAULK ALL EXPOSED EDGES OF MOLDINGS.
FLOOR FINISH	CON-1	CONCRETE FLOOR SEALANT	HARBOR FREIGHT VENDOR	N/A	GRIND AND POLISH ALL CONCRETE FLOORS AS SPECIFIED ON SHEET **A0.3 & A0.4**
	LVT-1	FORMATIVE LVT PLANK 3.0mm 18" X 36"	MATTER SURFACES	BRIGHTON CONCRETE	JOINT WHERE VINYL TILE FLOOR MEETS 6" RUBBER BASE TO BE SEALED WITH SILICONE SEALANT. SEE LVT INSTALLATION NOTES ON SHEET **A0.2** FOR ADDITIONAL INFORMATION.
	C-1	CARPET TILE	MATWORKS - MONSTER TILE	CHARCOAL	
	C-2	CARPET TILE	MATWORKS - MATSHIELD	CHARCOAL	COLD WEATHER VESTIBULE TILE
BASE	VB-1	6" VINYL BASE	MATTER SURFACES	BLACK	WALL BASE TO BE INSTALLED ON **ALL** WALLS (EXCEPT AT GLASS / ALUMINUM STOREFRONT) THROUGHOUT SALES AREA AND BEHIND BREAK ROOM CABINETS. SEE PLAN FOR EXTENTS IN STOCK AREA.
CEILING	ACT-1	ACOUSTICAL CEILING TILE	ARMSTRONG	WHITE	2' x 4' CORTEGA SQUARE LAY-IN TILE #769 w/ PRELUDE 15/16" EXPOSED TEE GRID.
	ACT-2	ACOUSTICAL CEILING TILE	NATIONAL GYPSUM	WHITE	2' x 4' GOLD BOND BRAND, GRIDSTONE 1/2" FIRE-SHIELD GYPSUM CEILING PANELS w/ PRELUDE 15/16" EXPOSED TEE GRID.
	P-5	PAINT	SHERWIN - WILLIAMS	DRY FALL - SW7069 IRON ORE (FLAT)	PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL: UTILIZE B42T00018-20 (LOW VOC) - NO SUBSTITUTIONS
	S-1	VINYL CAP SHEET	LAMTEC	WMP-10 BLACK	CAP SHEET FOR APPLICATIONS TO EXPOSED INSULATION AT UNDERSIDE OF DECK. INSTALL PER MFR. SPECIFICATIONS.
MISC.	P-3	INDUSTRIAL ACRYLIC GLOSS - MARINE GRADE	SHERWIN - WILLIAMS	SW4081 SAFETY RED (GLOSS)	PRO INDUSTRIAL MULTI SURFACE ACRYLIC. FOR PAINT APPLICATIONS TO EIFS AND MASONRY. USE (1) COAT SW CONFLEX MASONRY PRIMER.
	P-3A	INDUSTRIAL HIGH PERFORMANCE ACRYLIC - MARINE GRADE	SHERWIN - WILLIAMS	SW4081 SAFETY RED (GLOSS)	PRO INDUSTRIAL ACRYLIC ACROLON 100 / PRO INDUSTRIAL ACROLON 218 HS. FOR PAINT APPLICATIONS TO PRE-FINISHED METAL. USE (1) COAT SW PROCRYL PRIMER.
	P-4	INDUSTRIAL HIGH PERFORMANC ACRYLIC	SHERWIN - WILLIAMS	SW7067 CITYSCAPE (GLOSS)	PRO INDUSTRIAL ACRYLIC ACROLON 100 / PRO INDUSTRIAL ACROLON 218 HS. FOR PAINT APPLICATIONS TO STEEL HANDRAILS. USE (1) COAT SW MACROPOXY 646-100 EXPOY PRIMER.
	P-7	INDUSTRIAL ENAMEL	SHERWIN - WILLIAMS	SW4084 SAFETY YELLOW (SEMI-GLOSS)	PRO INDUSTRIAL WATERBASED ALKYD URETHANE. SEE PLAN FOR EXTENTS OF FLOOR STRIPING
	P-8	INDUSTRIAL ENAMEL	SHERWIN - WILLIAMS	SW7067 CITYSCAPE (SEMI-GLOSS)	PRO INDUSTRIAL WATERBASED ALKYD URETHANE. INTERIOR DOORS, DOOR FRAMES, COLUMNS AND OVERHEAD DOOR FRAME
	P-9	ACRYLIC POLYURETHANE	SHERWIN - WILLIAMS	SW9176 DRESS BLUES (GLOSS)	PRO INDUSTRIAL ACRYLIC ACROLON 100 / PRO INDUSTRIAL ACROLON 218 HS. FOR EXTERIOR PAINT APPLICATIONS. USE (1) COAT SW MACROPOXY 646-100 EXPOY PRIMER FOR APPLICATIONS TO MASONRY, (1) COAT SW PROCRYL PRIMER FOR PRE-FINISHED METAL.
	P-10	INDUSTRIAL ACRYLIC GLOSS	SHERWIN - WILLIAMS	SW7066 GRAY MATTERS (GLOSS)	PRO INDUSTRIAL MULTI SURFACE ACRYLIC. FOR EXTERIOR PAINT APPLICATIONS. USE (1) COAT SW MACROPOXY 646-100 EXPOY PRIMER FOR APPLICATIONS TO MASONRY, (1) COAT SW PROCRYL PRIMER FOR PRE-FINISHED METAL.
	P-11	INDUSTRIAL ACRYLIC GLOSS	SHERWIN - WILLIAMS	SW7067 CITYSCAPE (GLOSS)	PRO INDUSTRIAL MULTI SURFACE ACRYLIC. FOR EXTERIOR PAINT APPLICATIONS. USE (1) COAT SW MACROPOXY 646-100 EXPOY PRIMER FOR APPLICATIONS TO MASONRY, (1) COAT SW PROCRYL PRIMER FOR PRE-FINISHED METAL.

NOTE: G.C. SHALL USE HARBOR FREIGHT TOOLS NATIONAL PARENT ACCOUNT #7757 WHEN ORDERING PAINT. SEE SHEET **A0.0** FOR VENDOR CONTACT INFORMATION.

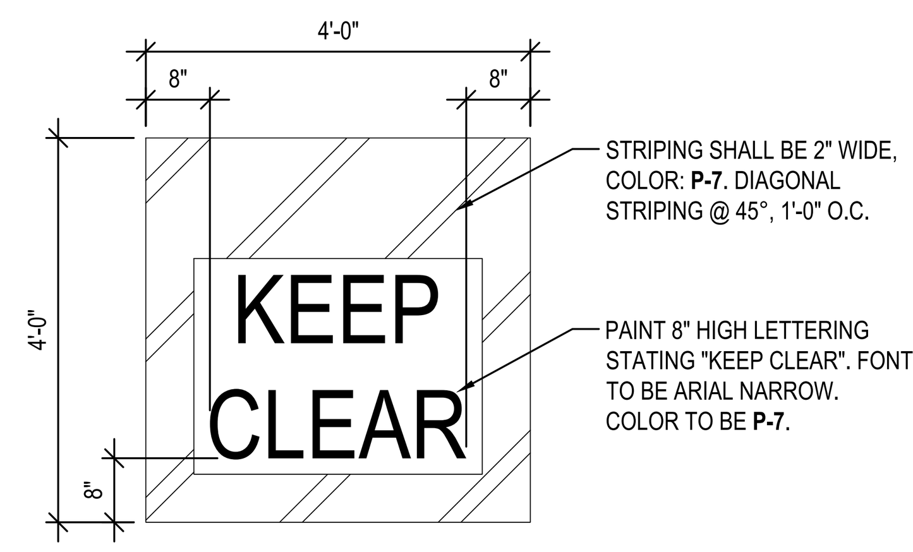
NOTE:
G.C./PAINTER TO UTILIZE SHERWIN WILLIAMS PAINT AS SPECIFIED. NO SUBSTITUTIONS. G.C./PAINTED TO UTILIZE HFT PARENT ACCOUNT FOR THE PROCUREMENT OF ALL PAINTS. COORDINATE SUPPORTING DOCUMENTATION WITH BV PM AND/OR HFT CM AS REQUIRED.



FINISH PLAN
SCALE 3/32" = 1'-0"



3/A1.3 WALL GUARD SPACING DETAILS
SCALE: 1-1/2" = 1'-0"



4/A1.3 STOCK EGRESS STRIPING DETAIL
SCALE: 1/2" = 1'-0"

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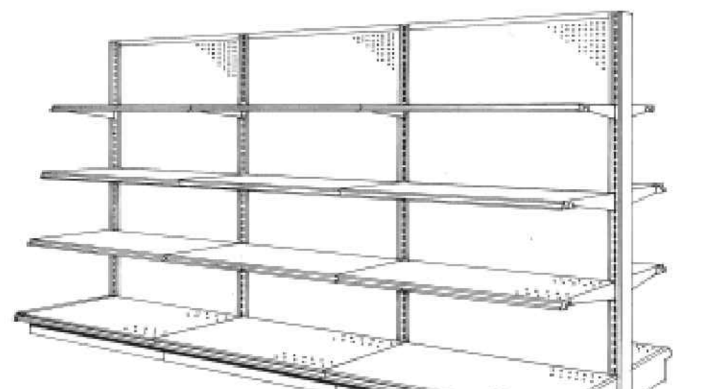
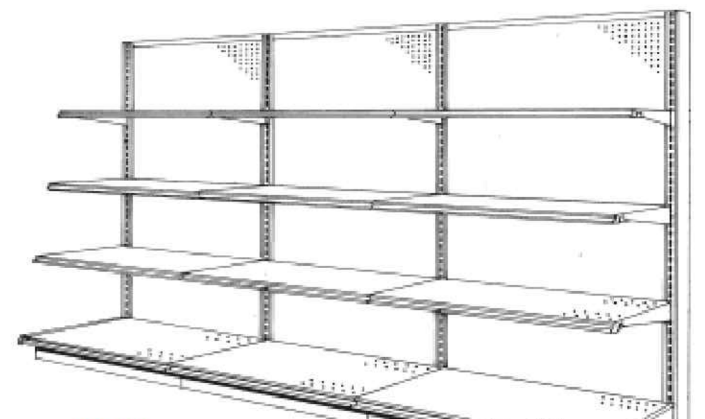
FINISH PLAN

DATE 05/17/24
JOB NO. 23475
SHEET NO. A1.3

MAXILINE GONDOLA AND WALL GENERAL ASSEMBLY

NOTE! *This publication is intended to be a generic installation instruction for Madix gondola and wall shelving, and may possibly be subject to change as required by the local building codes. Consult the building inspection department at the job site.*





READ AND UNDERSTAND THIS DOCUMENT BEFORE PROCEEDING TO INSTALL SHELVING. SPECIAL ITEMS THROUGHOUT ARE DENOTED WITH:

CAUTION! **IMPORTANT!** ***WARNING!***

NOTE!
THE STANDARD PRODUCTS LISTED BELOW WILL ALTER THE INSTALLATION PROCEDURE SHOWN. Specific instructions covering any products listed below, if ordered, are included with this document package. Refer to them prior to beginning installation since your procedure will be altered.

END MERCHANDISER ASY-652
CANOPIES..........ASY-092
TELESCOPING UPRIGHTS..........ASY-027
BOX CORNER..........ASY-098
METAL END FLAT..........ASY-269
INSIDE CORNER..........ASY-062
OPEN BACK STIFFENER..........ASY-042
OUTSIDE CORNER..........ASY-059
FLOOR ANCHORS..........ASY-357
WIRE GRID BACKS..........ASY-328
OUTSIDE MOUNT END MERCHANDISER..........ASY-064
TRIPLE BACK SYSTEM..........ASY-325

IMPORTANT! When unloading, stack all boxes...
1. ***WITH THE LABELS VISIBLE.***
2. ***WITH THE SAME DESCRIPTION TOGETHER.***
3. ***WITH THE SAME PART NUMBER TOGETHER.***

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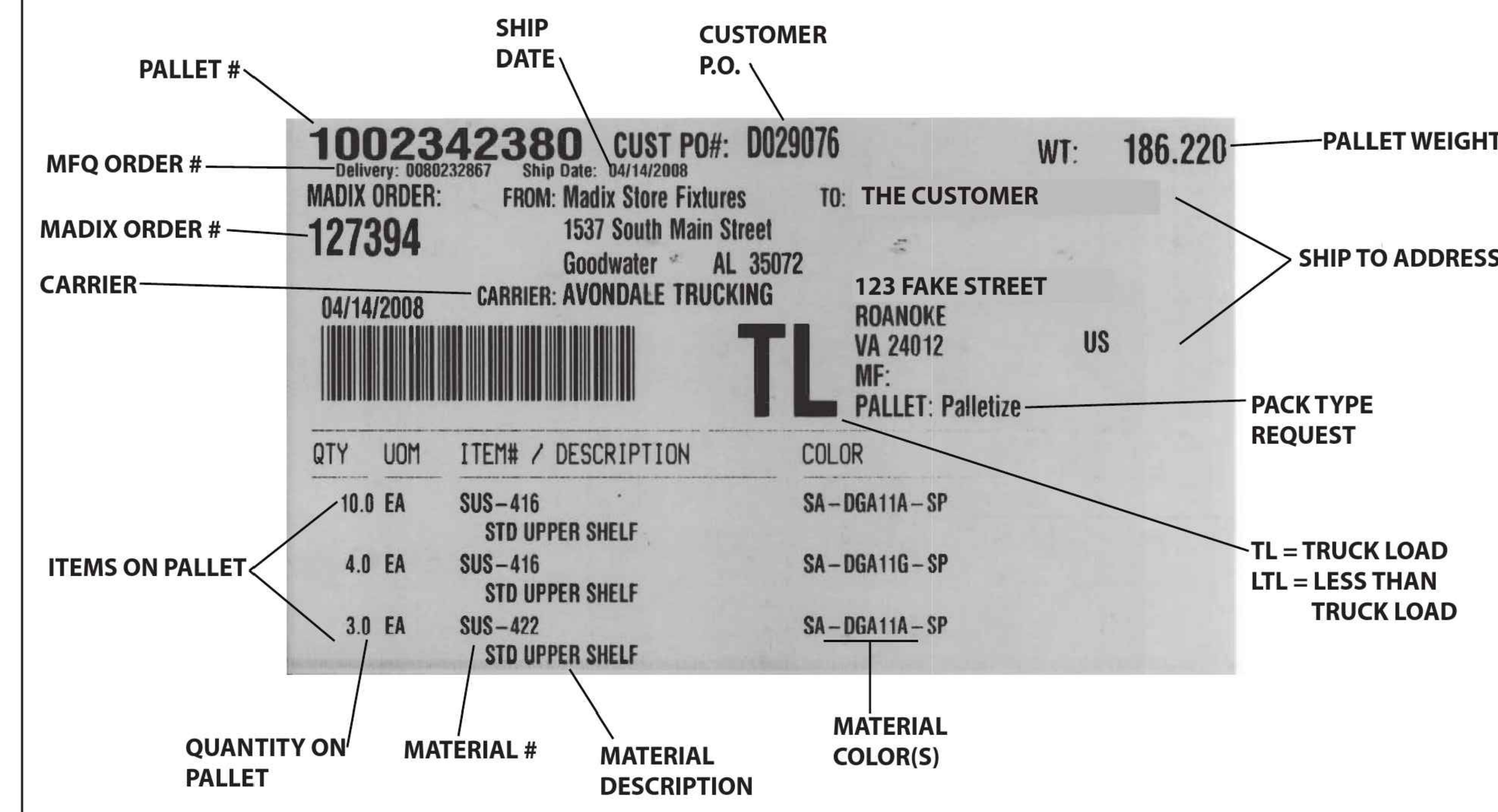
PALLET LABEL LAYOUT



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POST THIS ENTIRE PAGE IN A CONSPICUOUS PLACE, CLEARLY VISIBLE TO ALL STORE PERSONNEL

WARNING!

READ BEFORE ASSEMBLY - FOR YOUR SAFETY!

- Install all shelving and/or fixtures as described in installation instruction.
- Shelving and components should ONLY be installed by trained personnel who have read and understand these instructions. Failure to do so may result in product damage or personal injury.
- Do not exceed the maximum load capacities as outlined under all headings related to Load Limits or Capacities in this document.
- Never use damaged parts.
- Install and use components only as directed.
- Do not combine Madix products with non-Madix products.
- Always install kickplates (KP-(nw)) to retain the structural integrity of the shelving. Kickplates must be installed correctly!
- Do not hang shelves, peg hooks or other accessories on the side of a fixture that does not have base shoes (BS) installed.
- Do not hang shelving, peg hooks or other accessories that exceed the depth of the base on a gondola or wall.
- All components that require trim, such as uprights (BU) and base shoes (BS) should have trim installed.
- Never expose any sharp or pointed edges to shoppers or employees.
- Do not climb or stand on shelving.
- Provide safe access to all levels of shelving according to OSHA regulations.
- Do not move assembled unit.
- Do not rearrange shelving while merchandised.
- Do not lean heavy items against shelving.
- All end panels (EP) and other panels for merchandising or aesthetics must have bases in order to direct traffic away from protrusions.

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CLEANING SHELVING:

IMPORTANT INSTRUCTIONS FOR CLEANING MADIX METAL SHELVING:

When necessary to clean Madix shelving, use of a non-abrasive mild detergent and warm water, followed by thorough drying is ideal. The use of a cloth made of a soft , white cotton material is strongly recommended. The use of cleaning agents that contain abrasives, bleach, or strong solvents such as ketones, ethers etc. will result in damage to the finish. The damage is most severe when these harsh cleaning agents are used on colors which contain leafing aluminum pigment such as powder chrome, silver vein and other "vein" type finishes. The aluminum in these coatings resides at the surface of the finish and is therefore more susceptible to damage by the harsh cleaning agents. As an alternative to the mild detergent, cleaners with ingredients similar to those found in products such as 409 , Fantastik, and Simple Green can be used. CAUTION! cleaners having ingredients similar to those found in Ajax, Borax, Bleach, Comet, etc. should be avoided as finish damage could result.

WARNING! ALL GONDOLA AND WALL FIXTURES EXCEEDING 96" IN HEIGHT MUST BE SECURELY ANCHORED! SEE ASY-357 FOR PROPER ANCHORING PROCEDURES FOR GONDOLA AND WALL!

WARNING! NEVER STACK EXTENSION UPRIGHTS (EU). *Do not exceed maximum load capacity on EU. Maximum load capacity for EU 6" to 12" is 250 lb per side, 13" to 18" is 215 lb per side, 19" to 24 " is 160 lb per side, and 24" and up is 100 lb per side.* ***SEE ASY-018 FOR EU INSTALLATION.***

WARNING! LOAD CAPACITY FOR PEGBOARD BACKS: *MAX 150 lbs for per side with SL lower spanner in place MAX 300 lbs per side with HSL Heavy Duty Lower Spanner*

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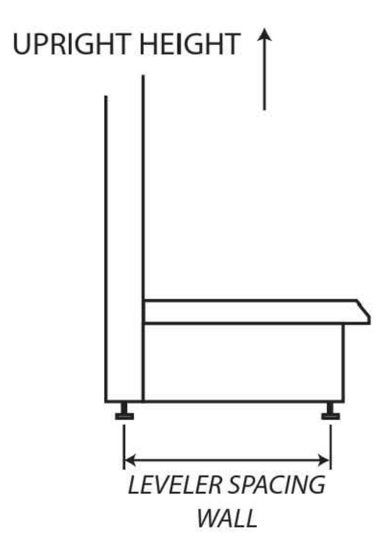
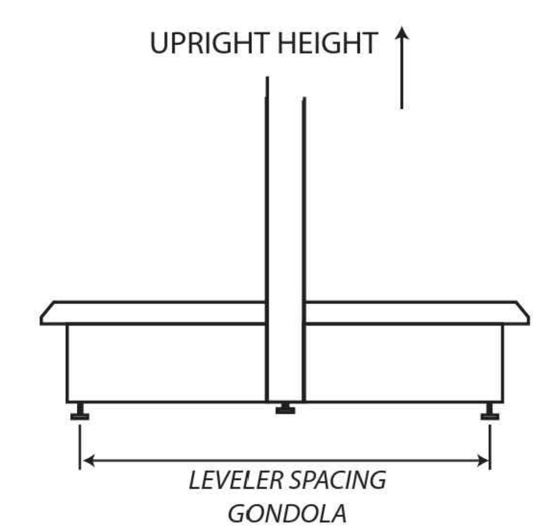




FIXTURE HEIGHT TO BASE WIDTH:

If the height of the upright exceeds six times the space between the upright and shoe leveler, the system must be secured in one of the following configurations:

- ***Secured at the top as per pg. 11 or...***
- ***For Gondolas, Base Shoe Levelers must be anchored to the floor as shown in ASY-357***
- ***For Walls, Base Shoe Levelers AND Upright Levelers must be anchored to the floor.***

WALLS...
USE CHART FOR EXAMPLE ONLY:

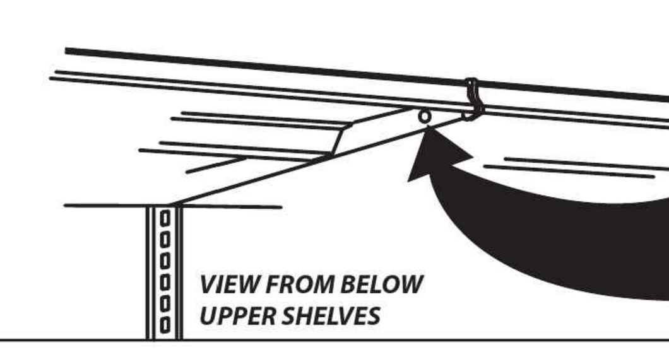
BASE SHELF DEPTH OF	EQUALS LEVELER SPACING OF	MAX HEIGHT OF UNANCHORED UPRIGHT
12"	9 1/2"	54"
14"	11 1/2"	66"
16"	13 1/2"	78"
18"	15 1/2"	90"
20	17 1/2"	102"
22"	19 1/2"	114"
24"	21 1/2"	120"
26"	23 1/2"	138"
28"	25 1/2"	144"
30"	27 1/2"	162"

GONDOLAS...
USE CHART FOR EXAMPLE ONLY:

BASE SHELF DEPTHS OF	EQUALS LEVELER SPACING OF	MAX HEIGHT OF UNANCHORED UPRIGHT
12" & 12"	19"	114"
12" & 14"	21"	126"
14 & 14"	23"	138"
14" & 16"	25"	144"
16" & 16"	27"	162"

ALL UPRIGHTS 96" AND ABOVE WILL NEED TO BE ANCHORED.

BOLTING UPPER SHELVES AT THE TOP OF FIXTURES TALLER THAN 96"...



ON ANY UPPER ROW OF SHELVES ON FIXTURES TALLER THAN 96", THE SHELVES MUST BE BOLTED TOGETHER THROUGH THE FRONT MOST HOLES IN THE SIDES OF THE SHELVES!

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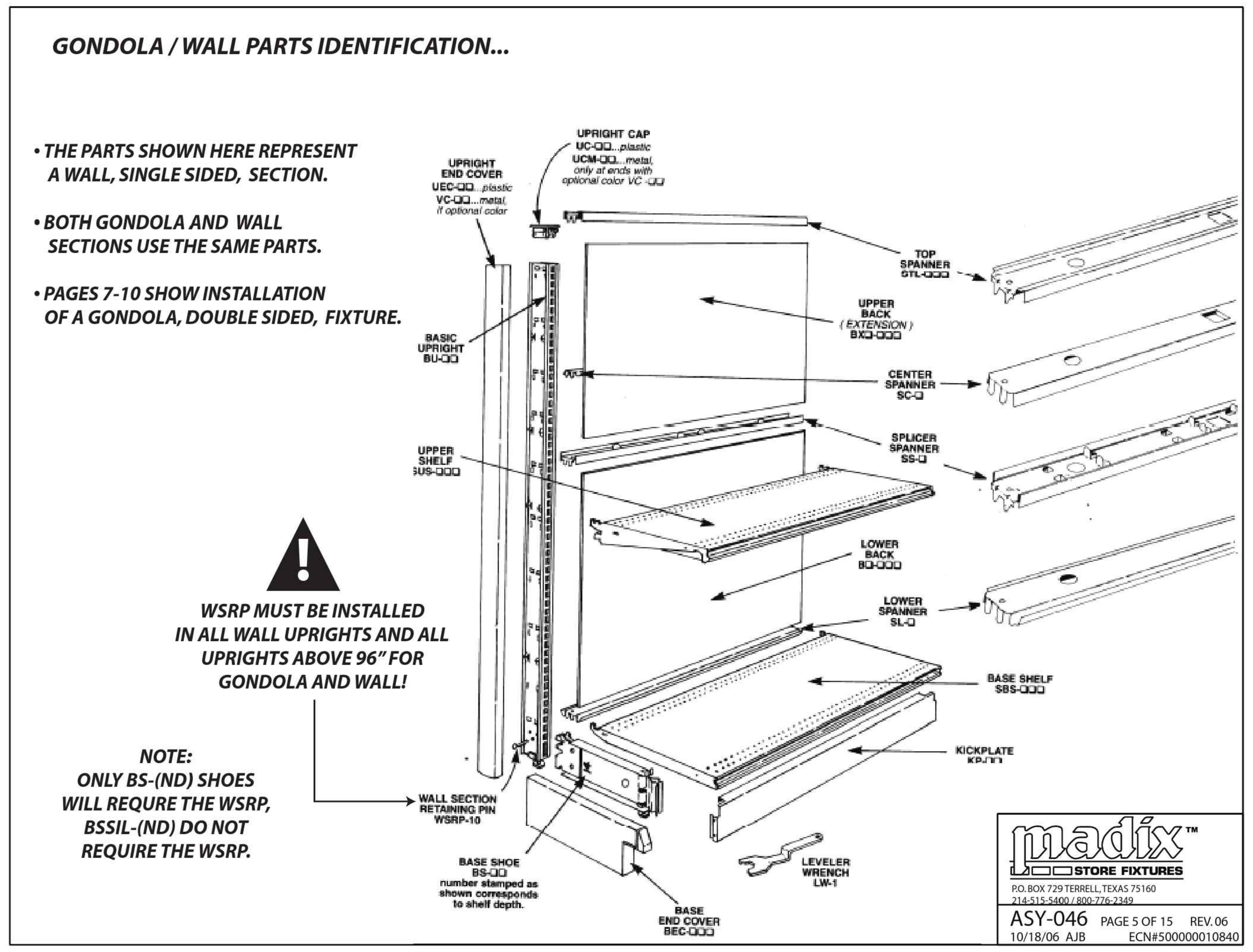
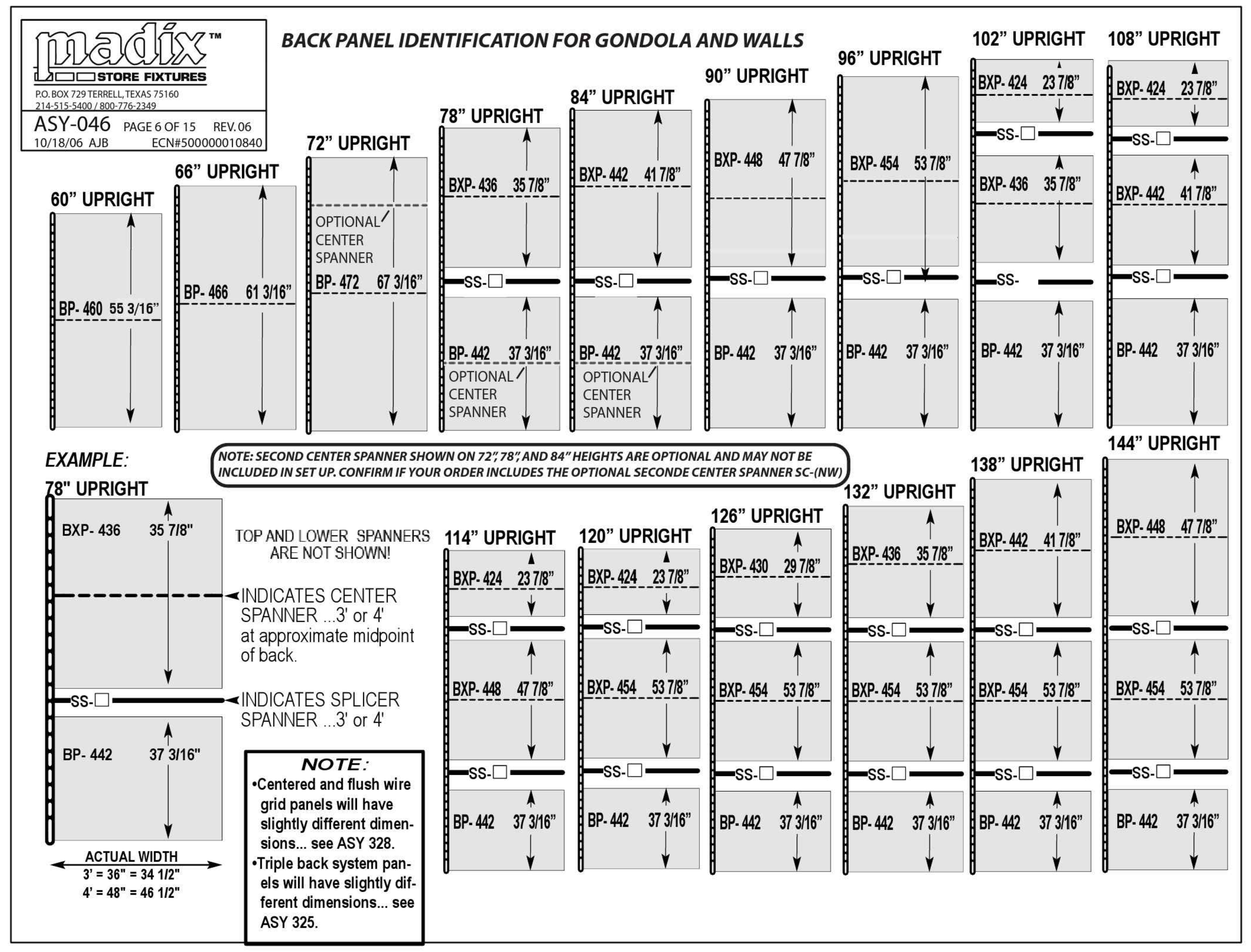
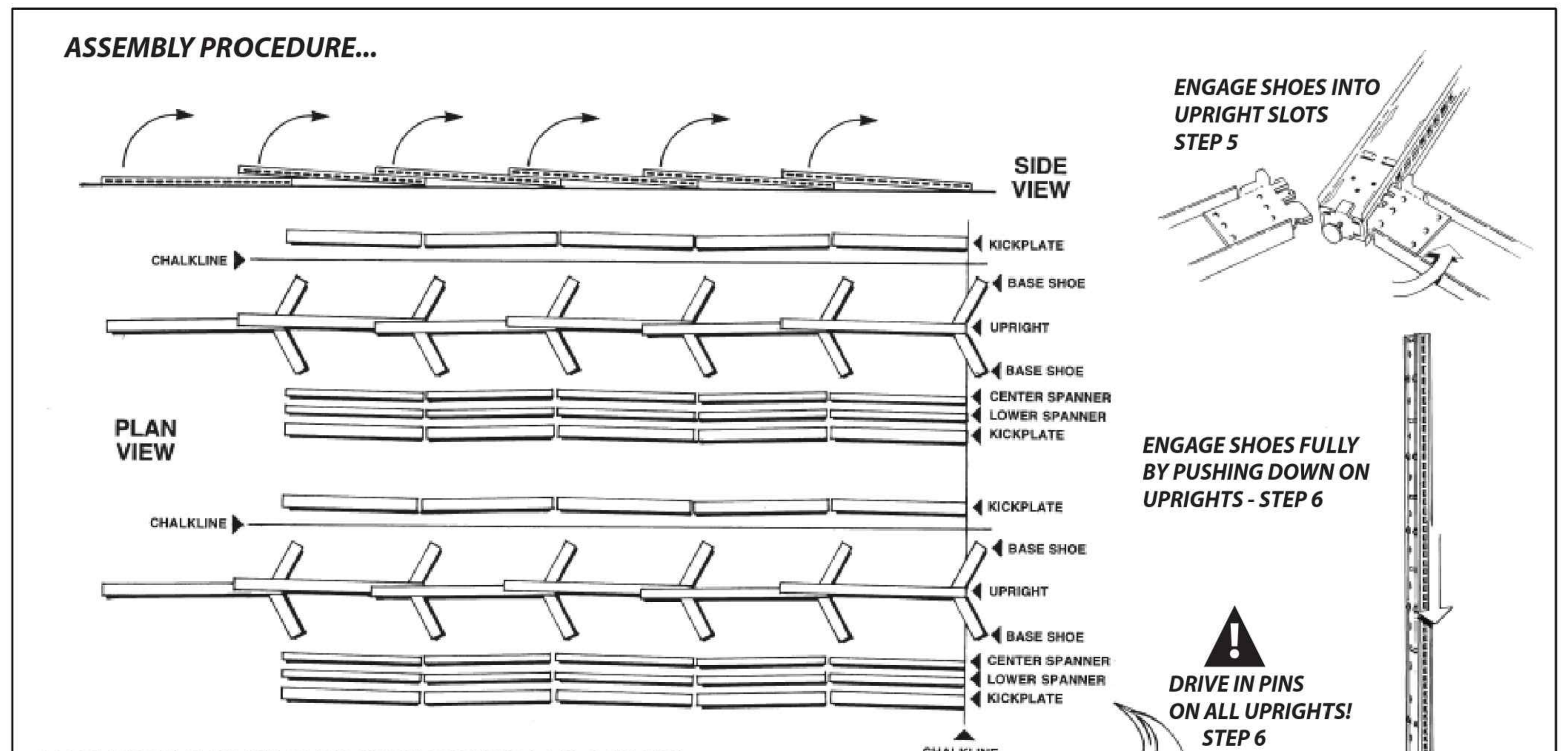
FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24
JOB NO. 23475

A1.4
SHEET NO.







1) LOCATE "OPEN ME FIRST" BOX AND REMOVE PROVIDED LEVELER WRENCH
OTHER TOOLS NEEDED INCLUDE: LARGE SCREWDRIVER, CHALKLINE, LONG MEASURE TAPE, NYLON STRING, MATERIAL FOR SHIM(S).

2) Snap chalklines on the floor for fixture alignment, using diagram above as a guide...ALLOW 1 5/8" FOR KICKPLATE RECESS.

3) Lay out parts as shown above, with kickplates and spanners end to end. All uprights should overlap as shown in side view so the bottom of each upright will stand at the kickplate joints... IF RUN IS 78" OR HIGHER, lay out splicer spanners in addition to center spanner.

4) Lay one back for first section nearby...IF THE RUN IS 78" OR HIGHER...ONLY LOWER BACK IS REQUIRED FOR SQUARING...extension back is not required.

5) Insert base shoes into all uprights ...shoes do not have to be locked in at this time....run upright levelers out approximately 1/4".

6) Raise first upright to vertical and push down sharply. Base shoes should lock in, if they do not lock in, step firmly on top of shoe to lock. **FOR STRAIGHT IN BASE SHOE (BSSIL) Note warning label for locking tab. Sliding tab must be engaged in upright slot!.**

NOTE: ON ALL UPRIGHTS WITH BS-(ND) TYPE SHOE: lay upright on floor and drive WSRP pin through the upright and base shoe as shown ...all uprights. Do not drive the WSRP pin in until it is fully seated. Leave 1/8" to 1/4" gap between pin head and side panel of shoe!

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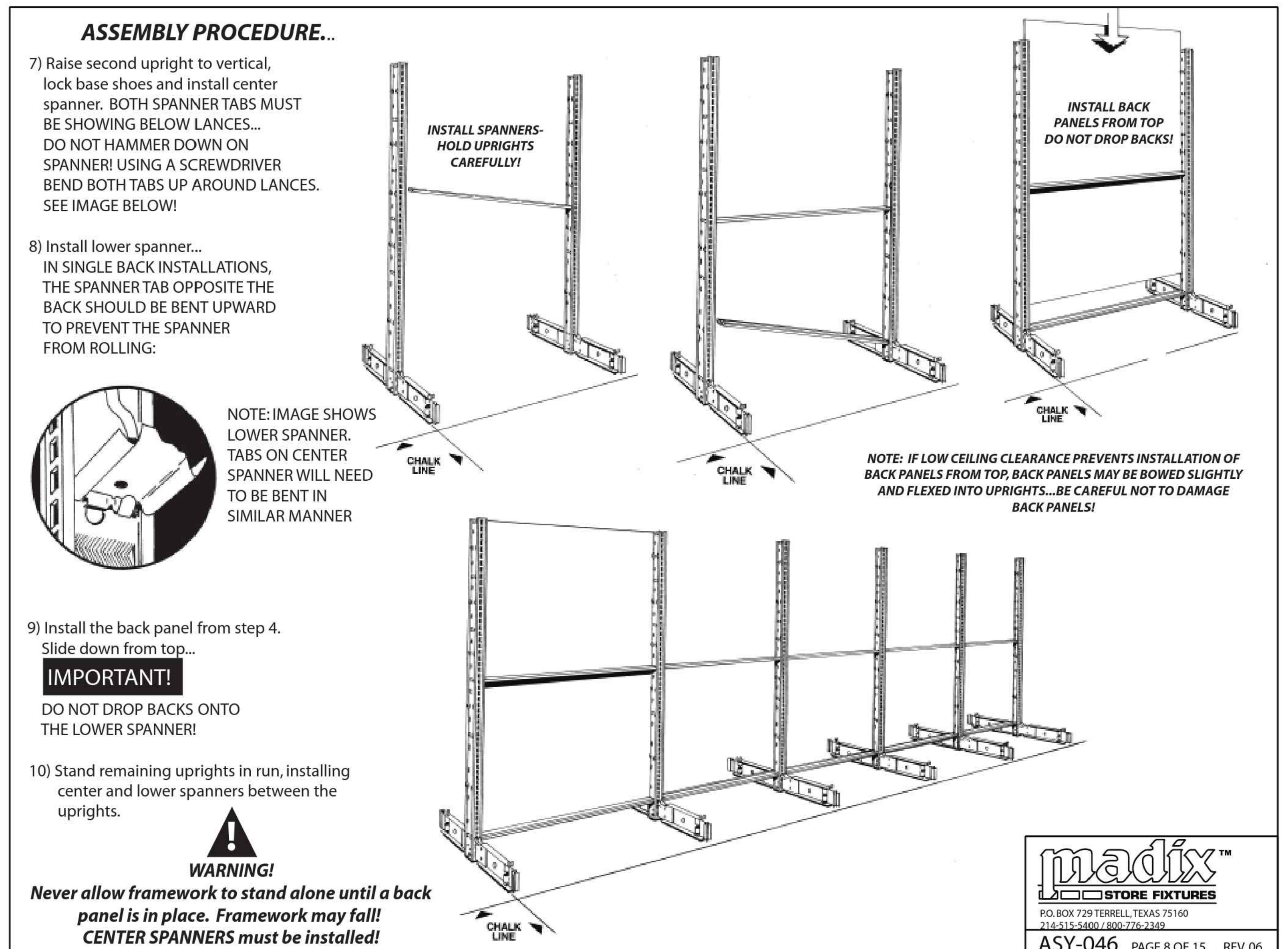
ASSEMBLY PROCEDURE...

7) Raise second upright to vertical, lock base shoes and install center spanner. BOTH SPANNER TABS MUST BE SHOWING BELOW LANCES... DO NOT HAMMER DOWN ON SPANNER! USING A SCREWDRIVER BEND BOTH TABS UP AROUND LANCES. SEE IMAGE BELOW!

8) Install lower spanner... IN SINGLE BACK INSTALLATIONS, THE SPANNER TAB OPPOSITE THE BACK SHOULD BE BENT UPWARD TO PREVENT THE SPANNER FROM ROLLING:



9) Install the back panel from step 4. Slide down from top...

IMPORTANT!

DO NOT DROP BACKS ONTO THE LOWER SPANNER!

10) Stand remaining uprights in run, installing center and lower spanners between the uprights.

WARNING!
Never allow framework to stand alone until a back panel is in place. Framework may fall! CENTER SPANNERS must be installed!

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FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24

JOB NO. 23475

SHEET NO. A1.5

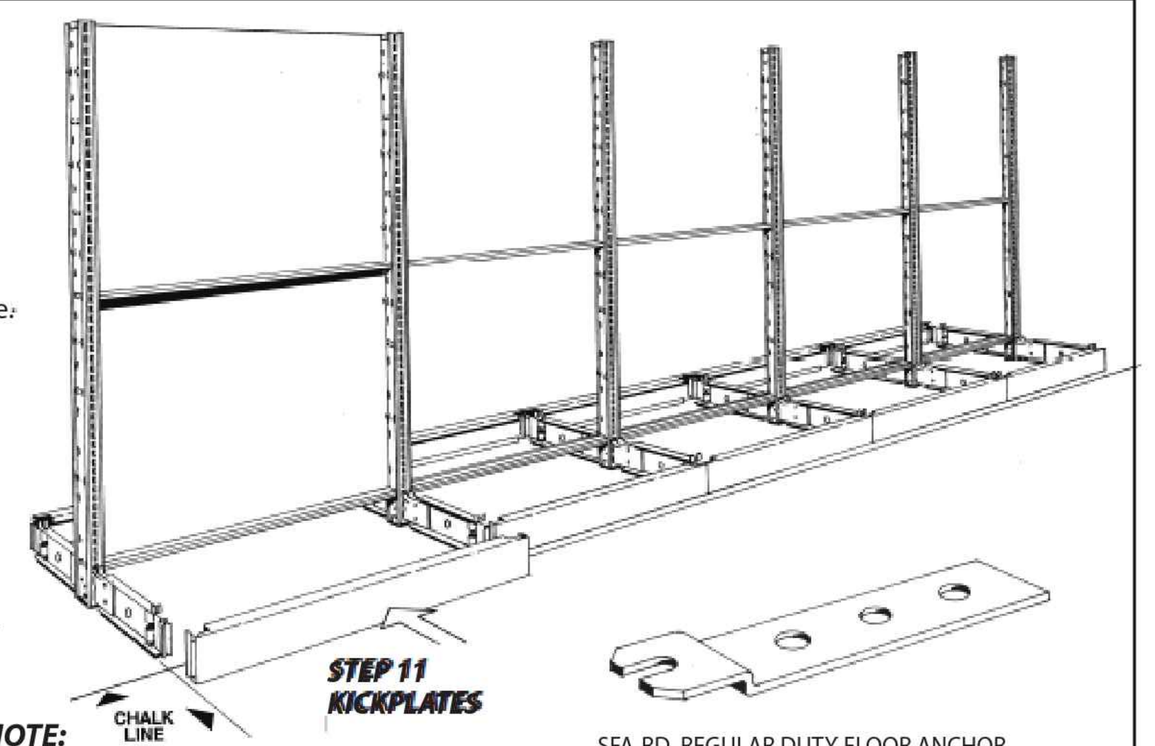
ASSEMBLY PROCEDURE...

11) Install all kickplates... kickplates snap directly in from front...

12) Pull both end uprights forward to bring the kickplates to the chalkline, then plumb using a level against face of upright and adjusting the base shoe levelers.

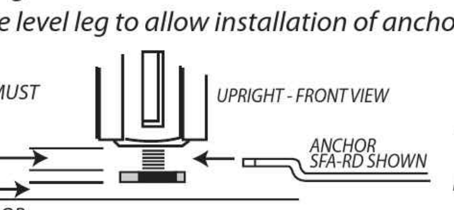
13) Attach the nylon line to end upright as shown. Attach line at corresponding slot on opposite end upright, draw taut and secure.

14) Examine all uprights at nylon line to determine the highest upright in run, excluding end uprights. Pull this highest upright forward until kickplate is on the chalkline. If run is a gondola, plumb at base shoe levelers ....if run is a wall, plumb at upright and base shoe levelers.



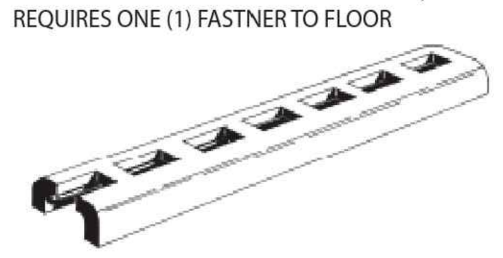
IMPORTANT!

There must be enough clearance between the bottom of the upright and the head of the level leg to allow installation of anchors!

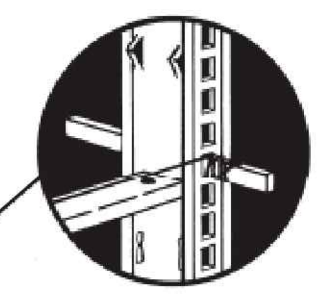


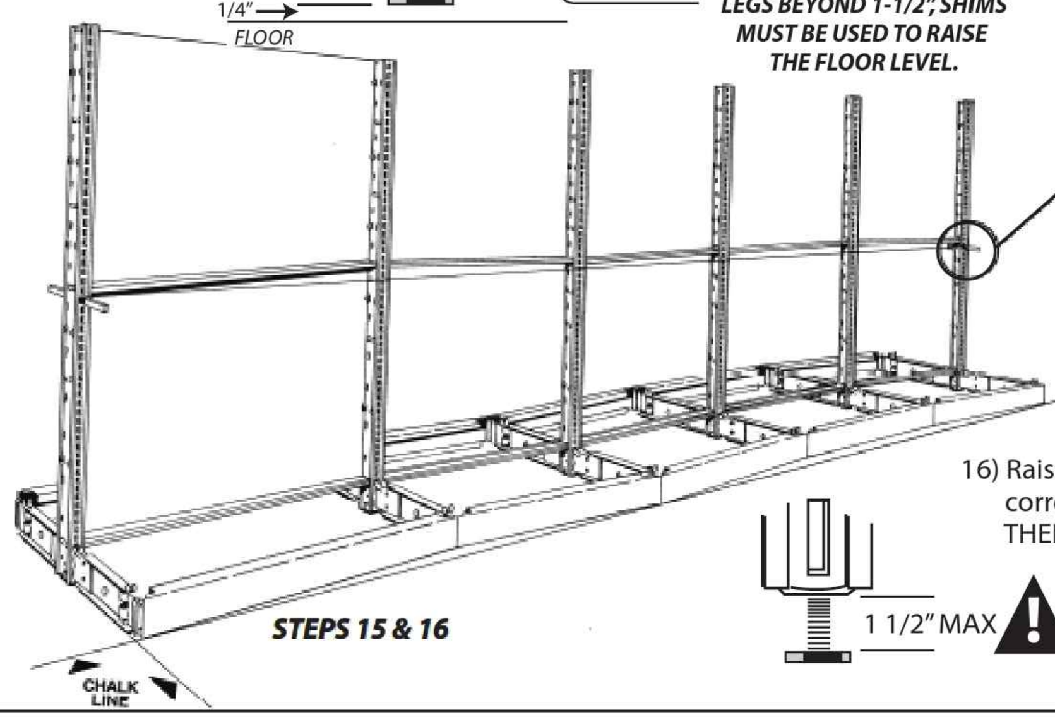
NOTE:
IF IT BECOMES NECESSARY TO EXTEND THE LEVELING LEGS BEYOND 1-1/2", SHIMS MUST BE USED TO RAISE THE FLOOR LEVEL.

SFA-RD REGULAR DUTY FLOOR ANCHOR, REQUIRES ONE (1) FASTNER TO FLOOR



SFA-HD REGULAR DUTY FLOOR ANCHOR, REQUIRES TWO (2) FASTNERS TO FLOOR





15) Working with the remaining uprights in succession, bring kickplates up to chalkline, then adjust for height at upright leveler and plumb at base shoes.

16) Raise or lower end uprights until slots on ends and highest upright correspond relative to the nylon line.
THEN REPLUMB BOTH END UPRIGHTS!

WARNING! NEVER EXTEND LEVEL LEGS OVER 1 1/2"!

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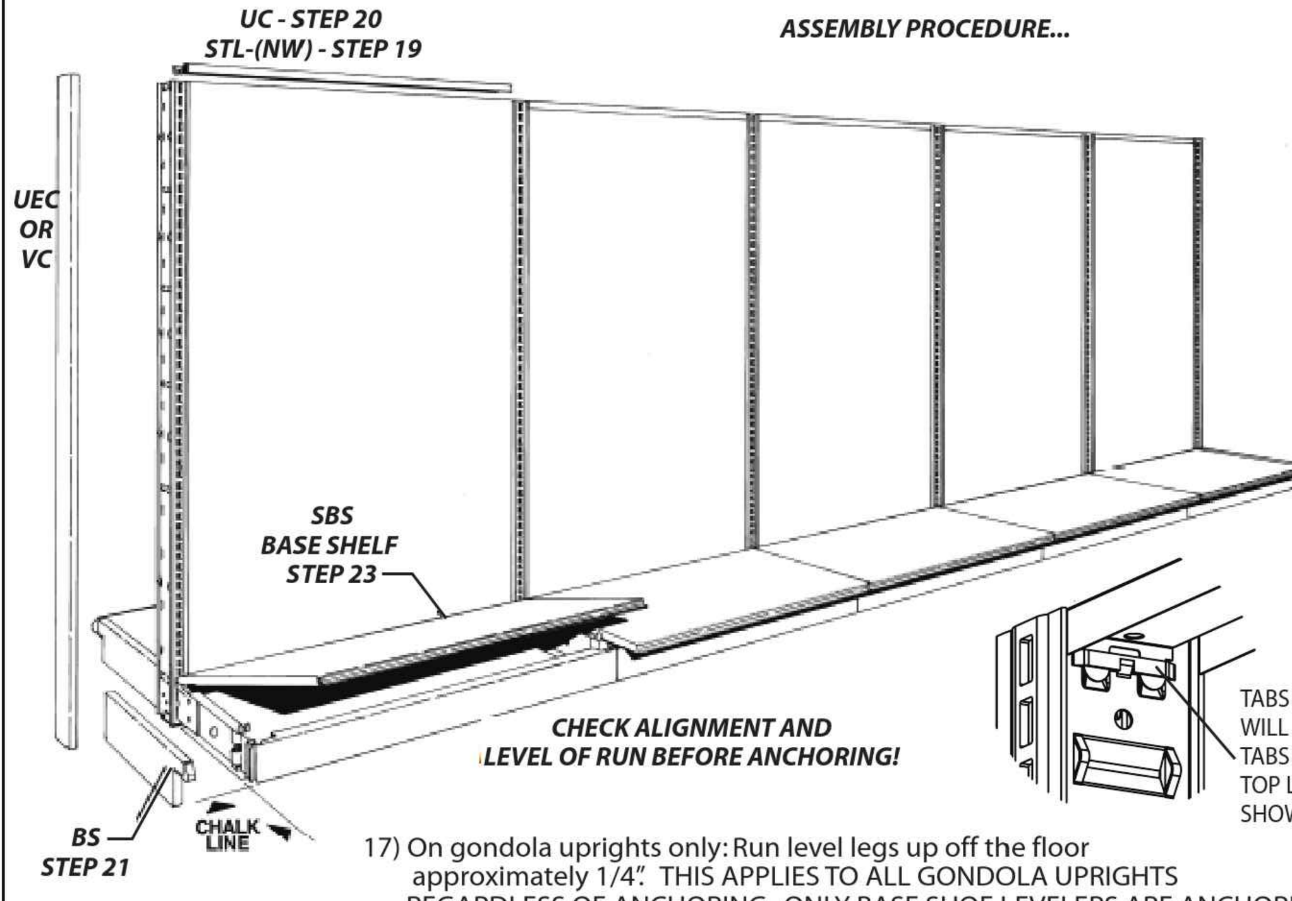
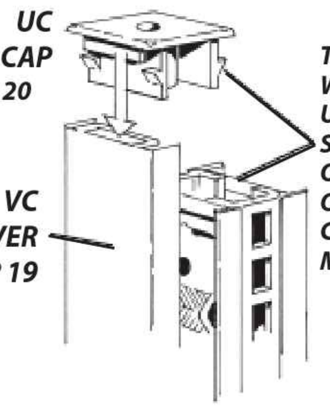
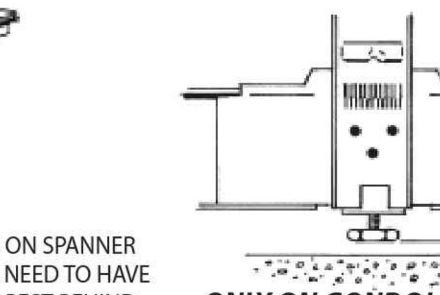
ASSEMBLY PROCEDURE...







...ONLY ON GONDOLA UPRIGHTS! NOT ON WALL UPRIGHT LEVELERS SEE STEP 17

17) On gondola uprights only: Run level legs up off the floor approximately 1/4". THIS APPLIES TO ALL GONDOLA UPRIGHTS REGARDLESS OF ANCHORING. ONLY BASE SHOE LEVELERS ARE ANCHORED ON GONDOLAS, NOT UPRIGHT LEVELERS.

18) Remove the nylon string used in leveling and install all remaining back panels in the run.

IMPORTANT! DO NOT DROP BACKS ONTO THE LOWER SPANNERS!

19) Install top spanners. Make sure tabs rest below first lance as shown. Install upright end covers. UEC is plastic and VC is metal. THESE MUST BE IN PLACE BEFORE UC (UPRIGHT CAPS) ARE INSTALLED.

20) If VCs (metal upright covers) are installed, install UC (upright caps) so that the short plastic extrusion is captured in the slot at top of the VC and tabs snap behind top lance See illustration top right.

21) To install the BECs (Base End Covers), simply slide them over the BS (Base Shoes). The BECs are held in place by the base shelves.

IMPORTANT! 22) VERIFY ALIGNMENT AND LEVEL OF RUN. If floor anchors are required, install them now. SEE ASY-357 FOR PROPER ANCHORING PROCEDURES.

NOTE:
If trim or shelves do not fit or do not pass visual inspection, recheck plumb & level. If run is not plumb and level, return to steps 13 - 16.

23) Install base shelves. Visually check base shelf alignment.

24) Install upper shelves and accessories.

WARNING!
DO NOT HANG SHELVING, PEG HOOKS OR OTHER ACCESSORIES THAT EXCEED THE DEPTH OF THE BASE ON A GONDOLA OR WALL.

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WALL RUN INSTALLATION AND WALL RUN ANCHORING...

Uprights will be anchored to a single run of 2 x 4 furring strips secured at approximately 8" below the top of the uprights, subject to leveling.
*Determine run length and location...then strike a chalkline on the wall at upright height, minus 8", to align the top edge of the furring strips.
*Start with a 10' long 2 x 4, finishing the rest of run with 8' long 2 x 4's, this insures that uprights will not be on a joint

ONE 2X4 FOR UPRIGHTS UP TO 96"
TWO 2X4s FOR UPRIGHTS OVER 96"
ONE 2X4 FOR EXTENSION (EU) UP TO 36"
TWO 2X4s FOR EXTENSIONS (EU) OVER 36"

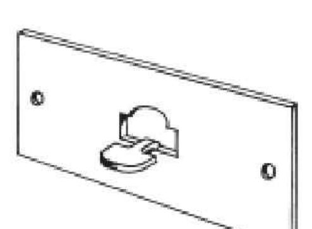
Installation of wall fixture follows same procedure as the gondola instructions, steps 1 through 11, EXCEPT:

*No chalkline is necessary...set back of uprights approximately 1" away from furring strips.
*If using basic upright wall mount support, BUWMS, install in rear side of upright in 10th slot from top.

Push fixture back against furring strips and proceed with plumb and level steps 12 through 16, visually sighting kickplate alignment.
*If using BUWMS wall mount support, secure to furring strips with appropriate hardware, shimming behind the BUWMS as necessary.
*If not using BUWMS, secure upright to furring strip with appropriate fasteners into 10th slot from top.

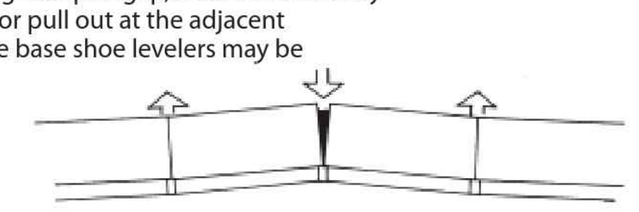
Complete steps 17 through 21.
*If base shelves have a wedge shaped gap, it will be necessary to push in at the gap and/or pull out at the adjacent joints...readjustment of the base shoe levelers may be necessary.

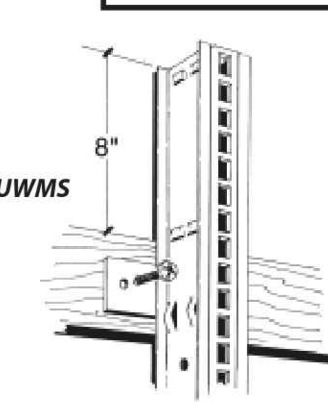
IMPORTANT!
IF CANOPY IS TO BE USED, CONSULT INSTALLATION INSTRUCTION ASY 092 PRIOR TO PROCEEDING



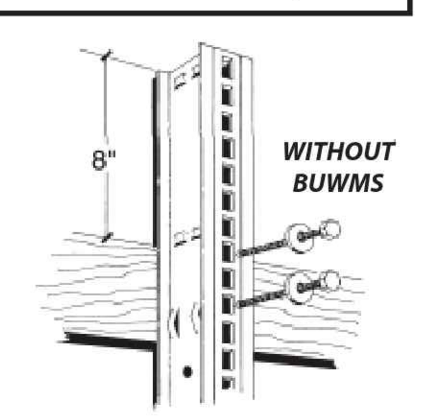
BUWMS

WARNING!
FAILURE TO PROPERLY ANCHOR WALL FIXTURE SYSTEMS AND EXTENSIONS MAY RESULT IN SEVERE INJURY OR DEATH!
USE ANCHORING HARDWARE THAT RESISTS A MINIMUM OF 800 lbs PULL OUT FORCE.
MANY TYPES OF WALL CONSTRUCTION WILL BE ENCOUNTERED. USE FASTNERS APPROPRIATE FOR BOTH WALL TYPE AND LOAD SITUATION.
CONTACT A LOCAL STRUCTURAL ENGINEER FAMILIAR WITH CODES IN YOUR AREA. MADIX CAN PROVIDE THE CONTACT FOR A STRUCTURAL ENGINEER IF REQUIRED.

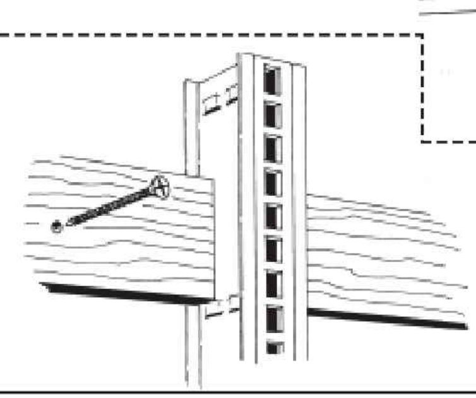




WITH BUWMS



WITHOUT BUWMS



ALTERNATE METHOD... Follow instructions above, except, (1) Strike the chalkline on wall at upright height, minus 2"..., this line is to mark anchor locations furring strips will be slightly lower. (2) Omit use of BUWMS or fasteners. (3) Cut 2 x 4's to section lengths...46 1/2" for 4', 34 1/2" for 3'. (4) Set 2 x 4 on second spanner lance from top of upright and secure to the wall using the appropriate fasteners for wall type and load situations.

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FIXTURE LOADING AND PRODUCT SAFETY...

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GENERAL
1) Contact the local building department prior to starting installation to check on any restrictions.
2) Only parts and accessories produced or supplied by Madix are covered by Madix warranty.
3) Installation sequence must be followed exactly for assembly and leveling.
4) Under no circumstances should damaged parts be used.
5) Do not use shelving parts or accessories for any purpose other than originally intended.
6) Installation instructions with product load ratings are included with each order and must be followed carefully.
7) Employees must be made aware of possible overloading as specified in load ratings. If you do not receive these, please contact your sales or customer service representative.
8) Initial installation or relocation of Madix gondola or wall fixtures should be supervised exclusively by qualified personnel.

GONDOLA /WALL SHELVING
9) Never install shelves or accessories into the side of an upright that has no base shoes on that side.
10) Be sure all shelving parts or accessories are completely seated in slotting or perforations.
11) Do not permit climbing or standing on shelving at any time...including base shelves.
12) Do not attempt to relocate merchandised shelves or accessories.
13) Never try to move completed fixtures, especially if merchandised.
14) No shelves or accessories should project past the front of the base shelf.
15) Base end covers and upright end covers must always be installed at the end of a run.
16) To avoid collisions with upper shelves or accessories, all displays used on gondola ends should have a base shelf, metal end flat, or other base end treatment.

WARNING!
ALL CAPACITIES ARE FOR EVENLY DISTRIBUTED LOAD.

CAPACITIES ARE REDUCED BY 30% WHEN ONLY THE FRONT HALF OF THE SHELF IS LOADED!

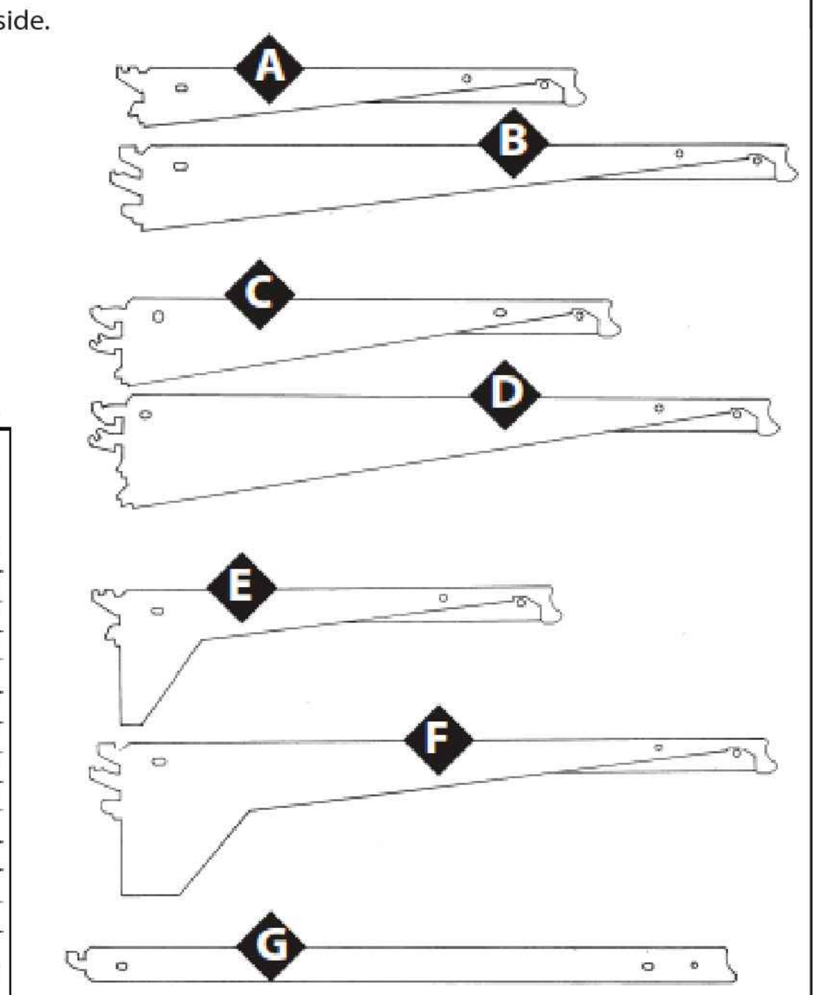
CAPACITIES LISTED ARE FOR SHELVES INSTALLED IN MADIX MAXI SHELVING SYSTEM ONLY!

IMPORTANT!

MAXIMUM LOAD CAPACITY* IN POUNDS

Shelf Type		Shelf Depth	FLAT Evenly Loaded	FLAT Front Loaded	15° Down	30° Down
SUS-□□□	A	6" - 8"	300#	300#	125#	100#
	A	8" - 18"	500#	350#	125#	100#
	B	20" - 24"	500#	350#	250#	100#
	B	26" - 30"	400#	250#	200#	100#
STP-□□□	C	6" - 8"	300#	300#	250#	100#
	C	10" - 18"	500#	350#	250#	100#
	D	20" - 24"	500#	350#	250#	100#
	D	26" - 30"	400#	250#	200#	100#
HUS-□□□	E	14" - 18"	600#	n/a	n/a	n/a
	F	20" - 30"	600#	n/a	n/a	n/a
SBS-□□□	G	12" - 30"	600#	n/a	n/a	n/a
	G	12" - 30"	600#	n/a	n/a	n/a

*...Based on evenly distributed static loading
•... STP type shelves are "straight-in", horizontal insertion into upright slotting.



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05/17/24

ADA ARCHITECTS

17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

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REVISIONS

#	DATE	TYPE
1		
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FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24

JOB NO. 23475

SHEET NO. A1.6

DO NOT SCALE THESE DRAWINGS

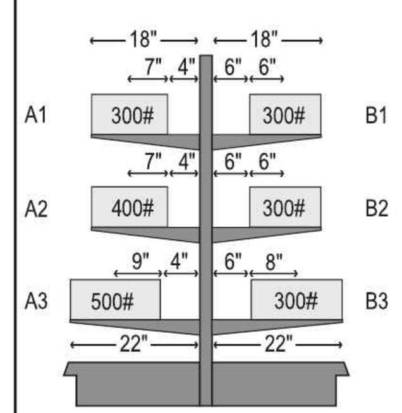
FIXTURE LOADING - PRODUCT SAFETY

WARNING! DO NOT EXCEED ANY OF THE MAXIMUM LOAD LIMITS IN THE FOLLOWING SECTIONS!

FRONT LOADED SHELVES

IMPORTANT! Front loaded shelves create the most likely situation for exceeding the fixture loading capacities. Compare the increases in inch/lb. loadings of front loaded shelves over evenly loaded shelves, PARTICULARLY ON WALL SECTIONS!

A front loaded shelf has a void between the back panel and the merchandise. Take one half the loaded area dimension plus the gap dimension at back and multiply times the weight on the shelf in order to determine individual inch/lb. load.



FRONT LOADED SHELVES ON GONDOLAS

A1	7"	+	4"	=	11"	x	300 lbs.	or	3,300 inch/lbs.
A2	7"	+	4"	=	11"	x	400 lbs.	or	4,400 inch/lbs.
A3	9"	+	4"	=	13"	x	500 lbs.	or	6,500 inch/lbs.
					SIDE A TOTAL =				14,200 inch/lbs.
B1	6"	+	6"	=	12"	x	300 lbs.	or	3,600 inch/ lbs.
B2	6"	+	6"	=	12"	x	300 lbs.	or	3,600 inch/ lbs.
B3	8"	+	6"	=	14"	x	300 lbs.	or	4,200 inch/lbs.
					SIDE B TOTAL =				11,400 inch/lbs.

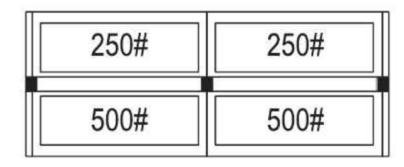
SUBTRACT B FROM A:
14,200 inch/lbs
-11,400 inch/lbs

2,800 inch/lbs

SAFE - 2,800 INCH/LBS DOES NOT EXCEED 15,000 INCH/LBS MAXIMUM

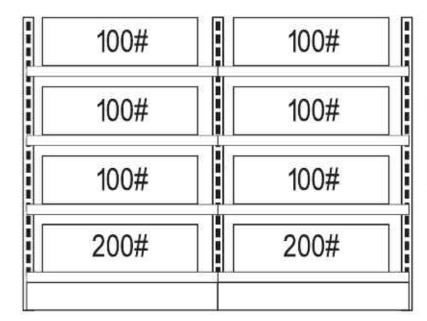
COLUMN LOADING

Column loading is the vertical load, measured in pounds, that can be applied on any upright. Each upright bears ONE HALF OF THE LOAD OF EACH SHELF THAT IT SUPPORTS. MAXIMUM COLUMN LOAD IS 4,500 POUNDS, DO NOT EXCEED!

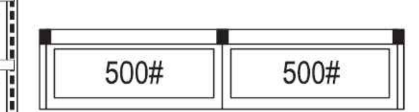


750 lbs. plus 750 lbs. = 1500 lbs.

1500 lbs. divided by 2 =
750 lb. column load on the center upright



WALL SECTIONS - FRONT VIEW



WALL SECTIONS - TOP VIEW

500 lbs. plus 500 lbs. = 1000 lbs.

1000 lbs. divided by 2 =
500 lb. column load on the center upright

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FIXTURE LOADING - PRODUCT SAFETY

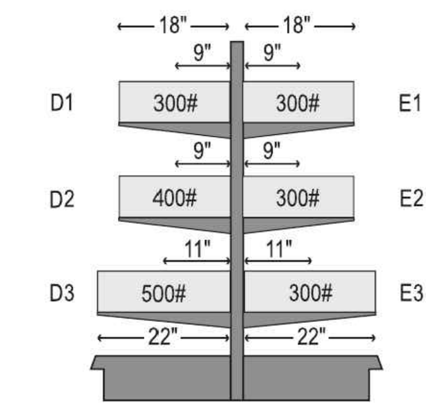
WARNING! DO NOT EXCEED ANY OF THE MAXIMUM LOAD LIMITS IN THE FOLLOWING SECTIONS!

OFFSET LOADING

Offset loading is measured in inch/pounds and represents the bending load at the base shoe connection and the upright. To determine if you exceed the load limit of the fixture, take the difference between the larger inch/lb. calculations on one side of the fixture and the inch /lb. calculations on the other. THIS DIFFERENCE CANNOT EXCEED 15,000 INCH/LBS. In the case of wall sections, the calculation for the one side CANNOT EXCEED 15,000 INCH/LBS.

EVENLY LOADED SHELVES ON GONDOLAS
Divide each shelf depth by 2...multiply times the weight on shelf to determine individual shelf load.

D1	18"	/	2	=	9"	x	300 lbs.	or	2,700 inch/lbs.
D2	18"	/	2	=	9"	x	400 lbs.	or	3,600 inch/lbs.
D3	22"	/	2	=	11"	x	500 lbs.	or	5,500 inch/lbs.
					SIDE D TOTAL = 11,800 inch/lbs.				
E1	18"	/	2	=	9"	x	300 lbs.	or	2,700 inch/lbs.
E2	18"	/	2	=	9"	x	300 lbs.	or	2,700 inch/lbs.
E3	18"	/	2	=	11"	x	300 lbs.	or	3,300 inch/lbs.
					SIDE E TOTAL = 8,700 inch/lbs.				



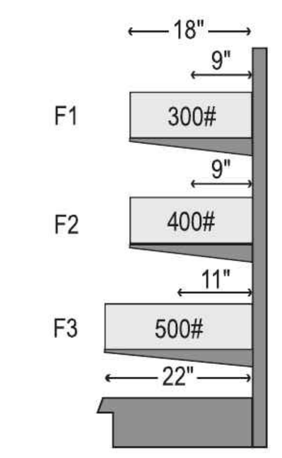
SUBTRACT E FROM D 11,800 inch/lbs.
- 8,700 inch/lbs.
3,100 inch/lbs.

SAFE! 3,100 INCH/LBS. DOES NOT EXCEED 15,000 INCH/LBS. MAXIMUM

EVENLY LOADED SHELVES ON WALL SECTIONS

Divide each shelf depth by 2...multiply times the weight on shelf to determine individual shelf load.

F1	18"	/	2	=	9"	x	300 lbs.	or	2,700 inch/lbs.
F2	18"	/	2	=	9"	x	400 lbs.	or	3,600 inch/lbs.
F3	22"	/	2	=	11"	x	500 lbs.	or	5,500 inch/lbs.
					SIDE F TOTAL = 11,800 inch/lbs.				



SAFE! 11,800 INCH/LBS. DOES NOT EXCEED 5,000 INCH/LBS. MAXIMUM

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POST THIS ENTIRE PAGE IN A CONSPICUOUS PLACE, CLEARLY VISIBLE TO ALL STORE PERSONNEL

RE-LEVELING OF OFFSET LOADED FIXTURES

AFTER THE FIXTURE IS LOADED, IF A GAPPING OF THE SHELVES APPEARS ON THE HEAVILY LOADED SIDE, IT IS POSSIBLE THE ORIGINAL INSTALLATION IS THE CAUSE. CHECK THESE TWO CONDITIONS BEFORE PROCEEDING!
CAUTION! BEFORE MAKING ANY ADJUSTMENTS TO ANY COMPONENTS BE SURE THAT ALL MERCHANDISE HAS BEEN REMOVED.

1. ALL UPRIGHTS MUST BE AT THE SAME HEIGHT!
A. Visually sight across the top of the fixture to check for high or low uprights.
B. If a row of shelves at a particular upright appeat to rise or sag at this indicates an unlevel section
TO CORRECT: Pull a string across the top of the uprights from end to end.
IF THE UPRIGHT IS TOO LOW on lightly loaded section...
  a. Raise base shoe levelers on each side equally until upright touches stringline.
IF UPRIGHT IS TOO HIGH on lightly loaded section...
  a. Remove kickplates on both sides of the low upright.
  b. Screw upright leveler out, or down, raising the top upright until it touches stringline.
  c. Screw base shoe levelers down an equal number of turns until base shoes lock up against the upright.
IF UPRIGHT IS TOO HIGH on lightly or heavily loaded section...
  a. Remove kickplates on both sides of the high upright.
  b. Screw upright leveler up into upright, this may solve the "too high" problem, if not....
  c. Screw loose shoe levelers up into shoe an equal number of turns until top of upright touches stringline.

CAUTION!
CARE SHOULD BE TAKEN TO AVOID ACCIDENTS / INJURY WHILE ADJUSTING MERCHANDISED FIXTURES!

CAUTION!
DO NOT MOVE LOADED FIXTURES ALWAYS REMOVE MERCHANDISE TO MOVE ANY FIXTURE.

DO NOT ATTEMPT TO ADJUST FIXTURES THAT ARE ALREADY ANCHORED

2. NONE OF THE SECTIONS IN THE RUN HAVE BEEN MOVED OUT OF ALIGNMENT
A. Visually sight along the front of the base shelves.
B. Compare the front of the base shelves to a tile line.
TO CORRECT: Facing the wedge shaped gap areas, physically push the section back into line, closing the gaps. Depending on the merchandise, it may be necessary to unload or partially unload the section before moving. Attempt to move the section by applying foot pressure at the kickplate joint only... if not possible,
  a. Place a 2 x 4 block against the kickplate joint and tap back into alignment...or...
  b. Use a jack and 2 x 4 block against kickplate joint... jack should be braced across the aisle against a long 2 x 4 spanning several kickplate joints.
IF THE ABOVE CONDITIONS ARE NOW CORRECT, look for shelf gaps on the heavily loaded side...the base shelf joint will be tight, but the upper shelves will have increasingly larger wedge shape gaps at the top, REMOVE KICKPLATES ON BOTH SIDES FOR AT LEAST ONE SECTION ON EITHER SIDE OF THE HEAVILY LOADED SECTION.
ON THE LIGHTLY LOADED SIDE,
  a. Run upright levelers down to the floor.
  b. Run base shoe leveler up into shoe until the pressure is off of it...1/4" free movement.
THEN...ON THE HEAVILY LOADED SIDE,
  c. Begin at the first heavily loaded upright TO YOUR RIGHT, facing the heavily loaded side...run the base shoe leveler down until all the shelf gaps at that upright close tightly.
  d. Repeat c. with remaining heavily loaded uprights, WORKING TO YOUR LEFT.
THEN...ON THE LIGHTLY LOADED SIDE,
  e. Run loose levelers down until shoe locks up against the upright.
  f. Replace kickplates on both sides.

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ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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REVISIONS

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DO NOT SCALE THESE DRAWINGS

FIXTURE SPECIFICATIONS AND DETAILS

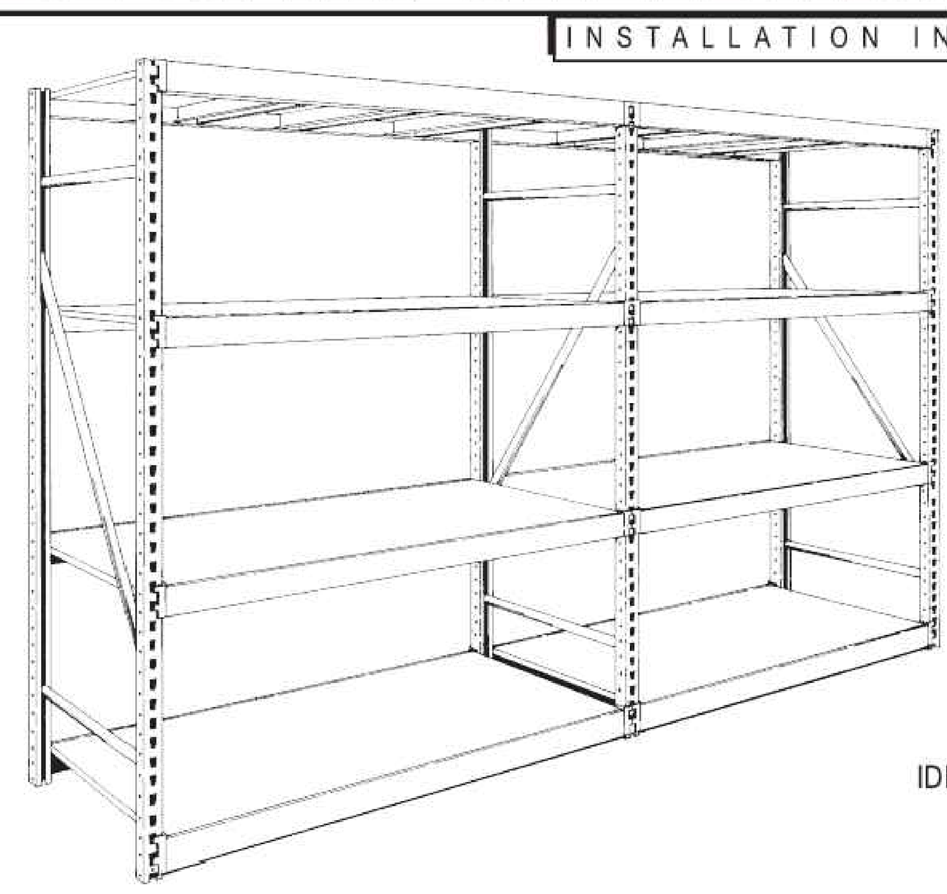
DATE 05/17/24

JOB NO. 23475

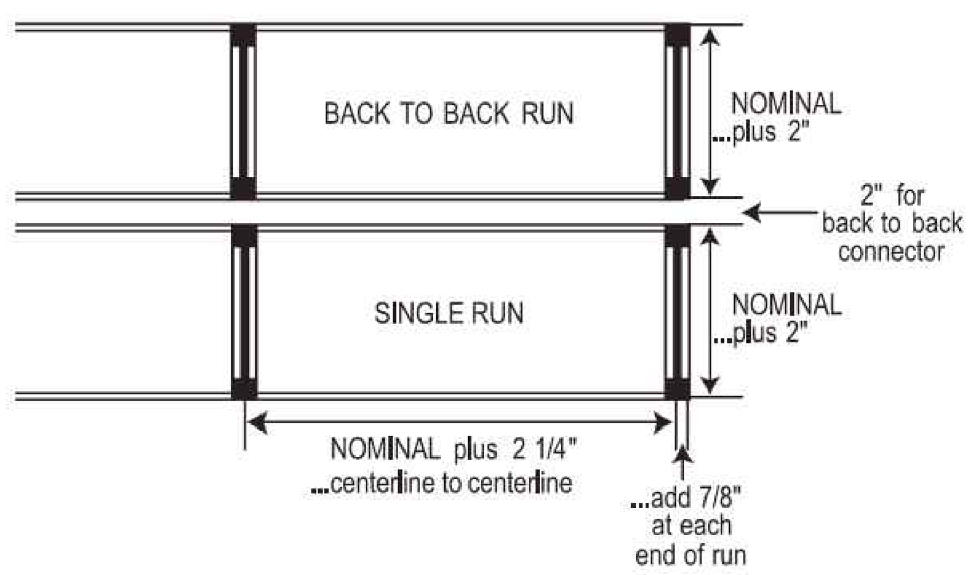
SHEET NO. A1.7

WIDE SPAN SHELVING ASY 061

INSTALLATION INSTRUCTIONS

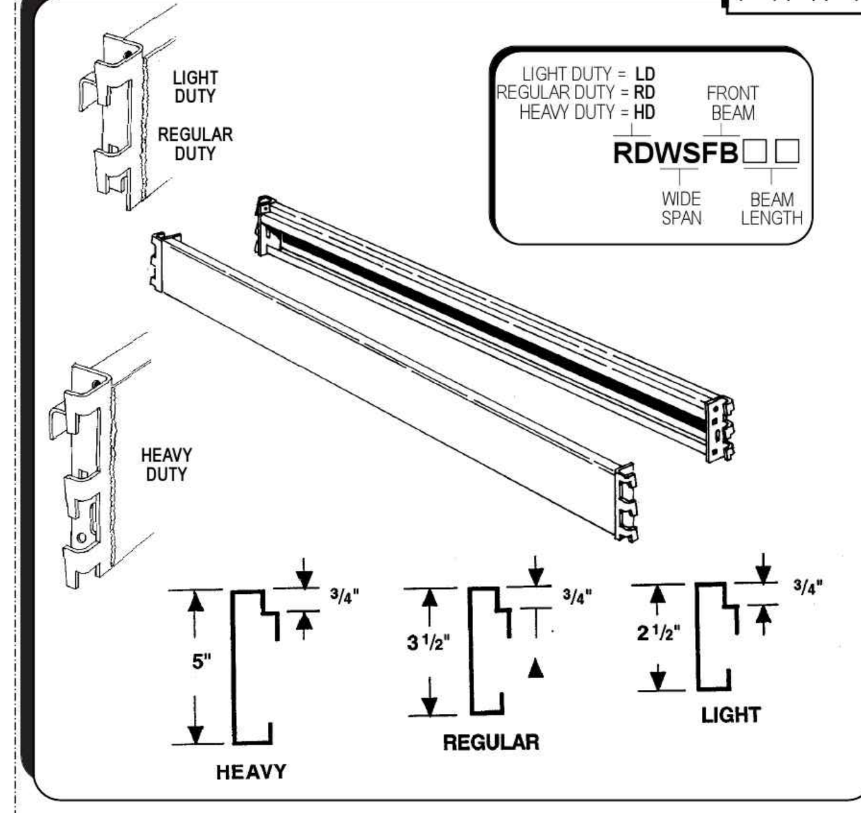


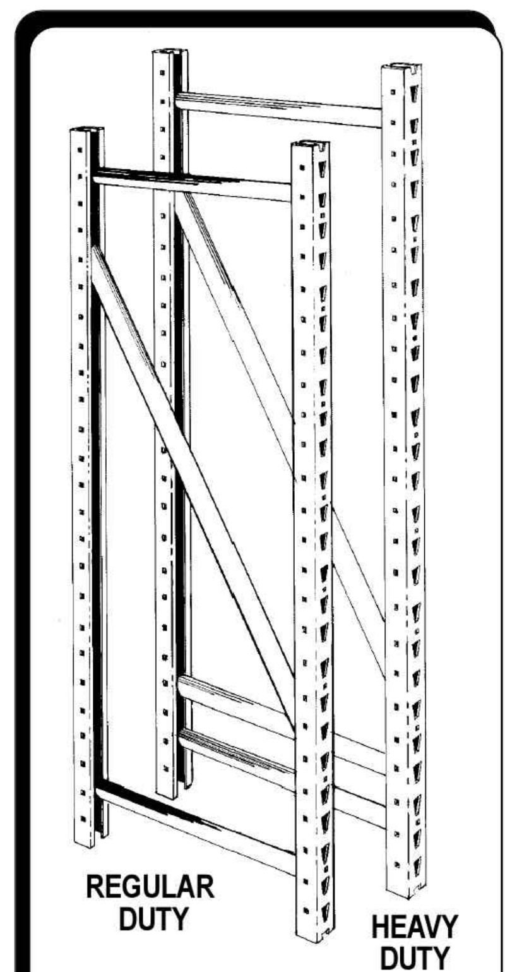
NOTE!
This publication is intended to be a generic installation instruction for Madix Wide Span, and may possibly be subject to change as required by local building codes ...consult the building inspection department at job site.



WIDE SPAN SHELVING ASY 061

PARTS IDENTIFICATION



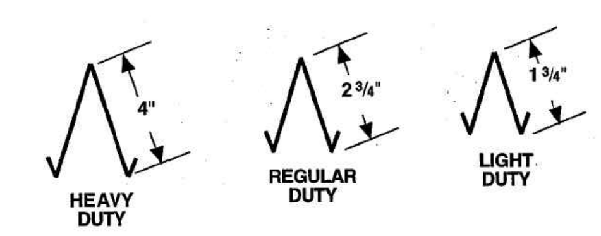


REGULAR DUTY = RD
HEAVY DUTY = HD
RDWSF□□□□
WIDE SPAN FRAME — FRAME DEPTH — FRAME HEIGHT

FRAME DIMENSIONS			
Frame Depth	Actual Depth	Frame Height	Actual Height
18"	20"	48"	48 "
24"	26"	60"	60"
30"	32"	72"	72"
36"	38"	84"	84"
42"	44"	96"	96"
48"	50"	108"	108"
-	-	120"	120"

DIMENSIONS			
Deck Supports		Beams	
Frame Depth	Actual Length	Beam Length	Actual Length Inside of Brackets
18"	20"	48"	48 3/16"
24"	26"	60"	60 3/16"
30"	32"	72"	72 3/16"
36"	38"	84"	84 3/16"
42"	44"	96"	96 3/16"
48"	50"	-	-

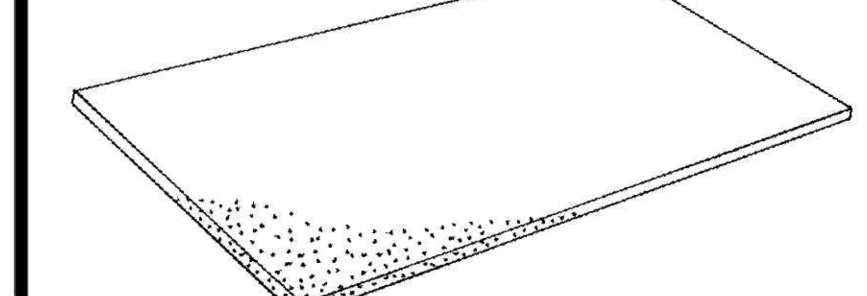
LIGHT DUTY = LD
REGULAR DUTY = RD
HEAVY DUTY = HD
RDWSDS□□
WIDE SPAN — DECK SUPPORT — FRAME DEPTH



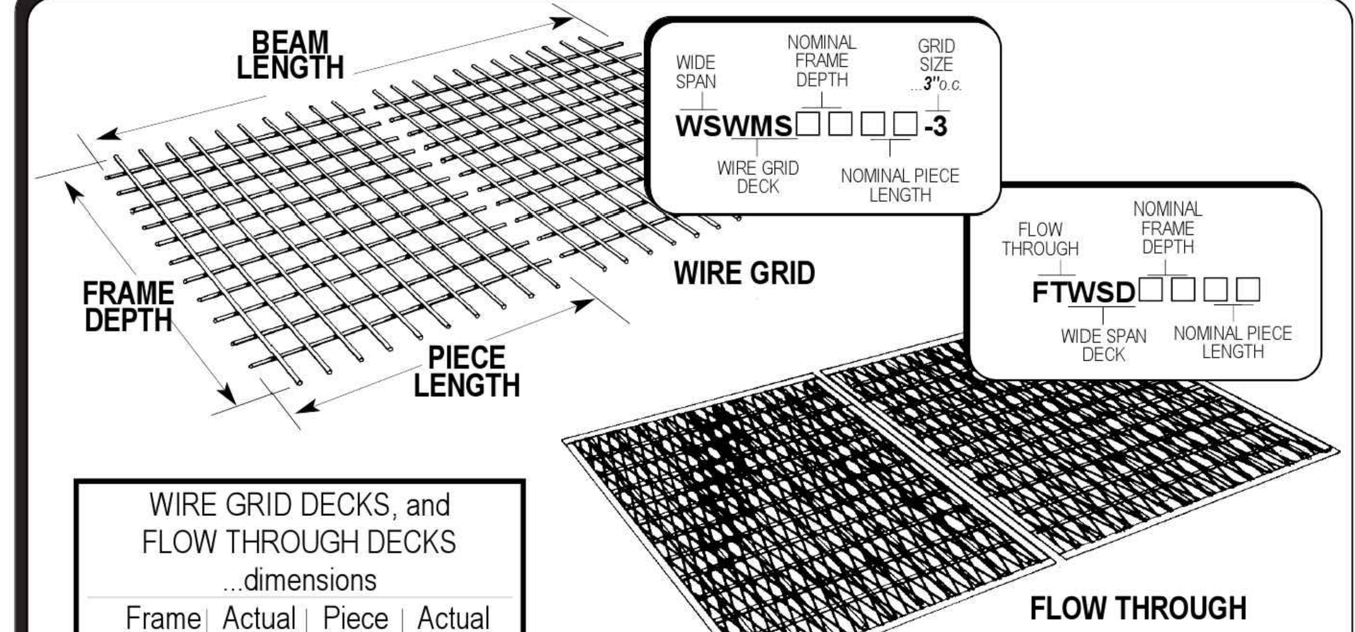
WIDE SPAN SHELVING ASY 061

PARTS IDENTIFICATION

REGULAR DUTY = RD
HEAVY DUTY = HD
FRAME DEPTH
SEALED = S
UNSEALED = U
RDWSD□□□□-U
WIDE SPAN DECK — BEAM LENGTH



PARTICLE BOARD DECKS ...dimensions			
Frame Depth	Actual Depth	Beam Length	Actual Length
18"	18"	48"	47 29/32"
24"	23 29/32"	60"	60"
30"	30"	72"	72"
36"	36"	84"	84"
42"	42"	96"	96"
48"	48"	-	-



WIDE SPAN — NOMINAL FRAME DEPTH — GRID SIZE ...3" o.c.
WSWMS□□□□-3
WIRE GRID DECK — NOMINAL PIECE LENGTH

FLOW THROUGH — NOMINAL FRAME DEPTH
FTWSD□□□□
WIDE SPAN DECK — NOMINAL PIECE LENGTH

WIRE GRID DECKS, and FLOW THROUGH DECKS ...dimensions			
Frame Depth	Actual Depth	Piece Length	Actual Length
18"	17 3/4"	24"	23 3/4"
24"	23 3/4"	36"	35 3/4"
30"	29 3/4"	48"	47 3/4"
36"	35 3/4"	-	-
42"	41 3/4"	-	-
48"	47 3/4"	-	-

WIRE GRID and FLOW THROUGH PIECE LENGTHS RUN PARALLEL TO BEAM LENGTHS		
BEAM LENGTH	COMBINATIONS OF PIECE LENGTHS	# OF DECK SUPPORTS
36"	36"	2
48"	48"	2
60"	24" *plus* 36"	4
72"	36" *plus* 36"	4
84"	36" *plus* 48"	4
96"	48" *plus* 48"	4

WIDE SPAN SHELVING ASY 061

BASIC INSTALLATION

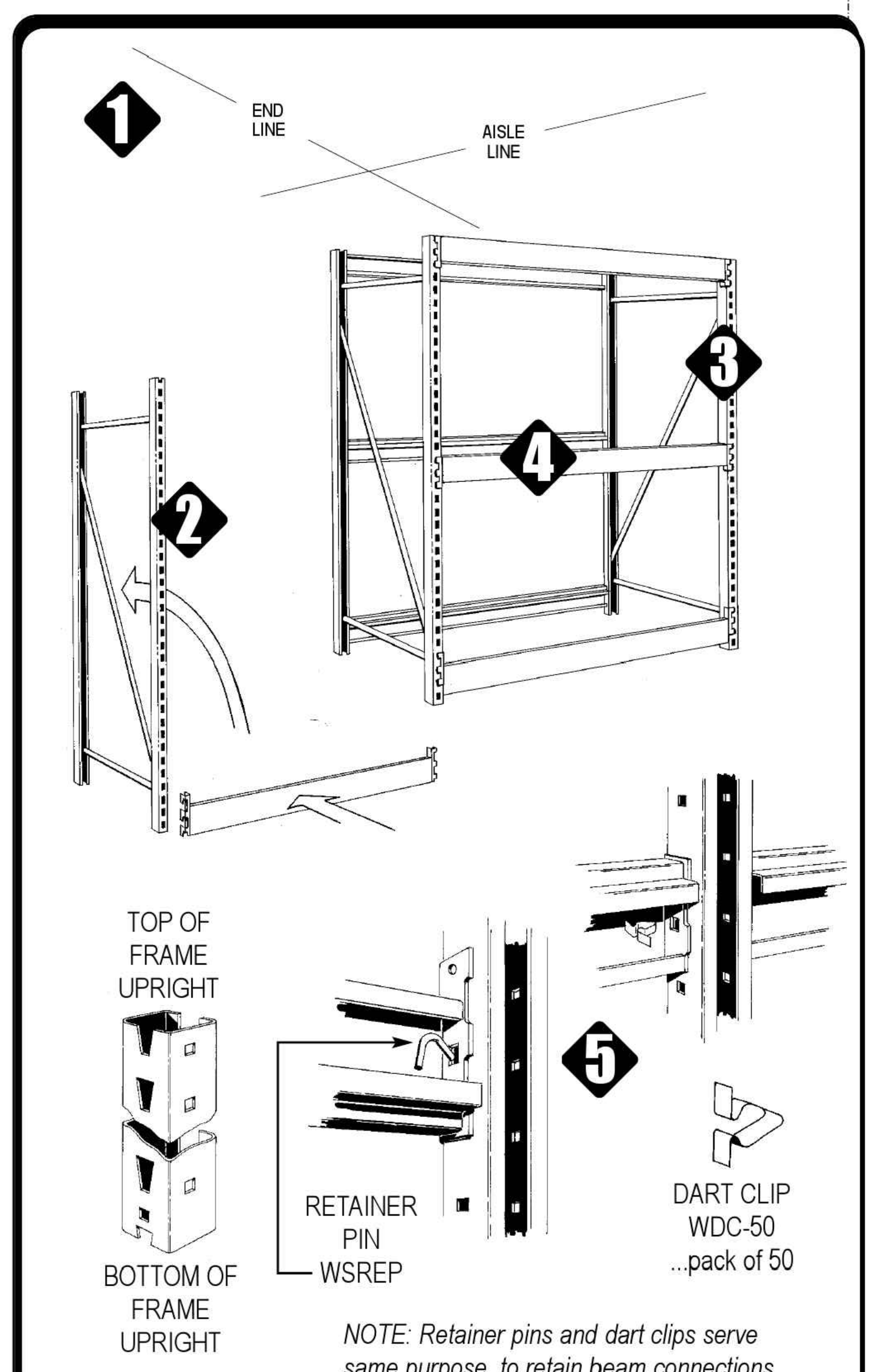
1 Snap chalklines on floor as shown for shelving layout. See diagram on page one for dimensions.

2 Raise first frame to vertical position and install first beam...frame will now stand alone.
NOTE! If floor anchors or extension frames are to be used, they should be installed prior to raising frames to the vertical position...see pages 5-6.

3 Raise second frame to vertical and install free end of first beam... install second beam on opposite side.

4 Install upper beams at designated levels.

5 ***If using Dart Clips:*** Press dart clips through beam bracket and upright on under side of beam as shown. Insert one dart clip at each end of all beams.
If using Retainer Pins: Insert one leg of a retainer pin through beam bracket and upright. Insert one pin at each end of all beams.



NOTE: Retainer pins and dart clips serve same purpose, to retain beam connections.

WIDE SPAN SHELVING ASY 061

BASIC INSTALLATION

6 Repeat assembly sequence with remaining frames, beams and dart clips/retainer pins.
NOTE! If back to back runs are being installed, see page 6 for back to back connectors.

7 Holding the deck support at an angle to the beam, squeeze the open side and insert into the beam, then swing the free end around to the opposite beam, squeeze the open side and insert into the beam.

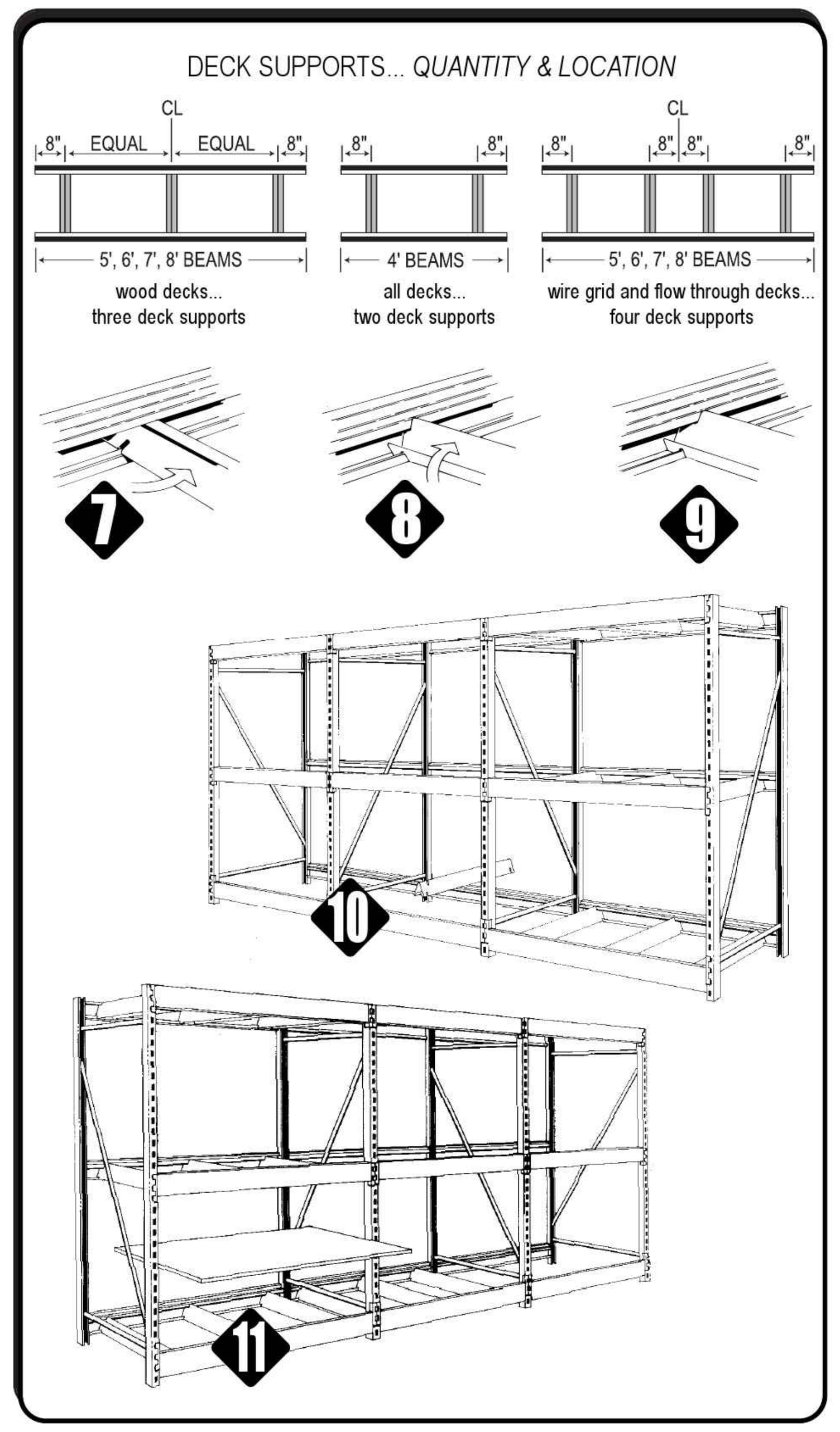
8 Squeeze the open side of the deck support at each end just inside the beam and rotate upwards as shown.

9 Correct installed position will look like this...see above for quantity of deck supports per beam length.

10 Repeat with the remaining deck supports in the shelving run.

11 Install all decks in the shelving run.

DECK SUPPORTS... *QUANTITY & LOCATION*



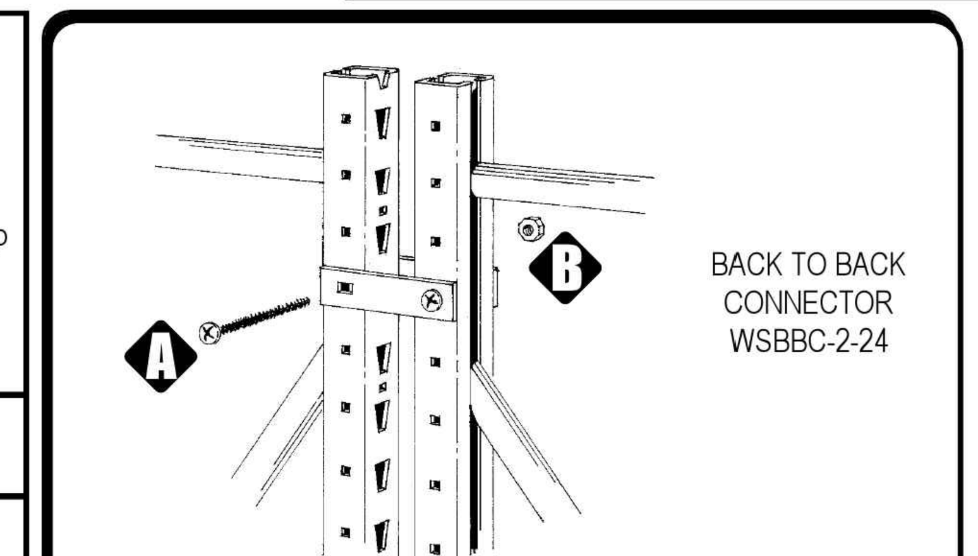
WIDE SPAN SHELVING ASY 061

INSTALLATION OF EXTRAS

12 The first sections of the back to back run should be erected with beams at top and bottom of the four frames. Locate the connectors just below the top beams and just above the bottom beams. Secure with the fasteners as shown.

13 Repeat with the remaining sections.

14 Install all intermediate beams as required, then install a third connector as close as possible to the mid-point of the frames. Complete the shelving run with the deck supports and decks.



WSBBC-2-24 HARDWARE PACK #7200-**079**	
QTY.	ITEM DESCRIPTION
A 48	1/4 - 20 x 2 1/4" carriage bolt
B 48	1/4 - 20 wing nut

A ...indicates item, where used.

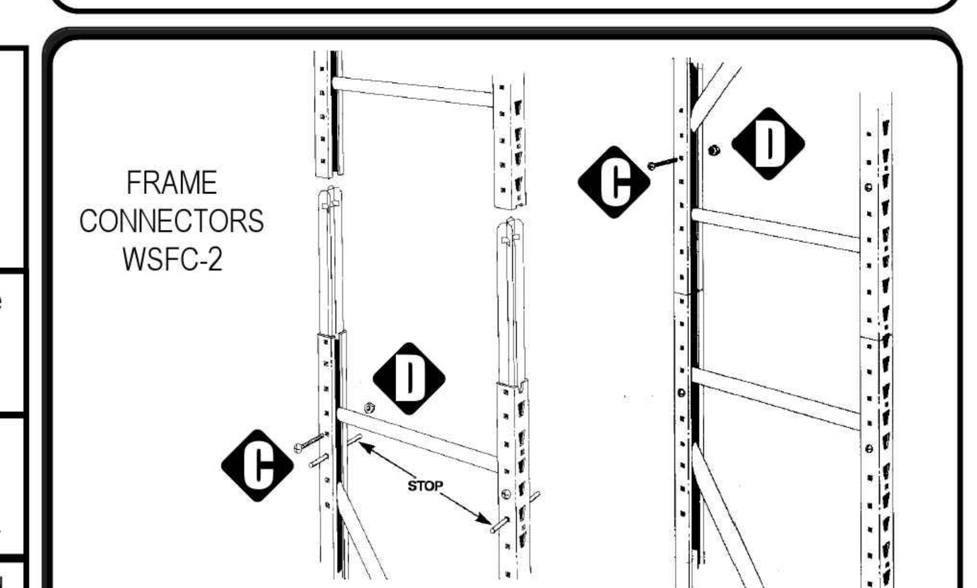
15 In the sixth square hole from the top of the lower frame, insert a stop to prevent the connector from dropping to the floor.

16 Insert connector into frame with flat center of connector facing the slotting.

17 Screw connector to lower frame with provided fasteners...remove the stop.

18 Repeat above with the 2nd upright of the frame.

19 Lower upper frame onto connectors and secure through the sixth hole up from the joint.



WSFC-2 HARDWARE PACK #7200-**078**	
QTY.	ITEM DESCRIPTION
C 4	1/4 - 20 x 2" Phillips truss head machine screw
D 4	1/4 - 20 hex nut

C ...indicates item, where used.

05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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HARBOR FREIGHT

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ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
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FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24

JOB NO. 23475

A1.8

SHEET NO.

DO NOT SCALE THESE DRAWINGS

WIDE SPAN SHELVING

INSTALLATION OF EXTRAS

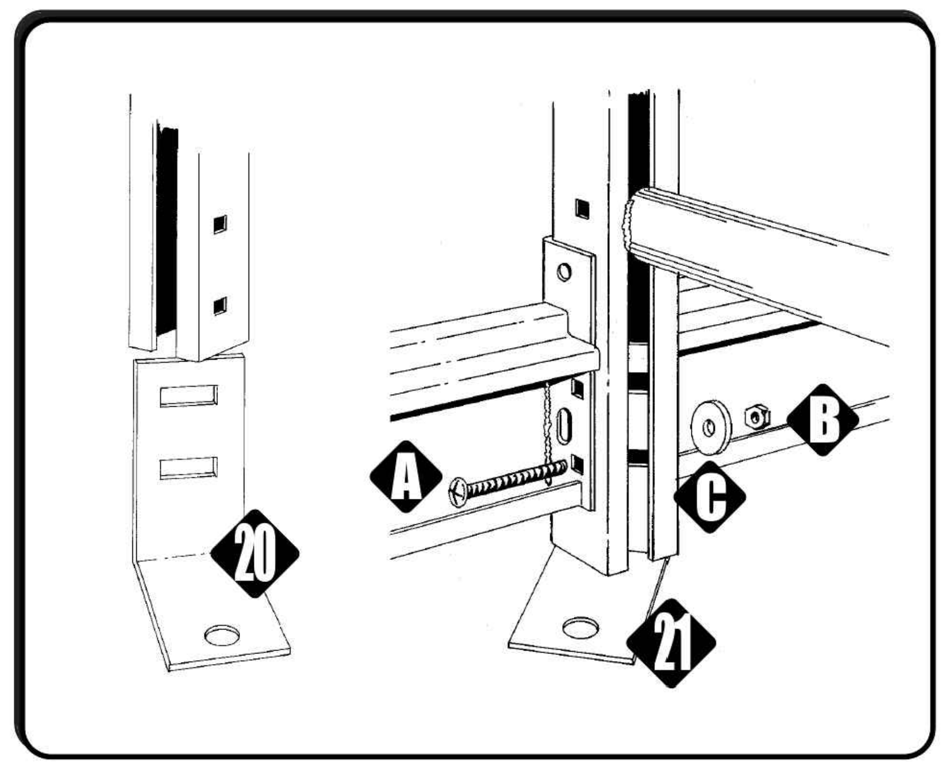
FLOOR ANCHOR WSFA-2

NOTE! IF FRAME HEIGHT, OR TOTAL HEIGHT OF CONNECTED FRAMES, IS MORE THAN SIX TIMES THE FRAME DEPTH ...FRAMES MUST BE SECURED WITH FLOOR ANCHORS.

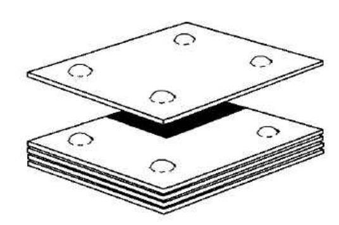
20 Insert floor anchors into the bottom of each frame. They will only insert at 45° to the frame. Make sure that anchors are inserted so that they will not project into aisles or cross aisles.

21 Follow directions on page 4 to step 6, except do not install dart clips on bottom beams. Secure beams to frames through the floor anchor as shown. The screw will go through at one of the two locations, depending on the beam size.

22 Check run alignment to chalkline prior to drilling floor for expansion bolts. Due to varying floor conditions, expansion bolts must be ordered separately. If they were not ordered initially, but are required, see page 8 to order from Madix or purchase locally.

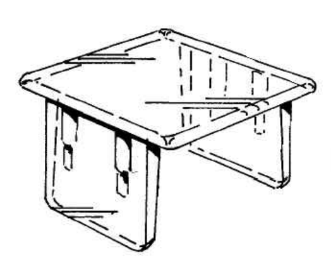


LEVELING SHIM
WSLS-10C
Ten pack of galvanized shims...dimpled to fit in bottom of upright and maintain stacking interlock.



	WSFA-2 HARDWARE PACK #7200-080	
	QTY.	ITEM DESCRIPTION
A	2	1/4 - 20 x 2 1/2" round head machine screw
B	2	1/4 - 20 hex nut
C	2	1/4" flat washer

A ...indicates item, where used.

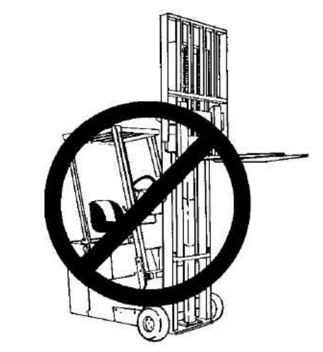


TOP CAP
WSTC - □ -CL
Packs of 4 or 48 clear plastic top caps, two per frame. Tap into top of each frame upright.

WIDE SPAN SHELVING

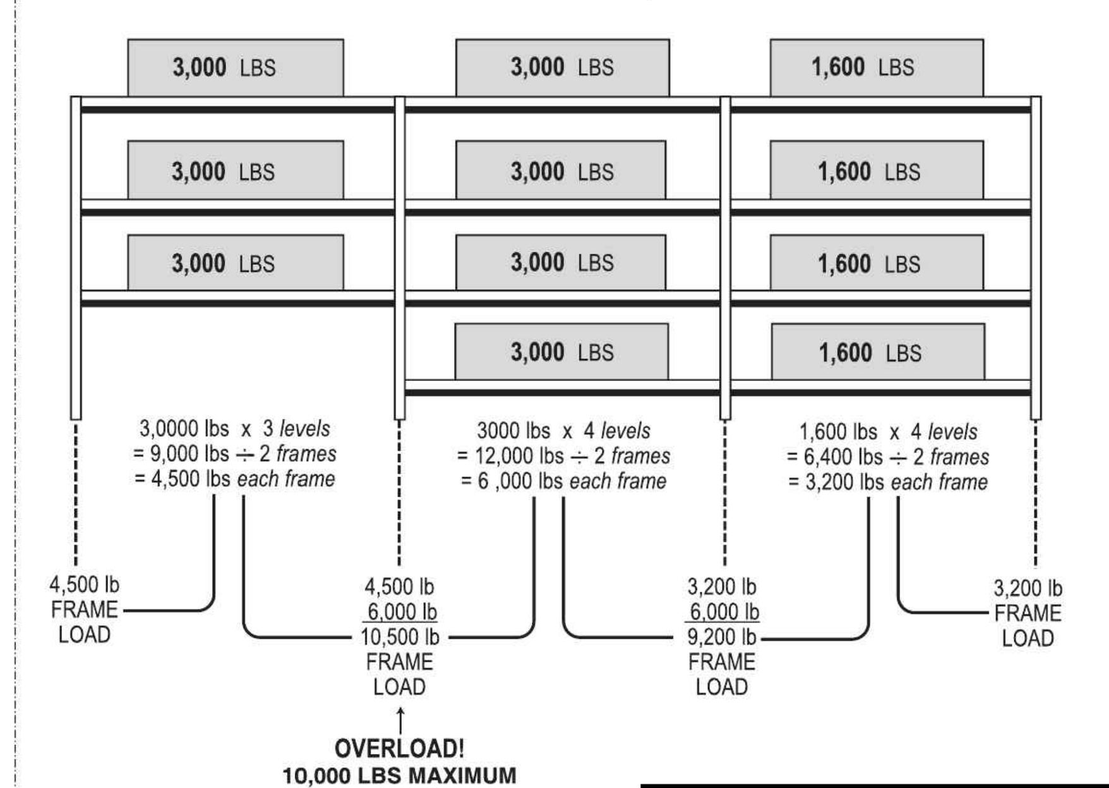
LOAD SAFETY

HAND STACK ONLY!
POWERED FORK TRUCKS OR STACKERS ARE NOT RECOMMENDED FOR USE ON WIDE SPAN SHELVING



FRAME LOADING

Frame loading is the vertical load, measured in pounds, that can be applied on any Wide span frame. Each Wide span frame will bear ONE HALF OF THE LOAD ON EACH BEAM PAIR that it supports. ALL FRAMES HAVE 10,000 POUND LOAD CAPACITY!



MAXIMUM BEAM LOAD CAPACITY *...PER BEAM PAIR*

BEAM LENGTH	LIGHT DUTY	REGULAR DUTY	HEAVY DUTY	# OF DECK SUPPORTS
48"	1000 #	1600 #	3000 #	2
60"	1000 #	1600 #	3000 #	3
72"	1000 #	1600 #	3000 #	3
84"	1000 #	1600 #	3000 #	3
96"	1000 #	1600 #	3000 #	3

• *Based on evenly distributed loads*

• *Based on 96" beam length, all frame widths*

WIDE SPAN SHELVING

SAFETY DURING INSTALLATION

GENERAL

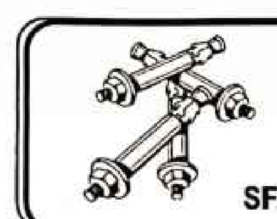
1. Contact the local building department prior to starting installation to check on any restrictions.
2. Only parts and accessories produced or supplied by Madix are covered by Madix warranty.
3. Installation sequence must be followed exactly for assembly and leveling.
4. Under no circumstances should damaged parts be used.
5. Do not use shelving parts or accessories for any purpose other than originally intended.
6. Installation instructions with product load ratings are included with each order and must be followed carefully.
7. Merchandisers must be made aware of possible overloading as specified in load ratings. If you do not receive these, please contact your sales or customer service representative.
8. Initial installation or relocation of Madix gondola, wall or racking fixtures should be supervised exclusively by qualified personnel.

RACKING... FRAMES / BEAMS

9. Observe all prohibitions in the installation instructions on the use of powered lifts.
10. A minimum of four people are required to erect frames taller than 8'.
11. Be sure all beams or accessories are completely seated and locked or secured in frame slotting.
12. Ladders, if used, should be at least frame height.
13. Never stand on lower beams to install upper beams.
14. Do not walk on decks, especially wire grid.
15. Never try to move a completed racking run, especially if merchandised.

WIDE SPAN SHELVING

ANCHORING TO THE FLOOR



EXPANSION BOLTS FOR FLOOR ANCHORS
...50 expansion bolts, 3/8"-16 x 3 1/2" POWERS/ Power-Stud+SD2 concrete anchors or other ICC (ICBO) approved expansion bolts.

SFA-EB50: See below for other ICC (ICBO) approved expansion bolts which may be used.

NOTE! The expansion anchors provided by Madix for floor anchoring at this site have been supplied by one of the firms listed below. All the anchors have been tested and approved as stated by the following ICC (ICBO) report numbers and all are manufactured in the United States or Canada. If the anchors are not provided by Madix and field substitution other than listed be proven, Madix cannot be held responsible. Should verification be required, call Madix Customer Service at: **800.776.2349**

	ICC (ICBO) #
COBRA ANCHORS CORP., Parawedge concrete anchors	ER-2350 S1
DIVERSIFIED FASTENING SYSTEMS, DFS Wedge anchor	ER-4194 S1
GUNNEBO FASTENING CORP.,Drop-in concrete anchors	ER-3219 S1
HILTI, INC., Kwik-bolt-TZ concrete anchors	ESR-1917
MKT FASTENING, High Load Anchor SZ	AC-193
ITW RAMSET/RED HEAD, ITW Ramset stud, Trubolt wedge concrete anchors	ESR-2251
MARKSMAN MANUFACTURING CO., Thunderstud wedge and sleeve anchor	ER-2713 S1
POWERS FASTENING INNOV., Power-Stud+SD2 concrete anchors	ESR-2502
WEJ-IT, Wej-it anchors bolt and ANKR-TITE wedge anchor	ER-1825
CYW, INC., POWER BULL, Wedge anchor	ESR-2254

*Embedment must be minimum 5x bolt diameter.

OTHER ICC (ICBO) APPROVED ANCHORING MATIERALS... not furnished by Madix

PNEUMATIC OR POWDER-DRIVEN STEEL STUDS AND NAILS

HILTI, INC., Hilti low velocity powder actuated or pneumatically driven fasteners	ESR-1663
ITW RAMSET/RED HEAD, Ramset Powder-Actuated and PowerPoint fasteners	ESR-1799

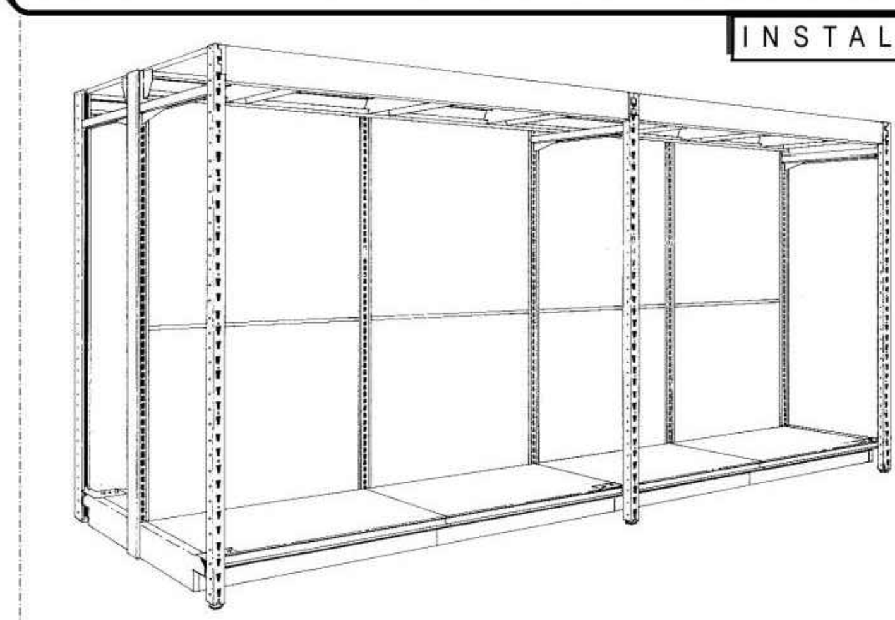
ADHESIVE/ EPOXY ANCHORS

HILTI, INC., HIT-HY 150 Adhesive anchor system	ESR-2678
ITW RAMSET/RED HEAD, ITW Red Head Epcon system Ceramic 6+ epoxy anchors	ESR-3577

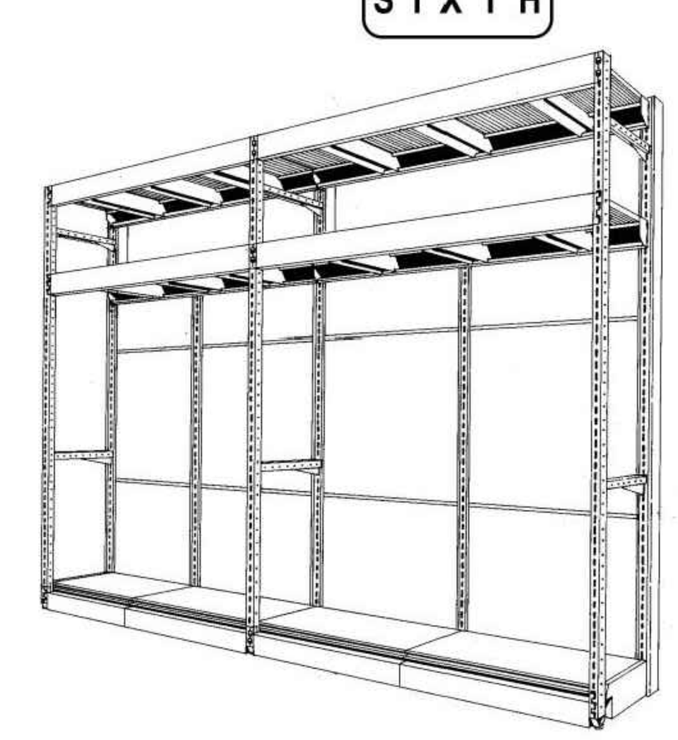
REV#	ECN#	REVISION	BY	DATE
01	5- 13950	UPDATED TO CORRECT ANCHOR INFO	SAM	1/7/14
02	5*14150	ADDED HEIGHT/DEPTH RATIO	CAB	02/14/14
03	5*16478	SHOWED LD BEAM DART CLIP ON PG 4	TED	06/29/15
04	5*18143	ADDED BOLTING REQ. TO PG 4	NRD	09/12/16

HYPERMAXI

INSTALLATION INSTRUCTIONS

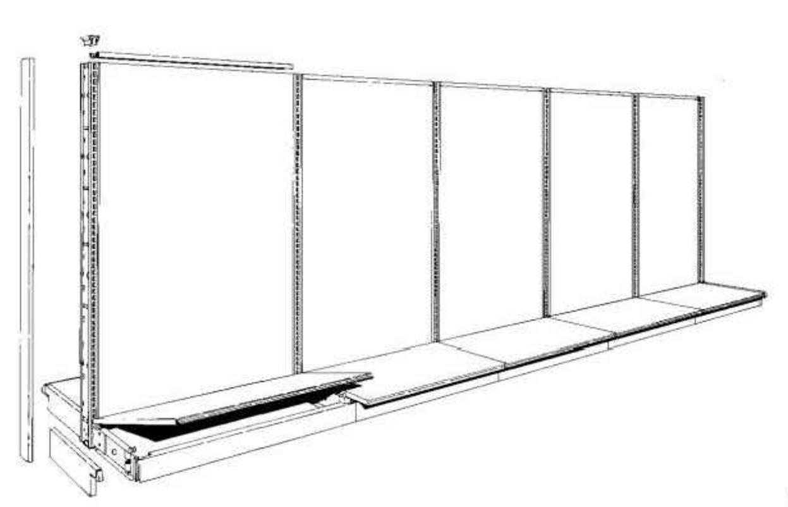


ALL CARTONS CONTAINING HYPERMAXI PARTS ARE LABELED
OPEN
6
SIXTH



NOTE!

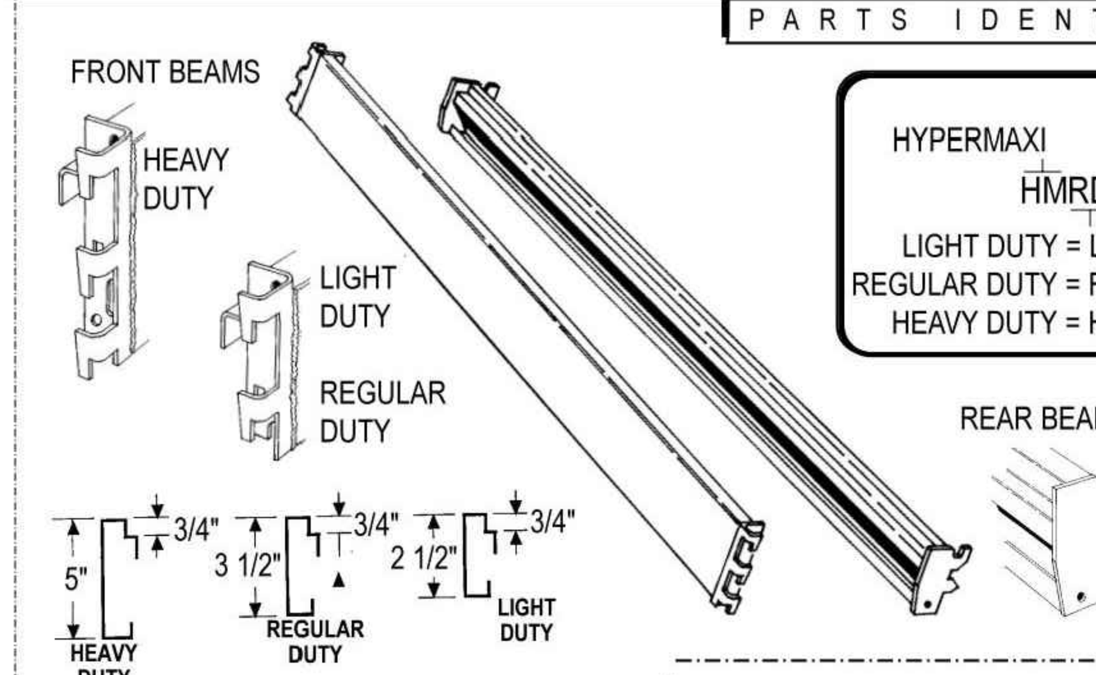
This publication is intended to be a generic installation instruction for Madix Hypermaxi, and may possibly be subject to change as required by local building codes. Consult the building inspection department at job site.



Hypermaxi is an addition to Madix gondola or wall fixtures. See installation instruction ASY 046 to correctly install and level the fixture runs. If floor anchoring of the fixtures is required, see ASY 357 for the correct procedure, and note that *IT IS NOT REQUIRED TO ANCHOR THE HYPERMAXI UPRIGHTS,* only the fixture base shoes or uprights.

HYPERMAXI

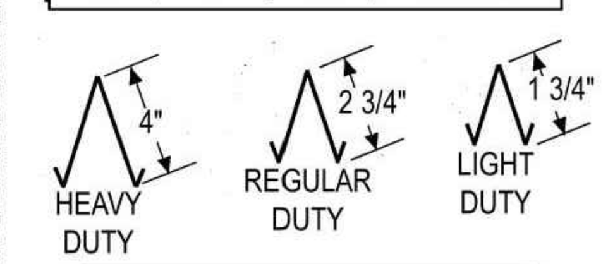
PARTS IDENTIFICATION



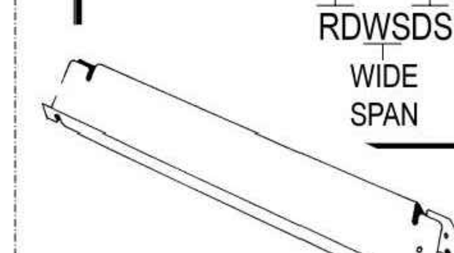
HYPERMAXI
HMRDFB□□
FB = FRONT BEAM
RB = REAR BEAM
LIGHT DUTY = LD
REGULAR DUTY = RD
HEAVY DUTY = HD
BEAM LENGTH

DIMENSIONS

Deck Supports: Upright Depth	Deck Supports: Actual Length	Beams: Beam Length	Beams: Actual Length inside of brackets
18"	20"	36"	48 3/16"
20"	26"	48"	60 3/16"
22"	32"	72"	72 3/16"
24"	38"	84"	84 3/16"
30"	44"	96"	96 3/16"

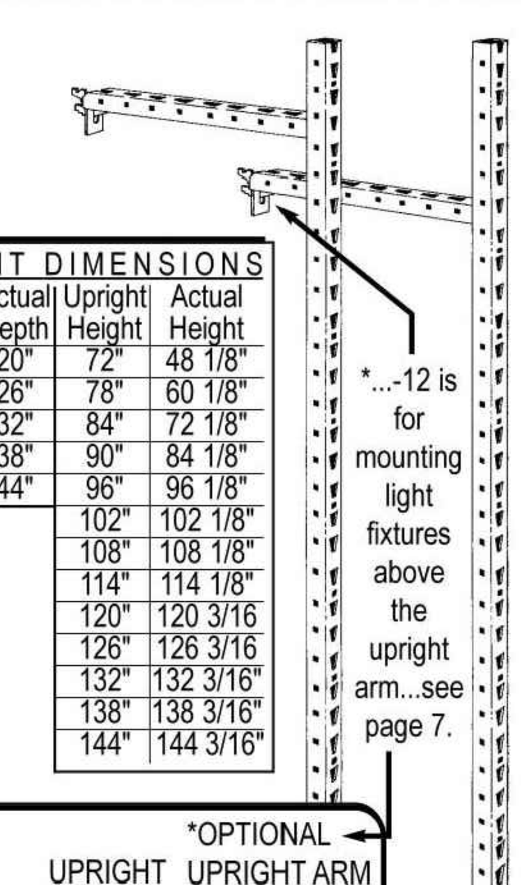


LIGHT DUTY = LD
REGULAR DUTY = RD
HEAVY DUTY = HD
DECK SUPPORT
RDWSDS□□
WIDE SPAN
FRAME DEPTH



UPRIGHT DIMENSIONS

Upright Depth	Actual Depth	Upright Height	Actual Height
18"	20"	72"	48 1/8"
20"	26"	78"	60 1/8"
22"	32"	84"	72 1/8"
24"	38"	90"	84 1/8"
30"	44"	96"	96 1/8"
		102"	102 1/8"
		108"	108 1/8"
		114"	114 1/8"
		120"	120 3/16
		126"	126 3/16
		132"	132 3/16"
		138"	138 3/16"
		144"	144 3/16"



*...-12 is for mounting light fixtures above the upright arm...see page 7.

HYPERMAXI
UPRIGHT HEIGHT
*OPTIONAL UPRIGHT ARM POSITION
HMU-□□□□-12
UPRIGHT
UPRIGHT DEPTH

NORTH CAROLINA PROFESSIONAL SEAL 5433 ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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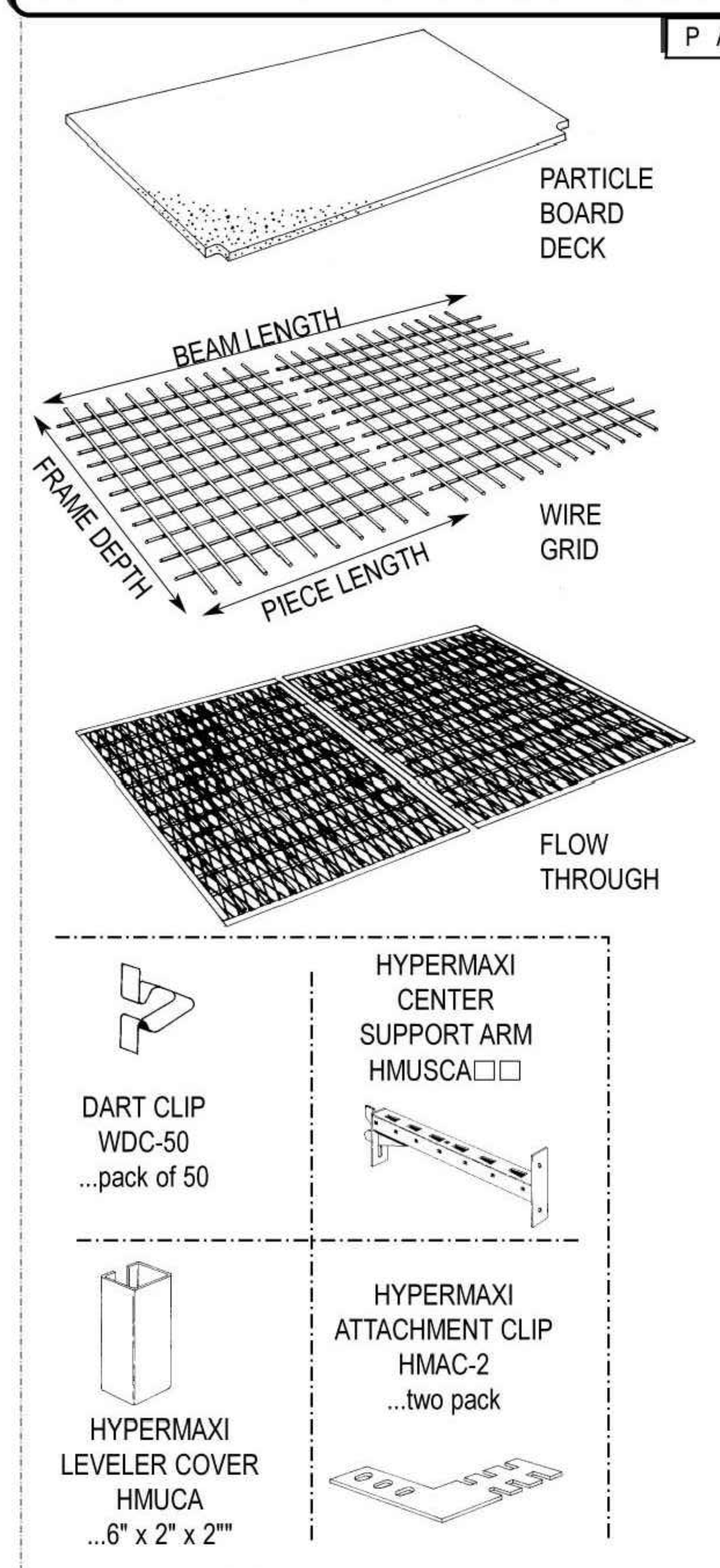
FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24
JOB NO. 23475
A1.9
SHEET NO.

DO NOT SCALE THESE DRAWINGS

HYPERMAXI — PAGE 3 OF 8 — ASY 083

PARTS IDENTIFICATION



HYPERMAXI — HMRDD□□□□-U — UPRIGHT DEPTH; SEALED = S, UNSEALED = U; REGULAR DUTY = RD, HEAVY DUTY = HD; DECK; BEAM LENGTH

PARTICLE BOARD DECKS... DIMENSIONS...

UPRIGHT DEPTH	ACTUAL DEPTH	PIECE LENGTH	ACTUAL LENGTH
18"	18"	36"	35 17/32"
20"	20"	48"	47 17/32"
22"	22"	60"	59 17/32"
24"	24"	72"	71 17/32"
30"	30"	84"	83 17/32"
-	-	96"	95 17/32"

HYPERMAXI — HMWMS□□□□-3 — UPRIGHT DEPTH; GRID SIZE ...3" O.C.; WIRE GRID DECK; BEAM LENGTH

FLOW THROUGH — FTHMD□□□□ — UPRIGHT DEPTH; HYPERMAXI DECK; BEAM LENGTH

WIRE GRID DECKS *AND* FLOW THROUGH DECKS... DIMENSIONS...

UPRIGHT DEPTH	ACTUAL DEPTH	PIECE LENGTH	ACTUAL LENGTH
18"	17 3/4"	24"	23 3/4"
20"	19 3/4"	36"	35 3/4"
22"	21 3/4"	48"	47 3/4"
24"	23 3/4"	-	-
30"	29 3/4"	-	-

WIRE GRID AND FLOW THROUGH PIECE LENGTHS RUN PARALLEL TO BEAM LENGTH

BEAM LENGTH	COMBINATIONS OF PIECE LENGTHS	# OF DECK SUPPORTS
36"	36"	2
48"	48"	2
60"	24" plus 36"	4
72"	36" plus 36"	4
84"	36" plus 48"	4
96"	48" plus 48"	4

HYPERMAXI — PAGE 4 OF 8 — ASY 083

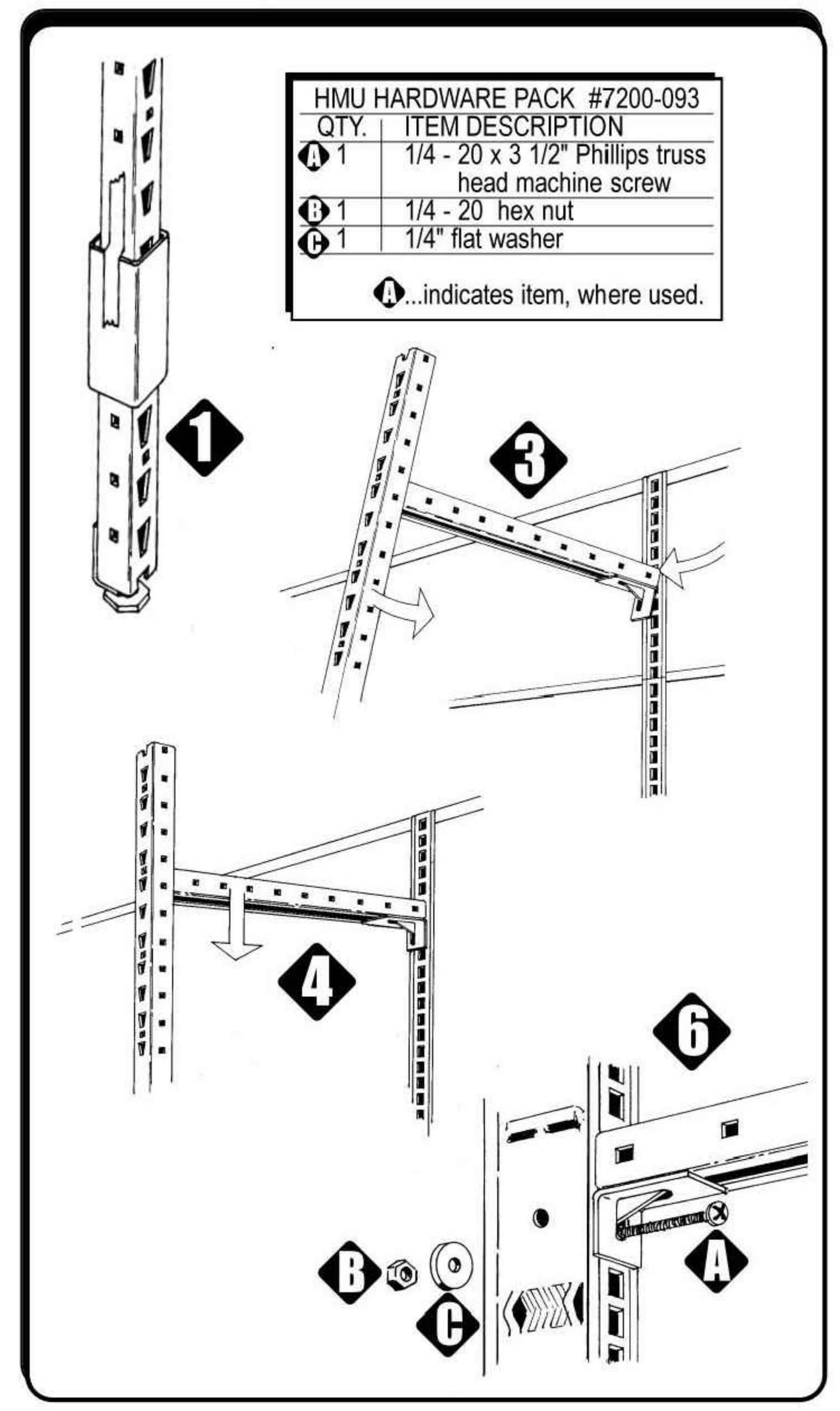
INSTALLATION INSTRUCTIONS

1. Run levelers on Hypermaxi uprights all the way up. Slide leveler cover, if used, approximately 6" up Hypermaxi upright and secure with tape.
2. If plastic upright end covers, UEC-□□, are used, they should not be installed at this point. If metal upright end covers, VC-□□, they should be installed at this point.
3. Hold Hypermaxi upright at an angle as shown and insert bracket into the sixth slot from the top of the fixture upright; if using HMU-□□□□-12 is used, insert into the twelfth slot down. The bottom of the Hypermaxi upright will pivot in toward base when bracket is properly engaged.
4. Pull down on the bracket arm, using your weight to properly seat bracket in upright.
5. Repeat steps 4-5 on opposite side of fixture if it is a gondola.
6. Insert screw as shown through fixture slotting and Hypermaxi upright bracket. Secure with washer and nut on other side.

HMU HARDWARE PACK #7200-093

QTY.	ITEM DESCRIPTION
A 1	1/4 - 20 x 3 1/2" Phillips truss head machine screw
B 1	1/4 - 20 hex nut
C 1	1/4" flat washer

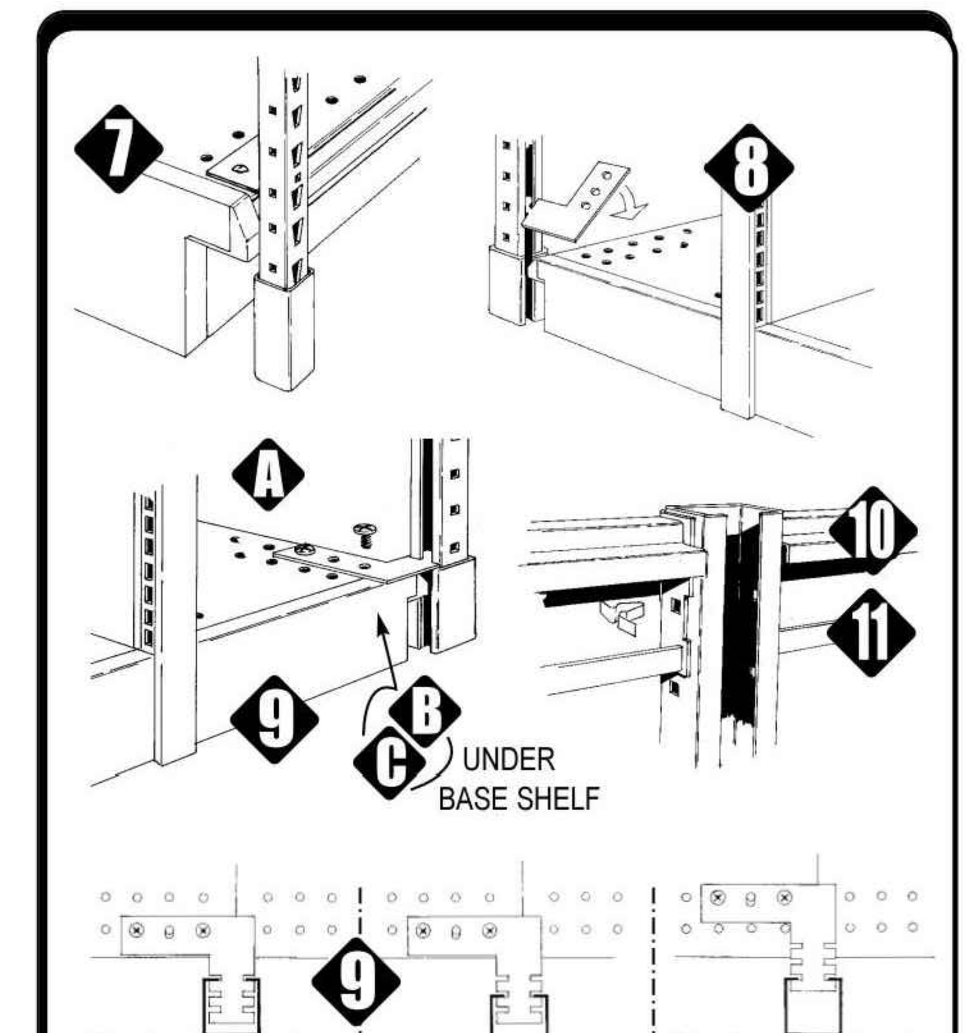
A...indicates item, where used.



HYPERMAXI — PAGE 5 OF 8 — ASY 083

INSTALLATION INSTRUCTIONS

7. Run Hypermaxi upright levelers down to floor... untape leveler cover, if used, and slide cover down to floor.
8. Insert the attachment clip into Hypermaxi upright and rotate 90°.
9. Select required attachment clip positioning from the diagram below, then secure attachment clip to base shelf with fasteners in hardware pack shown below.
10. Install beams at required heights. For front and rear beam sizes and bracket shapes, refer to parts identification on page 2.
11. Press dart clips through beam bracket and upright on the under side of beam as shown, Insert one dart clip at each end of all beams.



Standard positioning of the attachment clip to the base shelf and the upright.

Positioning of the attachment clip to the base shelf and the upright if M25 tag mold and BECE base end covers are used.

Positioning of the attachment clip to the base shelf and the upright if ANY WIRE BINNING is used on the base shelf.

HMAC-2 HARDWARE PACK #7200-082

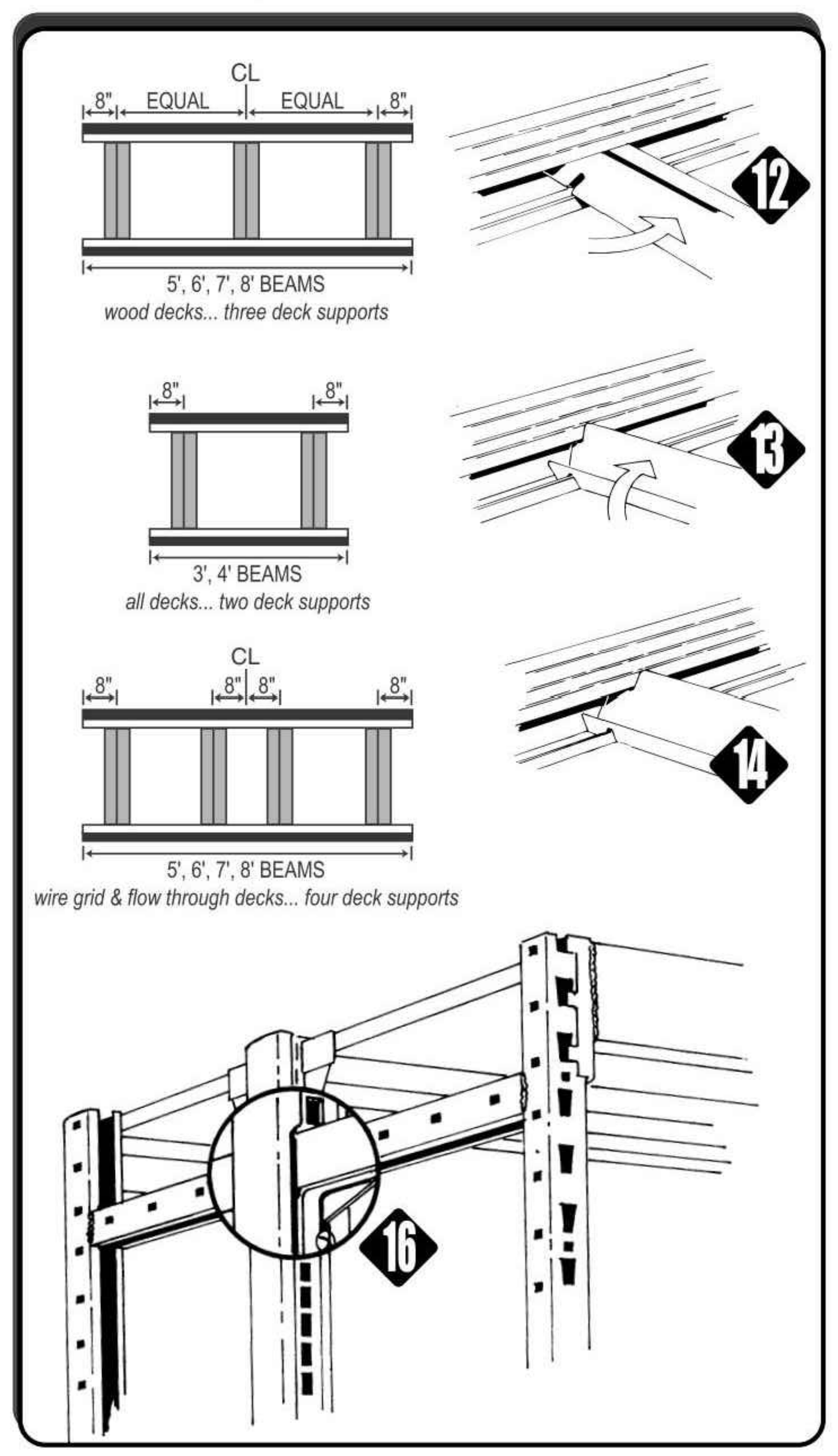
QTY.	ITEM DESCRIPTION
A 4	1/4 - 20 x 1/2" Phillips truss head machine screw
B 4	1/4 - 20 hex nut
C 4	1/4" flat washer
D 4	1/4 - 20 lock washer
E 4	# 8 x1/2" hex head sheet metal screw

A...indicates item, where used.

HYPERMAXI — PAGE 6 OF 8 — ASY 083

DECK SUPPORTS: QUANTITY AND LOCATION

12. Holding the deck support at an angle to the beam, squeeze the open side and insert into the beam, then swing the free end around to the opposite beam, squeeze the open side and insert into the beam.
13. Squeeze the open side of the deck support at each end just inside the beam and rotate upwards as shown.
14. Correct installed position will look like diagram 14. See layout diagram for quantity of deck supports per beam length. Supports may be slid or tapped into locations as shown.
15. Lay the decks on the deck supports.The notches on the particle board decks are on the front edge to accommodate the Hypermaxi upright.
16. Trim the UEC-□□□, upright end covers, to fit over the Hypermaxi upright bracket prior to installing them.
17. Install upper shelves and accessories into the basic fixture upright.



HYPERMAXI — PAGE 7 OF 8 — ASY 083

INSTALLATION OF EXTRAS

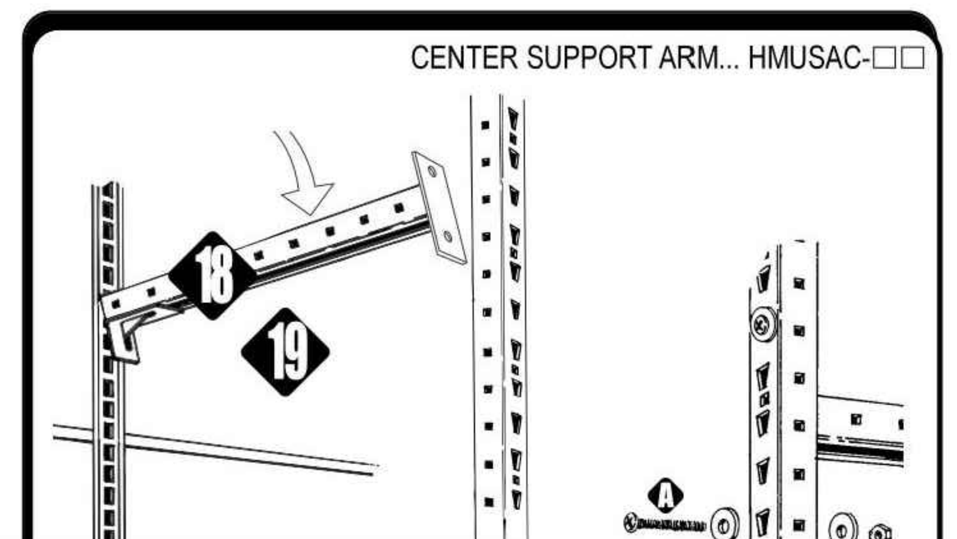
NOTE!

The Hypermaxi center support arm must be installed at the approximate midpoint of the Hypermaxi upright and above the installed upper shelves. If two support arms are used on an upright, they should be equally spaced.

18. Hold the center support arm at an angle as shown and insert bracket into the basic fixture upright and pull down on the bracket arm, using your weight to properly seat bracket in upright.
19. Pull outward on the Hypermaxi upright and swing the center support arm in behind the upright. Align the mounting plate holes with the upright slots and secure with the fasteners as shown.
20. There are two means of securing the light fixture to the deck support...the fasteners are provided for either one.
    1. Use the self drilling Tek-2 screw, item D, as shown. This runs a slight risk of drilling into the interior wiring of the light fixture.
    OR
    2. Use the screw and nut, items B and C, as shown, This will require removing the light fixture cover.
21. Using the self-drilling screws, item E, secure the reflector to the light fixture as shown.

ASSEMBLY COMPLETE

CENTER SUPPORT ARM... HMUSAC-□□



HMUSCA HARDWARE PACK #7200-127

QTY.	ITEM DESCRIPTION
A 3	1/4 - 20 x 2 1/2" round head machine screw
B 3	1/4 - 20 hex nut
C 6	1/4" flat washer

A...indicates item, where used.

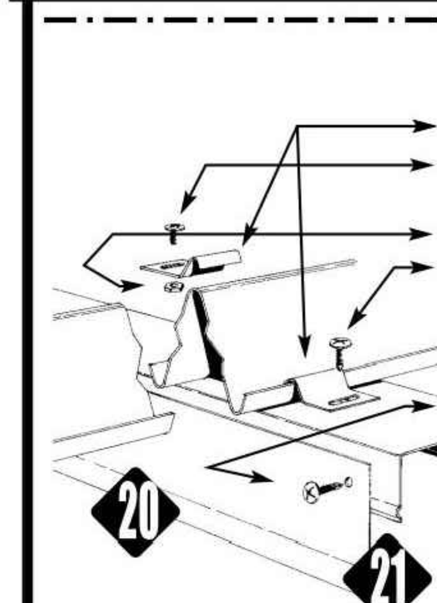
WS/HMLMK LIGHT MOUNTING KIT

QTY.	ITEM DESCRIPTION
D 4	wire shelf clip
E 4	#8-32 x 1/2" Phillips pan head machine screw
F 4	#8-32 x 1/2" hex/Keps nut
G 4	#8 x 1/2" Phillips pan head,Tek-2 sheet metal screw

HMU-BSQ-LR HARDWARE PACK #7200-177

QTY.	ITEM DESCRIPTION
H 3	#10 x 1/2" Phillips pan head,Tek-3

D...indicates item, where used.

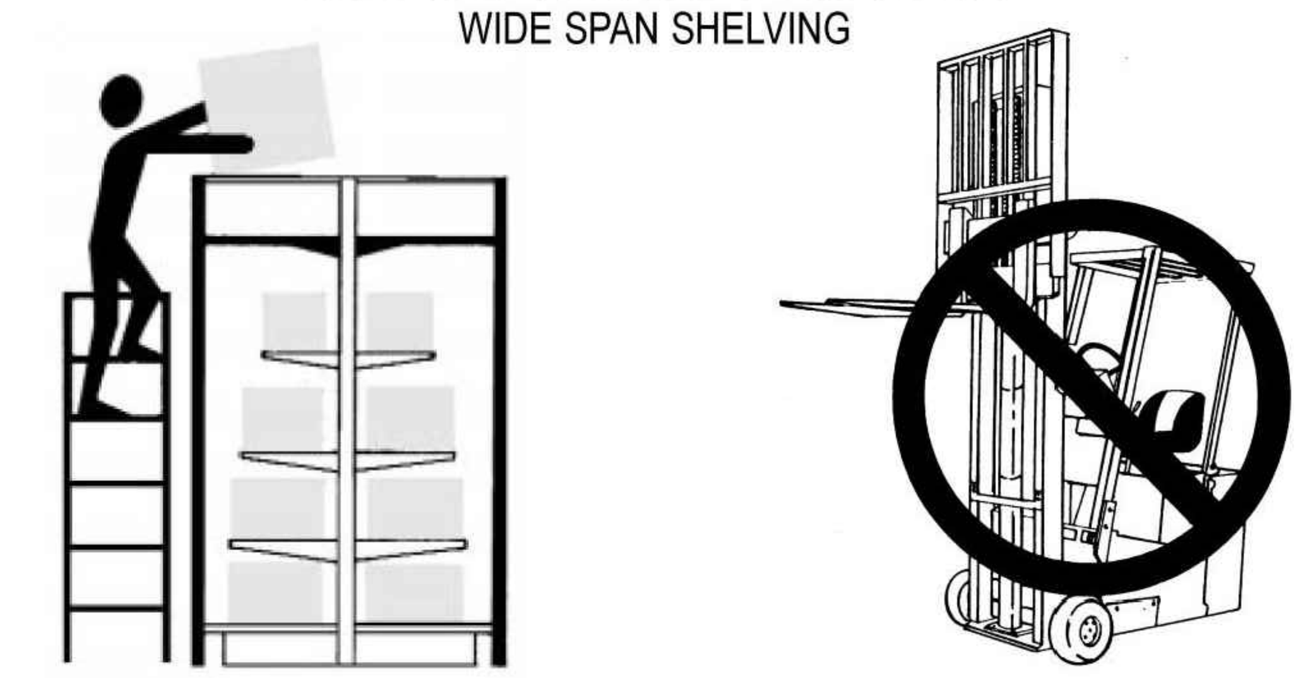


LIGHT MOUNTING KIT/REFLECTOR... HMU-□□LR

HYPERMAXI — PAGE 8 OF 8 — ASY 083

SAFETY / LOAD CAPACITY

HAND STACK ONLY!
POWERED FORK TRUCKS OR STACKERS
ARE NOT RECOMMENDED FOR USE ON
WIDE SPAN SHELVING



MAXIMUM BEAM LOAD CAPACITY

...PER BEAM PAIR

BEAM LENGTH	LIGHT DUTY	REGULAR DUTY	HEAVY DUTY	# OF DECK SUPPORTS
36"	1000 #	1600 #	3000 #	2
48"	1000 #	1600 #	3000 #	2
60"	1000 #	1600 #	3000 #	3
72"	1000 #	1600 #	3000 #	3
84"	1000 #	1600 #	3000 #	3
96"	1000 #	1600 #	3000 #	3

- *Based on evenly distributed loads*
- *Based on 96" beam length, all frame widths*

REV#	ECN#	REVISION	BY	DATE	REV#	ECN#	REVISION	BY	DATE
A	4744	REVISE LAYOUT	ACM	3/16/00					

NORTH CAROLINA PROFESSIONAL SEAL ARCHITECT BRIAN E QUINN

05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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DO NOT SCALE THESE DRAWINGS

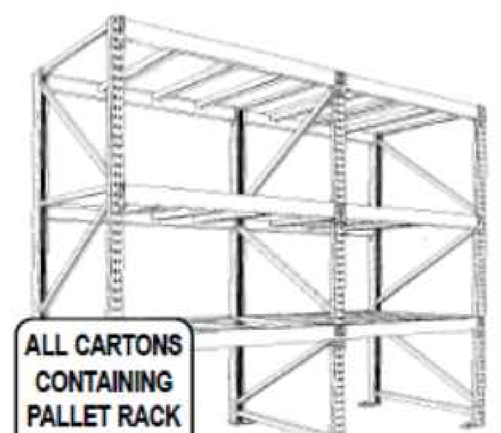
FIXTURE SPECIFICATIONS AND DETAILS

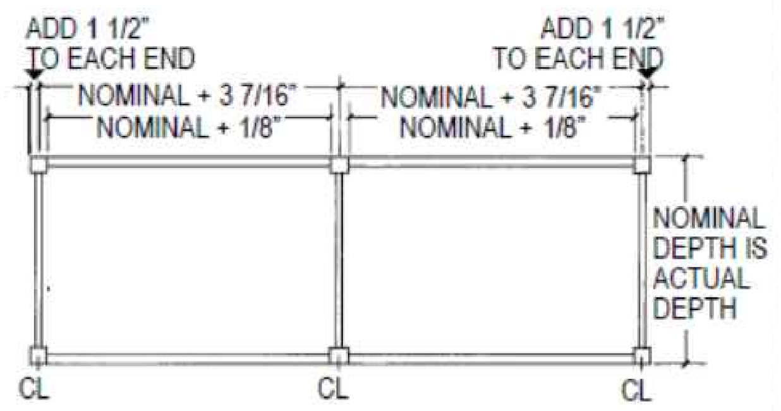
DATE 05/17/24
JOB NO. 23475

A1.10
SHEET NO.

PALLET RACK — ASY 103

PALLET RACK ASY 103
ASSEMBLY INSTRUCTIONS



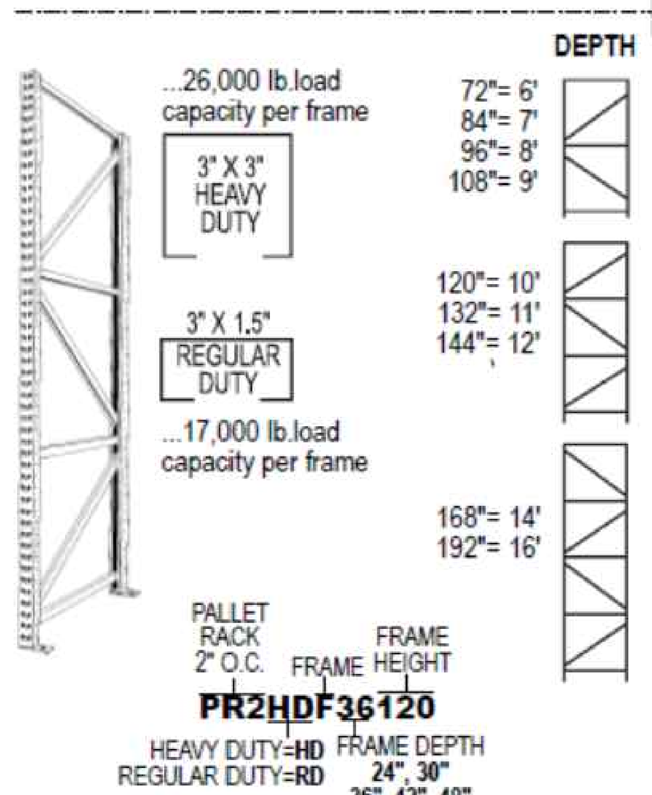


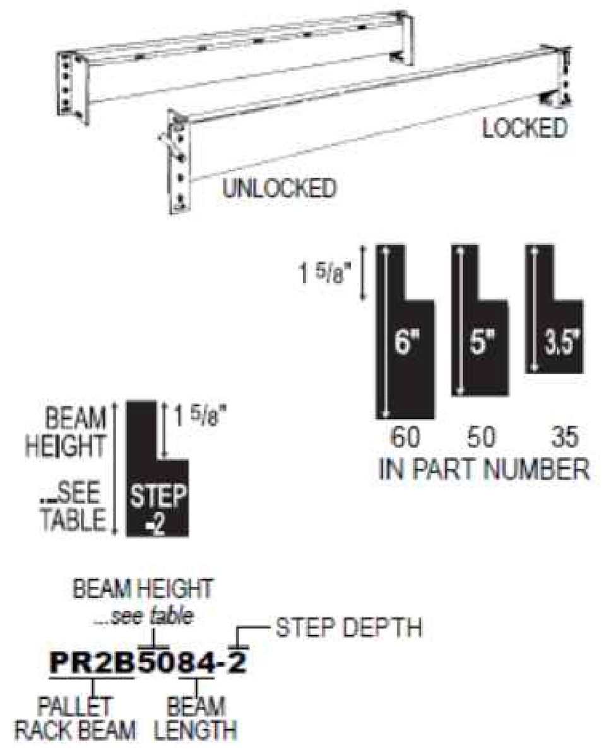
ALL CARTONS CONTAINING PALLET RACK PARTS ARE LABELED

OPEN 7 SEVENTH

NOTE! This publication is intended to be a generic installation instruction for Madix Pallet Rack, and may possibly be subject to change as required by local building codes ...consult the building inspection department at job site.

PARTS IDENTIFICATION

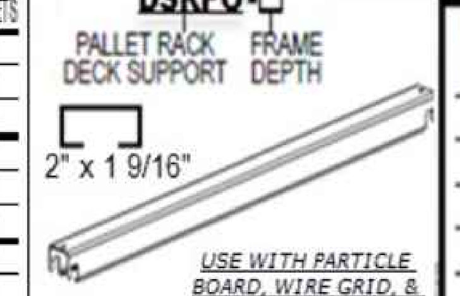




PALLET RACK ASY 103
PARTS IDENTIFICATION

BEAM LENGTH		BEAM HEIGHT	CAPACITY IN LBS/PAIR	ACTUAL LENGTH BETWEEN BRACKETS
48"	x	3 1/2"	4,950	48 1/8"
48"	x	5"	7,600	48 1/8"
48"	x	6"	10,000	48 1/8"
60"	x	3 1/2"	4,950	60 1/8"
60"	x	5"	7,600	60 1/8"
60"	x	6"	10,000	60 1/8"
72"	x	3 1/2"	4,950	72 1/8"
72"	x	5"	7,600	72 1/8"
72"	x	6"	10,000	72 1/8"
84"	x	3 1/2"	4,950	84 1/8"
84"	x	5"	7,600	84 1/8"
84"	x	6"	10,000	84 1/8"
96"	x	3 1/2"	4,950	96 1/8"
96"	x	5"	7,600	96 1/8"
96"	x	6"	10,000	96 1/8"
108"	x	6"	9,110	108 1/8"
120"	x	6"	8,000	120 1/8"
132"	x	6"	7,270	132 1/8"
144"	x	6"	6,660	144 1/8"

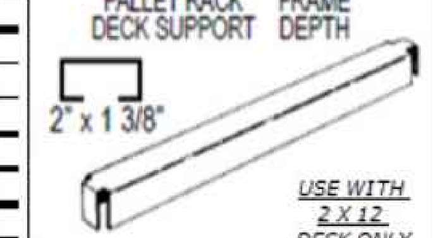
DSRPO-☐
PALLET RACK DECK SUPPORT — FRAME DEPTH
2" x 1 9/16"



USE WITH PARTICLE BOARD, WIRE GRID, & FLOW THRU ONLY

Frame Depth	Actual Length
24"	20 7/16"
30"	26 7/16"
36"	32 7/16"
42"	38 7/16"
48"	44 7/16"

MPRDS-☐
PALLET RACK DECK SUPPORT — FRAME DEPTH
2" x 1 3/8"



USE WITH 2 X 12 DECK ONLY

Frame Depth	Actual Length
24"	20 7/32"
30"	26 7/32"
36"	32 7/32"
42"	38 7/32"
48"	44 7/32"

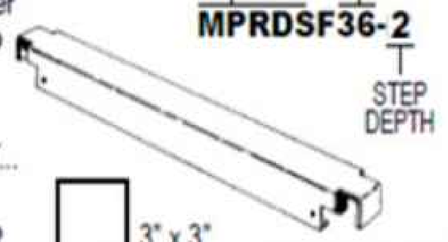
PARTICLE BOARD DECK DIMENSIONS

	NOMINAL	ACTUAL
DEPTH	24"	21"
	30"	27"
	36"	33"
	42"	39"
	48"	45"
LENGTH	48"	47 3/4"
	60"	59 3/4"
	72"	71 3/4"
	84"	83 3/4"
	96"	95 3/4"
	108"	53 7/8" x 2
	120"	59 7/8" x 2
	132"	65 7/8" x 2
	144"	71 7/8" x 2

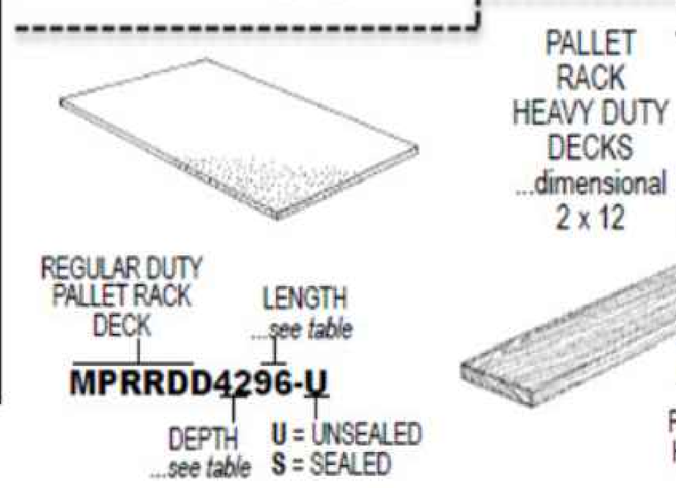
Decks 108" and longer are two piece.

PALLETS ONLY one pair per pallet...no deck
LOAD CAPACITY... 5,000 LBS/PAIR

PALLET RACK FLUSH DECK SUPPORT — FRAME DEPTH ...see table
MPRDSF36-2
STEP DEPTH
3" x 3"



Frame Depth	Actual Length
24"	24 1/2"
30"	30 1/2"
36"	36 1/2"
42"	42 1/2"
48"	48 1/2"



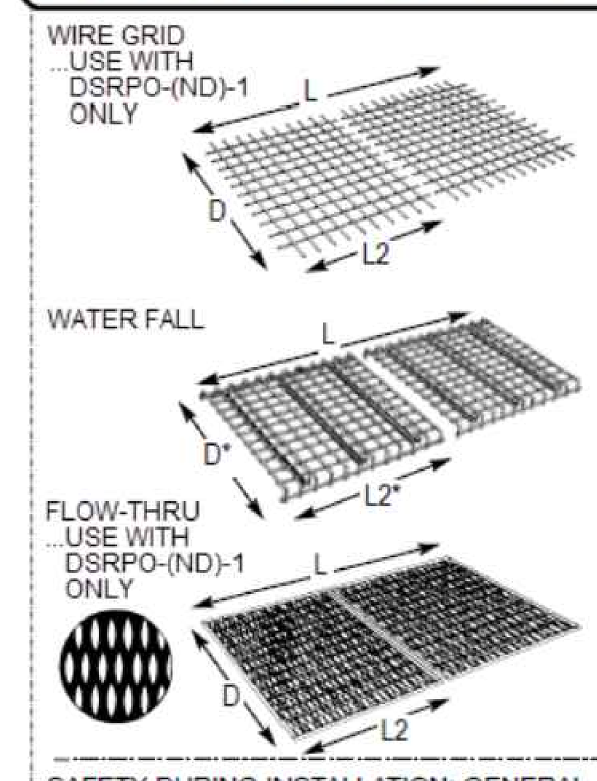
PALLET RACK HEAVY DUTY DECKS ...dimensional 2 x 12

Frame Depth	Actual Length
24"	20 7/8"
30"	26 7/8"
36"	32 7/8"
42"	38 7/8"
48"	44 7/8"

REGULAR DUTY PALLET RACK DECK — LENGTH ...see table
MPRRDD4296-U
DEPTH ...see table
U = UNSEALED
S = SEALED

MPRHHD-☐☐
PALLET RACK HEAVY DUTY DECK — FRAME DEPTH

PALLET RACK ASY 103
PARTS IDENTIFICATION AND SAFETY



PRWMS☐☐☐☐-3
PALLET RACK — NOMINAL FRAME DEPTH — GRID SIZE ...3" o.c.
WIRE GRID DECK — NOMINAL PIECE LENGTH 24", 36", 48"

PRWFWGD☐☐☐☐-3
WATERFALL — NOMINAL FRAME DEPTH — GRID SIZE ...3" O.C.
PALLET RACK — WIRE GRID DECK — NOMINAL PIECE LENGTH 24", 36", 48"

FTPR2D☐☐☐☐
PALLET RACK — NOMINAL FRAME DEPTH
FLOW THROUGH — DECK — NOMINAL PIECE LENGTH 24", 36", 42", 48"

DECK DIMENSIONS

	NOMINAL	ACTUAL
DEPTH	24"	20 3/4"
	30"	26 3/4"
	36"	32 3/4"
	42"	38 3/4"
	48"	44 3/4"
PIECE LENGTH	24"	23 3/4"
	36"	35 3/4"
	48"	47 3/4"
	60"	59 3/4"

L = BEAM LENGTH
D = FRAME DEPTH
L2 = PIECE LENGTH

D* = ACTUAL FRAME DEPTH equals NOMINAL + 7/8"
L2* = ACTUAL PIECE LENGTH equals NOMINAL + 3 3/4"

SAFETY DURING INSTALLATION: GENERAL
1. Contact the local building department prior to starting installation to check on any restrictions.
2. Only parts and accessories produced or supplied by Madix are covered by Madix warranty.
3. Installation sequence must be followed exactly for assembly and leveling.
4. Under no circumstances should damaged parts be used.
5. Do not use shelving parts or accessories for any purpose other than originally intended.
6. Installation instructions with product load ratings are included with each order and must be followed carefully.
7. Merchandisers must be made aware of possible overloading as specified in load ratings. If you do not receive these, please contact your sales or customer service representative.
8. Initial installation or relocation of Madix gondola, wall or racking fixtures should be supervised exclusively by qualified personnel.

DECK TYPE	NOMINAL BEAM LENGTH	...COMBINE THESE PIECE LENGTHS TO = BEAM LENGTH
SINGLE DECK	36"	36"
	48"	48"
TWO PIECE DECKS	60"	24" plus 36"
	72"	36" plus 36"
	84"	36" plus 48"
	96"	48" plus 48"
THREE PIECE DECKS	108"	36" plus 36" plus 36"
	120"	36" plus 48" plus 36"
	132"	48" plus 36" plus 48"
	144"	48" plus 48" plus 48"

• PIECE LENGTH RUNS PARALLEL TO BEAM LENGTH

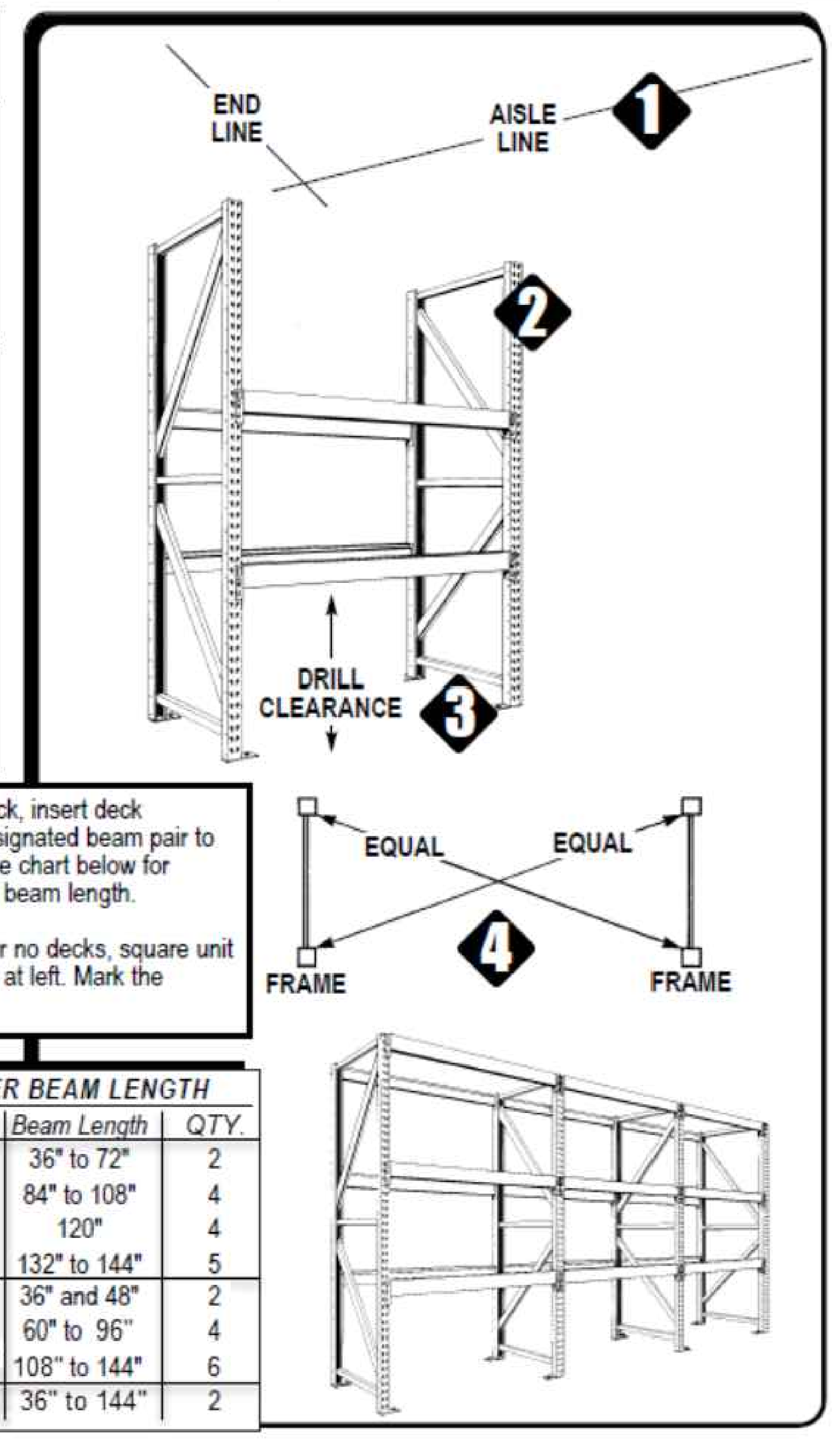
RACKING...FRAMES/ BEAMS
1. Observe all prohibitions in the installation instructions on the use of powered lifts.
2. A minimum of four people are required to erect frames taller than 8'.
3. Be sure all beams or accessories are completely seated and locked or secured in frame slotting.
4. Ladders, if used, should be at least frame height.
5. Never stand on lower beams to install upper beams.
6. Do not walk on decks, especially wire grid.
7. Never try to move a completed racking run, especially if merchandised.
8. If installing frame extensions (PR2HDFR or PR2RDFE), Refer to ASY-80033038 for detailed instructions

Height to Depth Ratio:
Ratio should not exceed 6 to 1 measuring to the top of top most load. If ratio exceeds 6 to 1 the constraint can be overcome with proper anchoring or external bracing of the rack structure.
CONSULT YOUR STRUCTURAL ENGINEER FOR SOLUTIONS.

PALLET RACK ASY 103
ASSEMBLY INSTRUCTIONS

1. Snap chalklines on floor for rack layout.
2. Raise both frames for the beginning section to vertical, positioning the anchor plates of the first frame in the run...then install beam pairs as shown.
3. Two pairs of beams are required for frames to stand alone. The upper pair should be installed at a designated height. If necessary, the lower pair may be installed temporarily with sufficient clearance above the floor to allow for heavy duty drill operation for anchoring, and then moved to a designated height after anchoring is completed.
4. A. If using particle board deck, insert deck supports and deck on the designated beam pair to be sure section is square. See chart below for quantity of deck supports per beam length.

   B. If using any other decks, or no decks, square unit by equal diagonals as shown at left. Mark the anchor plate perimeters.



DECK SUPPORTS PER BEAM LENGTH

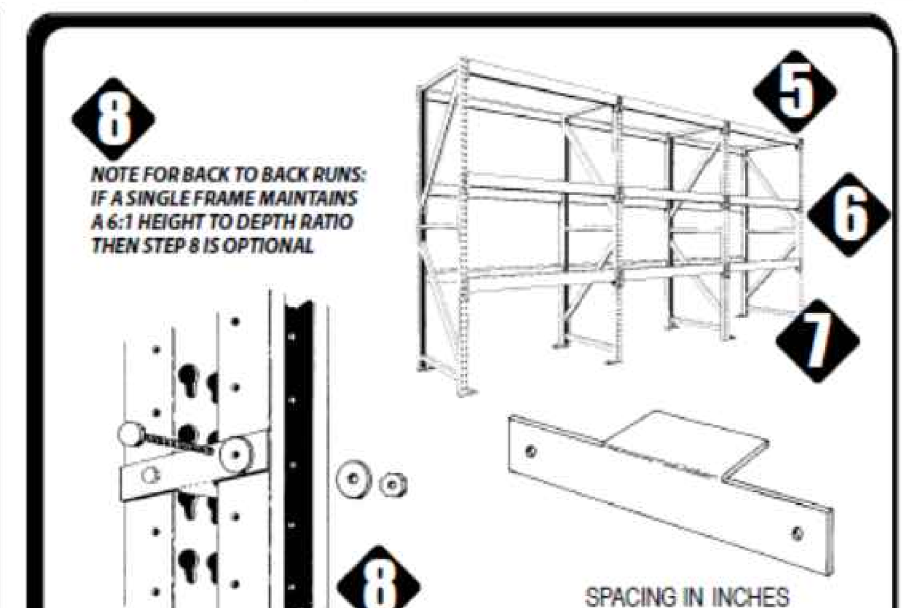
Deck Support	*Deck Type*	*Beam Length*	*QTY.*
DSRPO	PARTICLE BOARD	36" to 72"	2
		84" to 108"	4
		120"	4
		132" to 144"	5
	WIRE GRID, FLOW THRU	36" and 48"	2
		60" to 96"	4
		108" to 144"	6
MPRDS	2 X 12	36" to 144"	2

PALLET RACK ASY 103
ASSEMBLY INSTRUCTIONS

5. When assured section is squared and properly aligned on chalkline, anchor the frames to floor. See last page for expansion bolts.
6. Continue adding frames and beams to end of run, positioning the anchor plates of the end frame into the run. Check run alignment to the chalkline then anchor frames to floor.
7. Add remaining beams, deck supports, and decks as required to complete run.
8. If adding back to back runs...secure all the back frames to the completed front run with back to back connectors as shown. Be sure connectors do not interfere with any designated beam positions. Use two connectors for all frames up to 96" high, or three connectors on all frames over 96" high.
9. Install two beam pairs in first section of back run and square section as in step 3. When assured section is squared and properly aligned , anchor the frames to floor.
10. Continue adding frames and beams to end of the back run. Check run alignment to the chalkline, then anchor frames to floor.
11. Add remaining beams, deck supports, and decks as required to complete the back run.

ASSEMBLY COMPLETE

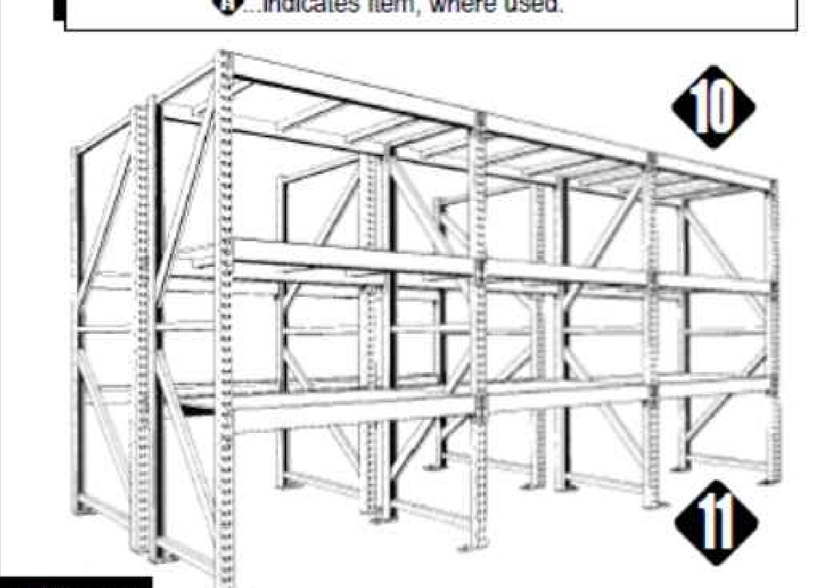
NOTE FOR BACK TO BACK RUNS: IF A SINGLE FRAME MAINTAINS A 6:1 HEIGHT TO DEPTH RATIO THEN STEP 8 IS OPTIONAL



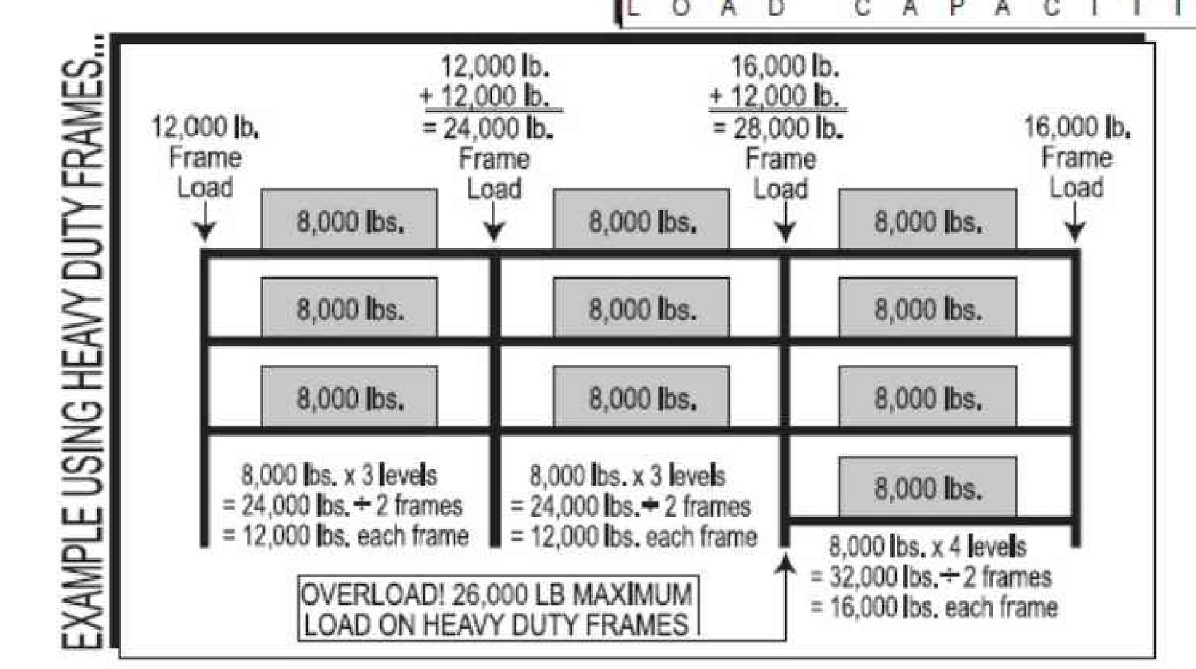
SPACING IN INCHES
PRBBC-☐☐
BACK TO BACK CONNECTOR

PRBBC HARDWARE PACK #7200-134		
	QTY.	ITEM DESCRIPTION
A	2	1/4 - 20 x 1/2" Phillips truss head machine screw
B	4	1/4" flat washer
C	2	1/4-20 hex nut

A ...indicates item, where used.



PALLET RACK ASY 103
LOAD CAPACITIES



BEAM LENGTH		BEAM HEIGHT	CAPACITY IN LBS/PAIR
36"	x	3 1/2"	4,950
36"	x	5"	7,600
36"	x	6"	10,000
48"	x	3 1/2"	4,950
48"	x	5"	7,600
48"	x	6"	10,000
60"	x	3 1/2"	4,950
60"	x	5"	7,600
60"	x	6"	10,000
72"	x	3 1/2"	4,950
72"	x	5"	7,600
72"	x	6"	10,000
84"	x	3 1/2"	4,950
84"	x	5"	7,600
84"	x	6"	10,000
96"	x	3 1/2"	4,950
96"	x	5"	7,600
96"	x	6"	10,000
108"	x	6"	9,110
120"	x	6"	8,000
132"	x	6"	7,270
144"	x	6"	6,660

- Column loading is the vertical load, measured in pounds, that can be applied on any frame.
- Each frame bears ONE HALF OF THE LOAD OF EACH BEAM PAIR THAT IT SUPPORTS.

REGULAR DUTY FRAME, 3" x 1 1/2", HAS A 17,000 LB. LOAD CAPACITY.

HEAVY DUTY FRAME, 3" x 3", HAS A 26,000 LB. LOAD CAPACITY.

BEAM SPACING
- Spacing over 48" vertically reduces the column load capacity due to lack of support to channel.
- When the lowest beam is 48" or higher from the floor, always secure the frames to the floor.

VERTICAL IMPACT LOAD

Handling of pallets being placed on and removed from Pallet rack is responsible for most beam failures. Considering the magnitude of the forces involved, no beam can be designed and guarantee not to fail if a pallet is dropped onto the rack . How the lift truck is operated is the sole responsibility of the owner. The owner must make sure that his drivers are properly trained and responsible, and that no one else can operate the trucks at any time.

ALL LOAD CAPACITIES ARE BASED ON EVEN WEIGHT DISTRIBUTION!

NORTH CAROLINA PROFESSIONAL SEAL 8426 ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24
JOB NO. 23475
SHEET NO. A1.11

DO NOT SCALE THESE DRAWINGS

PALLET RACK

PAGE 7 OF 7

ASY 103

FLOOR ANCHORING

EXPANSION BOLTS FOR FLOOR ANCHORS

...4 expansion bolts, 1/2"-13 x 4 1/2" POWERS/ Power-Stud + SD2 concrete anchors or other ICC (ICBO) approved expansion bolts.

PRFAK... See below for other ICC (ICBO) approved expansion bolts which may be used.

NOTE! The expansion anchors provided by Madix for floor anchoring at this site have been supplied by one of the firms listed below. All the anchors have been tested and approved as stated by the following ICC (ICBO) report numbers and all are manufactured in the United States or Canada. If the anchors are not provided by Madix and field substitution other than listed be proven, Madix cannot be held responsible. Should verification be required, call Madix Customer Service at:

1. 800.776.2349

	ICC (ICBO) #
COBRA ANCHORS CORP., Parawedge concrete anchors	ER-2350 S1
DIVERSIFIED FASTENING SYSTEMS, DFS Wedge anchor	ER-4194 S1
GUNNEBO FASTENING CORP.,Drop-in concrete anchors	ER-3219 S1
HILTI, INC., Kwik-bolt-TZconcrete anchors	ESR-1917
ITW RAMSET/RED HEAD, ITW Ramset stud, Trubolt wedge concrete anchor	ESR-2251
MARKSMAN MANUFACTURING CO., Thunderstud wedge and sleeve anchor	ER-2173 S1
POWERS FASTENING INNOV., Power-Stud + SD2 concrete anchors	ESR2502
WEJ-IT, Original Wej-it wedge anchors bolt and ANKR-TITE wedge anchor	ER-1825
CYW, INC., POWER BULL, Wedge anchor	ESR-2254
MKT FASTENING, High Load Anchor SZ	AC193

• *Embedment must be minimum 5x bolt diameter.*

OTHER ICC (ICBO) APPROVED ANCHORING MATERIALS ...not furnished by Madix

PNEUMATIC OR POWDER-DRIVEN STEEL STUDS AND NAILS

HILTI, INC., Hilti low velocity powder actuated or pneumatically driven fasteners	ESR-1663
ITW RAMSET/RED HEAD, Ramset Powder-Actuated and PowerPoint fasteners	ESR-1799

ADHESIVE/ EPOXY ANCHORS

HILTI, INC., HIT-HY 150 Adhesive anchor system	ESR-2678
ITW RAMSET/RED HEAD, ITW Red Head Epcon system Ceramic 6+ epoxy anchors	ESR-3577

madix™ STORE FIXTURES

P.O. BOX 729 / TERRELL, TEXAS 75160 / 972.563.5744 / 800.776.2349
P.O. BOX 177 / GOODWATER, ALABAMA 35072 / 205.839.6354 / 800.633.6282

REV 08

REV#	ECN#	REVISION	BY	DATE
A	5043	REVISE LAYOUT	ACM	5/4/00
01	5*110	CHANGE DECK SUPPORT INFO	AJB	9/22/05
02	5*956	BEAM LOAD RATE CHANGE	AJB	2/8/06
05	5-13950	UPDATED ANCHOR INFO	SAM	1/7/14
07	5-14691	UPDATED BEAM LOAD RATINGS	SAM	6/3/14
08	5•18265	REMOVED STEP -1 OPTION.	JMG	10/24/16

Material Specification

madix

20984 AL HWY 9 GOODWATER, AL 35072 256-839-6354 / PO BOX 729 TERRELL, TX 75160 214-515-5400

SHEET 1 OF 8

SPECIFICATION #: 80051269 ISSUED BY: JPANTANO DATE: 20190913 ECM #: 500000021849

REVISION: 01

MATERIAL SPECIFICATION: HFTHDWSFP, IMPORT ONLY

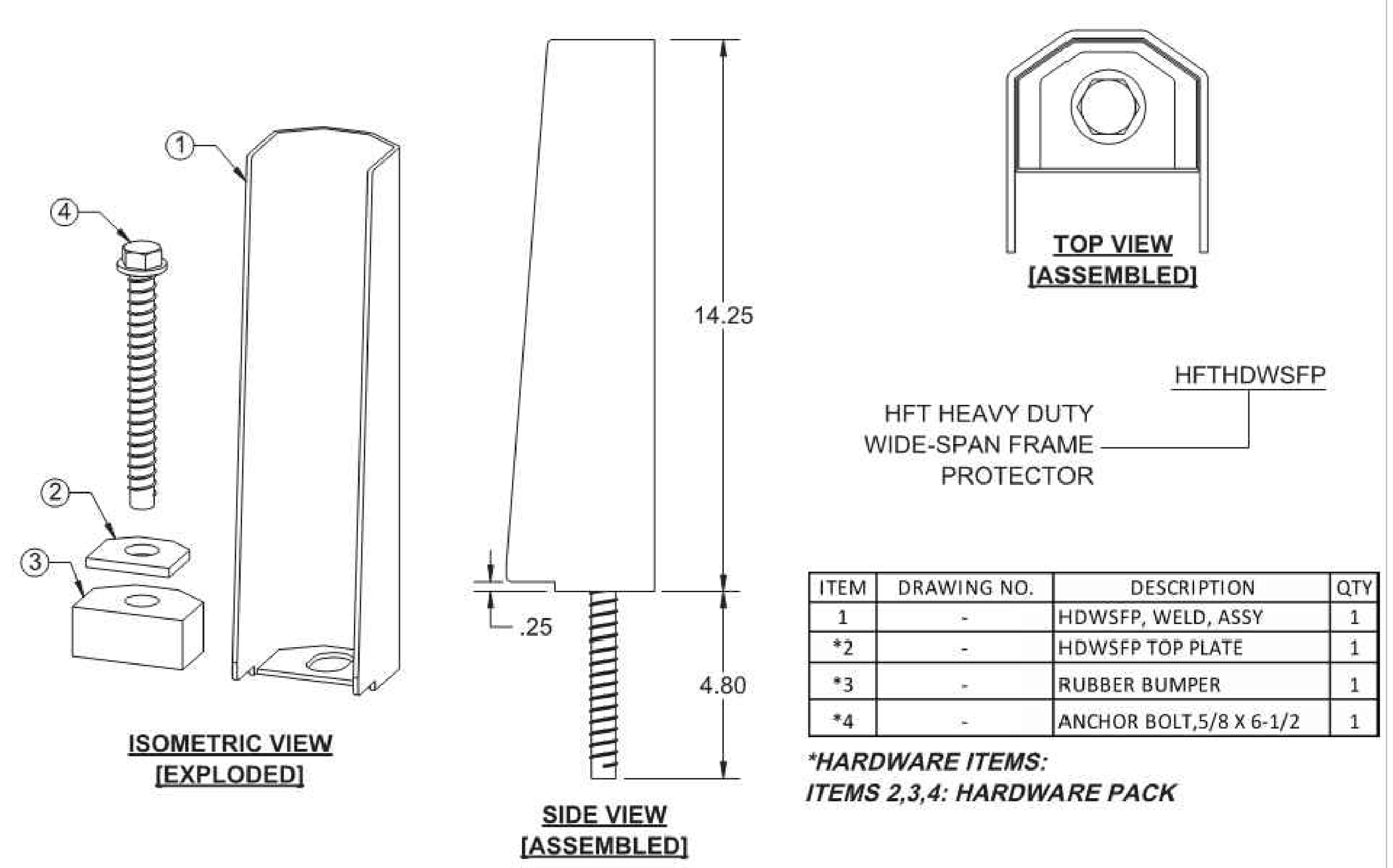
Material Thickness or Manufacturer Part Number

Allowed Substitute: WITHIN SPEC

Comments:
IMPORT ONLY
PACK LOOSE PARTS, SHIPS DISASSEMBLED
FINISH: COLOR MATCH PC005 (LEMON YELLOW)

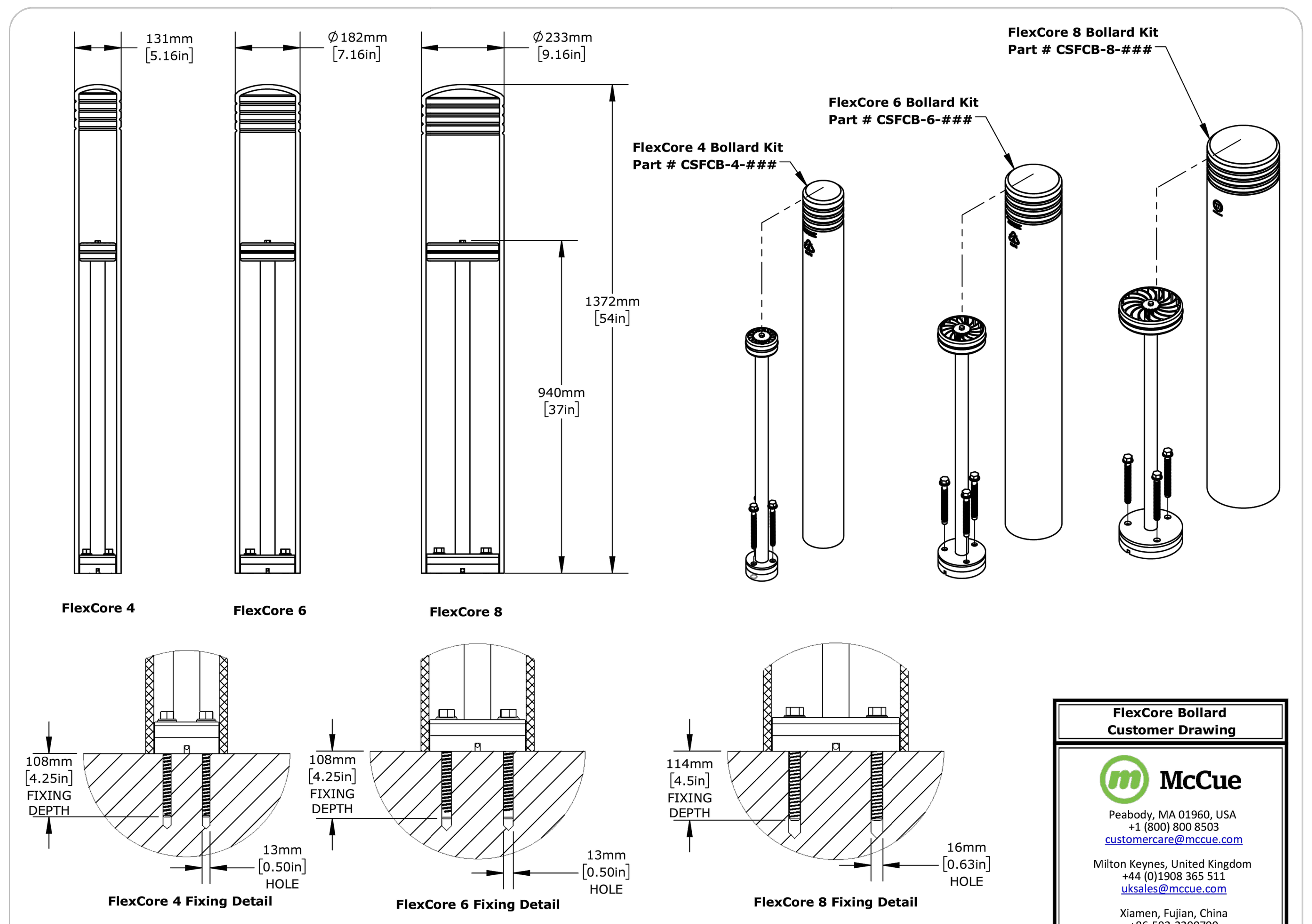
PART IS EXPOSED SURFACE: ______
PART IS PAINTED: ______
PART IS FORMED 180 DEG ______

Dimensional Drawing if Required



ITEM	DRAWING NO.	DESCRIPTION	QTY
1	-	HDWSFP, WELD, ASSY	1
*2	-	HDWSFP TOP PLATE	1
*3	-	RUBBER BUMPER	1
*4	-	ANCHOR BOLT,5/8 X 6-1/2	1

HARDWARE ITEMS:
ITEMS 2,3,4: HARDWARE PACK



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46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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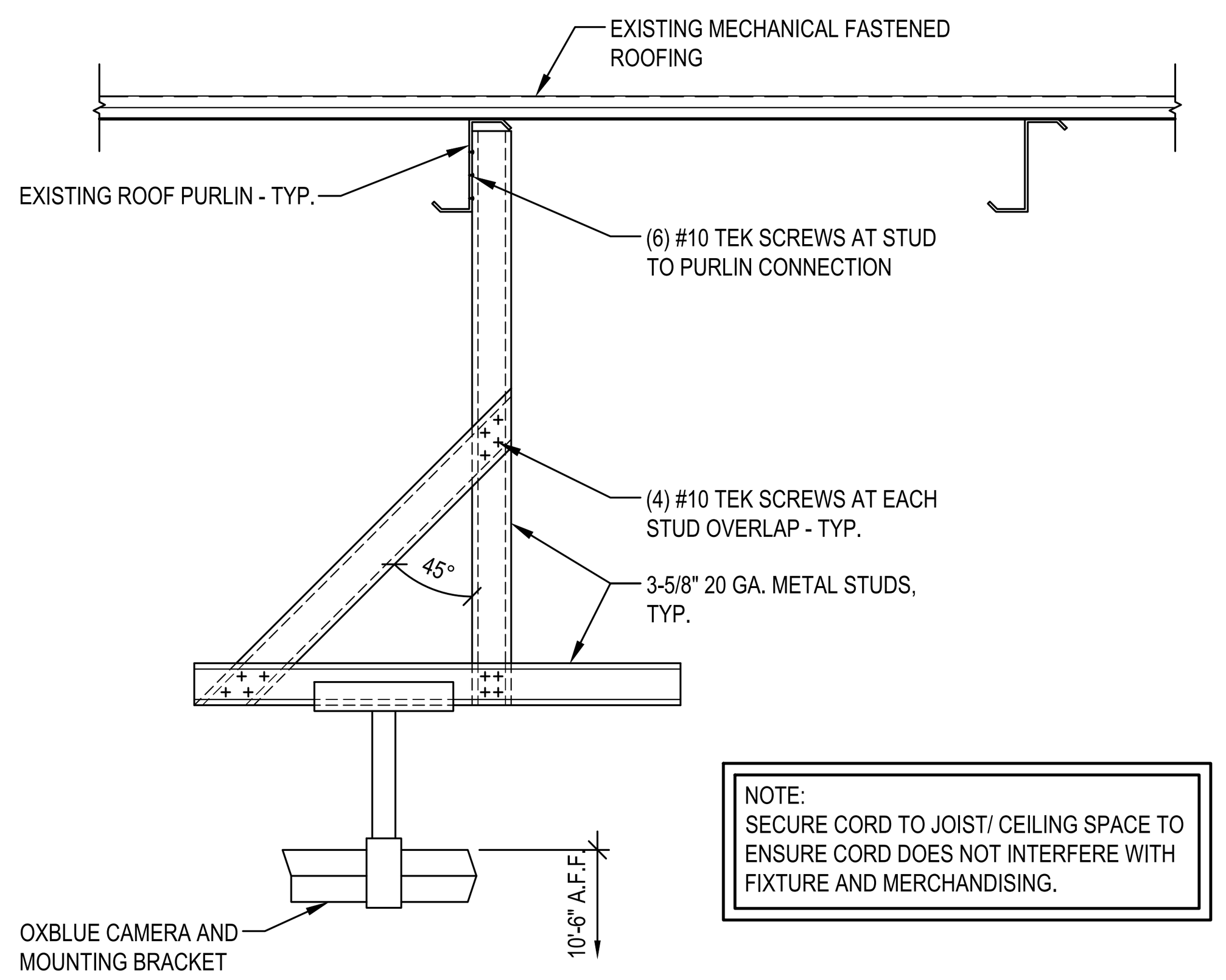
FIXTURE SPECIFICATIONS AND DETAILS

DATE 05/17/24

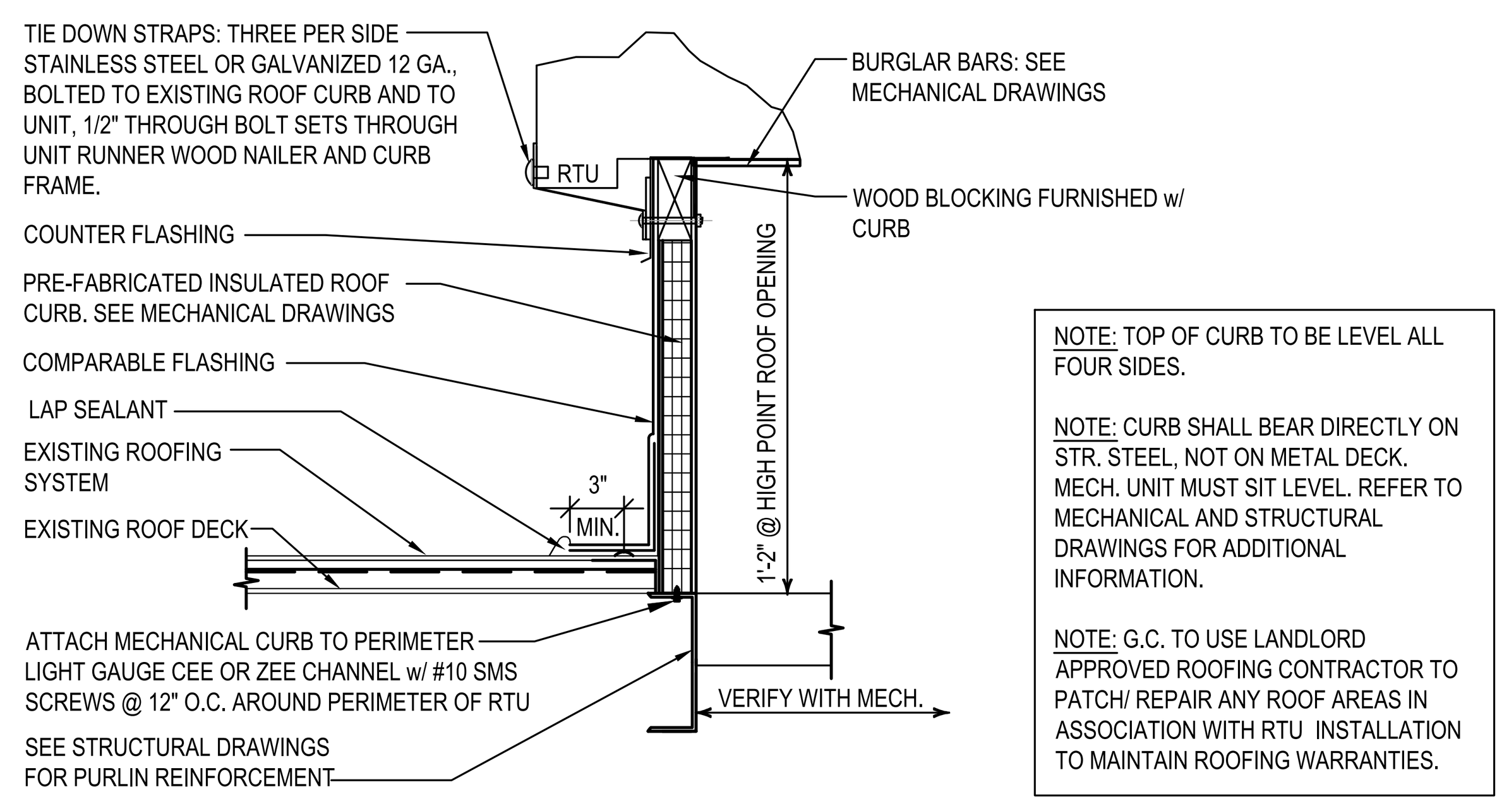
JOB NO. 23475

SHEET NO. A1.12

DO NOT SCALE THESE DRAWINGS



2 A2.0 OXBLUE MOUNTING DETAIL
SCALE: 3/4" = 1'-0"



1 A2.0 MECHANICAL ROOF CURB DETAIL
SCALE: 3/4" = 1'-0"

CEILING PLAN LEGEND

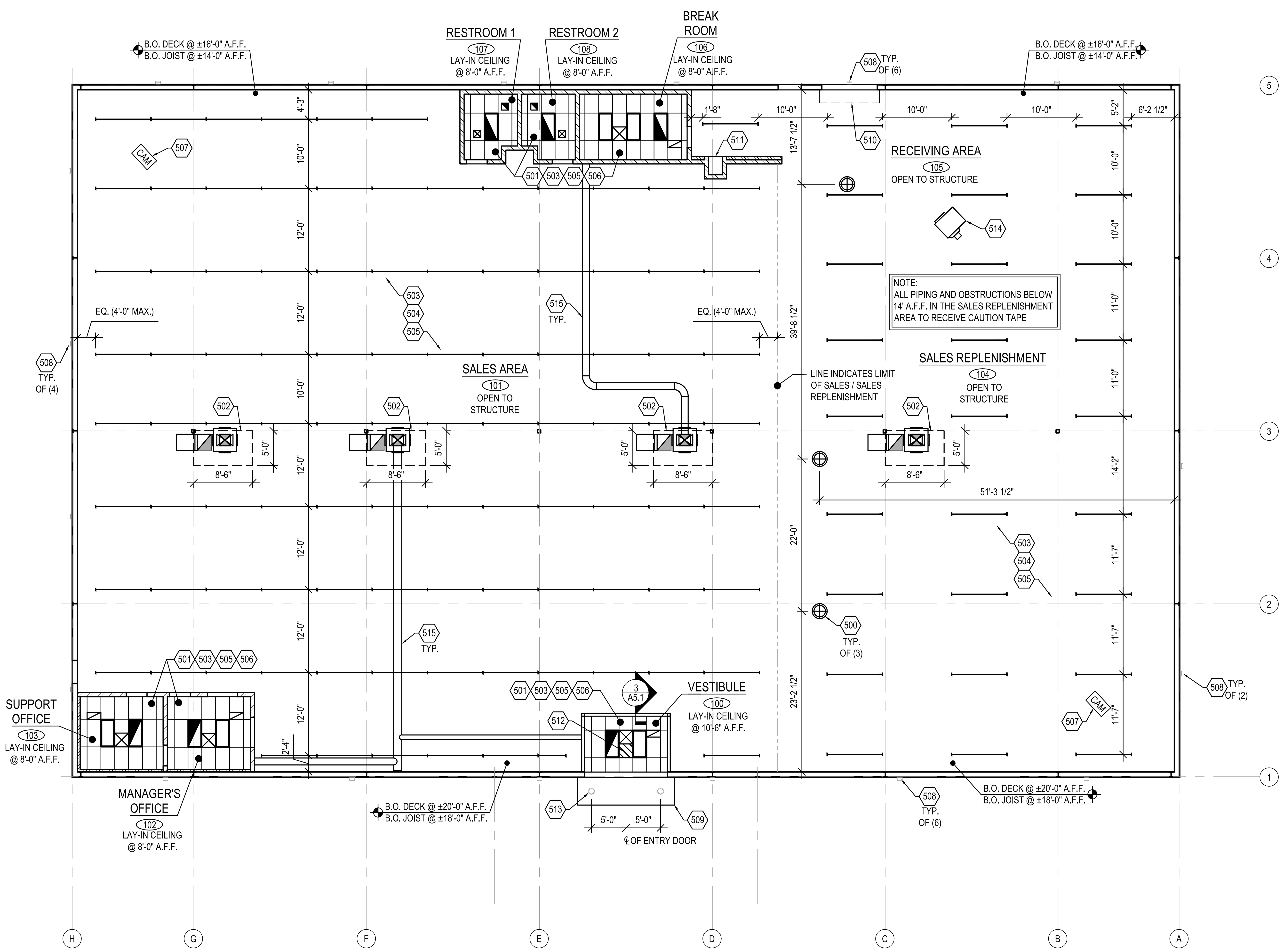
2' X 4' RECESSED LIGHT FIXTURE SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION		SUPPLY AIR DIFFUSER SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION	
8' SURFACE MOUNTED LIGHT FIXTURE SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION		RETURN AIR DIFFUSER SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION	
4' SURFACE MOUNTED LIGHT FIXTURE SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION		EXHAUST FAN SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION	
EXTERIOR WALL MOUNTED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION		ELECTRIC UNIT HEATER SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION	
EXTERIOR SURFACE MOUNTED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION		GAS FIRED UNIT HEATER SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION	

CEILING PLAN GENERAL NOTES

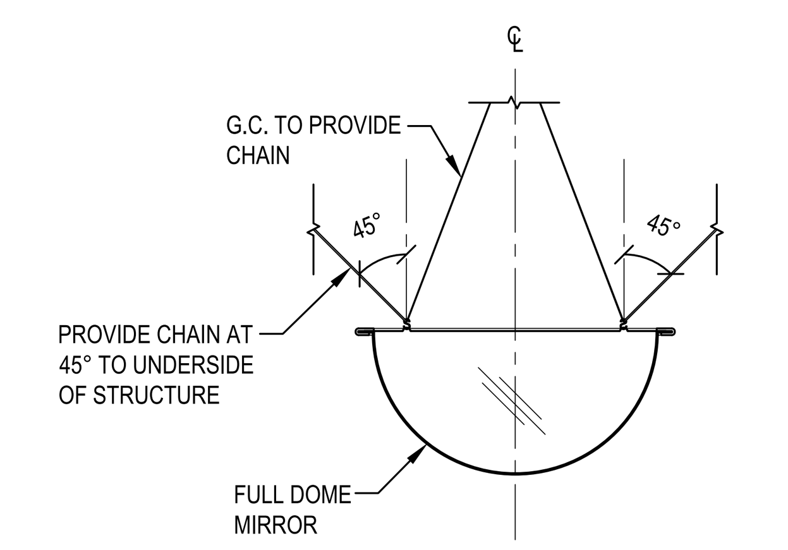
1. REFER TO GENERAL NOTES OF SHEET **A0.2** FOR ADDITIONAL INFORMATION.
2. HFT G.C. TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
3. HFT G.C. TO NOTIFY HFT PROJECT MANAGER IMMEDIATELY AFTER DEMOLITION OR START OF CONSTRUCTION, IF PROPOSED CEILING HEIGHTS & MECHANICAL REQUIREMENTS CAN NOT BE ACHIEVED FOR ANY REASON.
4. HFT G.C. IS RESPONSIBLE FOR PATCHING & REPAIRING ALL FIREPROOFING AS REQUIRED DUE TO PRIOR TENANT CONSTRUCTION AND DUE TO ANY NEW DEMOLITION OR NEW CONSTRUCTION TO MEET BOTH LANDLORD AND BUILDING DEPARTMENT REQUIREMENTS.
5. HFT G.C. TO PROVIDE CEILING ACCESS PANELS AS REQUIRED TO ACCOMMODATE ELECTRICAL, PLUMBING, SPRINKLER AND / OR MECHANICAL SERVICES THAT PASS THROUGH THE LEASED PREMISES. IE., J-BOXES, DUCT SMOKE DETECTORS, FIRE DAMPERS, FLOW SWITCHES, UTILITY CONNECTION POINTS, ETC.
6. SUSPENSION WIRES SHALL BE INSTALLED WITH A MAXIMUM SPACING OF 48" O.C.
7. ALL LAY-IN CEILING GRIDS SHALL BE CENTERED IN ROOM U.N.O.
8. SEE **FP1.0** FOR SPRINKLER INFORMATION.

500 SERIES CEILING PLAN KEY NOTES

500. 26" ULINE FULL DOME SAFETY MIRROR. G.C. TO PROVIDE AND INSTALL CHAINS TO STRUCTURE AS REQUIRED TO MOUNT MIRROR AT 10'-0" A.F.F. SEE DETAIL **3** THIS SHEET FOR ADDITIONAL INFORMATION.
501. 2' x 4' SUSPENDED CEILING SYSTEM INSTALLED PER MANUFACTURERS SPECIFICATIONS. SEE FINISH SCHEDULE ON **A1.3** FOR ADDITIONAL INFORMATION. CEILING TO BE CENTERED IN ROOM U.N.O.
502. APPROXIMATE LOCATION OF NEW HVAC ROOFTOP UNIT. G.C. TO CONTRACT WITH LANDLORD ROOFING CONTRACTOR TO MAINTAIN ALL ROOFING WARRANTIES. REFER TO DETAIL **1/A2.0**, STRUCTURAL, AND MECHANICAL DRAWINGS.
503. RE-WORK EXISTING SPRINKLER SYSTEM TO WORK WITH ROOM LAYOUT. SEE **FP1.0** FOR ADDITIONAL INFORMATION.
504. EXPOSED STRUCTURE. REMOVE ANY UNUSED EQUIPMENT, WIRES, HANGERS, ETC. FROM STRUCTURE AREA. PAINT ENTIRE STRUCTURE PER FINISH SCHEDULE ON SHEET **A1.3**.
505. NEW LIGHT FIXTURES THROUGHOUT ENTIRE HFT SPACE, UNLESS NOTED OTHERWISE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
506. SUPPLY AND RETURN AIR DIFFUSERS OCCUR AT ROOM LOCATIONS. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
507. MOUNT OX-BLUE CAMERAS PER DETAIL **2** THIS SHEET, 12'-0" FROM THE CORNERS OF THE SPACE AT 45° ACROSS THE SALES AND STOCK AREAS. CAMERAS ARE TO BE MOUNTED AT OPPOSITE CORNERS OF THE SPACE. COORDINATE WITH HFT PM FOR FINAL QUANTITIES AND LOCATIONS.
508. EXISTING WALL MOUNTED EXTERIOR LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
509. STANDING SEAM METAL ENTRY CANOPY BY LANDLORD UNDER A SEPARATE PERMIT..
510. OVERHEAD COIL-UP DOOR HOUSING. SEE SHEET **A5.0** FOR ADDITIONAL INFORMATION.
511. GYPSUM BOARD SHELF AT 8'-0" A.F.F. TO BE PAINTED. SEE SHEET **A1.3** AND DETAIL **1/A4.1** FOR ADDITIONAL INFORMATION.
512. ELECTRIC UNIT HEATER CABINET. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
513. UNDER CANOPY LIGHTING. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
514. GAS FIRED UNIT HEATER. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
515. APPROXIMATE LOCATION OF NEW DUCT WORK. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.



REFLECTED CEILING PLAN
SCALE 3/32" = 1'-0"



NOTE:
1. BRACING CHAIN SECURED TO MAIN DOME WITHIN 2" OF THE CROSS BRACING INTERSECTION AND SPLAYED 90° FROM EACH OTHER AT AN ANGLE NOT EXCEEDING 45° FROM THE PLAN OF THE CEILING.
2. THE SUSPENDED CEILING DOMES SHALL COMPLY WITH CBC 808 AND SEISMIC DESIGN PER ASCE 7-10.
3. SEE MANUFACTURERS INSTRUCTIONS FOR ADDITIONAL INFORMATION.

3 A2.0 SUSPENDED FULL DOME MIRROR DETAIL
SCALE: 3/4" = 1'-0"

DO NOT SCALE THESE DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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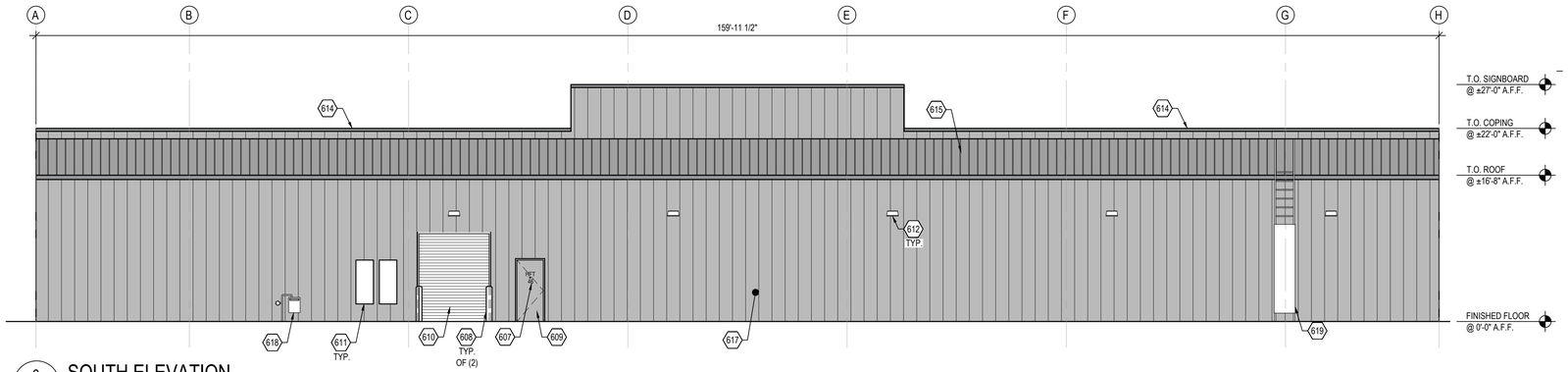
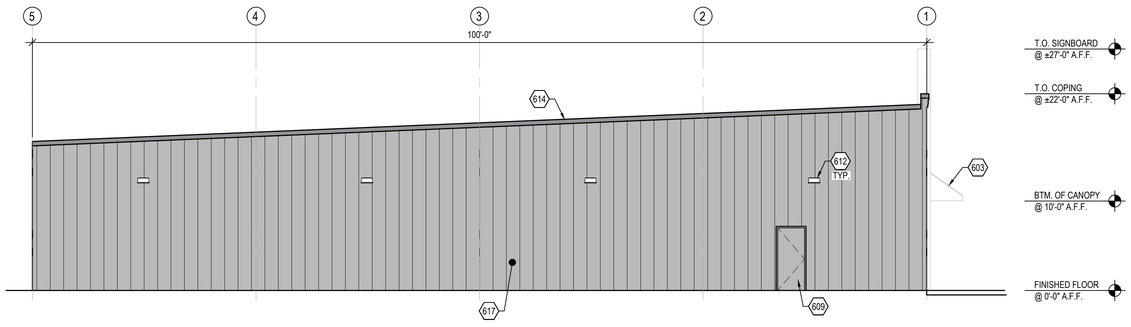
REFLECTED CEILING PLAN

DATE 05/17/24
JOB NO. 23475
A2.0
SHEET NO.

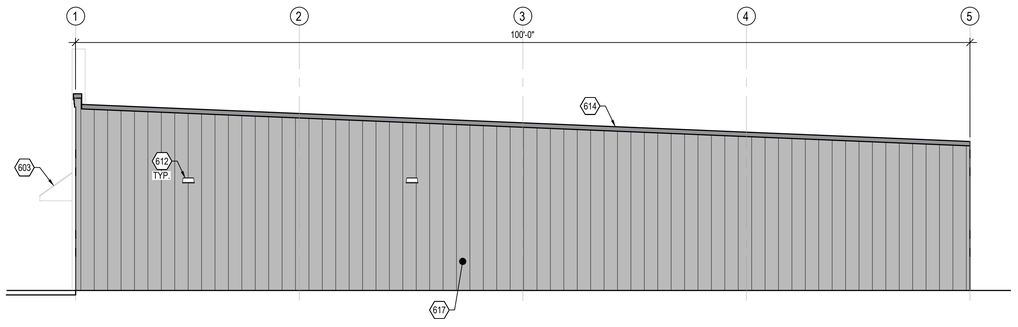
1 A3.0 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



2 A3.0 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



3 A3.0 EAST ELEVATION
SCALE: 1/8" = 1'-0"



4 A3.0 WEST ELEVATION
SCALE: 1/8" = 1'-0"

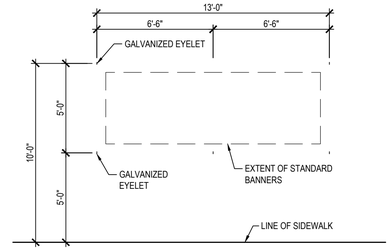
GENERAL NOTES

1. REFER TO GENERAL NOTES ON SHEET **A0.2** FOR ADDITIONAL INFORMATION.
2. SIGNAGE PERMIT DRAWINGS TO BE SUBMITTED SEPARATELY.
3. HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
4. SIGNAGE SHOWN FOR REFERENCE ONLY - ACTUAL SIGNAGE SIZE AND TYPE TO BE DETERMINED BY HFT AND LANDLORD
5. ALL SIGNAGE TO COMPLY WITH LANDLORD TENANT CRITERIA AND STATE / LOCAL CODES.
6. COORDINATE WITH SIGNAGE VENDOR FOR ANY SPECIFIC CRITERIA TO BE USED.
7. ALL SIGNAGE TO BE UL RATED.
8. EXISTING STOREFRONT CONSTRUCTION AND FINISHES TO REMAIN U.N.O.
9. WHERE A SURFACE IS NOTED TO BE PAINTED, PAINTING SHALL INCLUDE SURFACE PREPARATION FOR PAINT ACCORDING TO PAINT MANUFACTURER RECOMMENDATIONS.
10. EXISTING UNPAINTED SURFACES TO REMAIN UNPAINTED, PAINTED SURFACES TO BE RE-PAINTED U.N.O.

600 SERIES ELEVATION KEY NOTES

600. EXISTING DORMA BI-PARTING DOOR SYSTEM. SEE SHEETS **A5.0** AND **A5.1** FOR ADDITIONAL INFORMATION.
601. SIGNAGE BANNER. PROVIDE 3/8" GALVANIZED EYELETS SPACED AS SHOWN ON DETAIL **A/A3.0**.
602. APPROXIMATE LOCATION OF HFT EXTERIOR BUILDING SIGN. BUILDING SIGNAGE PROVIDED AND INSTALLED BY HFT SIGN VENDOR. HFT GENERAL CONTRACTOR TO COORDINATE ACTUAL SIGNAGE LOCATION WITH **FINAL APPROVED BRANDBOOK**. LOCATION AND SIZE SHOWN ARE APPROXIMATE. ALL SIGNAGE IS BY SEPARATE PERMIT. G.C. TO PROVIDE AND INSTALL SIGNAGE BLOCKING AND POWER AS COORDINATED WITH SIGNAGE VENDOR. G.C. IS RESPONSIBLE FOR PATCH AND REPAIR OF WALL / ROOF WHERE AFFECTED BY SIGNAGE INSTALL. G.C. TO CONTRACT WITH LANDLORD'S ROOFING CONTRACTOR FOR ALL ROOFING WORK TO MAINTAIN ALL ROOFING WARRANTIES.
603. EXISTING STANDING SEAM METAL ENTRY CANOPY TO REMAIN, COLOR: **COBALT BLUE**.
604. EXISTING EIFS SIGNBOARD BY LANDLORD TO REMAIN, COLOR: **SAFETY RED**.
605. EXISTING ALUMINUM FRAME TRANSOM SYSTEM TO REMAIN. G.C. TO PROTECT DURING CONSTRUCTION.
606. PROVIDE 8" HIGH WHITE VINYL NUMBERS STATING STREET ADDRESS IN HELVETICA FONT STYLE ON TRANSOM. SEE DOOR SCHEDULE NOTES ON SHEETS **A5.0** AND **A5.1** FOR ADDITIONAL INFORMATION.
607. PROVIDE 6" HIGH VINYL LETTERING STATING "HFT" AND STREET ADDRESS IN HELVETICA FONT: COLOR TO CONTRAST WITH DOOR.
608. EXISTING BOLLARD TO REMAIN. SEE SHEET **A1.1** FOR ADDITIONAL INFORMATION.
609. EXISTING HOLLOW METAL DOOR TO REMAIN. SEE SHEETS **A1.3** AND **A5.0** FOR ADDITIONAL INFORMATION.
610. EXISTING OVERHEAD DOOR TO REMAIN. SEE DOOR SCHEDULE ON SHEET **A5.0** FOR ADDITIONAL INFORMATION.
611. APPROXIMATE LOCATION OF EXISTING EXTERIOR ELECTRICAL EQUIPMENT. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
612. EXISTING WALL MOUNTED LIGHT FIXTURE TO REMAIN. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
613. EXISTING CONCRETE WALK.
614. EXISTING COPING TO REMAIN, COLOR: **CHARCOAL GRAY**.
615. EXISTING STANDING SEAM METAL ROOF BY LANDLORD TO REMAIN, COLOR: **GALVALUME**.
616. EXISTING PAINTED CMU SPLIT FACE VENEER BY LANDLORD TO REMAIN, COLOR: **CITYSCAPE**.
617. EXISTING R PANEL SYSTEM BY LANDLORD TO REMAIN. COLOR: **ASH GRAY**.
618. APPROXIMATE LOCATION OF GAS METER BY LANDLORD TO REMAIN. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
619. EXISTING LADDER WITH GUARD BY LANDLORD UNDER A SEPARATE PERMIT.

NOTES
1. HARBOR FREIGHT USES ONE STANDARD SIZE BANNER (4' X 12')
2. EYELETS FOR THIS BANNER TO BE GALVANIZED
3. ALL ITEMS SUPPLIED BY HFT, UNDER SKU #81487, EXCEPT (3) 5/16" X 4 1/4" SCREW HOOKS AND (2) 5/16" X 4 1/4" EYELETS.
4. **G.C. TO ENSURE EYELETS ARE INSTALLED TO SUITABLE BLOCKING MATERIAL AND CAPABLE OF WITHSTANDING WIND FORCES.**
5. **G.C. TO VERIFY WITH HFT P.M. IF EYELETS ARE ALLOWED PRIOR TO INSTALLATION.**



A A3.0 EYELET AND SCREW HOOK SPACING DETAIL
SCALE: 1/4" = 1'-0"

17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

ERWIN, NC 28339

46 SHRUJ LANE

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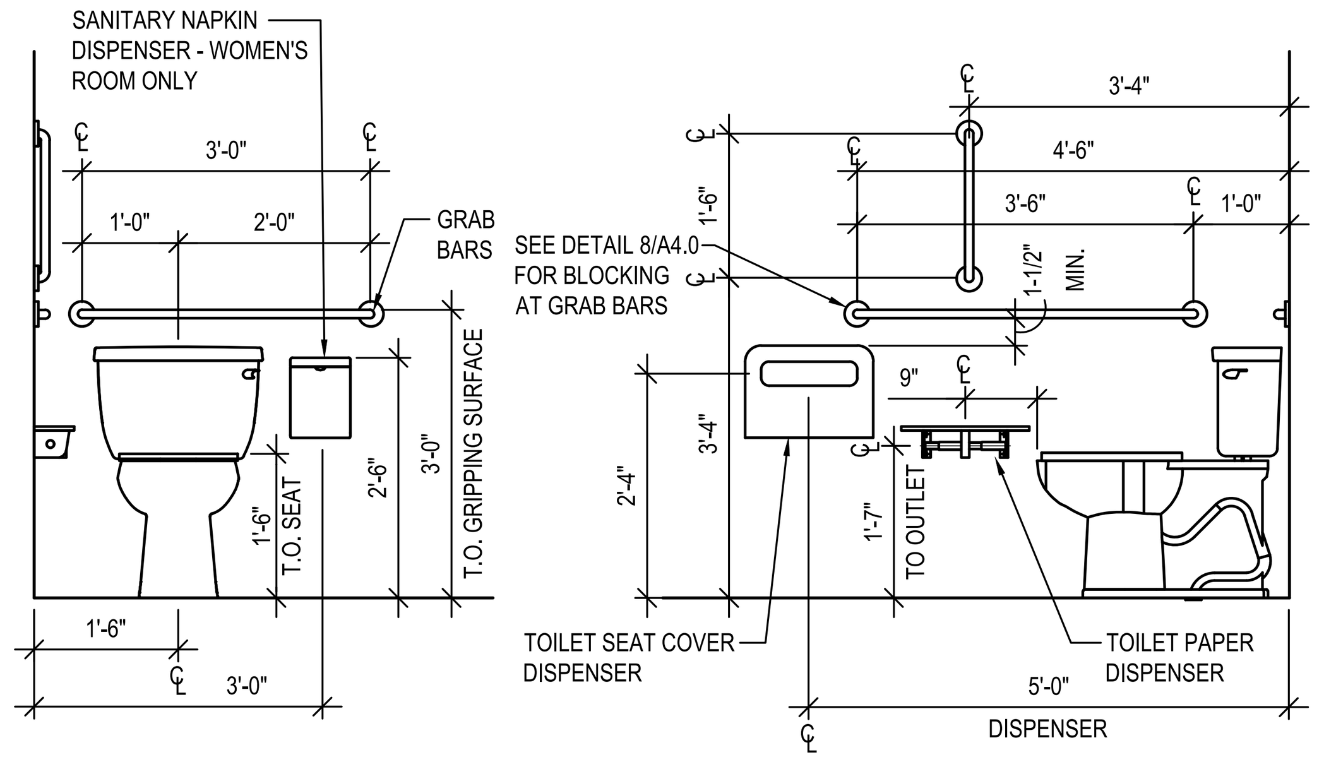
EXTERIOR ELEVATIONS

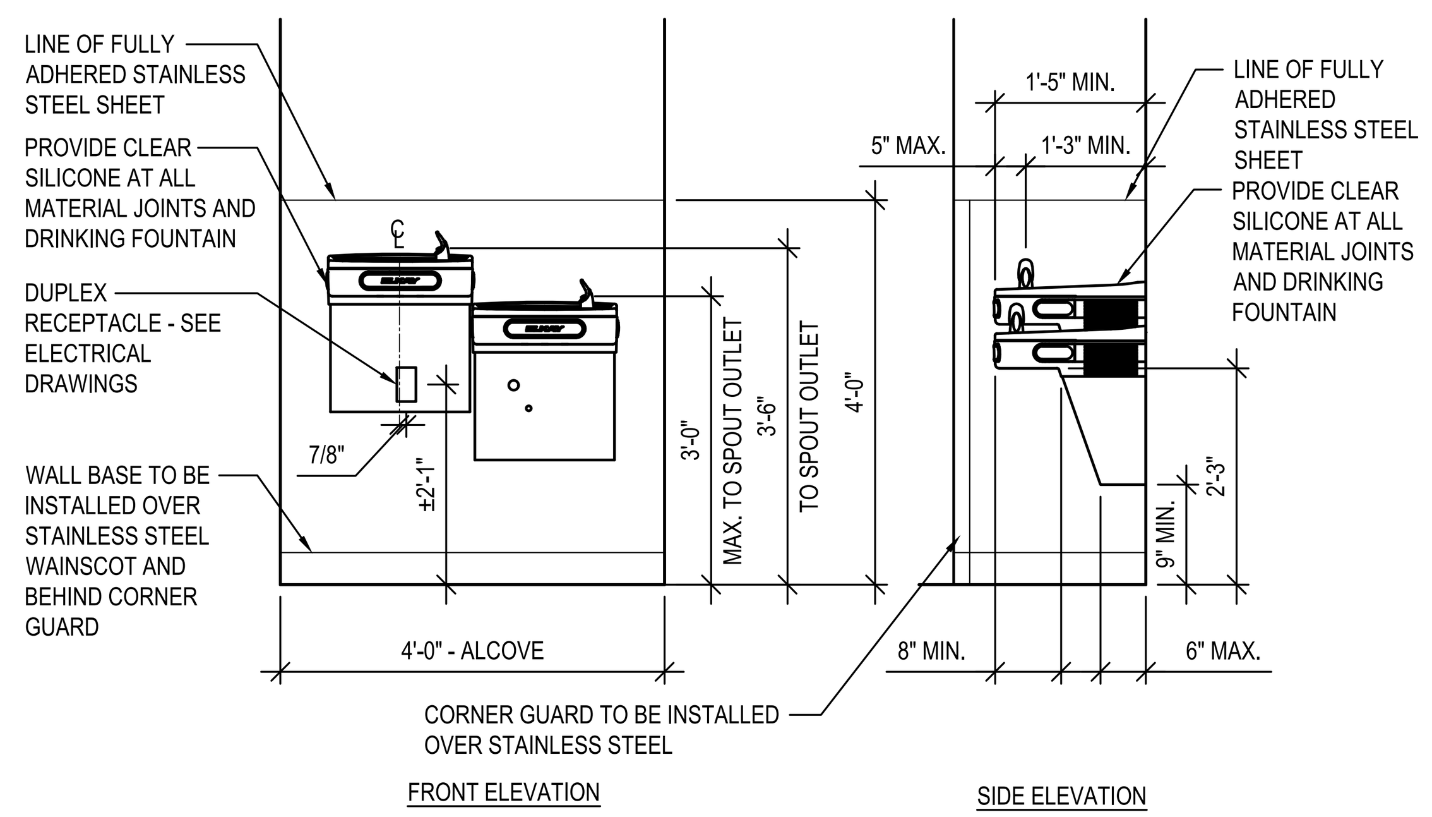
DATE

JOB NO. 23475

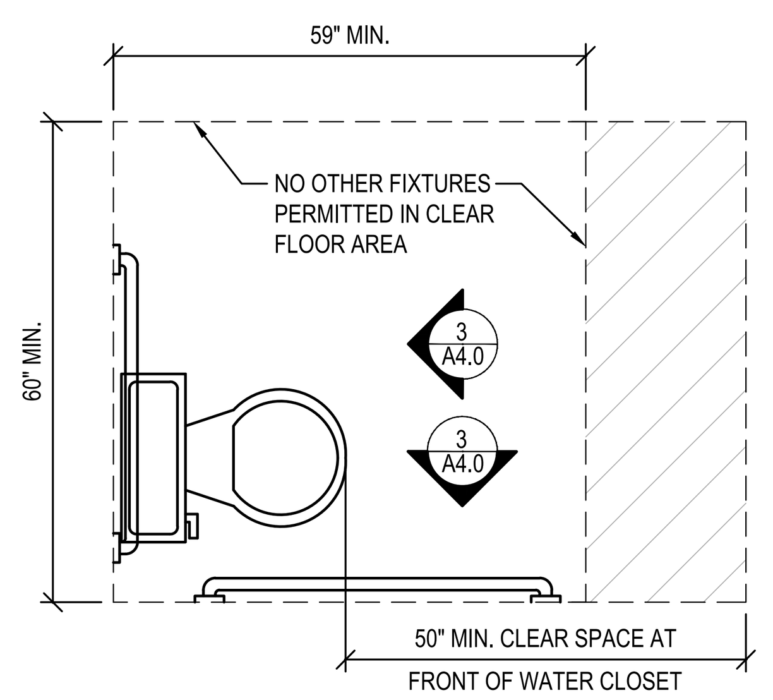
A3.0
SHEET NO.



3 / A4.0 ACCESSIBLE WATER CLOSET ELEVATIONS
SCALE: 1/2" = 1'-0"



4 / A4.0 ACCESSIBLE DRINKING FOUNTAIN ELEVATIONS
SCALE: 1/2" = 1'-0"



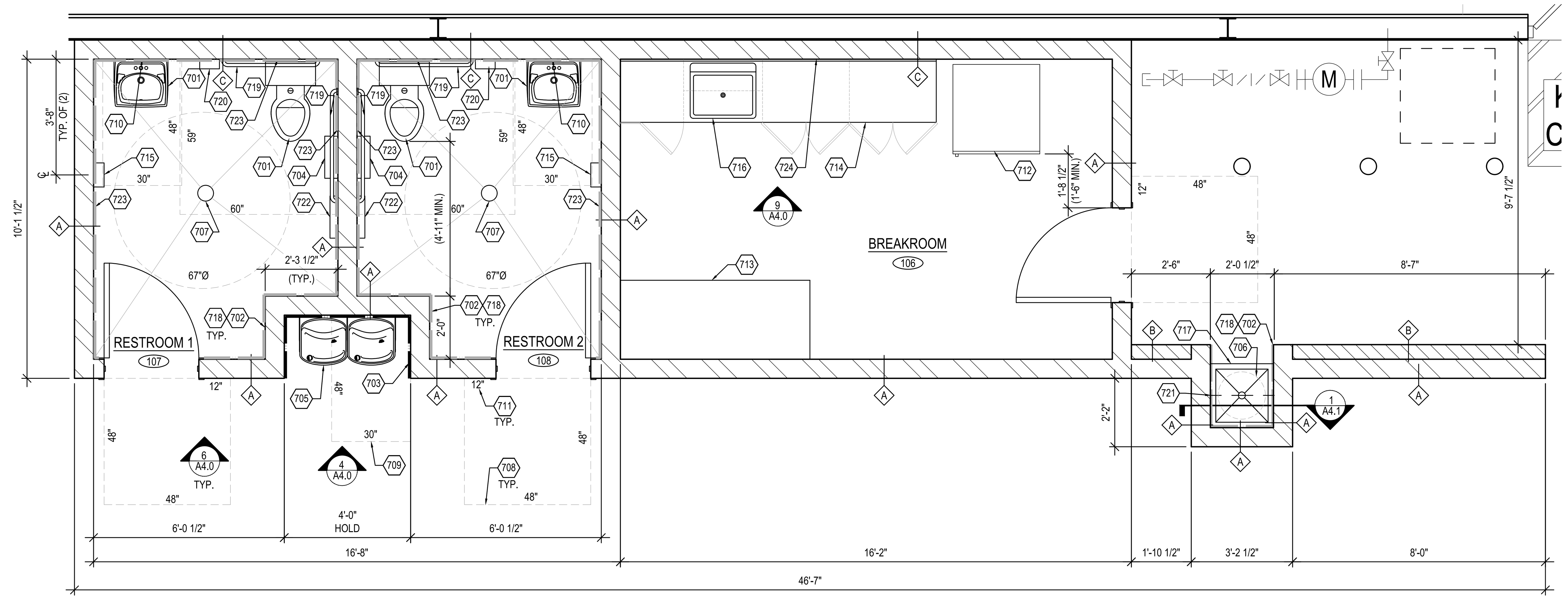
2 / A4.0 ACCESSIBLE TOILET
SCALE: 1/2" = 1'-0"

700 SERIES ENLARGED RR / BR PLAN KEY NOTES

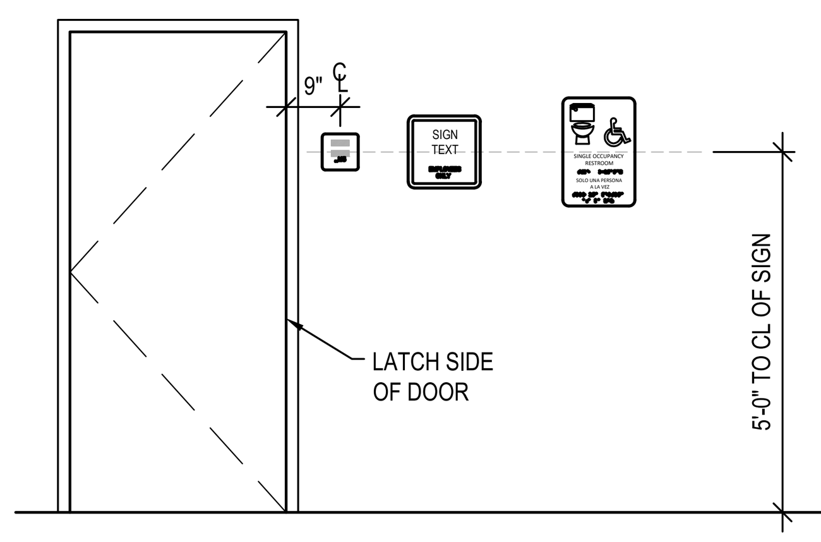
701. RESTROOM FIXTURES, SEE DETAILS **2, 3 & 5 / A4.0** AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
702. DOTTED LINE INDICATES PROVIDE AND INSTALL WC-1 ON WALL AS SHOWN. SEE FINISH SCHEDULE **A1.3** FOR ADDITIONAL INFO.
703. GREEN BOARD AND **20 GA. STAINLESS STEEL SHEET** TO EXTEND FROM FLOOR TO 4'-0" A.F.F. AT ALL DRINKING FOUNTAIN WALLS. SEE DETAIL **4/A4.0** FOR ADDITIONAL INFORMATION.
704. TOILET PAPER DISPENSER BOBRICK MODEL: #B-2840.
705. DRINKING FOUNTAIN. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
706. WATER HEATER MOUNTED ABOVE MOP SINK ON SHELF. SHELF TO BE MOUNTED AT 8'-0" A.F.F. REFER TO PLUMBING DRAWINGS FOR MORE DETAILS.
707. FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR MORE DETAILS. CONTRACTOR TO SLOPE FLOOR TOWARDS DRAIN, (**SLOPE NOT TO EXCEED 2%**). G.C. TO FILL CONCRETE AROUND DRAIN TO ACHIEVE A FLUSH LEVEL FINISH.
708. DASHED LINE INDICATES MIN. CLEAR FLOOR SPACE (TYP.)
709. CLEAR FLOOR SPACE CENTERED ON LOW DRINKING FOUNTAIN.
710. MIRROR LOCATION. SEE DETAIL **7** THIS SHEET FOR MOUNTING HEIGHTS AND DIMENSIONS.
711. NUMBERS INDICATE MINIMUM CLEAR AREA AT FLOOR SPACE DIAGRAMS (TYP.)
712. REFRIGERATOR LOCATION.
713. APPROXIMATE LOCATION OF BREAKROOM TABLE BY HFT.
714. BREAK ROOM CABINETS: SEE DETAILS **9&10** THIS SHEET.
715. THINAIR HAND DRYER (110-120V, 7 AMPS), MODEL #TA-ABS, WITH ANTI-MICROBIAL WALL GUARDS, ID #89S. SEE DETAIL **7** THIS SHEET FOR MOUNTING INFORMATION . SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFO.
716. BREAKROOM SINK SEE **P1.0** PLUMBING FIXTURES SPECIFICATIONS.
717. MOP SINK. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
718. USE ⅝ GREEN BOARD IN PLACE OF ⅝ GYP BOARD AS NOTED.
719. GRAB BARS. SEE DETAILS **2, 3, & 8 / A4.0** FOR ADDITIONAL INFORMATION.
720. SANITARY NAPKIN DISPOSAL BOBRICK MODEL: #B-270.
721. (2) 12" DEEP WHITE WIRE SHELVES FOR CLEANING SUPPLIES.
722. TOILET SEAT COVER DISPENSER TORK MODEL: #99A.
723. PROVIDE 5/8" FRT PLYWOOD BLOCKING IN STUD CAVITY.
724. REPLACE 5/8" GYP. BOARD WITH 5/8" GREEN BOARD WITH 5/8" FRT PLYWOOD BLOCKING IN STUD CAVITY.

GENERAL NOTES

1. SEE TYPICAL RESTROOM DETAILS THIS SHEET FOR ADDITIONAL INFORMATION.
2. SEE SHEETS **A1.1 & A4.1** FOR KEY NOTE REFERENCES, WALL TYPE REFERENCES, AND ADDITIONAL INFORMATION.
3. SEE PLUMBING SHEET FOR FIXTURE TYPES.
4. FURNISH ALL HARDWARE AS REQUIRED. PROVIDE ADJUSTABLE SHELVES AND REQUIRED HARDWARE WHERE SHOWN. (NO VISIBLE HARDWARE)
5. SEE ELECTRICAL & PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
6. SEE SHEET **A0.0** FOR ITEMS FURNISHED BY HFT AND INSTALLED BY G.C.

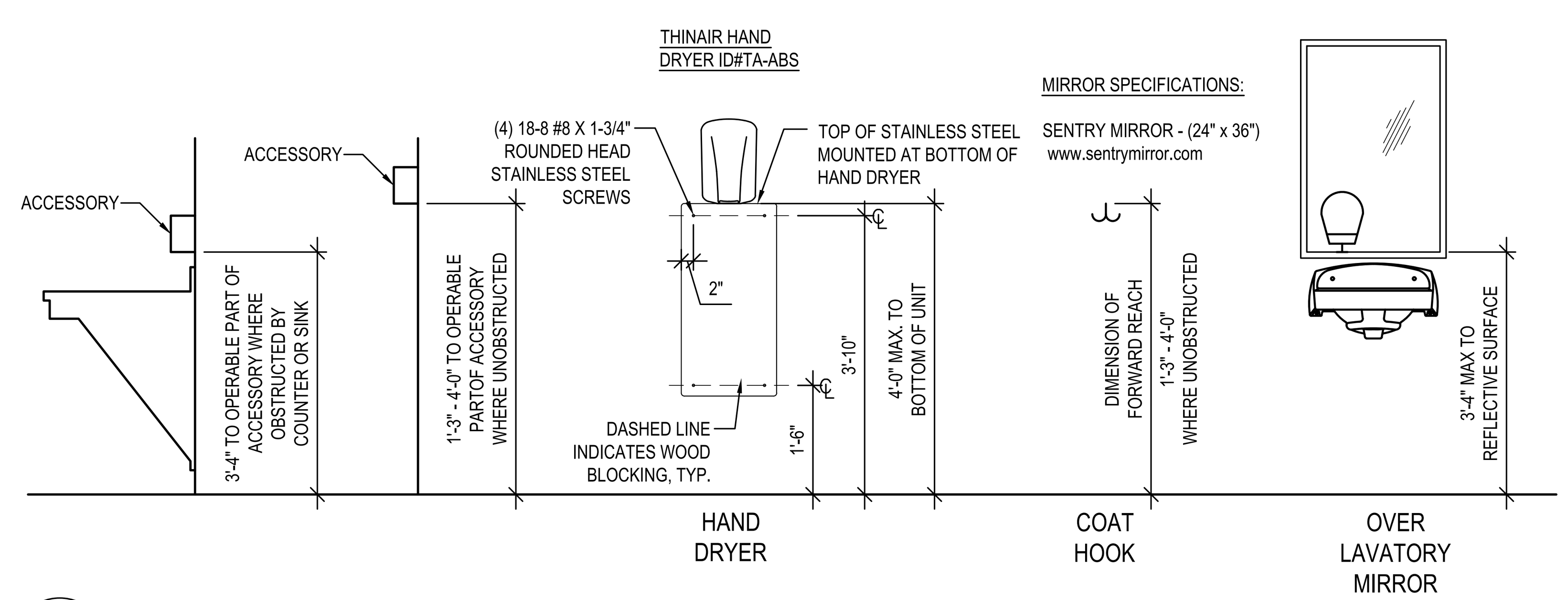


1 / A4.0 ENLARGED RESTROOM / BREAK ROOM PLAN
SCALE: 3/8" = 1'-0"

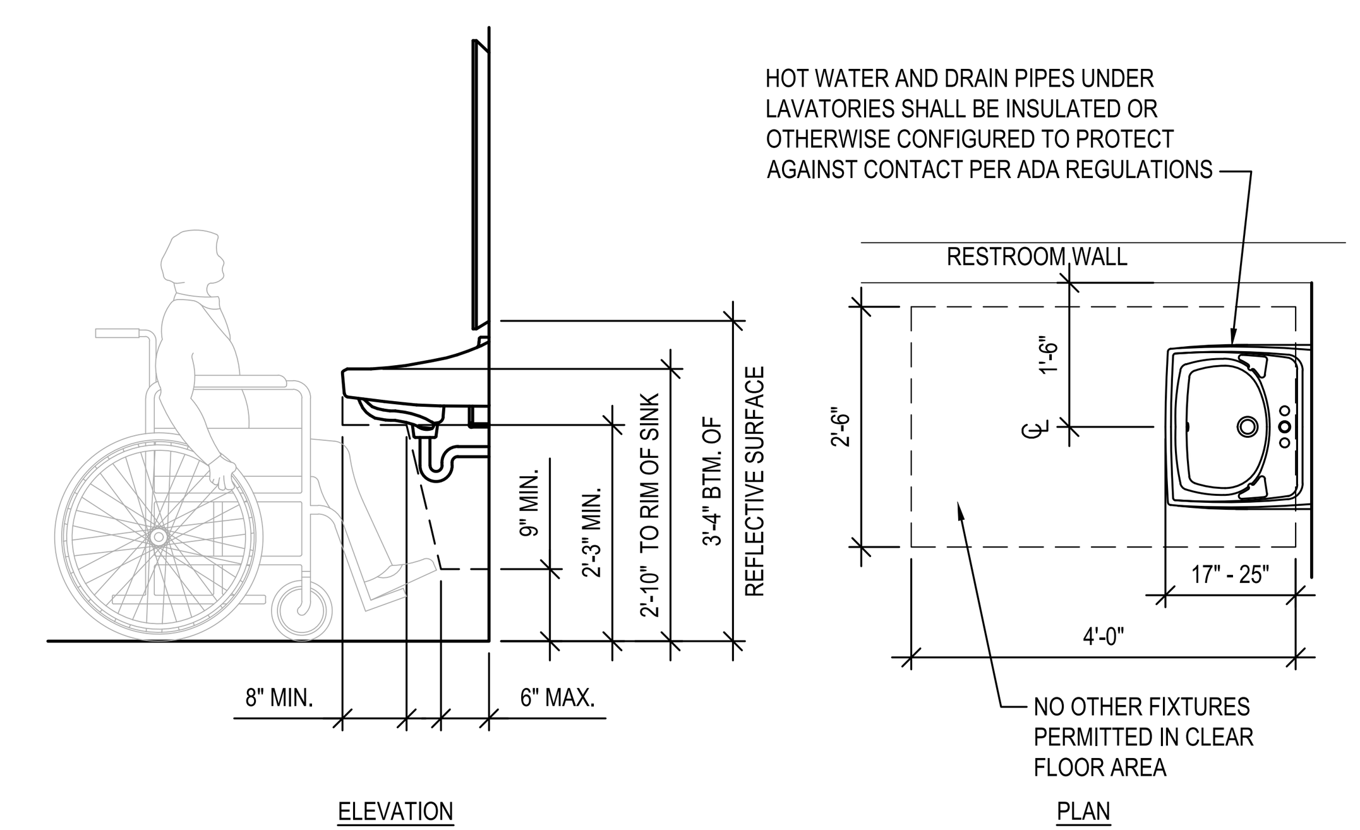


NOTES:
1. CHARACTERS, SYMBOLS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND.
2. CHARACTERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM & SHALL BE SANS SERIF UPPERCASE CHARACTERS. CHARACTERS SHALL BE A MINIMUM OF 5/8" AND A MAXIMUM OF 2" HIGH.
3. BRAILLE SHALL BE GRADE 2 AND SHALL COMPLY SIZE AND SPACING REQUIREMENTS IN THE ACCESSIBILITY CODE. BRAILLE CHARACTERS SHALL BE LOCATED BELOW THE SIGN TEXT, WITH A 3/8" MINIMUM SPACE BETWEEN BRAILLE AND TEXT OR OTHER SIGNAGE ELEMENTS (BORDER, PICTOGRAM, ETC).
4. PICTOGRAMS SHALL BE ACCOMPANIED BY THE VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE OUTSIDE DIMENSION OF THE PICTOGRAM FIELD SHALL BE A MINIMUM OF 6" IN HEIGHT.

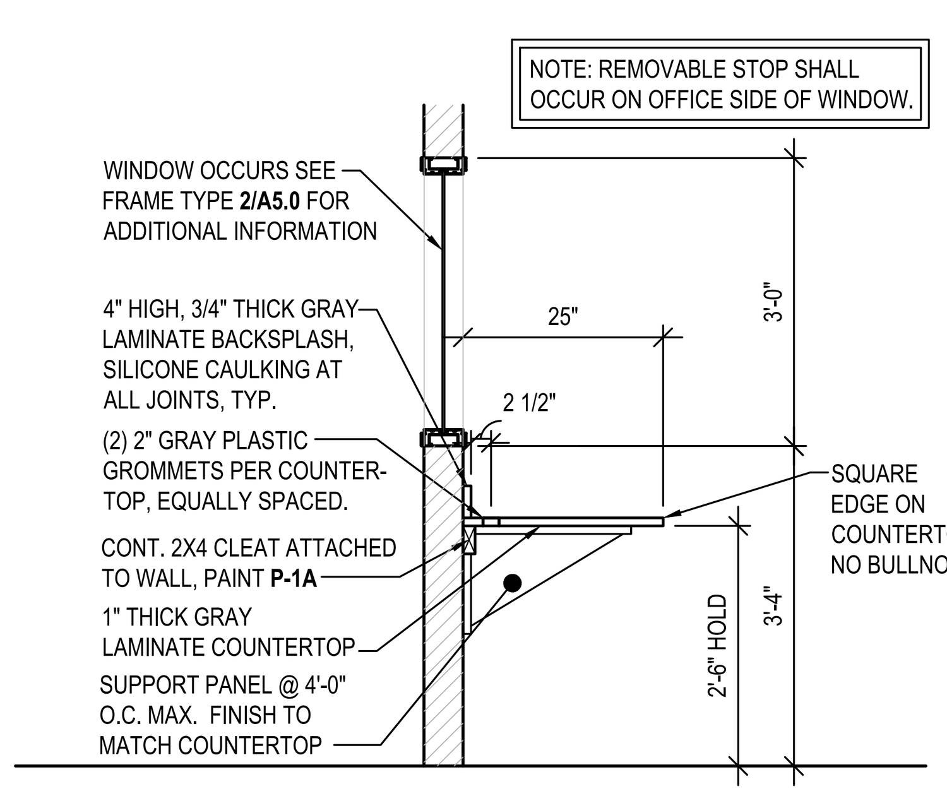
6 / A4.0 SIGN DETAILS
SCALE: N.T.S.



7 / A4.0 ACCESSORY MOUNTING HEIGHTS
SCALE: 1/2" = 1'-0"



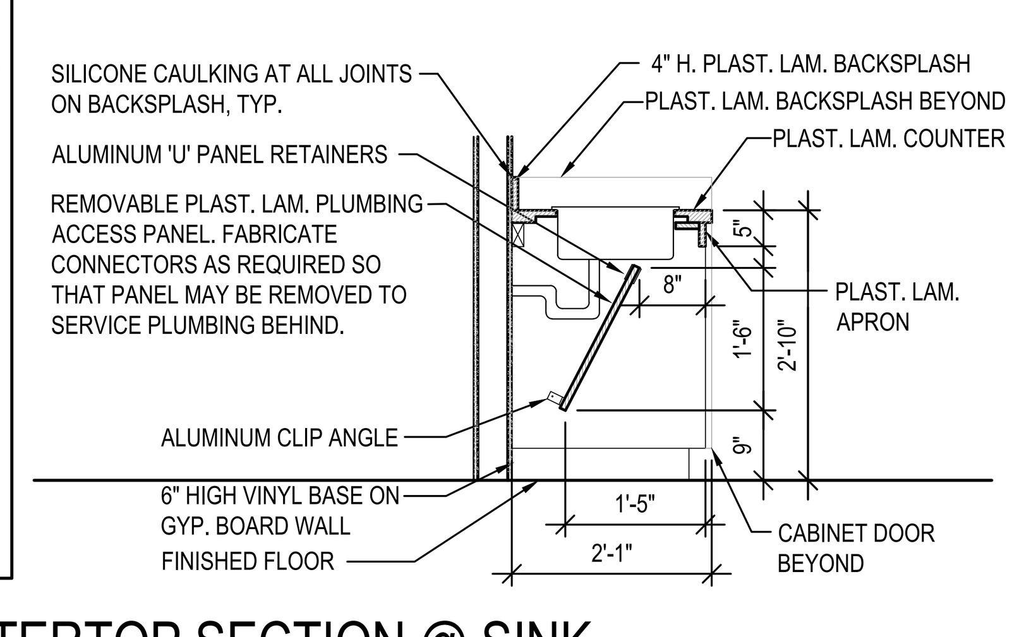
5 / A4.0 ACCESSIBLE LAVATORY PLAN & ELEVATION
SCALE: 1/2" = 1'-0"



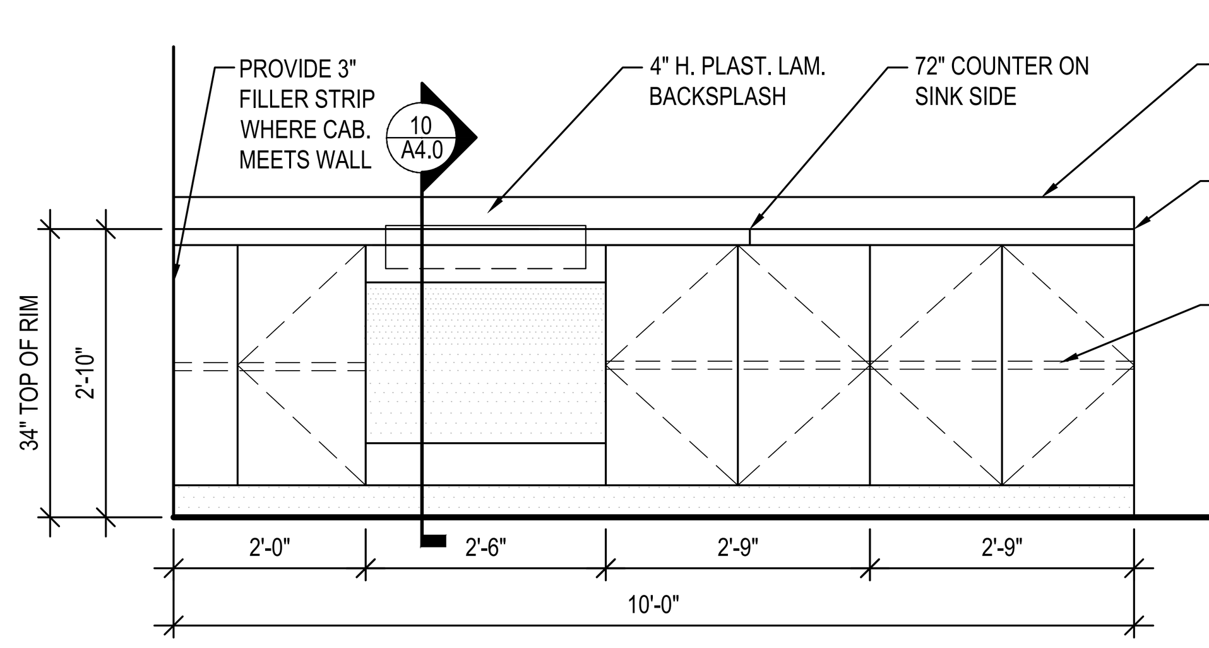
11 / A4.0 OFFICE COUNTERTOP SECTION
SCALE: 1/2" = 1'-0"

CASEWORK NOTES

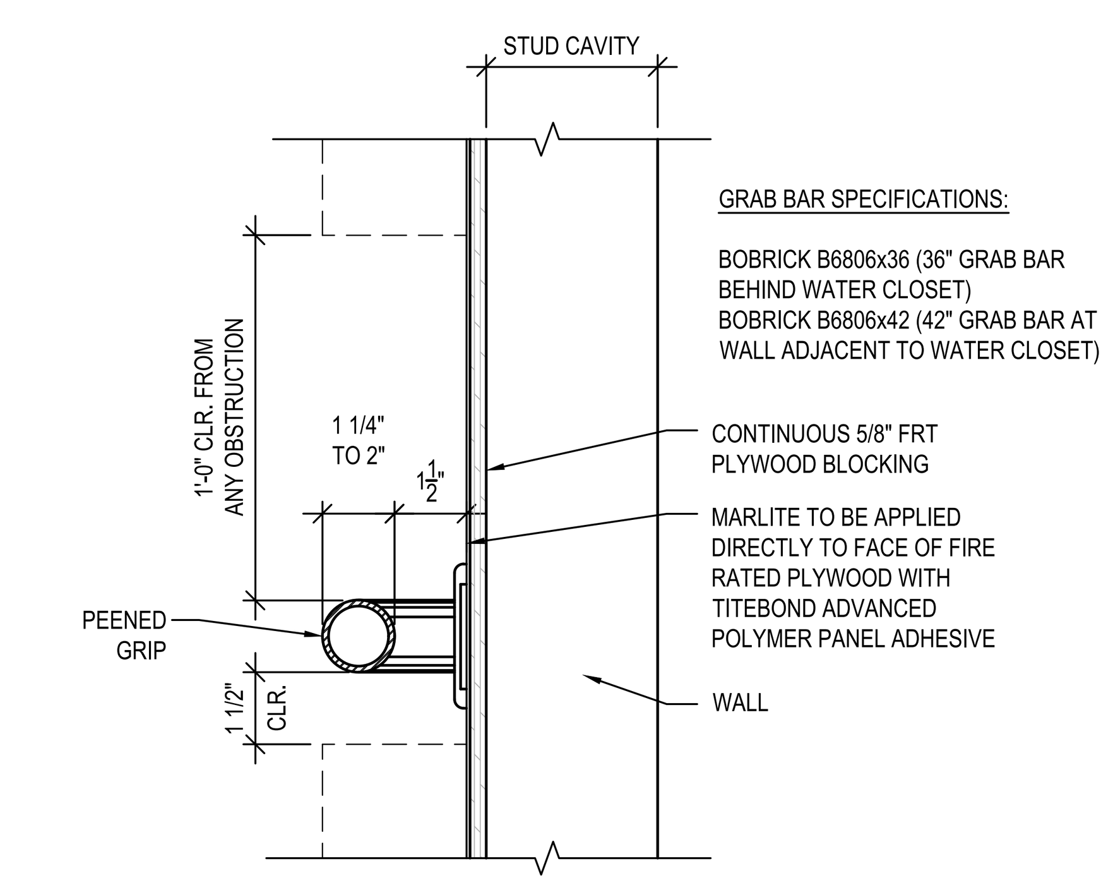
1. REFER TO GENERAL NOTES OF SHEET **A2.0** FOR ADDITIONAL INFORMATION
2. HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
3. CABINETS WITH DOORS:
   ALL PARTS EXPOSED TO VIEW SHALL BE COVERED WITH LAMINATED PLASTIC FINISH. INSIDE OF CABINETS SHALL BE MELAMINE.
4. FURNISH ALL HARDWARE AS REQUIRED. PROVIDE ADJUSTABLE SHELVES AND REQUIRED HARDWARE WHERE SHOWN. (NO VISIBLE HARDWARE)
5. PROVIDE ALL NECESSARY "IN-WALL" BLOCKING OR PLYWOOD BACKING AS REQUIRED TO SUPPORT COUNTERS, SHELVING, CABINETRY, ETC.
6. PROVIDE SUPPORT BRACKETS AS REQUIRED AT ALL COUNTERS.
7. PROVIDE 'CUTOUT' AND/OR OPENINGS AS MAY BE REQUIRED FOR PLUMBING FIXTURES, EQUIPMENT, ETC. VERIFY LOCATIONS WITH HFT.
8. PROVIDE OPENING IN COUNTERS W/ PLASTIC GROMMETS FOR WIRING AT ELECTRIC & DATA OUTLETS AS MAY BE REQUIRED, VERIFY LOCATIONS WITH HFT.
9. SEE DRAWING **A1.2** FOR CASEWORK & COUNTERTOP LOCATIONS.
10. PROVIDE RUBBER BASE OVER TOE KICK.
11. OPEN SHELVING: ALL SHELVING UNITS, EDGES OF SHELVES AND VERTICAL SUPPORTS SHALL HAVE PLASTIC LAMINATE FINISH ON ALL SURFACES EXPOSED TO VIEW.
12. G.C. TO SILICON AROUND SINK AND AT ALL BACKSPLASH EDGES AND SEAMS WITH CLEAR SILICONE.



10 / A4.0 COUNTERTOP SECTION @ SINK
SCALE: 1/2" = 1'-0"



9 / A4.0 BREAK ROOM CASEWORK ELEVATION
SCALE: 1/2" = 1'-0"



8 / A4.0 GRAB BAR SECTION
SCALE: N.T.S.

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ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
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46 SHRIJI LANE
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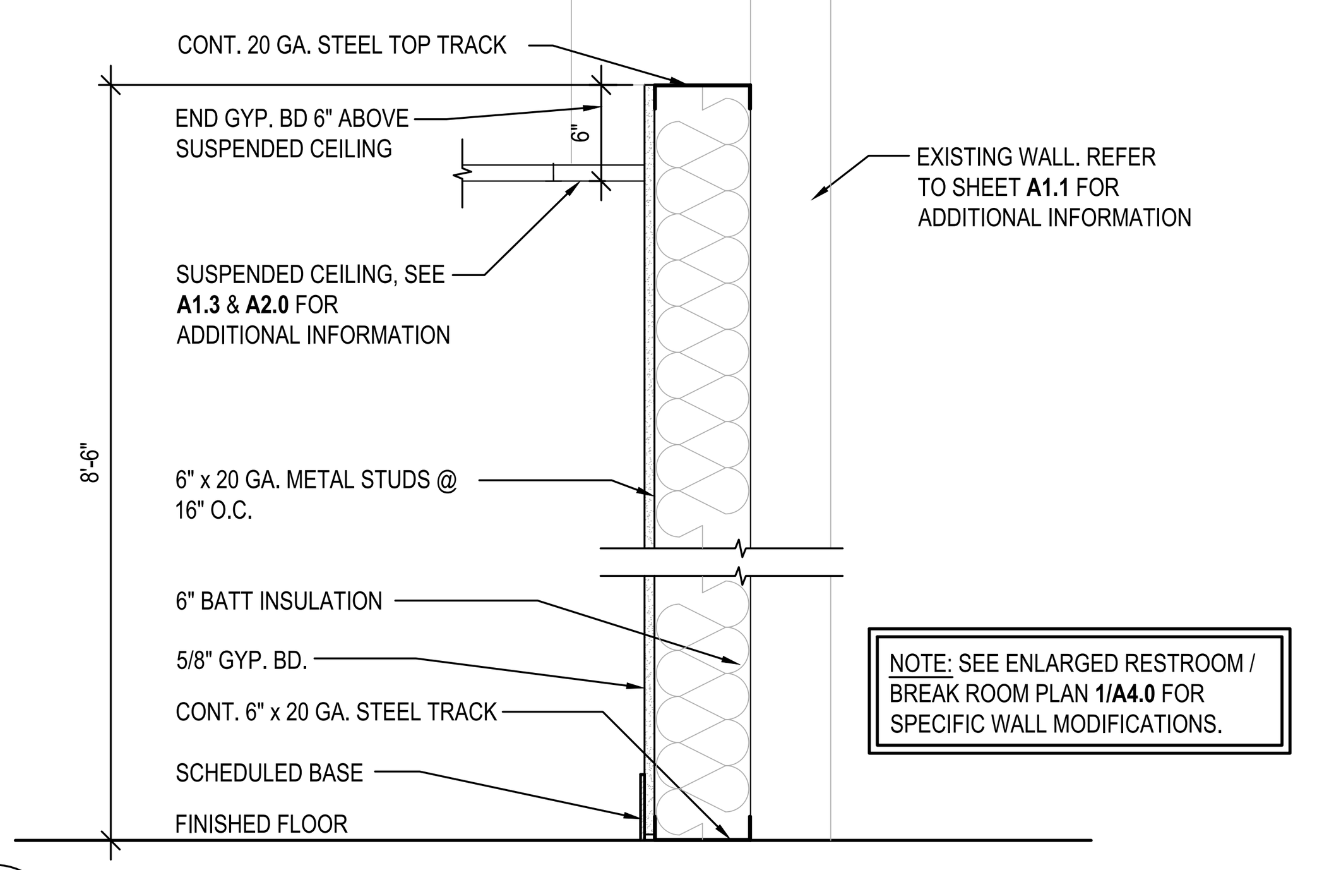
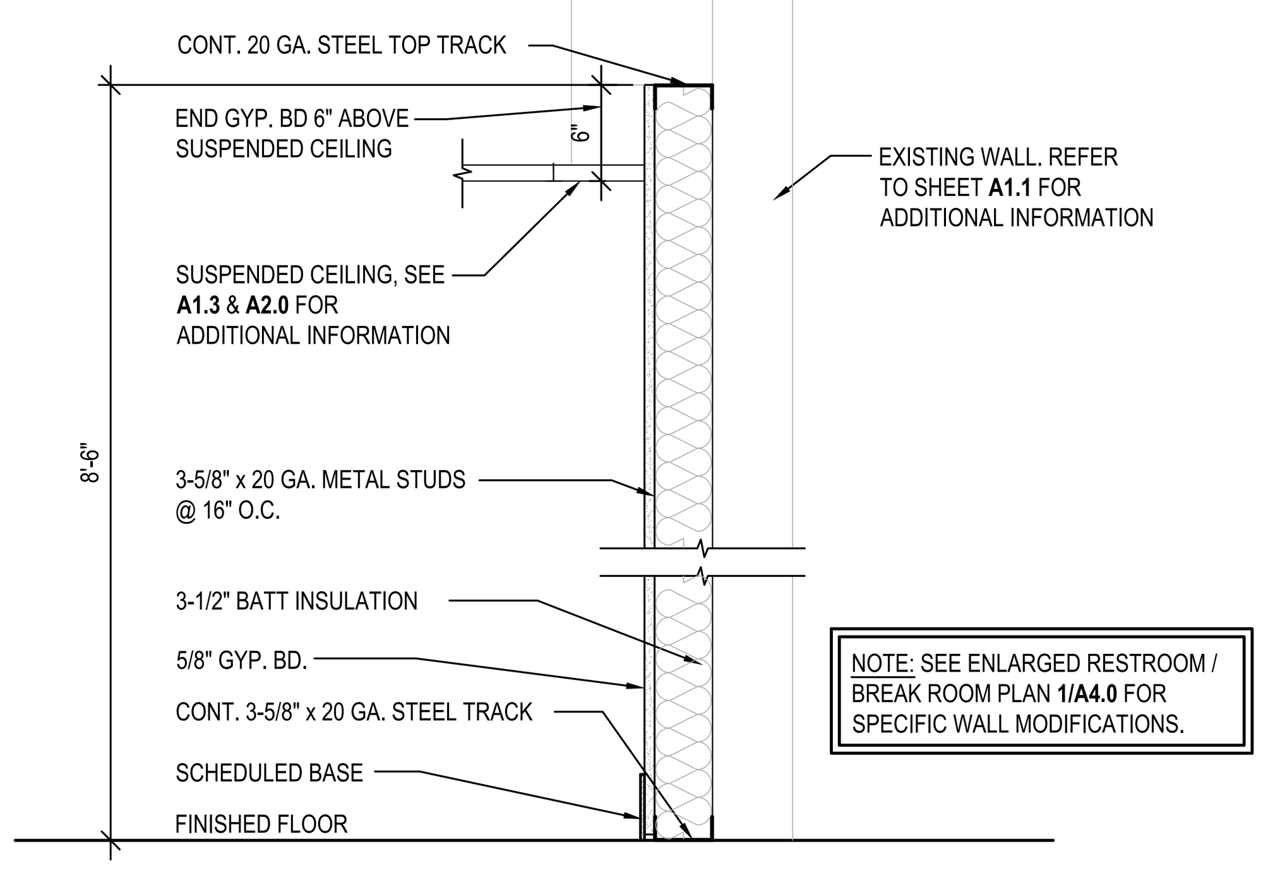
SECTIONS & DETAILS

DATE 05/17/24
JOB NO. 23475
A4.0
SHEET NO.

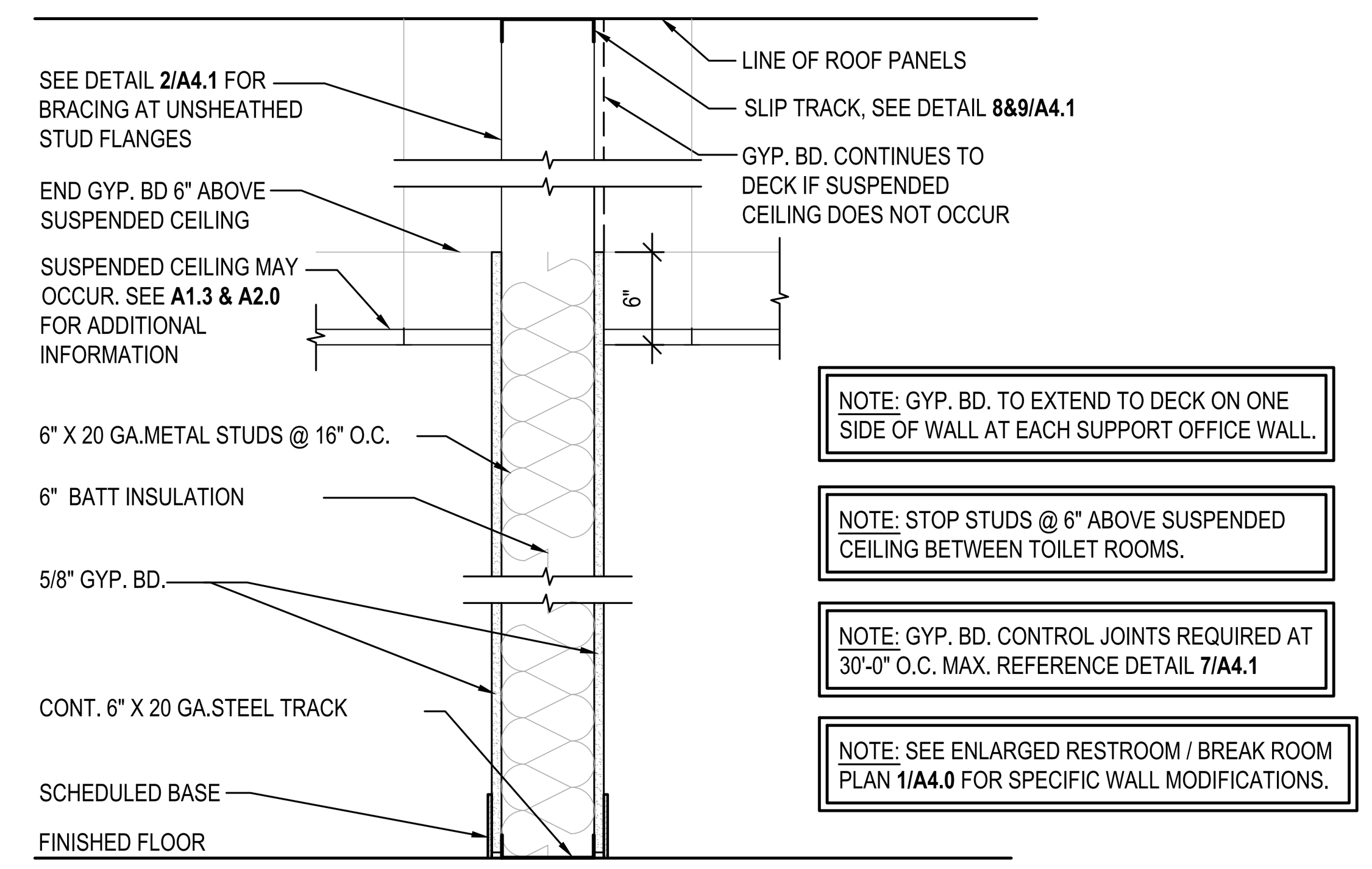
DO NOT SCALE THESE DRAWINGS



C A4.1 WALL TYPE C
SCALE: 1" = 1'-0"



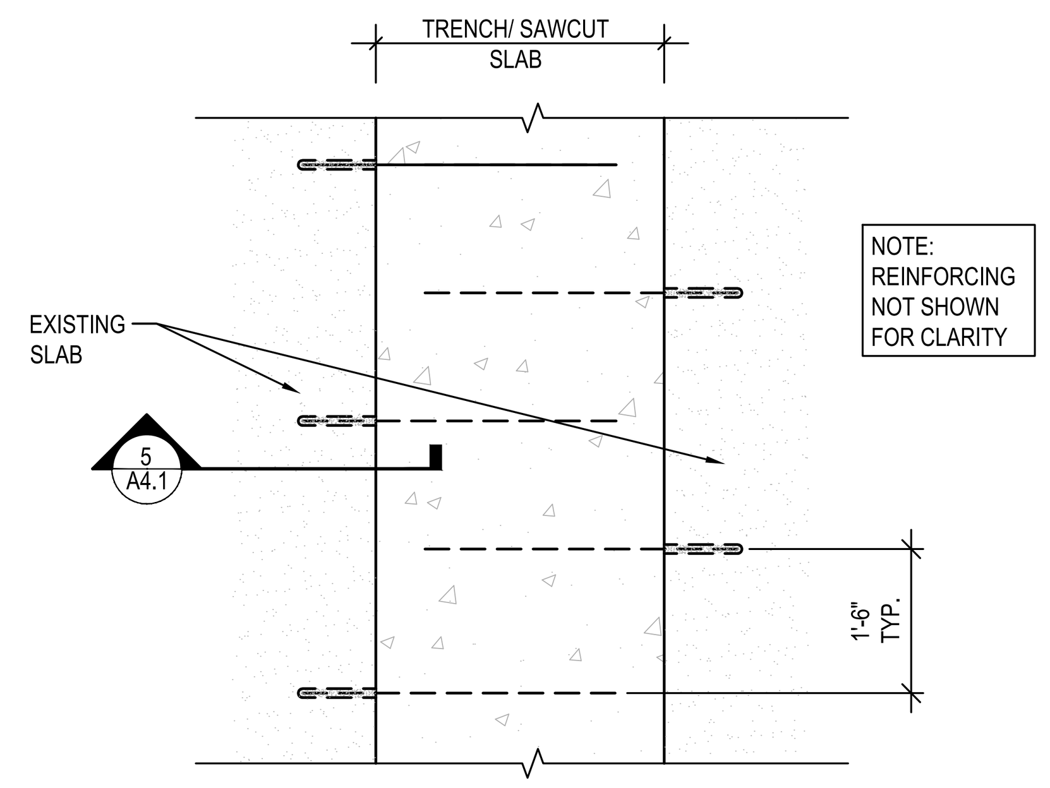
B A4.1 WALL TYPE B
SCALE: 1" = 1'-0"



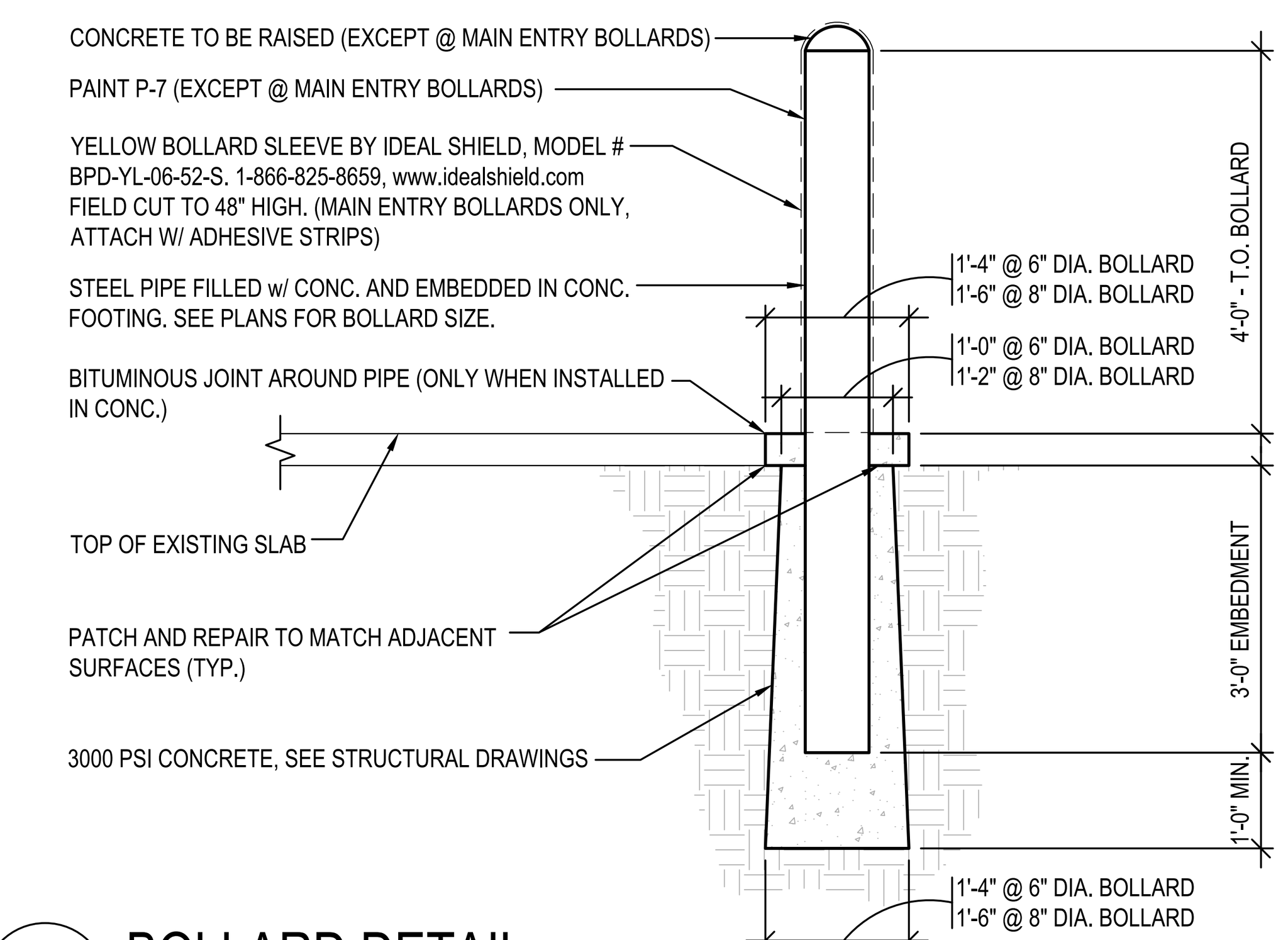
A A4.1 WALL TYPE A
SCALE: 1" = 1'-0"

WALL TYPE NOTES

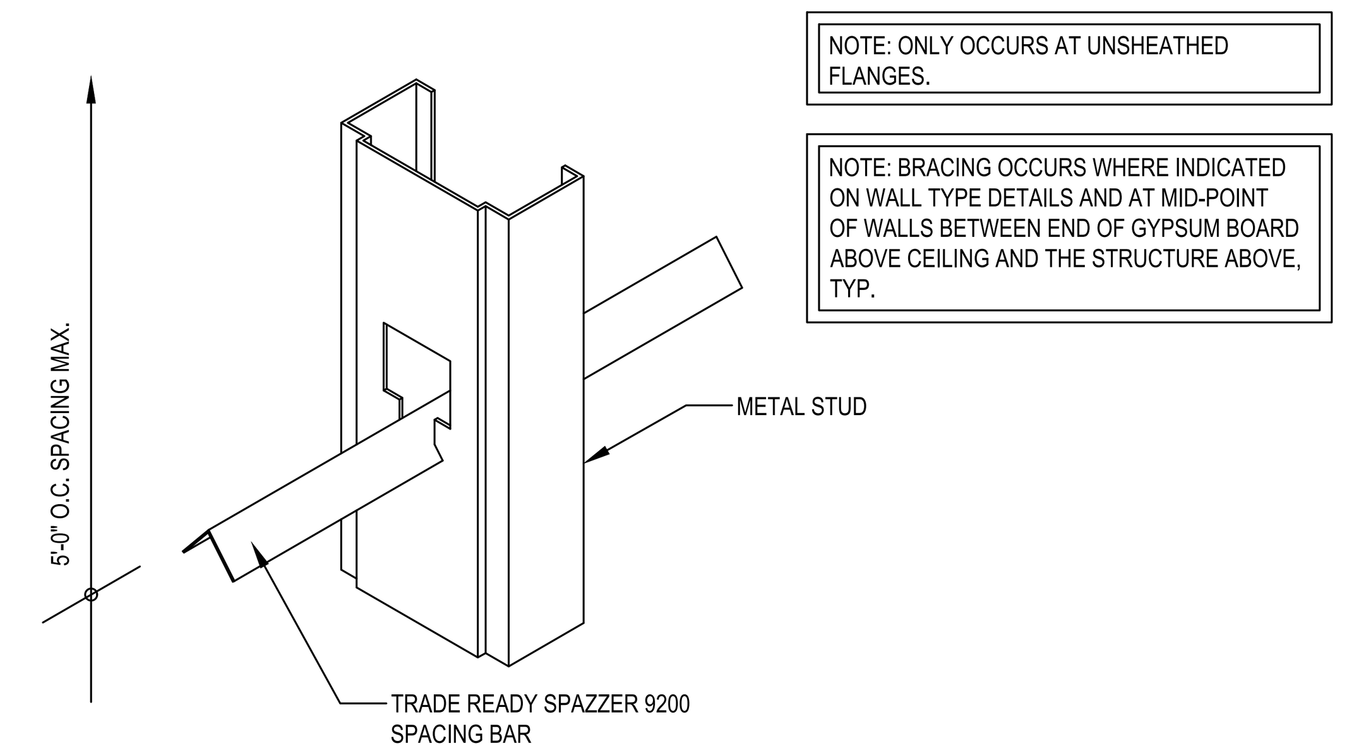
1. REFER TO GENERAL NOTES ON SHEET **A0.2** FOR ADDITIONAL INFORMATION.
2. HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
3. THE MATERIALS AND DETAILS SHOWN ARE FOR TYPICAL INSTALLATIONS WHERE THE STUD MANUFACTURES RECOMMENDATIONS OR LOCAL ORDINANCES ARE MORE RESTRICTIVE, THEY SHALL APPLY.
4. TYPICAL FASTENERS:
   4A. METAL STUDS TO METAL STUDS OR TRACKS: # -18 X 1/2" SMS /2 WITH PHIL PAN HEAD FOR 25 GA. OR 20 GA. #10 - 16 X 9/16" SMS/3 WITH PHIL PAN HEAD FOR INTERCONNECTION OF 18 GA. OR 16 GA.
   4B. METAL STUDS OR TRACKS TO WOOD PURLINS, GIRDERS & BEAMS: #14-10 X 1 1/2" H.W.H. TYPE "S" METAL -TO- WOOD SMS.
   4C. METAL STUDS OR TRACKS TO STRUCTURAL STEEL (TUBE STEEL, WIDE FLANGE COLUMNS, BEAMS, GIRDERS, ETC.): SMS/3 OR SMS/4 - GAUGE AND LENGTH AS REQUIRED FOR THE COMBINED THICKNESS OF THE FRAMING TO BE DRILLED.
   4D. PLYWOOD TO METAL STUDS: #10 - 24 X 3/4" SMS/3 (PLYMETAL SMS) WITH THIN WAFER HEAD.
   4E. GYP. BOARD TO METAL STUDS: #7 X 1 1/4" HI-LO TYPE "S" BUGLE HEAD SCREWS FOR 3/8" TO 5/8" GYP. BOARD TO 25 GAUGE OR 20 GAUGE STUDS. #6 X 1 1/4" TYPE S-12 BUGLE HEAD SCREWS FOR 3/8" TO 5/8" TO 18 GA. OR 16 GA. METAL STUDS OR TRACKS.
   4F. CONCRETE TO METAL STUDS: 0.157" DIA. SHOT PIN WITH MIN. 3/4" EMBEDMENT @ 16" O.C. SPACING. SEE STRUCTURAL.
5. ALL GYPSUM BOARD RETURNS SHALL HAVE METAL CORNER BEADS MINIMUM FLOOR TO CEILING. ALL PENETRATIONS IN DRYWALL CONSTRUCTION ABOVE FINISHED CEILING AND AS NOTED ELSEWHERE SHALL BE EFFECTIVELY SEALED TO PREVENT SOUND LEAKAGE AND FIRE CAULKED AT U.L. RATED PARTITIONS. ALL DRY-WALL JOINTS ABOVE FINISHED CEILING SHALL BE "FIRE TAPED." ALL MECHANICAL CHASES AND OTHER NOTED CHASES ARE TO EXTEND UP TO THE UNDERSIDE OF THE DECK STRUCTURE ABOVE. ALL PLUMBING CHASES UNLESS OTHERWISE NOTED SHALL EXTEND ABOVE THE HIGHEST ADJOINING CEILING AND BE BRACED TO STRUCTURE. ALL VERTICAL DIMENSIONS SHOWN ARE TO THE TOP OF THE SLAB, UNLESS NOTED OTHERWISE.
6. DRYWALL CONTROL JOINTS ARE TO BE INSTALLED AT MINIMUM 30'-0" O.C. AT PARTITIONS AND ELSEWHERE AS NOTED.
7. AT PARTITIONS HIGHER THAN 12'-0" PROVIDE HORIZONTAL LATERAL BRACING WITH 1 1/2" 16GA. COLD ROLLED CHANNELS AT 8'-0" O.C. VERT. ANCHORED TO STUDS. SEE DETAIL **2** THIS SHEET FOR ADDITIONAL INFORMATION.
8. ALL HFT FRAMING SHALL BE METAL STUDS.
9. ALL WOOD IS TO BE FIRE RETARDANT TREATED, INCLUDING BUT NOT LIMITED TO STUDS, BLOCKING, SHEATHING, ETC. ALL FIRE RETARDANT TREATED LABELS ARE TO BE INSTALLED SUCH THAT LABELS ARE VISIBLE PRIOR TO INSTALLATION OF FINAL FINISH MATERIALS.
10. ALL RATED WALLS TO FOLLOW UL DESIGN # U419.
11. **REFER TO STRUCTURAL DRAWINGS FOR CONCRETE AND REINFORCING SPECIFICATIONS.**
12. **REFER TO SHEET S1.0 ON STRUCTURAL DRAWINGS FOR APPROVED ADHESIVE ANCHORING SYSTEMS.**



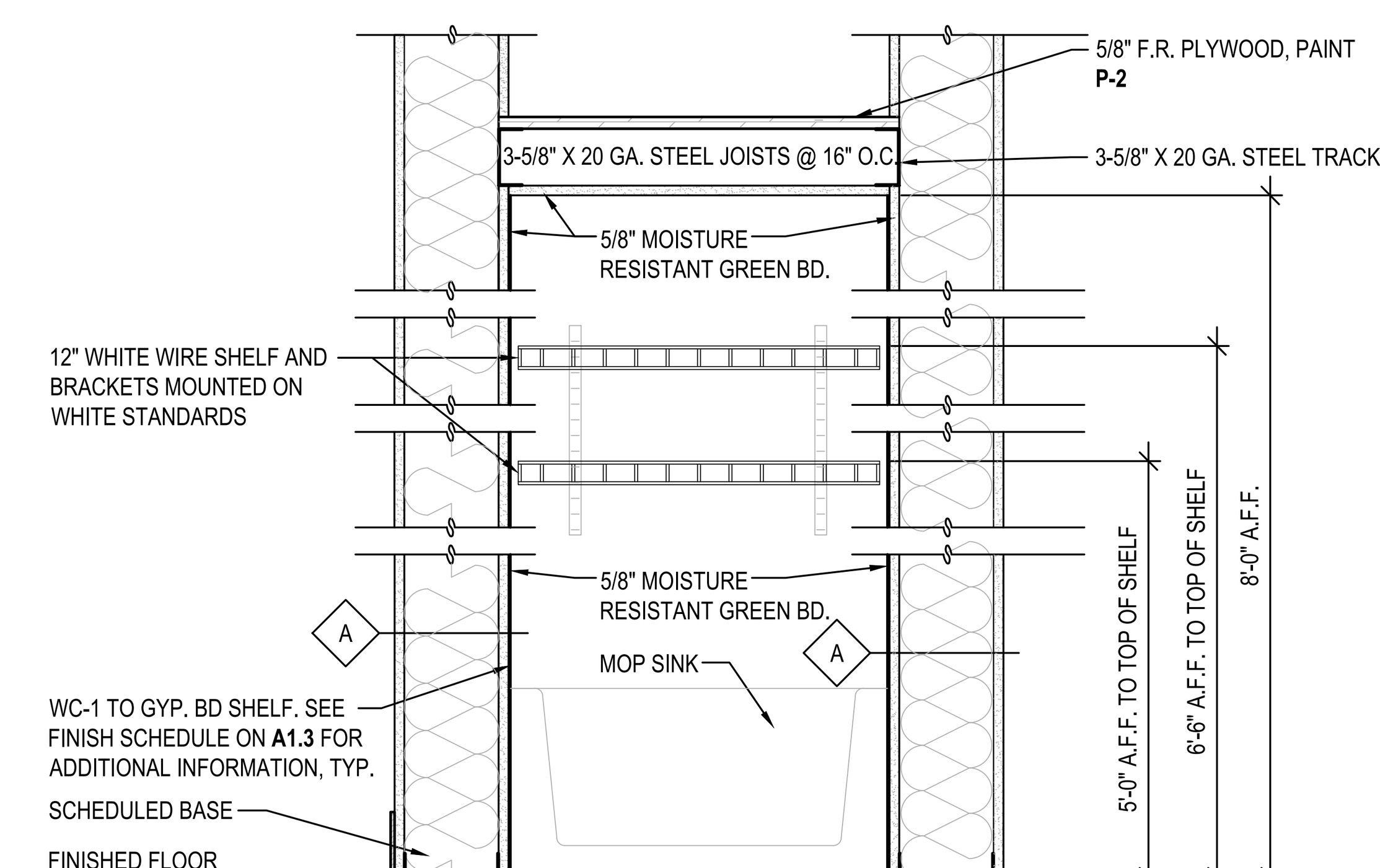
4 A4.1 TRENCHED SLAB DOWEL PLAN
SCALE: NONE



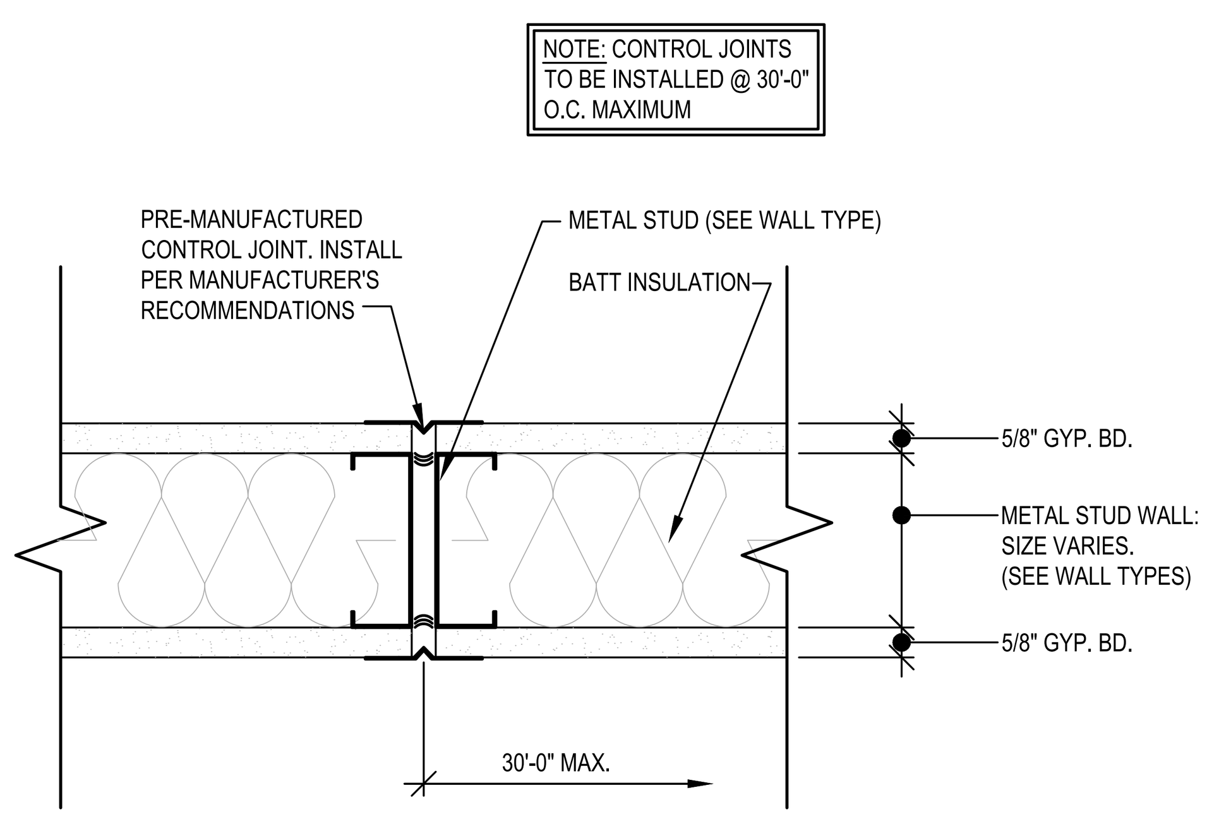
3 A4.1 BOLLARD DETAIL
SCALE: 1/2"=1'-0"



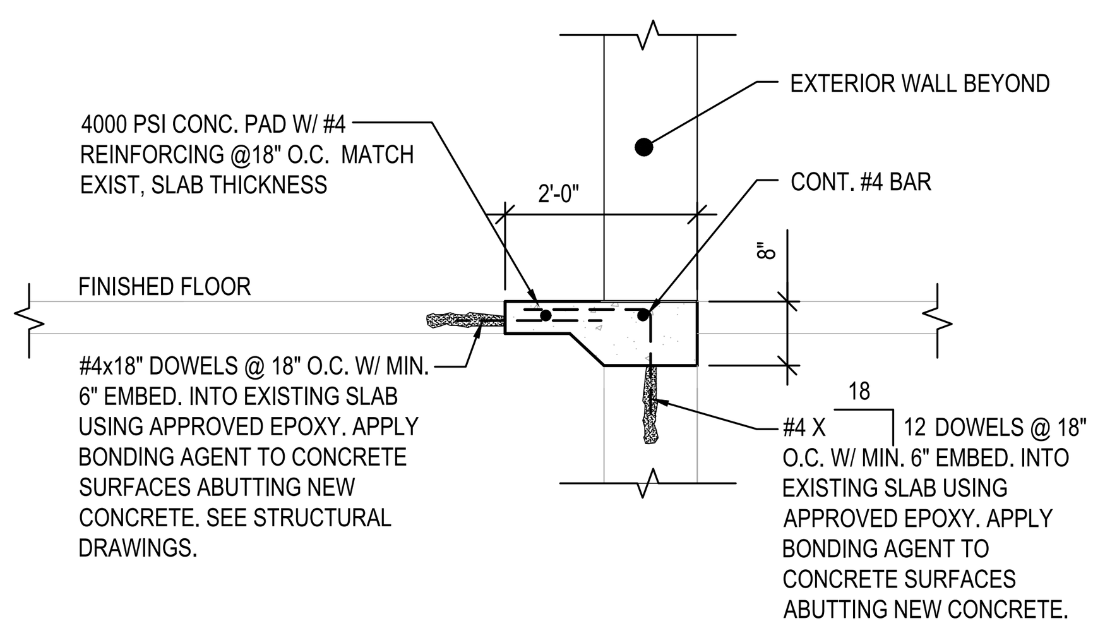
2 A4.1 LATERAL BRACING @ FREE - STANDING WALLS
SCALE: N.T.S.



1 A4.1 MOP SINK - HWH SHELF DETAIL
SCALE: 1" = 1'-0"

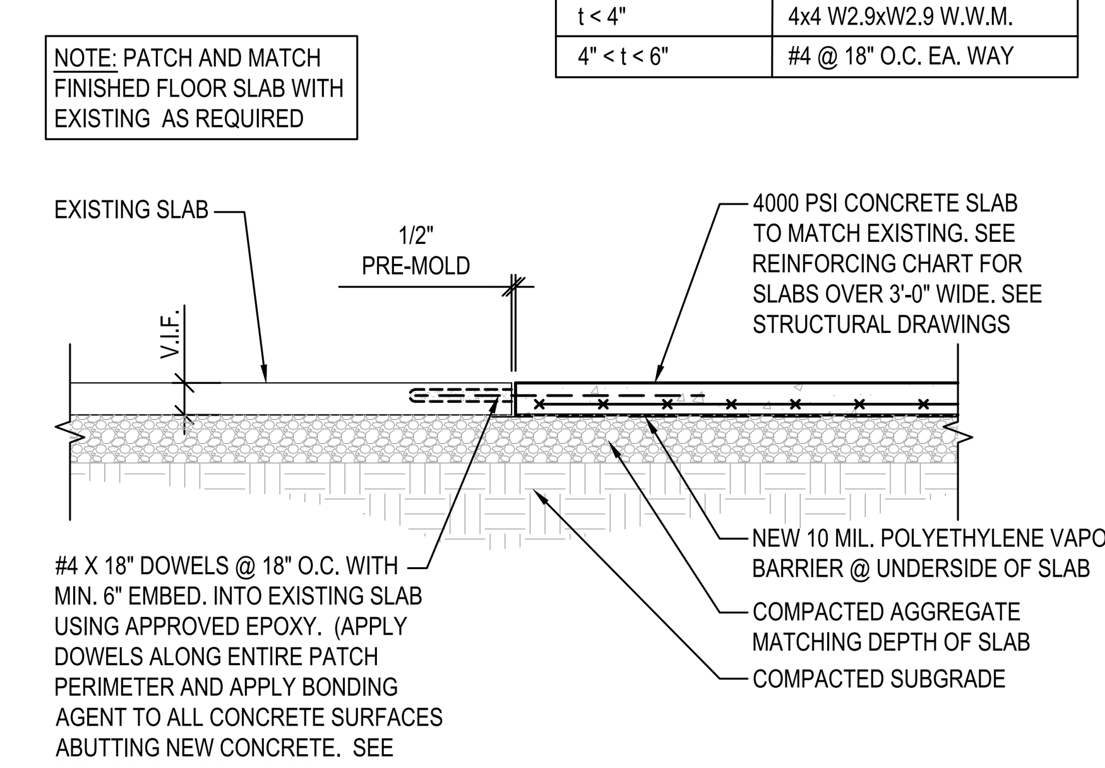


7 A4.1 GYPSUM BOARD CONTROL JOINT DETAIL
SCALE: 3"=1'-0"

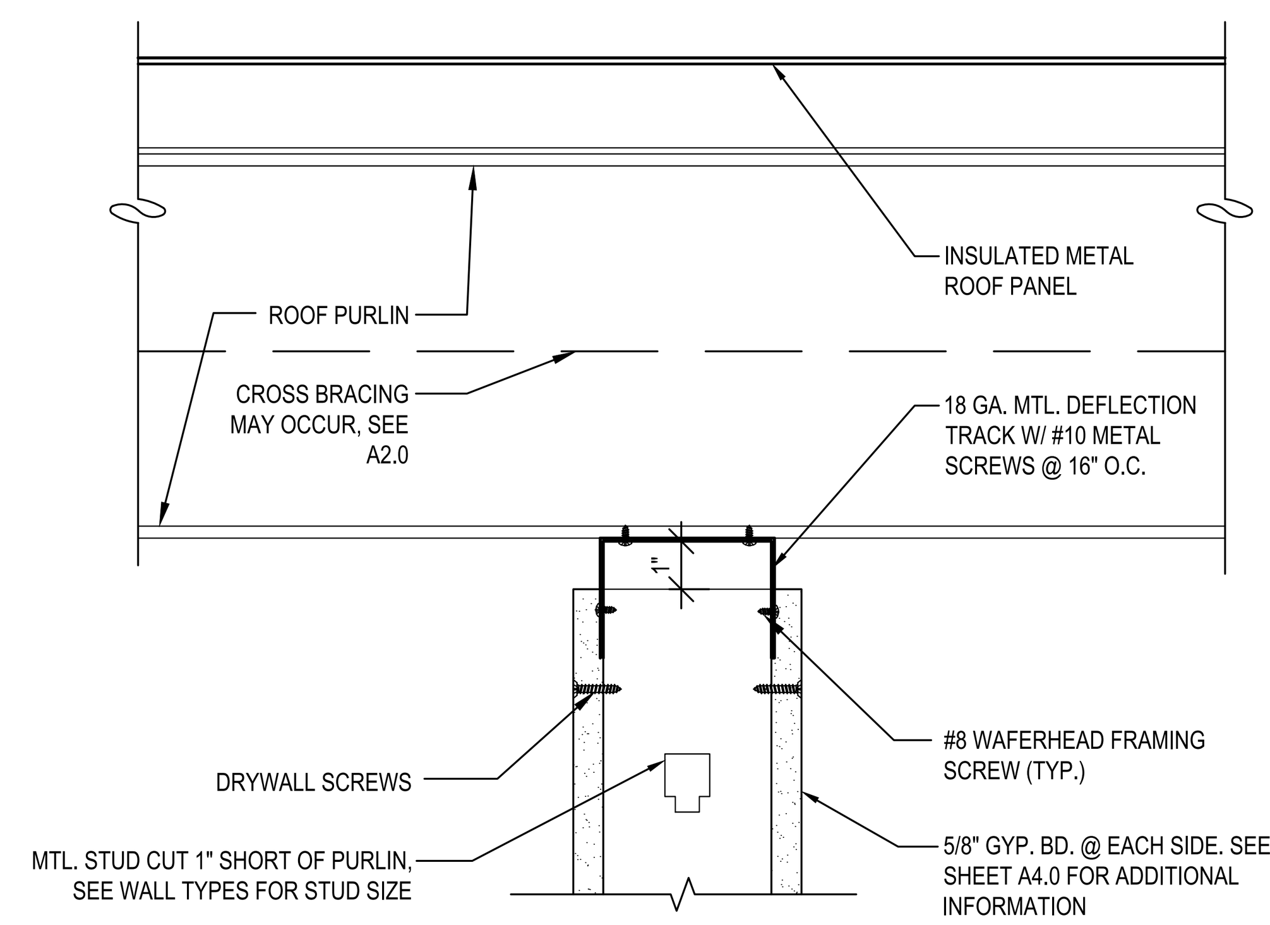


6 A4.1 FLOOR REPAIR DETAIL
SCALE: 1/2"=1'-0"

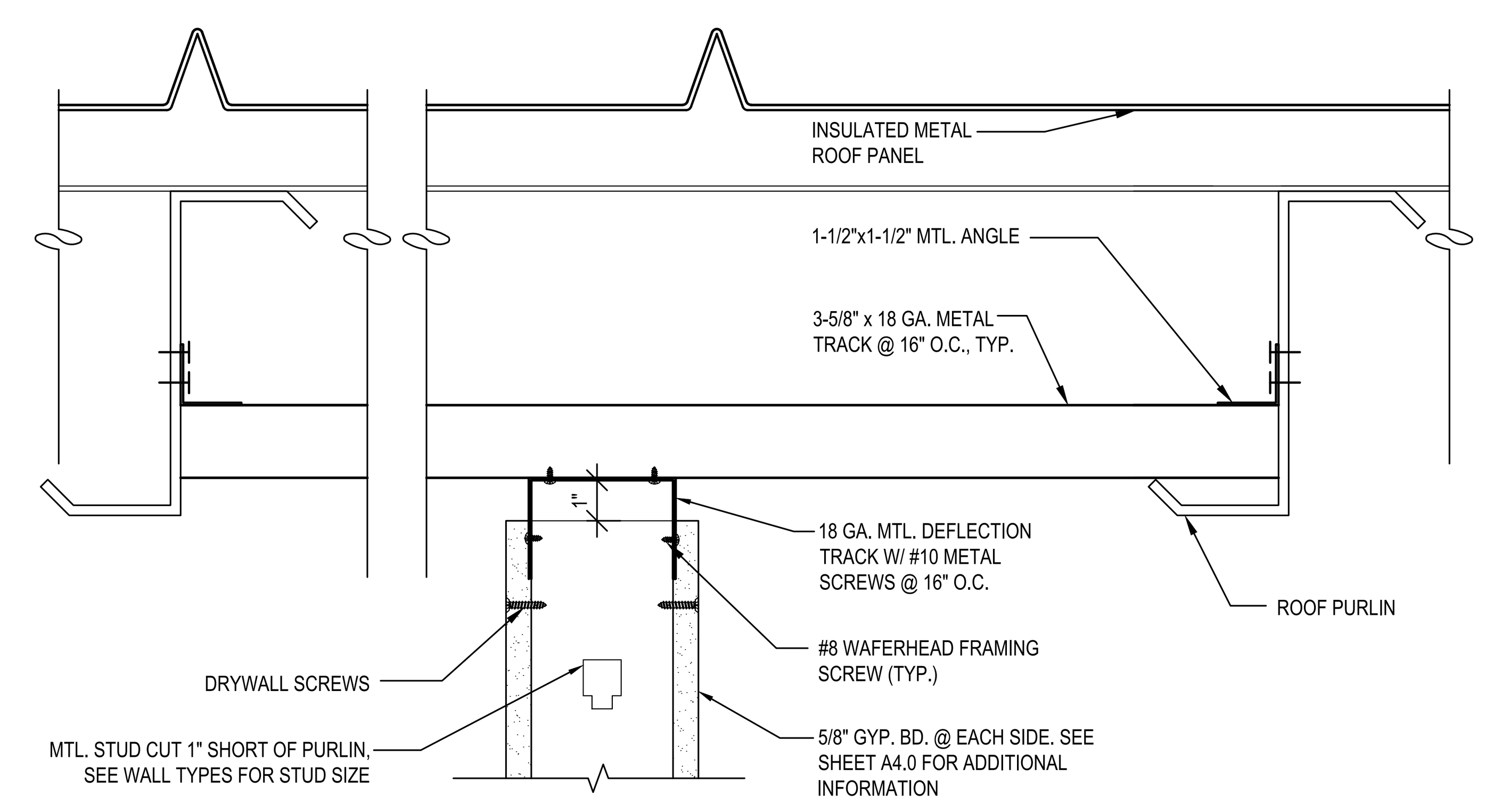
SLAB THICKNESS	REINFORCING
t < 4"	4x4 W2.9xW2.9 W.W.M.
4" < t < 6"	#4 @ 18" O.C. EA. WAY



5 A4.1 TYPICAL SLAB PATCH DETAIL
SCALE: NONE



9 A4.1 SLIP TRACK DETAIL
SCALE: 3" = 1'-0"



8 A4.1 SLIP TRACK DETAIL
SCALE: 3" = 1'-0"

DO NOT SCALE THESE DRAWINGS

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05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

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1		
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WALL TYPES & DETAILS

DATE 05/17/24
JOB NO. 23475

A4.1
SHEET NO.

DOOR AND FRAME SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	DOOR MAT'L	DOOR FINISH	FRAME TYPE	FRAME MAT'L	FRAME FINISH	FIRE LABEL	HARDWARE GROUP	HEAD/JAMB DETAIL	REMARKS
E01A	EXISTING 12'-0" x 7'-8" HFT PACKAGED UNIT										EXISTING DOOR TO REMAIN. G.C. TO PROTECT DURING CONSTRUCTION. G.C. TO CHANGE OUT CORES.
01B	12'-0" x 7'-8" HFT PACKAGED UNIT	A	GLASS/ALUM.	CLEAR ANODIZED	PER MANF.	ALUM.	CLEAR ANODIZED	-	SUPPLIED BY DORMA	PER MANF.	G.C. TO COORDINATE FINAL DOOR AND FRAME DIMENSIONS WITH DORMA. SEE VENDOR INFORMATION ON SHEET **A0.0** FOR CONTACT INFORMATION. **GLAZING TO BE 1/4" TEMPERED**
01C	8'-0" x 7'-8" HFT PACKAGED UNIT	D	GLASS/ALUM.	CLEAR ANODIZED	PER MANF.	ALUM.	CLEAR ANODIZED	-	SUPPLIED BY DORMA	PER MANF.	G.C. TO COORDINATE FINAL DOOR AND FRAME DIMENSIONS WITH DORMA. SEE VENDOR INFORMATION ON SHEET **A0.0** FOR CONTACT INFORMATION. **GLAZING TO BE 1/4" TEMPERED**
02	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	1	A&B/A5.0	SEE DOOR SCHEDULE NOTES.
03	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	2	A&B/A5.0	SEE DOOR SCHEDULE NOTES.
04	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	2	A&B/A5.0	SEE DOOR SCHEDULE NOTES.
05	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	4	A&B/A5.0	UNDERCUT DOOR TO PROVIDE 1" CLEARANCE. LATCH SET SHALL BE "PRIVACY" TYPE.
06	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	4	A&B/A5.0	UNDERCUT DOOR TO PROVIDE 1" CLEARANCE. LATCH SET SHALL BE "PRIVACY" TYPE.
07	3'-0" x 7'-0" x 1 3/4"	B	S.C. WOOD	PAINTED	1	H.M.	PAINTED	-	3	A&B/A5.0	SEE DOOR SCHEDULE NOTES.
E08	EXISTING 8'-0" x 10'-0" x 1/2"								5		EXISTING OVERHEAD DOOR TO REMAIN. G.C. TO PROTECT DURING CONSTRUCTION.
E09	EXISTING 3'-0" x 7'-0" x 1 3/4"								6		EXISTING DOOR TO REMAIN. G.C. TO PROTECT DURING CONSTRUCTION. INSTALL ADDRESS ON THIS DOOR
E10	EXISTING 3'-0" x 7'-0" x 1 3/4"								6A		EXISTING DOOR TO REMAIN. G.C. TO PROTECT DURING CONSTRUCTION. DO NOT INSTALL ADDRESS ON THIS DOOR.

EXISTING HARDWARE NOTE:
CONTRACTOR TO VERIFY ALL EXISTING HARDWARE TO ENSURE HFT SPECIFIED HARDWARE HAS BEEN INSTALLED. CONTRACTOR SHALL REMOVE AND REPLACE ANY EXISTING HARDWARE THAT DOES NOT MEET HFT SPECIFICATIONS AS NOTED IN HARDWARE GROUPS.

HARDWARE GROUP

GROUP #1
(MANAGER, UTILITY)

BUTTS:	1 - 1/2 PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.
LATCH SET:	FALCON 'ENTRANCE' LEVER W511HD-D-231F-7 PIN-626
LATCH GUARD:	DON-JO ILP-212-SL
CYLINDER CORE:	FALCON C649 (C/KWY-7 PIN)-626
CLOSER:	FALCON SC71 RW / PA-689 (MTD. ON INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US32D
SILENCER:	(3) ROCKWOOD 608-26D
FLOOR STOP:	ROCKWOOD 441-US26D DOME STOP
DOOR VIEWER:	ROCKWOOD 622-26D

(DOOR VIEWERS FOR MANAGER OFFICE SIDE OF DOORS ONLY - NO DOOR VIEWERS INSTALLED ON UTILITY DOORS)

GROUP #2
(SUPPORT OFFICE DOORS)

BUTTS:	1 - 1/2 PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.
LATCH SET:	FALCON 'STOREROOM' LEVER W581HD-D-626
LATCH GUARD:	DOOR #3: DON-JO ILP-212-SL DOOR #4 DON-JO OSLP-110-SL
DEAD BOLT:	FALCON D241H-50-231F-7 PIN-626
CYLINDER CORE:	(2) FALCON C649 (C/KWY-7 PIN)-626
CLOSER:	FALCON SC71 RW / PA-689 (MTD. ON INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US32D
SILENCER:	(3) ROCKWOOD 608-26D
FLOOR STOP:	ROCKWOOD 441-US26D DOME STOP
DOOR VIEWER:	ROCKWOOD 622-26D

GROUP #3
(BREAK ROOM)

BUTTS:	1 - 1/2 PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.
LATCH SET:	FALCON 'PASSAGE' LEVER W101S-D-626
CLOSER:	FALCON SC71 RW / PA-689 (MTD. ON INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US32D
SILENCER:	(3) ROCKWOOD 608-26D
FLOOR STOP:	ROCKWOOD 441-US26D DOME STOP

GROUP #4
(RESTROOMS)

BUTTS:	1 - 1/2 PAIR HAGER ECBB1100, 4 1/2" x 4 1/2" x US26D.
LATCH SET:	FALCON 'PASSAGE' LEVER T101S-D-626 (MULTI-USE RESTROOMS) FALCON 'PRIVACY' LEVER T301S-D-626 (SINGLE-USE RESTROOMS)
CLOSER:	FALCON SC71 RW / PA-689 (MTD. ON INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US32D
SILENCER:	(3) ROCKWOOD 608-26D
FLOOR STOP:	ROCKWOOD 441H-US26D DOME STOP

GROUP #5
(OVERHEAD DOORS)

DOOR PANELS:	2-3/4" INSULATED STEEL INTERLOCKING FLAT SLAT CURTAIN W/ ENDLOCKS @ BOTH ENDS BY VENDOR SCHLAGE KS41F1200
CYLINDER CORE:	FALCON C649 (IHCK, IHK)-626 SCHLAGE 80-035-GRN 24 GA. MIN. GALVANIZED STEEL BY VENDOR HAND CHAIN BY VENDOR
LOCKING:	CHAIN KEEPER (BY VENDOR) WITH PADLOCK (SUPPLIED BY HFT GC.)
BOTTOM BAR:	EXTRUDED ALUM. BAR BY VENDOR
WEATHER SEALS:	BY VENDOR

GROUP #6 (ALARMED)
(SINGLE EXIT DOORS) NOTE: (NO HARDWARE ON EXTERIOR SIDE, U.N.O.)

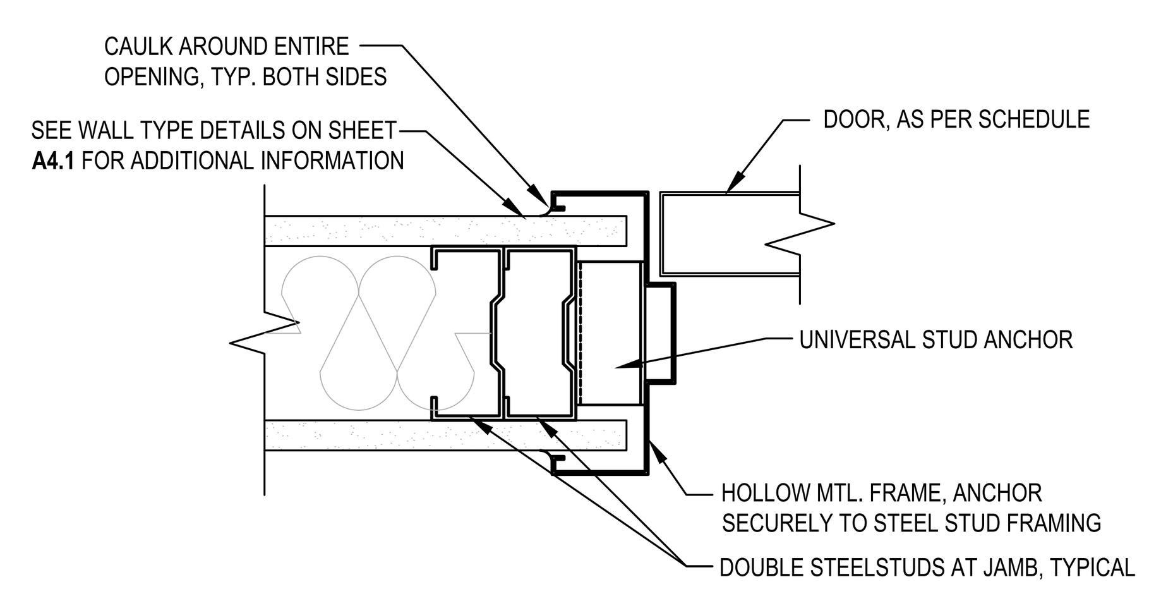
BUTTS:	1 - 1/2 PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.
EXIT DEVICE:	VON DUPRIN GUARD-X 2670-US28
CYLINDER CORE:	FALCON C207-SC-C26D
CONST. CORE:	FALCON C607 CCA 7-PIN
HOUSING:	FALCON C953 (C/KWY 7-PIN) 626
CLOSER:	FALCON SC71 RW / PA-689 (MTD. INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US32D
DOOR STOP:	ROCKWOOD 472-26D STOP W/ KEEPER
DOOR VIEWER:	DOORSCOPE DS2000 AL.S
DOOR BOTTOM:	PEMKO 315-CN MILL 36"
GASKETING:	PEMKO 303 AV (1) 36", (2) 84"
THRESHOLD:	PEMKO 171-A MILL 36"
DOOR PULL:	ROCKWOOD 131-26D (MTD. INSIDE)
LATCH GUARD:	DON-JO NLP-110 (**EXTERIOR**)
DRIP EDGE:	PEMKO 346C RAIN DRIP 40" (**EXTERIOR**)

GROUP #6A (ALARMED)
(SINGLE EXIT DOORS) NOTE: (NO HARDWARE ON EXTERIOR SIDE, U.N.O.)

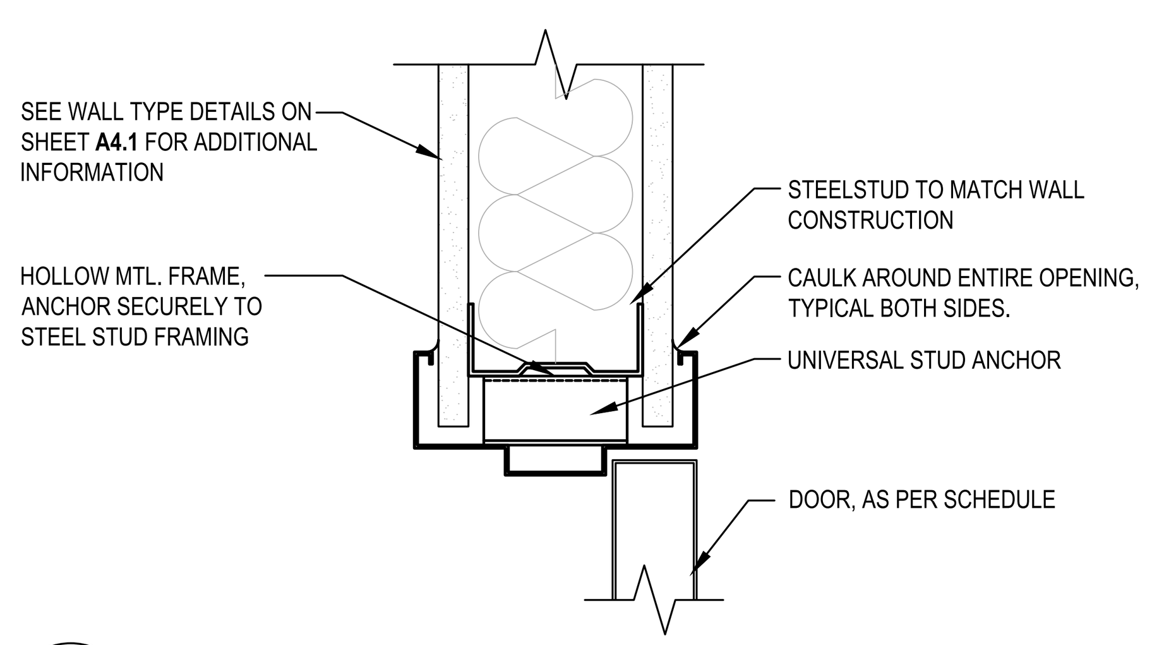
BUTTS:	1 - 1/2 PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.
EXIT DEVICE:	VON DUPRIN GUARD-X 2670-US28
CYLINDER CORE:	FALCON C207-SC-C26D
CONST. CORE:	FALCON C607 CCA 7-PIN
HOUSING:	FALCON C953 (C/KWY 7-PIN) 626
CLOSER:	FALCON SC71 RW / PA-689 (MTD. INSIDE)
KICKPLATE:	ROCKWOOD K1050 - 10x34 US38D
DOOR STOP:	ROCKWOOD 472-26D STOP W/ KEEPER
DOOR BOTTOM:	PEMKO 315-CN MILL 36"
GASKETING:	PEMKO 303 AV (1) 36", (2) 84"
THRESHOLD:	PEMKO 171-A MILL 36"
DOOR PULL:	ROCKWOOD 131-26D (MTD. INSIDE)
LATCH GUARD:	DON-JO NLP-110 (**EXTERIOR**)
DRIP EDGE:	PEMKO 346C RAIN DRIP 40" (**EXTERIOR**)

DOOR SCHEDULE NOTES

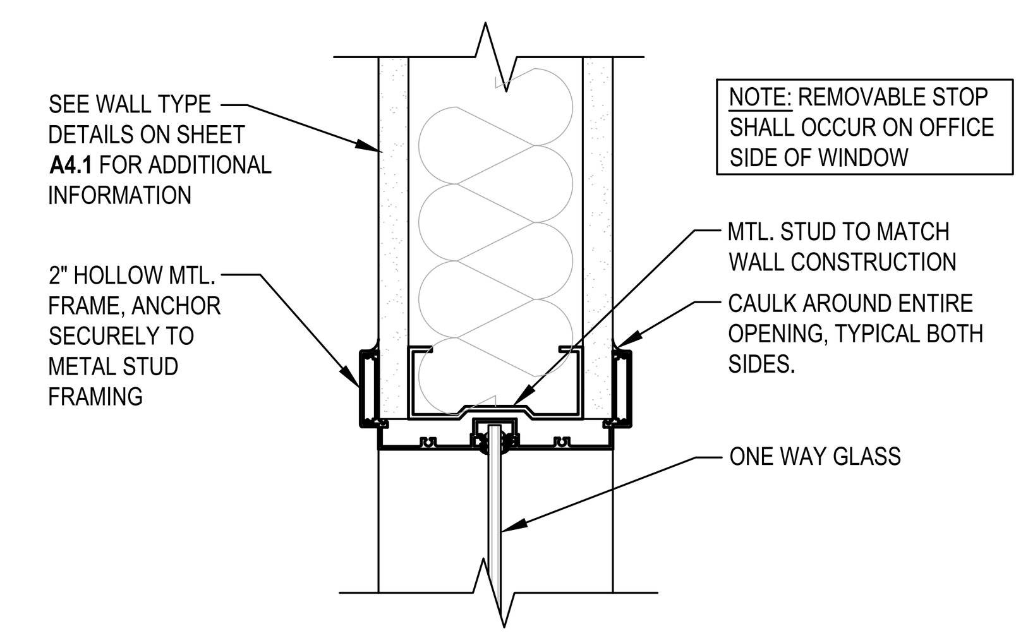
1. RATED DOORS SHALL BE A TIGHT-FITTING SMOKE AND DRAFT CONTROL ASSEMBLY.
2. ALL EXISTING / NEW DOORS AND HARDWARE SHALL COMPLY WITH CURRENT ADA REGULATIONS. ALL OPERABLE PARTS ON DOORS AND GATES SHALL BE EASY TO GRASP WITH ONE HAND AND NOT REQUIRE GRASPING, PINCHING OR TWISTING OF THE WRIST TO OPERATE.
3. ALL INTERIOR / EXTERIOR METAL DOORS SHALL BE 20 GA. MINIMUM.
4. ALL DOOR HARDWARE SHALL BE LEVER TYPE OR PANIC HARDWARE.
5. EXTERIOR DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE OR EFFORT.
6. OPENINGS SHALL BE A MINIMUM OF 32" WIDE WHEN DOOR IS AT RIGHT ANGLE TO CLOSED POSITION.
7. BOTTOM 10" OF ALL DOORS SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE FOR OPENING BY WHEELCHAIR FOOT REST.
8. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 LBS. FOR EXTERIOR DOORS, AND 3 LBS. FOR INTERIOR DOORS WITH A PUSH OR PULL EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOOR AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATIONS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS, WHEN FIRE DOORS ARE REQUIRED. THE MAXIMUM EFFORT TO OPERATE THE DOORWAY MAY BE INCREASED NOT TO EXCEED 14 LBS. W/ CLOSURE.
9. SUBMIT HARDWARE CUT SHEETS FOR ANY ALTERNATES TO HFT REPRESENTATIVE PRIOR TO ORDERING HARDWARE FOR APPROVAL.
10. REPLACE ALL EXISTING HARDWARE, TO COMPLY WITH HARDWARE SCHEDULE.
11. PROVIDE A SIGN ABOVE ALL ENTRANCE DOOR STATING THAT "THIS DOOR IS TO REMAIN UNLOCKED DURING BUSINESS HOURS". LETTERS SHALL BE AT LEAST 1" IN HEIGHT AND SHALL BE WHITE ON A CONTRASTING BACKGROUND.
12. CONTRACTOR SHALL COORDINATE KEYING OF LOCKS WITH OWNER PRIOR TO INSTALLATION.
13. ALL HARDWARE LISTED TO BE SUPPLIED BY LISTED MANUFACTURER OR EQUAL
14. ALL DOOR HARDWARE TO BE BRUSHED CHROME FINISH.
15. EXTERIOR DOORS & FRAMES, EXCLUDING OVERHEAD DOOR, TO BE PAINTED TO MATCH THE ADJ. FINISH ON THE EXTERIOR AND PAINTED **P-8** ON THE INTERIOR. SEE FINISH SCHEDULE ON SHEET **A1.3**.
16. INTERIOR DOORS AND FRAMES TO BE PAINTED **P-8**. SEE FINISH SCHEDULE ON SHEET **A1.3**.
17. BI-PARTING DOOR THRESHOLDS TO BE PROVIDED AND INSTALLED BY DOOR VENDOR.
18. PROVIDE 8" HIGH WHITE VINYL NUMBERS STATING STREET ADDRESS IN HELVETICA FONT STYLE ON TRANSOM AT MAIN ENTRY DOOR.
19. INTERIOR DOOR FRAMES SHALL BE MIN. 20GA, U.N.O. EXTERIOR DOOR FRAMES SHALL BE MIN. 16GA. WELDED FRAMES, U.N.O.
20. ALL EXTERIOR DOORS TO BE ALARMED, U.N.O.



A/A5.0 TYP. INTERIOR DOOR JAMB DETAIL
SCALE: 3" = 1'-0"



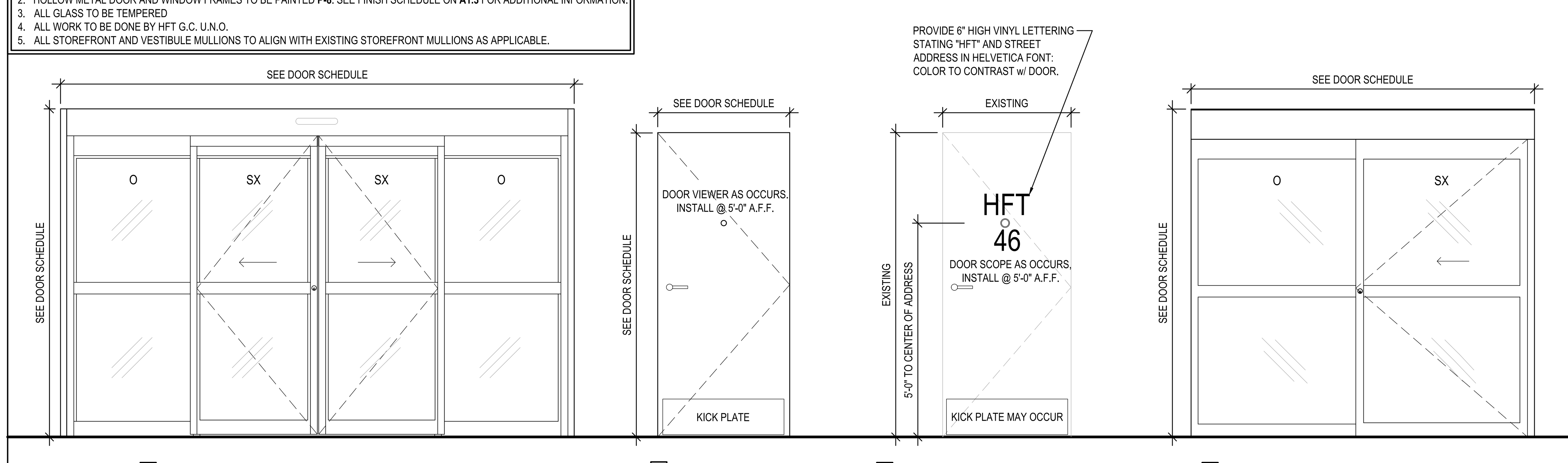
B/A5.0 TYP. INTERIOR DOOR HEAD DETAIL
SCALE: 3" = 1'-0"



C/A5.0 TYP. INTERIOR WINDOW HEAD DETAIL
SCALE: 3" = 1'-0"

DOOR TYPES

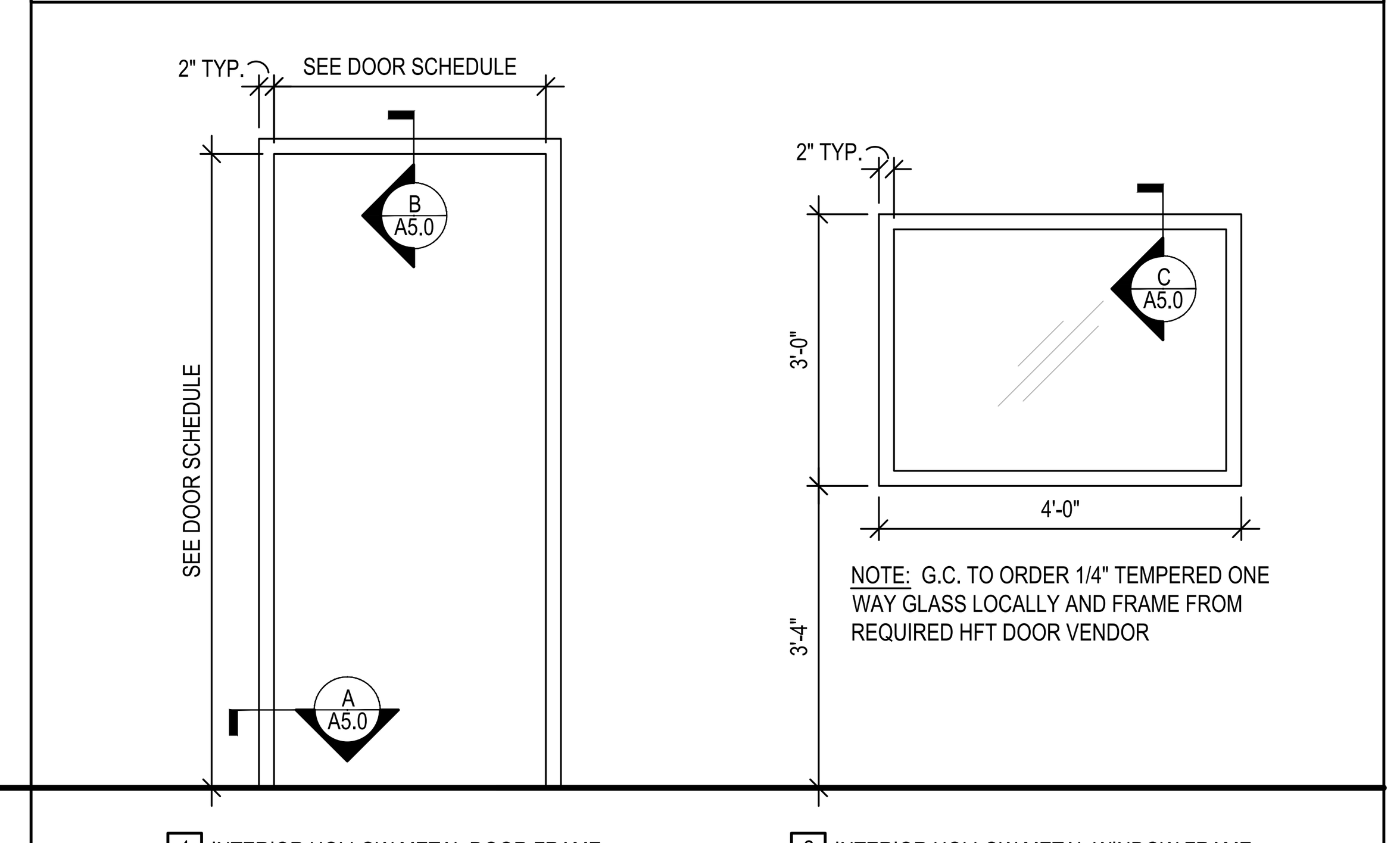
NOTE:
1. GENERAL CONTRACTOR TO COORDINATE WITH DORMA FOR FINAL DOOR OPENING SIZES. SEE **A0.0** FOR CONTACT INFORMATION.
2. HOLLOW METAL DOOR AND WINDOW FRAMES TO BE PAINTED **P-8**. SEE FINISH SCHEDULE ON **A1.3** FOR ADDITIONAL INFORMATION.
3. ALL GLASS TO BE TEMPERED
4. ALL WORK TO BE DONE BY HFT G.C. U.N.O.
5. ALL STOREFRONT AND VESTIBULE MULLIONS TO ALIGN WITH EXISTING STOREFRONT MULLIONS AS APPLICABLE.



A BI-PART PARTIAL BREAKOUT ALUM ENTRY DOORS (ESA200 SERIES BY DORMA)
B SOLID CORE WOOD DOOR
C INTERIOR / EXTERIOR HOLLOW METAL DOOR
D SINGLE SLIDER BREAKOUT ALUM ENTRY DOORS (ESA200 SERIES BY DORMA)

FRAME TYPES

NOTE:
1. GENERAL CONTRACTOR TO COORDINATE WITH DORMA FOR FINAL DOOR OPENING SIZES. SEE **A0.0** FOR CONTACT INFORMATION.
2. HOLLOW METAL DOOR AND WINDOW FRAMES TO BE PAINTED **P-8**. SEE FINISH SCHEDULE ON **A1.3** FOR ADDITIONAL INFORMATION.
3. ALL GLASS TO BE TEMPERED.
4. ALL WORK TO BE DONE BY HFT G.C. U.N.O.
5. INTERIOR DOOR FRAMES SHALL BE 20 GA. MINIMUM.
6. EXTERIOR DOOR FRAMES SHALL BE ALL WELDED 16 GA. MINIMUM.



1 INTERIOR HOLLOW METAL DOOR FRAME
2 INTERIOR HOLLOW METAL WINDOW FRAME

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ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
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DOOR SCHEDULE & DETAILS

DATE 05/17/24
JOB NO. 23475
A5.0
SHEET NO.

GENERAL NOTES

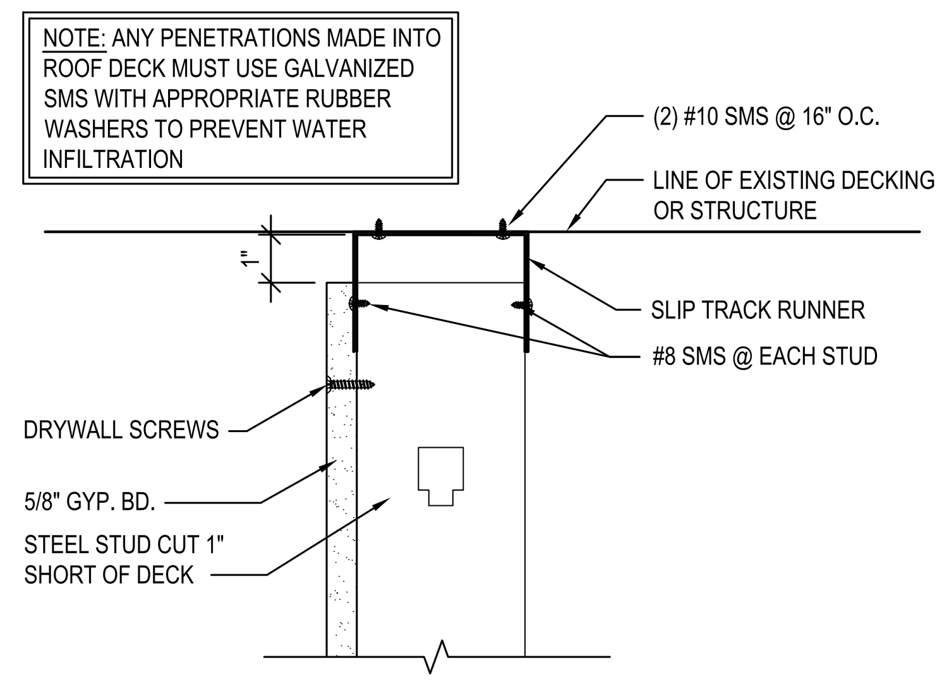
1. ALL GLAZING TO BE 1/4" TEMPERED.
2. ALL WORK TO BE DONE BY HFT G.C. U.N.O.
3. ALL STOREFRONT AND VESTIBULE MULLIONS TO ALIGN WITH EXISTING STOREFRONT MULLIONS AS APPLICABLE.

800 SERIES VESTIBULE KEY NOTES

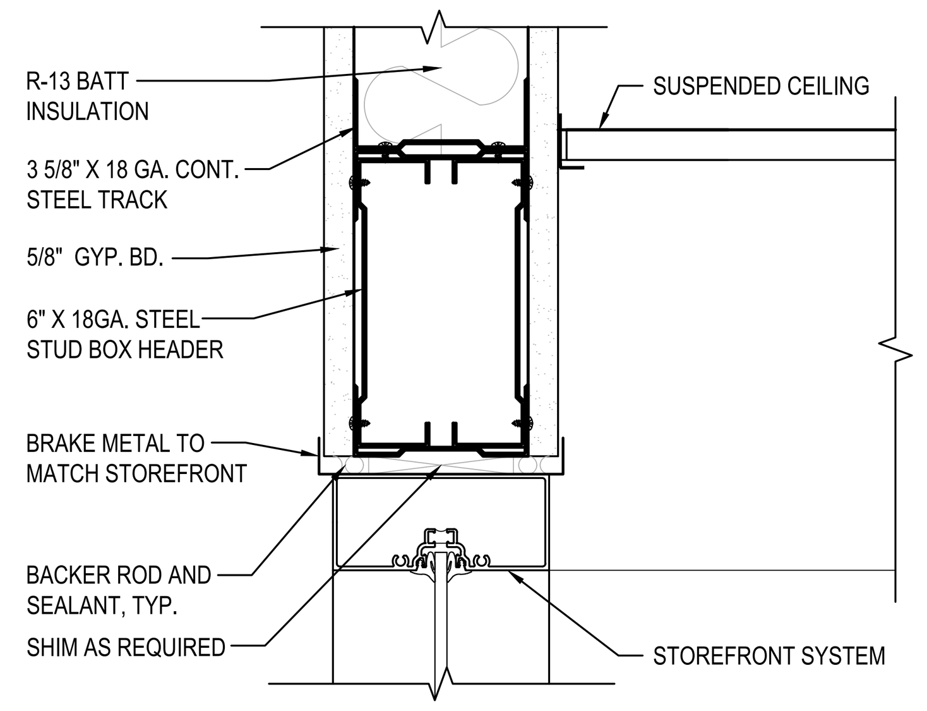
800. DENOTES EMERGENCY DOOR BREAK OUT.
801. DENOTES DORMA BI-PARTING ENTRY DOOR PACKAGE. TO BE CONSTRUCTED BY DORMA.
802. STOREFRONT SYSTEM TO MATCH EXISTING STOREFRONT FINISH.
803. 4-1/2" ALUMINUM POST, FINISH TO MATCH DOOR SYSTEM, TYP.
804. DENOTES DORMA SINGLE SLIDING ENTRY DOOR PACKAGE. TO BE CONSTRUCTED BY DORMA.
805. EXISTING DORMA BI-PARTING ENTRY DOOR WITH EMERGENCY BREAK OUT BY LANDLORD UNDER A SEPARATE PERMIT.

NOTE: G.C. TO FIELD VERIFY ALL EXISTING DIMENSIONS AND COORDINATE WITH DORMA DOOR BEFORE ORDERING. NOTIFY ARCHITECT OF ANY DISCREPANCIES.

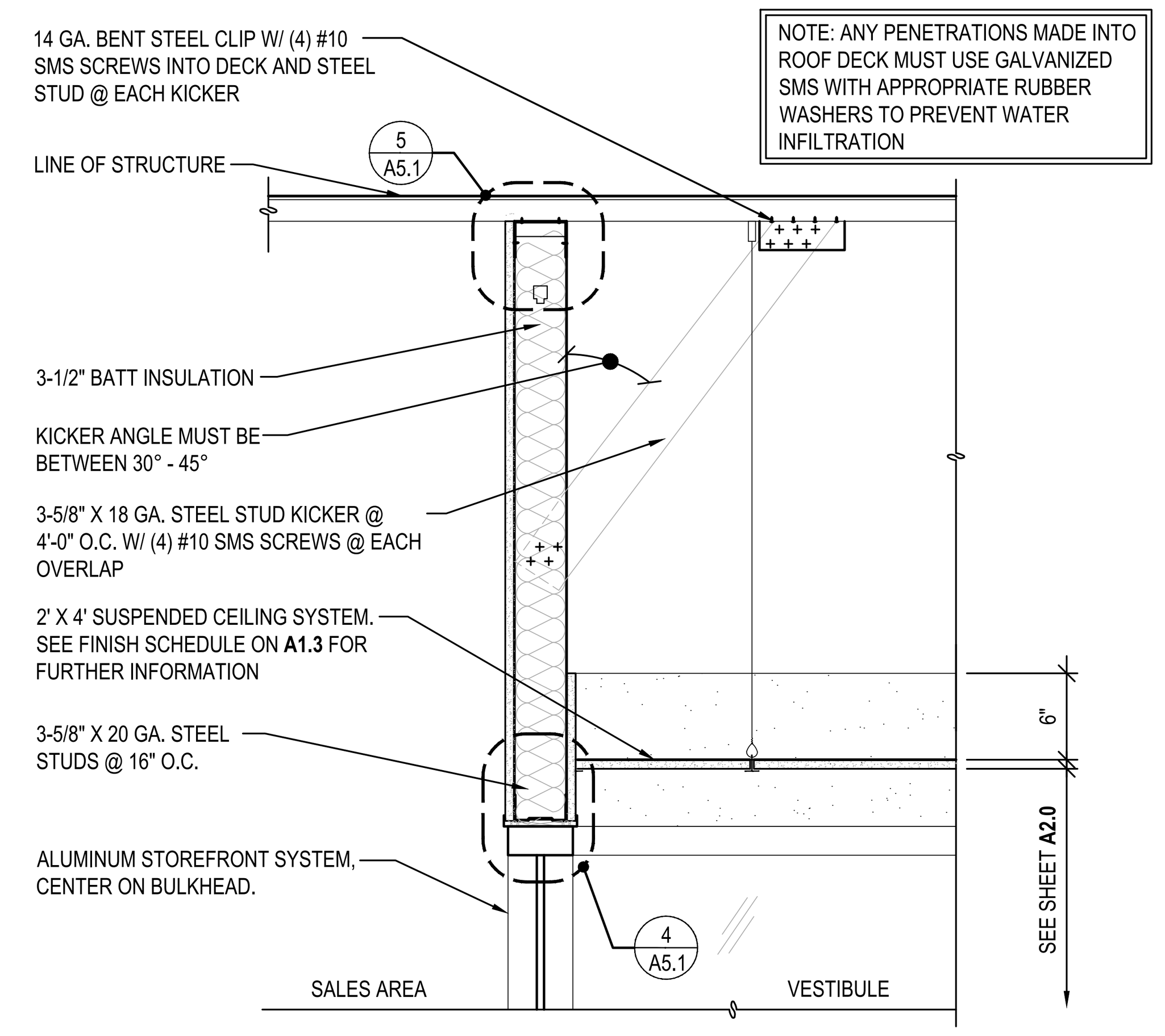
NOTE: ALL NEW ALUMINUM STOREFRONT FINISH TO MATCH DOOR SYSTEM IN DOOR SCHEDULE ON SHEET **A5.0** (FINISH: **CLEAR ANODIZED**)



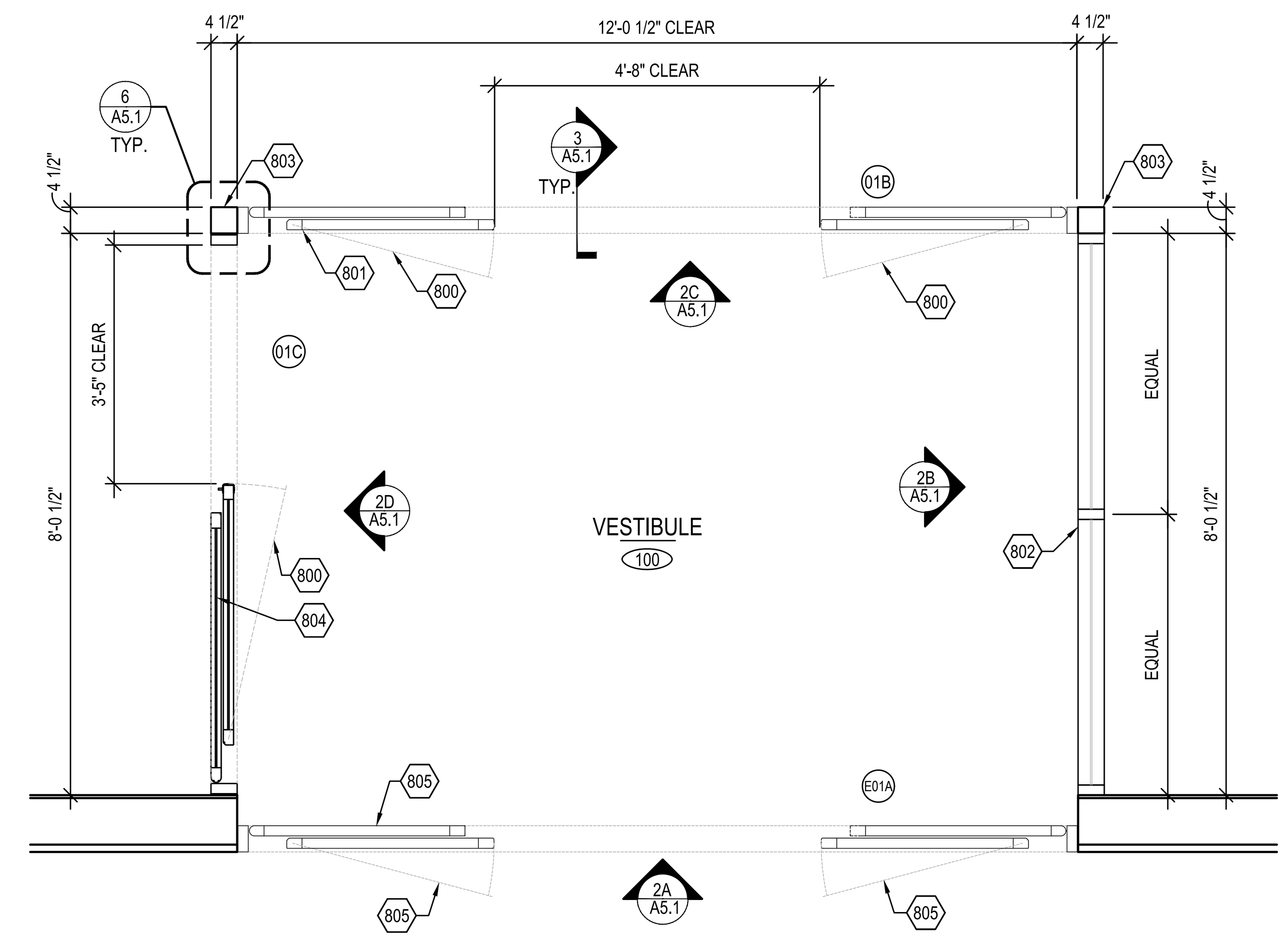
5 / A5.1 TYPICAL SLIP TRACK DETAIL
SCALE: 3" = 1'-0"



4 / A5.1 VESTIBULE HEAD DETAIL
SCALE: 3" = 1'-0"

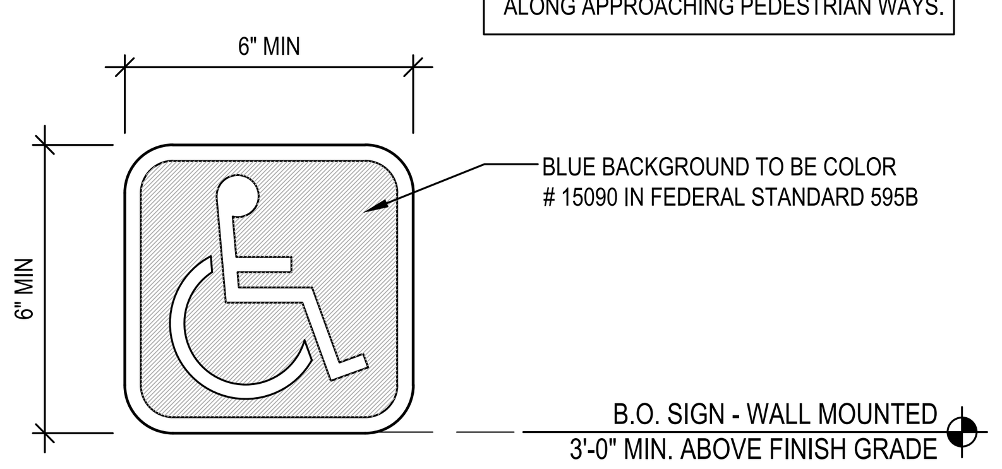


3 / A5.1 VESTIBULE BULKHEAD SECTION
SCALE: 1" = 1'-0"

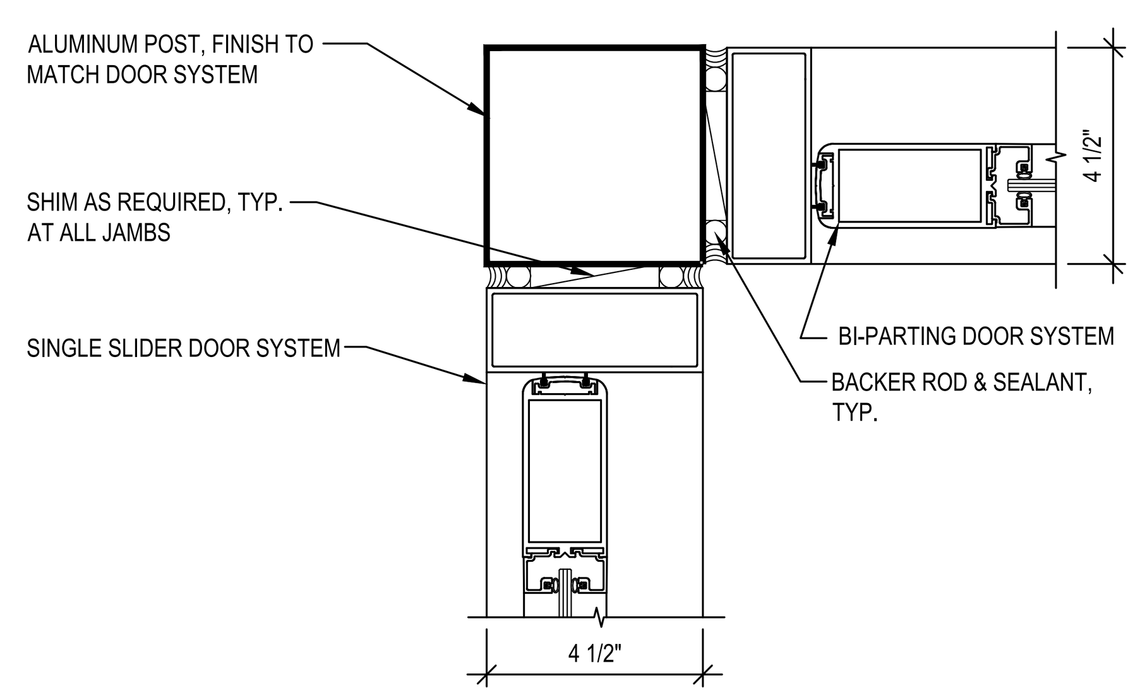


1 / A5.1 VESTIBULE PLAN DETAIL
SCALE: 1/2" = 1'-0"

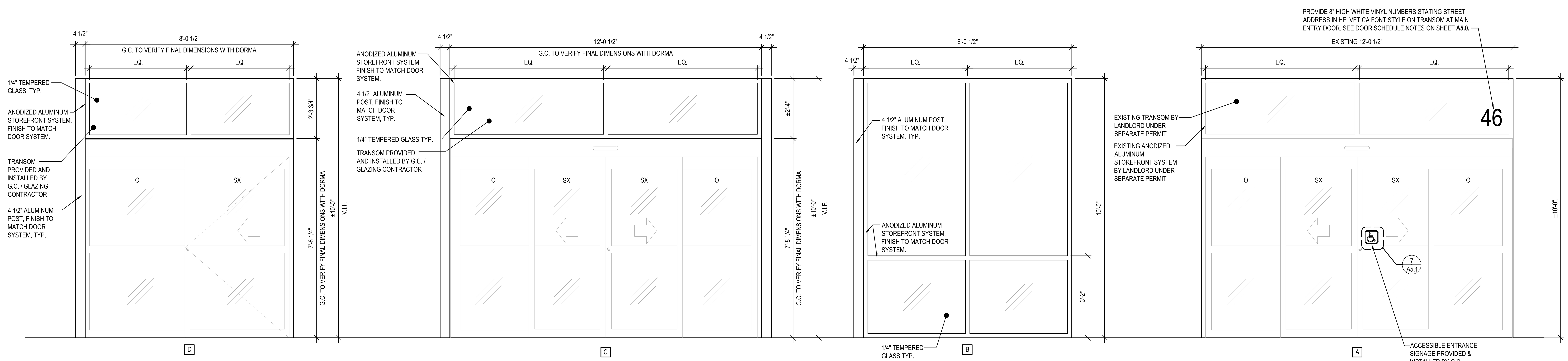
NOTE: ALL BUILDING ENTRANCES ACCESSIBLE TO & USABLE BY PERSONS WITH DISABILITIES SHALL BE IDENTIFIED WITH AT LEAST ONE STANDARD SIGN AND WITH ADDITIONAL DIRECTIONAL SIGNS, AS REQUIRED, TO BE VISIBLE TO PERSONS ALONG APPROACHING PEDESTRIAN WAYS.



7 / A5.1 ACCESSIBLE ENTRANCE SIGNAGE
SCALE: 3" = 1'-0"



6 / A5.1 STOREFRONT JAMB DETAIL
SCALE: 3" = 1'-0"



2 / A5.1 STOREFRONT ELEVATIONS
SCALE: 1/2" = 1'-0"

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ADA ARCHITECTS

17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

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46 SHRIJI LANE
ERWIN, NC 28339

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ENLARGED VESTIBULE PLAN & DETAILS

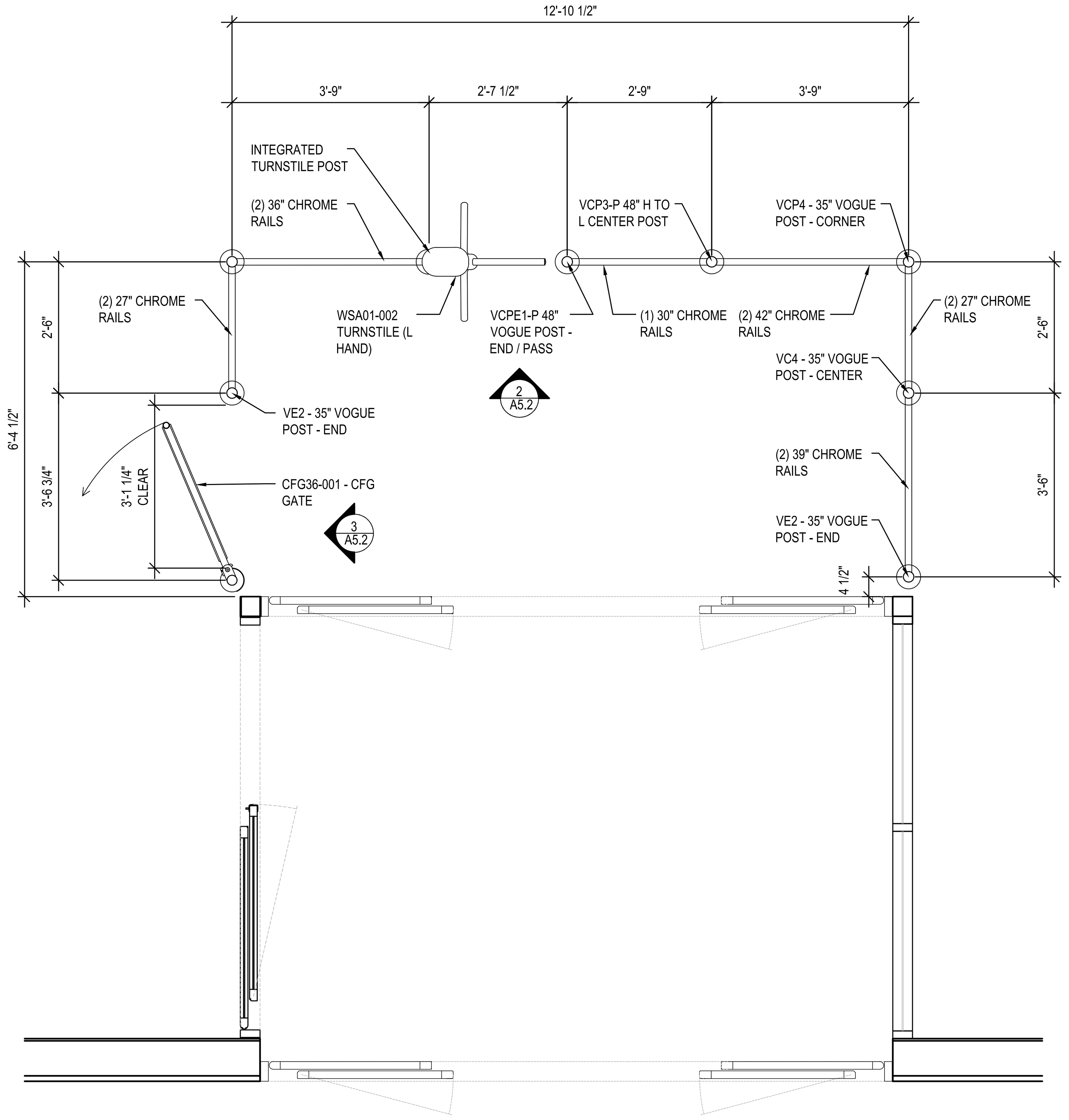
DATE 05/17/24

JOB NO. 23475

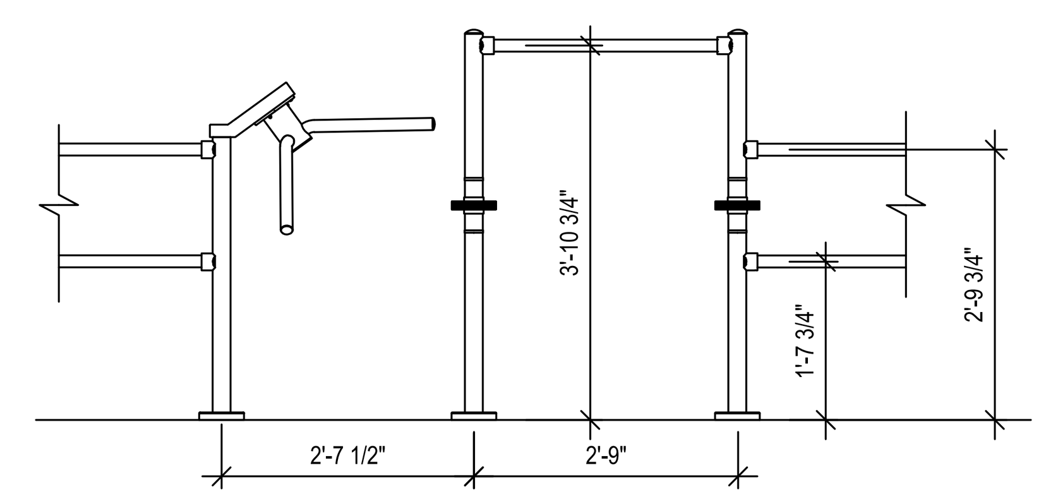
SHEET NO. A5.1

GENERAL NOTES

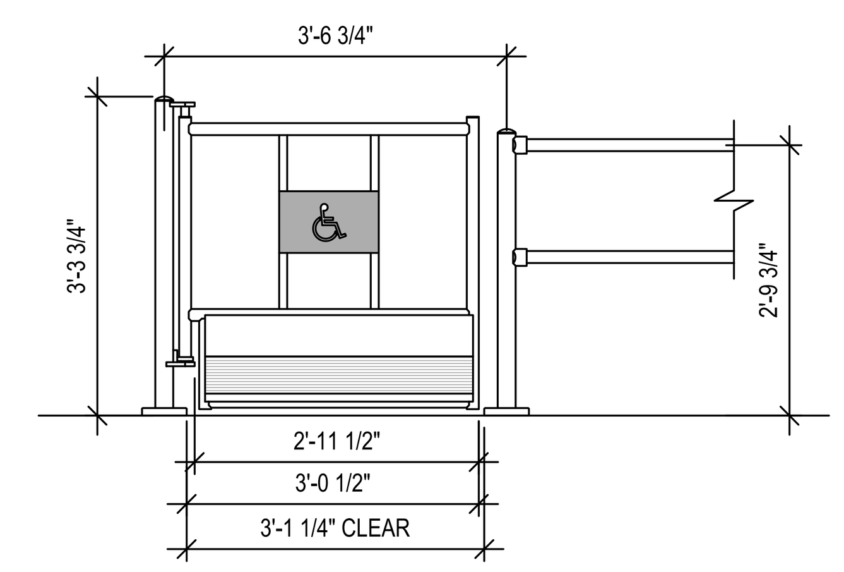
1. ALL TURNSTILE COMPONENTS TO BE SUPPLIED BY HFT, U.N.O.
2. ALL WORK TO BE DONE BY G.C., U.N.O.
3. SEE SHEET **A0.0** FOR ADDITIONAL INFORMATION.



1 A5.2 **TURNSTILE PLAN DETAIL**
SCALE: 1/2" = 1'-0"



2 A5.2 **TURNSTILE ELEVATION**
SCALE: 1/2" = 1'-0"



3 A5.2 **GATE ELEVATION**
SCALE: 1/2" = 1'-0"

DO NOT SCALE THESE DRAWINGS

NORTH CAROLINA PROFESSIONAL SEAL ARCHITECT BRIAN E QUINN
05/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
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ENLARGED TURNSTILE PLAN & DETAILS

DATE 05/17/24
JOB NO. 23475

SHEET NO. A5.2

MECHANICAL EQUIPMENT TAG NOTES:

(A) MECHANICAL CONTRACTOR SHALL INSTALL NEW LENNOX ROOFTOP UNIT AND ROOF CURB. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ROOF CURB FOR NEW ROOFTOP UNIT. PROVIDE NEW ROOF OPENINGS AS NECESSARY TO ACCOMMODATE NEW ROOFTOP UNIT. REFER TO ROOFTOP UNIT SCHEDULE ON DWG. M1.1 FOR ADDITIONAL INFORMATION. THE WEIGHT OF THE NEW ROOFTOP UNIT IS 1600 LBS.

(B) MECHANICAL CONTRACTOR SHALL INSTALL NEW LENNOX ROOFTOP UNIT AND ROOF CURB. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ROOF CURB FOR NEW ROOFTOP UNIT. PROVIDE NEW ROOF OPENINGS AS NECESSARY TO ACCOMMODATE NEW ROOFTOP UNIT. REFER TO ROOFTOP UNIT SCHEDULE ON DWG. M1.1 FOR ADDITIONAL INFORMATION. THE WEIGHT OF THE NEW ROOFTOP UNIT IS 1400 LBS.

NOTE:
MECHANICAL CONTRACTOR SHALL ENSURE ALL NEW EXPOSED DUCTWORK IS SEALED CLEANLY IN THE EVENT IT DOES NOT RECEIVE A FINAL PAINTED FINISH. COORDINATE WORK WITH GENERAL CONTRACTOR AND HARBOR FREIGHT TOOLS' PROJECT MANAGER.

NOTE:
MECHANICAL CONTRACTOR SHALL PERFORM AN HVAC SYSTEM CHECK PRIOR TO AND AFTER COMPLETION OF SIEMENS' SCOPE OF WORK INCLUDING THE SMOKE DETECTOR "TEST/RESET" BUTTON.

NOTE:
MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL BURGLAR BARS IN THE DUCT DROPS OF THE NEW ROOFTOP UNITS.

NOTE:
MECHANICAL CONTRACTOR SHALL REFER TO DRAWING M1.1 FOR LABELING OF EQUIPMENT PROCEDURE.

NOTE:
MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING UNUSED MECHANICAL EQUIPMENT, UNIT HEATERS, EXHAUST FAN(S), DUCTWORK, DIFFUSER(S), ETC... COMPLETELY UNLESS OTHERWISE NOTED TO REMAIN. GENERAL CONTRACTOR SHALL ENGAGE LANDLORD'S ROOFING CONTRACTOR FOR ALL ROOFING WORK. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR TO DISCONNECT ELECTRICAL SERVICE FROM EQUIPMENT BEING REMOVED AND COORDINATE WITH PLUMBING CONTRACTOR FOR DISCONNECTING GAS FROM EQUIPMENT BEING REMOVED.

NOTE:
GENERAL CONTRACTOR SHALL ENGAGE LANDLORD'S ROOFING CONTRACTOR FOR ANY ROOFING WORK.

NOTE:
MECHANICAL CONTRACTOR SHALL REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR COMPLETE INTERFACE REQUIREMENTS.

NOTE:
MECHANICAL CONTRACTOR SHALL LEAVE ROOFTOP UNIT'S IN WIRED THERMOSTAT MODE UNTIL COMMISSIONING.

MECHANICAL GENERAL NOTES:

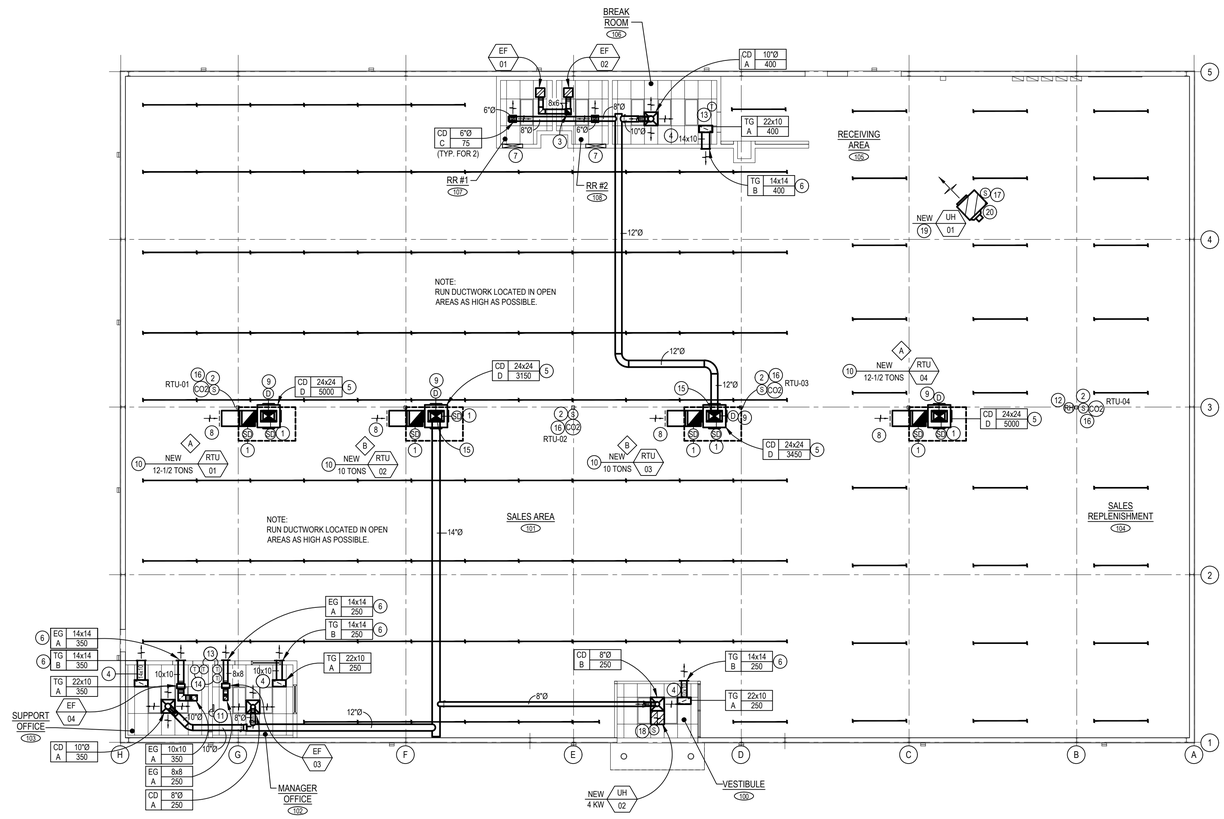
1. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THE MECHANICAL CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, TRANSITIONS, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
2. PERFORM ALL WORK IN ACCORDANCE WITH THE, RULES & REGULATIONS OF THE APPROPRIATE STATE AND LOCAL BUILDING CODES AND SUBTITLES.
3. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
4. IF CONFLICTS EXIST, PRIORITY OF LOCATION IN REFLECTED CEILING GRID SHALL BE AS FOLLOWS FROM HIGH TO LOW: SPRINKLER, MECHANICAL, LIGHTS, AND FIRE ALARM DEVICES (AS APPLICABLE).
5. SENSORS AS MANUFACTURED BY SIEMENS. MECHANICAL CONTRACTOR SHALL LABEL EACH SENSOR APPROPRIATELY TO THE CORRESPONDING ROOFTOP UNIT IT SERVES. TOUCHPAD SHALL BE LOCATED IN THE MANAGER'S OFFICE. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR.

MECHANICAL GENERAL NOTES (CONTINUED):

6. MECHANICAL CONTRACTOR SHALL PROVIDE AN AIR BALANCE REPORT TO VERIFY THAT THE HVAC EQUIPMENT IS FULLY OPERATIONAL. AIR BALANCE REPORT SHALL BE PREPARED BY A THIRD PARTY HIRED BY THE GENERAL CONTRACTOR. PAYMENT OF ALL COSTS FOR TESTING SHALL BE MADE BY THE MECHANICAL CONTRACTOR. TURN OVER AIR BALANCE REPORT TO HARBOR FREIGHT TOOLS' GENERAL CONTRACTOR FOR DISTRIBUTION. REFER TO MECHANICAL SPECIFICATIONS ON DWG. M1.3 FOR ADDITIONAL INFORMATION REGARDING TESTING AND BALANCING.
7. MECHANICAL CONTRACTOR ENSURE THERE ARE FILTERS IN ALL ROOFTOP UNITS DURING CONSTRUCTION AND SHALL INSTALL NEW FILTERS DURING CONSTRUCTION AND REPLACE ALL FILTERS PRIOR TO TURNOVER AND DATE ALL FILTERS WITH INSTALL DATE.
8. MECHANICAL CONTRACTOR SHALL RUN ALL DUCTWORK AS HIGH AS POSSIBLE; MINIMUM OF 12'-6" A.F.F.
9. MECHANICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF SPACE TEMPERATURE SENSORS, RELATIVE HUMIDITY SENSOR AND CARBON DIOXIDE SENSORS WITH SALES FLOOR FIXTURES AND GENERAL CONTRACTOR PRIOR TO INSTALLING SENSORS.
10. THE MECHANICAL CONTRACTOR SHALL BE ON SITE AS THE EMS COMMISSIONING IS BEING PERFORMED TO ENSURE ALL THE REQUIREMENTS ARE RESPONDED TO IF NOT PERFORMING CORRECTLY.
11. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ROOF CURBS COMPLETE WITH BURGLAR BARS FOR ROOFTOP UNITS. MECHANICAL CONTRACTOR SHALL CONFIRM ROOF CURB HEIGHT, ROOF SLOPE, ETC. TO ORDER PROPER ROOF CURB.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
SA	SUPPLY AIR
EA	EXHAUST AIR
EF	EXHAUST FAN
EG	EXHAUST GRILLE
CD	CEILING DIFFUSER
OA	OUTSIDE AIR
RA	RETURN AIR
TG	TRANSFER GRILLE
RTU	ROOFTOP UNIT
AFF	ABOVE FINISH FLOOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
GC	GENERAL CONTRACTOR
LL	LANDLORD
(D)	DUCT TEMPERATURE SENSOR
(T)	THERMOSTAT (MTD. 4'-0" AFF)
(S)	SPACE TEMPERATURE SENSOR (AS NOTED)
(SD)	SMOKE DETECTOR
(RH)	RELATIVE HUMIDITY
	FLEXIBLE DUCT (8'-0" MAX. LENGTH)
	FLEXIBLE DUCT CONNECTOR
	MANUAL VOLUME DAMPER
	ELBOW W/ DBL THICKNESS TURNING VANES
	FRESH/RETURN/EXHAUST AIR DUCT
	SUPPLY AIR DUCT
E.S.P.	EXTERNAL STATIC PRESSURE



NOTE:
MECHANICAL CONTRACTOR SHALL MOUNT EXHAUST FANS (EF-03 AND EF-04) 8 TO 10 FEET ABOVE FINISHED FLOOR WITH ALL THREADED RODS AND VIBRATION ISOLATORS LOCATED ABOVE OFFICE CEILINGS. PROVIDE FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF THE EXHAUST FAN. TRANSITION INLET AND OUTLET OF EXHAUST FAN CONNECTIONS TO RECTANGULAR DUCT AS INDICATED ON THE MECHANICAL PLAN. PROVIDE A MINIMUM OF 18" OF EXHAUST DUCTWORK AT THE INLET AND OUTLET OF THE EXHAUST FAN. EXHAUST AIR DUCT TO TERMINATE AT FACE OF OFFICE WALL WITH NEW EXHAUST GRILLE 'A' FLUSH TO WALL. GRILLE TO BE LOCATED 2 FEET BELOW STRUCTURE. THERMOSTATS CONTROLLING THE EXHAUST FANS SHALL BE LOCATED BEHIND THE DOORS AND THE POWER AND SPEED CONTROL SWITCH ASSOCIATED WITH THE FAN SHALL BE LOCATED ABOVE THE CEILING APPROXIMATELY 10" AWAY FROM THE INSIDE WALL. THE EXHAUST FANS SHALL BE LOCATED 1 FOOT ABOVE THE CEILING OVER THE ENTRY DOOR INTO THE ROOM FOR EASE OF MAINTENANCE. NOTE: GRILLES TO BE CENTERED OVER THE DOORS WHEN POSSIBLE. ALL GRILLES TO BE AT THE SAME ELEVATION.

NOTE:
EMS TOUCHPAD LOCATED IN MANAGER'S OFFICE. REFER TO MECHANICAL GENERAL NOTE #5 ON THIS DWG. FOR ADDITIONAL INFORMATION

MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

MECHANICAL PLAN TAG NOTES:

1. LENNOX SHALL FURNISH AND INSTALL SMOKE DETECTORS IN THE SUPPLY AND RETURN AIR DUCTS. MECHANICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE REMOTE TEST STATION WITH AUDIO VISUAL ALARM "SYSTEM SENSOR" MODEL RTS2-AOS NEXT TO THE PHONE BOARD OR AT A LOCATION APPROVED BY THE AUTHORITY HAVING JURISDICTION. MECHANICAL CONTRACTOR SHALL PROVIDE CONTROL WIRING TO RTU AND INTERLOCKING WIRING TO OTHER DUCT DETECTORS (AS REQUIRED) FOR GLOBAL SHUT-DOWN. MECHANICAL CONTRACTOR SHALL WIRE DETECTORS TO FIRE ALARM SYSTEM (IF REQUIRED). SEE DUCT DETECTOR DETAIL ON DRAWING M1.2 FOR WIRING.
2. SPACE TEMPERATURE SENSOR MOUNTED ON COLUMN AT 7'-0" A.F.F.
3. 8x8 EXHAUST AIR DUCT RISER THRU ROOF IN PRE-FAB INSULATED ROOF CURB TO GOOSENECK WITH BIRDSCREEN. COORDINATE ROOF OPENING AND ROOFING REPAIR WITH LANDLORD AND LANDLORD'S ROOFING CONTRACTOR.
4. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL TRANSFER AIR DUCT WITH 1" THICK ACOUSTIC LINING.
5. MECHANICAL CONTRACTOR SHALL TRANSITION SUPPLY AIR DUCT IN DROP AND CONNECT TO DROP DIFFUSER SYSTEM. MOUNT DROP DIFFUSER SYSTEM AS HIGH AS POSSIBLE. REFER TO RTU DROP BOX DIFFUSER DETAIL ON DWG. M1.2 FOR ADDITIONAL INFORMATION. OFFSET DROP DIFFUSER SYSTEM AS NECESSARY TO AVOID LIGHTS.
6. MOUNT TRANSFER AIR AND/OR EXHAUST AIR GRILLE ON WALL AS HIGH AS POSSIBLE, APPROXIMATELY 2 FEET BELOW STRUCTURE. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL 14"x14"x12" PLENUM BOX BEHIND GRILLE. MECHANICAL CONTRACTOR SHALL EXTEND AND CONNECT TRANSFER OR EXHAUST AIR DUCT INTO BACK OF PLENUM BOX.
7. 1" TOTAL FREE AREA BETWEEN FLOORING AND BOTTOM OF DOOR. UNDERCUT DOOR BY GENERAL CONTRACTOR.
8. EXTEND RETURN AIR DUCT, FULL SIZE, WITH ELBOW AS HIGH AS POSSIBLE. REFER TO RTU DROP BOX DIFFUSER DETAIL ON DWG. M1.2. COVER RETURN AIR DUCT OPENING WITH 1"x1" WIRE MESH SCREEN. FURNISH AND INSTALL RETURN AIR DUCT WITH 1" THICK ACOUSTIC LINING.
9. DUCT TEMPERATURE SENSOR, MOUNTED IN BOTTOM OF MAIN SUPPLY AIR DUCT. REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
10. ROOFTOP UNIT DIGITAL ZONE CONTROLLER. REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
11. EMS TOUCHPAD. COORDINATE WITH ELECTRICAL CONTRACTOR AND EMS DRAWINGS FOR MORE INFORMATION.
12. RELATIVE HUMIDITY SENSOR MOUNTED ON COLUMN AT 7'-0" A.F.F. NOTE: REFER TO SIEMENS EMS DRAWINGS SET FOR ADDITIONAL INFORMATION.
13. THERMOSTAT MOUNTED ON WALL AT 4'-0" A.F.F. TO CONTROL DIFFUSER.
14. THERMOSTAT MOUNTED ON WALL AT 4'-0" A.F.F. TO EXHAUST FAN.
15. EXTEND AND CONNECT NEW SUPPLY AIR BRANCH DUCT, SIZE AS INDICATED ON PLAN, INTO SUPPLY AIR DUCT MAIN PRIOR TO CONCENTRIC DIFFUSER. INSTALL OPPOSED BLADE DAMPER BETWEEN BRANCH SUPPLY AIR DUCT TAKE-OFF AND DROP BOX DIFFUSER.
16. CARBON DIOXIDE SENSOR MOUNTED ON COLUMN AT 7'-0" A.F.F. REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
17. UH-01 SENSOR. REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
18. UH-02 SENSOR. REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
19. NEW GAS-FIRED UNIT HEATER. SUSPEND GAS UNIT HEATER WITH ALL THREADED RODS AND NEOPRENE VIBRATION ISOLATORS FROM STRUCTURE FRAMING AS HIGH AS POSSIBLE. COORDINATE IN FIELD. MOUNT A MINIMUM OF 12'-0" A.F.F.
20. MECHANICAL CONTRACTOR SHALL EXTEND CONCENTRIC INTAKE/EXHAUST FLUE THRU ROOF IN PRE-FAB INSULATED ROOF CURB. REFER TO GAS-FIRED UNIT HEATER DETAIL ON DWG. M1.2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL ROOFING WORK WITH LANDLORD AND LANDLORD'S APPROVED ROOFING CONTRACTOR

TONNAGE BREAKDOWN

TOTAL TONNAGE	45
TOTAL SQUARE FOOTAGE	16,000
SQUARE FOOT/TON	356

NORTH CAROLINA PROFESSIONAL SEAL 031365 ENGINEER KEVIN K. HERBERT
5/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRUI LANE ERWIN, NC 28339

REVISIONS

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MECHANICAL PLAN

DATE 05/17/24

JOB NO. 23475

M1.0
SHEET NO.

ROOFTOP UNIT SCHEDULE (NO SUBSTITUTIONS ALLOWED)

TAG	LABEL TAG	MANUFACTURER MODEL NUMBER	NOMINAL TONNAGE	CFM	E.S.P. (IN.)	OUTDOOR AIR	HEATING CAPACITY			GROSS COOLING CAPACITY					ELECTRICAL DATA			WEIGHT (LBS)	REMARKS
							1st STAGE (MBH)	2nd STAGE (MBH)	AFUE (%)	EAT DB/WB	TOTAL (MBH)	SENSIBLE (MBH)	EER/SEER IEER	AMBIENT TEMP.	S/A FAN HP VOLTAGE	MCA	MOCP		
RTU 01	XXXX-RTU-01	LENNOX LGT150H4HE1Y	12-1/2	5000	0.6"	1250	156/126.4	240/194	81	80/67	146.1	108.1	10.8 EER 14.6 IEER	95°F	3.75 HP 208/230V 3 PH	61	80	1600	SEE NOTES BELOW.
RTU 02	XXXX-RTU-02	LENNOX LGT120H4HE1Y	10	4000	0.8"	1000	156/126.4	240/194	81	80/67	121.9	89.0	12.1 EER 15.5 IEER	95°F	3.75 HP 208/230V 3 PH	52	60	1400	SEE NOTES BELOW.
RTU 03	XXXX-RTU-03	LENNOX LGT120H4HE1Y	10	4000	0.8"	1000	156/126.4	240/194	81	80/67	121.9	89.0	12.1 EER 15.5 IEER	95°F	3.75 HP 208/230V 3 PH	52	60	1400	SEE NOTES BELOW.
RTU 04	XXXX-RTU-04	LENNOX LGT150H4HE1Y	12-1/2	5000	0.6"	750	156/126.4	240/194	81	80/67	146.1	108.1	10.8 EER 14.6 IEER	95°F	3.75 HP 208/230V 3 PH	61	80	1600	SEE NOTES BELOW.

FURNISH WITH THE FOLLOWING:

1. 14" HIGH PRE-FABRICATED INSULATED ROOF CURB BY MECHANICAL CONTRACTOR
2. BAROMETRIC RELIEF DAMPERS
3. HIGH PERFORMANCE ECONOMIZER 0-100% COMPLETE WITH FAULT DETECTOR AND DIAGNOSTICS SYSTEM (FDD)
4. DIRTY FILTER SWITCH, 2" MERV 8 FILTERS
5. BURGLAR BARS BY MECHANICAL CONTRACTOR
6. MSAV (MULTI-STAGE AIR VOLUME) SUPPLY AIR BLOWER
7. FACTORY INSTALLED UNIT NON-FUSED DISCONNECT - WEATHERPROOF
8. R-410a REFRIGERANT
9. HINGED ACCESS PANELS
10. HIGH AND LOW PRESSURE SWITCHES
11. FREEZE STAT
12. SERVICE VALVES
13. COMBINATION HAIL/COIL GUARD
14. CYCLE PROTECTION
15. 5-YEAR COMPRESSOR WARRANTY
16. GFCI - FACTORY INSTALLED/FIELD WIRED BY ELECTRICIAN
17. AES INDUSTRIES DROP DIFFUSER SYSTEM (4) ADB-1 10-12.5
18. ROOFTOP UNITS REMOTE SPACE TEMPERATURE SENSORS AND CARBON DIOXIDE SENSORS REFER TO THE SIEMENS EMS DRAWING SET (EMS-1 THRU EMS-4) FOR MORE INFORMATION.
19. SMOKE DETECTORS IN THE SUPPLY AND RETURN
20. DRAIN PAN OVERFLOW SWITCH

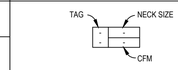
NOTE: MECHANICAL CONTRACTOR SHALL PROVIDE REMOTE TEST STATIONS FOR DUCT DETECTORS. REFER TO MECHANICAL PLAN TAG NOTE #1 ON DWG. M1.0 FOR ADDITIONAL INFORMATION.

LENNOX CONTACT: Garry Baker: LennoxNationalAccounts@Lennoxlnd.com (972) 497-6665

LENNOX NATIONAL ACCOUNT TECH SUPPORT: (800) 367 6285 option 2

GRILLE, REGISTER AND DIFFUSER SCHEDULE

TAG	MANUFACTURER & MODEL NUMBER	CFM	AIR PATTERN	NECK SIZE	DAMPER	FRAME STYLE	PANEL SIZE	MAXIMUM NC LEVEL	FINISH	MATERIAL	REMARKS
CD A	PRICE PRODIGY PPD2	AS NOTED	AS SHOWN	AS NOTED	OPPOSED BLADE	LAY-IN CEILING	24x24	30	WHITE POWDER COAT	STEEL	PROVIDE WITH WALL MOUNTED ROOM T'STAT W/LCD DISPLAY. MC TO PROVIDE 120/24V CONTROL TRANSFORMER. MC SHALL WIRE LOW VOLTAGE T'STATS. PROVIDE WITH INSULATED BACKPANS.
CD B	PRICE SPD	AS NOTED	AS SHOWN	AS NOTED	OPPOSED BLADE	LAY-IN CEILING	24x24	30	WHITE POWDER COAT	STEEL	
CD C	PRICE SPD	AS NOTED	AS SHOWN	AS NOTED	OPPOSED BLADE	SURFACE MOUNTED	12x12	30	WHITE POWDER COAT	STEEL	
CD D	AES INDUSTRIES ADB-1 10-12.5	AS NOTED	4-WAY	24x24	-	EXPOSED	34x34	36	MILL FINISH	STEEL	FURNISHED BY LENNOX AND INSTALLED BY THE MECHANICAL CONTRACTOR.
EG A	PRICE 535	AS NOTED	EXHAUST	AS NOTED	-	SURFACE MOUNTED	NECK SIZE + 1-3/4"	30	WHITE POWDER COAT	STEEL	
TG A	PRICE 81	AS NOTED	TRANSFER	AS NOTED	-	LAY-IN CEILING	24x12	30	WHITE POWDER COAT	ALUMINUM	
TG B	PRICE 535	AS NOTED	TRANSFER	AS NOTED	-	SURFACE MOUNTED	NECK SIZE + 1-3/4"	30	WHITE POWDER COAT	STEEL	



FIELD INSTALLED OPTIONS NOTE: MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS LISTED ABOVE AS A FIELD INSTALLED OPTION IF ROOFTOP UNIT COMES AS BARE BONES STYLE (NO CHANGE ORDERS WILL BE APPROVED). MECHANICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR AND THE ELECTRICAL CONTRACTOR FOR ALL THE FIELD INSTALLED ITEMS.

VENTILATION AIR REQUIREMENT

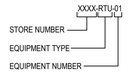
HVAC UNIT	AREA SERVED	OCCUPANT LOAD	REQUIRED VENTILATION	O.A. REQUIRED (CFM)	O.A. (MIN.) SUPPLIED (CFM)	REMARKS
RTU 01-03	SALES AREA 101	141 (9,381 SF)	7.5 CFM/PERSON .12 CFM/SF (1.25)	2729	2900	PER NORTH CAROLINA MECHANICAL CODE
RTU 04	RECEIVING / SALES REPLENISHMENT AREA 104 & 105	6 (5,959 SF)	5 CFM/PERSON .06 CFM/SF (1.25)	484	750	PER NORTH CAROLINA MECHANICAL CODE
RTU 02	SUPPORT OFFICE 103	1 (126 SF)	5 CFM/PERSON .06 CFM/SF (1.25)	16	88	PER NORTH CAROLINA MECHANICAL CODE
	MANAGER OFFICE 102	1 (128 SF)	5 CFM/PERSON .06 CFM/SF (1.25)	16	62	PER NORTH CAROLINA MECHANICAL CODE
	VESTIBULE 100	(97 SF)	.06 CFM/SF (1.25)	7	62	PER NORTH CAROLINA MECHANICAL CODE
RTU 03	BREAK ROOM 106	6 (154 SF)	5 CFM/PERSON .06 CFM/SF (1.25)	49	100	PER NORTH CAROLINA MECHANICAL CODE
EF 01	RESTROOM #1 107	1 WC	70 CFM EXH./WC	70 EXH	100 EXH	QUANTITIES ARE EXHAUSTED (19 CFM OF O.A. - RTU-03)
EF 02	RESTROOM #2 108	1 WC	70 CFM EXH./WC	70 EXH	100 EXH	QUANTITIES ARE EXHAUSTED (19 CFM OF O.A. - RTU-03)

NOTE:
NORTH CAROLINA MECHANICAL CODE BREATHING ZONE OUTDOOR AIR FLOW (CFM) VBz = RpPz+RaAz x 1.25

WHERE
Az = ZONE FLOOR AREA
Pz = POPULATION
Rp = TABLE 6.1 OUTDOOR AIR PER PERSON
Ra = TABLE 6.1 OUTDOOR AIR PER AREA

ASSET LABELING SCHEDULE

PLAN TAG	LABEL TAG	DESCRIPTION LOCATION
RTU-01	XXXX-RTU-01	ROOFTOP UNIT SALES AREA
RTU-02	XXXX-RTU-02	ROOFTOP UNIT SALES/OFFICE/VESTIBULE AREA
RTU-03	XXXX-RTU-03	ROOFTOP UNIT SALES/BREAK ROOM AREA
RTU-04	XXXX-RTU-04	ROOFTOP UNIT SALES REPLENISHMENT/ RECEIVING AREA
UH-01	XXXX-UH-01	GAS-FIRED UNIT HEATER RECEIVING AREA
UH-02	XXXX-UH-02	CABINET UNIT HEATER VESTIBULE AREA
EF-01	XXXX-EF-01	EXHAUST FAN RESTROOM #1
EF-02	XXXX-EF-02	EXHAUST FAN RESTROOM #2
EF-03	XXXX-EF-03	EXHAUST FAN MANAGER'S OFFICE
EF-04	XXXX-EF-04	EXHAUST FAN SUPPORT OFFICE



AHU	AIR HANDLING UNIT, FURNACE, FAN COIL UNIT
COND	CONDENSING UNIT
DH	DUCT HEATER
EF	EXHAUST FAN
RTU	ROOFTOP UNIT
UH	UNIT HEATER, CABINET UNIT HEATER, WALL HEATER
WU	WALL UNIT
MISC	MISCELLANEOUS

NOTE: MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CONSTRUCTION PM TO ACQUIRE THE STORE NUMBER PRIOR TO LABELING THE EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL UPDATE THE ASBUILT DRAWINGS WITH THE STORE NUMBER.

DIRECTIONS:
MECHANICAL CONTRACTOR SHALL LABEL ALL EQUIPMENT SO THEY ARE VISIBLE FROM BELOW. EQUIPMENT SHALL BE IDENTIFIED WITH THE LABEL TAG AS INDICATED ABOVE. SPACE TEMPERATURE SENSORS AND THERMOSTATS SHALL BE IDENTIFIED WITH THE EQUIPMENT PLAN TAG THAT SERVES THEM. THERMOSTAT AND SENSOR LABELS ARE TO BE 1/4" TALL BLACK STICKERS AND ARIAL FONT. EXHAUST FAN AND UNIT HEATER (ALL TYPES) LABELS ARE TO BE 1/2" TALL BLACK STICKERS AND ARIAL FONT. ROOFTOP EQUIPMENT LABELS ARE TO BE 2" TALL BLACK STICKERS AND ARIAL FONT. CONCENTRIC DIFFUSER LABELS ARE TO BE 2" TALL BLACK STICKERS AND ARIAL FONT. OTHER DIFFUSERS IN ENCLOSED SPACES ARE TO BE LABELED WITH THE RTU THAT SERVES THEM WITH 1/2" TALL BLACK STICKERS AND ARIAL FONT.
NOTE: EXTERIOR LABELS MUST BE SUITABLE FOR WEATHER APPLICATIONS AND FADE RESISTANT. EQUIPMENT LABELS SHALL BE MOUNTED NEXT TO THE UNIT MOUNTED DISCONNECT. IF THE UNIT DOES NOT HAVE A UNIT MOUNTED DISCONNECT, THEN PLACE ON THE MOST VISIBLE PLACE.

DUCTWORK SCHEDULE

DUCT SYSTEM	SMACNA PRESSURE CLASS	SMACNA SEAL CLASS	DUCT MATERIAL	INSULATION
EXPOSED SUPPLY AIR DUCTWORK	2" W.C.	B	GALVANIZED STEEL	REFER TO SPECIFICATIONS
CONCEALED SUPPLY AIR DUCTWORK	2" W.C.	B	GALVANIZED STEEL	2" DUCT WRAP
RETURN AIR DUCTWORK	1" W.C.	C	GALVANIZED STEEL	1" DUCT LINING
EXHAUST AIR DUCTWORK	1" W.C.	C	GALVANIZED STEEL	NONE

NOTE: ALL DUCTWORK SIZES ARE AIRWAY DIMENSIONS

FAN SCHEDULE

PLAN TAG	LABEL TAG	MANUFACTURER & MODEL NUMBER	AREA SERVED	SERVICE	CFM	ESP	WATTS & VOLTAGE	FAN RPM	FAN TYPE	MAX. SOUND LEVEL	WEIGHT (LBS)	REMARKS
EF 01	XXXX-EF-01	GREENHECK SP-A190	RESTROOM #1	EXHAUST	100	.3"	113 WATTS 120V/1Ø	1400	CEILING MTD.	3.4 SONES	17	SEE NOTES 1 - 7 BELOW
EF 02	XXXX-EF-02	GREENHECK SP-A190	RESTROOM #2	EXHAUST	100	.3"	113 WATTS 120V/1Ø	1400	CEILING MTD.	3.4 SONES	17	SEE NOTES 1 - 7 BELOW
EF 03	XXXX-EF-03	FANTECH FG 8	MANAGER'S OFFICE	EXHAUST	250	.5"	119 WATTS 120V/1Ø	2550	IN-LINE		12	SEE NOTES 3 & 8 BELOW
EF 04	XXXX-EF-04	FANTECH FG 10	SUPPORT OFFICE	EXHAUST	350	.5"	138 WATTS 120V/1Ø	3000	IN-LINE		12	SEE NOTES 3 & 8 BELOW

NOTES: PROVIDE WITH THE FOLLOWING ITEMS:

1. DISCONNECT SWITCH
2. GRAVITY BACKDRAFT DAMPER
3. INTEGRAL SPEED CONTROL SWITCH FOR BALANCING
4. METAL CEILING GRILLE
5. CONTROLLED BY LIGHT SWITCH (WHEN LIGHT SWITCH IS ACTIVATED THE FAN WILL ENGAGE)
6. 14" HIGH PRE-FAB ROOF CURB
7. HANGING KIT WITH NEOPRENE VIBRATION ISOLATORS
8. LINE VOLTAGE (120V) COOLING ONLY THERMOSTAT TPI #ET9SRTS

LIGHTING AND HEATING SCHEDULE

	PARKING LOT / NON-SECURITY BUILDING FIXTURES	EXTERIOR SIGNS / SECURITY BUILDING FIXTURES	INDOOR LIGHTS (MON.-SAT.)	INDOOR LIGHTS (SUNDAY)	INTERIOR SIGN (MON.-SAT.)	INTERIOR SIGN (SUNDAY)	HEATING	COOLING	SUNDAY
ON	DUSK (BY PHOTOCELL)	DUSK TO DAWN PHOTOCELL (ALWAYS ON DURING DARK)	7:00 AM	8:00 AM	STORE OPEN	STORE OPEN	68 DEGREES AT 7:00 AM	72 DEGREES AT 7:00 AM	SAME TEMPS AT 8:00 AM
OFF	10:15 PM	DURING THE DAY	10:00 PM	8:00 PM	9:00 PM	6:00 PM	62 DEGREES AT 10:00 PM	78 DEGREES AT 10:00 PM	SAME TEMPS AT 8:00 PM
LIGHTING CONTROL ZONE	GROUP 4	GROUP 3	GROUP 1	GROUP 1	GROUP 2	GROUP 2			
NOTES: CONTROL ZONE	THE SYSTEM CAN BE OVERRIDDEN BY THE SECURITY KEYPAD. COORDINATE ON/OFF TIMES WITH HARBOR FREIGHT PRIOR TO PROGRAMMING.								

GAS UNIT HEATER SCHEDULE

PLAN TAG	LABEL TAG	MANUFACTURER & MODEL NUMBER	AREA SERVED	GAS MBH		CFM	AFUE	HP & VOLTAGE	FLA	MOCP	VENT CONN.		REMARKS
				INPUT	OUTPUT						INLET	OUTLET	
UH 01	XXXX-UH-01	REZNOR UBZ125	RECEIVING	120	99.6	2049	83%	3/4 HP 120V/1 PH.	13.2	30	4" DIA.	4" DIA.	SEE NOTES BELOW

NOTES: PROVIDE WITH THE FOLLOWING ITEMS:

1. VERTICAL CONCENTRIC COMBUSTION AIR/VENT KIT(CC2)
2. FACTORY INSTALLED DISCONNECT SWITCH
3. SUMMER FAN SWITCH
4. 30° DOWNTURN NOZZLE.
5. UNIT HEATER TO BE CONTROLLED FROM "UNIT MOUNTED" ZONE CONTROLLER SENSOR (REFER TO THE SIEMENS EMS DRAWING SET EMS-1 THRU EMS-4 FOR MORE INFORMATION.)

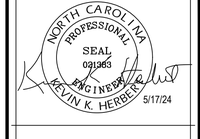
ELECTRIC CABINET UNIT HEATER SCHEDULE

PLAN TAG	LABEL TAG	MANUFACTURER & MODEL NUMBER	HEATING CAPACITY		VOLTAGE	CFM	AMPS	REMARKS
			KW	BTU/HR				
UH 02	XXXX-UH-02	MARKEL F3484	4	13,600	208V 1 PHASE	425	19.2	SEE NOTES BELOW

NOTES:
1. PROVIDE INTEGRAL DISCONNECT, LOUVER OUTLET, AND MOUNTING HARDWARE
2. HEATER TO BE RECESSED CEILING (LAY-IN) MOUNTED
3. UNIT HEATER TO BE CONTROLLED FROM "UNIT MOUNTED" ZONE CONTROLLER SENSOR (REFER TO THE SIEMENS EMS DRAWING SET EMS-1 THRU EMS-4 FOR MORE INFORMATION.)

NOTE:
MECHANICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR MECHANICAL EQUIPMENT AND ACCESSORIES PROVIDED BY HARBOR FREIGHT TOOLS.

NOTE:
MECHANICAL CONTRACTOR TO REVIEW AND COMPLY WITH THE REQUIREMENTS OF GENERAL NOTES ON SHEET A0.2.



ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
ERWIN, NC 28339
46 SHRUJI LANE

REVISIONS

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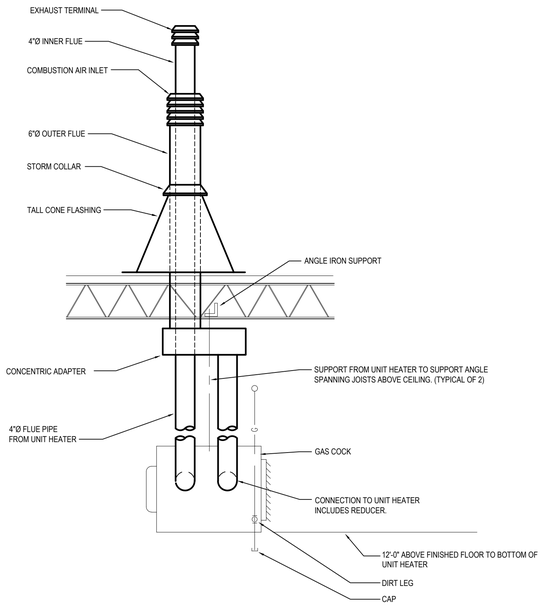
MECHANICAL SCHEDULES

DATE 05/17/24

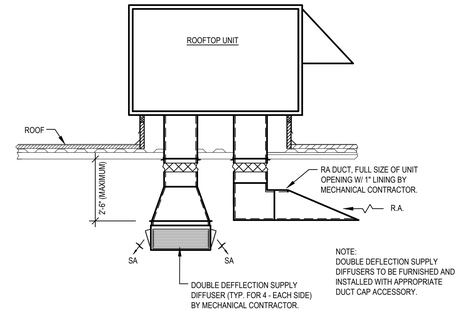
JOB NO. 23475

M1.1
SHEET NO.



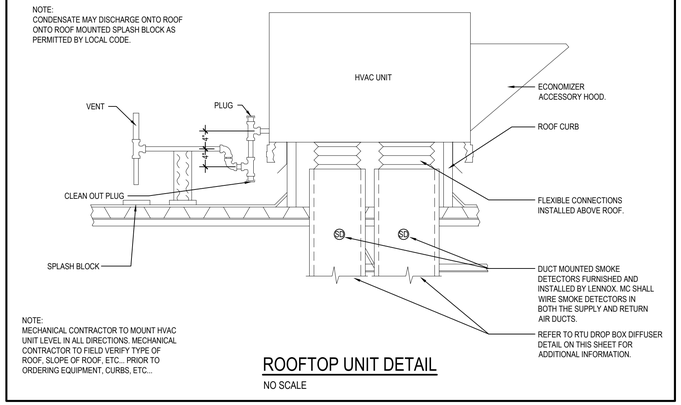
GAS UNIT HEATER DETAIL

NO SCALE



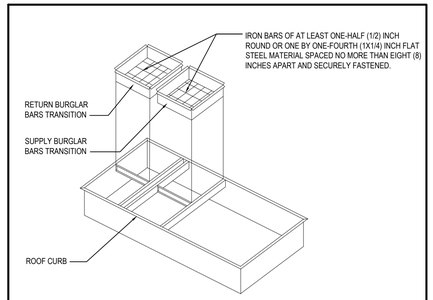
RTU DROP BOX DIFFUSER DETAIL

NO SCALE



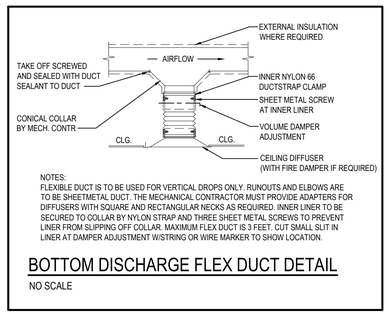
ROOFTOP UNIT DETAIL

NO SCALE



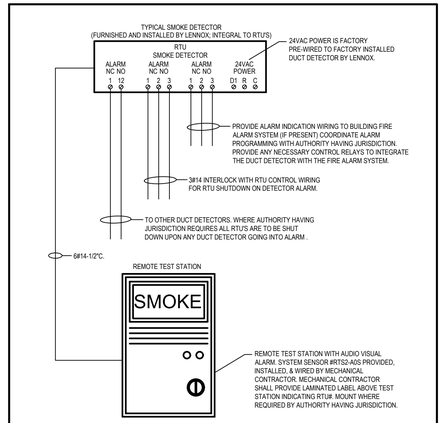
RTU BURGLAR BARS DETAIL

NO SCALE



BOTTOM DISCHARGE FLEX DUCT DETAIL

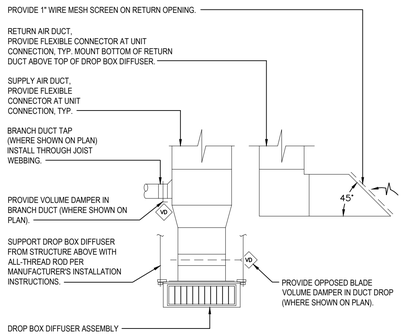
NO SCALE



DUCT DETECTOR DETAIL

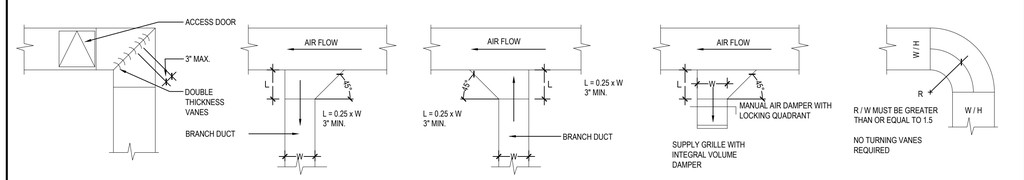
NO SCALE

MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL REMOTE TEST STATION WITH INTEGRAL HORN/STROBE. MECHANICAL CONTRACTOR SHALL PROVIDE CONTROL WIRING TO RTU AND INTERLOCKING WIRING TO OTHER DUCT DETECTORS (AS REQUIRED). MECHANICAL CONTRACTOR SHALL WIRE AND INSTALL THE REMOTE TEST STATION MOUNT ON OR NEXT TO BE TELEPHONE BOARD (OR WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION IF MOUNTING ON OR NEXT TO TELEPHONE BOARD IS NOT ALLOWED). MECHANICAL CONTRACTOR SHALL WIRE DETECTORS TO FIRE ALARM SYSTEM (IF REQUIRED). NOTE: REQUIRE (1) ONE REMOTE TEST STATION PER DUCT SMOKE DETECTOR.



SUPPLY & RETURN DROP DETAIL

NO SCALE



SQUARE ELBOW | SUPPLY TAP | RETURN TAP | SUPPLY TAP WITH SUPPLY GRILLE | ALTERNATE RECTANGULAR ELBOW

DUCTWORK DETAILS

NO SCALE

NORTH CAROLINA PROFESSIONAL SEAL 031365 ENGINEER KEVIN K. HERBERT
5/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE

ERWIN, NC 28339

REVISIONS

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MECHANICAL DETAILS

DATE 05/17/24

JOB NO. 23475

M1.2

SHEET NO.

MECHANICAL SPECIFICATIONS:

A. GENERAL CONDITIONS

1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS (IF PROVIDED AS PART OF THE CONTRACT) ARE A PART OF THIS CONTRACT.

2. THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRED TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS" UNLESS OTHERWISE SPECIFIED.

3. THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ITS SUBCONTRACTORS WITH A FULL SET OF BID DOCUMENTS INCLUDING SPECIFICATIONS AND MUST COORDINATE ITS WORK AND INSPECTIONS AND THE WORK AND INSPECTION OF THEIR SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE TO CONFORM WITH THE GENERAL CONTRACTOR'S TIME SCHEDULE.

5. BY SUBMITTING A QUOTATION OR PROPOSAL THE MECHANICAL CONTRACTOR EXPRESSLY STATES AND WARRANTS THAT: ALL DRAWINGS AND SPECIFICATIONS HAVE BEEN THOROUGHLY REVIEWED, CONTRACTOR HAS BECOME FAMILIARIZED WITH JOB SITE CONDITIONS AND IS TOTALLY QUALIFIED TO PERFORM ALL OF THE WORK REQUIRED.

6. BEFORE SUBMITTING A FINAL PROPOSAL THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK TO DETERMINE THE EXISTING CONDITIONS THAT MAY AFFECT THE PROPOSAL. IF DISCREPANCIES ARE NOTED BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS THE ARCHITECT SHALL BE NOTIFIED AND THE CONTRACTOR SHALL RECEIVE CLARIFICATION BEFORE SUBMITTING A BID. THE SUBMISSION OF A PROPOSAL SHALL INDICATE THAT ALL CHARGES AND COSTS MADE NECESSARY BY EXISTING CONDITIONS ARE INCLUDED AND THAT THE COMPLETE SYSTEM AS DESCRIBED HEREIN WILL BE FURNISHED AT THE PROPOSED COST.

7. WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND INSTALLED BY CONTRACTOR" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TENANT" SHALL BE INTERPRETED AS MEANING "FURNISHED BY TENANT (INSTALLED BY CONTRACTOR)", EXCEPT WHERE NOTED OTHERWISE.

B. GENERAL REQUIREMENTS

1. THE MECHANICAL SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.

2. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS (IF SUPPLIED) 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 LANDLORD AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING EQUIPMENT, PIPE AND DUCTS SERVING THE TENANT SPACE PRIOR TO SUBMISSION OF BID.

3. 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 NECESSARY TO COMPLETE THE WORK OR WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF THE CONTRACT.

4. WHERE THE DRAWINGS AND / 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 THE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

5. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH DETAILED REQUIREMENTS OF LEASE EXTRACTS FROM THE LANDLORD AND TENANT.

6. COORDINATE LOCATIONS OF ALL AIR OUTLETS WITH ALL WALLS, LIGHTS, SPRINKLER HEADS, CEILING TILES AND DECORATIVE CEILING FIXTURES PRIOR TO INSTALLATION.

7. ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATION, SERVICE, MAINTENANCE AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.

8. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS CONTRACT. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD OR LANDLORD'S REPRESENTATIVE. PATCHING SHALL MATCH FINISH OF SURROUNDING AREA.

C. CODES

1. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION PRACTICES. ALL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE LANDLORD'S CRITERIA; STATE, COUNTY AND LOCAL CODES AND ORDINANCES; THE LATEST EDITIONS OF ASHRAE STANDARDS, THE LIFE SAFETY CODE, THE APPLICABLE BUILDING CODE, UNDERWRITERS LABORATORIES, THE NATIONAL ELECTRICAL CODE, NFPA 70, 90A AND 96 AND ALL OTHER APPLICABLE CODES ENFORCED BY AUTHORITIES HAVING JURISDICTION. THE CHANGES REQUIRED BY ANY APPLICABLE CODES SHALL BE INCLUDED IN THE BID. AFTER THE CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENANT TO THE CONTRACTOR.

D. LICENSES, PERMITS, INSPECTIONS AND FEES

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK.

2. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

E. DRAWINGS

1. DRAWINGS (PLANS AND SPECIFICATIONS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVED CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.

2. 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 THE BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK SHOWING ALL SUCH MODIFICATIONS AND CHANGES. THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.

F. EXISTING LEASE SPACE CONDITIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANICAL WORK IN THE SPACE NOT SHOWN TO BE REUSED IN THE NEW TENANT SPACE.

2. 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 FANS, DUCTWORK, 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 ON 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 THE 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 OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT REUSED IN THIS PROJECT.

IF REQUIRED BY THE 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.

3. 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.

4. 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 THEIR BID. THE CONTRACTOR SHALL INCLUDE IN THEIR BID, ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.

5. ALL WORK SHALL BE DONE WITH A MINIMUM OF NOISE AND DISTURBANCE TO BUSINESS ROUTINE. ALL WORK SCHEDULES SHALL BE COORDINATED WITH AND APPROVED BY, THE TENANTS CONSTRUCTION MANAGER.

6. CONTRACTOR SHALL PROTECT THEIR WORK AND EQUIPMENT FROM DAMAGE, VANDALS, ETC. ANY ITEM THAT IS DAMAGED, VANDALIZED OR STOLEN PRIOR TO ACCEPTANCE OF BUILDING BY OWNER AND ARCHITECT SHALL BE REPLACED BY RESPECTIVE CONTRACTOR AT NO CHARGE TO TENANT.

7. IT IS SPECIFICALLY THE INTENTION OF THIS SPECIFICATION TO HOLD THE CONTRACTOR RESPONSIBLE FOR ALL DAMAGE DONE TO ANY EXISTING FACILITIES, EQUIPMENT, PAINTING, OR ARCHITECTURAL AND STRUCTURAL FEATURES OF THE BUILDING, BY EITHER THEIR OWN WORKMEN OR BY ANY OF THEIR SUBCONTRACTORS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY THEIR OWN WORKMEN OR SUBCONTRACTORS AND THE OWNER AT THEIR DISCRETION, MAY WITHHOLD PAYMENTS EQUAL TO THE REASONABLE COST OF THE REPAIRS.

8. THIS CONTRACTOR OR THEIR WORKMEN SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING BUILDING AS A SHOP WITHOUT THE APPROVAL OF THE OWNER AND ARCHITECT.

9. WHERE THE WORK MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, THEY SHALL BE MADE AT NIGHT OR AT SUCH TIMES AS WILL CAUSE THE LEAST INTERFERENCE WITH THE ESTABLISHED OPERATING ROUTINE.

10. THIS CONTRACTOR SHALL ARRANGE THE WORK SO AS TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTION TO THE EXISTING WORK. THIS CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUT DOWN.

11. ALL MOTORS, FANS, CONTROLS, FIXTURES, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FOR USE IN THIS CONTRACT SHALL BE PROTECTED BY TARPAULIN OR BY BOXING AS SOON AS DELIVERED TO THE SITE AND SHALL BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, FANS, DUCTWORK AND MOVING PARTS SHALL BE KEPT COVERED SO AS TO ELIMINATE DIRT, DUST AND OTHER MATERIALS ENTERING THE PARTS DURING ERECTION AND CONSTRUCTION WORK ON THE BUILDING. SHOULD IT BE FOUND THAT ANY PARTS ARE DAMAGED DUE TO CARELESSNESS ON THE PART OF THE CONTRACTOR IN NOT PROVIDING PROPER PROTECTION, SUCH PART OR PARTS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.

G. DISCREPANCIES IN DOCUMENTS

1. DRAWINGS (PLANS, SPECIFICATIONS AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWING, 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, OF VARIATIONS TO THE CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, TENANT'S CONSTRUCTION MANAGER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

H. TRADE NAMES AND MANUFACTURERS

1. WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUIVALENT OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO REVIEW 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

1. SUBMIT THREE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW 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 BE LIMITED TO CUTS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL SHOW MAJOR DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROPS, CODE COMPLIANCE, MOTOR AND DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBMITTALS SHALL BEAR THE STAMP OF THE GENERAL AND SUBCONTRACTOR SHOWING THAT HE HAS REVIEWED AND CONFIRMED THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS OR INDICATE WHERE EXCEPTIONS TAKE PLACE. LACK OF SUCH CONTRACTOR'S REVIEW 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.

2. TENANT'S CONSTRUCTION MANAGER'S OR ARCHITECT'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 DRAWINGS FROM THE CONSTRUCTION DOCUMENTS.

3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND / OR THEIR SUBCONTRACTORS TO FURNISH SHOP DRAWINGS AND SUBMITTALS ON ANY AND ALL EQUIPMENT, DUCT, DAMPERS, CONTROLS ETC. TO THE ARCHITECT FOR THEIR REVIEW PRIOR TO CONSTRUCTION.

MECHANICAL SPECIFICATIONS (CONTINUED):

J. RECORD DRAWINGS

1. THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS LOCATIONS OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUM'S AND CHANGE ORDERS, SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS AND CONTRACTOR'S COORDINATION WITH OTHER TRADES AND EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER FLOOR.

2. 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, WARRANTY

1. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN THE PROPOSAL A ONE YEAR GUARANTEE, WARRANTY ON ALL EQUIPMENT AND MATERIAL INSTALLED OR REFURBISHED, ALL MATERIALS AND WORK UNDER THE CONTRACT AND SHALL MAKE GOOD, REPAIR, OR REPLACE AT THEIR OWN EXPENSE, ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF WRITTEN ACCEPTANCE OF THE INSTALLATION BY THE TENANT'S CONSTRUCTION MANAGER. IN CASE OF REPLACEMENT OR REPAIR OF EQUIPMENT DUE TO FAILURE WITHIN THE GUARANTEE PERIOD, THE GUARANTEE ON THAT PORTION OF WORK SHALL BE EXTENDED FOR A PERIOD OF 12 MONTHS FROM THE DATE OF SUCH REPLACEMENT OR REPAIR. THIS GUARANTEE, WARRANTY IS TO INCLUDE ALL LABOR, MATERIAL, PARTS, ETC. NECESSARY TO MAINTAIN THE SYSTEM IN SATISFACTORY OPERATION FOR A PERIOD OF ONE YEAR STARTING FROM THE DATE OF ACCEPTANCE OF THE SYSTEM BY THE TENANT. IT SHALL ALSO INCLUDE ONE SUMMER TO WINTER CHANGEOVER AND ONE WINTER TO SUMMER CHANGEOVER, A NEW SET OF FILTERS AT THE TIME OF STARTUP AND TWELVE (12) MONTHLY FILTER CHANGES DURING THE FIRST YEAR. THE NORMAL PREVENTATIVE MAINTENANCE WORK SHALL BE PERFORMED AT THE TIME OF THE FILTER CHANGES. USE ONLY #40 PLEATED TYPE AIR FILTERS.

L. OPERATIONS MANUALS

1. ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON THE JOB SHALL BE PROVIDED TO THE TENANT BOUND TOGETHER IN A 3 INCH, THREE RING BINDER. THE BINDER SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS, PAMPHLETS OR BROCHURES, REVIEWED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MANUFACTURER OF PRINCIPAL ITEMS OF EQUIPMENT.

M. SLEEVES

1. 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 INCHES ABOVE THE FLOOR.

2. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH APPROVED SEALANTS RATED FOR THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. CONFORM TO THE U.L. ASSEMBLY RATING OF THE FLOOR OR WALL.

3. 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 22 GAUGE GALVANIZED STEEL MINIMUM.

4. DUCT SLEEVES SHALL BE MINIMUM 14 GAUGE STEEL.

N. HANGERS

1. 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.

2. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK. DUCTWORK SHALL NOT BE SUPPORTED FROM ROOF DECKING AND/OR BRIDGING, BUT SHALL BE SUSPENDED FROM THE TOP CHORD OF BAR JOISTS, STEEL OR OTHER STRUCTURE. DUCTWORK SHALL CLEAR ALL SPRINKLERS AND OTHER OBSTACLES AND SHALL BE HUNG AS HIGH AS POSSIBLE IN WORK AND STORAGE AREAS. WHERE INTERFERENCE'S OCCUR, IN ORDER TO SUPPORT DUCTWORK

OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE 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.

3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6 INCH LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED FROM ONE ANOTHER.

P. ACCESS DOORS

1. FURNISH STEEL ACCESS DOORS AND FRAMES, MINIMUM 16 INCHES BY 20 INCHES OR AS REQUIRED FOR ADEQUATE ACCESS TO THE 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 WILL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE TENANT CONSTRUCTION MANAGER TO SUIT EQUIPMENT REQUIREMENTS. GENERAL CONTRACTOR WILL INSTALL ACCESS DOORS AND FRAMES.

2. ACCESS DOORS LOCATED IN FIRE-RATED WALLS, FLOORS, CEILING-FLOOR, OR CEILING-ROOF ASSEMBLIES SHALL BE FIRE RATED, U.L. LISTED AND LABELED.

3. ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM 14 GAUGE STEEL, COMPLETE WITH FLUSH FLANGE TYPE FRAMES MANUFACTURED FROM 16 GAUGE STEEL, PROVIDED WITH ANCHORS. ACCESS DOORS SHALL BE SUITABLE FOR INSTALLATION IN WALL OR CEILING MATERIALS SHOWN IN ROOM FINISH SCHEDULES. PROVIDE ACCESS DOORS FOR ALL CONCEALED VALVES, VENTS, DAMPERS, FIRE DAMPERS, EXPANSION JOINTS, PULL BOXES, SHOCK ABSORBERS, DRAINS, MOTORS, FANS, PUMPS AND ANY OTHER ITEM REQUIRING SERVICE. DOORS IN PLASTER OR CONCRETE SURFACES SHALL HAVE A RECESSED DOOR WITH CONCRETE OR PLASTER FACING. DOORS IN CARPETED OR TILED AREAS SHALL BE RECESSED WITH TILE FACING. NO ACCESS DOORS ARE REQUIRED IN 2' X 2' AND 2' X 4' LAY-IN ACOUSTIC TILE CEILING. PROVIDE COLORED PINS TO DENOTE ACCESS TILES. FURNISH FACTORY MADE METAL ACCESS DOORS, COMPLETELY FLUSH, "ALLAN HEAD" SCREWDRIVER OPERATED, WITH FRAMES AND CAM-TYPE CATCH WITH STAINLESS STEEL STUD. DOORS SHALL BE NOT LESS THAN 12" X 12" FOR HAND ACCESS. DOORS IN WALLS AND CEILING SHALL BE PRIME COATED CARBON STEEL. FURNISH FIRE RATED DOORS FOR FIRE RATED CONSTRUCTION. RATING OF DOOR MUST BE SAME RATING AS CONSTRUCTION.

Q. ELECTRIC MOTORS

1. FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THIS 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 SPECIFICATIONS.

2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA, ANSI, ISEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10 PERCENT, 40 DEGREES C AMBIENT TEMPERATURE AND HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.

R. LOW VOLTAGE (24 VOLT) WIRING

1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR THEIR EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.

2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.

3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.

4. SMOKE DETECTORS AND REMOTE TEST STATION

i. REFER TO ELECTRICAL DRAWING FOR WIRING.

A. HEATING, VENTILATION AND AIR CONDITIONING

1. 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 INTERFERENCE'S AND CONFLICTS.

B. HVAC EQUIPMENT (REFER TO PLANS FOR SCHEDULE OF EQUIPMENT)

1. PRIMARY HVAC UNITS ARE TO BE AS SCHEDULED. EQUIVALENTS MAY BE SUBSTITUTED WITH WRITTEN APPROVAL ONLY. ALL COMPRESSORS ARE TO INCLUDE A 5 YEAR EXTENDED WARRANTY.

2. 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.

3. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL AIR CONDITIONING EQUIPMENT MUST HAVE A CONDENSATE DRAIN AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURER'S DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.

C. TOILET EXHAUST FANS

1. WHERE SHOWN ON DRAWINGS PROVIDE A TOILET EXHAUST FAN COMPLETE WITH GRAVITY BACKDRAFT DAMPER. ALL DUCTWORK, ROOF OPENINGS AND CAPS NECESSARY TO PROVIDE A COMPLETE EXHAUST SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.

D. VIBRATION ISOLATION DEVICES

1. VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, ETC.) AND STRUCTURE.

2. 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.

3. EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.

4. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.

5. CONSULT MANUFACTURER FOR APPLICATION DATA.

E. CURBS AND STEEL FRAMING FOR SUPPORT

1. THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC EQUIPMENT. CURBS SHALL BE A MINIMUM OF 14 INCHES HIGH AND OF THE SAME MANUFACTURER AS THE EQUIPMENT SUPPORTED. INSULATE UNDER THE COMPRESSOR SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT THE TOP OF CURBS ARE "DEAD" LEVEL. ALL PENETRATIONS OF EXISTING STRUCTURE SHALL BE DONE IN ACCORDANCE WITH THE LANDLORD'S GUIDELINES AT THIS CONTRACTOR'S EXPENSE. ALL CONNECTIONS TO ROOFTOP EQUIPMENT SHALL BE INSIDE THE CURB (CONDENSATE DRAIN, POWER WIRING, CONTROL WIRING, ETC.).

F. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED

1. NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. DEVIATIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT SHOWN AS ROUND ABOVE A CEILING SHALL BE LONGITUDINAL SEAM DUCT AND SPIRAL WHERE EXPOSED, OR AS SHOWN ON THE DRAWINGS.

2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW VELOCITY AND "HVAC DUCT CONSTRUCTION STANDARDS MANUAL", LATEST EDITION AND ASHRAE USING PRIME SHEETS OF GALVANIZED STEEL. CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WALLED VANES ON MAXIMUM 3" CENTERS. PROVIDE SEAL CLASS "C" ON ALL TRAVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.

3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY SEALED UP OF ANY OPENINGS, EITHER AT THE BEGINNING OR END OF A DUCT RUN OR AT A BRANCH, COLLAR DIFFUSER OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ENTERING THE SYSTEM.

4. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO 2 INCH WATER GAUGE PRESSURE CLASSIFICATION (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE). PRESSURE TEST DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 5 PERCENT LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA STANDARDS.

5. AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8 INCH WIDE BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.

6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA STANDARDS. NO WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND LOCAL CODES OR BY LANDLORD.

MECHANICAL SPECIFICATIONS (CONTINUED):

7. WHERE DUCTS PASS THROUGH ROOFS, FLOORS AND FIRE RATED PARTITIONS, PROVIDE AS MINIMUM 1-1/2 INCH BY 1-1/2 INCH BY 1/8 INCH 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 THE ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.

8. 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.

9. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.

10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

11. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, FIRE / SMOKE 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.

12. ALL BRANCHES AND TAKEOFFS SHALL BE EQUIPPED WITH MANUAL VOLUME CONTROLLING DEVICES HAVING AN INDICATING AND LOCKING DEVICE.

G. FLEXIBLE CONNECTIONS

1. FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.

2. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.

3. FLEXIBLE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.

4. FINAL CONNECTIONS TO EXHAUST FAN(S) SHALL BE WITH A HEAVY AIRTIGHT ACID RESISTANT FIRE RETARDANT FIBERGLASSED NEOPRENE CONNECTOR, A MINIMUM OF SIX (6) INCHES IN LENGTH. THE CONNECTOR SHALL BE FASTENED TO EQUIPMENT AND DUCT WITH TWO FLEXIBLE REMOVABLE BRASS STRAPS OR ALTERNATE APPROVED METHOD.

H. THERMOSTATS

1. MOUNT THERMOSTATS 4'-0" (ADA COMPLYING), THERMOSTAT SENSORS 7'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED AND SET DATE, TIME, TEMPERATURE, ETC. TURN OVER OPERATING INSTRUCTIONS TO TENANT REPRESENTATIVE.

2. THERMOSTATS SHALL BE PROVIDED WITH DESCRIPTIVE NAMEPLATES.

I. FLEXIBLE AIR DUCT

1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY CONSISTING OF AN INNER SLEEVE, INSULATION AND AN OUTER MOISTURE BARRIER. THE INNER SLEEVE SHALL BE CONSTRUCTED OF A CONTINUOUS VINYL COATED SPRING STEEL WIRE HELIX FUSED TO A CONTINUOUS LAYER OF FIBERGLASS IMPREGNATED AND COATED VINYL. A 1 1/4" THICK LAYER OF INSULATING BLANKET OF FIBERGLASS WOOL SHALL ENCASE THE INNER SLEEVE AND BE SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BIDIRECTIONAL REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KC OR APPROVED EQUIVALENT. FLEXIBLE DUCT SHALL ROUTE FROM SHEET METAL DUCTWORK TO CEILING DIFFUSERS ONLY. THERE SHALL BE NO EXPOSED FLEXIBLE DUCT.

2. FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM THE TENANT'S CONSTRUCTION MANAGER.

3. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION.

J. SUPPLY AND RETURN AIR TAKEOFF FITTINGS

1. RECTANGULAR DUCT

A. PROVIDE 45 DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.

2. SPIRAL DUCT

A. PROVIDE SADDLE OR DIRECT CONNECTION OF A BRANCH DUCT INTO A LARGER DUCT. THE DIAMETER OF THE BRANCH SHALL NOT EXCEED TWO THIRDS OF THE DIAMETER OF THE MAIN. PROTRUSIONS INTO THE MAIN ARE NOT ALLOWED.

K. DAMPERS

1. PROVIDE MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OPERATORS IN EACH BRANCH DUCT AND AS SHOWN ON PLANS TO FACILITATE AIR BALANCING.

2. WHERE ACCESS TO BALANCING DAMPER IS RESTRICTED OR IN AREAS WITH SHEET ROCK CEILINGS, YOUNG REGULATORS SHALL BE USED.

3. ALL RECTANGULAR DAMPERS IN OUTSIDE AIR AND RELIEF AIR DUCTS ARE TO BE OPPOSED BLADE TYPE. ALL RECTANGULAR DAMPERS IN RETURN AIR DUCTS TO BE PARALLEL BLADE TYPE. ALL OUTSIDE AIR DUCT DAMPERS MUST ALSO BE OF THE LOW LEAKAGE TYPE.

4. ALL MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO BE HONEYWELL DAMPERS.

L. DIFFUSERS, GRILLES AND REGISTERS

1. PROVIDE DIFFUSERS, GRILLES AND REGISTERS AS SCHEDULED. DEVICES TO BE COMPLETE WITH FRAMES AND ALL ACCESSORIES. ALL DIFFUSERS, GRILLES AND REGISTERS IN SHEET ROCK CEILINGS TO BE PROVIDED WITH PLASTER FRAMES. FINISH TO BE COORDINATED WITH INTERIOR FINISHES.

2. INSTALL ALL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED CEILING PLAN OR THE MECHANICAL PLAN.

M. DUCTWORK INSULATION

1. ALL NEW EXPOSED SUPPLY AIR DUCTWORK SHALL BE ACOUSTICALLY LINED. DUCT SIZES SHOWN ON THE DRAWING ARE INTERNAL FREE AREA SIZES. INTERNAL LINER SHALL BE 2" THICK DUCT LINER EQUIVALENT TO JOHNS MANVILLE "PERMACOTE LINACOUSTIC" ("R VALUE" = 6.0 INSTALLED) AND SHALL BE APPLIED TO THE DUCTWORK WITH FIRE RESISTIVE ADHESIVES AND CADMIUM OR COPPER PLATED MECHANICAL FASTENERS.

2. LEADING EDGES OF DUCT INSULATION SHALL BE OVERLAPPED BY ADJOINING INSULATION FOR 6" MINIMUM AND THEN SEALED WITH FOIL VAPOR BARRIER ADHESIVE AND DUCT MASTIC SO THAT NO FIBERGLASS INSULATION IS VISIBLE.

3. ALL INSULATION ON EXISTING PIPING OR DUCTS THAT IS WETTED, DAMAGED, DISTURBED OR REMOVED SHALL BE REPLACED.

4. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY WITH NFPA 90A.

5. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM C 411 OR AS REQUIRED BY LOCAL CODES.

6. RETURN DUCT INSULATION

A. SERVICE: RECTANGULAR, RETURN-AIR DUCTS.
   1. MATERIAL: INSULATION BOARD, 6 PSF MINIMUM AND PLAIN FACING.
   2. THICKNESS: 1 INCH.
   3. NUMBER OF LAYERS: ONE.

A. INORGANIC GLASS FIBERS PREFORMED AND BONDED BY THERMOSETTING RESIN. MUST COMPLY WITH ASTM C 612, TYPE 1A AND 1B,
   1. KNAUF INSULATION OR APPROVED EQUIVALENT.

B. APPLY INSULATION AS FOLLOWS:

A. APPLY ONE-LAYER INSULATION WITH JOINTS TIGHTLY BUTTED. SECURE LAYERS WITH ADHESIVE, MECHANICAL FASTENERS OR BANDING. FASTENERS SHALL BE LOCATED A MAXIMUM OF 3" FROM EACH EDGE AND NO GREATER THAN 12" APART.

N. SYSTEM CLEANOUT

1. UPON COMPLETION OF INSTALLATION, CLEAN ENTIRE SYSTEM BEFORE INSTALLING AIR OUTLETS. CONTRACTOR TO PROVIDE A CERTIFICATION THAT CLEANING WAS ACCOMPLISHED PRIOR TO PROJECT CLOSEOUT.

2. NEW FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED.

O. SYSTEM TESTING, ADJUSTING AND BALANCING

1. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR WHO IS CURRENTLY LICENSED BY THE ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY. PAYMENT OF ALL COSTS FOR TESTING SHALL BE MADE BY THE HVAC CONTRACTOR.

2. THE CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCING. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION.

3. BALANCE AIR AND WATER QUANTITIES TO WITHIN PLUS OR MINUS 5 PERCENT OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PROVIDED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST TO THE TENANT.

4. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:

A) AABC OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
B) INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.
C) MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT TESTED.
D) AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNITS.
E) MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.
F) MOTOR AND FAN RPM, SHEAVE SIZES AND BELT SIZES AND LENGTHS.
G) OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING AND HEATING MODES USING AN INFRARED THERMOMETER.
H) MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.
I) FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED).
J) INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.

5. ALL CONTROL SEQUENCES SHALL BE TESTED AND OPERATING STATUS RECORDED IN THE REPORT.

6. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW AND COMMENT.

7. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.

8. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.

9. MECHANICAL CONTRACTOR SHALL COORDINATE WITH EMS VENDOR ON BEING ON SITE FOR THEIR COMMISSIONING REQUIREMENTS.

P. FINAL HVAC INSPECTIONS

1. ASIDE FROM NORMAL INTERIM INSPECTIONS OF WORK IN PLACE, THE TENANT SHALL HAVE THE RIGHT TO HAVE AN INDEPENDENT HVAC CONTRACTOR INSPECT THE FINISHED HVAC INSTALLATION UPON COMPLETION FOR COMPLIANCE WITH THE PLANS, SPECIFICATIONS AND CODES. THE INSTALLING CONTRACTOR WILL BE RESPONSIBLE TO BRING ALL ITEMS REPORTED BY THE INDEPENDENT HVAC CONTRACTOR UP TO PLANS AND SPECIFICATIONS REQUIREMENTS AT NO ADDITIONAL COST TO THE TENANT.

Q. INDOOR AIR QUALITY

1. NO ANALYSIS HAS BEEN MADE WITH REGARD TO SOURCES OR POTENTIAL SOURCES OF INDOOR OR OUTDOOR AIR CONTAMINANTS OR LEVELS OF CONTAMINATION.

2. IT IS THE RESPONSIBILITY OF THE GENERAL AND MECHANICAL CONTRACTOR TO INFORM THE TENANT'S REPRESENTATIVE, LANDLORD AND TENANT'S ARCHITECT IF ANY SOURCE OR POTENTIAL SOURCE OF INDOOR AIR CONTAMINATION IS IDENTIFIED.

3. PRIOR TO ENCLOSING SPACES SUCH AS PLUMBING CHASES, AIR SHAFTS AND RETURN AIR PLENUMS CLEAN ALL AREAS THOROUGHLY. THE CONTRACTOR SHALL GUARANTEE THAT THE PLENUM CHAMBER USED FOR RECIRCULATING OF AIR WILL BE OF TIGHT CONSTRUCTION AND THAT ALL SOURCES OF CONTAMINATION FROM TRAPS, SOIL STACKS, DOWNSPOUTS, VENTS, EXHAUST DISCHARGES AND OTHER SOURCES WILL BE ENCLOSED SO THAT NO CONTAMINATED AIR WILL BE RECIRCULATED.

4. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES SHUT OFF THE HVAC SYSTEM, BLOCK OFF ALL AIR GRILLS, DIFFUSERS AND OTHER OPENINGS OUTSIDE THE IMMEDIATE CONSTRUCTION AREA. OPENINGS TO ADJACENT TENANT SPACES SHALL BE COVERED WITH FILTER MEDIA TO PREVENT DUST AND OTHER AIRBORNE CONTAMINANTS FROM PASSING TO ADJOINING SPACES.

5. CONTRACTOR TO INSTALL TEMPORARY EXHAUST SYSTEM TO VENTILATE CONSTRUCTION SITE AND KEEP SITE UNDER SLIGHT NEGATIVE PRESSURE DURING ALL HOURS OF CONSTRUCTION, EVEN IF AFTER NORMAL BUSINESS HOURS.

6. CONTRACTOR TO INSTALL TEMPORARY BARRIERS TO PROTECT ADJACENT SPACES FROM DUST, PARTICULATES, VAPORS AND NOISE. WHERE TEMPORARY BARRIERS ARE INSTALLED ALWAYS MAINTAIN FIRE EXITS AND EXITWAYS.

PLUMBING SPECIFICATIONS:

01. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE A COMPLETE INSTALLATION FOR FINISHED WORK, TESTED AND READY FOR OPERATION. THE WORK THROUGHOUT SHALL BE EXECUTED IN THE BEST AND MOST THOROUGH MANNER UNDER THE DIRECTION OF AND TO THE SATISFACTION OF THE OWNER.

02. ALL MATERIALS REQUIRED FOR THIS WORK SHALL BE NEW, UNUSED, BEST OF ITS RESPECTIVE KINDS, AND FREE FROM DEFECTS AND OF FIRST CLASS QUALITY. BASIS OF QUALITY SHALL BE LATEST STANDARDS OF ASTM, ANSI FEDERAL SPECIFICATIONS OR OTHER ACCEPTABLE STANDARDS.

03. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR WORK UNTIL ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.

04. THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED AND MATERIALS INSTALLED TO BE FREE FROM INHERENT DEFECTS AND SHALL KEEP IN REPAIR AND REPLACE ANY DEFECTIVE MATERIALS OF WORKMANSHIP FREE OF COST TO THE TENANT (OWNER) FOR A PERIOD OF ONE (1) YEAR AFTER THE OPENING FOR BUSINESS.

05. ALL WORK SHALL BE DONE ACCORDING TO THE REQUIREMENTS OF ALL APPLICABLE CODES AND LEASE CRITERIA (IF APPLICABLE) AND SHALL RECEIVE THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION. PREPARE ALL REQUIRED DOCUMENTS, DRAWINGS AND PERFORM ALL REQUIRED TESTS AND PAY ALL REQUIRED CHARGES TO OBTAIN THESE APPROVALS.

06. CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE FOR THE WORK BEFORE HAVING SUBMITTED A PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS FOUND DURING THE COURSE OF THE CONTRACT.

07. THIS CONTRACTOR MUST PROVIDE LANDLORD'S CONSTRUCTION REPRESENTATIVE WITH COPIES OF REQUIRED INSURANCE AND COPIES TO BE FURNISHED TO THE OWNER BEFORE COMMENCING WORK.

08. THE PLUMBING SUBCONTRACTOR IS A SUBCONTRACTOR OF THE TENANT'S GENERAL CONTRACTOR.

09. NOTCHING AND BORING OF STRUCTURAL STEEL MEMBERS IS NOT PERMITTED. WHEN HANGING FROM STRUCTURAL STEEL ONLY HANG FROM TOP FLANGE OF BEAMS AND TOP CHORDS ONLY AT PANEL POINTS OF JOISTS / TRUSSES.

10. THE PLUMBING SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.

I. WORK RESPONSIBILITY

1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND CONTRACTORS FOR A COMPLETE, SAFE INSTALLATION OF PLUMBING WORK IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED, INCLUDING IN GENERAL THE FOLLOWING:

2. SANITARY DRAINAGE CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT REQUIRING SAME WITH FINAL CONNECTIONS TO EXISTING PREINSTALLED OUTLETS PROVIDED BY PRIOR TENANT(S) OR LANDLORD. PLUMBER SHALL VERIFY EXACT LOCATION OF WASTE PIPE OUTLET BEFORE SUBMITTING BID AND NOTIFY THE ARCHITECT OF ANY LOCATION DISCREPANCIES. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONCRETE SAWCUTTING REQUIRED TO MAKE THE FINAL CONNECTION TO THE EXISTING WASTE PIPING OR CAPPED OUTLET(S). SAWCUTTING, EXCAVATING, BACKFILLING AND NEW CONCRETE MUST MEET WITH THE LANDLORD'S APPROVAL.

A. SNAKE SANITARY FOR A DISTANCE OF 250 FEET AND REPORT ANY BLOCKAGE.
B. TEST WATER PRESSURE TO INSURE MINIMUM OF 50 PSI.

3. COMPLETE VENT SYSTEM, ALL FIXTURES INDIVIDUALLY VENTED WITH FINAL CONNECTION THROUGH ROOF OR TO EXISTING LANDLORD SUPPLIED COMMON VENT. ROOF PENETRATION AND FLASHING TO BE PERFORMED BY LANDLORD'S ROOFER (IF APPLICABLE). COST OF ROOF PENETRATION AND FLASHING TO BE PART OF THIS CONTRACT, UNLESS NOTED OTHERWISE IN BID PROPOSAL (IF APPLICABLE).

4. DOMESTIC WATER SUPPLY SYSTEM INCLUDING CONNECTION TO EXISTING CAPPED OUTLET AND FINAL CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT REQUIRING SAME. VERIFY EXACT LOCATION AND SIZE BEFORE SUBMITTING BID.

5. INSULATION OF ALL HOT AND COLD WATER PIPING, INCLUDING UNDER LAVATORY A.D.A. PIPE WRAPPINGS.

6. REUSE EXISTING EXTERIOR WATER METER ACCESSIBLE TO UTILITY COMPANY FOR MONITORING WATER.

7. INSTALLATION OF BACKFLOW PREVENTER (IF REQ. BY CODE) AS PER LANDLORD REQUIREMENT AND CLEANOUT PER LOCAL CODE. COORDINATE ALL LOCATIONS WITH OPERATIONS MANAGER.

II. GENERAL ITEMS

1. SLEEVES: PROVIDE #22 GAGE GALVANIZED IRON PIPE SLEEVES FOR PIPING THROUGH WALLS AND FLOOR, PACK WITH NON-ASBESTOS ROPE AND FILL WITH EXPANDO NON-SHRINKING CEMENT.

2. ESCUTCHEONS: PROVIDE EXPOSED PIPING, BOTH BARE AND COVERED, WITH CP CAST BRASS ESCUTCHEONS WHERE PASSING THROUGH FLOORS, CEILINGS, WALLS OR PARTITIONS.

3. HANGERS AND SUPPORTS: SUPPORT HORIZONTAL DRAINAGE PIPING AT LEAST EVERY 5 FEET OR AT EVERY HUB, COPPER TUBING EVERY 7 FEET AND STEEL PIPE EVERY 10 FEET WITH "CLEVIS" HANGERS AND INSULATION PROTECTION SHIELDS. PIPING SHALL NOT BE SUPPORTED FROM BRIDGING OR OTHER PIPING. ONLY SUPPORT FROM TOP FLANGES OF BEAMS AND TOP CHORDS AT PANELS OF JOIST AND TRUSSES. PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODES.

4. TEST: TEST PIPING AND PROVE TIGHT FOR AT LEAST TWO HOURS IN ACCORDANCE WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND/OR AS SPECIFIED. TEST SHALL BE PERFORMED IN THE PRESENCE OF OWNER'S REPRESENTATIVE AND LOCAL INSPECTOR. TEST SHALL BE REPEATED IF NECESSARY UNTIL FINAL APPROVAL OF SYSTEM IS OBTAINED.

A. TEST DRAINAGE AND VENT PIPING BY FILLING WITH WATER TO OVERFLOWING AT ROOF, WATER LEVEL TO REMAIN.
B. TEST WATER PIPING WITH WATER 1-1/2 TIMES THE WORKING PRESSURE.

5. STERILIZATION OF DOMESTIC WATER SYSTEM: BEFORE BEING PLACED IN SERVICE, ALL WATER LINES SHALL BE CHLORINATED TO THE SATISFACTION OF THE ARCHITECT OR LANDLORD'S REPRESENTATIVE, IN ACCORDANCE WITH A.W.W.A. SPECIFICATION C601-53T.

6. SLOPE WASTE LINES 2 INCHES AND SMALLER NOT LESS THAN 1/4 INCH PER FOOT. SLOPE LARGER MAINS NOT LESS THAN 1/8 INCH PER FOOT.

7. INSTALL A CLEANOUT AT BASE OF EACH SOIL STACK, AT EACH CHANGE IN DIRECTION, AT INTERVALS NOT OVER 50 FEET AND ELSEWHERE AS SHOWN ON DRAWINGS OR REQUIRED BY LOCAL CODE. CLEANOUTS SHALL NOT BE INSTALLED IN PUBLIC AREAS WITHOUT SPECIFIC PERMISSION BY TENANT'S CONSTRUCTION MANAGER.

III. MATERIALS

1. DRAINAGE AND VENT PIPING: EXTRA HEAVY HUB AND SPIGOT CAST IRON SOIL WITH RUBBER GASKETS CONFORMING TO ASTM C564. NO-HUB CAST IRON TO HAVE HEAVY DUTY, TYPE 304 STAINLESS STEEL COUPLINGS CONFORMING TO ASTM A 666, TYPE 304 STAINLESS STEEL SHIELD, TYPE 304 STAINLESS STEEL BANDS AND SLEEVE. NPS 1-1/2" TO NPS 4": 3" WIDE SHIELD WITH 4 BANDS; NPS 5" TO NPS 10": 4" WIDE BAND WITH 6 BANDS. NOTE: PVC SCHEDULE 40 PLASTIC PIPE (TYPE DWV) CONFORMING TO ASTM D2665 WITH JOINTS TO BE SOLVENT CEMENT CONFORMING TO AST D2564 MAY BE USED AS PER PERMITTED BY LOCAL CODE.

2. WATER PIPING BELOW SLAB: TYPE K HARD COPPER TUBING, WITH CAST BRONZE OR WROUGHT COPPER SOLDER JOINT FITTINGS USING 95-5 SOLDER. WATER PIPING ABOVE SLAB: TYPE L COPPER TUBING USING SILVER SOLDER.

3. WATER HAMMER ARRESTERS: PROVIDE ON HOT AND COLD WATER BRANCHES TO FIXTURES, J. R. SMITH HYDROTROL MODEL 5020 FOR UP TO 60 FIXTURE UNITS.

4. VALVES: GATE VALVE WATTS SERIES GV: 1/4" TO 4" BRONZE BODY, CHECK VALVE WATTS SERIES CVY: 3/8" TO 2" BRONZE BODY, BALL VALVE WATTS SERIES B6080 OR B6081 FULL PORT: 1/2" TO 2" BRONZE BODY.

5. VACUUM RELIEF VALVE: WATTS MODEL N36-M1 BRASS BODY, 1/2" NPT LINE SIZE.

IV. INSULATION

1. ALL HOT AND COLD WATER PIPING AND FITTINGS SHALL BE INSULATED WITH 1" THICK RIGID FIBERGLASS WITH VAPOR BARRIER UNIVERSAL JACKET PASTED WITH VAPOR BARRIER CEMENT. VAPOR BARRIER NOT REQUIRED ON HOT WATER PIPING.

V. SPECIFIC PLUMBING SPECIFICATIONS

1. INSTALL NEW ONLY IF EXISTING DOES NOT MEET CURRENT ADA/CABO-ANSI (AS APPLICABLE) STANDARDS, OR IS DAMAGED, NOT IN WORKING ORDER OR NOT EXISTING AS APPLICABLE.

2. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO SUPPLY HANDICAPPED TOILET FIXTURES, IF REQUIRED BY CODE OR NOTED ON THE DRAWINGS, UTILIZING THE SPECIFICATION ABOVE AS A STANDARD AND MEETING CODE REQUIREMENTS. SPACING OF FIXTURES TO BE COORDINATED WITH THE GENERAL CONTRACTOR AS WELL AS THE PLUMBING INSPECTOR'S REQUIREMENTS.

VI. LANDLORD'S CRITERIA

1. THE PLUMBING CONTRACTOR IS TO BECOME FAMILIARIZED WITH LANDLORD'S CRITERIA FOR THIS LOCATION AND INCLUDE ANY WORK REQUIRED OF THIS CRITERIA, WHICH IS NOT SPECIFICALLY NOTED IN THESE DRAWINGS AND SPECIFICATIONS.

FIRE PROTECTION SPECIFICATIONS:

I. DESIGN/BUILD REQUIREMENTS

1. THE SPRINKLER SUBCONTRACTOR, A LICENSED SUBCONTRACTOR OF THE TENANT'S GENERAL CONTRACTOR (USE ONLY DESIGNATED SPRINKLER SUBCONTRACTOR IF REQUIRED BY LANDLORD OR BUILDING) IS REQUIRED TO MODIFY AN EXISTING SYSTEM AS PER THE LATEST N.F.P.A. PAMPHLET (PAMPHLET 13) AND THE BUILDING LANDLORD'S INSURANCE UNDERWRITER'S REQUIREMENTS AND OTHER RELEVANT AUTHORITIES' REQUIREMENTS. SPRINKLER CONTRACTOR TO VERIFY WITH BUILDING LANDLORD AS TO THE BASIS FOR DESIGN - OCCUPANCY TYPE AND DENSITY, NORMAL OR HYDRAULIC AS WELL AS INSURANCE REQUIREMENTS.

2. THE SYSTEM SHALL BE DESIGNED TO EITHER INSTALL NEW IF SPACE IS NEW OR IF AN EXISTING SPACE MODIFY THE SPRINKLER HEADS WITHIN THE DEMISED PREMISES.

3. THE SPRINKLER HEAD TO BE USED IN THE ENTIRE SPACE WHERE A CEILING OCCURS ARE TO BE WHITE PLATED RECESSED TYPE, UNLESS THERE IS A SPECIAL TYPE HEAD REQUIRED BY THE LANDLORD. IF THIS IS THE CASE, THE SPRINKLER HEAD TO BE USED IS PER LANDLORD'S SPECIFICATION ONLY.

4. THE SPRINKLER CONTRACTOR SHALL INCLUDE IN HIS SUBMISSIONS FOR APPROVAL BY THE BUILDING LANDLORD AND REVIEW BY THE TENANT'S REPRESENTATIVE, A 1/4" SCALE SPRINKLER LAYOUT. (UTILIZE TENANT'S REFLECTED CEILING PLAN.)

5. THE SPRINKLER SUBCONTRACTOR SHALL OBTAIN ALL APPROVALS FROM APPLICABLE AUTHORITIES FOR THE SPRINKLER SYSTEM.

6. OWNER, TENANT, CLIENT AND LESSEE ARE ALL THE SAME INDIVIDUAL OR COMPANY. THE LANDLORD AND LESSOR IS THE BUILDING LANDLORD AND/OR THE OWNER OR REPRESENTATIVE OF THE OWNER OF THE SHOPPING CENTER. LANDLORD'S ARCHITECT AND CONSTRUCTION REPRESENTATIVE MAY OR MAY NOT BE ONE AND THE SAME; TENANT'S ARCHITECT AND CONSTRUCTION REPRESENTATIVE MAY OR MAY NOT BE ONE AND THE SAME.

7. SINCE SPACE TO BE OCCUPIED IS NEW OR WHOLLY OR PARTIALLY ANOTHER SHOPPING CENTER OR BUILDING TENANT (AS APPLICABLE), THE SPRINKLER SUBCONTRACTOR MUST CHECK SITE CONDITIONS TO ANALYZE IF MAINS, BRANCH LINES, ETC., MAY BE EXISTING LOWER THAN OR IN THE WAY OF THE NEW CEILING HEIGHT OR OVERHEAD GRILLE ASSEMBLY (IF APPLICABLE); IF THIS IS THE CASE, THEN COSTS FOR REMOVING, RELOCATING AND NEW, SHOULD BE INCLUDED IN THE SPRINKLER CONTRACTOR'S BID.

8A. THIS IS A NEW SYSTEM TO BE INSTALLED AS TO LAYOUT AND CAPACITY BASED ON TENANT'S FLOOR PLANS, CEILING PLANS, HEIGHTS AND SECTIONS AND THE LATEST N.F.P.A. PAMPHLET/STANDARDS GOVERNING THIS USE. SPRINKLER SUBCONTRACTOR TO CHECK WITH LOCAL FIRE AUTHORITIES REGARDING ANY SPECIAL SPRINKLER REQUIREMENTS FOR SIDE WALL CASES (AS APPLICABLE). TENANT'S ARCHITECT'S PLACEMENT OF SPRINKLER HEADS IS FOR AESTHETIC PURPOSES ONLY; THE ACTUAL PLACEMENT MUST MEET CODE, TENANT'S PLANS, LANDLORD AND INSURANCE REQUIREMENTS AND IF IN A GRID SYSTEM PLACED IN THE CENTER OF THE GRID PATTERN, WHETHER EXISTING OR NOT EXISTING.

8B. THIS IS AN EXISTING SYSTEM TO BE MODIFIED AS TO LAYOUT AND CAPACITY BASED ON TENANT'S FLOOR PLANS, CEILING PLANS, HEIGHTS AND SECTIONS AND THE LATEST N.F.P.A. PAMPHLET/STANDARDS GOVERNING THIS USE. SPRINKLER SUBCONTRACTOR TO CHECK WITH LOCAL FIRE AUTHORITIES REGARDING ANY SPECIAL SPRINKLER REQUIREMENTS FOR SIDE WALL CASES (AS APPLICABLE).

9. ALL SPRINKLER HEADS IN ACOUSTICAL CEILINGS TO BE IN CENTER OF TILES.

II. GENERAL REQUIREMENTS

1. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE A COMPLETE INSTALLATION FOR FINISHED WORK, TESTED AND READY FOR OPERATION. THE WORK THROUGHOUT SHALL BE EXECUTED IN THE BEST AND MOST THOROUGH MANNER UNDER THE DIRECTION OF AND TO THE SATISFACTION OF THE BUILDING OWNER AND TENANT'S REPRESENTATIVE.

2. ALL MATERIALS REQUIRED FOR THIS WORK SHALL BE NEW, UNUSED, BEST OF ITS RESPECTIVE KINDS, FREE FROM DEFECTS AND OF FIRST CLASS QUALITY. BASIS OF QUALITY SHALL BE BASED ON THE LATEST STANDARDS OF THE N.F.P.A. PAMPHLET AND OTHER ACCEPTABLE STANDARDS.

3. THE SPRINKLER SUBCONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK UNTIL ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE BUILDING OWNER OR TENANT.

4. THE SPRINKLER SUBCONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED AND MATERIALS INSTALLED BY HIM TO BE FREE FROM INHERENT DEFECTS AND SHALL KEEP IN REPAIR AND REPLACE ANY DEFECTIVE MATERIALS OF WORKMANSHIP, FREE OF COST TO THE TENANT OR LESSEE (OWNER) FOR A PERIOD OF ONE (1) YEAR AFTER THE FINAL COMPETITION OF THE WORK.

5. ALL WORK SHALL BE DONE ACCORDING TO THE REQUIREMENTS OF ALL APPLICABLE CODES AND BUILDING LANDLORD / TENANT LEASE CRITERIA (IF APPLICABLE) AND SHALL RECEIVE THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION. PREPARE ALL REQUIRED DOCUMENTS, DRAWINGS AND PERFORM ALL REQUIRED TESTS AND PAY ALL REQUIRED CHARGES TO OBTAIN THESE APPROVALS.

6. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE FOR THE WORK AND REVIEWED THE DRAWINGS WITH THE TENANT'S GENERAL CONTRACTOR BEFORE HAVING SUBMITTED HIS PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS FOUND DURING THE COURSE OF THE CONTRACT.

7. THIS CONTRACTOR MUST PROVIDE TENANT, LANDLORD AND TENANT'S CONSTRUCTION REPRESENTATIVES WITH COPIES OF REQUIRED INSURANCE AND COPIES TO BE FURNISHED TO THE OWNER BEFORE COMMENCING WORK.

8. SUBMIT THREE (3) SETS OF SHOP DRAWINGS IDENTIFIED WITH PROJECT NAME TO THE BUILDING OWNER, OWNER AND OWNER'S CONSTRUCTION REPRESENTATIVE FOR THEIR FILE.

9. THE FIRE PROTECTION SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.

III. SCOPE OF WORK

1. FURNISH ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTORS FOR A COMPLETE, SAFE INSTALLATION OF SPRINKLER WORK IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED.

IV. GENERAL ITEMS

1. IF VALVES ARE NOW UTILIZED IN SYSTEM BUT NOT ALLOWED BY LAW, THEY ARE TO BE REMOVED AS REQUIRED.

2. SPRINKLER SUBCONTRACTOR SHOULD VERIFY WITH LANDLORD ANY SPECIAL REQUIREMENTS, HOOKUPS, ALARM SYSTEMS IN PIPING, ETC., AND INCLUDE COST IN BID - ITEMIZE AND SPECIFY INCLUSIONS IN BID.

3. DRAIN DOWNS AS PER GENERAL CONTRACTOR'S REQUIREMENTS. PIPING SHALL NOT BE SUPPORTED FROM DUCTWORK, ELECTRICAL, MECHANICAL, PLUMBING, OR OTHER SPRINKLER PIPING. ONLY HANG FROM TOP FLANGES OF BEAMS AND TOP CHORDS AT PANEL POINTS OF JOISTS AND TRUSSES.

4. TEST: TEST PIPING AND PROVE TIGHT FOR AT LEAST TWO HOURS BASED ON CODE OR BUILDING OWNER'S REQUIREMENTS AND IN ACCORDANCE WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND/OR AS SPECIFIED. TEST SHALL BE PERFORMED IN THE PRESENCE OF BUILDING OWNER (IF REQUIRED) AND OWNER'S REPRESENTATIVE AND LOCAL INSPECTOR. TEST SHALL BE REPEATED IF NECESSARY UNTIL FINAL APPROVAL OF SYSTEM IS OBTAINED. AS PER CODE REQUIREMENTS, TEST PIPING BY FILLING WITH AIR UNDER PRESSURE FIRST.

5. STERILIZATION OF SPRINKLER SYSTEM: IF REQUIRED BY CODE OR LANDLORD'S CRITERIA, BEFORE SPRINKLER SYSTEM IS PLACED INTO SERVICE, ALL LINES SHALL BE CHLORINATED TO THE SATISFACTION OF REPRESENTATION (AS APPLICABLE) IN ACCORDANCE WITH N.F.P.A. STANDARDS.

6. NOTCHING AND BORING OF STRUCTURAL STEEL MEMBERS IS NOT PERMITTED, WHEN HANGING FROM STRUCTURAL STEEL ONLY HANG FROM TOP FLANGE OF BEAMS AND TOP CHORDS ONLY AT PANEL POINTS OF JOISTS / TRUSSES.

7. SPRINKLER CONTRACTOR TO FILE FOR PERMITS AND SUBMIT PLANS TO BUILDING DEPARTMENT FOR APPROVAL AND SIGN-OFF. ALL BUILDING DEPARTMENT WORK FOR THIS CONTRACTORS SCOPE, TO BE FILED BY THIS CONTRACTOR.

V. BUILDING LANDLORD'S CRITERIA

1. THE SPRINKLER CONTRACTOR IS TO BECOME FAMILIARIZED WITH BUILDING LANDLORD'S CRITERIA FOR THIS LOCATION (IF APPLICABLE) AND INCLUDE ANY WORK REQUIRED OF THIS CRITERIA, WHICH IS NOT SPECIFICALLY NOTED IN THESE DRAWINGS AND SPECIFICATIONS.

2. THE SPRINKLERS MUST BE A FULL-COVERAGE SYSTEM WHICH COMPLIES WITH ALL THE REQUIREMENTS OF NFPA PAMPHLET 13.

3. SPECIAL ATTENTION MUST BE PAID TO SPRINKLER OBSTRUCTIONS INCLUDING STOCK FIXTURES AND VALANCES.

4. THE 200 PSI, TWO-HOUR HYDROSTATIC TEST OF THE SYSTEM IS REQUIRED TO BE WITNESSED BY A REPRESENTATIVE OF THE BUREAU OF FIRE PREVENTION.

5. A COMPLETED, CERTIFIED COPY OF THE "CONTRACTORS MATERIAL AND TEST CERTIFICATE" IS REQUIRED TO BE TURNED INTO THE BUREAU OF FIRE PREVENTION.

NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL
021363
KEVIN K. HERBERT
5/17/24

ADA
ARCHITECTS
17710 Detroit Avenue   Lakewood, Ohio 44107
Phone (216) 521-5134   Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

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REVISIONS

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MECHANICAL/
PLUMBING
SPECIFICATIONS

DATE 05/17/24
JOB NO. 23475
SHEET NO. M1.3

GAS PIPING NOTES:

1. PLUMBING CONTRACTOR TO NOTIFY THE AUTHORITY HAVING JURISDICTION WHEN THE INSTALLATION IS READY FOR INSPECTION (AT ROUGH-IN PRIOR TO COVERING AND FINAL).
2. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL GAS PRESSURE REGULATOR, MANUAL SHUT-OFF VALVE, DRIPS AND/OR SEDIMENT TRAPS AT EACH PIECE OF EQUIPMENT AND AT THE OUTLET OF THE METER. VALVES AND DRIPS SHALL BE READILY ACCESSIBLE TO PERMIT CLEANING, EMPTYING OR SERVICING.
3. GAS PIPING IS SIZED WITH LONGEST LENGTH METHOD AND BASED ON THE INTERNATIONAL FUEL GAS CODE; SCHEDULE 40 METALLIC PIPE TABLE 402.4(2).
4. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR PRESSURE TESTING AND INSPECTION PRIOR TO ACCEPTANCE, PER NFPA 54. TEST PRESSURE SHALL BE NO LESS THAN 1-1/2 TIMES THE MAXIMUM WORKING PRESSURE, BUT NOT LESS THAN 3 PSI. TEST SHALL BE NOT LESS THAN 1/2 HOUR PER 500 CF OF PIPE VOLUME.
5. GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL WITH 125 POUND BLACK MALLEABLE IRON SCREWED FITTINGS FOR 2" AND SMALLER AND WELDED FOR 2-1/2" AND ABOVE. GAS PIPING COMPOUND AT JOINTS SHALL BE PER NFPA BULLETIN #54 AND LOCAL CODES. GAS VALVES SHALL BE UL LISTED FOR GAS SERVICE SUCH AS DEZURICK MODEL S-425 FOR 2" AND LESS AND MODEL F-425 FOR 2-1/2" AND LARGER. NOTE: WELDED PIPE TO BE WITH APPROVED WELD-O-LET FITTINGS.
6. GAS PIPING SERVING HARBOR FREIGHT TOOLS' LEASE SPACE IS TO BE PRIMED AND PAINTED WITH TWO (2) COATS OF RUST RESISTANT PAINT. PAINT EXTERIOR GAS PIPING TO MATCH BUILDING COLOR AND NEW GAS PIPING ON ROOF SHALL BE PAINTED SAFETY YELLOW AS REQUIRED BY SECTION 404 OF THE INTERNATIONAL FUEL GAS CODE.

GAS PIPING HANGER SPACING SCHEDULE

STEEL PIPE; NOMINAL SIZE OF PIPE (INCHES)	SPACING OF SUPPORT (FEET)	NOMINAL SIZE OF TUBING; SMOOTH-WALL (INCHES O.D.)	SPACING OF SUPPORT (FEET)
1/2	6	1/2	4
3/4 TO 1	8	5/5 OR 3/4	6
1-1/4 OR LARGER (HORIZONTAL)	10	7/8 OR 1 (HORIZONTAL)	8
1-1/4 OR LARGER (VERTICAL)	EVERY FLOOR LEVEL	1 OR LARGER (VERTICAL)	EVERY FLOOR LEVEL

HARBOR FREIGHT TOOLS' GAS DEMAND

ROOFTOP UNIT (RTU-01, NEW)	240.0 CFH (240,000 BTU/HR)
ROOFTOP UNIT (RTU-02, NEW)	240.0 CFH (240,000 BTU/HR)
ROOFTOP UNIT (RTU-03, NEW)	240.0 CFH (240,000 BTU/HR)
ROOFTOP UNIT (RTU-04, NEW)	240.0 CFH (240,000 BTU/HR)
GAS-FIRED UNIT HEATER (UH-01, NEW)+	120.0 CFH (120,000 BTU/HR)
TOTAL GAS DEMAND	1,080.0 CFH (1,080,000 BTU/HR)

NOTES:

1. INLET PRESSURE ASSUMED TO BE 7" W.C. CONFIRM GAS DELIVERY PRESSURE PRIOR TO STARTING WORK.
2. GAS PIPE SIZES ARE BASED ON THE 2018 INTERNATIONAL FUEL GAS CODE TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE; INLET PRESSURE OF LESS THAN 2 PSI; PRESSURE DROP OF 0.5 IN W.C. AND 300 FEET (TOTAL LENGTH OF PIPE).

NOTE:
PLUMBING CONTRACTOR SHALL RELOCATE ALL REQUIRED PIPING; WATER, VENTS, GAS, SANITARY WASTE, ETC., AS NECESSARY TO MAINTAIN A MINIMUM CLEARANCE OF 13'-6" ABOVE FINISHED FLOOR.

PLUMBING DEMOLITION GENERAL NOTES:

1. THE PLUMBING CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING PIPING, EQUIPMENT AND FIXTURES REQUIRING DEMOLITION. THE CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH THE ARCHITECT, GENERAL CONTRACTOR, AND WITH THE OWNER.
2. THE PLUMBING CONTRACTOR SHALL CUT EXISTING SANITARY AND WASTE PIPING 3" BELOW FLOOR AND PLUG WITH PERMANENT STOPPER.
3. THE PLUMBING CONTRACTOR SHALL REMOVE ANY FLOOR DRAINS THAT ARE NOT USED FOR NEW SPACE LAYOUT. CUT WASTE LINE TO 3" BELOW FLOOR AND PLUG WITH PERMANANT STOPPER.
4. THE PLUMBING DEMOLITION WORK SHALL BE PERFORMED EXCLUSIVELY BY THE PLUMBING CONTRACTOR UNLESS OTHERWISE INDICATED.
5. ALL PATCHING AND SEALING OF WALLS, FLOORS, CEILINGS, ETC... TO BE DONE BY GENERAL CONTRACTOR.
6. THE PLUMBING CONTRACTOR TO MAKE ALL FINAL PLUMBING CONNECTIONS TO FIXTURES & EQUIPMENT.
7. THE PLUMBING CONTRACTOR SHALL CUT AND CAP UNUSED EXISTING WATER AND VENT LINES BELOW FLOOR.
8. THE PLUMBING CONTRACTOR SHALL REMOVE ALL UNUSED EXPOSED EXISTING WASTE, VENT, GAS AND WATER PIPING COMPLETE.
9. PLUMBING CONTRACTOR SHALL CAP ALL UNUSED SANITARY BRANCH LINES NEAR MAIN WITHIN 2'-0" WHERE POSSIBLE. NO DEAD END RUNS ARE ALLOWED PER CODE.

PLUMBING DEMISE CRITERIA:

WATER SERVICE:

THE LANDLORD SHALL PROVIDE A NEW 1-1/2" DOMESTIC WATER SERVICE, WATER METER AND BACKFLOW PREVENTER FOR HARBOR FREIGHT TOOLS' LEASE SPACE. PLUMBING CONTRACTOR SHALL CONFIRM THE EXISTENCE OF A BACKFLOW PREVENTER SERVING HARBOR FREIGHT TOOLS' LEASE SPACE. IF NONE EXISTS, THEN PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL A BACKFLOW PREVENTER, AS APPLICABLE, PER LOCAL WATER DEPARTMENT REQUIREMENTS. FIELD VERIFY THE EXACT SIZE AND LOCATION OF THE EXISTING DOMESTIC WATER SERVICE PROVIDED BY LANDLORD PRIOR TO STARTING ANY WORK.

SEWER SERVICE:

THE LANDLORD SHALL PROVIDE A 4" SANITARY SEWER STUB AT THE PROPOSED RESTROOMS. PLUMBING CONTRACTOR SHALL TIE INTO STUB AND PERFORM THE REMAINDER OF THE UNDERGROUND PIPING. PLUMBING CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION, SIZE, DIRECTION OF FLOW AND INVERT ELEVATION OF EXISTING SANITARY SEWER PRIOR TO STARTING ANY WORK. ALL NEW CONCRETE PATCHING FROM TRENCHING OF EXISTING CONCRETE SLAB FLOOR SHALL BE PATCHED TO MATCH EXISTING MATERIALS BY GENERAL CONTRACTOR. HARBOR FREIGHT TOOLS' PLUMBING CONTRACTOR SHALL FLUSH EXISTING SANITARY SYSTEM TO ENSURE IT IS IN PROPER WORKING CONDITION.

GAS SERVICE:

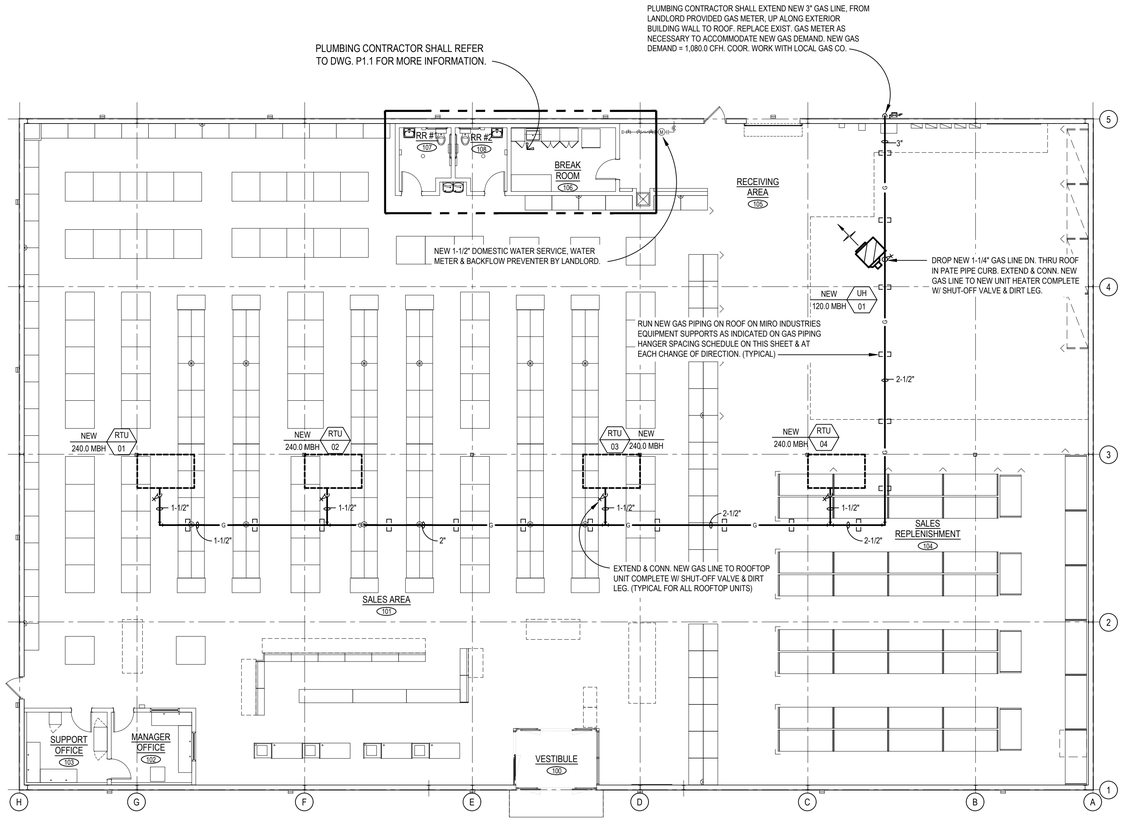
THE LANDLORD SHALL PROVIDE A NEW GAS METER AT THE SOUTHEAST CORNER OF THE BUILDING. PLUMBING CONTRACTOR SHALL EXTEND NEW 3" GAS LINE, FROM LANDLORD PROVIDED GAS METER, UP ALONG EXTERIOR BUILDING WALL TO ROOF. REPLACE EXISTING GAS METER AS NECESSARY TO ACCOMMODATE NEW GAS DEMAND. NEW GAS DEMAND = 1,080.0 CFH. COORDINATE WORK WITH LOCAL GAS COMPANY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO STARTING WORK.

STORM SERVICE:

STORM WATER WILL EVACUATE THE ROOF VIA GUTTER AND DOWNSPOUTS THAT WILL BE ROUTED TO A SUB-GRADE SYSTEM.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
	SANITARY SEWER (BELOW GRADE)
CO	CLEANOUT
V	SANITARY VENT PIPING
G	GAS PIPING
	SHUT-OFF VALVE IN RISER
	SHUT-OFF VALVE
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	BRANCH-TOP CONNECTION
	BRANCH-BOTTOM CONNECTION
	TEE
	ELBOW
WC	WATER CLOSET
LAV	LAVATORY
SK	SINK
DF	DRINKING FOUNTAIN
MS	MOP SINK
LL	LANDLORD
PC	PLUMBING CONTRACTOR
GC	GENERAL CONTRACTOR
EC	ELECTRICAL CONTRACTOR
MC	MECHANICAL CONTRACTOR



PLUMBING PLAN
SCALE: 3/32" = 1'-0"

NOTE: PLUMBING CONTRACTOR SHALL REFER TO DWG. M1.3 FOR PLUMBING SPECIFICATIONS

NORTH CAROLINA PROFESSIONAL SEAL 031365 ENGINEER KEVIN K. HERBERT 5/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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PLUMBING PLAN

DATE 05/17/24

JOB NO. 23475

P1.0
SHEET NO.

PLUMBING GENERAL NOTES:

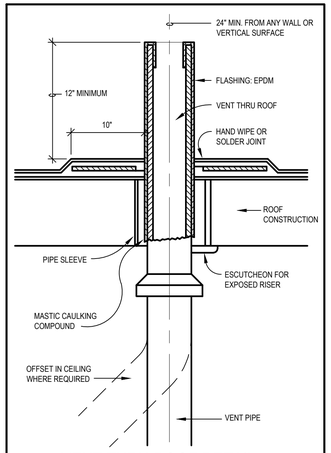
1. EACH LENGTH OF PIPE, FITTINGS, TRAP, FIXTURE, MATERIAL, ETC., UTILIZED IN THE PLUMBING SYSTEM SHALL BEAR THE IDENTIFICATION OF THE MANUFACTURER, AND APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED.
2. ALL MATERIALS USED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE STANDARDS UNDER WHICH THE MATERIALS ARE ACCEPTED. ALSO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE FOLLOWED.
3. PIPES PASSING THROUGH CONCRETE SHALL BE PROTECTED AGAINST EXTERNAL CORROSION BY A PROTECTIVE SHEATHING OR WRAPPING.
4. PLUMBING SYSTEM SHALL BE INSTALLED SO AS TO PREVENT STRAINS AND STRESSES THAT EXCEED THE STRUCTURAL STRENGTH OF THE PIPE.
5. JOINTS AT THE FLOOR, ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT.
6. HANGERS, ANCHORS AND SUPPORTS SHALL SUPPORT THE PIPING AND THE CONTENT OF THE PIPING. HANGERS AND STRAPPING MATERIALS SHALL BE OF APPROVED MATERIALS THAT WILL NOT PROMOTE GALVANIC ACTION. PIPE SHALL BE SUPPORTED AS FOLLOWS:

CAST IRON PIPE	MAXIMUM HORIZONTAL 5'-0"
COPPER PIPE	MAXIMUM HORIZONTAL 12'-0"
COPPER TUBING 1-1/4" AND LESS	MAXIMUM HORIZONTAL 6'-0"
COPPER TUBING 1-1/2" AND LARGER	MAXIMUM HORIZONTAL 10'-0"

7. RIGID SUPPORT SWAY BRACING SHALL BE PROVIDED AT CHANGES IN DIRECTION OVER 45° FOR PIPE SIZE 4" AND ABOVE.
8. PLUMBING CONTRACTOR SHALL MAKE THE APPLICABLE TESTS. PLUMBING CONTRACTOR TO GIVE REASONABLE ADVANCE NOTICE TO THE CITY WHEN THE PLUMBING WORK IS READY FOR TESTS. THE FOLLOWING TESTS ARE REQUIRED:

DRAINAGE & VENT WATER TEST:	MINIMUM 10 FEET OF HEAD AND KEPT IN FOR AT LEAST 15 MINUTES BEFORE INSPECTION STARTS
DRAINAGE & VENT AIR TEST:	MINIMUM 5 PSI FOR AT LEAST 15 MINUTES
DRAINAGE & VENT FINAL TEST:	SHALL BE VISUAL AND IN SUFFICIENT DETAIL TO DETERMINE COMPLIANCE
WATER DISTRIBUTION SYSTEM:	MINIMUM 100 PSI WATER PRESSURE

9. THE SUPPLY LINES AND FITTINGS FOR EVERY FIXTURE SHALL BE INSTALLED TO PREVENT BACKFLOW.
10. THE FIXTURES SHALL BE SET LEVEL AND IN PROPER ALIGNMENT.
11. CONNECTIONS BETWEEN THE DRAIN AND FLOOR OUTLET PLUMBING FIXTURE SHALL BE MADE WITH A FLOOR FLANGE.
12. FLOOR DRAIN SHALL CONFORM TO ASME A112.6.3 OR ASME A112.3.1.
13. WATER HEATER RELIEF VALVE SHALL CONFORM TO ANSI Z21.22.
14. WATER HEATER DRAIN VALVE SHALL CONFORM TO ASSE 1005.
15. AFTER CONSTRUCTION THE INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED.
16. WATER-HAMMER ARRESTOR SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AND ASSE 1010.
17. COPPER OR COPPER-ALLOY TUBING (TYPE K, L & M) SHALL MEET ASTM B75, ASTM B88, ASTM B251, ASTM B447. WATER PIPING TO CONFORM TO NSF61 AND SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI. THE JOINING OF SUPPLY PIPING TO BE MADE WITH LEAD-FREE (LESS THAN .2 PERCENT) SOLDER AND FLUXES.
18. SANITARY DRAINAGE SYSTEM SHALL HAVE MINIMUM 1/8" PER FOOT SLOPE. FOR PIPING 3" TO 4" & 1/4" PER FOOT SLOPE FOR 2-1/2" PIPE & LESS.
19. MECHANICAL JOINTS COUPLINGS FOR HUBLESS PIPE AND FITTINGS SHALL COMPLY WITH CISPI 310 OR ASTM C1277. THE ELASTOMERIC SEALING SLEEVE SHALL CONFORM TO ASTM C564.
20. CLEANOUTS PLUGS TO BE BRASS. HORIZONTAL DRAINS SHALL HAVE CLEANOUTS AT 50 FEET ON CENTERS, AT EACH CHANGE (45 DEGREE) IN DIRECTION AND AT EACH BASE OF STACK. CLEANOUTS TO HAVE A MINIMUM CLEARANCE OF 18" FOR RODDING.
21. VENT PIPES SHALL EXTEND THROUGH THE ROOF AND TERMINATE AT LEAST 12 INCHES ABOVE THE ROOF. VENT PIPE THROUGH ROOF TO BE MADE WATER TIGHT.
22. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THE PLUMBING CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
23. THE CONTRACTOR WILL VISIT THE SITE AND BE FAMILIAR WITH SITE CONDITIONS. NO EQUIPMENT OR MATERIAL IS TO BE ORDERED OR FABRICATED PRIOR TO FIELD VERIFICATION OF ALL MEASUREMENTS, CLEARANCES, POTENTIAL CONFLICTS WITH EXISTING CONDITIONS OR THAT OF OTHER TRADES ON THE JOB.
24. PERFORM ALL WORK IN ACCORDANCE WITH THE, RULES & REGULATIONS OF THE APPROPRIATE STATE AND LOCAL BUILDING CODES AND SUBTITLES.
25. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
26. TENANT'S CONTRACTOR IS TO VERIFY POINTS OF CONNECTION OF ALL VENT, SEWER AND WATER LINES WITH LANDLORD BEFORE PROCEEDING WITH WORK.
27. INSTALL SHUT OFF VALVES AT ALL PLUMBING FIXTURES.
28. INSTALL HAMMER ARRESTORS AT ALL PLUMBING FIXTURES.
29. ALL EXPOSED PIPING ABOVE TENANT'S CEILING SHALL BE INSULATED WITH A MINIMUM OF 1" GLASS FIBER WITH NON-COMBUSTIBLE UL RATED VAPOR BARRIER JACKET PER CODE.
30. TENANT'S CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL WITHIN THE LANDLORD'S TENANT CRITERIA MANUAL INCLUDING MALL MANAGEMENT'S RULES AND REGULATIONS.
31. THE MOUNTING HEIGHTS OF ALL ACCESSORY ITEMS AND HARDWARE SHALL COMPLY WITH NBHA "RECOMMENDED LOCATIONS FOR BUILDERS HARDWARE" AND/OR THE LATEST REQUIREMENTS OF THE A.D.A. REGULATIONS, OR CABO/ANSI STANDARDS WHICHEVER APPLICATION IS MORE STRINGENT FOR ITS USE.
32. TENANT CONTRACTOR IS TO HAVE ALL WEATHERPROOFING OF ROOF PENETRATIONS DONE BY LANDLORD'S APPROVED ROOFING CONTRACTOR.
33. PLUMBING CONTRACTOR TO INSULATE ANY EXISTING EXPOSED OR RE-INSULATE ANY DAMAGED, MISSING PIPE INSULATION WITH NEW PIPE INSULATION.
34. PLUMBING CONTRACTOR SHALL SNAKE ALL EXISTING SANITARY SEWERS A MINIMUM OF 250 FEET. ANY EXTERIOR TRUCK DOCK DRAINS SHALL BE SNAKED A MINIMUM OF 100 FEET.
35. PLUMBING CONTRACTOR SHALL VIDEO ALL STORM AND SANITARY LINES DURING THE FIRST WEEK OF CONSTRUCTION AND AFTER CONSTRUCTION IS COMPLETE. VIDEO OF SANITARY LINES SHALL INCLUDE ALL FLOOR DRAINS AND CLEANOUTS. PLUMBING CONTRACTOR SHALL ISSUE WRITTEN EVALUATIONS TO HARBOR FREIGHT TOOLS' PROJECT MANAGER UPON COMPLETION OF EACH VIDEO AND UPLOAD BOTH VIDEOS TO PROTRACK AND PROVIDE A CD IN CLOSEOUT PACKAGE.
36. THE SPOUTS OF DRINKING FOUNTAINS AND WATER COOLERS SHALL BE AT THE FRONT OF THE UNIT AND SHALL DIRECT THE WATER FLOW IN A TRAJECTORY THAT IS PARALLEL OR NEARLY PARALLEL TO THE FRONT OF THE UNIT. THE SPOUT SHALL PROVIDE A FLOW OF WATER AT LEAST 4 IN. HIGH SO AS TO ALLOW THE INSERTION OF A CUP OR GLASS UNDER THE FLOW OF WATER. ON AN ACCESSIBLE DRINKING FOUNTAIN WITH A ROUND OR OVAL BOWL, THE SPOUT MUST BE POSITIONED SO THE FLOW OF WATER IS WITHIN 3 IN. OF THE FRONT EDGE OF THE FOUNTAIN.



VENT THRU ROOF DETAIL
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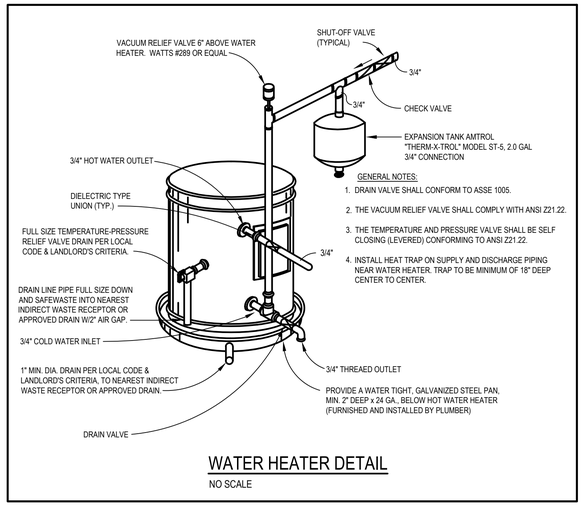

GENERAL NOTES:
1. DRAIN VALVE SHALL CONFORM TO ASSE 1005.
2. THE VACUUM RELIEF VALVE SHALL COMPLY WITH ANSI Z21.22.
3. THE TEMPERATURE AND PRESSURE VALVE SHALL BE SELF CLOSING (LEVERED) CONFORMING TO ANSI Z21.22.
4. INSTALL HEAT TRAP ON SUPPLY AND DISCHARGE PIPING NEAR WATER HEATER. TRAP TO BE MINIMUM OF 18" DEEP CENTER TO CENTER.

WATER HEATER DETAIL
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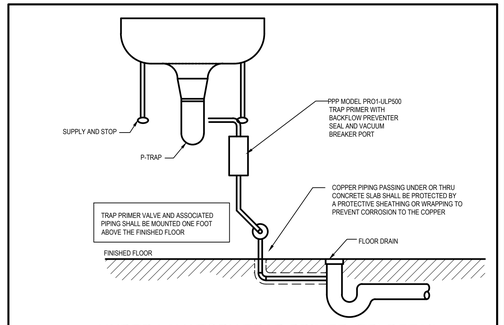

UNDER LAVATORY TRAP PRIMER (TP) DETAIL
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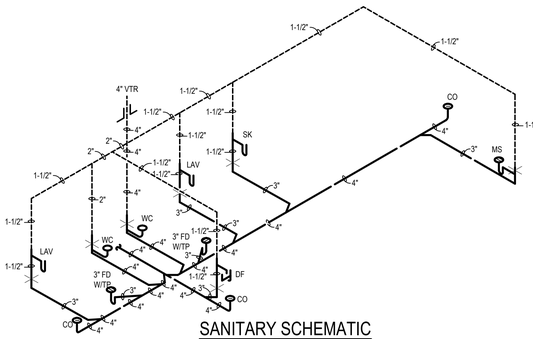

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PLUMBING FIXTURE SPECIFICATIONS

FLOOR DRAIN (FD) - J.R. SMITH NO. 2005-P050 WITH ADJUSTABLE ROUND STRAINER HEAD AND TRAP PRIMER CONNECTION.

FLOOR CLEANOUT (CO) - J.R. SMITH NO. 4021S ADJUSTABLE CAST NIKALOY FLOOR CLEANOUT WITH INTERNAL BRONZE COUNTERSUNK PLUG AND SOLID SCORIATED SECURED ROUND COVER.

WALL CLEANOUT (WCO): J.R. SMITH MODEL NO. 4422 DUCO CAST IRON CAULK FERRULE WITH CAST BRONZE TAPER THREAD PLUG WITH STAINLESS STEEL COVER.

WATER HEATER (WH) - RHEEM POINT-OF-USE MODEL EGSP20, 20 GALLON STORAGE CAPACITY WITH 1,500 WATT HEATING ELEMENT, 120V, 1 PHASE WITH GALVANIZED DRIP PAN. RUN DRAIN LINE TO MOP SINK.

WATER CLOSET (WC): AMERICAN STANDARD "MADERA FLoWISE" MODEL 2857.111 FLOOR MOUNTED, ELONGATED FLUSHOMETER TOILET SYSTEM WITH MANUAL FLUSH VALVE, ULTRA LOW-CONSUMPTION (1.1 GPF), AND 16-1/2" RIM HEIGHT. SEAT: BEMIS MODEL NO. 1055SSC OPEN FRONT SEAT LESS COVER WITH SELF-SUSTAINING CHECK HINGES WITH NON-CORROSIVE STAINLESS STEEL POSTS, PINTLES, AND HARDWARE. NOTE: MOUNT FLUSH LEVER OPPOSITE SIDE OF WALL.

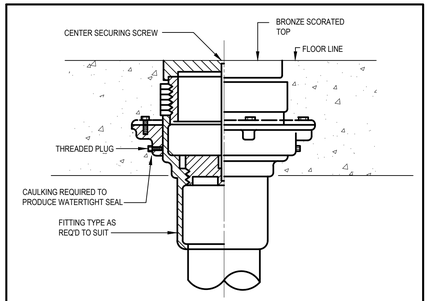
LAVATORY (LAV): AMERICAN STANDARD "LUCERNE" MODEL 0355.012 WALL HUNG, BARRIER-FREE LAVATORY. FAUCET: MOEN MODEL NO. 8886 4" CENTERSET METERING FAUCET WITH 0.5 GPM VANDAL RESISTANT MULTI-STREAM LAMINAR FLOW, AND CHROME PLATED SOLID BRASS CONSTRUCTION. PROVIDE COMPLETE WITH GRID STRAINER, FOOTED WALL CHAIR CARRIER SUPPORT ZURN MODEL Z1231, CHROME TRAP WITH CLEANOUT AND CHROME SUPPLIES WITH LOOSE KEY STOPS. INSULATE WASTE AND WATER LINES WITH TRUEBRO "LAV GUARD 2" INSULATION KIT WITH WHITE FINISH TO CONFORM TO ADA REQUIREMENTS. MOUNT AT ELEVATION AS INDICATED ON THE ARCHITECTURAL DRAWINGS.

MOP SINK (MS): "FIAT" MODEL TSB100 TERRAZZO MOP SERVICE BASIN (24"x24"x12"), PROVIDE COMPLETE WITH STAINLESS STEEL CAPS ON ALL CURBS; HOSE AND HOSE BRACKET MODEL 832AA; (3) WALL GUARDS AND (2) ANGLE BRACKETS MODEL MSG2424; STAINLESS STEEL STRAINER MODEL 1453BB; SILICONE SEALANT MODEL 833AA. FAUCET: CHICAGO FAUCETS MODEL NO. 897-CP WALL MOUNTED SERVICE FAUCET WITH VACUUM BREAKER, WALL BRACE, VANDAL PROOF LEVER HANDLES, AND 3/4" MALE HOSE THREAD OUTLET.

BREAKROOM SINK (SK) - JUST NO. SL-ADA-2019-A-GR. 18 GAUGE TYPE 304 ADA COMPLIANT SINGLE BOWL SELF-RIMMING STAINLESS STEEL SINK, 20"x19"x5-1/2" DEEP SINK WITH CENTER REAR DRAIN. FIXTURE WITH FAUCET LEDGE. SET IN BED OF PUTTY. FAUCET: JUST NO. J-902 SINGLE LEVER DECK MOUNTED FAUCET WITH SPRAYER, AND 2.2 GPM AERATOR. DRAIN: JUST NO. J-ADA35-FS STAINLESS STEEL DRAIN WITH REMOVABLE STRAINER WITH 1-1/2" 17 GAUGE OFFSET TAILPIECE, MCGUIRE NO. 8912-C-F-1-1/2" 17 GAUGE TUBULAR CHROME PLATED BRASS ADJUSTABLE P-TRAP WITH BRASS CLEANOUT WITH ESCUTCHEON AND CHROME SUPPLIES WITH LOOSE KEY STOPS.

DRINKING FOUNTAIN (DF): ELKAY MODEL EZSTLDDLC TWO-LEVEL BARRIER-FREE WALL MOUNTED DRINKING FOUNTAIN WITH FLEXI-GUARD SAFETY BUBBLER AND FRONT AND SIDE PUSH BUTTONS AND LIGHT GRAY GRANITE FINISH. REFER TO PLUMBING GENERAL NOTE #36 FOR ADDITIONAL INFORMATION.

TEMPERING VALVE SERVING LAVATORY AND BREAK ROOM SINK SHALL BE WATTS SERIES LFMMV WITH A MINIMUM FLOW OF .5 GPM @ 0.8 PSI PRESSURE DIFFERENTIAL. NOTE: TEMPERING VALVE SHALL BE LISTED TO ASSE 1070 STANDARD. SET OUTLET TEMPERATURE TO 105°F.



FLOOR CLEANOUT
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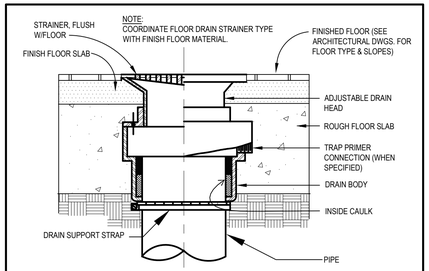

FLOOR DRAIN (FD) DETAIL
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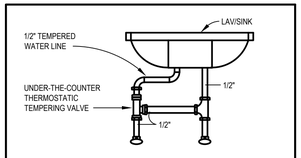
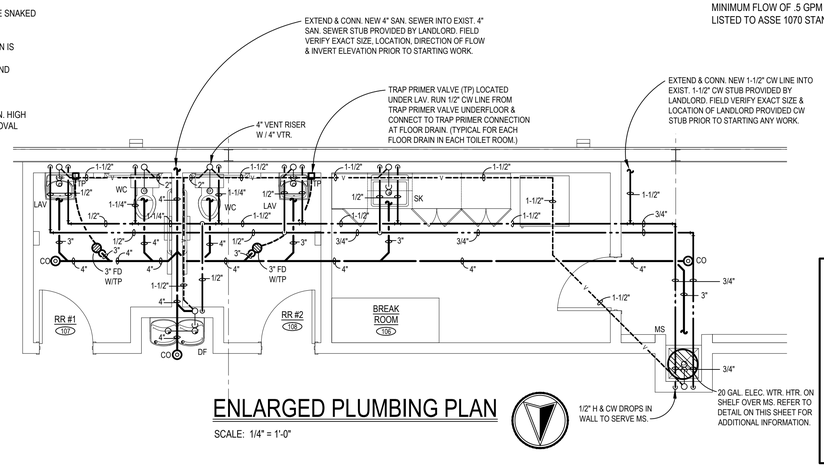


THERMOSTATIC TEMPERING VALVE (TTV) DETAIL
NO SCALE

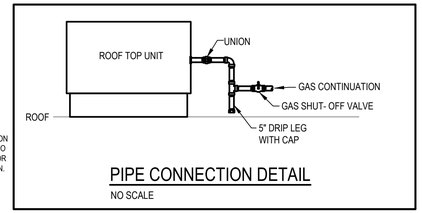
FIXTURE CONNECTION SCHEDULE					
TAG	DESCRIPTION	CW (IN.)	HW (IN.)	WASTE (IN.)	VENT (IN.)
WC	WATER CLOSET	1	-	4	2
LAV	LAVATORY	1/2	1/2 (105°F)	1-1/2	1-1/2
DF	DRINKING FOUNTAIN	1/2	-	1-1/2	1-1/2
SK	SINK	1/2	1/2 (105°F)	1-1/2	1-1/2
MS	MOP SINK	1/2	1/2	3	1-1/2



ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

NOTE:
PLUMBING CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR PLUMBING FIXTURES AND ACCESSORIES PROVIDED BY HARBOR FREIGHT TOOLS.

NOTE:
PLUMBING CONTRACTOR TO REVIEW AND COMPLY WITH THE REQUIREMENTS OF GENERAL NOTES ON SHEET A0.2.



PIPE CONNECTION DETAIL
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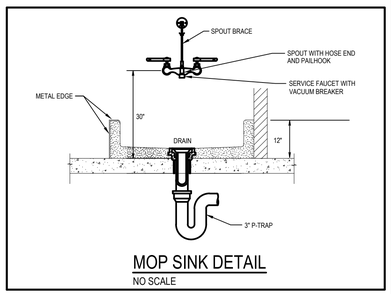

MOP SINK DETAIL
NO SCALE

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ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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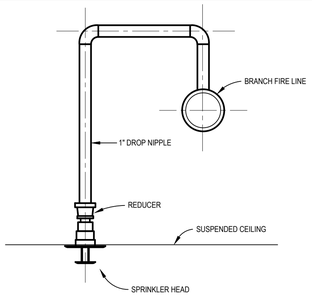
PLUMBING DETAILS

DATE 05/17/24

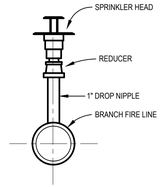
JOB NO. 23475

SHEET NO. P1.1



PENDENT SPRINKLER HEAD DETAIL

NO SCALE



UPRIGHT SPRINKLER HEAD DETAIL

NO SCALE

NOTE:
THE SPACE IS FULLY SUPPRESSED BY A 6"Ø FIRE RISER LOCATED TO THE WEST OF THE RECEIVING OVERHEAD DOOR.

NOTE:
GENERAL CONTRACTOR SHALL COORDINATE WITH BV AND LANDLORD FOR MONITORING REQUIREMENTS.

NOTE:
SPRINKLER CONTRACTOR SHALL RELOCATE ALL REQUIRED PIPING, ETC TO ALLOW HEIGHTS AS NOTED ON CEILING PLAN.

NOTE:
SPRINKLER CONTRACTOR SHALL ENSURE THAT EXISTING FIRE PROTECTION SYSTEM IS IN PROPER WORKING ORDER INCLUDING BUT NOT LIMITED TO BACKFLOW PREVENTION, FLOW AND TAMPER SWITCHES, ALARMS, ETC... AND MEETS NFPA-13 AND LOCAL FIRE DEPARTMENT REQUIREMENTS. PROVIDE 5 YEAR SYSTEM CERTIFICATION AT ROUGH INSPECTION.

NOTE:
GENERAL CONTRACTOR SHALL VERIFY SPRINKLER SYSTEM MONITORING, CERTIFICATION STATUS AND PREFERRED VENDOR REQUIREMENTS WITH HARBOR FREIGHT TOOLS' PROJECT MANAGER AND LANDLORD PRIOR TO SUBMITTING BID.

FIRE PROTECTION KEY NOTES:

1. MODIFY SPRINKLERS AND PIPING OF EXISTING FIRE PROTECTION SYSTEM AS NECESSARY TO ACCOMMODATE THE INSTALLATION OF NEW FULL HEIGHT WALLS, CEILING GRIDS AND LIGHTS PER NFPA 13 REQUIREMENTS. SPRINKLER HEADS SHALL BE PENDENT TYPE.
2. MODIFY SPRINKLERS AND PIPING OF EXISTING FIRE PROTECTION SYSTEM AS NECESSARY TO ACCOMMODATE THE INSTALLATION OF NEW LIGHTS AND WALLS PER NFPA 13 REQUIREMENTS. SPRINKLER HEADS SHALL BE UPRIGHT TYPE IN OPEN AREAS TO MATCH EXISTING.

DESIGN CRITERIA

FIRE PROTECTION AREA TYPES:

A) ORDINARY HAZARD II - 0.20 GPM/SQ.FT OVER 1500 SQ.FT. WITH 250 GPM HOSE ALLOWANCE. SPRINKLERS SHALL E SPACED AT A 130 SQ.FT. MAXIMUM WITH SPRINKLER HEADS AT A MAXIMUM OF 13'-0" APART AND SPACED AT A MAXIMUM OF 6'-6" FROM ALL WALLS.

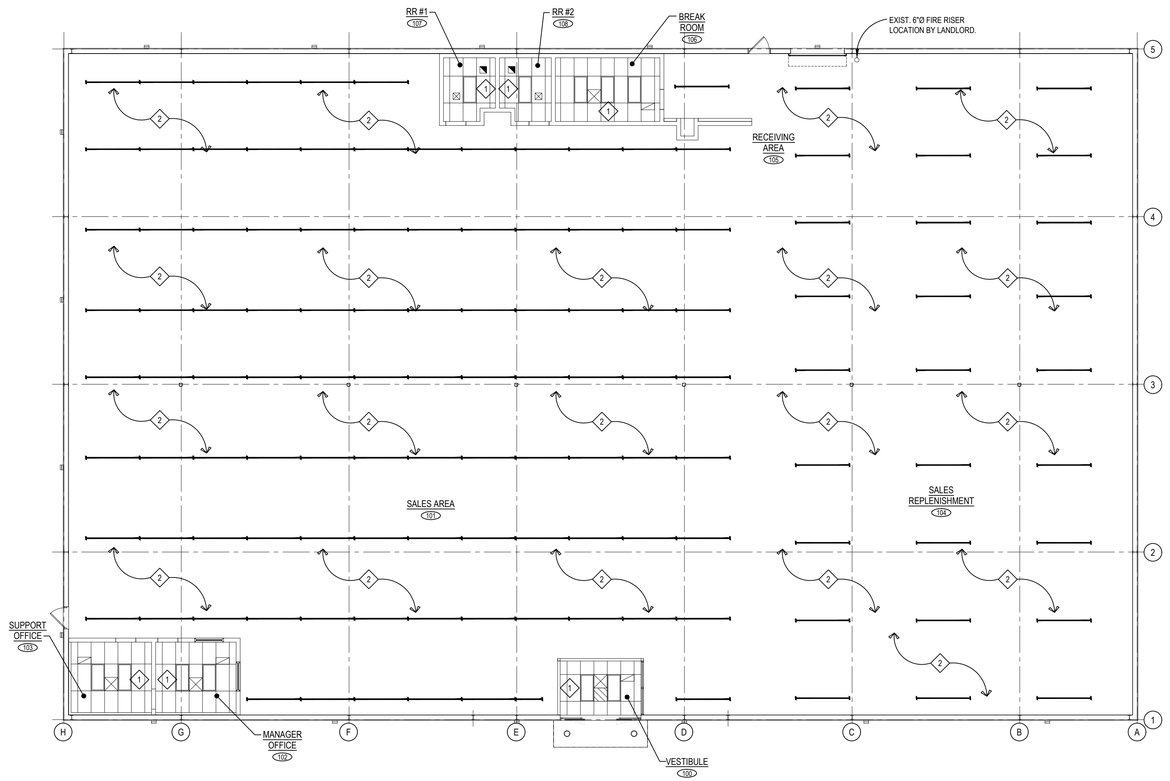
NOTE: ORDINARY HAZARD IS BASED ON COMMODITY PLACEMENT.

B) LIGHT HAZARD - 0.10 GPM/SQ.FT. OVER 1500 SQ.FT. WITH 100 GPM HOSE ALLOWANCE. SPRINKLERS SHALL BE SPACED AT A 225 SQ.FT. MAXIMUM WITH SPRINKLER HEADS AT A MAXIMUM OF 15'-0" APART AND SPACED AT A MAXIMUM OF 7'-6" FROM ALL WALLS.

SALES: ORDINARY HAZARD II
SALES REPLENISHMENT: ORDINARY HAZARD II
BREAK ROOM: LIGHT HAZARD
TOILET ROOMS: LIGHT HAZARD

FIRE PROTECTION NOTES:

1. THIS DRAWING IS FOR REFERENCES PURPOSE ONLY. THE FIRE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR THE FULL DESIGN OF THE SPRINKLER SYSTEM AND ITS CONFORMANCE TO NFPA 13 AND ANY LOCAL CODE REQUIREMENTS. THE FIRE PROTECTION CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, TRANSITIONS, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
2. THE CONTRACTOR WILL VISIT THE SITE AND BE FAMILIAR WITH SITE CONDITIONS. NO EQUIPMENT OR MATERIAL IS TO BE ORDERED OR FABRICATED PRIOR TO FIELD VERIFICATION OF ALL MEASUREMENTS, CLEARANCES, POTENTIAL CONFLICTS WITH EXISTING CONDITIONS OR THAT OF OTHER TRADES ON THE JOB.
3. PERFORM ALL WORK IN ACCORDANCE WITH THE, RULES & REGULATIONS OF THE APPROPRIATE STATE AND LOCAL BUILDING CODES AND SUBTITLES.
4. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
5. SPRINKLER CONTRACTOR RESPONSIBLE TO OBTAIN A COPY OF THE SPECIFICATION ON DWG. M1.3 AND COMPLYING WITH THE REQUIREMENTS THEREIN.
6. SPRINKLER CONTRACTOR SHALL REVIEW ARCHITECTURAL DRAWINGS FOR CEILING TYPES, HEIGHTS, COLOR, ELEVATIONS, SOFFITS, DISPLAY WINDOWS, ETC.
7. FIRE PROTECTION SHOP DRAWINGS MUST BE SUBMITTED FOR LOCAL AUTHORITY DEPARTMENT REVIEW AND APPROVAL AT LEAST TWO WEEKS BEFORE THE PROJECTED INSTALLATION DATE.
8. FAILURE TO OBTAIN APPROVAL OF THESE DRAWINGS BEFORE INSTALLATION COULD RESULT NOT ONLY IN DELAY OF THE FINAL INSPECTION AND ISSUANCE OF AN OCCUPANCY PERMIT, BUT ALSO IN REMOVAL AND RECONSTRUCTION OF INSTALLATIONS WHICH FAIL TO MEET LOCAL AND NFPA REQUIREMENTS.
9. SPRINKLER CONTRACTOR SHALL SUBMIT WORKING FIRE PROTECTION PLANS, HYDRAULIC CALCULATIONS, ETC... TO THE FIRE DEPARTMENT FOR SEPARATE PLAN CHECK.



FIRE PROTECTION PLAN

SCALE: 3/32" = 1'-0"

NORTH CAROLINA PROFESSIONAL SEAL 031365 ENGINEER KEVIN K. HERBERT 5/17/24

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

ERWIN, NC 28339

46 SHRIJI LANE

REVISIONS

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FIRE PROTECTION PLAN

DATE 05/17/24

JOB NO. 23475

FP1.0

SHEET NO.

ELECTRICAL SPECIFICATIONS

A: DESCRIPTION OF WORK

1. The electrical contractor shall provide all labor, material, equipment, and tools necessary for demolition and removal of existing and the complete installation of the new electrical work, ready to use, as shown on the drawings or specified herein. Work shall include, but not be limited to the following:
   i. Furnish and install new conduit and wire.
   ii. Furnish and install new fuses, circuit breakers, panelboards etc.
   iii. Install new lighting fixtures as indicated.
   iv. Furnish & install new light fixtures as indicated.
   v. Furnish & install new communications devices.
2. The exact location of all items shown on the electrical drawings is dependent upon field conditions. Review the plans and specifications for all parts and consult with other trades of this project for pertinent data on sizes, locations, wiring, etc., as required for a complete electrical installation.
3. The electrical contractor shall not attach to, cover up, or finish against any defective work, or install in a manner which will prevent proper installation of the work of other trades.
4. The electrical contractor shall warrant all work & material indicated on these electrical drawings for a period of 1 year from the date of final acceptance. Warranty shall include any additional labor or material required to repair or replace defective item.

B: CODES, PERMITS AND FEES

1. All work included by the drawings and specifications, together with all material (or equipment) furnished, shall comply with the latest published codes and standards listed insofar as such shall apply. All electrical items shall be new and UL labeled & listed.
2. The contractor shall secure all permits and pay all fees that are required by the applicable local and state codes.
3. Perform all work in accordance with the latest edition of applicable codes including, but not necessarily limited to those listed below:
   i. The National Electrical Code - sometimes referred to herein as the "NEC" - (NFPA-70).
   ii. National Electrical Safety Code (ANSI-C2).
   iii. All applicable state and local codes.
   iv. Applicable provisions of the Occupational Safety and Health Act.

C: GENERAL REQUIREMENTS FOR SUBMITTING & BID

1. The drawings represent the design for the listed manufacturers' requirements. If any substitutions are accepted by the engineer, this contractor shall be responsible for all necessary modifications, including cost, to the electrical system required because of the substituted equipment or material.
2. **The electrical, mechanical, architectural, structural, and all other drawings as well as the specifications and addendums are part of the contract documents. any electrical requirements called for on other trades contract documents shall be included in the electrical bid.**
3. **Co-ordination & knowledge of local standards of utility companies is required to submit a bid. Any required deviation from the design by local utility shall be brought to the attention of the Architect or Engineer prior to submitting bid. No extra compensation will be awarded for adjustments to the design that are required by the local utility company.**
4. The contractor shall visit the job site and become familiar with all existing conditions. Submission of a bid assumes the contractor has reviewed or accepts all field Conditions and existing conditions. No additional compensations shall be allowed for labor or material because of ignorance of these conditions before or after bid submission.
5. Discrepancies between the drawings or between the drawings and actual field conditions shall be brought to the attention of the architect and the engineer prior to submitting the bid. The more comprehensive and most expensive scope of work shall be considered for the electrical bid unless written clarification is provided by the architect and the engineer prior to submitting the bid.

D: RACEWAYS

1. EMT conduit shall be used in all interior locations which call for conduit unless noted therwise. Conduits routed thru areas of significant temperature differences shall be provided with seal-off fittings to minimize condensation. Conduits penetrating fire walls shall be firestopped per NEC & Underwriters Laboratories.
2. Rigid PVC Schedule 40 shall be used for all underground or below slab conduit runs.
3. Heavy wall rigid steel conduit shall be used in exterior exposed applications. Provide 2 coats of rust inhibiting paint for exterior runs. Paint shall match surface conduit is attached to.
4. 'MC' cable may be used for all branch circuits located above ceilings or in wall cavities or exposed & attached to supports of suspended light fixtures as allowed by the National Electrical Code & the authority having jurisdiction. Cable shall be installed in a neat professional manner adhering to industry standards.
5. When power or control conductors are installed in a raceway, a green equipment grounding conductor shall be included in each raceway system and shall be sized as shown on the drawings or if not noted on the drawings, then in accordance with Table 250-122 of the NEC, or as indicated on the drawings If green insulation is not available, the grounding conductor shall be bare and clearly and permanently marked at all tap and terminating points by green "scotch" marking tape, code markers, or other approved means.
6. All conduit shall be securely fastened in full accordance and as directed by the latest edition of the National Electrical Code. In addition to the NEC requirements, conduit hangers, supports, or fastenings shall be provided at each elbow and at the end (within 6") of each straight run terminating at a box or cabinet.
7. Conduits or boxes may not be supported by ceiling support wires or other ceiling supporting hardware.
8. Horizontal and vertical conduit runs may be supported by one-hole malleable straps, clamp backs, or other approved devices with suitable bolts, expansion shields (where needed) or beam type clamps for mounting to building structure or special brackets.
9. The use of perforated iron for supporting conduits will not be permitted.
10. Conduit runs between outlets shall contain not more than the equivalent of three (3) quarter bends. Provide junction and/or pull boxes where shown on the drawings or as required, whether shown on the drawings or not. Pull boxes shall be approved for use in the area where they are to be installed. Pull boxes or junction boxes shall be provided in accordance with the following schedule:
    i. Straight runs - not over one hundred (100) feet apart.
    ii. One (1) 90 degree bend - not over seventy five (75) feet apart.
    iii. Two (2) or more 90 degree bends - not over fifty (50) feet apart.
11. In Class I and Class II hazard areas, as designated on the drawings, explosion-proof flexible metal conduit shall be used for all final conduit terminations at motors and to all other devices subject to vibration or movement. This shall include all pendant mounted lighting fixtures and conduit runs at building expansion joints in Class I and Class II hazard areas. Electrical ground continuity shall be provided as noted above.
12. Telephone and data (including other special communication systems such as cable TV) conduits shall be a minimum of 3/4" in size unless noted otherwise, and shall run continuous from outlet to outlet and back to the main terminal board, or shall be stubbed into the ceiling space (6" above the ceiling) and provided with a plastic bushing. Bond conduit stub with a #10 bare copper conductor to the nearest electrical outlet box or continuous metal conduit body. Refer to plans for specific details about the routing of the conduits. All empty conduits shall be provided with a #10 pull wire.
13. Cables installed in plenums without conduit shall be UL classified for low flame resistance and low smoke properties with "FEP" Teflon or Halar insulation suitable for plenum applications per Article 760 of the N.E.C.
14. Conduits below grade shall be installed in conformance with:
    I. Provide all necessary trenching, backfill & removal of trenched material from site.
    ii. The bottom of the trench shall be undisturbed earth or thoroughly compacted fill. The contractor shall be responsible for such compaction. the bottom shall be free of projecting rocks or other foreign matter. Where muck or unstable ground is encountered in the bottom of the trench, it shall be excavated to a depth of at least 12in. below the bottom line of the ducts and replaced with pea gravel in the proper grade. Duct shall not be installed on or in frozen ground. sheeting or bracing shall be provided where necessary to protect the work or adjacent property. Sheeting, bracing, and pea gravel shall be installed by the electrical contractor at no additional expense to the owner. Backfill shall consist of 3 inches of compacted sand below conduits and 12" above conduits. Clean screened fill shall be installed and compacted to 6" below final grade or as detailed in architectural specifications. Final grade patch shall be by E.C.
    iii. Duct joints shall be sealed with waterproof joint compound. Ducts shall be supported at least 3in. above the trench bottom on plastic supports with spacing not exceed 5'. Before duct is placed, supports shall be aligned, set to grade, and placed in concrete to prevent movement when encasement is placed. Ducts shall be secured to supports and spacers placed for tiered ducts.
    iv. All secondary power service underground ducts shall be encased with 3000 psi concrete. All underground ducts shall be 4" in diameter schedule 40 rigid non-metallic (P.V.C.) ducts with ground wires, unless specifically indicated otherwise on the drawings. concrete encasement shall be in accordance with the applicable provisions of the general trades portion of the specifications.
    v. Encasement shall be continuous monolithic pour providing a minimum of 3" completely arownd the ducts. Concrete shall not be poured directly on top of the ducts, but shall be poured from the sides and allowed to flow over the ducts.
    vi. Bell ends shall be installed at all duct terminations or as required by the power company. Fittings, couplings and other accessories, as recommended by the manufacturer, shall be provided and installed.
    vii. Ducts shall be cleaned by rodding and brushing. It shall be the contractors responsibility to assure a full bore opening throughout the duct system.

E: FITTINGS FOR CONDUIT

1. Couplings and connectors for EMT: Die cast zinc, steel, or aluminum compression type. Set screw type will also be permitted. Approved manufacturers, Thomas & Betts, Steel City, O-Z Gedney.
2. Fittings for rigid plastic conduit: Polyvinyl chloride, joints solvent welded in field, providing continuity of mechanical strength and water tightness. Fittings and cement shall be produced by the same manufacturer as the conduit.
3. Fittings for rigid conduit: Cast or malleable iron bodies, zinc or cadmium plated, with full threaded hubs, screw covers and gaskets when located in areas requiring gaskets. Approved manufacturers: Crouse-Hinds, Pyle National, Appleton.
4. Couplings and connectors for flexible steel conduit: Malleable iron or steel, zinc or cadmium plated and shall fasten to the conduit by a clamping action around the periphery. Connectors for "liquid-tight" flexible conduit shall be approved for the purpose and maintain the liquid-tight feature of the installation. Approved manufacturers: Thomas & Betts, Steel City, O-Z Gedney.
5. Bushings: Grounding type, with insulating plastic insert; malleable iron, zinc or cadmium plated, for steel conduit and aluminum alloy for aluminun conduit. Install grounding type bushings as required in the grounding section of this specification.
6. Fittings for conduits : All conduit runs at building expansion joints shall be provided with O-Z type expansion fittings. Sizes shall be as dictated by the conduit size. A bonding jumper shall be securely connected to each conduit. Exterior exposed runs of PVC conduit shall be provided with expansion fittings at intervals not exceeding manufaturers recommendations.
7. Outlet, Pull, Terminal and Junction Boxes in Classified (Hazardous) Areas: Cast boxes shall be copper-free aluminum with integral hubs or box wall thickness sufficient for a minimum of five full tapered threads. Covers shall be screw-on bolt-on through 12" x 12" boxes and hinged removable bolt-on covers for larger boxes. Boxes other than outlet boxes shall be equipped with a breather drain and equipment grounding lug and all boxes shall be, as applicable, for installation in the particular classified (hazardous) areas which are designated on the drawings. Approved Manufactures: Crouse-Hinds, Pyle-National, Appleton, Adalet, O-Z Gedney, or Killark.
8. Conduit Fittings in Classified (Hazardous) Areas: Conduit seals and/or drain seals shall be installed in strict accordance with the NEC in classified (Hazardous) areas designated on the drawings, with special attention to the following:
    i. Entering or cross-connecting enclosures containing arcing or high temperature devices.
    ii. Two-inch conduit and larger entering any enclosure.
    iii. Passing from Division 1 to Division 2, from Division 2 to non-classified areas, with or without a barrier.
    iv. Multi-conductor and shielded cables.

F: ELECTRICAL SUPPORTING DEVICES

1. Supports shall be suitable for the device or equipment to be mounted. All supports shall present a neat appearance, and shall be installed in such a way that they do not detract from the appearance of the space. Supports shall have adequate strength and shall be installed so as to properly support the device or equipment mounted on them.
2. Electrical supports shall be attached to the structure by one of the following methods:
    i. Wood - wood screws.
    ii. Concrete - expansion bolts or cast in place anchors.
    iii. Structural steel - approved brackets or machine bolts.

G: CONDUCTORS

1. Conductors shall be new, 600 volt, 90c, type XHHW, THHN or THWN insulation, stranded copper for feeders rated above 60 amps. Compact aluminum may be used for feeders of 150amps or higher. Minimum size shall be #12 AWG for runs of less than 100 feet total circuit length (out and back for single phase circuits and out only for three phase circuits with no neutral). Use #10 AWG for circuits longer than 100 feet. Other sizes shall be as noted. Control wiring may be #14 AWG. All 120 volt and 277 volt circuits shall have a dedicated neutral conductor. The neutral conductor shall be the same size as the phase conductor. All conductors shall be copper. **The conductor sizes for feeders and branch circuits are designed to maintain a voltage drop of less than 5 percent. (2 percent for feeders and 3 percent for branch circuits)**
2. Compression type lugs and connectors shall be used for all terminations and splices. All terminations shall be permanently identified and numbered, using "Brady" labels or other approved equal. Wire numbering shall be panelboard and circuit numbers. Also, all wiring which passes through junction or pull boxes shall be identified with appropriate numbers. When panelboard/circuit numbers are not appropriate for identification, the contractor shall assign a unique number and record this number on the construction set.

H: WIRING DEVICES

1. Provide wiring devices which are UL listed and which comply with NEMA WD 1 and other applicable UL and NEMA standards. Device Color shall be white unless otherwise noted. Coverplate color shall match device color. Confirm color selection with architect before purchasing and installing.
2. Receptacles: Devices shall be specification grade, NEMA 5-20R configuration, Duplex type, Hubbell Cat No. CR5362, single outlet type, Hubbell Cat No. CR5361, GFCI duplex, Hubbell Cat No. CR GF5362. Catalog numbers for Hubbell are shown for reference purposes and equivalent receptacles by other manufacturers as noted above are also approved. Receptacles shall comply with UL 498 and NEMA WD 1. Special receptacles not shown below shall be specification grade with Nema configuration as noted on the drawings.
3. Ground-fault interrupter (GFI or GFCI) receptacles as indicated above shall be designed for and installed in a 2-3/4 inch deep outlet box without adapter, grounding type, Class A, Group 1, per UL Standard 94.3.
4. Snap switches: Devices shall be specification grade quiet type, 20 A 120/277V, single pole Hubbell Cat No. CS1221, two pole Hubbell Cat No. CS1222, three pole, Hubbell Cat No. CS1223, and four pole, Hubbell Cat No. CS1224. Catalog numbers for Hubbell are shown for reference purposes and equivalent receptacles by other manufacturers as noted above are also approved. Devices shall be specification grade, quiet type ac switches, and shall comply with UL 20 and NEMA WD1.
5. Approved manufacturers for wiring devices:
   Hubbell
   P & S
6. Dimmer switches: solid state dimmer switches conforming to NEMA WD 1, mounted in outlet boxes For incandescent fixtures; switch poles and wattage as indicated, 120 V, 60-Hz, continuously adjustable toggle, single-pole, with on-off switch. Equip with electromagnetic filter to eliminate noise, RF and TV interference. Dimmers to be Lutron "Nova T-Star" series for dimmers rated up to 1500 watts and "Nova" series for 2000 watt dimmers. Lighting switches shown adjacent to dimmers shall be Lutron "Nova T-Star" or standard "Nova" style to match dimmers and shall be provided with a single, one piece coverplate. Color shall be specified by architect.
7. Wiring device accessories
    i. Wall plates: Single and combination, of types, sizes, and with ganging and cutouts as indicated. Provide plates and attachment screws which mate and match with wiring devices to which attached. Provide wall plates with engraved legend where indicated. Provide smooth nylon coverplates for finished areas, and galvanized steel plate for unfinished areas.
    ii. Floor service outlets: Modular, above-floor service outlets and fittings of types and ratings indicated. Construct of die cast aluminum, satin finish. Use design compatible with floor outlet wiring methods indicated. Provide 20 Amperes, 125 Volts, gray duplex receptacles. NEMA configuration 5-20R where indicated. Provide with 3/4 inch or 1 inch NPT, 1 inch long, locking nipple for installation where compatible with wiring method.
8. Wiring device installation:
    i. Install switches and receptacles in outlet boxes as specified elsewhere in this specification. Install single pole toggle switches so that the switch is on in the "up" position. Install receptacles with the U-shaped ground slot at the top or to the left.
    ii. Duplex receptacles shall be wired with the neutral wire to the silver binding screw.
    iii. Three phase receptacles shall be wired such that all have the same phase sequence.
    iv. The receptacle circuit and panel number shall be indicated on the inside of all outlet boxes, or directly on the conductors by means of a wire labeling system.
    v. Combination switch/receptacle shall be installed in a two gang box with a combination switch/receptacle coverplate. Connect the receptacle to the lighting circuit ahead of the switch and locate the switch on the side of the box closest to the door. Note, this method is to be used only for 120 Volt lighting system. 277 Volt lighting switches and 120 Volt receptacles shall be located in separate boxes.
    vi. Confirm final location of all wiring devices and outlet boxes with owner/architect prior to rough-in.
9. Wiring devices listed or noted on the drawings as weatherproof shall be provided with a cover which maintains the weatherproof integrity when the cover is closed. Receptacles noted as suitable for operation in a wet locations shall be provided with a cover which will allow the receptacle to remain operational during wet conditions with a plug inserted into the receptacle.

I: LIGHTING

1. Lighting Fixtures: see drawings for manufacturers catolog numbers.
2. Indoor Installation:
    i. The Contractor shall refer to the Architectural drawings for ceiling type, construction and details of mounting. Adjust fixture trim ring as required for correct mounting in ceiling fixture is to be installed. All fixtures shall be supported per NEC Article 410.
    ii. Suspended ceiling systems shall be supported for fixture installation as noted above, and as a minimum condition, as noted in ANSI/ASTM C636-76, par. 2-7, CEILING FIXTURES.
    iii. Install fixtures in accordance with the Architectural Reflected Ceiling Plans. Where substantial differences may occur between the Reflected Ceiling Plans and the Electrical Plans, inform the Architect/Engineer for resolution of the discrepancy.
    iv. The Contractor shall coordinate fixture construction details with ceiling system in which they are installed, i.e.: support system dimensions, flanges where required, acoustical tile or pan pattern, etc.
    v. Rows of fixtures shall be installed accurately as to line and level. Fixtures shall be securely mounted so that they will not be distorted by handling incidental to normal maintenance.
    vi. Surface type fluorescent lighting fixtures mounted on acoustical ceiling must be coordinated with the Architectural drawings in order that a main "T" runner will be placed in the center of each fixture and/or each row of fixtures. Main "T" runner shall be of at least the same length as the lighting fixture and shall be supported to carry at least twice the weight of the lighting fixture.
    vii. All fixtures shall be securely supported with approved hangers. Where fixtures will be installed in suspended ceilings, any Code-required additional ceiling supports as approved by the Architect, shall be provided by this Contractor.
    viii. Provide supports for all lighting fixtures as detailed on the Drawings, as specified, or as required by the fixture specified. Fixtures installed in unfinished areas (areas including but not necessarily limited to warehouses, factory areas, manufacturing areas, office spaces without lay-in ceilings, and spaces above lay-in ceilings) shall not be fastened directly to the structure. In these cases, unistrut type channel along with the appropriate fasteners and clips shall be used to support the fixtures.
    ix. Fixtures shall not hang directly from conduit boxes unless the boxes have been specifically designed for such purposes. These boxes shall be supported independent of the conduit system and shall not rely upon the conduit for support.
    x. Lay-in troffers in suspended ceilings and surface type fixtures mounted to suspended ceilings shall be secured mechanically by screws, rivets, clips, etc. as per Article 410, NEC. Additionally, lay-in fixtures shall also be supported by two independent support wires running from diagonally opposite corners of the fixture to the overhead structure. Surface mount fixtures shall be additionally supported by means of at least two clips for each fixture which surround the T-bar and are tied to the overhead structure with a separate wire. The surface fixtures shall be secured to these clips.
    xi. Plaster frames shall be furnished for each recessed fixture installed in plaster ceilings and walls.
    xii. Pendant mounted fixtures shall utilize pipe stems to mount fixtures at elevations as noted on the drawings. Chains or cords will not be accepted. Wherever the mounting surface slopes, fixtures shall be provided with universal type fixture hangers to allow the fixture to hang plumb.
    xiii. Fixtures shall be installed with due regard for beams, piping, ductwork, and other mechanical or plumbing equipment.
    xiv. Branch circuit conductors shall be run in fluorescent fixture wiring channels only as permitted by the N.E.C. The Contractor shall be responsible for providing all necessary boxes and conduit for an approved installation.
    xv. Where a modular wiring system is installed, all ceiling mounted recessed fluorescent lighting fixtures shall be furnished with suitable receptacles to match the modular wiring system furnished and installed by this Contractor. Each fixture shall be equipped to permit either single or multiple fixture circuit wiring as is appropriate for the fixture type.
    xvi. When fixtures are installed in a fire proof ceiling, the fixture shall be U. L. listed to maintain the fire proof rating or the fixture shall be fire proofed by the electrical contractor using a U. L. accepted standard. see architectual drawings for ceiling ratings.
    xvii. At the time of final inspection all fixtures and equipment shall be complete with all required glassware and/or reflectors, clean and free of defects. Any glass-ware, or reflectors, etc., which have defects shall be replaced at the Contractor's expense before final acceptance.
    xiii. All lamps shall be in working order at the time of final acceptance of the work by the Owner and Architect/Engineer. This Contractor shall replace all defective lamps with new lamps until the work is finally accepted.
    xix. Low voltage lighting transformers should be protected by fuses. Fuse sizes shall be as recommended by the transformer manufacturer. Busman type HRS or Littelfuse 155020, fuse holders are recommended.
    xx. Solid state transformers for low voltage lighting shall not be used for dimming applications unless the transformer and dimmer are a U. L. listed assembly specifically intended for the application.
3. Outdoor and Site Lighting Installation:
    i. Site lighting luminaires shall be as called for on the drawings.
    ii. Bases for site and roadway luminaires where required, shall be augered into the earth and concrete shall be poured into the augered hole without a sona tube below grade to allow the concrete to fill the natural crevices in the earth. Portion of base above grade shall be formed using a sonatube. Exposed portion of finished base shall be smoothed, and voids filled with grout.
    iii. Bases shall have reinforcing steel as indicated on the contract drawings and shall be Class 'A' concrete.
    iv. Anchor bolts for poles shall be performed for the pole bolt circle at the factory.

J. Panelboards

1. Panelboards for 480/277, 208/120, or 240/120 panels shall be dead front type, conforming to NEMA standard PB-1-1-71 and UL 67, and consisting of three phase, three or four wire solid neutral, main lugs or main overcurrent device as indicated, branch overcurrent devices as noted and equipment ground bar, all in a surface or flush mounted code gauge galvanized sheet steel cabinet as indicated. Enclosure to be NEMA 1 unless noted otherwise with primer and finish paint of the manufacturers standard. All busing shall be copper.
    i. Standard enclosure shall be NEMA 1, unless noted otherwise, with primer and finish paint of the manufacturers standard. Cabinets shall be oversized where necessary to accommodate the entrance of several large conduits and/or when necessary to avoid overcrowding except cabinets for panels mounted flush shall be not more than 22 inches wide and 5-3/4 inches deep unless otherwise approved by the architect/engineer. **All panels (branch & distribution style) within HFT space shall have trims that contain hinged doors and shall be equipped with flush chrome plated combination key locks and catches.** Locks shall be all keyed alike and two keys furnished to the owner.
    ii. Column-type enclosures shall be similar to the standard enclosure except panel shall be approximately 8-1/2 inches wide for mounting between building column webs as indicated, and provided with extension trough and pullbox with neutral bar when shown on the drawings.
    iii. Where spaces are noted on the drawing, equip the panelboard with bus and all necessary hardware for future circuit breaker installation.
    iv. Metal frame and plastic covered typewritten card shall be mounted inside each panel door. Information entered onto the cards shall correspond to the circuit numbers as installed in the field.
2. Overcurrent Protective Devices
    i. General use circuit breakers for panelboards shall be bolt-on molded plastic case type, 1, 2, or 3 pole, quick-make, quick-break, with trip-free operating handle, position indicating and thermal-magnetic trip device. Furnish 2 and 3 pole breakers with common operating handle and common trip mechanism. All circuit breakers used for switching applications shall be U.L. listed type "SWD" for that application. all circuit breakers used for protection of motors, refrigeration equipment, or HVAC equipment shall be U.L. listed type "HACR" for that application.
    ii. Circuit breakers furnished with panelboards shall conform to the following interrupting ratings (symmetrical) in amperes unless otherwise noted:

Voltage Rating	Trip Rating	No. of Poles	I.c. Amperes (Symmetrical)	Frame Size
120	15-100 ampere	1	22,000	100 amp
240	15-100 ampere	2&3	22,000	100 amp
240	125-225 ampere	2&3	22,000	225 amp
240	250-400 ampere	2&3	42,000	400 amp
277	15-100 ampere	1	25,000	100 amp
480	15-100 ampere	2&3	25,000	100 amp
480	125-225 ampere	2&3	30,000	225 amp
480	250-400 ampere	2&3	42,000	400 amp
480	400-800 ampere	2&3	42,000	800 amp

    iii. Ground fault circuit interrupters shall be similar to general use circuit breakers specified; 15-20 ampere, 1 or 2 pole with 5ma sensitivity. Furnish when indicated on drawing.
    iv. Fuses over 600 ampere shall be Bussman Hi-cap time delay type KRP-C, or Gould Shawmut A4BQ (601-2000 ampere) or Gould Shawmut A4BY (2001-6000 ampere) 600 volt, UL Class l with minimum interrupting rating of 200,000 ampere rms symmetrical.
    v. Fuses 600 ampere or below shall be Bussman low-peak dual element type LPN-RK (250 volt) or LPS-RK (600 volt) or Gould Shawmut Amp-trap type A2K (250 volt) or A6K (600 volt) UL Class RK1 with minimum interrupting rating of 200,000 ampere rms symmetrical.
    vi. Provide spare circuit breakers installed in panelboards as indicated on the panel schedule as shown on the drawings. Provide 10% spare (minimum of 3) of each type and rating of fuses installed.
3. Safety Switches
    i. Provide fusible or non-fusible safety switches as indicated on the drawings. Switches shall be quick-make, quick-break, heavy duty visible blade type, horsepower and I squared T rated. Use NEMA 12 enclosures in factory areas, NEMA 1 enclosures in other indoor areas and NEMA 4X stainless steel type enclosures outside unless otherwise indicated on the drawings. Furnish three pole, single-throw switches unless otherwise indicated, with current and voltage ratings as indicated.
    ii. Provide safety switches with an external operating handle interlocked with the cover door to prevent the door from being opened while the switch is in the "on" position except by operating an inconspicuous interlock defeating mechanism. Provide means for padlocking the operating handle in the "off" position. Equip switches with auxiliary contacts when indicated.
    iii. Fuse clips shall be rejection type for fuses specified (up to 600 ampere). Fuses clips for 601 ampere to 6000 ampere shall be suitable for UL Class l fuses.
4. Transformers
    i. Transformers shall be indoor dry, two winding, quiet type, with ventilated enclosure, conforming to NEMA standards, 220 degrees celcius insulation for continuous operation in a 40 degree celsius ambient temperature with a temperature rise not to exceed 80 degrees celsius. Provide a minimum of two 2-1/2% FCAN and four 2-1/2% FCBN taps in the primary winding for transformers over 25 KVA and a minimum of two 2-1/2% FCBN taps for transformers 25 KVA and below. Transformers 25 KVA through 75 KVA shall be designed for floor or wall mounting.
    ii. Sound levels shall not exceed those established in ANSI standard C89 shown in the following table:

KVA	dB level
0-150	42

    iii. Furnish transformers having voltage, KVA ratings and connections as indicated on the drawings.
5. Panelboard and Transformer Installation
    i. Mount panelboards at uniform height throughout the building, and such that the top switch is not more than 79 inches above floor when measured to the center of the switch handle.
    ii. Install handle guards on all breakers for night lighting, emergency, and similar circuits when indicated.
    iii. Each panelboard shall be identified with a legend plate of lamicoid plastic inside the door for panelboards in finished areas and on the outside of panelboards in unfinished areas with the panel designation as shown on the drawings.
    iv. Install not less than two spare 1-1/4 inch conduits from each flush mounted panel to an accessible area above the ceiling.
    v. When branch circuits are not scheduled on the drawing, they shall be arranged to balance the phase loads on each panelboard and the loads shall be equally distributed on each of the phases of the panelboard.
    vi. Mount panelboard, safety switches, and similar equipment securely to walls or steel supports. Equipment mounted on the building perimeter foundation walls shall be shimmed at least 1/4 inch from the wall to permit back ventilation.
    vii. Provide supports for truss mounted and wall mounted transformers. All transformers which are mounted above panelboards shall be mounted away from the wall by an amount equal to the depth of the panelboard. The width of the panelboard shall also be maintained clear behind the transformer.
    viii. Approved Manufacturers for Power Distribution Equipment:
    General Electric Company — Siemens
    Cutler Hammer/Westinghouse — Cleveland Switchboard Co.
    Square D

K: RACEWAY AND GENERAL GROUNDING

1. The entire power, lighting system as well as building structure, mechanical & plumbing systems, fences & simalar metal objects shall be permanently and effectively grounded in accordance with the minimum requirements of the National Electrical Code, or as specified herein, whichever is the more stringent.
2. Ground conductors shall be stranded, annealed copper with green insulation (insulation material as specified for general building use).
3. The entire power and lighting system shall be permanently and effectively grounded including panels, starter enclosures, motor frames, and other exposed, non-current carrying parts of the electrical equipment. The equipment ground conductor shall be separate from the neutral conductor and shall not be used as a load current carrying conductor.
4. Any item covered by the preceding paragraph which is within six feet of grounded metal and not directly interconnected with the grounded metal shall have a flexible bare copper cable connection not smaller than #6 AWG to the grounding system.
5. Where building type conductors are installed in a raceway, a green equipment grounding conductor shall be included in each raceway system.
6. Lighting fixtures permanently connected to the conduit system shall be grounded by means of a grounding conductor run inside the conduit. Fixtures mounted on trollies or portable lighting units shall be grounded by means of a grounding conductor in the portable cord.
7. Convenience outlets shall be self-grounding type or shall have a green grounding conductor installed from the ground lug on the outlet to the outlet box.
8. Motors shall be connected to the equipment ground conductor with a conduit grounding bushing and with a bolted solderless lug connection on the metal frame.
9. The armor of interlocked armor cable, wiring channels, cable trays, and all metallic conduit including rigid, EMT, and flexible conduit shall be connected at each end to the equipment ground conductor utilizing a conduit grounding bushing. Junction boxes and other enclosures (sizes above 5" x 5") shall utilize an equipment ground lug to securely bond the equipment grounding conductor to the enclosure.
10. Where any grounding conductor requires physical protection to maintain grounding integrity, it shall be run through a non-ferrous conduit or bonded to a continuous steel conduit at both ends.
11. The grounding electrode system shall consist of ¾" diameter x 10' copper clad ground rods. Exterior ground rods shall be driven to 12" below finished grade & be provided with a 12" diameter x 30" long rigid pvc pipe w/ screw cover for inspection purposed. center ground rod in pipe & install pipe flush with grade. pvc pipe and cover shall be traffic rated. interior ground rods shall be driven to 6" above grade & installed as close to a wall as possible. all connections to ground rods shall be cadweld type.

L: EXECUTION

1. The contractor shall exercise due caution when working so as not to damage that portion of the electrical system that is to remain.
2. Positively no conduit or wire removed shall be reused in the new installation.
3. All circuits shall be identified on the panel directories by this contractor. At the completion of the job, the contractor shall provide each panelboard with a new typed directory with the existing loads as noted from the old directory and the new loads as installed.
4. The contractor shall keep on the job, one complete set of working drawings on which he shall record any deviations or changes from such contract drawings made during construction. Record drawings shall show changes in the following:
    i. Size, type, capacity, etc. of any material, device or piece of equipment.
    ii. Location of any device or piece of equipment.
    iii. Location of any outlet or source in the building service system.
    iv. Routing of any conduit, or other building electrical service.
    These drawings shall be kept clean and undamaged, and shall not be used for any other purpose than recording deviations from working drawings and exact locations of concealed work. After the job is completed, this set of drawings shall be delivered to the owner in good condition, as a permanent record of the installation as actually constructed.

M: CUTTING AND REPAIRING

1. All necessary cutting in walls, floors and other such work shall be neatly and carefully done and the work shall be repaired in an approved and workmanlike manner. No cutting into the structural parts of the building, which may impair its strength, shall be permitted without the prior written approval of the owner. If such cutting is permitted, the area shall be suitably reinforced to restore the structural integrity of the work to its designed value.
2. The electrical contractor shall be responsible for all damage to work of his, or other trades, caused by his work or through the neglect of his workmen. All patching and repairing of damaged work shall be done by the trade which originally installed it, at the direction of the owner's representative, and the cost of such repair shall be paid by the electrical contractor.
3. Absolutely no cutting of wall, floor or other finished material or fastening of electrical components to the exposed surfaces of finished areas will be permitted.

N: TESTING

1. The testing work shall include all labor, materials, tools, and equipment to perform and record all necessary tests and adjustments of equipment, including Load Center Unit Substations, Motor Control Centers, High Voltage Cable, 600 Volt Wire and Cable, and Grounding, as indicated on the drawings, specified herein, or where necessary to verify performance requirements.
2. Inspection tests shall provide a visual inspection of electrical equipment for manufacturing, shipping or installation defects.
3. Acceptance tests shall show that the methods and materials used in the installation of equipment conform to applicable codes and standards, and the manufacturers installation instructions, and to determine that the equipment involved may be energized for operational tests.
4. Operational tests shall show the electrical equipment will perform the functions for which it was designed.
5. The services of a recognized independent testing laboratory shall be engaged to conduct all tests described herein with the exception of routine insulation resistance, continuity and rotation tests.
6. Perform all acceptance and operational tests in the presence of the Architect/Engineer. Notify the Architect/Engineer of time of test at least two (2) days prior to testing. Notify manufacturers of electrical equipment to permit their representatives to witness the test should they so request.
7. Submit test reports, including complete data and actual readings taken, for all equipment tested to the Architect/Engineer for approval after each test performed. Do not energize any equipment for operating tests until data has been approved. Include copies of the final approved test reports upon completion of the work as part of the required operating and maintenance data to be furnished as specified in Division 1.
8. Give each power feeder and subfeeder cable (600 Volt Wire and Cable) a continuity and megger test. Isolate power cables to be megger tested by opening switches at each end of cable prior to testing. Apply megger tests, using a 1000 volt megger, between each conductor and ground with the other two conductors in the conduit grounded to the same ground. Minimum acceptable readings for disconnected cables shall be 1 (one) megohm. Cable must pass megger test to be reported as acceptable.
9. The following test and inspections shall be made on the grounding system.
    i. Inspect ground conductors and connections for compliance with plans and specifications and for satisfactory workmanship. After installation of the grounding electrodes, provide ground resistance testing prior to the interconnection of other grounding systems. Do not perform tests under unusually wet weather; tests should be performed during normal weather conditions.
    ii. Reports shall include all resistance readings obtained, temperature, humidity and condition of the soil at the time of the tests.
10. Operational tests shall be performed on all electrical systems, and shall include, but not be limited to, building lighting system, panelboards, motor starters and control devices, alarm circuits and site lighting equipment.

O: GUARANTEE

1. Material, equipment and installation shall be guaranteed for a period of one year from the date of acceptance. Defects which appear during that time period shall be corrected by this contractor at his expense.

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033582
N.C. PROFESSIONAL ENGINEER No. 033582

DO NOT SCALE THESE DRAWINGS

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

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ELECTRICAL SPECIFICATIONS

DATE 05/17/24

JOB NO. 23475

E0.1
SHEET NO.

MECHANICAL EQUIPMENT SCHEDULE

MARK	DESCRIPTION	LOAD	VOLTAGE & PHASE	PANEL	CIRCUIT	C.B.	WIRE	NOTES
RTU-1	ROOF TOP UNIT	61 MCA	208V-3PH	M	1,3,5	80/3	4-3	1,3
RTU-2	ROOF TOP UNIT	52 MCA	208V-3PH	M	2,4,6	60/3	6-3	1,3
RTU-3	ROOF TOP UNIT	52 MCA	208V-3PH	M	7,9,11	60/3	6-3	1,3
RTU-4	ROOF TOP UNIT	61 MCA	208V-3PH	M	8,10,12	80/3	4-3	1,3
UH-01	UNIT HEATER	1.8 KW	120V-1PH	P	22	30/1	10-2	1,3
UH-02	UNIT HEATER	4 KW	208V-1PH	L	39,41	25/2	8-2	1,2
EF-1	EXHAUST FAN #1	0.1 KW	120V-1PH	P	41	20/1	12-2	1,2,4
EF-2	EXHAUST FAN #2	0.1 KW	120V-1PH	P	41	20/1	12-2	1,2,4
EF-3	EXHAUST FAN #3	0.1 KW	120V-1PH	P	35	20/1	12-2	1,2,5
EF-4	EXHAUST FAN #4	0.1 KW	120V-1PH	P	35	20/1	12-2	1,2,5

MECHANICAL EQUIPMENT SCHEDULE NOTES:

1. VERIFY LOAD, LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL & PLUMBING DESIGN DRAWINGS, SHOP DRAWINGS, AND MECHANICAL & PLUMBING CONTRACTOR IN THE FIELD. ADJUST CONNECTION DEVICE, MOUNTING HEIGHT, WIRE, CONDUIT AND CIRCUIT BREAKER AS REQUIRED IN ORDER TO POWER THE EQUIPMENT. COORDINATE WITH THE EQUIPMENT INSTALLING CONTRACTOR PRIOR TO ROUGH-IN.

2. PROVIDE A LOCAL NEMA 3R HEAVY DUTY NON FUSED DISCONNECT SWITCH SIZED PER EQUIPMENT NAMEPLATE DATA.

3. PROVIDE A LOCAL NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH SIZED AND FUSED PER EQUIPMENT NAMEPLATE DATA. WIRE AHEAD OF THE INTEGRAL UNIT BREAKER.

4. CONTROL CIRCUIT WITH TIME CLOCK.

5. WIRE TO 120 VOLT TSTAT AND LOUVER.

NEW HORIZONTAL CONDUITS TO BE INSTALLED ABOVE 12'-0" A.F.F. OR AS HIGH AS POSSIBLE IN JOIST SPACE AT SALES FLOOR WALLS.

ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR ELECTRICAL DEVICES AND ACCESSORIES PROVIDED BY HARBOR FREIGHT TOOLS

ELECTRICAL CONTRACTOR TO REVIEW AND COMPLY WITH THE REQUIREMENTS OF GENERAL NOTES ON SHEET A0.2

CONDUITS OR MOUNTING HARDWARE SHALL NOT BE DIRECTLY MOUNTED TO THE ROOF DECK.

OUTLET COVER PLATES SHALL MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE.

GENERAL ELECTRICAL DEMOLITION NOTES

A) NO ATTEMPT HAS BEEN MADE TO INDICATE ALL EXISTING ELECTRICAL DEVICES, LIGHT FIXTURES, COMMUNICATION DEVICES, WIRING, CONDUIT, ETC. TO BE REMOVED AND/OR RELOCATED. HOWEVER, THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE EXTENT OF DEMOLITION PRIOR TO SUBMITTING BID. **ALL ITEMS SHOWN ON THESE DRAWINGS ARE NEW UNLESS OTHER WISE NOTED.**

B) REMOVE AND/OR RELOCATE EXISTING ELECTRICAL DEVICES NOT NOTED AS EXISTING TO REMAIN. COORDINATE SUCH CONDITIONS WITH ARCHITECTURAL DRAWINGS.

C) EXISTING CONDUITS, CIRCUITS OR SYSTEMS IN WALLS OR CEILING BEING REMOVED WHICH SERVE SURROUNDING UN REMODELED AREAS SHALL BE REWORKED AND MAINTAINED.

D) EXISTING CONDUITS, CIRCUITS OR SYSTEMS PASSING THROUGH THE REMODELED AREAS WHICH SERVE UNREMODELED AREAS SHALL REMAIN AND BE PROTECTED DURING DEMOLITION AND REMODELING, AND SHALL BE RELOCATED AND REROUTED.

E) CONTINUITY OF CIRCUITS INTERRUPTED BY REMOVAL OF ELECTRICAL DEVICES SHALL BE MAINTAINED.

F) ALL UNUSED WIRE (POWER & COMMUNICATION) SHALL BE REMOVED.

G) ALL EXISTING WIRING (POWER & COMMUNICATION) THAT IS TO REMAIN SHALL BE REWORKED OR REPLACED WITH CODE COMPLIANT MATERIAL & SUPPORTS. ANY EXISTING SURFACE MOUNTED CONDUITS SHALL BE REMOVED OR RELOCATED SO THAT THEY ARE IN THE JOIST SPACE OR WITHIN WALL CAVITIES.

H) EXISTING LIGHT FIXTURES THAT REMAIN OR ARE BEING RELOCATED SHALL BE CLEANED AND RE-LAMPED WITH 4' T8 LAMPS, BROKEN LENSES SHALL BE REPLACED. PROVIDE NEW T8 BALLASTS IF REQUIRED.

I) EXISTING LIGHT FIXTURES, ELECTRICAL / TELECOMMUNICATION DEVICES, PANELBOARDS ETC. THAT ARE NOT TO BE REMOVED SHALL BE NOTED AS EXISTING TO REMAIN ON THE DRAWINGS. SEE ARCHITECTURAL & MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION ON SCOPE OF DEMOLITION.

POWER PLAN NOTES

01 PROVIDE A JUNCTION BOX ON WALL ABOVE CEILING FOR RACK POWER. RUN MC CABLE IN WALL CAVITY TO BEHIND RACK, PENETRATE RACK & INSTALL A SEPARATE ORANGE ISOLATED GROUND QUAD RECEPTACLE MOUNTED IN RACK. COORDINATE EXACT LOCATION WITH HFT PRIOR TO INSTALLATION.

02 PROVIDE A DEDICATED CIRCUIT & WIRE THRU TIME CLOCK. UTILIZE SAME CIRCUIT IF THERE ARE TWO EXHAUST FANS.

03 DEDICATED ISOLATED GROUND QUAD OUTLET ON DEDICATED CIRCUIT. COLOR TO BE ORANGE.

04 DEDICATED ISO GROUND QUAD OUTLET MOUNTED WITHIN THE CASHWRAP SO THAT BOTTOM OF QUAD IS 2" ABOVE LOWEST SHELF. SEE DETAIL ON E1.1A. COLOR TO BE ORANGE.

05 COORDINATE ROUGH-IN LOCATION WITH MANUFACTURERS SHOP DRAWINGS PRIOR TO INSTALLATION. PROVIDE STANDARD 20A-120V RECEPTACLE & WIRE TO A GFCI TYPE CIRCUIT BREAKER.

06 DUPLEX OUTLET MOUNTED ON WALL AT 12" ABOVE WINDOW. MOUNT FLUSH IN CEILING IF CEILING IS WITHIN 12" OF TOP OF WINDOW.

07 DUPLEX OUTLET MOUNTED FLUSH IN WALL ABOVE GLASS FOR NEON SIGNS BY T.G.C.

08 J-BOXES WITH SERVICE DISC SWITCH FOR SIGN CIRCUITS. COORDINATE ROUGH-IN REQUIREMENTS WITH SYSTEM CONTRACTOR. COORDINATE EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.

09 15'-0" HIGH 2 COMPARTMENT POWER POLE TO BE FURNISHED BY HFT AND INSTALLED BY EC. EC SHALL EXTEND UNISTRUT FROM THE POWER POLE UP TO THE ROOF STRUCTURE AND CONNECT TO UNISTRUT SECURED TO ROOF STRUCTURE (UNISTRUT TO BE PAINTED TO MATCH THE CEILING). SEE ARCHITECTURAL DRAWINGS FOR ROOF STRUCTURE HEIGHTS.

10 24 VAC WEATHERPROOF PUSH BUTTON MOUNTED +48" CONNECT TO LOAD SIDE OF TRANSFORMER. DORTRONICS #WRS276-HD29.

11 SERVICE BELL MOUNTED TO BOTTOM OF ROOF STRUCTURE. EDWARDS #340-6G5/598-348.

12 REMOVE EXISTING ELECTRICAL PANELS IF NOT SHOWN ON THIS PLAN OR E2.0 AS EXISTING TO REMAIN.

13 EXISTING 600A SECONDARY CONDUCTORS, CT BOX, METER, 600A DISCONNECT SWITCH, AND MAIN DISTRIBUTION PANEL TO REMAIN. (LANDLORD TO PROVIDE AND INSTALL UNDER SEPARATE CONTRACT)

14 DUPLEX RECEPTACLE FOR SUSPENDED MONITOR. E.C. SHALL PROVIDE MC CABLE & CAST BOX & MOUNT RECEPTACLE ON MONITOR ARM. COORDINATE EXACT LOCATION WITH COMMUNICATIONS CONTRACTOR.

15 208/240V CHARGER WIRED & INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE ROUGH-IN REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.

16 UTILIZE EXHAUST FAN CIRCUIT & CONNECT POWERED LOUVER AND CONTROL TRANSFORMER LOCATED IN DUCT WORK WITH (2)#12,#12GND. INSTALL CONTROL TRANSFORMER (PROVIDED BY MECHANICAL CONTRACTOR). COORDINATE ROUGH-IN REQUIREMENTS WITH MECHANICAL CONTRACTOR. WIRE TO LINE VOLTAGE TSTAT.

17 LOCATION OF FIRE ALARM CONTROL PANEL IF REQUIRED. ELECTRICAL CONTRACTOR TO LABEL PANEL & CONNECT TO CIRCUIT P-32 WITH (2)#12,#12GND-3/4"C.

18 LANDLORD TO PROVIDE 1-1/2" EMPTY CONDUIT WITH PULL STRING FROM EXISTING TELEPHONE DEMARK TO HFT PHONE BOARD.

19 3 GANG RECESSED METALLIC JUNCTION BOX WITH METAL OVERALL COVER PLATE MOUNTED FLUSH WITH DRYWALL MOUNTED AT 43 INCHES TO THE BOTTOM OF THE BOX FOR THE EMS SYSTEM TOUCHSCREEN CONTROLLER. STUB (1) 3/4" EMT CONDUIT ABOVE CEILING WITH GROMMET FOR COMMUNICATION CABLES. STUB A SECOND EMT 3/4" CONDUIT TO A TWO GANG DEEP BOX MOUNTED 6" ABOVE CEILING FOR POWER SUPPLY WIRING. FROM TWO GANG BOX MOUNTED ABOVE CEILING HOMERUN BRANCH CIRCUIT TO PANEL. 2 GANG BOX ABOVE CEILING AND 3 GANG BOX MOUNTED AT 43 INCHES SHALL BE WITHIN 6 FEET OF EACH OTHER. E.C. SHALL PROVIDE A 2 INCH DIAMETER HOLE GROUND SMOOTH IN METALLIC COVER PLATE. SEE DRAWING EMS-1 FOR INSTALLATION DETAILS.

20 SURFACE MOUNTED TERMINAL BOX MOUNTED NEXT TO SECURITY PANEL FOR EMS TO SECURITY SYSTEM INTERFACE.

21 ELECTRICAL CONTRACTOR SHALL INSTALL THE LIGHTING CONTROL PANEL (LCP). E.C. SHALL PROVIDE 120 VOLT POWER FOR THE POWER SUPPLY AND WIRE ALL LIGHTING CIRCUITS THROUGH THE CONTACTORS AS SHOWN ON DRAWING E2.0 AND 2.1.

22 THE ELECTRICAL CONTRACTOR SHALL INSTALL THE ENERGY MANAGEMENT CONTROL PANEL (SLP). E.C. SHALL PROVIDE THE 120 VOLT CIRCUIT, (2) 1" CONDUITS STUBBED TO JOIST SPACE FOR CONTROL WIRING AND (1) 1" CONDUIT BETWEEN THE SLP AND SLP FOR CONTROL WIRING. SEE DRAWING E2.0 AND THE EMS DRAWINGS FOR FURTHER DETAILS.

23 E.C SHALL PROVIDE HEAVY RIGID STEEL CONDUIT THRU RTU CURB AND INSTALL ON RTU ON SIDE OPPOSITE OF THE CONDENSING FAN. SEE EMS DRAWINGS FOR DETAILS. EMS VENDOR SHALL WIRE AND INSTALL OSD.

24 ELECTRICAL CONTRACTOR SHALL INSTALL A RECEPTACLE MOUNTED AT 9'6" AFF. CONTROLLED BY A SWITCH MOUNTED AT 48" AFF AND AN UNSWITCHED RECEPTACLE AT 24" AFF ALL CONNECTED TO THE CIRCUIT INDICATED ON THE FLOOR PLAN.

25 STUB 3/4" CONDUIT FROM THE BOTTOM OF THE SECURITY PANEL TO 95" AFF (BELOW CEILING). STUB TO BE WITHIN 6" HORIZONTAL OF QUAD RECEPTACLE. TYPICAL FOR 2. SECURITY CONTRACTOR SHALL ROUTE SECURITY PANEL POWER CABLE THRU CONDUITS PROVIDED.

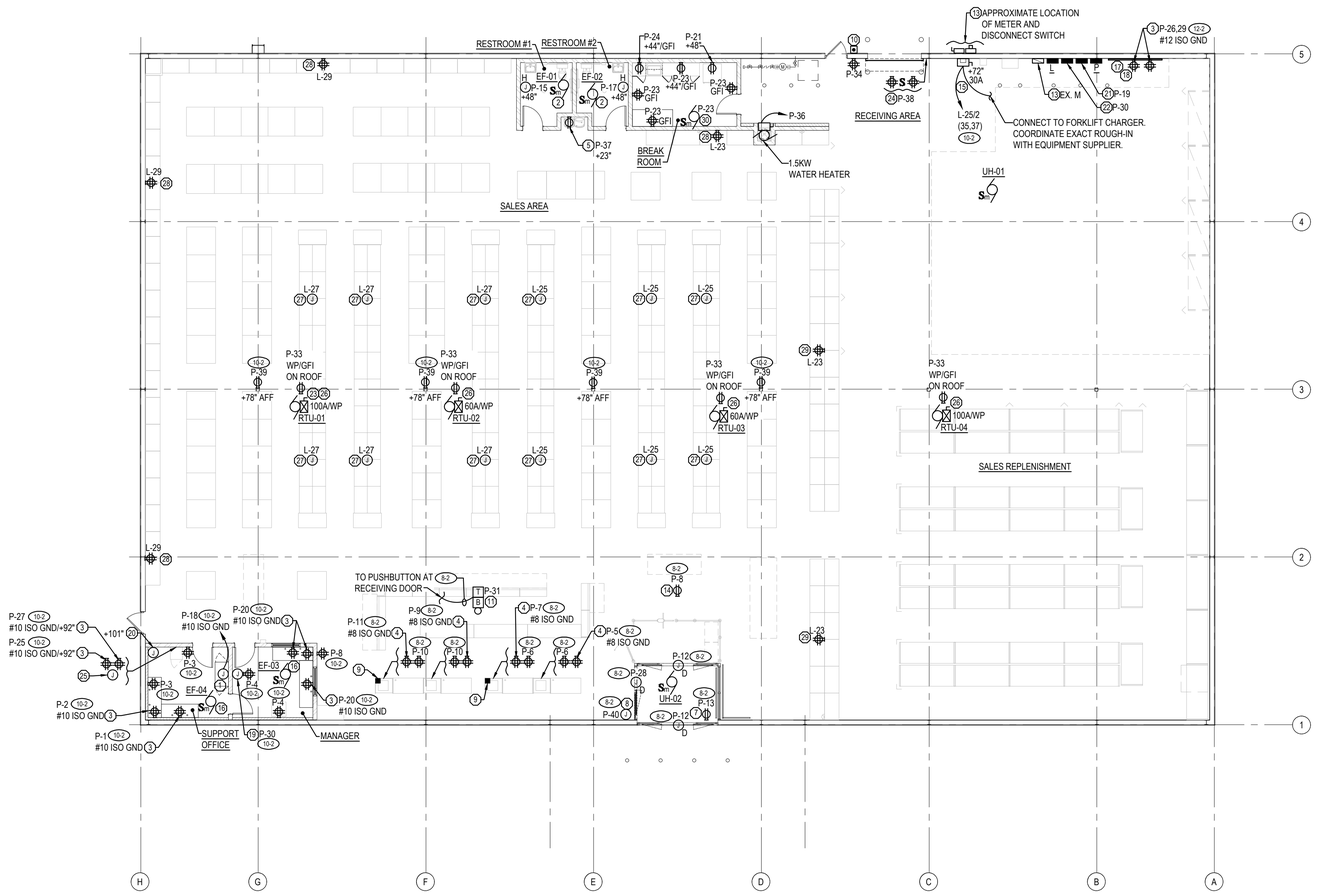
26 ELECTRICAL CONTRACTOR SHALL INSTALL A HEAVY DUTY NEMA 3R DISCONNECT SWITCH. PROVIDE REJECTION TYPE FUSES SIZED PER THE MOCP OF THE UNIT. CONNECT SWITCH AHEAD OF THE INTEGRAL UNIT MOUNTED CIRCUIT BREAKER. THE FUSED DISCONNECT SWITCH IS REQUIRED TO MINIMIZE THE AVAILABLE SHORT CIRCUIT CURRENT AT THE MECHANICAL EQUIPMENT.

27 ELECTRICAL CONTRACTOR SHALL PROVIDE A JUNCTION BOX AND BRANCH CIRCUIT WIRING MOUNTED IN JOIST SPACE FOR FUTURE POWER DROP TO FURNITURE.

28 THE ELECTRICAL CONTRACTOR SHALL INSTALL A QUAD RECEPTACLE AT 8'-6" TO THE BOTTOM OF THE OUTLET. PROVIDE A RECESSED SYSTEM WHERE WALLS ARE FURRED. FOR SURFACE MOUNTED APPLICATIONS, RUN A 3/4" EMT CONDUIT VERTICALLY DOWN WALL FROM JOIST SPACE TO OUTLET. MOUNT RECEPTACLE IN A GRAY OR TO MATCH WALL FINISH CAST BOX AND PAINT EMT CONDUIT TO MATCH WALL SURFACE.

29 ELECTRICAL CONTRACTOR SHALL PROVIDE A JUNCTION BOX WITH SWIVEL BALL HANGER FITTING IN JOIST SPACE ABOVE RECEPTACLE. INSTALL A VERTICALLY RUN 3/4" IMC CONDUIT FROM THE BALL HANGER TO A QUAD RECEPTACLE MOUNTED IN A WHITE CASTE BELL BOX MOUNTED AT 8'-6" TO THE BOTTOM OF THE BOX. PAINT THE WHOLE INSTALLATION GRAY OR TO MATCH WALL FINISH.

30 UTILIZE LOCAL RECEPTACLE CIRCUIT AND CONNECT POWERED LOUVER AND CONTROL TRANSFORMER LOCATED IN DUCT WORK WITH (2) #12, #12 GND. INSTALL CONTROL TRANSFORMER (PROVIDED BY MECHANICAL CONTRACTOR). COORDINATE ROUGH-IN REQUIREMENTS WITH MECHANICAL CONTRACTOR. WIRE TO LINE VOLTAGE THERMOSTAT.



POWER PLAN

SCALE 3/32" = 1'-0"

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE ERWIN, NC 28339

REVISIONS

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Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24

NORTH CAROLINA PROFESSIONAL ENGINEER BRIAN M. SCHULER SEAL 033582

N.C. PROFESSIONAL ENGINEER No. 033582

POWER PLAN

DATE 05/17/24

JOB NO. 23475

E1.0

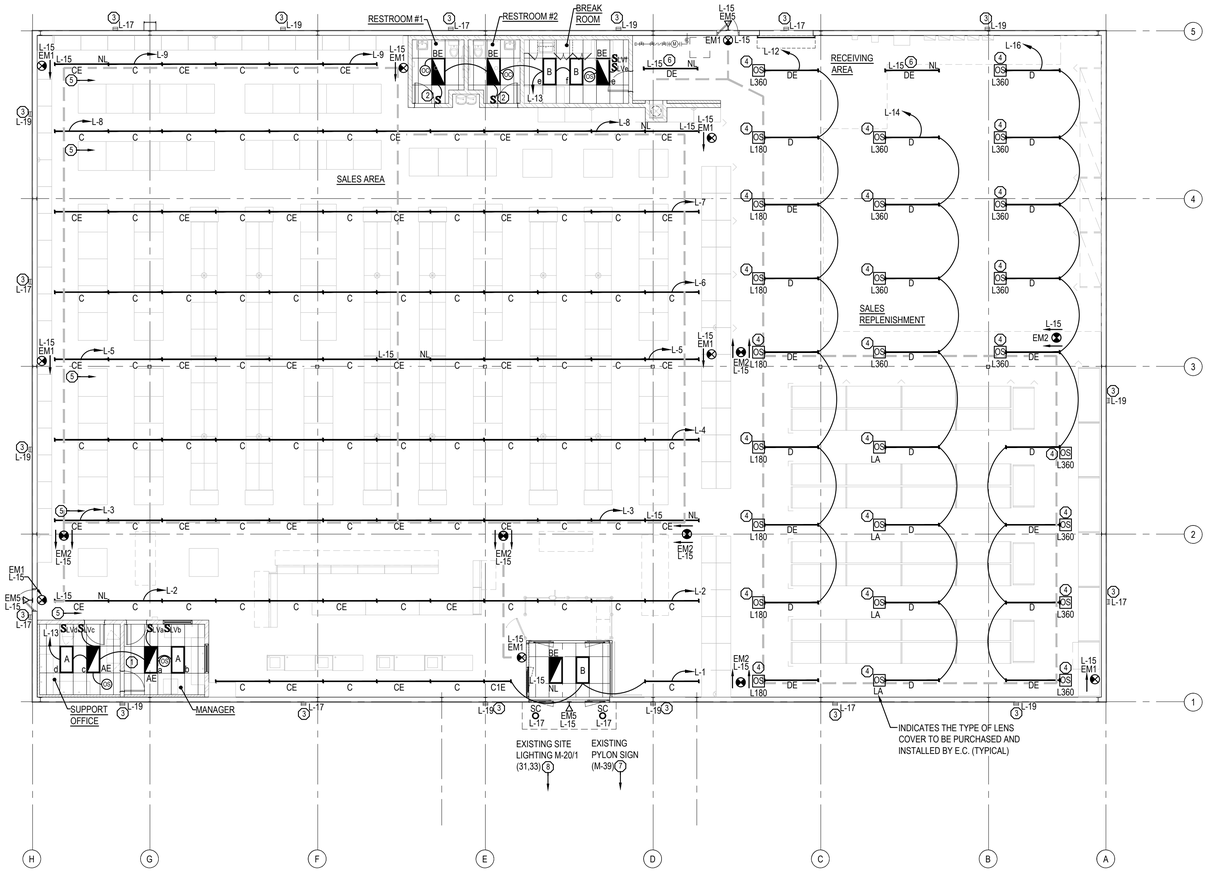
SHEET NO.

SWITCH COVER PLATES SHALL MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE.

FIXTURES LOCATED IN THE SALES AREA (C, C1, CE, C1E) HAVE A 7 WIRE HARNESS AND THRU PIN CONNECTORS TO UTILIZE FOR BRANCH CIRCUIT WIRING THROUGH THE FIXTURES MOUNTED IN CONTINUOUS ROWS.

SALES FLOOR LIGHTING SHALL BE CHAIN MOUNTED AT 12'-0" TO THE BOTTOM OF THE FIXTURE.

SURFACE OR PENDANT MOUNTED LIGHT FIXTURES & ASSOCIATED MOUNTING HARDWARE AS WELL AS ANY CONDUITS SHALL NOT BE DIRECTLY MOUNTED TO THE ROOF DECK.



LIGHTING PLAN
SCALE 3/32" = 1'-0"

GENERAL NOTES

A ALL SALES & SALES REPLENISHMENT AREA LIGHTING CIRCUITS SHALL BE (10-2) (10-3)

B ALL NIGHT / EMERGENCY / EXIT LIGHTING CIRCUITS SHALL BE (8-2)

C ALL EXTERIOR LIGHTING CIRCUITS SHALL BE (8-2)

D **EMERGENCY LIGHT FIXTURES AND EXIT SIGNS HAVE BATTERY BACK UP INSTALLED, DESIGNED, AND MANUFACTURED TO CONFORM WITH THE NATIONAL ELECTRICAL CODE ARTICLE 700. THE EMERGENCY LIGHTING SYSTEM ILLUMINATION IS DESIGNED TO CONFORM WITH STATE BUILDING CODE SECTION 1008. EXIT SIGNS ARE INTERNALLY ILLUMINATED AND CONSTRUCTED TO CONFORM WITH STATE BUILDING CODE SECTION 1013.**

E FIXTURES LOCATED IN THE SALES REPLENISHMENT & RECEIVING AREA SHALL BE MOUNTED AS HIGH AS POSSIBLE MAXIMUM 15' AFF TO THE BOTTOM OF THE JOISTS OR ON UNISTRUT MOUNTED TO THE BOTTOM OF THE JOIST WHERE FIXTURE LOCATIONS DO NOT LINE UP WITH THE JOIST. IF JOISTS ARE HIGHER THAN 15'-6" AFF TO BOTTOM CHANGE TYPE 'D' FIXTURES TO TYPE 'C' FIXTURES & MOUNT FIXTURES AT 15'-0" AFF.

F ELECTRICAL CONTRACTOR SHALL INSTALL ALL EMERGENCY BALLASTS IF SHIPPED SEPARATELY. COORDINATE WITH VENDOR.

G FOR EMERGENCY FIXTURES AE, A1E, BE, CE, C1E, DE & D1E NOT SHOWN AS NIGHT LIGHTS, RUN AN EXTRA HOT CONDUCTOR (BYPASSING ALL CONTROL) AND CONNECT TO EMERGENCY BALLAST. FIXTURES SHALL BE SHUT OFF WITH LOCAL LIGHT FIXTURE CONTROL.

LIGHTING PLAN NOTES

01 APPROXIMATE LOCATION OF TOUCH SCREEN CONTROL. TOUCH CONTROLLER CONTROLLER SHALL PROVIDE MANUAL ON / OFF CONTROL OF SALES AREA AND SALES REPLENISHMENT LIGHT FIXTURES. THE TOUCH SCREEN PROVIDES 2 POINTS OF CONTROL FOR THE SALES AREA REDUCING THE LIGHTING DENSITY BY 1/3 OR 2/3'S. EACH TOUCH POINT INDICATES WHETHER THE CONTROLLED LOAD IS ON OR OFF.

02 MOUNT SWITCH @ +44" A.F.F.

03 EXISTING EXTERIOR WALL LIGHTING TO REMAIN. EXISTING LIGHTING TO RUN THRU LIGHTING CONTACTOR PANEL AND CONNECT TO PANEL 'L' AS SHOWN.

04 PASSIVE INFRARED OCCUPANCY SENSOR. PROVIDED BY LIGHTING VENDOR WIRED AND INSTALLED TO FIXTURE BY E.C. MASK SENSOR SO THAT FIXTURE AREA OF DETECTION DOES NOT EXCEED AISLE OR AISLEWAY BOUNDARIES THAT FIXTURE IS LOCATED IN.

05 FIXTURES MOUNTED IN CONTINUOUS ROWS WITH A NIGHT LIGHT LOCATED IN THE RUN SHALL BE CONNECTED TO BRANCH CIRCUIT WIRING VIA A VERTICAL DROP FROM THE CEILING AT A MINIMUM OF ONCE FOR EACH NIGHT LIGHT CIRCUIT AND ONCE ON EITHER SIDE OF THE NIGHT LIGHT.

06 FIXTURE TYPE 'D' OR 'DE' LABELED AS 'NL' DO NOT RECEIVE OCCUPANCY SENSORS.

07 EXISTING PYLON SIGN TO REMAIN. EXISTING CIRCUITING TO REMAIN AND RE-ROUTE THRU LIGHTING CONTACTOR AS SHOWN ON DRAWING E2.1.

08 EXISTING SITE LIGHTING TO REMAIN. EXITING CIRCUITING TO REMAIN AND RE-ROUTE THRU LIGHTING CONTACTOR AS SHOWN ON DRAWING E2.1.

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT
ERWIN, NC 28339
46 SHRIJI LANE

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LIGHTING PLAN

DATE 05/17/24

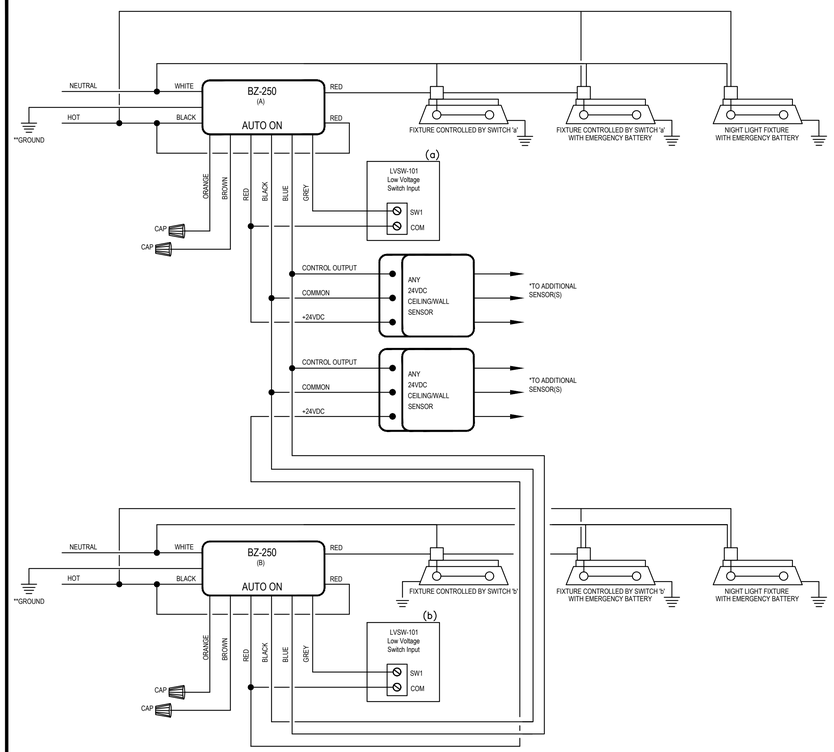
JOB NO. 23475

E1.1
SHEET NO.

DO NOT SCALE THESE DRAWINGS

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

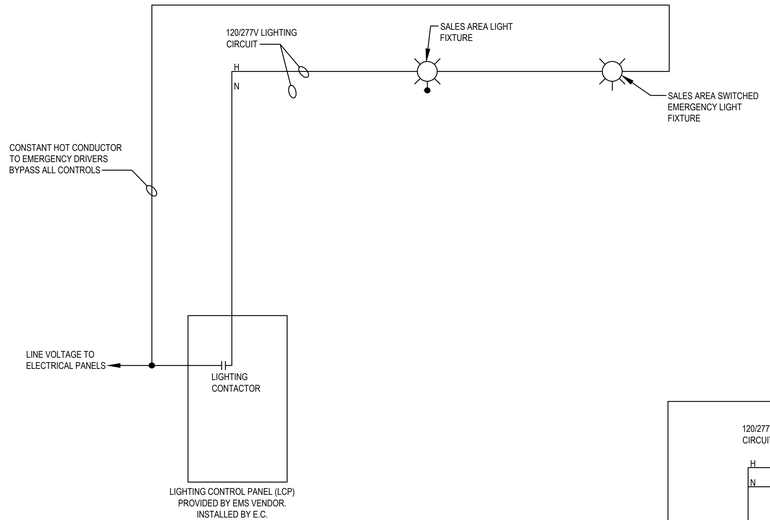
BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL SEAL 033582 ENGINEER BRIAN M. SCHULER
N.C. PROFESSIONAL ENGINEER No. 033582



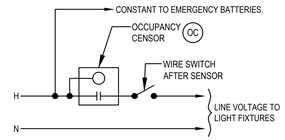
* At least 3 Sensors can be powered by the power pack. See Sensor data sheet. Provide a power pack for each circuit controlled and each low voltage switch installed.

** BZ-250 Power Pack must be grounded to ensure signal integrity, not for safety ground.

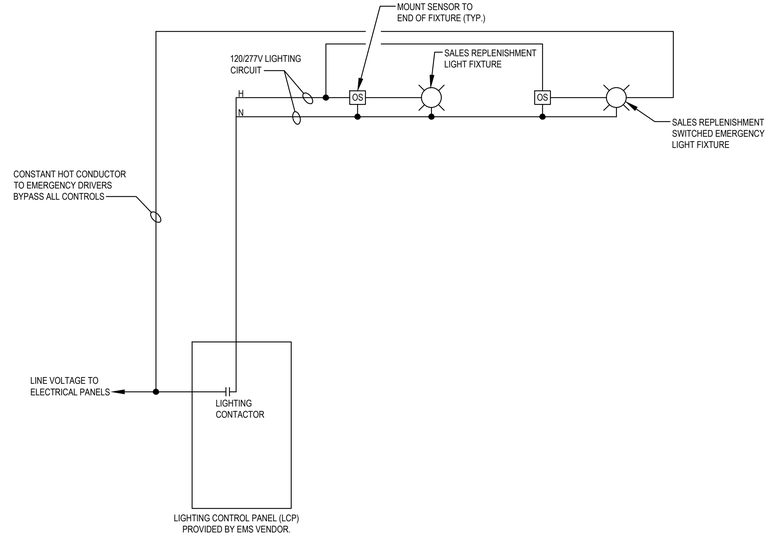
CEILING MOUNTED VACANCY / OCCUPANCY SENSOR & WALL MOUNTED LOW VOLTAGE SWITCH WIRING SCHEMATIC
N.T.S.



SALES FLOOR CONTROL SCHEME
N.T.S.



TOILET ROOM OCCUPANCY CONTROL SCHEME
N.T.S.

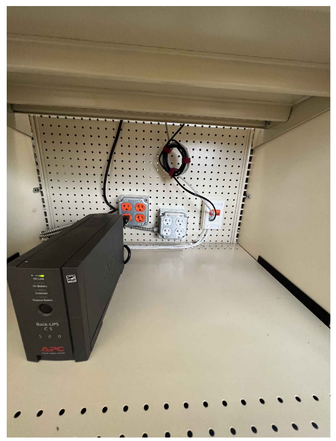


SALES REPLENISHMENT CONTROL SCHEME
N.T.S.

ELECTRICAL SYSTEMS COMMISSIONING CHECKLIST

1) THE ELECTRICAL CONTRACTOR SHALL COMMISSION OR PAY FOR THE SERVICES OF A LOCAL LICENSED COMMISSIONING AGENT IF REQUIRED BY THE AHJ. THE POWER & LIGHTING SYSTEMS INSTALLED PER SECTION C405 OF THE 2015 IECC ENERGY CODE COMMISSIONING PERFORMANCE & DOCUMENTATION SHALL COMPLY WITH SECTION C408.
2) ITEMS TO BE TESTED & DOCUMENTED ARE LISTED BELOW BUT NOT LIMITED TO:
   a) LIGHTING SYSTEM FUNCTIONAL TESTING & TRAINING IN THE PRESENCE OF THE OWNER SHALL BE PERFORMED PER SECTION C408.3.1. ENSURE THAT THE CONTROL HARDWARE & SOFTWARE HAVE BEEN TESTED, CALIBRATED AND OR PROGRAMMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS & MANUFACTURERS INSTRUCTIONS.
   b) EACH OCCUPANCY SENSOR SHALL BE LOCATED & AIMED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS:
      i) VERIFY THE CORRECT OPERATION OF EACH OCCUPANCY SENSOR WHETHER DESIGNED FOR AUTOMATIC ON AT 50 PERCENT LIGHT LEVEL OR MANUAL ON.
      ii) VERIFY SENSORS ARE SHIELDED FROM MOVEMENT IN ADJACENT AREA OR BY HVAC OPERATION.
   c) INTERIOR & EXTERIOR LIGHTING SYSTEMS THAT ARE CONTROLLED VIA TIME SWITCH AND OR PHOTOCELLS SHALL BE TESTED AS FOLLOWS.
      i) TIME SWITCH CONTROL IS PROGRAMMED WITH ACCURATE WEEKDAY, WEEKEND & HOLIDAY SCHEDULES. VERIFY SCHEDULES WITH OWNER & PROVIDE DOCUMENTATION.
      ii) VERIFY CORRECT TIME & DATE IN TIME SWITCH.
      iii) VERIFY BATTERY BACK UP IS INSTALLED & OPERATIONAL.
      iv) VERIFY OVERRIDE TIME LIMIT IS SET NOT TO EXCEED 2 HOURS.
      v) VERIFY THAT THE OVERRIDE SWITCH ONLY CONTROLS INTERIOR LIGHT FIXTURES.
   d) EACH DAYLIGHT SENSOR SHALL BE LOCATED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
      i) SENSORS ARE CALIBRATED FOR ACCURATE THRESHOLD LIGHT LEVELS.
      ii) DAYLIGHT CONTROLLED LIGHT FIXTURES AUTOMATICALLY ADJUST TO LIGHT LEVEL SET POINTS IN RESPONSE TO AVAILABLE DAYLIGHT.
   e) WRITTEN DOCUMENTATION CERTIFYING THAT THE INSTALLED LIGHTING SYSTEM & CONTROLS MEET THE PERFORMANCE REQUIREMENTS OF THE DRAWINGS & SPECIFICATION AS WELL AS THE CRITERIA SET FORTH IN SECTION C405. DOCUMENTATION SHALL BE PROVIDED TO THE OWNER BEFORE THE RECEIPT OF THE CERTIFICATE OF OCCUPATION. PROVIDE AHJ WITH DOCUMENTATION IF REQUIRED.

CASH WRAP POWER / COMMUNICATION DETAIL
N.T.S.



ALL DEVICES SHOWN FOR OCCUPANCY / DIMMING CONTROL INDICATED ON THIS DRAWING ARE NOT PART OF THE SIEMENS EMS SYSTEM (U.O.N). THE ELECTRICAL CONTRACTOR SHALL PURCHASE, WIRE, INSTALL LINE AND LOW VOLTAGE DIMMING SWITCHES, OCCUPANCY/VACANCY SENSORS, RELAYS, ETC.

DO NOT SCALE THESE DRAWINGS

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL ENGINEER BRIAN M. SCHULER SEAL 033582
N.C. PROFESSIONAL ENGINEER No. 033582

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

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ROOM LIGHTING CONTROL / DIMMING SYSTEM DETAILS

DATE 05/17/24

JOB NO. 23475

SHEET NO. E1.1A

COMMUNICATIONS CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR COMMUNICATIONS DEVICES AND ACCESSORIES PROVIDED BY HARBOR FREIGHT TOOLS

COMMUNICATIONS CONTRACTOR TO REVIEW AND COMPLY WITH THE REQUIREMENTS OF GENERAL NOTES ON SHEET A0.2

CONDUITS, LOW VOLTAGE WIRING OR MOUNTING HARDWARE SHALL NOT BE DIRECTLY MOUNTED TO THE ROOF DECK.

GENERAL ELECTRICAL / COMMUNICATION / SECURITY NOTES

01 HFT COMMUNICATIONS CONTRACTOR SHALL PROVIDE & INSTALL ALL CABLE, JACKS, PATCH CORDS, TELEPHONE EQUIPMENT ETC FOR A COMPLETE LOW VOLTAGE COMMUNICATIONS SYSTEM. GC IS RESPONSIBLE FOR COMPLETE SECURITY SYSTEM INSTALLATION, REFER TO VENDOR SCOPE OF WORK SUMMARY ON SHEET A0.0 FOR ANY HFT VENDOR PROVIDED ITEMS.

02 THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT, BOXES, PULL STRINGS, 120V POWER SLEEVES FOR COMMUNICATIONS WIRING & EQUIPMENT. COORDINATE WITH COMMUNICATIONS CONTRACTOR & SEE SYMBOL LEGEND FOR ADDITIONAL DETAILS. THE E.C. SHALL PROVIDE WIRE AND COMPLETELY INSTALL ALL COMPONENTS OF THE SECURITY SYSTEM INCLUDING BUT NOT LIMITED TO: COMPONENTS, DEVICES, PANELS, WIRE, CONDUIT, BOXES, AND SYSTEM INTERCONNECTIONS.

03 ALL CONDUITS SHALL BE PROVIDED WITH PLASTIC BUSHINGS AT EACH END, PULL STRINGS & BE BONDED TO LOCAL BUILDING STEEL.

04 ALL LOW VOLTAGE CABLES SHALL BE PLENUM RATED.

05 THE COMMUNICATIONS CONTRACTOR SHALL PROVIDE A COMPLETE DATA COMMUNICATIONS SYSTEM WITH EQUIPMENT, PATCH PANELS, CABLE, JACKS, J HOOKS, BOXES, LABELING, TESTING, ETC. ALL EQUIPMENT SHALL BE SUPPLIED & INSTALLED PER CATEGORY 6 (BICSI AND EIA/TIA) INSTALLATION STANDARDS.

06 THE COMMUNICATIONS CONTRACTOR SHALL PROVIDE A COMPLETE COMMUNICATIONS SYSTEM LABELING SYSTEM. INCLUDE BUT NOT LIMITED TO: CABLES, JACKS, PATCH PANEL RACKS, ETC. ALL LABELING SHALL COMPLY WITH STANDARDS OF EIA/TIA 606.

07 THE COMMUNICATIONS CONTRACTOR SHALL TEST EACH CABLE AFTER INSTALLATION AND TERMINATION TO CERTIFY THAT EACH CABLE COMPLIES WITH TIA/EIA CATEGORY 6 STANDARDS. PROVIDE DOCUMENTATION PER HFT REQUIREMENTS.

08 SECURITY SYSTEM WIRING SHALL BE 22/4 STRANDED UNSHIELDED CABLE.

09 EACH SPECIFIED ALARM CONTACT AND EACH SPECIFIED ALARM SENSOR SHOULD BE WIRED IN A CLOCKWISE MANNER TO ITS OWN DESIGNATED ZONE STARTING AT THE MAIN CUSTOMER ENTRANCE / EXIT DOOR CONTACTS.

10 EACH SPECIFIED ALARM CONTACT AND EACH SPECIFIED ALARM SENSOR SHOULD BE SPECIFICALLY LABELED ACCORDING TO ITS DESIGNATED CONTACT OR SENSOR NAME, ITS LOCATION WITHIN THE STORE & PROGRAMMED SEPARATELY TO ITS OWN DESIGNATED ZONE.

11 THE CONTRACTOR SHOULD **NEVER** PROGRAM / INSTALL ANY TYPE OF LOCKOUT CODE INTO THE PANEL OR EXPANDER.

12 COORDINATE CONDUIT AND/OR JUNCTION BOXES AS REQUIRED FOR SECURITY SYSTEM.

13 ALL PRODUCTS SPECIFIED ARE FEATURED IN PRODUCT BROCHURES FROM THE MANUFACTURER.

14 SECURITY / LOW VOLTAGE SUBCONTRACTOR TO LABEL, PROGRAM, AND INSTALL WIRING TO SECURITY PANEL.

SECURITY SYSTEM NOTES

S1 (1)HONEYWELL ADEMPCO VISTA - 20P (8) ZONE CONTROL PANEL AND (1) HONEYWELL #4219 ADEMCO VISTA EXPANDER MOUNTED IN THE CASH OFFICE ABOVE CEILING. SECURITY CONTRACTOR TO CLEARLY LABEL SECURITY PANEL.

S2 (1)HONEYWELL #6160 KEYPAD MOUNTED OUTSIDE OF THE MANAGERS OFFICE WALL. BOTTOM OF KEYPAD SHALL BE 44" AFF.

S3 (1)HONEYWELL WAVE2 2-TONE SOUNDER (SIREN HORN) ON THE MANAGERS OFFICE WALL FACING THE SALES FLOOR MOUNTED AT 12' AFF.

S4 (1)HONEYWELL #FG1625 GLASS BREAK DETECTOR CEILING MOUNTED IN THE MIDDLE OF THE VESTIBULE 5 FEET FROM THE PERIMETER GLASS PANES ENTRANCE/EXIT DOORS. GLASS BREAK DETECTOR SHOULD FACE GLASS PANES.

S5 (1)HONEYWELL #FG1625 GLASS BREAK DETECTOR ALONG THE INTERIOR OF GLASS STOREFRONT 5 FEET FROM GLASS PANES FOR EVERY 25 FEET OF STOREFRONT GLASS. GLASS BREAK DETECTORS SHOULD FACE GLASS PANES.

S6 (1)WALL MOUNTED BOSCH #ISC-PDL1-W18G SERIES TRITECH PIR/MICROWAVE DETECTOR MOUNTED AT 9'-6" AFF FOR 60 LINEAR FOOT OF STOREFRONT GLASS SHOOTING SIDEWAYS ACROSS THE GLASS. NO MOTION DETECTORS IN THE VESTIBULE.

S7 (1)CEILING MOUNTED 360° BOSCH #DS9370 PANORAMIC TRITECH DETECTOR AT 12' TO 25' AFF FOR STOREFRONT GLASS IN THE EVENT (S6) CANNOT BE WALL MOUNTED.

S8 (1)WALL MOUNTED BOSCH #ISC-CDL1-W15G SERIES TRITECH PIR/MICROWAVE DETECTOR ABOVE VESTIBULE DOOR FRAME FACING SALES FLOOR MOUNTED AT 9'-6" AFF.

S9 (1)CEILING MOUNTED 360° BOSCH #DS9370 PANORMAIC TRITECH DETECTOR IN THE CENTER OF THE CASH OFFICE AWAY FROM ANY AIR DEVICES.

S10 (1)WALL MOUNTED BOSCH #ISC-CDL1-W15G SERIES TRITECH PIR/MICROWAVE DETECTOR ABOVE ALL EGRESS DOOR FRAMES (EXCEPT IF EGRESS DOOR IS ADJACENT TO RECEIVING OVERHEAD DOOR) AT 8'-0" AFF.

S11 MAIN CUSTOMER ENTRANCE / EXIT DOORS: FOR NEW DORMA DOORS, WIRE INTO THE DOOR FRAME HEADER TO POINT OF CONNECTION TERMINAL STRIP.

S12 (1) NASCOM N200AU/ST DOOR CONTACT FOR EXTERIOR DOORS AND ROOF HATCH (IF APPLICABLE). (2) DOOR CONTACTS REQUIRED AT DOUBLE DOORS.

S13 (1) HONEYWELL #959 DOOR CONTACT FOR OVERHEAD DOOR.

S14 (1) CEILING MOUNTED 360° BOSCH #DS9370 PANORMAIC TRITECH DETECTOR IN THE CENTER OF THE RECEIVING AREA MOUNTED AT 15' TO 25' AFF. (NO OTHERS NEEDED IN SALES REPLENISHMENT).

GENERAL ELECTRICAL DEMOLITION NOTES

1) NO ATTEMPT HAS BEEN MADE TO INDICATE ALL EXISTING ELECTRICAL DEVICES, LIGHT FIXTURES, COMMUNICATION DEVICES, WIRING, CONDUIT, ETC. TO BE REMOVED AND/OR RELOCATED. HOWEVER, THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE EXTENT OF DEMOLITION PRIOR TO SUBMITTING BID.

2) REMOVE AND/OR RELOCATE EXISTING DEVICES ON WALLS OR CEILING BEING REMOVED. COORDINATE SUCH CONDITIONS WITH ARCHITECTURAL DRAWINGS.

3) ALL UNUSEDWIRE (POWER & COMMUNICATION) SHALL BE REMOVED.

4) ALL EXISTING WIRING (POWER & COMMUNICATION) THAT IS TO REMAIN SHALL BE REWORKED OR REPLACED WITH CODE COMPLIANT MATERIAL & SUPPORTS. ANY EXISTING SURFACE MOUNTED CONDUITS SHALL BE REMOVED OR RELOCATED SO THAT THEY ARE IN THE JOIST SPACE OR WITHIN WALL CAVITIES.

ELECTRICAL KEY NOTES

E1 4'x8'x3/4" PAINTED FIRE RATED PLYWOOD FOR TELEPHONE BACKBOARD. REFER TO DETAIL ON SHEET E2.2 FOR MORE DETAILS.

E2 1-1/2" EMT CONDUIT FROM 9' AFF TO JOIST SPACE HOMERUN CONTINUOUS CONDUIT TO TELEPHONE DEMARK (COORDINATE LOCATION WITH LANDLORD). STUB CONDUIT AT 8' AFF TO TELEPHONE DEMARK.

E3 12"x4"x1/2" COPPER BUS BAR MOUNTED AT 84" AFF U.O.N. ON INSULATORS. PROVIDE BAR WITH (6) EQUALLY SPACED 3/8" DIAMETER HOLES. CONNECT BAR TO HFT'S MAIN PANELS GROUND BAR WITH #4AWG COPPER CONDUCTORS.

E4 4" DIAMETER EMT CONDUIT RISER FROM JOIST SPACE INTO TOP OF RACK.

E5 2 COMPARTMENT POWER POLE.

E6 20A 120 VOLT DUPLEX RECEPTACLE AT JOIST SPACE FOR SECURITY CAMERA MONITOR. COORDINATE EXACT LOCATION WITH COMMUNICATIONS CONTRACTOR. MOUNT FLUSH IN CEILING WHERE CEILINGS OCCUR, RECEPTACLE SHALL BE WHITE WITH WHITE COVER PLATE. COORDINATE EXACT LOCATION WITH SECURITY VENDOR.

E7 PROVIDE 2 GANG BOX WITH 1 1/2" CONDUIT & PULL STRING TO JOIST SPACE.

E8 (3) 1 1/2" CONDUITS & PULL STRINGS FROM TOP OF SECURITY PANEL TO JOIST SPACE.

E9 1" CONDUIT WITH PULL STRING FROM AMPLIFIER TO JOIST SPACE.

E10 FLUSH SINGLE GANG BOX MOUNTED AT 48" AFF WITH 3/4" EMT CONDUIT STUB TO CEILING JOIST.

E11 FLUSH SINGLE GANG BOX MOUNTED AT 114" AFF AT VESTIBULE AND AT 96" AT ALL OTHER LOCATIONS WITH 3/4" EMT CONDUIT TO JOIST SPACE FOR MOTION SENSOR.

E12 3/4" CONDUIT STUBBED INTO DOOR FRAME FOR DOOR CONTACT.

E13 PROVIDE 2 GANG BOX AT 4" AFF. WITH 3/4" CONDUIT STUB TO JOIST SPACE FOR OVERHEAD DOOR CONTACT.

E14 PROVIDE OCTAGONAL BOX ON BOTTOM OF JOIST.

COMMUNICATIONS KEY NOTES

C1 25 PAIR CAT3 24AWG TWISTED PAIR CABLE. TERMINATE AT TELEPHONE DEMARK AS DIRECTED BY TELEPHONE COMPANY. TERMINATE AT HFT PHONE BOARD ON 66 PUNCH DOWN BLOCK.

C2 (3) 4 PAIR CAT 6 24AWG CABLES BETWEEN HFT PHONE BOARD & RACK. TERMINATE ON BOTH ENDS.

C3 24"Wx43"Dx80"H FLOOR MOUNTED LOCKABLE RACK PER HFT STANDARDS.

C4 (2) 4 PAIR CAT 6 24AWG DATA CABLE BETWEEN REGISTERS & HFT RACK. TERMINATE ON BOTH ENDS.

C5 (1) 4 PAIR CAT 6 24AWG CABLE BETWEEN REGISTER & HFT RACK FOR TELEPHONE. TERMINATE ON BOTH ENDS.

C6 HFT VENDOR SHALL PROVIDE, WIRE & INSTALL SALES AREA SPEAKERS.

C7 HFT VENDOR SHALL PROVIDE, WIRE & INSTALL SALES REPLENISHMENT AREA SPEAKERS.

C8 (1) 4 PAIR CAT 6 24AWG CABLE BETWEEN DOCK DOOR & HFT RACK FOR TELEPHONE. TERMINATE ON BOTH ENDS.

C9 SECURITY CAMERA & (1) CAT 6 24AWG 4 PAIR CABLE FROM CAMERA TO RACK, TERMINATE CABLES AT BOTH ENDS. VERIFY EXACT LOCATION OF CAMERAS WITH CCTV VENDOR PRIOR TO ROUGH IN.

C10 (1) CAT 6 24AWG CABLE FROM TRAFFIC COUNTER TO HFT RACK. TERMINATE AT BOTH ENDS.

C11 (1) CAT 6 24AWG CABLE FROM WIRELESS ACCESS POINT TO HFT RACK. TERMINATE AT BOTH ENDS.

C12 (1) CAT 6 24AWG 4 PAIR CABLE FROM TIME CLOCK (CENTERED BETWEEN WINDOW & DOOR) TO HFT RACK. TERMINATE AT BOTH ENDS.

C13 (2) CAT 6 24AWG 4 PAIR CABLES FROM PRINTER/FAX TO HFT RACK. TERMINATE AT BOTH ENDS.

C14 (2) CAT 6 24AWG 4 PAIR CABLES FROM MANAGERS WORK STATION TO HFT RACK. TERMINATE AT BOTH ENDS.

C15 (1) RG59 COAXIAL CABLE FROM CCTV MONITOR TO RACK. TERMINATE AT BOTH ENDS.

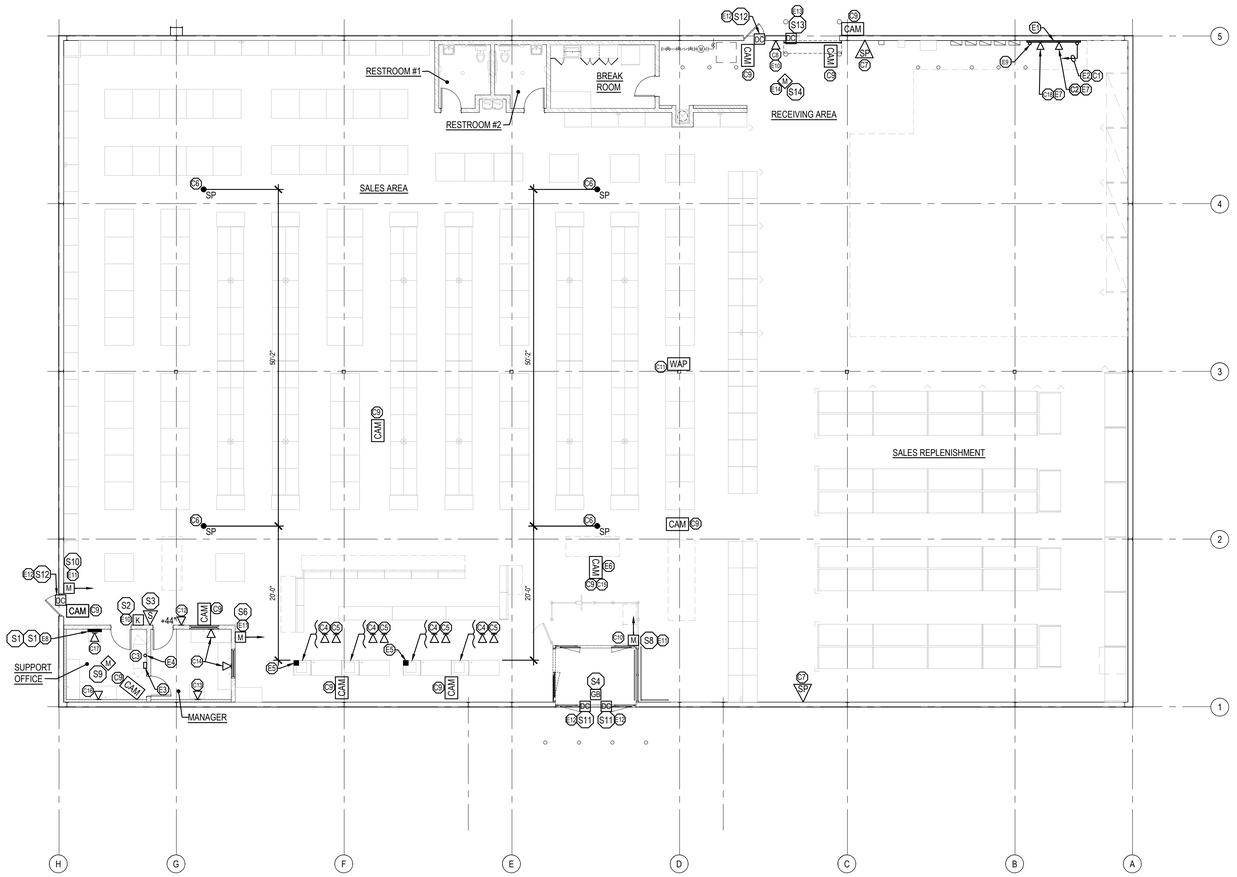
C16 (1) CAT 6 24AWG 4 PAIR CABLE FROM CASH ROOM TO HFT RACK. TERMINATE AT BOTH ENDS.

C17 (1) RJ31X PHONE JACK MOUNTED AT +101" AFF FOR SECURITY PANEL.

C18 (1) RJ31X PHONE JACK & 4 PAIR CAT 6 24AWG CABLE BETWEEN PHONE BOARD & HFT RACK FOR FIRE ALARM PANEL. TERMINATE ON BOTH ENDS. (TO BE PROVIDED WHEN FIRE ALARM SYSTEM IS TO BE INSTALLED).

COMMUNICATIONS SYMBOL LEGEND

SYMBOL	DESCRIPTION
CAM	SECURITY CAMERA
DC	DOOR CONTACT
GB	GLASS BREAK DETECTOR
M	CEILING MOUNTED 360° DETECTOR
M	WALL MOUNTED MOTION DETECTOR
■	POWER POLE
SP	SPEAKERS
WAP	WIRELESS ACCESS POINT
	DATA CABLE
SA	SPEAKERS & AMPLIFIER



COMMUNICATIONS PLAN
SCALE 3/32" = 1'-0"

DO NOT SCALE THESE DRAWINGS

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033582 BRIAN M. SCHULER
N.C. PROFESSIONAL ENGINEER No. 033582

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

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COMMUNICATIONS PLAN

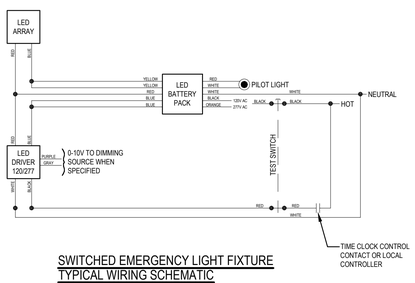
DATE 05/17/24

JOB NO. 23475

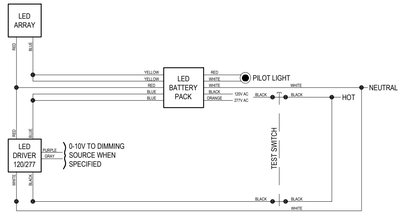
E1.2
SHEET NO.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
A-2 ——► A-2	HOMERUN TO PANEL "A" INDICATING CIRCUIT NUMBER(S) - ALL WIRING SHALL BE #12 WITH EQUIPMENT GROUND WIRE UON (INCREASE TO #10 FOR CIRCUITS OVER 100 FT.) - ALL HOMERUNS ARE TO A 20 AMPERE, 1 POLE CIRCUIT BREAKER U.O.N. - QUANITY OF CONDUCTORS AS NECESSARY TO ACCOMMODATE CIRCUITS AND CONTROL INDICATED. CROSS HATCHES INDICATE REQUIRED LIGHTING CONTROL U.O.N.
- - - - - - ►	CONDUIT RUN UNDER FLOOR SLAB (1" C. MINIMUM, UON) (INSIDE)
- - - - - - ►	SCHEDULE 40 PVC CONDUIT RUN AT 36" BELOW FINISHED GRADE U.O.N. CONTRACTOR SHALL BORE BELOW STREET. COORDINATE WITH CITY. TRANSITION TO HEAVYWALL RIGID STEEL CONDUIT 2 FEET BELOW GRADE WHEN CONDUIT IS TO RISE ABOVE GRADE. (OUTSIDE)
S	SWITCH - 20 AMPERE, 120/277 VOLT, SINGLE POLE - MTD AT 48" AFF UON ("a"=DENOTES SWITCHING,"K" = KEY OPERATED, "P" = PILOT LIGHT, "IL"= ILLUMINATED TOGGLE, "3" = THREE-WAY, "4" = FOUR-WAY, "M"= MANUAL MOTOR STARTER, "D"= DIMMER SWITCH "LUTRON NOVA SERIES")
⊖	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - MOUNTED AT 15" AFF UON (TO BOTTOM). SUBSCRIPT "T" DENOTES TAMPER RESISTANT. C=WHITE RECEPTACLE & COVER MOUNTED FLUSH IN CEILING. IF CEILING IS MORE THEN 15" ABOVE TOP OF WINDOW MOUNT RECEPTACLES 12" ABOVE TOP OF WINDOW. IG= ISOLATED GROUND TYPE. TVSS= SURGE PROTECTED TYPE. **ALL EXTERIOR RECEPTACLES SHALL BE WEATHER RESISTANT LABELED 'WR'.**
⊕	DOUBLE DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - MOUNTED AT 15" AFF UON (TO BOTTOM)
⊖	DUPLEX RECEPTACLE MOUNTED IN A FLUSH FLOOR BOX. PROVIDE ALUMINIUM DUAL FLIP LID ACTIVATION KIT.
(J)	JUNCTION BOX - MOUNTING HEIGHT AND SIZE AS REQUIRED BY CODE OR AS NOTED ON DRAWINGS
$(J)_S$	JUNCTION BOX - FOR SIGN. PROVIDE LOCAL DISCONNECT & COORDINATE LOCATION & MOUNTING HEIGHT WITH SIGN CONTRACTOR IN THE FIELD.
□	HEAVY DUTY NON FUSIBLE DISCONNECT SWITCH.
⊠	HEAVY DUTY FUSIBLE DISCONNECT SWITCH. FUSE SIZE TO BE DETERMINED FROM EQUIPMENT TO BE SERVED NAMEPLATE DATA
▽	FLUSH COMMUNICATIONS OUTLET WITH TWO GANG BOX SINGLE GANG EXTENSION RING, MOUNTED AT 15" AFF U.O.N. (TO BOTTOM) AND 1" CONDUIT, STUBBED TO NEAREST ACCESSIBLE CEILING. PROVIDE BLANK COVER. W=MOUNTED 54" AFF.
$▽_D$	COMMUNICATION OUTLET MOUNTED IN A FLUSH FLOOR BOX. PROVIDE (4) JACKS AND AN ALUMINIUM DUAL FLIP LID ACTIVATION KIT.
▼	SPECIAL NEMA CONFIGURED OUTLET MOUNTED AS REQUIRED TO SERVE APPLIANCE. VERIFY CONFIGURATION PRIOR TO ROUGH-IN AND ADJUST WIRING AND CIRCUIT BREAKER SIZE AS REQUIRED.
●GR ■	GROUND ROD- 3/4" X 10' COPPER CLAD
12-4	WIRE LEGEND TAG (12= CONDUCTOR SIZE, 4= QUANTITY OF CONDUCTORS.)
DD	DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL THIS SHEET.
AFF	ABOVE FINISHED FLOOR
AC	INDICATES DEVICE MOUNTED AT 8" ABOVE COUNTER
EC	ELECTRICAL CONTRACTOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER TYPE
UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND
EX	EXISTING TO REMAIN
NL	NIGHT LIGHT
$Soc_{a,b}$	WALL MOUNTED MULTI TECHNOLOGY DUAL CIRCUIT VACANCY SENSOR WITH WHITE FINISH HUBBEL # LHMTS-2WH
Soc	WALL MOUNTED MULTI TECHNOLOGY SINGLE CIRCUIT OCCUPANCY SENSOR WITH WHITE FINISH HUBBEL # LHMTS1WH
OC	CEILING MOUNTED OCCUPANCY SENSOR HUBBELL #OMNIDT1000-UVPP
R	20A 120 VOLT RECEPTACLE MOUNTED AT 15" AFF U.O.N. CONTROLLED BY LOCAL OCCUPANCY SENSOR. PROVIDE COVERPLATE WITH BLACK SCREENED LETTERS "SWITCHED".
OS	FIXTURE MOUNTED OCCUPANCY SENSOR. INSTALL LOW MOUNT LENS FOR FIXTURES MOUNTED AT 16' AND LOWER. CAP INTEGRAL PHOTOCELL CONTROL WIRES. SET TIMED OFF TO 20 MINUTES. HUBBELL # WSP-EM-UNV- (L360, L180, OR LA)
S_{DL}	LED DIMMER SWITCH FOR MANUAL CONTROL OF SALES AND SALES REPLENISHMENT FLOOR LIGHTING. PROVIDED BY E.C. FOR SIEMENS EMS SYSTEM. 0-10V DIMMER EATON #SF10P-W.
S_{Doc}	WALL MOUNTED DUAL TECHNOLOGY VACANCY SENSOR WITH INTEGRAL PHOTOCELL & 0-10V DIMMER. HUBBELL #LHDMMTS-2NWH.
PS	PHOTO SENSOR FOR SIEMENS EMS SYSTEM. WIRED AND INSTALLED BY EMS VENDOR.
S_{LV}	LOW VOLTAGE CONTROLLER. (DO NOT WIRE DIMMING FUNCTION.) WATTSTOPPER #LV-SW-101.
OS	CEILING MOUNTED VACANCY SENSOR / POWER PACK. WATTSTOPPER #DT300-BZ-250.



SWITCHED EMERGENCY LIGHT FIXTURE
TYPICAL WIRING SCHEMATIC
N.T.S.



EMERGENCY NIGHT LIGHT FIXTURE
TYPICAL WIRING SCHEMATIC
N.T.S.

LIGHTING SCHEDULE					INTERIOR SIGN	
	PARKING LOT / NON SECURITY BUILDING FIXTURES	EXTERIOR SIGNS / SECURITY BUILDING FIXTURES	INDOOR LIGHTS (MON.-SAT.)	INDOOR LIGHTS (SUNDAY)	MON-SAT	SUNDAY
ON	DUSK (BY PHOTOCELL)	DUSK TO DAWN PHOTOCELL (ALWAYS ON DURING DARK)	7:00 AM	8:00 AM	STORE OPEN	STORE OPEN
OFF	10:15 PM	DURING THE DAY	10:00 PM	8:00 PM	9:00 PM	6:00 PM
LIGHTING CONTROL ZONE	GROUP 4	GROUP 3	GROUP 1	GROUP 1	GROUP 2	GROUP 2
NOTES:	THE SYSTEM CAN BE OVERRIDDEN BY THE SECURITY KEYPAD. THE TOUCH SCREEN CONTROLLER SHALL BE CAPABLE OF MANUALLY TURNING OFF GROUP 2 LIGHTING CONTACTORS. COORDINATE ON/OFF TIMES WITH HARBOR FREIGHT PRIOR TO PROGRAMMING.					

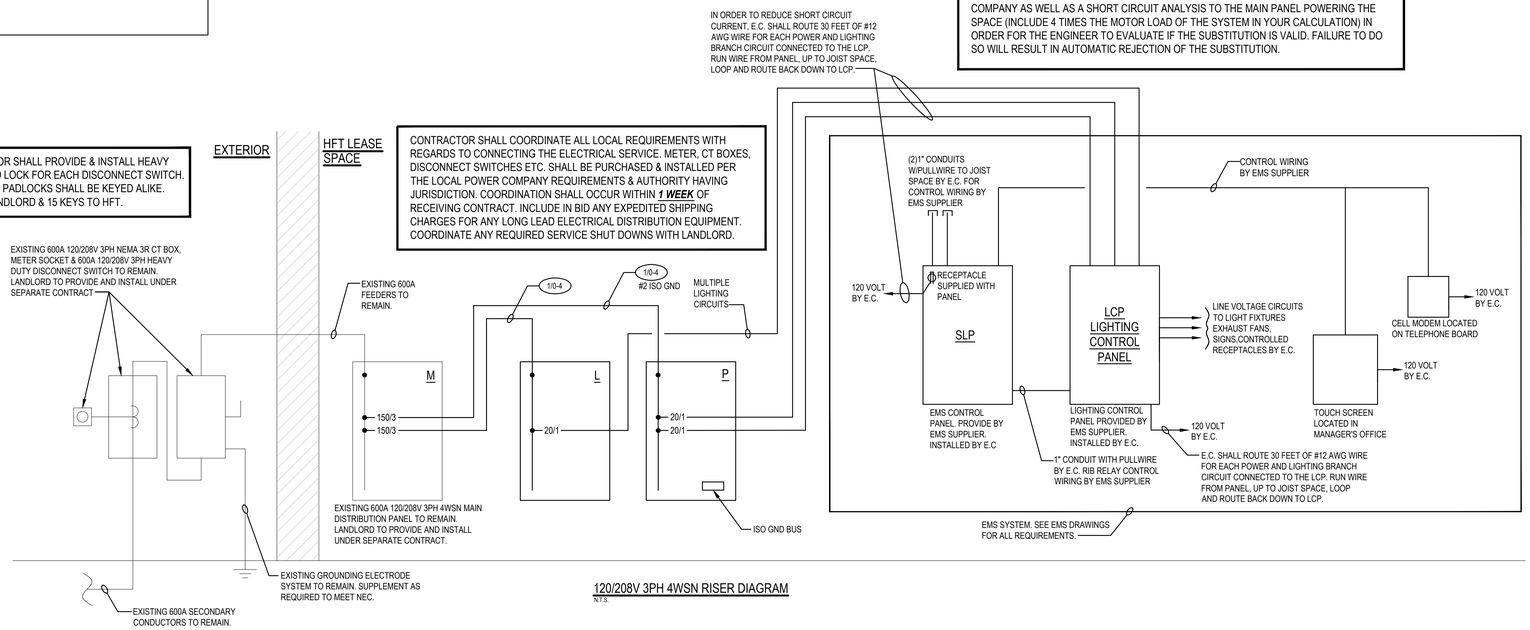
WIRE LEGEND					
Tag	Fill	Tag	Fill	Tag	Fill
No Tag	(2) #12, #12GND-3/4"C	4-4	(4) #4, #4GND-1 1/4 "C	4/0-3	(3) #4/0, #2GND-2" C
12-3	(3) #12, #12GND-3/4"C	2-2	(2) #2, #4GND-1"C	4/0-4	(4) #4/0, #2GND-2 1/2"C
12-4	(4) #12, #12GND-3/4"C	2-3	(3) #2, #4GND-1 1/4 "C	300-2	(2) 300KCMIL, #1/0GND-2"C
10-2	(2) #10, #10GND-3/4"C	2-4	(4) #2, #4GND-1 1/4" C	300-3	(3) 300KCMIL, #1/0GND-21/2" C
10-3	(3) #10, #10GND-3/4"C	1-2	(2) #1, #4GND-1 1/4" C	300-4	(4) 300KCMIL, #1/0GND-2 1/2"C
10-4	(4) #10, #10GND-3/4"C	1-3	(3) #1, #4GND-1 1/4" C	350-2	(2) 350KCMIL, #3/0GND-2"C
8-2	(2) #8, #8GND-3/4"C	1-4	(4) #1, #4GND-1 1/2" C	350-3	(3) 350KCMIL, #3/0GND-2 1/2"C
8-3	(3) #8, #8GND-1"C	1/0-2	(2) #1/0, #2GND-1 1/4" C	350-4	(4) 350KCMIL, #3/0GND-3"C
8-4	(4) #8, #8GND-1"C	1/0-3	(3) #1/0, #2GND-1 1/2" C	500-2	(2) 500KCMIL, #3/0GND-2 1/2"C
6-2	(2)#6, #6GND-1"c	1/0-4	(4) #1/0, #2GND-2 1/2" C	500-3	(3) 500KCMIL, #3/0GND-3"C
6-3	(3) #6, #6GND-1"C	3/0-2	(2) #3/0, #2GND-1 1/2" C	500-4	(4) 500KCMIL, #3/0GND-3 1/2" C
6-4	(4) #6, #6GND-1"C	3/0-3	(3) #3/0, #2GND-2" C	600-2	(2) 600KCMIL, #3/0GND-3"C
4-2	(2) #4, #4GND-1"C	3/0-4	(4) #3/0, #2GND-2" C	600-3	(3) 600KCMIL, #3/0GND-3 1/2" C
4-3	(3) #4, #4GND-1"C	4/0-2	(2) #4/0, #2GND-2" C	600-4	(4) 600KCMIL, #3/0GND-3 1/2" C

NOTE: CONDUIT SIZES ARE FOR EMT & IMC. FOR PVC & RGC INCREASE CONDUIT BY (1) TRADE SIZE. FOR FLEXIBLE CONDUIT SIZES REFER TO NEC. ALL WIRE SIZES SHOWN ON DRAWINGS ARE FOR COPPER CONDUCTORS. INCREASE CONDUIT ONE TRADE SIZE FOR ISOLATED GROUND CONDUCTOR IF REQUIRE TO ACCOMMODATE ALL CONDUCTORS

FOR ANY SUBSTITUTIONS OF THE ELECTRICAL DISTRIBUTION EQUIPMENT INVOLVING EQUIPMENT WITH A LOWER SHORT CIRCUIT RATING THAN WHAT IS SPECIFIED ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE IN WRITING THE AVAILABLE SHORT CIRCUIT CURRENT AT THE POWER COMPANY TRANSFORMER FROM THE POWER COMPANY AS WELL AS A SHORT CIRCUIT ANALYSIS TO THE MAIN PANEL POWERING THE SPACE (INCLUDE 4 TIMES THE MOTOR LOAD OF THE SYSTEM IN YOUR CALCULATION) IN ORDER FOR THE ENGINEER TO EVALUATE IF THE SUBSTITUTION IS VALID. FAILURE TO DO SO WILL RESULT IN AUTOMATIC REJECTION OF THE SUBSTITUTION.

ELECTRICAL CONTRACTOR SHALL PROVIDE & INSTALL HEAVY DUTY WATERPROOF PAD LOCK FOR EACH DISCONNECT SWITCH. AMERICAN LOCK #A5460. PADLOCKS SHALL BE KEYED ALIKE. PROVIDE 15 KEYS TO LANDLORD & 15 KEYS TO HFT.

CONTRACTOR SHALL COORDINATE ALL LOCAL REQUIREMENTS WITH REGARDS TO CONNECTING THE ELECTRICAL SERVICE. METER, CT BOXES, DISCONNECT SWITCHES ETC. SHALL BE PURCHASED & INSTALLED PER THE LOCAL POWER COMPANY REQUIREMENTS & AUTHORITY HAVING JURISDICTION. COORDINATION SHALL OCCUR WITHIN ***1 WEEK*** OF RECEIVING CONTRACT. INCLUDE IN BID ANY EXPEDITED SHIPPING CHARGES FOR ANY LONG LEAD ELECTRICAL DISTRIBUTION EQUIPMENT. COORDINATE ANY REQUIRED SERVICE SHUT DOWNS WITH LANDLORD.



120/208V 3PH 4WSN RISER DIAGRAM
N.T.S.

DO NOT SCALE THESE DRAWINGS

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL SEAL 033582 ENGINEER BRIAN M. SCHULER
N.C. PROFESSIONAL ENGINEER No. 033582

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRUTI LANE
ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

ONE LINE DIAGRAM & DETAILS

DATE 05/17/24
JOB NO. 23475

E2.0
SHEET NO.

'LCP'
LIGHTING CONTACTOR SCHEDULE

CIRCUIT	DESCRIPTION	ZONE	CONTACTOR SIZE	CONTACTOR #
L-1	EMPLOYEE LIGHTING	GROUP 1	30A/4P	1
L-3	EMPLOYEE LIGHTING	GROUP 1		
L-6	EMPLOYEE LIGHTING	GROUP 1		
L-9	EMPLOYEE LIGHTING	GROUP 1		
P-41	EXHAUST FAN	GROUP 1	30A/4P	2
L-12	SALES REPLENISHMENT LTG.	GROUP 1		
L-14	SALES REPLENISHMENT LTG.	GROUP 1		
L-16	SALES REPLENISHMENT LTG.	GROUP 1		
-	SPARE	GROUP 1	30A/4P	3
-	SPARE	GROUP 1		
-	SPARE	GROUP 1		
-	SPARE	GROUP 1		
L-2	CUSTOMER LIGHTING	GROUP 2	30A/4P	4
L-4	CUSTOMER LIGHTING	GROUP 2		
L-5	CUSTOMER LIGHTING	GROUP 2		
L-7	CUSTOMER LIGHTING	GROUP 2		
L-8	CUSTOMER LIGHTING	GROUP 2	30A/4P	5
P-13	INTERIOR SIGN	GROUP 2		
-	SPARE	GROUP 2		
-	SPARE	GROUP 2		
L-23	FURNITURE RECEPTACLES	GROUP 2	30A/4P	6
L-25	FURNITURE RECEPTACLES	GROUP 2		
L-27	FURNITURE RECEPTACLES	GROUP 2		
L-29	FURNITURE RECEPTACLES	GROUP 2		
L-17	EXTERIOR SECURITY LIGHTING	GROUP 3	30A/4P	7
P-40	EXTERIOR SIGN	GROUP 3		
M-39	EXISTING PYLON SIGN	GROUP 3		
-	SPARE	GROUP 3		
L-19	EXTERIOR LIGHTING	GROUP 4	30A/4P	8
-	SPARE	GROUP 4		
-	SPARE	GROUP 4		
-	SPARE	GROUP 4		
M-31	EXISTING SITE LIGHTING	GROUP 4	30A/4P	9
M-33	EXISTING SITE LIGHTING	GROUP 4		
-	SPARE	GROUP 4		
-	SPARE	GROUP 4		
-	SPARE	SPARE	30A/4P	10
-	SPARE	SPARE		
-	SPARE	SPARE		
-	SPARE	SPARE		

LIGHT FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	MANUFACTURER	LAMPS	VOLT	WATTS	REMARKS
A		2x4 LED TROFFER FOR INSTALLATION IN LAY-IN ACOUSTIC CEILING TILE GRID	COLUMBIA LIGHTING# LCAT24-40VL-G-U-EDU-PNCS	LED 4000K	120/277	59	OFFICES FACTORY INSTALLED WHIP CONNECTION.
AE		2x4 LED TROFFER WITH 1400 LUMEN BATTERY FOR INSTALLATION IN LAY-IN ACOUSTIC CEILING TILE GRID	COLUMBIA LIGHTING# LCAT24-40VL-G-U-EDU-PNCS-ELL14	LED 4000K	120/277	59	OFFICES EMERGENCY BATTERY. SEE GENERAL NOTE #1. VERIFY THAT EM BALLAST IS WIRED FOR APPROPRIATE VOLTAGE PRIOR TO WIRING FIXTURE. FACTORY INSTALLED WHIP CONNECTION.
B		2x4 LED TROFFER FOR INSTALLATION IN LAY-IN ACOUSTIC CEILING TILE GRID	COLUMBIA LIGHTING# LCAT24-40LW-G-U-EDU-PNCS	LED 4000K	120/277	36	TOILET ROOM FACTORY INSTALLED WHIP CONNECTION
BE		2x4 LED TROFFER WITH 1400 LUMEN BATTERY FOR INSTALLATION IN LAY-IN ACOUSTIC CEILING TILE GRID	COLUMBIA LIGHTING# LCAT24-40LW-G-U-EDU-PNCS-ELL14	LED 4000K	120/277	36	TOILET ROOM EMERGENCY BATTERY. SEE GENERAL NOTE #1. FACTORY INSTALLED WHIP CONNECTION.
C		8' - LED CHAIN MOUNTED STRIP FIXTURE	COLUMBIA LIGHTING# MPS-8-40-HLHE-CW-EDV-INT-LBC	LED 4000K	120/277	100	SALES & STORAGE AREA FOR OPEN CEILINGS PROVIDE CHAIN & INSTALL AT HEIGHT NOTED ON E1.1 (CSHC). RUN IN CONTINUOUS ROWS WHERE SHOWN. PROVIDED WITH COUPLER. NOTE #2 & #4
CE		8' - LED CHAIN MOUNTED STRIP WITH 1400 LUMEN BATTERY	COLUMBIA LIGHTING# MPS-8-40-HLHE-CW-EDV-ELL14-INT-LBC	LED 4000K	120/277	100	SALES & STORAGE AREA FOR OPEN CEILINGS PROVIDE CHAIN & INSTALL AT HEIGHT NOTED ON E1.1 (CSHC). RUN IN CONTINUOUS ROWS WHERE SHOWN. EMERGENCY BATTERY. SEE GENERAL NOTE #1,2,4. PROVIDED WITH COUPLER.
C1		4' - LED CHAIN MOUNTED STRIP FIXTURE	COLUMBIA LIGHTING# MPS-4-40-HLHE-CW-EDV-INT-LBC	LED 4000K	120/277	50	SALES & STORAGE AREA FOR OPEN CEILINGS PROVIDE CHAIN & INSTALL AT HEIGHT NOTED ON E1.1 (CSHC). RUN IN CONTINUOUS ROWS WHERE SHOWN. PROVIDED WITH COUPLER. NOTE #2 & #4
C1E		4' - LED CHAIN MOUNTED STRIP FIXTURE WITH 1400 LUMEN BATTERY	COLUMBIA LIGHTING# MPS-4-40-HLHE-CW-EDV-ELL14-INT-LBC	LED 4000K	120/277	50	SALES & STORAGE AREA FOR OPEN CEILINGS PROVIDE CHAIN & INSTALL AT HEIGHT NOTED ON E1.1 (CSHC). RUN IN CONTINUOUS ROWS WHERE SHOWN. EMERGENCY BATTERY. SEE GENERAL NOTE #1,2,4. PROVIDED WITH COUPLER.
D		8' - LED SURFACE MOUNTED STRIP FIXTURE	COLUMBIA LIGHTING# MPS-8-40-HLHE-CW-EDV	LED 4000K	120/277	100	SALES & STORAGE AREA SURFACE MOUNTED. FOR CEILING / JOIST MOUNT PROVIDE CEILING CLIPS & SUPPORT FROM STRUCTURE AS REQUIRED BY CODE. FOR JOIST MOUNT, PROVIDE MOUNTING HARDWARE & UNISTRUT AS REQUIRED. RUN IN CONTINUOUS ROWS WHERE SHOWN. PROVIDED WITH COUPLER
DE		8' - LED SURFACE MOUNTED STRIP FIXTURE WITH 1400 LUMEN BATTERY	COLUMBIA LIGHTING# MPS-8-40-HLHE-CW-EDV-ELL14	LED 4000K	120/277	100	SALES & STORAGE AREA SURFACE MOUNTED. FOR CEILING / JOIST MOUNT PROVIDE CEILING CLIPS & SUPPORT FROM STRUCTURE AS REQUIRED BY CODE. FOR JOIST MOUNT, PROVIDE MOUNTING HARDWARE & UNISTRUT AS REQUIRED. RUN IN CONTINUOUS ROWS WHERE SHOWN. EMERGENCY BATTERY. SEE GENERAL NOTE #1,2. PROVIDED WITH COUPLER
D1		4' - LED SURFACE MOUNTED STRIP FIXTURE	COLUMBIA LIGHTING# MPS-4-40-HLHE-CW-EDV	LED 4000K	120/277	50	SALES & STORAGE AREA SURFACE MOUNTED. FOR CEILING / JOIST MOUNT PROVIDE CEILING CLIPS & SUPPORT FROM STRUCTURE AS REQUIRED BY CODE. FOR JOIST MOUNT, PROVIDE MOUNTING HARDWARE & UNISTRUT AS REQUIRED. RUN IN CONTINUOUS ROWS WHERE SHOWN. PROVIDED WITH COUPLER
D1E		4' - LED SURFACE MOUNTED STRIP FIXTURE WITH 1400 LUMEN BATTERY	COLUMBIA LIGHTING# MPS-4-40-HLHE-CW-EDV-ELL14	LED 4000K	120/277	50	SALES & STORAGE AREA SURFACE MOUNTED. FOR CEILING / JOIST MOUNT PROVIDE CEILING CLIPS & SUPPORT FROM STRUCTURE AS REQUIRED BY CODE. FOR JOIST MOUNT, PROVIDE MOUNTING HARDWARE & UNISTRUT AS REQUIRED. RUN IN CONTINUOUS ROWS WHERE SHOWN. EMERGENCY BATTERY. SEE GENERAL NOTE #1,2. PROVIDED WITH COUPLER
EM1		SELF-POWERED EXIT SIGN WITH LED LAMPS - UNIVERSAL MOUNTED - SINGLE FACE NOTE #3	COMPASS# CER	LED	120/277	5	SALES & STORAGE AREA EMERGENCY/EXIT LIGHTS EQUIPPED WITH 90 MINUTE BATTERY BACK-UP. WIRE AHEAD OF LOCAL CONTROL
EM2		SELF-POWERED EXIT SIGN WITH LED LAMPS - UNIVERSAL MOUNTED - DOUBLE FACE NOTE #3	COMPASS# CER	LED	120/277	5	SALES & STORAGE AREA
EM3		SURFACE MOUNTED 2 HEAD EMERGENCY UNIT WITH REMOTE CAPACITY	DUAL LITE# LZ15-03L	LED	120/277	5	SALES & STORAGE AREA REMOTE CAPACITY
EM4		EXTERIOR WP 2 LAMP REMOTE HEADS	DUAL LITE# OCR-D-W-9603L	LED	6	-	EXTERIOR PROVIDE WITH 2 HEAD MOUNTING PLATE. WIRE TO EM3.
EM5		EXTERIOR WP LED EMERGENCY FIXTURE WITH 4 LAMPS	HUBBELL LIGHTING# PG-Z	LED	120/277	5	EXTERIOR WIRE SO THAT FIXTURE IS OFF WHEN BUILDING POWER IS AVAILABLE.
SA		EXTERIOR WALL MOUNTED FIXTURE	HUBBELL LIGHTING# SG1-20-4K7-DB	LED 4000K	120/277	20	EXTERIOR WALL MOUNTED FIXTURE. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT.
SB		EXTERIOR WALL MOUNTED FIXTURE	HUBBELL LIGHTING# SG2-80-4K7-FT-UNV-DB	LED 4000K	120/277	80	EXTERIOR WALL MOUNTED FIXTURE AT 15'-0" ABOVE FINISHED GRADE.
SC		EXTERIOR CEILING MOUNTED FIXTURE	BEACON# SRT1-35-4K7-SQW	LED 4000K	120/277	35	SURFACE MOUNT ON CANOPY.

LIGHTING FIXTURE SCHEDULE NOTES (SEE REMARKS)

1. FOR EMERGENCY FIXTURES AE, A1E, BE, CE, C1E, DE & D1E NOT SHOWN AS NIGHT LIGHTS, RUN AN EXTRA HOT CONDUCTOR (BYPASSING ALL CONTROL) AND CONNECT TO EMERGENCY BATTERY. FIXTURES SHALL BE SHUT OFF WITH LOCAL LIGHT FIXTURE CONTROL.
2. FOR ALL CHAIN MOUNTED FIXTURES E.C. SHALL PROVIDE EXTENSIONS AS REQUIRED TO INSTALL LIGHT FIXTURES AT HEIGHTS AS NOTED.
3. MOUNT EXIT SIGNS A MAXIMUM OF 1'-0" ABOVE TOP OF EGRESS DOOR. PROVIDE PENDANT IF REQUIRED. FOR SIGNS NOT MOUNTED DIRECTLY ABOVE AN EGRESS DOOR, IN SALES AREA MOUNT EXIT SIGNS 6" BELOW TYPE 'C' FIXTURES. IN SALES REPLENISHMENT AREA MOUNT EXIT SIGNS 12" BELOW TYPE D FIXTURES.
4. THE LIGHT FIXTURE SHALL BE PROVIDED WITH A 7 WIRE HARNESS WITH PIN CONNECTORS FOR BRANCH CIRCUIT THROUGH WIRING FOR CONTINUOUS ROW MOUNTING.

REFER TO SHEET A0.0 FOR LIGHTING VENDOR CONTACT INFORMATION.

L

MOUNTING: SURFACE
BUS RATING: 200A
200A MAIN LUG ONLY
VOLTAGE: 120/208V-3PH-4W
LOCATION:
A.I.C.: 65,000
AMPS CONN.: 78.3
AMPS DEMAND.: 95.3

COMMENTS: CAN BE SERIES RATED WITH MANUFACTURERS TESTED BREAKER COMBINATION. UPSTREAM BREAKER CAN BE IN A SEPARATE PANEL OR A MAIN CIRCUIT BREAKER IN THIS PANEL. UPSTREAM BREAKER SHALL BE FULLY RATED TO THE AIC RATING SHOWN ON THIS PANEL. PROVIDE ALL NECESSARY DOCUMENTATION FROM THE MANUFACTURER ON PANELBOARDS PER NATIONAL ELECTRIC CODE.

BREAKER REMARKS
C-CONTACTOR CONTROLLED, S-SHUNT TRIP, L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID

CKT.	DESCRIPTION	KVA CONNECTED LTG.	REC.	HVAC	MISC.	C/B	REMARKS		C/B	KVA CONNECTED MISC.	HVAC	REC.	LTG.	DESCRIPTION	CKT
1	SALES LIGHTING	0.7				20/1	C	C	20/1				1.1	SALES LIGHTING	2
3	SALES LIGHTING	1.1				20/1	C	C	20/1				1.2	SALES LIGHTING	4
5	SALES LIGHTING	1.1				20/1	C	C	20/1				1.2	SALES LIGHTING	6
7	SALES LIGHTING	1.2				20/1	C	C	20/1				1.1	SALES LIGHTING	8
9	SALES LIGHTING	0.5				20/1	C	-	20/1				-	SPARE	10
11	SPARE					20/1	-	C	20/1				0.8	SALES REPLENISHMENT LIGHTING	12
13	OFFICE, BREAKROOM, TOILET LIGHTING	0.4				20/1	-	C	20/1				0.9	SALES REPLENISHMENT LIGHTING	14
15	NIGHT / EMERGENCY LIGHTING	1.2				20/1	L	C	20/1				0.8	SALES REPLENISHMENT LIGHTING	16
17	EXTERIOR LIGHTING	1.0				20/1	C	-	20/1				-	SPARE	18
19	EXTERIOR LIGHTING	1.0				20/1	C	-	20/1				-	SPARE	20
21	SPARE	-				20/1	-	-	20/1				-	SPARE	22
23	FURNITURE RECEPTACLE	1.2				20/1	C	-	20/1				-	SPARE	24
25	FURNITURE RECEPTACLE	1.2				20/1	C	-	20/1				-	SPARE	26
27	FURNITURE RECEPTACLE	1.2				20/1	C	-	20/1				-	SPARE	28
29	FURNITURE RECEPTACLE	1.2				20/1	C	-	20/1				-	SPARE	30
31	SPARE	-				20/1	-	-	20/1				-	SPARE	32
33	SPARE	-				20/1	-	-	20/1				-	SPARE	34
35	CHARGER				2.0	25/2	-	-	20/1				-	SPARE	36
37					2.0		-	-	20/1				-	SPARE	38
39	UH-02			2.0		25/2	-	-	20/1				-	SPARE	40
41				2.0			-	-	20/1				-	SPARE	42
TOTALS		13.0	0.00	4.0	4.0					0.00	0.00	0.00	7.2	TOTALS	

LOAD	CONNECTED	DEMAND
LIGHTING	20.2	25.3
RECEPTACLE	-	-
HVAC	4.0	5.0
MISC	4.0	4.0

P

MOUNTING: SURFACE
BUS RATING: 200A
200A MAIN LUG ONLY
VOLTAGE: 120/208V-3PH-4W
LOCATION:
A.I.C.: 65,000
AMPS CONN.: 81.1
AMPS DEMAND.: 78.9

COMMENTS: CAN BE SERIES RATED WITH MANUFACTURERS TESTED BREAKER COMBINATION. UPSTREAM BREAKER CAN BE IN A SEPARATE PANEL OR A MAIN CIRCUIT BREAKER IN THIS PANEL. UPSTREAM BREAKER SHALL BE FULLY RATED TO THE AIC RATING SHOWN ON THIS PANEL. PROVIDE ALL NECESSARY DOCUMENTATION FROM THE MANUFACTURER ON PANELBOARDS PER NATIONAL ELECTRIC CODE.

BREAKER REMARKS
C-CONTACTOR CONTROLLED, S-SHUNT TRIP, L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID, I,O-PERMANENTLY INSTALLED LOCK OUT

CKT.	DESCRIPTION	KVA CONNECTED LTG.	REC.	HVAC	MISC.	C/B	REMARKS		C/B	KVA CONNECTED MISC.	HVAC	REC.	LTG.	DESCRIPTION	CKT
1	ISO GND RECEPTACLE		0.4			20/1	-	-	20/1			0.4		ISO GND RECEPTACLE	2
3	GENERAL RECEPTACLE		0.8			20/1	-	-	20/1			0.8		GENERAL RECEPTACLE	4
5	CASHWRAP RECEPTACLE (D) (ISO GND.)		0.8			20/1	-	-	20/1			0.8		CASHWRAP RECEPTACLE	6
7	CASHWRAP RECEPTACLE (D) (ISO GND.)		0.8			20/1	-	-	20/1			0.4		SALES OUTLET	8
9	CASHWRAP RECEPTACLE (D) (ISO GND.)		0.8			20/1	-	-	20/1			0.8		CASHWRAP RECEPTACLE	10
11	CASHWRAP RECEPTACLE (D) (ISO GND.)		0.8			20/1	-	-	20/1	1.0				POWER DOORS	12
13	INTERIOR SIGN	1.2				20/1	C	-	20/1	1.0				POWER DOORS	14
15	HAND DRYER				1.2	20/1	LO		20/1					SPARE	16
17	HAND DRYER				1.2	20/1	LO	-	20/1			0.4		ISO GND RECEPTACLE	18
19	LCP				0.2	20/1	-	-	20/1			0.4		ISO GND RECEPTACLE	20
21	REFRIGERATOR				0.8	20/1	G	-	30/1		1.8			UH-01	22
23	BREAKROOM RECEPTACLE		0.4			20/1	-	-	20/1			0.8		BREAKROOM RECEPTACLE	24
25	SECURITY ISO GND RECEPTACLE		0.4			20/1	-	-	20/1			0.4		TELEPHONE ISO GND RECEPTACLE	26
27	SECURITY ISO GND RECEPTACLE		0.4			20/1	-	-	20/1	1.0				POWER DOORS	28
29	MUSIC RECEPTACLE		0.8			20/1	-	-	20/1	0.2				TIME CLOCK	30
31	DOOR BELL				0.2	20/1	-	L	20/1	0.5				FACP	32
33	ROOF RECEPTACLE		1.0			20/1	-	-	20/1			0.4		STOCK RECEPTACLE	34
35	EF-03,04			0.4		20/1	-	-	20/1	1.5				WATER HEATER	36
37	EWC				0.6	20/1	G	-	20/1	1.0				PORTABLE A/C	38
39	SALES RECEPTACLE		0.8			20/1	-	C	20/1				1.2	EXTERIOR SIGN	40
41	EF-01,02			0.4		20/1	C	-	20/1				-	SPARE	42
TOTALS		1.2	8.2	0.8	4.2					6.2	1.8	5.6	1.2	TOTALS	

LOAD	CONNECTED	DEMAND
LIGHTING	2.4	3.0
RECEPTACLE	13.8	11.9
HVAC	2.6	3.1
MISC	10.4	10.4

M

MOUNTING: SURFACE
BUS RATING: 600A
600A MAIN LUG ONLY
VOLTAGE: 120/208V-3PH-4W
LOCATION:
A.I.C.: 65,000
AMPS CONN.: 346.7
AMPS DEMAND.: 368.9

COMMENTS: EXISTING PANEL TO REMAIN. PROVIDE MATCHING STYLE CIRCUIT BREAKERS TO ACCOMMODATE LOADS AS SHOWN.

BREAKER REMARKS
C-CONTACTOR CONTROLLED, S-SHUNT TRIP, L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID

CKT.	DESCRIPTION	KVA CONNECTED LTG.	REC.	HVAC	MISC.	C/B	REMARKS		C/B	KVA CONNECTED MISC.	HVAC	REC.	LTG.	DESCRIPTION	CKT
1				5.9			-	-			5.0				2
3	RTU-01			5.9		80/3	-	-	60/3		5.0			RTU-02	4
5				5.9			-	-			5.0				6
7				5.0			-	-			5.9				8
9	RTU-03			5.0		60/3	-	-	80/3		5.9			RTU-04	10
11				5.0			-	-			5.9				12
13							-	-							14
15	PANEL 'L'	20.2	-	4.0	4.0	150/3	-	-	150/3	10.4	2.6	13.8	2.4	PANEL 'P'	16
17							-	-							18
19		-					-	-					-		20
21	SPARE	-				80/3	-	-	60/3				-	SPARE	22
23		-					-	-					-		24
25	SPARE	-				20/1	-	-	20/1				-	SPARE	26
27	SPARE	-				20/1	-	-	20/1				-	SPARE	28
29	SPARE	-				20/1	-	-	20/1				-	SPARE	30
31	EXISTING SITE LIGHTING	0.4				20/1	C	-	20/1				-	SPARE	32
33	EXISTING SITE LIGHTING	0.4				20/1	C	-	20/1				-	SPARE	34
35	SPARE	-				20/1	-	-	20/1				-	SPARE	36
37	SPARE	-				20/1	-	-	20/1				-	SPARE	38
39	EXISTING PYLON SIGN	1.2				20/1	C	-	20/1				-	SPARE	40
41	SPARE	-				20/1	-	-	20/1				-	SPARE	42
TOTALS		22.2	0.00	36.7	4.0					10.4	35.3	13.8	2.4	TOTALS	

LOAD	CONNECTED	DEMAND
LIGHTING	24.6	30.4
RECEPTACLE	13.8	11.9
HVAC	72.0	76.4
MISC	14.4	14.4

DO NOT SCALE THESE DRAWINGS

Brian M. Schuler, P.E.
155 Willamsburg Drive
Avon Lake, Ohio 44012
Phone: 216-244-4120

BRIAN M. SCHULER
05-17-24
NORTH CAROLINA PROFESSIONAL ENGINEER BRIAN M. SCHULER SEAL 033582
N.C. PROFESSIONAL ENGINEER No. 033582

ADA ARCHITECTS
17710 Detroit Avenue Lakewood, Ohio 44107
Phone (216) 521-5134 Fax (216) 521-4824
www.adaarchitects.com

HARBOR FREIGHT

46 SHRIJI LANE
ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
1		
2		
3		
4		
5		
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7		
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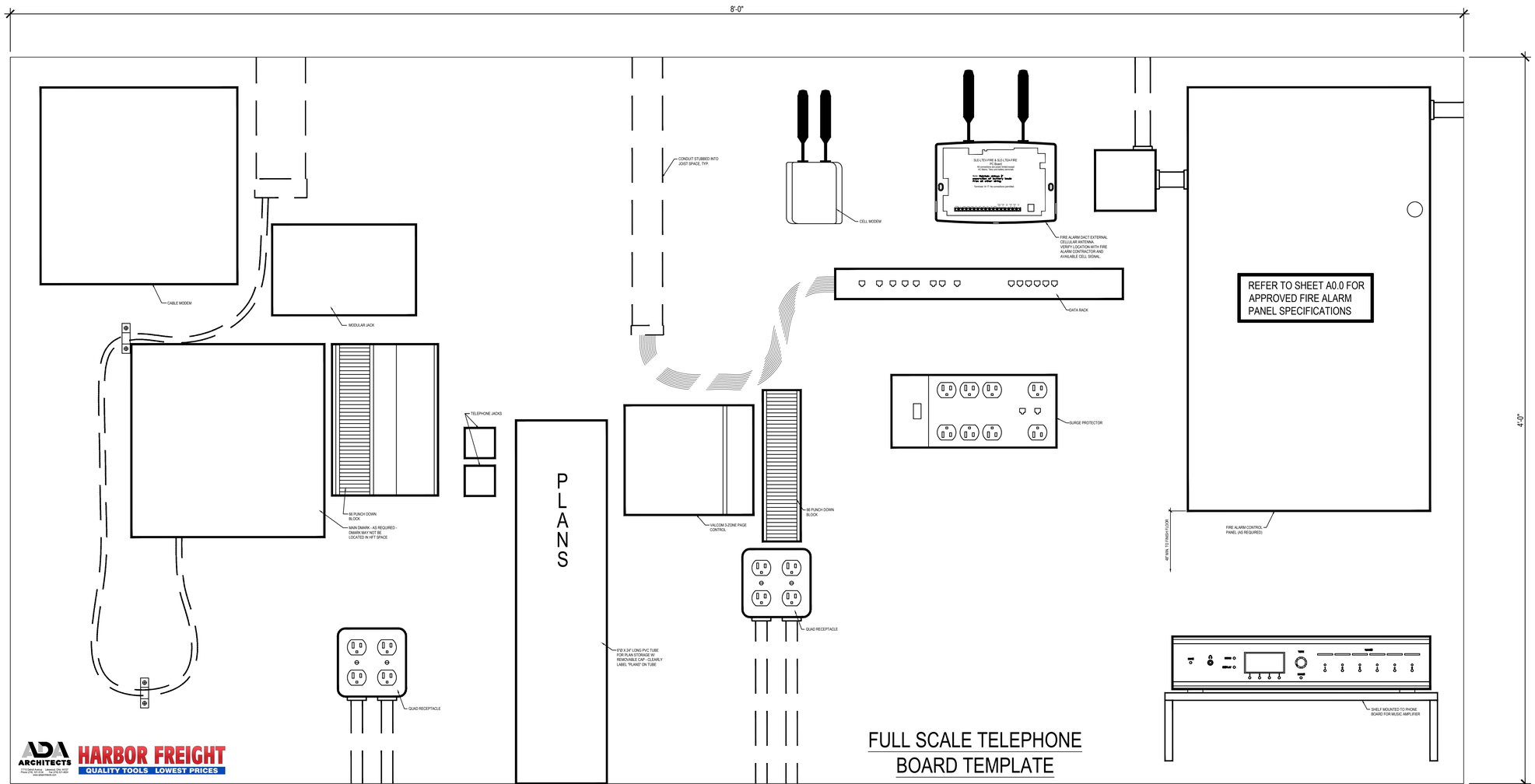
10		

LIGHTING & PANEL SCHEDULES

DATE 05/17/24
JOB NO. 23475

E2.1
SHEET NO.



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155 Willamsburg Drive
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Phone: 216-244-4120

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ERWIN, NC 28339

REVISIONS

#	DATE	TYPE
1		
2		
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7		
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9		
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PHONE BOARD DETAIL

DATE 05/17/24

JOB NO. 23475

E2.2
SHEET NO.

EMS DEVICES SCHEDULE AND CONSTRUCTION INSTALLATION RESPONSIBILITIES MATRIX

HFT GENERAL CONTRACTOR IS TO MANAGE AND VALIDATE THE EMS INSTALLATION AND COMMISSIONING THROUGH COMPLETION AND FINAL OPERATION.

SYMBOL	DEVICE	QUANTITY SUPPLIED BY SIEMENS	DEVICE CABLE TYPE	DEVICE LOCATION	PROVIDED BY	MOUNTING	BOX/RACEWAYS	INSTALL CABLE/WIRE, TERMINATE BOTH ENDS	INSTALLATION NOTES
C	CARBON DIOXIDE SENSOR	1 PER HVAC UNIT WITH CO2 (AS REQUIRED PER MECHANICAL DRAWINGS)	18/4 & 18/2	NEXT TO ZONE TEMP SENSOR	SIEMENS	SIEMENS	E.C.	SIEMENS	
D	DUCT TEMPERATURE SENSOR	1 PER CONTROLLED HVAC EXCEPT UNIT HEATERS	18/2	BOTTOM OF MAIN SUPPLY AIR DUCT DROP	SIEMENS	SIEMENS	E.C.	SIEMENS	
DCP	DIMMING CONTROL PANEL	1 (AS REQUIRED PER ELECTRICAL DRAWINGS)	VARIES PER CONNECTED DEVICES.	NEAR LCP	SIEMENS	E.C.	E.C.	E.C. / SIEMENS WILL TERMINATE LOW VOLTAGE WIRING AT DCP	4
DZC	DIGITAL ZONE CONTROLLER (WALL MOUNT VERSION)	1 PER UNIT HEATER	18/4 TO UNIT HEATER / 24-1P DAISY CHAIN	RETURN SIDE OF UNIT HEATER	SIEMENS	SIEMENS	E.C.	SIEMENS	
DZC RT	DIGITAL ZONE CONTROLLER (ROOFTOP VERSION)	1 PER CONTROLLED HVAC (EXCEPT UNIT HEATER)	18/10 TO RTU'S CTRL TERMINAL / 24/1P DAISY CHAIN / SENSORS AS REQUIRED	HVAC CONTROLS SECTION	SIEMENS	SIEMENS	E.C.	SIEMENS	
IL	INDOOR LIGHT SENSOR	AS REQUIRED PER ELECTRICAL DRAWINGS	18/4	IN DAYLIGHT HARVESTING ZONE	SIEMENS	SIEMENS	E.C.	SIEMENS	
LCP	LIGHTING CONTROL PANEL	1 (TYPICAL)	AS REQUIRED	NEAR BREAKER PANELS FEEDING LIGHTING CIRCUITS	SIEMENS	E.C.	E.C.	E.C. / SIEMENS WILL TERMINATE LOW VOLTAGE WIRING AT LCP	1
MIO	MICRO I/O	1 (STOCK ROOM RTU)	AS REQUIRED	MOUNTED ON DZC-RT	SIEMENS	SIEMENS	N/A	SIEMENS	
OSE	OUTSIDE SENSING DEVICE	1	18/4	ROOF	SIEMENS	SIEMENS	M.C.	SIEMENS	
RH	RELATIVE HUMIDITY SENSOR	1	18/4	STOCK ROOM	SIEMENS	SIEMENS	E.C.	SIEMENS	
S	ZONE TEMPERATURE SENSOR	1 PER CONTROLLED HVAC	18/2	1 IN EACH ZONE (SEE CONSTRUCTION DRAWING FOR LOCATIONS)	SIEMENS	SIEMENS	E.C.	SIEMENS	
SLP	SCREAM LOGIC PANEL	1	VARIES PER CONNECTED DEVICES.	ELECTRICAL ROOM OR STOCKROOM	SIEMENS	E.C.	E.C.	E.C. / SIEMENS WILL TERMINATE LOW VOLTAGE WIRING AT SLP	
SW	SLIDER SWITCH	1 PER EACH DIMMING GROUP ON SALES FLOOR PROVIDED BY ELECTRICAL CONTRACTOR	18/2	WALL BETWEEN STOCK AND SALES FLOOR	E.C.	E.C.	E.C.	E.C. / SIEMENS	4
	SECURITY INTERFACE	1	18 /4	WITHIN 10 FEET OF SECURITY RELAY PANEL	SIEMENS	SIEMENS	E.C.	SIEMENS	
	SPLICE BOX	1 PER EACH DIMMING GROUP ON SALES FLOOR (AS REQUIRED)	AS REQUIRED	NEXT TO DCP	SIEMENS	SIEMENS	E.C.	SIEMENS	
TSP	TOUCH SCREEN PANEL	1	CAT-5	MANAGERS OFFICE	SIEMENS	E.C.	E.C.	E.C.	5, 2, 3

INSTALLATION SUMMARY

1. LOW VOLTAGE CABLE:

I. SIEMENS SHALL FURNISH THE LOW VOLTAGE CABLE FOR THE EMS SYSTEM. THE CABLE SHALL BE AS SPECIFIED IN THE CABLE SCHEDULE.

II. REFER TO "EMS DEVICES SCHEDULE AND CONSTRUCTION INSTALLATION RESPONSIBILITY MATRIX" FOR ADDITIONAL INFORMATION ON

RESPONSIBILITIES FOR INSTALLATION OF LOW VOLTAGE CABLE.

2. EQUIPMENT DELIVERY:

I. SITE CONTROLS SHALL PROVIDE THE EMS EQUIPMENT IN 1 SHIPMENT.

II. IT SHALL BE UP TO THE G.C. TO CALL FOR EMS EQUIPMENT DELIVERY THE EQUIPMENT WILL BE SHIPPED WITHIN 2 DAYS OF RECEIVING A VALID

REQUEST. A VALID REQUEST SHALL CONSIST OF THE FOLLOWING:

1 – NAME AND PHONE NUMBER OF PERSON RESPONSIBLE FOR RECEIVING THE EMS EQUIPMENT AND STORE NUMBER.

2 – A VALID SHIPPING ADDRESS (CONFIRMABLE BY THE DELIVERY AGENT).

3. CONTACT INFORMATION:

I. PLEASE DIRECT ALL SHIPPING AND PROJECT MANAGEMENT REQUESTS TO SIEMENS RCS AT (512) 751-5942 OR PROJECT MANAGER:

EMELY CORDON AT EMELY.CORDON@SIEMENS.COM

4. EMS COMMISSIONING:

I. IT SHALL BE UP TO THE G.C. TO CALL FOR EMS COMMISSIONING AT LEAST 2 WEEKS PRIOR TO TURN OVER AND BEFORE THE INSTALLING

CONTRACTOR HAS LEFT THE PROJECT. SIEMENS WILL BE ON SITE PER HFT REQUEST 1 WEEK AFTER THE HFT "FIXTURE DATE".

THE FOLLOWING CONDITIONS MUST BE MET PRIOR TO SIEMENS ARRIVAL:

1-ALL EMS DEVICES AND PANELS HAVE BEEN INSTALLED AND WIRED

2-ALL LINE VOLTAGE WIRING HAS BEEN COMPLETED

3-ALL CONTROLLED EQUIPMENT HAS BEEN INSTALLED AND STARTED

II. FAILURE TO MEET THESE CONDITIONS COULD RESULT IN DELAY OF STORE OPENING AND ADDITIONAL CHARGES.

III. E.C. & M.C. MUST BE PRESENT FOR COMMISSIONING OF EMS.

NOTE: TITLE 23 REPRESENTATIVE SHALL ALSO BE PRESENT AT CALIFORNIA LOCATIONS.

GENERAL EMS CONSTRUCTION NOTES

1. SIEMENS SHALL PROVIDE THE INSTALLATION LABOR AND MATERIALS TO INSTALL THE LOW VOLTAGE PORTION OF THE EMS SYSTEM ACCORDING THE EMS SCHEDULES AND THE FOLLOWING:

I. INSTALL EMS DEVICES AT LOCATIONS SHOWN ON THE MECHANICAL DRAWINGS AND MOUNT ACCORDING TO THE EMS DETAILS.

II. PROVIDE AND INSTALL THE LOW VOLTAGE CABLING FROM THE EMS DEVICES TO THE RTU'S AND LCP

III. TERMINATE THE LOW VOLTAGE CABLING AT BOTH ENDS.

IV. CLEARLY IDENTIFY (LABEL) THE CABLES AT BOTH ENDS.

2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL THE LINE VOLTAGE PORTION OF THE EMS SYSTEM ACCORDING TO THE EMS SCHEDULES AND THE

FOLLOWING:

I. PROVIDE AND INSTALL ELECTRICAL BOXES WITH 3/4" EMT STUB-UPS TO ABOVE CEILING GRID FOR WALL MOUNTED EMS AND CONTROL DEVICES.

II. PROVIDE AND INSTALL A 5' SECTION OF 1/2" RIGID FOR ROOF MOUNTED OSD.

3. SIEMENS SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL THE LINE VOLTAGE PORTION OF THE EMS SYSTEM ACCORDING TO THE EMS SCHEDULES AND THE FOLLOWING:

I. MOUNT EMS PANELS AND PIPE TOGETHER ACCORDING TO THE EMS DRAWINGS.

II. SIEMENS SHALL INSTALL AND TERMINATE OSD AND CABLE.

4. NOTES ABOVE DO NOT ALLEVIATE CONTRACTORS OF OVERALL RESPONSIBILITIES OF PROVIDING A COMPLETE AND OPERATIONAL SYSTEM.

5. TITLE 24: THE E.C. SHALL WIRE AND INSTALL A LOW VOLTAGE DIMMER LOCATED OUTSIDE OF THE BREAK ROOM FOR SALES REPLENISHMENT FIXTURES (MANUAL DIMMING THE DIMMING SWITCH

WIRES SHALL BE TERMINATED IN A JUNCTION BOX MOUNTED ABOVE DCP. SIEMENS TO EXTEND WIRING TO DCP.

GENERAL LV CABLE INSTALLATION INSTRUCTIONS

1. HOME RUNS:

I. LOW VOLTAGES CABLES SHALL BE PULLED FROM DEVICE TO CONTROL PANEL WITHOUT SPLICING.

2. COMMUNICATIONS CABLING:

I. IN THE CASE OF MULTIPLE DEVICES SUCH AS COMMUNICATIONS CABLING, THE CABLE SEGMENTS SHALL BE PULLED FROM DEVICE TO DEVICE WITHOUT SPLICING.

3. CABLE SHIELD GROUNDING:

I. EACH CABLE RUN SHALL BE GROUNDED AT ONE END ONLY. GROUND SHIELD DRAIN WIRE AT

CONTROL PANEL END. FASTEN DRAIN WIRE TO EARTH GROUND SCREWS PROVIDED. THE THE SHIELD AND DRAIN WIRE SHALL BE

REMOVED FROM THE OPPOSITE (DEVICE) END AND ISOLATED FROM GROUND.

II. IN THE CASE OF MULTIPLE DEVICES SUCH AS COMMUNICATIONS WIRING, THE SHIELD DRAIN WIRES AT THE INTERMEDIATE DEVICES SHALL BE MECHANICALLY SPLICED TOGETHER

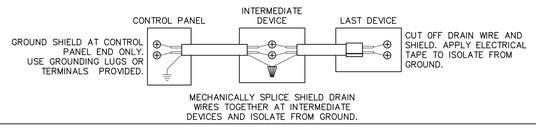
AND ISOLATED FROM GROUND.

4. TESTING SHIELD GROUNDS:

I. DURING COMMISSIONING THE FIELD SERVICE REPRESENTATIVE (FSR) WILL TEST THE SHIELD GROUNDING AT THE CONTROL PANEL.

SHIELDS FOUND TO HAVE CONTINUITY LESS THEN 100K OHM TO GROUND SHALL BE REJECTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING SHIELD GROUND FAULTS.

MULTIPLE SEGMENT EXAMPLE



INSTALLATION NOTES

1. SIEMENS SHALL INSTALL LOW VOLTAGE CABLE IN RACEWAYS PROVIDED BY E.C. AND TERMINATE BOTH ENDS. LINE VOLTAGE CONDUIT, WIRING AND TERMINATIONS BY E.C.

2. SIEMENS SHALL TERMINATE ALL LOW VOLTAGE CABLES AT THE TOUCHSCREEN.

3. E.C. TO PROVIDE DEDICATED POWER CIRCUIT TO TOUCHSCREEN.

4. E.C. SHALL BE RESPONSIBLE FOR INSTALLATION OF POWER WIRING AND LOW VOLTAGE DIMMING CONTROL SIGNALS TO LIGHTING FIXTURES. SIEMENS SHALL BE RESPONSIBLE FOR

INSTALLATION OF ADDITIONAL CONTROL WIRING IN RACEWAYS INSTALLED BY E.C.

5. THE MAXIMUM DISTANCE BETWEEN THE TSP AND THE OUTLET IS 4 FEET. THE MAXIMUM LENGTH OF THE CAT-5 BETWEEN THE SLP AND TSP MUST NOT EXCEED 100 FEET.

GENERAL NON-EMS CONTROLS

1. COMBUSTION AIR VENTILATION AND OTHER EQUIPMENT:

I. CONTROLS FOR COMBUSTION AIR VENTILATION AND ANY OTHER EQUIPMENT NOT SPECIFICALLY MENTIONED IN THE EMS SCHEDULES SHALL BE FURNISHED AND INSTALLED ACCORDING

TO THE MECHANICAL AND ELECTRICAL BID DOCUMENTS.

2. EXHAUST FAN, TRANSFER FAN AND OTHER "HARD-WIRED" INTERLOCKS (SEE INTERLOCK EXAMPLE BELOW):

I. WHEN HARD-WIRED INTERLOCKING IS SPECIFIED IN THE MECHANICAL AND/OR ELECTRICAL SCHEDULES, THE INTERLOCKS SHALL BE FURNISHED AND INSTALLED BY THE TRADES SPECIFIED.

INTERLOCKING IS NOT PART OF EMS SYSTEM.

II. WHERE EXHAUST FAN AND RTU INTERLOCKS ARE CALLED OUT, THE CONTRACTOR SHALL CONNECT DIRECTLY TO THE SUPPLY FAN CONTACTOR COIL AND WIRE IN PARALLEL TO THE

COIL OF A PROPERLY SIZED CONTACTOR OR STARTER SERVING THE INTERLOCKED EQUIPMENT. DO NOT USE THE EMS SYSTEM TO INTERLOCK EQUIPMENT.

3. LIFE SAFETY AND FIRE ALARM SYSTEMS:

I. LIFE SAFETY AND FIRE ALARM SYSTEMS ARE NOT PART OF THE EMS SYSTEM AND SHALL BE FURNISHED AND INSTALLED AS SPECIFIED IN THE MECHANICAL AND ELECTRICAL

BID DOCUMENTS.

II. MECHANICAL EQUIPMENT SHUTDOWN SHALL BE WIRED AS TO NOT AFFECT THE EMS SYSTEM.

4. MANUFACTURER SUPPLIED HUMIDITY CONTROLLERS:

I. DEHUMIDIFYING ROOFTOP UNITS:

SOME ROOFTOP UNITS MAY COME EQUIPPED WITH A DEHUMIDIFICATION CYCLE AND SPACE HUMIDITY SENSOR. THIS SENSOR SHALL BE INSTALLED IN ADDITION TO THE EMS SYSTEM AND

ACCORDING TO THE MANUFACTURER'S INSTRUCTION.

CABLE TYPE	MANUFACTURER	SIEMENS PART #
18/2	18AWG, 2 CONDUCTOR, SHIELDED, STRANDED, PLENUM, WHITE	ANIXTER	RCS-2C18-CMP-WH
18/4	18AWG, 4 CONDUCTOR, SHIELDED, PLENUM, WHITE	ANIXTER	RCS-4C18-CMP-WH
18/10	18AWG, 10 CONDUCTOR, UNSHIELDED, STRANDED, PLENUM, WHITE	ANIXTER	RCS-10C18-CMP-WH
24/1P	24AWG, TWISTED PAIR, SHIELDED, STRANDED, PLENUM, WHITE	ANIXTER	RCS-TP24-CMP-WH
CAT-5	CATEGORY 5, UNSHIELDED, SOLID, TWISTED PAIR WHITE	ANIXTER	RCS-E-4UTP-CAT5E-CMR-WH

CABLE PURCHASING INSTRUCTIONS

ANIXTER INC. IS THE AUTHORIZED DISTRIBUTOR OF SPECIFIED CABLE FOR SIEMENS INDUSTRY, INC., BUILDING TECHNOLOGIES DIVISION.
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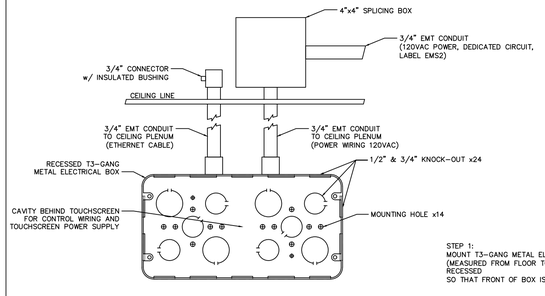
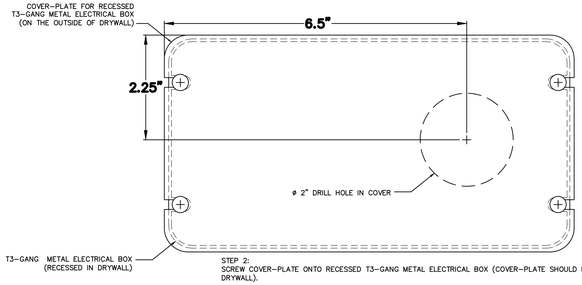
FAX: (888) 479-3834
EMAIL: SBT@anixter.com
WEBSITE FOR SIEMENS BT: www.anixter.com/SBT (BUILDING AUTOMATION TAB)
WO REFERENCE NUMBER: 30209634



STEP 1:
MOUNT T3-GANG METAL ELECTRICAL BOX AT 43" AFF. (MEASURED FROM FLOOR TO BOTTOM OF BOX – RECESSED
SO THAT FRONT OF BOX IS FLUSH WITH DRYWALL).

TS 1 TOUCHSCREEN MOUNTING DETAIL (T3-GANG METAL ELECTRICAL BOX)
NO SCALE



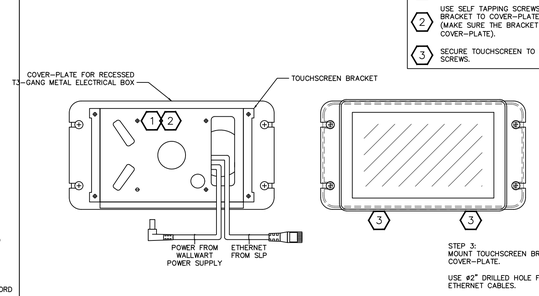
STEP 2:
SCREW COVER-PLATE ONTO RECESSED T3-GANG METAL ELECTRICAL BOX (COVER-PLATE SHOULD BE FLUSH TO DRYWALL).

DRILL A ø2" HOLE IN COVER-PLATE TO ALLOW FOR CONNECTIONS TO TOUCHSCREEN.(DRILL-HOLE SHOULD BE APPROXIMATELY 6.5" OVER AND 2.25" DOWN FROM THE UPPER LEFT-HAND CORNER OF THE COVER-PLATE).

REMOVE COVER-PLATE AND INSTALL TOUCHSCREEN POWER SUPPLY IN THE T3-GANG BOX AND RUN 120VAC CORD TO SPLICING BOX ABOVE CEILING (TOUCHSCREEN POWER SUPPLY SHIPPED SEPARATELY).

REPLACE COVER-PLATE.

TS 2 TOUCHSCREEN MOUNTING DETAIL – COVER-PLATE INSTALLATION / DRILL-HOLE LOCATION
NO SCALE



STEP 3:
MOUNT TOUCHSCREEN BRACKET TO T3-GANG BOX COVER-PLATE.

USE ø2" DRILLED HOLE FOR EGRESS OF POWER AND ETHERNET CABLES.

PLUG POWER AND ETHERNET CABLES INTO BACK OF TOUCHSCREEN.

SECURE TOUCHSCREEN TO TOUCHSCREEN BRACKET. (TOP OF TOUCHSCREEN SHOULD BE AT 48" AFF MAX).

TSP 3 TOUCHSCREEN PANEL MOUNTING DETAIL
NO SCALE

KEYED NOTES

1. MOUNTING HOLES FOR TOUCHSCREEN BRACKET.
2. USE SELF TAPPING SCREWS TO MOUNT TOUCHSCREEN BRACKET TO COVER-PLATE. (MAKE SURE THE BRACKET IS CENTERED ON THE COVER-PLATE).
3. SECURE TOUCHSCREEN TO BRACKET FLANGES USING PROVIDED SCREWS.

#	DESCRIPTION	DATE	BY
0	Initial Release	11-15-17	MS
4	Revised	8-12-19	MS
5	Revised	10-10-19	MS
6	Revised	3-3-20	MS
7	Revised	4-13-20	MS
8	Revised	6-2-20	MS
9	Revised	6-28-22	MS

REVISIONS

EMS-1

Description: PROTOTYPICAL NATIONAL EMS BID SET

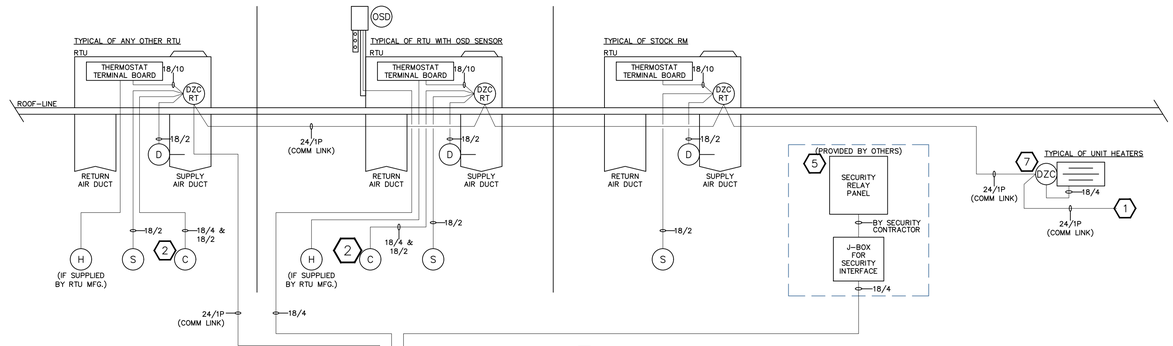
Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

Project: HARBOR FREIGHT NEW CONSTRUCTION

Scale: NTS

Date: 11-15-17

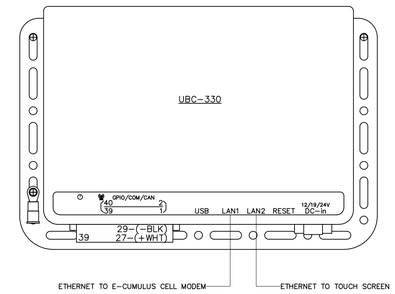
SIEMENS
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,
AUSTIN, TEXAS 78733 Phone: 512-421-6257



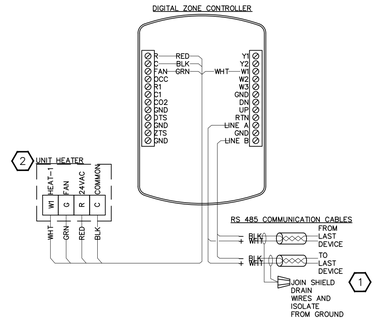
SLD SINGLE LINE DIAGRAM
1 NO SCALE

KEYED NOTES

1. DAISY CHAIN COMMUNICATION CABLE TO EACH ADDITIONAL DZC.
2. WHEN REQUIRED A CO2 SENSOR WILL BE INSTALLED NEXT TO THE ZONE TEMPERATURE SENSOR FOR CONTROL OF HVAC. ENSURE ADEQUATE LENGTH OF 18/2 TO REACH ECONOMIZER SECTION OF RTU.
3. NOTE REMOVED.
4. WHEN THE INSTALLATION OF ADDITIONAL LIGHTING CONTROL PANELS IS REQUIRED, CONTROL SIGNALS FROM THE SLP MUST BE DAISY CHAIN TO ANY ADDITIONAL LCP (AS REQUIRED).
5. REFER TO "SECURITY INTERFACE" DETAIL FOR TERMINATIONS.
6. INSTALL CELL MODEM IN NETWORK RACK. PULL AND TERMINATE CAT-5 BETWEEN SLP AND CELL MODEM.
7. UNIT HEATER MUST BE FURNISHED WITH A CLASS 2 24VAC CTRL TRANSFORMER. MOUNT DZC ON RETURN INTAKE OF UNIT.
8. CONTROL SIGNAL TO DIMMING FIXTURES. MAXIMUM LOAD PER DIMMING CHANNEL MUST NOT EXCEED 80mA.
9. TYPICAL OF 1 IL SENSOR PER EACH DAYLIGHT HARVESTING ZONE. REFER TO CONSTRUCTION DRAWINGS FOR NUMBER AND LOCATIONS.
10. TYPICAL OF EACH DIMM GROUP IN SALES FLOOR (INCLUDING DAYLIGHT HARVEST GROUP). EACH DIMMING GROUP IN THE SALES FLOOR REQUIRES INSTALLATION OF ONE SLIDE DIMMER ON THE WALL SEPARATING THE SALES FLOOR FROM THE STOCK ROOM (INSIDE STOCK ROOM) AND ONE SPLICE BOX AT THE DCP.
11. AS REQUIRED FOR SITES WITH DIMMING CONTROLS: SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
12. MOUNT CELL MODEM IN NETWORK RACK.
13. INSTALL TOUCH SCREEN PANEL IN THE MANAGER'S OFFICE AT 48" AFF.



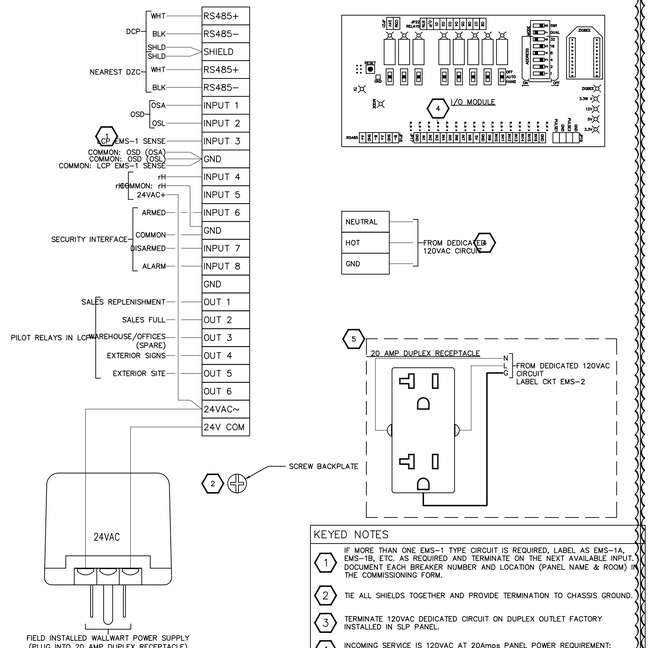
UBC UBC-330 (SCREAM) WIRING DETAIL
1 NO SCALE



DZC DIGITAL ZONE CONTROLLER WIRING DETAIL
1 NO SCALE

KEYED NOTES

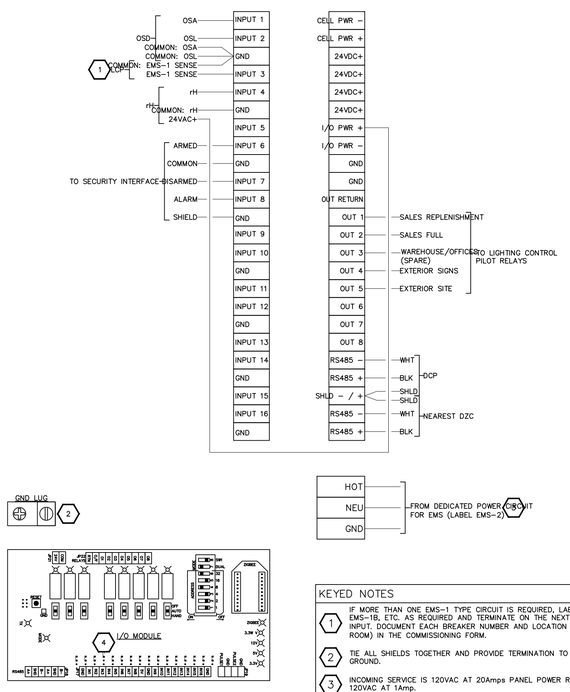
1. IF LAST DZC, CUT SHIELD AND DRAIN WIRE AND TAPE BACK.
2. UNIT HEATER MUST BE FACTORY FURNISHED WITH A 24VAC CLASS 2 POWER SUPPLY



KEYED NOTES

1. IF MORE THAN ONE EMS-1 TYPE CIRCUIT IS REQUIRED, LABEL AS EMS-1A, EMS-1B, ETC. AS REQUIRED AND TERMINATE ON THE NEXT AVAILABLE INPUT. DOCUMENT EACH BREAKER NUMBER AND LOCATION (PANEL NAME & ROOM) IN THE COMMISSIONING FORM.
2. TIE ALL SHIELDS TOGETHER AND PROVIDE TERMINATION TO CHASSIS GROUND.
3. TERMINATE 120VAC DEDICATED CIRCUIT ON DUPLEX OUTLET FACTORY INSTALLED IN SLP PANEL.
4. INCOMING SERVICE IS 120VAC AT 20Amps PANEL POWER REQUIREMENT: 120VAC AT 1Amp.
5. FOR SLP PANELS WITHOUT TERMINAL BLOCK LAND THE 120 VAC SERVICE DIRECTLY TO THE OUTLET.
6. FOR rH, JUMPER POSITION INPUT-4 ON I/O MODULE MUST BE IN THE OFF POSITION. FOR STORAGE PURPOSES, PLACE JUMPER ON THE TOP PIN AS SHOWN.

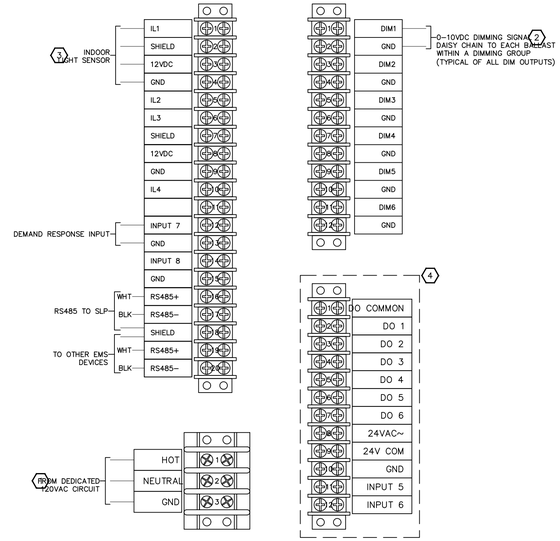
SLP SCREAM LOGIC PANEL WIRING DETAILS
1 NO SCALE



KEYED NOTES

1. IF MORE THAN ONE EMS-1 TYPE CIRCUIT IS REQUIRED, LABEL AS EMS-1A, EMS-1B, ETC. AS REQUIRED AND TERMINATE ON THE NEXT AVAILABLE INPUT. DOCUMENT EACH BREAKER NUMBER AND LOCATION (PANEL NAME & ROOM) IN THE COMMISSIONING FORM.
2. TIE ALL SHIELDS TOGETHER AND PROVIDE TERMINATION TO CHASSIS GROUND.
3. INCOMING SERVICE IS 120VAC AT 20Amps PANEL POWER REQUIREMENT: 120VAC AT 1Amp.
4. FOR rH, JUMPER POSITION INPUT-4 ON I/O MODULE MUST BE IN THE OFF POSITION. FOR STORAGE PURPOSES, PLACE JUMPER ON THE TOP PIN AS SHOWN.

SLP (ALTERNATE) SLP FIELD WIRING DETAIL - NEW SC EMS LOGIC PANEL
2 NO SCALE



KEYED NOTES

1. INCOMING SERVICE IS 120VAC AT 20AMPS PANEL POWER REQUIREMENT: 120VAC AT 1AMP.
2. MAX LOAD PER DIMMING GROUP = 80mA.
3. EACH SHIELD, 12VDC & GND GROUND TERMINAL CAN BE SHARED BY 2 LIGHT SENSORS.
4. EXTRA TERMINAL BLOCK AVAILABLE ONLY ON LATEST VERSION OF DCP.

DCP DIMMING CONTROL PANEL WIRING DETAIL
1 NO SCALE

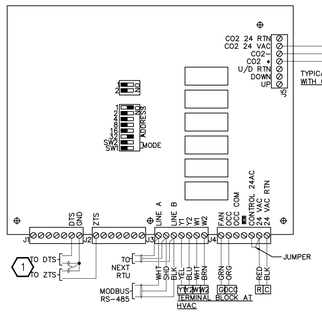
#	DESCRIPTION	DATE	BY
0	Initial Release	11-15-17	MS
4	Revised	8-12-19	MS
5	Revised	10-10-19	MS
6	Revised	3-3-20	MS
7	Revised	4-13-20	MS
8	Revised	6-2-20	MS
9	Revised	6-28-22	MS

REVISIONS

Description: PROTOTYPICAL
NATIONAL EMS BID SET
Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg
Dwg. EMS-2

Project: HARBOR FREIGHT
NEW CONSTRUCTION
Scale: NTS
Date: 11-15-17

SIEMENS
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,
AUSTIN, TEXAS 78733 Phone: 512-421-6257



DZC ROOFTOP DIGITAL ZONE CONTROLLER WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. TERMINATE COMMON SIGNAL AND SHIELD DRAIN WIRES ON GND TERMINAL.

2 POSITION DIP SWITCH (HEAT PUMP ONLY)

HEAT PUMP MODE SETTINGS — REFER TO DZC MODE TABLE

→ ON

NOTE:
AFTER SETTING DIP SWITCHES, PUSH DZC RESET BUTTON TO VALIDATE CHANGES.

8 POSITION DIP SWITCH

DZC-II ALL VERSIONS AND DZC-RT PRIOR TO V11

ADDRESS: SWITCHES 1-5 SET DZC ADDRESS IN BINARY VALUES.
RANGE: LOW ADDR = 1 / HIGH ADDR = 31
EXAMPLE:
SW1 = ON
SW2 = OFF
SW3 = OFF
SW4 = ON
SW5 = OFF
(ADDR #9)

SENSOR: SWITCH 6 SETS DZC SENSOR SOURCE.
EXAMPLE:
OFF = INTERNAL TEMP SENSOR (DZC-II ONLY)
ON = EXTERNAL TEMP SENSOR

MODE: SW2, SW1 — REFER TO DZC MODE TABLE

DZC-RT V11 AND NEWER

ADDRESS: SWITCHES 1-6 SET DZC ADDRESS IN BINARY VALUES.
RANGE: LOW ADDR = 1 / HIGH ADDR = 63
EXAMPLE:
SW1 = ON
SW2 = OFF
SW3 = OFF
SW4 = OFF
SW5 = OFF
SW6 = ON
(ADDR #33)

MODE: SW2, SW1 — REFER TO DZC MODE TABLE

	2 POSITION DIP SWITCH		8 POSITION DIP SWITCH								
DZC MODE TABLE	1	2	1	2	3	4	5	6	7	8	
MODE1: HP SINGLE STAGE WITH AUX RE-HEAT	ON	OFF	X	X	X	X	X	X	OFF	OFF	HEAT PUMP REVERSING VALVE ENERGIZED FOR HEATING ①
MODE2: HP MULTI STAGE WITH AUX RE-HEAT	ON	OFF	X	X	X	X	X	X	ON	OFF	
MODE1: HP SINGLE STAGE WITH AUX RE-HEAT	OFF	ON	X	X	X	X	X	X	OFF	OFF	HEAT PUMP REVERSING VALVE ENERGIZED FOR COOLING ①
MODE2: HP MULTI STAGE WITH AUX RE-HEAT	OFF	ON	X	X	X	X	X	X	ON	OFF	
MODE 5- STANDARD SINGLE STAGE HEATING/COOLING	OFF	OFF	X	X	X	X	X	X	OFF	OFF	STANDARD SYSTEM WITH CONVENTIONAL THERMOSTAT INTERFACE
MODE 6 - STANDARD MULTI-STAGE HEATING/COOLING	OFF	OFF	X	X	X	X	X	X	OFF	ON	
MODE 7 (AVAILABLE ON V11 OR NEWER) - MULTI-STAGE HEATING/ 3 STAGE COOLING	OFF	OFF	X	X	X	X	X	X	ON	OFF	

NOTE: 'X' CONFIGURED AS REQUIRED FOR ADDRESS AND SENSOR SELECTION.

DZC DZC SETTINGS
2 NO SCALE

KEYED NOTES

1. WHEN HEAT PUMP MODE IS SELECTED, "W1" IS USED FOR CONTROL OF THE REVERSING VALVE (O/B) AND "W2", "W3" FOR CONTROL OF AUXILIARY HEAT.

rH RELATIVE HUMIDITY SENSOR WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. CUT BACK SHIELD AND DRAIN WIRE THEN HEAT SHRINK TO AVOID ACCIDENTAL SHORT TO GROUND.
2. DO NOT CUT SPARE CONDUCTOR, WRAP BACK AND TAPE (AT BOTH ENDS).
3. FOR SCREAM LOGIC PANEL: CONNECT TO '24VAC~'
FOR NEW SC EMS LOGIC PANEL: CONNECT TO 'I/O PWR +'
4. CONNECT TO 'GND' IN SLP.
5. CONNECT TO 'INPUT 4' IN SLP.
6. GND SHIELD.

CO2 CO2 SENSOR WIRING DETAIL
1 NO SCALE

D/S DUCT / SPACE SENSOR WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. CUT BACK SHIELD AND DRAIN WIRE THEN HEAT SHRINK OR TAPE BACK TO AVOID ACCIDENTAL SHORT TO GROUND.

UH UNIT HEATER WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. VERIFY THE CLASS 2 TRANSFORMER POWERING THE DZC HAS ITS 24V COMMON GROUNDED.
2. IF LAST DZC, CUT SHIELD AND DRAIN WIRE AND TAPE BACK.

MOUNTING NOTES:
MOUNT SENSOR VERTICALLY, WITH THE DOMED PORTION FACING UP. LOCATE SENSOR AS CLOSE
ATRIUM WINDOWS (GLASS) AS POSSIBLE AND AS FAR AS POSSIBLE FROM THE WALLS (NO LESS

KEYED NOTES

1. REFER TO SLP OR DCP WIRING DIAGRAM FOR DESCRIPTION OF TERMINALS AND ADDITIONAL DETAILS.
2. CUT SHIELD DRAIN WIRE AND TAPE BACK.
3. SENSOR MUST BE INSTALLED IN A LOCATION WHERE IT PROVIDES ADEQUATE CONTROL OF LIGHTING FIXTURES IN THE DAY LIT AREA. MOUNT SENSOR NO LESS THAN 2" BELOW LEVEL OF LIGHT FIXTURES.
4. FOR SKYLIGHT WIRING, SEE INDOOR LIGHT SENSOR WIRING DETAIL.

IL CEILING MOUNT / SKYLIGHT INDOOR LIGHT SENSOR WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. CUT AND TAPE BACK UNUSED CONDUCTORS AND SHIELD DRAIN AT SECURITY END.
2. CABLE PULLED BY SECURITY CONTRACTOR. IF SIEMENS HAS ALREADY MOUNTED JUNCTION BOX AND TERMINATED SIGNALS, THE SECURITY CONTRACTOR SHOULD REMOVE RESISTERS AND TERMINATE SECURITY RELAY SIGNALS AS SHOWN. OTHERWISE, THE SECURITY CONTRACTOR SHALL LEAVE ADEQUATE SERVICE LOOP (10 FEET MIN) AND SIEMENS WILL TERMINATE ONCE THE JUNCTION BOX HAS BEEN INSTALLED.)
3. SPLICE CONDUCTORS USING WIRE NUT OR A SEALANT FILLED CONNECTOR.
4. DRAIN SHIELD WIRED TERMINATED TO GROUND ONLY AT SLP CONTROLLER.

SEC SECURITY INTERFACE SYSTEM WIRING DETAIL
1 NO SCALE

KEYED NOTES

1. MOUNT OSD 3' ABOVE RTU, FURTHEST FROM CONDENSER FANS. USE 1/2" ELECTRICAL CONDUIT. LIGHT SENSOR MUST FACE TRUE NORTH, UNLESS RE-ORIENTATION IS NECESSARY TO AVOID ARTIFICIAL LIGHTING (E.G. PARKING LIGHTS). INSTALLER SHALL NOT PENETRATE ROOF.
2. USE 1/2" LB FITTING AND RAINTIGHT COMPRESSION CONNECTORS.
3. CONDUCTORS MUST BE SPLICED USING SEALANT FILLED CONNECTORS (DOLPHIN OR SIMILAR). MAKE SURE GASKET IS INSTALLED AND ASSEMBLY IS WATER TIGHT.

OSD OUTSIDE SENSING DEVICE MOUNTING AND WIRING DETAILS
1 NO SCALE

SIEMENS
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,
AUSTIN, TEXAS 78733 Phone: 512-421-6257

Project: HARBOR FREIGHT
NEW CONSTRUCTION

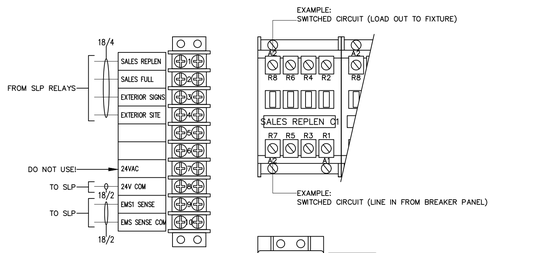
Description: PROTOTYPICAL
NATIONAL EMS BID SET

Date: 11-15-17
Scale: NTS
Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

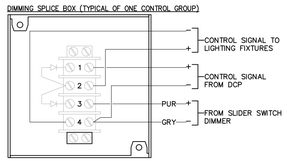
REVISIONS

#	DESCRIPTION	DATE	BY
0	Initial Release	11-15-17	MS
4	Revised	8-12-19	MS
5	Revised	10-10-19	MS
6	Revised	3-3-20	MS
7	Revised	4-13-20	MS
8	Revised	6-2-20	MS
9	Revised	6-28-22	MS

Dwg. EMS-3



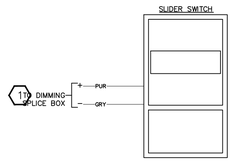
LCP 1 LIGHTING CONTROL PANEL WIRING DETAIL
NO SCALE



SB 1 DIMMING SPLICE BOX WIRING DETAIL
NO SCALE

KEYED NOTES

1 SLIDER SWITCH: DIMMING CONTROL, 0-10VDC, 200MA, SINK DIMMING. REFERENCE P# EATON SF10P.



SL/SW 1 SLIDER SWITCH WIRING DETAIL
NO SCALE

#	DESCRIPTION	DATE	BY
0	Initial Release	11-15-17	MS
4	Revised	8-12-19	MS
5	Revised	10-10-19	MS
6	Revised	3-3-20	MS
7	Revised	4-13-20	MS
8	Revised	6-2-20	MS
9	Revised	6-28-22	MS

REVISIONS

Dwg. EMS-4

Description: PROTOTYPICAL
NATIONAL EMS BID SET

Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

Project:
HARBOR FREIGHT
NEW CONSTRUCTION NA

Date: 11-15-17
Scale: NTS

SIEMENS
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,
AUSTIN, TEXAS 78733 Phone: 512-421-6257