ADDENDUM NO. 2 – February 5, 2025

Project: **Harnett County Public Schools**
Flatwood Middle School

From: sfL+a Architects
333 Fayetteville Street, Suite 225
Raleigh, North Carolina 27601
(919) 573-6350

sfL+a ARCHITECTS
Capital Bank Plaza
333 Fayetteville Street, Suite 225
Raleigh NC 27601

To: Prospective Bidders via Metcon, Inc.

This Addendum forms a part of the Contract Documents and modifies the original Construction Documents sealed and dated 11-08-24. Acknowledge receipt of this Addendum by writing its number and date on the Bid Form. Failure to do so may subject the bidder to disqualification.

This Addendum consists of responses to bidder RFI questions provided by Metcon via an online log.

CONTRACTOR BID QUESTIONS

1) There are approximately 264 RFI's from prospective bidders as of 12:05pm on 02-06-25. Please see the attached report on the following pages which includes the mentioned RFI's and responses. Substitution requests will be reviewed during submittal review.

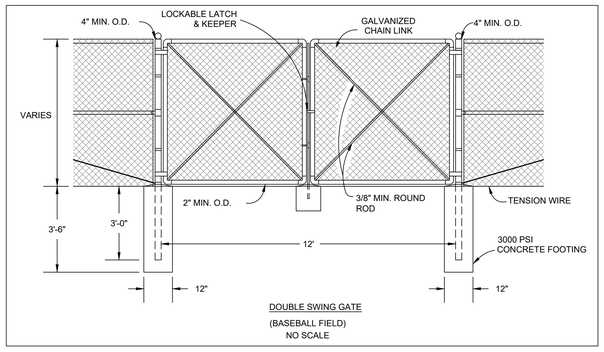
ADDITIONAL INFORMATION

1) Drawing sheet revisions are tagged as #6, dated 02-05-25 and labeled "Addendum 2."
2) Specification revisions are noted as "Addendum 2" in the header of the revised section and the Table of Contents.

ATTACHMENTS

1) Metcon RFI log (16 pages, 264 Items).
2) 9 Specification revisions
3) Sheet revisions:
    a. Civil – School Building
    b. Structural– School Building
    c. Architectural– School Building
    d. Mechanical– School Building
    e. Electrical– School Building
    f. Fire Alarm– School Building
    g. Electrical – Fieldhouse Building

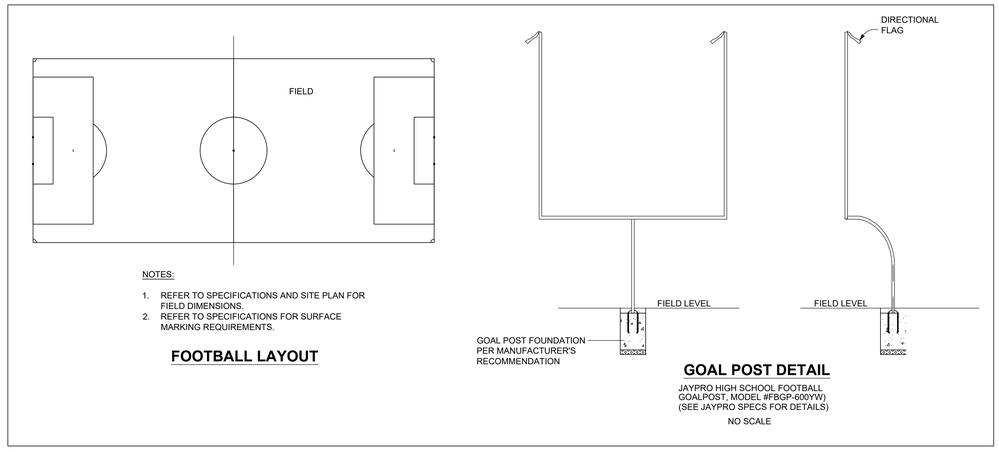
END OF ADDENDUM 2



DOUBLE SWING GATE

(BASEBALL FIELD)

NO SCALE

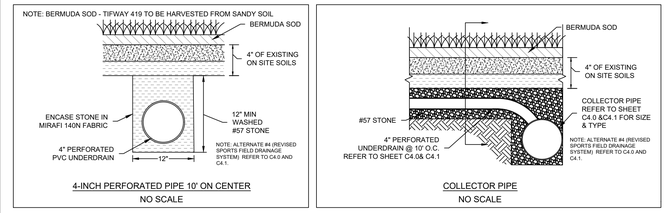


FOOTBALL LAYOUT

GOAL POST DETAIL

JAYPRO HIGH SCHOOL FOOTBALL GOALPOST, MODEL #FBGP-600YW) (SEE JAYPRO SPECS FOR DETAILS)

NO SCALE

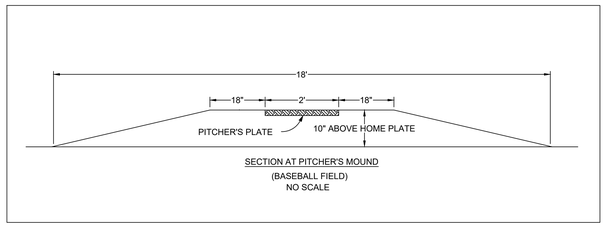


4-INCH PERFORATED PIPE 10' ON CENTER

NO SCALE

COLLECTOR PIPE

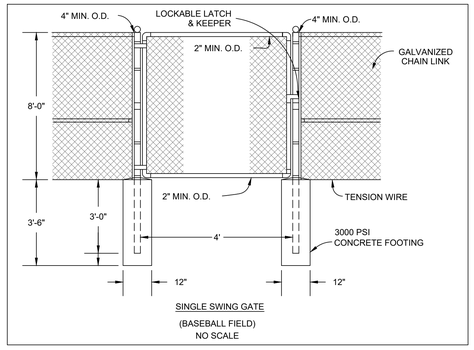
NO SCALE



SECTION AT PITCHER'S MOUND

(BASEBALL FIELD)

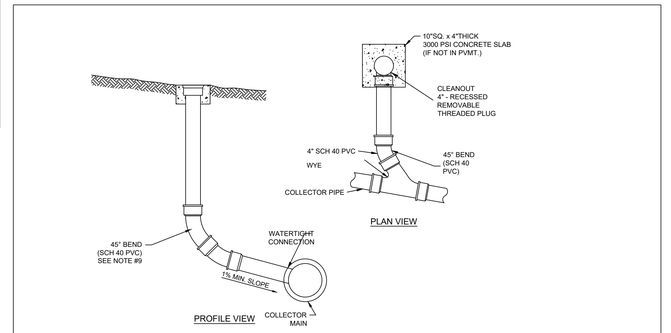
NO SCALE



SINGLE SWING GATE

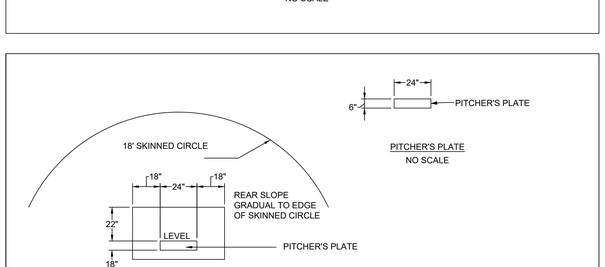
(BASEBALL FIELD)

NO SCALE



SPORTS FIELD CLEANOUT

NO SCALE

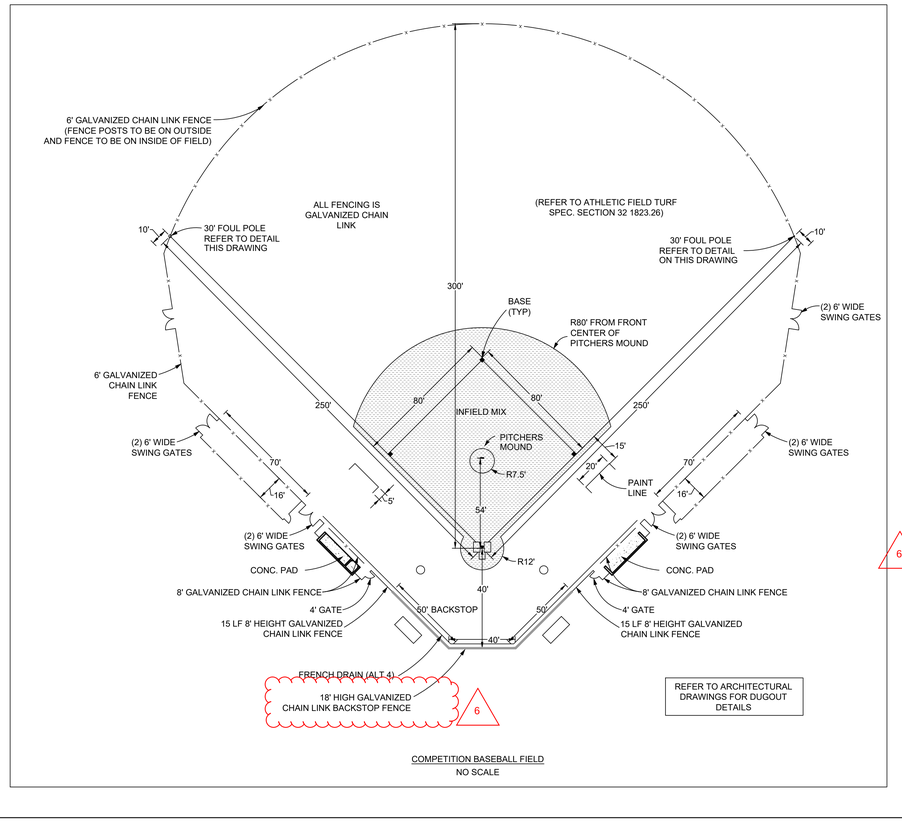


PITCHER'S PLATE

NO SCALE

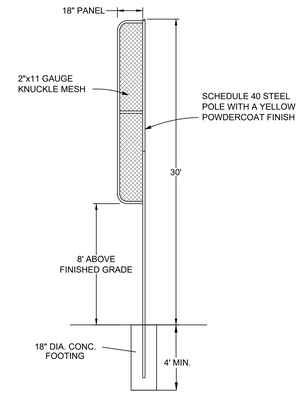
LAYOUT AT PITCHER'S MOUND

NO SCALE



COMPETITION BASEBALL FIELD

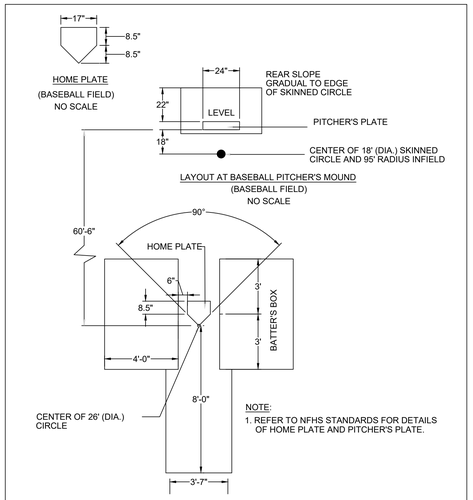
NO SCALE



FOUL BALL POLE

(BASEBALL FIELD)

NO SCALE



BASEBALL LAYOUT AT HOME PLATE

(BASEBALL FIELD)

NO SCALE

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sfl+a ARCHITECTS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045892 William P. Allman 12-13-24

CONSTRUCTION DOCUMENTS

TIMMONS GROUP
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Harnett County Schools

FLATWOODS MIDDLE SCHOOL

3544 US 401 S
Lillington, NC 27546

ENERGY STAR PARTNER

No.	Date	Description
1	12-06-24	NCDOI CD
2	12-13-24	CD REVISIONS
3	12-06-24	COUNTY CO REVIEW
4	01-09-25	NCDPI REVIEW
5	01-09-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

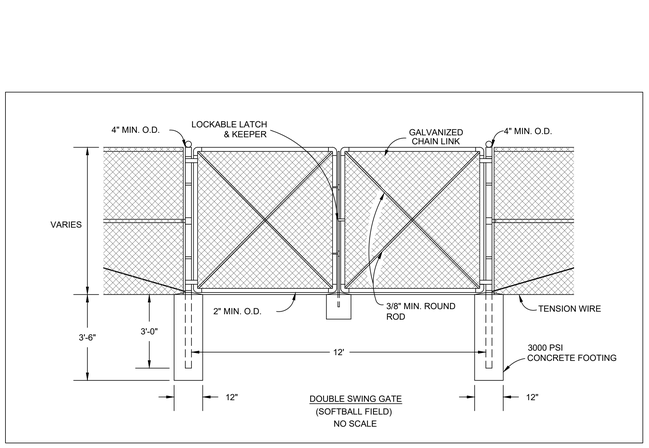
6

ISSUE DATE: 01-09-25

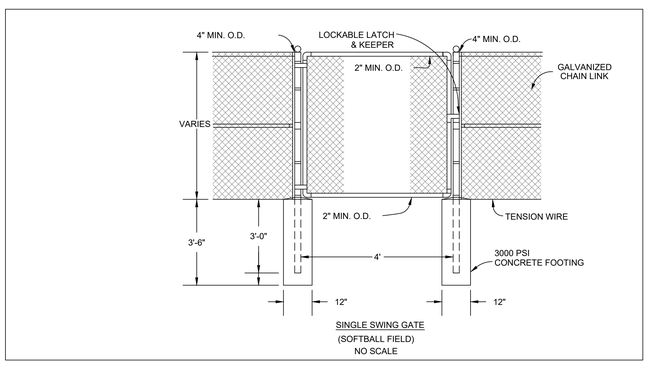
PROJECT #: 63089
DRAWN BY: JG
CHECKED BY: WA

NOTES AND DETAILS

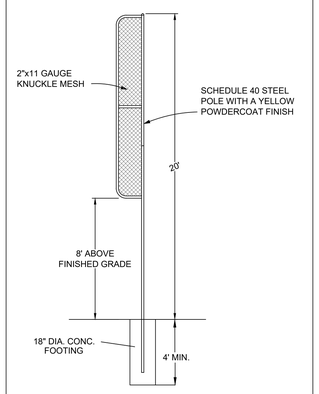
C5.11



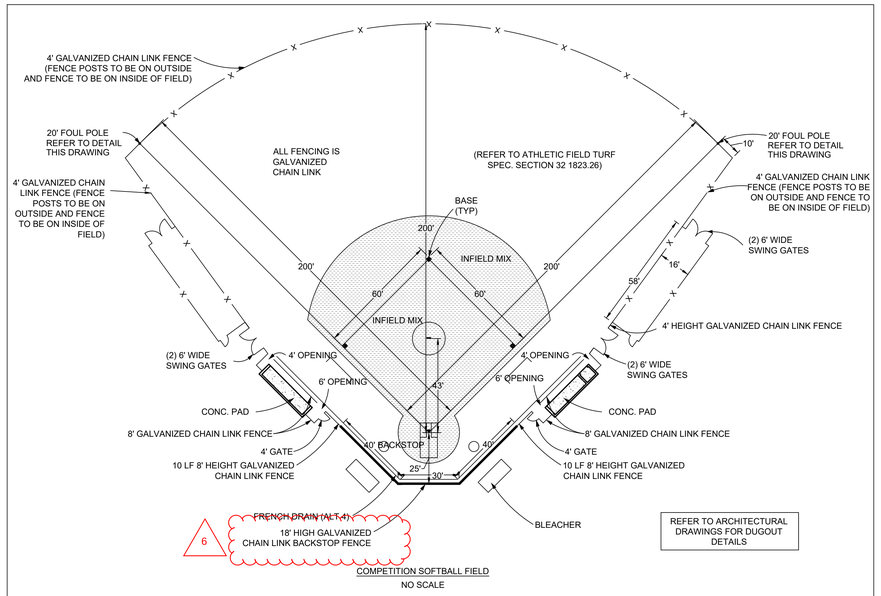
DOUBLE SWING GATE
(SOFTBALL FIELD)
NO SCALE



SINGLE SWING GATE
(SOFTBALL FIELD)
NO SCALE



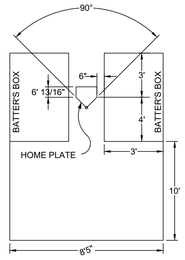
FOUL BALL POLE
(SOFTBALL FIELD)
NO SCALE

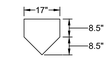


COMPETITION SOFTBALL FIELD
NO SCALE

NOTE:

1. REFER TO NFHS STANDARDS FOR DETAILS OF HOME PLATE AND PITCHER'S PLATE.





HOME PLATE
(SOFTBALL FIELD)
NO SCALE

PITCHER'S PLATE
(SOFTBALL FIELD)
NO SCALE

SOFTBALL LAYOUT AT HOME PLATE
(SOFTBALL FIELD)
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ISSUE DATE: 01-09-25

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DRAWN BY: JG
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NOTES AND DETAILS

C5.12

GENERAL:

1. PROVIDE CONSTRUCTION CONFORMING TO THE 2018 NORTH CAROLINA BUILDING CODE (2015 INTERNATIONAL BUILDING CODE W/ NORTH CAROLINA AMMENDMENTS). REFERENCE TO LATEST EDITION OR OTHER STANDARDS, SPECIFICATIONS OR CODES SHALL MEET THE LATEST STANDARD OR CODE PUBLISHED AND ADOPTED BY THE LISTED BUILDING CODE.
2. MATERIAL TESTS AND INSPECTIONS ARE REQUIRED PER CHAPTER 17 OF THE 2015 INTERNATIONAL BUILDING CODE. REFER TO THE PROJECT STATEMENT OF SPECIAL INSPECTIONS FOR REQUIRED TESTS AND INSPECTIONS.
3. THESE NOTES APPLY EXCEPT WHERE OTHERWISE INDICATED BY DRAWINGS OR SPECIFICATIONS.
4. STRUCTURAL DRAWINGS INDICATE TYPICAL AND CERTAIN SPECIFIC CONDITIONS ONLY. SUBMITTED SHOP DRAWINGS DETAIL ALL CONDITIONS IN ACCORDANCE WITH SPECIFIED STANDARDS AND THE SPECIFIC REQUIREMENTS OF THIS PROJECT AS INDICATED ON THE DRAWINGS.
5. COORDINATE THE STRUCTURAL CONTRACT DOCUMENTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL AND ALL OTHER CONSULTANTS. NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD IN WRITING OF ANY CONFLICT AND/OR OMISSION. WHERE A CONFLICT OCCURS, THE STRICTEST REQUIREMENT SHALL GOVERN UNLESS OTHERWISE DECIDED BY THE DESIGN TEAM.
6. COORDINATE AND VERIFY FLOOR AND ROOF OPENING SIZES AND LOCATIONS SHOWN WITH ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS. FOR ADDITIONAL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS REFER TO THE ARCHITECTURAL AND MECHANICAL DRAWINGS. OBTAIN WRITTEN APPROVAL OF ADDITIONAL OPENINGS LARGER THAN 12” x 12” FROM THE STRUCTURAL ENGINEER OF RECORD.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS AND ALL OTHER MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION.
8. COORDINATE THE BUILDING ORIENTATION WITH THE ARCHITECTURAL DRAWINGS.
9. COMPLETE SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE DESIGN TEAM OF RECORD AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED AND SHALL BE MADE AVAILABLE AT THE JOB SITE.
10. UNO, FIREPROOFING REQUIREMENTS, METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS, REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
11. ALL REACTIONS AND FORCES SHOWN ON THE DRAWINGS ARE SERVICE LOADS (ASD COMBINATIONS) UNO.
12. DO NOT SCALE OFF OF DRAWINGS, ASK ARCHITECT FOR DIMENSIONS NOT SHOWN.

DESIGN LOADS

1. LIVE LOADS: UNIFORM
   - MECHANICAL = 150 PSF
   - ROOF = 20 PSF
   - CLASSROOMS = 60 PSF
   - CORRIDORS ABOVE FIRST FLOOR = 80 PSF
   - FIRST FLOOR CORRIDORS = 100 PSF
2. DEAD LOADS:
   - SUPERIMPOSED ROOF DEAD LOAD = 20 PSF
3. WIND DESIGN DATA:
   - ULTIMATE WIND SPEED, V_{ULT} = 127 MPH
   - NOMINAL DESIGN WIND SPEED, V_{ASD} = 98 MPH
   - RISK CATEGORY = III
   - WIND EXPOSURE = C
   - INTERNAL PRESSURE COEFFICIENT = ± 0.18
   - COMPONENTS AND CLADDING PRESSURES = SEE S-003
   - DESIGN BASE SHEAR V_X = 750 KIPS V_Y = 1010 KIPS
4. ROOF SNOW LOADING:
   - GROUND SNOW LOAD (P_G) = 10 PSF
   - FLAT-ROOF SNOW LOAD (P_F) = 11 PSF
   - SNOW EXPOSURE FACTOR (C_E) = 1.0
   - SNOW LOAD IMPORTANCE FACTOR (I) = 1.1
   - THERMAL FACTOR (C_T) = 1.0
5. SEISMIC DESIGN DATA:
   - SEISMIC IMPORTANCE FACTOR (I) = 1.25
   - MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS
     (S_S) = 0.187
     (S_1) = 0.087
   - SITE CLASS = C (PER GEOTECH REPORT)
   - DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS
     (S_{DS}) = 0.149
     (S_{D1}) = 0.099
   - SEISMIC DESIGN CATEGORY = B
   - BASIC SEISMIC FORCE RESISTING SYSTEM
     = INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
   - DESIGN BASE SHEAR = 1220 KIPS
   - SEISMIC RESPONSE COEFFICIENT (C_S) = 0.053
   - RESPONSE MODIFICATION COEFFICIENT (R) = 3.5
   - PROCEDURE USED
     = EQUIVALENT LATERAL FORCE PROCEDURE

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS THAT ADEQUATELY DEPICT THE STRUCTURAL ELEMENTS AND CONNECTIONS SHOWN IN THE CONTRACT DOCUMENTS. STRUCTURAL DRAWINGS INDICATE TYPICAL AND CERTAIN CONDITIONS ONLY. SHOP DRAWINGS SHALL DETAIL ALL CONDITIONS IN ACCORDANCE WITH SPECIFIED STANDARDS AND SPECIFIC REQUIREMENTS OF THIS PROJECT.
2. REVIEW OF SUBMITTALS AND SHOP DRAWINGS BY THE ARCHITECT/ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATIONS OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF QUANTITIES, LENGTHS, ELEVATIONS, DIMENSIONS, ETC.
4. SHOP DRAWING SUBMITTALS SHALL BE SUBMITTED ELECTRONICALLY. SHOP DRAWINGS SHALL BE REVIEWED, STAMPED AND SIGNED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. DRAWINGS SUBMITTED WITHOUT REVIEW WILL BE RETURNED UNCHECKED.
5. THE USE OR REPRODUCTIONS OF THESE CONTRACT DRAWINGS OR ANY PART OF THEM BY CONTRACTOR IN LIEU OF PREPARATION OF SHOP DRAWINGS WILL BE REJECTED UNCHECKED.
6. MAXIMUM REQUIRED TURN AROUND TIME FOR SHOP DRAWING APPROVAL BY STRUCTURAL ENGINEER IS TEN (10) WORKING DAYS.
7. THE FOLLOWING SHOP DRAWINGS SHALL BE SUBMITTED PRIOR TO CONSTRUCTION:
   A. CONCRETE MIX DESIGN
   B. CONCRETE REINFORCING
   C. HEAVY TIMBER
   D. TIMBER CONNECTIONS
   E. WOOD ROOF TRUSSES
   F. MASONRY REINFORCEMENT
   G. MASONRY
   H. STRUCTURAL STEEL
   I. STRUCTURAL STEEL CONNECTIONS REQUIRING ENGINEERING
   J. PREFABRICATED STEEL STAIRS, RAILINGS AND LADDERS
   K. METAL ROOF DECK ASSEMBLIES
   L. OPEN WEB STEEL JOISTS AND/OR GIRDERS
   M. LIGHT GAUGE STEEL EXTERIOR OR LOADBEARING WALL SYSTEMS
   N. GLAZED CURTAIN WALLS
   O. PRECAST CONCRETE ELEMENTS
   P. EXCAVATION SHORING AND RETAINING SYSTEMS
   Q. MECHANICAL ANCHORS
   R. CHEMICAL ANCHORS

SPECIAL INSPECTIONS:

1. IN ACCORDANCE WITH THE BUILDING CODE, SECTION 1704, THE OWNER WILL RETAIN THE SERVICES OF "SPECIAL INSPECTOR(S)" TO PERFORM INSPECTIONS PURSUANT TO THE "STATEMENT OF SPECIAL INSPECTIONS” AND THE "SCHEDULE OF SPECIAL INSPECTIONS." THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN SECTION 110 OF THE BUILDING CODE.
2. THE SPECIAL INSPECTOR SHALL BE QUALIFIED IN ACCORDANCE WITH THE BUILDING CODE.
3. THE CONTRACTOR SHALL COOPERATE WITH SPECIAL INSPECTOR(S) TO FACILITATE EXECUTION OF REQUIRED SERVICES. CONTRACTOR SHALL PROVIDE SPECIAL INSPECTOR(S) WITH CURRENT CONSTRUCTION SCHEDULE.
4. THE CONTRACTOR SHALL SUPPLY THE SPECIAL INSPECTOR WITH ALL CONTRACT DOCUMENTS, INCLUDING REVISIONS, AMENDMENTS, ETC.
5. THE CONTRACTOR SHALL SECURE AND DELIVER TO SPECIAL INSPECTORS ALL REQUIRED SUBMITTALS AND MATERIAL SAMPLES FOR TESTING.
6. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO THE WORK TO BE INSPECTED BY THE SPECIAL INSPECTORS.
7. THE CONTRACTOR SHALL NOTIFY SPECIAL INSPECTOR SUFFICIENTLY IN ADVANCE OF OPERATIONS TO ALLOW FOR PERSONNEL ASSIGNMENT AND SCHEDULING BY SPECIAL INSPECTOR. WHEN TEST OR INSPECTION CAN NOT BE PERFORMED AFTER SUCH NOTICE (AND WITHOUT ADEQUATE CANCELLATION NOTICE), THE CONTRACTOR SHALL REIMBURSE OWNER THROUGH SPECIFICATION, DIVISION 1, PROCEDURES, FOR SPECIAL INSPECTOR'S COSTS AND EXPENSES. THE CONTRACTOR IS RESPONSIBLE FOR COSTS OF RE-TESTING (INSPECTIONS, TESTS, QUALITY ASSURANCE WORK, ETC.) WHERE RESULTS PROVE UNSATISFACTORY OR NONCOMPLIANT, REGARDLESS OF WHETHER ORIGINAL TEST WAS THE CONTRACTOR'S RESPONSIBILITY. COSTS OF RE-TESTING ARE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE SPECIAL INSPECTOR SHALL VERIFY THAT THE CONSTRUCTION FOLLOWS THE INTENT OF THE CONTRACT DOCUMENTS, APPLICABLE CODES AND THE PERMIT SUCH THAT THE PUBLIC SAFETY WILL BE PROVIDED TO OCCUPANTS OF THE STRUCTURE.
9. THE SPECIAL INSPECTOR SHALL:
   A. REVIEW AND BE FAMILIAR WITH THE CONTRACT DOCUMENTS FOR ALL AREAS DEFINED IN THE “SCHEDULE OF SPECIAL INSPECTIONS.”
   B. CONSULT WITH THE DESIGN PROFESSIONALS FOR CLARIFICATIONS CONCERNING QUESTIONS, PROBLEMS, ETC.
   C. ATTEND PRE-CONSTRUCTION AND ROUTINE JOB MEETINGS REQUIRED OF THE CONTRACTOR TO ASSURE THAT THE CONTRACTOR UNDERSTANDS THE CONTRACT DOCUMENTS.
   D. NOTIFY THE CONTRACTOR OF THEIR PRESENCE AND RESPONSIBILITIES AT THE JOB SITE.
   E. PROVIDE ADEQUATE OBSERVATIONS TO ASSURE THAT THE WORK BY THE CONTRACTOR IS IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.
   F. PERFORM ALL WORK AS DEFINED IN THE “SCHEDULE OF SPECIAL INSPECTIONS”, INCLUDING REVIEW OF APPLICABLE SUBMITTALS. PERFORM ALL SPECIAL INSPECTIONS INDICATED IN THE SPECIFICATIONS.
   G. REPORT NONCONFORMING ITEMS TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
   H. PREPARE AND SUBMIT THE DAILY, INTERIM AND FINAL REPORT OF SPECIAL INSPECTIONS.
   I. REPORT ANY DAMAGING EVENTS AND OBSERVED NONCONFORMING CONDITIONS SUCH AS EXPOSED REINFORCEMENT, UNSPECIFIED FIELD ALTERATIONS TO STEEL, ETC. AND PREPARE AND SUBMIT A DISCREPANCY REPORT.
   J. INITIAL AND DATE THE "DATE COMPLETED" BOX IN THE SCHEDULE OF SPECIAL INSPECTIONS SERVICES AS THE INSPECTION AND TESTING ACTIVITIES ARE COMPLETED.
10. THE DISCREPANCY REPORT SHALL BE WRITTEN FOR EACH NONCONFORMING ITEM AND SHALL CONTAIN:
    A. DESCRIPTION AND EXACT LOCATION.
    B. REFERENCE TO APPLICABLE DRAWINGS AND SPECIFICATIONS.
    C. RESOLUTION OR CORRECTIVE ACTION TAKEN AND THE DATE.
11. THE DAILY AND INTERIM REPORT SHALL CONTAIN:
    A. DESCRIPTION OF THE SPECIAL INSPECTION AND TESTS MADE WITH LOCATION.
    B. INDICATION OF NONCONFORMING ITEMS AND THEIR RESOLUTION.
    C. LISTING OF UNRESOLVED ITEMS AND PARTIES NOTIFIED.
    D. ITEMIZATION OF ANY CHANGES AUTHORIZED BY THE DESIGN PROFESSIONAL
12. SPECIAL INSPECTION REPORTS AND A FINAL REPORT IN ACCORDANCE WITH THE BUILDING CODE SHALL BE AVAILABLE AT THE TIME THE BUILDING IS APPROVED FOR OCCUPANCY.

FOUNDATION:

1. THE DESIGN OF FOUNDATIONS, RETAINING WALLS AND SLABS-ON-GRADE IS BASED ON THE FOLLOWING CRITERIA ESTABLISHED IN THE GEOTECHNICAL ENGINEERING REPORT BY TERRACON DATED MAY 16, 2024 WITH REPORT NUMBER 70245033.
   - ALLOWABLE SOIL BEARING PRESSURE: 2,000 PSF
   - EQUIVALENT PASSIVE LATERAL FLUID PRESSURE: 279 PSF/FT
   - COEFFICIENT OF SLIDING FRICTION: 0.35
   - SOIL DENSITY: 120 PCF
   - MODULUS OF SUBGRADE REACTION: 125 PCI
2. DURING THE GEOTECHNICAL INVESTIGATION, EXPANSIVE SOILS WERE FOUND ON SITE. FAT CLAY SOIL BENEATH THE PROPOSED BUILDING FLOOR SLABS AND EXTERIOR PAVEMENT SHALL BE REMOVED TO A DEPTH OF 2' BENEATH THE PROPOSED SLAB OR PAVEMENT FFE, OR EXISTING GRADE, WHICHEVER IS GREATER.
3. IT IS ANTICIPATED THAT UNDERCUTTING OF VERY SOFT TO SOFT OR VERY LOOSE NEAR-SURFACE NATURAL SOILS WILL BE NECESSARY IN MULTIPLE LOCATIONS ACROSS THE SITE.
4. SUBGRADE SHALL BE PROOFROLLED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE WITH AN ADEQUATELY LOADED VEHICLE (20 TONS MIN.). AREAS EXCESSIVELY DEFLECTING ON CONSIDERED UNSTABLE UNDER THE RPOOFROLL SHOULD BE DELINEATED AND ADDRESSED BY THE GEOTECHNICAL ENGINEER. SUCH AREAS SHALL EITHER BE REMOVED OR MODIFIED BY SCARFICATION AND RECOMPACTION, CRUSHED SOIL/PROCESSED FILL, OR TREATING/MIXING WITH LIME OR CEMENT. EXCESSIVELY WET OR DRY MATERIAL SHOULD EITHER BY REMOVED OF MOISTURE CONDITIONED AND RECOMPACTED.
5. AFTER EXCAVATION, IF THE CONDITION OF THE SOILS DO NOT MEET THE RECOMMENDED DESIGN CRITERIA STATED IN THE GEOTECHNICAL REPORT, NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD SO THAT THE FOUNDATIONS MAY BE REDESIGNED IF NECESSARY.
6. STRUCTURAL FILL PLACED BENEATH THE ENTIRE FOOTPRINT OF THE STRUCTURES SHALL EXTEND A MINIMUM DISTANCE OF 5 FEET HORIZONTALLY BEYOND THE OUTSIDE EDGE OF FOOTINGS. ON-SITE SOILS MAY BE SELECTIVELY REUSED AS STRUCTURAL FILL PROVIDED IT IS APPROVED BY THE GEOTECHNICAL ENGINEER. ON-SITE SOILS MAY REQUIRE MOISTURE-CONDITIONING IN ORDER TO ACHIEVE REQUIRED COMPACTION.
7. THE GEOTECHNICAL ENGINEER MUST VERIFY THE CONDITION AND/OR ADEQUACY OF ALL SUB-GRADES, FILLS AND BACKFILLS PRIOR TO THE PLACEMENT OF FOUNDATIONS, FOOTINGS, SLABS, WALLS, ETC.
8. BEAR ALL FOOTINGS ON ORIGINAL, UNDISTURBED LOW PLASTICITY SOIL (PI<30) OR STRUCTURAL FILL APPROVED BY THE GEOTECHNICAL ENGINEER AND HAVING THE THE PROPERTIES SUMMARIZED IN THE TABLE BELOW.
9. BACK FILLING WALLS:
   A. DEPOSIT BACKFILL AGAINST WALLS EVENLY AGAINST BOTH SIDES OF WALL UNTIL THE LOWER FINAL GRADE IS REACHED.
   B. DO NOT PLACE BACKFILL AGAINST WALLS DEPENDENT UPON TOP AND BOTTOM CONCRETE SLABS FOR SUPPORT UNTIL THE CONCRETE SLABS HAVE ATTAINED 65% OF THEIR DESIGN 28 DAY COMPRESSION STRENGTH.
   C. SHORE AND BRACE WALLS SHOWN MONOLITHIC WITH A SLAB-ON-GRADE AT THE TOP OF THE WALL DURING BACKFILLING OPERATIONS.
10. CONSTRUCT COLUMN FOOTINGS AND WALL FOOTINGS MONOLITHICALLY WITH TOPS OF ADJACENT FOOTINGS AT THE SAME ELEVATION.
11. DOWELS FROM FOUNDATIONS INTO PIERS, COLUMNS, BUTTRESSES, OR WALLS ABOVE SHALL BE THE SAME SIZE AND NUMBER AS VERTICAL REINFORCEMENT IN PIERS, COLUMNS, BUTTRESSES OR WALLS ABOVE, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
12. UNLESS OTHERWISE NOTED, ALL FOOTINGS AND PILASTERS SHALL BE CENTERED UNDERS UPPORTED MEMBERS.
13. FILLS:
    A. REMOVE ALL UNSUITABLE SOILS AND REPLACE WITH CLEAN STRUCTURAL FILL AT THE DIRECTION OF THE GEOTECHNICAL ENGINEER.
    B. PLACE FILL SOILS AS DESCRIBED IN THE GEOTECHNICAL REPORT AND SUMMARIZED IN THE TABLE BELOW.
    C. COMPACT ALL FILL WITHIN 10'-0” OF THE BUILDING LIMIT AS STATED IN THE TABLE BELOW.
    D. TEST FIELD DENSITY AS DESCRIBED IN THE GEOTECHNICAL REPORT TO VERIFY ADEQUATE COMPACTION AND DESIGN BEARING PRESSURE.
14. ALL FOOTING EXCAVATIONS ARE TO BE FINISHED BY HAND.
15. ALL FINISHED FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ARCHITECT OR HIS DESIGNATE BEFORE ANY CONCRETE IS PLACED.
16. WHERE FOOTING STEPS ARE NECESSARY, SLOPE NO STEEPER THAN ONE VERTICAL TO TWO HORIZONTAL.
17. CONTRACTOR SHALL PROVIDE CONTINUOUS CONTROL OF SURFACE AND UNDERGROUND WATER AS REQUIRED DURING CONSTRUCTION SUCH THAT THE WORK IS DONE IN THE DRY.
18. NO FOUNDATIONS SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
19. COORDINATE UNDERFLOOR DRAIN REQUIREMENTS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.

STRUCTURAL FILL INDEX PROPERTIES	
SUBJECT	**PROPERTY**
BUILDING AND PAVEMENT AREAS	LL < 50, PI < 30
MAX PARTICAL SIZE	3 INCHES
COMPOSITION	FREE OF DELETERIOUS MATERIAL

STRUCTURAL FILL COMPACTION REQUIREMENTS	
SUBJECT	**REQUIREMENT**
COMPACTION STANDARD	STANDARD PROCTOR, ASTM D698
REQUIRED COMPACTION	98% OF MAX DRY DENSITY WITHIN TOP OF 12", AND 95% ELSEWHERE
MOISTURE CONTENT	-3 TO +3% POINTS OF SOIL'S OPTIMUM VALUE
LOOSE THICKNESS	10 INCHES PRIOR TO COMPACTION WHEN HEAVY, SELF-PROPELLED EQUIPMENT IS USED 6 INCHES PRIOR TO COMPACTION WHEN HAND-GUIDED EQUIPMENT IS USED

REINFORCED CONCRETE:

1. PROVIDE REINFORCED CONCRETE CONFORMING TO THE FOLLOWING STANDARDS.
   A. ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, LATEST EDITION.
   B. ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION.
   C. ACI 302.1R, GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION, LATEST EDITION.
   D. ACI 360R, DESIGN OF SLABS-ON-GROUND, LATEST EDITION.
   E. PROJECT SPECIFICATION MANUAL DIVISION 3
2. FULLY DOCUMENT AND SUBMIT FOR REVIEW THE PROPOSED MATERIALS AND MIX DESIGN FOR ALL CONCRETE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE REQUIRED DESIGN STRENGTH. ALL CONCRETE TEST DATA MUST BE AVAILABLE AT THE JOB SITE.
3. DETAIL CONCRETE REINFORCEMENT ACCORDING TO ACI SP-66 DETAILING MANUAL. SUBMIT SHOP DRAWINGS FOR APPROVAL, SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING CONCRETE REINFORCING AND ACCESSORIES. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND REVIEWED BY THE STRUCTURAL EOR. UNLESS SPECIFICALLY APPROVED OTHERWISE, DETAIL ALL CONCRETE WALLS AND BEAMS IN ELEVATION.
4. PROVIDE NORMAL WEIGHT CONCRETE WITH THE FOLLOWING 28 DAY COMPRESSIVE STRENGTHS:
   - FOUNDATIONS: 3000 PSI NW
   - RETAINING WALLS AND PIERS: 4000 PSI NW
   - SLABS-ON-GRADE: 3000 PSI NW
   - SLABS-ON-GRADE EXPOSED TO WEATHER: 5000 PSI NW, AIR-ENTRAINED
   - SUPPORTED SLABS ON STEEL DECK: 3500 PSI LW
5. PROVIDE CONCRETE WITH:
   A. 4% TO 6% ENTRAINED AIR BY VOLUME IN CONCRETE PERMANENTLY EXPOSED TO WEATHER.
   B. THE USE OF CALCIUM CHLORIDE, CHLORIDE IONS OR OTHER SALTS IS NOT PERMITTED.
   C. PLACE CONCRETE AT A SLUMP OF 5” ± 1” UNO.
6. UNO, PROVIDE REINFORCING STEEL CONFORMING TO ASTM A 615, GRADE 60.
7. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE. SPLICE ONLY AS SHOWN OR APPROVED. MINIMUM LAP LENGTHS, EXPRESSED IN NUMBER OF BAR DIAMETERS, SHALL BE AS FOLLOWS:

BAR SIZE	NORMAL WT. CONCRETE STRENGTH, fc (psi)		
	3000	4000	5000
#6 OR SMALLER	57 DIA.	49 DIA.	44 DIA.
#7 OR LARGER	71 DIA.	62 DIA.	55 DIA.

MULTIPLY THE ABOVE LENGTHS BY 1.3 FOR TOP BARS AND BY 1.3 FOR LIGHTWEIGHT CONCRETE. WHERE BARS OF UNEQUAL DIAMETER ARE LAPPED, USE THE LAP LENGTH OF THE SMALLER BAR. THE ABOVE LENGTHS ARE CLASS "B" TENSION LAP SPLICES BASED ON GRADE 60 BARS WITH A COVER OF AT LEAST 1 BAR DIA. AND SPACING AT LEAST 3 BAR DIA. LAP LENGTHS SHALL BE INCREASED IN ACCORDANCE WITH ACI 318 IF COVER IS LESS THAN 1 BAR DIA. OR SPACING IS LESS THAN 3 BAR DIA.

8. ACCURATELY INSTALL AND PROPERLY SECURE ANCHORS, BEARING PLATES, SLEEVES, AND OTHER EMBEDDED ITEMS.
9. ACCURATELY LOCATE AND BLOCK OUT OPENINGS AND PENETRATIONS.
10. COORDINATE WITH OTHER TRADES FOR ANCHORS, EMBEDDED ITEMS, SLEEVES, AND PENETRATIONS REQUIRED AND/OR FURNISHED BY THE OTHER TRADES.
11. PROVIDE WELDED WIRE REINFORCEMENT (MESH) IN FLAT SHEETS (ROLLS NOT PERMITTED) CONFORMING TO ASTM A1064. LAP WWR A MINIMUM OF 6” AT EACH SPLICE.
12. FIBER REINFORCING MAY BE SUBSTITUTED FOR WWR IN SLABS-ON-GRADE WITH THE APPROVAL OF THE STRUCTURAL EOR. PROVIDE FIBER REINFORCING CONFORMING TO ASTM A 820, TYPE 1.
13. SEE ARCHITECTURAL DRAWINGS FOR WATERSTOPS.
14. UNO, PROVIDE THE FOLLOWING CONCRETE COVER ON ALL REINFORCING STEEL:
    A. CONCRETE AGAINST EARTH (NOT FORMED): 3”
    B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
       a. #6 THROUGH #18 BARS: 2”
       b. #5 BARS AND SMALLER: 1 1/2"
    C. FORMED CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
       a. SLABS, JOISTS, AND WALLS: 3/4"
       b. BEAMS (STIRRUPS) AND COLUMNS (TIES): 1 1/2"
15. REINFORCING, INCLUDING DOWELS, SHALL BE SECURELY TIED AND CAST WITH THE LOWER MEMBER. PLACING REINFORCING AFTER CONCRETE HAS BEEN PLACED IS NOT PERMITTED.
16. FIELD BENDING OF REINFORCING PARTIALL EMBEDDED IN CONCRETE IS NOT ALLOWED UNLESS SPECIFICALLY NOTED IN THE STRUCTURAL DOCUMENTS OR APPROVED BY STRUCTURAL ENGINEER.
17. PROVIDE DOWELS FROM THE FOUNDATION WHICH ARE THE SAME GRADE, SIZE AND NUMBER AS VERTICAL WALL OR COLUMN REINFORCING UNO.
18. TIE ALL REINFORCING STEEL AND EMBEDDED ITEMS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN THE POSITION OF THE REINFORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITIES.
19. PROVIDE CORNER BARS AT ALL CORNERS AND INTERSECTIONS OF ALL FOOTINGS, BEAMS AND WALLS.
20. PROVIDE CONSTRUCTION OR CONTRACTION JOINTS IN SLABS-ON-GRADE SPACED AT A MAXIMUM 12'-0" OC IN EACH DIRECTION AND WITH THE LENGTH BETWEEN CONTROL JOINTS NO GREATER THAN 1 1/4 TIMES THE WIDTH BETWEEN CONTROL JOINTS.
21. SAWCUT CONTROL JOINTS AS SOON AFTER PLACING AS POSSIBLE, WHEN CONCRETE WILL NOT RAVEL, TEAR, ABRADE OR OTHERWISE DAMAGE THE SURFACE AND BEFORE THE CONCRETE DEVELOPS RANDOM SHRINKAGE CRACKING. CURE CONCRETE IN ACCORDANCE WITH ACI 301. BEGIN CURING IMMEDIATELY AFTER PLACING TO LIMIT CRACKING PRIOR TO SAWCUTTING CONTROL JOINTS.
22. UNLESS NOTED OTHERWISE, AT BASEMENT WALLS AND RETAINING WALLS:
    A. PROVIDE VERTICAL CONTROL JOINTS IN BASEMENT WALLS AND RETAINING WALLS WITH A MAXIMUM SPACING OF 15'-0” ON CENTER AND 3/4" DEEP V-CHAMFER ON BOTH FACES.
    B. INTERRUPT HALF OF THE SPECIFIED HORIZONTAL REINFORCEMENT AT CONTROL JOINTS.
    C. CENTER CHAMFER STRIPS BETWEEN VERTICAL REINFORCING BARS.
23. NON-STRUCTURAL EMBEDMENTS (CONDUIT, PIPES, SLEEVES, ETC) WITHIN WALLS, BEAMS OR SLABS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ALL EMBEDMENTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH ACI STANDARDS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
    A. ALUMINIUM MATERIALS SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE
    B. OVERALL OUTSIDE DIMENSION OF EMBEDMENTS SHALL NOT EXCEED 1/3 THE CONCRETE MEMBER THICKNESS UP TO 2" MAXIMUM.
       a. FOR CONCRETE SLABS ON METAL DECK THE MEMBER THICKNESS SHALL BE THE CONTINOUS SLAB THICKNESS ABOVE THE DECK.
    C. EMBEDMENTS SHALL BE SPACED A MINIMUM OF 6" OC AND SHALL NOT ALTER OR DISPLACE REINFORCING.

STEEL COMPOSITE FLOOR CONSTRUCTION:

1. COMPOSITE FLOOR MEMBERS ARE DESIGNED TO BE UNSHORED, UNO.
2. SHEAR STUD CONNECTORS SHALL BE AS SHOWN ON PLANS OR DETAILS AND SHALL BE WELDED DIRECTLY TO BEAM OR THRU METAL DECK. DO NOT WELD TO CLOSURE PLATES.
3. SHEAR STUD CONNECTORS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE", SECTION 7 - STUD WELDING. STUD WELDING SHALL BE BY AUTOMATIC WELDING EQUIPMENT ONLY. HAND WELDING OF STUDS IS NOT ALLOWED. STUDS SHALL BE TYPE 'B', HEADED STUDS HAVING A MINIMUM TENSILE STRENGTH OF 60 KSI AND SHALL BE OF LENGTH AND DIAMETER SHOWN ON STRUCTURAL DRAWINGS.
4. SUBMIT SHOP DRAWINGS INDICATING SHEAR STUD LOCATIONS ON EACH BEAM.
5. SHEAR STUD INSTALLATION SHALL BE TESTED BY THE TESTING INSPECTOR PER AWS SPECIFICATIONS AND APPROVED BEFORE ANY CONCRETE IS PLACED.
6. CONCRETE THICKNESS INDICATED ON PLAN IS NOMINAL. CONTRACTOR SHALL ALLOW FOR DEFLECTION OF THE FLOOR ASSEMBLY DUE TO THE WET WEIGHT OF THE CONCRETE WHEN CALCULATING CONCRETE QUANTITY.
7. CONDUITS, SLEEVES AND PIPING SHALL NOT BE LOCATED WITHIN THE ELEVATED SLAB THICKNESS (NO CONDUIT IN SLAB).
8. PLACEMENT OF CONTROL JOINTS IN THE COMPOSITE FLOOR SLAB IS PROHIBITED. IF CONSTRUCTION JOINT IS REQUIRED, LOCATION SHALL BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
9. COMPOSITE FLOOR DECK SHALL BE GALVANIZED.
10. PROVIDE ADDITIONAL SUPPORT AND CLOSURE PIECES AS REQUIRED FOR STRENGTH, CONTINUITY OF DECK AND SUPPORT OF OTHER WORK.
11. 2" COMPOSITE DECK WITH DESIGN THICKNESS 0.0358" (20 GA) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
    - Ip = 0.418 IN^4/FT
    - In = 0.415 IN^4/FT
    - Sp = 0.355 IN^3/FT
    - Sn = 0.360 IN^3/FT
    - Fy = 50 KSI
12. 3" COMPOSITE FLOOR DECK WITH DESIGN THICKNESS 0.0474 (18GA) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
    - I = 1.253 IN^4/FT
    - Sp = 0.76 IN^3/FT
    - Sn = 0.794 IN^3/FT
    - Fy = 50 KSI
13. COMPOSITE FLOOR DECK SHALL BE WELDED TO SUPPORTS, BOTH PERPENDICULAR AND PARALLEL TO DECK, WITH 5/8" DIAMETER PUDDLE WELDS AND FASTENED AT SIDELAPS WITH #10 SCREWS AS FOLLOWS:
    A. TYPICAL INSTALLATION, UNLESS NOTED OTHERWISE:
       a. WELD PATTERN: 36/4
       b. SIDELAP FASTENERS: (3) FASTENERS / SPAN, MAXIMUM 36" OC
       c. AT PERIMETER EDGES BETWEEN SUPPORTS, FASTEN WITH 1 1/2" LONG WELD SPACED A MAXIMUM OF 36" APART.
       d. END BEARING: 1 1/2" MINIMUM.
       e. END JOINTS: BUTTED OF LAPPED.

WOOD FRAMING - GENERAL:

1. ALL WORK SHALL BE IN ACCORDANCE WITH AITC TIMBER CONSTRUCTION MANUAL AND THE "NATIONAL DESIGN SPECIFICATION FOR WOOD PRODUCTS", LATEST EDITION, BY THE AMERICAN FOREST & PAPER ASSOCIATION, AMERICAN WOOD COUNCIL AND "PANEL DESIGN SPECIFICATIONS", LATEST EDITION, BY APA - THE ENGINEERED WOOD ASSOCIATION.
2. GLUE LAMINATED MEMBERS: AITC TIMBER CONSTRUCTION MEMBERS, SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
   A. Fb = 2,400 psi E = 1,800 ksi
3. CONNECTIONS: ASTM A36, PRIME PAINTED, BLACK OXIDE FINISH, WITH A307 BOLTS.
4. GLULAM SIZES AND CONNECTIONS DENOTED ON THESE DRAWINGS ARE BASIS OF DESIGN. SUPPLIER SHALL ENGINEER AND SUPPLY ALL MEMBERS AND CONNECTIONS.

STRUCTURAL MASONRY:

1. PROVIDE STRUCTURAL MASONRY CONFORMING TO THE FOLLOWING STANDARDS:
   A. TMS 402, BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES, LATEST EDITIONS.
   B. TMS 602, SPECIFICATIONS FOR CONCRETE MASONRY STRUCTURES, LATEST EDITIONS.
2. REFER TO ARCHITECTURAL FOR OTHER MASONRY.
3. PROVIDE HOLLOW, LOAD BEARING CONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C 90 WITH A MINIMUM COMPRESSIVE STRENGTH OF MASONRY (F'_M) OF 2,000 PSI AND A NET STRENGTH OF 2,000 PSI ON THE NET CROSS-SECTIONAL AREA OF CMU DETERMINED IN ACCORDANCE WITH ASTM C 140.
4. PROVIDE BRICK MASONRY UNITS CONSTRUCTED OF CLAY OR SHALE CONFORMING TO ASTM C 652.
5. PROVIDE MORTAR CONFORMING TO ASTM C 270, TYPE S. STANDARD MORTAR BED JOINT THICKNESS IS 3/8" AND MUST NOT VARY OUTSIDE OF THE RANGE BETWEEN 1/4" AND 1/2". DO NOT USE AIR ENTRAINED MORTAR.
6. PROVIDE GROUT FOR REINFORCED MASONRY CONFORMING TO ASTM C 476 WITH MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AND A MINIMUM SLUMP OF 10”.
7. PROVIDE STEEL REINFORCEMENT IN MASONRY WALLS CONFORMING TO ASTM A615, GRADE 60.
8. PROVIDE MASONRY TIES AND ANCHORS OF THE TYPE AND SPACING AS DETAILED ON THE STRUCTURAL DRAWINGS AND IN CONFORMANCE WITH ASTM A82.
9. PROVIDE LADDER TYPE HORIZONTAL JOINT REINFORCING CONFORMING TO ASTM A951 IN ALL MASONRY WALLS. UNO, PLACE 9 GAGE ZINC COATED LADDER TYPE HORIZONTAL JOINT REINFORCING AT 16” OC. LAP HORIZONTAL JOINT REINFORCING MINIMUM 12”. USE PREFABRICATED 'L'S AND 'T'S AT CORNERS AND INTERSECTIONS.
10. LAY ALL MASONRY UNITS IN RUNNING BOND.
11. FOR GROUTED WALLS:
    A. THE MAXIMUM HEIGHT OF GROUT LIFTS MUST NOT EXCEED 5'-4”.
    B. THE MAXIMUM UN-GROUTED HEIGHT OF 8” OR THICKER CMU WALLS PRIOR TO GROUTING MUST NOT EXCEED 12'-0”.
    C. REFER TO TABLE 7 OF ACI 530.1 FOR THE MAXIMUM UN-GROUTED HEIGHT OF CMU WALLS THINNER THAN 8”.
    D. CONSOLIDATE AND RECONSOLIDATE GROUT IN ACCORDANCE WITH PARAGRAPH 3.5.E OF ACI 530.1.
    E. ALL GROUT POURS HIGHER THAN 5'-0” MUST HAVE INSPECTION HOLES AT THE BASE OF THE WALL.
12. REINFORCEMENT:
    A. DETAIL REINFORCEMENT IN LOAD BEARING CMU WALLS IN ELEVATION ON SHOP DRAWINGS.
    B. LAP VERTICAL MASONRY WALL REINFORCING AS SHOWN IN THE MASONRY LAP LENGTH SCHEDULE AND PROVIDE MINIMUM BAR SPLICE LENGTH.
13. PROVIDE VERTICAL CONTROL JOINTS IN ALL MASONRY WALLS NOT RETAINING EARTH. UNO ON THE DRAWINGS, PLACE VERTICAL CONTROL JOINTS AT 30'-0" ON CENTER MAXIMUM. △5
14. UNO, PROVIDE MINIMUM (1) #5 VERTICAL BAR, GROUTED FULL STORY HEIGHT, AT EACH SIDE OF OPENINGS AND AT ALL CORNERS AND ENDS OF WALLS, INCLUDING BOTH SIDES AT ENDS OF WALL PANELS AT VERTICAL CONTROL JOINTS.
15. UNO, ANCHOR SIDES AND TOPS OF MASONRY WALL PANELS TO THE STRUCTURE BY DOVETAIL ANCHORS, METAL STRAPS OR EQUIVALENT.
16. PLACE CONNECTORS FOR MASONRY VENEERS AT NOT MORE THAN 16” ON CENTER VERTICALLY OR 24” ON CENTER HORIZONTALLY.
17. PROVIDE A CONTINUOUS BOND BEAM AT THE TOP OF ALL MASONRY WALLS. UNO REINFORCE BOND BEAMS WITH (2) #4 CONTINUOUS REINFORCING BARS.
18. PROVIDE LEVEL B QUALITY ASSURANCE AS DESCRIBED IN TABLE 4 OF ACI 530.1 / ASCE 6 / TMS 602, LATEST EDITIONS.
19. SAMPLE AND TEST GROUT IN ACCORDANCE WITH ARTICLES 1.4 B AND 1.6 OF ACI 530.1 / ASCE 6 / TMS 602, LATEST EDITIONS.

COLD FORMED METAL FRAMING:

1. PROVIDE COLD-FORMED METAL FRAMING CONFORMING WITH THE FOLLOWING STANDARDS:
   A. AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, LATEST EDITION
   B. PROJECT SPECIFICATION MANUAL DIVISION 5
2. PROVIDE CURTAIN WALL FRAMING INSTALLATION TO ACCOMMODATE VERTICAL DISPLACEMENT OF THE PRIMARY STRUCTURE.
3. VERIFY DIMENSIONS OF LOAD BEARING WALLS WITH THE ARCHITECTURAL DRAWINGS. FOR INFORMATION ON NON-LOAD BEARING METAL STUDS SEE ARCHITECTURAL DRAWINGS.

STRUCTURAL STEEL:

1. DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH LATEST EDITION THE "MANUAL OF STEEL CONSTRUCTION" AND "THE SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND SPECIFICATION MANUAL DIVISION 05 (WHEN PROVIDED).
2. SUBMIT SHOP DRAWINGS FOR FABRICATION AND ERECTION OF ALL STEEL MEMBERS IN ACCORDANCE WITH AISC STANDARDS NOTED ABOVE. DETAILER SHALL ASSUME EQUAL BEAM SPACING BETWEEN COLUMN LINES (OR BETWEEN BEAMS THAT ARE SPECIFICALLY LOCATED ON THE DRAWINGS), UNO ON THE DRAWINGS.
3. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING, UNO:
   A. WIDE FLANGE SHAPES = ASTM A992 (Fy = 50 KSI)
   B. MISC SHAPES (S,M,C, MC, L), PLATES, BARS = ASTM A36 (Fy = 36 KSI)
   C. SQUARE/RECTANGULAR TUBING (HSS) = ASTM A500 GRADE C (Fy = 50 KSI)
   D. ROUND TUBING (HSS) = ASTM A500 GRADE C (Fy = 46 KSI)
   E. STRUCTURAL PIPE = ASTM A53 GRADE B (Fy = 35 KSI)
   F. STRUCTURAL BOLTS = ASTM A325 OR A490
   G. STRUCTURAL NUTS = ASTM A563
   H. STRUCTURAL WASHERS = ASTM F436
   I. ANCHOR RODS = ASTM F1554 GRADE 36
4. PRIME STRUCTURAL STEEL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. IF SPECIFICATION MANUAL HAS NOT BEEN PROVIDED ALL STRUCTURAL STEEL NOT RECEIVING FIRE-PROOFING SHALL RECEIVE ONE SHOP COAT OF RUST-INHIBITIVE PRIMER. ALL STEEL WITH EXTERIOR EXPOSURE SHALL BE PAINTED WITH A DOUBLE COAT OF RUST PROHIBITIVE EPOXY PRIMER (MATERIAL AND THICKNESS TO BE SPECIFIED BY ARCHITECT) UNLESS NOTED AS GALVANIZED.
5. STEEL BELOW GRADE SHALL HAVE A MINIMUM OF 4" CONCRETE COVER PROTECTION OR PROTECTED WITH 2 COATS OF ASPHALTIC PAINT.
6. BOLTING OF STRUCTURAL STEEL SHALL CONFIRM TO THE PROVISIONS OF RCSC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 AND A490 BOLTS".
7. STRUCTURAL STEEL FABRICATOR IS RESPONSIBLE FOR DESIGN AND DETAILS OF STEEL CONNECTIONS REQUIRED BY THE CONTRACT DOCUMENTS AND SHALL COMPLY WITH THE FOLLOWING.
   A. DESIGN ALL CONNECTIONS NOT SPECIFICALLY DETAILED ON DRAWINGS.
   B. DESIGN CONNECTIONS USING SCHEMATIC DETAILS AND OTHER INFORMATION INDICATED ON DRAWINGS.
   C. ALL REACTIONS AND FORCES INDICATED ON DRAWINGS ARE ASD OR LRFD AS NOTED IN THE "GENERAL" SECTION OF THESE NOTES.
   D. SUBMIT SIGNED AND SEALED CALCULATIONS FOR THE DESIGN OF MOMENT FRAME CONNECTIONS, BRACED FRAME CONNECTIONS, CONNECTIONS TRANSFERRING AXIAL LOAD AND CONNECTIONS THAT ARE PART OF THE BUILDINGS MAIN LATERAL RESISTING SYSTEM.
   E. SELECT AND COMPLETE BEAM SIMPLE SHEAR CONNECTIONS USING SCHEMATIC DETAILS AND AISC'S MANUAL OF STEEL CONSTRUCTION. BEAM SIMPLE SHEAR CONNECTION CALCULATIONS SHALL BE SUBMITTED UPON REQUEST.
   F. REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE FABRICATOR OF CONNECTION DESIGN RESPONSIBILITY.
   G. STRUCTURAL STEEL CONNECTIONS SHALL CONFORM TO THE FOLLOWING, UNO:
      a. MINIMUM SIZE OF BOLTS SHALL BE 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE A MINIMUM OF TWO BOLTS WITH ONE HARDENED WASHER PER BOLT.
      b. BEARING TYPE CONNECTIONS SHALL BE DESIGNED AS TYPE "N".
      c. IN GENERAL, CONNECTIONS SHALL BE FIELD BOLTED AND TIGHTENED TO SNUG TIGHT CONDITION, UNO. ALL BOLTS DESIGNATED "SLIP CRITICAL" OR "FULLY TIGHTENED" SHALL BE TIGHTENED TO THE MINIMUM PRETENSION VALUE SHOWN IN TABLE J3.1 OF THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS. IN ADDITION, CONNECTIONS DESIGNATED "SLIP CRITICAL" SHALL HAVE PROPERLY PREPARED FAYING SURFACES TO MEET CLASS A SURFACE CONDITION, UNO.
      d. "FULLY TIGHTENED" CONNECTIONS SHALL INCLUDE ALL BOLTS IN MOMENT CONNECTIONS, BRACED FRAME CONNECTIONS, HANGERS, GIRT CONNECTIONS, BOLTS IN TENSION, CONNECTIONS SUBJECT TO VIBRATION AND ALL A490 BOLTS. DIRECT TENSION INDICATOR (DTI) WASHERS OR TENSION CONTROL BOLTS (TCB'S) SHALL BE USED AT THESE CONDITIONS.
      e. MINIMUM THICKNESS OF ALL CONNECTION MATERIAL TO BE 5/16", UNO. MINIMUM THICKNESS OF GUSSET PLATES AND SHEAR PLATES TO BE 3/8".
      f. UNO IN THE DRAWINGS, MINIMUM NUMBER OF BOLTS REQUIRED IN A BEAM WEB CONNECTION SHALL BE AS FOLLOWS:

BEAM SIZE	MIN NO OF BOLTS
W8 / W10 / W12	2
W14 / W16 / W18	3
W21 / W24	4
W27 / W30	5
W33 / W36	6
W40 / W44	7

      g. IN CONNECTIONS OF BEAMS, THE MINIMUM NUMBER OF BOLTS SHALL BE REQUIRED TO DEVELOP THE END REACTION NOTED ON THE CONTRACT DRAWINGS. MINIMUM BEAM END REACTION TO BE USED IS 10 KIPS ASD.
      h. CONNECTIONS OF BEAMS SHALL DEVELOP THE BEAM SHEAR END REACTION IN ADDITION TO ANY AXIAL FORCES LISTED ON THE STRUCTURAL DRAWINGS, WHERE APPLICABLE. FORCES SHALL BE CONSIDERED TO ACT SIMULTANEOUSLY.
      i. ALL MOMENT CONNECTIONS SHALL DEVELOP THE FULL MOMENT CAPACITY OF THE BEAM, UNO.
      j. ALL BRACING CONNECTIONS SHALL DEVELOP THE TENSION/COMPRESSION FORCES NOTED ON THE DRAWINGS. IF THE FORCE IS NOT NOTED ON DRAWINGS, THE BRACING CONNECTION SHALL DEVELOP THE ALLOWABLE TENSION FORCE IN THE MEMBER. BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS WILL BE TRANSMITTED DIRECTLY TO THE CENTER OF GRAVITY OF INTERSECTING MEMBERS. WHERE THIS IS NOT POSSIBLE, CONNECTIONS SHALL BE DESIGNED FOR ALL RESULTING ECCENTRICITIES.

POST-INSTALLED ANCHORS:

1. GENERAL
   A. PRE-CONSTRUCTION DUTIES OF THE CONTRACTOR:
      a. ARRANGE FOR AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED.
      b. PROVIDE THE STRUCTURAL EOR DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
   B. INSTALL POST-INSTALLED ANCHORS ONLY WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS.
   C. OBTAIN APPROVAL FROM THE EOR PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
   D. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS OR INDICATED IN THE MANUFACTURER'S LITERATURE.
   E. EXISTING REINFORCING BARS AND OTHER EMBEDDED MATERIAL CONTAINED IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS.
      a. CONTRACTOR TO REVIEW THE EXISTING STRUCTURAL DRAWINGS AND UNDERTAKE TO LOCATE THE POSITION OF MATERIAL EMBEDDED IN THE CONCRETE AT THE LOCATIONS OF THE DETAILED ANCHORS, BY HILTI FERROSCAN, GPR, X-RAY, CHIPPING OR OTHER MEANS UNLESS IT IS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT.
   F. ALL ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) IN CONJUNCTION WITH EDGE DISTANCE, SPACING AND EMBEDMENT DEPTH AS INDICATED ON THE DRAWINGS.
   G. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION TO SUPPORT SUSTAINED TENSION LOADS SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI (ACI 318-11 D.9.2.2)/ (ACI 318-14 17.8.2.2) I (ACI 318-19 17.2.3) PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
   H. SUBMIT SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW TO THE EOR PRIOR TO USE ALONG WITH:
      a. CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
      b. CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.
      c. INCLUDE CONSIDERATION OF CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE IN SUBSTITUTION REQUEST.
      d. EVALUATION OF SUBSTITUTIONS WILL BE BASED ON THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS.
   I. UNLESS NOTED OTHERWISE, THREADED RODS USED WITH ADHESIVES SHALL BE CONTINUOUSLY THREADED ROD CONFORMING TO ASTM F1554 GRADE 36. RODS SHALL BE CLEANED OF ALL MATERIAL THAT WILL INHIBIT BOND BETWEEN ROD AND ADHESIVE.
   J. CONCRETE SHALL HAVE A MINIMUM AGE OF 21 DAYS PRIOR TO INSTALLATION OF ADHESIVE ANCHORS.
2. CONCRETE ANCHORS
   A. MEDIUM DUTY MECHANICAL AND SCREW ANCHORS FOR USE IN CRACKED AND UN-CRACKED CONCRETE THAT HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193. PRE-APPROVED MECHANICAL AND SCREW ANCHORS INCLUDE:
      a. HILTI "KWIK BOLT-TZ2" EXPANSION ANCHOR (ICC-ES ESR-4266)
      b. HILTI "KWIK HUS-EZ" AND "KWIK HUS EZ-I" SCREW ANCHOR (ICC-ES ESR-3027)
      c. SIMPSON STRONG-TIE “STRONG-BOLT 2” EXPANSION ANCHOR (ICC-ES ESR-3037)
      d. SIMPSON STRONG-TIE “TITEN-HD” SCREW ANCHOR (ICC-ES ESR-2713)
      e. DEWALT "POWER-STUD+SD2" EXPANSION ANCHOR (ICC-ES ESR-2502)
      f. DEWALT "SCREW-BOLT+" SCREW ANCHOR (ICC-ES ESR-3889)
   B. HEAVY DUTY MECHANICAL ANCHORS FOR CRACKED AND UN-CRACKED CONCRETE USE:
      a. HILTI HDA UNDERCUT ANCHORS (ICC ESR 1546)
      b. HILTI HSL-3 EXPANSION ANCHORS (ICC ESR 1545)
      c. DEWALT "CCU+" UNDERCUT ANCHOR (ICC-ES ESR-4810)
      d. DEWALT "POWER-BOLT+" EXPANSION ANCHOR (ICC-ES ESR-3260)
   C. ADHESIVE ANCHORS FOR USE IN CRACKED AND UN-CRACKED CONCRETE THAT HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC308. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
      a. HILTI "HIT-HY 200 V3" ADHESIVE WITH HILTI "HIT-Z" ROD (ICC-ES ESR-4868)
      b. HILTI "HIT-RE 500 V3" ADHESIVE WITH HILTI "HAS-E" ROD (ICC-ES ESR-3814)
      c. DEWALT "PURE220+" ADHESIVE (ICC-ES ESR-5144)
      d. DEWALT "AC200+" ADHESIVE (ICC-ES ESR-4027)
3. MASONRY ANCHORS
   A. ANCHORAGE TO SOLID-GROUTED CONCRETE MASONRY
      a. MECHANICAL AND CONCRETE SCREW ANCHORS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR AC106, RESPECTIVELY. PRE-APPROVED MECHANICAL AND CONCRETE SCREW ANCHORS INCLUDE:
         1. HILTI "KWIK BOLT TZ2" EXPANSION ANCHOR (ICC-ES ESR-4561)
         2. HILTI "KWIK HUS-EZ" SCREW ANCHOR (ICC-ES ESR-3056)
         3. SIMPSON STRONG-TIE “STRONG-BOLT 2” EXPANSION ANCHOR (IAPMO-UES ER-240)
         4. SIMPSON STRONG-TIE “TITEN-HD” SCREW ANCHOR (ICC-ES ESR-1056)
         5. DEWALT "POWER-STUD+SD1" EXPANSION ANCHOR (ICC-ES ESR-2966)
         6. DEWALT "SCREW-BOLT+" SCREW ANCHOR (ICC-ES ESR-4042)
      b. ADHESIVE ANCHORS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
         1. HILTI "HIT-HY 200 V3" ADHESIVE (ICC-ES ESR-4878)
         2. SIMPSON STRONG-TIE “SET-3G” ADHESIVE (ICC-ES ESR-4844)
         3. DEWALT "AC100+GOLD" ADHESIVE (ICC-ES ESR-3200)
   B. ANCHORAGE TO HOLLOW CONCRETE MASONRY/UNREINFORCED CLAY BRICK MASONRY
      a. SCREW ANCHORS FOR USE IN HOLLOW CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC106. PRE-APPROVED SCREW ANCHORS INCLUDE:
         1. SIMPSON STRONG-TIE “TITEN-HD” SCREW ANCHOR (ICC-ES ESR-1056)
      b. ADHESIVE ANCHORS WITH SCREEN TUBES THAT ARE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC58 OR AC60, AS APPROPRIATE. USE THE APPROPRIATE SCREEN TUBE AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. PRE-APPROVED ADHESIVE ANCHORS WITH SCREEN TUBES INCLUDE:
         1. HILTI HIT-HY 270 MASONRY ADHESIVE ANCHORING SYSTEM W/ HIT-IC INSERT (ICC-ES ESR-4143 & ESR-4144.)
         2. SIMPSON STRONG-TIE “ET-3G” (ICC-ES ESR-5309)
         3. DEWALT AC100+GOLD (ICC-ES ESR-4105)

STEEL JOISTS AND JOIST GIRDERS:

1. STEEL JOISTS AND JOIST GIRDERS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS.
   A. ROOF JOIST AND BRIDGING SHALL BE DESIGNED TO WITHSTAND A SUPERIMPOSED NET UPFLIT PRESSURE DUE TO WIND AND DEAD LOAD AS STATED ON S-003 .
3. SUBMIT SHOP DRAWINGS FOR APPROVAL SHOWING IDENTIFICATION, LAYOUT, CONNECTION DETAILS, AND FASTENING FOR JOISTS AND JOIST GIRDERS. DO NOT BEGIN FABRICATION UNTIL THE SHOP DRAWINGS ARE COMPLETED AND REVIEWED BY THE STRUCTURAL EOR.
4. INSTALL BRIDGING IMMEDIATELY AFTER ERECTION AND PERMANENT FASTENING OF JOISTS. INSTALL BRIDGING BEFORE CONSTRUCTION LOADS ARE APPLIED TO JOISTS. PERMANENTLY ATTACH LINES OF BRIDGING TO WALLS OR BEAMS WHERE BRIDGING TERMINATES. WELD BRIDGING TO JOISTS.
5. EXTEND JOIST BOTTOM CHORDS AT COLUMN LINES UNO. DO NOT WELD BOTTOM CHORD.
6. AT A MINIMUM, K-SERIES STEEL JOISTS SHALL BE CONNECTED TO STEEL BY 1/8" WELD, 1 1/2" EACH SIDE OR (2) 1/2" DIAMETER BOLTS. AT A MINIMUM, LONG SPAN STEEL JOISTS SHALL BE CONNECTED TO STEEL BY 1/4" WELD, 2" LONG EACH SIDE OR (2) 3/4" DIAMETER BOLTS. AT A MINIMUM, JOIST GIRDERS SHALL BE CONNECTED TO STEEL BY 1/4" WELD, 6" LONG EACH SIDE OR (2) 3/4" DIAMETER BOLTS. JOIST SEAT CONNECTION DETAILS SHALL BE PROVIDED BY FABRICATOR (BOLTED OR WELDED CONNECTIONS) BASED ON SJI AND LOADING REQUIREMENTS.
7. ALL K-SERIES STEEL JOISTS SHALL BEAR 4" MINIMUM ON MASONRY AND 2 1/2" MINIMUM ON STRUCTURAL STEEL. ALL LH-SERIES STEEL JOISTS SHALL BEAR 6" MINIMUM ON MASONRY AND PER SJI REQUIREMENTS ON STRUCTURAL STEEL.
8. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF WALLS AND FRAMING WITH THE PITCH AND CAMBER OF STEEL JOISTS TO ENSURE THE COMPATABILITY OF THE ROOF FRAMING AND WALL SYSTEMS.
9. DAMAGED MEMBERS WILL BE REJECTED. THE CONTRACTOR AND THE JOIST MANUFACTURER ARE RESPONSIBLE FOR REPAIRING AND/OR REPLACING DAMAGED MEMBERS. IF REPAIRS ARE MADE, A LETTER BEARING THE SEAL OF A REGISTERED ENGINEER IN THE STATE WHERE THE PROJECT WILL BE CONSTRUCTED MUST BE PROVIDED BY THE JOIST MANUFACTURER APPROVING SUCH REPAIRS.
10. HANGERS:
    A. INSTALL HANGERS FROM THE BOTTOM CHORDS AT PANEL POINTS.
    B. HUNG LOADS GREATER THAN 100 POUNDS REQUIRE APPROVAL BY THE ENGINEER OF RECORD.
    C. HANG NO LOADS FROM BOTTOM CHORD EXTENSIONS.
11. ALL JOIST SHALL RECEIVE A COAT OF RUST-INHIBITIVE PRIMER, EXCEPT THOSE TO RECEIVE SPRAYED FIRE-RESISTIVE MATERIALS (MAY VARY PROJECT TO PROJECT).

STEEL ROOF DECK:

1. ROOF DECK SHALL BE DESIGNED, FABRICATED AND INSTALLED IN ACCORDANCE WITH "SDI CODE OF STANDARD PRACTICE AND COMMENTARY," SDI COSP-2012.
2. ROOF DECK SHALL BE GALVANIZED.
3. 3" TYPE 'NL' OR 'NLA' ROOF DECK WITH DESIGN THICKNESS 0.0358" (20 GA) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
   - I = 0.806 IN^4/FT
   - Sp = 0.448 IN^3/FT
   - Sn = 0.476 IN^3/FT
   - Fy = 50 KSI
4. 3 1/2" LONG SPAN DOVETAIL ACOUSTICAL DECK (VERSA-DEK 3.5 LS ACOUSTICAL) WITH DESIGN THICKNESS 0.0358" (20 GA), Fy = 40 KSI
5. DO NOT SUPPORT DUCTS, CEILINGS, LIGHTS, PLUMBING, SPRINKLERS, ETC FROM THE ROOF DECK.
6. ROOF DECK ATTACHMENT TO STRUCTURAL STEEL:
   A. FASTEN ROOF DECK PANELS TO STEEL SUPPORTING MEMBERS, BOTH PERPENDICULAR AND PARALLEL TO THE DECK, WITH 5/8" NOMINAL DIAMETER PUDDLE WELDS OR WLEDS WITH AN EQUAL PERIMETER OR SEAM WELDS NOT LESS THAN 1 1/2" LONG AND FASTENED AT SIDELAPS WITH #10 SCREWS AS FOLLOWS:
   B. TYPICAL INSTALLATION, UNLESS NOTED OTHERWISE:
      a. WELD PATTERN: △6 32/3 PATTERN FOR 3" DECK TO STEEL. SEE DIAGRAMS ON 1 / S-501
   C. SIDELAP FASTENERS: 18" MAXIMUM UNLESS NOTED OTHERWISE ON PLAN.
   D. WELD EDGES AND INTEROR RIBS OF DECK UNITS TO EACH SUPPORTING MEMBER WITH A MINIMUM OR THREE WELDS PER DECK UNIT.
   E. END BEARING: 3" MINIMUM
   F. END JOINTS: LAPPED
   G. MECHANICAL FASTENERS OR POWER-DRIVEN FASTENERS (HILTI X-HSN 24 OR EQUAL) MAY BE USED IN LIEU OF WELDS AS APPROVED BY ENGINEER OF RECORD.
7. ROOF DECK ATTACHMENT TO GLULAM BEAMS:
   A. FASTEN ROOF DECK PANELS TO SUPPORTING MEMBERS WITH #12 WOOD SCREWS. MINIMUM SCREW LENGTH OF 3".
   B. ATTACH EDGES AND INTERIOR RIBS OF DECK UNITED TO EACH SUPPORTING MEMBER WITH A MINIMUM OF FOUR SCREWS PER DECK UNIT (24/4 PATTERN AT 3 1/2" LONG SPAN ACOUSTICAL DECK, 32/5 PATTERN FOR 3" DECK).
   C. FASTEN SIDE LAPS WITH #10 SELF-DRILLING SCREWS AT (6) FASTENERS PER SPAN, 36" OC MAXIMUM, UNLESS NOTED OTHERWISE ON PLAN. DECK SPANS 36" OR LESS DO NOT REQUIRE SIDE LAP FASTENERS. △6
   D. END BEARING: 1 1/2" MINIMUM.
   E. END JOINTS: LAPPED
8. METAL DECK ACCESSORIES, INCLUDING BUT NOT LIMITED TO: GIRDER FILLERS, Z-CLOSURES, AND COVER PLATES; THAT ARE INTEGRAL WITH THE FLOOR DIAPHRAGM OR ROOF DIAPHRAGM SHALL BE OF THE SAME MATERIAL, FINISH AND MINIMUM THICKNESS AS THE METAL DECK. ACCESSORIES SHALL BE ANCHORED TO SUPPORTING MEMBERS BY ARC SPOT WELDS OR SELF DRILLING SCREWS AT 12" MAXIMUM SPACING.

SUSPENSION FROM ROOF STRUCTURE:

1. SUBCONTRACTORS INSTALLING CONDUIT, PIPING OR EQUIPMENT SUSPENDED FROM THE STRUCTURE SHALL ATTEND A PRE-CONSTRUCTION MEETING.
2. ATTACHMENT TO METAL DECK, BRIDGING OR JOIST STRUTS IS PROHIBITED.
3. HANGER ATTACHMENT TO STEEL BAR JOISTS:
   A. PIPE HANGERS SHALL BE ATTACHED TO BOTTOM CHORDS OF JOISTS AT PANEL POINTS WITH APPROVED STEEL WASHER PLATES AND DOUBLE NUTS. ONLY IF CONCENTRATED LOADS ARE SHOWN ON STRUCTURAL DRAWINGS.
   B. PIPE HANGERS SHALL BE ATTACHED TO TOP CHORDS OF BAR JOISTS AT PANEL POINTS WITH APPROVED UNDER DECK "AC" - CLAMP.
   C. IF HANGERS CANNOT BE INSTALLED WITHIN 3" OF PANEL POINTS, THE JOIST SHALL BE REINFORCED AS SHOWN ON THE STRUCTURAL DRAWINGS.
4. PIPE HANGERS SHALL BE ATTACHED TO BOTTOM FLANGES OF WIDE FLANGE BEAMS, I - BEAMS AND CHANNELS WITH APPROVED "BEAM CLAMPS" AND "CHANNEL CLAMPS".
5. ALL SINGLE OR MULTIPLE TIER CABLE TRAYS, PIPE RACKS OR GROUPS OF DUCTS PERPENDICULAR TO JOISTS SHALL BE SUPPORTED FROM EACH JOIST AND BEAM. SUCH A SYSTEM PARALLEL TO JOISTS SHALL BE ATTACHED TO TWO ADJACENT JOISTS AT 8'-0" ON CENTER.
6. INDIVIDUAL PIPES TO 6" IN DIAMETER SHALL BE SUPPORTED FROM ALTERNATE JOISTS WHEN PIPES ARE PERPENDICULAR TO JOISTS AND AT 10'-0" OC MAXIMUM WHEN PIPES ARE PARALLEL TO JOISTS. INDIVIDUAL PIPES LARGER THAN 6" SHALL BE SUPPORTED AT EACH JOIST WHEN PIPES ARE PERPENDICULAR TO JOISTS AND 10'-0" OC MAXIMUM WHEN PIPES ARE PARALLEL TO JOISTS.
7. HANGERS SHALL BE ADDED AT PANEL POINTS AT ALL LOCATIONS WHERE VALVES OR FITTINGS OCCUR.
8. ROUTING OF PIPING AND CONDUIT SHALL BE COORDINATED BY THE CONTRACTOR.

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037412
TIMOTHY K. HILTON
11-8-24

CONSTRUCTION
DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

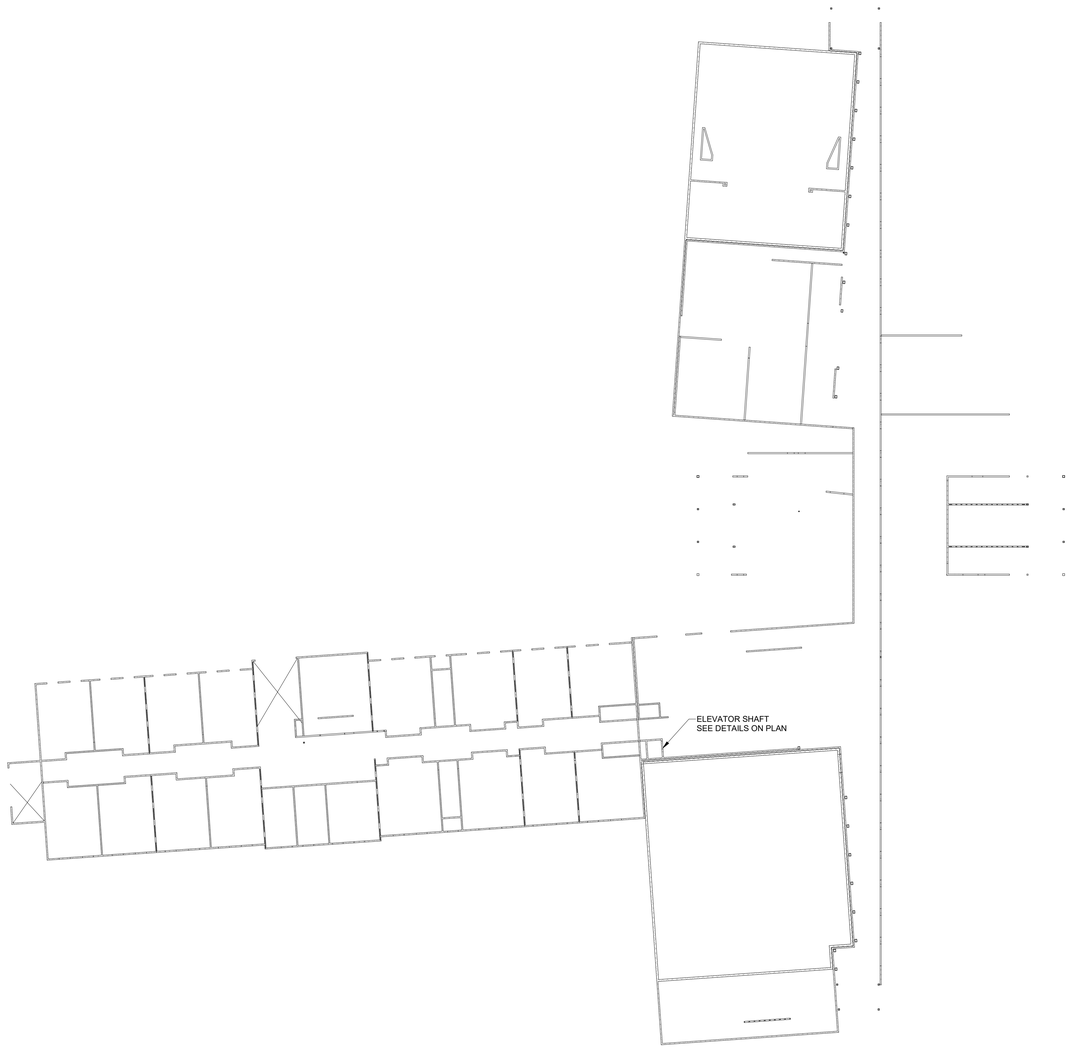
ENERGY
STAR
PARTNER

No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

STRUCTURAL
GENERAL NOTES

S-001



1 S-004 **CMU BRACING - HIGH**
SCALE: 1" = 30'-0"

2 S-004 **CMU BRACING - LOW**
SCALE: 1" = 30'-0"

CMU INTERIOR WALL BRACING PLAN NOTES:
1. REFER TO FRAMING PLANS FOR SECTIONS NOT IDENTIFIED ON THIS SHEET AND FOR SECTIONS AT EXTERIOR WALLS.
2. COORDINATE WALL TYPES WITH ARCH DWGS.

CMU INTERIOR WALL BRACING PLAN LEGEND:

- DENOTES CMU SHEARWALL UP TO UNDERSIDE OF ROOF DECK REFER TO DETAIL 7/S-501
- DENOTES CMU PARTITION WALL UP TO UNDERSIDE OF FLOOR OR ROOF DECK. REFER TO DETAIL 5/S-201
- DENOTES CMU PARTITION WALL BELOW UNDERSIDE OF DECK. REFER TO DETAIL 6/S-201
- DENOTES CMU WALL NO TOP OF WALL BRACING REQ'D

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NORTH CAROLINA PROFESSIONAL 037412 ENGINEER TIMOTHY K. HILTON
11-8-24

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HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
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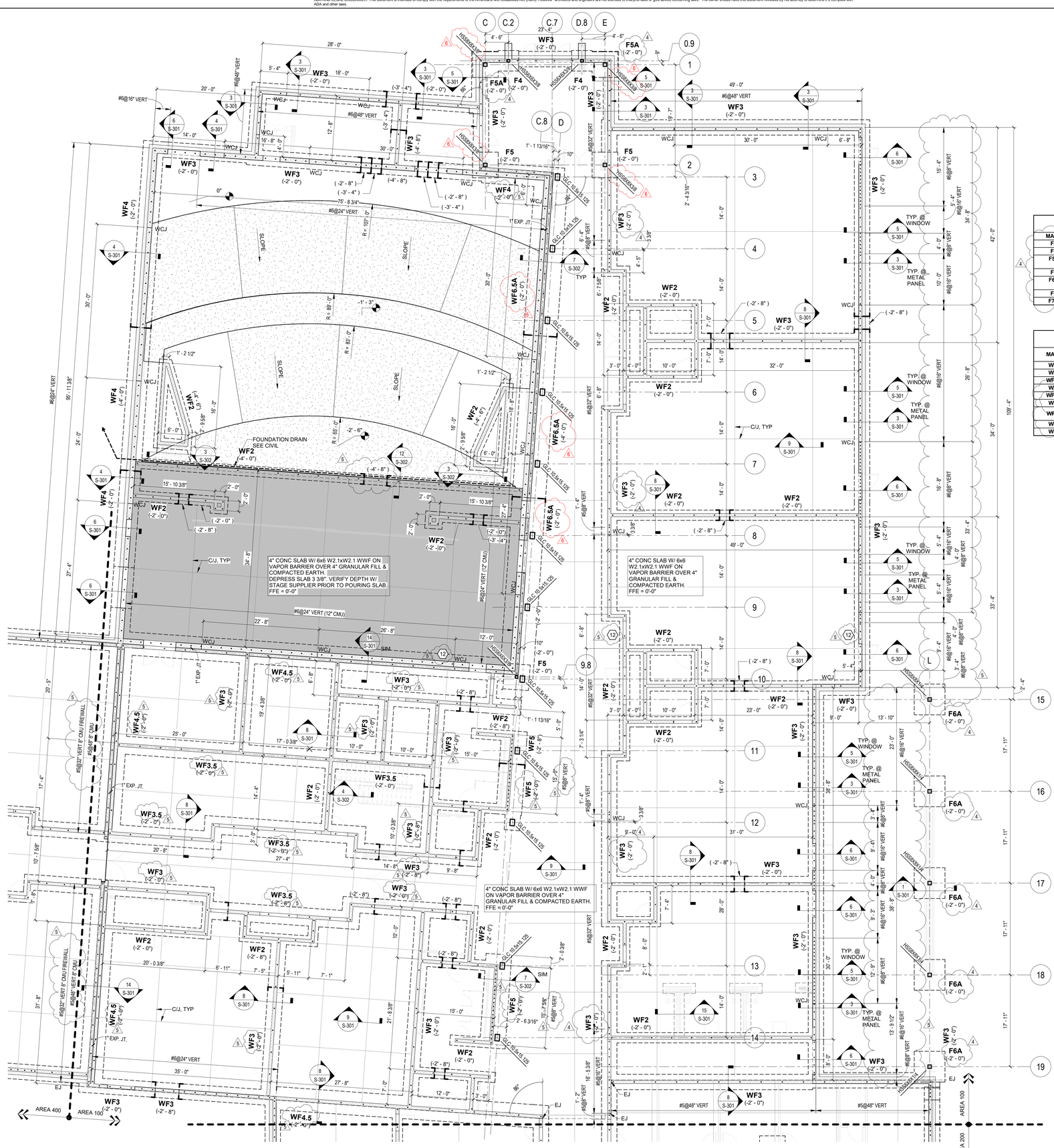
CHECKED BY: TH

CMU WALL BRACING OVERALL PLAN

S-004



1 S-111 **FOUNDATION AND SLAB PLAN AREA 100**
SCALE: 1/8" = 1'-0"

COLUMN FOOTING SCHEDULE (2000 PSF BEARING)

MARK	SIZE	THICKNESS	REINFORCING	REMARKS
F4	4' - 0" x 4' - 0"	1' - 2"	(4)#5 EW BOTTOM	
F5	5' - 0" x 5' - 0"	1' - 2"	(5)#5 EW BOTTOM	
F5A	5' - 0" x 5' - 0"	1' - 2"	(5)#5 EW TOP & BOTTOM	
F6	6' - 0" x 6' - 0"	1' - 2"	(6)#5 EW BOTTOM	
F6A	6' - 0" x 6' - 0"	1' - 2"	(6)#5 EW TOP & BOTTOM	
F7	7' - 0" x 7' - 0"	1' - 2"	(7)#5 EW BOTTOM	
F7.5	7' - 6" x 7' - 6"	1' - 4"	(7)#6 EW BOTTOM	

WALL FOUNDTION SCHEDULE

MARK	FOUNDATION SIZE (WIDTH x THICKNESS)	REINFORCING
WF2	2' - 0" x 1' - 0"	#5@12" EW BOTTOM
WF3	3' - 0" x 1' - 0"	#5@12" EW BOTTOM
WF3.5	3' - 6" x 1' - 0"	#5@12" EW BOTTOM
WF4	4' - 0" x 1' - 0"	#5@12" EW BOTTOM
WF4.5	4' - 6" x 1' - 0"	#5@12" EW BOTTOM
WF5	5' - 0" x 1' - 0"	#5@12" EW BOTTOM
WF5A	5' - 6" x 1' - 0"	#5@12" EW TOP & BOTTOM
WF6	6' - 0" x 1' - 0"	#5@12" EW BOTTOM
WF7	7' - 0" x 1' - 0"	#5@12" EW BOTTOM

FOUNDATION PLAN NOTES:

1. NUMBER IN PARENTHESIS DENOTES TOP OF FOOTING BELOW FIN. FLOOR ELEVATION = 0'-0" (REF. 162.0').
2. **F#** DENOTES COLUMN/SPREAD FOOTING. SEE S-111 FOR SCHEDULE.
3. SEE S-201, S-202, AND S-203 FOR CMU WALL REINFORCING REQUIREMENTS.
4. IN ADDITION TO REINFORCING SHOWN ON THE DRAWINGS, PROVIDE (1) VERT. BAR(SAME SIZE AS WALL REINF. BARS) IN JAMBS OF ALL DOORS AND WINDOWS AND (1) #6 BAR EACH SIDE OF EXPANSION AND CONTROL JOINTS. SEE ARCH'L FOR JOINT LOCATIONS. SEE DETAIL 4/S-201.
5. ⌐¬ DENOTES STEPPED FOOTING. SEE 11/S-301 FOR DETAIL. G.C. COORDINATE STEP LOCATIONS AND DEPTH W/ PLUMBING CONTRACTOR PRIOR TO FOOTING EXCAVATION. CONTRACTOR'S OPTION: TOP OF FOOTING ELEVATIONS MAY BE LOWERED BETWEEN STEP LOCATIONS TO REDUCE THE NUMBER OF STEPS REQUIRED. SUBMIT FOR APPROVAL.
6. PROVIDE #5@48" VERTICAL @ INTERIOR CMU WALLS U.O.N. SEE FOUNDATION PLAN FOR VERTICAL REINFORCING IN EXTERIOR CMU WALLS. REBAR SHOWN ON PLAN IS NOT DRAWN TO SCALE. REFER TO TEXT CALLOUTS FOR REBAR SPACING.
7. REFER TO ARCH'L DRAWINGS FOR INTERIOR WALL DIMENSIONS NOT SHOWN ON STRUCTURAL.
8. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX AND TOP COURSE OF ALL WALLS.
9. PROVIDE CORNER BARS IN BOND BEAMS AT WALL CORNERS AND INTERSECTIONS. LAP 2'-0".
10. VERIFY ELEVATOR PIT DEPTH AND DIMENSIONS W/ ELEVATOR SUPPLIER PRIOR TO EXCAVATION. SEE DETAIL 12/S-301.
11. **WCJ** DENOTES WALL CONTROL JOINT. FOR WALLS WITHOUT CONTROL JOINTS IDENTIFIED ON PLAN, JOINTS SHALL BE PLACED AT MAXIMUM 30'-0" ON CENTER.
12. PROVIDE PIPE SLEEVE FOR SANITARY PIPE UNDER FOOTINGS. REFER TO PLUMBING DRAWINGS FOR PIPE ELEVATION AND INVERT. BACKFILL WITH LEAN CONCRETE.

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

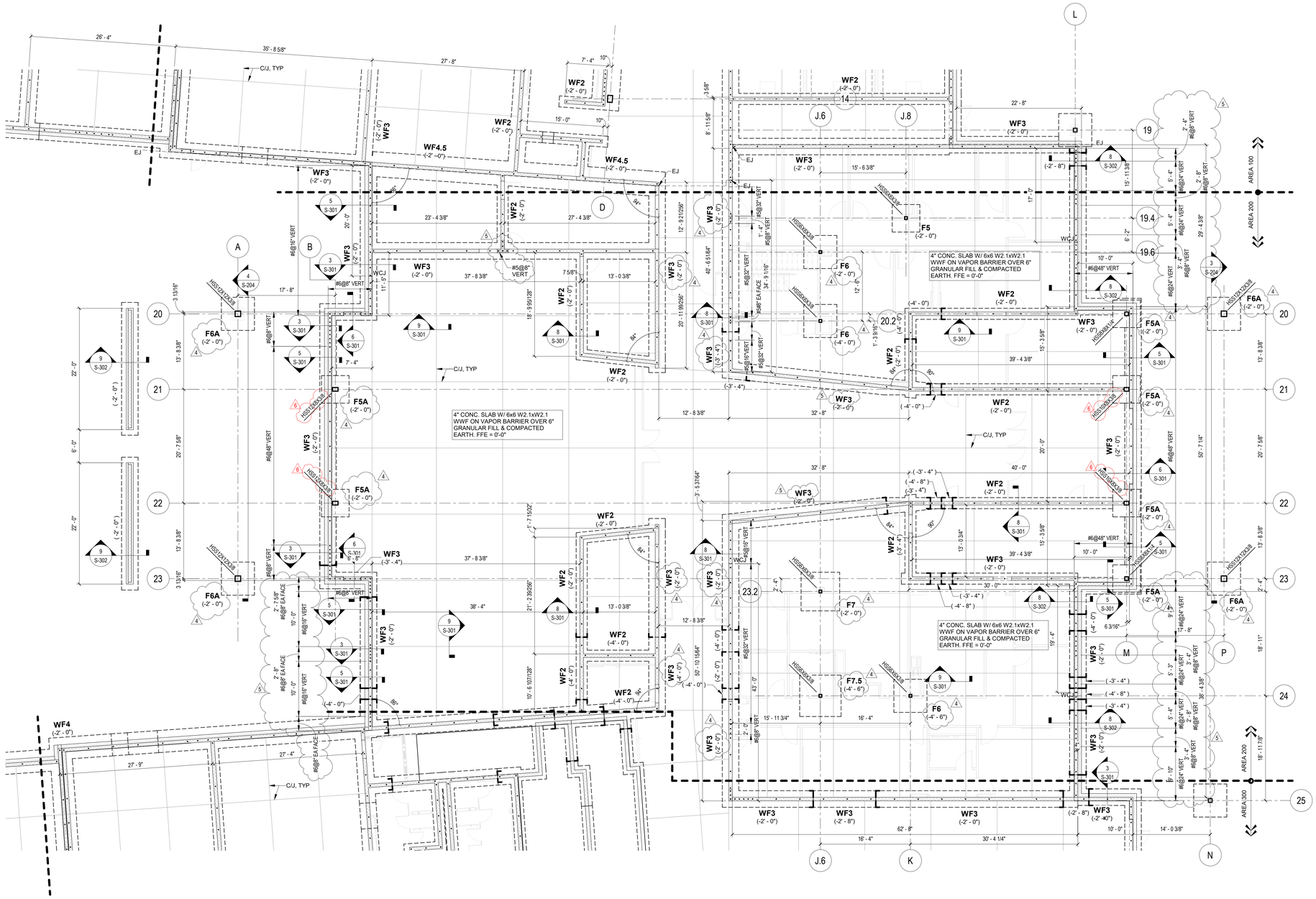
ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

FOUNDATION AND SLAB PLAN AREA 100

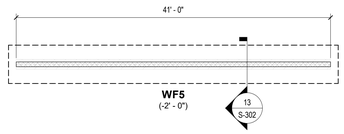
S-111



1 S-112 **FOUNDATION AND SLAB PLAN AREA 200**
SCALE: 1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. NUMBER IN PARENTHESIS DENOTES TOP OF FOOTING BELOW FIN. FLOOR ELEVATION = 0'-0" (REF. 162.0').
2. **F#** DENOTES COLUMN/SPREAD FOOTING. SEE S-111 FOR SCHEDULE.
3. SEE S-201, S-202, AND S-203 FOR CMU WALL REINFORCING REQUIREMENTS.
4. IN ADDITION TO REINFORCING SHOWN ON THE DRAWINGS, PROVIDE (1) VERT. BAR(SAME SIZE AS WALL REINF. BARS) IN JAMBS OF ALL DOORS AND WINDOWS AND (1) #6 BAR EACH SIDE OF EXPANSION AND CONTROL JOINTS. SEE ARCH'L FOR JOINT LOCATIONS. SEE DETAIL 4/S-201 .
5. ⌐¬ DENOTES STEPPED FOOTING. SEE 11/S-301 FOR DETAIL. G.C. COORDINATE STEP LOCATIONS AND DEPTH W/ PLUMBING CONTRACTOR PRIOR TO FOOTING EXCAVATION. CONTRACTOR'S OPTION: TOP OF FOOTING ELEVATIONS MAY BE LOWERED BETWEEN STEP LOCATIONS TO REDUCE THE NUMBER OF STEPS REQUIRED. SUBMIT FOR APPROVAL.
6. PROVIDE #5@48" VERTICAL @ INTERIOR CMU WALLS U.O.N. SEE FOUNDATION PLAN FOR VERTICAL REINFORCING IN EXTERIOR CMU WALLS. REBAR SHOWN ON PLAN IS NOT DRAWN TO SCALE. REFER TO TEXT CALLOUTS FOR REBAR SPACING.
7. REFER TO ARCH'L DRAWINGS FOR INTERIOR WALL DIMENSIONS NOT SHOWN ON STRUCTURAL.
8. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX AND TOP COURSE OF ALL WALLS.
9. PROVIDE CORNER BARS IN BOND BEAMS AT WALL CORNERS AND INTERSECTIONS. LAP 2'-0".
10. VERIFY ELEVATOR PIT DEPTH AND DIMENSIONS W/ ELEVATOR SUPPLIER PRIOR TO EXCAVATION. SEE DETAIL 2/S-301
11. **WCJ** DENOTES WALL CONTROL JOINT. FOR WALLS WITHOUT CONTROL JOINTS IDENTIFIED ON PLAN, JOINTS SHALL BE PLACED AT MAXIMUM 30'-0" ON CENTER.
12. PROVIDE PIPE SLEEVE FOR SANITARY PIPE UNDER FOOTINGS. REFER TO PLUMBING DRAWINGS FOR PIPE ELEVATION AND INVERT. BACKFILL WITH LEAN CONCRETE.



2 S-112 **ENTRANCE SIGN PLAN**
SCALE: 1/8" = 1'-0"

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NORTH CAROLINA PROFESSIONAL 037412 ENGINEER TIMOTHY K. HILTON 11 - 8 - 24

CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

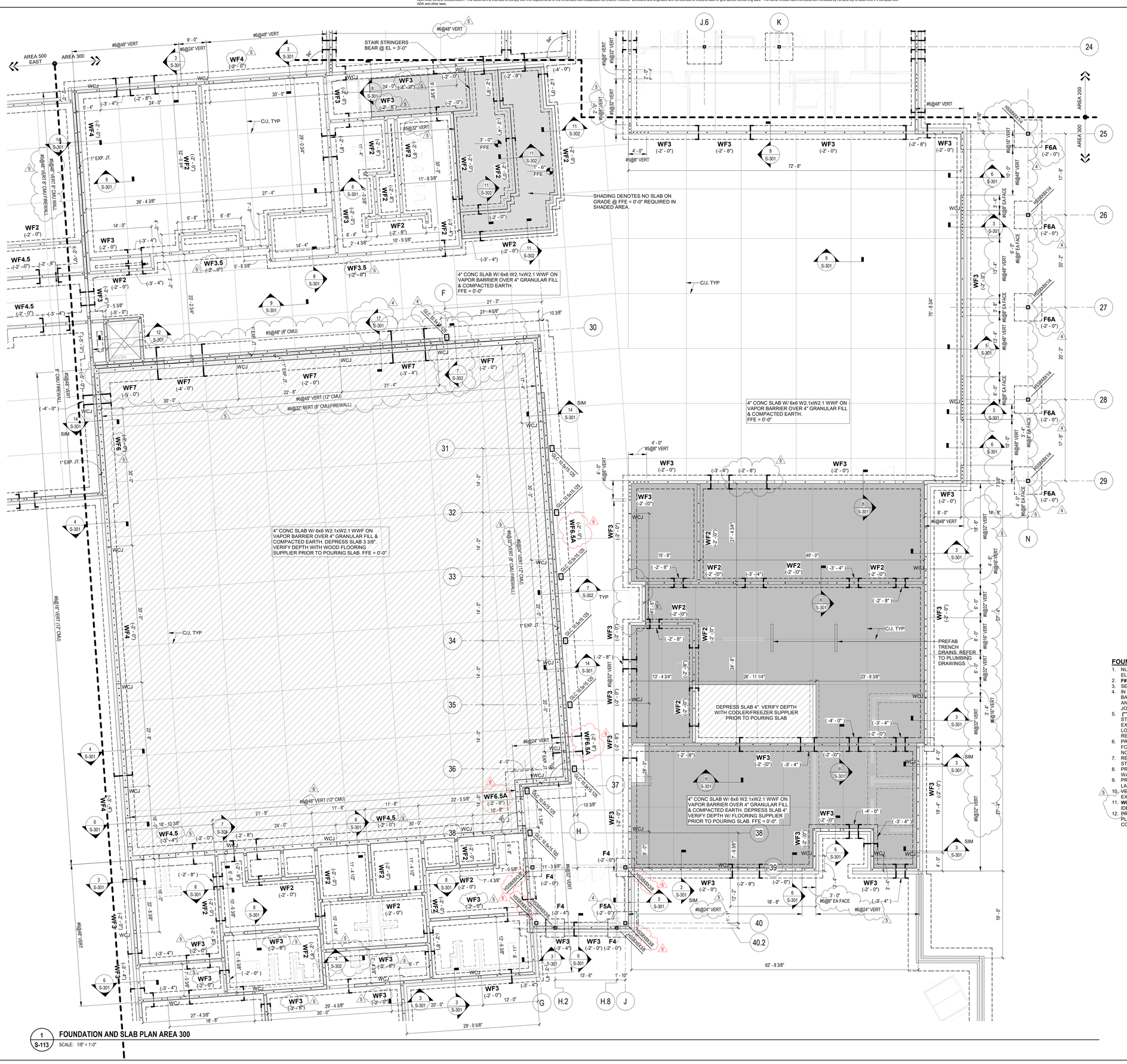
No.	Date	Description
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

FOUNDATION AND SLAB PLAN AREA 200

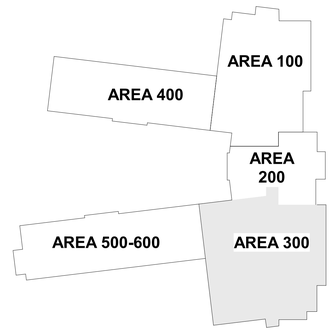
S-112



1 S-113 **FOUNDATION AND SLAB PLAN AREA 300**
SCALE: 1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. NUMBER IN PARENTHESIS DENOTES TOP OF FOOTING BELOW FIN. FLOOR ELEVATION = 0'-0" (REF. 162.0').
2. F# DENOTES COLUMN/SPREAD FOOTING. SEE S-111 FOR SCHEDULE.
3. SEE S-201, S-202, AND S-203 FOR CMU WALL REINFORCING REQUIREMENTS.
4. IN ADDITION TO REINFORCING SHOWN ON THE DRAWINGS, PROVIDE (1) VERT. BAR(SAME SIZE AS WALL REINF. BARS) IN JAMBS OF ALL DOORS AND WINDOWS AND (1) #6 BAR EACH SIDE OF EXPANSION AND CONTROL JOINTS. SEE ARCH'L FOR JOINT LOCATIONS. SEE DETAIL 4/S-201
5. ⌐¬ DENOTES STEPPED FOOTING. SEE 11/S-301 FOR DETAIL. G.C. COORDINATE STEP LOCATIONS AND DEPTH W/ PLUMBING CONTRACTOR PRIOR TO FOOTING EXCAVATION. CONTRACTOR'S OPTION: TOP OF FOOTING ELEVATIONS MAY BE LOWERED BETWEEN STEP LOCATIONS TO REDUCE THE NUMBER OF STEPS REQUIRED. SUBMIT FOR APPROVAL.
6. PROVIDE #5@48" VERTICAL @ INTERIOR CMU WALLS U.O.N. SEE FOUNDATION PLAN FOR VERTICAL REINFORCING IN EXTERIOR CMU WALLS. REBAR SHOWN ON PLAN IS NOT DRAWN TO SCALE. REFER TO TEXT CALLOUTS FOR REBAR SPACING.
7. REFER TO ARCH'L DRAWINGS FOR INTERIOR WALL DIMENSIONS NOT SHOWN ON STRUCTURAL.
8. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX AND TOP COURSE OF ALL WALLS.
9. PROVIDE CORNER BARS IN BOND BEAMS AT WALL CORNERS AND INTERSECTIONS. LAP 2'-0".
10. VERIFY ELEVATOR PIT DEPTH AND DIMENSIONS W/ ELEVATOR SUPPLIER PRIOR TO EXCAVATION. SEE DETAIL 1/21S-301
11. **WCJ** DENOTES WALL CONTROL JOINT. FOR WALLS WITHOUT CONTROL JOINTS IDENTIFIED ON PLAN, JOINTS SHALL BE PLACED AT MAXIMUM 30'-0" ON CENTER.
12. PROVIDE PIPE SLEEVE FOR SANITARY PIPE UNDER FOOTINGS. REFER TO PLUMBING DRAWINGS FOR PIPE ELEVATION AND INVERT. BACKFILL WITH LEAN CONCRETE.



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ENERGY STAR PARTNER

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6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
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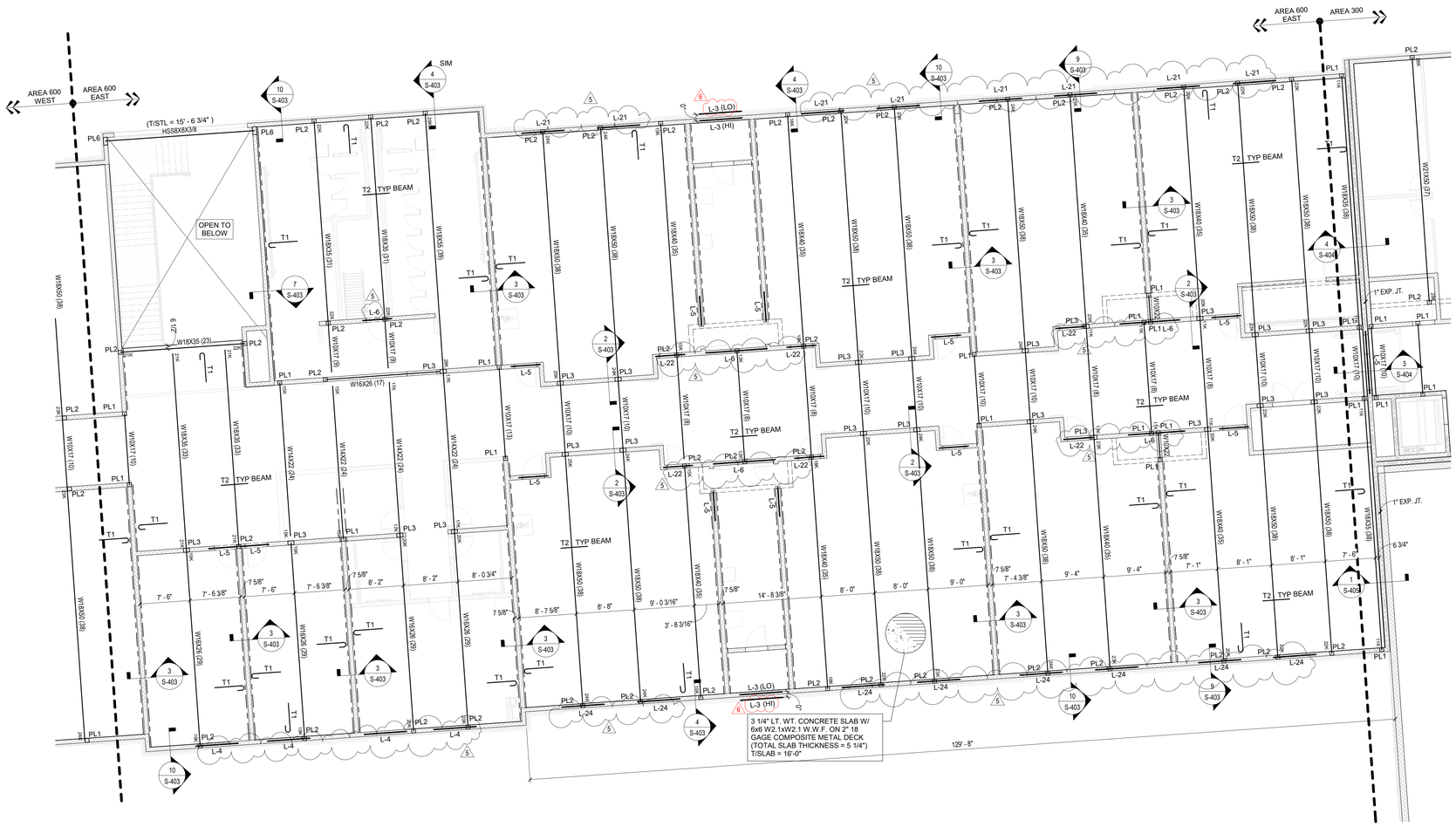
DRAWN BY: MM
CHECKED BY: TH

FOUNDATION AND SLAB PLAN AREA 300

S-113

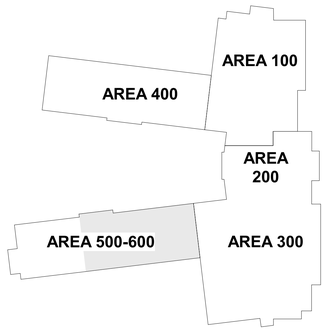


1 S-125A **SECOND FLOOR FRAMING PLAN AREA 600 EAST**

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

SECOND FLOOR PLAN NOTES:

1. REFER TO PLAN FOR TOP OF SLAB ELEVATION.
2. ALL ELEVATIONS ARE REFERENCED FROM FIRST LEVEL FINISHED FLOOR (0'-0") U.O.N.
3. TOP OF STEEL = 5 1/4" BELOW FIN. FL. U.O.N.
4. NUMBERS IN PARENTHESIS DENOTES QUANTITY OF 3/4"Ø x 4" STUDS EQUALLY SPACED ON BEAM. SEE 8/S-401 FOR COMPOSITE BEAM LEGEND.
5. NUMBERS SHOWN THUS,^{15k} DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
6. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201 . SEE DETAILS.
7. **T-#** DENOTES SLAB TOP BARS. SEE S-401 FOR SCHEDULE.
8. **L-#** DENOTES LOAD BEARING LINTEL. SEE SCHEDULE ON S-202.
9. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
10. COORD. LOCATIONS OF FLOOR OPENINGS W/ MECH'L CONTRACTOR. SEE DETAIL 7/S-401.
11. PROVIDE #5@48" VERTICAL @ INTERIOR CMU WALLS U.O.N. SEE FOUNDATION PLAN FOR VERTICAL REINFORCING IN EXTERIOR CMU WALLS.
12. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
13. CONSTRUCTION JOINTS IN ELEVATED CONCRETE ON METAL DECK POURS SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION. SEE DETAIL 2/S-401
14. FLOOR FRAMING AND COMPOSITE FLOOR DECK ARE DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT. ACCOUNT FOR AN EXPECTED DEFLECTION IN BEAMS AND GIRDERS OF UP TO 1/360 OF THE SPAN LENGTH (IN INCHES) OR 1", WHICHEVER IS LESS WHEN CALCULATING CONCRETE QUANTITES. FINISH SUPPORTED SLABS FLAT AND LEVEL.
15. —— – —— DENOTES CONT. L6X4X3/8 LLV. REFER TO DETAIL 7/S-403 & 3/S-403.



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FLATWOODS MIDDLE SCHOOL

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ENERGY STAR PARTNER

No.	Date	Description
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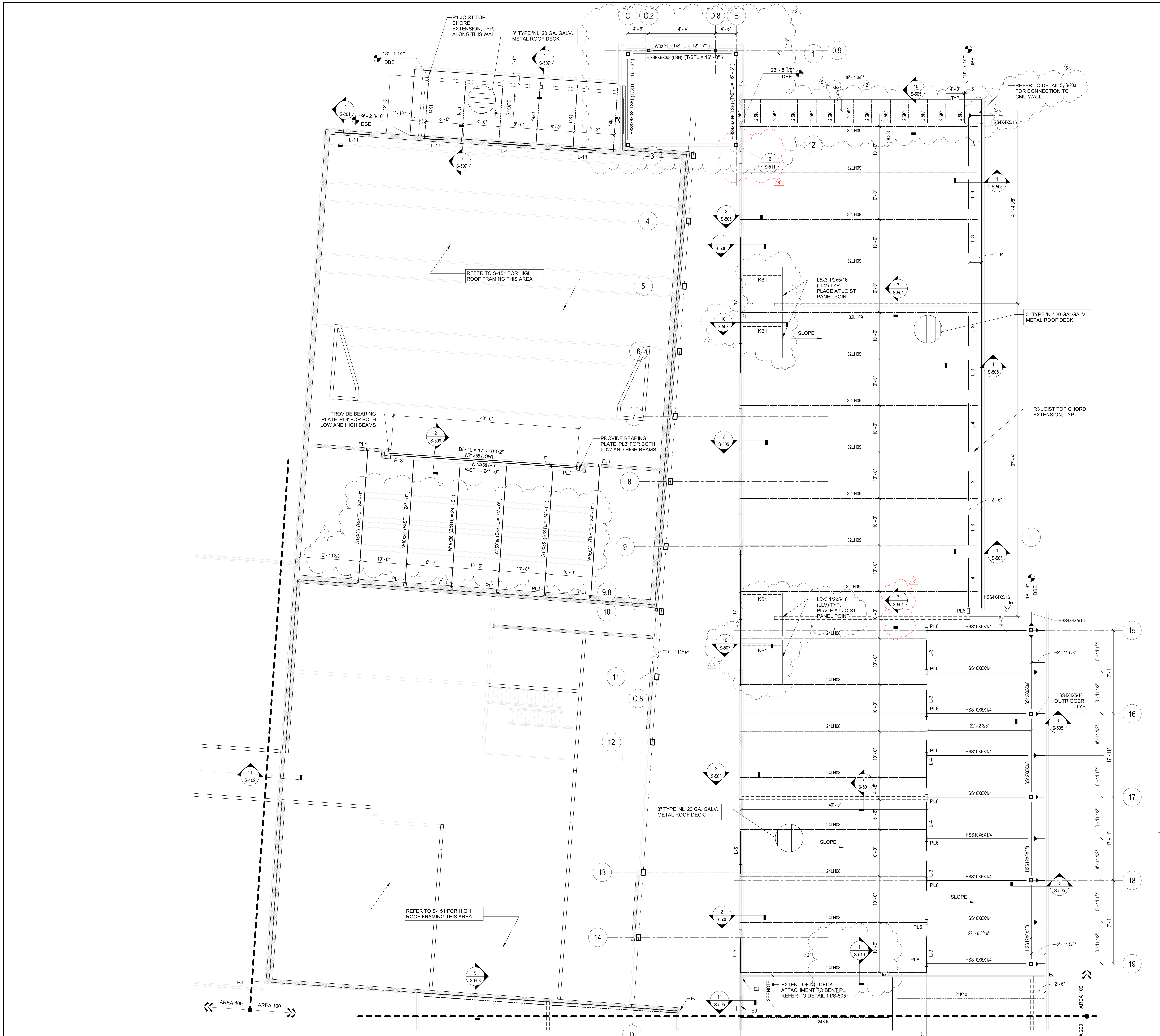
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

SECOND FLOOR FRAMING PLAN AREA 600 EAST

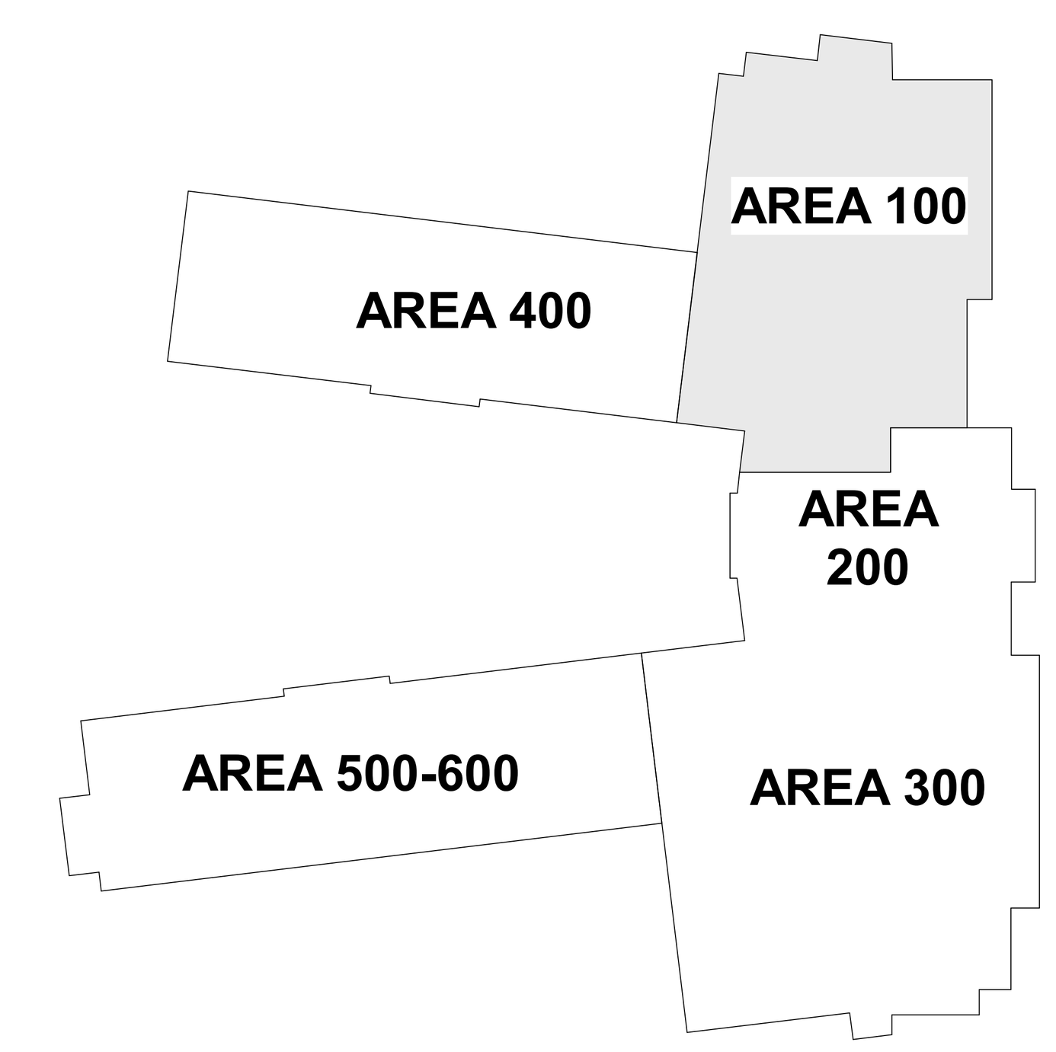
S-125A



1 S-141 LOW ROOF FRAMING PLAN AREA 100
SCALE: 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, 16k, DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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11-8-24

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JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

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5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

LOW ROOF FRAMING PLAN AREA 100

S-141

Autodesk Docs://HCS Flatwoods MS/2208 HCS Flatwoods MS_STRUC_R23.rvt
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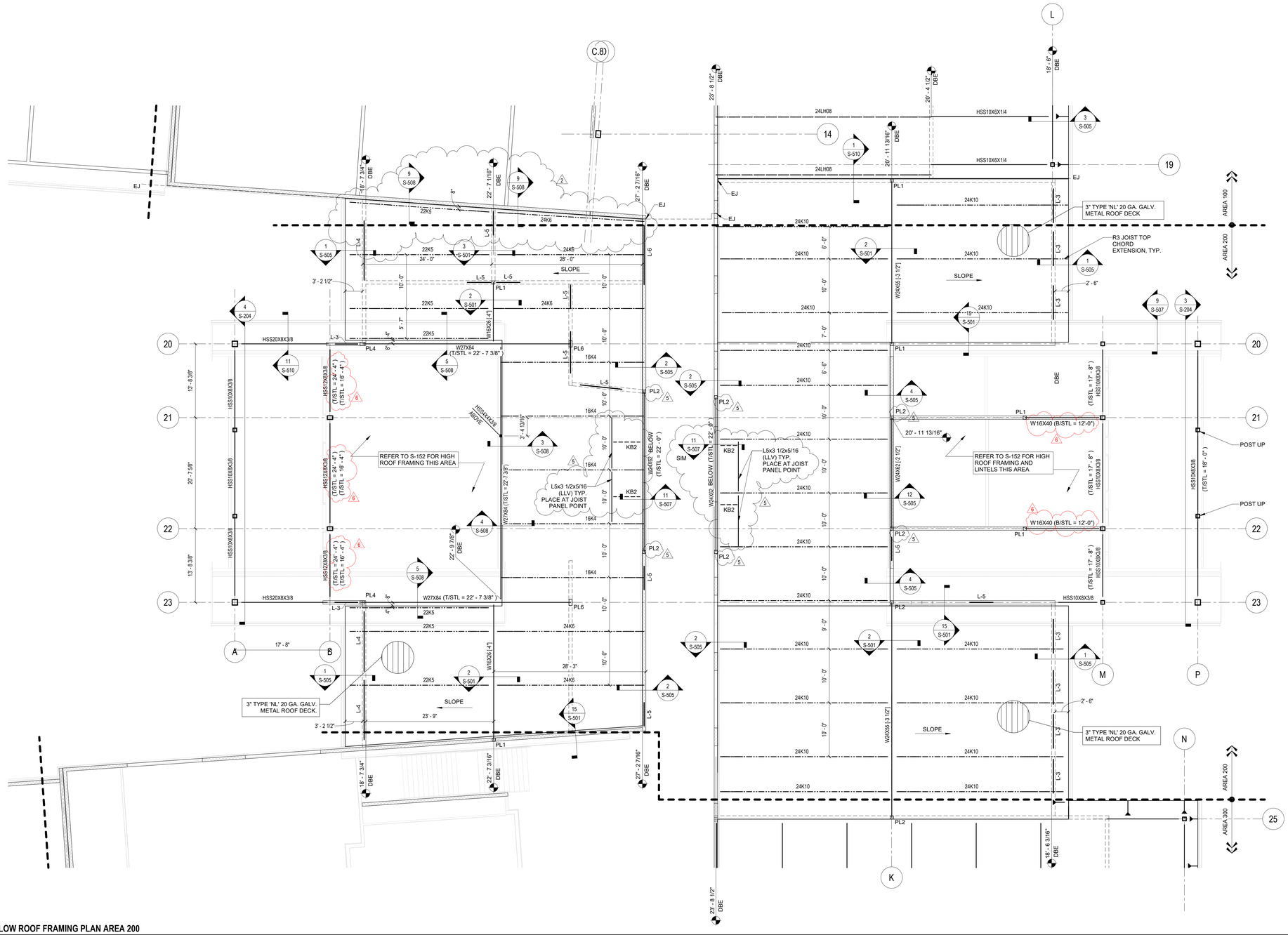

1 S-142 LOW ROOF FRAMING PLAN AREA 200
SCALE: 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. ——◆ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS $^{1.0k}$ DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202 .
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ——▶ DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.

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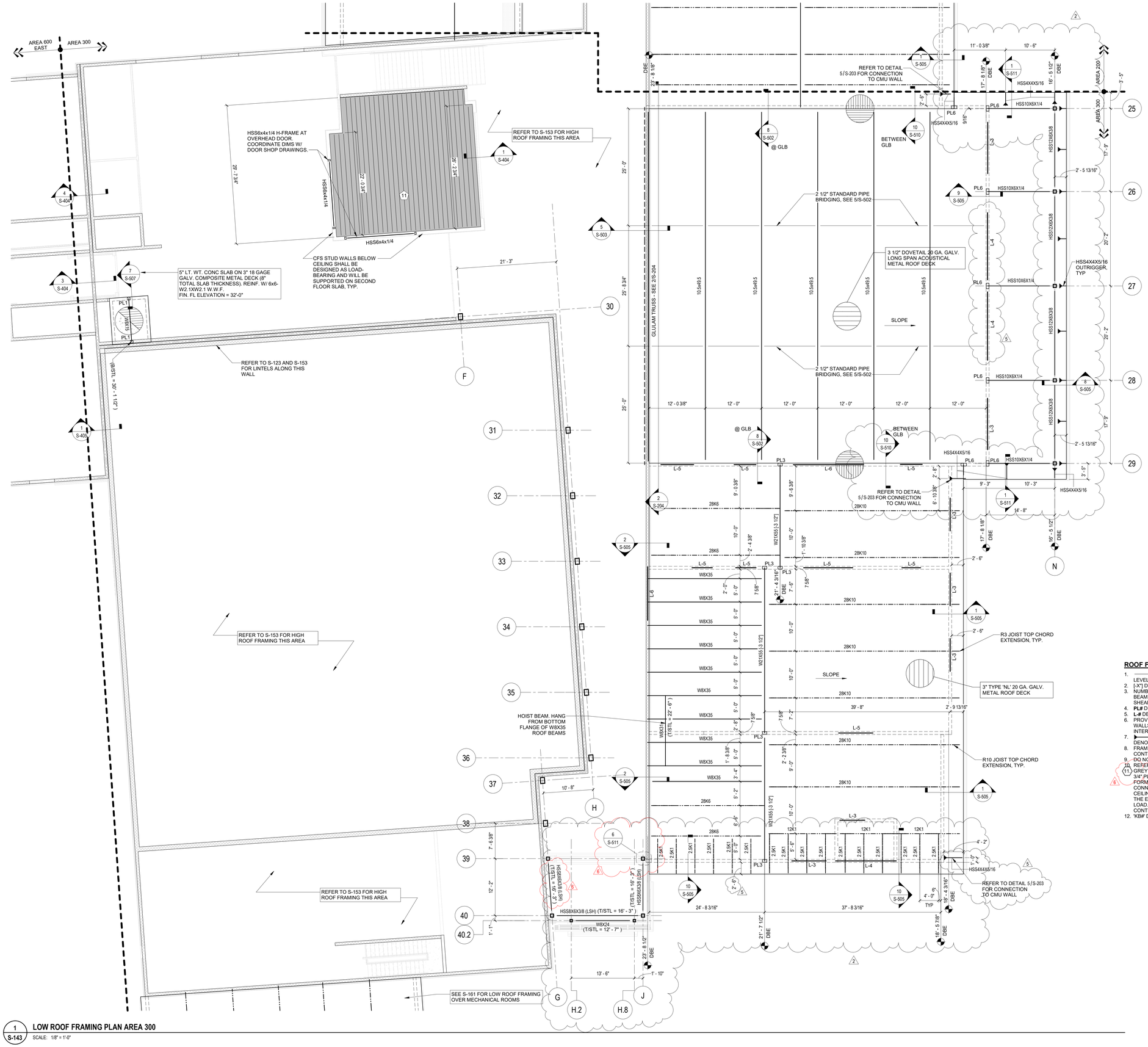
ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

LOW ROOF FRAMING PLAN AREA 200

S-142



LOW ROOF FRAMING PLAN AREA 300

1 / S-143

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

ROOF FRAMING PLAN NOTES:

1. ——◥ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0"
2. [X'] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, ^{10k}, DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.

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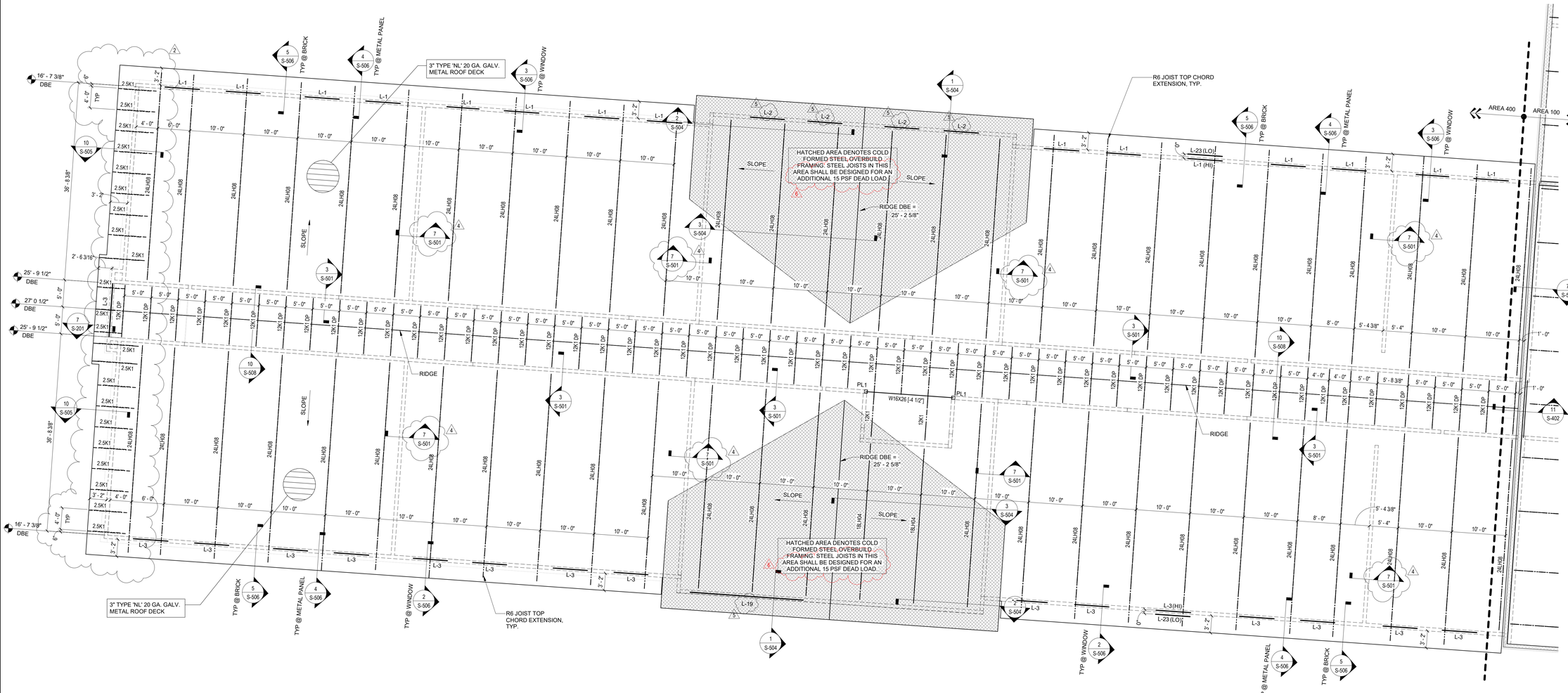
ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

LOW ROOF FRAMING PLAN AREA 300

S-143

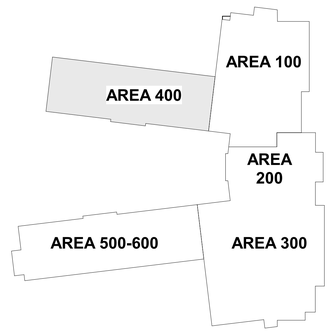


1 S-144 LOW ROOF FRAMING PLAN AREA 400

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

ROOF FRAMING PLAN NOTES:

1. ——◔ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, [10k] DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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NORTH CAROLINA PROFESSIONAL 037412 ENGINEER TIMOTHY K. HILTON 11 - 3 - 24

CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

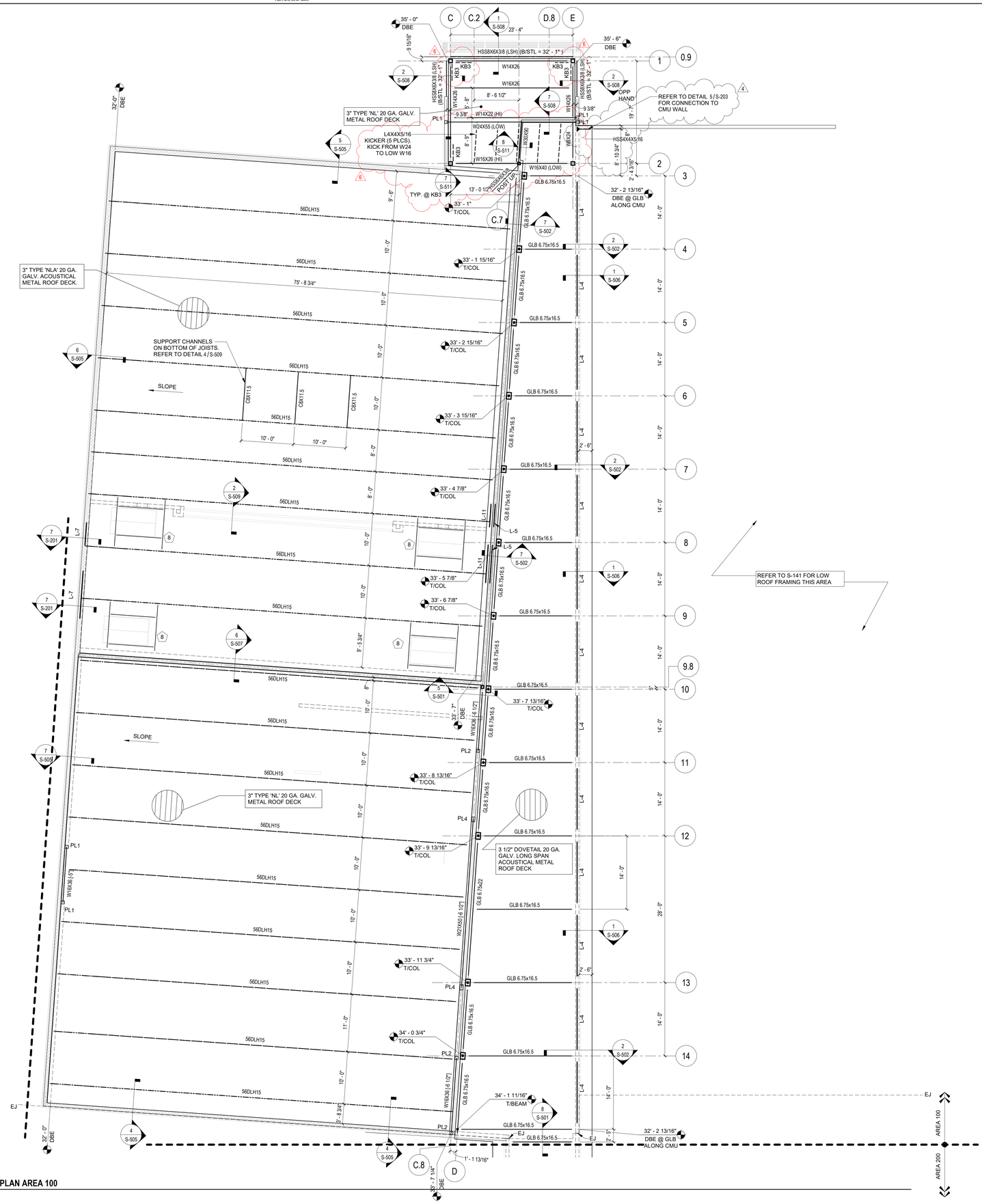
No.	Date	Description
2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

LOW ROOF FRAMING PLAN AREA 400

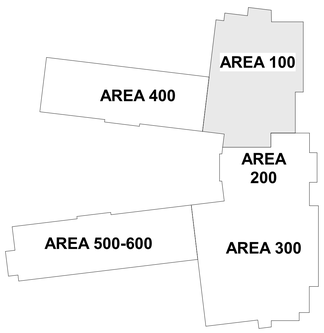
S-144



1 S-151 **HIGH ROOF FRAMING PLAN AREA 100**
SCALE: 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. ——◥ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, ^{15k}. DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201, SEE DETAILS.
5. **L#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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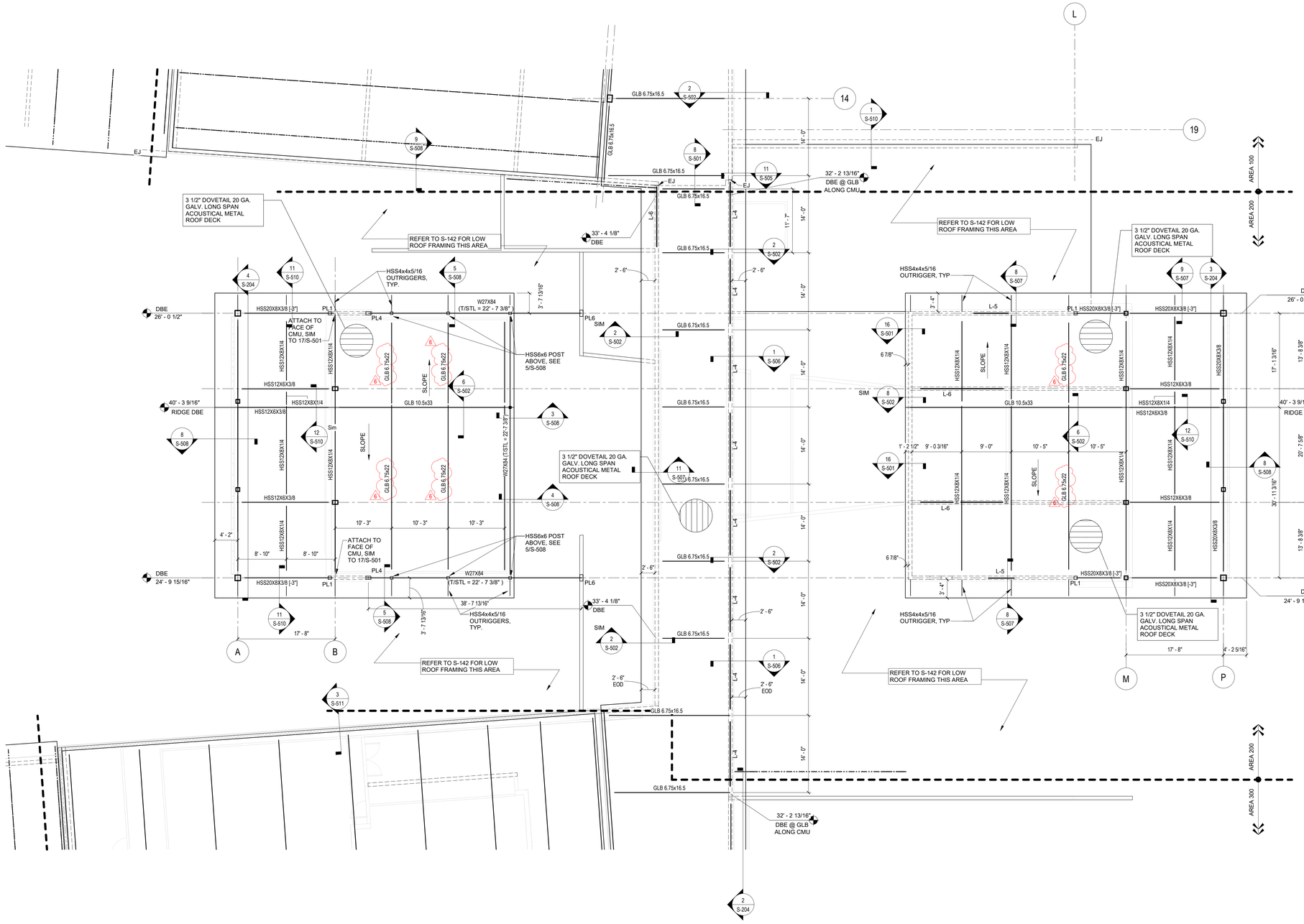
ENERGY STAR PARTNER

No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

HIGH ROOF FRAMING PLAN AREA 100

S-151

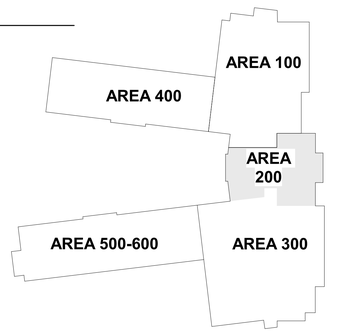


1 S-152 HIGH ROOF FRAMING PLAN AREA 200

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

ROOF FRAMING PLAN NOTES:

1. ——◆ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, (14), DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

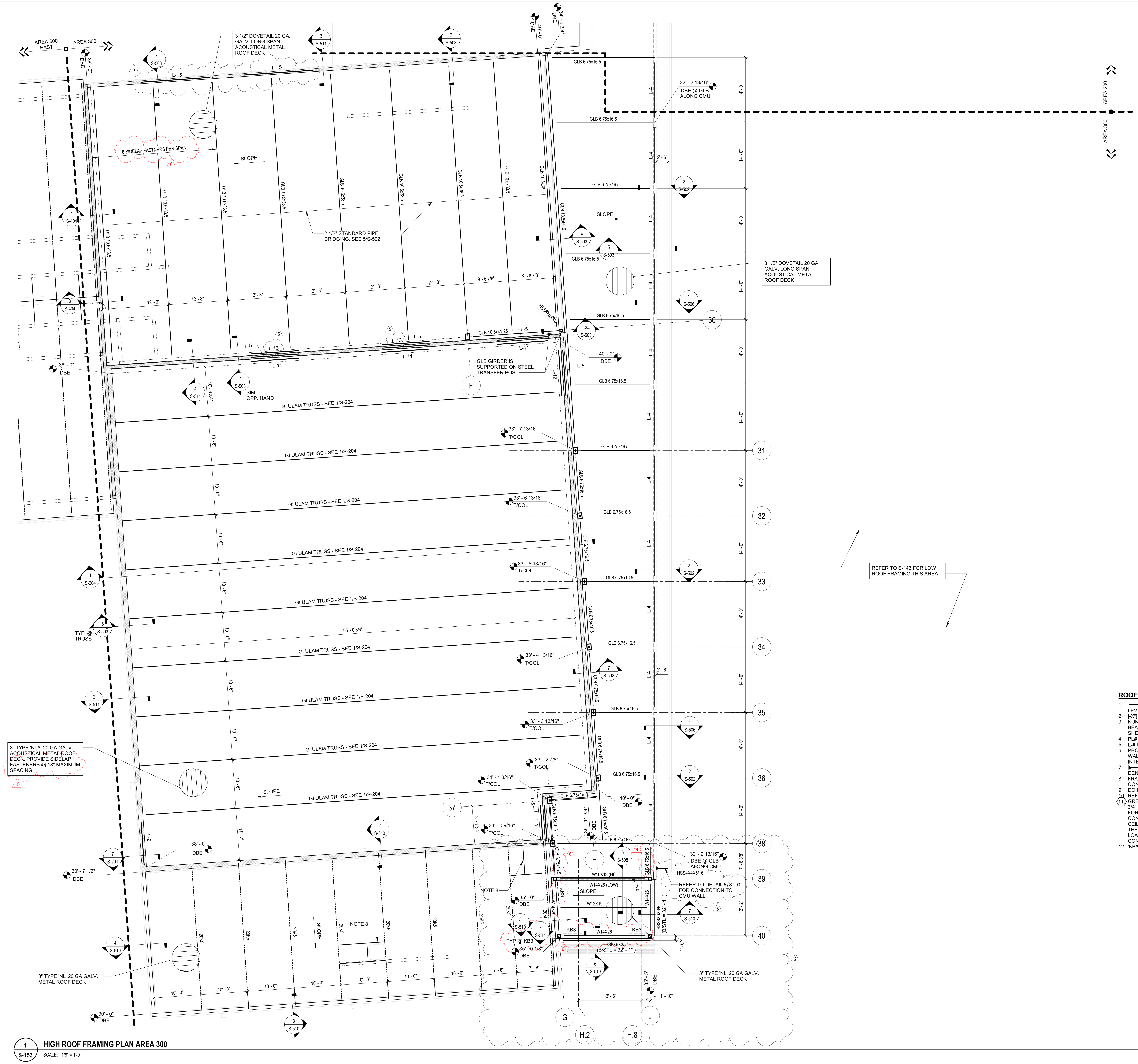
No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

HIGH ROOF FRAMING PLAN AREA 200

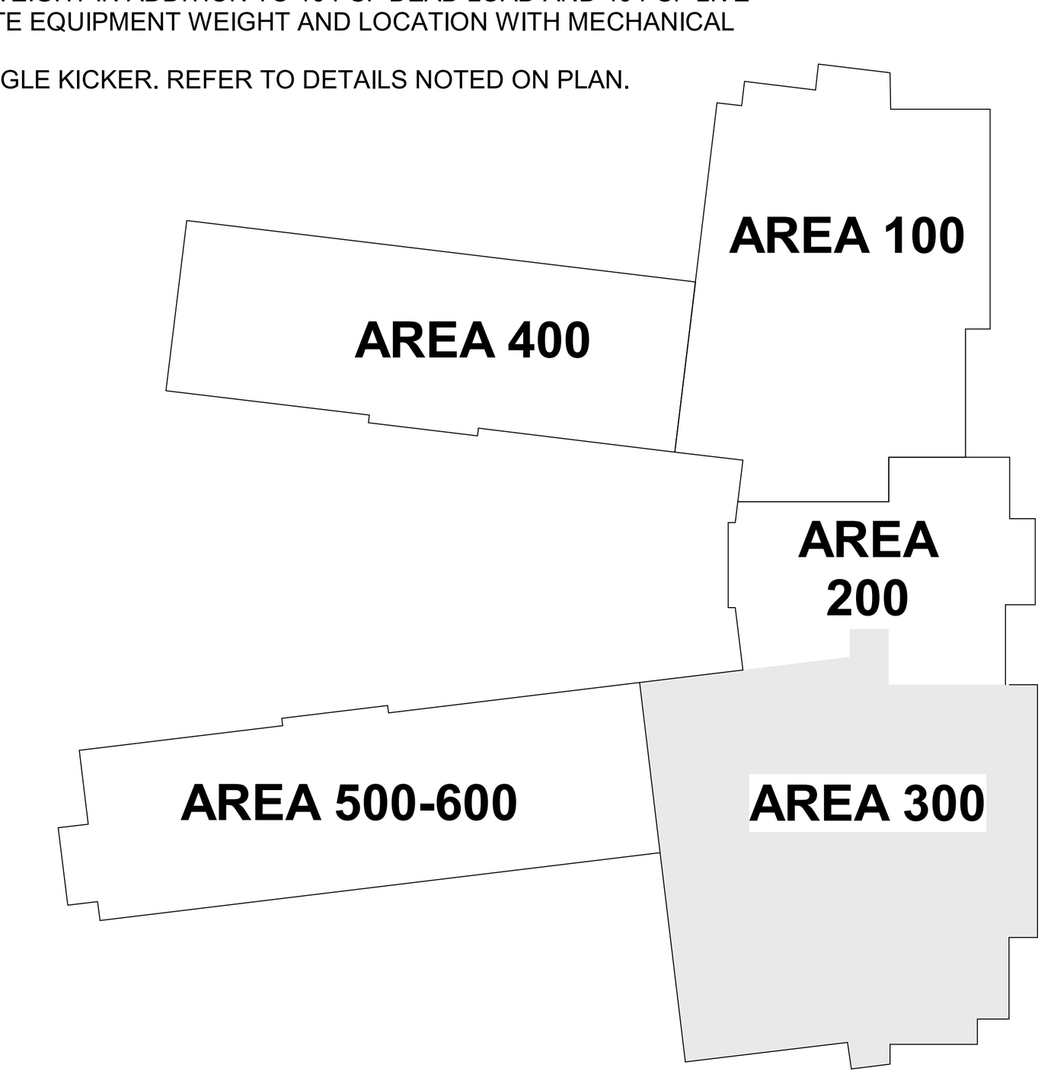
S-152



1 / S-153 **HIGH ROOF FRAMING PLAN AREA 300**
SCALE: 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, 16k, DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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ENERGY STAR PARTNER

No.	Date	Description
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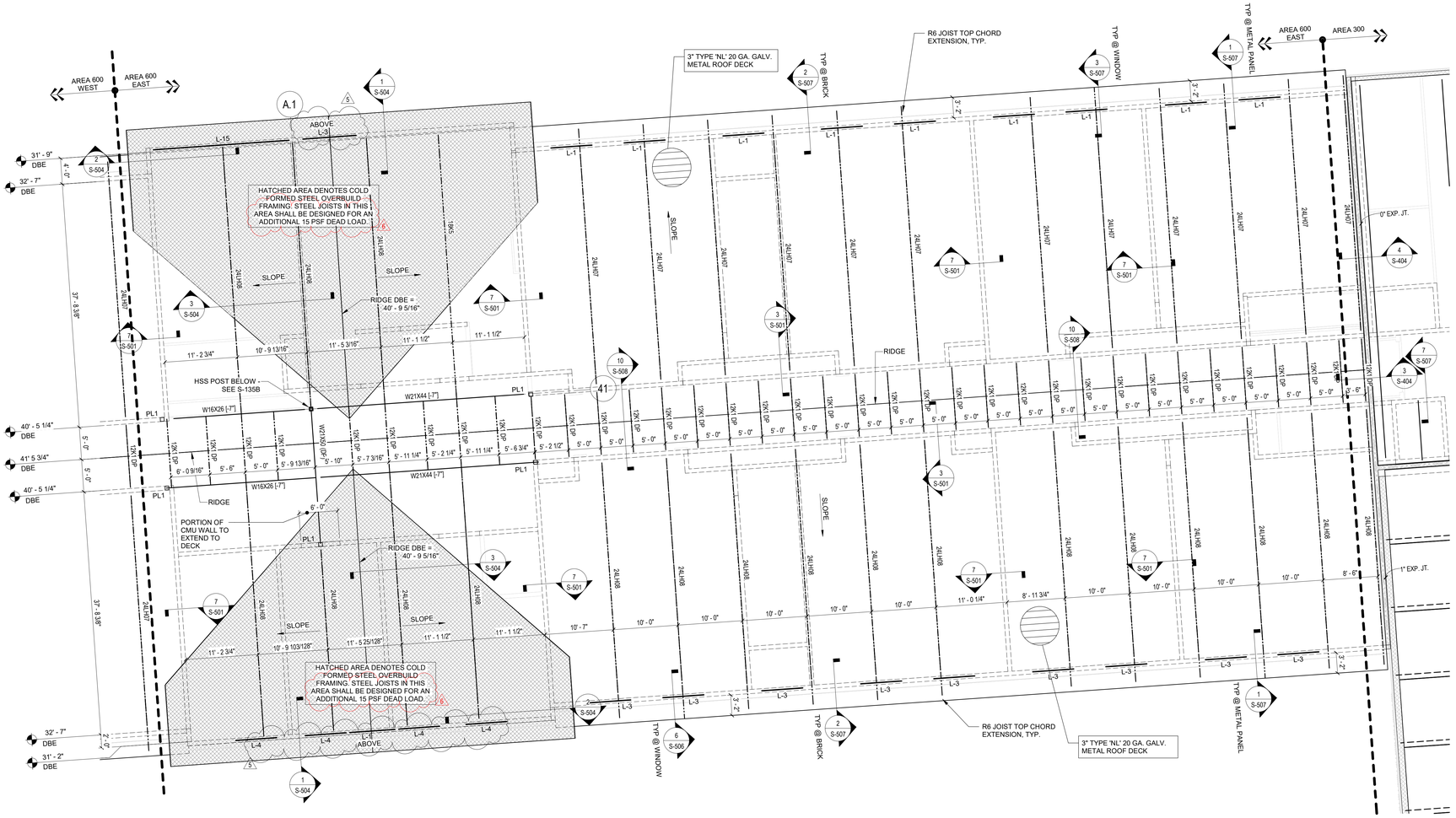
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

HIGH ROOF FRAMING PLAN AREA 300

S-153

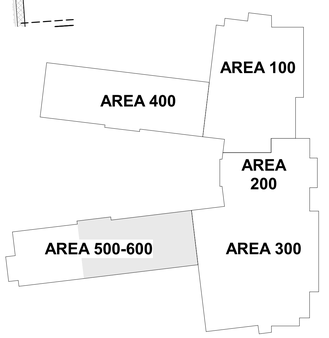


1 S-155A **HIGH ROOF FRAMING PLAN AREA 500-600 EAST**

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

ROOF FRAMING PLAN NOTES:

1. ——◔ DENOTES ROOF DECK BEARING ELEVATION (DBE) U.O.N. ABOVE FIRST LEVEL FIN. FLOOR ELEV. = 0'-0".
2. [-X"] DENOTES TOP OF STEEL BELOW DECK BEARING ELEVATION.
3. NUMBERS SHOWN THUS, ¹⁰ᵏ, DENOTES BEAM VERTICAL SHEAR REACTION IN KIPS. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 10k VERTICAL SHEAR U.O.N. ON PLAN. NOTED REACTIONS ARE SERVICE/UNFACTORED LOADS.
4. **PL#** DENOTES BEAM BEARING PLATE. SEE SCHEDULE ON S-201. SEE DETAILS.
5. **L-#** DENOTES LOAD BEARING OR EXTERIOR LINTEL. SEE SCHEDULE ON S-202.
6. PROVIDE BOND BEAMS IN MASONRY WALLS @ 8'-0" MAX. AND TOP COURSE OF ALL WALLS. PROVIDE CORNER BARS IN BOND BEAMS IN CORNERS AND INTERSECTIONS. SEE DETAILS ON 1/S-201 AND 2/S-201.
7. ▶—— DENOTES A MOMENT CONNECTION. NUMBERS SHOWN THUS, 15k-ft, DENOTES MOMENT IN KIPS-FT (SERVICE LOADS).
8. FRAME ROOF OPENINGS W/ L4x4x5/16. COORD. LOCATION W/ MECH'L CONTRACTOR. SEE DETAIL 12/S-501.
9. DO NOT HANG ANYTHING FROM ROOF DECK.
10. REFER TO S-501 FOR ROOF DECK ATTACHMENT PATTERN.
11. GREY SHADED AREA IN AREA 300 DENOTES CFS JOISTS @ 16" OC TOPPED WITH 3/4" PLYWOOD TO SUPPORT CEILING AND MECHANICAL EQUIPMENT. COLD FORMED SUPPLIER SHALL PROVIDE FASTENER TYPE AND SPACING FOR CFS CONNECTIONS AS WELL AS PLYWOOD FLOORING. COLD FORMED STEEL STUD CEILING JOISTS, AS WELL AS ANY REQUIRED GIRDERS SHALL BE DESIGNED FOR THE EQUIPMENT WEIGHT IN ADDITION TO 10 PSF DEAD LOAD AND 40 PSF LIVE LOAD. COORDINATE EQUIPMENT WEIGHT AND LOCATION WITH MECHANICAL CONTRACTOR.
12. 'KB#' DENOTES ANGLE KICKER. REFER TO DETAILS NOTED ON PLAN.



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ENERGY STAR PARTNER

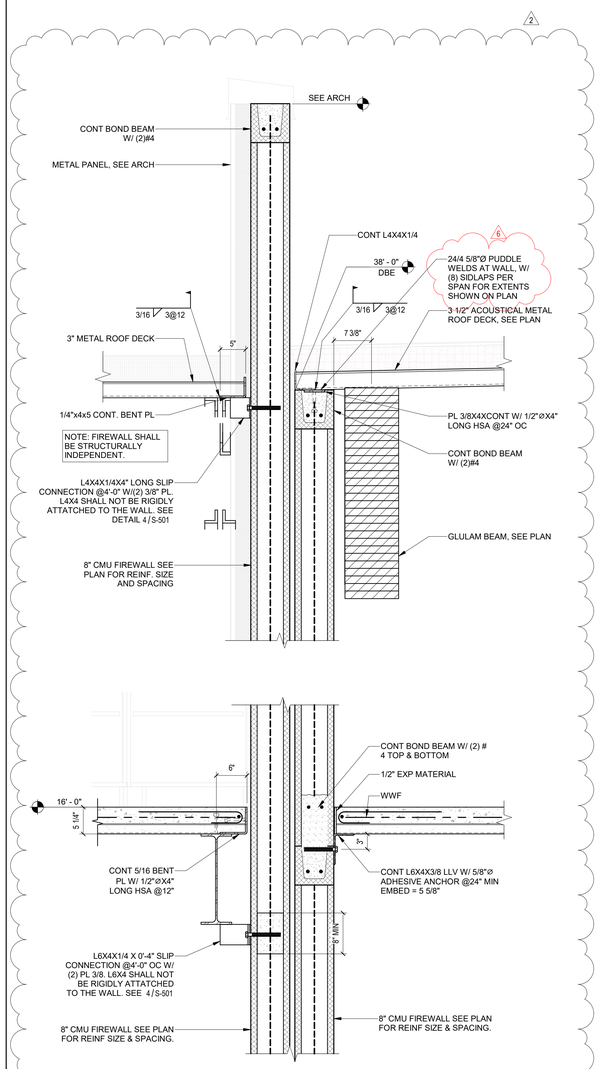
No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

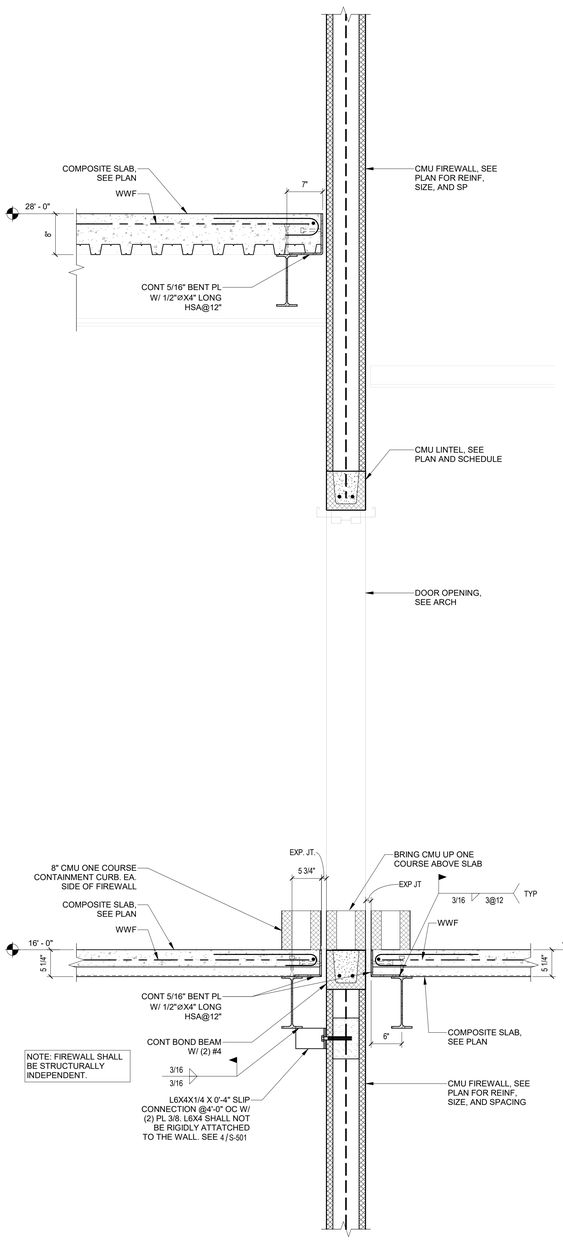
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

HIGH ROOF FRAMING PLAN AREA 500-600 EAST

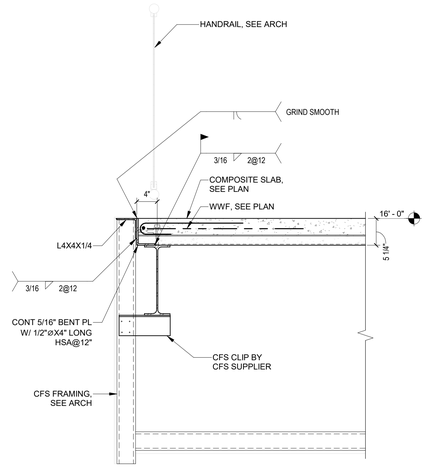
S-155A



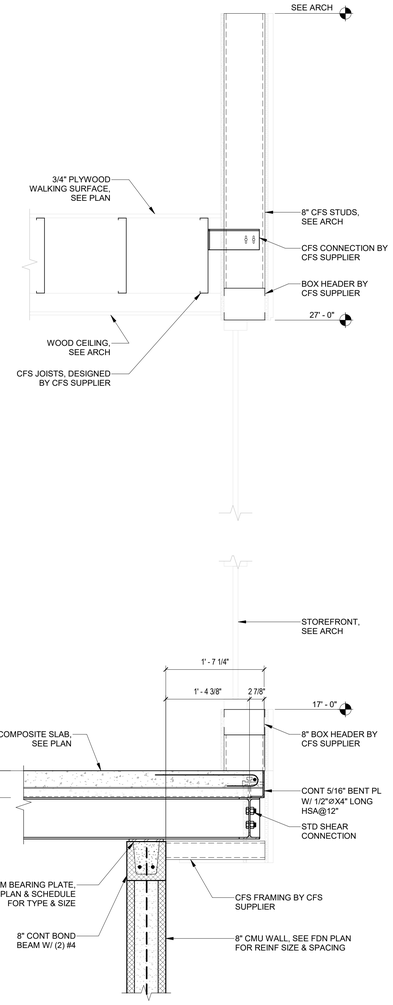
4 S-404 **SECTION AT EXPANSION JOINT**
SCALE: 1" = 1'-0"



3 S-404 **SECTION AT EXPANSION JOINT**
SCALE: 1" = 1'-0"



2 S-404 **SECTION THRU FLOOR**
SCALE: 1" = 1'-0"



1 S-404 **SECTION THRU FLOOR**
SCALE: 1" = 1'-0"

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HARNETT COUNTY SCHOOLS

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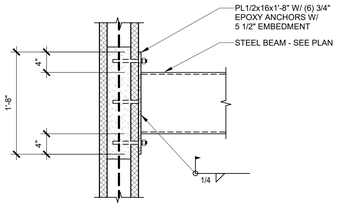
ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
6	02-05-25	ADDENDUM 2

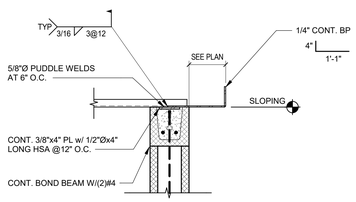
ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

FLOOR FRAMING DETAILS

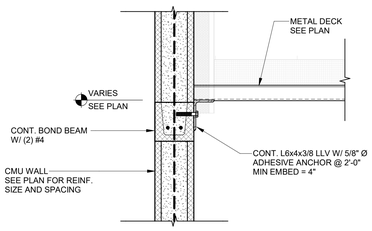
S-404



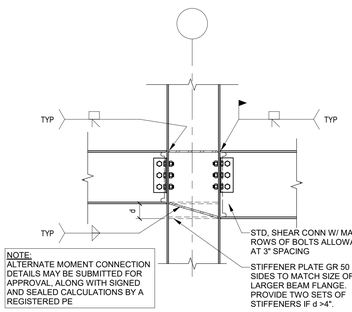
17 S-501 **TYPICAL BEAM TO CMU DETAIL**
SCALE: 1" = 1'-0"



16 S-501 **SECTION ROOF EDGE**
SCALE: 1" = 1'-0"



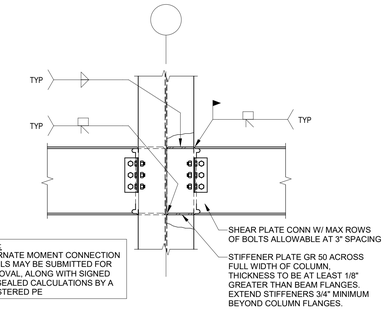
15 S-501 **ROOF DETAIL**
SCALE: 1" = 1'-0"



NOTE:
ALTERNATE MOMENT CONNECTION DETAILS MAY BE SUBMITTED FOR APPROVAL, ALONG WITH SIGNED AND SEALED CALCULATIONS BY A REGISTERED PE

BEAM TO COLUMN FLANGES

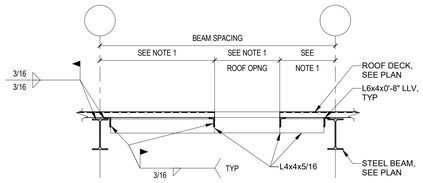
14 S-501 **DETAIL AT TYPICAL ECCENTRIC MOMENT CONNECTION**
SCALE: 3/4" = 1'-0"
BP REF [SS-1.22]



NOTE:
ALTERNATE MOMENT CONNECTION DETAILS MAY BE SUBMITTED FOR APPROVAL, ALONG WITH SIGNED AND SEALED CALCULATIONS BY A REGISTERED PE

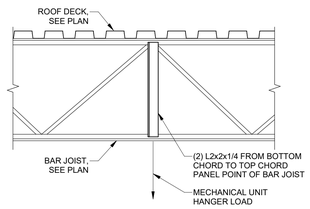
BEAM TO COLUMN WEB

13 S-501 **DETAIL AT TYPICAL MOMENT CONNECTION**
SCALE: 3/4" = 1'-0"
BP REF [SS-1.23]

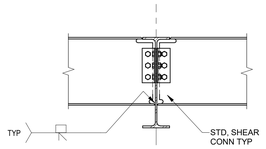


NOTES:
1. COORDINATE DIMENSIONS WITH EQUIPMENT OPENING SIZE REQUIREMENTS.
2. SEE "FRAMED ROOF OPENING NOTES" FOR ADDITIONAL INFORMATION.

12 S-501 **SECTION AT TYPICAL FRAMED ROOF OPENING**
SCALE: 3/4" = 1'-0"
BP REF [SS-2.35A]



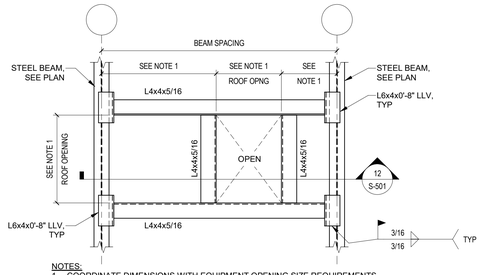
11 S-501 **DETAIL AT TYPICAL MECHANICAL HUNG FROM JOIST**
SCALE: 1" = 1'-0"
BP REF [SS-1.16]



BEAM TO GIRDER

NOTE:
ALTERNATE MOMENT CONNECTION DETAILS MAY BE SUBMITTED FOR APPROVAL, ALONG WITH SIGNED AND SEALED CALCULATIONS BY A REGISTERED PE

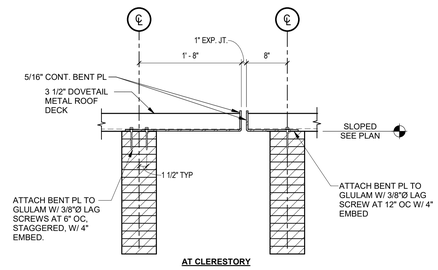
10 S-501 **DETAIL AT TYPICAL MOMENT CONNECTION**
SCALE: 3/4" = 1'-0"
BP REF [SS-1.24]



NOTES:
1. COORDINATE DIMENSIONS WITH EQUIPMENT OPENING SIZE REQUIREMENTS.
2. SEE "FRAMED ROOF OPENING NOTES" FOR ADDITIONAL INFORMATION.

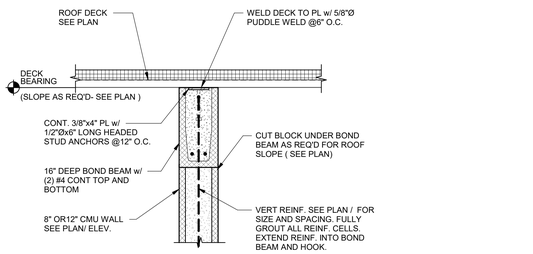
FRAMED ROOF OPENING NOTES:
A. FRAMED OPENING REQUIRED IN ROOF FOR ALL OPENINGS GREATER THAN 1'-0" AND/OR SUPPORTING EQUIPMENT GREATER THAN 100 POUNDS.
B. COORDINATE SIZE OF OPENING REQUIRED WITH APPROPRIATE MANUFACTURER.
C. SEE ROOF FRAMING PLAN FOR ORIENTATION.

9 S-501 **PLAN DETAIL AT TYPICAL FRAMED ROOF OPENING**
SCALE: 3/4" = 1'-0"
BP REF [SS-2.35]

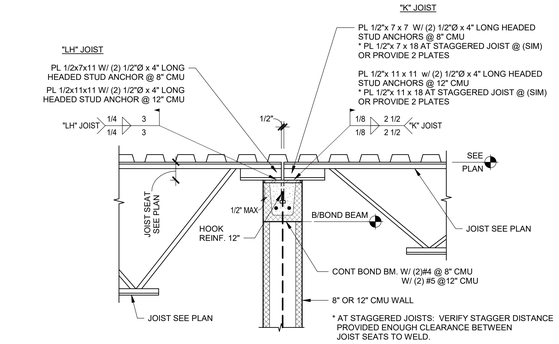


AT CLERESTORY

8 S-501 **SECTION THRU ROOF EXP. JT.**
SCALE: 1" = 1'-0"

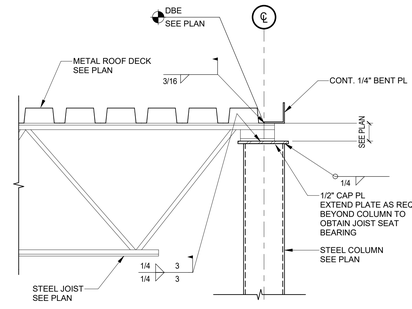


7 S-501 **SHEARWALL CONNECTION TO ROOF DECK**
SCALE: 1" = 1'-0"

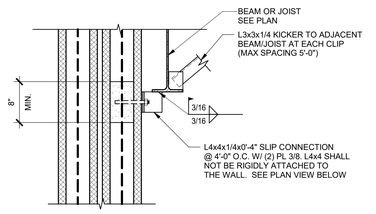


* AT STAGGERED JOISTS: VERIFY STAGGER DISTANCE PROVIDED ENOUGH CLEARANCE BETWEEN JOIST SEATS TO WELD.

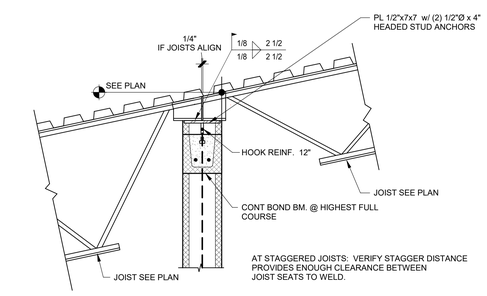
6 S-501 **JOIST BEARING DETAIL @ ROOF**
SCALE: 1" = 1'-0"



5 S-501 **JOIST BEARING ON COLUMN DETAIL**
SCALE: 1" = 1'-0"

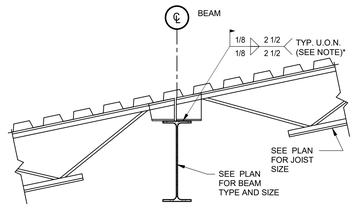


4 S-501 **SLIP CONNECTION AT FIREWALL**
SCALE: 1" = 1'-0"



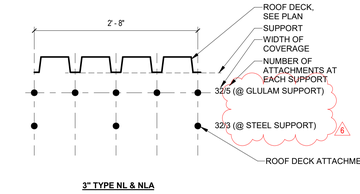
AT STAGGERED JOISTS: VERIFY STAGGER DISTANCE PROVIDES ENOUGH CLEARANCE BETWEEN JOIST SEATS TO WELD.

3 S-501 **JOIST BEARING DETAIL @ ROOF**
SCALE: 1" = 1'-0"

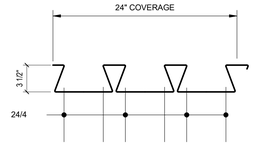


* USE 1/4" FILLET WELDS 3" LONG FOR LH SERIES JOIST

2 S-501 **JOIST BEARING DETAIL**
SCALE: 1" = 1'-0"



3" TYPE NL & NLA



3 1/2" LONG SPAN DOVETAIL ACOUSTICAL

1 S-501 **DECK ATTACHMENT PATTERNS**
SCALE: 1 1/2" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 037412 ENGINEER TIMOTHY K. HILTON
11 - 8 - 24

CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

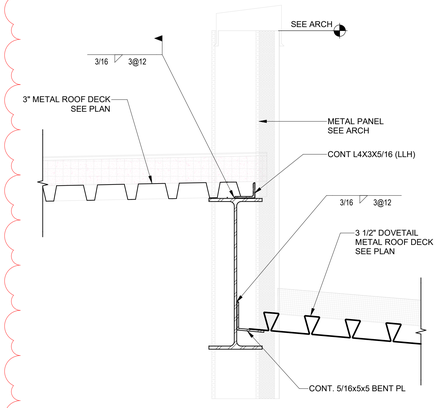
ENERGY STAR PARTNER

No.	Date	Description
6	02-05-25	ADDENDUM 2

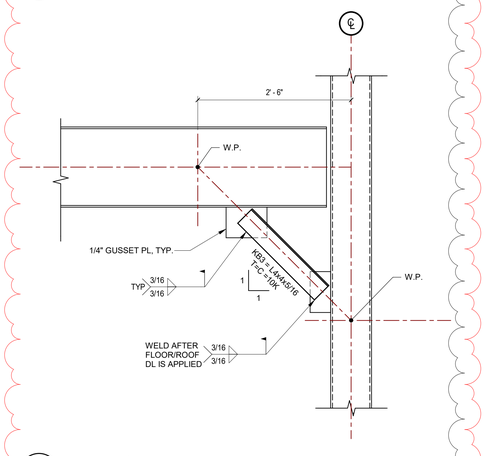
ISSUE DATE: 01/09/2025
PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

ROOF FRAMING STEEL TYPICAL DETAILS

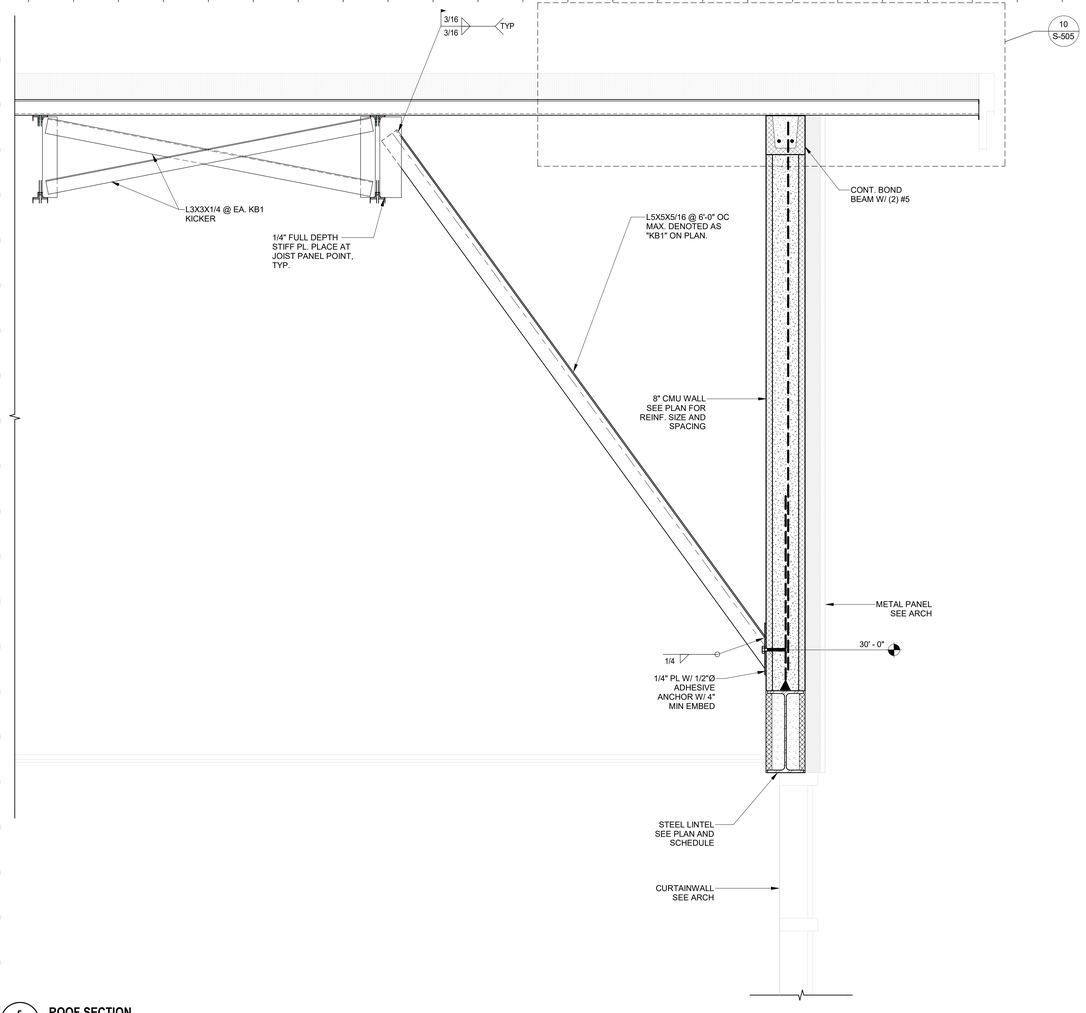
S-501



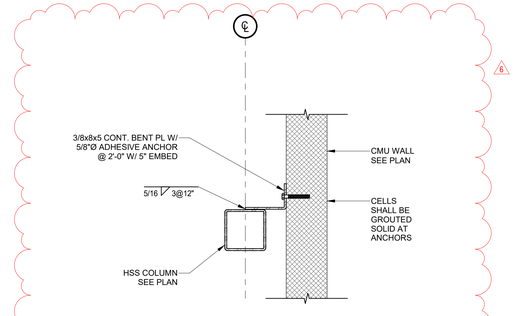
8 / S-511 ROOF DETAIL
SCALE: 1" = 1'-0"



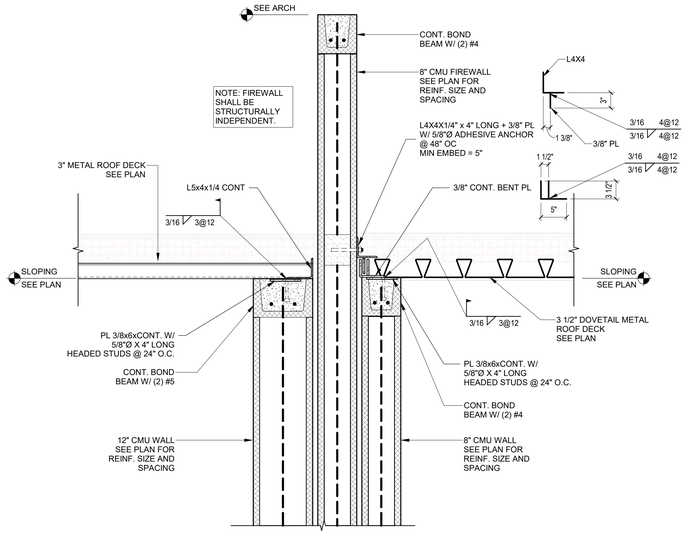
7 / S-511 KNEE BRACE DETAIL
SCALE: 1" = 1'-0"



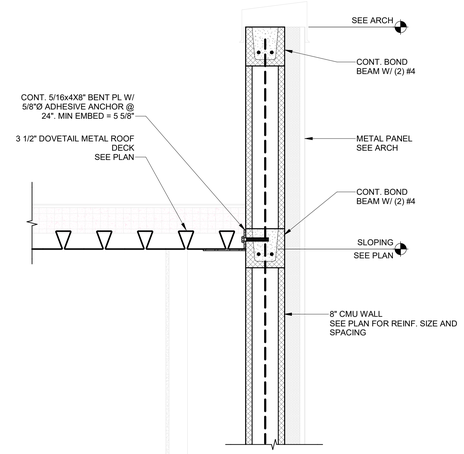
5 / S-511 ROOF SECTION
SCALE: 1" = 1'-0"



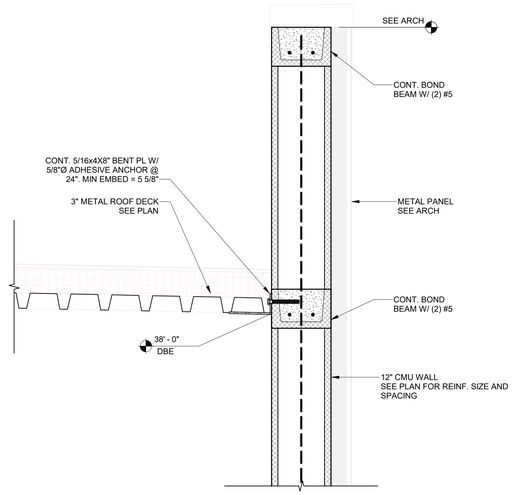
6 / S-511 COLUMN BRACING @ CMU WALL
SCALE: 1" = 1'-0"



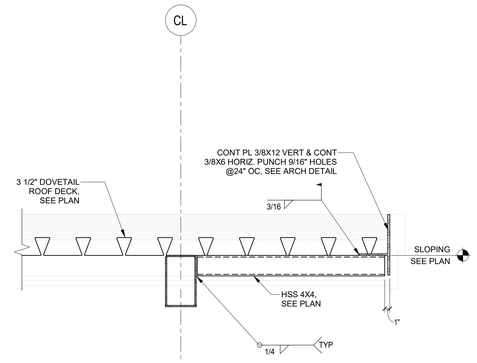
4 / S-511 ROOF SECTION
SCALE: 1" = 1'-0"



3 / S-511 ROOF DETAIL
SCALE: 1" = 1'-0"



2 / S-511 GYM ROOF DETAIL
SCALE: 1" = 1'-0"



1 / S-511 ROOF DETAIL
SCALE: 1" = 1'-0"

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

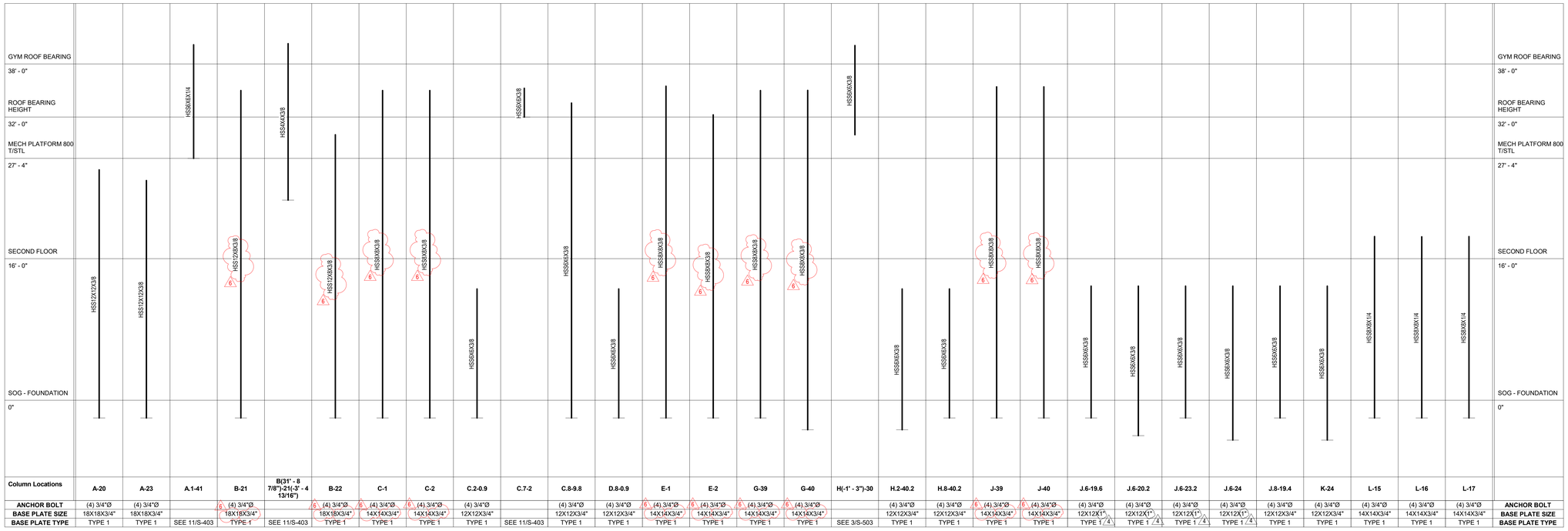
No.	Date	Description
2	12-13-24	CD REVISIONS
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

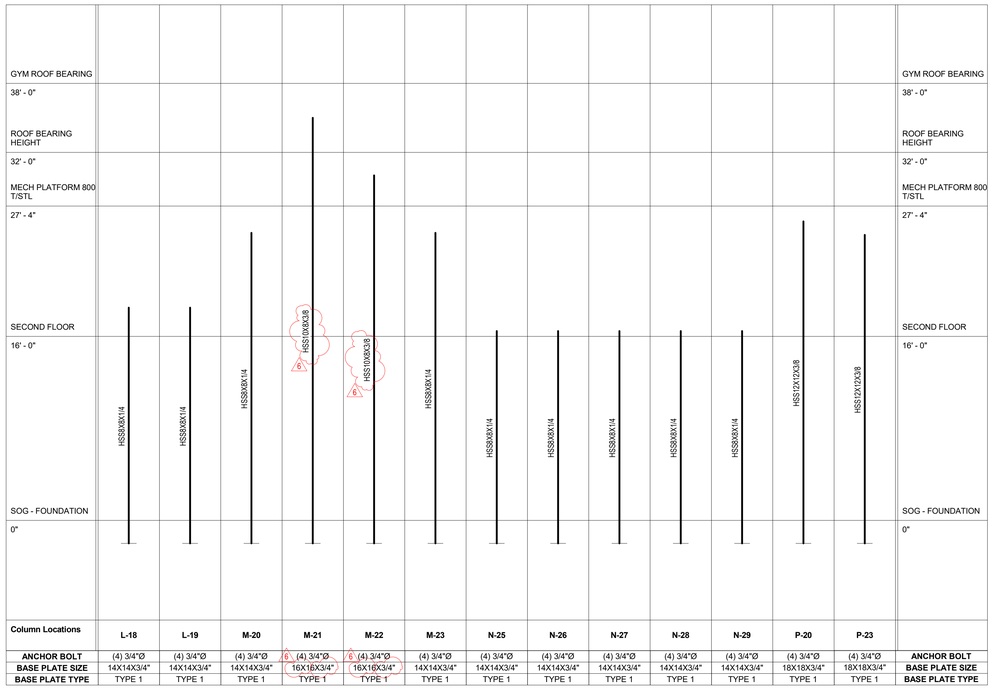
ISSUE DATE: 01/09/2025

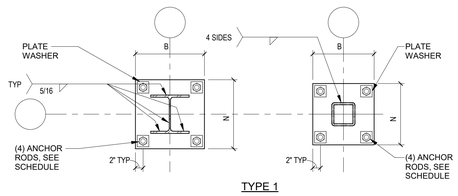
PROJECT #:	2208
DRAWN BY:	MM
CHECKED BY:	TH

ROOF FRAMING DETAILS

S-511

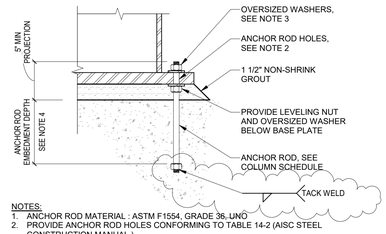






TYPE 1

2 S-600 **DETAIL AT BASE PLATE TYPES**
SCALE: 3/4" = 1'-0"
BP REF [FND-1.21]



NOTES:
1. ANCHOR ROD MATERIAL : ASTM F1554, GRADE 36, UNO
2. PROVIDE ANCHOR ROD HOLES CONFORMING TO TABLE 14-2 (AISC STEEL CONSTRUCTION MANUAL.)
3. PROVIDE WASHERS CONFORMING TO TABLE 14-2 (AISC STEEL CONSTRUCTION MANUAL.)
4. MINIMUM EMBEDMENT LENGTH FOR ASTM F1554, GRADE 36 ANCHOR RODS:
   - 3/4" DIA = 9"
   - 1" DIA = 12"

1 S-600 **DETAIL AT ANCHOR ROD ASSEMBLY**
SCALE: 1 1/2" = 1'-0"
BP REF [FND-2.09]

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

JOEL JOHNSON ROAD/US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

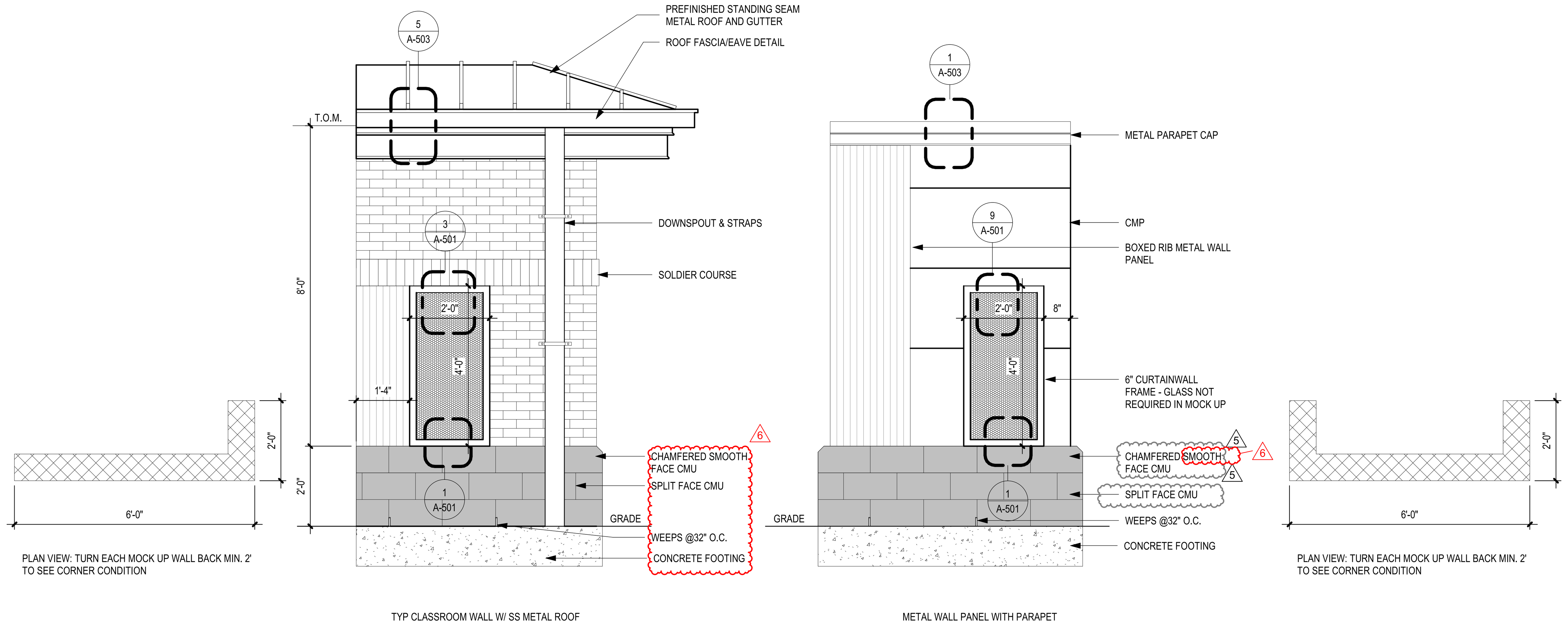
No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01/09/2025

PROJECT #: 2208
DRAWN BY: MM
CHECKED BY: TH

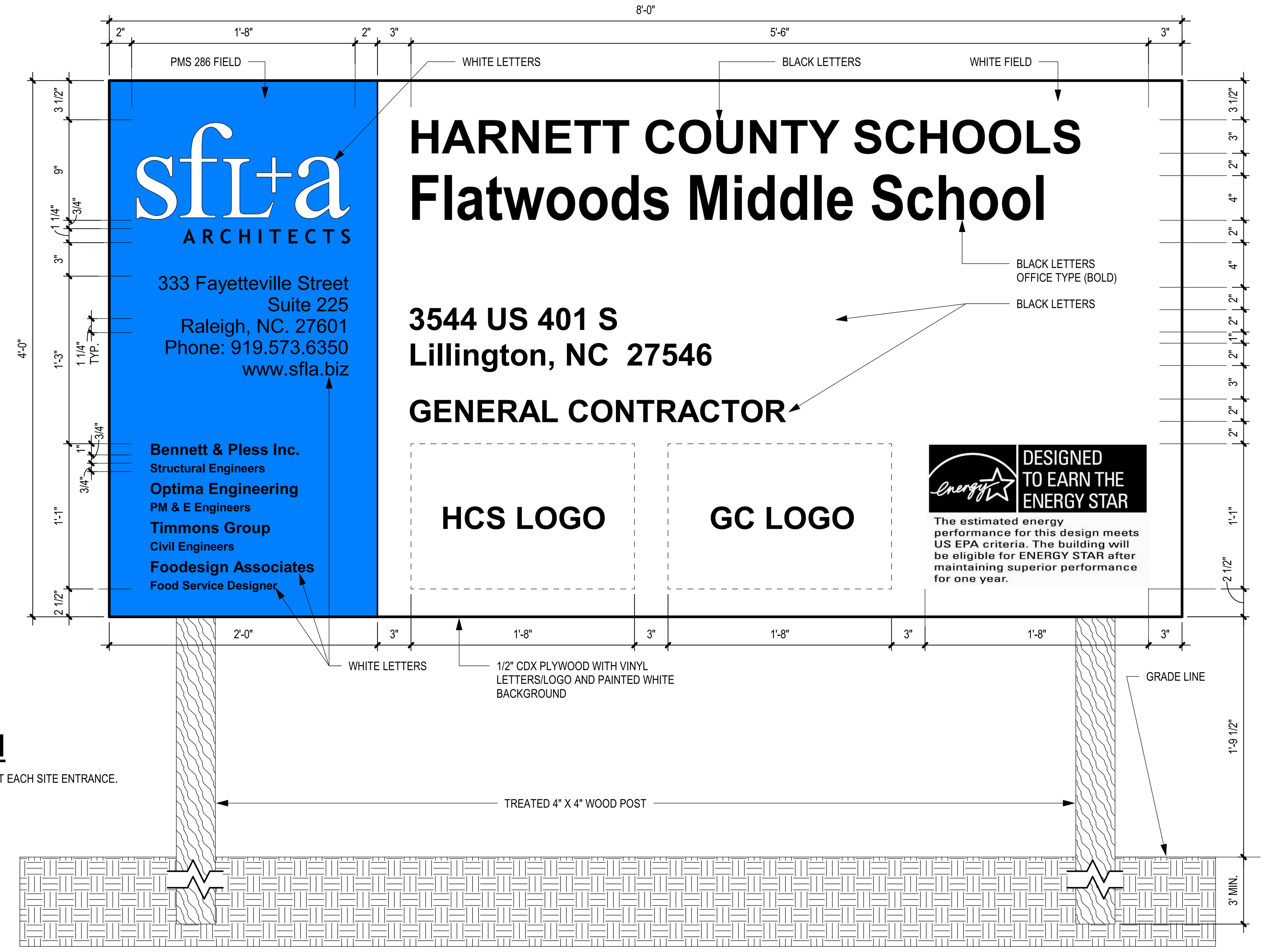
STEEL COLUMN SCHEDULE AND DETAILS

S-600



1) LOCATE MOCKUP PANEL SO EXTERIOR FACE IS IN THE SUNLIGHT
2) BRACE MOCK UP PANEL SUFFICIENTLY TO KEEP IT FROM FALLING OVER
3) COORDDINATE MOCK UP PANEL WITH ACTUAL BUILDING ELEVATION FOR BASE, FIELD AND ACCENT BANDS

2 G-001 MOCK UP WALL DETAIL
SCALE: 1/2" = 1'-0"



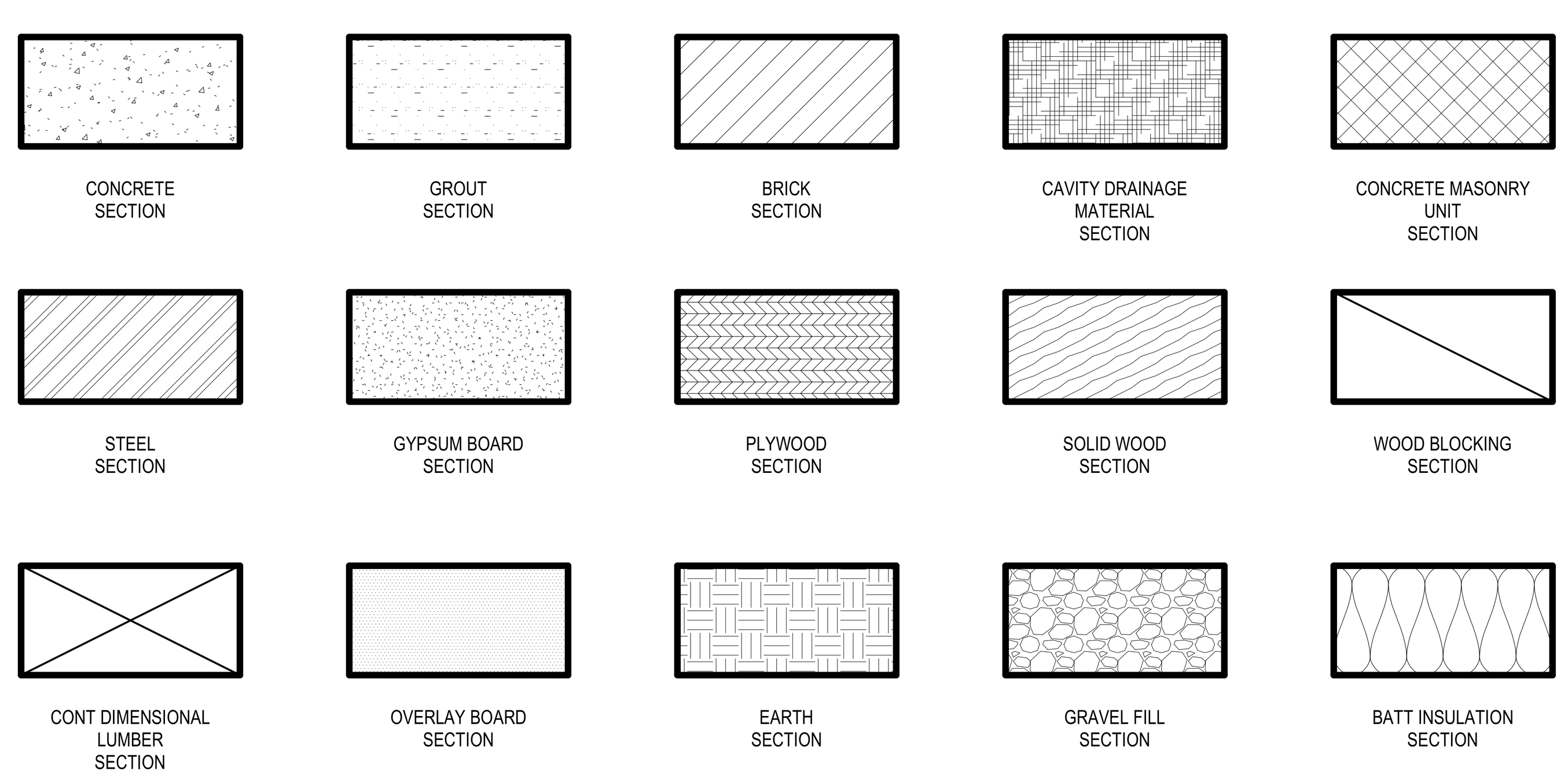
PROJECT SIGN

GC TO PROVIDE TWO ON SITE. ONE AT EACH SITE ENTRANCE.

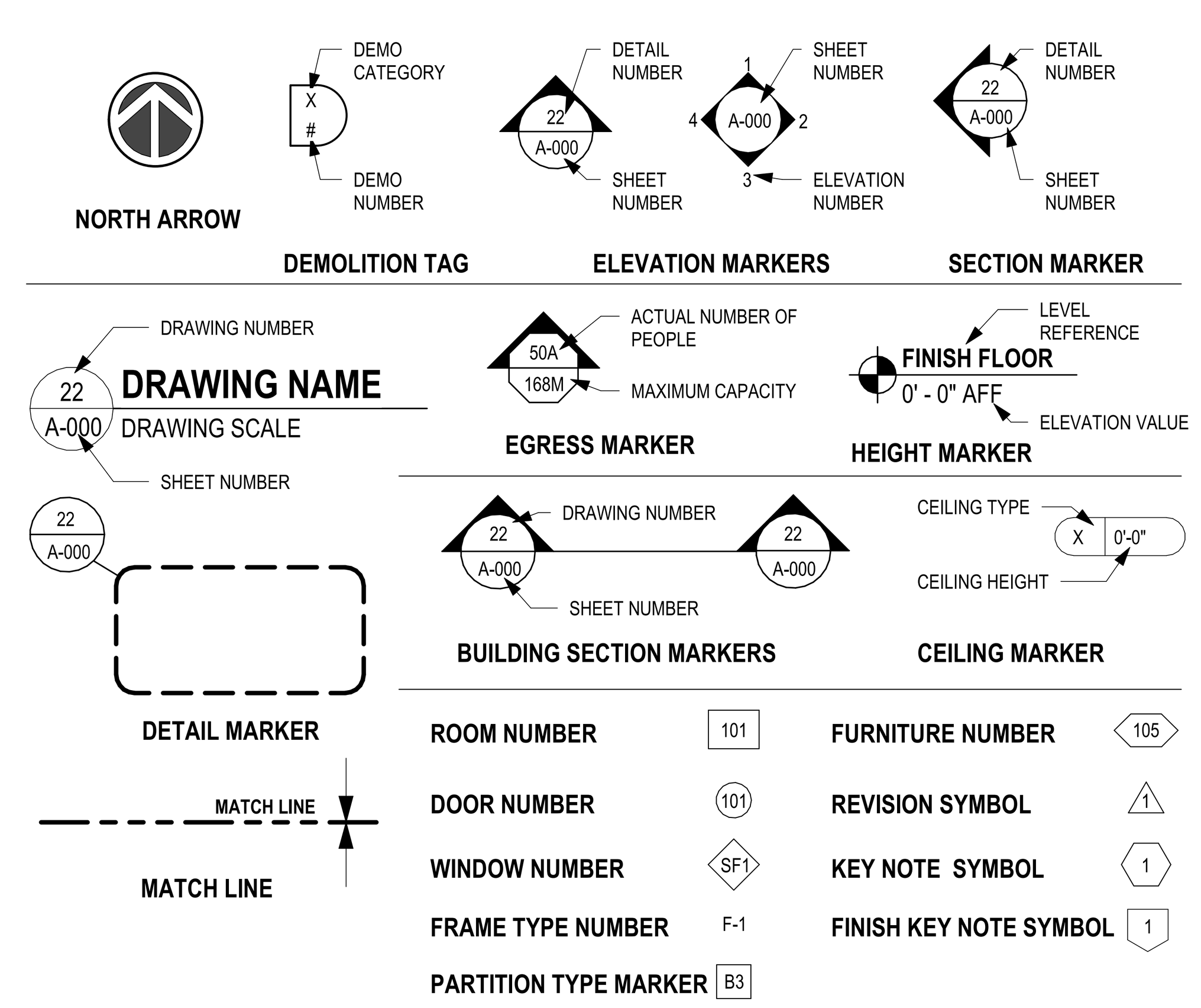
ABBREVIATIONS

A/C	AIR CONDITIONING
AB	ANCHOR BOLT
AD	AREA DRAIN
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
APPROX	APPROXIMATE
ARCH	ARCHITECT (URAL)
AUTO	AUTOMATIC
BB	BULLETIN BOARD
BBRG	BEAM BEARING
BD	BOARD
BFF	BELOW FINISHED FLOOR
BIT	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK (ING)
BM	BENCH MARK
BOD	BOTTOM OF DECK
BTM	BOTTOM
BPL	BEARING PLATE
BRG	BEARING
BSMT	BASEMENT
BTW	BETWEEN
BUR	BUILT-UP ROOFING
BW	BOTH WAYS
CB	CATCH BASIN
CAB	CABINET
CEM	CEMENT
CER	CERAMIC
CF	CUBIC FOOT
CI	CAST IRON
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR (ANCE)
CMP	COMPOSITE METAL PANEL
CMT	CERAMIC MOSAIC (TILE)
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONTR	CONTRACT (OR)
CORR	CORRIDOR
CPT	CARPET (ED)
CSMT	CASEMENT
CT	CERAMIC TILE
CTR	CENTER
CY	CUBIC YARD
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DIAM	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DIV	DIVISION
DL	DEAD LOAD
DM	DECORATIVE MASONRY
DPR	DAMPER
DR	DOOR
DS	DOWNSPOUT
DT	DRAIN TILE
DWG	DRAWING
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACTOR
EJ	EXPANSION JOINT
ELEC	ELECTRIC
ELEV	ELEVATION
EMER	EMERGENCY
ENCL	ENCLOSE (URE)
ENG	ENGINEER (ING)
EOD	EMERGENCY OVERFLOW DRAIN
EP	ELECTRIC PANEL
EQ	EQUAL
EQP	EQUIPMENT
EST	ESTIMATE
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FB	FACE BRICK
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FFE	FINISH FLOOR ELEVATION
FHC	FIRE HOSE CABINET
FIN	FINISH (ED)
FLR	FLOOR (ING)
FLUOR	FLUORESCENT
FLEX	FLEXIBLE
FOB	FACE OF BRICK
FOGB	FACE OF GYPSUM BOARD
FP	FIREPROOF
FR	FRAME (D)
FRMG	FRAMING
FRT	FIRE-RETARDANT
FT	FOOT / FEET
FTG	FOOTING
FUR	FURRED (ING)
GA	GAGE, GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GBL	GLASS BLOCK
GC	GENERAL CONTRACT (OR)
GCMU	GLAZED CONC. MASONRY UNIT
GF	GROUND FACE
GFRC	GLASS FIBER RE. CONC.
GL	GLASS, GLAZING
GP	GALVANIZED PIPE
GYP	GYPSUM
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB
HC	HOLLOW CORE
HD	HEAVY DUTY
HDR	HEADER
HDW	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL JOINT REINFORCEMENT
HJT	
HT	HEIGHT
HTG	HEATING
HWD	HARDWOOD
HWH	HOT WATER HEATER
HVAC	HEATING / VENTILATING / A/C
ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDE (D), (ING)
INT	INTERIOR
INV	INVERT
IWB	INTERACTIVE WHITE BOARD
JAN	JANITOR
JC	JANITOR'S CLOSET
JT	JOINT
JST	JOIST
KD	KNOCK DOWN
KIT	KITCHEN
KPL	KICK PLATE
L	LENGTH
LAB	LABORATORY
LAD	LADDER
LAV	LAVATORY
LB	LAG BOLT
LBL	LABEL
LBS	POUND (S)
LH	LEFT HAND
LT	LIGHT
LW	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAT	MATERIAL (S)
MAX	MAXIMUM
MB	MARKER BOARD
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MED	MEDIUM
MFR	MANUFACTURE (R)
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MH	MANHOLE
MEMB	MEMBRANE
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MUL	MULLION
MTL	METAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OPPH	OPPOSITE HAND
OS	OVERFLOW SCUPPER
PAR	PARALLEL
PBD	PARTICLE BOARD
PC	PLUMBING CONTRACTOR
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PERF	PERFORATED
PERIM	PERIMETER
PG	PLATE GLASS
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLF	POUNDS PER LINEAL FOOT
PT	PRESSURE TREATED
PRV	POWER ROOF VENT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWD	PLYWOOD
QT	QUARRY TILE
R	RISER
RA	RETURN AIR
RAD	RADIUS
RB	RUBBER BASE
RT	RUBBER TILE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REIN	REINFORCE (D), (ING)
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REQ	REQUIRED
RET	RETURN
REV	REVISION (S), REVISED
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
S	SOUTH
SAP	SUSPENDED ACOUSTICAL PANELS
SB	SPLASH BLOCK
SC	SOLID CORE
SCH	SCHEDULE
SD	STORM DRAIN
SEC	SECTION
SF	STOREFRONT
SIM	SIMILAR
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SP	SOUNDPROOF
SPKR	SPEAKER
SQ	SQUARE
SS	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STR	STRUCTURAL
SUS	SUSPENDED
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
T&G	TONGUE AND GROOVE
TB	TACK BOARD
TEL	TELEPHONE
TG	TEMPERED GLASS
THR	THRESHOLD
TP	TOILET PARTITION
TOB	TOP OF BEAM
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TS	TACK STRIP
TTD	TOILET TISSUE DISPENSER
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
US	UTILITY SHELF
V	VOLT
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEN	VENEER
VIF	VERIFY IN FIELD
VR	VAPOR RETARDER
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST
WB	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WG	WIRE GLASS
WH	WALL HUNG
WI	WROUGHT IRON
WM	WIRE MESH
W/O	WITHOUT
WP	WATERPROOFING
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SYMBOLS LEGEND



KEY SYMBOLS LEGEND



GENERAL NOTES

1. WALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF METAL STUD, FACE OF STEEL OR CENTERLINE & STEEL COLUMN, UNLESS OTHERWISE NOTED. DETERMINE LOCATION OF WALLS NOT DIMENSIONED BY THEIR RELATION TO ADJACENT DIMENSIONED WALLS AND COLUMNS.
2. ALL EXTERIOR SIDEWALKS SHALL SLOPE AWAY FROM THE BUILDING AT 1/4" PER FOOT.
3. MAINTAIN INTEGRITY OF ACOUSTIC WALLS AND CEILINGS AT ALL WALL PENETRATIONS AND EQUIPMENT RECESSES.
4. ALL CERAMIC TILE TO HAVE CONTROL JOINTS THAT ALIGN WITH CONTROL JOINTS IN CONCRETE SLAB.
5. THERE SHALL BE NO PENETRATIONS IN THROUGH WALL FLASHING.
6. DOOR JAMB FROM INTERSECTING WALLS: STUD 6"/MASONRY 4" TYPICAL UNLESS OTHERWISE NOTED.
7. CONTRACT SHALL AVOID THE USE OF DISSIMILAR METALS IN CONTACT WITH ONE ANOTHER AS MUCH AS POSSIBLE AND SHALL PROVIDE FELTS, BOND BREAKERS, TAPE, OR OTHER APPLICABLE MATERIAL SEPARATION WHERE SUCH CONTACT IS UNAVOIDABLE.

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

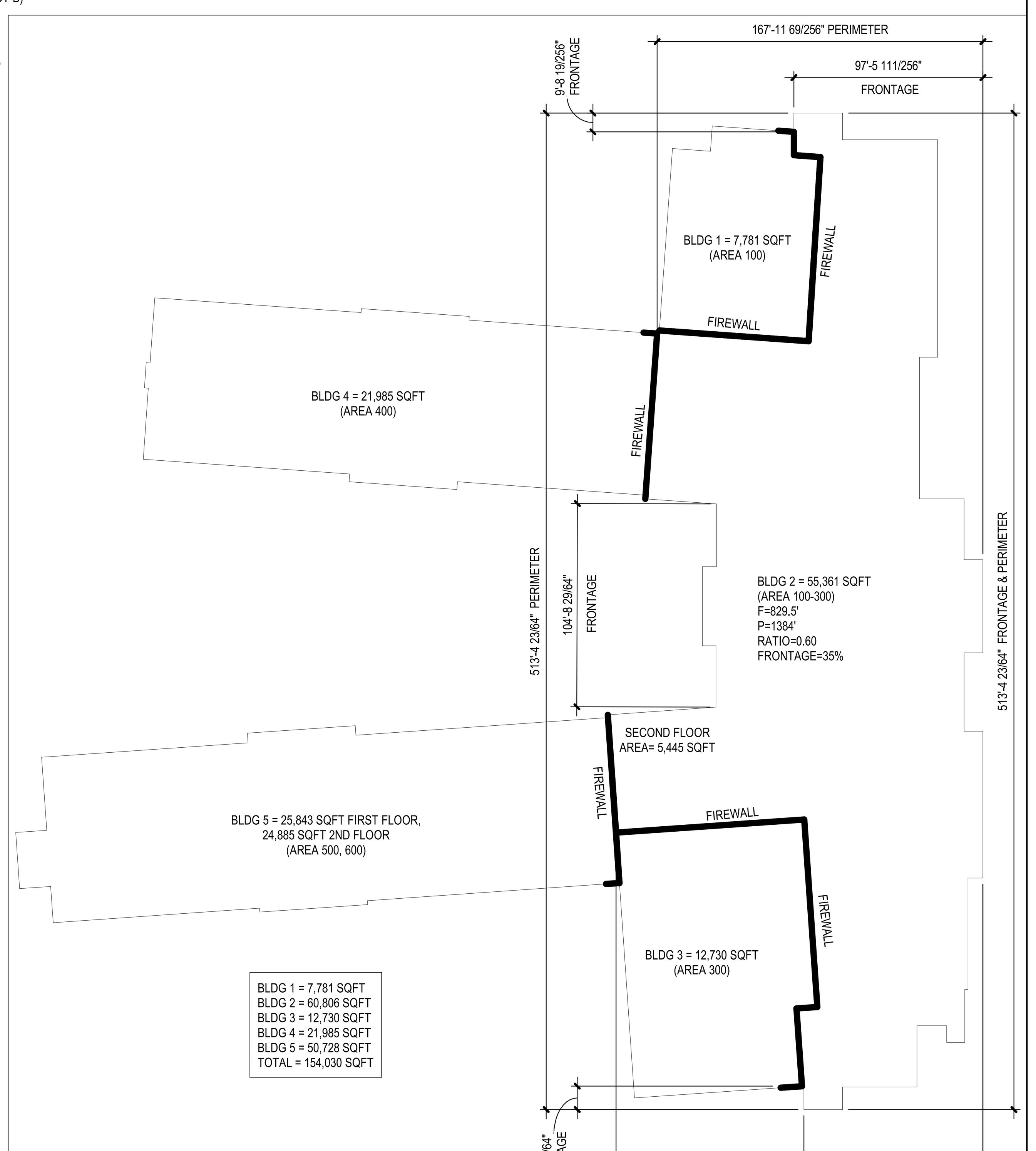
No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

GENERAL NOTES, ABBREVIATIONS & LEGENDS

G-001

1 G-111 FIRST FLOOR LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



BLDG 1 = 7,781 SQFT
BLDG 2 = 60,806 SQFT
BLDG 3 = 12,730 SQFT
BLDG 4 = 21,985 SQFT
BLDG 5 = 50,728 SQFT
TOTAL = 154,030 SQFT

2 G-111 FIRE AREA LEGEND
SCALE: 1" = 50'-0"

LIFE SAFETY LEGEND

SYMBOL	DESCRIPTION
(1 hr line symbol)	1 HR FIRE RATED
(2 hr line symbol)	2 HR FIRE RATED
20	DOOR FIRE RATING IN MINUTES
▲	DOOR WITH PANIC HARDWARE
?A / ?M	ACTUAL NUMBER OF OCCUPANTS EGRESSING THROUGH EXIT MAXIMUM NUMBER OF OCCUPANTS ALLOWED THROUGH EXIT
● FEC	FIRE EXTINGUISHER CABINET (250' TRAVEL DISTANCE MAX)
F	MANUAL FIRE ALARM PULL BOX
⊗	EXIT SIGN (CEILING MOUNTED) / EXIT SIGN (WALL MOUNTED)
MHO	MAGNETIC HOLD OPEN
36DW	36" DOOR WIDTH NOMINAL = 33.5" CLEAR (223 OCCUPANTS PER DOOR AT .15)
42DW	42" DOOR WIDTH NOMINAL = 39.5" CLEAR (264 OCCUPANTS PER DOOR AT .15)
48DW	48" DOORS WIDTH NOMINAL = 45.5" CLEAR (302 OCCUPANTS PER DOOR AT .15)
72DW	(PAIR) 36" DOORS WIDTH NOMINAL = 68.5" CLEAR (456 OCCUPANTS PER DOOR AT .15)
84DW	(PAIR) 42" DOORS WIDTH NOMINAL = 80.5" CLEAR (536 OCCUPANTS PER DOOR AT .15)
96DW	(PAIR) 48" DOORS WIDTH NOMINAL = 92.5" CLEAR (616 OCCUPANTS PER DOOR AT .15)
108DW	(SET OF 3) 36" DOORS WIDTH NOMINAL = 104.5" CLEAR (696 OCCUPANTS PER DOOR AT .15)

LIFE SAFETY GENERAL NOTES:

1. SEE SHEET G-003 FOR UL DESIGNS
2. SEE SHEET A-010 & FLOOR PLANS FOR PARTITION TYPES.
3. DEDICATED FIRE EXTINGUISHERS SHALL BE PROVIDED IN THE FOLLOWING ROOMS: ELEVATOR EQUIPMENT ROOMS, MDF AND IDF ROOMS.
4. (hatched box) DENOTES CLEAR EGRESS PATH. NO FURNITURE TO BE PLACED IN THIS PATH.

ROOM	TRAVEL DISTANCE
BLDG 1/AUDITORIUM 105	91' - 2"
BLDG 2/COLLAB 600	342' - 1"
BLDG 2/CONFERENCE 217	200' - 0"
BLDG 2/DRAMA 102	164' - 9"
BLDG 2/ES CS 403	206' - 7"
BLDG 2/HEALTH ROOM 317	245' - 9"
BLDG 2/MEDIA 223	180' - 6"
BLDG 4/CLASSROOM 416	147' - 5"
BLDG 4/SCIENCE 408	158' - 6"
BLDG 5/CLASSROOM 515	159' - 3"
BLDG 5/CLASSROOM 616	214' - 4"
BLDG 5/SCIENCE 504	183' - 3"
BLDG 5/SCIENCE 608	189' - 1"

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ENERGY STAR PARTNER

No.	Date	Description
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5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

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LIFE SAFETY PLAN-FIRST FLOOR

G-111

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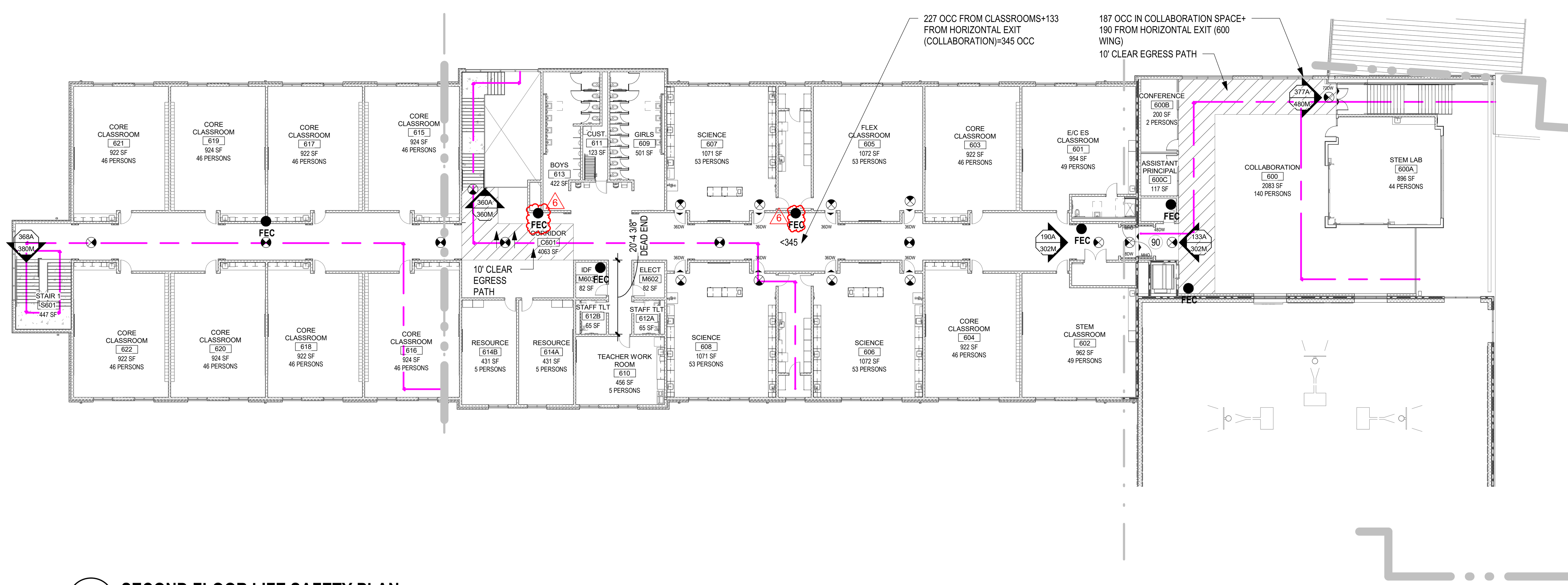

1 G-112 SECOND FLOOR LIFE SAFETY PLAN
SCALE: 1" = 20'-0"

ROOM	TRAVEL DISTANCE
BLDG 1/AUDITORIUM 105	91' - 2"
BLDG 2/COLLAB 600	342' - 1"
BLDG 2/CONFERENCE 217	200' - 0"
BLDG 2/DRAMA 102	164' - 9"
BLDG 2/ES CS 403	206' - 7"
BLDG 2/HEALTH ROOM 317	245' - 9"
BLDG 2/MEDIA 223	180' - 6"
BLDG 4/CLASSROOM 416	147' - 5"
BLDG 4/SCIENCE 408	158' - 6"
BLDG 5/CLASSROOM 515	159' - 3"
BLDG 5/CLASSROOM 616	214' - 4"
BLDG 5/SCIENCE 504	183' - 3"
BLDG 5/SCIENCE 608	189' - 1"

LIFE SAFETY LEGEND

SYMBOL	DESCRIPTION
(line symbol)	1 HR FIRE RATED
(line symbol)	2 HR FIRE RATED
20	DOOR FIRE RATING IN MINUTES
(triangle)	DOOR WITH PANIC HARDWARE
?A / ?M	ACTUAL NUMBER OF OCCUPANTS EGRESSING THROUGH EXIT MAXIMUM NUMBER OF OCCUPANTS ALLOWED THROUGH EXIT
FEC	FIRE EXTINGUISHER CABINET (250' TRAVEL DISTANCE MAX)
F	MANUAL FIRE ALARM PULL BOX
(exit symbols)	EXIT SIGN (CEILING MOUNTED) / EXIT SIGN (WALL MOUNTED)
MHO	MAGNETIC HOLD OPEN
36DW	36" DOOR WIDTH NOMINAL = 33.5" CLEAR (223 OCCUPANTS PER DOOR AT .15)
42DW	42" DOOR WIDTH NOMINAL = 39.5" CLEAR (264 OCCUPANTS PER DOOR AT .15)
48DW	48" DOORS WIDTH NOMINAL = 45.5" CLEAR (302 OCCUPANTS PER DOOR AT .15)
72DW	(PAIR) 36" DOORS WIDTH NOMINAL = 68.5" CLEAR (456 OCCUPANTS PER DOOR AT .15)
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96DW	(PAIR) 48" DOORS WIDTH NOMINAL = 92.5" CLEAR (616 OCCUPANTS PER DOOR AT .15)
108DW	(SET OF 3) 36" DOORS WIDTH NOMINAL = 104.5" CLEAR (696 OCCUPANTS PER DOOR AT .15)

LIFE SAFETY GENERAL NOTES:

1. SEE SHEET G-003 FOR UL DESIGNS
2. SEE SHEET A-010 & FLOOR PLANS FOR PARTITION TYPES.
3. DEDICATED FIRE EXTINGUISHERS SHALL BE PROVIDED IN THE FOLLOWING ROOMS: ELEVATOR EQUIPMENT ROOMS, MDF AND IDF ROOMS.
4. (hatched box) DENOTES CLEAR EGRESS PATH. NO FURNITURE TO BE PLACED IN THIS PATH.

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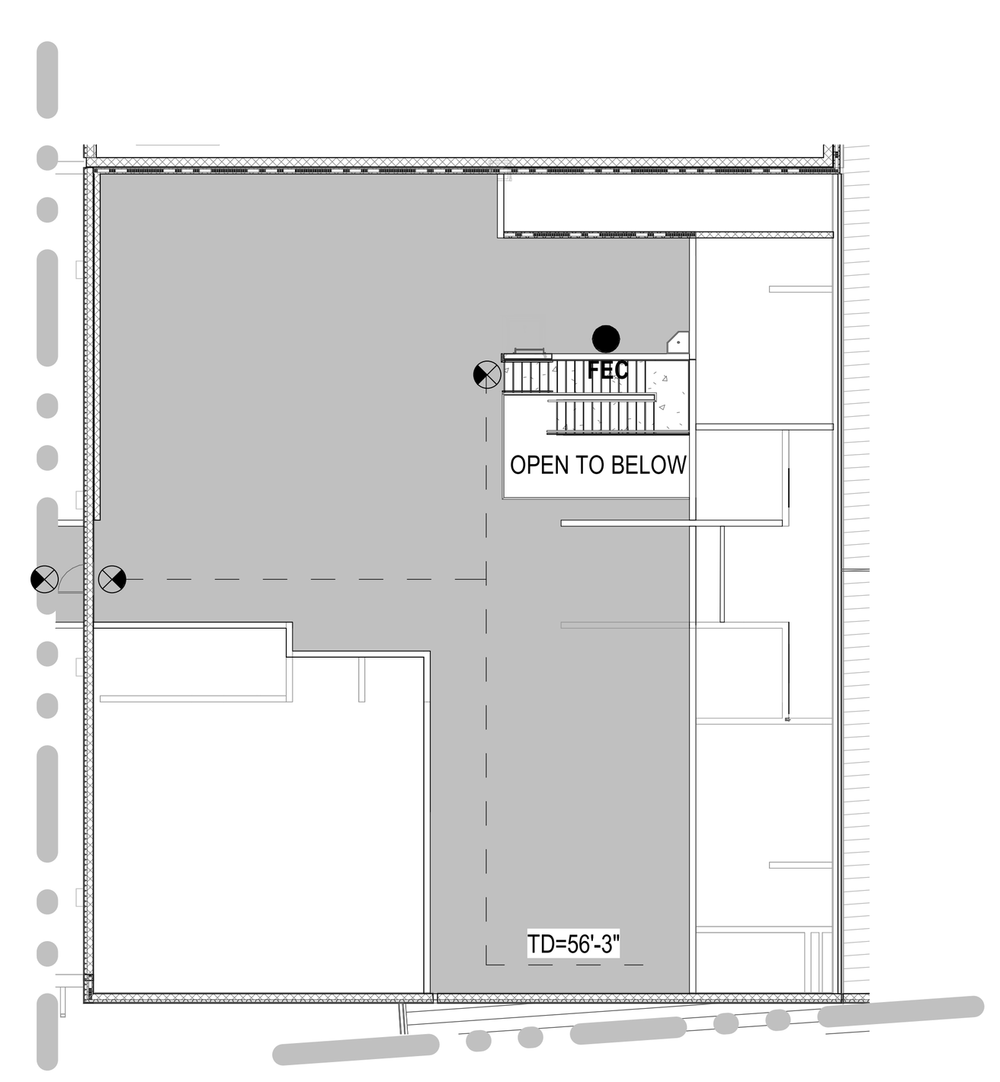
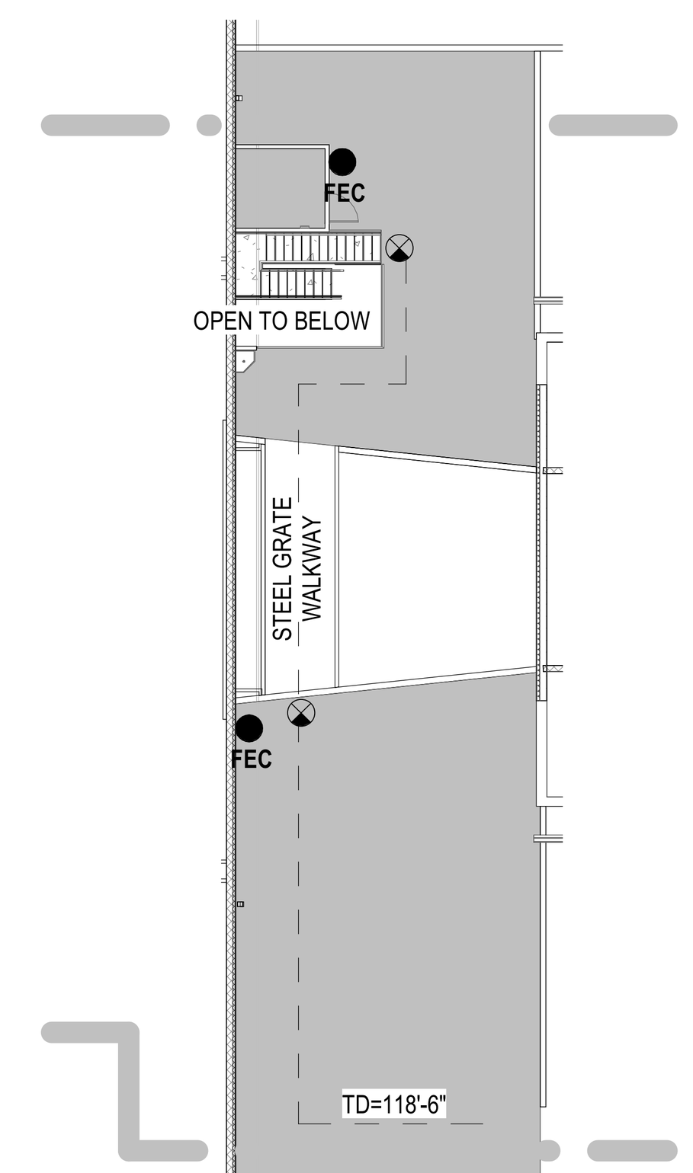
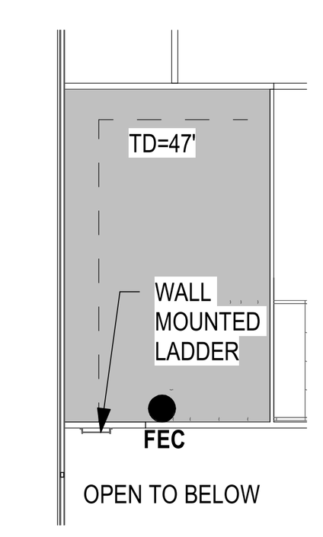
CONSTRUCTION DOCUMENTS



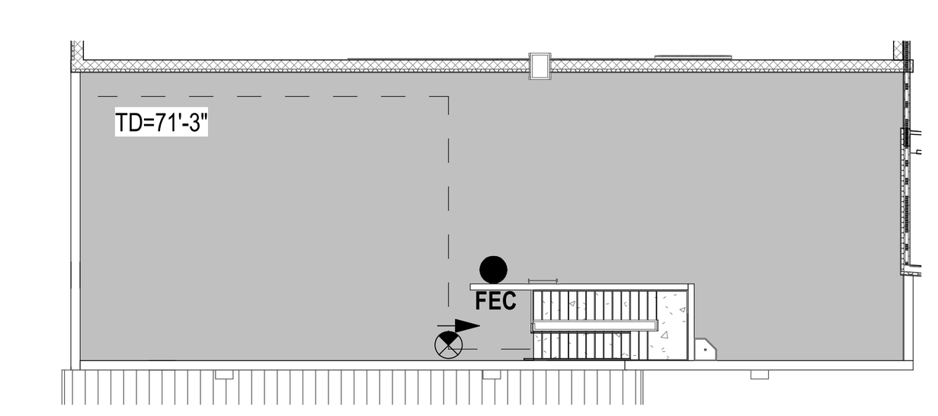
2 G-112 MECH PLATFORM - AREA 100 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



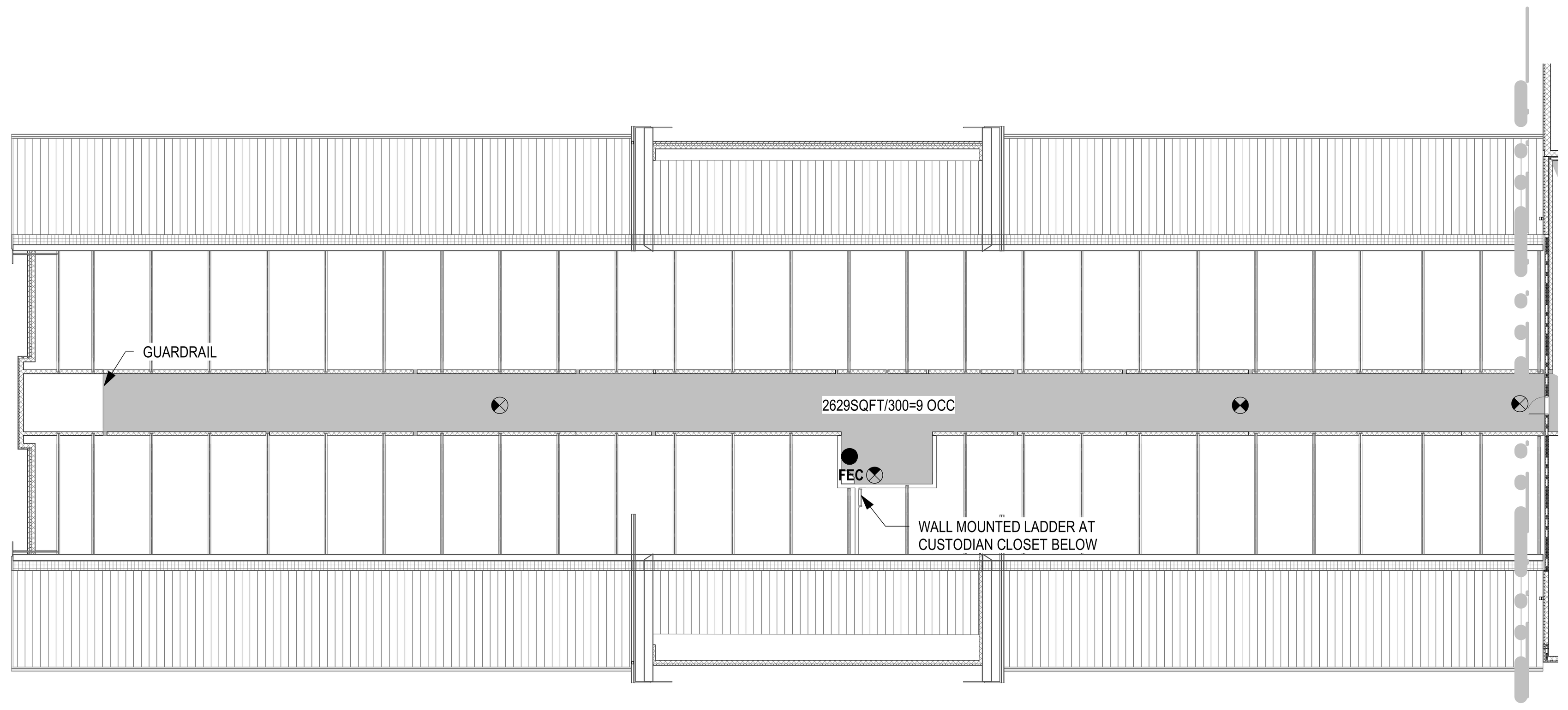
3 G-112 MECH PLATFORM - AREA 200 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



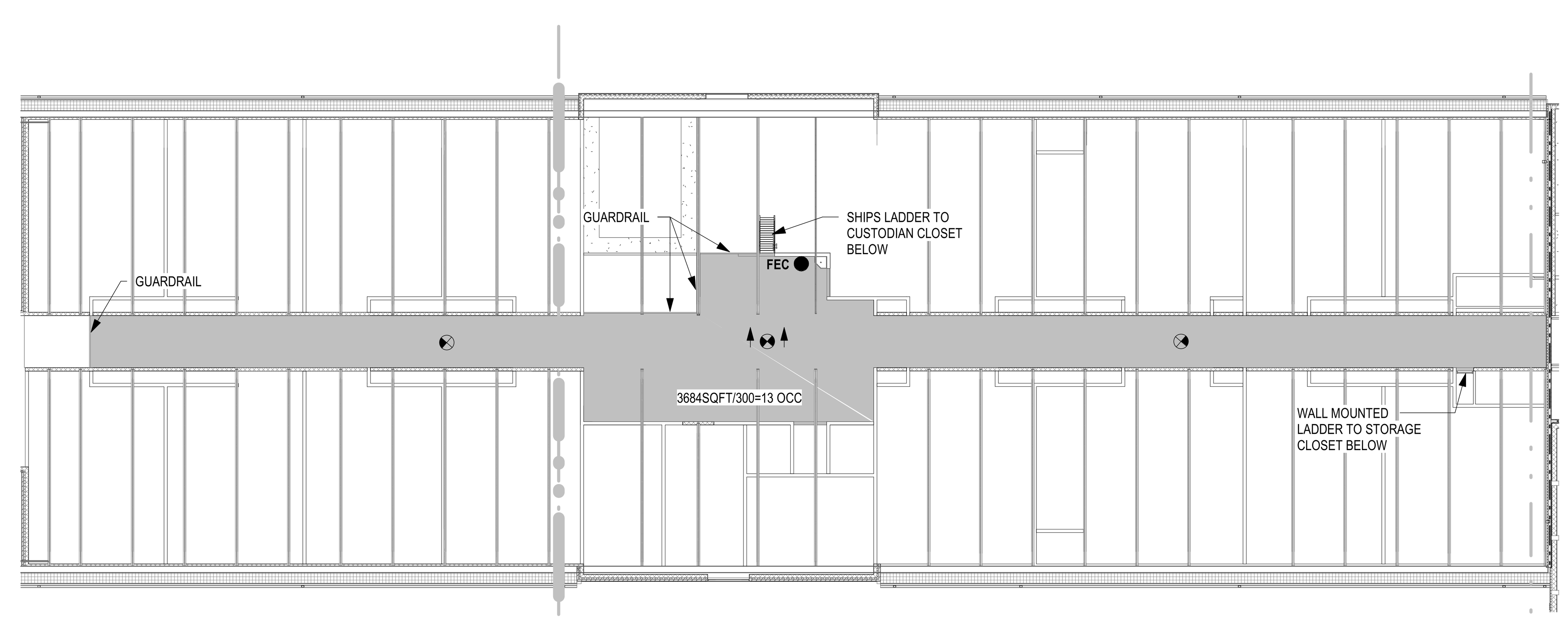
4 G-112 KITCHEN MECH PLATFORM - AREA 300 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



5 G-112 GYM MECH PLATFORM - AREA 300 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



6 G-112 MECH PLATFORM- AREA 400 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"



7 G-112 MECH PLATFORM - AREA 600 LIFE SAFETY PLAN
SCALE: 1" = 20'-0"

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ENERGY STAR PARTNER

No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
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LIFE SAFETY PLAN-SECOND FLOOR & MECH PLATFORMS

G-112

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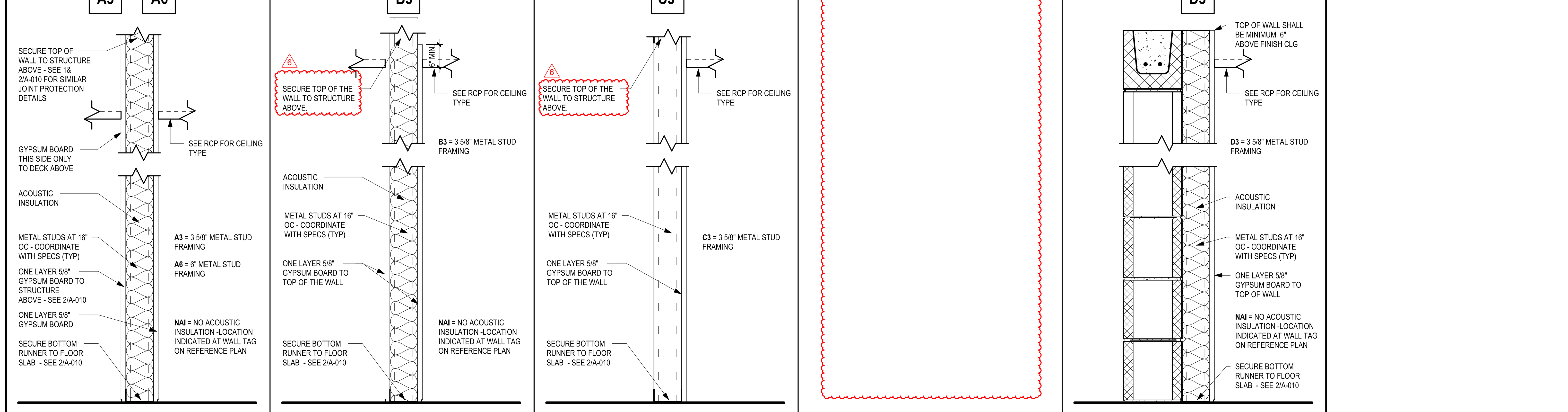
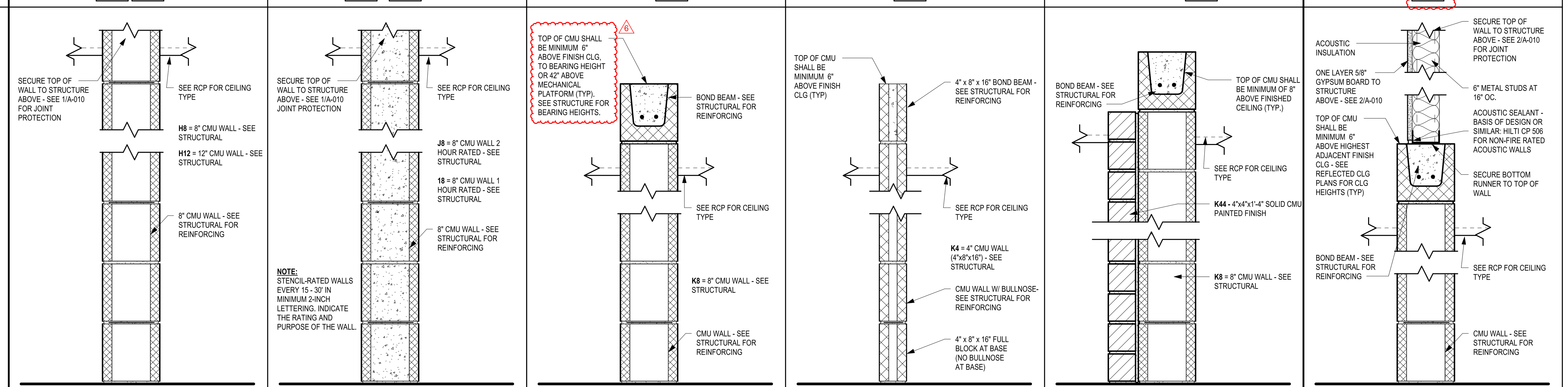
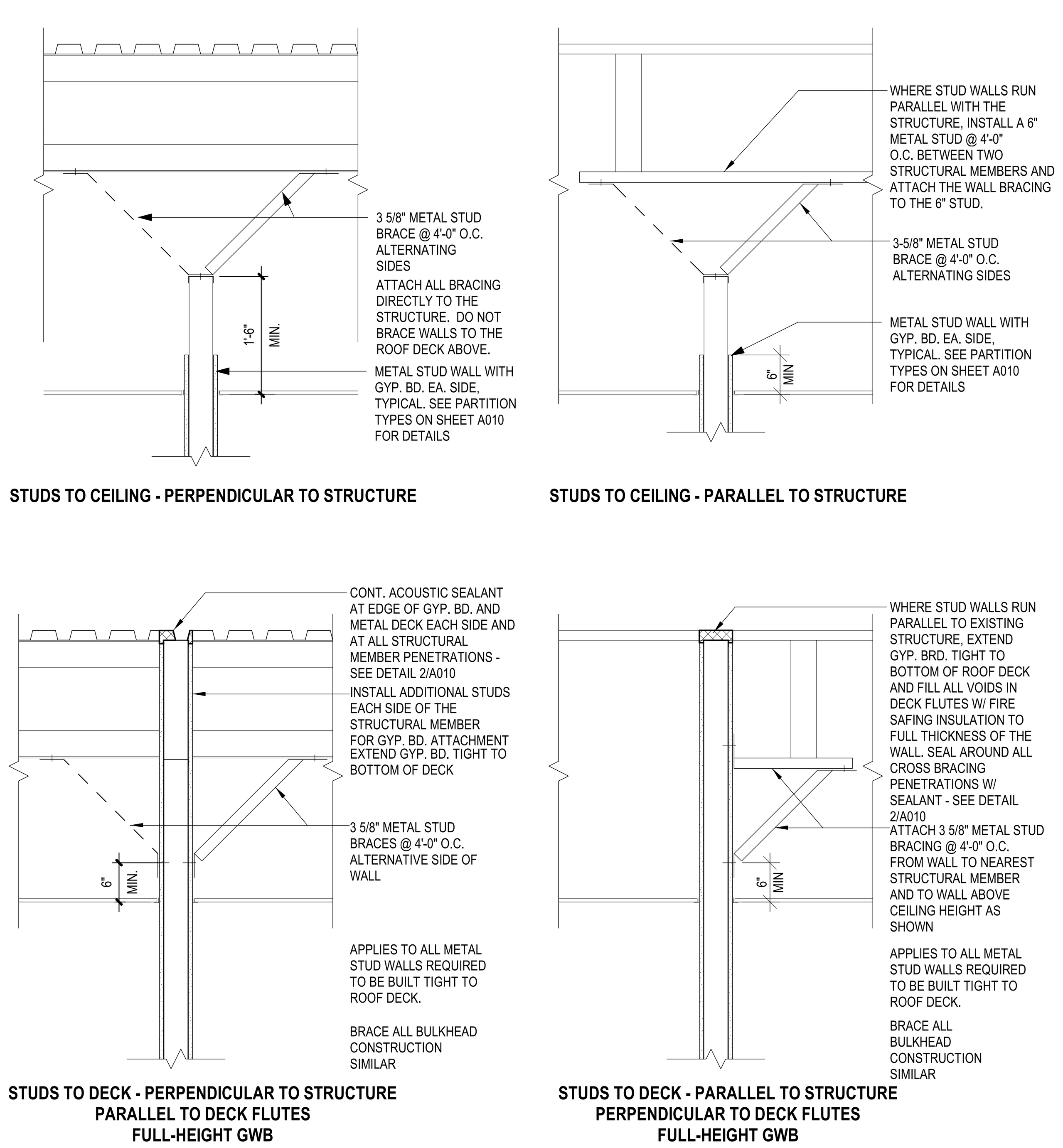
PARTITION TYPE LEGEND METAL STUD WALLS

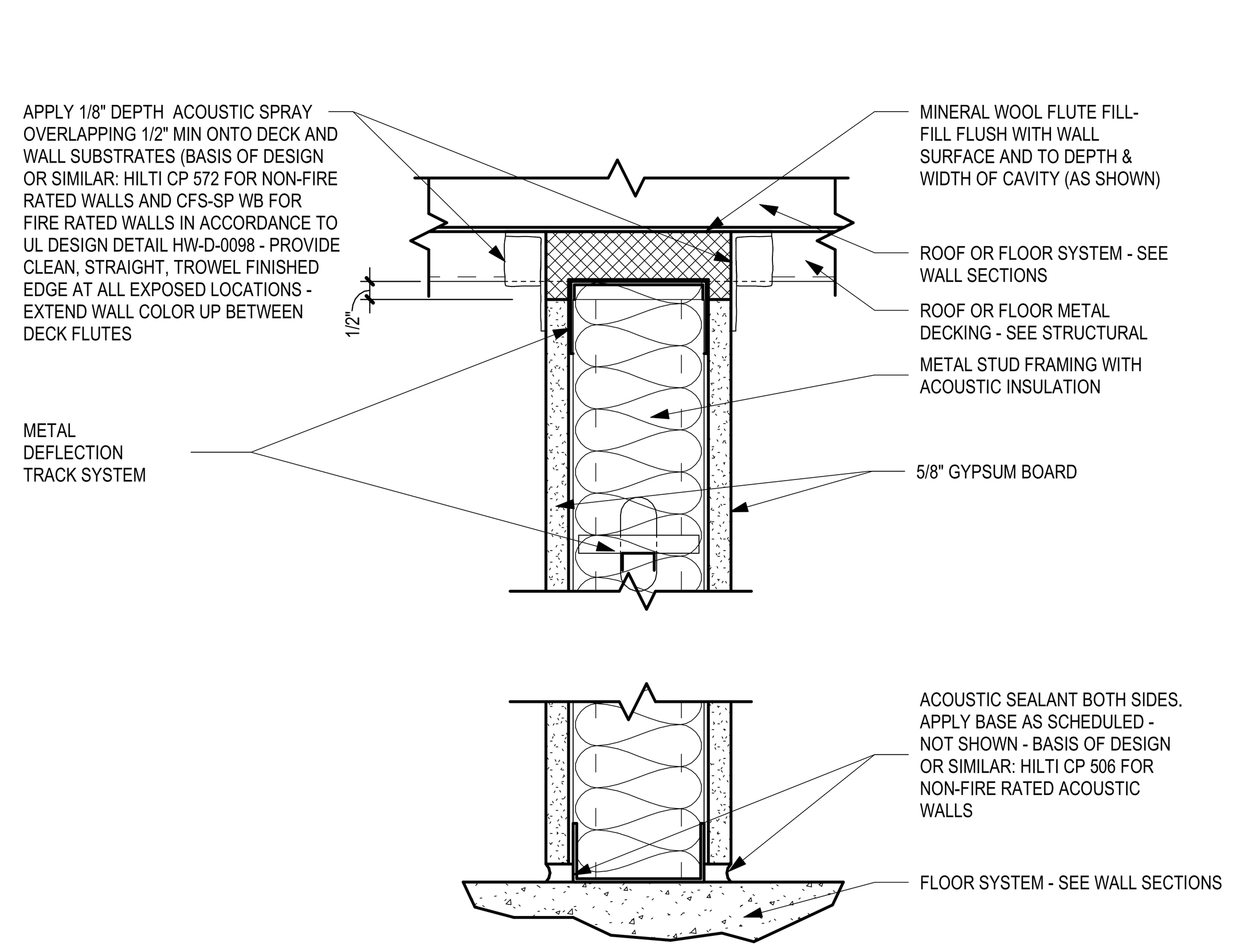
WALL TYPE MARKER	A3 A6	B3	C3		D3	
SECTION 1 1/2" = 1' - 0"						
PLAN 1/4" = 1' - 0"	A3, A6	B3	C3		D3	
DESCRIPTION	METAL STUD NONRATED WALL	METAL STUD NONRATED WALL	METAL STUD NONRATED WALL		METAL STUD NONRATED WALL ADJACENT TO CMU WALL	
UL DESIGN #						

PARTITION TYPE LEGEND CONCRETE MASONRY UNIT WALLS

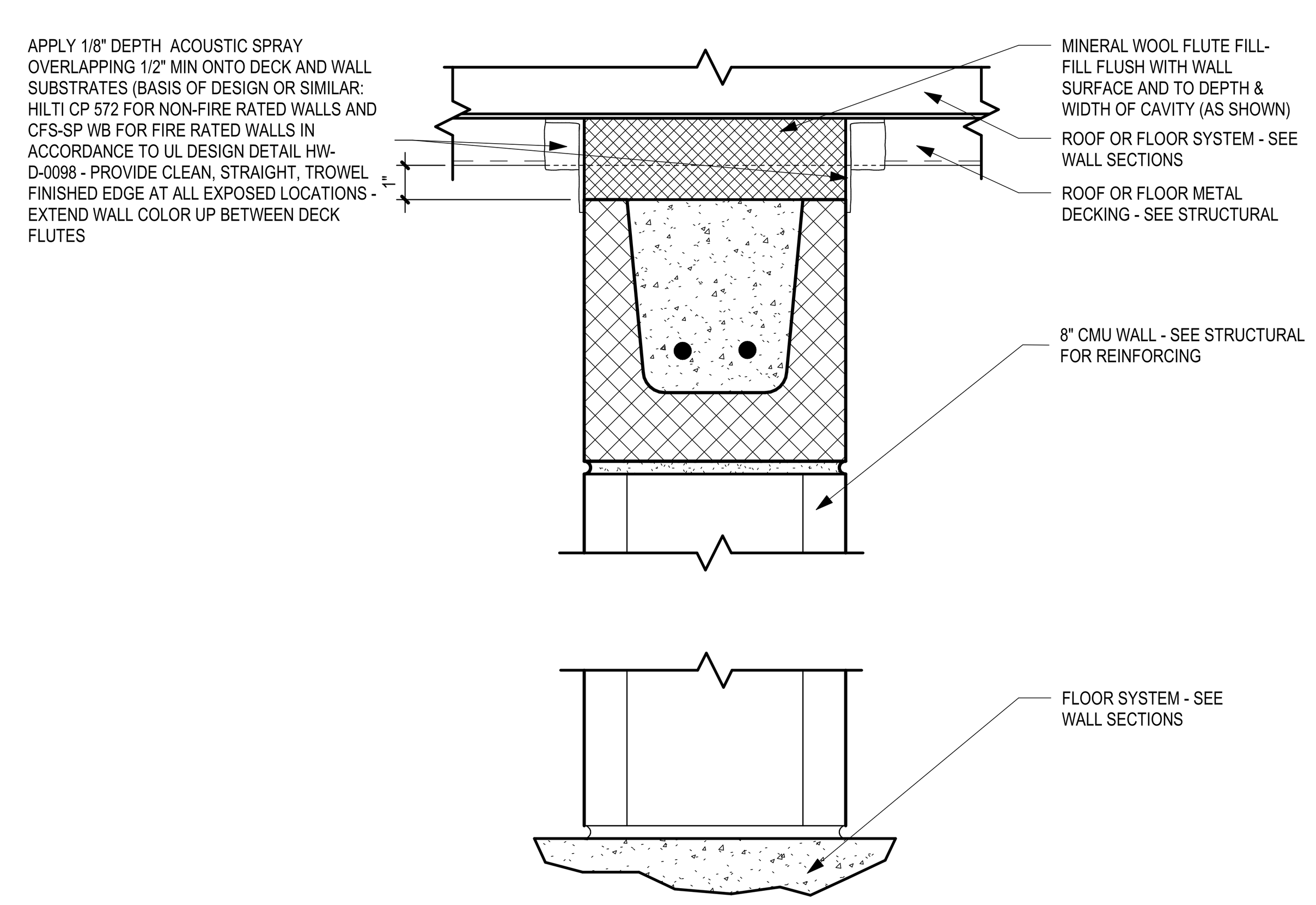
WALL TYPE MARKER	H8 H12	I8 J8	K8	K4	K44	MS8
SECTION 1 1/2" = 1' - 0"						
PLAN 1/4" = 1' - 0"	H8, H12	J8, I8	K8	K4 4"x8"x16" CMU UNITS	K44	MS8
DESCRIPTION	CONCRETE MASONRY UNIT NONRATED BEARING WALL RAN TO BEARING POINT OR ROOF/FLOOR DECKING	CONCRETE MASONRY UNIT BEARING WALL **2 HOUR FIRE RATED** UP TO UNDERSIDE OF DECKING ABOVE (USED FOR 1 HOUR FIRE RATED MANSORY WALLS AS WELL)	CONCRETE MASONRY UNIT NONRATED PARTITION WALL TERMINATES AT 6" MIN ABOVE FINISH CEILING.	CONCRETE MASONRY UNIT NONRATED PARTITION WALL TERMINATES ABOVE CEILING AT 6" ABOVE FINISH CEILING - TYP (USED FOR SINK WALLS AT TOILETS UNO)	8" & 4" CONC MASONRY MASONRY UNIT NONRATED WALL TERM AT 6" ABOVE FINISH CLG WITH 8" CONCRETE MASONRY UNIT TO STRUCTURE TYP AT CORRIDOR PILASTERS	CONCRETE MASONRY UNIT NONRATED PARTITION WALL TERMINATES AT 6" ABOVE FINISH CEILING WITH METAL STUD NONRATED WALL TO STRUCTURE
UL DESIGN #		UL DESIGN **#U905**				



1 A-010 **METAL STUD PARTITION BRACING**
SCALE: 3/4" = 1'-0"



2 A-010 **JOINT PROTECTION DETAIL - METAL STUD WALLS**
SCALE: 3" = 1'-0"



3 A-010 **JOINT PROTECTION DETAIL - CMU WALLS**
SCALE: 3" = 1'-0"

PARTITION TYPES GENERAL NOTES:

1. USE MOISTURE RESISTANT GYPSUM BOARD AT ALL WALLS IN TOILET ROOMS, LOCKER ROOMS AND UTILITY ROOMS IF UTILIZED IN THOSE ROOMS.

2. AT WALL TILE, INSTALL WALL TILES OVER CEMENT BOARD IN ACCORDANCE WITH THE TCNA HANDBOOK METHOD.

3. "UNDERSIDE OF STRUCTURE" INDICATED AT HEAD CONDITION FOR EACH PARTITION TYPE IS DIAGRAMMATIC ONLY, AND DOES NOT INDICATE EXACT CONSTRUCTION CONDITIONS.

4. INSTALL FRAMING AND GYPSUM WALL BOARD TO OFFSET AROUND STRUCTURAL MEMBERS OR OTHER OBSTRUCTIONS TO MAINTAIN FIRE RESISTIVE RATINGS.

5. WHERE GYPSUM WALL BOARD EXTENDS TO THE UNDERSIDE OF STRUCTURE, STOP GYPSUM WALL BOARD 1/2" BELOW LINE OF STRUCTURE AND SEAL AS REQUIRED. DO NOT HANG METAL STUDS FROM METAL DECK.

7. FIRE RESISTANT, RATED PARTITIONS TO BE INSTALLED WITH FIRESTOP SEALANT, UNLESS NOTED OTHERWISE.

8. NON-RATED PARTITIONS TO BE INSTALLED WITH ACOUSTICAL SEALANT, UNLESS NOTED OTHERWISE.

9. REFER TO MECHANICAL DRAWINGS FOR PIPE PENETRATIONS THROUGH ACOUSTICAL PARTITIONS AS WELL AS RATED PARTITIONS. MAINTAIN STC AND FIRE RATING OF ALL PARTITIONS

10. INSTALL BLOCKING IN PARTITIONS FOR ACCESSORIES, CASEWORK, HANDRAILS, FIXTURES AND AS REQUIRED ON DRAWINGS.

11. PER MOLD PREVENTION GUIDELINES, DO NOT INSTALL GYPSUM WALL BOARD IN DIRECT CONTACT WITH THE FLOOR. ALL PARTITIONS SHALL BE SHIMMED 1/2" OFF THE FLOOR WITH NON-POROUS SHIMS. PLASTIC NON-POROUS HORSESHOE SHIMS ARE RECOMMENDED. GYPSUM WALL BOARD SHIMS ARE NOT ACCEPTABLE.

12. WHERE GYPSUM WALL BOARD AND WALL CONSTRUCTION DOES NOT EXTEND TO ROOF DECK OR CEILING FINISH TOP EDGE OF GYPSUM BOARD SHALL HAVE LEVEL "J" BEAD AND ALL CORNERS SHALL HAVE CORNER BEAD FOR FINISH EDGE.

13. AT RATED WALL LOCATIONS, STENCIL WALLS EVERY 15'-30' IN MINIMUM 2" RED LETTERING NOTING THE WALL RATING. EXAMPLE: "2-HR RATED WALL".

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6	02-05-25	ADDENDUM 2

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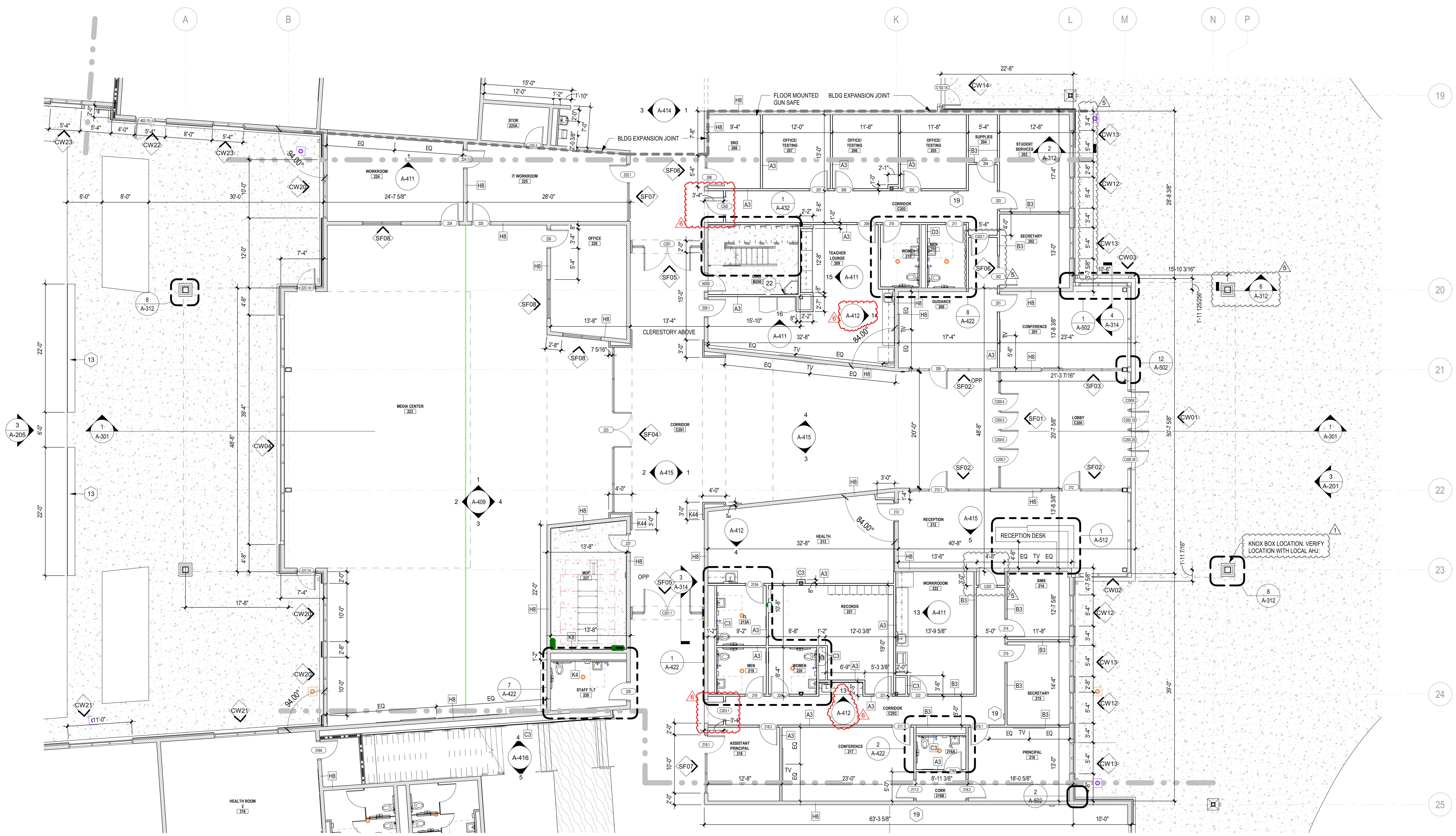
WALL PARTITION TYPES

A-010



1 A-112 PARTIAL FIRST FLOOR - AREA 200

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

FLOOR PLAN LEGEND

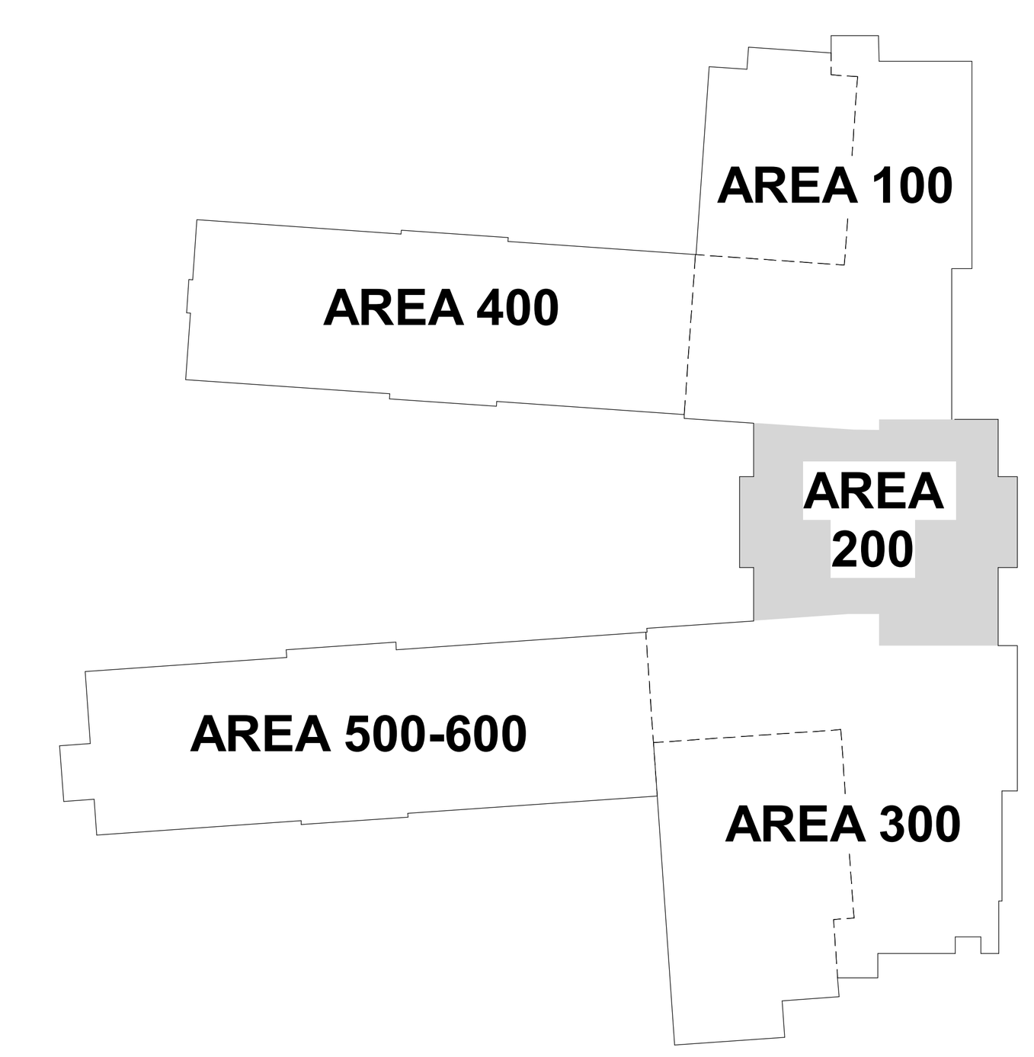
SYMBOL	DESCRIPTION
(hatched line symbol)	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
(hatched line symbol)	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
H8	WALL TAG - SEE SHEET A-010 FOR WALL PARTITION TYPES
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
W2	WINDOW TAG - SEE SHEET SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS CURTAIN WALL TAG - SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS

GENERAL NOTES:

1. SEE OVERALL PLAN ON A-101 FOR OVERALL BUILDING/MISSING DIMENSIONS.
2. SEE SHEET G-003 FOR UL DESIGNS.
3. SEE SHEET A-010 FOR WALL PARTITION TYPES.
4. ALL INTERIOR METAL STUD WALLS TO HAVE SOUND ATTENUATION BATTS.
5. PROVIDE POSITIVE FLOOR SLOPE TO ALL FLOOR DRAINS.
6. CONTROL JOINTS THAT ARE NOT SHOWN SHALL BE 25' MAX IN BRICK AND CMU WALLS.
7. SEE STRUCTURAL DRAWINGS FOR TYPES AND LOCATION OF LINTELS. WHERE NOT SHOWN, PROVIDE LINTELS FOR MECHANICAL, ELECTRICAL AND OTEHR PENETRATIONS WHERE REQUIRED.

FLOOR PLAN KEY NOTES

1	METAL PAN STAIRS WITH RUBBER TREADS, RISERS AND LANDINGS
2	SEE FOOD SERVICE DRAWINGS FOR SERVING LAYOUT, KITCHEN LAYOUT, AND EQUIPMENT INCLUDINGS COOLER AND FREEZER
3	KNOX BOX - RECESSED IN EXTERIOR WALL, COORDINATE EXACT LOCATION WITH OWNER AND FIRE MARSHAL
4	GLASS DISPLAY CASES
5	SHIPS LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
5A	WALL MOUNTED LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
6	FURNITURE (N.I.C.) - FOR VENDING, RES. APPLIANCES, AND COPIERS, PROVIDE POWER PER MFR REQ'MTS
7	METAL UTILITY SHELVING IN ALL UTILITY AND STORAGE ROOMS - SEE SPECIFICATIONS. SEE FOOD DRAWINGS FOR SHELVING TYPE.
8	KILN AND VENT BY OWNER - COORDINATE MASONRY OPENING FOR VENT AND POWER REQUIREMENTS W/ MFR REQ'MTS
9	FIXED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
10	ELECTRIC OPERATED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
11	TWO TIER BUILT-IN BENCH SEATING, CMU WALL & SOLID SURFACE TOP
12	TEACHING WALL. LOCATE TV ON CORRIDOR SIDE & WHITEBOARD ON EXTERIOR WALL SIDE. DIMENSION IS TO CENTER OF THE TV. TV AND WHITEBOARD ONLY IN SCIENCE ROOMS. REFER TO DETAIL FOR MORE INFORMATION AND INTERIOR ELEVATIONS FOR TACKBOARD INFORMATION. (OWNER PROVIDED DISPLAY TV, COORDINATE OUTLET LOCATION)
13	LOW MASONRY WALL WITH PRE-CAST CAP - SEE SHEET A-520
14	ALUMINUM TRELLIS WITH WOOD GRAIN PATTERN. COLOR TO BE SELECTED FROM MANUF FULL LINE OF PATTERNS AND COLORS.
15	FURRING WITH GYP BOARD FINISH AROUND TEACHING WALL
16	TELESCOPING GYM BLEACHERS - OWNER PROVIDED, COORDINATE POWER REQUIREMENTS
17	MECHANICAL LOUVER - MATCH CW11 SIZE
18	42" A.F.F. GUARD RAIL - SEE A-421 THRU A-423 FOR DTLS
19	WALL RECESSED FIRE EXTINGUISHER CABINET - SEE A5 SERIES SHEET FOR DETAILS
20	SCIENCE ROOM FE WITH FIRE BLANKET CAB W/ MSDS DISPLAY ABOVE FE
21	SCIENCE ROOM SHOWER AND EYE WASH WITH 3'x3' RECESSED FLOOR SLAB WITH DRAIN
22	UTILITY ROOM MOP SINK WITH SS WALL SPLASH GUARD & MOP HOLDER



200 KEY PLAN

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ENERGY STAR PARTNER

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6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25

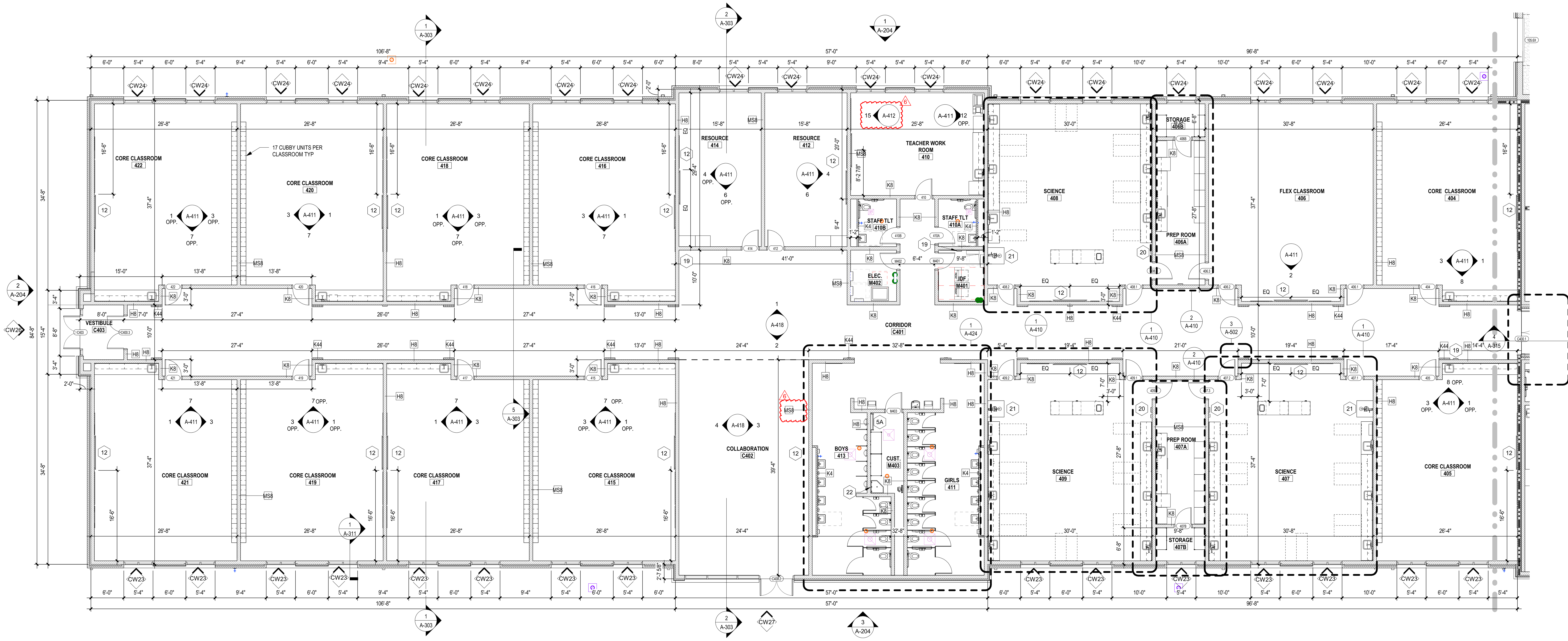
PROJECT #: 02208.000

DRAWN BY: Author

CHECKED BY: Checker

FLOOR PLAN AREA 200

A-112



1 A-114 **PARTIAL FIRST FLOOR PLAN - AREA 400**
SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

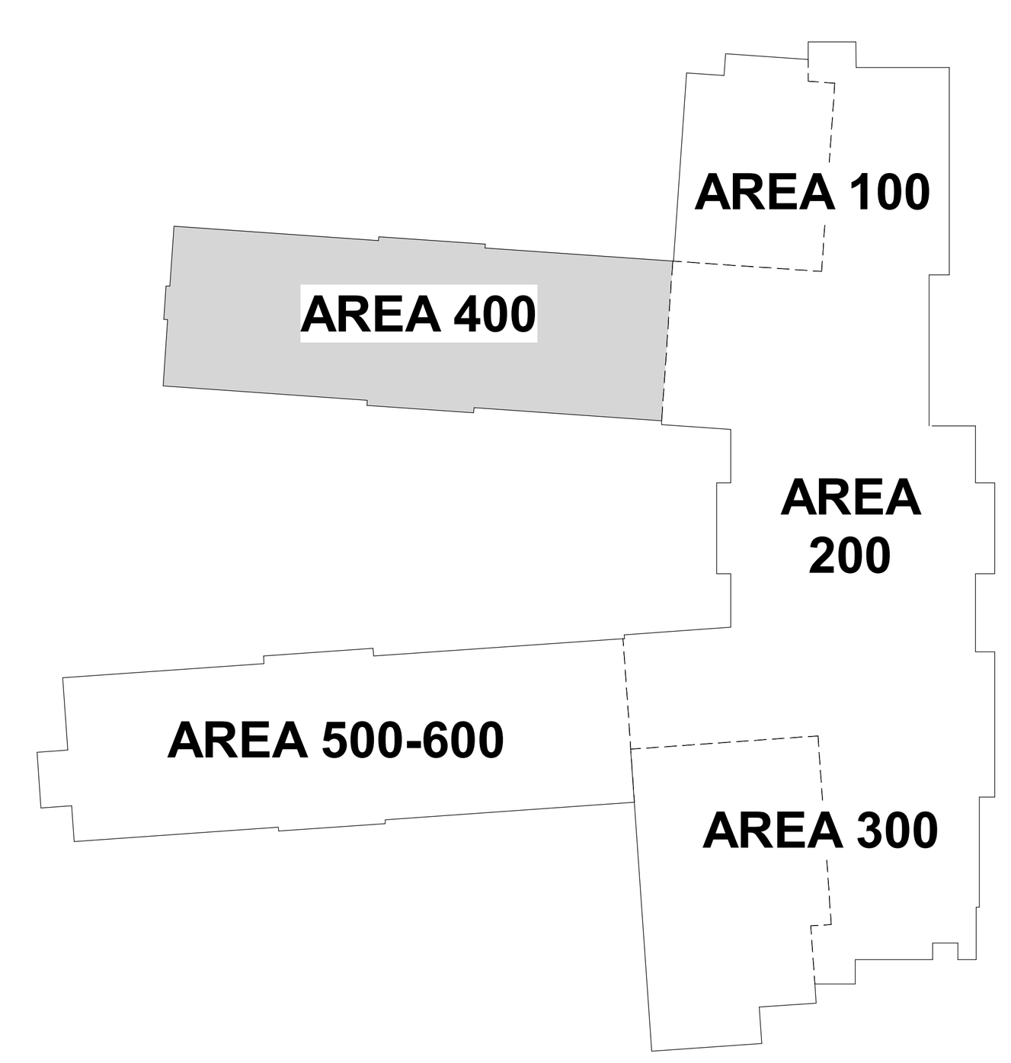
SYMBOL	DESCRIPTION
(1 hr rated wall symbol)	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
(2 hour rated wall symbol)	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
H8	WALL TAG - SEE SHEET A-010 FOR WALL PARTITION TYPES
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
W2	WINDOW TAG - SEE SHEET SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS CURTAIN WALL TAG - SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS

GENERAL NOTES:

1. SEE OVERALL PLAN ON A-101 FOR OVERALL BUILDING/MISSING DIMENSIONS.
2. SEE SHEET G-003 FOR UL DESIGNS.
3. SEE SHEET A-010 FOR WALL PARTITION TYPES.
4. ALL INTERIOR METAL STUD WALLS TO HAVE SOUND ATTENUATION BATTS.
5. PROVIDE POSITIVE FLOOR SLOPE TO ALL FLOOR DRAINS.
6. CONTROL JOINTS THAT ARE NOT SHOWN SHALL BE 25' MAX IN BRICK AND CMU WALLS.
7. SEE STRUCTURAL DRAWINGS FOR TYPES AND LOCATION OF LINTELS. WHERE NOT SHOWN, PROVIDE LINTELS FOR MECHANICAL, ELECTRICAL AND OTEHR PENETRATIONS WHERE REQUIRED.

FLOOR PLAN KEY NOTES

1	METAL PAN STAIRS WITH RUBBER TREADS, RISERS AND LANDINGS
2	SEE FOOD SERVICE DRAWINGS FOR SERVING LAYOUT, KITCHEN LAYOUT, AND EQUIPMENT INCLUDINGS COOLER AND FREEZER
3	KNOX BOX - RECESSED IN EXTERIOR WALL, COORDINATE EXACT LOCATION WITH OWNER AND FIRE MARSHAL
4	GLASS DISPLAY CASES
5	SHIPS LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
5A	WALL MOUNTED LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
6	FURNITURE (N.I.C.) - FOR VENDING, RES. APPLIANCES, AND COPIERS, PROVIDE POWER PER MFR REQ'MTS
7	METAL UTILITY SHELVING IN ALL UTILITY AND STORAGE ROOMS - SEE SPECIFICATIONS. SEE FOOD DRAWINGS FOR SHELVING TYPE.
8	KILN AND VENT BY OWNER - COORDINATE MASONRY OPENING FOR VENT AND POWER REQUIREMENTS W/ MFR REQ'MTS
9	FIXED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
10	ELECTRIC OPERATED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
11	TWO TIER BUILT-IN BENCH SEATING, CMU WALL & SOLID SURFACE TOP
12	TEACHING WALL. LOCATE TV ON CORRIDOR SIDE & WHITEBOARD ON EXTERIOR WALL SIDE. DIMENSION IS TO CENTER OF THE TV. TV AND WHITEBOARD ONLY IN SCIENCE ROOMS. REFER TO DETAIL FOR MORE INFORMATION AND INTERIOR ELEVATIONS FOR TACKBOARD INFORMATION. (OWNER PROVIDED DISPLAY TV, COORDINATE OUTLET LOCATION)
13	LOW MASONRY WALL WITH PRE-CAST CAP - SEE SHEET A-520
14	ALUMINUM TRELLIS WITH WOOD GRAIN PATTERN. COLOR TO BE SELECTED FROM MANUF FULL LINE OF PATTERNS AND COLORS.
15	FURRING WITH GYP BOARD FINISH AROUND TEACHING WALL
16	TELESCOPING GYM BLEACHERS - OWNER PROVIDED, COORDINATE POWER REQUIREMENTS
17	MECHANICAL LOUVER - MATCH CW11 SIZE
18	42" A.F.F. GUARD RAIL - SEE A-421 THRU A-423 FOR DTLS
19	WALL RECESSED FIRE EXTINGUISHER CABINET - SEE A5 SERIES SHEET FOR DETAILS
20	SCIENCE ROOM FE WITH FIRE BLANKET CAB W/ MSDS DISPLAY ABOVE FE
21	SCIENCE ROOM SHOWER AND EYE WASH WITH 3'x3' RECESSED FLOOR SLAB WITH DRAIN
22	UTILITY ROOM MOP SINK WITH SS WALL SPLASH GUARD & MOP HOLDER



400 KEY PLAN

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

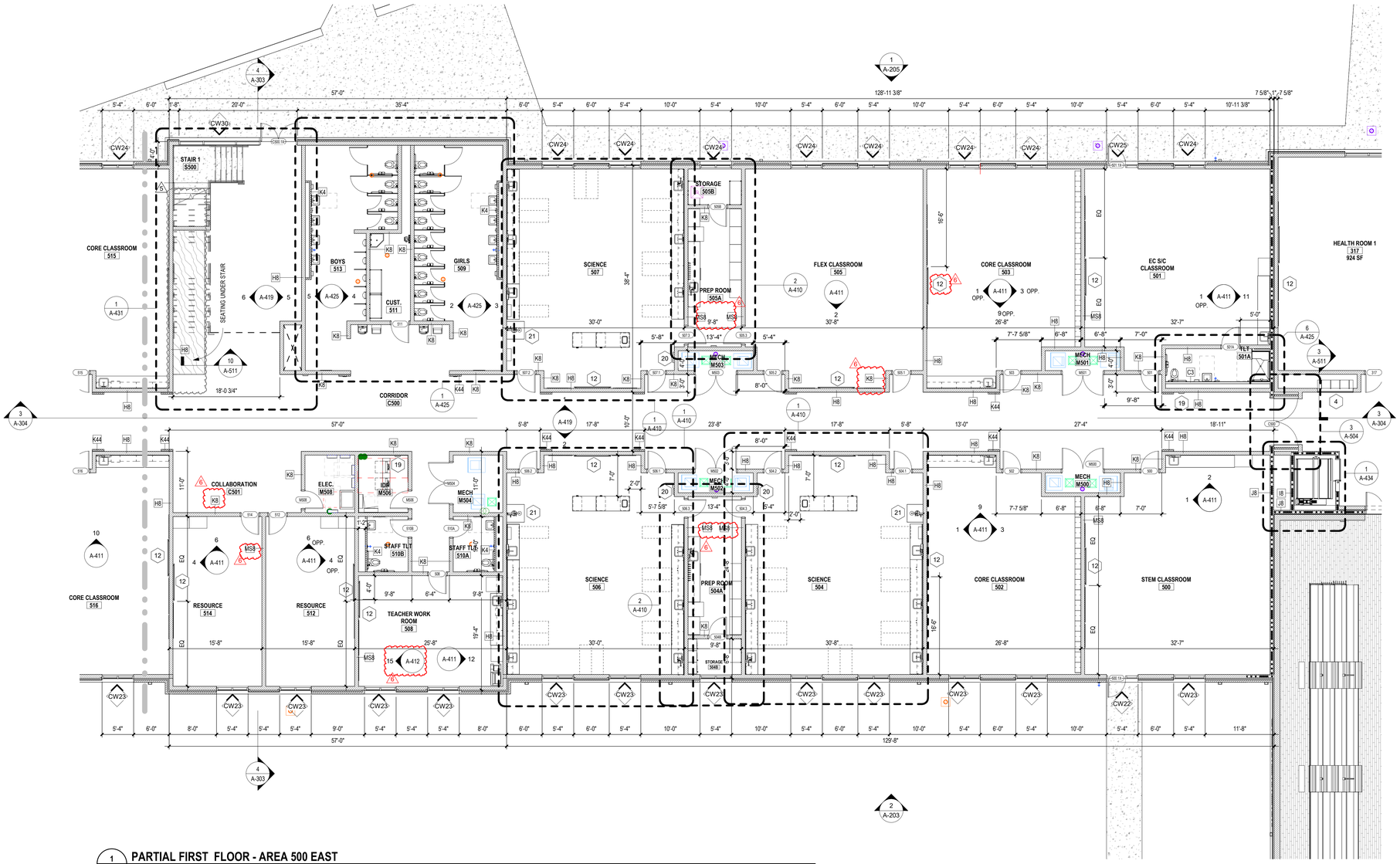
No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR PLAN AREA 400

A-114

Autodesk Docs://HCS Flatwoods MS/2208 HCS Flatwoods MS.rvt
2/6/2025 12:19:21 PM



1 A-115.1 PARTIAL FIRST FLOOR - AREA 500 EAST

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

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
H8	WALL TAG - SEE SHEET A-010 FOR WALL PARTITION TYPES
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
W2	WINDOW TAG - SEE SHEET SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS. CURTAIN WALL TAG - SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS

GENERAL NOTES:

1. SEE OVERALL PLAN ON A-101 FOR OVERALL BUILDING/MISSING DIMENSIONS.
2. SEE SHEET G-003 FOR UL DESIGNS.
3. SEE SHEET A-010 FOR WALL PARTITION TYPES.
4. ALL INTERIOR METAL STUD WALLS TO HAVE SOUND ATTENUATION BATTS.
5. PROVIDE POSITIVE FLOOR SLOPE TO ALL FLOOR DRAINS.
6. CONTROL JOINTS THAT ARE NOT SHOWN SHALL BE 25' MAX IN BRICK AND CMU WALLS.
7. SEE STRUCTURAL DRAWINGS FOR TYPES AND LOCATION OF LINTELS. WHERE NOT SHOWN, PROVIDE LINTELS FOR MECHANICAL, ELECTRICAL AND OTEHR PENETRATIONS WHERE REQUIRED.

FLOOR PLAN KEY NOTES

1. METAL PAN STAIRS WITH RUBBER TREADS, RISERS AND LANDINGS
2. SEE FOOD SERVICE DRAWINGS FOR SERVING LAYOUT, KITCHEN LAYOUT, AND EQUIPMENT INCLUDINGS COOLER AND FREEZER
3. KNOX BOX - RECESSED IN EXTERIOR WALL. COORDINATE EXACT LOCATION WITH OWNER AND FIRE MARSHAL
4. GLASS DISPLAY CASES
5. SHIPS LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
5A. WALL MOUNTED LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
6. FURNITURE (N.I.C.) - FOR VENDING, RES. APPLIANCES, AND COPIERS, PROVIDE POWER PER MFR REQ'MTS
7. METAL UTILITY SHELVING IN ALL UTILITY AND STORAGE ROOMS - SEE SPECIFICATIONS. SEE FOOD DRAWINGS FOR SHELVING TYPE.
8. KILN AND VENT BY OWNER - COORDINATE MASONRY OPENING FOR VENT AND POWER REQUIREMENTS W/ MFR REQ'MTS
9. FIXED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
10. ELECTRIC OPERATED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.
11. TWO TIER BUILT-IN BENCH SEATING, CMU WALL & SOLID SURFACE TOP
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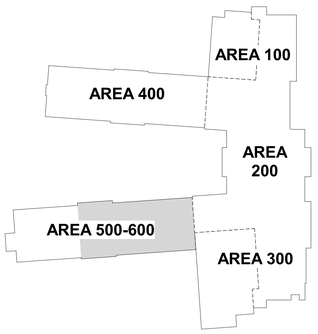
13. LOW MASONRY WALL WITH PRE-CAST CAP - SEE SHEET A-520
14. ALUMINUM TRELLIS WITH WOOD GRAIN PATTERN. COLOR TO BE SELECTED FROM MANUF FULL LINE OF PATTERNS AND COLORS.
15. FURRING WITH GYP BOARD FINISH AROUND TEACHING WALL
16. TELESCOPING GYM BLEACHERS - OWNER PROVIDED, COORDINATE POWER REQUIREMENTS
17. MECHANICAL LOUVER - MATCH CW11 SIZE
18. 42" A.F.F. GUARD RAIL - SEE A-421 THRU A-423 FOR DTLS
19. WALL RECESSED FIRE EXTINGUISHER CABINET - SEE A5 SERIES SHEET FOR DETAILS
20. SCIENCE ROOM FE WITH FIRE BLANKET CAB W/ MSDS DISPLAY ABOVE FE
21. SCIENCE ROOM SHOWER AND EYE WASH WITH 3'x3' RECESSED FLOOR SLAB WITH DRAIN
22. UTILITY ROOM MOP SINK WITH SS WALL SPLASH GUARD & MOP HOLDER



500/600 EAST KEY PLAN

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

3544 US 401 S, LILLINGTON NC 27546

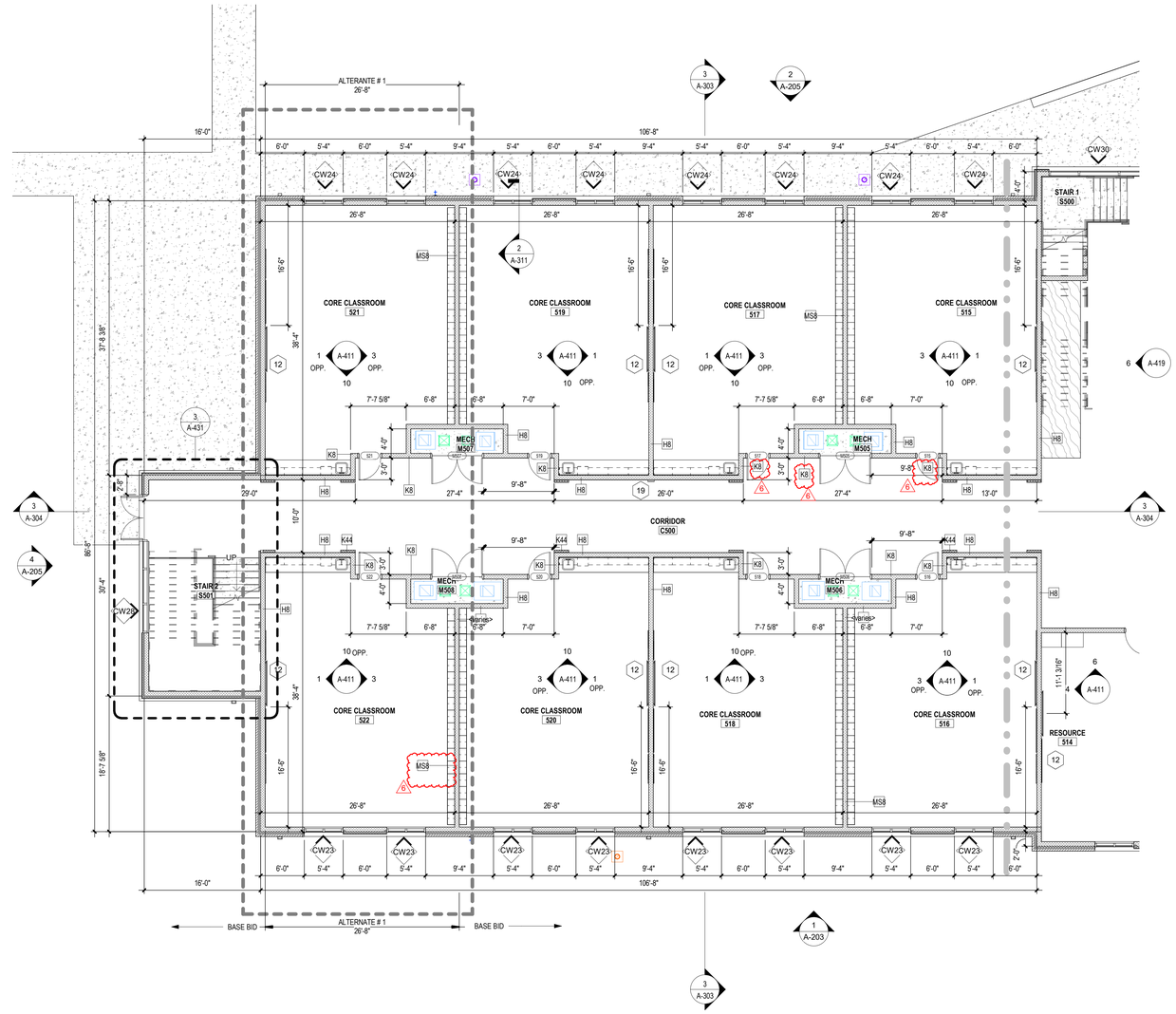
ENERGY STAR PARTNER

No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR PLAN AREA 500 EAST

A-115.1



1 A-115.2 PARTIAL FIRST FLOOR - AREA 500 WEST

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

FLOOR PLAN LEGEND

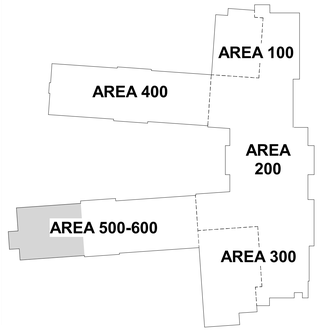
SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
H8	WALL TAG - SEE SHEET A-010 FOR WALL PARTITION TYPES
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
W2	WINDOW TAG - SEE SHEET SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS CURTAIN WALL TAG - SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS

GENERAL NOTES:

1. SEE OVERALL PLAN ON A-101 FOR OVERALL BUILDING/MISSING DIMENSIONS.
2. SEE SHEET G-003 FOR UL DESIGNS.
3. SEE SHEET A-010 FOR WALL PARTITION TYPES.
4. ALL INTERIOR METAL STUD WALLS TO HAVE SOUND ATTENUATION BATTS.
5. PROVIDE POSITIVE FLOOR SLOPE TO ALL FLOOR DRAINS.
6. CONTROL JOINTS THAT ARE NOT SHOWN SHALL BE 25' MAX IN BRICK AND CMU WALLS.
7. SEE STRUCTURAL DRAWINGS FOR TYPES AND LOCATION OF LINTELS. WHERE NOT SHOWN, PROVIDE LINTELS FOR MECHANICAL, ELECTRICAL AND OTEHR PENETRATIONS WHERE REQUIRED.

FLOOR PLAN KEY NOTES

1	METAL PAN STAIRS WITH RUBBER TREADS, RISERS AND LANDINGS	12	TEACHING WALL. LOCATE TV ON CORRIDOR SIDE & WHITEBOARD ON EXTERIOR WALL SIDE. DIMENSION IS TO CENTER OF THE TV. TV AND WHITEBOARD ONLY IN SCIENCE ROOMS. REFER TO DETAIL FOR MORE INFORMATION AND INTERIOR ELEVATIONS FOR TACKBOARD INFORMATION. (OWNER PROVIDED DISPLAY TV, COORDINATE OUTLET LOCATION)
2	SEE FOOD SERVICE DRAWINGS FOR SERVING LAYOUT, KITCHEN LAYOUT, AND EQUIPMENT INCLUDINGS COOLER AND FREEZER		
3	KNOX BOX - RECESSED IN EXTERIOR WALL, COORDINATE EXACT LOCATION WITH OWNER AND FIRE MARSHAL	13	LOW MASONRY WALL WITH PRE-CAST CAP - SEE SHEET A-520
4	GLASS DISPLAY CASES	14	ALUMINUM TRELLIS WITH WOOD GRAIN PATTERN. COLOR TO BE SELECTED FROM MANUF FULL LINE OF PATTERNS AND COLORS.
5	SHIPS LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO	15	FURRING WITH GYP BOARD FINISH AROUND TEACHING WALL
5A	WALL MOUNTED LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO	16	TELESCOPING GYM BLEACHERS - OWNER PROVIDED, COORDINATE POWER REQUIREMENTS
6	FURNITURE (N.I.C.) - FOR VENDING, RES. APPLIANCES, AND COPIERS, PROVIDE POWER PER MFR REQ'MTS	17	MECHANICAL LOUVER - MATCH CW11 SIZE
7	METAL UTILITY SHELVING IN ALL UTILITY AND STORAGE ROOMS - SEE SPECIFICATIONS. SEE FOOD DRAWINGS FOR SHELVING TYPE.	18	42" A.F.F. GUARD RAIL - SEE A-421 THRU A-423 FOR DTLS
8	KILN AND VENT BY OWNER - COORDINATE MASONRY OPENING FOR VENT AND POWER REQUIREMENTS W/ MFR REQ'MTS	19	WALL RECESSED FIRE EXTINGUISHER CABINET - SEE A5 SERIES SHEET FOR DETAILS
9	FIXED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.	20	SCIENCE ROOM FE WITH FIRE BLANKET CAB W/ MSDS DISPLAY ABOVE FE
10	ELECTRIC OPERATED BASKETBALL HOOP. MAST COLOR TO BE SELECTED BY ARCHITECT.	21	SCIENCE ROOM SHOWER AND EYE WASH WITH 3'x3' RECESSED FLOOR SLAB WITH DRAIN
11	TWO TIER BUILT-IN BENCH SEATING, CMU WALL & SOLID SURFACE TOP	22	UTILITY ROOM MOP SINK WITH SS WALL SPLASH GUARD & MOP HOLDER



500/600 WEST KEY PLAN

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

3544 US 401 S, LILLINGTON NC 27546

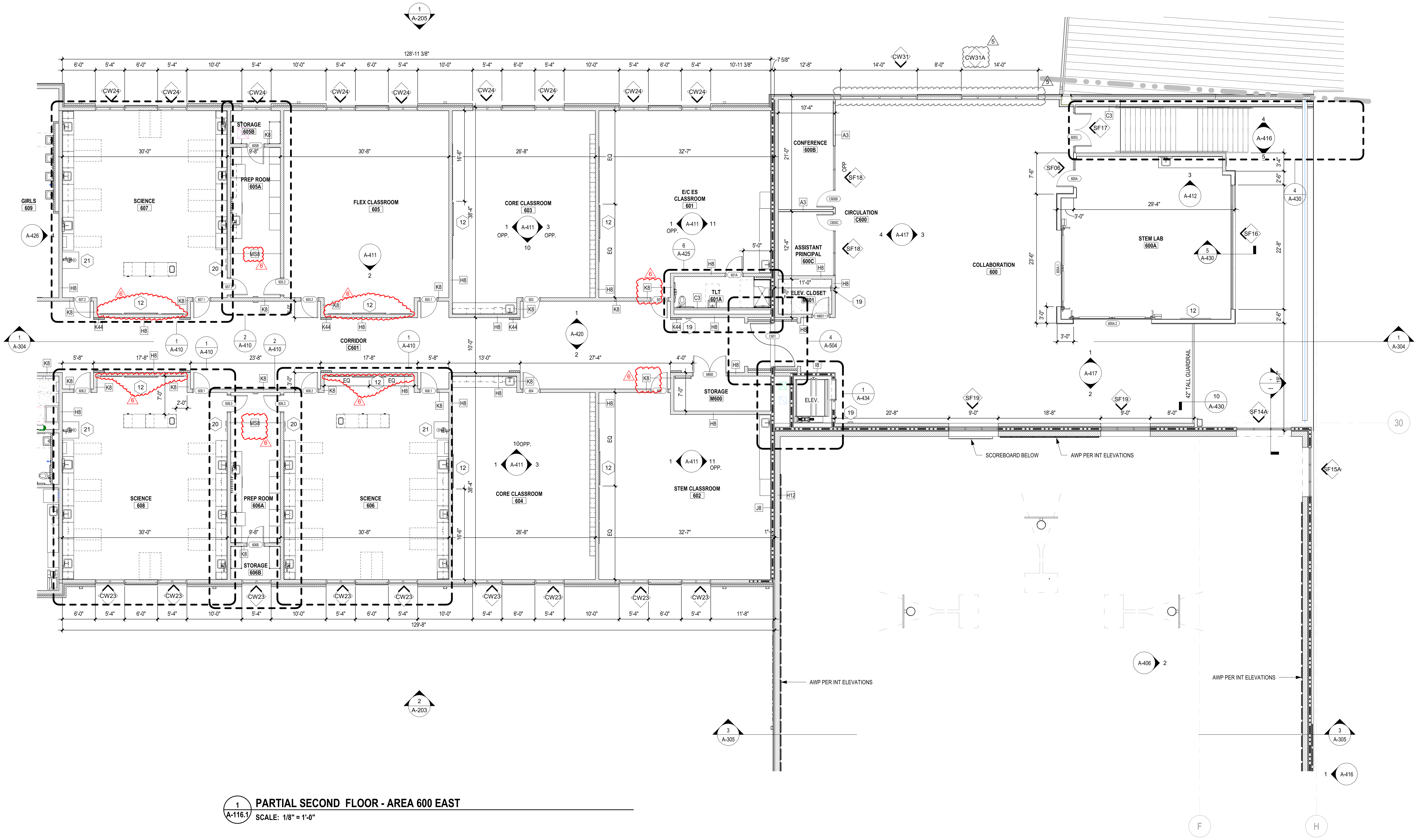
ENERGY STAR PARTNER

No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR PLAN AREA 500 WEST

A-115.2



1 A-116.1 **PARTIAL SECOND FLOOR - AREA 600 EAST**
SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
(1 hr line symbol)	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
(2 hr line symbol)	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
FD	FLOOR DRAIN - SEE PLUMBING DRAWINGS
H8	WALL TAG - SEE SHEET A-010 FOR WALL PARTITION TYPES
100	DOOR TAG - SEE SHEET A-601 AND FLOOR PLANS
W2	WINDOW TAG - SEE SHEET SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS CURTAIN WALL TAG - SEE SHEET A-611 THROUGH A-612 ALONG WITH FLOOR PLANS

GENERAL NOTES:

1. SEE OVERALL PLAN ON A-101 FOR OVERALL BUILDING/MISSING DIMENSIONS.
2. SEE SHEET G-003 FOR UL DESIGNS.
3. SEE SHEET A-010 FOR WALL PARTITION TYPES.
4. ALL INTERIOR METAL STUD WALLS TO HAVE SOUND ATTENUATION BATTS.
5. PROVIDE POSITIVE FLOOR SLOPE TO ALL FLOOR DRAINS.
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7. SEE STRUCTURAL DRAWINGS FOR TYPES AND LOCATION OF LINTELS. WHERE NOT SHOWN, PROVIDE LINTELS FOR MECHANICAL, ELECTRICAL AND OTEHR PENETRATIONS WHERE REQUIRED.

FLOOR PLAN KEY NOTES

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2	SEE FOOD SERVICE DRAWINGS FOR SERVING LAYOUT, KITCHEN LAYOUT, AND EQUIPMENT INCLUDINGS COOLER AND FREEZER
3	KNOX BOX - RECESSED IN EXTERIOR WALL, COORDINATE EXACT LOCATION WITH OWNER AND FIRE MARSHAL
4	GLASS DISPLAY CASES
5	SHIPS LADDER TO MECHANICAL PLATFORM, 3' WIDE TYP UNO
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7	METAL UTILITY SHELVING IN ALL UTILITY AND STORAGE ROOMS - SEE SPECIFICATIONS. SEE FOOD DRAWINGS FOR SHELVING TYPE.
8	KILN AND VENT BY OWNER - COORDINATE MASONRY OPENING FOR VENT AND POWER REQUIREMENTS W/ MFR REQ'MTS
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11	TWO TIER BUILT-IN BENCH SEATING, CMU WALL & SOLID SURFACE TOP
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13	LOW MASONRY WALL WITH PRE-CAST CAP - SEE SHEET A-520
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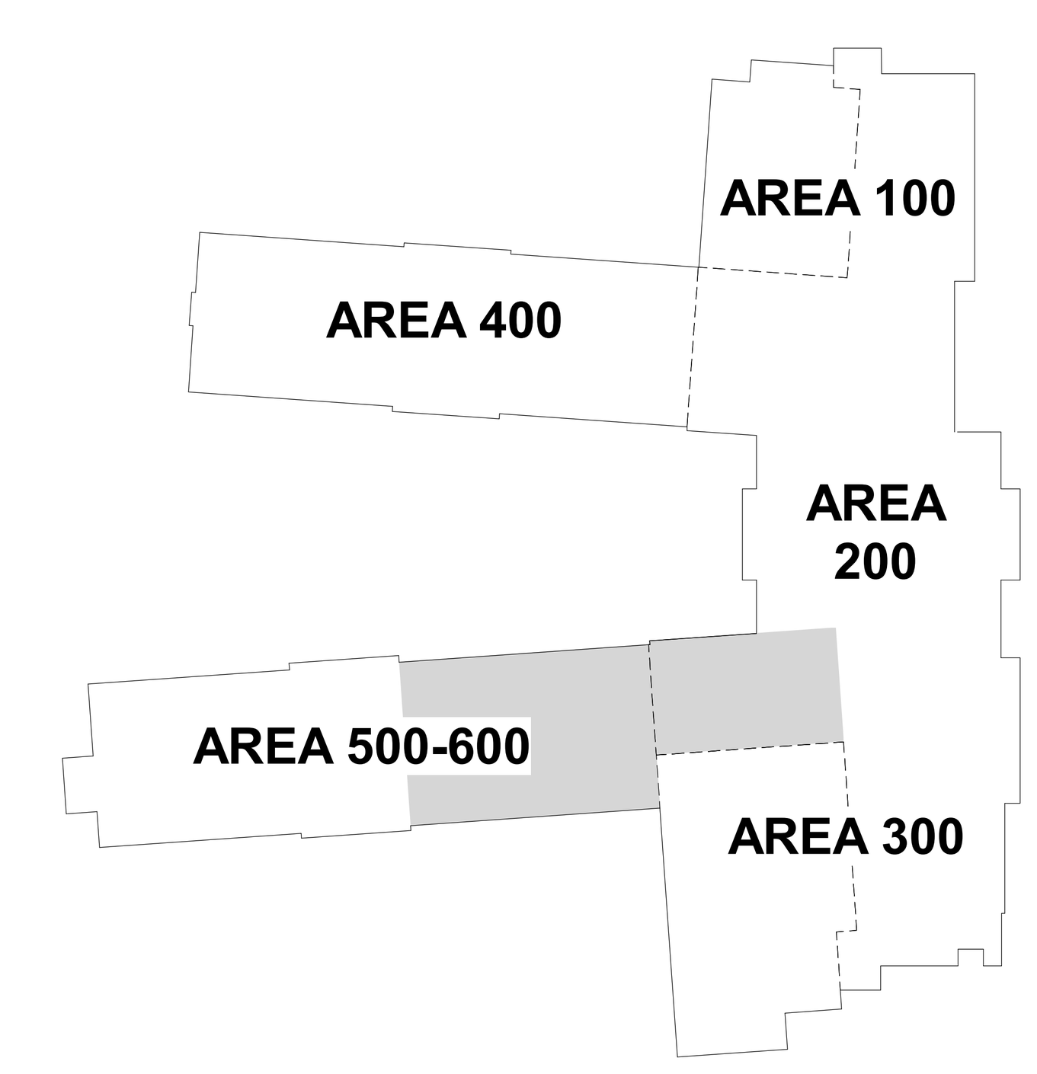

600 EAST KEY PLAN

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SfL+a ARCHITECTS, PA — REGISTERED ARCHITECTURAL CORPORATION — CERT. NO. 50676 — NORTH CAROLINA — RALEIGH

ROBERT W. FERRIS — REGISTERED ARCHITECT — 6184 — NORTH CAROLINA — RALEIGH, N.C — 11/8/24

CONSTRUCTION DOCUMENTS

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FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

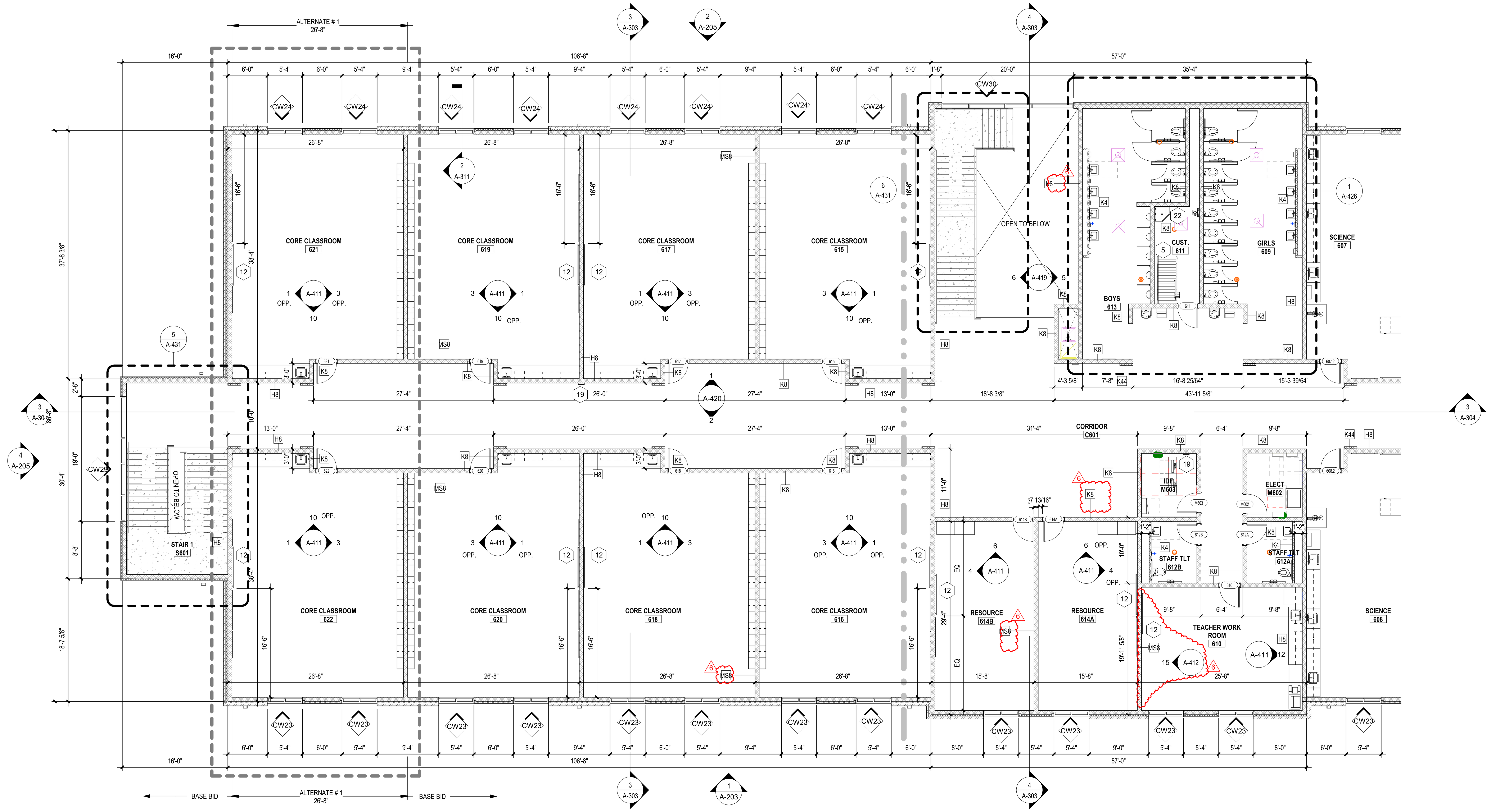
ENERGY STAR PARTNER

No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR PLAN AREA 600 EAST

A-116.1



1 A-116.2 **PARTIAL SECOND FLOOR - AREA 600 WEST**
SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND

SYMBOL	DESCRIPTION
(hatched line)	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
(hatched line)	2 HOUR RATED WALL
CJ	CJ ON MASONRY
CA	CONTROL ACCESS - SEE LOW VOLTAGE DRAWINGS
KP	KEY PAD - SEE ELECTRICAL
EJ	BUILDING EXPANSION JOINT WITH COVER
DS	DOWNSPOUT - SEE CIVIL FOR CONNECTION INFORMATION
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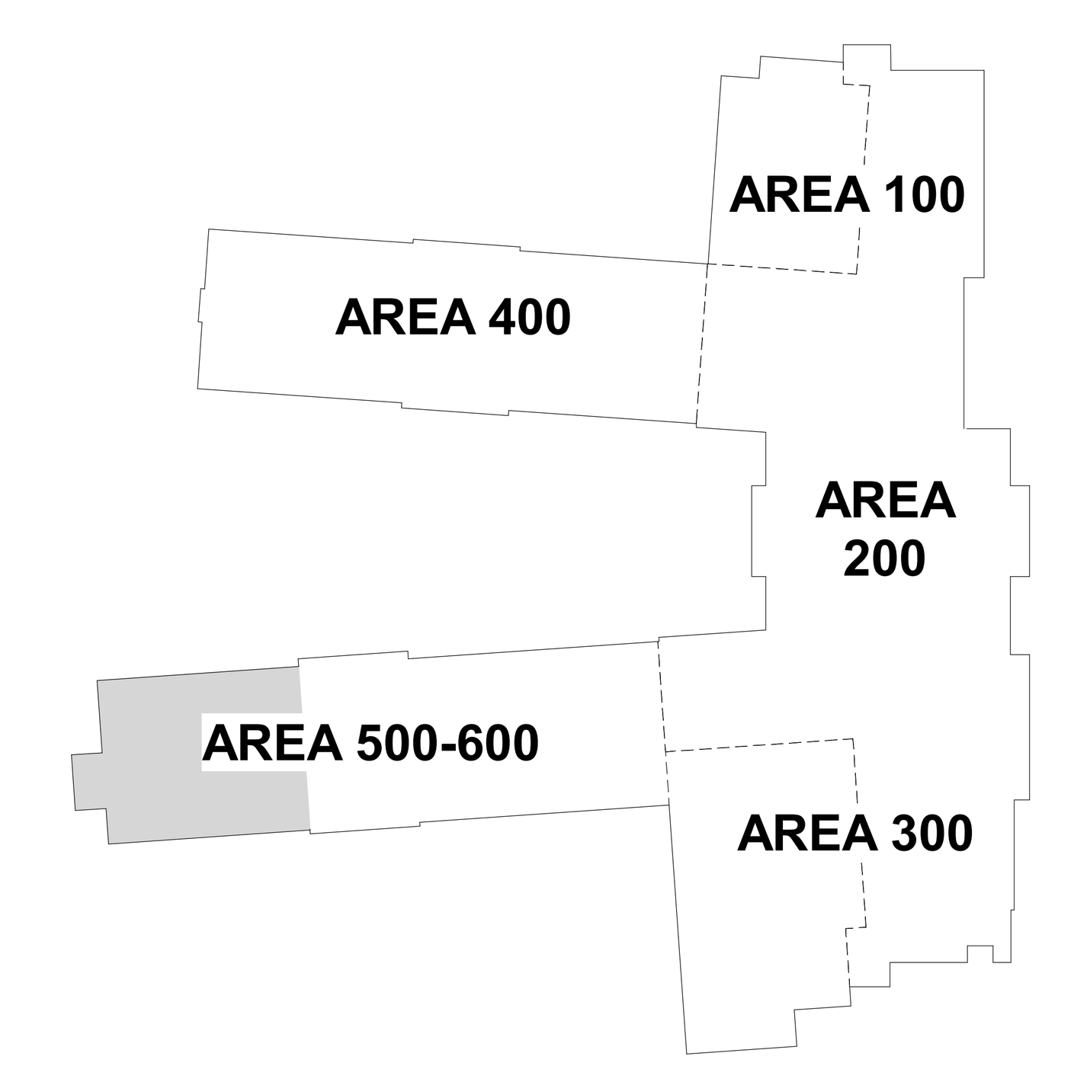
16	TELESCOPING GYM BLEACHERS - OWNER PROVIDED, COORDINATE POWER REQUIREMENTS
17	MECHANICAL LOUVER - MATCH CW11 SIZE
18	42" A.F.F. GUARD RAIL - SEE A-421 THRU A-423 FOR DTLS
19	WALL RECESSED FIRE EXTINGUISHER CABINET - SEE A5 SERIES SHEET FOR DETAILS
20	SCIENCE ROOM FE WITH FIRE BLANKET CAB W/ MSDS DISPLAY ABOVE FE
21	SCIENCE ROOM SHOWER AND EYE WASH WITH 3'x3' RECESSED FLOOR SLAB WITH DRAIN
22	UTILITY ROOM MOP SINK WITH SS WALL SPLASH GUARD & MOP HOLDER



500/600 WEST KEY PLAN

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CONSTRUCTION DOCUMENTS

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ENERGY STAR PARTNER

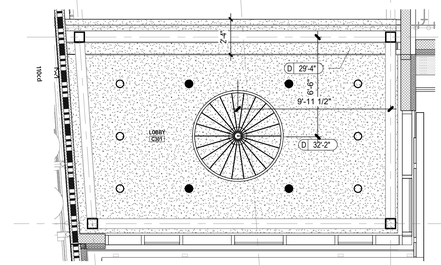
No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR PLAN AREA 600 WEST

A-116.2

1 A-123 **REFLECTED CEILING PLAN-AREA 300**
SCALE: 1/8" = 1'-0"



2 A-123 **REFLECTED CEILING PLAN - LOBBY C301 CLERESTORY**
SCALE: 1/4" = 1'-0"

REFLECTED CEILING PLAN LEGEND

CEILING TYPE — CEILING HEIGHT (e.g. A 8' - 0")

TYPE	DESCRIPTION
	2' x 2' ACOUSTICAL CEILING TILES
	TYPE "A": TYP. PANELS, WHITE WITH WHITE GRID
	TYPE "B": IMPERVIOUS PANELS (HEALTH GRADE), WHITE WITH WHITE GRID
	TYPE "C": BLACK PANELS WITH BLACK GRID
	GYPSUM BOARD CEILING
	TYPE "D": TYP. GWB CEILING SYSTEM, PAINTED
	TYPE "E": GWB CEILING SYSTEM, PAINTED, EPOXY
	TYPE "F": WOOD SLAT

	EXTERIOR DOWNLIGHT (CLG MOUTNED) EXTERIOR DOWNLIGHT (WALL MOUNTED)
	LED EXIT SIGN - CEILING MOUNTED LED EXIT SIGN - WALL MOUNTED
	DOWNLIGHT
	DECORATIVE PENDANT
	GYM LIGHTING -SUSPENDED PENDANT
	LINEAR FIXTURE
	2x4 ACRYLIC LAY-IN
	LINEAR PENDANT
	DIFFUSER - SEE MECHANICAL
	RETURN - SEE MECHANICAL
	DIFFUSER - SEE MECHANICAL
	DIFFUSER - SEE MECHANICAL
	CEILING ACOUSTICAL DIFFUSER PANEL
	DECORATIVE PENDANT
	ACOUSTICAL SUSPENDED SYSTEM

GENERAL NOTES

1. REFER TO ELECTRICAL SHEETS FOR LIGHT FIXTURE LOCATIONS, TYPES AND ADDITIONAL INFORMATION.
2. COORDINATE LOCATION OF ACCESS PANELS WITH PLUMBING CONTRACTOR.
3. ALL EXPOSED STRUCTURE, PIPING, DUCT WORK, ELECTRICAL DEVICES, ETC. IN AREAS INDICATED AS EXPOSED STRUCTURE TO BE PAINTED EXCEPT MECHANICAL ROOMS - SEE FINISH PLANS.
4. CONTROL JOINTS ARE NOTED IN GYP CEILINGS AS 'CJ' - CONTROL JOINTS NOT SHOWN TO BE SPACED AT 20' - 0" OC (TYP)
5. EAVE AND CANOPY SOFFITS TO BE 7" FLUSH METAL PANEL SYSTEM.
6. INTERIOR LOUVERS TO BE PAINTED TO MATCH THE WALL OR BULKHEAD COLOR THAT THE LOUVER IS INSTALLED IN.
7. ALL CLASSROOMS TO HAVE SOUND ATTENUATION BATTS ABOVE THE CEILING GRID - PROVIDE 4' - 0" MINIMUM COVERAGE FROM THE PERIMITER WALLS - SEE SPECIFICATIONS.
8. COORDINATE SLOPED CEILINGS TO PROVIDE 2" MINIMUM CLEARANCE OVER TOP OF WINDOW FRAME.

RCP KEY NOTES

1. OPEN TO STRUCTURE ABOVE. DRYFALL PAINT ALL EXPOSED DECKING, CONDUIT, ELECTRICAL DEVICES, ETC. REFER TO FINISH SCHEDULE FOR COLORS AND LOCATIONS.
2. ACOUSTICAL CLOUDS. REFER TO FINISH LEGEND FOR MORE INFORMATION.
3. ACOUSTICAL SUSPENDED SYSTEM. REFER TO FINISH LEGEND FOR MORE INFORMATION.
4. NOT USED.
5. PRE-MANUFACTURED CANOPY SYSTEM
6. PRE-MANUFACTURED LOUVERED EXTERIOR SUN CONTROL DEVICE
7. ALUMINUM TRELLIS STRUCTURE WITH WOOD GRAIN TEXTURED FINISH
8. KITCHEN HOOD-SEE MECH AND FOOD SERVICE DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE DIMENSIONS OF BULKHEAD WITH MANUF REQUIREMENT.
9. FIXED BASKETBALL HOOP, MAST STRUCTURE PAINTED BLACK
10. ELECTRIC OPERATED BASKETBALL HOOP, MAST STRUCTURE PAINTED BLACK
11. ACCESS PANEL
12. COORDINATE EXACT LOCATION OF THEATRICAL LIGHTING WITH MANUF.
13. OPEN TO STRUCTURE ABOVE
14. STRUCTURE ABOVE CEILING TO BE DRYFOG PAINTED BLACK

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ENERGY STAR PARTNER

No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

RCP - AREA 300

A-123

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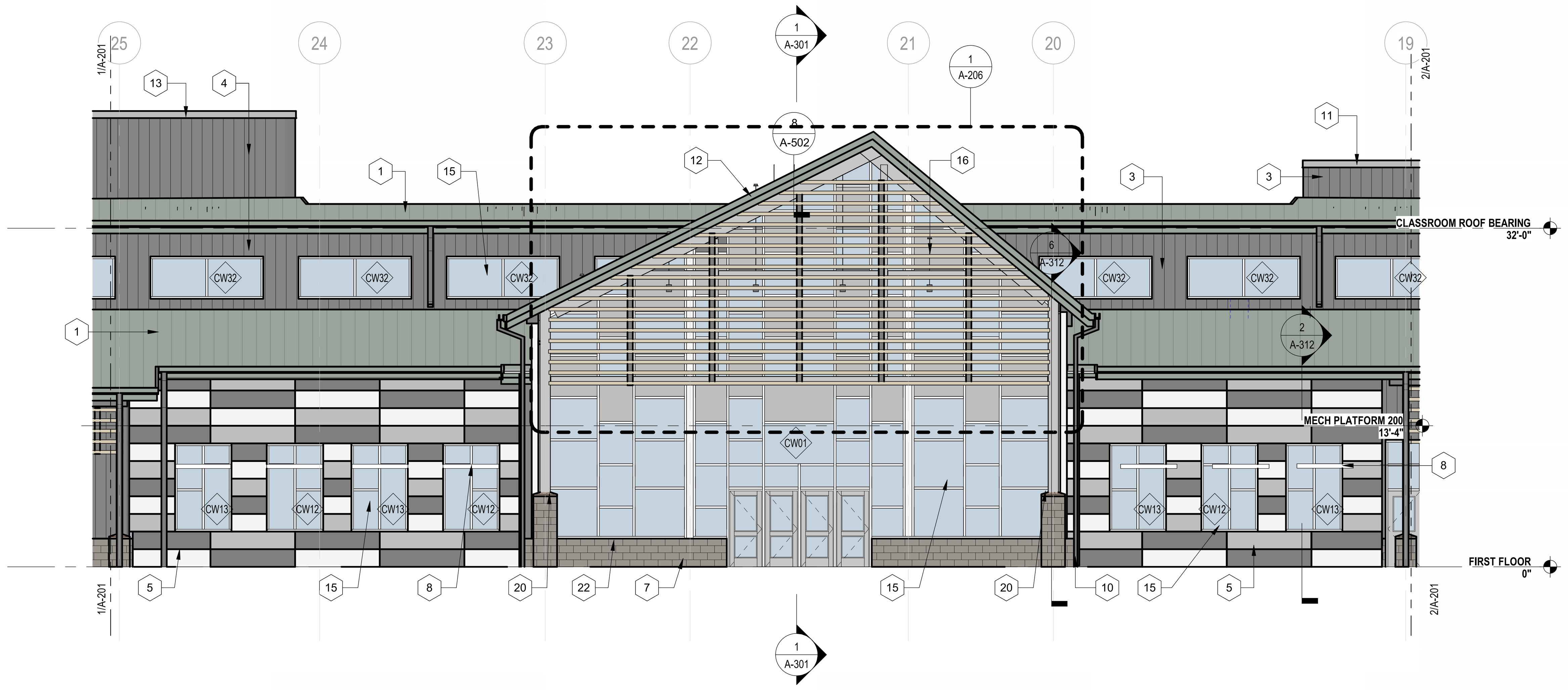
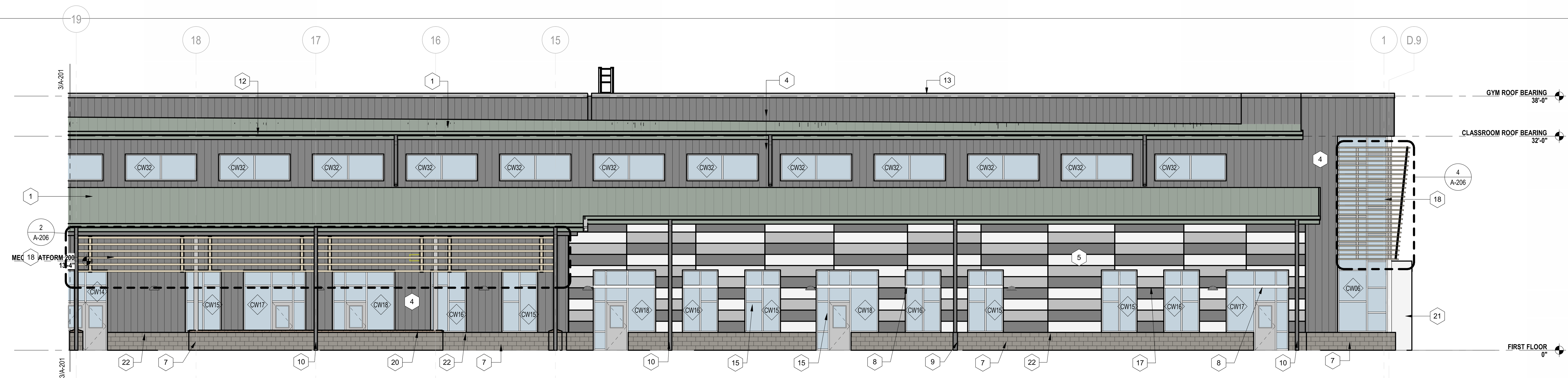
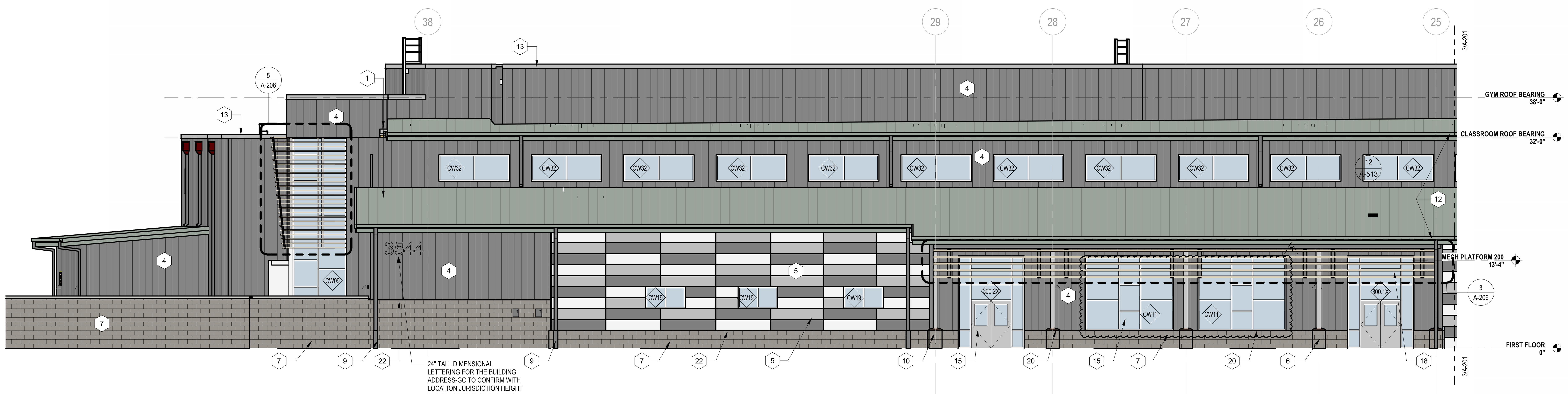


3 A-201 MAIN ENTRY EAST
SCALE: 1/8" = 1'-0"



2 A-201 MUSIC WING EAST
SCALE: 1/8" = 1'-0"



1 A-201 CAFETERIA EAST
SCALE: 1/8" = 1'-0"

ELEVATION LEGEND

SYMBOL	DESCRIPTION
CJ	CONTROL JOINT
EJ	BUILDING EXPANSION JOINT
(+3/8")	INDICATES PROJECTION DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
(-3/8")	INDICATES RECESS DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
W2	STOREFRONT/CURTAIN WALL TAG - SEE SHEET A-611 & A-612 WITH FLOOR PLANS

GENERAL NOTES:

1. SOLIDER COURSE ABOVE & BELOW WINDOW TO BE (+3/8") FROM FACE OF WALL U.N.O.
2. DOWNSPOUTS AT PERVIOUS (GRADE) SHALL RECEIVE A CAST IRON BOOT. ALL DOWNSPOUTS AT IMPERVIOUS (SIDEWALKS) LOCATIONS SHALL RUN THROUGH SIDEWALK WITH DOWNSPOUT CONNECTOR. SEE DETAILS ON SHEET A-503.

ELEVATION KEY NOTES

1. STANDING SEAM METAL PANEL ROOF - COLOR TBD
2. FIELD BRICK (BRK1)
3. ACCENT BRICK (BRK2) DOUBLE SOLDIER COURSE BANDING (PROJECT +3/8")
4. METAL PANEL MP-1, THREE VARYING BOX WIDTHS IN A REPEATING PATTERN
5. COMPOSITE METAL PANEL CMP-1,CMP-2, CMP3 - 3 DIFFERENT COLORS IN REPEATING PATTERN
6. METAL PANEL MP-2, BOX RIB PATTERN 1
7. SLIT FACE BLOCK OVER 1-3/8" AIR SPACE OVER 3" FOAMED- IN-PLACE INSULATION OVER CMU. NOMINAL DIMENSION 16"x 8" x4" (TYPICAL UNO) (6)
8. PRE-MANUFACTURED WINDOW-MOUNTED ALUMINUM SUNSHADE
9. 4" X 6" DOWNSPOUT WITH CAST IRON BOOT. TIE TO STORM DRAINS. AT PERVIOUS LOCATIONS ONLY.
10. 4" X 6" DOWNSPOUT WITH PVC BOOT. AT IMPERVIOUS LOCATIONS ONLY.
11. SCUPPER WITH COLLECTION BOX AND DOWNSPOUT
12. FACIA & GUTTER
13. CONT. PRE-FINISHED METAL COPING (COLOR TO MATCH ADJACENT MATERIAL)
14. PRE-MANUFACTURED WALL MOUNTED CANOPY
15. CURTAIN WALL WITH 1" INSULATED GLAZING- SEE SHEET A-611 & A612 FOR MORE INFORMATION
16. METAL WALL LOUVER - SEE MECHANICAL FOR SIZING. COLOR TO BE SELECTED FROM MANUF FULL LINE OF COLORS.
17. EXTERIOR WALL LIGHT FIXTURE - SEE ELECTRICAL
18. SUN SCREEN, ATTACHED TO CURTAINWALL
19. 14" HEIGHT ALUMINUM SIGNAGE LETTERS
20. CAST STONE CAP
21. COMPOSITE METAL PANEL CMP-2
22. SMOOTH FACE BLOCK BAND, T.O. BAND 2'-8" AFF. PROVIDE CHAMFERED CMU AT MP, CMP & WINDOWS. (6)

EXTERIOR ELEVATION MATERIALS LEGEND

ALL COLORS LISTED ARE BASIS OF DESIGN FOR COLOR SELECTIONS AND MUST BE REVIEWED BY ARCHITECT FOR FINAL APPROVAL.

	MANUF	COLOR
CMP-1	PAC CLAD	CADET GREY
CMP-2	PAC CLAD	PURE WHITE
CMP-3	PAC CLAD	SLATE GREY
MP-1	PAC CLAD	SLATE GREY
MP-2	PAC CLAD	SLATE GREY
BRK-1	PALMETTO BRICK	PEWTER
SFB-1	OLD CASTLE/ECHELON	4106

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CONSTRUCTION DOCUMENTS

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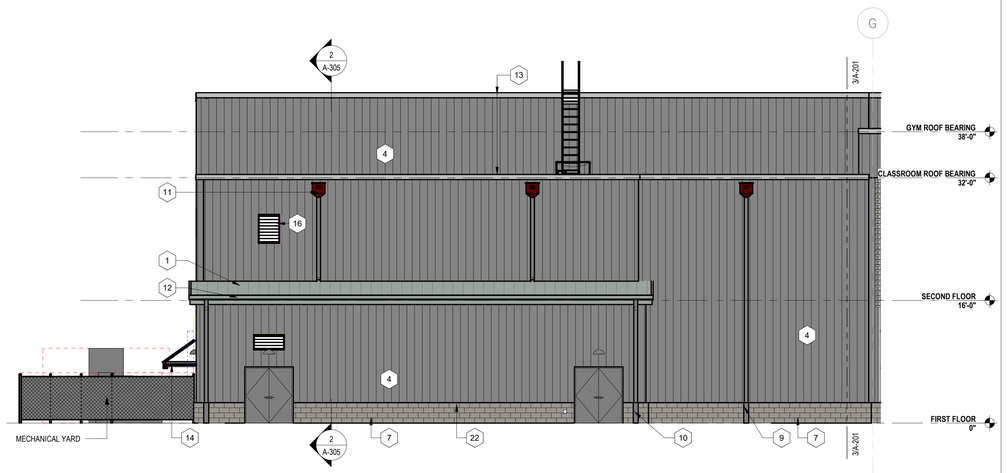
ENERGY STAR PARTNER

No.	Date	Description
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

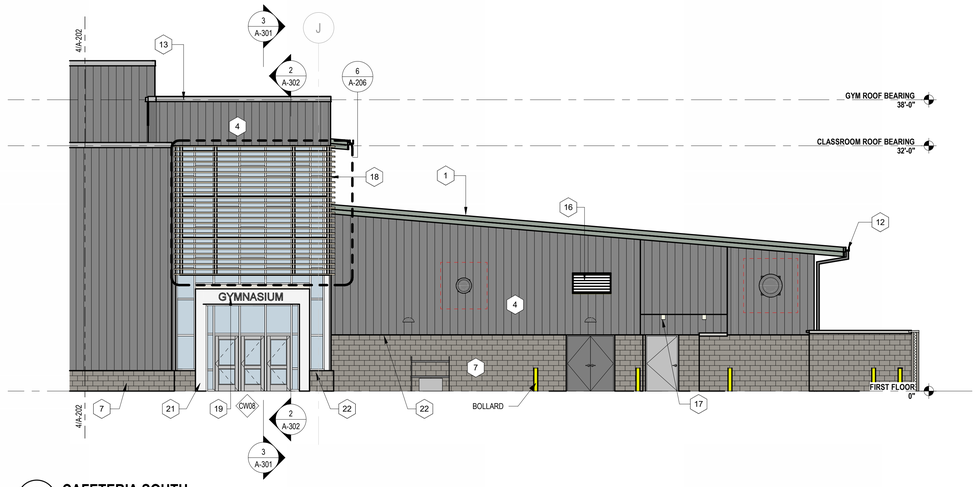
ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

EXT. BUILDING ELEVATIONS

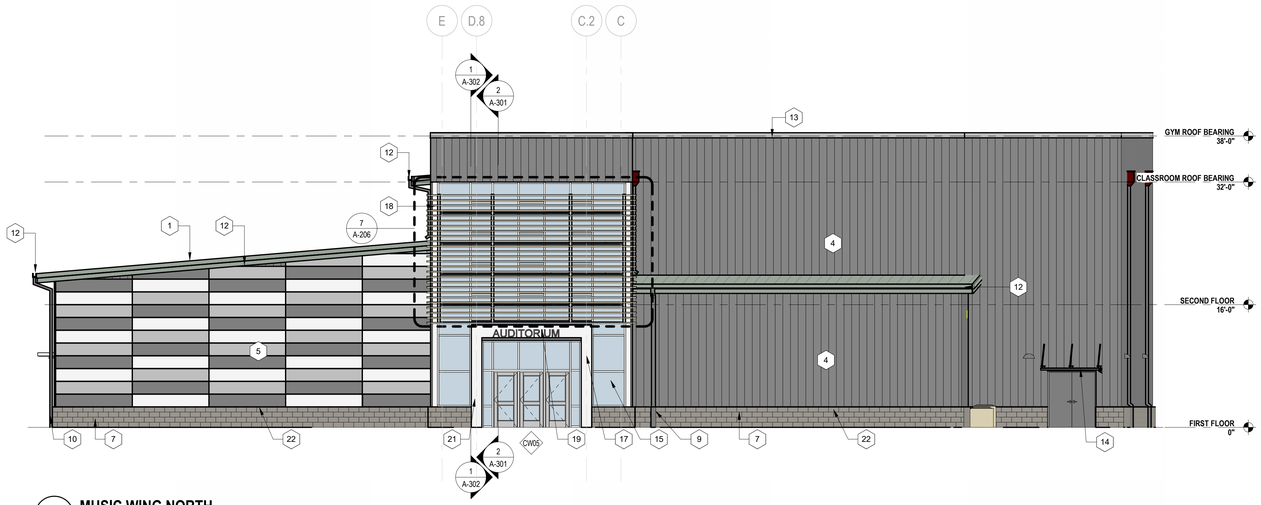
A-201



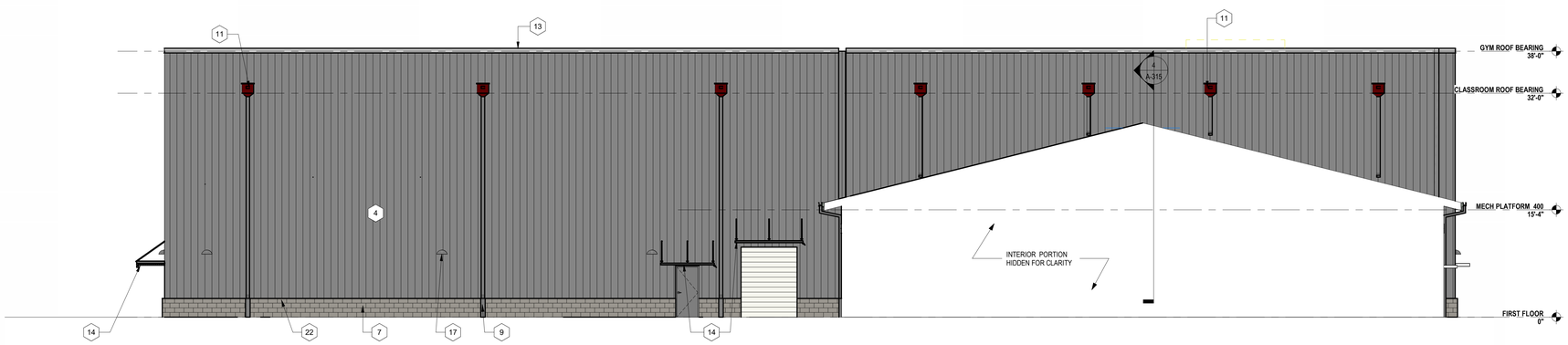
4 / A-202 GYMNASIUM SOUTH
SCALE: 1/8" = 1'-0"



3 / A-202 CAFETERIA SOUTH
SCALE: 1/8" = 1'-0"



2 / A-202 MUSIC WING NORTH
SCALE: 1/8" = 1'-0"



1 / A-202 AUDITORIUM WEST
SCALE: 1/8" = 1'-0"

ELEVATION LEGEND

SYMBOL	DESCRIPTION
CJ	CONTROL JOINT
EJ	BUILDING EXPANSION JOINT
(+3/8")	INDICATES PROJECTION DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
(-3/8")	INDICATES RECESS DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
W2	STOREFRONT/CURTAIN WALL TAG - SEE SHEET A-611 & A-612 WITH FLOOR PLANS

GENERAL NOTES:

1. SOLIDER COURSE ABOVE & BELOW WINDOW TO BE (+3/8") FROM FACE OF WALL U.N.O.
2. DOWNSPOUTS AT PERVIOUS (GRADE) SHALL RECEIVE A CAST IRON BOOT. ALL DOWNSPOUTS AT IMPERVIOUS (SIDEWALKS) LOCATIONS SHALL RUN THROUGH SIDEWALK WITH DOWNSPOUT CONNECTOR. SEE DETAILS ON SHEET A-503.

ELEVATION KEY NOTES

1. STANDING SEAM METAL PANEL ROOF - COLOR TBD
2. FIELD BRICK (BRK1)
3. ACCENT BRICK (BRK2) DOUBLE SOLDIER COURSE BANDING (PROJECT +3/8")
4. METAL PANEL MP-1, THREE VARYING BOX WIDTHS IN A REPEATING PATTERN
5. COMPOSITE METAL PANEL CMP-1,CMP-2, CMP3 - 3 DIFFERENT COLORS IN REPEATING PATTERN
6. METAL PANEL MP-2, BOX RIB PATTERN 1
7. SLIT FACE BLOCK OVER 1-3/8" AIR SPACE OVER 3" FOAMED- IN-PLACE INSULATION OVER CMU. NOMINAL DIMENSION 16"x 8" x4" (TYPICAL UNO) (6)
8. PRE-MANUFACTURED WINDOW-MOUNTED ALUMINUM SUNSHADE
9. 4" X 6" DOWNSPOUT WITH CAST IRON BOOT. TIE TO STORM DRAINS. AT PERVIOUS LOCATIONS ONLY.
10. 4" X 6" DOWNSPOUT WITH PVC BOOT. AT IMPERVIOUS LOCATIONS ONLY.
11. SCUPPER WITH COLLECTION BOX AND DOWNSPOUT
12. FACIA & GUTTER
13. CONT. PRE-FINISHED METAL COPING (COLOR TO MATCH ADJACENT MATERIAL)
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17. EXTERIOR WALL LIGHT FIXTURE - SEE ELECTRICAL
18. SUN SCREEN, ATTACHED TO CURTAINWALL
19. 14" HEIGHT ALUMINUM SIGNAGE LETTERS
20. CAST STONE CAP
21. COMPOSITE METAL PANEL CMP-2
22. SMOOTH FACE BLOCK BAND, T.O. BAND 2'-8" AFF. PROVIDE CHAMFERED CMU AT MP, CMP & WINDOWS. (6)

EXTERIOR ELEVATION MATERIALS LEGEND

		MANUF	COLOR
ALL COLORS LISTED ARE BASIS OF DESIGN FOR COLOR SELECTIONS AND MUST BE REVIEWED BY ARCHITECT FOR FINAL APPROVAL.			
	CMP-1	PAC CLAD	CADET GREY
	CMP-2	PAC CLAD	PURE WHITE
	CMP-3	PAC CLAD	SLATE GREY
	MP-1	PAC CLAD	SLATE GREY
	MP-2	PAC CLAD	SLATE GREY
	BRK-1	PALMETTO BRICK	PEWTER
	SFB-1	OLD CASTLE/ECHELON	4106

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CONSTRUCTION DOCUMENTS

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ENERGY STAR PARTNER

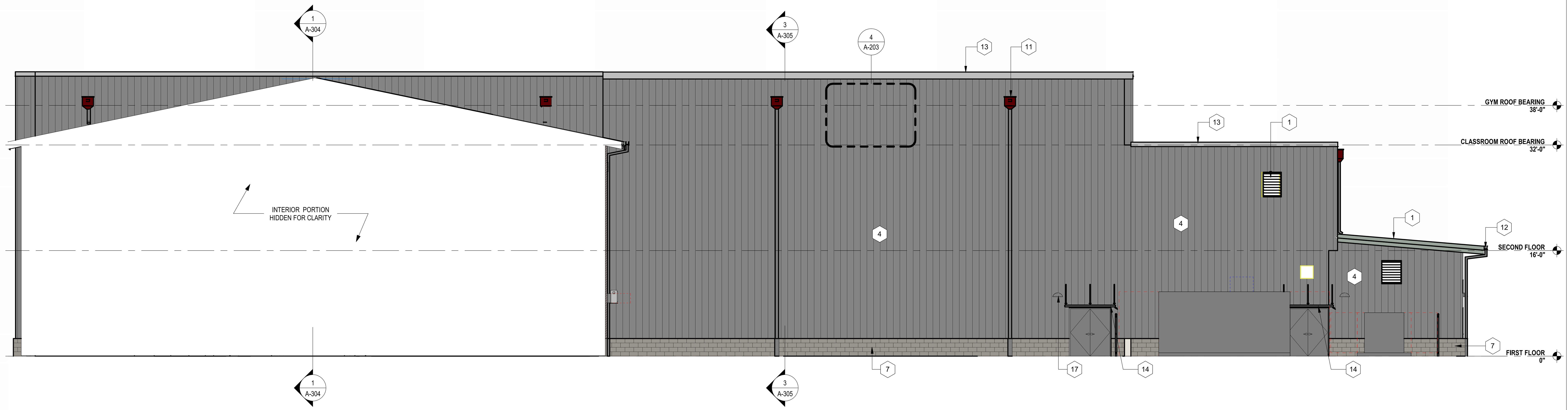
No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25

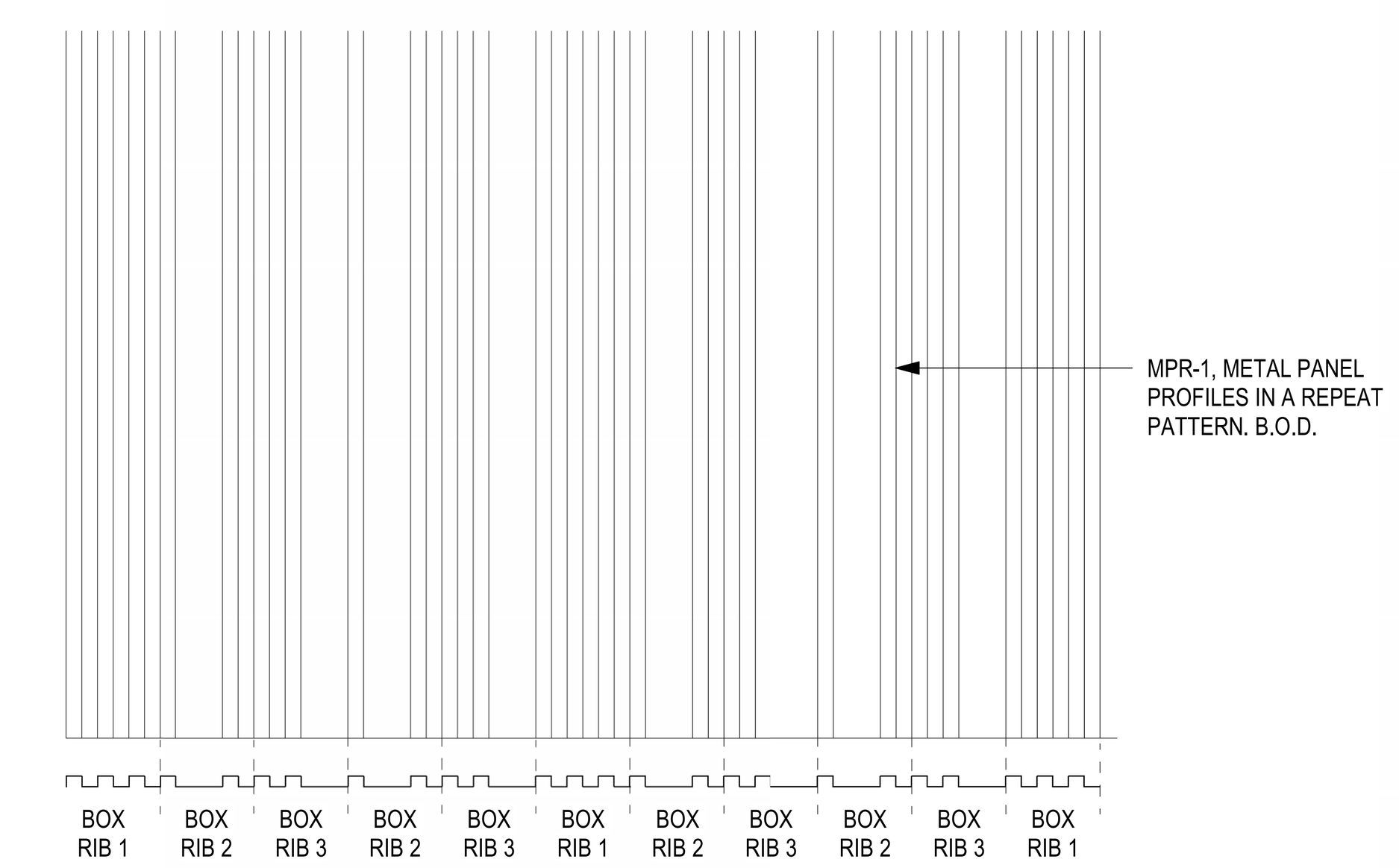
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

EXT. BUILDING ELEVATIONS

A-202



3 A-203 **GYMNASIUM WEST**
SCALE: 1/8" = 1'-0"



4 A-203 **MPR-1 METAL WALL PANEL PATTERN**
SCALE: 1/2" = 1'-0"

ELEVATION LEGEND

SYMBOL	DESCRIPTION
CJ	CONTROL JOINT
EJ	BUILDING EXPANSION JOINT
(+3/8")	INDICATES PROJECTION DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
(-3/8")	INDICATES RECESS DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
W2	STOREFRONT/CURTAIN WALL TAG - SEE SHEET A-611 & A-612 WITH FLOOR PLANS

GENERAL NOTES:

1. SOLIDER COURSE ABOVE & BELOW WINDOW TO BE (+3/8") FROM FACE OF WALL U.N.O.
2. DOWNSPOUTS AT PERVIOUS (GRADE) SHALL RECEIVE A CAST IRON BOOT. ALL DOWNSPOUTS AT IMPERVIOUS (SIDEWALKS) LOCATIONS SHALL RUN THROUGH SIDEWALK WITH DOWNSPOUT CONNECTOR. SEE DETAILS ON SHEET A-503.

ELEVATION KEY NOTES

1. STANDING SEAM METAL PANEL ROOF - COLOR TBD
2. FIELD BRICK (BRK1)
3. ACCENT BRICK (BRK2) DOUBLE SOLDIER COURSE BANDING (PROJECT +3/8")
4. METAL PANEL MP-1, THREE VARYING BOX WIDTHS IN A REPEATING PATTERN
5. COMPOSITE METAL PANEL CMP-1,CMP-2, CMP3 - 3 DIFFERENT COLORS IN REPEATING PATTERN
6. METAL PANEL MP-2, BOX RIB PATTERN 1 (6)
7. SLIT FACE BLOCK OVER 1-3/8" AIR SPACE OVER 3" FOAMED- IN-PLACE INSULATION OVER CMU, NOMINAL DIMENSION 16"x 8" x4" (TYPICAL UNO)
8. PRE-MANUFACTURED WINDOW-MOUNTED ALUMINUM SUNSHADE
9. 4" X 6" DOWNSPOUT WITH CAST IRON BOOT. TIE TO STORM DRAINS. AT PERVIOUS LOCATIONS ONLY.
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18. SUN SCREEN, ATTACHED TO CURTAINWALL
19. 14" HEIGHT ALUMINUM SIGNAGE LETTERS
20. CAST STONE CAP
21. COMPOSITE METAL PANEL CMP-2 (6)
22. SMOOTH FACE BLOCK BAND, T.O. BAND 2'-8" AFF. PROVIDE CHAMFERED CMU AT MP, CMP & WINDOWS.

2 A-203 **CLASSROOM WING 500 -600 SOUTH-RIGHT**
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATION MATERIALS LEGEND

ALL COLORS LISTED ARE BASIS OF DESIGN FOR COLOR SELECTIONS AND MUST BE REVIEWED BY ARCHITECT FOR FINAL APPROVAL.

	MANUF	COLOR
CMP-1	PAC CLAD	CADET GREY
CMP-2	PAC CLAD	PURE WHITE
CMP-3	PAC CLAD	SLATE GREY
MP-1	PAC CLAD	SLATE GREY
MP-2	PAC CLAD	SLATE GREY
BRK-1	PALMETTO BRICK	PEWTER
SFB-1	OLD CASTLE/ECHELON	4106

1 A-203 **CLASSROOM WING 500-600 SOUTH-LEFT**
SCALE: 1/8" = 1'-0"

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ENERGY STAR PARTNER

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ISSUE DATE: 01-09-25
PROJECT #: 02208.000
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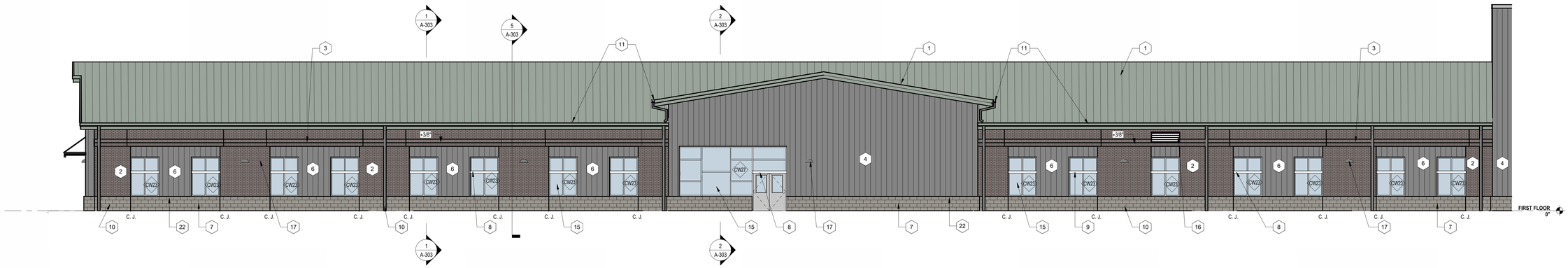
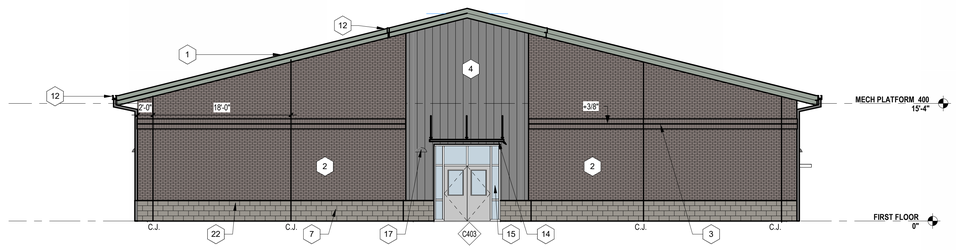
CHECKED BY: Checker

EXT. BUILDING ELEVATIONS

A-203



3 A-204 **CLASSROOM WING 400 SOUTH**
SCALE: 1/8" = 1'-0"



2 A-204 **CLASSROOM WING 400 WEST**
SCALE: 1/8" = 1'-0"

ELEVATION LEGEND

SYMBOL	DESCRIPTION
CJ	CONTROL JOINT
EJ	BUILDING EXPANSION JOINT
(+3/8")	INDICATES PROJECTION DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
(-3/8")	INDICATES RECESS DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
W2	STOREFRONT/CURTAIN WALL TAG - SEE SHEET A-611 & A-612 WITH FLOOR PLANS

GENERAL NOTES:

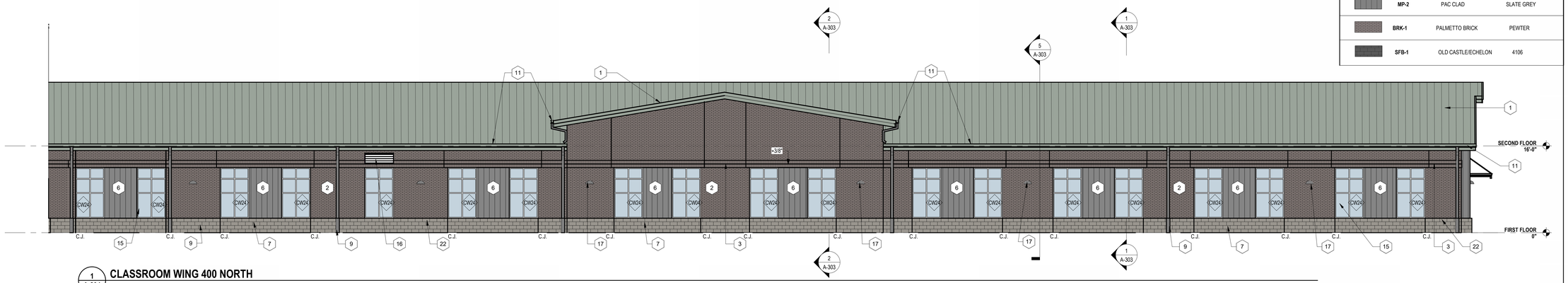
1. SOLIDER COURSE ABOVE & BELOW WINDOW TO BE (+3/8") FROM FACE OF WALL U.N.O.
2. DOWNSPOUTS AT PERVIOUS (GRADE) SHALL RECEIVE A CAST IRON BOOT. ALL DOWNSPOUTS AT IMPERVIOUS (SIDEWALKS) LOCATIONS SHALL RUN THROUGH SIDEWALK WITH DOWNSPOUT CONNECTOR. SEE DETAILS ON SHEET A-503.

ELEVATION KEY NOTES

1	STANDING SEAM METAL PANEL ROOF - COLOR TBD
2	FIELD BRICK (BRK1)
3	ACCENT BRICK (BRK2) DOUBLE SOLDIER COURSE BANDING (PROJECT +3/8")
4	METAL PANEL MP-1, THREE VARYING BOX WIDTHS IN A REPEATING PATTERN
5	COMPOSITE METAL PANEL CMP-1,CMP-2, CMP3 - 3 DIFFERENT COLORS IN REPEATING PATTERN
6	METAL PANEL MP-2, BOX RIB PATTERN 1
7	SLIT FACE BLOCK OVER 1-3/8" AIR SPACE OVER 3" FOAMED- IN-PLACE INSULATION OVER CMU. NOMINAL DIMENSION 16"x 8" x4" (TYPICAL UNO) (6)
8	PRE-MANUFACTURED WINDOW-MOUNTED ALUMINUM SUNSHADE
9	4" X 6" DOWNSPOUT WITH CAST IRON BOOT. TIE TO STORM DRAINS. AT PERVIOUS LOCATIONS ONLY.
10	4" X 6" DOWNSPOUT WITH PVC BOOT. AT IMPERVIOUS LOCATIONS ONLY.
11	SCUPPER WITH COLLECTION BOX AND DOWNSPOUT
12	FACIA & GUTTER
13	CONT. PRE-FINISHED METAL COPING (COLOR TO MATCH ADJACENT MATERIAL)
14	PRE-MANUFACTURED WALL MOUNTED CANOPY
15	CURTAIN WALL WITH 1" INSULATED GLAZING- SEE SHEET A-611 & A612 FOR MORE INFORMATION
16	METAL WALL LOUVER - SEE MECHANICAL FOR SIZING. COLOR TO BE SELECTED FROM MANUF FULL LINE OF COLORS.
17	EXTERIOR WALL LIGHT FIXTURE - SEE ELECTRICAL
18	SUN SCREEN, ATTACHED TO CURTAINWALL
19	14" HEIGHT ALUMINUM SIGNAGE LETTERS
20	CAST STONE CAP
21	COMPOSITE METAL PANEL CMP-2
22	SMOOTH FACE BLOCK BAND, T.O. BAND 2'-8" AFF. PROVIDE CHAMFERED CMU AT MP, CMP & WINDOWS (6)

EXTERIOR ELEVATION MATERIALS LEGEND

		MANUF	COLOR
ALL COLORS LISTED ARE BASIS OF DESIGN FOR COLOR SELECTIONS AND MUST BE REVIEWED BY ARCHITECT FOR FINAL APPROVAL.			
	CMP-1	PAC CLAD	CADET GREY
	CMP-2	PAC CLAD	PURE WHITE
	CMP-3	PAC CLAD	SLATE GREY
	MP-1	PAC CLAD	SLATE GREY
	MP-2	PAC CLAD	SLATE GREY
	BRK-1	PALMETTO BRICK	PEWTER
	SFB-1	OLD CASTLE/ECHELON	4106



1 A-204 **CLASSROOM WING 400 NORTH**
SCALE: 1/8" = 1'-0"

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ENERGY STAR PARTNER

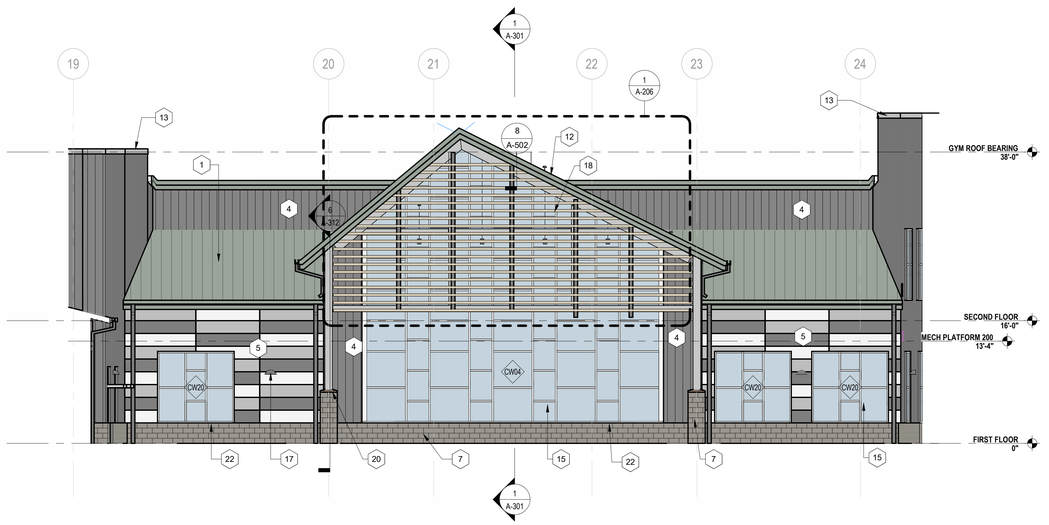
No.	Date	Description
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

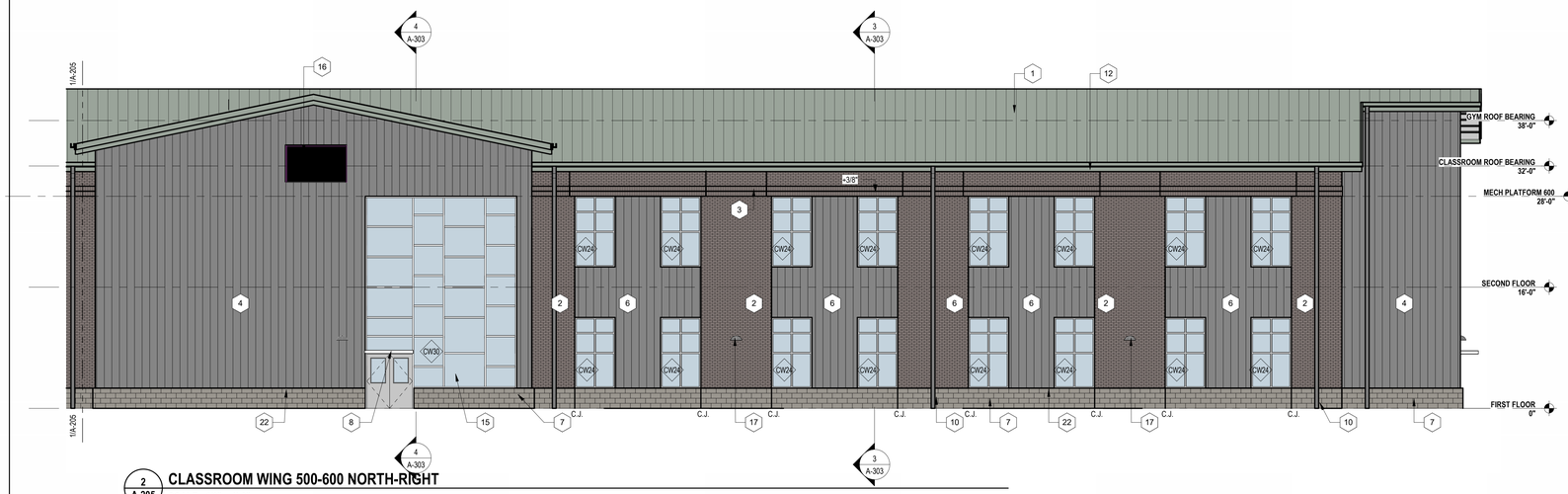
EXT. BUILDING ELEVATIONS

A-204

4 A-205 **CLASSROOM WING 500-600 WEST**
SCALE: 1/8" = 1'-0"



3 A-205 **MEDIA WEST**
SCALE: 1/8" = 1'-0"



2 A-205 **CLASSROOM WING 500-600 NORTH-RIGHT**
SCALE: 1/8" = 1'-0"

1 A-205 **CLASSROOM WING 500-600 NORTH-LEFT**
SCALE: 1/8" = 1'-0"

ELEVATION LEGEND

SYMBOL	DESCRIPTION
CJ	CONTROL JOINT
EJ	BUILDING EXPANSION JOINT
(+3/8")	INDICATES PROJECTION DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
(-3/8")	INDICATES RECESS DISTANCE FROM FACE OF BRICK - FACE OF BRICK IS (0")
W2	STOREFRONT/CURTAIN WALL TAG - SEE SHEET A-611 & A-612 WITH FLOOR PLANS

GENERAL NOTES:

1. SOLIDER COURSE ABOVE & BELOW WINDOW TO BE (+3/8") FROM FACE OF WALL U.N.O.
2. DOWNSPOUTS AT PERVIOUS (GRADE) SHALL RECEIVE A CAST IRON BOOT. ALL DOWNSPOUTS AT IMPERVIOUS (SIDEWALKS) LOCATIONS SHALL RUN THROUGH SIDEWALK WITH DOWNSPOUT CONNECTOR. SEE DETAILS ON SHEET A-503.

ELEVATION KEY NOTES

1. STANDING SEAM METAL PANEL ROOF - COLOR TBD
2. FIELD BRICK (BRK1)
3. ACCENT BRICK (BRK2) DOUBLE SOLDIER COURSE BANDING (PROJECT +3/8")
4. METAL PANEL MP-1, THREE VARYING BOX WIDTHS IN A REPEATING PATTERN
5. COMPOSITE METAL PANEL CMP-1,CMP-2, CMP3 - 3 DIFFERENT COLORS IN REPEATING PATTERN
6. METAL PANEL MP-2, BOX RIB PATTERN 1
7. SLIT FACE BLOCK OVER 1-3/8" AIR SPACE OVER 3" FOAMED- IN-PLACE INSULATION OVER CMU. NOMINAL DIMENSION 16"x 8" x4" (TYPICAL UNO) (5)
8. PRE-MANUFACTURED WINDOW-MOUNTED ALUMINUM SUNSHADE
9. 4" X 6" DOWNSPOUT WITH CAST IRON BOOT. TIE TO STORM DRAINS. AT PERVIOUS LOCATIONS ONLY.
10. 4" X 6" DOWNSPOUT WITH PVC BOOT. AT IMPERVIOUS LOCATIONS ONLY.
11. SCUPPER WITH COLLECTION BOX AND DOWNSPOUT
12. FACIA & GUTTER
13. CONT. PRE-FINISHED METAL COPING (COLOR TO MATCH ADJACENT MATERIAL)
14. PRE-MANUFACTURED WALL MOUNTED CANOPY
15. CURTAIN WALL WITH 1" INSULATED GLAZING- SEE SHEET A-611 & A612 FOR MORE INFORMATION
16. METAL WALL LOUVER - SEE MECHANICAL FOR SIZING. COLOR TO BE SELECTED FROM MANUF FULL LINE OF COLORS.
17. EXTERIOR WALL LIGHT FIXTURE - SEE ELECTRICAL
18. SUN SCREEN, ATTACHED TO CURTAINWALL
19. 14" HEIGHT ALUMINUM SIGNAGE LETTERS
20. CAST STONE CAP
21. COMPOSITE METAL PANEL CMP-2
22. SMOOTH FACE BLOCK BAND, T.O. BAND 2'-8" AFF. PROVIDE CHAMFERED CMU AT MP, CMP & WINDOWS (6)

EXTERIOR ELEVATION MATERIALS LEGEND

	MANUF	COLOR
ALL COLORS LISTED ARE BASIS OF DESIGN FOR COLOR SELECTIONS AND MUST BE REVIEWED BY ARCHITECT FOR FINAL APPROVAL.		
CMP-1	PAC CLAD	CADET GREY
CMP-2	PAC CLAD	PURE WHITE
CMP-3	PAC CLAD	SLATE GREY
MP-1	PAC CLAD	SLATE GREY
MP-2	PAC CLAD	SLATE GREY
BRK-1	PALMETTO BRICK	PEWTER
SFB-1	OLD CASTLE/ECHELON	4106

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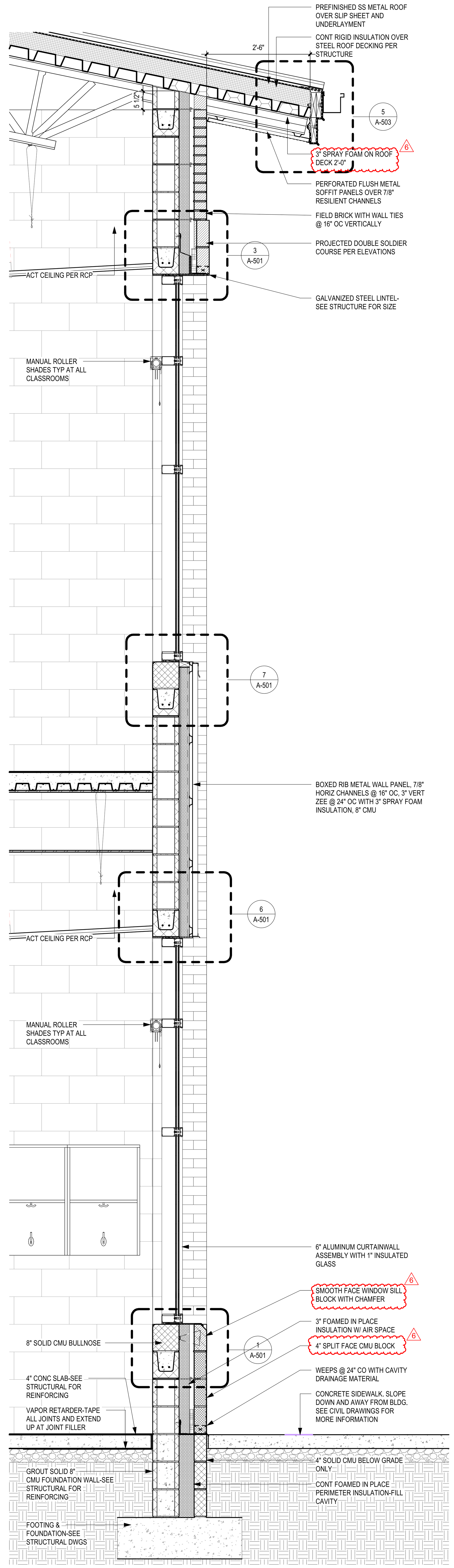
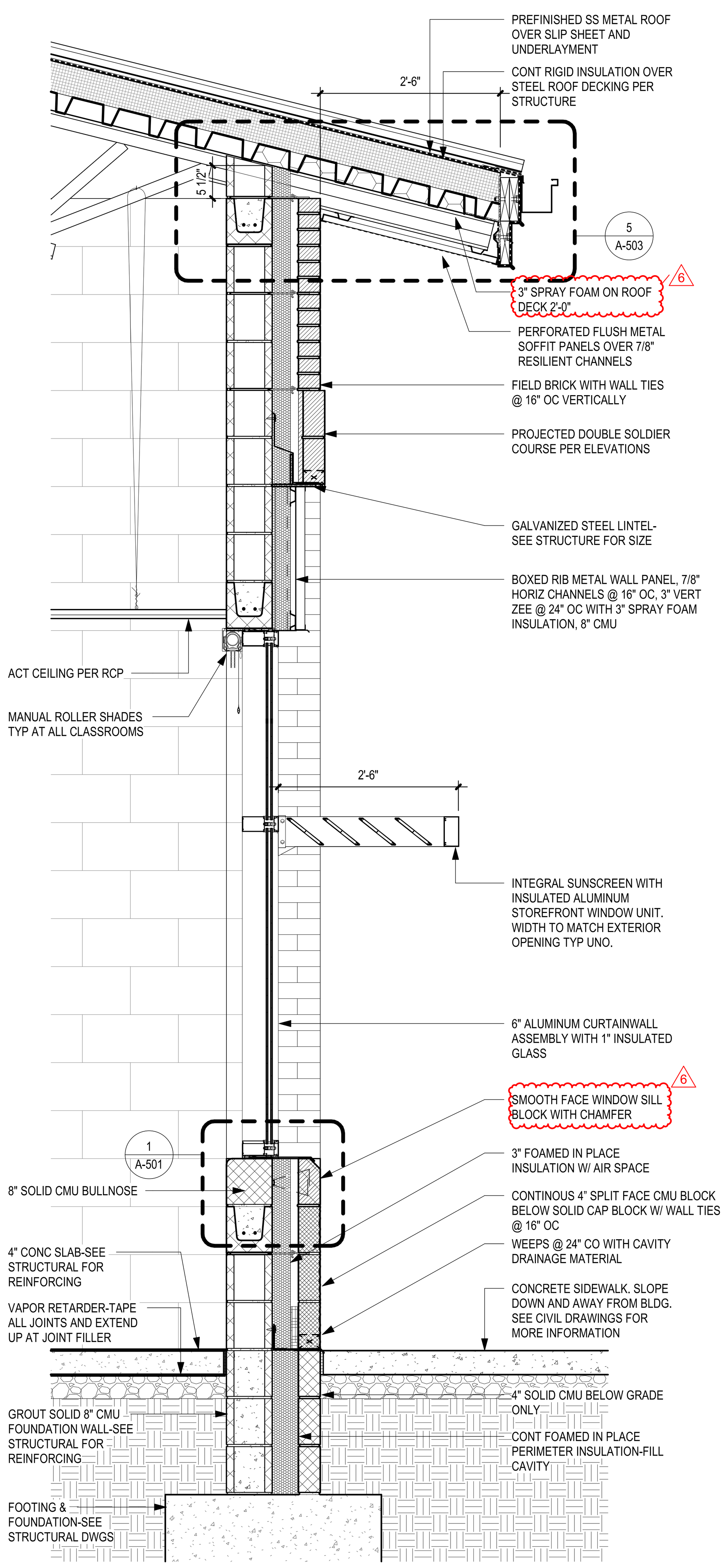
EXT. BUILDING ELEVATIONS

A-205



2
A-311
TYP 500 / 600 WALL SECTION (NORTH)
SCALE: 3/4" = 1'-0"



1
A-311
TYP 400 WING WALL SECTION (SOUTH)
SCALE: 3/4" = 1'-0"

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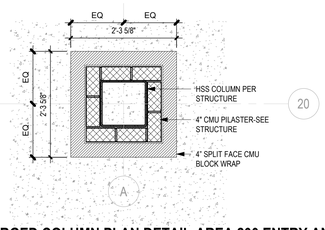
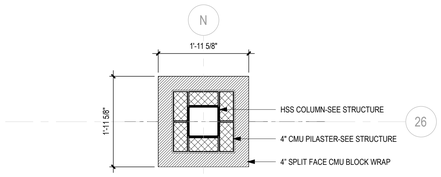
WALL SECTIONS

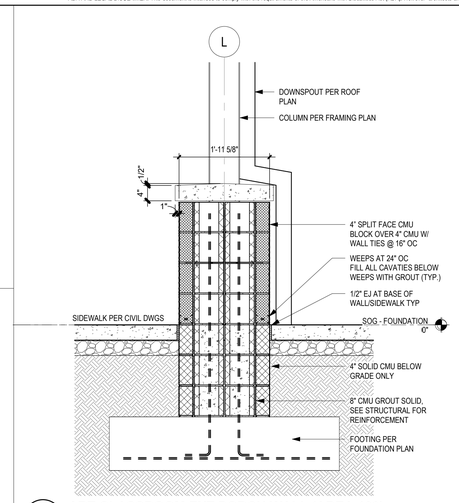
A-311



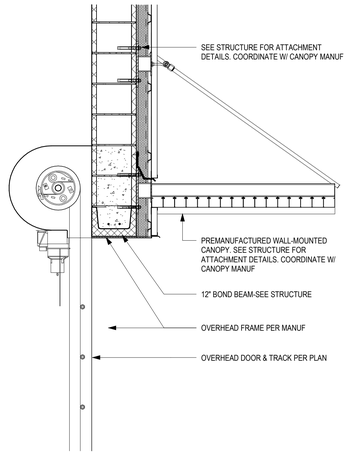
8 / A-312 **ENLARGED COLUMN PLAN DETAIL-AREA 200 ENTRY AND MEDIA**
SCALE: 3/4" = 1'-0"



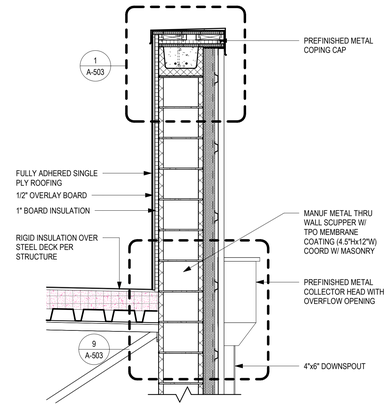
7 / A-312 **ENLARGED 300 COLUMN BASE PLAN**
SCALE: 3/4" = 1'-0"

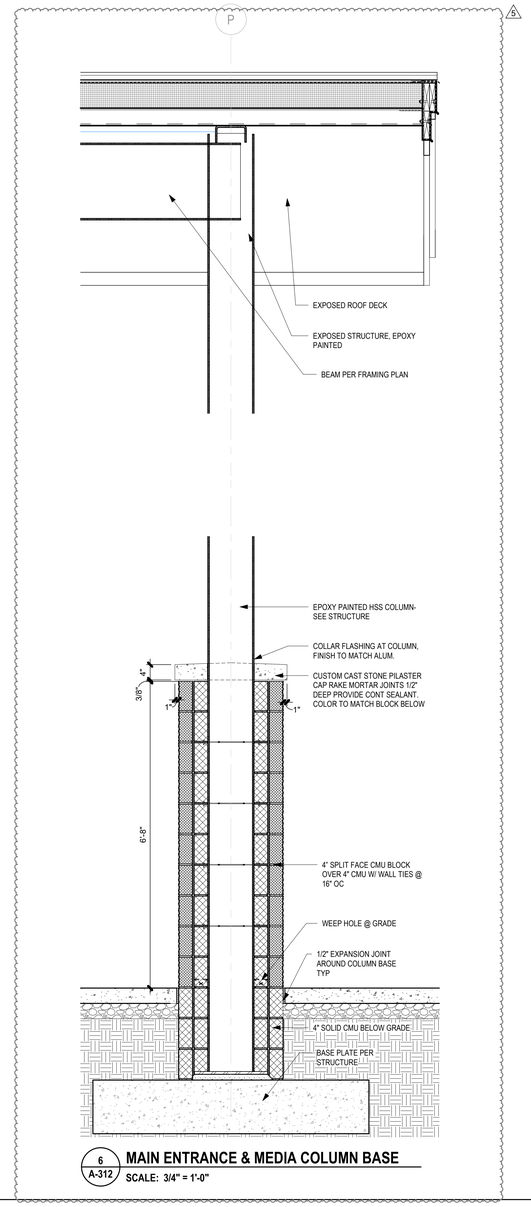


5 / A-312 **ART CLASSROOM EXT PORCH WALL (AREA 100)**
SCALE: 3/4" = 1'-0"

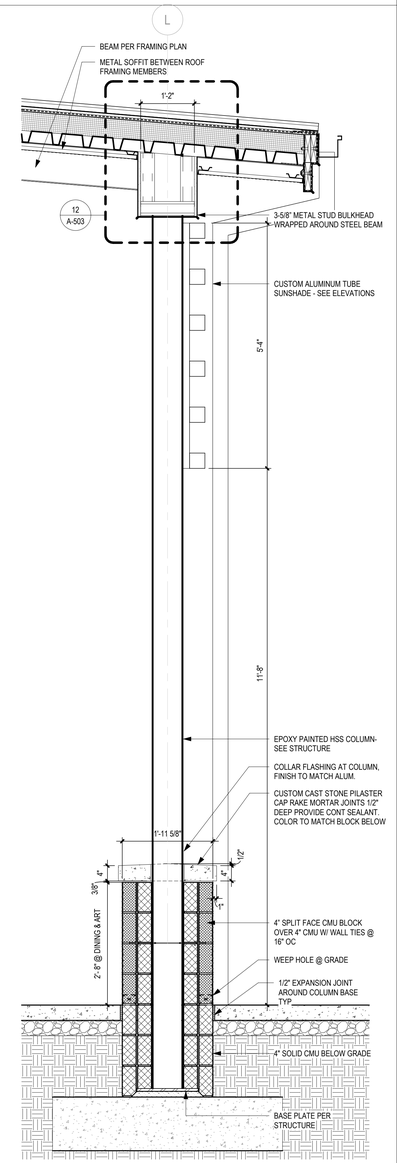


3 / A-312 **100 STAGE CANOPY/OH DOOR SECTION**
SCALE: 3/4" = 1'-0"

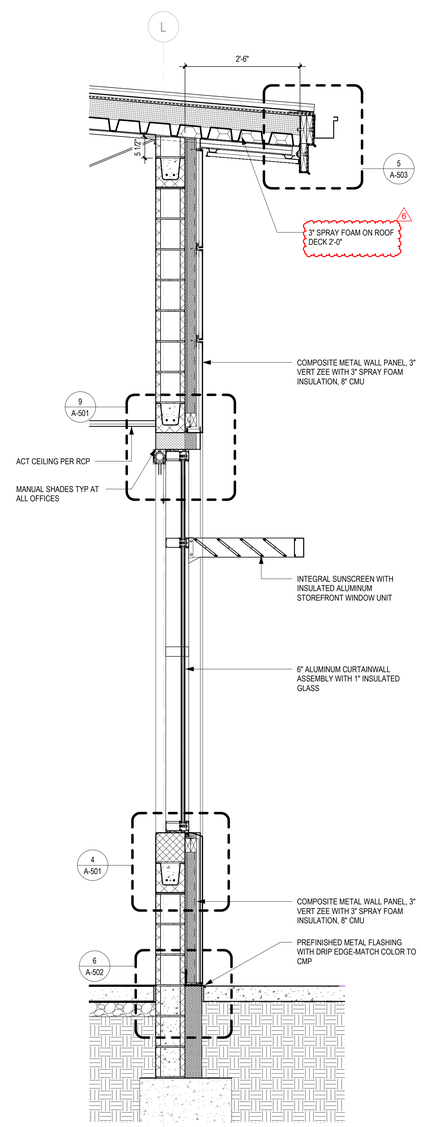




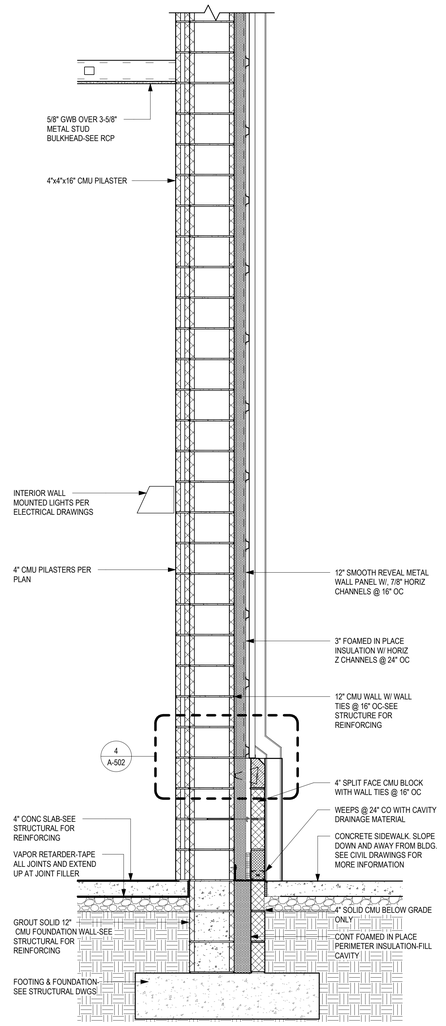
6 / A-312 **MAIN ENTRANCE & MEDIA COLUMN BASE**
SCALE: 3/4" = 1'-0"



4 / A-312 **100& 300 WING COLUMN BASE SECTION**
SCALE: 3/4" = 1'-0"



2 / A-312 **200 WING WALL SECTION**
SCALE: 3/4" = 1'-0"



1 / A-312 **100 AUDITORIUM / GYMNASIUM WALL SECTION**
SCALE: 3/4" = 1'-0"

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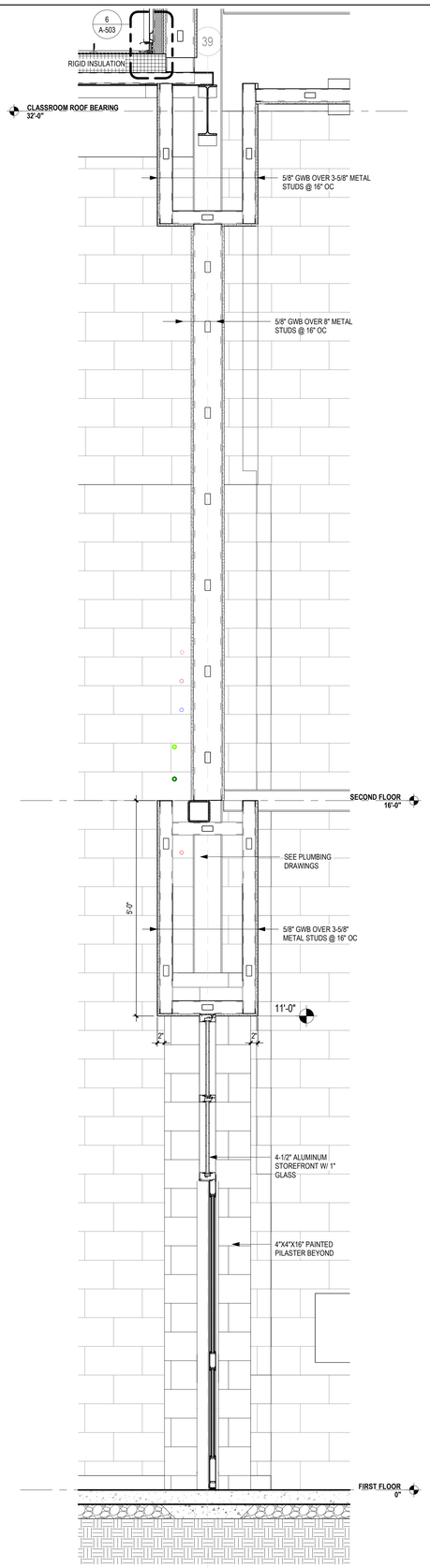
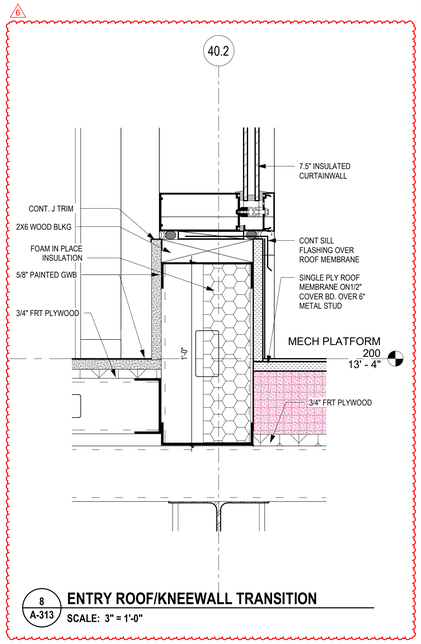
WALL SECTIONS

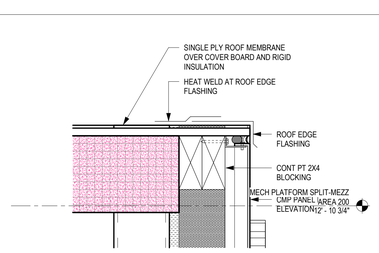
A-312



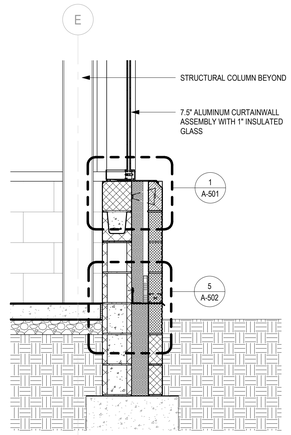
9 A-313 **CORRIDOR ENTRY INT WALL SECTION**
SCALE: 3/4" = 1'-0"



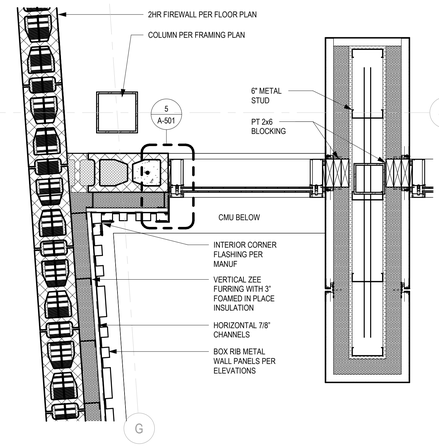
8 A-313 **ENTRY ROOF/KNEEWALL TRANSITION**
SCALE: 3" = 1'-0"



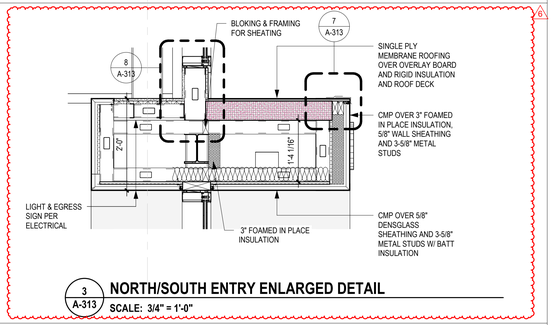
7 A-313 **TPO/CMP ROOF TRANSITION**
SCALE: 3" = 1'-0"



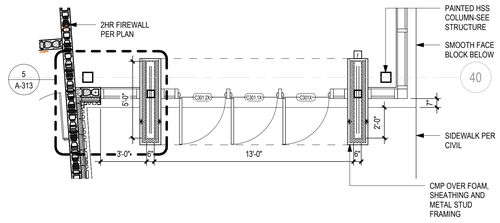
6 A-313 **WALL BASE SECTION AT CURTAINWALL**
SCALE: 3/4" = 1'-0"



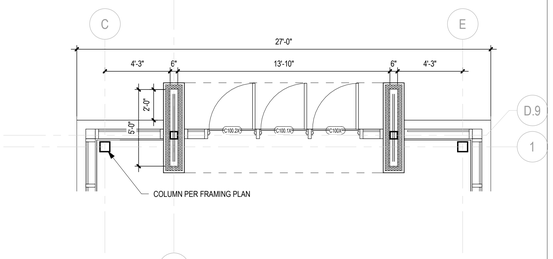
5 A-313 **PLAN DETAIL AT GYM ENTRY**
SCALE: 1" = 1'-0"



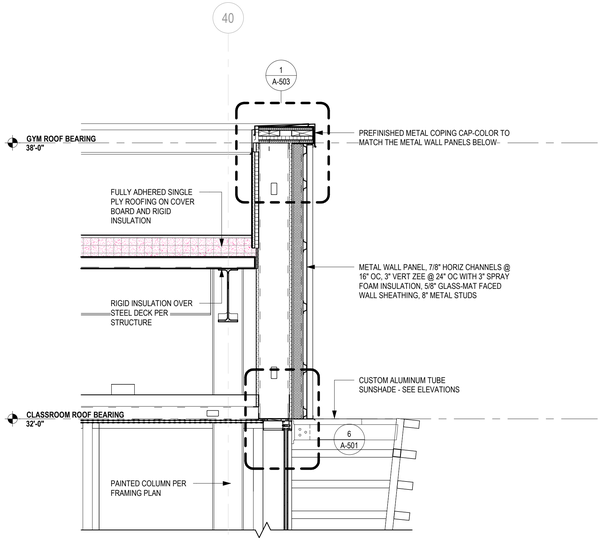
3 A-313 **NORTH/SOUTH ENTRY ENLARGED DETAIL**
SCALE: 3/4" = 1'-0"

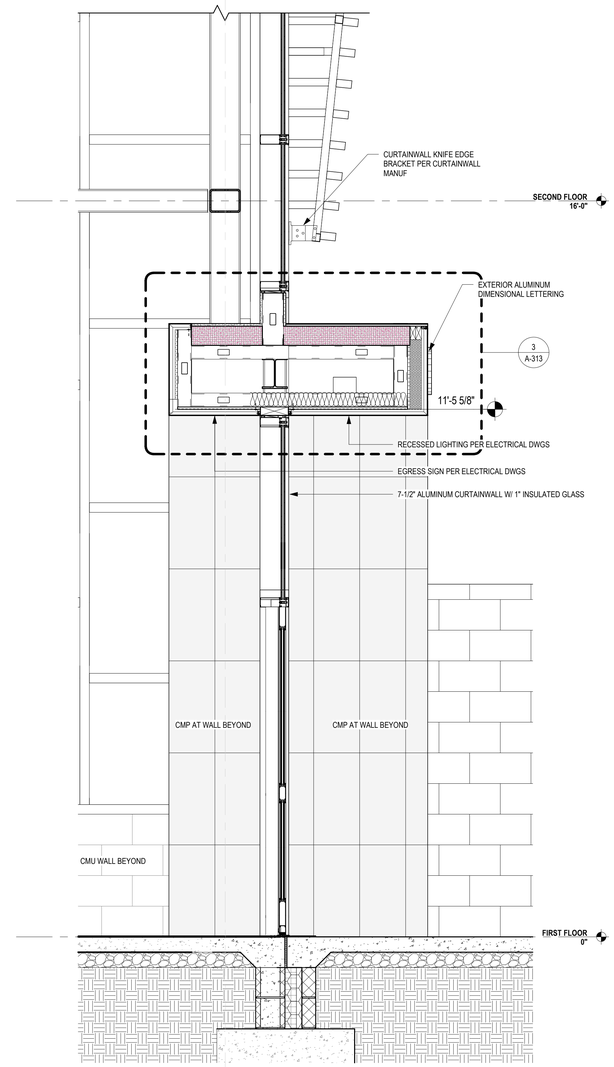


4 A-313 **SOUTH GYMNASIUM ENTRANCE ENLARGED PLAN**
SCALE: 1/4" = 1'-0"



2 A-313 **NORTH AUDITORIUM ENTRANCE ENLARGED PLAN**
SCALE: 1/4" = 1'-0"





1 A-313 **AUDITORIUM/GYM ENTRY WALL SECTION**
SCALE: 3/4" = 1'-0"

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ISSUE DATE: 01-09-25
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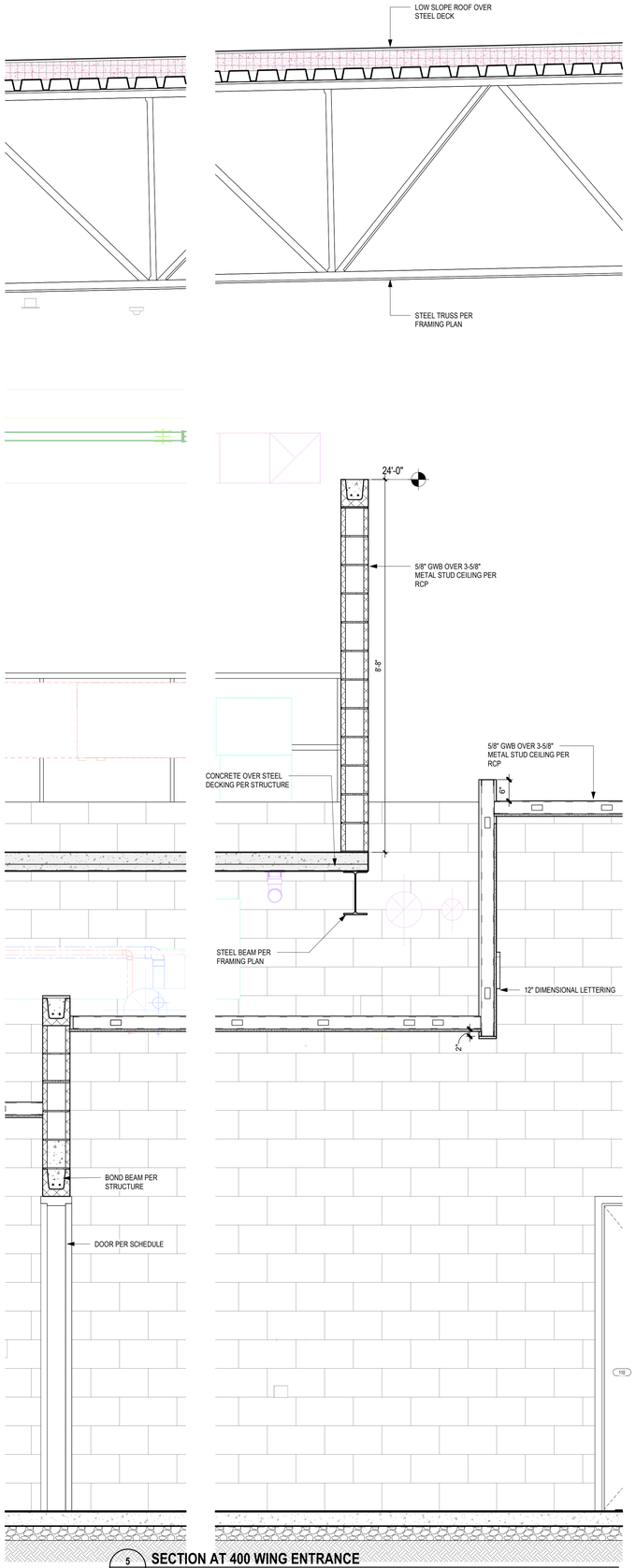
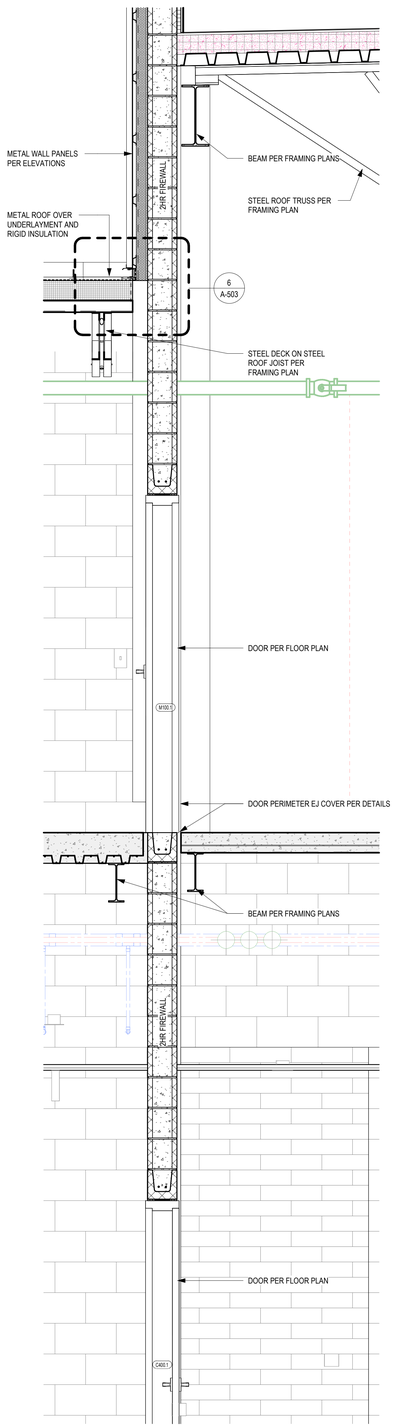
CHECKED BY: Checker

WALL SECTIONS

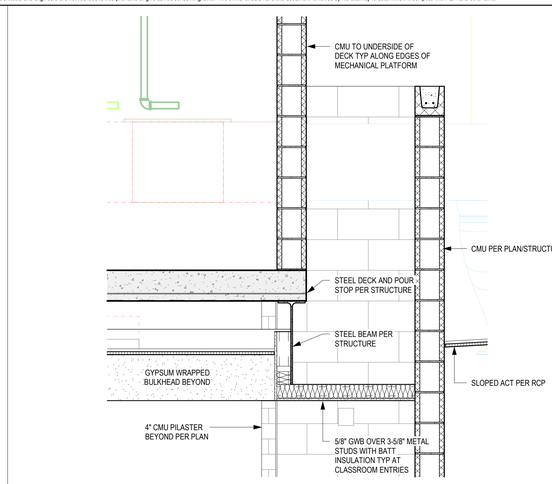
A-313



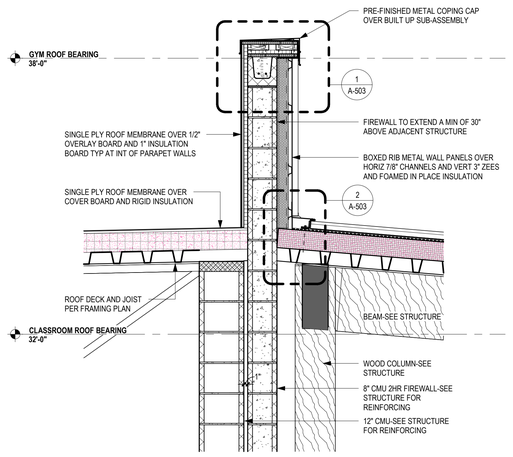
5 A-315 **SECTION AT 400 WING ENTRANCE**
SCALE: 3/4" = 1'-0"



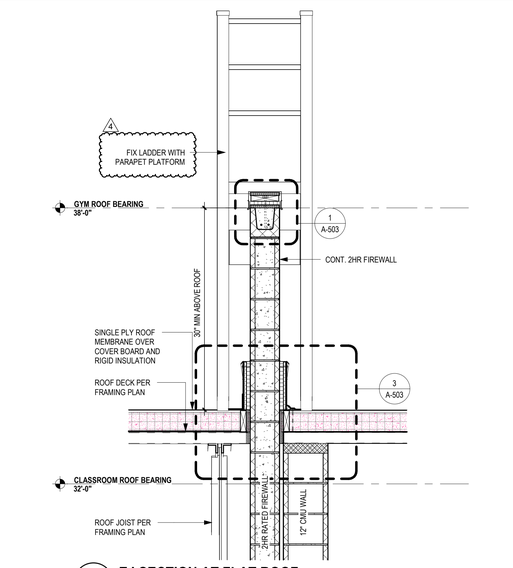
4 A-315 **SECTION AT 400 WING FIREDOOR**
SCALE: 3/4" = 1'-0"



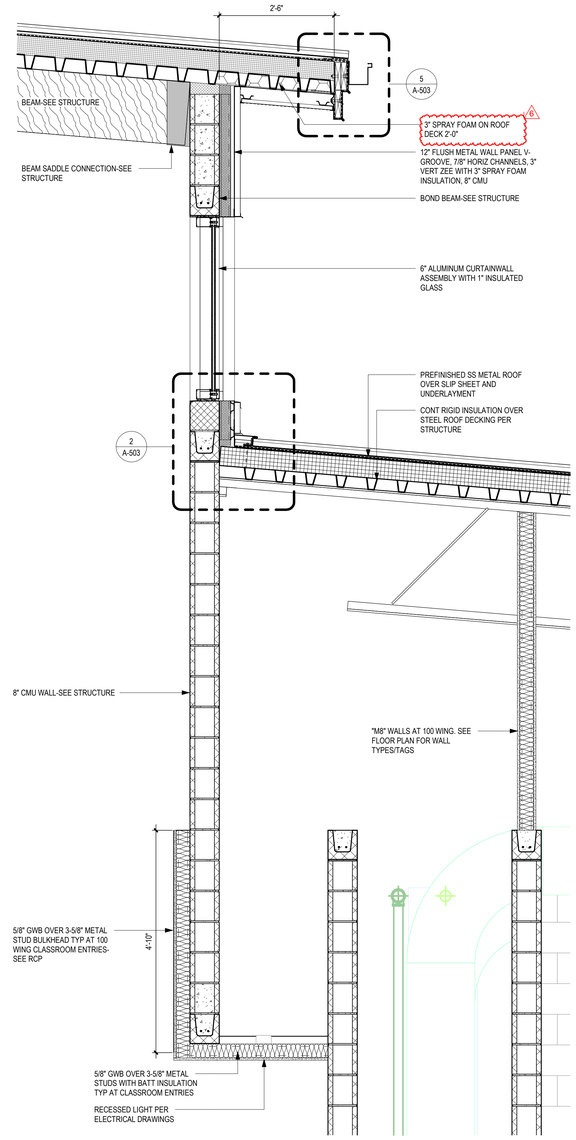
6 A-315 **400/600 WING CLASSROOM ENTRY MECH SECTION** 2
SCALE: 3/4" = 1'-0"



2 A-315 **ROOF SECTION AT CLERESTORY/AUDITORIUM PARAPET**
SCALE: 3/4" = 1'-0"



3 A-315 **EJ SECTION AT FLAT ROOF**
SCALE: 3/4" = 1'-0"



1 A-315 **ROOF SECTION AT CLERESTORY-AREA 500**
SCALE: 3/4" = 1'-0"

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2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

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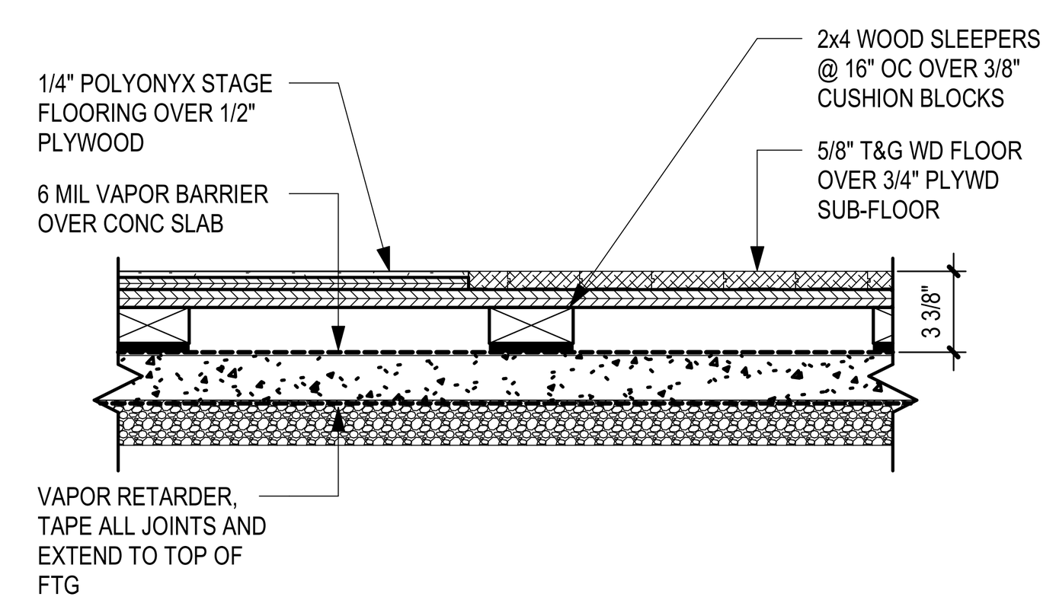
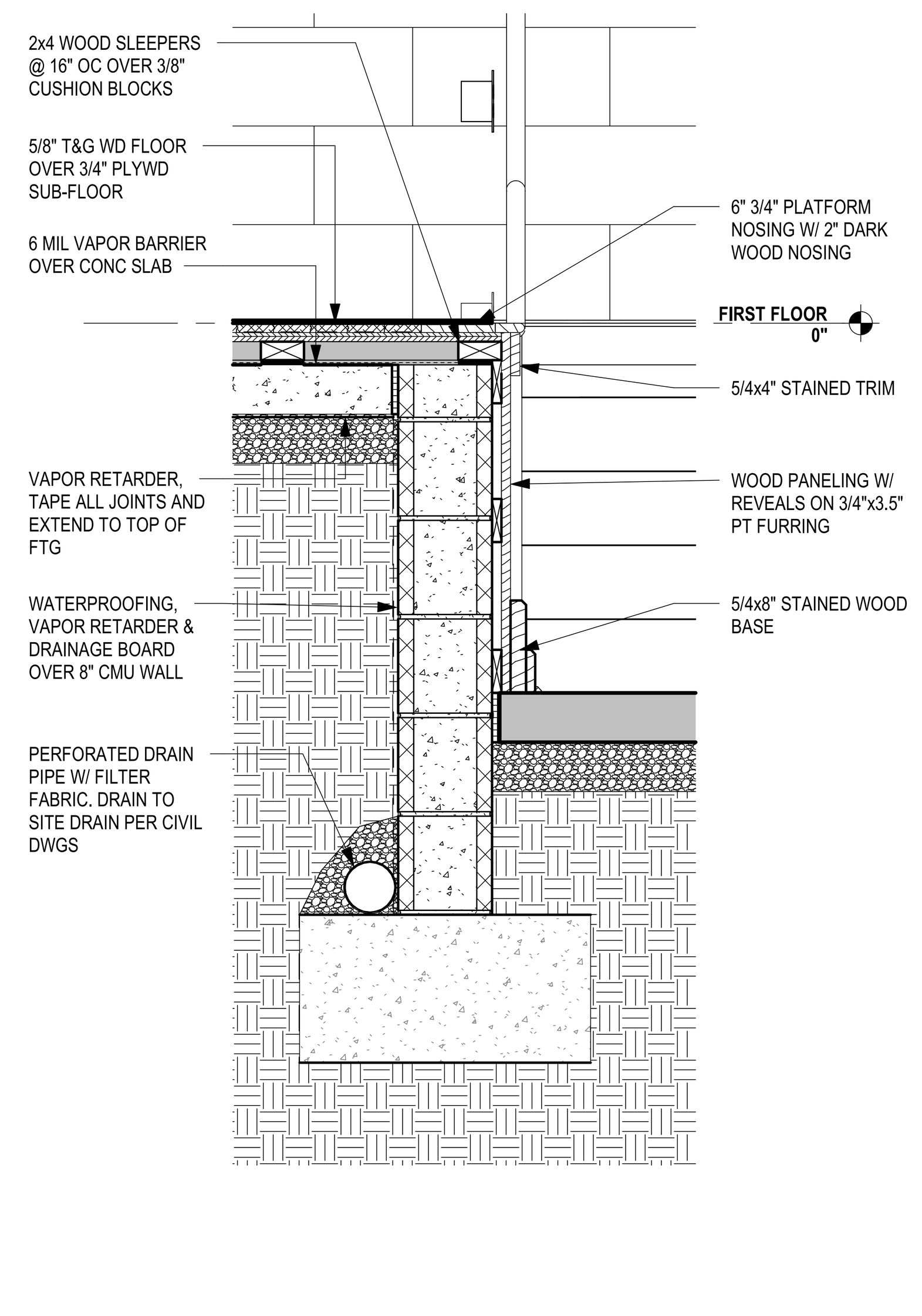
CHECKED BY: Checker

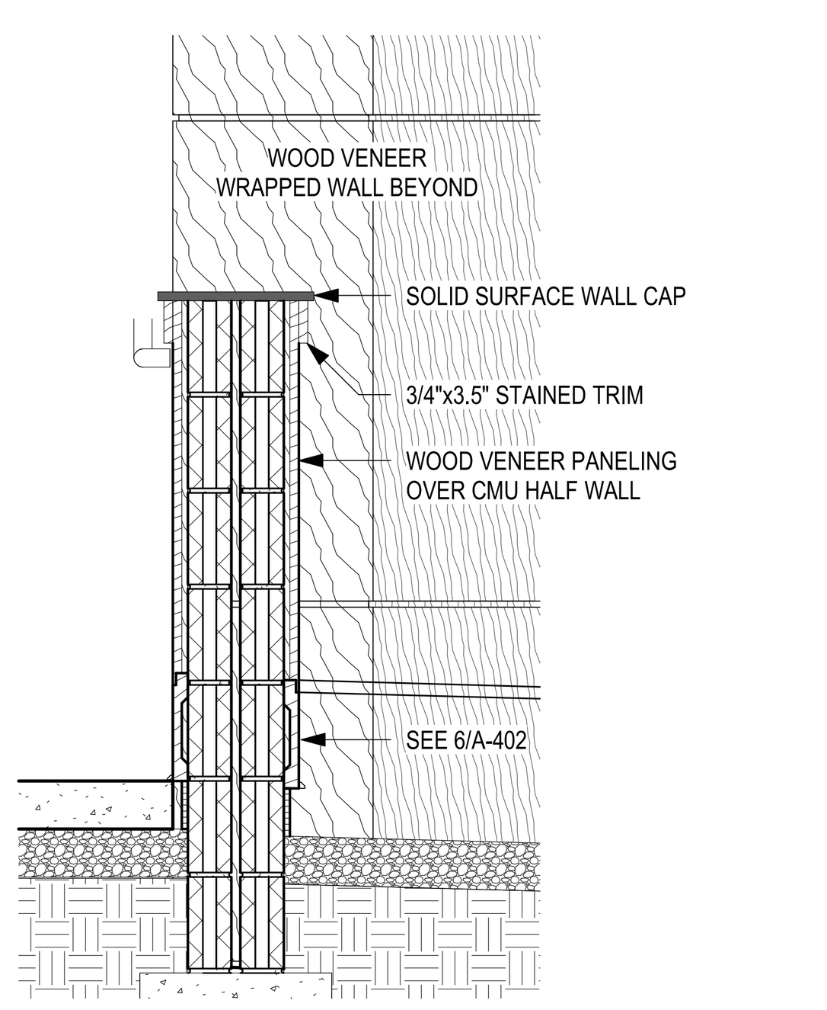
WALL SECTIONS

A-315



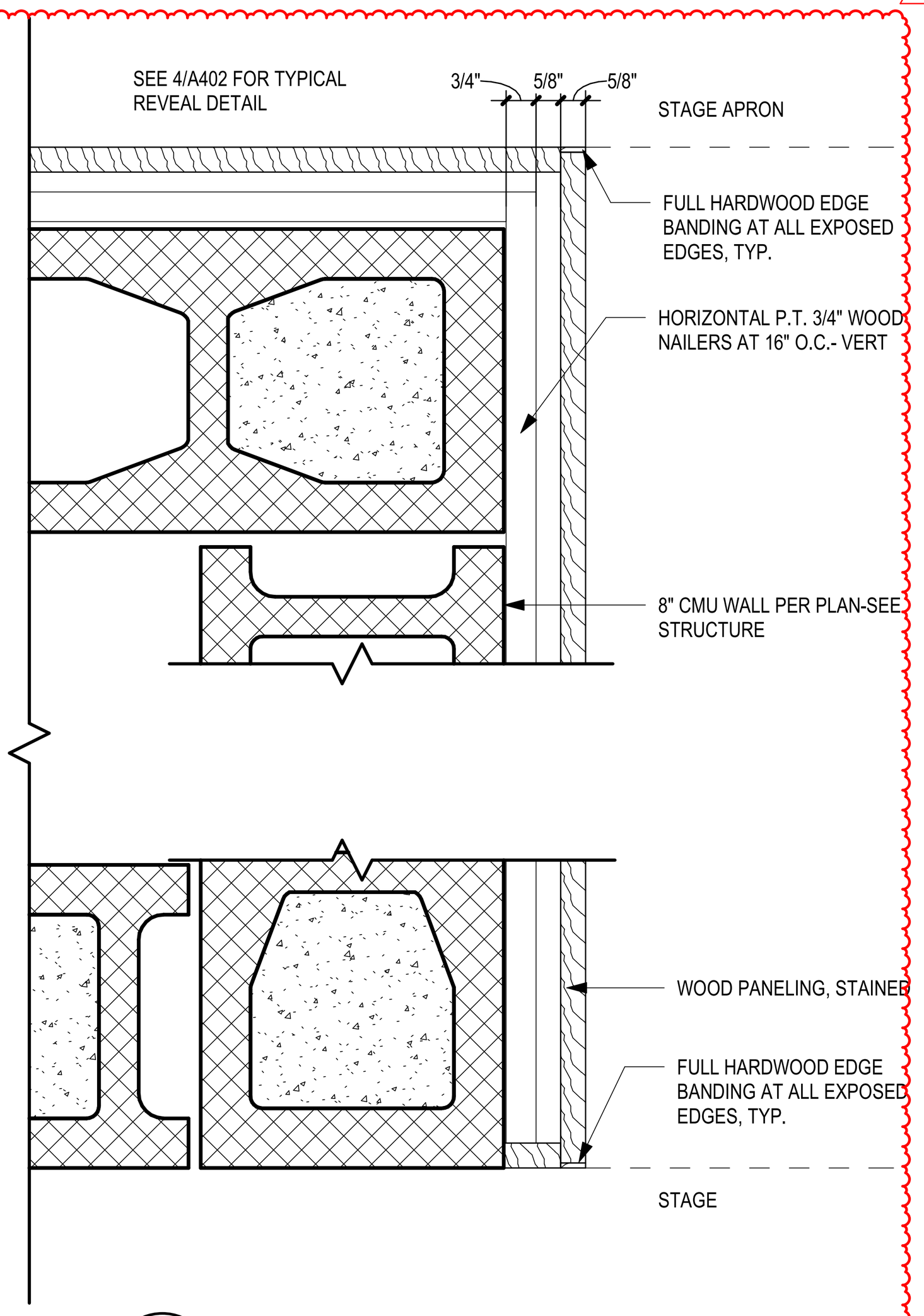
4 / A-401 **STAGE/APRON FLOORING TRANSITION DETAIL**
SCALE: 1 1/2" = 1'-0"



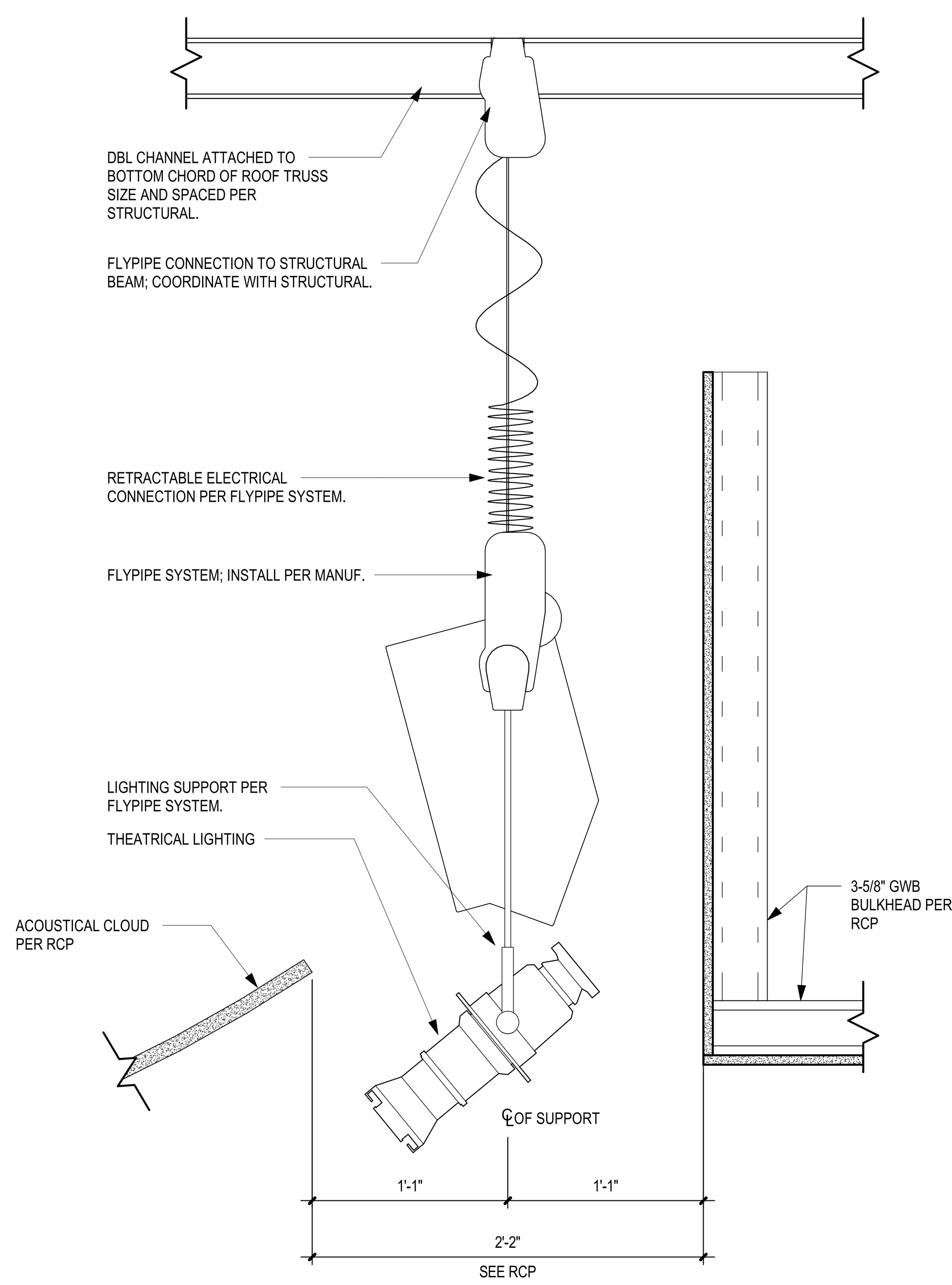


6 / A-401 **AUDITORIUM RAMP HALF WALL SECTION**
SCALE: 3/4" = 1'-0"

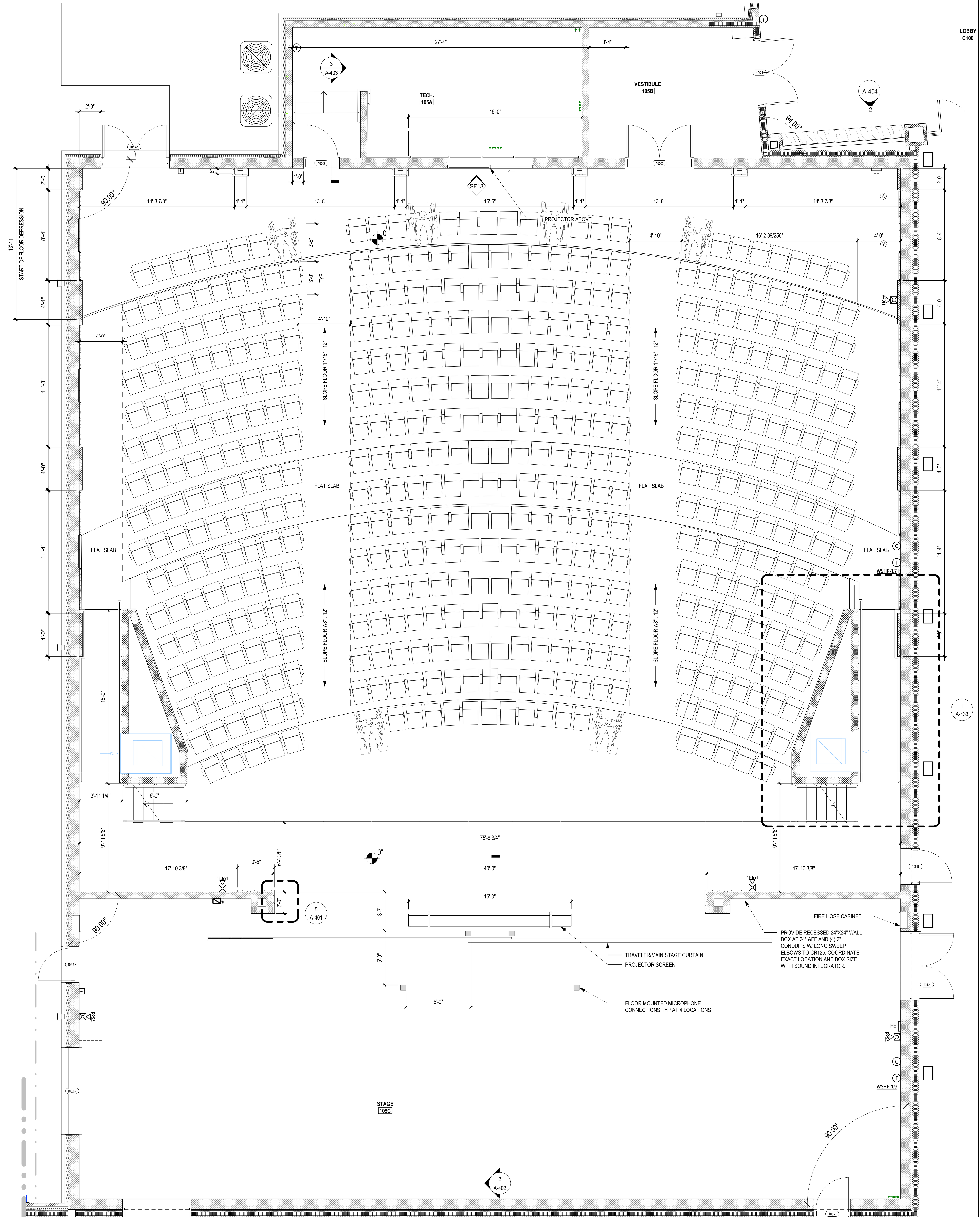
3 / A-401 **STAGE APRON ENLARGED DETAIL**
SCALE: 1" = 1'-0"



5 / A-401 **AUD PROSCENIUM JAMB**
SCALE: 3" = 1'-0"



2 / A-401 **FRONT OF HOUSE LIGHTING DETAIL**
SCALE: 1 1/2" = 1'-0"



1 / A-401 **ENLARGED AUDITORIUM PLAN**
SCALE: 1/4" = 1'-0"

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No.	Date	Description
6	02-05-25	ADDENDUM 2

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PROJECT #: 02208.000
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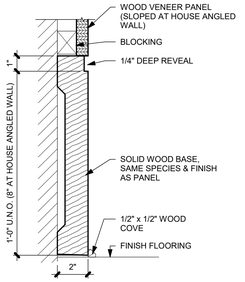
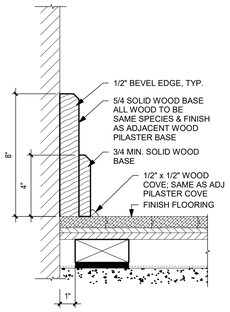
CHECKED BY: Checker

ENLARGED AUDITORIUM PLAN

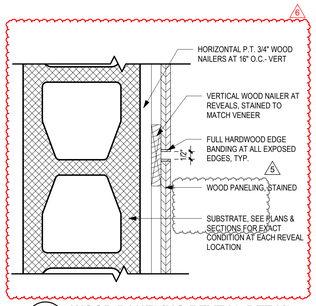
A-401



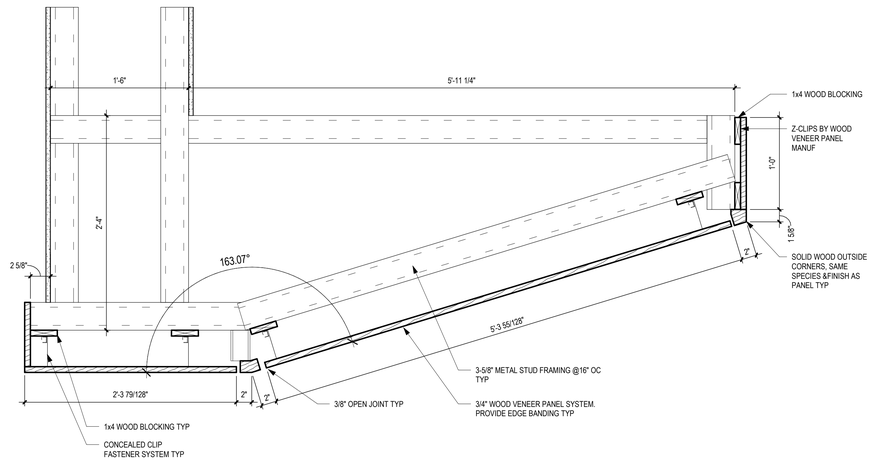
6 A-402 **AUDITORIUM WOOD BASE DETAIL**
SCALE: 3" = 1'-0"



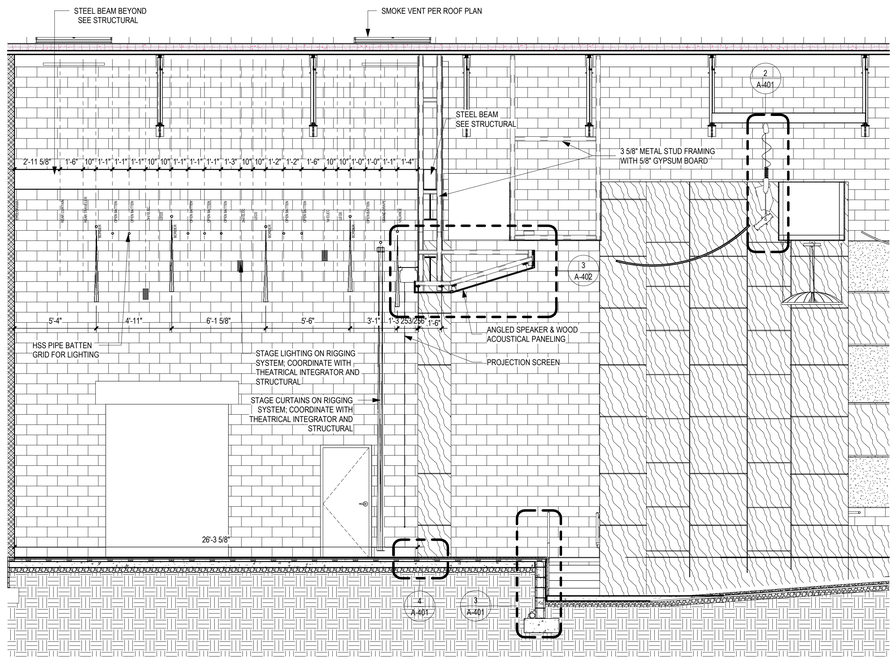
5 A-402 **APRON WOOD BASE DETAIL**
SCALE: 3" = 1'-0"



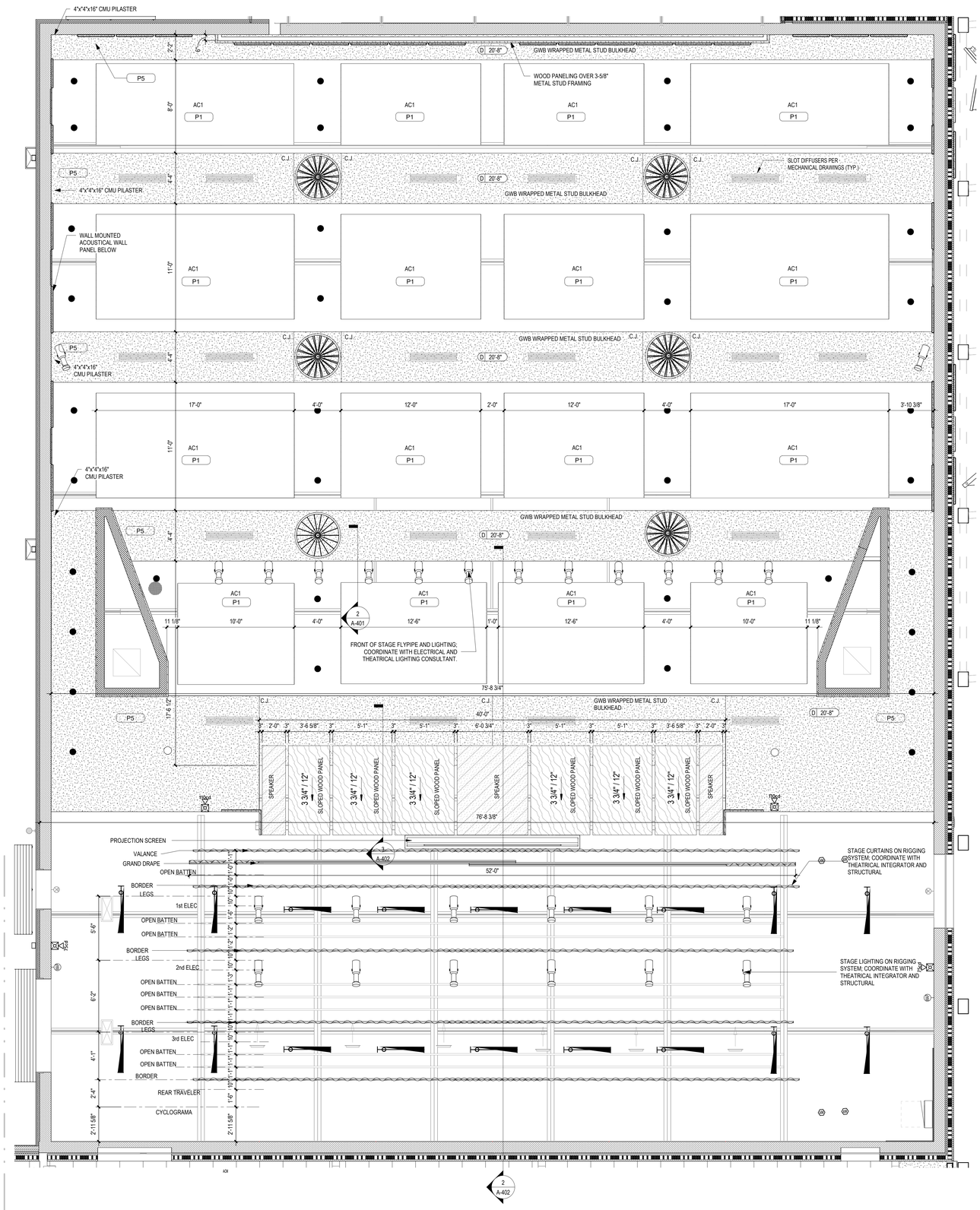
4 A-402 **WOOD PANELING REVEAL DETAIL**
SCALE: 3" = 1'-0"



3 A-402 **PROSCENIUM BULKHEAD FRAMING SECTION**
SCALE: 1 1/2" = 1'-0"



2 A-402 **THEATRICAL EQUIPMENT SECTION**
SCALE: 1/4" = 1'-0"



1 A-402 **REFLECTED CEILING PLAN-AUDITORIUM**
SCALE: 1/4" = 1'-0"

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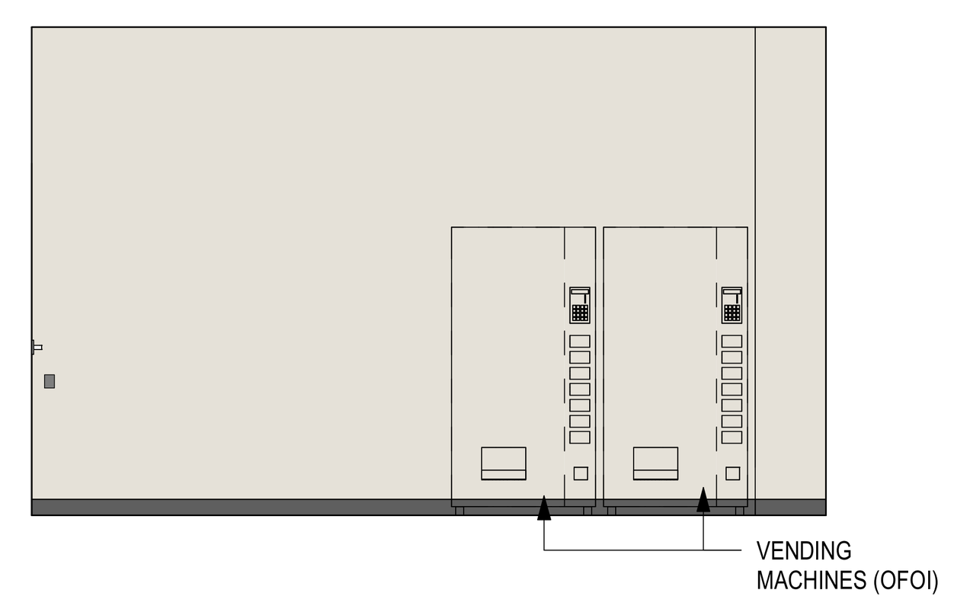
CHECKED BY: Checker

ENLARGED AUDITORIUM REFLECTIVE CEILING PLAN

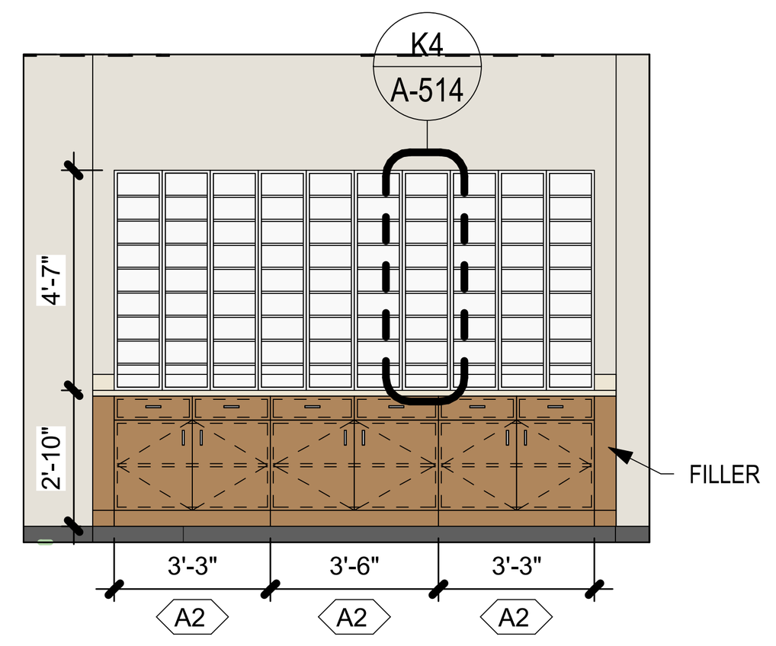
A-402

CASEWORK GENERAL NOTES:

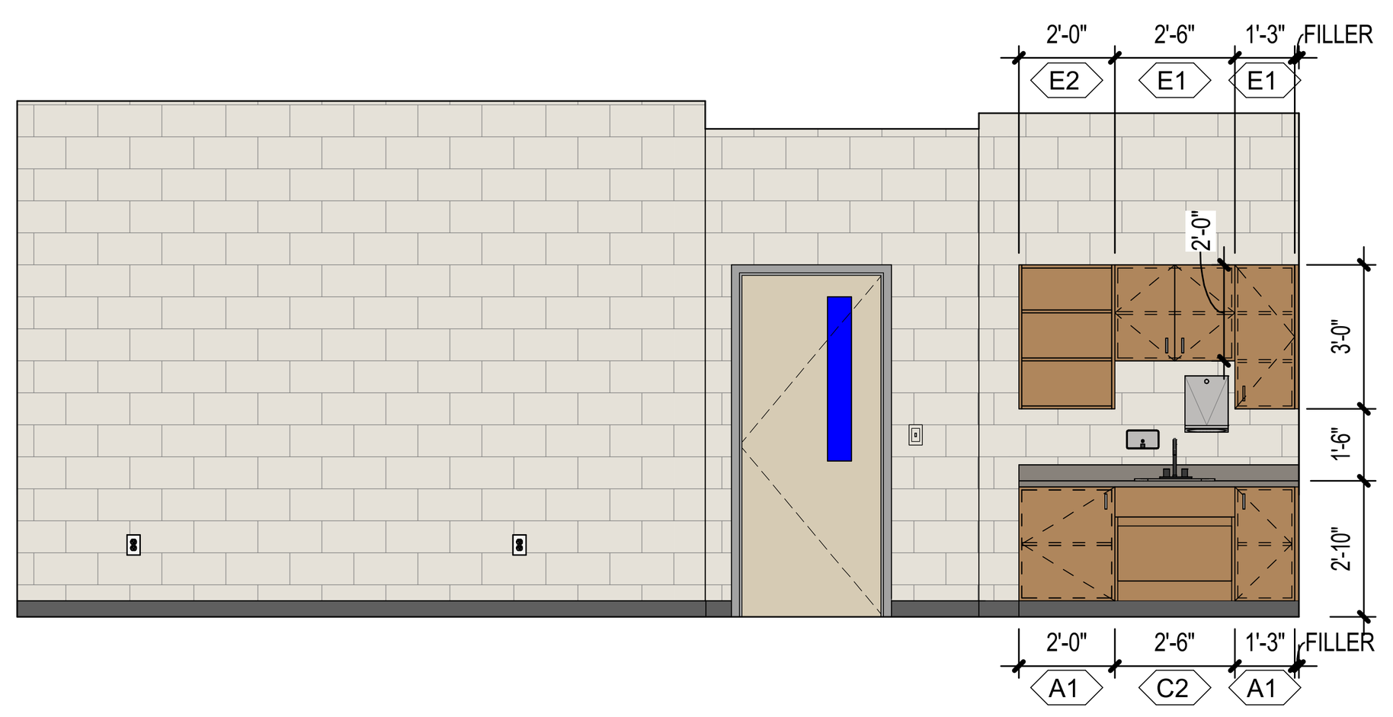
1. ALL FINISHES IN FAMILY SCIENCE CLASSROOMS TO BE HEALTH GRADE FINISHES. REFER TO FINISH PLAN FOR SPECIFICATION.
2. ALL SCIENCE LAB AND PREP ROOM CASEWORK TO BE WOOD WITH EPOXY RESIN COUNTERTOPS WITH 4" BACKSPLASH WHICH ARE RESISTANT TO CHEMICALS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. ALL PREP ROOM TALL STORAGE CABINETS TO BE VENTED & LOCKABLE & LABELED AS SUCH.
4. SEE PLUMBING DRAWINGS FOR SEDIMENT FILTERS AND ACID NEUTRALIZATION SYSTEM. TO BE PROVIDED BY MILLWORK CONTRACTOR.
5. GENERAL CONTRACTOR TO PROVIDE ALL SCIENCE CLASSROOMS WITH THE SAFETY EQUIPMENT BELOW AND TO BE STORED IN THE SCIENCE ROOM AND/OR PREP ROOM:
   - -FIRE BLANKET (ONE PER CLASSROOM)
   - -CHEMICAL & FIRE-RESISTANT APRONS/LAB COATS (ONE PER STUDENT)
   - -FIRE EXTINGUISHER-ABC (ONE PER ROOM)
   - -SPILL CONTROL CENTER
   - -SAFETY SHIELDS (ONE PER STUDENT)
   - -GOGGLES AND GOGGLE SANITIZER (ONE PER STUDENT)
   - -HEAT & ACID RESISTANT GLOVES (ONE PER STUDENT)
   - -SAFETY/CHMICAL INVENTORY SOFTWARE
   - -BROKEN GLASS DISPOSAL CONTAINER
   - -COAT & BACKPACK HOOKS (TO BE LOCATED ON EACH STUDENT DESK & PROVIDED BY FURNITURE VENDOR)



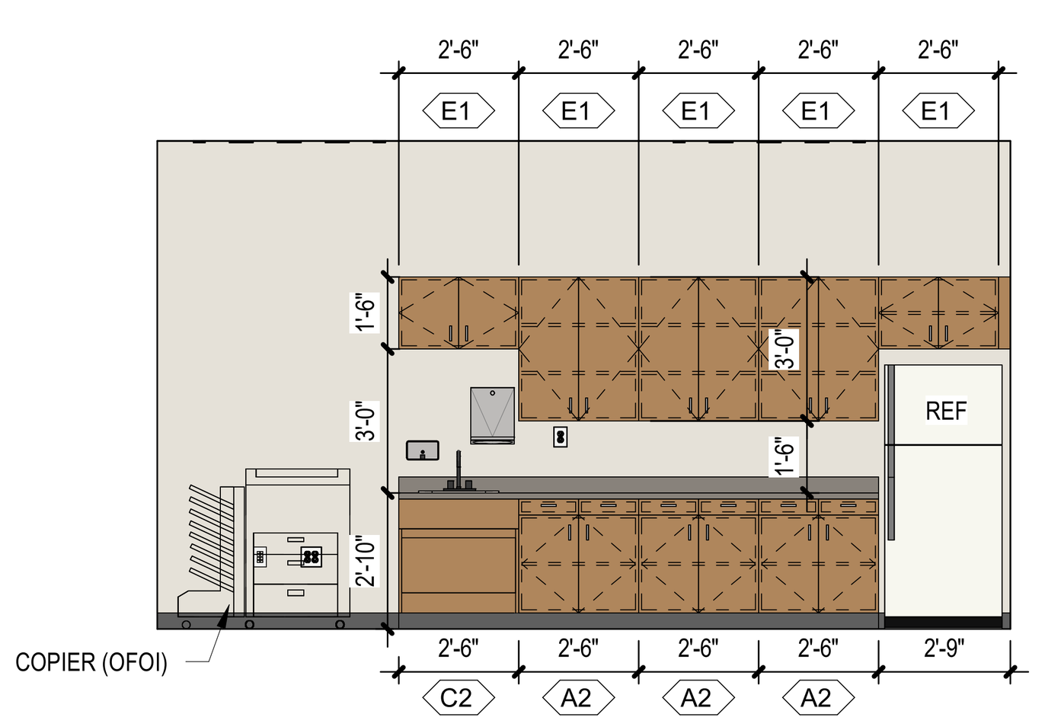
16 A-411 **TEACHER LOUNGE PLAN NORTH**
SCALE: 1/4" = 1'-0"



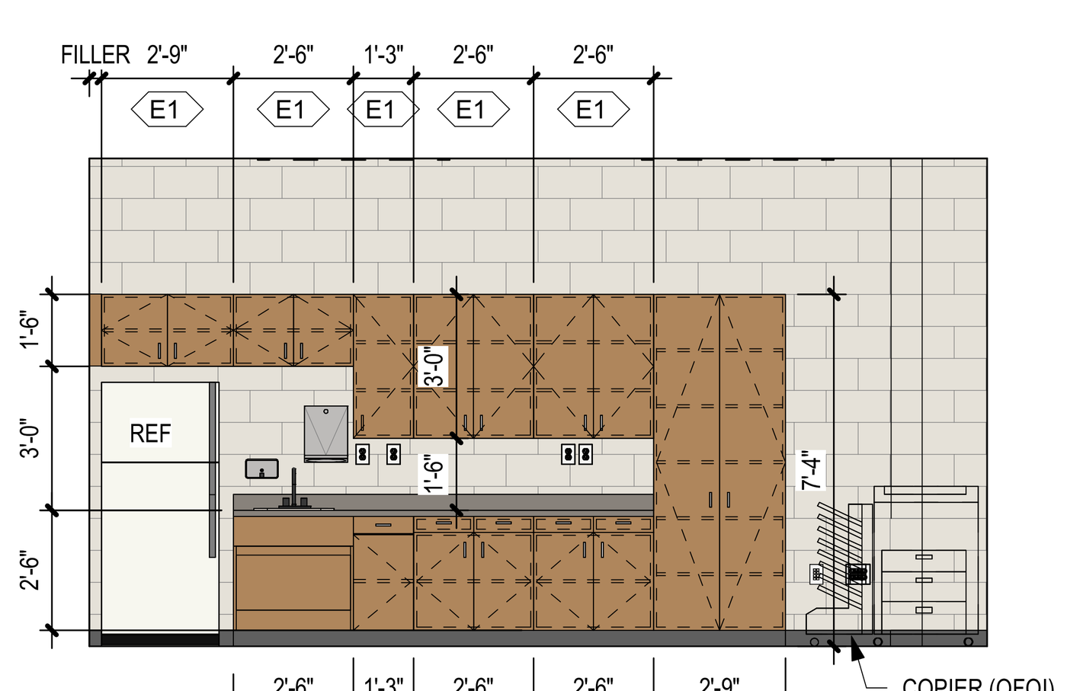
15 A-411 **TEACHER LOUNGE PLAN WEST**
SCALE: 1/4" = 1'-0"



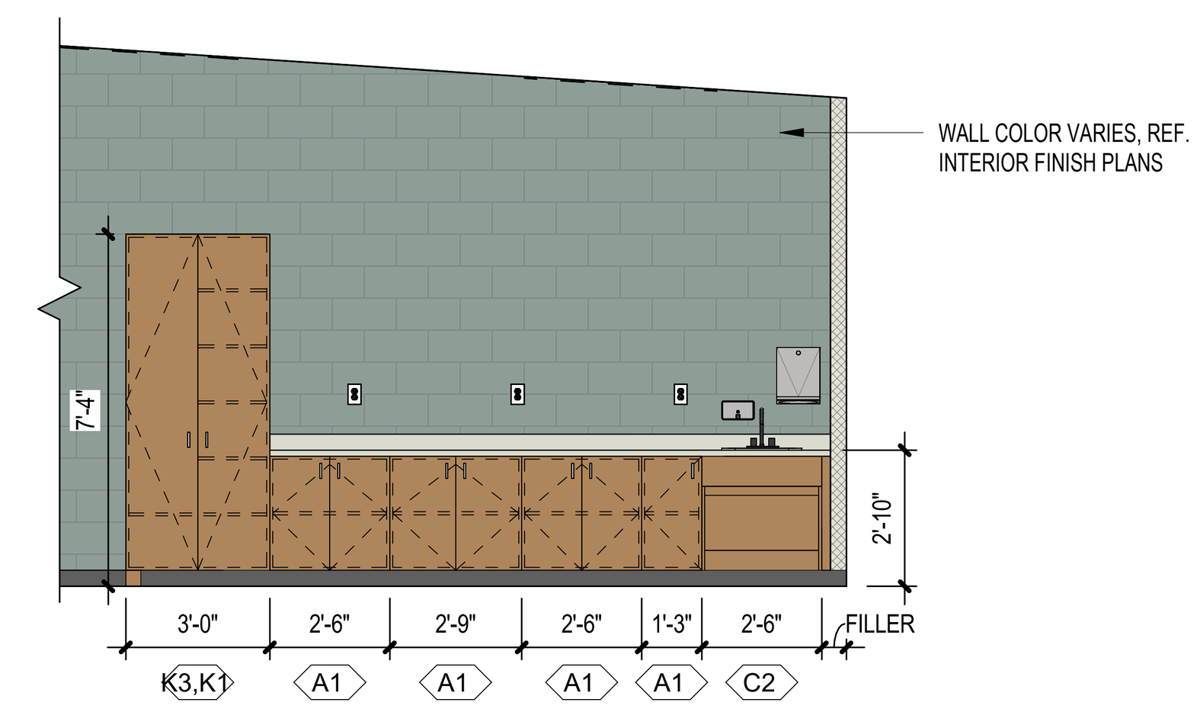
14 A-411 **HEALTH ROOM 316,317 MILLWORK ELEVATION**
SCALE: 1/4" = 1'-0"



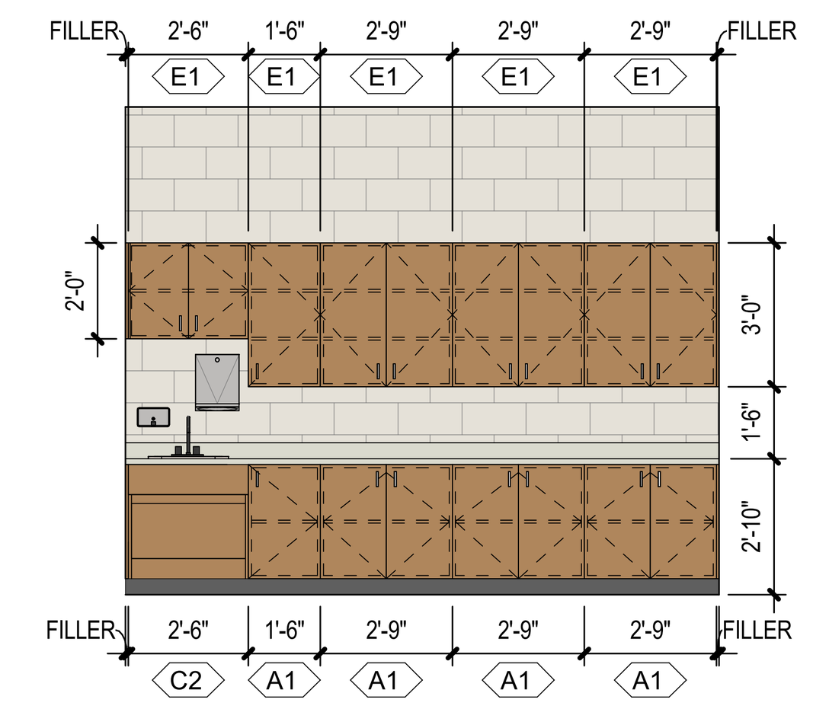
13 A-411 **222 WORKROOM MILLWORK ELEVATION**
SCALE: 1/4" = 1'-0"



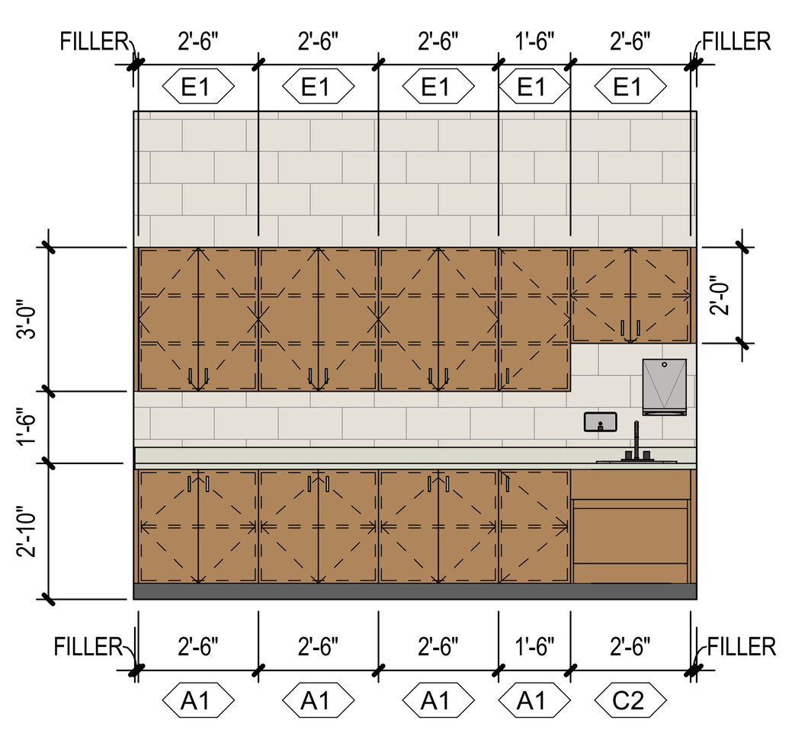
12 A-411 **TYP TEACHER WORK ROOM MILLWORK ELEV**
SCALE: 1/4" = 1'-0"



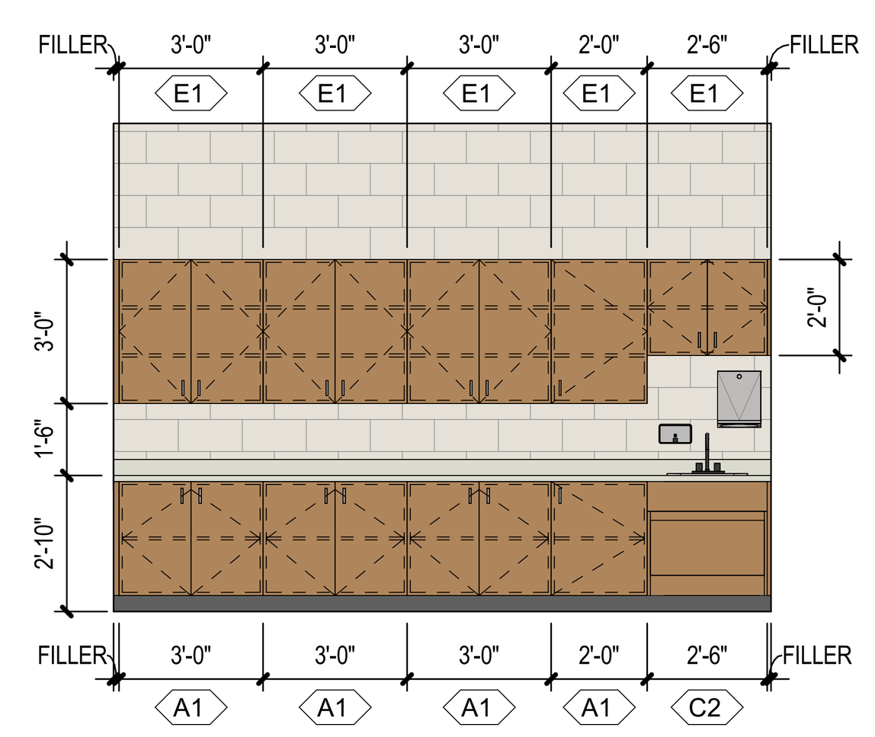
11 A-411 **EC S/C CLASSROOM 403, 501, 601, STEM 602 (MIR) WING TYP MILLWORK ELEV**
SCALE: 1/4" = 1'-0"



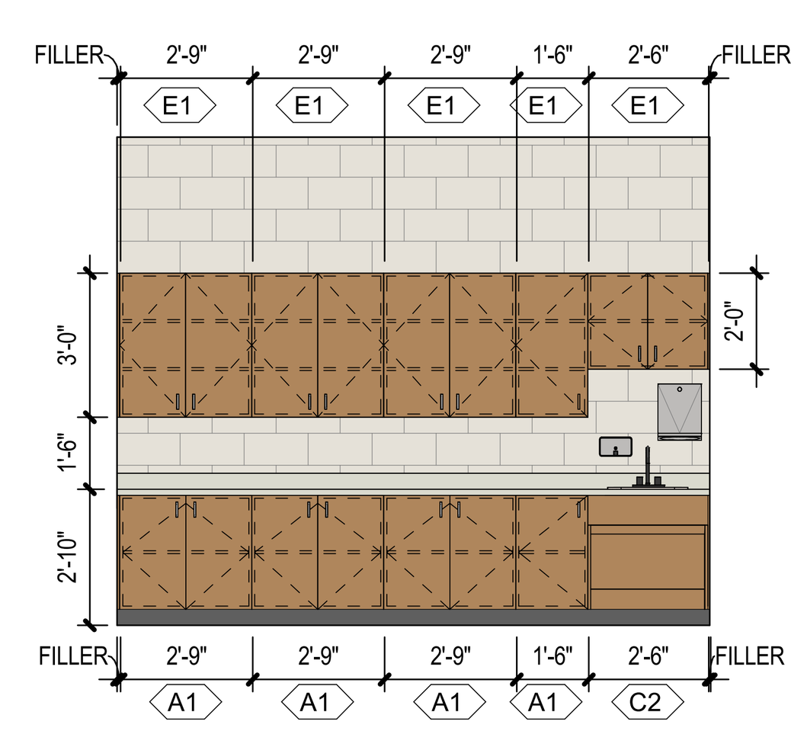
10 A-411 **TYP 500/600 WING CLASSROOM MILLWORK ELEV 2**
SCALE: 1/4" = 1'-0"



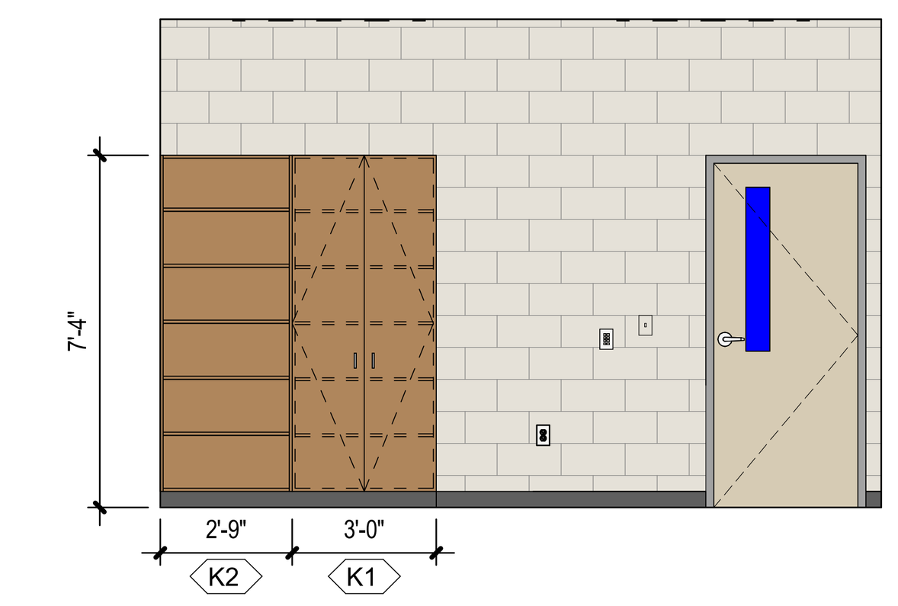
9 A-411 **TYP 500/600 WING CLASSROOM MILLWORK ELEV**
SCALE: 1/4" = 1'-0"



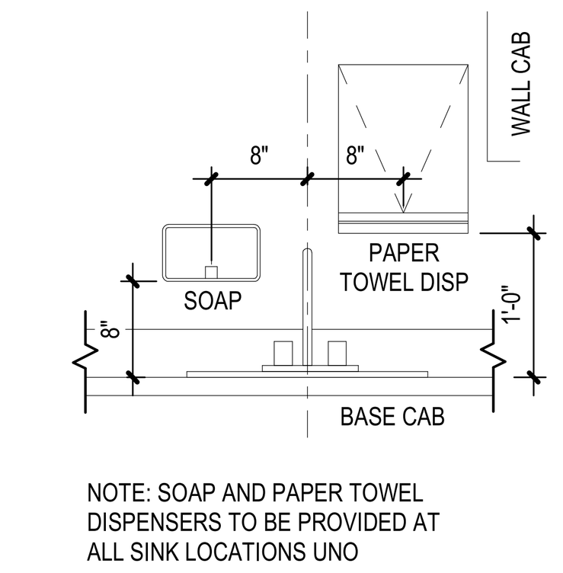
8 A-411 **CLASSROOM 404/405 MILLWORK**
SCALE: 1/4" = 1'-0"



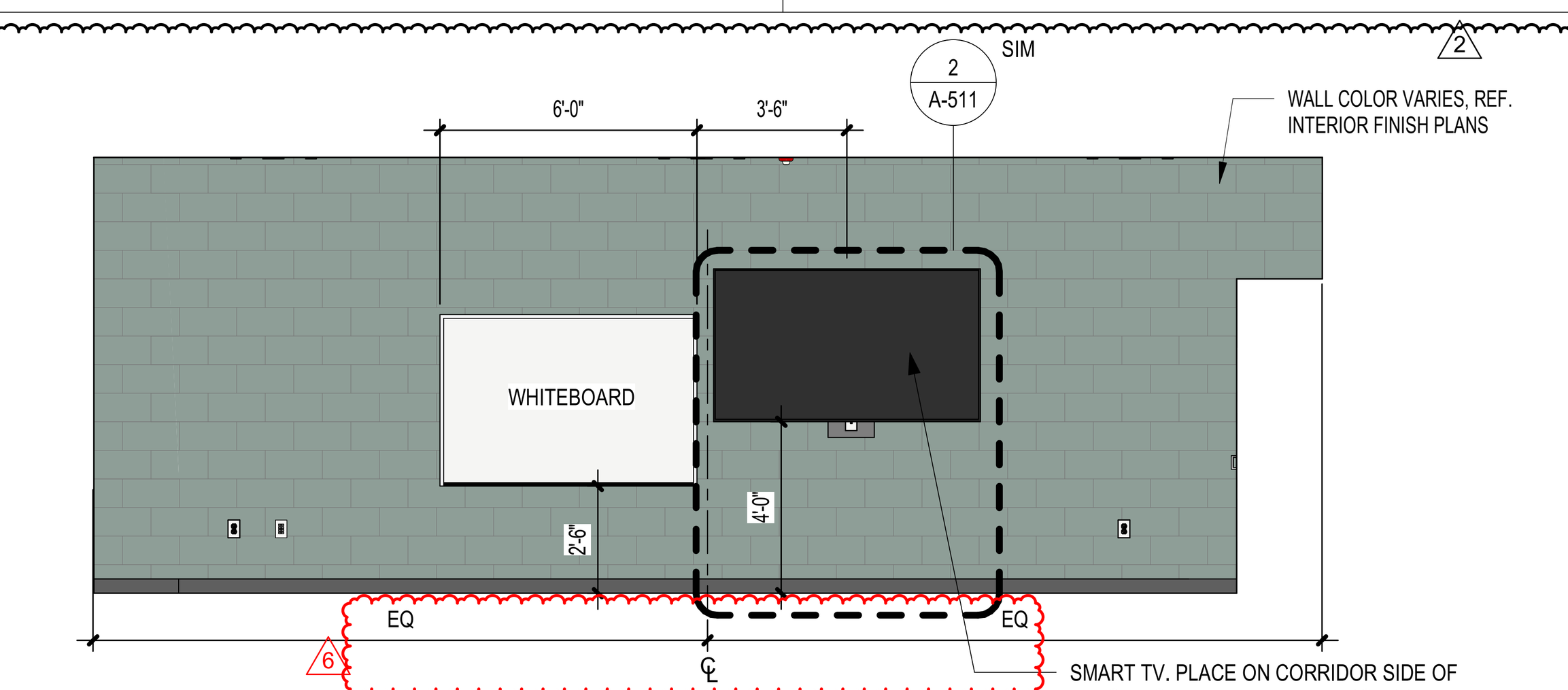
7 A-411 **TYP 400 WING CLASSROOM MILLWORK**
SCALE: 1/4" = 1'-0"



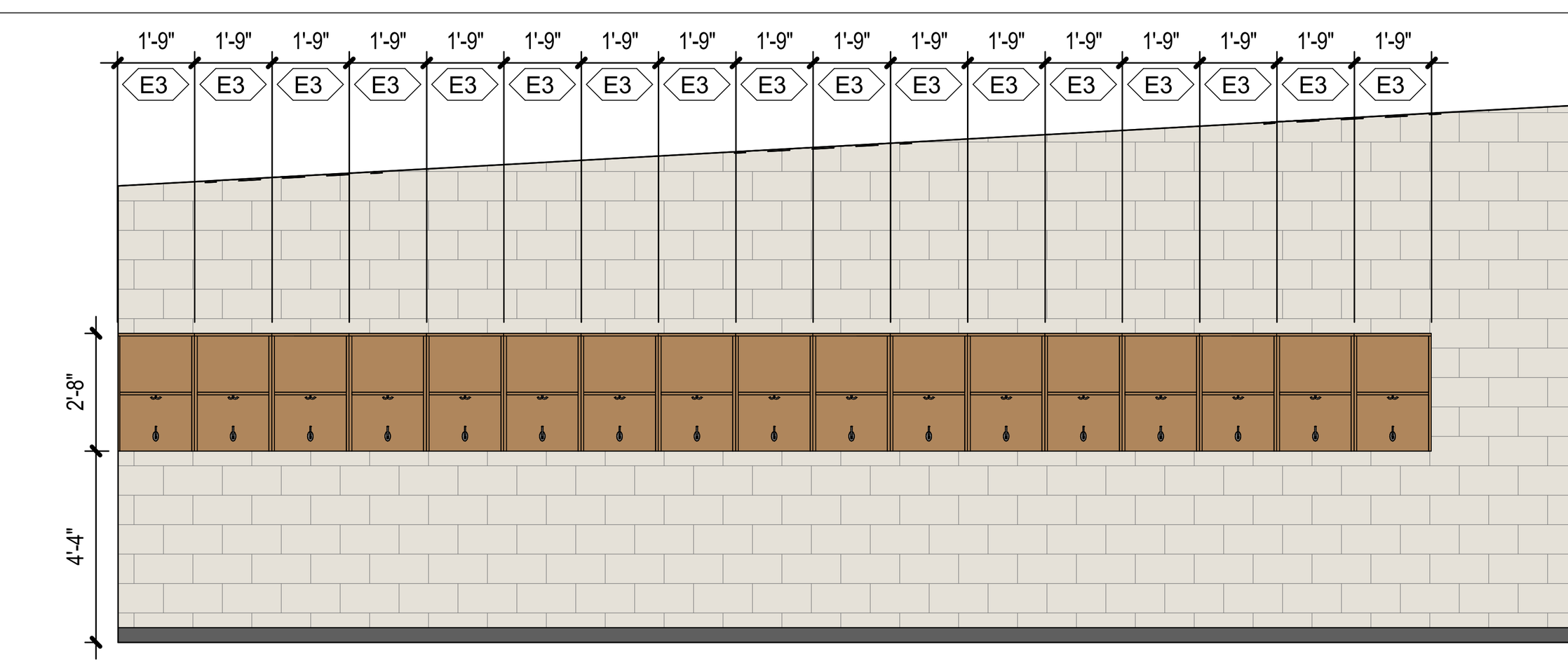
6 A-411 **TYP RESOURCE ROOM MILLWORK ELEV**
SCALE: 1/4" = 1'-0"



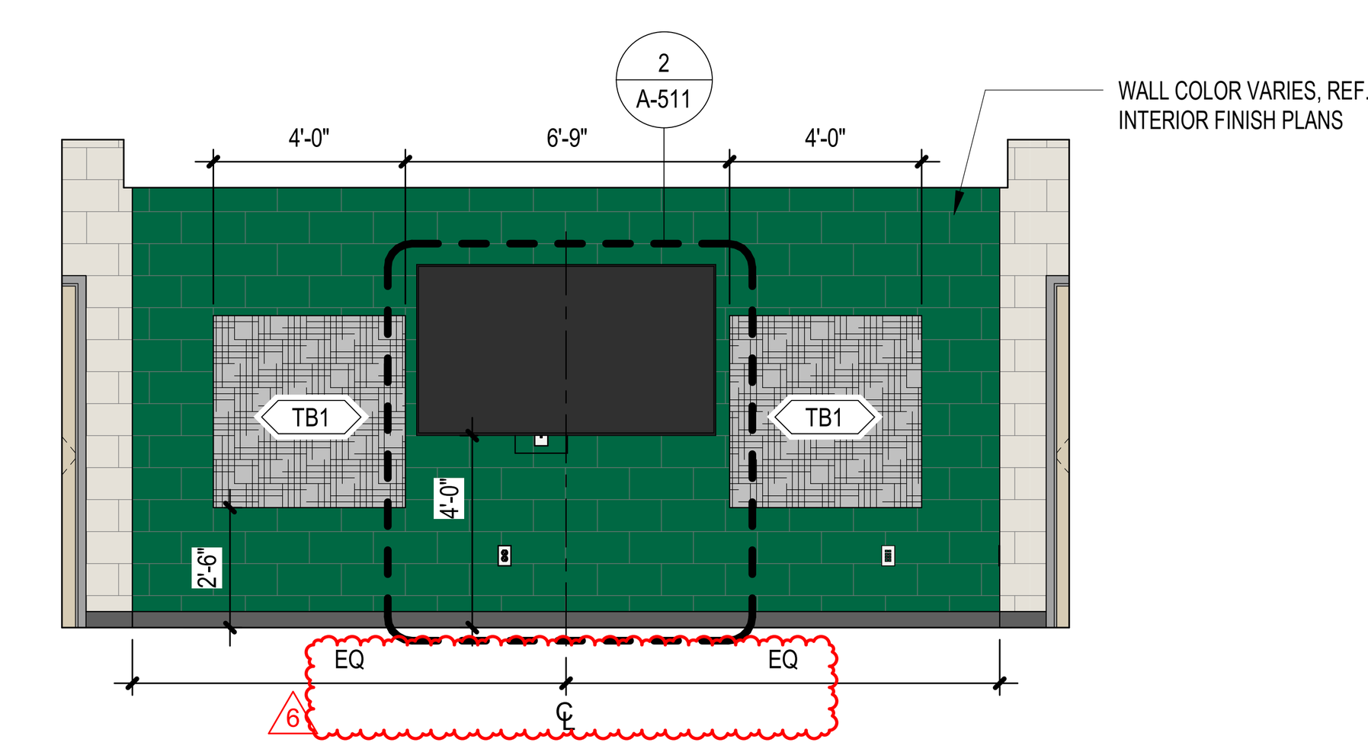
5 A-411 **MOUNTING DETAIL AT SINK**
SCALE: 3/4" = 1'-0"



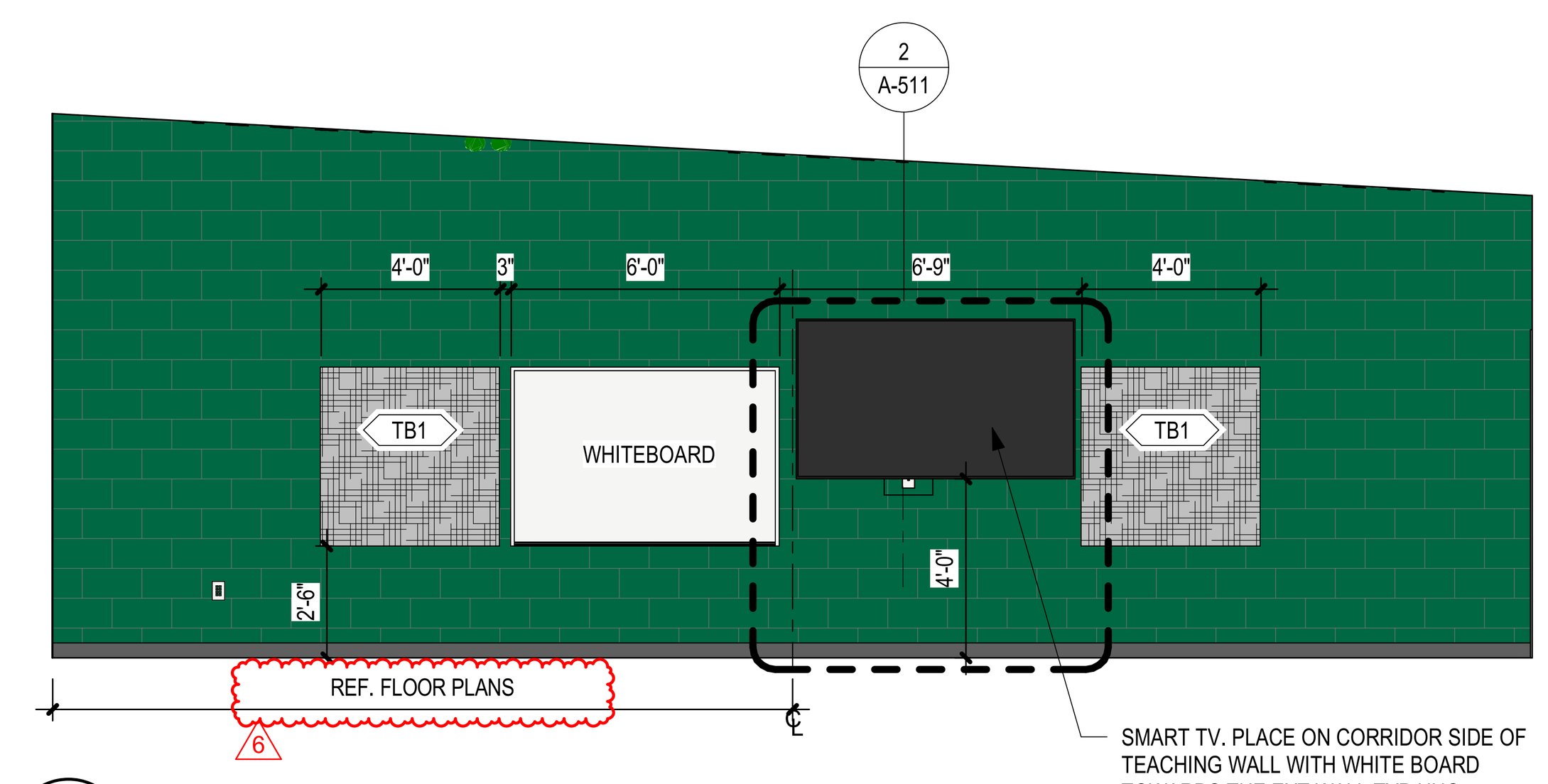
4 A-411 **TYP RESOURCE ROOM TEACHING WALL ELEV.**
SCALE: 1/4" = 1'-0"



3 A-411 **TYP CLASSROOM CUBBY ELEVATION**
SCALE: 1/4" = 1'-0"



2 A-411 **ALT TEACHING WALL ELEVATION**
SCALE: 1/4" = 1'-0"



1 A-411 **TYP CLASSROOM TEACHING WALL ELEVATION**
SCALE: 1/4" = 1'-0"

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6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

INTERIOR ELEVATIONS - MILLWORK

A-411

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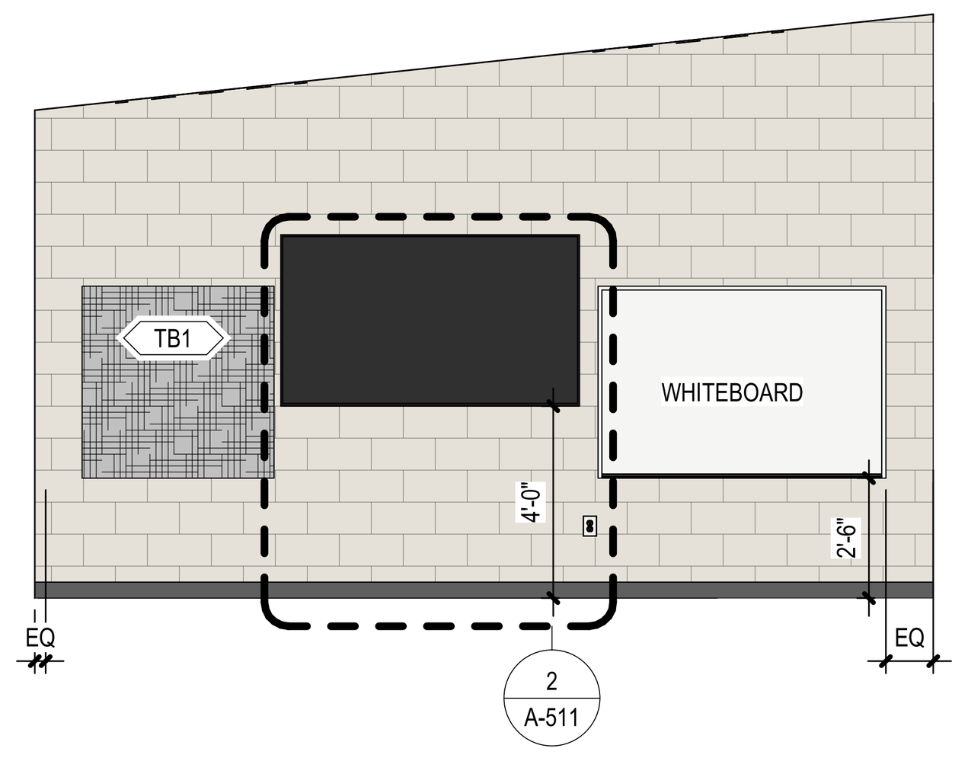
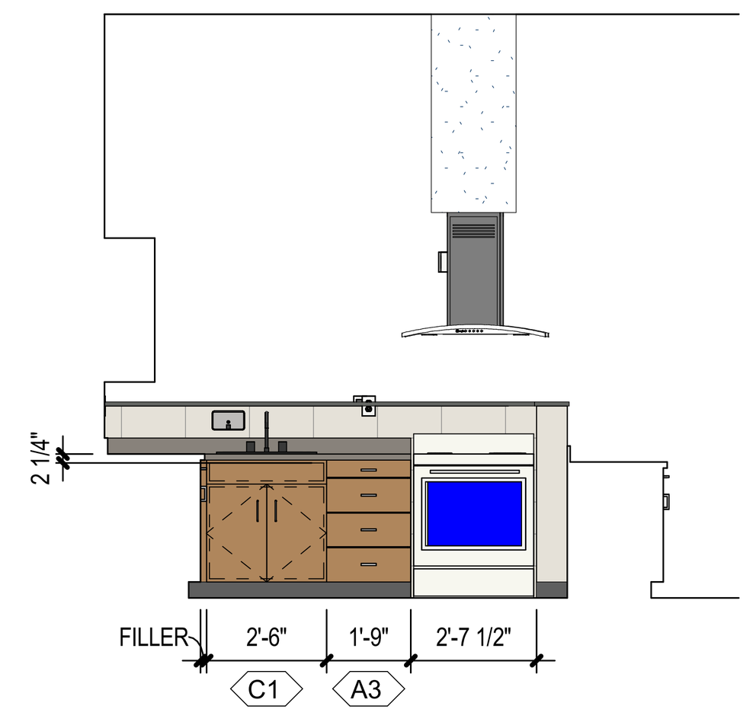
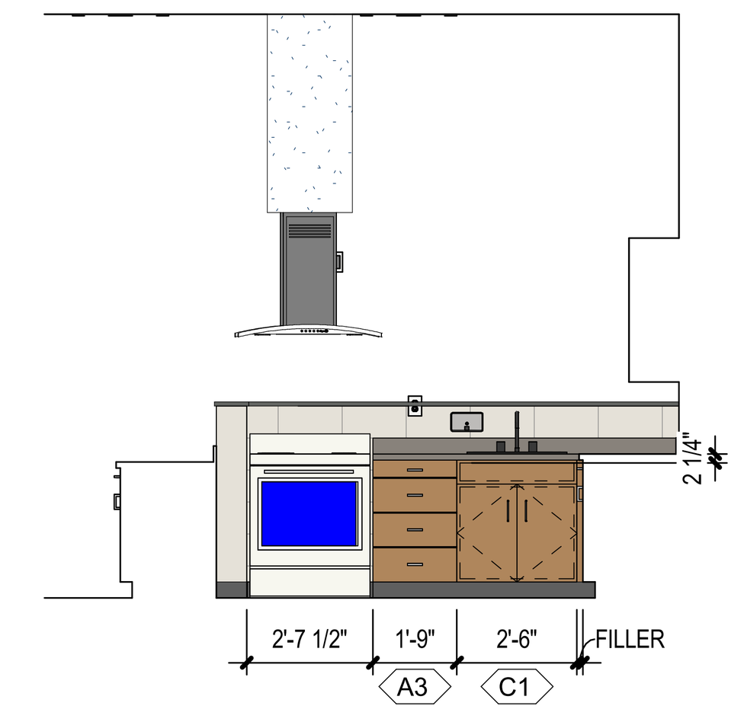


15 A-412 TYP. TEACHER WORK ROOM TEACHING WALL ELEV
SCALE: 1/4" = 1'-0"



11 A-412 104 FAMILY SCIENCE MILLWORK ELEV LEFT
SCALE: 1/4" = 1'-0"



10 A-412 104 FAMILY SCIENCE MILLWORK ELEV RIGHT
SCALE: 1/4" = 1'-0"

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   - -HEAT & ACID RESISTANT GLOVES (ONE PER STUDENT)
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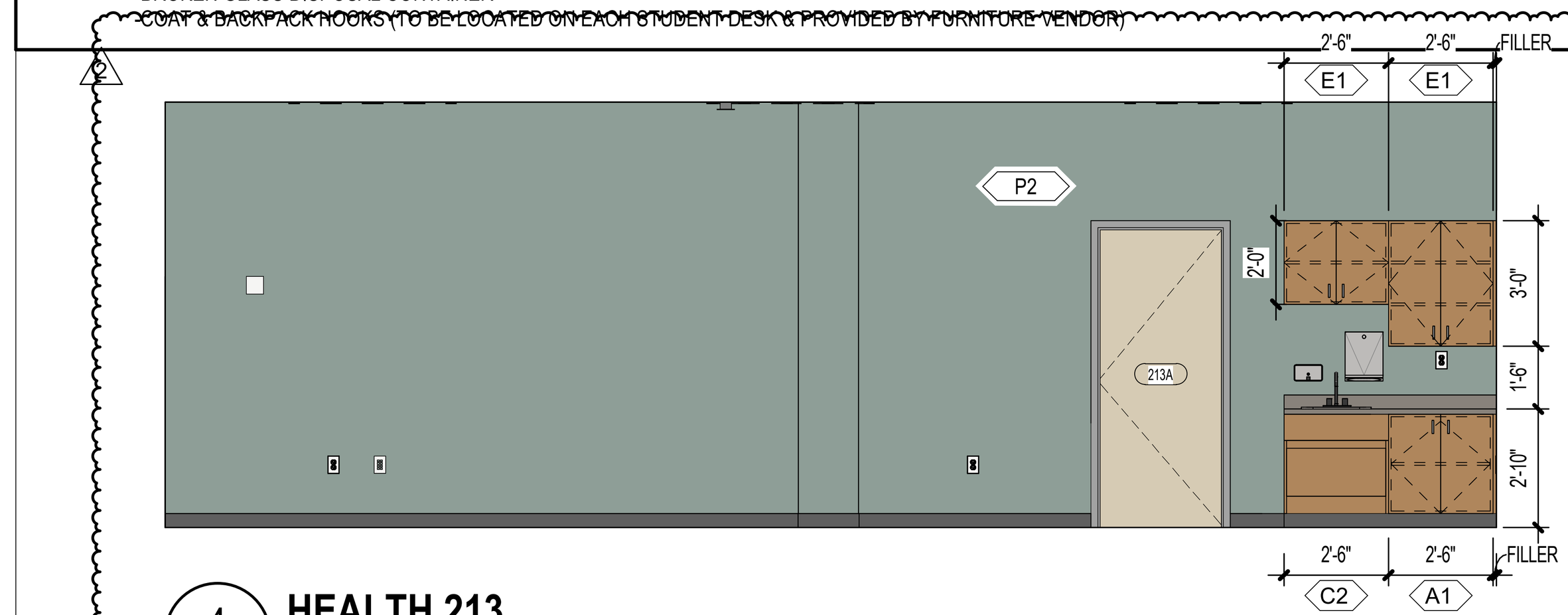
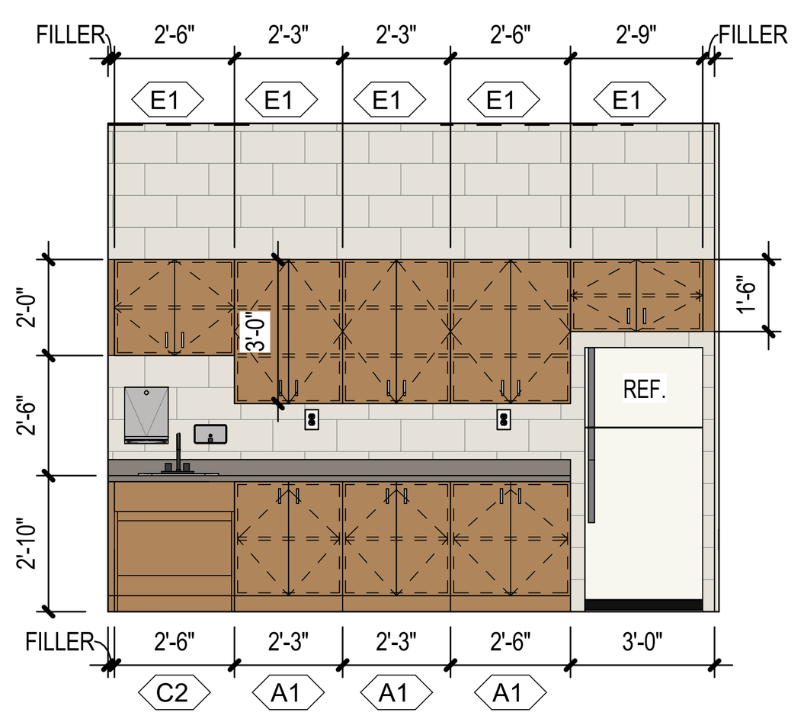
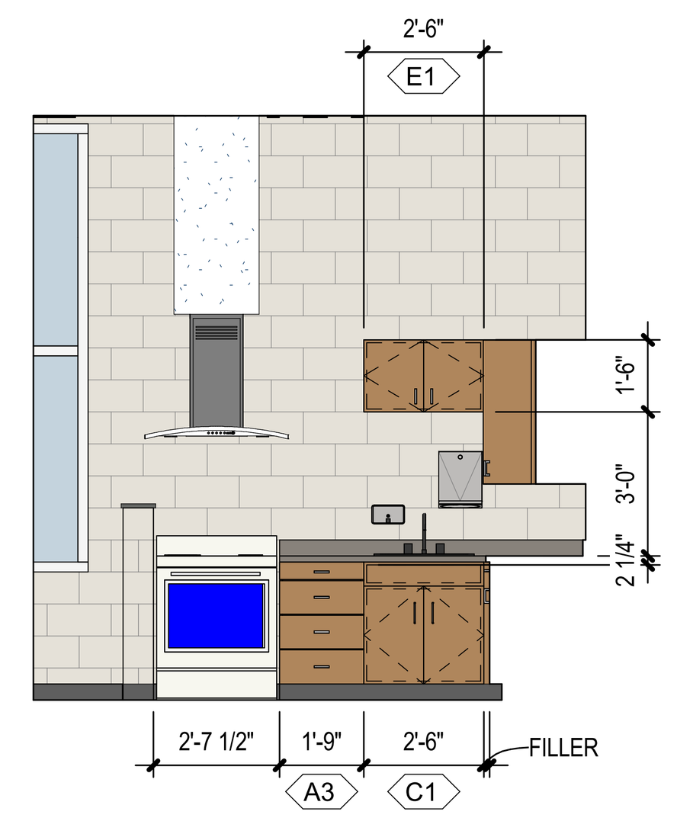
   - -BROKEN GLASS DISPOSAL CONTAINER
   - ~~-COAT & BACKPACK HOOKS (TO BE LOCATED ON EACH STUDENT DESK & PROVIDED BY FURNITURE VENDOR)~~



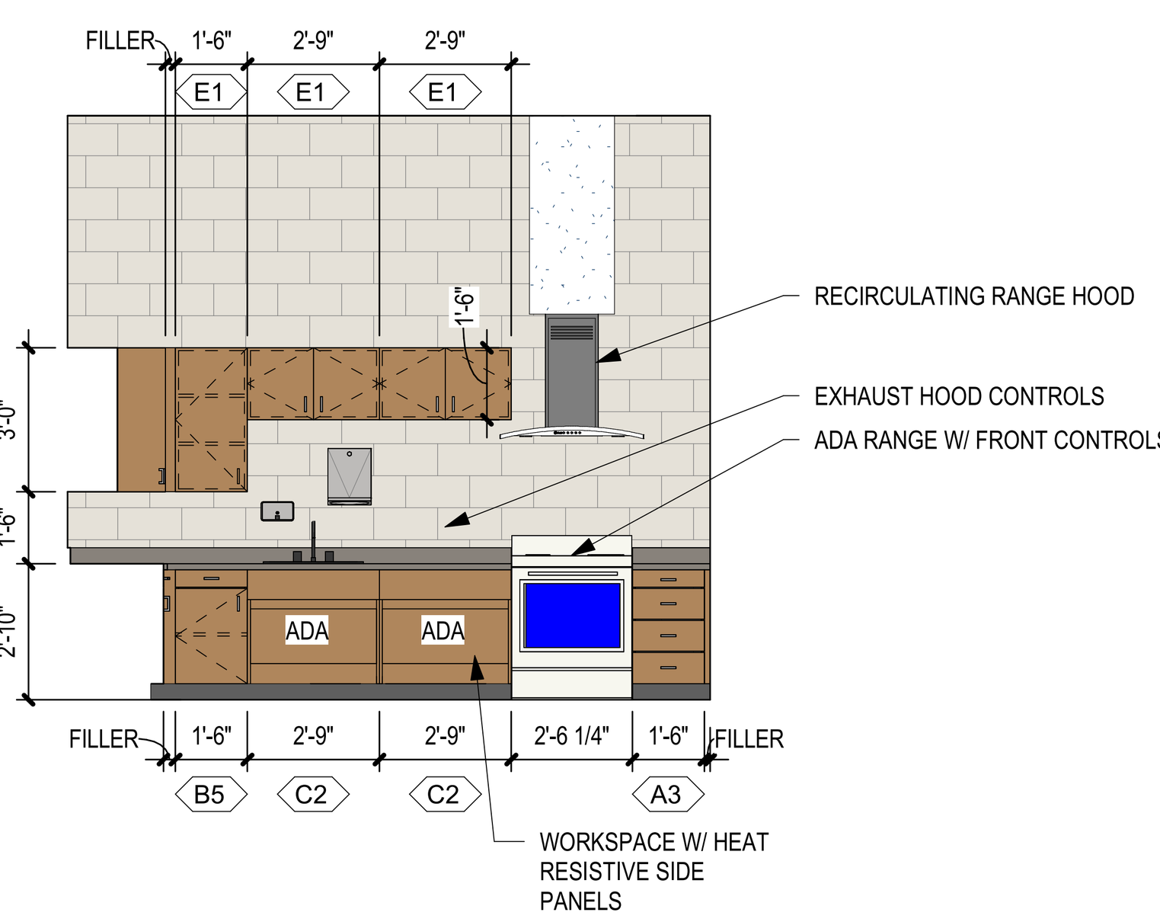
4 A-412 HEALTH 213
SCALE: 1/4" = 1'-0"



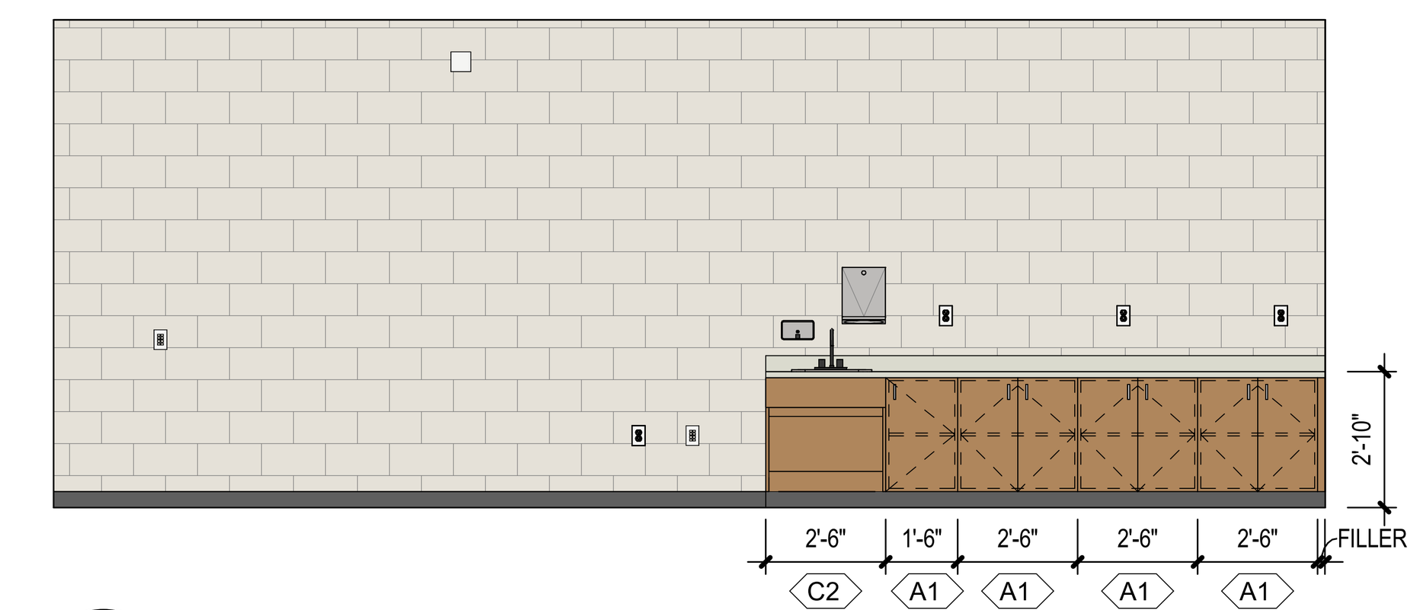
14 A-412 TEACHER LOUNGE 209 MILWORK ELEVATION
SCALE: 1/4" = 1'-0"



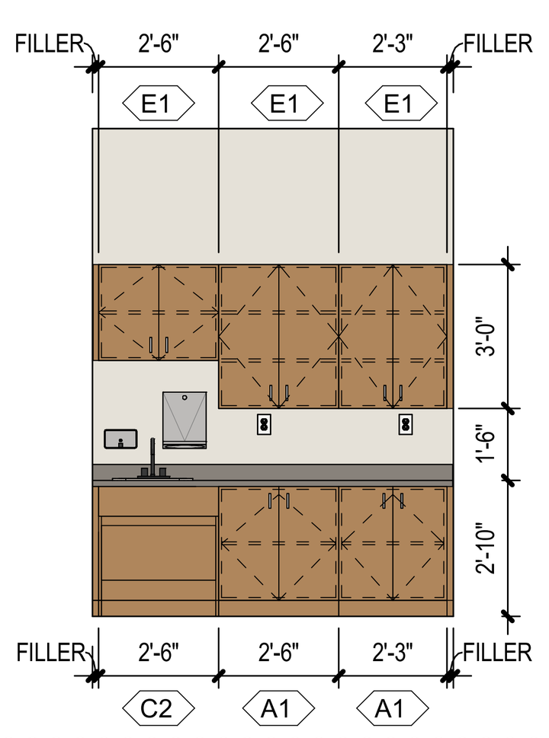
9 A-412 104 FAMILY SCIENCE MILLWORK ELEV EXT WALL
SCALE: 1/4" = 1'-0"



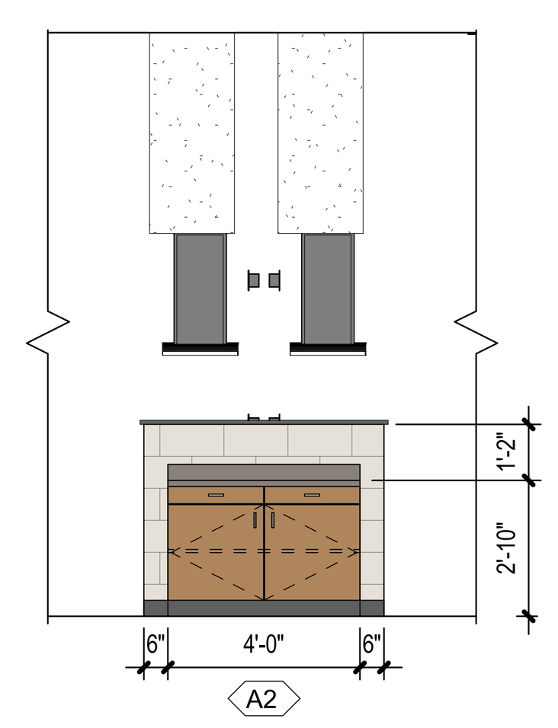
8 A-412 104 FAMILY SCIENCE ADA MILLWORK ELEV
SCALE: 1/4" = 1'-0"



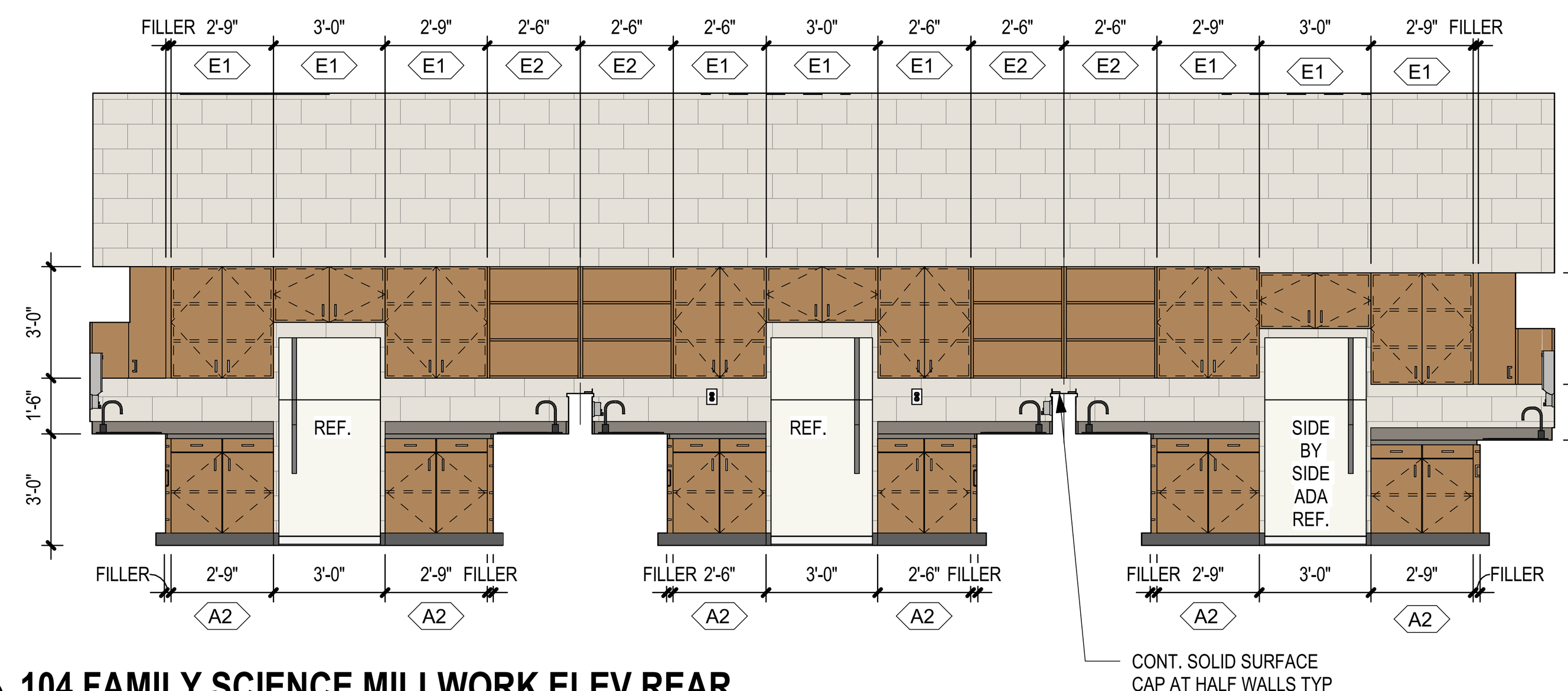
3 A-412 STEM 600A MILLWORK ELEV
SCALE: 1/4" = 1'-0"



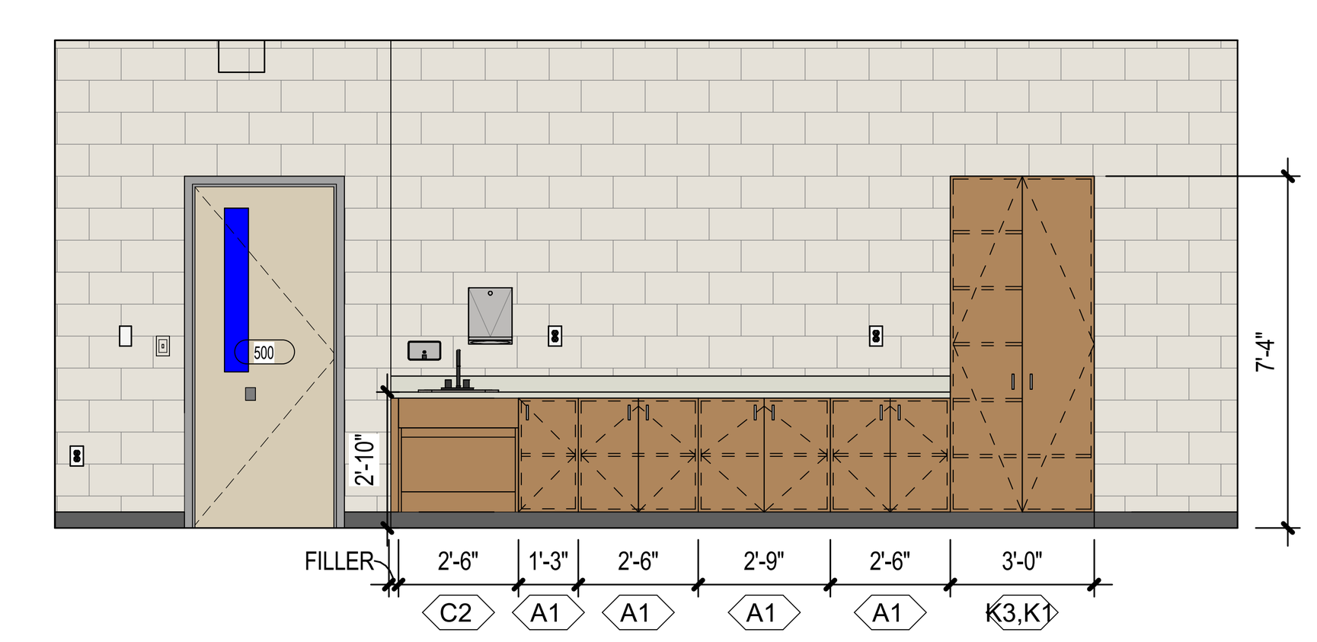
13 A-412 CORRIDOR C203 MILLWORK ELEV
SCALE: 1/4" = 1'-0"



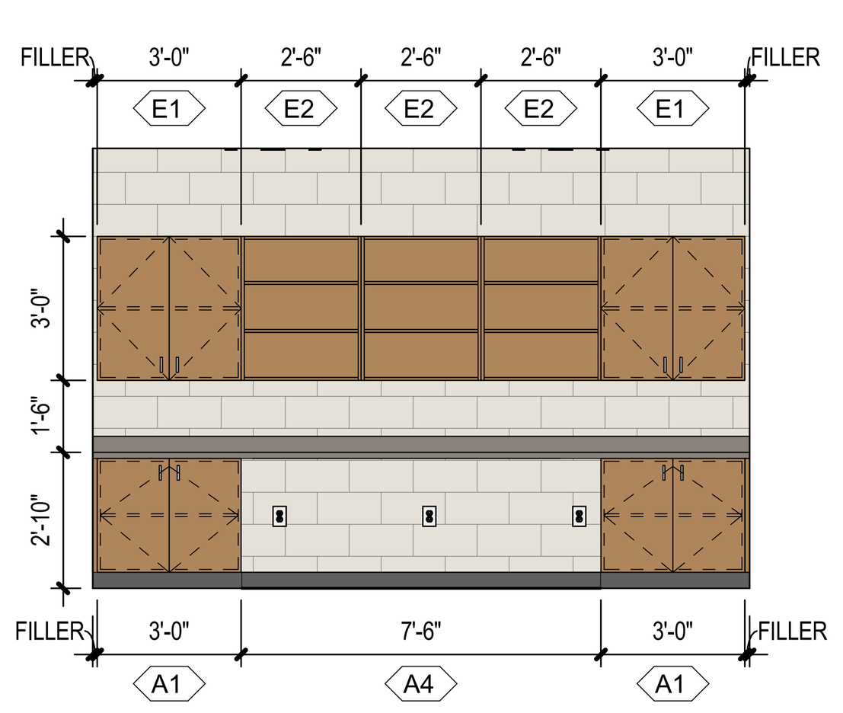
7 A-412 104 FAMILY SCIENCE MILLWORK
SCALE: 1/4" = 1'-0"



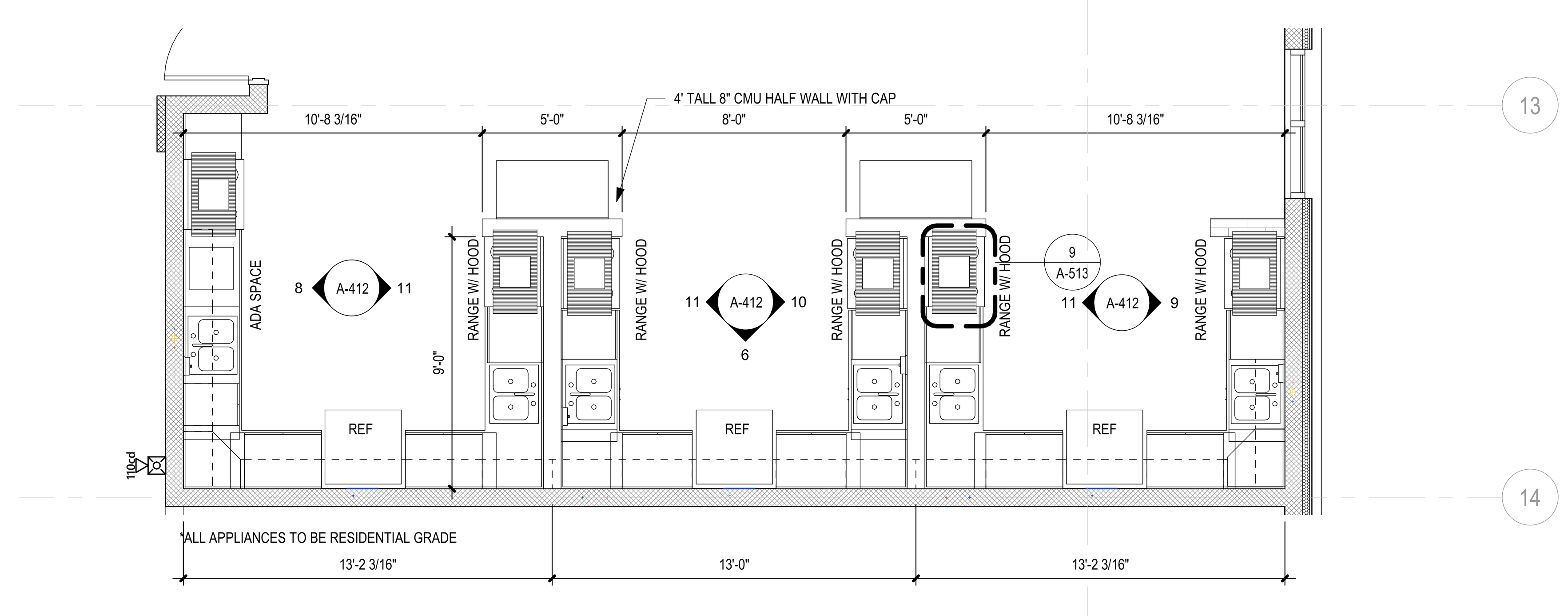
6 A-412 104 FAMILY SCIENCE MILLWORK ELEV REAR
SCALE: 1/4" = 1'-0"



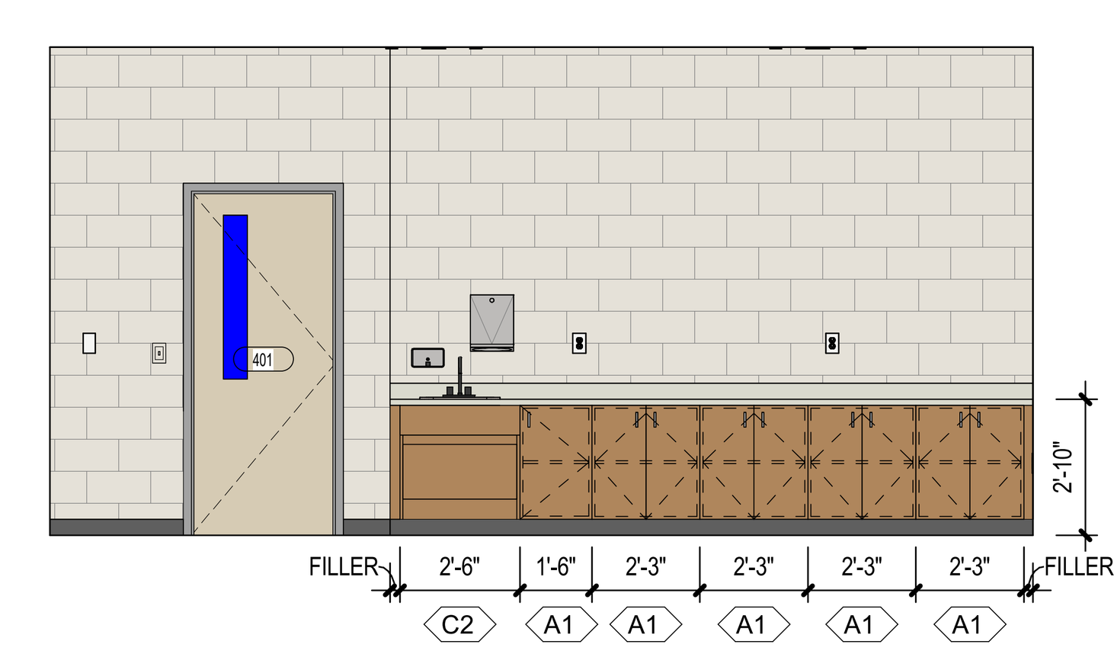
2 A-412 STEM CLASSROOM 500 WING MILLWORK ELEV
SCALE: 1/4" = 1'-0"



12 A-412 CONCESSION MILLWORK ELEVATION
SCALE: 1/4" = 1'-0"



5 A-412 FAMILY SCIENCES ENLARGED KITCHEN PLAN
SCALE: 1/4" = 1'-0"



1 A-412 STEM CLASSROOM 401 MILLWORK ELEV
SCALE: 1/4" = 1'-0"

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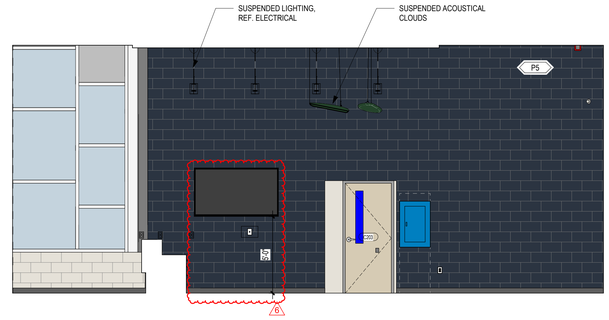
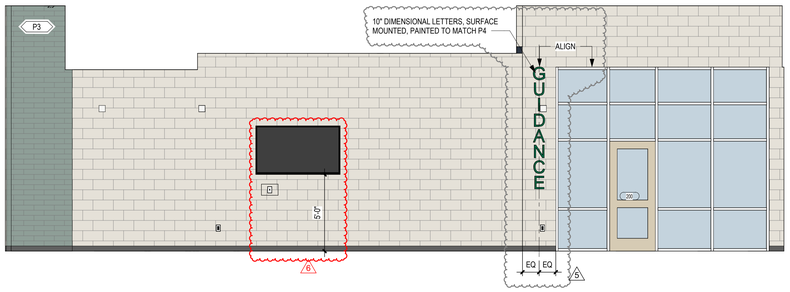
INTERIOR ELEVATIONS - MILLWORK

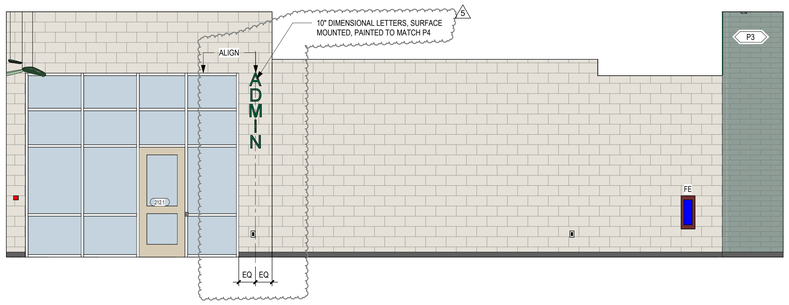
A-412



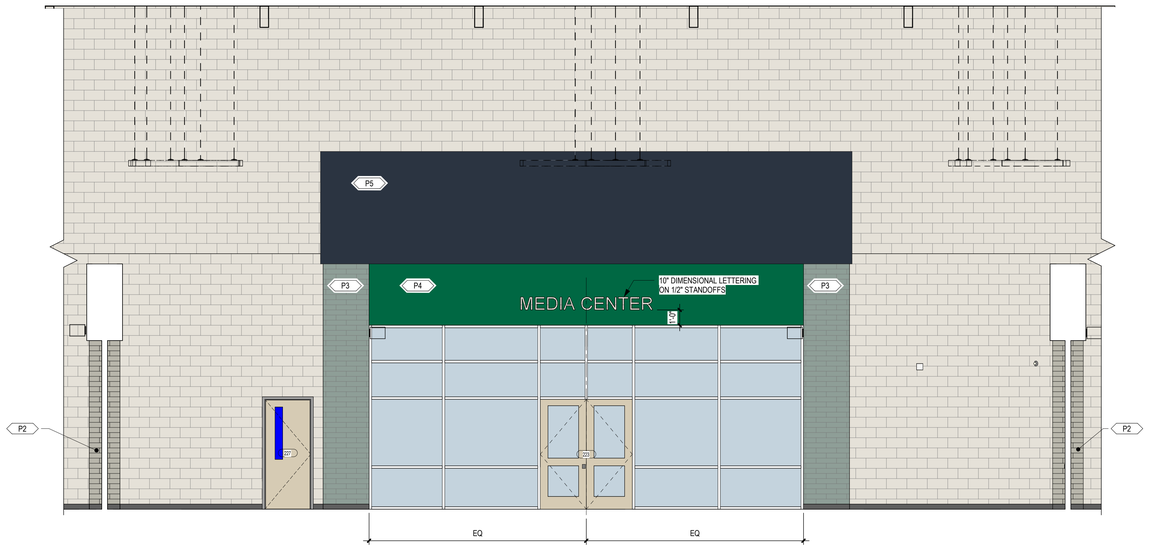
5 A-415 **RECEPTION 213 ELEVATION**
SCALE: 1/4" = 1'-0"



4 A-415 **CORRIDOR C201 NORTH ELEVATION**
SCALE: 1/4" = 1'-0"



3 A-415 **CORRIDOR C201 SOUTH ELEVATION**
SCALE: 1/4" = 1'-0"



2 A-415 **CORRIDOR C201 WEST ELEVATION**
SCALE: 1/4" = 1'-0"

1 A-415 **CORRIDOR C201 EAST ELEVATION**
SCALE: 1/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

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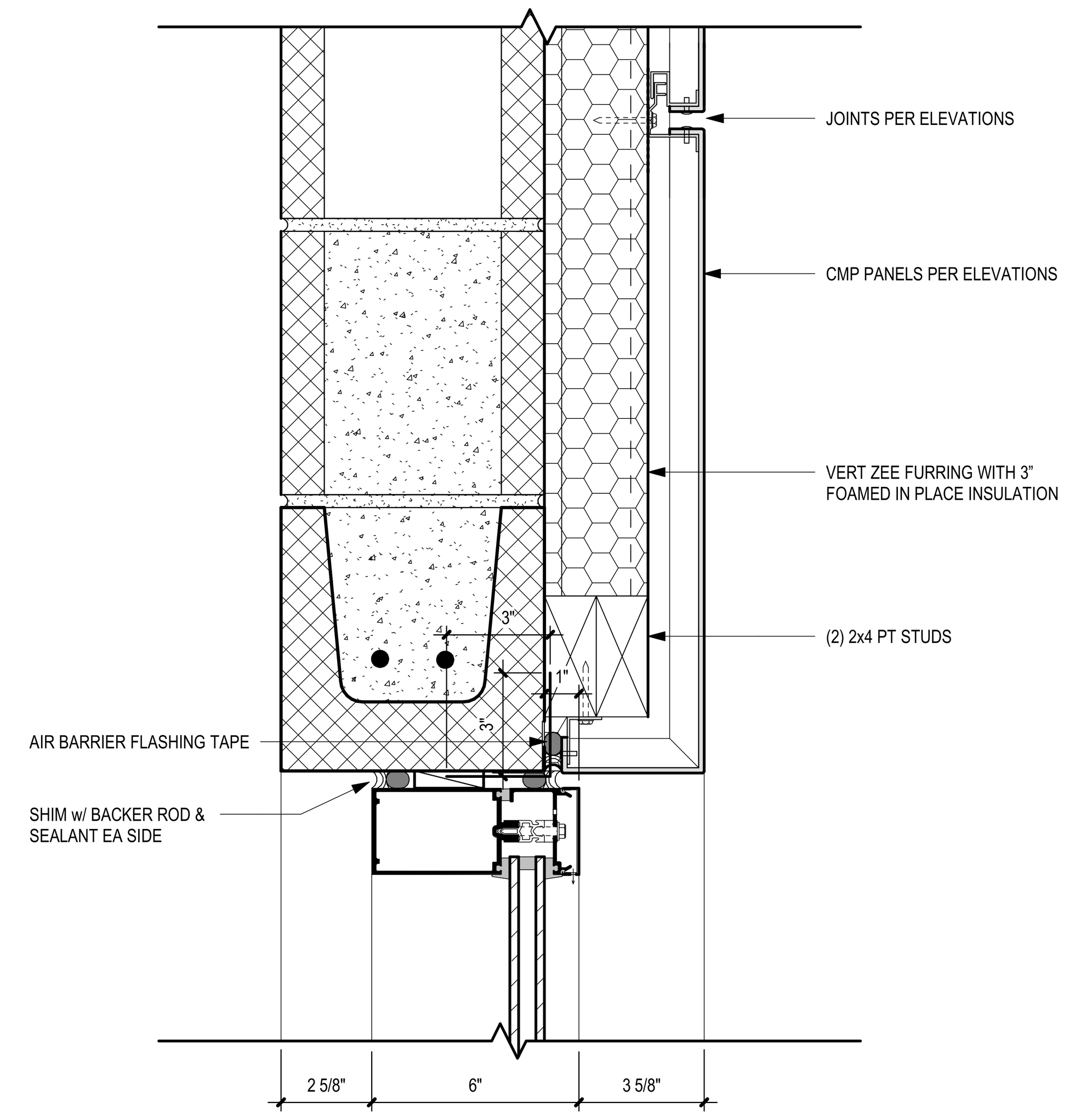
ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

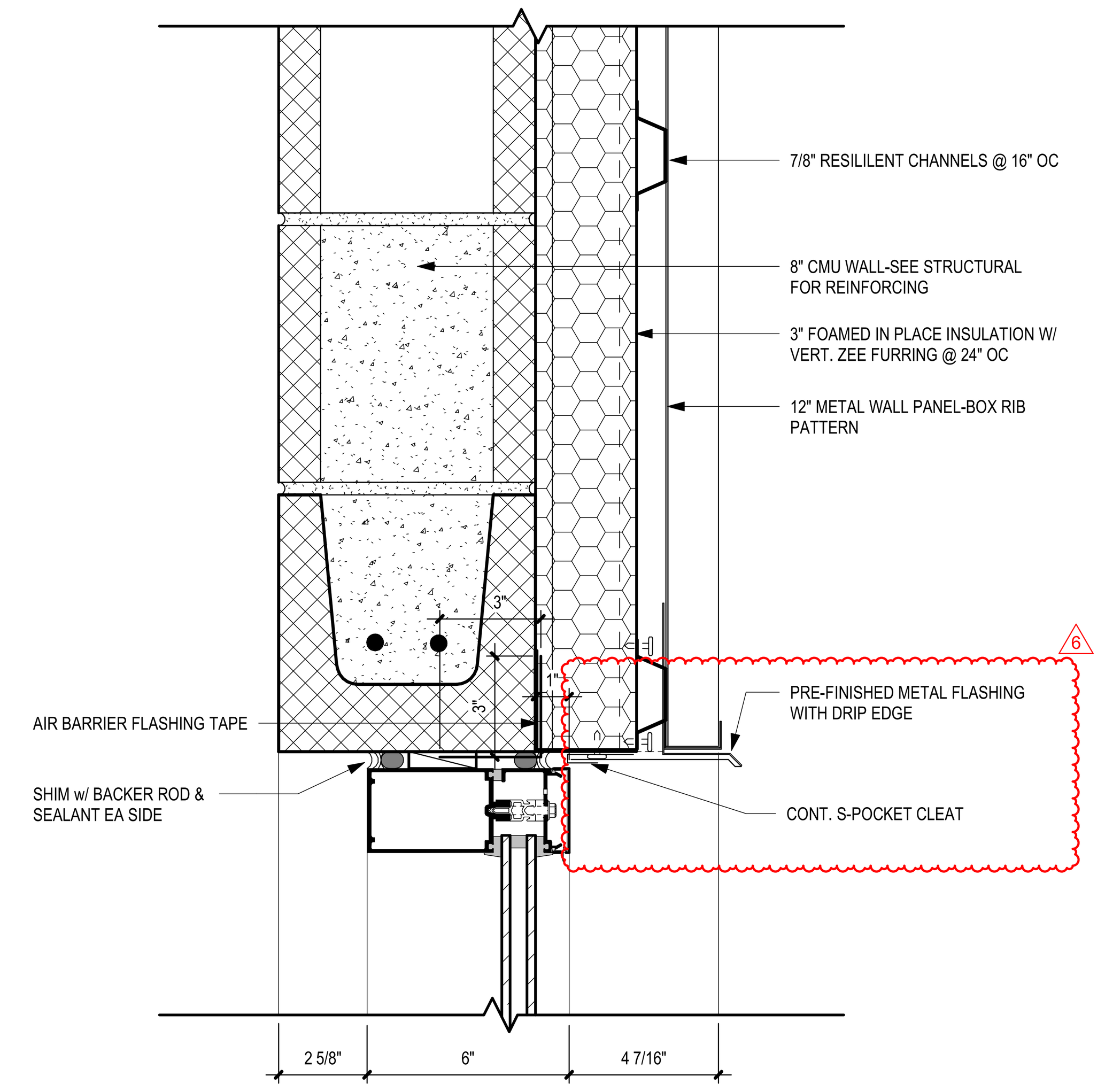
ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

INTERIOR ELEVATIONS - 200 CORRIDORS

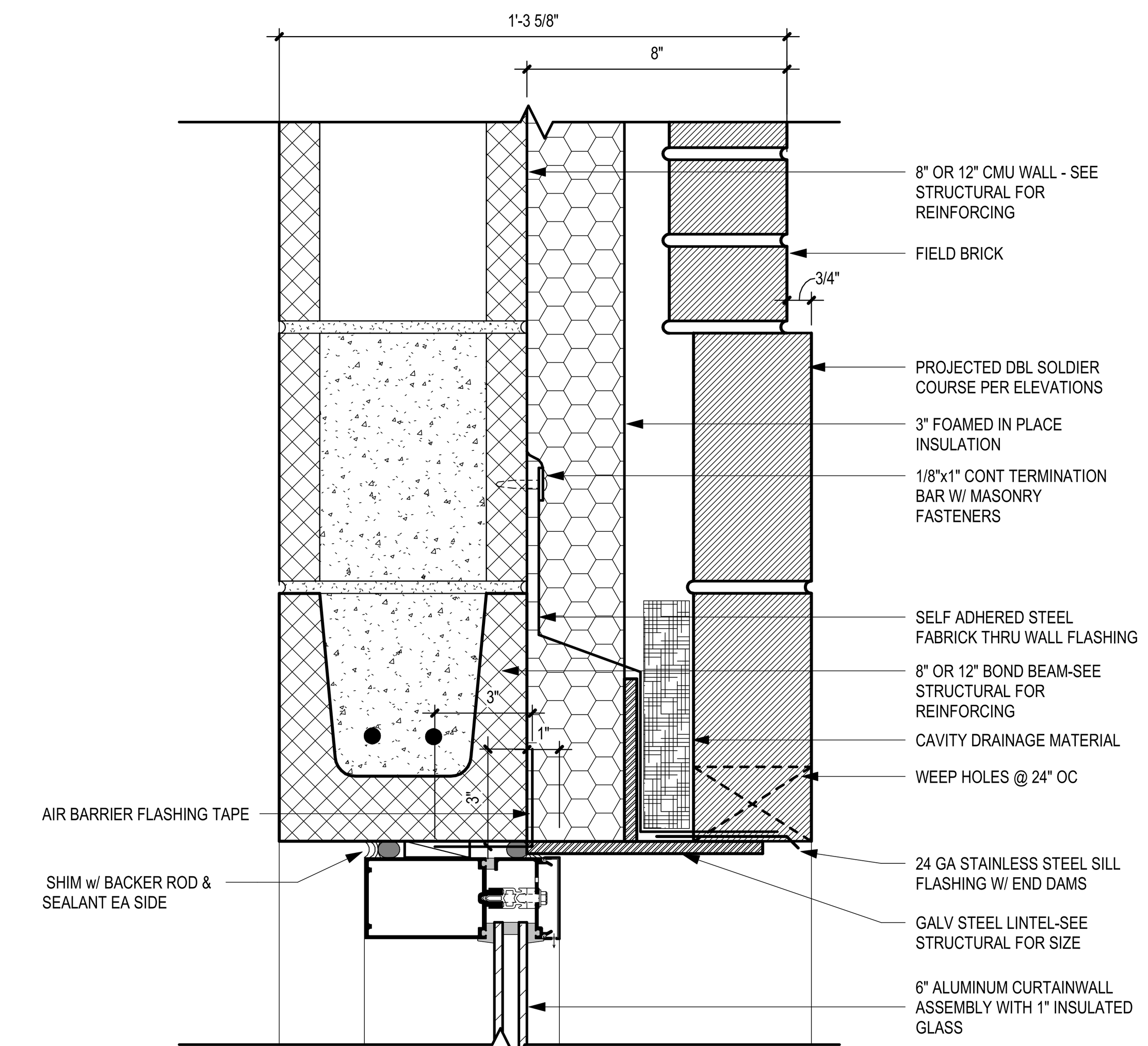
A-415



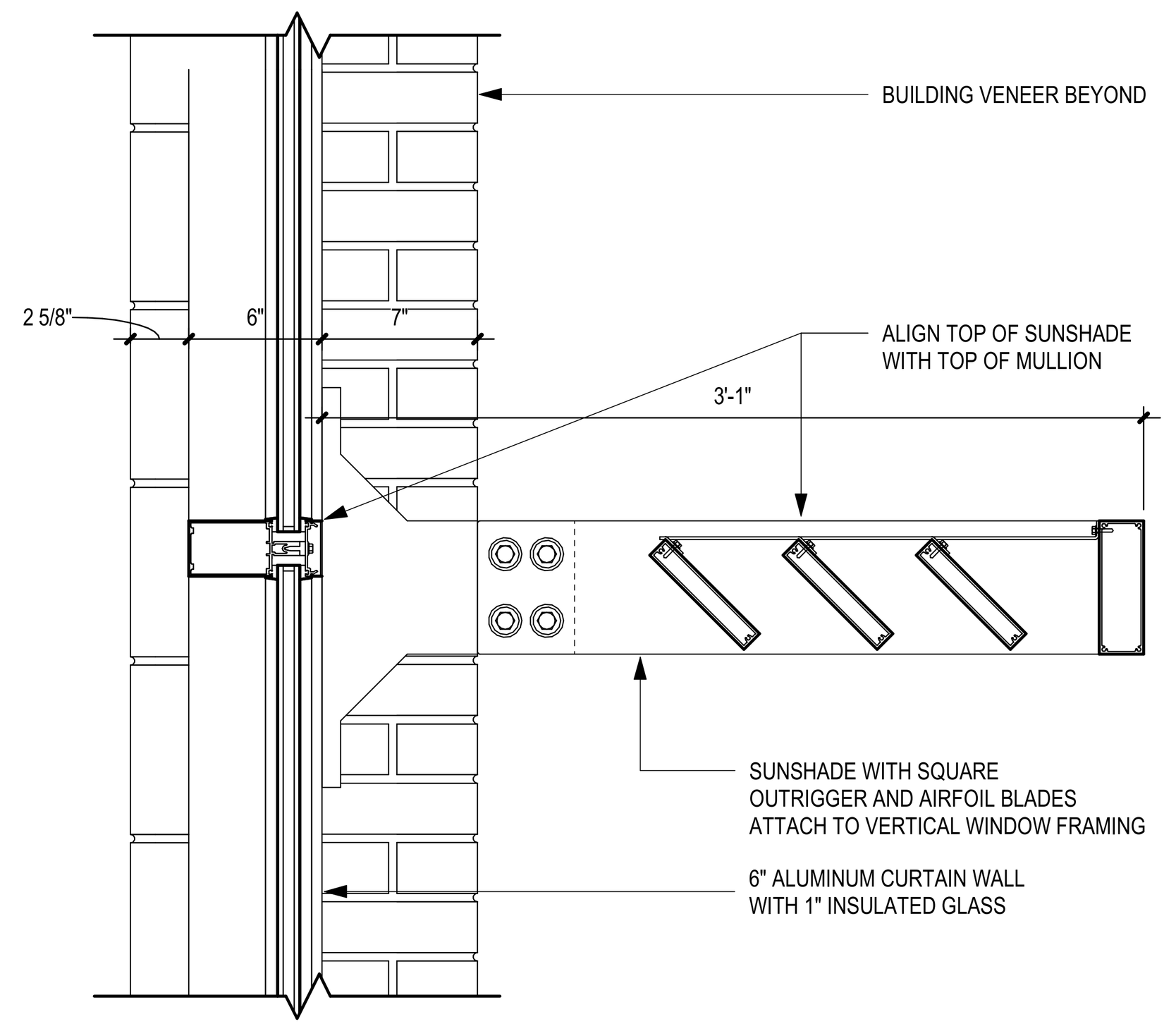
9 A-501 **TYP CURTAINWALL HEAD DETAIL-CMP**
SCALE: 3" = 1'-0"



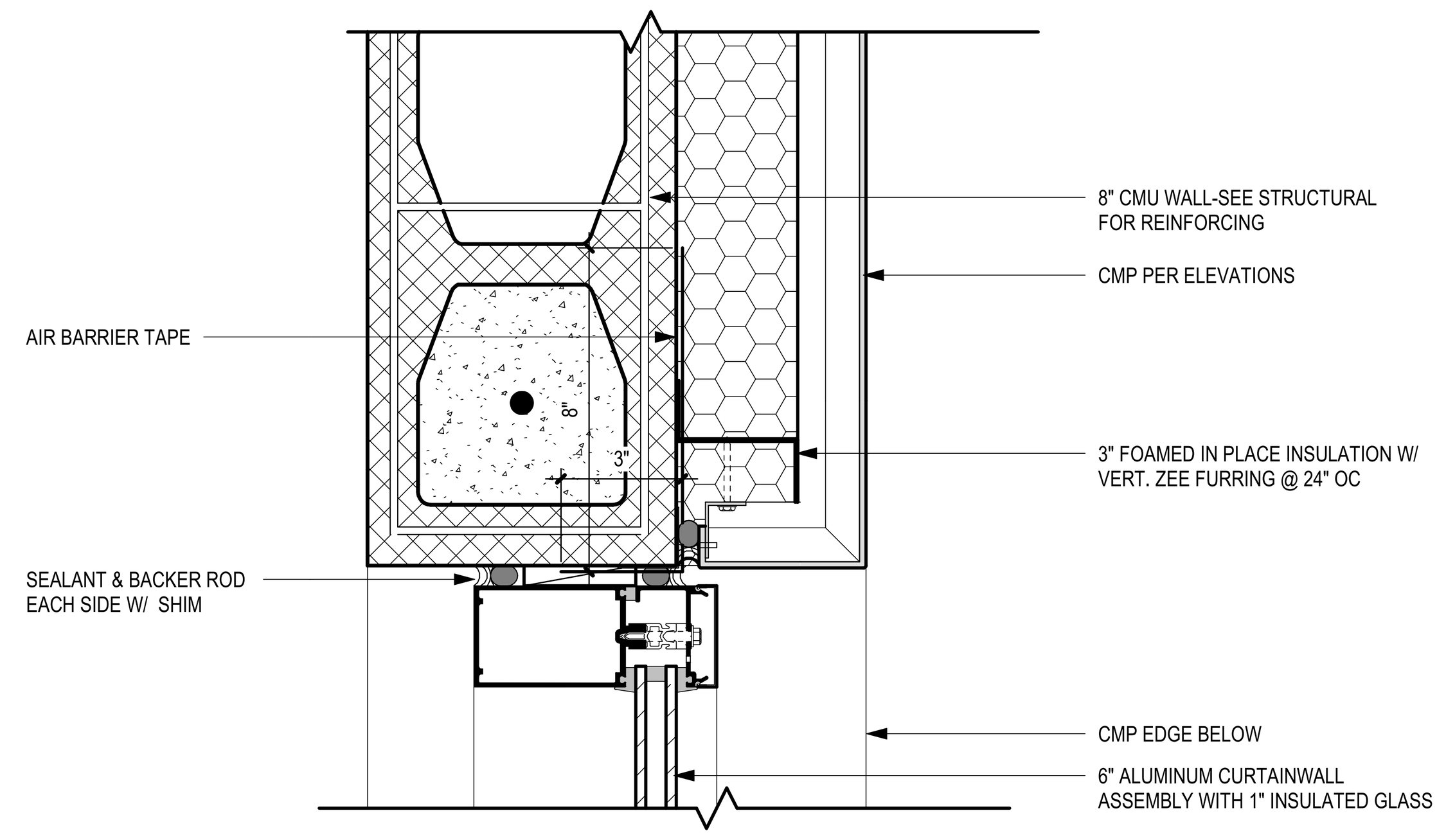
6 A-501 **TYP CURTAINWALL HEAD DETAIL-METAL WALL PANEL**
SCALE: 3" = 1'-0"



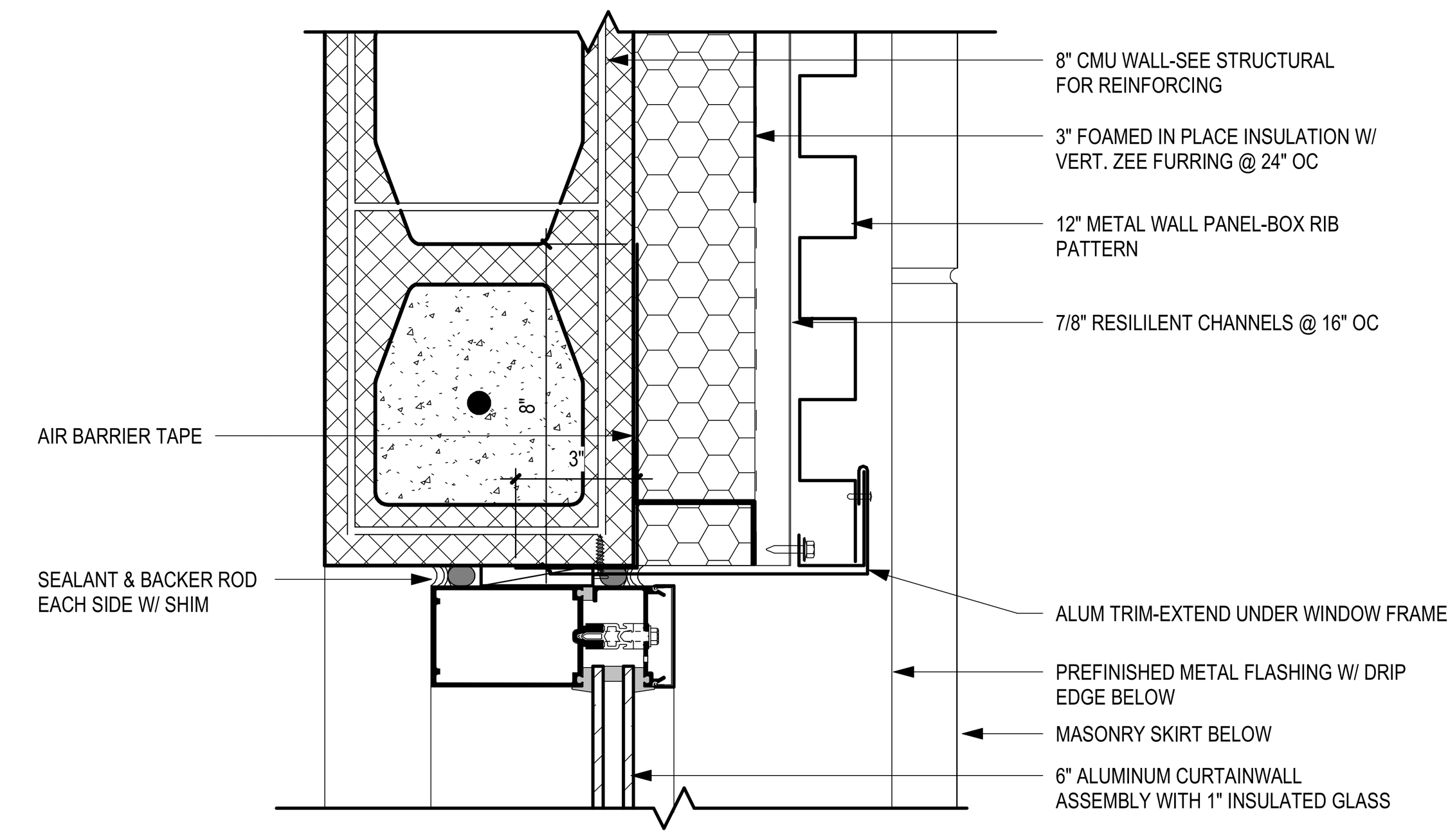
3 A-501 **TYP CURTAINWALL HEAD DETAIL-BRICK**
SCALE: 3" = 1'-0"



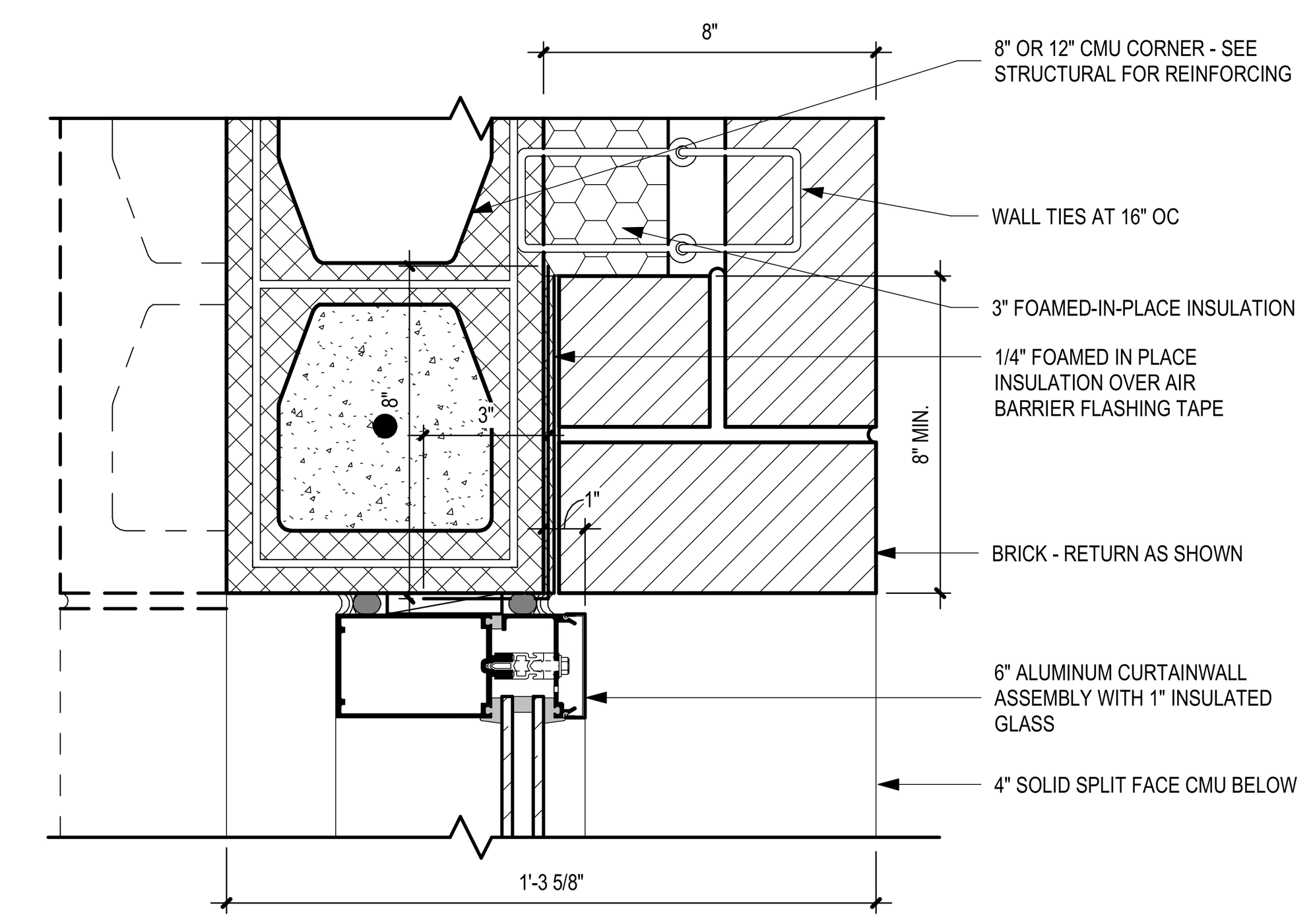
11 A-501 **SUNSHADE SECTION AT WINDOW**
SCALE: 1 1/2" = 1'-0"



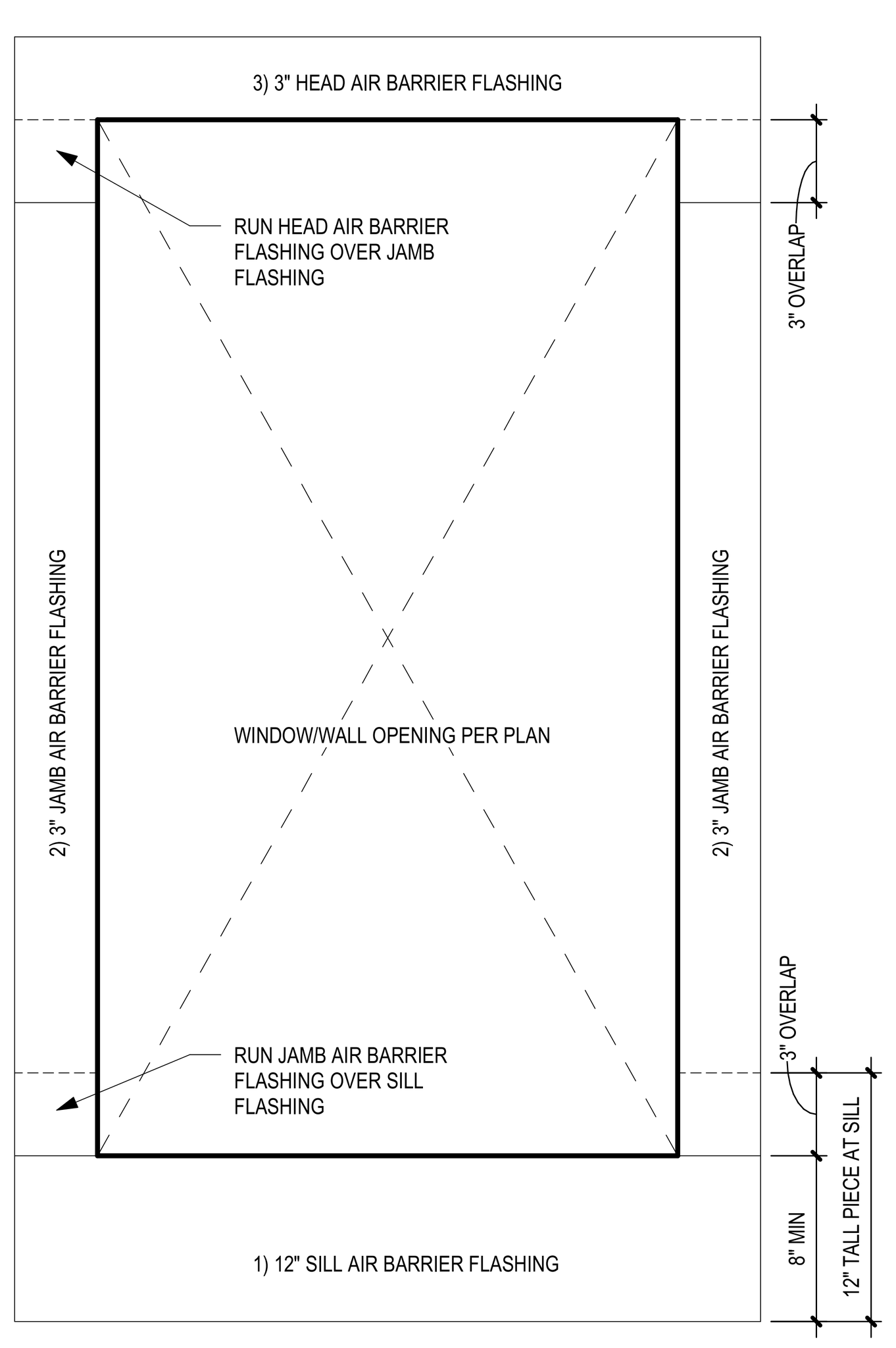
8 A-501 **TYP CURTAINWALL JAMB DETAIL-CMP**
SCALE: 3" = 1'-0"



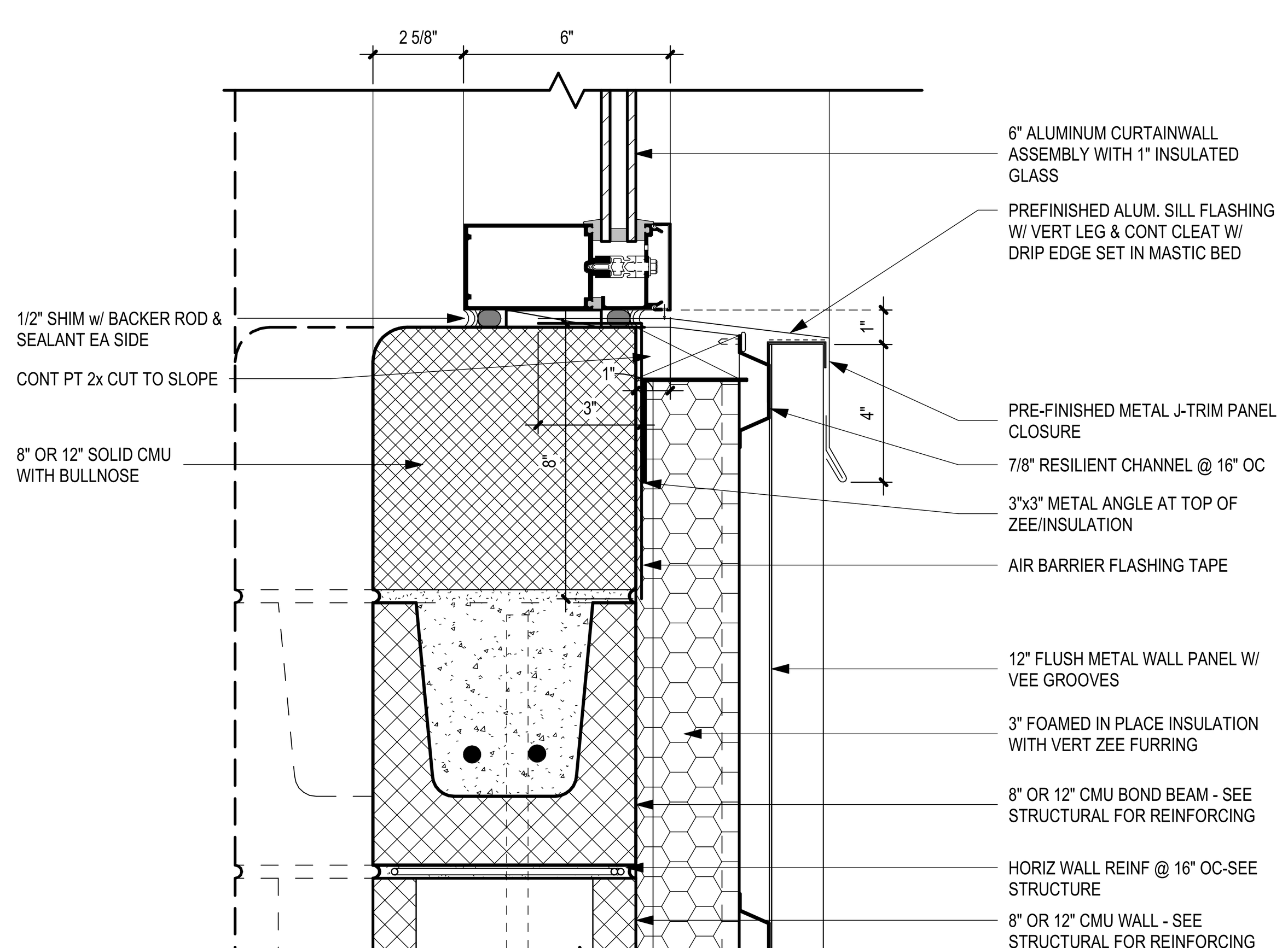
5 A-501 **TYP CURTAINWALL JAMB DETAIL-METAL WALL PANEL**
SCALE: 3" = 1'-0"



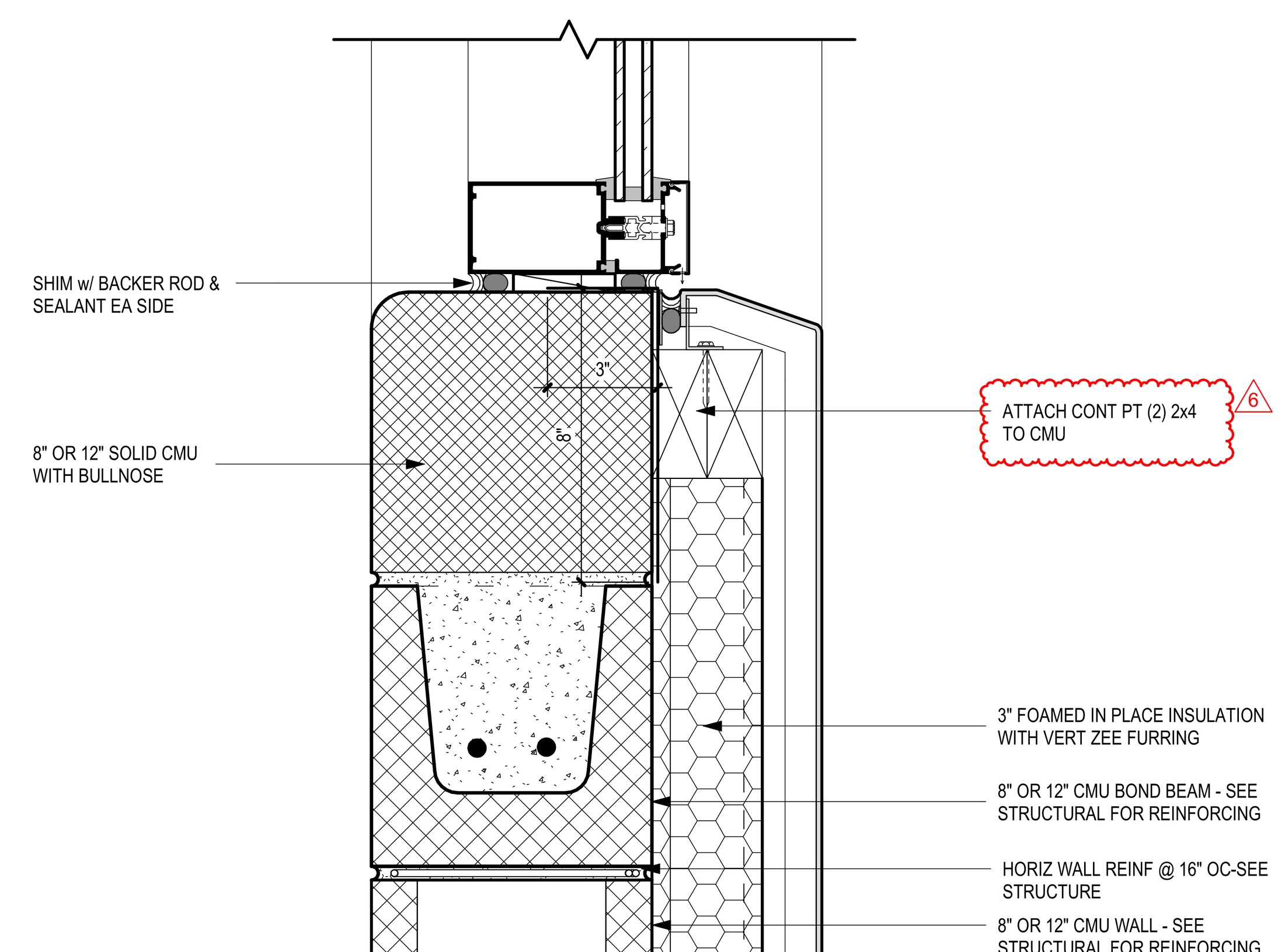
2 A-501 **TYP CURTAINWALL JAMB DETAIL-BRICK**
SCALE: 3" = 1'-0"



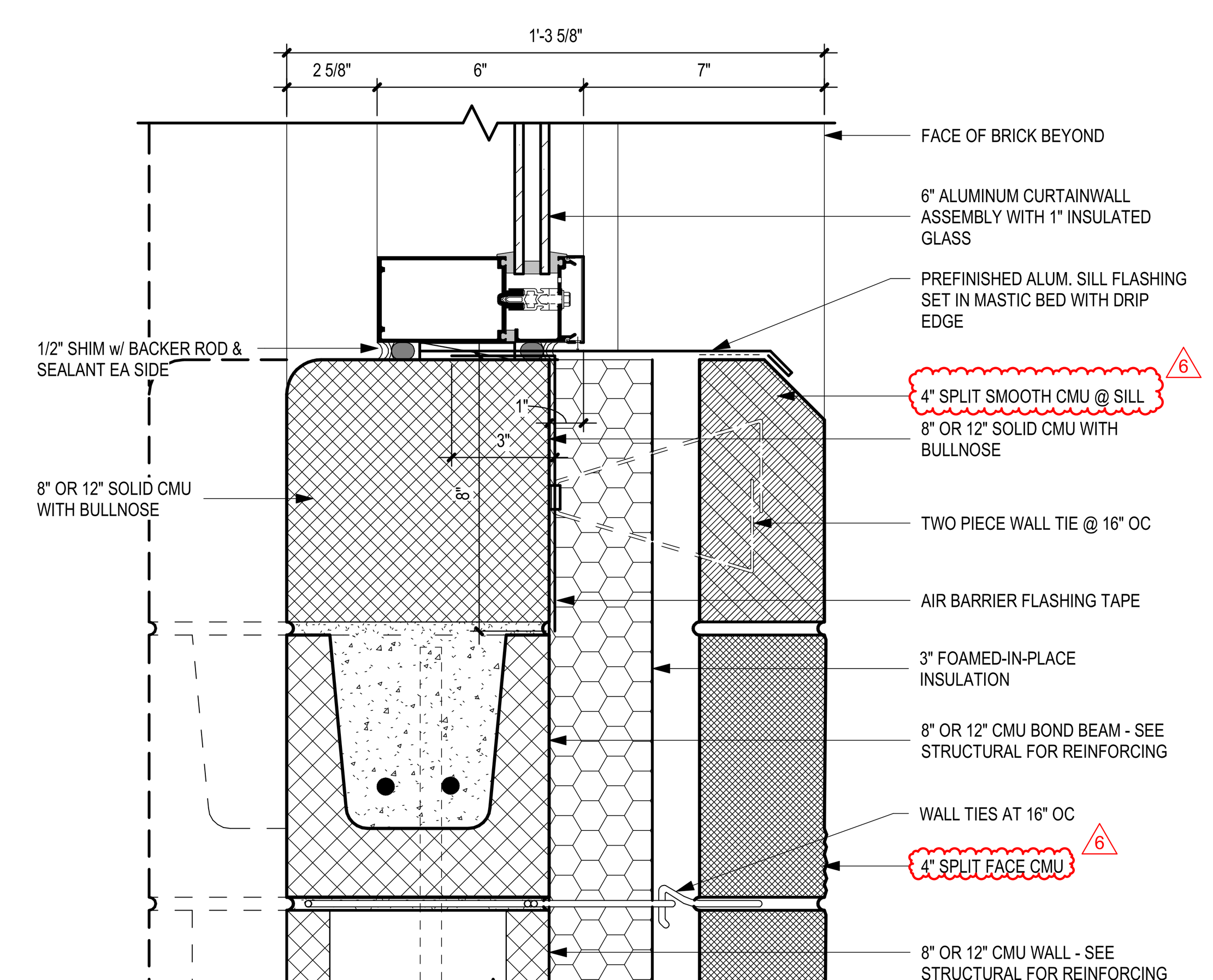
10 A-501 **AIR BARRIER TAPE DETAIL**
SCALE: 3" = 1'-0"



7 A-501 **TYP CURTAINWALL SILL DETAIL-METAL PANEL**
SCALE: 3" = 1'-0"



4 A-501 **TYP CURTAINWALL SILL DETAIL-CMP**
SCALE: 3" = 1'-0"



1 A-501 **TYP CURTAINWALL SILL DETAIL-CMU**
SCALE: 3" = 1'-0"

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ISSUE DATE: 01-09-25
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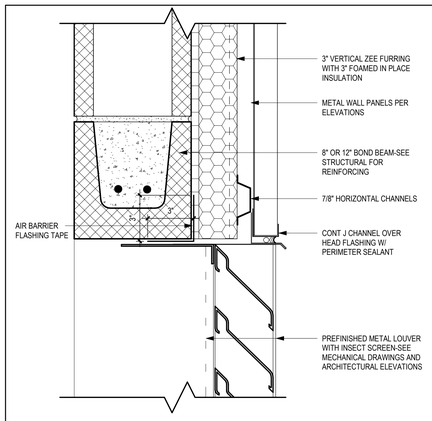
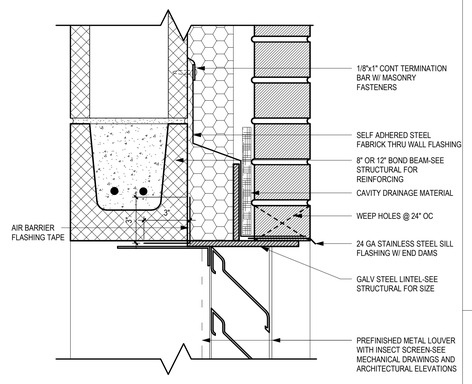
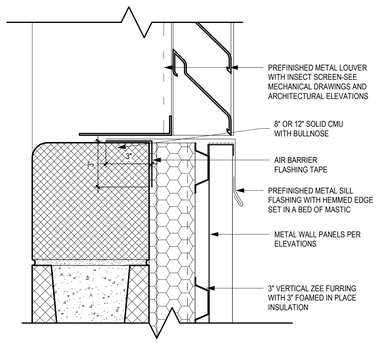
DETAILS EXTERIOR WINDOW

A-501

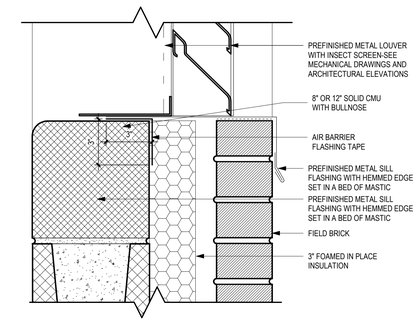


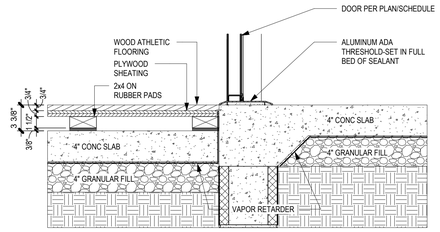
10 A-502 WALL LOUVER HEAD DETAIL
SCALE: 3" = 1'-0"



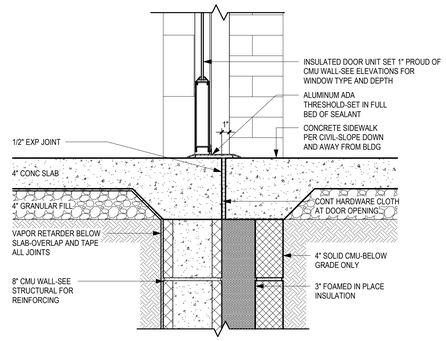


9 A-502 WALL LOUVER SILL DETAIL
SCALE: 3" = 1'-0"

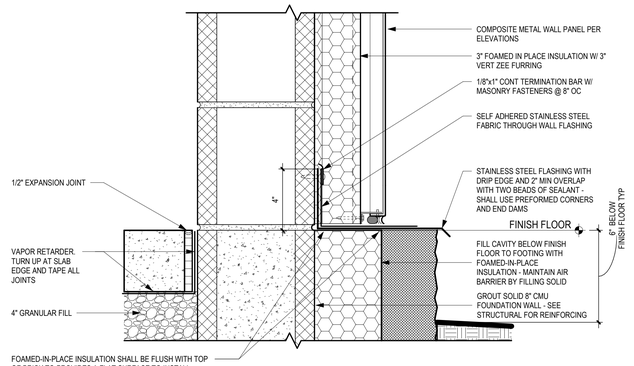




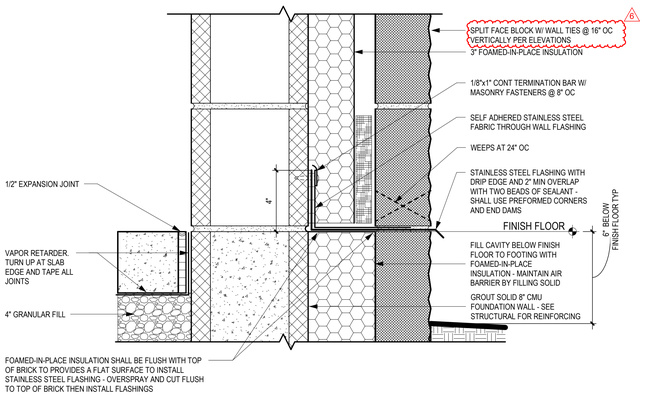
11 A-502 DOOR THRESHOLD AT GYM
SCALE: 1 1/2" = 1'-0"



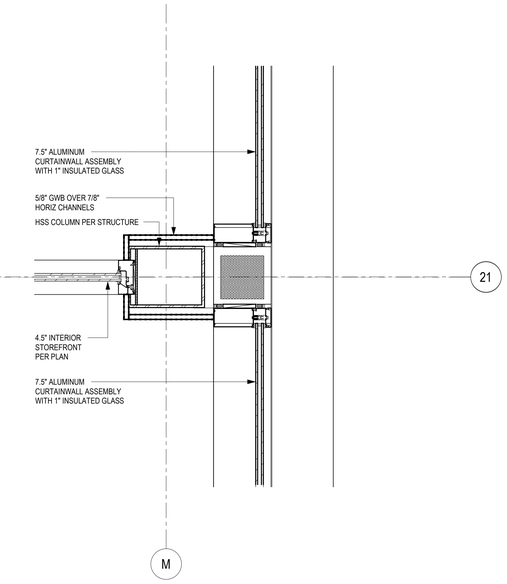
7 A-502 EXT DOOR THRESHOLD DETAIL
SCALE: 1 1/2" = 1'-0"



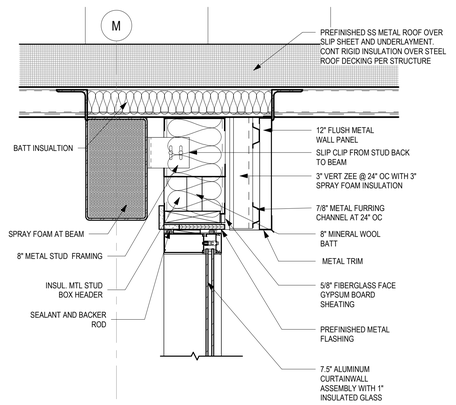
6 A-502 TYP WALL BASE DETAIL-CMP @ GRADE
SCALE: 3" = 1'-0"



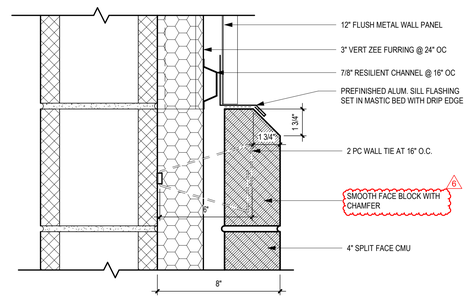
5 A-502 TYP WALL BASE DETAIL-GROUND SPLIT FACE CMU
SCALE: 3" = 1'-0"



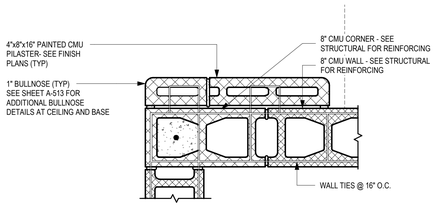
12 A-502 PLAN DETAIL AT FRONT ENTRY
SCALE: 1 1/2" = 1'-0"



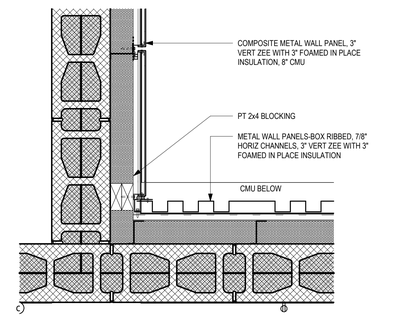
8 A-502 THERMAL BREAK AT TOP OF CURTAIN WALL-ENTRY & MEDIA
SCALE: 1 1/2" = 1'-0"



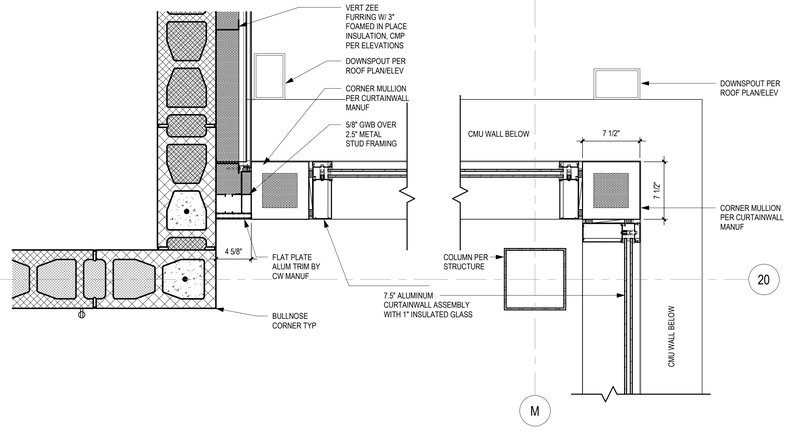
4 A-502 GROUND FACE CMU SILL AT METAL PANEL DETAIL
SCALE: 3" = 1'-0"



3 A-502 INTERIOR PILASTER PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



2 A-502 INT CORNER PLAN DETAIL AT CMP/BOXED RIB MTL PANEL
SCALE: 1 1/2" = 1'-0"



1 A-502 PLAN DETAIL AT FRONT ENTRY CORNER
SCALE: 1 1/2" = 1'-0"

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6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
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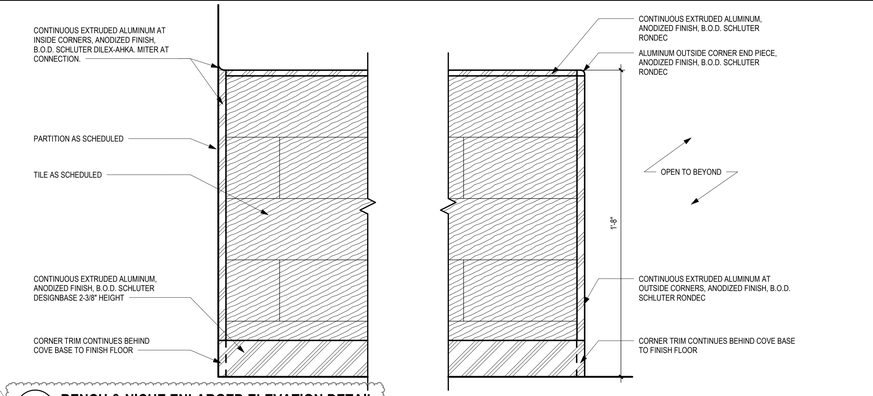
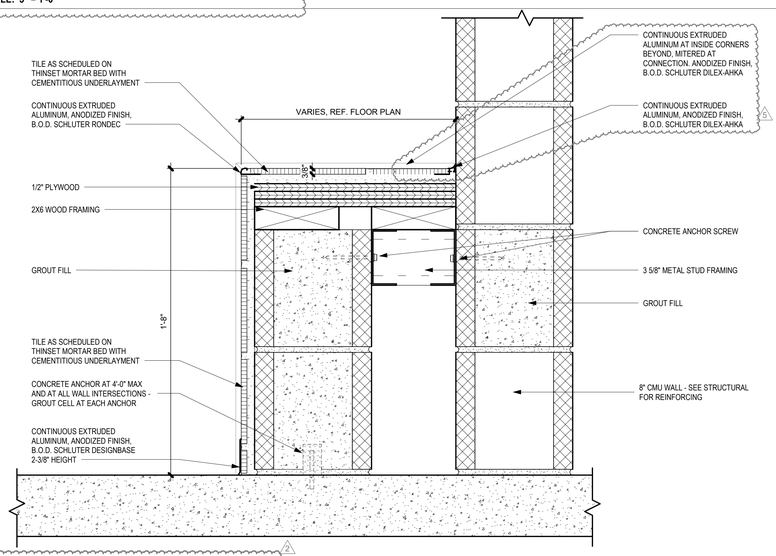
DETAILS

A-502

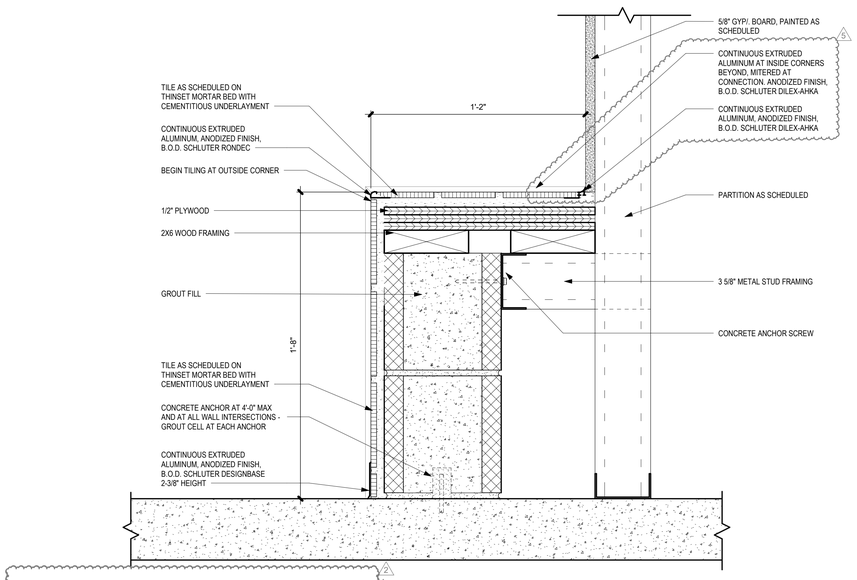
Autodesk Docs://HCS Flatwoods MS/2208 HCS Flatwoods MS.rvt
2/6/2025 12:33:57 PM



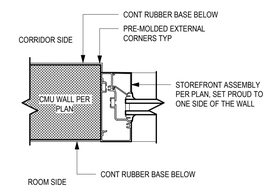
11 / A-511 BENCH & NICHE ENLARGED ELEVATION DETAIL
SCALE: 3" = 1'-0"

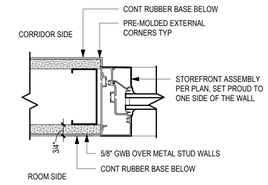


10 / A-511 100 WING CORRIDOR BENCH SECTION
SCALE: 3" = 1'-0"

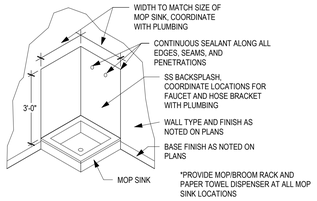


8 / A-511 NICHE @ AUDITORIUM LOBBY
SCALE: 3" = 1'-0"

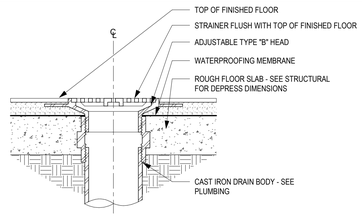




9 / A-511 INT STOREFRONT JAMB DETAIL
SCALE: 3" = 1'-0"

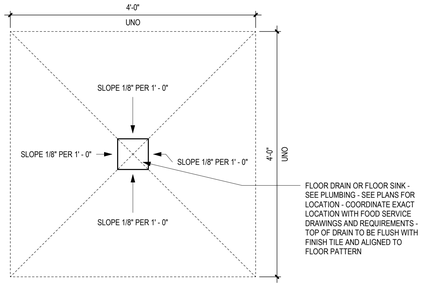


7 / A-511 MOP SINK DETAIL
SCALE: 3/8" = 1'-0"

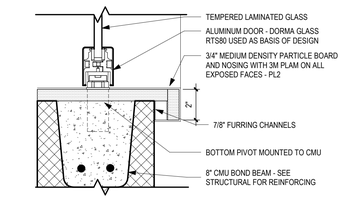


NOTE: SEE FLOOR DRAIN MFR REQUIREMENTS FOR DIMENSIONS AND TOLERANCES

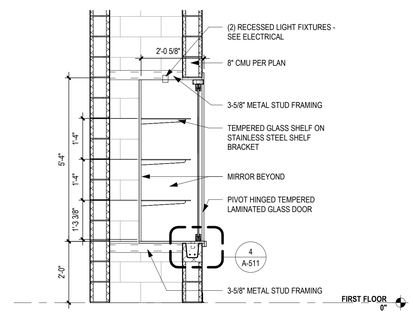
6 / A-511 FLOOR DRAIN SETTING DETAIL
SCALE: 3" = 1'-0"



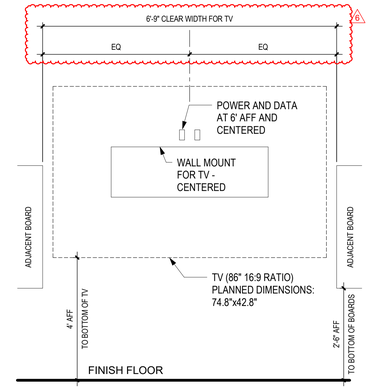
5 / A-511 TYPICAL FLOOR SINK SLOPE AT KITCHEN
SCALE: 1" = 1'-0"



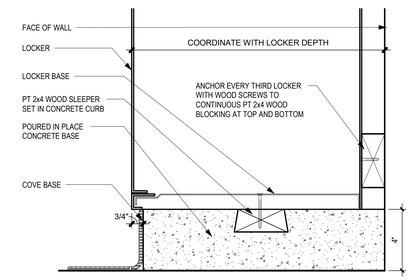
4 / A-511 TROPHY CASE SILL DETAIL
SCALE: 3" = 1'-0"



3 / A-511 TROPHY CASE SECTION
SCALE: 1/2" = 1'-0"



2 / A-511 TEACHING WALL TV MOUNTING DETAIL
NOT TO SCALE



1 / A-511 LOCKER BASE SECTION
SCALE: 3" = 1'-0"

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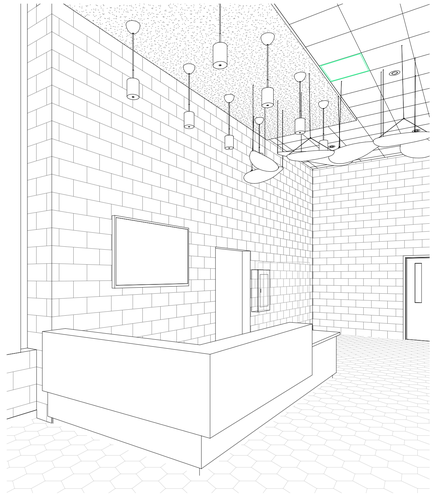
6	02-05-25	ADDENDUM 2

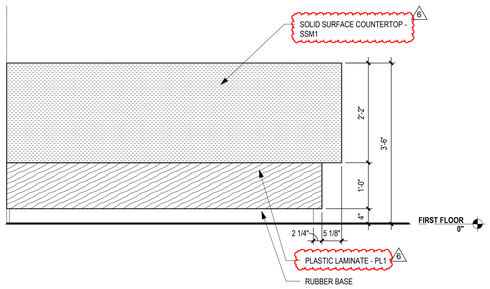
ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

DETAILS-INTERIOR

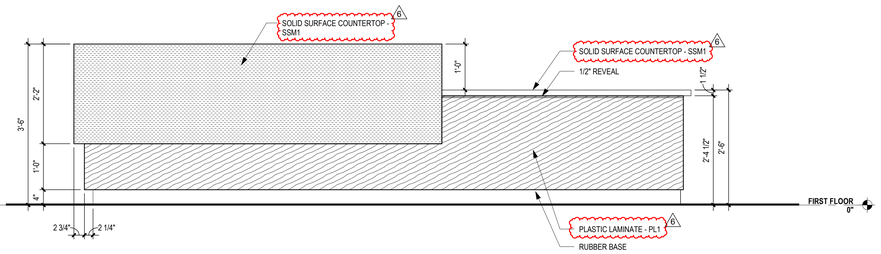
A-511



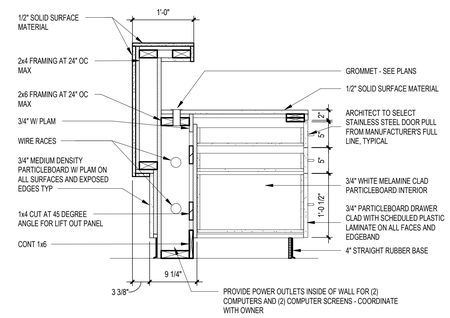
5 A-512 **RECEPTION DESK PERSPECTIVE**
SCALE:



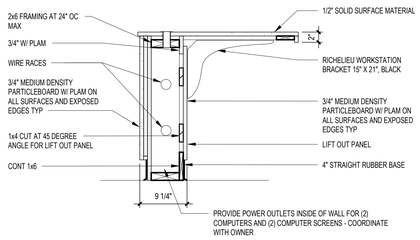
4 A-512 **SIDE RECEPTION DESK ELEVATION**
SCALE: 3/4" = 1'-0"



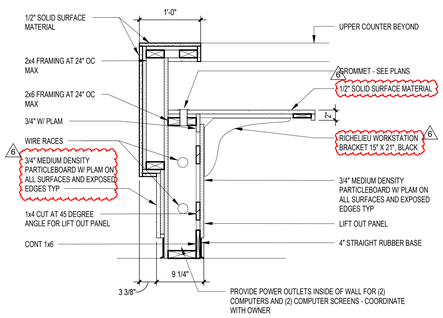
3 A-512 **FRONT RECEPTION DESK ELEVATION**
SCALE: 3/4" = 1'-0"



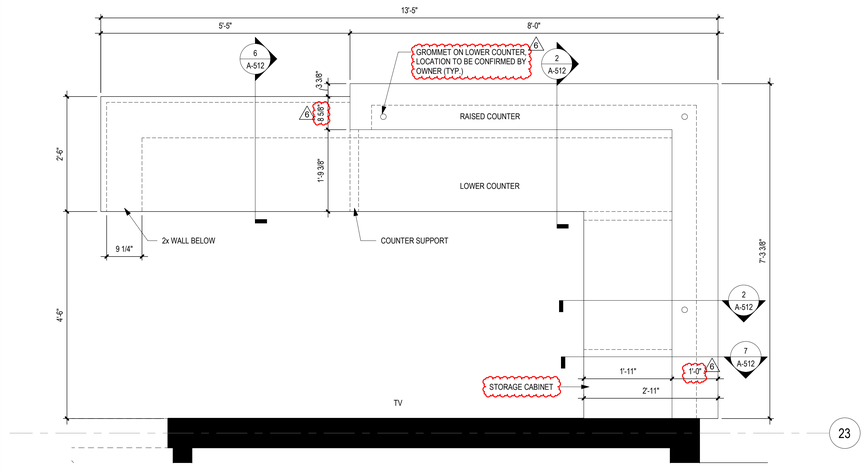
7 A-512 **RECEPTION DESK SECTION - STORAGE**
SCALE: 1" = 1'-0"



6 A-512 **RECEPTION DESK SECTION - LOWER COUNTER**
SCALE: 1" = 1'-0"



2 A-512 **RECEPTION DESK SECTION**
SCALE: 1" = 1'-0"



1 A-512 **RECEPTION DECK PLAN**
SCALE: 3/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

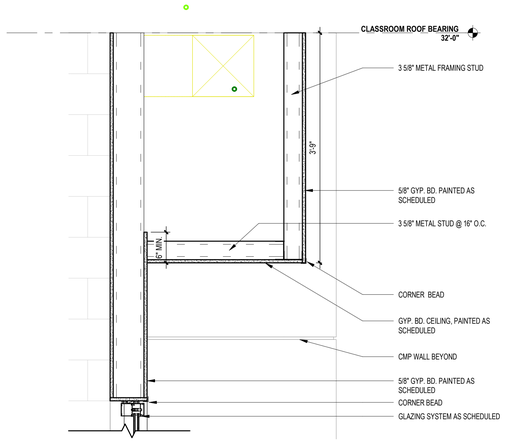
ENERGY STAR PARTNER

No.	Date	Description
6	02-05-25	ADDENDUM 2

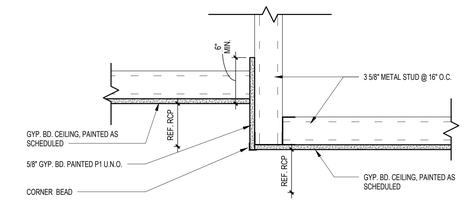
ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

DETAILS-RECEPTION DESK

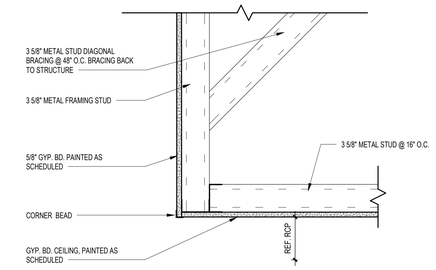
A-512



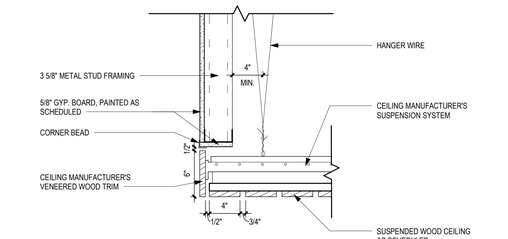
7 / A-516 GYP. BD. BULKHEAD @ AREA 600
SCALE: 1" = 1'-0"



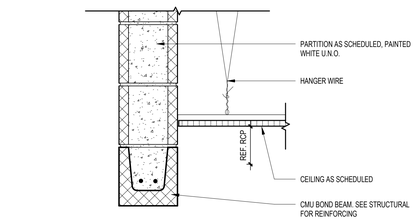
4 / A-516 GYP. BD. CEILING HEIGHT CHANGE
SCALE: 1 1/2" = 1'-0"



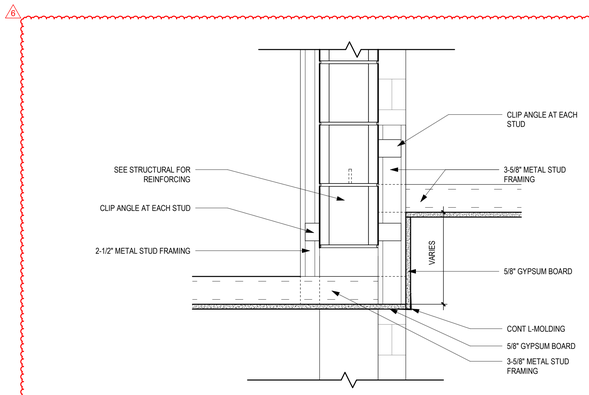
3 / A-516 GYP. BD. FURDOWN
SCALE: 1 1/2" = 1'-0"



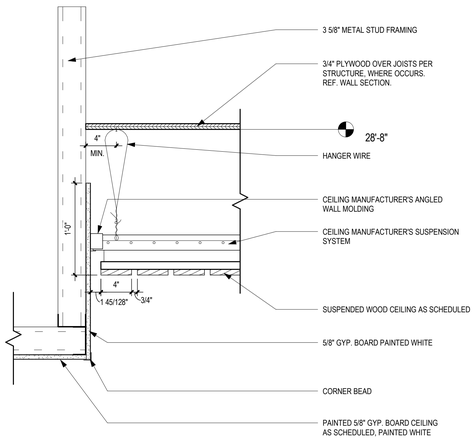
6 / A-516 WOOD CEILING OUTSIDE CORNER
SCALE: 1 1/2" = 1'-0"



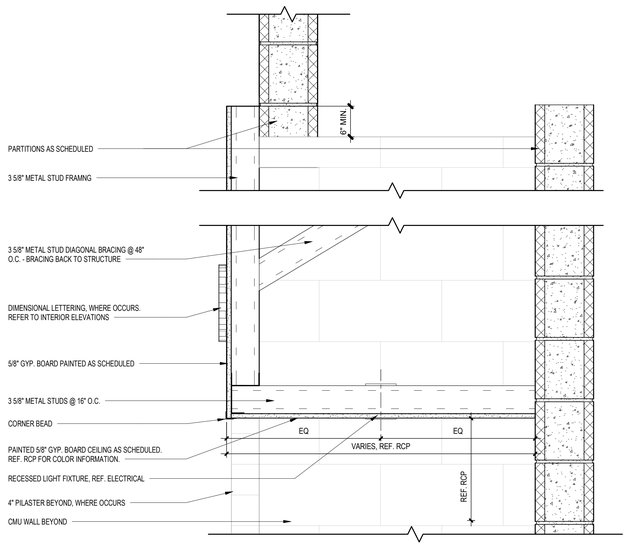
2 / A-516 CEILING TRANSITION @ CMU BULKHEAD
SCALE: 1 1/2" = 1'-0"



8 / A-516 TYPICAL GROUP TOILETS HEADER
SCALE: 1 1/2" = 1'-0"



5 / A-516 WOOD CEILING INSIDE CORNER
SCALE: 1 1/2" = 1'-0"



1 / A-516 GYP. BD. BULKHEAD @ CORRIDOR
SCALE: 1 1/2" = 1'-0"

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

DETAILS-CEILING

A-516

INTERIOR FINISH LEGEND

MARK	MATERIAL	MANUFACTURER	BASIS OF DESIGN	SIZE	NOTES
03 - CONCRETE					
03 30 00 - CAST-IN-PLACE CONCRETE					
SC1	SEALED CONCRETE				
SC2	SEALED CONCRETE		STAINED BLACK		STAINED BLACK TO MATCH STAGE FLOORING
06 - WOODS, PLASTICS, AND COMPOSITES					
06 40 23 - PLASTIC LAMINATES					
PL1	PLASTIC LAMINATE	WILSONART	PASADENA OAK 7986-38 FINE VELVET FINISH	-	BASE AND UPPER CABINETS
06 40 23 - WOOD TRIM					
WDB1	WOOD BASE		WHITE OAK STAINED TO MATCH PL1; TOP COAT TO HAVE A CLASS A RATING		
06 42 16 - WOOD VENEER PANELING					
WD2	WOOD VENEER PANELS		WHITE OAK STAINED TO MATCH PL1	REF TO INTERIOR ELEVATIONS	
06 83 16 - FIBERGLASS REINFORCED PANELING					
FRP1	FIBERGLASS REINFORCED PANELS	MARLITE	COLOR WHITE ; PEBBLE FINISH		INSTALLED TO 48" AFF WITH EPOXY PAINT ABOVE, U.N.O.
07- THERMAL AND MOISTURE PROTECTION					
07 42 13 -METAL COMPOSITE MATERIAL WALL PANELS					
CMP4	COMPOSITE METAL PANELS	ARCONIC	OYSTER WHITE	REFER TO INTERIOR ELEVATIONS	
08 - OPENINGS					
08 14 16 - FLUSH WOOD DOORS					
WD2	WOOD DOORS	VT INDUSTRIES	WHITE OAK, WHEAT WH 18		
08 87 00 - WINDOW FILM					
WF-1	WINDOW FILM	DESIGNTEX	CUSTOM GRAPHIC; ARCHITECT TO PROVIDE GRAPHIC DURING CA.		APPLIED IN SF03 LOCATED IN LOBBY C200
09 - FINISHES					
09 30 00 - TILING					
QT1	TILING	DALTILE	QUARRY TILE 6"X 6" ; ARID GRAY	6" X 6"	
QTB1	TILING	DALTILE	QUARRY TILE BASE Q1665 ;ARID GRAY	6" X 6"	
TL1	TILING	MOSIAC TILE CO.	COVE TERRA ASH	24" X 48"	FIELD WALL TILE
TL2	TILING	TILEBAR	MONET WILD ATELIER GREEN	24" X 48"	ACCENT TILE
TL3	TILING	ATLAS CONCORDE	ENTICE, COPPER OAK NATURAL	7.25" X 59"	MOUNMENTAL STAIRS AND BENCHING
TL4	TILING	MOSAIC TILE CO.	COVE TERRA ASH	12" X 24"	SHOWER WALL
TL5	TILING	MOSAIC TILE CO.	COVE TERRA ASH MOSAIC	12" X 12" (MOSAIC 2" X 2")	SHOWER FLOOR
09 51 13 - ACOUSTICAL PANEL CEILINGS					
APC1	ACOUSTICAL PANEL CEILING	ARMSTRONG	ULTIMA ,TEGULAR WITH WHITE GRID	24" X 24"	MINIMUM NRC 0.80
APC2	ACOUSTICAL PANEL CEILING	ARMSTRONG	ULTIMA HEALTH ZONE, TEGULAR WHITE TILE WITH WHITE GRID	24" X 24"	KITCHEN LOCATIONS
APC3	ACOUSTICAL PANEL CEILING	ARMSTRONG	BACKSTAGE NOIR ; BLACK SQUARE WITH BLACK GRID	24" X 24"	REF. TO RCP
APC5	ACOUSTICAL PANEL CEILING	AVL SYSTEMS	DISORB CONVEX DIFFUSER ABSORBER; TYPE W STANDARD WHITE	48" X 48"	REFER TO RCP; TYPICAL IN MUSIC ROOMS
APC6	ACOUSTICAL PANEL CEILING	AVL SYSTEMS	ACOUSTECH WALL AND CEILING PANELS 2" PANEL BEVEL EDGE; BLACK FABRIC	REFER TO INTERIOR ELEVATIONS	
APC7	ACOUSTICAL PANEL CEILING	AVL SYSTEMS	TONEWOOD NATURAL WITH THEATERBLACK BACKING ; STAINED TO FINISH PL1	REFER TO INTERIOR ELEVATIONS	
09 54 26 - SUSPENDED WOOD CEILINGS					
WDG1	SUSPENDED WOOD CEILING	ARMSTRONG	WOOD WORKS LINEAR VENEERED PANELS, NAUTRAL VARIATIONS OAK FINISH, 3/4" REVEAL	24" X 96" X 4"	REF. TO RCP
09 62 00 - SPECIALITY FLOORING					
PF1	PERFORMANCE FLOORING	POLYONYX	POLYONYX+ FLOORING ON SLEEPER SYSTEM		
PF2	PERFORMANCE FLOORING	HARDWOOD	HARDWOOD FLOORING ON SLEEPER SYSTEM		MATCH WOOD STAIN TO PL1
09 64 66 - WOOD ATHLETIC FLOORING					
WAF1	WOOD ATHELTHIC FLOORING	TARKETT SPORTS	CLUTCHCOURT FINISH TO MATCH GLULAMS		
09 65 00 - RESILIENT FLOORING					
LVT1	RESILLIENT FLOORING	MANNINGTON COMMERCIAL	ACTIVE LINES BEND, FLASH (ALB101), FLASH GREEN (ALB105), FLASH BLUE (ALB103) (70% OF FLASH, 15% OF BLUE, 15% OF GREEN)	6" X 36" X 20 MIL	INSTALLED STAGGERED, REF TO FINISH PLAN DETAILS FOR INSTALL INFORMATION
LVT2	RESILIENT FLOORING	MANNINGTON COMMERCIAL	ACTIVE LINES BEND, FLASH (ALB101)	6" X 36" X 20 MIL	INSTALLED STAGGERED
RB1	RESILLIENT BASE	JOHNSONITE	CHARCOAL WG 20	4" COVE BASE	
RB2	RESILLIENT BASE	JOHNSONITE	BLACK 40	4" TOELESS BASE	
RB3	RESILLIENT BASE	JOHNONSITE	BLACK 40	4" VENTED BASE	
09 65 16.33 - RUBBER FLOORING					
RF1	RUBBER FLOORING	MANNINGTON	COLOR ANCHOR RUBBER; COLOR SPEC; NIMBUS 047		STAIR LANDINGS
RF1A	RUBBER FLOORING	MANNINGTON	COLOR ANCHOR RUBBER, CONNECT STEP, NIMBUS 047		STAIR TREADS AND RISERS ; INTEGRAL STAIR NOSING
09 66 23 - TERRAZZO FLOORING					
TZ1	TERRAZZO FLOORING	TERRAZZO AND MARBLE SUPPLY	TERROXY RESIN SYSTEMS TM#24-4000		FIELD
TZ2	TERRAZZO FLOORING	TERRAZZO AND MARBLE SUPPLY	TERROXY RESIN SYSTEMS TM#24-4002		GREEN ACCENT; REFER TO FINISH PLANS FOR INSTALLATION
TZ3	TERRAZZO FLOORING	TERRAZZO AND MARBLE SUPPLY	TERROXY RESIN SYSTEMS TM#24-4003		BLUE ACCENT; REFER TO FINISH PLANS FOR INSTALLATION
09 67 23 - RESINOUS FLOORING					
RSB1	RESINOUS FLOORING	STONTEC	TO MATCH RSF1		INTEGRAL COVE 4" BASE
RSF1	RESINOUS FLOORING	STONTEC	BLUE RIDGE SMALL FLAKES		
09 68 13 - TILE CARPETING					
CPT1	TILE CARPET	TARKETT FLOORING	CREATE PURPOSE RESOURCEFUL 32813	18" X 36"	INSTALLED VERTICAL ASHLAR
09 68 16 - SHEET CARPETING					
CPS1	SHEET CARPET	TARKETT FLOORING	CREATE PURPOSE RESOURCEFUL 32813	72" ROLL WIDTH	
09 84 00 - ACOUSTICAL ROOM COMPONENTS					
AC1	ACOUSTICAL CLOUDS	AVL SYSTEMS	ACOUSTISHELL CURVILINEAR DIFFUSER -REFLECTOR ; COLORS P2	REFER TO ENLARGED PLANS FOR SIZES	
ASL1	ACOUSTICAL SUSPENSED SYSTEM	ZILENZIO	DELTA PANEL ONE, TWO, AND THREE (EQUAL MIX OF ALL THREE PANELS SUSPENDED) ; FABRIC KVADRAT HERO 2; 0912, 0942,0962	REFER TO RCPS AND ELEVATIONS	
AWP1	ACOUSTICAL WALL PANEL	ACOUFELT	SOLID PANEL 24MM ; THISTLE	12MM THICK, REF. INT. ELEVATIONS	
AWP2	ACOUSTICAL WALL PANEL	ACOUFELT	SOLID PANEL 24MM ; IVORY	12MM THICK, REF. INT. ELEVATIONS	
AWP3	ACOUSTICAL WALL PANEL	ACOUFELT	SOLID PANEL 24MM ; GRANITE	12MM THICK, REF. INT. ELEVATIONS	
AWP4	ACOUSTICAL WALL PANEL	ACOUFELT	SOLID PANEL 24MM GREY	12MM THICK, REF. INT. ELEVATIONS	
09 90 00 - PAINTING AND COATING					
P1	PAINT	SHERWIN WILLIAMS	SW 6070 HERON PLUME	-	FIELD PAINT
P2	PAINT	SHERWIN WILLIAMS	SW 1015 SKYLINE STEEL	-	ACCENT PAINT
P3	PAINT	SHERWIN WILLIAMS	SW 9133 JASPER STONE	-	LIGHT BLUE ACCENT PAINT
P4	PAINT	SHERWIN WILLIAMS	SW 6748 GREENS	-	GREEN ACCENT PAINT
P5	PAINT	SHERWIN WILLIAMS	SW 9179 ANCHORS AWEIGH	-	DARK BLUE ACCENT PAINT
P6	PAINT	SHERWIN WILLIAMS	SW 7642 PAVESTONE	-	HM DOOR FRAMES AND SOFFITS, UNO
P7	PAINT	NOT USED	NOT USED	-	NOT USED
P8	PAINT	SHERWIN WILLIAMS	SW 7020 BLACK FOX	-	BLACK ACCENT PAINT, DRY FOG ON STRUCTURE, EGGSHELL ON WALLS
10 - SPECIALTIES					
10 11 00 - VISUAL DISPLAY UNITS					
GMB1	GLASS MARKERBOARDS	NOT USED	NOT USED		
TB1	TACKBOARD	CLARIDGE	CORK, COLOR NO. 1103 OYSTER	4' X 4' TACKBOARD, U.N.O. ON INTERIOR ELEVATIONS	
10 21 13 - PLASTIC TOILET COMPARTMENTS					
TP1	TOILET PARTITIONS	ASI GLOBAL PARTITIONS	SOLID PLASTIC HDPE 9511 METALLIC SILVER	55" HIGH PARTITIONS	
US1	URINAL SCREENS	ASI GLOBAL PARTITIONS	SOLID PLASTIC HDPE 9511 METALLIC SILVER		
10 26 23.14 - WALL PROTECTION					
CG1	CORNER GUARD	NOT USED	NOT USED	NOT USED	NOT USED
10 51 13 - METAL LOCKERS					
LCK1	METAL LOCKERS	PENCO	GUARDIAN 2 TIER WITH FRONT BASE, CLASSIC II RECESSED HANDLE FOR MULTI POINT LATCHING, SLOPED TOP. COLOR 822 ROYAL BLUE	15"W X 15"D X 72"H	
LCKB1	ADA LOCKER BENCH	PENCO	HEAVY DUTY BENCH PEDESTAL WITH ADA BACK 24" DEEP		
11 - EQUIPMENT					
11 61 43 - STAGE CURTAIN					
STG1	STAGE CURTAINS	KM FABRICS	MAIN CURTAIN AND VALANCE, MEMORABLE COLOR 1056 CORNFLOWER		STAGE
11 66 23					
	BASKETBALL GOALS	DRAPER	BLACK		
11 66 23.53 - WALL PADDING					
WP1	GYMNASIUM WALL PADDING	DRAPER	ECOVISION WALL PAD, BLACK	2' X 6'	1" FABRIC WRAPPED MOUNTING FLANGES AT PANEL TOP AND BOTTOM
12 - FURNISHINGS					
06 61 16 - SOLID SURFACING FABRICATIONS					
SS1	SOLID SURFACE	WILSONART	ANGEL FALLS	1/2" THICKNESS	COUNTERTOPS
12 24 13 - ROLLER SHADES					
WT1	WINDOW TREATMENT	HUNTER DOUGLAS ARCHITECTURAL	RB 500 + MANUAL ROLLER SHADES; FASCIA COLOR : TBD, FABRIC COLOR TBD	SHADES TO EXTEND FULL LENGTH OF EXPOSED GLASS	MANUAL SHADES; TO BE PROVIDED AT ALL OFFICE AND CLASSROOM EXTERIOR WINDOWS. REF INTERIOR FINISH PLANS FOR ADDITIONAL LOCATIONS.
WT2	WINDOW TREATMENT	HUNTER DOUGLAS ARCHITECTURAL	RB 500 + MANUAL ROLLER SHADES; FASCIA COLOR : TBD, FABRIC COLOR TBD	SHADES TO EXTEND FULL LENGTH OF EXPOSED GLASS	MANUAL SHADES; TO BE PROVIDED AT ALL INTERIOR CLASSROOMS AND OFFICE GLAZING UNITS GREATER THAN 4'-0" WIDE REFER TO INTERIOR FINISH PLANS FOR ADDITIONAL LOCATIONS.
12 35 53.19 - WOOD LABORATORY CASEWORK					
PR1	PHENOLIC RESIN COUNTERTOP	DURCON	CHEMICAL RESISTANT, COLOR BLACK		
12 44 16 - SHOWER CURTAINS					
CT1	TOILET ACCESSORIES	BOBRICK	WHITE OPAQUE VINYL	70"W X 72"H	
12 48 13- ENTRANCE FLOOR MAT					
EM1	ENTRY MAT	NOT USED	NOT USED	NOT USED	NOT USED

FINISH FLOOR PLAN LEGEND

ROOM NAME
RM NO. | SQFT

WALL FINISH
BASE FINISH
FLOOR FINISH

EXTENTS OF ACCENT PAINT

NOTE: FINISH CODES MARKED WITH AN ASTERISK " * " INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH 1 / FINISH 2 — FINISH TRANSITION

MATERIAL PATTERN DIRECTION

FINISH ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPS CARPET SHEET
LVT LUXURY VINYL TILE
PC POLISHED CONCRETE
PF PERFORMANCE FLOORING (POLYMER PANEL)
RSF RESINOUS FLOORING
RF RUBBER FLOORING
SC SEALED CONCRETE
TL TILE
TZ TERRAZZO FLOORING
QT QUARRY TILE
WAF WOOD ATHLETHIC FLOORING
WDF WOOD FLOORING
EM ENTRY MAT

BASE FINISH CODE ABBREVIATIONS

RB RESILIENT BASE
RSB RESINOUS BASE
TLB TILE BASE
QTB QUARY TILE BASE

WALL FINISH CODES

AWP ACOUTICAL WALL PANELS
FWP FABRIC WRAPPED ACOUTISCAL PANELS
FRP FIBERGLASS REINFORCED PANELS
P PAINT
PG PARGE
PX PAINT, EPOXY
SS STAINLESS STEEL
WC WALLCOVERING
WD WOOD
TL WALL TILE

MISC. FINISH CODE ABBREVIATIONS

APC ACOUSTICAL PANEL CEILING
ES EXPOSED STRUCTURE
GWB GYPSUM WALL BOARD
GMB GLASS MARKER BOARD
MB MARKER BOARD
PL PLASTIC LAMINATE
SS SOLID SURFACE MATERIAL
TP TOILET PARTITIONS
TB TACKBOARD
WT WINDOW TREATMENT

FINISH FLOOR PATTERN PLAN LEGEND

CPS1 CARPET SHEET
CPT1 CARPET TILE
LVT1 LVT FLOORING
PF1 PERFORMANCE FLOORING
RSF RESINOUS FLOORING
SC1 SEALED CONCRETE
SC2 STAINED CONCRETE BLACK
LVT2 LVT FLOORING
TZ1 TERRAZZO FLOORING
TZ2 TERRAZZO FLOORING
TZ3 TERRAZZO FLOORING
QT1 QUARRY TILE
WAF1 WOOD ATHLETHIC FLOORING
TL3 WOOD TILE FLOORING

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND AND PLANS FOR ADDITIONAL INFORMATION.
2. ALL FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS OTHERWISE NOTED.
3. IN SECONDARY STAIRWELLS, ALL EXPOSED HANDRAILS, STAIR PANS AND STRINGERS TO BE PAINTED **P6**.
4. REFER TO INTERIOR ELEVATION SHEET FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS MARKER BOARDS AND TACKBOARDS.
5. A 1/16" DIVIDER STRIP CONTROL JOINT IS TO LOCATED IN THE TERRAZZO DIRECTLY ALIGNED WITH ALL CONCRETE FLOOR SLAB CONTROL JOINT LOCATIONS.
6. LINES WHERE COLOR CHANGE OCCURS IN THE TERRAZZO SHOULD BE SEPERATED WITH 1/8" METAL DIVIDER STRIPS.
7. MISC. EXPOSED HARDWARE INCLUDING BUT NOT LIMITED TO LOUVERS, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
8. **ALL NEW INTERIOR FINISHES TO COMPLY WITH CHAPTER 8 OF THE 2018 NC BUILDING AND FIRE CODES. REFER TO SPECIFICATIONS FOR CLASS RATINGS FOR EACH FINISH MATERIAL.**
9. PAINT **P1** IN ALL LOCATIONS U.N.O.
10. EPOXY PAINT TYPICAL AT ALL FOOD PREP ROOMS, ROOMS THAT ARE APART OF FOOD PREP ROOMS, CAFETERIA, RESTROOMS, JANITOR CLOSETS, UTILITY ROOMS AND STAIRWELLS.
11. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED **P6** UNLESS NOTED OTHERWISE.
12. EXPOSED COLUMS TO BE **P6** UNLESS OTHERWISE NOTED.
13. PAINT COLORS DESIGNATED AT BULKHEADS TO BE APPLIED TO ENTIRE VERTICAL AND HORIZONTAL FACES, UNLESS NOTED OTHERWISE IN RCP AND ELEVATIONS.
14. ALL EXPOSED STRUCTURE, MEP EQUIPMENT/ACCESSORIES, CEILING WIRES, ETC PAINTED **P6.**
15. EXPOSED DECKING TO RECEIVE **P** PAINT. GLULAMS ARE NOT TO RECEIVE PAINT. PROTECT DURING CONSTRUCTION.

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ROBERT W. FERRIS — REGISTERED ARCHITECT — 6184 — NORTH CAROLINA — RALEIGH, N.C. — 11/6/24

CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

INTERIOR FINISH LEGEND

A-701

ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
Not Placed					
MP400	MECH PLATFORM	SC1	-	-	
FIRST FLOOR					
	COOLER/ FREEZER	NA	NA	NA	STAINLESS STEEL WALLS PER MANUF
100	INSTRUMENTAL MUSIC	LVT1	RB1	P1,3/ AWP2*	
100A	STORAGE	4 LVT2	RB1	P1	
101	VOCAL MUSIC	LVT1	RB1	P1,3/ AWP2*	
101A	STORAGE	4 LVT2	RB1	P1	
102	DRAMA	LVT1	RB1	P1,3*	
102A	STORAGE	4 LVT2	RB1	P1	
103	ART	RSF1	RSB1	P1,3*	
103A	STORAGE	RSF1	RSB1	P1	
104	FAMILY & CONSUMER SCIENCES	RSF1	RSB1	P1,3*	
104A	PANTRY	RSF1	RSB1	P1	
105	AUDITORIUM	5 CPS1/ SC2/ PF2*	RB2/ RB3/ WDB1*	P5,8/ WD2/ AWP1,4*	
105A	TECH.	CPT1	RB2	P8	
105B	VESTIBULE	CPT1	RB2	P8	
105C	STAGE	PF1/ SC2*	5 RB3	PT8	
105D	STAGE STORAGE	LVT2	RB1	P1	
106	GREEN ROOM	4 LVT2	RB1	P1	
107	MEN DRESS.	LVT2	RB1	P1	
108	WOMEN DRESS.	LVT2	RB1	P1	
109	BOYS	RSF1	RSB1	P1,4*	

ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
110	STAFF TLT	RSF1	RSB1	P1	
111	STAFF TLT	RSF1	RSB1	P1	
112	GIRLS	4 RSF1	RSB1	P1,4*	
200	GUIDANCE	LVT2	RB1	P1,5*	
201	CONFERENCE	LVT2	RB1	P1,5/ WF1*	
202	SECRETARY	LVT2	RB1	P1	
203	STUDENT SERVICES	LVT2	RB1	P1,3*	
204	SUPPLIES	LVT2	RB1	P1	
205	OFFICE/ TESTING	LVT2	RB1	P1,3*	
206	OFFICE/ TESTING	LVT2	RB1	P1,3*	
207	OFFICE/ TESTING	LVT2	RB1	P1,3*	
208	SRO	LVT2	RB1	P1,3*	
209	TEACHER LOUNGE	LVT2	RB1	P1	
210	WOMEN	RSF1	RSB1	P1	
211	MEN	4 RSF1	RSB1	P1	
212	RECEPTION	LVT2	RB1	P1,5*	
213	HEALTH	LVT2	RB1	P1,3*	
213A	TL	RSF1	RSB1	P1	
214	SIMS	4 LVT2	RB1	P1	
215	SECRETARY	LVT2	RB1	P1	
216	PRINCIPAL	LVT2	RB1	P1,3*	
216A	TL	RSF1	RSB1	P1	
216B	CORR	4 LVT2	RB1	P1	
217	CONFERENCE	LVT2	RB1	P1,3*	
218	ASSISTANT PRINCIPAL	LVT2	RB1	P1,3*	
219	MEN	RSF1	RSB1	P1	
220	WOMEN	RSF1	RSB1	P1	
221	RECORDS	4 LVT2	RB1	P1	
222	WORKROOOM	LVT2	RB1	P1,3*	
223	MEDIA CENTER	CPT1	RB2	P1,4/ AWP*	
224	WORKROOM	LVT2	RB1	P1	
225	IT WORKROOM	4 LVT2	RB1	P1	
225A	STOR	LVT2	RB1	P1	

ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
226	OFFICE	LVT2	RB1	P1	
227	MDF	SC1	RB1	P1	3/4" PLYWOOD TYP ALL MDF AND IDF ROOMS UP TO 6' AFF
228	STAFF TLT	RSF1	RSB1	P1,4*	
300	DINING	TZ1,2*	RB1	P1, AWP1-4*	
301	SERVING	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
302	DISHWASH	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
303	KITCHEN	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
303A	DRY STORAGE	QT1	QTB1	6 P1X	EPOXY PAINT ON WALL PARGING
303B	OFFICE	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
304	RECEIVING	QT1	QTB1	P1X	
305	CUST.	SC1	RB1	FRP1, P1*	EPOXY PAINT ON WALL PARGING
306	KIT. LOCKER	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
306A	UNISEX	QT1	QTB1	P1X	EPOXY PAINT ON WALL PARGING
307	GYM	WAF1	RB3	P1/ WP1/ AWP1-4*	
307A	CUST.	SC1	RB1	FRP1, P1*	
307B	STORAGE	SC1	RB1	P1	
307B	LOBBY	RSF1	RSB1	P1	
307C	LOBBY	RSF1	RSB1	P1	
308	GIRLS LOCKERS	RSF1	RSB1	P1,P5*	
308A	GIRLS SHOWERS	RSF1	RSB1	P1,4*	
308B	VESTIBULE	RSF1	RSB1	P1	
309	COACH OFFICE	4 LVT2	RB1	P1	
309A	TLT	RSF1	RSB1	P1	
310	COACH OFFICE	4 LVT2	RB1	P1	
310A	TLT	RSF1	RSB1	P1	
311	BOYS LOCKERS	RSF1	RSB1	P1,5*	
311A	BOYS SHOWERS	RSF1	RSB1	P1,4*	
311B	VESTIBULE	RSF1	RSB1	P1	
312	GIRLS	RSF1	RSB1	P1,4*	
313	CUST.	SC1	RB1	FRP1, P1*	
314	BOYS	RSF1	RSB1	P1,4*	

ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
315	CONCESSION	SC1	RB1	P1	
316	HEALTH ROOM 2	LVT1	RB1	P1-3*	
316A	STORAGE	4 LVT2	RB1	P1	
317	HEALTH ROOM 1	LVT1	RB1	P1-3*	
400	CUST.	SC1	RB1	FRP1, P1*	
401	STEM CLASSROOM	LVT1	RB1	P1,3*	
402	ITINERANT TEACHER OFFICES	4 LVT2	RB1	P1,4*	
403	ES CS CLASSROOM	LVT1	RB1	P1,3*	
403A	TLT	RSF1, TL5*	RSB1	P1, TL4*	
404	CORE CLASSROOM	LVT1	RB1	P1-4*	
405	CORE CLASSROOM	LVT1	RB1	P1-4*	
406	FLEX CLASSROOM	LVT1	RB1	P1-4*	
406A	PREP ROOM	4 LVT2	RB1	P1	
406B	STORAGE	LVT2	RB1	P1	
407	SCIENCE	LVT1	RB1	P1-4*	
407A	PREP ROOM	4 LVT2	RB1	P1	
407B	STORAGE	LVT2	RB1	P1	
408	SCIENCE	LVT1	RB1	P1-4*	
409	SCIENCE	LVT1	RB1	P1-4*	
410	TEACHER WORK ROOM	4 LVT2	RB1	P1	
410A	STAFF TLT	RSF1	RSB1	P1	
410B	STAFF TLT	RSF1	RSB1	P1	
411	GIRLS	RSF1	RSB1	P1,4*	
412	RESOURCE	LVT1	RB1	P1-4*	
413	BOYS	RSF1	RSB1	P1,4*	
414	RESOURCE	LVT1	RB1	P1-4*	
415	CORE CLASSROOM	LVT1	RB1	P1-4*	
416	CORE CLASSROOM	LVT1	RB1	P1-4*	
417	CORE CLASSROOM	LVT1	RB1	P1-4*	
418	CORE CLASSROOM	LVT1	RB1	P1-4*	

ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
419	CORE CLASSROOM	LVT1	RB1	P1-4*	
420	CORE CLASSROOM	LVT1	RB1	P1-4*	
421	CORE CLASSROOM	LVT1	RB1	P1-4*	
422	CORE CLASSROOM	LVT1	RB1	P1-4*	
500	STEM CLASSROOM	LVT1	RB1	P1-3*	
501	EC S/C CLASSROOM	LVT1	RB1	P1-3*	
501A	TLT	RSF1, TL5*	RSB1	P1, TL4*	
502	CORE CLASSROOM	LVT1	RB1	P1-3*	
503	CORE CLASSROOM	LVT1	RB1	P1-3*	
504	SCIENCE	LVT1	RB1	P1-3*	
504A	PREP ROOM	4 LVT2	RB1	P1	
504B	STORAGE	LVT2	RB1	P1	
505	FLEX CLASSROOM	LVT1	RB1	P1-3*	
505A	PREP ROOM	4 LVT2	RB1	P1	
505B	STORAGE	LVT2	RB1	P1	
506	SCIENCE	LVT1	RB1	P1-3*	
507	SCIENCE	LVT1	RB1	P1-3*	
508	TEACHER WORK ROOM	LVT2	RB1	P1	
509	GIRLS	RSF1	RSB1	P1,4*	
510A	STAFF TLT	RSF1	RSB1	P1	
510B	STAFF TLT	RSF1	RSB1	P1	
511	CUST.	SC1	RB1	FRP1, P1*	
512	RESOURCE	LVT1	RB1	P1-3*	
513	BOYS	RSF1	RSB1	P1,4*	
514	RESOURCE	LVT1	RB1	P1-3*	
515	CORE CLASSROOM	LVT1	RB1	P1-3*	
516	CORE CLASSROOM	LVT1	RB1	P1-3*	
517	CORE CLASSROOM	LVT1	RB1	P1-3*	
518	CORE CLASSROOM	LVT1	RB1	P1-3*	

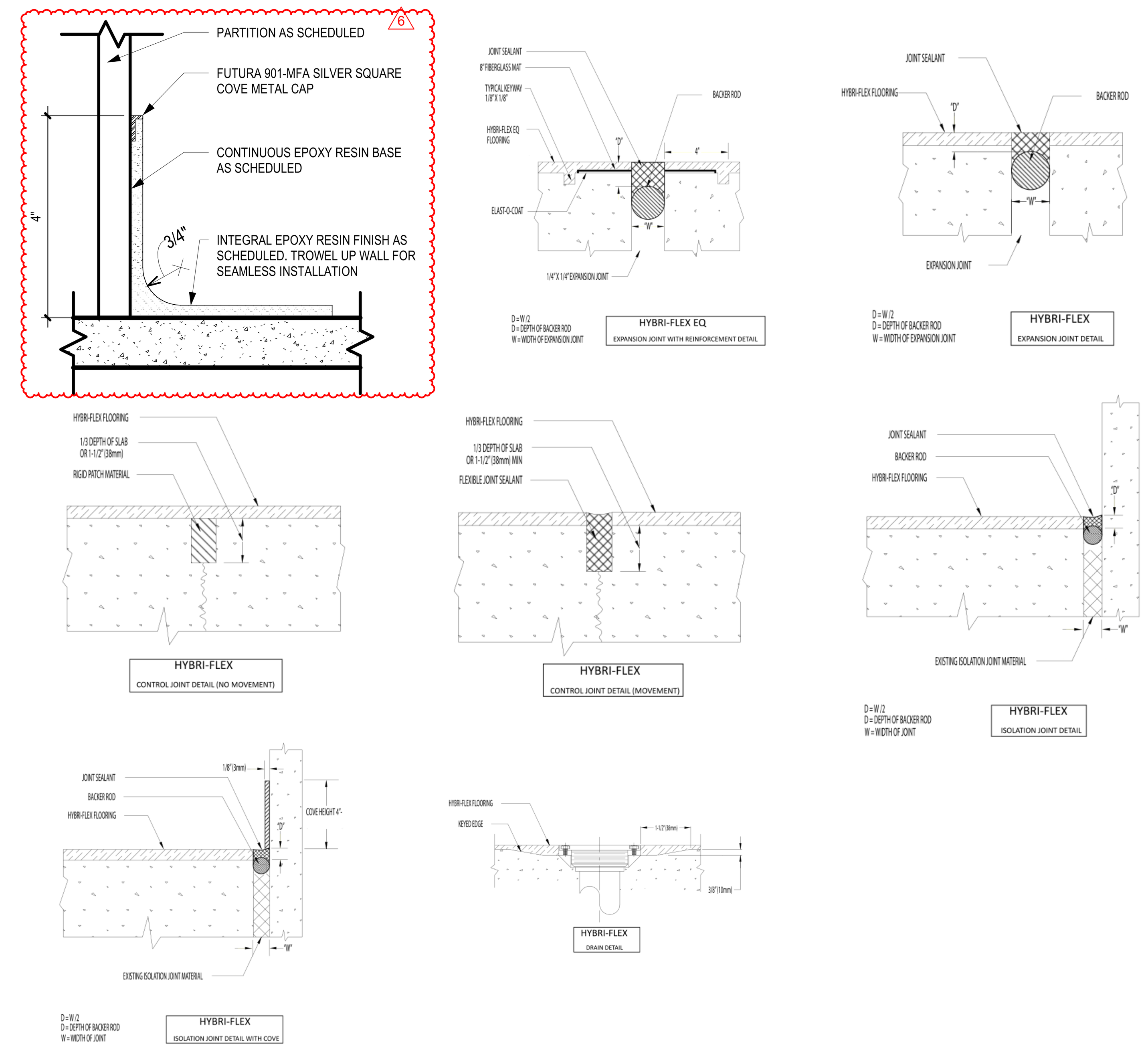
ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
519	CORE CLASSROOM	LVT1	RB1	P1-3*	
520	CORE CLASSROOM	LVT1	RB1	P1-3*	
521	CORE CLASSROOM	LVT1	RB1	P1-3*	
522	CORE CLASSROOM	LVT1	RB1	P1-3*	
C100	LOBBY	TZ1-3	RB1	P1-5*	
C101	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C102	CORRIDOR	TZ1-3	RB1	P1	
C103	CORRIDOR	4 LVT2	RB1	P1	
C200	LOBBY	TZ1,2*	RB1	P1	
C201	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C202	CORRIDOR	4 LVT2	RB1	PT1	
C203	CORRIDOR	LVT2	RB1	P1	
C300	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C300	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C300.1	COLLABORATION	TL3	RB1	P5	
C301	LOBBY	TZ1	RB1	P1	
C302	CORRIDOR	QT1	QTB1	P1X	
C400	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C401	CORRIDOR	TZ1-3*	RB1	P 1,4,5*	
C402	COLLABORATION	TZ1,2*	RB1	P1,3*	
C403	VESTIBULE	TZ1	RB1	P1	
C500	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
C501	COLLABORATION	TZ1-3*	RB1	P1,3*	
M100	MECH	SC1	RB1	P1	
M101	MECH	SC1	RB1	P1	
M200	CUST.	SC1	RB1	FRP1, P1*	
M300	ELECTRICAL	SC1	RB1	PX	
M301	MECHANICAL	SC1	RB1	PX	
M302	EMERG. ELEC.	SC1	RB1	PX	
M303	MECH	SC1	RB1	P1	
M400	MECH	SC1	RB1	P1	
M401	IDF	SC1	RB1	P1	3/4" PLYWOOD TYP ALL MDF AND IDF ROOMS UP TO 6' AFF
M402	ELEC.	SC1	RB1	P1	
M403	CUST.	SC1	RB1	FRP1, P1*	
M500	MECH	SC1	RB1	P1	
M501	MECH	SC1	RB1	P1	
M502	MECH	SC1	RB1	P1	
M503	MECH	SC1	RB1	P1	
M504	MECH	SC1	RB1	P1	
M505	MECH	SC	RB1	P1	
M506	MECH	SC	RB1	P1	
M506	IDF	SC1	RB1	P1	3/4" PLYWOOD TYP ALL MDF AND IDF ROOMS UP TO 6' AFF
M507	MECH	SC1	RB1	P1	

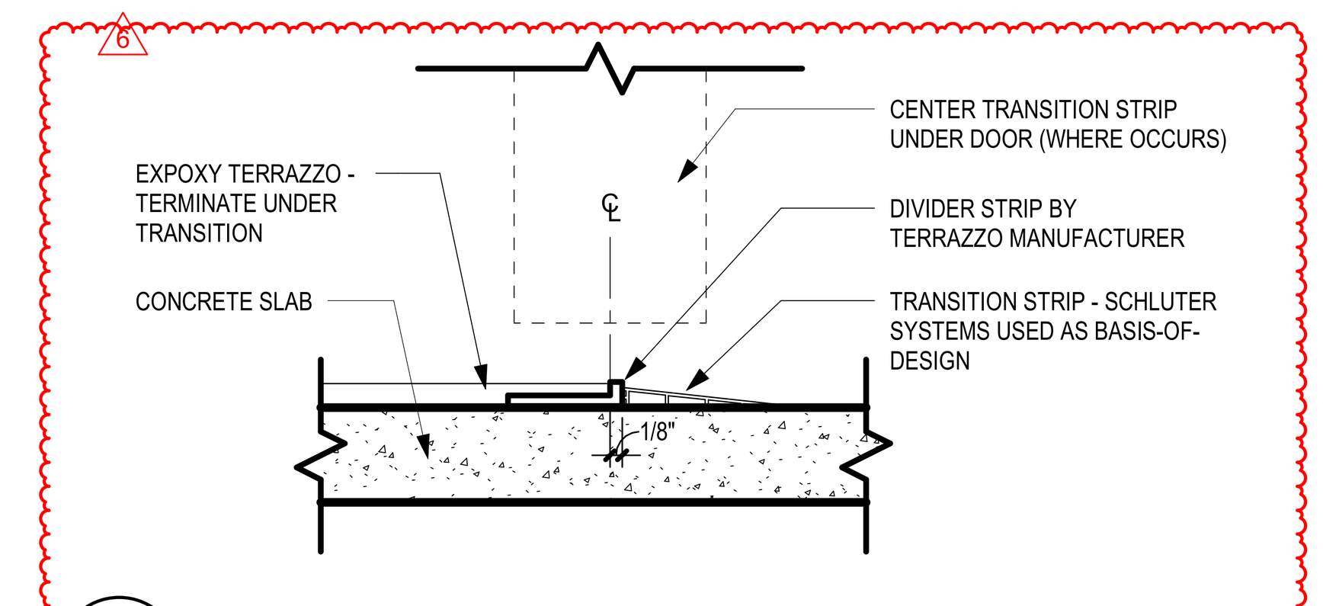
ROOM FINISH SCHEDULE

ROOM	ROOM NAME	FLOOR	BASE	WALLS	COMMENTS
M508	MECH	SC1	RB1	P1	
M508	ELEC.	SC1	RB1	P1	
MP100	MECH PLATFORM	SC1	-	-	
MP300	MECH PLATFORM	SC1	-	-	
S300	MONUMENTAL STAIRS	TZ1	RB1	P5/ TL1,2*	
S301	ELEVATOR	TZ1	N/A	N/A	
S500	STAIR 1	RF1	RB1	P2,4*	
S501	STAIR 2	TZ1, RF1*	RB1	P1,4*	
MECH PLATFORM 200					
MP200	MECH PLATFORM	SC1	-	-	
MECH PLATFORM 400					
MP301	MECH PLATFORM	SC1	-	-	
SECOND FLOOR					
600	COLLABORATION	TZ1,2*	RB1	P1-P4, CMP4*	
600A	STEM LAB	LVT1	RB1	P1*	
600B	CONFERENCE	4 LVT2	RB1	P1	
600C	ASSISTANT PRINCIPAL	LVT2	RB1	P1	
601	E/C ES CLASSROOM	LVT1	RB1	P1-3*	
601A	TLT	RSF1, TL5*	RSB1	P1, TL4*	
602	STEM CLASSROOM	LVT1	RB1	P1-3*	
603	CORE CLASSROOM	LVT1	RB1	P1-3*	
604	CORE CLASSROOM	LVT1	RB1	P1-3*	
605	FLEX CLASSROOM	LVT1	RB1	P1-3*	
605A	PREP ROOM	4 LVT2	RB1	P1	
605B	STORAGE	LVT2	RB1	P1	
606	SCIENCE	LVT1	RB1	P1-3*	
606A	PREP ROOM	4 LVT2	RB1	P1	
606B	STORAGE	LVT2	RB1	P1	
607	SCIENCE	LVT1	RB1	P1-3*	
608	SCIENCE	LVT1	RB1	P1-3*	
609	GIRLS	RSF1	RSB1	P1,4*	
610	TEACHER WORK ROOM	4 LVT2	RB1	P1	
611	CUST.	SC1	RB1	FRP1, P1*	
612A	STAFF TLT	RSF1	RSB1	P1	
612B	STAFF TLT	RSF1	RSB1	P1	
613	BOYS	RSF1	RSB1	P1,4*	
614A	RESOURCE	LVT1	RB1	P1	
614B	RESOURCE	LVT1	RB1	P1	
615	CORE CLASSROOM	LVT1	RB1	P1-3*	
616	CORE CLASSROOM	LVT1	RB1	P1-3*	
617	CORE CLASSROOM	LVT1	RB1	P1-3*	
618	CORE CLASSROOM	LVT1	RB1	P1-3*	
619	CORE CLASSROOM	LVT1	RB1	P1-3*	
620	CORE CLASSROOM	LVT1	RB1	P1-3*	
621	CORE CLASSROOM	LVT1	RB1	P1-3*	
622	CORE CLASSROOM	LVT1	RB1	P1-3*	
C600	CIRCULATION	TZ1,2*	RB1	P1-P2*	
C601	CORRIDOR	TZ1-3*	RB1	P1-5*, AWP*	
M600	STORAGE	LVT2	RB1	P1	
M601	ELEV. CLOSET	SC1	RB1	P1	
M602	ELECT	SC1	RB1	P1	
M603	IDF	SC1	RB1	P1	3/4" PLYWOOD TYP ALL MDF AND IDF ROOMS UP TO 6' AFF
MP100	MECH PLATFORM	SC1	-	-	
MP300	MECH PLATFORM	SC1	-	-	
MP400	MECH PLATFORM	SC1	-	-	
S601	STAIR 1	RF1	RB1	P1,4*	
MECH PLATFORM 600					
MP600	MECH PLATFORM	SC1	-	-	

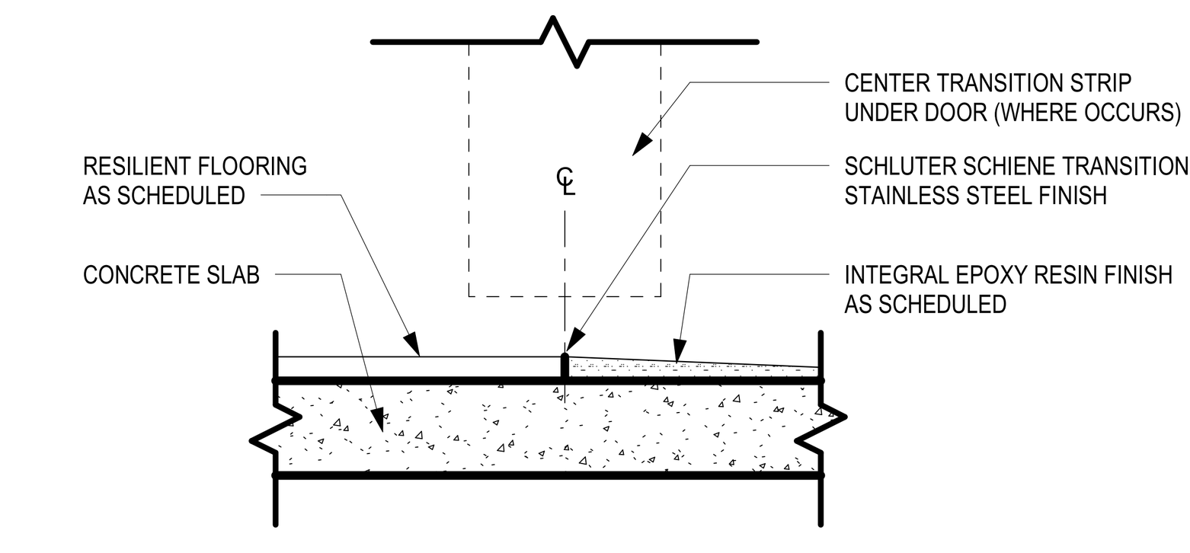
SEE FINISH FLOOR PLANS FOR LOCATION OF CONTROL JOINTS COORDINATE WITH FLOORING MANUFACTURER DETAILS FOR CONTROL AND EXPANSION JOINTS IN CONCRETE SLABS.



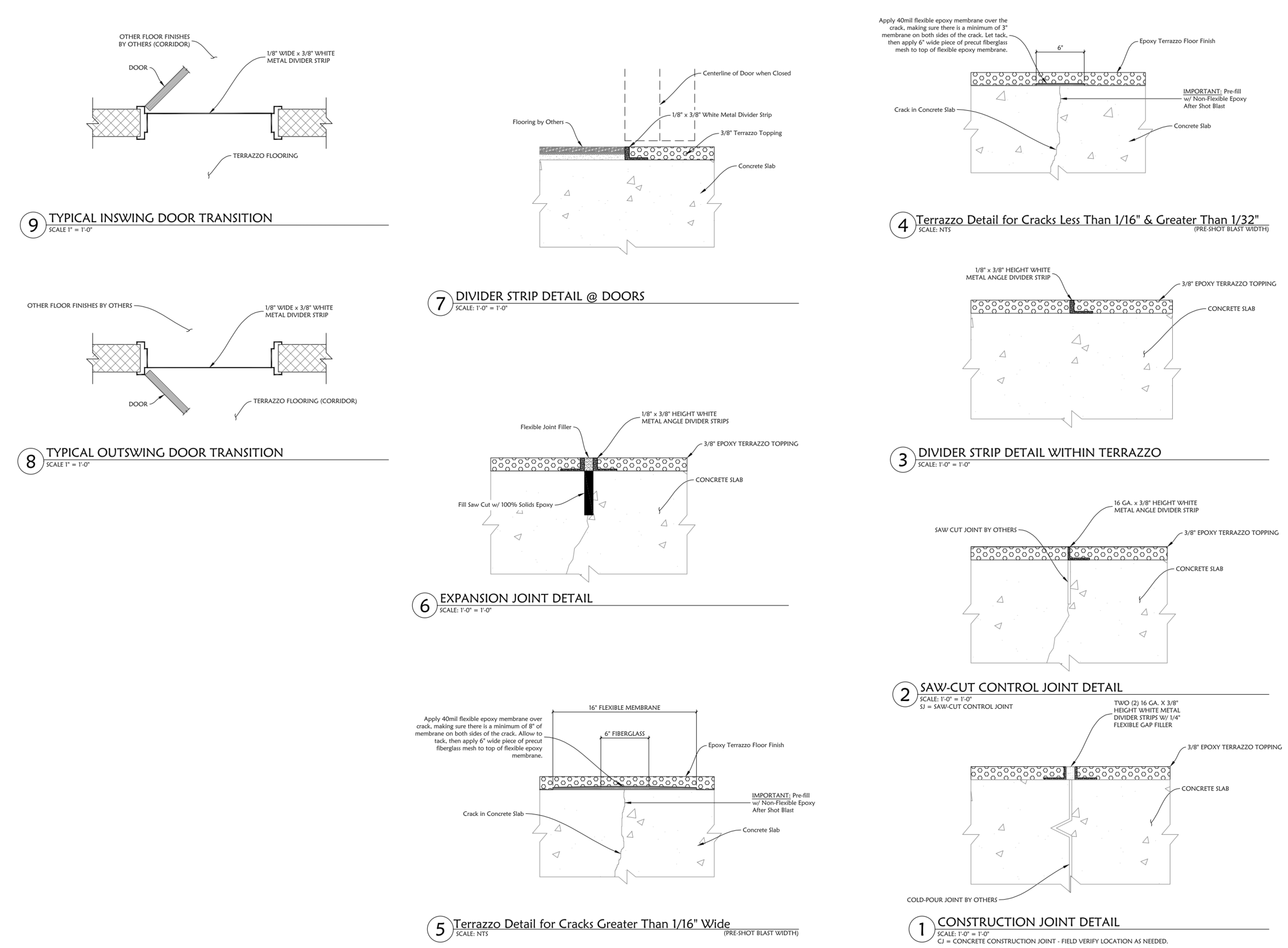
2 A-702 **RESINOUS FLOOR DETAILS**
NOT TO SCALE



4 A-702 **TERRAZZO TRANSITION TO SEALED CONCRETE**
SCALE: 6" = 1'-0"



3 A-702 **RESILIENT FLOOR TRANSITION TO EPOXY**
SCALE: 6" = 1'-0"



9 TYPICAL INSWING DOOR TRANSITION

8 TYPICAL OUTSWING DOOR TRANSITION

7 DIVIDER STRIP DETAIL @ DOORS

6 EXPANSION JOINT DETAIL

5 Terrazzo Detail for Cracks Greater Than 1/16" Wide (PRE-SHOT BLAST WIDTH)

4 Terrazzo Detail for Cracks Less Than 1/16" & Greater Than 1/32" (PRE-SHOT BLAST WIDTH)

3 DIVIDER STRIP DETAIL WITHIN TERRAZZO

2 SAW-CUT CONTROL JOINT DETAIL

1 CONSTRUCTION JOINT DETAIL

1 A-702 **TERRAZZO JOINT DETAILS**
NOT TO SCALE

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

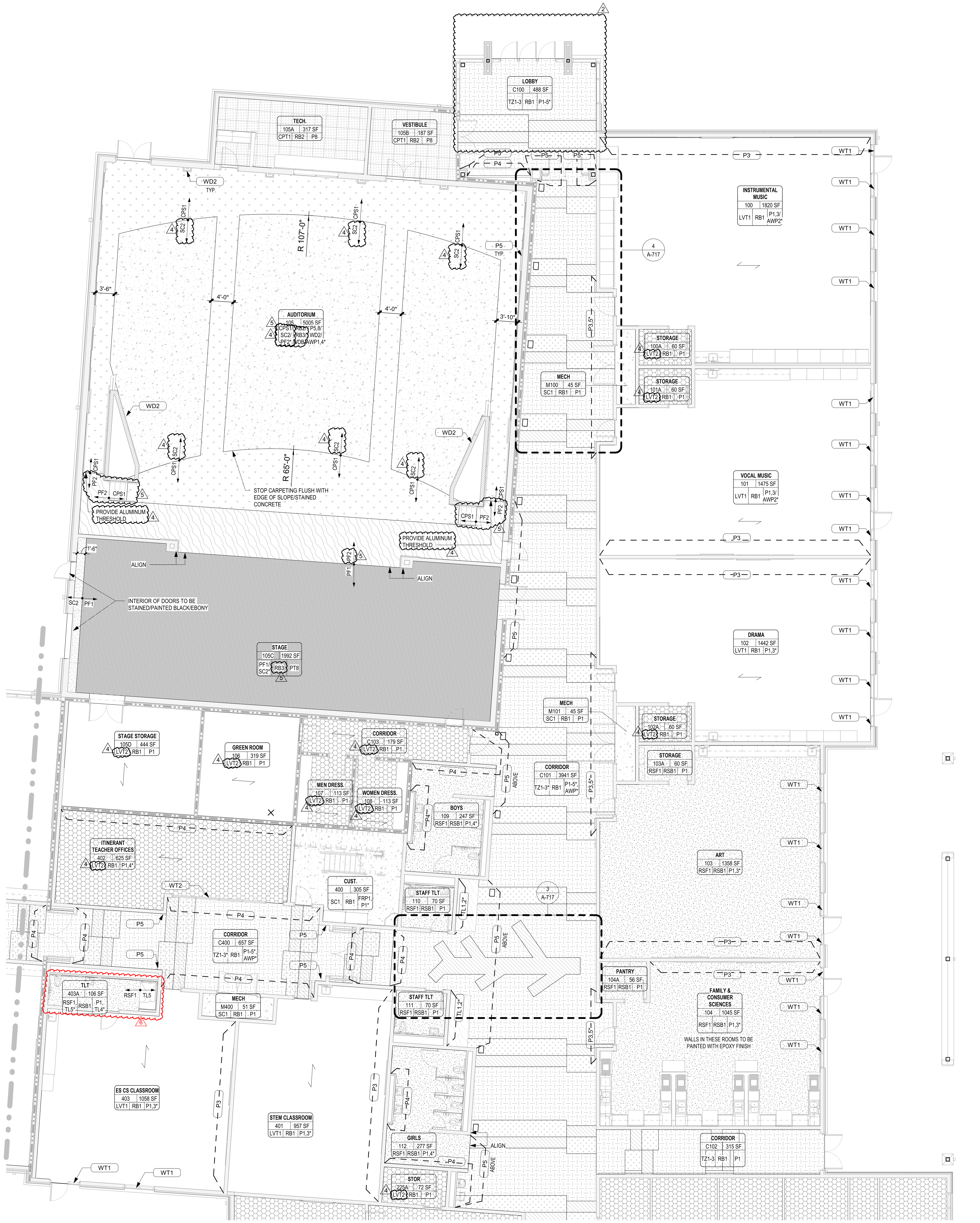
ENERGY STAR PARTNER

No.	Date	Description
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

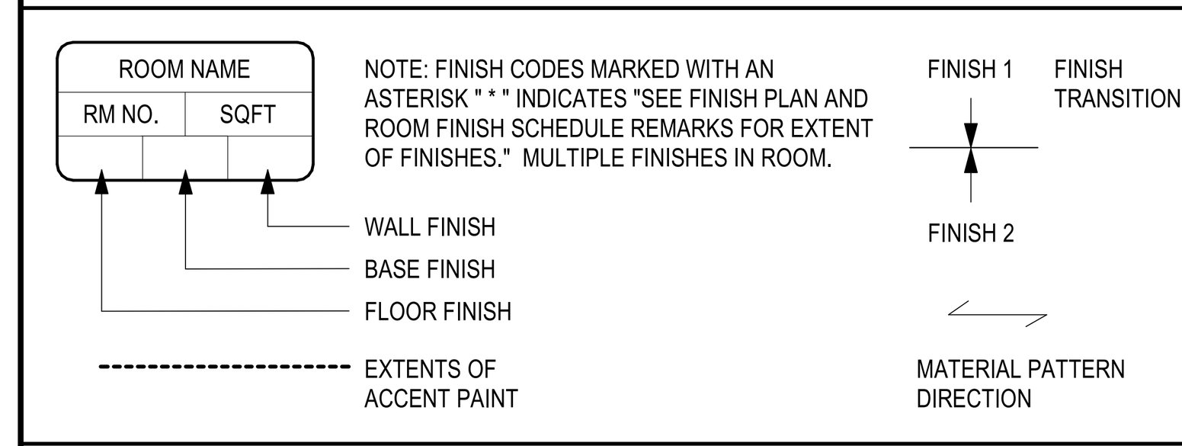
ROOM FINISH SCHEDULE AND FLOOR DETAILS

A-702



1 A-711 **FLOOR FINISH PLAN-AREA 100**
SCALE: 1/8" = 1'-0"

FINISH FLOOR PLAN LEGEND



NOTE: FINISH CODES MARKED WITH AN ASTERISK " * " INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPS	CARPET SHEET	**WAF**	WOOD ATHLETHIC FLOORING
LVT	LUXURY VINYL TILE	**WDF**	WOOD FLOORING
PC	POLISHED CONCRETE	**EM**	ENTRY MAT
PF	PERFORMANCE FLOORING (POLYMER PANEL)		
RSF	RESINOUS FLOORING		
RF	RUBBER FLOORING		
SC	SEALED CONCRETE		
TL	TILE		
TZ	TERRAZZO FLOORING		
QT	QUARRY TILE		

BASE FINISH CODE ABBREVIATIONS

RB	RESILIENT BASE
RSB	RESINOUS BASE
TLB	TILE BASE
QTB	QUARY TILE BASE

WALL FINISH CODES

AWP	ACOUTICAL WALL PANELS	**WC**	WALLCOVERING
FWP	FABRIC WRAPPED ACOUTISCAL PANELS	**WD**	WOOD
FRP	FIBERGLASS REINFORCED PANELS	**TL**	WALL TILE
P	PAINT		
PG	PARGE		
PX	PAINT, EPOXY		
SS	STAINLESS STEEL		

MISC. FINISH CODE ABBREVIATIONS

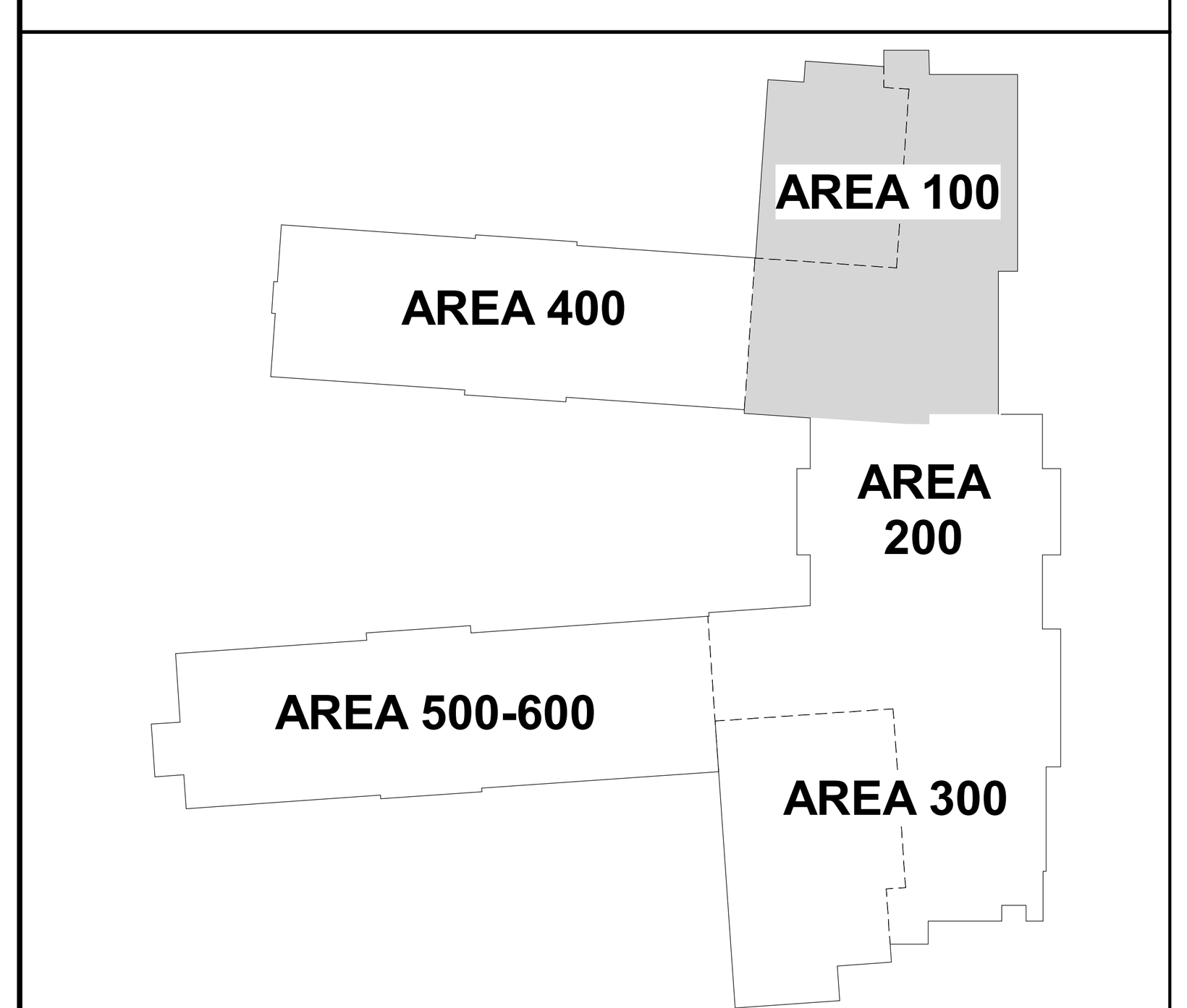
APC	ACOUSTICAL PANEL CEILING	**TP**	TOILET PARTITIONS
ES	EXPOSED STRUCTURE	**TB**	TACKBOARD
GWB	GYPSUM WALL BOARD	**WT**	WINDOW TREATMENT
GMB	GLASS MARKER BOARD		
MB	MARKER BOARD		
PL	PLASTIC LAMINATE		
SS	SOLID SURFACE MATERIAL		

FINISH FLOOR PATTERN PLAN LEGEND

CPS1	CARPET SHEET	**LVT2**	LVT FLOORING
CPT1	CARPET TILE	**TZ1**	TERRAZZO FLOORING
LVT1	LVT FLOORING	**TZ2**	TERRAZZO FLOORING
PF1	PERFORMANCE FLOORING	**TZ3**	TERRAZZO FLOORING
RSF	RESINOUS FLOORING	**QT1**	QUARRY TILE
SC1	SEALED CONCRETE	**WAF1**	WOOD ATHLETIC FLOORING
SC2	STAINED CONCRETE BLACK	**TL3**	WOOD TILE FLOORING

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND AND PLANS FOR ADDITIONAL INFORMATION.
2. ALL FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS OTHERWISE NOTED.
3. IN SECONDARY STAIRWELLS, ALL EXPOSED HANDRAILS, STAIR PANS AND STRINGERS TO BE PAINTED **P6**.
4. REFER TO INTERIOR ELEVATION SHEET FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS MARKER BOARDS AND TACKBOARDS.
5. A 1/16" DIVIDER STRIP CONTROL JOINT IS TO LOCATED IN THE TERRAZZO DIRECTLY ALIGNED WITH ALL CONCRETE FLOOR SLAB CONTROL JOINT LOCATIONS.
6. LINES WHERE COLOR CHANGE OCCURS IN THE TERRAZZO SHOULD BE SEPERATED WITH 1/8" METAL DIVIDER STRIPS.
7. MISC. EXPOSED HARDWARE INCLUDING BUT NOT LIMITED TO LOUVERS, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
8. **ALL NEW INTERIOR FINISHES TO COMPLY WITH CHAPTER 8 OF THE 2018 NC BUILDING AND FIRE CODES. REFER TO SPECIFICATIONS FOR CLASS RATINGS FOR EACH FINISH MATERIAL.**
9. PAINT **P1** IN ALL LOCATIONS U.N.O.
10. EPOXY PAINT TYPICAL AT ALL FOOD PREP ROOMS, ROOMS THAT ARE APART OF FOOD PREP ROOMS, CAFETERIA, RESTROOMS, JANITOR CLOSETS, UTILITY ROOMS AND STAIRWELLS.
11. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED **P6** UNLESS NOTED OTHERWISE.
12. EXPOSED COLUMS TO BE **P6** UNLESS OTHERWISE NOTED.
13. PAINT COLORS DESIGNATED AT BULKHEADS TO BE APPLIED TO ENTIRE VERTICAL AND HORIZONTAL FACES, UNLESS NOTED OTHERWISE IN RCP AND ELEVATIONS.
14. ALL EXPOSED STRUCTURE, MEP EQUIPMENT/ACCESSORIES, CEILING WIRES, ETC PAINTED **P6.**
15. EXPOSED DECKING TO RECEIVE **P** PAINT. GLULAMS ARE NOT TO RECEIVE PAINT. PROTECT DURING CONSTRUCTION.



100 KEY PLAN

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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
5	01-30-25	ADDENDUM 1
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR FINISH PLAN - AREA 100

A-711

1 A-713.1 **FLOOR FINISH PLAN-AREA 300 NORTH**
SCALE: 1/8" = 1'-0"

FINISH FLOOR PLAN LEGEND

ROOM NAME / RM NO. / SQFT — FLOOR FINISH, BASE FINISH, WALL FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK " * " INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH 1 / FINISH 2 — FINISH TRANSITION

EXTENTS OF ACCENT PAINT

MATERIAL PATTERN DIRECTION

FINISH ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPS	CARPET SHEET	WAF	WOOD ATHLETHIC FLOORING
LVT	LUXURY VINYL TILE	WDF	WOOD FLOORING
PC	POLISHED CONCRETE	EM	ENTRY MAT
PF	PERFORMANCE FLOORING (POLYMER PANEL)		
RSF	RESINOUS FLOORING		
RF	RUBBER FLOORING		
SC	SEALED CONCRETE		
TL	TILE		
TZ	TERRAZZO FLOORING		
QT	QUARRY TILE		

BASE FINISH CODE ABBREVIATIONS

RB	RESILIENT BASE
RSB	RESINOUS BASE
TLB	TILE BASE
QTB	QUARY TILE BASE

WALL FINISH CODES

AWP	ACOUTICAL WALL PANELS	WC	WALLCOVERING
FWP	FABRIC WRAPPED ACOUTISCAL PANELS	WD	WOOD
FRP	FIBERGLASS REINFORCED PANELS	TL	WALL TILE
P	PAINT		
PG	PARGE		
PX	PAINT, EPOXY		
SS	STAINLESS STEEL		

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING	TP	TOILET PARTITIONS
ES	EXPOSED STRUCTURE	TB	TACKBOARD
GWB	GYPSUM WALL BOARD	WT	WINDOW TREATMENT
GMB	GLASS MARKER BOARD		
MB	MARKER BOARD		
PL	PLASTIC LAMINATE		
SS	SOLID SURFACE MATERIAL		

FINISH FLOOR PATTERN PLAN LEGEND

CPS1	CARPET SHEET	LVT2	LVT FLOORING
CPT1	CARPET TILE	TZ1	TERRAZZO FLOORING
LVT1	LVT FLOORING	TZ2	TERRAZZO FLOORING
PF1	PERFORMANCE FLOORING	TZ3	TERRAZZO FLOORING
RSF	RESINOUS FLOORING	QT1	QUARRY TILE
SC1	SEALED CONCRETE	WAF1	WOOD ATHLETHIC FLOORING
SC2	STAINED CONCRETE BLACK	TL3	WOOD TILE FLOORING

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND AND PLANS FOR ADDITIONAL INFORMATION.
2. ALL FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS OTHERWISE NOTED.
3. IN SECONDARY STAIRWELLS, ALL EXPOSED HANDRAILS, STAIR PANS AND STRINGERS TO BE PAINTED **P6**.
4. REFER TO INTERIOR ELEVATION SHEET FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS MARKER BOARDS AND TACKBOARDS.
5. A 1/16" DIVIDER STRIP CONTROL JOINT IS TO LOCATED IN THE TERRAZZO DIRECTLY ALIGNED WITH ALL CONCRETE FLOOR SLAB CONTROL JOINT LOCATIONS.
6. LINES WHERE COLOR CHANGE OCCURS IN THE TERRAZZO SHOULD BE SEPERATED WITH 1/8" METAL DIVIDER STRIPS.
7. MISC. EXPOSED HARDWARE INCLUDING BUT NOT LIMITED TO LOUVERS, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
8. **ALL NEW INTERIOR FINISHES TO COMPLY WITH CHAPTER 8 OF THE 2018 NC BUILDING AND FIRE CODES. REFER TO SPECIFICATIONS FOR CLASS RATINGS FOR EACH FINISH MATERIAL.**
9. PAINT **P1** IN ALL LOCATIONS U.N.O.
10. EPOXY PAINT TYPICAL AT ALL FOOD PREP ROOMS, ROOMS THAT ARE APART OF FOOD PREP ROOMS, CAFETERIA, RESTROOMS, JANITOR CLOSETS, UTILITY ROOMS AND STAIRWELLS.
11. ALL HOLLOW METAL DOOR FRAMES AND WINDOWS TO BE PAINTED **P6** UNLESS NOTED OTHERWISE.
12. EXPOSED COLUMS TO BE **P6** UNLESS OTHERWISE NOTED.
13. PAINT COLORS DESIGNATED AT BULKHEADS TO BE APPLIED TO ENTIRE VERTICAL AND HORIZONTAL FACES, UNLESS NOTED OTHERWISE IN RCP AND ELEVATIONS.
14. ALL EXPOSED STRUCTURE, MEP EQUIPMENT/ACCESSORIES, CEILING WIRES, ETC PAINTED **P6.**
15. EXPOSED DECKING TO RECEIVE **P** PAINT. GLULAMS ARE NOT TO RECEIVE PAINT. PROTECT DURING CONSTRUCTION.

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ROBERT W. FERRIS REGISTERED ARCHITECT 6184 NORTH CAROLINA RALEIGH, N.C 11/8/24

CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS
FLATWOODS MIDDLE SCHOOL
3544 US 401 S, LILLINGTON NC 27546

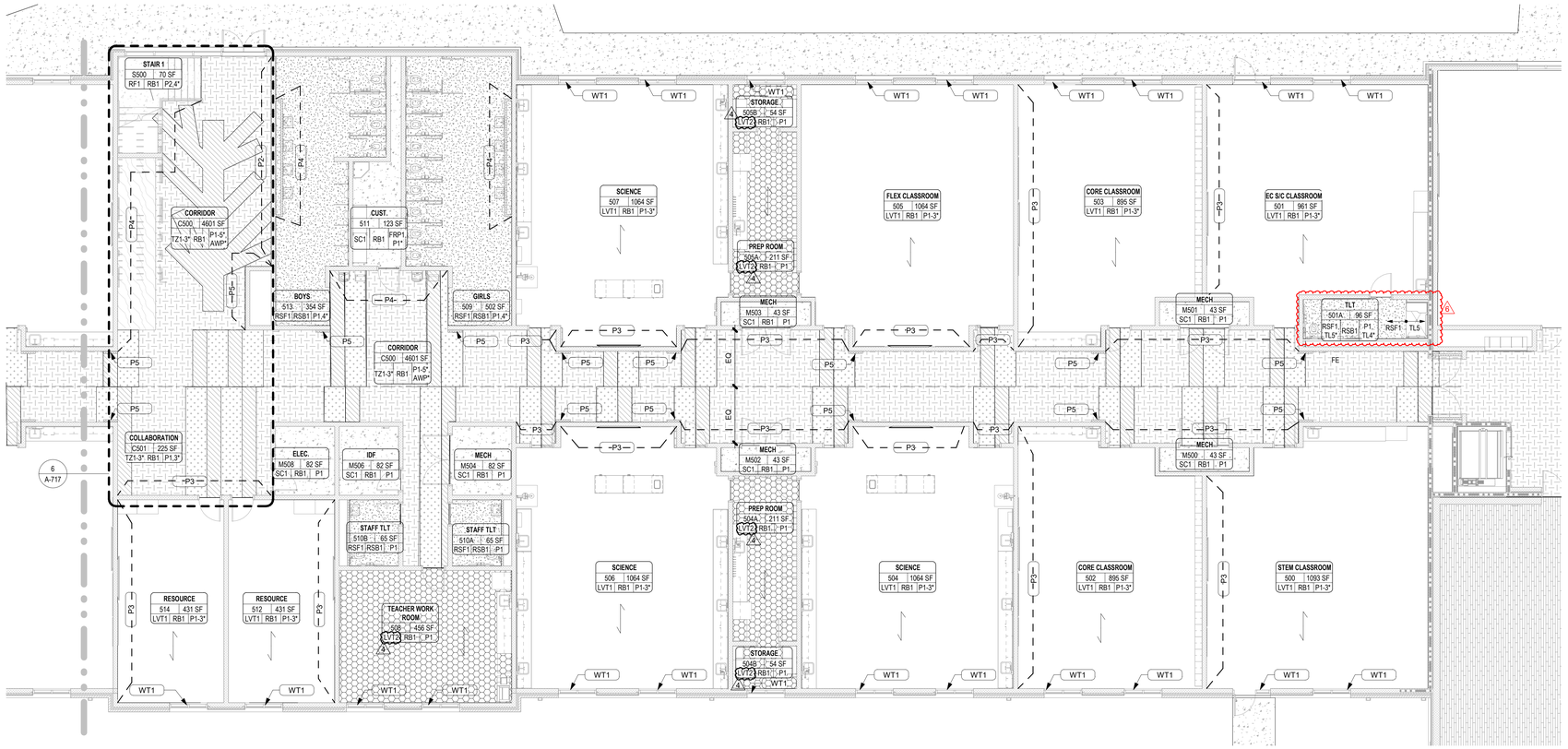
ENERGY STAR PARTNER

No.	Date	Description
2	12-13-24	CD REVISIONS
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR FINISH PLAN - AREA 300 NORTH

A-713.1



1 A-715.1 **FLOOR FINISH PLAN -AREA 500 EAST**

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

FINISH FLOOR PLAN LEGEND

ROOM NAME | RM NO. | SQFT

- WALL FINISH
- BASE FINISH
- FLOOR FINISH
- EXTENTS OF ACCENT PAINT

NOTE: FINISH CODES MARKED WITH AN ASTERISK "*" INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH 1 / FINISH 2 — FINISH TRANSITION

MATERIAL PATTERN DIRECTION

FINISH ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPS	CARPET SHEET	**WAF**	WOOD ATHLETHIC FLOORING
LVT	LUXURY VINYL TILE	**WDF**	WOOD FLOORING
PC	POLISHED CONCRETE	**EM**	ENTRY MAT
PF	PERFORMANCE FLOORING (POLYMER PANEL)		
RSF	RESINOUS FLOORING		
RF	RUBBER FLOORING		
SC	SEALED CONCRETE		
TL	TILE		
TZ	TERRAZZO FLOORING		
QT	QUARRY TILE		

BASE FINISH CODE ABBREVIATIONS

RB	RESILIENT BASE
RSB	RESINOUS BASE
TLB	TILE BASE
QTB	QUARRY TILE BASE

WALL FINISH CODES

AWP	ACOUTICAL WALL PANELS	**WC**	WALLCOVERING
FWP	FABRIC WRAPPED ACOUTISCAL PANELS	**WD**	WOOD
FRP	FIBERGLASS REINFORCED PANELS	**TL**	WALL TILE
P	PAINT		
PG	PARGE		
PX	PAINT, EPOXY		
SS	STAINLESS STEEL		

MISC. FINISH CODE ABBREVIATIONS

APC	ACOUSTICAL PANEL CEILING	**TP**	TOILET PARTITIONS
ES	EXPOSED STRUCTURE	**TB**	TACKBOARD
GWB	GYPSUM WALL BOARD	**WT**	WINDOW TREATMENT
GMB	GLASS MARKER BOARD		
MB	MARKER BOARD		
PL	PLASTIC LAMINATE		
SS	SOLID SURFACE MATERIAL		

FINISH FLOOR PATTERN PLAN LEGEND

CPS1	CARPET SHEET	**LVT2**	LVT FLOORING
CPT1	CARPET TILE	**TZ1**	TERRAZZO FLOORING
LVT1	LVT FLOORING	**TZ2**	TERRAZZO FLOORING
PF1	PERFORMANCE FLOORING	**TZ3**	TERRAZZO FLOORING
RSF	RESINOUS FLOORING	**QT1**	QUARRY TILE
SC1	SEALED CONCRETE	**WAF1**	WOOD ATHLETHIC FLOORING
SC2	STAINED CONCRETE BLACK	**TL3**	WOOD TILE FLOORING

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND AND PLANS FOR ADDITIONAL INFORMATION.
2. ALL FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS OTHERWISE NOTED.
3. IN SECONDARY STAIRWELLS, ALL EXPOSED HANDRAILS, STAIR PANS AND STRINGERS TO BE PAINTED **P6**.
4. REFER TO INTERIOR ELEVATION SHEET FOR DETAILS AND TRANSITIONS OF WALL TILE, ACOUSTICAL WALL PANELS MARKER BOARDS AND TACKBOARDS.
5. A 1/16" DIVIDER STRIP CONTROL JOINT IS TO LOCATED IN THE TERRAZZO DIRECTLY ALIGNED WITH ALL CONCRETE FLOOR SLAB CONTROL JOINT LOCATIONS.
6. LINES WHERE COLOR CHANGE OCCURS IN THE TERRAZZO SHOULD BE SEPERATED WITH 1/8" METAL DIVIDER STRIPS.
7. MISC. EXPOSED HARDWARE INCLUDING BUT NOT LIMITED TO LOUVERS, GRATES OR TRIM ACCESSORIES, TO BE PAINTED TO MATCH ADJACENT WALL FINISH.
8. **ALL NEW INTERIOR FINISHES TO COMPLY WITH CHAPTER 8 OF THE 2018 NC BUILDING AND FIRE CODES. REFER TO SPECIFICATIONS FOR CLASS RATINGS FOR EACH FINISH MATERIAL.**
9. PAINT **P1** IN ALL LOCATIONS U.N.O.
10. EPOXY PAINT TYPICAL AT ALL FOOD PREP ROOMS. ROOMS THAT ARE APART OF FOOD PREP ROOMS, CAFETERIA, RESTROOMS, JANITOR CLOSETS, UTILITY ROOMS AND STAIRWELLS.
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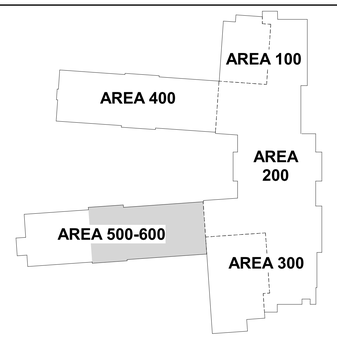
14. ALL EXPOSED STRUCTURE, MEP EQUIPMENT/ACCESSORIES, CEILING WIRES, ETC PAINTED **P6.**
15. EXPOSED DECKING TO RECEIVE **P** PAINT. GLULAMS ARE NOT TO RECEIVE PAINT. PROTECT DURING CONSTRUCTION.



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CONSTRUCTION DOCUMENTS

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

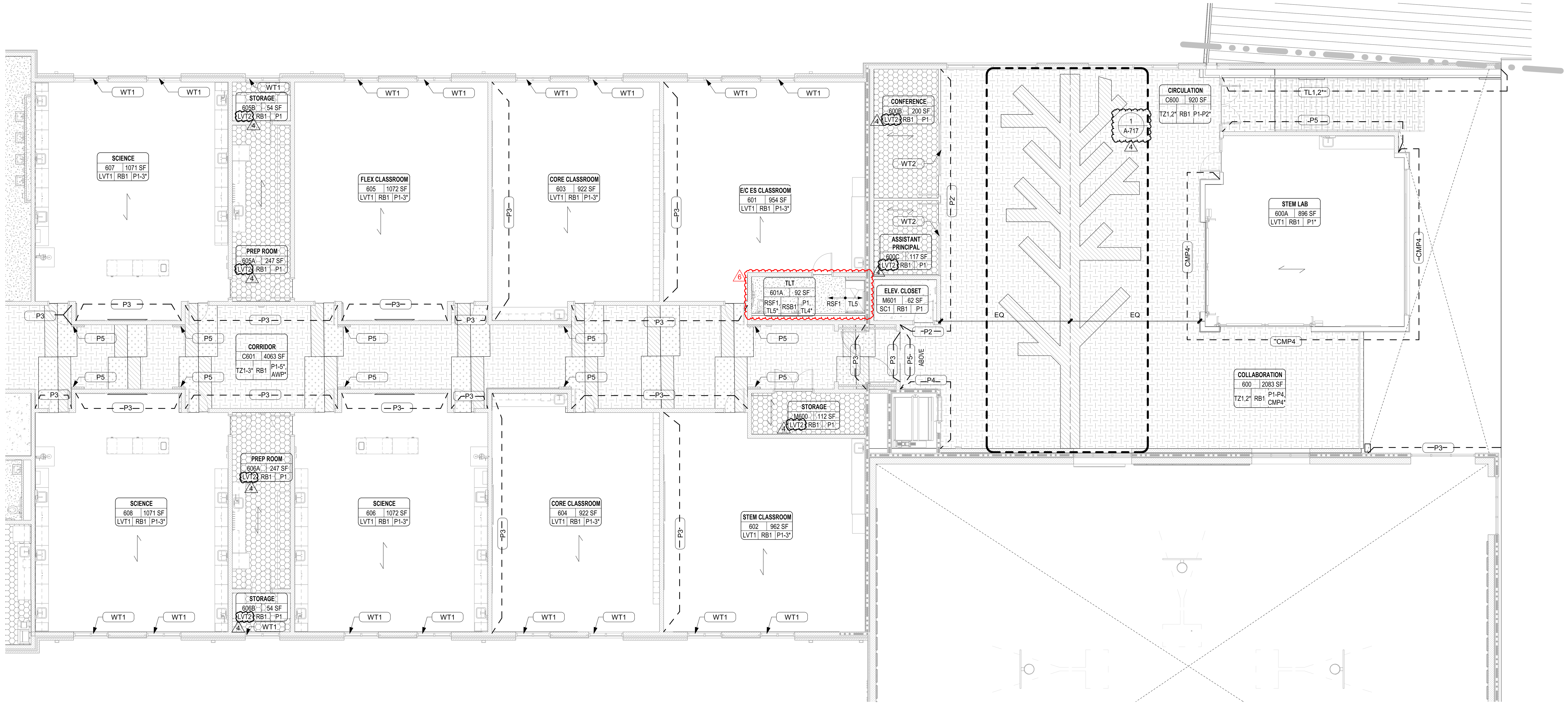
No.	Date	Description
4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25

PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR FINISH PLAN - AREA 500 EAST

A-715.1



1 A-716.1 **FLOOR FINISH PLAN - AREA 600 EAST**
SCALE: 1/8" = 1'-0"

FINISH FLOOR PLAN LEGEND

ROOM NAME / RM NO. / SQFT — WALL FINISH, BASE FINISH, FLOOR FINISH

NOTE: FINISH CODES MARKED WITH AN ASTERISK " * " INDICATES "SEE FINISH PLAN AND ROOM FINISH SCHEDULE REMARKS FOR EXTENT OF FINISHES." MULTIPLE FINISHES IN ROOM.

FINISH 1 / FINISH 2 — FINISH TRANSITION

EXTENTS OF ACCENT PAINT

MATERIAL PATTERN DIRECTION

FINISH ABBREVIATIONS

FLOOR FINISH CODE ABBREVIATIONS

CPS	CARPET SHEET	WAF	WOOD ATHLETHIC FLOORING
LVT	LUXURY VINYL TILE	WDF	WOOD FLOORING
PC	POLISHED CONCRETE	EM	ENTRY MAT
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RSF	RESINOUS FLOORING		
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ES	EXPOSED STRUCTURE	TB	TACKBOARD
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GMB	GLASS MARKER BOARD		
MB	MARKER BOARD		
PL	PLASTIC LAMINATE		
SS	SOLID SURFACE MATERIAL		

FINISH FLOOR PATTERN PLAN LEGEND

CPS1	CARPET SHEET	LVT2	LVT FLOORING
CPT1	CARPET TILE	TZ1	TERRAZZO FLOORING
LVT1	LVT FLOORING	TZ2	TERRAZZO FLOORING
PF1	PERFORMANCE FLOORING	TZ3	TERRAZZO FLOORING
RSF	RESINOUS FLOORING	QT1	QUARRY TILE
SC1	SEALED CONCRETE	WAF1	WOOD ATHLETHIC FLOORING
SC2	STAINED CONCRETE BLACK	TL3	WOOD TILE FLOORING

GENERAL FINISH NOTES

1. REFER TO THE FINISH LEGEND AND PLANS FOR ADDITIONAL INFORMATION.
2. ALL FLOORING TRANSITIONS OCCUR AT THE CENTER OF THE UNDERSIDE OF THE DOOR UNLESS OTHERWISE NOTED.
3. IN SECONDARY STAIRWELLS, ALL EXPOSED HANDRAILS, STAIR PANS AND STRINGERS TO BE PAINTED **P6**.
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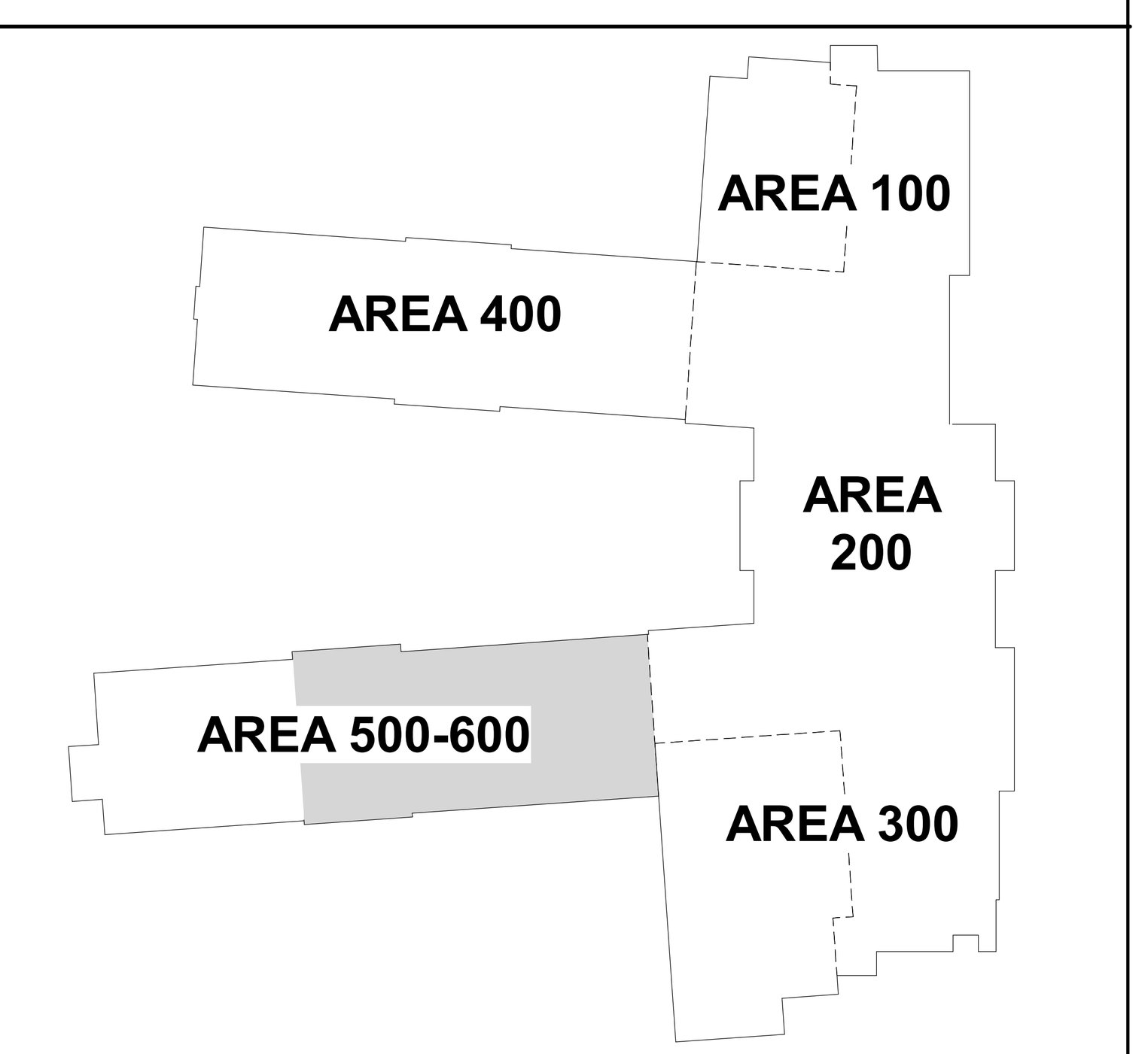
14. ALL EXPOSED STRUCTURE, MEP EQUIPMENT/ACCESSORIES, CEILING WIRES, ETC PAINTED **P6.**
15. EXPOSED DECKING TO RECEIVE **P** PAINT. GLULAMS ARE NOT TO RECEIVE PAINT. PROTECT DURING CONSTRUCTION.

2



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ROBERT W. FERRIS — REGISTERED ARCHITECT — 6184 — NORTH CAROLINA — RALEIGH, N.C. 11/8/24

CONSTRUCTION DOCUMENTS

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ENERGY STAR PARTNER

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4	01-09-25	NCDPI CD
6	02-05-25	ADDENDUM 2

ISSUE DATE: 01-09-25
PROJECT #: 02208.000
DRAWN BY: Author
CHECKED BY: Checker

FLOOR FINISH PLAN - AREA 600 EAST

A-716.1

Autodesk Docs://HCS Flatwoods MS/2208 HCS Flatwoods MS.rvt
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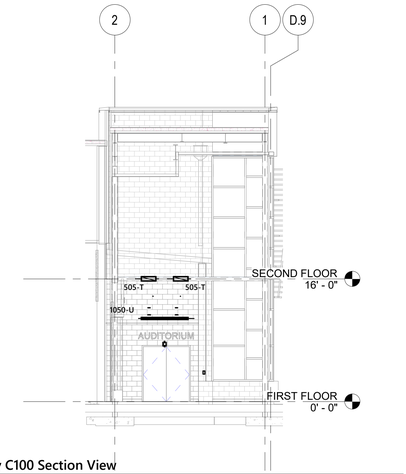
1 **PARTIAL FIRST FLOOR MECHANICAL PLAN - AREA 100**
1/8" = 1'-0"



3 **Lobby C100 Section View**
1/8" = 1'-0"

WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040316 THOMAS A. LANDRY 02/05/2025

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North Carolina License Number C-0914

HARNETT COUNTY SCHOOLS

FLATWOODS MIDDLE SCHOOL

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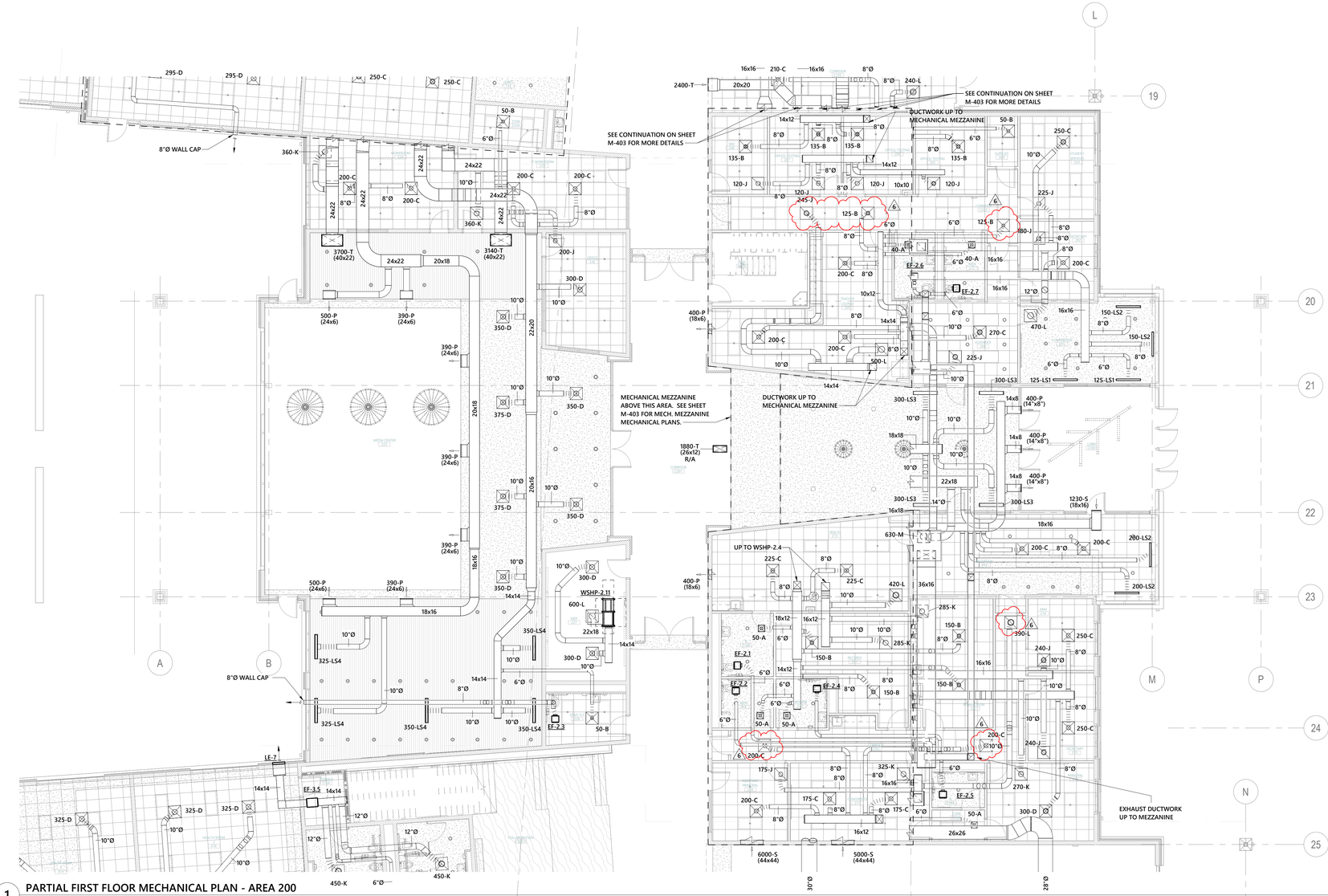
ENERGY STAR PARTNER

No.	Date	Description
6	02/05/2025	Addendum 2

ISSUE DATE: 01/09/25
PROJECT #: 02208.000
DRAWN BY: HFK
CHECKED BY: TAL

PARTIAL FIRST FLOOR MECHANICAL PLAN - AREA 100

M-111



1 PARTIAL FIRST FLOOR MECHANICAL PLAN - AREA 200
1/8" = 1'-0"

WALL LEGEND	
SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN

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ENERGY STAR PARTNER

No.	Date	Description
6	02/05/2025	Addendum 2

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CHECKED BY: TAL

PARTIAL FIRST FLOOR MECHANICAL PLAN - AREA 200

M-112

Sheet No. 12 of 42

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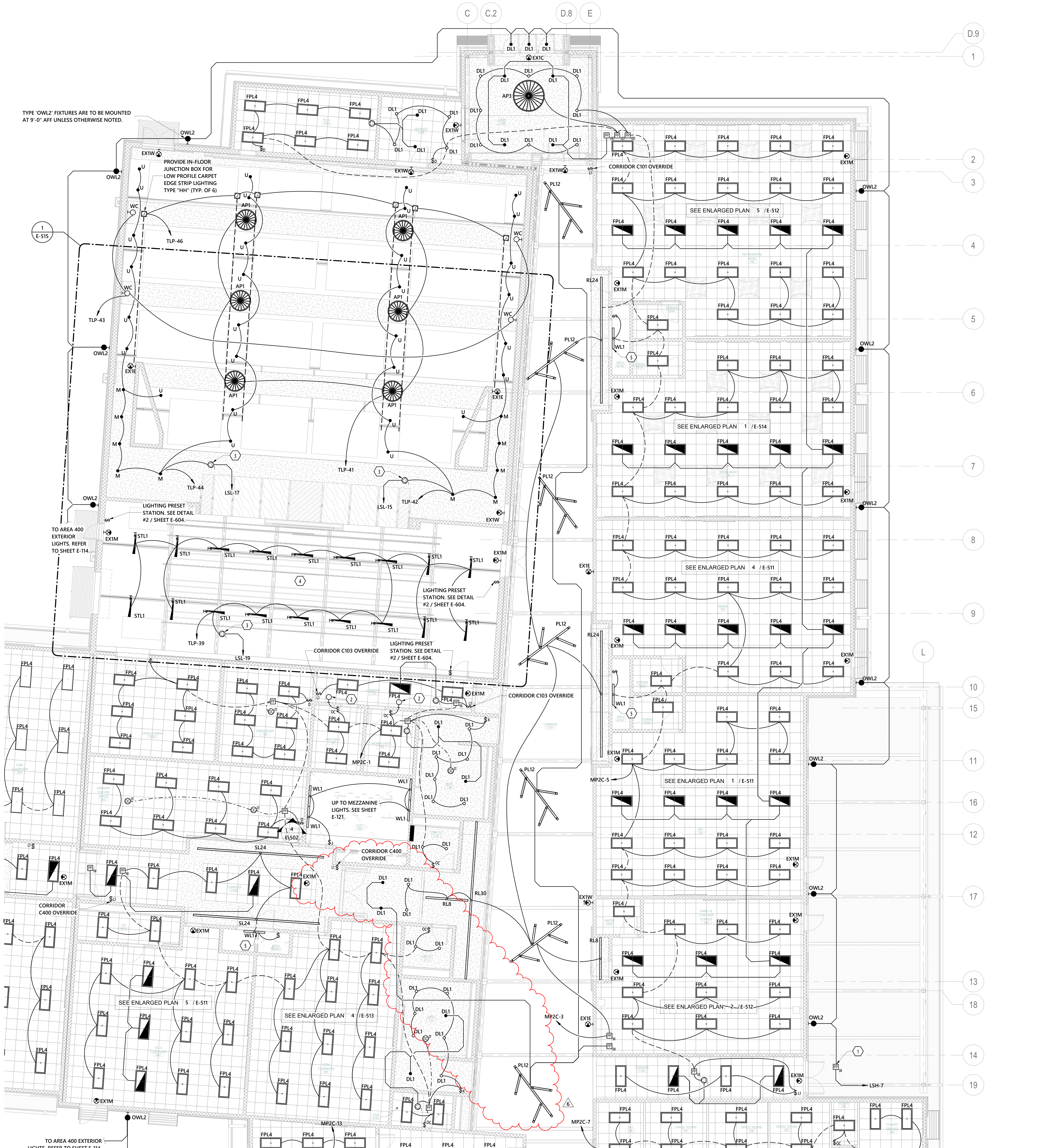


1 PARTIAL FIRST FLOOR LIGHTING PLAN - AREA 100
1/8" = 1'-0"

GENERAL NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS, INCLUDING, BUT NOT LIMITED TO, REFLECTED CEILING PLANS AND ELEVATIONS FOR ASSOCIATED NOTES, MOUNTING DETAILS AND EXACT LOCATIONS OF ALL LIGHTING FIXTURES.
B. PROVIDE COMMON FACEPLATE AND REQUIRED METAL INTERIOR BOX BARRIERS FOR ALL MULTIPLE GANG SWITCH LOCATIONS.
C. COORDINATE THE PLACEMENT OF ALL PENDANT, SURFACE, OR SEMI-FLUSH FIXTURES AND DEVICES WITH THE FIRE PROTECTION CONTRACTOR OR MAINTAIN NFPA 13 REQUIRED SEPARATION BETWEEN SPRINKLER HEADS AND OBSTRUCTIONS.
D. CONNECT ALL NIGHT LIGHTS (NL), EXIT SIGNS, EMERGENCY INPUT OF ALL GENERATOR TRANSFER DEVICES, AND EMERGENCY POWER PACKS SHOWN ON THIS SHEET TO EMERGENCY CIRCUIT 'LSH-11', UNLESS OTHERWISE NOTED.
E. CIRCUIT NUMBERS ARE DIAGRAMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY.
F. REFER TO SHEET E-002 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
G. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
H. MODIFICATIONS TO NUMBER OF CONDUCTORS IN HOME RUNS IN ADDITION TO CIRCUIT INDICATED ON THIS DRAWING ARE PROHIBITED.
I. CONNECT VOLTAGE SENSING INPUT OF POWER PACKS TO LOCAL NORMAL LIGHTING CIRCUIT, UNSWITCHED.
J. ALL HALLWAY CEILING MOUNTED LIGHTING DEVICES AND HALLWAY CEILING MOUNTED LIGHTING FIXTURES ARE TO BE MOUNTE IN THE CENTER OF THE HALLWAY UNLESS OTHERWISE NOTED.
K. 0-10V DIMMING WIRING IS NOT ANNOTATED ON PLANS. PROVIDE 0-10V DIMMING WIRING AS NEEDED FOR DIMMING ZONES SHOWN ON PLANS.

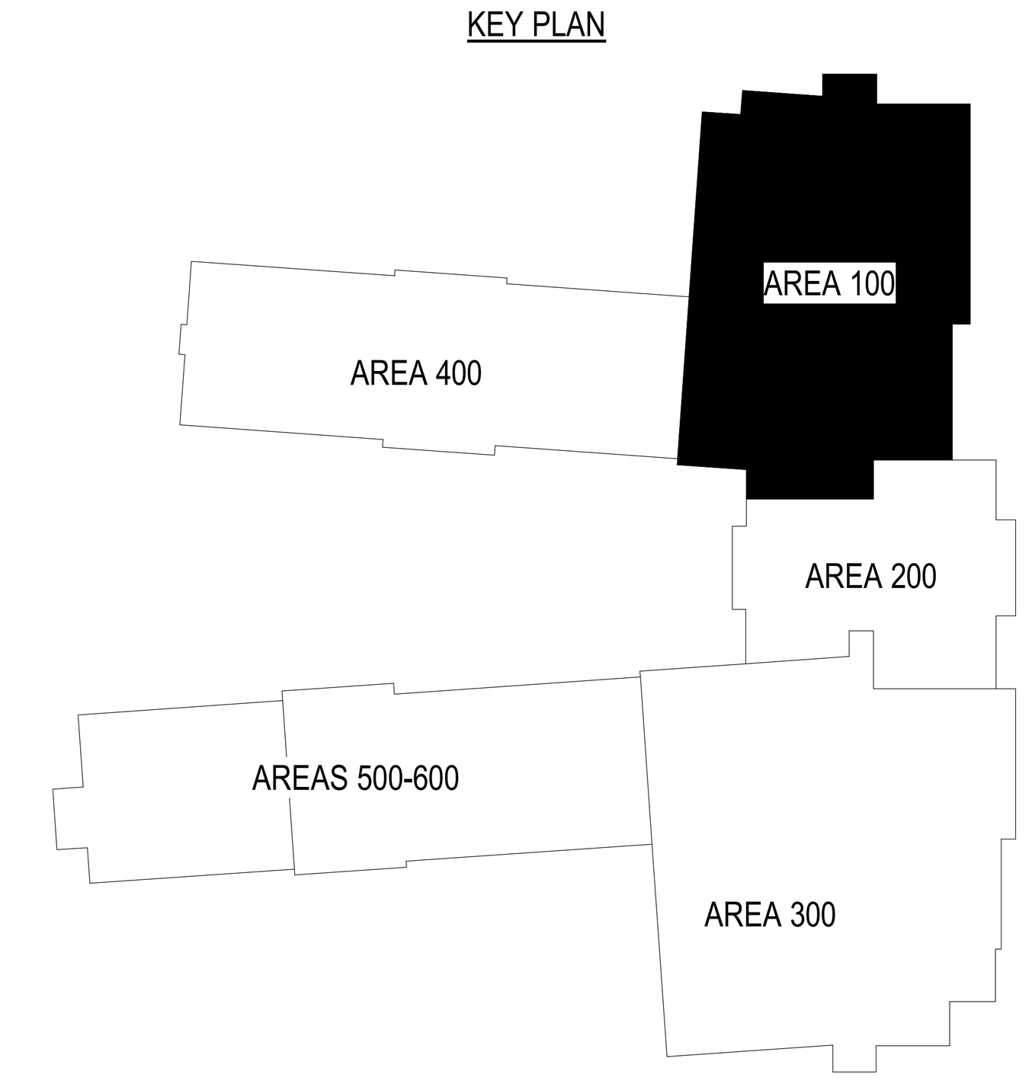
KEYNOTES

1 LOCATE POWER PACK IN EMERGENCY ELECTRICAL ROOM ADJACENT TO PANEL 'LSH'. CONNECT VOLTAGE SENSING INPUT OF POWER PACK TO LOCAL NORMAL LIGHTING CIRCUIT, UNSWITCHED.
2 DRESSING ROOM LIGHTING PILOT LIGHT. TYPICAL OF TWO (2) THIS CORRIDOR. MOUNT ADJACENT TO DRESSING ROOM RECEPTACLE PILOT LIGHT. PILOT LIGHT SHALL ILLUMINATE WHEN DRESSING ROOM LIGHTS ARE TURNED ON.
3 EMERGENCY LIGHTING TRANSFER DEVICE TO BE LOCATED AT THEATRICAL LIGHTING PANEL. SEE THEATRICAL LIGHTING RISER / SHEET E-604 FOR DETAILS.
4 MOUNT TYPE 'STL1' FIXTURES IN BACKSTAGE AREA ABOVE THEATRICAL LIGHTING AND CURTAINS. COORDINATE MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
5 MOUNT TYPE 'WL1' FIXTURE DIRECTLY ABOVE MECHANICAL ROOM DOOR.

WALL LEGEND

SYMBOL	DESCRIPTION
(1 hr symbol)	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
(2 hr symbol)	2 HOUR RATED WALL

KEY PLAN



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sfL+a ARCHITECTS

NORTH CAROLINA PROFESSIONAL SEAL 048210 ENGINEER MORGAN K. GUNTER
2/5/2025

CONSTRUCTION DOCUMENTS

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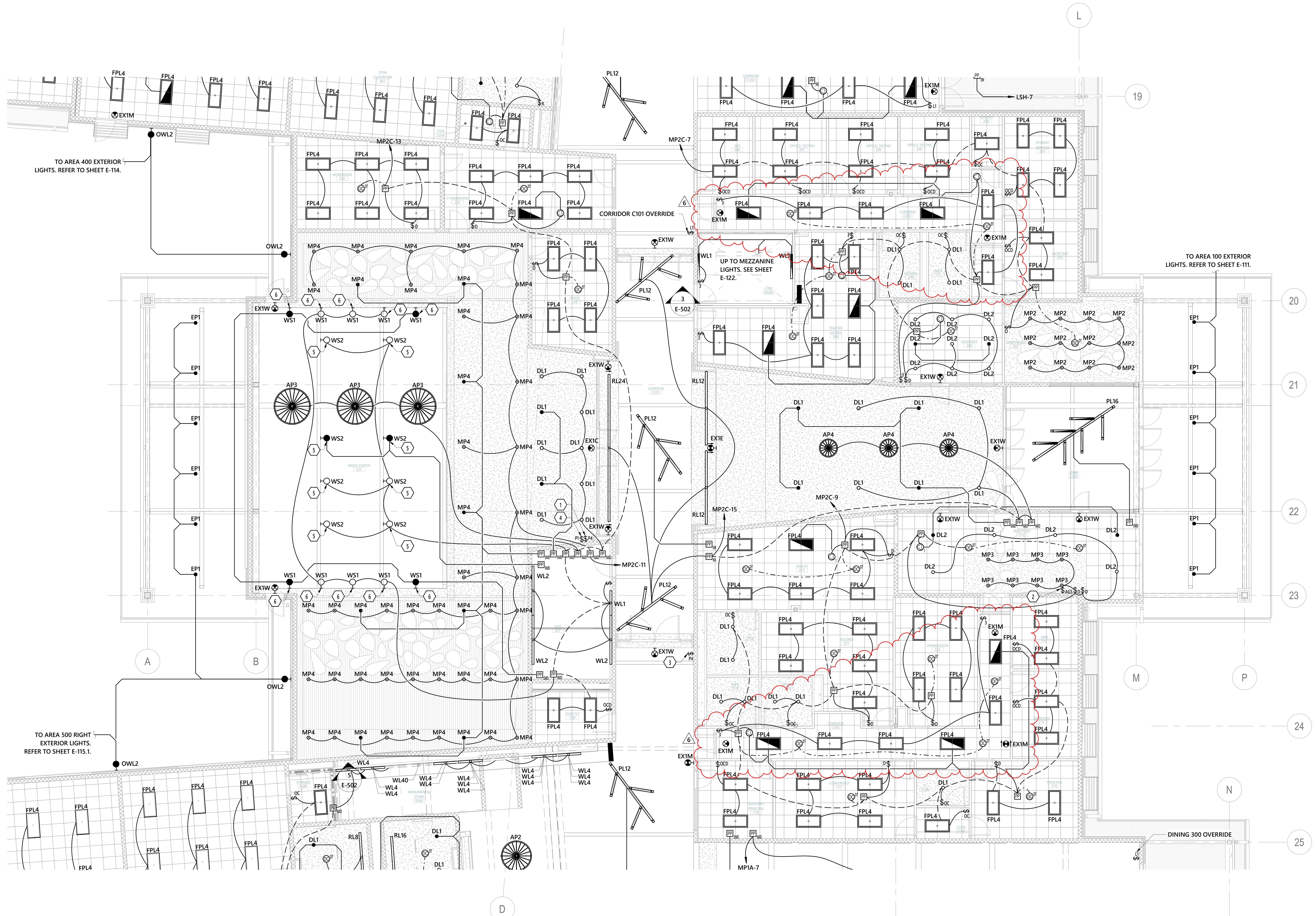
6	02/05/2025	Addendum 2

ISSUE DATE: 01/09/25
PROJECT #: 02208.000
DRAWN BY: ZAT
CHECKED BY: MKG

PARTIAL FIRST FLOOR LIGHTING PLAN - AREA 100

E-111



1 PARTIAL FIRST FLOOR LIGHTING PLAN - AREA 200
1/8" = 1'-0"

GENERAL NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS, INCLUDING, BUT NOT LIMITED TO, REFLECTED CEILING PLANS AND ELEVATIONS FOR ASSOCIATED NOTES, MOUNTING DETAILS AND EXACT LOCATIONS OF ALL LIGHTING FIXTURES.
B. PROVIDE COMMON FACEPLATE AND REQUIRED METAL INTERIOR BOX BARRIERS FOR ALL MULTIPLE GANG SWITCH LOCATIONS.
C. COORDINATE THE PLACEMENT OF ALL PENDANT, SURFACE, OR SEMI-FLUSH FIXTURES AND DEVICES WITH THE FIRE PROTECTION CONTRACTOR OR MAINTAIN NFPA 13 REQUIRED SEPARATION BETWEEN SPRINKLER HEADS AND OBSTRUCTIONS.
D. CONNECT ALL NIGHT LIGHTS (NL), EXIT SIGNS, EMERGENCY INPUT OF ALL GENERATOR TRANSFER DEVICES, AND EMERGENCY POWER PACKS SHOWN ON THIS SHEET TO EMERGENCY CIRCUIT 'LSH-13', UNLESS OTHERWISE NOTED.
E. CIRCUIT NUMBERS ARE DIAGRAMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY.
F. REFER TO SHEET E-002 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.
G. WIRE COUNTS FOR CIRCUIT CONDUCTORS ARE NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.
H. MODIFICATIONS TO NUMBER OF CONDUCTORS IN HOME RUNS IN ADDITION TO CIRCUIT INDICATED ON THIS DRAWING ARE PROHIBITED.
I. CONNECT VOLTAGE SENSING INPUT OF POWER PACKS TO LOCAL NORMAL LIGHTING CIRCUIT, UNSWITCHED.
J. ALL HALLWAY CEILING MOUNTED LIGHTING DEVICES AND HALLWAY CEILING MOUNTED LIGHTING FIXTURES ARE TO BE MOUNTE IN THE CENTER OF THE HALLWAY UNLESS OTHERWISE NOTED.
K. 0-10V DIMMING WIRING IS NOT ANNOTATED ON PLANS. PROVIDE 0-10V DIMMING WIRING AS NEEDED FOR DIMMING ZONES SHOWN ON PLANS.

KEYNOTES

1 MEDIA CENTER 223 OVERRIDE.
4 ZONES:
ZONE 1: TYPE 'DL1' DOWNLIGHTS
ZONE 2: TYPE 'MP1' PENDANTS
ZONE 3: TYPE 'WS1' SCONCES
ZONE 4: TYPE ' AP3' PENDANTS

2 LOW VOLTAGE SCENE CONTROLLER WITH FULL COLOR TOUCH SCREEN. ON/OFF/DIM CONTROLS. PASSWORD PROTECTED. CONTROLLED AREAS INCLUDING BUT NOT LIMITED TO: ALL CORRIDORS, LOBBY, AND VESTIBULES.

3 CORRIDOR C300 OVERRIDE.
4 ZONES:
ZONE 1: TYPE 'PL12' AND 'L16' PENDANTS
ZONE 2: TYPE 'DL1' DOWNLIGHTS
ZONE 3: TYPE 'AP2' PENDANTS
ZONE 4: TYPE 'WL40' AND 'WL44' WALL MOUNTED LINEARS

4 MEDIA CENTER 223 OVERRIDE.
1 ZONE:
ZONE 1: TYPE 'WS2' SCONCES

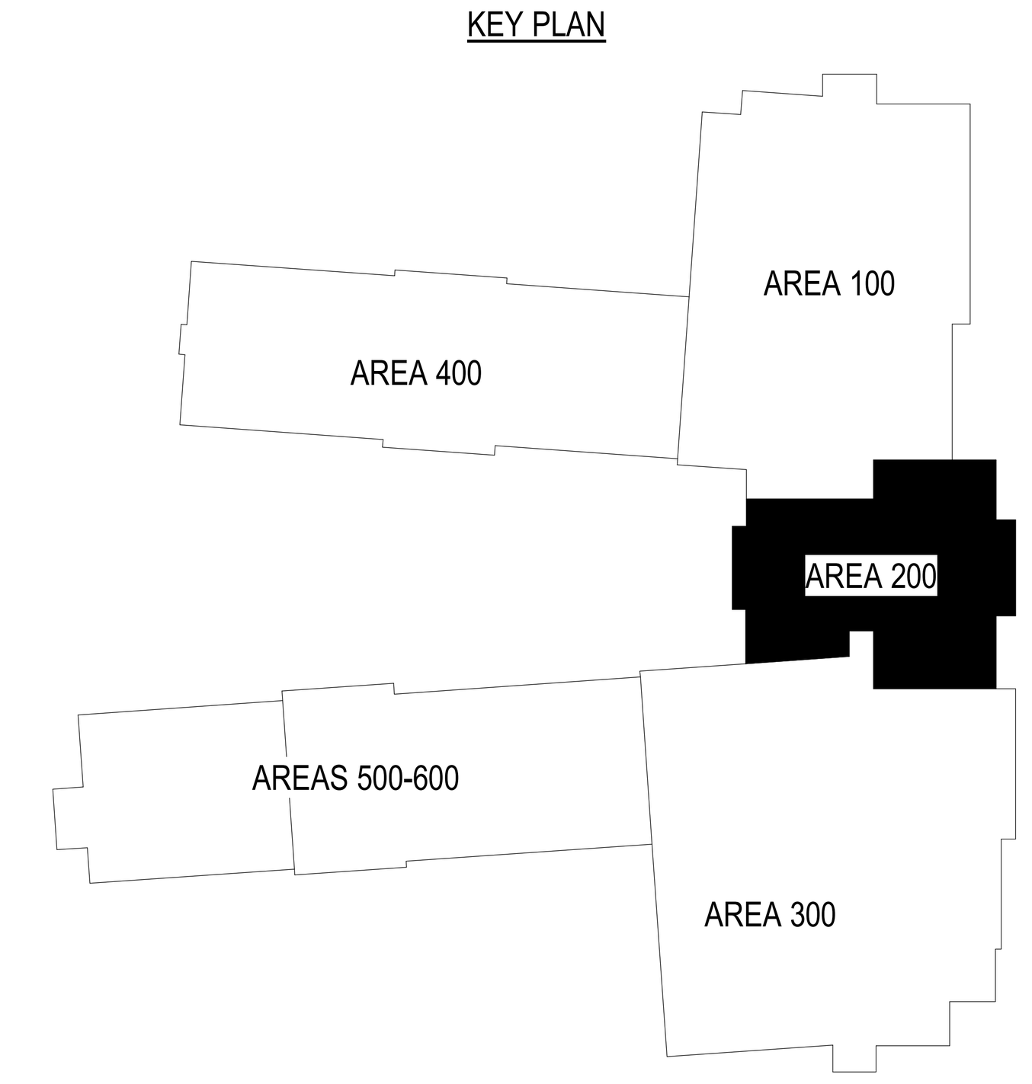
5 LIGHTING FIXTURE TO BE MOUNTED TO SIDE OF GLULAM STRUCTURE.

6 LIGHTING FIXTURE TO BE MOUNTED TO WALL AT 23'-0" AFF.

WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN



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2/5/2025

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PARTIAL FIRST FLOOR LIGHTING PLAN - AREA 200

E-112

GENERAL NOTES:

A. RECEPTACLES AND DATA OUTLETS SHALL NOT BE MOUNTED IN TRIM OF WINDOWS. LOCATED WHERE FULL WALL IS AVAILABLE.

B. COORDINATE LOCATION OF ALL FLOOR BOXES PRIOR TO ROUGH-IN. MULTIPLE BOXES IN THE SAME AREA SHALL BE NEATLY ALIGNED AND PARALLEL TO BUILDING LINES.

C. CIRCUIT NUMBERS ARE DIAGRAMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BE THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY.

D. PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAIL DRAWINGS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.

E. REFER TO SECTION 26 0519 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.

F. MODIFICATIONS TO NUMBER OF CONDUCTORS IN HOME RUNS IN ADDITION TO CIRCUITS INDICATED ON THIS DRAWING ARE PROHIBITED.

G. PROVIDE PAINT/TAPE TO INDICATE MINIMUM REQUIRED WORKING CLEARANCES FOR PANELBOARDS LOCATED OUTSIDE OF DEDICATED ELECTRICAL ROOMS ACCORDING TO NEC ARTICLE/TABLE 110.26(A)(1).

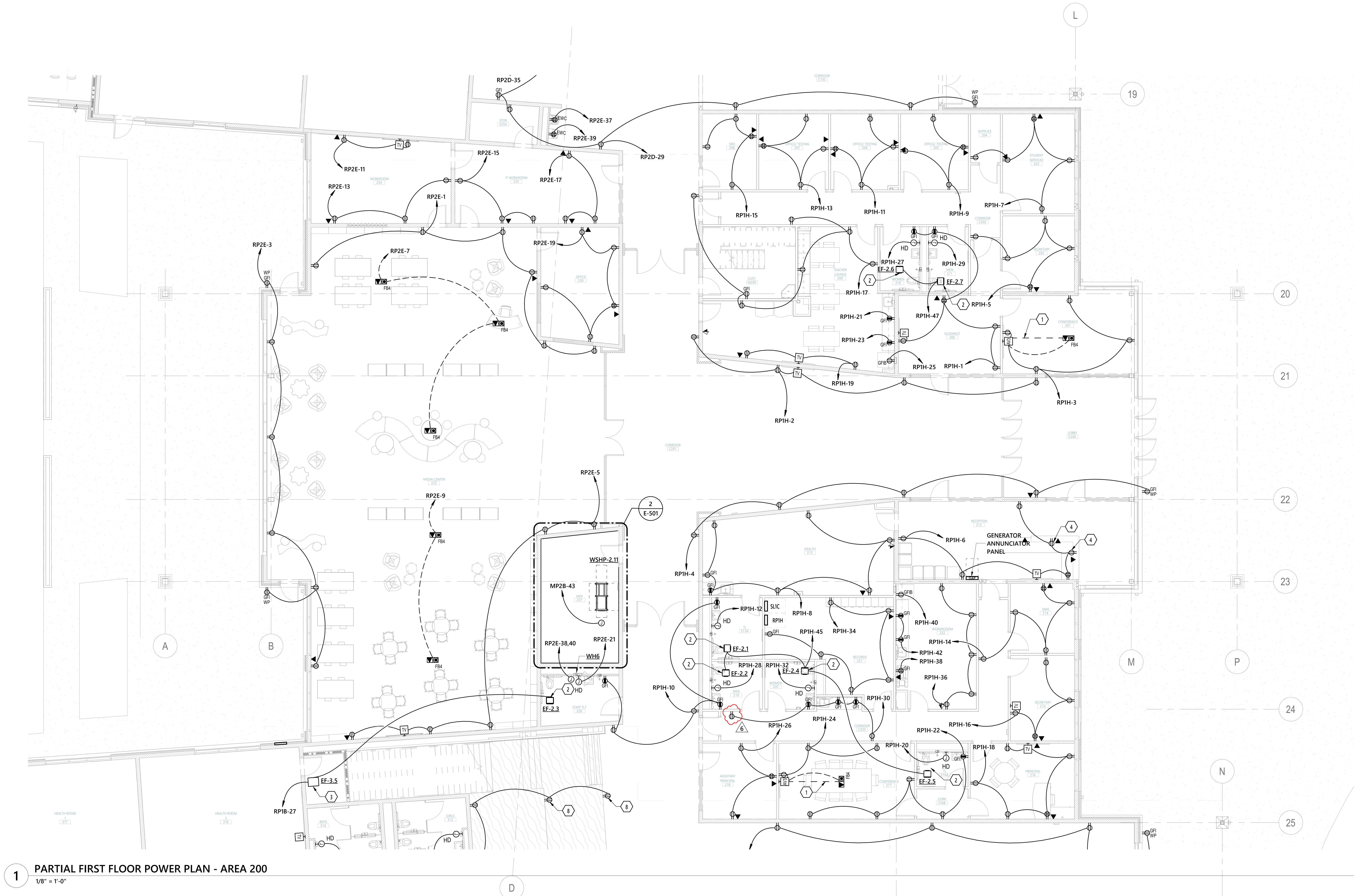
KEYNOTES

1 PROVIDE 2"C. FROM FLOOR BOX TO TV BOX IN WALL. PROVIDE WITH PULL STRING.

2 INTERLOCK FAN WITH LIGHTING CONTROLS IN THIS ROOM. PROVIDE RELAY TO INTERLOCK 277V LIGHTING CONTROLS WITH 120V FAN.

3 INTERLOCK FAN WITH LIGHTING CONTROLS IN ADJACENT RESTROOMS. PROVIDE RELAY TO INTERLOCK 277V LIGHTING CONTROLS WITH 120V FAN.

4 RECEPTACLE TO BE MOUNTED IN DESK.



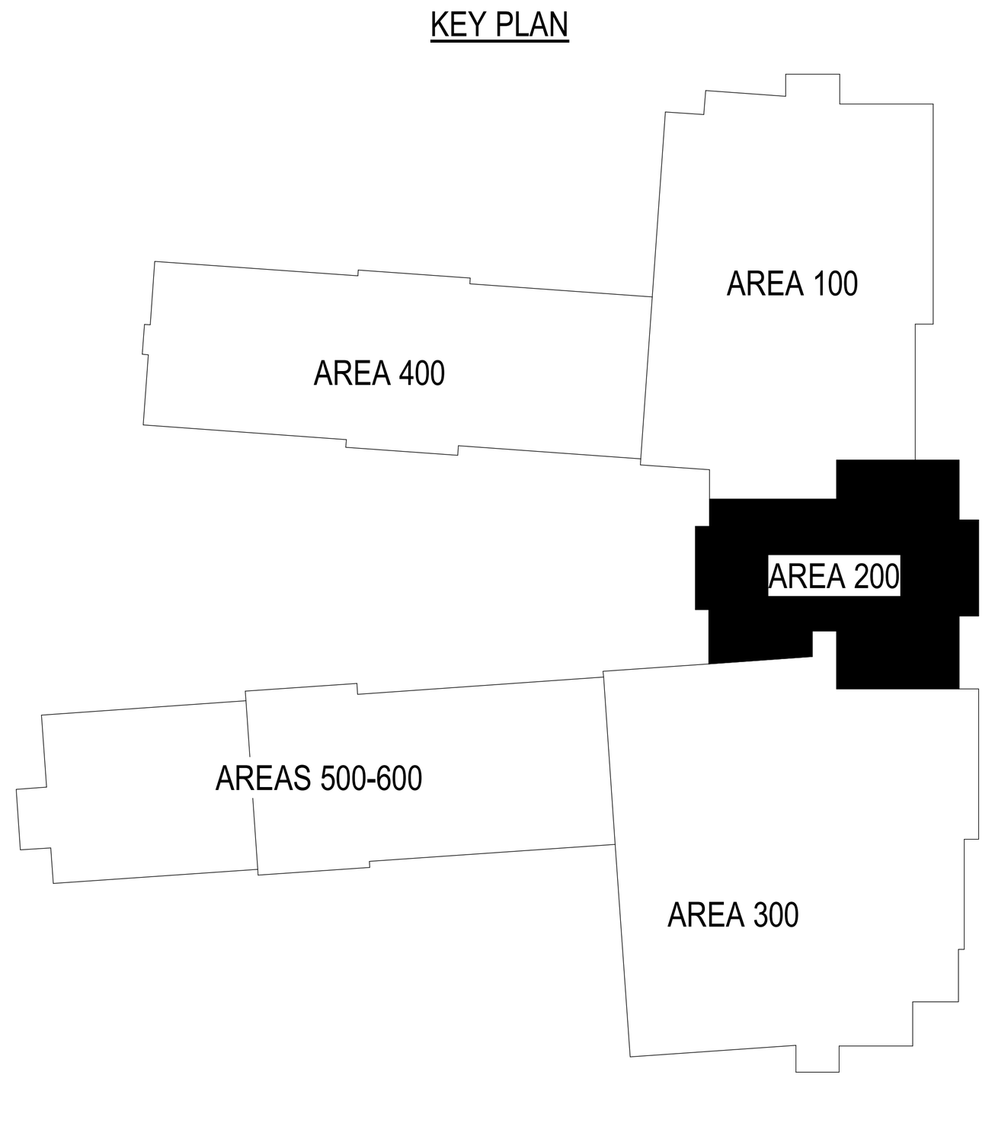
1 PARTIAL FIRST FLOOR POWER PLAN - AREA 200
1/8" = 1'-0"

REFER TO T-SERIES TECHNOLOGY PLANS FOR ADDITIONAL CONDUIT REQUIREMENTS

WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN



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PARTIAL FIRST FLOOR POWER PLAN - AREA 200

E-212

OPTIMA# 24-0049R

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FEEDER SCHEDULE FOR ALUMINUM CONDUCTORS TO SPECIFIC BREAKER SIZE

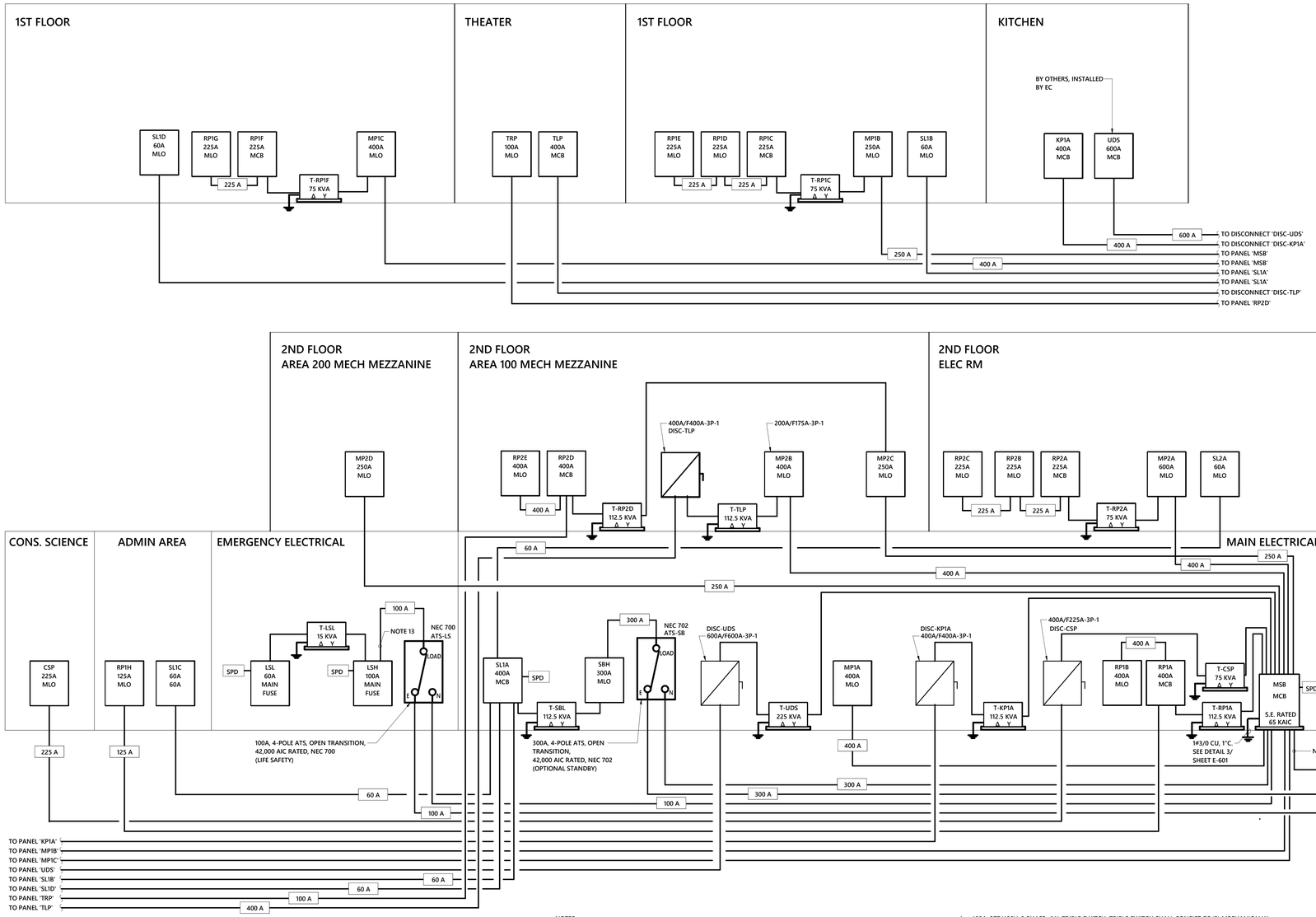
60 A	4#6 CU, 1#8 CU G, 1-1/4"C
100 A	4#1/0, 1#6G, 2"C
125 A	4#2/0, 1#4G, 2"C
225 A	4-300 KCMIL, 1#2G, 3"C
250 A	4-350 KCMIL, 1#2G, 3"C
300 A	4-500 KCMIL, 1#2G, 3-1/2"C
400 A	(2) 4-250 KCMIL, 1#1 G, 3"C
400 AS	(2) 4-250 KCMIL, 3"C
600 A	(2) 4-500 KCMIL, 1#2/0G, 3-1/2"C
2500 AS	(9) 4-500 KCMIL, 4"C

NOTES:
1.) THE CONTRACTOR SHALL MAKE EVERY PROVISION TO INSTALL ALUMINUM CONDUCTORS CORRECTLY, INCLUDING TERMINATIONS IN PANELBOARDS, DISCONNECTS, ETC. ALL TERMINALS SHALL BE LISTED SUITABLE FOR ALUMINUM. APPLY OXIDE INHIBITING PASTE TO ALUMINUM CONDUCTORS AT TERMINATIONS.

DRY-TYPE TRANSFORMER SCHEDULE

TRANSFORMER	VOLTAGE		KVA	PRIMARY		SECONDARY		
TYPE	PRIMARY	SECONDARY	RATING	BREAKER	WIRE & CONDUIT	BREAKER	WIRE & CONDUIT	SERVICE GROUND
T-4	480 V	208Y/120	15	25	3#10 CU, 1#10 CU G., 3/4"C.	60	4#6 CU, 1#8 CU G., 1-1/4"C.	#8 CU, 1"C.
T-7	480 V	208Y/120	75	125	3#2/0, 1#4G., 2"C.	225	4-300 KCMIL, 1#1/0G., 3"C.	#2 CU, 1"C.
T-8	480 V	208Y/120	112.5	175	3#4/0, 1#4G., 2-1/2"C.	400	(2) 4-250 KCMIL, 1#1/0G., 2-1/2"C.	#1/0 CU, 1"C.
T-10	480 V	208Y/120	225	350	3-600 KCMIL, 1#1G., 4"C.	700	(3) 4-350 KCMIL, 1#4/0G., 3"C.	#2/0 CU, 1"C.

NOTE: 1. HOUSEKEEPING PADS SHALL HAVE OSHA COMPLIANT, SAFETY YELLOW, EPOXY PAINT SUITABLE FOR CONCRETE. 2. ALL CONDUCTORS ARE SHOWN FOR ALUMINUM MATERIALS, UNLESS OTHERWISE NOTED.



NOTES:
1. ALL FEES ASSOCIATED WITH UTILITY COMPANY COORDINATION, INCLUDING PURCHASE/LEASE OF UTILITY TRANSFORMER, TRANSFORMER PRIMARY FEES, PAD, AND ALL ADMINISTRATIVE FEES SHALL BE INCLUDED AS PART OF THE E.C. CONTRACT. ALLOWANCE OF $25,000.00 SHALL BE ESTIMATED FOR THE UNDERGROUND TRANSFORMER SERVICE FEE.
2. PROVIDE PERMANENT PLACARD LOCATED ABOVE MAIN SERVICE DISCONNECT. PLACARD SHALL READ: EMERGENCY POWER IS LOCATED OUTSIDE OF MAIN ELECTRICAL ROOM, 200KW DIESEL GENERATOR 480V 3 PHASE.
3. PROVIDE 4" HIGH FORMED CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL GEAR.
4. 400A, 277/480V, 3 PHASE, 4W. TRIPLE SWITCH. TRIPLE SWITCH SHALL CONSIST OF (2) MECHANICALLY-INTERLOCKED MOLDED CASE CIRCUIT BREAKERS, AND (1) INDEPENDENT LOAD BANK BREAKER WITH A SHUNT TRIP, MALE CAM-STYLE INLET CONNECTORS, FEMALE CAM-TYLE OUTLET CONNECTORS, DISTRIBUTION BLOCKS AND GROUNDING TERMINALS, ALL HOUSED WITHIN A PADLOCKABLE NEMA 3R ENCLOSURE.
5. 400A QUICK CONNECT CAMLOCK CONNECTIONS FOR THE OWNER TO PROVIDE A ROLL UP STAND-BY GENERATOR.
6. 400A QUICK CONNECT CAMLOCK CONNECTIONS FOR THE OWNER TO PROVIDE A ROLL UP LOAD BANK.
7. PROVIDE DIRECTORY PER NEC 705.10 AT ALL SERVICE LOCATIONS.

1 POWER RISER DIAGRAM
NOT TO SCALE

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ELECTRICAL RISER DIAGRAM

E-701

Sheet No. 44 of 54

OPTIMA# 24-0049R

GENERAL NOTES:

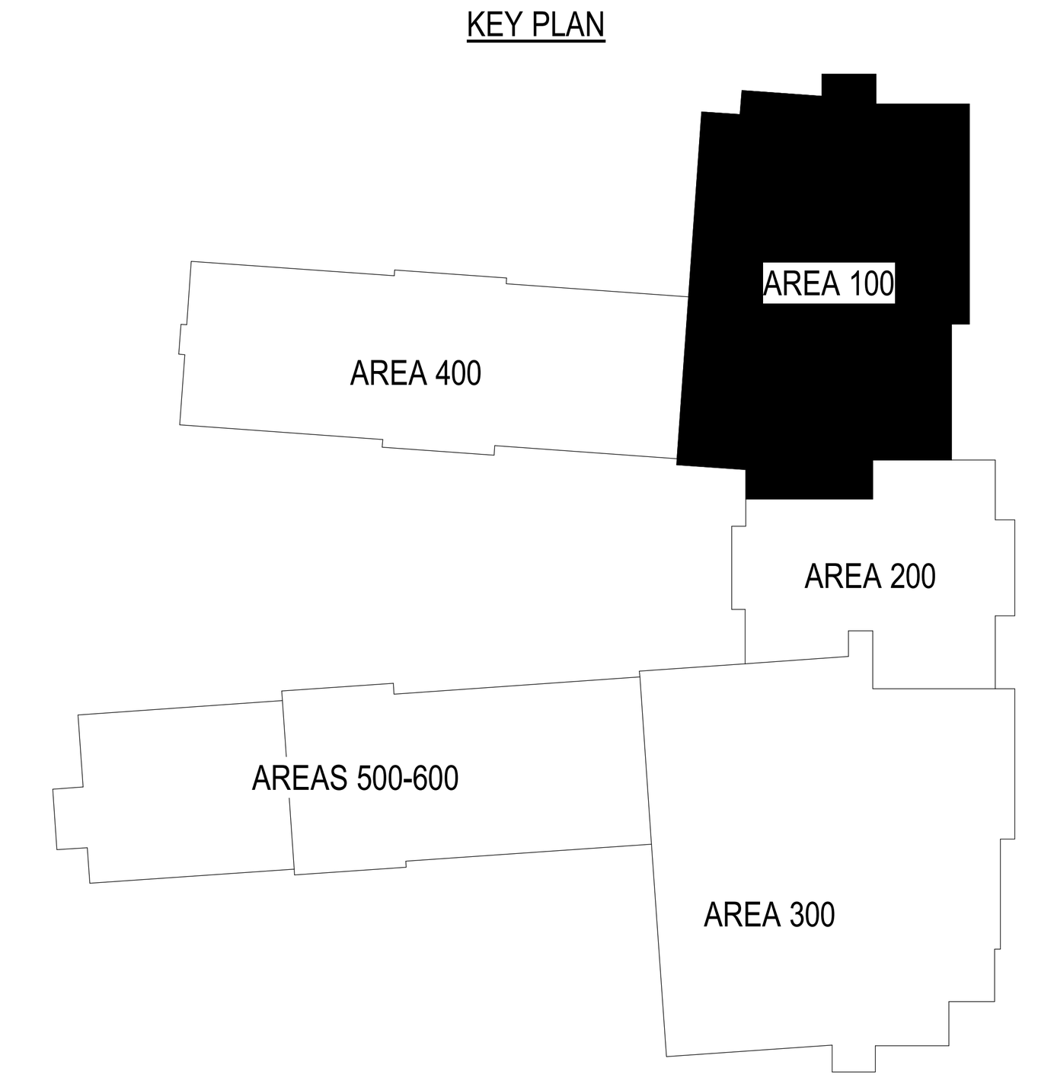
A. REFER TO DRAWING FA-001 FOR SYMBOL DESCRIPTIONS AND NOTES.

1 PARTIAL FIRST FLOOR FIRE ALARM PLAN - AREA 100
1/8" = 1'-0"

WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN



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PARTIAL FIRST FLOOR FIRE ALARM PLAN - AREA 100

FA-111

OPTIMA# 24-0049R

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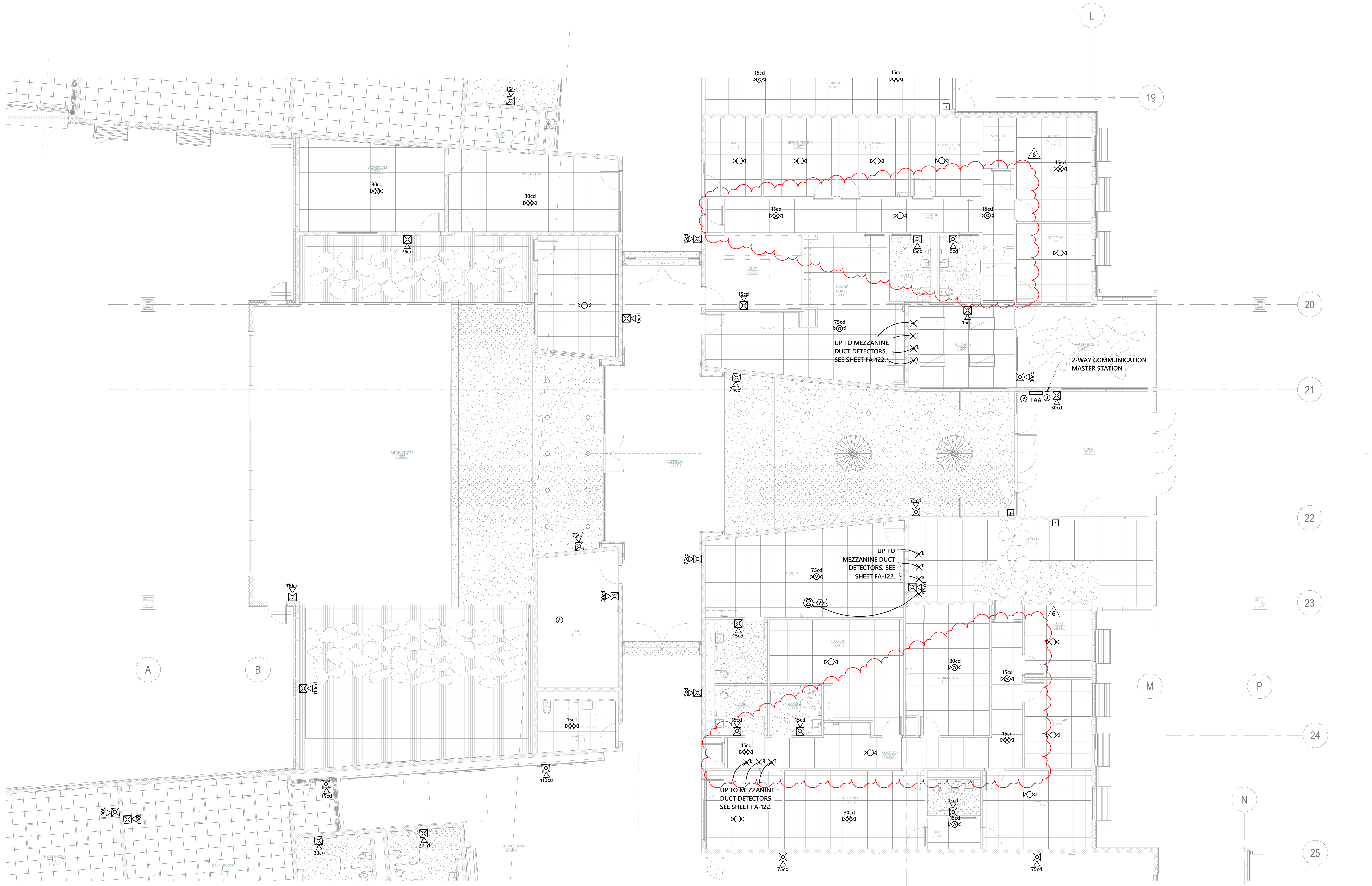
GENERAL NOTES:

A. REFER TO DRAWING FA-001 FOR SYMBOL DESCRIPTIONS AND NOTES.



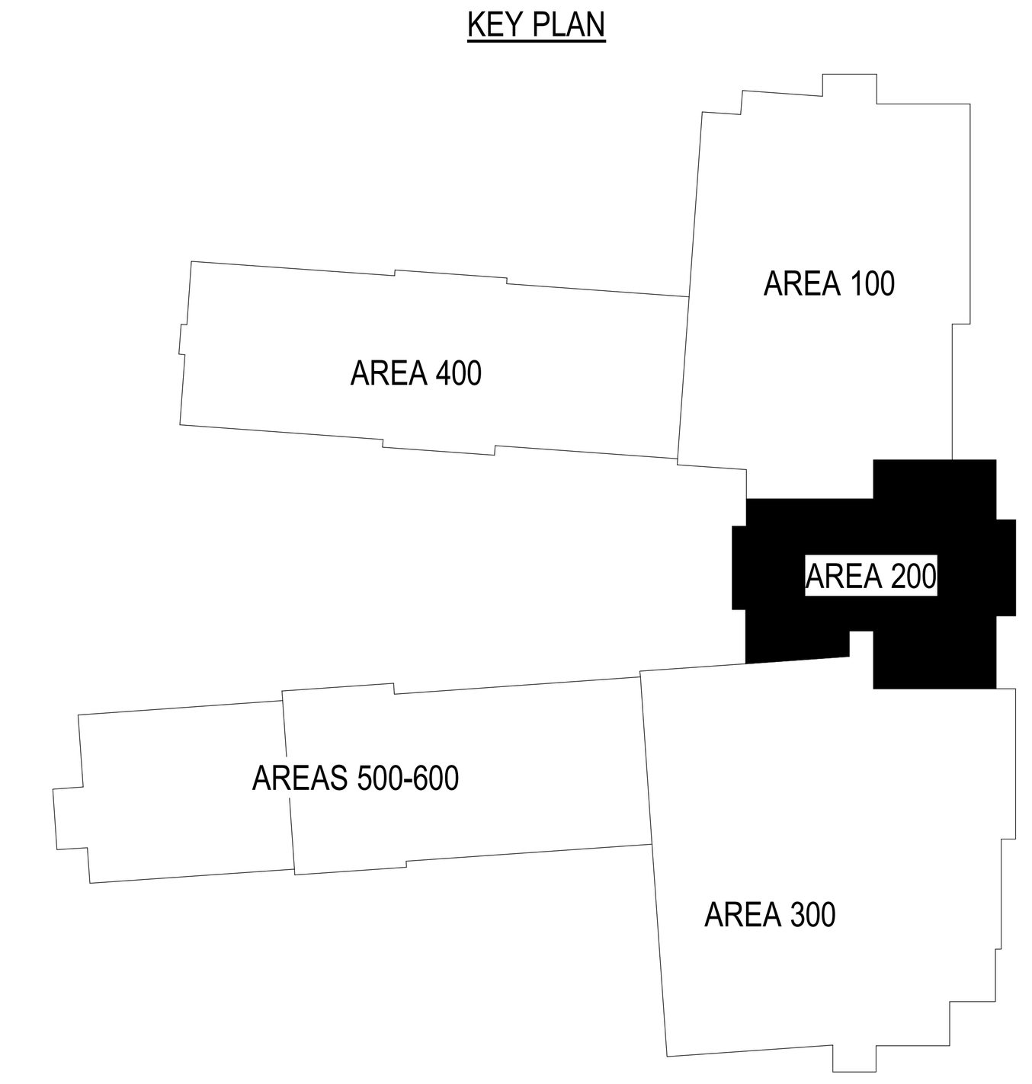
1 PARTIAL FIRST FLOOR FIRE ALARM PLAN - AREA 200

1/8" = 1'-0"

WALL LEGEND

SYMBOL	DESCRIPTION
	1 HR RATED EXIT ENCLOSURE (FIRE BARRIER)
	2 HOUR RATED WALL

KEY PLAN



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PARTIAL FIRST FLOOR FIRE ALARM PLAN - AREA 200

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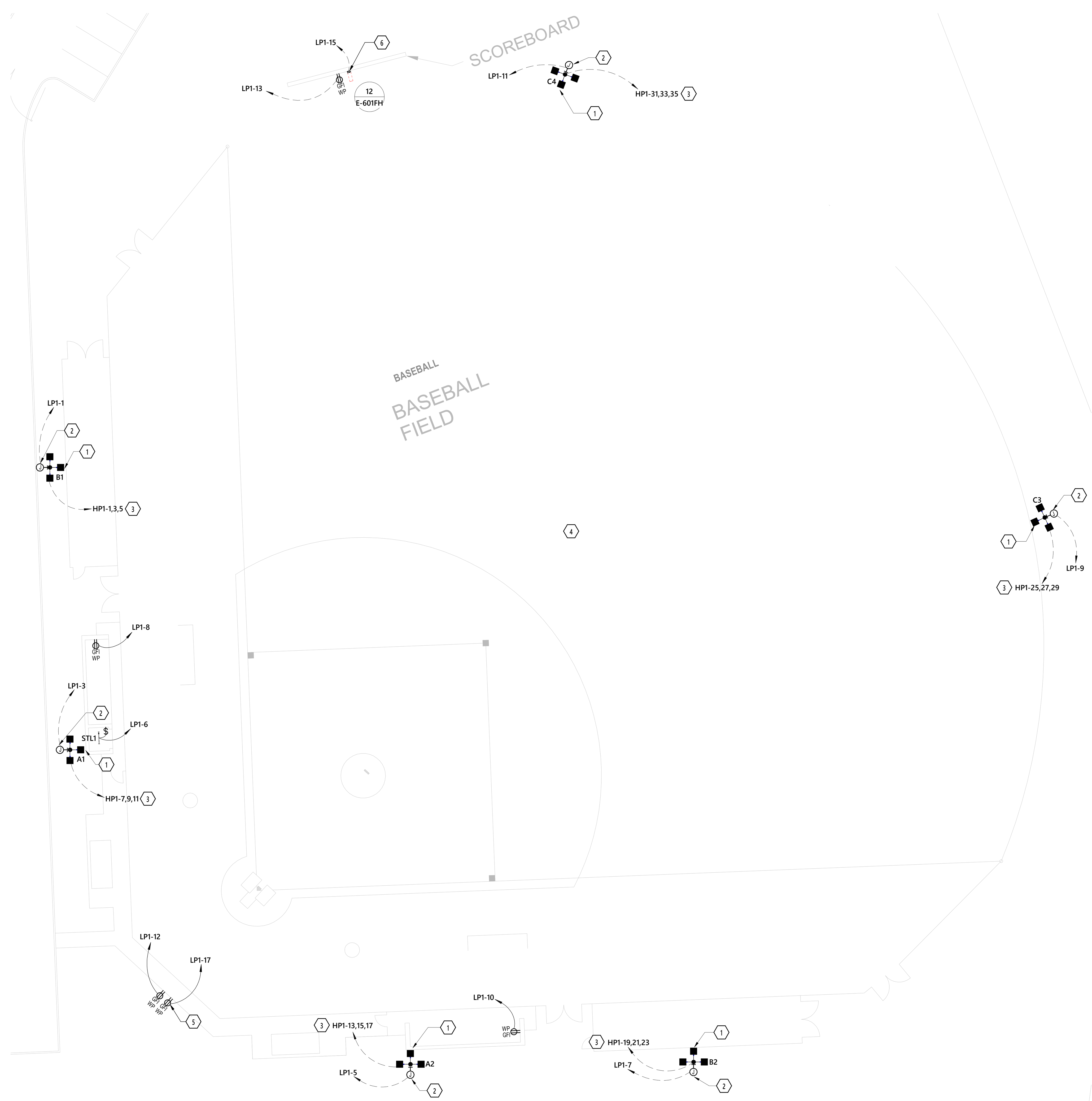

1 BASEBALL FIELD ELECTRICAL PLAN
1" = 20'-0"

GENERAL NOTES - SITE PLAN

A. ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
B. ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
C. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.
D. PROVIDE TRANSFORMER BASE AT ALL POLE MOUNTED FIXTURES, TAP 2 LEGS OF THREE PHASE FEEDER (CIRCUITS DENOTED), PROVIDE BALLAST FUSES AT TAP, AND PROVIDE BRANCH CIRCUITS TO FIXTURES.
E. CONTROL POWER WIRING MUST BE IN SEPARATE CONDUIT FROM LINE OR LOAD POWER WIRING. COMMUNICATION CABLES MUST BE IN SEPARATE CONDUIT FROM ANY POWER WIRING.
F. AVOID USE OF IN-GROUND JUNCTION/PULL BOXES WHEN POSSIBLE. IF USED, ALL WIRE CONNECTORS MUST BE UL LISTED FOR WET LOCATIONS TO PREVENT LEAKAGE CURRENT.
G. REFER TO BALLFIELD LIGHTING INSTALLATION INSTRUCTIONS FOR MORE DETAILS ON EQUIPMENT INFORMATION AND THE INSTALLATION REQUIREMENTS.

KEYNOTES

1 PROVIDE BALLFIELD LIGHTING WITH WIRELESS CONTROL-LINK CONTROLS AND MONITORING SYSTEM.
2 PROVIDE 120V CONNECTION TO LIGHTING CONTROLS CABINET. COORDINATE EXACT REQUIREMENTS WITH BALLFIELD LIGHTING CONTROLS SHOP DRAWINGS.
3 CIRCUIT THROUGH LIGHTING CONTROLS CABINET. COORDINATE EXACT REQUIREMENTS WITH BALLFIELD LIGHTING CONTROLS SHOP DRAWINGS.
4 DO NOT ROUTE BRANCH CIRCUITS OR FEEDERS ACROSS BALLFIELDS. ROUTE ALONG PERIMETER OF FIELDS.
5 PROVIDE 120V CONNECTION FOR SCOREBOARD CONTROLS. COORDINATE EXACT LOCATION OF SCOREBOARD CONTROLS TABLE WITH G.C. PRIOR TO ROUGH-IN.
6 PROVIDE 120V CONNECTION FOR SCOREBOARD POWER. ROUTE (1) 2"C. FROM SCOREBOARD TO SCOREBOARD CONTROLS TABLE FOR SCOREBOARD CONTROLS.

FIXTURES IN THE SCHEDULE BELOW SHALL BE PRICED AS ADD ALTERNATE NO. 5. BASED BID SHALL BE UNDERGROUND RACEWAY FOR FIXTURES

LIGHTING FIXTURE SCHEDULE - BALLFIELDS

TYPE	DESCRIPTION	MINIMUM LUMENS	TOTAL FIXURE WATTAGE	DRIVER	VOLTAGE	MANUFACTURER	MODEL	REMARKS
A1	LED POLE MOUNT AREA LIGHTING	560,000	4675.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (2) TLC-LED-1200 EACH MOUNTED AT 70' (2) TLC-LED-900 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
A2	LED POLE MOUNT AREA LIGHTING	560,000	4675.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (2) TLC-LED-1200 EACH MOUNTED AT 70' (2) TLC-LED-900 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
A3	LED POLE MOUNT AREA LIGHTING	364,000	3215.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (3) TLC-LED-900 EACH MOUNTED AT 60' (1) TLC-BT-575 MOUNTED AT 16' POLE: 60' HEIGHT	GALVANIZED STEEL POLE.
A4	LED POLE MOUNT AREA LIGHTING	364,000	3215.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (3) TLC-LED-900 EACH MOUNTED AT 60' (1) TLC-BT-575 MOUNTED AT 16' POLE: 60' HEIGHT	GALVANIZED STEEL POLE.
B1	LED POLE MOUNT AREA LIGHTING	802,000	6425.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (5) TLC-LED-1200 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
B2	LED POLE MOUNT AREA LIGHTING	802,000	6425.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (5) TLC-LED-1200 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
B3	LED POLE MOUNT AREA LIGHTING	802,000	6425.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (5) TLC-LED-1200 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
B4	LED POLE MOUNT AREA LIGHTING	802,000	6425.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (5) TLC-LED-1200 EACH MOUNTED AT 70' (1) TLC-BT-575 MOUNTED AT 16' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
C3	LED POLE MOUNT AREA LIGHTING	658,000	5540.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (3) TLC-LED-1200 EACH MOUNTED AT 60' (1) TLC-LED-900 MOUNTED AT 60' (2) TLC-BT-575 EACH MOUNTED AT 16' POLE: 60' HEIGHT	GALVANIZED STEEL POLE.
C4	LED POLE MOUNT AREA LIGHTING	658,000	5540.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (3) TLC-LED-1200 EACH MOUNTED AT 60' (1) TLC-LED-900 MOUNTED AT 60' (2) TLC-BT-575 EACH MOUNTED AT 16' POLE: 60' HEIGHT	GALVANIZED STEEL POLE.
F1	LED POLE MOUNT AREA LIGHTING	1,294,000	10490.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (6) TLC-LED-1500 EACH MOUNTED AT 70' (1) TLC-LED-900 MOUNTED AT 70' (2) TLC-BT-575 EACH MOUNTED AT 16'' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
F2	LED POLE MOUNT AREA LIGHTING	1,294,000	10490.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (6) TLC-LED-1500 EACH MOUNTED AT 70' (1) TLC-LED-900 MOUNTED AT 70' (2) TLC-BT-575 EACH MOUNTED AT 16'' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
F3	LED POLE MOUNT AREA LIGHTING	1,294,000	10490.0 W	REMOTE LED DRIVER	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (6) TLC-LED-1500 EACH MOUNTED AT 70' (1) TLC-LED-900 MOUNTED AT 70' (2) TLC-BT-575 EACH MOUNTED AT 16'' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.
F4	LED POLE MOUNT AREA LIGHTING	1,294,000	10490.0 W	REMOTE LED DRIVER 6	480V	MUSCO LIGHTING WISCONSIN LIGHTING LAB LITHONIA	FIXTURES: (6) TLC-LED-1500 EACH MOUNTED AT 70' (1) TLC-LED-900 MOUNTED AT 70' (2) TLC-BT-575 EACH MOUNTED AT 16'' POLE: 70' HEIGHT	GALVANIZED STEEL POLE.

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3544 US 401 S, LILLINGTON NC 27546

ENERGY STAR PARTNER

No.	Date	Description
6	02/05/2025	Addendum 2

ISSUE DATE: 01/09/25
PROJECT #: 02208.000
DRAWN BY: ZAT
CHECKED BY: MKG

BASEBALL FIELD ELECTRICAL PLAN AND BALLFIELD FIXTURE SCHEDULE

E-101FH

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END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete Masonry Units.
2. Brick Masonry Units.
3. Reinforcement and Anchorage.
4. Accessories.

B. Related Requirements:
1. Section 01 21 00 - Allowances: Allowance(s) for brick.
2. Section 04 05 03 - Masonry Mortaring and Grouting.
3. Section 04 72 00 - Cast Stone Masonry.
4. Division 05 - Metals: Structural steel, steel joists, metal fabrications, trusses, and metal framing requirements for metal anchors, bearing plates, and lintels to be placed by this Section.
5. Section 07 21 19 - Foamed-In-Place Insulation: Insulation for masonry wall cavities.
6. Section 07 62 00 - Sheet Metal Flashing and Trim: Product requirements for reglets for flashings to be placed by this Section.
7. Section 07 84 00 - Firestopping: Firestopping at penetrations of masonry work.
8. Section 07 90 00 - Joint Protection: Rod and sealant at control and expansion joints.
9. Section 07 95 13 - Expansion Joint Cover Assemblies.
10. Division 07 - Thermal and Moisture Protection: Dampproofing and waterproofing for masonry surfaces.
11. Division 08 - Openings: Opening frames installed in or anchored to masonry work.

1.2 REFERENCES

A. American Concrete Institute (ACI):
1. ACI 216.1 - Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies; 2014, Errata 2021.

B. ASTM International (ASTM):
1. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
2. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
3. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
4. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2022.
5. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023.
6. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2018a.
7. ASTM C40/C40M - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete; 2020.
8. ASTM C55 - Standard Specification for Concrete Building Brick; 2023.

9. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2023.
10. ASTM C67/C67M - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 2023a.
11. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2014.
12. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2023.
13. ASTM C142/C142M - Standard Test Method for Clay Lumps and Friable Particles in Aggregates; 2017, Reapproval 2023.
14. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2023.
15. ASTM C641 - Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregates; 2023.
16. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength; 2022.
17. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2023b.
18. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2017, Reapproval 2023.
19. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2020.
20. ASTM D2287 - Standard Classification System and Basis for Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds; 2019.
21. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
22. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
23. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2020.

C. Brick Industry Association (BIA):
1. BIA Technical Note 20 - Cleaning Brickwork; 2018.

D. Canadian Standards Association (CSA Group) (CSA):
1. CSA A82 - Fired Masonry Brick Made from Clay or Shale; 2018.

E. The Masonry Society (TMS):
1. TMS 402/602 - Building Code Requirements and Specification For Masonry Structures; 2022, with Errata.

F. Underwriters Laboratories Inc. (UL):
1. UL (FRD) - Fire Resistance Directory; Current Edition.
2. UL 263 - UL Standard for Safety Fire Tests of Building Construction and Materials; Current Edition.
3. UL 618 - UL Standard for Safety Concrete Masonry Units; Current Edition.
4. UL 723 - UL Standard for Safety Test for Surface Burning Characteristics of Building Materials; Current Edition.

1.3 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this Section.

1.4 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate masonry work with related work to include, but not limited to:
   1. Installation of anchors for windows, doors fixtures and other work requiring anchors to masonry work. door anchors.
   2. Electrical items and other built-in work.
   3. Mechanical ducts and dampers.
   4. Plumbing work items. Copper piping to be isolated from contact with cementitious materials as per code requirements.
   5. Foamed-in-place insulation and all waterproofing and air barrier design elements.

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Product Data:
   1. Submit data for masonry units and fabricated wire reinforcement, wall ties, anchors, and other accessories.
   2. Indicate initial rate of absorption for clay and shale brick.

C. Samples for Initial Selections: Two manufacturer's complete sets of color samples illustrating the full range of finishes, textures, and colors available; 4 x 4 x 1 inches in size. Include samples of full range of mortar and sealant colors for all unit masonry work. Submit for Architect’s initial selections.
   1. Masonry Unit Types requiring sample submittals include the following types:
      a. Face Brick.
      b. Decorative Concrete Masonry Units.
      c. Polished Face Decorative Concrete Masonry Units.

D. Samples for Verification: From the Architect’s initial selections, prepare and submit three samples for each selected finish, texture, and color; samples to be same product material type indicated for final Work; each masonry unit sample 12 x 12 x 1 inches; each mortar and sealant sample 3/8 x 4 inches. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

E. Manufacturer’s Certificate:
   1. Certify products meet or exceed specified requirements.
   2. Certify Aggregate used in Fire-Rated Concrete Masonry Units (CMU) is compliant with UL Fire Resistance Design Ratings requirements or alternate methods of determining fire resistance as allowed by Section 703.3 of the International Building Code.

1.6 QUALIFICATIONS

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this Section with minimum five (5) years of documented experience.

B. Installer Qualifications: Company specializing in performing Work of this Section with minimum three (3) years documented experience.

1.7 MOCKUP

A. Section 01 40 00 - Quality Requirements: Mockup requirements.

B. Exterior Wall Mockup Construction: Construction is to include all wall assembly components from exterior to interior of building. Contractor is to coordinate the various trade contractors to provide their work types in a sequenced and timely manner.

1. Refer to Mockup details in Drawings.
2. Locate mockup construction as directed by Architect.
3. Mockup Construction Removal: Request and acquire approval from Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Inspect products for damage during deliveries on site.

C. Store products in accordance with manufacturer's recommendation and to avoid damage.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Cold Weather Requirements: In accordance with TMS 402/602 when ambient temperature or temperature of masonry units is less than 40 degrees F.

C. Hot Weather Requirements: In accordance with TMS 402/602 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with provisions of TMS 402/602, except when exceeded by requirements on Drawings or other Contract Documents.
   1. Maintain one copy of each document on project site.

B. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated on Drawings.
   1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.
   2. Provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E119 or UL 263, and as acceptable to authorities having jurisdiction.
      a. Alternate methods for determining fire resistance are to be as allowed by Section 703.3 of the International Building Code.

2.2 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

C. Source Limitations for Masonry Accessories: Obtain each type of masonry accessory from single manufacturer for each product required.

2.3 MASONRY UNITS - GENERAL

A. Special Shapes: Applies to all required masonry unit types.
   1. Provide special shape units for 90 degree and 135 degree corners and lintels.

2. Provide solid units where Drawings indicate unit setting position or special shape would otherwise result in exposure of unit cores, frogs, voids, or unfinished surfaces.
3. Provide special shape units where Drawings indicate sculpted unit design (i.e. bullnose, angled, chamfered, ogee, coped water tables, sills, offsets, accents, etc.).

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. CMU Chips and Surface Deficiencies: In addition to the referenced standards regarding subject, also comply with the following more stringent requirements:
1. Do not install CMU with exposed chipped edges or corners greater than 1/2 inch and any exposed face damage or deviations greater than 1/4 inch diameter. All chips or deviations must be repaired to a surface consistent with the unblemished CMU surface and to the satisfaction of the Architect.

2.1 CONCRETE MASONRY UNITS

A. General: Provide shapes indicated and with exposed surfaces matching finish and color of exposed faces of adjacent units of same type.
1. Unit Size and Shape: Unless indicated otherwise on Drawings, modular face size to be 7-5/8 x 15-5/8 inches and depths as indicated on Drawings.
a. Bond: 1/2 Bond (Running Bond), unless indicated otherwise on Drawings.
b. Coursing: One unit and one mortar joint to equal 8 inches.
c. Mortar Joints Tooling: Refer to INSTALLATION in this Section.
2. Provide special shape units configured for corners, lintels, headers, control joint edges and for special conditions indicated on Drawings.
3. Provide bullnose units as follows:
a. Wall outside corners.
1) Exception: Provide angle-corner units for first exposed course at outside corners scheduled to receive wall base finish. Grind exposed upper portion of angle-corner unit to create a smooth transition to match the bullnose units above.
b. Wall caps, unless other cap material finish is indicated.
c. Windowsills, unless other sill material finish is indicated.

B. Fire-Rated Hollow Load Bearing and Non-Load Bearing Concrete Masonry Units (CMU):
1. ASTM C90; light weight; UL 618; ACI 216.1-14.
2. Compressive Strength: As indicated on Drawings, but not less than 2,000 psi.

C. Hollow Load Bearing Concrete Masonry Units (CMU):
1. ASTM C90; lightweight in accordance with ASTM C331 with the following modifications:
a. Organic Impurities (Color) - ASTM C40/C40M: Less than Organic Plate #1.
b. Clay Lumps (%) - ASTM C142/C142M: Less than 2%.
c. Stain Test (Index) - ASTM C641: No stain.
2. Compressive Strength: As indicated on Drawings, but not less than 2,000 psi.

D. Solid Load-Bearing Concrete Masonry Units (CMU):
1. ASTM C90; lightweight in accordance with ASTM C331 with the following modifications:
a. Organic Impurities (Color) - ASTM C40/C40M: Less than Organic Plate #1.
b. Clay Lumps (%) - ASTM C142/C142M: Less than 2%.
c. Stain Test (Index) - ASTM C641: No stain.
2. Compressive Strength: As indicated on Drawings, but not less than 2,000 psi.

E. Hollow Non-Load Bearing Concrete Masonry Units (CMU):

1. ASTM C129; lightweight.
2. Compressive Strength: As indicated on Drawings, but not less than 2,000 psi.

F. Concrete Brick Units: ASTM C55; for use in concealed from view utility applications.
1. Compressive Strength: As indicated on Drawings, but not less than 2,000 psi.
a. If concrete brick units are used in an assembly with other concrete masonry units, match compressive strength of other concrete masonry units.

G. Decorative Concrete Masonry Units:
1. Basis of Design:
a. Oldcastle - Echelon.
b. Johnson Concrete Products – Prestige Masonry Architectural Block Series
2. ASTM C90; normal weight.
3. Compressive Strength: Not less than 3,000 psi.
4. Sizes and Shapes: As indicated on the Drawings.
5. Integral water repellant: Concrete Mansory Units must include an integral water repellant admixture at the time of production.
6. Bond: 1/2 Bond, unless indicated otherwise on Drawings.
7. Coursing: One unit and one mortar joint to equal 8 inches.
8. Mortar Joints Tooling: Refer to INSTALLATION in this Section.
9. Finish: All surfaces exposed-to-view are to be uniform in color and appearance. Damaged or chipped corners or faces are unacceptable.
10. Where indicated on Drawings, provide the following:
a. Split face.
b. Smooth face chamfered sill
11. Unit Color:
a. As selected by Architect from manufacturer's full range.
12. Mortar Color: Colored mortar for each masonry unit color indicated.
a. As selected by Architect from manufacturer's full range.
13. Mortar Color: Colored mortar for each masonry unit color indicated.
a. As selected by Architect from manufacturer's full range.

H. Cast Stone Masonry: Refer to Section 04 72 00 - Cast Stone Masonry.

2.2 BRICK MASONRY UNITS

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units of same type:
1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, and lintels.
3. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
5. For Soldier Course applications, provide shapes that produce coursing pattern and unit size as indicated on Drawings.

B. Face Brick Modular Size: ASTM C216, Type FBS, Grade SW.
1. Size: 2-1/4 x 3-5/8 x 7-5/8 inches.
2. Unit Compressive Strength: 3,000 psi minimum, unless indicated otherwise on Drawings.
a. Measured in accordance with ASTM C67/C67M.

b. As determined by average of five (5) brick method; and no individual brick less than 2,500 psi.

3. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C67/C67M.
4. Efflorescence Rating: Rating to be "not effloresced" in accordance with ASTM C67/C67M or rating to be "slightly effloresced" in accordance with CSA A82.
5. Bond: 1/2 Bond (Running Bond); unless indicated otherwise on Drawings.
6. Coursing: Three units and three mortar joints to equal 8 inches.
7. Mortar Joint Tooling: Refer to INSTALLATION in this Section.
8. Basis of Design: Subject to compliance with requirements, provide face brick with physical and visual characteristics comparable to the following Basis of Design units, and as approved by Architect:
   a. Face Brick - BRK1.
      1) Basis of Design and Color:
         a) Palmetto: Pewter
      2) Mortar Color: Colored mortar.
         a) As selected by Architect from manufacturer's full range.

C. Building (Common) Brick: ASTM C62, Grade SW; solid units; for use in concealed from view utility applications.
1. Compressive Strength: 3,000 psi minimum, unless indicated otherwise on Drawings.
   a. Measured in accordance with ASTM C67/C67M.
   b. As determined by average of five (5) brick method; and no individual brick less than 2,500 psi.
2. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C67/C67M.
3. Efflorescence Rating: Rating to be "not effloresced" in accordance with ASTM C67/C67M or rating to be "slightly effloresced" in accordance with CSA A82.

2.3 ACCESSORIES

A. Manufacturers: Reinforcement and anchorage materials.
1. Hohmann & Barnard, Inc.
2. Wire-Bond.
3. Blok-Lok Limited.

B. Mortar and Grout: As specified in Section 04 05 03 - Masonry Mortaring and Grouting.

C. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength, deformed billet bars, uncoated finish.

D. Reinforcing Steel Rebar Positioners (Z-shaped wire bridges cell of block while bent ends rest on block shell:
1. Basis of Design: Hohmann & Barnard, Inc - HB RB Rebar Positioner.
2. Wire (Carbon Steel): Cold-drawn steel wire conforming to ASTM A1064/A1064M.
3. Wire Diameter: 9 gauge (.148 inch).
4. Tensile Strength: 80,000 psi.
5. Yield Point - 70,000 psi minimum.
6. Hot-Dip Galvanized after fabrication: ASTM A153/A153M (1.5 oz/ft).

E. Single Wythe Joint Reinforcement: Ladder type; ASTM A951/A951M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B; 0.1875 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
1. Basis of Design: Hohmann & Barnard, Inc - HB 220 Ladder-Mesh.

F. Multiple Wythe Joint Reinforcement: Ladder type; ASTM A951/A951M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B; 0.1875 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
   1. Basis of Design: Hohmann & Barnard, Inc - HB 220 Ladder-Mesh.

G. Strap Anchors: Zee bent steel shape. 1-1/2 x 16 inches size x 1/4 inch thick. Hot dip galvanized after fabrication to ASTM A153/A153, Class B.
   1. Basis of Design: Hohmann & Barnard, Inc - HB 344 Rigid Partition Anchor.

H. Cavity Wall Joint Reinforcing / Wall Ties: Ladder type, 0.1875 inch side rods with 0.148 inch cross rods; eye and pintle type anchors, 0.188 inch wire with compressed pintle legs; seismic clip to continuous rod in veneer, 0.1875 inch rod. All, ASTM A951/A951M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B.
   1. Basis of Design: Hohmann & Barnard, Inc. - HB 265 S.I.S Ladder -2X Hook Anchor and Seismic Interlock System.
   2. Where coursing of masonry veneer and structural masonry is not dimensionally aligned, provide joint reinforcing and wall tie system that allows for variations in alignment, up to 2-1/4 inch.
   3. Soldier Course Masonry Veneer: Due to the vertical joint condition, anchor system must turn vertical to accommodate joint.
      a. Base Plate: ASTM A1008/A1008M carbon steel plate, 16 gauge thick x 2 inches wide with 1 inch bend. Hot dip galvanized to ASTM A153/A153M, Class B.
      b. Wire Tie: ASTM A1064/A1064M carbon steel, 0.1875 inch wire. Hot dip galvanized to ASTM A153/A153M, Class B.
      c. Basis of Design: Hohmann & Barnard, Inc. - HB BL-5407.

I. Wall Ties: ASTM A1064/A1064M; steel wire 0.1875 inch diameter, eye and pintle type. ASTM A153/A153M, Class B hot dip galvanized after fabrication.

J. Wall Ties (For Attachment to Metal Studs): Two-piece type; ASTM A1008/A1008M, 14 gage steel anchors; 0.1875 inch diameter wire ties. ASTM A153/A153M, Class B hot dip galvanized after fabrication.

K. Wall Ties (For Attachment to Structural Steel): Two-piece type; 0.25 inch continuous steel weld-on anchors, 8 feet total length, with 3/8 inch offsets spaced 8 inches OC.; 0.1875 inch diameter wire ties. ASTM A153/A153M, Class B hot dip galvanized after fabrication.

L. Wall Ties (For Attachment to Concrete Walls): Two piece type; ASTM A1008/A1008M, 18 gauge steel imbedded dovetail anchors, 10 feet total length, with foam insert; 0.1875 inch diameter wire ties. ASTM A153/A153M, Class B hot dip galvanized after fabrication.

M. Through-Wall Flashing and Counter Flashing: Self adhering stainless steel fabric flashing; width of roll to suit application; with preformed end dams, and inside and outside corners.
   1. Thickness:
      a. Membrane - 0.040 inch (40 mil).
      b. Stainless steel - 0.003 inch (3 mil); Type 304.
   2. Tensile Strength - ASTM D412C: 100.000 psi, minimum.
   3. Puncture Resistance - ASTM E154: 2,500 psi, minimum.
   4. Peel Strength of Adhesive Bonds - ASTM D903: Not less than 103 lbs/ft.
   5. Fire Resistance - ASTM E84: Pass.
   6. Mold Resistance - ASTM D3273: Pass.
   7. Basis of Design: Hohmann & Barnard, Inc. - Mighty-Flash, SA Flashing.

N. Termination Bar at Top of Through-Wall Flashing: Type 304, stainless steel type, 1 inch x 8 feet x 1/8 inch thick.

1. At all locations where top edge of through-wall flashing is not indicated to be imbedded into back-up masonry wall, install continuous Termination Bar along top edge using stainless steel fasteners at 8 inches OC., preventing pull-out. Apply sealant continuously along top edge of termination bar and flashing assembly to seal against water penetration behind top of through-wall flashing assembly.
2. Basis of Design: Hohmann & Barnard, Inc.

O. Metal Flashing Drip Edge Plate: Stainless Steel Flashing: ASTM A666, Type 304, soft temper; 26 gauge (0.0179 inch) thick, factory formed hemmed drip edge configuration; finish 2D (dull).
1. Basis of Design: Hohmann & Barnard, Inc. - HB Drip Edge Plate.
2. Length: Not less than 8 feet long.
3. Width: As indicated on Drawings, but not less than 3 inches wide.
4. Provide factory preformed Inside Corners, Outside Corners and End Dams.

P. Preformed Control and Expansion Joints: Extruded polyvinyl chloride material conforming with ASTM D2287. Furnish with corner and tee accessories. Fuse joints.
1. Tensile Strength - ASTM D412: 2200 psi.
2. Ultimate Elongation - ASTM D412: 350 percent.
3. Shore A Hardness - ASTM D2240: 85 (+ or – 5).
4. Low Temp Brittleness - ASTM D746: -35 degrees C.

Q. Joint Filler: Closed cell rubber (polychloroprene) oversized 50 percent to joint width; self-expanding; width indicated by maximum lengths.

R. Cavity Drainage Material:
1. Open polyethylene or polypropylene mesh; thickness as required to fill cavity space; 10 inches high with 7 inches deep dovetail notches at top; designed to allow cavity drainage and prevent collection and damming effect of mortar droppings in cavity.

S. Weeps: Preformed corrugated polypropylene cell vents; conforming to ASTM D2240, ASTM D790B, ASTM D638, and ASTM D1238B standards.
1. Basis of Design: Hohmann & Barnard, Inc. - HB Quadro Vent.
2. Size: 2-1/2 x 3-1/2 inches size, 3/8 inch thick.
3. Color: Grey.

T. Cavity Vents: Same material as weeps.

U. Masonry Cleaning Solution: Non-acidic and not harmful to masonry or adjacent materials.
1. Manufacturers:
   a. EaCo Chem., Inc. - NMD 80 New Masonry Detergent.
   b. PROSOCO - Sure Klean Vana Trol.
2. Basis of Design: PROSOCO - Sure Klean Vana Trol.

V. Steel Lintels, Windowsill Supports, and Other Steel Supports: Refer to Section 05 50 00 - Metal Fabrications. Size and configuration as indicated on Drawings. All exterior steel components to be hot dip galvanized per Section 05 50 00.

W. Parging Material: Light weight mortar finish coat.
1. Basis of Design: Sika Corporation - SikaQuick Smooth Finish.
2. One component; polymer modified mortar; compressive strength of 2,000 psi, minimum at 28 days; tension adhesive strength of 250 psi, minimum at 28 days.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify field conditions are acceptable and are ready to receive work.

C. Verify items provided by other Sections of work are properly sized and located.

D. Verify built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this Section.

B. Prepare materials to be installed and equipment used during installation.

C. Direct and coordinate placement of metal anchors supplied to other Sections.

D. Provide protection coverings to protect adjacent and surrounding work from damage and mortar and grouting splatters/droppings.

E. Furnish temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent support.

F. Wet clay and shale brick before laying when initial rate of absorption is greater than 30 grams when tested in accordance with ASTM C67/C67M.

3.3 INSTALLATION

A. Protection Against Water Infiltration: Protect tops of masonry work with waterproof coverings secured in place without damaging masonry. Provide coverings where masonry is exposed to weather when work is not in progress.

B. Establish lines, levels, and coursing indicated. Protect from displacement.

C. Maintain masonry courses to uniform dimension. Form bed and head joints of uniform thickness.

D. Placing and Bonding:
   1. Lay solid masonry units in full bed of mortar, with full head joints.
   2. Lay hollow masonry units with face shell bedding on head and bed joints.
   3. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
   4. Remove excess mortar as work progresses.
   5. Interlock intersections and external corners.
   6. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment is required, remove mortar, and replace.
   7. Perform job site cutting of masonry units with proper tools to assure straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
   8. Isolate masonry from vertical structural framing members with movement joint.
   9. Isolate top of masonry from horizontal structural framing members and slabs or decks with compressible joint filler.

E. Mortar Joints Finishing:
   1. General:
      a. Mortar joints to be of consistent execution with consistent depth and width. Strike vertical joints first, then strike horizontal joints. This provides a continuous horizontal joint (uninterrupted by vertical joints) and is the required appearance.

b. Mortar joints at bullnose corners are to be continuously tooled around corner and to be consistent in appearance with the straight-run joints.
c. Clean inside corner joints free of excess mortar and finish.

2. Concave Tooling: Use convex steel tool of diameter 1/4 inch greater than joint width.
   a. Application: All locations unless indicated otherwise in this Section or on Drawings.
   b. Diameter Exception: For walls not indicated to receive parging or plaster in the following areas, use convex tool of 2 inch diameter (such as PVC pipe) for tooling masonry wall joints. The intent is to comply with common local Health Department requirements by minimizing the tooled joint depth.:
      1) Kitchen Areas.
      2) Food Serving Areas.
      3) Dishwashing Areas.
      4) Food Storage Areas.
      5) Kitchen Office Areas.
      6) Kitchen Toilet and Locker Areas.
      7) Dining Areas.
3. Flush-Cut Joints: Cut mortar joints flush with face of masonry units; no tooling.
   a. Applications:
      1) Masonry walls indicated to receive parged wall surface coat.
      2) Masonry walls indicated to receive direct applied plaster finish, dampproofing, or waterproofing materials.
      3) Behind resilient base locations, cut mortar joints flush with face of masonry units and only where concealed behind the resilient base application. Coordinate with approved resilient base height.
4. Where masonry wall is constructed of vertically scored CMU, joint tooling to be recessed to same depth as CMU manufactured score.

F. Weeps: Furnish weeps in outer wythe at 24 inches OC. horizontally above through-wall flashing, above shelf angles and lintels and at bottom of walls.

G. Cavity Wall: Do not permit mortar to drop or accumulate into cavity air space or to plug weeps.
1. Install cavity drain material continuously at bottom of each cavity above through-wall flashing.
2. At foundation and below grade locations, don't allow debris or soil to collect and remain in the cavity prior to installing the cavity materials as indicated on Drawings. Ensure that the cavity is free of any debris or soil prior to installing cavity materials as indicated on Drawings.

H. Joint Reinforcement and Anchorage - Single Wythe Masonry:
1. Install horizontal joint reinforcement 16 inches OC.
2. Place masonry joint reinforcement in first horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
3. Place joint reinforcement continuous in first joint below top of walls.
4. Lap joint reinforcement ends minimum 6 inches.
5. Reinforce joint corners and intersections with strap anchors 16 inches OC.

I. Joint Reinforcement and Anchorage - Multiple Wythe Unit Masonry:
1. Install horizontal joint reinforcement 16 inches OC.
2. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
3. Place joint reinforcement continuous in first and second joint below top of walls.
4. Lap joint reinforcement ends minimum 6 inches.

5. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

J. Joint Reinforcement and Anchorage - Masonry Veneer (where no cavity indicated on Drawings) (Interior walls only; exterior walls must have cavity for drainage.):
1. Install horizontal joint reinforcement 16 inches OC.
2. Place masonry joint reinforcement in first horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
3. Place joint reinforcement continuous in first joint below top of walls.
4. Lap joint reinforcement ends minimum 6 inches.
5. Embed wall ties in masonry backing to bond veneer at maximum 16 inches OC vertically and 16 inches OC horizontally. Place wall ties at maximum 8 inches OC vertically within 8 inches of jamb of wall openings.
6. Reinforce joint corners and intersections with strap anchors 16 inches OC.

K. Joint Reinforcement and Anchorages - Cavity Wall Masonry:
1. Install horizontal joint reinforcement 16 inches OC.
2. Place masonry joint reinforcement in first horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
3. Place joint reinforcement continuous in first joint below top of walls.
4. Lap joint reinforcement ends minimum 6 inches.
5. Attach to structural steel members. Embed anchorages in every second block joint.
6. Reinforce joint corners and intersections with strap anchors 16 inches OC.

L. Masonry Through-Wall Flashings:
1. Solid substrate to be continuous below and behind flashing material.
2. Install metal flashing drip edge plate with sealed lap joints and preformed corners and end dams in accordance with manufactures recommendations. Adhere through-wall flashing continuously along top of drip edge plate as indicated on Drawings and with adhesive compatible with both surface types.
3. Whether or not specifically indicated, install masonry through-wall flashing to divert water to exterior at all locations where downward flow of water would otherwise be interrupted.
4. Extend through-wall flashings horizontally through outer wythe at foundation walls, above ledge or shelf angles and lintels, under parapet caps and at bottom of walls, and terminate bottom and top edges as indicated on Drawings.
    a. Unless indicated otherwise on Drawings, extend vertical flashing portion a minimum of 8 inches above lower flashing portion that diverts water to exterior.
        1) Self-Adhering Flashing (when indicated):
            a) Terminate top edge with continuous termination bar and sealant.
            b) Terminate bottom edge at no more than 1/4 inch from exterior face of masonry. For steel support lintels and ledges, terminate bottom edge of flashing at steel support edge.
        2) Non-Self-Adhering Flashing (when indicated):
            a) Terminate top edge by embedding top edge into masonry joint with a minimum of 1-1/2 inches embedment and seal.
                (1) Exception: Only if indicated on Drawings in specific construction locations, top edge to be terminated with termination bar and sealant.
            b) Terminate bottom edge at no more than 1/4 inch from exterior face of masonry. For steel support lintels and ledges, terminate bottom edge at steel support edge.
5. Lap end joints minimum 6 inches and seal watertight with sealant recommended by flashing manufacturer.

6. Form and configure flashing as to drain moisture along its drainage path to the exterior of the wall, preventing moisture migration into the wall and cavity.
7. Turn flashing, fold, and seal at corners, bends, and interruptions. Use preformed end dams, and inside and outside corners when indicated.

M. Lintels:
1. Install loose steel and reinforced unit masonry lintels over openings as indicated.
2. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled or indicated.
3. Do not splice reinforcing bars.
4. Support and secure reinforcing bars from displacement.
5. Place and consolidate grout fill without displacing reinforcing.
6. Allow masonry lintels to attain specified strength before removing temporary supports.
7. Maintain minimum 8 inches bearing on each side of opening.

N. Grouted Components:
1. Reinforce bond beam as indicated on Drawings.
2. Lap splices for reinforcing bars to be as required by code and Drawings and as related to the bar diameters.
3. Support and secure reinforcing bars from displacement.
4. Place and consolidate grout fill without displacing reinforcing.
5. At bearing locations, fill masonry cores with grout for minimum 12 inches both sides of opening.

O. Reinforced Masonry:
1. Lay masonry units with core vertically aligned and clear of mortar and unobstructed.
2. Place reinforcement bars as indicated on Drawings.
3. Splice reinforcement in accordance with Section 03 20 00.
4. Support and secure reinforcement from displacement.
5. Place and consolidate grout fill without displacing reinforcing.
6. Place grout in accordance with TMS 402/602 Specification for Masonry Structures.

P. Control and Expansion Joints:
1. Install control and expansion joints at locations indicated on Drawings and not to exceed the following maximum spacing:
   a. Exterior Walls: 24 feet on center and within 24 inches on one side of each interior and exterior corner.
   b. Interior Walls: 24 feet on center.
   c. At changes in wall height.
2. Do not continue horizontal joint reinforcement through expansion joints.
3. Install preformed control and expansion joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
4. Size control joint in accordance with Section 07 90 00 for sealant performance.
5. Form expansion joint by omitting mortar and cutting unit to form open space.

Q. Built-In Work:
1. As work progresses, install built-in metal door and glazed frames, window frames, anchor bolts, plates, and other items to be built-in the work and furnished by other Sections.
2. Install built-in items plumb and level.
3. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
4. Do not build into masonry construction organic materials or other materials that are subject to deterioration.

3.4 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, sleeves, and other construction requirements indicated. Coordinate with other Sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

C. Core drill masonry walls for pipe and sleeve penetrations, regardless of size. Do not break out masonry for penetration access.

D. All ductwork and large sleeve penetrations wider than 16 inches must have at least 4 inches solid masonry on both sides, supporting steel lintel or bond beam over opening.

3.5 PARGING - WALL SURFACE COAT

A. Application:
   1. Kitchen Areas.
   2. Food Serving Areas.
   3. Dishwashing Areas.
   4. Food Storage Areas.
   5. Kitchen Office Areas.
   6. Kitchen Toilet and Adjacent Locker Areas.

B. Prepare material and apply in accordance with manufacturer's instructions and as follows:
   1. Dampen masonry walls prior to parging. Substrate should be Saturated Surface Dry (SSD).
   2. Parge masonry walls with number of coats recommended by manufacturer to achieve the total dry thickness. Scarify preceding coat to ensure bond to subsequent coat.
   3. Total Dry Thickness: Minimum indicated; additional thickness as required to produce a uniformly flat and smooth wall surface.
      a. 1/8 inch thick.
   4. Steel trowel surface smooth and flat with a maximum surface variation of 1/16 inch in 4 feet.
   5. Where edge of parging is exposed, parging edge is to be straight and beveled smooth to 45 degrees angle back to substrate.
   6. Sand surface as needed. Finish as required for paint or other scheduled finish.

3.6 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Alignment of Columns and Pilasters: 1/4 inch.

C. Maximum Variation from Unit to Adjacent Unit: 1/16 inch.

D. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

E. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

F. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

G. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

H. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

I. Maximum Variation for Steel Reinforcement:
   1. Install reinforcement within the tolerances specified in TMS 402/602 for foundation walls.

2. Plus or minus 1/2 inch when distance from centerline of steel to opposite face of masonry is 8 inches or less.
3. Plus or minus 1 inch when distance is between 8 and 24 inches.
4. Plus or minus 1-1/4 inch when distance is greater than 24 inches.
5. Plus or minus 2 inches from location along face of wall.

3.7 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. Remove excess mortar and mortar smears as work progresses.

C. Replace defective mortar. Match adjacent work.

D. After mortar is thoroughly set and cured, clean masonry in accordance with manufacturer's recommendations and as follows:
1. Remove large mortar particles with wooden paddles & non-metallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
4. In accordance with BIA Technical Note 20, use bucket and brush hand cleaning method to clean brick masonry made from clay or shale, except use detergent as masonry cleaner.
5. Do not use high pressure washer to clean masonry. Low pressure washer, less than 50 psi, or water hose may be used to clean masonry.

E. Progress Payments for completed work will not be made until brick is cleaned of all excessive mortar and mortar stains.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 73 00 - Execution: Protecting installed construction.

B. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

C. Protect masonry and other items built into masonry walls from spatter, droppings, and staining that can be caused by other work activities such as mortaring and grouting.
1. Aggressive protection efforts to be provided for interior and exterior base of walls and windowsills.

D. Protection Against Water Infiltration: Protect tops of masonry work with waterproof coverings secured in place without damaging masonry. Provide coverings where masonry is exposed to weather when work is not in progress.

END OF SECTION

SECTION 06 42 16
WOOD-VENEER PANELING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood veneer paneling system.
   2. Wood trim and moldings.

B. Related Requirements:
   1. Section 06 10 53 - Miscellaneous Rough Carpentry: Grounds and support framing.

1.2 : REFERENCE STANDARDS

A. American Lumber Standard Committee (ALSC):
   1. ALSC PS 20 - American Softwood Lumber Standard; 2020, Revised 2021.

B. American National Standard Institute (ANSI):
   1. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications, 2022.

C. ASTM International (ASTM):
   1. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
   2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.

D. Architectural Woodwork Institute (AWI):
   1. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2014, Errata 2016.

E. Forest Stewardship Council (FSC).

1.3 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate locations and requirements for blocking and backing for support and attachment of work of this section.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data:
   1. Submit data on fire retardant treatment materials and application instructions.

C. Shop Drawings:
   1. Indicate materials, surface graining elevations of sheet paneling, fastening methods, joining methods, and interruptions to other work, to minimum scale of 1-1/2 inches equals 1 foot.
   2. Include plan of panel number sequencing.

D. Samples for Initial Selection: For products with factory-applied finishes, submit two manufacturer's color charts illustrating the full range of finishes, colors, and sheens available. For products receiving field-applied finishes, submit color charts illustrating a full range of finishes, colors, and sheens. Submit to Architect for initial selections.

E. Samples for Verification: From the Architect's initial selections, prepare two samples for each selected finish and color; on same product material type indicated for final Work; each 8x10 inches. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

1.5 QUALITY ASSURANCE

A. Paneling: In accordance with AWI/AWMAC/WI (AWS), Section 8, Custom Grade.

B. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.6 QUALIFICATIONS

A. Fabricator: Company specializing in fabricating products specified in this section with minimum three (3) years documented experience.

1.7 MOCKUP

A. Section 01 40 00 - Quality Requirements: Mockup requirements.

B. Construct mockup, 12 feet long by 12 feet wide, illustrating full panel sheet, edge trim, and joint trim.

C. Locate where directed by Architect.

D. Incorporate accepted mockup as part of Work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protect work from moisture damage.

C. Maintain storage space relative humidity within ranges indicated in AWI/AWMAC/WI (AWS), Section 2.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements: Requirements before, during and after installation of Work.

B. During and after installation of Work of this section, maintain same temperature and humidity conditions in building spaces as will occur after occupancy.
   1. Maintain relative humidity within ranges indicated in AWI/AWMAC/WI (AWS), Section 2.

PART 2 PRODUCTS

2.1 WOOD VENEER PANELING

A. Manufacturers:
   1. Marlite.
   2. Rulon.
   3. TerraMai.
   4. Substitutions: Section 01 60 00 - Product Requirements.

2.2 MATERIALS

A. Flush Wood Veneer Panels: HPVA HP-1.

1. Core: Medium density fiberboard.
2. Thickness: 3/4 inch unless indicated otherwise on Drawings.
3. Veneer Face Grade: Select AA grade.
4. Veneer Face Species:
   a. As indicated on Drawings.
5. Veneer Slicing: Rift cut.
6. Veneer Grain Direction:
   a. Vertical.
7. Matching of Individual Leaves to Each Other: Book matching.
8. Matching Across Panel Face: Balanced matching.
9. Matching or Relationship of Panels to Each Other: Premanufactured sets matching.
10. Edge Banding: Veneer matching veneer face in species and finish.

B. Hardwood Lumber:
   1. Species:
      a. As indicated on Drawings
   2. Cut:
      a. Rift sawn.

C. Lumber Moisture Content Range: 4 to 9 percent.

D. Medium Density Fiberboard: ANSI A208.2, composed of wood fibers, medium density.
   1. Fire Retardant Fiberboard: ASTM E84; 25 maximum flame spread index and 450 maximum smoke developed index.

2.3 WOOD TREATMENT

A. Fire Retardant Treatment: Chemically treated and pressure impregnated, having flame spread of 25 or less when tested in accordance with ASTM E 84 and showing no evidence of significant progressive combustion when test is continued for an additional 20 minute period, Interior Type.

B. Provide identification on fire retardant treated material.

C. Product installation must conform to requirements for installation in auditorium occupancy (A - assembly) as set forth by the current Building Code for the State and Jurisdiction in which the project is located. Indicate compliance in shop drawing submittal.

D. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

E. Moisture Content after Treatment: Kiln dried (KDAT).
   1. Lumber: As indicated for interior lumber.
   2. Plywood: Maximum 15 percent.

2.4 FABRICATION

A. Fabricate to AWI/AWMAC/WI (AWS), Section 10, Custom Grade.

B. Shop prepare and identify sheets for grain matching during site erection.

C. Prepare panels for delivery to site, permitting passage through building openings.

D. Fit exposed sheet material edges with matching veneer edging. Use one piece for full length only.

E. When necessary to cut and fit on site, fabricate materials with ample allowance for cutting. Furnish trim for scribing and site cutting.

F. Finish exposed edges of panels as specified by grade requirements.

2.5 FINISHES

A. Sand work smooth and set exposed fasteners.

B. Apply wood filler in exposed nail indentations. Tint wood filler color as to result in a match to the surrounding surfaces after finishing is complete. Wood filler type to be compatible with applied finishes. Installed work shall have no visible indication of fasteners or filler.

C. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5, Custom Grade, Stained Transparent Type:
   1. System 5, Conversion varnish.
   2. Stain Color: Custom color and sheen as selected by Architect from submitted custom samples.

D. Seal internal surfaces and semi-concealed surfaces.

2.6 ACCESSORIES

A. Fasteners and Anchors:
   1. Fasteners: ASTM A153/A153M, hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.

B. Concealed Joint Fasteners: Threaded steel.

C. Concealed Shimming and Blocking: Lumber to be softwood or hardwood as required for application and conditions.

D. Exposed Furring and Blocking: Lumber to be same species and finish as wood veneer panels.

E. Wood Panel Reveal: Extruded aluminum alloy 6063 T5, 0.050 inch wall thickness.
   1. Configuration:
      a. Retainer Flange Face: 3/8 inch.
      b. Reveal Width: 1/2 inch.
      c. Depth: As required to match panel thickness.
      d. Joints: Mitered to tight fit and alignment.
   2. Finish: Clear anodized.
   3. Manufacturers:
      a. Flannery - Wood Panel Reveal Trim (Basis of Design).
      b. Fry Reglet.
      c. Gordon.
      d. Pittcon.
      e. Substitutions: Section 01 60 00 - Product Requirements.

F. Other accessories as indicated on Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify field measurements prior to fabrication. Indicate field measurements on shop drawings.

C. Verify adequacy of backing and support framing.

D. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this section.

B. Prepare materials to be installed and equipment to be used during installation.

3.3 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS), Section 8, Custom Grade.

B. Set and secure materials and components in place, plumb and level.

C. Scribe work abutting other components with maximum and consistent gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

D. Coordinate installation of blocking behind paneling.

E. Coordinate installation of firestopping behind paneling.

F. Install ceiling paneling with clips with blind fasteners at 24 inches on center.

G. Set exposed fasteners, fill with wood filler, and finish to match panel finish.

H. Install wall paneling with Z clips at 24 inches oc.

I. Touch up damaged finish to match original, using materials provided by fabricator; replace components that cannot be refinished like new.

J. Finish to be as selected by Architect from samples selected.

3.4 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Conform to AWI/AWMAC/WI (AWS), Section 8 requirements for the following:
   1. Smoothness.
   2. Gaps.
   3. Flushness.
   4. Flatness.
   5. Alignment.

C. Maximum Variation from True Position: 1/16 inch.

3.5 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Clean installed work and comply with manufacturer’s recommendations.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 73 00 - Execution: Protecting installed construction.

END OF SECTION

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Flush wood doors.

B. Related Requirements:
   1. Section 08 11 13 - Hollow Metal Doors and Frames: Metal frames for wood doors indicated to be installed in metal frame.
   2. Section 08 41 13 - Aluminum-Framed Entrances and Storefronts: Aluminum frames for wood doors indicated to be installed in aluminum frame.
   3. Section 08 71 00 - Door Hardware.
   4. Section 08 80 00 - Glazing.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
   2. ASTM E413 - Classification for Rating Sound Insulation; 2022.

B. Architectural Woodwork Institute (AWI), Architectural Woodwork Manufacturers Association of Canada (AWMAC), Woodwork Institute (WI):
   1. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, Errata 2016.

C. Architectural Woodwork Institute (AWI):
   1. AWI (QCP) - Quality Certification Program; Current Edition.

D. California Air Resource Board (CARB):
   1. CARB (ATCM) - Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products; Current Edition.

E. National Fire Protection Association (NFPA):
   1. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
   2. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2022.

F. Underwriters Laboratories Inc. (UL):
   1. UL (Dir) - Online Certifications Directory; Current Edition.
   2. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
   3. UL 1784 - Standard for Safety Air Leakage Tests of Door Assemblies and Other Opening Protectives; Current Edition, Including All Revisions.

1.3 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Provide the necessary framing, blocking, and backing in walls and ceilings adequate for anchorage the Work.

C. Coordinate Work with door opening construction, door frame and door hardware.

D. Coordinate fire rating of metal frames to fire rating requirements of doors and wall construction for compliance with overall fire rated separation requirements.

E. Coordinate frames with smoke and draft control doors to comply with overall assembly requirements.

F. Coordinate frames with sound rated doors to comply with overall assembly requirements.

1.4 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this Section. Review the work requirements, project conditions, sequencing, application procedures, quality control, testing and inspection and production schedule.

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type, and characteristics.

C. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.
   1. Provide information as required by AWI/AWMAC/WI (AWS).
   2. Include AWI (QCP) certification program label and project registration identification.

D. Samples for Initial Selection: Two sets of manufacturer's samples; each 2 x 4 inches; illustrating the full range of wood grains, stain colors and sheens available for products with factory-applied finishes; submit for Architect’s initial selections.

E. Samples for Verification: From the Architect’s initial selections, prepare two samples for each selected finish, color, and sheen; on same product material type indicated for final Work; each 8 x 10 inches. Where finishes involve normal finish, color, sheen, and texture variations, include sample sets showing the full range of variations expected.

F. Manufacturer’s Installation Instructions: Submit special installation instructions.

G. Manufacturer's Qualifications Statement.

H. Installer's Qualifications Statement.

I. Specimen warranty.

1.6 CLOSEOUT SUBMITTALS

A. Warranties executed in Owner's name.

B. AWI (QCP) - Quality Certification Program certificates.

1.7 QUALITY ASSURANCE

A. Maintain one copy of the specified door quality standards on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with not less than five (5) years of documented experience.
   1. Accredited participant in AWI (QCP) - Quality Certification Program prior to commencement of fabrication and throughout the duration of the project.

C. Installer Qualifications: Company specializing in performing work of the type specified in this Section, with not less than five (5) years of documented experience.

D. Comply with AWI/AWMAC/WI (AWS) standards and grades indicated, unless otherwise specified or indicated.
   1. Grades indicated are minimum requirement. Where the Contract Documents indicate elements of the work requirements that exceed the minimum grade indicated, comply with the Contract Documents regarding that element of the work.

E. Comply with AWI (QCP) - Quality Certification Program requirements.
   1. AWI (QCP) quality certification:
      a. Register project and comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this Section.
      b. Provide labels or certificates indicating that installed complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.
      c. Provide designated labels on shop drawings and installed products as required by certification program.
      d. Submit certifications upon completion of installation that verifies the work complies with specified requirements.

F. Attach labels from certifying agencies approved by authority having jurisdiction.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Package, deliver, and store doors in accordance with AWI/AWMAC/WI (AWS) standards, and door manufacturer requirements.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Environmental Limitations: Comply with AWI/AWMAC/WI (AWS) standards and as follows.
   1. Do not deliver or install doors until building space is enclosed and weathertight, wet work is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period. Allow minimum of 72 hours for delivered materials to acclimate to the climate controlled building space before beginning installation.

1.10 WARRANTY

A. Section 01 77 00 - Closeout Procedures: Product warranties and product bonds.

B. Furnish manufacturer's "Life of Installation" warranty for interior doors, including hanging and finishing if door(s) do not comply with warranty tolerance standards.
   1. Include coverage for defective materials, delamination, warping, cupping, bowing, and telegraphing of core construction beyond specified installation tolerances.

1.11 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Section 01 60 00 - Product Requirements: Extra materials, spare parts, and maintenance products.
   1. One (1) gallon of each type stain and finish coating system used to finish doors.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Masonite International Architectural.
   2. Oshkosh Architectural Door Company.
   3. Oregon Door.
   4. VT Industries.
   5. Substitutions: Section 01 60 00 - Product Requirements.

2.2 FLUSH WOOD DOORS - INTERIOR

A. Grade:
   1. Custom.

B. Performance:
   1. Extra Heavy Duty.

C. Door Size and Configuration:
   1. Thickness: 1-3/4 inches thick unless otherwise indicated on Drawings.
   2. Size: As indicated on Drawings.
   3. Glass Panel: As indicated on Drawings.

D. Non-Rated and 20-min Rated Doors:
   1. Solid Core: Type PC-5, particleboard core, 5-ply.

E. Fire Rated Doors: Tested to fire ratings indicated on Drawings in accordance with UL 10C-Positive Pressure; UL labeled without any visible seals when door is closed.
   1. Solid Core: Type FD-5 rating as scheduled; Category A for positive pressure fire test, 5-ply.

F. Smoke and Draft Control Doors: Required as indicated on Drawings. In addition to required fire rating, provide door assemblies acceptable tested in accordance with UL 1784 and installed in accordance with NFPA 105 with maximum air leakage of 3.0 cfm per sq ft (0.01524 cu m/s/sq m) of door opening at 0.10 inch wg (24.9 Pa) pressure at both ambient and elevated temperatures; if necessary, provide additional gasketing or edge sealing. UL labeled without any visible seals when door is closed.

G. Sound-Rated Doors: Tested to STC ratings indicated on Drawings in accordance with ASTM E413, tested in accordance with ASTM E90; STC rating labeled without any visible seals when door is closed.
   1. Required as indicated on Drawings; certified and labeled for compliance with STC rating indicated on Drawings.

H. Wood Veneer Facings:
   1. Species:
      a. White Oak.
   2. Veneer Cut:
      a. Rift cut.
   3. Veneer Adjacent Leaf Matching:
      a. Slip match.
   4. Veneer Panel Leaf Matching:
      a. Balance match.
   5. Doors Matching:
      a. Pair match.

b. Set match doors within 1 foot of each other (doors closed).
6. Doors With Transom Matching:
a. End match.
7. Finish:
a. Shop applied transparent over stain.

2.3 FABRICATION

A. Bonding Adhesive: Type I - Waterproof.
1. Compliant with CARB (ATCM) for ultra-low emitting formaldehyde (ULEF).

B. Provide solid core blocking reinforcement for hardware applications and as follows:
1. Lock blocks.
2. Top rail block for closer.
3. Center rail for exit bar.
4. Bottom rail block for kickplates.
5. Hardware through bolt blocks.

C. Edges For Veneered Doors:
1. Vertical Edges: Minimum 7/16 inch hardwood laminated to 1 inch (25mm) structural composite lumber and bonded to door core. Exposed hardwood edge species and finish to match door face veneer.
2. Horizontal Edges: Minimum 1-7/16 inch structural composite lumber and bonded to door core.

D. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware. Furnish solid blocking for surface mounted and through bolted hardware.
1. Comply with hardware requirements indicated on Drawings and as specified in Division 08 for the specifications.
2. Include machine work required for securing door perimeter seals.

E. Door and Frame Fit: Fabricate doors so that door edge clearances of installed doors comply with AWI/AWMAC/WI (AWS) standards.

2.4 FINISHES

A. Shop Applied Finish:
1. Transparent System - 5, Conversion Varnish.
a. Sheen to be as selected by Architect from full range of options.
2. Stain Color:
a. As selected by Architect from full range of colors.

B. Seal door top edge with color sealer to match door facing.

2.5 ACCESSORIES

A. Hardware: As specified in Section 08 71 00 - Door Hardware.

B. Door Frames: As indicated on Drawings.

C. Door Louvers: Size to be as indicated on Drawings.
1. Metal Louvers:
a. Material and Finish: Roll formed steel; pre-painted finish; color as selected by Architect from full range of options.
b. Louver Blades:
1) Inverted V shape.

2) Fire rated to match door with fusible link design to UL (DIR) requirements.

D. Door View Panels: Size to be as indicated on Drawings.
1. Glazing: As indicated on Drawings, but not less than 1/4 inch (6.4 mm) thick, tempered glass, in compliance with requirements of authorities having jurisdiction.
2. Wood Frame:
a. Glazing Stops: Solid wood material, of same species and finish as door facing, lip profile; mitered corners; fasteners to be countersunk, fill and finish to match glazing stop finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this section.

B. Prepare materials to be installed and equipment to be used during installation.

3.3 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Comply with AWI/AWMAC/WI (AWS) standards and Grade indicated, and manufacturer's requirements, unless otherwise specified or indicated.
1. Fire Rated Doors: Comply with NFPA 80, and fire ratings as indicated on Drawings.
2. Smoke and Draft Control Doors: Comply with NFPA 105, and smoke and draft control requirements as indicated on Drawings.
3. Sound Rated Door: Comply with sound rating requirements indicated on Drawings.

C. Coordinate installation of doors with installation of frames and hardware.

D. Install door louvers and vision panels plumb and level.
1. Wood Glazing Stops: Countersink fasteners, fill and finish to match glazing stop finish.

3.4 INSTALLATION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Comply with AWI/AWMAC/WI (AWS) standards and Grade indicated, unless otherwise specified or indicated.

C. Maximum Vertical or Horizontal Distortion (Bow or Cup): Maximum 1/8 inch measured at center distance from any edge or corner of door.

D. Comply with AWI/AWMAC/WI (AWS) tolerance requirements and as follows:
1. Telegraph: Maximum 0.010 inch in any 3 inch span.
2. Warp: Maximum 0.125 inch per 7 feet of door section.
3. Squareness: Maximum diagonal variance of 1/8 inch.

4. Door to Frame Fit and Clearance: 0.125 inch gap.

3.5 ADJUSTING

A. Section 01 73 00 - Execution: Adjusting.

B. Adjust door for smooth and balanced door movement and latching.

3.6 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Clean installed work and comply with manufacturer's recommendations.

B. Clean installed work in accordance with manufacturer's recommended materials and procedures.

3.7 SCHEDULE

A. Door types and locations to be as indicated on Drawings.

END OF SECTION

SECTION 08 44 13

GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Glazed aluminum curtain wall systems.
2. Glass and glazing panels.
3. Aluminum frame doors and hardware.
4. Structural design requirement.
5. Infill panels.
6. Sun Control and Shade Devices.

B. Related Requirements:
1. Section 05 50 00 - Metal Fabrications: Metal fabricated attachment devices.
2. Section 07 90 00 - Joint Protection: Perimeter joint sealers other than those integral to the curtain wall frames and glazing.
3. Section 08 11 16.10 - Aluminum Doors with FRP Face Panel.
4. Section 08 41 13 - Aluminum-Framed Entrances and Storefronts: Storefront systems including storefront entrance doors, frames, and glazed lites.
5. Section 08 71 00 - Door Hardware: Hardware requirements for reinforcing plates and electrical items to be integrated into the curtain wall framing of this Section.
6. Section 08 80 00 - Glazing: Glazing for glazed aluminum curtain walls.
7. Section 10 71 13 - Exterior Sun Control Devices.
8. Division 26 - Electrical: Electrical requirements to be integrated into the curtain wall framing of this Section.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):
1. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.
2. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2014.
3. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum; 2015.
4. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.
5. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.
6. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
7. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
8. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.
9. AAMA CWM - Curtain Wall Manual; 2019.

B. American Society of Civil Engineers (ASCE):
1. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM International (ASTM):
1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
3. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
4. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
5. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018, Reapproval 2022.
6. ASTM E283/E283M - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.
7. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference; 2014, Reapproval 2021.
8. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000, Reapproval 2023.
9. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002, Reapproval 2018.
10. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2023.

D. The Society for Protective Coatings (SSPC):
1. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic, and Type II - Organic); 2019.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
2. Coordinate work of this Section with related Door Hardware requirements.
   a. Provide reinforcement in system framing members to accommodate hardware items indicated in this Section and other related door hardware Sections.
   b. Prepare system framing members to accommodate electrical hardware devices such as security access readers and automatic operators.
3. Coordinate work of this Section with related Electrical requirements.
   a. Provide for electrical service wiring for electrical hardware devices such as security access readers, automatic operators, and other electrical requirements.

B. Pre-Installation Meetings:
1. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
2. Convene minimum one week prior to commencing work of this Section.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit component dimensions, describe components within assembly, anchorage and fasteners, glass and infill panels, door hardware, and internal drainage details.

C. Shop Drawings: Indicate system dimensions, doors and frames, framed opening requirements and tolerances, anticipated deflection under load, affected related work, weep drainage network, expansion and contraction joint location and details, and field welding required.

1. Details to indicate fasteners and anchoring details to building components and construction.
2. Details to indicate system interface and maintenance of continuity of building envelope air and weather barrier components by others.
3. Provide design and calculations sealed by Professional Structural Engineer demonstrating compliance with wind loading per ASCE 7.
4. Include details of core, stile, and rail construction, trim for lites, and all other components.
5. Include details of finish hardware mounting.
6. Include shop applied and field applied sealants by manufacturer; include product name and application locations on drawings. Show sealant joint sizes, including tolerances and maximum/minimum joint sizes required.

D. Samples for Initial Selection: Two manufacturer's color charts illustrating the full range of finishes and colors available for products with factory-applied finishes; submit for Architect's initial selections.

E. Samples for Verification: From the Architect's initial selections, prepare and submit two samples for each selected finish and color; samples on same product material type indicated for final Work; each sample 8 x 8 inches. Include samples of glazing, infill panels and glazing materials. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

F. Design Data: Indicate engineered framing members structural and physical characteristics, calculations, dimensional limitations.

G. Manufacturer's Certificate: Certify products supplied meet or exceed specified requirements.

H. Installation Data: Special installation requirements.

I. Field Quality Control Submittals: Submit field inspection and test reports required in FIELD QUALITY CONTROL article in this Section.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with AAMA CWM - Curtain Wall Manual.

B. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at the State in which the Project is located.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum five (5) years documented experience.
1. Same manufacturer required for the following work:
   a. Aluminum-Framed Entrances and Storefronts.
   b. Glazed Aluminum Curtain Walls.

D. Installer Qualifications: Company specializing in performing Work of this Section with minimum five (5) years documented experience.

1.6 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Handle products of this Section in accordance with AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.

C. Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Provide adequate ventilation through wrappings.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements: Requirements before, during and after installation of Work.

B. Do not install sealants when ambient temperature is less than 40 degrees F during and 48 hours after installation.

1.8 WARRANTY

A. Section 01 77 00 - Closeout Procedures: Product warranties.

B. Provide five (5) year warranty to correct defective Work.

C. Provide five (5) year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting, condensation, or misting. Include provision for replacement of failed units.

D. Provide manufacturer warranty against excessive degradation of metal finishes. Include provision for replacement of units with excessive fading, chalking, peeling, blistering, or flaking. Warranty period to be as follow:
   1. Ten (10) year manufacturer warranty.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Curtain Wall System: Includes extruded aluminum framing and doors with self-supporting framing, supplementary internal support components where required, aluminum and glass entrances, shop fabricated components, factory finished glass, glazing and infill panels; related joint sealers, flashings, anchorage, and attachment devices.

B. Provide products and system designed to comply with the State Building Code for the State in which the project is located.

2.2 PERFORMANCE REQUIREMENTS

A. Wind Loads: Design and size components and system to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall, including increased wind loads at building corners.
   1. As calculated in accordance with ASCE 7 - Calculation of Wind Loads, as measured in accordance with ASTM E330/E330M.
   2. Comply with Design Loads indicated on Drawings and applicable code requirements based on geographical location.

B. Seismic Loads: Design and size components and system to withstand seismic loads and sway displacement as calculated in accordance with ASCE 7 and applicable code requirements.

C. Member Deflection:
   1. For spans less than 13 feet 6 inches, limit member deflection to flexure limit of glass in any direction, and maximum of 1/175 of span or 3/4 inch, whichever is less and with full recovery of glazing materials.

2. For spans over 13 feet 6 inches and less than 40 feet, limit member deflection to flexure limit of glass in any direction, and maximum of 1/240 of span plus 1/4 inch, with full recovery of glazing materials.

D. System Assembly: Accommodate the following without damage to system, components, or deterioration of seals.
1. Movement within system.
2. Movement between system, system components and perimeter construction.
3. Dynamic loading and release of loads.
4. Deflection of structural support framing.
5. Tolerance of supporting components.

E. Air Leakage: 0.06 cfm/sq ft maximum leakage through assembly wall area when tested in accordance with ASTM E283/E283M at the following pressure differential.
1. 1.57 psf pressure differential.

F. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

G. Vapor Seal: Limit vapor seal with interior atmospheric pressure of 1 inch static pressure, 72 degrees F, 40 percent relative humidity without seal failure.

H. Water Penetration: None, when measured in accordance with ASTM E331 with test pressure differential at 20 percent of design pressure, but not less than 2.86 psf and not to exceed 12.00 psf.

I. Thermal Transmittance of Assembly (Excluding Entrances): Maximum U-value of 0.45 Btu/(hr sq ft deg F) when measured in accordance with AAMA 1503.

J. Expansion and Contraction: System to provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over 12 hour period and by 180 degrees F surface temperature without causing detrimental effect to system components and anchorage.

K. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.

L. Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

2.3 GLAZED CURTAIN WALL SYSTEM

A. Exterior Glazed Curtain Wall: Application to be where one side of curtain wall is exposed to unconditioned air; includes building exterior exposure.
1. Extruded aluminum frame members with internal reinforcement of aluminum or shaped steel structural sections as required to withstand imposed loads, including loads imposed by operating doors and hardware of types and sizes indicated.
2. Frame components to be thermally broken from exterior exposed surfaces.
3. Frame size, configuration, dimensions, and profile: As indicated on Drawings.
   a. For frames with laminated glass panels, coordinate with glass panel thickness.
   b. Continuous perimeter filler.
4. Provide glazing panels and infill panels as indicated on Drawings, sealed weathertight within frames.
   a. Panel Position Within Frame:
      1) As indicated on Drawings.
5. Internal weep drainage system to drain to exterior.

6. Manufacturers:
   a. Kawneer Co., Inc.
   b. Oldcastle BuildingEnvelope.
   c. Tubelite, Inc.
   d. U.S. Aluminum, a C.R. Laurance Company.
   e. YKK AP America.
   f. Substitutions: Section 01 60 00 - Product Requirements.
7. Basis of Design:
   a. Kawneer Co., Inc.:
      1) 1600 Wall System 1; 2-1/2 inch sightline.

2.4 COMPONENTS

A. Extruded Aluminum: ASTM B221; 6063 alloy, T5 temper typical or 6061 alloy, T6 temper for extruded structural members.

B. Sheet Aluminum: ASTM B209/B209M, 5005 alloy, H15 or H34 temper, wall thickness as required for system application and use but not less than 0.125 inch.

C. Sheet Steel: ASTM A653/A653M; galvanized to minimum G90.

D. Steel Sections: ASTM A36/A36M; shaped to suit aluminum framing and mullion members.
1. For use as concealed structural support reinforcement.
   a. For exterior framing, steel to be galvanized per ASTM A123/A123M.
   b. For interior framing, steel to be shop primed.

E. Structural Supporting Anchors Attached to Structural Steel:
1. Design to suit attachment requirements.

F. Structural Supporting Anchors Attached to Reinforced Concrete Members:
1. Design to suit attachment requirements.

G. Fasteners: Provide aluminum, non-magnetic stainless steel, or other non-corrosive metal fasteners, recommended to be compatible by the manufacturer of materials being fastened, including doors, frames, stops, panels, hardware, anchors, and other items receiving fasteners. For exposed fasteners (if any) provide Oval Phillips Head screws with finish matching the item to be fastened. The use of sex bolts will not be accepted.

H. Framing Members Profiles: Extruded aluminum and as indicated on Drawings.

I. Trim Components Profiles: Extruded aluminum and as indicated on Drawings.

J. Glass and Glazing Panels:
1. As indicated on Drawings.
2. As specified in Section 08 80 00 - Glazing.

K. Infill Panels:
1. Insulated Fiber Reinforced Panels (IFRP): Factory manufactured foam panels with wrapped FRP sheet faced both sides, with edges and thickness formed to fit frame and seal condition.
   a. Locations: Exterior exposure of building envelope.
   b. Thickness: 1 inch thick.
   c. Insulating Core: Polyisocyanurate or polyurethane foam; minimum 5.0 R-value per inch thickness; fire resistant.
   d. FRP Faces: Fiber reinforced panel sheet laminated to substrate.
      1) Thickness:
         a) Minimum 0.120 inch thick.
      2) Finish Type:
         a) Finish pebble grain to match adjacent doors.

b) As selected by Architect from manufacturer's full range of options.
3) Finish Color:
a) As selected by Architect from manufacturer's full range of options.
b) Color to match adjacent adjacent doors.
e. Basis of Design: Fiber-Tech Clad Foam Core Panels.

L. Sun Control and Shade Devices: Shop fabricated, shop finished, extruded aluminum outriggers, louvers, and fascia, free of defects impairing strength, durability, or appearance.
1. Configurations and Locations: As indicated on Drawings.
2. Blade Profile, Angle and Spacing: As indicated on Drawings.
3. Outrigger Shape: As indicated on Drawings.
4. Design and fabricate to resist the same loads as Curtain Wall system without failure, damage, or permanent deflection.
a. Additional design load for sun control and shade devices to include live and snow loads.
b. Coordinate concealed structural support reinforcement and anchorage required to support attachment hardware.
5. Sizes: As indicated on drawings.
6. Finish Type: As selected by Architect from manufacturer's full range of options.
7. Finish Color: As selected by Architect from manufacturer's full range of options.
8. Shop fabricate to the greatest extent possible; disassemble as necessary for shipping.

M. Doors:
1. Material: As indicated on Drawings.
2. Thickness: As indicated on Drawings.
3. Curtain Wall Framing Members:
a. Coordinate frame’s door stop and door silencer feature (along the frame stop) with door thickness and door type indicated on Drawings.
b. Coordinate concealed structural support reinforcement and shop preparation with door hardware, including closers, hinges, latching and locking components, automatic door operators, and other hardware indicated in other Sections.
c. Coordinate curtain wall frames with the specified doors, types, weight, and hardware and as indicated. Provide aluminum curtain wall frames with internal and concealed structural support reinforcement and anchorage required to support attachment of the hinges and closers and to withstand the operating and closing loads imposed on the curtain wall frames by the specified doors and hardware.
d. Coordinate with security, safety and other electrical wiring and hardware requirements such as automatic door operators and actuators.
4. Glass and Glazing Panels:
a. As indicated on Drawings.
5. Glazing Stops Profile: As indicated on Drawings.
6. Stiles and Rails: Extruded aluminum; profiles as indicated on Drawings.
a. Exterior door components to be thermally broken; interior door components not required to be thermally broken.
b. Coordinate reinforcement and shop preparation with door hardware attachment and operating requirements.
c. Unless Indicated Otherwise on Drawings:
1) Stiles to be 6 inches.
2) Top and middle rails to be 6 inches.
a) Doors scheduled to receive exit hardware device to be fabricated with middle rail.
3) Bottom rails to be 10 inches.

7. Finish: For aluminum framed doors, finish to match curtain wall frame in which the door is set. Finish for other door types shall be as indicated on Drawings or in other Sections.

N. Door Hardware:
1. Weatherstripping and Sill Sweep Strips: For aluminum frame doors, manufacturer's standard type to suit application; removable for maintenance replacement.
2. Threshold: Specified in Section 08 71 00. Extruded aluminum, one piece for each door opening, ribbed non-slip surface.
3. Hinges: Specified in Section 08 71 00.
4. Exit Panic Devices: Specified in Section 08 71 00.
5. Closers: Specified in Section 08 71 00.
6. Automatic Door Operators and Actuators: Specified in Section 08 71 00.
7. Lock Cylinders: Specified in Section 08 71 00.
8. Other hardware as may be indicated on Drawings or in Section 08 71 00.
9. Finish: Exposed hardware to match hardware finishes specified in Section 08 71 00.

O. Flashings:
1. Exposed Flashings: Sheet aluminum, finish to match framing members.
a. Thickness: 18 gauge, 0.040 inch, minimum.
2. Concealed Flashings: Sheet aluminum.
a. Thickness: 22 gauge, 0.025 inch, minimum.

P. Firestopping: As specified in Section 07 84 00.

Q. Curtain Wall System Sealants: As recommended by curtain wall system manufacturer; silicone type, with adhesion in compliance with ASTM C794; compatible with glazing panels, infill panels, framing members, flashings, other components, and accessories.

R. Glazing Gaskets and Accessories: As recommended by curtain wall and glazing system manufacturers; type to suit application to achieve weather, moisture, and air infiltration requirements.

S. Perimeter Sealants and Backing Materials: Provide sealants and backing materials complying with requirements specified in Section 07 90 00.

T. Sealant for Setting Thresholds: Non-curing butyl type.

2.5 FABRICATION

A. Fabricate system 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. Provide System Internal Drainage: Drain to the exterior by means of a weep drainage networks any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

D. Prepare system members to receive anchor devices. Fabricate anchors.

E. Arrange fasteners and attachments to conceal from view.

F. Prepare system members with internal reinforcement for door hardware.

G. Prepare system members for installation of door hardware and electrical hardware devices such as security access readers and automatic operators.

H. Prepare components with internal reinforcement for window treatments.

I. Reinforce framing members to withstand external imposed loads.

J. Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.

2.6 SHOP FINISHING

A. Anodized Aluminum Finish:
   1. Color Anodized Finish: AAMA 611, AA-M12C22A44 Electrolytically deposited colored anodic coating; Class I, not less than 0.7 mils thick.

B. Color and Gloss: As selected by Architect from manufacturer's full range of options.

C. Touch-Up Materials: As recommended by finish manufacturer for field application.

D. Extent of Finish:
   1. Apply factory coating to surfaces exposed at completed assemblies.
   2. Apply finish to surfaces cut during fabrication so no natural aluminum is visible in completed assemblies, including joint edges.
   3. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

E. Concealed Steel Items: Galvanized to ASTM A123/A123M; minimum 2.0 oz/sq ft coating thickness; galvanize after fabrication.

F. Apply bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar metals.

G. Touch-Up Primer for Galvanized Steel Surfaces: SSPC Paint 20 zinc rich.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify dimensions, tolerances, and method of attachment with other work.

C. Verify wall openings are ready to receive Work of this Section.

D. Verify that construction to which the Work is to be anchored is complete, structurally sound, and adequate to provide the required securement.

3.2 PREPARATION

A. Section 01 73 00 - Execution: Prepare field conditions and existing construction for installation of work of this Section.

B. Prepare materials to be installed and equipment to be used during installation.

3.3 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Install wall system in accordance with engineered design, manufacturer’s instructions, and AAMA CWM - Curtain Wall Manual.

C. Installation to interface with and maintain continuity of building envelope air and weather barrier components by others.

D. Coordinate with installers of other products to be installed as integral or surface mounted components to the glazed aluminum curtain wall system.

1. Provide open pathways for electrical wiring and device attachment requirements, to include, but not limited to, the following:
    a. Electrical hardware devices such as security access readers and automatic operators.
    b. Electrical life safety and security devices.

E. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

F. Provide alignment attachments and shims to permanently fasten system to building structure.

G. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent Work.

H. Provide thermal isolation where components penetrate or disrupt building insulation.

I. Install sill flashings. Turn up ends and edges; seal to adjacent Work to form watertight dam.

J. Install firestopping at each floor slab edge. Comply with applicable codes and requirements specified in Section 07 84 00.

K. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

L. Install integral flashings and integral joint sealers.

M. Set thresholds in bed setting sealant and secure.

N. Install hardware using hardware manufacturer’s templates. Refer to Section 08 71 00 for door hardware requirements other than specified in this Section.

O. Glazing:
1. Coordinate installation of glass with Section 08 80 00 - Glazing; separate glass from metal surfaces.

P. Install system weather seal sealants, seals, gaskets and glazing and infill panels to achieve performance criteria.

Q. Install perimeter sealant and back to achieve performance criteria conforming with installation criteria specified in Section 07 90 00.

3.4 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Monitor quality of installation, inspection, and testing.

B. Manufacturer’s Field Services: Provide services of curtain wall manufacturer's field representative to inspect for proper installation of system and submit report. Representative is to submit inspection report, including list of deficiencies within 5 days of each inspection.
1. Inspections Required:
    a. 10 percent of completion of the work of this Section.
    b. 50 percent of completion of the work of this Section.
    c. 100 percent of completion of the work of this Section.

C. Water-Spray Test: Provide water spray quality test of installed curtain wall components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
1. Perform a minimum of two tests in each area as directed by Architect or Owner.
2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
3. Tests are to be observed and reported by curtain wall manufacturer's field representative. Submit test results and observations report within 5 days of each test.

D. Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements. Submit reports of retest results within 5 days of each retest.

3.5 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Plumb: 1/16 inch every 3 feet non-cumulative or 1/2 inch per 100 ft, whichever is less.

C. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

D. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.6 ADJUSTING

A. Section 01 73 00 - Execution: Testing and adjusting.

B. Adjust operating hardware for smooth operation.

3.7 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. Remove protective material from prefinished aluminum surfaces.

C. Wash down surfaces with solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

D. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

E. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 73 00 - Execution: Protecting installed construction.

B. Protect finished Work from damage.

3.9 DEMONSTRATION AND TRAINING

A. Section 01 79 00 - Demonstration and Training: Provide demonstration and training to the Owner regarding operation and maintenance of components of the installed Work.

END OF SECTION

SECTION 10 56 13
METAL STORAGE SHELVING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Metal storage shelving units.

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for all components.

C. Shop Drawings: Indicate shelving unit components, assembly, anchorage, elevations, dimensions, and room plan layout for each location. Include schedule list indicating room locations and quantity of shelving units.

D. Samples for Initial Selection: Two manufacturer's color charts illustrating the full range of finishes and colors available for products with factory-applied finishes; submit for Architect's initial selections.

E. Samples for Verification: From the Architect's initial selections, prepare and submit two samples for each selected finish and color; samples on same product material type indicated for final Work; each sample 4 x 4 inches. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

F. Manufacturer's Installation Instructions: Indicate special precautions for installation.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.

B. Installer: Company specializing in performing work of this section with minimum three (3) years documented experience.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept components on site in manufacturer's original packaging. Inspect for damage.

PART 2 PRODUCTS

2.1 METAL STORAGE SHELVING

A. Manufacturers:
   1. Lyon Workspace Products.
   2. Penco Products.
   3. Spacesaver.
   4. Tennsco Corp.
   5. Substitutions: Section 01 60 00 - Product Requirements.

B. Metal Storage Shelving: Factory-formed, field-assembled, freestanding, upright metal storage shelving system; designed for shelves to span between and be supported by corner posts, with shelves adjustable over the entire height of shelving unit. Shelving units to be engineered to safely support cumulative loaded shelf loads indicated.

C. Components:
1. Posts: Tubular, L-shaped, and T-shaped, cold-rolled steel, minimum 16 gauge thick, punched on 1-1/2 inch centers. Engineered to safely support loads indicated.
2. Shelves: Box formed edges, minimum 20 gauge thick steel. Engineered to support the following loads:
a. Minimum 800 lbs for shelf size of 36W x 18D inches or 36W x 24D inches.
b. Minimum 550 lbs for shelf size of 48W x 18D inches or 48W x 24D inches.

D. Accessories:
1. Shelf Clips: Hot-rolled steel, 12 gauge thick, one-piece construction.
2. Sides and Backs:
a. Solid steel panels; 24 gauge thick steel.

E. Fabrication:
1. Fabricate shelves with turned down box edges with return flange spot welded to bottom of shelf.
2. Fabricate shelves 48 inches long by 24 inches deep, unless indicated otherwise on Drawings.
3. Overall Unit Height: Shelves placed equidistant unless Drawings indicate otherwise.
a. 84 inches (5 shelves).

F. Finish: All metal assemblies and components to be factory powder coated.
1. Colors:
a. As selected by Architect from manufacturer's full range.
b.

G. Location: All utility room locations.

2.2 FOOD STORAGE METAL SHELVING

A. Manufacturers:
1. Advance Tabco.
2. Metro Food Service Products.
3. Regency.
4. Steelton Metal Products.
5. Substitutions: Section 01 60 00 - Product Requirements.

B. Product Description: Food storage metal shelving to be factory-formed, field-assembled, freestanding, upright metal wire storage shelving system; designed for shelves to span between and be supported by corner posts, with shelves adjustable over the entire height of shelving unit.

C. Components:
1. Posts: Tubular carbon steel, epoxy coating finish, single piece construction, 1 inch diameter, 72 inches length.
2. Shelves: Steel wire construction, factory welded, epoxy coating finish, 1-1/4 inches thickness. 4 shelves per shelving unit, adjustable in 1 inch increments at posts.

D. Fabrication:
1. Fabricate shelves 48 inches long by 18 inches deep, unless indicated otherwise on Drawings.
2. Overall shelving unit height to be 72 inches.

E. Factory Finishing:
1. Manufacturer’s standard epoxy coating finish.
a. All metal components and accessories.
b. Colors:
1) As selected by Architect from manufacturer's full range.

F. Location:
1) School building utility rooms.
2) Field house utility and storage rooms.

EXECUTION

2.3 EXAMINATION

A. Section 01 73 00 - Execution: Verification of existing conditions before starting work.

B. Verify dimensions, tolerances, and methods of attachment with other Work.

C. Verify spaces are ready to ready to receive Work of this Section.

2.4 INSTALLATION

A. Section 01 73 00 - Execution: Related to installation of Work.

B. Install components according to manufacturer’s written instructions, using fasteners appropriate to substrate indicated and recommended by manufacturer.

C. Install units level, plumb, and firmly anchored.

D. Anchor units to back wall to prevent tip-over.

2.5 CLEANING

A. Section 01 73 00 - Execution and Section 01 77 00 - Closeout Procedures: Related to cleaning.

B. Replace damaged or defective components.

C. Remove temporary labels and protective coatings.

D. Clean exposed surfaces.

2.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 73 00 - Execution: Protecting installed construction.

B. Protect shelving from damage.

END OF SECTION

SECTION 23 72 00

ENERGY RECOVERY UNIT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes rooftop heating and cooling units.

B. Related Sections include the following:

2. Division 230548 Section "Mechanical Vibration Controls and Seismic Restraints" for manufactured isolation bases.

3. Division 230900 Section "HVAC Controls" for temperature-control devices, and control wiring and control devices connected to energy recovery units.

1.3 SUBMITTALS

A. Product Data: Include manufacturer's technical data for each model indicated, including rated capacities of selected model clearly indicated; dimensions; required clearances; shipping, installed, and operating weights; furnished specialties; accessories; and installation and startup instructions.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loadings, required clearances, method of field assembly, components, and location and size of each field connection. Detail mounting, securing, and flashing of roof curb to roof structure. Indicate coordinating requirements with roof membrane system.

1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring.

C. Commissioning Reports: Indicate results of startup and testing commissioning requirements. Submit copies of checklists.

D. Maintenance Data: Maintenance manuals specified in Division 1.

E. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

A. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."

B. Energy Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."

C. Listing and Labeling: Provide electrically operated components specified in this Section that are listed and labeled.

1. Units shall be certified in accordance with UL Standard 1995 and ANSI Standard Z21.47
2. Units shall be safety certified by an accredited testing laboratory and the nameplate shall carry the label of the certification agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver units as factory-assembled units with protective crating and covering as recommended by the manufacturer.

B. Coordinate delivery of units in sufficient time to allow movement into building.

C. Handle units to comply with manufacturer's written rigging and installation instructions for unloading and moving to final location.

1.6 COORDINATION

A. Coordinate installation of equipment supports with other divisions.

1.7 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranty: A written warranty, executed by the manufacturer and signed by the Contractor, agreeing to replace components that fail in materials or workmanship, within the specified warranty period, provided manufacturer's written instructions for installation, operation, and maintenance have been followed.

1. Warranty Period, Manufacturer’s standard, not less than 1 year after date of startup, but not to exceed 14 months from date of shipment.

2. Warranty Period, Compressors: Manufacturer’s standard, but not less than 5 years from date of shipment.

3. Warranty Period, Heat Exchangers: Manufacturer’s non-prorated full parts replacement not less than 15 years from date of shipment.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Filters: One set of filters for each unit.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to strict compliance with the requirements of this specification, provide products by one of the following:

1. AAON, Inc.
2. Climate Master
3. Munters
4. Greenheck
5. Trane

2.2 DEDICATED OUTSIDE AIR UNITS (DOAS)

A. Description: Factory assembled and tested; designed for slab installation; and consisting of compressors, condensers, evaporator coils, condenser and evaporator fans, refrigeration and temperature controls, hot gas reheat, filters, and dampers.

B. Construction:

1. Unit shall be completely factory assembled, piped and wired and shipped in one section.
2. Cabinet shall be constructed entirely of G90 galvanized steel with the exterior constructed of 20 gauge or heavier material.
3. Paint finish shall be capable of withstanding at least 2000 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
4. The unit roof shall be sloped or cross-broken to assure drainage.
5. Unit specific color coded wiring diagrams shall match the unit color coded wiring and will be provided in both point-to-point and ladder form.
6. Diagrams shall also be laminated in plastic and permanently affixed inside the control compartment.
7. Access to filters, blower, heating section, and other items needing periodic checking or maintenance shall be through hinged access doors with quarter turn latches. Door fastening screws are not acceptable.
8. Access doors shall have stainless steel hinges and full perimeter gasketing.
9. All openings through the base pan of the unit shall have upturned flanges of at least 1/2" in height around the opening through the base pan.
10. Air side service access doors shall have rain break overhangs.
11. All access doors shall have an internal metal liner to protect the door ½ inch thick, 1 ½ lb. density fiberglass insulation.
12. The interior air side of the cabinet shall be entirely insulated on all exterior panels with 1 inch thick, 1 1/2 lb. density fiberglass insulation.
13. Unit shall have decals and tags to indicate unit lifting and rigging, service areas and caution areas. Installation and maintenance manuals shall be supplied with each unit.

Cabinet options include:

a. Double wall insulation liners
b. Base pan insulation for units not mounted on a curb.
c. Unit shall be furnished with 304 stainless steel drain pans.

C. Supply and Exhaust Fans:

1. Blower(s) shall be entirely self contained on a slide deck for service and removal from the cabinet.
2. All belt drive blower(s) shall have backward inclined airfoil blades.
3. All direct drive blower(s) shall have forward curved blades.
4. Adjustable V-belt drive shall be provided with a minimum rating of 140% of the motor nameplate brake horsepower when the adjustable pulley is at the minimum RPM.
5. Blowers, drives and motors shall be dynamically balanced.
6. Supply and exhaust fans shall be provided with variable frequency drives, provided and installed by the mechanical contractor. For motor and VFD requirements, see spec section 230513 -2.4B and 2.6.

D. Outside Air Options:

1. Shall be 2-position, modulated by the building control system (100% outside air in occupied mode or 100% return air in dehumidification mode). The assembly shall consist of a motor operated outdoor air damper and return air damper assembly constructed of extruded aluminum, hollow core, air foil blades with rubber edge seals and

aluminum end seals. Damper blades shall be gear driven and designed to have no more than 25 CFM of leakage per sq. ft. of damper area when subjected to 2 in. w.g. air pressure differential across the damper. Damper motor shall be spring return to ensure closing of outdoor air damper during periods of unit shut down or power failure.

F. Total Energy Wheel:

1. Units shall have a factory mounted and tested energy recovery wheel. The energy recovery wheel shall be mounted in a rigid frame containing the wheel drive motor, drive belt, wheel seals and bearings.
2. The energy recovery cassette shall be rated in accordance with ARI Standard 1060 and shall bear the ARI certification symbol.
3. The energy recovery cassette shall contain a total (sensible) energy recovery heat wheel constructed of a light weight polymer material with permanently bonded desiccant coating. The energy recovery wheel media shall be capable of removal from the cassette and replacement without the use of tools. Wheel media shall be cleanable using hot water or light detergent without degrading the efficiency.
4. The exhaust fan shall be backward inclined type. Fan(s) and motor(s) shall be dynamically balanced. A back draft damper shall be included with the exhaust fan. Outside air filters shall be 4 inch, pleated, disposable.
5. Motors shall be standard efficiency (premium efficiency). Motors for use with VFD shall be premium efficiency inverter rated only. Motor bearings shall be ball bearing and shall have external lubrication connections.

G. Condenser:

1. Water Cooled Condenser Section
   a. The water cooled condensing section shall contain plate type heat exchangers. They shall be circuited in a counterflow arrangement to the refrigerant system. Each heat exchanger shall be provided with a removable and cleanable type basket filter on the waterside circuit. Field piping connections shall be made at each plate heat exchanger within the condensing section of the unit.

H. Filters: 2-inch- thick, fiberglass, throwaway with an ASHRAE efficiency of 30%, located on both supply and exhaust upstream of the energy wheel.

I. Evaporator Coils:

1. Evaporator coils shall be copper tube with aluminum fins mechanically bonded to the tubes.
2. Evaporator coils shall have galvanized steel end casings.
3. Evaporator coils shall have equalizing type vertical tube headers.
4. Evaporator coils shall be furnished with a thermostatic expansion valve.
5. Evaporator coils shall be furnished with a double sloped drain pan for the positive drainage of condensate.

J. Refrigeration System:

1. Compressors shall be scroll type with internal thermal overload protection and mounted on the compressor manufacturer's recommended rubber vibration isolators. Each compressor shall have independent refrigerant circuits.
2. All units over 7 tons shall be multiple stage and shall have a minimum of 2 stages of capacity control.
3. Compressors shall be mounted in an isolated compartment to permit operation of the unit without affecting air flow when the door to the compartment is open.
4. Compressors shall be isolated from the base pan and supply air to avoid any transmission of noise from the compressor into the building area.

5. System shall be equipped with thermostatic expansion valve type refrigerant flow control.
6. System shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant controls.
7. Unit shall be equipped with Schrader type service fittings on both the high side and low pressure sides of the system.
8. Unit shall be equipped with refrigerant liquid line driers.
9. Unit shall be fully factory charged with refrigerant.
10. Hot gas bypass shall be provided on the first refrigerant circuit.
11. Unit shall be provided with a hot gas reheat coil and modulating hot gas reheat control valve piped to the lead refrigerant system. Reheat capacity shall be minimum of 65% of unit design, i.e. 30-ton will have 234,000 btuh reheat capacity
12. Unit shall be equipped with a 5 minute anti-short cycle delay timer for each stage.
13. First stage cooling shall be provided to allow operation in low ambient to 35°F.
14. Unit shall operate on R-454B or R-32 refrigerant.
15. Provide units with applicable factory refrigerant monitoring devices and BAS point monitoring, with circuit shut off in compliance with ASHRAE Standard 15-2002 for A2L Refrigerants.

L. Controls:

Onboard DDC controller to be capable of LonWORKS or BacNET interface.

M. Power option
1. Unit shall be provided with a factory installed and wired internal disconnect.
2. Unit shall be provided with phase and brown-out protection to shut down all motors in the unit if the phases are more than 10% out of balance on voltage, or the voltage is more than 10% under design voltage or on phase reversal.
3. Unit shall be provided with a factory installed and wired 115 volt, 15 amp ground fault service receptacle powered by a 1.5 KVA transformer.
4. Unit shall be provided with a factory installed and field wired 115 volt, 15 amp ground fault service receptacle.

END OF SECTION

SECTION 26 32 13

ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes packaged engine-generator sets for standby power supply with the following features:

1. Diesel engine.
2. Unit-mounted cooling system.
3. Unit-mounted control and monitoring.
4. Performance requirements for sensitive loads.
5. Fuel system.
6. Outdoor enclosure.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Include plans and elevations for engine-generator set and other components specified. Indicate access requirements affected by height of subbase fuel tank.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Seismic Qualification Certificates: For engine-generator set, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: With engine and generator mounted on rails identify center of gravity and total weight including supplied enclosure, external silencer, **subbase-mounted UL 142 listed full fuel tank,** and each piece of equipment not integral to the engine-generator set and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Source quality-control reports, including, but not limited to the following:

1. Certified summary of prototype-unit test report.
2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.

3. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
4. Report of sound generation.
5. Report of exhaust emissions showing compliance with applicable regulations.
6. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

D. Field quality-control reports.

E. Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Caterpillar; Engine Div.
2. Generac Power Systems, Inc.
3. Onan/Cummins Power Generation; Industrial Business Group.
4. Kohler

B. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Engine-generator set housing, engine-generator set, batteries, battery racks, silencers, and sound attenuating equipment, accessories, and components shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
2. Shake-table testing shall comply with ICC-ES AC156. Testing shall be performed with all fluids at worst case normal levels.
3. Component Importance Factor: 1.5.

B. ASME Compliance: Comply with ASME B15.1.

C. NFPA Compliance:

1. Comply with NFPA 37.
2. Comply with NFPA 70.
3. Comply with NFPA 99.
4. Comply with NFPA 110 requirements for Level 1 emergency power supply system.

D. UL Compliance: Comply with UL 2200.

E. Engine Exhaust Emissions: Comply with EPA Tier 2 requirements and applicable state and local government requirements.

F. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

G. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: 5 to 40 deg C.
2. Relative Humidity: Zero to 95 percent.
3. Altitude: Sea level to 1000 feet.

2.3 ASSEMBLY DESCRIPTION

A. Factory-assembled and -tested, water-cooled engine, with brushless generator and accessories.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

C. EPSS Class: Engine-generator set shall be classified as a Class 2 in accordance with NFPA 110.

D. Induction Method: Naturally aspirated.

E. Governor: Adjustable isochronous, with speed sensing.

F. Emissions: Comply with EPA Tier 3 requirements.

G. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.

H. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries.
2. Output Connections: Three-phase, four wire.
3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

I. Generator-Set Performance:

1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
7. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
8. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.4 ENGINE

A. Fuel: Diesel.

B. Rated Engine Speed: 1800 rpm.

C. Lubrication System: The following items are mounted on engine or skid:

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

D. Jacket Coolant Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.

E. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.

1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

F. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.

1. Minimum sound attenuation of 25 dB at 500 Hz.
2. Sound level measured at a distance of 25 feet from exhaust discharge after installation is complete shall be 78 dBA or less.

G. Air-Intake Filter: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

H. Starting System: 24-V electric, with negative ground.

1. Components: Sized so they are not damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Performance Requirements" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Nicad, with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least three times without recharging.
5. Battery Stand: Factory-fabricated, two-tier metal with acid-resistant finish designed to hold the quantity of battery cells required and to maintain the arrangement to minimize lengths of battery interconnections.
6. Battery Charger: Current-limiting, automatic-equalizing and float-charging type designed for Nicad batteries. Unit shall comply with UL 1236.

2.5 CONTROL AND MONITORING

A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms.

B. Provide minimum run time control set for 30 minutes with override only by operation of an emergency-stop switch.

C. Comply with UL 508A.

D. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the

generator set. Mounting method shall isolate the control panel from generator-set vibration. Panel shall be powered from the engine-generator set battery.

E. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common wall-mounted control and monitoring panel. Panel shall be powered from the engine-generator set battery.

1. Wall-Mounting Cabinet Construction: Rigid, self-supporting steel unit complying with NEMA ICS 6. Power bus shall be copper. Bus, bus supports, control wiring, and temperature rise shall comply with UL 891.

F. Indicating Devices: As required by NFPA 110 for Level 1 system, including the following:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. EPS supplying load indicator.
5. Ammeter and voltmeter phase-selector switches.
6. DC voltmeter (alternator battery charging).
7. Engine-coolant temperature gage.
8. Engine lubricating-oil pressure gage.
9. Running-time meter.
10. Current and Potential Transformers: Instrument accuracy class.

G. Protective Devices and Controls in Local Control Panel: Shutdown devices and common visual alarm indication as required by NFPA 110 for Level 1 system, including the following:

1. Start-stop switch.
2. Over-crank shutdown device.
3. Overspeed shutdown device.
4. Coolant high-temperature shutdown device.
5. Coolant low-level shutdown device.
6. Low lube oil pressure shutdown device.
7. Air shutdown damper shutdown device when used.
8. Over-crank alarm.
9. Overspeed alarm.
10. Coolant high-temperature alarm.
11. Coolant low-temperature alarm.
12. Coolant low-level alarm.
13. Low lube oil pressure alarm.
14. Air shutdown damper alarm when used.
15. Lamp test.
16. Contacts for local common alarm.
17. Coolant high-temperature pre-alarm.
18. Generator-voltage adjusting rheostat.
19. Run-Off-Auto switch.
20. Control switch not in automatic position alarm.
21. Low cranking voltage alarm.
22. Battery-charger malfunction alarm.
23. Battery low-voltage alarm.
24. Battery high-voltage alarm.
25. Generator overcurrent protective device not closed alarm.

H. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

I. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. Overcurrent protective devices for the entire EPSS shall be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices shall consider both utility and EPSS as the voltage source.

1. Overcurrent protective devices for the EPSS shall be accessible only to authorized personnel.

B. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.

1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
2. Trip Settings: Selected to coordinate with generator thermal damage curve.
3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
4. Mounting: Adjacent to or integrated with control and monitoring panel.

C. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground fault.

1. Indicate ground fault with other generator-set alarm indications.
2. Trip generator protective device on ground fault.

2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1.

B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.

C. Electrical Insulation: Class H or Class F.

D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required. Provide six lead alternator.

E. Range: Provide extended range of output voltage by adjusting the excitation level.

F. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

G. Enclosure: Drip-proof.

H. Instrument Transformers: Mounted within generator enclosure.

I. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified and as required by NFPA 110.

1. Adjusting Rheostat on Control and Monitoring Panel: Provide plus or minus 5 percent adjustment of output-voltage operating band.

J. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

K. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

L. Subtransient Reactance: 12 percent, maximum.

2.8 OUTDOOR GENERATOR-SET ENCLOSURE

A. Description: ~~**Walk in**~~**,** Vandal-resistant, sound-attenuating, weatherproof steel housing, wind resistant up to 100 mph. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.

B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.

1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.
3. Ventilation: Provide temperature-controlled exhaust fan interlocked to prevent operation when engine is running.

C. Interior Lights with Switch: Factory-wired, vapor-proof fixtures within housing; arranged to illuminate controls and accessible interior. Arrange for external electrical connection.

1. AC lighting system and connection point for operation when remote source is available.
2. DC lighting system for operation when remote source and generator are both unavailable.

D. Convenience Outlets: Factory wired, GFCI. Arrange for external electrical connection.

2.9 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

2.10 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.

B. Equipment Mounting:

1. Install packaged engine generators on existing cast-in-place concrete equipment base.
2. Coordinate size and location of concrete bases for packaged engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

C. Install packaged engine-generator to provide access, without removing connections or accessories, for periodic maintenance.

D. Install engine-generator in a ~~**walk-in**~~ **weatherproof** enclosure. Secure enclosure to anchor bolts installed in concrete bases.

E. Install Schedule 40, black steel piping with welded joints and connect to engine muffler. Install thimble at wall. Piping shall be same diameter as muffler outlet.
1. Install isolating thimbles where exhaust piping penetrates combustible surfaces with a minimum of 9 inches clearance from combustibles.

F. Install condensate drain piping to muffler drain outlet full size of drain connection with a shutoff valve, stainless-steel flexible connector, and Schedule 40, black steel pipe with welded joints.

G. Copper and galvanized steel shall not be used in the fuel-oil piping system.

H. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.2 CONNECTIONS

A. Connect cooling-system water piping to engine-generator set and heat exchanger with flexible connectors.

B. Connect engine exhaust pipe to engine with flexible connector.

C. Ground equipment according to NEC.

D. Connect wiring according to NEC. Provide a minimum of one 90-degree bend in flexible conduit routed to the generator set from a stationary element.

E. Balance single-phase loads to obtain a maximum of 10 percent unbalance between any two phases.

3.3 IDENTIFICATION

A. Identify system components according to owner requirements.

B. Install a sign indicating the generator neutral is bonded to the main service neutral at the main service location.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections.

B. Tests and Inspections:

1. Perform tests recommended by manufacturer and each visual and mechanical inspection and electrical and mechanical test listed in the first two subparagraphs as specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.

a. Visual and Mechanical Inspection

1) Compare equipment nameplate data with drawings and specifications.
2) Inspect physical and mechanical condition.
3) Inspect anchorage, alignment, and grounding.
4) Verify the unit is clean.

b. Electrical and Mechanical Tests

1) Perform insulation-resistance tests in accordance with IEEE 43.

a) Machines larger than 200 horsepower. Test duration shall be 10 minutes. Calculate polarization index.
b) Machines 200 horsepower or less. Test duration shall be one minute. Calculate the dielectric-absorption ratio.

2) Test protective relay devices.
3) Verify phase rotation, phasing, and synchronized operation as required by the application.
4) Functionally test engine shutdown for low oil pressure, overtemperature, overspeed, and other protection features as applicable.
5) Conduct performance test in accordance with NFPA 110.
6) Verify correct functioning of the governor and regulator.

2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.

b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
c. Verify acceptance of charge for each element of the battery after discharge.
d. Verify that measurements are within manufacturer's specifications.

4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.
8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
9. Harmonic-Content Tests: Measure harmonic content of output voltage at 25 percent and 100 percent of rated linear load. Verify that harmonic content is within specified limits.

C. Coordinate tests with tests for transfer switches and run them concurrently.

D. Test instruments shall have been calibrated within the last 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.

E. Leak Test: After installation, charge exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.

F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation for generator and associated equipment.

G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

H. Remove and replace malfunctioning units and retest as specified above.

I. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION