

# FACPAC Contract Change Order Supplemental Information Form (Ref# 56037)

Form Status: Saved

Tier 1 Project: ECHS Renovation Phase #7

BG Number: 21-055

District: Estill County (161)

Status: Active

Phase: Project Initiation (View Checklist)

Contract: BASTIN PAINTING, INC., 0008, PAINTING

Type: CM Bid Package

Proposed

Change Order Number	8-1
Time Extension Required	Yes
If Yes Number Of Days	28
Date Of Change Order	2/15/2022
Change Order Amount To Date	Increase

## Construction Contingency

Calculations below are project wide. Remaining negative Construction Contingency may require the submission of a revised BG1.

Current Approved Amount	\$587,488.70
Net Approved COs	\$0.00
Remaining After Approved COs	\$587,488.70
Net All COs	\$420,968.75
Remaining After All COs	\$166,519.95

This Requested Change Order Amount \$5,035.00

+/-

Change In A/E Fee This Change Order \$276.93

+/-

Change In CM Fee This Change Order \$100.70

+/-

Remaining Construction Contingency

Balance

Contract Change Requested By Local Board of Education

Contract Change Reason Code Expansion of Scope

Change Order Description And Justification

PR #9 - Changes in the gym lobby and adjacent ticket booth which shall become a Concessions area. Refer to

Drawings PR9.1 and PR9.2 and MEP - PR9 Mechanical, PR9 Electrical. Extended schedule 20 working days or 28 calendar days

Cost Benefit To Owner

Expansion of scope

Contract unit prices have been utilized No  
to support the cost associated with this  
change order.

Detailed Cost Breakdown

Contract unit prices have not been utilized, provide a detailed cost breakdown which  
separates labor, material, profit and overhead.

Detail Item	Amount	Percent of Total
Labor	\$4,280.00	85.00%
Materials	\$755.00	15.00%
Profit and Overhead		0.00%
Bond Insurance		0.00%
Cost Breakdown Total:	\$5,035.00	
Cost for this Change Order supported by an alternate bid or competitive price quote		
Explain Why		

**Change Order Supplemental Information Form Signature  
Page (Online Form Ref# 56037)**

_____ Architect	_____ Date
_____ Construction Manager	_____ Date
_____ Finance Officer	_____ Date
_____ Local Board of Education Designee	_____ Date



# AIA<sup>®</sup> Document G701/CMa<sup>™</sup> – 1992

## Change Order - Construction Manager-Adviser Edition

OWNER ☒  
 CONSTRUCTION MANAGER ☐  
 ARCHITECT ☐  
 CONTRACTOR ☐  
 FIELD ☐  
 OTHER ☐

**PROJECT** (Name and address):  
 ESTILL COUNTY HIGH SCHOOL PHASE 7  
 RENOVATIONS  
 495 ENGINEER DRIVE  
 IRVINE KY 40336

**CHANGE ORDER NUMBER:** 8-1  
**INITIATION DATE:** 2/15/2022

**TO CONTRACTOR** (Name and address):  
 BASTIN PAINTING, INC.  
 P.O.BOX 1692  
 319 N. 3RD STREET  
 DANVILLE KY 40422

**PROJECT NUMBERS:** CMA-KDE-000742 / 21-055  
**CONTRACT DATE:** 7/26/2021  
**CONTRACT FOR:** BID PACKAGE #008 PAINTING

### THE CONTRACT IS CHANGED AS FOLLOWS:

PR #9 - CHANGES IN THE GYM LOBBY AND ADJACENT TICKET BOOTH WHICH SHALL BECOME A CONCESSIONS AREA.  
 REFER TO  
 DRAWINGS PR9.1 AND PR9.2 AND MEP - PR9 MECHANICAL, PR9 ELECTRICAL. \$5,035

The original Contract Sum was	\$80,885.00
Net change by previously authorized Change Orders	\$0.00
The Contract Sum prior to this Change Order was	\$80,885.00
The Contract Sum will be increased by this Change Order in the amount of	\$5,035.00
The new Contract Sum including this Change Order will be	\$85,920.00

The Contract Time will be increased by 20 days.  
 The date of Substantial Completion as of the date of this Change Order therefore is 9/26/2022

### NOT VALID UNTIL SIGNED BY THE CONTRACTOR AND CONSTRUCTION MANAGER.

Codell Construction

**CONSTRUCTION MANAGER** (Firm Name)

4475 Rockwell Rd., Winchester, KY 40392

**ADDRESS**

**BY** (Signature)

(Typed Name)

**DATE:**

BASTIN PAINTING, INC.

**CONTRACTOR** (Firm Name)

P.O.BOX 1692 319 N. 3rd Street DANVILLE, KY 40422

**ADDRESS**

**BY** (Signature)

(Typed Name)

**DATE:**

ROSS-TARRANT ARCHITECTS INC

**ARCHITECT** (Firm Name)

101 OLD LAFAYETTE AVE LEXINGTON, KY 40502

**ADDRESS**

**BY** (Signature)

(Typed Name)

**DATE:**

ESTILL COUNTY BOARD OF EDUCATION

**OWNER** (Firm Name)

253 MAIN STREET IRVINE, KY 40336

**ADDRESS**

**BY** (Signature)

(Typed Name)

**DATE:**



# Change Order Proposal Transmittal

RossTarrant Architects | 101 Old Lafayette Ave Lexington KY 40502 United States

PROJECT: Estill County HS Phase 7 Renovations 2025 DATE SENT: 2/14/2022

SUBJECT: Revised Change Order Review For PR #9 CHANGE ORDER PROPOSAL ID: COP 14 (PR 9)r01

TYPE: Change Order Proposal TRANSMITTAL ID: 00663

PURPOSE: Reviewed VIA: Info Exchange

TOTAL AMOUNT: \$257,022.93

TOTAL DAYS: 20

## FROM

NAME	COMPANY	EMAIL	PHONE
Jonathan Ruiz	RossTarrant Architects	jruiz@rosstarrant.com	859-254-4018

## TO

NAME	COMPANY	EMAIL	PHONE
Jack Reed	Codell Construction Company	jreed@codellconstruction.com	859.744.2222

REMARKS: The Design Team has reviewed the revised price and find it acceptable to forward to the Owner.

## DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NUMBER	SCALE	SIZE	NOTES
1	2/14/2022	Proposal Request- PR #9 Gym Lobby - Concessions Stand Renovations (CMAKDE000742, #0009).pdf				

COPIES:

# Change Order Proposal Transmittal

DATE: 2/14/2022  
ID: 00663

Kenny Davis  
Peter Fisher  
Katie Cervenec

(Codell Construction Company)  
(RossTarrant Architects)  
(RossTarrant Architects)



## ESTILL COUNTY HIGH SCHOOL PHASE 7 RENOVATIONS CHANGE ORDER REVIEW

**To:** ROSS-TARRANT ARCHITECTS **From:** Jackalee Reed  
INC

**Attn:** ROSS-TARRANT ARCHITECTS INC **CC:** Kenny G. Davis Jr.

**Re:** PR #9 **Date:** 12/14/2021

**Attachments:**

- BID PACKAGE #013 ELECTRICAL RFQ re:00009, PR #9
- BID PACKAGE #008 PAINTING RFQ re:00009, PR #9
- CMA-KDE-000742 Change Order Review Form 0009.docx
- BID PACKAGE #009 VCT RFQ re:00009, PR #9
- BID PACKAGE #007 WINDOWS RFQ re:00009, PR #9
- BID PACKAGE #010 TILING RFQ re:00009, PR #9
- PR #9 Gym Lobby Concessions Stand Renovations.pdf
- BID PACKAGE #015 COMBINATION OF BP2-GENERAL TRADES & BP6-DRYWALL/CEILINGS RFQ

I have reviewed and approved the attached pricing. Your approval and signature is required in order to process this change order. Please review the pricing and sign below if it is acceptable.

**PR #9**

Contractor	BP#	Pricing
STANDAER BUILDERS, INC.	001	\$0.00
CARMICLE MASONRY	003	\$0.00
KALKREUTH ROOFING & SHEET METAL	005	\$0.00
LAKE CUMBERLAND GLASS	007	\$40,515.00
BASTIN PAINTING, INC.	008	\$5,035.00
CDI FLOORING	009	\$10,279.00
AMERICAN TILE COMPANY, INC.	010	\$3,550.00
TOADVINE ENTERPRISES	011	\$0.00

C&C INDUSTRIAL, LLC	012	\$0.00
BABCON, INC.	013	\$21,672.08
RISING SUN DEVELOPING, INC.	015	\$175,971.85
		\$0.00

**Total Amount:    \$257,022.93       20 days**

\_\_\_\_\_ **ROSS-TARRANT ARCHITECTS INC**

\_\_\_\_\_ ***Date***

Codell Construction Company,  
**Jackalee Reed**  
(859) 644-0200jreed@codellconstruction.com





# Proposal Request Transmittal

RossTarrant Architects | 101 Old Lafayette Ave Lexington KY 40502 United States

PROJECT: Estill County HS Phase 7 Renovations 2025      DATE SENT: 12/13/2021

SUBJECT: PR 09 - Gym Lobby / Concessions Stand Renovations      PROPOSAL REQUEST ID: PR 09

TYPE: Proposal Request      TRANSMITTAL ID: 00525

PURPOSE: For Contractor's Pricing      VIA: Info Exchange

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FROM

NAME	COMPANY	EMAIL	PHONE
Jonathan Ruiz	RossTarrant Architects	jruiz@rosstarrant.com	859-254-4018

TO

NAME	COMPANY	EMAIL	PHONE
Jack Reed	Codell Construction Company	jreed@codellconstruction.com	859.744.2222

REMARKS: **This Owner Requested PR was originally issued on 12.7:**

Provide pricing for labor and materials to renovate the existing Gym Lobby and concessions as shown per attached drawings and corresponding specifications.

- Refer to all drawings, work scope spans the areas in the gym lobby and adjacent ticket booth which shall become a Concessions area. Drawings included:
  - Architectural - PR9.1 and PR9.2
  - MEP - PR9 Mechanical, PR9 Electrical
- Refer to base bid drawings and do not provide pricing for anything that was included in the base bid. This includes, but is not limited to:
  - Ceiling area in the gym lobby (note that it will be modified for PR9)
  - Demo of MEP items, refer to base bid drawings.
- Specifications for new items and new areas of work are included. For all areas that overlap in workmanship from the base bid, refer to base bid specifications. Specs included:  
064100, 084313, 087100, 090500 Finish Legend, 092116, 093000, 095113, 101424, 101424.1, 108316.

# Proposal Request Transmittal

DATE: 12/13/2021

ID: 00525

- The owner will take down and relocate all existing display cases.
- Provide the same manufacturers for materials for all items that are also included in the base bid of Phase 7.

Please submit an itemized quotation for changes in the Contract Sum and/or Time incidental to the proposed modifications to the Contract Documents as described. This is not a change order nor a direction to proceed with the work described herein.

## DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NUMBER	SCALE	SIZE	NOTES
1	11/23/2021	064100 Architectural Wood Casework - PR 9.pdf				
1	11/19/2021	084313 Aluminum-Framed Storefronts - PR 9 Display Case Doors.pdf				
1	11/19/2021	087100 Door Hardware - PR 9.pdf				
1	11/19/2021	092116 Gypsum Board Assemblies - PR 9.pdf				
1	11/19/2021	093000 Tiling - PR 9.pdf				
1	11/19/2021	095113 Acoustical Panel Ceilings - PR 9.pdf				
1	11/19/2021	101424 Signs - PR 9.pdf				
1	11/22/2021	101424.01 PR#9 Revised and Additional Room Identification Signage Schedule.pdf				
1	11/23/2021	108316 Banners.pdf				
1	12/6/2021	PR-9 Electrical.pdf				
1	12/6/2021	PR-9 Mechanical.pdf				
1	12/2/2021	PR9.1.pdf				
1	12/2/2021	PR9.2.pdf				

# Proposal Request Transmittal

DATE: 12/13/2021

ID: 00525

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COPIES:

Kenny Davis

(Codell Construction Company)

**SECTION 064100 - ARCHITECTURAL WOOD CASEWORK**

SPECIFICATION UPDATES FOR PR #9 ARE CLOUDED RED

**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. This Section includes the following:
  - 1. Interior standing and running trim (WT1) (WDC1)
  - 2. Plastic Laminate casework (HPL).
  - 3. Stainless steel countertops (SS1)
  - 4. Solid surface countertops (SF1)
  - 5. Plastic laminate countertops
  - 6. Display Cases (Custom): Refer to PR #9
  - 7. Display Cases: Premanufactured Refer to PR #9
- B. Fabric Covered Tackable Surfaces
- C. Cabinet hardware.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specification sections, apply to this Section.
  - 1. Section 012300 - Alternates: Refer to section for additional information.
  - 2. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions
  - 3. Section 061000 - Rough Carpentry: Support framing, grounds, and concealed blocking
  - 4. Division 6 Section "Miscellaneous Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation
  - 5. Section 090050 - Finish Legend
  - 6. Section 123550 - Institutional Casework (plastic laminate-faced wood cabinets of stock design)

**1.03 DEFINITIONS**

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.
- B. Exposed Portions of Cabinets: Surfaces visible when doors and drawers are closed, including bottoms of cabinets more than 48 inches (1220 mm) above floor, and surfaces visible in open cabinets. The bottom of wall cabinets are considered exposed and will receive **plastic laminate**.
- C. Semiexposed Portions of Cabinets: Surfaces behind opaque doors, such as interiors of cabinets, shelves, dividers, interiors and sides of drawers, and interior faces of doors. Tops of cases 78 inches (1980 mm) or more above floor are defined as semiexposed.
- D. Concealed Portions of Cabinets: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, and ends and backs that are placed directly against walls or other cabinets.

**1.04 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- B. AWI (QCP) - Quality Certification Program; current edition at [www.awiqcp.org](http://www.awiqcp.org).
- C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- D. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- E. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

- F. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.
- G. ANSI A208.1 - American National Standard for Particleboard; 2009.
- H. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2009.
- I. AWI (QCP) - Quality Certification Program; current edition at [www.awiqcp.org](http://www.awiqcp.org).
- J. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- K. AWMAC (GIS) - Guarantee and Inspection Services Program; current edition at [www.awmac.com/gis.php](http://www.awmac.com/gis.php).
- L. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- M. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2009.
- N. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

#### **1.05 SUBMITTALS**

- A. Samples for Verification: 6-inch- (150-mm-) square Samples for each type of finish, including top material and the following:
  - 1. Section of countertop showing top, front edge, and backsplash construction.
- B. Product Data: For each type of product indicated including cabinet hardware and accessories and finishing materials and processes.
- C. Product Data: For each type of product indicated.
- D. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- E. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
  - 1. Plastic laminates.
  - 2. Thermoset decorative overlays.
- F. Samples for Initial Selection: For cabinet finishes and for each type of top material indicated.
- G. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.
- H. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

#### **1.06 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Installer Qualifications: An authorized representative of institutional casework manufacturer for installation and maintenance of units required for this Project.
- D. Source Limitations: Obtain institutional casework through one source from a single manufacturer.
- E. Quality Standard: Build and install to AWI quality.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

**1.08 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
  - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

**1.09 COORDINATION**

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

**1.10 SEQUENCING AND SCHEDULING**

- A. Coordinate the work with all sections referencing this section.

**1.11 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
  - 1. Delamination of components or other failures of glue bond
  - 2. Warping of components.
  - 3. Failure of operating hardware.
  - 4. Deterioration of finishes.
- B. Warranty Period: Five years from date of Substantial Completion.

**1.12 FIELD CONDITIONS**

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

**PART 2 PRODUCTS****2.01 WOODWORK FABRICATORS**

- A. All manufacturing technique and components must comply with the contract specifications. The designer's selections will not be limited to those plastic laminate selections which are the standards of the casework manufacturer. The plastic laminate selections will be made from the laminate manufacturer(s) full range of colors, patterns and finishes.
- B. Multiple manufacturers of work of this section will not be accepted. Subject to compliance with requirements, interior architectural woodwork by one of the following include :

1. Accents in Wood, Inc.
2. Action Outfitters
3. Advantage Millwork
4. America's Finest Woodworking Team
5. Cabinets & Countertops, Inc.
6. Caseworks of Kentucky, Inc.
7. Cowart & Company
8. Cumberland Manufacturing
9. Custom Creations, Inc.
10. Euronique, Inc.
11. Interior Wood Specialties
12. Kentucky Caseworks
13. Kentucky Mill & Casework
14. Leininger Cabinets
15. Louisville Lumber
16. LSI Corporation, Inc.
17. Morgan Smith Industries
18. Reynolds & Doyle, Inc.
19. Riverside Mill
20. Smith's Laminating
21. Southern Cabinetry, Inc.
22. SSC Casework & Millwork
23. Stevens Industries, Inc.
24. Stidham Cabinets
25. Tate Ornamental
26. TMi/Trimline
27. US Millwork
28. Wood Concepts
29. Custom cabinetry companies whose products meet or exceed the project specifications as approved by written addendum.

- C. Refer to the drawings for premium laminate and/or decorative metal laminate locations.

## 2.02 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species for Opaque Finish: Any closed-grain hardwood.
- C. Wood Products: Comply with the following:
1. Hardboard: AHA A135.4.
  2. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
  3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
  4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
  5. Hardwood Plywood and Face Veneers: HPVA HP-1.
  6. Exposed Plywood: Hardwood plywood, selected for compatible color and grain. Grade AA exposed faces at least 1/50 inch (0.5 mm) thick, and Grade J crossbands. Provide both faces of same species.
  7. Semiexposed Plywood: Hardwood plywood of same species as exposed plywood. Semiexposed backs of plywood with exposed faces shall be same species as faces. Grade B faces and Grade J crossbands.
- D. Thermoset Decorative Overlay: Particleboard complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
  - 1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
    - a. Arborite
    - b. Formica Corporation
    - c. Nevamar
    - d. Wilsonart
- F. Exposed Cabinet Materials:
  - 1. Plastic Laminate: Type VGS.
    - a. Unless otherwise indicated, provide plastic laminate for exposed surfaces.
    - b. Provide plastic laminate for doors and drawer fronts and where indicated.
- G. Semiexposed Cabinet Materials:
  - 1. Plastic Laminate: Type CLS.
    - a. Provide plastic laminate for interior faces of doors and drawer fronts [only/and] where indicated.
  - 2. Melamine-Faced Particleboard: Particleboard with decorative surface of thermally fused, melamine-impregnated web and complying with LMA SAT-1.
    - a. Provide melamine-faced particleboard for semiexposed surfaces, unless otherwise indicated.
  - 3. Cabinets with glass doors: Provide plastic laminate within the cabinet to match the exterior of the cabinet unless shown otherwise on the drawings.
- H. Concealed Cabinet Materials:
  - 1. Solid Wood: Any hardwood or softwood species, with no defects affecting strength or utility.
  - 2. Plywood: Hardwood plywood. Concealed backs of plywood with exposed or semiexposed faces shall be same species as faces.
  - 3. Plastic Laminate: Type BKL.
- I. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI Z124.3, for Type 5 or Type 6, without a precoated finish.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Avonite; Avonite, Inc.
    - b. Corian; DuPont Polymers
    - c. Fountainhead; International Paper, Decorative Products Div.
    - d. Gibraltar
    - e. LG Surfaces
    - f. Surell; Formica Corporation
  - 2. Price Group: Based on selections from Corian provide price group A, B, & C.
- J. Fabric-Covered Tackable Surfaces: Dimensionally stable 6-7 PCF glass fiberboard with resin hardened edge 3/4" thick with a fabric covering equivalent to Guilford of Maine.

### 2.03 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware (Scheduled by Describing Products)." Refer to the drawings for additional hardware components.
- B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.



- C. Hinges: Provide five knuckle, 2-3/4 inch, overlay type, hospital tip, 0.95 inch thick steel. Hinges shall have a minimum of eight (8) edge and leaf fastening. Doors 48 inches and over in height shall have three (3) hinges per door.
  - D. Pulls: Pulls as standard shall be surface mounted solid aluminum.
  - E. Catches: Roller catches, BHMA A156.9, B03071.
  - F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081 or BHMA A156.9, B04102; with shelf brackets, B04112. Shelf standards and supports shall be equal to Knappe and Vogt 182 decorative heavy duty bracket and standards.
  - G. Shelf Rests: BHMA A156.9, B04013.
  - H. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
    - 1. Box Drawer Slides: 100 lbf (440 N)
    - 2. File Drawer Slides: 150 lbf (670 N)
    - 3. Pencil Drawer Slides: 45 lbf (200 N)
  - I. File Drawer Frame System: Provide a metal file frame system in all file drawers equal to Rockler Woodworking & Hardware # 30976 with cut-to-size side rails, front & back rails, and side-to-side rail.
  - J. Locks: Locks for drawers and hinged doors, where specified, shall be heavy-duty, cylinder type with five disc tumblers and shall be keyed and master-keyed as specified. Locate as indicated on the drawings.
  - K. Grommets for Cable Passage through Countertops: 3-1/2-inch (51-mm) OD, molded-plastic grommets and matching plastic caps with slot for wire passage. Color to be selected by Designer.
    - 1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett and Co., Inc.
  - L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  - M. Countertop Support: Provide countertop supports equivalent to A & M Hardware, Inc. Workstation brackets, size brackets to suit installation.
  - N. Display Case Metal Shelving Standards: Provide metal shelving standards equal to KNAPE and VOGT 83 Series Heavy Duty with 182 Heavy Duty Brackets.
  - O. Glass Shelves: Provide 1/4" thick tempered glass shelves
  - P. Pre-manufactured display cases: Provide pre-manufactured display cases as manufactured by Waddell Display cases, Series 1400 with unframed sliding glass doors-Refer to Drawings, cases are 6'-0" high or 2'-0" depending on location. 3'-0" cases contain one row of glass shelving, 2'-0" cases have no shelving. Provide custom tackable back with Guilford of Maine Chase 2138 Color: Coin 1243.
- Finishes selections include white sides of the display case interior and satin natural frame finish.

## 2.04 INSTALLATION MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

**2.05 FABRICATION, GENERAL**

- A. Interior Woodwork Grade: Provide Custom grade interior woodwork complying with the referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.
- E. All wall and base cabinets over 3'-0" in width shall receive a vertical to prevent deflection.

**2.06 PLASTIC-LAMINATE CABINETS**

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Grade: Custom
- C. AWI Type of Cabinet Construction: Flush overlay
- D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: HGS
  - 2. Postformed Surfaces: HGP
  - 3. Vertical Surfaces: HGS
  - 4. Edges: Self edged plastic laminate
  - 5. Body Front Edging: HGS **(REFER TO 064100.01-ARCHITECTURAL WOOD CASEWORK ADDENDUM 2)**
- E. Materials for Semiexposed Surfaces: Provide surface materials indicated below:
- F. Box Drawers: ½" solid hardwood sides, dovetailed and glued. 1/4" five ply hardwood bottom, fitted into dado, glued and blocked into place. Equip with full extension drawer glides, including stops to prevent accidental removal.
- G. File Drawers: ½" solid hardwood sides, dovetailed and glued. ½" five ply hardwood bottom, fitted into dado, glued and blocked into place. Equip with full extension file drawer slides, 150 lb load capability, including stops to prevent accidental removal.
- H. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. Solid colors
  - 2. Wood grains
  - 3. Patterns
- I. Provide dust panels of 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.
- J. Wood grains and/or any laminate with a directional design shall all be applied to the cabinet face in one consistent direction.

**2.07 PLASTIC-LAMINATE COUNTERTOPS**

- A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops.
- B. Grade: Custom
- C. High-Pressure Decorative Laminate Grade: HGS
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. Solid colors
  - 2. Wood grains
  - 3. Patterns
- E. Plastic Laminate Countertops: Plastic laminate countertops shall be minimum 1-1/2" thick with horizontal grade plastic laminate on all exposed sides, including edges, back and endsplashes, underside shall have laminate backer sheet, all countertops shall be continuous.
  - 1. Provide 4" back and side splashes at all junctures of countertop and any vertical surface.
- F. Core Material: Particleboard made with exterior glue
- G. Core Material at Sinks: Exterior-grade plywood

**2.08 SOLID-SURFACING-MATERIAL COUNTERTOPS**

- A. Quality Standard: Comply with AWI Section 400 requirements for countertops.
- B. Grade: Custom
- C. Solid-Surfacing-Material Thickness: 1/2 inch (13 mm), unless shown otherwise on drawings
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
- E. Fabricate tops in one piece with field-applied backsplashes and edges, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.

**2.09 STAINLESS STEEL COUNTERTOPS**

- A. Stainless Steel Countertops: 304 stainless steel countertops 14 gauge with turned down aprons. Finish all exposed edges to be smooth and free of burs. Use exterior plywood or phenolic-resin-bonded particle board for substraight.

**2.10 FINISH FOR WOOD CASEWORK**

- A. Preparation: Sand lumber and plywood for institutional casework construction before assembling. Sand edges of doors and drawer fronts and molded shapes with profile-edge sander. Sand casework after assembling for uniform smoothness at least equivalent to that produced by 220-grit sanding and without machine marks, cross sanding, or other surface blemishes.
- B. Wood Colors and Finishes: Match Architect's samples.
- C. Staining: Remove fibers and dust and apply wash-coat sealer and stain to exposed and semiexposed surfaces as required to provide uniform color and to match approved samples.
- D. Finishing Closed-Grain Woods: Apply manufacturer's standard two-coat, baked, clear finish consisting of a thermosetting catalyzed sealer and a thermosetting catalyzed conversion varnish. Sand and wipe clean between applications of sealer and topcoat. Topcoat may be omitted on concealed surfaces.

## 2.11 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Locate counter butt joints minimum 2 feet from sink cut-outs.
  - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
  - 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- E. Mechanically fasten back splash to countertops as recommended by laminate manufacturer.
- F. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

## PART 3 EXECUTION (REFER TO 064100.01-ARCHITECTURAL WOOD CASEWORK ADDENDUM 2)

### 3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

### 3.02 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

### 3.03 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with recommendations of chemical treatment manufacturer, including those for adhesives used to install woodwork.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
  - 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c.

- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
  - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
  - 3. Caulk space between backsplash and wall with clear silicone.
- H. Refer to Division 9 Sections for final finishing of installed architectural woodwork.
- I. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- J. Use fixture attachments in concealed locations for wall mounted components.
- K. Use concealed joint fasteners to align and secure adjoining cabinet units.
- L. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- M. Secure cabinets to floor using appropriate angles and anchorages.
- N. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

#### **3.04 ADJUSTING AND CLEANING**

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.
- D. Adjust installed work; test installed work for rigidity and ability to support loads.
- E. Adjust moving or operating parts to function smoothly and correctly.

#### **3.05 CLEANING**

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION**

**SECTION 084313 - ALUMINUM-FRAMED STOREFRONTS****REFER TO FINAL SHEET FOR PR #9 SPEC UPDATE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Aluminum-framed storefront, with vision glass.
- B. Aluminum doors and frames.
- C. Weatherstripping.
- D. Perimeter sealant.
  - 1. Perimeter caulking at interior and exterior wall veneer/substrate.
  - 2. Perimeter expandable spray foam insulation to be installed between exterior veneer/substrate and wood storefront anchorage blocking at frame surround to prevent wall cavity air to infiltrate the back side of the storefront framing.

**1.02 RELATED REQUIREMENTS**

- A. Section 051200 - Structural Steel Framing: Steel attachment members.
- B. Section 055000 - Metal Fabrications: Steel attachment devices.
- C. Section 079005 - Joint Sealers: Perimeter sealant and back-up materials.
- D. Section 087100 - Door Hardware: Hardware items other than specified in this section.
- E. Section 088000 - Glazing: Glass and glazing accessories.

**1.03 REFERENCE STANDARDS**

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- D. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.
- E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.
- G. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- H. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- I. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).

**1.04 PERFORMANCE REQUIREMENTS**

- A. Design and size components to withstand the following load requirements without damage or permanent set, when tested in accordance with ASTM E 330, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
  - 1. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.

- B. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
- C. Air Infiltration: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E 283.
- D. Water Leakage: None, when measured in accordance with ASTM E 331 with a test pressure difference of 2.86 lbf/sq ft.
- E. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
- F. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

#### **1.05 SUBMITTALS**

- A. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, and internal drainage details .
- B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
- C. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.

#### **1.06 QUALITY ASSURANCE**

- A. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

#### **1.08 FIELD CONDITIONS**

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

#### **1.09 WARRANTY**

- A. General Contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total storefront system installation. Correct defective Work within a one year period after Date of Substantial Completion.
- B. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

- C. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, gloss reduction, chalking, or flaking.

## PART 2 PRODUCTS

REFER TO FINAL SHEET FOR PR #9 SPEC UPDATE

### 2.01 MANUFACTURERS

- A. Storefront: Subject to compliance with requirements, manufacturers offering the following products that may be incorporated into the work include:
1. Basis of Design: Design concept and the drawings indicate the size, profiles, dimensional requirements and aesthetics of the following:
    - a. Exterior Storefront: EFCO Series 403 Flush Glazed Thermal Screw Spline Storefront.
    - b. Interior Storefront: EFCO Series 402 Flush Glazed Non-Thermal Screw Spline Storefront with glazing adaptors.
    - c. Exterior Entrance Doors: EFCO Series D500 Wide Stile Entry Door.
    - d. Interior Entrance Doors: EFCO Series D500 Wide Stile Entry Doors.
  2. Products by other manufacturers (listed below) may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect:
    - a. Storefront:
      - 1) Apogee Enterprises, Inc./EFCO Corporation: [www.efcocorp.com](http://www.efcocorp.com)
      - 2) Graham Architectural Products: [www.grahamwindows.com](http://www.grahamwindows.com)
      - 3) Kawneer North America: [www.kawneer.com](http://www.kawneer.com).
      - 4) Manko Window Systems, Inc: [www.mankowindows.com](http://www.mankowindows.com).
      - 5) Oldcastle Building Envelope/Vistawall Architectural Products/CRL(C. R. Laurence)/United States Aluminum: [www.oldcastlebe.com](http://www.oldcastlebe.com).
      - 6) Peerless Products, Inc.: [www.peerless-usa.com](http://www.peerless-usa.com)
      - 7) YKK AP America Inc: [www.ykkap.com](http://www.ykkap.com).
      - 8) Trulite Glass and Aluminum Solutions: [www.trulite.com](http://www.trulite.com)
      - 9) Apogee Enterprises/Tubelite, Inc.: [www.tubeliteinc.com](http://www.tubeliteinc.com).
  3. Near - Zero Sightline Operable Vents: If the storefront manufacturers listed above do not single source zero sightline operable vents then products by other manufacturers (listed below) may be considered, provided the warranty, deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect:
    - a. Winco Window - 1150SF Series; 2 inch Heavy Commercial Near -Zero Sightline Thermally Improved Vent: [www.wincowindow.com](http://www.wincowindow.com)
    - b. DeSCo Architectural, Inc.: [www.descoarch.com](http://www.descoarch.com)

### 2.02 STOREFRONT

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
1. Glazing Position: Centered (front to back).
  2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.
  3. Air Infiltration Test Pressure Differential: 1.57 psf.
  4. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
  5. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
  6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.



7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
  8. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
  9. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- B. Performance Requirements:
1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
    - a. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
  2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.
  3. Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.
  4. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
  5. Air Infiltration: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at specified differential pressure across assembly in accordance with ASTM E283.
  6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
  7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

## 2.03 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
1. Framing members for interior applications need not be thermally broken.
  2. Glazing Stops: Flush.
- B. Doors: Glazed aluminum, wide stile.
1. Thickness: 1-3/4 inches.
  2. Top Rail: 5 inches wide, minimum.
  3. Vertical Stiles: 5 inches wide, minimum.
  4. Mid Rail: 6 inches wide, 5 inches minimum.
  5. Bottom Rail: 10 inches wide, minimum.
  6. Glazing Stops: Square.
    - a. Exterior Glazed Lights: Non-removable stops on non-secure side. Glazing pocket to accept a 7/8 inch total thickness insulated unit. Size stops in accordance with specified glass thickness. Refer to section 088000 - Glazing for glass requirements.
    - b. Interior Glazed Lights: Non-removable stops on non-secure side. Size stops and glazing pocket to accept 1/4 inch glass thickness. Refer to section 088000 - Glazing for glass requirements.
  7. Finish: Same as storefront framing.
- C. Sill Receptor, Sill Subframe and Sill Extension: Receptors, subframes and extensions are required for all exterior aluminum storefront system whether specifically shown/detailed on the architectural storefront details or required by the manufacturer to meet the aluminum storefront system warranty.
1. General: Receptors, extensions and subframes to be an extruded, thermally broken, aluminum, receiver type sill receptor or subframe with a minimum thickness of .063" as indicated on the drawings. Extensions to be extruded aluminum with a minimum thickness of

- .063" depth as indicated on the drawings. Assembly shall not require the use of exposed fasteners or rivets. All exposed to view edges shall be hemmed. Color and finish to match aluminum storefront frame.
2. Sill Receptor: Set receptor in a continuous bed of sealant to insure watertight seal with exterior wall components. Sill receptor shall return up the back of the storefront sill in the interior of the room and be one continuous piece the full depth of the storefront sill. Outside edge of sill receptor to have built-in drip edge. Provide receptor in one continuous piece the full width of the storefront opening. If storefront opening width exceeds the limits for one continuous piece receptor then provide a splice joint sealed with 4" wide, self-adhering flashing tape and sealant to provide a watertight splice per manufacturers requirements. Provide receptor with mechanically attached, end dams/caps that have been sealed with a self-adhering sheet product or sealant to provide a watertight condition.
    - a. Basis of Design: Design concept and the drawings indicate the size, profiles, dimensional requirements and aesthetics of the following:
      - 1) Sill Receptor: EFCO Corporation: 2G90 thermally broken sill receptor: [www.efcocorp.com](http://www.efcocorp.com).
      - 2) Self-Adhering Flashing Tape: W. R. Grace; Perma-Barrier Tape (EFCO Corporation; #WM01)
  3. Sill Extension: Slope for positive wash. Extension to attach to receptor without the need for exposed mechanical attachment or additional sealant. Extension to extend over the edge of the exterior veneer with a formed drip edge. Extension model number provided as the basis of design is for shape and basic design intent. Supplier/installer is to verify exact length of extension(s) required from the architectural storefront sill details. Distance of exterior face of storefront frame from the face of the exterior wall veneer may vary depending on exterior wall thickness and conditions.
    - a. Basis of Design: Design concept and the drawings indicate the size, profiles, dimensional requirements and aesthetics of the following:
      - 1) Sill Extension: EFCO Corporation: \_\_\_\_\_ sill extension: [www.efcocorp.com](http://www.efcocorp.com).
  4. Sill Subframe: Provide subframe, in addition to the sill receptor, at areas where the storefront is sitting on the interior concrete slab with flush exterior hard surface. Set subframe in a continuous bed of sealant to insure watertight seal with floor surface. Provide subframe in one continuous piece the full width of the storefront opening. If storefront opening width exceeds the limits for one continuous piece subframe then provide a splice joint sealed with 4" wide, self-adhering flashing tape and sealant to provide a watertight splice per manufacturers requirements. Provide subframe with mechanically attached, end dams/caps that have been sealed with a self-adhering sheet product or sealant to provide a watertight condition.
    - a. Basis of Design: Design concept and the drawings indicate the size, profiles, dimensional requirements and aesthetics of the following:
      - 1) Sill Subframe - EFCO: 1G64 thermally broken sill subframe: [www.efcocorp.com](http://www.efcocorp.com)
      - 2) Self-Adhering Flashing Tape: W. R. Grace; Perma-Barrier Tape (EFCO Corporation; #WM01)
  5. No field or shop fabricated brake metal sill receptors, subframes or extensions will be accepted.

## 2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum for Brake Metal: ASTM B209 (ASTM B209M). Minimum 0.040 gauge thickness. Prefinished sheet in color and gloss to match adjacent framing. Joints between brake metal and metal framing to be "hairline" in width. Provide "Z" clips to secure brake metal to metal framing. Provide sealant in all hairline joints, color to match adjacent framing color.

- C. Fasteners: Stainless steel.
- D. Perimeter Sealant: Type as specified in Section 079005.
- E. Glass: As specified in Section 088000.
- F. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

## **2.05 FINISHES**

- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.
- B. Touch-Up Materials: As recommended by coating manufacturer for field application.

## **2.06 HARDWARE**

- A. Other Door Hardware: As specified in Section 087100.
- B. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.
- C. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all doors.

## **2.07 FABRICATION**

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
- E. Arrange fasteners and attachments to conceal from view.
- F. Reinforce components internally for door hardware .
- G. Reinforce framing members for imposed loads.
- H. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.
  - 1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

### **3.02 INSTALLATION**

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.

- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
  - 1. Install perimeter expandable spray foam insulation between exterior veneer/substrate and wood storefront anchorage blocking at frame surround to prevent wall cavity air from infiltrating the back side of the storefront framing.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
- H. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- I. Provide expandable foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- J. Set thresholds in bed of sealant and secure.
- K. Install glass in accordance with Section 088000, using glazing method required to achieve performance criteria.
- L. Install perimeter sealant in accordance with Section 079005.
- M. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

### **3.03 TOLERANCES**

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

### **3.04 ADJUSTING**

- A. Adjust operating hardware and sash for smooth operation.

### **3.05 CLEANING**

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

### **END OF SECTION 084313**

**SECTION 084313 - DISPLAY CASE****PR #9 SPEC UPDATE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Display case system doors.

**1.02 RELATED REQUIREMENTS**

- A. Section 079005 - Joint Sealers: Perimeter sealant and back-up materials.

**1.03 REFERENCE STANDARDS**

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- D. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.

**1.04 SUBMITTALS**

- A. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass .
- B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

**1.07 WARRANTY**

- A. General Contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total storefront system installation. Correct defective Work within a one year period after Date of Substantial Completion.
- B. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, gloss reduction, chalking, or flaking.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- A. Display Case System Doors: Subject to compliance with requirements, manufacturers offering the following products that may be incorporated into the work include:
  - 1. Basis of Design: Design concept and the drawings indicate the size, profiles, dimensional requirements and aesthetics of the following:
    - a. C.R.Laurence/Blumcraft Series 1301-SM

2. Products by other manufacturers may be considered provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect:
  - a. DAMS Inc. Slimline Display Case: [www.damsinc.com](http://www.damsinc.com)
  - b. Equivalent submitted to Architect prior to issuance of last Addendum.

## **2.02 DISPLAY CASE SYSTEM DOORS**

- A. Door Information:
  1. Glass: 3/8 inch thick, clear fully tempered glass.
  2. Top and bottom rails: 1-1/4 inch square solid aluminum.
  3. Vertical edges of glass doors: Polished edges.
  4. Top and bottom pivot: AP-150 and BP-150 concealed and applied to framing of display case.
  5. Key cylinder lock: #7150 lever cam type lock recessed in face of bottom door rail. Strike plate DT-150 to be included.
  6. Sidelites: Glass and rails matching doors.
  7. Roller Catch: #593 recessed at top of door as detailed.
  8. Finish: Clear Anodized.
- B. Construction and Testing: Doors shall be completely built in manufacturer's factory with top and bottom members bonded to the glass under controlled procedures.

## **2.03 MATERIALS**

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Perimeter Sealant: Type as specified in Section 079005.

## **2.04 FINISHES**

- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.
- B. Touch-Up Materials: As recommended by coating manufacturer for field application.

## **2.05 FABRICATION**

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline.
- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Arrange fasteners and attachments to conceal from view.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

### **3.02 INSTALLATION**

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.

- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Install perimeter sealant in accordance with Section 079005.
- F. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

### **3.03 TOLERANCES**

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

### **3.04 ADJUSTING**

- A. Adjust operating hardware for smooth operation.

### **3.05 CLEANING**

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

**END OF SECTION 084313**

**SECTION 087100 - DOOR HARDWARE**

REFER TO FINAL SHEET FOR PR #9 FOR HARDWARE UPDATE

**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Commercial and electronic access control door hardware for the following new and existing swinging doors:
    - a. Aluminum.
    - b. Flush wood.
    - c. Hollow metal.
  - 2. **Electrified access control door hardware requiring electrical work and materials provided by the Electrical Contractor, and also, work and materials provided by the Access Control Installer. See Door Hardware Schedule and Door-Set Numbering Index (this Section) for hardware sets with the letter "E" in their prefix. See electrical specifications for additional electrical work and materials required.**
  - 3. **Extensive Retrofit Work:**
    - a. **requiring field survey of all of the openings by the Contract Hardware Supplier prior to the issuance of their Hardware Submittal to ensure proper fit-up and clearances of specified hardware with field conditions. No changes orders will be granted relative to these issues.**
    - b. **involving the replacement of existing items with the items specified in the hardware sets. When one item is replaced by another or an item is specified to be removed (such as a hasp and staple or slide bolt), it is required that the Contractor fill any exposed screw holes or voids in the door in a code compliant manner and finish that area in an aesthetically pleasing manner. Minor carpentry and locksmithing work is required for proper fit, function and aesthetics. See Retrofit Notes in the Hardware Sets with the letter "R" in their prefix for additional required retrofit work.**
    - c. **involving the salvaging of existing hardware to be turned over to the Owner. See Retrofit Notes in the Hardware Sets with the letter "R" in their prefix for required salvaging work.**
  - 4. **Low-energy ADA automatic door operators requiring electrical work and materials, and installation by AAADM certified installer.**
- B. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
  - 2. ICC/IBC - International Building Code.
  - 3. NFPA 70 - National Electrical Code.
  - 4. NFPA 80 - Fire Doors and Windows.
  - 5. NFPA 101 - Life Safety Code.
  - 6. NFPA 105 - Installation of Smoke Door Assemblies.
  - 7. KENTUCKY BUILDING CODE.
- C. Related Sections include the following:



1. Division 08 Section "Hollow Metal Doors and Frames" for door silencers provided as part of hollow-metal frames.
2. Division 08 Section "Aluminum-Framed Entrances and Storefronts" for weather seals provided as part of aluminum-framed entrance and storefront assemblies.
3. Electrical/Access Control/Security Sections.

### 1.3 ALTERNATE PRICING

- A. Provide alternate pricing (Alternate No. 10) to include the Owner's preferred hardware manufacturers and series as indicated below:
  1. Key Cylinders: Yale; high security; factory registry R79758; key to existing great grand master key system.
  2. Locksets: Yale PB5400LN cylindrical and PBxCN8800FL mortise lock series as indicated in the hardware sets.
  3. Exit Devices: Yale 7000 series.
  4. Rack & Pinion Closers: Norton 7500 series.

### 1.4 SUBMITTALS

- A. **Number of Submittals: All items listed in this section (except card readers) are to be included in one submittal prepared by one Supplier.**
- B. Product Data: Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- C. Shop Drawings: Details of electrified door hardware, indicating the following:
  1. **Factory-drawn Wiring Diagrams: Hardware submittals without these diagrams will be rejected without review. Power, signal, and control wiring. Include the following:**
    - a. System schematic.
    - b. Point-to-point wiring diagram identifying specific termination points for all electrified hardware items.
    - c. Riser diagrams indicating number of conductors and wire gauges required.
    - d. Elevation of each door indicating where items are located with respect to which side of opening, dimension above floor, and lateral and vertical distances from opening.
    - e. Product schematics.
  2. Detail interface between electrified door hardware and access control system.
  3. Operation Narrative: Describe the operation of doors controlled by electrified door hardware.
- D. Qualification Data:
  1. Finish Hardware Installers
    - a. Finish hardware, including electrified hardware, for wood, hollow metal, and aluminum doors to be installed by personnel trained and certified by the manufacturer of the product furnished.
    - b. Provide manufacturer's certificates for installer as part of Contractor's bid information. Failure to supply certificates may result in rejection of bid.
  2. Hardware Supplier
    - a. Established contract hardware firm which maintains and operates an office, display, and stock in project area and which is a factory authorized distributor of the lock being furnished.
    - b. Hardware scheduled and furnished by or under direct supervision an Architectural Hardware Consultant.

- c. All schedules submitted to the Architect for approval and job use must carry the signature and certified seal of this Architectural Hardware Consultant.
  - 3. Architectural Hardware Consultant
    - a. Currently certified by the Door and Hardware Institute.
    - b. Full-time employee of the Hardware Supplier or an individual having no contractual ties to any supplier/manufacture entity.
    - c. Available at reasonable times to Architect, Owner, and Contractor during course of work.
  - 4. Automatic Door Operator Supplier
    - a. Established automatic operator distribution and installation firm which maintains and operates an office, display, and stock in project area and which is a factory authorized distributor of the automatic operator being furnished.
    - b. Currently certified by AAADM to install both high and low energy automatic door operators.
    - c. All schedules submitted to the Architect for approval and job use must include copies of the distributors factory authorization to distribute and install their operators and AAADM certification to install both high and low energy automatic door operators.
- E. Maintenance Data: For each type of door hardware. Include final hardware schedule, keying schedule, riser diagrams, and point-to-point wiring diagrams in 3-ring binder, labeled on spine with project name and "Door Hardware".
- F. Warranty: Special warranty specified in this Section.
- G. Other Action Submittals:
- 1. Door Hardware Sets: Prepared by or under the supervision of a DHI certified Architectural Hardware Consultant, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final door hardware sets with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
    - a. **Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule"; other formats will be rejected without review. Double space entries, and number and date each page.**
    - b. **Numerical Sequence of Sets and Headings: Submittal headings shall be in exact order as hardware sets in specification: one heading only per set. Submittal set numbers shall relate to specification set numbers, ie. if three headings are required for Set 12 due to door width differences, then the heading numbers should be 12.1, 12.2, and 12.3 or employing similar linking logic.**
    - c. **Door Numbers: Identical to those used in the contract documents.**
    - d. Number of Copies: (5).
    - e. Content: Include the following information:
      - 1) Identification number, location, hand, fire rating, and material of each door and frame.
      - 2) Type, style, function, size, quantity, and finish of each door hardware item.
      - 3) Complete designations of every item required for each door or opening including name and manufacturer.
      - 4) Degree of opening for closer and overhead stop and holder installation.
      - 5) Keying information.
      - 6) Fastenings and other pertinent information.
      - 7) Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
      - 8) Explanation of abbreviations, symbols, and codes contained in schedule.
      - 9) Mounting locations for door hardware.
      - 10) **Notes included with specification hardware sets transcribed verbatim into submittal hardware sets.**
      - 11) Door and frame sizes and materials.

- 12) Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems.
    - a) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit.
  - 13) List of related door devices specified in other Sections for each door and frame.
- f. Submittal Sequence: Submit the final door hardware sets at earliest possible date, particularly where approval of the door hardware sets must precede fabrication of other work that is critical in Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the door hardware sets.
2. Keying Schedule: Prepared by or under the supervision of Architectural Hardware Consultant, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.

## 1.5 QUALITY ASSURANCE

- A. **Furnish proper hardware types and quantities for door function, hardware mounting and clearances, and to meet applicable codes. Bring discrepancies to the attention of the Architect a minimum of (10) days prior to bid date so that an addendum may be issued. No additional compensation will be allowed after bidding for hardware changes required for proper function, hardware mounting or clearances, or to meet codes.**
- B. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- C. Source Limitations: **All items listed in hardware sets are to be furnished by one supplier.** Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
  - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- D. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:
  - 1. NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 2. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 as follows:
    - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
    - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
      - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
      - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
    - c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
  - 3. NFPA 101: Comply with the following for means of egress doors:

- a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
  - b. Thresholds: Not more than 1/2 inch high.
- 4. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 (neutral pressure at 40" above sill) or UL-10C.
  - a. Test Pressure: Positive pressure labeling.
- E. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- G. Access Control Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Conference is to include representatives of the Owner, Architect, Contractor, CM if applicable, and Access Control (or Security) Supplier. Access control conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future access control system expansion.
  - 3. Requirements for access control storage of credentials and software.
  - 4. Assignment and distribution of permanent access control credentials, badging equipment, and software.
  - 5. Access control privilege assignments including doors, time schedules, users, user groups, special credential functions, etc.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Deliver hardware for aluminum doors to GC in timely manner so as not to delay fabrication of aluminum doors and frames. Balance of hardware may be delivered to GC at same time, packaged separately from aluminum door hardware, and may be billed as stored materials.**
- C. Tag each item or package separately with identification related to the final door hardware sets, and include basic installation instructions, templates, and necessary fasteners with each item or package.
- D. Deliver keys to Owner by registered mail or overnight package service. Obtain Owner's contact name and address from Architect.

## 1.7 COORDINATION

- A. Templates: Distribute door hardware templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Distribute templates in a timely manner so as not to delay suppliers. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

- B. Electrical System Roughing-in: Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system and detection devices, access control system, and security system.

## **1.8 WARRANTY**

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
  - 1. Ten years for mortise locks and latches.
  - 2. Five years for exit hardware.
  - 3. Ten years for manual door closers.
  - 4. Two years for electromechanical access control door hardware.
  - 5. Five years for motorized electric latch retraction exit devices.

## **1.9 MAINTENANCE SERVICE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Maintenance Service: Beginning at Substantial Completion, provide (6) months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door hardware operation. Provide parts and supplies same as those used in the manufacture and installation of original products.

## **PART 2 - PRODUCTS**

### **2.1 SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in this and door hardware sets indicated in Part 3 "Door Hardware Sets" Article.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.
- B. Designations: Requirements for design, grade, function, material, finish, size and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:

1. **Named Manufacturers' Products:** Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.
  2. **References to BHMA Standards:** In addition to other requirements in this section, provide products complying with or exceeding these standards and requirements for description, quality, and function.
- C. **Substitutions:** Requests for substitution and product approval for inclusive mechanical and electrified access control door hardware, in compliance with specifications, must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01 "Substitution Procedures". Approval of requests is at the discretion of the architect, owner, and their designated consultants.
- D. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. **Available Manufacturers:** Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include manufacturers specified.

## 2.2 BUTT HINGES, GENERAL

- A. **Quantity:** Provide the following, unless otherwise indicated:
1. **Two Hinges:** For doors with heights up to 60 inches (1524 mm).
  2. **Three Hinges:** For doors with heights 61 to 90 inches (1549 to 2286 mm).
  3. **Four Hinges:** For doors with heights 91 to 120 inches (2311 to 3048 mm).
  4. For doors with heights more than 120 inches (3048 mm), provide 4 hinges, plus 1 hinge for every 30 inches (750 mm) of door height greater than 120 inches (3048 mm).
- B. **Template Requirements:** Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- C. **Hinge Height, Width, and Weight:** Unless otherwise indicated, provide the following:
1. **Doors with Exit Devices or 3'6" or more in width:** 5" high, heavy-weight hinges.
  2. **Doors less than 3'6" in width:** 4-1/2" high, standard-weight hinges.
  3. **Width:** 4-1/2" heavy-weight, 4" standard-weight, unless proper clearance requires a different width.
  4. **Doors with Closers:** Ball-bearing hinges.
- D. **Hinge Base Metal:** Unless otherwise indicated, provide the following:
1. **Exterior and in-swinging restroom door hinges:** Stainless steel, with stainless-steel pin.
  2. **Balance of hinges:** Steel, with steel pin.
- E. **Hinge Options:** Provide the following:
1. **Nonremovable Pins:** Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for reverse bevel lockable doors.
  2. **Corners:** Square.
  3. **Number of knuckles:** Five.
- F. **Fasteners:** Comply with the following:
1. **Machine Screws:** For metal doors and frames. Install into drilled and tapped holes.
  2. **Wood Screws:** For wood doors and frames.

3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
4. Screws: Phillips flat-head. Finish screw heads to match surface of hinges.

G. Template Hinge Dimensions: BHMA A156.7.

H. Available Manufacturers:

1. Bommer Industries, Inc. (BI).
2. Hager Companies (HAG).
3. McKinney Products Company; an ASSA ABLOY Group company (MCK).
4. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
5. PBB, Inc. (PBB)

## **2.3 CONTINUOUS HINGES**

A. Provide hinge of general series as indicated in hardware sets and of proper shape and model to suit door and frame configuration.

B. Continuous, Pinless-Type Hinges: Extruded-aluminum, pinless, hinge leaves; with concealed, self-lubricating thrust bearings.

1. Available Manufacturers:

- a. Hager Companies (HAG).
- b. IVES Hardware; an Allegion Company (IVS).
- c. McKinney Products Company; an ASSA ABLOY Group company (MCK).
- d. Architectural Builders Hardware (ABH).
- e. Pemko Manufacturing Co. (PEM).
- f. Select Products Limited (SEL).
- g. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
- h. Zero International (ZRO).

## **2.4 ELECTRIC STRIKES**

A. Surface Mounted Rim Panic Electric Strikes: Surface mounted rim exit device electric strikes conforming to ANSI/BHMA A156.31, Grade 1, and UL Listed for both Burglary Resistance and for use on fire rated door assemblies. Construction includes internally mounted solenoid with two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Strikes tested for a minimum of 500,000 operating cycles. Provide strikes with 12 or 24 VDC capability supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike. Strike requires no cutting to the jamb prior to installation.

1. Acceptable Manufacturers:

- a. HES (HES) - 9500/9600 Series.
- b. Trine (TRN) - 4850 Series.
- c. Von Duprin (VON) - 6300 Series.

B. Provide electric strikes with in-line (MOV) surge suppressors.

C. Provide strikes mounted on mullions with Molex type connectors to facilitate mullion removal and replacement.

## 2.5 MAGNETIC LOCKS

- A. Surface Mounted Electromagnetic Locks: Electromagnetic locks to be heavy duty, surface mounted type conforming to ANSI A156.23, Grade 1 with a minimum holding force strength per the model specified; all features per model specified. Locks to be capable of either 12 or 24 voltage and be UL listed for use on fire rated door assemblies. Electronics are to be fully sealed against tampering and allow exterior weatherproof applications. **Provide mounting brackets and spacers as required for proper mounting considering the door and frame conditions.**
1. Acceptable Manufacturers::
    - a. Security Door Controls (SDC).
    - b. Securitron Door Controls (SEC).
    - c. Dortronix (DOR).
    - d. Architectural Control Systems (ACS).
    - e. Dynalock (DYN).

## 2.6 ELECTRONIC ACCESSORIES

- A. Push-Button Stations: Industrial grade momentary DPDT pushbuttons and toggle-switch maintained DPDT contacts. Brushed aluminum or stainless steel under-the-desk-mount switch enclosures. 12/24 VDC bi-color illumination.
1. Acceptable Manufacturers:
    - a. Deltrex USA (DTX).
    - b. Dortronics (DOR).
- B. Electronic Power Transfers:
1. Concealed: For new doors and frames, concealed when door is closed. All metal construction, cast housing with steel backboxes, two universal joints and rigid tubing. Acceptable Manufacturers:
    - a. Security Door Controls (SDC).
    - b. Securitron Door Controls (SEC).
    - c. Architectural Builders Hardware (ABH).
    - d. Hager (HAG).
    - e. Von Duprin (VON).
- C. Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
1. Acceptable Manufacturers:
    - a. Security Door Controls (SDC).
    - b. Securitron Door Controls (SEC).
    - c. Dortronics (DOR).
    - d. Architectural Control Systems (ACS).



## 2.7 LOCKS AND LATCHES, GENERAL

- A. Accessibility Requirements: Where indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22 N).
- B. Latches and Locks for Means of Egress Doors: Comply with NFPA 101. Latches shall not require more than 15 lbf (67 N) to release the latch. Locks shall not require use of a key, tool, or special knowledge for operation.
- C. Electrified Locking Devices: BHMA A156.25. Equal in all characteristics to model specified.
  - 1. Available Manufacturers:
    - a. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company (CR).
    - b. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SGT).
    - c. Yale (YAL).
- D. Lock Trim:
  - 1. Levers: Cast.
    - a. Yale PB forged model with full smooth return.
  - 2. Roses: Forged.
    - a. Yale R model.
  - 3. Lockset Designs: Provide design indicated in hardware sets, or, if sets are provided by another manufacturer, provide designs that match those designated.
- E. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum 1/2-inch (13-mm) latchbolt throw.
  - 2. Mortise Locks: Minimum 3/4-inch (19-mm) latchbolt throw.
  - 3. Deadbolts: Minimum 1-inch (25-mm) bolt throw.
- F. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
- G. Strikes: Manufacturer's standard strike with strike box for each latchbolt or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, and as follows:
  - 1. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 2. Strikes for Mortise Locks and Latches: BHMA A156.13.
  - 3. Strikes for Auxiliary Deadlocks: BHMA A156.5.

## 2.8 MECHANICAL LOCKS AND LATCHES

- A. Lock Types: Provide mortise or bored locks as indicated by model number in the Hardware Schedule.
- B. Lock Functions: Function numbers and descriptions indicated in door hardware sets comply with the following:
  - 1. Bored Locks: BHMA A156.2.
  - 2. Mortise Locks: BHMA A156.13.

- C. Bored Locks: BHMA A156.2 Grade 1.
  - 1. Available Manufacturers:
    - a. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company (C-R).
    - b. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SAR).
    - c. Yale Commercial Locks and Hardware; an ASSA ABLOY Group company (YAL).
- D. Mortise Locks: Stamped steel case with steel or brass parts; BHMA A156.13 Grade 1.
  - 1. Available Manufacturers:
    - a. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company (C-R).
    - b. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SGT).
    - c. Yale (YAL).
- E. Compatibility with Key Cylinders: fully warranted for use with key cylinder furnished.

## **2.9 EXIT DEVICES**

- A. Exit Devices: BHMA A156.3, Grade 1.
- B. Accessibility Requirements: Where handles, pulls, latches, locks, and other operating devices are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22 N).
- C. Exit Devices for Means of Egress Doors: Comply with NFPA 101. Exit devices shall not require more than 15 lbf (67 N) to release the latch. Locks shall not require use of a key, tool, or special knowledge for operation.
- D. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
- E. Fire Exit Devices: Devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.
- F. Removable Mullions
  - 1. BHMA A156.3.
  - 2. Key removable.
  - 3. Provide head cap spacers, angle brackets, and other mounting accessories as needed for proper mounting, and anchoring and support of screws, as needed for top jamb configuration.
  - 4. Provide mullion stabilizer sets for mullions at exterior openings.
- G. Outside Trim: As specified in hardware sets; material and finish to match locksets, unless otherwise indicated.
  - 1. Match design for locksets and latchsets, unless otherwise indicated.
- H. Fasteners. Manufacturer's standard, except furnish sex bolts for attachments to doors.

I. Shims: Provide shims if needed for clearance.

J. Available Manufacturers:

1. Detex, Inc. (DTX)
2. Corbin-Russwin (C-R).
3. Yale (YAL).

## **2.10 AUXILIARY LOCKS AND LATCHES**

A. Auxiliary Locks: BHMA A156.5, Grade 1.

1. Available Manufacturers:

- a. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SAR).
- b. Yale Commercial Locks and Hardware; an ASSA ABLOY Group company (YAL).
- c. Equal approved prior to bid who can manufacturer small-case public toilet function deadbolts.

## **2.11 DOOR BOLTS**

A. Bolt Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Mortise Flush Bolts: Minimum 3/4-inch (19-mm) throw.

B. Manual Flush Bolts: BHMA A156.16, Grade 1; designed for mortising into door edge.

1. Available Manufacturers:

- a. Door Controls International (DCI).
- b. Glynn-Johnson; an Allegion Company (GLY).
- c. Hager Companies (HAG).
- d. IVES Hardware; an Allegion Company (IVE).
- e. McKinney Products Company; an ASSA ABLOY Group company (MCK).
- f. Rockwood Manufacturing Company (ROC).

## **2.12 KEY CYLINDERS**

A. Cylinders: Provide cylinders for all devices requiring key cylinders to properly function: constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:

1. Number of Pins: Seven as directed by Owner.
2. Keyway: Yale high security as directed by Owner for locking devices.
3. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
4. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

B. Construction Keying: Comply with the following:

1. Construction Master Keys: Provide temporary complete mortise cylinders for exterior door locks plus 4 extra. Provide 6 construction master keys. Replace construction cylinders with permanent cylinders as directed by Owner.

C. Supplemental Items: Provide cylinder spacers, collars, and correct cams as needed for proper function of locking devices.

D. Available Manufacturers:

1. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company (CR).
2. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SGT).
3. Yale Commercial Locks and Hardware; an ASSA ABLOY Group company (YAL).

## 2.13 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference, and as follows:

1. Existing Systems: Master key or grand master key locks to Owner's existing systems as directed by Owner at the keying conference.

B. Keys: Nickel silver.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
  - a. Notation: "DO NOT DUPLICATE."
2. Quantity: Provide the following:
  - a. Cylinder Change Keys: Three per cylinder.
  - b. Master Keys: Six per master.
  - c. Grand Master Keys: Six.
  - d. Great-Grand Master Keys: Five.

## 2.14 KEY CONTROL SYSTEM

A. Key Control Cabinet: BHMA A156.5, Grade 1; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, 2 sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of 150 percent of the number of locks.

1. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.
2. Locate and mount per direction of Architect.

B. Cross-Index System: Multiple-index system for recording key information. Include three receipt forms for each key-holding hook.

1. Available Manufacturers:
  - a. Lund Equipment Co., Inc. (LUN).
  - b. MMF Industries (MMF).
  - c. Telkee; a division of Sunroc Corporation (TEL).

## 2.15 FIRE DEPARTMENT KEY BOX

A. Provide (1) fully recessed hinged fire department key box.

1. Basis of specification: Knox-Box Model 3200 x RMK x Aluminization x Black.
2. Available Manufacturers:
  - a. Knox Company.

- b. Approved equal.

- B. Locate in exterior wall as directed by Architect.

## **2.16 OPERATING TRIM**

- A. Materials: Fabricate from stainless steel, unless otherwise indicated.
- B. Dimensions: All dimensions, shapes, fasteners, and other properties identical to models specified in hardware sets.
- C. Push Plates:
  - 1. 0.125" thick, Type 304 solid stainless steel, 4" or 8" wide as indicated by model number in hardware sets, 16" high (unless stile width requires different width or specified differently in the hardware sets), heavy bevel all (4) edges, 3/8" radius rounded corners, factory prepped for key cylinders and thumb-turns as required.
  - 2. Dimensions:
    - a. Top of plate to horizontal centerline of key cylinder: 5".
    - b. Horizontal centerline of key cylinder to horizontal centerline of thumb-turn: as required per dimension of lock model.
    - c. Lock-side edge of plate to vertical centerline of key cylinder: 2".
- D. Pull Plates:
  - 1. Plate: 0.050" thick, 4" wide x 16" high (unless stile width requires different width), bevel all (4) edges, 3/8" radius rounded corners, factory prepped for key cylinders and thumb-turns as required.
  - 2. Grip: 1" wide, 8" CTC, Type 304 solid stainless steel, half-moon profile.
  - 3. Dimensions:
    - a. Top of plate to horizontal centerline of key cylinder: 2".
    - b. Horizontal centerline of key cylinder to horizontal centerline of thumb-turn: as required per dimension of lock model.
    - c. Edge of plate to vertical centerline of key cylinder and grip: 2".
    - d. Top of plate to horizontal centerline of grip: 10".
- E. Available Manufacturers:
  - 1. Hager Companies (HAG).
  - 2. Hiawatha (HIW).
  - 3. Burns (BRN).
  - 4. IVES Hardware; an Allegion Company (IVE).
  - 5. Rockwood Manufacturing Company (ROC).
  - 6. Trimco (TRI).
  - 7. Don-Jo (DJO).

## **2.17 SURFACE CLOSERS**

- A. Accessibility Requirements: Where handles, pulls, latches, locks, and other operating devices are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- 1. Comply with the following maximum opening-force requirements:
  - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.

- b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
- B. Door Closers for Means of Egress Doors: Comply with NFPA 101. Door closers shall not require more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.
- C. Fasteners: Manufacturer's standard for arms, shoes and brackets. Six bolts for fastening closers to doors.
- D. Mounting Accessories: Provide shoes, brackets, drop plates, spacers, etc., as needed for proper mounting of closers and arms to door and frame.
- E. Spring Size of Units: Provide field-sizable closers, adjustable for spring sizes 1-6, plus 50% extra spring power at spring size 6, to meet field conditions and requirements for opening force.
- F. Cylinders: 1-1/2" minimum diameter; cast iron or high-silicon alloy aluminum.
- G. Mounting Configuration: Unless otherwise indicated by model number in the hardware sets:
  - 1. Do not furnish closers capable of being mounted on the corridor side of doors.
  - 2. Do not furnish regular arm closers in areas accessible to students.
  - 3. If tri-pack closers are furnished for regular arm applications, remove parallel arm shoe from closer box before delivering to job.
  - 4. Parallel Arm closers are to be manufacturer's double forged rigid models.
- H. Available Manufacturers and Series for Rack and Pinion Surface Closers:
  - 1. LCN Closers; an Allegion Company (LCN): 4040XP series.
  - 2. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SGT): 281 series.
  - 3. Norton 7500 series (NOR).

## 2.18 AUTOMATIC DOOR OPERATORS

- A. **Standard: Set up operator to comply with Low Energy BHMA A156.19 standard. Operator shall also be capable of complying with High Energy BHMA A156.10 standard with no additional equipment required other than safety sensors.**
- B. Performance Requirements:
  - 1. Not more than 15 lbf (67 N applied) 1 inch (25 mm) from latch edge of door to prevent stopped door from opening or closing.
  - 2. If power fails, not more than 30 lbf (133 N applied) 1 inch (25 mm) from latch edge of door to manually set door in motion.
  - 3. **Warranted for use on out-swinging exterior doors with the use of a supplemental stop.**
- C. Operation: Power opening and spring closing; **power closing to get door latched when encountering resistance.** When not in automatic mode, door operator shall function as manual door closer, with or without electrical power.
- D. Operating System: Electromechanical.
- E. Microprocessor Control Unit: Solid-state controls.
- F. Features:
  - 1. Adjustable opening and closing speed.

2. Adjustable opening and closing force.
3. Adjustable backcheck.
4. Adjustable latch speed.
5. Adjustable hold-open time of not less than 0 to 30 seconds.
6. Adjustable time delay.
7. Adjustable acceleration.
8. Obstruction recycle.
9. **Provide lock interface relay when not specified as part of locking device power supply.**

G. Mounting: Surface mounted to top jamb.

H. Mounting Accessories: Provide shoes, brackets, drop plates, spacers, etc., as needed for proper mounting of operators and arms to door and frame.

I. Actuators:

1. Wall Push-Plate Switch: Semiflush, wall-mounted, door control switch; of material, size, and shape indicated; mounted in recessed junction box. Provide engraved message as indicated.
2. Material: Stainless steel.
3. Message: International symbol of accessibility and "Push to Open."
4. Available Manufacturers for Actuators:
  - a. BEA (BEA).
  - b. Wikk Industries.

J. Automatic Door Operator Signage:

1. Comply with BHMA A156.19.
2. Consult Architect before applying signage to door.

K. Available manufacturers for Automatic Door Operators:

1. LCN Closers; an Allegion Company (LCN); Senior Swing series.
2. Stanley Commercial Hardware; Div. of The Stanley Works (STH); M-Force series.
3. Besam SW200i series (BSM).

## 2.19 PROTECTIVE TRIM UNITS

A. Size:

1. Width
  - a. Singles, and pairs with removable mullions or surface applied astragals: 2 inches (38 mm) less than door width on push side and 1 inch (13 mm) less than door width on pull side
  - b. Other pairs: 1 inch (13 mm) less than door width
2. Height: as specified in door hardware sets; or, if constrained by door bottom rail height, 1" less bottom rail height.

B. Fasteners: Manufacturer's machine or self-tapping countersunk screws.

C. Metal Protective Trim Units: BHMA A156.6; beveled 4 sides; fabricated from 0.050-inch- (1.3-mm-) thick stainless steel.

D. Available Manufacturers:

1. Hager Companies (HAG).
2. IVES Hardware; an Allegion Company (IVS).

3. Hiawatha (HIW).
4. Burns (BRN).
5. Rockwood Manufacturing Company (RM).
6. Trimco (TBM).

## 2.20 MECHANICAL WALL STOPS AND HOLDERS

- A. Stops and Bumpers: BHMA A156.16, Grade 1.
  1. Provide wall stops for doors unless floor, overhead, or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Provide floor stops (and spacers if needed) of proper height and configuration to accommodate floor condition. Where floor or wall stops are not appropriate, provide overhead holders.
  2. Properties. Cast construction with fastener suitable for wall or floor condition.
  3. Available Manufacturers:
    - a. Hager Companies (HAG).
    - b. IVES Hardware; an Allegion Company (IVS).
    - c. Hiawatha (HIW).
    - d. Burns (BRN).
    - e. Rockwood Manufacturing Company (RM).
    - f. Trimco (TBM).
- B. Wall and Floor mounted Combination Door Stops and Holders: BHMA A156.16, Grade 1.
  1. Properties: Heavy cast with adjustable holding force, self-compensating for changes up to ¼" in vertical door position. **Provide flush spacers finished to match adjoining substrates for clearance as needed.**
  2. Manufacturer and Model: Trimco 1283.

## 2.21 OVERHEAD STOPS AND HOLDERS

- A. BHMA A156.8, Grade 1. Template for maximum degree of opening before encountering obstruction.
- B. Available Manufacturers:
  1. Architectural Builders Hardware Mfg., Inc. (ABH).
  2. Glynn-Johnson; an Allegion Company (GJ).
  3. Hager (HAG).
  4. Rixson Specialty Door Controls; an ASSA ABLOY Group company (RIX).
  5. SARGENT Manufacturing Company; an ASSA ABLOY Group company (SGT).

## 2.22 SILENCERS

- A. Provide silencers for Metal Door Frames: BHMA A156.16, Grade 1; neoprene or rubber, minimum diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame.
- B. Available Manufacturers:
  1. Glynn-Johnson; an Allegion Company (GJ).
  2. Hager Companies (HAG).
  3. IVES Hardware; an Allegion Company (IVS).
  4. McKinney Products Company; an ASSA ABLOY Group company (MCK).
  5. Rockwood Manufacturing Company (RM).
  6. Trimco (TBM).



## 2.23 DOOR GASKETING

- A. General: Provide continuous weather-strip gasketing on exterior hollow metal doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners as indicated by models in hardware sets.
  - 1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame. If hardware is to be attached to the frame and would interfere with the gasketing, then provide hardware compatible gasketing that does not need to be cut for the mounting of hardware.
  - 2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
  - 3. Mullion Gasketing: Fasten to mullions, forming seal when doors are closed.
  - 4. Sweeps: Apply to bottom of in-swinging exterior hollow metal doors, or as required for sound attenuation, forming seal with threshold or floor when door is closed.
  - 5. Seals integral to threshold at out-swinging exterior hollow metal doors.
- B. Requirements per type of rated door provided (these requirements supersede models indicated in hardware sets):
  - 1. Category A wood doors: provide models indicated in hardware sets.
  - 2. Category B wood doors: provide Category G&H seals at jambs and meeting edges. If Category H seals are indicated in hardware sets, provide Cat G seals in addition to the Category H seals.
  - 3. Category A and B hollow metal doors: provide models indicated in hardware sets.
- C. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
- D. Smoke-Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke-control ratings indicated, based on testing according to UL 1784.
  - 1. Provide smoke-labeled gasketing on 20-minute-rated doors and on smoke-labeled doors.
- E. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 or UBC Standard 7-2.
  - 1. Test Pressure: After 5 minutes into the test, neutral pressure level in furnace shall be established at 40 inches (1016 mm) or less above the sill.
- F. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.
- G. Mullion Gasketing: Sealing up to 1/4" gaps, 4 vanes, adhesive backed, collapsible to 1/32", black. Basis of Design: DHSI (DHS) Model MS-SA/75 x BK.
- H. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- I. Jamb Gasketing Materials:
  - 1. Adhesive Seals. As specified in hardware sets or approved equal.
  - 2. Intumescents: As required.
  - 3. Screwed-on weatherstrip and sweeps. Neoprene.
  - 4. Panic type thresholds. Neoprene.
- J. Available Manufacturers for Jamb Gaskets (provided they provide items with neoprene inserts):

1. Hager Companies (HAG).
2. National Guard Products (NGP).
3. Pemko Manufacturing Co. (PEM).
4. Reese Enterprises (REE).
5. Zero International (ZER).

## **2.24 THRESHOLDS**

- A. Standard: BHMA A156.21
- B. Accessibility Requirements: Where thresholds are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
  1. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
- C. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch (13 mm) high.
- D. Fasteners: 1/4-20 machine screws and expansion anchors.
- E. Gasketing material: At panic-type thresholds: neoprene.
- F. Available Manufacturers (provided they provide items with neoprene inserts):
  1. Hager Companies (HAG).
  2. National Guard Products (NGP).
  3. Pemko Manufacturing Co. (PEM).
  4. Reese Enterprises (RE).
  5. Zero International (ZRO).

## **2.25 FABRICATION**

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
  1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
- C. **Fasteners: Manufacturer's standard, except as noted in product sections of this specification.**

## **2.26 FINISHES**

- A. Standard: BHMA A156.18, as indicated in door hardware sets.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not

acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Steel Doors and Frames: Comply with DHI A115 Series.
  - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to ANSI A250.6.
- B. Wood Doors: Comply with DHI A115-W Series.

#### **3.3 INSTALLATION**

- A. Low-energy Automatic Door Operators:
  - 1. **Installer is to have current AAADM certification to install automatic door operators and actuating systems.**
- B. Mounting Heights: Mount door hardware units at heights indicated as follows unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- C. Mounting Locations:
  - 1. Wall Stops: Locate so that lockset spindle and wall stop share horizontal and vertical centerlines.
  - 2. Universal/Floor Stops: As far away from the hinge edge of the door as possible, so that door may swing the maximum degree before hitting an obstruction, and so as not to be a trip hazard.
  - 3. Wall Stop/Holders: Locate 4" down and in from top lock-edge corner of door w/holder slot at bottom of unit.
  - 4. **Closers and Overhead Stop/Holders: Template and mount closers and overhead stops for maximum degree of opening before door encounters obstruction or so as to interface with specified wall stops and holders. When used with closers, template and locate overhead stops so that closer arm does not fully extend and bottom out. These functionality requirements override any degree of opening information in the specifications or submittals.**
- D. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing

work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- E. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule. Document cross-indexing per manufacturer's instructions.
- F. Fire Department Key Box: Locate mortised into exterior wall as located by Architect.
- G. Boxed Power Supplies: Locate power supplies as directed by Architect.
- H. **Weatherstrip and Gasketing with Metal Retainers: Fit up as needed for neat appearance with no gaps between retainers or bulbs.**
- I. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants." **Position for complete seal with bottom of doors with no penetration of air or daylight.**

### 3.4 FIELD QUALITY CONTROL

- A. Provide Door Hardware Inspection Services and Field Quality Report as indicated below.
- B. Door Hardware Inspection Services
1. Scope
    - a. Inspection of all swinging doors and door hardware immediately following completion of installation.
    - b. Inspector to furnish a Field Quality Report, itemized per each individual opening, to the Architect within 7 days of the inspection, including:
      - 1) deficiencies in workmanship and standard industry practices,
      - 2) use of allowable products,
      - 3) use of manufacturer recommended fasteners,
      - 4) compliance with the ADA,
      - 5) proper door/frame/hardware clearances,
      - 6) problems related to function, security, aesthetics or maintenance.
  2. Inspector Qualifications
    - 1) Certified Architectural Hardware Consultant.
    - 2) Entirely independent of the supply side of the project, having no familial or financial relationship with any manufacturer, manufacturer's representative, distributor, installer or supplier used on this project.
    - 3) Approved by Architect. Go to <http://www.dhi.org/> for searchable list of local Architectural Hardware Consultants.
    - 4) Full member in good standing of Specification Consultants in Independent Practice (SCIP).
    - 5) Same Inspector for re-inspections as for the initial inspection.
  3. Payment for the inspection and subsequent re-inspections until work is complete and approved is to be made directly by the Contractor to the Inspector within 30 days of receipt of report and invoice.

### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
- B. Overhead Stops/Holders: Set adjustable stops for maximum degree of opening before door encounters obstruction. Adjust friction to control door.
- C. Wall Mounted Stop/Holders: Adjust holding force with spanner head wrench so that door is held securely, yet is easy to pull out of hold open.
- D. Door Closers:
  - 1. Unless otherwise required by authorities having jurisdiction, adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
  - 2. Adjust latch period so that door does not slam nor injure fingers.
  - 3. **Adjust spring power for minimum force required so that door properly and reliably latches. It is recommended that all closers be adjusted to a Spring Size 1 (either at the factory or at the facility of the Contract Hardware Supplier) prior to delivery to job; they can then be adjusted up to meet requirements. ADA maximum force to open a non-rated interior doors is 5 lbf; 8.5lbf for an exterior non-rated door. Installer is required to adjust spring power on every closer during installation using a door force gage. If ADA requirements cannot be met due to door-frame-hardware clearance issues or HVAC issues, bring to Contractors attention to resolve problem.**
  - 4. Adjust backcheck to slow door down before hitting stop point so as to prevent damage to closer, arm, door, frame, and fasteners.
- E. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer shall examine and readjust, including adjusting operating forces, each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.

### 3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### 3.7 DOOR HARDWARE SCHEDULE (on following pages followed by Door-Set Index)

**HARDWARE SET PREFIX KEY****B Bored (Cylindrical Lockset)****E Electrified Hardware****K Key Cylinder(s) But No New Mechanical Locking Device****M Mortise Lockset****P Panic/Exit Device****R Retrofit/Salvage Considerations****No prefix indicates non-electrified and hardware for new door and frame.****Hardware Set BER01*****Non-electrified Items:***

(1) Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1) Wrap-around Plate	4U-2-CW-S	630	DJO
(1) Closer, Regular Arm	7500	689	NOR

***Electrified Items:***

(1) Magnetic Lock	M62BD	630	SEC
(1) Pushbutton Station	5236 x T24 x L	628	DTR

Note: Under-the-desk-mount Pushbutton Station has (1) DPDT maintained toggle switch, and (1) red/green LED. Mount under desk as directed by Architect.

(1) Lot: Low voltage cabling and terminations by Access Control Installer (see Electrical Specifications)

(1) Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.

***Electrical Contractor Notes:***

Electrical Note: Provide conduit path with pull string from power supply listed in Hardware Set E02 to pushbutton station and to magnetic lock in top jamb. See Electrical Specifications for additional information.

***System Function:***

System Function: Door is not a required exit. Magnetic lock can be maintained in locked/unlocked condition by toggle switch on pushbutton station. Utilize magnetic bond sensor in magnetic lock to wire pushbutton station LED's so that Red indicates locked; Green indicates unlocked condition.

**Hardware Set BR01**

(1) Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1) Wrap-around Plate	4U-2-CW-S	630	DJO

***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR01A**

(1) Entry Lock w/Core	PB5407LN x 5220	626	YAL
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***Retrofit Notes:***

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR01B**

(1) Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1) Lock Guard, Cylindrical Lock	1082-6S	630	TRI

***Retrofit Notes:***

Remove slide-bolt and strike.

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR01C**

(1)	Entry Lock w/Core	PB5407LN x 5220 x 371 x (2)14-5401-6644	626	YAL
(1)	Wrap-around Plate	4-CW-S	630	DJO

Note 1: Existing lock has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Existing lock has 2-3/8" backset. Re-prep door for 2-3/4" backset lockset.

Remove bolt out of deadbolt so as to disable it.

**Hardware Set BR01D**

(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI

***Retrofit Notes:***

Remove hasp and staple.

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR01E**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Universal Stop, 1-1/2"	7280	630	TRI

**Hardware Set BR01F**

(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Wrap-around Plate	4U-2-CW-S	630	DJO
(2)	Cover Plate	1001-Special (4" x 8")	630	TRI

***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

Use cover plates to cover voids in door.

**Hardware Set BR01G**

(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Wrap-around Plate	4-CW-S	630	DJO

Note 1: Existing door is 1-3/8" thick and the lock has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Existing lock has 2-3/8" backset. Re-prep door for 2-3/4" backset lockset.

**Hardware Set BR02**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Wrap-around Plate	4U-2-CW-S	630	DJO

***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02A**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
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***Retrofit Notes:***

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02B**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI

***Retrofit Notes:***

Remove slide-bolt and strike.

Remove bolt out of deadbolt so as to disable it.

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02C**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Wrap-around Plate	4U-2-CW-S	630	DJO
(2)	Cover Plate	1001-Special (4" x 8")	630	TRI

***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

Use cover plates to cover voids in door.

**Hardware Set BR02D**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI

***Retrofit Notes:***

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02E**

(1)	Storeroom Lock w/Core	PB5405LN x 5220 x 371	626	YAL
(1)	Lock Guard, In-swinging	ILP 212 - CP	652	DJO
(1)	Wrap-around Plate	4-CW-S	630	DJO

Note 1: Existing lock has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Existing lock has 2-3/8" backset. Re-prep door for 2-3/4" backset lockset.

Remove bolt out of deadbolt so as to disable it.

**Hardware Set BR02F**

(1)	Storeroom Lock w/Core	PB5405LN x 5220 x 371	626	YAL
(1)	Wrap-around Plate	4-CW-S	630	DJO

Note 1: Existing lock has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Existing lock has 2-3/8" backset. Re-prep door for 2-3/4" backset lockset.

Remove bolt out of deadbolt so as to disable it.



**Hardware Set BR02G**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Wrap-around Plate	4-CW-S	630	DJO

***Retrofit Notes:***

Remove slide-bolt and strike.

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02H**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Wrap-around Plate	4-CW-S	630	DJO

***Retrofit Notes:***

Remove hasp and staple.

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02J**

(1)	Storeroom Lock w/Core	PB5405LN x 5220 x 371 x (2)14-5401-6644	626	YAL
(1)	Wrap-around Plate	4-CW-S	630	DJO

Note 1: Existing door is 1-3/8" thick and the lock has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Existing lock has 2-3/8" backset. Re-prep door for 2-3/4" backset lockset.

**Hardware Set BR02K**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, In-swinging	ILP 212 - CP	652	DJO
(1)	Wrap-around Plate	4-CW-S	630	DJO

***Retrofit Notes:***

Remove hasp and staple.

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02L**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, In-swinging	ILP 212 - CP	652	DJO
(1)	Wrap-around Plate	4-CW-S	630	DJO

***Retrofit Notes:***

Remove slide bolt and strike.

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR02M**

(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Wrap-around Plate	4-CW-S	630	DJO

***Retrofit Notes:***

Remove slide bolt and strike.

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR03**

(1) Intruder Lock w/Cores	PB5418LN x 5220	626	YAL
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***Retrofit Notes:***

Remove existing cylindrical lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR03A**

(1) Intruder Lock w/Cores	PB5418LN x 5220	626	YAL
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(1) Wrap-around Plate	4U-2-CW-S	630	DJO
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***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR04**

(1) Dormitory Lock w/Core	PB5422LN x 5220	626	YAL
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(1) Wrap-around Plate	4U-2-CW-S	630	DJO
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***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR05**

(1) Passage Set	PB5405LN x 378N x 371 x 1-3/8" door	626	YAL
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(1) Double-cylinder Deadbolt	D121 x 5220	626	YAL
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(2) Cylinder Core	High Security	626	YAL
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Note 1: Existing door is 1-3/8" thick; existing lockset has 2-3/8" backset.

***Retrofit Notes:***

Remove existing cylindrical lockset and 2-3/4" strike; turn over to Owner.

Field prep existing wood door and frame for deadbolt and strike.

**Hardware Set BR06**

(1) Communicating Lock w/Cores	PB5421LN x 5220	626	YAL
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(1) Wrap-around Plate	4U-2-CW-S	630	DJO
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***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set BR06A**

(1) Communicating Lock w/Cores	PB5421LN x 5220	626	YAL
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(1) Wrap-around Plate	4U-2-CW-S	630	DJO
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(2) Cover Plate	1001-Special (4" x 8")	630	TRI
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***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

Use cover plates to cover major voids in door; fill and finish other voids in doors.

**Hardware Set BR07**

(1) Privacy Set	PB5402LN	626	YAL
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(1) Wrap-around Plate	4U-2-CW-S	630	DJO
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***Retrofit Notes:***

Remove existing unit lockset and 4-7/8" strike; turn over to Owner.

**Hardware Set E01*****Non-electrified Items:***

(2)	Continuous Hinge	SL24HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(1)	Panic Device, Rim, 03	7150 x 632F x Less Dogging	630	YAL
(1)	Panic Device, Rim, 01	7150 x 630F x Less Dogging	630	YAL
(1)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Closer, HD Parallel Arm	PR7500	689	NOR
(2)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(2)	Wall Stop/Holder	1283-6S x Z900.0 Shim	626	TRI
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

***Electrified Items:***

(1)	Mullion Wire Harness	MWH-5		TRN
(1)	Rim Panic Electric Strike	4850	630	TRN
(1)	Power Supply	BPS-24-2		SEC
(1)	Digital Keypad	926		SDC
(1)	Lot: Low voltage cabling, terminations, keypad programming, owner training by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress. Doors are locked against ingress; ingress by code or key.

***Electrical Contractor Notes:***

Provide 110V, 60hz, 1A service to power supply. Provide single-gang flush mounting box on exterior wall for digital keypad. Provide conduit paths with pull strings from power supply to top removable mullion fitting on top jamb to get wires to electric strike mounted on center mullion and digital keypad. See Electrical Specifications for additional information.

**Hardware Set E02*****Non-electrified Items:***

(2)	Continuous Hinge	SL11HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(2)	NS Panic Device, Rim, 02	7250 x 482F-15 x Less Dogging	630	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Closer, w/Spring Stop	CPS7500 x 6891 x 6890	689	NOR
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Jamb seals and meeting edge seals by aluminum door supplier. Required door undercut is 3/8".

***Electrified Items:***

(2)	Mullion Wire Harness	MWH-5		TRN
(2)	Rim Panic Electric Strike	4850	630	TRN
(1)	Relock Timer Relay	TM9		SEC
(1)	Pushbutton Station	5236-P25xT24xL	628	DOR
Note: Locate pushbutton under Reception 100 desktop as directed by Architect. Pushbutton Station has a DPDT momentary pushbutton, a DPDT maintained toggle switch, and a red/green LED.				
(1)	Power Supply	BPS-24-5		SEC
(1)	Elect Automatic Door Operator	SW200i x BR3 Lock Interface Relay	628	BSM
Note: Locate on RHRB door leaf.				
(2)	HW Operator Actuator, S-Gng, Sq4X4-3WR		630	WIK

Note: Locate one on exterior wall under video-intercom Architect, 36" AFF. Locate the other on the Entry Vestibule wall approx. 5' from the LHRB side jamb, 36" AFF.

- (1) Lot: Low voltage cabling and terminations by Access Control Installer (see Electrical Specifications)
- (1) Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.

***System Function:***

Free egress at all times. Electric strikes are normally not powered and are locked against ingress; momentary pushbutton releases electric strike on RHRB door leaf and signals automatic operator to open that door; door closes and relocks after time delay. Interior actuator releases electric strike and signals operator to open RHRB door. Maintained toggle switch releases all electric strikes at Doors VA1.1, VA1.2 and VA1.3; in this state exterior actuator, which is normally disabled, is enabled to signal operator to open RHRB door leaf. Wire pushbutton station LED's so that Red indicates locked; Green indicates unlocked condition.

***Electrical Contractor Notes:***

Provide 110V, 60hz, 1A service to power supply. Provide 110V, 60hz, 5A service to automatic door operator. Provide single-gang flush mounting boxes for interior and exterior operator actuators. Provide conduit paths with pull strings from power supply to automatic operator, to pushbutton station under desk in Reception 100, to flush boxes listed above, and to mullion headcap fitting in top jamb for electric strikes. See Electrical Specifications for additional information.

**Hardware Set E03*****Non-electrified Items:***

(2)	Continuous Hinge	SL11HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(2)	NS Panic Device, Rim, 02	7250 x 482F-15 x Less Dogging	630	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Closer, w/Spring Stop	CPS7500 x 6891 x 6890	689	NOR
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Jamb seals and meeting edge seals by aluminum door supplier. Required door undercut is 3/8".

***Electrified Items:***

(2)	Mullion Wire Harness	MWH-5		TRN
(2)	Rim Panic Electric Strike	4850	630	TRN
(1)	Lot: Low voltage cabling and terminations by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress at all times. Electric strikes are normally not powered and are locked against ingress. See Hardware Set E02 for shared power supply and toggle switch function.

***Electrical Contractor Notes:***

Provide conduit paths with pull strings from power supply specified in Hardware Set E02 to mullion headcap fitting in top jamb for electric strikes. See Electrical Specifications for additional information.

**Hardware Set E04*****Non-electrified Items:***

(2)	Continuous Hinge	SL11HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(2)	NS Panic Device, Rim, 02	7250 x 482F-15 x Less Dogging	630	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Closer, w/Spring Stop	CPS7500 x 6891 x 6890	689	NOR
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Jamb seals and meeting edge seals by aluminum door supplier. Required door undercut is 3/8".

***Electrified Items:***

(2)	Mullion Wire Harness	MWH-5		TRN
(2)	Rim Panic Electric Strike	4850	630	TRN
(1)	Lot: Card reader, control electronics, low voltage cabling and terminations by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress at all times. Electric strikes are normally not powered and are locked against ingress; ingress by card. See Hardware Set E02 for shared power supply and toggle switch function.

***Electrical Contractor Notes:***

Provide single-gang flush box for card reader in exterior wall within 12" of RHRB side jamb, 44" AFF. Provide conduit paths with pull strings from power supply specified in Hardware Set E02 to mullion headcap fitting in top jamb for electric strikes and to card reader. See Electrical Specifications for additional information.

**Hardware Set E05*****Non-electrified Items:***

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Closer, w/Spring Stop	CPS7500 x 6891 x 6890	689	NOR

***Electrified Items:***

(1)	Jamb-to-Door Power Transfer	CEPT-10	630	SEC
(1)	Electric Mortise Lockset	PBR8891	626	YAL
(1)	Pushbutton Station	5236 x P25 x T24 x L	628	DTR
Note: Under-the-desk-mount Pushbutton Station has (1) DPDT momentary pushbutton, (1) DPDT maintained toggle switch, and (1) red/green LED. Mount under desk as directed by Architect.				
(1)	Relock Timer Relay	TM9		SEC
(1)	Lot: Card reader (narrow jamb-mount), control electronics, low voltage cabling and terminations by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress at all times. Electric mortise lockset is normally not powered and is locked against ingress; ingress by card or mechanical key or by momentary pushbutton at reception desk. Electric mortise lockset can be maintained in locked/unlocked condition by toggle switch on pushbutton station. Wire pushbutton station LED's so that Red indicates locked; Green indicates unlocked condition.

***Electrical Contractor Notes:***

Provide conduit path with pull string from power supply listed in Hardware Set E02 to pushbutton station and to power transfer in hinge jamb. See Electrical Specifications for additional information.

**Hardware Set EKR01*****Non-electrified Items:***

(1)	Dummy Rim Cylinder (for trim)		626	YAL
(2)	Dummy Mortise Cylinder (for dogging)		626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders; replace with new dummy cylinders.  
Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.  
Turn existing cylinders over to Owner.

***Electrified Items:***

(1)	Rim Panic Electric Strike	4850	630	TRN
(1)	Power Supply	BPS-24-2		SEC
(1)	Lot: Card reader, control electronics, low voltage cabling, terminations, keypad programming, owner training by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress. Door is locked against ingress; ingress by card.

***Electrical Contractor Notes:***

Provide 110V, 60hz, 1A service to power supply. Provide single-gang flush mounting box on exterior wall for card reader. Provide conduit paths with pull strings from power supply to center of top jamb for electric strike on removable mullion and to card reader. See Electrical Specifications for additional information.

**Hardware Set EKR01A*****Non-electrified Items:***

(1)	Rim Cylinder	5109 7-pin	626	YAL
(2)	Mortise Cylinder (for dogging)	5153 7-pin	626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders; replace with new cylinders.

Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.

Turn existing cylinders over to Owner.

***Electrified Items:***

(1)	Rim Panic Electric Strike	4850	630	TRN
(1)	Power Supply	BPS-24-2		SEC
(1)	Lot: Card reader, control electronics, low voltage cabling, terminations, keypad programming, owner training by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress. Door is locked against ingress; ingress by card or key.

***Electrical Contractor Notes:***

Provide 110V, 60hz, 1A service to power supply. Provide single-gang flush mounting box on exterior wall for card reader. Provide conduit paths with pull strings from power supply to center of top jamb for electric strike on removable mullion and to card reader. See Electrical Specifications for additional information.

**Hardware Set EPR01*****Non-electrified Items:***

(1)	Panic Device, Rim, 03	7150 x 632F x Less Dogging	630	YAL
(1)	Rim Cylinder	5109 7-pin	626	YAL

***Electrified Items:***

(1)	Rim Panic Electric Strike	4850	630	TRN
(1)	Power Supply	BPS-24-2		SEC
(1)	Digital Keypad	926		SDC
(1)	Lot: Low voltage cabling, terminations, keypad programming, owner training by Access Control Installer (see Electrical Specifications)			
(1)	Wiring Diagram Set: Riser and Point-to-point: to be submitted with Hardware Submittal.			

***System Function:***

Free egress. Door is locked against ingress; ingress by code or key.

***Electrical Contractor Notes:***

Provide 110V, 60hz, 1A service to power supply. Provide single-gang flush mounting box on exterior wall for digital keypad. Provide conduit paths with pull strings from power supply to electric strike on strike jamb and to digital keypad. See Electrical Specifications for additional information.

***Retrofit Notes:***

Remove bolt out of deadbolt so as to disable it.

Remove existing panic device and strike; turn over to Owner.

**Hardware Set KR01**

(1)	Rim Cylinder	5109 7-pin	626	YAL
(2)	Mortise Cylinder (for dogging)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders; replace with new cylinders.  
Turn existing cylinders over to Owner.

**Hardware Set KR01A**

(1)	Rim Cylinder (for trim)	5109 7-pin	626	YAL
(1)	Dummy Rim Cylinder (for trim)		626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder from RHRB exit device; replace with new keyed cylinder.  
Remove rim trim cylinder from LHRB exit device; replace with new dummy cylinder.  
Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.  
Turn existing cylinders over to Owner.

**Hardware Set KR01B**

(1)	Rim Cylinder (for trim)	5109 7-pin	626	YAL
(2)	Dummy Mortise Cylinder (for dogging)		626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and dogging cylinders; replace with new keyed trim cylinder and dummy dogging cylinders.  
Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.  
Turn existing cylinders over to Owner.

**Hardware Set KR01C**

(1)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Mortise Cylinder (for dogging)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and dogging cylinder; replace with new cylinders.  
Turn existing cylinders over to Owner.

**Hardware Set KR01D**

(1)	Rim Cylinder	5109 7-pin	626	YAL
(2)	Mortise Cylinder (for dogging)	5153 7-pin	626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders and cylinder from mullion; replace with new cylinders.  
Turn existing cylinders over to Owner.

**Hardware Set KR01E**

(1)	Rim Cylinder	5109 7-pin	626	YAL
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***Retrofit Notes:***

Remove rim trim cylinder; replace with new cylinders.  
Turn existing cylinder over to Owner.



**Hardware Set KR02**

(1) Dummy Rim Cylinder (for trim)	626	YAL
(2) Dummy Mortise Cylinder (for dogging)	626	YAL
(1) Mortise Cylinder (for mullion) 5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders; replace with new cylinders.

Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.

Turn existing cylinders over to Owner.

**Hardware Set KR02A**

(1) Dummy Rim Cylinder (for trim)	626	YAL
(1) Dummy Mortise Cylinder (for dogging)	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and dogging cylinder; replace with new dummy cylinders.

Turn existing cylinders over to Owner.

**Hardware Set KR02B**

(2) Dummy Mortise Cylinder (for dogging)	626	YAL
(1) Mortise Cylinder (for mullion) 5153 7-pin	626	YAL

***Retrofit Notes:***

Remove two dogging cylinders; replace with new cylinders.

Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.

Turn existing cylinders over to Owner.

**Hardware Set KR02C**

(1) Dummy Rim Cylinder (for trim)	626	YAL
(2) Mortise Cylinder (for dogging) 5153 7-pin	626	YAL
(1) Mortise Cylinder (for mullion) 5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder and two dogging cylinders; replace with new cylinders.

Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.

Turn existing cylinders over to Owner.

**Hardware Set KR03**

(1) Mortise Cylinder (for mortise lockset) 5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove mortise cylinder from mortise lockset; replace with new cylinder.

Turn existing cylinder over to Owner.

**Hardware Set KR03A**

(1) Mortise Cylinder (for mortise lockset) 5153 7-pin	626	YAL
(1) Thumbturn Cylinder (for mortise lockset)	626	YAL

***Retrofit Notes:***

Remove mortise cylinders from mortise lockset; replace with new cylinders.

Turn existing cylinders over to Owner.

**Hardware Set KR04**

(1)	Mortise Cylinder (for dogging)	5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove dogging cylinder; replace with new cylinder.

Turn existing cylinder over to Owner.

**Hardware Set KR05**

(2)	Mortise Cylinder	5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove mortise cylinders from small-case mortise public toilet function deadbolt; replace with new cylinders.

Turn existing cylinders over to Owner.

**Hardware Set MR01**

(1)	Storeroom Lock	PBxCN8805FL	626	YAL
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(1)	Mortise Cylinder	5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove existing mortise lockset, mortise key cylinder, and 4-7/8" strike; turn over to Owner.

**Hardware Set MR02**

(1)	Public Toilet Deadbolt	356	626	YAL
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(2)	Mortise Cylinder	5153 7-pin	626	YAL
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***Retrofit Notes:***

Field prep hollow metal door and frame for small-case mortise deadbolt and strike.

**Hardware Set MR03**

(1)	Communicating Lock	PBxCN8860-2FL	626	YAL
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(2)	Mortise Cylinder	5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove existing mortise lockset, mortise key cylinder, and 4-7/8" strike; turn over to Owner.

**Hardware Set MR04**

(1)	Office Lock	PBxCN8809FL	626	YAL
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(1)	Mortise Cylinder	5153 7-pin	626	YAL
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***Retrofit Notes:***

Remove existing mortise lockset, mortise key cylinder, and 4-7/8" strike; turn over to Owner.

**Hardware Set PR01**

(1)	Panic Device, Rim, 01	7100 x 630F x Less Dogging	630	YAL
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***Retrofit Notes:***

Remove bolt out of deadbolt so as to disable it.

Remove existing panic device and strike; turn over to Owner.

**Hardware Set PR01A**

(1)	Panic Device, Rim, 01	7100 x 630F x Less Dogging	630	YAL
(1)	Rim Cylinder (for trim)	5109 7-pin	626	YAL
(1)	Dummy Mortise Cylinder (for dogging)		626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove rim trim cylinder from RHRB exit device; replace with new keyed cylinder.

Remove dogging cylinder from RHRB exit device; replace with new dummy mortise cylinder.

Remove existing rim panic device from LHRB door; replace with new panic device and trim.

Remove mortise cylinder from key removable mullion; replace with new mortise cylinder.

Turn existing panic device and cylinders over to Owner.

**Hardware Set PR02**

(1)	Fire Exit Device, Rim, 03	7100F x PR626F	630	YAL
(1)	Rim Cylinder (for trim)	5109 7-pin	626	YAL

***Retrofit Notes:***

Remove existing fire exit device, strike and key cylinder; turn over to Owner. Replace with new fire exit device, strike and key cylinder.

**Hardware Set PR02A**

(1)	Fire Exit Device, Rim, 01	7100F x 620F	630	YAL
(1)	Cat H Adhesive Jamb Seal Set	2525B	Brown	NGP

***Retrofit Notes:***

Remove existing fire exit device, strike and key cylinder; turn over to Owner. Replace with new fire exit device, strike and key cylinder.

**Hardware Set PR03**

(1)	Fire Exit Device, Rim, 03	7100F x PR626F	630	YAL
(1)	Fire Exit Device, Rim, 01	7100F x 620F	630	YAL
(1)	Rim Cylinder (for trim)	5109 7-pin	626	YAL

***Retrofit Notes:***

Remove existing fire exit devices, strikes and key cylinder; turn over to Owner. Replace with new fire exit devices, strikes and key cylinder.

**Hardware Set PR04**

(1)	Fire Exit Device, Rim, 10	7100F-2 x 626F	630	YAL
(1)	Fire Exit Device, Rim, 01	7100F x 620F	630	YAL
(2)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove existing fire exit devices, strikes and key cylinders; turn over to Owner. Replace with new fire exit devices, strikes and key cylinders.

Install 10 function exit device on door leaf swinging toward magnetic holder.

**Hardware Set PR04A**

(1)	FR Key Removable Mullion	KRM200F x 102S x M103 x M104	689	YAL
(2)	Fire Exit Device, Rim, 01	7100F x 620F	630	YAL
(1)	Mortise Cylinder (for mullion)	5153 7-pin	626	YAL

***Retrofit Notes:***

Remove existing fire exit devices, strikes, key cylinders and mullion fittings; turn over to Owner. Replace with new fire exit devices, mullion, strikes and key cylinder.

**Hardware Set R01**

Note 1: No new hardware required.

**Hardware Set R02*****Retrofit Notes:***

Remove hasp and staple from door and frame.

**Hardware Set 01**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Stop, HD, Surface	900S	630	GLY

**Hardware Set 01A**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 01B**

(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
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Note 1: Balance of hardware by Greenhouse Supplier. Greenhouse Supplier to furnish 1-3/4" thick door with door and frame prepped for Grade One cylindrical lockset with 2-3/4" backset.

**Hardware Set 01C**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Closer, w/Spring Stop	CPS7500	689	NOR
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Cat H Adhesive Jamb Seal Set	2525B	Brown	NGP
Note: Apply to top jamb only.				
(1)	Cat H Jamb Seal Set	135NA	628	NGP
Note: Apply to side jambs only.				

**Hardware Set 01D**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Entry Lock w/Core	PB5407LN x 5220	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 02**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Closer, w/Spring Stop/HO	CPS7500T	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 02A**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Closer, w/Spring Stop	CPS7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 02B**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Closer, HD Parallel Arm	PR7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop/Holder	1283-6S x Z900.0 Shim	626	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 02C**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1)	Closer, HD Parallel Arm	PR7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 02D**

(3) Butt Hinges	BB5000-454	652	BOM
(1) Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1) Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1) Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 02E**

(3) Butt Hinges	BB5006-545	630	BOM
(1) Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1) Lock Guard, Cylindrical Lock	1082-6S	630	TRI
(1) Overhead Stop, HD, Surface	900F	630	GLY
(1) Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1) Overhead Rain Drip	16A	628	NGP
(1) Cat H Adhesive Jamb Seal Set	2525B	Brown	NGP
Note: Apply to top jamb only.			
(1) Cat H Jamb Seal Set	135NA	628	NGP
Note: Apply to side jambs only.			
(1) Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

Note 2: Adjust friction in overhead stop to help protect against wind damage.

**Hardware Set 02F**

(3) Butt Hinges	BB5000-454	652	BOM
(1) Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1) Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1) Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 02G**

REVISE. REFER TO FINAL SHEET FOR PR #9 FOR HARDWARE UPDATE

(3) Butt Hinges	BB5000-454	652	BOM
(1) Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1) Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1) Overhead Stop, HD, Concealed	100S x ADJ	630	GLY

**Hardware Set 03**

Note 1: All hardware, including non-keyed locking devices, by overhead door supplier.

**Hardware Set 04**

(3) Butt Hinges	BB5002-454	630	BOM
(1) Passage Set	PB5401LN	626	YAL
(1) Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1) Wall Stop, Convex	1270CX	626	TRI
(1) Adjustable Jamb Seal Set	107NA	628	NGP
(1) Surface Sound Sweep	SSDB3	628	DHS

**Hardware Set 04A**

(3)	Butt Hinges	BB5002-454	630	BOM
(1)	Passage Set	PB5401LN	626	YAL
(1)	Closer, Regular Arm	7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI
(1)	Cat H Jamb Seal Set	135NA	628	NGP

**Hardware Set 4B**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Double-cylinder Deadbolt	351	626	YAL
(2)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Passage Set	PB5401LN	626	YAL
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Overhead Holder, HD, Concealed	100H x ADJ	630	GLY

Note 1: Door is not a required exit in either direction.

**Hardware Set 04C**

(6)	Butt Hinges	BB5004-545	652	BOM
(1)	Manual Flush Bolt	3917-24 (top)	626	TRI
(1)	Manual Flush Bolt	3917-12	626	TRI
(1)	Double-cylinder Deadbolt	351	626	YAL
(2)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Cylinder Pull	1822-2	630	TRI
(2)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(2)	Kick Plate	KM050 12 x 1LDW x CS x B4E	630	TRI
(2)	Wall Stop/Holder	1283-6S	626	TRI

Note 1: Door is not a required exit in either direction. Doors are either held open or are closed and locked.

**Hardware Set 05**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Classroom Lock w/Core	PB5408LN x 5220	626	YAL
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 06**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Public Toilet Deadbolt	356	626	YAL
(2)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Lock Guard, In-swinging	ILP 212 - CP	652	DJO
(1)	Push/Pull Plate	1820-11 x CFC x RC	630	TRI
(1)	Pull Plate	1014-3B x CFC x CFT x RC	630	TRI
(1)	Closer, C&R, Pull-side	2800ST	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Wall Stop/Holder	1283-6S	626	TRI
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Door Shoe	217APK	628	NGP
(1)	¼" Saddle Threshold	513 x RCE	628	NGP

Note 1: Undercut door ¾" for proper mating of door shoe with threshold. Install door shoe; then butt kick plate and mop plate to door shoe.

**Hardware Set 06A**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Public Toilet Deadbolt	356	626	YAL
(2)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Lock Guard, In-swinging	ILP 212 - CP	652	DJO
(1)	Push/Pull Plate	1820-11 x CFC x RC	630	TRI
(1)	Pull Plate	1014-3B x CFC x CFT x RC	630	TRI
(1)	Closer, C&R, Pull-side	2800ST	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Wall Stop/Holder	1283-6S	626	TRI
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Door Shoe/Drip	216APK	628	NGP
(1)	¼" Saddle Threshold	513 x RCE	628	NGP

Note 1: Undercut door ¾" for proper mating of door shoe with threshold. Install door shoe; then butt kick plate and mop plate to door shoe.

**Hardware Set 06B**

(3)	Butt Hinges	BB5002-454	630	BOM
(1)	Public Toilet Deadbolt	356	626	YAL
(2)	Mortise Cylinder	5153 7-pin	626	YAL
(1)	Push Plate	1809-4 x CFC x RC	630	TRI
(1)	Pull Plate	1014-3B x CFC x CFT x RC	630	TRI
(1)	Closer, C&R, Pull-side	2800ST	689	NOR
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI



**Hardware Set 07**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Intruder Lock w/Cores	PB5418LN x 5220	626	YAL
(1)	Closer, C&R, Pull-side	2800ST	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI
(1)	Cat H Jamb Seal Set	135NA	628	NGP

**Hardware Set 08**

(2)	Continuous Hinge	SL24HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(1)	Panic Device, Rim, 03	7150 x 632F x Less Dogging	630	YAL
(1)	Panic Device, Rim, 01	7150 x 630F x Less Dogging	630	YAL
(1)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Closer, HD Parallel Arm	PR7500	689	NOR
(2)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(2)	Wall Stop/Holder	1283-6S x Z900.0 Shim	626	TRI
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 08A**

(2)	Continuous Hinge	SL11HD	628	SEL
(1)	Key Removable Mullion	KRM200 x 102S x M103 x M104	689	YAL
(2)	NS Panic Device, Rim, 01, LD	7200 x Less Dogging	630	YAL
(1)	Mortise Cylinder	5153 7-pin	626	YAL
(2)	Closer, w/Spring Stop/HO	CPS7500T x 6891 x 6890	689	NOR
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS

Note 1: Jamb and meeting edge seals by aluminum door supplier.

**Hardware Set 09**

(1)	Continuous Hinge	SL24HD	628	SEL
(1)	Panic Device, Rim, 01	7150 x 630F x Less Dogging	630	YAL
(1)	Closer, w/Spring Stop	CPS7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 09A**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Panic Device, Rim, 03	7150 x 632F x Less Dogging	630	YAL
(1)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Closer, w/Spring Stop	CPS7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 09B**

(3)	Butt Hinges	BB5006-545	630	BOM
(1)	Panic Device, Rim, 03	7150 x 632F x Less Dogging	630	YAL
(1)	Rim Cylinder	5109 7-pin	626	YAL
(1)	Closer, HD Parallel Arm	PR7500	689	NOR
(1)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop/Holder	1283-6S x Z900.0 Shim	626	TRI
(1)	Overhead Rain Drip	16A	628	NGP
(1)	Cat H Jamb Seal Set	135NA	628	NGP
(1)	Panic Threshold	896N x RCE	628	NGP

Note 1: Undercut door 3/8" for proper mating of door bottom edge with threshold.

**Hardware Set 10**

(2)	Continuous Hinge	SL24HD x UL	628	SEL
(1)	FR Key Removable Mullion	KRM200F x 102S x M103 x M104	689	YAL
(2)	Fire Exit Device, Rim, 10	7100F-2 x 626F	630	YAL
(4)	Rim Cylinder	5109 7-pin	626	YAL
(2)	Closer, HD Parallel Arm	PR7500	689	NOR
(2)	Kick Plate	KO050 12 x 2LDW x CS x B4E	630	TRI
(2)	Wall Stop, Convex	1270CX	626	TRI
(1)	Cat H Adhesive Mullion Seal/Mute MS-SA/75		Black	DHS
(1)	Cat H Jamb Seal Set	135NA	628	NGP

**Hardware Set 11**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Privacy Set	PBR8802FL	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Wall Stop, Convex	1270CX	626	TRI

**Hardware Set 11A**

(3)	Butt Hinges	BB5002-454	630	BOM
(1)	Privacy Set	PBR8802FL	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Mop Plate	KM050 4 x 1LDW x CS x B4E	630	TRI
(1)	Wall Stop, Concave	1270CV	626	TRI

### 3.8 DOOR-SET INDEX

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004A	KR03
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115.2	KR01C
115.3	KR02A
115A	BR06A
116	BR02C
116A	BR02
117.1	R01
117.2	KR02

117A	BR01
117B	BR02
117C	BR02
117D	BR02
117E	BR02
118	BR02
118A	BR02
119	BR01
119A	BR02
120	BR07
121	BR07
123.1	BR01
123.2	BR01F
123A	BR02K
124.1	BR01
124.2	MR03
124A	KR03
124B	KR03
125.1	KR03A
125.2	BR06
126.1	KR03A
126.2	KR03A
126A	KR03
126B	KR03
127.1	KR03A
127.2	MR04
128	KR03
128A	KR03
129	KR03
130	KR03A
130A	KR03
131.1	PR04
131.2	PR04A
131.3	PR04A
131.4	PR04
131A.1	BR02L
131A.2	BR02L
132	R01
132A	KR03

132C	KR05
133	R01
133B.1	KR03
133B.2	KR02A
133C	KR05
138	BR01
139A	R01
201	BR01
202	BR01
203	BR01
204	BR01
204A	BR01
205	BR01
206	BR01
207	BR01
209	BR01
210	BR02
211	BR01
213	BR02
215	BR01
216	KR01D
216A	BR01
216B	BR02M
216C	BR01
217	BR01
218	BR01
218A	BR01
219.1	BR01
219.2	BR01
219A	BR01
219B	BR01
221.1	BR01
221.2	MR04
222.1	KR03A
222.2	KR03A
222A	KR01E
223	KR03
223A	KR03
224	KR03
229	KR03A
229A	KR03

230	KR03
231	MR04
231A	KR03
231B	KR03
232.1	MR01
232.2	BR01
233	BR01
233A.1	BR01
233A.2	BR01B
234	BR01
235	BR01
236	BR01
CE0.1	KR02
CE0.2	PR02
CF1	KR01D
CG1.1	EKR01A
CG1.2	R01
LA1.1	KR01B
LA1.2	KR02B
LA1.3	KR02B
LA1.4	KR02B
LA1.5	KR02B
LA1.6	KR02C
LB1.1	KR01D
LC1.1	KR01
SA1.1	KR01B
SA1.2	R01
SA2	R01
SC1.1	R01
SC2.1	R01
SC2.2	PR02A
SD0.1	R02
SD0.2	KR02
SD1.1	R01
SD1.2	KR01B
SD2	R01
SE0.1	R01
SE0.2	KR02
SE1	R01
SE2	R01
SF2	

SG1	PR03
SH1	BR01
SJ.1	BR01
SJ.2	BR01G
SK0.1	PR02
SK0.2	KR01B
SK1	PR03
SL2	
SP0	R01
SP1	KR02
SQ0	R01
SQ1	R01
VA0.1	KR03
VB0.1	PR01A
VB0.2	KR01A
VB0.3	EKR01

HS New	
009	01C
100.1	E05
100A	01D
101A	BR01E
122	02F
122A	11
134	01D
134A	11A
135	02G
212	06B
214	06B
VA1.1	E02
VA1.2	E03
VA1.3	E04
VA1.4	08A
VA1.5	08A
VA1.6	08A

BB&SB PB New	
310	06A
311	02A
312.1	02B
312.2	01A

312.3	03
313	02C
314	06A
315	04A
315A	04
316	06A
317	02A
318.1	02B
318.2	01A
318.3	03
319	02C
320	06A
321	04A
321A	04

BB&SB DO New	
301	06
301A.1	01
301A.2	02
302.1	02
302.2	03
305.1	01
305.2	02
306	06
307.1	02

307.2	03
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Field House Existing	
400.1	EPR01
400.2	PR01
400A	BR02A
401.1	BR02B
401.2	R01
402.1	BR01B
404B	BR02A
405	BR03
406.1	R01
406.2	BR01A
406A	BR01A
407	BR03

Field House New	
402.2	01A
403	09B
408	02
409.1	07
409.2	04B
409B	02D
409C.1	01A
409C.2	02

410	07
410B	02D
410C.1	01A
410C.2	02
411	09A
412.1	09
412.2	10
412B.1	01A
412B.2	02
412C	05
412D	02D
C400A	08
C400B.1	04C
C400B.2	E01

Greenhouse New	
413.1	01B
413.2	01B

Ticket Booth - Alt #6	
414.1	02E
414.2	03
414.3	03

**END OF SECTION 087100**

## **SECTION 087100 - DOOR HARDWARE**

### **Proposal Request # 9 – Concessions & Display Case Doors Hardware**

Door 135 is assigned to Hardware Set 02G as follows:

#### **Hardware Set 02G**

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Stop, HD, Concealed	100S x ADJ	630	GLY

Make the following changes:

Delete:

(3)	Butt Hinges	BB5000-454	652	BOM
(1)	Overhead Stop, HD, Concealed	100S x ADJ	630	GLY

Add:

(3)	Butt Hinges	BB5000-450	652	BOM
(1)	Wall Stop, Convex	1270CX	626	TRI

Revised Hardware Set 02G for Door 135 is now as follows:

(3)	Butt Hinges	BB5000-450	652	BOM
(1)	Storeroom Lock w/Core	PB5405LN x 5220	626	YAL
(1)	Kick Plate	KO050 8 x 2LDW x CS x B4E	630	TRI
(1)	Overhead Stop, HD, Concealed	100S x ADJ	630	GLY
(1)	Wall Stop, Convex	1270CX	626	TRI

Note 1: 180 degree door swing required.

Doors D01 – D08 are assigned to Hardware Set 12 as follows:

#### **Hardware Set 12**

Note: All hardware by aluminum door supplier including hanging and locking hardware, etc.

END OF DOCUMENT

**SECTION 092116 - GYPSUM BOARD ASSEMBLIES****REFER TO FINAL SHEET FOR PR #9 SPEC UPDATE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Metal stud wall framing, non-loadbearing.
- B. Metal channel ceiling framing.
- C. Sound Attenuation Batts / Acoustic insulation.
- D. Gypsum sheathing.
- E. Cementitious backing board.
- F. Gypsum wallboard.
- G. Glass mat faced gypsum board.
- H. Joint treatment and accessories.
- I. Suspended gypsum board on track/grid.
- J. Products installed, but not furnished, under this Section include the following:
  - 1. Access panels to be furnished by, but not limited to the following; mechanical, electrical, plumbing, controls, communication/data contractors.

**1.02 RELATED REQUIREMENTS**

- A. Section 061000 - Rough Carpentry: Building framing and sheathing.
- B. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.
- C. Section 072100 - Thermal Insulation: Thermal insulation.
- D. Section 078400 - Firestopping: Top-of-wall assemblies at fire rated walls.
- E. Section 079005 - Joint Sealers: Acoustic sealant/sound caulk.
- F. Section 083100 - Access Doors and Panels: Access panels in partitions and ceilings. Access door panels to receive gypsum board
- G. Section 102601 - Wall and Corner Guards: Standard corner guards.

**1.03 REFERENCE STANDARDS**

- A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2012.
- B. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (Reaffirmed 2016).
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.
- E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
- F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

- H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- I. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2015.
- J. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.
- K. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.
- L. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- M. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing Board; 2013.
- N. ASTM C1325 - Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units; 2014.
- O. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
- P. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
- Q. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- R. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- S. GA-214 - Recommended Levels of Finish for Gypsum Board, Glass Mat and Fiber-Reinforced Gypsum Panels; 2015
- T. GA-216 - Application and Finishing of Gypsum Board; 2013.
- U. GA-253 - Recommended Specifications for the Application of Gypsum Sheathing; Gypsum Association; 1999.
- V. GA-600 - Fire Resistance Design Manual; 2015.
- W. GA-801 - Handling of Storage of Gypsum Panel Products; current edition.
- X. ICC (IBC) - International Building Code; 2015.
- Y. UL (FRD) - Fire Resistance Directory; current edition.

#### **1.04 SUBMITTALS**

- A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system, FRP panels, and corner guards.
- B. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- C. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

#### **1.05 QUALITY ASSURANCE**

- A. Perform in accordance with ASTM C840 and GA-214 and GA-216. Comply with requirements of GA-600 for fire-rated assemblies.



- B. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packaging, containers or bundles bearing the manufacturers brand name and identification.
- B. Store materials inside and under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes.
- C. Stack panels flat to prevent sagging.
- D. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
- E. In addition follow the guidelines found in GA-801.
- F. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice".

#### 1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 or GA-216 requirements, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet or moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

### PART 2 PRODUCTS

REFER TO FINAL SHEET FOR PR #9 SPEC UPDATE

#### 2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840, GA-214 and GA-216.
  - 1. See PART 3 for finishing requirements.

#### 2.02 METAL FRAMING MATERIALS

- A. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include;
  - 1. Metal Framing, Connectors, and Accessories:
    - a. Clark Dietrich Building Systems: [www.dietrich.com](http://www.dietrich.com)
    - b. J. N. Linrose Manufacturing LLC: [www.jnlinrose.com](http://www.jnlinrose.com)
    - c. Marino Ware: [www.marinoware.com](http://www.marinoware.com)
    - d. Mill Steel Framing: [www.millsteel framing.com](http://www.millsteel framing.com)
    - e. Phillips Manufacturing Company: [www.phillipsmfg.com](http://www.phillipsmfg.com)
    - f. Southeastern Stud and Components, Inc: [www.sestud.com](http://www.sestud.com)
    - g. Telling Industries, LLC: [www.tellingindustries.com](http://www.tellingindustries.com)
- B. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include;
  - 1. Drywall Suspension Systems and Accessories: Contractor's option to use a drywall suspension system for the gypsum board ceilings in lieu of metal stud ceiling framing.
    - a. Armstrong Commercial Ceilings: [www.armstrong.com](http://www.armstrong.com)
    - b. USG: [www.usg.com](http://www.usg.com)
    - c. Chicago Metallic Corporation: [www.chicago-metallic.com](http://www.chicago-metallic.com)

- C. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
1. Minimum recycled content of 30%. Preference shall be given for steel framing components containing locally recovered steel.
  2. All Framing and System Components: Minimum G40 zinc-coated hot dipped galvanized steel, per ASTM A 653 or coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40 (Z120) coating, roll-formed from steel meeting mechanical and chemical requirements of ASTM A 1003 with a zinc-based coating. Galvannealed products are not acceptable.
    - a. Coatings shall demonstrate equivalent corrosion resistance with an evaluation report acceptable to authorities having jurisdiction.
    - b. Equivalent Gauge Thickness for Steel Studs and Runner: Members that can show certified third party testing with gypsum board in accordance with ICC ES AC86 (current edition) need not meet the minimum thickness limitation or minimum section properties set forth in ASTM C645. The submission of an evaluation report is acceptable to show conformance to this requirement.
      - 1) Clark Dietrich Building System - ProStud: [www.clarkdietrich.com](http://www.clarkdietrich.com).
      - 2) Marino\Ware - Viper Stud: [www.marinoware.com](http://www.marinoware.com)
  3. Studs: "C" shaped with flat or formed webs with knurled faces.
  4. Runners: U shaped, sized to match studs.
  5. Ceiling Channels: C-shaped.
  6. Furring at Walls: Hat-shaped sections, minimum depth of 7/8 inch.
- D. Metal soffit panel support: Hat-shaped sections, minimum depth of 7/8 inch. Gauge to be 18 ga. or as determined and approved by the metal soffit panel manufacturer. On-center spacing to be determined by the metal soffit panel manufacturer.
- E. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
- F. Partition Head to Structure Connections: Contractor option to friction fit slip leg track or track with slotted holes as specified below:
1. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.
  2. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
    - a. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.
    - b. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
- G. Drywall Grid System: Grid system meeting ASTM C 635 and ASTM C 645 Standard Specification for Rigid Furring Channels for Screw Applications of Gypsum Board.
1. Contractor option to use this system in lieu of framed construction.
  2. Intermediate-duty main beam, G40 zinc-coated hot dipped galvanized steel, double-web construction, profile height of 1-11/16" with peaked roof or rectangular top bulb and 1-1/2" knurled flange.
  3. Cross-tees, G40 zinc-coated hot dipped galvanized steel, double-web construction, profile height 1-1/2" with peaked roof or rectangular top bulb and 1-1/2" knurled flange.
  4. Wall moldings, galvanized steel, hemmed angle, nominal 1-1/4" x 1-1/4".
  5. Hanger wire, minimum 12 gauge and spaced along main beam not more than 4' on center to support load.
  6. Add vertical bracing as required to stabilize the frame.

7. Product to have manufacturers 10-year limited warranty.

### 2.03 BOARD MATERIALS

- A. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include;
- B. Manufacturers - Gypsum-Based Board:
1. Saint-Gobain BPB/Certainteed Inc: [www.bpb-na.com](http://www.bpb-na.com).
  2. Georgia-Pacific Gypsum(acquired Temple Inland): [www.gpgypsum.com](http://www.gpgypsum.com).
  3. Continental Building Products: [www.continental-bp.com](http://www.continental-bp.com).
  4. National Gypsum Company: [www.nationalgypsum.com/#sle](http://www.nationalgypsum.com/#sle).
  5. USG Corporation: [www.usg.com/#sle](http://www.usg.com/#sle).
- C. Cement Board/Backing Board For Wet Areas:
1. Application: Surfaces behind tile in wet areas including tub and shower surrounds.
  2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
    - a. Thickness: 5/8 inch.
    - b. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include;
      - 1) Custom Building Products: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
      - 2) National Gypsum Company; PermaBase Cement Board: [www.nationalgypsum.com/#sle](http://www.nationalgypsum.com/#sle).
      - 3) Georgia Pacific; Denshield Tile Backer: [www.buildgp.com](http://www.buildgp.com)
      - 4) USG Corporation; Durock Tile Backer Board: [www.usg.com](http://www.usg.com).
- D. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings and soffits, unless otherwise indicated.
  2. Thickness: 1/2 inch.
  3. Edges: Tapered.
- E. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
1. Regular Type:
    - a. Application: Use for vertical surfaces, unless otherwise indicated.
    - b. Thickness: 5/8 inch.
    - c. Edges: Tapered.
    - d. Application: Where required for fire-rated assemblies, unless otherwise indicated.
    - e. Recycled Content: Minimum 80% recycled gypsum and 95% recycled content face paper.
    - f. Local Materials: Manufactured and of raw materials from within 500 miles of Project Site.
  2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.
    - a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.
    - b. Application: Where required for fire-rated assemblies, unless otherwise indicated.
    - c. Thickness: 5/8 inch.
    - d. Edges: Tapered.
    - e. Recycled Content: Minimum 80% recycled gypsum and 95% recycled content face paper.
    - f. Local Materials: Manufactured and of raw materials from within 500 miles of Project Site.
- F. Abuse-Resistant Type: Gypsum wallboard especially formulated for increased impact resistance, with enhanced gypsum core and heavy duty face and back paper.

1. Application: High-traffic areas indicated.
  2. Core Type: Regular and Type X, as indicated.
  3. Thickness: 5/8 inch.
  4. Edges: Tapered.
  5. Recycled Content: Minimum 80% recycled gypsum and 95% recycled content face paper.
  6. Local Materials: Manufactured and of raw materials from within 500 miles of Project Site.
    - a. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include, but are not limited to the following:
      - 1) Certaineed/Saint Gobain - AirRenew Extreme Abuse
      - 2) Continental Building Products - Protecta HIR 300
      - 3) USG - FiberRock Abuse Resistant: [www.usg.com](http://www.usg.com)
      - 4) National Gypsum - High Abuse XP: [www.nationalgypsum.com](http://www.nationalgypsum.com)
      - 5) GP/Temple-Inland - ComfortGuard AR: [www.templeinland.com](http://www.templeinland.com)
- G. Mold-Moisture/Water-Resistant/Abuse Gypsum Backing Board: ASTM C 1396/C 1396M; ends square cut.
1. Application: Vertical surfaces behind thinset tile, except in wet areas.
  2. Edges: Tapered.
    - a. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include, but are not limited to the following:
      - 1) Certaineed/Saint Gobain - Extreme Abuse with M2 Technology
      - 2) Continental Building Products - Protecta HIR 300
      - 3) USG - FiberRock Aqua-Tough or Mold Tough Abuse Resistant: [www.usg.com](http://www.usg.com)
      - 4) National Gypsum - Gold Bond High Abuse XP: [www.nationalgypsum.com](http://www.nationalgypsum.com)
      - 5) GP/Temple-Inland - ComfortGuard: [www.templeinland.com](http://www.templeinland.com)
- H. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
  2. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
  3. Core Type: Regular.
  4. Regular Board Thickness: 5/8 inch.
  5. Edges: Square.
  6. Glass Mat Faced Products:
    - a. CertainTeed Corporation; GlasRoc Exterior Sheathing.
    - b. Continental Building Products; Weather Defense Platinum Exterior Sheathing.
    - c. Saint Gobain Certaineed: GlassRoc.
    - d. Georgia-Pacific Gypsum; DensGlass Sheathing.
    - e. National Gypsum Company; Gold Bond eXP Sheathing.
    - f. Temple-Inland Building Products by Georgia-Pacific, LLC; GreenGlass Exterior Sheathing.
    - g. USG Corporation: Securock Glass-Mat Sheathing

## 2.04 ACCESSORIES

- A. Sound Attenuation Batts/Blankets/Acoustic Insulation: ASTM C 665; 2.5 pcf nominal density, preformed mineral-fiber, friction fit type, unfaced. Fiber glass sound control batt insulation, unfaced, and must meet the performance requirements of ASTM C 665 "Standard Specification for Mineral Fiber Blanket, Thermal Insulation.
1. Sound Attenuation Batts/Blankets/Acoustic Insulation: ASTM C 665; 2.5 pcf nominal density, preformed mineral-fiber, creased, friction fit type, unfaced. Creased batt width to be one inch wider than the on-center spacing of the studs. Refer to drawings for stud spacing.

- a. Contractor option to provide creased batts/blankets or support batts/blankets with "tiger teeth, lightning rods, or wire stays" between studs or support batts with metal banding attached to the metal studs or metal wire threaded through the stud openings in a continuous manner.
      - 1) Acceptable Metal Banding Product:
        - (a) Insul-Hold Co., Inc. - Insul-Hold: [www.insulhold.com](http://www.insulhold.com)
      - (1) Class D, ASTM 527-80, 24 gauge galvanized metal strapping with two-three inch long arrows to secure insulation.
  - 2. Contractor option to use one of the following products:
    - a. Mineral-Fiber Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include:
      - 1) Owens Corning - Thermafiber SAFB: [www.thermafiber.com](http://www.thermafiber.com)
      - 2) Roxul Inc. - Roxul AFB: [www.roxul.com](http://www.roxul.com)
    - b. Fiber Glass Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include:
      - 1) JM -Sound Control Batts: [www.jm.com](http://www.jm.com)
      - 2) Owens Corning ProPink Sound Attenuation Batts: [www.owenscorning.com](http://www.owenscorning.com)
- B. Sound Attenuation Batts/Blanket Product Requirements:
  - 1. Sound Attenuation Batts/Blankets/Acoustic Insulation Thickness: Minimum thickness 3 inch at 3-5/8" metal stud walls.
  - 2. Sound Attenuation Batts/Blankets/Acoustic Insulation Thickness: Minimum thickness 6 inch at 6 inch metal stud walls.
  - 3. Sound Attenuation Batts/Blankets/ Acoustic Insulation Width: Minimum width to be the same as the on-center stud spacing indicated on the drawings.
- C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
  - 1. Types: As detailed or required for finished appearance.
- D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
  - 1. Ready-mixed vinyl-based joint compound.
- E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.
- F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion resistant.
- G. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.
- H. Screws: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.
- I. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- J. Compressible Filler: In lieu of coping gypsum board to deck profile and providing sound attenuation blanket material and acoustical sealant it is the contractor's option to provide and install cut to fit or premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane, EPDM, or PVC.
  - 1. Install at tops of non-rated, non-load-bearing metal stud walls running perpendicular or parallel to the metal deck . Place a bead of caulk 1/2 inch back from flute opening and on all sides of flute. Compress plug and slide into place.
    - a. Perpendicular to metal deck: Williams Products Inc. EVA 200G or 3000 Series Closure Flute Plugs or Strips: [www.williamsproducts.net](http://www.williamsproducts.net).

- 1) Closed Cell plugs and strips per ASTM D-1171, ASTM D-925, ASTM D-412. Density: 12.8 lbs/ft

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

#### **3.02 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
  1. Level ceiling and soffit system to a tolerance of 1/1200.
  2. Laterally brace entire suspension system.
- C. Studs: Space studs as indicated on the drawings.
  1. Align and secure top and bottom runners at 24 inches on center.
  2. Install studs vertically.
  3. Align stud web openings horizontally.
  4. Stud splicing is not permissible.
  5. Extend partition framing to underside of floor or roof deck. Attach extended leg top runner to deck, maintain clearance between top of studs and runner, and brace both flanges of studs with continuous bridging.
  6. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track. Contractor option to use slotted track.
- D. Corners: Fabricate corners using a minimum of three studs.
- E. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- F. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- G. Brace stud framing system rigid.
- H. Access Panel Opening Framing: Coordinate with the following, but not limited to; mechanical, electrical, plumbing, communication/data contractors for access panel locations in walls and ceilings.
  1. If access panels are being furnished by other trades verify type of access panel being provided, and if gypsum board on the recess door panel is required.
- I. Standard Wall Furring: Install at masonry walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.
- J. Blocking: See Section 061000 for wood blocking. Install wood blocking for support of:
  1. Cabinets, shelf, and countertop supports.
  2. Wall mounted cabinets.
  3. Wall brackets.
  4. Handrails and guardrails.
  5. Fire extinguisher cabinets, brackets, and valve cabinets.
  6. Grab bars.
  7. Toilet and bath accessories.
  8. Toilet and urinal partitions.
  9. Wall-mounted door hardware and stops.
  10. Chalkboards, tackboards, and marker boards.
  11. Wall paneling and trim.

12. Joints of rigid wall coverings that occur between studs.
13. Locker base and wall attachment.
14. Interior and exterior wall openings to receive metal frame system; window, door, etc.
15. Access panels.
16. Framed openings.
17. Plumbing fixtures.
18. Ceiling mounted projection screens and projector mounts.
19. Wall mounted projection screens and projector mounts.
20. Wall and ceiling mounted items indicated as N.I.C. and/or Owner provided and Owner installed.

### **3.03 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Sound Attenuation Batts /Acoustic Insulation: Friction fit, by placing tightly within on-center stud spacing, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant/Sound Caulk: Install per requirements of 079005 - Joint Sealers

### **3.04 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
- C. Exterior Soffits: Install exterior soffit board perpendicular to framing, with staggered end joints over framing members or other solid backing.
- D. Glass Mat Faced Gypsum Board: Install in strict accordance with manufacturer's instructions.
- E. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

### **3.05 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
  1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
  2. At exterior soffits, not more than 30 feet apart in both directions.
- B. Corner Beads: Install at external corners, using longest practical lengths.

### **3.06 LEVELS OF GYPSUM BOARD FINISH**

- A. Paper Faced Gypsum Board: Use paper or fiberglass joint tape, bedded with powder-type or ready-mixed vinyl-based joint compound and finished with powder-type or ready-mixed vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in GA-214 and ASTM C 840, as follows:
  1. Level 4: Walls, ceilings and soffits to receive flat, eggshell, semi-gloss or gloss paint.
  2. Level 2: Behind cabinetry, FRP panels in janitorial/custodial rooms and on backing board to receive tile finish.
  3. Level 1: Fire rated wall and non-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  1. Feather coats of joint compound so that camber is maximum 1/32 inch.
  2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.

3. Taping, filling and sanding is not required at base layer of double layer applications.
- D. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

### 3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

### END OF SECTION 092116

Refer to Part 2; Add the following section:

PR #9 SPEC UPDATE

### 2.05 FIBERGLASS REINFORCED BOARD MATERIALS

- A. FRP (Fiberglass Reinforced Plastic) Wall Panels:
  1. FRP panel type: Sanitary.
  2. Fire rating: Class 1/C fire rating per ASTM E-84.
  3. Surface texture: Smooth.
  4. Wall Panel, Trim and Accessories Color: Selected by Architect from manufacturers standard color chart.
  5. Trim and Accessories: Extruded rigid PVC trim units and accessories as required for a complete installation including but not limited to inside and outside corners, edge trim and butt joint connectors.
    - a. Coordinate base trim with quarry tile wall base.
  6. Adhesive: Provide manufacturer's recommended construction adhesives.
  7. Sealant: Provide manufacturer's recommended sealant to completely seal all seams and trim intersections.
  8. Panel Size: 48" x minimum 96".
  9. Panel Thickness: 3/32" (0.09") nominal.
  10. Panel Physical Properties:
    - a. Flexural Strengths: 10,000 psi
    - b. Flexural Modulus: 3,100,000 psi
    - c. Tensile Strengths: 7000 psi
    - d. Barcol Hardness: 35
    - e. Izod Impact Strength: 7.0-7.2 ft#/in
    - f. Thermal Coefficient of Lineal expansion: 15,700,000 in/in/F degrees
    - g. Water Absorption: .72%
    - h. Specific Gravity: 1.50 - 1.80
    - i. Flame Spread: <25
    - j. Smoke Generation: <450
  11. Manufacturers: Subject to compliance with requirements manufacturers offering the following products that may be incorporated into the work include:
    - a. Marlite - Marlite Standard FR Class 1/C: [www.marlite.com](http://www.marlite.com)
    - b. Crane Composites - Glasbord Class C: [www.cranecomposites.com](http://www.cranecomposites.com)
    - c. NUDO - FiberLite Class C: [www.nudo.com](http://www.nudo.com)
    - d. Stabilit America; Glasteel - Glasliner FRP Class 1/C: [www.glasteel.com](http://www.glasteel.com)



**SECTION 093000 - TILING**

SPECIFICATION UPDATES FOR PR #9 ARE CLOUDED RED

**PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. This Section includes the following:
  - 1. Glazed ceramic wall tile (showers) (CT3)
  - 2. Ceramic Tile Shower Floors (CT2)
  - 3. Porcelain paver tile (CT1)
  - 4. Setting and grouting materials
  - 5. Transition strips. Provide a cultured marble strip with bevels on both sides across the entry into the shower area. The intention of the strip is to contain the water within the shower to allow it to drain.
  - 6. Self-leveling system comprised of clips & wedges
  - 7. Quarry Tile (QT). Refer to PR#9

**1.02 RELATED REQUIREMENTS**

- A. Section 012300 - Alternates: Refer to section for additional information.
- B. Section 013000 - Administrative Requirements - Submittal procedures
- C. Section 079005 - Joint Sealers: Acoustic sealant/sound caulk
- D. Section 090050 - Finish Legend
- E. Section 092116 - Gypsum Board Assemblies: Tile backer board
- F. Section 224000 - Plumbing Fixtures: Shower receptor

**1.03 REFERENCE STANDARDS**

- A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)
- B. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (Reaffirmed 2010).
- C. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2010 (Reaffirmed 2016).
- D. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-set Ceramic Tile and Dimension Stone Installation; 2014.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2011.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- I. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- J. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2011.
- K. ICC (IBC) - International Building Code; 2012, with Kentucky Amendments; current edition.
- L. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2015.

- M. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

#### **1.04 SUBMITTALS**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data: Provide manufacturer's data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
  - 1. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.
- D. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.
- E. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.
  - 1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.
  - 2. Full-size units of each type of trim and accessory for each color required.
- F. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- G. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of tile and tile setting and grouting products with requirements indicated.
- H. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.
- I. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project:
  - 1. See Section 016000 - Product Requirements, for additional information.

#### **1.05 QUALITY ASSURANCE**

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings".
- E. Maintain one copy of ANSI A108/A118/A136.1 and TCNA (HB) on site.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.
- B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.
- C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If despite these precautions coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

**1.07 PROJECT CONDITIONS**

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

**1.08 SEQUENCING AND SCHEDULING**

- A. Coordinate the work with all sections referencing this section.

**1.09 WARRANTY**

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

**1.10 EXTRA MATERIALS**

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.
  - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size.

**PART 2 - PRODUCTS****2.01 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to the following:
  - 1. Glazed Wall Tile:
    - a. American Olean Tile Co., Inc.
    - b. Crossville Ceramics
    - c. Dal-Tile Corp.
    - d. Florida Tile Industries, Inc.
    - e. Summitville Tiles, Inc.
  - 2. Porcelain Tile & Base:
    - a. American Olean Tile Co., Inc.
    - b. Crossville, Inc.
    - c. Dal-Tile Corp.
    - d. Louisville Tile
  - 3. Latex-Emulsion Based-Portland Cement Mortars:

- a. Boiardi Products Corp.
- b. Bostik Construction Products Div.
- c. C-Cure Chemical Co.
- d. Custom Building Products
- e. Dal-Tile Corp.
- f. DAP, Inc. Div.; USG Corp.
- g. H.B. Fuller
- h. Laticrete International, Inc.
- i. L&M Mfg., Inc.
- 4. High Performance Grout:
  - a. TEC Power Grout 550
- 5. Unglazed Quarry Tile:
  - a. Dal-Tile Corp.
  - b. Summitville Tiles
  - c. American Olean Tile Co.

## 2.02 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
  - 1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
  - 1. Provide porcelain paver selections by interior designer.
  - 2. Provide tile trim and accessories that match color and finish of adjoining flat tile unless otherwise indicated.
  - 3. Provide glazed wall tile selections by interior designer.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
- E. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
- F. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies that this type of mounting is suitable for these kinds of uses and has been successfully used on other projects.
- G. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

## 2.03 TILE PRODUCTS

- A. Glazed Wall Tile (CT3): Provide flat tile complying with the following requirements:
  - 1. Nominal Face Dimensions: 4 inches x 4 inches.
  - 2. Nominal Facial Dimensions: 5/16 inch.
  - 3. Face plain with cushion edge.
  - 4. Mounting: Factory back-mounted.
  - 5. Basis of Design: American Olean's "Bright" Collection.
- B. Porcelain Paver Floor Tile (CT1): Provide tile complying with the following requirements:
  - 1. Basis of Design: Louisville Tile, Ignite

2. Size: 12"x24"
  3. Color: TBD
  4. Installation: 1/3 Offset
  5. Composition: Porcelain.
  6. Nominal Thickness: 3/8 inch.
  7. Face: Plain with square edges.
- C. Ceramic Floor Tile (CT2) (Showers):
1. Nominal face dimensions: 2" x 2".
  2. Nominal thickness: 1/4".
  3. Basis of design: American Olean's Unglazed Mosaics & Options, and Daltile's Keystones
- D. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
  2. Shapes: As follows, selected from manufacturer's standard shapes:
    - a. Base for Thinset Mortar Installations: Coved.
    - b. External Corners for Thinset Installations: Surface bullnose.
    - c. Internal Corners: Field-butt square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.
- E. Unglazed Quarry Tile (QT1): Provide square edged flat tile complying with the following requirements:
1. Wearing surface: Non-abrasive
  2. Nominal facial dimensions: 6" x 6"
  3. Nominal Thickness: 1/2"
  4. Face: Non Abrasive

## 2.04 SETTING & GROUTING MATERIALS

- A. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method designated, unless otherwise indicated.
- B. Latex-Portland Cement Mortar: Provide product complying with ANSI A108.1 and the following requirement for composition:
1. Prepackaged dry mortar mix incorporating dry polymer additive in the form of a re-emulsifiable powder to which only water is added at the job site.
  2. Latex additive (water emulsion) of type described below, serving as a replacement for part or all of gauging water, added at job site to prepackaged dry mortar mix supplied or specified by latex manufacturer.
    - a. Latex Type: Manufacturer's standard.
- C. Grouting Materials:
1. Dry Set Grout: Provide product complying with ANSI A118.6 of color indicated.
  2. Prepackaged Dry Grout Mix incorporating dry polymer additive in the form of a re-emulsifiable powder to which only water is added at job site.
  3. Grout Additive: Grout Boost Advanced Pro by H.B. Fuller Construction Products, Inc. Follow all manufacturer's instructions.
  4. Latex Additive (water emulsion) serving as a replacement for part or all of gauging water, added at job site to prepackaged dry grout mix, with type of latex and dry grout mix complying with requirements indicated below:
    - a. Latex Type: Manufacturer's Standard.
    - b. Grout Type: Dry-set grout specified or supplied by latex manufacturer. Use latex additive without a retarder with dry-set grout.
    - c. Application: Use to grout joints in floor and wall tile unless otherwise indicated.
- Note: Grout joints shall be 1/8" wide and the epoxy grout shall fill the joint space and be no lower than 1/32" of an inch from the top face of the tile.

## 2.05 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 7 Section "Joint Sealers," including ASTM C 920 as referenced by Type, Grade, Class, and Uses.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. Multipart Pourable Urethane Sealant for Use T: Type M; Grade P; Class 25; Uses T, M, A, and as applicable to joint substrates indicated, O.
- D. Products: Subject to compliance with requirements, manufacturers offering products which may be incorporated into the Work include, but are not limited to, the following:
  - 1. Multipart Pourable Urethane Sealant:
    - a. "Chem-Calk 550"; Bostik Construction Products Div.
    - b. "Vulkem 245"; Mameco International, Inc.
    - c. "Urexpan NR-200"; Pecora Corp.
    - d. "THC-900"; Tremco Corp.

## 2.06 MISCELLANEOUS MATERIALS

- A. Transition Strips: Provide a metal stepless transition strip to match Schluter-Reno U or TK Series (or approved equivalent) at all exposed edges of tile installation.
- B. Temporary Protective Coating: Provide product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout, is compatible with tile and mortar/grout products, and is easily removable after grouting is completed without damaging grout or tile.
  - 1. Petroleum paraffin wax, fully refined, tasteless, odorless, containing at least 0.5 percent oil with a melting point of 120 deg F (49 deg C) to 140 deg F (60 deg C) per ASTM D 87.
  - 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as a temporary protective coating for tile.
- C. Outside Corner Metal Trim: Provide outside corner metal trim equivalent to Schluter Systems Rondec-AE number RO 80 AE "Satin Anodized" finish on all outside wall corners to receive tile.
- D. Self-Leveling System: Provide two-part leveling clips and wedges (3/16") as manufactured by one of the following:
  - 1. Raimondi - Leveling Solutions
  - 2. Tuscan - Leveling System
  - 3. QEP - Lash System

## 2.07 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  - 1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
  - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- B. The Quarry Tile shall be sealed before grouting with Aqua Mix Inc. penetrating sealer following manufacturer's application recommendations.
- C. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces:
  - 1. Petroleum paraffin wax or grout release.
- D. Protect surrounding work from damage.
- E. Vacuum clean surfaces and damp clean.
- F. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- G. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.
- H. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

### 3.03 INSTALLATION - GENERAL

- A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
  - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- F. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.
  2. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealers."
- G. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

### **3.04 INSTALLATION - FLOORS - THIN-SET METHODS**

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113 or F116 (epoxy).
1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122.
  2. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F131.
- B. Over wood substrates, install in accordance with TCNA (HB) Method F150.
- C. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

### **3.05 INSTALLATION - SHOWERS AND BATHTUB WALLS**

- A. At tiled shower receptors install in accordance with TCNA(HB) Approved Method.
- B. At bathtub walls install in accordance with TCNA (HB) Method W202, thin-set over masonry.

### **3.06 INSTALLATION - WALL TILE**

- A. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

### **3.07 CLEANING AND PROTECTION**

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
1. Remove latex-portland cement grout residue from tile as soon as possible.
  2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
  3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to brick and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.
- D. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- E. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- F. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

**END OF SECTION**



**SECTION 095113 - ACOUSTICAL PANEL CEILINGS**

SPECIFICATION UPDATES FOR PR #9 ARE CLOUDED RED

**PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. This Section includes the following:
  - 1. Acoustical panels Type APC-1 (24" x 48")
  - 2. Exposed suspension system (15/16")
  - 3. Washable Faced Panels APC-2 (24" x 24")
- B. All acoustical panel ceiling components and installation methods shall comply with seismic zone requirements of the Kentucky Building Code.
- C. Refer to the reflected ceiling plans for location of existing panels and suspension system to remain.
- D. Refer to the Room Finish Schedule on Sheet and the Ceiling Legend and Reflected Ceiling Plan for the locations of acoustical ceiling tile and grid types.

**1.02 RELATED REQUIREMENTS**

- A. Section 012300 - Alternates: Refer to section for additional information.
- B. Section 033000 - Cast-In-Place Concrete: Placement of special anchors or inserts for suspension system
- C. Section 053100 - Steel Decking: Placement of special anchors or inserts for suspension system
- D. Section 090050 - Finish Legend
- E. Section 211300 - Fire Suppression Sprinkler System: Sprinkler heads in ceiling system
- F. Section 233700 - Air Outlets and Inlets: Air diffusion devices in ceiling
- G. Section 265100 - Interior Lighting: Light fixtures in ceiling system
- H. Section 275116 - Public Address Systems: Speakers in ceiling system
- I. Section 284600 - Fire Detection and Alarm: Fire alarm components in ceiling system

**1.03 DEFINITIONS**

- A. CAC: Ceiling Attenuation Class.
- B. LR: Light Reflectance coefficient.
- C. NRC: Noise Reduction Coefficient.

**1.04 REFERENCE STANDARDS**

- A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.
- B. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.
- C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.
- D. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.
- E. ASTM E795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests; 2005 (Reapproved 2012).

- F. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.
- G. CAL (CHPS LEM) - Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at [www.chps.net/](http://www.chps.net/).
- H. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at [www.greenguard.org](http://www.greenguard.org).
- I. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2015.
- J. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.
- K. UL (GGG) - GREENGUARD Gold Certified Products; current listings at <http://productguide.ulenvironment.com/QuickSearch.aspx>.

#### 1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection: For components with factory-applied color finishes.
- D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
  - 1. Acoustical Panel: One set of 6-inch- (150-mm-) square Samples of each type, color, pattern, and texture.
  - 2. Exposed Suspension System Members, Moldings, and Trim: One set of 12-inch- (300-mm-) long Samples of each type, finish, and color.
- E. Qualification Data: For testing agency.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.
- G. Research/Evaluation Reports: For each acoustical panel ceiling and components and anchor type.
- H. Maintenance Data: For finishes to include in maintenance manuals.
- I. NRC: Noise Reduction Coefficient.

#### 1.06 QUALITY ASSURANCE

- A. Acoustical Testing Agency Qualifications: An independent testing laboratory, or an NVLAP-accredited laboratory, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548. NVLAP-accredited laboratories must document accreditation, based on a "Certificate of Accreditation" and a "Scope of Accreditation" listing the test methods specified.
- B. Source Limitations
  - 1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
  - 2. Suspension System: Obtain each type through one source from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
  - 1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
    - a. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.

- b. Identify materials with appropriate markings of applicable testing and inspecting agency.
- 2. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

#### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

#### **1.08 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended

#### **1.09 SEQUENCING AND SCHEDULING**

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

#### **1.10 WARRANTY**

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

#### **1.11 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Panels: Full-size panels equivalent to 2.0 percent of quantity installed.
  - 2. Suspension System Components: Quantity of each exposed component equivalent to 2.0 percent of quantity installed.

### **PART 2 - PRODUCTS**

#### **2.01 WARRANTIES**

- A. Panels shall not sag for 15 years. No limit to relative humidity, short of standing water and up to 120 degrees Fahrenheit.

#### **2.02 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

### 2.03 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.
  - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
  - 1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

### 2.04 MINERAL-BASE ACOUSTICAL PANELS

- A. Ceiling Type APC-1: (24" x 48" x 3/4")
  - 1. Products:
    - a. Armstrong's School Zone "Fine Fissured" No. 1714
    - b. USG: "Clima Plus" High NRC No. 22441
    - c. CertainTeed "Fine Fissured" No. HHF-197
  - 2. Classification: Provide Class A panels complying with ASTM E 1264 for type, form, and pattern as follows:
    - a. Type and Form: Type III, Form 2
    - b. Pattern: CE (lightly textured)
  - 3. Color: White
  - 4. LR: Not less than 0.84
  - 5. NRC: Not less than 0.70, U.L. classified label on each carton
  - 6. CAC: Not less than 40, U.L. classified label on each carton
  - 7. Edge Detail: Square
  - 8. Antimicrobial Treatment: Coating based to inhibit mold and mildew
  - 9. Panels shall exceed ASTM C367 ball hardness test to 210 lbs.
- B. Washable Faced Panels APC-2: (24" x 24" x 5/8")
  - 1. Armstrong's kitchen zone No. 673
  - 2. Sheetrock gypsum ceiling Panel No. 3260
  - 3. National Gypsum Gridstone No. GR5040
  - 4. Provide Class A Panels complying with ASTM E 1264 for type, form and pattern as follows:
    - a. Type and Form: Type IX, Form 2
    - b. Pattern: G
  - 5. Color: White
  - 6. Edge Detail: Square

### 2.05 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
  - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.

- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
- D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
  - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
  - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.
  - 3. Wire hangers shall be installed on two diagonal corners of each 2' x 4' ceiling grid opening, or equivalent. Refer to the electrical specifications for information concerning the suspension system for ceiling mounted equipment.

## 2.06 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILINGS

- A. Available Products:
  - 1. Armstrong Prelude XL
  - 2. USG DX/DXL 24 Series
  - 3. Chicago Metallic CMC 1200 Series
  - 4. Gordon, Inc.
- B. Wide-Face, Capped, Double-Web, Fire-Rated Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation, with prefinished **15/16-inch- (24-mm-)** wide metal caps on flanges.
  - 1. Structural Classification: Intermediate-duty system
  - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type
  - 3. Face Design: Flat, flush
  - 4. Cap Material: Cold-rolled sheet
  - 5. Cap Finish: Painted white
  - 6. Width: 15/16"
  - 7. Corner trim: Pre-Manufactured
- C. Radius Wall/Soffit Surfaces: Radius wall surfaces only shall receive Ultra-Flex flexible acoustical ceiling trim as manufactured by the Kenbeck Company. The appearance of the Ultra-Flex angle trim shall match the other typical angle trim.
- D. Drywall Grid System: Grid system meeting ASTM C 635 and ASTM C 645 Standard Specification for Rigid Furring Channels for Screw Applications of Gypsum Board.
  - 1. Contractor option to use this system in lieu of framed construction.
  - 2. Intermediate-duty main beam, G40 zinc-coated hot dipped galvanized steel, double-web construction, profile height of 1-11/16" with peaked roof or rectangular top bulb and 1-1/2" knurled flange.
  - 3. Cross-tees, G40 zinc-coated hot dipped galvanized steel, double-web construction, profile height 1-1/2" with peaked roof or rectangular top bulb and 1-1/2" knurled flange.
  - 4. Wall moldings, galvanized steel, hemmed angle, nominal 1-1/4" x 1-1/4".
  - 5. Hanger wire, minimum 12 gauge and spaced along main beam not more than 4' on center to support load.
  - 6. Add vertical bracing as required to stabilize the frame.
  - 7. Product to have manufacturers 10-year limited warranty.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

### 3.03 INSTALLATION, GENERAL

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCAs "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
  2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
  4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, post-installed mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
  1. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit. Where the unfinished/unpainted cut edge of a tile is exposed the edge shall be repainted to achieve a "finished" appearance.
  1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

### 3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Fit border trim neatly against abutting surfaces.
- B. Cutting Acoustical Units:
  1. Cut to fit irregular grid and perimeter edge trim.
  2. Make field cut edges of same profile as factory edges.
  3. Double cut and field paint exposed reveal edges.

**3.05 FIELD QUALITY CONTROL**

- A. Remove and replace acoustical panel ceiling hangers where test results indicate that they do not comply with specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

**3.06 CLEANING**

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touch up of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION**

**SECTION 101424 - SIGNS**

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**PART 1 GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specification Sections, apply to this Section.
- B. Division 9 Section 090050 - Finish Legend

**1.02 SUMMARY**

- A. This Section includes the furnishing of Specialty Signs. Extent of Specialty Signs is shown on the Drawings and in this section.
- B. Forms of Specialty Signs required include the following:
  1. Interior Panel signs (mechanical attachment)
  2. Cast metal plaques (Four) As shown on PR9.2
  3. Fabricated letters (exterior and interior) as shown on D/PR9.1
  4. Vinyl film graphics
  5. Flat cut acrylic letters
  6. Digitally printed PVC "E" as shown on D/PR9.1
- C. Work not included in this section:
  1. Illuminated exit signs are specified in Division 16.

**1.03 SUBMITTALS**

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: Include manufacturer's construction details relative to materials, dimensions of individual components, profiles, and finishes for each type of sign required.
- C. Shop Drawings: Provide shop drawings for fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, reinforcement, accessories, layout, and installation details.
  1. Provide message list for each sign required, including large-scale details of wording and layout of lettering.
  2. For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of Work in other Sections.
  3. Furnish full-size rubbings for metal plaques.
  4. Furnish full-size spacing templates for individually mounted dimensional letters and numbers.
  5. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
    - a. Samples for verification of color, pattern, and texture selected, and compliance with requirements indicated:
      - 1) Panel Sign Cast Acrylic Sheet and Plastic Laminate: Provide a sample panel not less than 8-1/2 inches by 11 inches for each material indicated. Include a panel for each color, texture, and pattern required. On each panel include a representative sample of the graphic image process required, showing graphic style, and colors and finishes of letters, numbers, and other graphic devices.
      - 2) Plastic Dimensional Letters: Provide full-size representative sample of letter type required, showing style, color and material finish and method of attachment.



## 1.04 QUALITY ASSURANCE

- A. Single-Source Responsibility: For each separate type of sign required, obtain signs from one source from a single manufacturer.
- B. Design Criteria: The drawings indicate size, profiles, and dimensional requirements of signs and are based on the specific type and model indicated. Signs by other manufacturers may be considered provided that deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.
- C. ADA Regulations: All signage specified herein shall comply with the minimum sign requirements as outlined by the most current Americans with Disabilities Act (ADA).
  - 1. Manufacturer shall be responsible for complying with all applicable requirements of ADA whether specifically specified or not. Notify Architect of any discrepancies between ADA requirements and the contract documents.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
  - 1. Manufacturers of Interior Panel Signs and Flat Cut Letters:
    - a. APCO Architectural Sign Systems
    - b. ASI Modulex
    - c. Best Manufacturing Co.
    - d. Contemporary Plastics, Inc.
    - e. Fastsigns of Louisville
    - f. Innerface Sign System
    - g. Inpro
    - h. J. Gemini, Inc.
    - i. Mohawk Signs
    - j. Nelson-Harkins
    - k. Serigraphics Sign Systems, Inc.
    - l. Signcraft
  - 2. Manufacturers of Cast Plaques:
    - a. American Graphics, Inc.
    - b. Andco Industries Corp.
    - c. A.R.K. Ramos Manufacturing Company, Inc.
    - d. ASI Modulex
    - e. Best Manufacturing Co.
    - f. Fastsigns of Louisville
    - g. Gemini, Inc.
    - h. Metal Arts, Division of L & H Manufacturing Co.
    - i. Mohawk Signs
    - j. Nelson Harkins
    - k. Signcraft
    - l. The Southwell Company
  - 3. Manufacturers of Fabricated Letters :
    - a. APCO Architectural Sign Systems
    - b. ASI Modulex
    - c. Best Manufacturing Co.
    - d. Contemporary Plastics, Inc.
    - e. Fastsigns of Louisville
    - f. Innerface Sign System
    - g. Inpro
    - h. J. Gemini, Inc.
    - i. Mohawk Signs

- j. Nelson-Harkins
- k. Serigraphics Sign Systems, Inc.
- l. Signcraft

## 2.02 MATERIALS

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thicknesses indicated, with a minimum flexural strength of 16,000 psi when tested in accordance with ASTM D 790, a minimum allowable continuous service temperature of 176 deg F (80 deg C), and of the following general types:
  - 1. Opaque Sheet: Where sheet material is indicated as "opaque," provide colored opaque acrylic sheet in colors and finishes as selected from the manufacturer's standards.
  - 2. Aluminum Extrusions: Provide aluminum extrusions of alloy and temper recommended by the aluminum producer or finisher for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5.
  - 3. Aluminum Castings: Provide aluminum castings of alloy and temper recommended by the aluminum producer and finisher for the casting process used and for the use and finish indicated.
  - 4. ABS Plastic: Provide high-impact thermoplastic composed of copolymers of acrylonitrile, butadiene, and styrene.
  - 5. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
  - 6. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
  - 7. Vinyl Film: Provide vinyl film signage and graphics as manufactured by 3M's films or approved equivalent.
    - a. Opaque Graphic Films
    - b. Reflective Graphic Films

## 2.03 PANEL SIGNS

- A. Panel Signs: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.
  - 1. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally.
  - 2. Material: Plastic
  - 3. Corner Condition: Square corners
  - 4. Panel Thickness: 1/8" minimum
  - 5. Attachments: Mechanical
  - 6. Size: 8" x 8" and 3" x 5"
  - 7. Copy: Final signage copy shall be provided on the shop drawings; for bidding purposes the bidder shall assume that the room name(s) and their three digit room numbers shall be listed.
  - 8. Where panel signs are indicated to be mounted to window surfaces, the signage fabricator shall provide a matching blank backer panel.
- B. Graphic Content and Style: Provide sign copy that complies with the requirements indicated for size, style, spacing, content, position, material, finishes, and colors of letters, numbers, and other graphic devices.
- C. Raised Copy: Provide sign plaque with raised copy (1/32") and grade 2 braille as an integral part of the plaque. Use photo etching process or reverse engraved process. Other methods to achieve raised and braille will require pre-approval. Sign surface color must be durable and scratch and vandal resistant. Applied copy and braille strips are not acceptable.
- D. Room Number and Title: Titles shall be 3/4" or .63" Sans Serif Typestyle, centered horizontally and vertically. Numbers shall be 1" or 2" Sans Serif Typestyle, centered horizontally and vertically.

- E. Changeable Message Inserts: Fabricate signs to allow insertion of 1" x 8" changeable messages in the form of transparent covers with paper inserts printed by Owner.
  - 1. Furnish insert material and software for creating text and symbols for PC-Windows computers for Owner production of paper inserts.
- F. Special Symbols: Handicap symbol shall be 3" high. Men/Women symbols shall be 4" high. Locate as directed by Architect.
  - 1. Equivalent raised written description must be placed directly below symbol.
- G. Size shall be nominal 8" x 8" or as indicated. Manufacturer's standard sizes incorporating minor size variations will be accepted. Refer to the revised and additional Room Identification Sign Schedule as shown on 3.03.

#### 2.04 CAST METAL PLAQUES

- A. Plaques: Castings shall be free from pits, scale, sand holes, or other defects. Comply with requirements specified for metal, border style, background texture, and finish and with requirements shown for thickness, size, shape, and copy. Hand-tool and buff borders and raised copy to produce the manufacturer's standards satin polished finish. Refer to "Finish" article for other finish requirements.
  - 1. Metal: Aluminum
  - 2. Border Style: As selected by Architect/ Designer
  - 3. Background Texture: Manufacturer's standard pebble texture
  - 4. Background Finish: Provide the manufacturer's standard baked enamel finish
  - 5. Layout: Refer to plaque layout sheet
  - 6. Size: 2'-9" x 1'-9"

#### 2.05 FABRICATED LETTERS (Base of Design: ASI Modulex LF Series)

- A. Fabricated Characters: Fabricate letters and numbers to required sizes and styles, using metals and thicknesses indicated. Form exposed faces and sides of characters to produce surfaces free from warp and distortion. Include internal bracing for stability and attachment of mounting accessories. Comply with requirements indicated for finish, style and size.
  - 1. Aluminum Sheet: Face, not less than 0.090 inch (2.30 mm) thick, .063 returns, .063 welded loose fit backs
  - 2. Thickness: 1"
  - 3. Copy: "ESTILL COUNTY ENGINEERS TICKET BOOTH" - 14" H (Alt #6)
  - 4. Copy: "ENGINEERS" 26" H - At Field House
  - 5. Copy: "ESTILL COUNTY ENGINEERS" -8" H (PR#9)

#### 2.06 VINYL FILM

- A. Vinyl Film: Provide vinyl film signage and graphics as manufactured by 3M's films or approved equivalent.
  - 1. Opaque Graphic Films
  - 2. Manufacturer: Fastsigns-Louisville
  - 3. Color: TBD
  - 4. Type: Etch Image Letters on clear vinyl film the width of the window openings.
  - 5. Location: Refer to the drawings-front vestibule.
  - 6. Copy: "Estill County Engineers"
  - 7. Height: 8" Letters on Vinyl

#### 2.07 FLAT CUT ACRYLIC LETTERS AND NUMBERS

- A. Flat Cut Letters: Produce characters with smooth, flat faces, sharp corners, and precisely formed lines and profiles, free from pits, scale, sand holes, or other defects. Attach lugs onto back of characters and tap to receive threading mounting studs. Comply with requirements indicated for finish, style and size. Space letters & numbers per the sign manufacturer's heavy paper template.
  - 1. Thickness: 1/4"

2. Style: Selected from manufacturer's standards
3. Mounting: Two part epoxy
4. Copy: "Estill County" -6" H "Engineers" -9" H

## **2.08 FABRICATION - GENERAL**

- A. General: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.
- B. Design, fabricate, and install sign assemblies to prevent buckling, opening up of joints, and over-stressing of welds and fasteners.
- C. Mill joints to a tight, hairline fit. Form joints exposed to the weather to exclude water penetration.
- D. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
- E. Create signage to required sizes and layout. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.

## **2.09 FINISHES**

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Architect from the manufacturer's standards.
- B. Metal Finishes: Comply with NAAMM "Metal Finishes Manual" for finish designations and applications recommendations.
  1. Aluminum Finishes: Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
  2. Baked Enamel Finish: AA-M4xC12C42R1x (Mechanical Finish: Manufacturer's standard, other nondirectional textured; Chemical Finish: Chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: as specified below). Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, and painting.
  3. Organic Coating: Thermosetting modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with a minimum dry film thickness of 1.5 mils, medium gloss.
  4. Color: As selected by the Architect from the manufacturer's standard colors.

## **2.10 DIGITALLY PRINTED PVC "E"**

- A. Provide digitally printed PVC "E" as shown on D/PR9.1
- B. Thickness: 1/4"
- C. Edges: Black
- D. Quantity: Two (2)

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
  1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:
  1. Mounting: Use expansion bolt anchoring device as recommended by manufacturer to attach signs to concrete block walls. Provide minimum 4 fasteners for 8" x 8" signs.
  2. Mount interior signs with centerline one foot from latch side of door frames, and top of sign five feet above finish floor. Note: Lower signs as required to meet all ADA requirements.

3. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall. Mounting location for such signage shall be so that a person may approach within 3 inches (76 mm) of signage without encountering protruding objects or standing within the swing of a door.
  4. Where a tactile sign is provided at a door, the sign shall be alongside the door at the latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leaves, the sign shall be to the right of the right-handed door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor area 18 inches (455 mm) minimum by 18 inches (455 mm) minimum, centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.
  5. Tactile characters on signs shall be located 48 inches (1220 mm) minimum above the finish floor or ground surface, measured from the baseline of the lowest tactile character and 60 inches (1525 mm) maximum above the finish floor or ground surface, measured from the baseline of the highest tactile character.
- C. Cast Metal Plaques: Mount Plaques using the standard method recommended by the manufacturer for the type of wall surface indicated.
  - D. Concealed Mounting: Mount plaques by inserting threaded studs into tapped lugs on the back of the plaque. Set in predrilled holes filled with quick-setting cement.
  - E. Dimensional and/or Fabricated Letters and Numbers: Mount letters and numbers using standard fastening methods recommended by the manufacturer for letter form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish letter spacing and to locate holes for fasteners. Locate as directed by Architect.
    1. Flush Mounting: Mount letters with backs in contact with the wall surface.

### 3.02 CLEANING AND PROTECTION

- A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

### 3.03 **REFER TO 101424.01-SIGNAGE LEGEND FOR PR # 9 REVISED AND ADDITIONAL ROOM IDENTIFICATION SIGNAGE SCHEDULE.**

SIGNAGE SCHEDULE		
NOVEMBER 2021	ESTILL COUNTY PR#9	

REVIT Room #	REIVT ROOM NAME	NEW COPY	QUANTITY	SIGN TYPE	IN CONTRACT
001	CAFETERIA	001 CAFETERIA	2	1	
002	MECHANICAL	001A MECHANICAL & STORAGE	1	1	
002A	STORAGE	N/A	N/A	N/A	
003	KITCHEN	002 SERVING LINE	2	1	
003A	DISHWASH	N/A	N/A	N/A	
003B	STAFF RESTROOM	N/A	N/A	N/A	
003C	LOCKER ROOM	N/A	N/A	N/A	
003D	PREP WORK AREA	N/A	N/A	N/A	
003E	CUSTODIAL RECEIVING	N/A	N/A	N/A	
003F	COOLER/ FREEZER	N/A	N/A	N/A	
004	SCIENCE CLASSROOM	003 CLASSROOM	2	2	
004A	STORAGE	003A ELEVATOR EQUIPMENT	1	1	
004B	WORKROOM	N/A	N/A	N/A	
005	WOMENS' RR	004 WOMENS	1	3	
006	MENS' RR	005 MENS	1	3	
007	MECHANICAL	N/A	N/A	N/A	
008	CLASSROOM	006 CLASSROOM	1	2	
009	CLASSROOM	007 CLASSROOM	1	2	
010	CLASSROOM	008 CLASSROOM	1	2	
010A	STORAGE	N/A	N/A	N/A	
011	OFFICE	009 OFFICE	1	2	
012	LOCKER ROOM	010 LOCKER ROOM	1	1	
012A	OFFICE	010A COACH'S OFFICE	1	2	
012B	STORAGE	N/A	N/A	N/A	
013	CLASSROOM	011 CLASSROOM	1	2	
014	WOMENS' RR	014 WOMENS	1	3	
015	OFFICE	015 OFFICE	1	2	
015A	STORAGE	N/A	N/A	N/A	
016	MENS' RR	016 MENS	1	3	
017	CLASSROOM	012 CLASSROOM	1	2	
018	LOCKER ROOM	013 LOCKER ROOM	1	1	
018A	OFFICE	013A COACH'S OFFICE	1	2	
018B	STORAGE	N/A	N/A	N/A	
019	STORAGE	N/A	N/A	N/A	
020	ROTC CLASSROOM	017 ROTC LAB	1	1	
020A	STORAGE	N/A	N/A	N/A	
020B	STORAGE	N/A	N/A	N/A	
021	AGRICULTURE CLASSROOM	018 AGRICULTURE LAB	1	1	
021A	OFFICE	017A OFFICE	1	2	
100	RECEPTION	100 RECEPTION	2	1	
100A	OFFICE	100A OFFICE	1	2	
101	CONFERENCE	101 CONFERENCE	1	1	
101A	STORAGE	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
101B	RECORDS ROOM	101A RECORDS ROOM	1	1	
101C	PRINCIPAL OFFICE	102 PRINCIPAL	1	2	
102	RECEPTION	103 STUDENT SERVICES	1	2	
102A	OFFICE	103C GUIDANCE	1	2	
102B	OFFICE	103B GUIDANCE	1	2	
102C	OFFICE	103A OFFICE	1	2	
103	CLASSROOM	104 CLASSROOM	1	2	
104	OFFICE	105 OFFICE	1	2	
105	CLASSROOM	106 CLASSROOM	1	2	
106	CLASSROOM	107 CLASSROOM	1	2	
107	YSC OFFICE	N/A	N/A	N/A	
107A	ELEVATOR EQUIP.	N/A	N/A	N/A	
108	COMPUTER CLASSROOM	108 COMPUTER CLASSROOM	1	2	
109	MDF	109 MDF	1	1	
110	CLASSROOM	110 CLASSROOM	1	2	
111	CUSTODIAL CLOSET	112 CUSTODIAL	1	1	
112	MENS' RR	111 MENS	1	3	
113	WOMENS' RR	113 WOMENS	1	3	
114	SRO OFFICE	114 SRO OFFICE	1	2	
115	AUDITORIUM	115 AUDITORIUM	1	1	

REVIT Room #	REIVT ROOM NAME	NEW COPY	QUANTITY	SIGN TYPE	IN CONTRACT
115A	STAGE	N/A	N/A	N/A	
115B	STORAGE	N/A	N/A	N/A	
116	COLOR GUARD STORAGE	115A STORAGE	1	1	
116A	RESTROOM	N/A	N/A	N/A	
117	BAND CLASSROOM	116 BAND	2	1 & 2	
117A	OFFICE	116A OFFICE	1	2	
117B	STORAGE	116B OFFICE	1	2	
117C	STORAGE	N/A	N/A	N/A	
117D	STORAGE	N/A	N/A	N/A	
117E	STORAGE	N/A	N/A	N/A	
118	BAND STORAGE	115B STORAGE	1	1	
118A	RESTROOM	N/A	N/A	N/A	
119	SOUND PROD.	117 SOUND PRODUCTION	1	1	
119A	STORAGE	N/A	N/A	N/A	
120	STAFF RR	118 RESTROOM	1	3 (UNISEX)	
121	STAFF RR	119 RESTROOM	1	3 (UNISEX)	
122	FIRST AID	120 NURSE	1	1	
122A	FIRST AID RR	120A RESTROOM	1	3	
123	ART CLASSROOM	122 ART	2	2	
123A	ART STORAGE	N/A	N/A	N/A	
124	CLASSROOM	123 CLASSROOM	3	2	
124A	STORAGE	N/A	N/A	N/A	
124B	STORAGE	N/A	N/A	N/A	
125	TEACHER WORKROOM	124 STAFF WORKROOM	2	1	
126	FAMILY CONSUMER SCIENCE	125 FAMILY CONSUMER SCIENCE	3	2	
126A	OFFICE	N/A	N/A	N/A	
126B	STORAGE	125A ELEVATOR EQUIPMENT	1	1	
127	COMPUTER CLASSROOM (PLAN EAST)	130 CLASSROOM	1	2	
127	COMPUTER CLASSROOM (PLAN WEST)	129 CLASSROOM	1	2	
128	OFFICE	128 OFFICE	1	2	
128A	STORAGE	N/A	N/A	N/A	
129	MECHANICAL	127 MECHANICAL	1	1	
130	FAMILY RESOURCE CENTER	126 OFFICE	1	2	
130A	STORAGE	N/A	N/A	N/A	
131	GYMNASIUM	135 GYMNASIUM	2	1	
131A	STORAGE	137 CUSTODIAL	1	1	
131B	STORAGE	N/A	N/A	N/A	
131C	MECHANICAL	137A MECHANICAL	1	1	
131D	STORAGE	138 OFFICE	1	2	
132	WOMENS' RR	139 WOMENS LOCKER ROOM	1	3	
132A	STORAGE	N/A	N/A	N/A	
132B	SHOWERS	N/A	N/A	N/A	
132C	VESTIBULE	N/A	N/A	N/A	
133	MENS' RR	136 MENS LOCKER ROOM	1	3	
133A	SHOWERS	N/A	N/A	N/A	
133B	ENTRY	N/A	N/A	N/A	
133C	VESTIBULE	N/A	N/A	N/A	
134	TRAINER OFFICE	134 ATHLETIC TRAINER	1	1	
134A	RESTROOM	134A RESTROOM	1	3	
135	CONCESSIONS	133 CONCESSIONS	1	1	
136	WOMENS' RR	132 WOMENS	1	3	
137	MENS' RR	131 MENS	1	3	
138	FMD CLASSROOM	N/A	N/A	N/A	
138A	STORAGE	N/A	N/A	N/A	
138A	KITCHENETTE	N/A	N/A	N/A	
138B	FMD CLASSROOM	121 CLASSROOM	1	2	
139	FMD STORAGE	N/A	N/A	N/A	
139A	RESTROOM	121 A	1	3	
201	CLASSROOM	201 CLASSROOM	1	2	
202	CLASSROOM	202 CLASSROOM	1	2	
203	CLASSROOM	203 CLASSROOM	1	2	
204	OFFICE	204 ASSISTANT PRINCIPAL	1	2	
204A	STORAGE	N/A	N/A	N/A	
205	CLASSROOM	205 CLASSROOM	1	2	
206	RESOURCE CLASSROOM	206 CLASSROOM	1	2	
207	CLASSROOM	207 CLASSROOM	1	2	
208	OFFICE	N/A	N/A	N/A	
208A	MECH.	N/A	N/A	N/A	
209	CLASSROOM	208 CLASSROOM	1	2	
210	STORAGE	209 STORAGE	1	1	
211	CLASSROOM	210 CLASSROOM	1	2	
212	MENS' RR	211 MENS	1	3	
213	CUSTODIAL	212 CUSTODIAL	1	1	

REVIT Room #	REIVT ROOM NAME	NEW COPY	QUANTITY	SIGN TYPE	IN CONTRACT
214	WOMENS' RR	213 WOMENS	1	3	
215	SRO OFFICE	214 OFFICE	1	2	
216	MEDIA CENTER	215 MEDIA CENTER	2	1	
216A	WORKROOM	215A OFFICE	1	2	
216B	STORAGE	N/A	N/A	N/A	
216C	OFFICE	N/A	N/A	N/A	
217	CLASSROOM	216 CLASSROOM	1	2	
218	OFFICE	217 OFFICE	1	2	
218A	STORAGE	N/A	N/A	N/A	
219	SCIENCE CLASSROOM	218 CLASSROOM	2	2	
219A	STORAGE	N/A	N/A	N/A	
219B	WORKROOM	N/A	N/A	N/A	
221	CLASSROOM	219 CLASSROOM	2	2	
222	SCIENCE LAB	220 CLASSROOM	2	2	
222A	WORKROOM	N/A	N/A	N/A	
223	OFFICE	221 OFFICE	1	2	
223A	STORAGE	N/A	N/A	N/A	
224	CLOSET	222 IDF	1	1	
225	MEZZANINE	N/A	N/A	N/A	
226	STORAGE	N/A	N/A	N/A	
226A	STORAGE	N/A	N/A	N/A	
227	STORAGE	N/A	N/A	N/A	
227A	STORAGE	N/A	N/A	N/A	
228	MEZZANINE	N/A	N/A	N/A	
229	SCIENCE CLASSROOM	223 CLASSROOM	1	2	
229A	STORAGE	N/A	N/A	N/A	
230	CLOSET	224 ROOF ACCESS	1	1	
231	SCIENCE CLASSROOM	225 CLASSROOM	1	2	
231A	STORAGE	N/A	N/A	N/A	
231B	CLOSET	N/A	N/A	N/A	
232	CLASSROOM	226 CLASSROOM	2	2	
N/A	ROOM BY CLASSROOM 232	227 IDF	1	1	
233	CLASSROOM	228 CLASSROOM	1	2	
233A	STORAGE	N/A	N/A	N/A	
234	CLASSROOM	229 CLASSROOM	1	2	
235	CLASSROOM	230 CLASSROOM	1	2	
236	CLASSROOM	231 CLASSROOM	1	2	
ATHLETICS					
300	DUGOUT				
301	LOCKER	505 LOCKER ROOM	1	1	
301A	RESTROOM	N/A	N/A	N/A	
301A	OFFICE	506 OFFICE	2	1	
302	STORAGE	N/A	N/A	N/A	
303	DUGOUT	N/A	N/A	N/A	
304	DUGOUT	N/A	N/A	N/A	
305	OFFICE	406 OFFICE	2	1	
306	LOCKER	405 LOCKER ROOM	1	1	
309	DUGOUT	N/A	N/A	N/A	
310	RESTROOM	502 MENS	1	3	
311	MECH. & STOR.	501 MECHANICAL & STORAGE	2	1	
312	CONCESSIONS	500 CONCESSIONS	1	1	
314	RESTROOM	503 WOMENS	1	3	
315	PRESS BOX	N/A	N/A	N/A	
315A	REPORTER	504A NFHS/RADIO BROADCAST	1	1	
316	RESTROOM	402 WOMENS	1	3	
317	MECH. & STOR.	401 MECHANICAL & STORAGE	1	1	
318	CONCESSIONS	400 CONCESSIONS	1	1	
320	RESTROOM	403 MENS	1	1	
321	PRESSBOX	N/A	N/A	N/A	
321A	REPORTER	404A NFHS/RADIO BROADCAST	1	1	
400	WEIGHT TRAINING	306 WEIGHT ROOM	2	1	
400A	EQUIPMENT	N/A	N/A	N/A	
401	STORAGE	305 STORAGE	1	1	
402	OFFICE	306A OFFICE	2	2	ONE SIGN IN ORIGINAL BID
403	LOCKER ROOM	307 LOCKER ROOM	1	1	
404	RESTROOM	N/A	N/A	N/A	
404A	LAUNDRY	N/A	N/A	N/A	
404B	STORAGE	N/A	N/A	N/A	
405	MEN'S RESTROOM	310 MENS	1	3	
406	CONCESSIONS	309 CONCESSIONS	1	1	
406A	STORAGE	N/A	N/A	N/A	
407	WOMEN'S RESTROOM	308 WOMENS	1	3	



REVIT Room #	REIVT ROOM NAME	NEW COPY	QUANTITY	SIGN TYPE	IN CONTRACT
408	TRAINER OFFICE	304 TRAINER	1	1	
409	HOME LOCKER	301 HOME LOCKER ROOM	2	3	
409A	RESTROOM	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
409B	TEAM STORAGE	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
409C	OFFICE	301A OFFICE	2	1 & 2	
410	VISITOR LOCKER	302 VISITOR LOCKER ROOM	2	3	
410A	RESTROOM	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
410B	TEAM STORAGE	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
410C	OFFICE	302A OFFICE	2	1 & 2	
411	MECHANICAL STORAGE	303 MECHANICAL & STORAGE	1	1	
412	FOOTBALL LOCKER	300 FOOTBALL LOCKER ROOM	1	3	
412A	RESTROOM	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
412B	OFFICE	300A OFFICE	2	1 & 2	
412C	LAUNDRY	300B LAUNDRY	1	1	
412D	TEAM STORAGE	(SIGN DELETED BY OWNER)	N/A	N/A	Use towards other signs
413	GREENHOUSE	019 GREEN HOUSE	1	1	
414	TICKET BOOTH	312 TICKETS	1	1	
414	MECH. / STOR.				
415A	STORAGE				
C400A	CORRIDOR	FIELD HOUSE ANNEX	1	1	
C400B	CORRIDOR	FIELD HOUSE ANNEX	1	1	
C400C	CORRIDOR	N/A	N/A	N/A	
CA0	CORRIDOR	N/A	N/A	N/A	
CA1	CORRIDOR	N/A	N/A	N/A	
CA2	CORRIDOR	N/A	N/A	N/A	
CB0	CORRIDOR	N/A	N/A	N/A	
CB1	CORRIDOR	N/A	N/A	N/A	
CB2	CORRIDOR	N/A	N/A	N/A	
CC0	CORRIDOR	N/A	N/A	N/A	
CC1	CORRIDOR	N/A	N/A	N/A	
CC2	CORRIDOR	N/A	N/A	N/A	
CD0	CORRIDOR	N/A	N/A	N/A	
CD1	CORRIDOR	N/A	N/A	N/A	
CD2	CORRIDOR	N/A	N/A	N/A	
CE0	CORRIDOR	TO ROOMS 010-016	1	1	
CE1	CORRIDOR	N/A	N/A	N/A	
CE2	CORRIDOR	N/A	N/A	N/A	
CF0	CORRIDOR	N/A	N/A	N/A	
CF1	CORRIDOR	N/A	N/A	N/A	
CG0	CORRIDOR	TO GYMNASIUM	1	1	
CG1	CORRIDOR	N/A	N/A	N/A	
CH1	CORRIDOR	N/A	N/A	N/A	
CJ1	CORRIDOR	N/A	N/A	N/A	
EB	ELEVATOR	ELEVATOR	3	3	
LA1	LOBBY	EXIT	2	EXIT	
SA	STAIR	STAIR B	2	3	
SB	STAIR	N/A	N/A	N/A	
SB	STAIR	N/A	N/A	N/A	
SC	STAIR	STAIR C	2	3	
SD	STAIR	STAIR D	3	3	
SE	STAIR	STAIR E	3	3	
SF	STAIR	N/A	N/A	N/A	
SG	STAIR	STAIR G	2	3	
SH	STAIR	N/A	N/A	N/A	
SJ	STAIR	N/A	N/A	N/A	
SK	STAIR	STAIR F	2	3	
SL	STAIR	N/A	N/A	N/A	
SL	STAIR	N/A	N/A	N/A	
SM	STAIR	N/A	N/A	N/A	
SN	STAIR	N/A	N/A	N/A	
SP	STAIR	STAIR H	1	3	
SQ	STAIR	STAIR A	2	3	
ST313	STAIR	504 PRESSBOX	1	1	
ST319	STAIR	404 PRESSBOX	1	1	
ST319	STAIR	N/A	N/A	N/A	
ST400	STAIR	N/A	N/A	N/A	
V100	ENTRY VESTIBULE	EXIT	3	EXIT	
VA0	VESTIBULE	001B CUSTODIAL & STORAGE	1	1	

REVIT Room #	REIVT ROOM NAME	NEW COPY	QUANTITY	SIGN TYPE	IN CONTRACT
VBO	VESTIBULE	TO ROOMS 010-016	1	1	
Prefab Pressbox	N/A BLEACHER PRESSBOX	311 PRESSBOX	1	1	See floorplan attachment for mounting location
Prefab Pressbox	N/A BLEACHER PRESSBOX	311A NFHS/RADIO BROADCAST	1	1	See floorplan attachment for mounting location
Prefab Pressbox	N/A BLEACHER PRESSBOX	311B PA/CLOCK	1	1	See floorplan attachment for mounting location
Prefab Pressbox	N/A BLEACHER PRESSBOX	311 PRESSBOX	1	1	See floorplan attachment for mounting location

**SECTION 108316 - BANNERS****NEW SPECIFICATION FOR PR#9****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Wall mounted banners

**1.02 RELATED REQUIREMENTS**

- A. Section 042000 - Unit Masonry: Anchor devices on building wall.

**1.03 REFERENCE STANDARDS**

- A. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

**1.04 SUBMITTALS**

- A. Product Data: Provide data on accessories, and configurations to include banner fabric
- B. Shop Drawings: Indicate detailed dimensions, attachment details, anchor requirements, and imposed loads.
- C. Samples: Submit two printed samples, 12 x 12 inch in size, illustrating color.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Wrap banners with protective covering and pack in protective shipping tubes or containers.
- B. Protect hardware and accessories from damage or moisture.

**PART 2 PRODUCTS****2.01 MANUFACTURERS**

- A. Banner Fabric. Subject to compliance with requirements, manufacturers offering the following products that may be incorporated into the work include, but are not limited to the following:
  1. Fast Signs; Contact Eric Haag, 502.299.9961
  2. Glen Raven Custom Fabrics LLC: [www.sunbrella.com](http://www.sunbrella.com)
  3. Equivalent submitted to Architect prior to issuance of last addendum.

**2.02 BANNER MATERIAL**

- A. Material: 13 oz. Printed Vinyl
- B. Fabric Dimensions: 30" W x 78" H
- C. Design: Single Sided custom printed vinyl banner with grommets at top and bottom. Architect will provide vector format graphic.
- D. Hardware to include plastic wall anchors, Pan Head Screws, and Flat Washers.

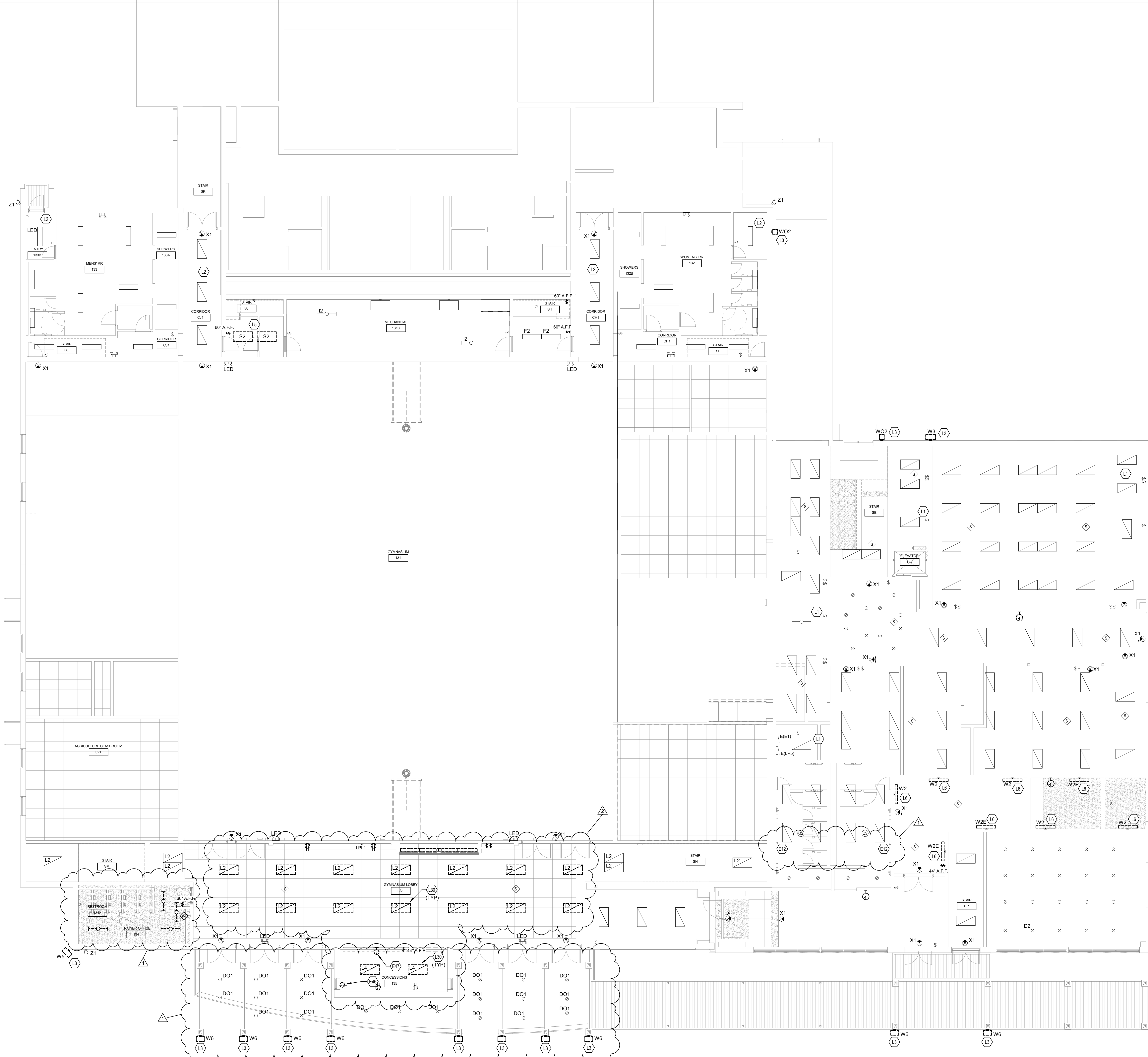
**PART 3 EXECUTION****3.01 INSTALLATION**

- A. Install brackets and fittings in accordance with manufacturer's instructions.

**3.02 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch

**END OF SECTION**



FIRST FLOOR ELECTRICAL PLAN DEMOLITION PLAN - AREA B  
1/8" = 1'-0"

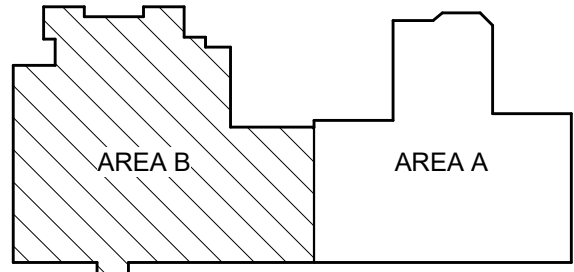
ELECTRICAL DEMOLITION...

- A. DOTTED LINES INDICATE ITEMS FOR REMOVAL (UON) AND SOLID HALFTONE LINES INDICATE EXISTING ITEMS TO REMAIN.
- B. THE CONTRACTOR SHALL MAINTAIN THE CONTINUITY OF EXISTING CIRCUITS THAT CONTAIN DEVICES OR EQUIPMENT THAT ARE TO REMAIN. WHEN DEMOLITION OF AN ELECTRICAL DEVICE (OR CIRCUIT) IS INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL ENSURE THAT OTHER DEVICES OR EQUIPMENT "UPSTREAM" OR "DOWNSTREAM" ON THE CIRCUITS SHALL REMAIN IN "PRE-DEMOLITION" WORKING ORDER. "LEFT-OVER" CIRCUIT BREAKERS SHALL REMAIN, BE SWITCHED TO OFF POSITION, AND BE LABELED AS SPARES IN THEIR PANELS. PROVIDE NEW TYPEWRITTEN DIRECTORIES FOR ALL PANELS AFFECTED.
- C. LOCATIONS OF DEVICES, CONNECTIONS, ETC., INDICATED ON THIS DRAWING WERE TAKEN FROM VARIOUS SOURCES. THEY ARE DIAGRAMMATIC ONLY AND ARE SUBJECT TO VARIATION FROM EXISTING CONDITIONS. CERTAIN EXISTING ELEMENTS MAY NOT BE INDICATED AT ALL. THE CONTRACTOR PROPOSING TO DO ANY PART OF THE WORK INDICATED HEREON SHALL VISIT THIS SITE AND DETERMINE TO HIS SATISFACTION THAT THEY MAY COMPLETE ALL WORK REQUIRED FOR THE BID WHICH HE PROPOSES.
- D. REMOVE ALL ASSOCIATED BACKBOXES, CONDUIT AND CONDUCTORS FOR DEVICES / FIXTURES / ETC. BEING REMOVED (BACK TO SOURCE), WHETHER INDICATED OR NOT (UON). CONTRACTOR SHALL PATCH AND REPAIR ANY EXISTING WALLS, FLOORS OR CEILINGS WHERE DEVICES ARE SHOWN TO BE REMOVED (PATCH AND REPAIR TO RECEIVE NEW FINISHES - SEE ARCHITECTURAL PLANS).
- E. COORDINATE DISPOSAL OF ALL FIXTURES, DEVICES, ETC. (INDICATED FOR DEMOLITION) WITH OWNER. TURN OVER ITEMS REMOVED TO OWNER AT THEIR OPTION.
- F. COORDINATE WITH OTHER TRADES FOR THE REMOVAL AND/OR RELOCATION OF ELECTRICAL DEVICES AND CONNECTIONS ASSOCIATED WITH THEIR EQUIPMENT.
- G. PROVIDE TEMPORARY EMERGENCY EXIT LIGHTS AT CONSTRUCTION BARRIERS AS REQUIRED.
- H. CONTRACTOR SHALL PATCH AND REPAIR ALL EXISTING WALLS / CEILINGS AS REQUIRED WHERE DEVICES ARE BEING REMOVED OR INSTALLED.
- I. UNUSED/ABANDONED CONDUCTORS DISCOVERED ABOVE ACCESSIBLE CEILINGS SHALL BE REMOVED IN ACCORDANCE WITH NEC REQUIREMENTS.
- J. EXISTING ELECTRICAL SYSTEMS IN CONFLICT WITH CONSTRUCTION SHALL BE RELOCATED TO PERMIT INSTALLATION OF DEVICES AND EQUIPMENT SHOWN ON PLANS.
- K. CONTRACTOR SHALL SEAL ALL EXISTING AND NEW PENETRATIONS OF BUILDING ENVELOPE (EXTERIOR WALLS, ROOF, ETC.) WATER-TIGHT AND AS APPROVED BY ARCHITECT AND ENGINEER. ROOFING SHALL BE RESTORED BY A LICENSED ROOFING CONTRACTOR BASED ON WRITTEN INSTRUCTIONS AND DETAILS FROM ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ROOF WARRANTY. REFER TO ARCHITECTURAL AND ENGINEERING PLANS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- L. DEVICES INDICATED WITH AN "R" SHALL BE RELOCATED. REMOVE, PROTECT, AND REINSTALL IN NEW LOCATION INDICATED ON NEW WORK PLANS. INTERCEPT AND EXTEND ALL EXISTING CABLING TO NEW LOCATION. CLEAN AND RE-LAMP RELOCATED LUMINAIRES.
- M. ALL EXISTING PANELS AFFECTED BY THIS CONTRACTOR'S WORK SHALL BE PROVIDED WITH NEW TYPE-WRITTEN PANEL DIRECTORIES AND INSERT SLEEVES. PANEL DIRECTORIES SHALL NOT USE ROOM NAMES OR NUMBERS FROM THESE DRAWINGS. DIRECTORIES SHALL BE DETAILED AND COORDINATED WITH OWNER'S SUITE NUMBERS, FINAL ROOM NUMBERS, IT RACK NAMES, WORKSTATION DESIGNATIONS, ETC. UNUSED BREAKERS SHALL BE IN OFF POSITION.
- N. CONTRACTOR TO VERIFY THAT THERE ARE NO ELECTRICAL CIRCUITS IN CHASES BEING REMOVED UNDER DEMOLITION WHICH REMAIN IN SERVICE AND CANNOT BE REMOVED. SHOULD SUCH CIRCUITS BE ENCOUNTERED, THE CONTRACTOR IS TO REROUTE AND RECONNECT AS REQUIRED TO MAINTAIN SERVICE.

TAGGED NOTES

- E12 REMOVE ELECTRICAL CONNECTION TO BRADLEY SINKS BEING DEMOLISHED. PROVIDE BLANK FACEPLATE OVER JUNCTION BOX.
- E46 REMOVE EXISTING RECEPTACLE AND ALL ASSOCIATED SURFACE MOUNTED MC CABLE.
- E47 REMOVE EXISTING SURFACE MOUNTED JUNCTION BOX AND ASSOCIATED MC CABLE. CIRCUIT TO REMAIN FOR CONNECTION TO NEW DEVICES.
- L1 LIGHT FIXTURES IN THIS SPACE WERE INSTALLED IN 2006 AND SHALL REMAIN.
- L2 LIGHT FIXTURES IN THIS SPACE WERE INSTALLED IN 2013 AND SHALL REMAIN.
- L3 REMOVE EXISTING FIXTURE AND CLEAN WALL BEHIND IT. BACKBOX, CONDUIT, CONDUCTORS, ETC TO REMAIN FOR INSTALLATION OF NEW FIXTURE.
- L5 REMOVE EXISTING FIXTURES IN THIS AREA. BACKBOXES, CONDUITS, CONDUCTORS, ETC. TO REMAIN FOR INSTALLATION OF NEW FIXTURES.
- L6 REMOVE EXISTING FIXTURE. PROVIDE BLANK FACEPLATE OVER EXISTING JUNCTION BOX TO REMAIN.
- L30 REMOVE EXISTING FIXTURES. UNSWITCHED CIRCUIT TO REMAIN FOR CONNECTION TO NEW FIXTURES.

KEY PLAN



SCALE: NTS

NOT FOR CONSTRUCTION

FOR: ESTILL COUNTY SCHOOLS  
IRVINE, KENTUCKY

FIRST FLOOR ELECTRICAL DEMOLITION PLAN - AREA B  
ESTILL COUNTY PHASE 7 HS RENOVATIONS

M.E.&P. Engineer:  
CMI/A, Inc.  
2429 Members Way  
Lexington, KY 40304  
p 859.253.0892  
Structural Engineer:  
Structural Design Group, Inc.  
220 Great Circle Rd. Suite 106  
Nashville, TN 37228  
p 615.255.5537  
Construction Manager:  
Codel Construction Co.  
P.O. Box 17  
Winchester, Kentucky 40392  
p 859.744.2222

BG# 21-055  
Project No: 2025/KEHS20  
Drawn By: ASP  
Rev'd By: JNJ  
SHEET RELEASE  
1 ADD 5 2021-05-14  
2 PR 9 2021-11-22  
3  
4  
5  
6  
7  
8  
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CONSTRUCTION DOCUMENTS

E2.1B  
FIRST FLOOR ELECTRICAL  
DEMOLITION PLAN - AREA B  
DATE ISSUED:  
MARCH 29, 2021

rostantant  
architects

101 old idylwynde avenue lexington, kentucky 40502 p 859.254.4018





DATE ISSUED:  
MARCH 29, 2021

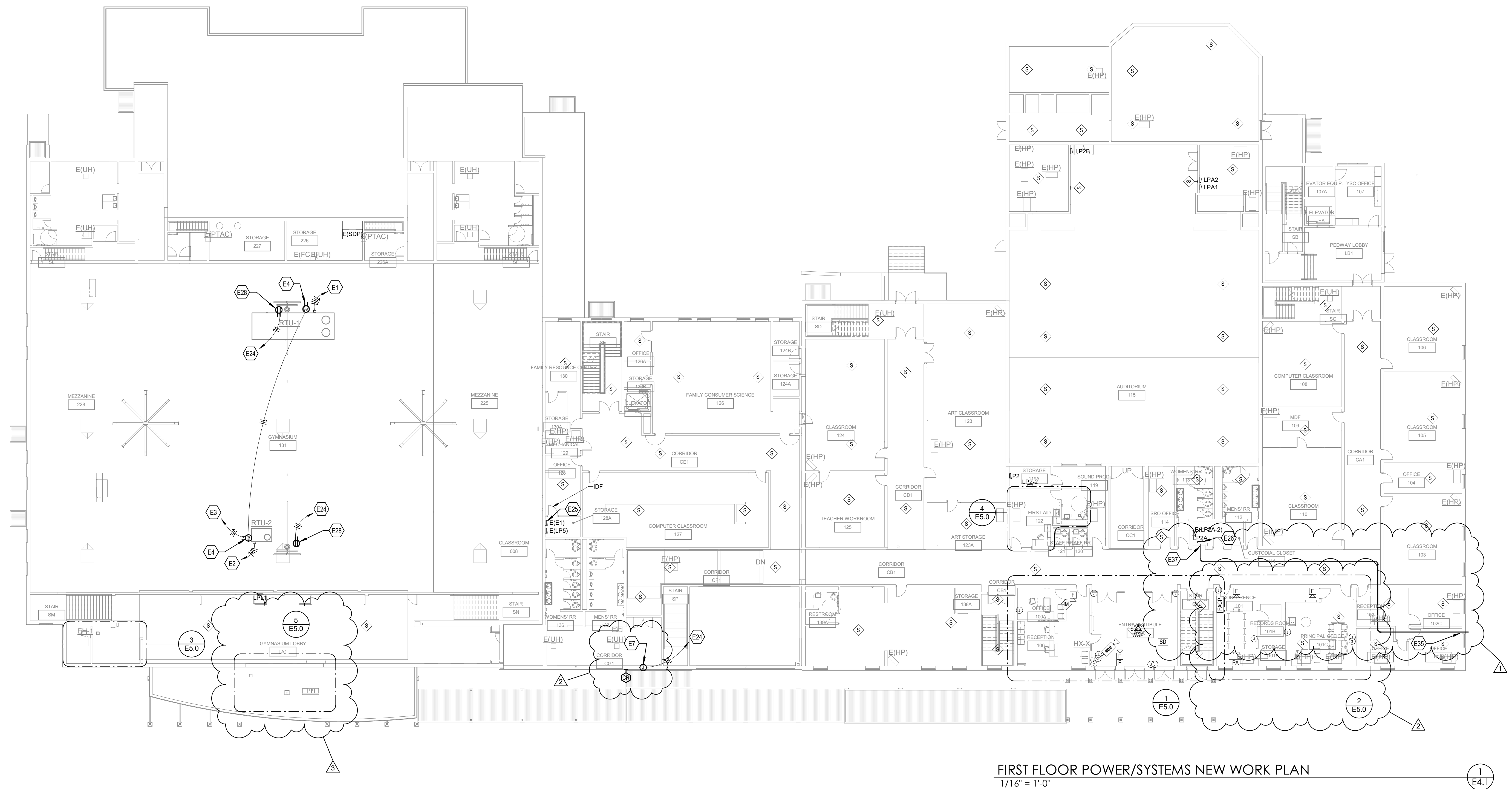
NOT FOR  
CONSTRUCTION

FIRST FLOOR POWER/SYSTEMS PLAN  
ESTILL COUNTY PHASE 7 HS RENOVATIONS  
FOR:  
ESTILL COUNTY SCHOOLS  
IRVINE, KENTUCKY

- ### ELECTRICAL POWER NOTES
- A REFER TO THE ARCHITECT'S REFLECTED CEILING PLANS, ELEVATIONS, AND CASEWORK DETAILS FOR EXACT LOCATIONS OF ALL WALL AND CEILING MOUNTED ELECTRICAL DEVICES.
- B CONTRACTOR SHALL FOLLOW BRANCH CIRCUITING LAY-OUT, AS INDICATED ON THE FLOOR PLANS, WITH A MAXIMUM OF THREE (3) BRANCH CIRCUITS PER HOMERUN. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR. DEDICATED NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. IF ADDITIONAL CONDUCTORS ARE RAN IN THE SAME CONDUIT WITH THOSE INDICATED, CONTRACTOR SHALL DERATE ALL CURRENT CARRYING CONDUCTORS PER NEC 310.15(B)(3), AND UPSIZE CONDUIT AS REQUIRED PER NEC 300.17 AND ANNEX C. MULTIWIRE BRANCH CIRCUITS AS DEFINED IN NEC 100 / 210.4 (CIRCUITS SHARING A COMMON NEUTRAL CONDUCTOR) SHALL NOT BE PERMITTED.
- C IDENTIFY THE PANEL AND CIRCUIT NUMBER FOR ALL RECEPTACLES, SWITCHES, ETC. IN AREA OF CONSTRUCTION. PROVIDE CLEAR ADHESIVE LABELS WITH BLACK LETTERING. IN HEALTHCARE FACILITIES, ENGRAVE EMERGENCY DEVICE COVERPLATES IN PATIENT CARE AREAS. MARK INSIDES OF ALL DEVICE BOXES WITH PANEL AND CIRCUIT NUMBER.
- D RECEPTACLES THAT ARE CONTROLLED BY AN AUTOMATIC MEANS SUCH AS OCCUPANCY SENSOR OR ENERGY MANAGEMENT SYSTEM SHALL BE MARKED IN ACCORDANCE WITH NEC 406.3(E).
- E LOCATIONS OF ELECTRICAL CONNECTIONS AND LOCAL DISCONNECTS SHALL BE COORDINATED WITH MECHANICAL AND PLUMBING CONTRACTORS TO ENSURE ACCESS AND WORKING CLEARANCE IS MAINTAINED PER NEC. NOTIFY OTHER TRADES OF REQUIRED CLEARANCE AREAS TO AVOID ROUTING OF OTHER SYSTEMS IN THESE AREAS. DO NOT INSTALL ELECTRICAL EQUIPMENT OVER EQUIPMENT NAMEPLATES OR ACCESS PANELS OR THROUGH ACCESS/MAINTENANCE CLEARANCES OF EQUIPMENT BY OTHER TRADES.
- F ALL DEVICES INSTALLED ON EXISTING CMU WALLS SHALL UTILIZE SURFACE MOUNTED METALLIC RACEWAY, UNLESS OTHERWISE NOTE, WIREMOLD 700 SERIES OR EQUIVALENT, PAINTED TO MATCH ADJACENT CONDITIONS.

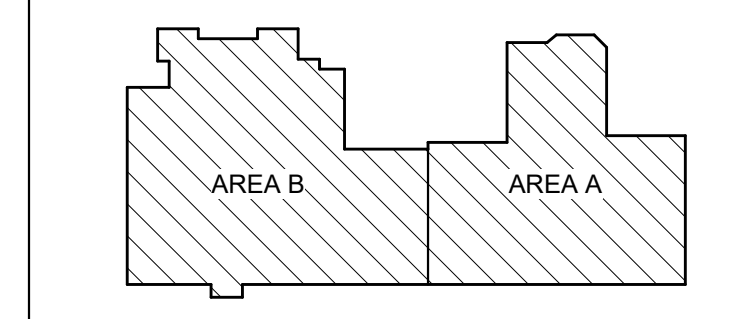
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- D REFER TO "SYSTEM INSTALLATION MATRIX" (ON SYSTEMS LEGEND SHEET) AND SPECIFICATIONS FOR CONTRACTOR REQUIREMENTS OF EACH SYSTEM.
- E THE CONTRACTOR SHALL ROUTE ALL "SYSTEM CONDUIT STUB-UPS" TO THE NEAREST CORRIDOR CABLING PATH (SEE "STUB-UP" DETAILS). REFER TO CABLING PATH INSTALLATION DETAIL FOR ADDITIONAL REQUIREMENTS. CONTRACTOR SHALL PAINT ALL SYSTEMS CONDUIT STUB-UPS LIGHT BLUE FOR SYSTEMS CABLING INTO THE CORRIDOR CABLING PATH. PROVIDE PULL STRINGS IN ALL NEW CONDUIT RUNS FOR SYSTEM CABLING INSTALLATION.

- ### TAGGED NOTES
- E1 CIRCUIT TO PANEL E(SDP) WITH 4#250MCM, #4 GROUND IN 3" CONDUIT. PROVIDE NEW 250A FUSED SWITCH FUSED AT 250A.
- E2 CIRCUIT TO PANEL E(E1) WITH 4#6, #10 GROUND IN 1" CONDUIT. PROVIDE NEW 40A/3P BREAKER.
- E3 CIRCUIT TO PANEL E(LP5) WITH #12, #12 GROUND IN 3/4" CONDUIT. PROVIDE NEW 20A/1P BREAKER.
- E4 INSTALL RECEPTACLE ON ROOF, ON HVAC UNIT ROOF CURB.
- E7 PROVIDE CONNECTION TO ELECTRONIC DOOR HARDWARE. REFER TO SPECIFICATION SECTION 087100 FOR RACEWAY REQUIREMENTS. ALL RACEWAYS SHALL BE SURFACE MOUNTED METALLIC RACEWAYS, WIREMOLD 700 SERIES OR EQUIVALENT, PAINTED TO MATCH ADJACENT SURFACE. ACCESS CONTROL SYSTEM SHALL INTERFACE WITH DOOR HARDWARE UNDER SPECIFICATION SECTION 087100.
- E24 CIRCUIT TO PANEL E(E1) WITH 2#12, #12 GROUND IN 3/4" CONDUIT AND NEW 20A/1P BREAKER.
- E25 EXISTING SQUARE D NOOD 120/208/3PH/4W PANEL.
- E26 REMOVE EXISTING PANEL AND REPLACE WITH NEW PANEL. REFER TO PANEL SCHEDULE FOR REQUIREMENTS. REUSE EXISTING FEEDERS. RECONNECT ALL EXISTING TO REMAIN CIRCUITS.
- E28 PROVIDE POWER CONNECTION TO BASKETBALL GOAL MOTOR. PROVIDE 1" CONDUIT AND REQUIRED CONDUCTORS TO CONTROLLER LOCATION - REFER TO ARCHITECTURAL DRAWINGS FOR CONTROLLER LOCATION. PROVIDE SURFACE MOUNTED RACEWAY, WIREMOLD 700 SERIES OR EQUIVALENT, ON WALL. PAINTED TO MATCH ADJACENT CONDITIONS.
- E33 CONTINUE 2" CONDUIT FROM EXTERIOR ABOVE CEILING. TRANSITION TO EMT AT BUILDING ENVELOPE.
- E37 TERMINATE CONDUIT INTO JUNCTION BOX IN CUSTODIAL CLOSET 111. PROVIDE LABEL "CONDUIT TO FUTURE SITE SIGN".



FIRST FLOOR POWER/SYSTEMS NEW WORK PLAN  
1/16" = 1'-0"

### KEY PLAN



SCALE: NTS

M.E.&P. Engineer:  
CMLA, Inc.  
2429 Members Way  
Lexington, KY 40504  
p.859.253.0892

Structural Engineer:  
Structural Design Group, Inc.  
220 Great Circle Rd., Suite 106  
Nashville, TN 37228  
p.615.255.5537

Construction Manager:  
Codel Construction Co.  
P.O. Box 17  
Winchester, Kentucky 40392  
p.859.744.2222

BG# 21-055

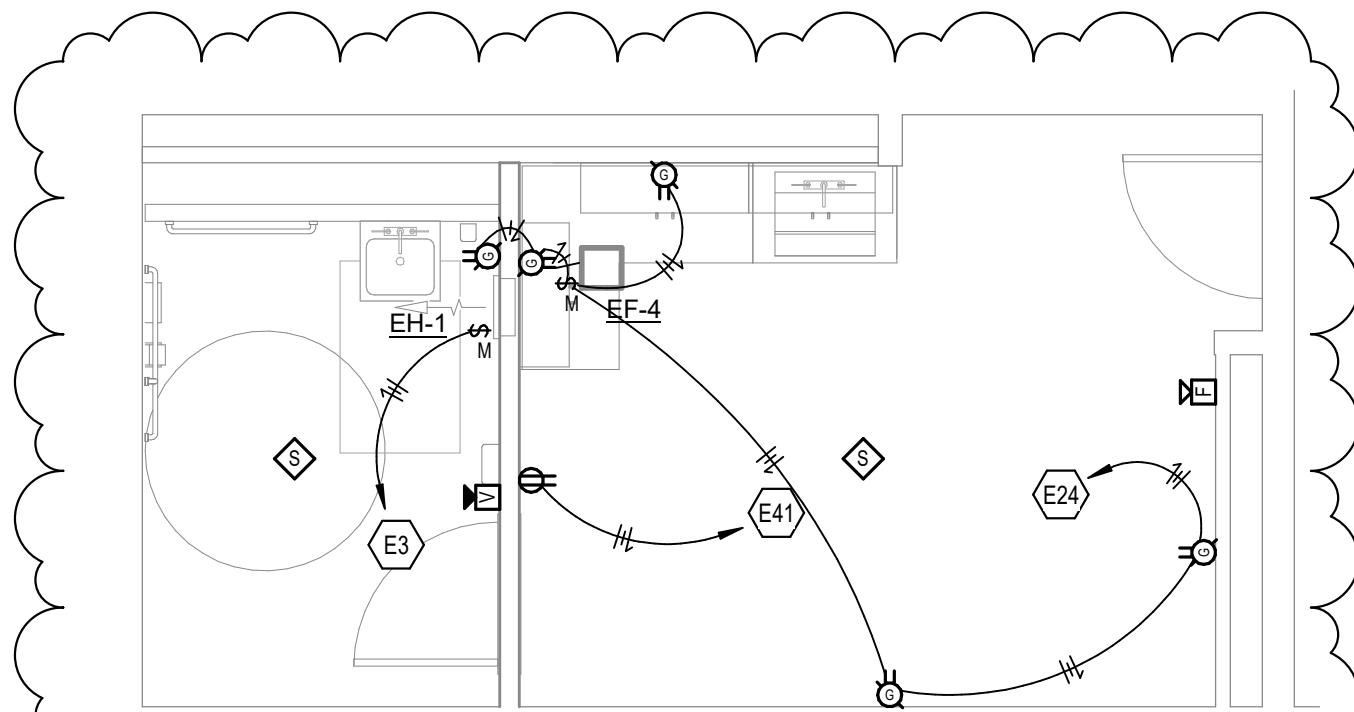
Project No: 2025/EHS20  
Drawn By: AJP  
Rev'd By: JNJ

SHEET RELEASE	
1	ADD 4 2021-05-07
2	ADD 5 2021-05-14
3	PR 9 2021-11-22
4	
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6	
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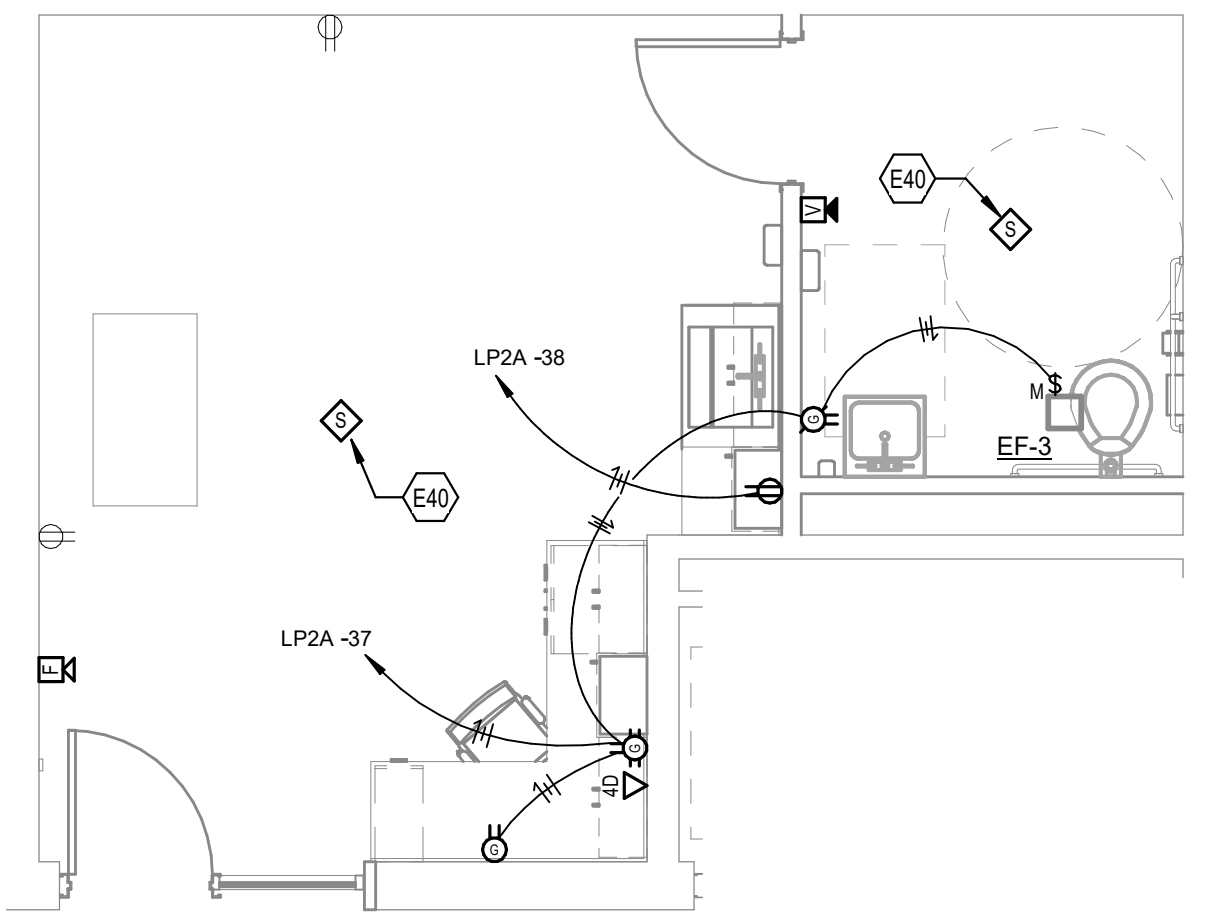
E4.1  
FIRST FLOOR POWER/SYSTEMS  
PLAN  
DATE ISSUED:  
MARCH 29, 2021





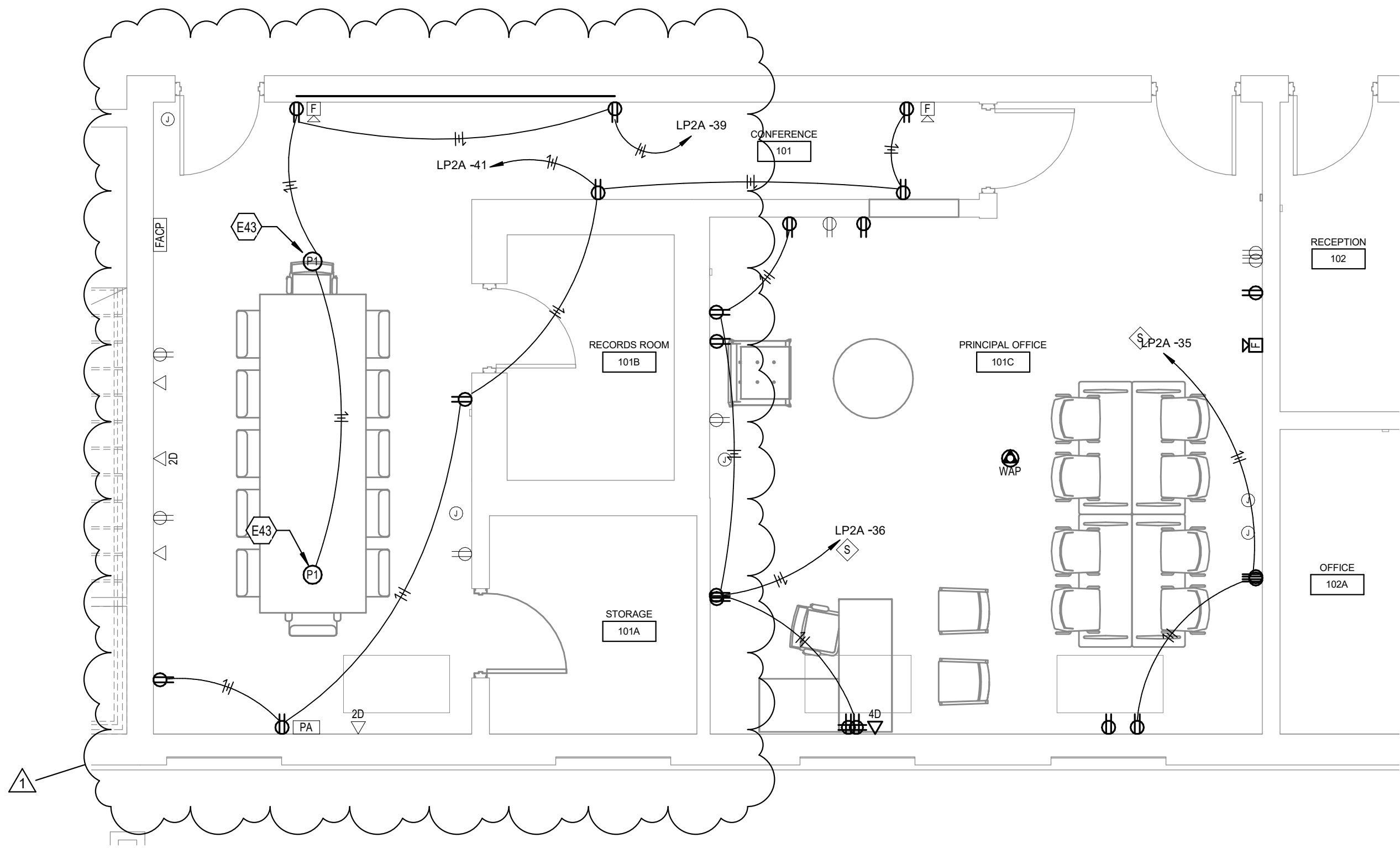
ENLARGED TRAINER OFFICE ELECTRICAL PLAN  
1/4" = 1'-0"

3  
E5.0



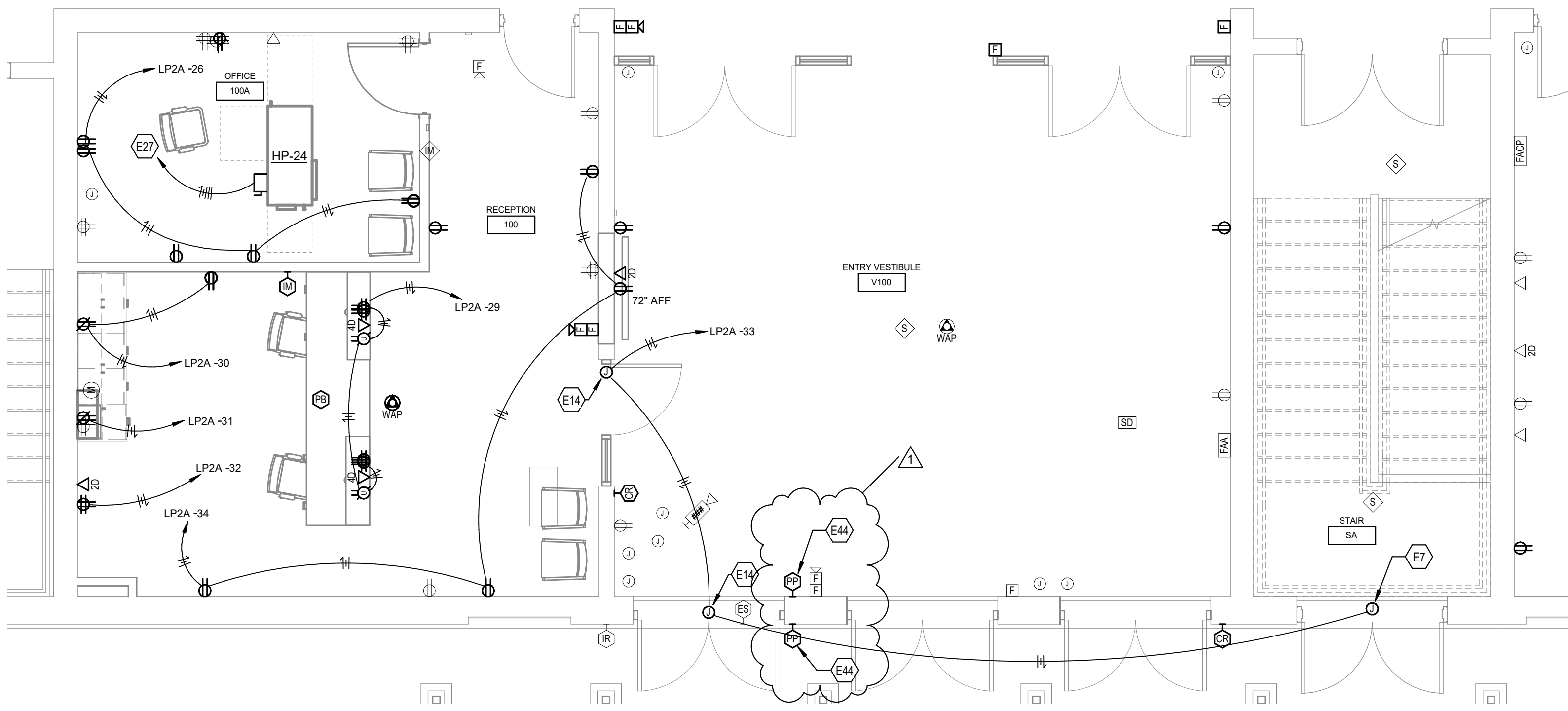
ENLARGED FIRST AID RM 122  
1/4" = 1'-0"

4  
E5.0



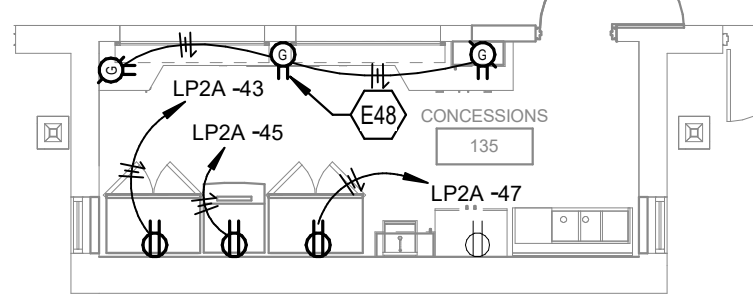
ENLARGED PRINCIPALS OFFICE ELECTRICAL PLANS  
1/4" = 1'-0"

2  
E5.0

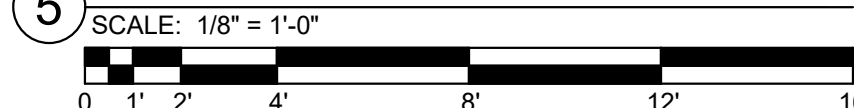


ENLARGED SECURITY VESTIBULE ELECTRICAL PLANS  
1/4" = 1'-0"

1  
E5.0



ENLARGED CONCESSIONS 135  
POWER/SYSTEMS PLAN  
SCALE: 1/8" = 1'-0"



NOTE: ROUTE ALL NEW DATA OUTLETS INDICATED ON THIS DRAWING TO NEAREST EXISTING MDF OR IDF. PROVIDE NEW PATCH PANEL ON EXISTING RACK. PROVIDE (1)3' PATCH CORD AND (1)8' PATCH CORD FOR EACH NEW OUTLET.

## ELECTRICAL POWER NOTES

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- ALL DEVICES INSTALLED ON EXISTING CMU WALLS SHALL UTILIZE SURFACE MOUNTED METALLIC RACEWAY, UNLESS OTHERWISE NOTE, WIREMOLD 700 SERIES OR EQUIVALENT, PAINTED TO MATCH ADJACENT CONDITIONS.

## ELECTRICAL SYSTEMS NOTES

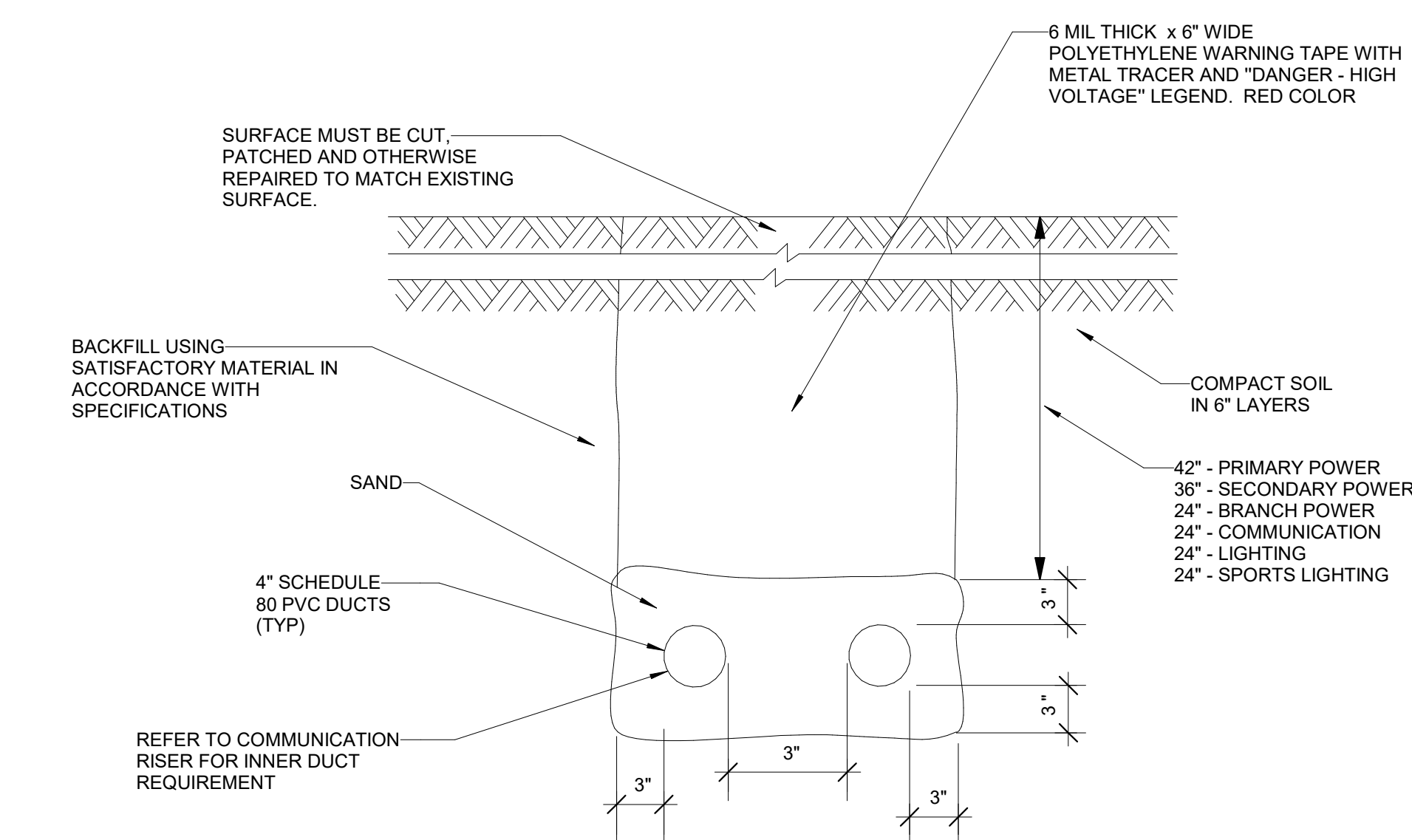
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## TAGGED NOTES

- CIRCUIT TO PANEL (E1P5) WITH 2#12, #12 GROUND IN 3/4" CONDUIT. PROVIDE NEW 20A/1P BREAKER.
- PROVIDE CONNECTION TO ELECTRONIC DOOR HARDWARE. REFER TO SPECIFICATION SECTION 087100 FOR RACEWAY REQUIREMENTS. ALL RACEWAYS SHALL BE SURFACE MOUNTED METALLIC RACEWAYS. WIREMOLD 700 SERIES OR EQUIVALENT. PAINTED TO MATCH ADJACENT SURFACE. ACCESS CONTROL SYSTEM SHALL INTERFACE WITH DOOR HARDWARE UNDER SPECIFICATION SECTION 087100.
- ROUTE ALL CONDUIT AND CABLING THROUGH POWER CHASE IN BACK OF CASEWORK. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIREMENTS.
- CIRCUIT TO PANEL (E11) WITH 2#12, #12 GROUND IN 3/4" CONDUIT AND NEW 20A/1P BREAKER.
- CIRCUIT TO PANEL (E1P2-2) WITH 2#12, #12 GROUND IN 3/4" CONDUIT AND NEW 15A/3P BREAKER. EXTEND CONDUITS AND CONDUCTORS AS REQUIRED.
- CIRCUIT TO PANEL (E11) WITH 2#12, #12 GROUND IN 3/4" CONDUIT AND NEW 20A/1P GFI BREAKER.
- PROVIDE 8" DIAMETER POKE THRU DEVICE WITH TWO DUPLEX RECEPTACLES AND A 20 DATA OUTLET. ROUTE CONDUIT TO DEVICE THROUGH CEILING OF FLOOR BELOW AND SURFACE MOUNTED UP INTERIOR OF CUSTODIAL CLOSET 111. LEGRAND EVOLUTION SERIES OR EQUIVALENT. ARCHITECT TO SELECT COVER COLOR.
- COORDINATE EXACT LOCATION OF HANDICAP DOOR OPERATOR PUSH PLATES WITH DOOR HARDWARE INSTALLER PRIOR TO ROUGH-IN.
- INSTALL NEW RECEPTACLE WITHIN EXISTING BACKBOX. CONNECT TO EXISTING CIRCUIT.

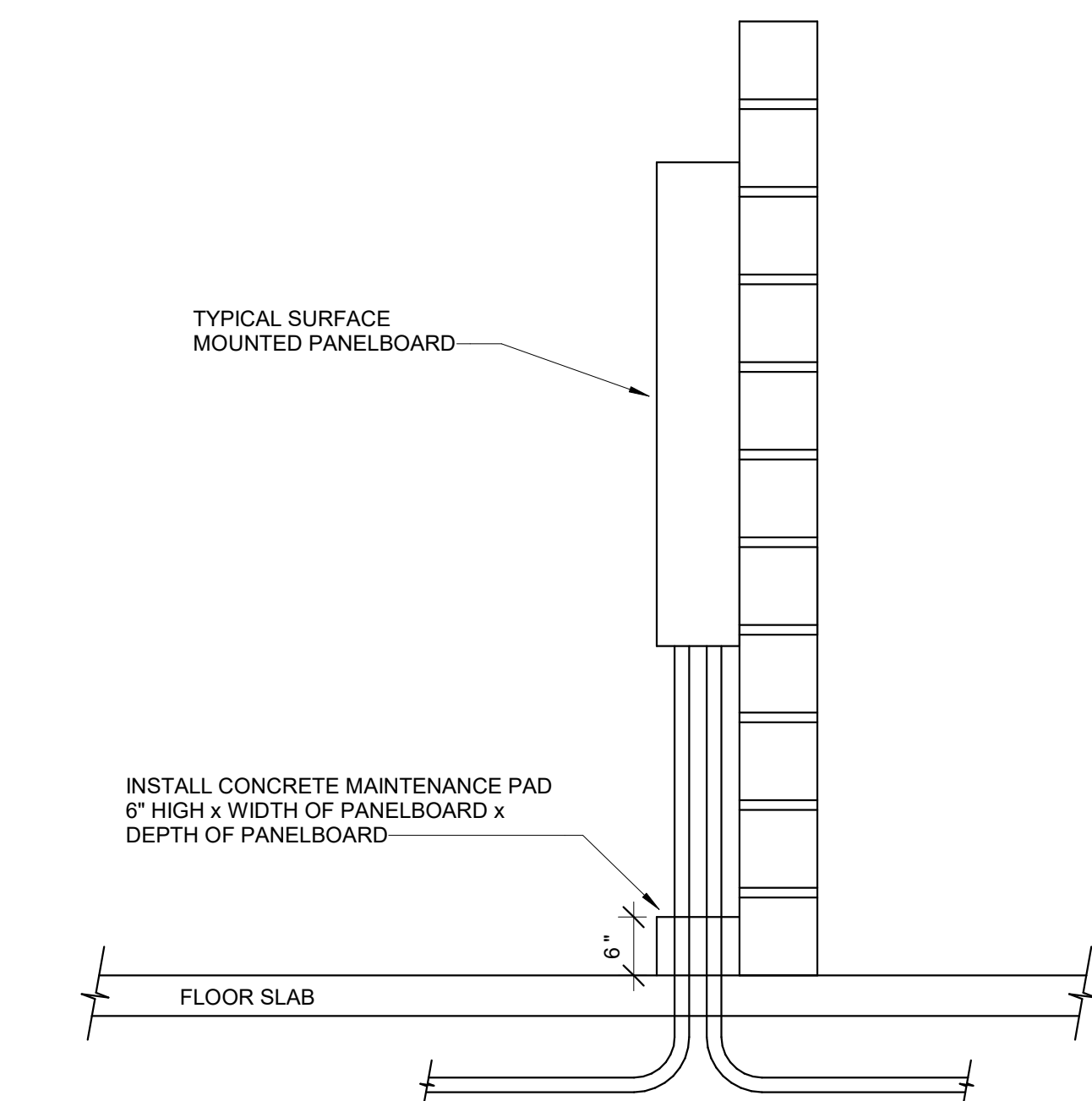
## ELEC - LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	BASIS OF DESIGN	EQUIVALENT MANUFACTURERS	CCT CRI	DIMMING	MINIMUM DELIVERED LUMENS	VOLTAGE	REMARKS
A	2'x4' WET LOCATION RECESSED TROFFER, CLEAR PRISMATIC ACRYLIC LENS	FAIR-SAFE GRW SERIES	LITHONIA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	6000	277	
B	6" RECESSED CAN LIGHT FIXTURE, WALL WASH	HALO H68 SERIES	LITHONIA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1500	120	
C1	REPLACE FIXTURE: VAPOR PROOF LED, CLEAR GLASS LENS, GRAY	CANLET LED VAPORPROOF	LITHONIA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1800	120	
C2	REPLACE FIXTURE: VAPOR PROOF LED, CLEAR GLASS LENS, GRAY	CANLET LED VAPORPROOF	LITHONIA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1800	120	
D1	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1300	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
D1E	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION, EMERGENCY BATTERY PACK	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1300	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
D2	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	2500	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
DO1	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	2500	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
EG	WET LOCATION EMERGENCY LIGHT FIXTURE, 1100 LUMEN, COLD WEATHER	LITHONIA INDL	SAFELITE, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
F1	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
F1E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
F2	RETROFIT KIT TO LED: 2 BARS PER FIXTURE	LITHONIA LBK SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
F2P	RETROFIT KIT TO LED: 2 BARS PER FIXTURE	LITHONIA LBK SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
F3V	RETROFIT KIT TO LED: 2 BARS PER FIXTURE	LITHONIA LBK SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
F4	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
F4E	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
G	24" WET LOCATION LINEAR FIXTURE, FROSTED ACRYLIC LENS, WIDE DISTRIBUTION	LITHONIA DMW2 SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	3000	120	
H2	RETROFIT KIT TO LED: STANDARD EFFICIENCY	LITHONIA UFITR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
HB1	REPLACE FIXTURE: FROSTED GLASS LENS, PENDANT MOUNT, WIREGUARD	LITHONIA JEBL SERIES	HOLOPHANE, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	18000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
HB2	REPLACE FIXTURE: FROSTED GLASS LENS, PENDANT MOUNT, WIREGUARD	LITHONIA JEBL SERIES	HOLOPHANE, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	18000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
I2	RETROFIT KIT TO LED: STANDARD EFFICIENCY	LITHONIA UFITR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
I2E	RETROFIT KIT TO LED: STANDARD EFFICIENCY, EMERGENCY BATTERY	LITHONIA UFITR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
IP	RETROFIT KIT TO LED: STANDARD EFFICIENCY	LITHONIA UFITR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
J1	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1300	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
K2	LINKABLE LED LINEAR FIXTURE SURFACE MOUNTED; PROVIDE WITH ALL HARDWARE NECESSARY FOR INSTALLATION AS INDICATED	JESCO MLX-24-OP-4090-WH				1545	120	
K4	LINKABLE LED LINEAR FIXTURE SURFACE MOUNTED; PROVIDE WITH ALL HARDWARE NECESSARY FOR INSTALLATION AS INDICATED	JESCO MLX-48-OP-4090-WH				3060	120	
L1S	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
L2	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
L2E	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
L3	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
L3A	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
L3E	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
L4	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
L4E	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
L4P	RETROFIT KIT TO LED: CURVED LINEAR PRISMATIC LENS	LITHONIA BLTR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	10% SHALL BE EMERGENCY - COORDINATE LOCATION OF EMERGENCY IN FIELD
NA1E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
NA1E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
NA2	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
NA2E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4800	120	
NA3	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	6000	120	
NA3E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, 1400 LUMEN BATTERY PACK	LITHONIA BLT SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	6000	120	
NB1	6" RECESSED ROUND, CLEAR/FRIM, SEMI-SPICULAR FINISH	LITHONIA LQ6 SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	10000	120	
OA3	AREA LIGHT, TYPE 3 DISTRIBUTION, STRAIGHT SQUARE STEEL 30" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX2 SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		21700	277	
OA3T	AREA LIGHT, TYPE 3 DISTRIBUTION, STRAIGHT SQUARE STEEL 30" POLE, TWO FIXTURES ON A SINGLE POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX2 SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		43400	277	
OA4	AREA LIGHT, TYPE 4 DISTRIBUTION, STRAIGHT SQUARE STEEL 30" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX2 SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		22000	277	
OA5	AREA LIGHT, TYPE 5 DISTRIBUTION, STRAIGHT SQUARE STEEL 30" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX2 SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		22300	277	
OB3	AREA LIGHT, TYPE 3 DISTRIBUTION, STRAIGHT SQUARE STEEL 14" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		9800	277	
OB4	AREA LIGHT, TYPE 4 DISTRIBUTION, STRAIGHT SQUARE STEEL 14" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		9900	277	
OB4T	AREA LIGHT, TYPE 4 DISTRIBUTION, STRAIGHT SQUARE STEEL 14" POLE, TWO FIXTURES ON A SINGLE POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		19800	277	
OB5	AREA LIGHT, TYPE 5 DISTRIBUTION, STRAIGHT SQUARE STEEL 14" POLE, COLOR TO BE SELECTED BY ARCHITECT	LITHONIA RSX SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		10100	277	
OF	FLOOD LIGHT, HORIZONTAL FLOOD, SLIPFITTER, MOUNTED ON FRWB 24-26 WALL MOUNTED ARM	LITHONIA DSXF2 SERIES	McGRAW-EDISON, GARCO	5000K 80CRI LED		11500	120	
OGH	WALL MOUNTED FLOOD LIGHT, FORWARD THROW, INTEGRAL BATTERY PACK, INTEGRAL PHOTOCCELL	LITHONIA WDGE2 LED SERIES	VISA, METALUX	5000K 80CRI LED		6000	120	
S1	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, SURFACE MOUNTED	LITHONIA BLTX SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	5000		
S1E	2'x4' VOLUMETRIC TROFFER, CURVED LINEAR PRISMATIC LENS, SURFACE MOUNTED, 1400 LUMEN BATTERY PACK	LITHONIA BLTX SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	5000		
T1	RETROFIT KIT TO LED: 6" RECESSED ROUND, CLEAR REFLECTOR, MEDIUM WIDE DISTRIBUTION	LITHONIA LBR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	1300	120	
T2	RETROFIT KIT TO LED: STANDARD EFFICIENCY	LITHONIA UFITR SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	4000	120	
W6	REPLACE FIXTURE: ARCHITECTURAL WALL FIXTURE, BLACK	LITHONIA VGRSC SERIES	VISA, METALUX	4000K 80CRI LED	0-10V DIMMING TO 1%	930	120	
WA	WALL MOUNTED FLOOD LIGHT, FORWARD THROW, INTEGRAL BATTERY PACK, INTEGRAL PHOTOCCELL	LITHONIA WDGE2 LED SERIES	VISA, METALUX	5000K 80CRI LED		6000	120	
WAA	WALL MOUNTED FLOOD LIGHT, FORWARD THROW, INTEGRAL BATTERY PACK	LITHONIA WDGE2 LED SERIES	VISA, METALUX	5000K 80CRI LED		6000	277	
WO2	REPLACE FIXTURE: WALL MOUNTED FLOOD LIGHT, FORWARD THROW, INTEGRAL BATTERY PACK	LITHONIA WDGE2 LED SERIES	VISA, METALUX	5000K 80CRI LED		6000	120	
X1	REMOVE EXISTING EXIT SIGN AND REPLACE WITH NEW: WHITE HOUSING, RED LETTERS, BATTERY PACK. MOUNTING, FACES, AND CHEVRONS AS INDICATED ON DRAWINGS.	LITHONIA LQM SERIES	VISA, METALUX				120	
XA	HIGH ABUSE EXIT SIGN, WHITE ON WHITE, RED LETTERS, BATTERY, MOUNTING, FACES AND CHEVRONS AS INDICATED ON DRAWING. CIRCUIT TO NEAREST UNSWITCHED LIGHTING CIRCUIT WITH 2#12, #12 GROUND IN 3/4" CONDUIT.	LITHONIA LV SERIES	SAFELITE, METALUX				120	
YAA	LIGHT FIXTURE SCHEDULE GENERAL NOTES: WHITE ON WHITE, RED LETTERS, BATTERY, MOUNTING, FACES AND CHEVRONS AS INDICATED ON DRAWING. CIRCUIT TO NEAREST UNSWITCHED LIGHTING CIRCUIT WITH 2#12, #12 GROUND IN 3/4" CONDUIT.	LITHONIA LV SERIES	SAFELITE, METALUX				277	
A	REPLACE FIXTURE: CONTRACTOR SHALL CONFIRM QUANTITY OF EXISTING FIXTURES WITH EXISTING PHOTOCCELLS AND MATCH REPLACEMENT FIXTURE, METALUX							
B	EXTERIOR FIXTURES: CONTRACTOR SHALL CONFIRM QUANTITY OF EXISTING FIXTURES WITH EXISTING PHOTOCCELLS AND MATCH REPLACEMENT FIXTURE, METALUX							
C	CONTRACTOR SHALL VERIFY VOLTAGE OF ALL FIXTURES PRIOR TO ORDERING. CIRCUIT TO NEAREST UNSWITCHED LIGHTING CIRCUIT WITH 2#12, #12 GROUND IN 3/4" CONDUIT.							
Z1	EXISTING LED FIXTURE TO REMAIN						120	



1 DUCTBANK DETAIL

SCALE: NONE



2 SURFACE PANELBOARD CONDUIT MAINTENANCE PAD DETAIL

SCALE: NONE

4 POLE BASE DETAIL

SCALE: NONE

PAD MOUNTED UTILITY TRANSFORMER CONCRETE PAD AND GROUNDING DETAIL

SCALE: NONE

## ELECTRICAL DETAILS

ESTILL COUNTY PHASE 7 HS RENOVATIONS

FOR:

ESTILL COUNTY SCHOOLS

IRVINE, KENTUCKY

M.E.&P. Engineer:  
CMAA, Inc.  
2429 Members Way  
Lexington, KY 40304  
p 859.253.0892Structural Engineer:  
Structural Design Group, Inc.  
220 Great Circle Rd., Suite 106  
Nashville, TN 37228  
p 615.255.5537Construction Manager:  
Codel Construction Co.  
P.O. Box 17  
Winchester, Kentucky 40392  
p 859.744.2222

BG#

Project No.: 2025/EHS20  
Drawn By: JNU  
Rev'd By: JNU

SHEET RELEASE

1 ADD 4 2021-05-07

2 ADD 5 2021-05-14

3 PR 9 2021-11-22

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CONSTRUCTION DOCUMENTS

E6.0

ELECTRICAL DETAILS

DATE ISSUED:  
MARCH 29, 2021rostantant  
architectsNOT FOR  
CONSTRUCTION

101 old ladyette avenue leaington, kentucky 40302 p 859.254.4018



PANEL: <b>AFR</b>				MAINS TYPE: MCB				PANEL INTERRUPTING RATING: 10kA							
VOLTAGE: 208Y/120V, 3P, 4W				SPD:				LOCATION:							
AMPERS: 150 A				MOUNTING: FLUSH				SUPPLY FROM: SDPFH							
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCB	P	CKT	A	B	C	CKT	P	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES		
	REC RM 412, 412D	1#12, 1#12, 1#12	20	1	1	0.5	0.4		2	1	20	1#12, 1#12, 1#12	REC RM 412, 412C		
	REC RM 412B	1#12, 1#12, 1#12	20	1	3		0.7	0.5		4	1	20	1#12, 1#12, 1#12	REC RM 410C	
	REC RM 410, 410C	1#12, 1#12, 1#12	20	1	5				0.7	0.5	6	1#12, 1#12, 1#12	REC RM 410, 410B		
	REC RM 410, 411	1#12, 1#12, 1#12	20	1	7	0.9	0.7		8	1	20	1#12, 1#12, 1#12	REC RM 400A, 400C		
	REC RM 408B, 409C	1#12, 1#12, 1#12	20	1	9			0.5	0.9	10	1	20	1#12, 1#12, 1#12	REC RM 409	
	REC RM 408	1#12, 1#12, 1#12	20	1	11			0.7	0.7	12	1	20	1#12, 1#12, 1#12	REC RM 408	
	REC RM 412, 412A	1#12, 1#12, 1#12	20	1	13	1.1	0.5		14	1	20	1#12, 1#12, 1#12	WATER FOUNTAIN		
	REC DRYER RM 412	2#10, 1#410, 1#10	30	2	17		0.1	0.2	16	1	20	1#12, 1#12, 1#12	REC SIGNAL BOX		
									18	1	15	1#12, 1#12, 1#12	SS 18		
	SS-24	1#12, 1#12, 1#12	15	1	19	0.2	0.4		20	1	20	1#12, 1#12, 1#12	REC		
	REC	1#12, 1#12, 1#12	20	1	21		0.4	0.5	22	1	20	1#12, 1#12, 1#12	REC EQUIP 410A HAND DRYER		
	EQUIP 400A HAND DRYER	1#12, 1#12, 1#12	20	1	23			0.5	0.2	24	1	20	1#12, 1#12, 1#12	REC WATER FOUNTAIN	
	EQUIP 412A HAND DRYER	1#12, 1#12, 1#12	20	1	25	0.5	0.4		26	1	20	1#10, 1#10, 1#10	REC		
	REC	1#8, 1#8, 1#8	20	1	27		0.4	0.5	28	1	20	1#12, 1#12, 1#12	ATHLETIC CONTROLS		
	REC	1#8, 1#8, 1#8	20	1	29			0.4	0.7	30					
	TP-1	1#12, 1#12, 1#12	20	1	31	0.5	0.7		32	3	50	3#6, 1#6, 1#10	EQUIP MAU-1		
							0.3	0.27							
	WH-1A	3#12, 1#12, 1#12	15	3	35				0.3	1.0	36	1	20	1#10, 1#10, 1#10	FOOTBALL SCOREBOARD
					37	0.3	1.0		38	1	20	1#10, 1#10, 1#10	FOOTBALL SCOREBOARD		
							1.6	1.0	40	1	20	1#10, 1#10, 1#10	FOOTBALL SCOREBOARD		
	CU-24	2#10, 1#10, 1#10	25	2	41				1.6	0.9	42	2	20	2#12, 1#12, 1#12	QU-18
1	WASHER	1#12, 1#12, 1#12	20	1	43	0.2	0.9		44						
--	DOOR HARDWARE	1#12, 1#12, 1#12	20	1	45		0.2	0.5	46	1	20	1#12, 1#12, 1#12	FACP		
	SPACE	--	--	--	47				0.0	0.2	48	1	20	1#10, 1#10, 1#10	BLEACHER RECEPTACLE
	SPARE	--	--	--	49	0.0	0.0	0.0	50	1	20	--	SPARE		
	SPARE	--	--	--	51	0.0	0.0	0.0	52	1	20	--	SPARE		
	SPARE	--	--	--	53				54	1	20	--	SPARE		
						112 KVA	110 KVA	110 KVA							
						93 A	92 A	92 A							
LOAD CLASSIFICATION		CONNECTED LOAD													

<b>PANEL: BBR</b>			<b>MAINS TYPE: MCB</b>				<b>PANEL INTERRUPTING RATING: 35kA</b>					
<b>VOLTAGE:</b> 120/240V, 1P, 3W			<b>SPD:</b>				<b>LOCATION:</b> MECH. & STOR. 311					
<b>AMPERS:</b> 400 A			<b>MOUNTING:</b> SURFACE				<b>SUPPLY FROM:</b>					
<b>NOTES</b>	<b>CIRCUIT DESCRIPTION</b>	<b>HOT, NEUT, GND</b>	<b>OCP</b>	<b>P</b>	<b>CKT A</b>	<b>B</b>	<b>CKT P</b>	<b>OCP</b>	<b>HOT, NEUT, GND</b>	<b>CIRCUIT DESCRIPTION</b>	<b>NOTES</b>	
	BDR	2-#6, 1-#6, 1-#10	50	2	1	2.0 0.5	--	1	20	1-#12, 1-#12, 1-#12	REC RM 315	
	REC RM 315A	1-#12, 1-#12, 1-#12	20	1	3	--	2.0 0.7	4	1	1-#12, 1-#12, 1-#12	REC RM 315	
	REC RM 315	1-#12, 1-#12, 1-#12	20	1	7	--	4.0 3.0	8	1	1-#10, 1-#10, 1-#10	CEILING FANS	
	REC - SOUND	1-#12, 1-#12, 1-#12	20	1	9	0.2 0.2	--	10	20	1-#12, 1-#12, 1-#12	REC - SOUND	
	REC RM 310, 314	1-#12, 1-#12, 1-#12	20	1	11	--	0.5 0.4	12	1	1-#12, 1-#12, 1-#12	REC - DATA RACK	
	REC - DATA RACK	1-#12, 1-#12, 1-#12	20	1	13	0.4 0.7	--	14	20	1-#12, 1-#12, 1-#12	REC RM 311	
	REC RM 312	1-#12, 1-#12, 1-#12	20	1	15	--	0.5 0.2	16	1	1-#12, 1-#12, 1-#12	REC DRINK COOLER*	
	REC RM 312	1-#12, 1-#12, 1-#12	20	1	17	0.9 0.2	--	19	1	1-#12, 1-#12, 1-#12	REC RM 312	
	REC ICE MAKER*	1-#12, 1-#12, 1-#12	20	1	19	--	0.2 6.3	20	80	2-#40, 1-#40, 1-#3	WATER BOOSTER PUMP	
	TP-1	1-#12, 1-#12, 1-#12	20	1	21	0.5 6.3	--	22	2	--	--	
	EQUIP WH-C	2-#8, 1-#8, 1-#10	35	2	23	--	3.0 9.0	24	2	20	--	
					25	3.0 9.0	--	26	20	--	--	
	EQUIP	2-#4, 1-#4, 1-#4	20	2	27	--	0.5 0.5	28	--	--	SPACE --	
					29	0.5 0.0	--	30	--	--	SPACE --	
	LTING BASEBALL PRESSBOX	1-#12, 1-#12, 1-#12	20	1	31	--	0.0 0.0	32	--	--	SPACE --	
	LTING BASEBALL PRESSBOX EXT	1-#12, 1-#12, 1-#12	20	1	33	--	--	34	--	--	SPACE --	
	LTING RM BASEBALL PRESSBOX	1-#12, 1-#12, 1-#12	20	1	35	--	0.0 0.0	36	--	--	SPACE --	
	SPARE	--	20	1	37	0.0 0.0	--	38	1	20	SPACE	
	SPARE	--	20	1	39	--	0.0 0.0	40	1	20	SPACE	
	SPARE	--	20	1	41	0.0 0.0	--	42	1	20	SPACE	
					25.4 kVA	26.6 kVA						
					212 A	222 A						
<b>LOAD CLASSIFICATION</b>			<b>CONNECTED LOAD</b>		<b>DEMAND FACTOR</b>		<b>ESTIMATED DEMAND</b>		<b>PANEL TOTALS</b>			
EQUIP	LTNG	Spare	23600 VA 0 VA	100.0% 0.00%			23600 VA 0 VA		TOTAL CONNECTED LOAD:	50000 VA		
			10080 VA	99.60%			10040 VA		TOTAL ESTIMATED DEMAND CURRENT:	217 A		
			18000 VA	100.00%			18000 VA		TOTAL ADDITIONAL CAPACITY:	54 A		
									TOTAL PANEL CURRENT:	271 A		

**NOTES:** WHERE NOT LISTED, WIRE AND CONDUIT SHALL BE BY MINIMUM PER SPECIFICATIONS. SPARE BREAKERS TO BE 20A/1P.

\* GFI BREAKER

<b>PANEL: LP2A</b> <b>VOLTAGE:</b> 208Y120V, 3P, 4W <b>AMPERES:</b> 150 A				<b>MAINS TYPE:</b> MCS <b>SPD:</b> <b>MOUNTING:</b> SURFACE				<b>PANEL INTERRUPTING RATING:</b> <ENGINEER TO SPECIFY> <b>LOCATION:</b> Space 149									
				<b>SUPPLY FROM:</b>													
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCB	P	CKT	A	B	C	CKT	P	OCB	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES			
	EXISTING CIRCUIT	--	20	1	1	0.0	0.0		2	1	20	--	EXISTING CIRCUIT				
	EXISTING CIRCUIT	--	20	1	3		0.0	0.0		4	1	20	--	EXISTING CIRCUIT			
	EXISTING CIRCUIT	--	20	1	5				0.0	6	1	20	--	EXISTING CIRCUIT			
	EXISTING CIRCUIT	--	20	1	7	0.0	0.0		8	1	20	--	EXISTING CIRCUIT				
	EXISTING CIRCUIT	--	20	1	9		0.0	0.0		10	1	20	--	EXISTING CIRCUIT			
	EXISTING CIRCUIT	--	20	1	11				0.0	0.0	12	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	20	1	13	0.0	0.0				14	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	25	2	17		0.0	0.0			16	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	20	1	19	0.0	0.0		0.0	0.0	18	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	30	2	21		0.0	0.0			22	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	20	1	23				0.0	0.0	24	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	20	1	25	0.0	0.5				26	1	20	--	EXISTING CIRCUIT		
	EXISTING CIRCUIT	--	20	1	27		0.0	0.0			28	1	20	--	EXISTING CIRCUIT		
	REC - RECEPTION 100	1-#12, 1-#12, 1-#12	20	1	29			1.1	0.4	1	30	1	20	1-#12, 1-#12, 1-#12	REC - RECEPTION 100		
	REC - RECEPTION 100	1-#12, 1-#12, 1-#12	20	1	31	0.2	0.4			32	1	20	1-#12, 1-#12, 1-#12	REC - RECEPTION 100			
	DOOR HARDWARE	1-#10, 1-#10, 1-#10	20	1	33		1.5	0.7			34	1	20	1-#12, 1-#12, 1-#12	REC - RECEPTION 100		
	REC - PRINCIPAL 101C	1-#12, 1-#12, 1-#12	20	1	35			0.4	0.9	36	1	20	1-#12, 1-#12, 1-#12	REC - PRINCIPAL 101C			
	REC	1-#12, 1-#12, 1-#12	20	1	37	12	0.2			38	1	20	1-#12, 1-#12, 1-#12	REC - REFRIGERATOR			
	REC - CONFERENCE 101	1-#12, 1-#12, 1-#12	20	1	39		1.1	0.0	0.0	40		--	--	SPACE			
	REC - CONFERENCE 101	1-#12, 1-#12, 1-#12	20	1	41			1.1	0.2	42	--	--	--	SPACE			
1	REC - CONCESSIONS 135	1-#10, 1-#10, 1-#10	20	1	43	0.5	0.0			44	--	--	--	SPACE			
1	REC - CONCESSIONS 135	1-#10, 1-#10, 1-#10	20	1	45		0.5	0.0		46	--	--	--	SPACE			
1	REC - CONCESSIONS 135	1-#10, 1-#10, 1-#10	20	1	47				0.5	0.0	48	--	--	SPACE			
	SPARE	--	20	1	49	0.0	0.0			50	1	20	--	SPARE			
	SPARE	--	20	1	51		0.0	0.0		52	1	20	--	SPARE			
	SPARE	--	20	1	53			0.0	0.0	54	1	20	--	SPARE			
						3.0 kVA	38 kVA	4.3 kVA									
						25 A	33 A	37 A									
LOAD CLASSIFICATION		CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS									
EQUIP		2000 VA		100.00%		2000 VA		TOTAL CONNECTED LOAD: 11060 VA									

PANEL: AFL				MAINS TYPE: MCB				PANEL INTERRUPTING RATING: 35kA						
VOLTAGE: 480Y/277V, 3P-4W				SPD:				LOCATION: CORRIDOR C4008						
AMPERES: 225 A				MOUNTING: FLUSH				SUPPLY FROM: MDFFH						
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCP	P	CKT	A	B	C	CKT	P	OCP	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES
	L1NG ATHLETIC FIELD HOUSE EXT	1#12, 1#12, 1#12	20	1	0	0.0			2	1	20	1#12, 1#12, 1#12	L1NG ATHLETIC FIELD HOUSE	
	L1NG ATHLETIC FIELD HOUSE	1#12, 1#12, 1#12	20	1	3		0.0	4.7	4		4			
					5				6	3	30	3-4B, 1-4B, 1-4B	POLE F2	
	POLE F1	3-4B, 1-4B, 1-4B	30	3	7	4.7	4.7		8					
					11		4.7	4.7	10					
					17				12	3	30	3-4B, 1-4B, 1-4B	POLE F4	
	POLE F3	3#10, 1#10, 1#10	30	3	13	4.7	4.7		14					
					15		4.7	1.3	16					
					17				18					
1	POLE T4	3#12, 1#12, 1#12	20	3	19	1.3	1.3		20		30	3-4I2, 1#12, 1#12	POLE T3	1
					21		1.3	1.3	22					
					23			1.3	24	3	20	3-4I2, 1#12, 1#12	POLE T2	1
1	POLE T1	3#12, 1#12, 1#12	30	3	25	1.3	1.3		26					
					27		1.3	0.0	28	1	20	1#12, 1#12, 1#12	L1NG - SITE LIGHTING	1
-	L1NG - SITE LIGHTING	1#12, 1#12, 1#12	20	1	29			0.0	30	--	--	--	SPACE	--
-	SPACE	--	--	31	0.0	0.0			32	--	--	--	SPACE	--
-	SPACE	--	--	33			0.0	0.0	34	--	--	--	SPACE	--
-	SPACE	--	--	35				0.0	36	--	--	--	SPACE	--
-	SPACE	--	--	37	0.0	0.0			38	1	20	--	SPACE	--
-	SPACE	--	--	39			0.0	0.0	40	1	20	--	SPACE	--
-	SPACE	--	--	41				0.0	42	1	20	--	SPACE	--
					23.7 kVA	23.7 kVA	23.7 kVA							
					86 A	86 A	86 A							
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		PANEL TOTALS								
L1NG	0 V/A		0.00%	0 V/A		TOTAL CONNECTED LOAD: 71160 VA								
Other	71160 VA		100.00%	71160 VA		TOTAL ESTIMATED DEMAND: 71160 VA								
						TOTAL CONNECTED CURRENT: 86 A								
						TOTAL ESTIMATED DEMAND CURRENT: 86 A								
						25 % ADDITIONAL CAPACITY: 21 A								
						TOTAL PANEL CURRENT: 107 A								

NOTES: WHERE NOT LISTED, WIRE AND CONDUIT SHALL BE BE MINIMUM PER SPECIFICATIONS. SPARE BREAKERS TO BE 20A/1P.  
 1. IF ALTERNATE IS NOT TAKEN, BREAKER SHALL REMAIN AS SPARE.

<b>PANEL: SBR</b>			<b>MAINS TYPE: MCB</b>					<b>PANEL INTERRUPTING RATING: 14kA</b>				
<b>VOLTAGE:</b> 120/240V, 1P, 3W			<b>SPO:</b>					<b>RATING LOCATION:</b>				
<b>AMPERES:</b> 100 A			<b>MOUNTING:</b> SURFACE					<b>SUPPLY FROM:</b>				
<b>NOTES</b>	<b>CIRCUIT DESCRIPTION</b>	<b>HOT, NEUT, GND</b>	<b>OCP</b>	<b>P</b>	<b>CKT</b>	<b>A</b>	<b>B</b>	<b>CKT P</b>	<b>OCP</b>	<b>HOT, NEUT, GND</b>	<b>CIRCUIT DESCRIPTION</b>	<b>NOTES</b>
	REC RM 317, STG319	1#12, 1#12, 1#12	20	1	1	0.7	0.4		2	1	1#12, 1#12, 1#12	REC RM 318
	REC RM 317	1#12, 1#12, 1#12	20	1	3		0.4	0.5	4	1	1#12, 1#12, 1#12	REC RM 319
	REC RM 318	1#12, 1#12, 1#12	20	1	5	0.9	3.0		6	1	1#10, 1#10, 1#10	CEILING FANS
	REC ICE MAKER*	1#12, 1#12, 1#12	20	1	7		0.2	0.5	8	1	1#12, 1#12, 1#12	REC RM 316, 320
	REC. SOUND*	1#12, 1#12, 1#12	20	1	8	0.2	0.2		10	1	1#12, 1#12, 1#12	REC. SOUND
	REC RM 321, 321A	1#12, 1#12, 1#12	20	1	11		0.5	0.7	12	1	1#12, 1#12, 1#12	REC RM 321
	REC RM 321	1#12, 1#12, 1#12	20	1	13	0.7	0.7		14	1	1#12, 1#12, 1#12	REC RM 321A
	SDR	2#6, 1#6, 1#6	20	2	17	1.6	3.0		16	1	1#12, 1#12, 1#12	TP-1
	REC DRINK COOLER*	1#12, 1#12, 1#12	20	1	19		0.2	3.0	20	2	2#12, 1#12, 1#12	EQUIP WH-C1C
	REC RM 318	1#12, 1#12, 1#12	20	1	21	0.2	9.0		22	2	--	SPARE
	LTING SOFTBALL PRESSBOX	1#12, 1#12, 1#12	20	1	23		0.0	9.0	24	--	--	SPACE --
	LTING SOFTBALL PRESSBOX	1#12, 1#12, 1#12	20	1	25	0.0	0.0		26	--	--	SPACE --
	LTING SOFTBALLPRESSBOX EXT	1#12, 1#12, 1#12	20	1	27		0.0	0.0	28	--	--	SPACE --
--	SPACE	--	--	--	29	0.0	0.0		30	--	--	SPACE --
--	SPACE	--	--	--	31		0.0	0.0	32	--	--	SPACE --
--	SPACE	--	--	--	33		0.0	0.0	34	--	--	SPACE --
--	SPACE	--	--	--	35		0.0	0.0	36	--	--	SPACE --
--	SPARE	--	--	--	37	0.7	0.0		38	1	20	SPARE
--	SPARE	--	--	--	39		0.0	0.0	40	1	20	SPARE
--	SPARE	--	--	--	41	0.0	0.0		42	1	20	SPARE
					20.6 kVA		17.5 kVA					
					172 A		146 A					
<b>LOAD CLASSIFICATION</b>			<b>CONNECTED LOAD</b>		<b>DEMAND FACTOR</b>		<b>ESTIMATED DEMAND</b>		<b>PANEL TOTALS</b>			
EQUIP	10400 VA		100.0%		10400 VA				TOTAL CONNECTED LOAD: 38/120 VA			
LTNG	0 VA		0.00%		0 VA				TOTAL ESTIMATED DEMAND: 38/120 VA			
REC	9720 VA		100.00%		9720 VA				TOTAL CONNECTED CURRENT: 159 A			
Spare	18000 VA				18000 VA				TOTAL ESTIMATED DEMAND CURRENT: 159 A			
									25 % ADDITIONAL CAPACITY: 40 A			

<b>PANEL: TGP</b>				<b>MAINS TYPE: MCSB</b>				<b>PANEL INTERRUPTING RATING: 10KA</b>			
<b>VOLTAGE:</b> 208Y/120V/3P/4W				<b>SPD:</b>				<b>LOCATION:</b>			
<b>AMPERES:</b> 50 A				<b>MOUNTING:</b> SURFACE				<b>SUPPLY FROM:</b> SDPPH			

NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCB	P	CKT	A	B	C	CKT	P	OCB	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES
	REC	1#1/2, 1#1/2, 1#1/2	20	1	1	0.2	0.2		2	1	20	1#1/2, 1#1/2, 1#1/2	REC	
	REC	1#1/2, 1#1/2, 1#1/2	20	1	3				4	1	20	1#1/2, 1#1/2, 1#1/2	REC	
--	SPACE	--	--	--	5		0.2	0.2	0.0	0.0	6	--	SPACE	--
--	SPACE	--	--	--	7	0.0	0.0		8	--	--	SPACE	--	
--	SPACE	--	--	--	9		0.0	0.0	10	--	--	SPACE	--	
--	SPACE	--	--	--	11				12	--	--	SPACE	--	
						0.4 kVA		0.4 kVA						
						3 A		3 A						

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS
REC	720 VA	100.00%	720 VA	TOTAL CONNECTED LOAD: 720 VA
				TOTAL ESTIMATED DEMAND: 720 VA
				TOTAL CONNECTED CURRENT: 2 A
				TOTAL ESTIMATED DEMAND CURRENT: 2 A
				25 % ADDITIONAL CAPACITY: 0 A
				TOTAL PANEL CURRENT: 2 A

**NOTES:** WHERE NOT LISTED, WIRE AND CONDUIT SHALL BE MINIMUM PER SPECIFICATIONS. SPARE BREAKERS TO BE 20A/1P

PANELBOARD SCHEDULE SYMBOLS :	
GFI	PROVIDE GROUND FAULT CIRCUIT INTERRUPTER TYPE CIRCUIT BREAKER
MLO	MAIN LUG ONLY
MCB	MAIN CIRCUIT BREAKER
VFD	VARIABLE FREQUENCY DRIVE

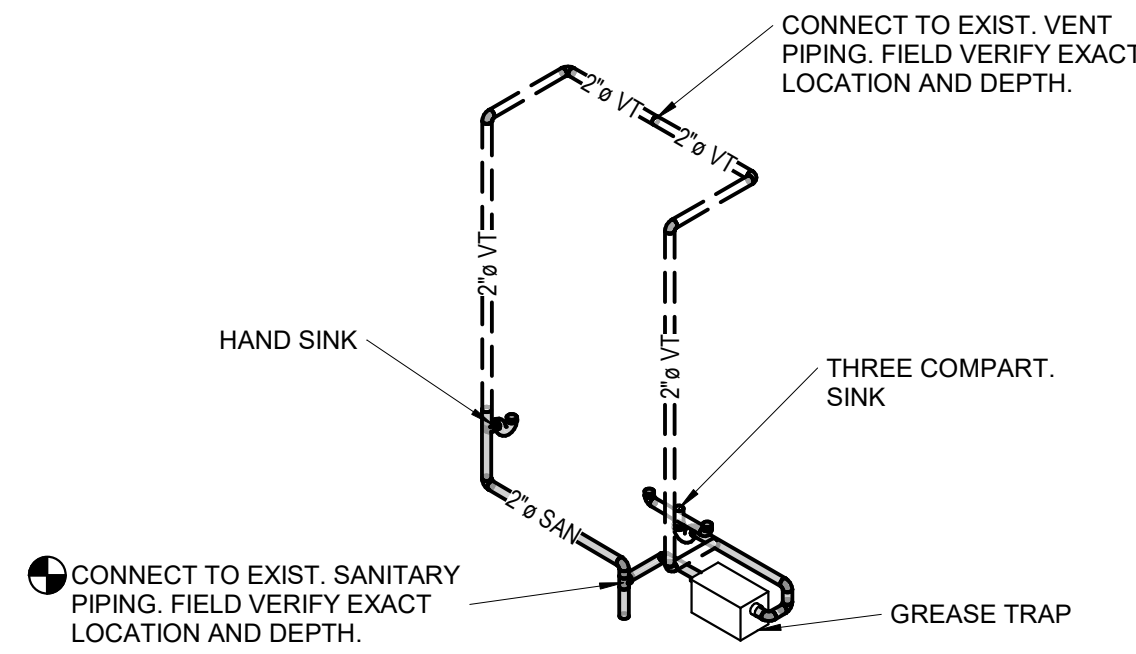
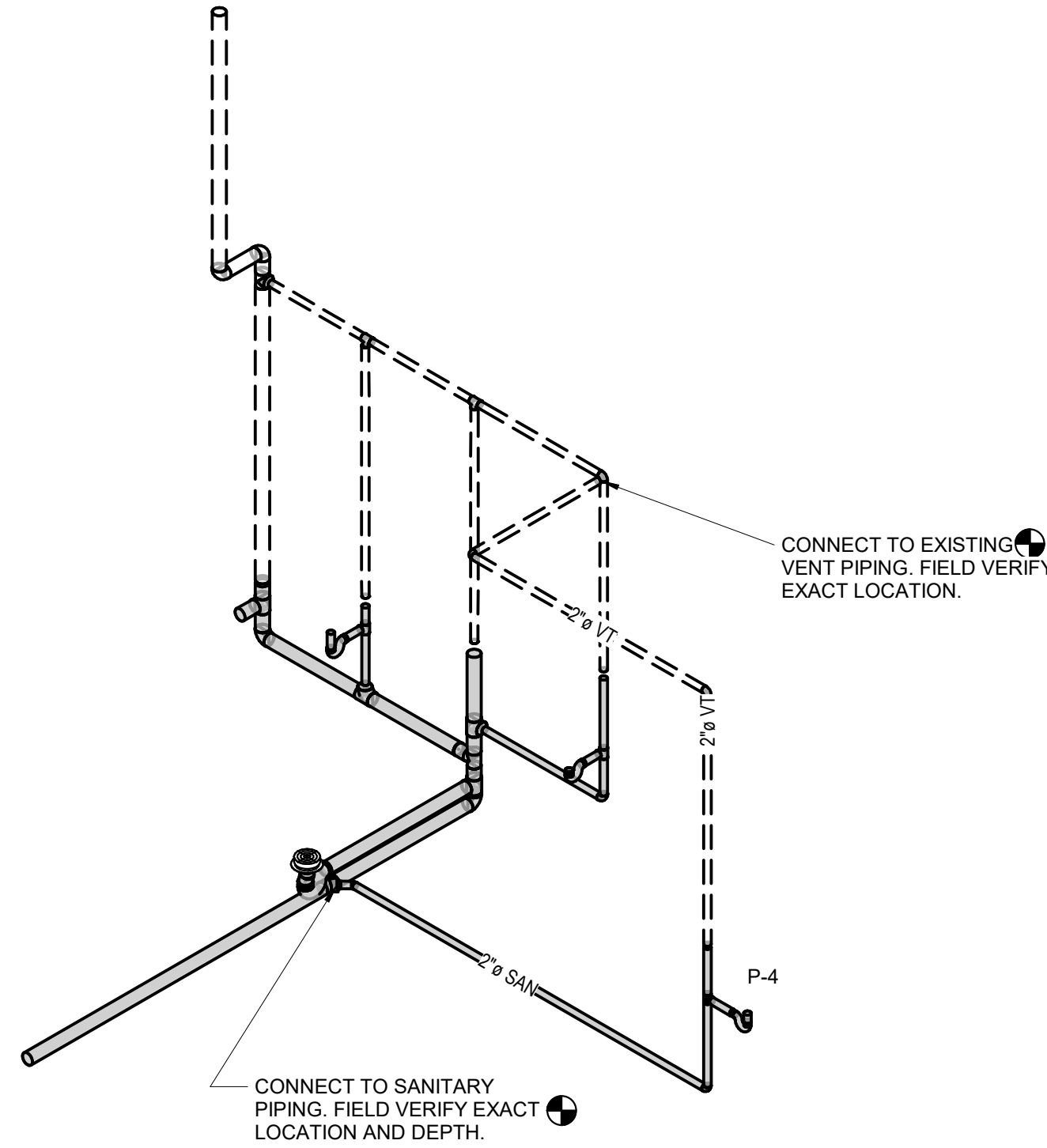
PANELBOARD SCHEDULE NOTES :	
A.	ALL NEW PANELBOARDS SHALL BE ORDERED WITH "DOOR-IN-DOOR" OPTION.
B.	PROVIDE LOCK-OUT TYPE CIRCUIT BREAKERS FOR ALL HARD-WIRED EQUIPMENT. CIRCUIT BREAKERS SERVING HVAC EQUIPMENT SHALL BE HACR TYPE.
C.	PROVIDE TYPEWRITTEN SCHEDULES AT ALL PANELBOARDS. INDICATE ROOM NUMBERS BEING SERVED BY CIRCUIT ON SCHEDULE.
D.	PROVIDE SIX (6) SPARE 1" CONDUITS STUBBED INTO ACCESSIBLE CEILING SPACE FROM ALL NEW RECESSED PANELBOARDS.
E.	PROVIDE SIX (6) SPARE 1" CONDUITS STUBBED INTO ACCESSIBLE CEILING SPACE OF FLOOR BELOW FROM ALL NEW RECESSED PANELBOARDS.

<b>PANEL: TBR</b>						<b>PANEL INTERRUPTING RATING: 10kA</b>								
<b>VOLTAGE:</b> 208Y/120V, 3P-4W						<b>LOCATION:</b> TICKET BOOTH #14								
<b>AMPERES:</b> 50 A						<b>SUPPLY FROM:</b> SDPHH								
<b>MAINS TYPE:</b> MCB														
<b>SPD:</b>														
<b>MOUNTING:</b> SURFACE														
<b>NOTES</b>	<b>CIRCUIT DESCRIPTION</b>	<b>HOT, NEUT, GND</b>	<b>OCP</b>	<b>P</b>	<b>CKT</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CKT</b>	<b>P</b>	<b>OCP</b>	<b>HOT, NEUT, GND</b>	<b>CIRCUIT DESCRIPTION</b>	<b>NOTES</b>
	REC-RM #14	1#12, 1#12, 1#12	20	1	1	0.4	0.4		2	1	20	1#12, 1#12, 1#12	REC-RM #14	
	REC - DATA RACK	1#12, 1#12, 1#12	20	1	3		0.4	0.4	4	1	20	1#12, 1#12, 1#12	REC - DATA RACK	
	LTNG	--	20	1	5				6	1	20	--		
	LTNG	--	20	1	7	0.0	1.8		0.0	1.8	6	2	--	
	SPARE	--	20	1	9						8		--	SPARE
	SPARE	--	20	1	11		0.0	0.0			10	1	--	SPARE
	SPARE	--	20	1	11				0.0	0.0	12	1	--	SPARE
						2.5 kVA	0.7 kVA	1.8 kVA						
						22 A	6 A	15 A						
<b>LOAD CLASSIFICATION</b>						<b>CONNECTED LOAD</b>		<b>DEMAND FACTOR</b>		<b>ESTIMATED DEMAND</b>		<b>PANEL TOTALS</b>		
LTNG						0 VA		0.00%		0 VA		TOTAL CONNECTED LOAD: 5040 VA		
REC						1440 VA		100.00%		1440 VA		TOTAL ESTIMATED DEMAND: 5040 VA		
Spare						3600 VA		100.00%		3600 VA		TOTAL CONNECTED CURRENT: 14 A		
												TOTAL ESTIMATED DEMAND CURRENT: 14 A		
												25 % ADDITIONAL CAPACITY: 3 A		
												TOTAL PANEL CURRENT: 17 A		
<b>NOTES:</b> WHERE NOT LISTED, WIRE AND CONDUIT SHALL BE MINIMUM PER SPECIFICATIONS. SPARE BREAKERS TO BE 20A/IP.														

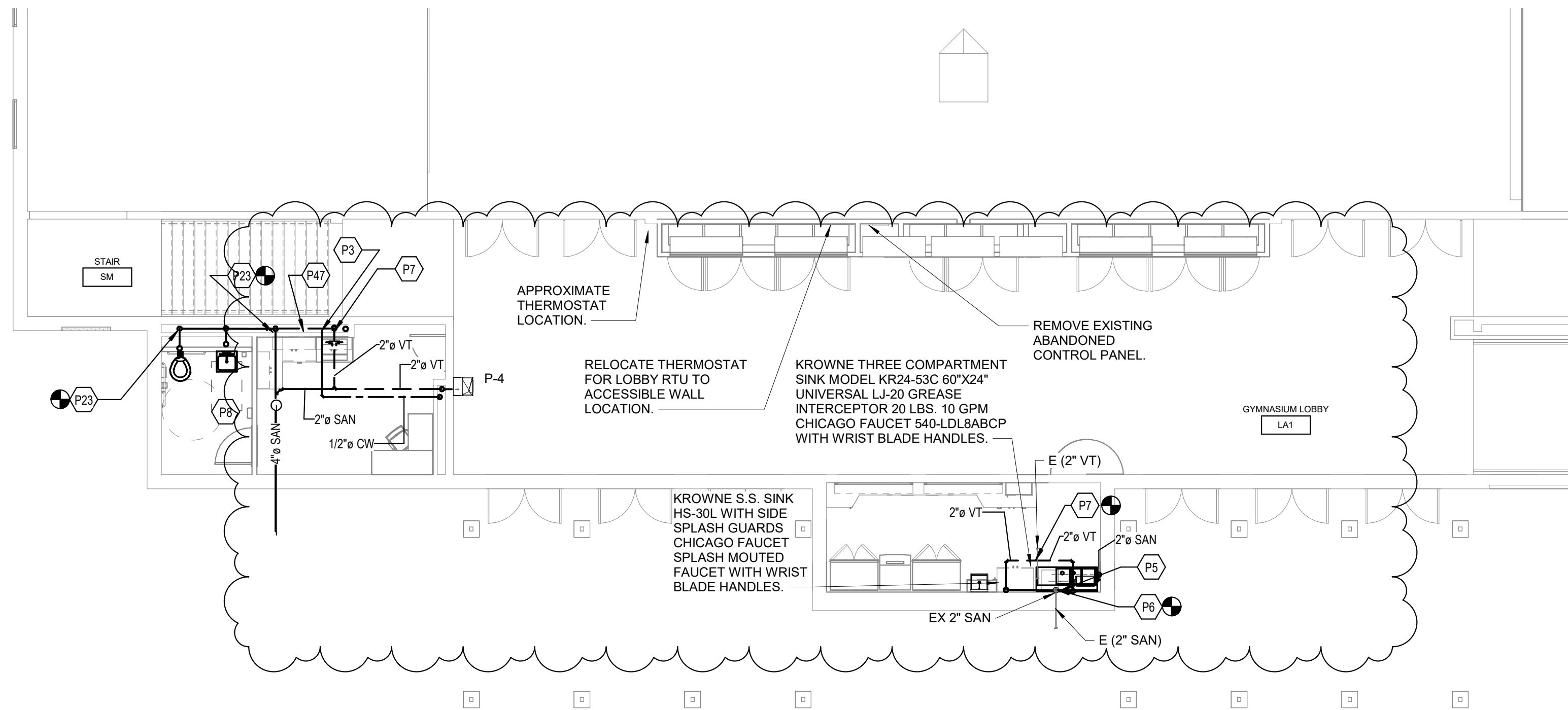
<b>PANEL: SDR</b>				<b>MAINS TYPE: MCB</b>				<b>PANEL INTERRUPTING RATING: 10kA</b>									
<b>VOLTAGE:</b> 120/240V, 1P, 3W				<b>SPD:</b>				<b>LOCATION:</b> Space Z9									
<b>AMPERES:</b> 50 A				<b>MOUNTING:</b> SURFACE				<b>SUPPLY FROM:</b> SBR									
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCB	P	CKT	A	B	OCB	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES						
	REC	1#12, 1#12, 1#12	20	1	1	0.7	0.0	20	1#12, 1#12, 1#12	EXHAUST FAN							
	REC/RM 301, 301A	1#12, 1#12, 1#12	20	1	3		0.5, 0.7	20	1#12, 1#12, 1#12	REC/RM 301A							
	CEILING FANS	1#12, 1#12, 1#12	20	1	5	0.2	0.0	20	1#12, 1#12, 1#12	REC							
	REC	1#12, 1#12, 1#12	20	1	7		0.4, 0.0	20	1#12, 1#12, 1#12	SB DUGOUT LIGHTING							
--	SPACE	--	--	--	9	0.0	0.0	--	--	SPACE	--						
--	SPACE	--	--	--	11			--	--	SPACE	--						
	SPACE	--	--	--	13	0.0	0.0	--	--	SPACE	--						
	SPACE	--	20	1	15		0.0, 0.0	20	--	SPARE							
	SPACE	--	20	1	17	0.0	0.0	20	--	SPARE							
	SPACE	--	20	1	19		0.0, 0.0	20	--	SPARE							
						2.0 kVA	1.6 kVA										
						17 A	14 A										
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		PANEL TOTALS											
EQUIP		900 VA	100.00%	900 VA		TOTAL CONNECTED LOAD: 3600 VA											
LTRG		0 VA	0.00%	0 VA		TOTAL ESTIMATED DEMAND: 3600 VA											
REC		2700 VA	100.00%	2700 VA		TOTAL CONNECTED CURRENT: 15 A											
						TOTAL ESTIMATED DEMAND CURRENT: 15 A											
						25 % ADDITIONAL CAPACITY: 4 A											
						TOTAL PANEL CURRENT: 19 A											

<b>PANEL: BDR</b>				<b>MAINS TYPE: MCB</b>				<b>PANEL INTERRUPTING RATING: 10kA</b>					
<b>VOLTAGE: 120/240V, 1P, 3W</b>				<b>SPD:</b>				<b>LOCATION: STORAGE 307</b>					
<b>AMPERES: 50 A</b>				<b>MOUNTING: SURFACE</b>				<b>SUPPLY FROM: BBR</b>					
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OCP	P	CKT	A	B	CKT	P	OCP	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES
	EXHAUST FAN	1-#12, 1-#12, 1-#12	20	1	1	0.7	0.7		2	1	20	1-#12, 1-#12, 1-#12	REC RM 306, 307
	REC RM 305, 306	1-#12, 1-#12, 1-#12	20	1	3		0.5	0.7	4	1	20	1-#12, 1-#12, 1-#12	REC RM 305
	REC	1-#6, 1-#6, 1-#6	20	1	5	0.4	0.2		6	1	20	1-#12, 1-#12, 1-#12	CEILING FANS
	REC	1-#12, 1-#12, 1-#12	20	1	7		0.4	0.4	8	1	20	1-#12, 1-#12, 1-#12	REC
	BB DUGOUT LIGHTING	1-#12, 1-#12, 1-#12	20	1	9	0.0	0.0		10	--	--	SPACE	--
--	SPACE	--	--	--	11		0.0	0.0	12	--	--	SPACE	--
--	SPACE	--	--	--	13	0.0	0.0		14	--	--	SPACE	--
	SPARE	--	20	1	15		0.0	0.0	16	1	20	SPARE	--
	SPARE	--	20	1	17	0.0	0.0		18	1	20	SPARE	--
	SPARE	--	20	1	19		0.0	0.0	20	1	20	SPARE	--
				2.0 KVA				2.0 KVA					
				17 A				17 A					
LOAD CLASSIFICATION		CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS					
GROUP		900 VA		100.0%		900 VA		TOTAL CONNECTED LOAD: 3960 VA					
LTNG		0 VA		0.00%		0 VA		TOTAL ESTIMATED DEMAND: 3960 VA					
REC		3060 VA		100.0%		3060 VA		TOTAL CONNECTED CURRENT: 17 A					
								TOTAL ESTIMATED DEMAND CURRENT: 17 A					
								25 % ADDITIONAL CAPACITY: 4 A					
								TOTAL PANEL CURRENT: 21 A					

<b>PANEL: GH</b> <b>VOLTAGE:</b> 208Y/120V/3P-4W <b>AMPERES:</b> 100 A				<b>MAINS TYPE:</b> MCB <b>SPD:</b> <b>MOUNTING:</b> SURFACE				<b>PANEL INTERRUPTING RATING:</b> 14k <b>LOCATION:</b> GREENHOUSE 413							
				<b>SUPPLY FROM:</b> SDPH											
NOTES	CIRCUIT DESCRIPTION	HOT, NEUT, GND	OC	P	CKT	A	B	C	CKT	P	OC	HOT, NEUT, GND	CIRCUIT DESCRIPTION	NOTES	
	LTNG - GREENHOUSE	1#12, 1#12, 1#12	20	1	1	0.5	0.5		2	1	20	1#12, 1#12, 1#12	GREENHOUSE HEATER		
	GREENHOUSE HEATER	1#12, 1#12, 1#12	20	1	3		0.5	0.0	4	1	20	1#12, 1#12, 1#12	LTNG - EXTERIOR		
					5				3		0.3				
	GREENHOUSE EXHAUST FAN	3#12, 1#12, 1#12	3	7	7	0.3	0.3		8	3		3#12, 1#12, 1#12	GREENHOUSE EXHAUST FAN		
					11		0.3	0.3	10	10					
					12				12						
	GREENHOUSE EXHAUST FAN	3#12, 1#12, 1#12	3	13	13	0.3	0.3		14	3	20	3#12, 1#12, 1#12	AIR CIRCULATION FAN		
					15		0.3	0.3	16						
					17				18						
	AIR CIRCULATION FAN	3#12, 1#12, 1#12	3	19	19	0.3	0.3		20	3	20	3#12, 1#12, 1#12	AIR CIRCULATION FAN		
					21		0.3	0.3	22						
					23				0.3	0.3	24				
	AIR CIRCULATION FAN	3#12, 1#12, 1#12	3	25	25	0.3	0.3		26	3	20	3#12, 1#12, 1#12	AIR CIRCULATION FAN		
					27		0.3	0.3	28						
	REC	1#12, 1#12, 1#12	20	1	29				0.7	0.7	30	1#12, 1#12, 1#12	REC		
	REC	1#12, 1#12, 1#12	20	1	31	0.7	0.5		32	1	20	1#12, 1#12, 1#12	REC		
	REC	1#12, 1#12, 1#12	20	1	33		0.5	0.5	34	1	20	1#12, 1#12, 1#12	1P-1		
	SPARE	--	20	1	35				0.0	0.0	36	1	--	SPARE	
	SPARE	--	20	1	37	0.0	0.0		38	1	20	--	SPARE		
	SPARE	--	20	1	39		0.0	0.0	40	1	20	--	SPARE		
	SPARE	--	20	1	41				0.0	0.0	42	1	--	SPARE	
				4.9 kVA		4.2 kVA		4.1 kVA							
				41 A		35 A		34 A							
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		PANEL TOTALS									
EQUIP		9500 VA	100.0%	9500 VA		TOTAL CONNECTED LOAD: 13244 VA									
LTNG		504 VA	100.0%	504 VA		TOTAL ESTIMATED DEMAND: 12544 VA									
REC		3240 VA	100.0%	3240 VA		TOTAL CONNECTED CURRENT: 37 A									
						TOTAL ESTIMATED DEMAND CURRENT: 37 A									
						25 % ADDITIONAL CAPACITY: 9 A									
						TOTAL PANEL CURRENT: 46 A									
<b>NOTES:</b> WHERE NOT LISTED, WIRE AND CONDUIT SHALL BE BE MINIMUM PER SPECIFICATIONS. SPARE BREAKERS TO BE 20A/1P. PANEL SHALL BE NEMA 3R. CONTRACTOR SHALL COORDINATE ALL EQUIPMENT CONNECTIONS WITH GREENHOUSE SUBMITTAL DRAWINGS PRIOR TO ROUGH-IN OR APPROVAL OF PANEL SUBMITTAL DRAWINGS.															



2 SANITARY VENT RISER DIAGRAM PR-2  
SCALE: NONE



## TAGGED NOTES

- P3 CONNECT TO EXISTING COLD WATER LINE. FIELD VERIFY EXACT LOCATION. REMOVE CEILING AS NEEDED TO INSTALL VENT AND DOMESTIC WATER LINES. REPLACE CEILING TO MATCH EXISTING.
- P5 CONNECT TO EXISTING SANITARY. VENT. AND DOMESTIC WATER PIPES. FIELD VERIFY EXACT LOCATION. REWORK LINES TO CONNECT TO NEW FIXTURES.
- P6 CONNECT TO EXISTING 2" SANITARY LINE. FIELD VERIFY EXACT LOCATION AND DEPTH. FLOOR SLAB SHALL BE SAW CUT AND REPAIRED TO MATCH EXISTING.
- P7 CONNECT TO EXISTING VENT PIPING. FIELD VERIFY EXACT LOCATION.
- P23 CONNECT TO EXISTING DOMESTIC WATER AND VENT PIPING IN THIS AREA. FIELD VERIFY EXACT LOCATION FOR CONNECTIONS. INSTALL SHUT-OFF VALVES ON WATER LINES SERVING PLUMBING FIXTURES.
- P47 REMOVE EXISTING CHASE WALLS AND SAW CUT FLOOR SLAB AS NEEDED TO CONNECT TO EXISTING SEWER AND VENT PIPING. REPAIR FLOOR SLAB AND WALLS TO MATCH EXISTING.

NOT FOR  
CONSTRUCTION

FIRST FLOOR PLUMBING PLAN - AREA B  
ESTILL COUNTY PHASE 7 HS RENOVATIONS  
FOR:  
ESTILL COUNTY SCHOOLS  
IRVINE, KENTUCKY

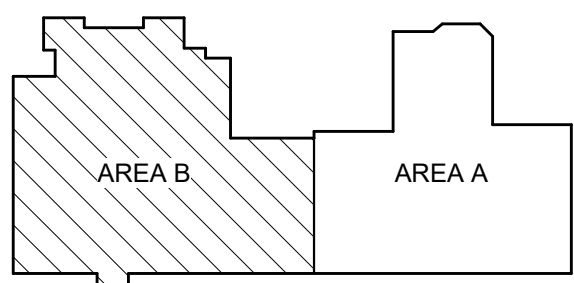
M.E.&P. Engineer:  
CMI/A, Inc.  
2429 Members Way  
Lexington, KY 40304  
p 859.253.0892

Structural Engineer:  
Structural Design Group, Inc.  
220 Great Circle Rd. Suite 106  
Nashville, TN 37228  
p 615.255.5537

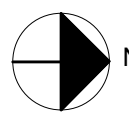
Construction Manager:  
Codell Construction Co.  
P.O. Box 17  
Winchester, Kentucky 40392  
p 859.744.2222

GENERAL NOTE:  
A. ALL NATURAL GAS PIPING SHALL BE PAINTED. PIPING  
INSIDE GYMNASIUM SHALL BE PAINTED TO MATCH  
CEILING COLOR. PIPING OUTSIDE TO RTU'S SHALL BE  
PAINTED YELLOW.

## KEY PLAN



SCALE: NTS

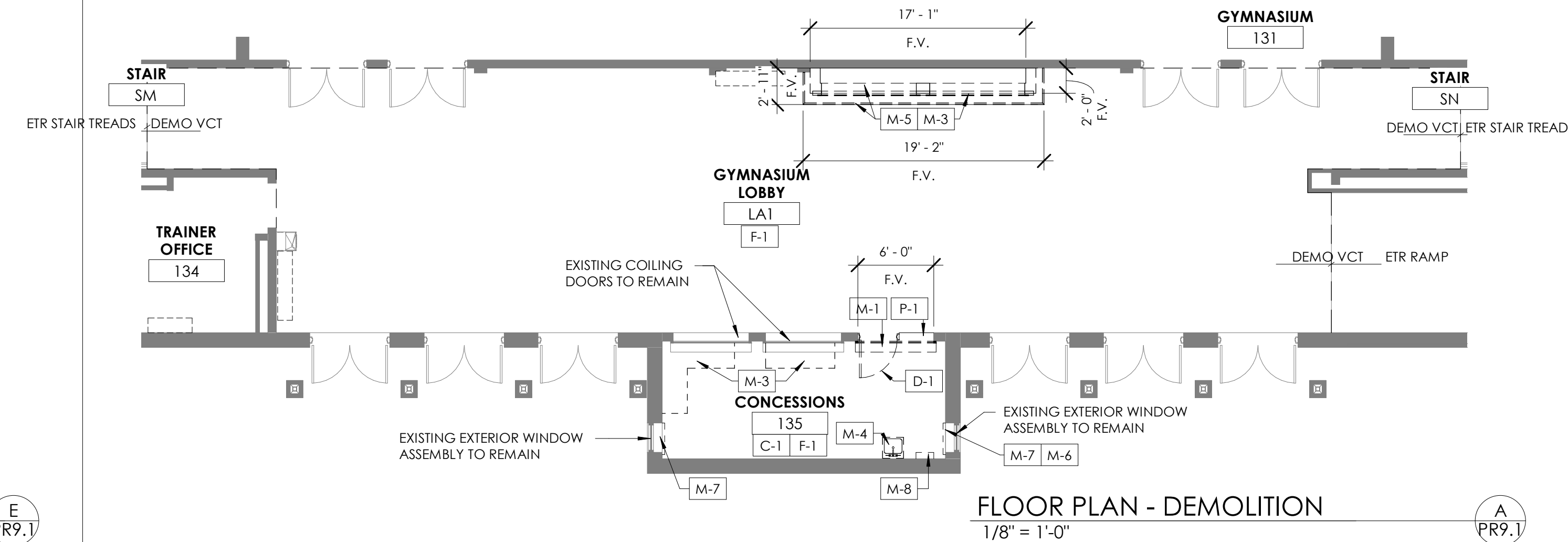
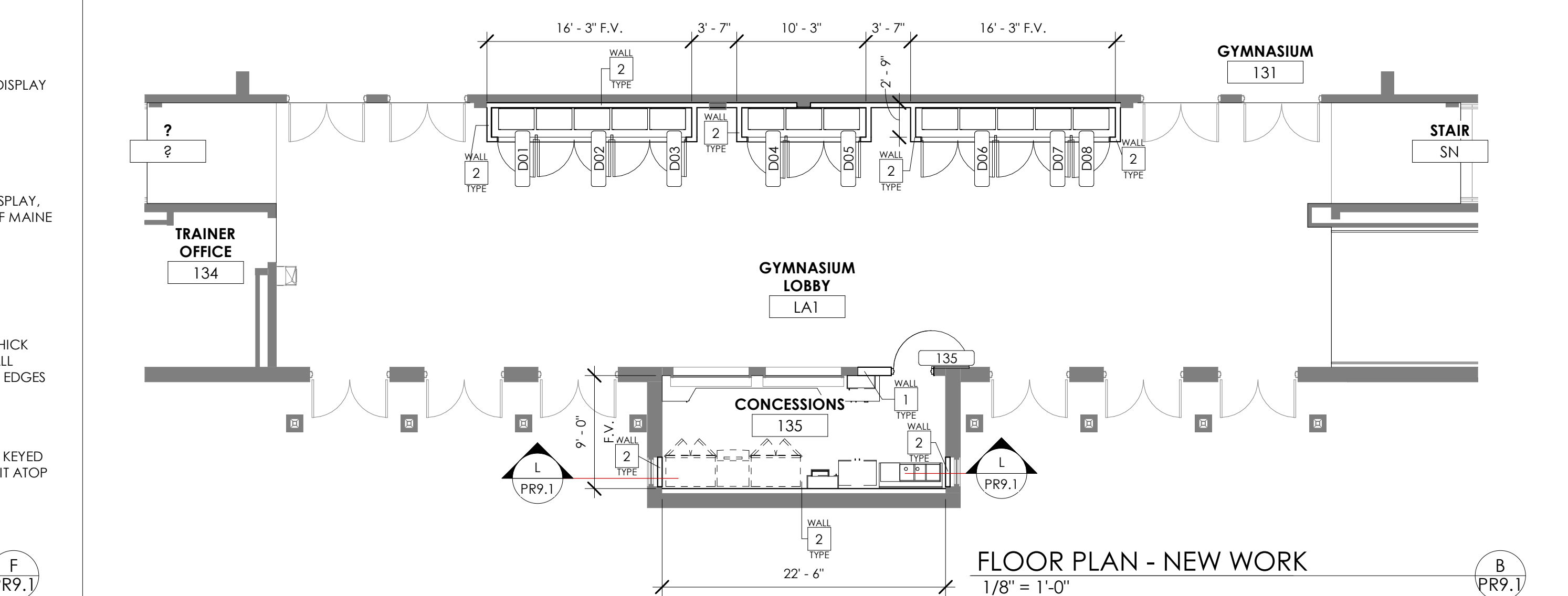
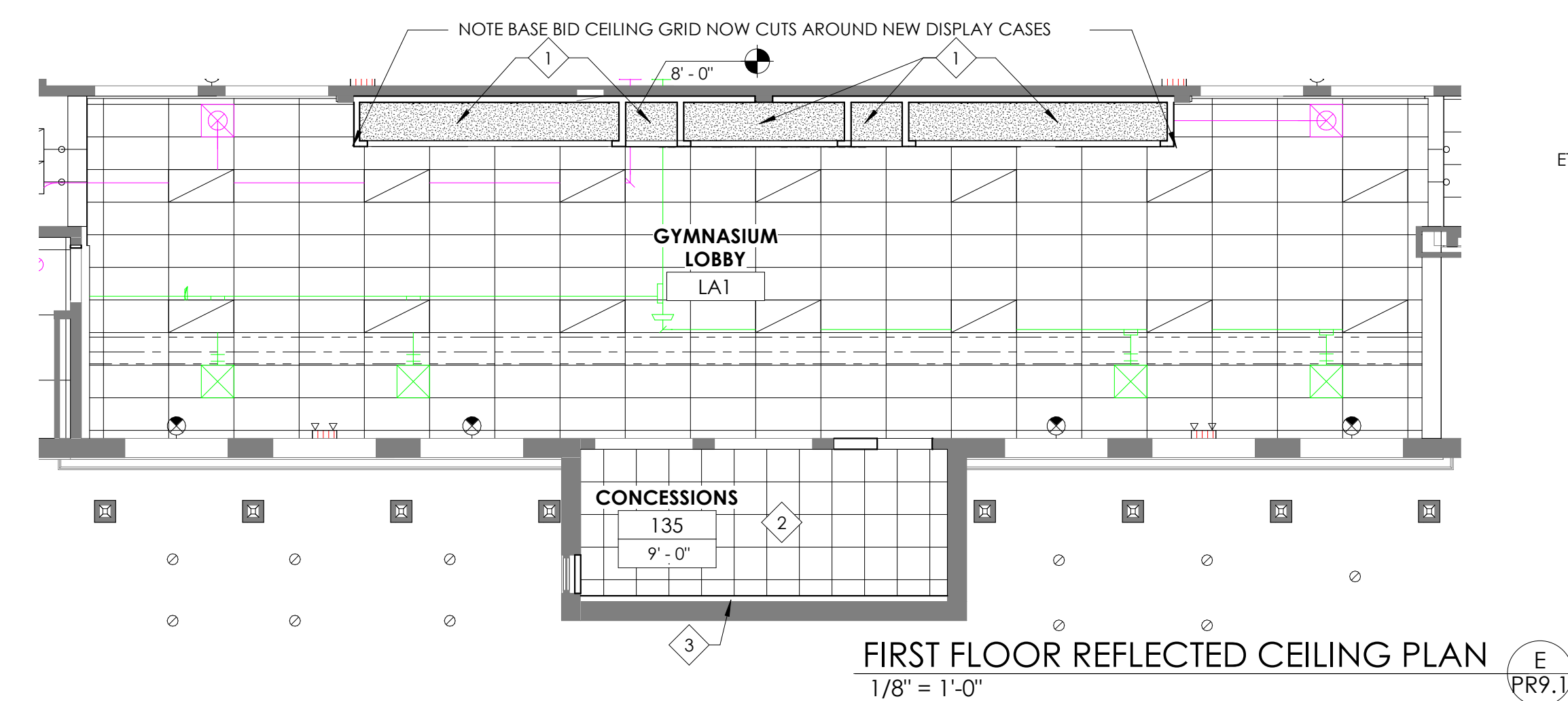
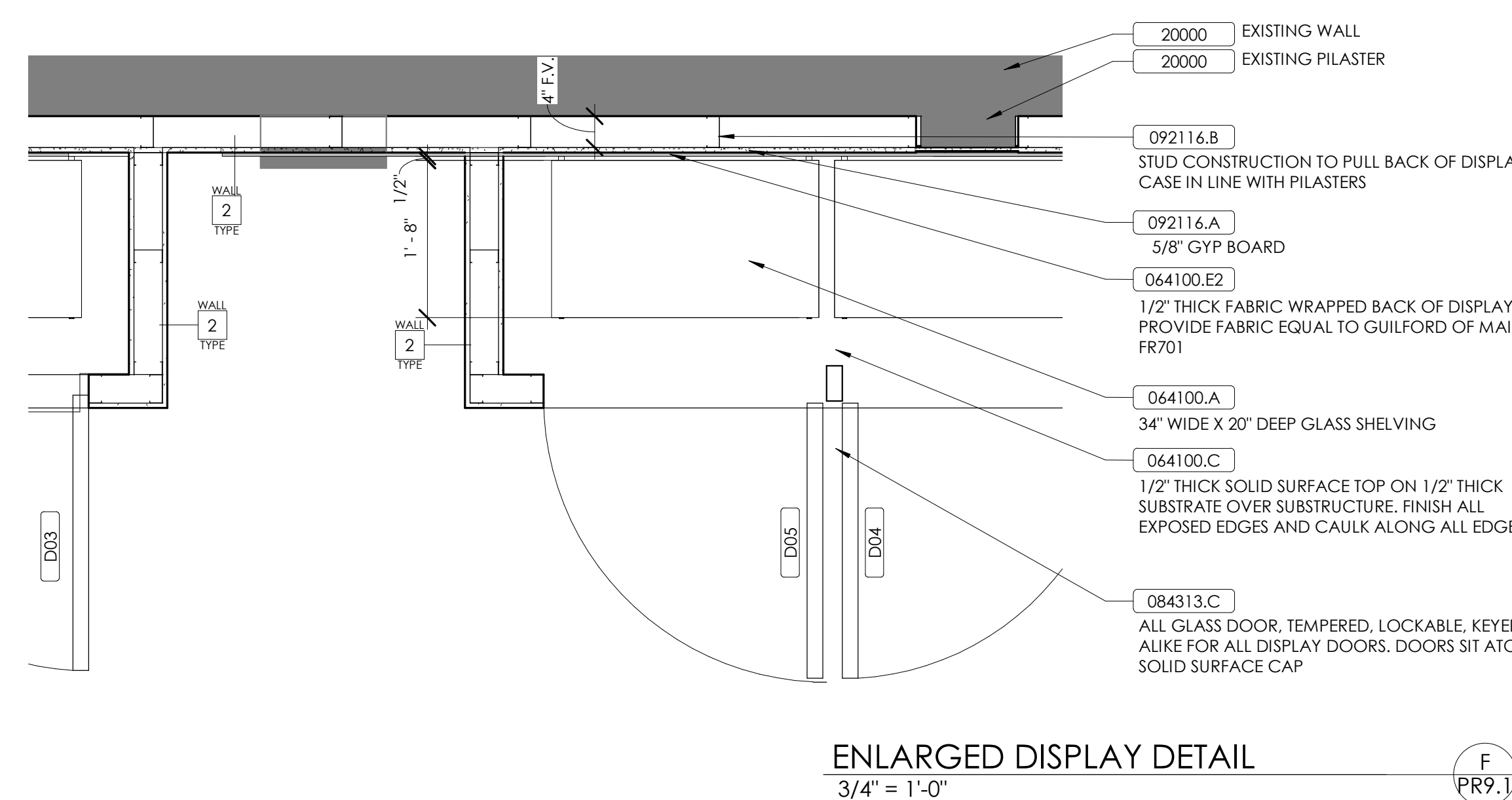
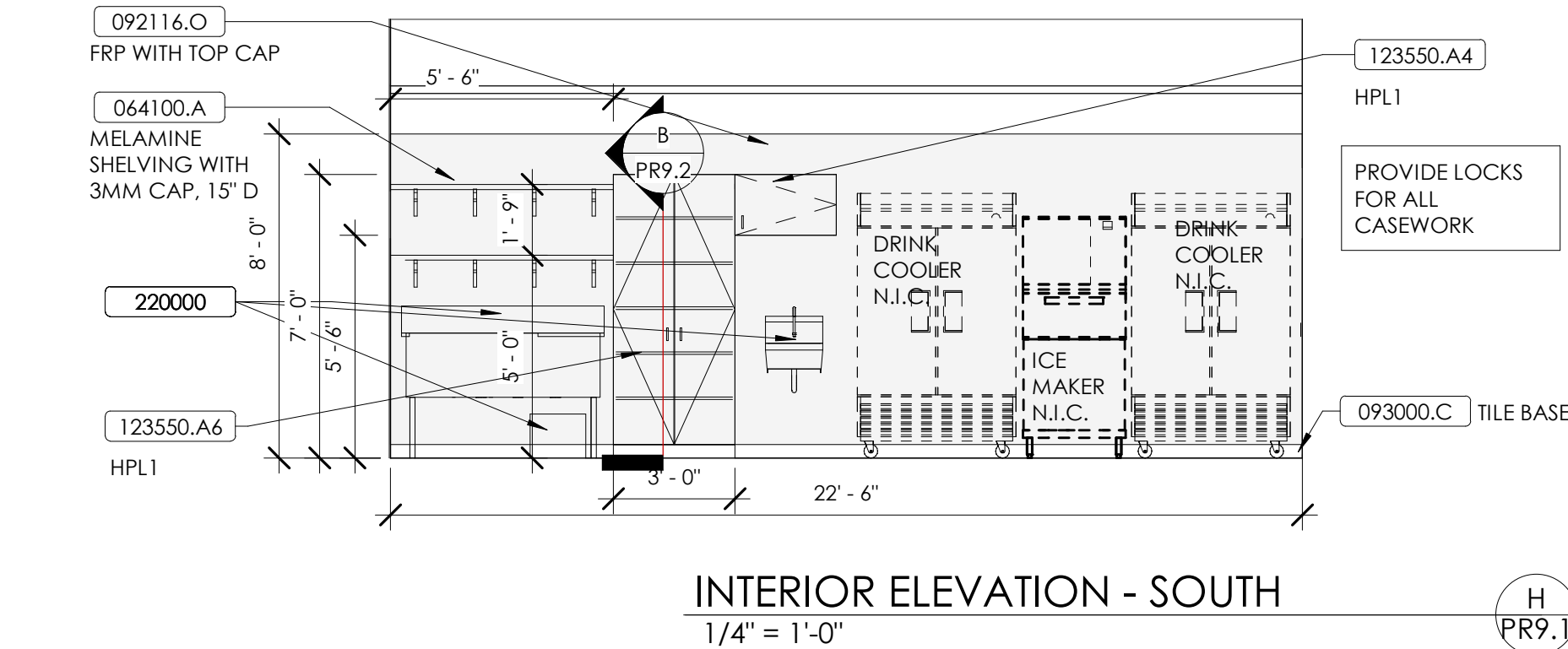
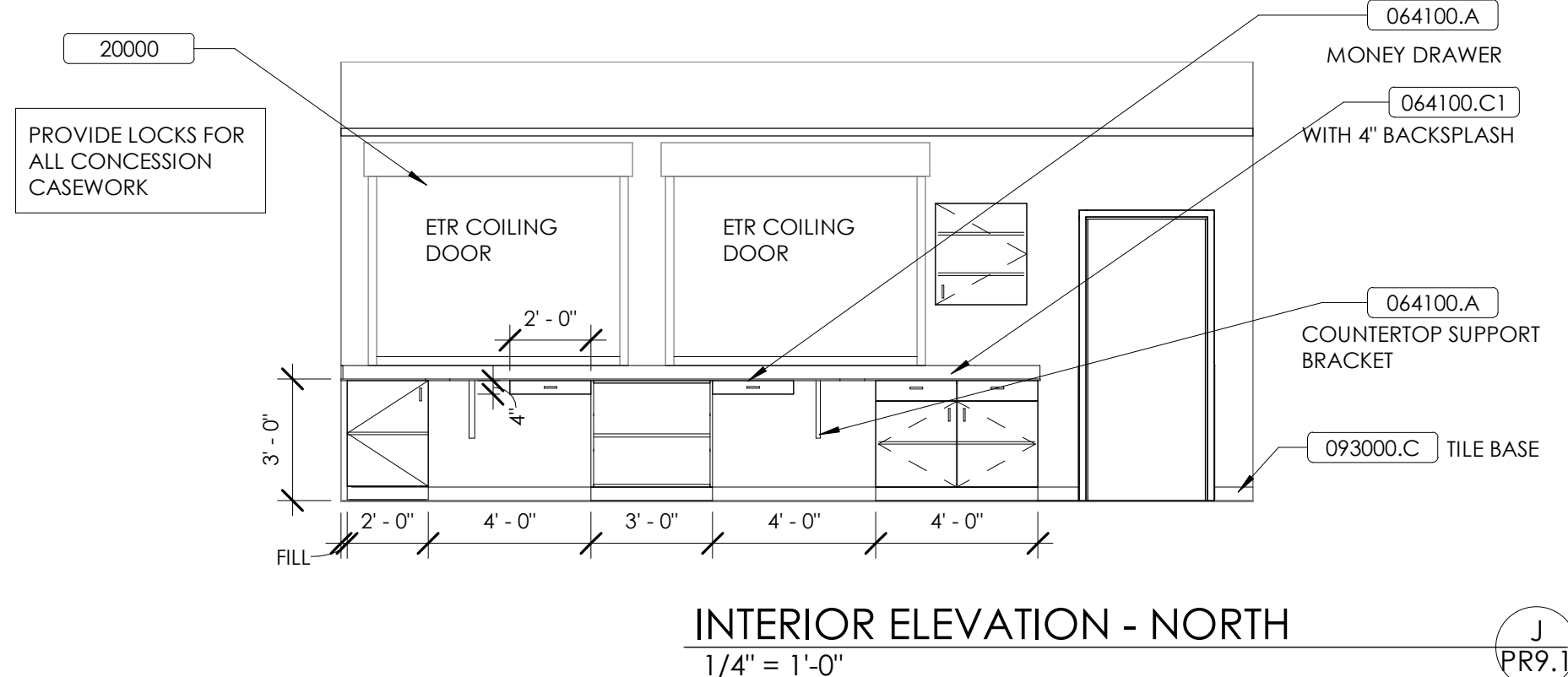
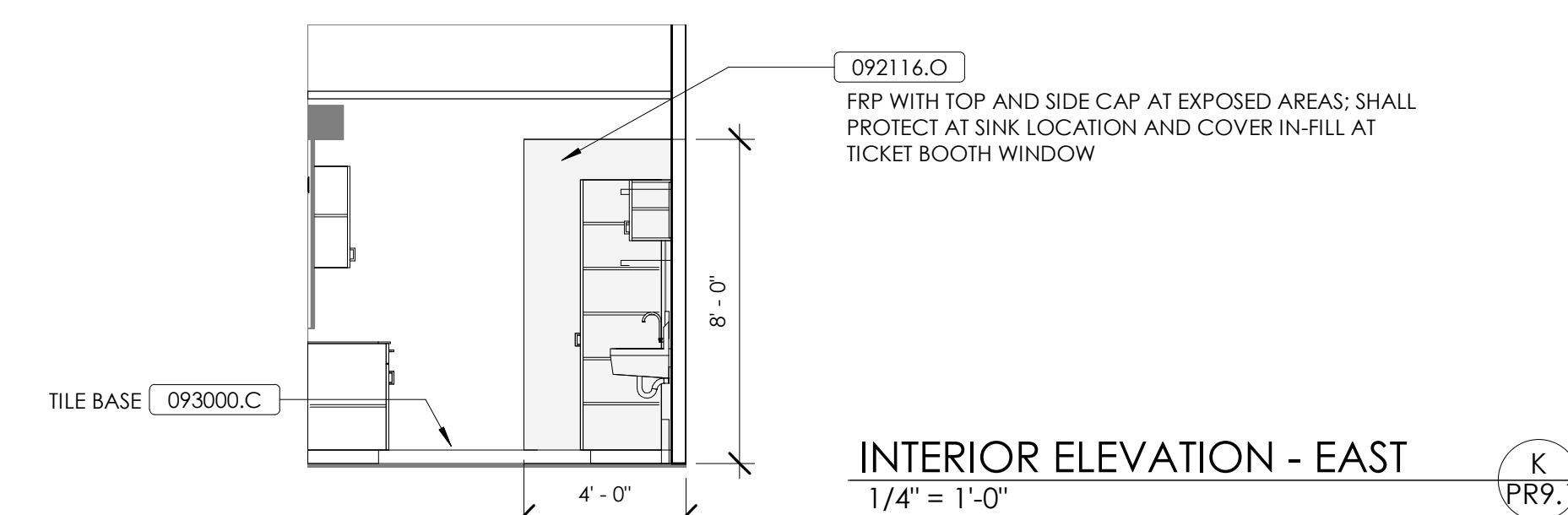
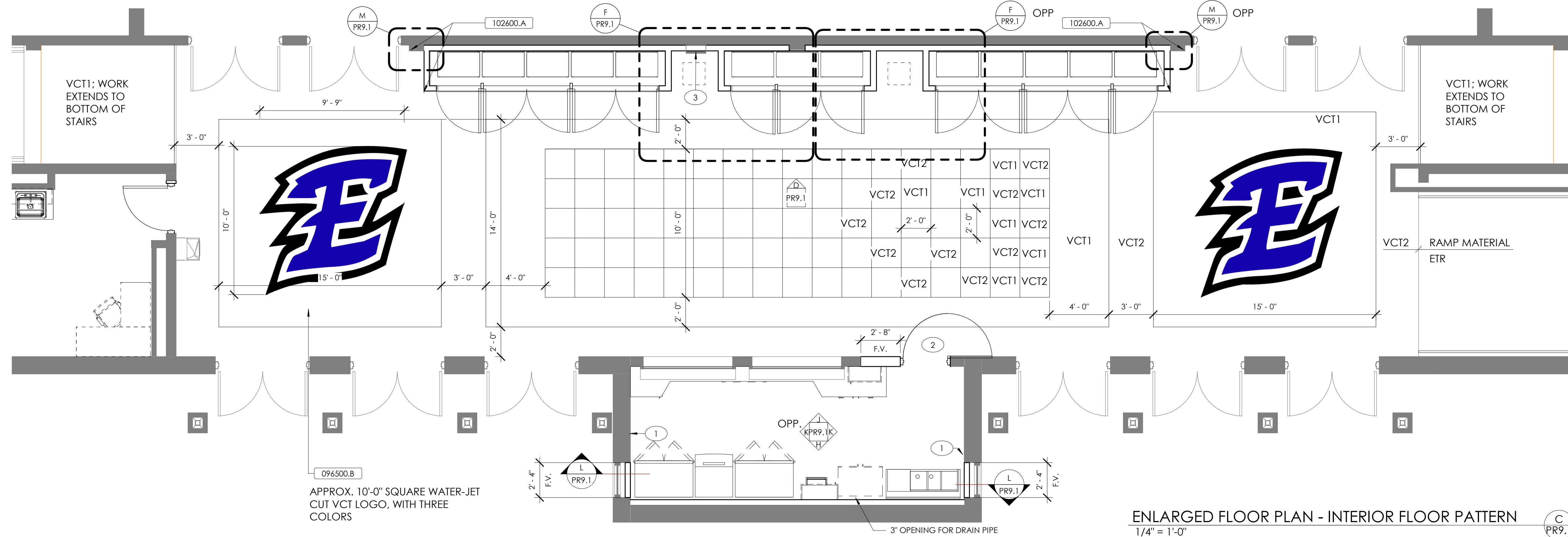
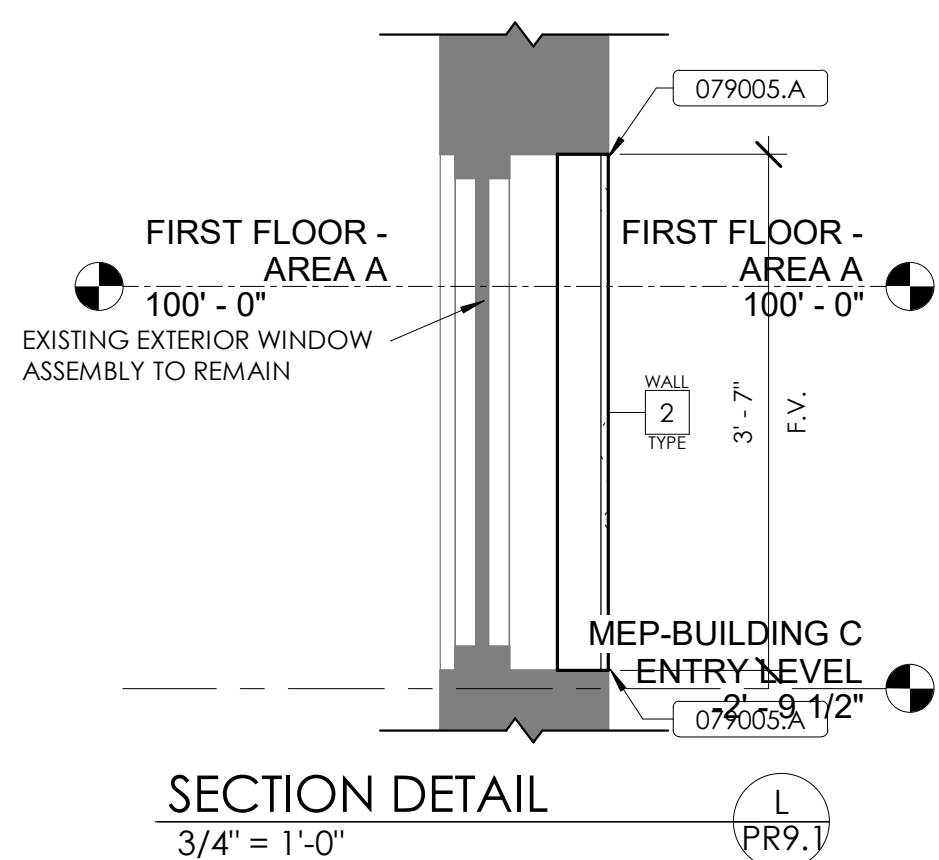
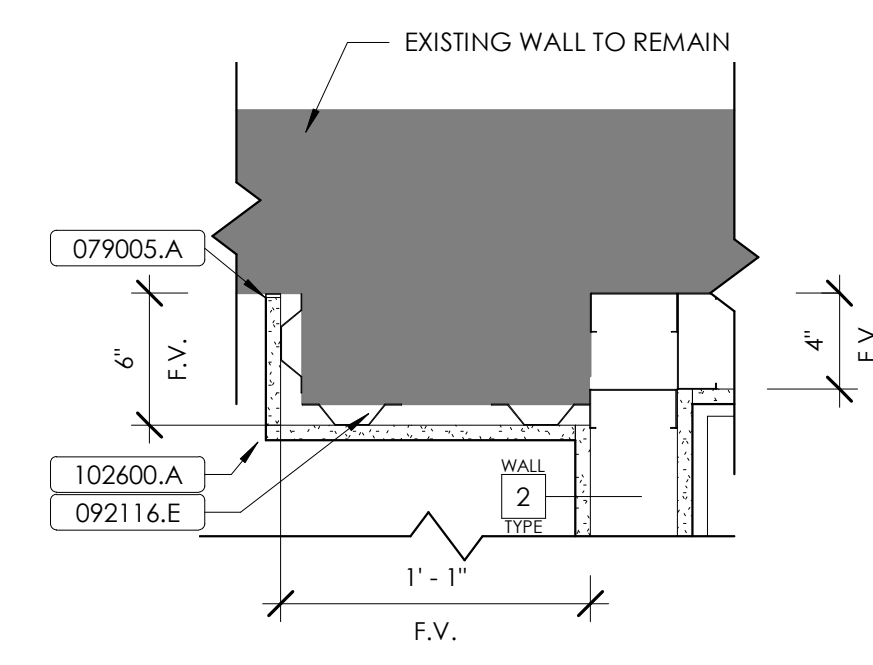
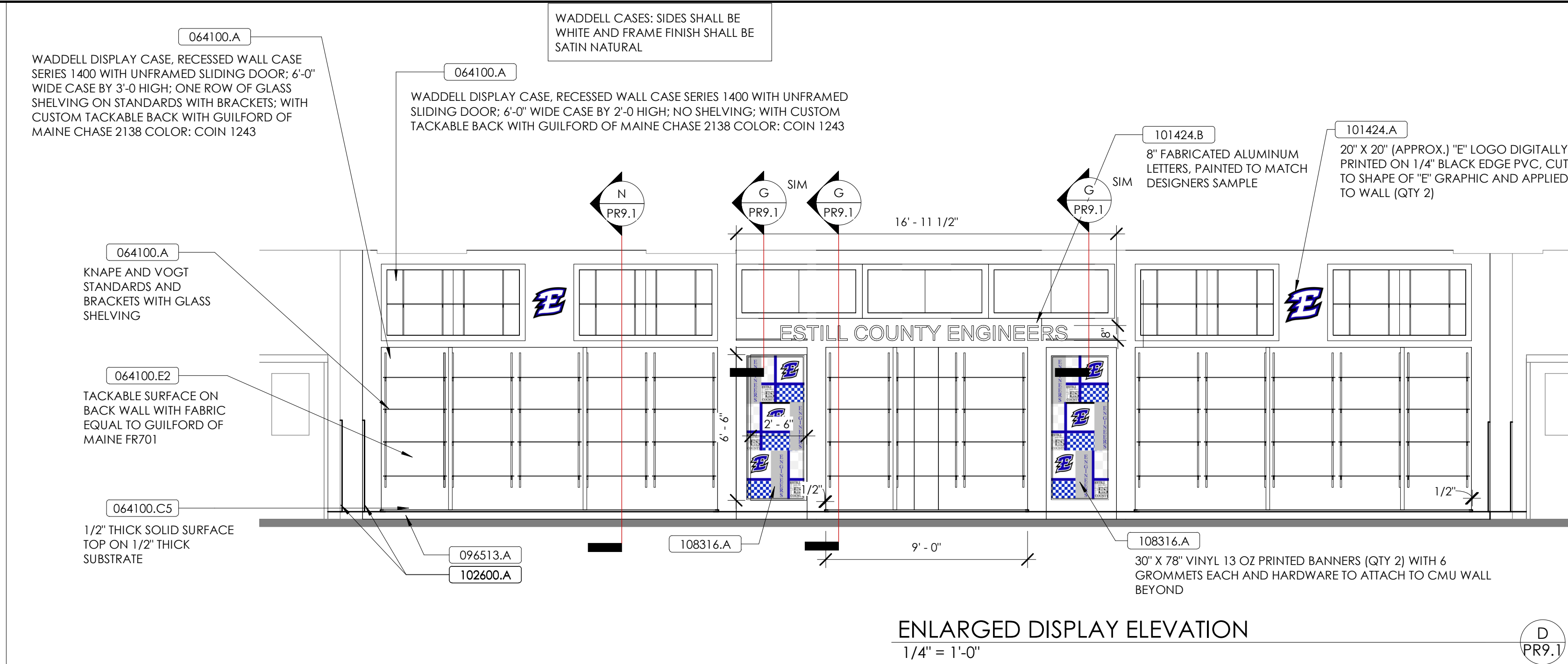
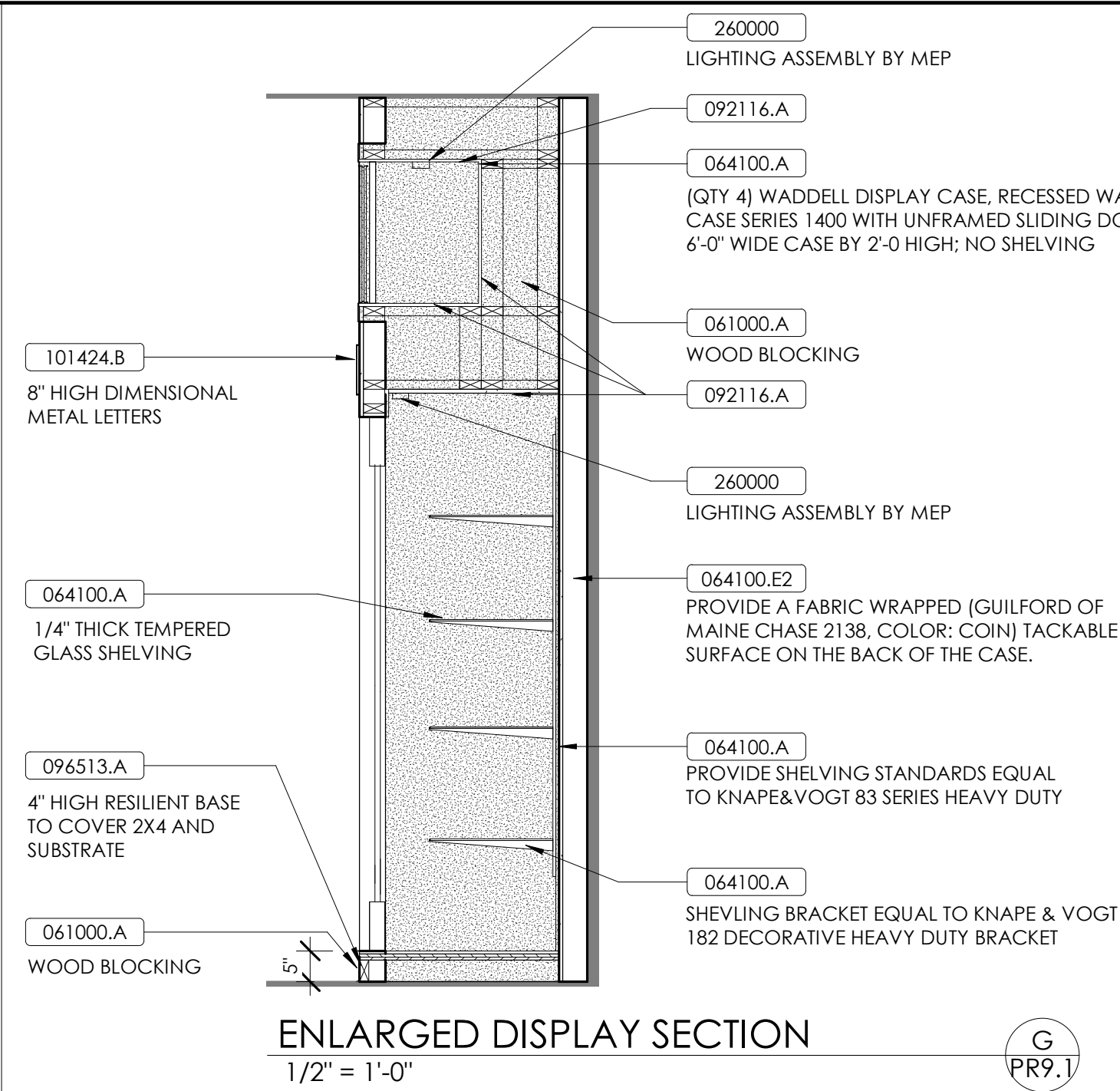
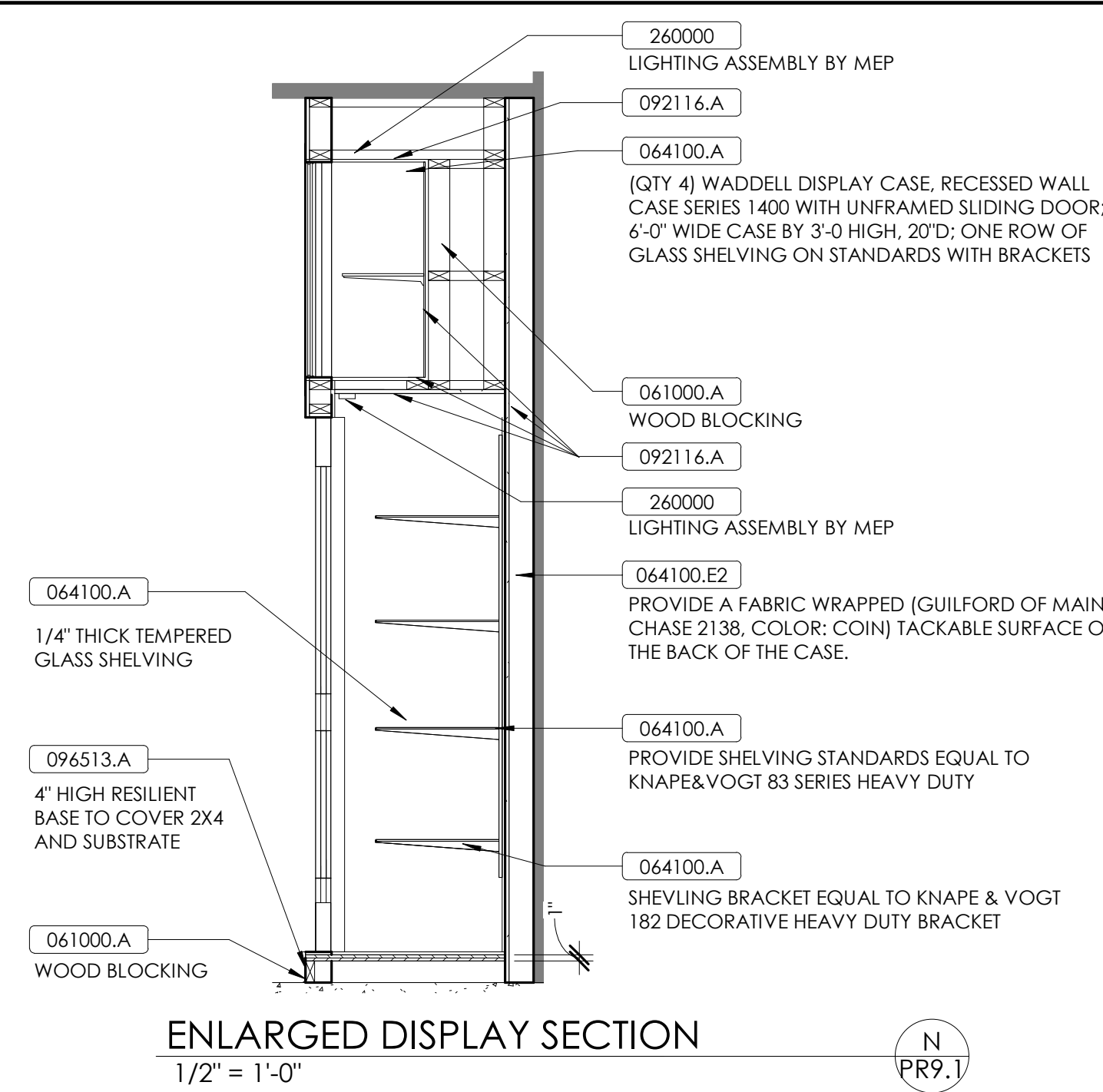


FIRST FLOOR PLUMBING PLAN -  
AREA B  
DATE ISSUED:  
MARCH 29, 2021

P4.1B

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CONSTRUCTION DOCUMENTS





## MATERIAL REFERENCE

26000	Division 02 - Existing Conditions
26100.0A	Wood Block
06410.0A	Custom Casework
06410.0C	Stainless Steel Sill
06410.0C1	Stainless Steel Countertop
06410.0C5	Stainless Steel Countertop
06410.0E2	Trackable, Fabric Wrapped Panel
07900S.A	Joint Sealant
08431.0C	Aluminum Door
09211.6A	Cylindrical Bar Assemblies
09211.6B	Stainless Steel Bars and Runners
09211.6E	Hat Channels
09211.6G	FRP Panels
09300.0C	Quarry Tile
09650.0B	Resilient Tile Flooring
09650.0A	Resilient Tile Base & Accessories
10140.0A	Signs
10142.0B	Letters & Numbers
10260.0A	Corner Guard - Surface Mounted
10831.6A	Banner Bracket
12350.0A	Plastic Laminate Wall Cabinet
12350.0A	Plastic Laminate Wall Cabinet & Lock
26000	Division 26 - Plumbing
26000	Division 26 - Electrical

PR #9 RCP NOTES

1	GYPSUM BOARD CEILING, PROVIDE FRAMING AND SUPPORTS AS REQUIRED (092116)..
2	SCRUBBLE FACE 2X2 CEILING TILE..
3	UTILITY CHASE..

PR #9 PLAN NOTES	
1	PATCH AND REPAIR WALL AS REQUIRED, REFER TO INTERIORS FOR ADDITIONAL INFORMATION.
2	TOOTH IN CMU AND HONOR LINTEL ABOVE. PROVIDE NEW DOOR AT 180 SWING TO FIT IN OPENING AS SHOWN
3	COORDINATE STUD PLACEMENT WITH ELECTRICAL PANEL REFER TO MEP DWGS FOR ADDITIONAL INFORMATION.

## PR #9 DEMOLITION NOTES

**CEILING DEMOLITION NOTES:**

- C-1 REMOVE EXISTING CEILING TILE & GRID IN ITS ENTIRETY.

**DOOR DEMOLITION NOTES:**

- D-1 REMOVE EXISTING METAL FRAME, DOOR(S), AND GLAZING IN ENTIRETY. REFER TO PLANS FOR NEW WORK.

**FINISH DEMOLITION NOTES:**

- F-1 REMOVE EXISTING RESIDENT FLOORING & BASE IN THEIR ENTIRETY.

**MISCELLANEOUS DEMOLITION:**

- M-1 REMOVE CEILING DOUR AT THIS LOCATION IN ITS ENTIRETY.
- M-2 REMOVE EXISTING MECHANICAL UNIT IN ITS ENTIRETY. PATCH AND REPAIR SURFACES TO RECEIVE NEW WORK. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- M-3 REMOVE CEILING IN ALL ITS ENTIRETY. PATCH AND REPAIR SURFACES TO RECEIVE NEW FINISHES. COORDINATE WITH NEW WORK. REFER TO MEP FOR ADDITIONAL INFORMATION.
- M-4 REMOVE EXISTING PLUMBING FIXTURE IN ITS ENTIRETY. PATCH AND REPAIR SURFACES TO RECEIVE NEW WORK AS REQUIRED. REFER TO MEP FOR ADDITIONAL INFORMATION.
- M-5 REMOVE EXISTING LOBBY DISPLAY CASE INCLUDING FLOOR MOUNTED RAILING, MASONRY DISPLAY SURROUND, WOOD TRIM AND DISPLAY CASES, SALVAGE OR REMOVE AND BRACKETS TO BE TURNED OVER TO OWNER.
- M-6 REMOVE WINDOWS INTERIOR WOODEN CASEWORK AND SHELF. PREPARE FOR NEW INFILL WORK. EXTERIOR WALLS SHALL REMAIN.
- M-8 REMOVE EXISTING SOAP DISPENSERS AND MIRRORS AND TURN OVER TO OWNER. PATCH AND REPAIR SURFACES TO RECEIVE NEW WORK. COORDINATE NEW WORK WITH MEP.

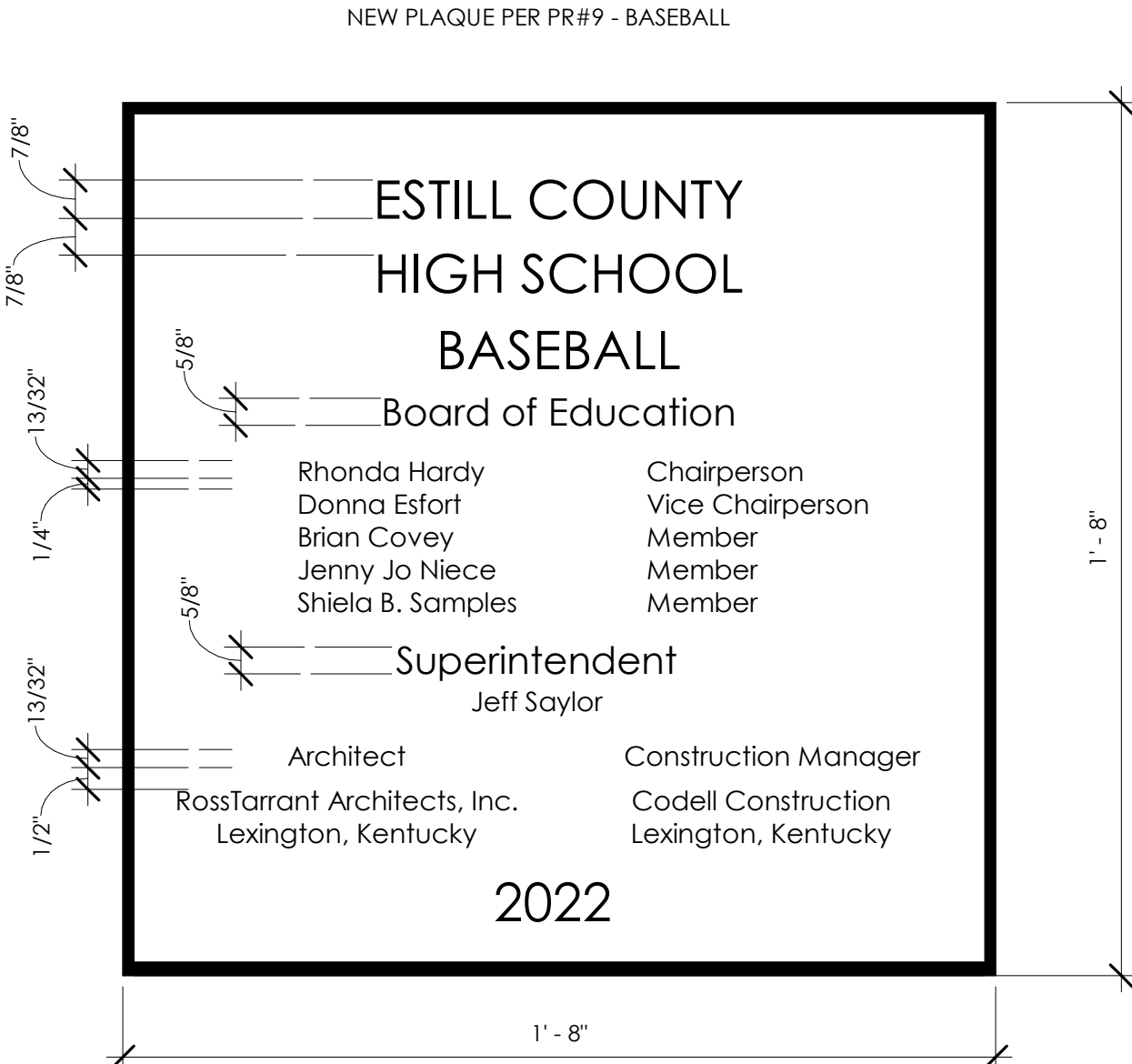
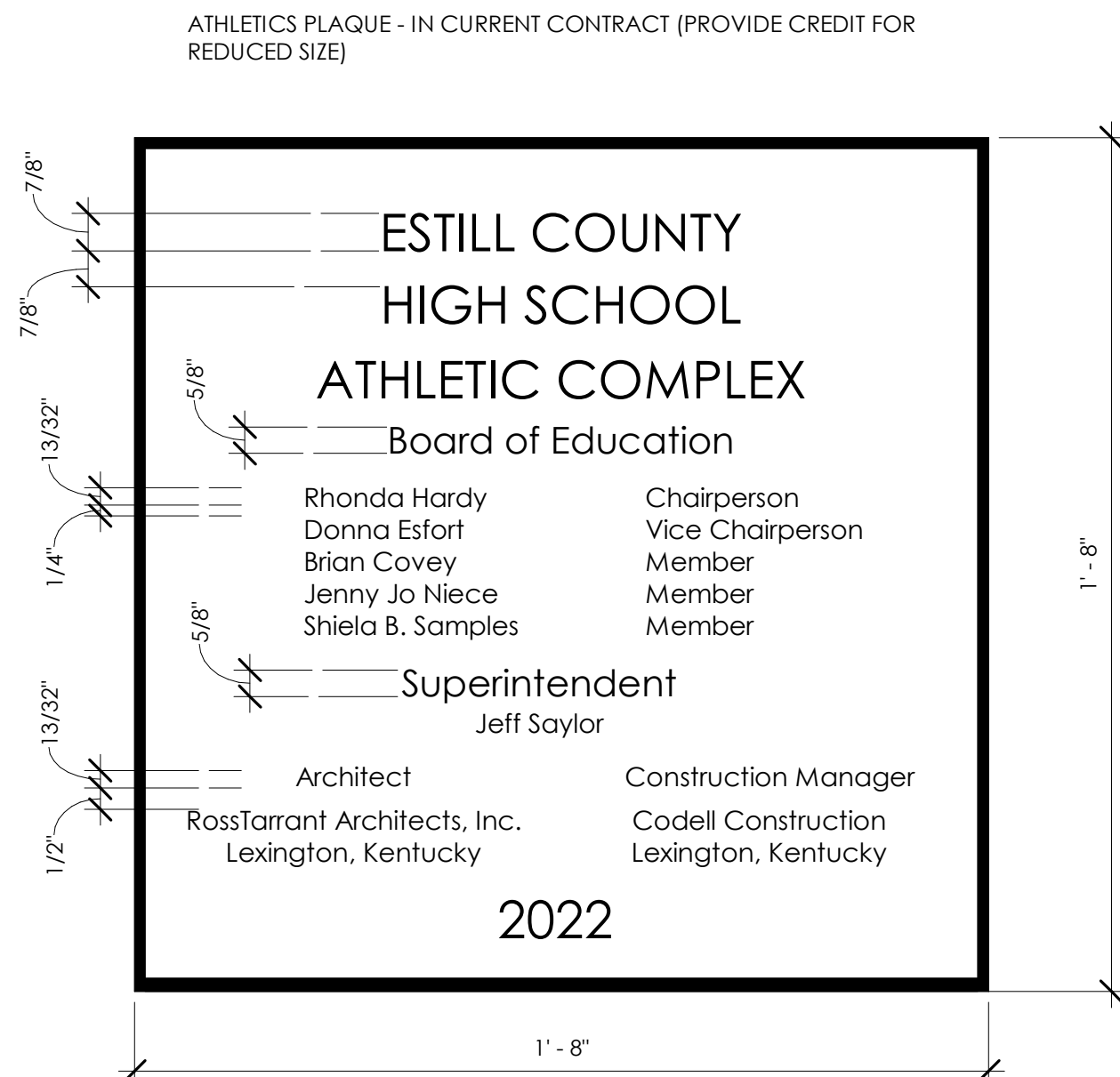
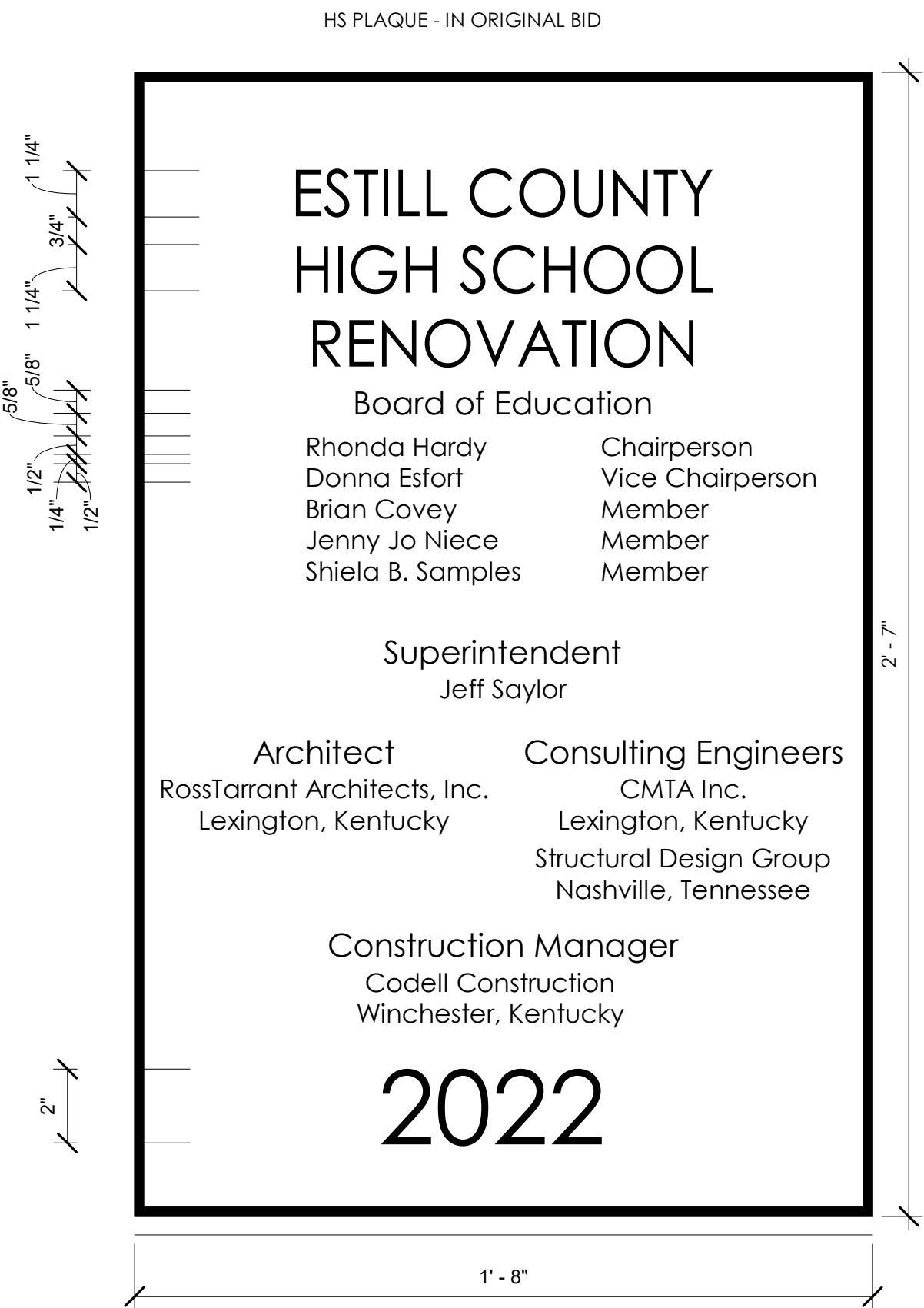
**PARTITION DEMOLITION NOTES:**

- P-1 DEMOLISH PORTION OF CMU WALL AS REQUIRED TO INSTALL NEW OPENING. PATCH AND REPAIR AS REQUIRED. REFER TO NEW WORK FOR ADDITIONAL INFORMATION.

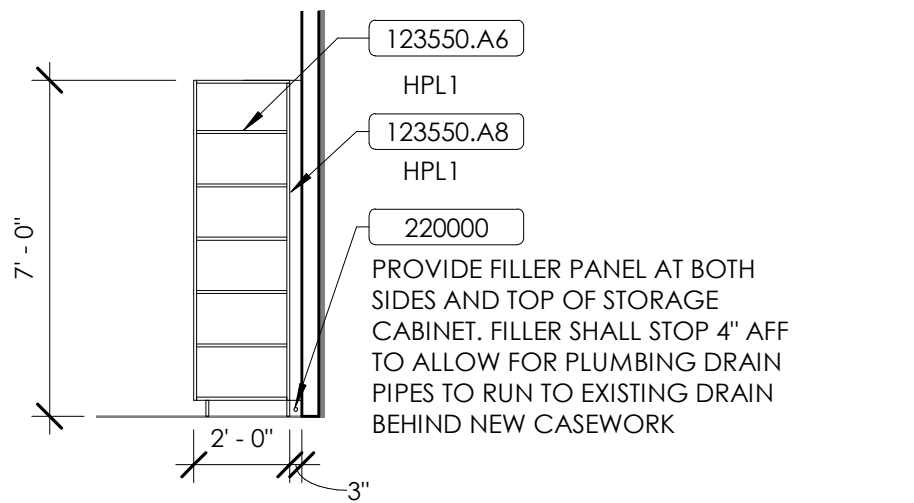


ROOM FINISH SCHEDULE - PR#9											
ROOM NO.	ROOM NAME	FLOOR FINISH	BASE FINISH		NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	CEILING FINISH	COMMENTS	Sign Type
131	GYMNASIUM	ETR / PR - No Changes from base bid	ETR / PR - No Changes		ETR & Patch and Paint at Goal removal / PR - No changes from base bid	ETR / PR - no changes from base bid	Patch and P at new work; Patch and paint at goal removal / PR - no changes from base bid	ETR / PR - No Changes from base bid	Patch and P - Exposed Structure at new work (Refer to MEP sheets); Paint new ductwork and metal sheet plating added at abandoned MEP locations / PR - No changes from base bid.	Gymnasium wood floor shall be protected while work is ongoing in this space. Patch and paint areas of north and south walls where goals are removed. Paint shall be matched to existing wall surface. / PR - No Changes from base bid	ETR / PR - No changes from base bid
LA1	GYMNASIUM LOBBY	Patch RTI as needed at Trainer Office door entry. / PR - New VCT - 3 colors and logos	ETR / PR - New Resilient Base		ETR / PR - New Paint	ETR / PR - New Paint	ETR / PR - New Paint	ETR / PR - New Paint	Minimal Changes from base bid - PR - Ceiling included in original bid, modify around display per drawings and P-gypsum	New Paint in gym lobby shall continue blue stripe as existing	ETR / PR - Sign Type 4 (Qty 2)
135	CONCESSIONS	PR - Quarry Tile	PR - Quarry Tile Base		PR - Paint	PR - Paint and FRP	PR - Paint and FRP	PR - Paint and FRP	PR - Scrubbable Face Tile (2x2)		PR - Sign Type 1
134	TRAINER OFFICE	RTI / PR - No changes from base bid	RB1 / PR - No changes from base bid		P / PR - No changes from base bid	P / PR - No changes from base bid	AP / PR - No changes from base bid	P / PR - No changes from base bid	ACP1 / PR - No Changes from base bid		Sign Type 1 / PR - No changes from base bid
SN	STAIR	PR - New VCT at bottom of stair. Resilient Stair ETR	PR - New Resilient Base at bottom of stair		PR - Paint to extents shown	PR - ETR	PR - Paint to extents shown	PR - ETR			PR - No changes from base bid
SM	STAIR	PR - New VCT at botto	PR - New Resilient Base at bottom of stair		PR - Paint to extents shown	PR - ETR	PR - Paint to extents shown	PR - ETR	PR - No changes from base bid		PR - No changes from base bid

PR#9 - DOOR SCHEDULE																					
DOOR NUMBER	PAIR	DOOR						FRAME				DETAIL		SECURITY				ADA ACTIVATOR	MAG HOLD	SET NO.	COMMENTS
		W	H	THICK	MAT	TYPE	GLASS	MAT	TYPE	FRAME THICK	HEAD	JAMB	FIRE RATING	CARD ACCESS	KEY ACCESS	EXIT ONLY					
135		3'-0"	7'-0"	1 3/4"	WD	F		HM	I	5 3/4"	E/A6.2	D/A6.2							02G	180 DEGREE SWING	
D01		3'-0"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D02	X	5'-10"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D03	X	5'-10"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D04		3'-0"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D05	X	5'-10"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D06	X	5'-10"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D07	X	5'-10"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	
D08		3'-0"	7'-3"	3/4"	GL	AG	T.	AL	-	0"									12	DISPLAY CASE	



PLAQUES  
3" = 1'-0"



TALL CABINET SECTION  
1/4" = 1'-0"

PROPOSAL REQUEST #9

ESTILL COUNTY HIGH SCHOOL PHASE 7 RENOVATIONS

FOR:

ESTILL COUNTY SCHOOLS

IRVINE, KENTUCKY

Date	11/19/2021
Project	2025
Drawn	KC /
Checked	BB / PF
Revisions	A2.0, A4.1
SHEET REF.	A2.0, A4.1
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CONSTRUCTION DOCUMENTS

PR9.2

PROPOSAL REQUEST #9

DATE ISSUED:  
NOVEMBER 2021



Date: 12-29-2021

Attention: Kenny Davis  
Jack Reed

Reference: PR 9

Guys:

You are looking at adding the below pricing. The work includes painting walls and added gyp in gym lobby, concessions, and existing stairs. All work will be per pr and original specs.

Mat: \$755.00  
Labor: \$4,280.00

Total: \$5,035.00

Thank you,

D. Shane Bastin  
Bastin Painting, Inc.