

Renovations and Additions For COMMONWEALTH BUILDING MATERIALS

1735 PLANTATION ROAD ROANOKE, VIRGINIA

CODE INFORMATION

CODE	2018 VIRGINIA EXISTING BUILDING CODE
JURISDICTION	CITY OF ROANOKE, VIRGINIA
TAX NO.	311306
ZONING	I-1 LIGHT INDUSTRIAL, NOT IN FLOOD ZONE
BUILT	1958
USE GROUP	M, EXISTING RETAIL / S-1 LUMBER STORAGE, NON-SEPARATED
CONSTRUCTION TYPE	TYPE IIB, EXISTING, NON-COMBUSTIBLE, UNPROTECTED
HEIGHT	1 STORY AND UNOCCUPIED MEZZANINE
FIRE SUPPRESSION	EXISTING
SMOKE/FIRE ALARM	NONE EXISTING, NOT REQUIRED
FLOOR AREA ALLOWED	50,000 SF
FLOOR AREA INCREASE	2,300 SF
EXISTING FLOOR AREA	42,841 SF
+ ADDITION AREA = TOTAL FLOOR AREA	+ 2,300 SF = 45,141 SF TOTAL
OCCUPANT LOAD	M - 3,205 SF / 60 SF/OCC = 54, B - 1,727 SF / 100 SF/OCC = 18, S - NOT IN SCOPE
NUMBER OF EXITS REQUIRED	2
NUMBER OF EXITS EXISTING	2
MAX TRAVEL DISTANCE	250 FEET
ACTUAL MAX TRAVEL DISTANCE	97 FEET
FIRE RATINGS	EXISTING, REQUIRED TO REMAIN
STRUCTURAL FRAME	0 HOURS
BEARING WALLS	0 HOURS
NON BEARING WALLS	0 HOURS
FLOORS	0 HOURS
CORRIDORS	0 HOURS (TABLE 1020.1 <30)
STORAGE ROOM	0 HOURS
ROOF CONSTRUCTION	0 HOURS

PROJECT SCOPE

EXISTING BUILDING ALTERATION LEVEL 2 IN AN EXISTING MERCANTILE BUILDING TO CONVERT A FIRST FLOOR OFFICE INTO A SINGLE USE ADA TOILET ROOM. SINGLE TENANT BUILDING.

SCOPE ALSO INCLUDES A 2,300 SF SALES AREA ADDITION TO THE EXISTING MERCANTILE SALES AREA. NO CHANGE OF OCCUPANCY. NEW MECHANICAL, ELECTRICAL, PLUMBING AND EXTENSION OF FIRE SUPPRESSION SYSTEM. SITE WORK TO REPLACE ENTRY SIDEWALK AND STAIRS FROM PARKING LOT, ADD ADA STAIR LIFT FROM PARKING LOT, AND CIVIL SITE PLAN.

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540.342.4002 www.HughesAE.com

LEVEL 1 ALTERATIONS (SECTION 602) ADA TOILET RENOVATION

FLOOD HAZARD AREAS: NOT APPLICABLE
ENERGY CONSERVATION: ALTERATIONS SHALL COMPLY TO VECC, WITHOUT REQUIRING PORTIONS OF THE EXISTING BUILDING TO COMPLY WITH VECC

OPAQUE WALLS: NOT APPLICABLE
FLOORS: NOT APPLICABLE
CEILINGS: NOT APPLICABLE
FENESTRATION: NOT APPLICABLE
ROOF REPLACEMENT: NOT APPLICABLE
LIGHTING: SHALL COMPLY WITH SECTION C405 OF THE VECC (ADA RESTROOM)
DUCTS: NOT APPLICABLE
ACCESSIBILITY: SHALL COMPLY WITH SECTION 404.

CONFORMANCE: LEVEL OF EXISTING FIRE PROTECTION IS MAINTAINED. EXISTING FIRE SUPPRESSION HEAD REMAINS.
LEVEL OF EXISTING PROTECTION FOR THE MEANS OF EGRESS IS MAINTAINED.

BUILDING ELEMENTS & MATERIALS: NEW INTERIOR FINISH AND TRIM MATERIALS AND WALL AND CEILING FINISHES SHALL COMPLY WITH CHAPTER 8 OF THE VCC.

NEW WORK SHALL COMPLY WITH THE MATERIALS AND METHODS REQUIREMENTS IN THE VCC, IECC, IMC, IPC.

REROOFING IS NOT IN THE SCOPE OF WORK.

STRUCTURAL: ROOF COMPONENTS SHALL BE CAPABLE OF SUPPORTING THE ROOF COVERING SYSTEM AND THE MATERIAL AND EQUIPMENT LOADS THAT WILL BE ENCOUNTERED DURING INSTALLATION OF THE SYSTEMS.

INTERNATIONAL FUEL GAS CODE: ALTERATION SHALL COMPLY WITH CHAPTER 3,4,5 AND 6 OF THE IFGC WITH EXCEPTIONS.

LEVEL 2 ALTERATIONS (SECTION 603)

COMPLIANCE: ALL ALTERATIONS SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF SECTION 602, ABOVE. ALL NEW CONSTRUCTION ELEMENTS, COMPONENTS, SYSTEMS, AND SPACES SHALL COMPLY WITH THE REQUIREMENTS OF THE VCC.

FIRE RESISTANCE RATINGS: THE EXISTING AUTOMATIC SPRINKLER SYSTEM SHALL BE EXTENDED INTO THE ADDITION, AND CONTINUE TO SERVE THE EXISTING BUILDING. THE REQUIRED FIRE RESISTANCE RATINGS OF BUILDING ELEMENTS AND MATERIALS SHALL BE PERMITTED TO MEET THE REQUIREMENTS OF THE CURRENT BUILDING CODE.

MECHANICAL: IN MECHANICALLY VENTILATED SPACES, EXISTING MECHANICAL VENTILATION SYSTEMS THAT ARE ALTERED, RECONFIGURED, OR EXTENDED SHALL PROVIDE NOT LESS THAN 5 CUBIC FEET PER MINUTE (CFM) (0.0024 M3/S) PER PERSON OF OUTDOOR AIR AND NOT LESS THAN 15 CFM (0.0071 M3/S) OF VENTILATION AIR PER PERSON OR NOT LESS THAN THE AMOUNT OF VENTILATION AIR DETERMINED BY THE INDOOR AIR QUALITY PROCEDURE OF ASHRAE 62.1.

PLUMBING: OCCUPANT LOAD OF THE STORY IS NOT INCREASED BY MORE THAN 20 PERCENT.

STRUCTURAL: NEW STRUCTURAL ELEMENTS IN ALTERATIONS, INCLUDING CONNECTIONS AND ANCHORAGE, SHALL COMPLY WITH THE VCC.
THE MINIMUM DESIGN LOADS ON EXISTING ELEMENTS OF A STRUCTURE THAT DO NOT SUPPORT ADDITIONAL LOADS AS A RESULT OF AN ALTERATION SHALL BE THE LOADS APPLICABLE AT THE TIME THE BUILDING WAS CONSTRUCTED.
ANY EXISTING GRAVITY LOAD-CARRYING STRUCTURAL ELEMENT FOR WHICH AN ALTERATION CAUSES AN INCREASE IN DESIGN GRAVITY LOAD OF MORE THAN 5 PERCENT SHALL BE STRENGTHENED, SUPPLEMENTED, REPLACED OR OTHERWISE ALTERED AS NEEDED TO CARRY THE INCREASED GRAVITY LOAD REQUIRED BY THE VCC FOR NEW STRUCTURE.

ADDITIONS (CHAPTER 8)

SCOPE: ADDITION SHALL COMPLY WITH THE REQUIREMENTS OF THE VCC FOR NEW CONSTRUCTION WITHOUT REQUIRING THE EXISTING BUILDING TO COMPLY WITH ANY REQUIREMENTS OF THOSE CODES, EXCEPT AS REQUIRED BY CHAPTER 8 OF THE VEBC. WHERE ADDITION IMPACTS THE EXISTING BUILDING, THAT PORTION SHALL COMPLY WITH THIS CODE. ADDITION IS NOT SEPARATED FROM EXISTING BUILDING BY A FIRE WALL.

NONCONFORMITY: ADDITION DOES NOT CREATE OR EXTEND ANY NONCONFORMITY.

HEIGHT & AREA LIMITATIONS: ADDITION DOES NOT INCREASE THE HEIGHT OR AREA OF THE EXISTING BUILDING BEYOND THAT PERMITTED UNDER THE APPLICABLE PROVISIONS OF CHAPTER 5 OF THE VCC.

FIRE PROTECTION SYSTEMS: EXISTING FIRE AREA INCREASED BY THE ADDITION SHALL BE IN COMPLIANCE WITH CHAPTER 9 OF THE VCC

STRUCTURAL: ADDITION SHALL COMPLY WITH THE VCC
VOLUNTARY ADDITION OF STRUCTURAL ELEMENTS TO IMPROVE THE LATERAL FORCE-RESISTING SYSTEM OF THE EXISTING BUILDING SHALL COMPLY WITH SECTION 603.7.5.
ANY STRUCTURAL ELEMENT OF AN EXISTING BUILDING SUBJECT TO ADDITIONAL LOADS FROM THE EFFECTS OF SNOW DRIFT AS A RESULT OF AN ADDITION SHALL COMPLY WITH THE VCC.

FLOOD HAZARD AREAS: BUILDING IS NOT IN A FLOOD HAZARD AREA.

ENERGY CONSERVATION: ADDITION SHALL CONFORM TO THE PROVISIONS OF THE VECC AS THOSE PROVISIONS RELATE TO NEW CONSTRUCTION WITHOUT REQUIRING THE UNALTERED PORTION OF THE EXISTING BUILDING TO COMPLY WITH THE VECC.

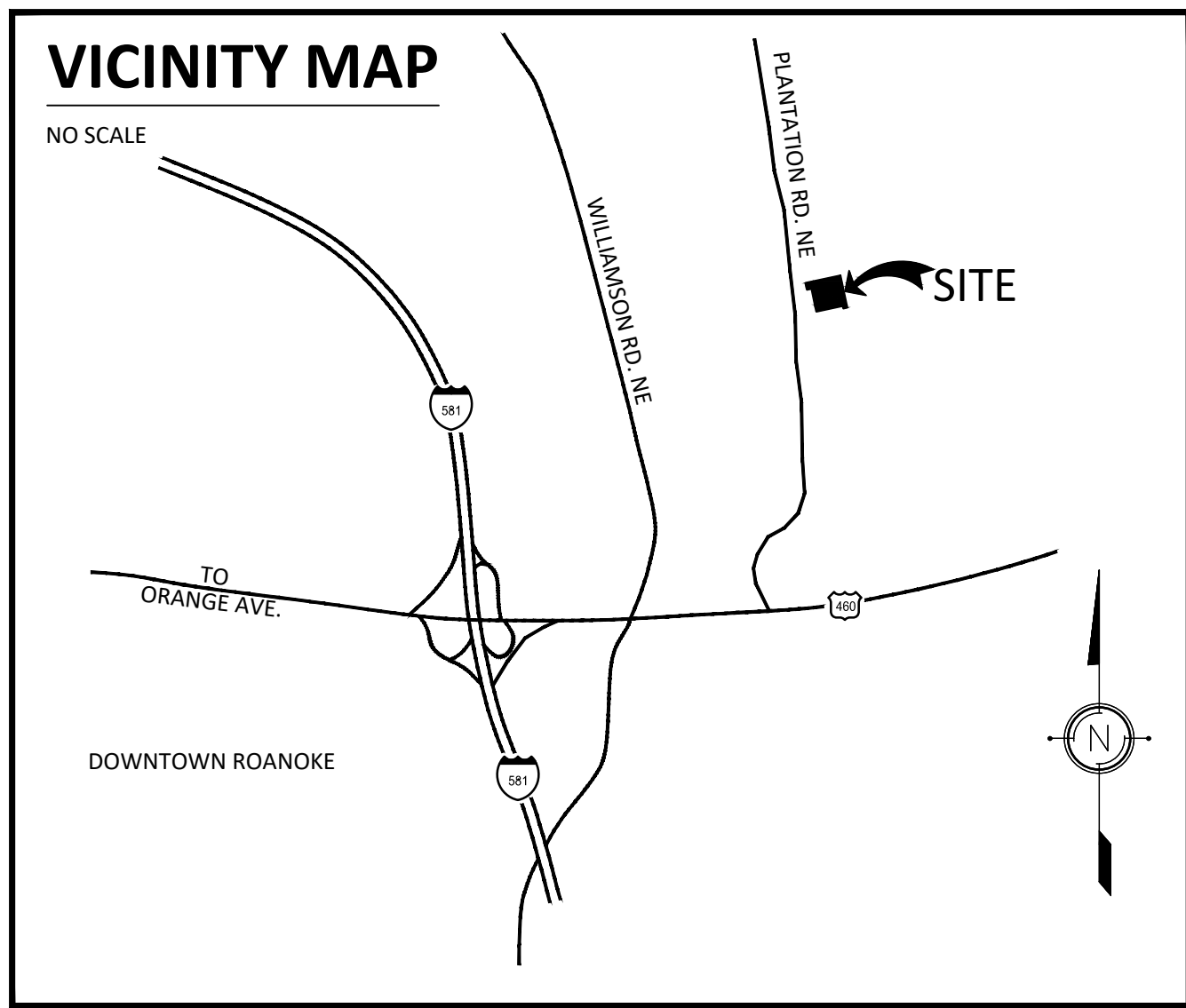
COMMERCIAL COMPLIANCE: COMMERCIAL ADDITION SHALL COMPLY WITH PRESCRIPTIVE OR PERFORMANCE COMPLIANCE.

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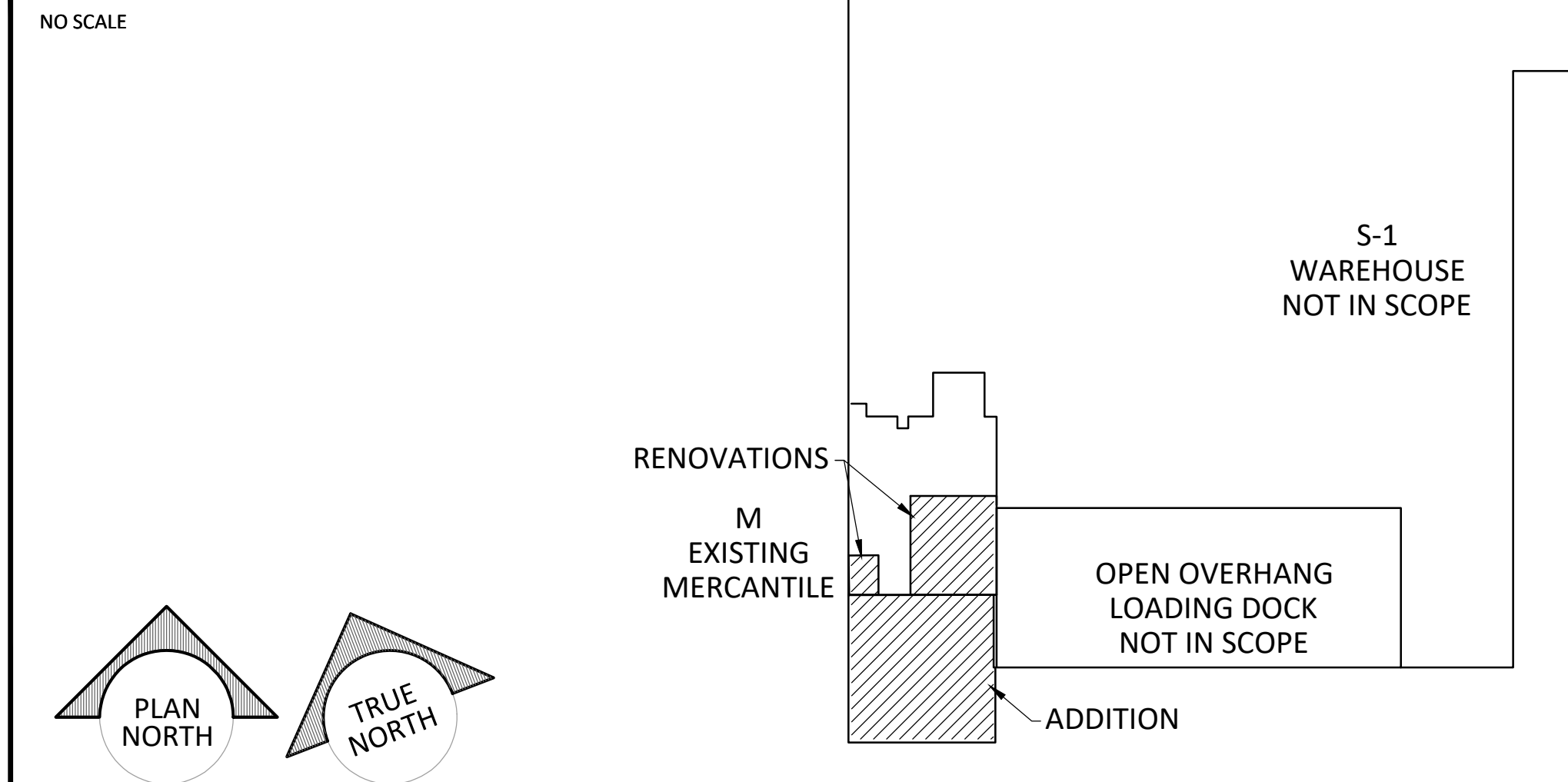
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PROJECT MANAGER: TOM WARD, PE
tom.ward@salasobrien.com



WORK AREA PLAN



SHEET LIST

COVER SHEET	
LS-1	LIFE SAFETY PLAN
SPC-1	ARCHITECTURAL SPECIFICATIONS
C-1	TITLE SHEET AND EXISTING SITE PLAN
C-2	DEMOLITION PLAN, LAYOUT PLAN, NOTES AND DETAILS
C-3	GRADING PLAN, EROSION & SEDIMENT CONTROL PLAN, NOTES AND DETAILS
C-4	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
C-5	GENERAL NOTES
S0-1	GENERAL NOTES, ABBREVIATIONS AND SHEETLIST
S0-2	TYPICAL SECTIONS, DETAILS AND SCHEDULES
S0-3	TYPICAL SECTIONS, DETAILS AND SCHEDULES
S0-4	TYPICAL SECTIONS, DETAILS AND SCHEDULES
S1-1	FOUNDATION PLAN
S1-2	ROOF FRAMING PLAN
S2-1	FOUNDATION SECTIONS AND DETAILS
S3-1	FRAMING SECTIONS AND DETAILS
S3-2	FRAMING SECTIONS AND DETAILS
AD-1	DEMOLITION PLAN AND ELEVATION
A1-1	FLOOR PLAN
A1-2	REFLECTED CEILING PLAN
A1-3	ROOF PLAN
A2-1	SCHEDULES AND DETAILS
A3-1	ELEVATIONS
A4-1	BUILDING SECTIONS
A5-1	WALL SECTIONS
P1-0	PLUMBING FLOOR PLAN
P2-0	PLUMBING DETAILS
P3-0	PLUMBING SPECIFICATIONS
E0-1	ELECTRICAL SYMBOL SCHEDULE AND DETAILS
E0-2	ELECTRICAL NOTES
E0-3	ELECTRICAL SPECIFICATIONS
E1-0	PARTIAL NEW WORK PLAN - LIGHTING AND FIRE ALARM
E2-0	PARTIAL NEW WORK PLAN - POWER
ED1-0	PARTIAL DEMOLITION PLAN - ELECTRICAL
M1-0	MECHANICAL ENLARGEMENT
M2-0	MECHANICAL DETAILS
M3-0	MECHANICAL SCHEDULES
M4-0	MECHANICAL SPECIFICATIONS

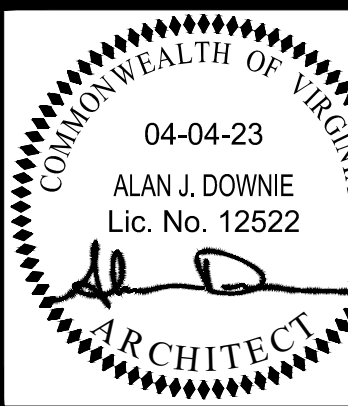
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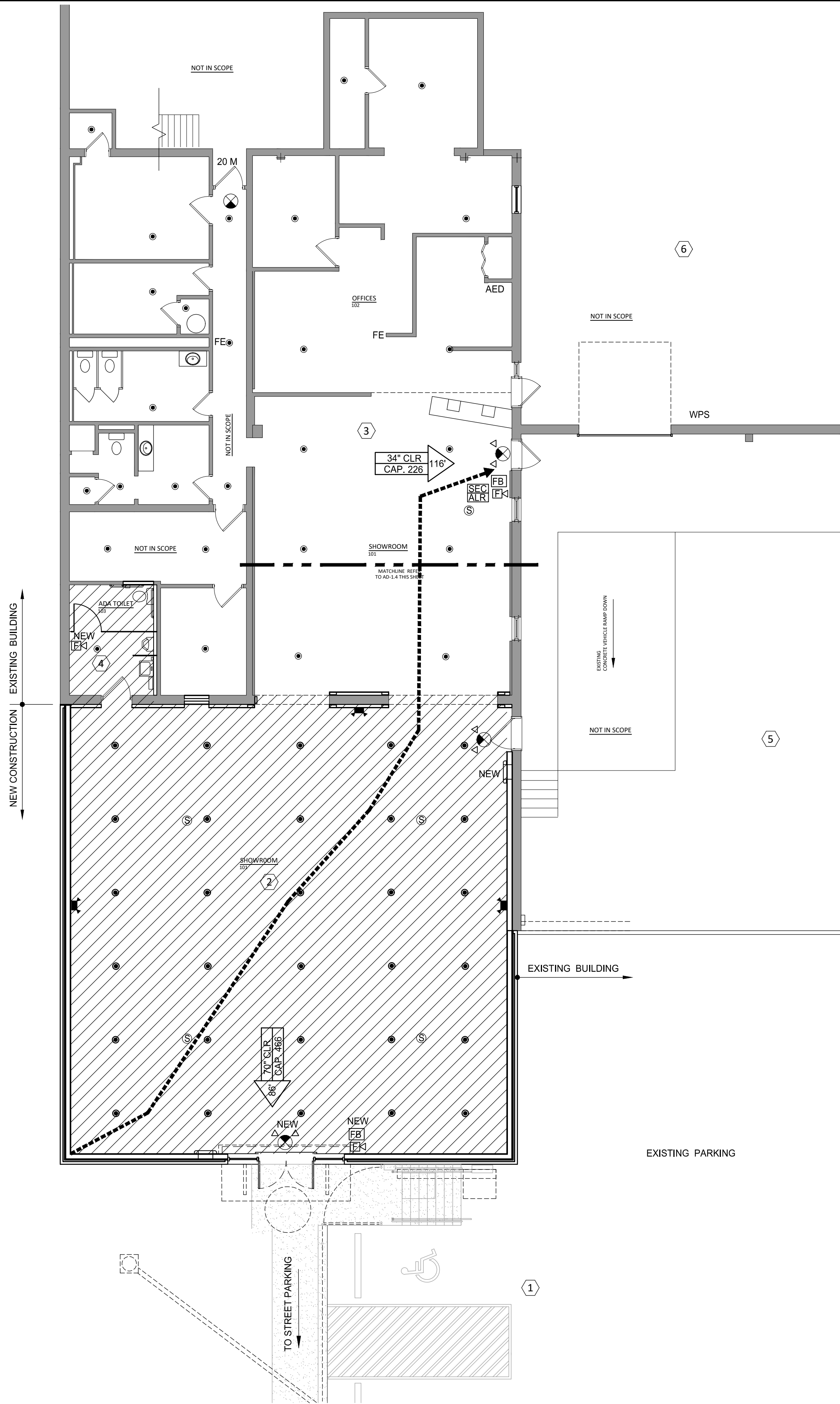
COVER SHEET



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GENERAL NEW WORK NOTES

1. PROVIDE CLOSE COORDINATION OF ALL WORK AND SCHEDULING OF WORK WITH THE OWNER AND VARIOUS TRADES TO MAINTAIN ACCESS TO ADJACENT BUSINESSES.
2. VERIFY AND COORDINATE WITH THE OWNER PRIOR TO REMOVAL ALL SCHEDULED DEMOLITION ITEMS THE OWNER WISHES TO RETAIN.
3. COORDINATE WITH SECURITY, FIRE SUPPRESSION, ELECTRICAL & MECHANICAL NEW WORK PLANS BY OTHERS.

NEW WORK PLAN NOTES

- 1 CITY OF ROANOKE PROHIBITS ANY OF THE REQUIRED ACCESSIBLE PARKING SPACES TO BE ON-STREET.
- 2 FIRE SUPPRESSION PLANS BY OTHERS. NEW SPRINKLER HEAD LOCATIONS IN ADDITION SUBJECT TO VENDOR DESIGN. SHOWN FOR PRICING PURPOSES ONLY.
- 3 EXISTING MERCANTILE USE RENOVATION AREA.
- 4 EXISTING ADA TOILET RENOVATION AREA
- 5 EXISTING OPEN CANOPIED LOADING DOCK AREA, NOT IN SCOPE
- 6 EXISTING WAREHOUSE AREA, NOT IN SCOPE

LIFE SAFETY LEGEND:

- NEW, SEMI-RECESSED FIRE EXTINGUISHER & CABINET
- INDICATES DOOR EGRESS CAPACITY & TRAVEL DISTANCE
- EXIT LIGHTS
- EMERGENCY LIGHT
- INDICATES SMOKE DETECTOR
- INDICATES FIRE ALARM BOXES (PULL STATIONS) (48" AFF)
- FIRE ALARM HORN/STROBE (AUDIO/VISUAL) (90" AFF)
- EXISTING SECURITY PANEL
- EXISTING FIRE PANEL
- EXISTING WET PIPE SPRINKLER CONNECTION
- INDICATES EXISTING DOOR FIRE RATING
- INDICATES EXISTING FIRE SUPPRESSION HEAD
- INDICATES EXISTING FIRE SUPPRESSION HEAD
- 1 HOUR FIRE RATED BARRIER, SEE PARTITION TYPES
- EGRESS ROUTES
- WORK AREA CLASSIFICATION PER IBC 2015

INSTALL EMERGENCY EGRESS LIGHTING WITH EMERGENCY BACKUP POWER. SPACE SUCH THAT ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT-CANDLE AT THE FLOOR LEVEL. VERIFY LOCATION & QUANTITY WITH LOCAL BUILDING CODE OFFICIAL. USE EMERGENCY FIXTURES & UTILIZE ALL EXISTING EMERGENCY CIRCUITS.

EXTEND EXISTING WET PIPE SYSTEM TO REMAIN.

LIFE SAFETY PLAN

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



DATE: APR 4, 2023

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LIFE SAFETY
PLAN

COMMONWEALTH OF VIRGINIA
04-04-23
ALAN J. DOWNIE
Lic. No. 12522
ARCHITECT

COMMISSION No.
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SHEET
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SECTION 01 1000
SUMMARY

PART 1 GENERAL

THE PROJECT CONSISTS OF INTERIOR RENOVATIONS AND AN ADDITION. REFER TO SPECIFICATIONS FOR MECHANICAL, ELECTRICAL, PLUMBING, CIVIL AND STRUCTURAL ON THEIR RESPECTIVE SHEETS.

1.01 DESCRIPTION OF ALTERATIONS WORK

- A. SCOPE OF DEMOLITION AND REMOVAL WORK IS SHOWN ON DRAWINGS.
B. SCOPE OF ALTERATIONS WORK IS SHOWN ON DRAWINGS.
C. SCOPE OF ADDITIONS WORK IS SHOWN ON DRAWINGS.
D. PLUMBING BY OTHERS: ALTER THE EXISTING SYSTEM AND ADD NEW CONSTRUCTION KEEPING EXISTING IN OPERATION.
E. HVAC BY OTHERS: RE-CONFIGURE THE EXISTING SYSTEM KEEPING THE EXISTING IN OPERATION.
F. ELECTRICAL POWER AND LIGHTING BY OTHERS: ALTER THE EXISTING SYSTEM, KEEPING EXISTING IN ADJACENT AREAS IN OPERATION.

1.03 OWNER OCCUPANCY

- A. CLIENT INTENDS TO OCCUPY THE PROJECT UPON SUBSTANTIAL COMPLETION.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. CONSTRUCTION OPERATIONS: LIMITED TO AREAS NOTED ON DRAWINGS.
B. ARRANGE USE OF SITE AND PREMISES TO ALLOW:
1. WORK BY OTHERS.
C. PROVIDE ACCESS TO AND FROM SITE AS REQUIRED BY LAW AND BY OWNER:
1. EMERGENCY BUILDING EXITS DURING CONSTRUCTION: KEEP ALL EXITS REQUIRED BY CODE OPEN DURING CONSTRUCTION PERIOD; PROVIDE TEMPORARY EXIT SIGNS IF EXIT ROUTES ARE TEMPORARILY ALTERED.
2. DO NOT OBSTRUCT ROADWAYS, SIDEWALKS, OR OTHER PUBLIC WAYS WITHOUT PERMIT.
D. EXISTING BUILDING SPACES OUTSIDE THE PROJECT AREA MAY NOT BE USED FOR STORAGE.
E. UTILITY OUTAGES AND SHUTDOWN:
1. LIMIT DISRUPTION OF UTILITY SERVICES TO WEEKEND HOURS.
2. PREVENT ACCIDENTAL DISRUPTION OF UTILITY SERVICES TO OTHER FACILITIES.

1.05 WORK SEQUENCE

- A. COORDINATE CONSTRUCTION SCHEDULE AND OPERATIONS WITH OWNER.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SUBMITTALS

- A. PROJECT RECORD DOCUMENTS: ACCURATELY RECORD ACTUAL LOCATIONS OF CAPPED AND ACTIVE UTILITIES AND SUBSLAB CONSTRUCTION.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. COMPLY WITH APPLICABLE CODES AND REGULATIONS FOR DEMOLITION OPERATIONS AND SAFETY OF ADJACENT STRUCTURES AND THE PUBLIC.
1. OBTAIN REQUIRED PERMITS.
2. PROVIDE, ERECT, AND MAINTAIN TEMPORARY BARRIERS AND SECURITY DEVICES.
B. DO NOT BEGIN REMOVAL UNTIL BUILT ELEMENTS TO BE SALVAGED OR RELOCATED HAVE BEEN REMOVED.
C. IF HAZARDOUS MATERIALS ARE DISCOVERED DURING REMOVAL OPERATIONS, STOP WORK AND NOTIFY OWNER; HAZARDOUS MATERIALS INCLUDE REGULATED ASBESTOS CONTAINING MATERIALS, LEAD, PCB'S, AND MERCURY.

3.02 EXISTING UTILITIES

- A. COORDINATE WORK WITH UTILITY COMPANIES; NOTIFY BEFORE STARTING WORK AND COMPLY WITH THEIR REQUIREMENTS; OBTAIN REQUIRED PERMITS.
B. PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. DRAWINGS SHOWING EXISTING CONSTRUCTION AND UTILITIES ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS ONLY.
B. REMOVE EXISTING WORK AS INDICATED AND AS REQUIRED TO ACCOMPLISH NEW WORK.
C. SERVICES (INCLUDING BUT NOT LIMITED TO HVAC, PLUMBING AND ELECTRICAL); PROVIDED UNDER SEPARATE CONTRACT. REMOVE EXISTING SYSTEMS AND EQUIPMENT ONLY AS INDICATED.
D. PROTECT EXISTING WORK TO REMAIN.

3.04 DEBRIS AND WASTE REMOVAL

- A. REMOVE DEBRIS, JUNK, AND TRASH FROM SITE IN COVERED BINS.

SECTION 05400
LIGHT GAUGE METAL FRAMING
REFER TO STRUCTURAL SPECIFICATIONS.

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL - NOT USED

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. DIMENSION LUMBER, COMPLY WITH PS 20 AND REQUIREMENTS OF SPECIFIED GRADING AGENCIES.
1. SPECIES: SPRUCE-PINE-FIR (SOUTH), UNLESS OTHERWISE INDICATED.
2. LUMBER OF OTHER SPECIES OR GRADES IS ACCEPTABLE PROVIDED STRUCTURAL AND APPEARANCE CHARACTERISTICS ARE EQUIVALENT TO OR BETTER THAN PRODUCTS SPECIFIED.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. SIZES: NOMINAL SIZES AS INDICATED ON DRAWINGS, S4S.
B. MOISTURE CONTENT: S-DRY OR MC19.
C. MISCELLANEOUS FRAMING, BLOCKING, NAILERS, GROUNDS, AND FURRING:
1. LUMBER: S4S, NO. 2 OR STANDARD GRADE.
2. BOARDS: STANDARD OR NO. 3.

2.03 ACCESSORIES

- A. FASTENERS AND ANCHORS:
1. METAL AND FINISH: HOT-DIPPED GALVANIZED STEEL PER ASTM A 153/A 153M FOR HIGH HUMIDITY AND PRESERVATIVE-TREATED WOOD LOCATIONS, UNFINISHED STEEL ELSEWHERE.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. SELECT MATERIAL SIZES TO MINIMIZE WASTE.
B. WHERE TREATED WOOD IS USED ON INTERIOR, PROVIDE TEMPORARY VENTILATION DURING AND IMMEDIATELY AFTER INSTALLATION SUFFICIENT TO REMOVE INDOOR AIR CONTAMINANTS.

SECTION 07 2700
FIRESTOPPING

PART 1 GENERAL

- 1.01 PROVIDE FIRESTOPPING INSULATION AND CAULKING TO PREVENT PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION THROUGH CONCEALED SPACES, OPENINGS BETWEEN AND AROUND FLOORS, AND IN FIRE RATED ASSEMBLIES.
1.02 SUBMIT FOR APPROVAL PRODUCT DATA, SAMPLES AND WARRANTY.
1.03 APPLICATION SHALL COMPLY WITH ALL REQUIREMENTS OF DESIGNATED UL ASSEMBLIES.

PART 2 PRODUCTS

2.01 FIRESTOPPING INSULATION

- A. BLANKET FIRESTOPPING MINERAL FIBER TYPE; THERMAFIBER SAFING INSULATION BY U.S.G. OR APPROVED EQ.
B. CERAMIC BLANKET; CERAMIC WOOL WITH 2300 DEGREE TEMPERATURE RATING
2.02 CAULKING:
A. FIRE SEPARATIONS: WF300 INTUMESCENT BY STL.
B. SMOKE SEPARATIONS: SMOKE BLOCK 136 BY STL.
C. CABLES WITHIN TRAYS: CS CABLE SPRAY BY STL.

PART 3 EXECUTION

- 3.01 REVIEW EXTENT OF WORK WITH AUTHORITIES HAVING JURISDICTION AND OBTAIN APPROVAL OF INSTALLATION THICKNESS AND METHODS.
3.02 SEQUENCE WORK TO AVOID NEED FOR REMOVAL OF FIRESTOPPING BY WORK OF OTHER TRADES.
3.03 COMPLY WITH MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS. SECURELY ANCHOR INSULATIONS WITH SAFING CLIPS. INSTALL FIRESTOPS WITHOUT GAPS OR VOIDS.
3.04 PROTECT, INSPECT AND REPAIR WORK UNTIL FINAL ACCEPTANCE.

SECTION 08 1423.16
MOLDED WOOD COMPOSITE DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

1. INTERIOR MOLDED WOOD COMPOSITE INTERIOR DOORS.

1.2 REFERENCES

- A. ASTM E 90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS.
B. ASTM E 413 - CLASSIFICATION FOR RATING SOUND INSULATION.
C. AWI/AWMA/CW/ ARCHITECTURAL WOODWORK STANDARDS, EDITION 1, SECTION 9 - DOORS.
D. UL 100 - POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES.
E. WDMA I.S. 1

1.4 SUBMITTALS

- A. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA, INCLUDING DOOR CONSTRUCTION DESCRIPTION AND WDMA I.S. 1-A AND AWS CLASSIFICATIONS.
B. SCHEDULES: SUBMIT MANUFACTURER'S SCHEDULES, INCLUDING DOOR DIMENSIONS, CUTOUTS, SPECIES, FINISH, AND HARDWARE. REFERENCE INDIVIDUAL DOOR NUMBERS AS INDICATED ON THE DRAWINGS.
C. SAMPLES: SUBMIT MANUFACTURER'S DOOR FINISH SAMPLES, SHOWING RANGE OF COLOR VARIATION.
D. CLEANING INSTRUCTIONS: SUBMIT MANUFACTURER'S CLEANING INSTRUCTIONS FOR DOORS.
E. WARRANTY: SUBMIT MANUFACTURER'S STANDARD WARRANTY.

1.5 QUALITY ASSURANCE

- A. TOLERANCES FOR WARP, TELEGRAPHING, SQUARENESS, AND PREFITTING DIMENSIONS: WDMA I.S. 1-A.
B. IDENTIFYING LABEL: EACH DOOR SHALL BEAR IDENTIFYING LABEL INDICATING:
1. DOOR MANUFACTURER.
2. ORDER NUMBER.
3. DOOR NUMBER.
4. FIRE RATING, IF APPLICABLE.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. DELIVERY:
3. DELIVER DOORS TO SITE IN MANUFACTURER'S ORIGINAL, UNOPENED CONTAINERS AND PACKAGING, WITH LABELS CLEARLY IDENTIFYING PRODUCT NAME AND MANUFACTURER.
4. PACKAGE DOORS INDIVIDUALLY IN POLYBAGS.
B. STORAGE:
1. STORE DOORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. STORE DOORS IN CLEAN, DRY AREA INDOORS, PROTECTED FROM DAMAGE AND DIRECT SUNLIGHT.
3. STORE DOORS FLAT ON LEVEL SURFACE.
4. DO NOT STORE DOORS DIRECTLY ON CONCRETE.
5. KEEP DOORS COMPLETELY COVERED. USE COVERING WHICH ALLOWS AIR CIRCULATION AND DOES NOT PERMIT LIGHT TO PENETRATE.
6. STORE DOORS BETWEEN 50 AND 90 DEGREES F (10 AND 32 DEGREES C) AND 30 TO 50 PERCENT RELATIVE HUMIDITY.
C. HANDLING:
1. HANDLE DOORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROTECT DOORS AND FINISH DURING HANDLING AND INSTALLATION TO PREVENT DAMAGE.
3. HANDLE DOORS WITH CLEAN HANDS OR CLEAN GLOVES.
4. LIFT AND CARRY DOORS. DO NOT DRAG DOORS ACROSS OTHER DOORS OR SURFACES.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. DO NOT SUBJECT DOORS TO EXTREME CONDITIONS OR CHANGES IN TEMPERATURE OR RELATIVE HUMIDITY IN ACCORDANCE WITH WDMA I.S. 1-A.

1.8 WARRANTY

- A. WARRANT SOLID CORE, INTERIOR DOORS FOR LIFE OF INSTALLATION AGAINST WARPAGE, DELAMINATION, AND DEFECTS IN MATERIALS AND WORKMANSHIP.
B. DEFECTS NOTED DURING WARRANTY PERIOD SHALL BE CORRECTED AT NO COST TO OWNER. CORRECTIVE WORK SHALL INCLUDE LABOR AND MATERIAL FOR REPAIR, REPLACEMENT, REFINISHING, AND REHANGING AS REQUIRED.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. JELD-WEN, INC.
440 S. CHURCH ST.
CHARLOTTE, NC 28202

2.2 GENERAL

- A. MOLDED WOOD COMPOSITE INTERIOR DOOR AND JELD-WEN PRO CORE COLONIST ALL PANEL OR APPROVED EQUAL.
B. GLAZING: AS SPECIFIED ON PLANS.

PART 3 EXECUTION

3.1 EXAMINATION

- A. EXAMINE LOCATIONS TO RECEIVE DOORS. NOTIFY ARCHITECT OF CONDITIONS THAT WOULD ADVERSELY AFFECT INSTALLATION OR SUBSEQUENT USE. DO NOT BEGIN INSTALLATION UNTIL UNACCEPTABLE CONDITIONS ARE CORRECTED.
B. ENSURE FRAMES ARE SOLIDLY Y ANCHORED, ALLOWING NO DEFLECTION WHEN DOORS ARE INSTALLED.
C. ENSURE FRAMES ARE PLUMB, LEVEL, SQUARE, AND WITHIN TOLERANCE.

3.2 PREPARATION

- A. ALLOW DOORS TO BECOME ACCLIMATED TO BUILDING TEMPERATURE AND RELATIVE HUMIDITY FOR A MINIMUM OF 24 HOURS BEFORE INSTALLATION.

3.3 INSTALLATION

- A. INSTALL DOORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL DOORS AT LOCATIONS INDICATED ON THE DRAWINGS.
C. INSTALL DOORS PLUMB, LEVEL, AND SQUARE.
D. INSTALL DOOR HARDWARE AS SPECIFIED

3.4 ADJUSTING

- A. ADJUST DOORS TO SWING FREELY, WITHOUT BINDING IN FRAME.
B. ADJUST HARDWARE TO OPERATE PROPERLY.
C. REPAIR MINOR DAMAGES TO FINISH IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND AS APPROVED BY ARCHITECT.
D. REMOVE AND REPLACE DAMAGED DOORS THAT CANNOT BE SUCCESSFULLY REPAIRED, AS DETERMINED BY ARCHITECT.

3.5 CLEANING

- A. CLEAN DOORS PROMPTLY AFTER INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. DO NOT USE HARSH CLEANING MATERIALS OR METHODS THAT COULD DAMAGE FINISH.

3.6 PROTECTION

- A. PROTECT INSTALLED DOORS FROM DAMAGE DURING CONSTRUCTION.

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

- A. FURNISH TEMPLATES FOR DOOR AND FRAME PREPARATION TO MANUFACTURERS AND FABRICATORS OF PRODUCTS REQUIRING INTERNAL REINFORCEMENT FOR DOOR HARDWARE.
B. CONVEY OWNER AND CLIENT KEYING REQUIREMENTS TO MANUFACTURERS.

1.02 SUBMITTALS

- A. MAINTENANCE DATA: INCLUDE DATA ON OPERATING HARDWARE, LUBRICATION REQUIREMENTS, AND INSPECTION PROCEDURES RELATED TO PREVENTATIVE MAINTENANCE.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. PROVIDE HARDWARE SPECIFIED OR REQUIRED TO MAKE DOORS FULLY FUNCTIONAL, COMPLIANT WITH APPLICABLE CODES, AND SECURE TO THE EXTENT INDICATED.
B. FUNCTION: LOCK AND LATCH FUNCTION NUMBERS AND DESCRIPTIONS OF MANUFACTURES SERIES AS SHOWN ON THE DRAWINGS.
C. FINISHES: FACILITY STANDARD.
2.02 LOCKS AND LATCHES
A. LOCKS: PROVIDE A LOCK FOR EVERY DOOR, UNLESS SPECIFICALLY INDICATED AS NOT REQUIRING LOCKING.
1. HARDWARE SETS INDICATE LOCKING FUNCTIONS REQUIRED FOR EACH DOOR.
2. IF NO HARDWARE SET IS INDICATED FOR A SWINGING DOOR PROVIDE AN OFFICE LOCKSET.
3. TRIM: PROVIDE LEVER HANDLE OR PULL TRIM ON OUTSIDE OF ALL LOCKS UNLESS SPECIFICALLY STATED TO HAVE NO OUTSIDE TRIM.
4. LOCK CYLINDERS: PROVIDE KEY ACCESS ON OUTSIDE OF ALL LOCKS UNLESS SPECIFICALLY STATED TO HAVE NO LOCKING OR NO OUTSIDE TRIM.

- B. LOCK CYLINDERS: MANUFACTURER'S STANDARD TUMBLER TYPE, SIX-PIN STANDARD CORE.
C. KEYING: AS SPECIFIED BY OWNER AND CLIENT. CONTRACTOR SHALL COORDINATE
D. LATCHES: PROVIDE A LATCH FOR EVERY DOOR THAT IS NOT REQUIRED TO LOCK, UNLESS SPECIFICALLY INDICATED "PUSH/PULL" OR "NOT REQUIRED TO LATCH".
2.03 HINGES
A. HINGES: PROVIDE HINGES ON EVERY SWINGING DOOR.
1. PROVIDE FIVE-KNUCKLE FULL MORTISE BUTT HINGES UNLESS OTHERWISE INDICATED.
2. PROVIDE BALL-BEARING HINGES AT ALL DOORS HAVING CLOSERS.
3. PROVIDE HINGES IN THE QUANTITIES INDICATED.

2.04 CYLINDRICAL LOCKSETS

1. LOCKING FUNCTIONS: AS DEFINED IN BHMA A156.2

2.05 CLOSERS

- A. CLOSERS: COMPLYING WITH BHMA A156.4.
1. AT CORRIDORS, LOCATE DOOR-MOUNTED CLOSER ON ROOM SIDE OF DOOR.
2.06 STOPS AND HOLDERS
A. STOPS: COMPLYING WITH BHMA A156.8; PROVIDE A STOP FOR EVERY SWINGING DOOR, UNLESS OTHERWISE INDICATED.
1. PROVIDE WALL STOPS, UNLESS OTHERWISE INDICATED.
2. IF WALL STOPS ARE NOT PRACTICAL, DUE TO CONFIGURATION OF ROOM OR FURNISHINGS, PROVIDE OVERHEAD STOP.
3. STOP IS NOT REQUIRED IF POSITIVE STOP FEATURE IS SPECIFIED FOR DOOR CLOSER; POSITIVE STOP FEATURE OF DOOR CLOSER IS NOT AN ACCEPTABLE SUBSTITUTE FOR A STOP UNLESS SPECIFICALLY SO STATED.

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PART 3 EXECUTION

3.01 INSTALLATION

- A. INSTALL HARDWARE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND APPLICABLE CODES.
B. USE TEMPLATES PROVIDED BY HARDWARE ITEM MANUFACTURER.

3.02 ADJUSTING

- AFTER HVAC SYSTEM AND TESTED AND BALANCED, ADJUST HARDWARE FOR SMOOTH OPERATION.

SECTION 09 0561

COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. CONTRACTOR MAY PERFORM ADHESIVE AND BOND TEST WITH HIS OWN PERSONNEL OR HIRE A TESTING AGENCY.

PART 2 PRODUCTS

2.01 MATERIALS

- A. PATCHING COMPOUND: FLOOR COVERING MANUFACTURER'S RECOMMENDED PRODUCT, SUITABLE FOR CONDITIONS, AND COMPATIBLE WITH ADHESIVE AND FLOOR COVERING. IN THE ABSENCE OF ANY RECOMMENDATION FROM FLOORING MANUFACTURER, PROVIDE A PRODUCT WITH THE FOLLOWING CHARACTERISTICS:
B. REMEDIAL FLOOR COATING: SINGLE- OR MULTI-LAYER COATING OR COATING/OVERLAY COMBINATION INTENDED BY ITS MANUFACTURER

TO RESIST WATER VAPOR TRANSMISSION TO DEGREE SUFFICIENT TO MEET FLOORING MANUFACTURER'S EMISSION LIMITS, RESISTANT TO THE LEVEL OF ALKALINITY (PH) FOUND, AND SUITABLE FOR ADHESION OF FLOORING WITHOUT FURTHER TREATMENT.

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION

- A. PERFORM FOLLOWING OPERATIONS IN THE ORDER INDICATED:
1. VISUAL OBSERVATION OF EXISTING FLOOR COVERING, FOR ADHESION, WATER DAMAGE, ALKALINE DEPOSITS, AND OTHER DEFECTS.
2. REMOVAL OF EXISTING FLOOR COVERING.
3. PRELIMINARY CLEANING.
4. INTERNAL RELATIVE HUMIDITY TESTS; IN SAME LOCATIONS AS MOISTURE VAPOR EMISSION TESTS, UNLESS OTHERWISE INDICATED.
5. SPECIFIED REMEDIATION, IF REQUIRED.
6. PATCHING, SMOOTHING, AND LEVELING, AS REQUIRED.
7. OTHER PREPARATION SPECIFIED.
8. ADHESIVE BOND AND COMPATIBILITY TEST.
9. PROTECTION.
B. REMEDIATIONS:
2. ACTIVE WATER LEAKS OR CONTINUING MOISTURE MIGRATION TO SURFACE OF SLAB: CORRECT THIS CONDITION BEFORE DOING ANY OTHER REMEDIATION; RE-TEST AFTER CORRECTION.
3. EXCESSIVE MOISTURE EMISSION OR RELATIVE HUMIDITY: IF AN ADHESIVE THAT IS RESISTANT TO THE LEVEL OF MOISTURE PRESENT IS AVAILABLE AND ACCEPTABLE TO FLOORING MANUFACTURER, USE THAT ADHESIVE FOR INSTALLATION OF THE FLOORING; IF NOT, APPLY REMEDIAL FLOOR COATING OVER ENTIRE SUSPECT FLOOR AREA.

3.02 ADHESIVE BOND AND COMPATIBILITY TESTING

- A. COMPLY WITH REQUIREMENTS AND RECOMMENDATIONS OF FLOOR COVERING MANUFACTURER.

SECTION 09 2116

GYPSSUM BOARD ASSEMBLIES

PART 1 GENERAL - NOT USED

PART 2 PRODUCTS

2.01 GYPSSUM BOARD ASSEMBLIES

- A. PROVIDE COMPLETED ASSEMBLIES COMPLYING WITH ASTM C840 AND GA-216.

2.02 METAL FRAMING MATERIALS

- A. NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.
1. STUDS: "C" SHAPED WITH FLAT OR FORMED WEBS.
2. RUNNERS: "U" SHAPED, SIZED TO MATCH STUDS.

2.03 BOARD MATERIALS

- A. GYPSSUM WALLBOARD: PAPER-FACED GYPSSUM PANELS AS DEFINED IN ASTM C1396/1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT. IMPACT RESISTANT WHERE INDICATED.
1. APPLICATION: USE FOR VERTICAL SURFACES AND BULKHEADS, UNLESS OTHERWISE INDICATED.
2. THICKNESS:
a. VERTICAL SURFACES: 5/8" INCH.

2.04 ACCESSORIES

- A. BEADS, JOINT ACCESSORIES, AND OTHER TRIM: ASTM C1047, GALVANIZED STEEL, UNLESS NOTED OTHERWISE.
1. RIGID CORNER BEADS: LOW PROFILE, FOR 90 DEGREE OUTSIDE CORNERS.
B. JOINT MATERIALS: ASTM C475.
1. TAPE: 2 INCH WIDE, COATED GLASS FIBER TAPE FOR JOINTS AND CORNERS.
2. READY-MIXED VINYL-BASED JOINT COMPOUND.
C. SCREWS FOR FASTENING OF GYPSSUM PANEL PRODUCTS TO COLD-FORMED STEEL STUDS LESS THAN 0.033 INCH IN THICKNESS AND WOOD MEMBERS: ASTM C1002; SELF-PIERCING TAPPING SCREWS, CORROSION RESISTANT.
D. SCREWS FOR FASTENING OF GYPSSUM PANEL PRODUCTS TO STEEL MEMBERS FROM 0.033 TO 0.112 INCH IN THICKNESS: ASTM C954; STEEL DRILL SCREWS, CORROSION RESISTANT.

PART 3 EXECUTION

3.01 FRAMING INSTALLATION

- A. METAL FRAMING: INSTALL IN ACCORDANCE WITH ASTM C754 AND MANUFACTURER'S INSTRUCTIONS.
B. WOOD FRAMING: PROVIDE A COMPLETE SYSTEM IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GYPSSUM CONSTRUCTION HANDBOOK AS PUBLISHED BY UNITED STATES GYPSSUM.

3.02 BOARD INSTALLATION

- A. COMPLY WITH ASTM C 840, GA-216, AND MANUFACTURER'S INSTRUCTIONS. INSTALL TO MINIMIZE BUTT END JOINTS, ESPECIALLY IN HIGHLY VISIBLE LOCATIONS.

3.03 JOINT TREATMENT

- A. PAPER FACED GYPSSUM BOARD: USE FIBERGLASS JOINT TAPE, BEDDED WITH READY-MIXED VINYL-BASED JOINT COMPOUND AND FINISHED WITH READY-MIXED VINYL-BASED JOINT COMPOUND.
B. FINISH GYPSSUM BOARD IN ACCORDANCE WITH LEVELS DEFINED IN ASTM C840, AS FOLLOWS:
1. LEVEL 4: WALLS AND CEILINGS TO RECEIVE PAINT FINISH OR WALL COVERINGS, UNLESS OTHERWISE INDICATED.
2. LEVEL 1: WALL AREAS ABOVE FINISHED CEILINGS, WHETHER OR NOT ACCESSIBLE IN THE COMPLETED CONSTRUCTION.

SECTION 09 5100
ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

- 1.01 PROVIDE A COMPLETE SYSTEM OF ACOUSTICAL TILE CEILINGS WHERE INDICATED ON CONTRACT DOCUMENTS.
1.02 SUBMIT CATALOG DATA AND SAMPLE OF CHANNELS AND CEILING TILES

- 1.03 AT COMPLETION OF JOB CONTRACTOR SHALL PROVIDE OWNER WITH A QUANTITY OF UNINSTALLED CEILING TILES EQUALING 2% OF TILE INSTALLED ON JOB.

PART 2 - PRODUCTS

- 2.01 SUSPENSION SYSTEM MATERIALS & COMPONENTS:
A. METAL CHANNEL, RUNNERS, 1-1/2" 475 LBS. PER THOUSAND LINEAL FEET COLD ROLLED, ASPHALTUM PAINTED CHANNELS.
B. HANGER WIRE: GALVANIZED SOFT ANNEALED STEEL, SIZED SO THAT STRESS 3-TIMES HANGER DESIGN
LOAD (ASTM C-635, TABLE 1, DIRECT HUNG) WILL BE LESS THAN YIELD STRESS OF WIRE, BUT PROVIDE NOT LESS THAN 12 GAUGE (0.106") WIRE.
C. ACCESSORIES: AS REQUIRED TO COMPLETE INSTALLATION.
D. HANGERS: SCREW TYPE INSTALLED IN MANNER RECOMMENDED BY ACOUSTICAL MATERIALS ASSOCIATION.

- E. HOLD DOWN CLIPS WHERE REQUIRED TO MEET U.L. CLASSIFICATION.

2.02 METAL SUSPENSION SYSTEMS

A. COMPONENTS:

- A.A. MAIN BEAMS AND CROSS TEES, BASE METAL AND END DETAIL, FABRICATED FROM COMMERCIAL QUALITY HOT DIPPED GALVANIZED STEEL, COMPLYING WITH ASTM A 653. MAIN BEAMS AND CROSS TEES ARE DOUBLE WEB STEEL CONSTRUCTION WITH TYPE EXPOSED FLANGE DESIGN. EXPOSED SURFACES CHEMICALLY CLEANSED, CAPPING PREFINISHED GALVANIZED STEEL IN BAKED POLYESTER PAINT. MAIN BEAMS AND CROSS TEES SHALL HAVE ROTARY STITCHING.
a. STRUCTURAL CLASSIFICATION: ASTM C 635 INTERMEDIATE DUTY DUTY
b. COLOR: WHITE AND MATCH THE ACTUAL COLOR OF THE SELECTED CEILING TILE, UNLESS NOTED OTHERWISE.
c. SUSTAINABILITY: ENVIRONMENTAL PRODUCT DECLARATION (EPD), HEALTH PRODUCT DECLARATION (HPD)
d. ACCEPTABLE PRODUCT: PRELUDE XL 15/16" EXPOSED TEE AS MANUFACTURED BY ARMSTRONG WORLD INDUSTRIES
B. ATTACHMENT DEVICES: SIZE FOR FIVE TIMES DESIGN LOAD INDICATED IN ASTM C 835, TABLE 1, DIRECT HUNG UNLESS OTHERWISE INDICATED.
C. WIRE FOR HANGERS AND TIES: ASTM A 641, CLASS 1 ZINC COATING, SOFT ANNEALED, WITH A YIELD STRESS LOAD OF AT LEAST TIME THREE DESIGN LOAD, BUT NOT LESS THAN 12 GAUGE.

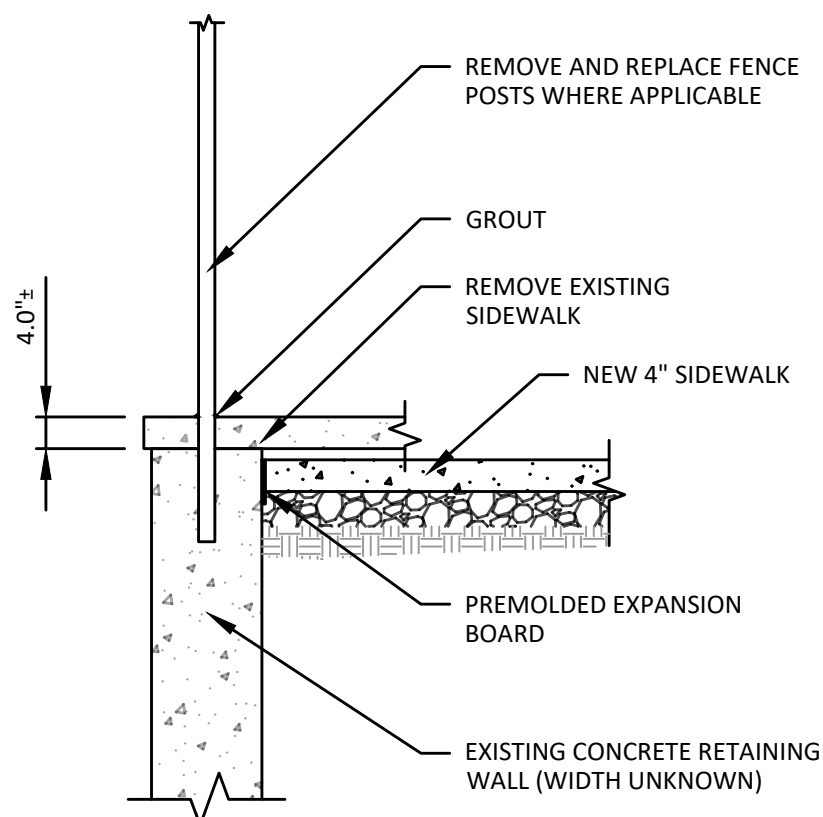
2.03 ACOUSTICAL CEILING UNITS

- A. ACOUSTICAL PANELS TYPE AP
1. SURFACE TEXTURE: FINE
2. COMPOSITION: MINERAL FIBER
3. COLOR: WHITE
4. SIZE: 24 IN X 24 IN
5. EDGE PROFILE: SQUARE LAY-IN 15/16 IN FOR INTERFACE WITH PRELUDE XL 15/16" EXPOSED TEE GRID.
6. NOISE REDUCTION COEFFICIENT(NRC): ASTM C 423; CLASSIFIED WITH UL LABEL ON PRODUCT CARTON 0.80
7. CEILING ATTENUATION CLASS (CAC) : ASTM C 1414; CLASSIFIED WITH UL LABEL ON PRODUCT CARTON 35
8. SABIN/NA
9. ARTICULATION CLASS (AC): ASTM E 1111; CLASSIFIED WITH UL LABEL ON PRODUCT CARTON 170
10. FLAME SPREAD: ASTM E 1264; CLASS A (UL)
11. LIGHT REFLECTANCE (LR) WHITE PANEL: ASTM E 1477; 0.88
12. DIMENSIONAL STABILITY: HUMIGUARD PLUS
13. RECYCLE CONTENT: POST-CONSUMER - 0% - 1% PRE-CONSUMER - 68% - 75%
14. MATERIAL INGREDIENT TRANSPARENCY: HEALTH PRODUCT DECLARATION (HPD); DECLARE LABEL
15. LIFE CYCLE ASSESSMENT: THIRD PARTY CERTIFIED ENVIRONMENT PRODUCT DECLARATION (EPD)
16. ACCEPTABLE PRODUCT: ULTIMA HIGH NRC, 1940 NO ADDED FORMALDEHYDE AS MANUFACTURED BY ARMSTRONG WORLD INDUSTRIES
17.

ROANOKE CITY NOTES:
ALL LANDOWNERS, DEVELOPERS AND CONTRACTORS FAILURE TO COMPLY WITH CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER

CONSTRUCTION PROCEDURE REQUIREMENTS

- RIGHT-OF-WAY EXCAVATION PERMIT - PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT-OF-WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
- LAND DISTURBANCE PERMIT - AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
- PLANS AND PERMITS - A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
- LOCATION OF UTILITIES - THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
- CONSTRUCTION ENTRANCE - THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
- STREETS TO REMAIN CLEAN - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
- BARRICADES/DITCHES - THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
- SEWER AND PAVEMENT REPLACEMENT - CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY.
- APPROVED PLANS/CONSTRUCTION CHANGES - ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
- FINAL ACCEPTANCE/CITY - THE CONTRACTOR SHALL PREPARE AND SUBMIT ON BEHALF OF THE OWNER TO THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS-BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAINS AND THE STORMWATER MANAGEMENT FACILITIES PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS-BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NA 83, IN THE FORM OF 1 PAPER COPY AND 1 DIGITAL AUTOCAD FILE.



- NOTES:
- REFER TO SIDEWALK DETAIL FOR ADDITIONAL DETAILS
 - REMOVE THE EXISTING SIDEWALK WHERE SHOWN
 - THE VERTICAL DISTANCE FROM THE TOP OF THE SIDEWALK TO THE TOP WALL VARIES.
 - THE NEW SIDEWALK SHALL BE ADJACENT TO THE EXISTING RETAINING WALL

EXISTING SIDEWALK AND WALL

NO SCALE

SURVEY NOTES:

- THIS PLAT IS BASED ON A PLAT PROVIDED BY THE OWNER AND DATED APRIL 1956 BY C.B. MALCOLM & SON
- THE INTENT OF THIS SURVEY IS TO SHOW THE LOCATION AND TOPOGRAPHY ADJACENT TO THE PROPOSED ADDITION. NO CURRENT TITLE REPORT IS AVAILABLE
- THE ELEVATION DATUM IS ASSUMED AND NORTH IS BASED ON THE ROANOKE CITY GIS MAPPING
- NO UNDERGROUND UTILITIES ARE SHOWN

OWNER:
BLUE EAGLE C M LLC
1502 WILLIAMSON ROAD
ROANOKE, VIRGINIA 24012

CONTACT:
JEFF AUSTIN, CHC
CHIEF ESTIMATOR
P&S BUILDING INNOVATIONS
(540) 985-9160
JEFF.AUSTIN@P&SBUILDINGINC.COM

ENGINEER
HUGHES ASSOCIATES ARCHITECTS & ENGINEERS, PC
656 ELM AVE. SW
ROANOKE, VIRGINIA 24016
540.342.4002
PROJECT MANAGER: MARK J. AYLES P.E.
MAYLES@HUGHESAE.COM

SITE DATA:
SITE ADDRESS: 1735 PLANTATION ROAD NE
ROANOKE, VIRGINIA 24012
311306
TAX ID:
SITE AREA: 2.90± ACRES (SURVEY)

FLOOD ZONE DATA: PANEL #51161C0166G ZONE X
CURRENT USE: CONSTRUCTION SUPPLY
PROPOSED USE: CONSTRUCTION SUPPLY
EXISTING STRUCTURE: 51,520 SF
PROPOSED STRUCTURE: 2,450 SF (>4.8 % INCREASE)

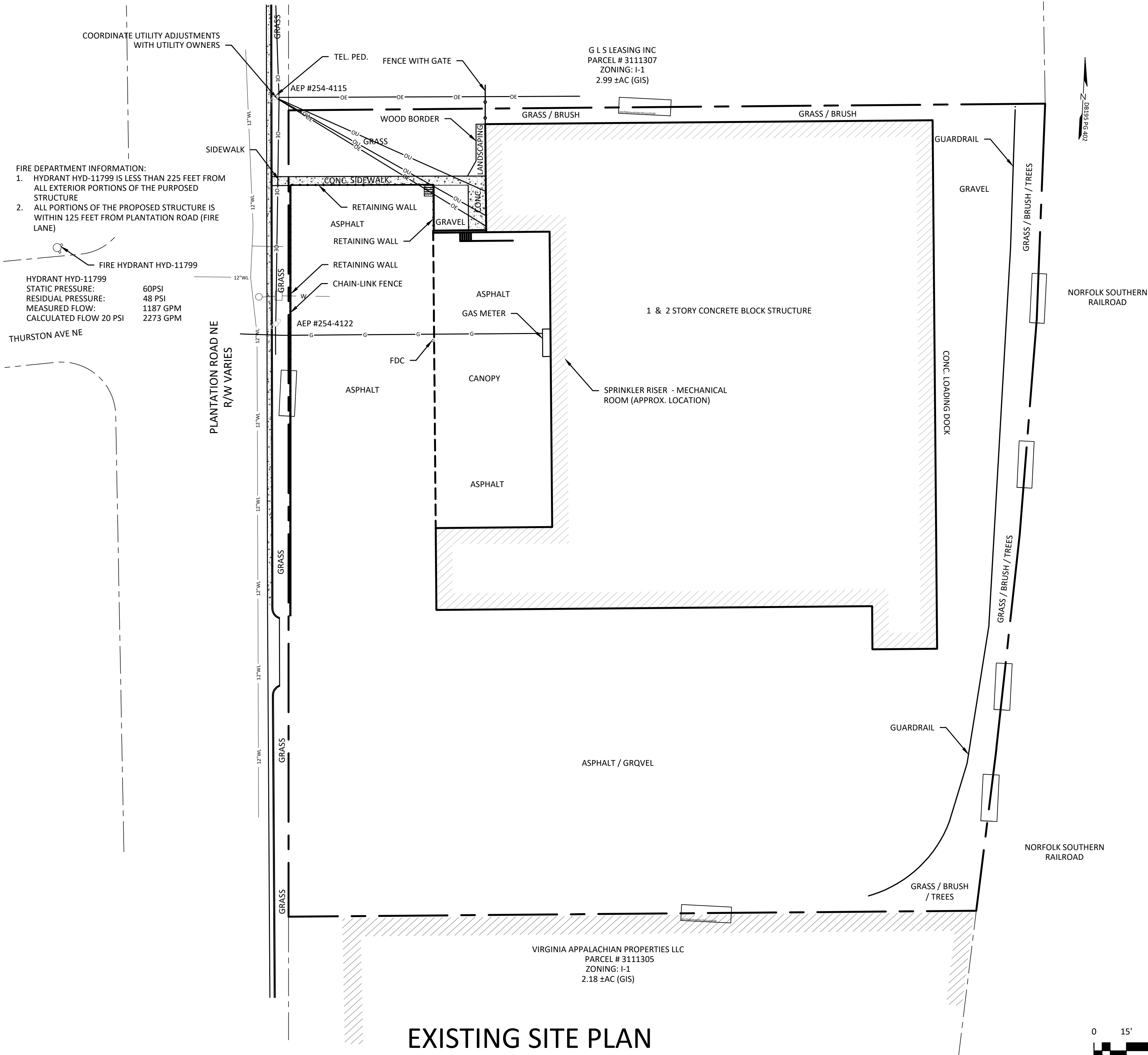
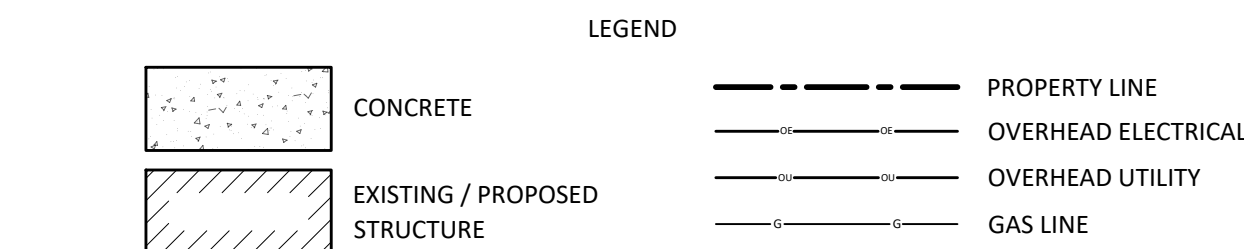
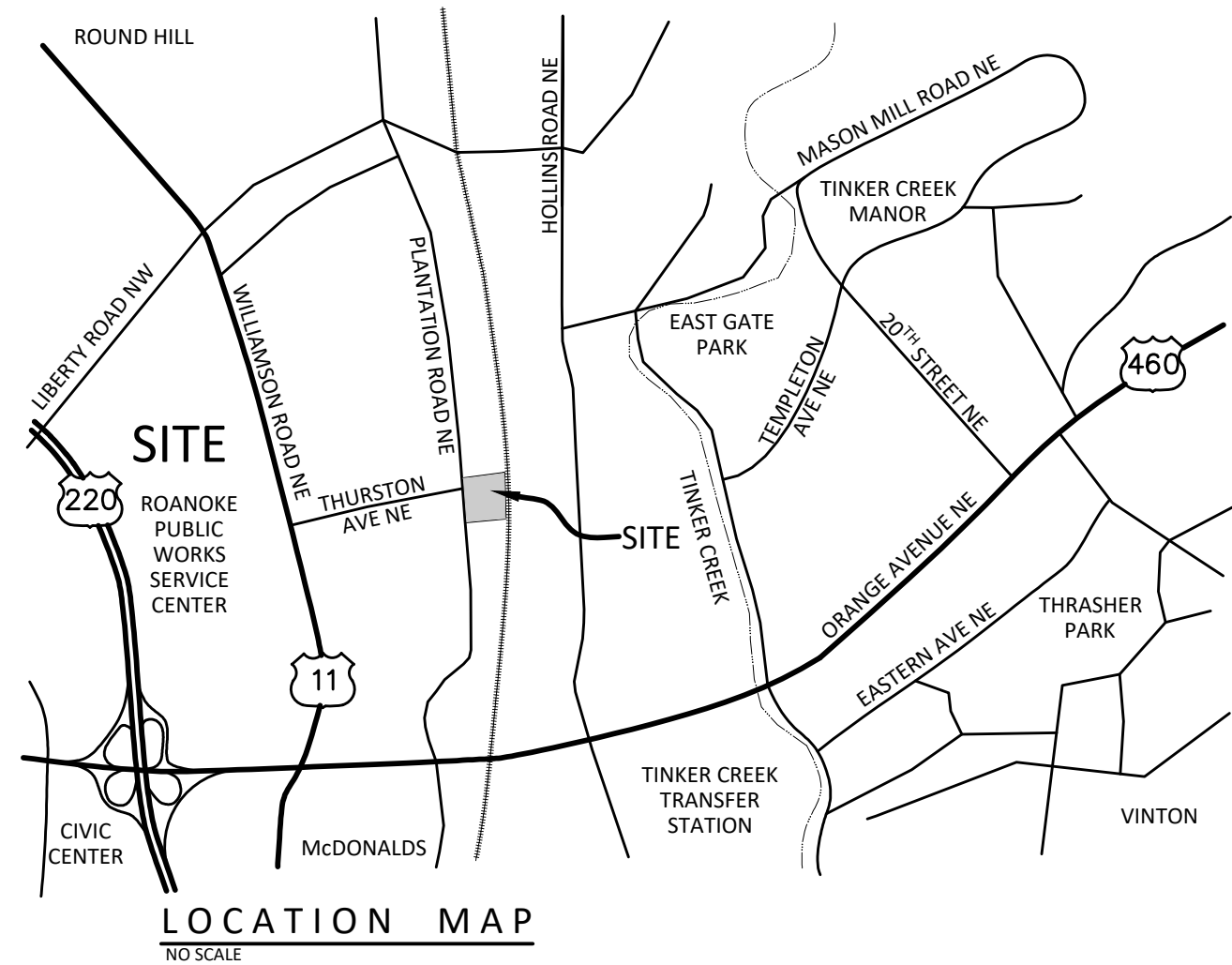
PARKING INFORMATION:
PARKING SPACES: 13 ON STREET (EXISTING / PROPOSED)
3 RESERVED UP FRONT INCLUDING
1 ADA COMPLIANT SPACE

ZONING DATA:
PROPERTY ZONING: I-1 LIGHT INDUSTRIAL
FRONT SETBACK: 0' MIN. (NO MAXIMUM)
SIDE YARD REQUIRED: 0'
REAR YARD REQUIRED: 0'
MAXIMUM BUILDING HEIGHT: NONE
IMPERVIOUS AREA: 90.0% MAXIMUM
91.7% EXISTING / PROPOSED
10% MINIMUM
140% EXISTING / PROPOSED
6,600± SF

TREE CANOPY:
DISTURBED AREA:
THE SITE CURRENTLY HAS LESS THAN THE 10% MINIMUM REQUIRED FOR PERVIOUS AREA, 8.30%. THE PROPOSED SITE DESIGN HOLDS THIS CONSTANT

NO NEW SIGNAGE IS PROPOSED
NO NEW EXTERIOR SITE LIGHTING IS PROPOSED

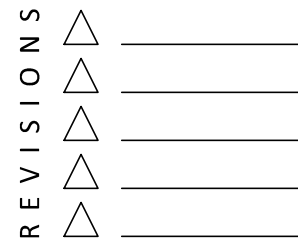
SHEET LIST:
C-1 TITLE SHEET AND EXISTING SITE
C-2 DEMOLITION PLAN, LAYOUT PLAN, NOTED AND DETAILS
C-3 GRADING PLAN, EROSION & SEDIMENT CONTROL PLAN, NOTES AND DETAILS
C-4 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
C-5 GENERAL NOTES



EXISTING SITE PLAN

Scale 1" = 30'

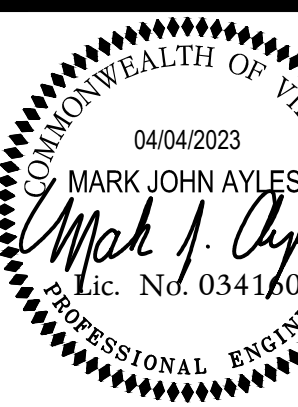
DATE: APR 4, 2023



HUGHES ASSOCIATES
ARCHITECTS & ENGINEERS
656 ELM AVENUE SW | ROANOKE, VIRGINIA 24016
540.342.4002
www.hughesae.com

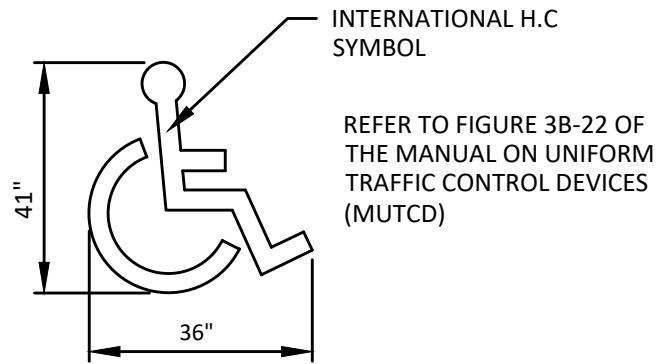
ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

TITLE SHEET
AND EXISTING
SITE



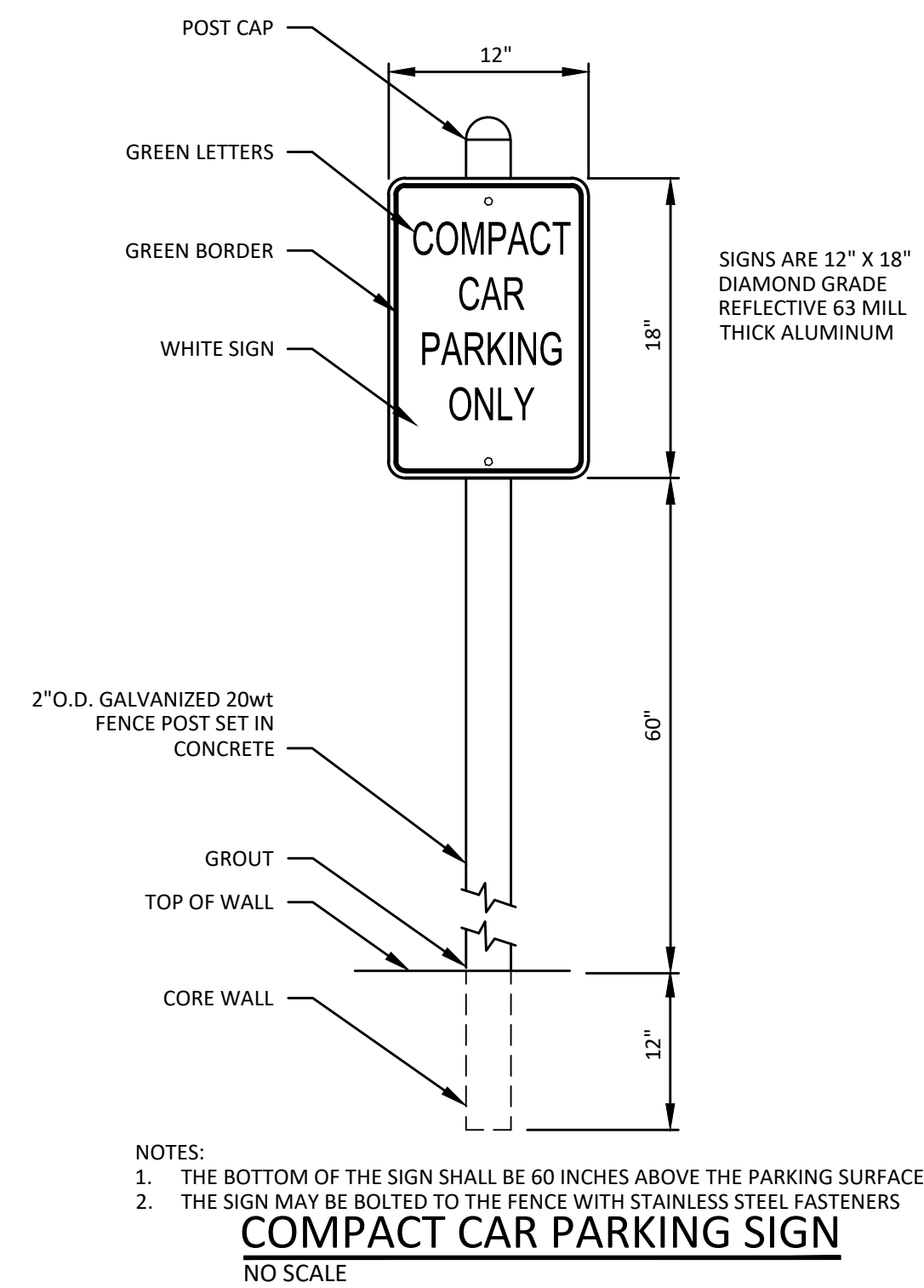
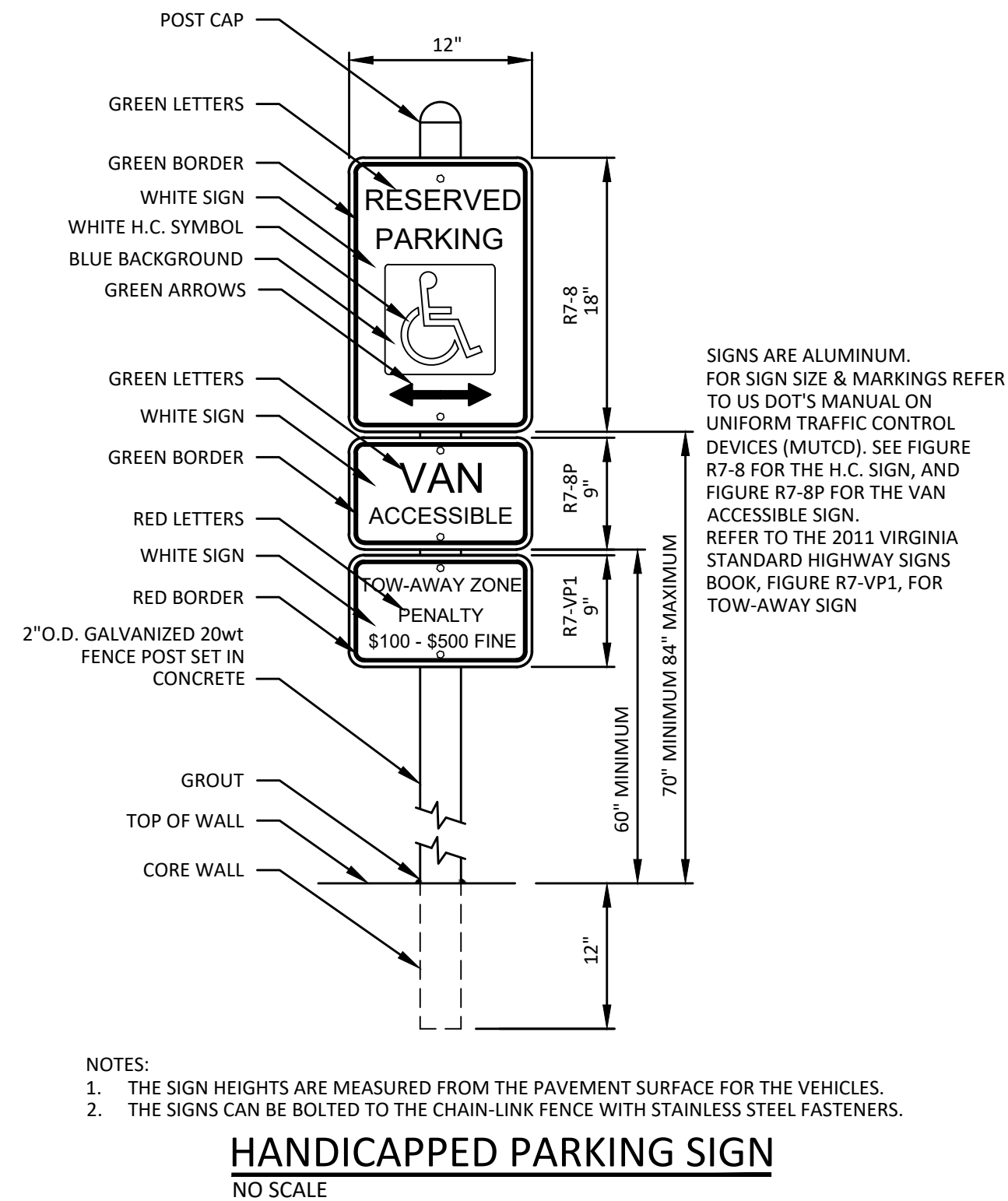
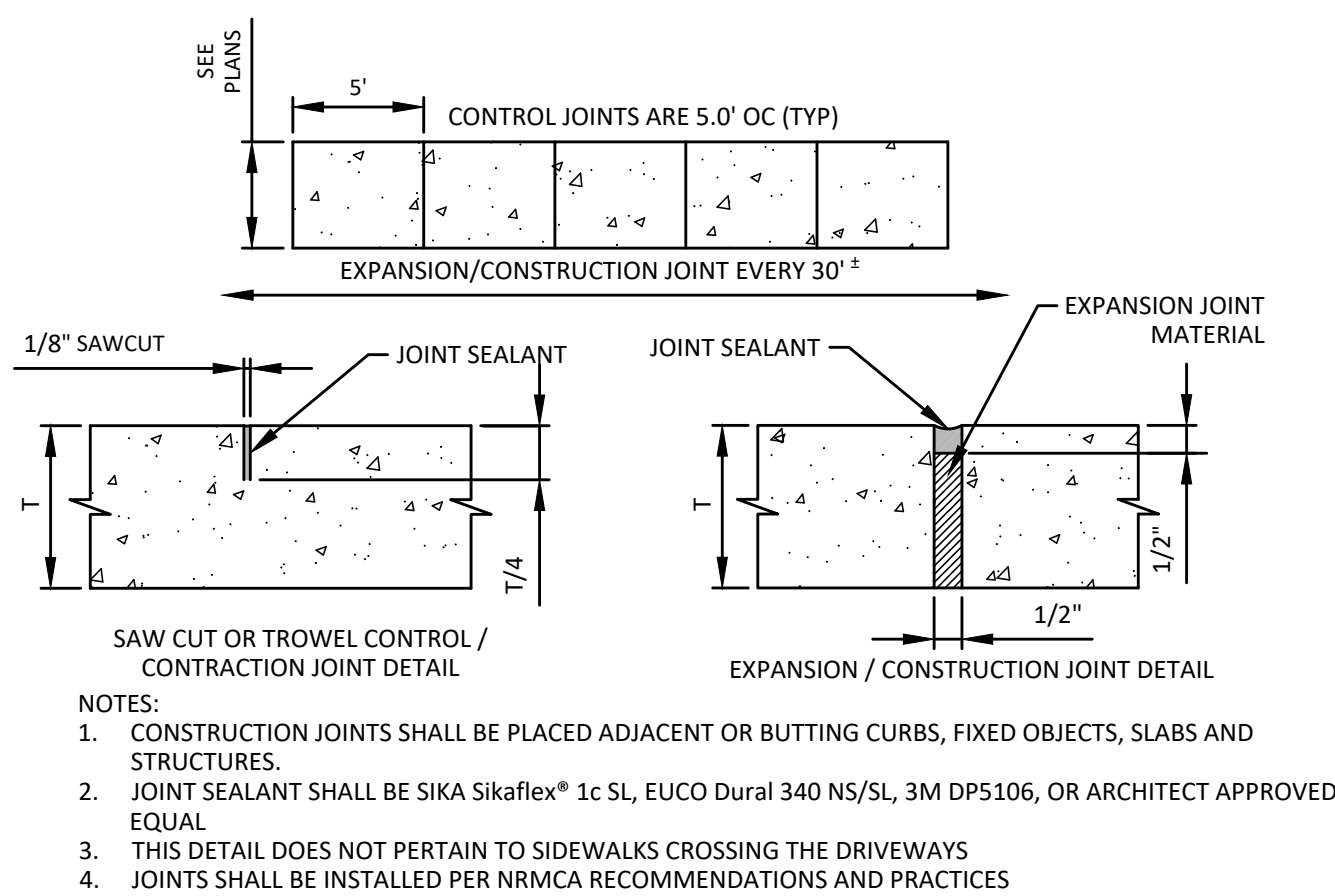
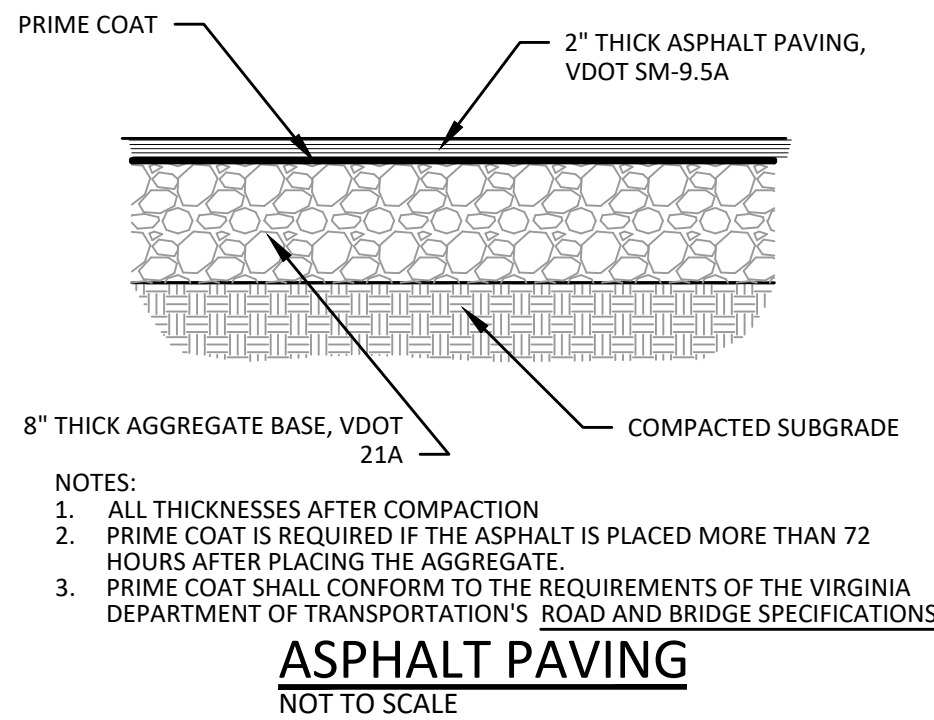
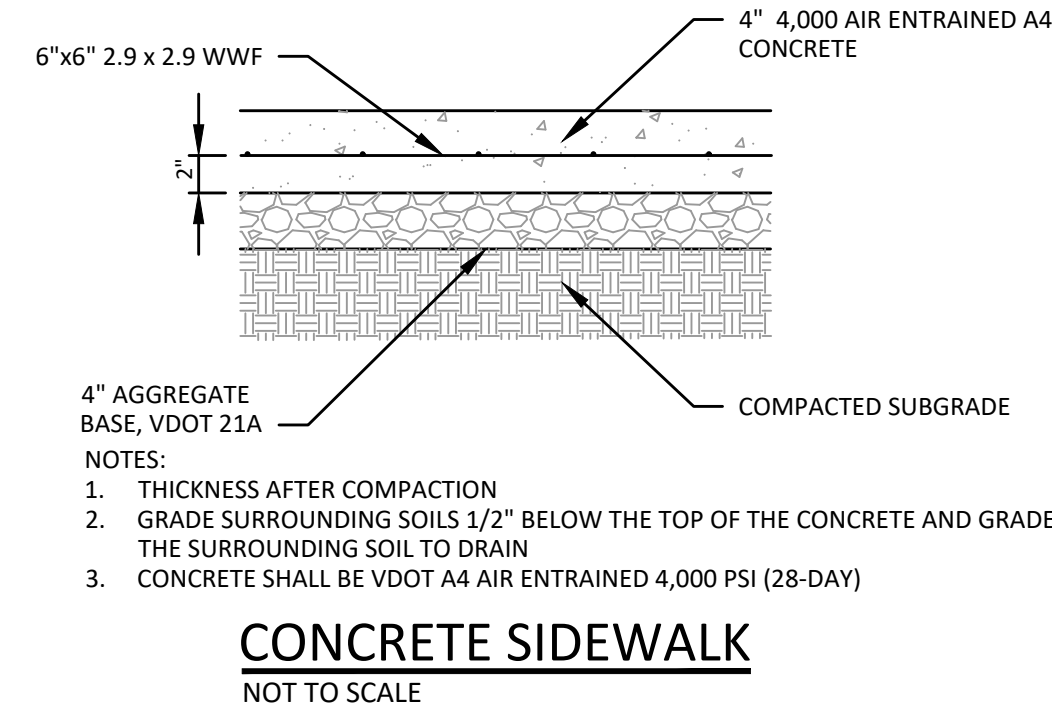
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21064
SHEET
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HUGHES ASSOCIATES ARCHITECTS & ENGINEERS
A PROFESSIONAL CORPORATION



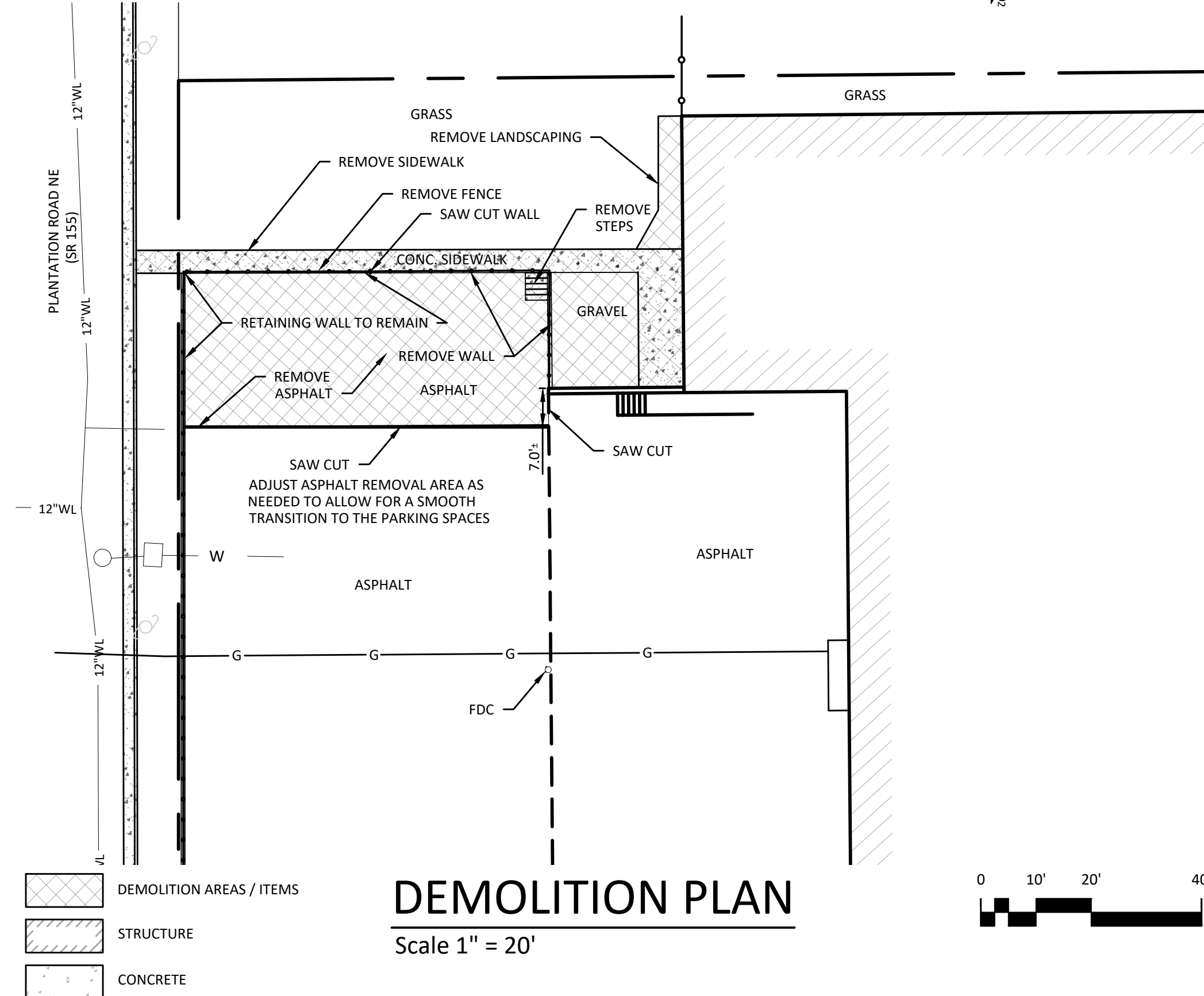
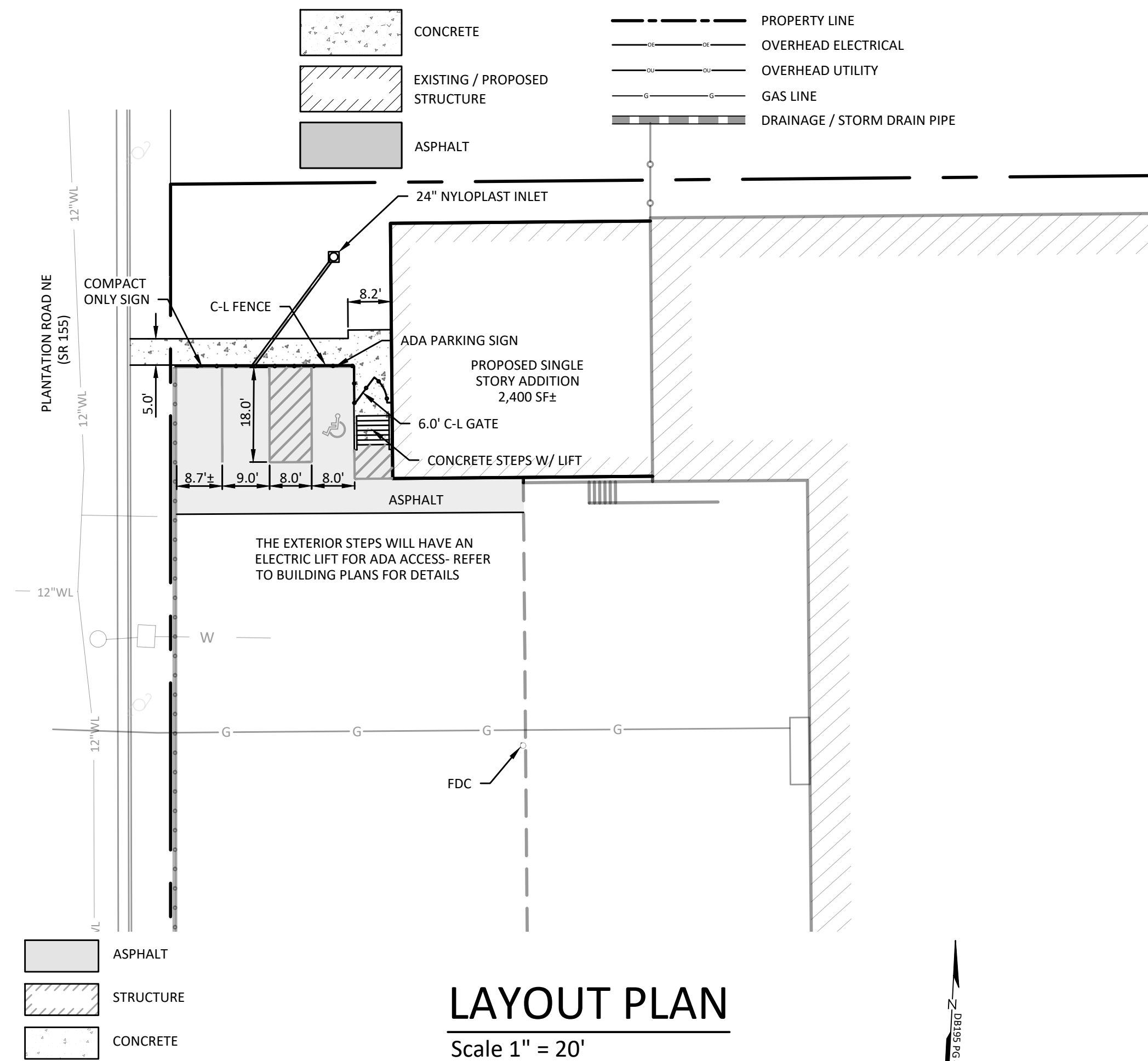
NOTES:
1. MAXIMUM 2.00% GRADE IN ANY DIRECTION FOR THE H.C. PARKING SPACE AND THE TRAVEL PATH FROM THE SPACE TO THE SIDEWALK.
2. ALL LINES ARE 4" WIDE.

HC PAVEMENT MARKING
NOT TO SCALE



DEMOLITION NOTES:
1. CONTACT VIRGINIA 811 A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION TO HAVE ALL UTILITY LINES MARKED. DO NOT BEGIN CONSTRUCTION UNTIL THE TICKET HAS CLEARED. THE CONTRACTOR IS RESPONSIBLE FOR MARKING ALL UTILITIES PUBLIC AND PRIVATE
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY ELEVATIONS AND LOCATIONS PRIOR TO ANY UTILITY INSTALLATIONS OR CONNECTIONS
3. COORDINATE ALL UTILITY WORK WITH THE UTILITY OWNERS
4. THE CONTRACTOR SHALL DISPOSE OF ALL REMOVED ITEMS OFF-SITE AT AN APPROVED LANDFILL AT NO EXPENSE TO THE OWNER
5. REMOVE ALL VEGETATION, TREES, ROOTS AND STUMPS WITHIN THE CONSTRUCTION LIMITS.
6. WHERE SHOWN REMOVE THE EXISTING FENCE TO THE NEAREST POLE

LAYOUT NOTES:
1. THE ACAD SURVEY AND SITE DRAWINGS WILL BE PROVIDED TO THE CONTRACTOR FOR THEIR USE
2. ALL DIMENSIONS ARE FROM THE FACE OF THE CURB UNLESS NOTED / SHOWN OTHERWISE
3. THE CONTRACTOR IS RESPONSIBLE FOR THE PERMITTING OF THE RETAINING WALL AND INSTALLING THE WALL PER THE ENGINEER'S RECOMMENDATIONS AND REQUIREMENTS.
4. REFER TO THE BUILDING PLANS FOR THE STEP DETAILS
5. THE STEPS WILL HAVE AN ELECTRIC SEAT LIFT FOR ADA ACCESS - REFER TO THE ARCHITECTURAL PLANS FOR DETAILS
6. ALL PAVEMENT MARKINGS SHALL BE MADE WITH TRAFFIC RATED PAINT, VDOT TYPE A PAINT
7. ALL PARKING SPACES AND NO PARKING AREAS REQUIRE 4" WHITE LINES.
8. THE DIAGONAL LINES (CROSS HATCHING) FOR ACCESS AISLES AND NO PARKING AREAS SHALL BE SPACED 24" ON CENTER AND BE 4" WIDE WHITE STRIPES.



DATE: APR 4, 2023

REVISIONS

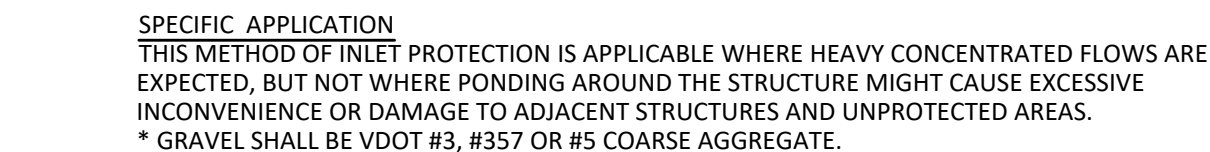
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ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DEMOLITION
PLAN, LAYOUT
PLAN, NOTES
AND DETAILS

COMMONWEALTH OF VIRGINIA
04/04/2023
MARK JOHN AYLES
Lic. No. 034170
PROFESSIONAL ENGINEER

COMMISSION No.
21064
SHEET
C-2
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HUGHES ASSOCIATES ARCHITECTS & ENGINEERS
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1 SEPTEMBER TO 15 FEBRUARY
ANNUAL RYEGRASS @ 40 LB / ACRE
CEREAL WINTER RYE @40 LB / ACRE

16 FEBRUARY TO 30 APRIL
ANNUAL RYEGRASS @ 80 LS / ACRE

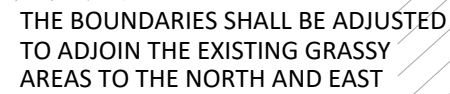
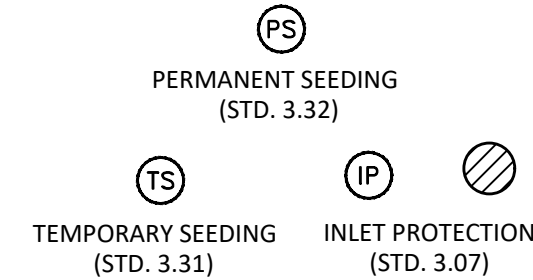
1 MAY TO 31 AUGUST
MILLET @ 50 LB / ACRE

LIME: 2 TONS/ACRE (90 LBS./1000 SF) PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER: 10-20-20 OR EQUIVALENT NUTRIENTS
RATE: 600 LBS./ACRE (14 LBS./1000 SF.)
GYPSUM: 2 TONS/ACRE (90 LBS./1000 SF) CALCIUM SULFATE DIHYDRATE

SOIL CONDITIONING:
INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING,
MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH
SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL
HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED
BY THE INSPECTOR.

SEED APPLICATION:
APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

NO SCALE



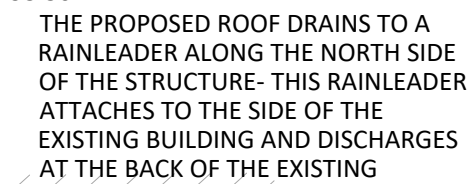
GRASS AREA 1,200 SF TO REPLACE
THE 1,155 SF LOST PERVIOUS AREA

CONSTRUCTION
LIMITS 1,200 SF

Scale 1" = 20'

- GRADING NOTES AND DRAINAGE NOTES:
1. ALL AREAS SHALL BE GRADED TO DRAIN. NO STANDING OR PONDING OF WATER PERMITTED
 2. CONTACT THE ENGINEER IF ROCK OR UNSUITABLE SOILS ARE ENCOUNTERED
 3. ALL DRAINAGE PIPING SHALL BE PVC SCHEDULE 40, SDR-35, OR ADS N-12
 4. THE INLET SHALL BE A 24" NYLOPLAST DRAIN BASIN W/PEDESTRIAN GRATE

- EROSION & SEDIMENT CONTROL NOTES:
5. REFER TO SHEET C-4 FOR ADDITIONAL NOTES AND DETAILS
 6. REMOVE GRAVEL AND REPLACE WITH 4" TOPSOIL AND GRASS SEED THE 50' X 24' AREA BEHIND STRUCTURE TO COMPENSATE FOR THE 1,155 SF OF PERVIOUS AREA LOST TO PROPOSED DEVELOPMENT.



TYPE A (SLOPES FLATTER THAN 3:1)

15 OCTOBER TO 1 FEBRUARY
K-31 FESCUE @ 5 LB / 1000 SF
BORZY WINTER RYE @ 1/2 LB / 1000 SF

FEBRUARY TO 1 JUNE
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER
K-31 FESCUE @ 5 LB / 1000 SF
GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 S

LIME: 2 TONS/ACRE (90 LBS./1000 SF) PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER: 10-20-20 OR EQUIVALENT NUTRIENTS
RATE: 1000 LBS./ACRE (23 LBS./1000 SF.)
GYPSUM: 2 TONS/ACRE (90 LBS./1000 SF) CALCIUM SULFATE DIHYDRATE

SOIL CONDITIONING:
INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING,
MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH
SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL
HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY
THE INSPECTOR.

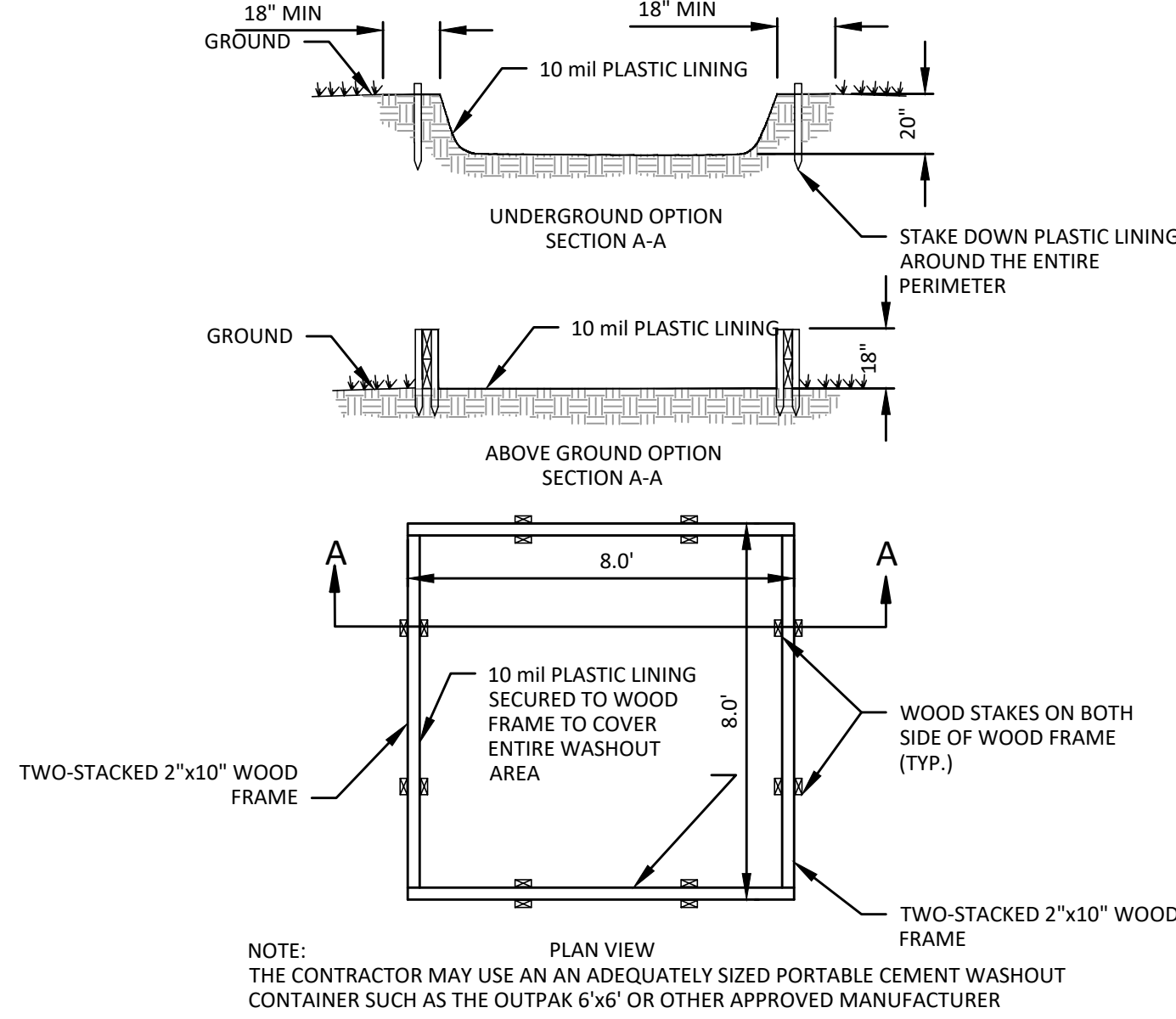
SEED APPLICATION:
APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

NO SCALE



Scale 1" = 20'

Drawing File: P:\2021\11064 - Commonwealth Building Materials Addition\03.0 Drawings\3.2 AutoCAD\03.211064 Commonwealth Building Supply Sheet.dwg 4/7/2023



NOTE: THE CONTRACTOR MAY USE AN AN ADEQUATELY SIZED PORTABLE CEMENT WASHOUT CONTAINER SUCH AS THE OUTPAK 6x6" OR OTHER APPROVED MANUFACTURER

CONCRETE WASHOUT AREA
NO SCALE

MINIMUM STANDARDS

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 7 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. THE LOCATION OF TEMPORARY AND PERMANENT SEEDING IS SHOWN ON THE EROSION CONTROL PLAN SHEETS AND SPECIFIED ON THE EROSION CONTROL DETAIL SHEET.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. SOIL STOCKPILE AREA IS SHOWN ON THE EROSION CONTROL PLAN SHEET. THE CONTRACTOR IS INSTRUCTED TO CONTACT THE CITY OF ROANOKE IF AN OFF-SITE BORROW OR WASTE SITE IS REQUIRED.
- ALL OFF-SITE AREAS REQUIRE E&S CONTROLS AND PERMITS.
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION. ALL DISTURBED AREAS, NOT PERMANENTLY STABILIZED, SHALL RECEIVE PERMANENT SEEDING OR MULCH AS SHOWN ON THE PLAN SHEETS.
- SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. THE CONTRACTOR IS INSTRUCTED TO INSTALL CERTAIN MEASURES AS THE FIRST STEP IN THE CONSTRUCTION PROCESS. INLET PROTECTION IS SHOWN ON THE EROSION CONTROL PLAN SHEET & EXPLAINED IN THE E&S NARRATIVE.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION. ALL DENUDED AREAS, INCLUDING, BUT NOT LIMITED TO EARTHEN STRUCTURES, ARE TO RECEIVE SEEDING.
- SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. NOT APPLICABLE AS NO SEDIMENT TRAPS OR BASINS ARE REQUIRED OR PROVIDED.
- CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED. ALL CUT/FILL SLOPES ARE SPECIFIED, WITH ALL BEING 3:1, OR FLATTER, AND WILL RECEIVE PERMANENT SEEDING, IMMEDIATELY AFTER CONSTRUCTION OF THE ITEM.
- CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE. IF CONCENTRATED RUNOFF CAUSES EROSION DOWN A CUT OR FILL SLOPE, THE CONCENTRATED FLOW IS TO BE CAPTURED AND CONTAINED IN A STORM SYSTEM OR ADEQUATE CHANNEL, AND THE SLOPE REPAIRED AND STABILIZED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED. NOT APPLICABLE. AS NO UNDERGROUND WATER WAS ENCOUNTERED DURING THE SITE INSPECTION OR SOIL BORINGS.
- ALL STORM DRAIN INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT. INLET PROTECTION AND OTHER MEASURES ARE SHOWN ON THE EROSION CONTROL PLAN SHEET.
- BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL. THE STORM-DRAIN SYSTEM DISCHARGES INTO THE ROANOKE RIVER AND THE RUNOFF WILL NOT INCREASE.
- WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS. AS NO WORK IN A LIVE WATERCOURSE IS ANTICIPATED.
- WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED. NOT APPLICABLE AS NO WORK IN A LIVE WATERCOURSE IS ANTICIPATED.
- ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET. NOT APPLICABLE AS NO WORK IN A LIVE WATERCOURSE IS ANTICIPATED.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED. NOT APPLICABLE.
- UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA: THE CONTRACTOR IS INSTRUCTED TO FOLLOW ALL MS-19 REQUIREMENTS AS NOTED IN THE PLAN SET.
 - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
 - EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
 - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
 - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
 - RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
 - APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES. A CONSTRUCTION ENTRANCE IS SHOWN ON THE EROSION CONTROL PLAN SHEET.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION. THE CONTRACTOR IS INSTRUCTED TO REMOVE ALL E&S ITEMS AS NOTED ABOVE.
- PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:
 - CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM DRAIN SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
 - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
 - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
 - NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND
 - ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
 - PIPES AND STORM DRAIN SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT THE STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
 - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE THE APPLICANT SHALL:
 - IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
 - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
 - DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
 - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENTS, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
 - THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
 - ALL HYDROLOGICAL ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
 - IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
 - OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL. AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
 - INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION OF ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
 - IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
 - ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
 - ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
 - DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS;
 - DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND
 - REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1, 5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO §62.1-44.15:54 OR §62.1-44.15:65 OF THE ACT.
 - FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT OF §62.1-44.15:52 C OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES (I) ARE IN ACCORDANCE WITH PROVISIONS FOR TIME LIMITS ON APPLICABILITY OF APPROVED DESIGN CRITERIA IN 9VAC25-870-47 OR GRANDFATHERING IN 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, IN WHICH CASE THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF §62.1-44.15:52 A OF THE ACT SHALL APPLY, OR (II) ARE EXEMPT PURSUANT TO §62.1-44.15:34 C 7 OF THE ACT. REGULATIONS.
 - COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19. THIS PROJECT WILL NOT INCREASE THE PEAK RUNOFF OR THE RUNOFF VOLUME DUE TO THE KEEPING THE IMPERVIOUS AREA CONSTANT.

GENERAL EROSION & SEDIMENT CONTROL NOTES
FROM VESCH THIRD EDITION 1992

ES-1
UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-3
ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4
A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5
PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO THE PLAN APPROVING AUTHORITY FOR APPROVAL.

ES-6
THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO CONTROL EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7
ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-9
THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES ONCE EVERY FIVE BUSINESS DAYS AND WITHIN 48 HOURS FOLLOWING A MEASURABLE RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION
THE PURPOSE OF THIS PROJECT IS EXPAND THE SALES DISPLAY AREA AND TO PROVIDE AN ADA PARKING SPACE AND ACCESS AISLE. THE PROPOSED SINGLE-STORY STRUCTURE IS 2,400± SF. NO UTILITIES WILL BE UPGRADED OR ADDED AND NO ADDITIONAL EMPLOYEES WILL BE ADDED. THE EXISTING SITE IS SERVED BY PUBLIC WATER AND AN EXISTING SEPTIC SYSTEM. THE DEVELOPMENT WILL NOT INCREASE THE RUNOFF SINCE THE AMOUNT OF IMPERVIOUS AREAS WILL REMAIN CONSTANT. IN THE LOCATION THE PROPOSED STRUCTURE THE SURFACE IS CONCRETE, ASPHALT, GRAVEL AND GRASS. THE SITE HAS A MILD SLOPE, 3-6% AND THE CONSTRUCTION WILL REQUIRE MINIMAL EARTHWORK TO EXCAVATE FOR THE PROPOSED STRUCTURE AND THE REWORKED PARKING AREA. THE CONTRACTOR SHALL SECURE A PERMITTED BORROW SITE AND / OR OFF-SITE DISPOSAL SITE FOR THE SURPLUS SOILS AND DEBRIS. THE SITE DISTURBS 6,600 SF INCLUDING THE 1,200 SF GRASS AREA USED TO REPLACE THE 1,155 SF OF PERVIOUS AREA LOST TO THE PROPOSED STRUCTURE.

EXISTING SITE CONDITIONS
WITHIN THE PROJECT AREA THE SITE IS ASPHALT, CONCRETE, GRAVEL AND A SMALL AMOUNT OF GRASS WITH NO TREES. THE REMAINDER OF THE SITE IS A SALES YARD FOR CONSTRUCTION MATERIALS.

ADJACENT PROPERTY
THE PROJECT AREA IS BORDERED BY AN INDUSTRIAL SITE ZONED I-1 TO THE NORTH, NORFOLK SOUTHERN RAILROAD TRACKS TO THE EAST, INDUSTRIAL SITE TO THE SOUTH ZONED I-1, AND PLANTATION ROAD TO THE WEST. ALL PROPERTIES IN THE VICINITY AND ACROSS THE TRACKS AND PLANTATION ROAD ARE ZONED I-1.

OFF-SITE AREAS
THIS PROJECT WILL REQUIRE OFF-SITE BORROW / DISPOSAL AREAS. THE LOCATION OF ALL OFF-SITE BORROW AND DISPOSAL SITES ASSOCIATED WITH THIS CONSTRUCTION PROJECT WILL BE PROVIDED TO THE CITY OF ROANOKE, VIRGINIA FOR REVIEW AND APPROVAL. AN EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE OFF-SITE AREAS.

SOILS
THE SOILS AS INDICATED FROM THE USDA AND NRCS SOIL SURVEY OF ROANOKE CITY CLASSIFY THE SOILS WITHIN THE PROJECT AREA IS URBAN LAND.

CRITICAL EROSION AREAS
THERE ARE NO CRITICAL AREAS

DRAINAGE PATTERNS
THE DISTURBED AREA FLOWS TOWARDS THE EAST TO THE RAILROAD PROPERTY.

EROSION AND SEDIMENT CONTROL MEASURES
UNLESS OTHERWISE STATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (1992 EDITION). IF DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL DEVICES ARE DEEMED NECESSARY, THEY WILL BE INSTALLED AS DIRECTED BY THE SITE DESIGNER OR THE CITY OF ROANOKE, VIRGINIA PERSONNEL AT NO ADDITIONAL COST TO THE OWNER.

PERMANENT STABILIZATION
ALL DENUDED AREAS WILL RECEIVE ASPHALT, CONCRETE, OR VEGETATION. THE PLANS SPECIFY THE TYPE OF PERMANENT SEEDING.

STORMWATER RUNOFF CONSIDERATIONS
THIS PROJECT WILL NOT INCREASE THE PEAK RUNOFF OR THE RUNOFF VOLUME DUE TO THE AMOUNT OF IMPERVIOUS AREA REMAINING CONSTANT.

WATER QUALITY: THE SITE DISTURBS LESS THAN 10,000 SF, THEREFORE NO PHOSPHOROUS REMOVAL IS REQUIRED.

IN GENERAL, THE PROPOSED DEVELOPMENT WILL NOT INCREASE THE THE RUNOFF VOLUME OR PEAK.

MANAGEMENT STRATEGIES

- CONSTRUCTION SHOULD BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE
- EROSION AND SEDIMENT CONTROL DEVICES WILL BE INSTALLED AS A FIRST STEP OF CONSTRUCTION
- THE GRADING CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. INSPECTIONS ARE TO BE MADE PERIODICALLY AND AFTER EVERY ERODIBLE RAINFALL.
- THE GRADING INSPECTION PERSONNEL WILL MAKE REPAIRS TO DAMAGED OR DEFICIENT CONTROL MEASURES IMMEDIATELY UPON DISCOVERY OF DAMAGE OR UPON NOTIFICATION OF THE DEFICIENCY.

STRUCTURAL PRACTICES
TEMPORARY CONSTRUCTION ENTRANCE 3.02- A CONSTRUCTION ENTRANCE WILL BE INSTALLED OFF OF THE EXISTING DRIVEWAY TO ACCESS THE SITE AND TO PREVENT SOIL FROM LEAVING THE SITE
SILT FENCE 3.05- SILT FENCE SHALL BE PLACED AROUND THE PERIMETER OF THE SITE AND WITHIN AS SHOWN ON THE E&S SHEET

VEGETATIVE PRACTICES
TEMPORARY SEEDING 3.31 - TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE, BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. SUCH AREAS MAY INCLUDE DENUDED AREAS AND SOIL STOCKPILES
PERMANENT SEEDING 3.32 - PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN A YEAR. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR THEIR DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

MAINTENANCE REQUIREMENTS - ALL MEASURES ARE TO BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. THE CONSTRUCTION ENTRANCE: SHALL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF ADDITIONAL STONE, OR THE WASHING AND REWORKING OF EXISTING STONE.
SILT FENCE - THE SEDIMENT TO BE REMOVED WHEN HEIGHT OF SEDIMENT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE. ALL DECOMPOSED FABRIC TO BE REPLACED IMMEDIATELY.
TEMPORARY SEEDING - AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION, WILL BE RE-SEEDDED AS SOON AS SUCH AREAS ARE IDENTIFIED. PERMANENT SEEDING: WHEN IT IS CLEAR THAT PLANTS HAVE NOT GERMINATED ON AN AREA, OR HAVE DIED, THESE AREAS MUST BE RE-SEEDDED IMMEDIATELY TO PREVENT EROSION DAMAGE.

REMOVAL OF CONTROL MEASURES
ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE REMOVED WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE DIRECTED BY THE LOCAL PROGRAM ADMINISTRATOR.

STORMWATER POLLUTION PREVENTION PLAN (SWPP)
NO SWPP PLAN IS REQUIRED

DATE: APR 4, 2023

REVISIONS
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ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

EROSION AND
SEDIMENT
CONTROL
NOTES AND
DETAILS

COMMONWEALTH OF VIRGINIA
04/04/2023
MARK JOHN AYLES
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GENERAL SITE CONSTRUCTION NOTES

SITEWORK

1. THE CONTRACTOR SHALL CALL "VIRGINIA 811" AT 811 A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION AND REQUEST ALL UTILITIES TO BE LOCATED.
2. THE LOCATION OF EXISTING UTILITIES ACROSS, ALONG OR IN THE VICINITY OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND WHERE SHOWN, ARE APPROXIMATE. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY.
3. ALL UNDERGROUND UTILITIES ARE TO BE CLEARLY MARKED PRIOR TO BEGINNING CONSTRUCTION, ANY POTENTIAL CONFLICTS AS A RESULT OF THE MARKINGS SHALL BE MADE KNOWN TO THE ARCHITECT/ENGINEER IMMEDIATELY.
4. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING BUILDINGS, SIDEWALKS, PAVEMENT, UTILITY POLES & PEDESTALS, ABOVE AND BELOW GROUND UTILITIES ETC, IF THOSE ITEMS ARE NOT DESIGNATED AS TO BE REMOVED.
5. UTILITY LINES, UTILITY POLES AND PEDESTALS, ABOVEGROUND AND BELOW GROUND SHALL BE PROTECTED FROM DAMAGE IN ACCORDANCE WITH THE UTILITY OWNERS' INSTRUCTIONS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY OWNERS TO OBTAIN THE PROPER PROTECTIVE MEASURES FOR EACH INDIVIDUAL UTILITY AND FOR PROTECTING UTILITIES FROM DAMAGE. ANY AND ALL DAMAGE CAUSED BY THE CONTRACTOR OR BY THE CONTRACTOR'S CONSTRUCTION OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR EXPENSE.
6. THE CONTRACTOR IS TO PROVIDE FOR THE SAFETY OF THE GENERAL PUBLIC DURING ALL PHASES OF CONSTRUCTION. PROVIDE CHAIN LINK FENCE AND/OR SAFETY FENCE AS NEEDED. THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND INSTALL ALL NECESSARY BARRICADES FOR THE PUBLIC AND COUNTY PERSONAL ARE IN PLACE.
7. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER/ARCHITECT SHOULD DISCREPANCIES BE DISCOVERED AT THE SITE OR ON THE DRAWINGS.
8. THE CONTRACTOR SHALL NOTIFY THE CITY OF ROANOKE OF ANY FIELD REVISIONS AND/OR CORRECTIONS TO THE APPROVED PLANS PRIOR TO SUCH CONSTRUCTION.
9. ALL AREAS NOT COVERED WITH PAVEMENT, SIDEWALK, OR STRUCTURES SHALL RECEIVE LANDSCAPING AND PERMANENT SEEDING, AS SHOWN ON THE PLANS.
10. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE MOST RECENT REVISION DATE OF THE PLANS PRIOR TO COMMENCING WITH CONSTRUCTION
11. ALL LINES TO BE STAKED PRIOR TO CONSTRUCTION.
12. ITEMS TO BE SALVAGED SHALL BE STORED IN A PROTECTED AREA.
13. REMOVE ALL CURBING, ASPHALT, AND CONCRETE FROM SITE AS SHOWN ON THE PLANS AND DISPOSE OF OFF-SITE AT AN APPROVED LANDFILL AT NO ADDITIONAL EXPENSE TO THE OWNER.
14. ALL ASPHALT INTERFACES BETWEEN OLD AND NEW PAVEMENT MUST BE SAW CUT TO NEAT STRAIGHT LINES AND A TACK COAT SHALL BE APPLIED AT A RATE OF 0.1 GALLON PER SQUARE YARD OF RC-250 IMMEDIATELY PRIOR TO PLACING THE ASPHALT.

EARTHWORK

15. ALL UNUSED AND UNSUITABLE EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF.
16. THE CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS OF THE VIRGINIA OCCUPATIONAL SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION AS ADOPTED BY THE SAFETY AND HEALTH CODES COMMISSION OF VIRGINIA.
17. THE CONTRACTOR SHALL PERFORM MINOR, INVESTIGATIVE EXCAVATIONS TO VERIFY LOCATION OF VARIOUS EXISTING UNDERGROUND FACILITIES AT SUFFICIENT LOCATIONS TO ASSURE THAT NO CONFLICT WITH THE PROPOSED WORK EXISTS AND SUFFICIENT CLEARANCE IS AVAILABLE TO AVOID DAMAGE TO EXISTING FACILITIES.
18. SUBSEQUENT TO THE CLEARING AND ROUGH GRADING OPERATIONS AND PRIOR TO THE PLACEMENT OF THE FILL, THE EXPOSED SUBGRADE SOILS SHALL BE CAREFULLY INSPECTED. ANY UNSUITABLE MATERIAL THUS EXPOSED SHALL BE REMOVED AND REPLACED WITH A WELL COMPACTED AND SUITABLE MATERIAL. THE INSPECTION OF THESE PHASES SHALL BE PERFORMED BY A GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE. DENSITY TESTING AT THE DISCRETION OF THE SOILS ENGINEER SHALL BE PERFORMED AT THIS TIME.
19. CUT OFF TREES, SHRUBS, BRUSH, AND VEGETATIVE GROWTH TWELVE INCHES MAXIMUM ABOVE GROUND. GRUB OUT STUMPS AND ROOTS 12 INCHES MINIMUM BELOW ORIGINAL GROUND SURFACE, EXCEPT UNDER BUILDINGS, REMOVE ROOTS ONE INCH AND LARGER ENTIRELY AND ENTIRELY REMOVE ROOTS OF PLANTS THAT NORMALLY SPROUT FROM ROOTS.
20. DO NOT PULL UP OR RIP OUT ROOTS OF TREES AND SHRUBS THAT ARE TO REMAIN. IF EXCAVATION THROUGH ROOTS IS REQUIRED, EXCAVATE BY HAND AND CUT ROOTS WITH SHARP AXE. MAKE CLEAN, SMOOTH, SLOPING CUTS.
21. STRIP EXISTING VEGETATION LAYER THREE INCHES DEEP MINIMUM FROM AREAS OF SITE TO RECEIVE BUILDINGS, LANDSCAPING, AND PAVING AND REMOVE FROM SITE BEFORE STRIPPING TOPSOIL FOR STORAGE AND REUSE.
22. AFTER STRIPPING VEGETATION LAYER, STRIP EXISTING TOPSOIL ADDITIONAL SIX INCHES DEEP MINIMUM FROM AREAS OF SITE TO RECEIVE BUILDINGS AND PAVING AND STORE ON SITE FOR LATER USE.
23. BEFORE MAKING CUTS, REMOVE TOPSOIL OVER AREAS TO BE CUT AND FILLED THAT WAS NOT PREVIOUSLY REMOVED. STOCKPILE THIS ADDITIONAL TOPSOIL WITH PREVIOUSLY STRIPPED TOPSOIL. ONLY TOPSOIL SHALL BE STOCKPILED FOR REUSE AS TOPSOIL.
24. THE EXISTING STOCKPILED TOPSOIL IS PROPERTY OF CONTRACTOR WITH RESTRICTION THAT TOPSOIL IS TO BE USED FIRST FOR PROJECT LANDSCAPE TOPSOIL REQUIREMENTS AND SECOND FOR NON-STRUCTURAL FILL AND BACKFILL. AFTER PROJECT FILL, BACKFILL, AND LANDSCAPE TOPSOIL REQUIREMENTS ARE SATISFIED, REMOVE EXCESS EXISTING TOPSOIL FROM SITE. DO NOT REMOVE EXISTING TOPSOIL FROM SITE WITHOUT ARCHITECT'S / ENGINEER'S WRITTEN APPROVAL.
25. THE EMBANKMENT FOUNDATIONS AND ABUTMENTS SHALL BEAR ON FIRM AND STABLE EXISTING SUBGRADE WHICH HAS BEEN PREPARED SO AS TO REMOVE ALL ORGANIC, LOOSE, AND GENERALLY UNSUITABLE MATERIAL.
26. DURING GRADING OPERATIONS, THE CONTRACTOR SHALL GRADE ALL AREAS TO DRAIN TO PREVENT THE SATURATION OF THE SOILS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE STOCKPILES FROM RAIN IF THE SOIL IS NEEDED FOR BACKFILL MATERIAL.
27. THE CONTRACTOR SHALL PROOF-ROLL THE CONSTRUCTION AREA WITH HEAVY-PNEUMATIC EQUIPMENT. ALL UNSUITABLE MATERIAL SHALL BE UNDERCUT AND RECOMPACTED WITH APPROVED STRUCTURAL FILL MATERIAL.
28. EARTHWORK SHALL BE TO THE LINES AND GRADES SHOWN. PROOF-ROLLING AND COMPACTION TESTS SHALL BE ACCOMPLISHED IN THE FIELD TO ALL GRADED AREAS. THE GRADING SHALL CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN TO WITHIN A TOLERANCE OF PLUS OR MINUS 0.10 FEET.
29. ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE TESTING COMPANY AND BE WELL GRADED MATERIAL CONFORMING TO ASTM D2487 FREE FROM DEBRIS, ORGANIC MATERIAL, FROZEN MATERIALS, BRICK, LIME, CONCRETE, STONES GREATER THAN 4 INCHES DIAMETER, AND OTHER MATERIALS WHICH WOULD PREVENT ADEQUATE PERFORMANCE OF THE BACKFILL. NINETY PERCENT MINIMUM OF FILL MATERIAL SHALL BE SMALLER THAN 1-1/2 INCH UNDER BUILDINGS, PAVED AREAS, STRUCTURES. THE TOP 36 INCHES OF FILL BENEATH THE TOP SOIL IN LANDSCAPED AREAS SHALL HAVE STONES NO GREATER THAN 2 INCHES AND NINETY PERCENT OF FILL MATERIAL SHALL BE SMALLER THAN 3/8 INCH IN ANY DIRECTION.
30. THE FILL SHALL BE PLACED IN 8 INCH LOOSE LAYERS, 4 INCH LOOSE LAYERS CLOSE TO STRUCTURES AND NARROW TRENCHES AND COMPACTED AS SPECIFIED.
31. FILL MATERIALS SHALL BE ADEQUATELY KEYED ITO STRIPPED AND SCARIFIED SUBGRADE SOILS AND SHOULD, WHERE APPLICABLE, BE BENCHED INTO THE EXISTING SLOPES, THE SUBGRADE SHALL BE SCARIFIED A DEPTH OF 4" PRIOR TO FILL PLACEMENT TO ASSURE BONDING BETWEEN THE TWO SOILS.
32. EXPOSED SUBGRADE WHICH HAS BEEN PREPARED TO ACCEPT FILL MATERIAL, SHALL BE CAREFULLY INSPECTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A WELL COMPACTED MATERIAL. THE INSPECTION SHALL BE PERFORMED BY A SOILS ENGINEER.
33. ALL FILL SHALL BE COMPACTED TO AT LEAST 95% OF THAT SOIL'S (STANDARD/MODIFIED) PROCTOR MAXIMUM DRY DENSITY (ASTM D698). THE COMPACTION SHALL BE ACCOMPLISHED BY PLACING THE FILL IN MAXIMUM 8 INCH LOOSE LIFTS AND COMPACTING EACH LIFT WITH HEAVY CONSTRUCTION EQUIPMENT TO THE REQUIRED DENSITY.
34. THE MOISTURE CONTENT OF FILL SOILS SHALL BE MAINTAINED WITHIN 2.0 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED FROM THE STANDARD (MODIFIED) PROCTOR DENSITY TEST.
35. SATISFACTORY SOILS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP AND SM OR A COMBINATION OF THESE GROUP SYMBOLS; FREE MATERIALS SPECIFIED ABOVE.
36. UNSATISFACTORY SOILS: ASTM D 2487 SOIL CLASSIFICATION GROUPS CG, SC, ML, MH, CL, CH, OL, OH, AND PT OR A COMBINATION OF THESE GROUP SYMBOLS; AND SATISFACTORY SOILS NOT MAINTAINED WITHIN TWO PERCENT OF OPTIMUM MOISTURE CONTENT AT THE TIME OF COMPACTION.
37. A SOILS ENGINEER, OR A TECHNICIAN UNDER THE ENGINEERS DIRECTION, SHALL PERFORM FIELD DENSITY TESTS ON EACH LIFT AS NECESSARY, TO ASCERTAIN THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED.
38. REMOVE FROM SITE TREES, SHRUBS, UPROOTED STUMPS, VEGETATIVE LAYER, AND SURFACE DEBRIS AND DISPOSE OF LEGALLY. DO NOT BURY CUTTINGS, STUMPS, ROOTS, AND OTHER VEGETATIVE MATTER OR BURNT WASTE MATERIAL ON SITE.
39. ENSURE THAT LAND DISTURBING PERMITS AND THE PROPER EROSION AND SEDIMENT CONTROLS ARE IN PLACE FOR THE CONSTRUCTION SITE AND THE OFF-SITE BORROW AND SPOIL SITE.

ROCK

40. ROCK REMOVAL SHALL BE TO A DEPTH OF 12 INCHES BELOW BOTTOM OF DESIGNATED FOOTING ELEVATION, 8 INCHES BELOW THE EXTERIOR OF THE PIPE AND 6 INCHES BELOW THE UTILITY.
41. MATERIAL USED TO FILL BETWEEN TOP OF ROCK AND BOTTOM OF FOOTING SHALL BE CONTROLLED STRUCTURAL FILL, SEE PROJECT MANUAL SECTION 31 2323.
42. ROCK EXCAVATION UNIT COST SHALL INCLUDE REMOVAL AND DISPOSAL OF THE ROCK.
43. THE COST OF ROCK REMOVAL INCLUDES THE COST OF THE SUITABLE BACKFILL MATERIAL, HAULING, BACKFILLING AND COMPACTING OF REPLACEMENT MATERIALS.
44. THE ROCK QUANTITIES WILL BE BASED ON IN-PLACE ROCK BEFORE DISINTEGRATION AND WILL BE QUANTIFIED PRIOR TO REMOVAL BY THE OWNERS' TESTING COMPANY. THE CONTRACTOR WILL NOT BE COMPENSATED FOR UNAUTHORIZED ROCK REMOVAL OR ROCK REMOVED BEYOND THE LINES AND GRADES REQUIRED TO ACCOMPLISH THE WORK.

PAVEMENT, CURBS, AND GUTTER

45. AGGREGATE BASE AND PAVING MUST BE PLACED BEFORE ANY MOISTURE OR SEASONAL CHANGES OCCUR TO SUBGRADE THAT WOULD CAUSE COMPACTION TESTS PREVIOUSLY PERFORMED TO BE ERRONEOUS. RE-COMPACT AND RETEST SUBGRADE SOILS THAT HAVE BEEN LEFT EXPOSED TO WEATHER.
46. ALL PAVEMENT SHALL COMPLY WITH VDOT SUPERPAVE SPECIFICATIONS AND STANDARDS.
47. ALL WORK SHALL COMPLY WITH VDOT SPECIFICATIONS IN ACCORDANCE WITH THE LATEST REVISION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.

SIDEWALK CONSTRUCTION

48. CONCRETE SIDEWALKS SHALL BE FOUR (4) INCHES THICK VDOT STANDARD A-4 (4,000 PSI) AIR ENTRAINED CONCRETE, INSTALLED IN ACCORDANCE WITH SECTION 504 OF THE LATEST REVISION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
49. SPACING FOR EXPANSION JOINTS SHALL BE THE SAME FOR SIDEWALKS AS THAT FOR "CURB & GUTTER", EXCEPT AS SHOWN ON THE DRAWINGS.
50. SIDEWALK FINISH: SIDEWALK SHALL FIRST BE SMOOTH TOWELED, THEN ENDING WITH A "LIGHT BROOM FINISH" UNLESS OTHERWISE NOTED.
51. WHEN SIDEWALK ABUTS CURB OR BUILDING, A 1/2" PREMOLDED EXPANSION JOINT IS TO BE PROVIDED.
52. CURING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 220 OF THE LATEST REVISION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.

EROSION CONTROL NOTES

53. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
54. THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, OR OTHERWISE MODIFY CERTAIN MEASURES WHERE FIELD CONDITIONS WARRANT. EROSION CONTROL MEASURES SHOWN ARE NOT NECESSARILY ALL THAT WILL BE REQUIRED.
55. EROSION CONTROL MEASURES SHALL BE INSTALLED IN ADVANCE OF WORK BEING PERFORMED, AS FAR AS PRACTICAL.
56. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
57. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAY'S WORK.
58. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EVERY ERODIBLE RAINFALL. ANY NECESSARY REPAIRS OR CLEANUP SHALL BE MADE IMMEDIATELY AND AT NO EXTRA COST TO THE OWNER.

SUGGESTED SEQUENCE OF CONSTRUCTION

59. THE FOLLOWING IS A SUGGESTED SEQUENCE OF CONSTRUCTION:
INSTALL PERIMETER E&S MEASURES
REMOVE CONCRETE, ASPHALT AND LANDSCAPING WHERE NEEDED TO CONSTRUCT THE STRUCTURE
PROVIDE CUSTOMER ACCESS TO THE SALES OFFICE AND DISPLAY AREA
BEGIN MASS GRADING AND PROTECT SOIL STOCKPILE FROM EROSION
CONSTRUCT BUILDING AND RETAINING WALLS
BEGIN FINE GRADING
CONSTRUCT PARKING AREAS AND SIDEWALKS
CONTINUE STRUCTURE CONSTRUCTION
REMOVE 4" GRAVEL AND REPLACE WITH 4" TOPSOIL (1,200 SF AREA IN REAR)
INSTALL GRASS
REMOVE ALL E&S MEASURES ONCE SITE STABILIZED

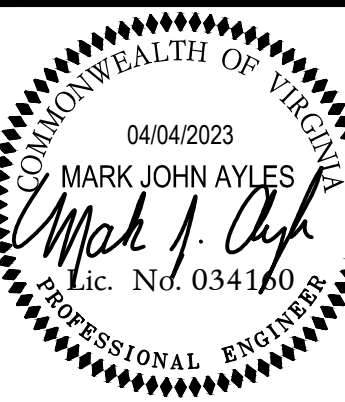
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GENERAL
NOTES



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STRUCTURAL GENERAL NOTES

DESIGN BASIS AND CODE INFORMATION
DESIGN OF THE STRUCTURE IS IN ACCORDANCE WITH THE 2018 VIRGINIA BUILDING CODE (PART I OF THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE), BASED ON THE 2018 INTERNATIONAL EXISTING BUILDING CODE.

REFERENCED CODES AND STANDARDS LISTED IN THE ABOVE BUILDING CODE HAVE BEEN USED IN THE DESIGN OF THE STRUCTURE INCLUDING:
ASCE 7: MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
ACI 318: CONCRETE CONSTRUCTION
ACI 530: MASONRY CONSTRUCTION
AISC 360: STRUCTURAL STEEL CONSTRUCTION
AISI S100: NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
AISI S240: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURAL FRAMING
AISI S202: CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING

THE PROJECT INCLUDES CONSTRUCTION OF A ONE-STORY ADDITION TO AN EXISTING ONE-STORY COMMERCIAL BUILDING.

DESIGN LOADS:

ROOF LIVE LOAD: PITCHED: 20 PSF

ROOF SNOW LOAD DATA: Pg: 30 PSF (GROUND SNOW LOAD)
Pf: 21 PSF (FLAT ROOF SNOW LOAD)
Ce: 1.0 (SNOW EXPOSURE FACTOR)
I: 1.0 (SNOW IMPORTANCE FACTOR)
Ct: 1.0 (SNOW THERMAL FACTOR)

WIND DESIGN DATA

ULTIMATE DESIGN WIND SPEED, Vult: 109 MPH (3-SECOND GUST)

NOMINAL DESIGN WIND SPEED, Vasd: 85 MPH

RISK CATEGORY: II

WIND EXPOSURE CATEGORY: B

INTERNAL PRESSURE COEFFICIENT (GCpi): +/- 0.18

COMPONENTS AND CLADDING DESIGN PRESSURES (ULTIMATE):

Roof	Area	Surface Pressure (psf)							
		10 sf	20 sf	50 sf	100 sf	200 sf	350 sf	500 sf	1000 sf
Negative Zone 1		-34.1	-31.8	-28.8	-26.6	-24.3	-22.5	-21.4	-21.4
Negative Zone 1'		-19.6	-19.6	-19.6	-19.6	-16.8	-16.0	-16.0	-16.0
Negative Zone 2		-44.9	-42	-38.2	-35.3	-32.4	-30.1	-28.6	-28.6
Negative Zone 3		-44.9	-42	-38.2	-35.3	-32.4	-30.1	-28.6	-28.6
Positive Zone 1 & 1'		16	16	16	16	16.0	16.0	16.0	16.0
Positive Zones 2 & 3		19.6	18.7	17.5	16.7	16.0	16.0	16.0	16.0
Overhang Zone 1&1'		-30.8	-30.2	-29.5	-29	-24.3	-20.5	-18.1	-18.1
Overhang Zone 2		-41.7	-37.8	-32.7	-28.9	-25.0	-21.9	-19.9	-19.9
Overhang Zone 3		-41.7	-37.8	-32.7	-28.9	-25.0	-21.9	-19.9	-19.9

Walls	Area	GCp +/- GCpi				Surface Pressure at h			
		10 sf	100 sf	200 sf	500 sf	10 sf	100 sf	200 sf	500 sf
Negative Zone 4		-1.17	-1.01	-0.96	-0.90	-21.2	-18.3	-17.4	-16.3
Negative Zone 5		-1.44	-1.12	-1.03	-0.90	-26.1	-20.3	-18.6	-16.3
Positive Zone 4 & 5		1.08	0.92	0.87	0.81	19.6	16.7	16.0	16.0

EARTHQUAKE DESIGN DATA:
SEISMIC IMPORTANCE FACTOR, I: 1.0
OCCUPANCY CATEGORY: II
MAPPED SPECTRAL RESPONSE ACCELERATIONS: Ss = 18.8%g S1 = 6.3%g
SITE CLASS: D (ASSUMED)
SPECTRAL RESPONSE COEFFICIENTS: SDS = 20.1%g SD1 = 10.1%g
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC-FORCE-RESISTING SYSTEM: ORDINARY PLAIN MASONRY SHEAR WALLS (EXISTING BUILDING); LIGHT-FRAME (CFS) WALL SYSTEMS USING FLAT STRAP BRACING (NEW CONSTRUCTION)
DESIGN BASE SHEAR: 15 KIPS
SEISMIC RESPONSE COEFFICIENT(S), Cs = 0.134
RESPONSE MODIFICATION FACTOR(S), R = 1.5
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE ANALYSIS

RAIN LOAD DATA: 2.82 INCHES PER HOUR (60-MIN PRECIPITATION INTENSITY)

GENERAL CONTRACTOR ADDITIONAL REQUIREMENTS AND CONDITIONS
CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, HORIZONTAL AND VERTICAL DIMENSIONS AND COORDINATION OF ARCHITECTURAL AND STRUCTURAL DRAWINGS. IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES. FOR DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS, SEE THE ARCHITECTURAL DRAWINGS.

REFER TO DRAWINGS OF OTHER DISCIPLINES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON STRUCTURAL DRAWINGS, INCLUDING THE FOLLOWING: PENETRATIONS, SLEEVES, OPENINGS; INSERTS, EMBEDS, ANCHOR BOLTS AND ANCHORAGE FOR ATTACHMENT OF NON-STRUCTURAL ITEMS; SIZE AND LOCATION OF EQUIPMENT FOUNDATIONS AND PADS.

SPECIAL INSPECTIONS
THE OWNER SHALL HIRE AND PAY FOR A SPECIAL INSPECTIONS TESTING AGENCY TO PERFORM SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF THE ABOVE REFERENCED BUILDING CODE. THE SCOPE OF THE SPECIAL INSPECTIONS SHALL INCLUDE THE FOLLOWING AND AS NOTED IN THE PROJECT STATEMENT OF SPECIAL INSPECTIONS:
1. SOILS (EXISTING SOIL CONDITIONS, FILL PLACEMENT AND COMPACTION, SUBGRADE)
2. CAST IN PLACE CONCRETE (REINFORCING, MIX DESIGN, STRENGTH TESTING, CAST-IN AND POST-INSTALLED ANCHORS)
3. STRUCTURAL STEEL (FABRICATION, CONNECTIONS, STEEL DECK)
4. CFS FRAMING AND CFS ROOF TRUSSES (CONNECTIONS, BRACING)

FOUNDATIONS
A GEOTECHNICAL REPORT HAS NOT BEEN PREPARED. AN ASSUMED ALLOWABLE BEARING PRESSURE OF 1,500 PSF HAS BEEN USED IN THE DESIGN AND SHALL BE CONFIRMED IN THE FIELD BY THE OWNER'S LICENSED GEOTECHNICAL ENGINEER PRIOR TO PLACING FOUNDATION CONCRETE.

THE PREPARED FOUNDATION BEARING SOILS SHALL NOT BE LEFT EXPOSED DURING INCLEMENT WEATHER OR OPEN AND EXPOSED LONGER THAN 24 HOURS. PLACE A 3" THICK UNREINFORCED 2,500 PSI CONCRETE 'MUD MAT' OVER BEARING SOILS IF EXCAVATION WILL BE OPEN MORE THAN 24 HOURS OR INCLEMENT WEATHER IS EXPECTED.

FOUNDATIONS SHALL BE SUPPORTED ON APPROVED IN-SITU NATURAL SOILS OR STRUCTURAL FILL COMPACTED WITH SUITABLE EQUIPMENT TO A DRY DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) AND SHALL BE PLACED AND COMPACTED PER THE OWNER'S LICENSED GEOTECHNICAL ENGINEER RECOMMENDATIONS.

ALL FOOTINGS SHALL BEAR AT LEAST 1'-6" BELOW ADJACENT EXTERIOR FINISHED GRADE.

CONCRETE AND REINFORCING STEEL
DEFORMED AND PLAIN CARBON STEEL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. WELDED WIRE FABRIC REINFORCING SHALL COMPLY WITH ASTM A1064.

DETAILING OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL, MNL-66, THE CRSI MANUAL OF STANDARD PRACTICE AND ACI 318.

REINFORCING PLACEMENT SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE BEFORE CONCRETE IS PLACED.

SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATING REINFORCING STEEL. SHOP DRAWINGS SHALL INCLUDE PLAN LAYOUT, WALL ELEVATIONS AND BAR SCHEDULES.

PROVIDE VERTICAL CONTROL JOINTS IN CONCRETE WALLS AT 25'-0" OC MAXIMUM SPACING.

MINIMUM LAP SPLICES FOR REINFORCING BARS SHALL CONFORM TO ACI 318, CLASS B, TENSION LAP SPLICE. STAGGER LAP SPLICES, UNLESS INDICATED OTHERWISE.

PROVIDE THE FOLLOW MINIMUM CONCRETE COVER FOR REINFORCING BARS:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
CONCRETE EXPOSED TO EARTH OR WEATHER: #5 AND SMALLER: 1-1/2"

CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO ACI 318.

CEMENT SHALL CONFORM TO ASTM C150, TYPE I/II PORTLAND CEMENT.

FLYASH CONTENT SHALL NOT EXCEED 25% OF THE TOTAL WEIGHT OF CEMENT PLUS FLYASH.

VAPOR BARRIER UNDER SLAB ON GRADE SHALL BE ASTM A1745, CLASS A, 15-MIL THICK MATERIAL, STEGO-WRAP VAPOR BARRIER OR EQUIVALENT. TAPE SEAMS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

MEASURE, BATCH, MIX AND DELIVER READY-MIX CONCRETE PER ASTM C94 AND C1116.

SAWN CONTROL JOINTS IN SLAB ON GRADE SHALL BE CUT WITHIN 12 HOURS OF SLAB PLACEMENT.

APPLY FLOAT FINISH FOLLOWED BY HARD STEEL TROWEL FINISH AT NEW SLAB ON GRADE. PROVIDE FINE BROOM FINISH AT EXTERIOR FLATWORK.

CURE NEW CONCRETE SLAB ON GRADE BY APPLICATION OF "AQUA-CURE VOX" WATER-BASED, LOW ODOR CURE & SEAL FOR CONCRETE BY EUCLID CHEMICAL CO. OR APPROVED EQUIVALENT. SUBMIT PRODUCT DATA FOR APPROVAL PRIOR TO START OF WORK.

BONDING AGENT SHALL BE ASTM C1059, TYPE II, NONREDISPERSIBLE, ACRYLIC EMULSION OR STYRENE BUTADIENE.

EPOXY BONDING ADHESIVE: ASTM C881, TWO-COMPONENT EPOXY RESIN, CAPABLE OF HUMID CURING AND BONDING TO DAMP SURFACES, OF CLASS SUITABLE FOR APPLICATION TEMPERATURE AND OF GRADE AND CLASS TO SUIT REQUIREMENTS, AND AS FOLLOWS:
TYPES I AND II, NONLOAD BEARING TYPES IV AND V, LOAD BEARING, FOR BONDING HARDENED OR FRESHLY MIXED CONCRETE TO HARDENED CONCRETE. SUBMIT PRODUCT DATA FOR APPROVAL PRIOR TO START OF WORK.

PATCHING MORTAR: MIX DRY-PACK PATCHING MORTAR, CONSISTING OF 1 PART PORTLAND CEMENT TO 2-1/2 PARTS FINE AGGREGATE PASSING A NO. 16 SIEVE, USING ONLY ENOUGH WATER FOR HANDLING AND PLACING. MATCH WALL COLOR OF EXISTING ADJACENT CONCRETE. SUBMIT PRODUCT DATA FOR APPROVAL PRIOR TO START OF WORK.

PROVIDE THE FOLLOWING CONCRETE TYPES FOR CONCRETE CONSTRUCTION, SUBMIT CONCRETE MIX DESIGNS FOR REVIEW AND APPROVAL IN ACCORDANCE WITH ACI STANDARDS:

TYPE OF CONSTRUCTION	MIN. COMP. STRENGTH AT 28 DAYS	TOTAL AIR	MAXIMUM W/C RATIO
FOOTINGS	3000	NOT REQ'D	0.60
SLAB ON GRADE	3000	NOT REQ'D	0.45
WALLS	4000	4%-6%	0.45
EXTERIOR FLAT WORK	4500	4%-6%	0.45

STRUCTURAL ABBREVIATIONS

HDG = HOT-DIPPED GALVANIZED
PT = PRESSURE/PRESERVATIVE TREATED
FRT = FIRE RESISTANT TREATED
CFS = COLD-FORMED STEEL
TBE = TRUSS BEARING ELEVATION
JBE = JOIST BEARING ELEVATION
CJ = SAWCUT CONTROL JOINT
EOS = EDGE OF SLAB
EOD = EDGE OF DECK
STS = SELF-TAPPING/SELF-DRILLING SCREW
CONC = CONCRETE
CMU = CONCRETE MASONRY UNIT
UNO = UNLESS NOTED OTHERWISE

CONCRETE MASONRY UNITS
CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO TMS 402 AND TMS 602.

CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90.

CONCRETE UNIT MASONRY SHALL DEVELOP AN INSTALLED COMPRESSIVE STRENGTH (fm) AT 28 DAYS OF 2000 PSI.

GROUT FOR CONCRETE UNIT MASONRY SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2000 PSI.

MORTAR SHALL BE PROPORTIONED TO MEET ASTM C270.

CONCRETE MASONRY CONSTRUCTION SHALL UTILIZE TYPE S MORTAR.

STRUCTURAL STEEL
STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
W-SHAPES: ASTM A992
OTHER SHAPES, PLATES AND BARS: ASTM A36, (Fy=36 KSI)

ALL BOLTS SHALL BE 3/4" DIAMETER, ASTM F3125, TYPE 325, TYPE 1, WITH HEAVY HEX ASTM A563 NUTS, UNLESS NOTED OTHERWISE.

ALL WELDING SHALL COMPLY WITH AWS STANDARDS.

SUBMIT STRUCTURAL STEEL SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SHOP DRAWING DETAILING AND STEEL FABRICATION AND ERECTION SHALL CONFORM TO AISC STANDARDS.

ALL STRUCTURAL STEEL AND BAR GRATING SURFACES SHALL BE CLEANED TO SSPC-SP 6 "COMMERCIAL BLAST CLEANING" PRIOR TO RECEIVING ONE PRIMER COAT OF CARBOCOAT 150 UNIVERSAL PRIMER BY CARBOLINE AND TWO TOP COATS OF COMPATIBLE ALKYD ENAMEL, COLOR SELECTED BY THE OWNER.

STEEL ROOF DECK
STEEL ROOF DECK SHALL CONFORM TO SDI STANDARDS AND SHALL BE GALVANIZED STEEL SHEET (G60) ASTM A653, GRADE 33 MATERIAL.

SUBMIT STEEL ROOF DECK SHOP DRAWINGS SHOWING LAYOUT AND TYPE OF DECK PANELS, ANCHORAGE DETAILS, REINFORCING CHANNELS, PANS, CUT DECK OPENINGS, SPECIAL JOINTING, ACCESSORIES AND ATTACHMENTS TO OTHER CONSTRUCTION.

SIDE-LAP AND SUPPORT FASTENERS SHALL BE NO. 10 STS, CORROSION RESISTANT, HEXAGONAL WASHER HEAD, SELF-DRILLING, CARBON STEEL SCREWS.

FASTEN SIDELAPS AND PERIMETER EDGES BETWEEN SUPPORTS NOT TO EXCEED 36 INCHES ON CENTER.
FASTEN STEEL ROOF DECK TO SUPPORTS AT 36/4 PATTERN.

INSTALL DECK ENDS OVER SUPPORTING FRAME WITH MINIMUM END BEARING OF 1 1/2 INCHES WITH END JOINTS LAPPED 2 INCHES MINIMUM.

COLD-FORMED STEEL (CFS) FRAMING
FABRICATE AND INSTALL CFS WALL AND ROOF FRAMING IN ACCORDANCE WITH AISI STANDARDS.

FRAMING MEMBERS SHALL COMPLY WITH AISI S240 FOR CONDITIONS INDICATED. SHEET STEEL SHALL MEET ASTM A1003, STRUCTURAL GRADE, TYPE H, METALLIC COATED, G60 COATING, 33 KSI FOR 33-MIL AND 43-MIL MATERIAL AND 50 KSI FOR 54-MIL MATERIAL AND THICKER.

SECURE ALL STUDS TO SUPPORTING TRACK W/#12 STS THRU EACH TRACK FLANGE INTO EACH STUD FLANGE.

PROVIDE MANUFACTURER'S STANDARD C-SHAPED STEEL STUDS AND TRACK AS INDICATED.

MECHANICAL FASTENERS SHALL MEET ASTM C1513, CORROSION-RESISTANT-COATED, SELF-DRILLING, SELF-TAPPING STEEL SCREWS.

INSTALL HORIZONTAL BRIDGING IN STUD SYSTEM AT 48-INCHES ON CENTER MAXIMUM VERTICAL SPACING.

CFS ROOF TRUSSES
TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT ALL LOADS, INCLUDING SNOW LOADS, AS REQUIRED BY THE BUILDING CODE REFERENCED ABOVE BUT SHALL NOT BE LESS THAN THE FOLLOWING MINIMUM LOADS:
LIVE LOADS:
ROOF TOP CHORD, LIVE LOAD: 20 PSF
ROOF BOTTOM CHORD, LIVE LOAD: 0 PSF
DEAD LOADS:
DEAD LOADS SHALL BE COMPUTED FOR BUILDING MATERIALS AS INDICATED AND SHALL NOT BE LESS THAN:
ROOF TOP CHORD, DEAD LOAD: 10 PSF
ROOF BOTTOM CHORD, DEAD LOAD: 10 PSF

TRUSSES SHALL BE DESIGNED TO WITHSTAND TOTAL DESIGN LOADS TO MEET THE FOLLOWING VERTICAL DEFLECTION LIMIT: SPAN/360.

TRUSSES SHALL BE DESIGNED, APPROVED AND CERTIFIED BY A PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION LICENSED IN THE STATE OF VIRGINIA. SUBMIT P.E.-STAMPED TRUSS LAYOUT PLANS AND SHOP DRAWING CUT SHEETS FOR EACH TRUSS (8&x11) FOR APPROVAL BY THE ENGINEER OF RECORD AND THE AUTHORITIES HAVING JURISDICTION PRIOR TO TRUSS FABRICATION. INDICATE DESIGN LOADS, SPACING, PITCH, REACTIONS, BEARING POINTS, ETC. IN ADDITION TO PERMANENT LATERAL BRACING LOCATIONS AT CHORD AND WEB MEMBERS.

TRUSS DESIGN SHALL ACCOUNT FOR SPECIAL LOADING CONDITIONS THAT REQUIRE APPLICATION OF ADDITIONAL DISTRIBUTED AND CONCENTRATED LOADS FROM MECHANICAL EQUIPMENT, DORMERS, VALLEY FRAMING, OVER BUILDING, AND PONDING RAIN LOADS.

TRUSS BOTTOM CHORD DOES NOT RECEIVE CONTINUOUS SHEATHING. TRUSS TOP AND BOTTOM CHORD SHALL BE 43-MIL MINIMUM THICKNESS.

ROOF TRUSSES SHALL BE SPACED AT 48" O.C. MAXIMUM, UNLESS INDICATED OTHERWISE.

ROOF TRUSSES SHALL BE CONNECTED TO ALL BEARING POINT LOCATIONS WITH TRUSS MANUFACTURER'S PROPRIETARY HURRICANE TIE. MULTIPLE ANCHORS ARE ACCEPTABLE AT LOCATIONS WHERE REACTION EXCEEDS CAPACITY OF SINGLE CONNECTOR.

ALL TRUSS-TO-TRUSS CONNECTIONS SHALL BE DESIGNED AND DETAILED BY THE TRUSS SUPPLIER.

INSTALL AND BRACE TRUSSES ACCORDING TO AISI S240 AND AISI S202 AND MANUFACTURER'S WRITTEN INSTRUCTIONS. INSTALL CONTINUOUS BRIDGING AND PERMANENT BRACING AS INDICATED ON DRAWINGS AND ON SHOP DRAWINGS.

ROUGH CARPENTRY
ALL SAWN LUMBER SHALL CONFORM TO PS-20 AND TO GRADING RULES OF MANUFACTURER'S ASSOCIATION UNDER WHOSE RULES IT IS PRODUCED AND SHALL BE (MC=19 PERCENT) OR EQUIVALENT AS FOLLOWS: SOUTHERN PINE, NO. 2 GRADE

MECHANICAL AND ADHESIVE ANCHORS
CONCRETE SCREW ANCHORS INTO CONCRETE OR SOLID-GROUTED CMU SHALL BE KWIK HUS HDG BY HILTI WITH 4" MINIMUM EMBEDMENT UNLESS NOTED OTHERWISE.

ADHESIVE ANCHORS INTO CONCRETE OR SOLID-GROUTED CMU SHALL BE HIT-HY-200 BY HILTI WITH 7" MINIMUM EMBEDMENT UNLESS NOTED OTHERWISE.

ADHESIVE ANCHORS INTO HOLLOW CMU SHALL BE HIT-HY 70 WITH SCREEN TUBES BY HILTI.

THREADED ROD USED WITH ALL ADHESIVE ANCHORING SYSTEMS SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL MATERIAL.

ALL ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS BY PERSONNEL TRAINED BY THE MANUFACTURER'S REPRESENTATIVE.

STRUCTURAL SHEETLIST

S0-1 GENERAL NOTES, ABBREVIATIONS AND SHEETLIST
S0-2 TYPICAL SECTIONS, DETAILS AND SCHEDULES
S0-3 TYPICAL SECTIONS, DETAILS AND SCHEDULES
S0-4 TYPICAL SECTIONS AND DETAILS
S1-1 FOUNDATION PLAN
S1-2 ROOF FRAMING PLAN
S2-1 FOUNDATION SECTIONS AND DETAILS
S3-1 FRAMING SECTIONS AND DETAILS
S3-2 FRAMING SECTIONS AND DETAILS



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DATE: APRIL 4, 2023

Revisions

No.	Date	Description
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www.HughesAE.com

ADDITION & RENOVATIONS FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DRAWN BY: _MBM_
CHECKED BY: _CMF_

GENERAL NOTES,
ABBREVIATIONS
AND SHEETLIST



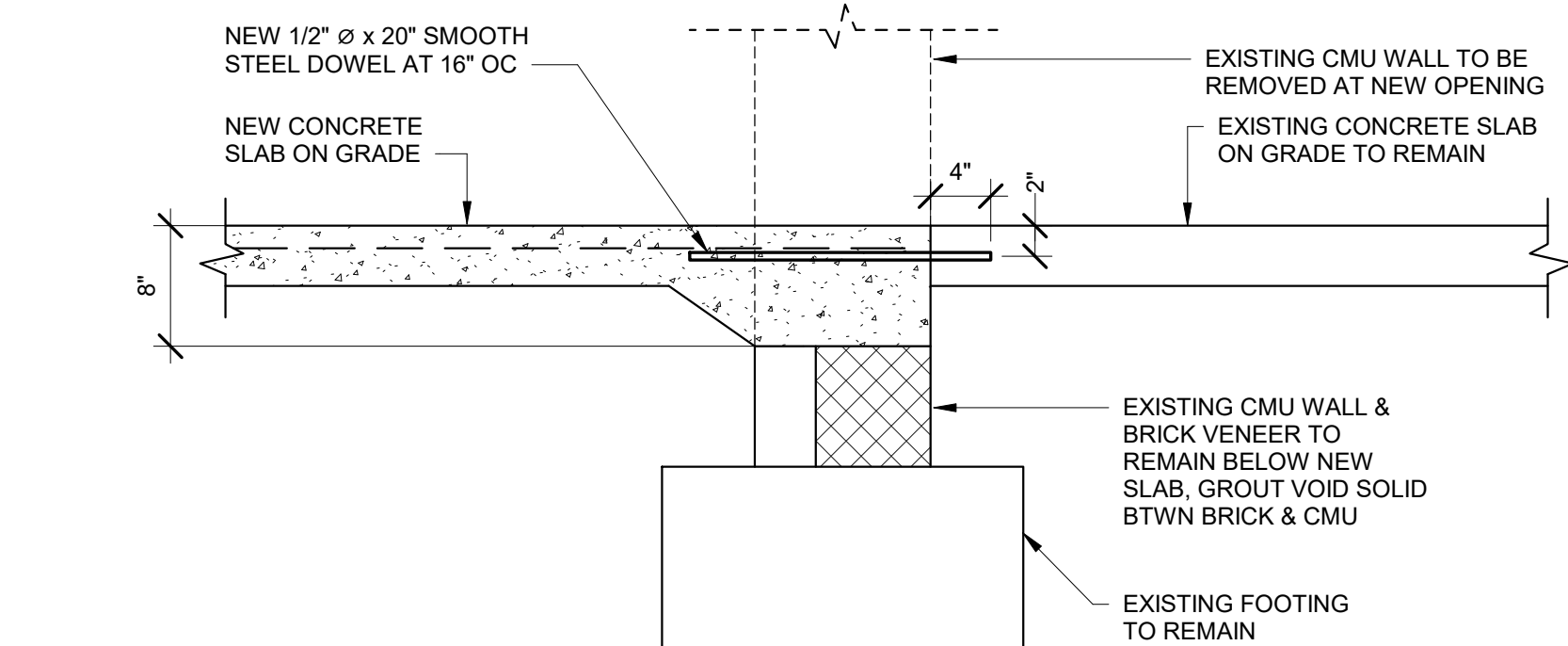
COMMISSION No.

21064

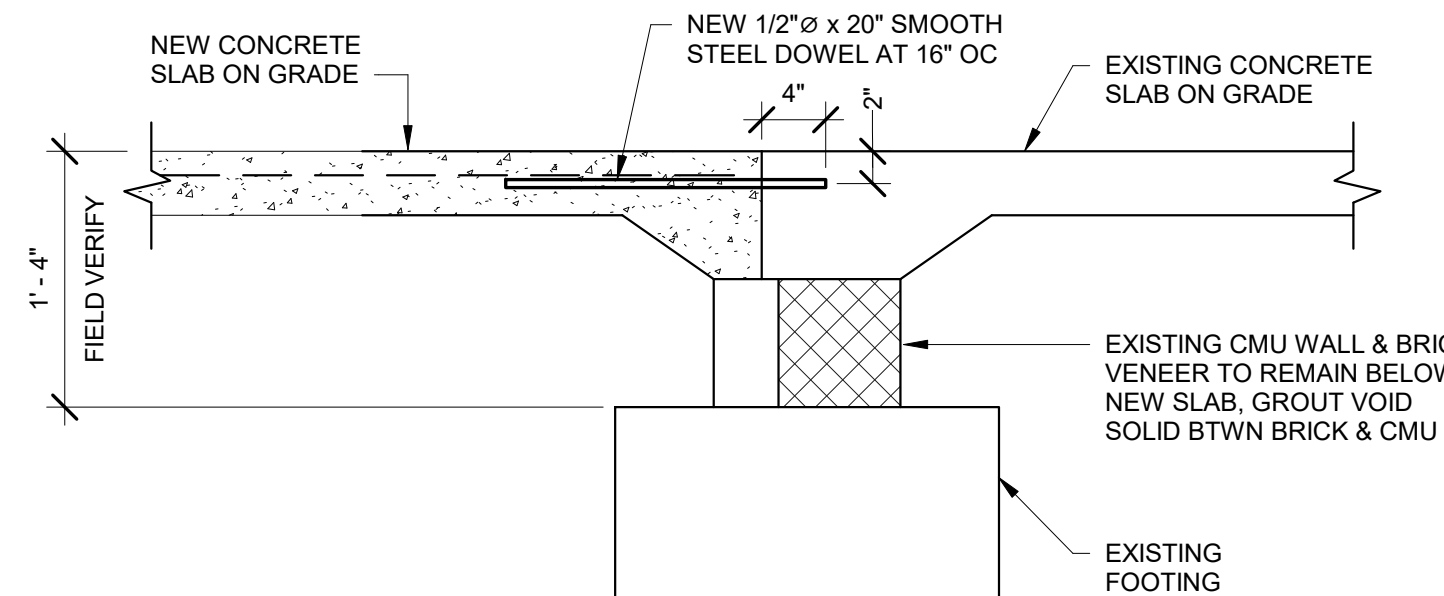
SHEET

S0-1

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HUGHES ASSOCIATES ARCHITECTS & ENGINEERS
A PROFESSIONAL CORPORATION



SECTION 11/S0-2
1" = 1'-0"



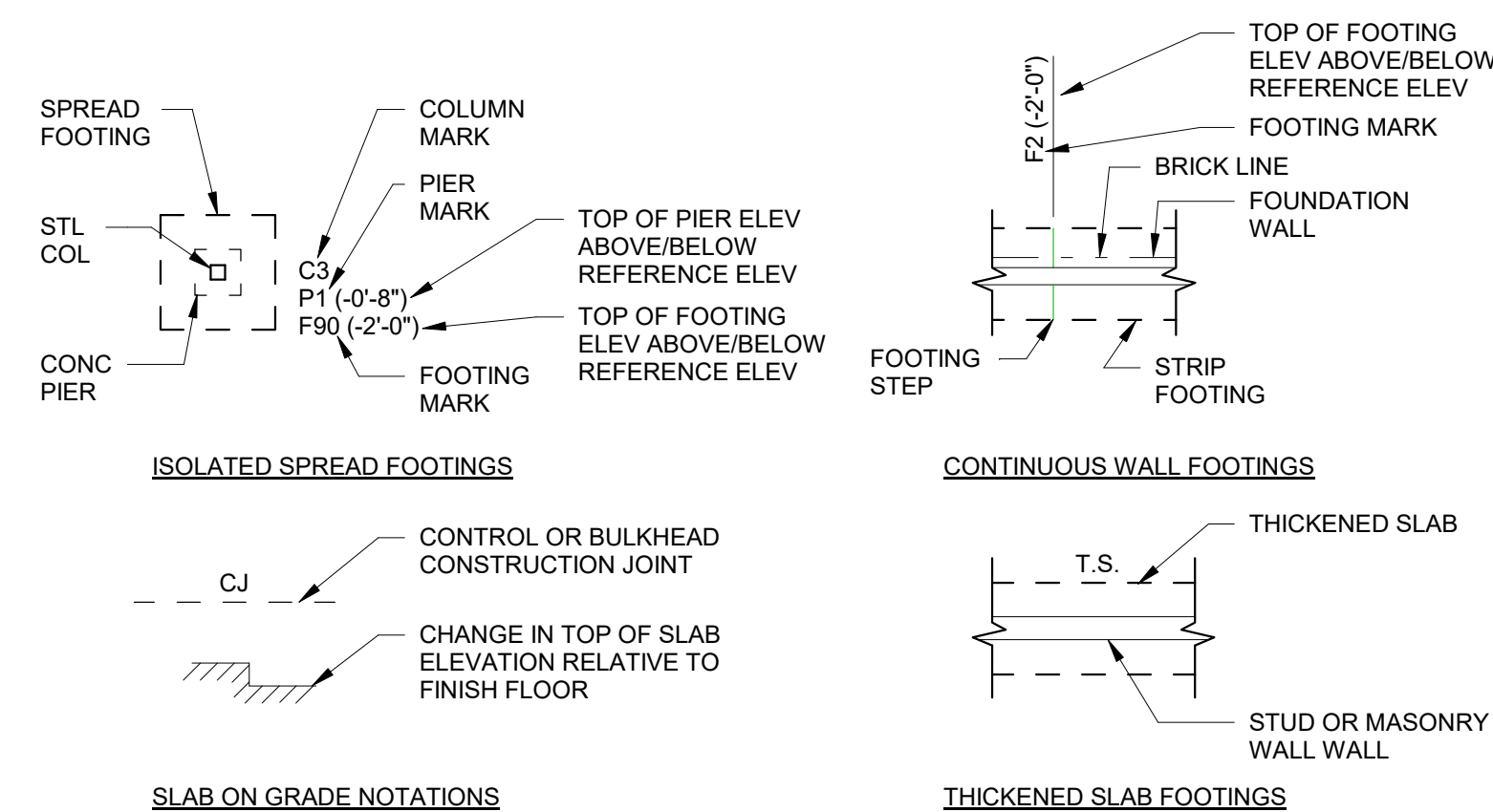
SECTION 10/S0-2
1" = 1'-0"

FOOTING SCHEDULE			
MARK	SIZE	DEPTH	REINFORCING
F2	2'-0" x CONT.	12"	3 - #4 CONT. LONGITUDINAL, ADD 3-#4 X 72" TOP BARS AT HTT-5 HOLDOWNS
F35	3'-6" x CONT.	12"	4 - #5 CONT. LONGITUDINAL, ON #5 AT 14" OC
F5	5'-0" x CONT.	14"	5 - #5 CONT. LONGITUDINAL, ON #5 AT 12" OC TOP & BOTTOM

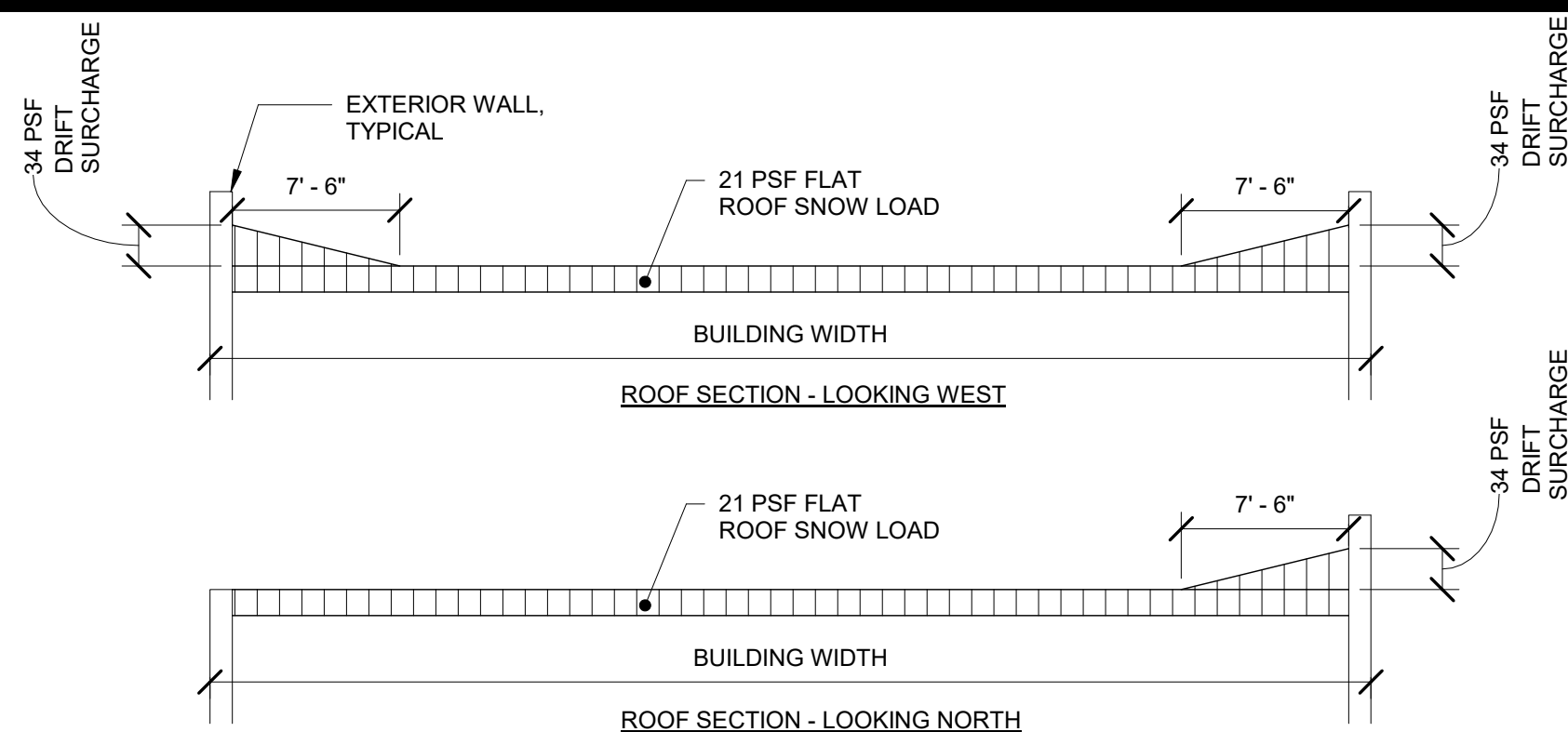
NOTES:

1. ALL REINFORCING SHALL BE BOTTOM ONLY, UNLESS NOTED OTHERWISE.

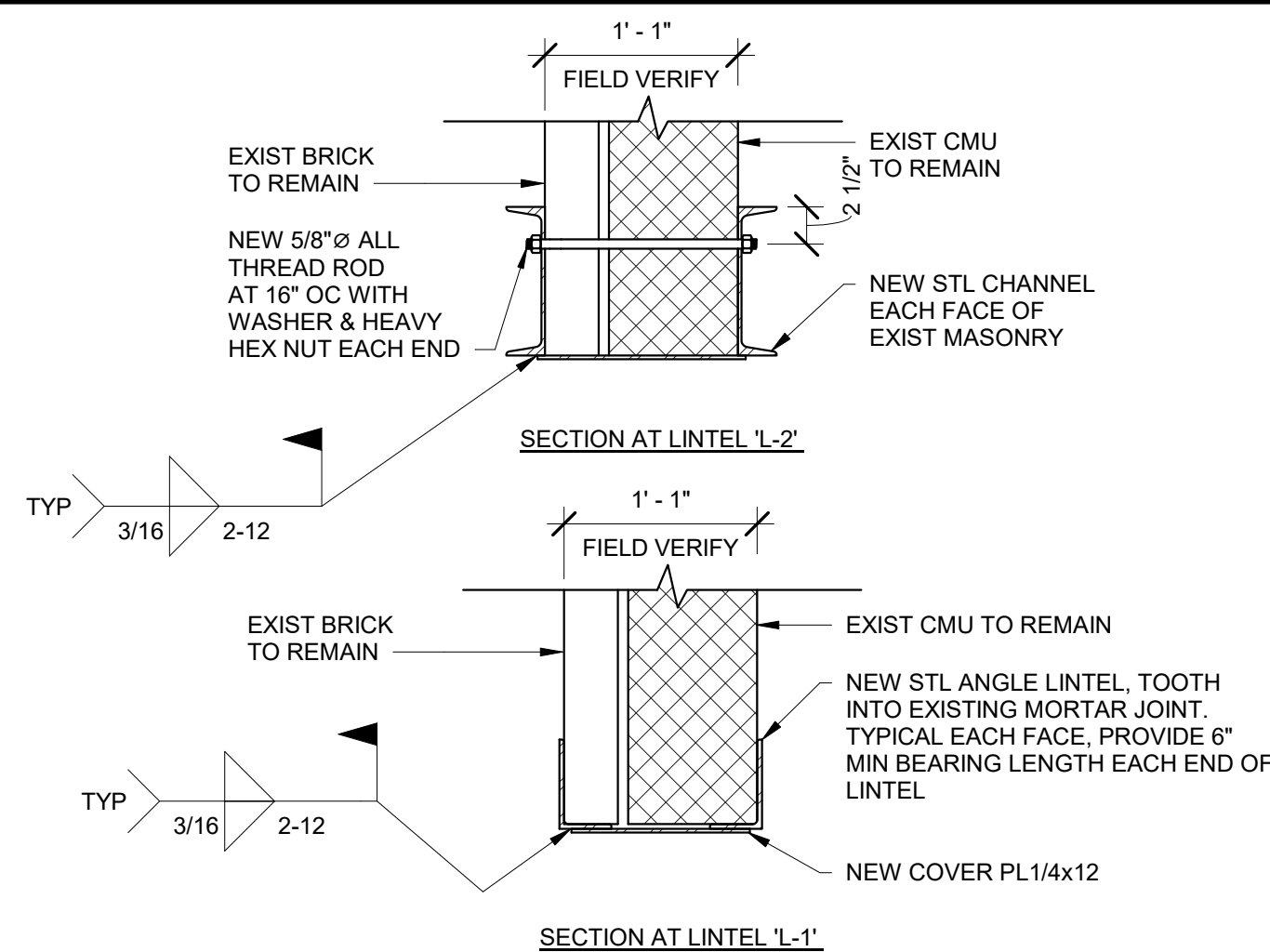
FOOTING SCHEDULE



8 FOUNDATION LEGEND
S0-2 3/4" = 1'-0"




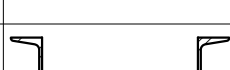
7 ROOF SNOW DRIFT LOAD DIAGRAMS



6
S0-2

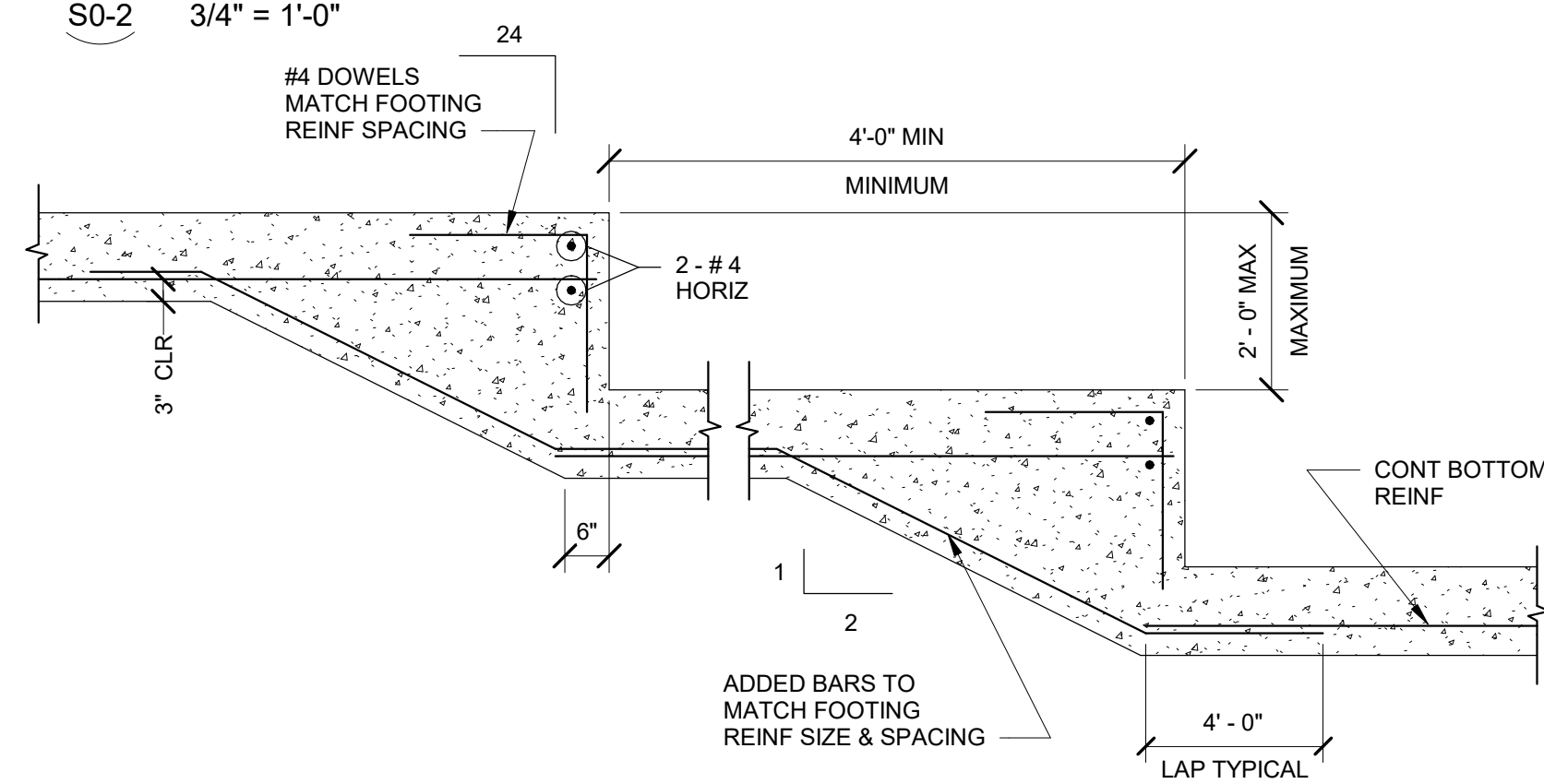
TYPICAL NEW LINTELS AT EXISTING MASONRY

1" = 1'-0"

CMU LINTEL SCHEDULE				
MARK	SECTION	SIZE	BEARING LENGTH	COMMENTS
L-1		2 - L6x3 1/2x5/16 (LLV) W/ PL 1/4	6"	SEE SECTION 6/SO-2 W/PL 1/4x12 AT 8" CMU & BRICK VENEER
L-2		2 - C10x15.3 W/ PL 1/4	3" ON C3x4.1 POST	SEE SECTION 6/SO-2 W/PL 1/4x14 AT 8" CMU & BRICK VENEER

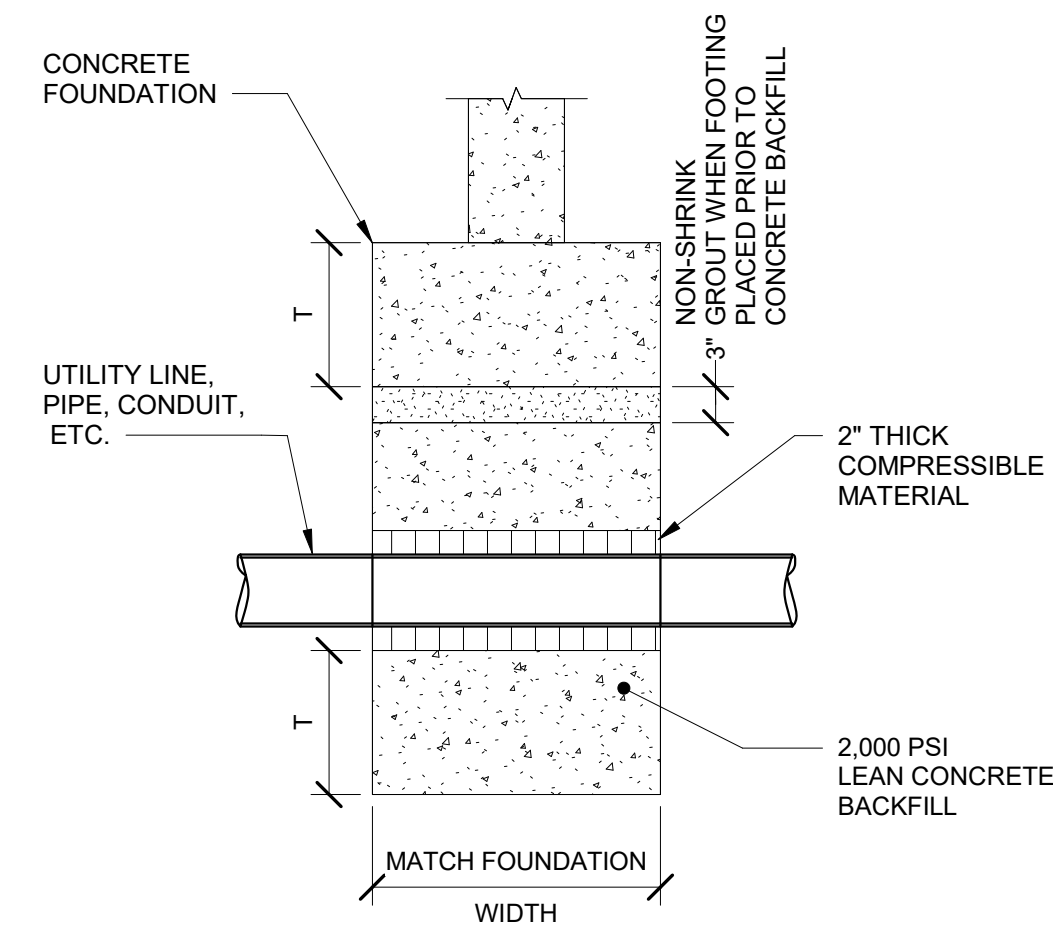
- NOTES :
1. ALL STEEL ANGLES, AND PLATE MATERIAL SHALL BE SHOP PRIMED AND FIELD PAINTED.
 2. PROVIDE 3/16" x 2" LONG STITCH WELD EACH SIDE OF STEEL PLATE LINTEL TO W-SHAPE OR ANGLE ON TOP OF PLATE.

5 CMU LINTEL SCHEDULE



TENSION LAP SPLICE LENGTH				
BAR SIZE	f'c = 3,000psi		f'c = 4,000psi	
	TOP BAR	OTHER BAR	TOP BAR	OTHER BAR
#3	28	22	24	19
#4	37	29	32	25
#5	47	36	40	31
#6	56	43	48	37

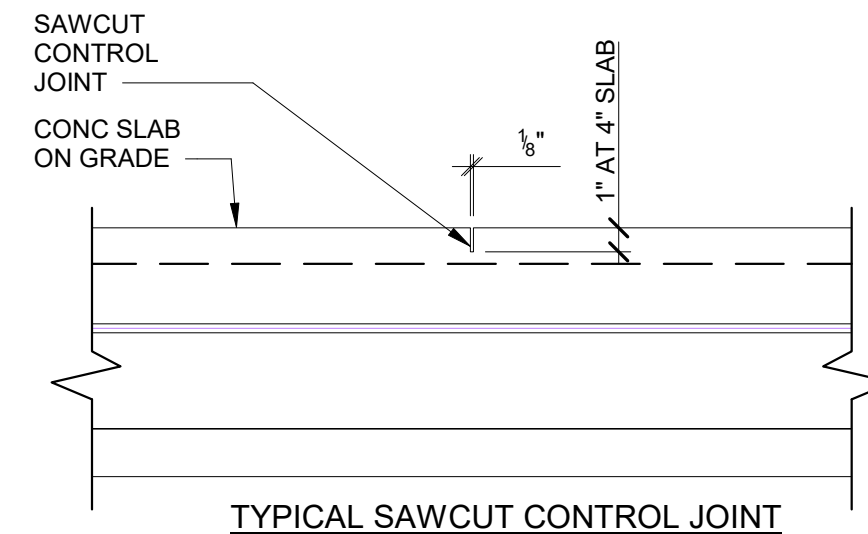
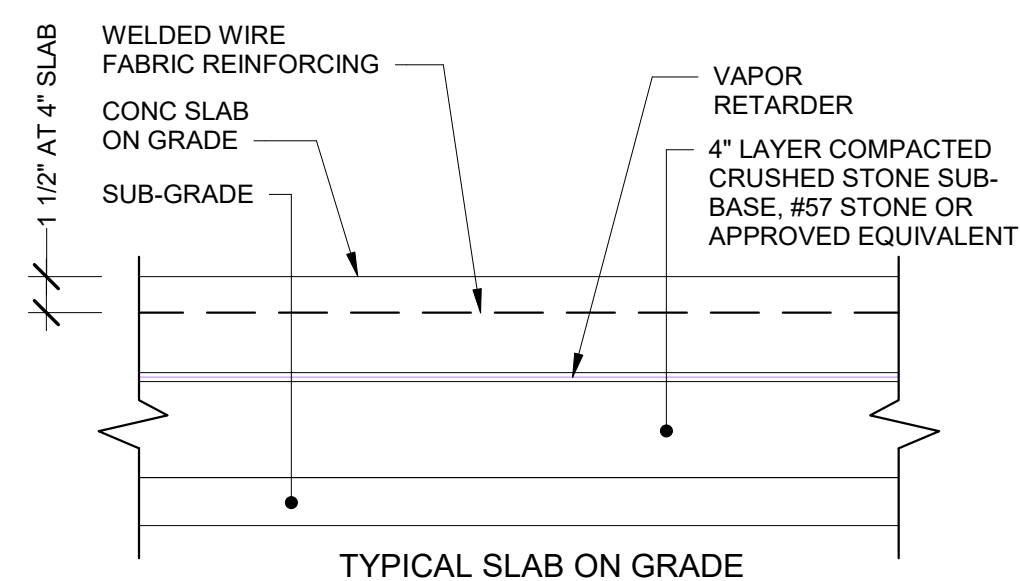
TENSION LAP SPLICE SCHEDULE



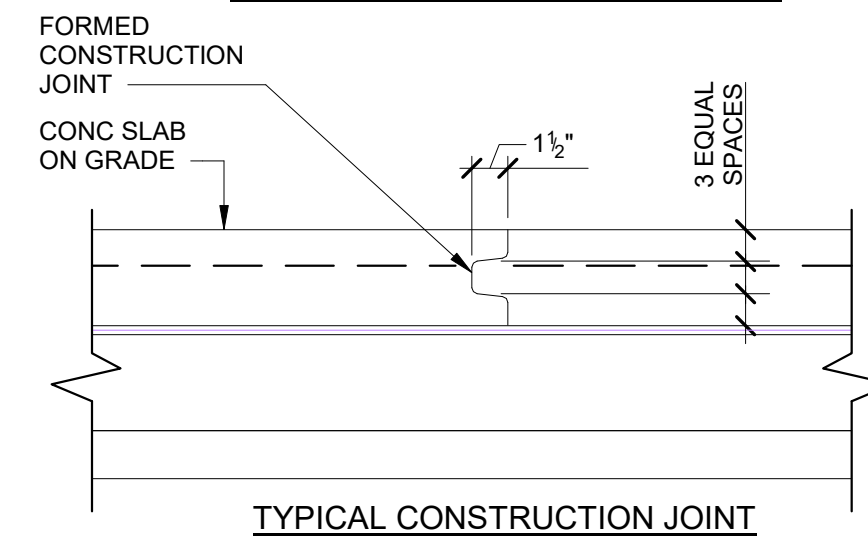
2
S0-2

TYP. UTILITY LINE UNDER FOOTING

3/4" = 1'-0"



TYPICAL SAWCUT CONTROL JOINT



TYPICAL CONSTRUCTION JOINT

- NOTES:**
1. LOCATE SAWCUT CONTROL JOINTS AT A MAXIMUM SPACING OF 12'-0" EACH DIRECTION.
 2. STOP WELDED WIRE FABRIC REINFORCING EACH SIDE OF CONSTRUCTION JOINTS.

1 TYP. SLAB ON GRADE
S0-2 1 1/2" = 1'-0"

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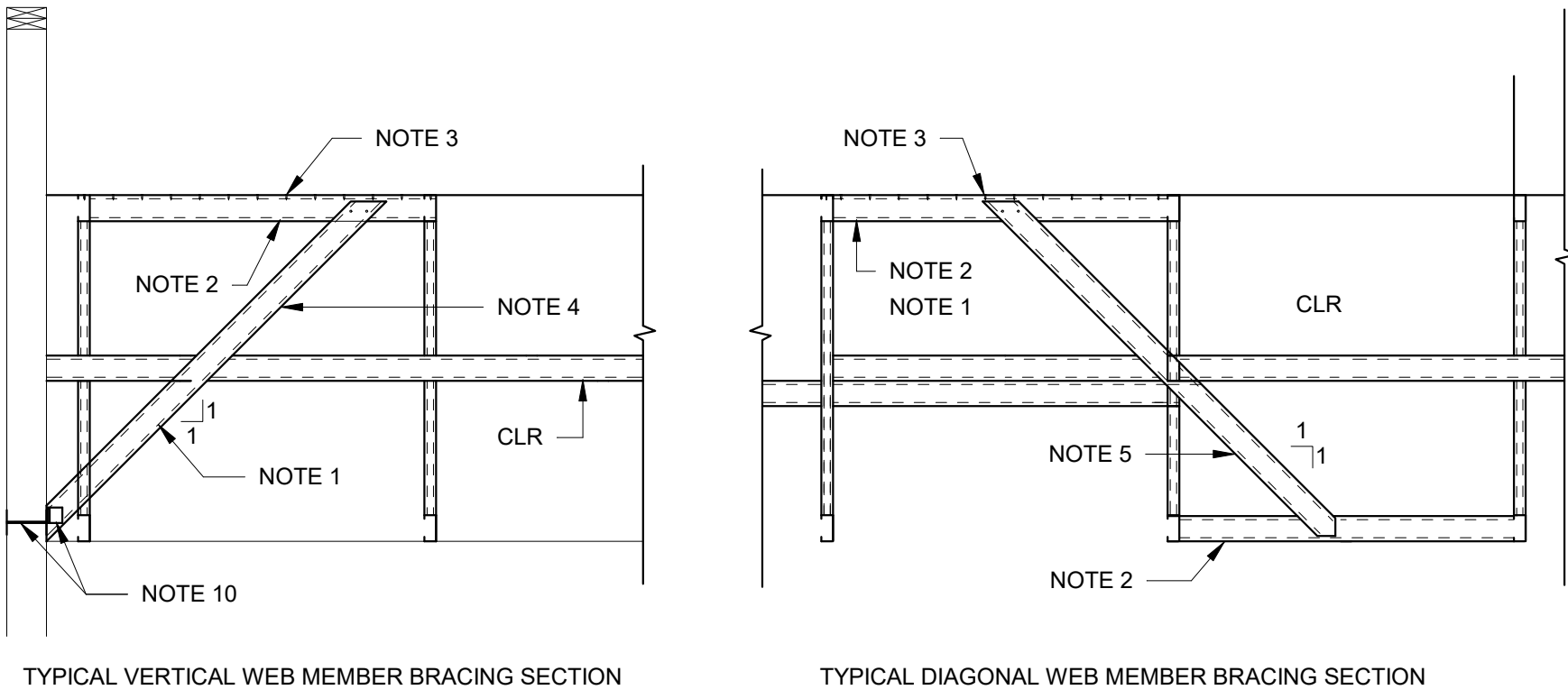
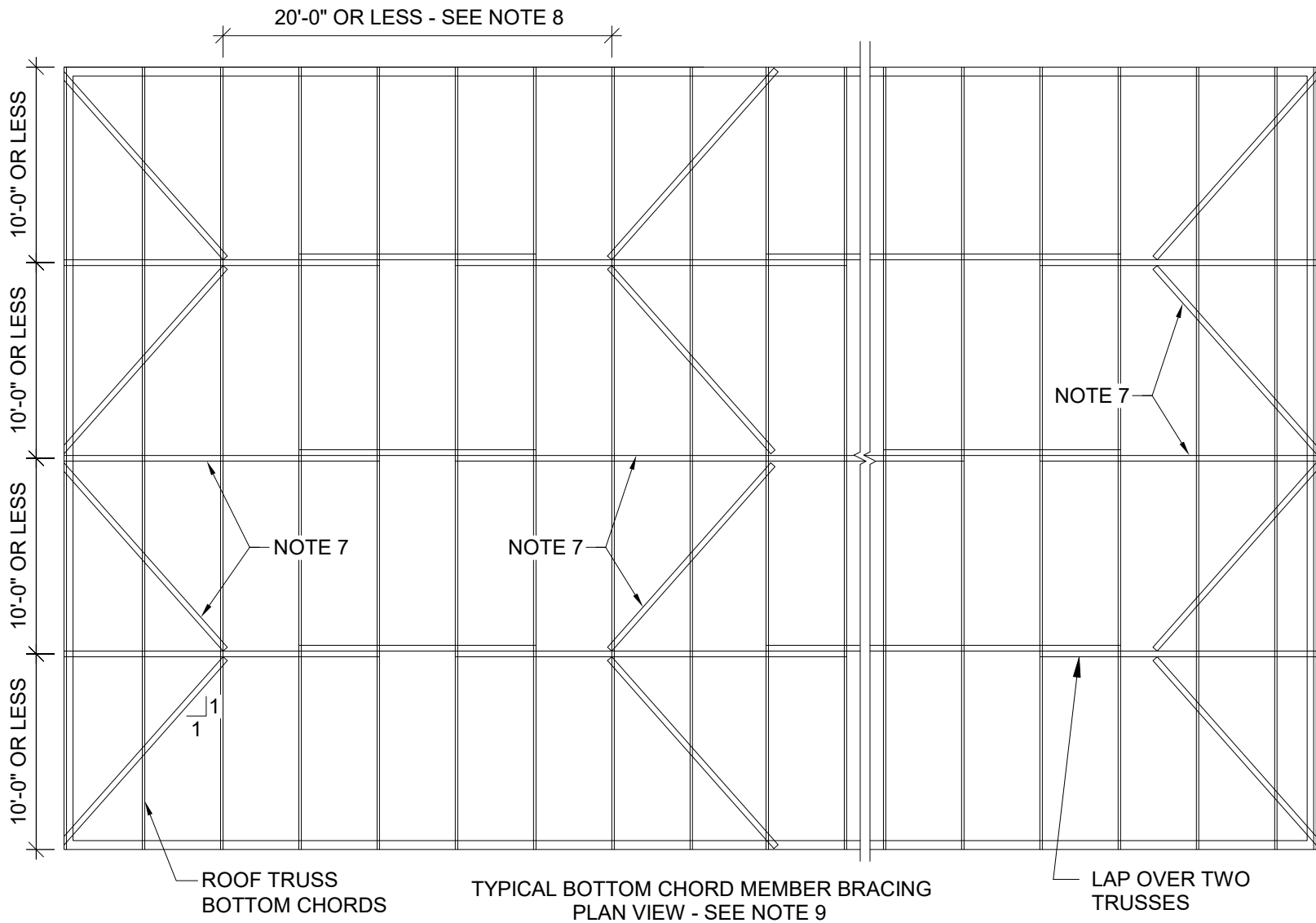
ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE,
ROANOKE, VIRGINIA

DRAWN BY: MBM
CHECKED BY: CMF

TYPICAL SECTIONS, DETAILS AND SCHEDULES



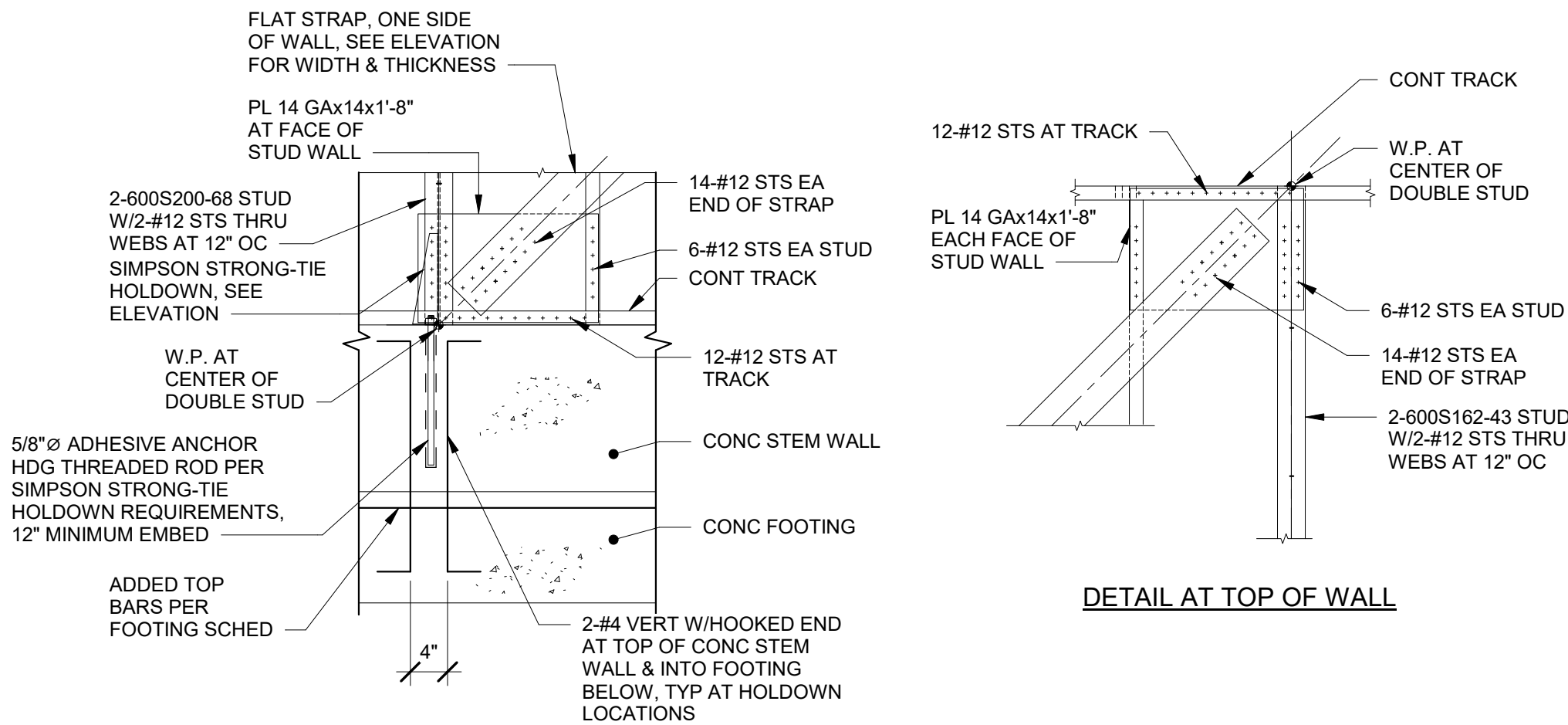
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S0-2



- NOTES:
1. DIAGONAL 362S162-33 BRACE. SCREW TO EACH WEB MEMBER & BLOCKING W/2-NO. 12 STS. LOCATE DIAGONAL BRACE AT EACH END OF ROOF STRUCTURE AND 20'-0" OR LESS INTERVALS ALONG LENGTH OF ROOF STRUCTURE.
 2. 362S162-33 BLOCKING BETWEEN TRUSS CHORDS. SECURE EACH END WITH CLIP L2x2x33-MIL, 2" LONG WITH 2-NO. 12 STS EACH LEG.
 3. SCREW ROOF DECKING TO BLOCKING W/NO. 12 STS @ 4" OC FULL LENGTH OF BLOCKING.
 4. LOCATE VERTICAL WEB MEMBER BRACING AT EACH LINE OF CONTINUOUS LATERAL RESTRAINT.
 5. LOCATE DIAGONAL WEB MEMBER BRACING AT EACH LINE OF CONTINUOUS LATERAL RESTRAINT.
 6. CLR = CONTINUOUS LATERAL RESTRAINT PER TRUSS DESIGNER, SEE TRUSS DRAWINGS. FOR EXAMPLE: 362S162-43 SCREWED TO WEB MEMBER.
 7. BOTTOM CHORD BRACING = 362S162-33. SCREW TO TOP OF EACH BOTTOM CHORD MEMBER W/2-NO. 12 STS. LAP OVER TWO TRUSSES AT JOINTS. SEE NOTE 10 FOR BOTTOM CHORD BRACING ATTACHMENT TO STUD WALL AND BLOCKING BETWEEN STUDS.
 8. INSTALL DIAGONAL BOTTOM CHORD BRACING AT INTERVALS OF 20'-0" OR LESS ALONG LENGTH OF ROOF STRUCTURE.
 9. BOTTOM CHORD PLAN VIEW IS A SAMPLE TO ILLUSTRATE THE DESIGN INTENT. ADAPT BRACING LAYOUT TO THIS PROJECT ROOF PLAN.
 10. SECURE DIAGONAL BRACE TO 2-600T125-54 BACK-TO-BACK TRACK BLOCKING BETWEEN WALL STUDS WITH CLIP L2x2x33-MIL, 2" LONG WITH 2-NO. 12 STS EACH LEG. SECURE BLOCKING TO STUD WEB WITH CLIP L2x2x33-MIL, 2" LONG WITH 2-NO. 12 STS EACH LEG.

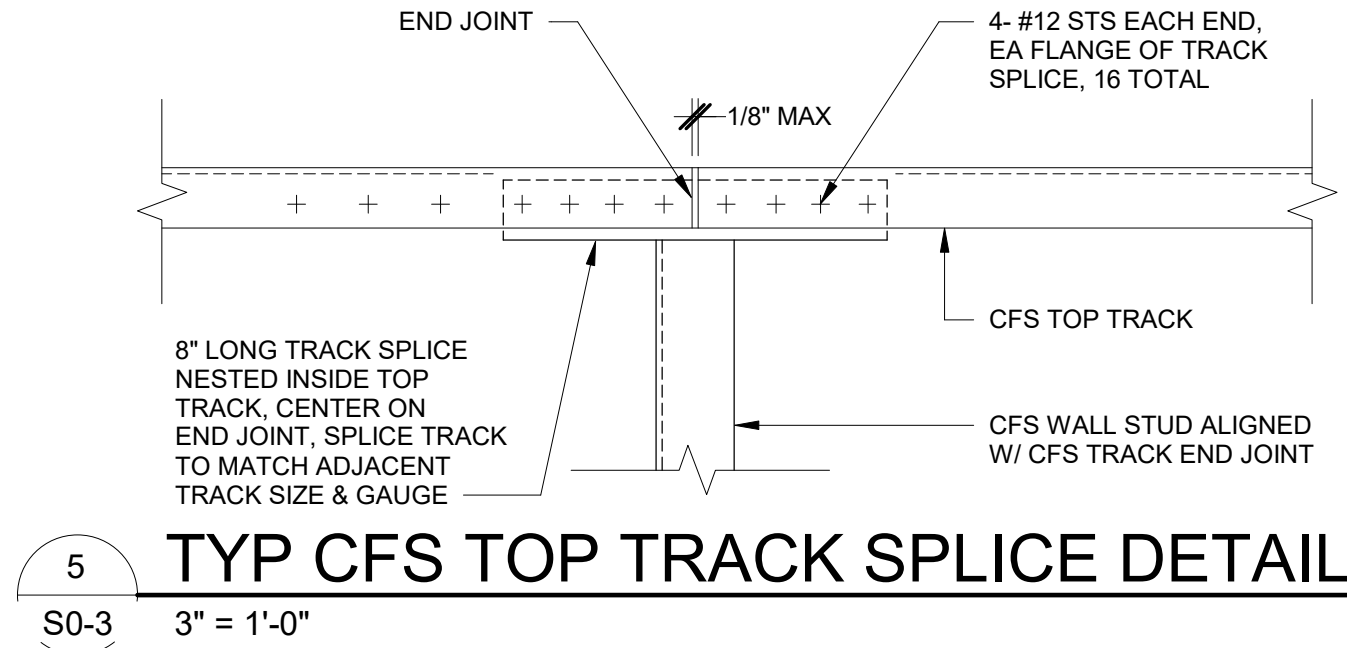
7 TYP PERMANENT LATERAL BRACING - FLAT CFS ROOF TRUSSES

S0-3 1/2" = 1'-0"



6 CFS X-BRACING CONNECTION DETAILS

S0-3 3/4" = 1'-0"

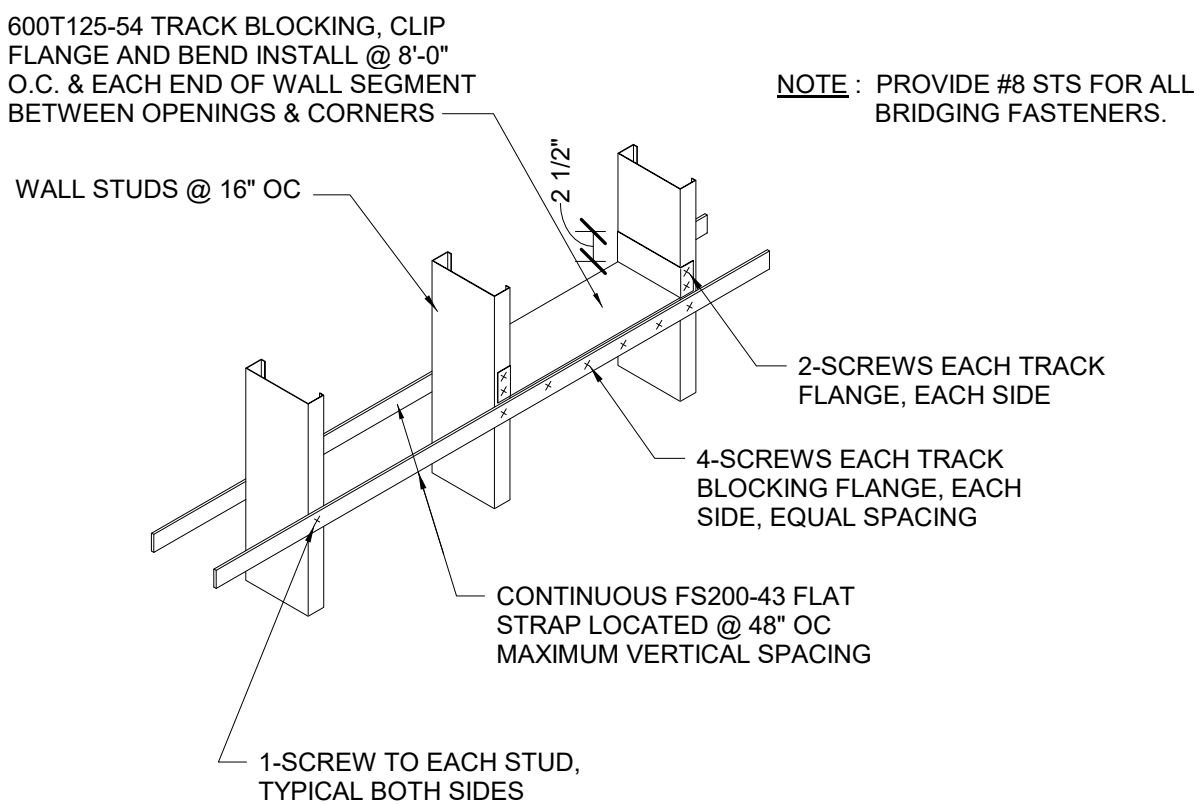


CFS HEADER SCHEDULE			
MARK	SIZE	JAMB & KING STUD	INSTALLATION NOTES
H-1	2-600S162-43	1-362S162-43 JAMB 1-362S162-43 KING	BOX HEADER
H-2	2-800S162-68	1-600S162-43 JAMB 2-600S200-68 KING	BOX HEADER

- NOTES:
1. PROVIDE 362S125-54 WEB STIFFENERS AT ALL BOX HEADER BEARING POINTS. ATTACH STIFFENER TO EACH HEADER MEMBER WEB W/SCREWS AS FOLLOWS:
 - 3 5/8" DEEP HEADERS: 4-SCREWS; 6" & 8" DEEP HEADERS: 8-SCREWS; 10" DEEP: 10 SCREWS.
 2. ALL HEADERS SHALL BE UNPUNCHED, SOLID WEB MATERIAL.

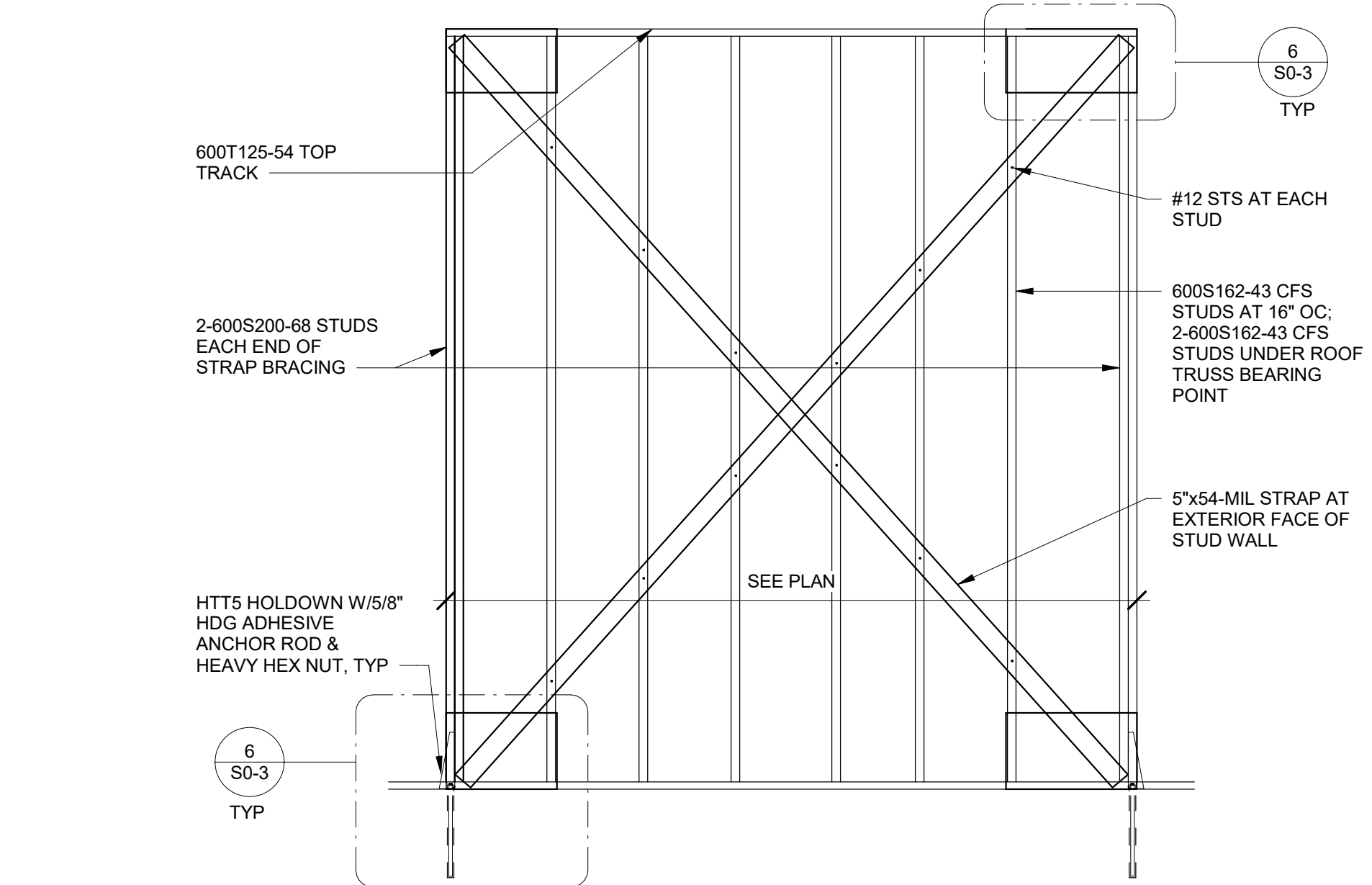
4 CFS HEADER FRAMING SCHEDULE

S0-3 3/4" = 1'-0"



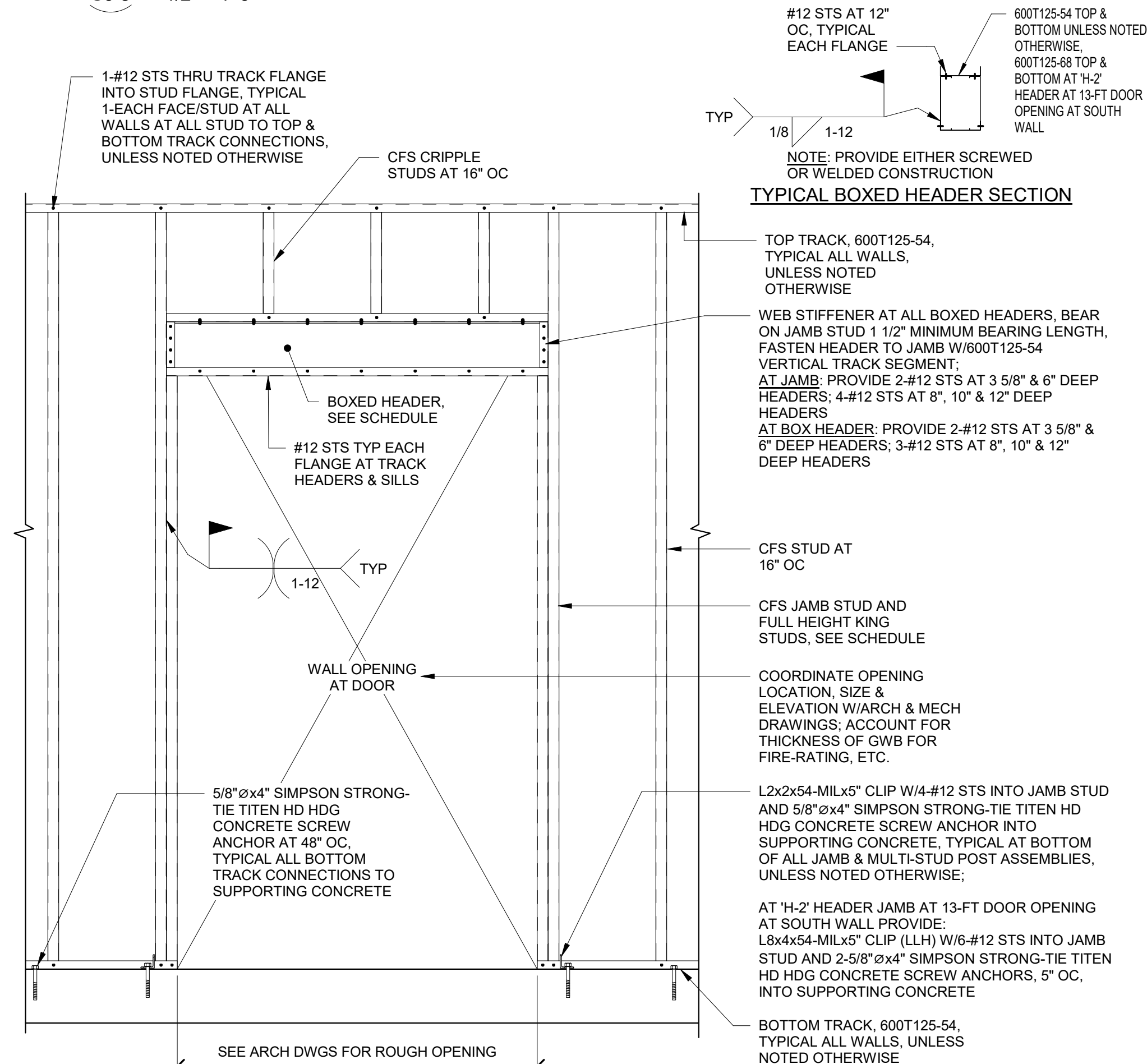
3 TYPICAL CFS WALL BRIDGING DETAIL

S0-3 3/4" = 1'-0"



2 STRAP BRACED WALL ELEVATION "SB-1"

S0-3 1/2" = 1'-0"



1 TYPICAL CFS WALL FRAMING ELEVATION

S0-3 3/4" = 1'-0"



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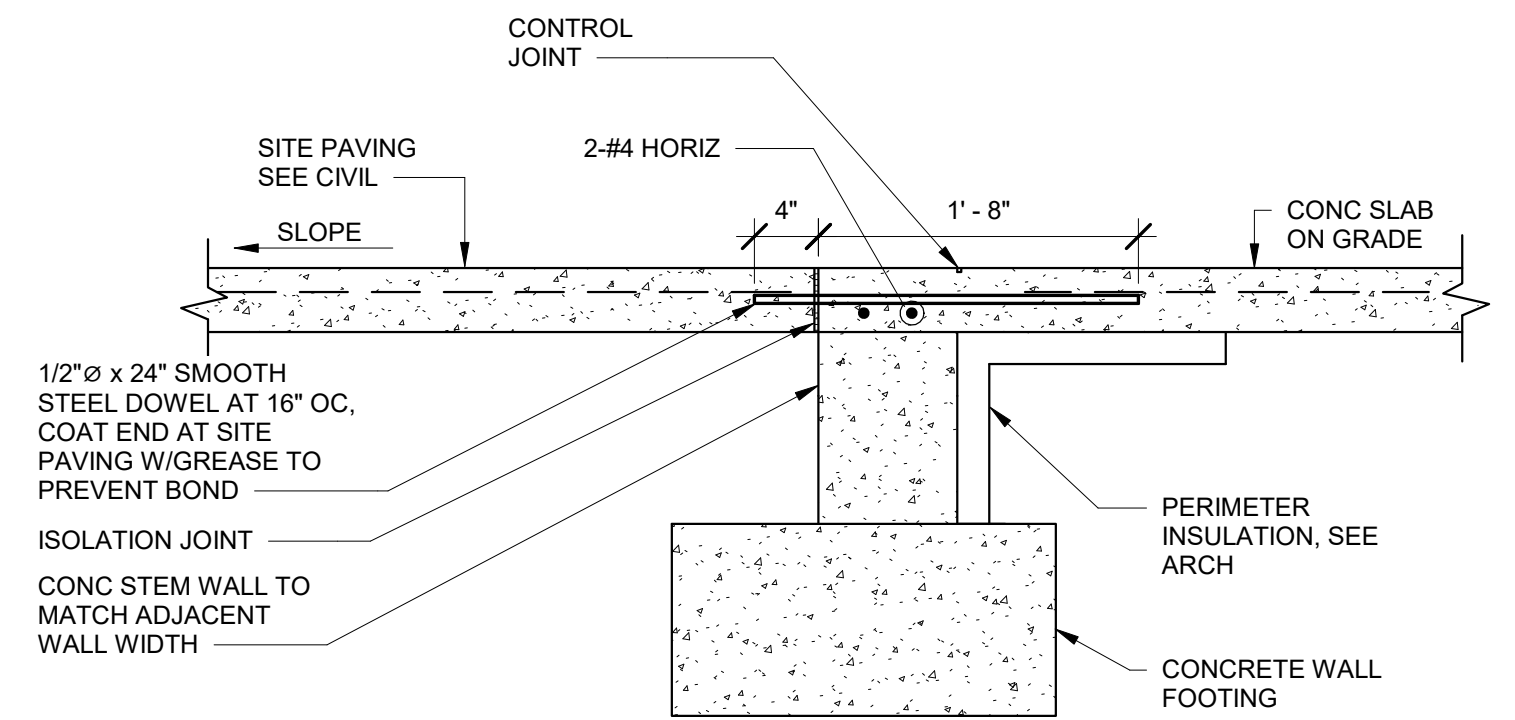
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1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

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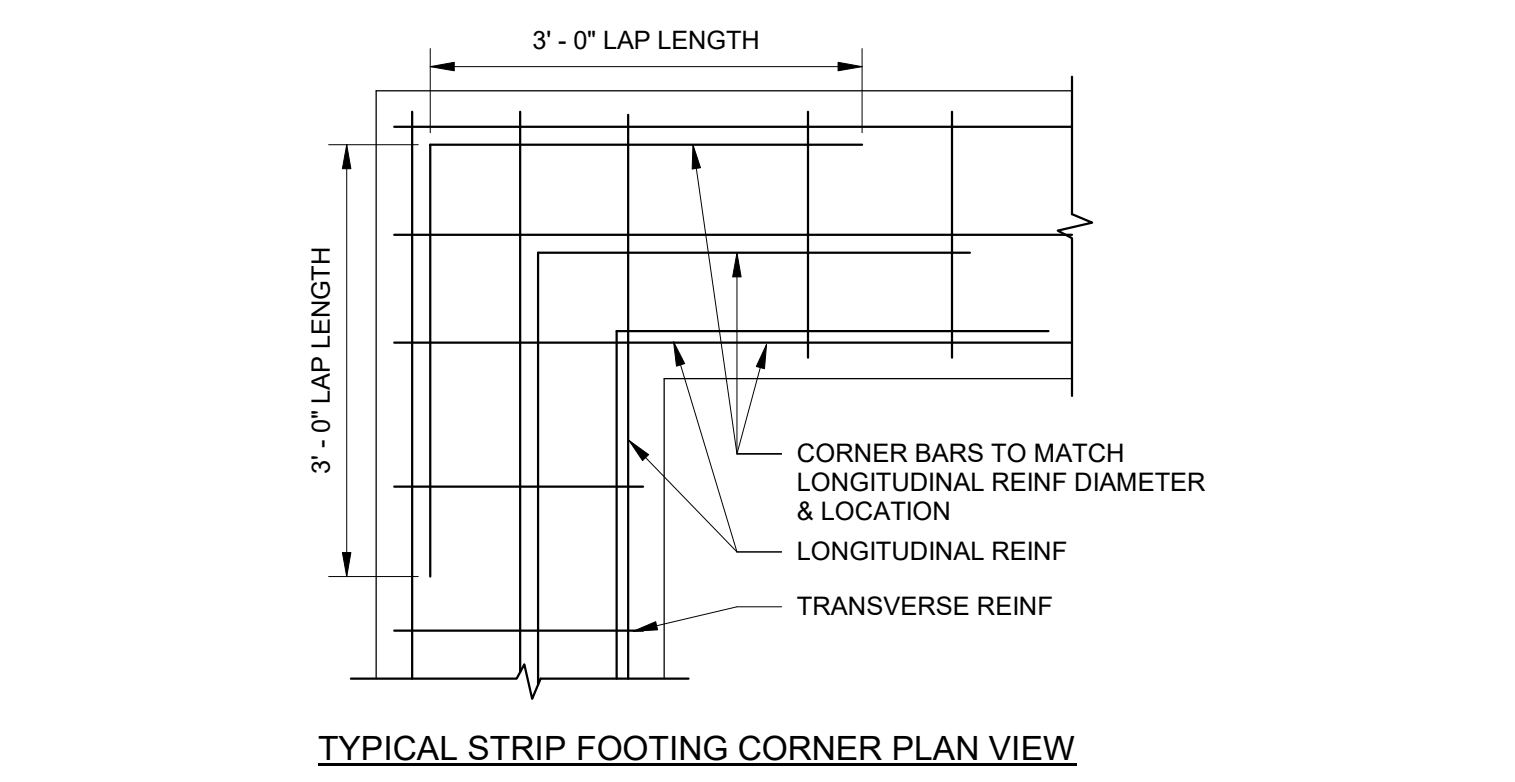
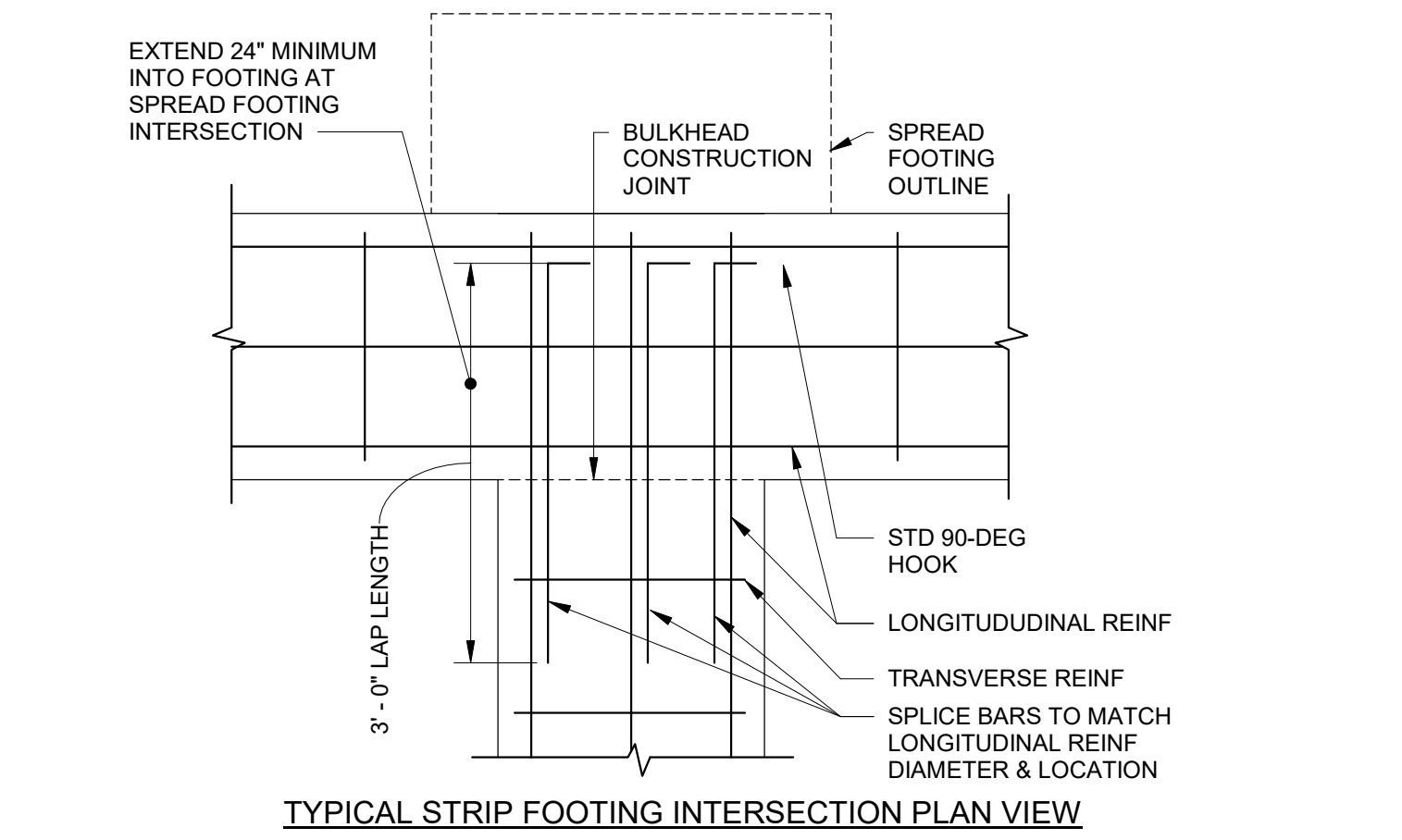
TYPICAL SECTIONS,
DETAILS AND
SCHEDULES



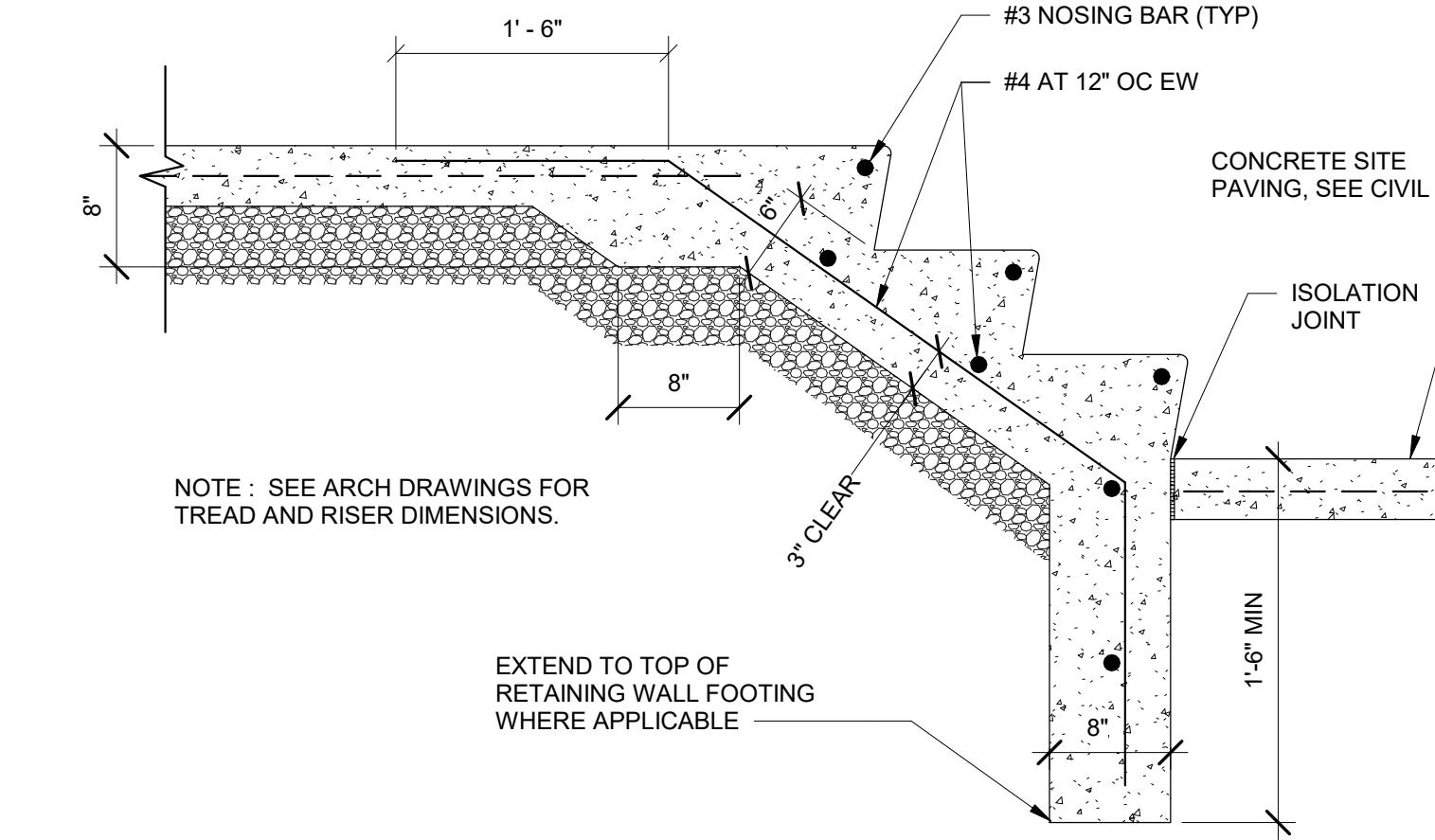
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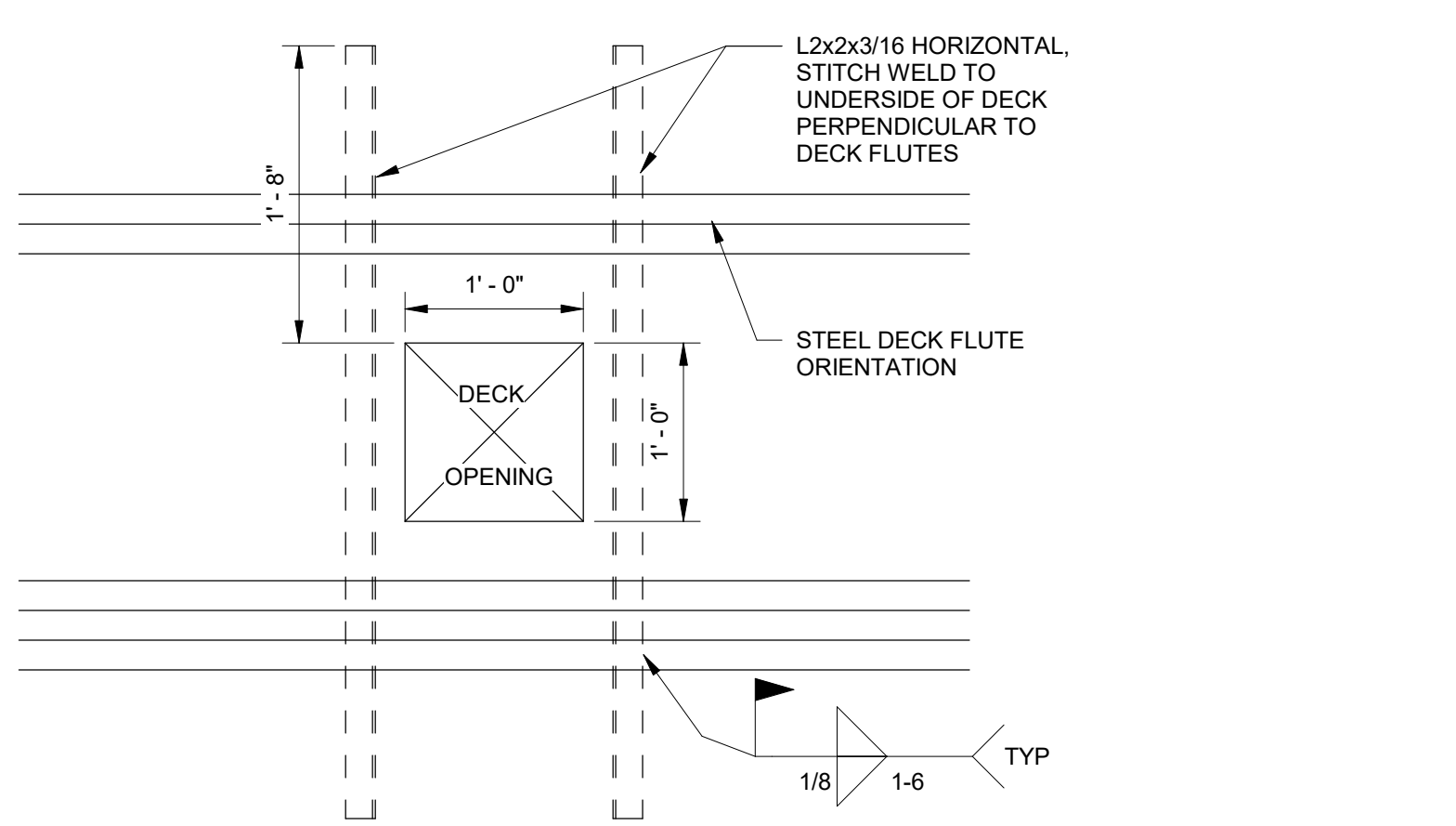
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S0-4
TYPICAL DOOR OPENING SECTION
1" = 1'-0"



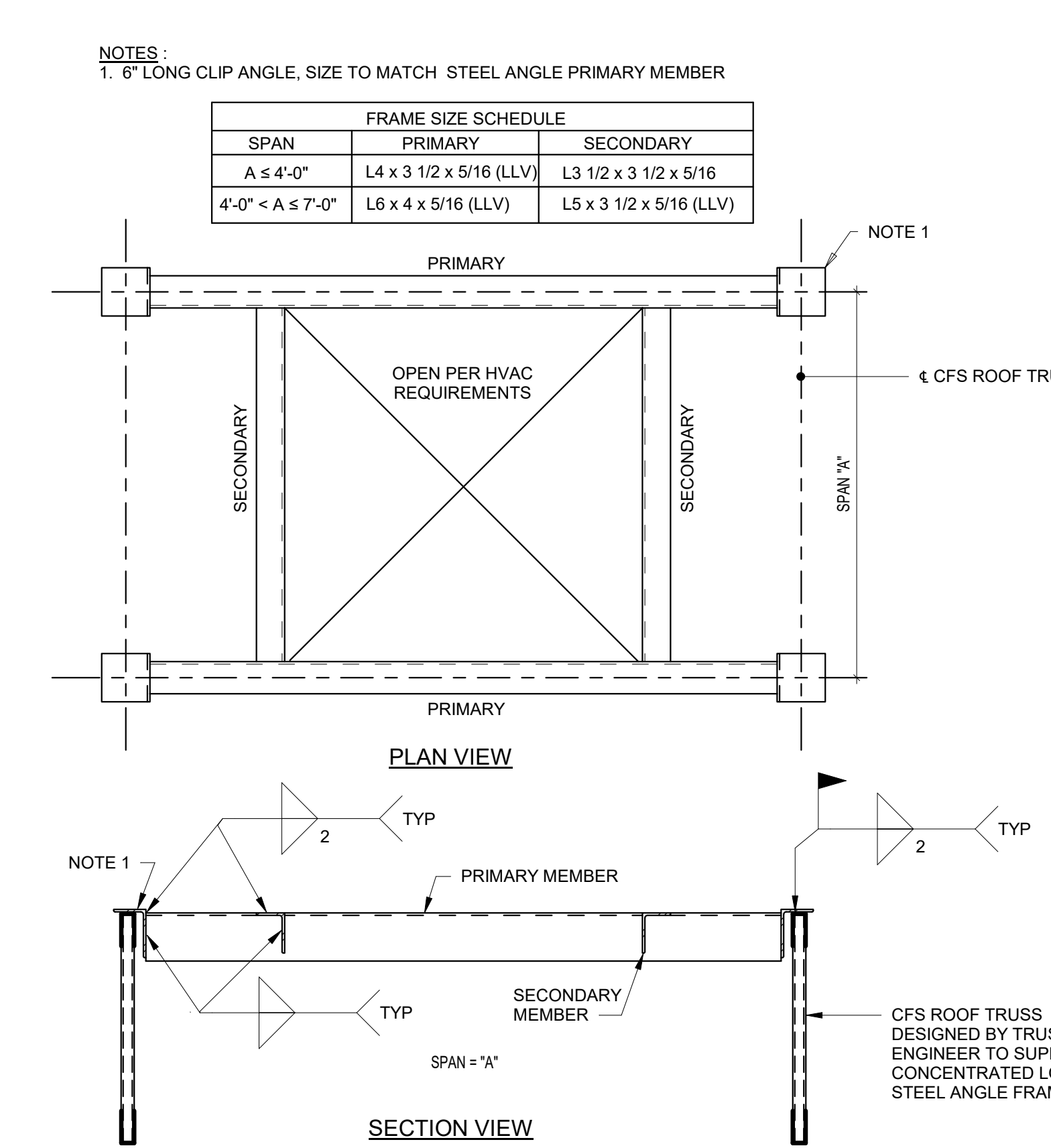
8
S0-4
TYP. FOOTING CORNER & INTERSECTION
3/4" = 1'-0"



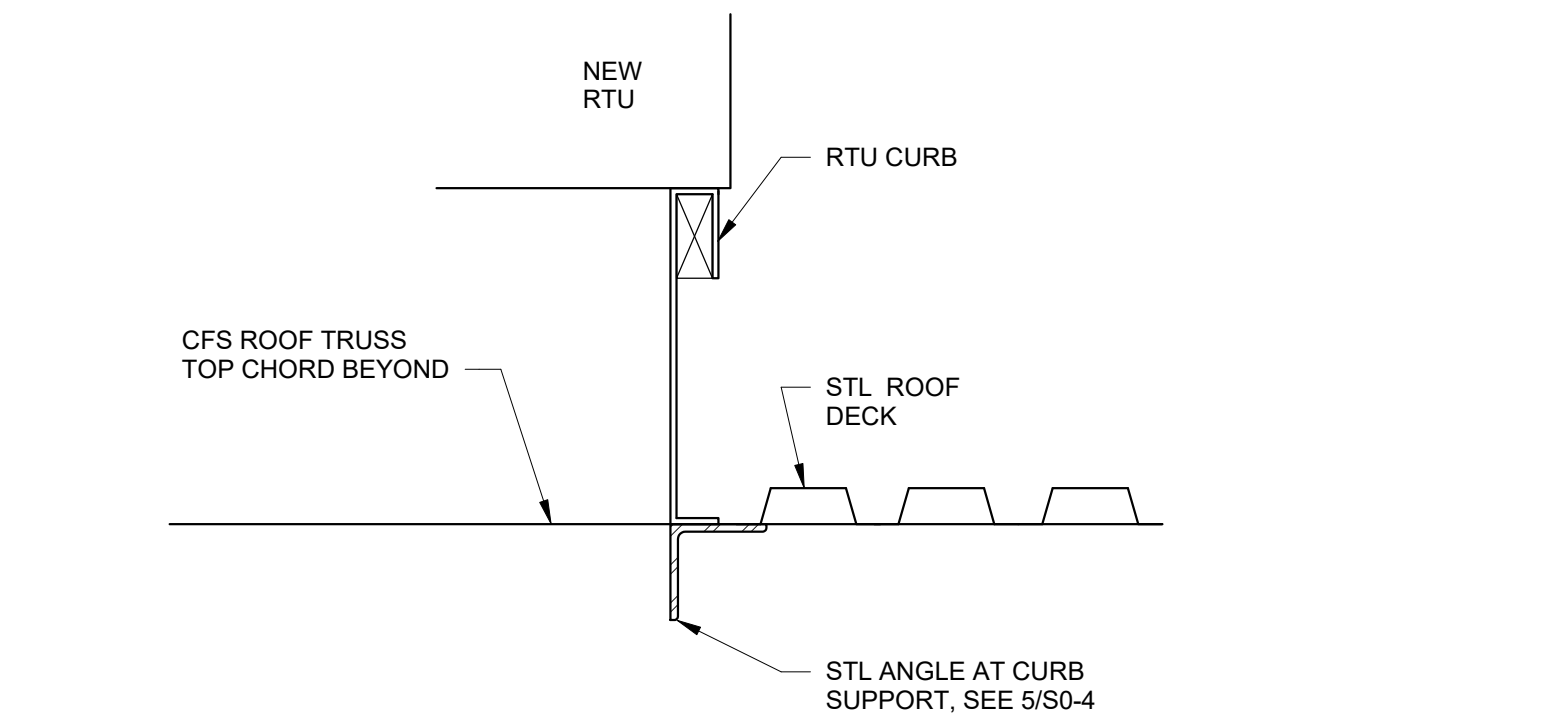
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S0-4
TYPICAL CONCRETE STAIR ON GRADE
1" = 1'-0"



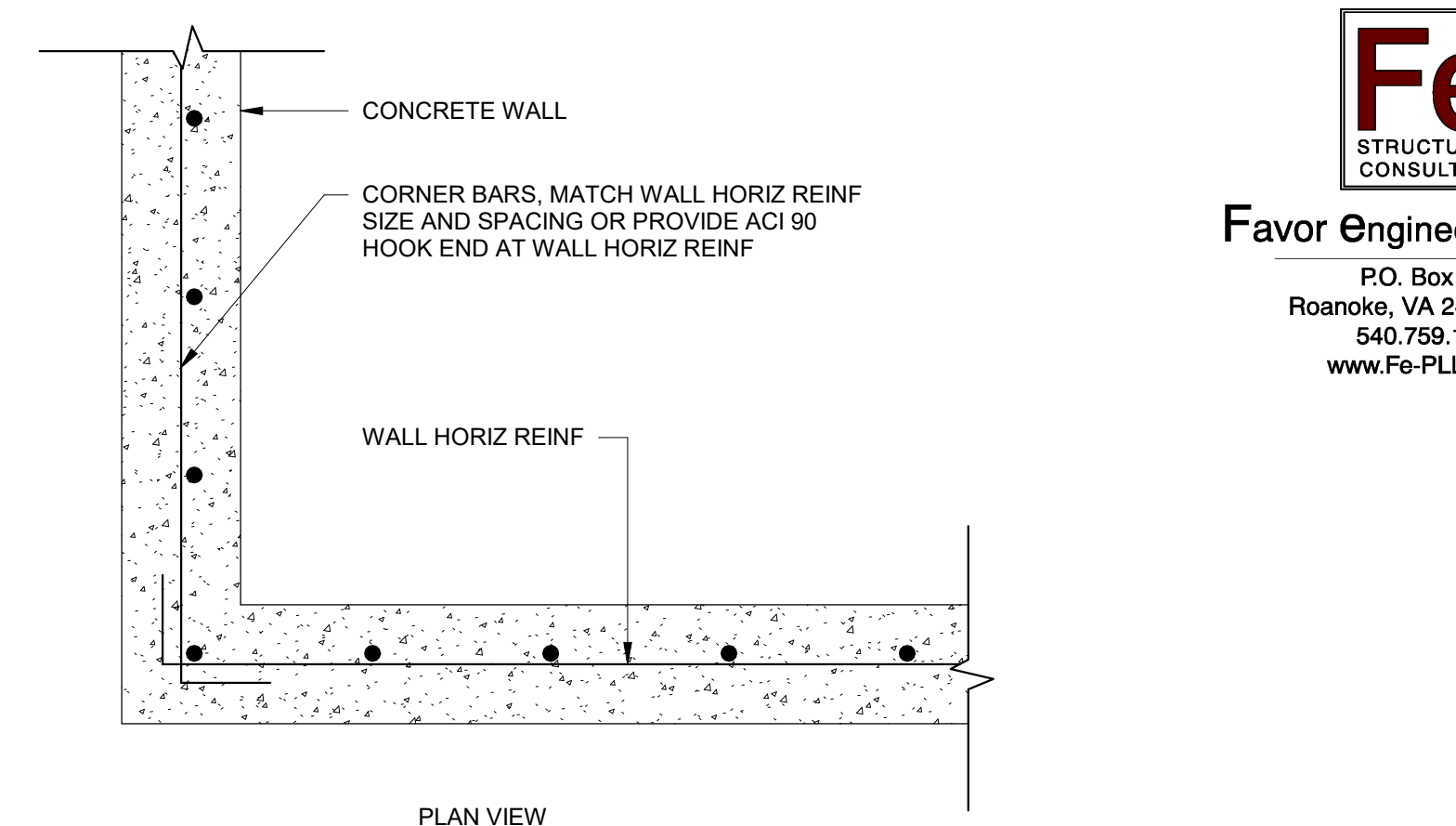
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S0-4
TYP. REINF. AT SMALL ROOF DECK OPENINGS
1" = 1'-0"



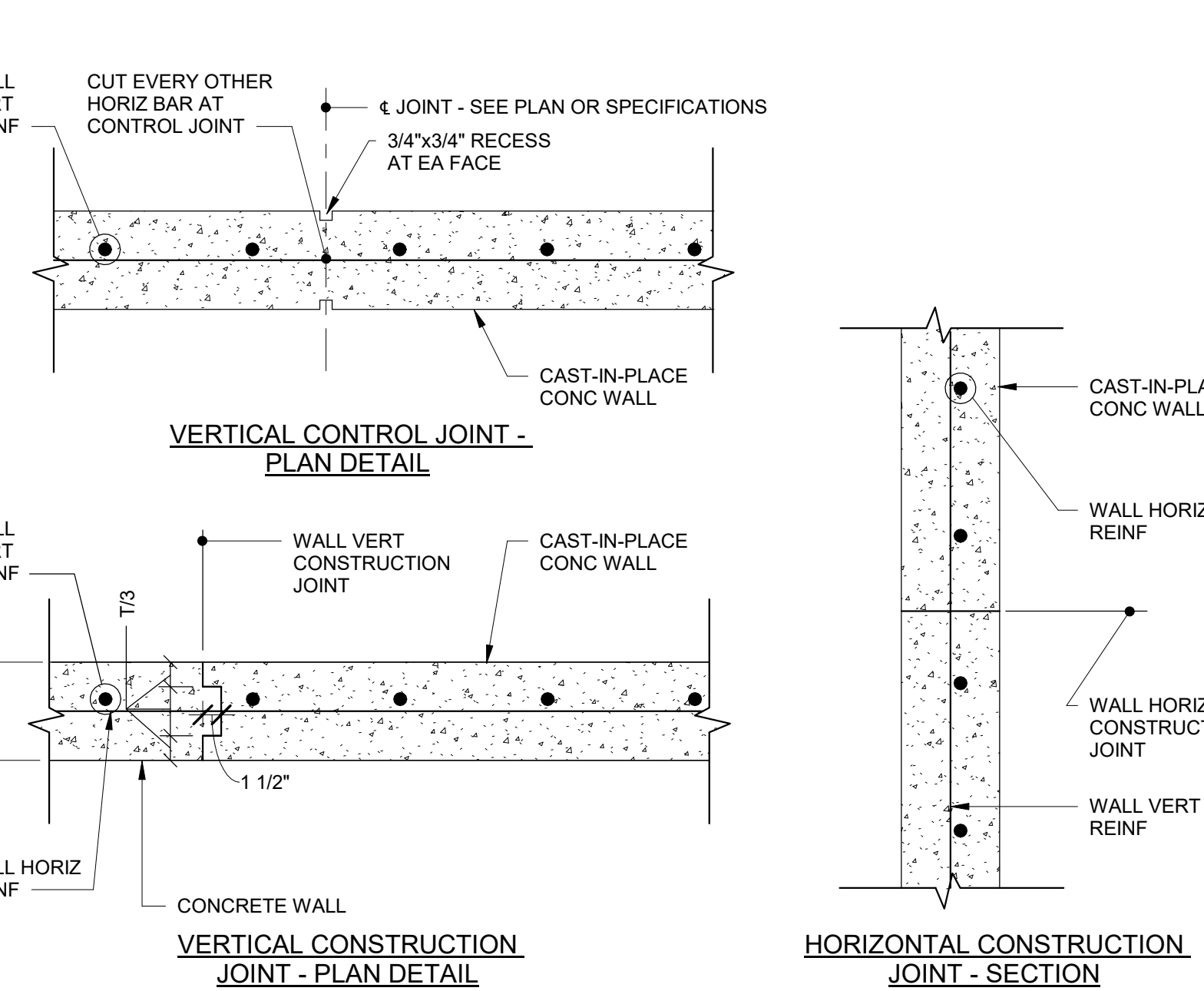
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S0-4
TYP. HVAC CURB OR ROOF OPENING
3/4" = 1'-0"



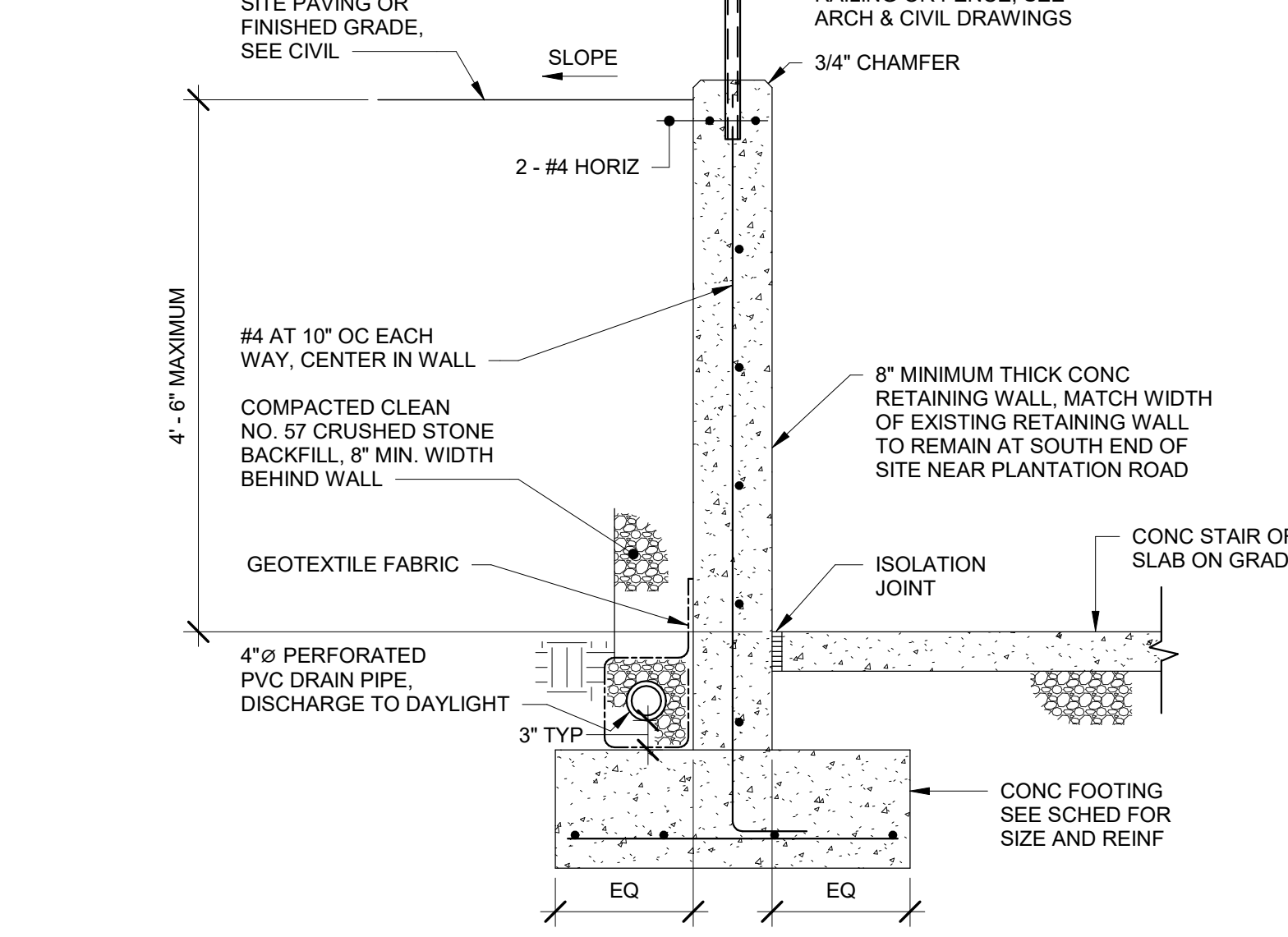
4
S0-4
TYP RTU CURB SUPPORT SECTION
1 1/2" = 1'-0"



3
S0-4
TYPICAL CONCRETE WALL CORNER
1" = 1'-0"



2
S0-4
TYP. CONC. WALL JOINT DETAILS
1" = 1'-0"



1
S0-4
SECTION 1/S0-4
3/4" = 1'-0"



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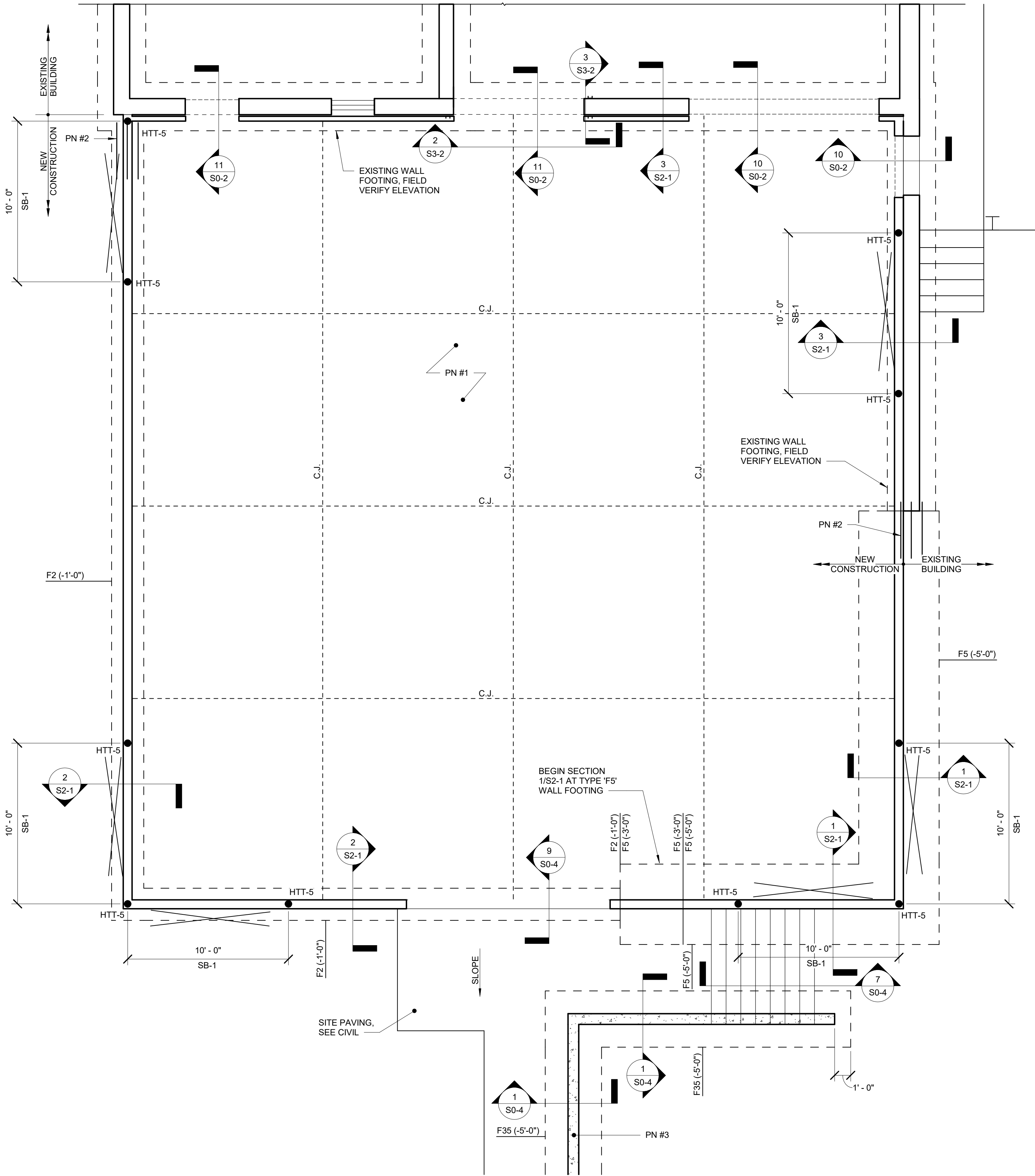
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1
S1-1

FOUNDATION PLAN

1/4" = 1'-0"



NORTH



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GENERAL NOTES

1. FINISHED FIRST FLOOR REFERENCE ELEVATION = (+0'-0"). ALL OTHER ELEVATIONS SHALL BE REFERENCED ABOVE/BELOW THIS REFERENCE ELEVATION.
2. ALL EXTERIOR CFS WALL STUDS AND 6" DEEP STUDS ADJACENT TO EXISTING MASONRY WALL ON EAST SIDE OF NEW ADDITION SHALL BE 600S162-43 STUDS AT 16" OC WITH 2-600S162-43 STUDS CENTERED UNDER EACH ROOF TRUSS BEARING POINT.
3. TOP OF FOOTING ELEVATION = (-1'-0") BELOW FINISHED FLOOR, UNLESS NOTED OTHERWISE.
4. 'HTT-5' = SIMPSON STRONG-TIE 'HTTS' HOLDOWN W/5/8" HDG ADHESIVE ANCHOR AT EACH END OF FLAT-STRAP X-BRACINGS. 12" EMBED INTO CMU STEMWALL & 18-#10 STS INTO 2-600S200-68 STUD POST. SEE 6/S0-3 FOR ADDED REBAR AT STEM WALL.
5. 'SB-1' INDICATES FLAT-STRAP X-BRACING, SEE 2/S0-3 FOR WALL FRAMING ELEVATION.

PLAN NOTES

- PN #1: 4" THICK CONCRETE SLAB ON GRADE REINFORCED W/6X6-W1.4XW1.4 WWF ON VAPOR BARRIER ON COMPACTED, CRUSHED STONE, FREE-DRAINING SUB-BASE MATERIAL.
- PN #2: DOWEL NEW FOOTING INTO SIDE OF EXISTING FOOTING W/3-#4x42" HORIZONTAL, 6" EMBED INTO EXISTING FOOTING, 4" ABOVE BOTTOM OF EXISTING FOOTING.
- STEP NEW FOOTING TO SET BOTTOM OF NEW FOOTING ELEVATION EQUAL TO BOTTOM OF EXISTING FOOTING ELEVATION.
- PN #3: NEW CONCRETE SITE RETAINING WALL, SEE 1/S0-4.
- SEE CIVIL FOR SITE DEMOLITION PLAN INDICATING EXTENT OF EXISTING RETAINING WALL TO REMAIN AND START OF NEW RETAINING WALL CONSTRUCTION.
- DOWEL NEW RETAINING WALL FOOTING INTO SIDE OF EXISTING FOOTING W/3-#4x42" HORIZONTAL, 6" EMBED INTO EXISTING FOOTING, 4" ABOVE BOTTOM OF EXISTING FOOTING.
- DOWEL NEW RETAINING WALL INTO CUT VERTICAL EDGE OF EXISTING RETAINING WALL W/#4x42" HORIZONTAL AT 12" OC VERTICAL SPACING, CENTERED IN NEW RETAINING WALL, 6" EMBED INTO EXISTING RETAINING WALL.

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FOUNDATION
PLAN



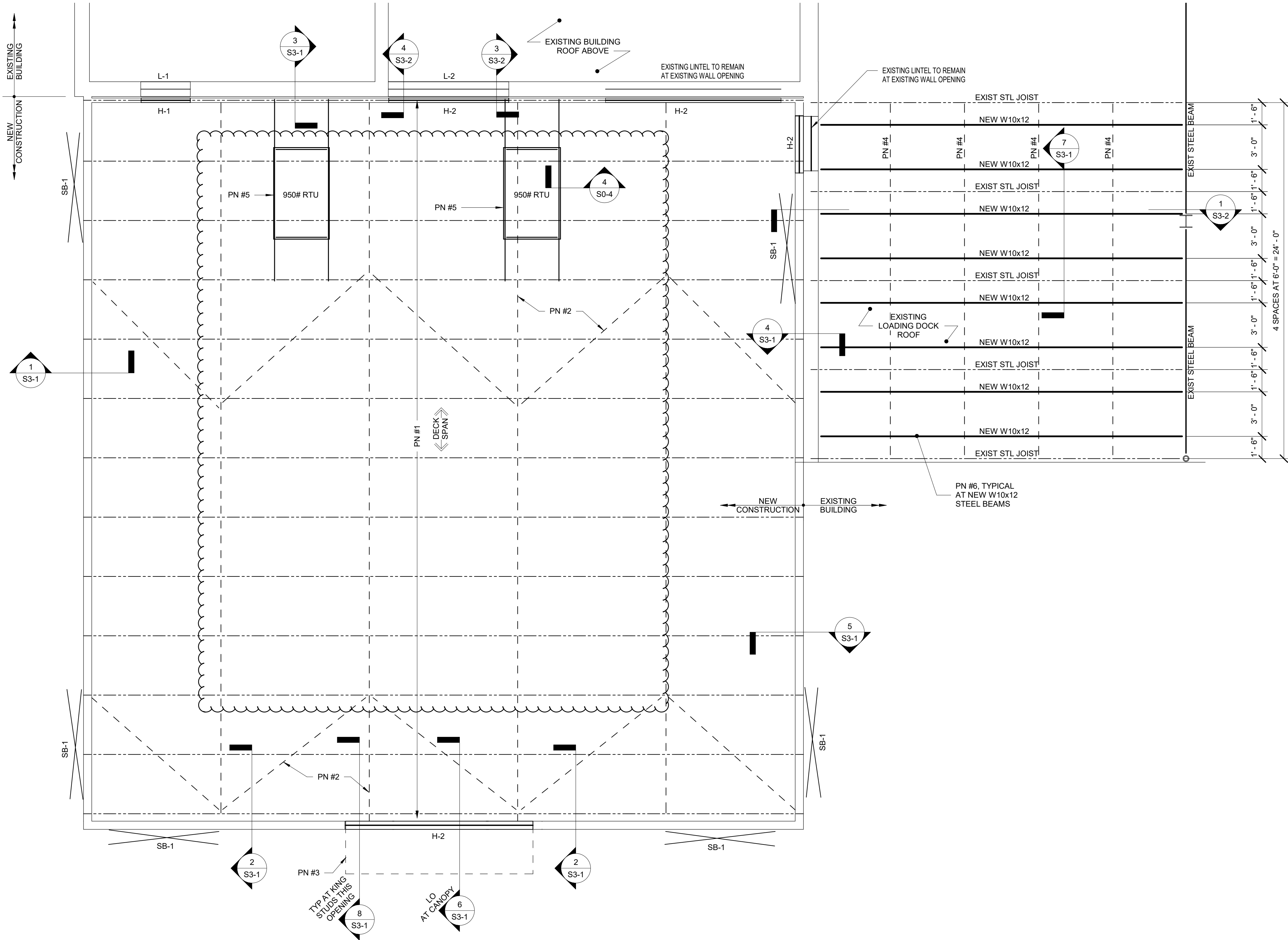
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1
S1-2

ROOF FRAMING PLAN

1/4" = 1'-0"



GENERAL NOTES

1. ALL EXTERIOR CFS WALL STUDS AND 6" DEEP STUDS ADJACENT TO EXISTING MASONRY WALL ON EAST SIDE OF NEW ADDITION SHALL BE 600S162-43 STUDS AT 16" OC WITH 2-600S162-43 STUDS CENTERED UNDER EACH ROOF TRUSS BEARING POINT.
2. ROOF TRUSS BEARING ELEVATION = (+11'-0") ABOVE FIRST FLOOR REFERENCE ELEVATION.
3. VERIFY RTU SIZE, PLACEMENT AND OPERATING WEIGHT WITH HVAC INSTALLER PRIOR TO SUBMITTING CFS ROOF TRUSS SHOP DRAWINGS.
4. SEE 7/SO-2 FOR ROOF SNOW LOAD DRIFT DIAGRAM.
5. 'SB-1' INDICATES FLAT-STRAP X-BRACING, SEE 2/SO-3 FOR WALL FRAMING ELEVATION.

PLAN NOTES

- PN #1: 1 1/2" DEEP, 22 GAUGE, WIDE RIB, NEW MILLENNIUM TYPE B GALVANIZED STEEL ROOF DECK ON 48" DEEP COLD-FORMED STEEL PARALLEL CHORD ROOF TRUSSES AT 48" OC, UNLESS NOTED OTHERWISE.
- PN #2: PERMANENT LATERAL BRACING AT CFS ROOF TRUSS BOTTOM CHORDS AND WEB FRAMING. SEE 7/SO-3.
- PN #3: CANOPY DESIGNED BY MANUFACTURER, SEE ARCHITECTURAL DRAWINGS.
- PN #4: L2x2 HORIZONTAL BRACING, SEE 7/S3-1.
- PN #5: STEEL ANGLE FRAME AT RTU CURB. SEE 4 AND 5/SO-4.
- PN #6: NEW STEEL BEAM FRAMING TO SUPPORT EXISTING LOADING DOCK ROOF DUE TO ADDED SNOW DRIFT LOAD AGAINST NEW PARAPET WALL AT NEW ADDITION.



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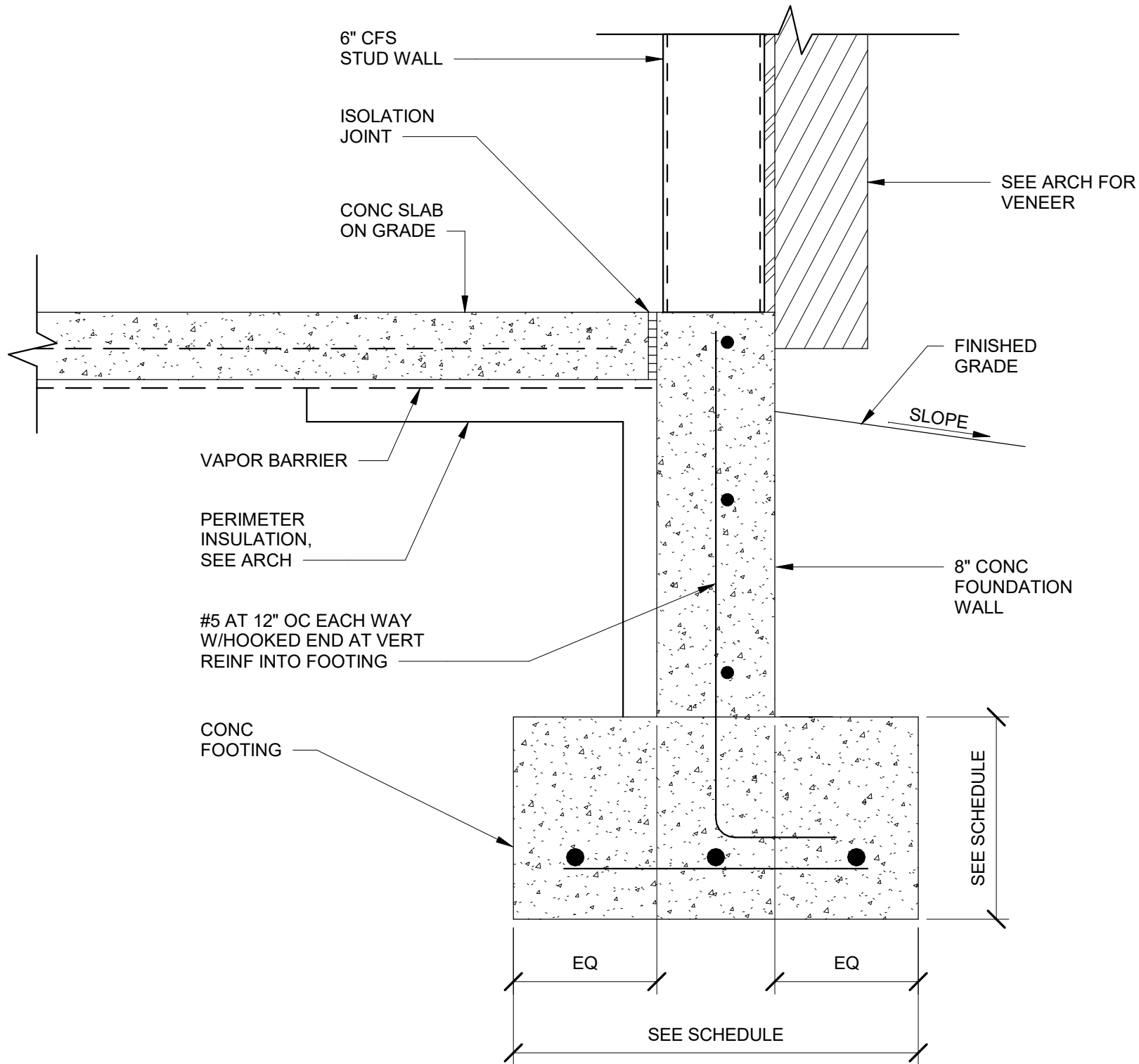
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ROOF FRAMING
PLAN

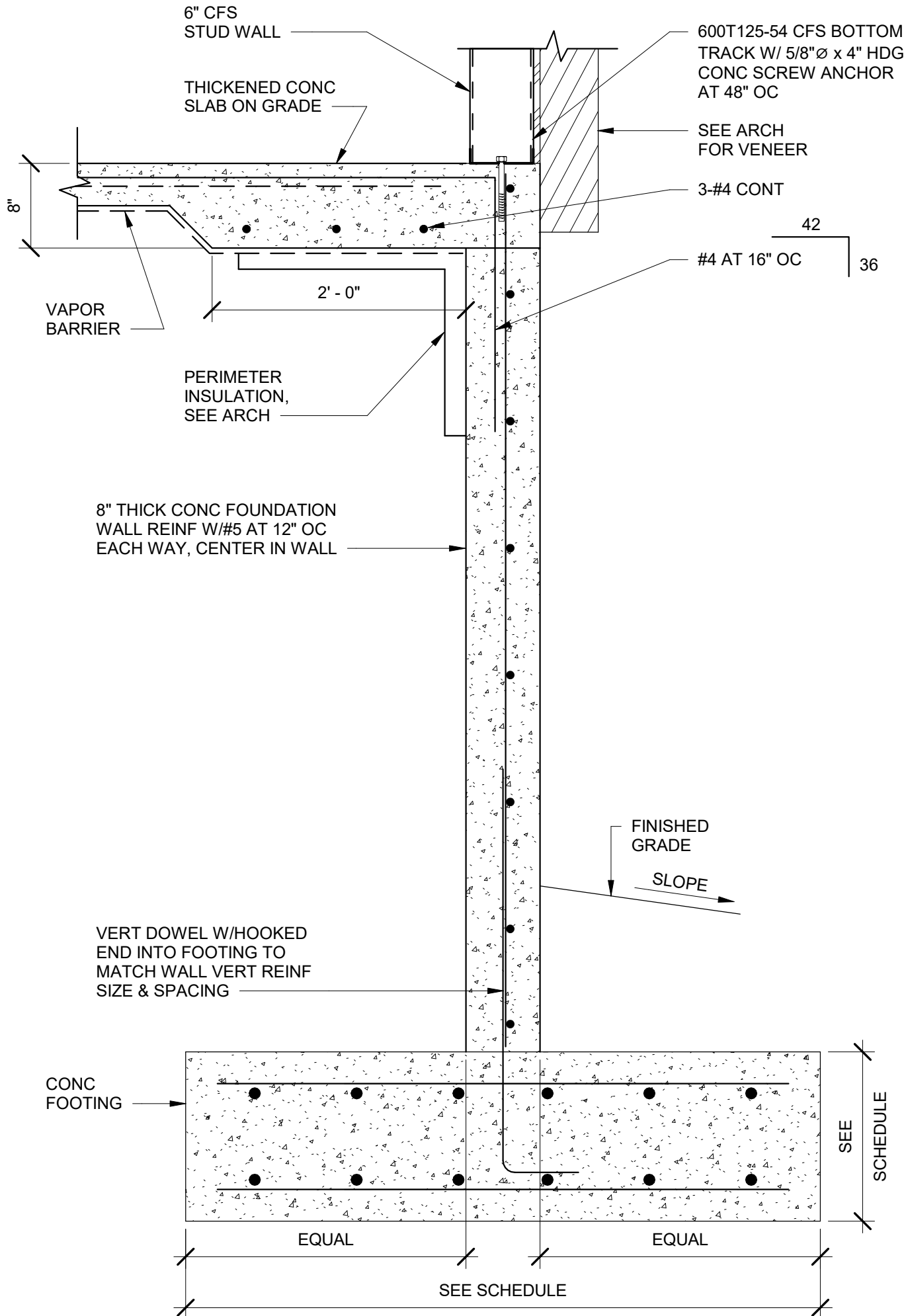


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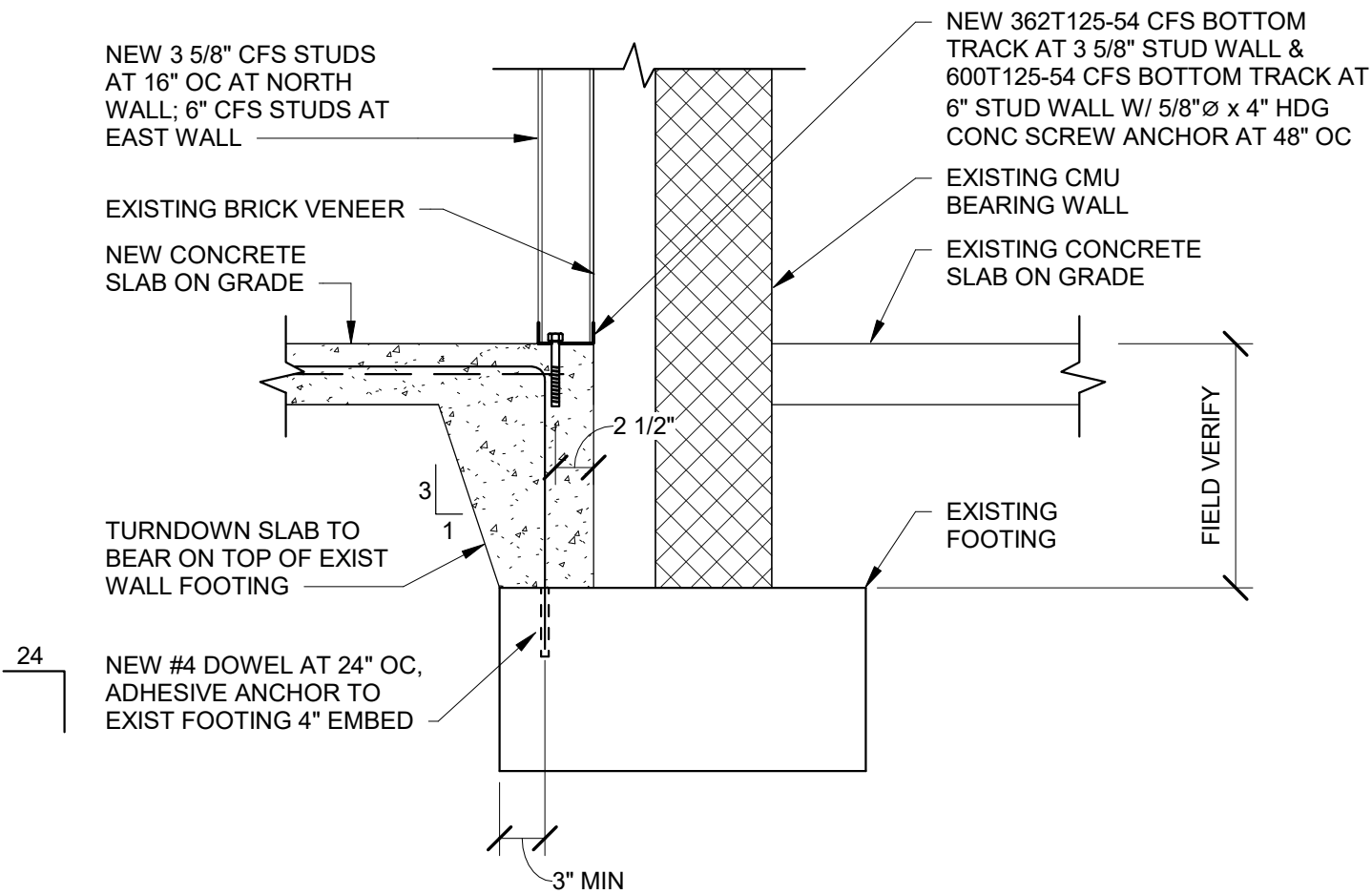
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2 SECTION 2/S2-1
S2-1 1 1/2" = 1'-0"



1 SECTION 1/S2-1
S2-1 1" = 1'-0"



3 SECTION 3/S2-1
S2-1 1" = 1'-0"



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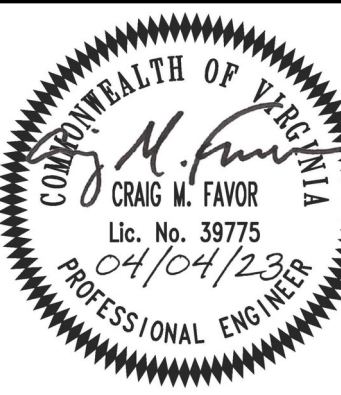
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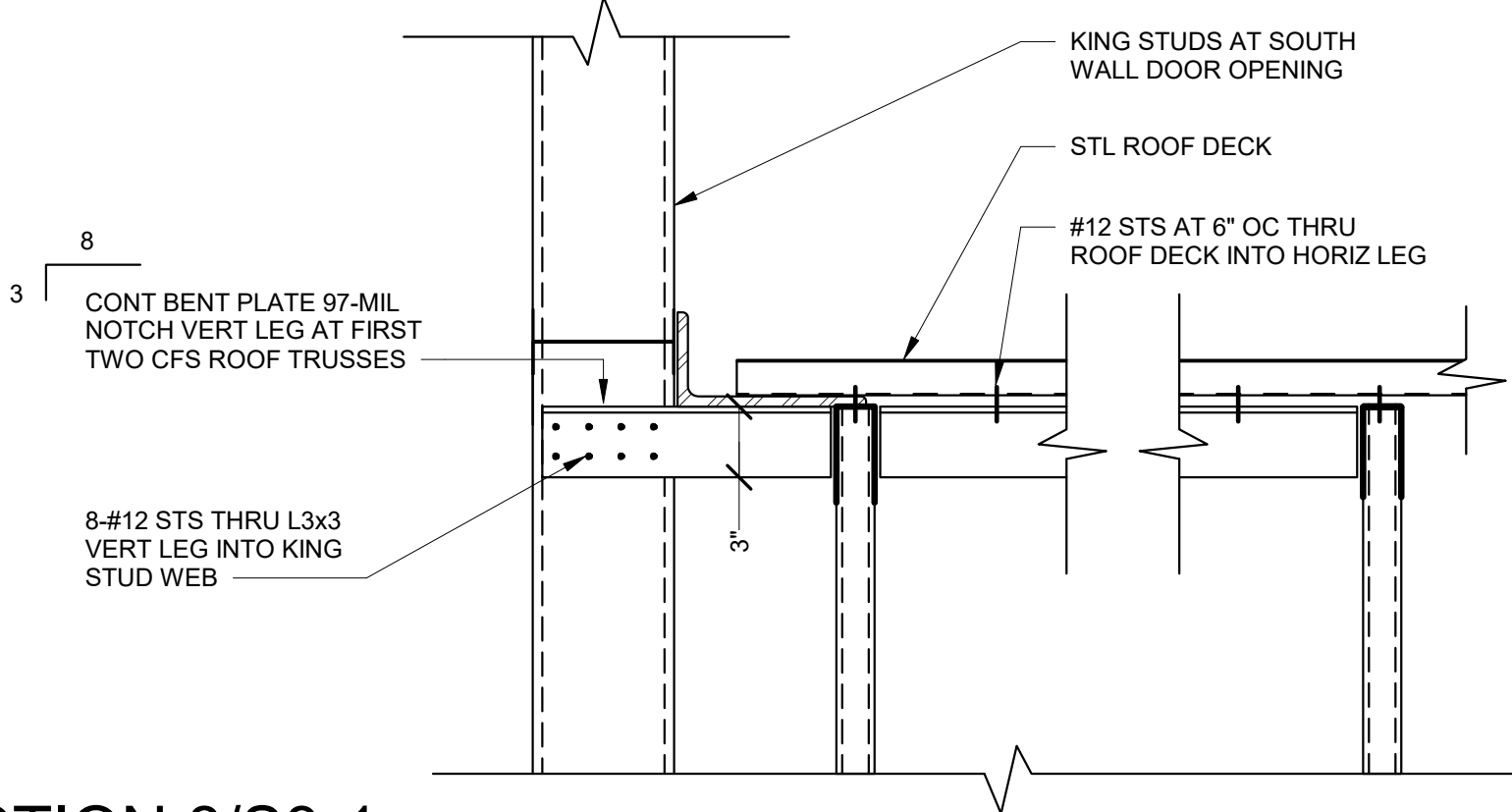
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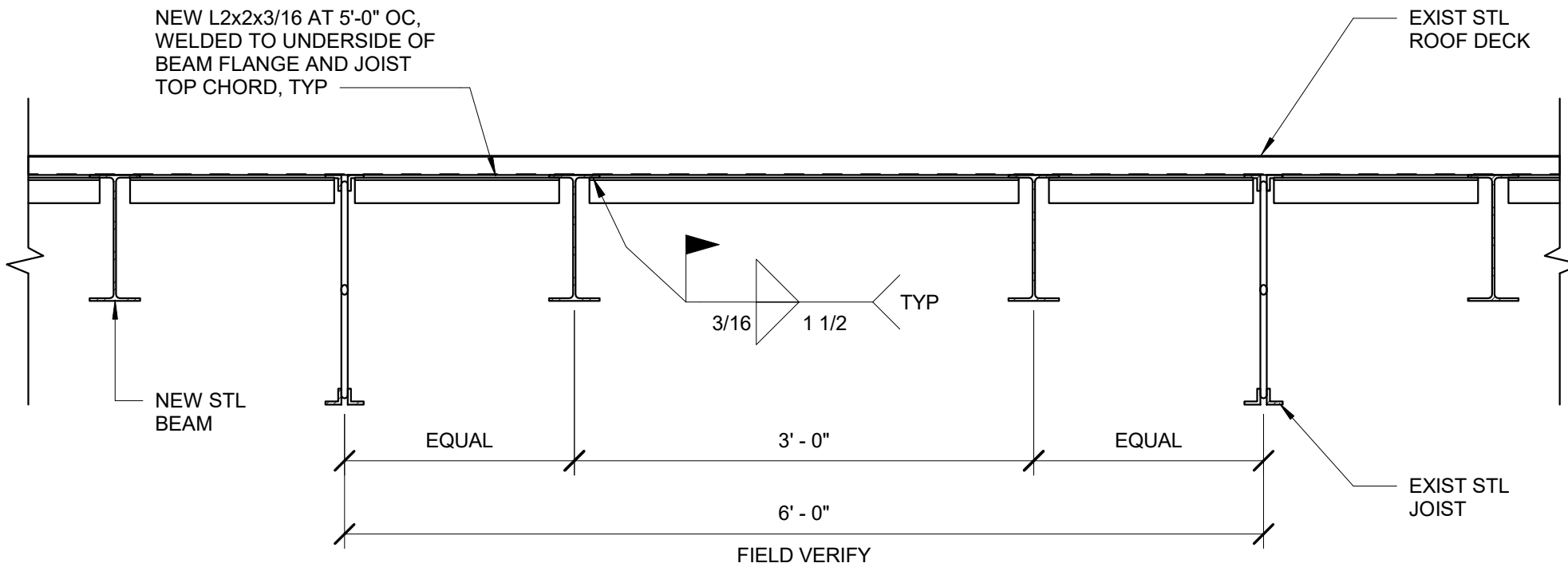
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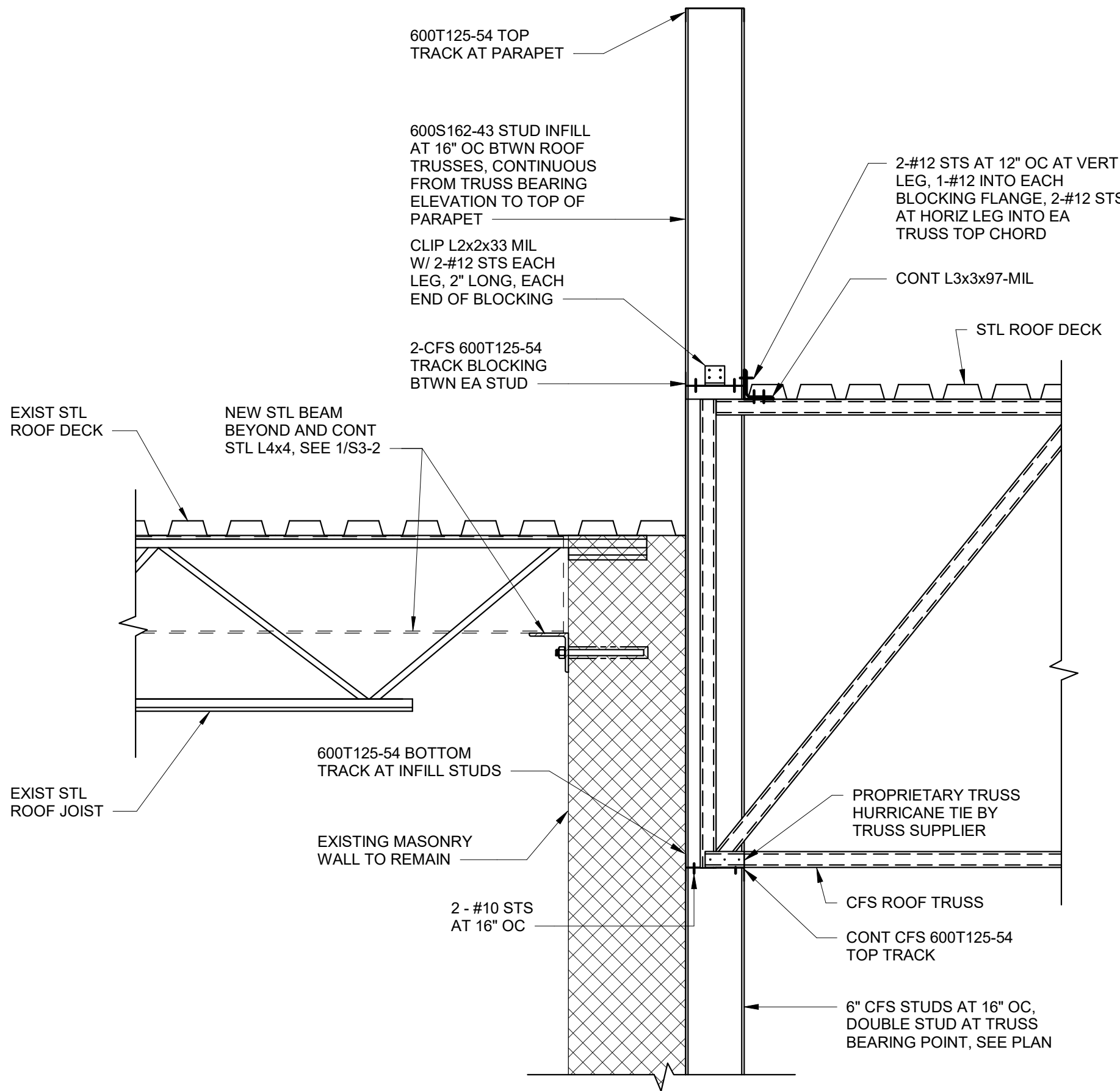
NOTE: SEE 2/S3-1 FOR ADDITIONAL NOTES.



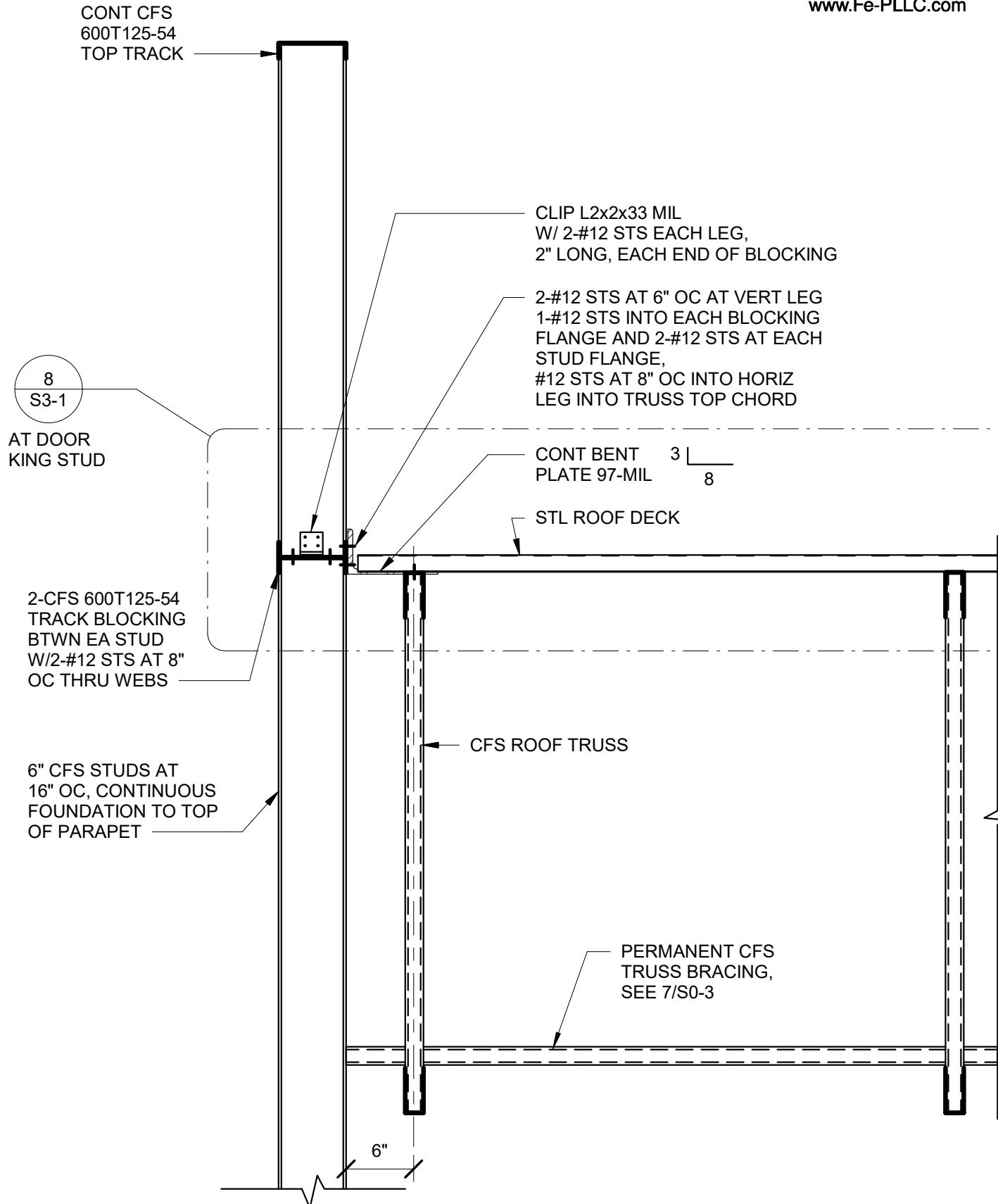
SECTION 8/S3-1
1 1/2" = 1'-0"



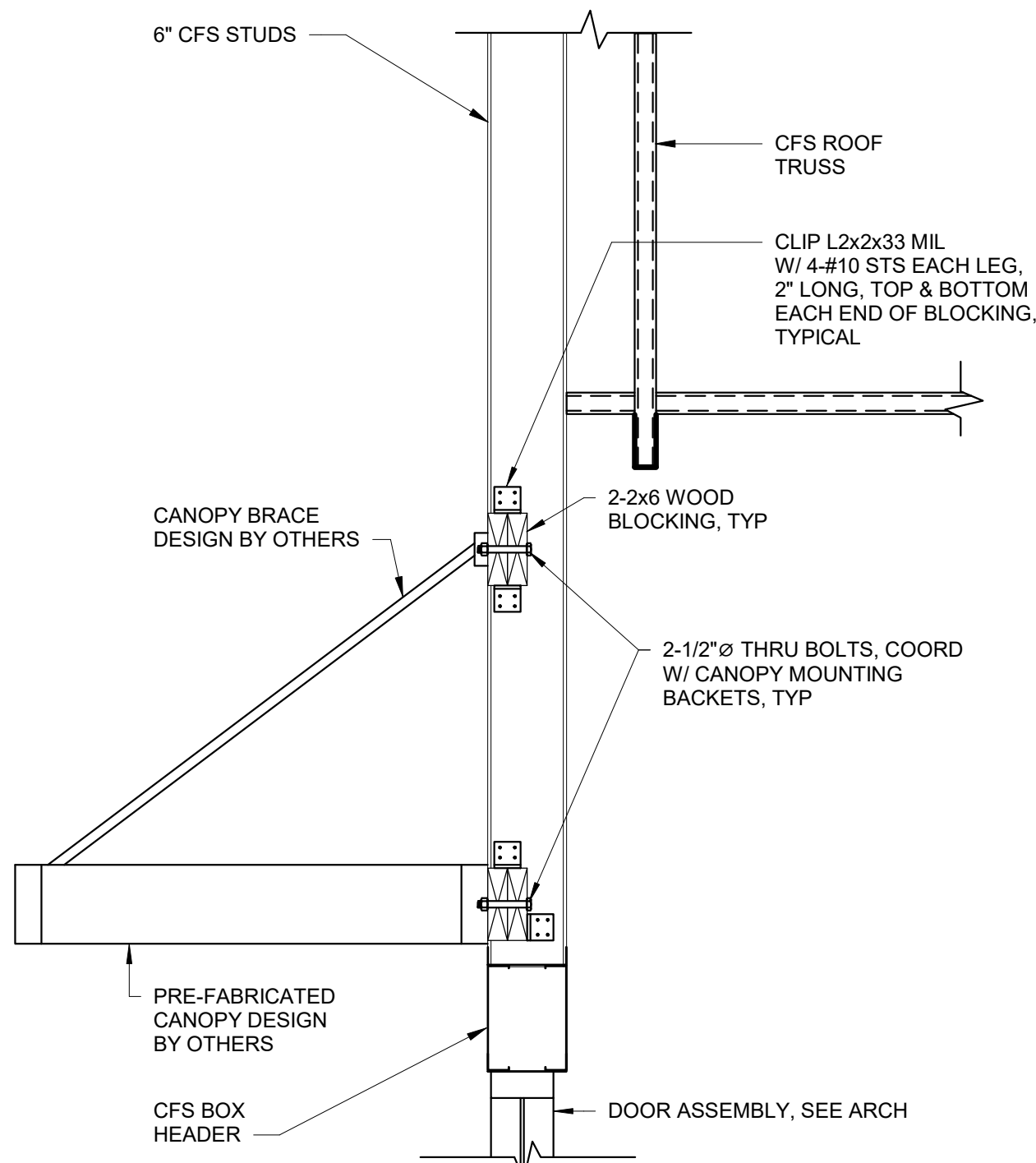
SECTION 7/S3-1
1" = 1'-0"



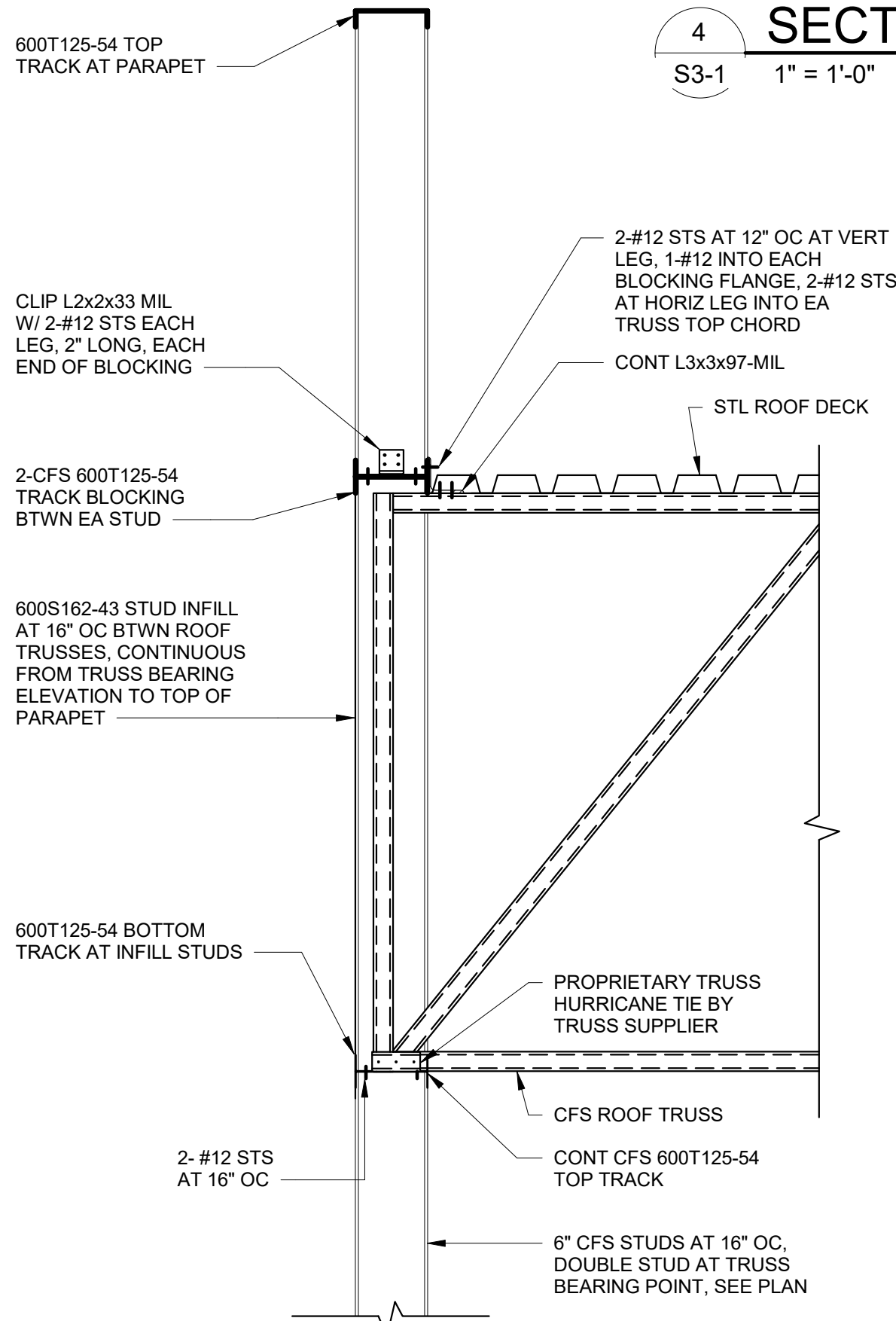
SECTION 4/S3-1
1" = 1'-0"



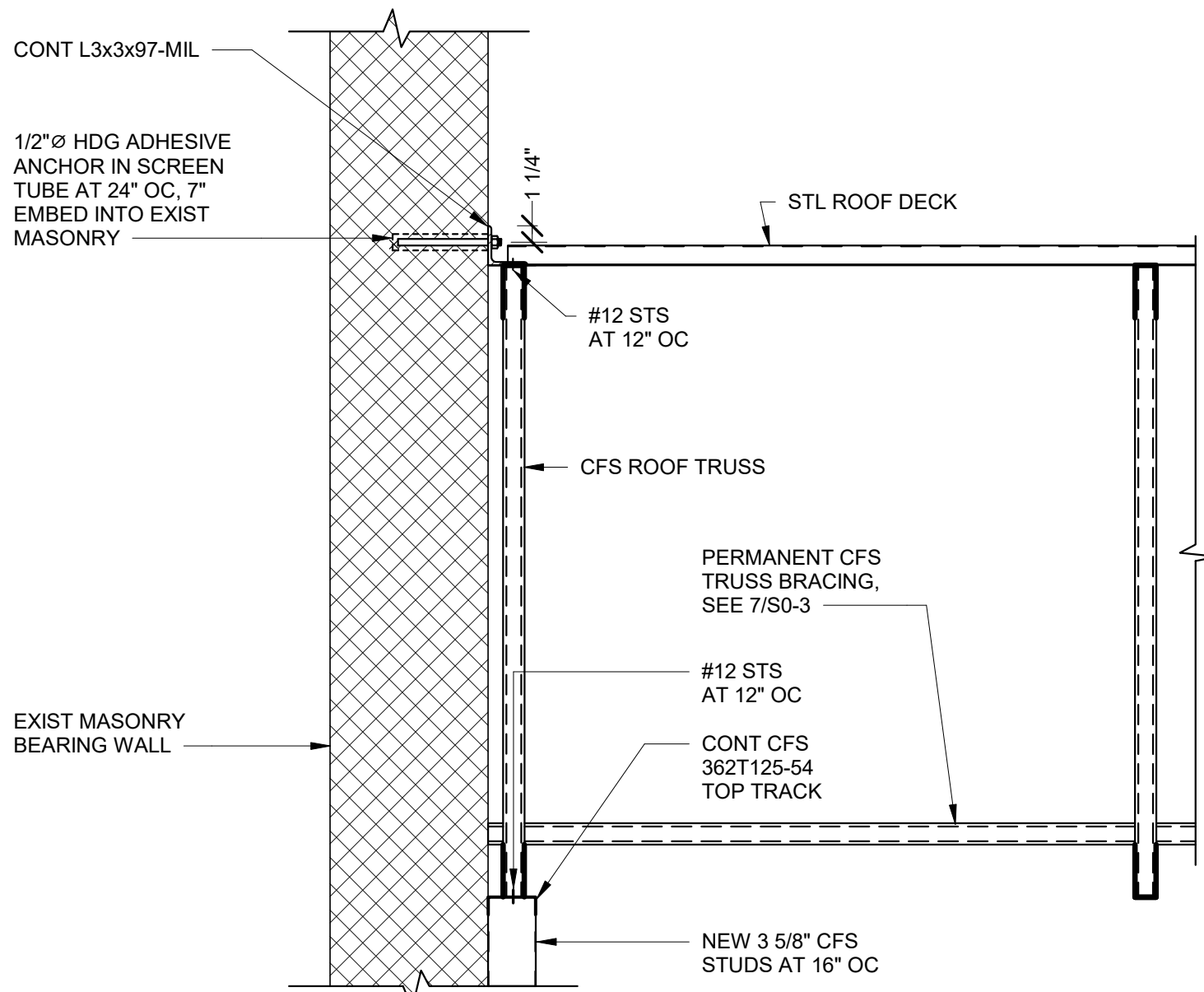
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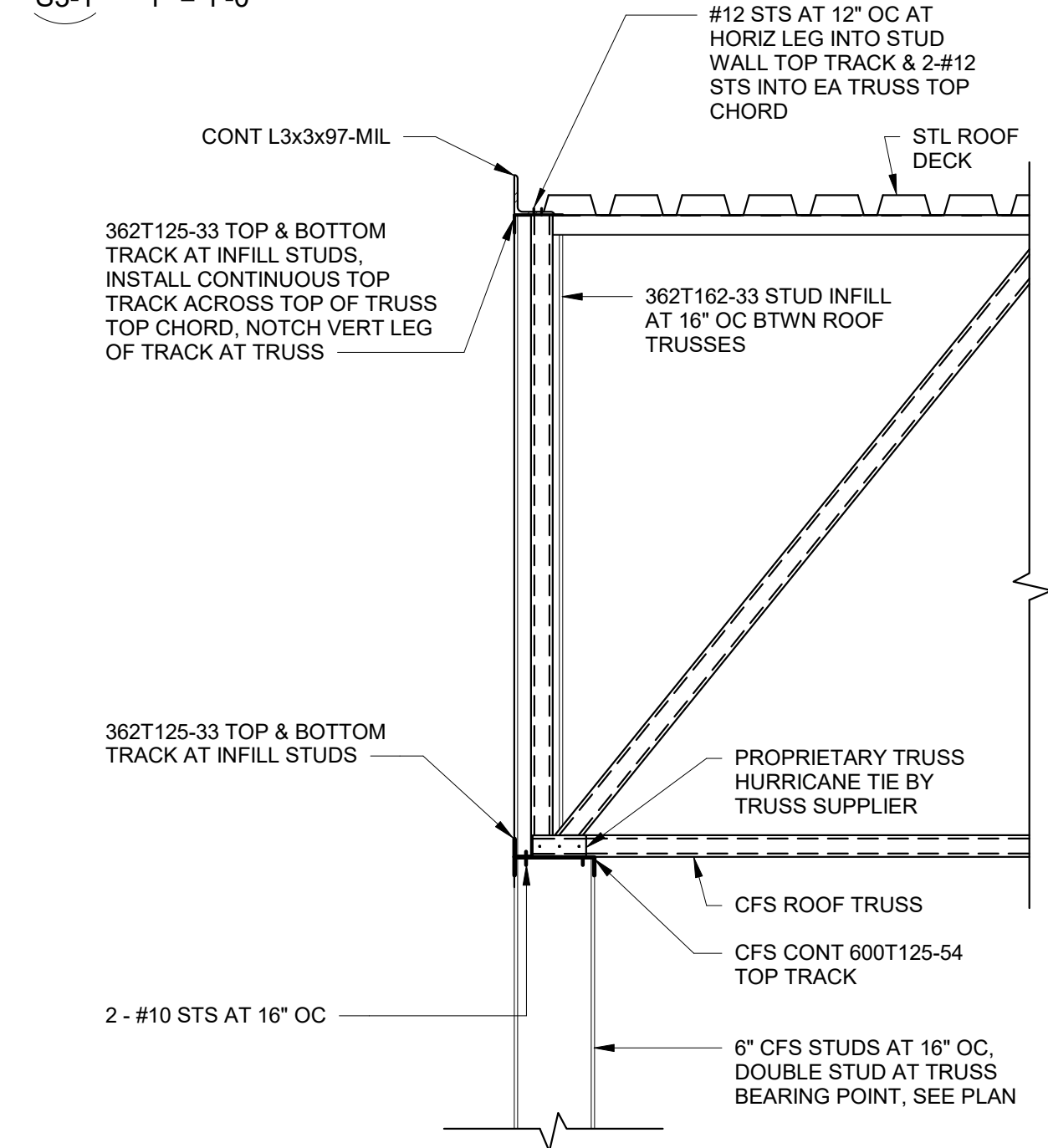
SECTION 6/S3-1
1" = 1'-0"



SECTION 5/S3-1
1" = 1'-0"



SECTION 3/S3-1
1" = 1'-0"



SECTION 1/S3-1
1" = 1'-0"



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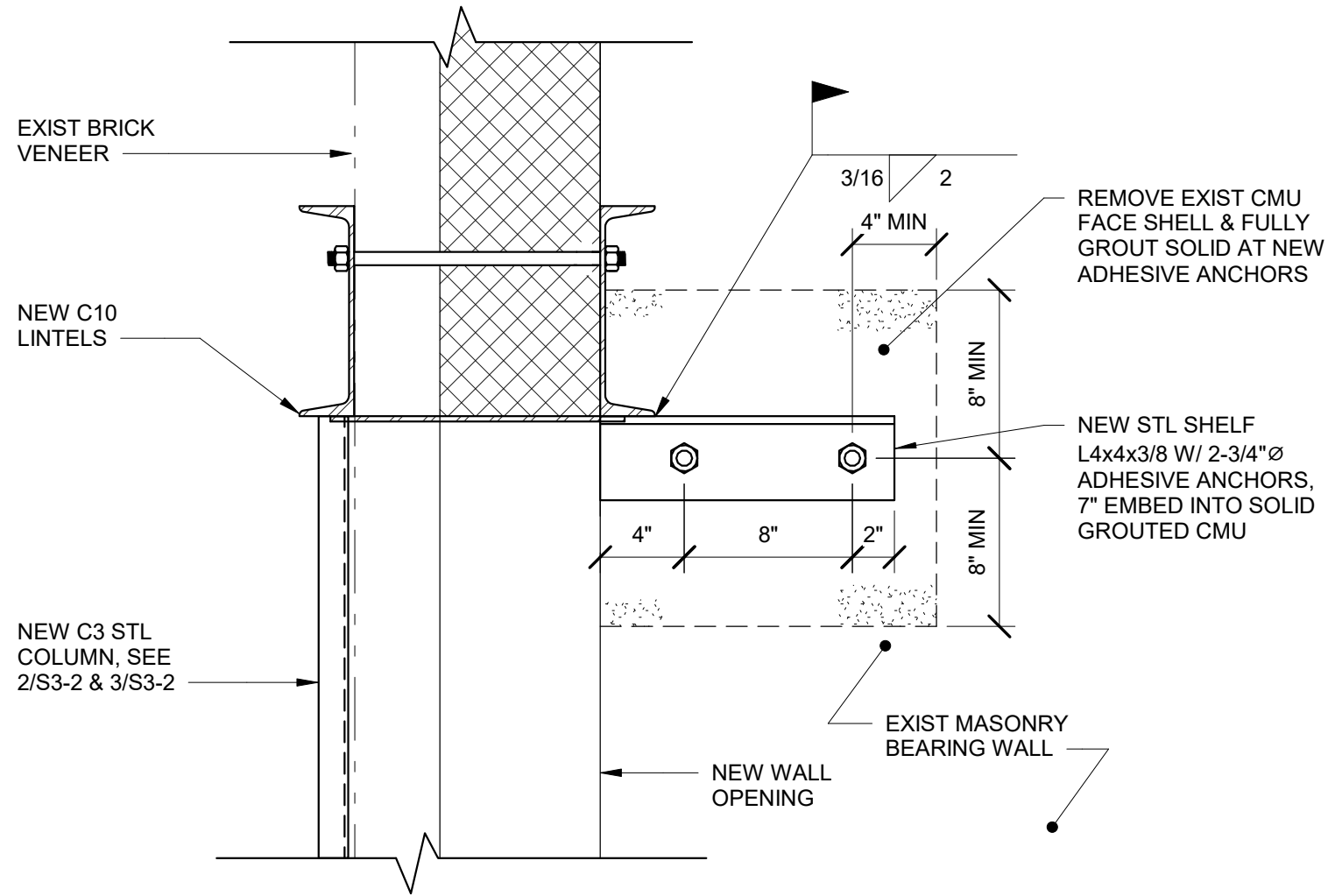
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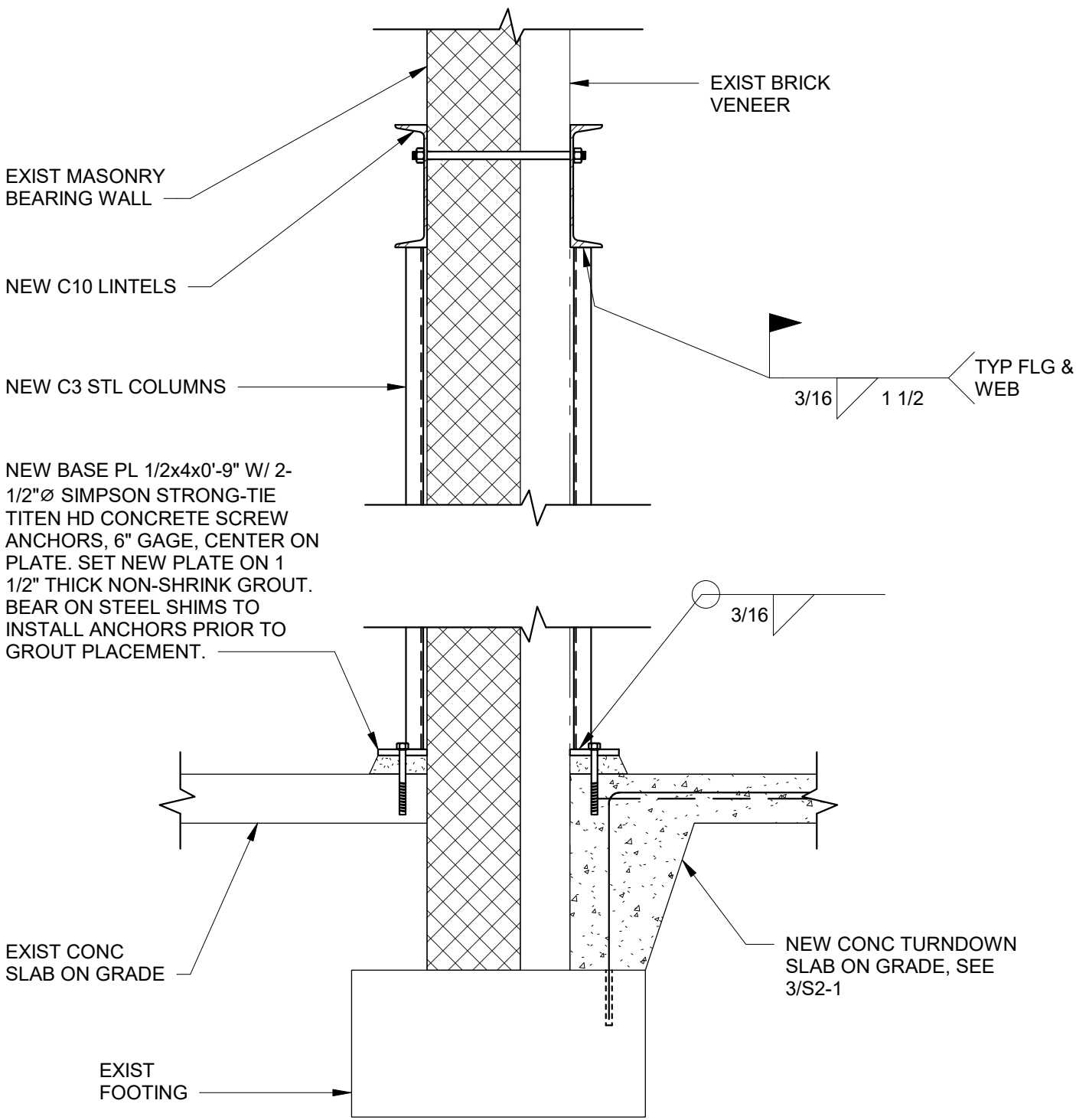
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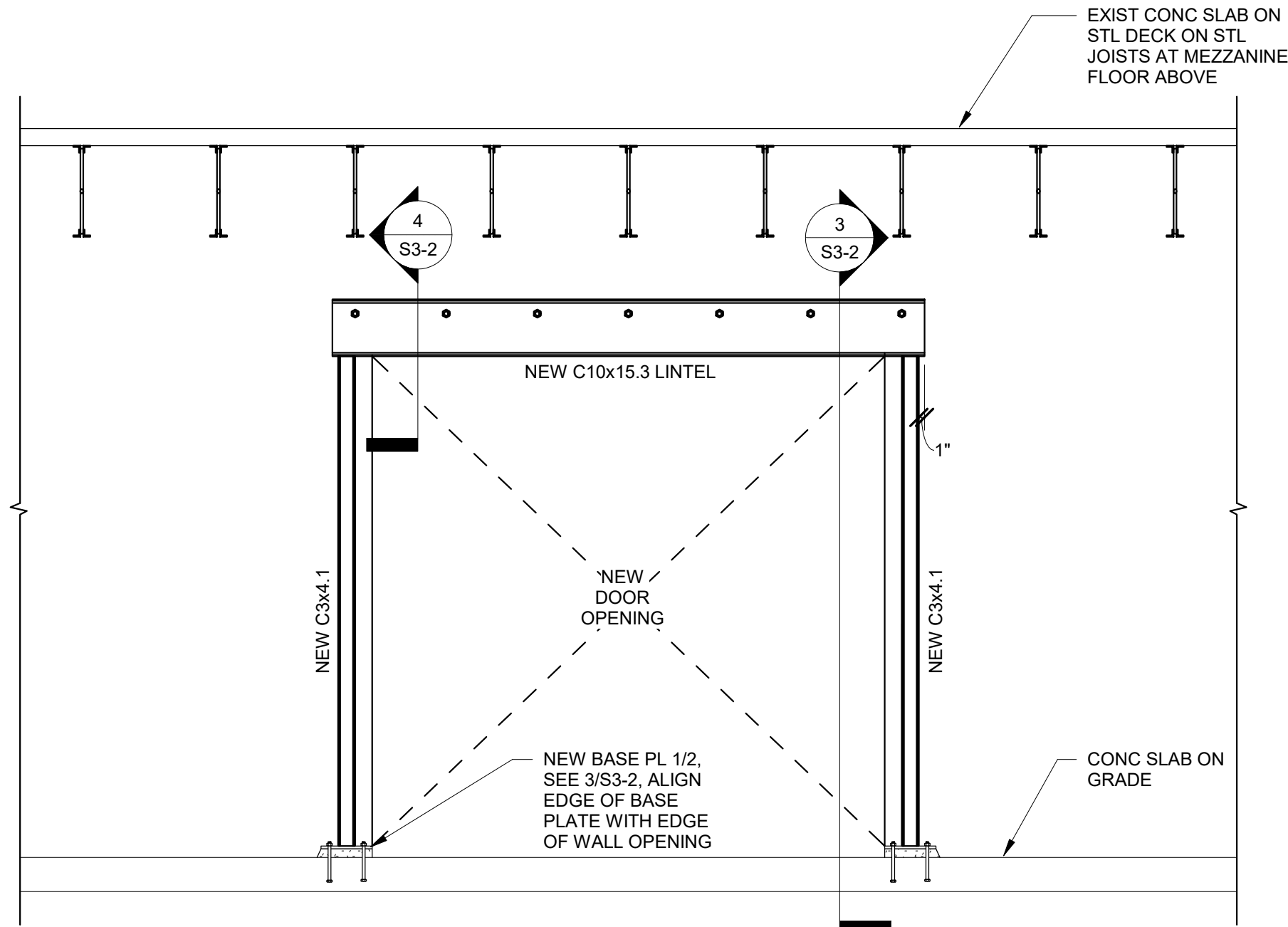
SECTION 4/S3-2

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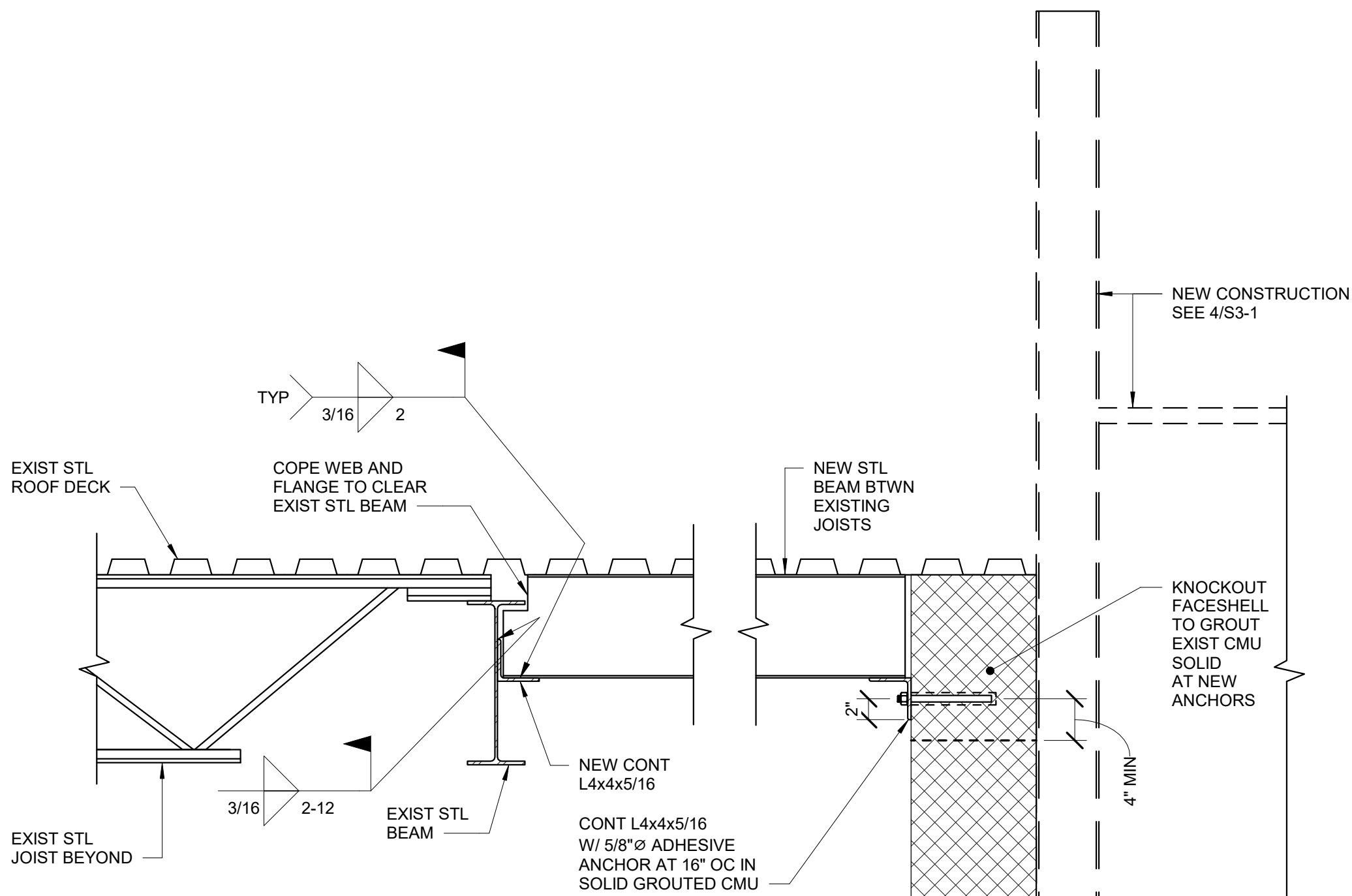
SECTION 3 AT NEW TYPE 'L-2' LINTEL SUPPORT

1" = 1'-0"



FRAMING ELEVATION 2/S3-2

1/2" = 1'-0"



SECTION 1/S3-2

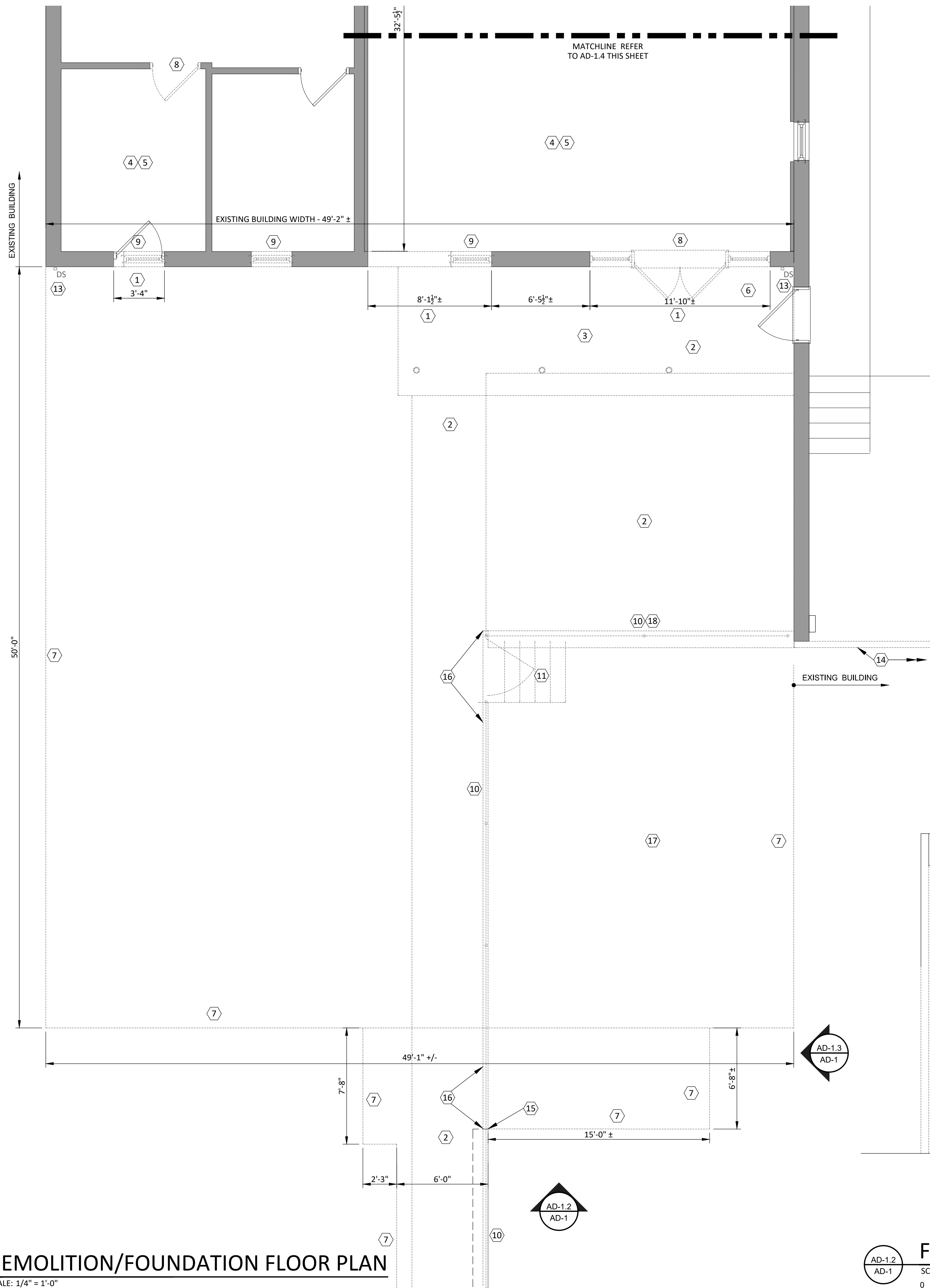
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AD-1.1
AD-1

DEMOLITION/FOUNDATION FLOOR PLAN

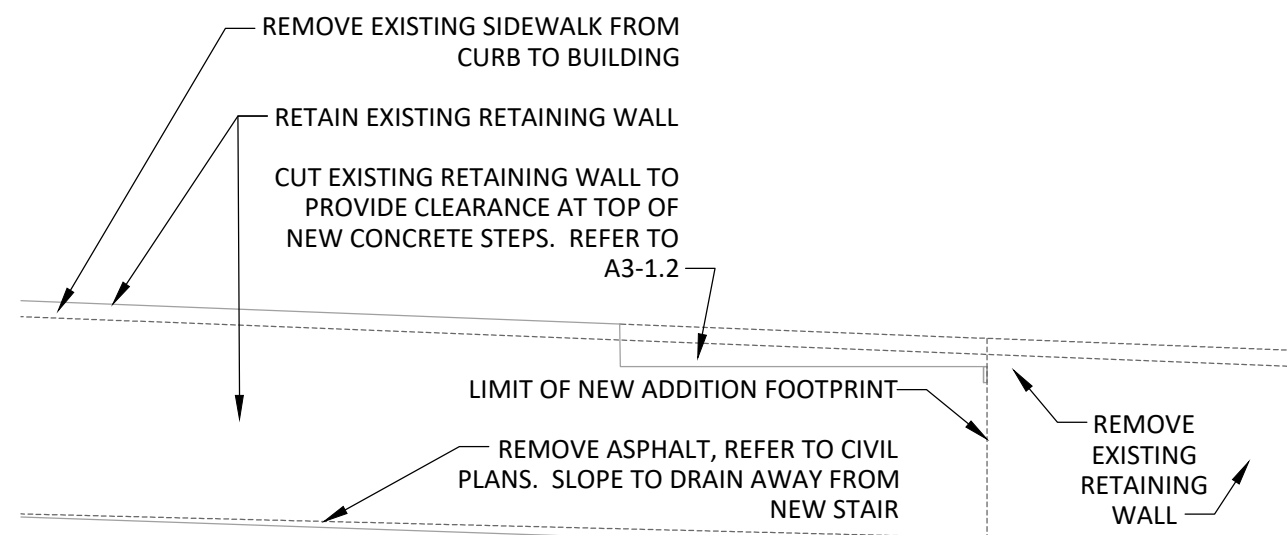
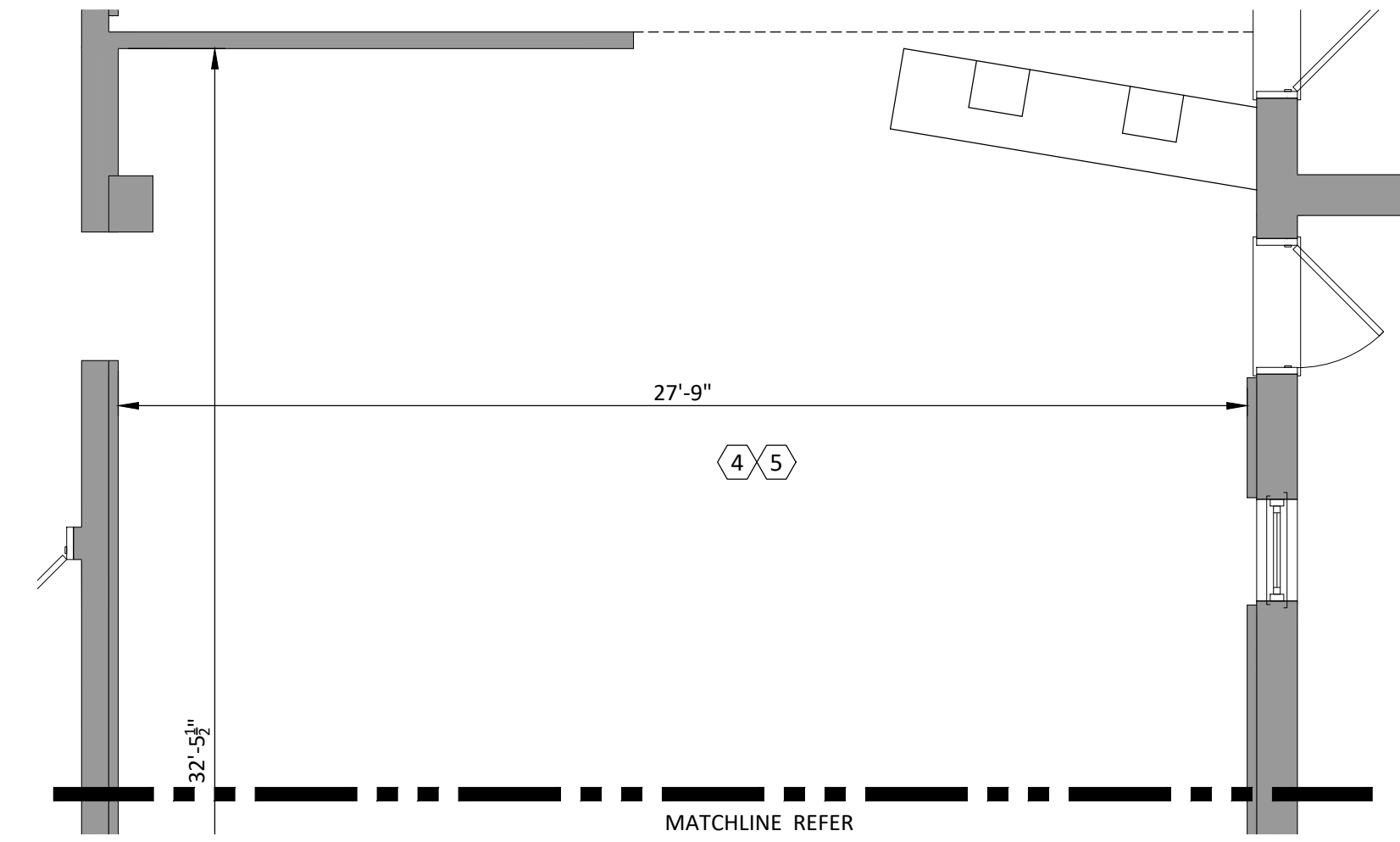
SCALE: 1/4" = 1'-0"



AD-1.4
AD-1

DEMOLITION/FOUNDATION FLOOR PLAN

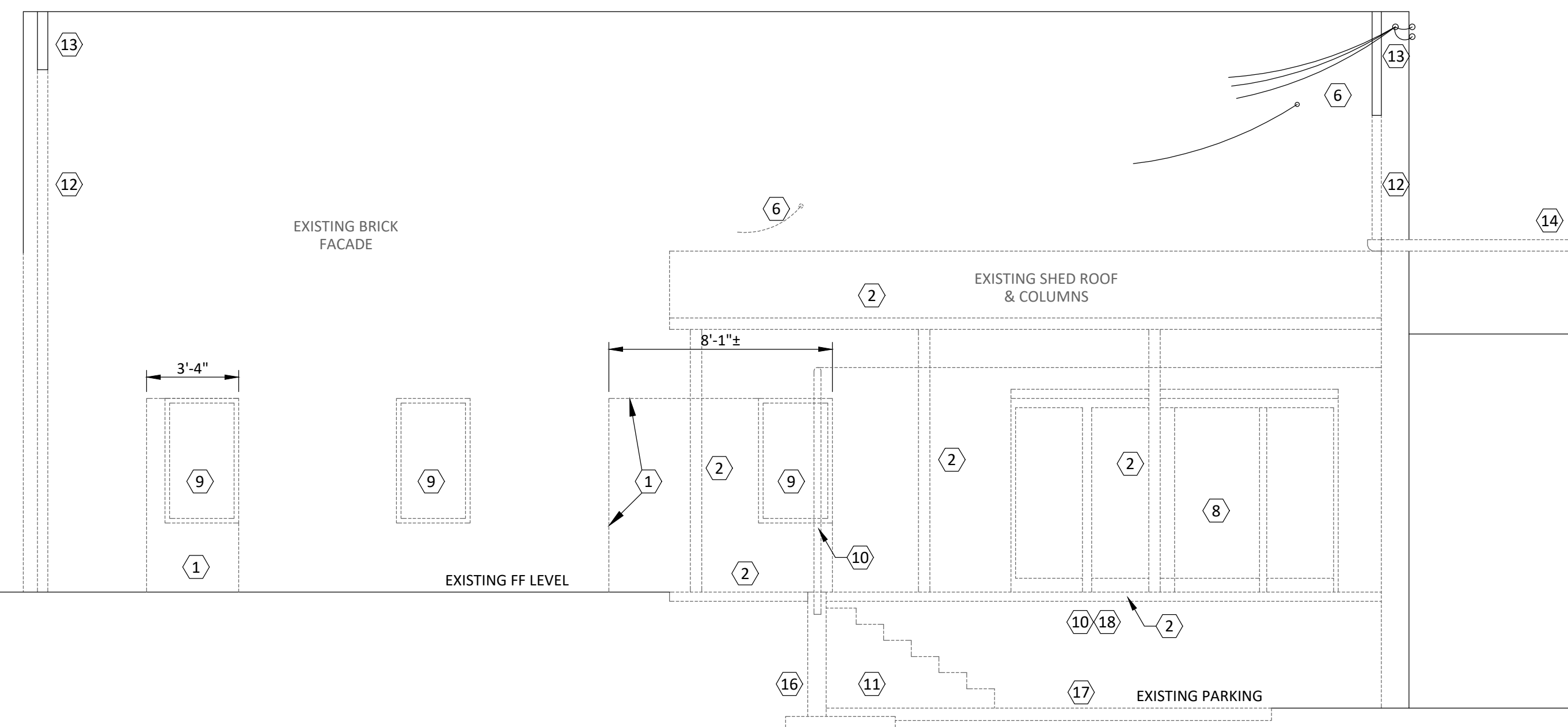
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AD-1.3
AD-1

FRONT DEMOLITION ELEVATION

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



AD-1.2
AD-1

FRONT DEMOLITION ELEVATION

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



GENERAL DEMOLITION NOTES

1. PROVIDE CLOSE COORDINATION OF ALL WORK AND SCHEDULING OF WORK WITH THE OWNER AND VARIOUS TRADES TO MAINTAIN ACCESS TO EXISTING AND ADJACENT BUSINESSES.
2. VERIFY AND COORDINATE WITH THE OWNER PRIOR TO REMOVAL ALL SCHEDULED DEMOLITION ITEMS THE OWNER WISHES TO RETAIN.
3. COORDINATE WITH SECURITY, FIRE SUPPRESSION, ELECTRICAL & MECHANICAL DEMOLITION PLANS BY OTHERS.
4. PROTECT EXISTING ITEMS TO REMAIN.

DEMOLITION PLAN NOTES

- 1 REMOVE BRICK AND CMU WALL FROM FF TO 7'-4" ABOVE, AND HORIZONTALLY TO DIMENSIONS INDICATED. PROVIDE STRUCTURAL SUPPORT AS REQUIRED.
- 2 REMOVE EXISTING CONCRETE SIDEWALK, LANDSCAPING, SHED ROOF, AND ASSOCIATED COLUMNS. PROTECT EXISTING BUILDING FACADES TO REMAIN.
- 3 REMOVE LIGHT FIXTURE AND RETAIN CIRCUITS FOR REUSE. REFER TO ELECTRICAL PLANS BY OTHERS.
- 4 REMOVE FLOORING AND BASE IN THIS SPACE.
- 5 REMOVE CEILING GRID AND TILE THIS SPACE. REFER TO ELECTRICAL LIGHTING MECHANICAL PLANS BY OTHERS FOR LIGHTS, DIFFUSERS AND NEW TILE IN THIS SPACE.
- 6 REROUTE OVERHEAD LINES AS INDICATED ON ELECTRICAL PLANS.
- 7 EXCAVATION LIMITS FOR ADDITION. REFER TO STRUCTURAL AND CIVIL PLANS.
- 8 REMOVE DOOR AND FRAME
- 9 REMOVE WINDOW AND FRAME.
- 10 REMOVE CHAINLINK FENCE AND POSTS AT THIS WALL.
- 11 REMOVE CONCRETE STAIR AND RAILINGS.
- 12 REMOVE DOWNSPOUT.
- 13 RUN EXISTING DOWNSPOUT TO DISCHARGE ON TOP OF NEW ROOF.
- 14 ALTERNATE NO. 1:
REMOVE AND REPLACE EXISTING GUTTER ALONG ENTIRE FACE OF BUILDING. CONNECT TO NEW GUTTER AND DOWNSPOUT AT FAR SOUTH CORNER.
- 15 CONCRETE RETAINING WALL BELOW TO REMAIN FROM THIS POINT TO PLANTATION ROAD.
- 16 REMOVE EXISTING CONCRETE RETAINING WALL FROM LIMIT OF NEW ADDITION FOOTPRINT TO CORNER AT EXISTING CONCRETE STAIR.
- 17 PARKING LOT SURFACE DEMOLITION. REFER TO SITE PLAN.
- 18 REMOVE EXISTING RETAINING WALL.

DEMOLITION LEGEND

- WALLS AND ITEMS TO BE REMOVED
- WALLS AND ITEMS TO REMAIN

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REVISIONS

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3	
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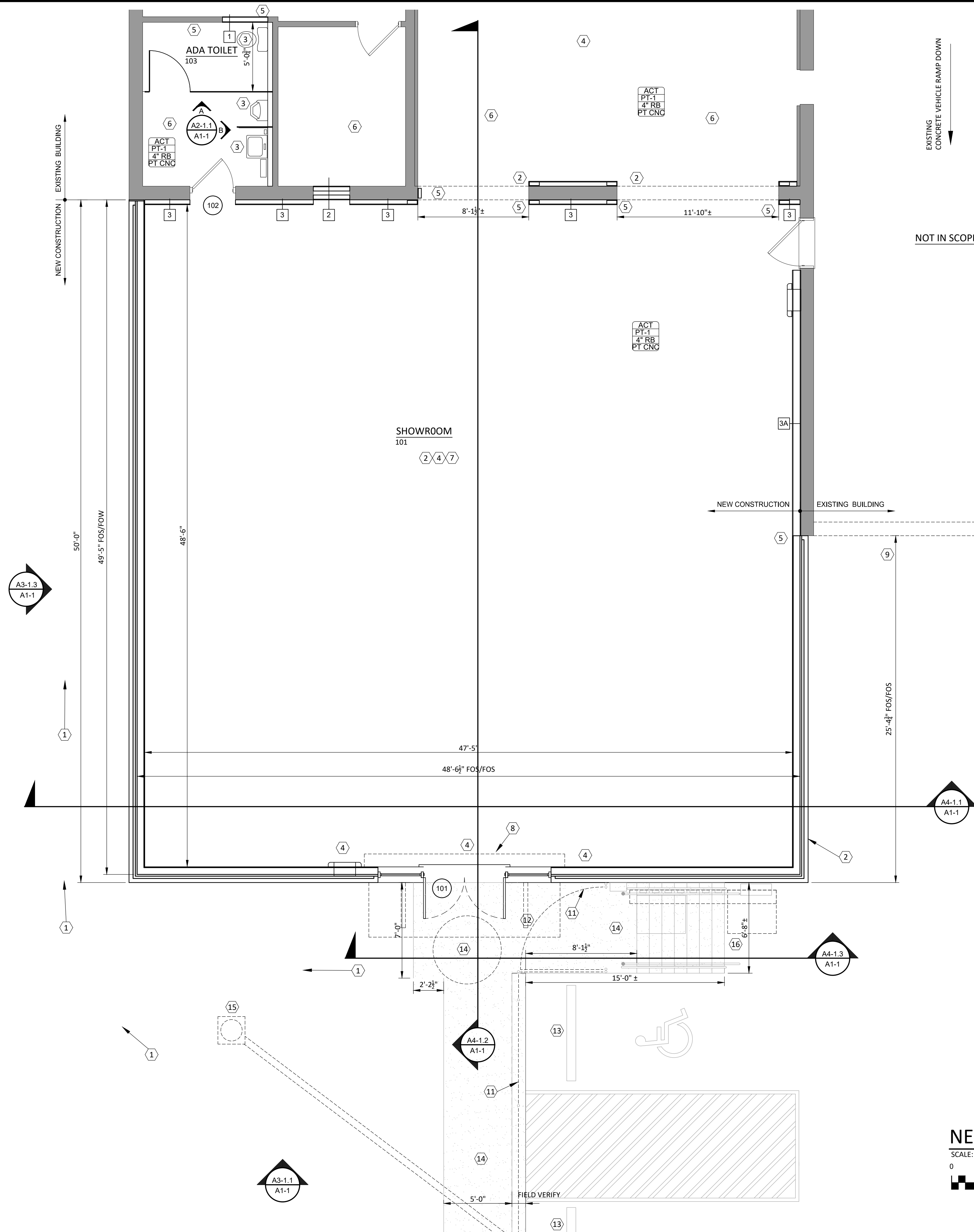
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GENERAL NEW WORK NOTES

1. PROVIDE CLOSE COORDINATION OF ALL WORK AND SCHEDULING OF WORK WITH THE OWNER AND VARIOUS TRADES TO MAINTAIN ACCESS TO ADJACENT BUSINESSES.
2. VERIFY AND COORDINATE WITH THE OWNER PRIOR TO REMOVAL ALL SCHEDULED DEMOLITION ITEMS THE OWNER WISHES TO RETAIN.
3. COORDINATE WITH SECURITY, FIRE SUPPRESSION, ELECTRICAL & MECHANICAL NEW WORK PLANS BY OTHERS.

NEW WORK PLAN NOTES

1. GRADE SOIL SLOPING AWAY FROM BUILDING. REFER TO CIVIL PLANS.
2. NEW OPENING SUPPORTS. REFER TO STRUCTURAL PLANS.
3. NEW FUTURE, REFER TO PLUMBING PLANS, BY OTHERS.
4. INSTALL LIFE SAFETY EQUIPMENT AS INDICATED ON ELECTRICAL PLANS.
5. ALIGN NEW FACE OF GWB WITH EXISTING FACE OF GWB AND PATCH FOR UNIFORM APPEARANCE.
6. PROTECT EXISTING FIRE SUPPRESSION HEAD TO REMAIN.
7. NEW FIRE SUPPRESSION HEADS. CONNECT TO EXISTING SYSTEM.
8. OVERHEAD ROLLING SECURITY SHUTTER DOOR. REFER TO TYPICAL DETAIL ON SHEET A2-1.
9. ALTERNATE NO.1 REPLACE EXISTING GUTTER ALONG ENTIRE FACE OF BUILDING. CONNECT NEW GUTTER AND DOWNSPOUT AT FAR SOUTH CORNER.
10. WHEELCHAIR STAIRLIFT BOD: AMERIGLIDE TITAN INCLINE PLATFORM LIFT SELF SUPPORTING COMMERCIAL \$13,000 ALLOWANCE 855-910-8288
ALTERNATE: AMERIGLIDE HERCULES 750 COMMERCIAL VERTICAL LIFT \$9,000 ALLOWANCE
FOLLOW ALL MANUFACTURERS REQUIREMENTS FOR STAIR AND RAIL SUPPORT, DIMENSIONS, AND EQUIPMENT CLEARANCES FOR THE LIFT SELECTED. STAIR DIMENSIONS SHOWN ON THIS PLAN ARE GENERIC FOR COST ESTIMATING PURPOSES.
11. NEW 6 FOOT TALL CHAIN LINK SECURITY FENCE INSTALLED INTO TOP OF THIS WALL TO EXISTING FENCE CORNER AT PLANTATION ROAD. PROVIDE LOCKING GATE AT LOCATION SHOWN.
12. 4' X 14' FACTORY FINISHED METAL, WALL MOUNTED, FRONT DRAINING CANOPY ABOVE.
13. PREFAB CONCRETE WHEELSTOP
14. REPLACE CONCRETE SIDEWALK. PROVIDE ASPHALT IMPREGNATED ISOLATION JOINT BETWEEN SIDE OF WALK AND BACK OF EXISTING RETAINING WALL, REFER TO STRUCTURAL. CROSS SLOPE TO DRAIN TO YARD, BROOM FINISH, CONTROL JOINTS EVERY 6 FEET MAX. RUNNING SLOPE 1:12 MAX. COORDINATE WITH STRUCTURAL AND CIVIL PLANS.
15. YARD INLET AND DRAIN TO RETAINING WALL AT PARKING. REFER TO CIVIL SITE PLAN FOR PARKING DIMENSIONS AND SIGNS.
16. CONCRETE STAIR WITH METAL NOSINGS, SLOPE TREADS TO PREVENT ACCUMULATION OF WATER. REFER TO STAIR SECTION.

FINISH SCHEDULE

ACT(CEILING)
MFG: ARMSTRONG
STYLE: ULTIMA, 2X2 SQUARE LAY-IN
COLOR: WHITE
GRID: DX $\frac{15}{16}$

PT-1 MFG: SHERWIN WILLIAMS
COLOR: TBD
SHEEN: EGGSHELL

PT-2 CEILING
MFG: SHERWIN WILLIAMS
COLOR: SW 7007 CEILING WHITE
SHEEN: FLAT

RB (RUBBER WALL BASE)
MFG: TARKETT
STYLE: TRADITIONAL DURACOVE 4"
COLOR: TBD

MANUF. CONTACTS

HANEX SOLID SURFACES:
Bill Shimmel
609.892.7651
bill.shimmel@tpsi33.com

SHAW CONTRACT
Paula Wade
540.525.4900
paula.wade@shawcontract.com

SHERWIN WILLIAMS
Brandon Duffy
540.989.2715
sw5008@sherwin.com

TARKETT
Kristen Inghram
804.514.0555
kristen.ingham@tarkett.com

WILSONART:
April Brickle
540.537.3431
brickla@wilsonart.com

DECORATIVE LIGHTING:
AVAIL. FROM SOURCES SUCH AS LOWES, BUILD WITH FERGUSON

NEW WORK FLOOR PLAN

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

0 2' 4' 8'

NEW WORK LEGEND

- NEW WORK
- EXISTING WALLS AND ITEMS

DATE: APR 4, 2023

REVISIONS

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ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

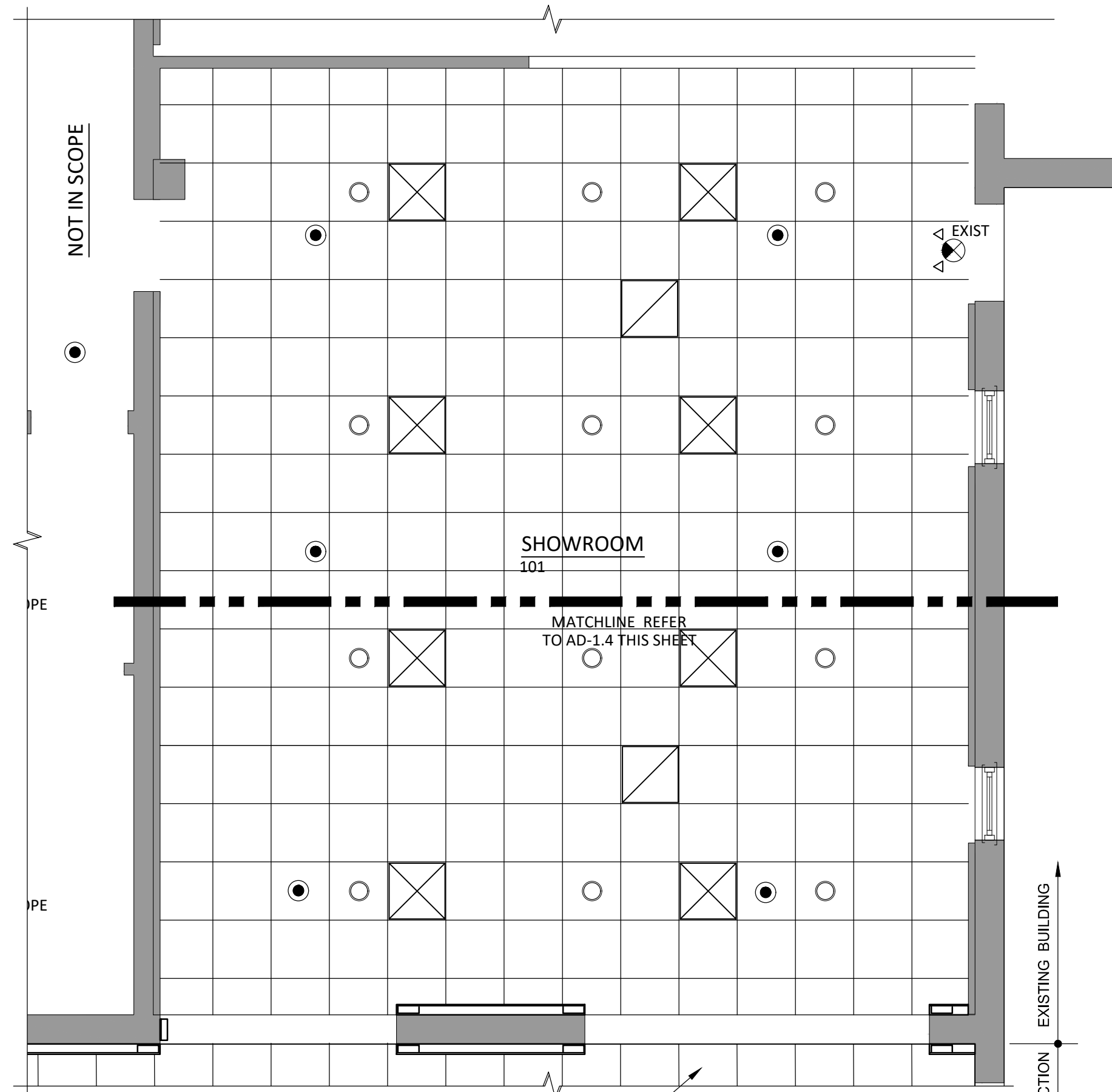
FLOOR PLAN

COMMONWEALTH OF VIRGINIA
04-04-23
ALAN J. DOWNIE
Lic. No. 12522
ARCHITECT

COMMISSION No.
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SHEET
A1-1

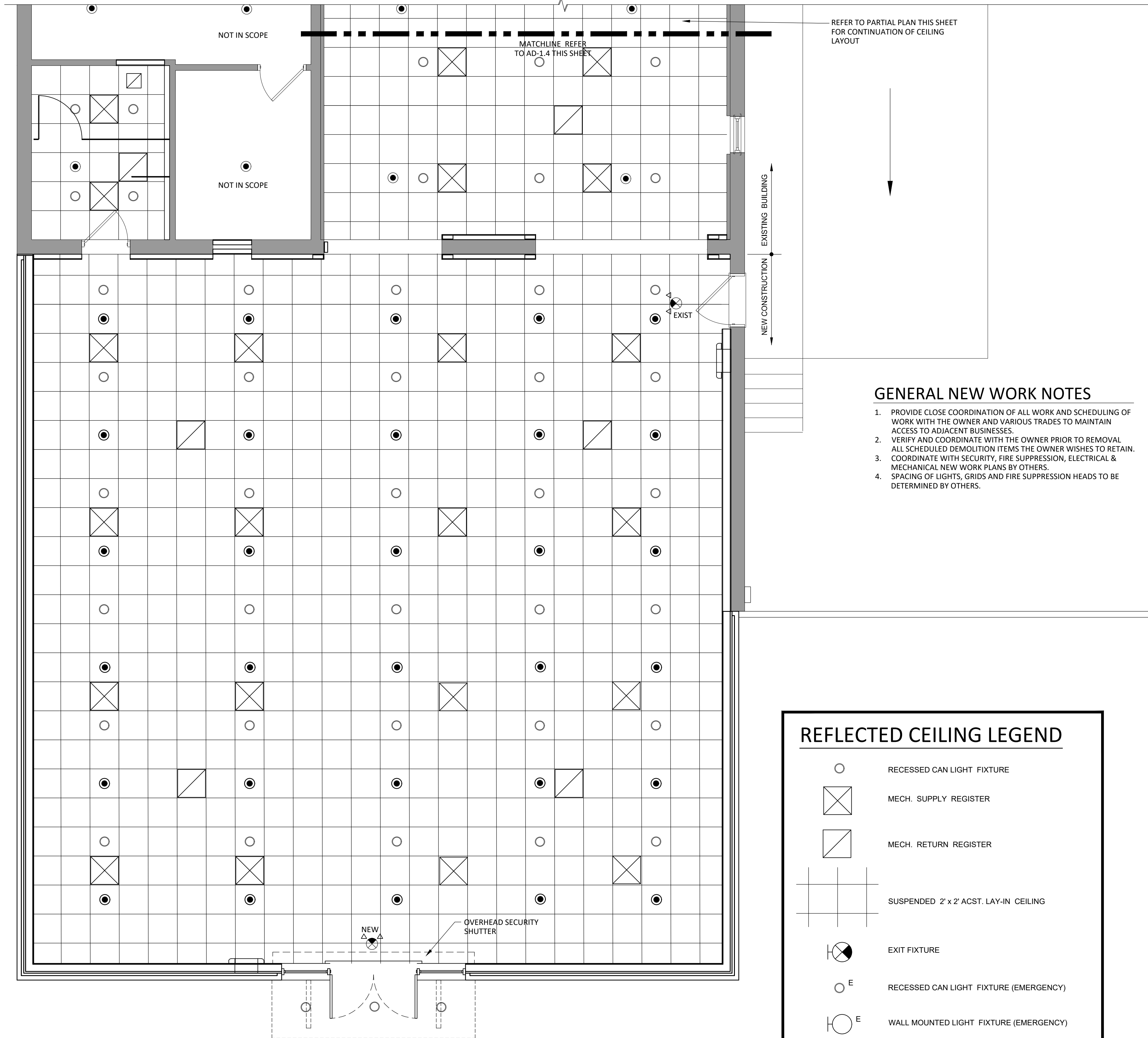
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**PARTIAL
REFLECTED CEILING PLAN
CONTINUATION OF SHOWROOM 101**

SCALE: 1/4" = 1'-0"
0 2' 4' 8'



PARTIAL REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"
0 2' 4' 8'

GENERAL NEW WORK NOTES

1. PROVIDE CLOSE COORDINATION OF ALL WORK AND SCHEDULING OF WORK WITH THE OWNER AND VARIOUS TRADES TO MAINTAIN ACCESS TO ADJACENT BUSINESSES.
2. VERIFY AND COORDINATE WITH THE OWNER PRIOR TO REMOVAL ALL SCHEDULED DEMOLITION ITEMS THE OWNER WISHES TO RETAIN.
3. COORDINATE WITH SECURITY, FIRE SUPPRESSION, ELECTRICAL & MECHANICAL NEW WORK PLANS BY OTHERS.
4. SPACING OF LIGHTS, GRIDS AND FIRE SUPPRESSION HEADS TO BE DETERMINED BY OTHERS.

REFLECTED CEILING LEGEND

- RECESSED CAN LIGHT FIXTURE
- ⊗ MECH. SUPPLY REGISTER
- ⊠ MECH. RETURN REGISTER
- ⊞ SUSPENDED 2' x 2' ACST. LAY-IN CEILING
- ⊗ EXIT FIXTURE
- ^E RECESSED CAN LIGHT FIXTURE (EMERGENCY)
- ⊗^E WALL MOUNTED LIGHT FIXTURE (EMERGENCY)
- FIRE SUPPRESSION HEAD

NEW WORK LEGEND

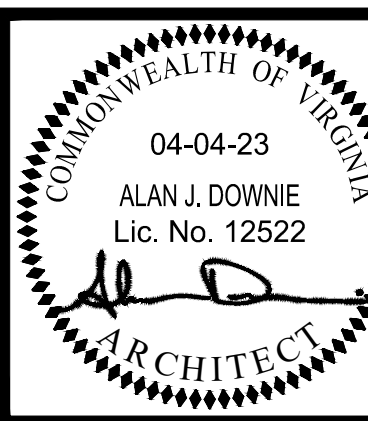
- NEW WORK
- EXISTING WALLS AND ITEMS

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**REFLECTED
CEILING PLAN**

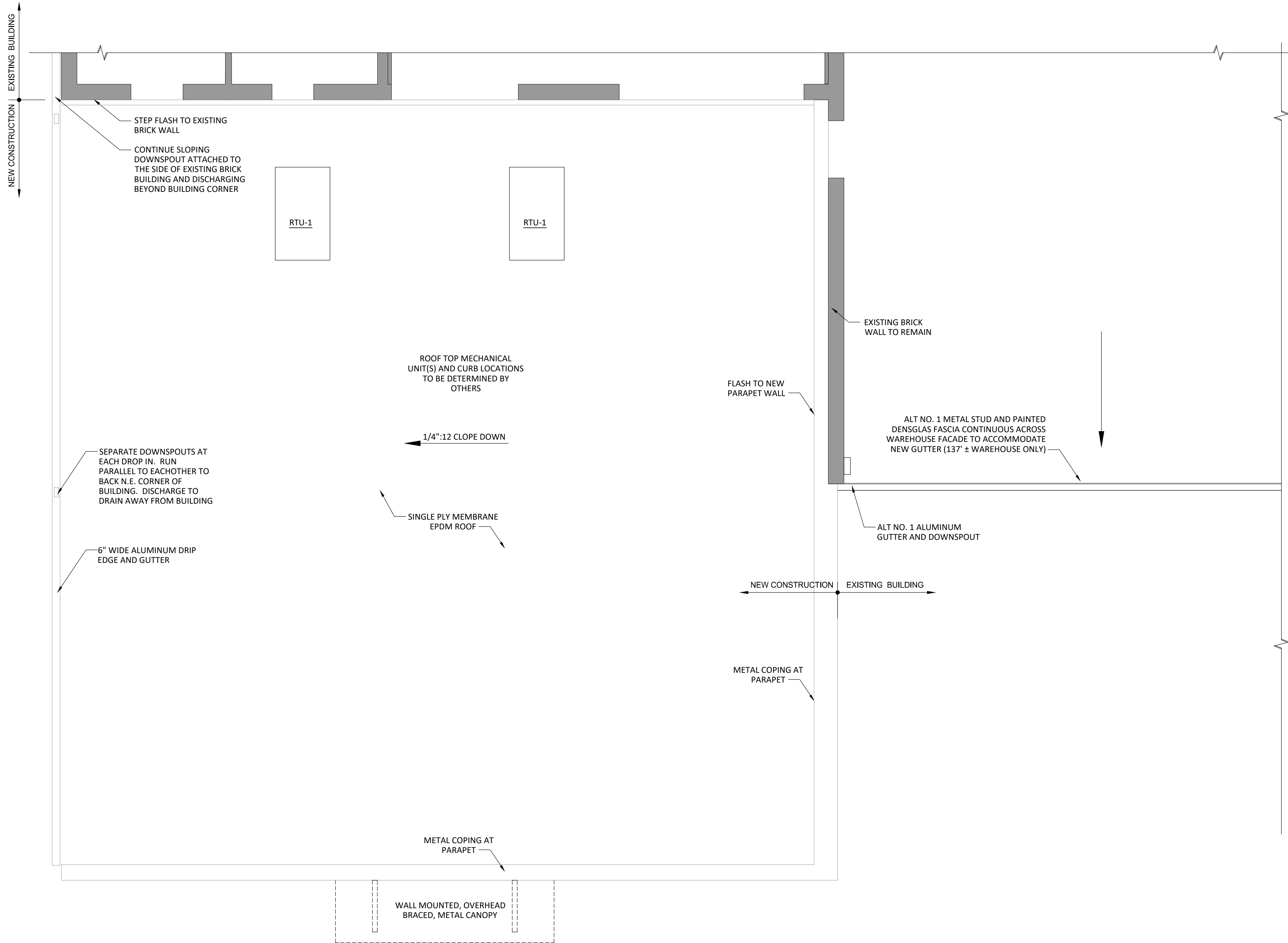


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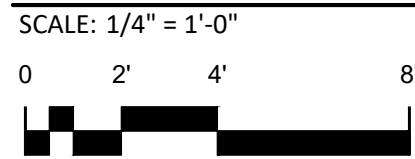
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NEW WORK ROOF PLAN



NEW WORK LEGEND

- NEW WORK
- EXISTING WALLS AND ITEMS

GENERAL NEW WORK NOTES

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3. COORDINATE WITH SECURITY, FIRE SUPPRESSION, ELECTRICAL & MECHANICAL NEW WORK PLANS BY OTHERS.

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BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

ROOF PLAN

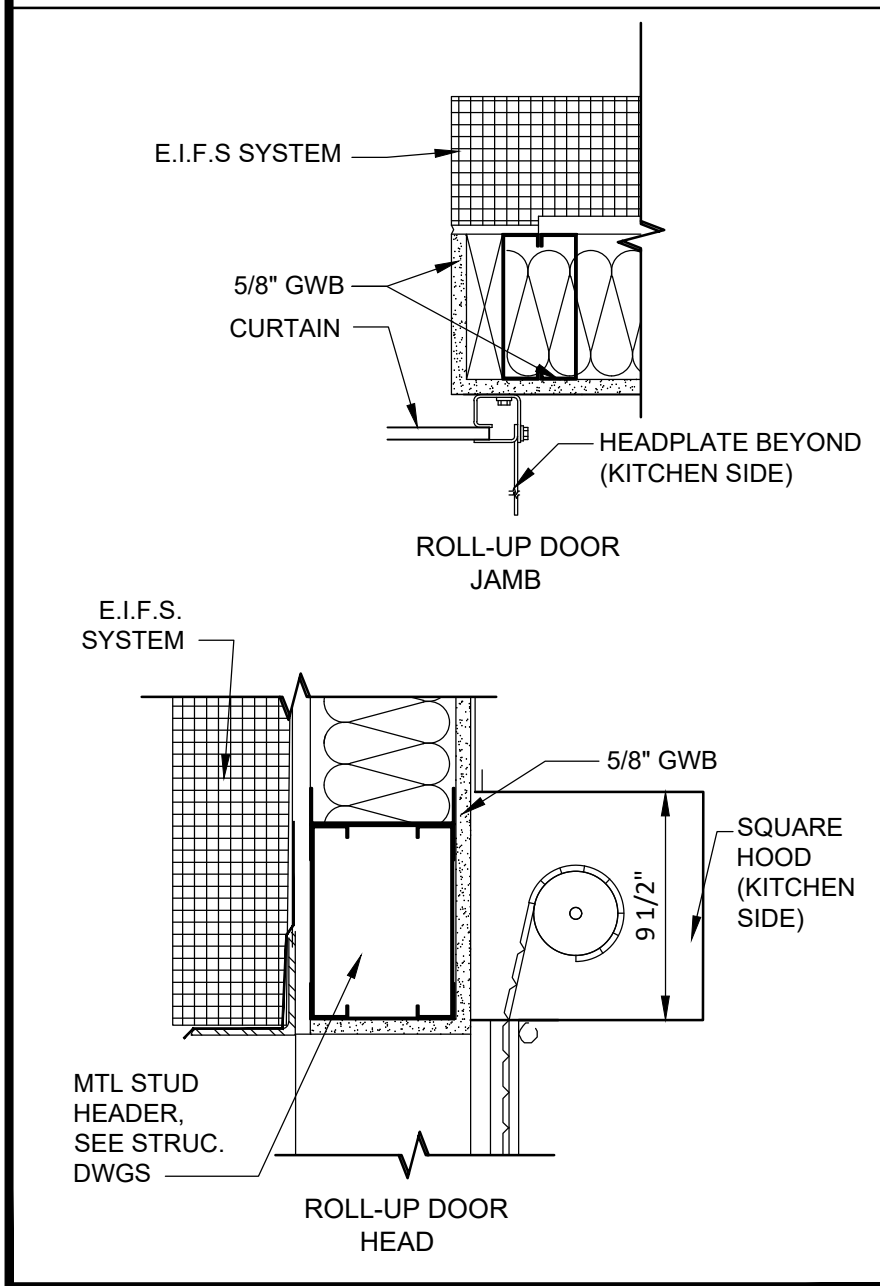


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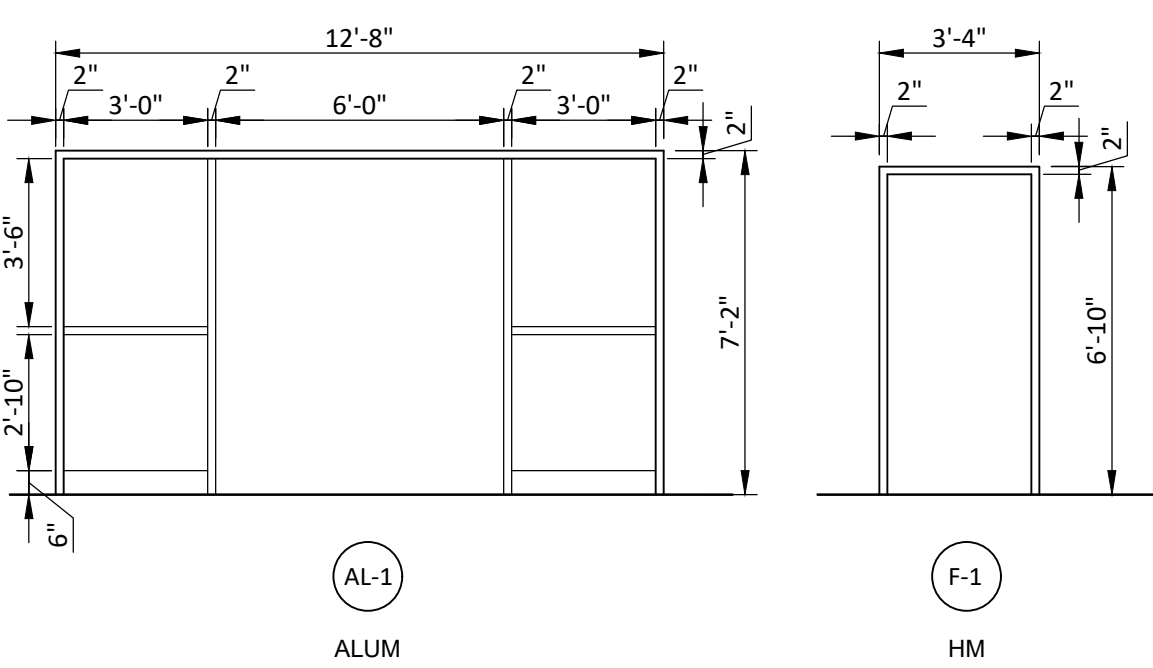
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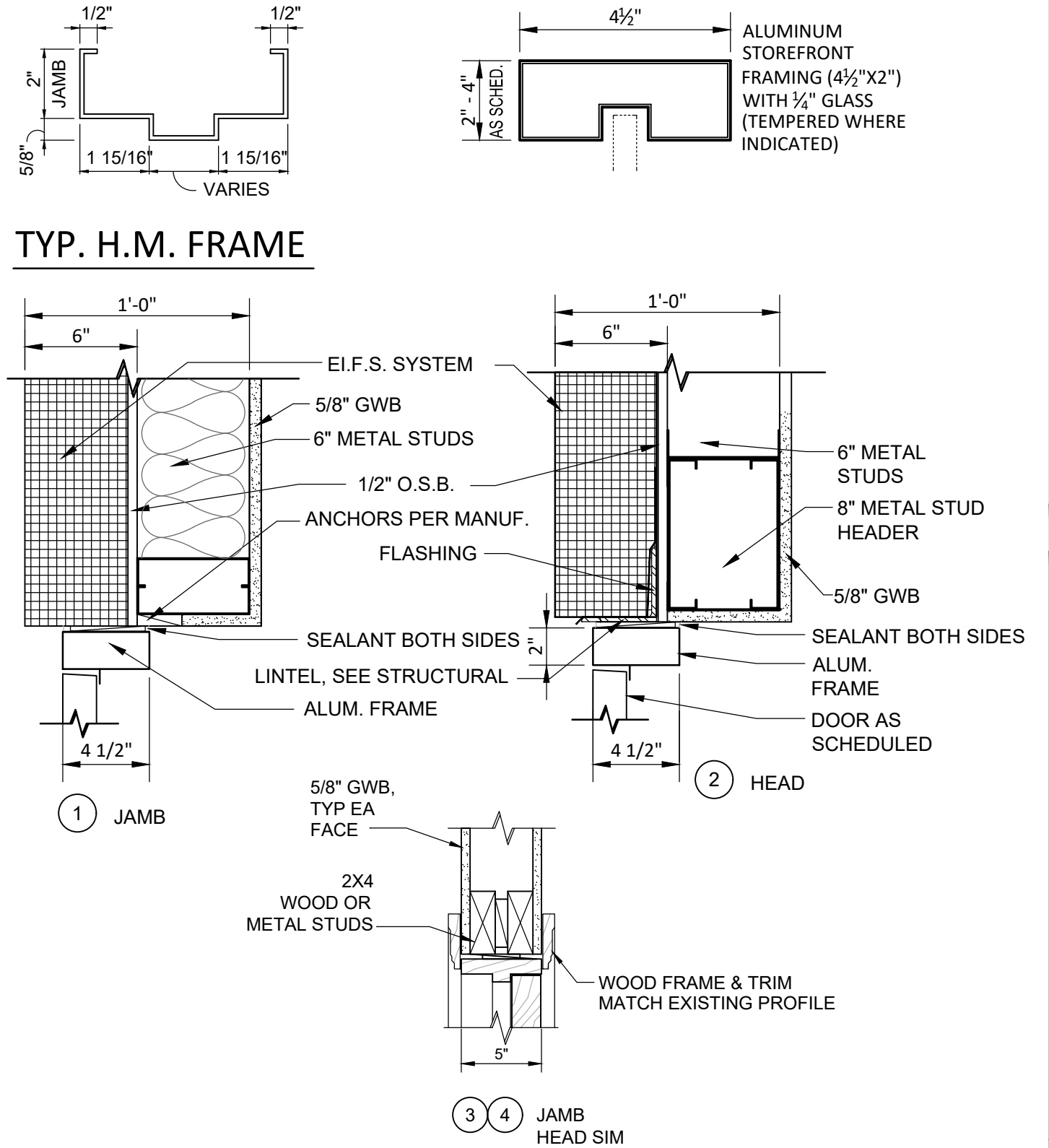
ROLL-UP DOOR DETAIL



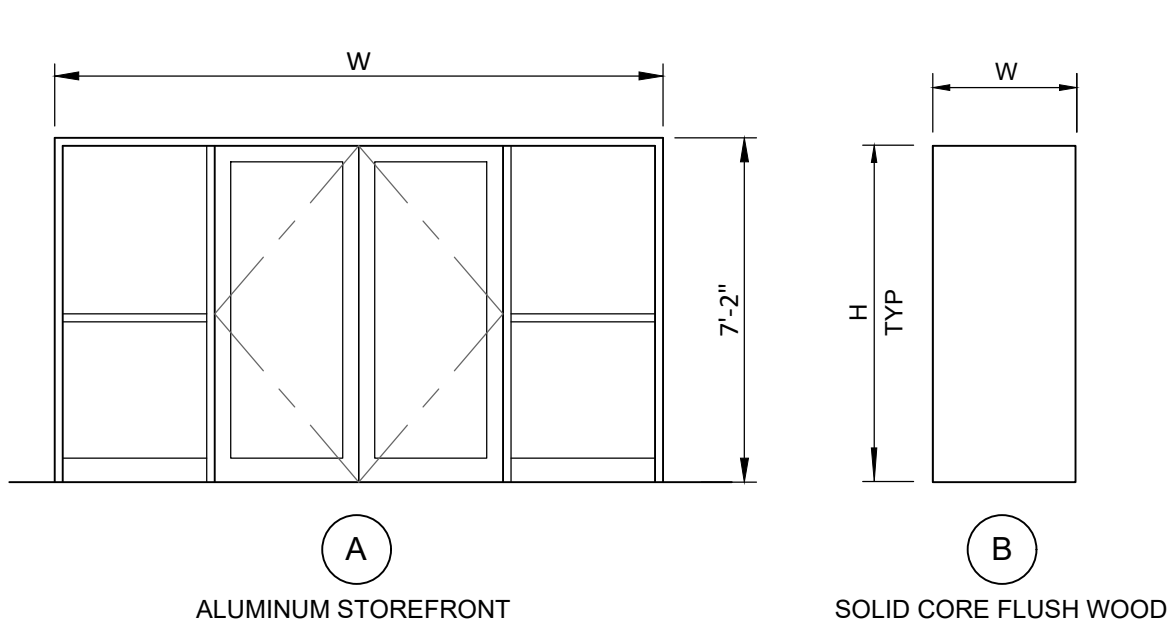
FRAME TYPES



FRAME DETAIL



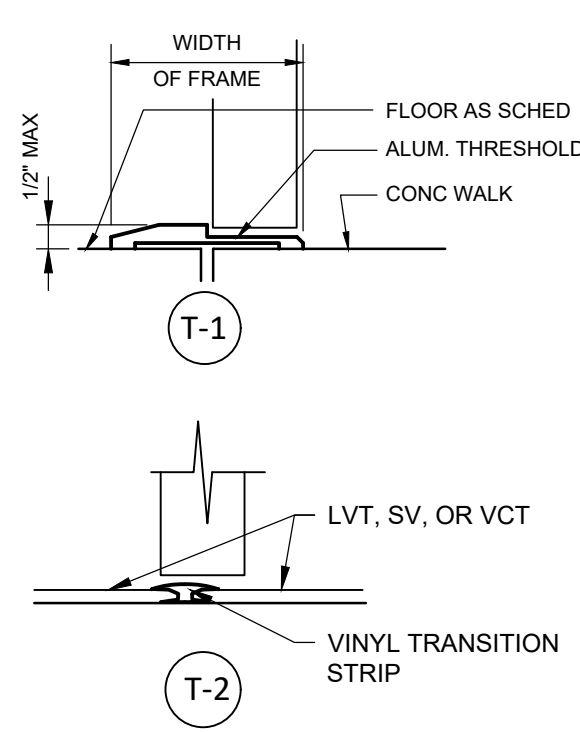
DOOR TYPES



HARDWARE

DESCRIPTION	MODEL	FINISH	MANU
SET 1 - ALUM. DBL. ENTRANCE			
2 EA CONT. HINGE	224HD EPT	628	IVES
1 EA KEYED REMOVABLE MULL.	KR4954	689	VON DUPRIN
1 EA MULLION STABILIZER	154	689	VON DUPRIN
2 EA 90 DEG OFFSET PULL	8190HD 10\" O	630	IVES
2 EA PUSH	8200	630	IVES
1 EA S.M. CLOSER	4040XP SCUSH	689	LCN
1 EA S.M. CLOSER	4040XP-61	689	LCN
2 EA FLOOR STOP	FS441	626	IVES
1 EA THRESHOLD	65A-MSLA-10	ALUM	IVES
1 EA WEATHERSTRIP	BY DOOR MANUF.		
SET 2 - INTERIOR PRIVACY			
4 EA HINGES	5BB 1 NRP 4 1/2 x 4 1/2	630	IVES
1 EA STOREROOM LOCK	ND405 RHO	630	SCHLAGE
1 EA CYLINDER			
1 EA S.M. CLOSER	4011SERIES	689	LCN
1 EA WALL STOP	WS407CCV	630	IVES
3 EA SILENCERS	SR64	GRY	IVES

THRESHOLD



DOOR SCHEDULE

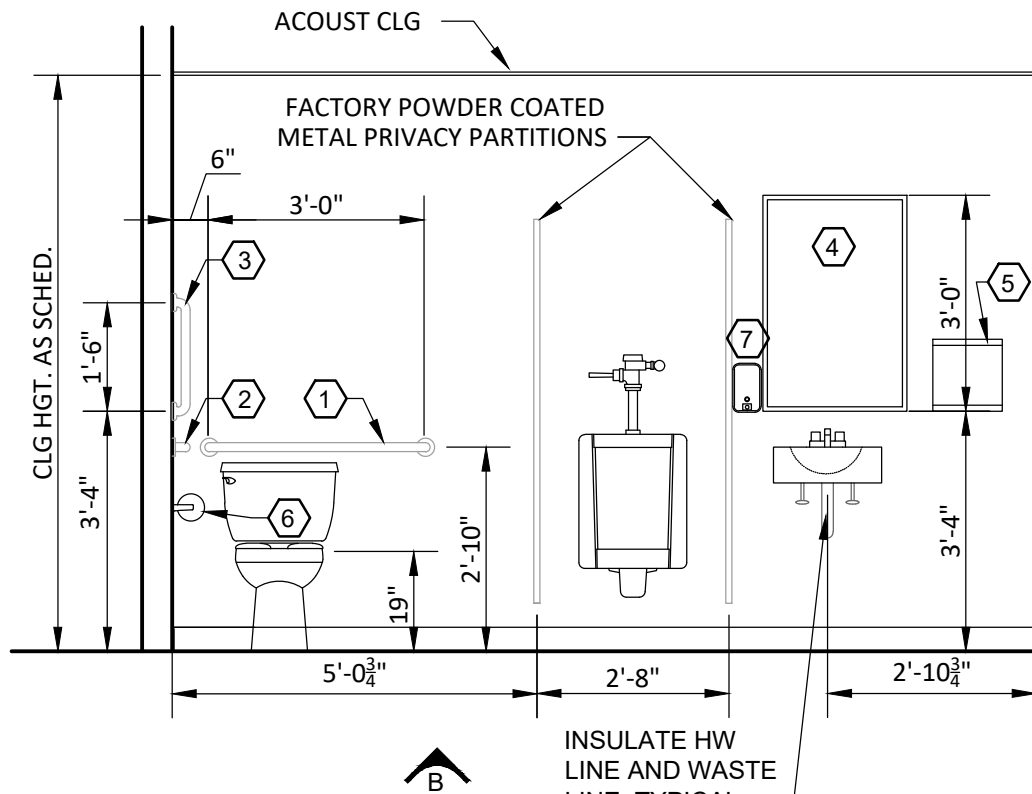
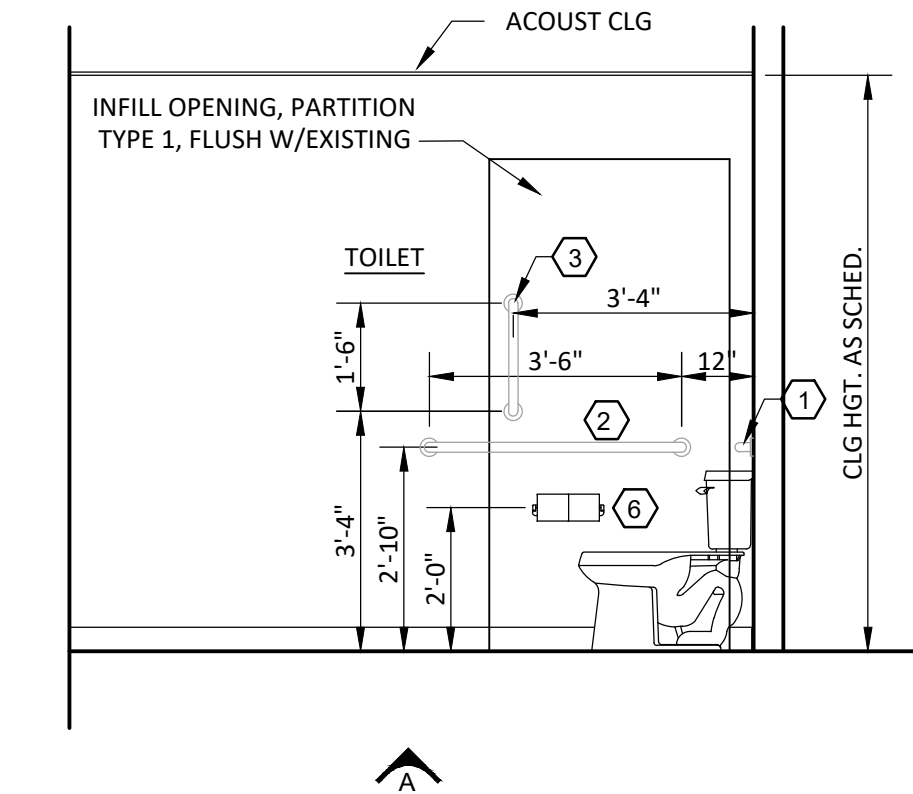
LEVER HANDLES, WHERE APPLICABLE, SHALL BE TYPE BSN AND COMPLY WITH ADA REQUIREMENTS

MARK	DOOR								FRAME				FIRE RAT'G	T'HOLD	HDW	REMARKS
	SIZE			MATR'L	TYPE	FINISH	GLASS	REMARKS	TYPE	MATR'L	DETAIL					
	WIDTH	HEIGHT	THICK.								J.	H.				
101	PR 6'-0"	7'-0"	1 3/4"	ALUMN	A	ANODZ	TINT, TEMP	SOLARBAN 60 GLAZING	AL-1	ALUMN	1	2	--	T-1	1	FACTORY FINISHED ANODIZED
102	3'-0"	7'-0"	1 3/4"	WD	B	PAINT	--		F-1	HM	3	4	--	T-2	2	

TOILET ACCESSORY SCHEDULE

DESCRIPTION	MOUNTING HEIGHT	REMARKS
1 36\" GRAB BAR	34\" AFF to C.L.	Bobrick B-6806 x 36\"
2 42\" GRAB BAR	34\" AFF to C.L.	Bobrick B-6806 x 42\"
3 18\" VERTICAL GRAB BAR	40\" AFF to bottom C.L.	Bobrick B-6806 x 18\"
4 MIRROR 24\"w x 36\"h	40\" Max. AFF to bottom	Bobrick B-165 2436
5 PAPER TOWEL DISPENSER	40\" AFF to bottom	BY VENDOR
6 TOILET TISSUE HOLDER	24\" AFF to C.L.	BY VENDOR
7 SOAP DISPENSER	40\" AFF to bottom	BY VENDOR

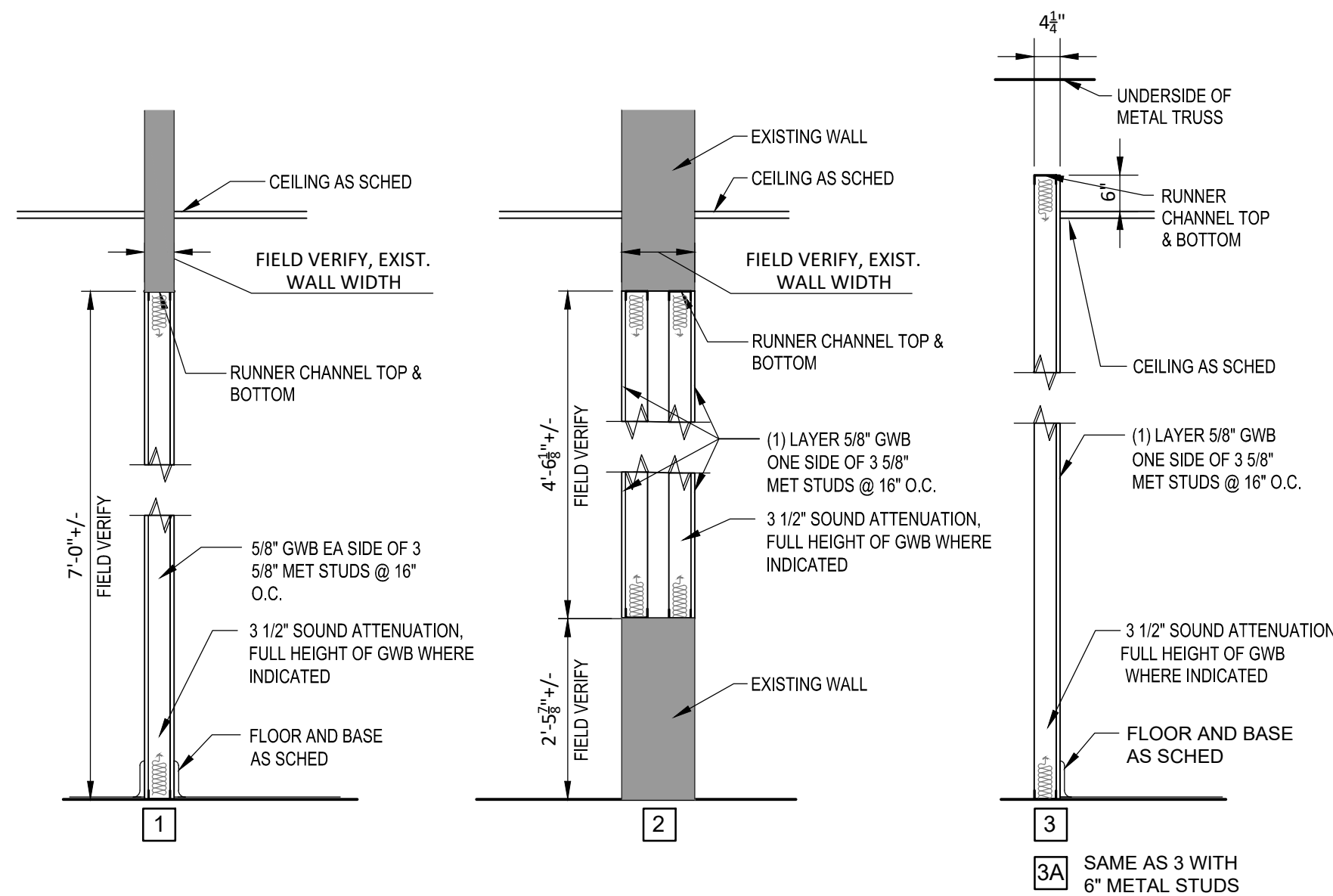
*NOTE: PROVIDE F.R.T. WD BLOCKING IN WALLS AT GRAB BAR LOCATIONS.



TOILET ELEVATIONS

SCALE: 3/8\" = 1'-0\"

PARTITION TYPES



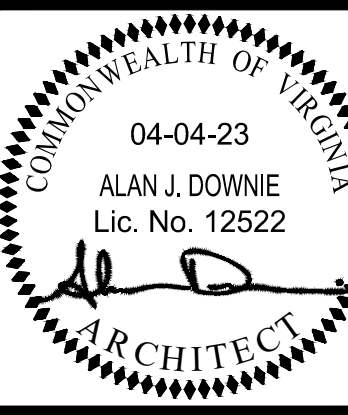
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1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

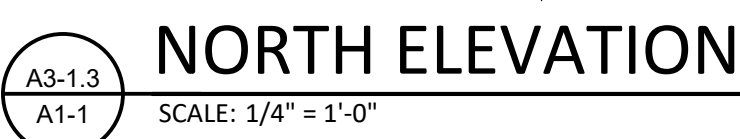
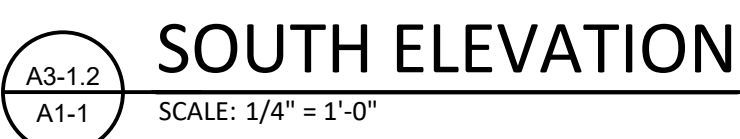
SCHEDULES AND DETAILS



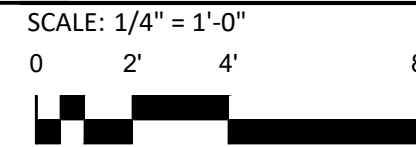
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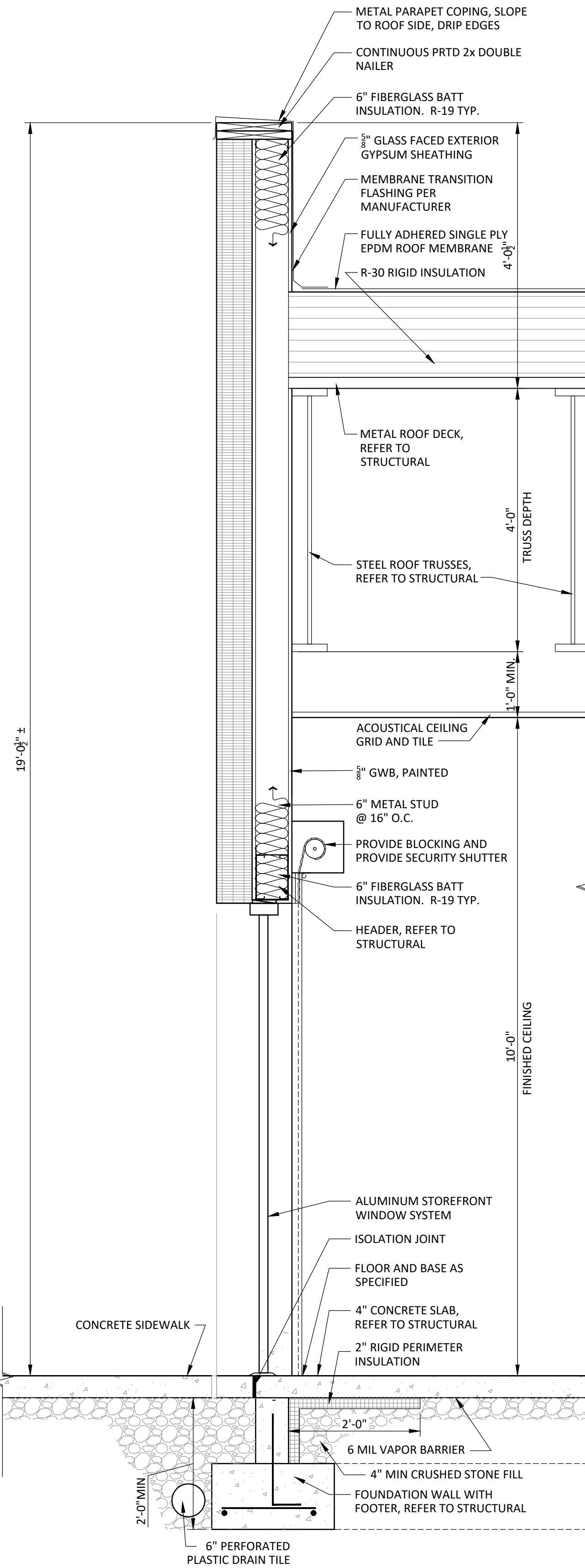


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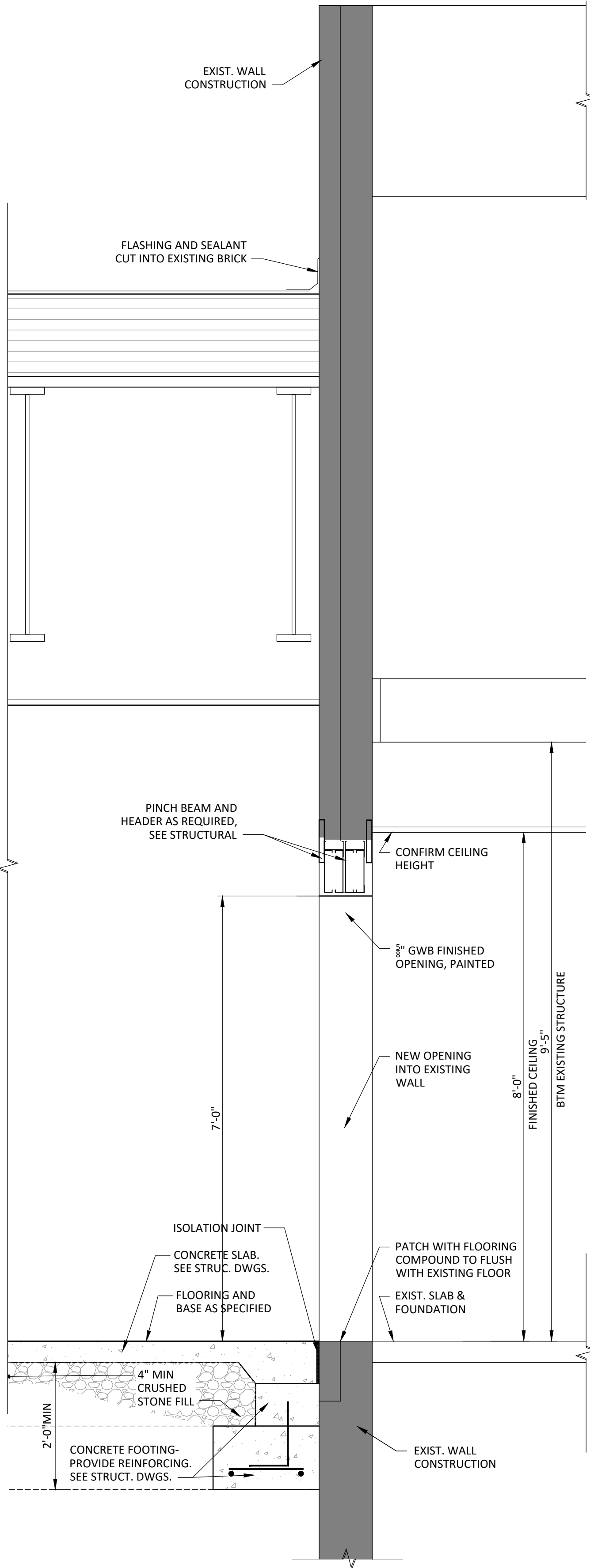


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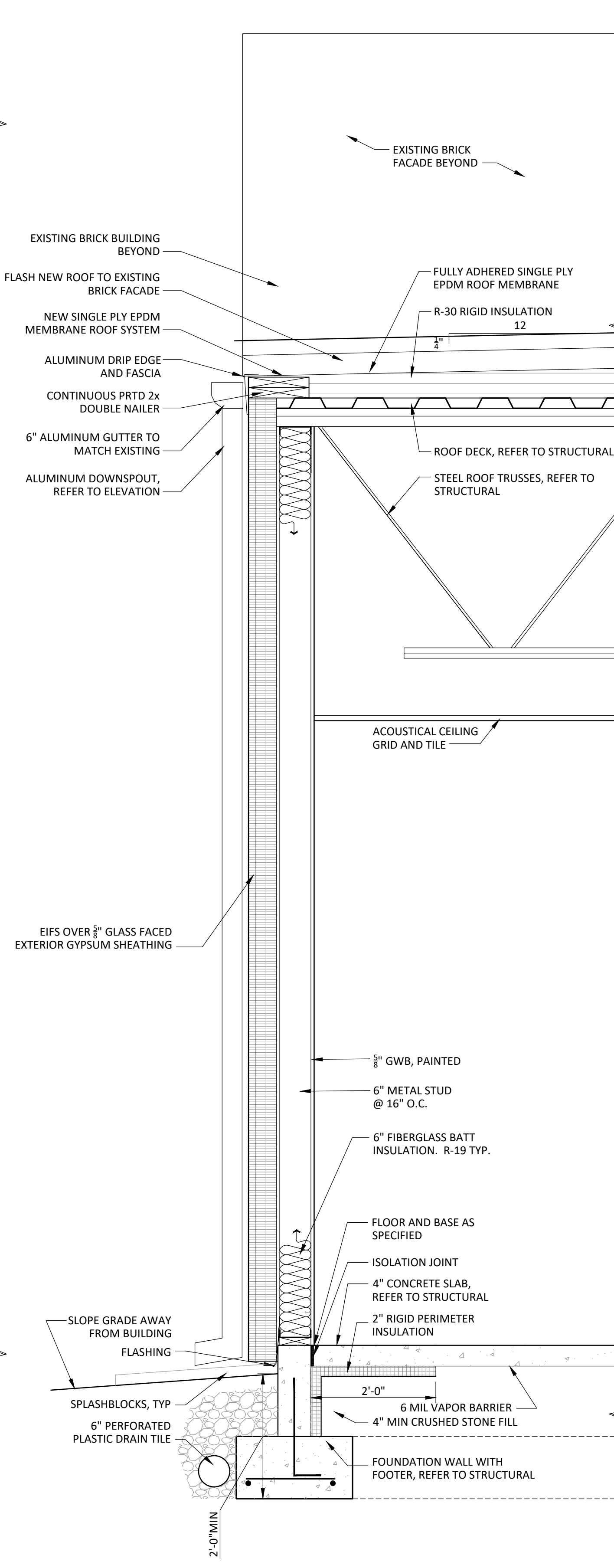
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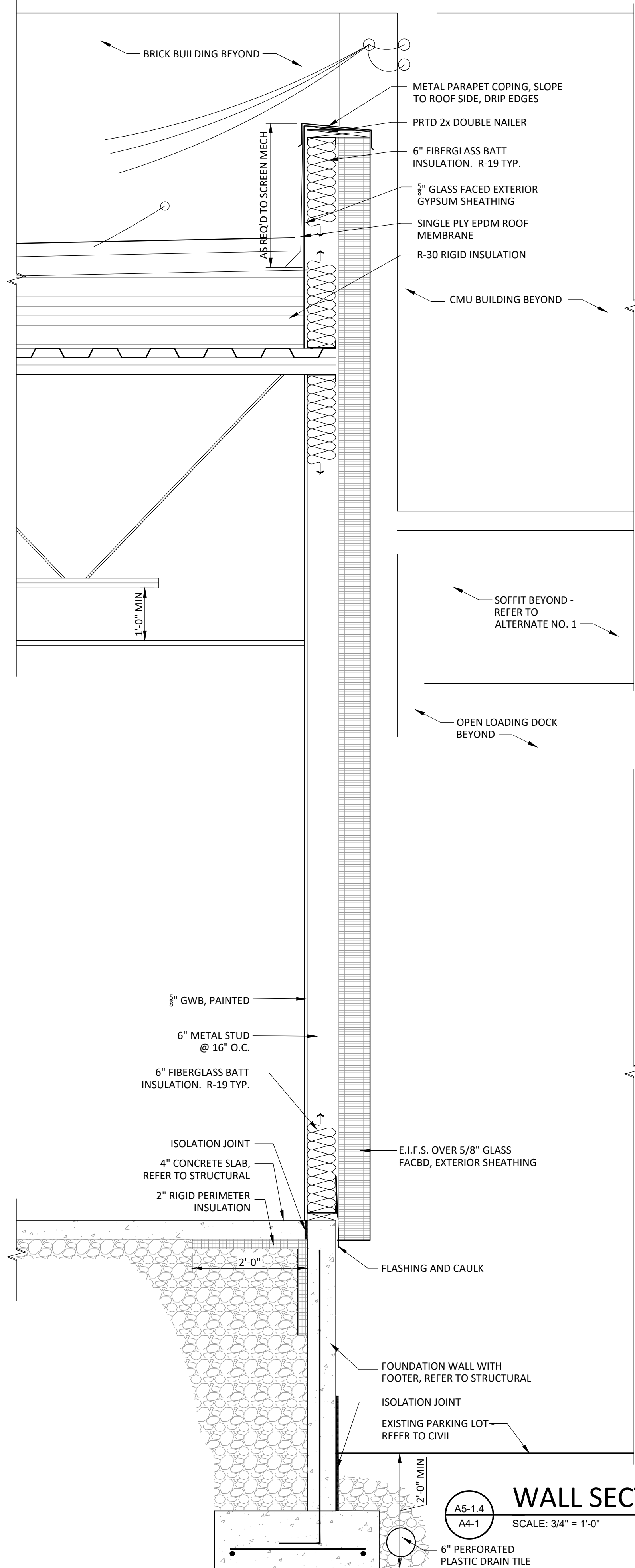
WALL SECTION
A5-1.1
A4-1
SCALE: 3/4" = 1'-0"



WALL SECTION
A5-1.2
A4-1
SCALE: 3/4" = 1'-0"



WALL SECTION
A5-1.3
A4-1
SCALE: 3/4" = 1'-0"



WALL SECTION
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A4-1
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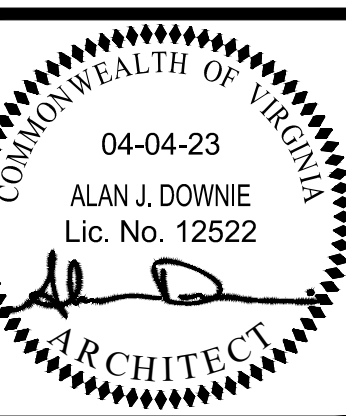
NEW WORK LEGEND
NEW WORK
EXISTING WALLS AND ITEMS

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WALL
SECTIONS



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PLUMBING KEYED NOTES: 1

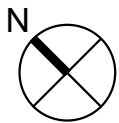
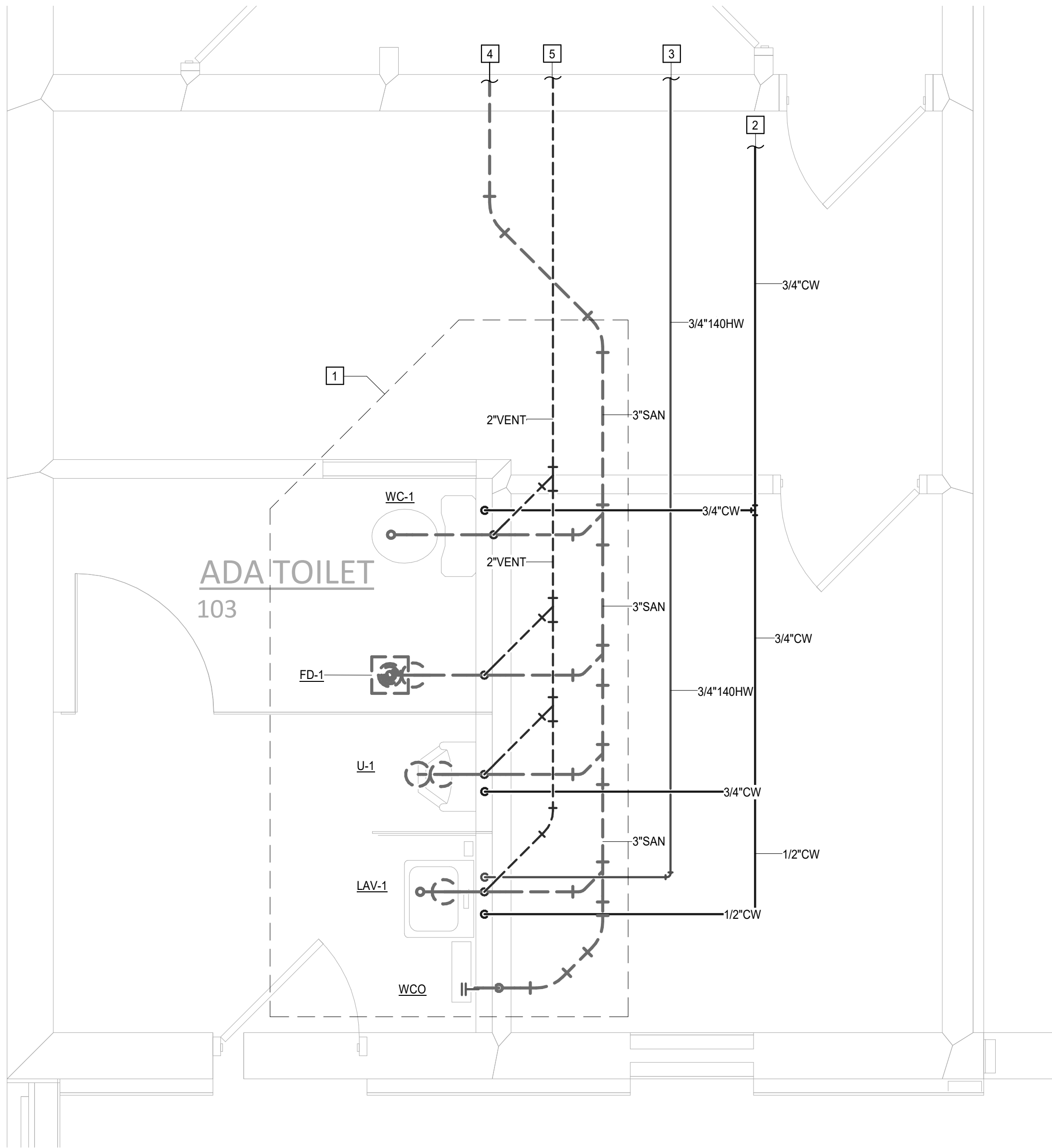
- SAW CUT FLOOR AS REQUIRED FOR INSTALLATION OF NEW SANITARY SEWER PIPING.
- TIE IN 3/4" COLD WATER TO EXISTING RESTROOM COLD WATER. CONTRACTOR TO FIELD VERIFY EXACT TIE IN LOCATION PRIOR TO CONSTRUCTION.
- TIE IN 3/4" HW140 TO EXISTING RESTROOM HOT WATER. CONTRACTOR TO FIELD VERIFY EXACT TIE IN LOCATION PRIOR TO CONSTRUCTION.
- TIE IN 3" SANITARY TO EXISTING RESTROOM SANITARY PIPE. CONTRACTOR TO FIELD VERIFY EXACT TIE IN LOCATION PRIOR TO CONSTRUCTION.
- TIE IN 2" VENT TO EXISTING RESTROOM VENT PIPE. CONTRACTOR FIELD VERIFY EXACT TIE IN LOCATION PRIOR TO CONSTRUCTION.

FIRE SPRINKLER NOTE:

ADJUST EXISTING FIRE SPRINKLER SYSTEM TO SERVE RENOVATED AREA. LICENSED SPRINKLER ENGINEER OR LICENSED SPRINKLER CONTRACTOR, TO PROVIDE DRAWINGS AND CALCULATIONS TO UPDATE CHANGES TO EXISTING SYSTEM AND TO COMPLY WITH NEW SPACE LAYOUT, NFPA 13, AND ALL STATE AND LOCAL CODE REQUIREMENTS.

PLUMBING GENERAL NOTES

- ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
- ALL SANITARY PIPING 3" AND LARGER ROUTED AT 1/8" SLOPE PER FOOT UNLESS OTHERWISE NOTED. ALL PIPE LESS THAN 3" SHALL BE ROUTED AT 1/4" SLOPE PER FOOT.
- EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
- CONTRACTOR TO FIELD VERIFY AS NECESSARY THE EXACT ROUTING AND SIZES OF ALL PIPING.
- PROVIDE A TWO-WAY CLEANOUT AT CIVILS POINT OF CONNECTION.
- CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
- CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND CONDUIT. SHOULD A CONFLICT OCCUR THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN.
- COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
- DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
- WITHIN THE EXISTING BUILDING, EXISTING WATER, WASTE AND VENT SERVICES ARE TO BE MODIFIED AS REQUIRED AND REUSED FOR THE INSTALLATION OF NEW AND/OR RELOCATED PLUMBING FIXTURES. REFER TO PLUMBING FLOOR PLANS FOR POINTS OF CONNECTION.
- WITHIN THE EXISTING BUILDING, SAWCUT AND REMOVE EXISTING FLOOR SLAB AS REQUIRED TO PROVIDE NEW AND/OR RELOCATED PLUMBING FIXTURES, CLEANOUTS, AND UNDERSLAB WASTE AND VENT PIPING. PATCH AND REFINISH FLOOR TO MATCH EXISTING.
- IN AREAS WHERE THE FLOOR SLAB IS NOT REMOVED, CONTRACTOR SHALL ABANDON IN PLACE ANY UNDERSLAB WASTE AND VENT PIPING NO LONGER NEEDED, UNLESS THE PIPING MUST BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION. IF NEW WORK DOES NOT NECESSITATE THEIR REMOVAL, CUT AND PLUG SUCH LINES BELOW SLAB, AND PATCH FLOOR TO MATCH EXISTING.
- FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF EXISTING WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION. ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
- WASTE LINES TO BE RE-USED OR RECONNECTED TO SHALL BE THOROUGHLY RODDED OUT AND FLUSHED TO ENSURE THEY ARE FREE FROM BLOCKAGES.
- THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING FIXTURES TO REMAIN SHALL DETERMINE THE EXTENT AND NATURE OF PLUMBING REMODEL WORK.
- CONTRACTOR SHALL CHECK ALL LOCATIONS, MEASUREMENTS, DEPTHS, AND REPORT ANY DISCREPANCIES FOR CORRECTION BEFORE DEMOLITION.

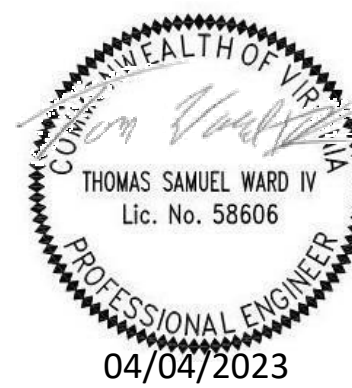


2 LEVEL 1 - PLUMBING BATHROOM ENLARGEMENT
Scale: 1/2" = 1'-0"

ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DRAWN BY: JR
CHECKED BY: TW

PLUMBING FLOOR
PLAN



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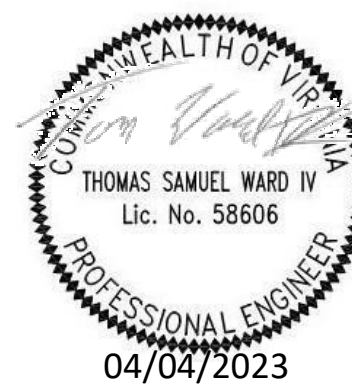
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656 ELM AVENUE SW | ROANOKE, VIRGINIA 24016
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ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DRAWN BY: JR
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PLUMBING DETAILS



COMMISSION No.
21064
SHEET
P2-0

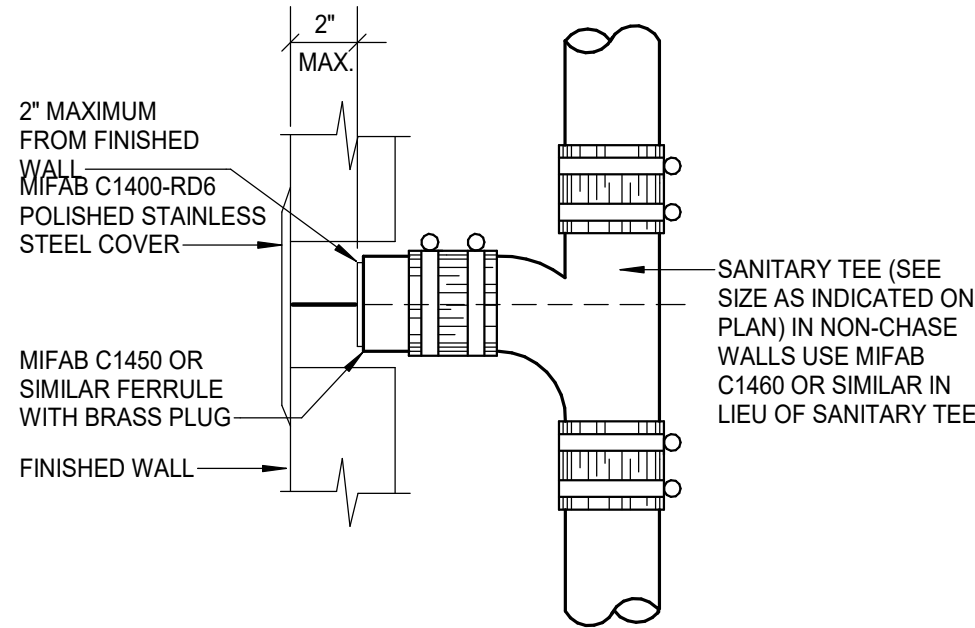
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PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
	STORM DRAIN PIPING (SD)
	STORM DRAIN PIPING BELOW GRADE (GW)
	CONDENSTATE DRAIN PIPING (CD)
	CONDENSTATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
	TRAP PRIMER LINE (TP)
	FIRE PROTECTION PIPING (F)
	FLOW DIRECTIONAL ARROW
	BALL VALVE (BV)
	UNION
	REDUCER OR INCREASER
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	FIRE DEPARTMENT CONNECTION
	PRESSURE REDUCING VALVE (PRV)
	BRANCH CONNECTION OUT OF TOP
	BRANCH CONNECTION OUT OF BOTTOM
	BRANCH CONNECTION OUT OF SIDE
	WYE & 1/8TH BEND BRANCH CONNECTION
	WYE BRANCH CONNECTION
	REFER TO KEYED NOTE
	FLOOR DRAIN WITH P-TRAP (FD)
	HUB DRAIN (HD)
	NEW
	NEW CONNECTION
	INVERT ELEVATION
	1/8TH OF AN INCH SLOPE
	DELTA CHANGE SYMBOL
	RISER FLAG

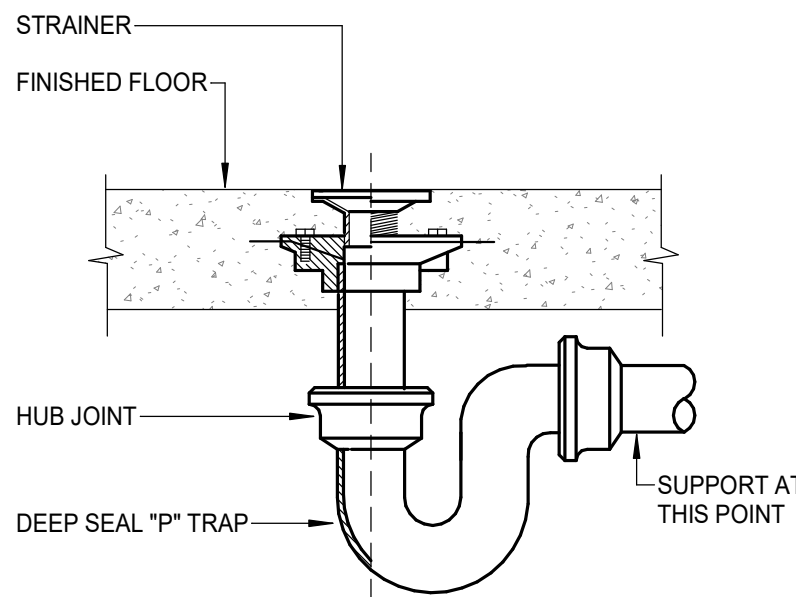
PLUMBING FIXTURE SCHEDULE

TYPE: WC-1 (A.D.A. COMPLIANT)	GENERAL NOTES:	ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS WITH LOOSE KEYS AND WALL ESCUTCHEONS. PROVIDE CHROME PLATED FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE 17 GAUGE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON. REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS AND FIXTURE SCHEDULE FOR MINIMUM SIZES OF PLUMBING FIXTURE ROUGH-INS.
DESCRIPTION: WATER CLOSET, FLOOR MOUNTED, TANK TYPE, 1.28 GALLON PER FLUSH, VITREOUS CHINA, SIPHON JETTED BOWL, CHROME LEVER TRIP, TWO-PIECE TOILET AMERICAN STANDARD "CADET PRO" 215AA.104.		
SEAT: ELONGATED, CLOSED FRONT WITH COVER, HEAVY DUTY WHITE PLASTIC SEAT WITH SELF-SUSTAINING CHECK HINGES, CHURCH & DWIGHT 1000-3.		
ROUGH-INS: 2" WASTE, 2" VENT, 3/4" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED HEIGHT.		
TYPE: FD-1		PROVIDE MOLDED CLOSED CELL ANTI-MICROBIAL VINYL INSULATION KITS AT ALL LAVATORIES AND SINKS REQUIRED TO BE A.D.A. ACCESSIBLE (MCGUIRE OR TRUEBRO). ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (A.D.A.)
SERVICE: TOILET ROOMS AND GENERAL USE		
DESCRIPTION: FLOOR DRAIN, BOTTOM OUTLET CAST IRON BODY, ADJUSTABLE 6" DIAMETER STAINLESS STEEL STRAINER WITH VANDAL PROOF SCREWS, 1/2" TRAP PRIMER CONNECTION, PROVIDE CLAMPING DEVICE FOR DRAINS IN MEMBRANE FLOOR AREAS. MIFAB F1100-6-3-7.		
ROUGH-INS: REFER TO FLOOR PLANS FOR SIZES, COORDINATE FINAL LOCATION AND INSTALLATION WITH ARCHITECTURAL DRAWINGS / FLOOR CONSTRUCTION.		INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.
TYPE: WCO		APPROVED EQUAL MANUFACTURERS AND MODEL NUMBERS CAN BE PROVIDED FOR THE MANUFACTURERS AND MODEL NUMBERS OF THE FIXTURES AND EQUIPMENT LISTED ABOVE.
DESCRIPTION: WALL CLEANOUT, CAST IRON CLEANOUT FERRULE WITH DUCTILE IRON COMBINED COVER/PLUG AND ROUND STAINLESS COVER, PLATE WITH CENTER SECURING SCREW, MIFAB C1450 WITH C1400-RD6. PROVIDE MIFAB C1460 CAST IRON CLEANOUT TEE IN LIEU OF FERRULE AS REQUIRED FOR WALL CONSTRUCTION.		
TYPE: U-1 (A.D.A. COMPLIANT)		
DESCRIPTION: URINAL, WALL HUNG, WHITE VITREOUS CHINA, 1.0 GALLON PER FLUSH SIPHON JET ACTION, INTEGRAL TRAP, AMERICAN STANDARD "TRIMBROOK" 6561.017.		
FLUSH VALVE: 1.0 GALLON FLUSH CYCLE, EXPOSED, DIAPHRAGM TYPE, CHROME PLATED URINAL FLUSHOMETER, VACUUM BREAKER, SPUD COUPLING FOR 3/4" TOP SPUD. SLOAN ROYAL 186-1-H-573-CP CAP.		
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE WITH (4) 1/2" BOLTS, ADJUSTABLE SLEEVE, UPPER AND LOWER BEARING PLATES WITH THREADED STUDS, MIFAB MC-32.		
ROUGH-INS: 2" WASTE, 2" VENT, 3/4" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED HEIGHT.		
TYPE: L-1 (A.D.A. COMPLIANT)		
DESCRIPTION: LAVATORY, WALL HUNG, WHITE VITREOUS CHINA, 18-1/2"X 17" BOWL WITH REAR OVERFLOW, FAUCET HOLES ON 4" CENTERS, AMERICAN STANDARD "LUCERNE" 0355.027.		
FAUCET: CHROME PLATED BRASS LAVATORY, SINGLE LEVER ON 4" CENTERS VANDAL RESISTANT AERATOR, MOEN 8439F05.		
MIXING VALVE: THERMOSTATIC MIXING VALVE, 140 DEGREES IN, 110 DEGREES OUT, BRONZE FINISH, UNION CONNECTION, SP51 PRESSURE DIFFERENTIAL, 0.5GPM MIN FLOW/4GPM MAX FLOW, SYMMONS "MAXLINE" 7-225-CK-W.		
STRAINER: 1-1/4" 17 GAUGE OFFSET WHEELCHAIR STRAINER, CHROME PLATED BRASS GRID DRAIN WITH ELBOW AND 17 GAUGE OFFSET TAILPIECE, MCGUIRE 155WC.		
P-TRAP: 1-1/4" 17 GAUGE CHROME PLATED HEAVY CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE, MCGUIRE 8872.		
TAILPIECE: GRAVITY FED TRAP PRIMER TAILPIECE, 1/2" NOMINAL BRANCH CONNECTION, SIOUX CHIEF" 213-092.		
SUPPLIES: 1/2" I.P.S. X 3/8" O.D CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS, MCGUIRE 2165LK.		
ROUGH-INS: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED HEIGHT.		



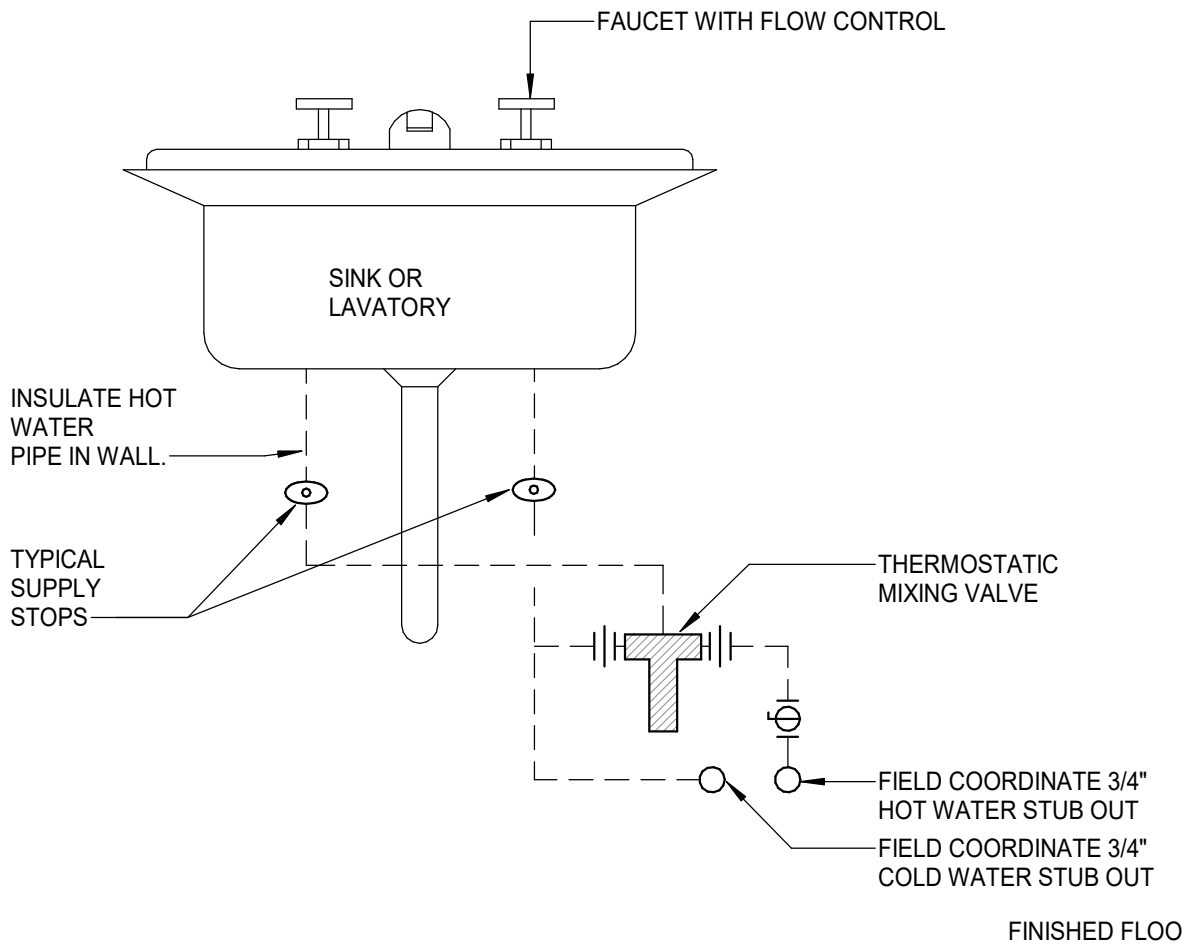
3 WALL CLEANOUT

Scale: 12" = 1'-0"



2 FLOOR DRAIN

Scale: 12" = 1'-0"



1 THERMOSTATIC MIXING VALVE PIPING AT LAVATORY

Scale: 12" = 1'-0"



SALASOBRIEN

| expect a difference |

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Roanoke, VA 24015
540.952.9651

DATE: 04/04/2023

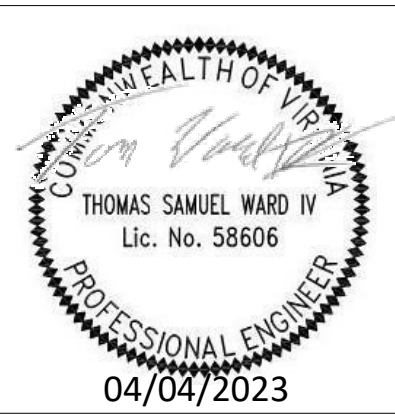
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PLUMBING
SPECIFICATIONS



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PLUMBING SPECIFICATIONS

GENERAL

- A. PERFORM WORK IN ACCORDANCE WITH APPLICABLE STATUTES, ORDINANCES, CODES AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.
- B. OBTAIN ALL PERMITS REQUIRED.
- C. CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS.
- D. GUARANTEE WORK FOR 1 YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT. DURING THAT PERIOD MAKE GOOD ANY FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIAL, EQUIPMENT OR WORKMANSHIP. AT THE OWNER'S OPTION, REPLACEMENT OF FAILED PARTS OR EQUIPMENT SHALL BE PROVIDED.
- E. PROVIDE FINISHES TO MATCH APPROVED SAMPLES. ALL EXPOSED FINISHES SHALL BE APPROVED BY THE ARCHITECT. SUBMIT COLOR SAMPLES AS REQUIRED
- F. PROVIDE EQUIPMENT HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED AND GROUND MOUNTED PLUMBING EQUIPMENT, AND AS SHOWN ON THE DRAWINGS. CONCRETE PADS ARE TO BE 4" THICK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- G. PROVIDE NAMEPLATES WITH 1/2" HIGH LETTERS AND FASTENED WITH EPOXY OR SCREWS.
- H. MAINTAIN QUALITY CONTROL OVER SUPERVISION, SUBCONTRACTORS, SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS AND WORKMANSHIP TO PRODUCE WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- I. COMPLY WITH INDUSTRY STANDARDS EXCEPT WHEN MORE RESTRICTIVE TOLERANCES OR SPECIFIED REQUIREMENTS INDICATE MORE RIGID STANDARDS OR MORE PRECISE WORKMANSHIP.
- J. PERFORM WORK BY PERSONS QUALIFIED TO PRODUCE WORKMANSHIP OF SPECIFIED QUALITY.
- K. SECURE PRODUCTS IN PLACE WITH POSITIVE ANCHORAGE DEVICES DESIGNED AND SIZED TO WITHSTAND STRESSES, VIBRATION, AND RACKING. UNDER NO CONDITIONS SHALL MATERIAL OR EQUIPMENT BE SUSPENDED FROM STRUCTURAL BRIDGING.
- L. COMPLY WITH INSTRUCTIONS IN FULL DETAIL, INCLUDING EACH STEP IN SEQUENCE. SHOULD INSTRUCTION CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT / ENGINEER BEFORE PROCEEDING.

EARTHWORK

- A. EXCAVATE AND BACKFILL FOR PIPE TRENCHES FOR UNDERGROUND PIPING, AND EXCAVATE FOR STRUCTURES INSTALLED AS PART OF MECHANICAL WORK.
- B. REMOVE EXCESS EXCAVATION MATERIAL OR MATERIAL UNSUITABLE FOR BACKFILL. EXCESS MATERIAL CAN BE SPREAD ON GRADE, OR SHALL BE REMOVED FROM SITE AS DIRECTED BY THE OWNER/ARCHITECT.

PLUMBING ALTERATIONS

- A. INSPECT AND SERVICE EXISTING EQUIPMENT, FIXTURES AND MATERIALS THAT ARE TO REMAIN OR TO BE REUSED.
- B. DISPOSAL OF EQUIPMENT, FIXTURES, MATERIALS, OR HOUSEKEEPING PADS TO BE ABANDONED. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL VERIFY WITH THE OWNER WHAT IS TO BE SALVAGED BY THE OWNER AND WHAT IS TO BECOME THE PROPERTY OF THE CONTRACTOR.
- C. HANDLING OF EQUIPMENT AND MATERIALS TO BE REMOVED.
- D. INSPECTION: EXISTING MATERIALS AND EQUIPMENT INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO BE REUSED SHALL BE INSPECTED FOR DAMAGED OR MISSING PARTS. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER, IN WRITING, ACCORDINGLY. IF USING MATERIALS SPECIFIED OR SHOWN ON THE DRAWING VOIDS OR DIMINISHES THE WARRANTY OR OPERATION OF REMAINING EQUIPMENT OR SYSTEMS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER, IN WRITING. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED.
- E. APPLICATION: EXISTING MATERIALS AND EQUIPMENT INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO BE REUSED SHALL BE CLEANED AND RECONDITIONED, INCLUDING CLEANING OF PIPING SYSTEMS AND HVAC COILS PRIOR TO INSTALLATION AND REUSE. MATERIAL AND EQUIPMENT REMOVED THAT IS NOT TO BE SALVAGED FOR OWNER'S USE OR FOR REUSE ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE. MATERIAL OR EQUIPMENT SALVAGED FOR OWNER'S USE SHALL BE CAREFULLY HANDLED AND STORED WHERE DIRECTED BY THE OWNER OR THE ARCHITECT / ENGINEER. RELOCATE MATERIAL AND / OR EQUIPMENT AS DIRECTED BY OWNER. MATERIALS AND EQUIPMENT NOT INDICATED TO BE REMOVED OR ABANDONED SHALL BE RECONNECTED TO THE NEW SYSTEM. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL WALK AREAS TO BE RENOVATED WITH OWNER TO IDENTIFY AND DOCUMENT ITEMS TO BE SALVAGED FOR OWNER'S USE.
- F. SEQUENCE AND SCHEDULE: COORDINATE UTILITY SERVICE OUTAGES WITH UTILITY COMPANY, ARCHITECT AND OWNER. REMOVE CONCRETE HOUSEKEEPING PAD WHERE MATERIALS OR EQUIPMENT HAVE BEEN REMOVED.

PLUMBING FIXTURES AND FIXTURE CARRIERS

- ACCEPTABLE MANUFACTURERS:
- A. VITREOUS CHINA FIXTURES: AMERICAN STANDARD, ELJER, KOHLER, TOTO, ZURN.
- B. PLUMBING FAUCETS: AMERICAN STANDARD, CHICAGO, T&S BRASS, ZURN, SYMMONS, MOEN COMMERCIAL HD
- C. SUPPORTS AND CARRIERS: ZURN, J.R. SMITH, WADE, JOSAM, WATTS/ANCON, MIFAB
- D. FLUSH VALVES: SLOAN, ZURN, MOEN COMMERCIAL HD
- E. SUPPLIES, STOPS AND CHROME PLATED TUBULAR BRASS: MCGUIRE, KOHLER, CHICAGO, ZURN, BRASSCRAFT
- F. WATER CLOSET SEATS: BENKE, CHURCH, OLSONITE, BEMIS, CENTOCO
- G. FLOOR DRAINS: ZURN, J.R. SMITH, JOSAM, WADE, WATTS/ANCON, SIOUX CHIEF, MIFAB
- H. CLEANOUTS: ZURN, J.R. SMITH, JOSAM, WADE, WATTS/ANCON, MIFAB
- I. STAINLESS STEEL SINKS: ELKAY, JUST
- J. THERMOSTATIC MIXING VALVES: LAWLER, SYMMONS, POWERS, HOLBY
- INSTALLATION

- A. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- B. PROVIDE NECESSARY STOPS, VALVES, TRAPS, UNIONS, VENTS, COLD WATER, HOT WATER, SANITARY, ETC. FOR A COMPLETE INSTALLATION.
- C. REMOVE PIPING AND SERVICES ROUGHED-IN INCORRECTLY AND INSTALL CORRECTLY, WITHOUT COST.
- D. EXPOSED PIPING, FITTINGS AND APPURTENANCES SHALL BE CHROME-PLATED BRASS.
- E. PROVIDE ISOLATION VALVES IN DOMESTIC WATER LINES TO ISOLATE ALL EQUIPMENT, RESTROOMS, HOSE BIBS, AND WHERE SHOWN ON DRAWINGS.

DOMESTIC WATER PIPING AND APPURTENANCES (PEX)

- A. FURNISH AND INSTALL DOMESTIC HOT AND COLD WATER PIPING.
- B. BELOW GRADE PIPING OUTSIDE BUILDING (BEYOND 5'-0" OF BUILDING); PROVIDE PVC WATER MAIN PIPE IN CONFORMANCE WITH AWWA C900. PROVIDE FITTINGS IN CONFORMANCE WITH ASTM 2466.
- C. BELOW SLAB AND ABOVE SLAB PIPING: PEX SYSTEM MUST BE LISTED ASTM F876/F877. TUBING SHALL BE LISTED PEX 5006 FOR CHLORINE RESISTANCE FOR CONTINUOUS USAGE UP TO 140°F. ALL TUBING INSTALLED IN RETURN AIR PLENUMS SHALL BE LISTED ASTM E84. THE LISTING MAY BE FOR THE TUBING ITSELF OR FOR THE TUBING INCLUDING INSULATION TO ACHIEVE THE LISTING. THE FITTINGS SHALL BE OF THE SAME MANUFACTURER AS THE TUBING AND THE INSTALLATION INSTRUCTIONS OF THE MANUFACTURER SHALL BE STRICTLY ADHERED TO.
- D. COPPER MANIFOLD: COMPRISED WITH PIPE SIZE INLET, SPUN CLOSED END AND 1/2" OUTLETS. THE 1/2" OUTLETS ARE BRAZED TO THE HEADER. THESE FITTINGS, AS A SYSTEM ARE PRESSURE RATED AT 160 PSI AT 73°F.
- E. TESTING: TEST UNDER A COLD WATER HYDROSTATIC PRESSURE OF NOT LESS THAN 200 PSI FOR AT LEAST 15 MINUTES AND CAREFULLY CHECK FOR LEAKS. REPAIR LEAKS AND RETEST SYSTEM UNTIL PROVEN WATERTIGHT. USE ONLY POTABLE WATER FOR THE TEST. PERFORM THE TEST BEFORE FIXTURES, FAUCETS, TRIM OR FINAL CONNECTIONS ARE MADE TO EQUIPMENT.

DOMESTIC WATER INSULATION

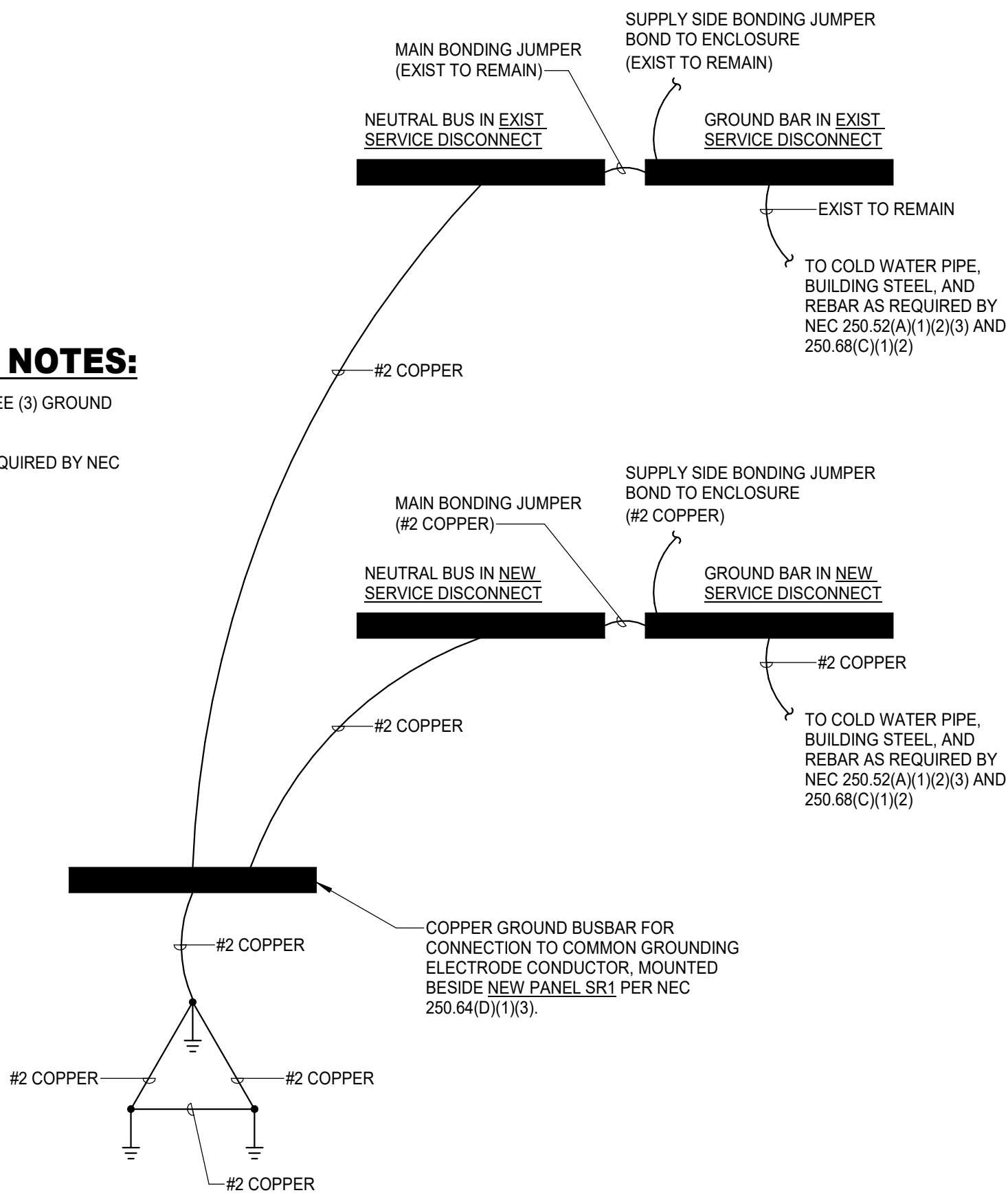
- A. ELASTOMERIC INSULATION: INSULATION MATERIAL SHALL BE 1/2" FLEXIBLE, CLOSED-CELL ELASTOMERIC INSULATION IN TUBULAR OR SHEET FORM. MATERIAL SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84, LATEST REVISION.
- B. FIBERGLASS INSULATION: 1/2" THICK HEAVY DENSITY, DUAL TEMPERATURE FIBERGLASS INSULATION WITH FACTORY APPLIED, ALL SERVICE, REINFORCED VAPOR BARRIER JACKET HAVING INTEGRAL LAMINATED VAPOR BARRIER. PROVIDE WITH A FACTORY APPLIED PRESSURE SENSITIVE TAPE CLOSURE SYSTEM AND MATCHING BUTT STRIPS.
- C. COVER ALL COLD & HOT WATER PIPING WITH INSULATION BY SLITTING TUBULAR SECTIONS OR SLIDING UN-SLIT SECTIONS OVER THE OPEN ENDS OF PIPING OR TUBING. SEAMS AND BUTT JOINTS SHALL BE ADHERED AND SEALED USING ADHESIVE.
- D. ALL FITTINGS SHALL BE INSULATED WITH THE SAME INSULATION THICKNESS AS THE ADJACENT PIPING. ALL SEAMS AND MITERED JOINTS SHALL BE ADHERED WITH ADHESIVE.
- E. INSULATION APPLICATIONS:
INDOOR CONCEALED: ELASTOMERIC
INDOOR EXPOSED: FIBERGLASS
OUTDOOR: ELASTOMERIC WITH WITH TWO COATS OF EITHER WB OR SB
ARMAFLEX FINISH OR FOSTER 30-64 ELASTOMER FOAM COATING. ALL SEAMS SHALL BE LOCATED ON THE LOWER HALF OF THE PIPE.

SOIL, WASTE AND SANITARY DRAIN PIPING, VENT PIPING AND APPURTENANCES

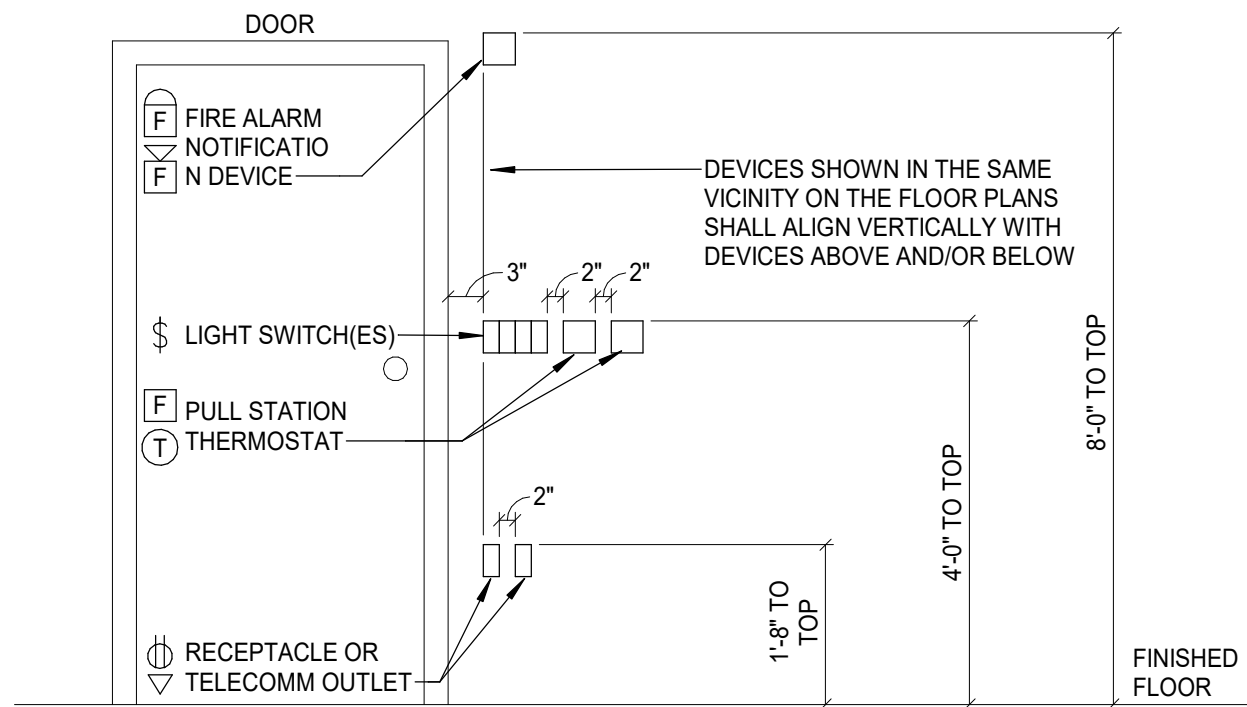
- A. ABOVE SLAB PIPING: SCHEDULE 40 PVC PLASTIC PIPE AND DWV FITTINGS WITH SOLVENT WELDED JOINTS. PIPE AND FITTINGS SHALL CONFORM TO ASTM D 1784-82.
- B. BELOW SLAB ON GRADE PIPING: SCHEDULE 40 PVC PLASTIC PIPE AND DWV FITTINGS. SOLVENT WELDED DWV JOINTS SHALL CONFORM TO IAPMO INSTALLATION STANDARD IS-9. PIPE AND FITTINGS SHALL CONFORM TO ASTM D 1784, ASTM D 1785, ASTM D 2665, ASTM D 3311 AND NPS STANDARD 14 & 61.
- C. VENT PIPE AND FITTINGS: ABOVE SLAB PIPING. PROVIDE SCHEDULE 40 PVC PLASTIC PIPE AND DWV FITTINGS WITH SOLVENT WELDED JOINTS. PIPE AND FITTINGS SHALL CONFORM TO ASTM D 1784-82.
- D. BELOW SLAB ON GRADE PIPING: SAME AS DRAIN PIPE AND FITTINGS LISTED ABOVE.
- E. TESTING: BELOW SLAB ON GRADE AND ALL FLOORS IN MULTI-STORY BUILDINGS: TEST PIPE BELOW SLAB ON GRADE BEFORE BACKFILLING AND CONNECTING TO CITY SEWERS. MAINTAIN NOT LESS THAN 10 FOOT OF HYDROSTATIC HEAD FOR 1 HOUR WITHOUT A LEAK.
- F. RODDING SEWERS: ALL SANITARY SOIL AND WASTE LINES, BOTH IN THE BUILDING AND OUT, SHALL BE RODDED OUT AND FLUSHED OUT AFTER COMPLETION OF CONSTRUCTION AND PRIOR TO FINISH FLOOR BEING INSTALLED. ALL WORK MUST BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION. ALL FLOOR DRAINS AND CLEANOUT LOCATIONS MUST BE INCLUDED IN THIS WORK.

GROUNDING SCHEMATIC GENERAL NOTES:

1. ALL GROUND ROD CONNECTIONS SHALL BE EXOTHERMIC WELD. THE THREE (3) GROUND RODS SHOWN IN THE TRIPOD SHALL BE 10 FEET APART.
2. GROUNDING ELECTRODE CONDUCTORS SHALL BE IN CONDUIT WHERE REQUIRED BY NEC 250.64(B).



2 GROUNDING SCHEMATIC
Scale: NONE



DETAIL NOTES:

1. NOT ALL DEVICES SHOWN ARE USED IN ALL LOCATIONS. REFER TO THE ELECTRICAL FLOOR PLANS FOR DEVICE LOCATIONS.
2. DEVICE HEIGHTS INDICATED ON THE FLOOR PLANS SHALL TAKE PRECEDENCE OVER THE HEIGHTS INDICATED ON THIS DETAIL.
3. DEVICES THAT ARE SHOWN SIDE BY SIDE ON THE FLOOR PLANS, BUT NOT GANGED TOGETHER, SHALL BE INSTALLED WITH 2" OF SEPARATION BETWEEN THE FACEPLATES UNLESS NOTED OTHERWISE, OR UNLESS MORE SEPARATION IS REQUIRED TO MAINTAIN FIRE RATING OF WALL.

1 TYPICAL WALL DEVICE LOCATION DETAIL
Scale: NONE

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)	SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
LIGHTING FIXTURES (LETTER DENOTES TYPE - SEE LIGHT FIXTURE SCHEDULE)		MOTOR CONTROLLERS AND EQUIPMENT	
	LIGHTING FIXTURE, SYMBOL SIZE VARIES WITH FIXTURE TYPE.		MOTOR, MAKE FINAL ELECTRICAL CONNECTIONS
	LIGHTING FIXTURE WITH INTEGRAL BATTERY BACKUP, SYMBOL SIZE VARIES WITH FIXTURE TYPE.		3-PHASE MOTOR, MAKE FINAL ELECTRICAL CONNECTIONS
	DOWNLIGHT FIXTURE		DISCONNECT SWITCH
	LIGHTING FIXTURE, WALL MOUNTED.		COMBINATION MOTOR STARTER/DISCONNECT SWITCH
	DOWNLIGHT FIXTURE WITH INTEGRAL BATTERY BACKUP		MOTOR STARTER
	LIGHTING FIXTURE, WALL MOUNTED, WITH INTEGRAL BATTERY BACKUP.		MOTOR CONTROLLER, PUSH BUTTON CONTROL, P = PILOT LIGHT
	EXIT SIGN WITH DIRECTIONAL ARROWS AS INDICATED		MANUAL MOTOR TOGGLE SWITCH, HORSEPOWER RATED, SINGLE POLE U.N.O.
	EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY BACKUP		PRE-WIRED DEVICE OR EQUIPMENT, MAKE FINAL ELECTRICAL CONNECTIONS
LIGHTING CONTROL DEVICES			VARIABLE FREQUENCY DRIVE (FURNISHED BY DIVISION 23)
	SINGLE-POLE TOGGLE SWITCH	ELECTRICAL EQUIPMENT	
	3-WAY SWITCH		ELECTRICAL BRANCH OR DISTRIBUTION PANELBOARD - SEE RISER FOR ADDITIONAL INFORMATION
	SWITCH WITH INTEGRAL OCCUPANCY SENSOR. SUBSCRIPT INDICATES TYPE AS SCHEDULED.		TELEPHONE CABINET
	SWITCH WITH INTEGRAL VACANCY SENSOR. SUBSCRIPT INDICATES TYPE AS SCHEDULED.		PLYWOOD TELEPHONE BACKBOARD
	LOW-VOLTAGE SWITCH. SUBSCRIPT INDICATES TYPE AS SCHEDULED.		DRY-TYPE TRANSFORMER - SEE RISER FOR ADDITIONAL INFORMATION
	CEILING MOUNTED OCCUPANCY SENSOR. SUBSCRIPT INDICATES TYPE AS SCHEDULED.	SUBSCRIPTS AND ABBREVIATIONS	
	PUSH BUTTON SWITCH	AFF	ABOVE FINISHED FLOOR
	TIME SWITCH	DISP	GARBAGE DISPOSAL OUTLET WITH TOGGLE SWITCH
RECEPTACLES AND OUTLETS		ED	EXISTING TO BE DEMOLISHED
	SIMPLEX RECEPTACLE	ER	EXISTING TO REMAIN
	DUPLEX RECEPTACLE	ERL	EXISTING TO BE RELOCATED
	DUPLEX RECEPTACLE WITH TWO (2) USB PORTS	ERN	EXISTING TO BE REMOVED AND NEW INSTALLED
	DUPLEX RECEPTACLE, FLUSH CEILING MOUNTED	EX	EXISTING
	SPECIAL PURPOSE RECEPTACLE, NEMA TYPE AS NOTED	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
	DOUBLE DUPLEX RECEPTACLE IN 2-GANG BOX WITH SINGLE COVER PLATE	MW	MICROWAVE OUTLET*
	SPECIAL PURPOSE OUTLET, NEMA TYPE AS NOTED.	NL	NIGHT LIGHT
	JUNCTION BOX	PNL	PANEL OR PANELBOARD
	FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE	REC	RECEPTACLE
	DUPLEX GFCI RECEPTACLE	REFRIG	REFRIGERATOR
	DOUBLE DUPLEX GFCI RECEPTACLE IN A 2-GANG OUTLET BOX WITH SINGLE COVER PLATE	SIGN	BUILDING SIGNAGE*
	FLUSH FLOOR MOUNTED JUNCTION BOX	TL	TWIST LOCK TYPE RECEPTACLE
COMMUNICATIONS AND FIRE ALARM DEVICES		TR	TAMPER RESISTANT
	SINGLE-GANG OUTLET BOX AND TWO-PORT COVER PLATE WITH BLANKS. PROVIDE ONE (1) 1" EMPTY CONDUIT WITH PULL STRING STUBBED AND BUSHED ABOVE THE NEAREST ACCESSIBLE CEILING SPACE OR CABLE TRAY.	TV	TELEVISION OUTLET*
	DOUBLE-GANG OUTLET BOX AND FOUR-PORT COVER PLATE WITH BLANKS. PROVIDE ONE (1) 1" EMPTY CONDUIT WITH PULL STRING STUBBED AND BUSHED ABOVE THE NEAREST ACCESSIBLE CEILING SPACE OR CABLE TRAY.	TYP	TYPICAL
	CEILING MOUNTED LOCAL SOUND SYSTEM SPEAKER	U.N.O.	UNLESS NOTED OTHERWISE
	MICROPHONE OUTLET	WG	WIREGUARD
	CEILING MOUNTED RECESSED COMMUNICATIONS SYSTEM SPEAKER	WP	WEATHERPROOF
	SMOKE DETECTOR		
	HEAT DETECTOR		
	DUCT MOUNTED SMOKE DETECTOR, COORDINATE LOCATION WITH MECHANICAL DRAWINGS.		
	FIRE ALARM SYSTEM MANUAL PULL STATION		
	WALL MOUNTED FIRE ALARM COMBINATION AUDIO/VISUAL NOTIFICATION APPLIANCE, NUMBER INDICATES MINIMUM VISUAL DEVICE CANDELA RATING.		
	WALL MOUNTED FIRE ALARM VISUAL NOTIFICATION APPLIANCE, NUMBER INDICATES MINIMUM VISUAL DEVICE CANDELA RATING.		
	CEILING MOUNTED FIRE ALARM COMBINATION AUDIO/VISUAL NOTIFICATION APPLIANCE, NUMBER INDICATES MINIMUM VISUAL DEVICE CANDELA RATING.		
	CEILING MOUNTED FIRE ALARM VISUAL NOTIFICATION APPLIANCE, NUMBER INDICATES MINIMUM VISUAL DEVICE CANDELA RATING.		
	DOOR HOLD OPEN DEVICE, RELEASE BY FIRE ALARM SYSTEM ACTIVATION		
	RECESSED WEATHERPROOF FIRE ALARM SYSTEM HORN		
	WATERFLOW SWITCH		
	FIRE SPRINKLER SYSTEM SUPERVISORY SWITCH		

GENERAL NOTES:

1. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE WEATHERPROOF (NEMA-3R MINIMUM).
2. ASTERISK (*) INDICATES THAT MOUNTING ELEVATION AND/OR LOCATION SHALL BE COORDINATED WITH THE ARCHITECT/OWNER PRIOR TO ROUGH-IN.



SALASOBRIEN
[expect a difference]

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DATE: 04/04/2023

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ELECTRICAL SYMBOL
SCHEDULE AND
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ELECTRICAL GENERAL NOTES:
(NOTES APPLY TO ALL SHEETS)

- ALL CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE INDICATED.
- MOUNT ALL RECEPTACLES AT 18" ABOVE FINISHED FLOOR TO THE TOP OF THE COVER PLATE, UNLESS OTHERWISE INDICATED.
- FOR RECEPTACLES REQUIRING GFCI PROTECTION AND WHERE THE RECEPTACLE IS CONCEALED (I.E. IN THE CASE OF A WATER FOUNTAIN OR VENDING MACHINE INSTALLATION), THE CONTRACTOR SHALL PROVIDE A STANDARD RECEPTACLE WITH A GFCI CIRCUIT BREAKER IN THE ASSOCIATED PANEL. BLANK FACE GFCI TEST/RESET BUTTONS ARE NOT PERMITTED UNLESS EXPLICITLY NOTED ON THESE DRAWINGS.
- FURNISH AND INSTALL ALL EXTERIOR RECEPTACLES WITH WEATHERPROOF COVERS. EXTERIOR RECEPTACLES SHALL BE GFCI TYPE.
- FOR ALL EXTERIOR ELECTRICAL EQUIPMENT, FURNISH AND INSTALL WITH NEMA 3R ENCLOSURES MINIMUM. IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THIS REQUIREMENT AND INFORMATION LOCATED ELSEWHERE IN THE ELECTRICAL DOCUMENTS, THE CONTRACTOR SHALL BID ACCORDING TO THE MOST STRINGENT REQUIREMENT.
- IN KITCHENS, BREAK ROOMS AND SIMILAR SPACES, THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DOCUMENTS AND LOCATE ELECTRICAL DEVICES AT LOCATIONS AND ELEVATIONS TO BEST SERVE EACH DEDICATED APPLIANCE.
- VERIFY DOOR SWINGS PRIOR TO INSTALLING LIGHT SWITCHES.
- GANG ALL SWITCHES SHOWN TO BE INSTALLED AT THE SAME LOCATION UNDER A SINGLE COVER PLATE, UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO EXIT SIGNS IN CORRIDORS WHERE THERE IS A CHANGE OF CEILING ELEVATION WITHIN 10-FEET OF THE EXIT SIGN. THE CONTRACTOR SHALL LOCATE THESE EXIT SIGNS SUCH THAT THEY ARE ON THE LOWER CEILING AND VISIBLE THROUGHOUT THE CORRIDOR SEGMENT.
- SEE ARCHITECTURAL DRAWINGS FOR RATED WALL, FLOOR AND CEILING CONSTRUCTION, AND PROVIDE REQUIRED RATED DEVICES AND FIRE SEALANT FOR PENETRATIONS. WHERE NEW DEVICES ARE SHOWN RECESSED IN RATED PARTITIONS, CAREFULLY COORDINATE LOCATIONS AND OFFSETS.
- COORDINATE WITH OTHER DISCIPLINES IN THE FIELD TO ENSURE THAT THE INTEGRITY OF FIRE RATED CONSTRUCTION IS PRESERVED WHERE PENETRATING RATED WALLS, FLOORS AND CEILINGS.
- EXPOSED CONDUIT AND BOXES MAY BE USED IN UNFINISHED AREAS (MECHANICAL ROOMS, ELECTRICAL ROOMS, TELECOMMUNICATIONS ROOMS, ETC.).
- THE CONTRACTOR SHALL ROUTE ALL EXPOSED CONDUIT NEATLY AND TIGHT TO SUPPORTING SURFACES. IN THE EVENT THAT THE OWNER IS NOT SATISFIED WITH WORKMANSHIP, THE CONTRACTOR SHALL MAKE CORRECTIONS AT NO ADDITIONAL COST TO THE OWNER. MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
- FOR ALL CONDUIT RUNS SHOWN ON ELECTRICAL DRAWINGS, THE ROUTING IS APPROXIMATE. THE CONTRACTOR SHALL MAKE ROUTING ADJUSTMENTS AS REQUIRED BASED ON FIELD CONDITIONS AND COORDINATION WITH OTHER DISCIPLINES.
- FOR UNDERGROUND CONDUIT RUNS, PROVIDE ONE (1) PULL BOX FOR EVERY 500 FEET OF CONDUIT LENGTH AND FOR EVERY 360° OF CONDUIT BENDS, UNLESS OTHERWISE INDICATED MORE FREQUENTLY. FOR PULL BOXES LOCATED WITHIN DRIVABLE SURFACES, ENSURE THAT THE PULL BOX IS TRAFFIC RATED. IN THE EVENT THAT A PULL BOX IS REQUIRED ON A UTILITY CONDUIT RUN, ENSURE THAT THE PULL BOX MEETS ALL REQUIREMENTS OF THE RESPECTIVE UTILITY.
- IN THE EVENT THAT THERE IS A DISCREPANCY IN THE MINIMUM CIRCUIT AMPACITY (MCA) AND/OR THE MAXIMUM OVERCURRENT PROTECTION (MOCB) BETWEEN THE DIVISION 26 AND DIVISION 22/23 SCHEDULES, THE CONTRACTOR SHALL BID ACCORDING TO THE MORE STRINGENT REQUIREMENTS.
- MECHANICAL, PLUMBING, AND OTHER EQUIPMENT FURNISHED AND INSTALLED BY OTHER DIVISIONS IS SHOWN ON THE ELECTRICAL DRAWINGS FOR CIRCUITING PURPOSES ONLY. THE CONTRACTOR SHALL REFER TO THE OTHER DISCIPLINES' CONSTRUCTION DOCUMENTS FOR EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN OF THE ASSOCIATED ELECTRICAL CIRCUITS, DISCONNECTING MEANS, RECEPTACLES, ETC. AND ADJUST ROUTING AND LOCATIONS ACCORDINGLY.
- LIGHT FIXTURES, ELECTRICAL OUTLETS AND DISCONNECTING MEANS LOCATED IN MECHANICAL ROOMS AND ATTIC SPACES ARE SHOWN FOR QUANTITY AND CIRCUITING PURPOSES ONLY. THE CONTRACTOR SHALL LOCATE LIGHT FIXTURES TO BEST ILLUMINATE WALKING AND WORKING SURFACES, AND LOCATE OUTLETS AND DISCONNECTING MEANS SUCH THEY ARE EASILY ACCESSIBLE FOLLOWING THE INSTALLATION OF ALL DEVICES AND EQUIPMENT IN THESE SPACES.
- ALL MECHANICAL EQUIPMENT SHALL HAVE A RECEPTACLE INSTALLED WITHIN 25 FEET. A SINGLE RECEPTACLE CAN ACCOMPLISH THIS PURPOSE FOR MULTIPLE PIECES OF EQUIPMENT. A RECEPTACLE LOCATED BELOW A LAY-IN CEILING ON THE SAME LEVEL AS A PIECE OF MECHANICAL EQUIPMENT COMPLIES WITH THIS REQUIREMENT. IN THE EVENT THAT FIELD CONDITIONS DICTATE THAT A RECEPTACLE CANNOT MEET THIS REQUIREMENT FOR ALL OF THE INTENDED PIECES OF EQUIPMENT IN AN AREA ON THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL RECEPTACLES AS REQUIRED.
- LOAD SIDE CONDUCTOR AND CONDUIT SIZES FROM DISCONNECT SWITCHES, STARTERS AND VFDS TO EQUIPMENT SHALL BE THE SAME AS LINE SIDE CONDUCTORS AND CONDUIT.
- CAREFULLY COORDINATE ALL ELECTRICAL EQUIPMENT LOCATIONS WITH DUCTWORK, PIPING AND MECHANICAL EQUIPMENT. MAINTAIN ALL CLEARANCES AND SPACES REQUIRED BY THE NEC.
- WHERE MULTIPLE CIRCUITS ARE COMBINED IN A SINGLE CONDUIT, DERATE CONDUCTORS PER THE NEC.
- SEE ON-DRAWING SPECIFICATIONS FOR REQUIREMENTS REGARDING OVERSIZING CONDUCTORS FOR 1-POLE, 15- AND 20-AMP CIRCUITS TO REDUCE VOLTAGE DROP. THESE OVERSIZE REQUIREMENTS TAKE PRECEDENCE OVER THE WIRE AND CONDUIT SIZES SHOWN IN THE PANEL SCHEDULES. OVERSIZED CONDUCTORS FOR VOLTAGE DROP ON OTHER CIRCUITS ARE INDICATED IN THE PANEL SCHEDULES.
- UNLESS INDICATED OTHERWISE, ALL EXIT SIGNS AND THE VOLTAGE SENSING TERMINALS OF ALL EMERGENCY BATTERY PACKS SHALL BE CONNECTED AHEAD OF ALL SWITCHES, RELAYS, SENSORS AND POWER PACKS WITH 2-#12 AND 1-#12 GROUND IN 3/4" CONDUIT.
- ALL EMERGENCY LIGHTING FIXTURES SHALL BE MARKED SO AS TO BE IDENTIFIED BY VISUAL INSPECTION FOR TESTING PURPOSES. IDENTIFICATION SHALL BE BY ONE 1/2" RED SELF-STICK DOT ON THE VERTICAL PORTION OF THE LOUVER OR ON THE TOP OF THE LENS.
- THE EXACT LOCATION AND ORIENTATION OF OCCUPANCY AND VACANCY SENSORS SHALL BE AS RECOMMENDED BY THE MANUFACTURER TO OBTAIN COMPLETE COVERAGE. IF THE CONTRACTOR USES A SENSOR THAT HAS A COVERAGE PATTERN DIFFERENT FROM THAT WHICH IS SPECIFIED, AND ADDITIONAL SENSORS ARE REQUIRED TO COMPLETELY COVER A SPACE, THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. ALL OCCUPANCY SENSOR TIME DELAYS SHALL BE SET TO NO MORE THAN 20 MINUTES.
- UNLESS INDICATED OTHERWISE, SWITCHES AND OCCUPANCY/VACANCY SENSORS IN A ROOM/SPACE SHALL CONTROL ALL LIGHTING FIXTURES IN THAT ROOM/SPACE.
- ALL SMOKE AND HEAT DETECTORS SHALL BE INSTALLED A MINIMUM OF 3 FEET FROM ANY HVAC SUPPLY OR RETURN DIFFUSER (I.E. 3 FEET FROM THE EDGE OF THE DIFFUSER TO THE EDGE OF THE DETECTOR).
- EACH FIRE ALARM PULL STATION SHALL BE MOUNTED A MAXIMUM OF 4 FEET ABOVE FINISHED FLOOR TO THE TOP OF THE PULL STATION.
- EACH FIRE ALARM PULL STATION SHALL BE MOUNTED NO MORE THAN 5 FEET FROM THE LATCH OR HINGE SIDE OF THE RESPECTIVE EXIT DOOR.
- PROVIDE ALL 120V POWER REQUIRED FOR THE FIRE ALARM SYSTEM. PROVIDE CIRCUIT BREAKER LOCKS AND CLEARLY INDICATE IN THE PANEL SCHEDULES THAT THEY ARE FIRE ALARM CIRCUITS. PROVIDE A RED BREAKER, A RED BREAKER LOCK OR A RED DOT ON THE DEAD FRONT COVER BESIDE THE CIRCUIT BREAKER. POWER SUPPLY QUANTITIES SHALL BE DETERMINED BY THE FIRE ALARM SUPPLIER AND SHALL BE INCLUDED IN THE BID. ALL POWER SUPPLIES SHALL BE LOCATED IN UTILITY-TYPE SPACES (MECHANICAL ROOMS, ELECTRICAL ROOMS, TELECOMMUNICATIONS ROOMS, HOUSEKEEPING CLOSETS, ETC.).
- CAREFULLY COORDINATE THE LOCATIONS OF ALL LIGHTING FIXTURES, LIGHTING CONTROL SENSORS, SMOKE AND HEAT DETECTORS, FIRE ALARM NOTIFICATION APPLIANCES, AND OTHER ELECTRICAL CEILING DEVICES WITH SPRINKLER HEADS AND HVAC CEILING DEVICES. COORDINATE SURFACE MOUNTED LIGHTING FIXTURES, LIGHTING CONTROL SENSORS, SMOKE AND HEAT DETECTORS, FIRE ALARM NOTIFICATION APPLIANCES, AND OTHER ELECTRICAL CEILING DEVICES WITH SPRINKLER HEADS SO THAT THEY DO NOT INTERFERE WITH OR BLOCK THE WATER FLOW FROM THE SPRINKLER HEAD AND REDUCE COVERAGE AREA.
- PROVIDE SHALLOW BOXES FOR NEW DEVICES IN FURRED WALLS. COORDINATE DEPTH WITH ARCHITECTURAL.
- WHERE OUTLETS ARE SHOWN ABOVE A COUNTERTOP OR SIMILAR SURFACE WITH A SPECIFIC MOUNTING HEIGHT, COORDINATE THE MOUNTING HEIGHT WITH BOTH THE SURFACE BELOW AND WITH ALL WALL MOUNTED ARCHITECTURAL ITEMS ABOVE PRIOR TO ROUGH-IN.
- FOR WALL DEVICES MOUNTED ABOVE ARCHITECTURAL ITEMS, COORDINATE THE MOUNTING HEIGHTS OF THE WALL MOUNTED DEVICES SUCH THAT THEY DO NOT INTERFERE WITH THE ARCHITECTURAL ITEMS.
- "HOMERUN" CONDUITS SHALL BE RUN DOWN CORRIDORS FROM THE RESPECTIVE ELECTRICAL ROOM AND NOT THROUGH EXAM ROOMS, OFFICES, OR OTHER SIMILAR SPACES.
- PROVIDE TYPED AS-BUILT PANEL SCHEDULES. HANDWRITTEN PANEL SCHEDULES WILL NOT BE ACCEPTED.
- FOR ALL EXTERIOR UNDERGROUND CONDUIT AND WIRING, CAREFULLY COORDINATE ALL WORK WITH EXISTING SOIL CONDITIONS AND WITH EXISTING AND NEW UTILITIES IN ORDER TO AVOID CONFLICTS. NOTIFY THE ENGINEER OF RECORD IF ROUTING MUST BE DIFFERENT FROM WHAT IS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING THEIR BID IN ORDER TO VERIFY ALL EXISTING CONDITIONS, TO DETERMINE THE FULL EXTENT OF DEMOLITION WORK REQUIRED, AND TO DETERMINE THE FULL EXTENT OF RELOCATION AND MODIFICATION WORK REQUIRED. THE CONTRACTOR IS FULLY RESPONSIBLE FOR COORDINATING ALL ELECTRICAL WORK WITH NEW AND EXISTING PIPING, DUCTWORK, CONDUIT, ETC. NO CHANGE ORDERS WILL BE APPROVED FOR ADDITIONAL WORK DUE TO THE CONTRACTOR NEGLECTING TO VISIT THE SITE AND GATHER ALL NECESSARY INFORMATION.
- ALL RECEPTACLES, UTILIZATION EQUIPMENT AND TOGGLE SWITCH WALLPLATES SHALL BE LABELED WITH THE PANEL AND CIRCUIT NUMBER FROM WHICH THEY ARE FED.
- ALL USE OF SURFACE RACEWAY MUST BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.

GENERAL DEMOLITION NOTES:

- SCOPE: THE SCOPE OF ELECTRICAL DEMOLITION IS DEFINED IN THE FOLLOWING NOTES AND IN LIMITED FASHION ON THE DRAWINGS; THE DRAWINGS ARE ONLY INTENDED TO BE A PARTIAL REPRESENTATION OF THE ACTUAL DEMOLITION WORK REQUIRED. THESE NOTES ONLY APPLY TO THE AREAS OF RENOVATION.
- RECEPTACLES AND SWITCHES: WHERE INDICATED, EXISTING RECEPTACLES AND SWITCHES AND CIRCUITS SHALL BE REMOVED. WHERE FLUSH MOUNTED RECEPTACLES AND SWITCHES TO BE REMOVED (NOT REPLACED IN PLACE) OCCUR IN EXISTING WALLS TO REMAIN, REMOVE DEVICE AND COVER PLATE, REMOVE WIRES, AND PROVIDE BLANK COVER PLATE. COVER PLATE SHALL MATCH COVER PLATES FOR NEW WORK. WHERE SURFACE MOUNTED SWITCHES AND RECEPTACLES TO BE REMOVED OCCUR ON EXISTING WALLS TO REMAIN, ALSO REMOVE ASSOCIATED EXPOSED BOXES, CONDUIT AND SURFACE RACEWAY. FOR FLOOR OUTLETS, REMOVE DEVICE AND CUT WIRES, FILL WITH GROUT AND FINISH TO MATCH FLOOR SURFACE.
- COMMUNICATION OUTLETS: WHERE INDICATED, EXISTING COMMUNICATION OUTLETS SHALL BE REMOVED. WHERE SURFACE MOUNTED BOXES INDICATED TO BE REMOVED OCCUR ON EXISTING WALLS TO REMAIN, ALSO REMOVE ASSOCIATED EXPOSED BOXES, CONDUIT AND SURFACE RACEWAY. REMOVE ASSOCIATED EXISTING LOW-VOLTAGE WIRING. THE OWNER WILL REMOVE ALL WIRELESS ACCESS POINTS.
- PANELBOARDS: WHERE EXISTING PANELBOARDS ARE TO REMAIN, UPDATE THE CIRCUIT DIRECTORIES TO REFLECT ALL AS-BUILT/EXISTING CIRCUIT CHANGES. ALL REVISED CIRCUIT DIRECTORIES SHALL BE "TYPED", NOT HANDWRITTEN. CIRCUIT CHANGES INCLUDE, BUT ARE NOT LIMITED TO, MOVING EXISTING LOADS IN EXISTING PANELS, REMOVING EXISTING LOADS FROM EXISTING PANELS, ADDING NEW LOADS TO EXISTING PANELS, CHANGING BREAKERS IN EXISTING PANELS, ETC. EXISTING CIRCUITS NO LONGER BEING USED AFTER DEMOLITION WORK SHALL BE MADE "SPARES" AND SHALL BE PLACED IN THE "OFF" POSITION. PROVIDE BLANK PLATES FOR ALL EXISTING CIRCUIT BREAKERS BEING REMOVED. PROVIDE ENGRAVED LABELS FOR ALL UNLABELED PANELBOARDS BEING MODIFIED AS A PART OF THIS PROJECT, WHICH INCLUDES THE NAME OF THE PANEL, VOLTAGE, PHASE, AND WHERE THE PANEL IS FED FROM (PANEL/CIRCUIT).
- CONDUIT: WHERE EXISTING CONDUIT IS EXPOSED DUE TO DEMOLITION OF WALLS, CONDUIT SHALL BE REMOVED, UNLESS INDICATED TO REMAIN OR NECESSARY TO MAINTAIN SERVICE TO EXISTING ITEMS TO REMAIN. WHERE CONDUIT RISES FROM FLOOR TO FEED REMOVED ITEMS, CUT CONDUIT FLUSH WITH FLOOR AND FILL IT WITH GROUT. FINISH TO MATCH FLOOR SURFACE. ALL ACCESSIBLE UNUSED CONDUIT SHALL BE REMOVED; ALL INACCESSIBLE UNUSED CONDUIT SHALL BE ABANDONED. ALL CONDUIT TO NEW DEVICES AND EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE.
- WIRING: ALL WIRING TO DEMOLISHED DEVICES AND EQUIPMENT SHALL BE REMOVED, UNLESS NOTED OTHERWISE. ALL EXISTING WIRING TO EXISTING-TO-REMAIN DEVICES AND EQUIPMENT SHALL REMAIN, UNLESS NOTED OTHERWISE. ALL ACCESSIBLE UNUSED WIRING SHALL BE REMOVED; ALL INACCESSIBLE UNUSED WIRING SHALL BE ABANDONED. ALL WIRING TO NEW DEVICES AND EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE.
- MAINTAIN CIRCUIT CONTINUITY AS NECESSARY IN ALL DEMOLITION WORK.
- THE CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE OF ELECTRICAL EQUIPMENT REMOVED FROM THE BUILDING. IF THE OWNER DESIRES TO RETAIN EQUIPMENT, HE WILL REMOVE IT FROM THE SITE. ALL EQUIPMENT NOT RETAINED BY THE OWNER SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. DISPOSAL OF ALL EQUIPMENT CONTAINING HAZARDOUS MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND THE COST OF DISPOSAL SHALL BE INCLUDED.
- INFORMATION ON DEMOLITION DRAWINGS DOES NOT INDICATE ALL EXISTING EQUIPMENT AND DEVICES. REFER TO ARCHITECTURAL DEMOLITION DRAWINGS FOR ADDITIONAL INFORMATION.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID AND SHALL VERIFY ALL DEMOLITION REQUIRED. ADDITIONAL COMPENSATION WILL NOT BE ALLOWED FOR DEMOLITION DUE TO CONTRACTOR NOT VISITING SITE AND DETERMINING FULL SCOPE OF DEMOLITION REQUIRED.
- SEE THE DEMOLITION FLOOR PLANS FOR ADDITIONAL DEMOLITION REQUIREMENTS. ON THE DEMOLITION FLOOR PLANS, ALL DASHED ITEMS SHALL BE REMOVED AND ALL SOLID ITEMS SHALL REMAIN, UNLESS NOTED OTHERWISE. NEW WORK FLOOR PLANS MAY CONTAIN ADDITIONAL DEMOLITION INFORMATION IN SOME LOCATIONS.

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ELECTRICAL NOTES



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ELECTRICAL SPECIFICATIONS:

1. **SCOPE OF WORK:** THE CONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIAL, EQUIPMENT, MACHINERY, PLANT AND OTHER ITEMS NECESSARY FOR A COMPLETE AND OPERABLE ELECTRICAL SYSTEM.

WHERE VARIANCES OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS OR WITHIN EITHER DOCUMENT ITSELF, INCLUDE IN THE CONTRACT PRICE THE ITEM OR ARRANGEMENT OF BETTER QUALITY, GREATER QUANTITY, OR HIGHER COST.

2. **GENERAL REQUIREMENTS:** VERIFY ALL JOB SITE AND ARCHITECTURAL PLAN DIMENSIONS PRIOR TO INSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT. REPORT ANY DISCREPANCIES TO THE ARCHITECT AND ENGINEER IMMEDIATELY. CUTTING AND PATCHING OF WALLS, CEILINGS, ROOFS AND FLOORS SHALL BE COMPLETED BY OR CLOSELY COORDINATED WITH THE GENERAL CONTRACTOR.

3. **STANDARDS AND CODES:** ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW, AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES, INC. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE (USBC); THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED AND MODIFIED BY THE 2018 VIRGINIA CONSTRUCTION CODE (VCC); THE 2018 INTERNATIONAL FIRE CODE (IFC); THE 2017 NFPA-70 (NATIONAL ELECTRICAL CODE, OR NEC); THE 2016 NFPA-72 (NATIONAL FIRE ALARM AND SIGNALING CODE); AND OTHER RELATED CODES AND STANDARDS. THE COMPLETED INSTALLATION SHALL COMPLY WITH THE ADAAG "AMERICAN WITH DISABILITIES ACT GUIDELINES FOR BUILDINGS AND FACILITIES". WORKMANSHIP SHALL MEET THE "STANDARDS OF INSTALLATION" AS PUBLISHED BY THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA).

4. **PERMITS AND FEES:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS, BONDS, LICENSES AND INSPECTION CERTIFICATES. THE CONTRACTOR SHALL ALSO PAY INSPECTION FEES AND TAXES AND SHALL FILE PLANS AND PREPARE DOCUMENTS AS REQUIRED TO OBTAIN APPROVALS OF GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION. UTILITY CONNECTION CHARGES WILL BE PAID BY THE OWNER. THE CONTRACTOR SHALL INITIATE CONTACT WITH THE UTILITY COMPANY AND THE OWNER WITHIN 14 DAYS OF RECEIVING NOTICE TO PROCEED TO ENSURE PERMANENT POWER WILL BE AVAILABLE TO THE SITE. ANY DELAYS TO THE PROJECT RESULTING FROM LACK OF UTILITY COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

5. **CONDUIT:** ALL CONDUCTORS SHALL BE INSTALLED UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS OR IN THE SPECIFICATIONS. CONDUIT FILL SHALL NOT EXCEED 40% PER NEC. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RGS) OR SCHEDULE 40 PVC CONDUIT UNDERGROUND AND IN CONCRETE SLABS. PROVIDE RGS OR INTERMEDIATE METAL CONDUIT (IMC) WHERE EXTERIOR ABOVE-GRADE. WHERE NOT EXTERIOR, UNDERGROUND OR IN CONCRETE SLABS, PROVIDE ELECTRICAL METALIC TUBING (EMT) FOR EMPTY CONDUIT RUNS AND STUB-UPS, BRANCH CIRCUITS AND EQUIPMENT FEEDERS; ALL CONDUIT STUBS SHALL HAVE BUSHINGS. SCHEDULE 40 PVC CONDUIT MAY BE RUN FROM CONCRETE SLAB UP TO FIRST OUTLET (BUT NOT BEYOND FIRST OUTLET) ONLY IF CONDUIT IS CONCEALED IN STUD OR CMU WALL AND IF FIRST OUTLET IS NO MORE THAN 48" AFF. PROVIDE GALVANIZED SINGLE STRIP FLEXIBLE CONDUIT, MINIMUM 18" LONG, FOR MOTOR CONNECTIONS. USE PVC-JACKETED FLEXIBLE LIQUID-TIGHT CONDUIT TYPE UA FOR MOTOR CONNECTIONS IN WET LOCATIONS. CONDUIT SHALL BE MINIMUM 3/4" EXCEPT SHALL BE MINIMUM 1" WHERE EXTERIOR OR UNDERGROUND OR IN SLAB. CONDUIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, FRAMING, JOISTS, ETC. PROVIDE HANGERS, SUPPORTS, FASTENERS, SLEEVES AND SEALS AS REQUIRED BY THE NEC. DO NOT SUPPORT CONDUIT FROM THE ROOF DECK OR SUSPENDED CEILING SYSTEMS. CONDUIT SHALL NOT BE INSTALLED WITHIN SIX (6) INCHES OF ROOF DECK. EXPANSION/DEFLECTION FITTINGS SHALL BE PROVIDED WHERE REQUIRED PER NEC 300.4(H). FOR UNDERGROUND CONDUIT, PROVIDE SEALS WHERE REQUIRED PER NEC 225.27 AND 300.3(G). UNDERGROUND CONDUIT SHALL BE MINIMUM 24" BELOW FINISHED GRADE TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL CONDUIT FITTINGS SHALL BE STEEL, SET SCREW OR COMPRESSION TYPE, AND SHALL BE U.L. LISTED.

ALL CONDUITS PASSING THROUGH RATED WALLS OR CEILINGS SHALL BE SLEEVED AND PACKED WITH U.L. LISTED SEALANT TO MAINTAIN RATING.

TYPE AC, MC AND NMC CABLE ARE NOT ALLOWED, EXCEPT TYPE MC CABLE IS PERMITTED FOR LIGHTING FIXTURE WHIPS LESS THAN FIVE (5) FEET IN LENGTH.

6. **JUNCTION, OUTLET AND PULL BOXES:** PROVIDE JUNCTION, OUTLET AND PULL BOXES FOR WIRING DEVICES, FIXTURES, CONNECTIONS TO EQUIPMENT AND AS REQUIRED BY THE NEC. FOR INTERIOR APPLICATIONS, PROVIDE GALVANIZED STEEL WIRING BOXES, OF THE TYPE, SHAPE, AND SIZE, INCLUDING DEPTH OF BOX, TO SUIT RESPECTIVE LOCATIONS AND INSTALLATION. BOXES SHALL HAVE STAMPED KNOCKOUTS IN BACK AND SIDES. PROVIDE APPROPRIATE PLASTER RINGS AND COVERS AS REQUIRED. PROVIDE GANG BOXES WHERE DEVICES ARE SHOWN GROUPED. FOR EXTERIOR OUTLET BOXES, PROVIDE OUTLET BOX FLUSH WITH EXTERIOR WALL AND PROVIDE APPROPRIATE WEATHERPROOF COVER. EXTERIOR SURFACE MOUNT BOXES SHALL BE NEMA 3R CAST ALUMINUM TYPE WITH THREADED CONDUIT HUBS. INGROUND PULL/SPICE BOXES SHALL BE CONSTRUCTED OF COMPOSITE POLYMER CONCRETE REINFORCED WITH FIBERGLASS. PROVIDE OPEN BOTTOM BOX COMPLETE WITH COVER AND APPROPRIATE LOGO. MINIMUM BOX DIMENSIONS, COVER TYPE AND USE SHALL BE AS NOTED ON DRAWINGS. ALL BOXES ASSOCIATED WITH UTILITY SERVICES SHALL BE PROVIDED AND INSTALLED PER THE PROVIDER ENTITY STANDARDS. INSTALL ELECTRICAL BOXES AND FITTINGS AS SHOWN AND AS REQUIRED IN COMPLIANCE WITH NEC AND MANUFACTURER'S RECOMMENDATIONS. ALL JUNCTION/PULL BOX OPENINGS SHALL BE SIDE OR BOTTOM ACCESSIBLE. PROVIDE EACH OUTLET/SPICE BOX WITH A GROUNDING PIGTAIL. FACTORY MANUFACTURED PIGTAILS SHALL HAVE BOLTED CONNECTIONS TO BOXES. UNLESS NOTED OR DIRECTED OTHERWISE AT INSTALLATION, PLACE OUTLET BOXES AS INDICATED ON ARCHITECTURAL ELEVATIONS AND AS REQUIRED BY LOCAL CODES. FOR OUTLETS INSTALLED ABOVE COUNTERTOPS, MOUNT LONG DIMENSION HORIZONTALLY. REFER TO ARCHITECTURAL ELEVATIONS AND COORDINATE INSTALLATION TO AVOID CONFLICTS WITH BACKLASH AND MILLWORK. DO NOT SECURE BOXES TO SUSPENDED CEILING SYSTEM. HVAC DUCTWORK OR PIPING SYSTEMS, ALIGN ADJACENT WALL MOUNTED OUTLET BOXES, UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL BOXES SHALL BE ACCESSIBLE PER THE NEC. IF A BOX IS REQUIRED ABOVE AN INACCESSIBLE CEILING, COORDINATE WITH THE ARCHITECT AND PROVIDE AN ACCESS PANEL PRIOR TO INSTALLATION. OUTLET BOXES SHALL UTILIZE MOUNTING BRACKETS FOR INSTALLATION IN STUD WALLS AND WHERE FLUSH WITH CEILINGS. BRACKETS SHALL FASTEN ON EACH END.

7. **WIRING:** PROVIDE COPPER CONDUCTORS, XHHW OR XHHW-2 OR THHN OR THWN-2, 600 VOLT, 90 DEGREE C RATED. WIRING SHALL BE COLOR-CODED TO IDENTIFY PHASES, NEUTRAL AND GROUND. MATCH EXISTING BUILDING WIRING COLOR-CODING. MINIMUM WIRE SIZE, EXCEPT FOR CONTROL WIRING, SHALL BE #12 AWG. FOR 120-VOLT 15 AMP AND 20 AMP BRANCH CIRCUITS, USE MINIMUM 12 AWG UP TO 60 FEET, 10 AWG FOR 61-95 FEET, 8 AWG FOR 96-155 FEET AND 6 AWG FOR BRANCH CIRCUITS LONGER THAN 155 FEET; CONDUCTORS SHALL BE SAME SIZE FOR ENTIRE LENGTH OF RUN, EXCEPT IF ALL OUTLETS ARE IN THE SAME ROOM (1200 SQUARE FEET OR LESS) THE OVERSIZED CONDUCTORS MAY BE RUN ONLY TO THE FIRST OUTLET. FOR 277-VOLT 15 AMP AND 20 AMP BRANCH CIRCUITS, USE MINIMUM 12 AWG UP TO 140 FEET, 10 AWG FOR 141-220 FEET AND 8 AWG FOR BRANCH CIRCUITS LONGER THAN 220 FEET; CONDUCTORS SHALL BE SAME SIZE FOR ENTIRE LENGTH OF RUN. CONDUCTORS 8 AWG AND LARGER SHALL BE STRANDED. CONDUCTORS 10 AWG AND SMALLER SHALL BE SOLID. FOR WIRING APPLICATIONS WHERE MORE THAN SIX (6) CURRENT CARRYING CONDUCTORS ARE RUN IN A SINGLE RACEWAY, DERATE PER NEC 310.15(B)(3)(A). WIRING SHALL BE RUN CONCEALED UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS. DO NOT INSTALL A SHARED NEUTRAL ON ANY CIRCUIT. FOR LIGHT SWITCHES, INSTALL NEUTRAL CONDUCTOR WHERE REQUIRED BY NEC 404.2(C). ALL TERMINATIONS SHALL BE 75 DEGREES C. FEEDER CONDUCTORS SHALL BE RUN WITHOUT SPICES. COORDINATE FEEDER TERMINATIONS WITH ASSOCIATED EQUIPMENT LUGS.

8. **GROUNDING AND BONDING:** PROVIDE AN EQUIPMENT GROUNDING SYSTEM INSTALLED TO METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, PULL BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY TO ELECTRICAL CIRCUITS. ALL BRANCH AND FEEDER CIRCUITS SHALL INCLUDE A GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC). PROVIDE A COPPER GROUND BUS IN ALL PANELBOARDS. PROVIDE SYSTEM GROUND IN ACCORDANCE WITH NEC ARTICLE 250, INCLUDING SERVICE BONDING AS REQUIRED IN NEC 250.92. GROUND RODS SHALL BE INSTALLED BELOW THE PERMANENT MOISTURE LEVEL. PARTICULAR ATTENTION IS CALLED TO BONDING REQUIREMENTS IN NEC 250.97, 250.98 AND 250.104. GROUND CORD-AND-PLUG EQUIPMENT PER THE REQUIREMENTS OF NEC 250.114.

9. **IDENTIFICATION:** IDENTIFY CABLES/CONDUCTORS, INCLUDING VOLTAGE, PHASE AND FEEDER OR CIRCUIT NUMBER, ON EACH CABLE/CONDUCTOR IN EACH BOX/ENCLOSURE/CABINET WHERE WIRES OF MORE THAN ONE CIRCUIT OR COMMUNICATION/SIGNAL SYSTEM ARE PRESENT. WHEREVER REASONABLY REQUIRED FOR SAFETY, MAINTENANCE AND/OR OPERATIONAL PURPOSES, PROVIDE SELF-ADHESIVE PLASTIC SIGNS FOR IDENTIFICATION, INSTRUCTION OR WARNING ON SWITCHES AND OUTLETS, AS WELL AS ON OTHER CONTROLS, DEVICES AND ENCLOSURE COVERS. PROVIDE A DANGER SIGN WHEREVER IT IS POSSIBLE FOR PERSONS TO COME INTO CONTACT WITH A VOLTAGE HIGHER THAN 120 VOLTS, AS WELL AS ON CRITICAL SWITCHES AND CONTROLS WHERE UNTIMELY OPERATION COULD BE A SAFETY HAZARD. PROVIDE AN ENGRAVED PLASTIC-LAMINATE LABEL ON EACH NEW MAJOR UNIT OF ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO: PANELBOARDS, CONTROL PANELS, CABINETS, ENCLOSURES, TIMECLOCKS AND DISCONNECT SWITCHES. EQUIPMENT LABELS SHALL INCLUDE WHAT IS REQUIRED IN NEC 408.4(B), PROVIDE FAULT CURRENT LABELING ON SERVICE EQUIPMENT PER NEC 110.24(A). CIRCUMSTANCES TYPES SHALL BE MARKED PER NEC 110.28. WIRING COLOR-CODE KEY SHALL BE READILY AVAILABLE OR PERMANENTLY POSTED PER NEC 200.6(D) AND 210.5. PROVIDE SERVICE ENTRANCE LABEL ON SERVICE EQUIPMENT.

10. **CONNECTIONS TO EQUIPMENT:** MAKE FINAL ELECTRICAL CONNECTIONS TO MECHANICAL AND SPECIALTY EQUIPMENT. PROVIDE CONDUITS, OUTLET BOXES AND POWER WIRING FROM THE POWER SOURCE TO THE MOTOR OR EQUIPMENT JUNCTION BOX, INCLUDING WIRING THROUGH STARTERS OR SAFETY SWITCHES, IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

11. **WIRING DEVICES (SHOP DRAWINGS REQUIRED):** WIRING DEVICES SHALL BE HEAVY DUTY SPECIFICATION GRADE. BACK WIRING IS NOT ALLOWED. ALL WIRING DEVICE AND WALLPLATE FINISHES SHALL BE SELECTED BY THE ARCHITECT OR OWNER. TOGGLE SWITCHES SHALL BE TUMBLER TYPE, 20 AMP, GROUNDED, RATED 120/277 VOLT. WHERE MORE THAN ONE SWITCH IS INDICATED IN THE SAME LOCATION, INSTALL THE SWITCHES IN A MULTI-GANG BOX WITH A SINGLE COVERPLATE. EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS, RECEPTACLES SHALL BE NEMA 5-20R, GROUNDED. SPECIAL PURPOSE, SAFETY TYPE AND GROUND FAULT RECEPTACLES SHALL BE BY SAME MANUFACTURER AS DUPLEX RECEPTACLES. GFCI TYPE DUPLEX RECEPTACLES SHALL BE RATED 5 MILLIAMPS, AND SHALL BE READILY ACCESSIBLE WHERE REQUIRED BY NEC 210.8. PROVIDE GFCI DUPLEX RECEPTACLES IN LOCATIONS INDICATED ON THE FLOOR PLANS AND WHERE REQUIRED BY THE NEC. PROVIDE A GFCI RECEPTACLE WITHIN 25 FEET OF ALL EQUIPMENT MOUNTED OUTDOORS AND/OR ON ROOFS. DO NOT UTILIZE FEED THROUGH WIRING FOR ANY RECEPTACLES OR DEVICES REQUIRING GFCI PROTECTION. WIRING DEVICE WALLPLATES SHALL BE HIGH IMPACT NYLON AND SHALL BE BY SAME MANUFACTURER AS WIRING DEVICES. WEATHERPROOF COVERS SHALL HINGE FROM TOP. SHALL BE LISTED AS WEATHERPROOF WHEN IN USE AND SHALL BE "EXTRA DUTY" WHERE REQUIRED BY NEC 406.9(B)(1), AND RECEPTACLES IN THESE COVERS SHALL BE LISTED AS WEATHER-RESISTANT TYPE.

MOUNTING HEIGHTS OF ALL WIRING DEVICES SHALL COMPLY WITH CURRENT ACCESSIBILITY STANDARDS AND LOCAL CODES WHERE APPLICABLE. REFER TO ARCHITECTURAL ELEVATIONS FOR COORDINATION OF WIRING DEVICE LOCATIONS. COORDINATE WITH DIMENSIONS OF SPECIALTY ITEMS, EQUIPMENT AND MILLWORK, AND COORDINATE WITH ALL OTHER TRADES TO AVOID INSTALLATION CONFLICTS PRIOR TO ROUGH-IN.

WIRING DEVICE MANUFACTURER SHALL BE BRYANT, EATON ARROW/HART, HUBBELL, LEVITON OR PASS & SEYMOUR.

12. **FUSES (SHOP DRAWINGS REQUIRED):** FUSES SHALL BE CLASS RK1 DUAL ELEMENT TIME DELAY, WITH APPROPRIATE VOLTAGE. FURNISH THREE (3) SPARE FUSES OF EACH TYPE UTILIZED. MANUFACTURER SHALL BE COOPER BUSSMANN, MERSEN OR LITTELFUSE.

13. **DISCONNECT SWITCHES (SHOP DRAWINGS REQUIRED):** PROVIDE SURFACE-MOUNTED, HEAVY-DUTY, HORSEPOWER-RATED, FUSIBLE OR NON-FUSIBLE AS INDICATED, SAFETY SWITCHES WITH LUGS SUITABLE FOR COPPER OR ALUMINUM CONDUCTORS AND ELECTRO-SILVER PLATED CURRENT CARRYING PARTS, AND WITH EQUIPMENT GROUND BUS WITH APPROPRIATE LUGS. SWITCHES SHALL BE RATED FOR THE VOLTAGE OF THE ASSOCIATED CIRCUIT BEING SERVED. PROVIDE SOLID NEUTRAL CONNECTION VIA INSULATED LUG HAVING APPLICABLE, FUSIBLE SWITCHES SHALL BE PROVIDED WITH SPRING-REINFORCED FUSE CLIPS TO REJECT ALL FUSES EXCEPT CLASS R CURRENT LIMITING TYPE; FUSE EACH PHASE. SWITCHES SHALL HAVE HINGED DOOR WITH DEFATABLE INTERLOCK TO PREVENT DOOR FROM BEING OPENED IN "ON" POSITION; OPERATING LEVER ARRANGED FOR PADLOCKING IN THE "OFF" POSITION; ARC QUENCHERS, CAPACITY AND CHARACTERISTICS AS REQUIRED; NON-TEASABLE QUICK-MAKE AND QUICK-BREAK MECHANISM; DEAD FRONT; LINE SIDE SHIELD. PROVIDE A SET OF AUXILIARY CONTACTS FOR DISCONNECTS SERVING VFD'S, TO SEND A "DISABLE" SIGNAL TO THE VFD WHEN THE DISCONNECT IS OPENED.

MANUFACTURER SHALL BE SQUARE D, GENERAL ELECTRIC, EATON OR SIEMENS.

14. **PANELBOARDS (SHOP DRAWINGS REQUIRED):** PANELBOARDS SHALL BE DEAD-FRONT, COPPER BUS, WITH THERMAL MAGNETIC MOLDED CASE CIRCUIT BREAKERS IN ACCORDANCE WITH SCHEDULES SHOWN ON THE DRAWINGS. LOAD CENTER CONSTRUCTION IS NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL MAGNETIC TYPE, PROVIDED WITH INDIVIDUALLY INSULATED, BRACED, AND BOLTED CONNECTIONS. THE FRONT FACES OF CIRCUIT BREAKERS SHALL BE FLUSH WITH EACH OTHER. TRIPPED INDICATION SHALL BE SHOWN BY THE BREAKER HANDLE TAKING A POSITION BETWEEN ON AND OFF. MAKE PREPARED SPACE PROVISIONS FOR ADDITIONAL BREAKERS SUCH THAT NO ADDITIONAL HARDWARE WILL BE REQUIRED TO ADD BREAKERS. TWO AND THREE POLE BREAKERS SHALL HAVE INTERNAL COMMON TRIPS AND FACTORY EXTERNAL HANDLE. ALL CIRCUIT BREAKERS SHALL BE PROVIDED WITH ARC BRACING EQUAL TO OR GREATER THAN THAT OF THE PANELBOARD SHORT CIRCUIT RATING. SERIES RATED BREAKERS ARE NOT ALLOWED. WHERE NON-INSTANTANEOUS TRIP BREAKERS ARE USED, FOLLOW NEC 240.87. FIRE ALARM CIRCUIT BREAKERS SHALL BE RED AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT RATED".

PROVIDE PANELBOARDS WITH SHEET STEEL ENCLOSURES, NEMA TYPE AS SCHEDULED, MINIMUM 16-GAUGE NOMINAL THICKNESS. PANELBOARDS 600 AMPS AND BELOW PROVIDE FRONTS WITH HINGED DOOR IN DOOR TYPE. INTERIOR HINGED TRIM AND FLUSH LOCK AND KEY. ALL PANELBOARD ENCLOSURES SHALL BE KEVED ALIKE AND SHALL MATCH THE OWNER'S STANDARD KEY SYSTEM WHERE APPLICABLE. ENCLOSURES SHALL BE RECESSED OR SURFACE MOUNTED AS SCHEDULED. ENCLOSURES SHALL BE FABRICATED BY THE SAME MANUFACTURER AS PANELBOARDS INTERIORS. MULTI-SECTION PANELBOARDS SHALL HAVE THE SAME PHYSICAL DIMENSIONS AND SHALL BE PROVIDED WITH FEED-THRU TYPE LUGS IN SECTION 1. PROVIDE FOUR (4) 1" EMPTY CONDUITS WITH PULL STRINGS TO THE NEAREST ACCESSIBLE CEILING SPACE FOR ALL RECESSED PANELBOARDS.

PROVIDE TYPED, FRAMED CIRCUIT DIRECTORY CARDS AND CLEAR PLASTIC COVERING UPON COMPLETION OF WORK. DIRECTORY CARD SHALL BE OF SUPER HEAVY-WEIGHT INDEX CARD STOCK, 110 LB. WHITE. DIRECTORY CARD SHALL INCLUDE TYPE OF LOAD (IE. RECEPTACLES, LIGHTING, EF-1, ETC.) AND LOCATION (IE. ROOM 102, OFFICE, ETC.). ROOM NUMBER SHALL BE IDENTIFIED AS THE ACTUAL, ROOM NUMBER ASSIGNED TO THE SPACE AND NOT THE ROOM NUMBER IDENTIFIED ON THE PLANS. CIRCUITS WITH SHUNT TRIP SHALL BE IDENTIFIED WITH THE CONTROL CIRCUIT OPERATING THE SHUNT TRIP (IE. KITCHEN HOOD NO. 2). SHUNT TRIP BREAKERS WITH COMMON TRIP CIRCUIT SHALL BE GROUPED TOGETHER IN THE PANELBOARD (IE. CIRCUITS 1, 3, & 5).

ALL PANELBOARDS SHALL BE INSTALLED WITH MINIMUM REQUIRED FORWARD AND HORIZONTAL WORKING CLEARANCES PER THE NEC. THERE SHALL BE NO EQUIPMENT OTHER THAN CONDUIT, CONDUCTORS AND OTHER APPURTENANCES RELATING TO THE ELECTRICAL INSTALLATION LOCATED WITHIN THE FOOTPRINT OF THE PANELBOARD AND EXTENDING UPWARDS TO THE STRUCTURE ABOVE.

MANUFACTURER SHALL BE SQUARE D, GENERAL ELECTRIC, EATON OR SIEMENS.

15. **SURGE PROTECTIVE DEVICES (SPD) (SHOP DRAWINGS REQUIRED):**

A. SPD EQUIPMENT (INCLUDING TRANSIENT VOLTAGE SURGE SUPPRESSORS (TVSS)) SHALL BE LISTED AND LABELED PER ANSI/UL 1449 3RD EDITION, AND SHALL BE TESTED AND DEMONSTRATE SUITABILITY FOR APPLICATION WITHIN ANSI/IEEE C62.41 CATEGORY C, B AND A ENVIRONMENTS.

B. SPD SHALL BE MANUFACTURED BY THE SAME MANUFACTURER AS THE PANELBOARDS.

C. THE SPD MANUFACTURER SHALL PROVIDE UNLIMITED FREE REPLACEMENT OF THE ENTIRE SPD FOR ALL INOPERABLE SPD UNITS DURING THE WARRANTY PERIOD.

D. SPD SHALL BE GUARANTEED BY THE INSTALLING CONTRACTOR AND SURGE SUPPRESSION MANUFACTURER TO BE FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN 5 YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM FOR WHICH THE SUPPRESSOR IS INSTALLED. THE WARRANTY SHALL PROVIDE FOR A COMPLETE REPLACEMENT OF SPD IN ORDER TO EXPEDITE SERVICE.

E. SPD UNIT SHALL INCORPORATE THERMALLY PROTECTED METAL-OXIDE VARISTORS (MOVs) AS THE CORE SURGE SUPPRESSION COMPONENT FOR THE SERVICE ENTRANCE AND ALL OTHER DISTRIBUTION LEVELS. THE SYSTEM SHALL NOT UTILIZE SILICON AVALANCHE DIODES, SELENIUM CELLS, AIR GAPS, OR OTHER COMPONENTS THAT MAY CROWBAR THE SYSTEM VOLTAGE LEADING TO A SYSTEM UPSET OR CREATE ANY ENVIRONMENTAL HAZARDS.

F. SPD UNIT MUST PROTECT ALL MODES (L-N, L-G, L-L, N-G) OF THE ELECTRICAL SYSTEM BEING UTILIZED.

G. SPD UNIT SHALL HAVE A 20KA NOMINAL DISCHARGE CURRENT.

H. SPD UNIT SHALL BE INSTALLED INTEGRALLY IN THE PANELBOARDS INDICATED ON THE DRAWINGS. SPD UNITS IN SWITCHBOARDS SHALL HAVE AN INTEGRAL DISCONNECT SWITCH. THE COMPLETE PANELBOARD, INCLUDING THE SPD, SHALL BE U.L. LISTED.

I. WHERE SPD'S ARE INDICATED ON THE DRAWINGS AS BEING INTEGRAL TO A PIECE OF ELECTRICAL GEAR, IT SHALL BE THE CONTRACTOR'S OPTION TO PROVIDE AN EXTERNAL SPD INSTEAD, LOCATED AS CLOSELY AS POSSIBLE TO THE GEAR BEING PROTECTED AND IN A NEMA ENCLOSURE APPROPRIATE FOR THE INSTALLATION ENVIRONMENT. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO ENSURE THAT THERE IS SUFFICIENT WALL SPACE FOR THE EXTERNAL SPD, AS THE EXTERNAL SPD IS HIS OPTION - CHANGE ORDERS WILL NOT BE APPROVED DUE TO THE CONTRACTOR NOT COORDINATING THIS.

J. SPD UNITS (EXCEPT THOSE IN SWITCHBOARDS) SHALL BE SERVED WITH A DEDICATED 3-POLE 60-AMP CIRCUIT BREAKER IN THE GEAR BEING SERVED AND (5) #6 AWG MINIMUM STRANDED LOW IMPEDANCE CONNECTION CABLE TO THE BREAKER, UNLESS THE MANUFACTURER RECOMMENDS DIFFERENTLY. THE CONDUCTORS SERVING SPD UNITS SHALL BE TWISTED TOGETHER TO REDUCE THE SPD SYSTEM INPUT IMPEDANCE, AND SHALL BE KEPT AT THE MINIMUM LENGTH. SPD UNITS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND IN COMPLIANCE WITH NEC REQUIREMENTS. MEASURED IMPEDANCE SHALL NOT BE HIGHER THAN 5 OHMS ON THE GROUND FOR THE SERVICE ENTRANCE SPD DEVICE. WHERE EXTERNAL, CLOSE NIPPLE THE SPD TO THE RESPECTIVE GEAR BEING PROTECTED.

K. SPD UNIT SHALL MEET ANSI/UL VOLTAGE PROTECTION RATING (VPR) OF (MAXIMUM): 900V (L-N, L-G, N-G) AND 1200V (L-L) FOR 120/208V; 1200V (L-G AND N-G), 1500V (L-N) AND 2000V (L-L) FOR 277/480V. MAXIMUM SURGE CURRENT RATINGS SHALL BE 300KA PER PHASE/150KA PER MODE FOR SERVICE ENTRANCE, 160KA PER PHASE/80KA PER MODE FOR DISTRIBUTION PANELS, AND 120KA PER PHASE/60KA PER MODE FOR BRANCH PANELS. MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV) SHALL BE 125% MINIMUM OF NOMINAL VOLTAGE FOR 120/208V, AND 115% MINIMUM OF NOMINAL VOLTAGE FOR 277/480V; MCOV SHALL BE A TESTED VALUE.

L. SPD UNIT SHALL HAVE POSITIVE STATUS MONITORS FOR EACH PHASE.

16. **LIGHTING (SHOP DRAWINGS REQUIRED):** PROVIDE LIGHTING FIXTURE WORK AS SHOWN, SCHEDULED AND SPECIFIED. MANUFACTURERS SHALL BE AS INDICATED ON THE DRAWINGS OR EQUAL. FIXTURES SHALL BE COMPLETE WITH REQUIRED SOCKETS, WIRING, GLASSWARE, REFLECTORS, HANGERS, FITTINGS AND MOUNTING TRIM. FIXTURES SHALL BE CLEANED AND COMPLETELY LAMPED. PROVIDE PROPER TRIM, FRAMES, MOUNTING DEVICES, CONDUITS AND ACCESSORIES REQUIRED TO PROPERLY INSTALL FIXTURES IN THE BUILDING CONSTRUCTION. LIGHTING FIXTURES SHALL CONFORM TO APPLICABLE U.L. STANDARDS AND SHALL BE U.L. OR ETL LISTED. EMERGENCY LIGHTING FIXTURES SHALL CONFORM TO THE REQUIREMENTS OF NFPA 101, NFPA 70 (NEC) AND SHALL BE UL924 COMPLIANT.

CATALOG NUMBERS OF FIXTURES SCHEDULED ARE TO ESTABLISH A TYPE OF FIXTURE, NOT TO DETERMINE A METHOD OF MOUNTING. VERIFY CEILING CONSTRUCTION BEFORE ORDERING FIXTURES, AND PROVIDE MOUNTING TRIM AND HARDWARE SUITABLE FOR THE CEILING FINISH IN WHICH FIXTURE IS INSTALLED. SUPPORT RECESSED DOWNLIGHT FIXTURES INSTALLED IN LAY-IN CEILINGS BY MEANS OF HANGER BARS EXTENDING ACROSS THE MAIN CEILING SUPPORT MEMBERS. SUPPORT ALL CEILING MOUNTED LUMINAIRE THAT MATCH THE SIZE OF THE LAYOUT OF THE CEILING GRID FROM THE BUILDING STRUCTURAL FRAMING MEMBERS OR THE CEILING FRAMING SYSTEM UTILIZING CONDUIT STEMS, FIXTURE STUDS, SUPPORT CLIPS, STEEL RODS OR BAR HANGERS. IF THE CEILING FRAMING SYSTEM IS USED FOR SUPPORT, INSTALL A MINIMUM OF TWO CEILING SUPPORT SYSTEM RODS OR WIRES FOR EACH LUMINAIRE (ON DIAGONALLY OPPOSITE CORNERS OF THE FIXTURE). LOCATE NOT MORE THAN 6 INCHES FROM FIXTURE CORNERS. INSTALL RECESSED LAY-IN TYPE FIXTURES SO THAT THE LENS HOUSING MAY BE EASILY OPENED AND SO THAT THE FIXTURES MAY BE REMOVED AND RELOCATED WITHOUT FORCING THE FIXTURES. COORDINATE LIGHTING LAYOUT WITH CEILING LAYOUT AND FINISH BEFORE CEILING GRID IS INSTALLED. LENS TYPE RECESSED 1'x4, 2'x2 AND 2'x4 FIXTURES SHALL HAVE A MINIMUM 0.125" THICK ACRYLIC LENS WITH 7.8 OZ./SQ. FT. MINIMUM WEIGHT. HOUSINGS FOR LIGHTING FIXTURES INSTALLED IN ATTIC, CLOACRS OR IN WET LOCATIONS SHALL BE ALUMINUM OR STAINLESS STEEL AND SHALL BE U.L. LISTED FOR INSTALLATION IN WET LOCATIONS. FINAL AIMING OF ADJUSTABLE FLOOD FIXTURES SHALL BE DONE AT NIGHT AND SHALL BE APPROVED BY THE ARCHITECT AND OWNER.

ADDITIONAL REQUIREMENTS FOR LED LUMINAIRES:

- PROVIDE LED LIGHTING FIXTURES THAT COMPLY WITH THE DESIGN LIGHTS CONSORTIUM (DLC) STANDARDS AND ARE DLC LISTED.
- COLOR OR TEMPERATURE SHALL BE 4000K (CONFIRM WITH ARCHITECT OR OWNER) WITH A MINIMUM CRI OF 80, UNLESS INDICATED OTHERWISE.
- LED'S SHALL BE BINNED WITHIN A MAXIMUM THREE-STEP MACADAM ELLIPSE TO ENSURE COLOR CONSISTENCY AMONGST LUMINAIRES OF THE SAME TYPE.
- MERCURY-FREE, LEAD-FREE, ROHS COMPLIANT.
- COMPLIANT WITH FCC 47 CFR PART 15 NON-CONSUMER RF/EMI STANDARDS.
- LIGHT OUTPUT SHALL BE MEASURED USING THE ABSOLUTE PHOTOMETRY METHOD FOLLOWING IES LM-79 AND LM-80 REQUIREMENTS AND GUIDELINES.
- LUMINAIRES SHALL MAINTAIN AT LEAST 30% LUMEN OUTPUT (L70) FOR A MINIMUM OF 50,000 HOURS.
- LUMEN OUTPUT SHALL NOT DEPRECIATE MORE THAN 20% AFTER 20,000 HOURS OF USE.
- THERMALLY DESIGNED TO NOT EXCEED THE MAXIMUM JUNCTION TEMPERATURE OF THE LED FOR THE AMBIENT TEMPERATURE OF THE LOCATION IN WHICH THE LUMINAIRE IS TO BE INSTALLED, RATED CASE TEMPERATURE SHALL BE SUITABLE FOR OPERATION IN THE AMBIENT TEMPERATURES TYPICALLY FOUND IN THE INTENDED INSTALLATION. EXTERIOR LUMINAIRES SHALL BE CAPABLE OF OPERATING IN AMBIENT TEMPERATURES OF -20 DEG. F TO 122 DEG F (-29 DEG. C TO 50 DEG. C).
- LUMINAIRES SHALL OPERATE NORMALLY FOR INPUT VOLTAGE FLUCTUATIONS OF PLUS OR MINUS 10%.
- MAXIMUM TOTAL HARMONIC DISTORTION (THD) OF 10% AT FULL INPUT POWER AND ACROSS SPECIFIED VOLTAGE RANGE.
- ALL CONNECTIONS TO LUMINAIRES SHALL BE REVERSE-POLARITY PROTECTED AND PROVIDE HIGH VOLTAGE PROTECTION IN THE EVENT THAT CONNECTIONS ARE REVERSED OR SHORTED DURING INSTALLATION.
- THE FAILURE OF ONE INDIVIDUAL LED SHALL NOT AFFECT THE OPERATION OF THE REMAINING LED'S IN THE LUMINAIRE.

ALL LIGHTING DRIVERS SHALL COMPLY WITH NEMA 410 FOR INRUSH CURRENT.

REQUIREMENTS FOR LED DRIVERS:

- UNLESS SPECIFICALLY INDICATED OTHERWISE, SHALL BE OF THE 0-10V DIMMING TYPE DOWN TO 10% LIGHT LEVEL. THE PERFORMANCE CURVES FOR THE 0-10V CONTROL AND THE 0-10V DRIVERS SHALL NOT BOTH BE LOGARITHMIC. DIMMING SHALL OCCUR DOWN TO THE MINIMUM LEVEL WITH NO VISIBLE FLICKER OR "POPCORN EFFECT". "POPCORN EFFECT" IS WHEN THE LUMINAIRE IS TO BE ON A PRESET DIMMED LEVEL, AND THE LED'S GO TO 100% PRIOR TO RETURNING TO THE PRESET LEVEL WHEN POWER IS RETURNED TO THE FIXTURE.
- SHALL HAVE RATED LIFE OF MINIMUM 50,000 HOURS.
- SHALL HAVE MINIMUM POWER FACTOR OF 0.9 AND MAXIMUM CREST FACTOR OF 1.5 AT FULL INPUT POWER AND ACROSS SPECIFIED VOLTAGE RANGE.
- SHALL OPERATE NORMALLY FOR INPUT VOLTAGE FLUCTUATIONS OF PLUS OR MINUS 10%.
- SHALL HAVE MAXIMUM TOTAL HARMONIC DISTORTION (THD) OF 10% AT FULL INPUT POWER AND ACROSS SPECIFIED VOLTAGE RANGE.
- SHALL HAVE POLARIZED QUICK-DISCONNECTS FOR WIRING CONNECTIONS FOR FIELD MAINTENANCE.
- SHALL HAVE BUILT-IN FUSE PROTECTION, WITH ALL POWER SUPPLY OUTPUTS EITHER FUSE PROTECTED OR POLYMERIC POSITIVE TEMPERATURE COEFFICIENT (PTC)-PROTECTED PER CLASS 2 UL LISTING.
- SHALL DEMONSTRATE NO VISIBLE CHANGE IN LIGHT OUTPUT WITH A VARIATION OF PLUS OR MINUS 10% CHANGE IN LINE-VOLTAGE INPUT.
- ALL DIMMABLE LED DRIVERS OF THE SAME MANUFACTURER FAMILY/SERIES SHALL TRACK EVENLY ACROSS MULTIPLE LIGHT FIXTURES AT ALL LIGHT LEVELS.

0-10V DIMMING DRIVERS SHALL COMPLY WITH IEC 60929. FOR 0-10V DIMMING CONTROLS, THE PERFORMANCE CURVES FOR THE 0-10V CONTROL AND THE 0-10V DRIVERS SHALL NOT BOTH BE LOGARITHMIC. ALL DRIVERS SHALL HAVE TOTAL HARMONIC DISTORTION OF LESS THAN 10% AT FULL OUTPUT.

17. **EMERGENCY LIGHTING POWER SUPPLY (SHOP DRAWINGS REQUIRED):** EMERGENCY LIGHTING SHALL BE PROVIDED BY USING A STANDARD LUMINAIRE EQUIPPED WITH A UL LISTED, SELF-CONTAINED, MODULAR, BATTERY INVERTER UNIT COMPLYING WITH UL 924. THE UNIT SHALL BE MOUNTED WITHIN THE LIGHTING FIXTURE BODY OR LISTED FOR INSTALLATION ON TOP OF OR REMOTE FROM THE FIXTURE. THE BATTERY INVERTER UNIT SHALL CONSIST OF A HIGH-TEMPERATURE, MAINTENANCE-FREE, NICKEL CADMIUM BATTERY, CHARGER AND ELECTRONIC CIRCUITRY. THE AC DRIVER OPERATION SHALL BE DELAYED FOR APPROXIMATELY 3 SECONDS BY THE CIRCUITRY TO PREVENT FALSE TRIPPING OF THE AC DRIVER. A SOLID-STATE CHARGING LED INDICATOR LIGHT TO MONITOR THE CHARGER AND BATTERY AND A SINGLE-POLE TEST SWITCH SHALL BE PROVIDED AND MOUNTED SUCH THAT THE LIGHT AND SWITCH ARE VISIBLE AND ACCESSIBLE WITHIN THE FIXTURE WITHOUT ENTERING THE CEILING SPACE. WHERE UNITS ARE MOUNTED OUTSIDE THE BUILDING ENVELOPE, PROVIDE COLD-WEATHER RATED UNITS. UNITS SHALL BE BY PHILIPS BODINE, LITHONIA, IOTA OR APPROVED EQUAL. ALL EGRESS LIGHTING FIXTURES SHALL HAVE SELF DIAGNOSTIC TEST FEATURE. COORDINATE DIRECTIONAL ARROWS ON EXIT SIGNS WITH THE ARCHITECTURAL EGRESS PLAN.

EMERGENCY LED DRIVERS SHALL HAVE LUMEN OUTPUTS OR WATTAGES AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE.

18. **SURFACE METAL RACEWAYS (SHOP DRAWINGS REQUIRED):** PROVIDE SURFACE METAL RACEWAYS WHERE SPECIFICALLY INDICATED ON THE DRAWINGS OR WHERE REQUIRED BY GENERAL NOTES. ALL RACEWAYS SHALL BE TYPE SR1 OR SR2 AS SPECIFIED. TYPE SR1 RACEWAY: ONE-PIECE TYPE WITH SINGLE COMPARTMENT, LENGTHS AS NECESSARY; PROVIDE NOMINAL 3/4" WIDE, DEPTH AS REQUIRED, WITH SNAP ON COVER. TYPE SR2 RACEWAY: TWO-PIECE TYPE WITH SINGLE COMPARTMENT, LENGTH AS NECESSARY; PROVIDE NOMINAL 1-1/4" X 7/8" WITH FLUSH, SNAP ON COVER. MAKE CHANGES IN DIRECTION OF RACEWAY RUNS WITH PROPER FITTINGS SUPPLIED BY THE RACEWAY MANUFACTURER. FIELD BENDS OF RACEWAY SECTIONS WILL NOT BE PERMITTED. PROPERLY SUPPORT AND ANCHOR RACEWAYS FOR THE ENTIRE LENGTH BY STRUCTURAL MATERIALS. RACEWAYS SHALL NOT SPAN ANY SPACE UNSUPPORTED. USE BOXES SUPPLIED BY THE RACEWAY MANUFACTURER WHEREVER JUNCTION, PULL OR DEVICE BOXES ARE REQUIRED. STANDARD ELECTRICAL "HANDY" BOXES, ETC. SHALL NOT BE PERMITTED FOR USE WITH SURFACE RACEWAY INSTALLATIONS. TYPE SR1 SURFACE RACEWAY SHALL BE USED FOR ALL LINE VOLTAGE WIRING. TYPE SR2 RACEWAY SHALL BE USED FOR ALL DATA AND AUDIO-VISUAL WIRING.

19. **EXISTING FIRE ALARM SYSTEM (SHOP DRAWINGS REQUIRED):** PROVIDE FIRE ALARM DEVICES AS AN EXTENSION OF THE EXISTING FIRE-LITE ALARMS HORN/STROBE FIRE ALARM SYSTEM. NEW DEVICES SHALL BE ADDRESSABLE. ADDITIONAL MODULES SHALL BE PROVIDED AS NECESSARY TO ACHIEVE A FULLY ADDRESSABLE AND COMPLETE EXTENSION OF THE EXISTING FIRE ALARM SYSTEM. ALL NEW DEVICES SHALL BE BY THE SAME MANUFACTURER AND SHALL MATCH THE EXISTING FIRE ALARM SYSTEM DEVICES. PROVIDE FIRE ALARM INDICATING APPLIANCES WITH CANDELA RATING MATCHING THE NUMBERS SHOWN ON THE DRAWINGS. PROVIDE A FULL CONDUIT (EMT) SYSTEM DEDICATED FOR FIRE ALARM WIRING. ALL NEW FIRE ALARM WIRING SHALL MATCH EXISTING. PROVIDE ALL COMPONENTS, RELAYS, POWER MODULES, EXTENDER PANELS, ETC. NECESSARY FOR A COMPLETE AND OPERABLE EXTENSION OF THE EXISTING SYSTEM. COORDINATE THE LOCATIONS OF ALL REQUIRED EXTENDER PANELS AND/OR MODULES WITH THE A/E PRIOR TO INSTALLATION. REPROGRAM THE FIRE ALARM CONTROL PANEL AS REQUIRED AFTER INSTALLATION OF THE NEW DEVICES HAS BEEN COMPLETED. PROVIDE ALL TESTING REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

LIGHTING FIXTURE SCHEDULE						
MARK	MANUFACTURER & FIXTURE FAMILY	MOUNTING	NOMINAL WATTAGE	VOLTAGE	NOMINAL DELIVERED LUMENS	REMARKS
A1	COOPER LIGHTING METALUX #22C22-55VHE-UNV-L840-CD-1-U	CEILING/RECESSED	39.4 W	120 V	5530 lm	
A1E	COOPER LIGHTING METALUX #22C22-55VHE-UNV-EL10WSD-L840-CD-1-U	CEILING/RECESSED	39.4 W	120 V	5530 lm	
A2	COOPER LIGHTING METALUX #22C22-44UNV-L840-CD-1-U	CEILING/RECESSED	33.0 W	120 V	4462 lm	
A2E	COOPER LIGHTING METALUX #22C22-44UNV-EL10WSD-L840-CD-1-U	CEILING/RECESSED	33.0 W	120 V	4462 lm	
B1	COOPER LIGHTING HALO #HC610D010-HM60525840-61MDH	CEILING/RECESSED	10.0 W	120 V	1000 lm	
B1E	COOPER LIGHTING HALO #HC610D010IEM7-HM60525840-61MDHIEM	CEILING/RECESSED	10.0 W	120 V	1000 lm	
W1	COOPER LIGHTING #GWC-SA1B-740-1-SL3-XX-CBP	WALL/SURFACE	44.0 W	120 V	6104 lm	XX = CONFIRM FINISH WITH ARCHITECT PRIOR TO ORDERING. COORDINATE THE FINAL MOUNTING LOCATION AND HEIGHT OF EACH LIGHT FIXTURE OF THIS TYPE WITH THE OWNER AND ARCHITECT. EACH LIGHT FIXTURE OF THIS TYPE SHALL BE MOUNTED AT THE SAME HEIGHT.
W2	DWELED BY WAC LIGHTING ARCHETYPE #WS-W15912-BK	WALL/SURFACE	10.0 W	120 V	331 lm	COORDINATE THE FINAL MOUNTING LOCATION AND HEIGHT OF EACH LIGHT FIXTURE OF THIS TYPE WITH THE OWNER AND ARCHITECT. EACH LIGHT FIXTURE OF THIS TYPE SHALL BE MOUNTED AT THE SAME HEIGHT.
X1	COOPER LIGHTING SURE-LITES #APX7R	CEILING/SURFACE	1.0 W	120 V		PROVIDE SINGLE FACE EXIT SIGN WITH ARROWS AS INDICATED ON THE FLOOR PLANS. CONFIRM HOUSING AND LETTER COLOR WITH ARCHITECT PRIOR TO ORDERING.

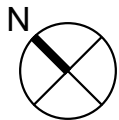
LIGHTING FIXTURE SCHEDULE NOTES:

- FIXTURES SHOWN ON THE FLOOR PLAN HAVING A DESIGNATION OF "E" FOLLOWING THE BASE DESIGNATION (I.E. - A FIXTURE TYPE "AE, O2E, FE") AND/OR A HALF SHADED REGION SHALL BE THE BASE FIXTURE TYPE EQUIPPED WITH THE APPROPRIATE BATTERY BACK-UP. BATTERY BACK-UPS SHALL BE INTEGRAL TO THE FIXTURE AND REMOTE SHALL BE SELECTED ONLY IN INSTANCES WHERE IT IS SPECIFIED OR WHEN IT IS THE ONLY AVAILABLE EMERGENCY OPTION. THE LOCATION OF REMOTE BATTERY BACKUPS SHALL BE SELECTED BY THE OWNER/ARCHITECT PRIOR TO INSTALLATION BY THE CONTRACTOR.
- ALL REQUIRED TEST SWITCHES FOR THE BATTERY BACK-UPS SHALL BE INTEGRAL TO THE FIXTURE.
- REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS NOT INDICATED IN THE LIGHTING FIXTURE SCHEDULE. WHERE THERE IS AN INCONSISTENCY BETWEEN THE LIGHTING FIXTURE SCHEDULE AND THE SPECIFICATIONS, THE GREATER QUANTITY OR HIGHER QUALITY OF WORK SHALL BE INCLUDED IN THE PROPOSAL.
- UNLESS OTHERWISE INDICATED ON THE SCHEDULE ABOVE, THE ARCHITECT/OWNER SHALL SELECT ALL FINISHES, COLORS, AND TRIMS.
- ALL LED FIXTURE BOARDS AND DRIVERS SHALL BE OF THE LATEST GENERATION, BASED UPON THE INDIVIDUAL MANUFACTURER'S STATED LITERATURE. IF A "GEN 5" IS AVAILABLE, "GEN 4" FIXTURES ARE NOT ACCEPTABLE.
- EXIT SIGNS AND EMERGENCY BATTERY BACK-UPS SHALL BE CONNECTED TO THE INDICATED LIGHTING CIRCUIT AHEAD OF ALL SWITCHING AS REQUIRED TO MAINTAIN THE BATTERIES AT FULL CHARGE. THE CONTRACTOR SHALL PROVIDE ALL ADDITIONAL WIRING AS REQUIRED.
- PRIOR APPROVAL IS NOT REQUIRED FOR THIS PROJECT AND SUBSTITUTIONS WILL BE REVIEWED DURING THE SUBMITTAL PHASE OF CONSTRUCTION. THE CONTRACTOR ACCEPTS ALL RESPONSIBILITY FOR ENSURING THAT ANY SUBSTITUTIONS ARE ACCEPTABLE TO THE OWNER, AND MEET THE AESTHETICS, INTENT, AND BASIS OF DESIGN OF THE SPECIFIED FIXTURES AS DETERMINED BY THE ENGINEER/ARCHITECT.
- FOR SUBMITTALS THAT DEViate FROM NOMINAL WATTAGE AND/OR DELIVERED LUMENS, IT SHALL BE THE ENGINEER'S SOLE DISCRETION TO APPROVE OR DECLINE THESE FIXTURES BASED ON ANY AND ALL FACTORS INCLUDING BUT NOT LIMITED TO INTENDED LIGHTING LEVELS FOR EACH SPACE AND IMPACT ON THE OVERALL ELECTRICAL POWER SYSTEM.
- ALL LIGHTING SPECIFIED SHALL BE 4000K (CONFIRM WITH ARCHITECT OR OWNER) UNLESS NOTED OTHERWISE.
- ALL LIGHTING SPECIFIED SHALL HAVE 80CRI MINIMUM UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL PROVIDE ALL HARDWARE AND ACCESSORIES AS REQUIRED TO INSTALL FIXTURES IN LOCATIONS AS ILLUSTRATED WITH MOUNTING METHODS DESIRED.
- WHEN A UNIVERSAL (120-277V) VOLTAGE OPTION IS AVAILABLE, IT SHALL BE PROVIDED. OTHERWISE PROVIDE AS INDICATED IN SCHEDULE.
- FOR ALL SUSPENDED FIXTURES, COORDINATE THE EXACT MOUNTING ELEVATION ABOVE FINISHED FLOOR WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE SUSPENSION HARDWARE IN LENGTHS AS REQUIRED.

WIRED LIGHTING SENSOR AND SWITCH SCHEDULE					
TYPE	MOUNTING	WIRED OR WIRELESS	SENSOR MODEL NUMBER	TIME DELAY SETTING	NOTES
O2	CEILING	WIRED	LOS-CDT-2000-WH	15 MINUTES	SET THE AUTO-ON OPTION IN THE SENSOR TO "ENABLE" TO MAKE THE SENSOR AN OCCUPANCY SENSOR. SET THE OCCUPIED LEVEL IN THE SENSOR TO "50%". WHERE THIS SENSOR TYPE IS SHOWN, THE LIGHT FIXTURES SHALL AUTOMATICALLY TURN ON TO 50% LIGHT LEVEL WHEN OCCUPANCY IS INITIALLY DETECTED. THE LIGHT FIXTURES SHALL BE MANUALLY RAISED OR LOWERED IF A DIFFERENT LIGHT LEVEL IS DESIRED.
01	WALL (48" AFF TO TOP)	WIRED	MS-OPS6M2-DV-XX	15 MINUTES	SET THE AUTO-ON OPTION IN THE SENSOR TO "OCCUPANCY" TO MAKE THE SENSOR AN OCCUPANCY SENSOR. COLOR OF DEVICE SHALL BE AS SELECTED BY THE ARCHITECT.
12	WALL (48" AFF TO TOP)	WIRED	QSW52-2BRLL-XX-NST	-	THIS LOW-VOLTAGE WIRED SWITCH SHALL PROVIDE "ON/OFF/RAISE/LOWER" CONTROL FOR ONE ZONE OF LIGHT FIXTURES. COLOR OF DEVICE SHALL BE AS SELECTED BY THE ARCHITECT. TOP BUTTON SHALL BE ENGRAVED "ON". BOTTOM BUTTON SHALL BE ENGRAVED "OFF".

LIGHTING SENSOR AND SWITCH SCHEDULE NOTES:

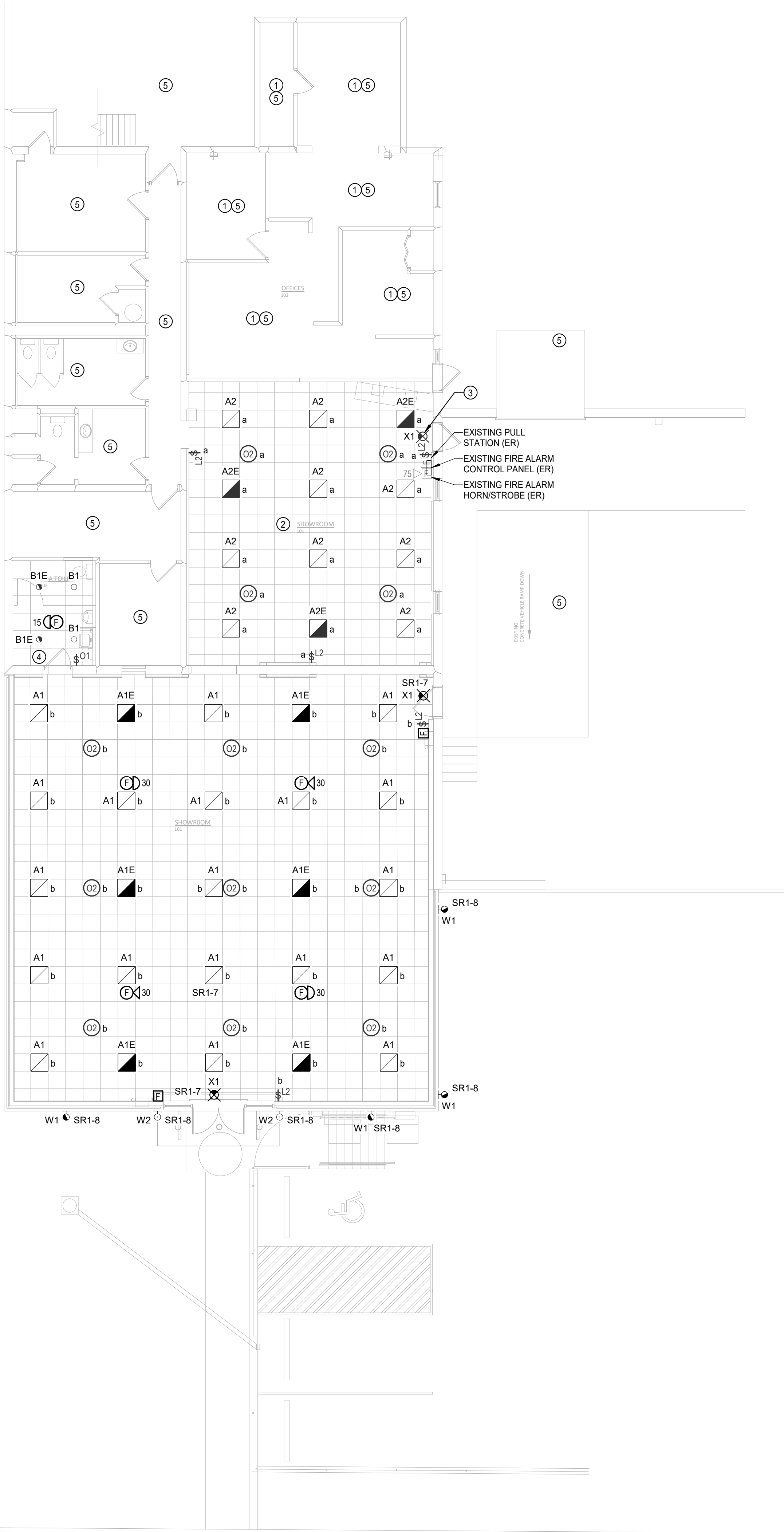
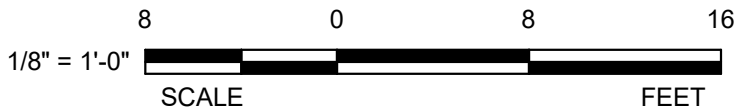
- DEVICE FINISHES SHALL BE AS OUTLINED IN THE SPECIFICATIONS.
- EXACT LOCATIONS OF ALL SENSORS SHALL BE AS RECOMMENDED BY MANUFACTURER.
- ALL OCCUPANCY/VACANCY SENSOR TIME DELAYS SHALL BE 15 MINUTES, UNLESS NOTED OTHERWISE.
- PROVIDE ALL LOW-VOLTAGE WIRING NEEDED FOR A FULLY OPERATIONAL, 5V/10V VIOLET-AND-GRAY, ANY OTHER MANUFACTURER-RECOMMENDED CABLING, PLENUM-RATED WHERE IN AIR HANDLING SPACES, IN DEDICATED CONDUIT SYSTEM WHERE NOT ABOVE ACCESSIBLE CEILINGS, IN DEDICATED SLEEVES WHERE PENETRATING PARTITIONS).
- FOR CATSE "PLUG-AND-PLAY" SYSTEMS, AT LEAST ONE WALL SWITCH IN EACH ROOM SHALL HAVE AN OPEN CATSE PORT (SO THAT THERE IS AN EASILY ACCESSIBLE OPEN PORT).
- PROVIDE ALL PROGRAMMING NEEDED TO SET UP SENSORS, POWER PACKS AND LOW-VOLTAGE SWITCHES PRIOR TO SUBSTANTIAL COMPLETION. LOW-VOLTAGE CONTROLS (SENSORS, SCENES AND SWITCHES) SHALL BE USER-CONFIGURABLE EITHER VIA A MOBILE APP OR HANDHELD REMOTE CONTROLS - PROVIDE ONE OF EACH DEVICE REQUIRED FOR USER-CONFIGURABLE AFTER INITIAL SETUP.
- ALL MANUAL CONTROL MOUNTING HEIGHTS SHALL BE 48" AFF TO THE TOP. LOAD CONTROLLERS SHALL BE LOCATED ABOVE THE NEAREST ACCESSIBLE CEILING (PLENUM-RATED WHERE IN AIR HANDLING SPACES).
- PROVIDE LOAD CONTROLLERS IN QUANTITIES NEEDED TO SERVE THE NUMBER OF ZONES INDICATED ON THE DRAWINGS. ROOMS MAY SHARE LOAD CONTROLLERS IF THERE ARE SUFFICIENT OUTPUTS AND IF ROOMS CAN STILL OPERATE INDEPENDENTLY OF ONE ANOTHER. LOAD CONTROLLERS SHALL BE THE DIMMING TYPE WITH 0-10V WIRING IN ROOMS WHERE SWITCHES ARE THE DIMMING TYPE OR WHERE PHOTOSENSORS ARE PRESENT.
- LOW-VOLTAGE CONTROL WIRING (INCLUDING 0-10V) MUST BE INSTALLED AS CLASS 2 CIRCUITS, IN FULL COMPLIANCE WITH NEC 725.136. LOW-VOLTAGE WIRING CANNOT SHARE THE SAME RACEWAY WITH LINE-VOLTAGE WIRING EXCEPT UNDER THE CONDITIONS LISTED IN NEC 725.136(I).
- SEE SPECIFICATIONS FOR MORE DETAILS. SUBMIT SHOP DRAWINGS OF ALL LIGHTING CONTROL DEVICES.



1

PARTIAL NEW WORK PLAN - LIGHTING AND FIRE ALARM

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



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DATE: 04/04/2023

REVISIONS
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GENERAL NOTES:

- CONNECT ALL OF THE NEW EXTERIOR BUILDING MOUNTED LIGHT FIXTURES TO THE 120V CIRCUIT INDICATED VIA A DIGITAL ASTRONOMICAL TIMECLOCK WITH BUILT-IN MANUAL OVERRIDE (TORK DWZ SERIES OR EQUAL). PROVIDE PROGRAMMING OF TIMECLOCK SCHEDULES PER THE OWNER'S DIRECTION PRIOR TO PROJECT COMPLETION.
- PROVIDE LOAD CONTROLLERS (POWER PACKS) IN QUANTITIES AS REQUIRED TO ACHIEVE SWITCHING AND DIMMING FUNCTIONS INDICATED ON THE FLOOR PLANS. REFER TO THE SENSOR AND SWITCH SCHEDULE ON THIS SHEET FOR ADDITIONAL INFORMATION. INSTALL LOAD CONTROLLERS ABOVE THE ACCESSIBLE CEILINGS WHERE THE ASSOCIATED LIGHTS ARE LOCATED.
- ALL OF THE EXIT SIGNS SHOWN ON THIS PLAN SHALL BE DIRECTLY CONNECTED (UNSWITCHED) TO THE INDICATED 120V LIGHTING CIRCUIT WITH 2-#12 AND 1-#12 GROUND IN A 3/4" CONDUIT.
- CIRCUIT LIGHT FIXTURES TO THE CIRCUIT AS IDENTIFIED NEAR THE ASSOCIATED CONTROLS AND/OR FIXTURE.
- UNLESS OTHERWISE INDICATED, LIGHT FIXTURES SHALL BE CONTROLLED BY THE SWITCH AND/OR OCCUPANCY SENSOR(S) LOCATED IN THE SAME SPACE.
- WHERE CEILING MOUNTED OCCUPANCY SENSORS AND MANUAL WALL CONTROLS ARE ILLUSTRATED IN THE SAME SPACE THE WALL SWITCH SHALL OVERRIDE THE OCCUPANCY SENSORS.
- WHERE MULTIPLE OCCUPANCY SENSORS ARE ILLUSTRATED IN THE SAME AREA MOTION DETECTION BY ANY ONE OCCUPANCY SENSOR SHALL ILLUMINATE ALL LIGHTING IN THE RESPECTIVE AREA.
- REFER TO THE LIGHTING SENSOR AND SWITCH SCHEDULE ON THIS SHEET FOR LIGHTING CONTROL SCHEMES IN EACH SPACE.

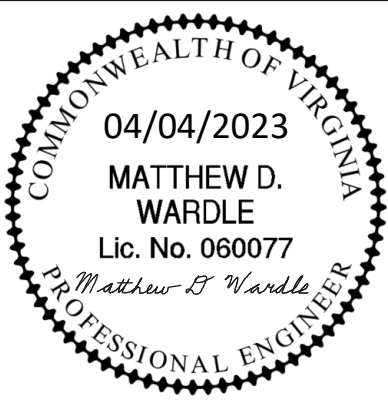
PLAN NOTES: O

- MAINTAIN THE EXISTING CONTROL OF THE EXISTING LIGHT FIXTURES BEHIND THE FRONT DESK. AS NECESSARY, PROVIDE NEW TOGGLE SWITCHES AND EXTEND THE EXISTING LIGHTING CIRCUIT UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING.
- REUSE THE EXISTING LIGHTING CIRCUIT IN THIS EXISTING SHOWROOM TO POWER THE NEW TYPE A2/A2E LIGHT FIXTURES. EXTEND THE EXISTING LIGHTING CIRCUIT UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING VIA THE NEW LIGHTING CONTROLS TO THE NEW LIGHT FIXTURES.
- CONNECT TO THE EXISTING LIGHTING CIRCUIT IN THIS EXISTING SHOWROOM AS DESCRIBED IN GENERAL NOTE 3 ABOVE.
- REUSE THE EXISTING LIGHTING CIRCUIT IN THIS EXISTING SPACE TO POWER THE NEW TYPE B1/B1E LIGHT FIXTURES. EXTEND THE EXISTING LIGHTING CIRCUIT UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING VIA THE NEW LIGHTING CONTROLS TO THE NEW LIGHT FIXTURES.
- THIS AREA IS OUTSIDE THE SCOPE OF THIS PROJECT. ALL EXISTING ELECTRICAL SYSTEMS SHALL REMAIN AS CURRENTLY INSTALLED, UNLESS NOTED OTHERWISE.

ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DRAWN BY: MDW
CHECKED BY: JTO

PARTIAL NEW WORK
PLAN - LIGHTING AND
FIRE ALARM



COMMISSION No.
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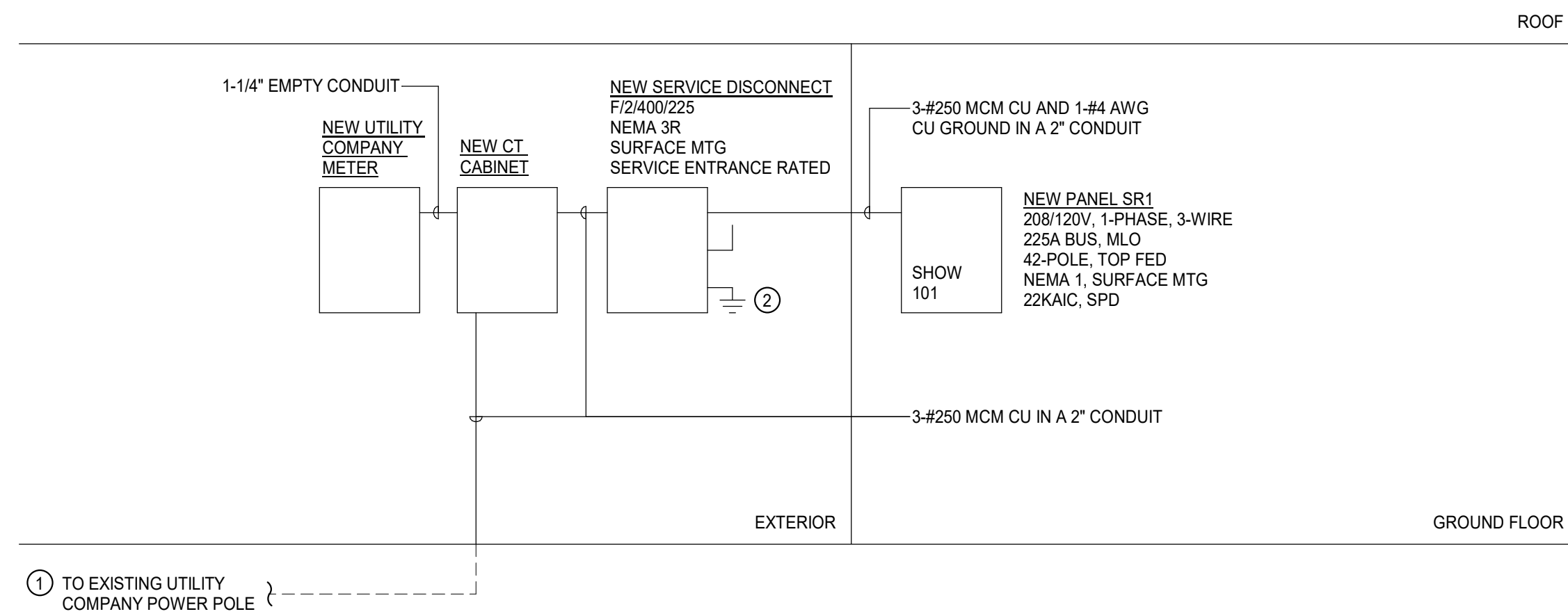
GENERAL NOTES:

- PER 2017 NEC 230.2(D): A SECOND ELECTRICAL SERVICE SHALL BE PERMITTED FOR DIFFERENT VOLTAGES, FREQUENCIES, OR PHASES, OR FOR DIFFERENT USES.
- ALL ROOF PENETRATIONS SHALL BE SEALED WEATHER TIGHT. COORDINATE WITH THE GENERAL CONTRACTOR AND THE ROOF MANUFACTURER AND INSTALLER AS REQUIRED.

PLAN NOTES: ○

- ROOFTOP UNIT PROVIDED WITH A SINGLE-POINT ELECTRICAL POWER CONNECTION, INTEGRAL PRE-WIRED ELECTRICAL DISCONNECT SWITCH, AND AN INTEGRAL FIELD-WIRED CONVENIENCE RECEPTACLE. CONNECT THE INTEGRAL FIELD-WIRED CONVENIENCE RECEPTACLE IN EACH UNIT TO CIRCUIT SR1-9 AS NOTED IN THE PANEL SR1 SCHEDULE.
- PER 2017 NEC 230.2(E): BECAUSE A SECOND ELECTRICAL SERVICE IS BEING ADDED TO THIS BUILDING, A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE DISCONNECT LOCATION DENOTING THE OTHER SERVICE SUPPLYING THE BUILDING AND THE AREA SERVED BY EACH.
- THE CITY OF ROANOKE PLANNING, BUILDING AND DEVELOPMENT ZONING DEPARTMENT HAS APPROVED A SECOND ELECTRICAL SERVICE TO THE ADDITION, PROVIDED THAT THE SECOND ELECTRICAL SERVICE DOESN'T REQUIRE THE INSTALLATION OF A NEW UTILITY POLE OR THE INSTALLATION OF OVERHEAD LINES.
- THIS EXHAUST FAN SHALL BE POWERED FROM THE EXISTING LIGHTING CIRCUIT IN THIS SPACE VIA THE WALL MOUNTED OCCUPANCY SENSOR SWITCH. REFER TO PLAN NOTE 4 ON SHEET E1-0.
- THIS AREA IS OUTSIDE THE SCOPE OF THIS PROJECT. ALL EXISTING ELECTRICAL SYSTEMS SHALL REMAIN AS CURRENTLY INSTALLED, UNLESS NOTED OTHERWISE.
- REFER TO THE ELECTRICAL DEMOLITION PLAN FOR THE SCOPE OF WORK IN THIS SPACE.
- EXTEND THE NEAREST EXISTING NON-DEDICATED RECEPTACLE CIRCUIT IN THIS SPACE TO THE NEW RECEPTACLE UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING AND CONNECT.
- COORDINATE WITH THE ARCHITECT AND OWNER FOR THE FINAL LOCATION OF NEW PANEL SR1. FLUSH MOUNT NEW PANEL SR1 AS DIRECTED BY THE ARCHITECT AND OWNER. MAINTAIN ALL NEC-REQUIRED CLEARANCES ABOUT THE PANEL.
- COORDINATE THE FINAL ELECTRICAL ROUGH-IN REQUIREMENTS OF THE WHEELCHAIR STAIRLIFT WITH THE FURNISHED STAIRLIFT. PROVIDE AND INSTALL A 120V, 20A WEATHER-RESISTANT DUPLEX RECEPTACLE WITH WEATHERPROOF COVER AS REQUIRED FOR A PLUG-IN CONNECTION. COORDINATE THE FINAL LOCATION AND HEIGHT OF THE FINAL ELECTRICAL ROUGH-IN WITH THE STAIRLIFT MANUFACTURER/INSTALLER.

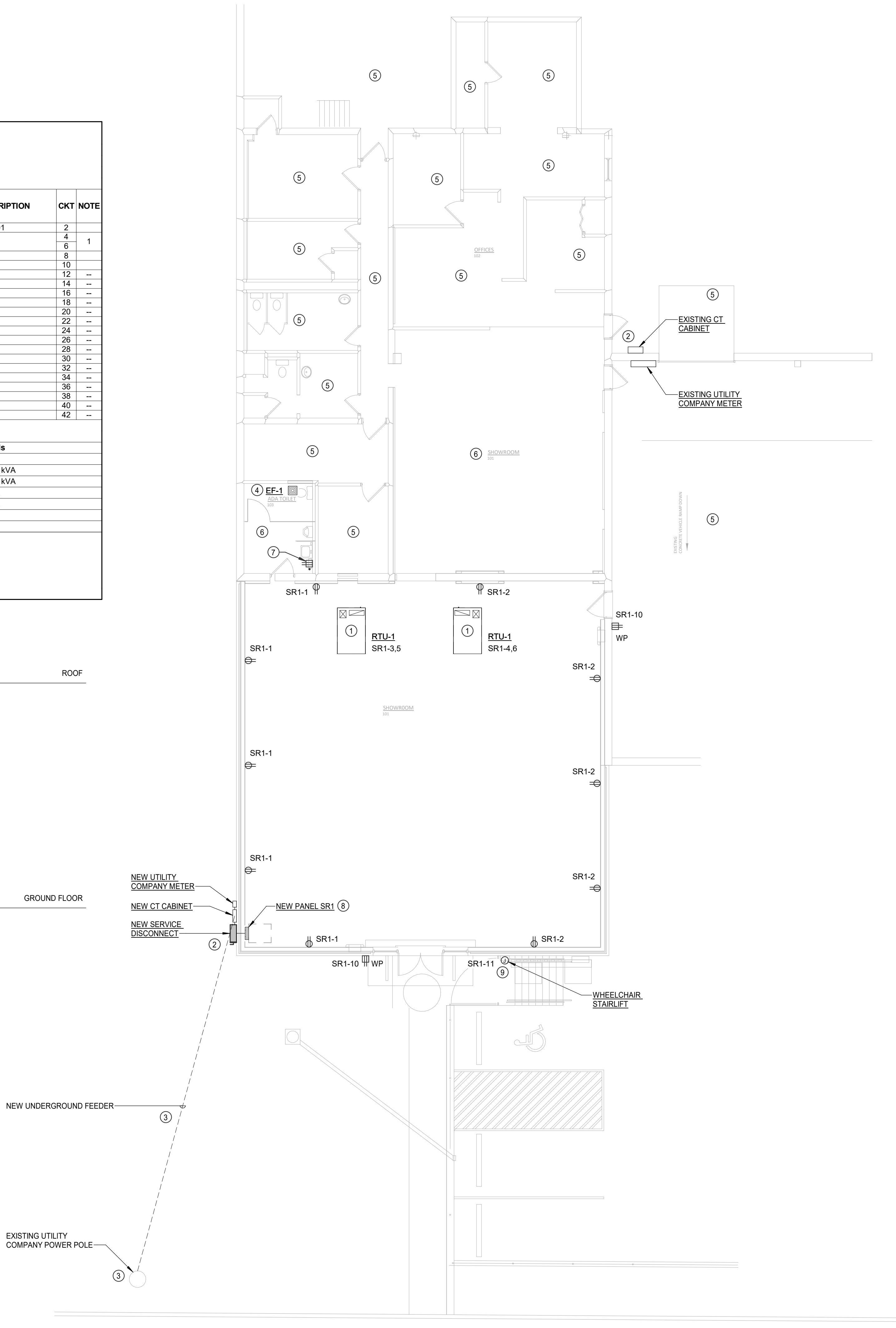
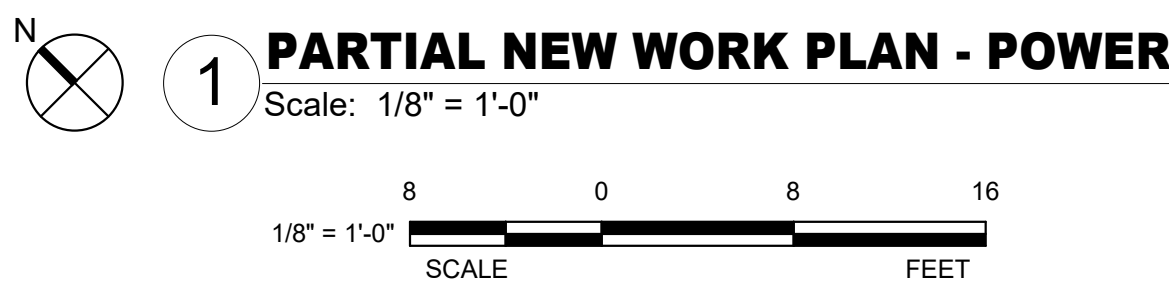
Branch Panel: SR1																			
Location: Supply From: Mounting: Surface						Volts: 120/208 Single Phases: 1 Wires: 3 Phase in kVA						A.I.C. Rating: 22kA Enclosure: 1 Mains: 225A							
NOTE	CKT	CIRCUIT DESCRIPTION				WIRE	GND	CONDUIT	BKR	A	B	BKR	CONDUIT	GND	WIRE	CIRCUIT DESCRIPTION		CKT	NOTE
1	1	REC - SHOWROOM 101				2#12	1#12	3/4"	20 1	0.9 / 0.9		1	20	3/4"	1#12	2#12	REC - SHOWROOM 101	2	
	3	RTU-1				2#8	1#10	3/4"	40 2	3.8 / 3.8	3.8 / 3.8	2	40	3/4"	1#10	2#8	RTU-1	4	1
	5																	6	
	7	LIGHTS - SHOWROOM 101				2#12	1#12	3/4"	20 1	1.0 / 0.2	1	20	3/4"	1#12	2#12	LIGHTS - EXTERIOR		8	
	9	REC - RTU'S				2#12	1#12	3/4"	20 1	0.4 / 0.4	1	20	3/4"	1#12	2#12	REC - EXTERIOR		10	
G	11	WHEELCHAIR STAIRLIFT				2#12	1#12	3/4"	20 1	1.2 / 0.0	1	20	--	--	--	SPARE		12	--
--	13	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		14	--
--	15	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		16	--
--	17	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		18	--
--	19	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		20	--
--	21	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		22	--
--	23	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		24	--
--	25	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		26	--
--	27	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		28	--
--	29	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		30	--
--	31	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		32	--
--	33	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		34	--
--	35	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		36	--
--	37	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		38	--
--	39	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		40	--
--	41	SPARE				--	--	--	20 1	0.0 / 0.0	1	20	--	--	--	SPARE		42	--
									Total Load:		9.9 kVA		9.9 kVA						
									Total Amps:		95 A		95 A						
Load Classification						Connected Load		Demand Factor		Estimated Demand				Panel Totals					
HVAC						15.4 kVA		100.00%		15.4 kVA									
Lighting						1.2 kVA		125.00%		1.5 kVA				Total Conn. Load: 19.8 kVA					
Miscellaneous						1.2 kVA		100.00%		1.2 kVA				Total Est. Demand: 20.1 kVA					
Receptacles						2.5 kVA		100.00%		2.5 kVA				Total Conn. Current: 95 A					
														Total Est. Demand Current: 97 A					
Notes:										Abbreviations:									
1. PROVIDE HACR TYPE CIRCUIT BREAKER.										G - PROVIDE GFCI CIRCUIT BREAKER 1-L - REFER TO ELECTRICAL RISER DIAGRAMS									



ELECTRICAL POWER RISER DIAGRAM NOTES: ○

- NEW UNDERGROUND ELECTRICAL SERVICE FROM NEAREST EXISTING UTILITY COMPANY SERVICE POLE. COORDINATE WITH THE UTILITY COMPANY FOR RESPONSIBILITIES ASSOCIATED WITH THE NEW SERVICE. PROVIDE AND INSTALL THE QUANTITY AND SIZE OF UNDERGROUND CONDUITS AS REQUIRED BY THE UTILITY COMPANY. PROVIDE TRENCHING AS REQUIRED TO INSTALL THE CONDUITS. PROVIDE CONNECTIONS AT THE SERVICE ENTRANCE EQUIPMENT AS REQUIRED BY THE UTILITY COMPANY.
- REFER TO THE GROUNDING SCHEMATIC ON SHEET E0-1.

2 ELECTRICAL POWER RISER DIAGRAM
Scale: NONE





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| expect a difference |

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DATE: 04/04/2023

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PLAN NOTES:

1. THE EXISTING CEILING GRID AND TILE IN THIS SPACE ARE BEING REMOVED AND REPLACED. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THIS WORK. THE EXISTING LIGHT FIXTURES AND LIGHTING CONTROLS IN THIS SPACE SHALL BE REMOVED AND REPLACED. THE EXISTING LIGHTING CIRCUIT IN THIS SPACE SHALL BE REUSED TO POWER TO THE NEW LIGHT FIXTURES IN THIS SPACE. REFER TO THE NEW WORK LIGHTING PLAN.
2. ALL EXISTING CEILING MOUNTED DEVICES IN THIS SPACE SHALL BE REMOVED DURING THE DEMOLITION OF THE EXISTING CEILING GRID AND TILE IN THIS SPACE. ALL EXISTING CEILING MOUNTED DEVICES (EXCEPT EXISTING LIGHT FIXTURES) SHALL BE REINSTALLED IN THE NEW CEILING IN THE SAME LOCATIONS.
3. REMOVE EXISTING WALL MOUNTED ELECTRICAL DEVICES MOUNTED TO THIS WALL. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF DEMOLITION AT THIS WALL.
4. MAINTAIN THE EXISTING CONTROL OF THE EXISTING LIGHT FIXTURES BEHIND THE FRONT DESK. AS NECESSARY, PROVIDE NEW TOGGLE SWITCHES AND EXTEND THE EXISTING LIGHTING CIRCUIT UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING.
5. THIS AREA IS OUTSIDE THE SCOPE OF THIS PROJECT. ALL EXISTING ELECTRICAL SYSTEMS SHALL REMAIN AS CURRENTLY INSTALLED, UNLESS NOTED OTHERWISE.
6. REMOVE EXISTING WALL MOUNTED ELECTRICAL DEVICES IN THIS SPACE.
7. UNLESS NOTED OTHERWISE, ALL EXISTING WALL MOUNTED ELECTRICAL DEVICES IN THIS EXISTING SHOWROOM SHALL REMAIN AS CURRENTLY INSTALLED.
8. DISCONNECT AND REMOVE THE EXISTING HORN AND CAMERA AT THIS LOCATION ON THE EXISTING BUILDING.
9. DISCONNECT AND REMOVE THE EXISTING LIGHT FIXTURE AT THIS LOCATION ON THE EXISTING BUILDING.
10. REROUTE THE EXISTING EXPOSED CONDUIT AND WIRE SERVING EXISTING SITE LIGHT FIXTURES AS REQUIRED UTILIZING THE SAME SIZE CONDUIT AND WIRE AS EXISTING.
11. COORDINATE WITH THE UTILITY COMPANY AND OWNER TO REROUTE THE EXISTING OVERHEAD SERVICE LINES AROUND THE LOCATION OF THE ADDITION. PROVIDE MATERIALS AND LABOR AS REQUIRED BY THE UTILITY COMPANY.
12. COORDINATE WITH THE TELECOM SERVICE PROVIDERS AND OWNER TO REROUTE THE EXISTING OVERHEAD TELECOM SERVICE LINES AROUND THE LOCATION OF THE ADDITION. PROVIDE MATERIALS AND LABOR AS REQUIRED BY THE TELECOM SERVICE PROVIDERS.

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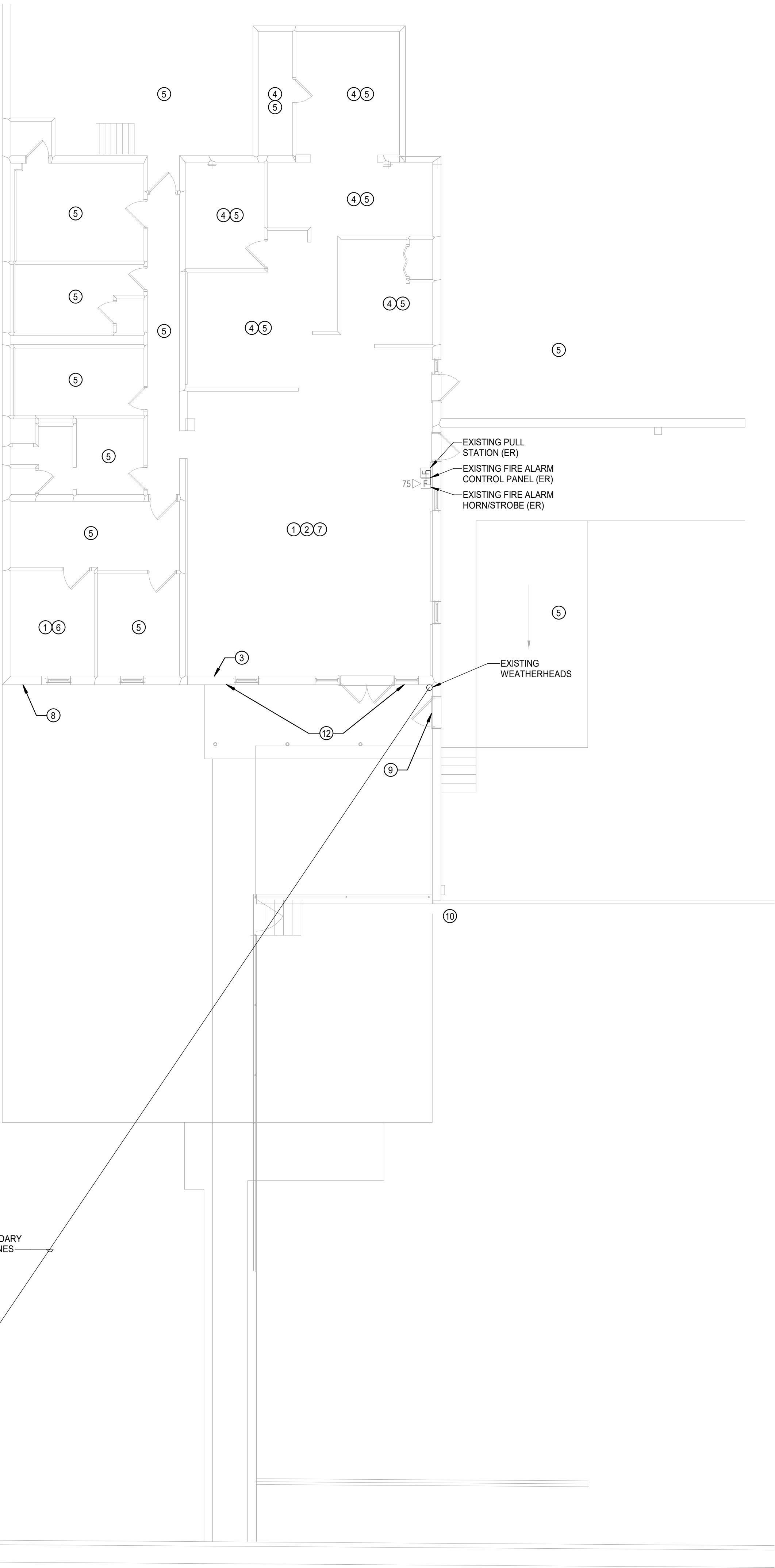
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PARTIAL DEMOLITION
PLAN - ELECTRICAL



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1 PARTIAL DEMOLITION PLAN - ELECTRICAL

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

8 0 8 16
1/8" = 1'-0"
SCALE FEET

EXISTING UTILITY
COMPANY POWER POLE



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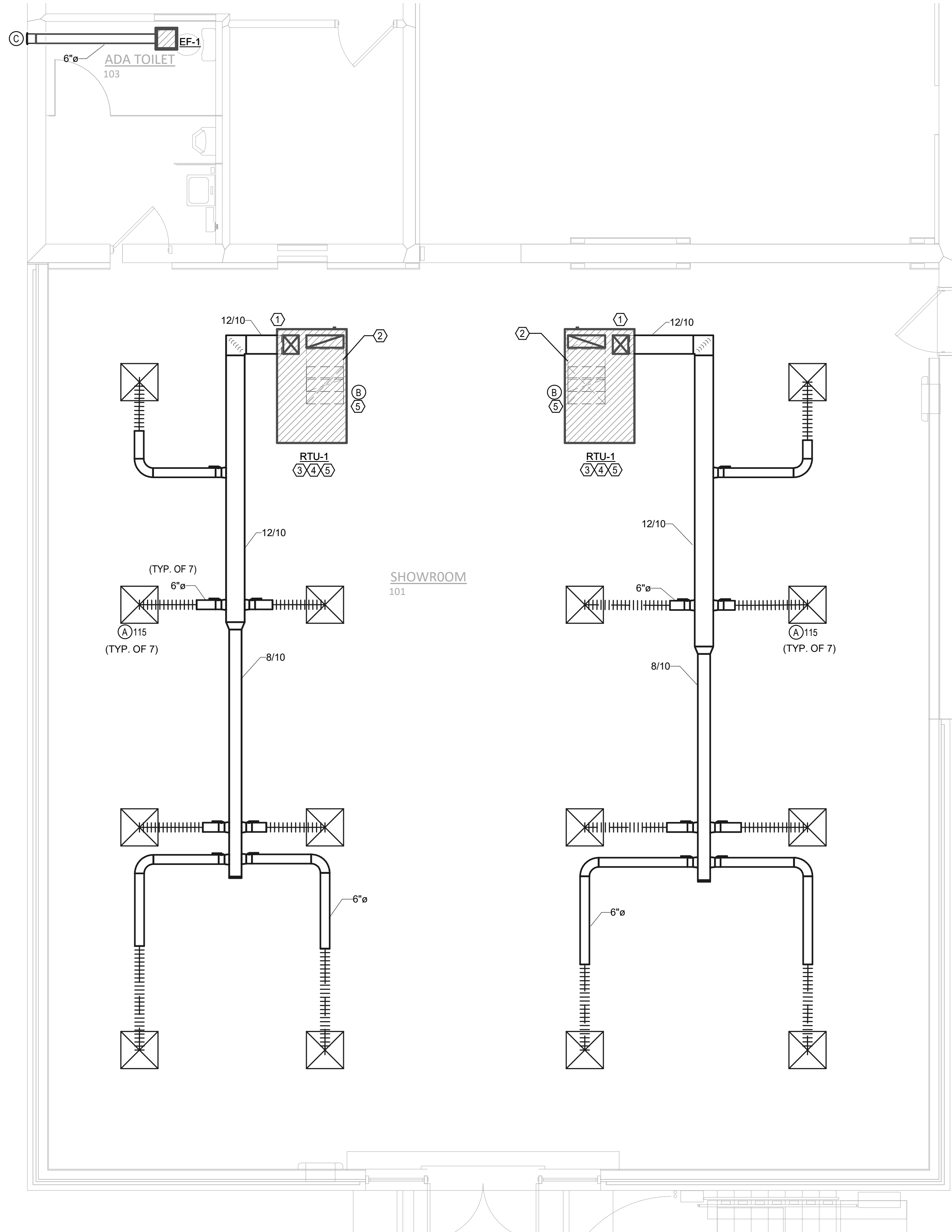
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MECHANICAL KEYED NOTES: ①

- ROUTE SUPPLY DUCT DOWN FROM RTU CONNECTIN AND TRANSATION DUCTWORK AS REQUIRED TO 12"/10" SUPPLY DUCT WORK.
- ROUTE RETURN DUCT UP FROM RTU CONNECTIN AND TRANSATION DUCTWORK AS REQUIRED TO 24"/8" RETURN DUCT WORK.
- ROUTE RTU-1 CONDENSATE TO ROOF SCUPPER. CONTRACTOR TO FIELD VERIFY EXACT ROUTING IN THE FIELD.
- PROVIDE 14" ROOF CURB. ROOF CURB TO MATCH SLOPE OF ROOF. REFER TO DETAIL 3/M2-0 FOR ROOF CURB DETAIL.
- ROUTE 24"/8" RETURN DUCT UP FROM RETURN GRILLE CONNECTIN AND TRANSATION DUCTWORK AS REQUIRED TO 24"/8" RETURN DUCT WORK.

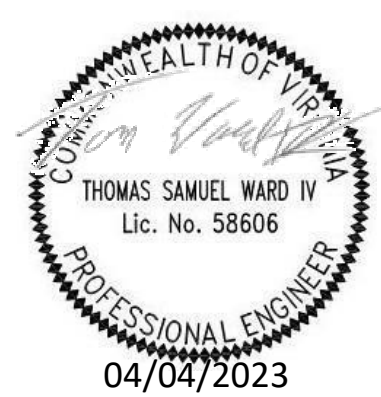
GENERAL KEYED NOTES

- ALL DUCTWORK TRANSITIONS AND PIPING INCREASERS/REDUCERS SHALL BE PROVIDED AS REQUIRED FOR EQUIPMENT CONNECTIONS. SEE MANUFACTURERS DATA FOR ACTUAL DUCTWORK AND PIPING CONNECTION SIZES AND LOCATIONS.
- THE GENERAL CONTRACTOR SHALL SEAL AND FLASH ALL WALL, ROOF, AND FLOOR PENETRATIONS AIRTIGHT AND WATERTIGHT AT EACH PIPE DUCTWORK AND CONDUIT PENETRATION. ALL PENETRATION THRU FIRE RATED WALLS ARE TO BE SEALED PER UL DETAILS.
- DUCT WORK INSTALLATION, CONNECTIONS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE SMACNA STANDARDS.
- EQUIPMENT INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COPY OF INSTRUCTIONS SHALL BE ON JOB SITE AT TIME OF BUILDING INSPECTIONS.
- DUCT DIMENSIONS INDICATED ARE ACTUAL SHEET METAL SIZES. WHERE ACOUSTIC LINING IS INDICATED (IF SHOWN), THE DUCT SIZES WERE ADJUSTED TO COMPENSATE FOR THE LINING.
- DUCTWORK LAYOUTS ARE SCHEMATIC. ALL DROPS, RISES, OR OFFSETS REQUIRED BUT NOT SHOWN SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- DUCT CONNECTIONS TO SIDE WALL OR DUCT MOUNTED REGISTERS AND GRILLES SHALL BE MADE WITH RIGID DUCT. DUCT CONNECTIONS TO CEILING-MOUNTED DIFFUSERS, REGISTERS, AND GRILLES MAY BE WITH RIGID OR FLEXIBLE DUCT (CONTRACTOR OPTION). PROVIDE SMOOTH BENDS IN FLEXIBLE DUCT SECTIONS.
- ALL TEMPERATURE AND HUMIDITY SENSORS IN PUBLIC AREAS SHALL BE MOUNTED AT 5'-0" AFF.
- DUCT CONNECTIONS TO ALL AIR HANDLING UNITS, INCLUDING FAN COIL UNITS, INLINE FANS, ETC. SHALL BE MADE USING FLEXIBLE DUCT CONNECTION. ALSO, PROVIDE FLEXIBLE DUCT CONNECTIONS WHERE DUCTWORK CROSSES BUILDING EXPANSION JOINTS.
- LOCATE CEILING AIR DIFFUSERS, REGISTERS AND GRILLES IN THE CENTER OF 2x2' AND AT THE QUARTER POINT OF 2x4' ACOUSTICAL TILE CEILING MODULES UNLESS SPECIFICALLY INDICTED OTHERWISE ON THE ARCHITECTURAL REFLECTED CEILING PLANS.
- EQUIPMENT HANGERS SHALL BE SPACED IN A SYSTEMATIC RANDOM PATTERN AS REQUIRED TO ELIMINATE OVERLOADING INDIVIDUAL STRUCTURAL MEMBERS. THE ESTIMATED WEIGHT ASSIGNED TO EQUIPMENT HANGERS SHALL BE DETERMINED BY THE MECHANICAL CONTRACTOR AND SUBMITTED TO THE GENERAL CONTRACTOR FOR REVIEW, COORDINATION AND APPROVAL PRIOR TO INSTALLATION. THIS REQUIREMENT APPLIES TO ALL MECHANICAL WORK, INCLUDING PLUMBING AND FIRE PROTECTION.
- WHERE MORE THAN ONE TOP REGISTER IS INSTALLED IN A ROOM, THE CENTERLINE ELEVATION OF EACH REGISTER SHALL BE THE SAME DISTANCE FROM AND LEVEL TO THE PLANE OF THE CEILING.
- MANY OF THE CEILING SPACES ARE EXTREMELY CONGESTED AND WILL REQUIRE SIGNIFICANT ON-SITE FIELD COORDINATION BETWEEN THE CONSTRUCTION TRADES. CONTRACTOR GENERATED COORDINATION DRAWINGS ARE REQUIRED FOR ALL SUCH AREAS AND SHOULD INDICATE STRUCTURE, CEILING FEATURES, LIGHT FIXTURES, PLUMBING AND FIRE SERVICE PIPING AND ALL MECHANICAL EQUIPMENT, PIPING AND DUCTWORK.
- ALL DUCT PENETRATIONS THRU FIRE-RATED WALLS OR FLOOR ASSEMBLIES SHALL BE IN ACCORDANCE WITH AN APPROVED UL AND FIRESTOP SYSTEM FOR THE CONDITIONS ENCOUNTERED AS DEFINED IN THE UL BUILDING MATERIAL DIRECTORY.
- THE ROUTING OF LARGER SIZE SUPPLY AIR DUCTS SHALL TAKE PRECEDENCE OVER SMALLER DUCTS, AND OVER RETURN AND EXHAUST AIR DUCTS. PROVIDE DUCT OFFSETS, RISES AND DROPS AS REQUIRED TO INSTALL DUCTWORK AS CLOSELY TO THE LAYOUT SHOWN ON THESE DOCUMENTS AS POSSIBLE.
- SEE ARCHITECTURAL FIRE PROTECTION DRAWINGS FOR DETAILS OF FIRE AND SMOKE SEALING REQUIREMENTS AT PENETRATIONS OF ALL UL LISTED FIRE AND SMOKE RATED WALL, FLOOR AND ROOF/CEILING ASSEMBLIES.

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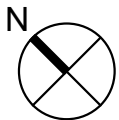
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MECHANICAL
ENLARGEMENT



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1 LEVEL 1 - MECHANICAL ENLARGEMENT

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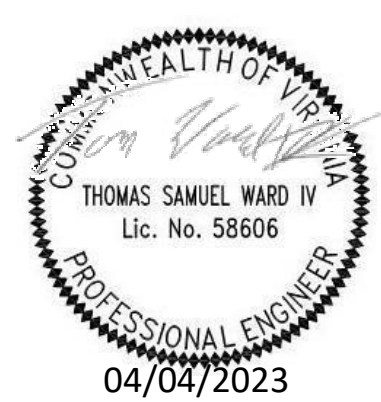
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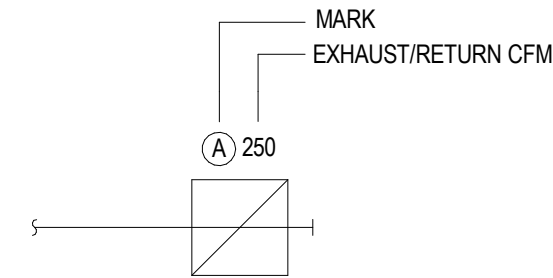
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MECHANICAL DETAILS

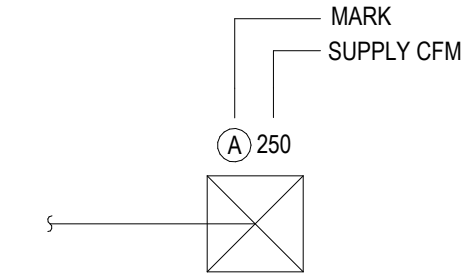


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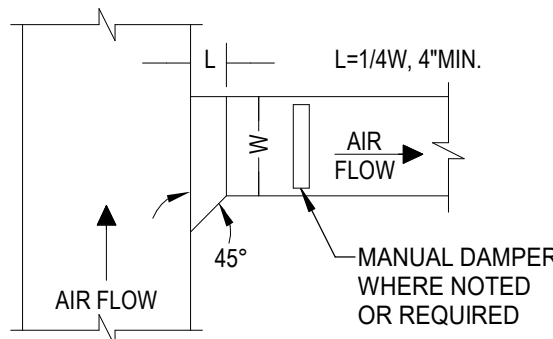
REGISTER SIZING

NO SCALE



DIFFUSER SIZING

NO SCALE

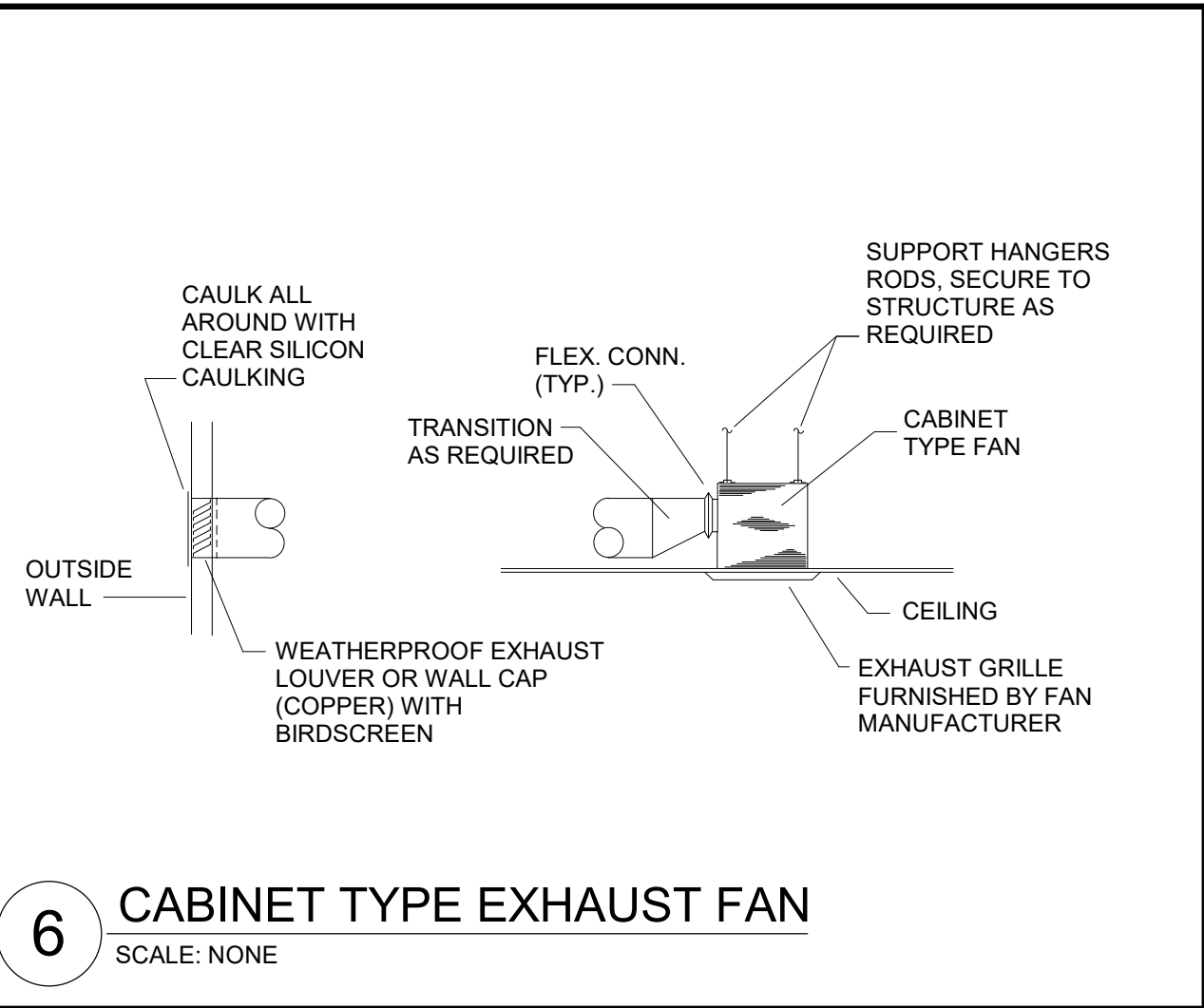


BRANCH DUCT CONNECTION DETAIL

SCHEMATIC

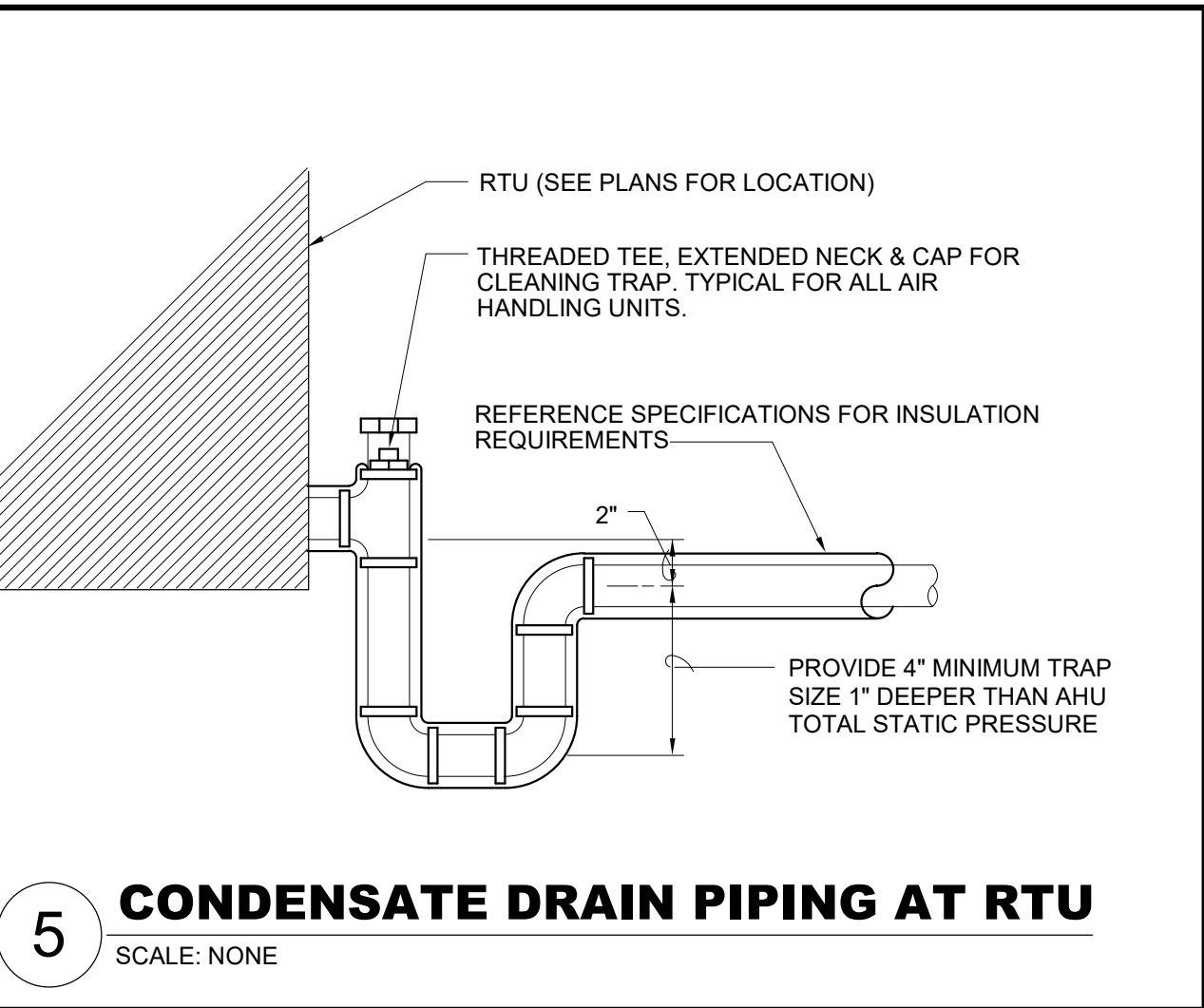
SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
(K)	KEY NOTE TAG
(D)	NOTE SPECIFIC TO DETAIL TAG
(A)	REVISION TAG
DUCTWORK	
[Symbol]	SUPPLY AIR DUCTWORK
[Symbol]	RETURN AIR AND OUTSIDE AIR DUCTWORK
[Symbol]	EXHAUST AIR DUCTWORK
[Symbol]	FLEXIBLE DUCTWORK
[Symbol]	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
[Symbol]	RETURN AIR AND OUTSIDE AIR DUCTWORK THROUGH HORIZONTAL PARTITION
SENSORS	
(T)	THERMOSTAT AND TEMPERATURE SENSOR
(H)	HUMIDISTAT
AIR DEVICES	
[Symbol]	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
[Symbol]	RETURN AIR GRILLE
PIPING	
—RLR—	REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
—RL—	REFRIGERANT LIQUID LINE
—HG—	REFRIGERANT HOT GAS LINE
—RS—	REFRIGERANT SUCTION LINE
SUBSCRIPTS AND ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BBS	BELOW BOTTOM OF STRUCTURE
BOD	BOTTOM OF DUCT
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
FPM	FEET PER MINUTE
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR



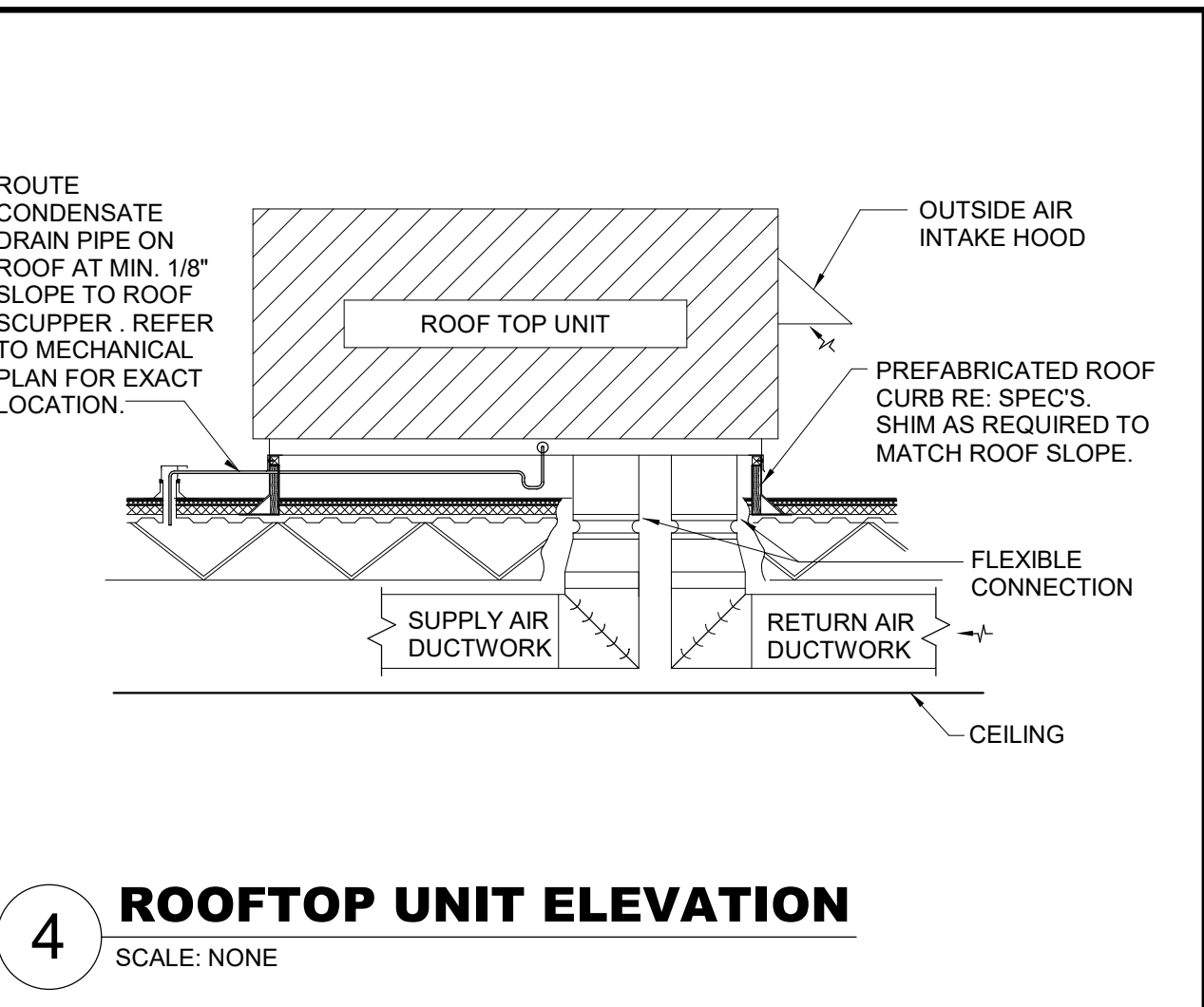
6 CABINET TYPE EXHAUST FAN

SCALE: NONE



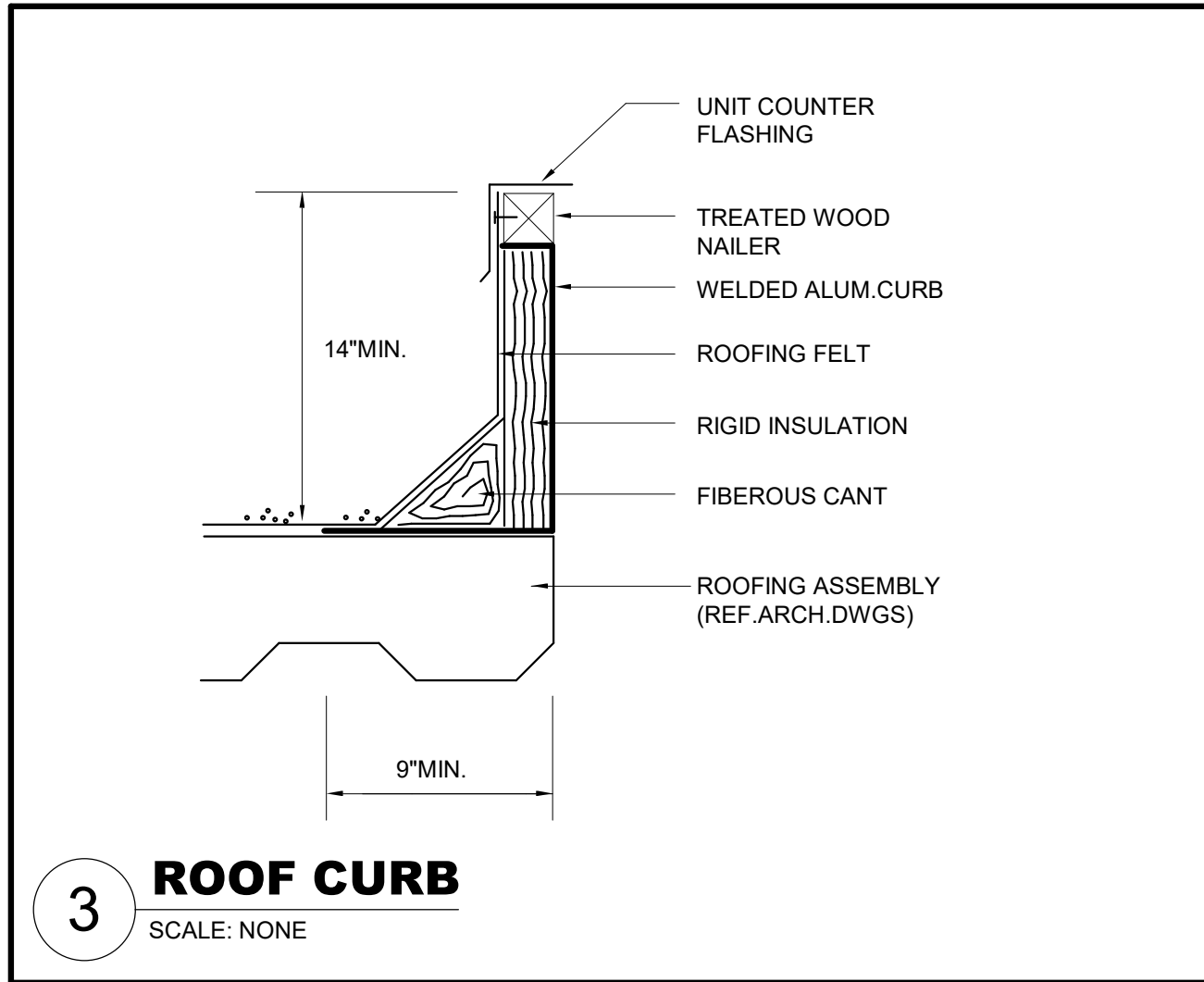
5 CONDENSATE DRAIN PIPING AT RTU

SCALE: NONE



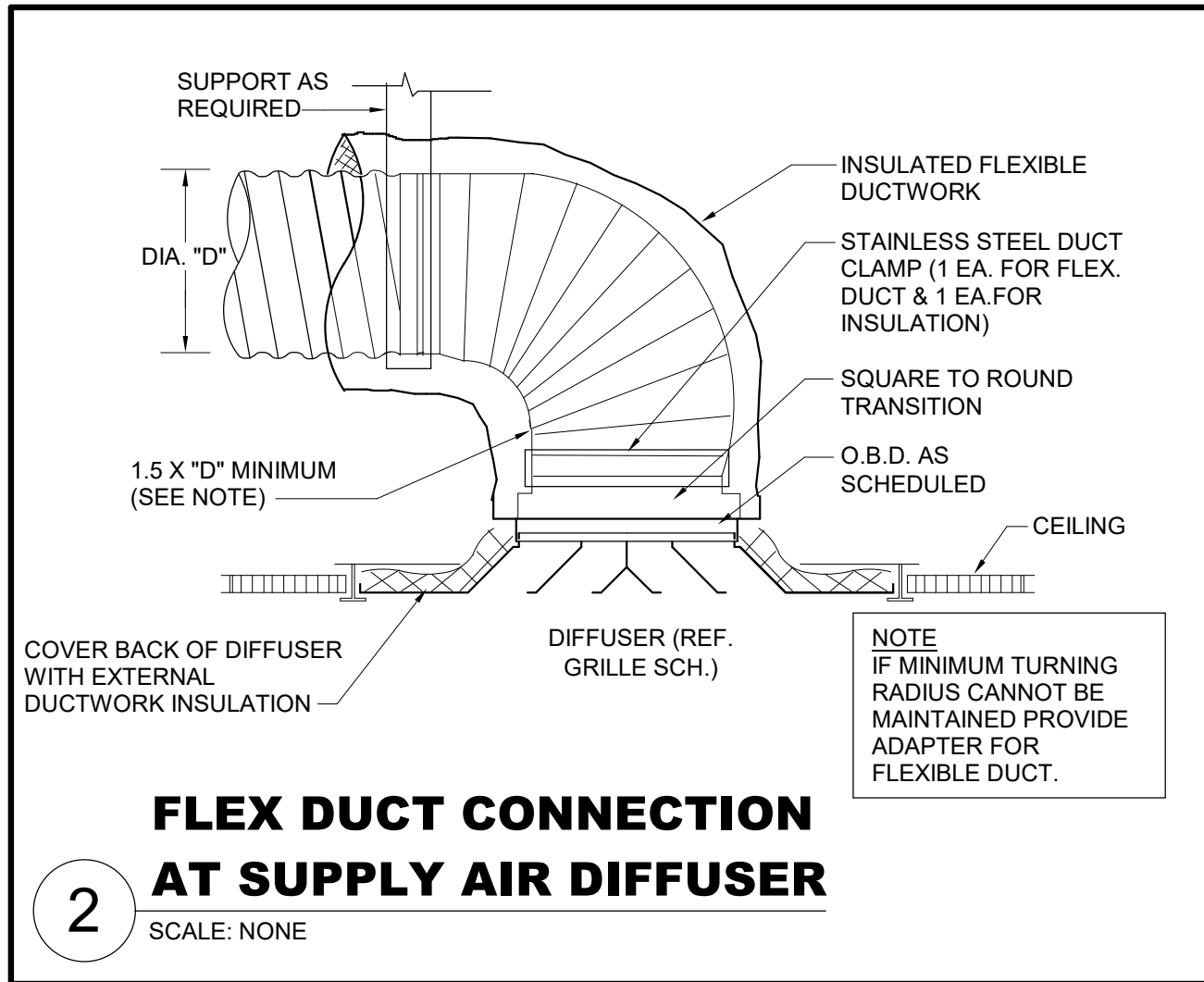
4 ROOFTOP UNIT ELEVATION

SCALE: NONE



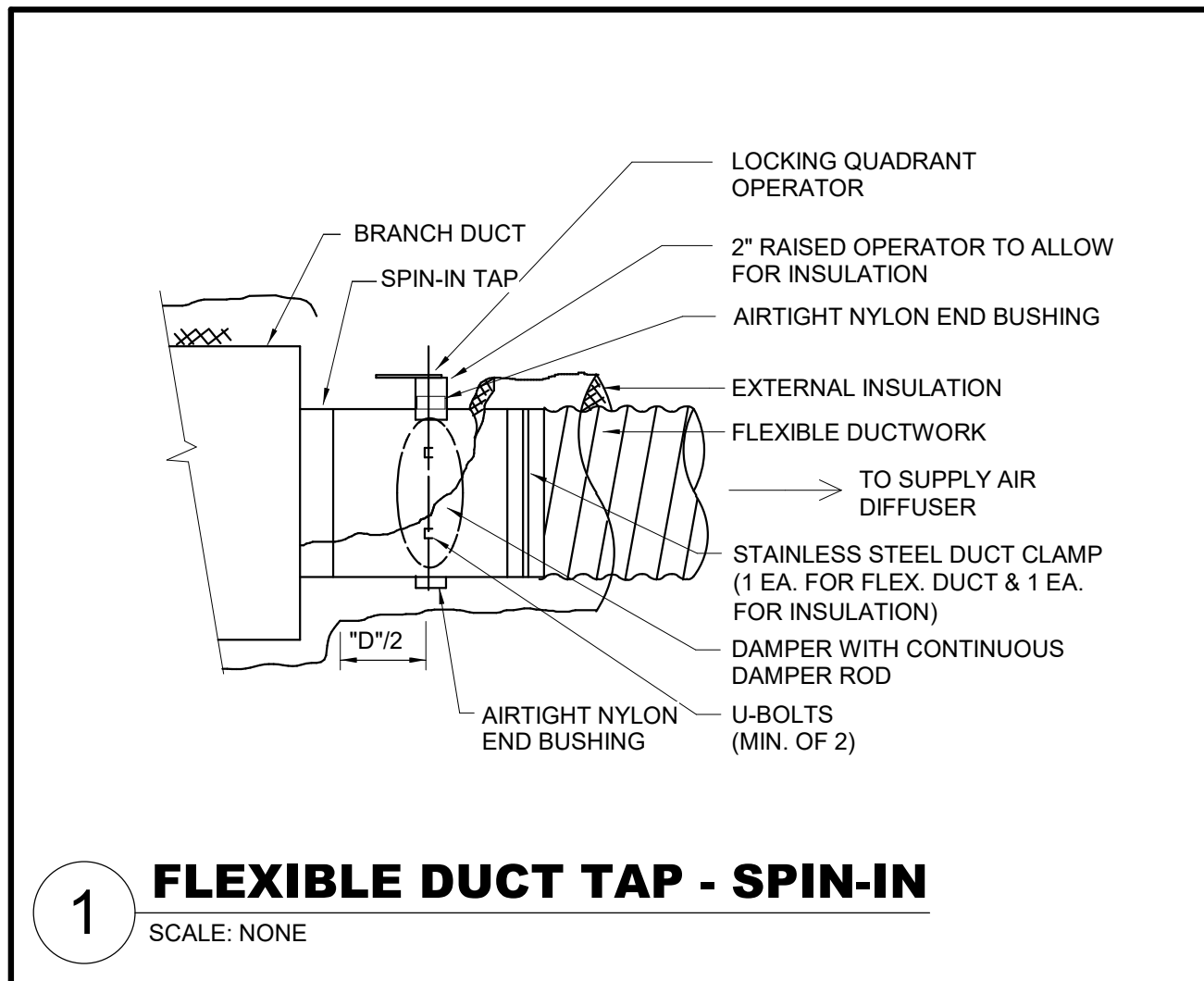
3 ROOF CURB

SCALE: NONE



2 FLEX DUCT CONNECTION AT SUPPLY AIR DIFFUSER

SCALE: NONE



1 FLEXIBLE DUCT TAP - SPIN-IN

SCALE: NONE

BASIS OF DESIGN

THE MANUFACTURER AND MODEL NUMBER LISTED IN THE DRAWINGS OR SPECIFICATIONS ARE THE BASIS OF DESIGN. WHEN PROVIDING EQUIPMENT THAT IS NOT THE BASIS OF DESIGN, THE CONTRACTOR SHALL PROVIDE AN ITEMIZED LIST OF ALL DEVIATIONS FROM THE INFORMATION DETAILED IN BOTH THE SPECIFICATION SECTION AND SCHEDULE. ADDITIONALLY, THE EQUIPMENT MUST MEET THE PHYSICAL CONSTRAINTS OF ROOM INCLUDING COORDINATION WITH OTHER TRADES AND ALL EQUIPMENT CLEARANCES, INCLUDING OTHER TRADES. FINALLY, THE CONTRACTOR SHALL PROVIDE AT THE CONTRACTOR'S COST ANY SCOPE INCREASE AND DEDUCTIONS BASED ON THE NON-BASIS OF DESIGN EQUIPMENT FOR THE FOLLOWING MINIMUM ITEMS:

- ELECTRICAL MODIFICATIONS, INCLUDING WIRING, CONDUIT, DISCONNECTS, OVERCURRENT PROTECTION, PANELS, ETC.
- STRUCTURAL MODIFICATIONS.
- CIVIL MODIFICATIONS.
- PLUMBING MODIFICATIONS.
- DUCT AND PIPE CONNECTIONS OR ARRANGEMENTS.
- SPACE HEATING AND COOLING REQUIREMENTS.
- EXHAUST OR VENTILATION MODIFICATIONS.
- VIBRATION ISOLATION REQUIREMENTS.

PACKAGED ROOFTOP UNIT - ELECTRIC HEAT																							
MARK	FAN							COOLING							HEATING							REMARKS	
	SUPPLY AIR CFM	OUTSIDE AIR CFM	EXT STATIC PRESSURE (IN. W.C.)	HORSE POWER	CURRENT CHARAC.			AIR TEMPERATURE (°F)				MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	ENTERING AIR TEMP. (°F)	MINIMUM CAPACITY (BTUH)	KW	CURRENT CHARAC.			Manufacturer		Model Number
					V	P	F	ENTERING DRY BULB	ENTERING WET BULB	AMBIENT TEMP	V							P	F				
RTU-1	805	270	1.00	0.3	208	1	60	80.0	67.0	95.0	30,000	22,500	12.7/15	80	25,600	7.5	208	1	60	LENNOX	KCB030S4D	1, 2, 3, 4, 5, 6, 7, 8, 9	
GENERAL NOTES:								REMARKS:															
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN. 2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.								1. PROVIDE UNIT WITH ROOF CURB. 2. PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT. 3. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL COSTS IF ALTERNATE UNIT IS PROVIDED WITH GREATER ELECTRICAL CHARACTERISTICS THEN SHOWN. 4. PROVIDE SINGLE-POINT ELECTRICAL POWER CONNECTION. 5. PROVIDE PRE-WIRED INTEGRAL ELECTRICAL DISCONNECT SWITCH. 6. PROVIDE PRE-WIRED INTEGRAL ELECTRICAL CONVENIENCE RECEPTACLE 7. PROVIDE UNIT WITH MODULATING HOT GAS RE-HEAT. 8. PROVIDE UNIT WITH SCR CONTROLS.															



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MECHANICAL SPECIFICATIONS

GENERAL

- PERFORM WORK IN ACCORDANCE WITH APPLICABLE STATUTES, ORDINANCES, CODES AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.
- OBTAIN ALL PERMITS REQUIRED.
- CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS.
- GARANTEE WORK FOR 1 YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF HE PROJECT. DURING THAT PERIOD MAKE GOOD ANY FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIAL, EQUIPMENT OR WORKMANSHIP. AT THE OWNER'S OPTION, REPLACEMENT OF FAILED PARTS OR EQUIPMENT SHALL BE PROVIDED.
- IMMEDIATELY PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, REPLACE AIR FILTERS.
- PROVIDE EQUIPMENT HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED AND GROUND MOUNTED HVAC EQUIPMENT, AND AS SHOWN ON THE DRAWINGS. CONCRETE PADS ARE TO BE 4" THICK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- PROVIDE NAMEPLATES WITH 1/2" HIGH LETTERS AND FASTENED WITH EPOXY OR SCREWS.
- MAINTAIN QUALITY CONTROL OVER SUPERVISION, SUBCONTRACTORS, SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS AND WORKMANSHIP TO PRODUCE WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- COMPLY WITH INDUSTRY STANDARDS EXCEPT WHEN MORE RESTRICTIVE TOLERANCES OR SPECIFIED REQUIREMENTS INDICATE MORE RIGID STANDARDS OR MORE PRECISE WORKMANSHIP.
- PERFORM WORK BY PERSONS QUALIFIED TO PRODUCE WORKMANSHIP OF SPECIFIED QUALITY.
- SECURE PRODUCTS IN PLACE WITH POSITIVE ANCHORAGE DEVICES DESIGNED AND SIZED TO WITHSTAND STRESSES, VIBRATION, AND RACKING. UNDER NO CONDITIONS SHALL MATERIAL OR EQUIPMENT BE SUSPENDED FROM STRUCTURAL BRIDGING.
- PROVIDE FINISHES TO MATCH APPROVED SAMPLES. ALL EXPOSED FINISHES SHALL BE APPROVED BY THE ARCHITECT. SUBMIT COLOR SAMPLES AS REQUIRED.
- COMPLY WITH INSTRUCTIONS IN FULL DETAIL, INCLUDING EACH STEP IN SEQUENCE. SHOULD INSTRUCTION CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT / ENGINEER BEFORE PROCEEDING.

EARTHWORK

- REMOVE EXCESS EXCAVATION MATERIAL OR MATERIAL UNSUITABLE FOR BACKFILL. EXCESS MATERIAL CAN BE SPREAD ON GRADE, OR SHALL BE REMOVED FROM SITE AS DIRECTED BY THE OWNER/ARCHITECT.

TESTING, BALANCING, AND ADJUSTING

- VERIFY AND RECORD THE TESTING RESULTS PERFORMED BY THE MECHANICAL CONTRACTOR.
- THE OUTSIDE AIR, SUPPLY AIR, RETURN AIR, AND EXHAUST AIR FOR THE SYSTEM SHALL BE ADJUSTED TO WITHIN +/- 10 % OF THE VALUE SCHEDULED ON THE DRAWINGS.
- SUPPLY FANS: TEST AND ADJUST FAN RPM TO ACHIEVE DESIGN CFM REQUIREMENTS. TEST AND RECORD MOTOR VOLTAGE AND AMPERAGES. COMPARE DATA WITH THE NAMEPLATE LIMITS TO ENSURE FAN MOTOR IS NOT IN OR ABOVE THE SERVICE FACTOR. TEST AND ADJUST THE OUTSIDE AIR ON APPLICABLE EQUIPMENT USING A PITOT-TUBE TRAVERSE.
- EXHAUST FANS: TEST, ADJUST, AND BALANCE EACH DIFFUSER, GRILLE, AND REGISTER TO WITHIN 10 % OF DESIGN REQUIREMENTS. OBSERVE THROWS ARE IN DIRECTION AS INDICATED ON DRAWINGS. ONCE AIR FLOWS ARE SET TO ACCEPTABLE LIMITS, TAKE WET BULB AND DRY BULB AIR TEMPERATURES ON THE ENTERING AND LEAVING SIDE OF EACH COIL (COOLING ONLY).
- DIRECT EXPANSION EQUIPMENT: WITH EACH UNIT OPERATING AT NEAR DESIGN CONDITIONS, MEASURE AND RECORD THE FOLLOWING: MANUFACTURER, MODEL NUMBER, SERIAL NUMBER AND ALL NAMEPLATE DATA, AMBIENT TEMPERATURE, CONDENSER DISCHARGE TEMPERATURE, AMPERAGE AND VOLTAGE FOR EACH PHASE, LEAVING AND ENTERING AIR TEMPERATURES, SUCTION AND DISCHARGE PRESSURES AND TEMPERATURES, TONS OF COOLING. VERIFICATION THAT MOISTURE INDICATOR SHOWS DRY REFRIGERANT.
- TAB REPORT: THE ACTIVITIES DESCRIBED IN THIS SECTION SHALL BE RECORDED IN REPORT FORM TO BE PROVIDED IN QUADRUPPLICATE (4), INDIVIDUALLY BOUND, TO THE ARCHITECT AND ENGINEER, NEATLY TYPE AND ARRANGE DATA. INCLUDE WITH THE DATA THE DATE TESTED, PERSONNEL PRESENT, WEATHER CONDITIONS, NAMEPLATE RECORD OF THE TEST INSTRUMENTS USED AND LIST ALL MEASUREMENTS TAKEN AFTER ALL CORRECTIONS ARE MADE TO THE SYSTEM. RECORD ALL FAILURES AND CORRECTIVE ACTION TAKEN TO REMEDY ANY INCORRECT SITUATION. THE INTENT OF THE FINAL REPORT IS TO PROVIDE A REFERENCE OF ACTUAL OPERATING CONDITIONS FOR THE OWNER'S OPERATIONS PERSONNEL.

DUCTWORK

- DUCT MATERIAL AND CONSTRUCTION: USE LOCK FORMING QUALITY PRIME GALVANIZED STEEL SHEETS OR COILS UP TO 60" WIDE. STENCIL EACH SHEET WITH GAUGE AND MANUFACTURER'S NAME. STENCIL COILS OF SHEET STEEL THROUGHOUT ON 10' CENTERS WITH GAUGE AND MANUFACTURER'S NAME. PROVIDE CERTIFICATION OF DUCT GAUGE AND MANUFACTURER FOR EACH SIZE DUCT.
- RECTANGULAR LOW DUCT CONSTRUCTED OF SHEET METAL IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- LOW PRESSURE ROUND DUCTS SHALL BE SHOP FABRICATED WITH SNAP LOCK LONGITUDINAL SEAMS. DUCTS SHALL BE CONSTRUCTED FOR A MINIMUM OF 2" W.G. STATIC PRESSURE. MEDIUM PRESSURE ROUND DUCTWORK SHALL BE WELDED SPIRAL SEAM SUCH AS MANUFACTURED BY UNITED SHEET METAL COMPANY. SEAMS AND JOINTS OF ALL MEDIUM PRESSURE DUCTWORK SHALL BE CONTINUOUSLY WELDED.
- FLEXIBLE DUCT LOW PRESSURE SHALL BE A CONTINUOUS GALVANIZED SPRING STEEL WIRE HELIX, WITH REINFORCED METALIZED COVER, REINFORCED VAPOR BARRIER JACKET RATED FOR USE AT SYSTEM PRESSURE (6" WC MINIMUM). THERMAL CHARACTERISTICS OF R-6 BTU/HR/IN/50, FT./F AND 2" WALL THICKNESS INSULATION WITH 1" OVERLAP. ACCEPTABLE MANUFACTURERS: FLEXMASTER, HART & COOLEY, OMNIAIR.
- ACCEPTABLE MANUFACTURERS: FLEXMASTER, THERMOFLEX, OMNIAIR.
- VOLUME DAMPERS: MANUAL BALANCING DAMPERS THAT MEET OR EXCEED THE FOLLOWING MINIMUM CONSTRUCTION STANDARDS: FRAME 16-GAUGE, BLADES 16-GAUGE, BEARINGS CORROSION RESISTANT, OPPOSED BLADE DAMPERS.
- INSTALLATION: USE CONSTRUCTION METHODS AND REQUIREMENTS AS OUTLINED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS AS WELL AS SMACNA BALANCING AND ADJUSTING PUBLICATIONS, UNLESS INDICATED OTHERWISE IN THE SPECIFICATIONS. REFER TO DETAILS ON THE DRAWINGS FOR ADDITIONAL INFORMATION. REINFORCE DUCTS IN ACCORDANCE WITH RECOMMENDED CONSTRUCTION PRACTICE OF SMACNA. PROVIDE ADDITIONAL REINFORCEMENT OF LARGE PLENUMS AS REQUIRED TO PREVENT EXCESSIVE FLEXING AND OR VIBRATION.

DUCTWORK INSULATION

- FURNISH AND INSTALL EXTERNAL INSULATION ON SUPPLY, RETURN, EXHAUST AND FRESH AIR DUCTWORK.
- ALL DUCT INSULATION USED ON THE PROJECT INSIDE THE BUILDING MUST HAVE A FLAME SPREAD RATING NOT EXCEEDING 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50 AS DETERMINED BY TEST PROCEDURES ASTM E84, NFPA 255 AND UL 723.
- CONDENSATION ON ANY INSULATED SYSTEM IS NOT APPROVED.
- INSULATION: GLASS FIBER BLANKET DUCT INSULATION. ACCEPTABLE MANUFACTURERS ARE: MANVILLE R-SERIES MICROUTE FSKL, OWENS-CORNING ED100 RKF, KNAUF 1.0 PCF FSK.
- FIREBOARD INSULATION: TOTALLY ENCAPSULATED WITH FOIL FACING, TWO HOUR RATED FIRE PROTECTION, ZERO CLEARANCE TO COMBUSTIBLE PROTECTION. ACCEPTABLE MANUFACTURERS ARE: PARTAK INSULATION, INC., PAROC FIREBOARD, THERMAL CERAMICS FIREMASTER 3M, PREMIER REFACTORIES INTERNATIONAL, PYROSCAT.
- REINFORCED FOIL TAPE: ACCEPTABLE MANUFACTURERS ARE: VENTURE 1525CW, 3" FSK.

CONDENSATE PIPING

- TYPE "L" COPPER WITH DRAINAGE PATTERN FITTINGS IN RETURN PLENUM AREAS, PVC WITH DRAINAGE PATTERN FITTINGS IN NON-PLENUM AREAS.
- INSTALL THE SYSTEM TO FACILITATE EASY REMOVAL. USE THREADED PLUGGED TEE AT EACH CHANGE OF DIRECTION TO PERMIT CLEANING. INSTALL A CLEANOUT EVERY 50 FEET OF STRAIGHT RUN PIPING, MAINTAIN A POSITIVE SLOPE ON ALL PIPING.
- INSTALL A WATER SEAL TRAP LEG BASED ON THE FAN PRESSURE. SIZE OTHE LENGTH OF THE TRAP LEG 1 INCH LARGER THAN THE ACTUAL SYSTEM PRESSURE.
- DO NOT INSTALL PIPING SIZED SMALLER THAN THE UNIT DRAIN CONNECTION SIZE.
- INSULATE PIPING WITH 3/4" ELASTOMERIC INSULATION FOR ALL PIPE BELOW ROOF.
- INSULATION TO BE 25/50 FLAME AND SMOKE RATING.

SINGLE PACKAGED ROOFTOP AIR CONDITIONERS

- PROVIDE AND INSTALL A SINGLE-PACKAGE, SINGLE-ZONE, ELECTRIC AIR CONDITIONER WITH ELECTRIC HEAT FOR ROOFTOP APPLICATION.
- PERFORMANCE: AS SCHEDULED ON DRAWINGS, WITH HEAD PRESSURE CONTROL TO ENABLE UNIT START AND OPERATE DOWN TO 20 DEGREES F AMBIENT.
- ACCEPTABLE MANUFACTURERS: CARRIER, YORK/JCI, TRANE.
- COMPRESSOR: PROVIDE A THERMALLY PROTECTED, SERVICEABLE SEMI-HERMETIC COMPRESSOR OR HERMETIC COMPRESSOR WITH SERVICE VALVES, VIBRATION ISOLATION, CRANKCASE HEATERS, SLIGHT GLASS AND FILTER DRIER. PROVIDE WITH A 5-YEAR WARRANTY.
- EVAPORATOR AND CONDENSER COILS: PROVIDE COPPER TUBES WITH MECHANICALLY BONDED ALUMINUM FINS FOR EVAPORATOR AND CONDENSER COILS. PROVIDE HAIL GUARDS FOR CONDENSER COILS.
- ROOF CURB: INSTALL A ROOF CURB OF THE SAME MANUFACTURE AS THE AIR CONDITIONER UNIT. CURB TO SUPPORT THE UNIT AND PROVIDE A WATERTIGHT ENCLOSURE TO PROTECT DUCTWORK AND UTILITY SERVICES. USE A DESIGN COMPLYING WITH NATIONAL ROOFING CONTRACTORS ASSOCIATION REQUIREMENTS. LEVEL CURB ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- THERMOSTAT ASSEMBLY: PROVIDE STAGED 7-DAY PROGRAMMABLE HEATING AND COOLING AS REQUIRED, AUTOMATIC CHANGEOVER AND FAN CONTROL.
- HEAD PRESSURE CONTROL: PROVIDE SOLID STATE OUTDOOR AIR FAN SPEED CONTROL TO PERMIT UNIT TO OPERATE DOWN TO -20°F.
- SHORT CYCLE CIRCUIT: PROVIDE CIRCUIT TO PREVENT COMPRESSOR FROM SHORT CYCLING AS A RESULT OF A RAPID CHANGE IN THERMOSTAT SETTING. CIRCUIT ALSO PREVENTS COMPRESSOR RESTART AT LEAST 5 MINUTES AFTER SHUTDOWN.
- CONVENIENCE OUTLET: PROVIDE 115V OUTLET IN UNIT CABINET.
- CONTROL WIRING: FURNISH AND INSTALL CONTROL WIRING AS REQUIRED. INSTALL CONTROL WIRING IN CONDUIT.

FANS

- PROVIDE FAN TYPE, ARRANGEMENT, ROTATION, CAPACITY, SIZE, MOTOR HORSEPOWER, AND MOTOR VOLTAGE AS SHOWN. FAN CAPACITIES AND CHARACTERISTICS ARE SCHEDULED ON THE DRAWINGS. PROVIDE FANS CAPABLE OF ACCOMMODATING STATIC PRESSURE VARIATIONS OF +/-10 % OF SCHEDULED DESIGN AT THE DESIGN AIR FLOW.
- ACCEPTABLE MANUFACTURERS: COOK, GREENHECK, PENN VENTILATOR, ACME, CARNES, TWIN CITY.
- SAFETY DISCONNECT SWITCH: PROVIDE A FACTORY-WIRED TO MOTOR, SAFETY DISCONNECT SWITCH ON EACH UNIT.
- DAMPERS, WHERE AUTOMATIC BACKDRAFT DAMPER IS SCHEDULED: MULTI-BLADED, ROLL FORMED ALUMINUM BLADES, NYLON BEARINGS, NEOPRENE WEATHER STRIP ON BLADE EDGE.

AIR DEVICES

- FURNISH AND INSTALL AIR DISTRIBUTION DEVICES, INCLUDING GRILLES, DIFFUSERS, REGISTERS, DAMPERS, AND EXTRACTORS.
- ACCEPTABLE MANUFACTURERS: TUTTLE AND BAILEY, TITUS, KRUEGER, METAL-AIRE, NAILOR INDUSTRIES, PRICE, BROAN.

AIR FILTERS

- AIR FILTERS: FURNISH AND INSTALL A DISPOSAL MEDIA AND FRAME FILTER WITH RESISTANCE TO AIR FLOW OF A CLEAN FILTER NOT TO EXCEED 0.12" WG AT 300 FPM.
- INSTALL THE FILTERS AND FILTER GAUGES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

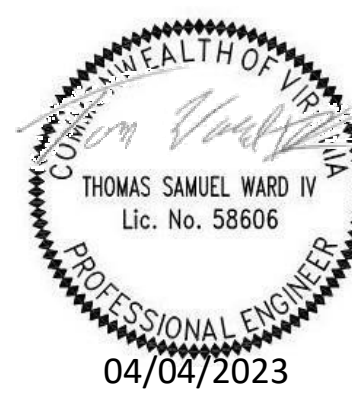
SYSTEM CONTROL

- GENERAL EXHAUST FANS SHALL BE INTERLOCKED WITH LIGHTS IN ROOM UNLESS OTHERWISE NOTED.
- PACKAGED ROOF TOP UNIT SHALL GO INTO OCCUPIED/UNOCCUPIED MODE AT TIME SET THROUGH PROGRAMMED THERMOSTAT (CONSULT WITH OWNER FOR TIMES). A SPACE TEMPERATURE AND HUMIDITY SENSOR SHALL MAINTAIN DESIRED SET POINT TEMPERATURE. IF UNIT HAS (2) COMPRESSORS, FAN COIL SHALL RUN AT HALF SPEED WHEN ONLY ONE COMPRESSOR IS ENERGIZED TO MAINTAIN COLDEST AIR POSSIBLE. UNIT SHALL BE SET TO RUN IN "AUTO" MODE ONLY. THE OUTSIDE AIR DAMPER SHALL BE INTERLOCKED TO ONLY OPEN WHEN THE UNIT IS OPERATING.

ADDITION & RENOVATIONS
FOR
F & S COMMONWEALTH
BUILDING MATERIALS
1735 PLANTATION ROAD NE, ROANOKE, VIRGINIA

DRAWN BY: JS
CHECKED BY: SL

MECHANICAL
SPECIFICATIONS



COMMISSION No.
21064

SHEET

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