

# HARBOR FREIGHT TOOLS

129 W CORNELIUS HARNETT BLVD. LILLINGTON, NC 27546

Reviewed for Fire Code Compliance  
 Harnett  
 Leslie Jackson  
 04/02/2024 2:44:11 PM



**HARBOR FREIGHT**  
 129 W CORNELIUS HARNETT BLVD.  
 LILLINGTON, NC 27546  
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## SIGN VENDOR LIST

**Harbor Freight Tools Sign Vendor Territories**

**Vendors**

- Northern US Urban Neon
- Southern US Atlas Sign Industries

**SIGN VENDOR (NORTHERN)**

URBAN SIGN GROUP  
 500 PINE STREET SUITE 3A  
 HOLMES, PA 19043  
 CONTACT: PIETRO D'AGOSTINO  
 T: (610) 522-5555  
 EMAIL: pietro@urbansigngroup.com  
 CONTACT: SEBASTIAN CARPENTER  
 T: (610) 522-5555  
 EMAIL: scarpenter@urbansigngroup.com

**SIGN VENDOR (SOUTHERN)**

ATLAS SIGN INDUSTRIES  
 1077 W. BLUE HERON BLVD.  
 WEST PALM BEACH, FL 33404  
 CONTACT: JODY KLUTZ  
 T: (860) 781-3097  
 EMAIL: jody.k@atlasbv.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.

## CODE AND BUILDING DATA

**PROJECT SCOPE:**  
 INTERIOR BUILD OUT OF AN EXISTING MERCANTILE SPACE. INTERIOR ALTERATIONS INCLUDE CONSTRUCTION OF NEW OFFICES, BREAK ROOM, AND RESTROOMS. EXTERIOR MODIFICATIONS INCLUDE NEW BI-PARTING ENTRY DOOR, (2) HOLLOW METAL DOORS, 8x10' O.H. DOOR, AND NEW 20x80' DROP AND HOOK PAD, THE SPACE WAS FORMERLY A PEEBLES.

**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 CONSERVATION CODE  
 MECHANICAL CODE: 2018 NORTH CAROLINA STATE MECHANICAL CODE  
 ELECTRICAL CODE: 2020 NATIONAL ELECTRIC 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 NC STATE BUILDING CODE (2009 NASI 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:        | 9,079 SQ. FT.  |
| NON-SALES AREA:    | 5,973 SQ. FT.  |
| GROSS LEASED AREA: | 15,052 SQ. FT. |
| ALLOWABLE HEIGHT:  | 75'-0"         |
| ACTUAL HEIGHT:     | 32'-7"         |

**OCCUPANT LOAD:**  
 GROSS LEASED BUILDING AREA: 15,052 SQ. FT.  
 FUNCTION OF SPACE: M - SALES  
 M - SALES: 60 GROSS, 9,079 SQ. FT., 152 OCCUPANTS  
 B - CORE AREA: 150 GROSS, 673 SQ. FT., 5 OCCUPANTS  
 S-1 - STOCK: 300 GROSS, 5,300 SQ. FT., 18 OCCUPANTS  
 175 OCCUPANTS

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

**EGRESS REQUIREMENTS:**  
 REQUIRED EGRESS WIDTH: 175 OCC. x 0.20 = 35.0' (44" MIN)  
 PROVIDED EGRESS WIDTH: (1) BREAK-AWAY BI-PARTING DOOR @ 66", (2) H.M. DOOR @ 34" = 134"  
 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 (H/LOW) |
| MOP SINK:             | 1 SERVICE SINK/USE GROUP | 1        | 1         |

## VENDOR LIST

| IT VENDOR   | IT CHECKLIST   | FLOORING VENDORS  | LVT VENDOR  |
|---|--|---|---|
| RETAIL TECH INC.<br>MAIN CONTACT: CRISTIN BELSITO<br>T: (952) 356-1775 X 2007<br>C: (440) 263-2270<br>EMAIL: cbelisto@retailtechinc.com   | <b>MUST HAVE CHECK LIST:</b><br><input type="checkbox"/> PROJECT MANAGERS CONTACT INFORMATION INCLUDING EMAIL ADDRESS<br><input type="checkbox"/> CONTRACTOR INFORMATION 1 WEEK BEFORE CONSTRUCTION STARTS (PROTRACK TRIGGER VIA EMAIL)<br><input type="checkbox"/> GENERAL CONTRACT INFO INCLUDING EMAIL ADDRESSES<br><input type="checkbox"/> SITE FOREMAN INFO INCLUDING EMAIL ADDRESS<br><input type="checkbox"/> CONFIRMED ADDRESS WITH MPOE LOCATION (CLOSET, DIMARK, ETC.)<br><input type="checkbox"/> 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 | DIJAMA-SHIELD, LLC<br>32401 INDUSTRIAL DRIVE<br>MADISON HEIGHTS, MI 48071<br>CONTACT: TRAVIS SIBLEY<br>T: (313) 510-6149<br>EMAIL: tsibley@damashield.com                                 | MATTER SURFACES<br>CONTACT: DAVE BOLINGER<br>T: (260) 341-4949<br>EMAIL: dbolinger@selected-service.com<br>CONTACT: COREY HALL<br>T: (404) 735-0799   |
| RETAIL TECH INC.<br>MAIN CONTACT: CRISTIN BELSITO<br>T: (952) 356-1775 X 2007<br>C: (440) 263-2270<br>EMAIL: cbelisto@retailtechinc.com   |  | RACKING VENDOR<br>MADIX, INC.<br>500 AIRPORT ROAD<br>TERRELL, TX 75160<br>CONTACT: SCOTT NELSON<br>T: (855) 529-6457<br>C: (855) 755-9386<br>EMAIL: snelson@madixinc.com                  | OVERHEAD DOOR VENDOR<br>CORNELL IRON<br>140 MAFFET STREET<br>WILKES-BARRE, PA 18705<br>CONTACT: KRISTA BONAVINA<br>T: (800) 882-6773 X 1620<br>EMAIL: kbonavina@cornellstorefronts.com  |
| DOOR HARDWARE VENDORS / RESTROOM ACCESSORIES<br>COOK AND BOARDMAN, LLC<br>345 MASON ROAD<br>LAVERGNE, TN 37086<br>CONTACT: AMY BAKER<br>T: (855) 447-8600 x4508<br>EMAIL: harborfreightteam@cookandboardman.com | FIRE AND SECURITY ALARM MONITORING VENDOR<br>ADT SECURITY<br>4221 W JOHN CARPENTER FWY<br>IRVING, TX 75063<br>CONTACT: STEPHANIE NYSTROM<br>T: (214) 277-7175<br>EMAIL: snystrom@adt.com<br>CONTACT: DAN BITCON<br>EMAIL: dbitcon@adt.com  | ADDRESS VERIFICATION / METER SERVICES<br>COST CONTROL ASSOCIATES<br>310 BAY ROAD<br>QUEENSBURY, NY 12804<br>CONTACT: LENA GARCIA<br>T: (714) 404-8212<br>EMAIL: lena.garcia@sherinwin.com | PAINT VENDOR<br>SHERWIN WILLIAMS<br>2100 WEST ORANGEWOOD, SUITE 100<br>ORANGE, CA 92668<br>CONTACT: LENA GARCIA<br>T: (714) 404-8212<br>EMAIL: lena.garcia@sherinwin.com  |
| HVAC VENDOR<br>LENNOX INDUSTRIES<br>NATIONAL ACCOUNTS<br>CONTACT: GARRY BAKER<br>T: (972) 497-6665<br>EMAIL: LennoxNationalAccounts@Lennox.com  | EMS VENDOR<br>SIEMENS<br>CONTACT: EMELY CORDON<br>T: (512) 751-5942<br>EMAIL: emely.cordon@siemens.com<br>PROJECT MANAGER: EMELY CORDON<br>T: (512) 751-5942<br>EMAIL: emely.cordon@siemens.com<br>ENGINEERING MANAGER: JUAN CABRERA<br>T: (512) 567-7455<br>EMAIL: juancabrera@siemens.com  | EMS SHIELDED CABLE VENDOR<br>WINDY CITY WIRE<br>CONTACT: KIMBERLY DEPAOLA<br>T: (800) 378-1191 X 2811<br>C: (630) 633-4811<br>EMAIL: kdepaula@smartwire.com                               | RACKING ENGINEER<br>GARY K. MUNKELT AND ASSOCIATES<br>1180 WELSH ROAD, SUITE 190<br>NORTH WALES, PA 19454<br>CONTACT: BRUCE MATTHEWS, P.E.<br>T: (215) 855-8713<br>EMAIL: bruce.matthews@gkmassoc.com<br>CONTACT: DENISE BAILEY<br>T: (610) 449-4502<br>EMAIL: denise.bailey@gkmassoc.com<br>CONTACT: BRENDA ROJHM<br>T: (610) 449-4502<br>EMAIL: frank.kooshyar@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.**

## 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 COOLUV 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 BALLS
- BOLT DOWN BOLLARDS
- INPRO WALL GUARD
- DOCK FAN AND MOUNTING KIT (IF APPLICABLE)
- TURNSTILES (IF APPLICABLE)

**MECHANICAL:**

- DIGITAL DIFFUSERS
- MOP SINK, FAUCET AND ACCESSORIES
- 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

**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

**FLOOR FINISHES:**

- VESTITULE 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

| SHEET NO.                    | DRAWING NAME                                   | ISSUE DATE | REVISION DATE |
|------------------------------|--|------------|---------------|
| <b>PROJECT ORIENTATION</b>   |  |            |               |
| A0.0                         | COVER SHEET                                    | 03/04/24   |               |
| <b>SITE</b>                  |  |            |               |
| AS1.0                        | ARCHITECTURAL SITE PLAN                        | 03/04/24   |               |
| <b>DEMOLITION</b>            |  |            |               |
| D1.0                         | DEMOLITION PLAN                                | 03/04/24   |               |
| <b>ARCHITECTURAL</b>         |  |            |               |
| A0.2                         | GENERAL NOTES                                  | 03/04/24   |               |
| A0.3                         | CONCRETE SPECIFICATIONS                        | 03/04/24   |               |
| A0.4                         | CONCRETE SPECIFICATIONS                        | 03/04/24   |               |
| A1.1                         | FLOOR PLAN                                     | 03/04/24   |               |
| A1.1A                        | LIFE SAFETY PLAN                               | 03/04/24   |               |
| A1.2                         | FIXTURE PLAN                                   | 03/04/24   |               |
| A1.3                         | FINISH PLAN                                    | 03/04/24   |               |
| A1.4                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.5                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.6                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.7                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.8                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.9                         | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.10                        | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.11                        | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A1.12                        | FIXTURE SPECIFICATION AND DETAILS              | 03/04/24   |               |
| A2.0                         | REFLECTED CEILING PLAN                         | 03/04/24   |               |
| A3.0                         | EXTERIOR ELEVATIONS                            | 03/04/24   |               |
| A3.1                         | EXTERIOR ELEVATIONS                            | 03/04/24   |               |
| A4.0                         | SECTIONS AND DETAILS                           | 03/04/24   |               |
| A4.1                         | WALL TYPES AND DETAILS                         | 03/04/24   |               |
| A4.2                         | MISC. DETAILS                                  | 03/04/24   |               |
| A5.0                         | DOOR SCHEDULE AND DETAILS                      | 03/04/24   |               |
| A5.1                         | ENLARGED VESTIBULE PLAN & DETAILS              | 03/04/24   |               |
| A5.2                         | ENLARGED TURNSTILE PLAN & DETAILS              | 03/04/24   |               |
| <b>STRUCTURAL</b>            |  |            |               |
| S0.0                         | GENERAL STRUCTURAL NOTES                       | 03/04/24   |               |
| S0.1                         | GENERAL STRUCTURAL NOTES                       | 03/04/24   |               |
| S0.2                         | CONCRETE SLAB SPECS w/ FIBER                   | 03/04/24   |               |
| S1.0                         | PARTIAL FLOOR AND ROOF FRAMING PLAN            | 03/04/24   |               |
| S2.0                         | STRUCTURAL DETAILS                             | 03/04/24   |               |
| S2.1                         | STRUCTURAL DETAILS                             | 03/04/24   |               |
| <b>MECHANICAL / PLUMBING</b> |  |            |               |
| M1.0                         | MECHANICAL PLAN                                | 03/04/24   |               |
| M1.1                         | MECHANICAL SCHEDULES                           | 03/04/24   |               |
| M1.2                         | MECHANICAL DETAILS                             | 03/04/24   |               |
| M1.3                         | MECHANICAL / PLUMBING SPECIFICATIONS           | 03/04/24   |               |
| P1.0                         | PLUMBING PLAN                                  | 03/04/24   |               |
| P1.1                         | PLUMBING DETAILS                               | 03/04/24   |               |
| <b>FIRE PROTECTION</b>       |  |            |               |
| FP1.0                        | FIRE PROTECTION PLAN                           | 03/04/24   |               |
| <b>ELECTRICAL</b>            |  |            |               |
| E0.1                         | ELECTRICAL SPECIFICATIONS                      | 03/04/24   |               |
| E1.0                         | POWER PLAN                                     | 03/04/24   |               |
| E1.1                         | LIGHTING PLAN                                  | 03/04/24   |               |
| E1.1A                        | ROOM LIGHTING CONTROL / DIMMING SYSTEM DETAILS | 03/04/24   |               |
| E1.2                         | COMMUNICATIONS PLAN                            | 03/04/24   |               |
| E2.0                         | RISER DIAGRAM AND LIGHTING SCHEDULE            | 03/04/24   |               |
| E2.1                         | LOP & PANEL SCHEDULES                          | 03/04/24   |               |
| E2.2                         | PHONE BOARD DETAIL                             | 03/04/24   |               |
| <b>EMS</b>                   |  |            |               |
| EMS-1                        | ENERGY MANAGEMENT SYSTEM                       | 06/28/22   |               |
| EMS-2                        | ENERGY MANAGEMENT SYSTEM                       | 06/28/22   |               |
| EMS-3                        | ENERGY MANAGEMENT SYSTEM                       | 06/28/22   |               |
| EMS-4                        | ENERGY MANAGEMENT SYSTEM                       | 06/28/22   |               |

## SITE VICINITY MAP

PROJECT LOCATION

**SCALE = NTS**

## PROJECT DIRECTORY

| BLDG. DEPT. CONTACT   | FIRE DEPT. CONTACT   | HARBOR FREIGHT TOOLS   | HARBOR FREIGHT TOOLS  |
|---|--|--|---|
| LILLINGTON BUILDING INSPECTIONS<br>107 E IVEY ST.<br>LILLINGTON, NC 27546<br>CONTACT: JOSHUA PERRY<br>T: (910) 893-0311<br>EMAIL: jperry@lillingtonnc.org | HARNETT COUNTY FIRE MARSHAL<br>420 MCKINNEY PARKWAY<br>LILLINGTON, NC 27546<br>CONTACT: DONNA JOHNSON<br>Senior Director of Construction<br>T: (910) 893-7525<br>EMAIL: djohnson@harnett.org | HARBOR FREIGHT TOOLS<br>26677 AGOURA ROAD<br>CALABASAS, CA 91302<br>CONTACT: ADAM STEECE<br>Senior Director of Construction<br>T: (805) 457-7503<br>EMAIL: asteece@harborfreight.com | HARBOR FREIGHT TOOLS<br>CALABASAS, CA 91302<br>CONTACT: DOUG HORROCKS<br>Senior Construction Manager<br>T: (805) 407-1961<br>EMAIL: dhorrocks@harborfreight.com |

## LIFE SAFETY SUMMARY

THE SPACE IS FULLY SUPPRESSED WITH THE EXISTING 6" SPRINKLER MAIN AND RISER IN THE NORTHWEST CORNER OF THE HFT SPACE. THERE IS A MANUAL PULL STATION SYSTEM SERVING THE SPACE. HFT TO MODIFY THE MANUAL PULL STATION SYSTEM AS REQUIRED FOR THE CHANGE IN OPENINGS.

**NOTE:**  
 G.C. TO SUPPLY AND INSTALL FIRE ALARM SYSTEM PER LOCAL REQUIREMENTS. G.C. TO COORDINATE MONITORING REQUIREMENTS WITH THE LANDLORD, BV, AND LOCAL AUTHORITY HAVING JURISDICTION.

## 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.

REVISIONS

| #  | DATE | TYPE |
|----|------|------|
| 1  |      |      |
| 2  |      |      |
| 3  |      |      |
| 4  |      |      |
| 5  |      |      |
| 6  |      |      |
| 7  |      |      |
| 8  |      |      |
| 9  |      |      |
| 10 |      |      |

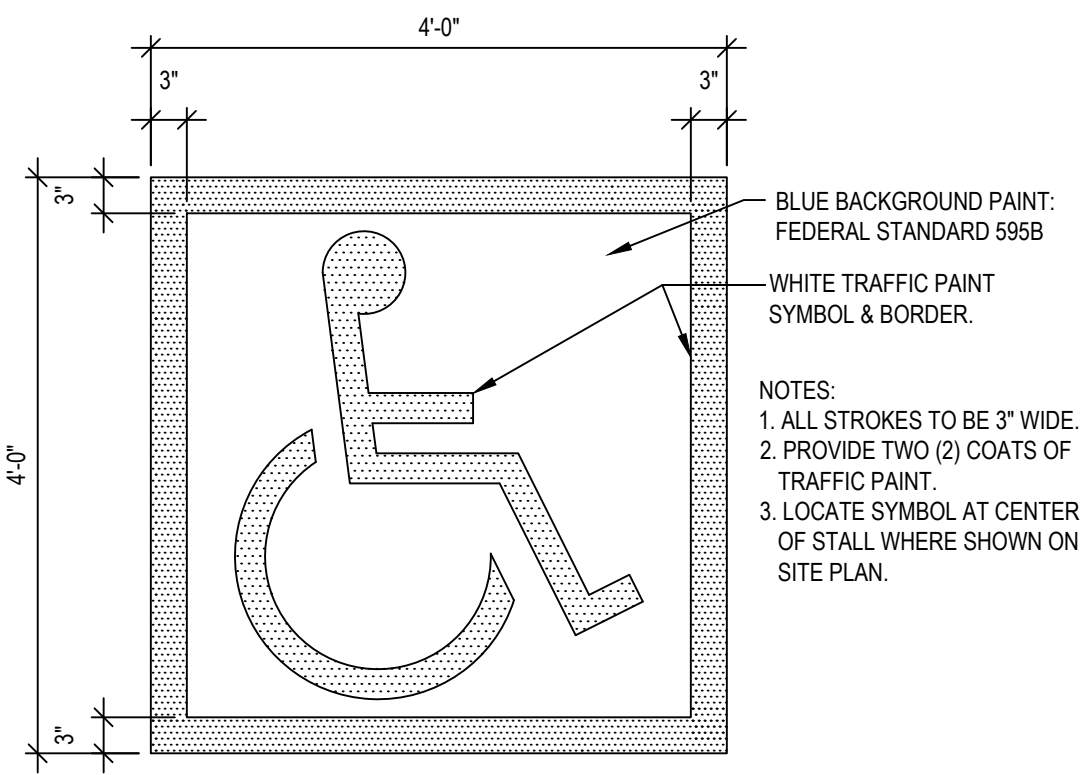
COVER SHEET

DATE: 03/04/24

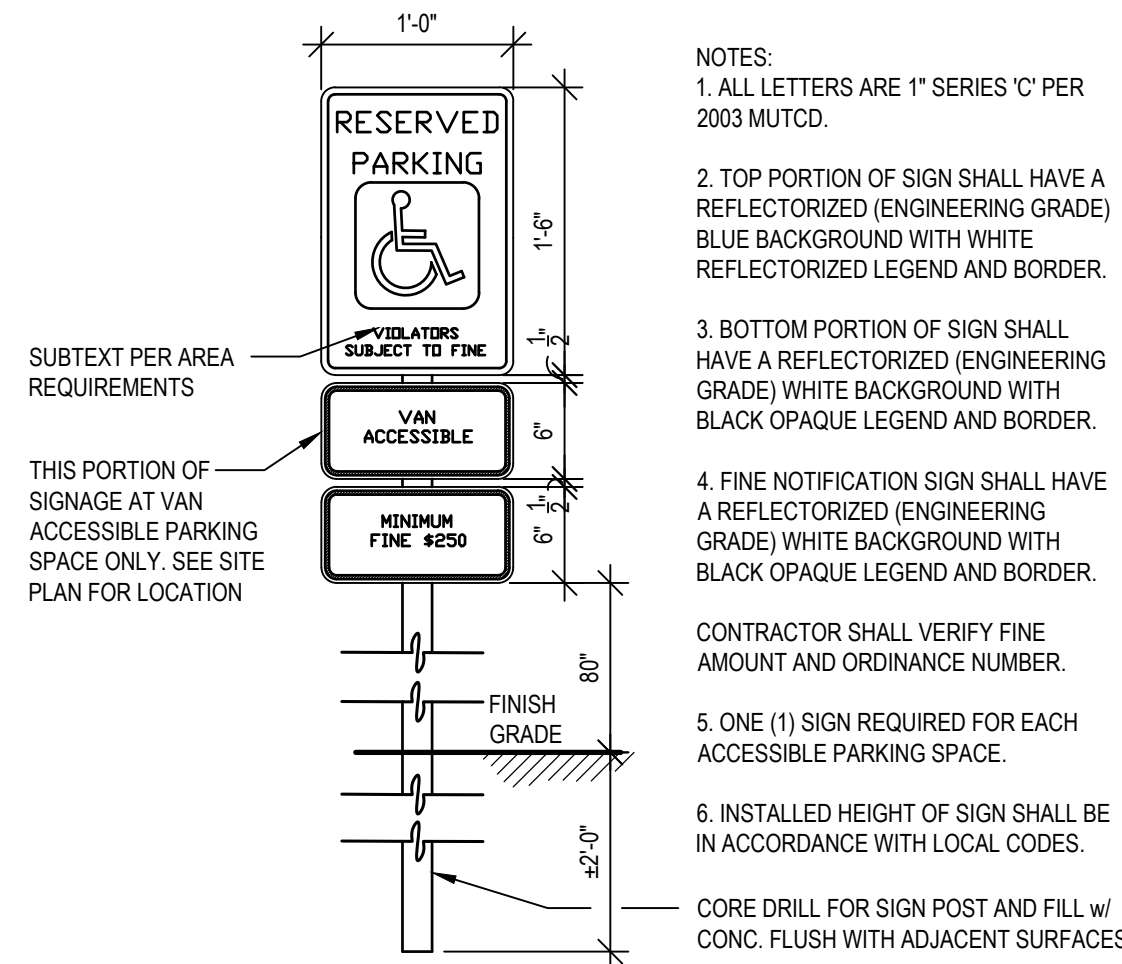
JOB NO.: 23591

**A0.0**

SHEET NO.



1 ACCESSIBLE SYMBOL DETAIL  
AS1.0 SCALE: 3/4"=1'-0"



2 ACCESSIBLE SIGNAGE DETAIL  
AS1.0 SCALE: 1"=1'-0"

GENERAL NOTES

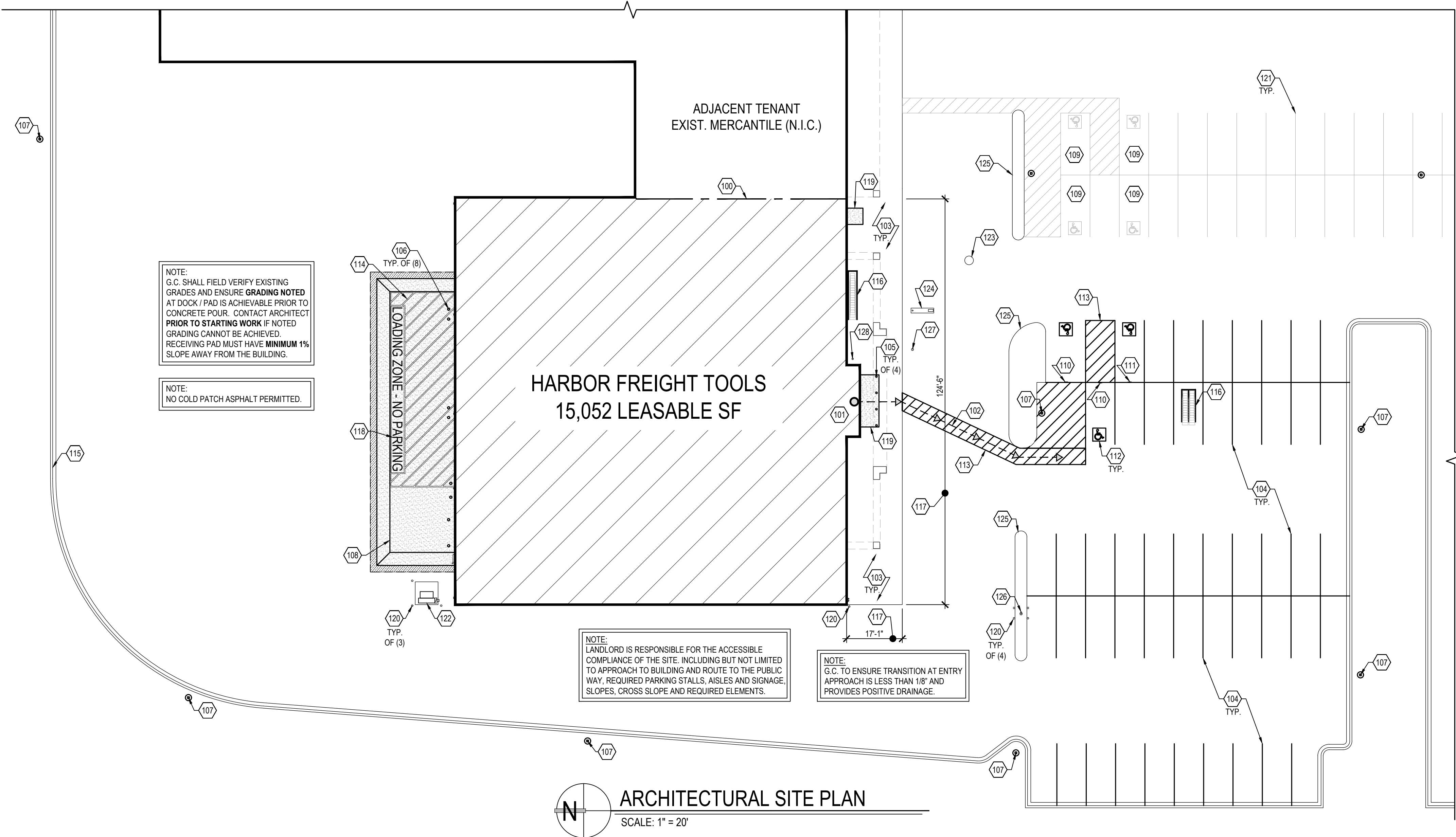
1. NO ADDITIONAL SITE CHANGES ARE REQUIRED, EXCEPT WHERE NOTED OTHERWISE ON ARCHITECTURAL FLOOR PLANS.
- 100 SERIES SITE PLAN KEY NOTES
100. APPROXIMATE LOCATION OF HFT LEASE LINE.
  101. MAIN TENANT ENTRANCE DOORS. SEE SHEET A1.1 AND A5.0 FOR ADDITIONAL INFORMATION.
  102. ACCESSIBLE PATH OF TRAVEL.
  103. EXISTING CONCRETE SIDEWALK.
  104. EXISTING PARKING STRIPING TO BE RE-STRIPED AT HFT LEASE EXTENTS (APPROX ±50), INCLUDING, BUT NOT LIMITED TO, ACCESSIBLE ROUTES, PARKING STRIPING, STOP BARS, ETC. PAINT TO MATCH EXISTING. G.C. TO CONFIRM EXTENTS OF RE-STRIPING WITH HFT PM AND BV PM.
  105. 6"Ø BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
  106. 8"Ø BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
  107. EXISTING SITE LIGHTING. G.C. TO PAINT EXISTING POLE BASE P-7.
  108. CONCRETE RECEIVING PAD. SEE SHEETS D1.0, A1.1 AND A4.2 FOR ADDITIONAL INFORMATION.
  109. EXISTING ACCESSIBLE PARKING SPACE, AISLE, SYMBOL, AND SIGNAGE TO REMAIN.
  110. ACCESSIBLE PARKING SIGNAGE. SEE DETAIL 2/AS1.0 FOR ADDITIONAL INFORMATION.
  111. VAN ACCESSIBLE PARKING SIGNAGE. SEE DETAIL 2/AS1.0 FOR ADDITIONAL INFORMATION.
  112. ACCESSIBLE PARKING SYMBOL. SEE DETAIL 1/AS1.0 FOR ADDITIONAL INFORMATION.
  113. ACCESSIBLE AISLE STRIPING. STRIPING SHALL BE 4" WIDE, COLOR: BLUE - FEDERAL STANDARD 595B. DIAGONAL STRIPING @ 45°, 2'-0" O.C.
  114. AREA OF STRIPING TO DESIGNATE NO PARKING. STRIPING SHALL BE 4" WIDE, COLOR: P-7. DIAGONAL STRIPING @ 45°, 3'-0" O.C.
  115. EXISTING CURB AT REAR OF DRIVE.
  116. APPROXIMATE LOCATION OF CART CORRAL.
  117. PAINT 6" HORIZONTAL EDGE OF FLUSH CURB P-7.
  118. PAINT 3" HIGH WHITE LETTERING STATING "LOADING ZONE - NO PARKING," FONT: ARIAL NARROW.
  119. LOCATION OF CONCRETE FROST SLAB. SEE SHEET A1.1 FOR ADDITIONAL INFORMATION.
  120. EXISTING BOLLARD TO REMAIN.
  121. EXISTING PARKING LOT STRIPING TO REMAIN.
  122. EXISTING PAD MOUNTED TRANSFORMER AND METER.
  123. APPROXIMATE LOCATION OF SANITARY MANHOLE.
  124. APPROXIMATE LOCATION OF WATER METER VAULT. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
  125. RAISED CONCRETE CURB.
  126. APPROXIMATE LOCATION OF EXISTING FIRE HYDRANT.
  127. APPROXIMATE LOCATION OF EXISTING SANITARY HANDHOLE.
  128. APPROXIMATE LOCATION OF CLEANOUT DRAIN.



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ARCHITECTURAL SITE PLAN  
SCALE: 1" = 20'



OVERALL SITE PLAN  
NOT TO SCALE

DO NOT SCALE THESE DRAWINGS

| REVISIONS |      |
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ARCHITECTURAL SITE PLAN  
DATE 03/04/24  
JOB NO. 23591  
**AS1.0**  
SHEET NO.

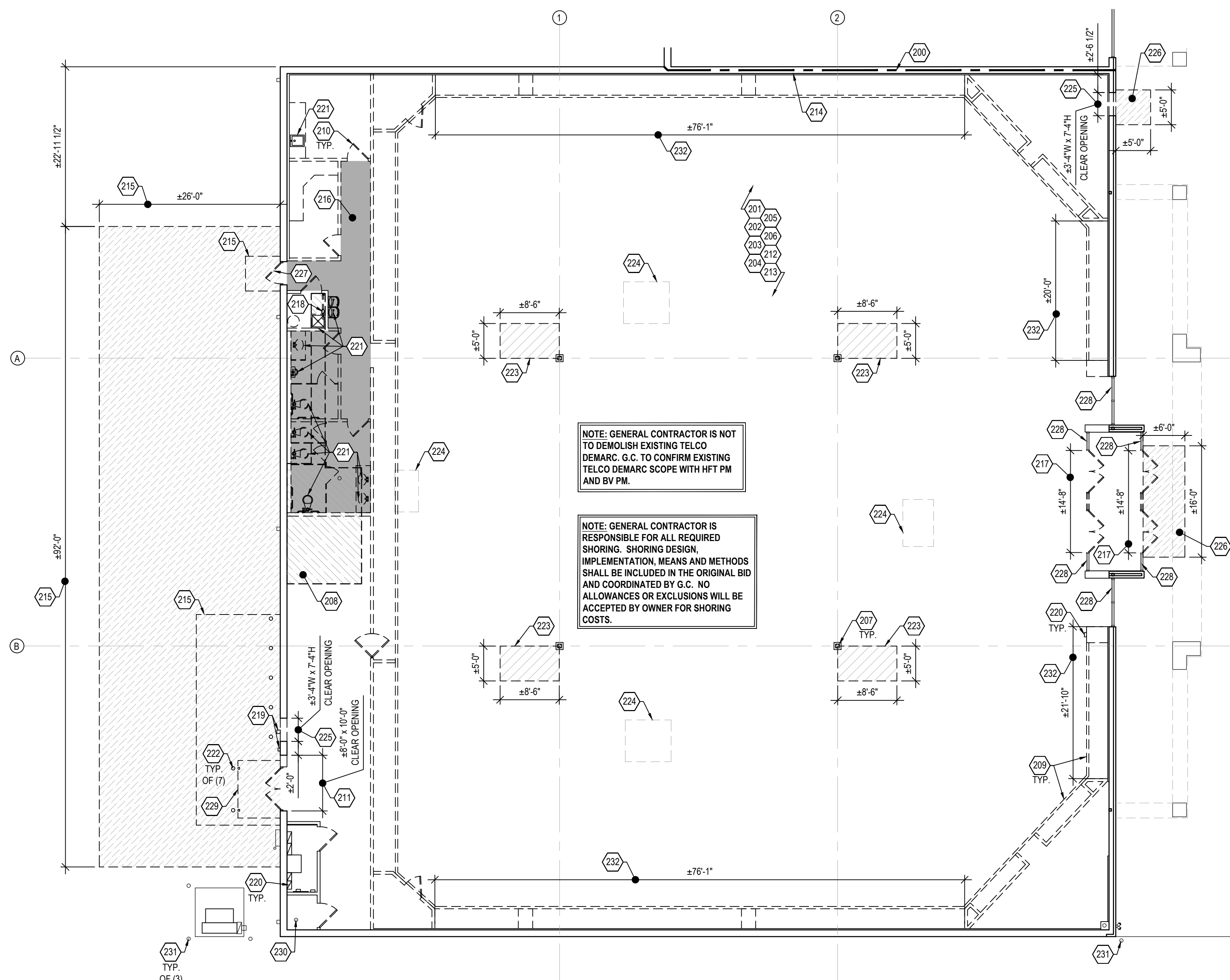
| DEMO LEGEND |                                     |
|-------------|-------------------------------------|
| SYMBOL      | DESCRIPTION                         |
|             | EXISTING WALLS                      |
|             | EXISTING WALLS TO BE REMOVED        |
|             | EXISTING CONSTRUCTION TO BE REMOVED |

### GENERAL DEMOLITION NOTES

- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING FIELD CONDITIONS SO AS TO BECOME FAMILIARIZED WITH THE DEMOLITION AND / OR REMOVAL WORK WHICH MAY BE REQUIRED TO PRODUCE RESULTS INTENDED IN THE CONTRACT DOCUMENTS. THE SCOPE OF WORK DESCRIBED IN THE CONTRACT DOCUMENTS ANTICIPATES THE DEMOLITION OF EXISTING CONSTRUCTION IN PART OR ITS ENTIRETY, AND THE REMOVAL, RELOCATION AND RE-POWERING OF CERTAIN CONSTRUCTION MATERIALS AND EQUIPMENT, INCLUDING ITEMS RELATED TO OTHER TENANTS WHICH MAY PASS THROUGH OR OCCUPY THIS TENANT'S SPACE. IT IS THE INTENT THAT EACH PORTION OF THE DEMOLITION AND REMODELING WORK BE DONE BY THE SPECIFIC TRADE INVOLVED IN THE INITIAL INSTALLATION. (i.e. CARPENTRY WORK BY THE CARPENTRY TRADE, MECHANICAL AND ELECTRICAL WORK BY THE MECHANICAL AND ELECTRICAL TRADES ETC.). THEREFORE, EACH CONTRACTOR AND SUBCONTRACTOR SHALL THOROUGHLY EXAMINE THE PROPOSED WORK AND MAKE ALLOWANCES IN HIS PROPOSAL FOR THE COST OF ALL DEMOLITION AND/OR REMOVAL WHICH MAY BE REQUIRED TO PRODUCE THE END RESULTS INTENDED BY THE CONTRACT DOCUMENTS.
- GENERAL CONTRACTOR TO COMPLETE ALL DEMOLITION AS NOTED IN CONTRACT DOCUMENTS AND REMOVE ALL DEBRIS AND RUBBISH FROM THE PROJECT AND BUILDING SITE.
- ALL AREAS WHERE DEMOLITION IS TO OCCUR IS TO BE SECTIONED OFF FROM THE PUBLIC AND ALL REQUIRED SHORING, BARRICADING, AND SCAFFOLDING TO BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- ALL WORK TO BE IN ACCORDANCE WITH O.S.H.A. REQUIREMENTS.
- ALL RUBBISH AND DEBRIS TO BE REMOVED FROM THE PROJECT SITE WITHIN A 24 HOUR PERIOD OR PLACED IN PRE-APPROVED DUMPSTER LOCATIONS FOR REMOVAL OR DUMPSTER CHANGE OUT DAILY. THIS CONTRACTOR TO RECEIVE APPROVAL OF DUMPSTER LOCATION FROM BUILDING LANDLORD REPRESENTATIVE.
- ALL DEBRIS REMOVED FROM THE PROJECT SITE TO BE DUMPED IN ONLY APPROVED DUMPING SITE. ANY ASBESTOS REMOVAL OR DEBRIS DUMPING TO BE COMPLETED BY THIS CONTRACTOR, PER PROPER APPROVALS.
- GENERAL CONTRACTOR TO CONTACT BUILDING LANDLORD REPRESENTATIVE AND ALL UTILITY COMPANY REPRESENTATIVES HAVING JURISDICTION OVER THIS PROJECT TO ASCERTAIN BUILDING AND UTILITY COMPANY LINES ABOVE, WITHIN, OR BELOW PREMISES TO AVOID ANY POSSIBILITIES OF CUTTING SUCH LINES, CAUSING EXPLOSIONS, ETC.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR THE CORE DRILL OF CONCRETE SLAB AT ALL AREAS WHERE UNDER SLAB MECHANICAL, PLUMBING AND ELECTRICAL WORK OCCURS. REVIEW AND COORDINATE EXACT LOCATIONS AND SIZES WITH THE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. NOTE: DO NOT CUT SLAB WITHOUT WRITTEN APPROVAL FROM LANDLORD.
- ALL WORK TO BE COMPLETED FOLLOWING LANDLORD'S CONSTRUCTION "RULES AND REGULATIONS".
- DEMOLITION OR DEMOLITION REMOVAL TO BE COMPLETED IN A MANNER THAT DOES NOT DISTURB ADJACENT TENANTS OR DISRUPT THE OPERATION OF ADJACENT TENANTS.
- PROTECTION OF ADJACENT TENANTS OR SPACES IS REQUIRED PRIOR TO DEMOLITION.
- CUTTING OF SERVICES OR UTILITIES AFFECTING THE BUILDING COMPLEX OR ADJACENT TENANTS INCLUDING SPRINKLER OPERATION TO BE COMPLETED ON "OFF HOURS". COORDINATE ALL SHUT DOWNS WITH LANDLORD. A 48 HOUR NOTICE REQUIRED.
- REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL DEMOLITION.
- REFER TO MECHANICAL / PLUMBING DRAWINGS FOR MECHANICAL / PLUMBING DEMOLITION.
- DEMOLITION WORK TO BE PHASED TO ALLOW PROPER EGRESS FOR ANY PERSON IN CASE OF FIRE OR HAZARD AND NO DEMOLITION WORK CAN OCCUR IF THE WORK JEOPARDIZES A MEANS OF EGRESS FOR THE PUBLIC OR PROJECT EMPLOYEES.
- ALL FLOORING MATERIALS TO BE REMOVED, UNLESS NOTED OTHERWISE.
- ALL LABOR TO BE COMPATIBLE WITH OTHER LABOR COMPLETING WORK IN THE BUILDING.
- ANY LANDLORD COMPONENT THAT IS EXISTING IN THE SPACE MUST REMAIN VISIBLE AND ACCESSIBLE TO THE LANDLORD. (DUCTWORK, CLEANOUTS, ETC.) LABEL CLEARLY IN TENANT SPACE; PROVIDE ACCESS PANELS.
- HFT CONSTRUCTION MAY ATTACH TO BUILDING STRUCTURE ONLY - (NO ATTACHMENT TO ROOF DECK, LATERAL BRIDGING, CONDUITS, DUCTWORK, ETC., IS ALLOWED) FOR STABILITY.
- ALL FLOOR PENETRATIONS MUST BE CORE-BORED OR SAW-CUT. CONTRACTOR MUST X-RAY OR OTHERWISE SATISFACTORILY VERIFY THERE ARE NO EXISTING HIDDEN CONDITIONS PRIOR TO COMMENCING CORING/DRILLING OR SAW CUTTING.
- ALL EXISTING CONSTRUCTION NOT SCHEDULED FOR RE-USE OR NOTED TO BE ABANDONED IN PLACE MUST BE COMPLETELY DEMOLISHED AND PROPERLY DISPOSED OF OFF SITE. ALL UTILITIES MUST BE REMOVED TO THEIR POINT OF ORIGIN.

### 200 SERIES DEMOLITION KEY NOTES

- LOCATION OF LEASE LINE (LOCATED @ CENTERLINE OF DEMISING WALL).
- REMOVE ALL EXISTING FLOOR FINISHES. PATCH AND REPAIR ANY DAMAGED SECTION OF CONCRETE SLAB. PREPARE SLAB TO RECEIVE SCHEDULED FINISHES (TYPICAL THROUGHOUT SPACE UNLESS NOTED OTHERWISE).
- REMOVE FIXTURES (FIXED OR FREE-STANDING) THROUGHOUT THE SPACE.
- REMOVE ALL ABANDONED EQUIPMENT IN HFT SPACE.
- ALL DIMENSIONS TO BE FIELD VERIFIED AFTER DEMOLITION HAS BEEN COMPLETED. NOTIFY HFT PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES. HFT G.C. IS REQUIRED TO VISIT PROJECT SITE AND VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
- REMOVE ABANDONED ELECTRICAL EQUIPMENT NOT TO BE RE-USED, INCLUDING BUT NOT LIMITED TO, JUNCTION BOXES, CONDUIT, WIRING, ETC. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION NOTE (TYPICAL THROUGHOUT SPACE).
- ALL REMAINING OUTLETS, DRAINS, HOLES, ETC. IN THE FLOOR SHALL BE COMPLETELY CUT OUT AND CONCRETE REPLACED. CONCRETE SLAB INFILL AREAS OVER 12"x12" TO BE DOWELED INTO EXISTING ADJACENT SLAB. SEE DETAILS 48S/A4.1 FOR ADDITIONAL INFORMATION. REFER TO SHEETS A0.3 & A0.4 FOR CONCRETE SPECIFICATIONS.
- EXISTING STRUCTURAL COLUMN. REMOVE COLUMN ENCLOSURES AS REQUIRED AND PREP. COLUMN FOR PAINT.
- SAWCUT AND REMOVE PORTION OF EXISTING CONCRETE SLAB FOR PLUMBING TRENCH (APPROX. 230 S.F.) TRENCH LAYOUT FOR REFERENCE ONLY. G.C. SHALL VERIFY DEPTH OF SANITARY TIE-IN POINT AND CONFIRM ADEQUATE FALL FOR THE SEWER LINE PRIOR TO TRENCHING CONCRETE. NOTIFY ARCHITECT IF ADEQUATE FALL IS NOT ACHIEVABLE. INFILL TRENCH WITH CONCRETE TO MATCH AND ALIGN WITH ADJACENT FLOOR SLAB (INCLUDING COLOR MATCH). TROWEL CONCRETE SMOOTH. SEE DETAILS 48S/A4.1 FOR ADDITIONAL INFORMATION. REFER TO SHEET A0.3 & A0.4 FOR CONCRETE SPECIFICATIONS.
- DASHED LINES INDICATE TO REMOVE WALL COMPLETELY. TYP. THROUGHOUT HFT SPACE.
- DASHED LINES INDICATE TO REMOVE DOOR AND FRAME COMPLETELY. MODIFY EXISTING OPENING IN MASONRY WALL FOR 8'-0" X 10'-0" O.H. DOOR AND LINTEL. SHORE AS REQUIRED DURING CONSTRUCTION. SEE SHEET A1.1 FOR ADDITIONAL INFORMATION.
- REMOVE LAY-IN CEILING COMPLETELY, INCLUDING BUT NOT LIMITED TO, ALL MECHANICAL DEVICES (DIFFUSERS, RETURN AIR GRILLES, ETC.) AND LIGHTING FIXTURES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- REMOVE LIGHT FIXTURES COMPLETELY THROUGHOUT HFT SPACE.
- EXISTING DEMISING WALL. G.C. TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT WALL DURING CONSTRUCTION. PATCH AND REPAIR AS REQUIRED TO MAINTAIN INTEGRITY OF EXISTING FIRE RATING (TYPICAL).
- REMOVE EXISTING CONCRETE PADS AND PORTION OF ASPHALT AS REQUIRED TO ACCOMMODATE FOR NEW CONCRETE PAD. G.C. TO LOCATE AND PROTECT ALL UNDERGROUND UTILITIES PRIOR TO START OF DEMOLITION WORK. SEE SHEET A1.1 FOR ADDITIONAL INFORMATION.
- SOLID HATCH INDICATES AREA OF CERAMIC TILE AND SETTING BED TO BE REMOVED. INFILL AREA WITH CONCRETE TO MATCH AND ALIGN WITH EXISTING ADJACENT FLOOR SLAB (INCLUDING COLOR MATCH). TROWEL CONCRETE SMOOTH. SEE DETAILS 48S/A4.1 FOR ADDITIONAL INFORMATION. REFER TO SHEETS A0.3 & A0.4 FOR CONCRETE SPECIFICATIONS.
- REMOVE EXISTING STOREFRONT DOORS AND STOREFRONT SYSTEM, AND PREP FOR NEW STOREFRONT AND BI-PARTING DOOR PACKAGE. SHORE AS REQUIRED DURING CONSTRUCTION. SEE SHEET A1.1 FOR ADDITIONAL INFORMATION.
- WATER LINE AND BACKFLOW TO BE SALVAGED FOR FUTURE USE. PREP WATER LINE AND BACKFLOW FOR RELOCATION. SEE SHEET A1.1 AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- EXISTING DOWNSPOUT TO BE RELOCATED. SEE SHEETS A1.1 AND A3.1 FOR ADDITIONAL INFORMATION.
- EXISTING ELECTRICAL EQUIPMENT PANEL LOCATION. REFER TO ELECTRICAL DRAWINGS FOR SCOPE OF WORK.
- REMOVE EXISTING PLUMBING FIXTURE / ACCESSORY COMPLETELY. CAP AND SEAL ALL WATER AND WASTE LINES. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- EXISTING BOLLARD TO BE REMOVED.
- REMOVE EXISTING ROOFING SYSTEM AND ROOF DECKING AS REQUIRED FOR INSTALLATION OF NEW ROOFTOP HVAC UNIT. SEE SHEET A2.0 AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION. G.C. TO CONTRACT WITH LANDLORD'S ROOFING CONTRACTOR FOR ALL WORK RELATED TO MAINTAINING ROOFING WARRANTIES.
- EXISTING ROOF TOP MECHANICAL UNIT TO BE ABANDONED IN PLACE. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- NEW OPENING IN MASONRY WALL FOR NEW 3'-0" X 7'-0" H.M. DOOR AND LINTEL. SHORE AS REQUIRED DURING CONSTRUCTION. SEE SHEET A1.1 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- SAW-CUT AND REMOVE PORTION OF EXISTING CONCRETE WALK AND EXCAVATE AS REQUIRED FOR NEW CONCRETE FROST SLAB CENTERED ON DOOR OPENING. G.C. TO LOCATE AND PROTECT ALL UNDERGROUND PRIOR TO START OF DEMOLITION WORK. SEE SHEET A1.1 FOR ADDITIONAL INFORMATION.
- G.C. TO REMOVE EXISTING HOLLOW METAL DOOR AND FRAME COMPLETELY. PREP OPENING FOR NEW MASONRY INFILL. SEE SHEET A1.1 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- EXISTING STOREFRONT SYSTEM TO REMAIN. G.C. TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT DURING CONSTRUCTION.
- G.C. TO REMOVE EXISTING CANOPY, POSTS, AND ALL ASSOCIATED COMPONENTS COMPLETELY.
- EXISTING FIRE RISER TO REMAIN. G.C. TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT DURING CONSTRUCTION.
- EXISTING BOLLARD TO REMAIN.
- REMOVE EXISTING FIXTURE BOARD. PATCH AND REPAIR EXISTING GYP BD. AS REQUIRED. REPLACE AS REQUIRED, IF FIXTURE BOARD REMOVAL IS DAMAGING TO THE EXISTING GYP BD.



**DEMOLITION PLAN**  
SCALE 3/32" = 1'-0"

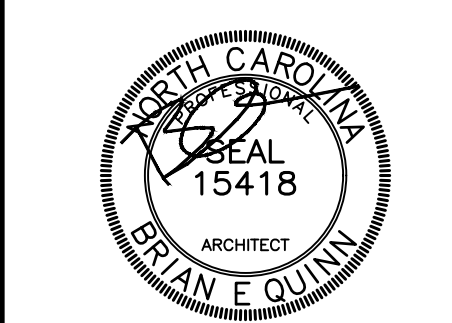
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**DEMOLITION PLAN**

DATE 03/04/24  
JOB NO. 23591

**D1.0**  
SHEET NO.



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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 THE CONTRACT DOCUMENTS AND THE LEASE OR DESIGN CRITERIA INFORMATION IS TO BE RESOLVED PRIOR TO THE START OF 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.
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. IN THESE AREAS, 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 FIXTURES 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 TO CONTACT DESIGNATED AUTHORIZED CONTRACTOR AT GENERAL CONTRACTORS 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 SUBSTANTIAL OR CONSIDERABLE, 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 EXHIBIT 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 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 PURPOSES. 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, AND THE LANDLORD'S APPROVED FIRE EXTINGUISHERS. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF 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 MARSHAL. 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 MARSHAL AND ALL AGENCIES HAVING JURISDICTION OF FIRE TREATED WOOD IS REQUIRED FOR FIXTURES. 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 RESULTING FROM THE PERFORMANCE OF TENANT'S WORK AND THE DISPOSAL OF TENANT'S WORK SHALL BE REMOVED FROM THE BUILDING AND THE 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 CONTRACTORS 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 ITS 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 CONTRACTORS OR SUBCONTRACTORS 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 UNDERWRITERS 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 ITS 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 AREA WILL BE DELIVERED TO THE OWNER IN PROPER, WHOLE AND UNIMPAIRED 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 ANY AND ALL MATERIAL SUPPLY HANDLERS SHALL NOT IMPOSE ANY LOADING FOR ANY OF THE TENANT'S WORK ON A TEMPORARY 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 (IF MODIFY EXISTING SYSTEMS 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 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 DRAINAGE FOR SAME (INCLUDING THE HIRING OF A LOCAL STRUCTURAL ENGINEER TO DESIGN SUCH DRAINAGE), DUCTWORK, DOLLARS, 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 CONTRACTORS 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 SPOCKLED 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 DEFECTS AND REPAIRS AND WILL NOT BE RESPONSIBLE FOR ANY SUCH 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 OR ANY PART OF THE WORK WHICH MAY BE DAMAGED OR DISTURBED THEREBY. ALL WARRANTIES OR GUARANTEES AS TO MATERIALS OR WORKMANSHIP 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 MAINTAIN ALL WARRANTY ITEMS AND REPAIRS INCLUDING MANAGING SUBCONTRACTORS, 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/DISCREPANCIES 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 IS TO FAMILIAR WITH THE SITE WHERE SUCH SERVICES WILL BE PROVIDED. THIS SPECIFIC USE AND THE DISCREPANCIES 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. AREA 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 SUBJECT 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 OBTAIN 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.

**LVT INSTALLATION NOTES:**

**BEFORE STARTING THE JOB:**

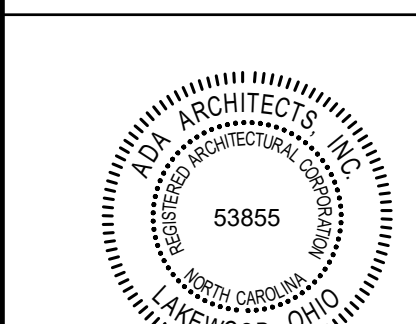
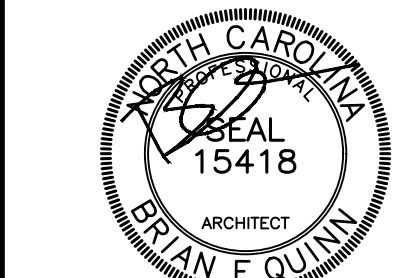
1. FLOOR PREPARATIONS SHOULD BE DONE WITH THE PERMANENT HVAC SET AT A MINIMUM OF 68°F (20°C).
2. IT IS RECOMMENDED THAT LVT FLOOR COVERING INSTALLATION SHALL NOT BEGIN UNTIL ALL OTHER TRADES ARE COMPLETED.

**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.



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**REVISIONS**

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**GENERAL NOTES**

DATE **03/04/24**

JOB NO. **23591**

**A0.2**

SHEET NO.

**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

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:  
"Akro-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:  
"Eucelastc 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.

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 50°F (10°C) and 90°F (32°C).

- 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**

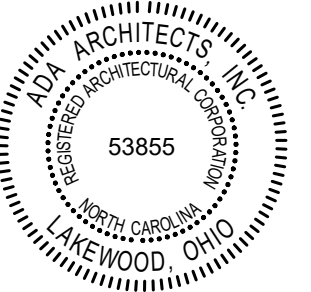
- 2.01 MATERIALS  
A. Horizontal Repairs and Overlays:  
1. Thicknesses Less Than 1/2" (13mm): Product shall be a one component, trowel applied, latex and micro-silica modified cementitious base compound. Provide the following:  
"Thin-Top Supreme" by Euclid Chemical  
2. Thicknesses Greater Than 1/2"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

- 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 "Euocrete" 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



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| <b>CONCRETE SPECIFICATIONS</b> |          |
| DATE                           | 03/04/24 |
| JOB NO.                        | 23591    |
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(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 50° F and 90° F. Optimum temperature installation is approximately 70° F.

- 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.
- 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.
- 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

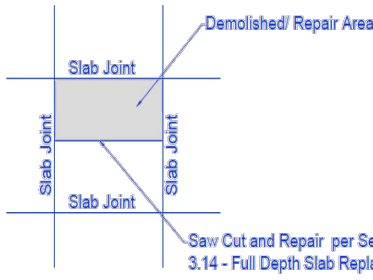
### 3.06 FULL DEPTH, PARTIAL SLAB REPAIR (INTERIOR OR EXTERIOR)

A. Slab defects that exhibit severe pitting or spalling, which exceeds a third of the slab panel area or 3/4" 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:
- Normal set concrete shall be designed to meet 4000 psi compressive strength within 28 days. (see concrete mix requirements - Section 3.07).
  - Alternate "High Strength-Early Set" concrete mix shall meet 4000 psi compressive strength within 24 hours (see below).
  - Compact existing subgrade, if required.
  - Replace vapor retarder, if required.
  - Construction joints in slab on ground shall be butt joints with round smooth dowels, epoxy adhered to existing slab, and grassed on the other half for new slab installation. All dowels



grassed on the other half for new slab installation. All dowels shall be installed straight and evenly spaced per manufacturer's instructions.

- 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.
- 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.
- 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.
- 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                           | < 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.

- 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.
- 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.
- 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.
- 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                                   |
| Initial Slump (Water)                          | 2"                                     |
| Final Slump                                    | 5.5" (Max)                             |

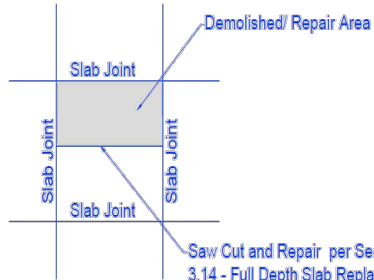
### 3.07 FULL DEPTH, COMPLETE SLAB REPLACEMENT (INTERIOR)

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:
- Concrete shall be designed to meet 4000 psi compressive strength within 28 days (see concrete mix below).
  - Compact existing subgrade, if required.
  - Replace vapor retarder, if required.
  - 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 FINISH DATE.

##### PART II - EXECUTION

###### 2.01 JOINT FILLER INSTALLATION: COMPLY WITH AC 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 GRADING, 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. PREPARE 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. 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:

- KUREZ DR VOX (SLAB FIRST); EUCLID 'EUCCLEAN & STRIP'
- 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 SALES FLOOR. INTERIOR SALES FLOOR POLISHING AND APPLICATION OF LIQUID DENSIFIER/SEALER SHALL NOT COMMENCE UNTIL OWNER HAS ACCEPTED THE MOCK-UP TEST SLAB.

- VERIFY PRESENCE OF CURING AND SEALING COMPOUND BY APPLYING WATER TEST TO THE SURFACE OF SLAB.
  - 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. 'EUCCLEAN & STRIP' BY EUCLID CHEMICAL.
  - IF WATER SOAKS INTO THE SURFACE INDICATING CURING AND SEALING COMPOUNDS ARE NOT PRESENT, MOVE TO STEP 3.
- 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.
- 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:

- START INITIAL GRIND WITH APPROPRIATE RESIN BOND DIAMOND TOOLING AS DETERMINED FROM MOCK-UP TEST SLAB.
- 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).
- ONCE COMPLETED, CLEAN OPENED FLOOR THOROUGHLY, AND THEN APPLY EUCCO DIAMOND HARD TO REJECTION. ALLOW THE SURFACE TO DRY.
- RESIN BOND DIAMOND TOOLING SHALL BE INCREASED AT SAME OUTPUT RATES AND HEAD SPEEDS UP TO 400 GRIT HONING.

##### C. FINAL POLISHING PROCESS:

- CLEAN FLOOR AND MACHINE OF ACCUMULATED LAITANCE.
- 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.
- APPLY EUCCO DIAMOND HARD LIGHTLY AT 700 SQUARE FEET PER GALLON JUST PRIOR TO BURNISHING.
- CLEAN FLOOR AND BURNISH WITH 1500 GRIT DIAMOND PAD AT 500 SQUARE FEET PER HOUR WITH A 2" BURNISHER AT 2500 RPM.
- POLISH RESULTS: PERFORM POLISHING PROCESS TO REACH A SPECIFIED OVERALL GLOSS VALUE (SGOV) OF 335 AS MEASURED WITH A HORIBA IG-320. AND A SPECIFIED MINIMUM GLOSS READING (SGMR) OF 420. THE APPROVED APPLICATOR SHALL TAKE FOUR GLOSS MEASUREMENT READINGS AT 90° FROM EACH OTHER, AND THEN AVERAGE 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
- 1ST COAT: 1 PART SURFHARD TO 2 PARTS WATER
  - 2ND COAT: 1 PART SURFHARD TO 1 PART WATER
  - 3RD COAT: 2 PARTS SURFHARD TO 1 PART WATER

- b. COVERAGE RATE
- |              | UNDILUTED SURFHARD                  | DILUTED SURFHARD                   |
|--------------|-------------------------------------|------------------------------------|
| 1. 1ST COAT: | 900 FT <sup>2</sup> /GAL (22.1 MFL) | 300 FT <sup>2</sup> /GAL (7.4 MFL) |
| 2. 2ND COAT: | 400 FT <sup>2</sup> /GAL (9.8 MFL)  | 200 FT <sup>2</sup> /GAL (4.9 MFL) |
| 3. 3RD COAT: | 225 FT <sup>2</sup> /GAL (5.6 MFL)  | 150 FT <sup>2</sup> /GAL (3.7 MFL) |

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 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 FT<sup>2</sup>/GAL (4.9 MFL) WILL REQUIRE APPROXIMATELY 5 GAL (18.9 L) OF MATERIAL PER 1000 FT<sup>2</sup> (92.9 M<sup>2</sup>) 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 FT<sup>2</sup>/GAL (3.7 MFL). 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 EUCCO #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° 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.



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#### CONCRETE SPECIFICATIONS

DATE 03/04/24

JOB NO. 23591

**A0.4**

SHEET NO.

**WALL LEGEND**

| SYMBOL | DESCRIPTION  |
|--------|--|
|        | EXISTING WALL  |
|        | MASONRY WALL INFILL. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION. |
|        | NEW WALL. SEE WALL TYPES ON SHEET A4.1 FOR ADDITIONAL INFORMATION.       |
|        | 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.

**300 SERIES FLOOR PLAN KEY NOTES**

- 300. LOCATION OF LEASE LINE (LOCATED @ CENTER LINE OF DEMISING WALL).
- 301. EXISTING STEEL COLUMNS. PREP AND PAINT (P-6). SEE SHEET A1.3 FOR FINISHES.
- 302. AUTOMATIC BI-PARTING DOOR PACKAGE. SEE SHEETS A5.0 AND A5.1 FOR ADDITIONAL INFORMATION.
- 303. CONCRETE PAD. SEE SHEET A4.2 FOR ADDITIONAL INFORMATION.
- 304. EXISTING DEMISING WALL. G.C. TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING DEMISING WALL DURING CONSTRUCTION. EXISTING DEMISING WALL TO BE PAINTED. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- 305. LOCATION OF ELECTRICAL PANELS AND EQUIPMENT. MAINTAIN A 3'-0" CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 306. 4'-0" X 8'-0" FIRE RATED PLYWOOD TO HOUSE ALL ELECTRICAL AND OWNER'S EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 307. 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.
- 308. SEE FIXTURE PLAN ON A1.2 FOR FIXTURE LAYOUT & ADDITIONAL NOTES.
- 309. SEE FINISH PLAN ON A1.3 FOR ALL FLOOR, WALL, AND CEILING FINISHES.
- 310. 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.
- 311. NOTIFY HFT PROJECT MANAGER AT START OF CONSTRUCTION IF A LEVEL FLOOR CANNOT BE OBTAINED.
- 312. REUSED / EXISTING MATERIALS AND EQUIPMENT TO BE IN OPERATING CONDITION OR SPECIFY THE COST TO SUPPLY / INSTALL IN BID. HFT GENERAL CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH REPAIR / REPLACEMENT OF EXISTING / REUSED ITEMS.
- 313. AREA OF NEW MASONRY INFILL TO MATCH AND ALIGN WITH ADJACENT INTERIOR AND EXTERIOR FINISHES. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 314. NEW RELOCATED DOWNSPOUT LOCATION. SEE SHEETS D1.0 AND A3.1 FOR ADDITIONAL INFORMATION.
- 315. FINISHED FLOOR SLAB TO BE REPAIRED WHERE NEW MASONRY OPENING OCCURS. SEE DETAIL 6/A4.1 FOR ADDITIONAL INFORMATION.
- 316. 6"Ø STEEL PIPE BOLLARD. SEE DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- 317. 8"Ø STEEL PIPE BOLLARD. ALIGN CENTERLINE OF BOLLARD WITH EDGE OF DOOR OPENING AT OVERHEAD DOOR. SEE DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- 318. 6"Ø BOLT DOWN BOLLARD PROVIDED BY HFT. SEE SHEET A1.12 FOR ADDITIONAL INFORMATION.
- 319. OVERHEAD DOOR TO BE INSTALLED IN MODIFIED EXISTING OPENING. SHORE AS REQUIRED. SEE DETAIL 8/A4.1 AND SHEETS D1.0, A5.0 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 320. NEW LOCATION FOR WATER LINE AND BACKFLOW. SEE SHEET D1.0 AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- 321. HOLLOW METAL EGRESS DOOR AND FRAME TO BE INSTALLED AT NEW OPENING. SHORE AS REQUIRED. SEE SHEETS D1.0, A5.0 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 322. EXISTING ASPHALT PAVEMENT.
- 323. EXISTING CONCRETE SIDEWALK.
- 324. EXISTING BOLLARD TO REMAIN.
- 325. LINE OF CANOPY ABOVE. SEE SHEET A3.0 FOR ADDITIONAL INFORMATION.
- 326. EXISTING WALL TO BE EXTENDED TO DECK. AREA OF NEW WALL TO MATCH AND ALIGN WITH EXISTING ADJACENT FINISHES. SEE DETAIL 3/A5.1 FOR ADDITIONAL INFORMATION.
- 327. FROST SLAB @ CENTER LINE OF DOOR. SEE DETAIL 9/A4.1 FOR ADDITIONAL INFORMATION.
- 328. HATCHING INDICATES AREA OF ASPHALT TO BE PATCHED / REPAIRED IN KIND AT NEW RECEIVING PAD. SEE SECTION NOTED FOR ADDITIONAL INFORMATION.
- 329. LOCATION OF SPRINKLER MAIN. SEE FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION.
- 330. EXISTING FIRE DEPARTMENT CONNECTION TO REMAIN. G.C. TO PROTECT IN PLACE DURING CONSTRUCTION.

**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 REFRUBISHED MATERIALS. ALL REFRUBISHED 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. PROVIDE 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.

NOTE:  
 G.C. SHALL FIELD VERIFY EXISTING GRADES ENSURE GRADING NOTED AT DOCK / PAD IS ACHIEVABLE PRIOR TO CONCRETE POUR. CONTACT ARCHITECT PRIOR TO STARTING WORK IF NOTED GRADING CANNOT BE ACHIEVED. RECEIVING PAD MUST HAVE MINIMUM 1% SLOPE AWAY FROM THE BUILDING.

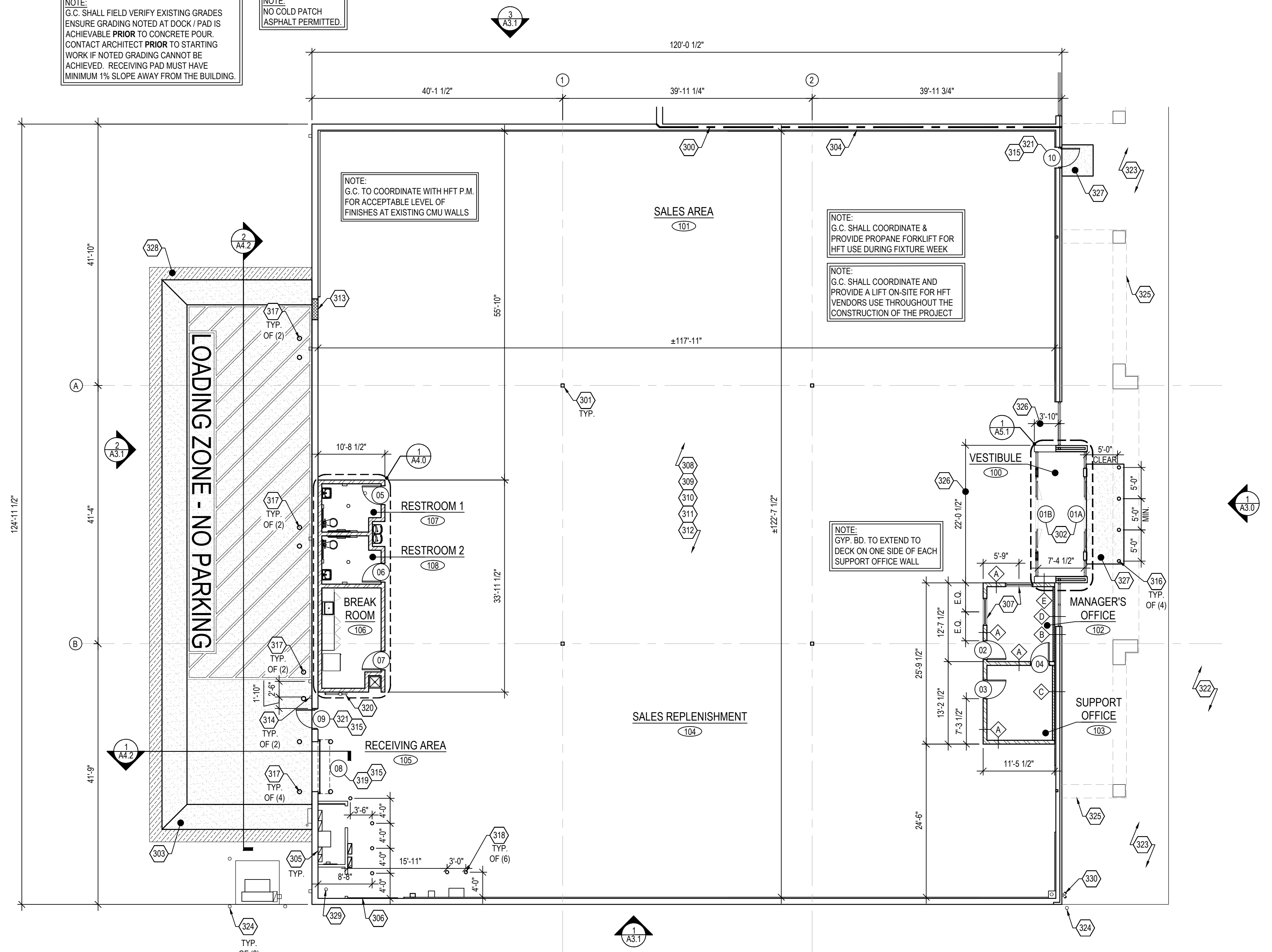
NOTE:  
 NO COLD PATCH ASPHALT PERMITTED.

NOTE:  
 G.C. TO COORDINATE WITH HFT P.M. FOR ACCEPTABLE LEVEL OF FINISHES AT EXISTING CMU WALLS

NOTE:  
 G.C. SHALL COORDINATE & PROVIDE PROPANE FORKLIFT FOR HFT USE DURING FIXTURE WEEK

NOTE:  
 G.C. SHALL COORDINATE AND PROVIDE A LIFT ON-SITE FOR HFT VENDORS USE THROUGHOUT THE CONSTRUCTION OF THE PROJECT

NOTE:  
 GYP. BD. TO EXTEND TO DECK ON ONE SIDE OF EACH SUPPORT OFFICE WALL



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

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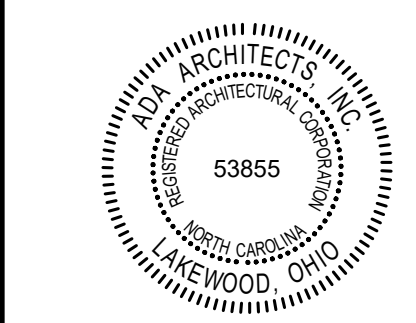
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**FLOOR PLAN**

DATE 03/04/24  
 JOB NO. 23591

**A1.1**

SHEET NO.



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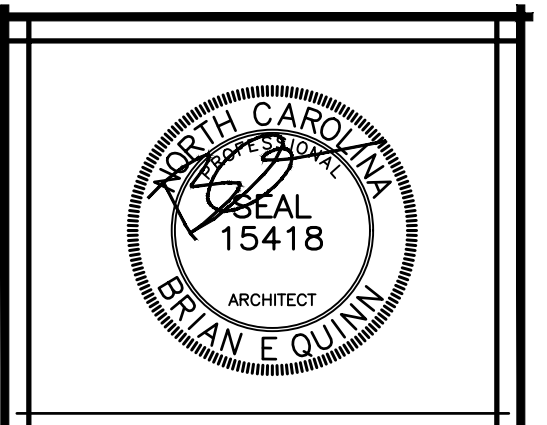
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| LEGEND |  |
|--------|--|
|        | EGRESS PATHWAY   |
|        | EXIT SIGN, SEE LIGHTING PLAN   |
|        | EMERGENCY LIGHT LOCATIONS, SEE LIGHTING PLAN   |
|        | EMERGENCY EXTERIOR LIGHT LOCATIONS, SEE LIGHTING PLAN  |
|        | FIRE EXTINGUISHER, ABC, CLASS 2A-20BC (MIN.) WALL MOUNTED FIRE EXTINGUISHER PER CODE. FIRE EXTINGUISHERS LOCATED TO PROVIDE MAXIMUM FLOOR AREA PER UNIT OF 1,500 S.F. AND A MAXIMUM TRAVEL DISTANCE OF 75' AS SHOWN. CONTRACTOR TO VERIFY FINAL LOCATIONS WITH FIRE MARSHAL. |

| OCCUPANCY CALCULATIONS   |  |      |                                    |
|--|--|------|------------------------------------|
| <b>USE and OCCUPANCY CLASSIFICATION:</b>   |  |      |                                    |
| USE: M - MERCANTILE<br>CLASS: IIB - FULLY SPRINKLERED                            |  |      |                                    |
| <b>APPLICABLE CODES:</b>   |  |      |                                    |
| BUILDING CODE:   | 2018 NORTH CAROLINA STATE BUILDING CODE  |      |                                    |
| ENERGY CODE:   | 2018 NORTH CAROLINA STATE ENERGY CONSERVATION CODE                                       |      |                                    |
| MECHANICAL CODE:   | 2018 NORTH CAROLINA STATE MECHANICAL CODE  |      |                                    |
| ELECTRICAL CODE:   | 2020 NATIONAL ELECTRIC 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 NC STATE BUILDING CODE (2009 NASI A117.1) |      |                                    |
| <b>OCCUPANT LOAD:</b>  |  |      |                                    |
| ACTUAL INTERIOR AREA BUILDING:   | 15,052 SQ. FT.   |      |                                    |
| FUNCTION OF SPACE  | FLR. AREA  | OCC. | CALCULATION                        |
| M - SALES  | 60 GROSS   |      | 9,079 SQ. FT. / 150 = 60 OCCUPANTS |
| B - CORE AREA  | 150 GROSS  |      | 673 SQ. FT. / 110 = 6 OCCUPANTS    |
| S-1 - STOCK  | 300 GROSS  |      | 5,300 SQ. FT. / 300 = 18 OCCUPANTS |
|  |  |      | 175 OCCUPANTS                      |
| ANTICIPATED OCCUPANT LOAD FOR HARBOR FREIGHT TOOLS: 150 MAX FROM HISTORICAL DATA |  |      |                                    |
| <b>EGRESS REQUIREMENTS:</b>  |  |      |                                    |
| REQUIRED EGRESS WIDTH:   | 175 OCC. x 0.20 = 35.0" (44" MIN)  |      |                                    |
| PROVIDED EGRESS WIDTH:   | (1) BREAK-AWAY BI-PARTING DOOR @ 66"; (2) H.M. DOOR @ 34" = 134"                         |      |                                    |
| 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  |      |                                    |

| EXIT SEPARATION  |                       |
|--|-----------------------|
| OVERALL DIAGONAL DIMENSION OF SALES AREA:  | 135'-3"               |
| SEPARATION DISTANCE REQUIRED OF EXITS:<br>1/3 OF MAXIMUM OVERALL BUILDING DIMENSION<br>(SPACE IS FULLY EQUIPPED WITH AUTOMATIC SPRINKLERS) | 45'-1"                |
| CALCULATED MINIMUM SEPARATION DISTANCE:  | 60'-11"<br>(COMPLIES) |
| MINIMUM SEPARATION DISTANCE OF EXITS PROVIDED:   | 60'-11"<br>(COMPLIES) |

| AREA OCCUPANT LOAD ALLOWANCES AND EGRESS DOOR OCCUPANT LOAD CALCULATIONS |                                      |
|--|--------------------------------------|
| <b>SALES AREA OCCUPANCY:</b>   |                                      |
| SALES AREA   | 9,079 / 60 = 152 OCCUPANTS           |
| RESTROOMS (ACCESSORY)  | (2) SINGLE OCCUPANCY = 2 OCCUPANTS   |
| <b>TOTAL =</b>   | <b>154 OCCUPANTS</b>                 |
| <b>SALES REPLENISHMENT AREA OCCUPANCY:</b>                               |                                      |
| STOCK AREA   | 5,300 / 300 = 18 OCCUPANTS           |
| BREAK ROOM (ACCESSORY)   | 333 S.F. / 150 = 2 OCCUPANTS         |
| OFFICE (ACCESSORY)   | 309 S.F. / 150 = 3 OCCUPANTS         |
| <b>TOTAL =</b>   | <b>23 OCCUPANTS</b>                  |
|  | 23 OCCUPANTS / 1 EXIT = 23 OCCUPANTS |



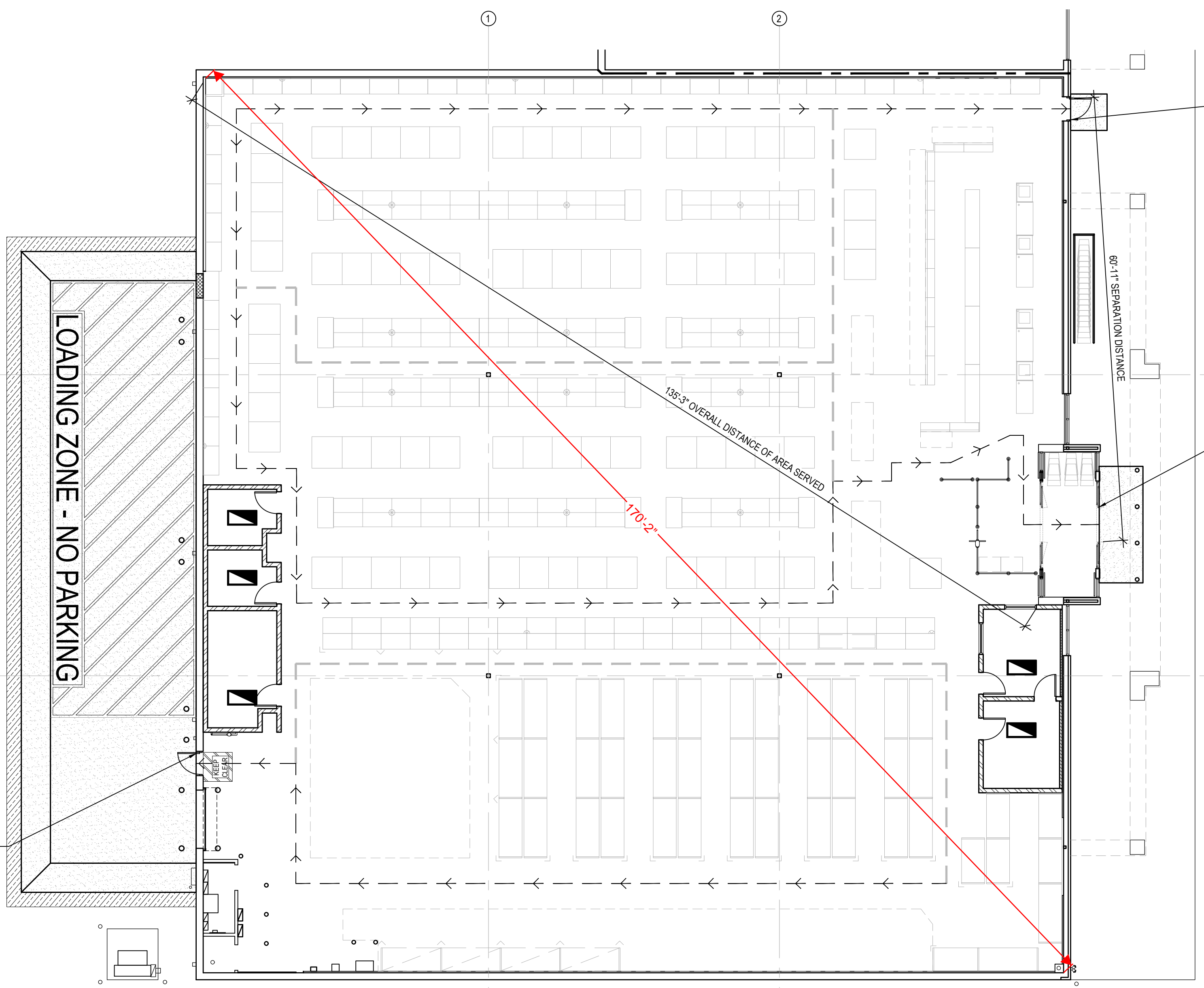
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| REVISIONS |      |
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**LIFE SAFETY PLAN**  
 DATE 03/04/24  
 JOB NO. 23591  
**A1.1A**  
 SHEET NO.

DO NOT SCALE THESE DRAWINGS



**EXIT**  
 77 OCCUPANTS  
 (INCLUDES MANAGER'S OFFICE, SUPPORT OFFICE & TOILETS)  
 EGRESS WIDTH PROVIDED: 34"  
 34" / 20 = 170 MAX. OCCUPANTS  
 EXIT PATH DISTANCE = 114'-7"  
 (FROM MOST REMOTE POINT IN SALES AREA)  
 EXIT TRAVEL DISTANCE  
 ALLOWED = 250'-0" (TABLE 1017.2)  
 114'-7" < 250'-0" (COMPLIES)

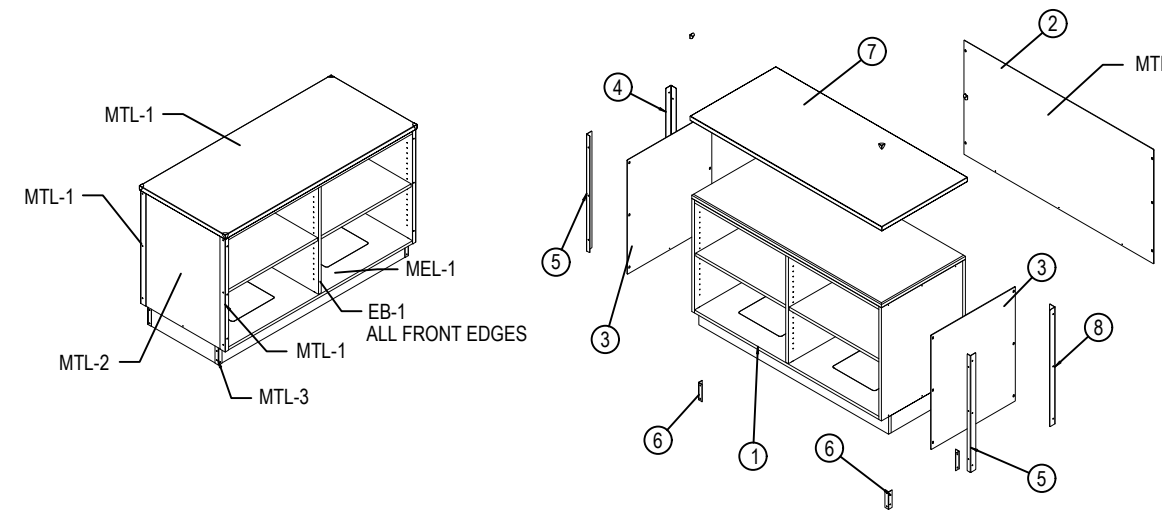
**EXIT**  
 77 OCCUPANTS  
 (INCLUDES MANAGER'S OFFICE, SUPPORT OFFICE & TOILETS)  
 EGRESS WIDTH PROVIDED: 66"  
 66" / 20 = 330 MAX. OCCUPANTS  
 EXIT PATH DISTANCE = 218'-9"  
 (FROM MOST REMOTE POINT IN SALES AREA)  
 EXIT TRAVEL DISTANCE  
 ALLOWED = 250'-0" (TABLE 1017.2)  
 218'-9" < 250'-0" (COMPLIES)

**EXIT**  
 23 OCCUPANTS  
 (INCLUDES BREAK ROOM)  
 EGRESS WIDTH PROVIDED: 34"  
 34" / 20 = 170 MAX. OCCUPANTS  
 EXIT PATH DISTANCE = 119'-6"  
 (FROM MOST REMOTE POINT IN SALES REPLENISHMENT AREA)  
 EXIT TRAVEL DISTANCE  
 ALLOWED = 250'-0" (TABLE 1017.2)  
 119'-6" < 250'-0" (COMPLIES)

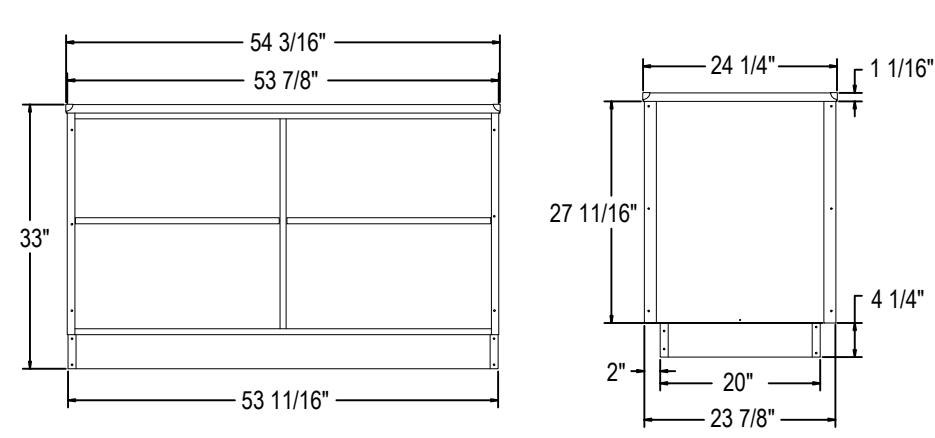
**LIFE SAFETY PLAN**  
 SCALE 3/32" = 1'-0"



| ITEM NO | PART NUMBER        | DESCRIPTION   | MATERIAL                                    | QTY. |
|---------|--------------------|---|---|------|
| 1       | HBF 4 FT6-001-S1   | CASH WRAP 4 FEET 6 INCH RIGHT 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    |

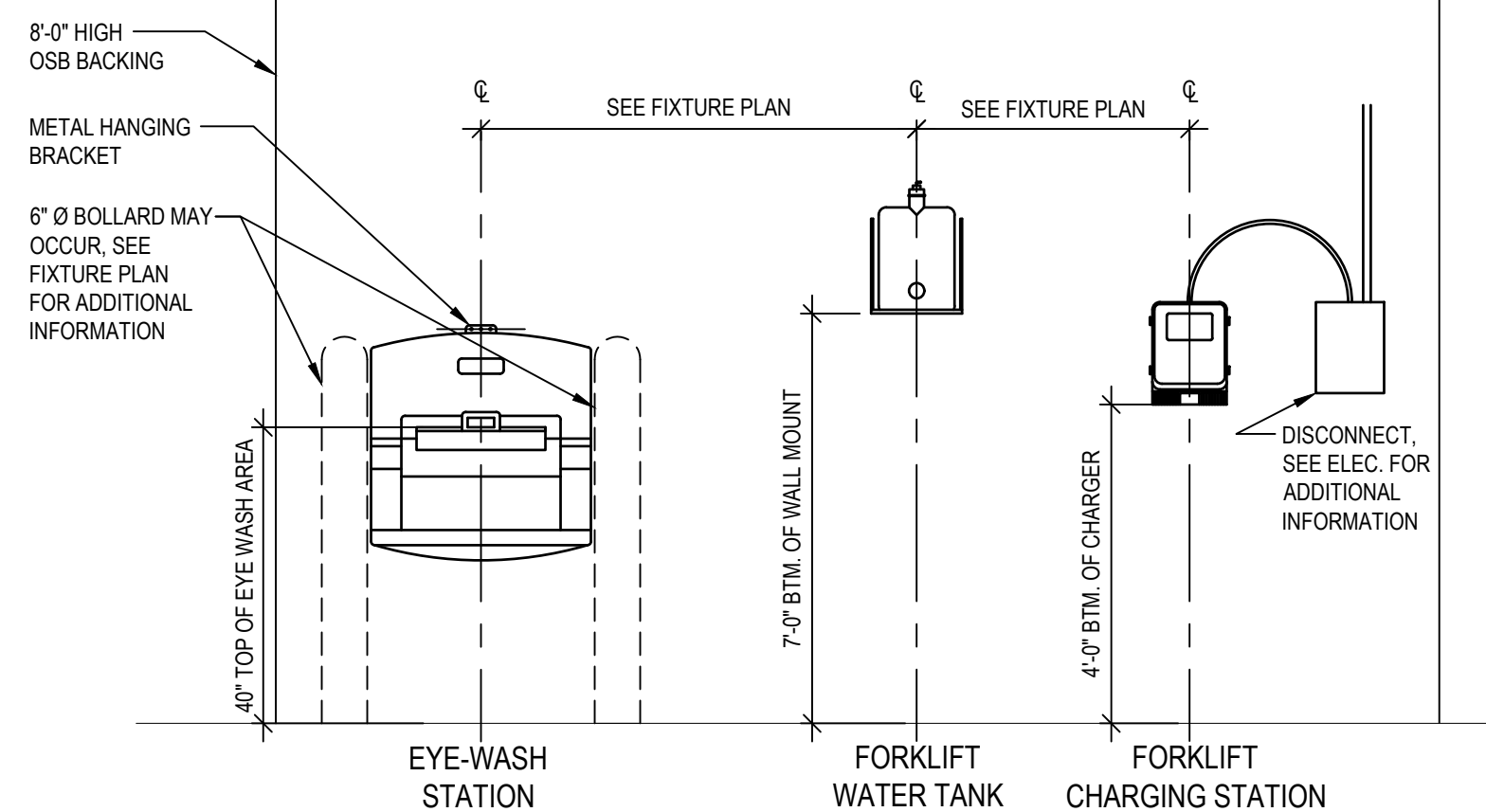


MATERIAL NOTES:  
 3/4"THK.MDF  
 0.0625" ALUMINUM DIAMOND PLATE (TREADBRITE)  
 18 GA. GALVANIZED HRS  
 16 GA. GALV-X STEEL



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

**GENERAL NOTES**

- REFER TO GENERAL NOTES ON SHEET A2.2 FOR ADDITIONAL INFORMATION.
- HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
- HFT GENERAL CONTRACTOR TO PROVIDE NON-COMBUSTIBLE CEILING AND WALL BLOCKING AS NECESSARY.
- HFT GENERAL CONTRACTOR TO INSTALL POWER POLES FOR CASH WRAPS. LOCATIONS INDICATED ON PLAN. PRIOR TO INSTALLATION COORDINATE WITH FIXTURE FABRICATOR.
- HFT GENERAL CONTRACTOR TO FIELD SURVEY AND COORDINATE ACCESS OF ALL MILLWORK WITH HARBOR FREIGHT TOOLS OPERATIONS / STORE DESIGN.
- HFT GENERAL CONTRACTOR AND FIXTURE FABRICATOR TO COORDINATE WITH APPROVED FIXTURE DRAWINGS.
- HFT GENERAL CONTRACTOR TO COORDINATE WITH THE HARBOR FREIGHT TOOLS CONSTRUCTION MANAGER FOR NEW FIXTURE DROP LOCATIONS, TYPES, AND QUANTITIES.
- 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.
- FIXTURE INSTALLER TO ADJUST FIXTURE LAYOUT AS REQUIRED TO PROVIDE 4" CLEAR PAST ANY COLUMN U.N.O.

**400 SERIES FIXTURE PLAN KEY NOTES**

- 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 75' AS SHOWN. CONTRACTOR TO VERIFY FINAL LOCATIONS WITH FIRE MARSHAL.
- 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 RACKINGS TO BE OPEN WIRE SHELVES.
- 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 11A1.2 FOR ADDITIONAL INFORMATION.
- APPROXIMATE POWER POLE LOCATION. APPROXIMATE DECK AT POWER POLE IS 20'-8" 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.
- CASH REGISTER
- (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 11A4.0 FOR ADDITIONAL INFORMATION.
- GRAY GROMMET IN COUNTER BY HFT GENERAL CONTRACTOR. VERIFY EXACT LOCATION W/ HFT.
- APPROXIMATE LOCATION OF SAFE BY HFT.
- APPROXIMATE LOCATION OF IT CABINET BY HFT.
- PRINTER
- "KRONOS SERIES 4000" TIME CLOCK. MOUNT CENTERED BETWEEN MANAGER OFFICE DOOR & WINDOW @ 44" A.F.F.
- LOCATION OF HFT FORKLIFT BATTERY CHARGER. SEE ELECTRICAL DRAWINGS & DETAIL 2/A1.2 FOR ADDITIONAL INFORMATION.
- LOCATION OF HFT FORKLIFT WATER TANK. SEE DETAIL 2/A1.2.
- LOCATION OF HFT EYEWASH STATION. SEE DETAIL 2/A1.2.
- APPROXIMATE LOCATION OF CART CORRAL.
- 26" ULINE FULL DOME AND HALF DOME SAFETY MIRROR TO BE MOUNTED FOR VISIBILITY AROUND FIXTURES. SEE SHEET A2.0 FOR ADDITIONAL INFORMATION.
- SECURITY TURNSTILE AND RAILING. G.C. TO COORDINATE TURNSTILE AND RAILING INSTALLATION WITH HFT OPERATIONS. SEE SHEET A5.2 FOR ADDITIONAL INFORMATION.
- ENDCAPS TO BE 50.25" WIDE (TYP.) ALL GONDOLAS TO BE ANCHORED TO SLAB

**CLEARANCE HEIGHTS CHART**

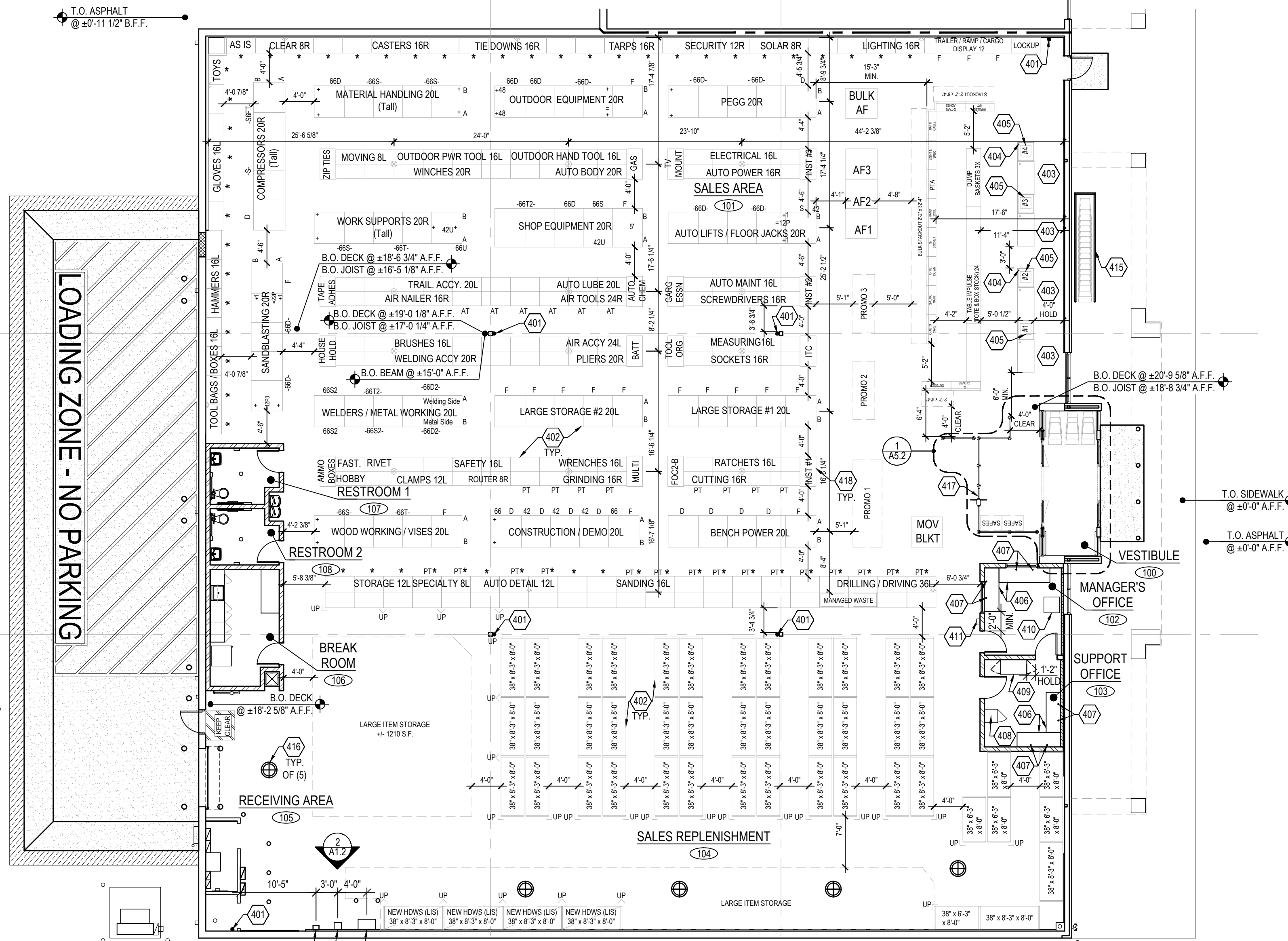
| AREA                | CLEARANCE             | HIGH POINT         | LOW POINT          |
|---------------------|-----------------------|--------------------|--------------------|
| SALES               | BOTTOM OF DECK        | ±20'-9 5/8" A.F.F. | ±18'-2 5/8" A.F.F. |
|                     | BOTTOM OF STRUCTURE   | ±18'-8 3/4" A.F.F. | ±15'-0" A.F.F.     |
|                     | SPRINKLER LINES       | L.P. OF STRUCTURE  |                    |
| SALES REPLENISHMENT | BOTTOM OF DECK        | ±20'-9 5/8" A.F.F. | ±18'-2 5/8" A.F.F. |
|                     | BOTTOM OF STRUCTURE   | ±18'-8 3/4" A.F.F. | ±15'-0" A.F.F.     |
|                     | SPRINKLER LINES       | L.P. OF STRUCTURE  |                    |
| RECEIVING AREA      | CLEARANCE @ O.H. DOOR | ±18'-2 5/8" A.F.F. |                    |

**SQUARE FOOTAGE BREAKDOWN**

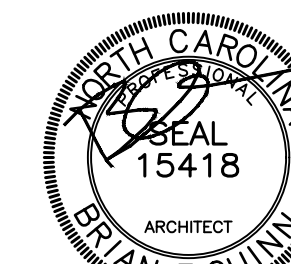
|                                    |             |
|------------------------------------|-------------|
| SALES AREA SQUARE FOOTAGE          | 9,079 S.F.  |
| SALES REPLENISHMENT SQUARE FOOTAGE | 5,300 S.F.  |
| OFFICE AREA SQUARE FOOTAGE         | 673 S.F.    |
| TOTAL OVERALL LEASE SQUARE FOOTAGE | 15,052 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         | ---   |



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



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**FIXTURE PLAN**

DATE 03/04/24

JOB NO. 23591

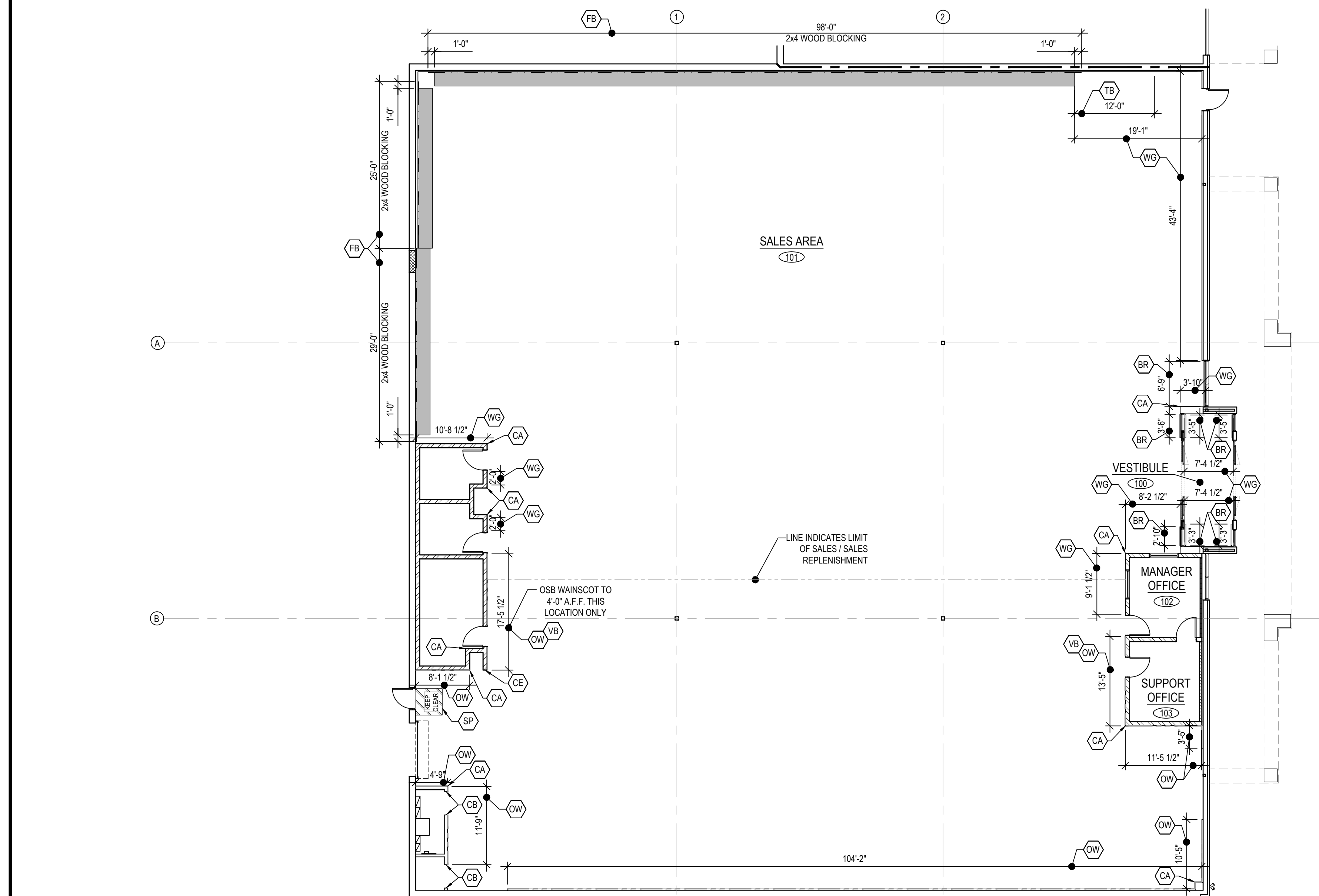
**A1.2**

SHEET NO.

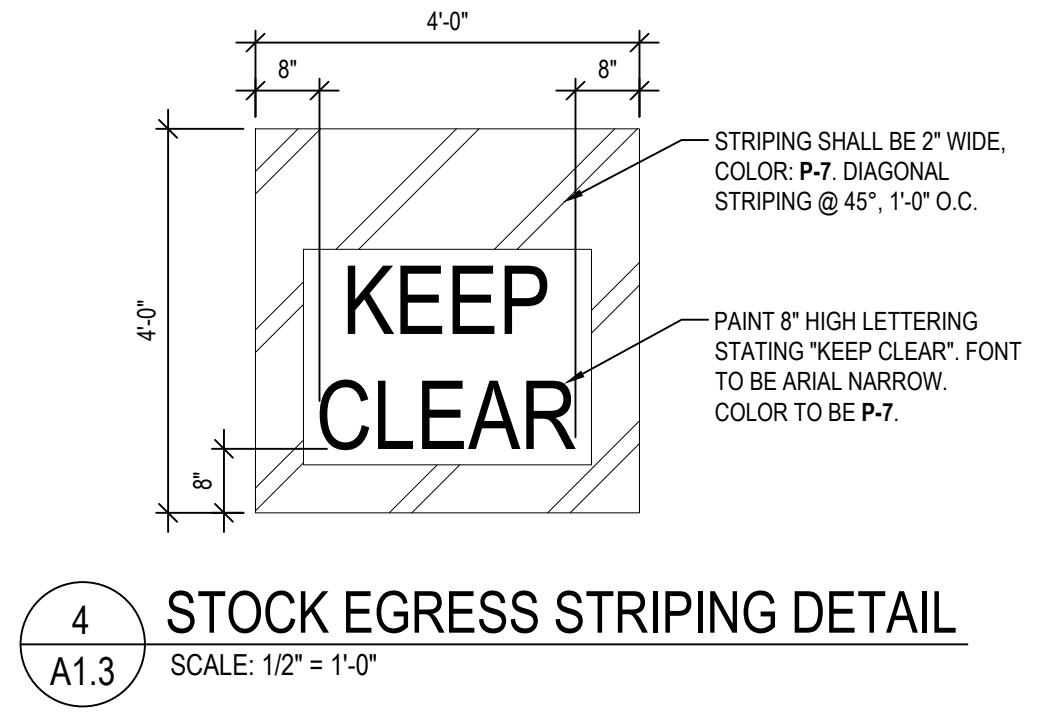
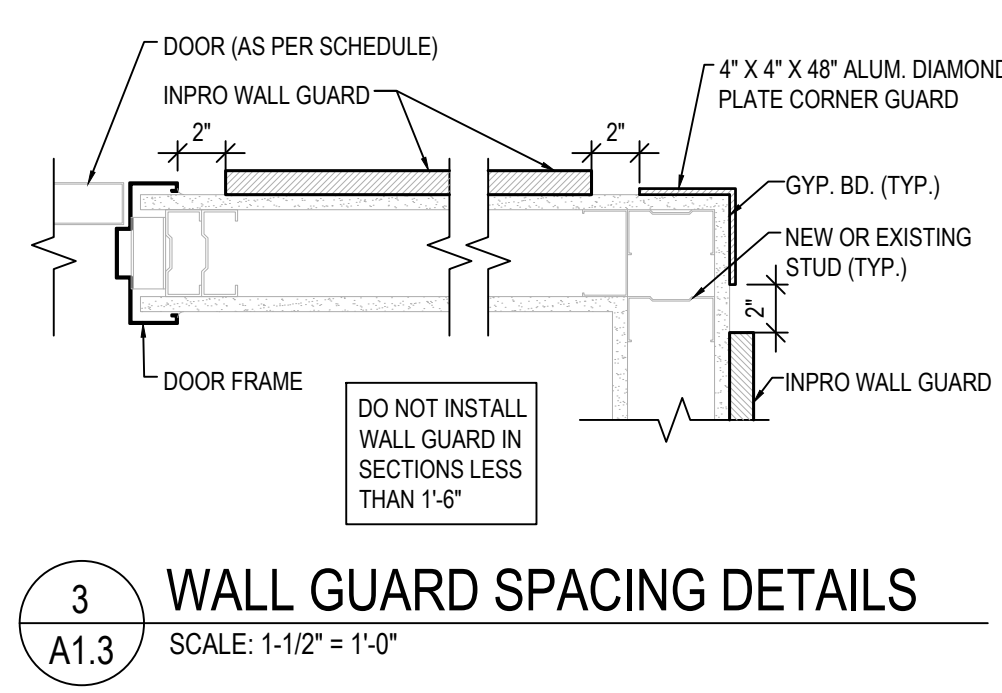
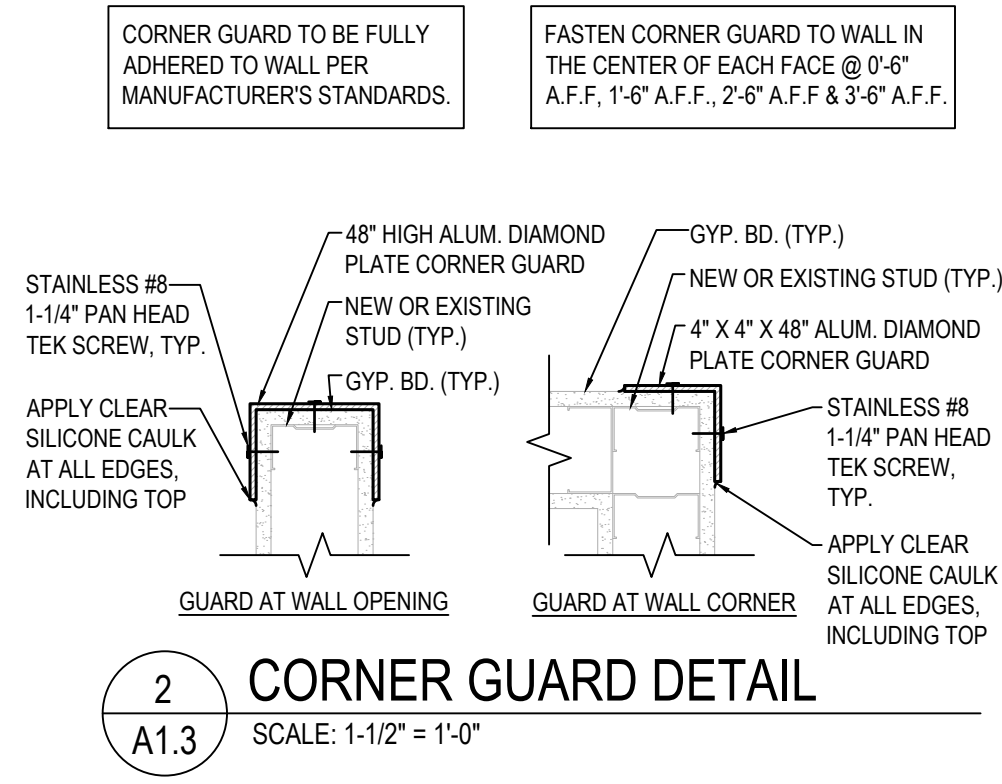
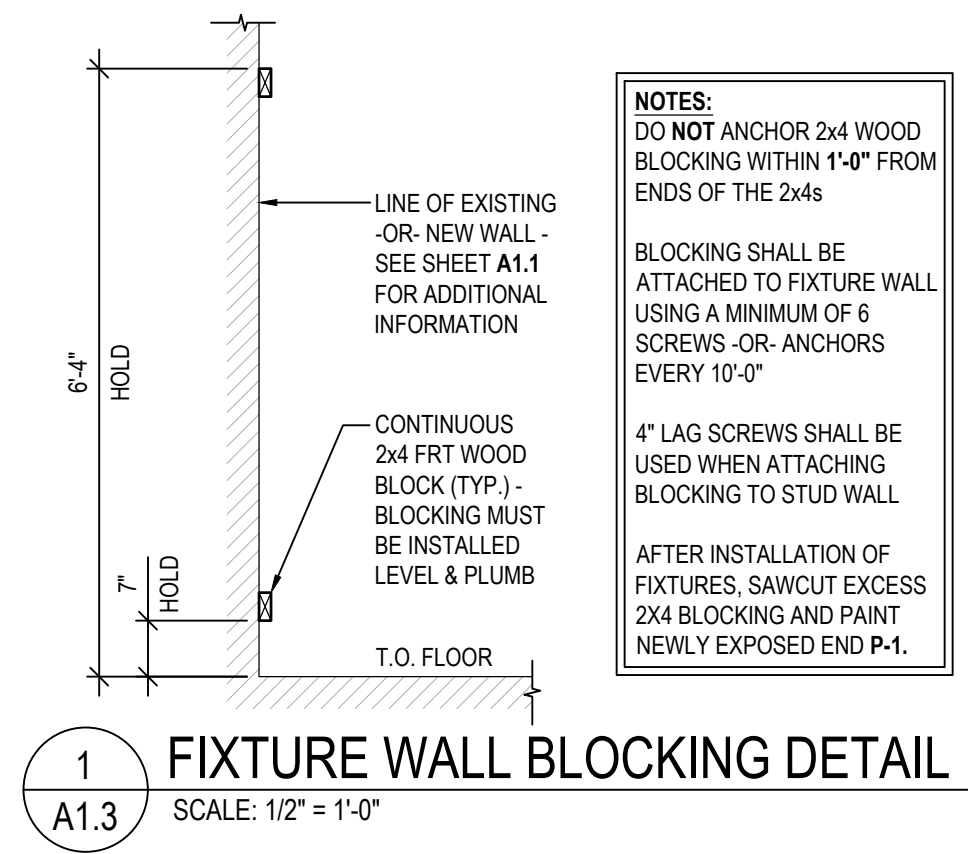
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| TAG SCHEDULE  |  | ROOM SCHEDULE  |                     |               |          |       |   |
|---|--|--|---------------------|---------------|----------|-------|---|
| TAG   | DESCRIPTION  | NO.  | ROOM NAME           | WALL          | BASE     | FLOOR | CEILING   |
| 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 3A1.3 FOR ADDITIONAL INFORMATION. TERMINATE GUARDS WITH 701 END CAPS. | 100  | VESTIBULE           | P-1           | N/A      | C-1   | E.T.R.  |
|   |  | 101  | SALES AREA          | P-1, P-2, P-6 | VB-1     | CON-1 | OPEN TO STRUCTURE (PAINT P-5) TO 12" BELOW LOW POINT OF STRUCTURE |
| BR  | MCQUE ZINC PLATED STEEL BOXRAIL HEAVY DUTY FLOOR BUMPER INSTALLED PER MANF. RECOMMENDATIONS.   | 102  | MANAGER OFFICE      | P-1A          | VB-1     | LVT-1 | ACT-1   |
|   |  | 103  | SUPPORT OFFICE      | P-1A          | VB-1     | LVT-1 | ACT-1   |
| FB  | LINE INDICATES FRT WOOD BLOCKING FOR WALL FIXTURES. SHADED AREA INDICATES LOCATION OF WALL FIXTURES. SEE DETAIL 1A1.3 FOR ADDITIONAL INFORMATION.  | 104  | SALES REPLENISHMENT | P-1, P-2, P-6 | AS NOTED | CON-1 | OPEN TO STRUCTURE (PAINT P-5) TO 12" BELOW LOW POINT OF STRUCTURE |
| 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.  | 105  | RECEIVING AREA      | P-1, P-2, P-6 | 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   |
| C   | CORNER GUARD. SEE DETAIL 2A1.3 FOR ADDITIONAL INFORMATION. TYPES: A, B, C, D, E<br>CA - GUARD AT CORNER<br>CB - 5" AT OPENING<br>CC - 5-1/2" AT OPENING<br>CD - 7-3/8" AT OPENING<br>CE - 7-7/8" AT OPENING  | NOTES:<br>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.<br>2. ALL PREVIOUSLY PAINTED ITEMS TO BE PAINTED INCLUDING PIPING, DUCTWORK, CONDUIT, ETC.<br>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.<br>4. ALL DOORS AND FRAMES TO BE PAINTED P-8.<br>5. ALL GYPSUM BOARD SURFACES TO BE PAINTED P-1 OR P1-A.<br>6. ALL PREVIOUSLY PAINTED CMU (OR CONCRETE) SURFACES TO BE PRIMED P-6, PAINTED P-2.<br>7. ALL BARE CMU (OR CONCRETE) SURFACES TO BE PRIMED P-6A, PAINTED P-2.<br>8. PROVIDE A CLEAN, SMOOTH CONCRETE SURFACE FOR PROPER INSTALLATION OF ALL FLOOR FINISHES.<br>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.<br>10. ALL MECHANICAL GRILLES / REGISTERS FACING INTO SALES AND STOCK AREAS TO BE PAINTED TO MATCH ADJACENT WALL SURFACE. |                     |               |          |       |   |
| VB  | EXTEND BASE "VB-1" WITHIN SALES REPLENISHMENT AREA. DIMENSIONED LOCATION ONLY  |  |                     |               |          |       |   |
| TB  | INSTALL 2x4 FRT WOOD BLOCKING AT 5'-0" A.F.F. TO CENTERLINE. DIMENSIONED LOCATION ONLY. PAINT TO MATCH P-1.  |  |                     |               |          |       |   |
| SP  | DENOTES AREA OF FLOOR PAINTING AT STOCK EGRESS DOOR. SEE DETAIL 4A1.3 FOR ADDITIONAL INFORMATION.  |  |                     |               |          |       |   |
| DIMENSIONS SHOWN FOR ESTIMATION OF MATERIALS PURPOSES ONLY (TYP.) |  |  |                     |               |          |       |   |

| 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   |
| 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.  |
| MISC.                         | P-5 PAINT   | SHERWIN - WILLIAMS            | DRY FALL - SW7069 IRON ORE (FLAT) | PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL - UTILIZE B42T0018-20 (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.   |
|                               | 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 CONFLX 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 PERFORMANCE 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.   |

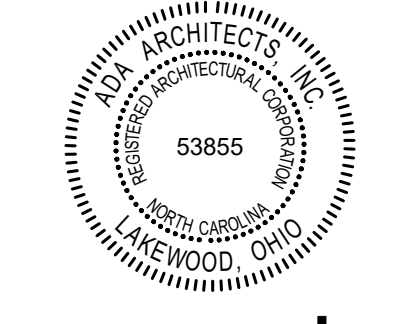
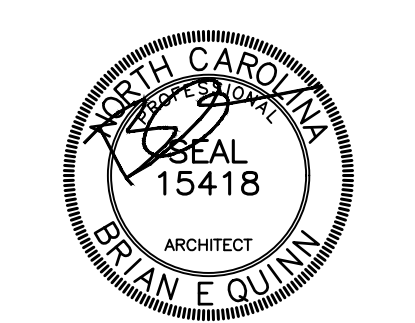


**FINISH PLAN**  
SCALE 3/32" = 1'-0"



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

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



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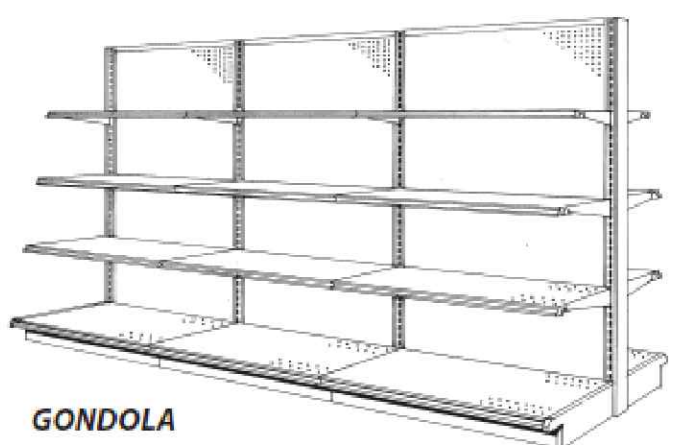
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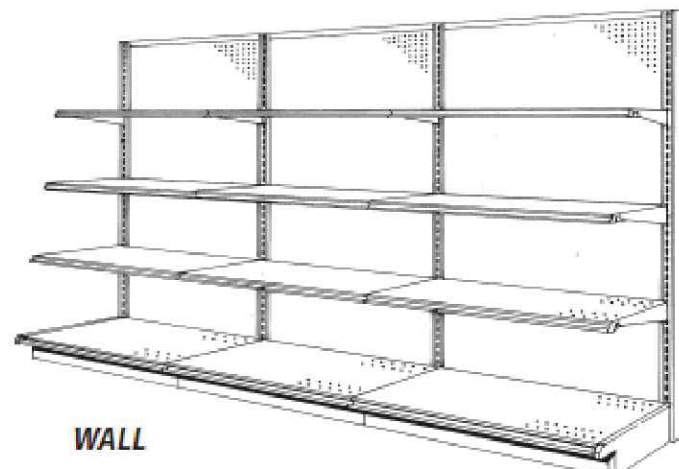
**A1.3**  
SHEET NO.

**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.



GONDOLA



WALL

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

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



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**PALLET LABEL LAYOUT**

SHIP DATE: 04/14/2008 CUSTOMER P.O.:  
 PALLET #: 1002342380 CUST PO#: D029076 WT: 186.220 PALLET WEIGHT  
 MFQ ORDER #: MADIX ORDER: FROM: Madix Store Fixtures TO: THE CUSTOMER  
 MADIX ORDER #: 127394 1537 South Main Street  
 CARRIER: 04/14/2008 CARRIER: AVONDALE TRUCKING AL 35072 SHIP TO ADDRESS  
 123 FAKE STREET  
 ROANOKE VA 24012 US  
 MF: PALLET: Palletize PACK TYPE REQUEST  
 TL = TRUCK LOAD  
 LTL = LESS THAN TRUCK LOAD

| QTY     | UOM     | ITEM# / DESCRIPTION | COLOR        |
|---------|---------|---------------------|--------------|
| 10.0 EA | SUS-416 | STD UPPER SHELF     | SA-DGA11A-SP |
| 4.0 EA  | SUS-416 | STD UPPER SHELF     | SA-DGA11G-SP |
| 3.0 EA  | SUS-422 | STD UPPER SHELF     | SA-DGA11A-SP |

QUANTITY ON PALLET MATERIAL # MATERIAL DESCRIPTION MATERIAL COLOR(S)

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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.

TERRELL, TX 800-726-2349



www.madixinc.com

**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 per side with SL lower spanner in place. MAX 300 lbs per side with HSL Heavy Duty Lower Spanner.

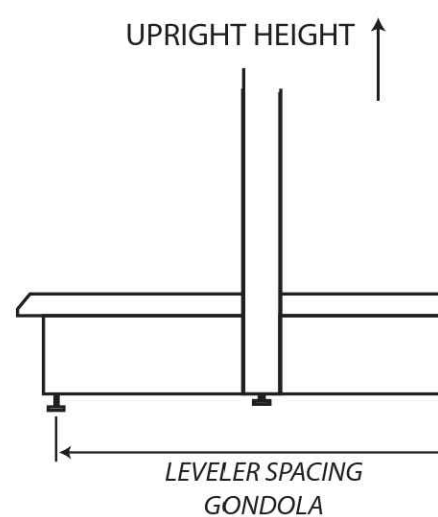
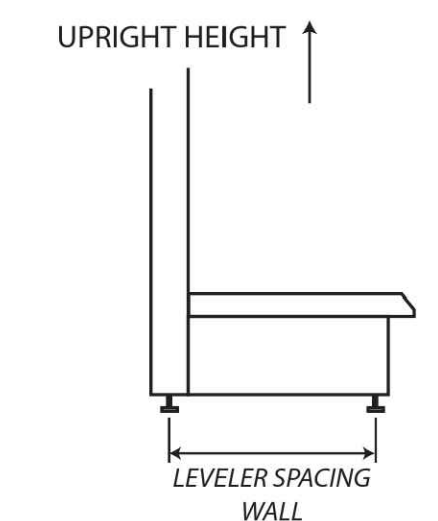


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**FIXTURE HEIGHT TO BASE WIDTH:**

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"                             |

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

**WARNING!** 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!

VIEW FROM BELOW UPPER SHELVES



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FIXTURE SPECIFICATIONS AND DETAILS

DATE 03/04/24

JOB NO. 23591

A1.4

SHEET NO.

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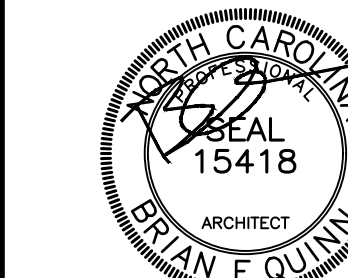
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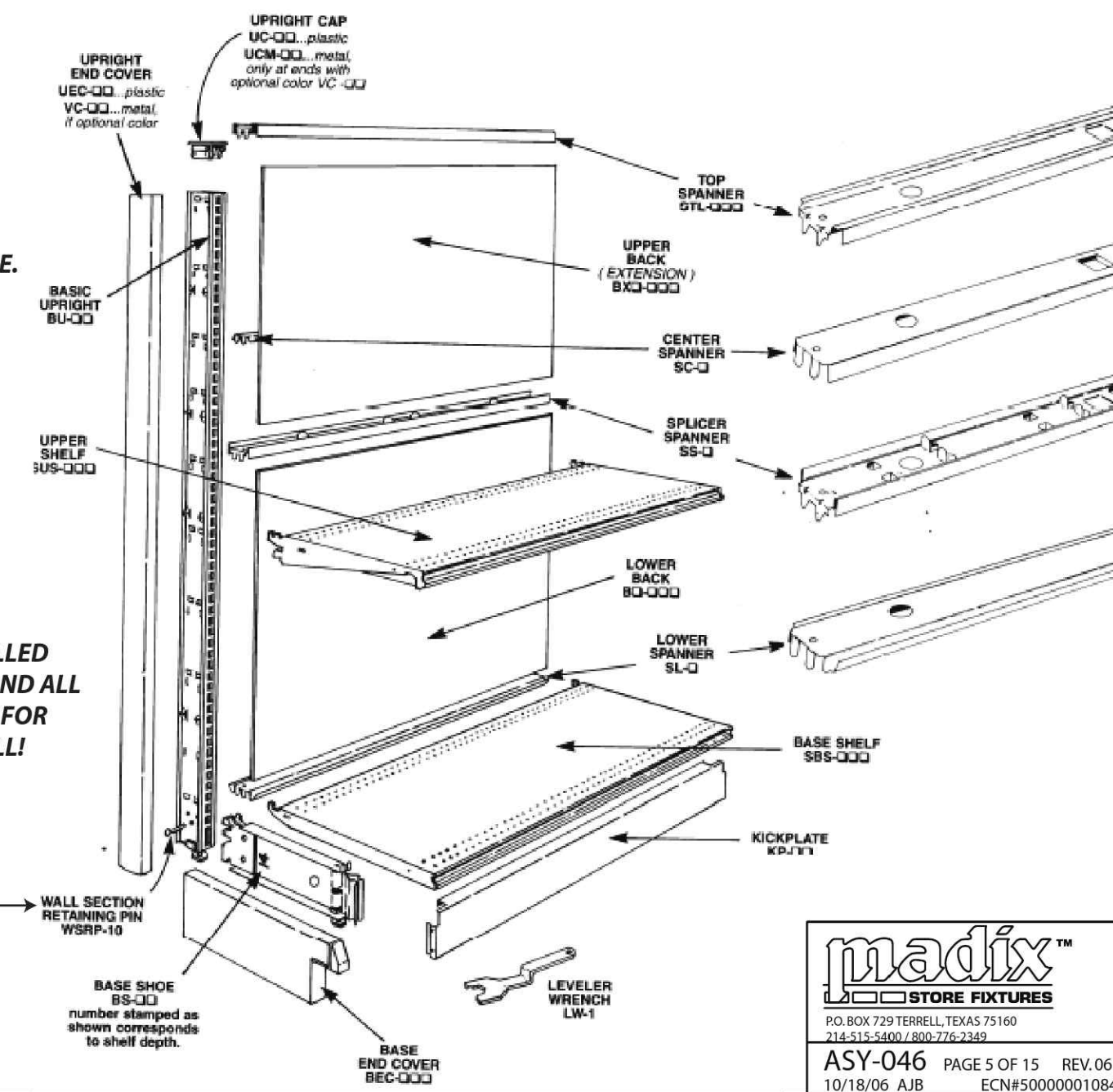


**GONDOLA / WALL PARTS IDENTIFICATION...**

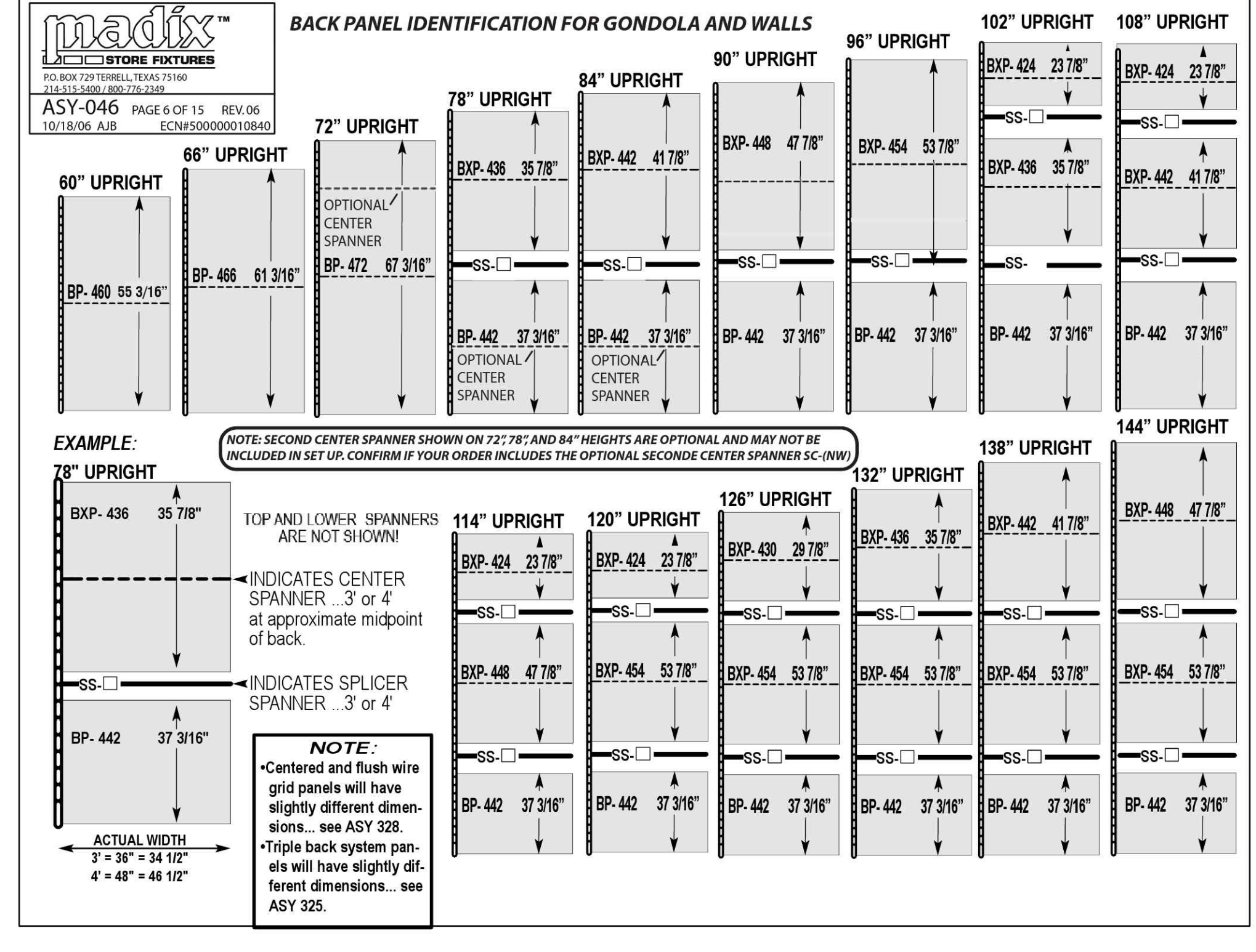
- THE PARTS SHOWN HERE REPRESENT A WALL, SINGLE SIDED, SECTION.
- BOTH GONDOLA AND WALL SECTIONS USE THE SAME PARTS.
- PAGES 7-10 SHOW INSTALLATION OF A GONDOLA, DOUBLE SIDED, FIXTURE.

**WSRP MUST BE INSTALLED IN ALL WALL UPRIGHTS AND ALL UPRIGHTS ABOVE 96" FOR GONDOLA AND WALL!**

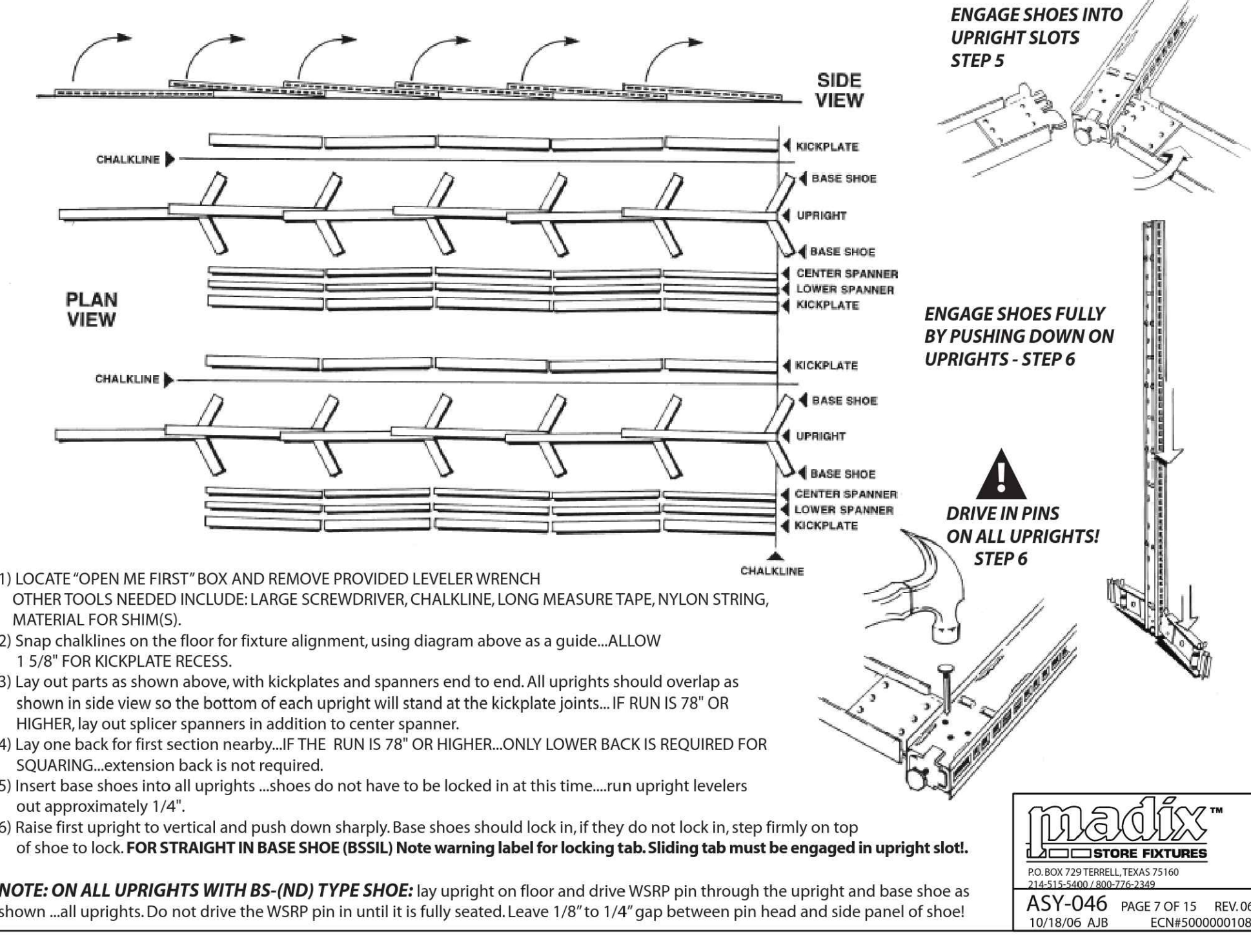
**NOTE: ONLY BS-(ND) SHOES WILL REQUIRE THE WSRP, BSSL-(ND) DO NOT REQUIRE THE WSRP.**



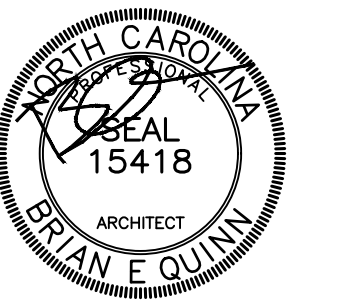
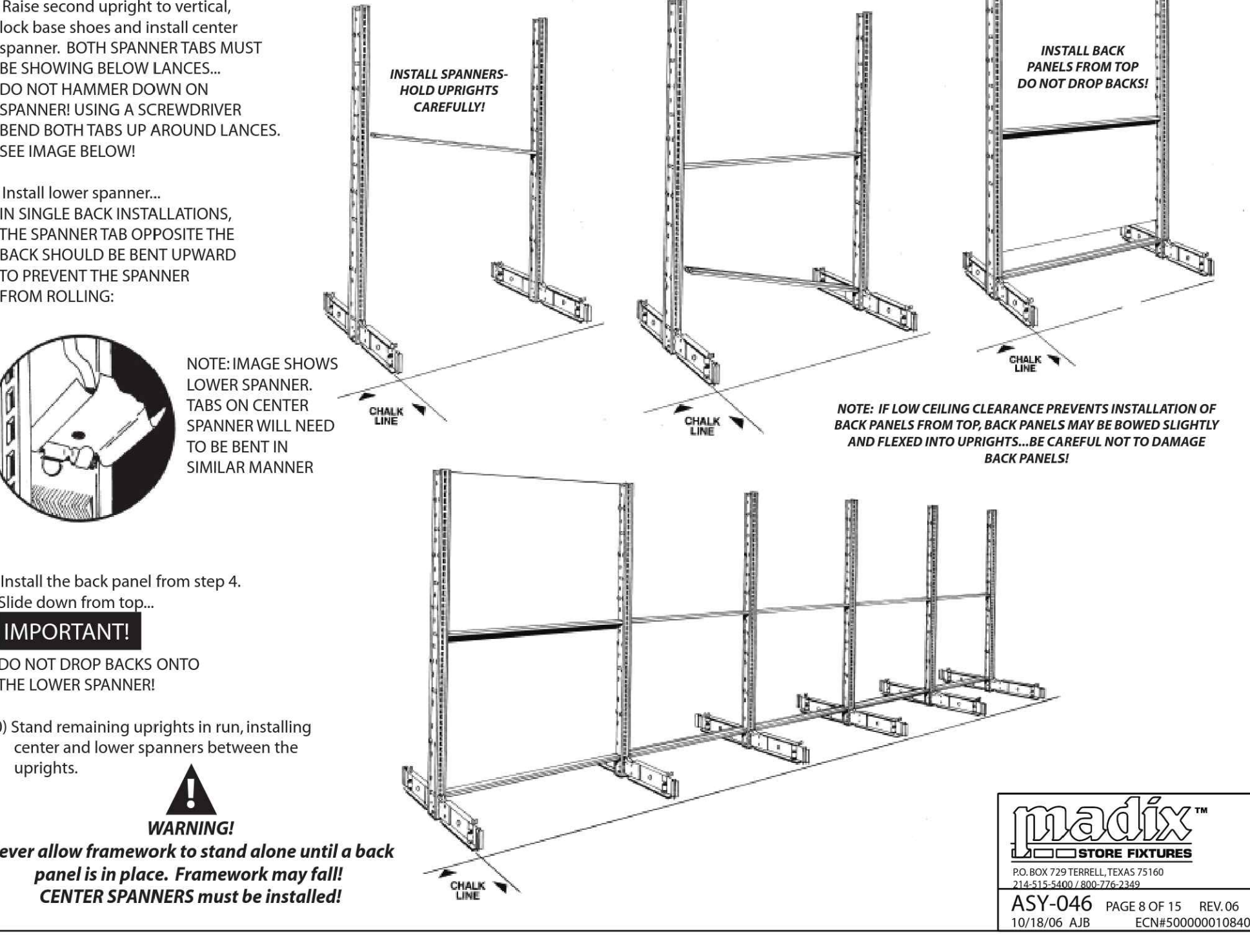
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**ASSEMBLY PROCEDURE...**



**ASSEMBLY PROCEDURE...**



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FIXTURE SPECIFICATIONS AND DETAILS

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**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!

**STEP 11 KICKPLATES**

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

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

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

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...**

**UC - STEP 20 STL-(NW) - STEP 19**

**SBS BASE SHELF STEP 23**

**UC UPRIGHT CAP UC - STEP 20**

**VC UPRIGHT COVER STEP 19**

**BS - STEP 21**

**CHALK LINE**

**UC UPRIGHT CAP**

**TABS ON CAP WILL GO INSIDE UPRIGHT AND SNAP TO INSIDE OF FIRST LANCE. ONCE IN PLACE CAP WILL NOT MOVE**

**CHALK LINE**

**1/4"**

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

**TABS ON SPANNER WILL NEED TO HAVE TABS REST BEHIND TOP LANCE AS SHOWN**

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

**IMPORTANT!** DO NOT DROP BACKS ONTO THE LOWER SPANNERS!

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.

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.

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

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

24) Install upper shelves and accessories.

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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.

**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.**

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**FIXTURE LOADING AND PRODUCT SAFETY...**

**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.

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

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

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| Shelf Type | Shelf Depth | MAXIMUM LOAD CAPACITY* IN POUNDS |              |          |          |
|------------|-------------|----------------------------------|--------------|----------|----------|
|            |             | Evenly Loaded                    | Front Loaded | 15° Down | 30° Down |
| SUS-□□□    | 6" - 8"     | 300#                             | 300#         | 125#     | 100#     |
| □          | 8" - 18"    | 500#                             | 300#         | 125#     | 100#     |
| □          | 20" - 24"   | 500#                             | 300#         | 250#     | 100#     |
| □          | 28" - 30"   | 400#                             | 250#         | 200#     | 100#     |
| SIP-□□□    | 6" - 8"     | 300#                             | 300#         | 280#     | 100#     |
| □          | 10" - 18"   | 500#                             | 380#         | 280#     | 100#     |
| □          | 20" - 24"   | 500#                             | 350#         | 250#     | 100#     |
| □          | 28" - 30"   | 400#                             | 250#         | 200#     | 100#     |
| HUS-□□□    | 6" - 18"    | 600#                             | n/a          | n/a      | n/a      |
| □          | 20" - 24"   | 600#                             | n/a          | n/a      | n/a      |
| SBS-□□□    | 12" - 30"   | 600#                             | n/a          | n/a      | n/a      |
| □          | 12" - 30"   | 600#                             | n/a          | n/a      | n/a      |

\* Based on evenly distributed static loading.  
\* SIP type shelves are straight fit, horizontal insertion into upright slotting.

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**FIXTURE SPECIFICATIONS AND DETAILS**

DATE 03/04/24

JOB NO. 23591

**A1.6**

SHEET NO.

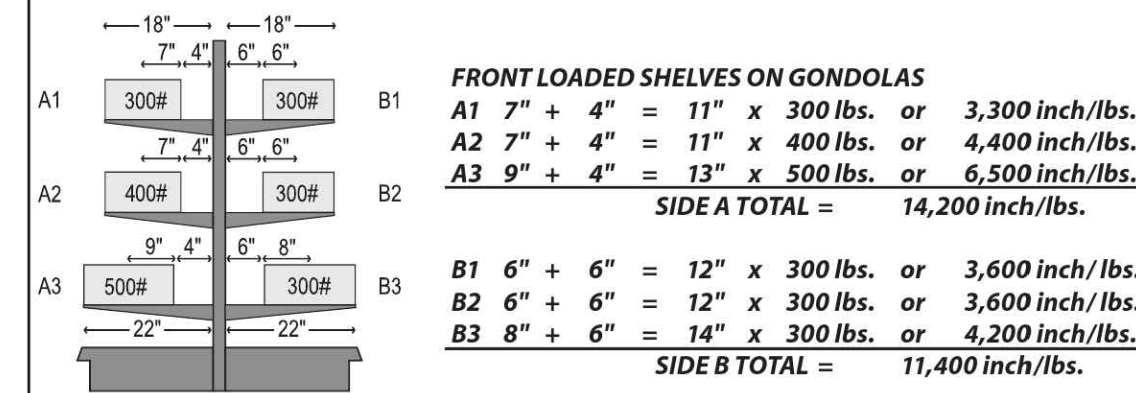
**FIXTURE LOADING - PRODUCT SAFETY**

**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.

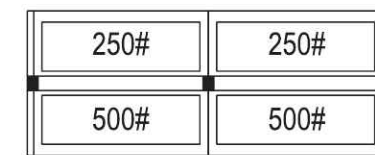


**SUBTRACT B FROM A:**  
 14,200 inch/lbs  
 -11,400 inch/lbs  
**2,800 inch/lbs**

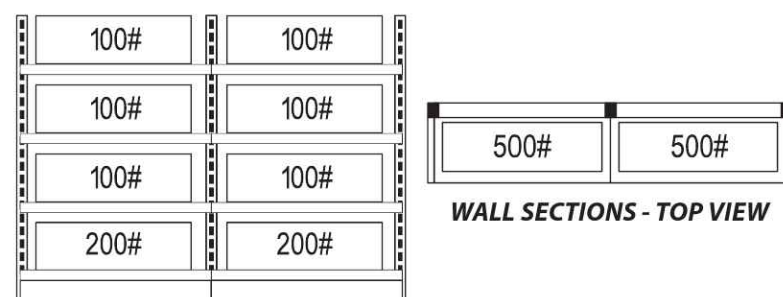
**SAFE - 2,800 INCH/LBS**  
**DOES NOT EXCEED**  
**15,000 INCH/LBS**  
**MAXIMUM**

**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**  
 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**

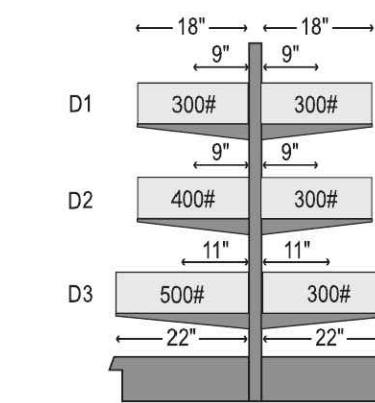
Offset loading is measured in inch/pounds and represents the bending load at the base shoe connection and the upright. To determine if you exceed the load limit of the fixture, take the difference between the larger inch/lb. calculations on one side of the fixture and the inch /lb. calculations on the 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.**



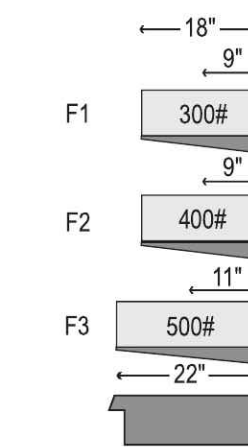
**SUBTRACT E FROM D** 11,800 inch/lbs.  
 - 8,700 inch/lbs.  
**3,100 inch/lbs.**

**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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**ASY-046** PAGE 14 OF 15 REV.06  
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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.**

- ALL UPRIGHTS MUST BE AT THE SAME HEIGHT!
  - Visually sight across the top of the fixture to check for high or low uprights.
  - If a row of shelves at a particular upright appear 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...
      - Raise base shoe levelers on each side equally until upright touches stringline.
    - IF UPRIGHT IS TOO HIGH on lightly loaded section...
      - Remove kickplates on both sides of the low upright.
      - Screw upright leveler out, or down, raising the top upright until it touches stringline.
      - Screw base shoe levelers down an equal number of turns until base shoes lock up against the upright.
    - IF UPRIGHT IS TOO HIGH on heavily loaded section...
      - Remove kickplates on both sides of the high upright.
      - Screw upright leveler up into upright, this may solve the "too high" problem, if not...
        - Screw loose shoe levelers up into shoe an equal number of turns until top of upright touches stringline.
- NONE OF THE SECTIONS IN THE RUN HAVE BEEN MOVED OUT OF ALIGNMENT
  - Visually sight along the front of the base shelves.
  - 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,
    - Place a 2 x 4 block against the kickplate joint and tap back into alignment...or...
    - 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,
  - Run upright levelers down to the floor.
  - Run base shoe leveler up into shoe until the pressure is off of it...1/4" free movement.
- THEN...ON THE HEAVILY LOADED SIDE,
  - 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.
  - Repeat c. with remaining heavily loaded uprights, WORKING TO YOUR LEFT.
- THEN...ON THE LIGHTLY LOADED SIDE,
  - Run loose levelers down until shoe locks up against the upright.
  - Replace kickplates on both sides.

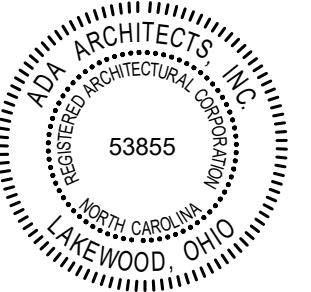
**CAUTION!**  
**CARE SHOULD BE TAKEN TO AVOID**  
**ACCIDENTS / INJURY WHILE**  
**ADJUSTING MERCHANDISED**  
**FIXTURES!**

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

**DO NOT ATTEMPT TO**  
**ADJUST FIXTURES THAT ARE**  
**ALREADY ANCHORED**



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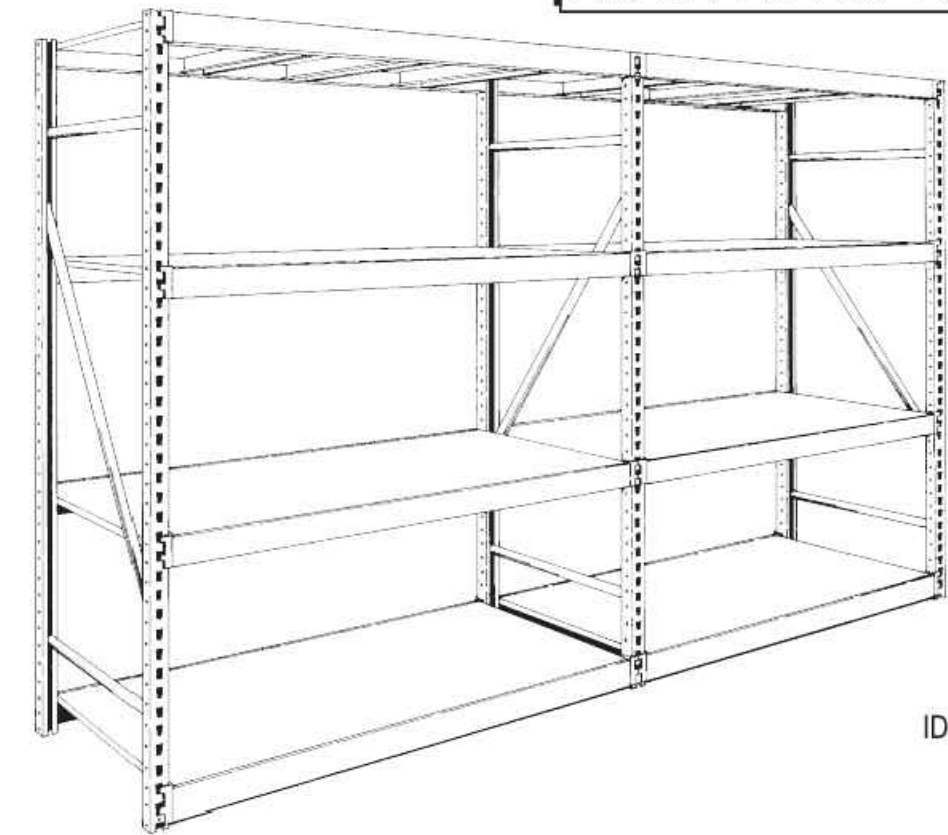
  

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| <b>FIXTURE SPECIFICATIONS AND DETAILS</b> |          |
| DATE                                      | 03/04/24 |
| JOB NO.                                   | 23591    |
| <b>A1.7</b>                               |          |
| SHEET NO.                                 |          |

# WIDE SPAN SHELVING ASY 061

PAGE 1 OF 10

INSTALLATION INSTRUCTIONS



PAGE 2-3  
PARTS  
IDENTIFICATION

PAGE 4-5  
BASIC  
INSTALLATION

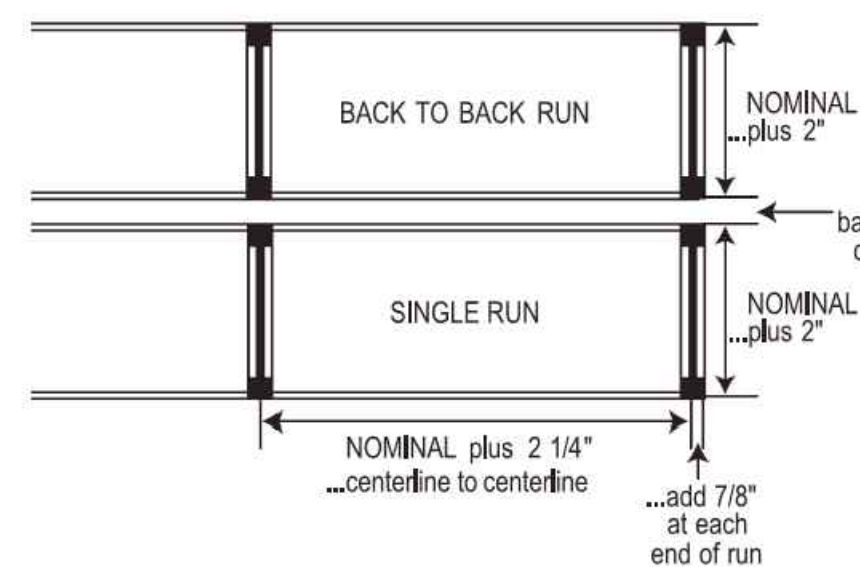
PAGE 6-7  
INSTALLATION OF  
EXTRAS

PAGE 8  
LOAD  
CAPACITY

PAGE 9  
SAFETY

PAGE 10  
ANCHORING  
TO  
FLOOR

**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.



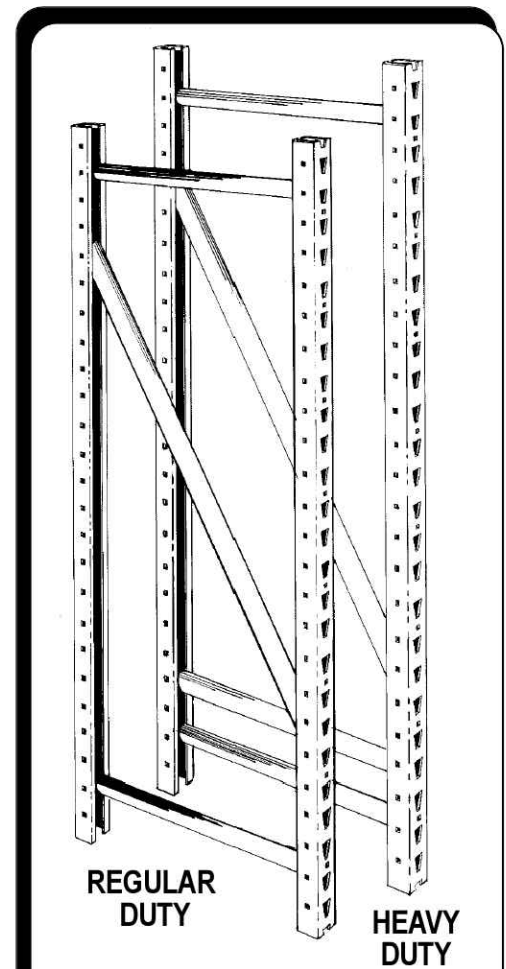
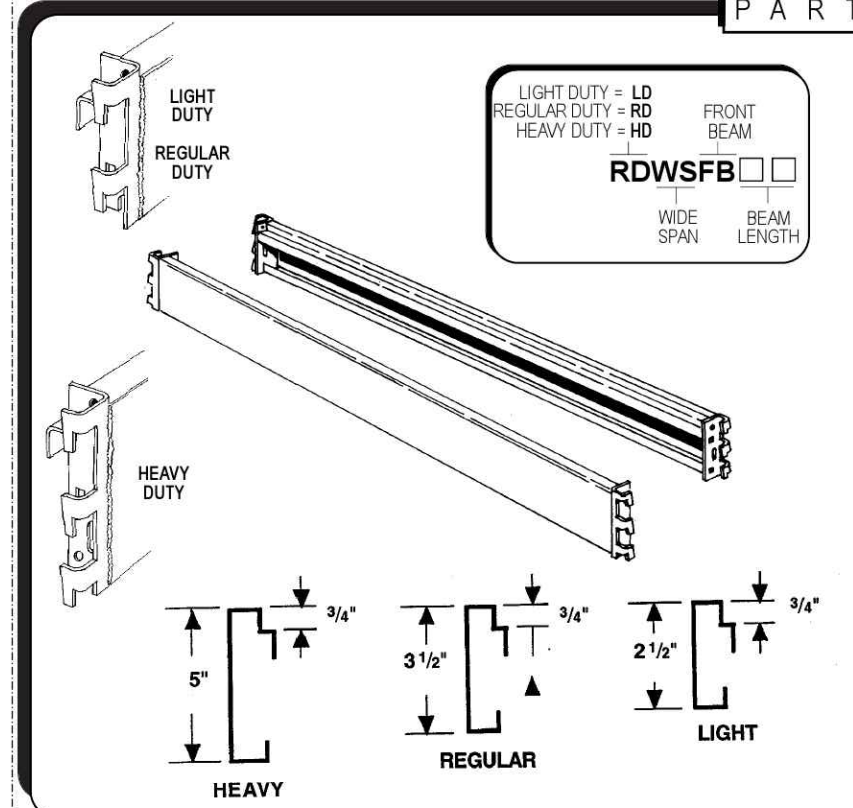
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# WIDE SPAN SHELVING ASY 061

PAGE 2 OF 10

PARTS IDENTIFICATION



| DIMENSIONS    |       | Beams         |                                  |
|---------------|-------|---------------|----------------------------------|
| Deck Supports | Beams | Actual 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"   | -             | -                                |

| 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"          |



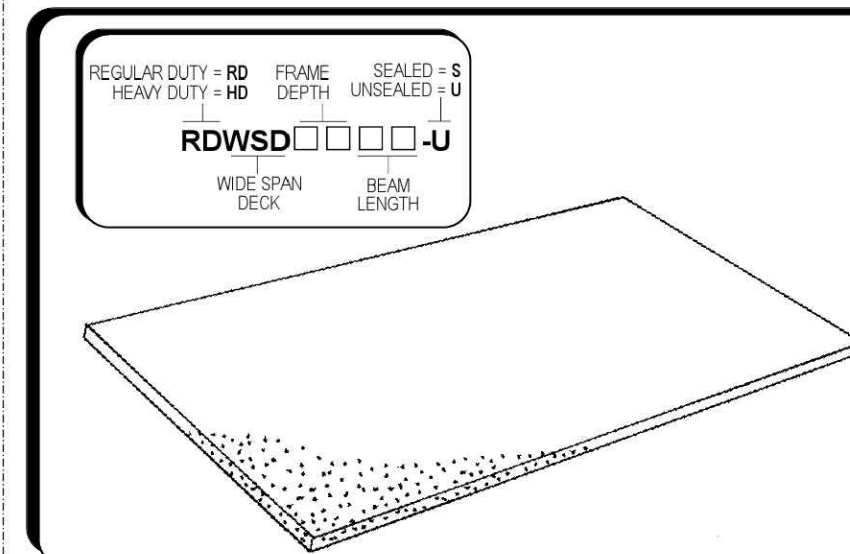
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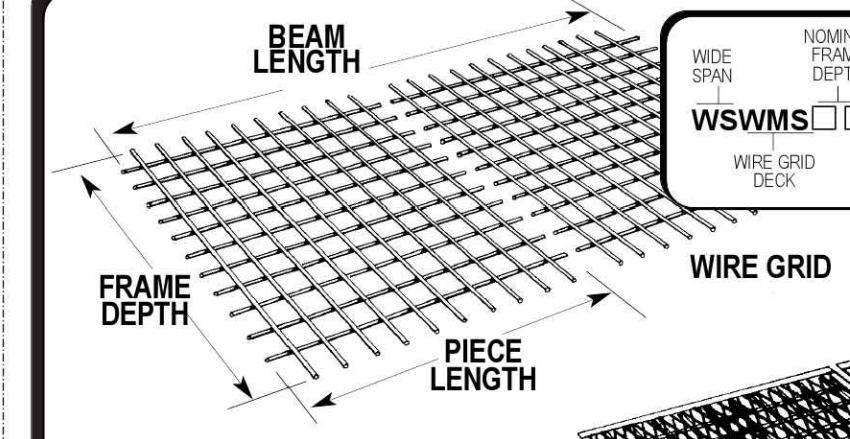
# WIDE SPAN SHELVING ASY 061

PAGE 3 OF 10

PARTS IDENTIFICATION



| PARTICLE BOARD DECKS |              |             |               |
|----------------------|--------------|-------------|---------------|
| 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"          | -           | -             |



| WIRE GRID DECKS, and FLOW THROUGH DECKS |              |              |               |
|---|--------------|--------------|---------------|
| 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   | PIECE LENGTHS | # OF DECK SUPPORTS | OF DECK |
| 36"   | 36"           | 2                  | 2       |
| 48"   | 48"           | 2                  | 2       |
| 60"   | 24" plus 36"  | 4                  | 4       |
| 72"   | 36" plus 36"  | 4                  | 4       |
| 84"   | 36" plus 48"  | 4                  | 4       |
| 96"   | 48" plus 48"  | 4                  | 4       |



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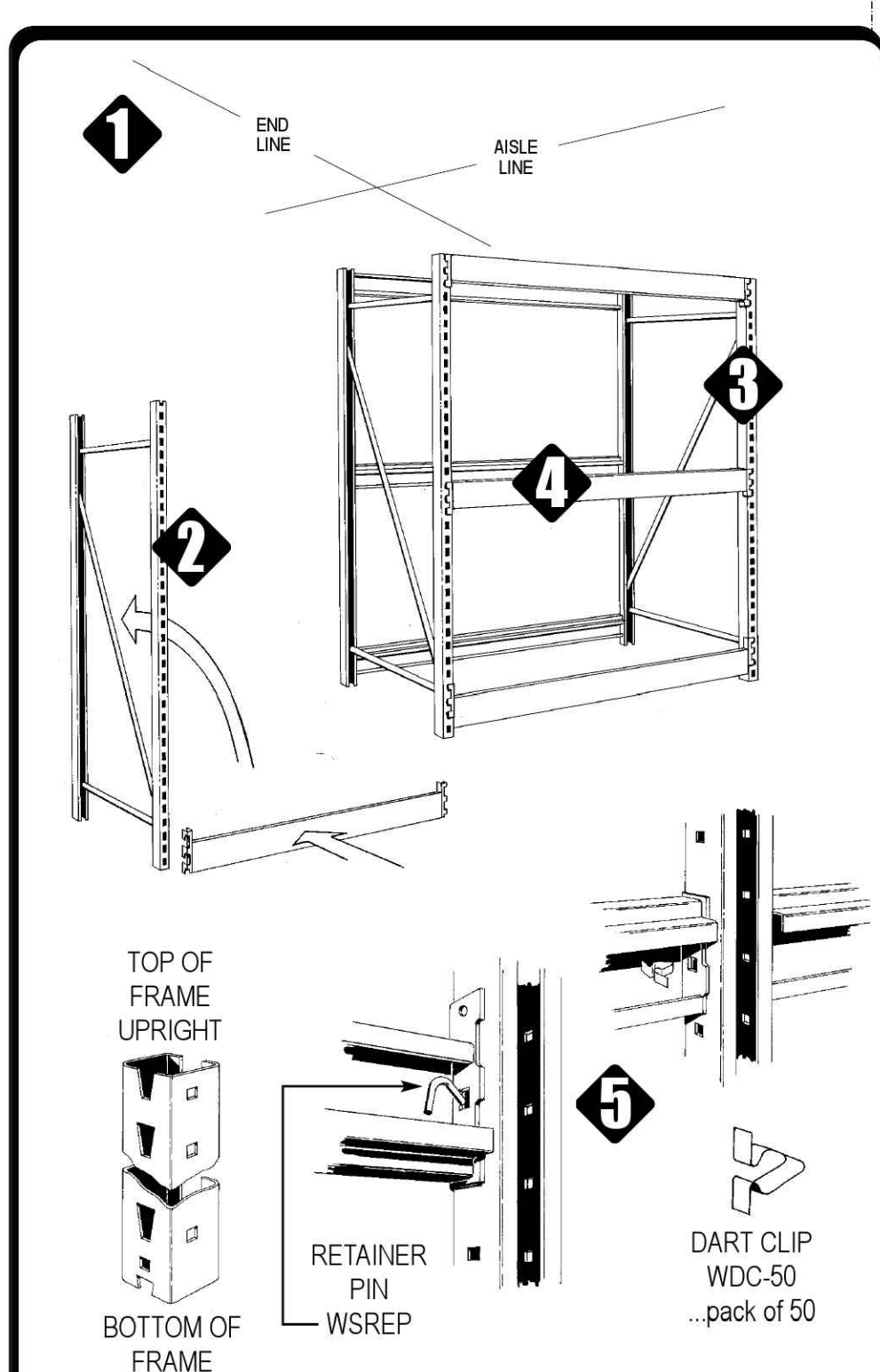


# WIDE SPAN SHELVING ASY 061

PAGE 4 OF 10

BASIC INSTALLATION

- Snap chalklines on floor as shown for shelving layout. See diagram on page one for dimensions.
- 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.*
- Raise second frame to vertical and install free end of first beam...install second beam on opposite side.
- Install upper beams at designated levels.
- 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.



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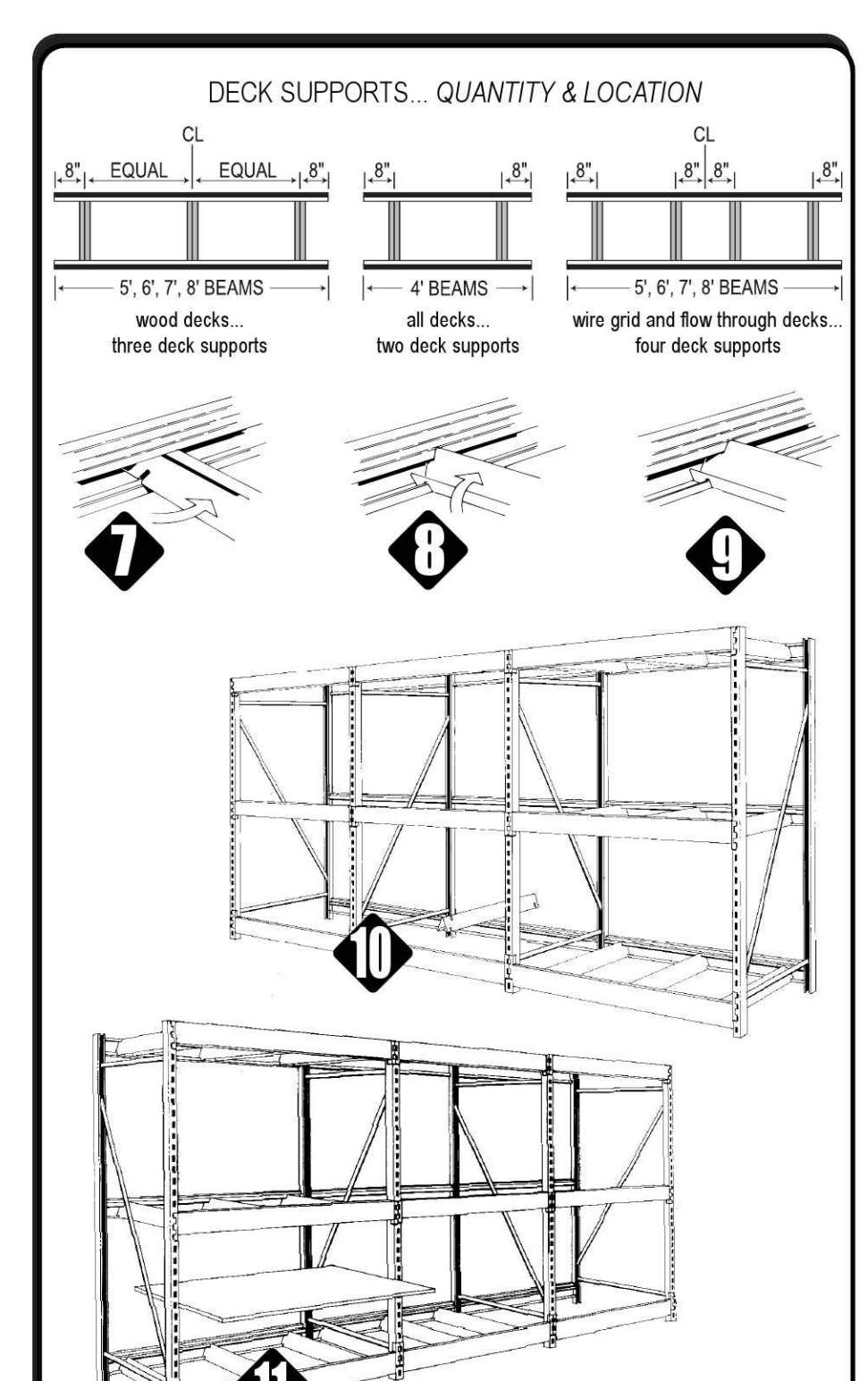


# WIDE SPAN SHELVING ASY 061

PAGE 5 OF 10

BASIC INSTALLATION

- 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.*
- 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.
- Squeeze the open side of the deck support at each end just inside the beam and rotate upwards as shown.
- Correct installed position will look like this...see above for quantity of deck supports per beam length.
- Repeat with the remaining deck supports in the shelving run.
- Install all decks in the shelving run.



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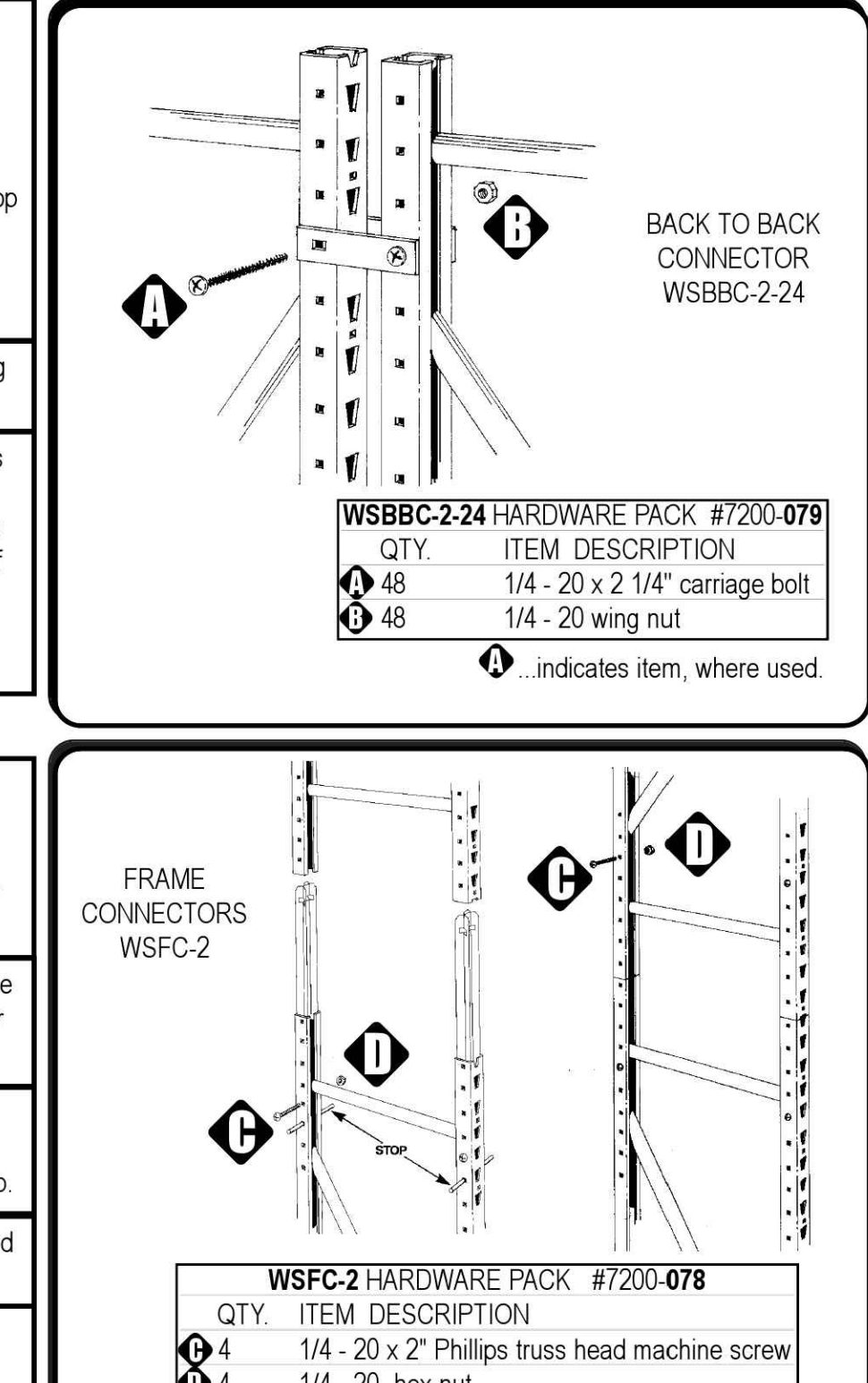


# WIDE SPAN SHELVING ASY 061

PAGE 6 OF 10

INSTALLATION OF EXTRAS

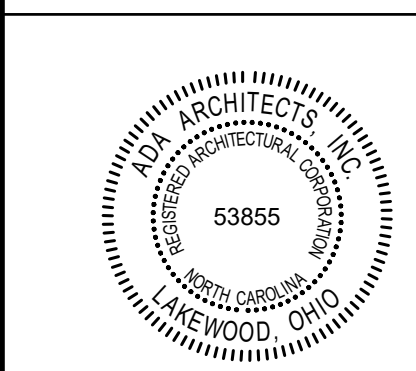
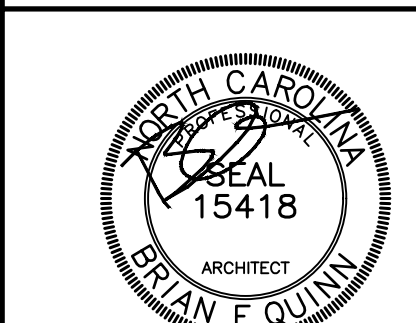
- The first sections of the back to back run should be erected with beams at top and bottom of the four frames. Locate the connectors just below the top beams and just above the bottom beams. Secure with the fasteners as shown.
- Repeat with the remaining sections.
- Install all intermediate beams as 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.
- In the sixth square hole from the top of the lower frame, insert a stop to prevent the connector from dropping to the floor.
- Insert connector into frame with flat center of connector facing the slotting.
- Screw connector to lower frame with provided fasteners...remove the stop.
- Repeat above with the 2nd upright of the frame.
- Lower upper frame onto connectors and secure through the sixth hole up from the joint.



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FIXTURE SPECIFICATIONS AND DETAILS  
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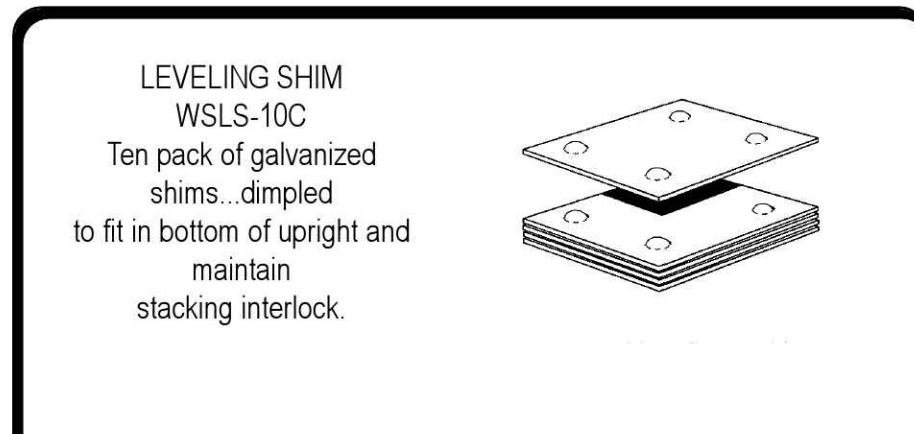
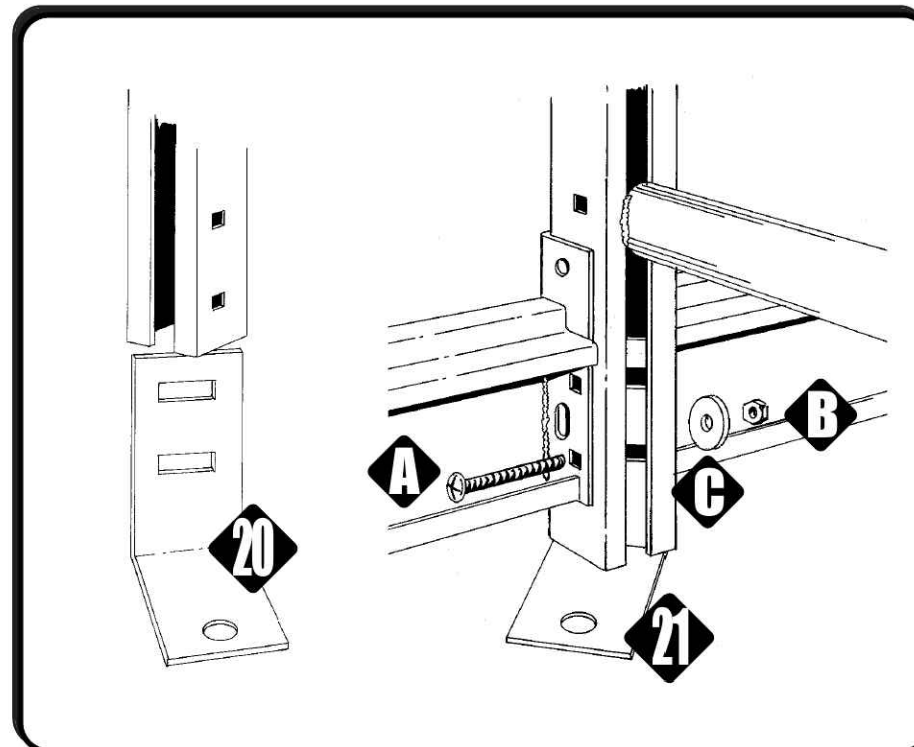
## FLOOR ANCHOR WSFA-2 INSTALLATION OF EXTRAS

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.

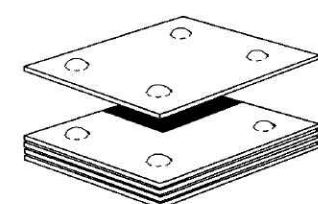
**20** Insert floor anchors into the bottom of each frame. They will only insert at 45° to the frame. Make sure that anchors are inserted so that they will not project into aisles or cross aisles.

**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.

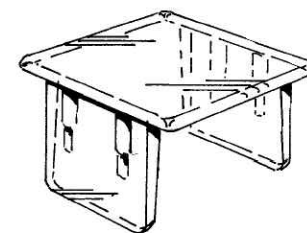
**22** Check run alignment to chalkline prior to drilling floor for expansion bolts. Due to varying floor conditions, expansion bolts must be ordered separately. If they were not ordered initially, but are required, see page 8 to order from Madix or purchase locally.



**LEVELING SHIM WSL5-10C**  
Ten pack of galvanized shims...dimpled to fit in bottom of upright and maintain stacking interlock.



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

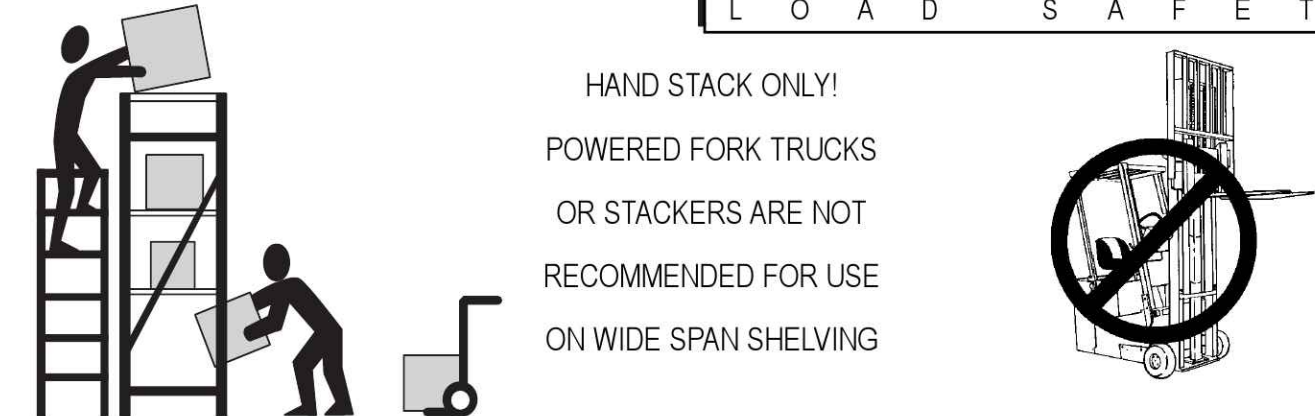


| QTY | ITEM DESCRIPTION                           |
|-----|--|
| 2   | 1/4 - 20 x 2 1/2" round head machine screw |
| 2   | 1/4 - 20 hex nut                           |
| 2   | 1/4" flat washer                           |

□ indicates item, where used.

# WIDE SPAN SHELVING ASY 061

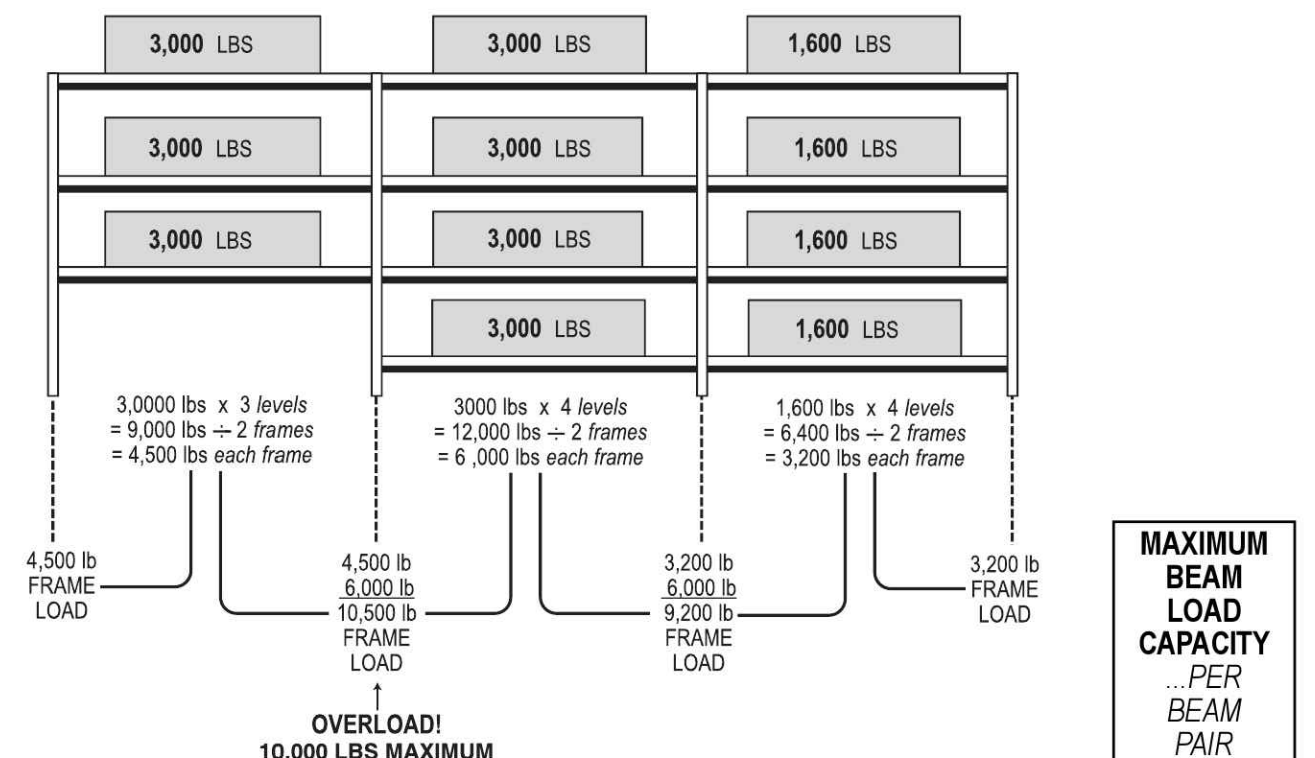
## LOAD SAFETY



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!



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

| 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                  |

# WIDE SPAN SHELVING ASY 061

## SAFETY DURING INSTALLATION

### GENERAL

- Contact the local building department prior to starting installation to check on any restrictions.
- Only parts and accessories produced or supplied by Madix are covered by Madix warranty.
- Installation sequence must be followed exactly for assembly and leveling.
- Under no circumstances should damaged parts be used.
- Do not use shelving parts or accessories for any purpose other than originally intended.
- Installation instructions with product load ratings are included with each order and must be followed carefully.
- 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.
- Initial installation or relocation of Madix gondola, wall or racking fixtures should be supervised exclusively by qualified personnel.

### RACKING... FRAMES / BEAMS

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

# WIDE SPAN SHELVING ASY 061

## 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., POWERBULL Wedge anchor                                    | ESR-2254     |

\*Embedment must be minimum 5x bolt diameter.

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

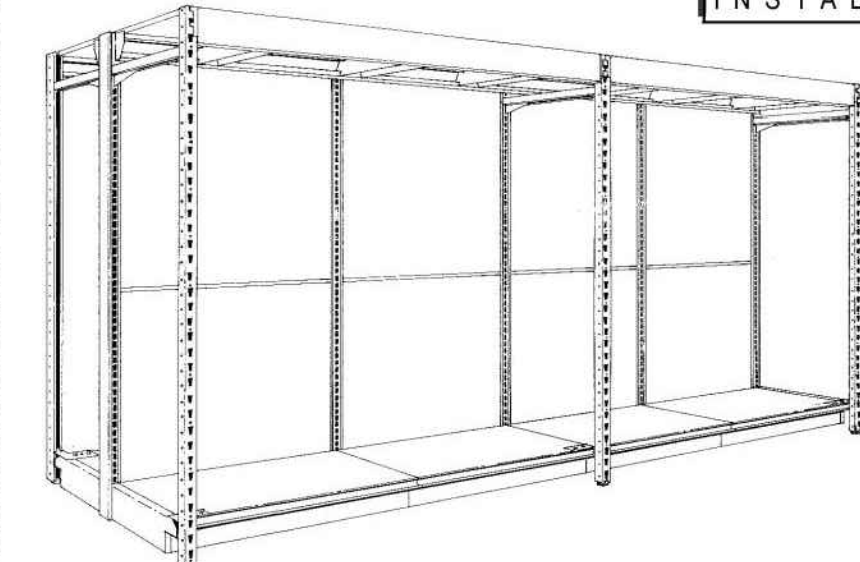
**PNEUMATIC OR POWDER-DRIVEN STEEL STUDS AND NAILS**  
HILTI, INC., Hilti low velocity powder actuated or pneumatically driven fasteners ..... ESR-1663  
ITW RAMSET/RED HEAD, Ramset Powder-Actuated and PowerPoint fasteners ..... ESR-1799

**ADHESIVE/ EPOXY ANCHORS**  
HILTI, INC., HIT-HY 150 Adhesive anchor system ..... ESR-2678  
ITW RAMSET/RED HEAD, ITW Red Head Epon system Ceramic G+ epoxy anchors ..... ESR-3577

| REV# | DATE    | DESCRIPTION                      | BY  | DATE     | REV# | DATE     | DESCRIPTION                | BY  | DATE     |
|------|---------|----------------------------------|-----|----------|------|----------|----------------------------|-----|----------|
| 01   | 5/13/96 | UPDATED TO CORRECT ANCHOR INFO   | BAM | 10/14    | 04   | 11/14/03 | ADDED BOLTING REQ. TO PG 4 | NRD | 08/21/08 |
| 02   | 5/14/96 | ADDED HEIGHT/DEPTH RATIO         | CAR | 02/16/14 |      |          |                            |     |          |
| 03   | 5/16/96 | SHOWED LD BEAM DART CLIP ON PG 4 | YED | 08/29/99 |      |          |                            |     |          |

# HYPERMAXI ASY 083

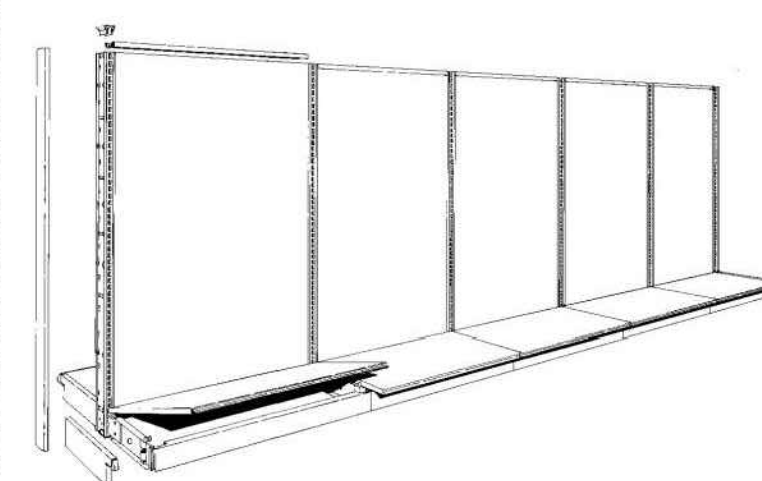
## INSTALLATION INSTRUCTIONS



ALL CARTONS CONTAINING HYPERMAXI PARTS ARE LABELED **OPEN SIXTH**

PAGE 2-3 ... PARTS IDENTIFICATION  
PAGE 4-6 ... BASIC INSTALLATION  
PAGE 7 ... INSTALLATION OF EXTRAS  
PAGE 8 ... SAFETY/LOAD CAPACITY

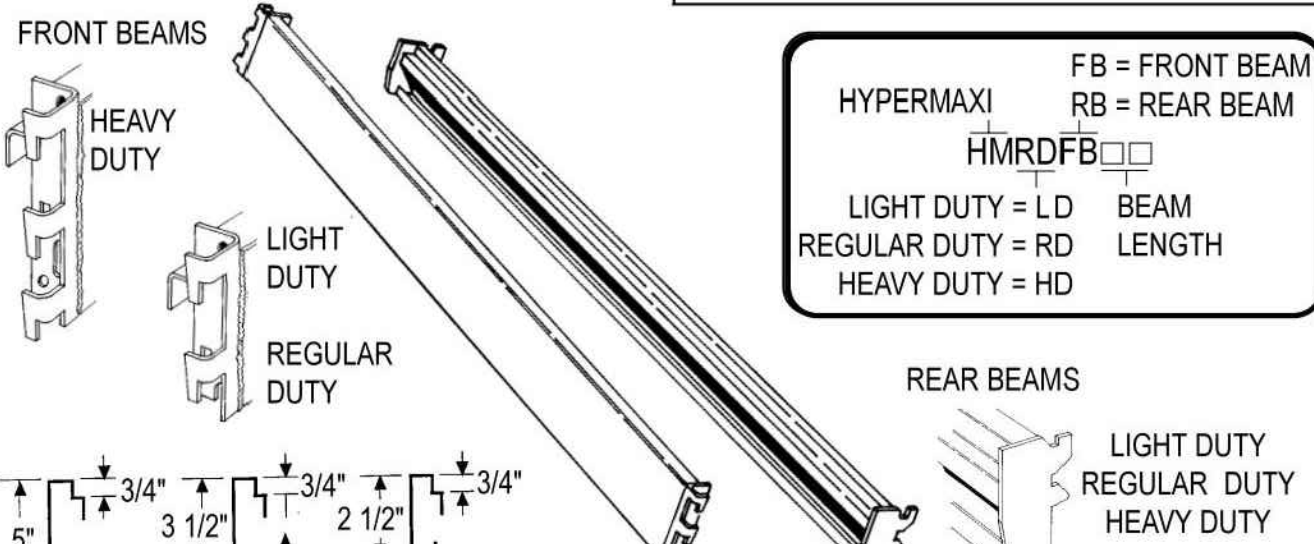
**NOTE!**  
This publication is intended to be a generic installation instruction for Madix Hypermaxi, and may possibly be subject to change as required by local building codes. Consult the building inspection department at job site.



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 ASY 083

## PARTS IDENTIFICATION

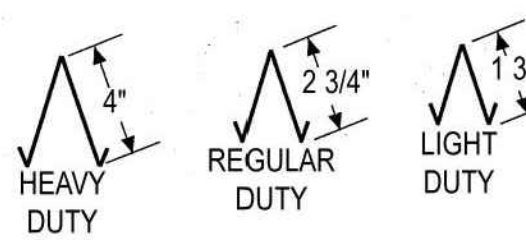


**FRONT BEAMS**  
HEAVY DUTY  
LIGHT DUTY  
REGULAR DUTY

**REAR BEAMS**  
LIGHT DUTY  
REGULAR DUTY  
HEAVY DUTY

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

| DIMENSIONS                  |               |                                |               |
|-----------------------------|---------------|--------------------------------|---------------|
| Deck Supports Upright Depth | Actual Length | Beam Length Inside of brackets | Actual Length |
| 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

RDWSDS□□  
WIDE 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.

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

DO NOT SCALE THESE DRAWINGS

| REVISIONS |      |      |  |  |  |  |  |  |  |
|-----------|------|------|--|--|--|--|--|--|--|
| #         | DATE | TYPE |  |  |  |  |  |  |  |
| 1         |      |      |  |  |  |  |  |  |  |
| 2         |      |      |  |  |  |  |  |  |  |
| 3         |      |      |  |  |  |  |  |  |  |
| 4         |      |      |  |  |  |  |  |  |  |
| 5         |      |      |  |  |  |  |  |  |  |
| 6         |      |      |  |  |  |  |  |  |  |
| 7         |      |      |  |  |  |  |  |  |  |
| 8         |      |      |  |  |  |  |  |  |  |
| 9         |      |      |  |  |  |  |  |  |  |
| 10        |      |      |  |  |  |  |  |  |  |

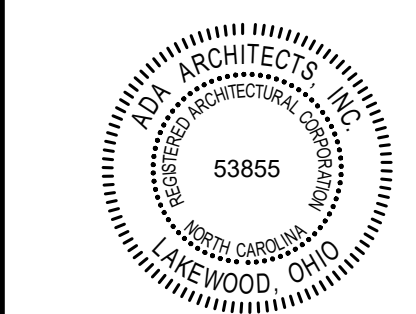
FIXTURE SPECIFICATIONS AND DETAILS

DATE 03/04/24

JOB NO. 23591

**A1.9**

SHEET NO.



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129 W CORNELIUS HARNETT BLVD.

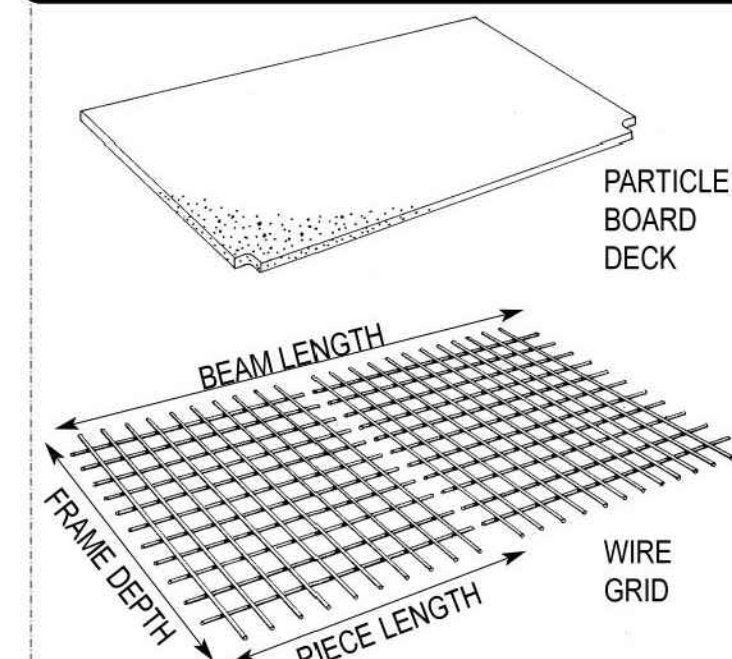
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# HYPERMAXI ASY 083

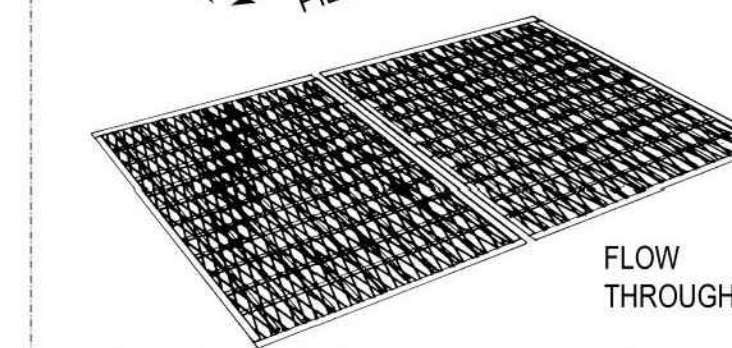
PAGE 3 OF 8

## PARTS IDENTIFICATION



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

| 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"     |

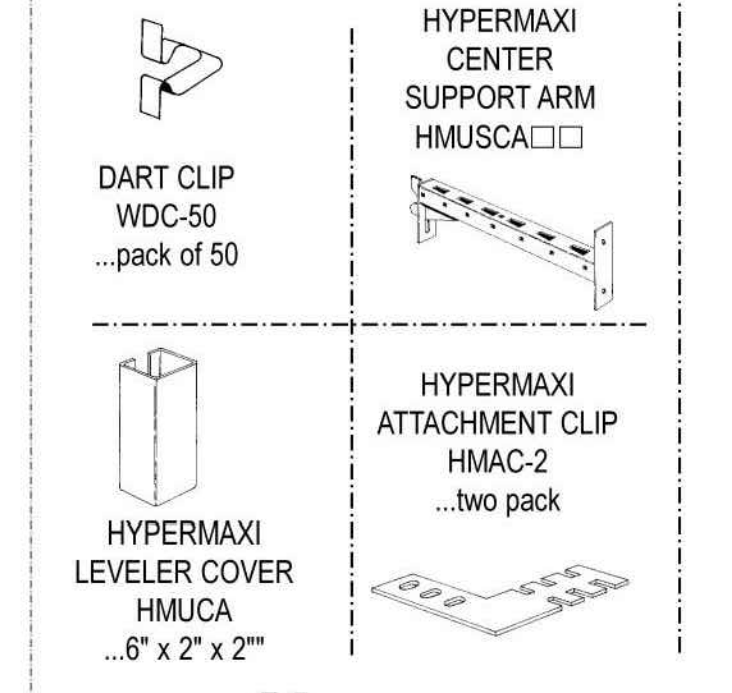


UPRIGHT GRID SIZE  
HYPERMAXI DEPTH ...3" O.C.  
HMWMS□□□□□□□□  
WIRE GRID BEAM  
DECK LENGTH

| HYPERMAXI DECK | BEAM LENGTH |
|----------------|-------------|
| FTHMD□□□□□□    |             |

| 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"      | -            | -             |

| 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 LEVELER COVER HMUCA  
...6" x 2" x 2"

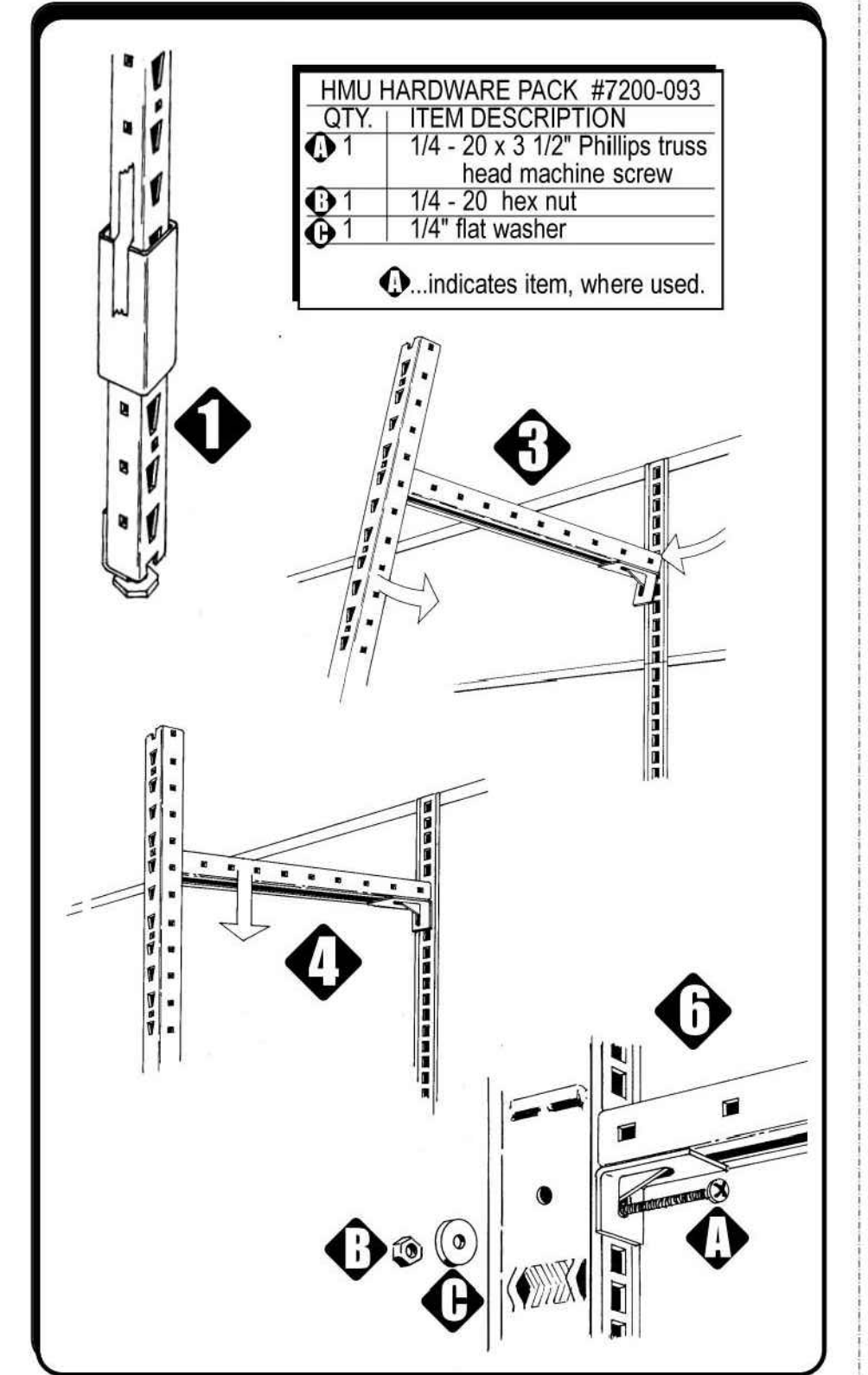
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# HYPERMAXI ASY 083

PAGE 4 OF 8

## INSTALLATION INSTRUCTIONS

- Run levelers on Hypermaxi uprights all the way up. Slide leveler cover, if used, approximately 6" up Hypermaxi upright and secure with tape.
- 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.
- 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.
- Pull down on the bracket arm, using your weight to properly seat bracket in upright.
- Repeat steps 4-5 on opposite side of fixture if it is a gondola.
- Insert screw as shown through fixture slotting and Hypermaxi upright bracket. Secure with washer and nut on other side.



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

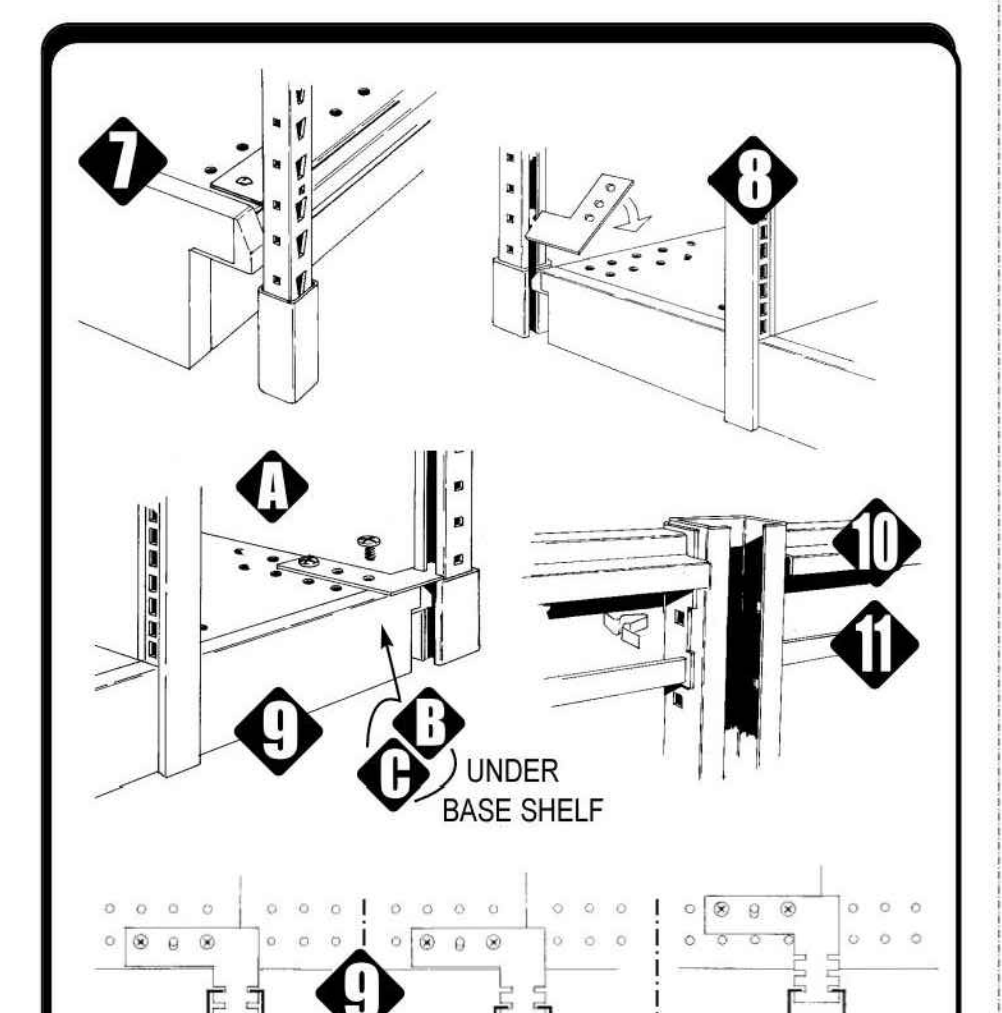
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# HYPERMAXI ASY 083

PAGE 5 OF 8

## INSTALLATION INSTRUCTIONS

- Run Hypermaxi upright levelers down to floor... untape leveler cover, if used, and slide cover down to floor.
- Insert the attachment clip into Hypermaxi upright and rotate 90°.
- Select required attachment clip positioning from the diagram below, then secure attachment clip to base shelf with fasteners in hardware pack shown below.
- Install beams at required heights. For front and rear beam sizes and bracket shapes, refer to parts identification on page 2.
- 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.



| QTY. | ITEM DESCRIPTION                                  |
|------|---|
| 1    | 1/4 - 20 x 1/2" Phillips truss head machine screw |
| 1    | 1/4 - 20 hex nut                                  |
| 1    | 1/4" flat washer                                  |
| 1    | 1/4 - 20 lock washer                              |
| 1    | # 8 x 1/2" hex head sheet metal screw             |

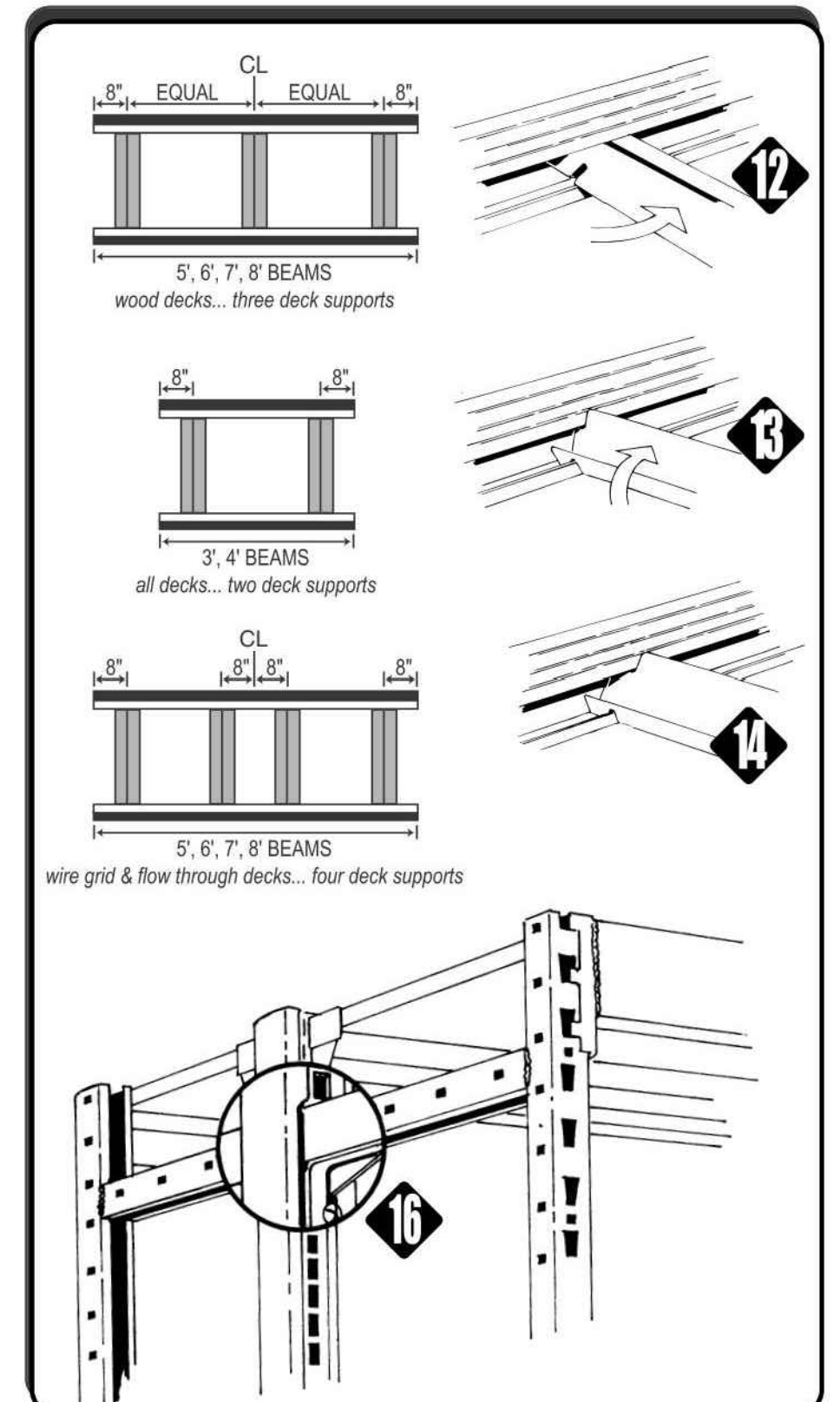
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# HYPERMAXI ASY 083

PAGE 6 OF 8

## DECK SUPPORTS: QUANTITY AND LOCATION

- 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.
- Squeeze the open side of the deck support at each end just inside the beam and rotate upwards as shown.
- 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.
- Lay the decks on the deck supports. The notches on the particle board decks are on the front edge to accommodate the Hypermaxi upright.
- Trim the UEC-□□□□, upright end covers, to fit over the Hypermaxi upright bracket prior to installing them.
- Install upper shelves and accessories into the basic fixture upright.



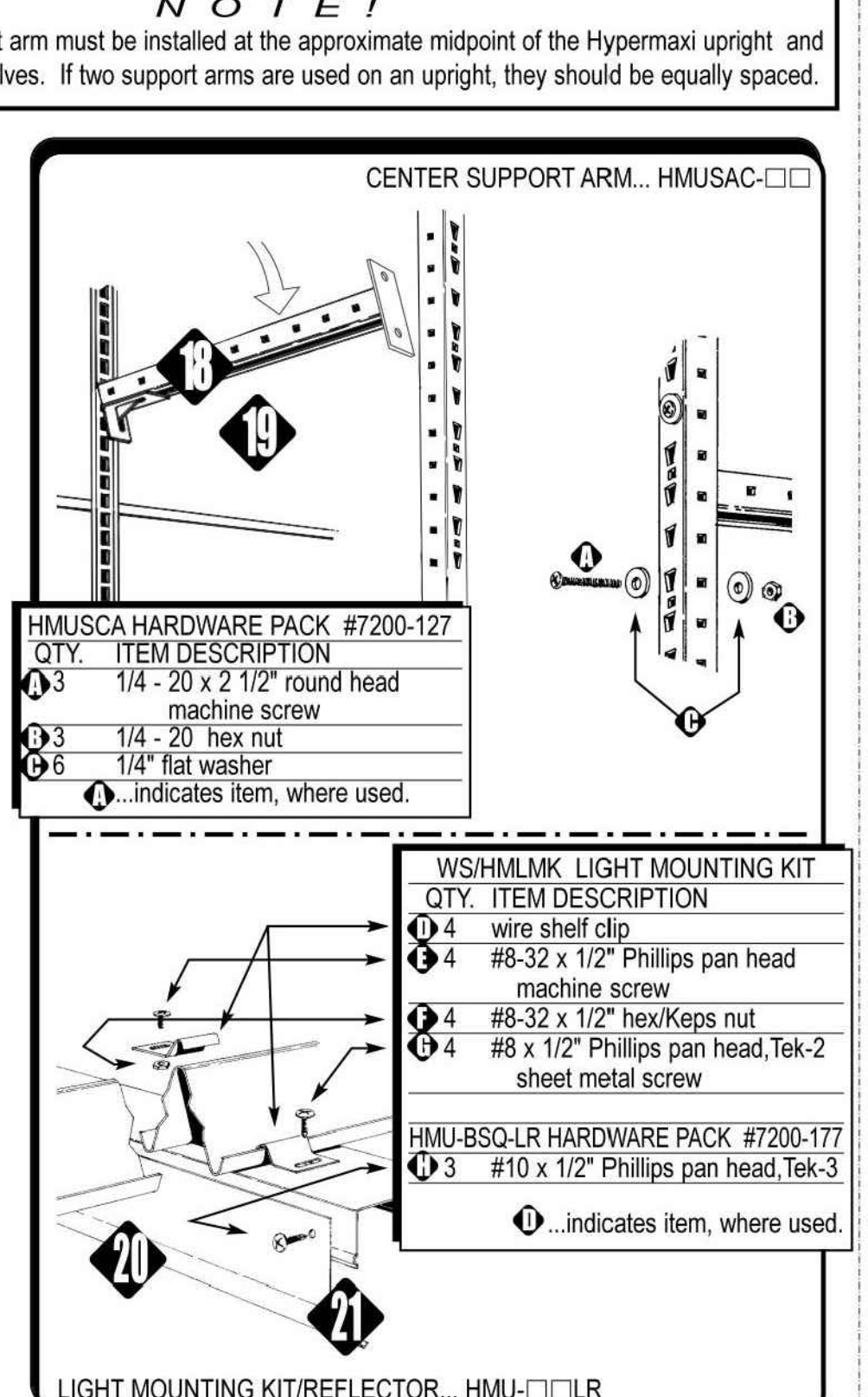
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# HYPERMAXI ASY 083

PAGE 7 OF 8

## 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.
- 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.
  - 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.
  - There are two means of securing the light fixture to the deck support...the fasteners are provided for either one.
    - 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
    - Use the screw and nut, items B and C, as shown. This will require removing the light fixture cover.
  - Using the self-drilling screws, item E, secure the reflector to the light fixture as shown.



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

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

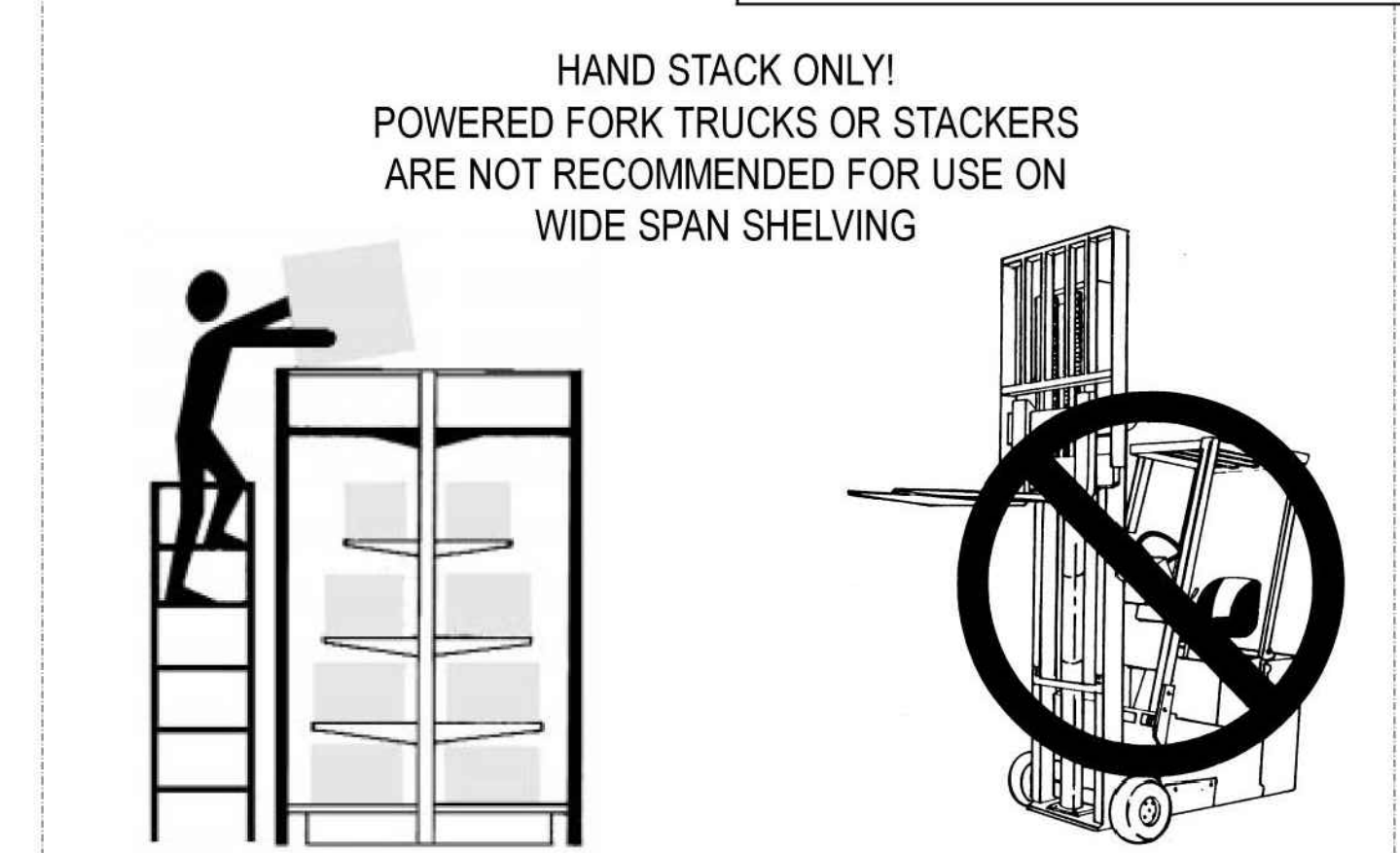
| QTY. | ITEM DESCRIPTION                    |
|------|-------------------------------------|
| 3    | #10 x 1/2" Phillips pan head, Tek-2 |

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# HYPERMAXI ASY 083

PAGE 8 OF 8

## SAFETY / LOAD CAPACITY

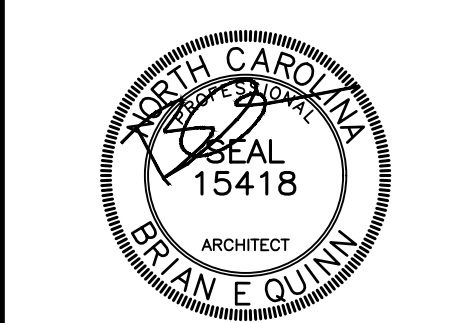


HAND STACK ONLY!  
POWERED FORK TRUCKS OR STACKERS  
ARE NOT RECOMMENDED FOR USE ON  
WIDE SPAN SHELVING

| ...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                  |  |

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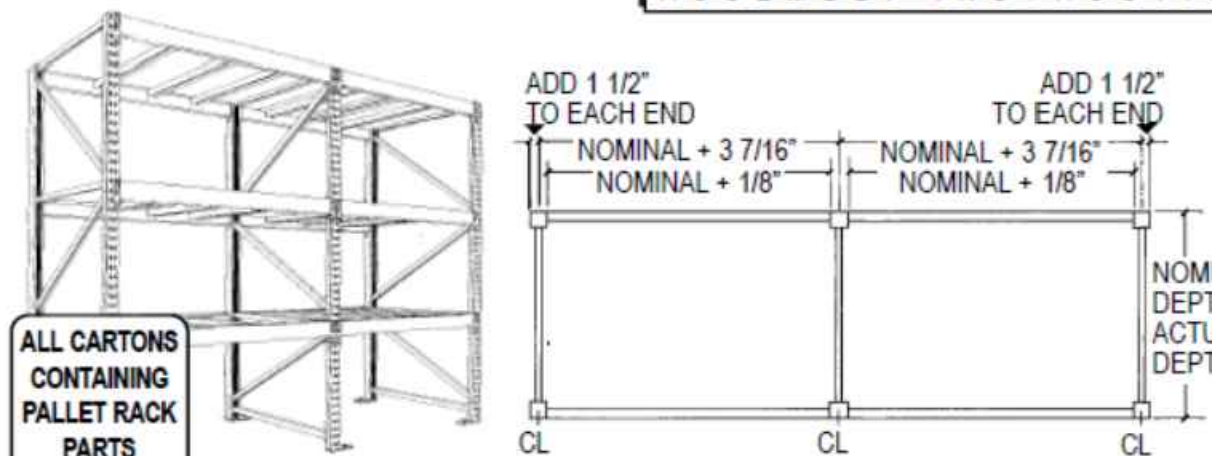
| REVISIONS |      |
|-----------|------|
| #         | DATE |
| 1         |      |
| 2         |      |
| 3         |      |
| 4         |      |
| 5         |      |
| 6         |      |
| 7         |      |
| 8         |      |
| 9         |      |
| 10        |      |

FIXTURE SPECIFICATIONS AND DETAILS  
DATE 03/04/24  
JOB NO. 23591  
**A1.10**  
SHEET NO.

# PALLET RACK ASY 103

PAGE 1 OF 7

## ASSEMBLY INSTRUCTIONS

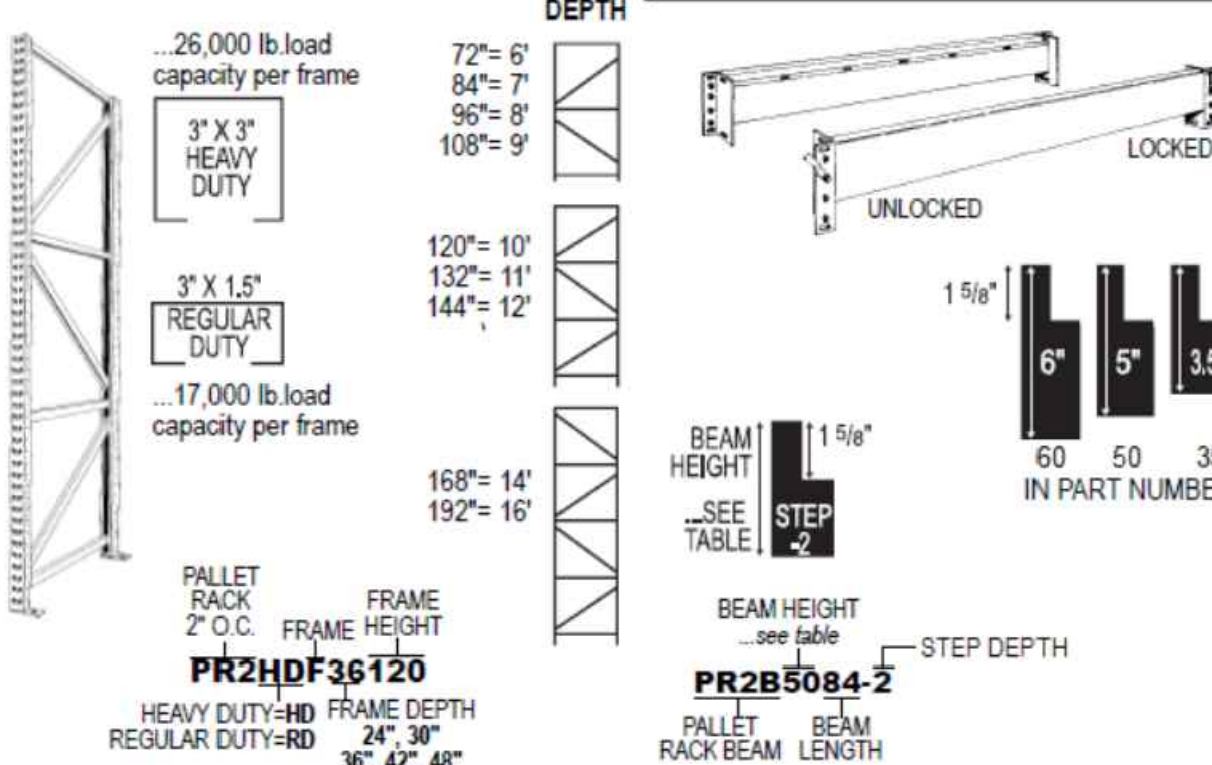


ALL CARTONS CONTAINING PALLET RACK PARTS ARE LABELED OPEN SEVENTH

PAGE 1-3 PARTS IDENTIFICATION  
PAGE 3 SAFETY  
PAGE 4-5 BASIC INSTALLATION  
PAGE 6 LOAD CAPACITY  
PAGE 7 ANCHORING TO FLOOR

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



madix STORE FEATURES P.O. BOX 729 / TERRELL, TEXAS 75160 / 972.563.5744 / 800.776.2348  
P.O. BOX 177 / GOODWATER, ALABAMA 36072 / 256.535.6354 / 800.533.5252

REV 08

# PALLET RACK ASY 103

PAGE 2 OF 7

## PARTS IDENTIFICATION

| BEAM LENGTH  | BEAM HEIGHT | CAPACITY IN LBS/PAIR | ACTUAL LENGTH BETWEEN BRACKETS |
|--------------|-------------|----------------------|--------------------------------|
| 48" x 3 1/2" | 5"          | 4,950                | 48 1/8"                        |
| 48" x 5"     | 6"          | 7,600                | 48 1/8"                        |
| 60" x 3 1/2" | 5"          | 4,950                | 60 1/8"                        |
| 60" x 5"     | 6"          | 7,600                | 60 1/8"                        |
| 60" x 6"     | 10,000      | 60 1/8"              |                                |
| 72" x 3 1/2" | 5"          | 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" | 5"          | 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" | 5"          | 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"             |                                |

| PARTICLE BOARD DECK DIMENSIONS |        | FRAME DEPTH |               |
|--------------------------------|--------|-------------|---------------|
| NOMINAL                        | ACTUAL | Frame Depth | Actual Length |
| 24"                            | 21"    | 24"         | 20 7/16"      |
| 30"                            | 27"    | 30"         | 26 7/16"      |
| 36"                            | 33"    | 36"         | 32 7/16"      |
| 42"                            | 39"    | 42"         | 38 7/16"      |
| 48"                            | 45"    | 48"         | 44 7/16"      |

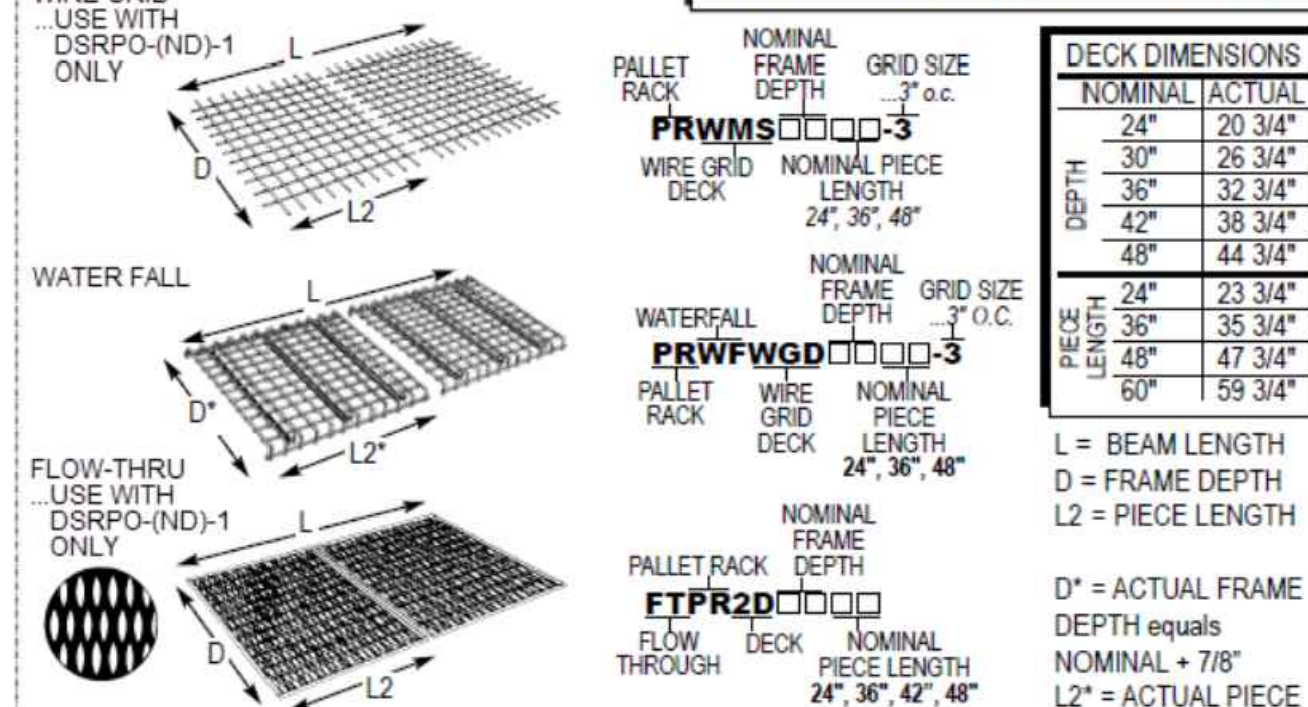
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REV 08

# PALLET RACK ASY 103

PAGE 3 OF 7

## PARTS IDENTIFICATION AND SAFETY



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"  |
| TWO DECKS   | 60"                 | 24" plus 36"                                 |
| THREE DECKS | 120"                | 36" plus 36" plus 36"                        |

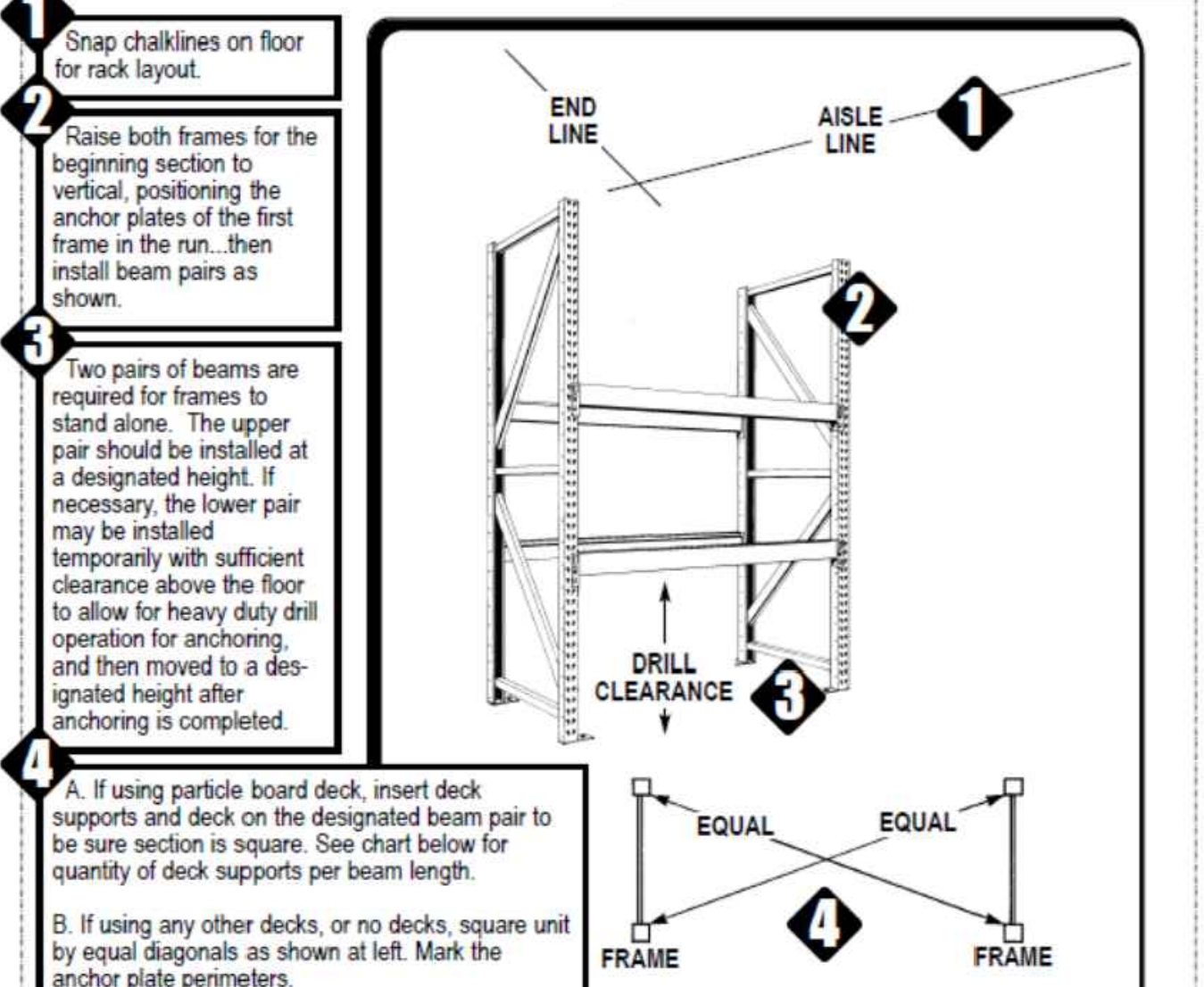
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REV 08

# PALLET RACK ASY 103

PAGE 4 OF 7

## ASSEMBLY INSTRUCTIONS



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

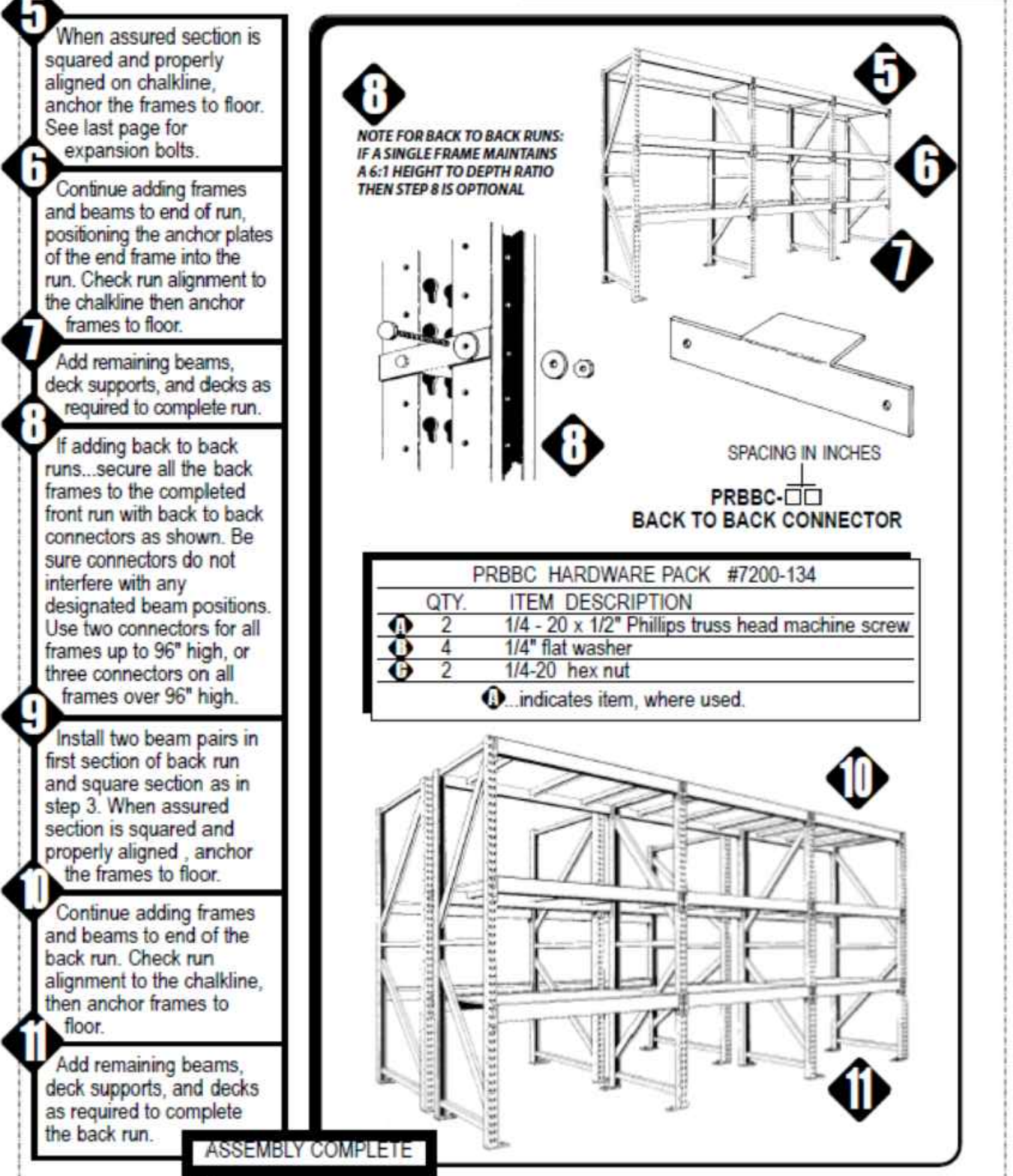
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# PALLET RACK ASY 103

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## ASSEMBLY INSTRUCTIONS



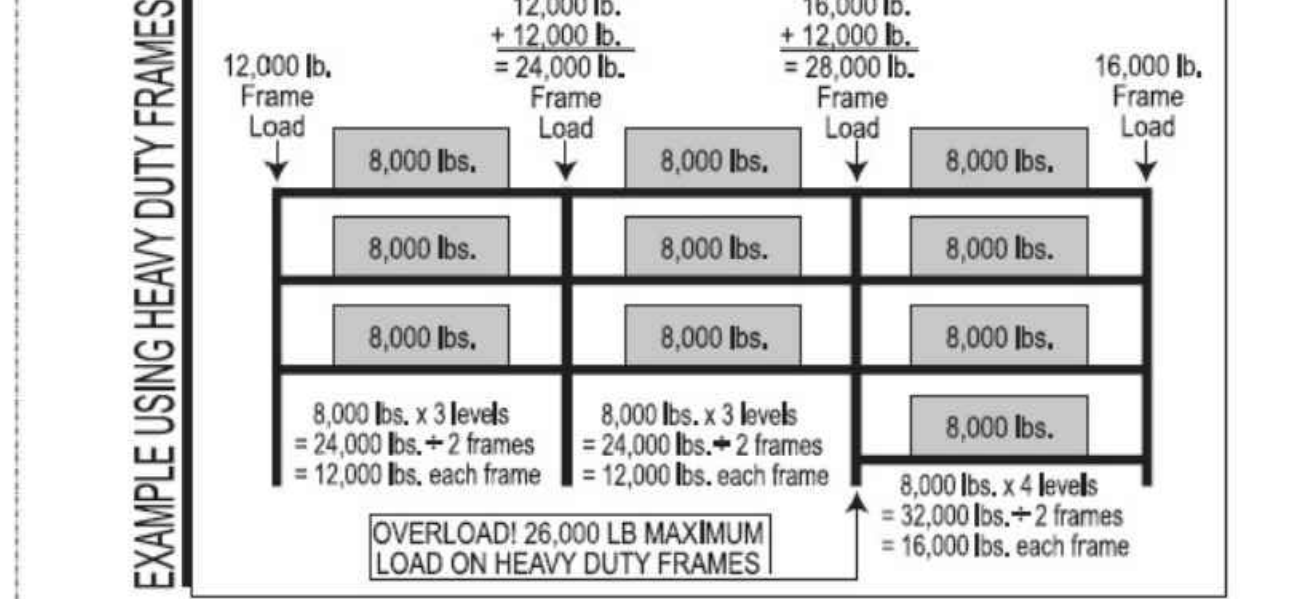
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REV 08

# PALLET RACK ASY 103

PAGE 6 OF 7

## LOAD CAPACITIES



| BEAM LENGTH  | BEAM HEIGHT | CAPACITY IN LBS/PAIR |
|--------------|-------------|----------------------|
| 36" x 3 1/2" | 5"          | 4,950                |
| 36" x 5"     | 6"          | 7,600                |
| 36" x 6"     | 10,000      |                      |
| 48" x 3 1/2" | 5"          | 4,950                |
| 48" x 5"     | 7,600       |                      |
| 48" x 6"     | 10,000      |                      |
| 60" x 3 1/2" | 5"          | 4,950                |
| 60" x 5"     | 7,600       |                      |
| 60" x 6"     | 10,000      |                      |
| 72" x 3 1/2" | 5"          | 4,950                |
| 72" x 5"     | 7,600       |                      |
| 72" x 6"     | 10,000      |                      |
| 84" x 3 1/2" | 5"          | 4,950                |
| 84" x 5"     | 7,600       |                      |
| 84" x 6"     | 10,000      |                      |
| 96" x 3 1/2" | 5"          | 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       |                      |

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FIXTURE SPECIFICATIONS AND DETAILS  
DATE 03/04/24  
JOB NO. 23591  
**A1.11**  
SHEET NO.

# PALLET RACK ASY 103

PAGE 7 OF 7

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   |
| GUINNEBO FASTENING CORP., Drop-in concrete anchors                    | ER-3219 S1   |
| HILTI, INC., Kwik-bolt-TZ concrete 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 Epoxy system Ceramic 6+ epoxy anchors | ESR-3577 |

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| REV# | SCHEM# | REVISION                 | BY  | DATE    | REV# | SCHEM# | REVISION                  | BY  | DATE     |
|------|--------|--------------------------|-----|---------|------|--------|---------------------------|-----|----------|
| A    | 8843   | REVISE LAYOUT            | ACM | 8/4/02  | 05   | 21390  | UPDATED ANCHOR INFO       | SAM | 10/14    |
| 01   | 8-110  | CHANGE SEC# SUPPORT INFO | AJB | 9/22/08 | 07   | 814681 | UPDATED BEAM LOAD RATINGS | SAM | 8/5/14   |
| 02   | 8-198  | BEAM LOAD RATE CHANGE    | AJB | 2/6/08  | 08   | 9-1035 | REMOVED STEP 1 OPTION     | TRC | 10/24/16 |

## Material Specification

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

ISOMETRIC VIEW [EXPLODED]  
 SIDE VIEW [ASSEMBLED]  
 TOP VIEW [ASSEMBLED]

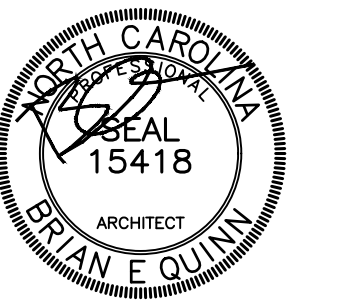
| ITEM | DRAWING NO. | DESCRIPTION              | QTY |
|------|-------------|--------------------------|-----|
| 1    | -           | HDWSFP, WELD, ASSY       | 1   |
| *2   | -           | HDWSFP TOP PLATE         | 1   |
| *3   | -           | RUBBER BUMPER            | 1   |
| *4   | -          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

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

FlexCore 4 Bollard Kit Part # CSFCB-4-###  
 FlexCore 6 Bollard Kit Part # CSFCB-6-###  
 FlexCore 8 Bollard Kit Part # CSFCB-8-###

FlexCore 4 Fixing Detail: 108mm [4.25in] FIXING DEPTH, 13mm [0.50in] HOLE  
 FlexCore 6 Fixing Detail: 108mm [4.25in] FIXING DEPTH, 13mm [0.50in] HOLE  
 FlexCore 8 Fixing Detail: 114mm [4.5in] FIXING DEPTH, 16mm [0.63in] HOLE

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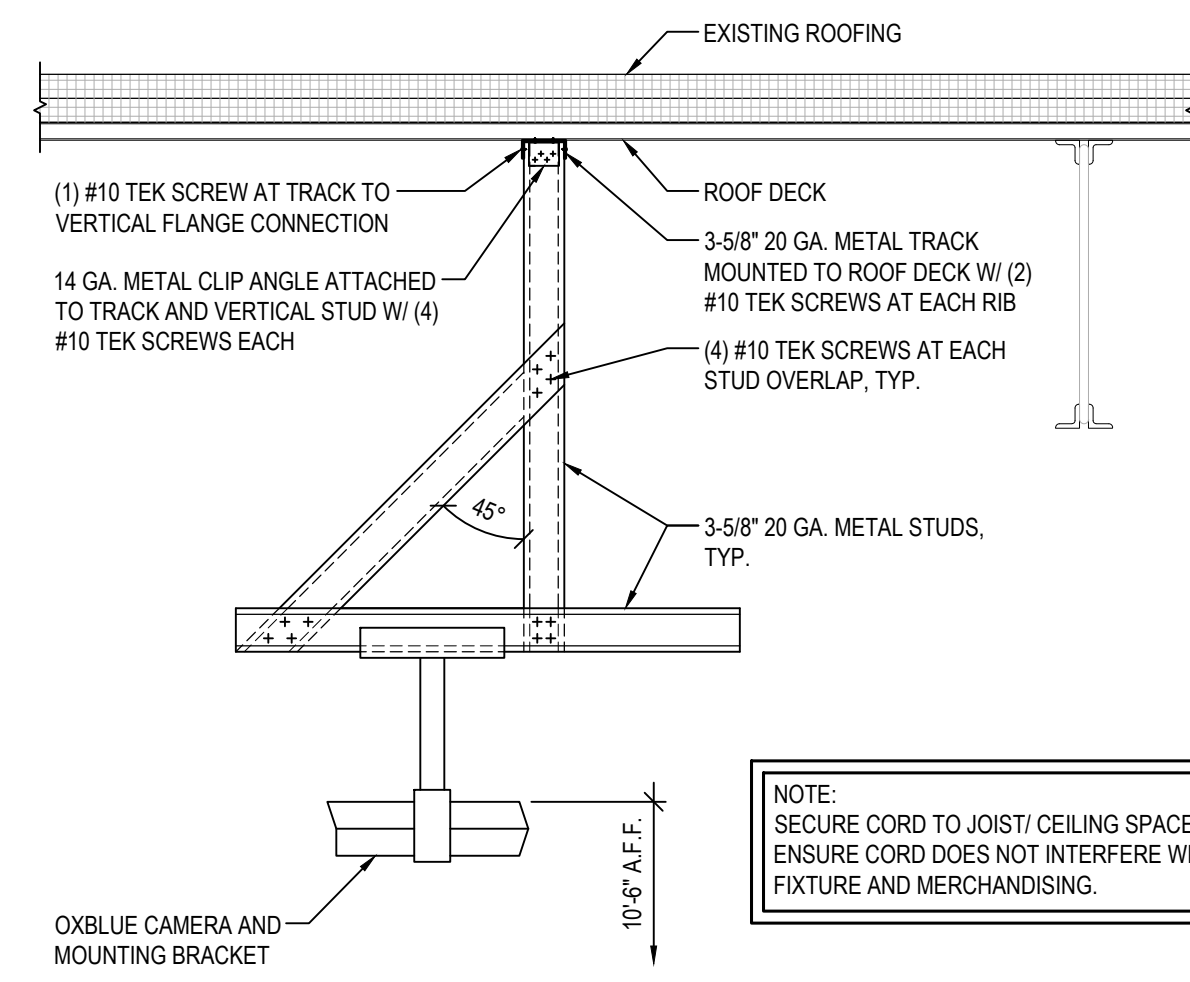
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FIXTURE SPECIFICATIONS AND DETAILS

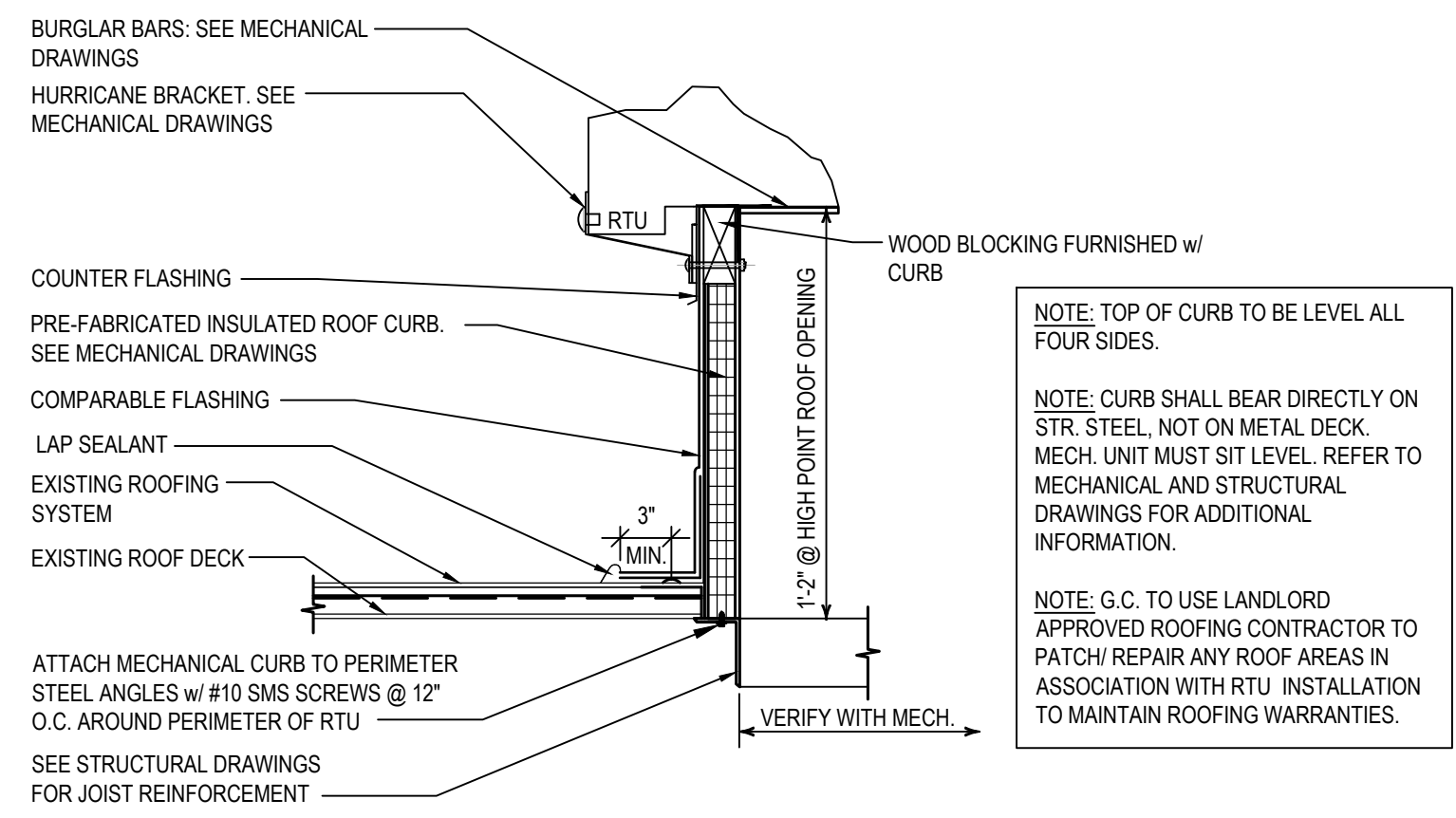
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 JOB NO. 23591

# A1.12

SHEET NO.



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



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

**CEILING PLAN LEGEND**

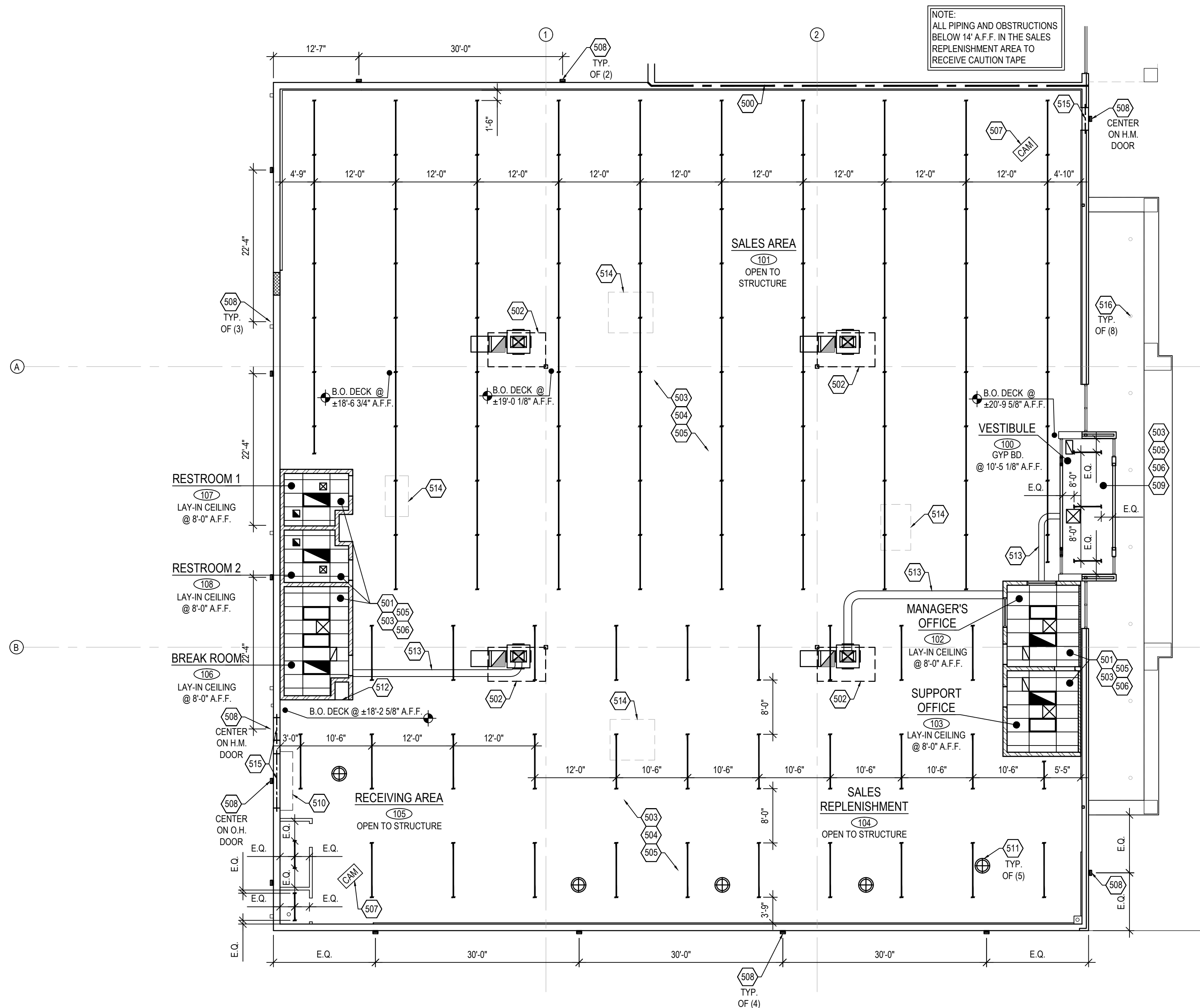
|   |  |   |  |
|---|--|---|--|
| 2' X 4' RECESSED LIGHT FIXTURE SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION         |  | SUPPLY AIR DIFFUSER SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION   |  |
| 8' SURFACE MOUNTED LIGHT FIXTURE SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION       |  | 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**

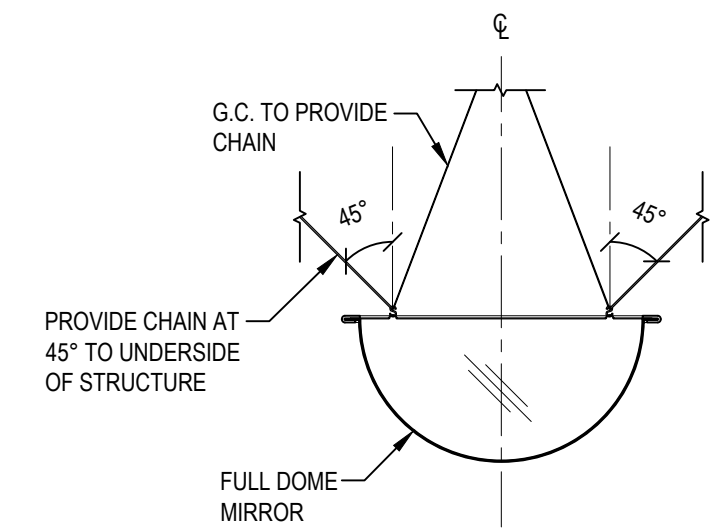
- REFER TO GENERAL NOTES OF SHEET A0.2 FOR ADDITIONAL INFORMATION.
- HFT G.C. TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
- HFT G.C. TO NOTIFY HFT PROJECT MANAGER IMMEDIATELY AFTER DEMOLITION OR START OF CONSTRUCTION, IF PROPOSED CEILING HEIGHTS & MECHANICAL REQUIREMENTS CAN NOT BE ACHIEVED FOR ANY REASON.
- 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.
- 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.
- SUSPENSION WIRES SHALL BE INSTALLED WITH A MAXIMUM SPACING OF 48" O.C.
- ALL LAY-IN CEILING GRIDS SHALL BE CENTERED IN ROOM U.N.O.
- SEE FP1.0 FOR SPRINKLER INFORMATION.

**500 SERIES CEILING PLAN KEY NOTES**

- APPROXIMATE LOCATION OF HFT LEASE LINE.
- 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.
- APPROXIMATE LOCATION OF NEW HVAC ROOFTOP UNIT. G.C. TO CONTRACT WITH LANDLORD ROOFING CONTRACTOR TO MAINTAIN ALL ROOFING WARRANTIES. REFER TO DETAIL 1A2.0, STRUCTURAL, AND MECHANICAL DRAWINGS.
- RE-WORK EXISTING SPRINKLER SYSTEM TO WORK WITH ROOM LAYOUT. SEE FP1.0 FOR ADDITIONAL INFORMATION.
- EXPOSED STRUCTURE. REMOVE ANY UNUSED EQUIPMENT, WIRES, HANGERS, ETC. FROM STRUCTURE AREA. PAINT ENTIRE STRUCTURE PER FINISH SCHEDULE ON SHEET A1.3.
- NEW LIGHT FIXTURES THROUGHOUT ENTIRE HFT SPACE, UNLESS NOTED OTHERWISE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- SUPPLY AND RETURN AIR DIFFUSERS OCCUR AT ROOM LOCATIONS. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 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.
- WALL MOUNTED EXTERIOR LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- GYP BD. CEILING TO REMAIN. G.C. TO PATCH AND REPAIR ANY MECHANICAL EQUIPMENT AND DEVICES TO BE REUSED. ANY EQUIPMENT NOT TO BE REUSED IS TO BE REMOVED. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- OVERHEAD COIL-UP DOOR HOUSING. SEE SHEET A5.0 FOR ADDITIONAL INFORMATION.
- 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.
- GYP BOARD SHELF AT 8'-0" A.F.F. TO BE PAINTED. SEE SHEET A1.3 AND DETAIL 1A4.1 FOR ADDITIONAL INFORMATION.
- APPROXIMATE LOCATION OF NEW DUCT WORK. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- EXISTING RTU TO BE ABANDONED IN PLACE. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- STEEL LINTEL. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- UNDER CANOPY LIGHTING. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

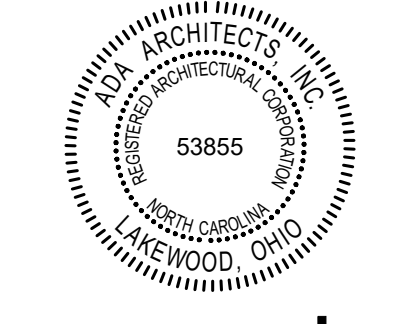
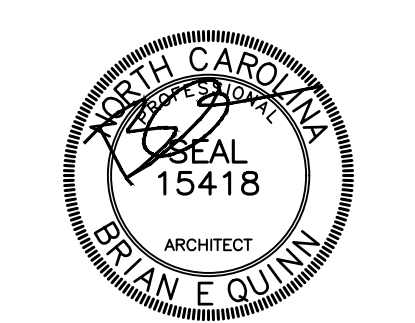


**REFLECTED CEILING PLAN**  
SCALE: 3/32" = 1'-0"



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

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



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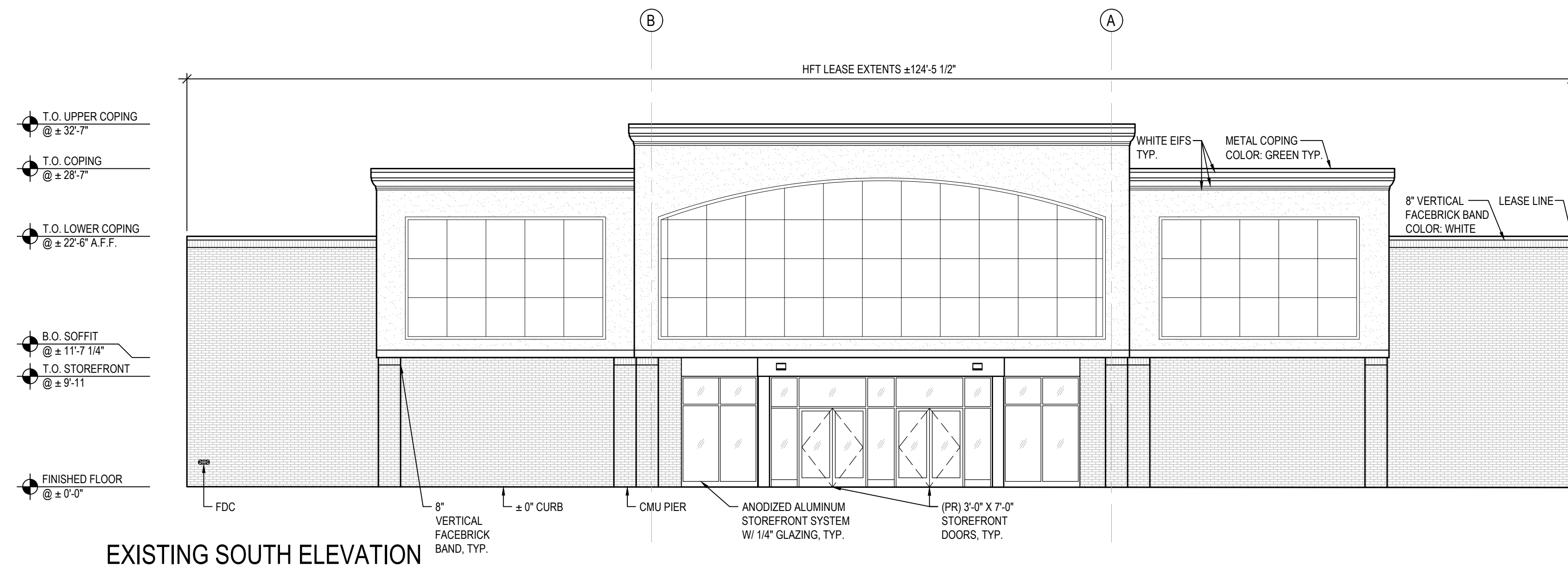
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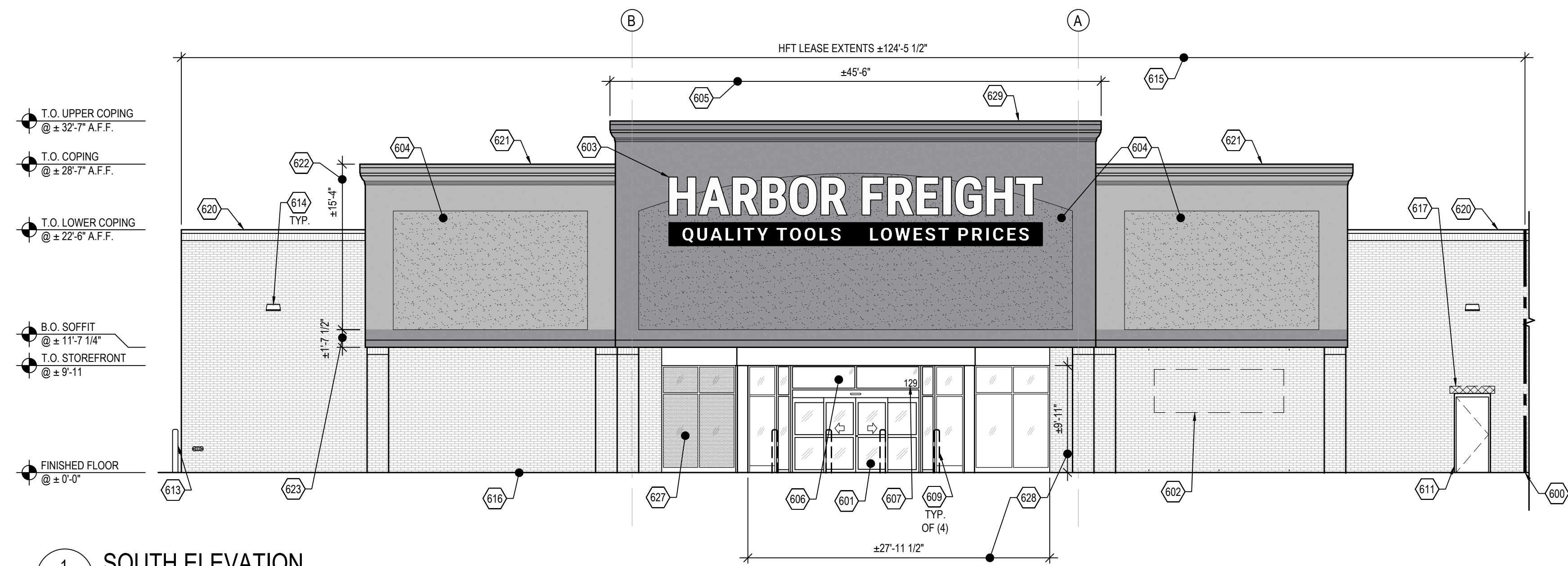
**A2.0**  
SHEET NO.



PHOTO OF EXISTING SOUTH ELEVATION

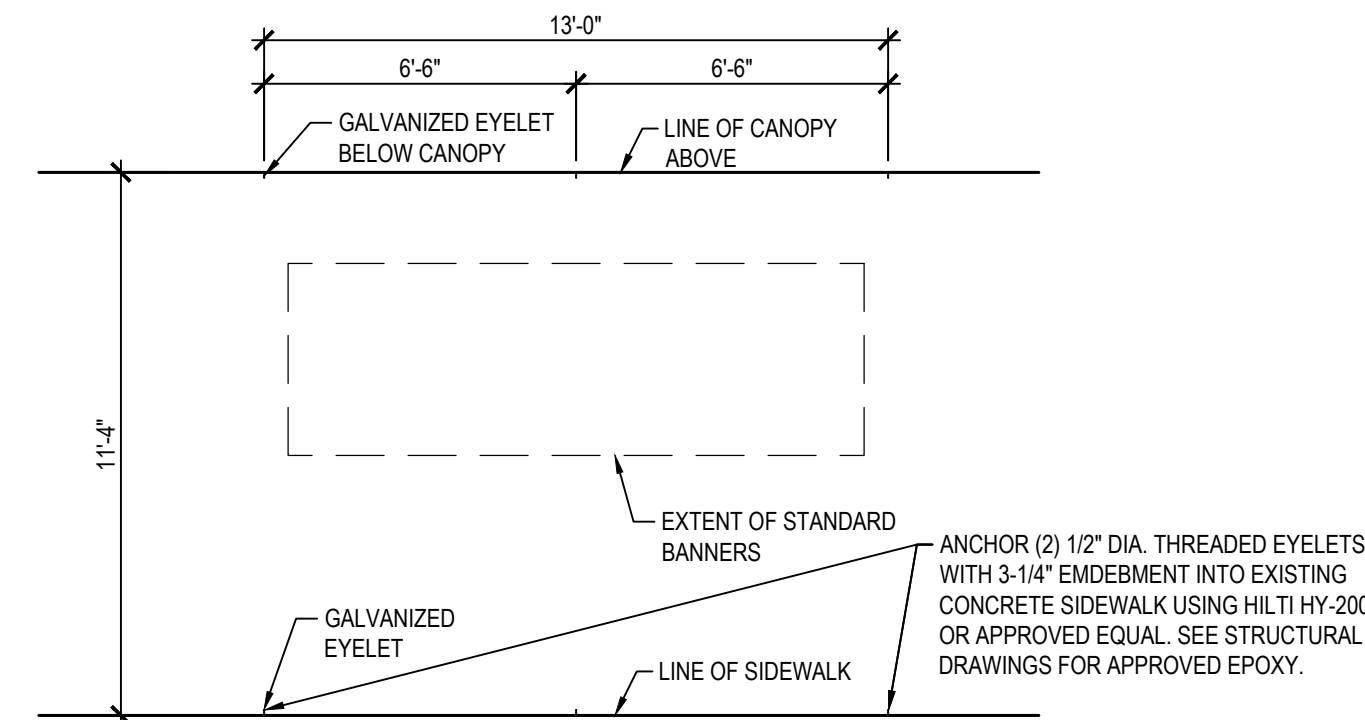


EXISTING SOUTH ELEVATION



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

- NOTES
- HARBOR FREIGHT USES ONE STANDARD SIZE BANNER (4' X 12')
  - EYELETS FOR THIS BANNER TO BE GALVANIZED
  - 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
  - G.C. TO ENSURE EYELETS ARE INSTALLED TO SUITABLE BLOCKING MATERIAL AND CAPABLE OF WITHSTANDING WIND FORCES.
  - G.C. TO VERIFY WITH HFT P.M. IF EYELETS ARE ALLOWED PRIOR TO INSTALLATION.
  - BANNER TO BE PLACED MIN. 4" AWAY FROM STOREFRONT SYSTEM.
  - G.C. TO VERIFY CANOPY FRAMING AND SPACING IN THE FIELD AND NOTIFY ARCHITECT IF CONDITION WILL NOT ALLOW INSTALLATION AS SHOWN.



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

GENERAL NOTES

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

600 SERIES ELEVATION KEY NOTES

- LOCATION OF LEASE LINE.
- DORMER BI-PARTING DOOR SYSTEM. SEE SHEETS A5.0 AND A5.1 FOR ADDITIONAL INFORMATION.
- SIGNAGE BANNER. PROVIDE 3/8" GALVANIZED EYELETS SPACED AS SHOWN ON DETAIL A3A.0.
- 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.
- DARK SPECKLED HATCH INDICATES RECESSED PORTION OF SIGNBOARD. AREA TO BE RESURFACED WITH A NEW LAYER OF EIFS TO MATCH AND ALIGN WITH EXISTING ADJACENT CONDITION.
- EXISTING EIFS SIGNBOARD TO BE PAINTED P-3.
- ALUMINUM FRAME TRANSOM SYSTEM. SEE SHEET A5.1 FOR ADDITIONAL INFORMATION.
- 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.
- PROVIDE 8" HIGH VINYL LETTERING STATING "HFT" AND STREET ADDRESS IN HELVETICA FONT. COLOR TO CONTRAST WITH DOOR.
- 6" PIPE BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- 8" PIPE BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- HOLLOW METAL DOOR AND FRAME TO BE PAINTED TO MATCH ADJACENT WALL FINISH. SEE SHEETS A1.3 AND A5.0 FOR ADDITIONAL INFORMATION.
- OVERHEAD DOOR. SEE DOOR SCHEDULE ON SHEET A5.0 FOR ADDITIONAL INFORMATION.
- EXISTING BOLLARD TO REMAIN.
- WALL MOUNTED LIGHT FIXTURE. SEE SHEET A2.0 AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- G.C. TO PATCH, REPAIR, AND RE-PAINT ELEVATION TO MATCH EXISTING, U.N.O. TYPICAL FOR EXTENTS OF HFT SPACE AS SHOWN.
- EXISTING CONCRETE WALK.
- HATCHING INDICATES STEEL LINTEL. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- EXISTING DOWNSPOUT. G.C. TO CLEAN DOWNSPOUT OF ALL DEBRIS TO ENSURE PROPER DRAINAGE.
- EXISTING GUTTER. G.C. TO CLEAN GUTTER OF ALL DEBRIS TO ENSURE PROPER DRAINAGE.
- EXISTING COPING TO REMAIN.
- EXISTING COPING AT ELEVATION EXTENTS TO BE PAINTED P-9. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- LIGHTER HATCH INDICATES EXTENTS OF NEW PAINTED AREA ON EXISTING MASONRY, TO BE PAINTED P-9. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- DARKER HATCH INDICATES EXTENTS OF NEW PAINTED AREA ON EXISTING MASONRY, TO BE PAINTED P-3. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- CONCRETE RECEIVING PAD. SEE SHEET A4.2 FOR ADDITIONAL INFORMATION.
- PAD MOUNTED TRANSFORMER AND METER.
- AREA OF NEW MASONRY INFILL. SEE SHEET D1.0 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- DOTTED HATCH INDICATES AREAS VENDOR SUPPLIED AND INSTALLED WINDOW FILM ON THE INTERIOR SIDE OF WINDOW PANELS. WINDOW FILM TO BE 3M AFFINITY 15.
- AREA OF COOLVU WINDOW TINT. TO BE FURNISHED AND INSTALLED BY VENDOR. G.C. TO COORDINATE WITH BV AND HFT PM TO CONFIRM EXTENTS OF COOLVU FILM.
- DARKER HATCH INDICATES EXTENTS OF COPING TO BE PAINTED P-3A. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- RELOCATED DOWNSPOUT. G.C. TO CLEAN DOWNSPOUT OF ALL DEBRIS TO ENSURE PROPER DRAINAGE. SEE SHEETS D1.0 AND A1.1 FOR ADDITIONAL INFORMATION.



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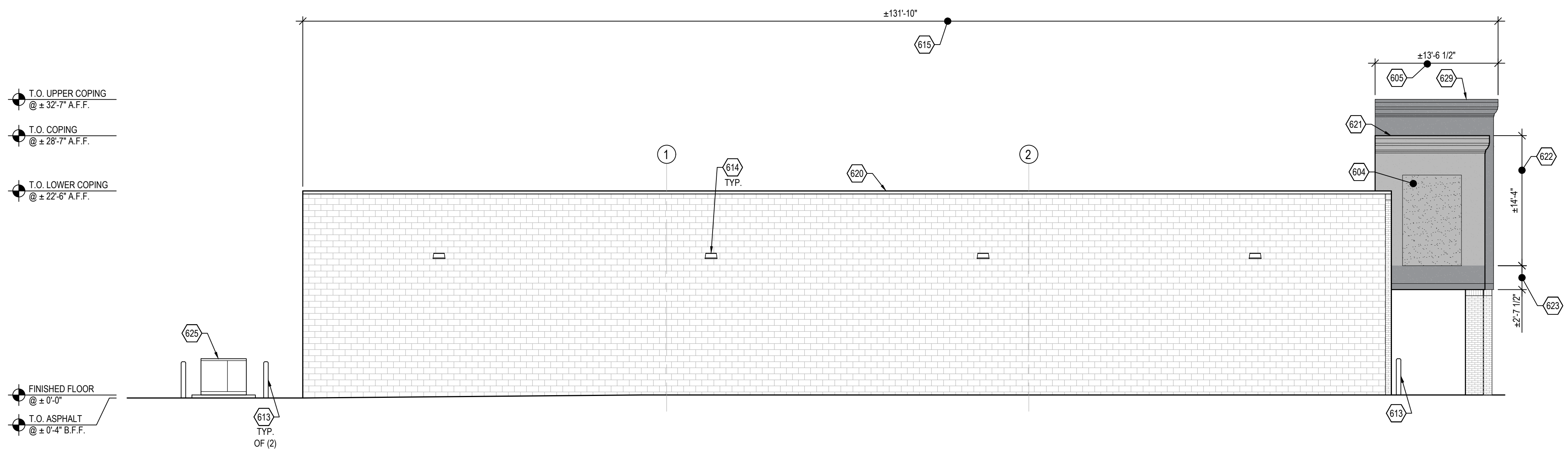
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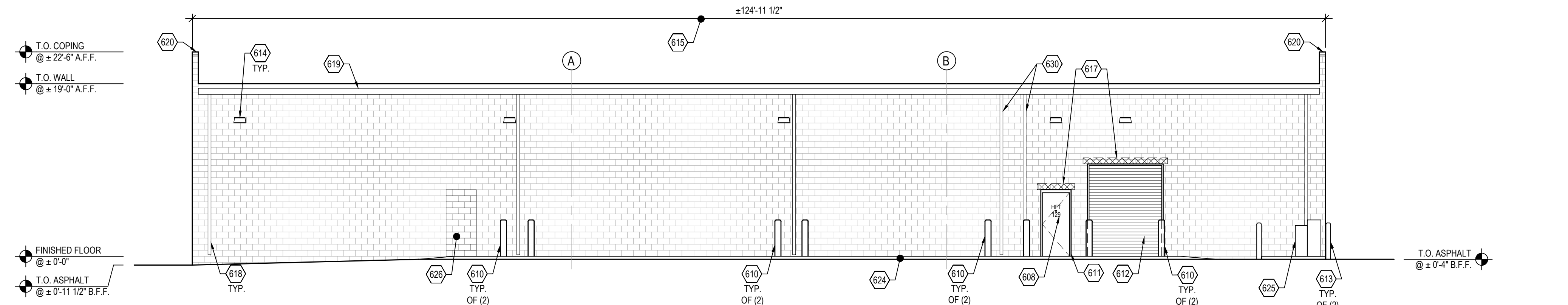
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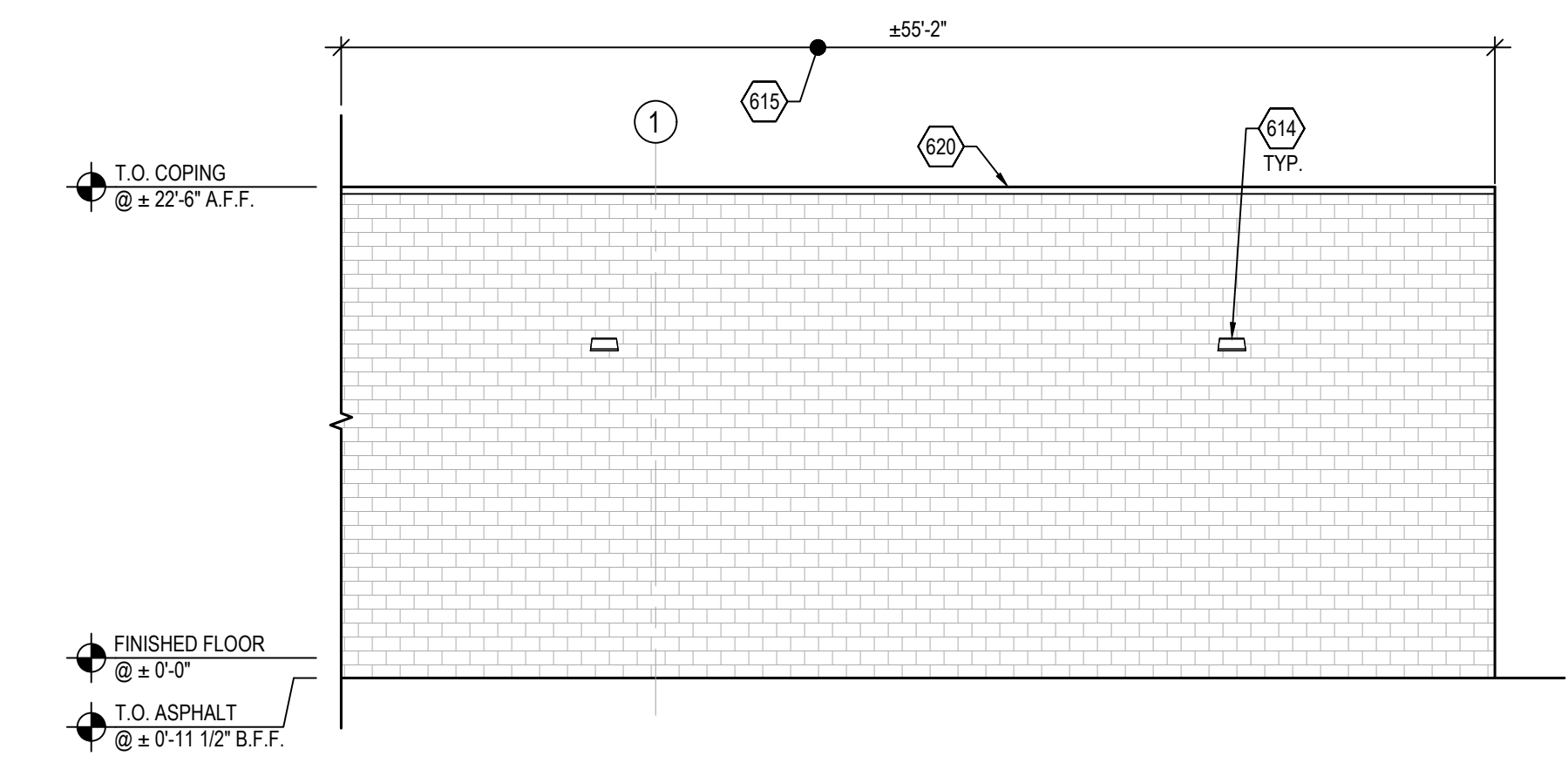
**A3.0**  
SHEET NO.



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



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



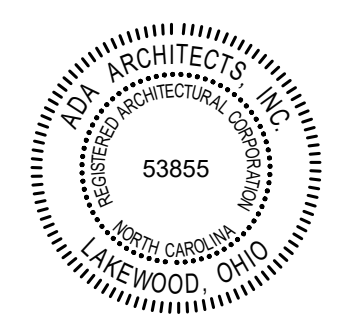
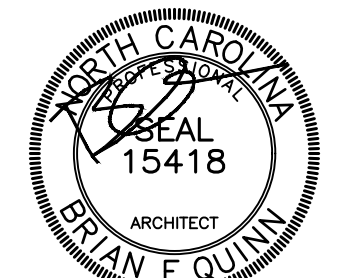
**3 EAST ELEVATION**  
A3.1 SCALE: 1/8" = 1'-0"

**GENERAL NOTES**

- REFER TO GENERAL NOTES ON SHEET A0.2 FOR ADDITIONAL INFORMATION.
- SIGNAGE PERMIT DRAWINGS TO BE SUBMITTED SEPARATELY.
- HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
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**600 SERIES ELEVATION KEY NOTES**

- LOCATION OF LEASE LINE.
- DORMER BI-PARTING DOOR SYSTEM. SEE SHEETS A5.0 AND A5.1 FOR ADDITIONAL INFORMATION.
- SIGNAGE BANNER. PROVIDE 3/8" GALVANIZED EYELETS SPACED AS SHOWN ON DETAIL A1A3.0.
- 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.
- DARK SPECKLED HATCH INDICATES RECESSED PORTION OF SIGNBOARD. AREA TO BE RESURFACED WITH A NEW LAYER OF EIFS TO MATCH AND ALIGN WITH EXISTING ADJACENT CONDITION.
- EXISTING EIFS SIGNBOARD TO BE PAINTED P-3.
- ALUMINUM FRAME TRANSOM SYSTEM. SEE SHEET A5.1 FOR ADDITIONAL INFORMATION.
- 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.
- PROVIDE 6" HIGH VINYL LETTERING STATING "HFT" AND STREET ADDRESS IN HELVETICA FONT. COLOR TO CONTRAST WITH DOOR.
- 6" PIPE BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- 8" PIPE BOLLARD. SEE SHEET A1.1 AND DETAIL 3/A4.1 FOR ADDITIONAL INFORMATION.
- HOLLOW METAL DOOR AND FRAME TO BE PAINTED TO MATCH ADJACENT WALL FINISH. SEE SHEETS A1.3 AND A5.0 FOR ADDITIONAL INFORMATION.
- OVERHEAD DOOR. SEE DOOR SCHEDULE ON SHEET A5.0 FOR ADDITIONAL INFORMATION.
- EXISTING BOLLARD TO REMAIN.
- WALL MOUNTED LIGHT FIXTURE. SEE SHEET A2.0 AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- G.C. TO PATCH, REPAIR, AND RE-PAINT ELEVATION TO MATCH EXISTING, U.N.O. TYPICAL FOR EXTENTS OF HFT SPACE AS SHOWN.
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- EXISTING DOWNSPOUT. G.C. TO CLEAN DOWNSPOUT OF ALL DEBRIS TO ENSURE PROPER DRAINAGE.
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- EXISTING COPING TO REMAIN.
- EXISTING COPING AT ELEVATION EXTENTS TO BE PAINTED P-9. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- LIGHTER HATCH INDICATES EXTENTS OF NEW PAINTED AREA ON EXISTING MASONRY, TO BE PAINTED P-9. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- DARKER HATCH INDICATES EXTENTS OF NEW PAINTED AREA ON EXISTING MASONRY, TO BE PAINTED P-3. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- CONCRETE RECEIVING PAD. SEE SHEET A4.2 FOR ADDITIONAL INFORMATION.
- PAD MOUNTED TRANSFORMER AND METER.
- AREA OF NEW MASONRY INFILL. SEE SHEET D1.0 AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- DOTTED HATCH INDICATES AREAS VENDOR SUPPLIED AND INSTALLED WINDOW FILM ON THE INTERIOR SIDE OF WINDOW PANELS. WINDOW FILM TO BE 3M AFFINITY 15.
- AREA OF COOLUV WINDOW TINT. TO BE FURNISHED AND INSTALLED BY VENDOR. G.C. TO COORDINATE WITH BV AND HFT PM TO CONFIRM EXTENTS OF COOLUV FILM.
- DARKER HATCH INDICATES EXTENTS OF COPING TO BE PAINTED P-3A. SEE SHEET A1.3 FOR ADDITIONAL INFORMATION.
- RELOCATED DOWNSPOUT. G.C. TO CLEAN DOWNSPOUT OF ALL DEBRIS TO ENSURE PROPER DRAINAGE. SEE SHEETS D1.0 AND A1.1 FOR ADDITIONAL INFORMATION.



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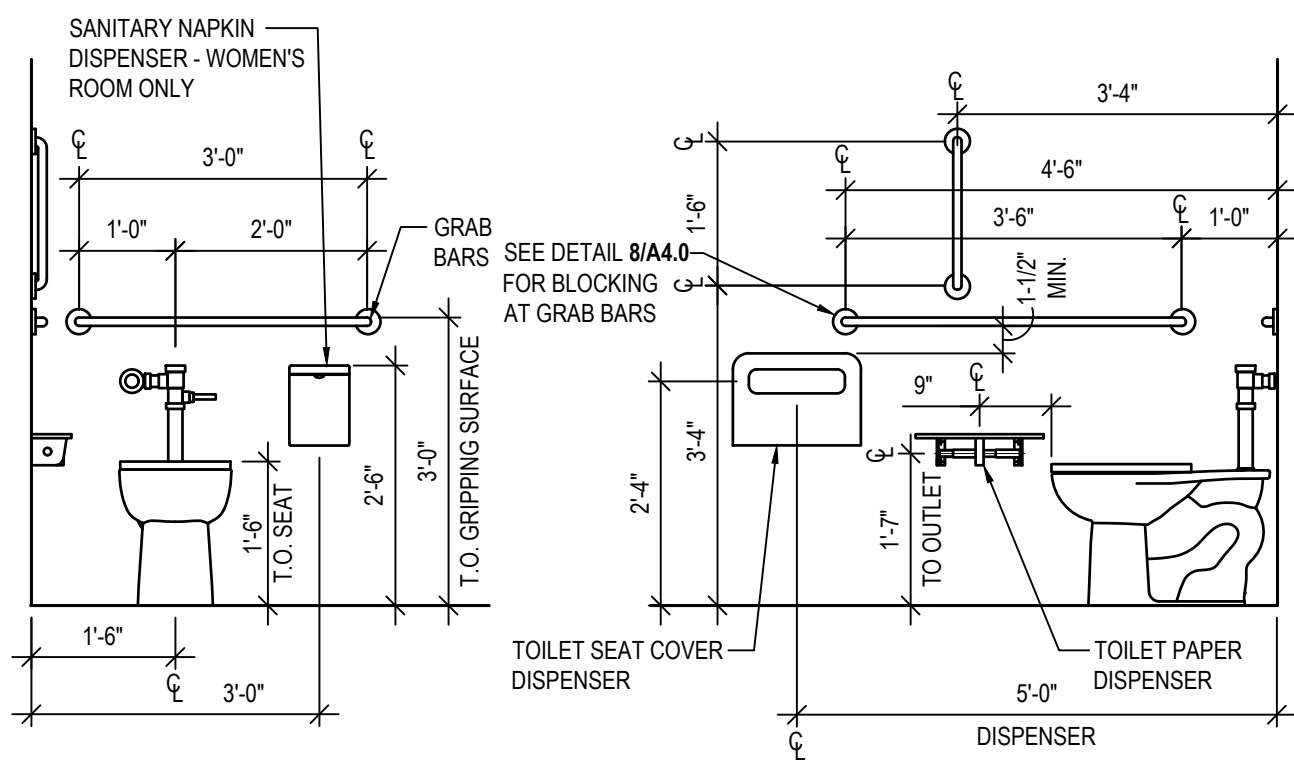
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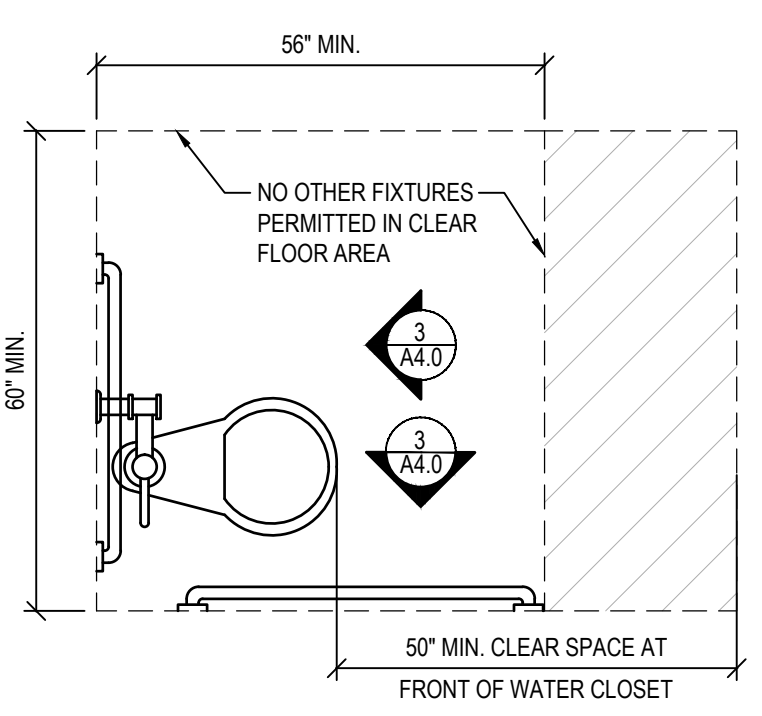
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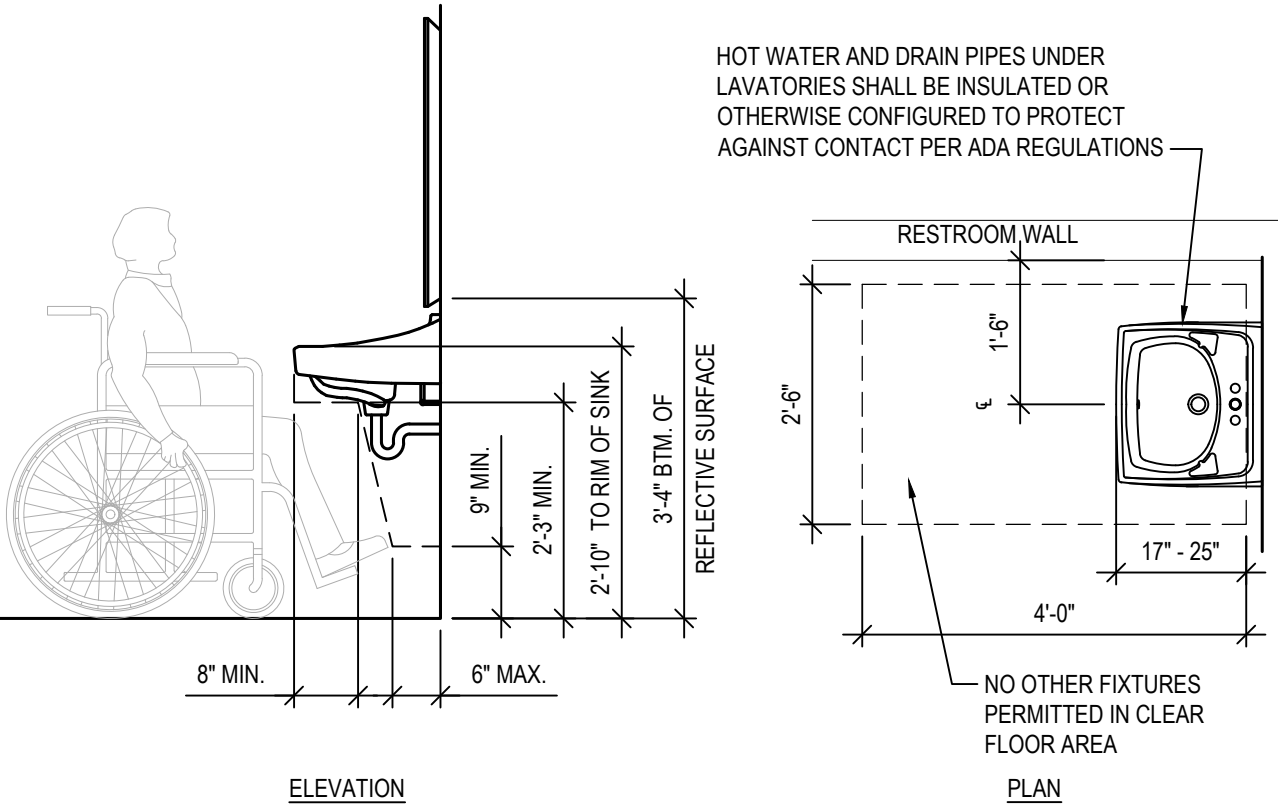
**A3.1**  
SHEET NO.



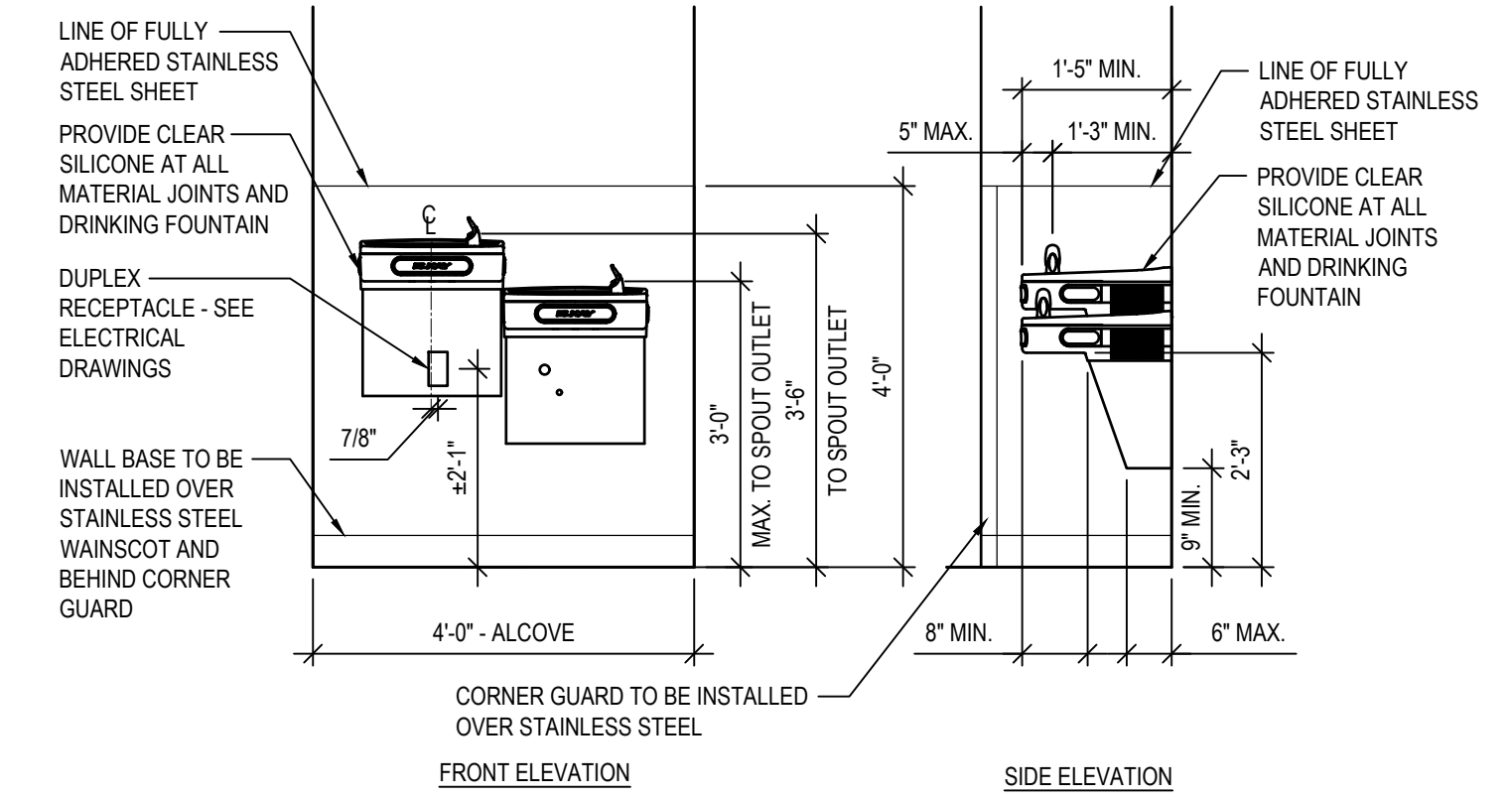
**3 ACCESSIBLE WATER CLOSET ELEVATIONS**  
A4.0 SCALE: 1/2" = 1'-0"



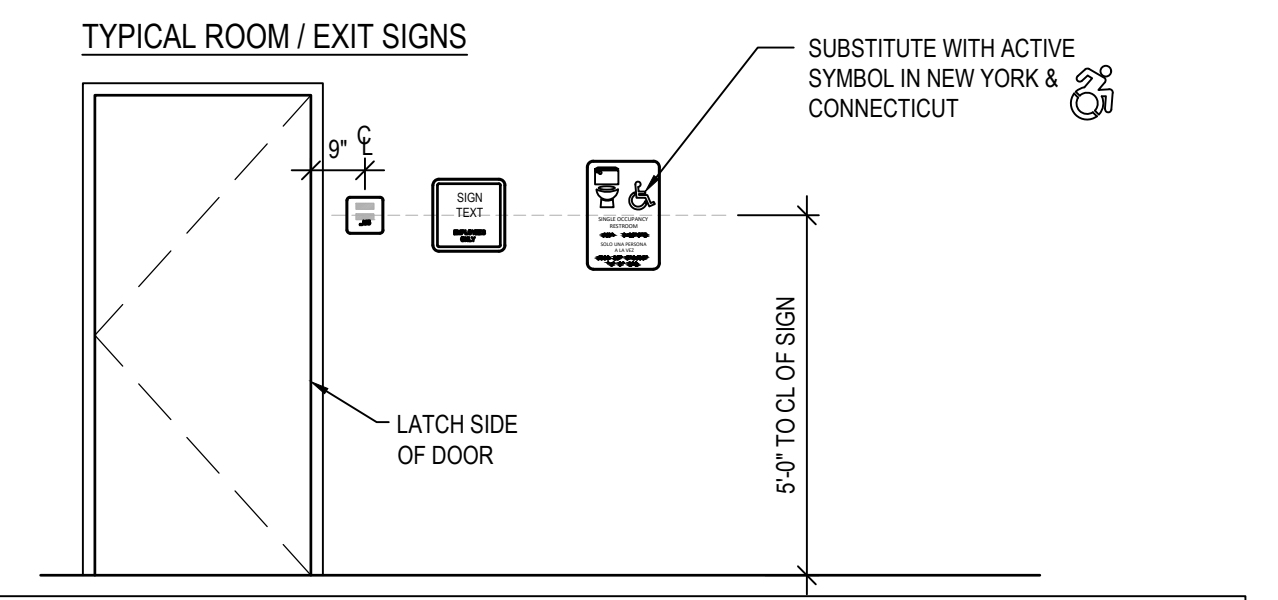
**2 ACCESSIBLE TOILET**  
A4.0 SCALE: 1/2" = 1'-0"



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

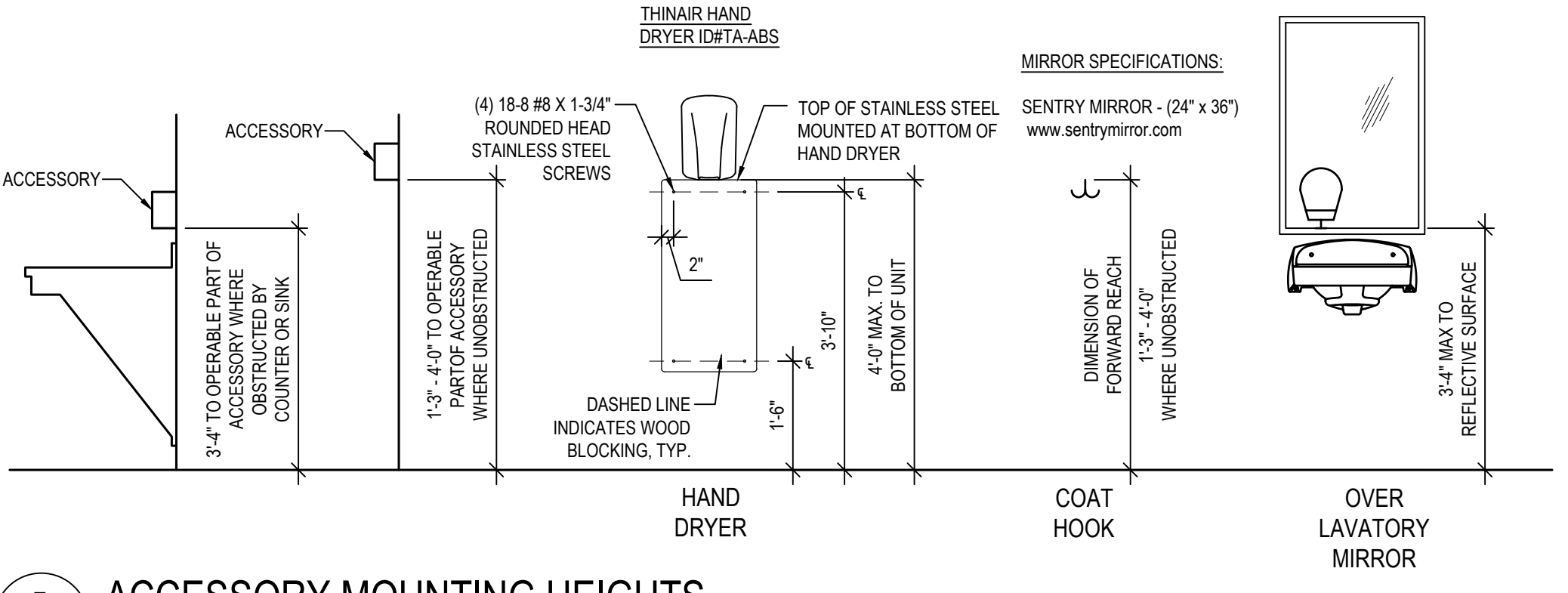


**4 ACCESSIBLE DRINKING FOUNTAIN ELEVATIONS**  
A4.0 SCALE: 1/2" = 1'-0"

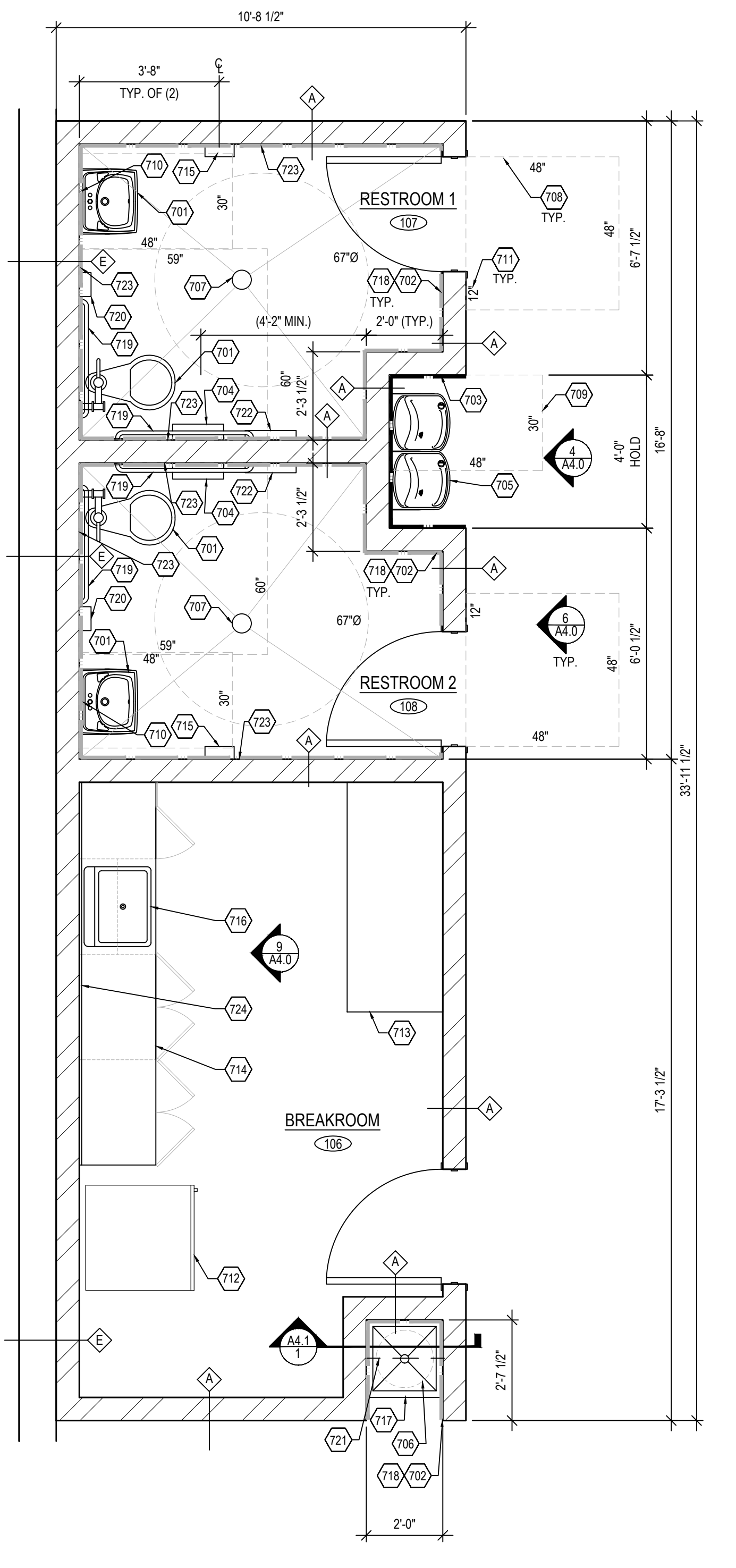


**NOTES:**  
1. CHARACTERS, SYMBOLS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND.  
2. CHARACTERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM & SHALL BE SANS SERIF UPPERCASE CHARACTERS. CHARACTERS SHALL BE A MINIMUM OF 5/8" AND A MAXIMUM OF 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 SIGN DETAILS**  
A4.0 SCALE: N.T.S.



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



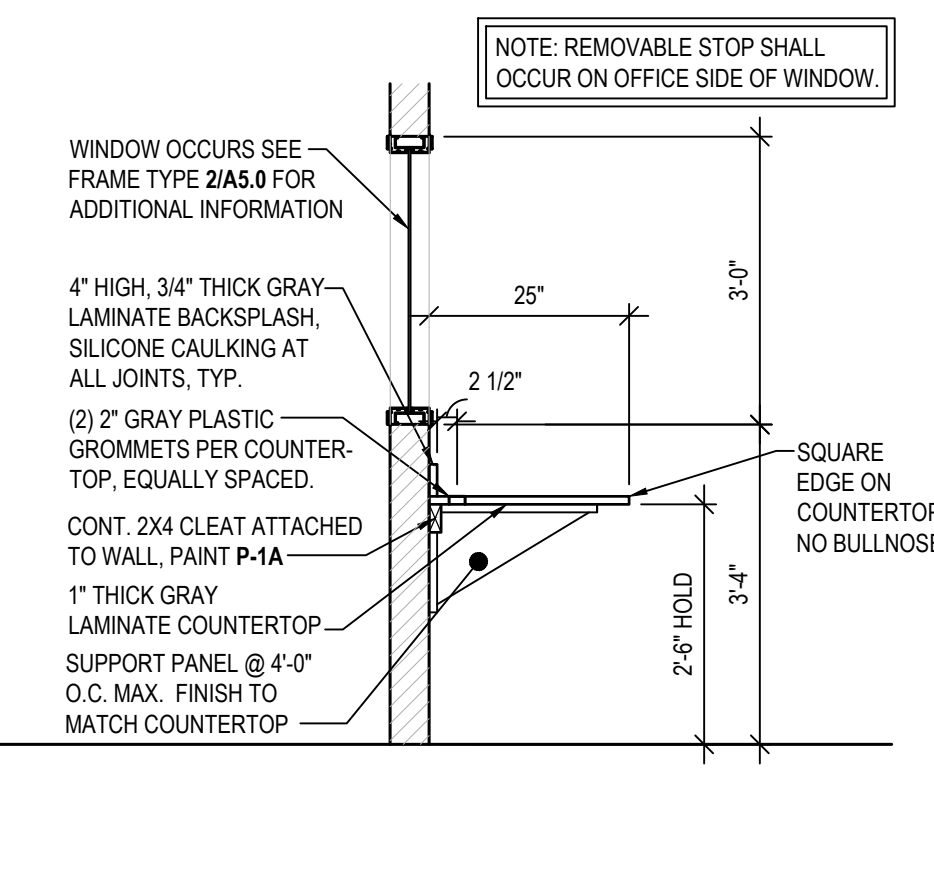
**1 ENLARGED RESTROOM / BREAK ROOM PLAN**  
A4.0 SCALE: 3/8" = 1'-0"

**GENERAL NOTES**

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

**700 SERIES ENLARGED RR / BR PLAN KEY NOTES**

- RESTROOM FIXTURES. SEE DETAILS 2, 3 & 5 / A4.0 AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- DOTTED LINE INDICATES PROVIDE AND INSTALL WC-1 ON WALL AS SHOWN. SEE FINISH SCHEDULE A1.3 FOR ADDITIONAL INFO.
- 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.
- TOILET PAPER DISPENSER BOBRICK MODEL: #B-2840.
- DRINKING FOUNTAIN. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- 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.
- 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.
- DASHED LINE INDICATES MIN. CLEAR FLOOR SPACE (TYP.)
- CLEAR FLOOR SPACE CENTERED ON LOW DRINKING FOUNTAIN.
- MIRROR LOCATION. SEE DETAIL 7 THIS SHEET FOR MOUNTING HEIGHTS AND DIMENSIONS.
- NUMBERS INDICATE MINIMUM CLEAR AREA AT FLOOR SPACE DIAGRAMS (TYP.)
- REFRIGERATOR LOCATION.
- APPROXIMATE LOCATION OF BREAKROOM TABLE BY HFT.
- BREAK ROOM CABINETS: SEE DETAILS 9&10 THIS SHEET.
- THINAIR HAND DRYER (110-120V, 7 AMPS, MODEL #TA-ABS, WITH ANTI-MICROBIAL WALL GUARDS, ID #95). SEE DETAIL 7 THIS SHEET FOR MOUNTING INFORMATION. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFO.
- BREAKROOM SINK SEE P1.0 PLUMBING FIXTURES SPECIFICATIONS.
- MOP SINK. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- USE 1/2" GREEN BOARD IN PLACE OF 1/2" GYP BOARD AS NOTED.
- GRAB BARS. SEE DETAILS 2, 3, & 8 / A4.0 FOR ADDITIONAL INFORMATION.
- SANITARY NAPKIN DISPOSAL BOBRICK MODEL: #B-270.
- (2) 12" DEEP WHITE WIRE SHELVES FOR CLEANING SUPPLIES.
- TOILET SEAT COVER DISPENSER TORK MODEL: #95A.
- PROVIDE 5/8" FRT PLYWOOD BLOCKING IN STUD CAVITY.
- REPLACE 5/8" GYP BOARD WITH 5/8" GREEN BOARD WITH 5/8" FRT PLYWOOD BLOCKING IN STUD CAVITY.

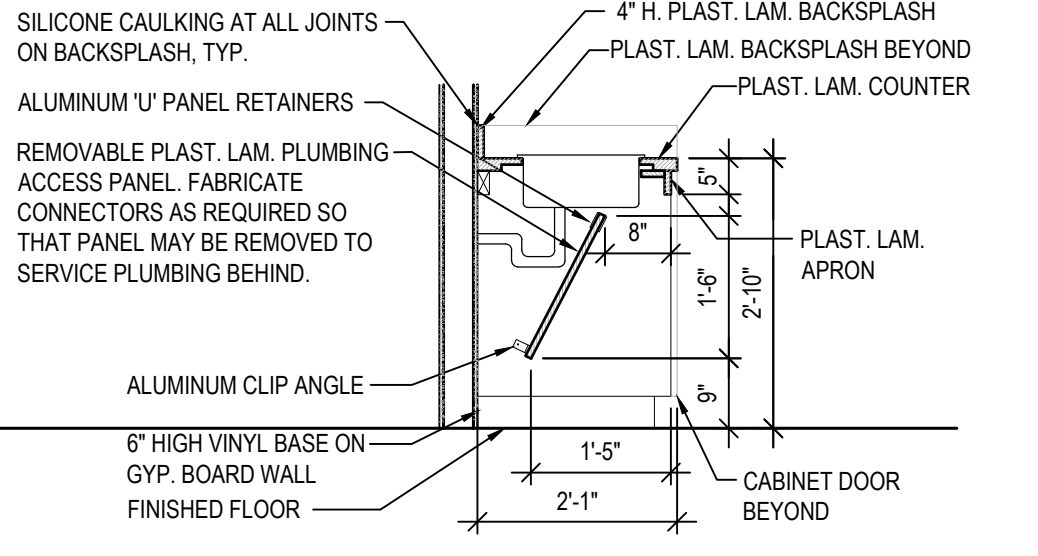


**11 OFFICE COUNTERTOP SECTION**  
A4.0 SCALE: 1/2" = 1'-0"

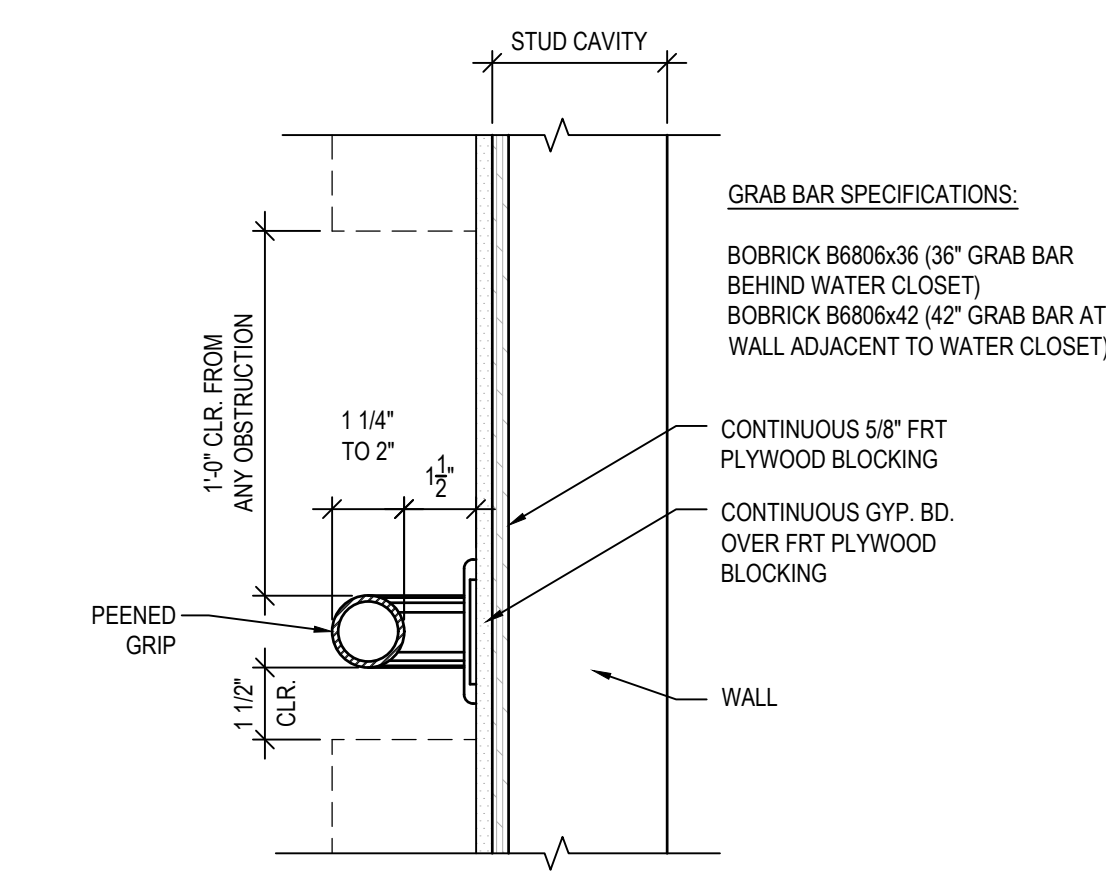
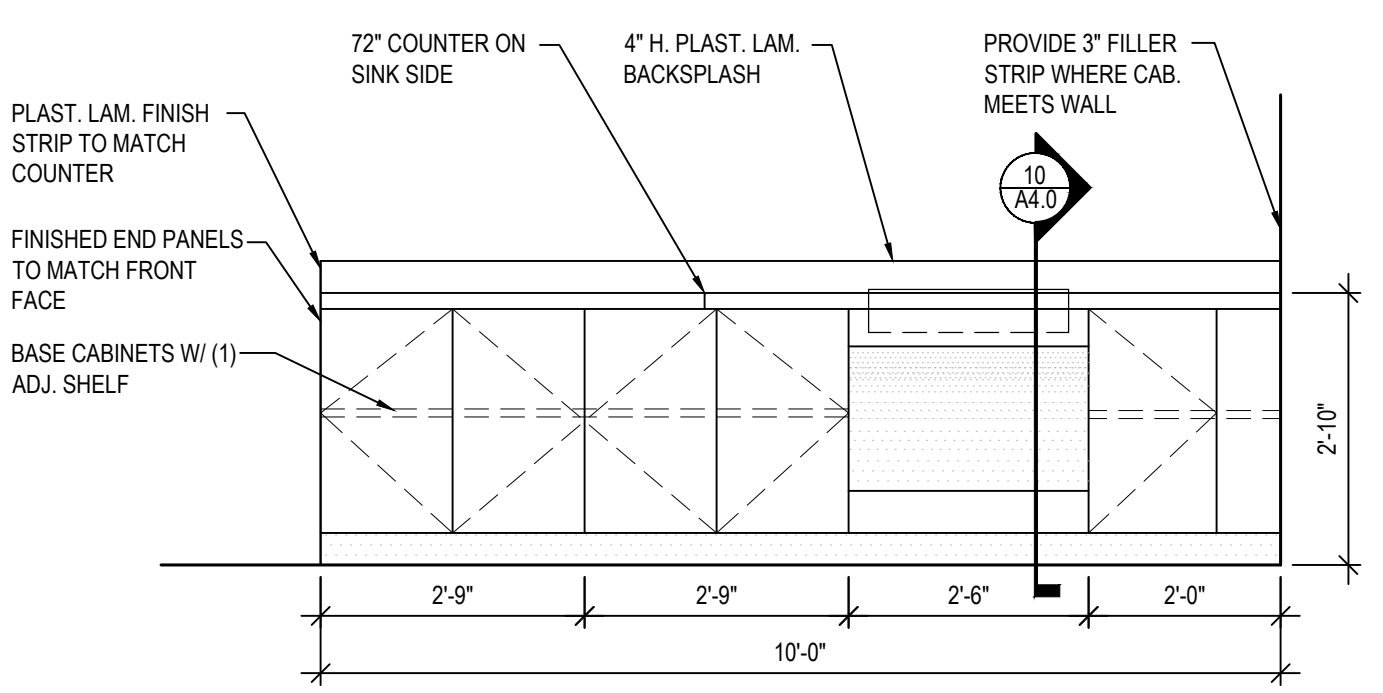
**CASEWORK NOTES**

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

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



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



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

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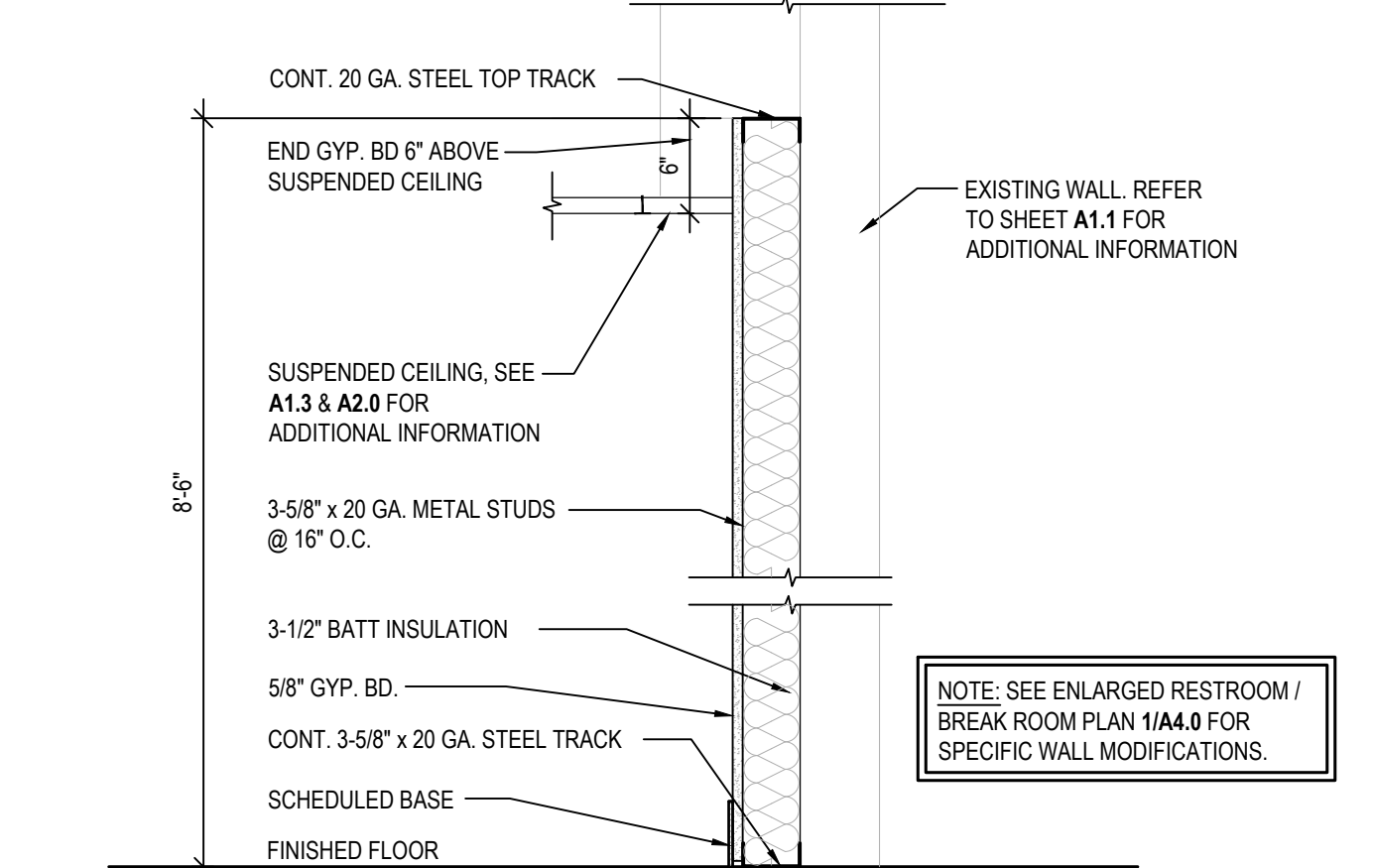
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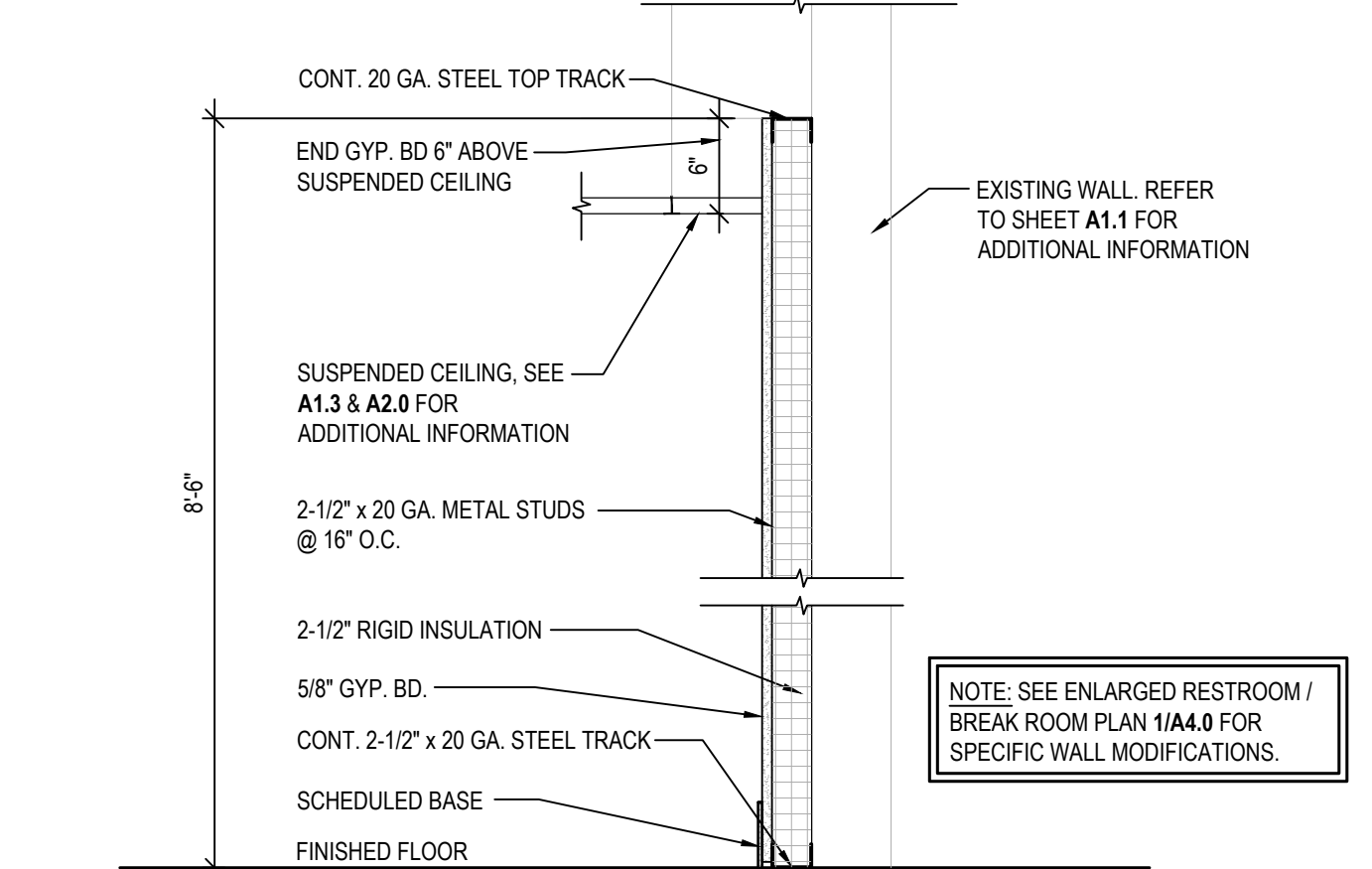
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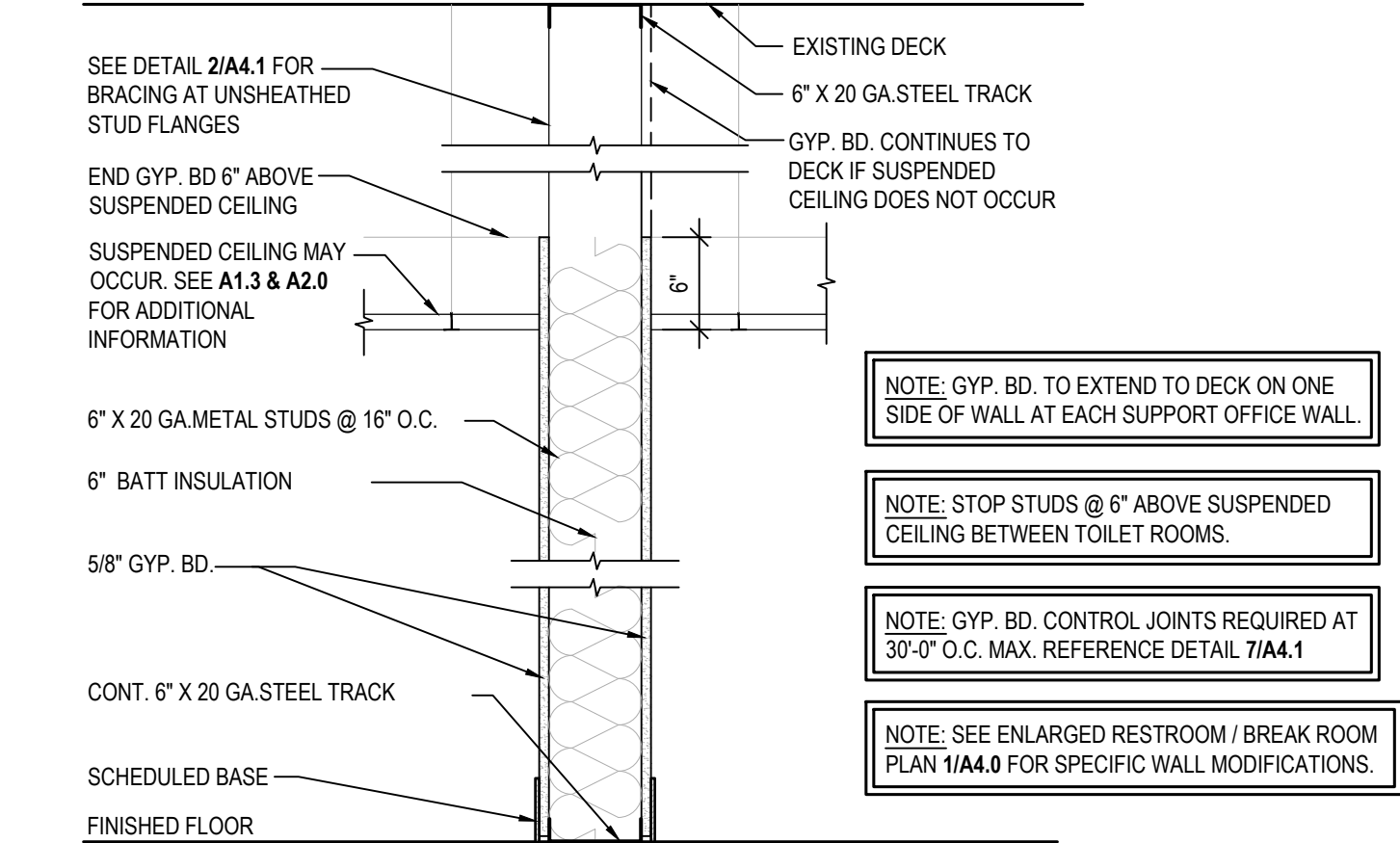
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**C WALL TYPE C**  
SCALE: 1" = 1'-0"



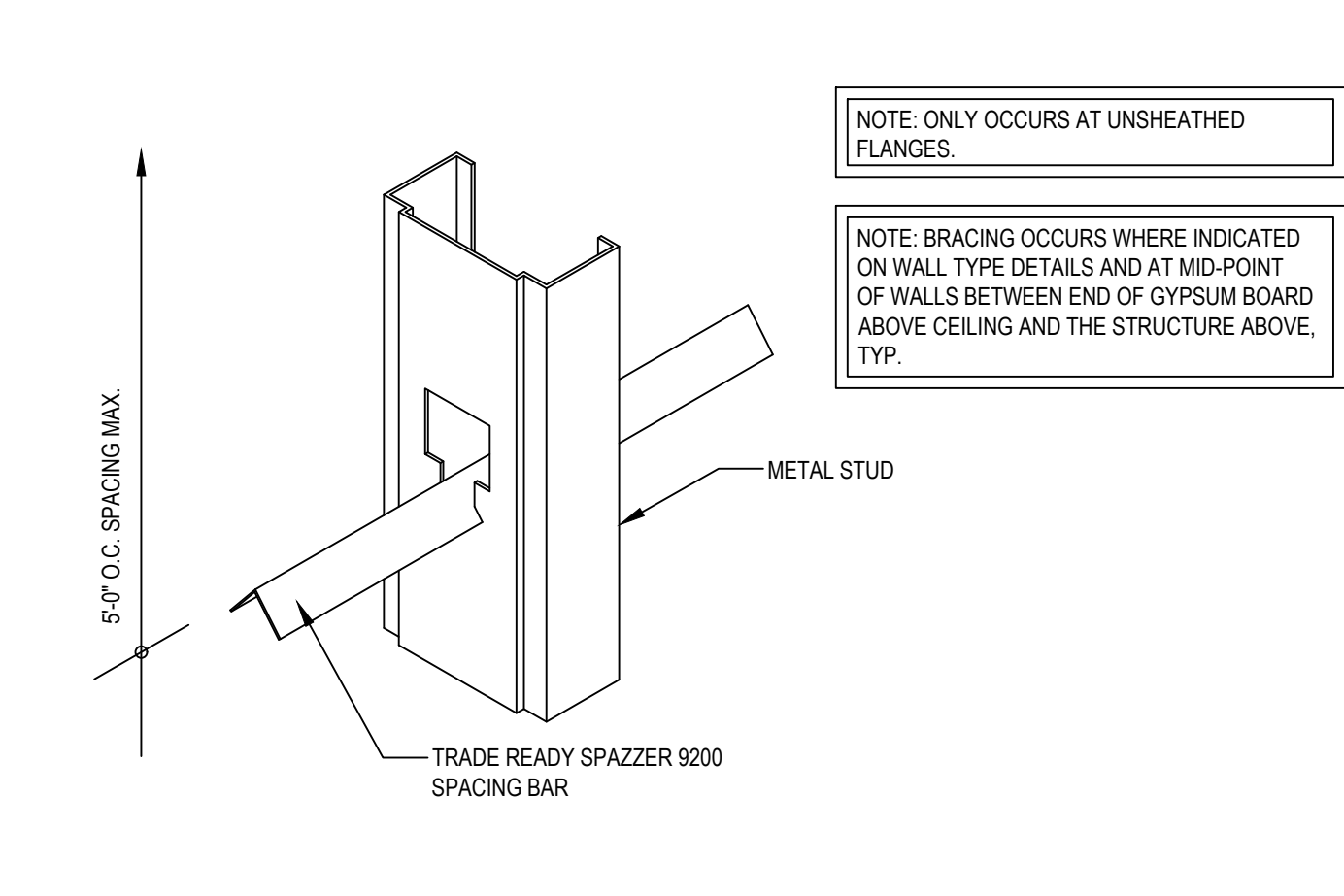
**B WALL TYPE B**  
SCALE: 1" = 1'-0"



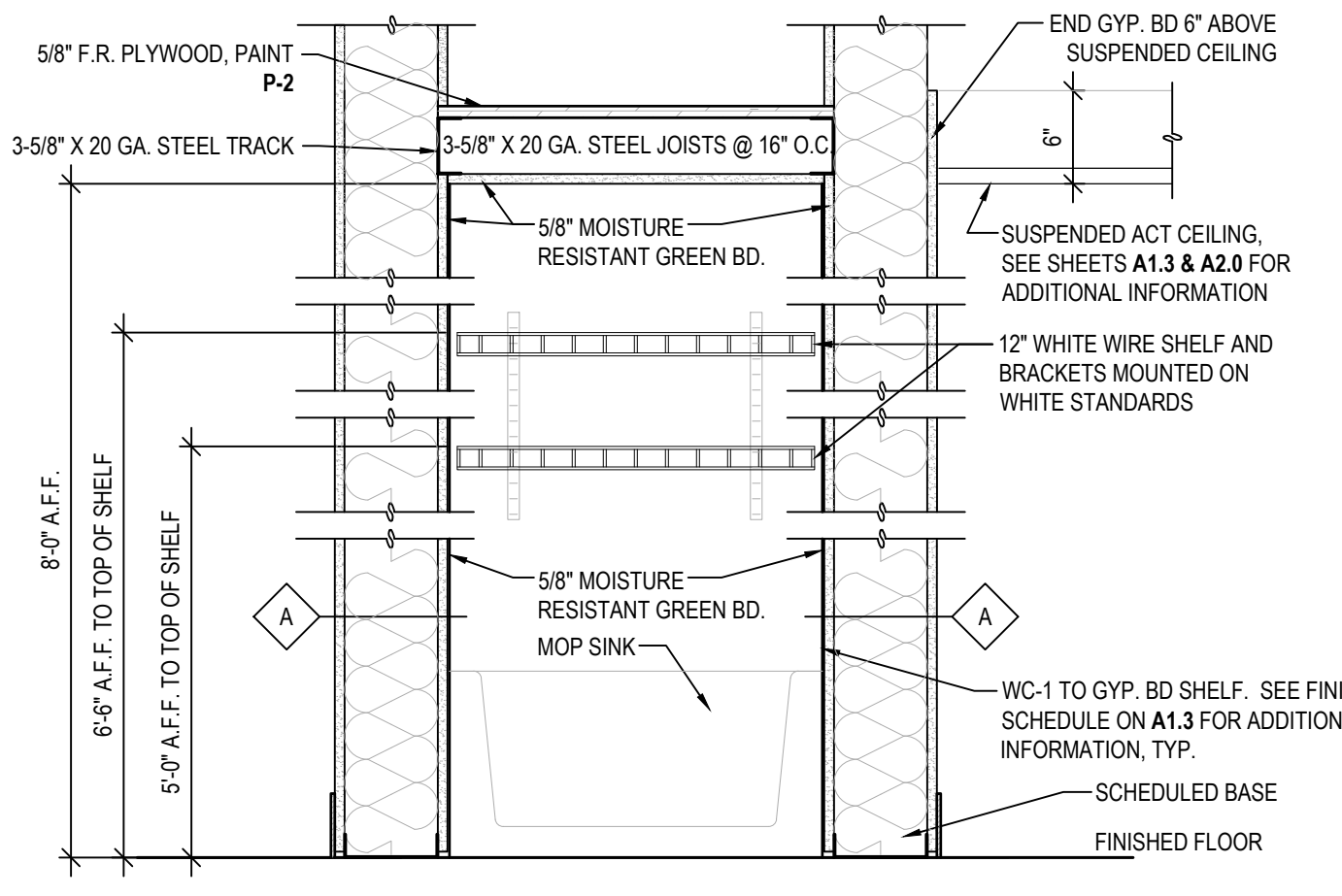
**A WALL TYPE A**  
SCALE: 1" = 1'-0"

**WALL TYPE NOTES**

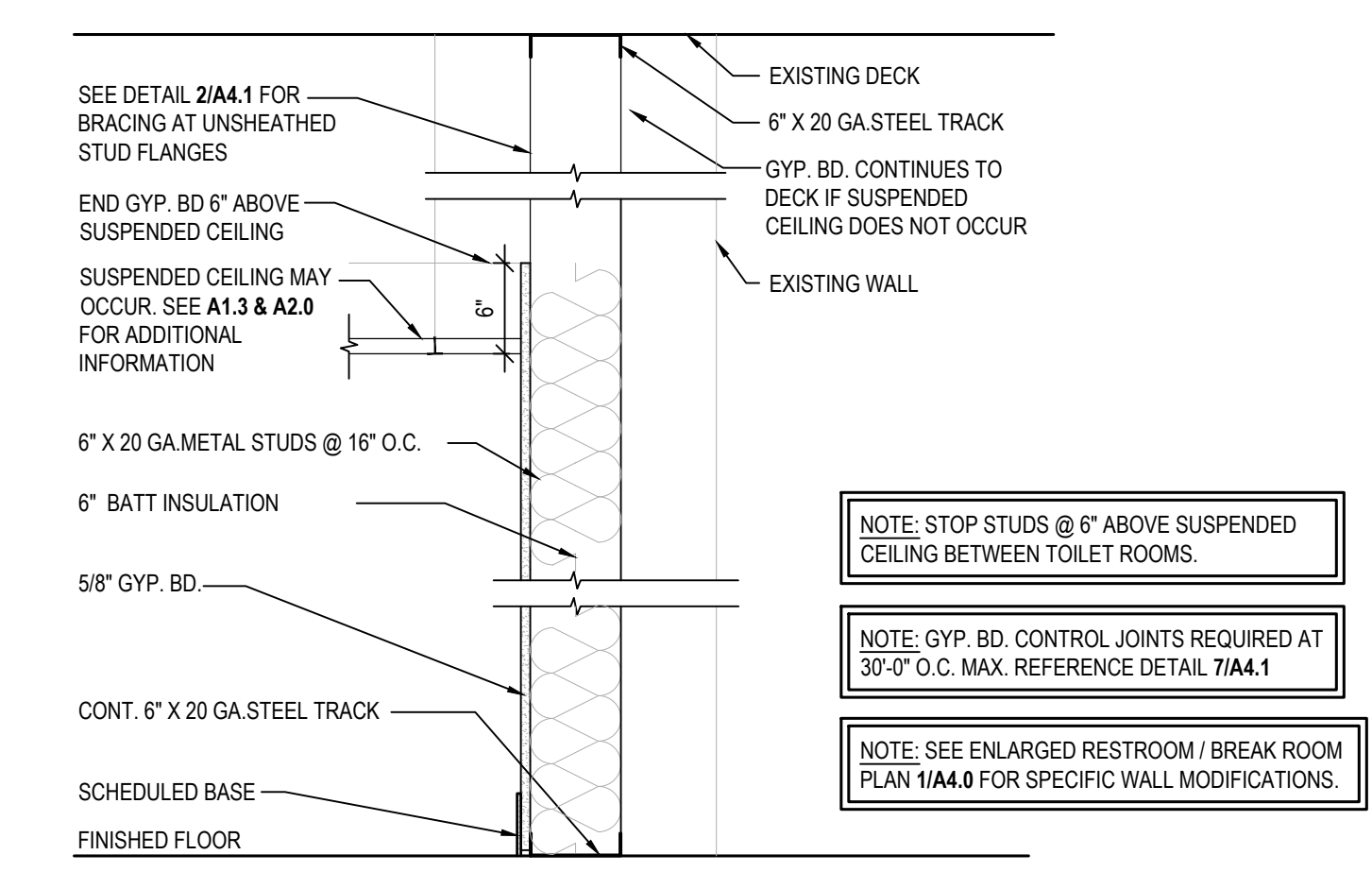
- REFER TO GENERAL NOTES ON SHEET A0.2 FOR ADDITIONAL INFORMATION.
- HFT GENERAL CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING PROPOSALS AND COMMENCING WORK.
- THE MATERIALS AND DETAILS SHOWN ARE FOR TYPICAL INSTALLATIONS WHERE THE STUD MANUFACTURER'S RECOMMENDATIONS OR LOCAL ORDINANCES ARE MORE RESTRICTIVE, THEY SHALL APPLY.
- TYPICAL FASTENERS:
  - METAL STUDS TO METAL STUDS OR TRACKS: #18 X 1 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.
  - METAL STUDS OR TRACKS TO WOOD PURLINS, GIRDERS & BEAMS: #14-10 X 1 1/2" H.W.H. TYPE "S" METAL - TO WOOD SMS.
  - 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.
  - PLYWOOD TO METAL STUDS: #10 - 24 X 3/4" SMS/3 (PLYMETAL SMS) WITH THIN WAFER HEAD.
  - 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.
  - CONCRETE TO METAL STUDS: 0.157" DIA. SHOT PIN WITH MIN. 3/4" EMBEDMENT @ 16" O.C. SPACING. SEE STRUCTURAL.
- 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.
- DRYWALL CONTROL JOINTS ARE TO BE INSTALLED AT MINIMUM 30'-0" O.C. AT PARTITIONS AND ELSEWHERE AS NOTED.
- AT PARTITIONS HIGHER THAN 12'-0" PROVIDE HORIZONTAL LATERAL BRACINGS 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.
- ALL HFT FRAMING SHALL BE METAL STUDS.
- 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.
- ALL RATED WALLS TO FOLLOW U.L. DESIGN # U418
- REFER TO STRUCTURAL DRAWINGS FOR CONCRETE AND REINFORCING SPECIFICATIONS
- REFER TO SHEET S1.0 ON STRUCTURAL DRAWINGS FOR APPROVED ADHESIVE ANCHORING SYSTEMS.



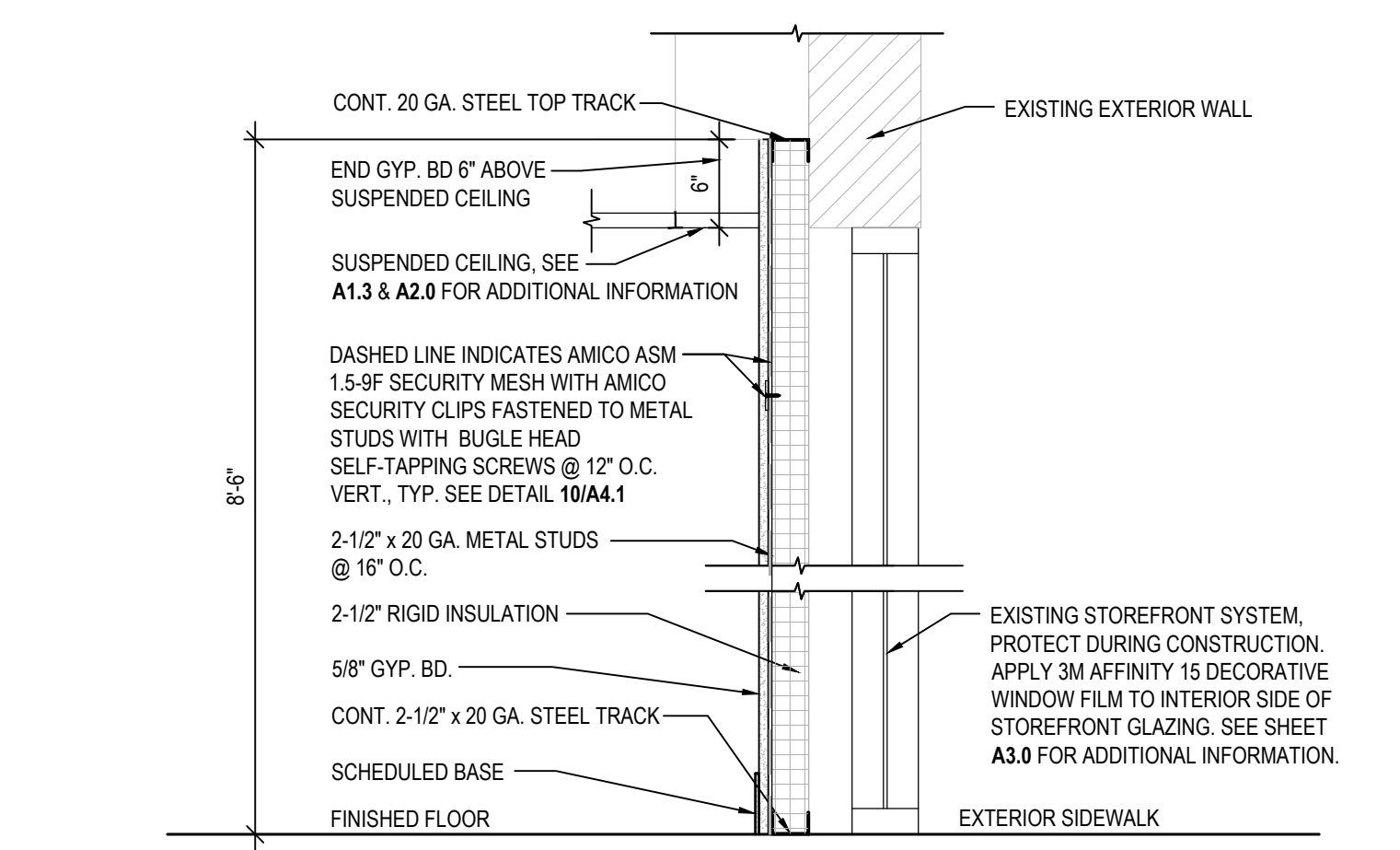
**2 LATERAL BRACING @ FREE - STANDING WALLS**  
SCALE: N.T.S.



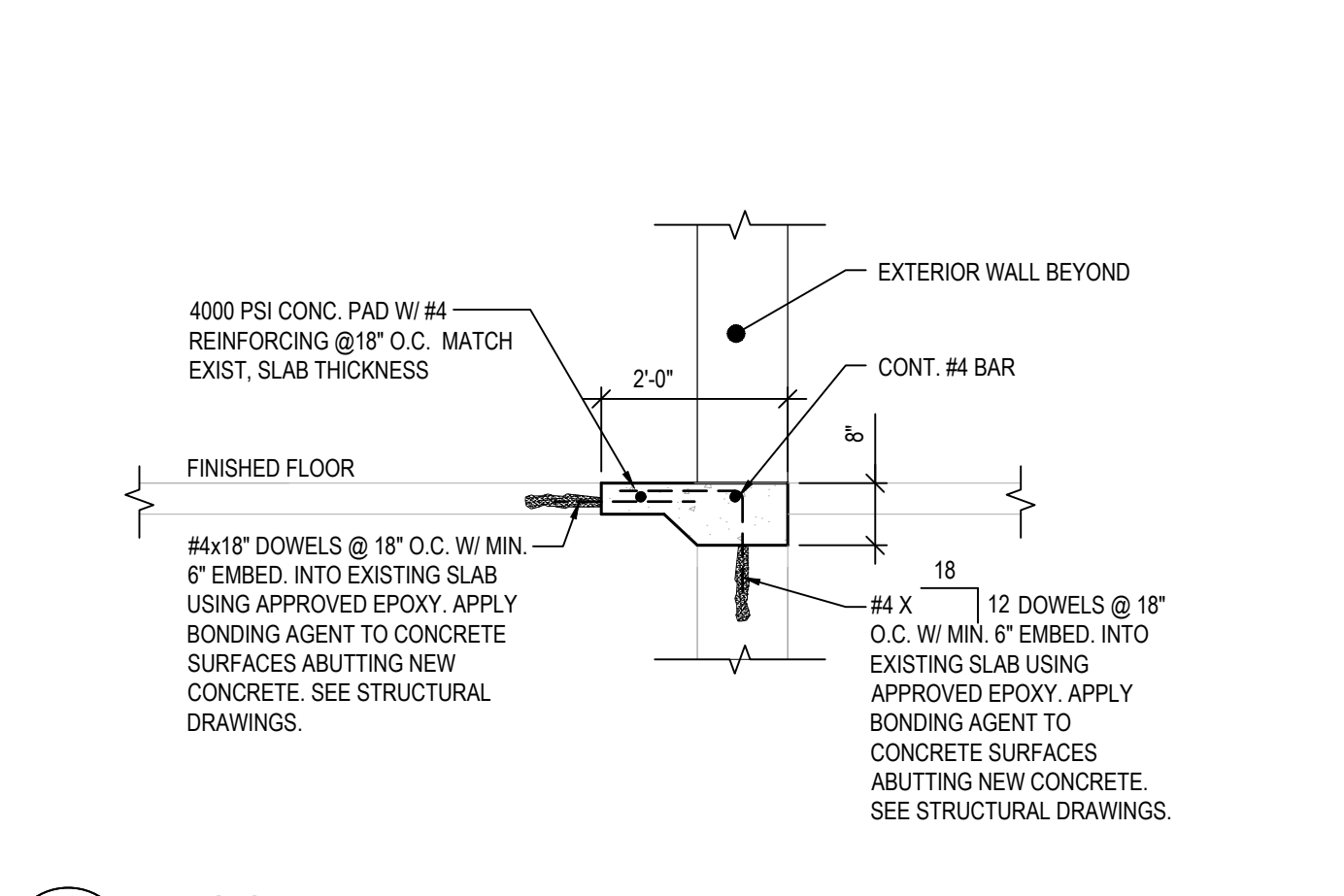
**1 MOP SINK - HWH SHELF DETAIL**  
SCALE: 1" = 1'-0"



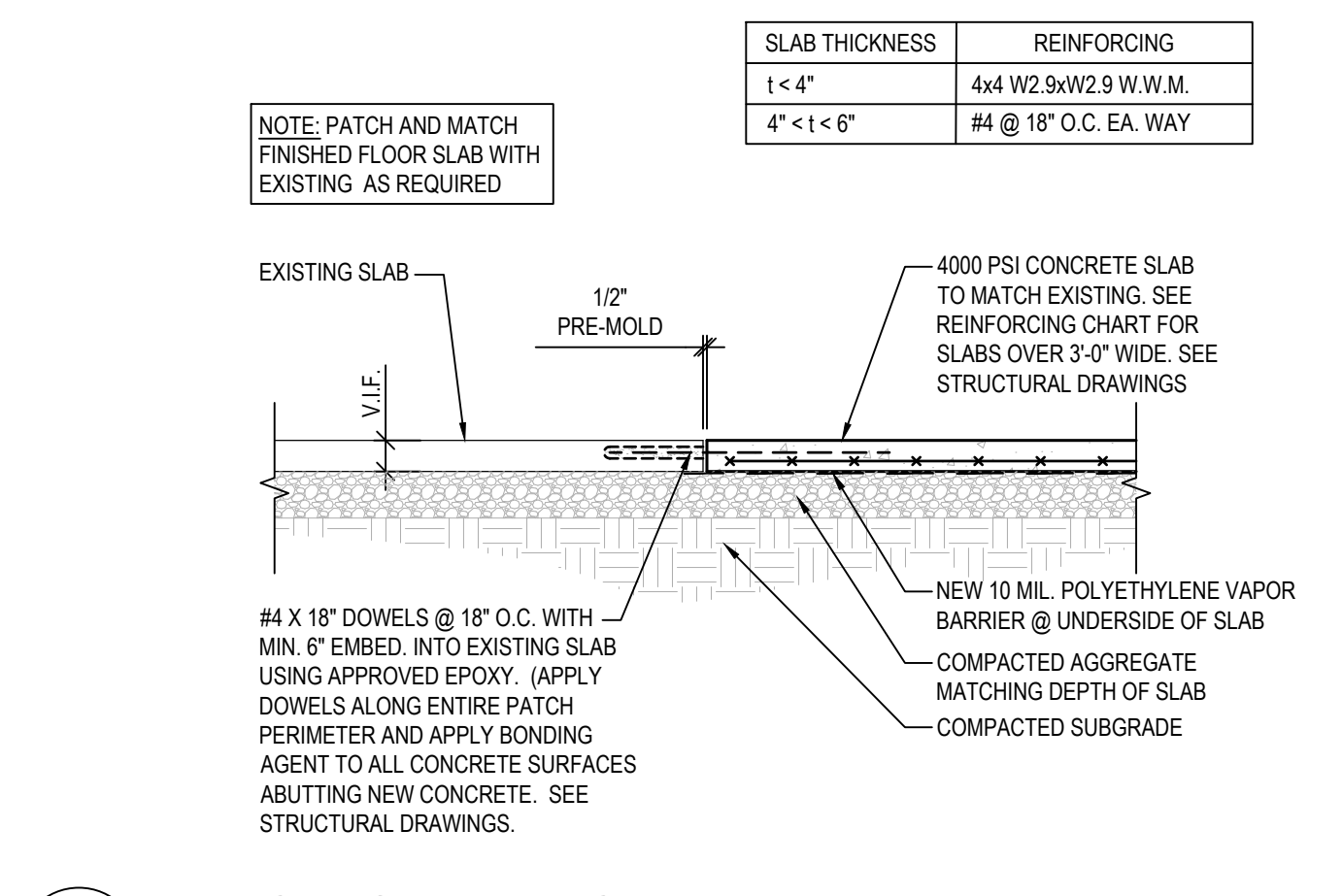
**E WALL TYPE E**  
SCALE: 1" = 1'-0"



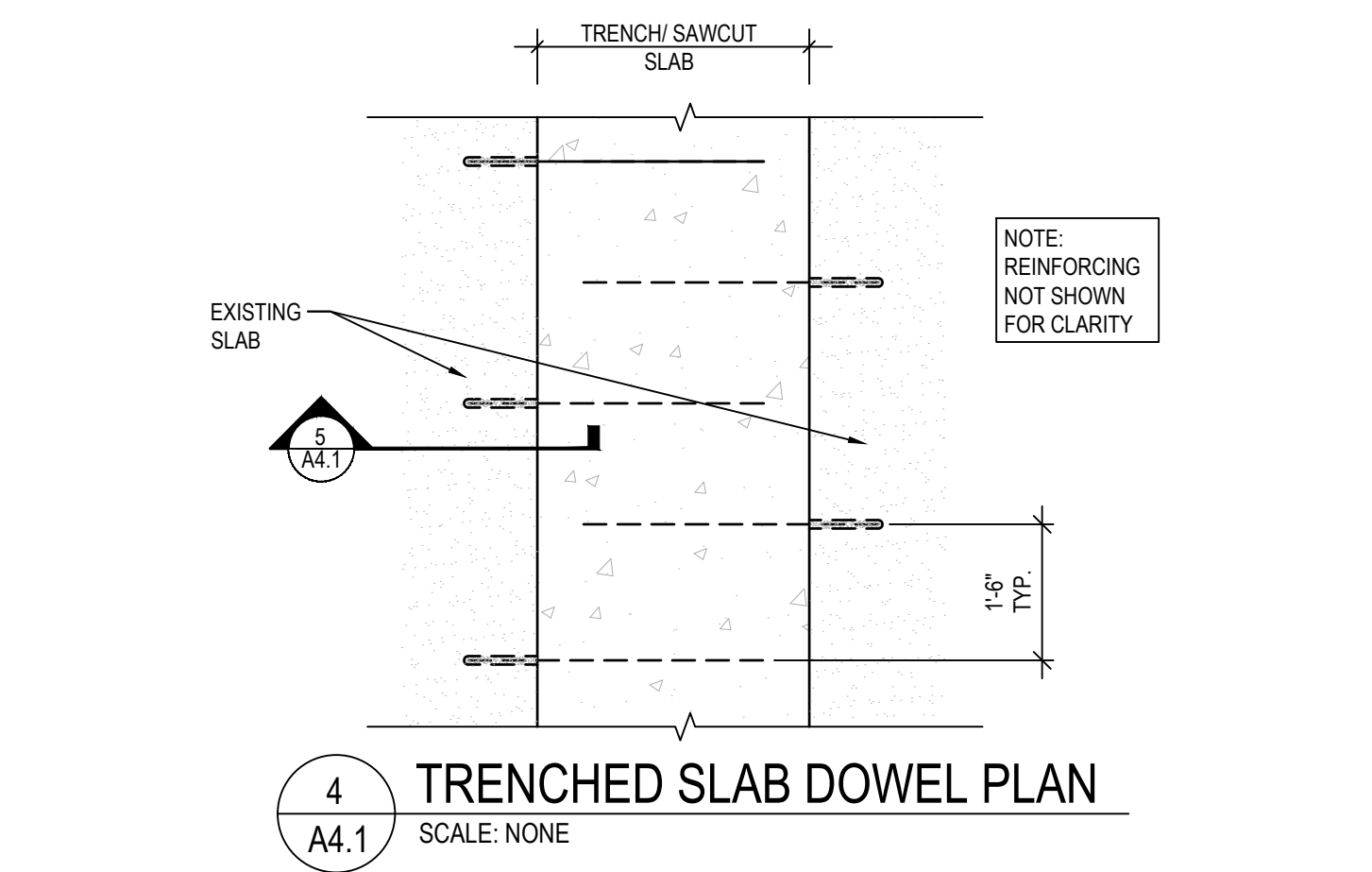
**D WALL TYPE D**  
SCALE: 1" = 1'-0"



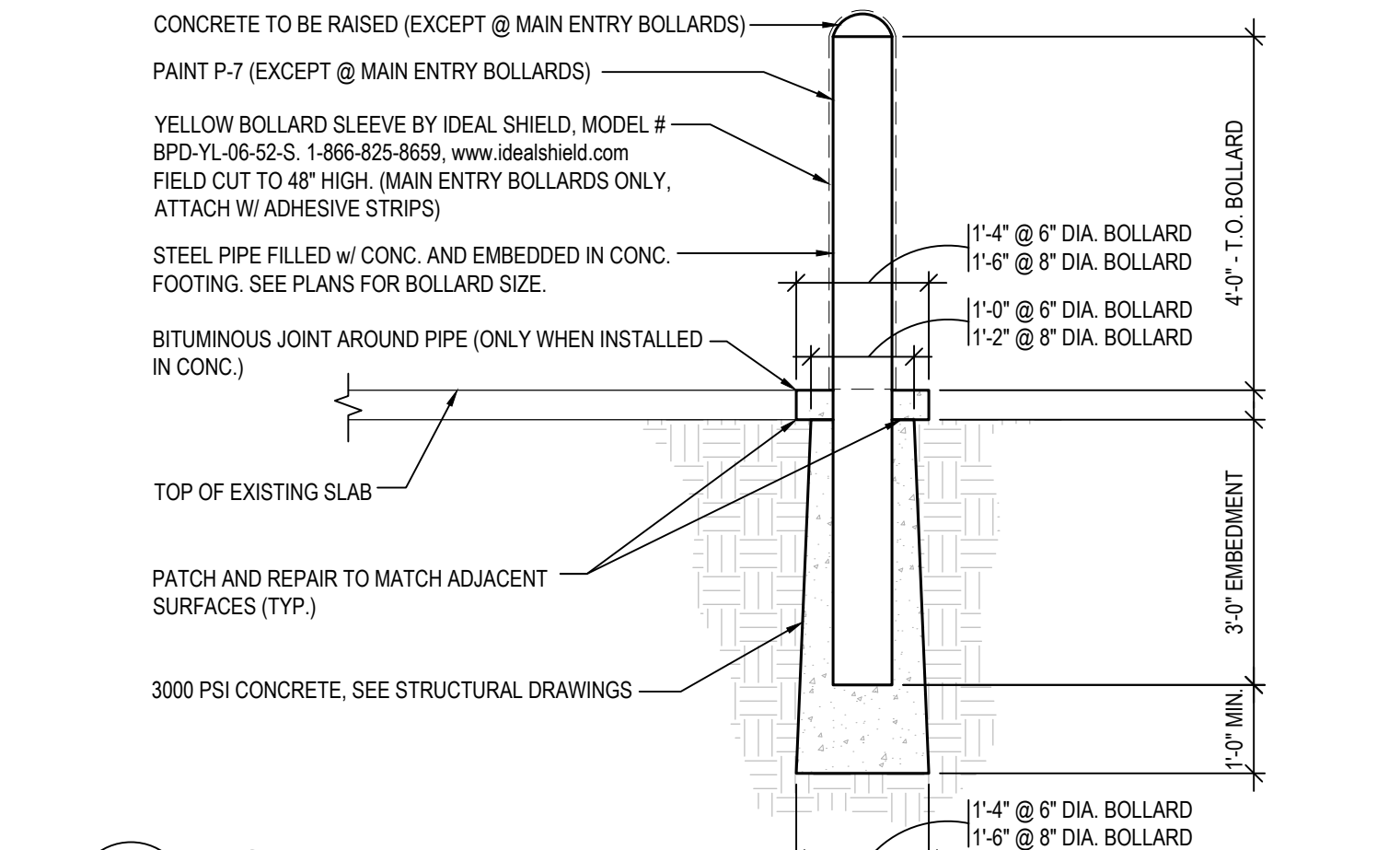
**6 FLOOR REPAIR DETAIL**  
SCALE: 1/2" = 1'-0"



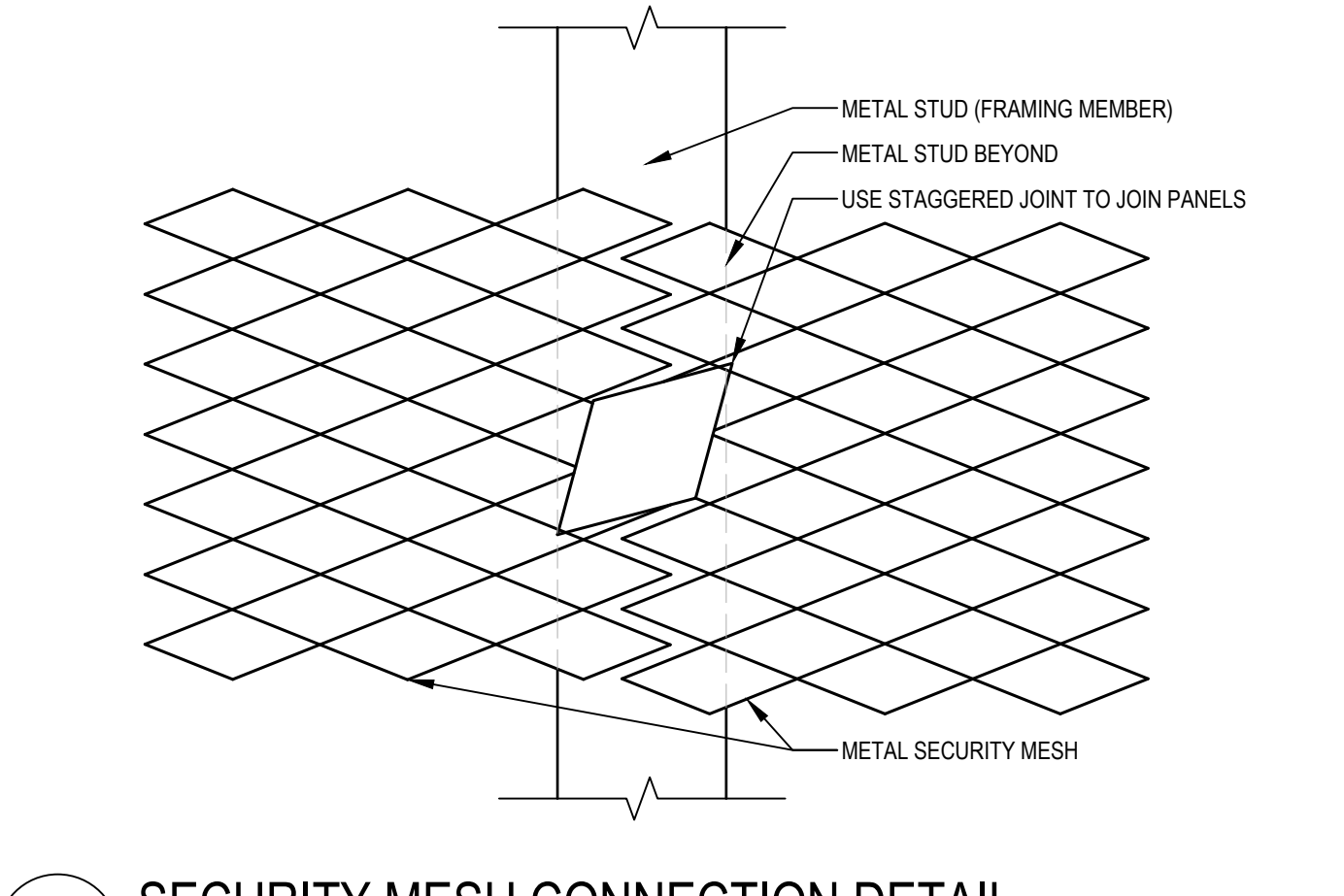
**5 TYPICAL SLAB PATCH DETAIL**  
SCALE: NONE



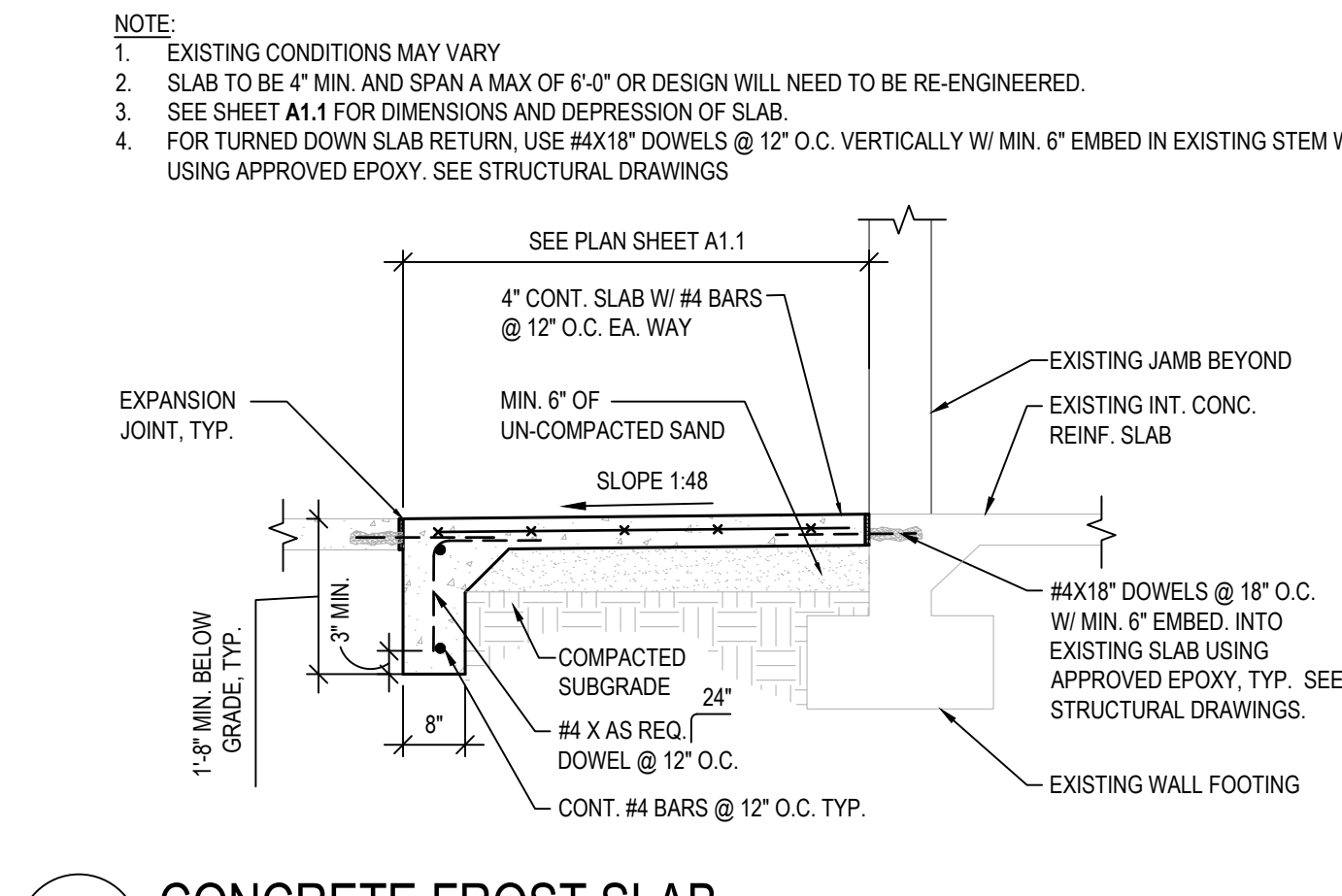
**4 TRENCHED SLAB DOWEL PLAN**  
SCALE: NONE



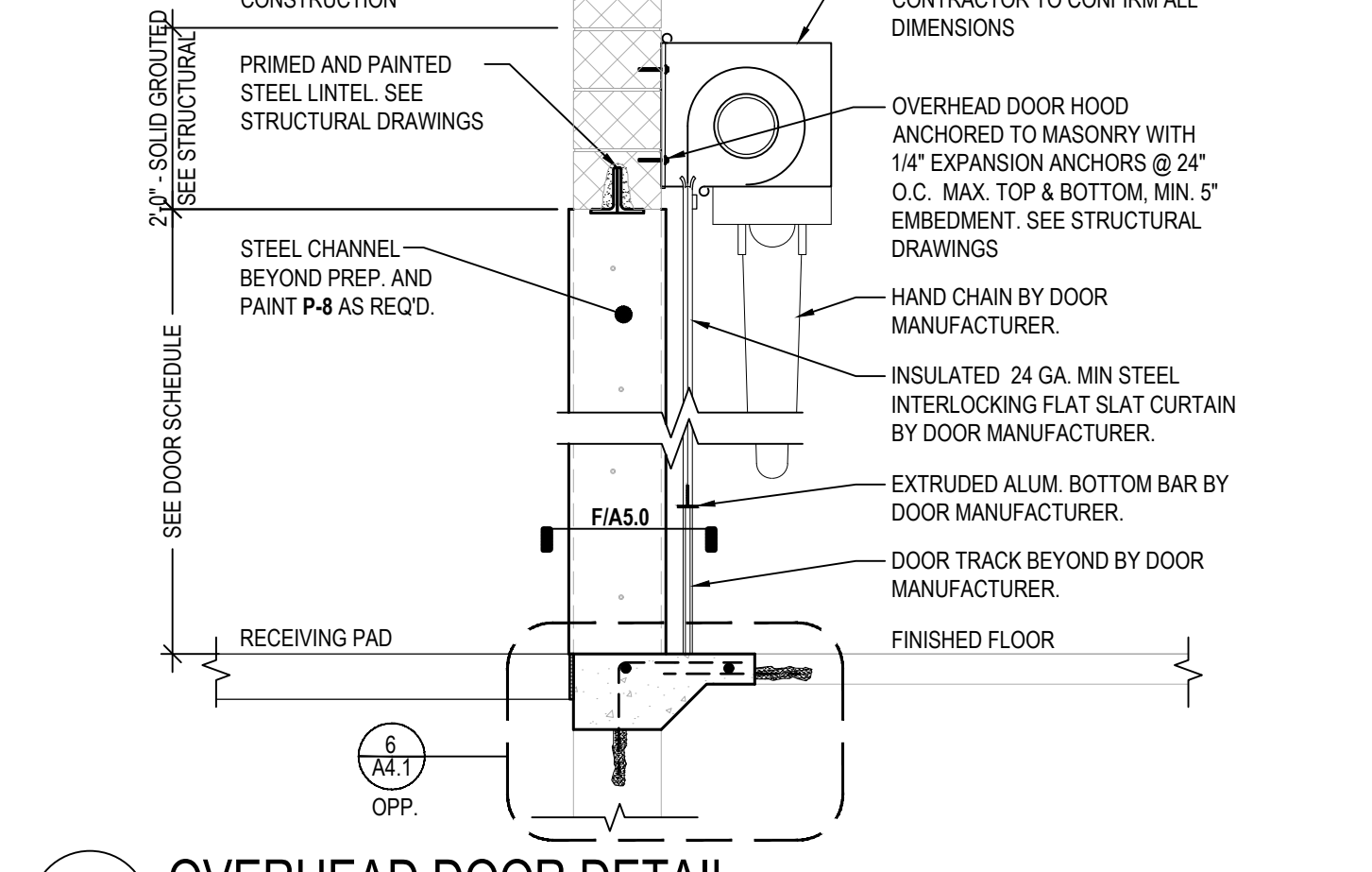
**3 BOLLARD DETAIL**  
SCALE: 1/2" = 1'-0"



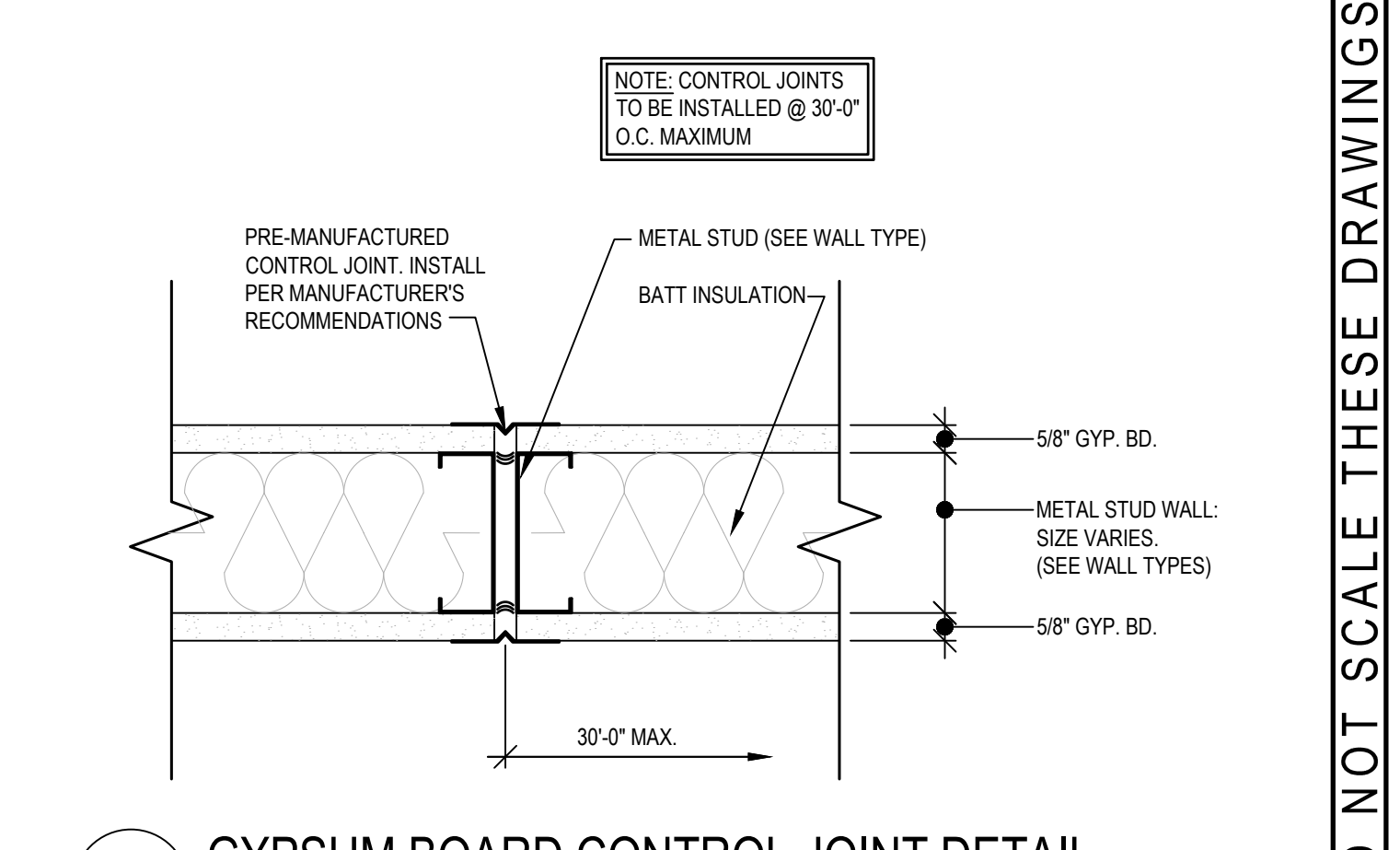
**10 SECURITY MESH CONNECTION DETAIL**  
SCALE: 3" = 1'-0"



**9 CONCRETE FROST SLAB**  
SCALE: 1/2" = 1'-0"



**8 OVERHEAD DOOR DETAIL**  
SCALE: 1/2" = 1'-0"



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

**ADDA ARCHITECTS**  
17710 Detroit Avenue  
Lakewood, Ohio 44107  
Phone (216) 521-1534  
Fax (216) 521-14824  
www.addaarchitects.com

**HARBOR FREIGHT**  
129 W CORNELIUS HARNETT BLVD.  
LILLINGTON, NC 27546

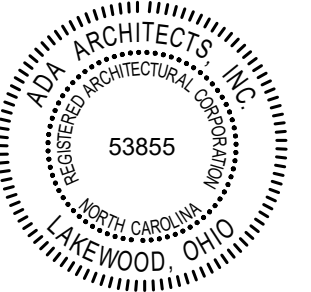
REVISIONS

| #  | DATE | TYPE |
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| 2  |      |      |
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WALL TYPES & DETAILS  
DATE 03/04/24  
JOB NO. 23591  
**A4.1**  
SHEET NO.

DO NOT SCALE THESE DRAWINGS





**ADA ARCHITECTS**

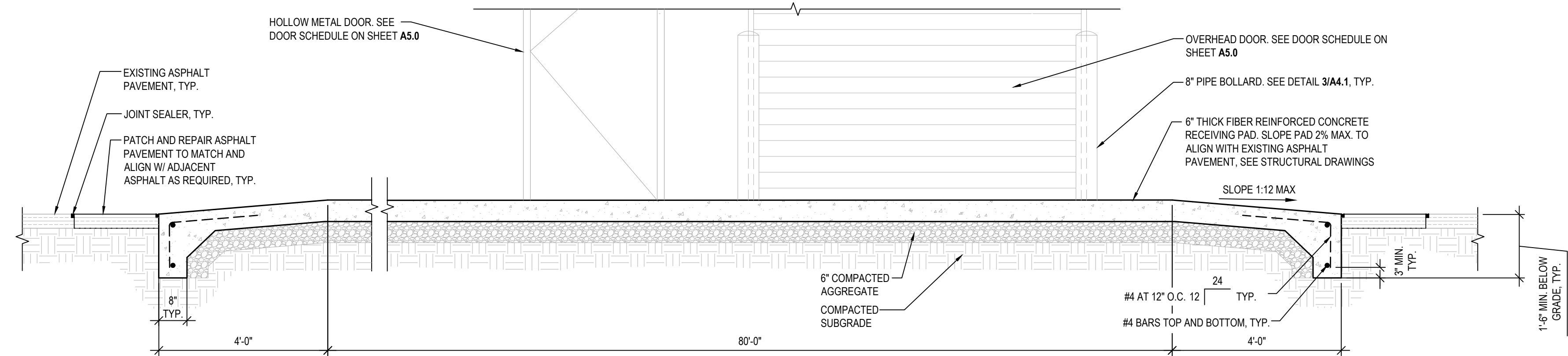
Lakewood, Ohio 44107  
 17710 Detroit Avenue  
 Phone (216) 521-5134 Fax (216) 521-4824  
 www.adaarchitects.com

# HARBOR FREIGHT

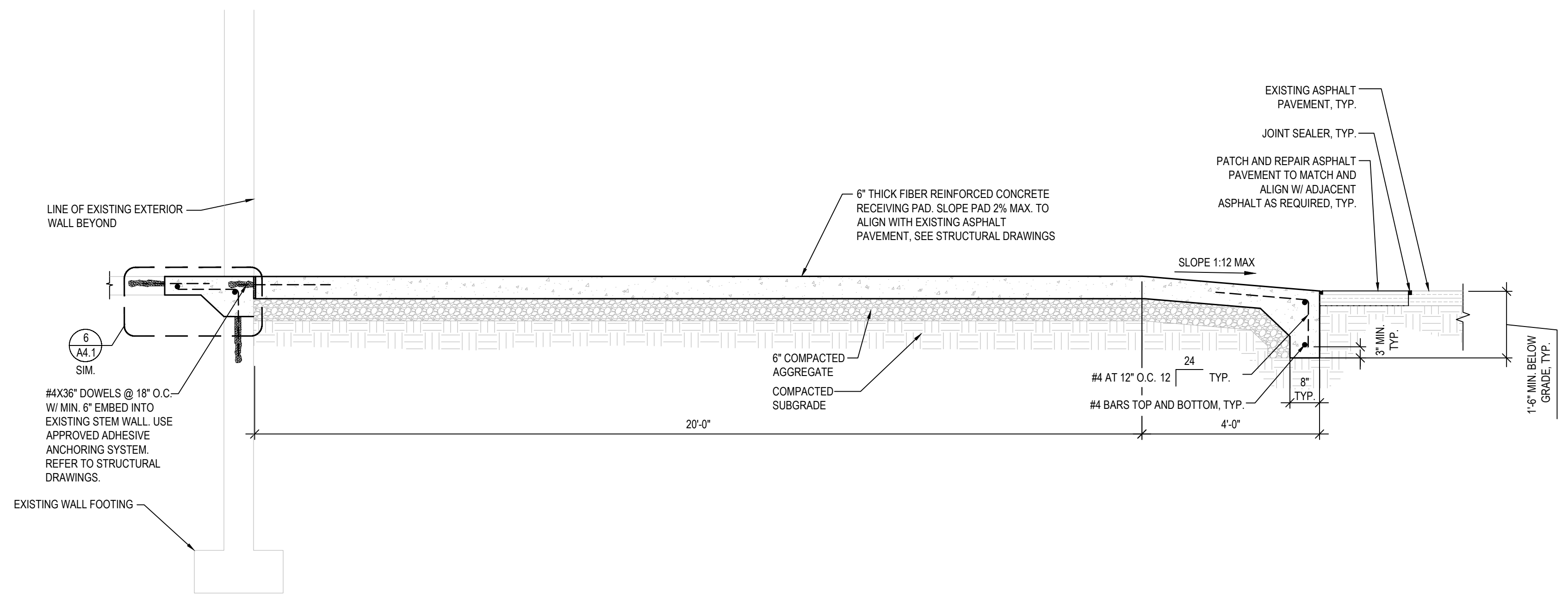
LILLINGTON, NC 27546

129 W CORNELIUS HARNETT BLVD.

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**2** CONCRETE RECEIVING PAD SECTION  
 A4.2 SCALE: 1/2"=1'-0"



**1** CONCRETE RECEIVING PAD SECTION  
 A4.2 SCALE: 1/2"=1'-0"

NOTE TO DESIGNER: 1% MIN. SLOPE AND 5% MAX SLOPE ALONG CONCRETE PAD AWAY FROM BUILDING. SLOPE ALONG TRAILER LOADING ZONE TO BE 3% MAX AWAY OR 1% MAX TOWARDS FORKLIFT STAGING AREA. DUE TO HFT DESIGN CRITERIA FOR FORKLIFT OPERATIONS. CONCRETE PAD DESIGN TO BE CONFIRMED WITH HFT PM.

DO NOT SCALE THESE DRAWINGS

| REVISIONS |      |
|-----------|------|
| #         | DATE |
| 1         |      |
| 2         |      |
| 3         |      |
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|---------------|----------|
| MISC. DETAILS |          |
| DATE          | 03/04/24 |
| JOB NO.       | 23591    |
| <b>A4.2</b>   |          |
| SHEET NO.     |          |

**DOOR AND FRAME SCHEDULE**

| DOOR NO. | SIZE                             | DOOR |             |                | FRAME     |       |                | FIRE LABEL | HARDWARE GROUP    | HEAD/JAMB DETAIL | REMARKS   |
|----------|----------------------------------|------|-------------|----------------|-----------|-------|----------------|------------|-------------------|------------------|---|
|          |                                  | TYPE | MAT'L       | FINISH         | TYPE      | MAT'L | FINISH         |            |                   |                  |   |
| (01A)    | 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 9/16" HIGH VELOCITY IMPACT RESISTANT GLAZING.                    |
| (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.   |
| (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.  |
| (08)     | 8'-0" x 10'-0" x 1 1/2"          | D    | MTL.        | GALV.          | BY MANF.  | MTL.  | PAINTED        | -          | 5                 | F/A5.0&A4.1      | CHAIN OPERATED INSULATED SERVICE DOOR FURNISHED AND INSTALLED BY O.H. DOOR VENDOR AT NEW OPENING. VERIFY OPENING SIZE IN FIELD BEFORE ORDERING DOOR. SEE DOOR SCHEDULE NOTES. INSTALL ADDRESS ON THIS DOOR. |
| (09)     | 3'-0" x 7'-0" x 1 3/4"           | C    | H.M.        | PAINTED        | 3         | H.M.  | PAINTED        | -          | 6                 | C&D/A5.0         | VERIFY OPENING SIZE IN FIELD BEFORE ORDERING DOOR. SEE DOOR SCHEDULE NOTES. DO NOT INSTALL ADDRESS ON THIS DOOR.  |
| (10)     | 3'-0" x 7'-0" x 1 3/4"           | C    | H.M.        | PAINTED        | 3         | H.M.  | PAINTED        | -          | 6A                | G&H/A5.0         | VERIFY OPENING SIZE IN FIELD BEFORE ORDERING DOOR. SEE DOOR SCHEDULE NOTES. DO NOT INSTALL ADDRESS ON THIS DOOR.  |

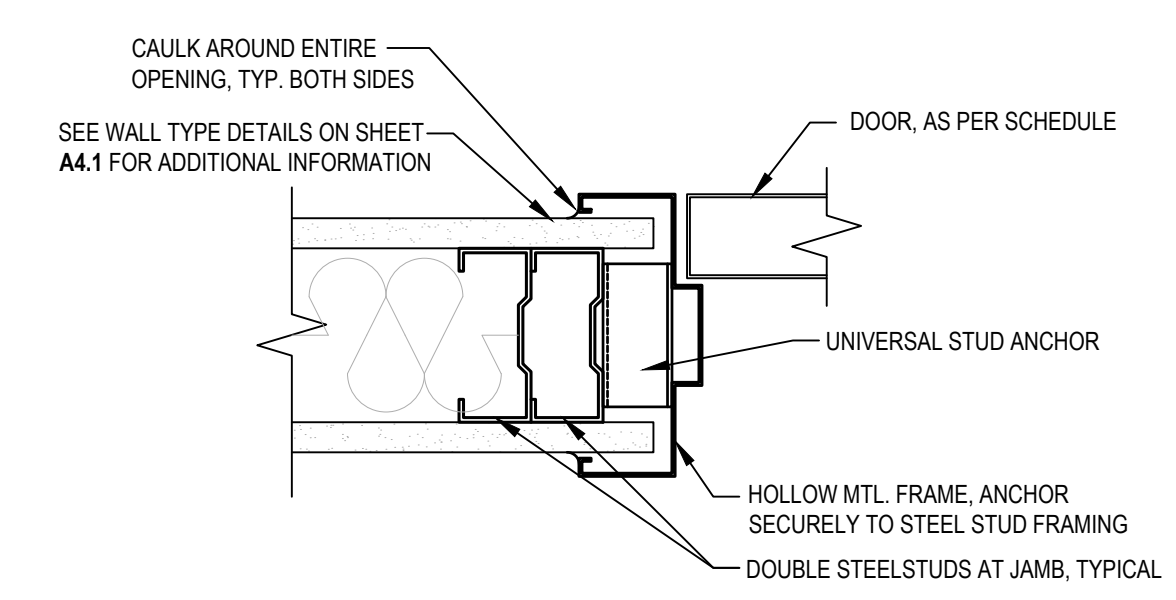
**HARDWARE GROUP**

| GROUP #1 (MANAGER UTILITY)                                 | GROUP #2 (SUPPORT OFFICE DOORS)                           | GROUP #3 (BREAK ROOM)   | GROUP #4 (RESTROOMS)  | GROUP #5 (OVERHEAD DOORS)  | GROUP #6 (ALARMED) (SINGLE EXIT DOORS)                    |
|--|---|---|---|--|---|
| BUTTS: 1- 1/2" PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.  | BUTTS: 1- 1/2" PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D. | BUTTS: 1- 1/2" PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D.   | BUTTS: 1- 1/2" PAIR HAGER ECB1100, 4 1/2" x 4 1/2" x US26D.         | DOOR PANELS: 2-3/4" INSULATED STEEL INTERLOCKING FLAT SLAT CURTAIN W/ ENDLOCKS @ BOTH ENDS BY VENDOR SCHLAGE KS41F1200   | 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 SET: FALCON 'STOREROOM' LEVER W581HD-D-626          | LATCH SET: FALCON 'PASSAGE' LEVER W101S-D-626   | LATCH SET: FALCON 'PASSAGE' LEVER W101S-D-626 (MULTI-USE RESTROOMS) |  | EXIT DEVICE: VON DUPRIN GUARD-X 2670-US28                 |
| LATCH GUARD: DON-JO ILP-212-SL                             | LATCH GUARD: DON-JO ILP-212-SL                            | CLOSER: FALCON SC71 RW / PA-689 (MTD. ON INSIDE)  | FALCON 'PRIVACY' LEVER T301S-D-626 (SINGLE-USE RESTROOMS)           | CYLINDER CORE: FALCON C649 (HCK, IHK)-626 SCHLAGE 80-035-GRN 24 GA. MIN. GALVANIZED STEEL BY VENDOR HAND CHAIN BY VENDOR | CYLINDER CORE: FALCON C207-SC-C26D                        |
| CYLINDER CORE: FALCON C649 (CKWY-7 PIN)-626                | DEAD BOLT: FALCON D241H-50-231F-7 PIN-626                 | CYLINDER CORE: (2) FALCON C649 (CKWY-7 PIN)-626   | CYLINDER CORE: (3) ROCKWOOD 608-26D                                 |  | CONST. CORE: FALCON C607 CCA 7-PIN                        |
| CLOSER: FALCON SC71 RW / PA-689 (MTD. ON INSIDE)           | CYCLOSP: FALCON SC71 RW / PA-689 (MTD. ON INSIDE)         | KICKPLATE: ROCKWOOD K1050 - 10x34 US32D   | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                            |  | HOUSING: FALCON C953 (CKWY 7-PIN) 626                     |
| KICKPLATE: ROCKWOOD K1050 - 10x34 US32D                    | CYCLOSP: FALCON SC71 RW / PA-689 (MTD. ON INSIDE)         | SILENCER: (3) ROCKWOOD 608-26D  | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                            |  | CLOSER: FALCON SC71 RW / PA-689 (MTD. INSIDE)             |
| SILENCER: (3) ROCKWOOD 608-26D                             | KICKPLATE: ROCKWOOD K1050 - 10x34 US32D                   | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP  | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                            |  | KICKPLATE: ROCKWOOD K1050 - 10x34 US32D                   |
| FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                   | SILENCER: (3) ROCKWOOD 608-26D                            | DOOR VIEWER: ROCKWOOD 622-26D (DOOR VIEWERS FOR MANAGER OFFICE SIDE OF DOORS ONLY - NO DOOR VIEWERS INSTALLED ON UTILITY DOORS) | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                            |  | DOOR STOP: ROCKWOOD 472-26D STOP W/ KEEPER                |
| DOOR VIEWER: ROCKWOOD 622-26D                              | FLOOR STOP: ROCKWOOD 441-US26D DOME STOP                  | DOOR VIEWER: ROCKWOOD 622-26D   | DOOR VIEWER: ROCKWOOD 441-US26D DOME STOP                           |  | DOOR VIEWER: DOORSOPE 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)            |

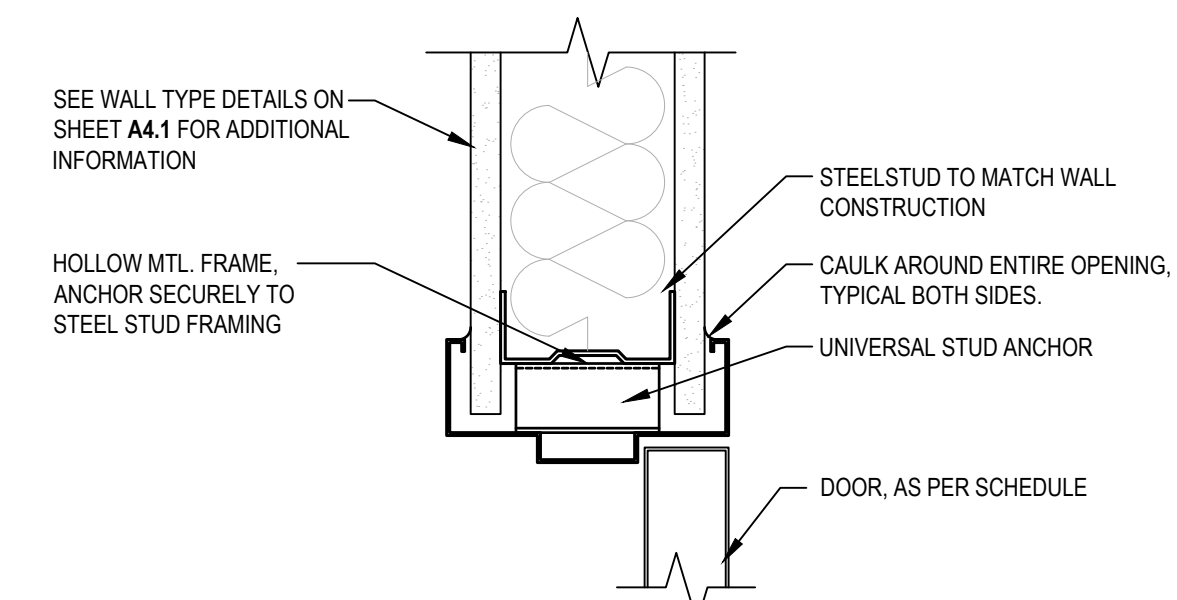
**DOOR SCHEDULE NOTES**

- RATED DOORS SHALL BE A TIGHT-FITTING SMOKE AND DRAFT CONTROL ASSEMBLY.
- 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.
- ALL INTERIOR / EXTERIOR METAL DOORS SHALL BE 20 GA. MINIMUM.
- ALL DOOR HARDWARE SHALL BE LEVER TYPE OR PANIC HARDWARE.
- EXTERIOR DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE OR EFFORT.
- OPENINGS SHALL BE A MINIMUM OF 32" WIDE WHEN DOOR IS AT RIGHT ANGLE TO CLOSED POSITION.
- BOTTOM 10" OF ALL DOORS SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE FOR OPENING BY WHEELCHAIR FOOT REST.
- 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 TO EXCEED 14 LBS. W/ CLOSURE. SUBMIT HARDWARE CUT SHEETS FOR ANY ALTERNATES TO HFT REPRESENTATIVE PRIOR TO ORDERING HARDWARE FOR APPROVAL.
- REPLACE ALL EXISTING HARDWARE, TO COMPLY WITH HARDWARE SCHEDULE.
- 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.
- CONTRACTOR SHALL COORDINATE KEYING OF LOCKS WITH OWNER PRIOR TO INSTALLATION.
- ALL HARDWARE LISTED TO BE SUPPLIED BY LISTED MANUFACTURER OR EQUAL.
- ALL DOOR HARDWARE TO BE BRUSHED CHROME FINISH.
- 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.
- INTERIOR DOORS AND FRAMES TO BE PAINTED P-8. SEE FINISH SCHEDULE ON SHEET A1.3.
- BI-PARTING DOOR THRESHOLDS TO BE PROVIDED AND INSTALLED BY DOOR VENDOR.
- PROVIDE 8" HIGH WHITE VINYL NUMBERS STATING STREET ADDRESS IN HELVETICA FONT STYLE ON TRANSOM AT MAIN ENTRY DOOR.
- INTERIOR DOOR FRAMES SHALL BE MIN. 20GA. U.N.O. EXTERIOR DOOR FRAMES SHALL BE MIN. 16GA. WELDED FRAMES, U.N.O.
- ALL EXTERIOR DOORS TO BE ALARMED, U.N.O.

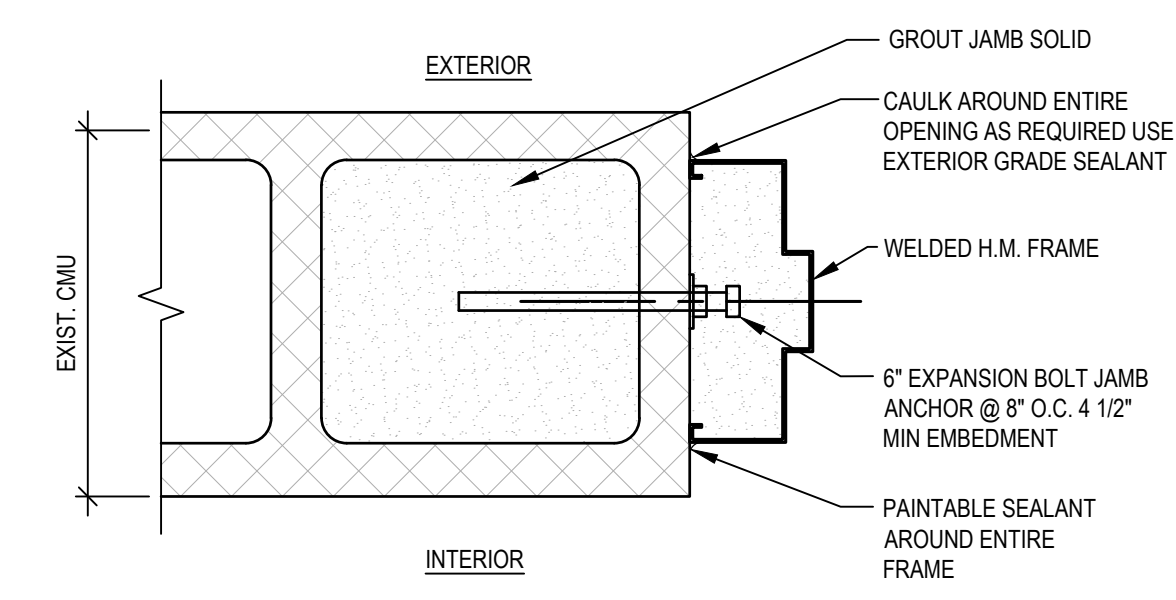
| GROUP #6A (ALARMED) (SINGLE EXIT DOORS)                   | NOTE: (NO HARDWARE ON EXTERIOR SIDE, U.N.O.) |
|---|--|
| BUTTS: 1- 1/2" PAIR MCKINNEY MP 79, 4 1/2" x 4 1/2", 26D. |  |
| EXIT DEVICE: VON DUPRIN GUARD-X 2670-US28                 |  |
| CYLINDER CORE: FALCON C207-SC-C26D                        |  |
| CONST. CORE: FALCON C607 CCA 7-PIN                        |  |
| HOUSING: FALCON C953 (CKWY 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: DOORSOPE 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)            |  |



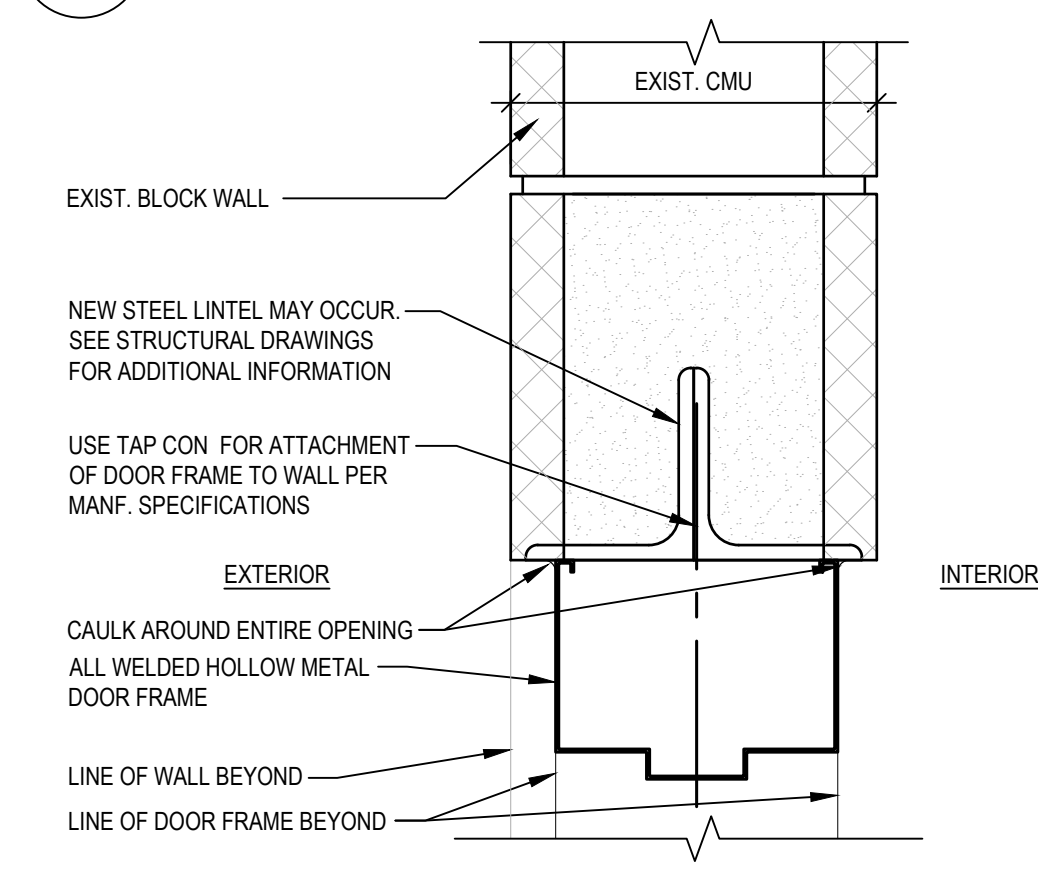
**A TYP. INTERIOR DOOR JAMB DETAIL**  
A5.0 SCALE: 3" = 1'-0"



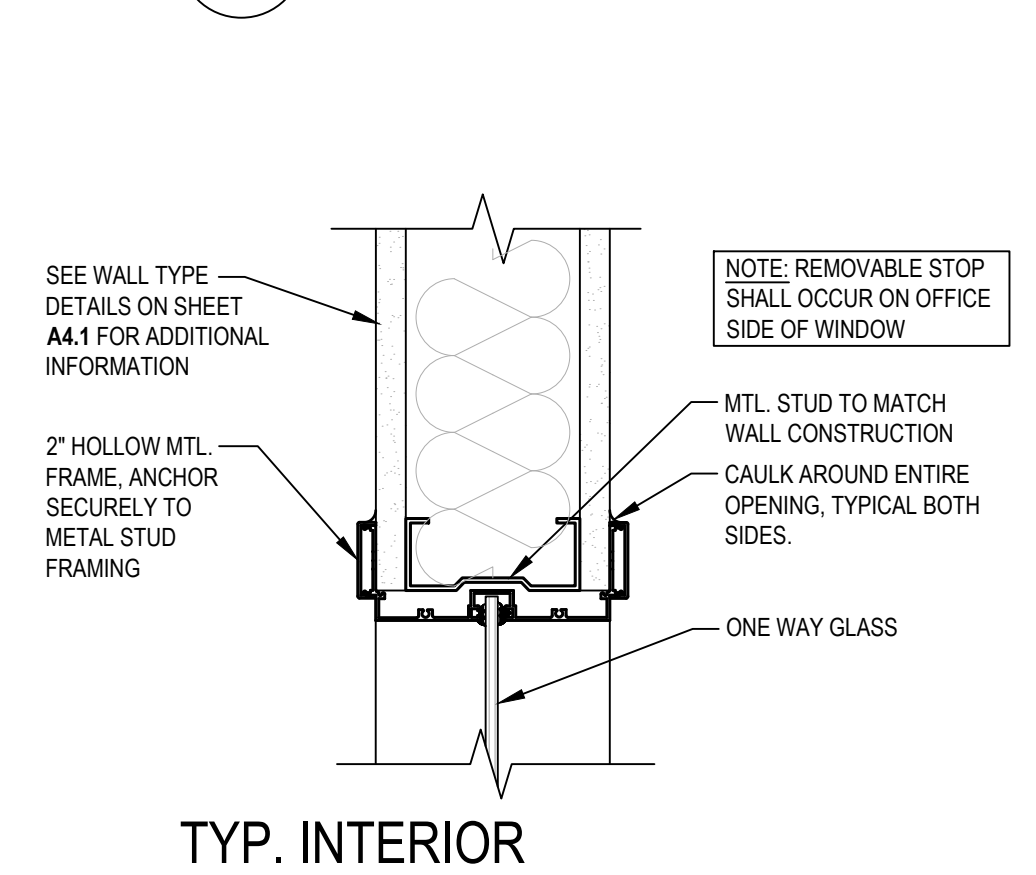
**B TYP. INTERIOR DOOR HEAD DETAIL**  
A5.0 SCALE: 3" = 1'-0"



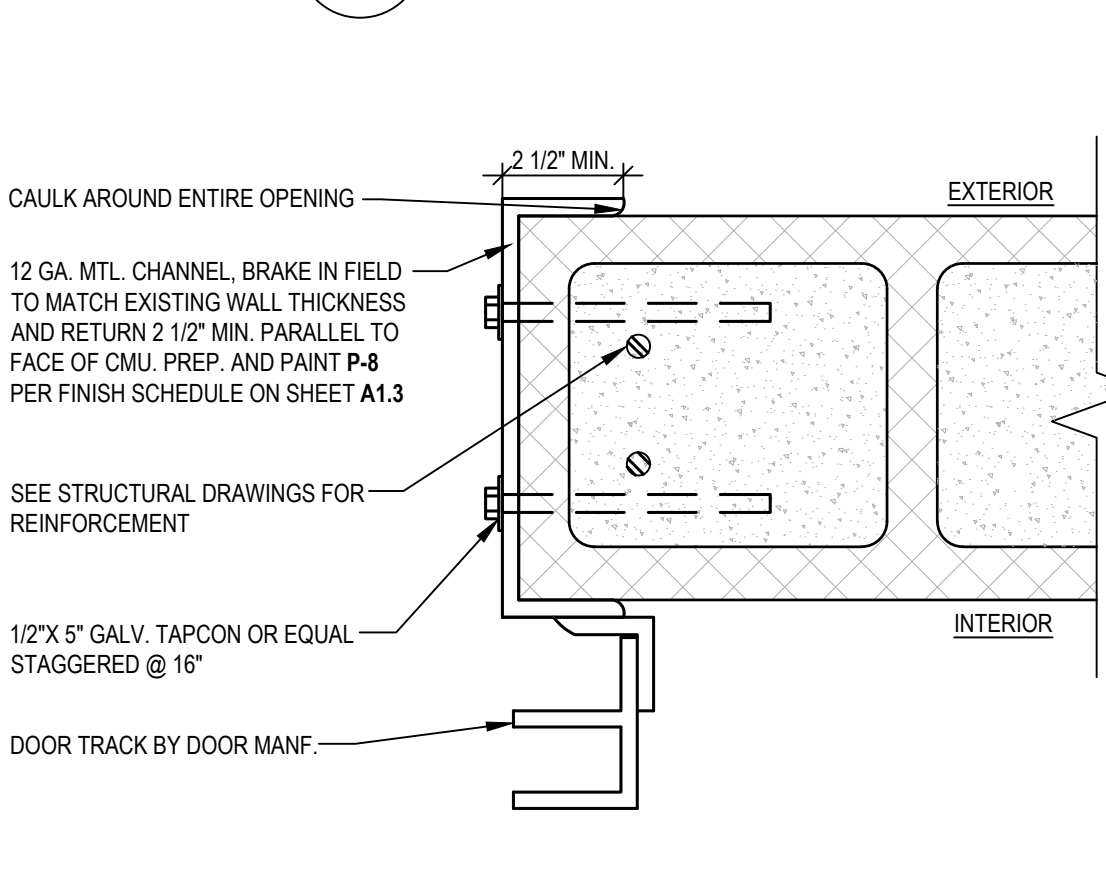
**C TYP. EXTERIOR DOOR JAMB DETAIL**  
A5.0 SCALE: 3" = 1'-0"



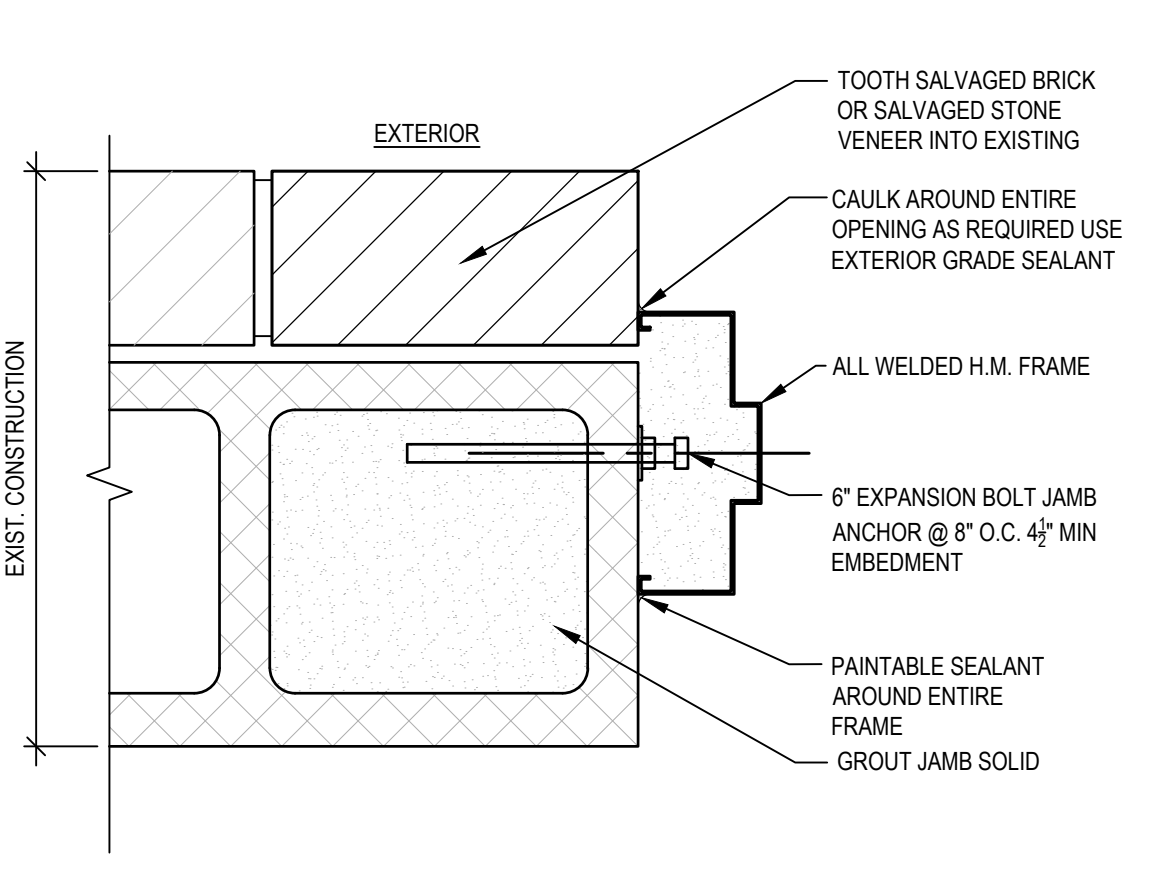
**D TYP. EXTERIOR DOOR HEAD DETAIL**  
A5.0 SCALE: 3" = 1'-0"



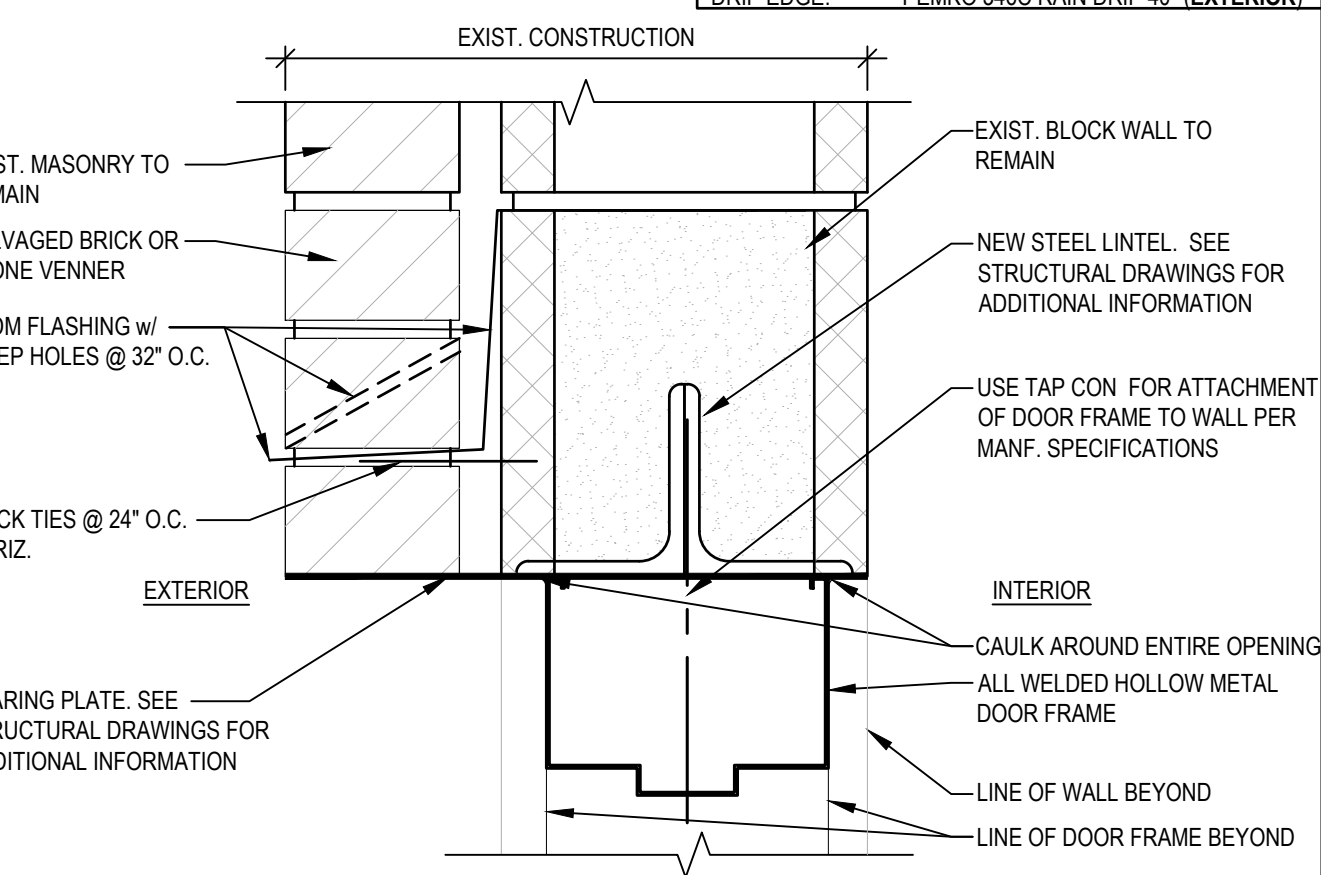
**E TYP. INTERIOR WINDOW HEAD DETAIL**  
A5.0 SCALE: 3" = 1'-0"



**F OVERHEAD DOOR JAMB**  
A5.0 SCALE: 3" = 1'-0"

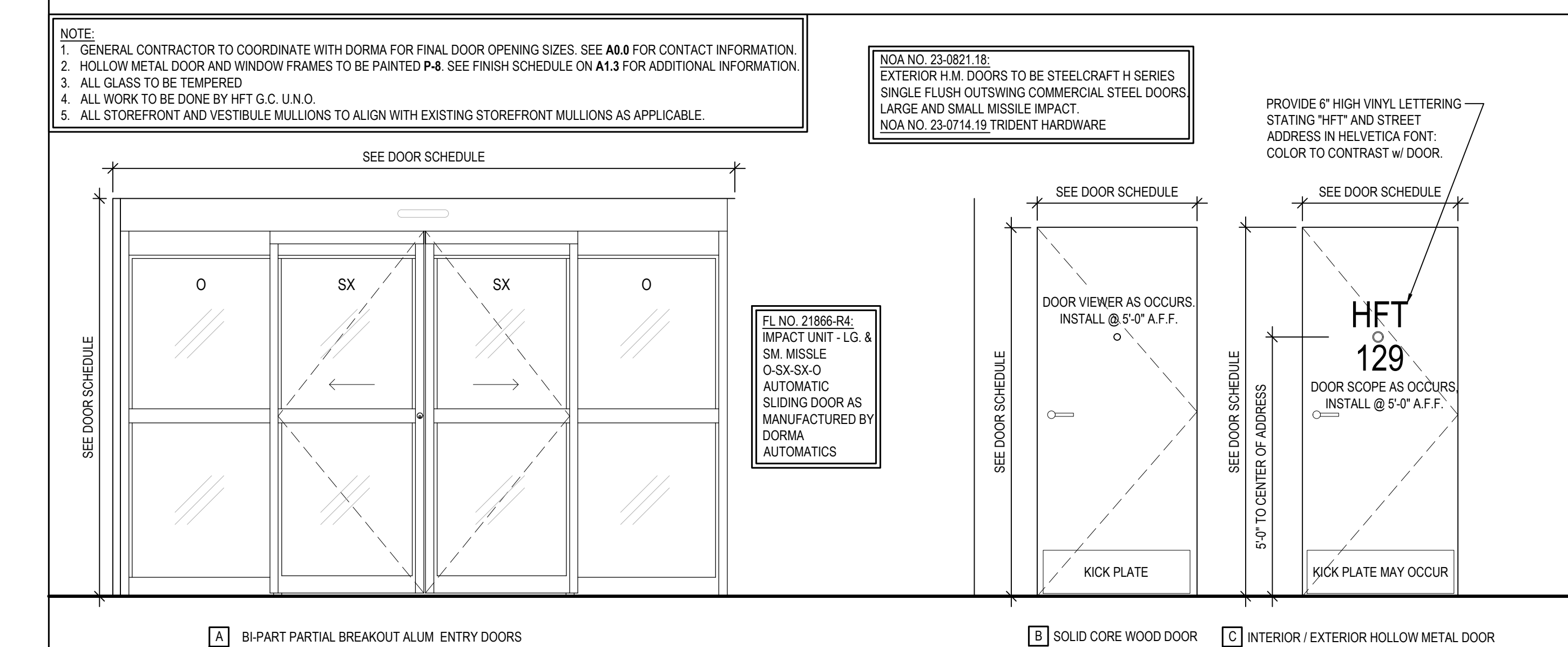


**G TYP. EXTERIOR DOOR JAMB DETAIL**  
A5.0 SCALE: 3" = 1'-0"

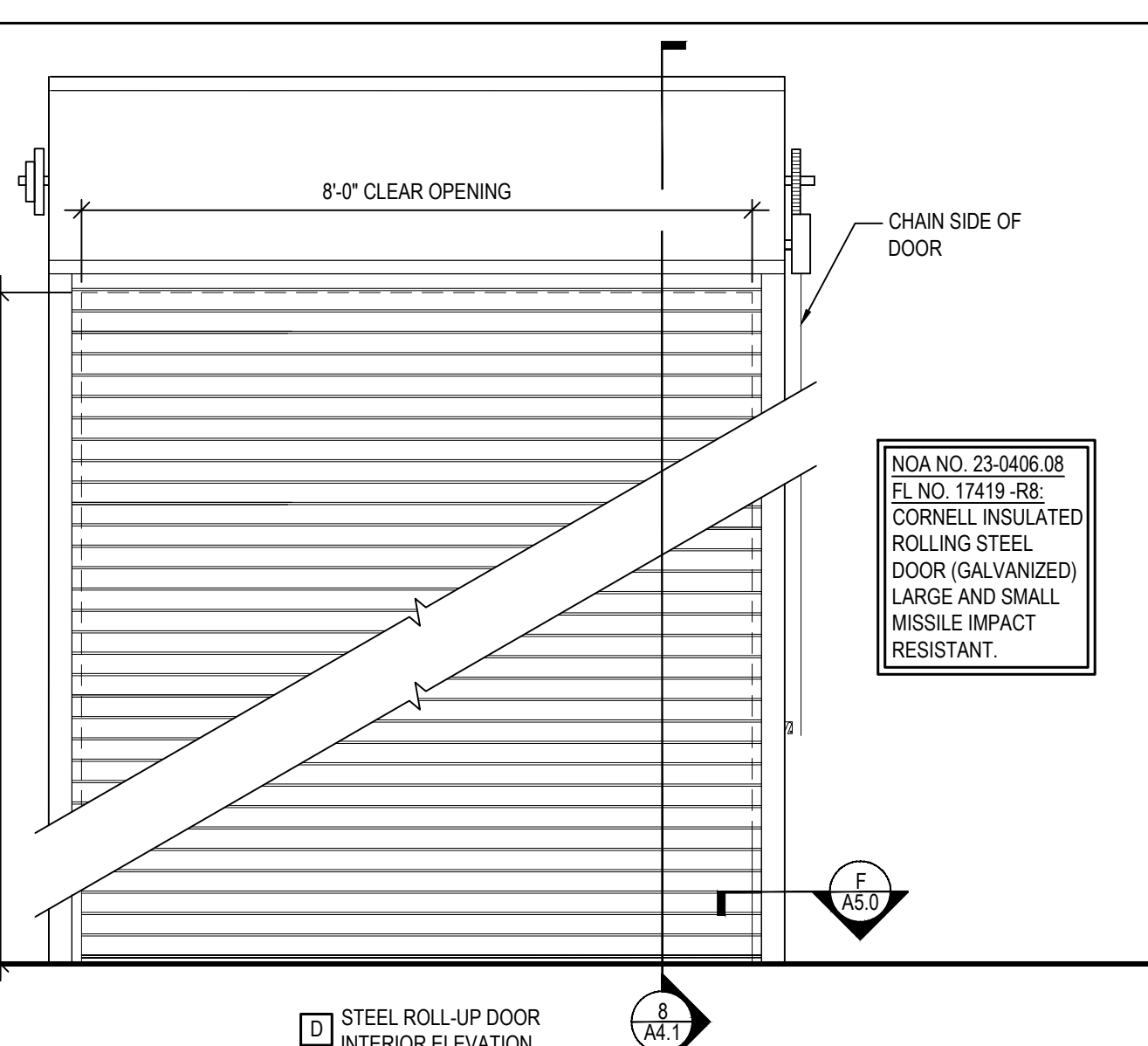


**H TYP. EXTERIOR DOOR HEAD DETAIL**  
A5.0 SCALE: 3" = 1'-0"

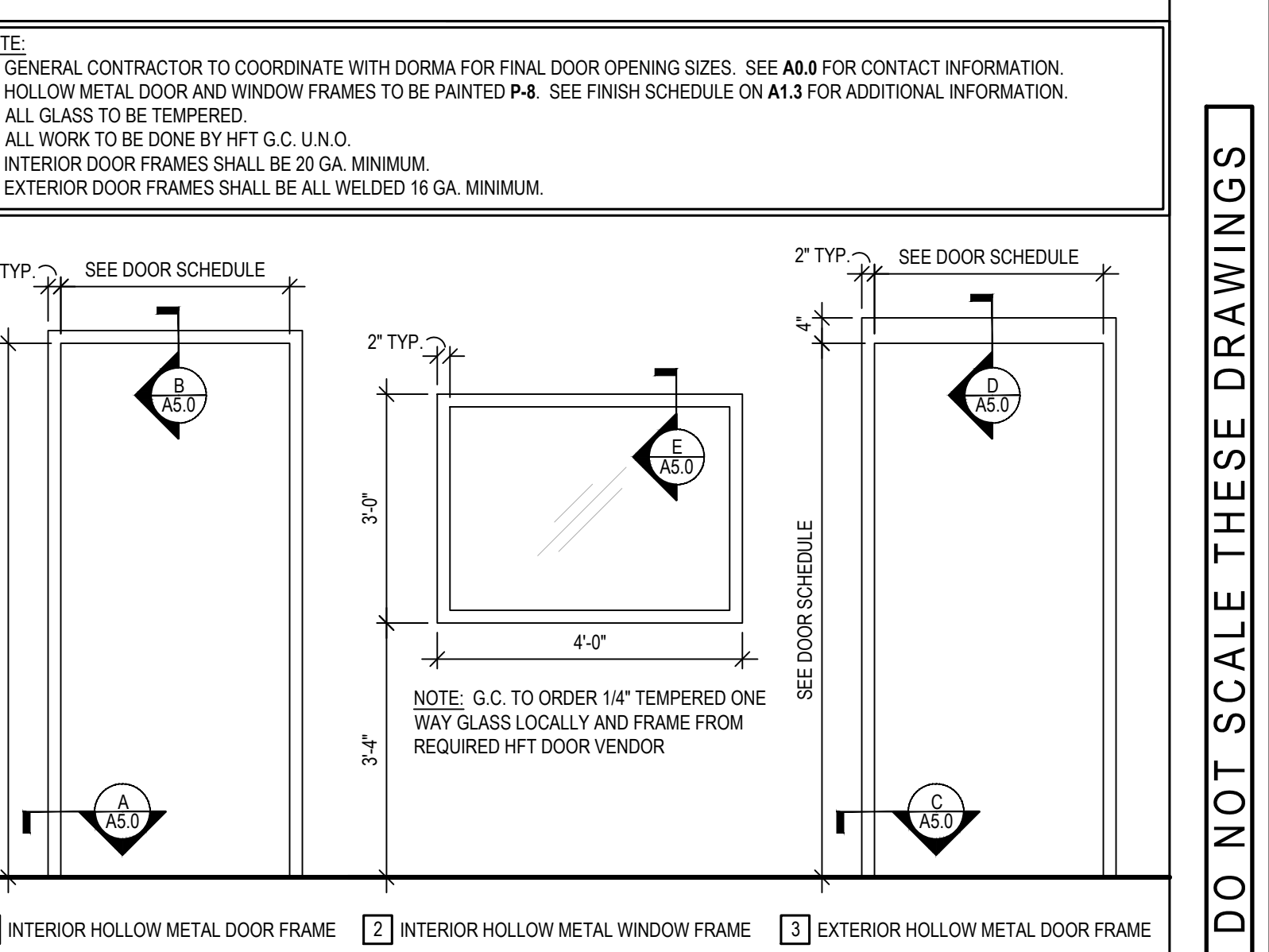
**DOOR TYPES**



**A BI-PART PARTIAL BREAKOUT ALUM ENTRY DOORS (ESA200 SERIES BY DORMA)**

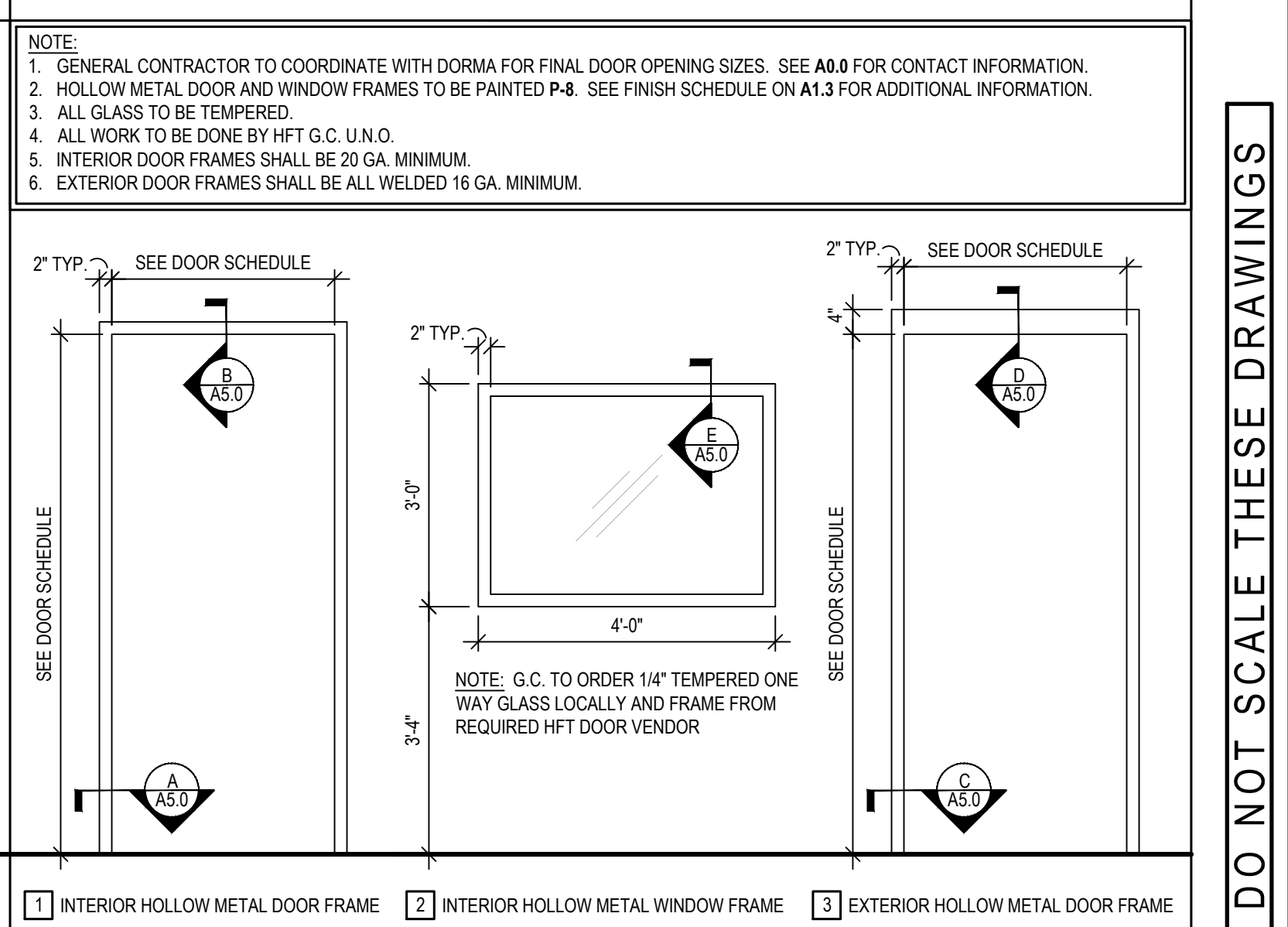


**B SOLID CORE WOOD DOOR**

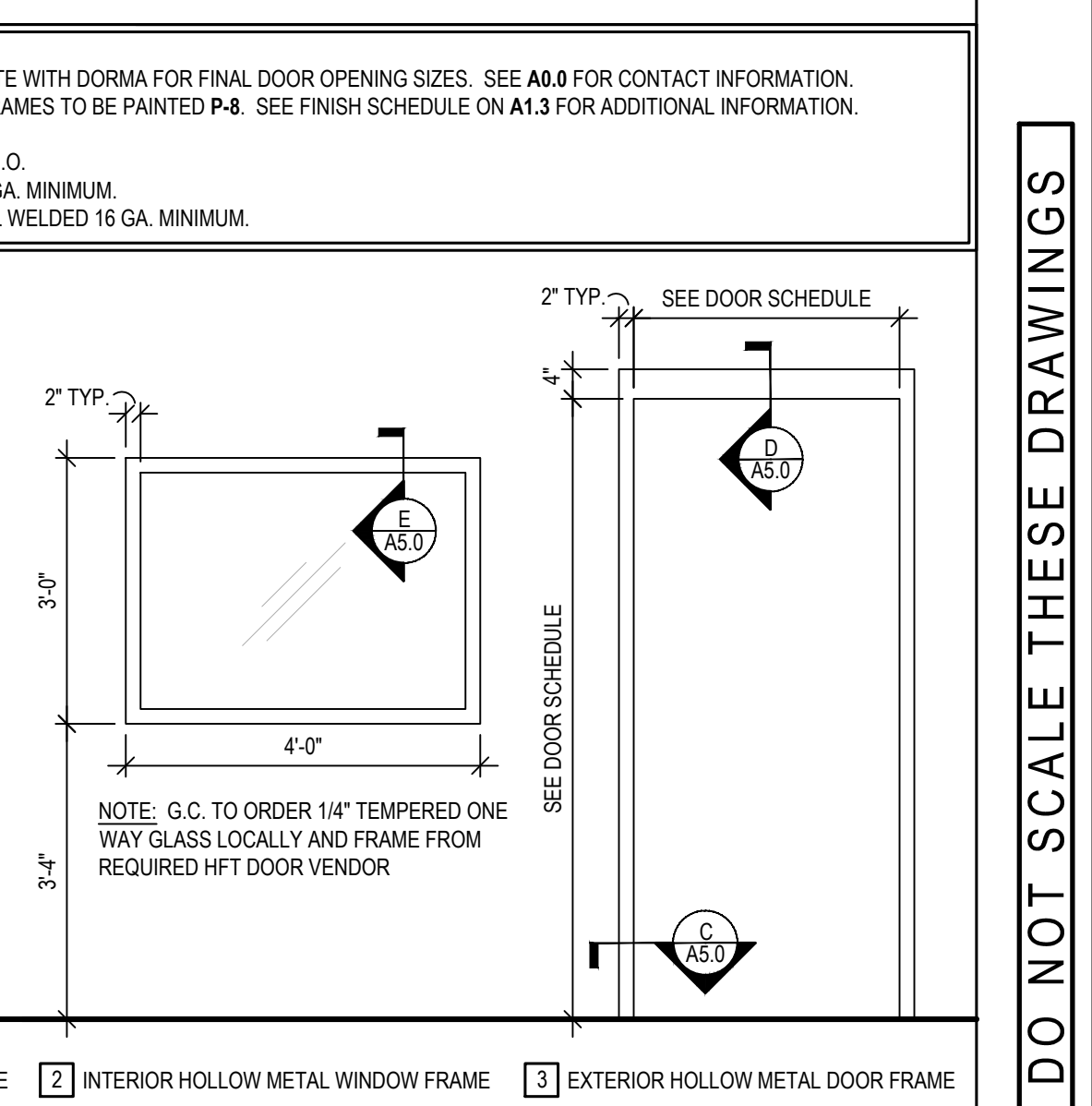


**C INTERIOR / EXTERIOR HOLLOW METAL DOOR**

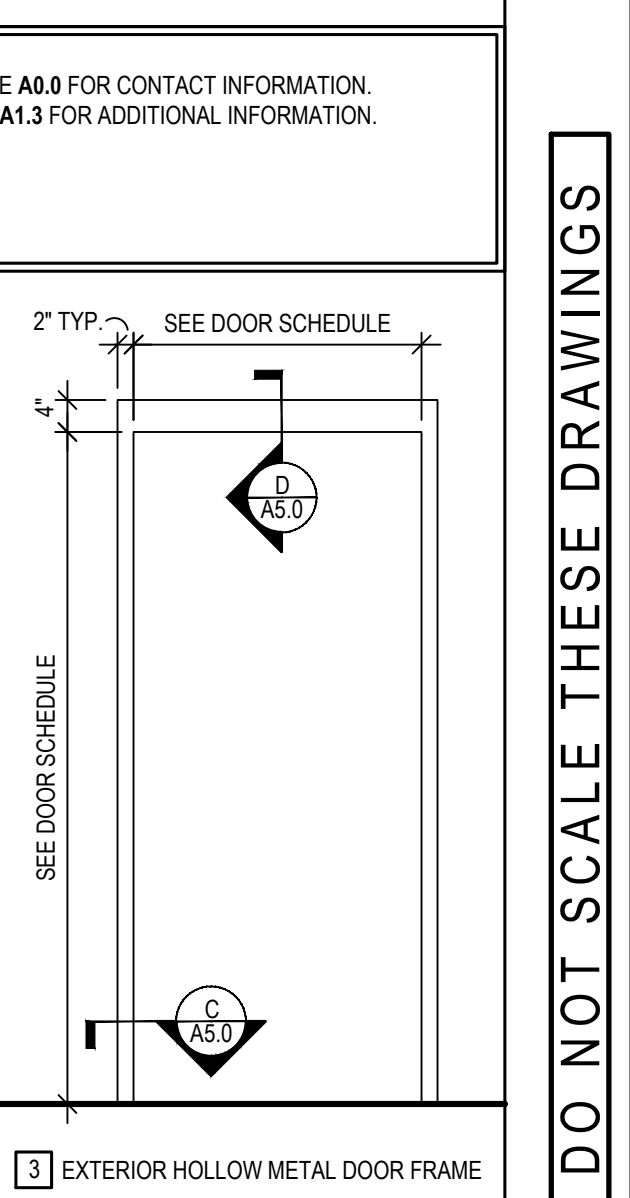
**FRAME TYPES**



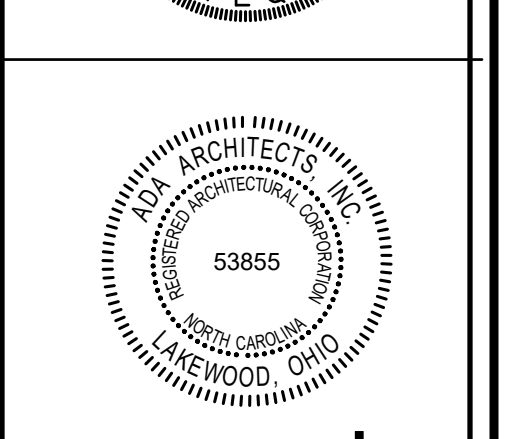
**1 INTERIOR HOLLOW METAL DOOR FRAME**



**2 INTERIOR HOLLOW METAL WINDOW FRAME**



**3 EXTERIOR HOLLOW METAL DOOR FRAME**



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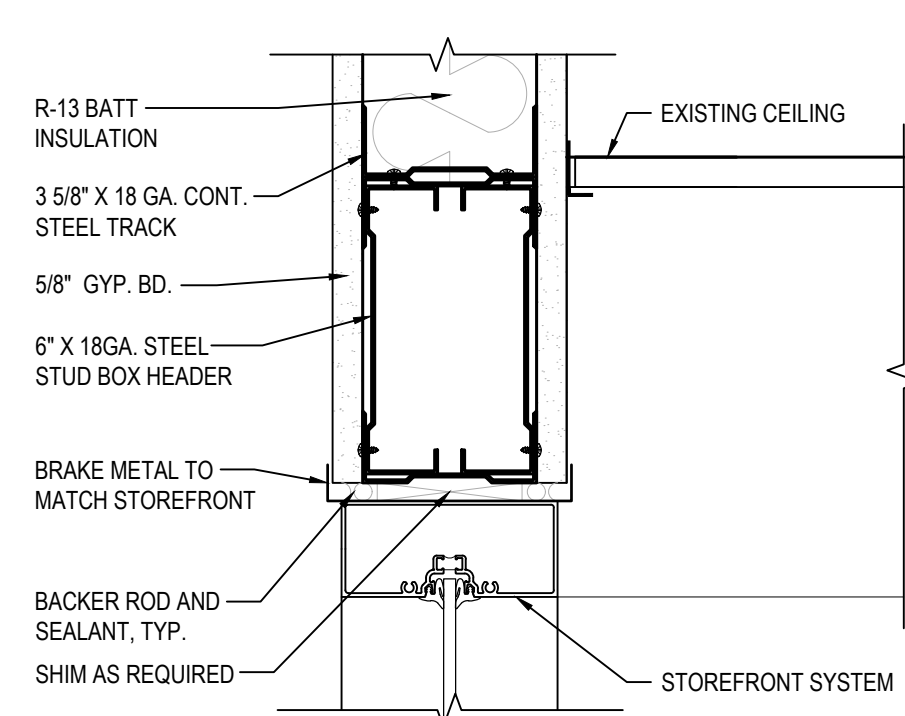
**REVISIONS**

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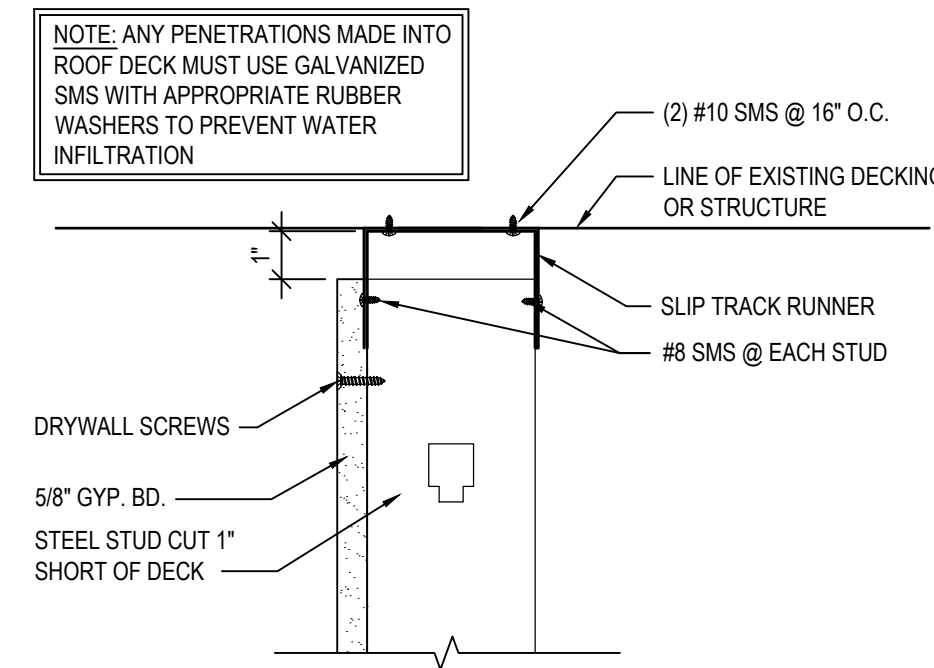
**DOOR SCHEDULE & DETAILS**

DATE: 03/04/24  
JOB NO.: 23591  
**A5.0**  
SHEET NO.

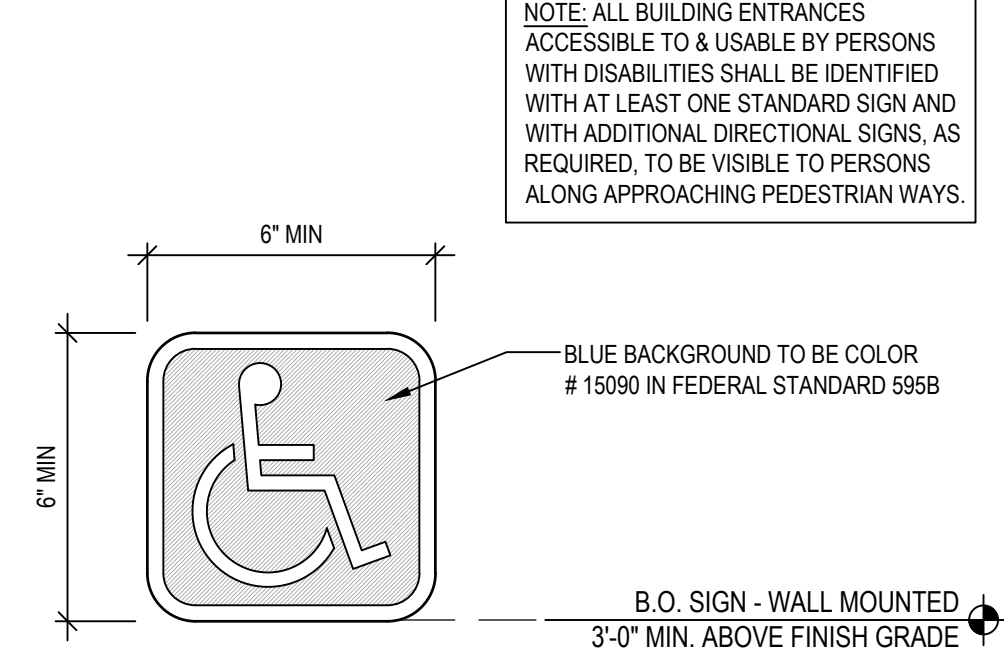
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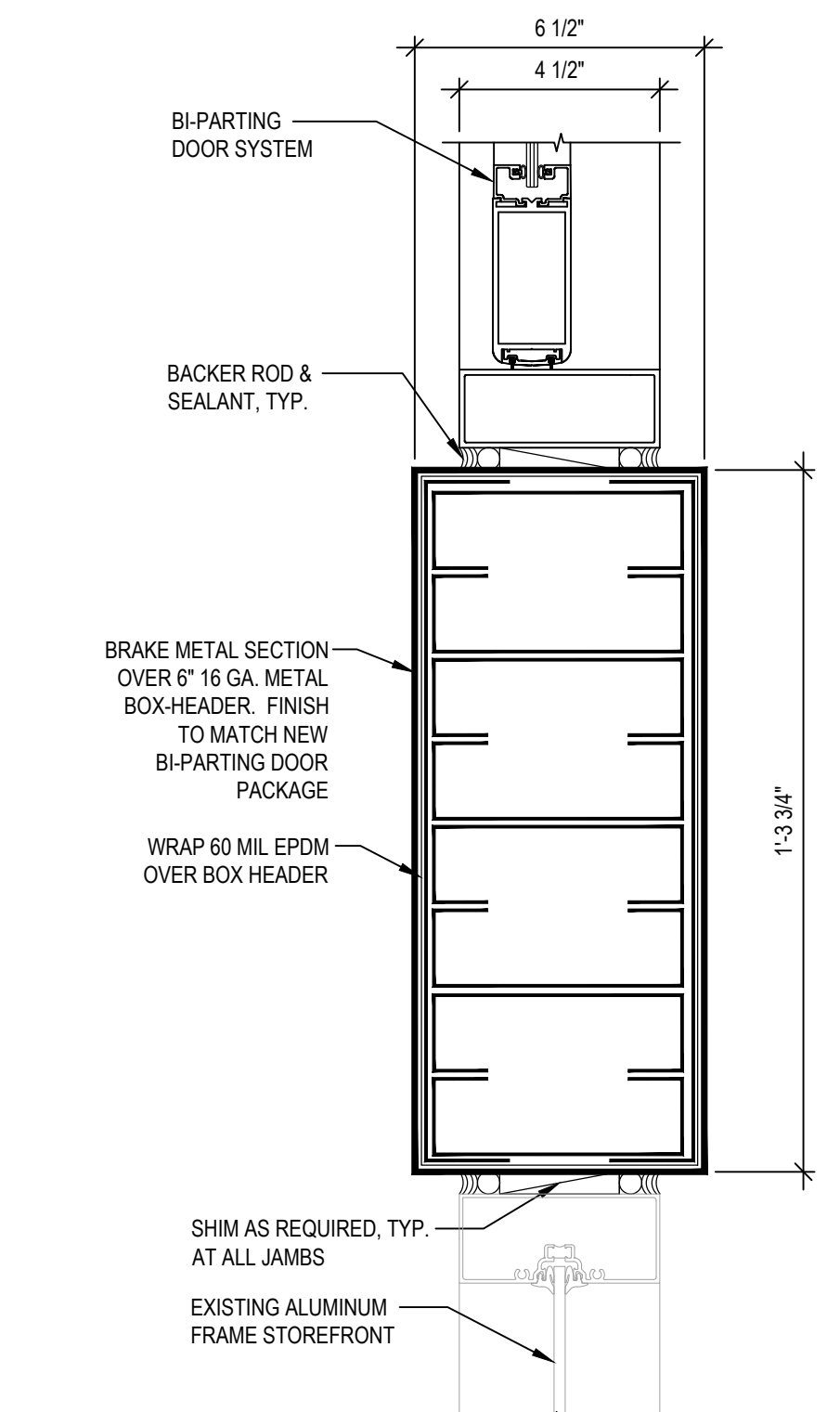
**4 VESTIBULE HEAD DETAIL**  
A5.1 SCALE: 3" = 1'-0"



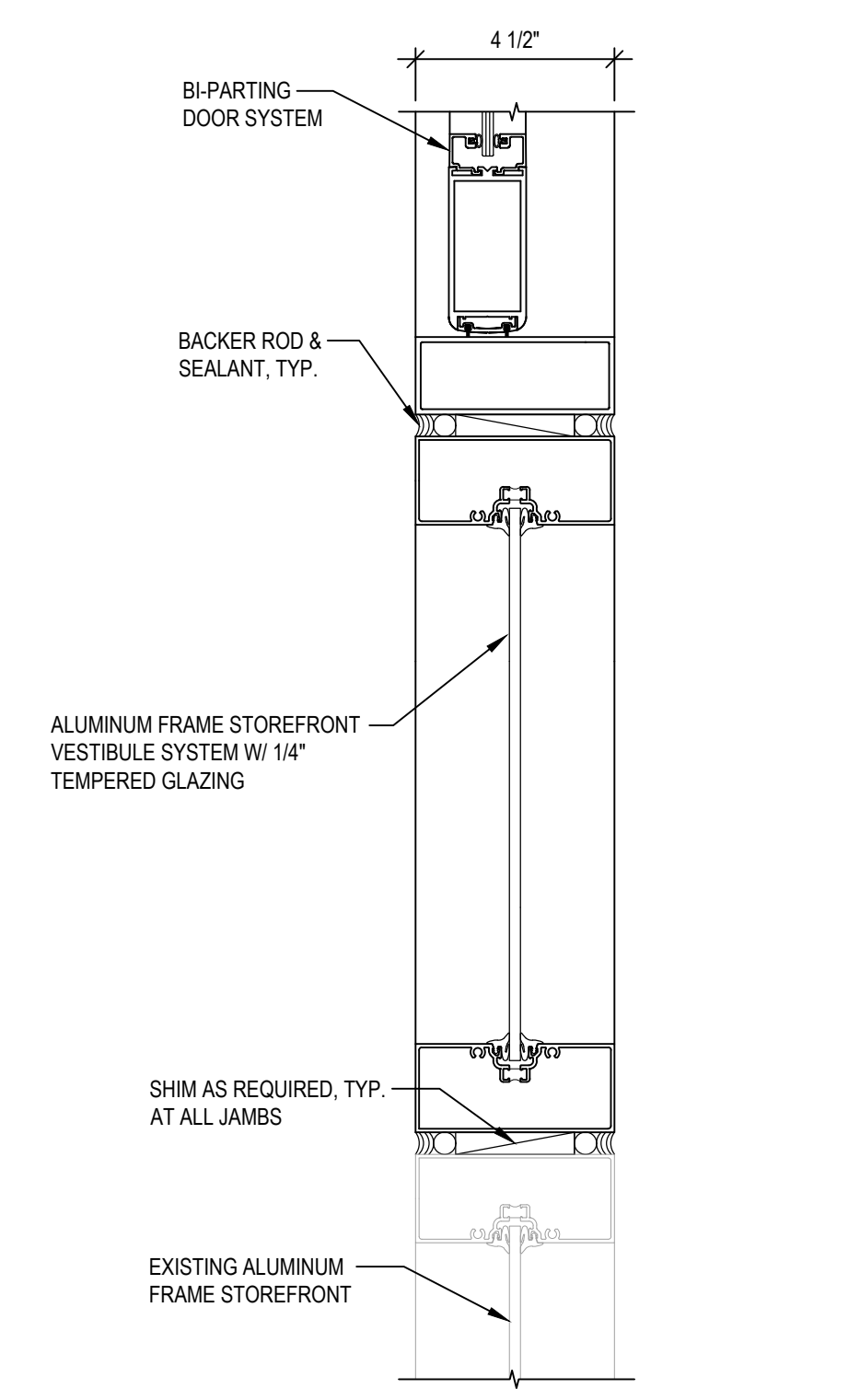
**5 TYPICAL SLIP TRACK DETAIL**  
A5.1 SCALE: 3" = 1'-0"



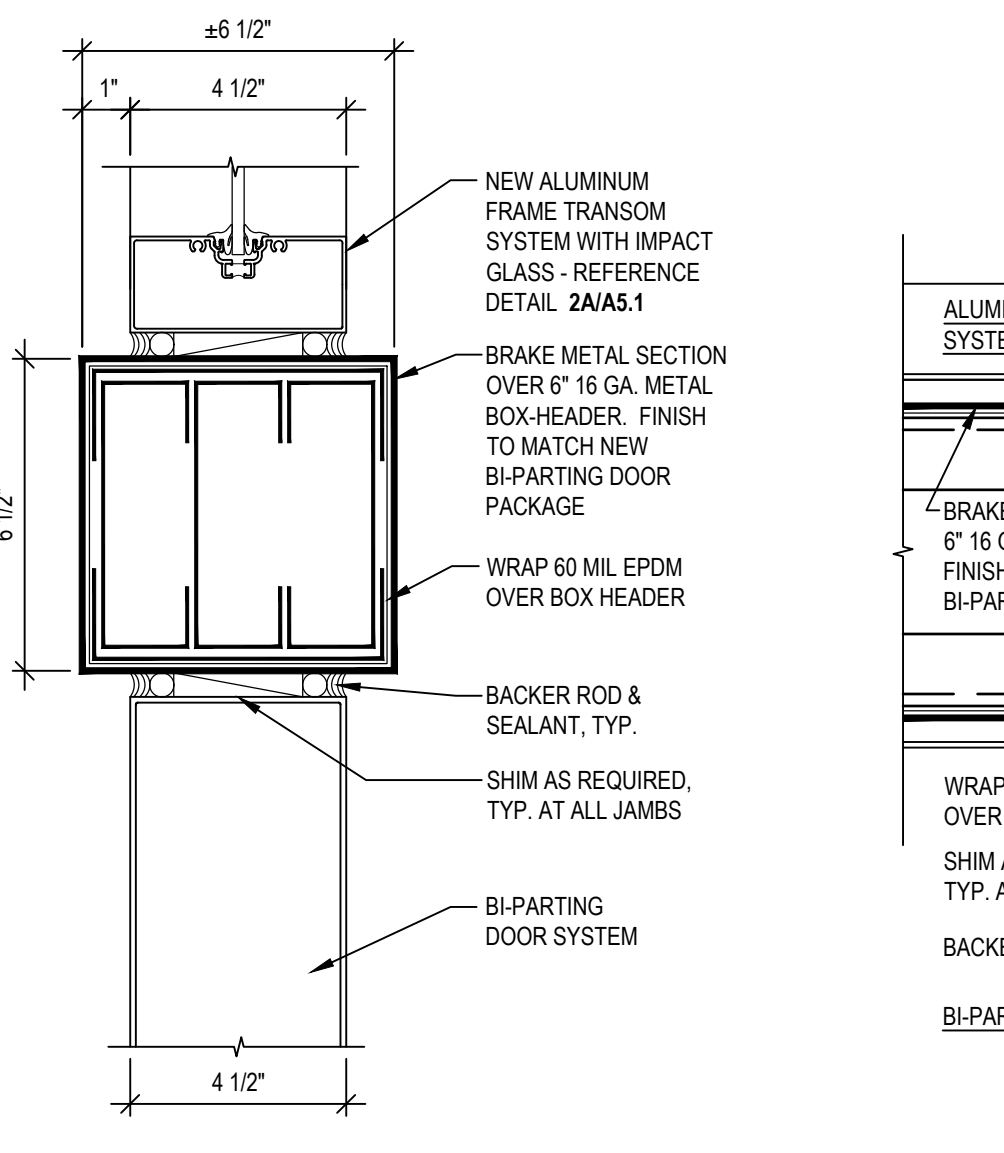
**8 ACCESSIBLE ENTRANCE SIGNAGE**  
A5.1 SCALE: 3" = 1'-0"



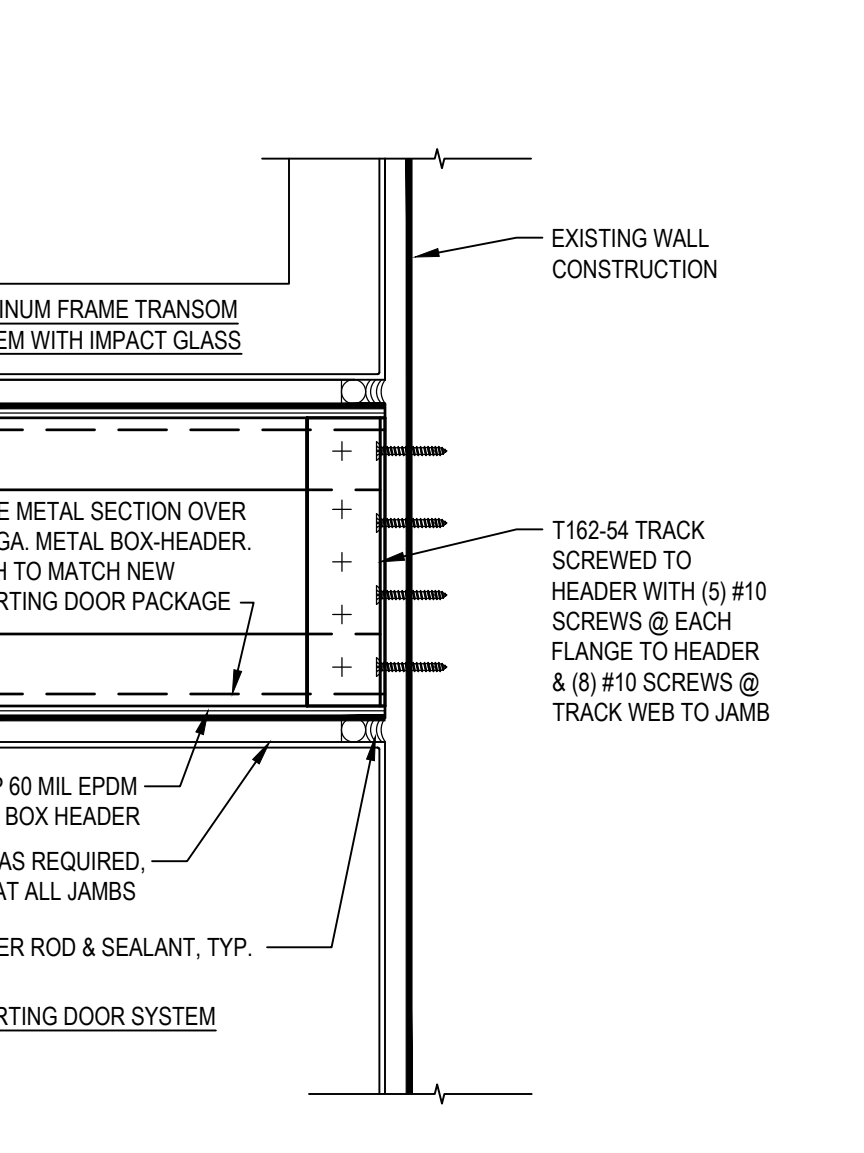
**6 STOREFRONT JAMB DETAIL**  
A5.1 SCALE: 3" = 1'-0"



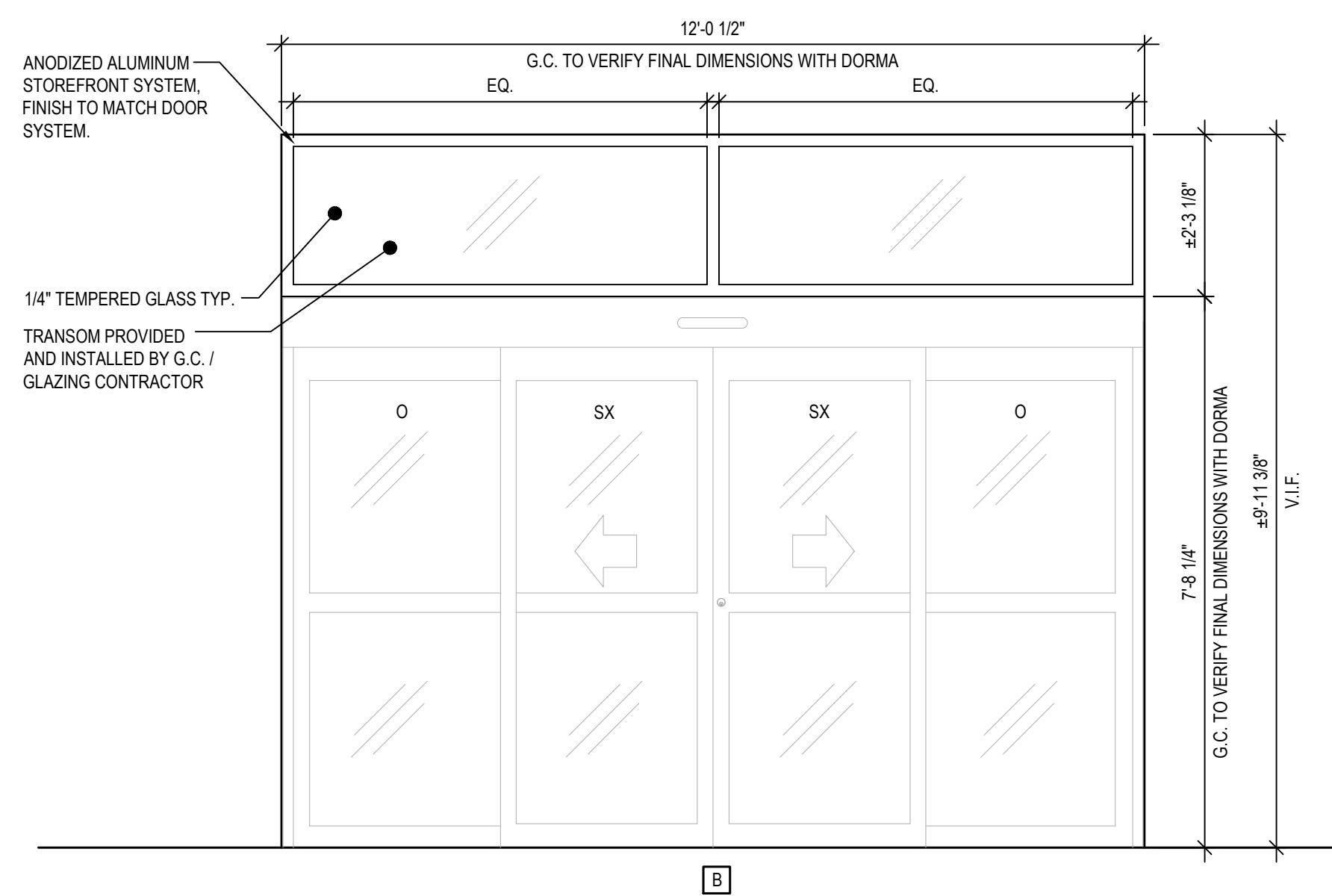
**7 STOREFRONT JAMB DETAIL**  
A5.1 SCALE: 3" = 1'-0"



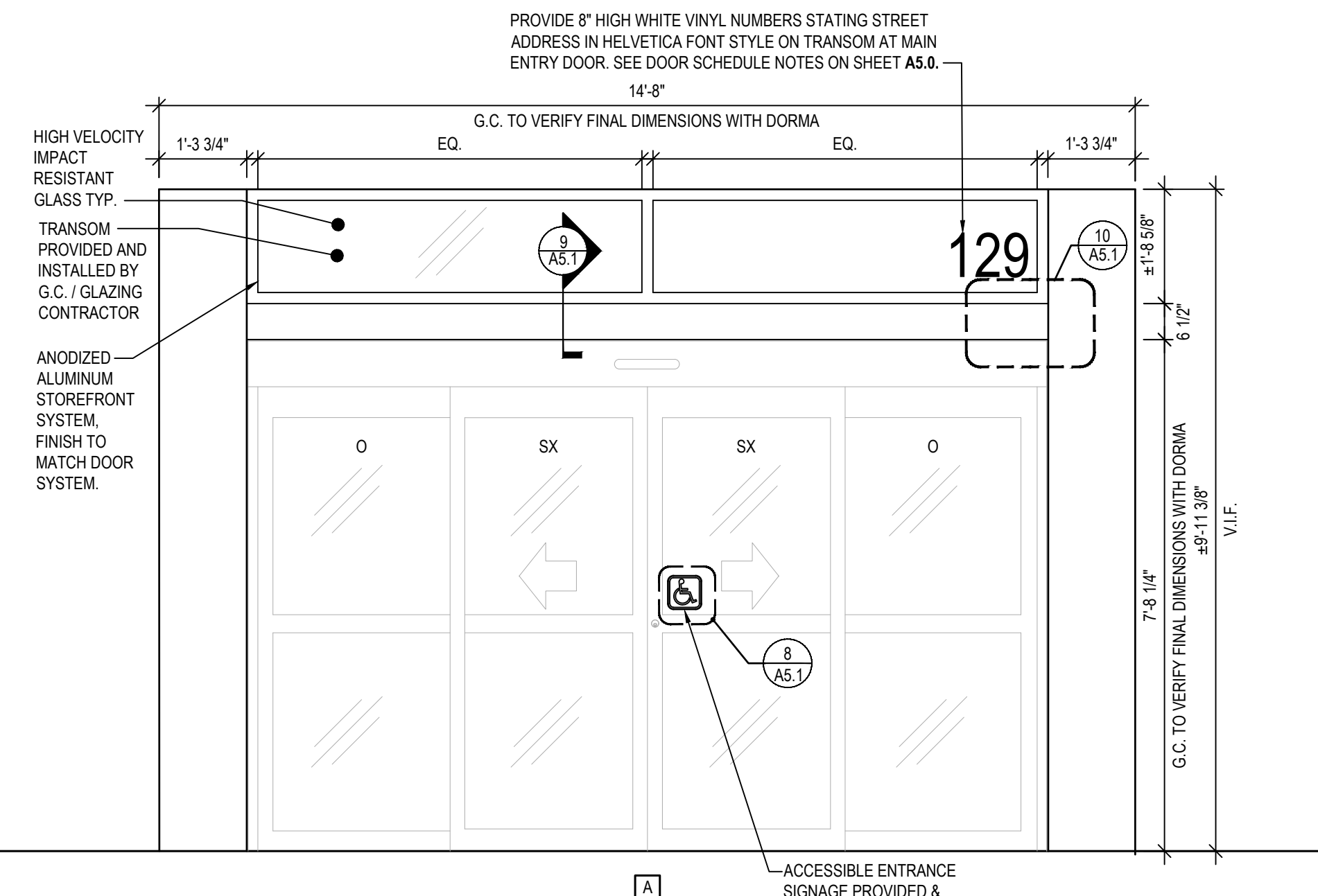
**9 BOX HEADER DETAIL**  
A5.2 SCALE: 3" = 1'-0"



**10 BOX HEADER ATTACHMENT DETAIL**  
A5.2 SCALE: 3" = 1'-0"



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



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

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

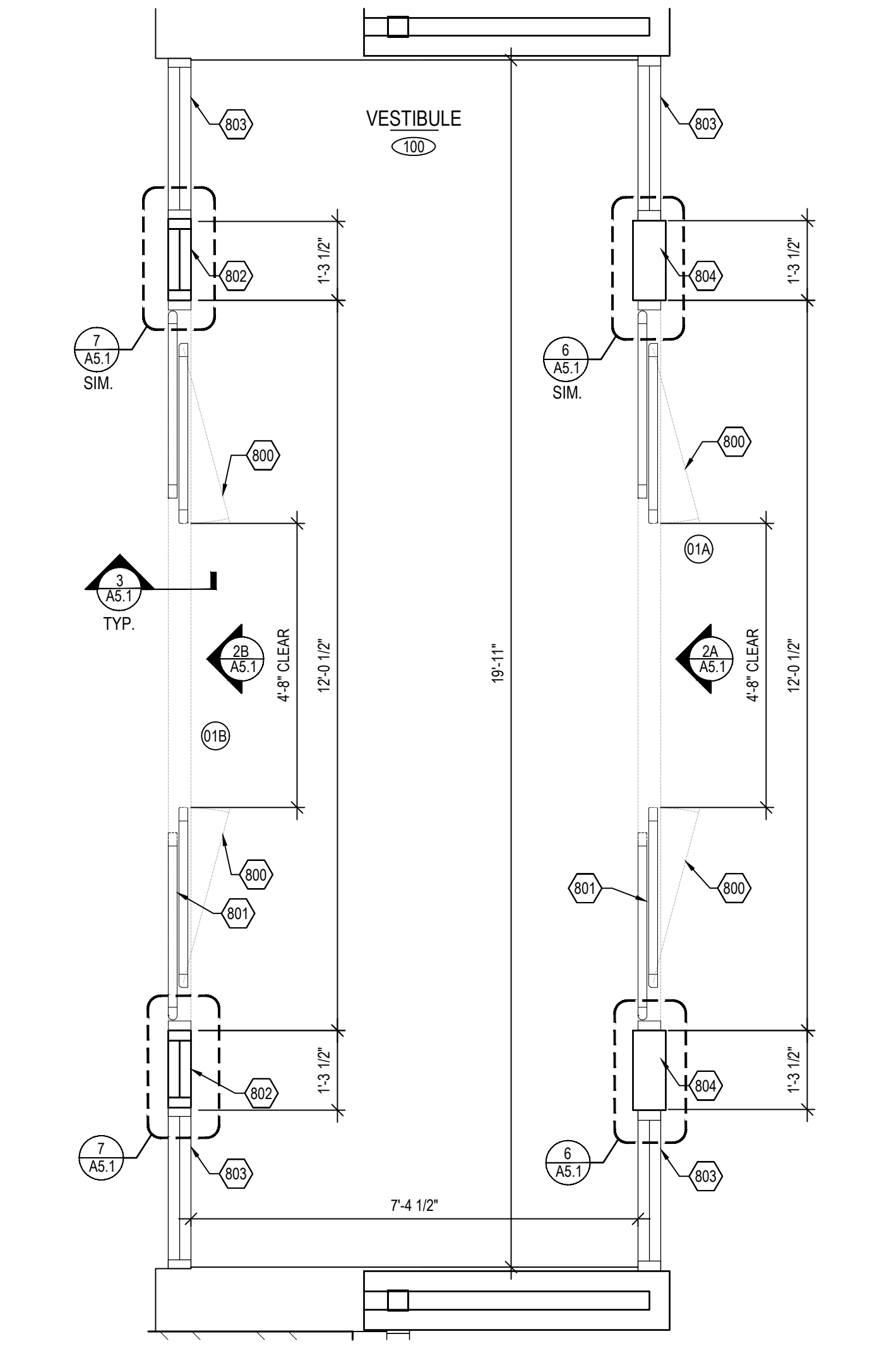
NOTE: G.C. TO FIELD VERIFY ALL EXISTING DIMENSIONS AND COORDINATE WITH DORMA DOOR BEFORE ORDERING. NOTIFY ARCHITECT OF ANY DISCREPANCIES.

**GENERAL NOTES**

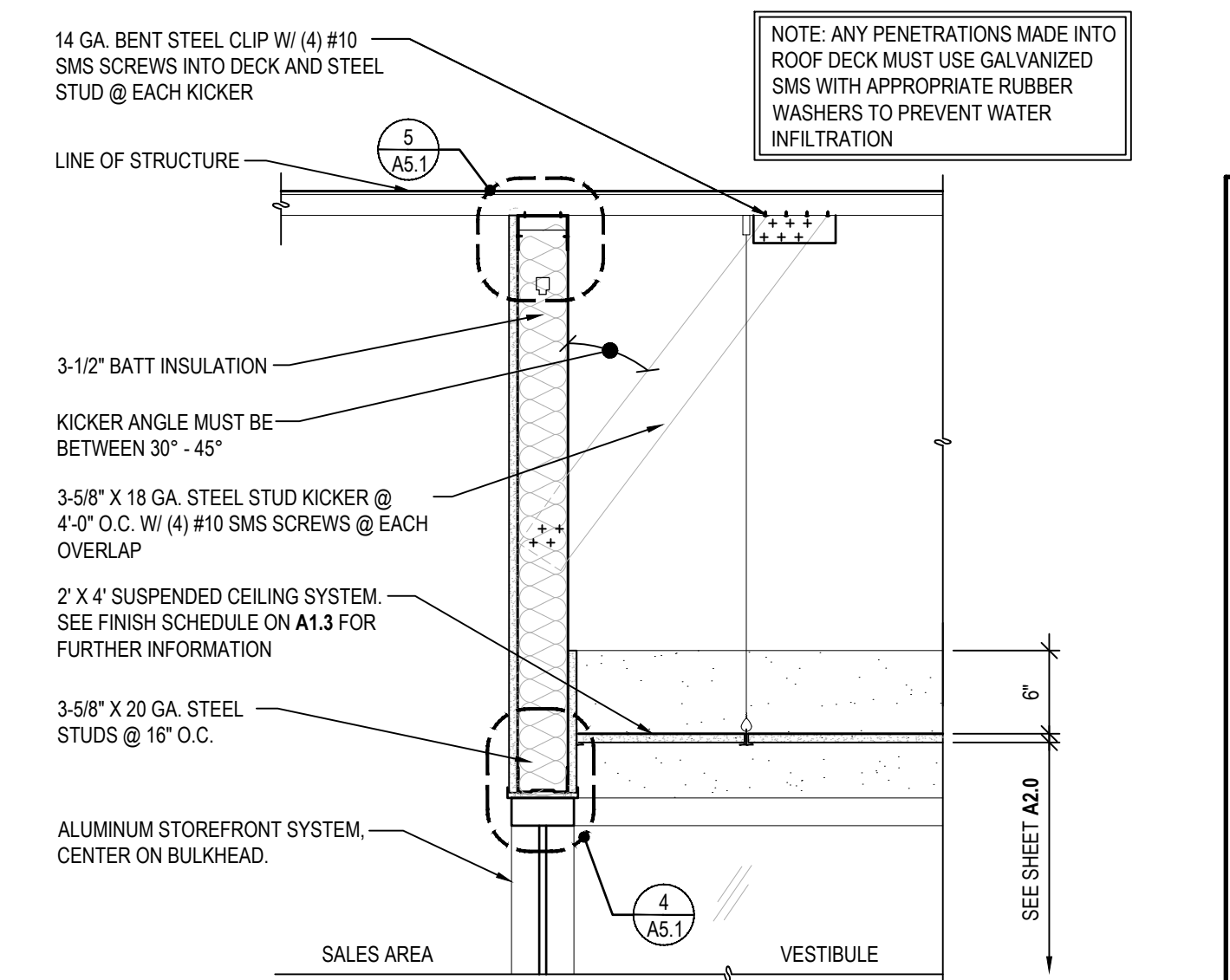
- ALL GLAZING TO BE 1/4" TEMPERED.
- ALL WORK TO BE DONE BY HFT G.C. U.N.O.
- ALL STOREFRONT AND VESTIBULE MULLIONS TO ALIGN WITH EXISTING STOREFRONT MULLIONS AS APPLICABLE.

**800 SERIES VESTIBULE KEY NOTES**

- DENOTES EMERGENCY DOOR BREAK OUT.
- DENOTES DORMA BI-PARTING ENTRY DOOR PACKAGE. TO BE CONSTRUCTED BY DORMA.
- STOREFRONT SYSTEM TO MATCH EXISTING STOREFRONT FINISH. EXISTING STOREFRONT TO REMAIN.
- BREAK METAL WRAPPED METAL STUD POST TO MATCH EXISTING STOREFRONT FINISH.



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



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

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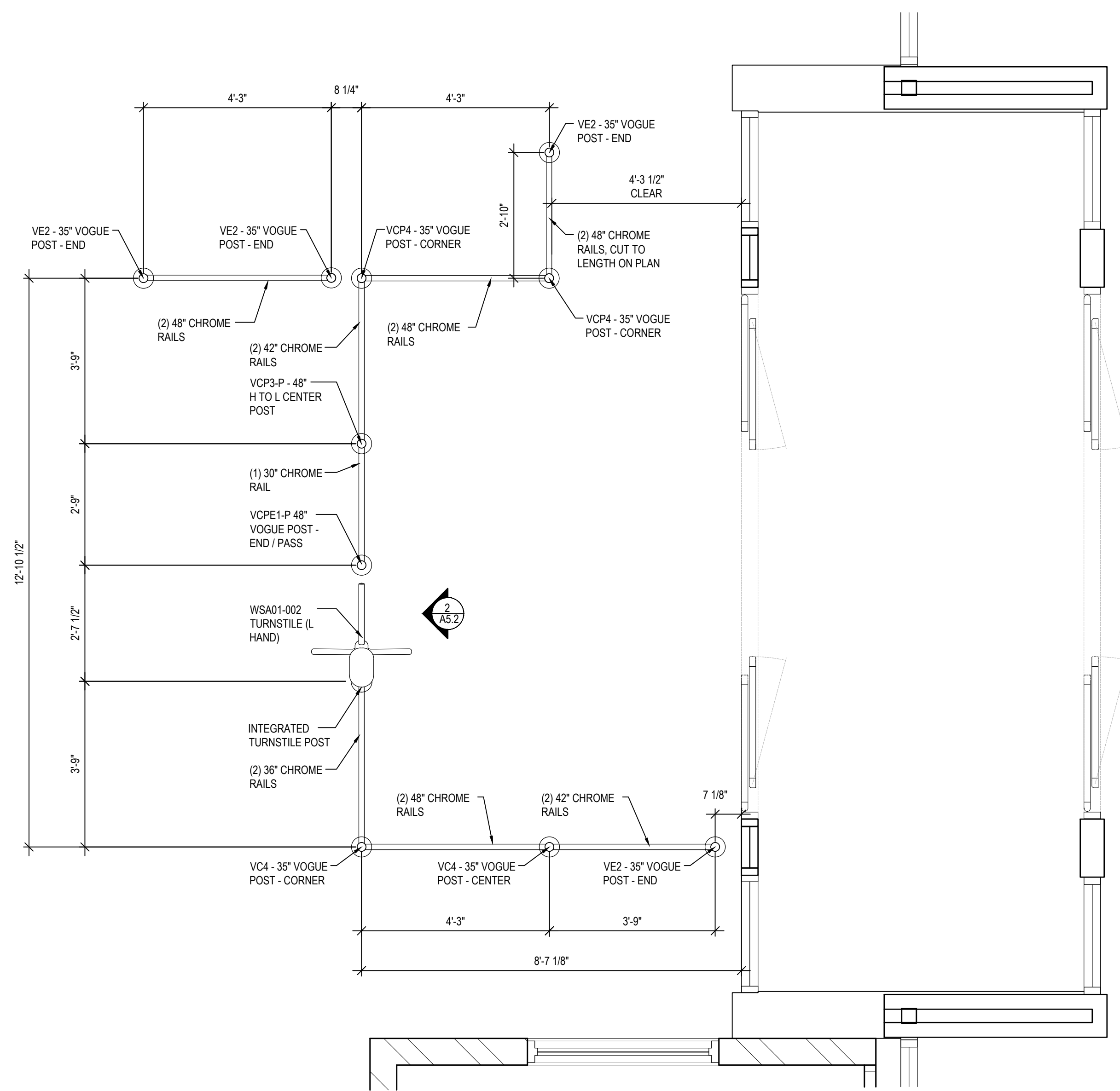
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**ENLARGED VESTIBULE PLAN & DETAILS**

DATE 03/04/24  
JOB NO. 23591

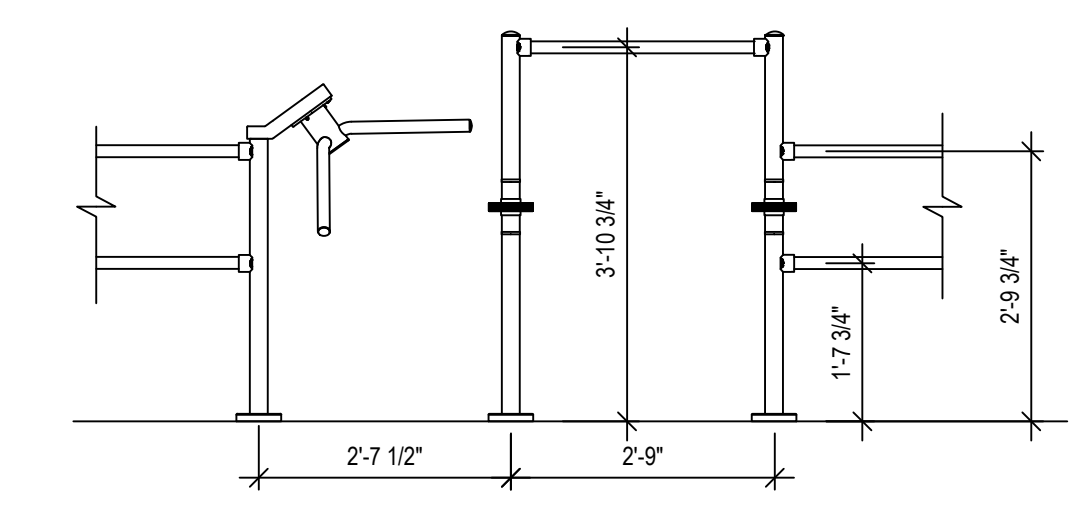
**A5.1**  
SHEET NO.



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

**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.



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



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ENLARGED  
TURNSTILE PLAN  
& DETAILS

DATE 03/04/24  
JOB NO. 23591

**A5.2**  
SHEET NO.

1 STRUCTURAL DESIGN CRITERIA

STRUCTURAL DESIGN CRITERIA

A. THE DESIGN AND CONSTRUCTION OF THIS PROJECT IS GOVERNED BY THE "NORTH CAROLINA BUILDING CODE (NCBC)", 2018 EDITION, HEREAFTER REFERRED TO AS THE GOVERNING CODE. THIS INCLUDES ADOPTED AND MODIFIED BY THE LOCAL BUILDING DEPARTMENT WITH AUTHORITY HAVING JURISDICTION.

- 1. REFER TO CHAPTER 35 OF THE GOVERNING CODE FOR ALL CURRENT REFERENCE STANDARDS BASED ON THE GOVERNING CODE. WHERE OTHER STANDARDS ARE NOTED IN THE DRAWINGS, USE THE LATEST EDITION OF THE STANDARD UNLESS A SPECIFIC DATE IS INDICATED. REFERENCE TO A SPECIFIC SECTION IN A CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE STANDARD. ALL SPECIFICATIONS AND CODES NOTED SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS BY THE AUTHORITY HAVING JURISDICTION OVER THIS PROJECT.

- 2. RISK CATEGORY: = II
- B. ROOF DESIGN DATA: 1. ROOF DEAD LOAD: = 20 PSF, 2. ROOF LIVE LOAD: = 20 PSF, 3. GROUND SNOW LOAD, (Pg): = 15 PSF, 4. FLAT ROOF SNOW LOAD, (Pf): = 20 PSF, 5. SNOW IMPORTANCE FACTOR, (Is): = 1.0, 6. SNOW EXPOSURE FACTOR, (Ce): = 1.0, 7. THERMAL FACTOR, (Ct): = 1.0, 8. SLOPE FACTOR(S), (Cs): = 1.0, 9. SEE FRAMING PLANS FOR DRIFT LOCATION, WIDTHS AND LOADS IF APPLICABLE.

- C. FLOOR DESIGN DATA: 1. FLOOR DEAD LOAD: = N/A, 2. FLOOR LIVE LOAD: = N/A

- D. EARTHQUAKE DESIGN DATA: 1. MAPPED SPECTRAL RESPONSE ACC. FOR SHORT PERIOD, (Ss): = 0.132 G, 2. MAPPED SPECTRAL RESPONSE ACC. FOR 1-SEC PERIOD, (S1): = 0.065 G, 3. DESIGN SPECTRAL RESPONSE ACC. FOR SHORT PERIOD, (Sds): = 0.141 G, 4. DESIGN SPECTRAL RESPONSE ACC. FOR 1 PERIOD, (SD1): = 0.104 G, 5. SITE CLASS: = D, 6. SEISMIC DESIGN CATEGORY: = B, 7. SEISMIC IMPORTANCE FACTOR, (Ie): = 1.0, 8. SEISMIC RESPONSE COEFFICIENT(S), (Cs): = N/A, 9. RESPONSE MODIFICATION COEFFICIENT(S), (R): = 6.0, 10. BASIC SEISMIC-FORCE-RESISTING SYSTEM(S): = MECHANICAL UNIT, 11. DESIGN BASE SHEAR(S): = N/A, 12. ANALYSIS PROCEDURE USED: = N/A

- E. WIND DESIGN DATA: 1. ULTIMATE DESIGN WIND SPEED (VULT): = 120 MPH, 2. NOMINAL DESIGN WIND SPEED (VSD): = 93 MPH, 3. WIND IMPORTANCE FACTOR, (Iw): = 1.0, 4. WIND EXPOSURE: = B, 5. INTERNAL PRESSURE COEFFICIENT(S): = 0.18, 6. UNFACTORED COMPONENTS & CLADDING ROOF PRESSURE: = SEE CALCULATIONS, 7. UNFACTORED COMPONENTS & CLADDING WALL PRESSURE: = SEE CALCULATIONS

- F. SOILS DESIGN DATA: 1. ALLOWABLE SOIL BEARING PRESSURE: = 1500 PSF (ASSUMED), 2. MINIMUM FROST/BEARING DEPTH: = 12 IN, 3. GEOTECHNICAL REPORT PREPARED BY, (REPORT #): = N/A

- G. SPECIAL DESIGN DATA: 1. SEE PLANS FOR ALL EQUIPMENT DESIGN WEIGHTS.

2 FOUNDATIONS AND SLAB ON GRADE

- A. ALL FOOTING AND FOUNDATION DESIGNS ARE BASED ON AN ALLOWABLE SOIL BEARING CAPACITY OF 1,500 PSF. ALL BUILDING SHALLOW SPREAD FOUNDATIONS SYSTEMS SHALL BEAR ON COMPETENT NATIVE SOILS. IF THE SITE HAS A LOWER BEARING CAPACITY THAN LISTED, THEN FOUNDATION PLAN WILL NEED TO BE REDESIGNED.
- B. ALL CONTINUOUS SPREAD AND ISOLATED FOOTINGS SHALL BE FOUNDED ON COMPETENT NATIVE SOIL OR STRUCTURAL FILL. IT IS RECOMMENDED THAT ALL GRADING, EXCAVATION, PLACEMENT OF STRUCTURAL FILL AND INSTALLATION OF FOUNDATIONS BE PERFORMED UNDER THE INSPECTION AND TESTING OF A QUALIFIED GEOTECHNICAL CONSULTANT DURING THE CRITICAL STAGES OF CONSTRUCTION.
- D. ALL CONCRETE SLABS SHALL HAVE REINFORCING PER PLANS & CONTROL JOINTS @ 10'-0" O.C. SPACING MAX AND SHALL BE FOUNDED ON MATERIALS COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY A STANDARD PROCTOR AT OPTIMUM MOISTURE AND PLACED IN 8" LIFTS.
- E. FOR ANY PIPING OR OTHER SITE RELATED UTILITIES RUNNING ALONG SIDE OR PENETRATING THROUGH THE FOUNDATIONS OR STEMWALLS.
- F. PROVIDE ADEQUATE TEMPORARY BRACING OF FOUNDATION RETAINING WALLS DURING BACKFILL PRIOR TO INSTALLATION OF MAIN FLOOR FRAMING. WALL DESIGNS ARE BASED ON TOP OF WALL RESTRAINED BY FINISHED FLOOR SYSTEM.
- G. PROVIDE ADEQUATE DRAINAGE BEHIND ALL WALLS TO ALLEVIATE ANY STANDING WATER.
- H. MINIMUM CONCRETE SLAB THICKNESS IS 4".
- I. A MINIMUM FROST DEPTH FROM LOWEST ADJACENT FINISH GRADE TO BOTTOM OF FOOTING SHALL BE MAINTAINED FOR ALL EXTERIOR FOOTINGS, CONTRACTOR SHALL COORDINATE AND VERIFY.

3 CONCRETE

- A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO REQUIREMENTS SET FORTH IN ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- B. CAST-IN-PLACE AND PRECAST CONSTRUCTION TOLERANCES FOR MEMBER SIZE AND LOCATION SHALL BE IN CONFORMANCE WITH ACI 117 AND ACI ITG-7, RESPECTIVELY.
- C. NORMAL WEIGHT CONCRETE SHALL BE IN CONFORMANCE WITH ASTM C33 WITH A NOMINAL MAXIMUM AGGREGATE SIZE OF ¾".
- D. LIGHTWEIGHT CONCRETE SHALL BE IN CONFORMANCE WITH ASTM C330 AND RESULTS OF ASTM C330 SHALL BE SUBMITTED TO E.O.R. FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT. THE VOLUMETRIC FRACTIONS OF THE AGGREGATE SHALL ALSO BE SUBMITTED TO E.O.R. FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT.
- E. PORTLAND CEMENT SHALL BE TYPE I/II IN CONFORMANCE WITH ASTM C150.
- F. OTHER CEMENTITIOUS MATERIALS SHALL CONFORM TO THE FOLLOWING:
  - 1. BLENDED HYDRAULIC CEMENTS: ASTM C595
  - 2. EXPANSIVE HYDRAULIC CEMENT: ASTM C845
  - 3. HYDRAULIC CEMENT: ASTM C1157
  - 4. FLY ASH AND NATURAL POZZOLAN: ASTM C618
  - 5. SLAG CEMENT: ASTM C989
  - 6. SILICA FUME: ASTM C1240
- G. MIXING WATER SHALL CONFORM TO ASTM C1602.
- H. ADMIXTURES MAY BE USED TO INCREASE WORKABILITY OF THE CONCRETE UPON WRITTEN APPROVAL OF THE CONCRETE MANUFACTURER OR THE PROJECT TESTING LABORATORY. TESTING ON CONCRETE SHALL BE DONE PRIOR TO THE ADDITION OF ADMIXTURES.
- I. ADMIXTURES SHALL CONFORM TO THE FOLLOWING:
  - 1. WATER REDUCTION AND SETTING TIME MODIFICATION: ASTM C494
  - 2. PRODUCING FLOWING CONCRETE: ASTM C1017
  - 3. AIR ENTRAINMENT: ASTM C260
  - 4. INHIBITING CHLORIDE-INDUCED CORROSION: ASTM C1528
- J. CONCRETE MIXTURE PROPORTIONS SHALL CONFORM WITH ARTICLE 4.2.3 OF ACI 301 AND ESTABLISHED SO CONCRETE CAN BE PLACED READILY WITHOUT SEGREGATION INTO FORMS AND AROUND REINFORCEMENT.
- K. DOCUMENTATION OF CONCRETE MIXTURE CHARACTERISTICS SHALL BE SUBMITTED TO E.O.R. FOR REVIEW AND APPROVAL PRIOR TO USING THE MIXTURE AND PRIOR TO MAKING CHANGES TO MIXTURES ALREADY IN USE.
- L. ALL CONCRETE MIXING AND TRANSPORTATION OF CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ATM C94 AND ASTM C685.
- M. STAIN AND TEXTURE OF EXPOSED CONCRETE SURFACES PER OWNER'S DIRECTION, IF APPLICABLE.
- N. THE SLUMP OF THE CONCRETE SHALL BE BETWEEN:
  - 1. BEAMS/COLUMNS: 3" ± 1"
  - 2. WALLS/FOUNDATIONS: 5" ± 1"
  - 3. SLABS-ON-GRADE: 4" ± 1"
- O. THE CONCRETE SHALL MEET THE MOST STRINGENT REQUIREMENTS FROM THE FOLLOWING EXPOSURE CLASSES:
  - 1. ALL FOOTINGS, FOUNDATIONS, AND STEM WALLS: F2, S0, W0, C1
  - 2. INTERIOR SLABS-ON-GRADE: F2, S0, W0, C1
  - 3. EXTERIOR SLABS-ON-GRADE: F2, S0, W0, C1

P. CONCRETE EXPOSURE CLASSES AND REQUIREMENTS:

Table with columns: EXPOSURE CLASS, MAXIMUM w/cm, MINIMUM f'c (psi), AIR CONTENT (%), LIMITS ON MAXIMUM PERCENT OF TOTAL CEMENTITIOUS MATERIALS BY MASS, EXPOSURE CATEGORY: F, EXPOSURE CATEGORY: S, EXPOSURE CATEGORY: W, EXPOSURE CATEGORY: C. Includes sub-tables for CEMENTITIOUS MATERIALS and MAXIMUM WATER-SOLUBLE CHLORIDE ION (Cl-) CONTENT IN NONPRESTRESSED CONCRETE.

\*FOR SEAWATER EXPOSURE THE MAXIMUM w/cm RATIO SHALL BE 0.40.

- Q. TEMPERATURE REQUIREMENTS:
  - 1. CONCRETE SHALL BE MAINTAINED AT A TEMPERATURE MINIMUM OF 50°F AND IN A MOIST CONDITION FOR AT LEAST THE FIRST 7 DAYS AFTER PLACEMENT.
  - 2. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING FREEZING OR NEAR-FREEZING WEATHER.
  - 3. FROZEN MATERIALS OR MATERIALS CONTAINING ICE SHALL NOT BE USED.
  - 4. FORMS, FILLERS, AND GROUND WITH WHICH CONCRETE IS TO COME IN CONTACT SHALL BE FREE FROM FROST AND ICE. CONCRETE SHALL NOT EXCEED A TEMPERATURE MAXIMUM OF 95°F AT THE TIME OF PLACEMENT.
  - 6. HANDLING, PLACING, PROTECTION, AND CURING PROCEDURES SHALL LIMIT CONCRETE TEMPERATURES OR WATER EVAPORATION THAT COULD REDUCE STRENGTH SERVICEABILITY, AND DURABILITY OF THE MEMBER OR STRUCTURE.
  - 7. HOT WEATHER AND COLD WEATHER CONCRETING SHALL BE DONE IN COMPLIANCE WITH THE LATEST EDITION OF ACI 305.1 AND ACI 306.1, RESPECTIVELY.
  - 8. CONCRETE MATERIALS AND PRODUCTION METHODS SHALL BE SELECTED SO THAT THE CONCRETE TEMPERATURE AT DELIVERY COMPLIES WITHIN THE SPECIFIED TEMPERATURE LIMITS.
- R. THESE PROVISIONS DO NOT PROTECT CONCRETE AGAINST CHEMICALLY AGGRESSIVE SOLUTIONS, CONTACT E.O.R. IF SUCH CONDITIONS APPLY.
- S. CONCRETE PLACEMENT:
  - 1. STANDING WATER SHALL BE REMOVED FROM PLACE OF DEPOSIT BEFORE CONCRETE IS PLACED UNLESS A PREMIE IS USED.
  - 2. MASONRY FILLER UNITS THAT WILL BE IN CONTACT WITH CONCRETE SHALL BE PRE-WETTED PRIOR TO PLACING CONCRETE.
  - 3. CONCRETE SHALL NOT BE CONVEYED WITH PIPES, TREMIES, OR CHUTES MADE OF ALUMINUM OR ALUMINUM ALLOYS.
  - 4. CONCRETE SHALL BE PLACED:
    - a. AT A RATE SO CONCRETE AT ALL TIMES HAS SUFFICIENT WORKABILITY TO BE CONSOLIDATED APPROPRIATELY.
    - b. WITHOUT SEGREGATION OR LOSS OF MATERIALS.
    - c. WITHOUT INTERRUPTIONS TO MAINTAIN WORKABILITY BETWEEN SUCCESSIVE PLACEMENTS TO PREVENT AN UNINTENTIONAL COLD JOINT.
    - d. DEPOSITED AS NEAR TO ITS FINAL LOCATION AS PRACTICABLE TO AVOID SEGREGATION DUE TO REHANDLING OR FLOWING.
  - 5. CONCRETE THAT HAS BEEN CONTAMINATED OR HAS LOST ITS INITIAL WORKABILITY TO THE EXTENT THAT IT CAN NO LONGER BE CONSOLIDATED APPROPRIATELY SHALL NOT BE USED.
  - 6. RETEMPERING CONCRETE IN ACCORDANCE WITH ASTM C94 SHALL BE PERMITTED AS LONG AS THE LIMITS ON MAXIMUM MIXING TIME AND w/cm ARE NOT VIOLATED.
  - 7. AFTER STARTING, CONCRETING SHALL BE A CONTINUOUS OPERATION UNTIL THE COMPLETION OF A PANEL OR SECTION, AS DEFINED BY ITS BOUNDARIES OR PREDETERMINED JOINTS.
  - 8. CONCRETE SHALL BE CONSOLIDATED APPROPRIATELY DURING PLACEMENT AND SHALL BE WORKED AROUND REINFORCEMENT AND EMBEDMENTS AND INTO CORNERS OF FORMS.
  - 9. TOP SURFACES OF VERTICALLY FORMED LIFTS SHALL BE GENERALLY LEVEL.
  - 10. JOINT LOCATIONS OR JOINT DETAILS NOT SHOWN OR THAT DIFFER FROM THOSE INDICATED IN THE CONSTRUCTION DOCUMENTS SHALL BE SUBMITTED FOR REVIEW BY THE E.O.R.
  - 11. CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED BEFORE NEW CONCRETE IS PLACED.
  - 12. SURFACE OF CONCRETE CONSTRUCTION JOINTS SHALL BE INTENTIONALLY ROUGHENED.
  - 13. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, CONSTRUCTION JOINTS SHALL BE PRE-WETTED AND STANDING WATER REMOVED.
  - 14. BEAMS, GIRDERS, OR SLABS SUPPORTED BY COLUMNS OR WALLS SHALL NOT BE CAST UNTIL CONCRETE IN THE VERTICAL SUPPORT MEMBERS IS NO LONGER WORKABLE AND SOFT.
  - 15. BEAMS, GIRDERS, HAUNCHES, DROP PANELS, SHEAR CAPS, AND CAPITALS SHALL BE PLACED MONOLITHICALLY AS PART OF A SLAB SYSTEM, U.N.O.
  - 16. SAW CUTTING IN SLABS-ON-GRADE IDENTIFIED IN THE CONSTRUCTION DOCUMENTS AS STRUCTURAL DIAPHRAGMS OR PART OF THE SEISMIC-FORCE-RESISTING SYSTEM SHALL NOT BE PERMITTED U.N.O.
  - 17. ALUMINUM EMBEDMENTS SHALL BE COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION AND ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.
  - 18. IN SOLID SLABS, PIPING, EXCEPT FOR RADIANT HEATING OR SNOW MELTING, SHALL BE PLACED BETWEEN TOP AND BOTTOM REINFORCEMENT.
  - 19. CONDUIT AND PIPING SHALL BE FABRICATED AND INSTALLED SO THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS SPECIFIED LOCATION IS NOT REQUIRED.
- T. FORMWORK:
  - 1. FORMWORK SHALL BE DESIGNED, FABRICATED, INSTALLED, AND REMOVED BY CONTRACTOR.
  - 2. DESIGN OF FORMWORK SHALL TAKE INTO CONSIDERATION:
    - a. METHOD OF CONCRETE PLACEMENT.
    - b. RATE OF CONCRETE PLACEMENT.
    - c. CONSTRUCTION LOADS, INCLUDING VERTICAL, HORIZONTAL, AND IMPACT.
    - d. AVOIDANCE OF DAMAGE TO PREVIOUSLY CONSTRUCTED MEMBERS.
  - 3. FORMWORK FABRICATION AND INSTALLATION SHALL RESULT IN A FINAL STRUCTURE THAT CONFORMS TO SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE CONSTRUCTION DOCUMENTS.
  - 4. FORMWORK SHALL BE SUFFICIENTLY TIGHT TO INHIBIT LEAKAGE OF PASTE OR MORTAR.
  - 5. FORMWORK SHALL BE BRACED OR TIED TOGETHER TO MAINTAIN POSITION AND SHAPE.
  - 6. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL DEVELOP A PROCEDURE AND SCHEDULE FOR REMOVAL OF FORMWORK AND INSTALLATION OF RESHORES AND SHALL CALCULATE THE LOADS TRANSFERRED TO THE STRUCTURE DURING THIS PROCESS.
  - 7. STRUCTURAL ANALYSIS AND CONCRETE STRENGTH REQUIREMENTS USED IN PLANNING AND IMPLEMENTING THE FORMWORK REMOVAL AND RESHORE INSTALLATION SHALL BE GIVEN BY THE CONTRACTOR TO THE E.O.R. AND TO THE BUILDING OFFICIAL, WHEN REQUESTED.
  - 8. NO CONSTRUCTION LOADS SHALL BE PLACED ON, NOR ANY FORMWORK REMOVED FROM, ANY PART OF THE STRUCTURE UNDER CONSTRUCTION EXCEPT WHEN THAT PORTION OF THE STRUCTURE IN COMBINATION WITH REMAINING FORMWORK HAS SUFFICIENT STRENGTH TO SUPPORT ITS WEIGHT AND LOADS PLACED ON IT SAFELY AND WITHOUT IMPAIRING SERVICEABILITY.
  - 9. NO CONSTRUCTION LOADS EXCEEDING THE COMBINATION OF SUPERIMPOSED DEAD LOAD PLUS LIVE LOAD INCLUDING REDUCTION SHALL BE PLACED ON ANY UNSHORED PORTION OF THE STRUCTURE UNDER CONSTRUCTION, UNLESS ANALYSIS INDICATES ADEQUATE STRENGTH TO SUPPORT SUCH ADDITIONAL LOADS AND WITHOUT IMPAIRING SERVICEABILITY.

4 REINFORCING STEEL

- A. ALL ARRANGEMENT AND DETAILING OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 DETAILING MANUAL.
- B. ASTM A615, GRADE 40 (#3 REBAR OR SMALLER), ASTM A615, GRADE 60 (#4 REBAR OR LARGER), ASTM A185, GRADE 65 (WELDED WIRE FABRIC SHEETS). BARS TO BE WELDED SHALL BE ASTM A706, GRADE 60.
- C. DIMENSIONS OF REINFORCING ARE TO BAR CENTERLINES U.N.O. IN DRAWINGS.
- D. MINIMUM CLEAR PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS:
  - 1. CONCRETE PLACED DIRECTLY AGAINST EARTH: = 3"
  - 2. FORMED SURFACES AND EXPOSED TO EXTERIOR (#5 BARS OR SMALLER): = 2"
  - 3. INTERIOR FACE OF WALLS: = 1 1/2"
  - 4. STRUCTURAL SLABS: = 1"
  - 5. ELEVATED SLABS, BEAMS & COLUMNS: = 1 1/2"
- E. MINIMUM REINFORCING LAP SPACES/DEVELOPMENT LENGTHS (F'c = 3,000 PSI):

| BAR SIZE | HOOK LENGTH (IN) | DEVL./SPUCE LENGTH (IN) |
|----------|------------------|-------------------------|
| 3        | 6                | 21                      |
| 4        | 8                | 28                      |
| 5        | 10               | 36                      |
| 6        | 12               | 43                      |
- F. STAGGER SPLICES IN WALLS SO THAT NO TWO ADJACENT BARS ARE SPLICED IN THE SAME LOCATION.
- G. REINFORCING SHALL BE CONTINUOUS THROUGH ALL COLD JOINTS.
- H. PROVIDE CORNER BARS w/ 18" LEGS AT CORNERS AND INTERSECTING WALLS AND FOOTINGS, SIZE AND PLACEMENT TO MATCH HORIZONTAL REINFORCEMENT.
- I. ALL REINFORCEMENT SHALL BE COLD BENT, UNLESS OTHERWISE PERMITTED BY THE BUILDING OFFICIAL AND ENGINEER OF RECORD. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE OR MASONRY SHALL NOT BE FIELD BENT, UNLESS PERMITTED BY THE BUILDING OFFICIAL AND ENGINEER OF RECORD.
- J. PROVIDE FOUNDATION HOLD-DOWNS AT ALL SHEAR WALL LOCATIONS PER PLAN, IF APPLICABLE, RE: SHEARWALL PLAN.
- K. WET SETTING OF REINFORCING BARS IN FOOTINGS AND WALLS IS NOT ALLOWED.

5 STRUCTURAL STEEL

- A. ALL STEEL CONSTRUCTION SHALL CONFORM TO REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF AISC, "AMERICAN INSTITUTE OF STEEL CONSTRUCTION", AISC 341-10, "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, INCLUDING SUPPLEMENT NO. 1, DATED 2010" AND AISC 360-10, "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS".
- B. STEEL DESIGNATIONS:
  - 1. WIDE FLANGE SHAPES (BEAMS & COLUMNS) = ASTM A992 (GRADE 50)
  - 2. OTHER ROLLED SHAPES & PLATE = ASTM A36 (U.N.O.) PIPE
  - 3. COLUMNS = ASTM A53, GRADE 'B'
  - 4. STRUCTURAL HSS TUBING = ASTM A500, GRADE 'B' 46 KSI
- C. ALL ANCHOR BOLTS, BOLTS AND LAGS IN WOOD SHALL CONFORM TO ASTM A307 STEEL U.N.O. AND SHALL HAVE STEEL WASHERS BENEATH ALL NUTS AND BOLT HEADS. IF A CERTAIN SITUATION IS NOT DETAILED USE A SIMILAR DETAIL. ALL STRUCTURAL BOLTS SHALL CONFORM TO ASTM A325-N. CONNECTIONS SHALL GENERALLY FOLLOW THE TYPES SHOWN IN AISC MANUAL OF STEEL CONSTRUCTION.
- D. STEEL FABRICATOR SHALL ALSO INCLUDE AND COORDINATE ALL STRUCTURAL STEEL SHOWN ON ARCHITECTURAL SHEETS WITH THAT OF THE STRUCTURAL SHEETS. COORDINATE ANY STEEL NOT SHOWN ON STRUCTURAL DRAWINGS. CONTRACTOR TO VERIFY.
- E. ALL BEAMS ELEVATIONS FOR JOISTS, BEAMS, AND COLLUM HEIGHTS SHALL BE COORDINATED AND VERIFIED BY THE CONTRACTOR. c/w/ ARCH. ALL ELEVATIONS SHALL BE APPROVED BY ENGINEER AND ARCHITECT OF RECORD IN THE SHOP DRAWING REVIEW PROCESS.
- F. ALL STEEL WELDING SHALL CONFORM TO AWS D1.1 WITH E70X ELECTRODES.
- G. PROVIDE HIGH STRENGTH GROUT UNDER ALL STEEL BASE PLATES, F'c = 5,000 PSI, MIN.

6 STRUCTURAL WELDS

- A. ALL WELDS ON MEMBERS COMPRISING THE SEISMIC-FORCE-RESISTING SYSTEM (MOMENT AND BRACE FRAMES) SHALL EMPLOY WELD FILLER METALS CLASSIFIED FOR NOMINAL 70 KSI TENSILE STRENGTH, REFERRED TO AS E70 ELECTRODES, MEETING THE FOLLOWING MINIMUM MECHANICAL PROPERTY REQUIREMENTS:
  - 1. C/W/ TOUGHNESS OF 20 FT-LB AT 0°F, USING AWS AS CLASSIFICATION TEST METHODS.
  - 2. C/W/ TOUGHNESS OF 40 FT-LB AT 70°F, USING THE TEST PROCEDURES PRESCRIBED IN APPENDIX A.
  - 3. YIELD STRENGTH: 58 KSI MINIMUM, USING BOTH THE AWS AS CLASSIFICATION TEST (FOR E70 CLASSIFICATION ELECTRODES) AND THE TEST PROCEDURES PRESCRIBED IN APPENDIX A.
  - 4. TENSILE STRENGTH: 70 KSI MINIMUM, USING BOTH THE AWS AS CLASSIFICATION TEST ( FOR E70 CLASSIFICATION ELECTRODES" AND THE TEST PROCEDURES PRESCRIBED IN APPENDIX A.
  - 5. ELONGATION: 22% MINIMUM, USING BOTH THE AWS AS CLASSIFICATION TEST AND THE TEST PROCEDURES PRESCRIBED IN APPENDIX A.

ABBREVIATIONS

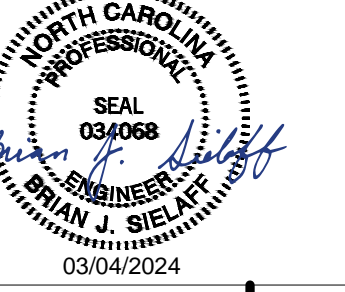
Table mapping abbreviations to full names. Columns include: (E) EXISTING, (F) FUTURE, (R) RENEW, (C) CENTERLINE, (D) DIAMETER OR ROUND, (P) PERPENDICULAR, (S) SQUARE, (N) NUMBER OR POUND, (AT) ANCHOR BOLT, (A.F.F.) ABOVE FINISH FLOOR, (ADJ.) ADJUSTABLE, (AGG.) AGGREGATE, (ALT.) ALTERNATIVE, (ALUM.) ALUMINUM, (APPROX.) APPROXIMATE, (ARCH.) ARCHITECTURAL, (B.O.) BOTTOM OF, (BTW/N) BETWEEN, (B.N.) BOUNDARY NAIL(ING), (B.U.) BUILT-UP, (BD.) BOARD, (BLDG.) BUILDING, (BLK.) BLOCK, (BLKG.) BLOCKING, (BM.) BEAM, (BOT.) BOTTOM, (C.C.) CENTER TO CENTER, (C.I.) CAST IRON, (C.I.P.) CAST IN PLACE, (CMU) CONCRETE MASONRY UNIT, (CLG.) CEILING, (CLR.) CLEAR, (CNTRSK.) COUNTERSUNK, (COL.) COLUMN, (CONC.) CONCRETE, (CONTINUOUS) CONTINUOUS, (CORR.) CORRIDOR, (CW/) COORDINATE WITH, (D.) DEEP, (D.B.A.) DEFORMED BAR ANCHOR, (D.F.) DOUGLAS FIR, (DET.) DETAIL, (DIA.) DIAMETER, (DIAG.) DIAGONAL, (DIM.) DIMENSION, (DN.) DOWN, (DWG.) DRAWING, (E.B.) EXPANSION BOLT, (E.B.E.) ECCENTRICALLY BRACED FRAME, (E.J.) EXPANSION JOINT, (E.N.) EDGE NAIL(ING), (EA.) EACH, (EL.) ELEVATION, (ELEC.) ELECTRICAL, (ELEV.) ELEVATOR, (EMBED.) EMBEDMENT, (E.O.R.) ENGINEER OF RECORD, (E.S.) EDGE SCREW(ING), (EQ.) EQUAL, (EQUIP.) EQUIPMENT, (EXP.) EXPANSION, (EXT.) EXTERIOR, (F.O.) FLOOR DRAIN, (F.F.) FINISHED FLOOR, (FDN.) FOUNDATION, (FIN.) FINISH, (FL.) FLOORING, (FLASH.) FLASHING, (F.S.) FAR SIDE, (FT.) FOOT OR FEET, (FTG.) FOOTING, (FTW.) FIRE TREATED WOOD, (FURR.) FURRING, (GA.) GAUGE OR GAGE, (GALV.) GALVANIZED, (GSN) GENERAL STRUCTURAL NOTES, (GYP.) GYPSUM, (HIGH) HIGH, (H.C.A.) HEADED CONCRETE ANCHOR, (HSS) HOLLOW STRUCTURAL STEEL, (HORIZ.) HORIZONTAL, (HR.) HOUR, (HT.) HEIGHT, (HVAC) HEATING VENTILATING AND AIR CONDITIONING, (I.D.) INSIDE DIAMETER, (IN) INCH, (INSUL.) INSULATION, (INT.) INTERIOR, (JT.) JOINT, (L.F.) LINEAL FEET OR FOOT, (LLV) LONG LEG VERTICAL, (LLH) LONG LEG HORIZONTAL, (LSL) LAMINATED LAMINATED STRAND LUMBER, (LAM.) LAMINATE, (LVL) LAMINATED VENEER LUMBER, (LBS.) POUNDS, (M.B.) MACHINE BOLT, (N.H.) NUT/HOLE, (MANHOLE) MANHOLE, (MAX.) MAXIMUM, (MECH.) MECHANICAL, (MET.) METAL, (MFR.) MANUFACTURER, (MIN.) MINIMUM, (MISC.) MISCELLANEOUS, (MTD) MOUNTED MATERIAL, (N) NORTH, (N.I.C.) NOT IN CONTRACT, (N.T.S.) NOT TO SCALE, (NUMBER) NUMBER, (NOM.) NOMINAL, (O/H) OVERHEAD, (O/) OVER ALL, (Q.A.) ON CENTER, (O.C.) OUTSIDE DIAMETER, (O.D.) OPPOSITE HAND, (OPNG.) OPENING, (OPP.) OPPOSITE, (OZ.) OUNCE, (P.A.F.) POWDER ACTUATED FASTENER, (P/L) PROPERTY LINE, (PL) PLATE, (PLYWD.) PLYWOOD, (PRE-ENG.) PRE-ENGINEERED METAL BUILDING, (P.T.) PRESSURE TREATED, (P.S.L.) PARALLEL STRAND LUMBER, (R.) RADIUS OR RISER, (ROOF DRAIN) ROOF DRAIN, (RE-) REFERENCE (CW/) REINFORCE(D), (REQD.) REQUIRED, (RMA) ROOM, (RTU) ROOF TOP UNIT, (S.C.) SOLID CORE, (S.F.) SQUARE FEET OR FOOT, (S.S.) STAINLESS STEEL, (SCHED.) SCHEDULE, (SECT.) SECTION, (SHT.) SHEET, (SIM.) SIMILAR OR SIMILAR TO, (SPECS.) SPECIFICATIONS, (SQ.) SQUARE, (STD.) STANDARD, (STRUC.) STRUCTURAL, (SUSP.) SUSPENDED, (SYM.) SYMMETRICAL, (TAG & GROOVE) TAG & GROOVE, (THICKNESS) THICKNESS, (THRU) THROUGH, (T/J) TRUSS JOIST I-JOIST, (TYP.) TYPICAL, (U.B.C.) UNIFORM BUILDING CODE, (U.O.N.) UNLESS OTHERWISE NOTED, (U.N.O.) UNLESS NOTED OTHERWISE, (VERT.) VERTICAL, (W/) WITH, (W/O) WITHOUT, (WD.) WOOD, (W.) WIDE, (W.W.F.) WELDED WIRE FABRIC

SHEET LIST

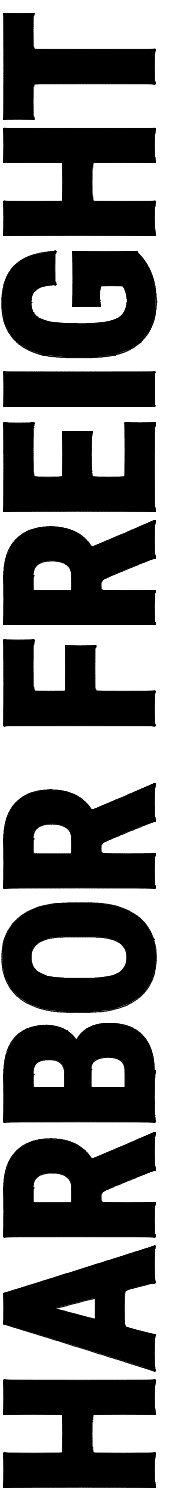
Table with columns: SHEET NUMBER, SHEET NAME. Rows: S0.0 GENERAL STRUCTURAL NOTES, S0.1 GENERAL STRUCTURAL NOTES, S0.2 CONCRETE SLAB SPECS w/ FIBER, S1.0 PARTIAL FLOOR & ROOF FRAMING PLAN, S2.0 STRUCTURAL DETAILS, S2.1 STRUCTURAL DETAILS.



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REVISIONS

Table with columns: #, DATE, TYPE, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. All cells are empty.

GENERAL STRUCTURAL NOTES

DATE 03/04/24

JOB NO. 23591

S0.0

SHEET NO.

**1 POST-INSTALLED ANCHORS**

- A. ADHESIVE ANCHORS
- APPROVED ADHESIVE FOR CONCRETE:
    - HILTI HIT-RE 500V3 WITH SAFEST TECHNOLOGY (ICC-ES ESR-3814)
    - HILTI HIT-HY 200 WITH SAFEST TECHNOLOGY (ICC-ES ESR-3187)
    - DEWALT PURE 110+ (ICC-ES ESR-4057)
    - SIMPSON SET-G3 (ICC-ES ESR-2508)
  - APPROVED ADHESIVE FOR GROUTED MASONRY:
    - HILTI HIT-HY 270 (ICC-ES ESR-4143)
    - HILTI HIT-HY-200 (ICC-ES ESR-3963)
    - SIMPSON SET-G3 (ICC-ES ESR-4884)
    - DEWALT AC100+GOLD (ICC-ES ESR-3200)
  - APPROVED ADHESIVE FOR UNGROUTED MASONRY:
    - HILTI HIT-HY 270 (ICC-ES ESR-4143)
    - DEWALT AC100+GOLD (ICC-ES ESR-3200)
  - APPROVED ADHESIVE FOR UNREINFORCED MASONRY OR BRICK:
    - HILTI HIT-HY 270 (ICC-ES ESR-4144)
    - DEWALT AC100+GOLD (ICC-ES ESR-4105)
  - PLASTIC MESH OR STAINLESS-STEEL SCREEN TUBES SHALL BE USED FOR HOLLOW MASONRY IF INDICATED BY E.O.R. ON STRUCTURAL PLANS.
  - FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION TESTING REPORTS FOR ADHESIVE INSTALLATION.
  - ALTERNATIVE EPOXIES MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN CRACKED CONCRETE IS SUBMITTED TO THE E.O.R. AND APPROVED PRIOR TO USE.
  - UTILIZE HOLE CLEANING AS RECOMMENDED FOR THE PRODUCT BY THE MANUFACTURER, REFER TO THE MANUFACTURED PUBLISHED INSTALLATION INSTRUCTIONS (MPII) FOR INSTALLATION INSTRUCTIONS.
  - EPOXY SHALL BE WITHIN THE MANUFACTURERS RECOMMENDED LIFE TIME AND PRIOR TO EXPIRATION DATE. DO NOT USE EPOXY THAT HAS NOT BEEN STORED PER MANUFACTURERS RECOMMENDATIONS AND MAY HAVE EXPERIENCED FREEZE THAW CYCLES OR EXTREME HEAT.
  - DO NOT INSTALL ADHESIVE ANCHORS IN CONCRETE IF CONCRETE IS LESS THAN 21 DAYS OLD, CONTRACTOR MUST OBTAIN WRITTEN APPROVAL FROM THE E.O.R. TO INSTALL IN THE 7-21 DAY TIME PERIOD.
  - DO NOT INSTALL ADHESIVE ANCHORS IF SUBSTRATE TEMPERATURE IS BELOW 40 DEGREE F UNLESS EPOXY IS APPROVED FOR LOWER TEMPERATURE, REFER TO MANUFACTURERS PUBLISHED INSTALLATION INSTRUCTIONS (MPII)
  - DO NOT INSTALL ADHESIVE ANCHOR IN WET OR DAMP HOLE UNLESS PRODUCT IS APPROVED FOR SUCH CONDITIONS WITHOUT STRENGTH REDUCTION, CONTACT ENGINEER IF HOLES BECOME WET OR DAMP.
  - ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR VERTICAL OVERHEAD ORIENTATION TO SUPPORT SUSTAINED TENSION LOADS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI (ACI 318) PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO E.O.R. FOR APPROVAL PRIOR TO INSTALLATION.
    - SHOULD AN ACI CERTIFIED INSTALLER NOT BE AVAILABLE AT A MINIMUM THE INSTALLER SHALL BE TRAINED BY THE MANUFACTURERS EMPLOYED REPRESENTATIVE.
    - INSTALLATION OF ANCHORS SHALL HAVE CONTINUOUS OR PERIODIC INSPECTION IN ACCORDANCE WITH CURRENT IBC AND WHERE DESIGNATED IN THE SPECIAL INSPECTIONS PROGRAM.
    - HOLES WILL BE EPOXY FILLED UTILIZING A "PISTON PLUG" OR EQUIVALENT DEVICE TO ELIMINATE THE POSSIBILITY OF AIR GAPS.
  - BARS AND RODS USED MUST BE DEFORMED OR THREADED FOR THE FULL EMBEDMENT DEPTH EPOXY IS APPLIED.
- B. MECHANICAL ANCHORS
- APPROVED MECHANICAL ANCHORS FOR CONCRETE:
    - HILTI KWIK BOLT T22 (ICC-ES ESR-4266)
    - SIMPSON STRONG-BOLT 2 (ICC-ES ESR-3037)
    - DEWALT POWER-STUD-SD2 (ICC-ES ESR-2502)
  - APPROVED MECHANICAL ANCHORS FOR GROUTED MASONRY:
    - HILTI KWIK BOLT T22 (ICC-ES ESR-4561)
    - SIMPSON WEDGE-ALL (ICC-ES ESR-1396)
    - SIMPSON STRONG-BOLT 2 (IAPMO-UES ER-240)
    - DEWALT POWER-STUD-SD1 (ICC-ES ESR-2966)
  - FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION TESTING REPORTS FOR MECHANICAL ANCHOR INSTALLATION.
  - ALTERNATIVE MECHANICAL ANCHORS MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN CRACKED CONCRETE IS SUBMITTED TO THE STRUCTURAL ENGINEER AND APPROVED PRIOR TO USE.
  - DO NOT INSTALL MECHANICAL ANCHORS IN CONCRETE LESS THAN 7 DAYS OLD, CONTRACTOR MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO INSTALL IN THE 7-21 DAY TIME PERIOD.
- C. SCREW ANCHORS
- APPROVED SCREW ANCHORS FOR CONCRETE:
    - HILTI KWIK-HUS-EZ (ICC-ES ESR-3027)
    - SIMPSON TITEN HD (ICC-ES ESR-2713)
    - DEWALT SCREW BOLT+ (ICC-ER ESR-3889)
  - APPROVED SCREW ANCHORS FOR GROUTED MASONRY:
    - HILTI KWIK-HUS-EZ (ICC-ES ESR-3056)
    - SIMPSON TITEN HD (ICC-ES ESR-1056)
    - DEWALT WEDGE-BOLT+ (ICC-ER ESR-2526)
  - FOLLOW ALL OF THE MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION TESTING REPORTS FOR SCREW ANCHOR INSTALLATION.
  - ALTERNATIVE SCREW ANCHORS USED IN CONCRETE APPLICATION MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN CRACKED CONCRETE IS SUBMITTED TO THE E.O.R. PRIOR TO USE.
  - ALTERNATIVE SCREW ANCHORS USED IN GROUTED MASONRY APPLICATION MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN GROUTED MASONRY IS SUBMITTED TO THE E.O.R. AND APPROVED PRIOR TO USE.
- D. POWDER ACTUATED FASTENERS
- APPROVED POWDER ACTUATED FASTENERS DRIVEN INTO STEEL:
    - HILTI X-U P8 TH UNIVERSAL KNURLED SHANK FASTENER (ICC-ES ESR-2269)
    - SIMPSON PDPA DRIVE PIN (ICC-ES ESR-2138)
    - DEWALT 8MM HEAD SPIRAL CSI DRIVE PIN (ICC-ES ESR-2024)
  - APPROVED POWDER ACTUATED FASTENERS DRIVEN INTO CONCRETE:
    - HILTI X-U UNIVERSAL KNURLED SHANK FASTENER (ICC-ES ESR-2269)
    - SIMPSON PDPA (ICC-ES ESR-2138)
    - DEWALT 8MM HEAD SPIRAL CSI DRIVE PIN (ICC-ES ESR-2024)
  - APPROVED POWDER ACTUATED FASTENERS DRIVEN INTO MASONRY:
    - HILTI X-U UNIVERSAL KNURLED SHANK FASTENER (ICC-ES ESR-2269)
    - SIMPSON PDPA (ICC-ES ESR-2138)
  - FOLLOW THE MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION TESTING REPORTS FOR POWDER ACTUATED FASTENER INSTALLATION.
  - ALTERNATIVE POWDER ACTUATED FASTENERS MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN CRACKED CONCRETE IS SUBMITTED TO THE E.O.R. AND APPROVED PRIOR TO USE.
  - ALTERNATIVE POWDER ACTUATED FASTENERS MAY BE USED IF AN (ICC-ES ESR) OR (IAPMO-UES ER) APPROVAL FOR USE IN MASONRY IS SUBMITTED TO THE E.O.R. AND APPROVED PRIOR TO USE.
- E. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY MANUFACTURER OR SUCH OTHER METHOD AS APPROVED BY THE E.O.R. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE E.O.R. PRIOR TO USE. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.
- F. REFER TO STRUCTURAL DRAWINGS FOR EMBEDMENT DEPTH, ROD TYPE AND SIZE, AND OTHER SPECIFIC INFORMATION.
- G. DO NOT APPLY LOAD TO ANCHOR UNTIL CONCRETE OR GROUT HAS REACHED FULL DESIGN STRENGTH.
- H. ALL HOLES SHALL BE DRILLED WITH ANSI STANDARD BIT DESIGNED FOR CONCRETE OR HOLLOW DRILL BIT, DIAMOND CORED HOLES ARE NOT ALLOWED UNLESS INDICATED IN DESIGN DETAIL OR PRE-APPROVED BY THE E.O.R.
- I. ABANDONED HOLES – NO ANCHOR SHALL BE INSTALLED WITHIN 1.5 ROD DIAMETERS OF AN ABANDONED HOLE THAT HAS BEEN GROUT FILLED. (3.0 ROD DIAMETERS FOR UN-GROUTED HOLES).
- J. OVER DRILL BAR DIAMETER BY "X" U.N.O. BY THE MANUFACTURER AND TO THE REQUIRED DEPTH AS INDICATED ON THE STRUCTURAL DRAWINGS.
- K. REMOVE ALL DIRT, DUST, WATER AND ICE FROM DRILLED HOLES BEFORE INSTALLATION.
- L. REMOVE ANY DIRT, DUST, RUST OR OIL ON BAR OR ROD BEFORE INSTALLATION U.N.O.
- M. ALL MANUFACTURERS RECOMMENDATIONS SHALL BE FOLLOWED EXACTLY.

**2 MASONRY/STONE VENEER**

- GENERAL REQUIREMENTS:
  - ALL MASONRY CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", ACI 530/ASCE 5/TMS 402 AND "SPECIFICATION FOR MASONRY STRUCTURES", ACI 530.1/ASCE 6/TMS 602.
  - ALL MASONRY WALLS SHALL BE TEMPORARILY BRACED DURING CONSTRUCTION TO RESIST LATERAL LOADS UNTIL PERMANENT RESTRAINTS HAVE BEEN INSTALLED.
  - ALL MASONRY, GROUTING AND REINFORCING WORK SHALL BE PERFORMED BY A QUALIFIED MASONRY CRAFTWORKER.
  - EMBEDDED CONDUITS, PIPES AND SLEEVES SHALL BE COMPATIBLE WITH MASONRY AND SHALL NOT BE LOCATED VERTICALLY IN GROUTED CELLS. PIPES CONTAINING WATER SUBJECT TO FREEZING, MATERIALS IN EXCESS OF 150" OR PIPES UNDER PRESSURE IN EXCESS OF 55 PSI SHALL NOT BE EMBEDDED IN MASONRY. GENERAL CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL EMBEDDED ITEMS WITH THE E.O.R. PRIOR TO CONSTRUCTION.
- MEMBER REQUIREMENTS:
  - CONCRETE MASONRY UNITS MUST BE NORMAL WEIGHT WITH (2) CELLS, TYPE 1, GRADE N. THE MINIMUM SPECIFIED NET AREA COMPRESSIVE STRENGTH OF MASONRY (F'M) SHALL BE 2000 PSI AT 28 DAYS AND SHALL CONSIST OF THE FOLLOWING COMPONENTS AND CONFORM THE LISTED ASTM SPECIFICATION:
    - CONCRETE MASONRY UNIT:
      - INDIVIDUAL CONCRETE MASONRY UNIT COMPRESSION STRENGTH = 3250 PSI OR GREATER (ASTM C90)
      - GROUT COMPRESSIVE STRENGTH = 2500 PSI OR GREATER (ASTM C476)
      - MORTAR = TYPE 5 (ASTM C270)
    - BRICK UNIT MASONRY:
      - INDIVIDUAL CONCRETE MASONRY UNIT COMPRESSION STRENGTH = 4400 PSI OR GREATER (ASTM C216)
      - MORTAR = TYPE N (ASTM C270)
  - ALL CONCRETE MASONRY UNITS MUST BE LAID IN RUNNING BOND, UNLESS NOTED OTHERWISE.
  - PROVIDE CONTINUOUS BOND BEAMS AS SHOWN ON THE STRUCTURAL DRAWINGS, SPACED NO FURTHER THAN 4" ON CENTER VERTICALLY.
  - INDIVIDUAL GROUT LISTS MUST NOT EXCEED 4 FEET IN HEIGHT.
  - ALL BLOCK CELLS AND CAVITIES BELOW GRADE MUST BE FILLED SOLID WITH GROUT.
  - ALL BLOCK CELLS CONTAINING REINFORCEMENT OR ANCHORS MUST BE FILLED SOLID WITH GROUT. ALL GROUT SHALL BE CONSOLIDATED IN PLACE BY MECHANICAL VIBRATION AND RECONSOLIDATED AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED BUT BEFORE WORKABILITY IS LOST, TO ENSURE COMPLETE FILLING OF CELLS.
  - LAY MASONRY UNITS WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS.
  - MORTAR BED JOINTS MUST NOT EXCEED 5/8" THICKNESS.
  - DO NOT SUBSTITUTE MORTAR FOR GROUT. MORTAR PROTRUSIONS, EXTENDING INTO CELLS OR CAVITIES THAT ARE TO BE REINFORCED AND FILLED, SHALL BE REMOVED.
  - THE COLLAR JOINT IN MULTI-WYTHE WALLS BELOW GRADE SHALL BE FULLY GROUTED AS THE WALL IS CONSTRUCTED.
  - PROVIDE VERTICAL CONTROL JOINTS IN MASONRY WALLS AT LOCATIONS INDICATED ON THE DRAWINGS. CONTROL JOINTS SHALL EXTEND THROUGH THE ENTIRE WALL THICKNESS, EXCEPT AT CONTINUOUS BOND BEAMS WHERE THE MASONRY SHALL BE SCORED ONLY.
- REINFORCEMENT REQUIREMENTS:
  - DO NOT INTERRUPT BOND BEAM REINFORCEMENT AT WALL JOINTS.
  - PLACE REINFORCEMENT BARS BEFORE GROUTING. PROPERLY SECURE REINFORCING BARS TO MAINTAIN THE POSITIONS INDICATED ON THE DRAWINGS. BARS TO BE LOCATED IN THE CENTER OF CELLS U.N.O., WHERE DRAWINGS CALL FOR (2) BARS PER CELL, PROVIDE "X" CLEARANCE FROM THE INSIDE FACE OF THE BLOCK TO EDGE OF VERTICAL REINFORCEMENT.
  - LAP REINFORCING BARS PER REBAR LAP SCHEDULE U.N.O. TACK WELDING OF REINFORCING BARS IS NOT ALLOWED.
  - U.N.O. THERE SHALL BE A MIN. OF (1) #4 BAR ON ALL SIDES OF EVERY OPENING WHICH IS LESS THAN 48" WHERE OPENINGS ARE 48" OR GREATER, A MIN. OF (2) #5 BARS SHOULD BE USED. IN BOTH CASES, THE BARS SHALL EXTEND NOT LESS THAN 24" BEYOND THE TOP CORNER OF THE OPENINGS.
  - ALL CONCRETE MASONRY UNITS SHALL HAVE GALVANIZED SIDE AND CROSS RODS (LADDER TYPE) HORIZONTAL JOINT REINFORCEMENT AS FOLLOWS:
    - 9GA. SPACED AT 16" O.C. VERTICALLY U.N.O. WITH 8" FULL SPLICE LENGTH.
    - 9GA. SPACED AT 8" O.C. VERTICALLY IN PARAPETS WITH 8" FULL SPLICE LENGTH.
  - DOWELS, ANCHORS AND OTHER EMBEDDED ITEMS SHALL BE TIED SECURELY IN PLACE TO PREVENT MOVEMENT WHILE GROUTING.
- SUBMITTAL REQUIREMENTS
  - PRODUCT DATE/MATERIAL CERTIFICATES: SUBMIT DATA AND CERTIFICATED FOR MASONRY UNITS, CEMENTITIOUS MATERIALS, MOTOR, GROUT, MORTAR ADMIXTURES, PRE-BLENDED DRY MORTAR MIXES, JOINT REINFORCED, ANCHORS, TIES AND METAL ACCESSORIES.
  - SHOP DRAWINGS/REINFORCEMENT: SUBMIT SHOP DRAWINGS THAT SHOW ELEVATIONS OF REINFORCED WALLS, DETAILED BENDING, LAP LENGTHS AND PLACEMENT OF REINFORCING BARS.

| SPECIAL INSPECTIONS PROGRAM  |            |          |   |
|--|------------|----------|---|
| ESTABLISHED PER 2018 NCBC (2015 IBC) CHAPTER 17  |            |          |   |
| ITEM   | CONTINUOUS | PERIODIC | COMMENTS  |
| GENERAL STRUCTURAL INSPECTIONS AS REQUIRED BY SECTION 1704.4                             |            |          |   |
| SLAB REINFORCEMENT   |            |          | BY BUILDING OFFICIAL                                    |
| FINAL INSPECTION   |            |          | BY BUILDING OFFICIAL                                    |
| CONCRETE   |            |          |   |
| REINFORCING SIZE AND PLACEMENT   |            | X        | ACI 318: 20, 25.2, 25.3, 26.6.1-26.6.3                  |
| INSPECT ANCHORS CAST IN CONCRETE   | X          |          | ACI 318: 17.8.2   |
| VERIFY USE OF REQUIRED DESIGN MIX  |            | X        | IBC 1904.1, 1904.2, 1908.3, ACI 318: 19, 26.4.3, 26.4.4 |
| PREPARATION OF TEST SPECIMENS  | X          |          | ASTM C 172, ASTM C 31, ACI 318: 26.4, 26.12             |
| CONCRETE PLACEMENT   | X          |          | ACI 318: 26.5   |
| LIGHT WEIGHT CONCRETE AIR-DRY UNIT WEIGHT  | X          |          | ACI 318/EOR   |
| MAINTENANCE OF SPECIFIED CURING TEMPERATURES AND TECHNIQUES                              |            | X        | ACI 318: 26.5.3-26.5.5                                  |
| INSPECT FORM WORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED |            | X        | ACI 318: 26.11.1.2(b)                                   |
| WELDING- STRUCTURAL STEEL  |            |          |   |
| MATERIAL VERIFICATION OF WELD FILLER MATERIALS   |            |          | AISC 360, SECTION A3.5                                  |
| COMPLETE AND PARTIAL PENETRATION   | X          |          |   |
| MULTIPASS FILLET WELDS   | X          |          |   |
| SINGLE PASS FILLETS > 5/16"  | X          |          | IBC 1705.3.2, AWS D1.1                                  |
| SINGLE PASS FILLETS ≤ 5/16"  |            | X        |   |
| FLOOR AND ROOF DECK WELDS  |            | X        | AWS D1.3  |
| WELDED STUDS   |            | X        | IBC 1705.3.2  |
| WELDING OF STAIRS AND RAILING SYSTEMS  |            | X        | IBC 1705.3.2  |
| SPECIAL CASES: (IBC 1705.1.1)  |            |          |   |
| EPOXY OR ADHESIVE ANCHOR PLACEMENT   | X          |          | IF REQUIRED BY BUILDING OFFICIAL                        |
| EXPANSION OR SCREW ANCHOR PLACEMENT  | X          |          | IF REQUIRED BY BUILDING OFFICIAL                        |

**3 GENERAL STRUCTURAL NOTES**

- ALL ELEVATIONS AND HEIGHTS GIVEN ARE FROM THE FINISHED FLOOR DATUM ELEVATION, WHICH IS SET AT 100'-0".
- DO NOT SCALE DRAWINGS, CONTACT A.O.R. OR E.O.R. FOR DIMENSION CLARIFICATIONS PRIOR TO CONSTRUCTION.
- VERIFY ALL OPENINGS, BUILDING DIMENSIONS, COLUMN GRID LOCATIONS AND DIMENSIONS WITH OWNER PRIOR TO POURING OF ANY CONCRETE FOUNDATIONS OR CONSTRUCTION.
- THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS SUCH CHANGES ARE AUTHORIZED IN WRITING TO THE STRUCTURAL ENGINEER OF RECORD.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SAFE AND ADEQUATE SHORING AND/OR TEMPORARY STRUCTURAL STABILITY FOR ALL PARTS OF THE STRUCTURE DURING CONSTRUCTION. THE STRUCTURE SHOWN ON THE DRAWINGS HAS BEEN DESIGNED FOR FINAL CONFIGURATION.
- NOTCHING AND/OR CUTTING OF ANY STRUCTURAL MEMBER IN THE FIELD IS PROHIBITED, UNLESS PRIOR CONSENT IS GIVEN BY THE STRUCTURAL ENGINEER OF RECORD.
- IT IS NECESSARY THAT THE STRUCTURAL DRAWINGS BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS TO HAVE A COMPLETE SCOPE OF WORK INVOLVED IN THIS PROJECT.

**4 STRUCTURAL OBSERVATIONS**

- PER IBC SECTION 1709, STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY A REPRESENTATIVE FROM THE ENGINEER OF RECORD'S OFFICE (TAMARACK GROVE ENGINEERING, PLLC) OR AN APPOINTED REPRESENTATIVE TO PERFORM ON-SITE STRUCTURAL OBSERVATION VISITS DURING SIGNIFICANT TIMES OF CONSTRUCTION-RELATED TO OUR DEFERRED SUBMITTAL SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL SIGNIFICANT TIMES OF CONSTRUCTION WITH THE ENGINEER OF RECORD'S OFFICE PRIOR TO THE COMPLETION POINT REQUIRING SITE OBSERVATIONS FOR THE CONSTRUCTION AND/OR PLACEMENT (MINIMUM OF 4 CALENDAR DAYS). SIGNIFICANT TIMES OF CONSTRUCTION ARE AS FOLLOWS:
  - CONCRETE FOUNDATION AND REBAR PLACEMENT.
  - PLACEMENT OF PERIMETER LOAD BEARING WALLS, LOAD SUPPORTING BEAMS, FLOOR FRAMING AND/OR HEADERS AND LATERAL RESISTING CONNECTION ELEMENTS.
  - COMPLETION OF ROOF FRAMING AND LATERAL BRACING (SHEAR WALLS), PRIOR TO COVERING WITH ANY ARCHITECTURAL FINISHES.
  - COMPLETION OF ALL STRUCTURAL SYSTEMS AS REQUIRED AND/OR DEFINED BY THE LOCAL JURISDICTION.
- STRUCTURAL OBSERVATIONS DO NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE SPECIAL INSPECTIONS REQUIRED BY THE IBC SECTION 1704 OR OTHER SECTIONS OF THE CODE AS REQUIRED BY THE LOCAL BUILDING JURISDICTION.
- STRUCTURAL OBSERVATIONS REQUIRED IN OBSERVANCE OF SECTION 1704 OR PER LOCAL JURISDICTION.

**5 EXISTING CONDITIONS**

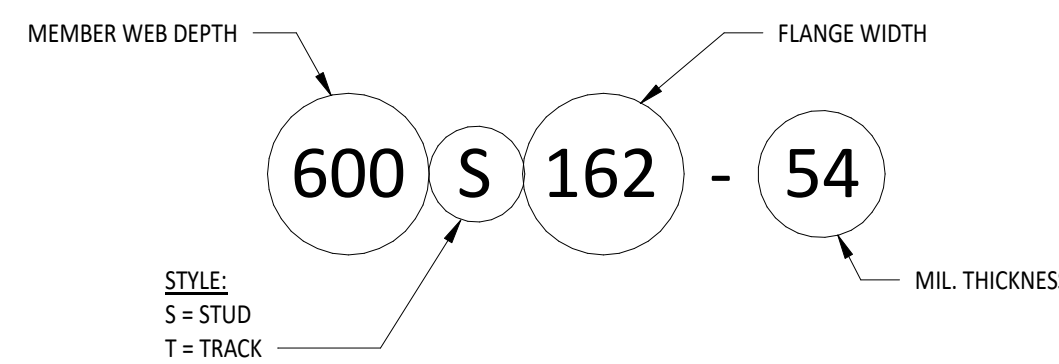
- CONTRACTOR SHALL VERIFY ANY AND ALL APPLICABLE EXISTING CONDITIONS. CONSTRUCTION, DIMENSIONS AND ELEVATIONS AND IMMEDIATELY NOTIFY ARCH. AND EOR OF ANY DISCREPANCIES BEFORE PROCEEDING WITH ANY CONSTRUCTION.

**6 SPECIAL INSPECTIONS AND TESTING**

- AS REQUIRED BY THE LOCAL JURISDICTION.

**7 LIGHT GAUGE STEEL FRAMING**

- MEMBER REQUIREMENTS:
  - DESIGN, FABRICATION AND ERECTION OF LIGHT GAUGE STEEL FRAMING SHALL CONFORM TO THE SPECIFICATIONS AND STAND OF THE AMERICAN IRON AND STEEL INSTITUTE (AISI), AS CONTAINED IN THE "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION, INCLUDING ALL APPLICABLE AMENDMENTS.
  - FRAMING MEMBER AND ACCESSORIES SHALL CONFORM TO:
    - 16 GAUGE AND HEAVIER =ASTM A1003, GR. 50
    - GALVANIZED =ASTM A 653, GR. 50
    - PAINTED =ASTM A 570, GR. 50
    - 18 GAUGE AND LIGHTER =ASTM A1003, GR. 33
    - GALVANIZED =ASTM A 653, GR. 33
    - PAINTED =ASTM A 570, GR. C
  - FOR MEMBERS 54 MILS (16 GAUGE) THICK OR THICKER, ALL STRUCTURAL MEMBERS SHALL HAVE A MIN. YIELD STRENGTH OF 50 KSI. U.N.O. ALL THINNER SHALL HAVE MIN. YIELD STRENGTH OF 33 KSI.
  - ALL CONT. TRACKS SHALL BE UNPUNCHED AND MATCH STUD GAUGE U.N.O. TYPICAL GAP AT SLOTTED SLIP TRACKS SHALL BE 3/4". U.N.O.
  - ALL MEMBERS SHALL CONFORM TO THE SECTION PROPERTIES TABLE OF STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) (ICPO ER-4943P).
  - WALL STUD BRIDGING AS RECOMMENDED BY MFR SHALL BE INSTALLED AT 4'-0" O.C. TO PREVENT BOTH WEAK AXIS BENDING AND STUD ROTATION. WALLS 8'-0" OR SHORTER SHALL HAVE A SINGLE ROW OF BRIDGING AT MID-HEIGHT. ADDITIONALLY, BRIDGING SHALL BE PROVIDED AT ROOF LINES AND WHERE NOTED ON THE DRAWINGS. SOLID BRIDGING SHALL BE INSTALLED IN LIEU OF BRIDGING WHERE NOTED ON THE DRAWINGS. WALL STUD BRIDGING ONLY REQUIRED WHEN WALL SHEATHING/DRYWALL IS NOT PROVIDED ON EITHER SIDE.
  - ALL MEMBERS SHALL BE ERECTED PLUMB AND BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK. U.N.O.
  - SPLICING OF AXIALLY LOADED STUDS OR BRACING IS NOT PERMITTED.
  - FRAMING COMPONENTS SHALL BE CUT SQUARELY OR TO THE EXACT ANGLE TO TIGHT FIT THE ABUTTING MEMBERS. MEMBERS SHALL BE HELD FIRMLY UNTIL PROPERLY FASTENED.
  - PROVIDE BACK-TO-BACK OR NESTED MEMBERS AT ALL JAMBS, CORNERS, INTERSECTIONS AND BEAM BEARING. U.N.O.
  - FOR LEDGER TRACK CONDITIONS, THE SUPPORTED FRAMING IS TO BE WITHIN 1/8" OF TRACK LEDGER WEB.
  - PUNCH OUTS SHALL NOT BE LOCATED WITHIN 10" FROM ANY SUPPORT, BEARING LOCATIONS OR APPLIED LOAD.
  - NOTCHING OR COPING OF STUDS IS NOT ALLOWED, UNLESS SPECIFICALLY NOTED.
  - TYPICAL LIGHT GAUGE STEEL FRAMING MEMBER NOTATION SHOWN BELOW:

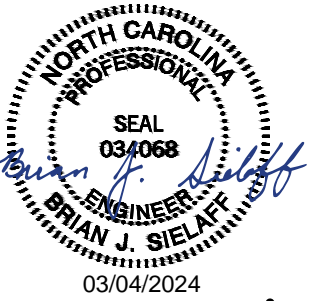


**B. FASTENING/WELDING REQUIREMENTS**

- FASTENING OF COMPONENTS SHALL BE WITH #10 SELF-TAPPING SCREWS OR WELDS AND FOLLOW THE LATEST EDITION OF THE AISI GUIDELINE RECOMMENDATIONS. WIRE TYPING OF COMPONENTS IS NOT PERMITTED.
- SCREWS SHALL BE SELF-TAPPING PAN HEAD, HEX HEAD OR WAFER HEAD SHEET METAL SCREWS AND HAVE A MINIMUM THREE (3) THREADS PENETRATION INTO SUPPORTING MEMBER. SCREWS WHICH ARE REMOVED SHALL BE REPLACED BY A SCREW OF A LARGER DIA. WHERE THE REPLACEMENT IS MADE INTO AN EXISTING HOLE. REPLACE ALL SCREWS WITH STRIP OUT MATERIAL. SCREWS SHALL BE SPACED NO CLOSER THAN 5/8" O.C. AND WITH A MIN. FREE EDGE DISTANCE OF 1/2". CLIP ANGLES OR FLAT CLIPS USED FOR ATTACHMENT SHALL BE 18 GA. MIN. U.N.O. ALL SCREWS #8 AND LARGER SHALL HAVE A MIN. HEAD SIZE OF 5/16".
- ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAUGE STEEL FRAMING WORK. ALL WELDING SHALL CONFORM WITH THE LATEST AMERICAN WELDING SOCIETY STANDARDS AND CONFORM TO THE FOLLOWING (MIN. ROD DIA. =1/8"):
  - 18 GAUGE AND LIGHTER: E60XX
  - 16 GAUGE AND HEAVIER: E70XX
  - LIGHT GAUGE TO STRUCTURAL STEEL: E70XX (LOW HYDROGEN)
- ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP WITH ZINC-RICH PAINT. ALL WELDS OF CARBON SHEET STEEL SHALL BE TOUCH UP WITH RUST INHIBITIVE PAINT.



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**REVISIONS**

| DATE | TYPE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|------|---|---|---|---|---|---|---|---|---|----|
|      |      |   |   |   |   |   |   |   |   |   |    |

**GENERAL STRUCTURAL NOTES**

DATE 03/04/24  
JOB NO. 23591

**S0.1**  
SHEET NO.

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1 CONCRETE CIP SPECIFICATIONS

PART 1 - HARBOR FREIGHT GENERAL QUALITY ASSURANCE

- 1. CONCRETE SUPPLIER: A FIRM EXPERIENCED IN PRODUCING READY-MIXED CONCRETE THAT COMPLIES WITH ASTM C94 REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT. COMPLY WITH ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE."
1. MANUFACTURER CERTIFIED ACCORDING TO NRMCA'S "CERTIFICATION OF READY MIXED CONCRETE PRODUCTION FACILITIES." CERTIFICATION SHALL NOT BE MORE THAN TWELVE MONTHS OLD.
2. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY, QUALIFIED ACCORDING TO ASTM C1077 AND ASTM E329 FOR TESTING INDICATED, AS DOCUMENTED ACCORDING TO ASTM E 548.
1. PERSONNEL CONDUCTING FIELD TESTS SHALL BE QUALIFIED AS ACI CONCRETE FIELD TESTING TECHNICIAN, GRADE 1, ACCORDING TO ACI CP-01 OR AN EQUIVALENT CERTIFICATION PROGRAM.
2. PERSONNEL PERFORMING LABORATORY TESTS SHALL BE ACI CERTIFIED CONCRETE STRENGTH TESTING TECHNICIAN AND CONCRETE LABORATORY TESTING TECHNICIAN (GRADE I). TESTING AGENCY LABORATORY SUPERVISOR SHALL BE AN ACI CERTIFIED CONCRETE LABORATORY TESTING TECHNICIAN (GRADE II).
3. CONCRETE CONTRACTOR QUALIFICATION: CONCRETE CONTRACTOR SHALL INCLUDE IN THEIR BID PACKAGE TO THE GENERAL CONTRACTOR, A MINIMUM OF THREE SIMILAR AND SUCCESSFUL PROJECTS THAT CLEARLY INDICATES THE CONCRETE CONTRACTOR'S ABILITY TO SUCCESSFULLY PERFORM THE WORK AND TO ACHIEVE THE INTERIOR SLABS FLOOR SLAB TOLERANCES REQUIRED HEREIN. THE CONCRETE CONTRACTOR'S TEAM SHALL HAVE PARTICIPATED IN THE MAJORITY OF THESE PROJECTS, AND THAT TEAM SHALL REMAIN THE SAME THROUGHOUT THE DURATION OF THIS PROJECT. CONCRETE CONTRACTOR'S QUALIFICATION SHALL BE SUBMITTED AS PART OF THE BID PACKAGE. BASED ON EXPERIENCE, THE OWNER HAS THE RIGHT TO REJECT THE CONCRETE CONTRACTOR.
4. LIQUID DENSIFIER / SEALER AND JOINT FILLING APPLICATOR: ALL GENERAL CONTRACTORS BIDDING OR NEGOTIATING A HARBOR FREIGHT PROJECT SHALL CONTACT EUCLID CHEMICAL TO OBTAIN A LIST OF TRAINED APPLICATORS LOCATED WITHIN THE GEOGRAPHIC REGION OF THE PROJECT. GENERAL CONTRACTORS SHALL SOLICIT AND ACCEPT PRICING ONLY FROM THOSE APPLICATORS AS PROVIDED BY EUCLID CHEMICAL. THE TRAINED APPLICATOR SELECTED FOR THE INITIAL APPLICATION OF LIQUID DENSIFIER / SEALER SHALL BE THE SAME AS FOR THE JOINT FILLING AND ADDITIONAL APPLICATION OF LIQUID DENSIFIER / SEALER.
1. PHILIP BRANDT: EUCLID CHEMICAL - 877-438-3826 / PBRANDT@EUCLIDCHEMICAL.COM
CONCRETE PRE-INSTALLATION CONFERENCE (HARBOR FREIGHT REQUIREMENT): AT LEAST 30 DAYS PRIOR TO THE START OF CONCRETE SLAB-ON-GRADE CONSTRUCTION, THE GENERAL CONTRACTOR SHALL CONDUCT A MEETING TO REVIEW THE PROPOSED CONCRETE MIX DESIGNS AND TO DISCUSS THE REQUIRED METHODS AND PROCEDURES TO ACHIEVE THE REQUIREMENTS HEREIN. THE GENERAL CONTRACTOR SHALL SEND A PRE-CONCRETE CONFERENCE AGENDA TO ALL ATTENDEES 10 DAYS PRIOR TO THE SCHEDULED DATE OF THE CONFERENCE.
1. THE GENERAL CONTRACTOR SHALL REQUIRE RESPONSIBLE REPRESENTATIVES OF EVERY PARTY CONCERNED WITH THE CONCRETE WORK TO ATTEND THE CONFERENCE, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
A. GENERAL CONTRACTOR: PROJECT MANAGER AND SUPERINTENDENT
B. TESTING AGENCY: RESPONSIBLE FOR CONCRETE MIXES, QUALITY CONTROL, FLOOR TOLERANCE TESTING, ETC.
C. READY-MIX CONCRETE PRODUCER: CONCRETE MIX DISCUSSION
D. CONCRETE CONTRACTOR: PROJECT MANAGER AND SUPERINTENDENT
E. EUCLID CHEMICAL: LIQUID DENSIFIER SEALER AND JOINT FILLER MANUFACTURER
F. TRAINED APPLICATOR: LIQUID DENSIFIER SEALER AND JOINT FILLING APPLICATOR
G. PHIL BRANDT: EUCLID CHEMICAL - 877-438-3826 / PBRANDT@EUCLIDCHEMICAL.COM
2. MINUTES OF THE MEETING SHALL BE RECORDED, TYPED AND PRINTED BY THE GENERAL CONTRACTOR AND DISTRIBUTED TO ALL CONCERNED PARTIES, INCLUDING THE OWNER, ARCHITECT, STRUCTURAL ENGINEER AND HARBOR FREIGHT PROJECT MANAGER, WITHIN THREE DAYS OF THE MEETING.
3. THE MINUTES SHALL INCLUDE A STATEMENT BY THE CONCRETE SUPPLIER STATING THAT THE PROPOSED CONCRETE MIX DESIGNS WILL PRODUCE THE CONCRETE QUALITY REQUIRED HEREIN.
4. THE MINUTES SHALL INCLUDE A STATEMENT BY THE CONCRETE CONTRACTOR THAT THE PROPOSED CONCRETE MIX DESIGNS WILL PROVIDE APPROPRIATE WORKABILITY AND SETTING TIMES, TO ENSURE THAT THE CONCRETE CONTRACTOR CAN ACHIEVE THE REQUIREMENTS HEREIN.

PART 2 - PRODUCTS

- MATERIALS
A. CONCRETE MATERIALS:
1. PORTLAND CEMENT: ASTM C150, TYPE I, TYPE I/J, OR ASTM C595 TYPE IV. USE ONE BRAND OF CEMENT THROUGHOUT THE PROJECT.
2. COARSE AND FINE AGGREGATES: ASTM C 33. COMBINED AGGREGATE GRADATION FOR SLABS-ON-GRADE AND OTHER DESIGNATED CONCRETE SHALL BE 8% - 18% FOR LARGE TOP SIZE AGGREGATES (1 1/2" OR 8% - 22% FOR SMALLER TOP SIZE AGGREGATES (1" OR 3/4") RETAINED ON EACH SIEVE BELOW THE TOP SIZE AND ABOVE THE NO. 100 SIEVE.
A. UNLESS INDICATED OTHERWISE ON DRAWINGS, INTERIOR AND EXTERIOR SLABS-ON-GRADE (4" -5" NOMINAL THICKNESS), AS WELL AS FOOTINGS, PIERS AND BEAMS SHALL HAVE A MAXIMUM COARSE AGGREGATE SIZE OF 1" (#57 STONE).
3. WATER: COMPLYING WITH ASTM C94.
4. AIR-ENTRAINING ADMIXTURE (INTERIOR SLAB-ON-GRADE CONCRETE): AIR-ENTRAINING ADMIXTURE SHALL NOT BE ADDED TO INTERIOR CONCRETE.
5. AIR-ENTRAINING ADMIXTURE (EXTERIOR SLAB-ON-GRADE CONCRETE): ASTM C260. ADMIXTURE MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE AIR-ENTRAINING ADMIXTURE IS COMPATIBLE WITH OTHER REQUIRED ADMIXTURES. ALL EXTERIOR SLABS-ON-GRADE SHALL BE AIR-ENTRAINED. ACCEPTABLE PRODUCTS: EUCLID CHEMICAL AEA-92 OR AIR 40; MASTER BUILDERS MICRO AIR; GCP TECHNOLOGIES DARAVAIR OR DAREX.
6. WATER-REDUCING ADMIXTURE: ASTM C494, TYPE A CONTAINING NOT MORE THAN 0.05% CHLORIDE IONS. ACCEPTABLE PRODUCTS: EUCLID CHEMICAL EUCON SERIES; MASTER BUILDERS POZZOLITH SERIES; GCP TECHNOLOGIES WRDA OR DARCEM SERIES.
7. WATER-REDUCING, RETARDING ADMIXTURE: ASTM C494, TYPE D CONTAINING NOT MORE THAN 0.05% CHLORIDE IONS. ACCEPTABLE PRODUCTS: EUCLID CHEMICAL RETARDER 75; MASTER BUILDERS POZZOLITH SERIES OR DELVO; W.R. GRACE DARATARD 17.
8. HIGH RANCE WATER-REDUCING ADMIXTURE (SUPERPLASTICIZER): ASTM C494, TYPE F OR G CONTAINING NOT MORE THAN 0.05% CHLORIDE IONS. ACCEPTABLE PRODUCTS: EUCLID CHEMICAL EUCON 37; MASTER BUILDERS RHEOBUILD 1000; GCP TECHNOLOGIES DARCEM-100.
9. WATER-REDUCING, NON-CORROSIVE ACCELERATING ADMIXTURE: ASTM C494, TYPE C OR E CONTAINING NOT MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER. THE ADMIXTURE MANUFACTURER MUST HAVE LONG-TERM, NON-CORROSIVE TEST DATA FROM AN INDEPENDENT TESTING LABORATORY (OF AT LEAST A YEAR'S DURATION) USING AN ACCEPTABLE ACCELERATED CORROSION TEST METHOD SUCH AS THAT USING ELECTRICAL POTENTIAL MEASURES. ACCEPTABLE PRODUCTS: EUCLID CHEMICAL ACEL GUARD 80/90 OR NCA; MASTER BUILDERS NCS34 OR POZZULTEC 20; GCP TECHNOLOGIES POLARSET.
10. PROHIBITED ADMIXTURES:
A. CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 0.05% CHLORIDE IONS ARE NOT PERMITTED.
B. FLYASH IS (15% MAXIMUM) ONLY PERMITTED IN EXTERIOR SLAB-ON-GRADE CONCRETE IN AREAS KNOWN FOR ALCALI SILICA REACTIVITY (ASR).
11. MICRO-SYNTHETIC FIBER (INTERIOR SLAB ON GROUND CONCRETE): COMPLY WITH ASTM C1116. "MICRO" FIBER SHALL BE FINE DEMIER MONOFILAMENT SYNTHETIC MICROFIBER FOR CONCRETE REINFORCEMENT MANUFACTURED FROM SUSTAINABLY RESOURCED POLYESTER TO HELP MIGRATE THE FORMATION OF PLASTIC SHRINKAGE CRACKING IN CONCRETE. FIBER SHALL HAVE A SPECIFIC GRAVITY OF 1.34, SHALL BE 1/4" IN LENGTH, AND LIGHT GRAY IN COLOR.
A. ACCEPTABLE MICRO-SYNTHETIC FIBER (NO SUBSTITUTIONS): "PSI FIBERSTRAND PREPREVE 225" BY EUCLID CHEMICAL. PHIL BRANDT 877-438-3826/ PBRANDT@EUCLIDCHEMICAL.COM
12. MICRO-SYNTHETIC FIBERS (INTERIOR AND EXTERIOR SLAB-ON-GRADE CONCRETE): COMPLY WITH ASTM C1116. "STRUCTURAL" FIBERS SHALL BE A PATENTED COARSE MONOFILAMENT, SELF-FIBRILLATING, POLYPROPYLENE/POLYETHYLENE FIBER WITH A MINIMUM TENSILE STRENGTH OF 73KSI AND MINIMUM LENGTH OF 2 INCHES. ACCEPTABLE MICRO-SYNTHETIC FIBER (NO SUBSTITUTIONS): EUCLID CHEMICAL "TUF-STRAND SF" - PHIL BRANDT - 877-438-3826 / PBRANDT@EUCLIDCHEMICAL.COM
A. ACCEPTABLE MICRO-SYNTHETIC FIBER (NO SUBSTITUTIONS): EUCLID CHEMICAL "TUF-STRAND SF" - PHIL BRANDT - 877-438-3826 / PBRANDT@EUCLIDCHEMICAL.COM
B. RELATED MATERIALS (NO SUBSTITUTIONS):
1. EVAPORATION RETARDER: WATERBORNE, MONOMOLECULAR FILM FORMING, MANUFACTURED FOR APPLICATION TO FRESH CONCRETE.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "EUCOBAR"
2. INTERIOR SLAB-ON-GRADE CURING: ASTM C309 WITH A MAXIMUM VOC CONTENT OF 350G/L. THE INTERIOR SLAB-ON-GRADE SHALL BE CURED USING A REDUCED ODOR, DISSIPATING OR REMOVABLE LIQUID MEMBRANE FORMING CURING COMPOUND.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "KUREZ DR VOX" OR "KUREZ DR 100."
3. INTERIOR SLAB-ON-GRADE LIQUID DENSIFIER / SEALER: SODIUM SILICATE CONTAINING AT LEAST 24% SOLIDS BY WEIGHT. MANUFACTURER OF LIQUID DENSIFIER AND SEALER MUST BE CONTACTED PRIOR TO BIDDING FOR PRICING AND APPLICATION REQUIREMENTS.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "EUCO DIAMOND HARD"
4. INTERIOR SLAB-ON-GRADE SEMI-RIGID POLYUREA JOINT FILLER: COMPLY WITH ACI 302, SHALL BE A TWO (2) COMPONENT, 100% SOLIDS, UV RESISTANT COMPOUND, WITH MINIMUM SHORE "A" HARDNESS OF 80. COLOR TO MATCH ADJACENT CONCRETE SURFACES.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "QUICKJOINT UV"
5. EXTERIOR SLAB-ON-GRADE CURING: ASTM C1315 WITH A MAXIMUM VOC CONTENT OF 700 G/L. ALL EXTERIOR SLAB-ON-GRADE SHALL BE CURED USING A LIQUID MEMBRANE-FORMING CURING COMPOUND.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "SUPER DIAMOND CLEAR VOX"
6. EXTERIOR SLAB-ON-GRADE URETHANE JOINT SEALANT: ASTM C920, TYPE S, GRADE NS, AND CLASS 25 INDUSTRIAL GUN GRADE POLYURETHANE SEALANT SHALL EXHIBIT A SHORE "A" HARDNESS OF 40 AND AN ELONGATION OF 250%.
A. ACCEPTABLE MANUFACTURER: EUCLID CHEMICAL "EUCLIOASTIC 1 N5/LS"

- CONCRETE MIXES
A. COMPLY WITH ACI 301 REQUIREMENTS FOR CONCRETE MIXES.
B. CONCRETE MIXES SHALL BE PROPORTIONED ACCORDING TO ACI 301, FOR NORMAL-WEIGHT CONCRETE DETERMINED BY EITHER LABORATORY TRIAL MIX OR FIELD TEST DATA.
C. COMPRESSIVE STRENGTH (28 DAYS):
1. INTERIOR SLAB-ON-GRADE CONCRETE: SHALL BE 4000 PSI, MAXIMUM WATER/CEMENT RATIO OF .53, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
2. EXTERIOR SLAB-ON-GRADE CONCRETE: SHALL BE 4000 PSI, MAXIMUM WATER/CEMENT RATIO OF .45, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
A. CONCRETE MATERIALS INCLUDED IN THE MIX DESIGN SHALL BE THE SAME MATERIALS PROVIDED TO THE PROJECT, AND SHALL BE PREPARED BY AN INDEPENDENT TESTING LABORATORY APPROVED BY THE OWNER. PER ACI REQUIREMENTS, IF SUFFICIENT BACKUP DATA IS NOT AVAILABLE, THE LABORATORY MIX SHALL EXCEED THE DESIRED JOB STRENGTH OF CONCRETE BY 1,200 PSI. FOUR COPIES OF THE MIX SHALL BE SUBMITTED TO THE OWNER BEFORE CONCRETE WORK BEGINS.
D. SLUMP: INTERIOR AND EXTERIOR SLAB-ON-GRADE CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 5". ALL OTHER CONCRETE SHALL NOT EXCEED A 4" SLUMP. (UNLESS OTHERWISE NOTED)
E. MICRO-SYNTHETIC FIBER ADDITION: ALL INTERIOR AND EXTERIOR SLAB ON GROUND CONCRETE SHALL CONTAIN THE SPECIFIED MICRO-SYNTHETIC FIBER AT A RATE OF NO LESS THAN 0.5 LBS./CYD.
F. MICRO-SYNTHETIC FIBER ADDITION: ALL INTERIOR AND EXTERIOR SLABS ON GROUND CONCRETE SHALL CONTAIN THE SPECIFIED MICRO-SYNTHETIC FIBER USED AT A RATE OF NO LESS THAN 5.0 LBS./CUBIC YARD. ACTUAL FIBER DOSAGE MAY VARY BASED ON JOB SITE CONDITIONS AND SHALL BE CALCULATED BY STRENGTH EQUIVALENCE TO CONVENTIONAL REINFORCEMENT REQUIREMENTS. REQUIRED INFORMATION MAY INCLUDE, BUT NOT BE LIMITED TO: SITE PREP, SUBBASE AND CONCRETE PROPERTIES, CURING AND LOADING CONDITIONS. THE "ENGINEER OF RECORD" SHALL CONTACT EUCLID CHEMICAL TO DISCUSS ACTUAL PROJECT CONDITIONS AND THE RESULTANT REQUIRED FIBER DOSAGE RATE. FIBERS MAY BE ADDED AT PLANT LOCATION OR JOB-SITE AND SHALL BE MIXED IN CONCRETE FOR A MINIMUM OF 4 MINUTES. EUCLID CONTACT: MIKE MAHONEY - 216-692-8301 / DON MILLER - 216-692-8140.
G. ADJUSTMENT TO CONCRETE MIXES: MIX ADJUSTMENTS MAY BE REQUESTED BY THE GENERAL CONTRACTOR WHEN CHARACTERISTICS OF MATERIALS, JOB CONDITIONS, WEATHER, TEST RESULTS OR OTHER CIRCUMSTANCES WARRANT; AT NO ADDITIONAL COST TO THE OWNER AND AS ACCEPTED BY THE OWNER. LABORATORY TEST DATA FOR REVISED MIX AND STRENGTH RESULTS MUST BE SUBMITTED TO AND ACCEPTED BY THE OWNER PRIOR TO WORK. CONCRETE TESTING AND INSPECTION AGENCY AND CONCRETE CONTRACTOR SHALL VERIFY THAT THE CONCRETE MIX DESIGN WILL PRODUCE CONCRETE THAT MEETS THE SPECIFICATIONS AS SPECIFIED HEREIN. IN ADDITION, THE GENERAL CONTRACTOR AND CONCRETE CONTRACTOR SHALL VERIFY THAT THE WORKABILITY, FINISHABILITY AND SETTING TIMES ARE APPROPRIATE FOR CONCRETE INSTALLATIONS. PLACEMENT SHALL BE MADE BY CONCRETE TRUCK CHUTE. IF CONCRETE PUMPING IS REQUIRED, THE PROPORTIONS ESTABLISHED ABOVE SHALL NOT BE ALTERED TO SUIT THE CAPABILITIES OF THE PUMPING EQUIPMENT. FOR CONCRETE CONTAINING MICRO-SYNTHETIC FIBERS, ADDITIONAL WATER REDUCER MAY BE NECESSARY. THE ADDITION OF WATER IS NOT PERMITTED INTO CONCRETE MIXTURE AFTER ADDITION OF MICRO-SYNTHETIC FIBERS.

H. INTERIOR SLAB-ON-GRADE: CONCRETE SHALL BE DESIGNED TO MEET 4000 PSI COMPRESSIVE STRENGTH @ 28 DAYS AND EXHIBIT <0.04% SHRINKAGE @ 28 DAYS. THE MIX SHALL CONTAIN APPROXIMATELY 12 CUBIC FEET OF #57 AGGREGATE (1" TOP SIZE), THE SPECIFIED WATER REDUCING ADMIXTURE AND A MAXIMUM WATER / CEMENT RATIO OF 0.53 (MAX.). AIR-ENTRAINMENT IS PROHIBITED. PROPOSED MIX DESIGN SHALL BE SIMILAR TO THE FOLLOWING MIX:

Table with 2 columns: MATERIALS and PROTOTYPE MIX. Rows include 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 (274 - 298 lbs.), AIR CONTENT (ENTRAPPED AIR ONLY) (3.0%(MAX.)), WATER REDUCER (TYPE A/F) (3oz.-10oz./100wt +/- (MID-RANGE)), WATER/CEMENT RATIO (0.53 (MAX.)), INITIAL SLUMP (WATER) (3"), FINAL SLUMP (WITH WATER REDUCER) (5.5" (MAX.)), MICRO SYNTHETIC FIBER (PSI FIBERSTRAND PREPREVE 225) (0.50 lbs./CYD.), MACRO SYNTHETIC FIBER (TUF-STRAND SF) (3 lbs./CUBIC YARD (MIN.))\* and MAXIMUM SHRINKAGE (<0.04%@28 DAYS).

H. EXTERIOR SLAB-ON-GRADE: CONCRETE SHALL BE DESIGNED TO MEET 4000 PSI COMPRESSIVE STRENGTH @ 28 DAYS AND EXHIBIT <0.04% SHRINKAGE @ 28 DAYS. THE MIX SHALL CONTAIN APPROXIMATELY 12 CUBIC FEET OF #57 AGGREGATE (1" TOP SIZE), THE SPECIFIED WATER REDUCING ADMIXTURE AND ACHIEVE A MAXIMUM WATER / CEMENT OF 0.45. AIR-ENTRAINMENT SHALL BE AS SPECIFIED. PROPOSED MIX DESIGN SHALL BE SIMILAR TO THE FOLLOWING PROTOTYPE MIX:

Table with 2 columns: MATERIALS and PROTOTYPE MIX. Rows include CEMENT (517-564 lbs.), FLY ASH/SLAG (PROHIBITED, EXCEPT IN AREAS OF KNOWN ALCALI SILICA REACTIVITY), COARSE AGGREGATE (12 CUBIC FEET +/- .50 (#57 STONE)), FINE AGGREGATE (7 CUBIC FEET +/- (ADJUST AS NECESSARY)), WATER CONTENT (274 - 398 lbs.), AIR CONTENT (ENTRAPPED AIR ONLY) (6.0%(MAX.)), WATER REDUCER (TYPE A/F) (3oz.-10oz./100wt +/- (MID-RANGE)), WATER/CEMENT RATIO (0.45 (MAX.)), INITIAL SLUMP (WATER) (3"), FINAL SLUMP (WITH WATER REDUCER) (5.5" (MAX.)), MACRO SYNTHETIC FIBER (TUF-STRAND SF) (5 lbs./CUBIC YARD (MIN.))\* and MAXIMUM SHRINKAGE (<0.04%@28 DAYS).

PART 3 - EXECUTION

- INSTALLATION (GENERAL)
A. BASE MATERIAL: LOCAL AND STATE DEPARTMENT OF TRANSPORTATION APPROVED ROAD BASE MATERIAL WITH 100 PERCENT PASSING THE 1.5" (38MM) SIEVE. 15 TO 55 PERCENT PASSING THE NO. 4 (4.75MM) SIEVE, AND LESS THAN 12 PERCENT PASSING THE NO. 200 SIEVE). INSTALL "CRUSHER RUN" BASE TYPE MATERIAL TO THE MINIMUM COMPACTED THICKNESS AS INDICATED ON THE CONSTRUCTION DOCUMENTS. CRUSHED STONE SHALL BE COMPACTED TO 98% MODIFIED PROCTOR DENSITY IN ACCORDANCE WITH ASTM D1557. THE IN-PLACE DENSITY SHALL BE TESTED FOR COMPLIANCE NO MORE THAN 48 HOURS PRIOR TO CONCRETE PLACEMENT USING ASTM D1556, ASTM D2167, OR ASTM D2922. ONE COPY OF TEST RESULTS SHALL BE FORWARDED TO THE OWNER. FORMWORK: DESIGN, CONSTRUCT, ERECT, SHORE, BRACE, AND MAINTAIN FORMWORK ACCORDING TO ACI 301.
1. FORM WORK: FORM ALL SLABS, STAIRS AND OTHER FORMED CONCRETE WITH METAL FORMS OR 3/4" PLYWOOD. FOR EXPOSED SURFACES USE FORMS WITH AN UNEXPOSED FACE. VAPOR RETARDER: ASTM E 1653 (IF INDICATED ON DRAWINGS): INSTALL, PROTECT, AND REPAIR VAPOR-RETARDER SHEETS; PLACE SHEETS IN POSITION WITH LONGEST DIMENSION PARALLEL WITH DIRECTION OF POUR.
1. RETARDER THOROUGHLY AND REPAIR ALL PUNCTURES AND TEARS IMMEDIATELY PRIOR TO PLACING CONCRETE. ALL LAPS SHALL BE 18" MINIMUM, AND SEALED WITH A COMPLETELY CONTINUOUS PRESSURE SENSITIVE TAPE.

CONCRETE PLACEMENT

- A. CARBON MONOXIDE / CARBON DIOXIDE EXPOSURE: IF THE BUILDING IS ENCLOSED/SALES FLOOR SLAB IS PLACED LAST, GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING SALES FLOOR EXPOSURE TO EXCESSIVE EXHAUST GASES CONTAINING CARBON DIOXIDE (CO2) OR CARBON MONOXIDE (CO). TO MINIMIZE POTENTIAL DAMAGE TO INTERIOR SLAB-ON-GRADE DURING SLAB PLACEMENT AND CURING PERIODS, MAXIMUM CO2 LEVELS SHALL BE 4.500 PARTS PER MILLION AND MAXIMUM CO LEVELS SHALL BE 15 PARTS PER MILLION AT CONCRETE SURFACE WITHIN 5 FEET OF ANY SOURCE OF EXHAUST GASES. UNVENTED COMBUSTION HEATERS SHALL NOT BE IN OPERATION DURING CONCRETE PLACEMENT, AND EQUIPMENT INSIDE THE BUILDING DURING CONCRETE PLACEMENT SHALL BE LIMITED TO THE EQUIPMENT NECESSARY TO PLACE AND FINISH CONCRETE. ONLY ONE CONCRETE TRUCK SHALL BE IN THE BUILDING AT ANY GIVEN TIME, AND UNDER NO CIRCUMSTANCE SHALL THERE BE ANY EARTH MOVING EQUIPMENT, DUMP TRUCKS, GRADING EQUIPMENT, OR ANY OTHER MOTORIZED EQUIPMENT IN OPERATION UNTIL AFTER THE INTERIOR SLAB-ON-GRADE IS PLACED AND PROTECTED BY SPECIFIED CURING METHOD. CARBON MONOXIDE AND CARBON DIOXIDE SHALL BE CHECKED USING AN APPROPRIATE METER FROM A COMPANY SIMILAR TO THE FOLLOWING: CEA INSTRUMENTS, INC., 16 CHESTNUT STREET, EMERSON, NJ 07630; PHONE (201-967-5660); WEBSITE: WWW.CEAINSTR.COM.
B. COMPLY WITH REQUIREMENTS IN ACI 301 FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
1. INSTALL "CRUSHED RUN" STONE BASE TO THE MINIMUM COMPACTED THICKNESS AS INDICATED ON THE CONSTRUCTION DOCUMENTS. CRUSHED STONE SHALL BE COMPACTED TO 98% STANDARD PROCTOR DENSITY IN ACCORDANCE WITH ASTM D1557. THE IN-PLACE DENSITY SHALL BE TESTED FOR COMPLIANCE NO MORE THAN 48 HOURS PRIOR TO CONCRETE PLACEMENT USING ASTM D1556, ASTM D2167, OR ASTM D2922. ONE COPY OF TEST RESULTS SHALL BE FORWARDED TO THE OWNER.
2. COOPERATE WITH ALL OTHER TRADES. CONFY WITH ELECTRICAL, MECHANICAL, PLUMBING, CARPENTERS, STEEL WORKERS, ETC. MAKE SURE THAT ALL SLEEVES, ANCHOR, INSERT, CONDUIT, FLOOR BOXES, PIPES, FITTINGS, AND OTHER ITEMS ARE INSTALLED BEFORE PLACING CONCRETE. MAKE PROVISIONS FOR DOOR SADDLES, AND THRESHOLDS.
3. THE GENERAL CONTRACTOR SHALL ENSURE THE ACCURACY, PLACEMENT AND ALIGNMENT OF ALL UNDER-SLAB WORK. THE PLACEMENT OF ALL BOXES SHALL BE SQUARE, LEVEL AND TRUE IN ALL RESPECTS.
4. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C94.
C. COMPLY WITH ACI 305, "HOT WEATHER CONCRETE" AND ACI 306, "COLD WEATHER CONCRETE" FOR PROTECTION DURING PLACING, FINISHING AND CURING.
D. FORM-RELEASE AGENT: COAT ALL REMOVABLE WOOD AND METAL FORMING WITH A VOC COMPLIANT, LIGHT VISCOSITY NON-STAINING, CONCRETE FORM-RELEASE AGENT. ALLOW EXCESS FORM RELEASE AGENT TO DRAIN OFF BEFORE FORMS ARE PLACED.
E. TRANSPORT: PLACE AT POINT OF USE AND CONSOLIDATE WITH A CONCRETE VIBRATOR. DO NOT ALLOW CONCRETE TO SEGREGATE. MAXIMUM FREE FALL FOR CONCRETE IS 3 FEET. A VIBRATOR IS REQUIRED FOR PLACEMENT OF CONCRETE IN WALLS, PIERS, FOOTINGS AND TURNDOWNS.
CONCRETE PLACEMENT: PLACE ON FIRM, UNDISTURBED EARTH OR PROPERLY COMPACTED FILL. MEETING THE SPECIFICATION REQUIREMENTS HEREIN. CONSOLIDATE BY VIBRATING, WITHOUT SEGREGATION. DO NOT PLACE CONCRETE WHEN TEMPERATURE IS 40°F OR FALLING OR WHEN FREEZING WEATHER IS PREDICTED WITHIN 24 HOURS.
1. PLACE CONCRETE WITHIN THE MINIMUM TEMPERATURE RANGE AS SPECIFIED IN ACI 301
2. PROTECT CONCRETE AS REQUIRED IN ACI 301
3. CONCRETE SHALL NOT CONTAIN TYPE III, HIGH EARLY STRENGTH CEMENT, CALCIUM CHLORIDE, CORROSIVE ACCELERATORS OR ANTIFREEZE.
4. CONCRETE SHALL BE PLACED BEFORE INITIAL SET HAS OCCURRED AND IN NO EVENT AFTER IT HAS CONTAINED ITS WATER CONTENT FOR MORE THAN 1 1/2 HOURS.
5. UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE PLACED UPON CLEAN, DAMP, SMOOTH SURFACES THAT ARE FREE FROM RUNNING WATER. SUBGRADE AND BASE SHALL BE PROPERLY CONSOLIDATED AND RUT-FREE.
6. CONCRETE SHALL NOT BE PLACED UPON SOFT MUD OR DRY POROUS EARTH. THE CONCRETE SHALL BE CONSOLIDATED AND WORKED, IN AN APPROPRIATE MANNER, INTO ALL CORNERS AND ANGLES OF THE FORMS AND AROUND REINFORCEMENT AND EMBEDDED FIXTURES IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE COARSE AGGREGATE AS REQUIRED IN ACI 301.
G. DURING CONCRETE PLACEMENT, CAREFULLY PROTECT ALL MASONRY AND METAL BUILDING WALLS BY COVERING WITH WATERPROOF PAPER WHILE CONCRETE IS PLACED.
H. WATER MAY BE ADDED IN ACCORDANCE WITH ASTM C94. WATER SHALL BE ADDED AT THE JOB UNDER THE DIRECT SUPERVISION OF A REPRESENTATIVE FROM THE TESTING AGENCY. DO NOT ADD MORE WATER THAN IS SPECIFIED IS INDICATED ON THE BATCH TICKET. WATER ADDED AT THE JOB SITE SHALL BE DOCUMENTED ON THE BATCH TICKET.

FORMED SURFACE FINISHES

- A. ROUGH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING MATERIAL WITH THE HOLES AND DEFECTIVE AREAS REPAIRED AND PATCHED, AND FINS AND OTHER PROJECTIONS EXCEEDING 3/8" IN HEIGHT SHALL BE RUBBED DOWN OR CHIPPED OFF.
1. APPLY TO CONCRETE SURFACES NOT EXPOSED TO PUBLIC VIEW.
B. SMOOTH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING MATERIAL, ARRANGED IN AN ORDERLY AND SYMMETRICAL MANNER WITH A MINIMUM OF SEAMS. REPAIR AND PATCH THE HOLES AND DEFECTIVE AREAS. COMPLETELY REMOVE FINS AND OTHER PROJECTIONS. ALL EXPOSED CONCRETE WALLS ARE TO BE DRESSED TO HAND RUBBED.
1. APPLY TO CONCRETE SURFACES EXPOSED TO PUBLIC VIEW OR TO BE COVERED WITH A COATING OR COVERING MATERIAL APPLIED DIRECTLY TO CONCRETE, SUCH AS WATERPROOFING, DAMP-PROOFING, VENEER PLASTER, OR PAINTING.
2. DO NOT APPLY RUBBED FINISH TO SMOOTH-FORMED FINISH.
3. APPLY SMOOTH-RUBBED FINISH, DEFINED IN ACI 301, TO SMOOTH-FORMED FINISHED CONCRETE.
C. RELATED UNFORMED SURFACES: AT TOPS OF WALLS, HORIZONTAL OFFSETS, AND SIMILAR UNFORMED SURFACES ADJACENT TO FORMED SURFACES, STRIKE OFF SMOOTH AND FINISH WITH A TEXTURE MATCHING ADJACENT FORMED SURFACES. CONTINUE FINAL SURFACE TREATMENT OF FORMED SURFACES UNIFORMLY ACROSS ADJACENT UNFORMED SURFACES, UNLESS OTHERWISE INDICATED.

CONCRETE FINISHES AND TOLERANCES

- A. GENERAL: THE INTERIOR CONCRETE SLAB-ON-GRADE SLAB SHALL BE CAST IN ONE CONTINUOUS PLACEMENT (UNLESS OTHERWISE INDICATED). CONCRETE SHALL BE PLACED, SCREEDD, RE-STRAIGHTENED, AND FINISHED AS NECESSARY TO MEET THE SPECIFIED F, AND F, TOLERANCE REQUIREMENTS. INTERIOR SLAB-ON-GRADE MACHINE TROWEL FINISH SHALL BE ACHIEVED WITHIN A 2"-3" TOLERANCE OF ALL WALLS, COLUMNS AND PARTITIONS. DO NOT WET CONCRETE SURFACES WHILE FINISHING CONCRETE.
1. LASER SCREEDS (REQUIRED), VIBRATORY SCREEDS, HIGHWAY STRAIGHTEDGES AND WOOD OR RESINOUS BULL FLOATS SHALL BE USED TO INITIATE SCREEDING AND FLOATING PROCESS TO FORM A UNIFORM AND OPEN-TEXTURED SURFACE PLANE BEFORE EXCESS MOISTURE OR BLEED WATER APPEARS ON THE SURFACE. A BACK-UP LASER SCREED IS REQUIRED DURING CONCRETE PLACEMENT OF THE INTERIOR SLAB-ON-GRADE. REMOVE EXCESS WATER BEFORE STARTING FLOATING OPERATIONS. DO NOT FURTHER DISTURB SURFACES BEFORE STARTING FINISHING OPERATIONS.
2. HIGHWAY STRAIGHTEDGE OPERATIONS SHALL CONTINUE BEFORE, DURING AND AFTER TROWELING OPERATION, UNTIL THE MINIMUM SPECIFIED FLOOR TOLERANCES ARE ACHIEVED.
3. TROWEL FINISH WITH TROWEL MACHINE EQUIPPED WITH ADJUSTABLE BLADES. TROWEL THE SURFACE SUFFICIENTLY TO PRODUCE A SMOOTH, TIGHT, ABRASION RESISTANT SURFACE. CARE SHALL BE TAKEN NOT TO OVERWORK OR BURN THE SURFACE. USE 6" WIDE FINISH STEEL-REINFORCED BLADES ON FINAL PASSES. FINISHING BLADES SHALL BE IN NEW CONDITION AND COMPLETELY CLEAN OF ANY DELETERIOUS MATERIALS.

- 4. PROTECTION: CARE SHALL BE TAKEN TO PROTECT THE INTERIOR SLAB-ON-GRADE. ENTRANCES SHALL INCLUDE CLEAN FLOOR MATS TO PREVENT MUD STAINS AND ALL EQUIPMENT ON THE FLOOR SHALL BE DIAPERED TO PREVENT SPILLS. CUTTING OILS ARE NOT ALLOWED ON THE SALES FLOOR SLAB AT ANY TIME DURING THE CONSTRUCTION PROCESS.
5. TROWEL FINISH (NOT INTERIOR SLAB-ON-GRADE): APPLY A HARD TROWEL FINISH TO SURFACES INDICATED AND TO FLOOR AND SLAB SURFACES EXPOSED TO VIEW OR TO BE COVERED WITH RESILIENT FLOORING, CARPET, CERAMIC OR QUARRY TILE SET OVER A CLEAVAGE MEMBRANE, PAINT, OR ANOTHER THIN FILM-FINISH COATING SYSTEM.
6. HEAVY BROOM FINISH: EXTERIOR DOCK, MAIN ENTRY, EXIT VESTIBULES, CART STORAGE, RAMPS, APRONS AND WALKS SHALL RECEIVE A HEAVY BROOM FINISH.
B. TOLERANCES: ACI 117, "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION & MATERIALS." THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH FLOOR TOLERANCE TESTING. A COPY OF THE FINAL FLOOR TOLERANCE REPORT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO OWNER WITHIN 24 HOURS OF RECEIVING THE REPORT FROM THE TESTING LABORATORY.
1. ALL PERIMETER AREAS AND EDGES OF THE INTERIOR SLAB-ON-GRADE SHALL EXHIBIT THE SAME FINAL FINISH.

Table with 4 columns: LOCATION, F1 TOLERANCE, F2 TOLERANCE, NOTES. Rows include INTERIOR SLAB-ON-GRADE (20, 35, ACI 302: TYPE S, SINGLE COURSE, HARD STEEL TROWEL FINISH) and EXTERIOR SLAB-ON-GRADE (50, 17, FLOATED BROOMED SURFACE).

CAST-IN-PLACE CONCRETE JOINTS

- A. GENERAL: JOINTS SHALL BE CUT AS INDICATED ON DRAWINGS, AND AS SOON AS THE SLAB WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR AND WHEN CUTTING ACTION WILL NOT TEAR, ABRADO OR OTHERWISE DAMAGE THE CONCRETE SURFACE. CUTS MUST BE MADE BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION CRACKS. EMPLOY SUFFICIENT NUMBER OF SAWS AND WORKERS TO COMPLETE CUTTING OF SAW JOINTS WITHIN 2 HOURS AFTER FINAL FINISH OF INTERIOR SLAB-ON-GRADE. AFTER SAW CUTTING, IMMEDIATELY VACUUM UP AND REMOVE ALL RESIDUES COMPLETELY.
1. CONSTRUCTION JOINTS:
A. CONSTRUCTION JOINTS SHALL BE TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE (REFER TO DRAWINGS), SO AS NOT TO IMPAIR STRENGTH OR APPEARANCE OF CONCRETE
B. CONSTRUCTION JOINTS IN SLAB STRIPS SHALL BE BUTT JOINTS WITH SQUARE PLATE DOWELS. DO NOT USE METAL KEYS.
2. ISOLATION JOINTS: INSTALL JOINT FILLER STRIPS AT JUNCTIONS WITH SLABS-ON-GRADE AND VERTICAL SURFACES, SUCH AS COLUMN PEDESTALS, FOUNDATION WALLS, GRADE BEAMS, AND OTHER LOCATIONS, AS INDICATED.
A. EXTEND JOINT FILLERS FULL WIDTH AND DEPTH OF JOINT. TERMINATING FLUSH WITH FINISHED CONCRETE SURFACE, UNLESS OTHERWISE INDICATED.
3. CONTROL JOINTS: FORM WEAKENED-PLANE CONTROL JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED.
A. ALL SAW CUTTING SHALL BE ACCOMPLISHED WITH A "SOFT-CUT" SAW, BY HUSQVARNA CONSTRUCTION PRODUCTS (800-388-5040), EQUIPPED WITH A PATENTED COLOR-CODED, DIAMOND BLADE AND SKID PLATE IN NEW CONDITION. CONCRETE SUBCONTRACTOR MUST HAVE DOCUMENTED SUCCESSFUL EXPERIENCE IN THE USE OF THIS METHOD PRIOR TO THIS PROJECT. USING A NEW 1/8" THICK BLADE, CUT A MINIMUM OF 1 1/30 FOR SLAB-ON-GRADE. FOR EXAMPLE, A 4" SLAB SHOULD BE CUT TO A DEPTH OF 1.33" DEEP, AND A 5" SLAB SHALL BE CUT TO A DEPTH OF 1.67" DEEP. CONCRETE SUBCONTRACTOR SHALL CONFIRM PROPER DEPTH PRIOR TO STARTING CUTS WITH A NEW TABLE. WHITE CHALK LINES AND CONCRETE DUST SHALL BE REMOVED COMPLETELY AND IMMEDIATELY AFTER CUTTING OPERATION.
B. RANDOM DEPTH CHECKS SHALL BE PERFORMED BY AN INDEPENDENT TESTING COMPANY TO CONFIRM THAT THE SPECIFIED DEPTH OF CUT IS MADE. ANY CUT(S) FOUND TO BE LESS THAN PROPER DEPTH SHALL BE RE-CUT TO THE PROPER DEPTH AND FILLED WITH SPECIFIED JOINT FILLER AT THE GENERAL CONTRACTOR'S EXPENSE.

INTERIOR SLAB-ON-GRADE PROTECTION AND CURING

- A. PROTECTION: PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. COMPLY WITH ACI 305 FOR HOT-WEATHER PROTECTION AND ACI 306 FOR COLD-WEATHER PROTECTION DURING PLACING AND CURING. FOR CONCRETE PLACEMENT DURING HOT, DRY AND WINDY CONDITIONS, GENERAL CONTRACTOR SHALL USE THE SPECIFIED EVAPORATION RETARDER AS PER MANUFACTURER INSTRUCTIONS TO MAINTAIN A MOIST CONDITION AND TO MINIMIZE PLASTIC DRYING SHRINKAGE CRACKING.
B. INTERIOR SLAB-ON-GRADE PROTECTION: TAKE THE FOLLOWING MEASURES TO PROTECT THE INTERIOR SLAB-ON-GRADE:
1. WRAP OR DIAPER ALL MOTORIZED AND HYDRAULIC EQUIPMENT TO PREVENT FLUID LEAKS
2. PROVIDE NON-MARKING TIRES ON RUBBER Tired VEHICLES OR EQUIP RUBBER TIRES WITH TIRE BOOTS MADE OF NYLON FABRIC
3. PROVIDE MATS AT ALL ENTRANCES TO PREVENT MUD STAINS
C. INTERIOR SLAB-ON-GRADE CURING: THE INTERIOR SLAB-ON-GRADE SHALL BE CURED USING THE SPECIFIED DISSIPATING OR REMOVABLE LIQUID MEMBRANE-FORMING CURING COMPOUND. ALL APPLICATIONS SHALL BE MADE BY AN APPROVED APPLICATOR OF THE MANUFACTURER IMMEDIATELY FOLLOWING FINAL FINISH. THE CONCRETE AND AIR TEMPERATURE SHALL BE ABOVE 50°F. SURFACE SHALL BE DAMP, BUT NOT WET AND CAN NO LONGER BE MARRED BY WALKING WORKMEN. APPLY "KUREZ DR VOX" OR "KUREZ DR 100" AT AN APPLICATION RATE OF 400SF/GALLON. EXTERIOR SLAB-ON-GRADE CURING: ALL EXTERIOR SLAB-ON-GRADE SHALL BE CURED USING THE SPECIFIED LIQUID MEMBRANE-FORMING CURING COMPOUND. APPLICATION SHALL BE MADE BY AN APPROVED APPLICATOR OF THE MANUFACTURER IMMEDIATELY FOLLOWING FINAL FINISH. CONCRETE AND AIR TEMPERATURE SHALL BE ABOVE 50°F. SURFACE SHALL BE CLEAN AND DAMP, BUT NOT WET AND CAN NO LONGER BE MARRED BY WALKING WORKMEN. APPLY "SUPER DIAMOND CLEAR VOX" AT AN APPLICATION RATE OF 400SF/GALLON.

INTERIOR SLAB-ON-GRADE CONCRETE

- 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."
B. JOINT FILLER INSTALLATION: COMPLY WITH ACI 302 AS APPLICABLE TO MATERIALS, APPLICATIONS, AND CONDITIONS.
1. SURFACE CLEANING OF JOINTS: CLEAN ALL 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.
2. 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.
3. 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.
4. 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.

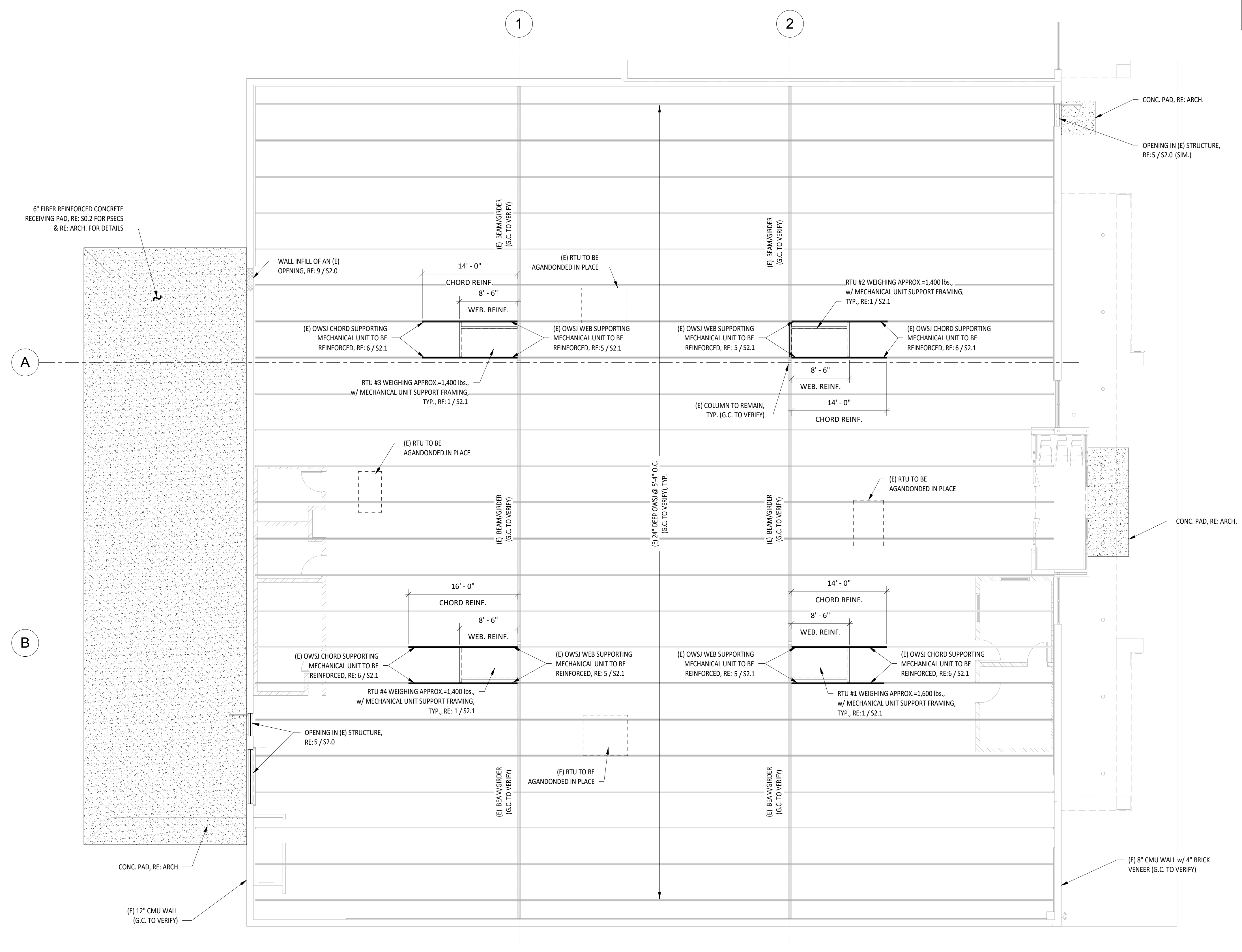
INTERIOR SLAB-ON-GRADE DENSIFIER/SEALER AND POLISHING PROCESS

- 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. "EUCCO CLEAR & 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 PASSES 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, 60 GRIT). FLOW 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".
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 EUCCO DIAMOND HARD TO REACTION. 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 EUCCO 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 (SGOV) OF ≥35 AS MEASURED WITH A HORIBA IG-320, AND A SPECIFIED MINIMUM GLOSS READING (SMGV) OF ≥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.

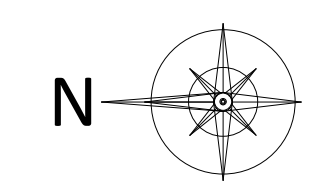
SLAB-ON-GRADE URETHANE EXPANSION JOINT SEALANT APPLICATION

- A. URETHANE JOINT SEALANT APPLICATION:
1. APPLY JOINT SEALANTS IN ACCORDANCE WITH

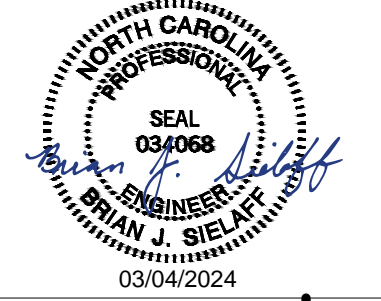
- SHEET NOTES:**
- COORDINATE LOCATION OF ALL MECHANICAL UNITS WITH MECHANICAL SO THAT THE OPENINGS DO NOT INTERFERE WITH (E) FRAMING.
  - IT IS THE G.C.'S RESPONSIBILITY TO NOTIFY THE E.O.R. OF ANY DISCREPANCY IN THE MEMBER SIZES, ORIENTATION, MATERIAL OR SPACING NOTED ON PLANS BEFORE DEMOLITION OR CONSTRUCTION.
  - G.C. TO VERIFY THAT MECHANICAL UNIT OPENINGS DO NOT INTERFERE WITH (E) ROOF FRAMING, COORDINATE w/ MECHANICAL.
  - WHERE MECHANICAL UNITS HAVE THE SAME FOOTPRINT & WEIGHT AS (E) UNITS, AND (E) PERIMETER SUPPORT FRAMING IS PRESENT, NO ADDITIONAL SUPPORT FRAMING IS NEEDED.
  - WHERE MECHANICAL UNITS ARE USING (E) DUCT OPENINGS AND (E) DECK SUPPORT FRAMING IS PRESENT AT OPENINGS, NO ADDITIONAL ROOF DECK SUPPORT FRAMING AT OPENINGS IS NEEDED.
  - WHERE MECHANICAL UNITS HAVE THE SAME FOOTPRINT & WEIGHT AS (E) UNITS AND (E) WEB STIFFENERS ARE PRESENT WHERE SUPPORT FRAMING INTERSECTS w/ (E) ROOF FRAMING, NO ADDITIONAL WEB STIFFENERS ARE NEEDED.



2 PARTIAL FLOOR & ROOF FRAMING PLAN  
1/8" = 1'-0"



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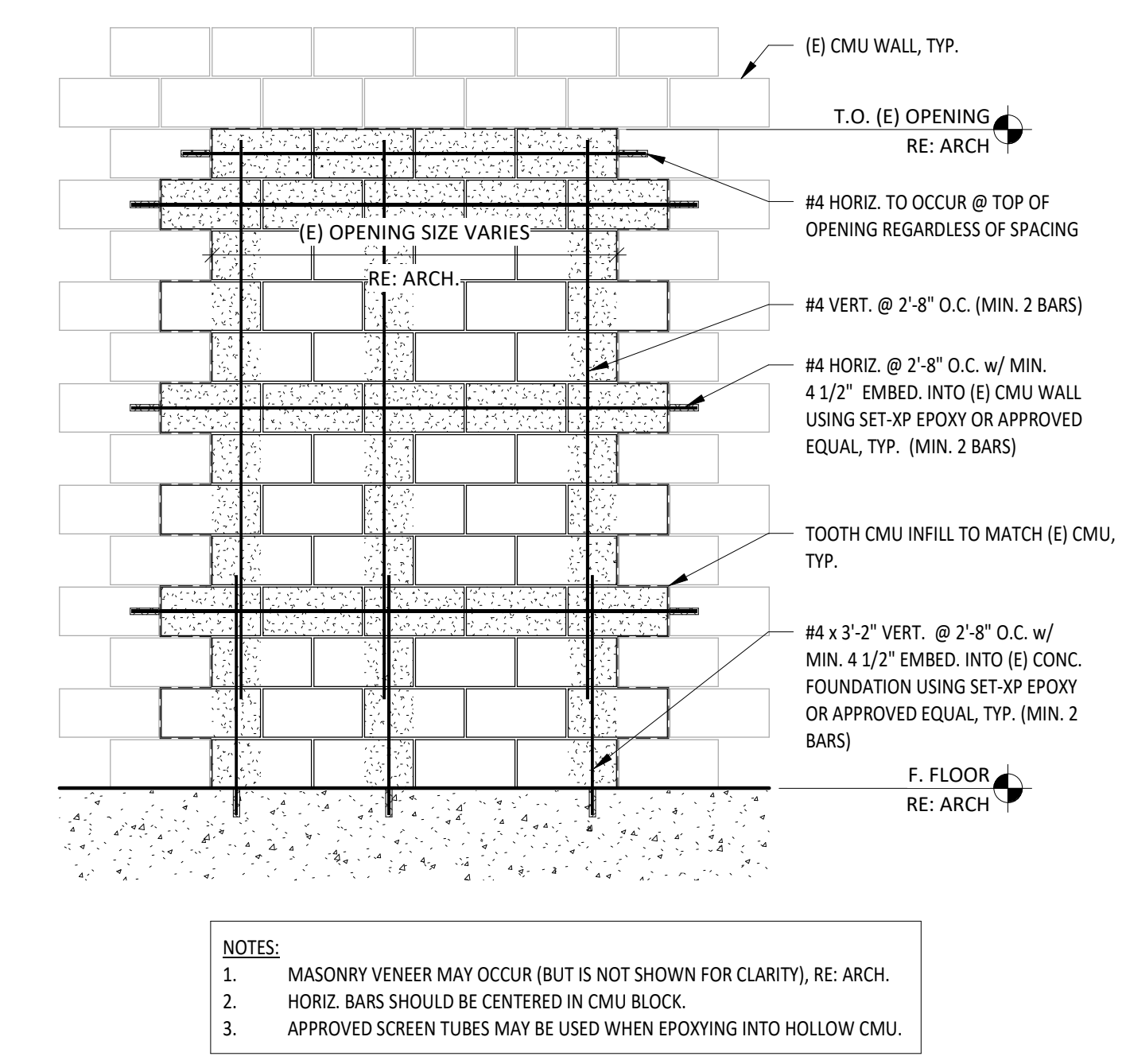
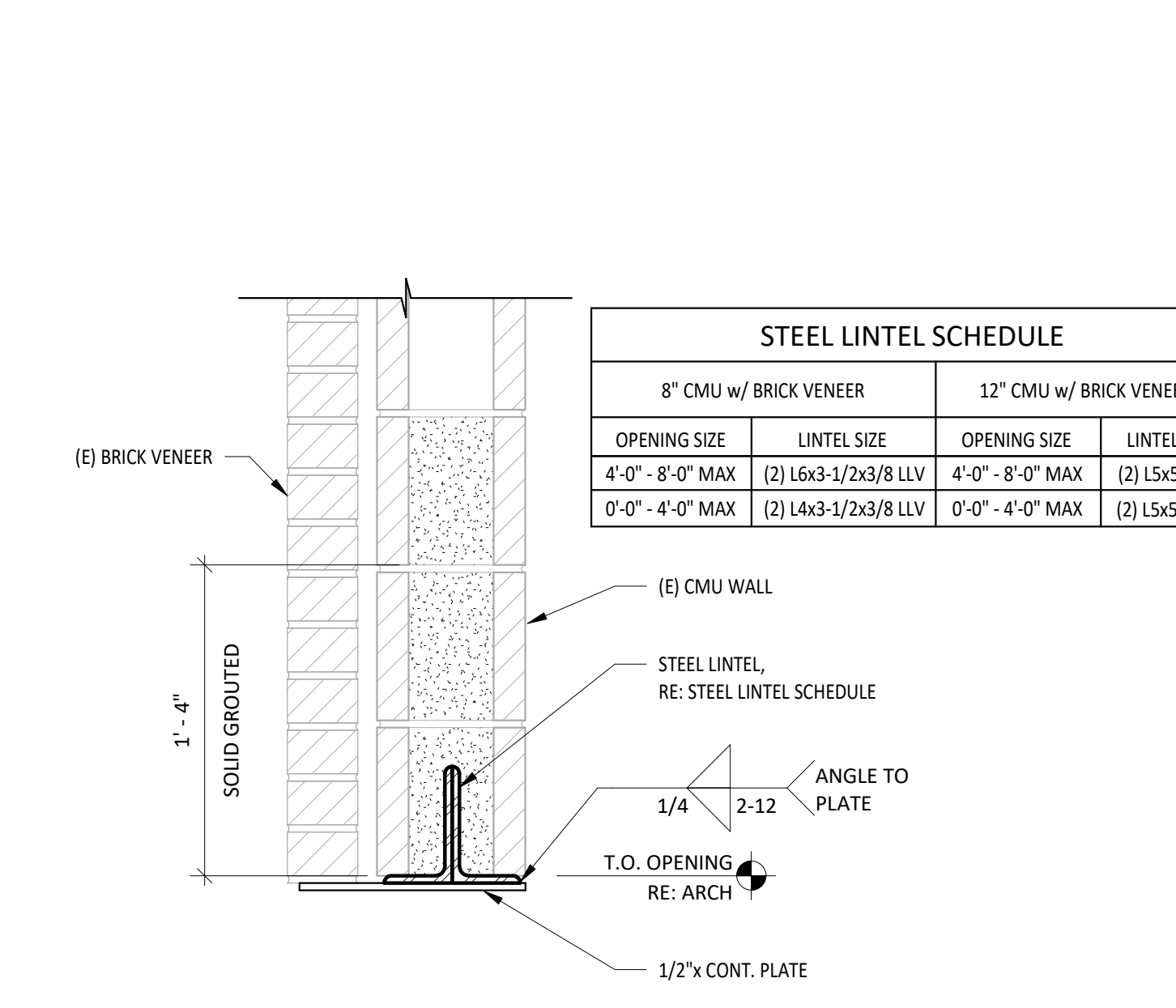
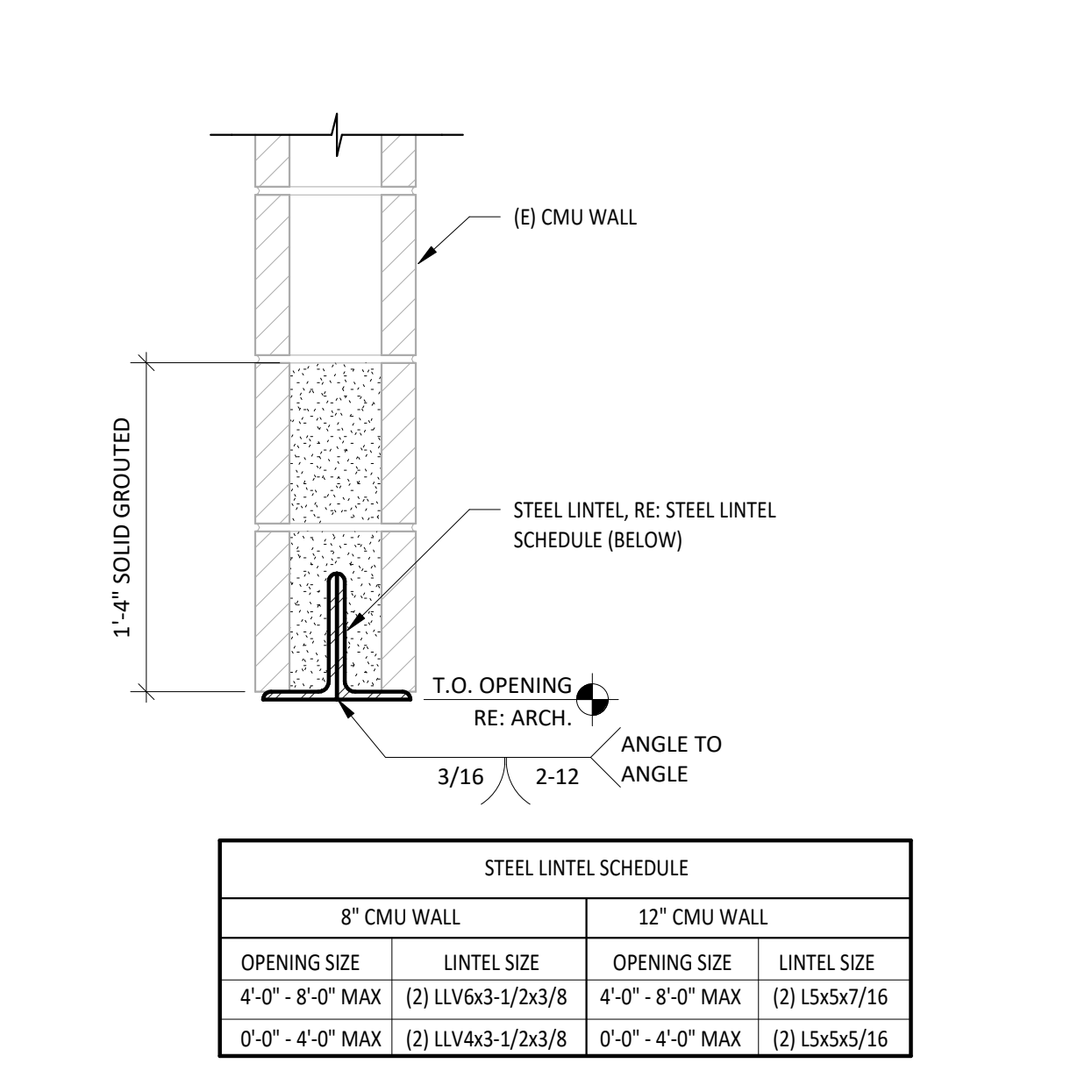
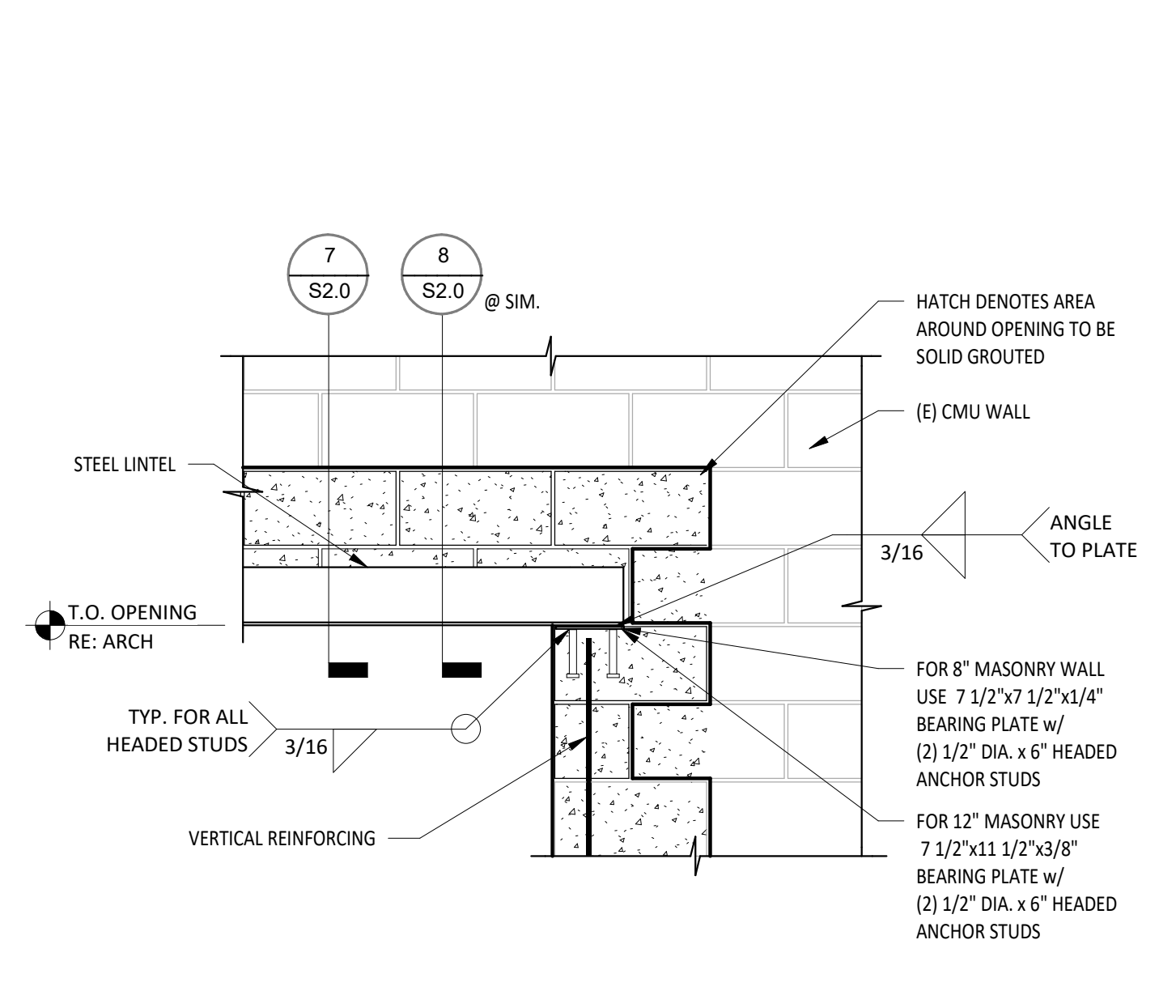
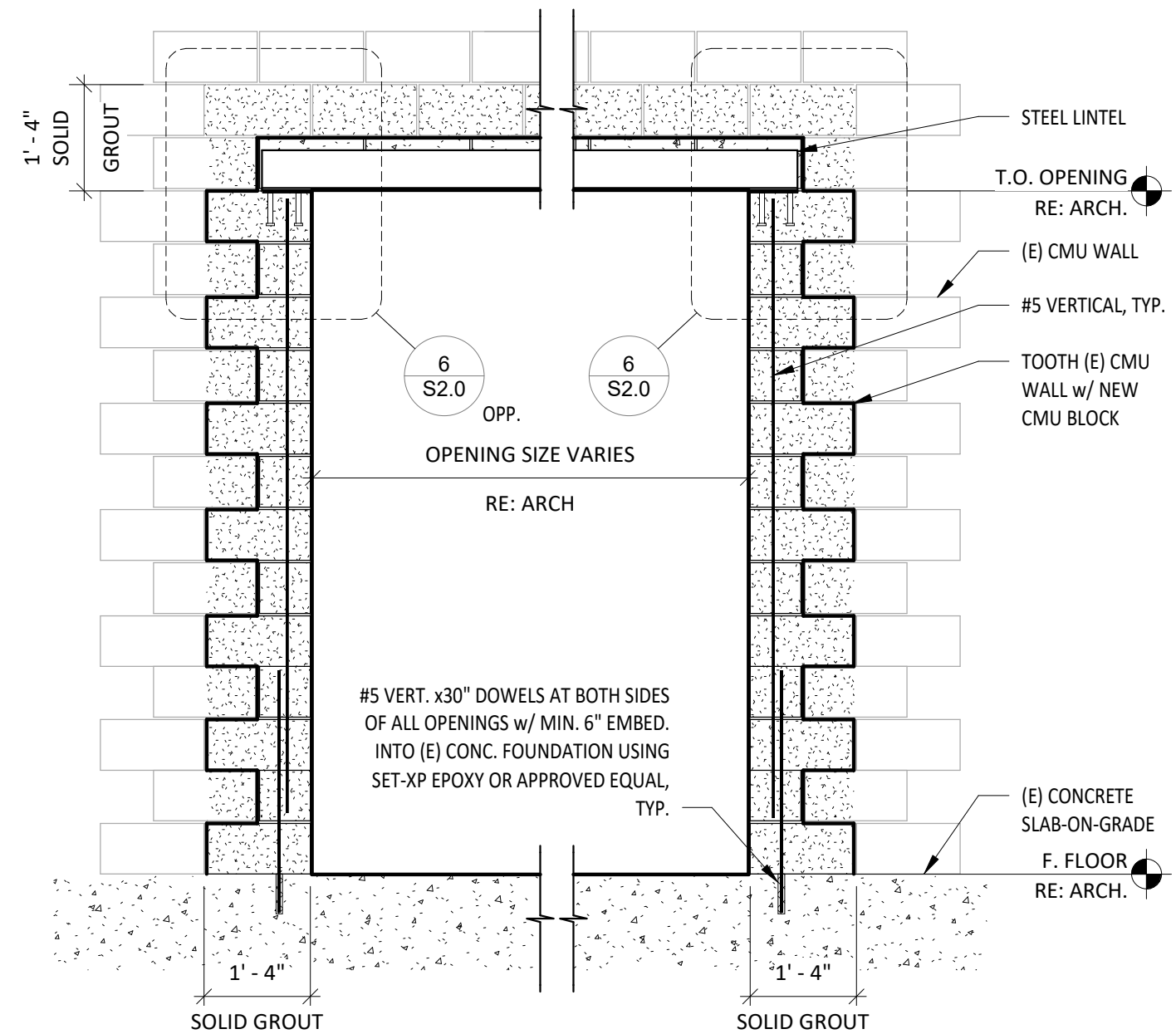
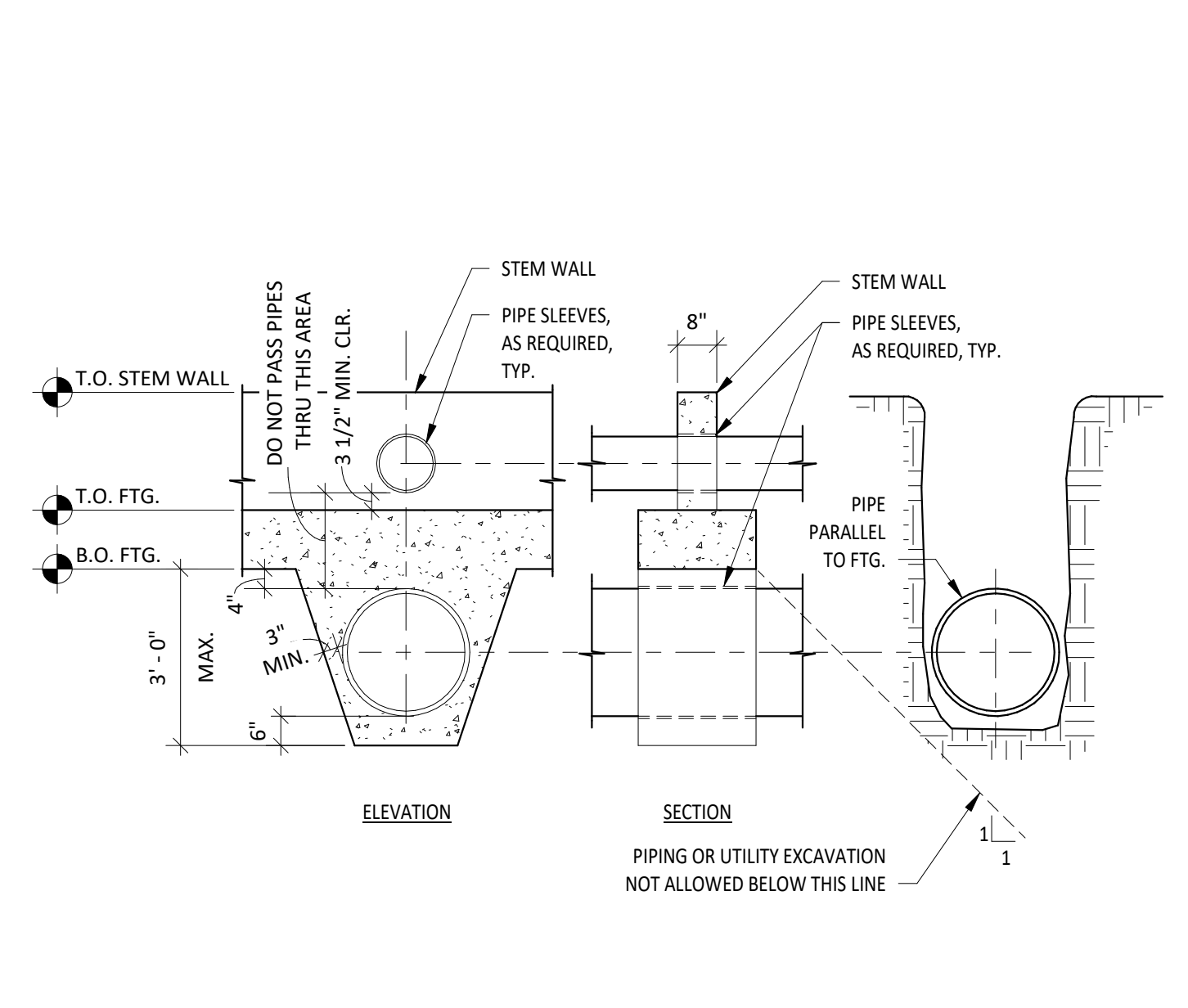
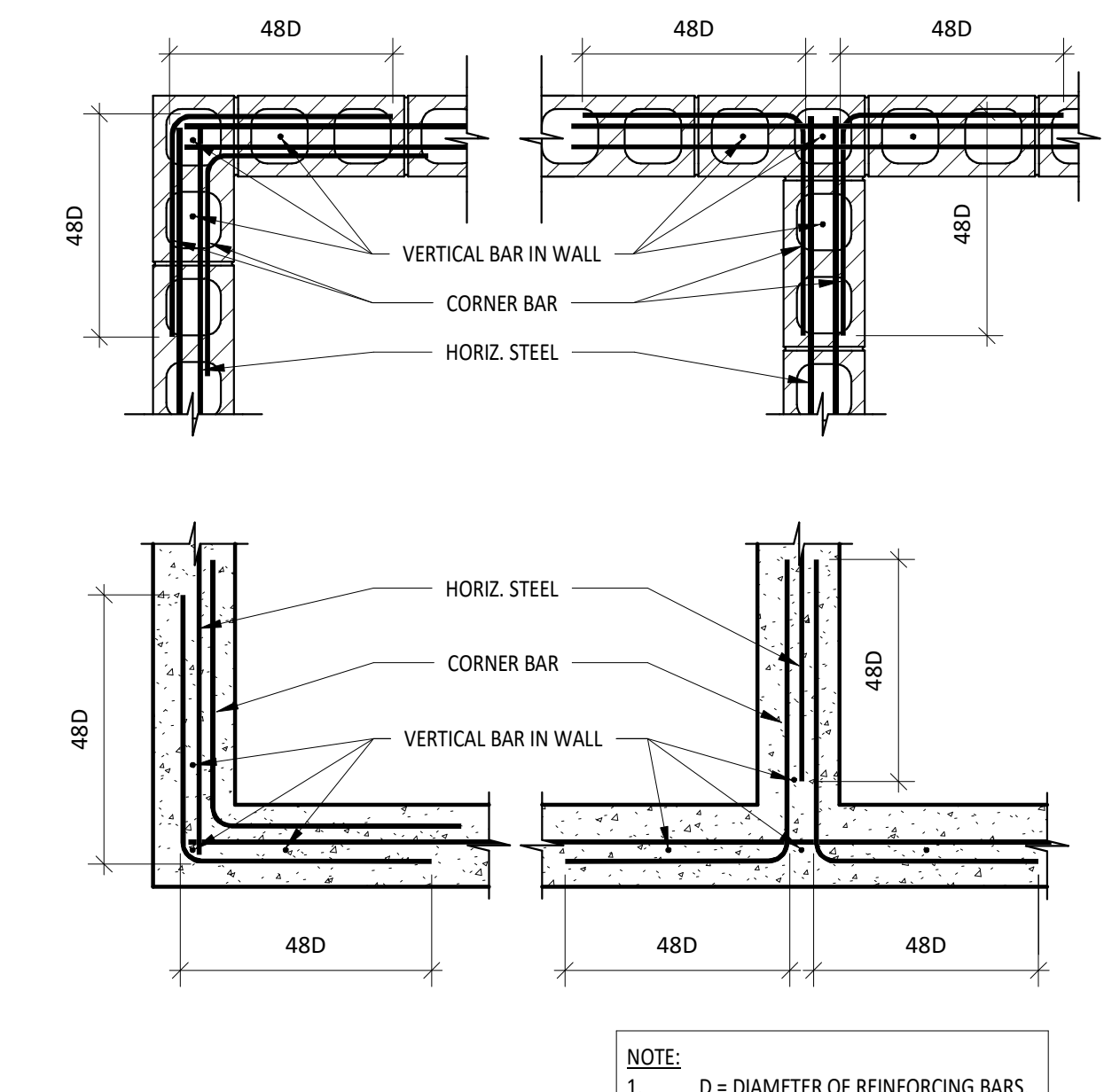
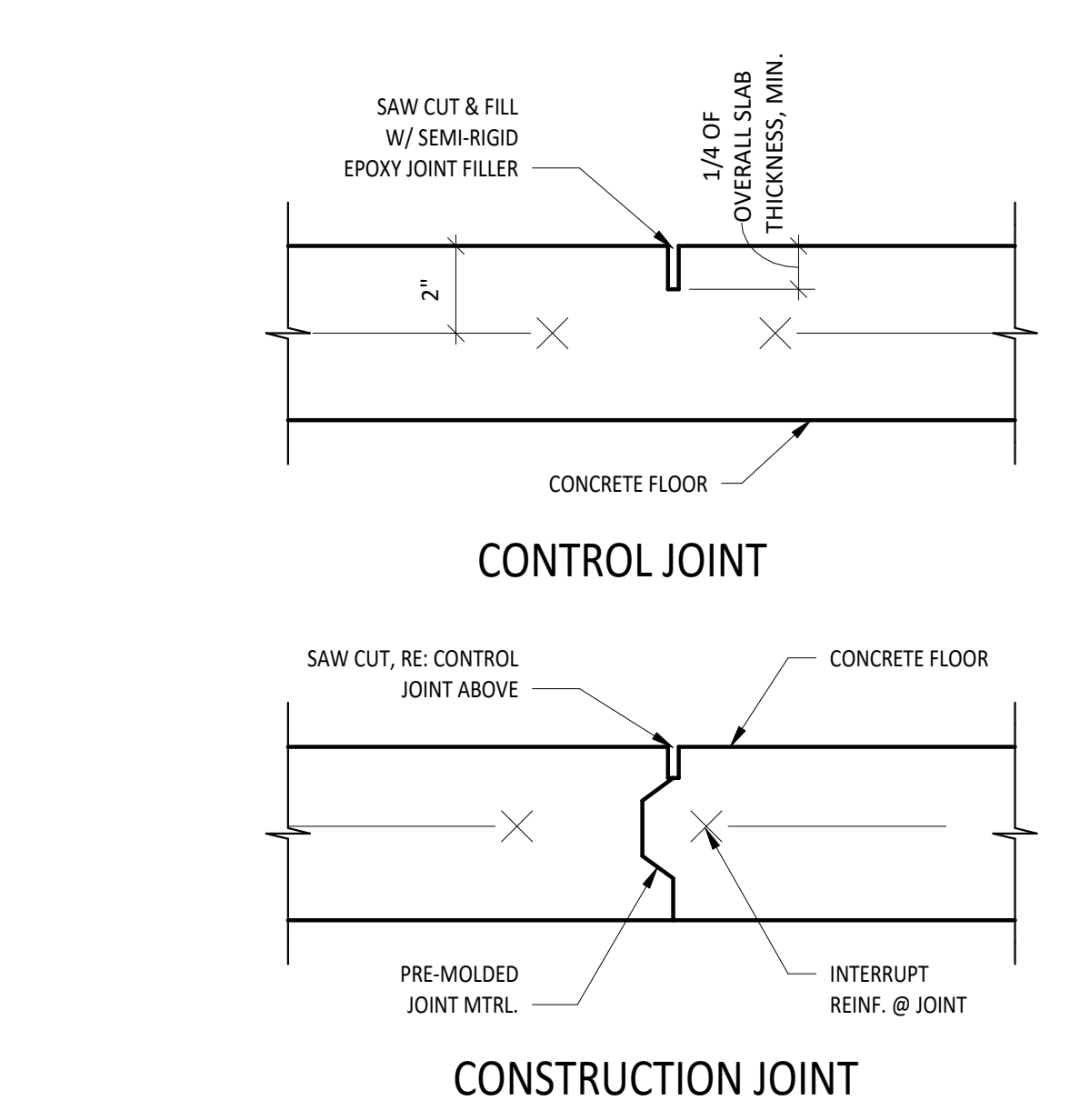
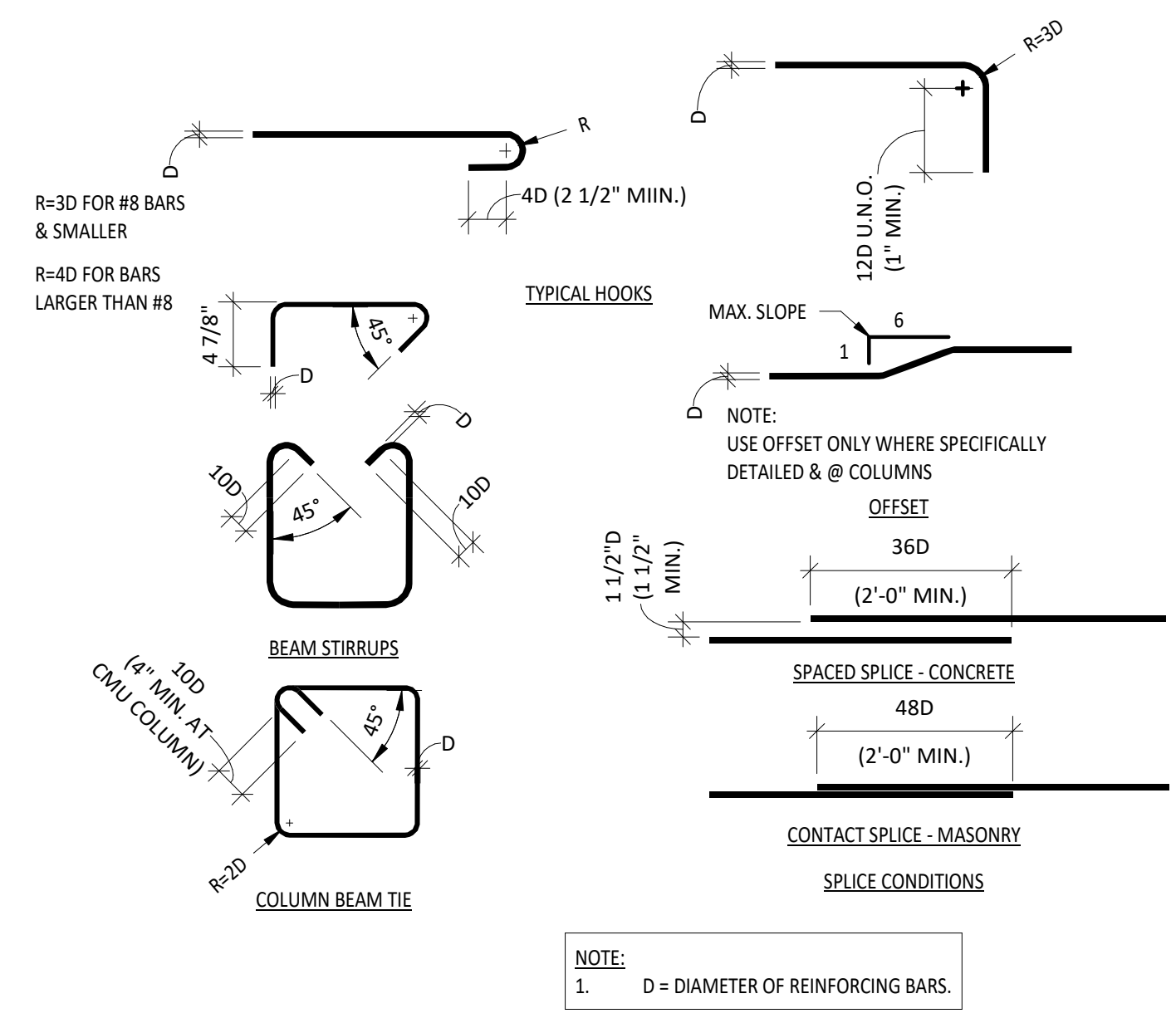
**HARBOR FREIGHT**  
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**PARTIAL FLOOR & ROOF FRAMING PLAN**  
DATE 03/04/24  
JOB NO. 23591  
**S1.0**  
SHEET NO.





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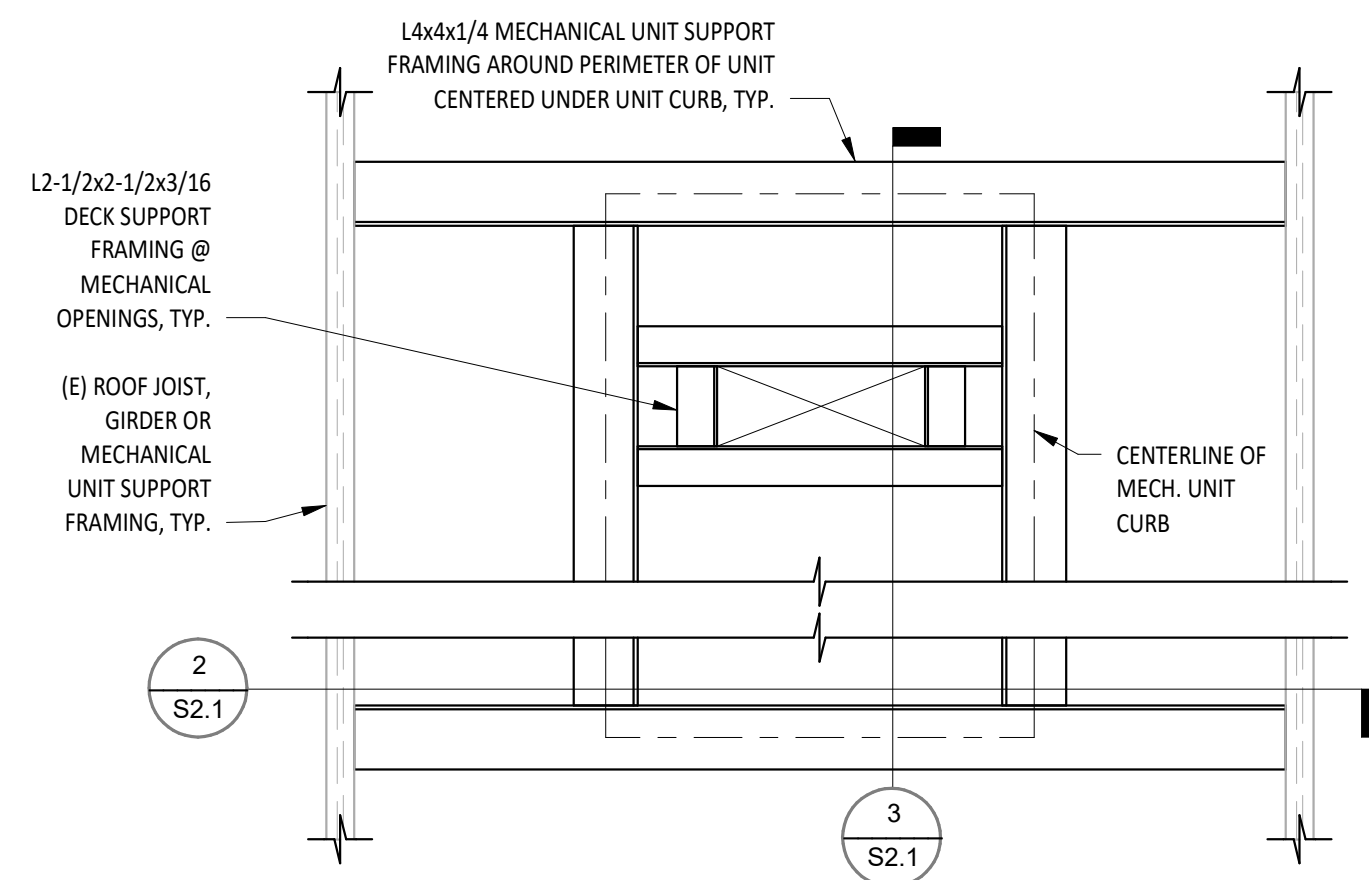
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**STRUCTURAL DETAILS**

DATE: 03/04/24  
JOB NO.: 23591

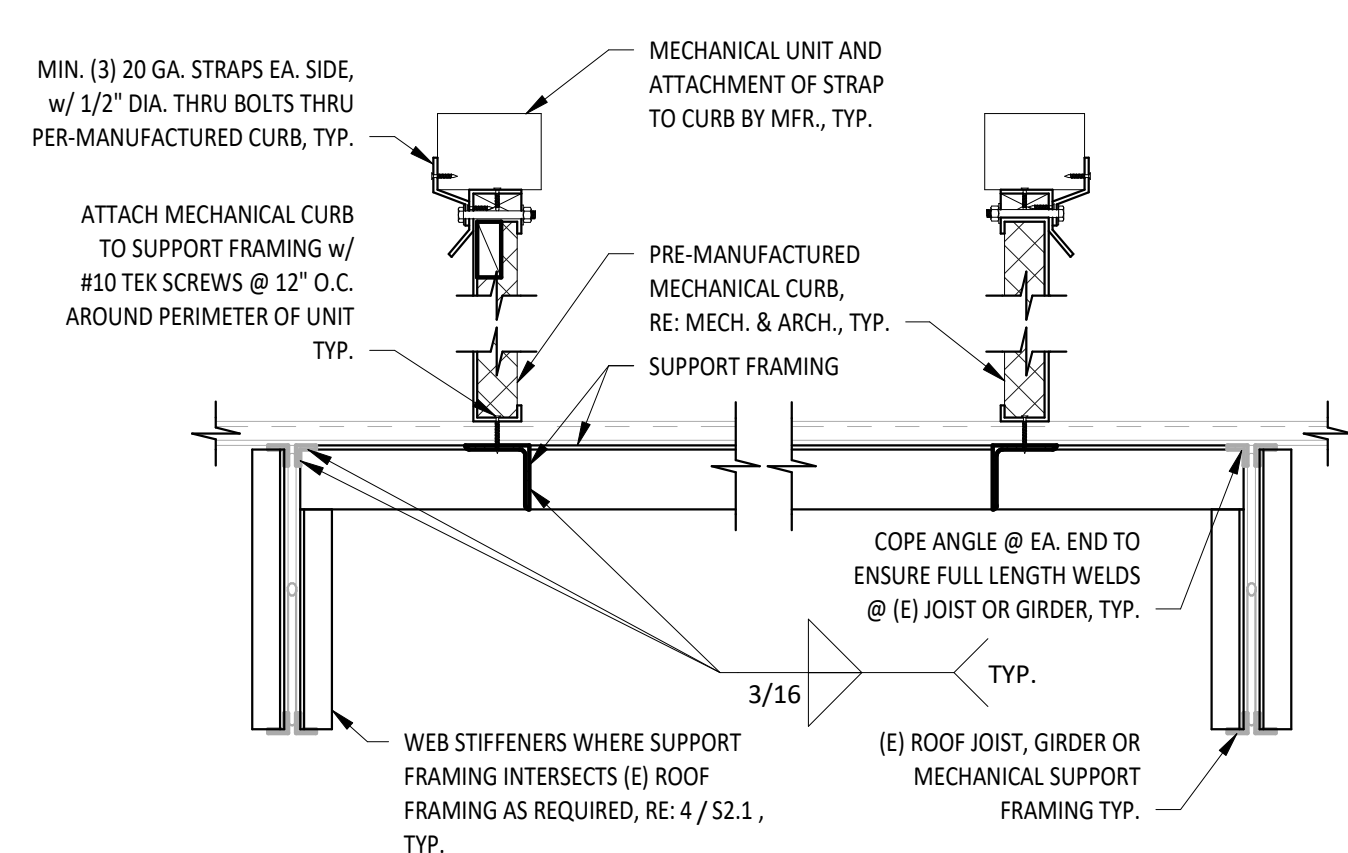
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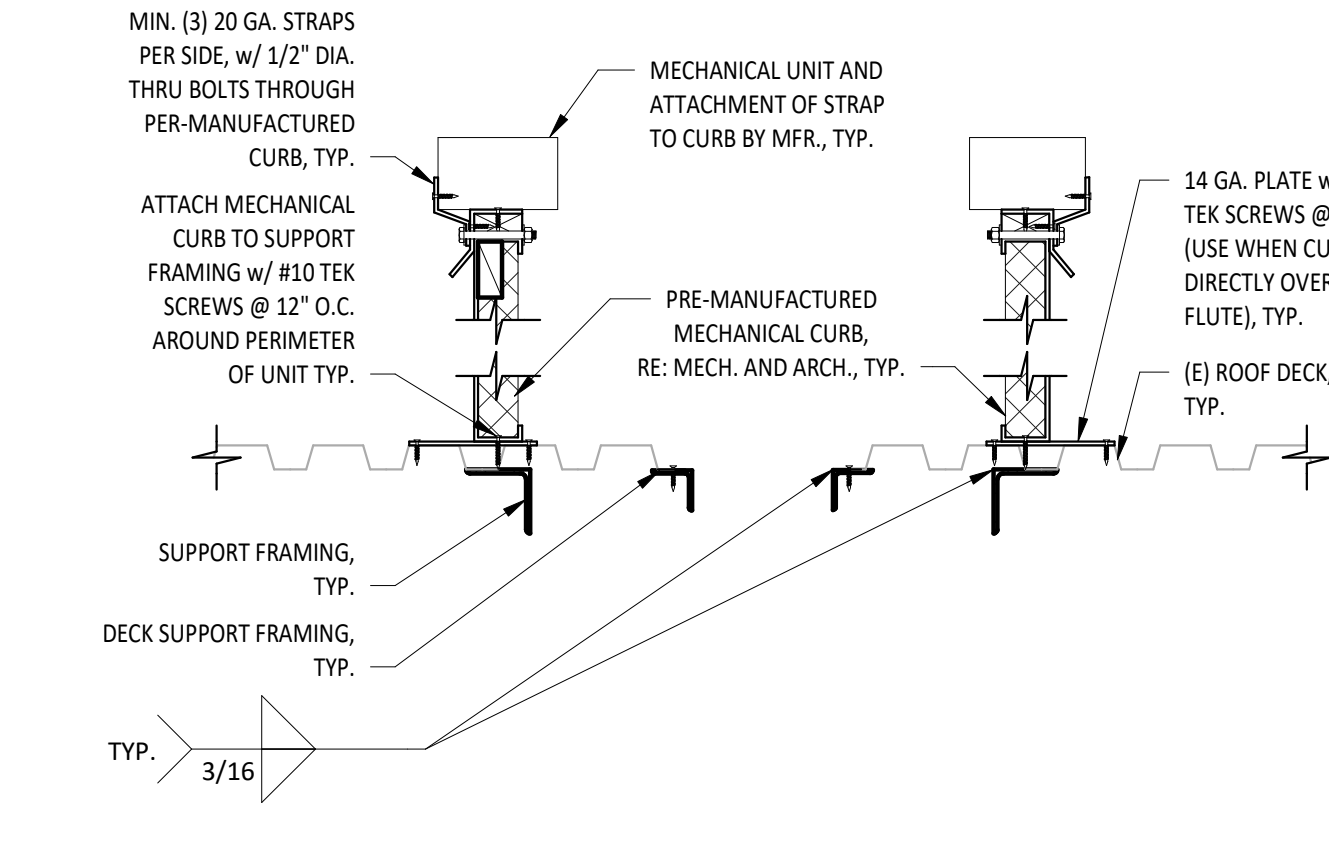


- NOTES:**
- REFER TO MECHANICAL FOR EXACT LOCATION AND SIZE OF ROOF OPENINGS. PROVIDE DECK SUPPORT FRAMING FOR OPENINGS LARGER THAN 12" DIA. OR 12"x12" SQ.
  - G.C. TO ENSURE THAT NO STRUCTURAL FRAMING MEMBERS ARE CUT OR DAMAGED WHEN OPENING IS CUT.
  - FASTEN DECK SUPPORT FRAMING TO (E) ROOF DECK AROUND MECHANICAL OPENING w/ #10 TEK SCREWS @ 6" O.C., USING NEOPRENE WASHERS.
  - REFER TO MECHANICAL FOR EXACT LOCATION OF MECHANICAL UNIT. PROVIDE MECHANICAL UNIT SUPPORT FRAMING UNDER ENTIRE CURB. ATTACH CURBING TO EXISTING FRAMING MEMBERS, IF DIRECTLY UNDER CURB, IN LIEU OF ANGLE SUPPORT FRAMING.

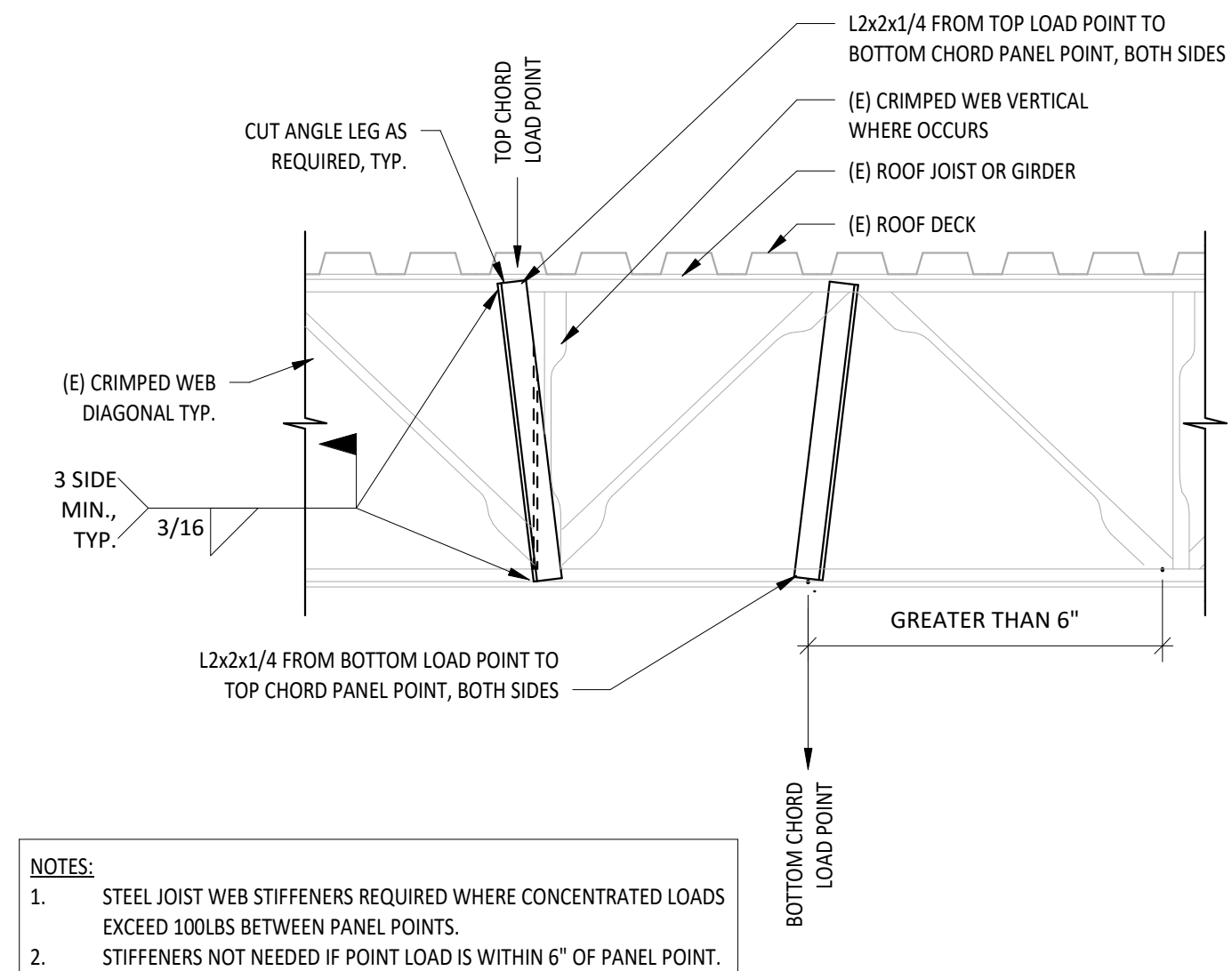
1 MECHANICAL UNIT SUPPORT FRAMING  
1" = 1'-0"



2 MECHANICAL UNIT SUPPORT FRAMING SECTION  
1" = 1'-0"

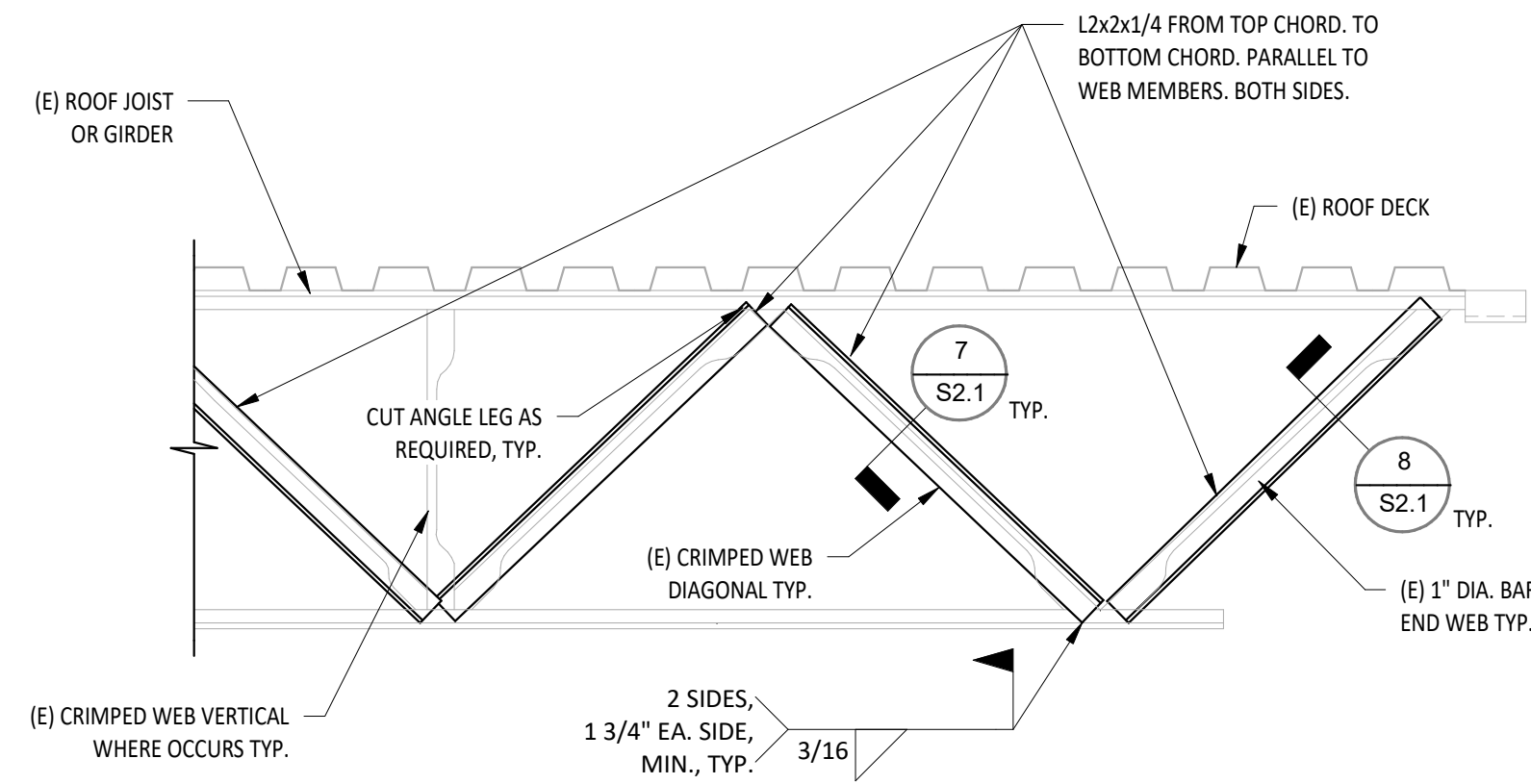


3 MECHANICAL UNIT SUPPORT FRAMING SECTION  
1" = 1'-0"



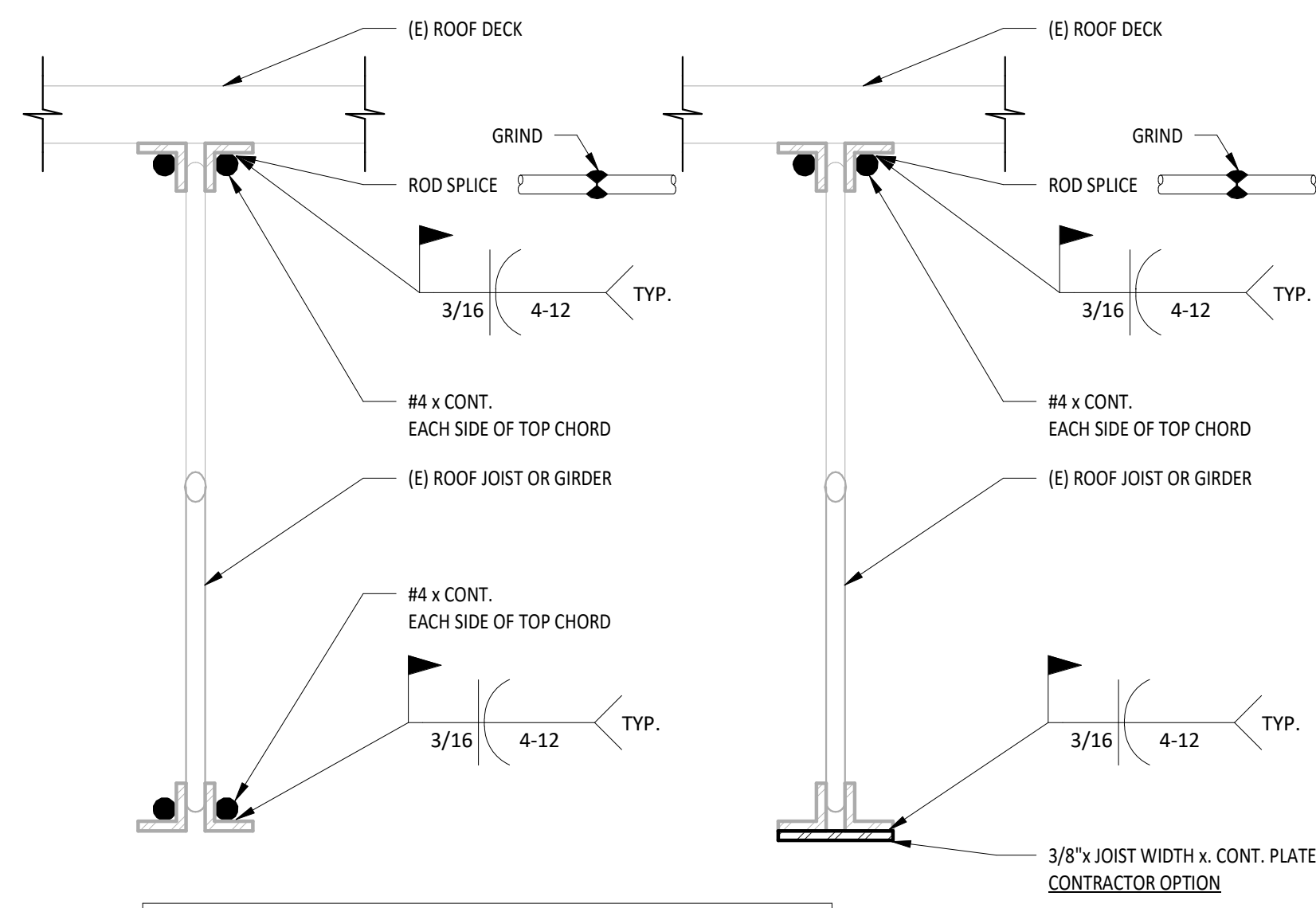
- NOTES:**
- STEEL JOIST WEB STIFFENERS REQUIRED WHERE CONCENTRATED LOADS EXCEED 100LBS BETWEEN PANEL POINTS.
  - STIFFENERS NOT NEEDED IF POINT LOAD IS WITHIN 6" OF PANEL POINT.

4 (E) STEEL TRUSS WEB STIFFENERS (K-JOIST w/ CRIMPED WEB)  
1" = 1'-0"



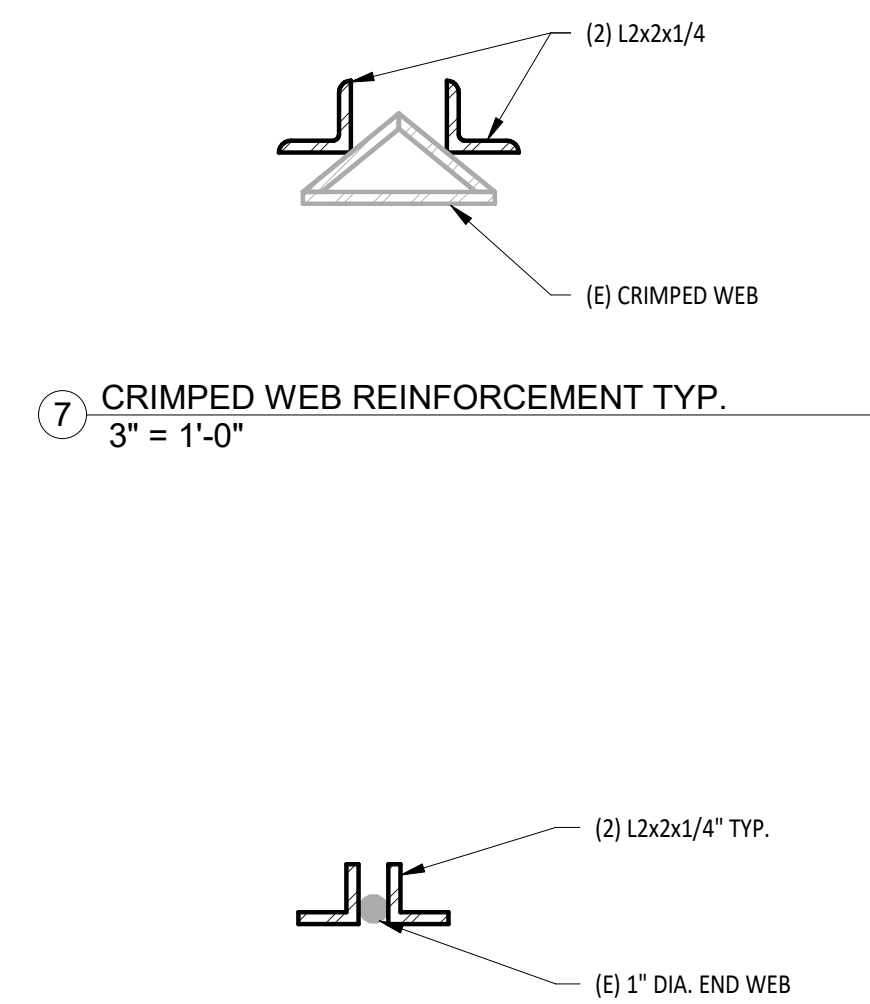
- NOTES:**
- CHORD REINF. IF REQ'D. (NOT SHOWN FOR CLARITY)
  - ROOF JOISTS NEED TO BE REINFORCED WHILE IN SHORED POSITION.
  - ROOF JOISTS TO BE REINFORCED BEFORE MECHANICAL UNIT LOADS ARE APPLIED AND WHILE EXISTING ROOF LIVE LOAD IS REMOVED.

5 (E) STEEL TRUSS WEB REINFORCING (K-JOIST w/ CRIMPED WEB)  
1" = 1'-0"



- NOTES:**
- REINFORCING TO OCCUR THE WHOLE LENGTH OF THE JOIST.
  - ROOF JOISTS NEED TO BE REINFORCED WHILE IN THE SHORED POSITION.
  - ROOF JOISTS TO BE REINFORCED BEFORE MECHANICAL UNIT LOADS ARE APPLIED AND WHILE EXISTING ROOF LIVE LOAD IS REMOVED.

6 (E) STEEL TRUSS CHORD REINFORCING  
3" = 1'-0"



7 CRIMPED WEB REINFORCEMENT TYP.  
3" = 1'-0"

8 END-WEB REINFORCEMENT TYP.  
3" = 1'-0"

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**MECHANICAL EQUIPMENT TAG NOTES:**

- Ⓜ 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.
- Ⓜ 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.
- Ⓜ EXISTING ROOFTOP UNIT TO BE ABANDONED IN PLACE. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL BURGLAR BARS AT THE ROOF OPENING(S) IF NONE EXIST. MECHANICAL CONTRACTOR SHALL ALSO COORDINATE WITH ELECTRICAL CONTRACTOR FOR DISCONNECTING POWER. FIELD VERIFY EXISTING CONDITIONS PRIOR TO STARTING 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 UNITS IN WIRED THERMOSTAT MODE UNTIL COMMISSIONING.

NOTE:  
MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL BURGLAR BARS IN THE DUCT DROPS OF THE NEW ROOFTOP UNITS. MECHANICAL CONTRACTOR SHALL ALSO FURNISH AND INSTALL BURGLAR BARS IN THE DUCT DROPS OF THE EXISTING ROOFTOP UNIT'S BEING ABANDONED IF NONE EXIST.

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

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 REMOVE ALL EXISTING UNUSED MECHANICAL EQUIPMENT, UNIT HEATERS, EXHAUST FANS), DUCTWORK (CAP AND REMOVE ALL DUCTWORK FROM ABANDONED ROOFTOP UNITS AT THE UNDERSIDE OF ROOF DECK), DIFFUSERS), 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.

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

NOTE:  
MECHANICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.2 FOR GENERAL NOTES.

NOTE:  
MECHANICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR HARBOR FREIGHT TOOLS / VENDOR PROVIDED MATERIALS.

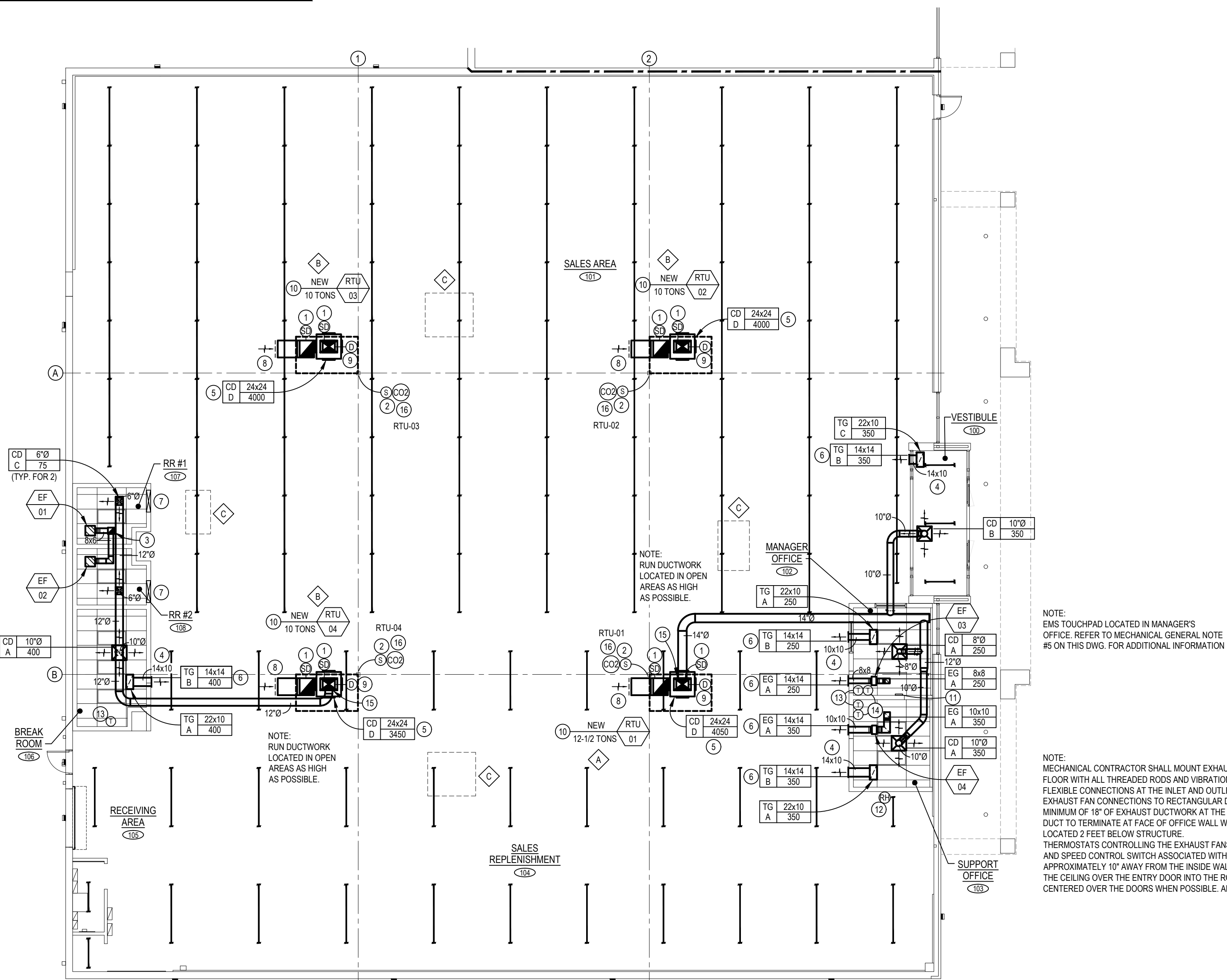
**MECHANICAL GENERAL NOTES:**

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 AWARDED 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.
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.

**MECHANICAL GENERAL NOTES (CONTINUED):**

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.
12. MECHANICAL EQUIPMENT AND SUPPORTS THAT ARE EXPOSED TO WIND SHALL BE INSTALLED TO RESIST THE WIND PRESSURES ON THE EQUIPMENT AND THE SUPPORTS AS DETERMINED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE. ROOF MOUNTED MECHANICAL UNITS AND SUPPORTS SHALL BE SECURED TO THE STRUCTURE. THE USE OF WOOD "SLEEPERS" SHALL NOT BE PERMITTED. MECHANICAL CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR AND LANDLORD FOR ATTACHMENT OF THE EQUIPMENT SUPPORTS AND FASTENINGS BY THE GENERAL CONTRACTOR WITH INFORMATION PROVIDED TO CITY BUILDING DEPARTMENT FOR FINAL APPROVAL BY THE GENERAL CONTRACTOR.
13. CURB SUPPORT: MECHANICAL CONTRACTOR SHALL INSTALL ROOF CURB ON ROOF STRUCTURE, LEVEL, ACCORDING TO LANDLORD'S WRITTEN INSTALLATION INSTRUCTIONS (SECURE FOR HURRICANE WINDS). INSTALL AND SECURE ROOFTOP UNITS ON CURBS AND COORDINATE ROOF PENETRATIONS AND FLASHING WITH LANDLORD'S APPROVED ROOFER HAVING WARRANTY FOR THE ROOF.

| 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                             |
| Ⓜ                 | DUCT TEMPERATURE SENSOR              |
| Ⓜ                 | THERMOSTAT (MTD, 4'-0" AFF)          |
| Ⓜ                 | SPACE TEMPERATURE SENSOR (AS NOTED)  |
| Ⓜ                 | SMOKE DETECTOR                       |
| Ⓜ                 | 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             |



**MECHANICAL PLAN TAG NOTES:**

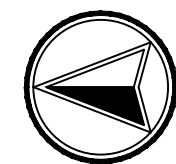
1. LENNOX SHALL FURNISH AND INSTALL SMOKE DETECTORS IN THE SUPPLY AND RETURN AIR DUCTS. MECHANICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE REMOTE TEST STATION WITH AUDIO VISUAL ALARM "SYSTEM SENSOR" MODEL RTS-ADS NEXT TO THE PHONE BOARD OR AT A LOCATION APPROVED BY THE AUTHORITY HAVING JURISDICTION. 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 BIOSCREEN. 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 14x14x12" 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 1x1" 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 WALL 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 LOPPED 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.

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

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.

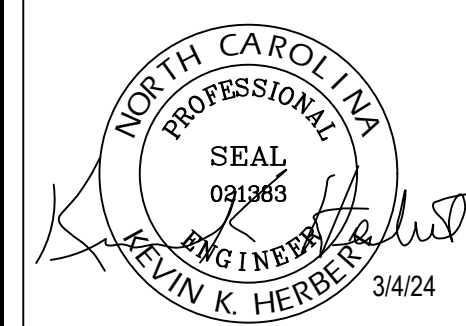
**MECHANICAL PLAN**

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



**TONNAGE BREAKDOWN**

|                      |        |
|----------------------|--------|
| TOTAL TONNAGE        | 42.5   |
| TOTAL SQUARE FOOTAGE | 15,052 |
| SQUARE FOOT/TON      | 354    |



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**REVISIONS**

| # | DATE | TYPE |
|---|------|------|
| 1 |      |      |
| 2 |      |      |
| 3 |      |      |
| 4 |      |      |
| 5 |      |      |
| 6 |      |      |
| 7 |      |      |
| 8 |      |      |
| 9 |      |      |

**MECHANICAL PLAN**

DATE 03/04/24

JOB NO. 23591

**M1.0**  
SHEET NO.

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| ROOFTOP UNIT SCHEDULE (NO SUBSTITUTIONS ALLOWED) |             |                             |                 |      |              |             |                             |                      |    |                 |       |       |                        |                     |                |          |                 |         |
|--|-------------|-----------------------------|-----------------|------|--------------|-------------|-----------------------------|----------------------|----|-----------------|-------|-------|------------------------|---------------------|----------------|----------|-----------------|---------|
| TAG  | LABEL TAG   | MANUFACTURER & MODEL NUMBER | NOMINAL TONNAGE | CFM  | E.S.P. (IN.) | OUTDOOR AIR | HEATING CAPACITY            |                      |    | ELECTRICAL DATA |       |       | GROSS COOLING CAPACITY |                     |                |          | WEIGHT (LBS)    | REMARKS |
|  |             |                             |                 |      |              |             | WATTS                       | HP                   | HP | S/A             | MCA   | MOCP  | EAT DBWB               | TOTAL (MBH)         | SENSIBLE (MBH) | EER/IEER |                 |         |
| RTU 01   | XXXX-RTU-01 | LENNOX LCT150H4EK1G         | 12-1/2          | 5000 | 0.8"         | 1250        | 41.3KW @ 460V (45KW @ 480V) | 3.75 HP @ 460V 3 PH. | 74 | 80              | 80/67 | 146.1 | 108.1                  | 11.0 EER/ 14.6 IEER | 95             | 1600     | SEE NOTES BELOW |         |
| RTU 02   | XXXX-RTU-02 | LENNOX LCT120H4EJ1G         | 10              | 4000 | 0.6"         | 1000        | 27.5KW @ 460V (30KW @ 480V) | 3.75 HP @ 460V 3 PH. | 51 | 60              | 80/67 | 121.9 | 89.0                   | 12.3 EER/ 15.5 IEER | 95             | 1400     | SEE NOTES BELOW |         |
| RTU 03   | XXXX-RTU-03 | LENNOX LCT120H4EJ1G         | 10              | 4000 | 0.6"         | 1000        | 27.5KW @ 460V (30KW @ 480V) | 3.75 HP @ 460V 3 PH. | 51 | 60              | 80/67 | 121.9 | 89.0                   | 12.3 EER/ 15.5 IEER | 95             | 1400     | SEE NOTES BELOW |         |
| RTU 04   | XXXX-RTU-04 | LENNOX LCT120H4EJ1G         | 10              | 4000 | 0.8"         | 600         | 27.5KW @ 460V (30KW @ 480V) | 3.75 HP @ 460V 3 PH. | 51 | 60              | 80/67 | 121.9 | 89.0                   | 12.3 EER/ 15.5 IEER | 95             | 1400     | SEE NOTES BELOW |         |

FURNISH WITH THE FOLLOWING:

- 14" HIGH PRE-FABRICATED INSULATED ROOF CURB BY MECHANICAL CONTRACTOR
- HIGH PERFORMANCE ECONOMIZER 0-100% COMPLETE WITH FAULT DETECTOR AND DIAGNOSTICS SYSTEM (FDD)
- DIRTY FILTER SWITCH, 2" MERV 8 FILTERS
- BURGLAR BARS BY MECHANICAL CONTRACTOR
- MSAV (MULTI-STAGE AIR VOLUME) SUPPLY AIR BLOWER
- FACTORY INSTALLED UNIT NON-SUPPLY DISCONNECT - WEATHERPROOF
- R-410a REFRIGERANT
- COMBINATION HAIL/COIL GUARD
- HINGED ACCESS PANELS
- HIGH AND LOW PRESSURE SWITCHES
- FREZZE STAT
- SERVICE VALVES
- BAROMETRIC RELIEF DAMPERS
- CYCLE PROTECTION
- 5-YEAR COMPRESSOR WARRANTY
- FCP - FACTORY INSTALLED FIELD WIRED BY ELECTRICIAN
- 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
- ELECTRIC HEAT OPTION
- SMOKE DETECTORS IN SUPPLY AND RETURN
- CURBS PLUS, INC. DROP DIFFUSER SYSTEM (4) VFPD 2410 10-12.5
- 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@lennoxind.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 TSTAT W/ LCD DISPLAY. MC TO PROVIDE 120V/24V CONTROL TRANSFORMER. MC SHALL WIRE LOW VOLTAGE TSTATS. PROVIDE WITH INSULATED BACKPANS. |
| CD B                                   | PRICE SPD                          | AS NOTED | AS SHOWN    | AS NOTED  | OPPOSED BLADE | SURFACE MOUNTED | 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                                   | CURBS PLUS, INC. VFPD 2410 10-12.5 | AS NOTED | 4-WAY       | 24x24     | -             | EXPOSED         | 44x44            | 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 +1.34" | 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 +1.34" | 30               | WHITE POWDER COAT | STEEL    |   |
| TG C                                   | PRICE 81                           | AS NOTED | TRANSFER    | AS NOTED  | -             | SURFACE MOUNTED | 24x12            | 30               | WHITE POWDER COAT | ALUMINUM |   |

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.

| 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/110 | 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/110 | 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/110 | 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/110 | 3000    | IN-LINE      |                  | 12           | SEE NOTES 3 & 8 BELOW |

NOTES: PROVIDE WITH THE FOLLOWING ITEMS:

- DISCONNECT SWITCH
- GRAVITY BACKDRAFT DAMPER
- INTEGRAL SPEED CONTROL SWITCH FOR BALANCING
- METAL CEILING GRILLE
- CONTROLLED BY LIGHT SWITCH (WHEN LIGHT SWITCH IS ACTIVATED THE FAN WILL ENGAGE)
- 14" HIGH PRE-FAB ROOF CURB
- HANGING KIT WITH NEOPRENE VIBRATION ISOLATORS
- LINE VOLTAGE (120V) COOLING ONLY THERMOSTAT TPI #ETS9RST

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.

| 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                                 | 136 (9,063 SF) | 7.5 CFM/PERSON 12 CFM/SF (1.25) | 2634                | 3012                       | PER NORTH CAROLINA MECHANICAL CODE                 |
| RTU 04                      | RECEIVING / SALES REPLENISHMENT AREA 104 & 105 | 6 (5,325 SF)   | 5 CFM/PERSON .06 CFM/SF (1.25)  | 437                 | 518                        | PER NORTH CAROLINA MECHANICAL CODE                 |
| RTU 01                      | 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                                  | (147 SF)       | .06 CFM/SF (1.25)               | 11                  | 88                         | PER NORTH CAROLINA MECHANICAL CODE                 |
| RTU 04                      | BREAK ROOM 106                                 | 6 (154 SF)     | 5 CFM/PERSON .06 CFM/SF (1.25)  | 49                  | 60                         | PER NORTH CAROLINA MECHANICAL CODE                 |
| EF 01                       | RR #1 107                                      | 1 WC           | 70 CFM EXH./WC                  | 70 EXH              | 100 EXH                    | QUANTITIES ARE EXHAUSTED (11 CFM OF O.A. - RTU-04) |
| EF 02                       | RR #2 108                                      | 1 WC           | 70 CFM EXH./WC                  | 70 EXH              | 100 EXH                    | QUANTITIES ARE EXHAUSTED (11 CFM OF O.A. - RTU-04) |

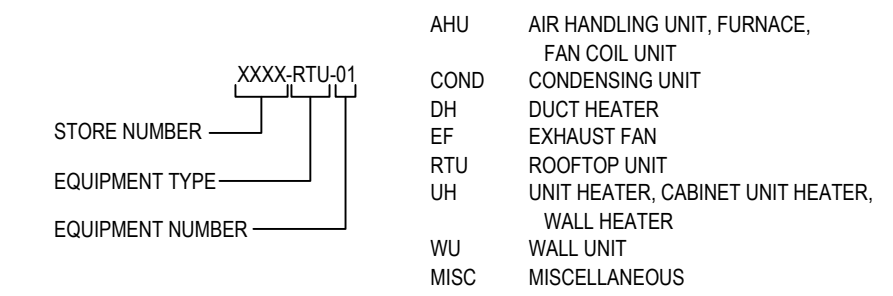
NOTE: NORTH CAROLINA MECHANICAL CODE BREATHING ZONE OUTDOOR AIR FLOW (CFM) Vz = RpPz + RaAz x 1.25

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

| 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

| ASSET LABELING SCHEDULE |             |  |
|-------------------------|-------------|--|
| PLAN TAG                | LABEL TAG   | DESCRIPTION LOCATION                               |
| RTU-01                  | XXXX-RTU-01 | ROOFTOP UNIT SALES/OFFICE/VESTIBULE AREA           |
| RTU-02                  | XXXX-RTU-02 | ROOFTOP UNIT SALES AREA                            |
| RTU-03                  | XXXX-RTU-03 | ROOFTOP UNIT SALES AREA                            |
| RTU-04                  | XXXX-RTU-04 | ROOFTOP UNIT SALES REP./RECEIVING/ BREAK-ROOM 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 MANAGERS OFFICE                        |
| EF-04                   | XXXX-EF-04  | EXHAUST FAN SUPPORT OFFICE                         |



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.



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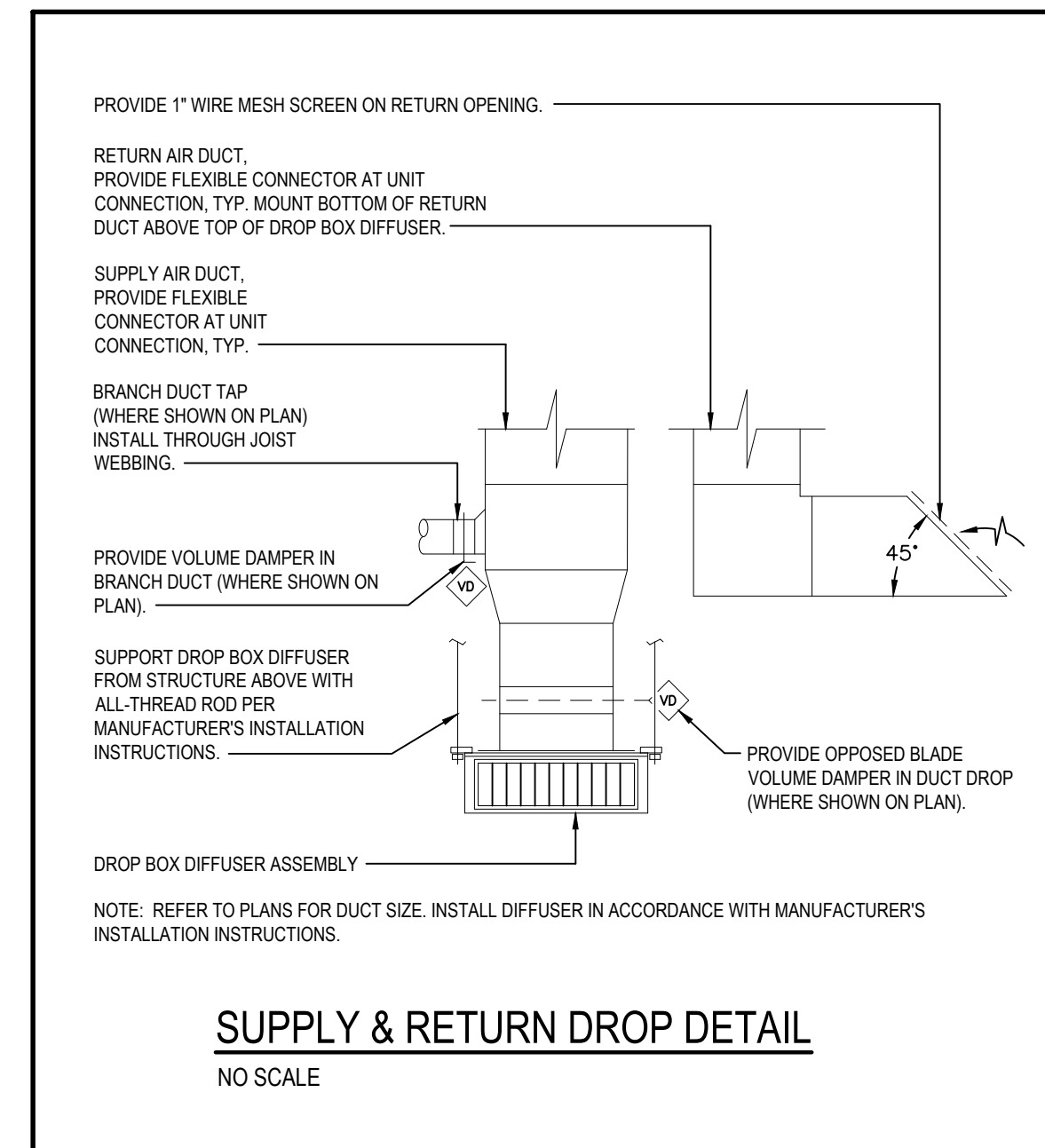
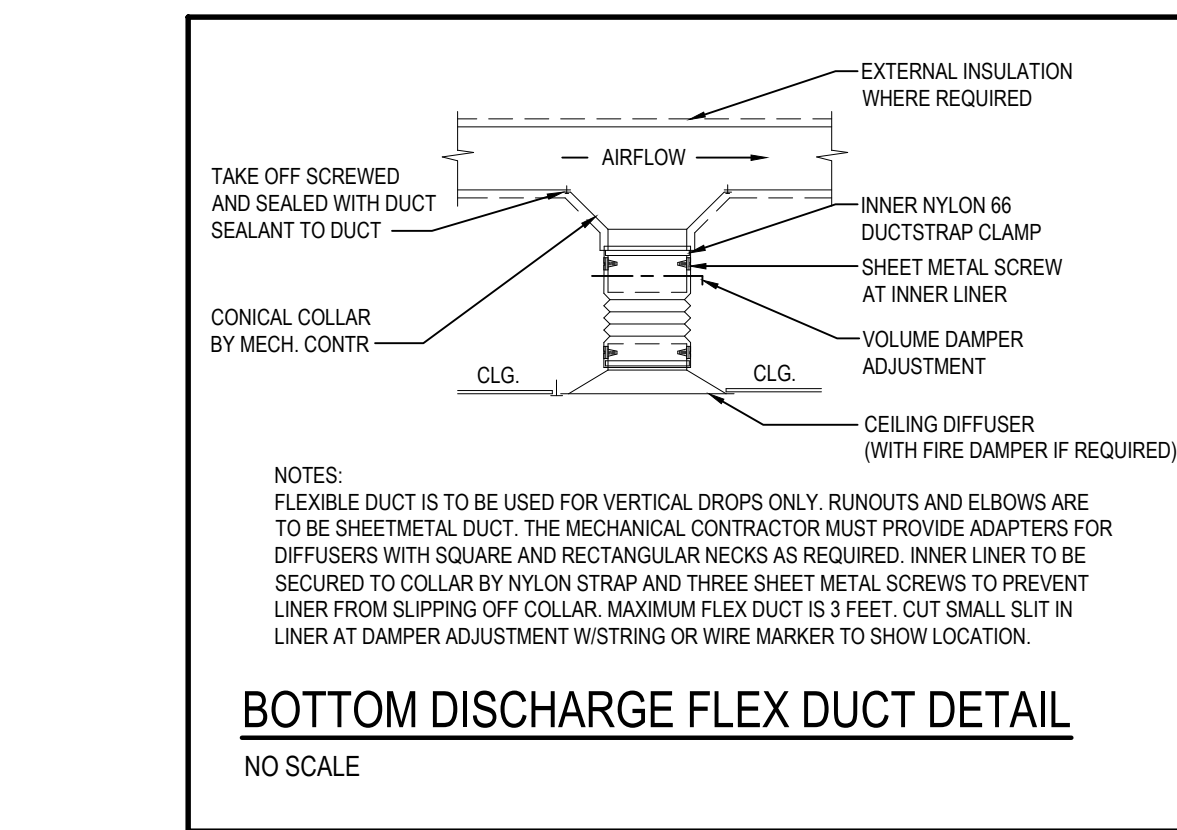
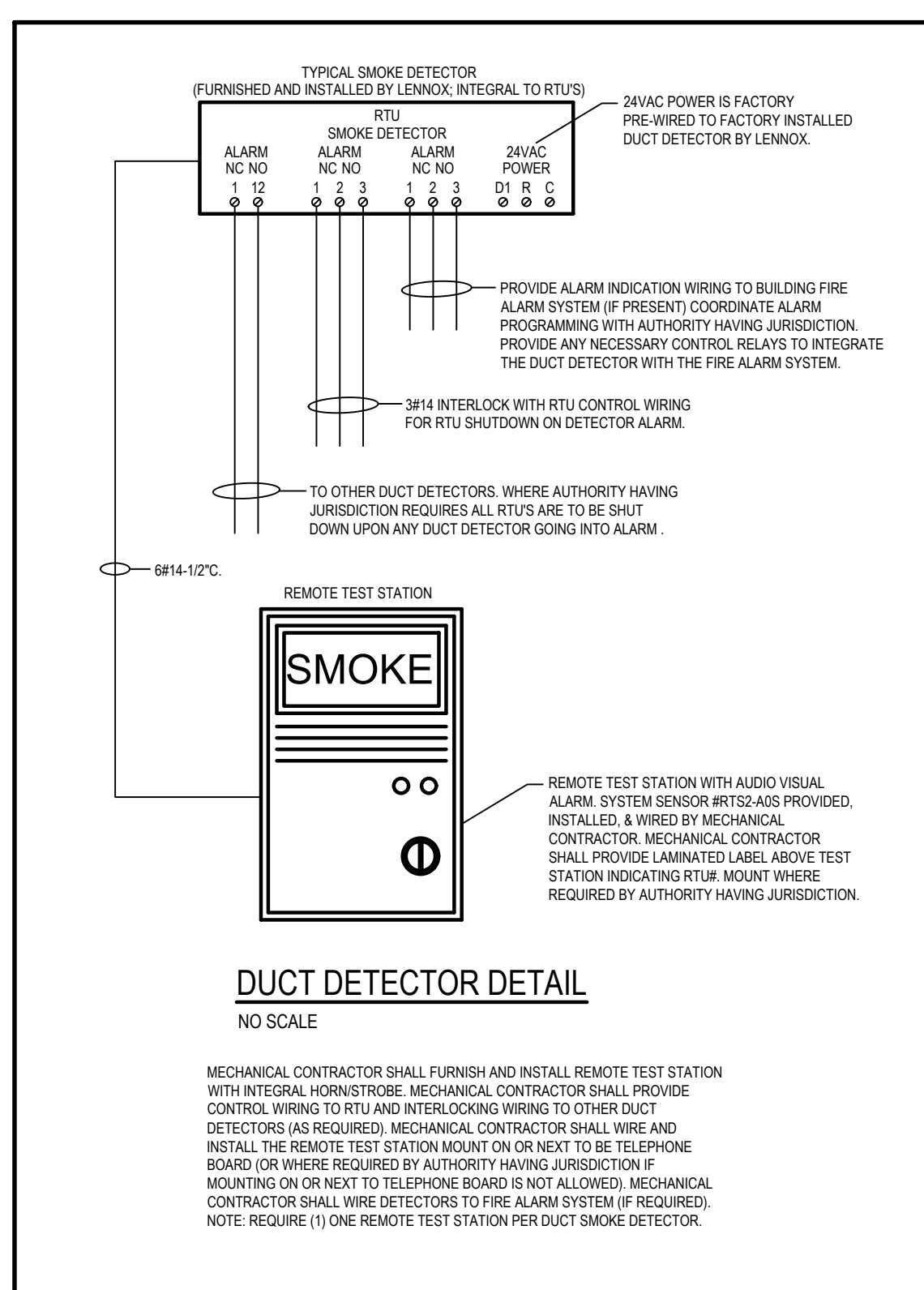
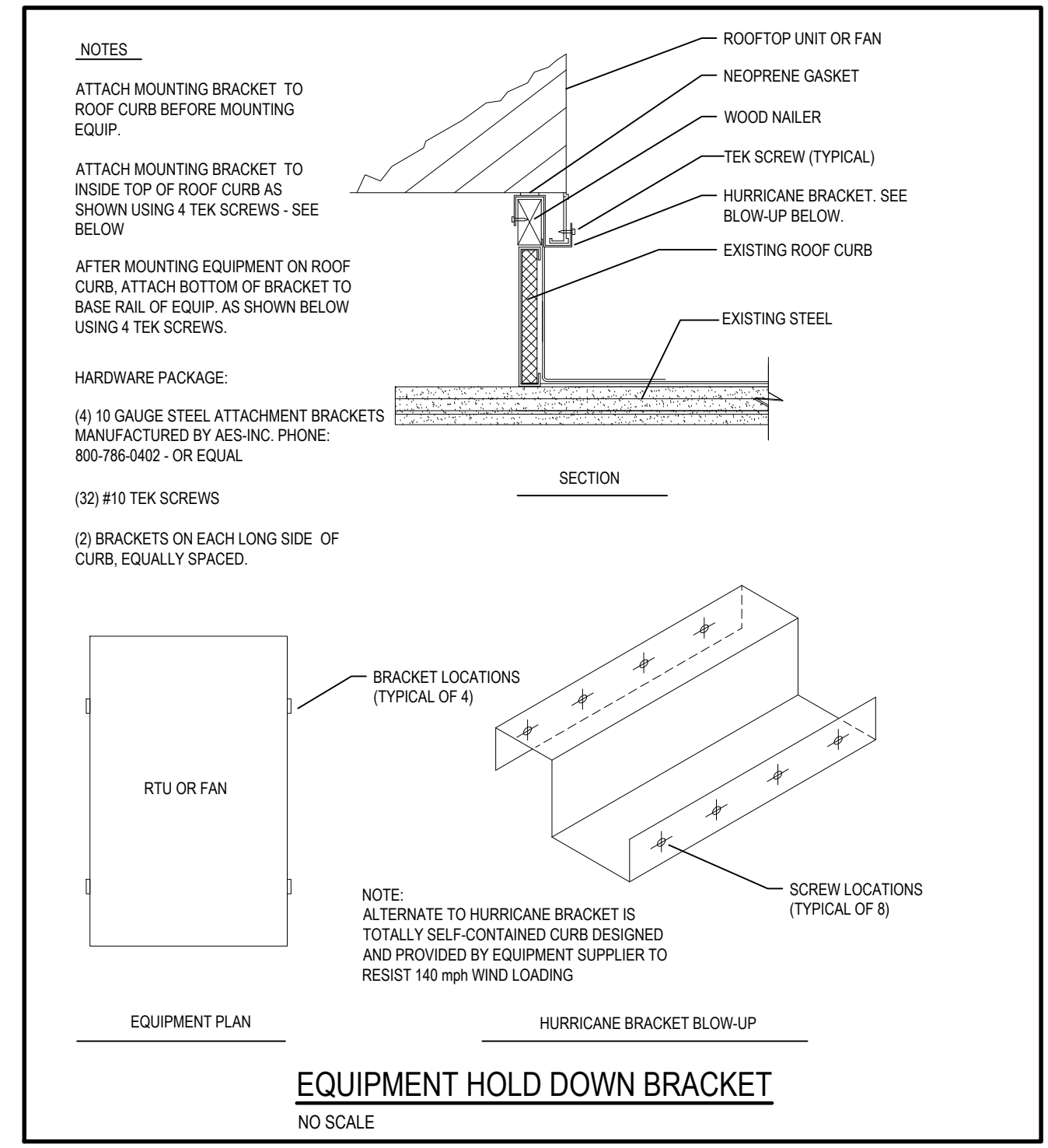
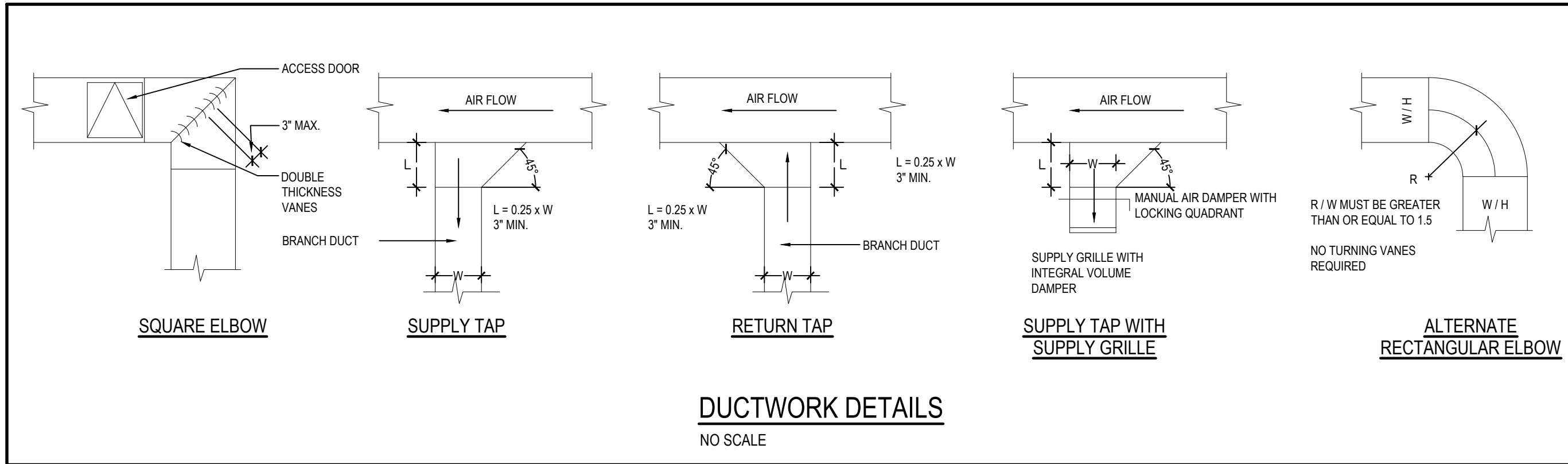
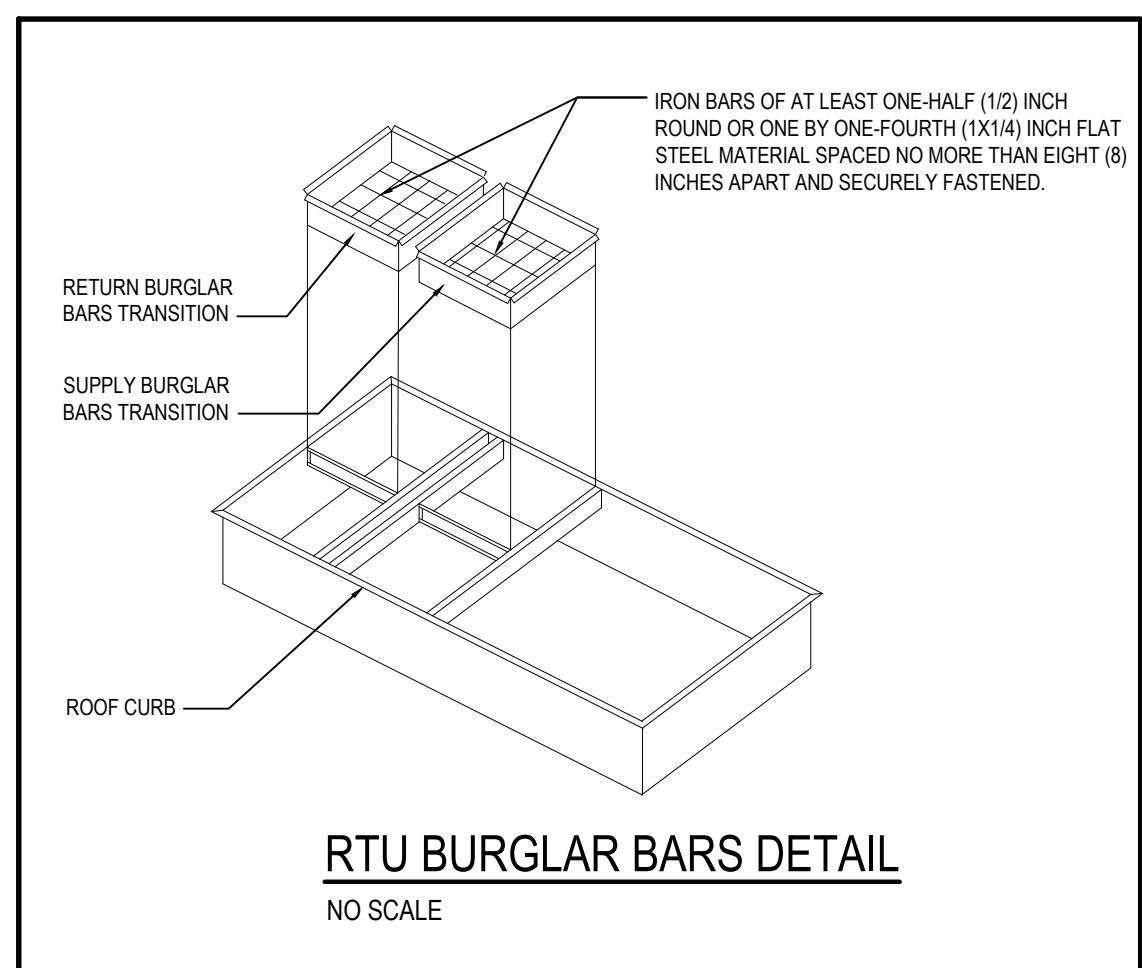
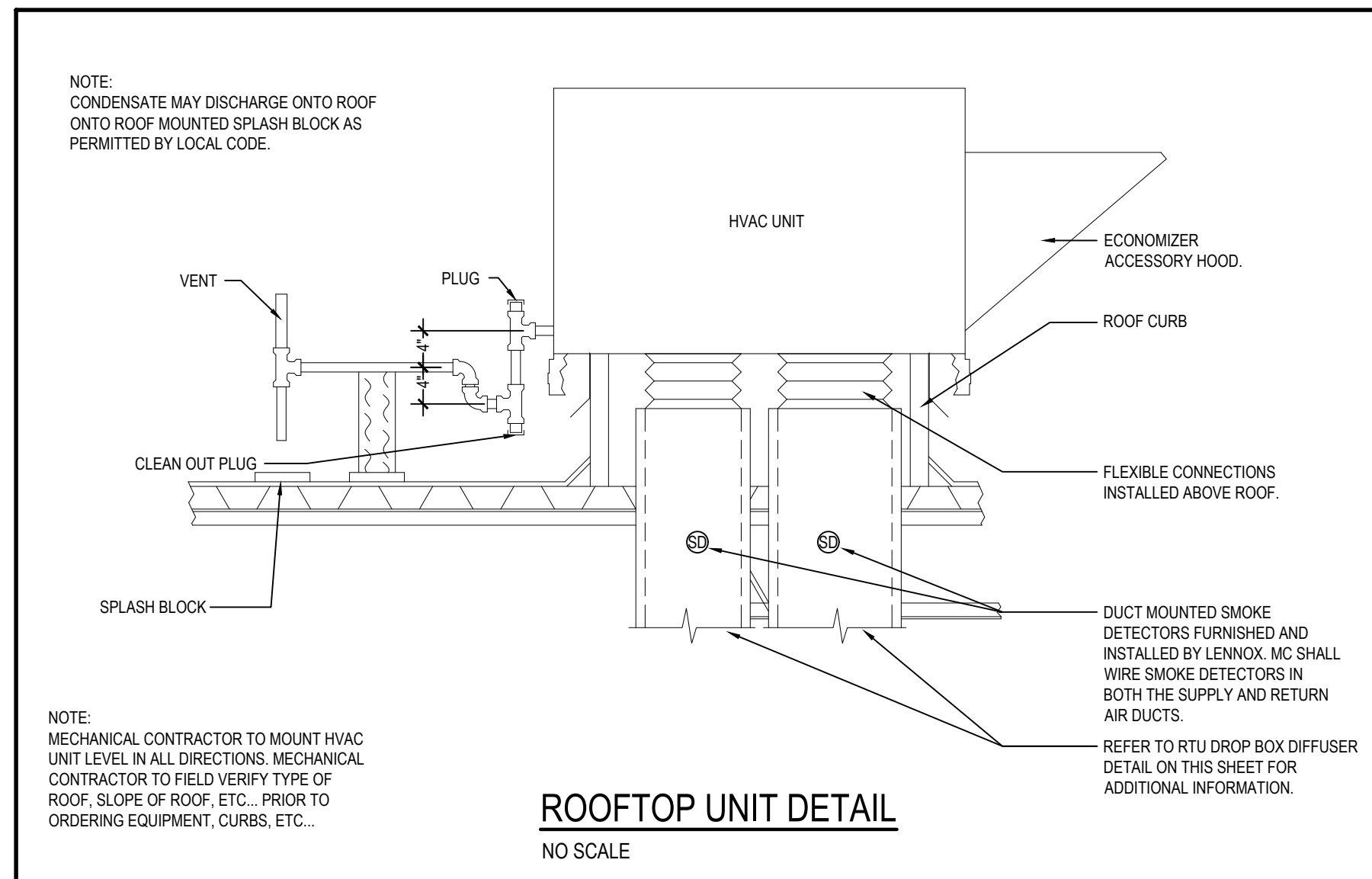
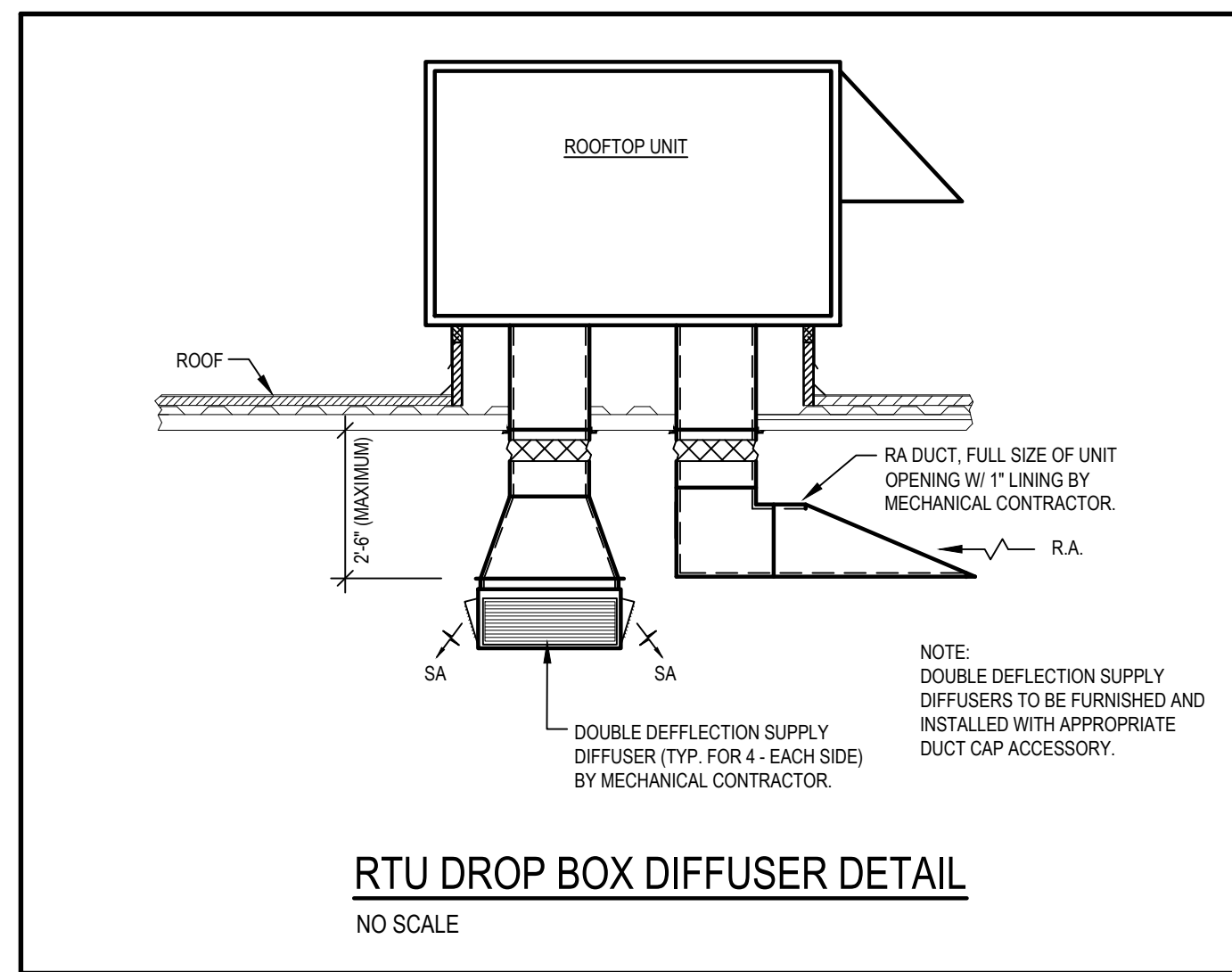
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MECHANICAL SCHEDULES

DATE 03/04/24  
 JOB NO. 23591  
**M1.1**  
 SHEET NO.



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**MECHANICAL DETAILS**

DATE 03/04/24  
JOB NO. 23591  
**M1.2**  
SHEET NO.



**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 PERMANENT 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 EXISTING WATER METER IS LOCATED IN A VAULT IN THE FRONT DRIVE. THE 1-1/2" DOMESTIC WATER SERVICE AND BACKFLOW ARE LOCATED ON AN INTERIOR WALL IN THE JANITORS CLOSET AT THE REAR OF THE BUILDING. PLUMBING CONTRACTOR SHALL RELOCATE INCOMING WATER SERVICE AND BACKFLOW TO THE SIDEWALL OF THE BREAKROOM. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING INCOMING DOMESTIC WATER SERVICE PRIOR TO STARTING ANY WORK.

**SEWER SERVICE:**  
EXISTING RESTROOMS ARE LOCATED NEAR THE REAR OF THE SPACE. 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:**  
THERE IS NO GAS SERVICE.

**STORM SERVICE:**  
WATER EVACUATES THE ROOF TOWARDS THE REAR OF THE BUILDING TO A CONTINUOUS GUTTER WITH DOWNSPOUTS DAYLIGHTING AT GRADE.

NOTE:  
PLUMBING CONTRACTOR SHALL RELOCATE ALL REQUIRED PIPING; WATER, VENTS, SANITARY WASTE, ETC., AS NECESSARY TO MAINTAIN A MINIMUM CLEARANCE OF 13'-6" ABOVE FINISHED FLOOR.

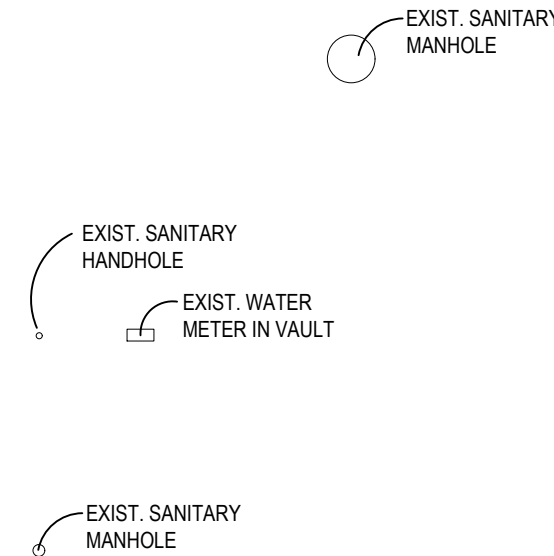
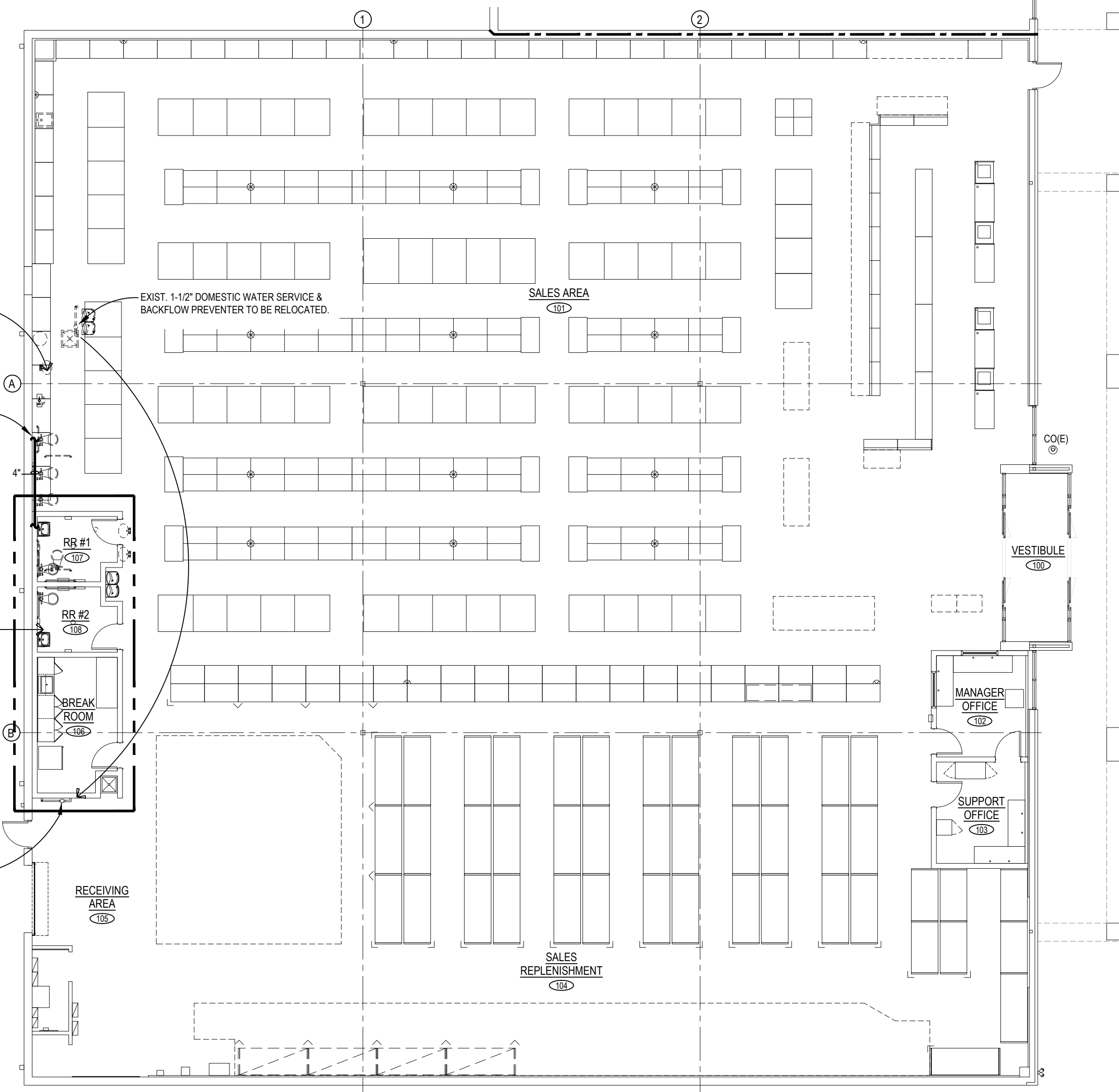
| PLUMBING LEGEND |                              |
|-----------------|------------------------------|
| SYMBOL          | DESCRIPTION                  |
| ---             | COLD WATER PIPING (CW)       |
| ---             | HOT WATER PIPING (HW)        |
| ---             | SANITARY SEWER (BELOW GRADE) |
| ⊙               | CLEANOUT                     |
| ---             | 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        |

PC SHALL REMOVE ALL EXISTING PLUMBING FIXTURES SERVING THE FORMER TOILET ROOMS BEING REMOVED INCLUDING ASSOCIATED WATER HEATER, FLOOR DRAINS, ELECTRIC DRINKING FOUNTAIN, MOP SINK, ETC. REMOVE ALL EXPOSED WASTE, VENT AND WATER PIPING COMPLETELY. CUT AND CAP EXISTING SANITARY SEWER BELOW FLOOR WITH PERMANENT STOPPER NOT BEING RE-USED FOR NEW WORK. GENERAL CONTRACTOR TO PATCH FLOOR TO MATCH EXISTING. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

EXTEND & CONN. NEW 4" SAN. SEWER INTO EXIST. SAN. SEWER SERVING THE FORMER TOILET ROOMS BEING REMOVED. FIELD VERIFY EXACT SIZE, LOCATION, DIRECTION OF FLOW & INVERT ELEVATION PRIOR TO STARTING WORK.

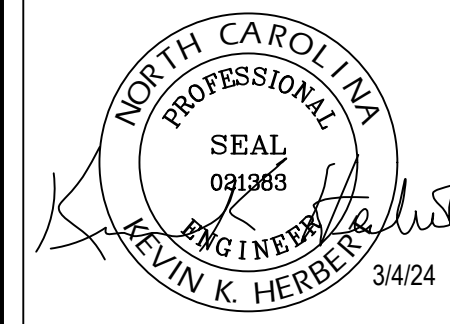
PLUMBING CONTRACTOR SHALL REFER TO DWG. P1.1 FOR MORE INFORMATION.

PC SHALL RELOCATE EXIST. 1-1/2" INCOMING DOMESTIC WATER SERVICE & BACKFLOW PREVENTER TO THIS LOCATION.



**PLUMBING PLAN**  
SCALE: 3/32" = 1'-0"

NOTE: PLUMBING CONTRACTOR SHALL REFER TO DWG. M1.3 FOR PLUMBING SPECIFICATIONS



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**PLUMBING PLAN**

DATE 03/04/24

JOB NO. 23591

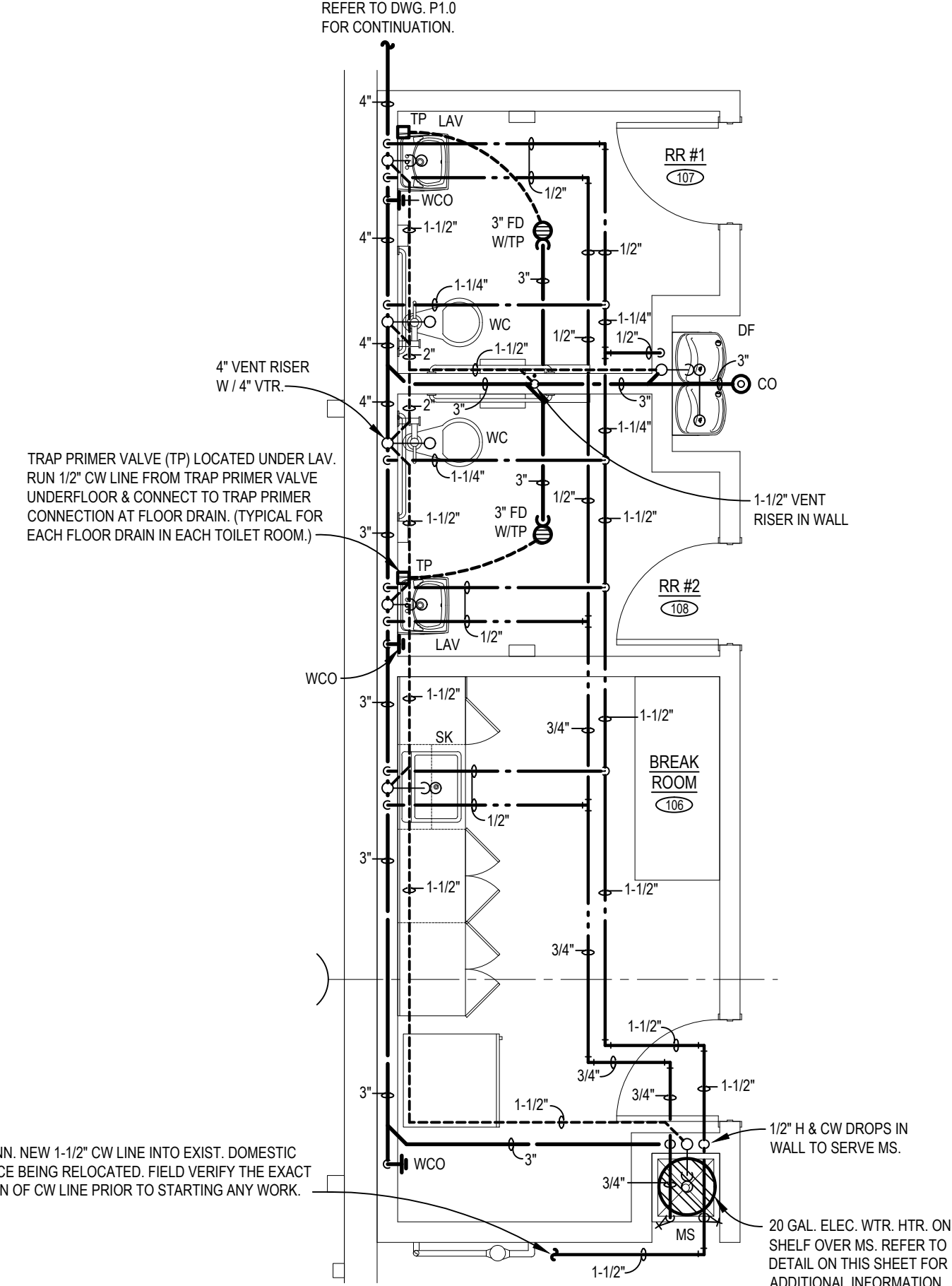
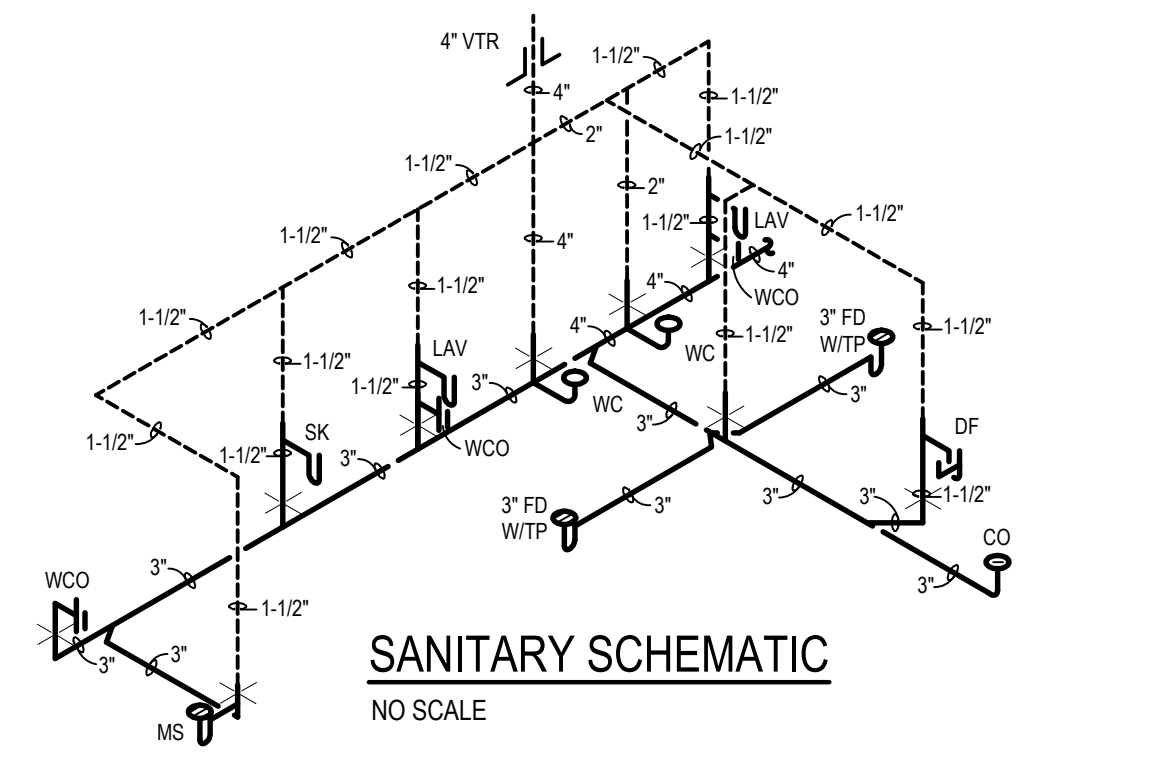
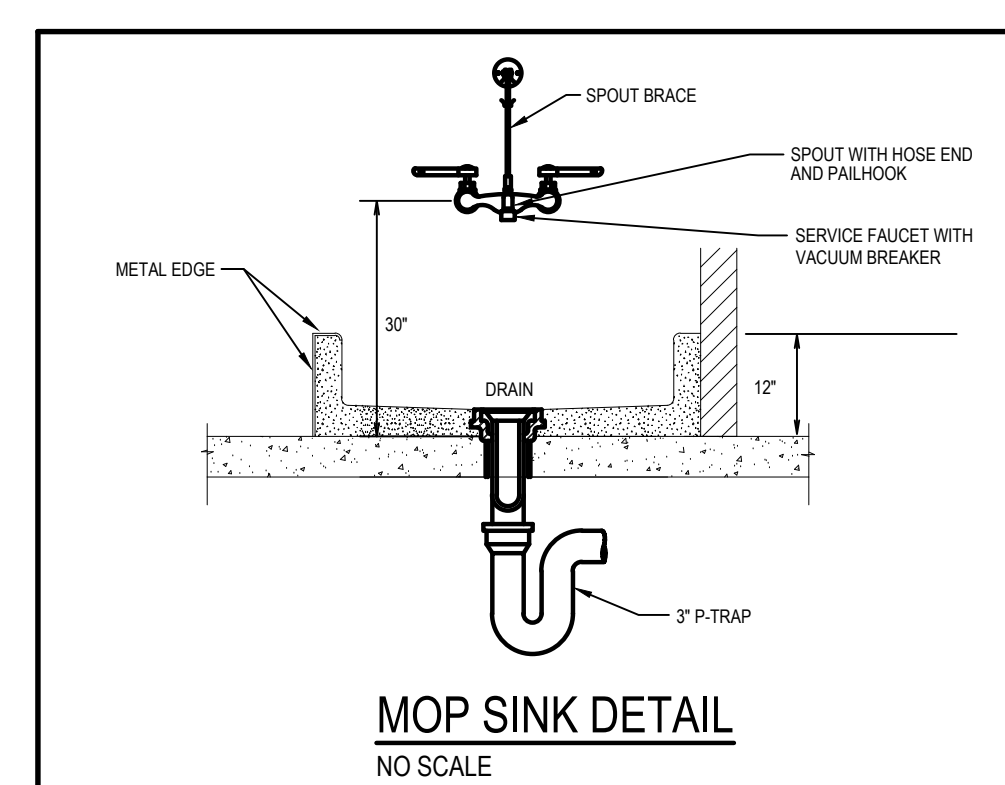
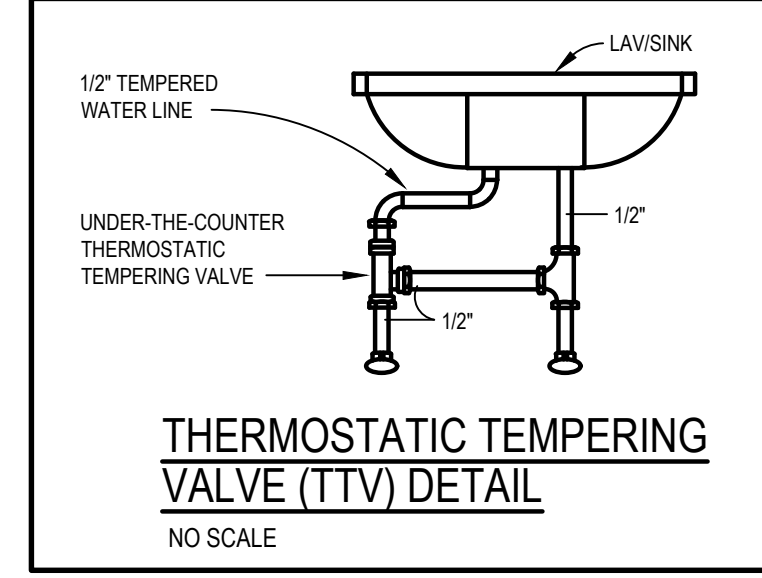
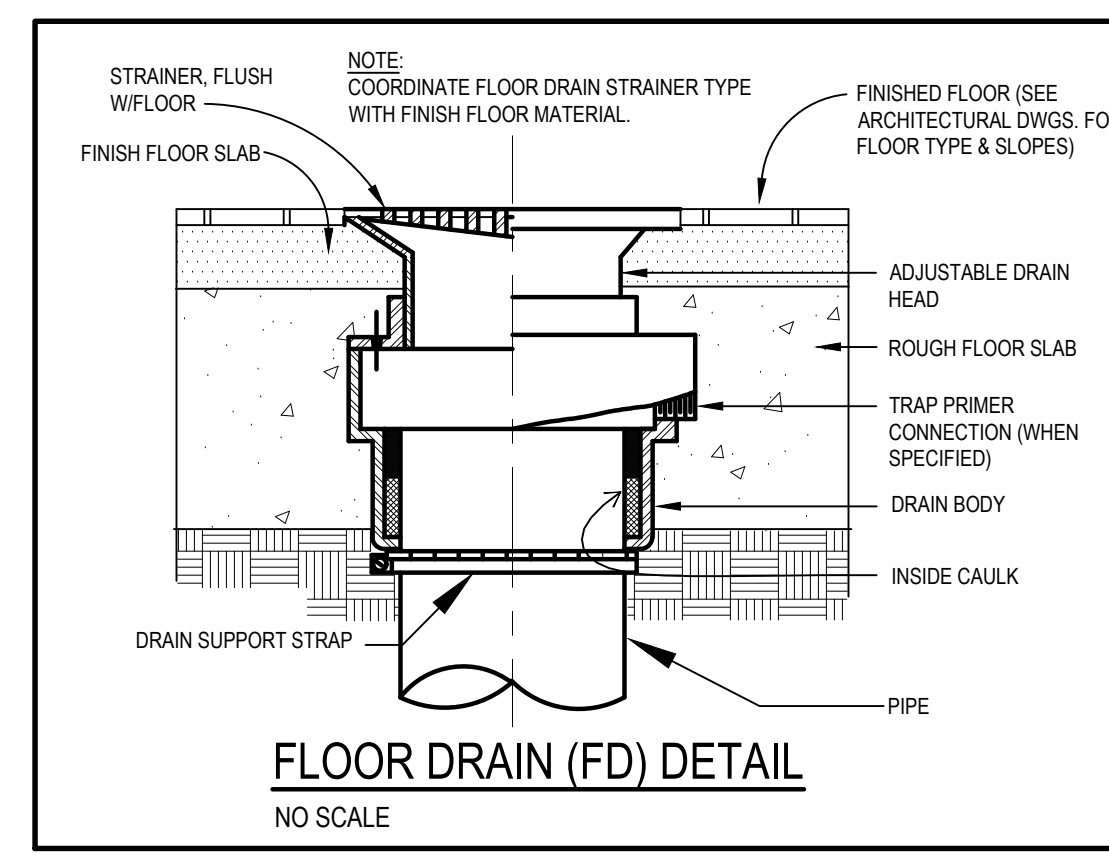
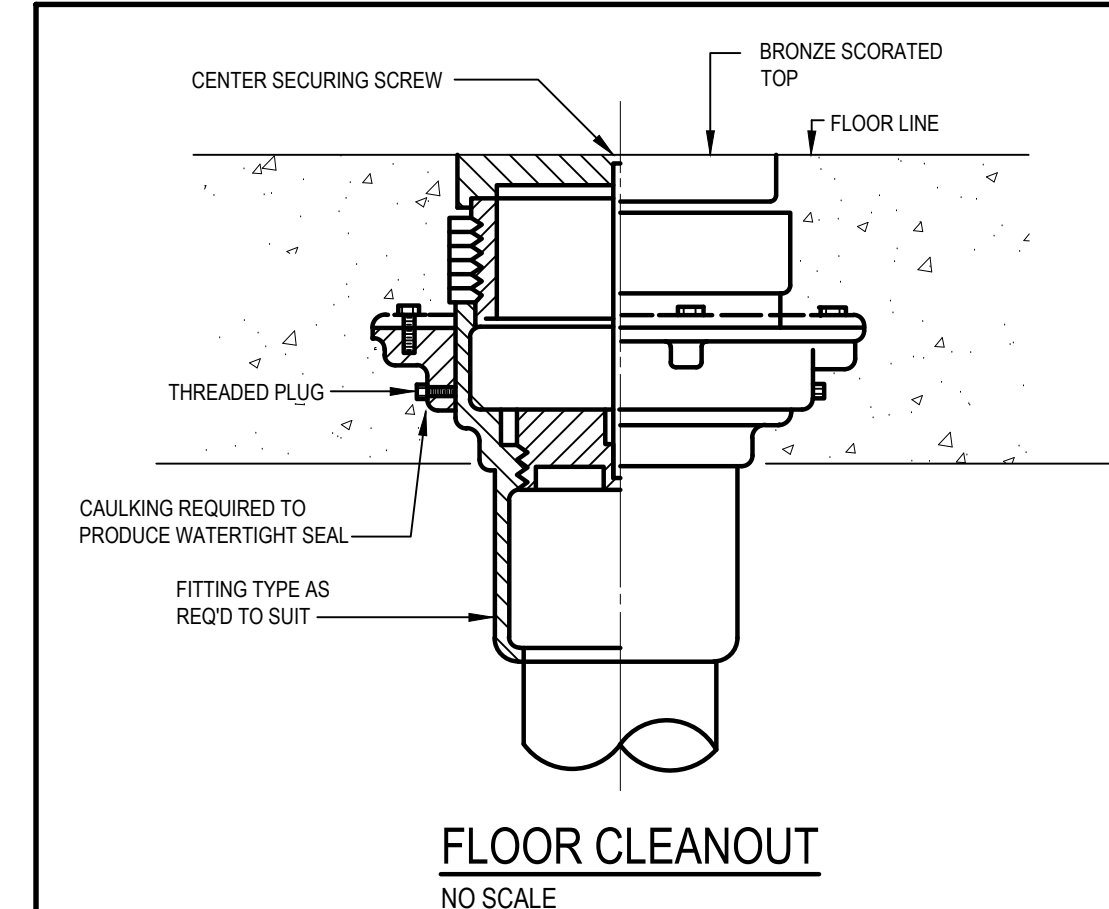
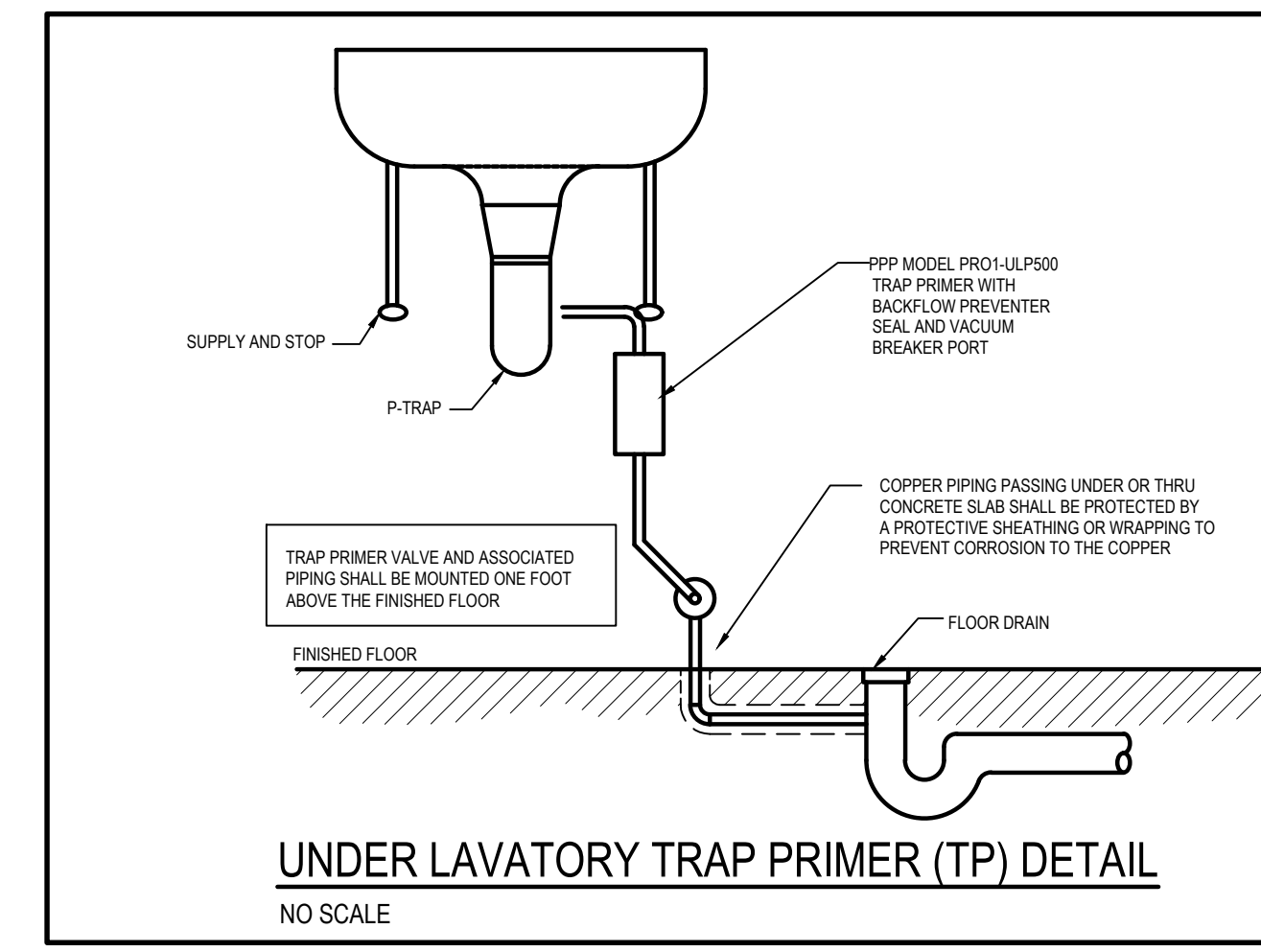
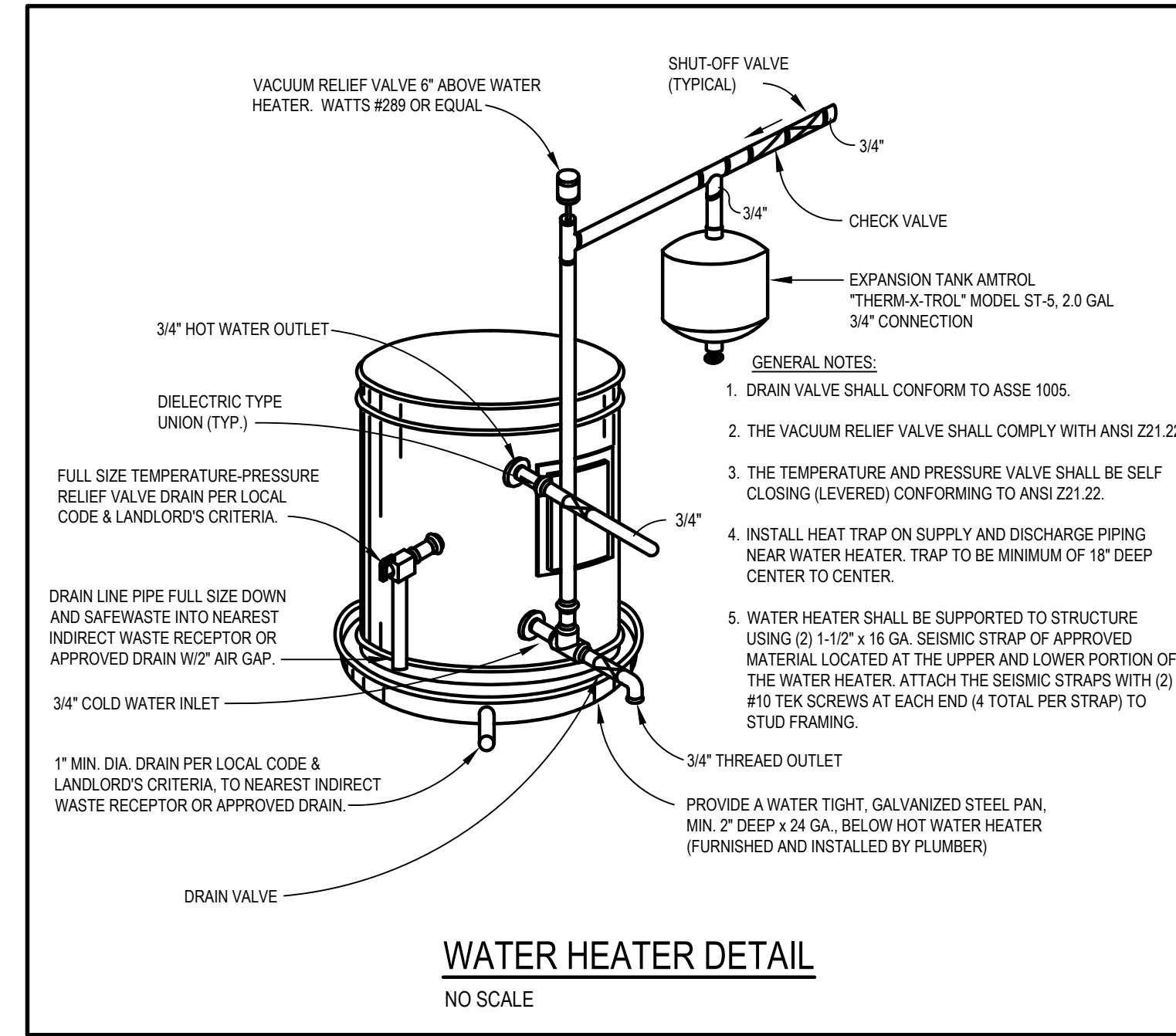
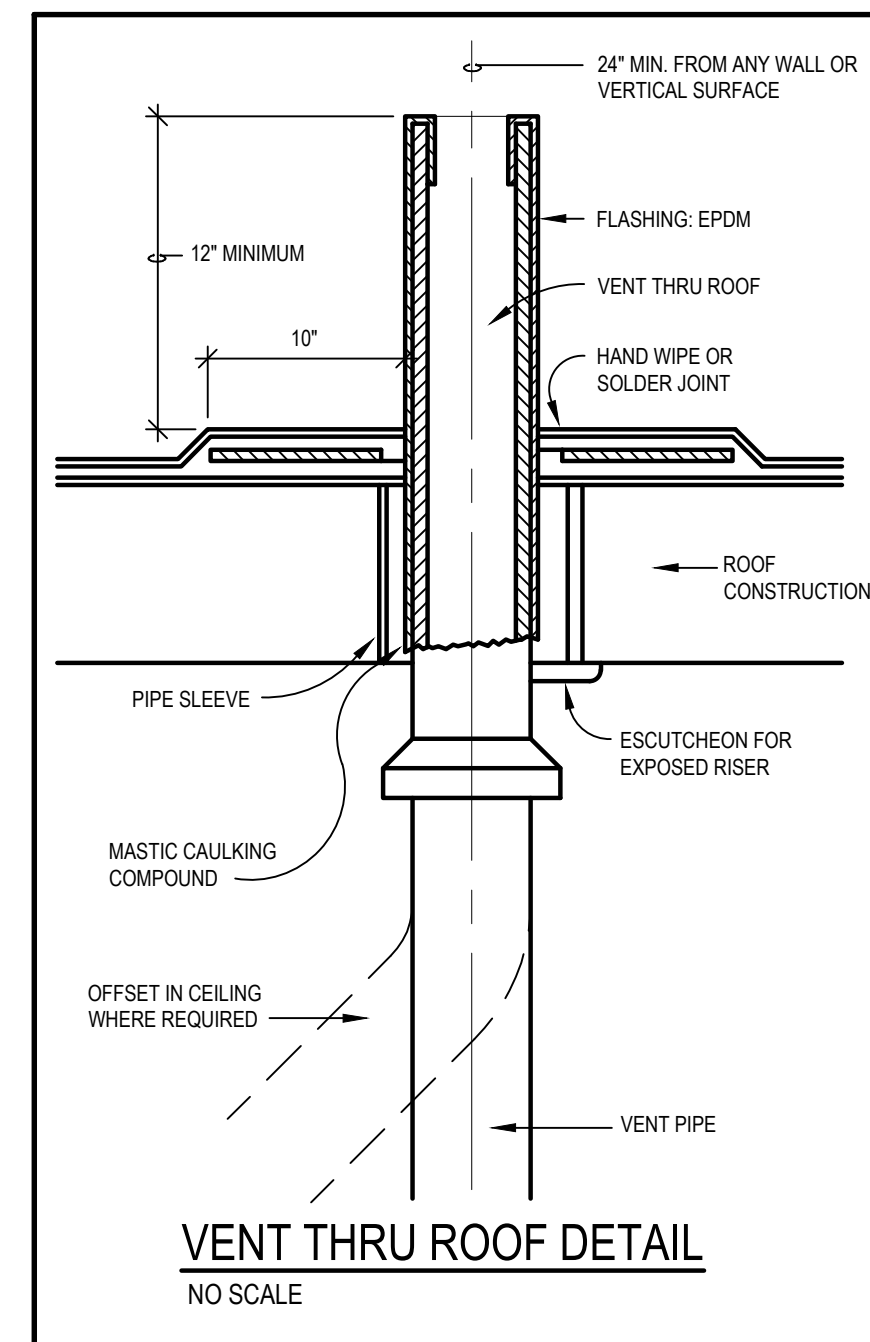
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**PLUMBING GENERAL NOTES:**

- 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.
- 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.
- PIPES PASSING THROUGH CONCRETE SHALL BE PROTECTED AGAINST EXTERNAL CORROSION BY A PROTECTIVE SHEATHING OR WRAPPING.
- PLUMBING SYSTEM SHALL BE INSTALLED SO AS TO PREVENT STRAINS AND STRESSES THAT EXCEED THE STRUCTURAL STRENGTH OF THE PIPE.
- JOINTS AT THE FLOOR, ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT.
- 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" |
- RIGID SUPPORT SWAY BRACING SHALL BE PROVIDED AT CHANGES IN DIRECTION OVER 45° FOR PIPE SIZE 4" AND ABOVE.
- 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   |
- THE SUPPLY LINES AND FITTINGS FOR EVERY FIXTURE SHALL BE INSTALLED TO PREVENT BACKFLOW.
- THE FIXTURES SHALL BE SET LEVEL AND IN PROPER ALIGNMENT.
- CONNECTIONS BETWEEN THE DRAIN AND FLOOR OUTLET PLUMBING FIXTURE SHALL BE MADE WITH A FLOOR FLANGE.
- FLOOR DRAIN SHALL CONFORM TO ASME A112.6.3 OR ASME A112.3.1.
- WATER HEATER RELIEF VALVE SHALL CONFORM TO ANSI Z21.22.
- WATER HEATER DRAIN VALVE SHALL CONFORM TO ASSE 1005.
- AFTER CONSTRUCTION THE INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED.
- WATER-HAMMER ARRESTOR SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AND ASSE 1010.
- 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.
- 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.
- 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.
- 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.
- 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.
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THE PLUMBING CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
- 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.
- PERFORM ALL WORK IN ACCORDANCE WITH THE RULES & REGULATIONS OF THE APPROPRIATE STATE AND LOCAL BUILDING CODES AND SUBTITLES.
- QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDED OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
- TENANT'S CONTRACTOR IS TO VERIFY POINTS OF CONNECTION OF ALL VENT, SEWER AND WATER LINES WITH LANDLORD BEFORE PROCEEDING WITH WORK.
- INSTALL SHUT OFF VALVES AT ALL PLUMBING FIXTURES.
- INSTALL HAMMER ARRESTORS AT ALL PLUMBING FIXTURES.
- 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.
- TENANT'S CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL WITHIN THE LANDLORD'S TENANT CRITERIA MANUAL INCLUDING MALL MANAGEMENT'S RULES AND REGULATIONS.
- 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 CABOANSI STANDARDS WHICHEVER APPLICATION IS MORE STRINGENT FOR ITS USE.
- TENANT CONTRACTOR IS TO HAVE ALL WEATHERPROOFING OF ROOF PENETRATIONS DONE BY LANDLORD'S APPROVED ROOFING CONTRACTOR.
- PLUMBING CONTRACTOR TO INSULATE ANY EXISTING EXPOSED OR RE-INSULATE ANY DAMAGED, MISSING PIPE INSULATION WITH NEW PIPE INSULATION.
- 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.
- 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.
- 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.



| 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"

**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 SCORED TOP COVER.

WALL CLEANOUT (WCO) - J.R. SMITH MODEL NO. 4422 DUCCO 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 FLOWWISE" MODEL 2857.111 FLOOR MOUNTED, ELONGATED FLUSHMETER TOILET SYSTEM WITH MANUAL FLUSH VALVE, ULTRA LOW-CONSUMPTION (1.1 GPF) AND 16-1/2" RIM HEIGHT. SEAT: BEMIS MODEL NO. 1055SC 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" CENTRESET 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 TS100 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-GP 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-35-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.

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.



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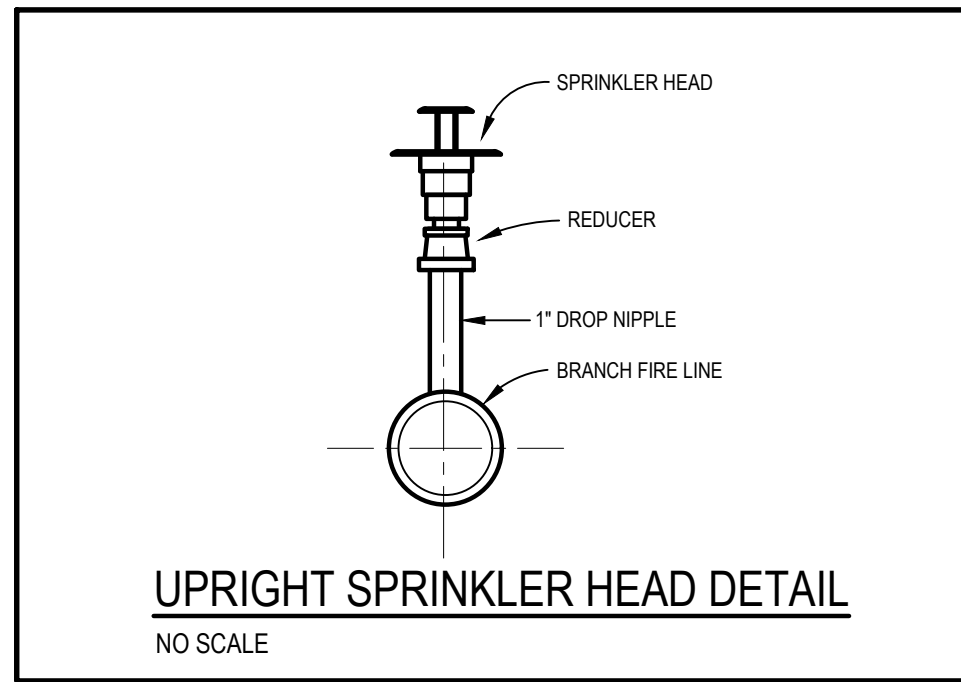
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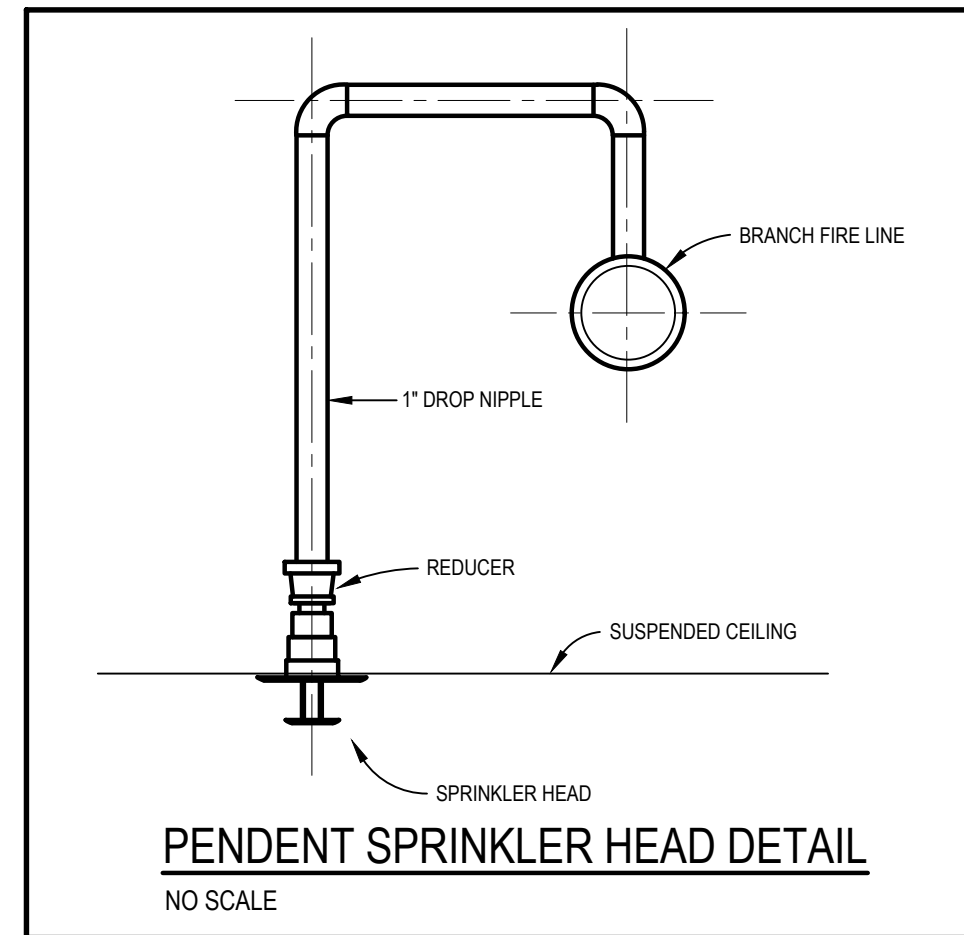
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**UPRIGHT SPRINKLER HEAD DETAIL**  
NO SCALE



**PENDENT SPRINKLER HEAD DETAIL**  
NO SCALE

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.

NOTE:  
SPRINKLER CONTRACTOR SHALL RELOCATE ALL REQUIRED PIPING, ETC TO ALLOW HEIGHTS AS NOTED ON CEILING PLAN.

NOTE:  
SPACE IS FULLY SUPPRESSED BY A 6"Ø SPRINKLER MAIN AND RISER LOCATED IN THE NORTHWEST CORNER OF THE SPACE.

NOTE:  
GENERAL CONTRACTOR SHALL COORDINATE WITH BV AND LANDLORD FOR MONITORING REQUIREMENTS.

**FIRE PROTECTION KEY NOTES:**

- 1. MODIFY SPRINKLERS AND PIPING OF EXISTING FIRE PROTECTION SYSTEM AS NECESSARY TO ACCOMMODATE THE REMOVAL OF EXISTING CEILINGS, LIGHTS AND WALLS AND 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 REMOVAL OF EXISTING CEILINGS, LIGHTS AND WALLS AND THE INSTALLATION OF NEW WALLS AND LIGHTS PER NFPA 13 REQUIREMENTS. SPRINKLER HEADS SHALL BE UPRIGHT TYPE IN OPEN AREAS. NOTE: EXISTING SPRINKLER HEADS IN THIS AREA ARE PENDENT TYPE.
- 3. MODIFY SPRINKLERS AND PIPING OF EXISTING FIRE PROTECTION SYSTEM AS NECESSARY TO ACCOMMODATE THE REMOVAL OF EXISTING LIGHTS AND THE INSTALLATION OF NEW LIGHTS PER NFPA 13 REQUIREMENTS. SPRINKLER HEADS SHALL BE PENDENT TYPE.

**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 BE 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.

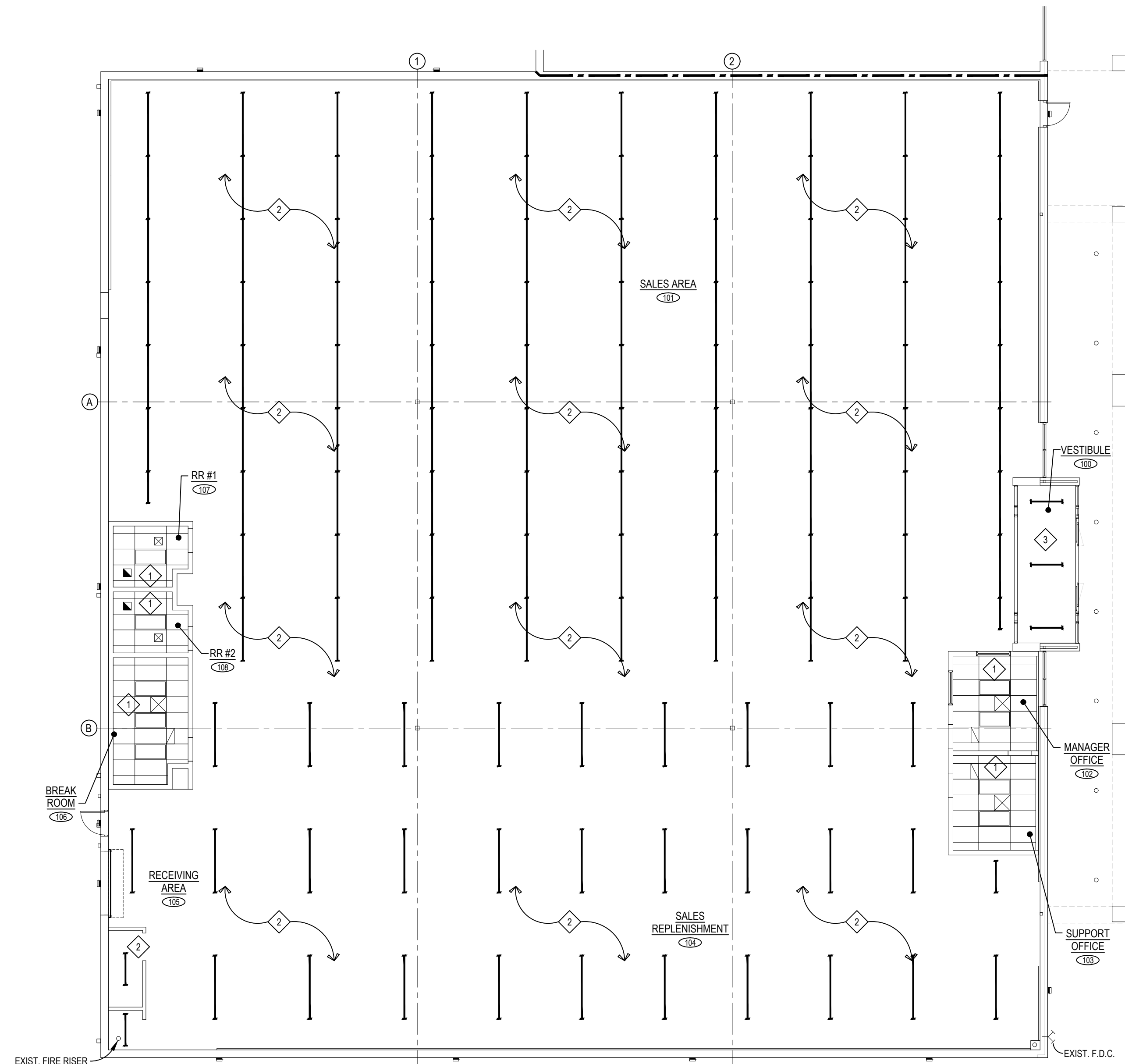
NOTE: ORDINARY HAZARD II IS BASED ON COMMODITY PLACEMENT.

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

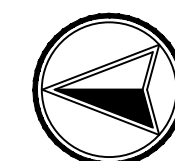
**FIRE PROTECTION NOTES:**

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 AWARDED 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"



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**REVISIONS**

| # | DATE | TYPE |
|---|------|------|
| 1 |      |      |
| 2 |      |      |
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**FIRE PROTECTION PLAN**

DATE 03/04/24

JOB NO. 23591

**FP1.0**  
SHEET NO.

ELECTRICAL SPECIFICATIONS

A: DESCRIPTION OF WORK

- 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:
  - Furnish and install new conduit and wire.
  - Furnish and install new fuses, circuit breakers, panelboards etc.
  - Install new lighting fixtures as indicated.
  - Furnish & install new light fixtures as indicated.
  - 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 fish 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

- 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.
- The contractor shall secure all permits and pay all fees that are required by the applicable local and state codes.
- Perform all work in accordance with the latest edition of applicable codes including, but not necessarily limited to those listed below:
  - The National Electrical Code - sometimes referred to herein as the "NEC" - (NFPA-70)
  - National Electrical Safety Code (ANSI-C2)
  - All applicable state and local codes.
  - Applicable provisions of the Occupational Safety and Health Act.

C: GENERAL REQUIREMENTS FOR SUBMITTING A BID

- The drawings represent the design for the listed manufacturers' requirements. If any substitutions are accepted by the engineer, the contractor shall be responsible for all necessary modifications, including cost, to the electrical system required because of the substituted equipment or material.
- 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.
- 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.
- 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.
- 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

- EMT conduit shall be used in all interior locations which call for conduit unless noted herein. 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.
- Rigid PVC Schedule 40 shall be used for all underground or below slab conduit runs.
- 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.
- 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.
- 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 ground 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.
- 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.
- Conduits or boxes may not be supported by ceiling support wires or other ceiling supporting hardware.
- 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.
- The use of perforated iron for supporting conduits will not be permitted.
- 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:
  - Straight runs - not over one hundred (100) feet apart.
  - One (1) 90 degree bend - not over seventy five (75) feet apart.
  - Two (2) or more 90 degree bends - not over fifty (50) feet apart.
- In Class I and Class II hazard areas, as designated on the drawings, explosion-proof flexible metal conduit shall be used for all final conductors 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.
- 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.
- 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.
- Conduits below grade shall be installed in conformance with:
  - Provide all necessary trenching, backfill & removal of trenched material from site.
  - 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.
  - 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.
  - 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.
  - Encasement shall be continuous monolithic pour providing a minimum of 3" completely around 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.
  - 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.
  - 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

- 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.
- 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.
- 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.

- 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.
- Bushings: Grounding type, with insulating plastic insert, malleable iron, zinc or cadmium plated, for steel conduit and aluminum alloy for aluminum conduit. Install grounding type bushings as required in the grounding section of this specification.
- 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 manufacturers recommendations.
- 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 Manufacturers: Crouse-Hinds, Pyle-National, Appleton, Adialet, O-Z Gedney, or Killark.
- 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:
  - Entering or cross-connecting enclosures containing arcing or high temperature devices.
  - Two-inch conduit and larger entering any enclosure.
  - Passing from Division 1 to Division 2, from Division 2 to non-classified areas, with or without a barrier.
  - Multi-conductor and shielded cables.

F: ELECTRICAL SUPPORTING DEVICES

- 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.
- Electrical supports shall be attached to the structure by one of the following methods:
  - Wood - wood screws.
  - Concrete - expansion bolts or cast in place anchors.
  - Structural steel - approved brackets or machine bolts.

G: CONDUCTORS

- 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)
- 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

- 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.
- Receptacles: Devices shall be specification grade, NEMA 5-20R configuration, Duplex type, Hubbell Cat No. CR5362, single pole (with no neutral). Use #10 AWG for circuits longer than 100 feet. 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.
- 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.
- Snap switches: Devices shall be specification grade outlet 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.
- Approved manufacturers for wiring devices:
  - Hubbell
  - P & S
- 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.

I: LIGHTING

- Lighting Fixtures: see drawings for manufacturers catalog numbers.
- Indoor Installation:
  - 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.
  - Suspended ceiling systems shall be supported for fixture installation as noted above, and as a minimum condition, as noted in ANSI/ASTM C836-76, par. 2-7, CEILING FIXTURES.
  - 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.
  - 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.
  - 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.
  - 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.
  - 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.
  - 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.
- 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 on the conduit for support.

- 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.
- Plaster frames shall be furnished for each recessed fixture installed in plaster ceilings and walls.
- 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.
- Fixtures shall be installed with due regard for beams, piping, ductwork, and other mechanical or plumbing equipment.
- 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.
- 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.
- 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 architectural drawings for ceiling ratings.
- 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.
- 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.
- Low voltage lighting transformers should be protected by fuses. Fuse sizes shall be as recommended by the transformer manufacturer. Busman type HRS or Littelfuse 15600), fuse holders are recommended.
- 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.

J: PANELBOARDS

- Panelboards for 480/277, 208/120, or 240/120 panels shall be dead front type, conforming to NEMA standard PB-1-1 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.
  - 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 control 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.
  - 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 pulxbow with neutral bar when shown on the drawings.
  - Where spaces are noted on the drawing, equip the panelboard with bus and all necessary hardware for future circuit breaker installation.
  - 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.
- Overcurrent Protective Devices
  - 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 UL listed type "SWD" for that application. All circuit breakers used for protection of motors, refrigeration equipment, or HVAC equipment shall be UL listed type "HACR" for that application.
  - 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 | 100 amp | 225 amp | 400 amp | 100 amp | 225 amp | 400 amp | 800 amp |
|----------------|----------------|-------------|----------------------------|------------|---------|---------|---------|---------|---------|---------|---------|
| 120            | 15-100 ampere  | 1           | 22,000                     |            |         |         |         |         |         |         |         |
| 240            | 15-100 ampere  | 2&3         | 22,000                     |            |         |         |         |         |         |         |         |
| 240            | 125-225 ampere | 2&3         | 22,000                     |            |         |         |         |         |         |         |         |
| 240            | 250-400 ampere | 2&3         | 42,000                     |            |         |         |         |         |         |         |         |
| 277            | 15-100 ampere  | 1           | 25,000                     |            |         |         |         |         |         |         |         |
| 480            | 15-100 ampere  | 2&3         | 25,000                     |            |         |         |         |         |         |         |         |
| 480            | 125-225 ampere | 2&3         | 30,000                     |            |         |         |         |         |         |         |         |
| 480            | 250-400 ampere | 2&3         | 42,000                     |            |         |         |         |         |         |         |         |
| 480            | 400-800 ampere | 2&3         | 42,000                     |            |         |         |         |         |         |         |         |

- 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.
- Fuses over 600 ampere shall be Busman Hi-cap time delay type KRP-C, or Gould Shawmut AMBQ (601-2000 ampere) or Gould Shawmut A4BY (2001-6000 ampere) 600 volt, UL Class I with minimum interrupting rating of 200,000 ampere rms symmetrical.
- Fuses 600 ampere or below shall be Busman low-paek dual element type LPN-RK (250 volt) or LPS-RK (600 volt) or Gould Shawmut Amp-trap type A2K (250 volt) or ABK (600 volt) UL Class RK1 with minimum interrupting rating of 200,000 ampere rms symmetrical.
- 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.

K: SAFETY SWITCHES

- 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.
- 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.
- 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 I fuses.

L: TRANSFORMERS

- 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 celcius ambient temperature with a temperature rise not to exceed 80 degrees celcius. Provide a minimum of two 2-1/2% FCBN 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.
- Sound levels shall not exceed those established in ANSI standard C89 shown in the following table:
 

| KVA   | dB level |
|-------|----------|
| 0-150 | 42       |
- Furnish transformers having voltage, KVA ratings and connections as indicated on the drawings.
- Panelboard and Transformer Installation
  - 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.
  - Install handle guards on all breakers for night lighting, emergency, and similar circuits when indicated.
  - Each panelboard shall be identified with a legend plate of laminated 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.
  - Install not less than two spare 1-1/4 inch conduits from each flush mounted panel to an accessible area above the ceiling.
  - 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.

- 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.
- 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.
- Approved Manufacturers for Power Distribution Equipment:
 

|                            |                           |
|----------------------------|---------------------------|
| General Electric Company   | Siemens                   |
| Cutter Hammer/Westinghouse | Cleveland Switchboard Co. |
| Square D                   |                           |

K: RACEWAY AND GENERAL GROUNDING

- The entire power, lighting system as well as building structure, mechanical & plumbing systems, fences & similar 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.
- Ground conductors shall be stranded, annealed copper with green insulation (insulation material as specified for general building use).
- 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.
- 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.
- Where building type conductors are installed in a raceway, a green equipment grounding conductor shall be included in each raceway system.
- Lighting fixtures permanently connected to the conduit system shall be grounded by means of a grounding conductor run inside the conduit. Fixtures mounted on trolleys or portable lighting units shall be grounded by means of a grounding conductor in the portable cord.
- 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.
- 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.
- 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 6") shall utilize an equipment ground lug to securely bond the equipment grounding conductor to the enclosure.
- 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.
- The grounding electrode system shall consist of 3/4" diameter x 10' copper clad ground rods. Exterior ground rods shall be driven to 12" below finished grade & be provided with a 1/2" 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 welded type.

L: EXECUTION

- The contractor shall exercise due caution when working so as not to damage that portion of the electrical system that is to remain.
- Positively no conduit or wire removed shall be reused in the new installation.
- All circuits shall be identified on the panel directories by this contractor. At the completion of the job, the conduit grounding bushing, junction boxes and other enclosures with a new typed directory with the existing loads as noted from the old directory and the new loads as installed.
- 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:
  - Size, type, capacity, etc. of any material, device or piece of equipment.
  - Location of any device or piece of equipment.
  - Location of any outlet or source in the building service system.
  - 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

- 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.
- 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.
- 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

- 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.
- Inspection tests shall provide a visual inspection of electrical equipment for manufacturing, shipping or installation defects.
- 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.
- Operational tests shall show the electrical equipment will perform the functions for which it was designed.
- 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.
- 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.
- 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.
- 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.
- The following test and inspections shall be made on the grounding system.
  - 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.
  - Reports shall include all resistance readings obtained, temperature, humidity and condition of the soil at the time of the tests.
- Operational tests shall be performed on all electrical systems, and shall include, but not be limited to, lighting lighting system, panelboards, motor starters and control devices, alarm circuits and site lighting equipment.

O: GUARANTEE

- 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.

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REVISIONS

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ELECTRICAL SPECIFICATIONS

DATE 03/04/24

JOB NO. 23591


**E0.1**

SHEET NO.

Brian M. Schuler, P.E.

155 Williamsburg Drive  
 Avon Lake, Ohio 44012  
 Phone: 216-244-4120

BRIAN M. SCHULER  
 03-04-24



N.C. PROFESSIONAL ENGINEER No. 033982

DO NOT SCALE THESE DRAWINGS

| MECHANICAL EQUIPMENT SCHEDULE |                |        |                 |       |          |      |      |       |
|-------------------------------|----------------|--------|-----------------|-------|----------|------|------|-------|
| MARK                          | DESCRIPTION    | LOAD   | VOLTAGE & PHASE | PANEL | CIRCUIT  | C.B. | WIRE | NOTES |
| RTU-1                         | ROOF TOP UNIT  | 74 MCA | 480V-3PH        | M     | 1,3,5    | 603  | 4-3  | 1,3   |
| RTU-2                         | ROOF TOP UNIT  | 51 MCA | 480V-3PH        | M     | 7,9,11   | 603  | 6-3  | 1,3   |
| RTU-3                         | ROOF TOP UNIT  | 51 MCA | 480V-3PH        | M     | 8,10,12  | 603  | 6-3  | 1,3   |
| RTU-4                         | ROOF TOP UNIT  | 51 MCA | 480V-3PH        | M     | 13,15,17 | 603  | 6-3  | 1,3   |
| EF-1                          | EXHAUST FAN #1 | 0.1 KW | 120V-1PH        | P     | 41       | 201  | 12-2 | 1,2,4 |
| EF-2                          | EXHAUST FAN #2 | 0.1 KW | 120V-1PH        | P     | 41       | 201  | 12-2 | 1,2,4 |
| EF-3                          | EXHAUST FAN #3 | 0.1 KW | 120V-1PH        | P     | 35       | 201  | 12-2 | 1,2,5 |
| EF-4                          | EXHAUST FAN #4 | 0.1 KW | 120V-1PH        | P     | 35       | 201  | 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.

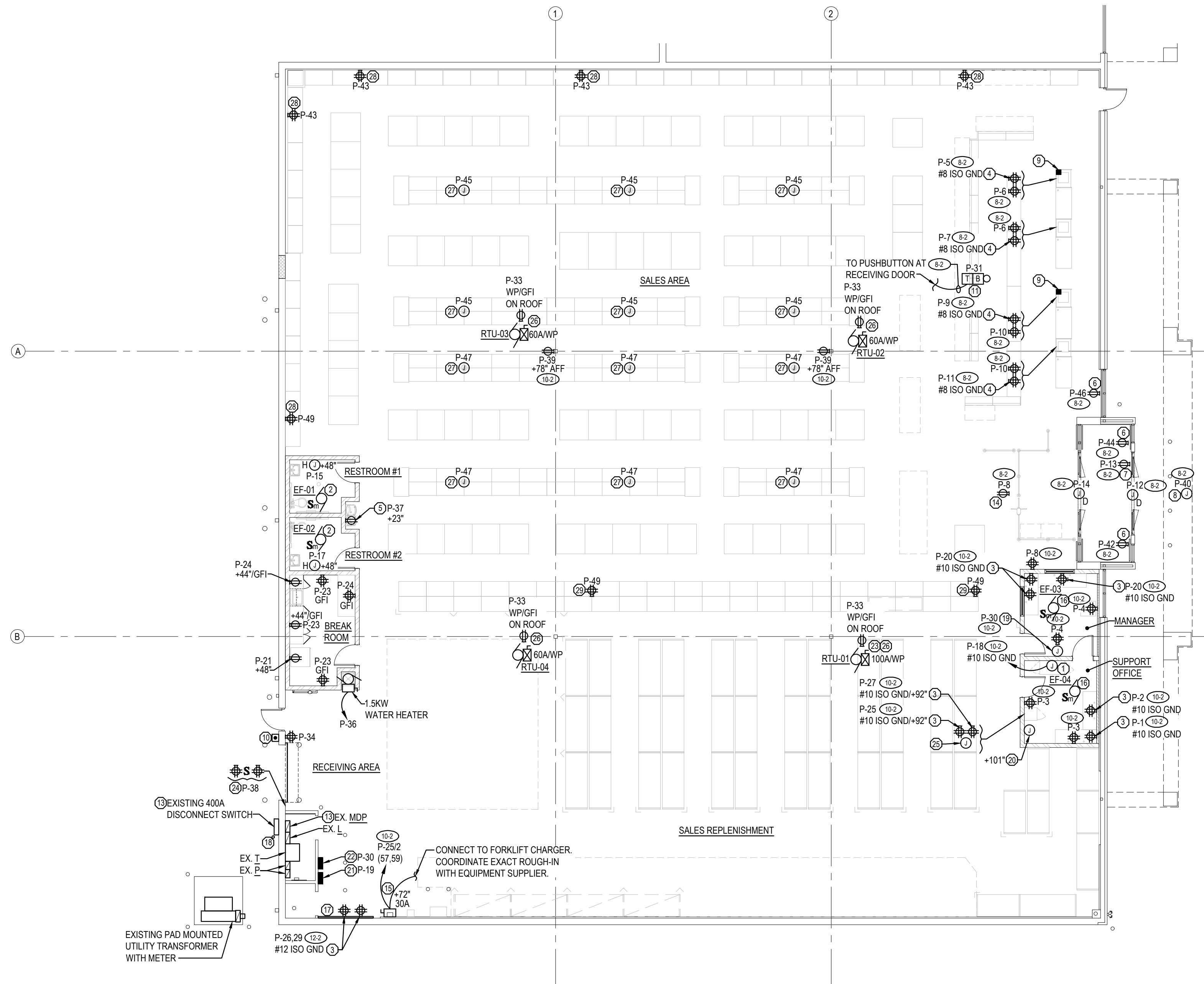
OUTLET COVER PLATES SHALL MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE.

**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 OTHERWISE 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 UNREMODELED 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' TS LAMPS. BROKEN LENSES SHALL BE REPLACED. PROVIDE NEW TS 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.

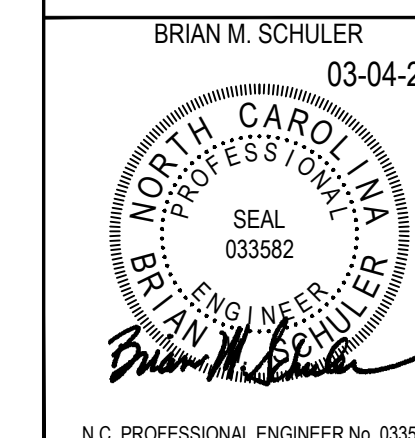
**POWER PLAN NOTES**

1. 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.
2. PROVIDE A DEDICATED CIRCUIT & WIRE THRU TIME CLOCK. UTILIZE SAME CIRCUIT IF THERE ARE TWO EXHAUST FANS.
3. DEDICATED ISOLATED GROUND QUAD OUTLET ON DEDICATED CIRCUIT. COLOR TO BE ORANGE.
4. 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.
5. COORDINATE ROUGH-IN LOCATION WITH MANUFACTURERS SHOP DRAWINGS PRIOR TO INSTALLATION. PROVIDE STANDARD 20A-120V RECEPTACLE & WIRE TO A GFCI TYPE CIRCUIT BREAKER.
6. DUPLEX OUTLET MOUNTED ON WALL AT 12" ABOVE WINDOW. MOUNT FLUSH IN CEILING IF CEILING IS WITHIN 12" OF TOP OF WINDOW.
7. DUPLEX OUTLET MOUNTED FLUSH IN WALL ABOVE GLASS FOR NEON SIGNS BY T.G.C.
8. 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.
9. 15'-0" HIGH 2 COMPARTMENT POWER POLE TO BE FURNISHED BY HFT AND INSTALLED BY E.C. SHALL EXTEND UNSTRUT FROM THE POWER POLE UP TO THE ROOF STRUCTURE AND CONNECT TO UNSTRUT SECURED TO ROOF STRUCTURE (UNSTRUT 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 #WR5276-HD23.
11. SERVICE BELL MOUNTED TO BOTTOM OF ROOF STRUCTURE. EDWARDS #340-605/598-348.
12. REMOVE EXISTING ELECTRICAL PANELS IF NOT SHOWN ON THIS PLAN OR E2.0 AS EXISTING TO REMAIN.
13. EXISTING 400A SECONDARY CONDUCTORS, 400A DISCONNECT SWITCH, METER, 400A MAIN DISTRIBUTION PANEL, STEP DOWN TRANSFORMER, AND BRANCH PANELS TO REMAIN.
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 WIRE & 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 GFI/1#GND. 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) #12/120ND-3/4"C.
18. EXISTING TELEPHONE DEMARK CABINET TO REMAIN.
19. 6"x6"x4" DEEP BOX MOUNTED AT 40" AFF TO BOTTOM FOR ENERGY MANAGEMENT SYSTEM TOUCH SCREEN CONTROLLER. STUB (1) 1" CONDUIT ABOVE CEILING FOR COMMUNICATION CABLES. STUB A 3/4" CONDUIT TO A SINGLE GANG BOX MOUNTED 6" ABOVE CEILING FOR POWER SUPPLY WIRING. FROM SINGLE GANG BOX MOUNTED ABOVE CEILING HOMERUN BRANCH CIRCUIT TO PANEL FROM SINGLE GANG BOX. STUB 3/4" NIPPLE INTO A 6" X 6" BOX LOCATED 6" ABOVE CEILING. EMS VENDOR SHALL INSTALL TOUCH SCREEN CONTROLLER POWER SUPPLY AND CONNECT LOW VOLTAGE POWER TO TOUCH SCREEN CONTROLLER. E.C. SHALL EXTEND LINE VOLTAGE TOUCH SCREEN CONTROLLER POWER SUPPLY CABLES AND CONNECT TO 120 VOLT POWER. TOUCH SCREEN CONTROLLER POWER SUPPLY AND TOUCH SCREEN CONTROLLER SHALL BE LOCATED WITHIN 6'-0" OF EACH OTHER.
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 CONTRACTORS AS SHOWN ON DRAWING E2.0 AND Z.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 96" 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 96" 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 MOPC 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 6'-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" MC 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.



**POWER PLAN**  
SCALE 3/32" = 1'-0"

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**DO NOT SCALE THESE DRAWINGS**

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**POWER PLAN**

DATE 03/04/24  
JOB NO. 23591

**E1.0**  
SHEET NO.

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### 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

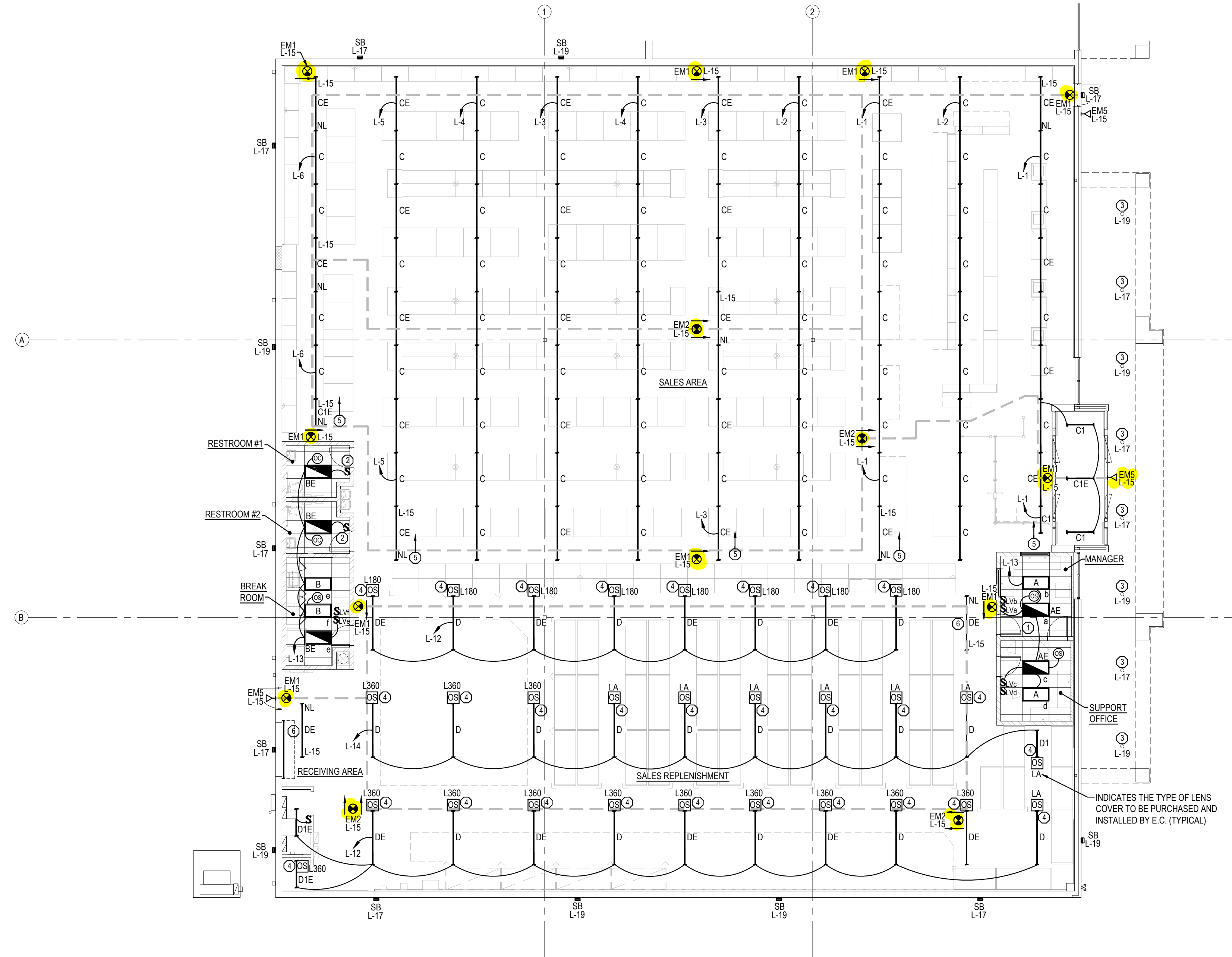
- 01 APPROXIMATE LOCATION OF TOUCH SCREEN CONTROL. TOUCH CONTROLLER CONTROLLER SHALL PROVIDE MANUAL ON / OFF CONTROL OF SALES AREA AND SALES REPLENISHMENT LIGHT FIXTURES. THE TOUCH SCREEN PROVIDES 2 POINTS OF CONTROL FOR THE SALES AREA REDUCING THE LIGHTING DENSITY BY 1/3 OR 2/3. EACH TOUCH POINT INDICATES WHETHER THE CONTROLLED LOAD IS ON OR OFF.
- 02 MOUNT SWITCH @ 44" A.F.F.
- 03 EXISTING CANOPY LIGHT FIXTURES TO REMAIN. EXISTING CANOPY LIGHTS TO BE CLEANED, RE-LAMPED, AND MADE FULLY OPERATIONAL. INTERCEPT EXISTING CIRCUITS AND RUN THRU LIGHTING CONTACTOR PANEL AND WIRE 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.

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.

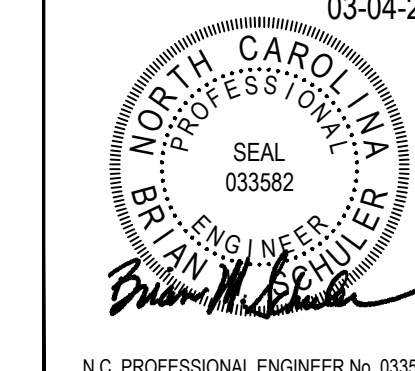


**LIGHTING PLAN**  
SCALE 3/32" = 1'-0"

Brian M. Schuler, P.E.

155 Williamsburg Drive  
Avon Lake, Ohio 44012  
Phone: 216-244-4120

BRIAN M. SCHULER  
03-04-24



N.C. PROFESSIONAL ENGINEER No. 033582

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**LIGHTING PLAN**

DATE 03/04/24  
JOB NO. 23591

E1.1

SHEET NO.

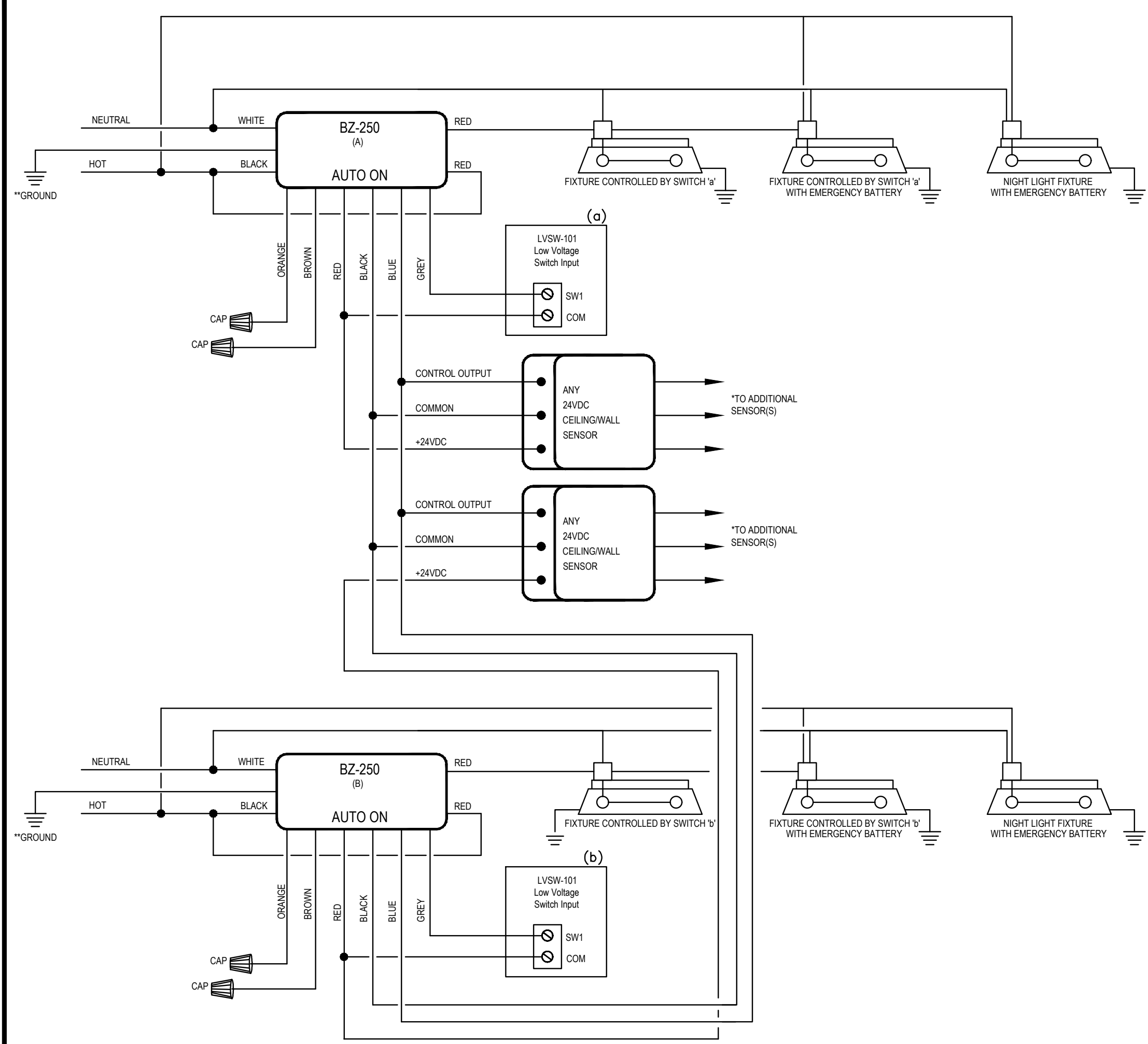
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HARBOR FREIGHT

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LILLINGTON, NC 27546

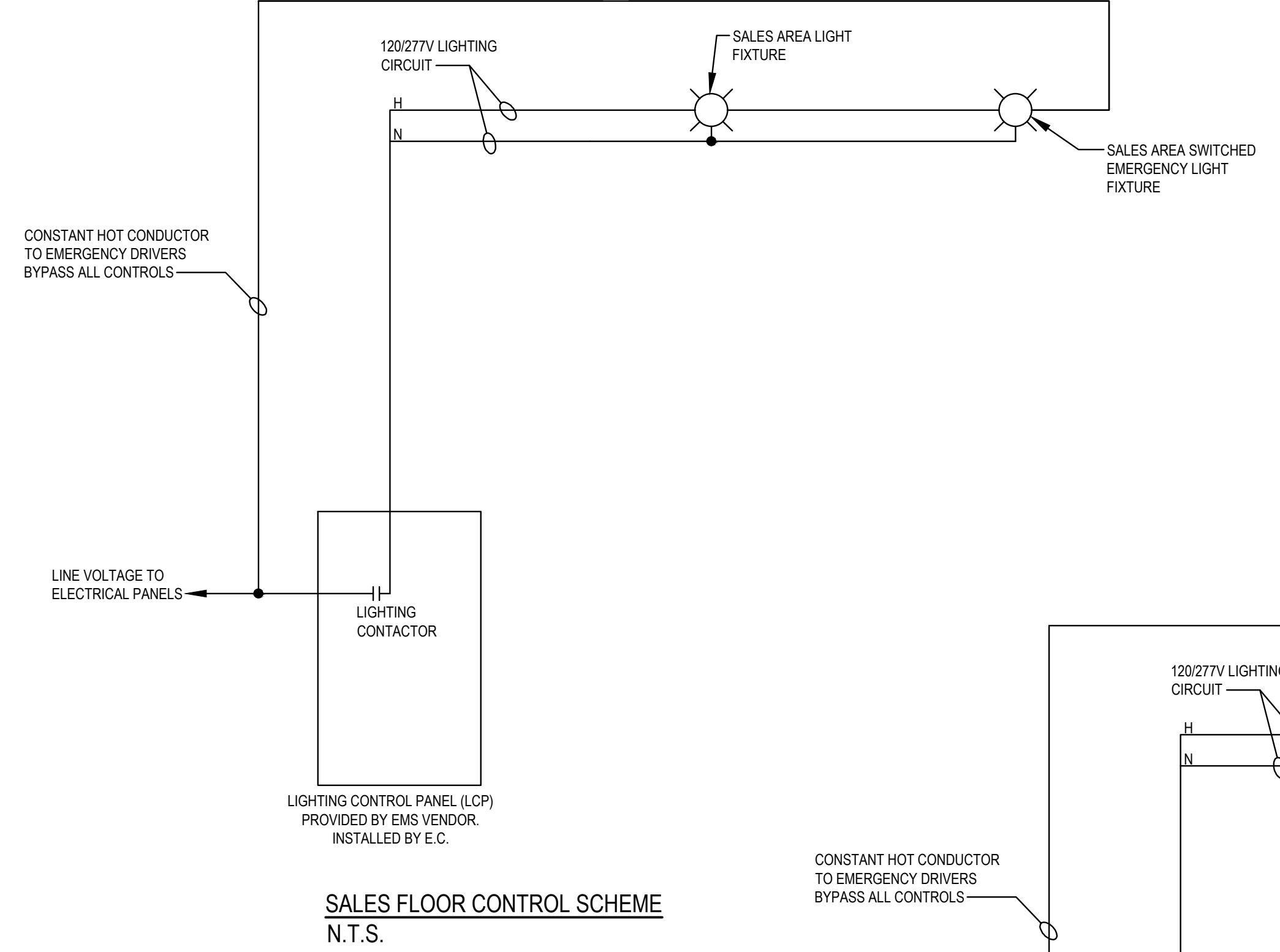
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\* At least 3 Sensors can be powered by the power pack. See Sensor data sheet. Provide a power pack for each circuit controlled and each low voltage switch installed.

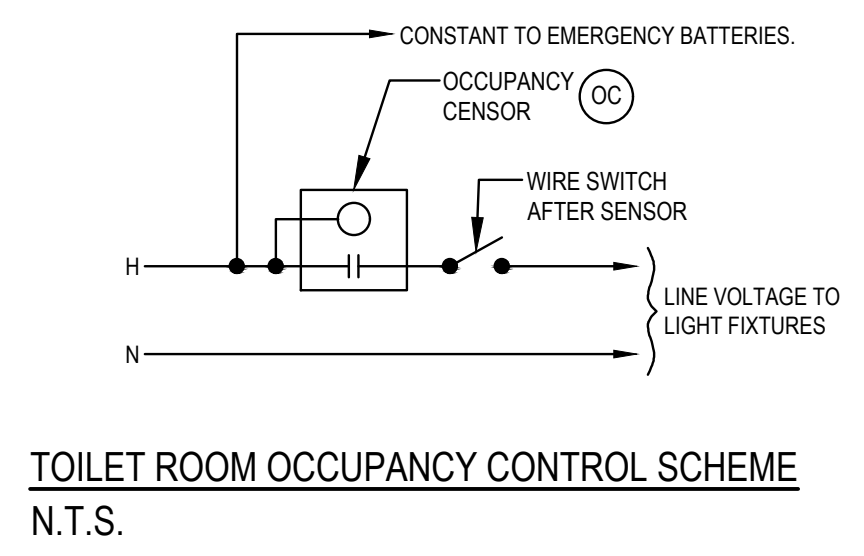
\*\* BZ-250 Power Pack must be grounded to ensure signal integrity, not for safety ground.

CEILING MOUNTED VACANCY / OCCUPANCY SENSOR & WALL MOUNTED LOW VOLTAGE SWITCH WIRING SCHEMATIC  
N.T.S.

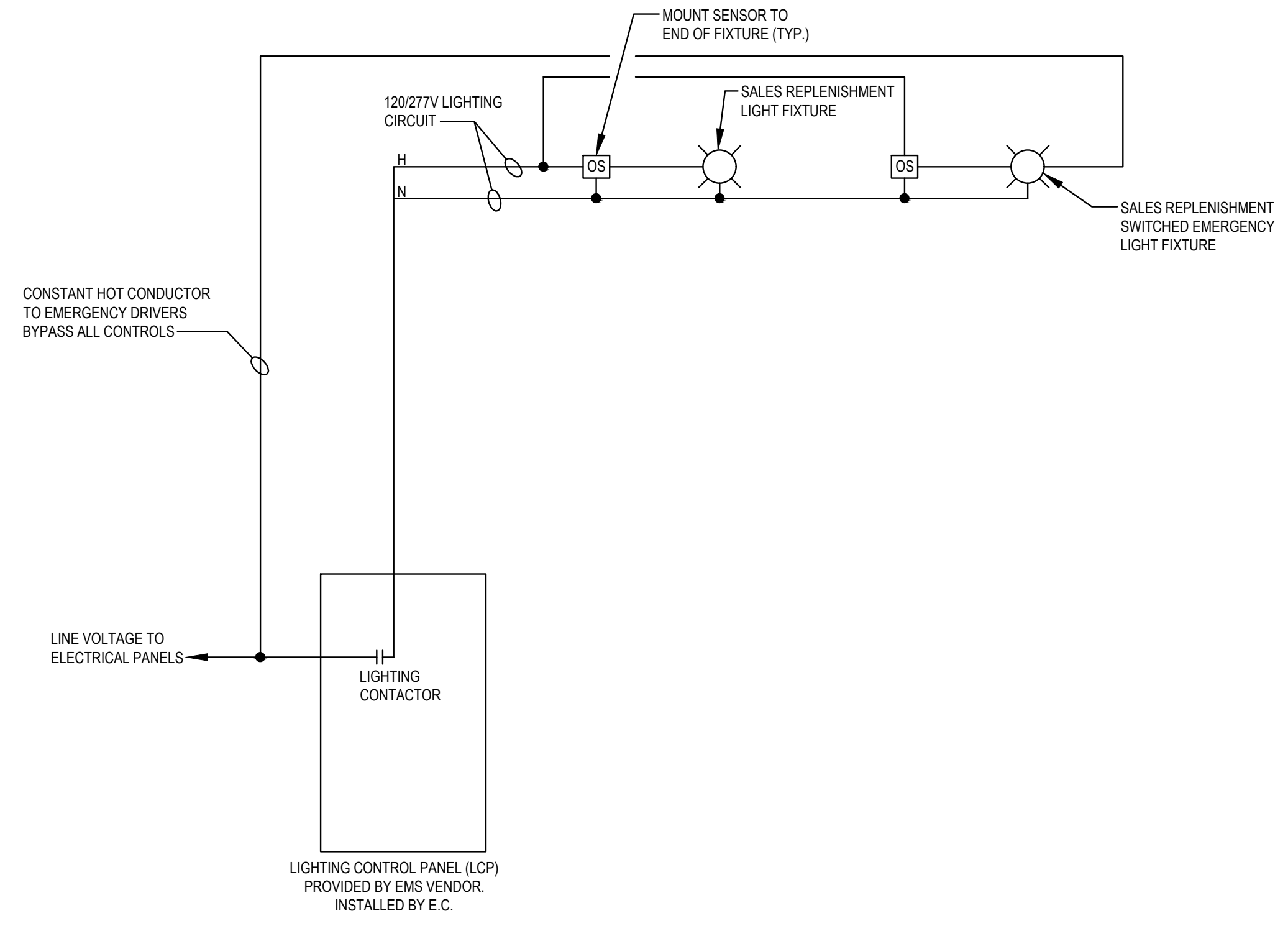


SALES FLOOR CONTROL SCHEME  
N.T.S.

| 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. |

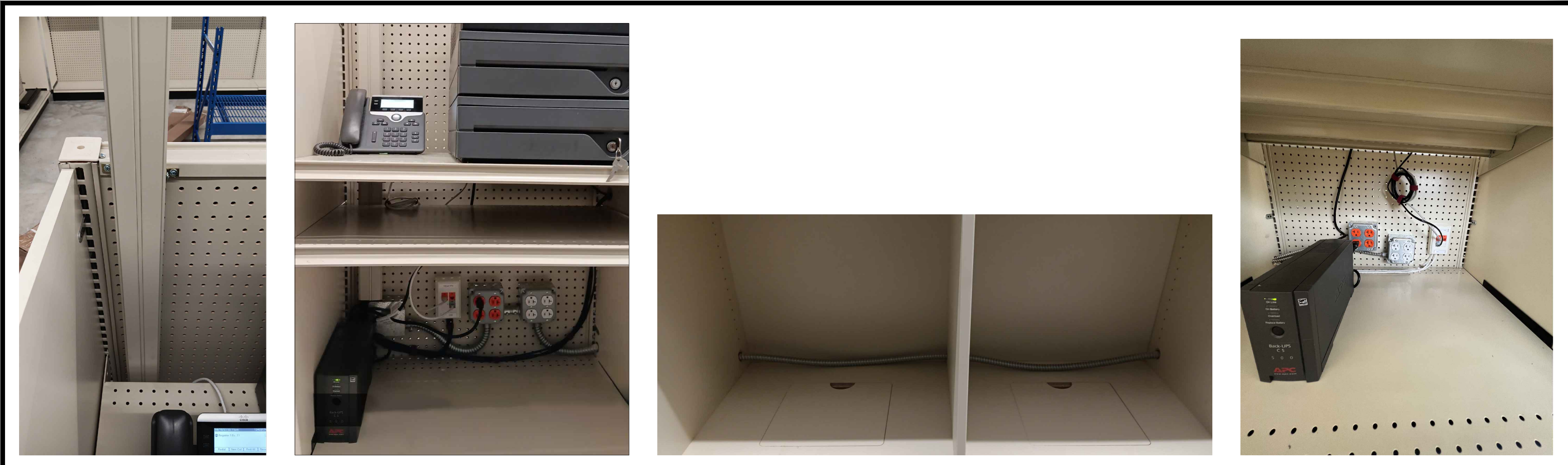


TOILET ROOM OCCUPANCY CONTROL SCHEME  
N.T.S.



SALES REPLENISHMENT CONTROL SCHEME  
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.**

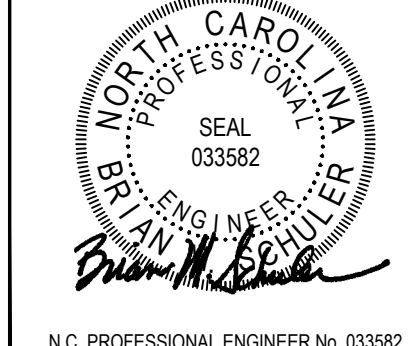


CASH WRAP POWER / COMMUNICATION DETAIL  
N.T.S.

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BRIAN M. SCHULER  
03-04-24



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ROOM LIGHTING CONTROL / DIMMING SYSTEM DETAILS

DATE 03/04/24  
JOB NO. 23591

**E1.1A**  
SHEET NO.

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**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 224 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 ADEMP00 VISTA - 20P (8) ZONE CONTROL PANEL AND (1) HONEYWELL #4219 ADEMOO 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 #SC-PDL1-W15G 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 #SC-PDL1-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 PANORAMIC TRITECH DETECTOR IN THE CENTER OF THE CASH OFFICE AWAY FROM ANY AIR DEVICES.
- S10 (1)WALL MOUNTED BOSCH #SC-PDL1-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. FOR EXISTING DOORS TO REMAIN, INSTALL (1) NASCOM N60AUST ON THE SURFACE (INTERIOR) OF EACH DOOR.
- S12 (1) NASCOM N60AUST 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 PANORAMIC TRITECH DETECTOR IN THE CENTER OF THE RECEIVING AREA MOUNTED AT 15' TO 25" AFF. (NO OTHERS NEEDED IN SALES REPLISHMENT).

**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 UNUSED WIRE (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"x1/4" 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 HFTS 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 DUXLEY RECEPTACLE AT JOIST SPACE FOR SECURITY CAMERA MONITOR. COORDINATE EXACT LOCATION WITH COMMUNICATIONS CONTRACTOR. MOUNT FLUSH IN CEILING WHERE CEILING IS 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" AFF 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 REPLISHMENT 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 -10" 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).

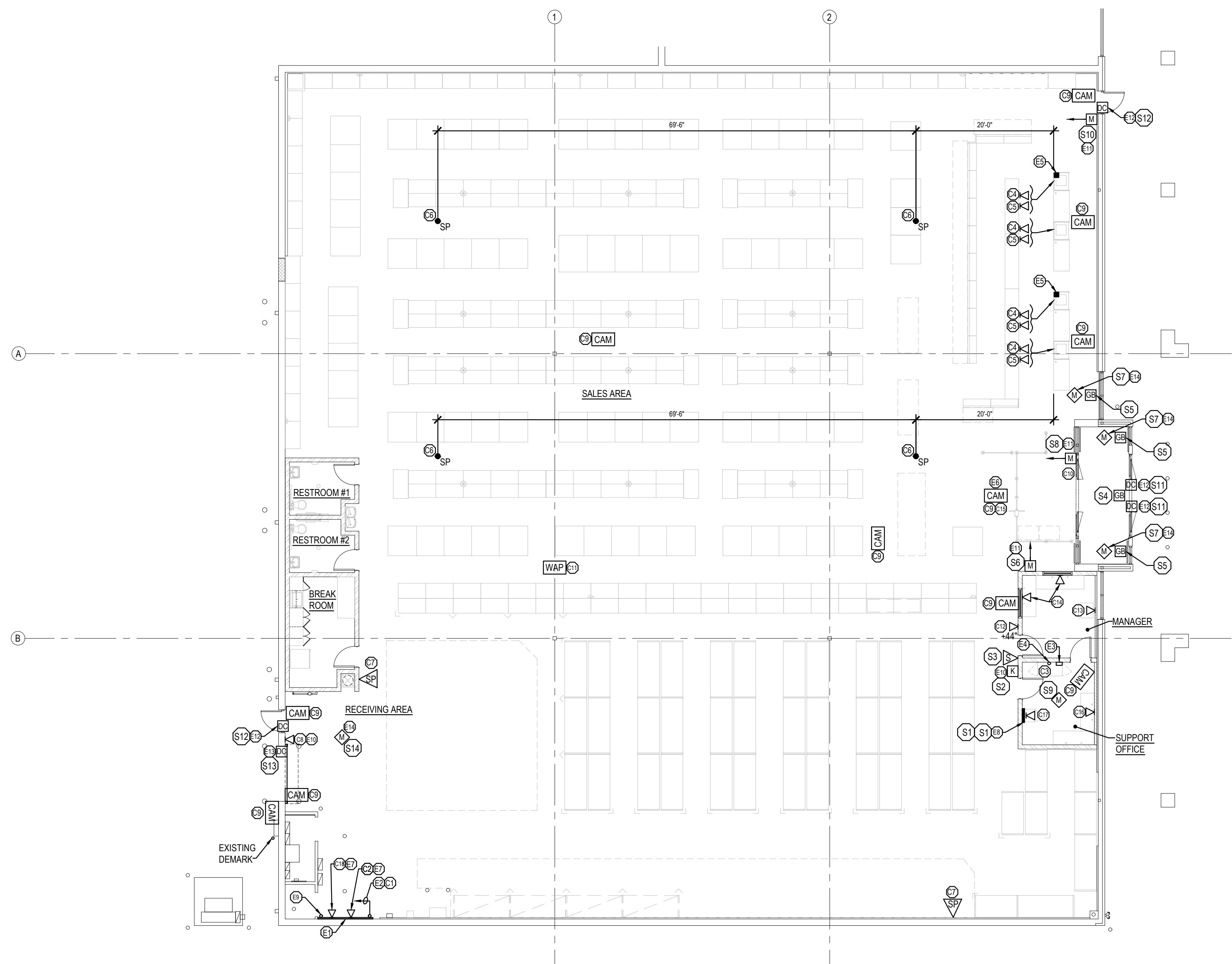
**COMMUNICATIONS SYMBOL LEGEND**

| SYMBOL | DESCRIPTION                   |
|--------|-------------------------------|
|        | SECURITY CAMERA               |
|        | DOOR CONTACT                  |
|        | GLASS BREAK DETECTOR          |
|        | CEILING MOUNTED 360° DETECTOR |
|        | WALL MOUNTED MOTION DETECTOR  |
|        | POWER POLE                    |
|        | SPEAKERS                      |
|        | WIRELESS ACCESS POINT         |
|        | DATA CABLE                    |
|        | SPEAKERS & AMPLIFIER          |

CONDUITS, LOW VOLTAGE WIRING OR MOUNTING HARDWARE SHALL NOT BE DIRECTLY MOUNTED TO THE ROOF DECK.

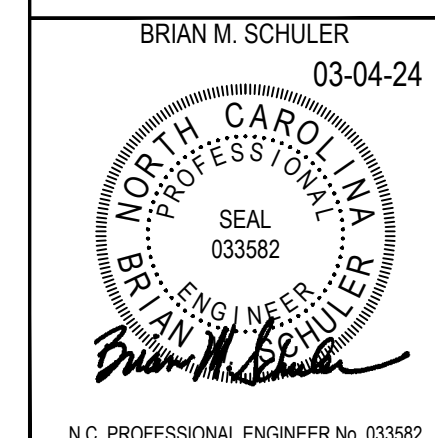
COMMUNICATIONS CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWING A0.0 FOR COMMUNICATIONS DEVICES AND ACCESSORIES PROVIDED BY HARBOR FREIGHT TOOLS

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



**COMMUNICATIONS PLAN**  
SCALE 3/32" = 1'-0"

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**COMMUNICATIONS PLAN**

DATE 03/04/24  
JOB NO. 23591

**E1.2**  
SHEET NO.

**HARBOR FREIGHT**

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| 'LCP'<br>LIGHTING CONTACTOR SCHEDULE |                            |         |                |             |
|--------------------------------------|----------------------------|---------|----------------|-------------|
| CIRCUIT                              | DESCRIPTION                | ZONE    | CONTACTOR SIZE | CONTACTOR # |
| L-1                                  | EMPLOYEE LIGHTING          | GROUP 1 | 30A4P          | 1           |
| L-3                                  | EMPLOYEE LIGHTING          | GROUP 1 |                |             |
| L-6                                  | EMPLOYEE LIGHTING          | GROUP 1 |                |             |
| -                                    | SPARE                      | GROUP 1 | 30A4P          | 2           |
| P-41                                 | EXHAUST FAN                | GROUP 1 |                |             |
| L-12                                 | SALES REPLENISHMENT LTG.   | GROUP 1 |                |             |
| L-14                                 | SALES REPLENISHMENT LTG.   | GROUP 1 | 30A4P          | 3           |
| -                                    | SPARE                      | GROUP 1 |                |             |
| -                                    | SPARE                      | GROUP 1 |                |             |
| -                                    | SPARE                      | GROUP 1 | 30A4P          | 4           |
| L-2                                  | CUSTOMER LIGHTING          | GROUP 2 |                |             |
| L-4                                  | CUSTOMER LIGHTING          | GROUP 2 |                |             |
| L-5                                  | CUSTOMER LIGHTING          | GROUP 2 | 30A4P          | 5           |
| -                                    | SPARE                      | GROUP 2 |                |             |
| -                                    | SPARE                      | GROUP 2 |                |             |
| -                                    | SPARE                      | GROUP 2 | 30A4P          | 6           |
| -                                    | SPARE                      | GROUP 2 |                |             |
| P-13                                 | INTERIOR SIGN              | GROUP 2 |                |             |
| P-16                                 | CEILING RECEPTACLE         | GROUP 2 | 30A4P          | 7           |
| -                                    | SPARE                      | GROUP 2 |                |             |
| L-17                                 | EXTERIOR SECURITY LIGHTING | GROUP 3 |                |             |
| P-40                                 | EXTERIOR SIGN              | GROUP 3 | 30A4P          | 8           |
| -                                    | SPARE                      | GROUP 3 |                |             |
| -                                    | SPARE                      | GROUP 3 |                |             |
| L-19                                 | EXTERIOR LIGHTING          | GROUP 4 | 30A4P          | 9           |
| -                                    | SPARE                      | GROUP 4 |                |             |
| -                                    | SPARE                      | GROUP 4 |                |             |
| -                                    | SPARE                      | GROUP 4 | 30A4P          | 10          |
| P-43                                 | FURNITURE RECEPTACLES      | SPARE   |                |             |
| P-45                                 | FURNITURE RECEPTACLES      | SPARE   |                |             |
| P-47                                 | FURNITURE RECEPTACLES      | SPARE   |                |             |
| P-49                                 | FURNITURE RECEPTACLES      | SPARE   |                |             |

\* ELECTRICAL CONTRACTOR SHALL FIELD WIRE THE SPARE CONTACTOR TO GROUP 2 CONTROL WIRING. COORDINATE REQUIREMENTS WITH EMS SUPPLIER.

| L   |                                    |               |      |      |           |        |         |      |               |  |      |      |             |                              |    |
|---|------------------------------------|---------------|------|------|-----------|--------|---------|------|---------------|--|------|------|-------------|------------------------------|----|
| MOUNTING: SURFACE   |                                    |               |      |      | LOCATION: |        |         |      |               | BREAKER REMARKS  |      |      |             |                              |    |
| BUS RATING: 100A  |                                    |               |      |      | A.I.C.: - |        |         |      |               | C-CONTACTOR CONTROLLED, S-SHUNT TRIP.                              |      |      |             |                              |    |
| 100A MAIN LUG ONLY  |                                    |               |      |      |           |        |         |      |               | L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID |      |      |             |                              |    |
| VOLTAGE: 277/480V-3PH-4W  |                                    |               |      |      |           |        |         |      |               | AMPS CONN.: 18.3   |      |      |             |                              |    |
|   |                                    |               |      |      |           |        |         |      |               | AMPS DEMAND: 22.9  |      |      |             |                              |    |
| COMMENTS: EXISTING PANEL TO REMAIN. PROVIDE MATCHING STYLE CIRCUIT BREAKERS TO ACCOMMODATE LOADS SHOWN. |                                    |               |      |      |           |        |         |      |               |  |      |      |             |                              |    |
| CKT.  | DESCRIPTION                        | KVA CONNECTED |      |      |           | C/B    | REMARKS | C/B  | KVA CONNECTED |  |      |      | DESCRIPTION | CKT                          |    |
|   |                                    | LTG.          | REC. | HVAC | MISC.     |        |         |      | MISC.         | HVAC   | REC. | LTG. |             |                              |    |
| 1   | SALES LIGHTING                     | 1.7           |      |      |           | 20/1   | C C     | 20/1 |               |  |      |      | 1.8         | SALES LIGHTING               | 2  |
| 3   | SALES LIGHTING                     | 1.7           |      |      |           | 20/1   | C C     | 20/1 |               |  |      |      | 1.8         | SALES LIGHTING               | 4  |
| 5   | SALES LIGHTING                     | 0.8           |      |      |           | 20/1   | C C     | 20/1 |               |  |      |      | 0.4         | SALES LIGHTING               | 6  |
| 7   | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 8  |
| 9   | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 10 |
| 11  | SPARE                              | -             |      |      |           | 20/1   | - C     | 20/1 |               |  |      |      | 1.9         | SALES REPLENISHMENT LIGHTING | 12 |
| 13  | OFFICE, BREAKROOM, TOILET LIGHTING | 0.4           |      |      |           | 20/1   | - C     | 20/1 |               |  |      |      | 1.0         | SALES REPLENISHMENT LIGHTING | 14 |
| 15  | NIGHT / EMERGENCY LIGHTING         | 1.0           |      |      |           | 20/1   | L -     | 20/1 |               |  |      |      | -           | SPARE                        | 16 |
| 17  | EXTERIOR LIGHTING                  | 1.3           |      |      |           | 20/1   | C -     | 20/1 |               |  |      |      | -           | SPARE                        | 18 |
| 19  | EXTERIOR LIGHTING                  | 1.4           |      |      |           | 20/1   | C -     | 20/1 |               |  |      |      | -           | SPARE                        | 20 |
| 21  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 22 |
| 23  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 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  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 32 |
| 33  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 34 |
| 35  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 36 |
| 37  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 38 |
| 39  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 40 |
| 41  | SPARE                              | -             |      |      |           | 20/1   | - -     | 20/1 |               |  |      |      | -           | SPARE                        | 42 |
| TOTALS  |                                    | 8.3           | 0.00 | 0.00 | 0.00      |        |         |      |               |  |      |      | 6.9         | TOTALS                       |    |
| LOAD CONNECTED  |                                    |               |      |      |           | DEMAND |         |      |               |  |      |      |             |                              |    |
| LIGHTING  |                                    | 15.2          |      |      |           | 19.0   |         |      |               |  |      |      |             |                              |    |
| RECEPTACLE  |                                    | -             |      |      |           | -      |         |      |               |  |      |      |             |                              |    |
| HVAC  |                                    | -             |      |      |           | -      |         |      |               |  |      |      |             |                              |    |
| MISC  |                                    | -             |      |      |           | -      |         |      |               |  |      |      |             |                              |    |

| M   |                 |               |      |       |           |        |         |       |               |  |      |      |             |        |
|---|-----------------|---------------|------|-------|-----------|--------|---------|-------|---------------|--|------|------|-------------|--------|
| MOUNTING: SURFACE   |                 |               |      |       | LOCATION: |        |         |       |               | BREAKER REMARKS  |      |      |             |        |
| BUS RATING: 400A  |                 |               |      |       | A.I.C.: - |        |         |       |               | C-CONTACTOR CONTROLLED, S-SHUNT TRIP.                              |      |      |             |        |
| 400A MAIN LUG ONLY  |                 |               |      |       |           |        |         |       |               | L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID |      |      |             |        |
| VOLTAGE: 277/480V-3PH-4W  |                 |               |      |       |           |        |         |       |               | AMPS CONN.: 245.8  |      |      |             |        |
|   |                 |               |      |       |           |        |         |       |               | AMPS DEMAND: 263.4   |      |      |             |        |
| COMMENTS: EXISTING PANEL TO REMAIN. PROVIDE MATCHING STYLE CIRCUIT BREAKERS TO ACCOMMODATE LOADS SHOWN. |                 |               |      |       |           |        |         |       |               |  |      |      |             |        |
| CKT.  | DESCRIPTION     | KVA CONNECTED |      |       |           | C/B    | REMARKS | C/B   | KVA CONNECTED |  |      |      | DESCRIPTION | CKT    |
|   |                 | LTG.          | REC. | HVAC  | MISC.     |        |         |       | MISC.         | HVAC   | REC. | LTG. |             |        |
| 1   |                 |               |      | 16.4  |           | -      | -       | -     |               |  |      |      |             | 2      |
| 3   | RTU-01          |               |      | 16.4  |           | 80/3   | - -     | 100/3 |               |  |      | 15.2 | PANEL 'L'   | 4      |
| 5   |                 |               |      | 16.4  |           | -      | -       | -     |               |  |      |      |             | 6      |
| 7   |                 |               |      | 11.3  |           | -      | -       | -     |               |  | 11.3 |      |             | 8      |
| 9   | RTU-02          |               |      | 11.3  |           | 60/3   | - -     | 60/3  |               |  | 11.3 |      |             | 10     |
| 11  |                 |               |      | 11.3  |           | -      | -       | -     |               |  | 11.3 |      |             | 12     |
| 13  |                 |               |      | 11.3  |           | -      | -       | -     |               |  |      |      |             | 14     |
| 15  | RTU-04          |               |      | 11.3  |           | 60/3   | - -     | 60/3  |               |  |      |      |             | 16     |
| 17  |                 |               |      | 11.3  |           | -      | -       | -     |               |  |      |      |             | 18     |
| 19  |                 |               |      | -     |           | -      | -       | -     |               |  |      |      |             | 20     |
| 21  | EX. TRANSFORMER | 10.2          | 13.8 | 0.8   | 14.4      | 90/3   | - -     | 80/3  |               |  |      |      |             | 22     |
| 23  |                 |               |      | -     |           | -      | -       | -     |               |  |      |      |             | 24     |
| 25  |                 |               |      | -     |           | -      | -       | -     |               |  |      |      |             | 26     |
| 27  | SPARE           | -             |      | -     |           | 100/3  | - -     | 100/3 |               |  |      |      |             | 28     |
| 29  |                 |               |      | -     |           | -      | -       | -     |               |  |      |      |             | 30     |
| 31  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 32     |
| 33  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 34     |
| 35  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 36     |
| 37  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 38     |
| 39  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 40     |
| 41  | SPACE           | -             |      | -     |           | 20/1   | - -     | 20/1  |               |  |      |      |             | 42     |
| TOTALS  |                 | 10.2          | 13.8 | 117.8 | 14.4      |        |         |       |               |  | 33.9 |      | 15.2        | TOTALS |
| LOAD CONNECTED  |                 |               |      |       |           | DEMAND |         |       |               |  |      |      |             |        |
| LIGHTING  |                 | 24.4          |      |       |           | 28.6   |         |       |               |  |      |      |             |        |
| RECEPTACLE  |                 | 13.8          |      |       |           | 11.9   |         |       |               |  |      |      |             |        |
| HVAC  |                 | 151.7         |      |       |           | 164.0  |         |       |               |  |      |      |             |        |
| MISC  |                 | 14.4          |      |       |           | 14.4   |         |       |               |  |      |      |             |        |

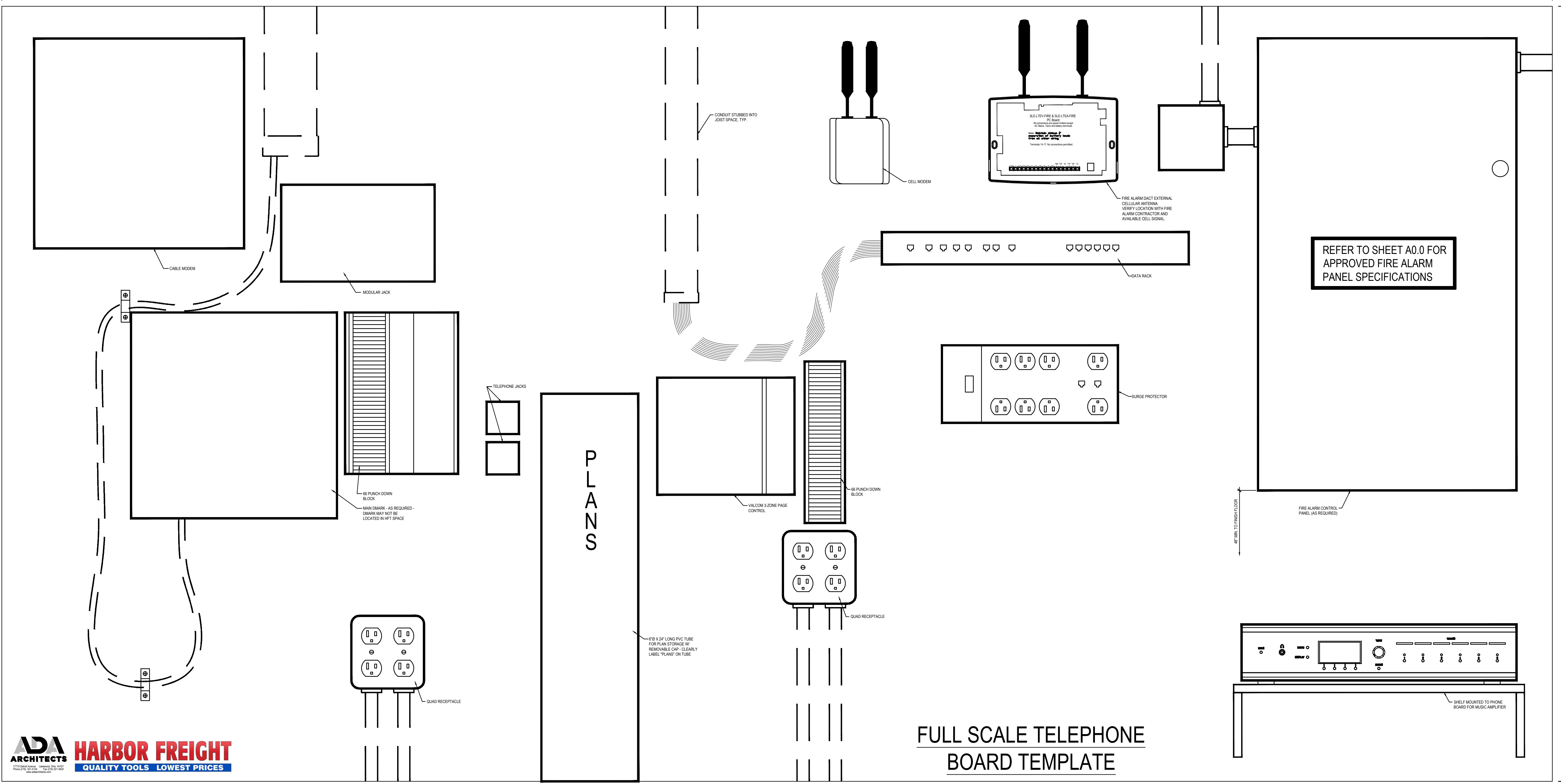
| P  |                                    |               |      |      |           |      |         |      |               |   |      |      |                              |     |
|--|------------------------------------|---------------|------|------|-----------|------|---------|------|---------------|---|------|------|------------------------------|-----|
| MOUNTING: SURFACE  |                                    |               |      |      | LOCATION: |      |         |      |               | BREAKER REMARKS   |      |      |                              |     |
| BUS RATING: 200A   |                                    |               |      |      | A.I.C.: - |      |         |      |               | C-CONTACTOR CONTROLLED, S-SHUNT TRIP.   |      |      |                              |     |
| 200A MAIN CIRCUIT BREAKER  |                                    |               |      |      |           |      |         |      |               | L-LOCK ON, G-GFCI, A-ARC FAULT, SW-SWITCHING DUTY, HA-HACR, HI-HID, LO-PERMANENTLY INSTALLED LOCK OUT |      |      |                              |     |
| VOLTAGE: 120/208V-3PH-4W   |                                    |               |      |      |           |      |         |      |               | AMPS CONN.: 108.9   |      |      |                              |     |
|  |                                    |               |      |      |           |      |         |      |               | AMPS DEMAND: 111.1  |      |      |                              |     |
| COMMENTS: EXISTING PANEL TO REMAIN. PROVIDE MATCHING STYLE CIRCUIT BREAKERS TO ACCOMMODATE LOADS SHOWN. PROVIDE ISO GND BUS. |                                    |               |      |      |           |      |         |      |               |   |      |      |                              |     |
| CKT.   | DESCRIPTION                        | KVA CONNECTED |      |      |           | C/B  | REMARKS | C/B  | KVA CONNECTED |   |      |      | DESCRIPTION                  | CKT |
|  |                                    | LTG.          | REC. | HVAC | MISC.     |      |         |      | MISC.         | HVAC  | REC. | LTG. |                              |     |
| 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                         |               |      |      |           | 20/1 | LO      | 20/1 |               |   |      |      | SPARE                        | 16  |
| 17   | HAND DRYER                         |               |      |      |           | 20/1 | LO      | 20/1 |               |   | 0.4  |      | ISO GND RECEPTACLE           | 18  |
| 19   | LCP                                |               |      |      |           | 20/1 | - -     | 20/1 |               |   | 0.4  |      | ISO GND RECEPTACLE           | 20  |
| 21   | REFRIGERATOR                       |               |      |      |           | 20/1 | G -     | 20/1 |               |   |      |      | SPARE                        | 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 |               |   |      |      | SPARE                        | 28  |
| 29   | MUSIC RECEPTACLE                   |               |      | 0.8  |           | 20/1 | - -     | 20/1 |               | 0.2   |      |      | TIME CLOCK                   | 30  |
| 31   | DOOR BELL                          |               |      |      |           | 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                           |               |      |      |           | 20/1 | - -     | 20/1 |               | 1.5   |      |      | WATER HEATER                 | 36  |
| 37   | EWC                                |               |      |      |           | 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                           |               |      |      |           | 20/1 | C C     | 20/1 |               |   |      | 0.8  | CEILING RECEPTACLE           | 42  |
| 43   | FURNITURE RECEPTACLE               |               |      | 1.2  |           | 20/1 | C C     | 20/1 |               |   |      | 0.8  | CEILING RECEPTACLE           | 44  |
| 45   | FURNITURE RECEPTACLE               |               |      | 1.2  |           | 20/1 | C C     | 20/1 |               |   |      | 1.4  | CEILING RECEPTACLE           | 46  |
| 47   | FURNITURE RECEPTACLE               |               |      | 1.2  |           | 20/1 | C -     | 20/1 |               |   |      |      | SPARE                        | 48  |
| 49   | FURNITURE RECEPTACLE               |               |      | 1.2  |           | 20/1 | C -     | 20/1 |               |   |      |      | SPARE                        | 50  |
| 51   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   |      |      | SPARE                        | 52  |
| 53   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   |      |      | SPARE                        | 54  |
| 55   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   |      |      | SPARE                        | 56  |
| 57   | CHARGER                            |               |      |      |           | 20/1 | - -     | 20/1 |               | 2.0   |      |      | SPARE                        | 58  |
| 59   |                                    |               |      |      |           | 20/1 | - -     | 20/1 |               | 2.0   |      |      | SPARE                        | 60  |
| 61   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   |      |      | SPARE                        | 62  |
| 63   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   |      |      | SPARE                        | 64  |
| 65   | SPARE                              |               |      | -    |           | 20/1 | - -     | 20/1 |               |   | </   |      |                              |     |



8'-0"

4'-0"

2'-0"



### FULL SCALE TELEPHONE BOARD TEMPLATE



# HARBOR FREIGHT

129 W CORNELIUS HARNETT BLVD.  
LILLINGTON, NC 27546

Lakewood, Ohio 44107  
17710 Detroit Avenue  
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#### REVISIONS

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#### PHONE BOARD DETAIL

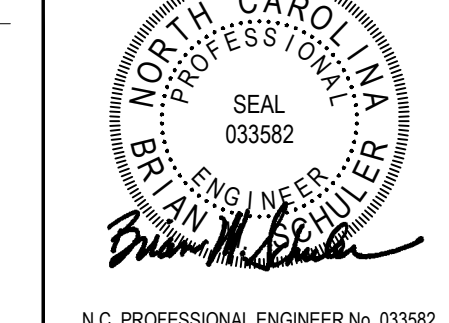
DATE 03/04/24  
JOB NO. 23591

**E2.2**  
SHEET NO.

Brian M. Schuler, P.E.

155 Williamsburg Drive  
Avon Lake, Ohio 44012  
Phone: 216-244-4120

BRIAN M. SCHULER  
03-04-24



N.C. PROFESSIONAL ENGINEER No. 033582

G.C. TO USE FULL SCALE TEMPLATE FOR TELCO BOARD EQUIPMENT LOCATIONS. G.C. TO CONTACT SE BLUEPRINT AT (216)241-2250 TO ORDER FULL SCALE PHONE BOARD TEMPLATE FOR DELIVERY TO SITE.

DO NOT SCALE THESE DRAWINGS

| 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 |
| Ⓢ   | 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   |                    |
| Ⓢ   | DUCT TEMPERATURE SENSOR                      | 1 PER CONTROLLED HVAC EXCEPT UNIT HEATERS                                 | 18/2   | BOTTOM OF MAIN SUPPLY AIR DUCT DROP                     | SIEMENS     | SIEMENS  | E.C.         | SIEMENS   |                    |
| Ⓢ   | 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                  |
| Ⓢ   | 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   |                    |
| Ⓢ   | 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   |                    |
| Ⓢ   | INDOOR LIGHT SENSOR                          | AS REQUIRED PER ELECTRICAL DRAWINGS                                       | 18/4   | IN DAYLIGHT HARVESTING ZONE                             | SIEMENS     | SIEMENS  | E.C.         | SIEMENS   |                    |
| Ⓢ   | 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                  |
| Ⓢ   | MICRO I/O                                    | 1 (STOCK ROOM RTU)  | AS REQUIRED  | MOUNTED ON DZC-RT                                       | SIEMENS     | SIEMENS  | N/A          | SIEMENS   |                    |
| Ⓢ   | OUTSIDE SENSING DEVICE                       | 1   | 18/4   | ROOF  | SIEMENS     | SIEMENS  | M.C.         | SIEMENS   |                    |
| Ⓢ   | RELATIVE HUMIDITY SENSOR                     | 1   | 18/4   | STOCK ROOM  | SIEMENS     | SIEMENS  | E.C.         | SIEMENS   |                    |
| Ⓢ   | ZONE TEMPERATURE SENSOR                      | 1 PER CONTROLLED HVAC   | 18/2   | 1 IN EACH ZONE (SEE CONSTRUCTION DRAWING FOR LOCATIONS) | SIEMENS     | SIEMENS  | E.C.         | SIEMENS   |                    |
| Ⓢ   | 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 |                    |
| Ⓢ   | 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   |                    |
| Ⓢ   | 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

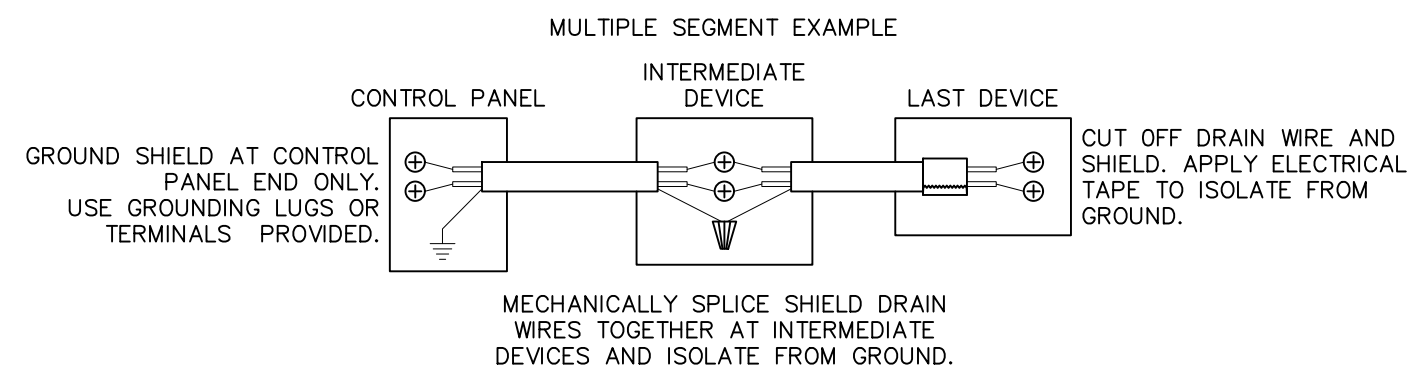
**4. EMS COMMISSIONING:**  
 I. IT SHALL BE UP TO THE G.C. TO CALL FOR EMS COMMISSIONING AT LEAST 2 WEEKS PRIOR TO TURN OVER AND BEFORE THE INSTALLING CONTRACTOR HAS LEFT THE PROJECT. SIEMENS WILL BE ON SITE PER HFT REQUEST 1 WEEK AFTER THE HFT "FIXTURE DATE".  
 THE FOLLOWING CONDITIONS MUST BE MET PRIOR TO SIEMENS ARRIVAL:  
 1-ALL EMS DEVICES AND PANELS HAVE BEEN INSTALLED AND WIRE  
 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 TO 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.  
 III. 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.  
 III. NOTES ABOVE DO NOT ALLEVIATE CONTRACTORS OF OVERALL RESPONSIBILITIES OF PROVIDING A COMPLETE AND OPERATIONAL SYSTEM.  
 IV. TITLE 24 - THE E.C. SHALL WIRE AND INSTALL A LOW VOLTAGE DIMMER LOCATED OUTSIDE OF THE BREAK ROOM FOR SALES REPLACEMENT DEVICES. ~~WIRING SHALL BE TERMINATED IN A JUNCTION BOX MOUNTED ABOVE DCP. SIEMENS TO EXTEND WIRING TO DCP.~~

**3. HOME RUNS:**  
 I. LOW VOLTAGE CABLES SHALL BE PULLED FROM DEVICE TO CONTROL PANEL WITHOUT SPLICING.  
 II. 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.  
 III. 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 WRING, THE SHIELD DRAIN WIRES AT THE INTERMEDIATE DEVICES SHALL BE MECHANICALLY SPLICED TOGETHER AND ISOLATED FROM GROUND.  
 III. 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.



**INSTALLATION NOTES**

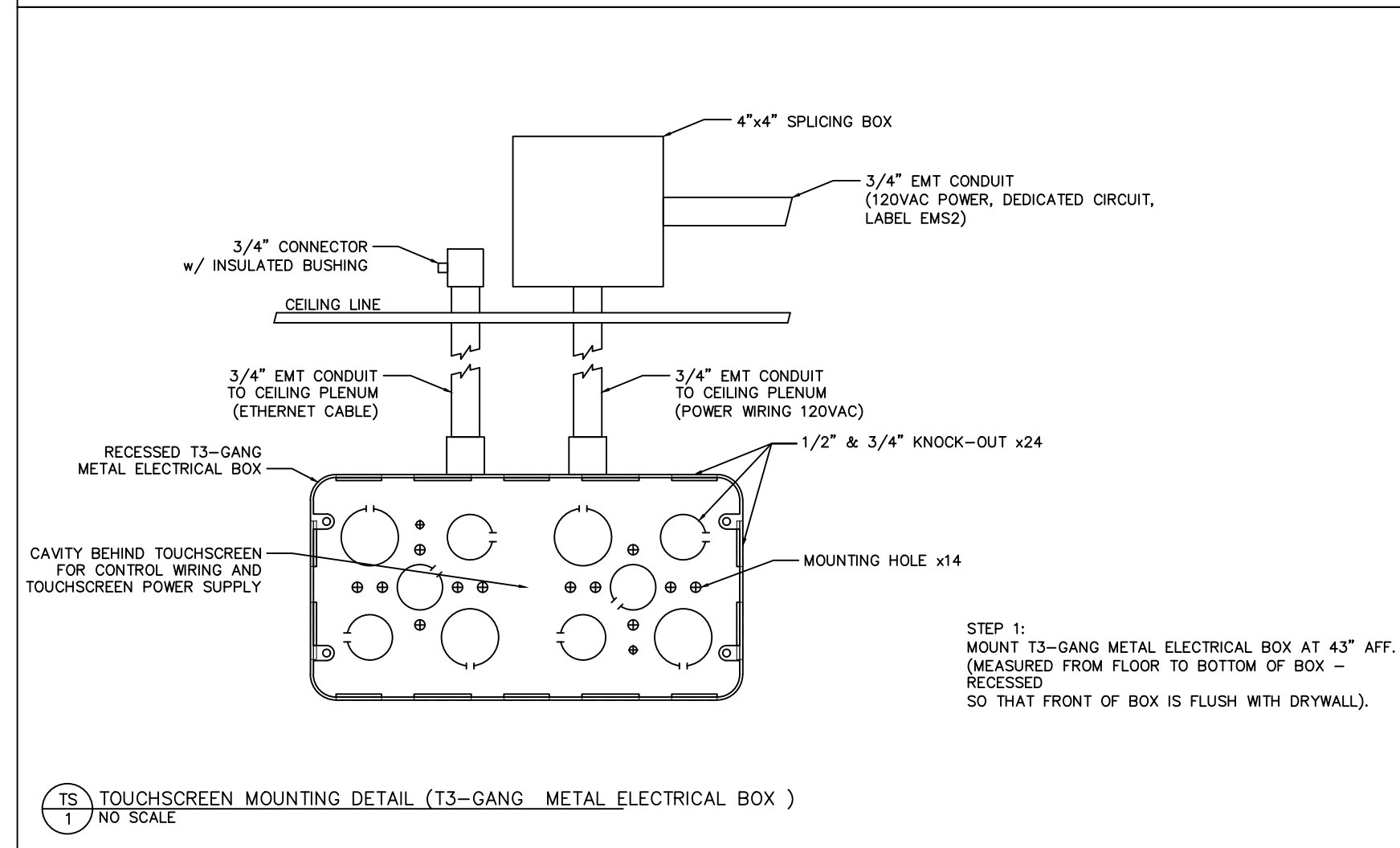
1. SIEMENS SHALL INSTALL LOW VOLTAGE CABLE IN RACEWAYS PROVIDED BY E.C. AND TERMINATE BOTH ENDS. LINE VOLTAGE CONDUIT, WRING AND TERMINATIONS BY E.C.  
 2. SIEMENS SHALL TERMINATE ALL LOW VOLTAGE CABLES AT THE TOUCHSCREEN.  
 3. E.C. TO PROVIDE DEDICATED POWER CIRCUIT TO TOUCHSCREEN.  
 4. E.C. SHALL BE RESPONSIBLE FOR INSTALLATION OF POWER WRING AND LOW VOLTAGE DIMMING CONTROL SIGNALS TO LIGHTING FIXTURES. SIEMENS SHALL BE RESPONSIBLE FOR INSTALLATION OF ADDITIONAL CONTROL WRING 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 300 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 WIRE 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 CABLED ACCORDING TO THE MANUFACTURER'S INSTRUCTION.

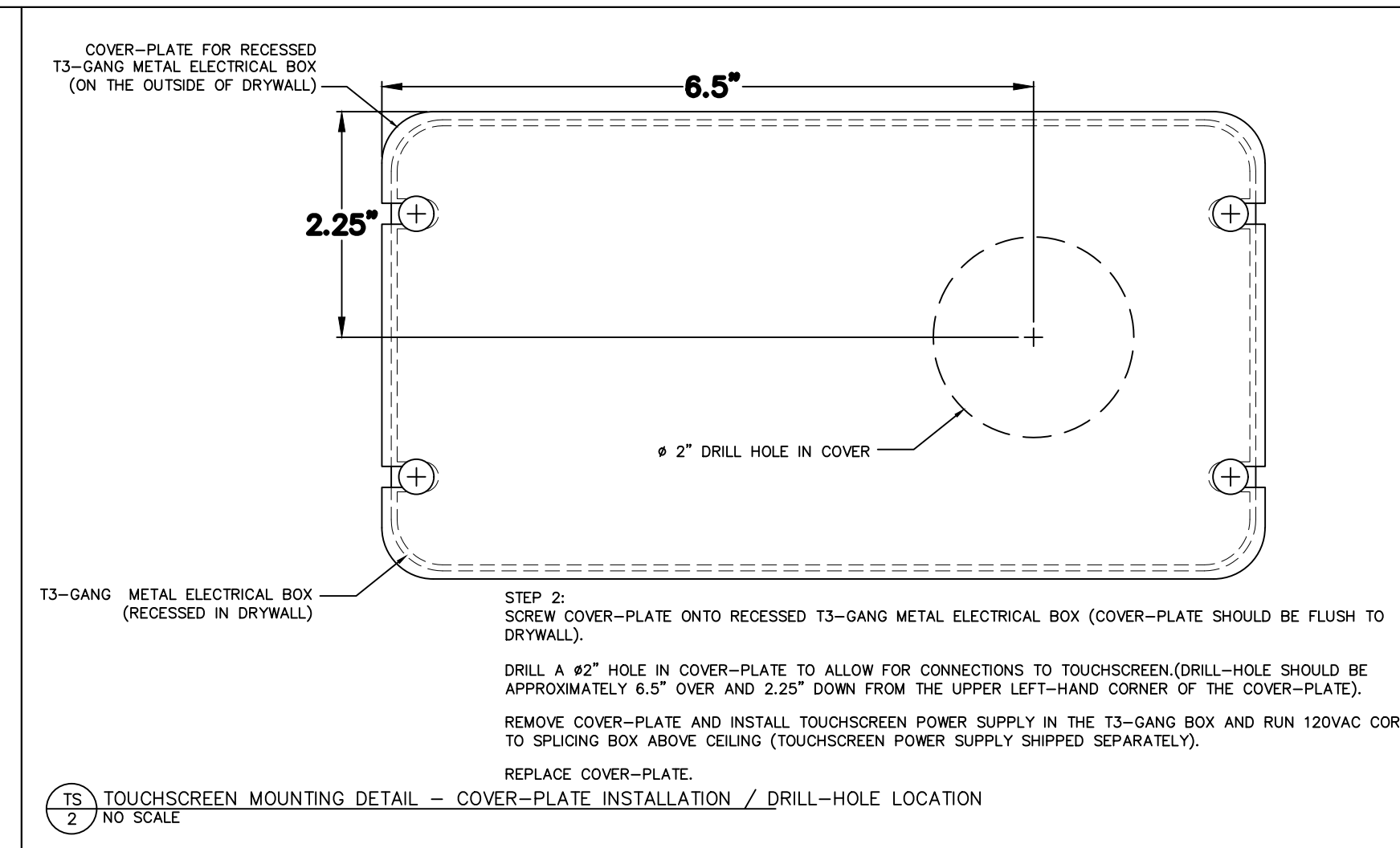
| SIZE  | DESCRIPTION  | MANUFACTURER | SIEMENS PART #          |
|-------|--|--------------|-------------------------|
| 18/2  | 18AWG, 2 CONDUCTOR, SHIELDED, STRANDED, PLENUM, WHITE    | ANIXTER      | RCS-2C18-CMP-WH         |
| 18/4  | 18AWG, 4 CONDUCTOR, SHIELDED, PLENUM, WHITE              | ANIXTER      | 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-OMR-WH |

**CABLE PURCHASING INSTRUCTIONS**

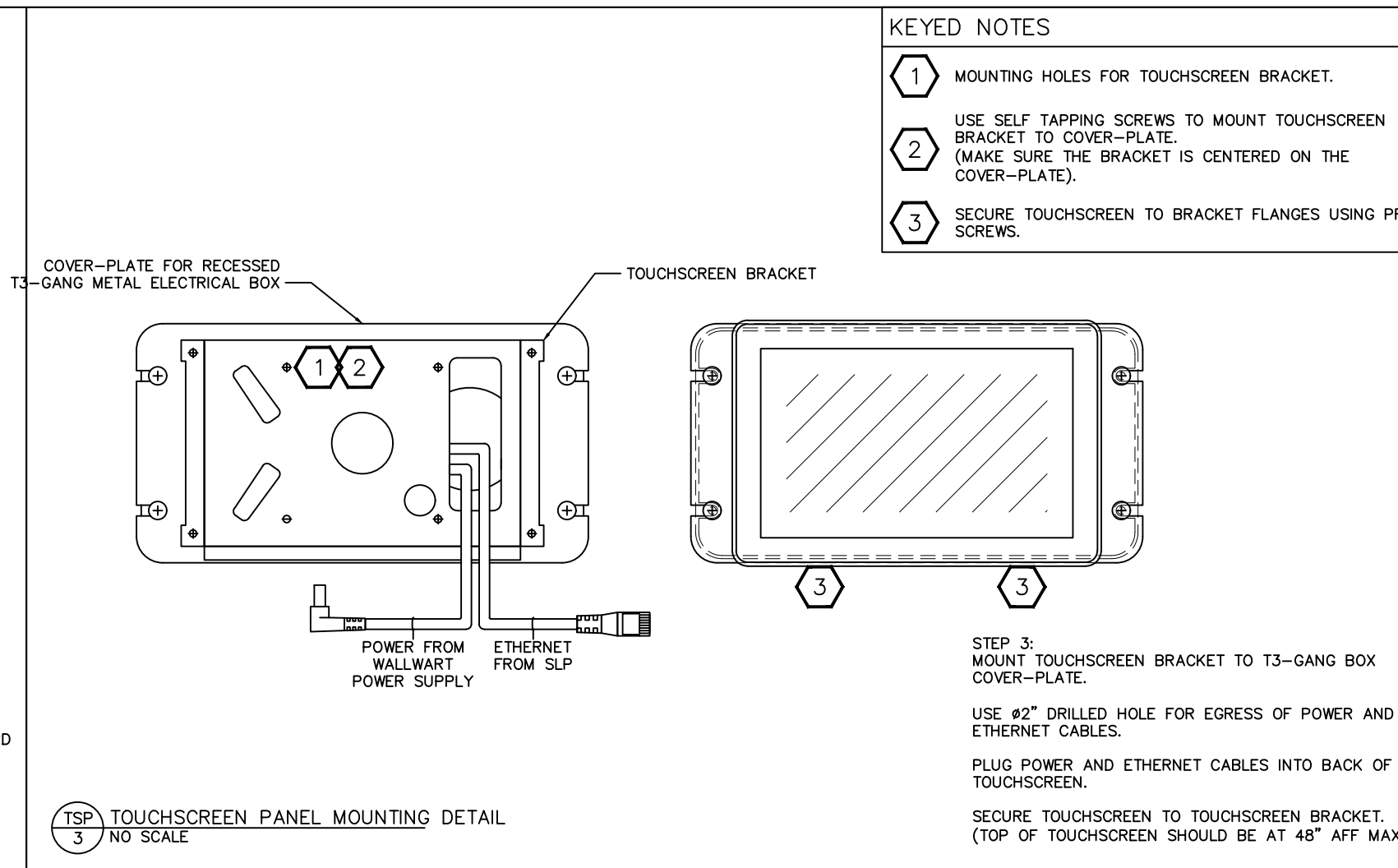
ANIXTER INC. IS THE AUTHORIZED DISTRIBUTOR OF SPECIFIED CABLE FOR SIEMENS INDUSTRY, INC. BUILDING TECHNOLOGIES DIVISION. (PLEASE, CONSULT ANIXTER OR SIEMENS COMMODITY MANAGER FOR THE MOST CURRENT PRICING STRUCTURE.)  
 CONTACT INFORMATION:  
 PHONE: (888) 479-3830  
 FAX: (888) 479-3834  
 EMAIL: SBT@anixter.com  
 WEBSITE FOR SIEMENS BT: www.anixter.com/SBT (BUILDING AUTOMATION TAB)  
 WO REFERENCE NUMBER: 30209634



TS TOUCHSCREEN MOUNTING DETAIL (T3-GANG METAL ELECTRICAL BOX) NO SCALE



TS TOUCHSCREEN MOUNTING DETAIL - COVER-PLATE INSTALLATION / DRILL-HOLE LOCATION NO SCALE



TSP TOUCHSCREEN PANEL MOUNTING DETAIL NO SCALE

**SIEMENS**  
 9225 BEE CAVES ROAD, BLDG. B, SUITE 100,  
 AUSTIN, TEXAS 78733 Phone: 512-421-6257

Project: **HARBOR FREIGHT PROTOTYPICAL NEW CONSTRUCTION NATIONAL EMS BID SET**

Description: **PROTOTYPICAL NATIONAL EMS BID SET**

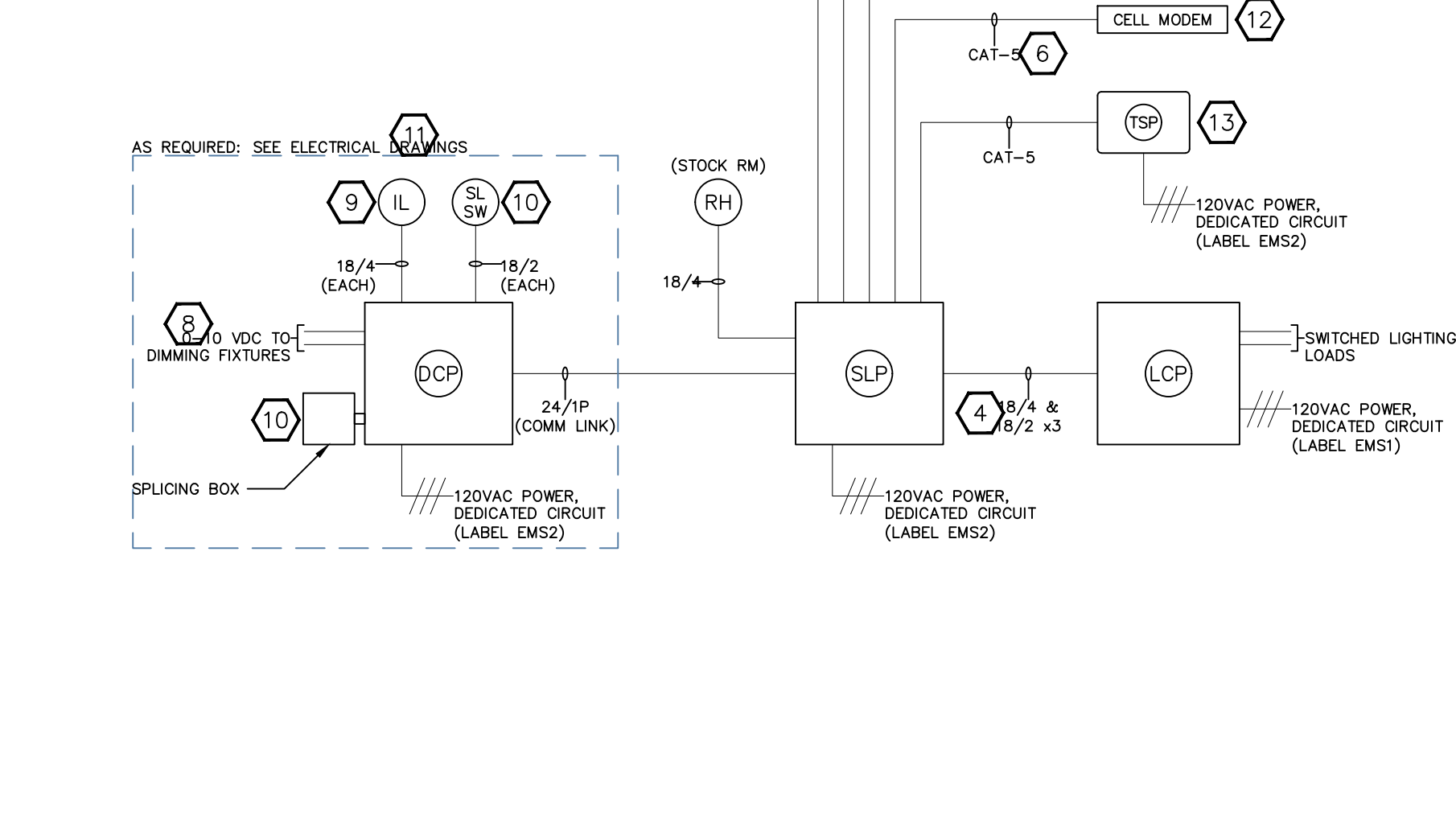
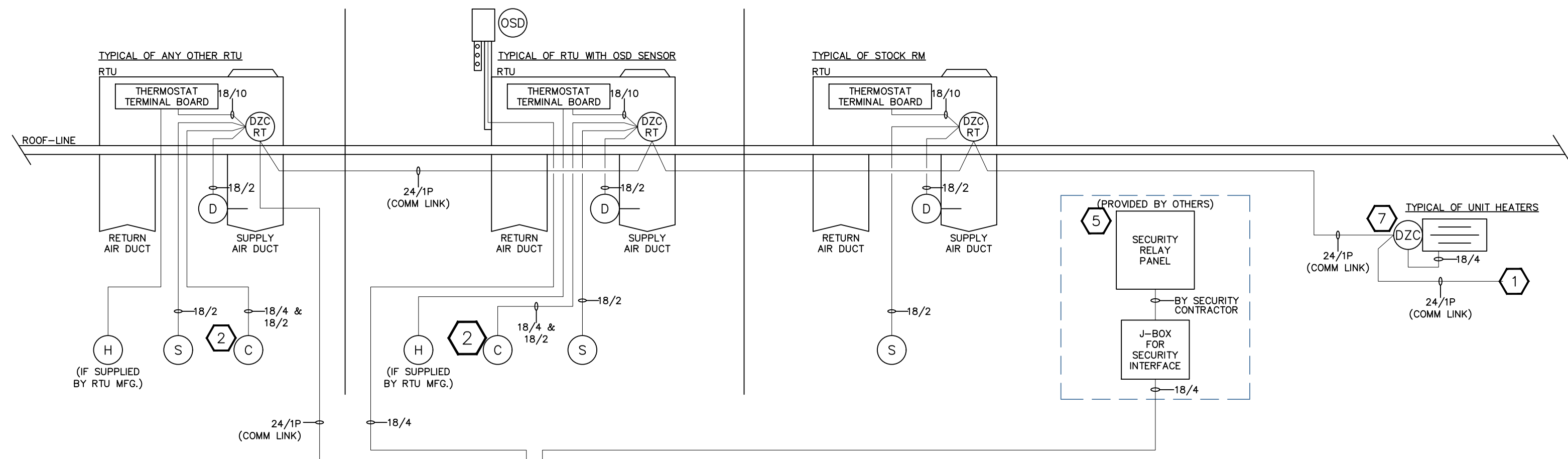
Date: 11-15-17 Scale: NTS

Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

| # | DESCRIPTION     | DATE        | BY |
|---|-----------------|-------------|----|
| 0 | Initial Release | 11-15-17 MS | MS |
| 4 | Revised         | 8-12-19 MS  | MS |
| 5 | Revised         | 10-10-19 MS | MS |
| 6 | Revised         | 3-3-20 MS   | MS |
| 7 | Revised         | 4-13-20 MS  | MS |
| 8 | Revised         | 6-2-20 MS   | MS |
| 9 | Revised         | 6-28-22 MS  | MS |

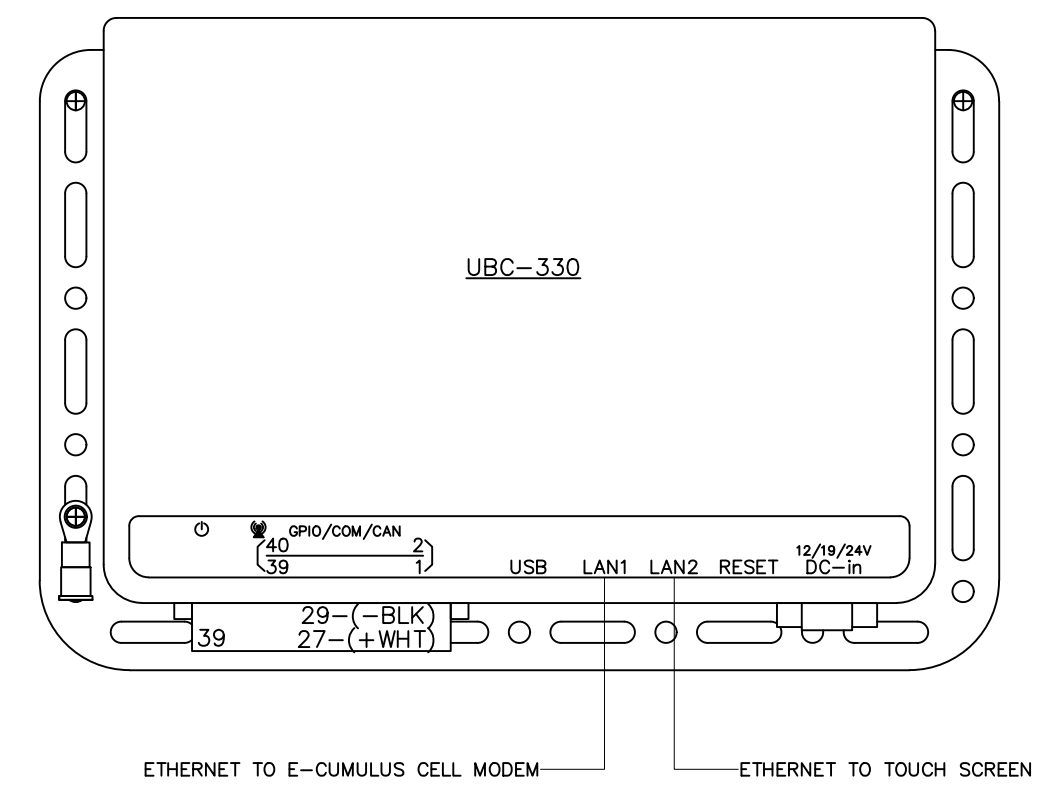
REVISIONS

EMS-1

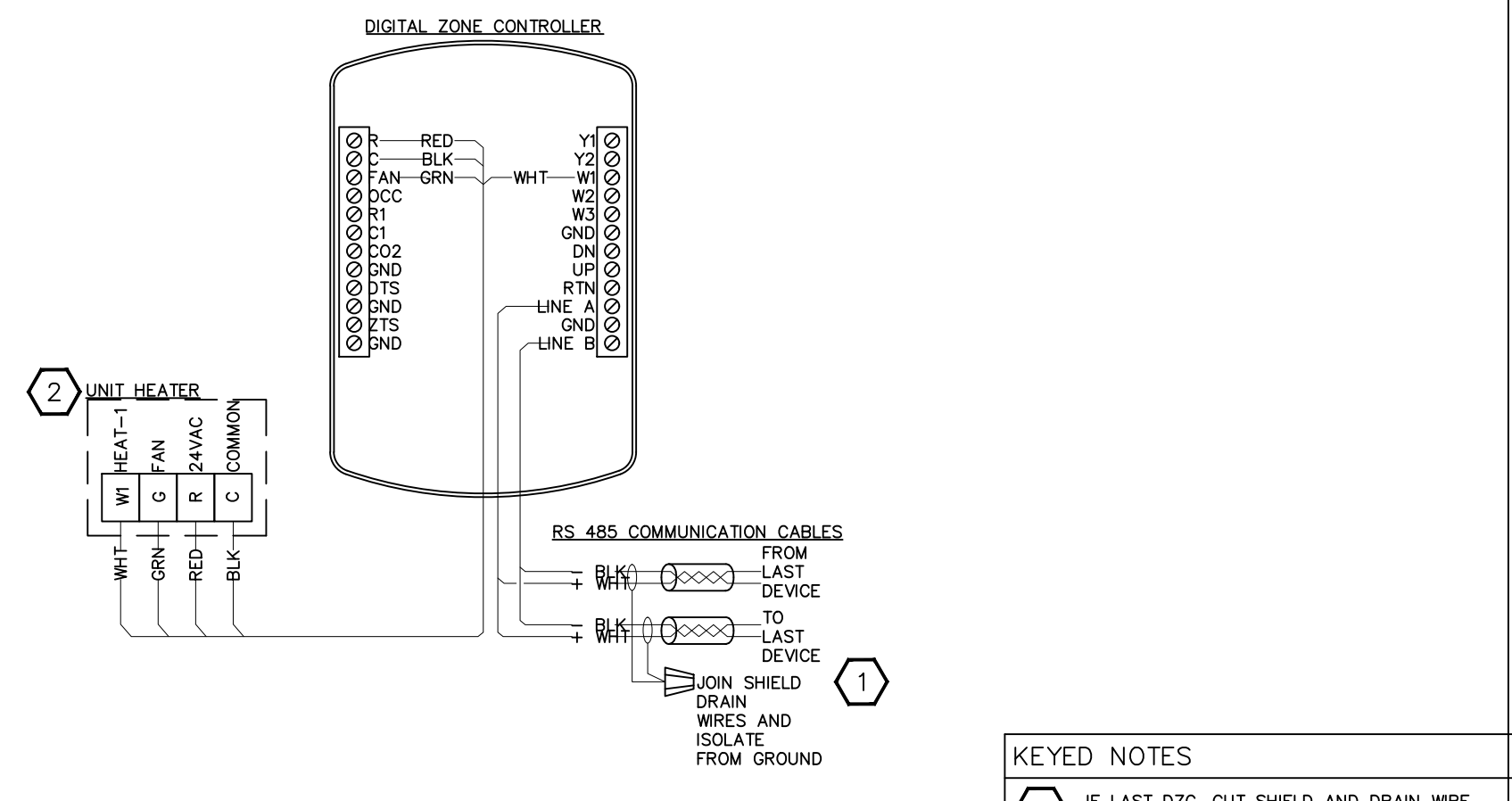


1 SLD SINGLE LINE DIAGRAM  
NO SCALE

- KEYED NOTES**
- DAISY CHAIN COMMUNICATION CABLE TO EACH ADDITIONAL DZC.
  - 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.
  - NOTE REMOVED.
  - 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).
  - REFER TO "SECURITY INTERFACE" DETAIL FOR TERMINATIONS.
  - INSTALL CELL MODEM IN NETWORK RACK. PULL AND TERMINATE CAT-5 BETWEEN SLP AND CELL MODEM.
  - UNIT HEATER MUST BE FURNISHED WITH A CLASS 2 24VAC CTRL TRANSFORMER. MOUNT DZC ON RETURN INTAKE OF UNIT.
  - CONTROL SIGNAL TO DIMMING FIXTURES. MAXIMUM LOAD PER DIMMING CHANNEL MUST NOT EXCEED 80mA.
  - TYPICAL OF 1 IL SENSOR PER EACH DAYLIGHT HARVESTING ZONE. REFER TO CONSTRUCTION DRAWINGS FOR NUMBER AND LOCATIONS.
  - TYPICAL OF EACH DIMM GROUP IN SALES FLOOR (INCLUDING DAYLIGHT HARVEST GROUP). EACH DIMMING GROUP IN THE SALES FLOOR REQUIRES INSTALLATION OF ONE SLD-DIMMER ON THE WALL SEPARATING THE SALES FLOOR FROM THE STOCK ROOM (INSIDE STOCK ROOM) AND ONE SPLICE BOX AT THE DCP.
  - AS REQUIRED FOR SITES WITH DIMMING CONTROLS: SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
  - MOUNT CELL MODEM IN NETWORK RACK.
  - INSTALL TOUCH SCREEN PANEL IN THE MANAGER'S OFFICE AT 48" AFF.

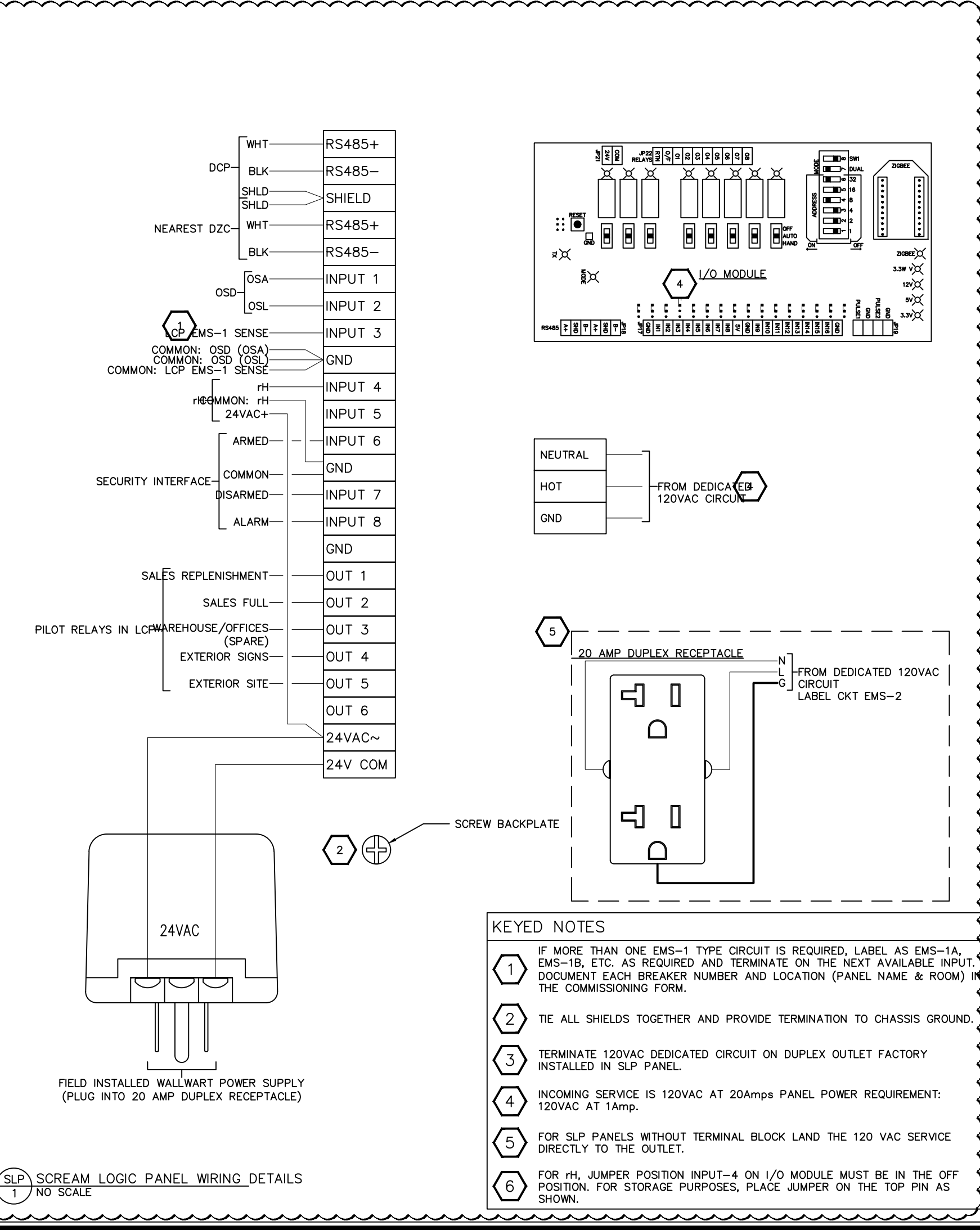


1 UBC-330 (SCREAM) WIRING DETAIL  
NO SCALE



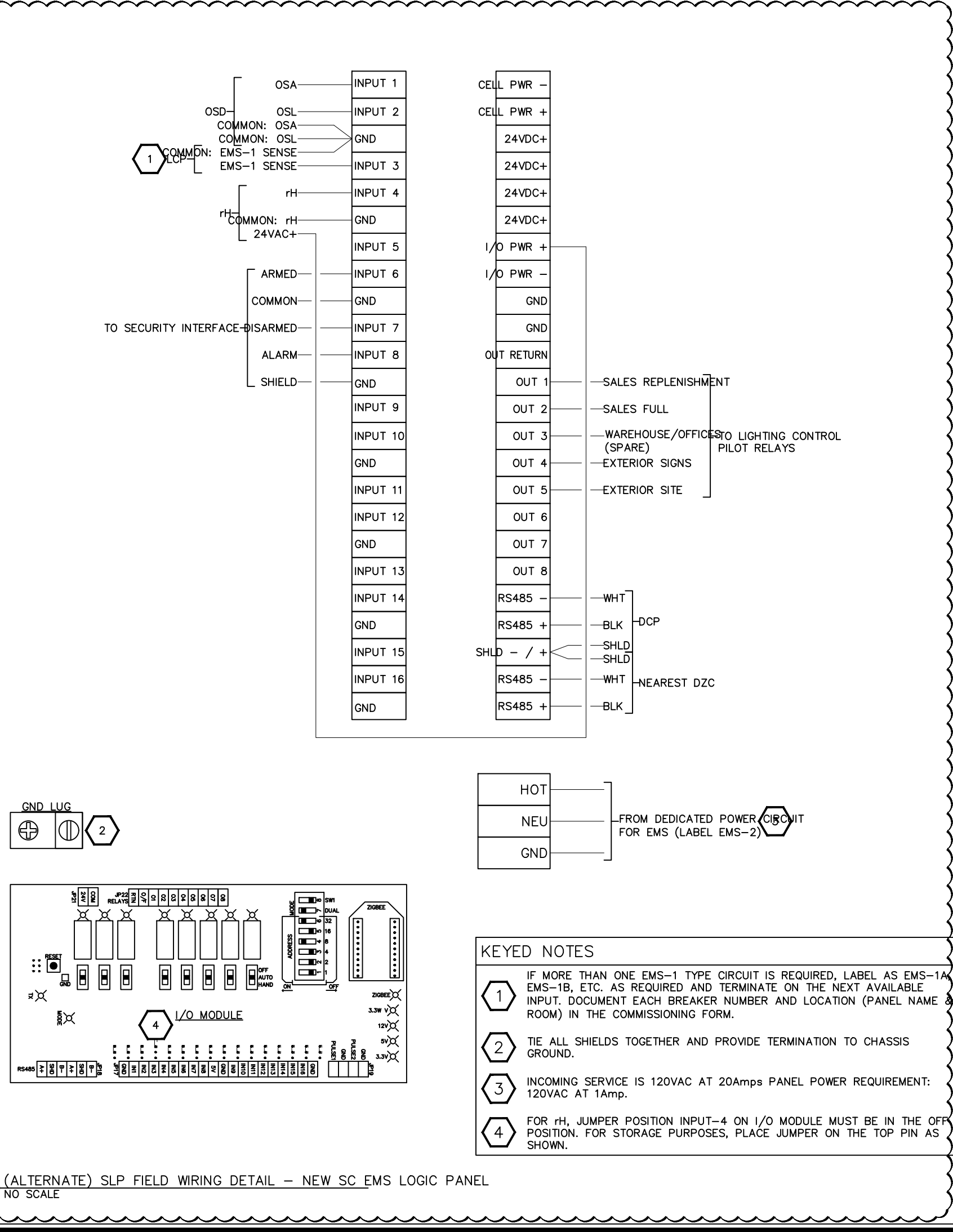
1 DIGITAL ZONE CONTROLLER WIRING DETAIL  
NO SCALE

- KEYED NOTES**
- IF LAST DZC, CUT SHIELD AND DRAIN WIRE AND TAPE BACK.
  - UNIT HEATER MUST BE FACTORY FURNISHED WITH A 24VAC CLASS 2 POWER SUPPLY



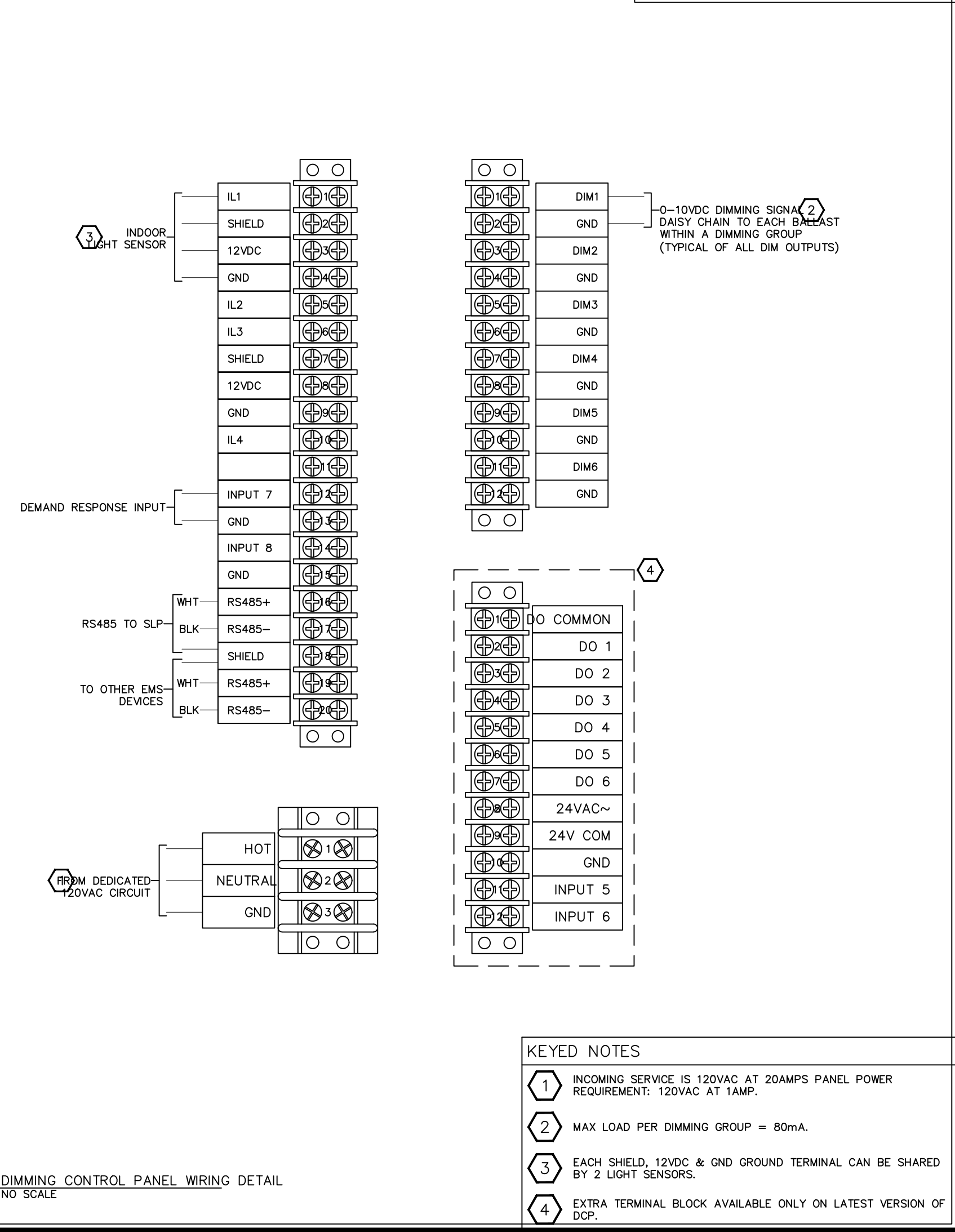
1 SLP SCREAM LOGIC PANEL WIRING DETAILS  
NO SCALE

- KEYED NOTES**
- 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.
  - TIE ALL SHIELDS TOGETHER AND PROVIDE TERMINATION TO CHASSIS GROUND.
  - TERMINATE 120VAC DEDICATED CIRCUIT ON DUPLEX OUTLET FACTORY INSTALLED IN SLP PANEL.
  - INCOMING SERVICE IS 120VAC AT 20amps PANEL POWER REQUIREMENT: 120VAC AT 1amp.
  - FOR SLP PANELS WITHOUT TERMINAL BLOCK LAND THE 120 VAC SERVICE DIRECTLY TO THE OUTLET.
  - FOR H, 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.



2 SLP (ALTERNATE) SLP FIELD WIRING DETAIL - NEW SC EMS LOGIC PANEL  
NO SCALE

- KEYED NOTES**
- 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.
  - TIE ALL SHIELDS TOGETHER AND PROVIDE TERMINATION TO CHASSIS GROUND.
  - INCOMING SERVICE IS 120VAC AT 20amps PANEL POWER REQUIREMENT: 120VAC AT 1amp.
  - FOR H, 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.



1 DCP DIMMING CONTROL PANEL WIRING DETAIL  
NO SCALE

- KEYED NOTES**
- INCOMING SERVICE IS 120VAC AT 20amps PANEL POWER REQUIREMENT: 120VAC AT 1AMP.
  - MAX LOAD PER DIMMING GROUP = 80mA.
  - EACH SHIELD, 12VDC & GND GROUND TERMINAL CAN BE SHARED BY 2 LIGHT SENSORS.
  - EXTRA TERMINAL BLOCK AVAILABLE ONLY ON LATEST VERSION OF DCP.

**SIEMENS**  
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,  
AUSTIN, TEXAS 78733 Phone: 512-421-6257

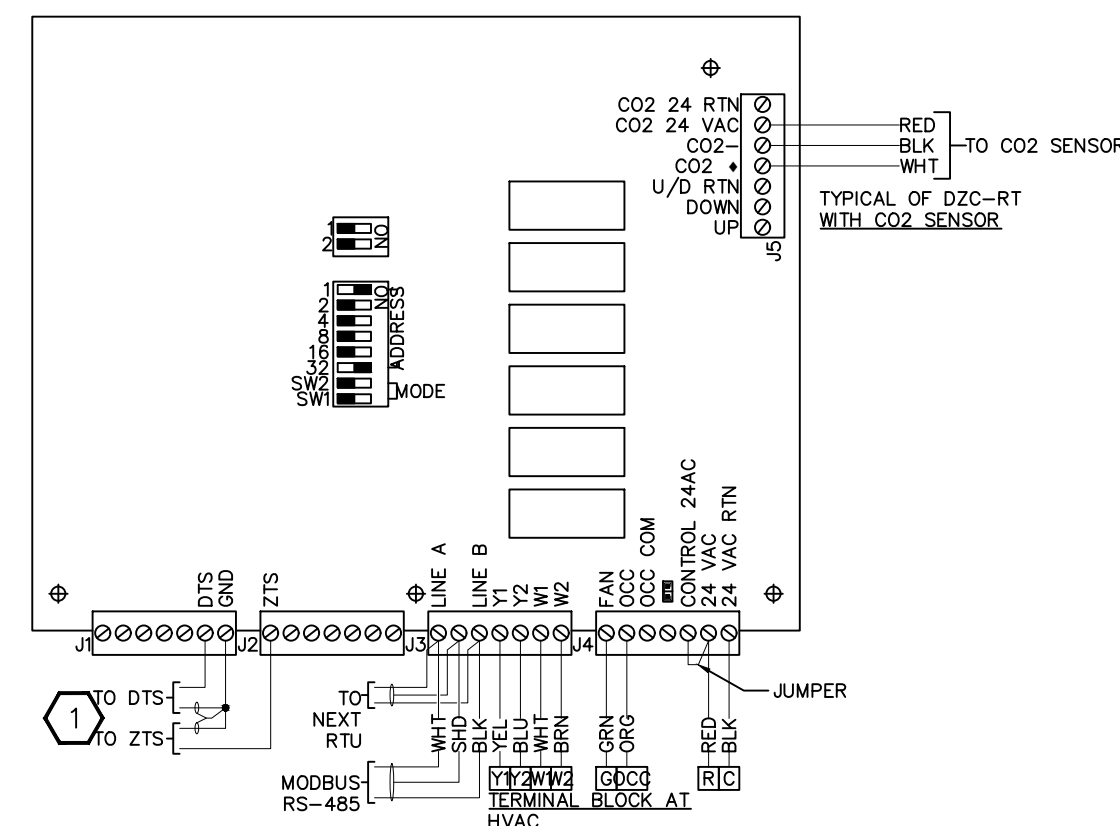
Project: **HARBOR FREIGHT NEW CONSTRUCTION NATIONAL EMS BID SET**

Description: **PROTOTYPICAL NATIONAL EMS BID SET**

Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

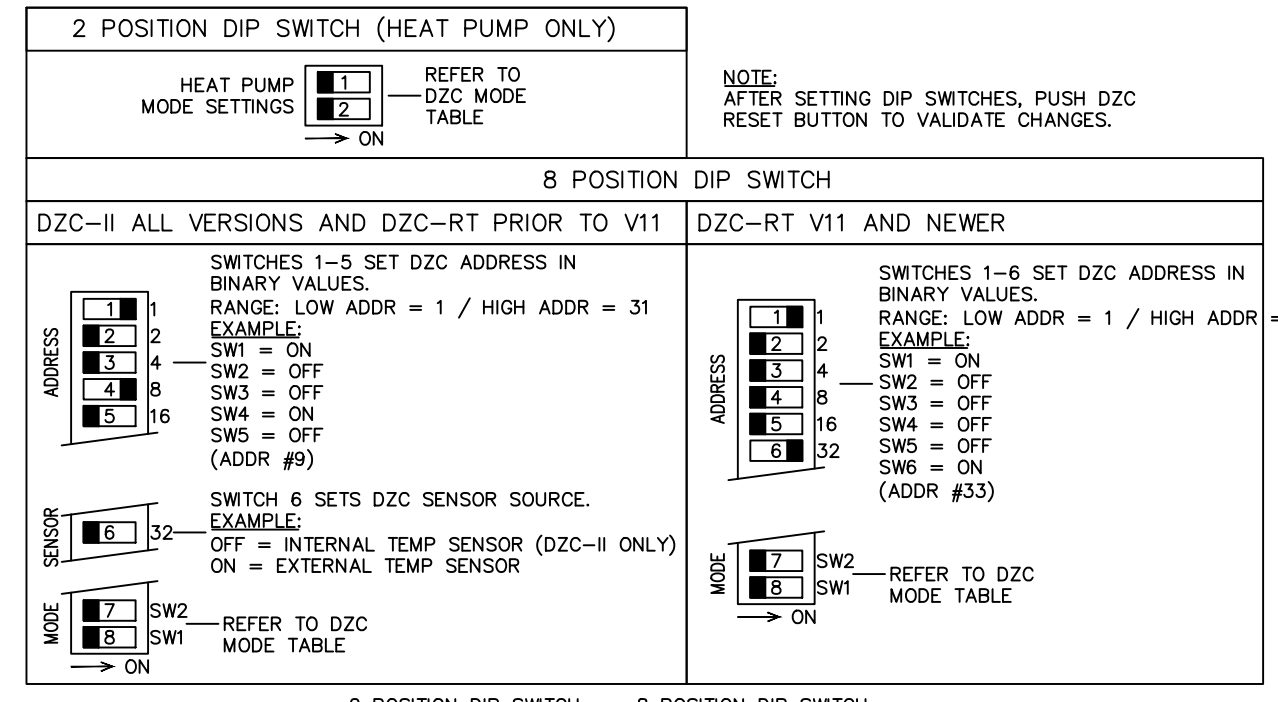
| # | DESCRIPTION     | DATE     | BY |
|---|-----------------|----------|----|
| 0 | Initial Release | 11-15-17 | MS |
| 4 | Revised         | 8-12-19  | MS |
| 5 | Revised         | 10-10-19 | MS |
| 6 | Revised         | 3-3-20   | MS |
| 7 | Revised         | 4-13-20  | MS |
| 8 | Revised         | 6-2-20   | MS |
| 9 | Revised         | 6-28-22  | MS |

Date: 11-15-17 Scale: NTS



DZC-II ROOFTOP DIGITAL ZONE CONTROLLER WIRING DETAIL  
1 NO SCALE

KEYED NOTES  
1 TERMINATE COMMON SIGNAL AND SHIELD DRAIN WIRES ON GND TERMINAL.

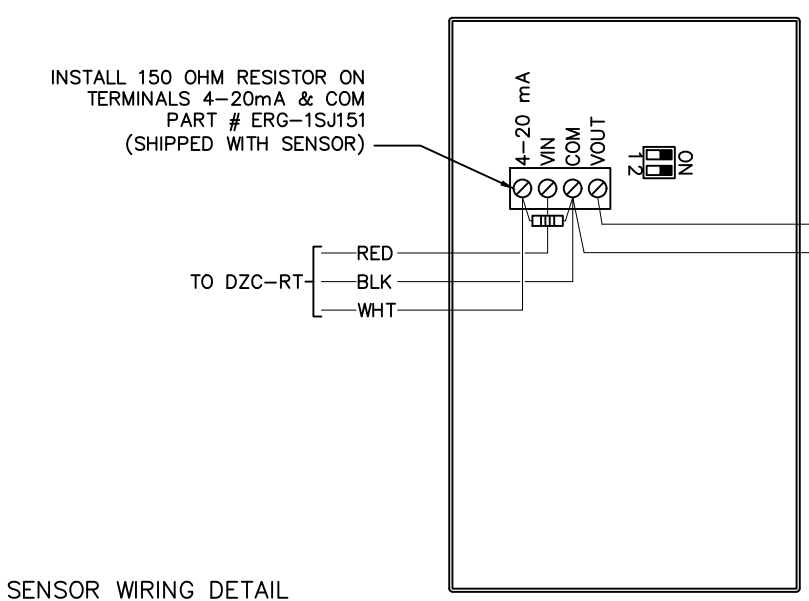


DZC MODE TABLE

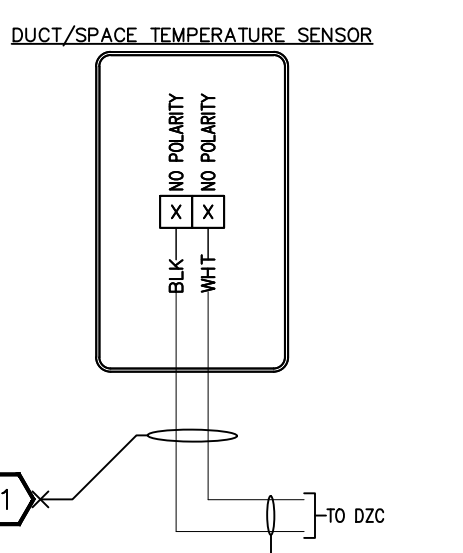
| MODE   | 1   | 2   | 1 | 2 | 3 | 4 | 5 | 6 | 7   | 8   |
|--|-----|-----|---|---|---|---|---|---|-----|-----|
| MODE 1: HP SINGLE STAGE WITH AUX RE-HEAT                                 | ON  | OFF | X | X | X | X | X | X | OFF | OFF |
| MODE 2: HP MULTI STAGE WITH AUX RE-HEAT                                  | ON  | OFF | X | X | X | X | X | X | ON  | OFF |
| MODE 3: HP SINGLE STAGE WITH AUX RE-HEAT                                 | OFF | ON  | X | X | X | X | X | X | OFF | OFF |
| MODE 4: 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 |
| 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 |

DZC SETTINGS  
2 NO SCALE

KEYED NOTES  
1 WHEN HEAT PUMP MODE IS SELECTED, "WT" IS USED FOR CONTROL OF THE REVERSING VALVE (O/B) AND "W2", "W3" FOR CONTROL OF AUXILIARY HEAT.

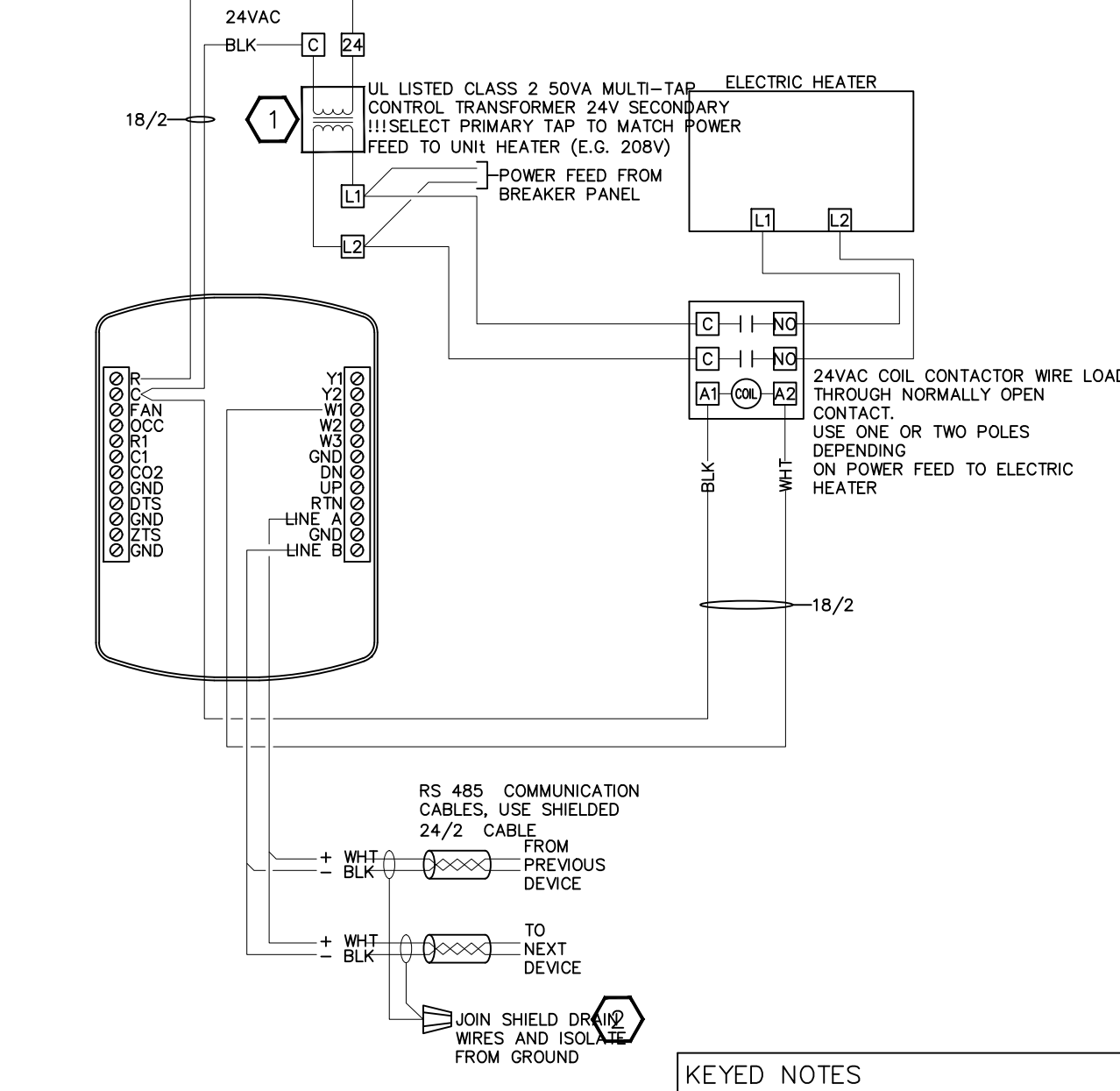


CO2 CO2 SENSOR WIRING DETAIL  
1 NO SCALE



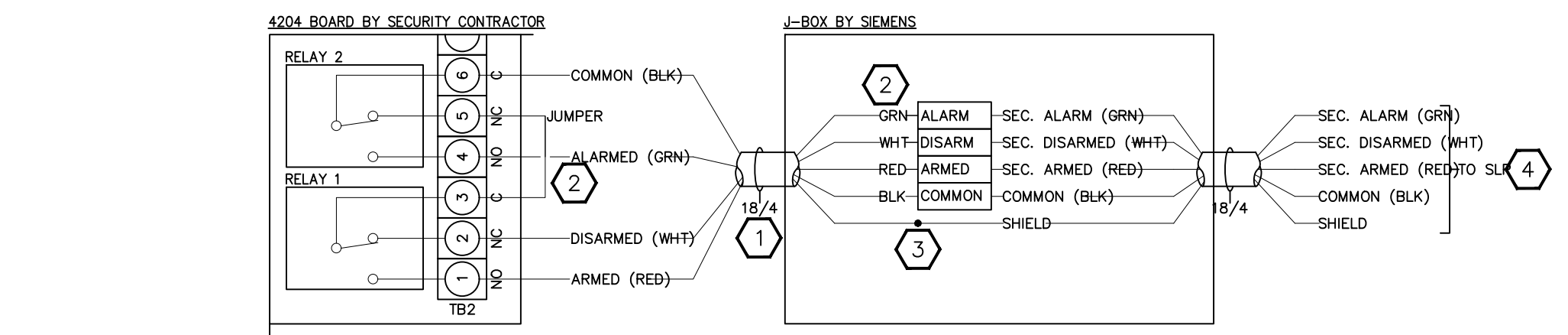
D/S DUCT / SPACE SENSOR WIRING DETAIL  
1 NO SCALE

KEYED NOTES  
1 CUT BACK SHIELD AND DRAIN WIRE THEN HEAT SHRINK OR TAPE BACK TO AVOID ACCIDENTAL SHORT TO GROUND.



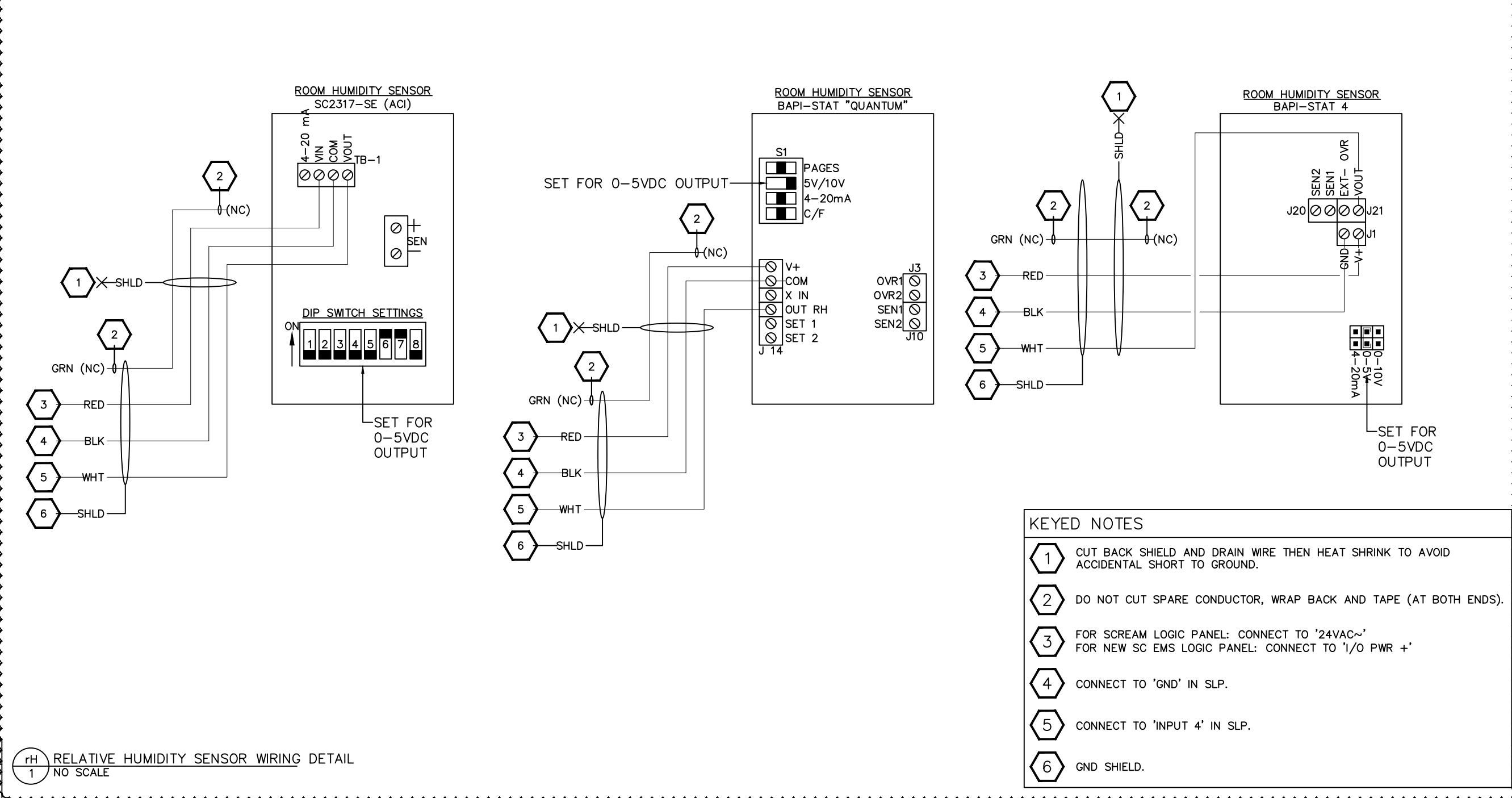
UH UNIT HEATER WIRING DETAIL  
1 NO SCALE

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.



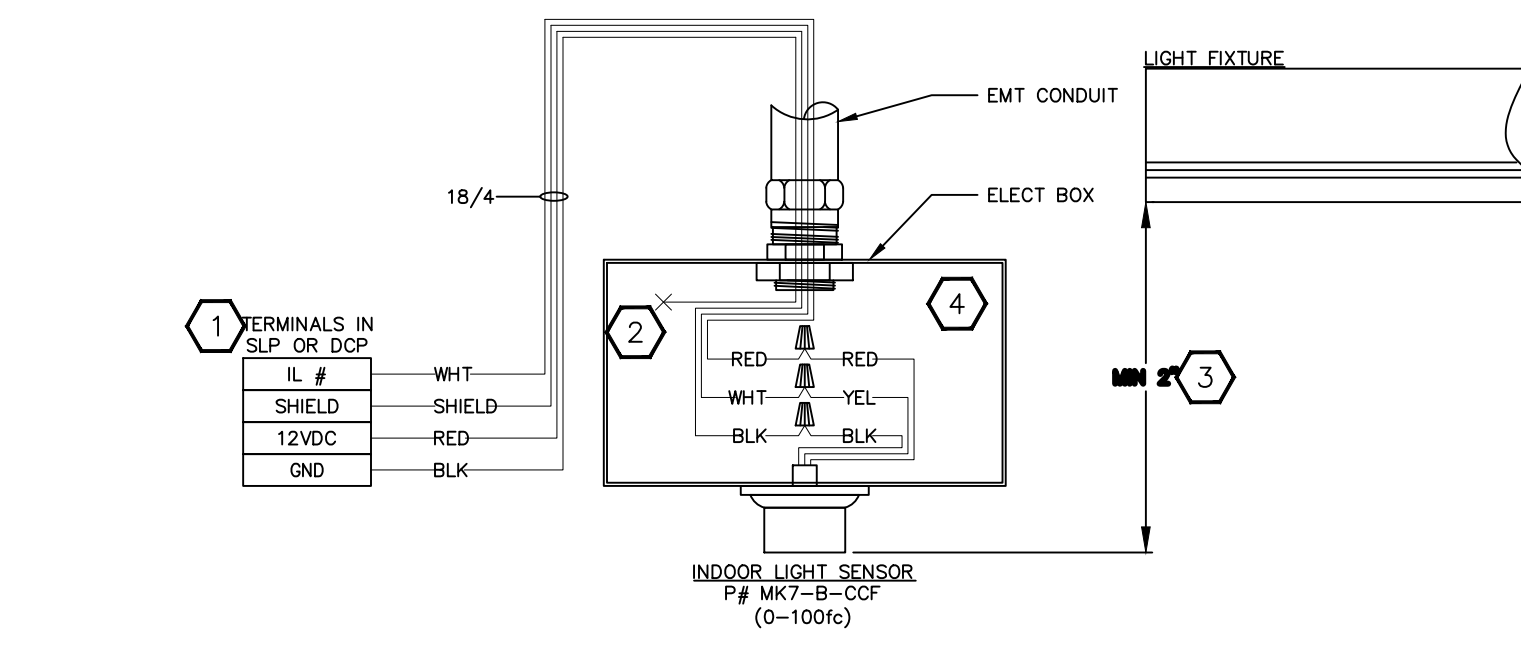
SEC SECURITY INTERFACE SYSTEM WIRING DETAIL  
1 NO SCALE

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.



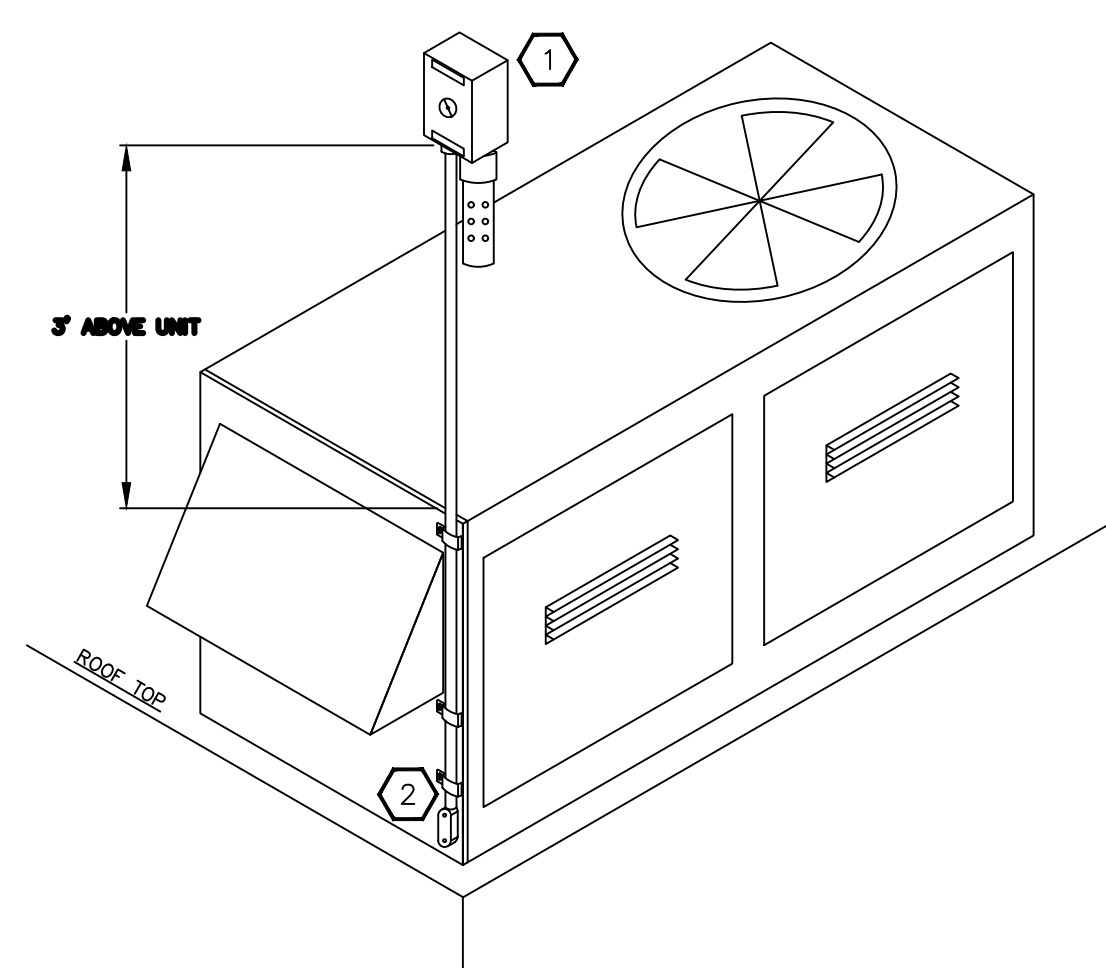
RH RELATIVE HUMIDITY SENSOR WIRING DETAIL  
1 NO SCALE

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 "1/0 PWR +"  
4 CONNECT TO "GND" IN SLP.  
5 CONNECT TO "INPUT 4" IN SLP.  
6 GND SHIELD.

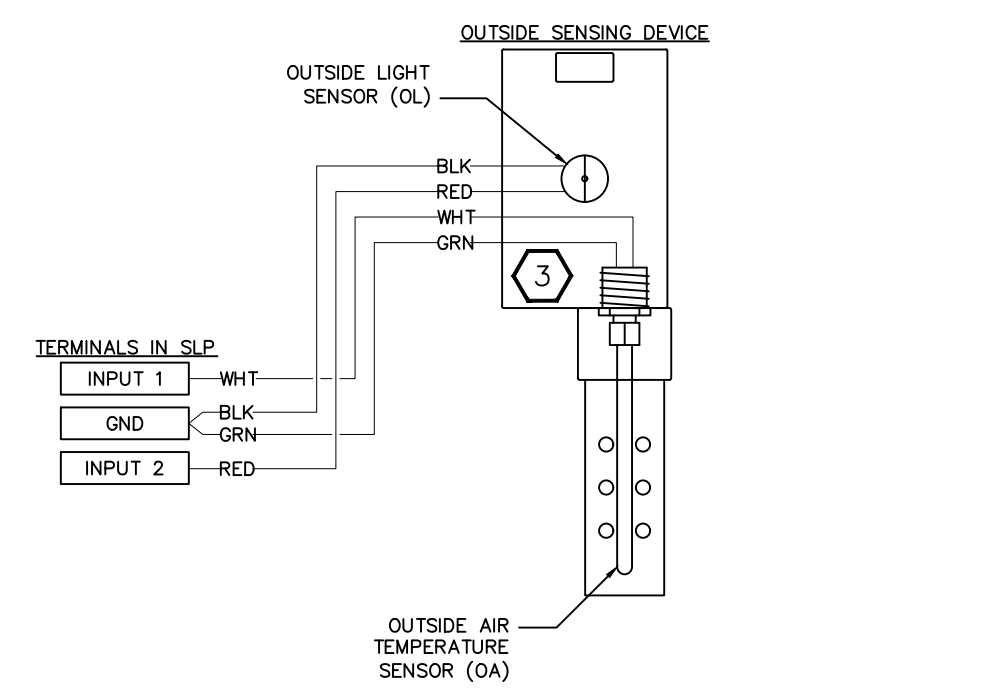


IL CEILING MOUNT / SKYLIGHT INDOOR LIGHT SENSOR WIRING DETAIL  
1 NO SCALE

MOUNTING NOTES:  
MOUNT SENSOR VERTICALLY, WITH THE DOME PORTION FACING UP. LOCATE SENSOR AS CLOSE TO ATRIUM WINDOWS (GLASS) AS POSSIBLE AND AS FAR AS POSSIBLE FROM THE WALLS (NO LESS THAN 2" BELOW LEVEL OF LIGHT FIXTURES).  
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.



OSD OUTSIDE SENSING DEVICE MOUNTING AND WIRING DETAILS  
1 NO SCALE

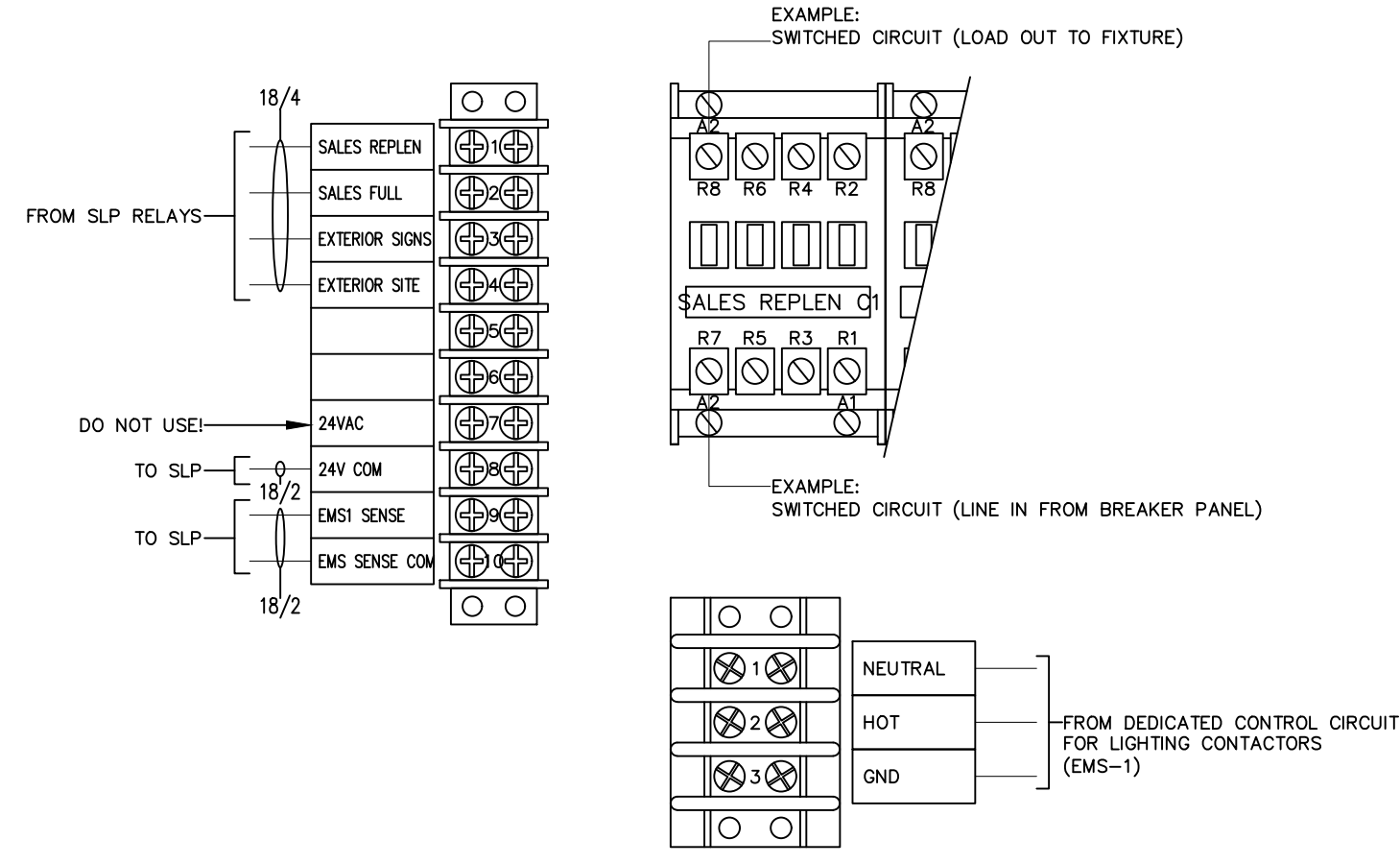


KEYED NOTES  
1 MOUNT OSD 3' ABOVE RTU, FURTHEST FROM CONDENSER FANS. USE 1/2" ELECTRICAL CONDUIT. LIGHT SENSOR MUST FACE TRUE NORTH, UNLESS RE-ORIENTATION IS NECESSARY TO AVOID ARTIFICIAL LIGHTING (E.G. PARKING LIGHTS). INSTALLER SHALL NOT PENETRATE ROOF.  
2 USE 1/2" LB FITTING AND RAINIGHT COMPRESSION CONNECTORS.  
3 CONDUCTORS MUST BE SPLICED USING SEALANT FILLED CONNECTORS (DOLPHIN OR SIMILAR). MAKE SURE GASKET IS INSTALLED AND ASSEMBLY IS WATER TIGHT.

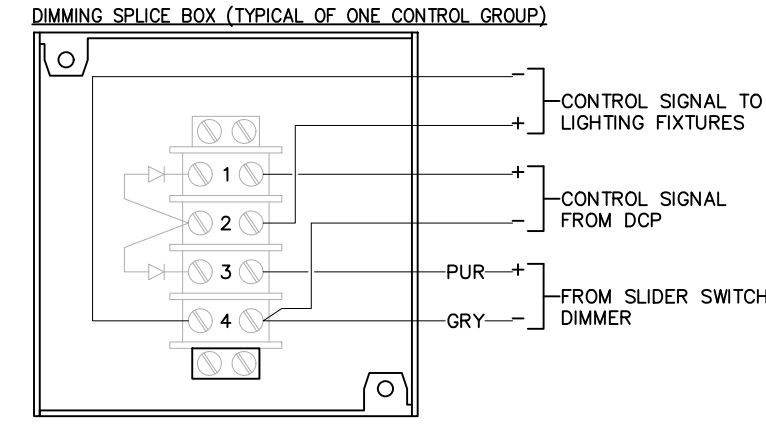
Project: HARBOR FREIGHT PROTOTYPICAL NEW CONSTRUCTION NATIONAL EMS BID SET  
Date: 11-15-17  
Scale: NTS  
Description: HARBOR FREIGHT PROTOTYPICAL NEW CONSTRUCTION NATIONAL EMS BID SET  
Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

| 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 |

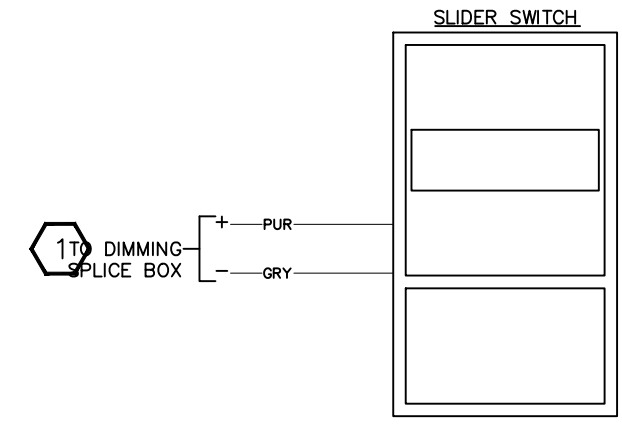
SIEMENS  
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,  
AUSTIN, TEXAS 78733 Phone: 512-421-6257



1 LCP LIGHTING CONTROL PANEL WIRING DETAIL  
NO SCALE



1 SB DIMMING SPLICE BOX WIRING DETAIL  
NO SCALE



1 SB SLIDER SWITCH WIRING DETAIL  
NO SCALE

KEYED NOTES  
1 SLIDER SWITCH: DIMMING CONTROL, 0-10VDC, 200MA, SINK DIMMING. REFERENCE P# EATON SF10C.

**SIEMENS**  
9225 BEE CAVES ROAD, BLDG. B, SUITE 100,  
AUSTIN, TEXAS 78733 Phone: 512-421-6257

Project: HARBOR FREIGHT  
NEW CONSTRUCTION  
Date: 11-15-17  
Scale: NTS

Description: PROTOTYPICAL  
NATIONAL EMS BID SET  
Drawing File Name/Origin: Harbor Freight-Bid Set-Rev8.dwg

| # | DESCRIPTION     | DATE     | BY |
|---|-----------------|----------|----|
| 0 | Initial Release | 11-15-17 | MS |
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Revisions

EMS-4