

COMMONWEALTH OF VIRGINIA  
BURN BUILDING PROP PROTOTYPE 2  
METAL BUILDING — CLASS B FUEL

Street Address  
City, Virginia, Zip Code

OWNER  
LOCALITY/MUNICIPALITY

Street Address  
City, Virginia Zip Code  
Phone:  
Fax:

BURN BUILDING GRANT  
FUNDS PROVIDED BY:  
COMMONWEALTH of VIRGINIA  
Department of Fire Programs

1005 Technology Park Drive  
Glen Allen, VA 23059  
Phone: (804) 371-0220

ARCHITECT/ ENGINEER  
ARCHITECTURAL OR ENGINEERING FIRM

Street Address  
City, State Zip Code  
Phone:  
Fax:

THIS IS A PROTOTYPICAL DESIGN SET OF  
DRAWINGS NOT INTENDED FOR  
CONSTRUCTION. THESE DRAWINGS ARE  
INTENDED TO BE USED IN CONJUNCTION WITH  
THE PROJECT MANUAL AND SPECIFICATIONS  
BY AN ARCHITECT/ENGINEER EMPLOYED BY  
THE GRANT RECIPIENT IN THE DESIGN OF A  
NEW BURN BUILDING PROP.

BUILDING CODE DATA

JURISDICTION:  
CITY/COUNTY, VIRGINIA

BUILDING CODE:  
A. VIRGINIA UNIFORM STATEWIDE BUILDING CODE  
(VUSBC) 2009 EDITION  
B. INTERNATIONAL BUILDING CODE (IBC) 2009  
EDITION AS AMENDED BY VUSBC

USE GROUP/OCCUPANCY (IBC SECTIONS 304, 311, 1003):

	FLOOR AREA (SQ. FT.)	DENSITY (SQ. FT./PERSON)	OCCUPANTS
BUILDING, GROSS	1881	50	37

\*NOTE THE STRUCTURE IS DESIGNED AS A TRAINING PROP AND IS NOT HEATED OR AIR CONDITIONED  
AND DOES NOT INCLUDE RESTROOMS.

CONSTRUCTION TYPE (IBC SECTION 602):  
(II B) NON-COMBUSTIBLE/UNPROTECTED

SPRINKLED:  
NOT REQUIRED

HEIGHT/AREA LIMITATIONS (IBC SECTION 503):

TOTAL:	ALLOWABLE:	
A) AREA:	1881 SQ. FT.	8500 SQ. FT.
B) HEIGHT:	+/- 24'-0" (2 STORY)	40'-0" (2 STORY)

\*NOTE: A CODE MODIFICATION REQUEST MUST BE SUBMITTED TO THE BUILDING OFFICIAL FOR  
CONSTRUCTION OF THIS NON-HABITABLE TRAINING PROP.

INDEX OF DRAWINGS

REFERENCE		ELECTRICAL	
T0.1	TITLE SHEET, BUILDING CODE DATA, & LOCATION MAP	E1.0	ELECTRICAL FLOOR & ATTIC PLANS, NOTES, SYMBOLS & ABBREVIATIONS
A0.1	ABBREVIATIONS, MATERIAL INDICATORS, & GRAPHIC SYMBOLS	E2.0	ELECTRICAL DETAILS & PANELBOARD SCHEDULE
A0.2	GENERAL NOTES		
ARCHITECTURAL		MECHANICAL	
A1.0	SLAB ELEVATION PLAN	M1.0	MECHANICAL PLANS, & NOTES
A2.0	FIRST FLOOR PLAN		
A2.1	SECOND FLOOR PLAN		
A2.2	ATTIC FLOOR & SLOPED ROOF PLANS		
A3.0	BUILDING ELEVATIONS		
A3.1	BUILDING SECTIONS		
A4.0	SCUPPER, RAMP, & THERMAL LINING DETAILS		
A4.1	SIGNAGE, RAILING AND CHOPOUT DETAILS		
STRUCTURAL			
S1.0	FOUNDATION PLAN (BEARING WALL DESIGN) & COLUMN FTG SCHEDULE		
S1.1	FOUNDATION PLAN (MAIN FRAME DESIGN) & COLUMN FTG SCHEDULE		
S2.0	FOUNDATION SECTIONS & DETAILS		
S3.0	EXTERIOR STEEL STAIR ELEVATION, SECTIONS, & DETAILS		

LOCATION MAP

PROPOSED BURN PROP  
VICINITY MAP



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title  
TITLE SHEET, BUILDING  
CODE DATA, &  
LOCATION MAP  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

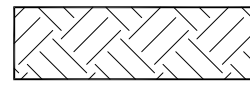
T0.1

1 of 18

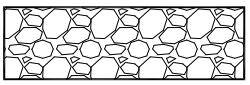
ABBREVIATIONS

Ø	AT	JT	JOINT
ADJ	ADJACENT, ADJUSTABLE	L	LENGTH
AFF	ABOVE FINISHED FLOOR	LB(S)	POUND, POUNDS
AGG	AGGREGATE	LTWLT CONC	LIGHTWEIGHT CONCRETE
ANCH	ANCHOR, ANCHORAGE	MATL	MATERIAL
AND	ANDIZED	MAX	MAXIMUM
APFD	APPROVED	MECH	MECHANICAL
ARCH	ARCHITECTURAL	MED	MEDIUM
ASSOC	ASSOCIATED	MANUF	MANUFACTURER
AUTO	AUTOMATIC	MIN	MINIMUM
AUX	AUXILIARY	MISC	MISCELLANEOUS
AVG	AVERAGE	MTD	MOUNTED
BLDG	BUILDING	MTG HT	MOUNTING HEIGHT
BLK	BLOCK	MTL	METAL
BOTT	BOTTOM	N/A	NOT APPLICABLE
BR	BURN ROOM	NEG	NECESSARY
CEM	CEMENT	NIC	NOT IN CONTRACT
CHK'D	CHECKED	NTS	NOT TO SCALE
CJ	CONTROL JOINT	NO#	NUMBER
CL	CENTER LINE	NOM	NOMINAL
CLG	CEILING	OC	ON CENTER
CLR	CLEAR	OD	OUTSIDE DIAMETER
COL	COLUMN	OH	OVERHEAD
CONC	CONCRETE	OPENS	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
CONTR	CONTRACTOR	PART	PARTITION
COORD	COORDINATE	PL	PLATE
CTR	CENTER	PLUMB	PLUMBING
D	DEEP (DEPTH)	FR	FAIR
DBL	DOUBLE	PREFAB	PREFABRICATED
DEP	DEPRESSION, DEPRESS	PROV	PROVIDE
DET	DETAIL	PSF	POUNDS PER SQUARE FOOT
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIM	DIMENSION	PT	PAINT, POINT
DN	DOWN	PVC	POLYVINYL CHLORIDE
DR	DOOR	R	RADIUS, RISER
DWG(S)	DRAWING(S)	REF	REFLECTED, REFERENCE, REFER
DWL	DOWNEL	REINF	REINFORCEMENT
EA	EACH	REQ	REQUIRE, REQUIRED
ELEV	ELEVATION	REV	REVISE, REVISION
ELECT	ELECTRICAL	ROOFG	ROOFING
ENCLOS	ENCLOSURE	RH	RIGHT HAND
EQ	EQUAL	RO	ROUGH OPENING
EQUIP	EQUIPMENT	RM	ROOM
EXP	EXPANSION, EXPOSED	SCHED	SCHEDULE
EJ	EXPANSION JOINT	SEAL	SEALANT
EXIST	EXISTING	SHT	SHEET
EXT	EXTERIOR	SIM	SIMILAR
FDN	FOUNDATION	SPEC(S)	SPECIFICATION
FIN	FINISH	SQ	SQUARE
FLR	FLOOR	SS	STAINLESS STEEL
FLEX	FLEXIBLE	STD	STANDARD
FRT	FIRE RETARDANT TREATED	STL	STEEL
FT(T)	FEET (FOOT)	STRUC	STRUCTURAL (STRUCTURE)
FTG	FOOTING	SUSP	SUSPEND, SUSPENDED
GA	GAUGE	T	TOP, THICK
GALV	GALVANIZED	T&B	TOP AND BOTTOM
GC	GENERAL CONTRACTOR	TEMP	TEMPERED, TEMPORARY, TEMPERATURE
GEN	GENERAL	THK	THICK, THICKNESS
H	HIGH	THRU	THROUGH
HDM	HARDWARE	TS	STRUCTURAL STEEL TUBE OR TOP OF STEEL
HM	HOLLOW METAL	TYP	TYPICAL
HORIZ	HORIZONTAL	UL	UNDERWRITERS LABORATORIES
HP	HIGH POINT	UNO	UNLESS NOTED OTHERWISE
HTH	HEIGHT	VERT	VERTICAL
IN(T)	INCH	V.I.F.	VERIFY IN FIELD
INFO	INFORMATION	WT	WEIGHT
INSUL	INSULATE, INSULATION	WNF	WELDED WIRE FABRIC
INT	INTERIOR	W	WIDTH, WIDE
		WTH	WITH
		WV	WITHIN
		WO	WITHOUT
		WP	WORKING POINT

MATERIAL INDICATIONS



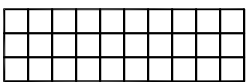
EARTH



GRANULAR FILL



STEEL



INSULATION

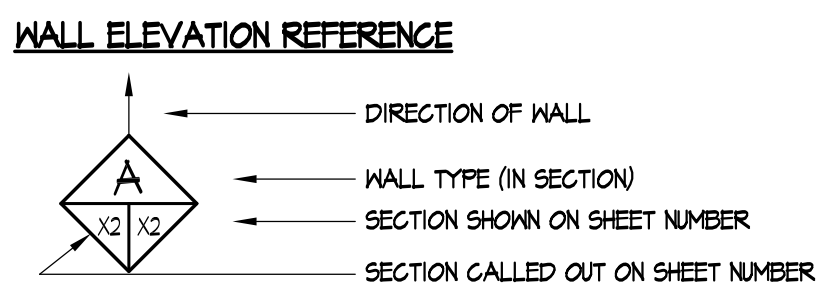
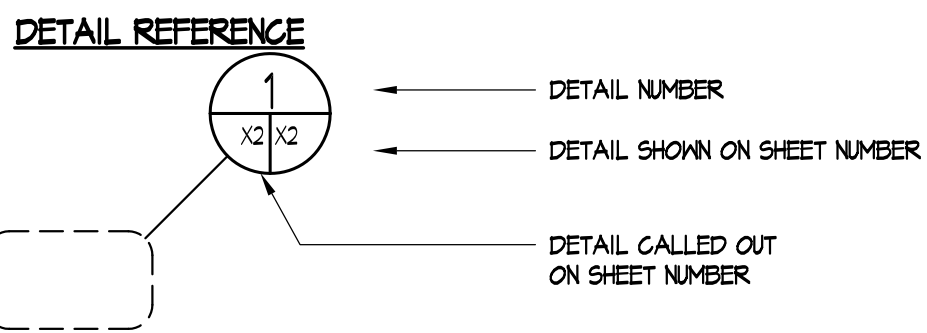
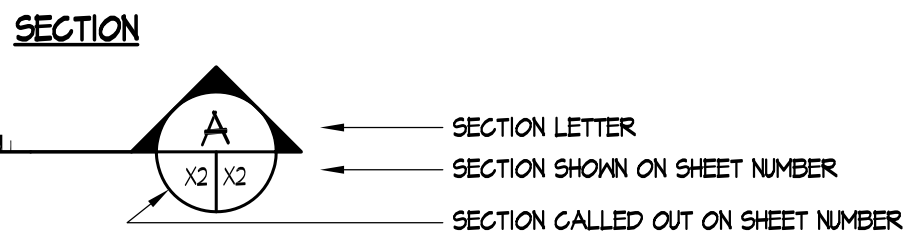
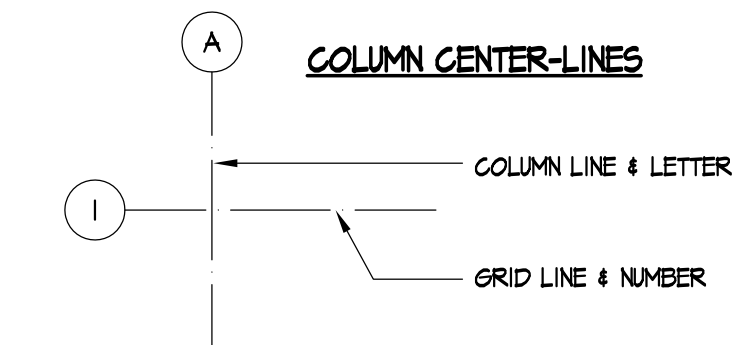


FIRE BRICK

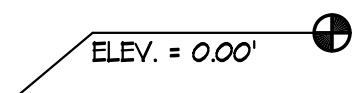


CONCRETE

GRAPHIC SYMBOLS



SPOT ELEVATION- NEW



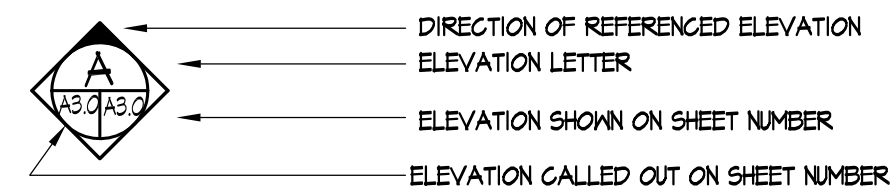
DOOR NUMBER



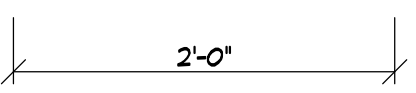
ROOM NUMBER



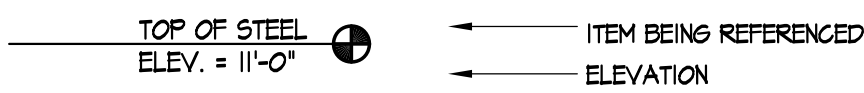
EXTERIOR ELEVATION



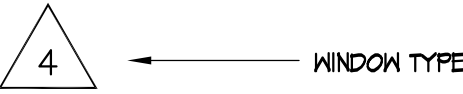
DIMENSIONING CONVENTIONS



ELEVATION TARGET



WINDOW TYPE



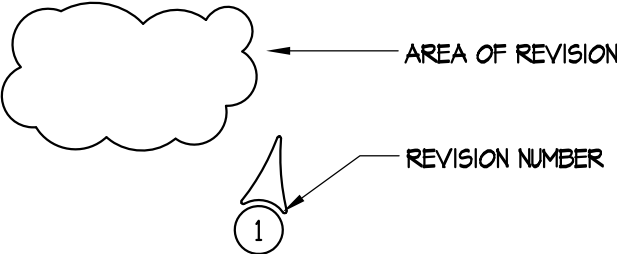
NORTH ARROW



KEY NOTE



REVISION



LIMITS OF CONSTRUCTION



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
  
COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title <b>ABBREVIATIONS MATERIAL INDICATORS, &amp; GRAPHIC SYMBOLS</b> CITY/COUNTY VIRGINIA	
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

A0.1

2 of 18



GENERAL NOTES:

GENERAL:

1. WORK PERFORMED SHALL COMPLY WITH THE FOLLOWING:
- A. THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUBC), 2004 EDITION
- B. THE INTERNATIONAL BUILDING CODE (IBC), 2004 EDITION AS AMENDED BY THE VUBC
- C. ALL APPLICABLE STATE AND LOCAL CODES, ORDINANCES AND REGULATIONS
2. MAINTAIN UTILITY EQUIPMENT IN SERVICE AND PROTECT AGAINST DAMAGE DURING CONSTRUCTION. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR OPERATING FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY THE BUILDING MANAGER AND AUTHORITIES HAVING JURISDICTION. IF REQUIRED BY THE OWNER, AT THE CONTRACTOR'S EXPENSE, PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES. PROVIDE NO LESS THAN 12 HOURS PRIOR NOTICE TO THE OWNER AND THE BUILDING MANAGER IF SHUTDOWN OF SERVICE IS REQUIRED.
- DESIGN LOADS:**
1. BUILDING CLASSIFICATION CATEGORY \_\_\_\_\_ II
2. GROUND SNOW,  $P_g$  \_\_\_\_\_ 30 PSF\*
- FLAT ROOF SNOW LOAD,  $P_f$  \_\_\_\_\_ 23 PSF\*
- SNOW EXPOSURE FACTOR,  $C_e$  \_\_\_\_\_ 0.9
- SNOW THERMAL FACTOR,  $C_t$  \_\_\_\_\_ 1.2
- SNOW IMPORTANCE FACTOR,  $I$  \_\_\_\_\_ 1.0
3. WIND SPEED \_\_\_\_\_ 110 MPH\*
- EXPOSURE \_\_\_\_\_ C
- IMPORTANCE FACTOR,  $I$  \_\_\_\_\_ 1.0
- INTERNAL PRESSURE COEFFICIENT \_\_\_\_\_ 0.18
4. COMPONENTS AND CLADDING (A = 10 SOFT):
- ROOF WIND LOADING:
- ZONE 1 \_\_\_\_\_ +12.5, -21.8 PSF\*
- ZONE 2 \_\_\_\_\_ +12.5, -26.5 PSF\*
- ZONE 3 \_\_\_\_\_ +12.5, -55.0 PSF\*
- WALL WIND LOADING:
- ZONE 4 \_\_\_\_\_ +21.8, -23.6, 5 PSF\*
- ZONE 5 \_\_\_\_\_ +21.8, -24.1 PSF\*
5. LIVE LOADS:
- FLAT AND SLOPED ROOFS \_\_\_\_\_ UNIFORM 100 PSF
- FLOORS \_\_\_\_\_ 100 PSF
- STAIRS \_\_\_\_\_ 100 PSF
- \* MINIMUM CONCENTRATED LOAD OF 500 POUNDS ON STAIR TREADS (ON AREA OF 4 SQUARE INCHES)
- RAILINGS \_\_\_\_\_ 50 PSF UNIFORM OR 200 LB POINT LOAD
- EXTERIOR APRON \_\_\_\_\_ 125 PSF
6. SEISMIC DESIGN:
- SEISMIC IMPORTANCE FACTOR,  $I$  \_\_\_\_\_ 1.0
- MAPPED SPECTRAL RESPONSE ACCELERATION,  $S_s$  \_\_\_\_\_ 0.42\*
- MAPPED SPECTRAL RESPONSE ACCELERATION,  $S_1$  \_\_\_\_\_ 0.15\*
- SEISMIC USE GROUP \_\_\_\_\_ C\*
- SITE SOIL CLASS \_\_\_\_\_ D\*
- SPECTRAL COEFFICIENT,  $S_{ds}$  \_\_\_\_\_ 0.448\*
- SPECTRAL COEFFICIENT,  $S_{d1}$  \_\_\_\_\_ 0.184\*
- SEISMIC DESIGN CATEGORY \_\_\_\_\_ C\*
- BASIC STRUCTURAL SYSTEM \_\_\_\_\_ MOMENT FRAME
- SEISMIC FORCE RESISTING SYSTEM \_\_\_\_\_ M (ASCE 1-05 TABLE 12.2-1)
- DESIGN BASE SHEAR \_\_\_\_\_ 15.8 KIPS\*
- SEISMIC RESPONSE COEFFICIENT  $C_s$  \_\_\_\_\_ 0.12\*
- RESPONSE MODIFICATION COEFFICIENT  $R$  \_\_\_\_\_ 3
- SEISMIC ANALYSIS \_\_\_\_\_ EQUIV. LATERAL FORCE PROCEDURE
- \*VERIFY WITH LOCAL JURISDICTION

ARCHITECTURAL:

1. UNLESS NOTED OTHERWISE, ALL PARTITIONS ARE DIMENSIONED TO THE FACE OF FINISHED WALL.
2. THE DATUM ELEVATION IS TAKEN AT THE TOP OF THE EXTERIOR APRON SLAB WHERE THE APRON INTERSECTS THE PERIMETER OF THE BUILDING (EXCEPT AT GROUND FLOOR DOORS).
3. THE DATUM ELEVATION IS XXX FEET.
4. ALL BUILDING ELEVATIONS ARE SHOWN IN THE PLANS AS +XXX OR -XXX IN FEET RELATIVE TO THE DATUM.

FOUNDATIONS:

1. CONTRACTOR SHALL NOTIFY "MISS UTILITY" PRIOR TO BEGINNING EXCAVATION FOR LOCATION OF UNDERGROUND UTILITIES.
2. EXTERIOR FOOTINGS AND COLUMN FOOTINGS WERE DESIGNED TO BEAR ON UNDISTURBED SOIL BELOW THE FROST LINE A MINIMUM OF 2'-0" BELOW EXISTING GRADE.
3. MINIMUM SOIL BEARING PRESSURE IS ASSIGNED TO BE 2,000\* PSF AND THE OWNER SHALL EMPLOY A GEOTECHNICAL ENGINEER TO VERIFY THAT THIS ALLOWABLE SOIL BEARING PRESSURE IS ATTAINABLE. IF THIS IS NOT ATTAINABLE, THE OWNER/CONTRACTOR SHALL CONTACT THE ENGINEER FOR REDESIGN.
4. SOIL POISONING TREATMENT SHALL BE PROVIDED FOR AREAS BENEATH CONCRETE SLABS ON EARTH AND ALONG INTERIOR SURFACES OF FOUNDATION BY APPLICATOR CERTIFIED TO PERFORM SUCH WORK IN THE STATE OF VIRGINIA. FURNISH OWNER WITH A WRITTEN 5-YEAR INSURED GUARANTEE.
5. ALL COLUMN FOOTINGS SHALL BE CENTERED UNDER COLUMN CENTER LINES UNLESS NOTED OTHERWISE.
6. ALL UTILITIES WHICH CROSS FOOTINGS MUST PASS ABOVE STRIP FOOTING THROUGH THE FOUNDATION WALL, SLEEVE, PATCH, AND PARGE. STEP FOOTINGS AS REQUIRED. REINFORCING SHALL BE CONTINUOUS AT ALL FOOTING STEPS.
7. CONCRETE SLABS ON GRADE SHALL BEAR ON A MINIMUM OF 6" COMPACTED #51 STONE. WHERE REQUIRED, SOIL UNDER FOOTINGS SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM METHOD D-698 (STANDARD PROCTOR).

CONCRETE:

1. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS AND A MAXIMUM WATER/CEMENT RATIO OF 0.5.
2. CONCRETE FOR FLOOR SLABS, STEM WALL, PEDESTALS AND OTHER ABOVE GROUND CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000\* PSI AT 28 DAYS AND A MAXIMUM WATER/CEMENT RATIO OF 0.40\* UNLESS NOTED OTHERWISE.
3. ALL CONCRETE SHALL BE MIXED, PLACED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318.
4. ALL CONCRETE SHALL HAVE A SLUMP OF 4"  $\pm$  1" UNLESS NOTED OTHERWISE.
5. CONCRETE MIX DESIGNS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO USE.
6. ALL CONCRETE TO BE POURED IN COLD WEATHER, AS DEFINED IN SECTION 11 OF ACI 306R, COLD WEATHER CONCRETING, SHALL FULLY COMPLY WITH ACI 306.1, STANDARD SPECIFICATIONS FOR COLD WEATHER CONCRETING, AND ACI 306R.
7. ALL CONCRETE TO BE POURED IN HOT WEATHER, AS DEFINED IN SECTION 1.2 OF ACI 305R, HOT WEATHER CONCRETING, SHALL FULLY COMPLY WITH ACI 305.1, STANDARD SPECIFICATIONS FOR HOT WEATHER CONCRETING, AND ACI 305R.
8. REINFORCING BARS SHALL BE ASTM A-615, GRADE 60. EPOXY COATED BARS SHALL BE ASTM A-715, GRADE 60 AS A BID ALTERNATE
9. ALL CONCRETE REINFORCING SHALL BE DETAILED AND CONSTRUCTED PER ACI 318.
10. CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL FOR APPROVAL.
11. ALL CONCRETE REINFORCING STEEL SHALL HAVE CORNER OR "Z" BARS OF THE SAME DIAMETER AT ALL CORNERS AND CHANGES IN DIRECTION. CORNER AND "Z" BARS SHALL LAP CONTINUOUS BARS A MINIMUM OF 48 TIMES THE NOMINAL BAR DIAMETER ON BOTH ENDS.
12. ALL CONCRETE SLABS ON GRADE SHALL BE REINFORCED WITH WELDED WIRE FABRIC OF THE SIZE INDICATED ON THE PLANS AND SHALL BE PLACED OVER 6 MIL VAPOR BARRIER UNLESS SHOWN OTHERWISE ON DRAWINGS.
13. SAW CUTTING CONTROL JOINTS SHALL BE PERFORMED AS SOON AS THE CONCRETE SLAB ON GRADE IS HARD ENOUGH TO SUPPORT THE CUTTING MACHINE WITHIN FIRST FOUR HOURS OF CURING.
14. SLABS ON GRADE INCLUDING THE EXTERIOR APRON SLAB SHALL BE AIR ENTRAINED CONCRETE AND REINFORCED WITH WELDED WIRE FABRIC PLACED ON CONCRETE BLOCKS. AIR ENTRAINMENT FOR SLABS SHALL BE 6% BY VOLUME  $\pm$  1%.
15. ALL CONCRETE EXCEPT FOOTINGS SHALL BE AIR-ENTRAINED 6% BY VOLUME  $\pm$  1% UNLESS SHOWN OTHERWISE ON DRAWING.
16. CONCRETE PROTECTION FOR STEEL REINFORCEMENT OF CAST-IN-PLACE CONCRETE SHALL BE AS SPECIFIED BELOW:

TYPE OF STRUCTURE	MINIMUM CLEAR COVER (UNLESS OTHERWISE NOTED IN DRAWINGS)
STEM WALL	2"
PEDESTALS	2" TO VERTICAL BARS 1-3/8" TO TIES
FOOTINGS AND OTHER EARTH FORMED CONCRETE	3"

17. SPECIAL INSPECTIONS SHALL BE REQUIRED FOR THE CAST IN PLACE CONCRETE MATERIALS AND INSTALLATION, INCLUDING BUT NOT LIMITED TO REINFORCEMENT, BOLTS, FORMWORK, PLACEMENT, CURING AND STRENGTH AS IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTIONS.

STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISI "MANUAL OF STEEL CONSTRUCTION." ALL STRUCTURAL STEEL BEAM, COLUMN AND CHANNEL SHAPES SHALL BE ASTM A-992. ALL STEEL ANGLES AND PLATES SHALL BE ASTM A-36. ALL STRUCTURAL STEEL TUBES SHALL BE ASTM A500 GRADE B.
2. CONTRACTOR TO SUBMIT STRUCTURAL STEEL SHOP DRAWINGS FOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
3. ALL STRUCTURAL STEEL SHOP WORK TO BE WELDED WITH E70XXX ELECTRODES. FIELD WORK CONNECTIONS TO BE BOLTED WITH 3/4" HIGH STRENGTH A325X BOLTS OR WELDED WITH E70XXX ELECTRODES. PRE-DRILL HOLES IN STEEL MEMBERS AS REQUIRED FOR FASTENING, BLOCKING, ETC.
4. ALL COLUMNS SHALL BE FURNISHED WITH CAP PLATES AND BASE PLATES OF SIZE CALLED FOR AND SHALL BE SHOP WELDED. BASE PLATES SHALL BEAR ON LEVELING NUTS SET IN 1" THICKNESS OR APPROVED SHRINK RESISTANT GROUT EXCEPT WHEN SHOWN OTHERWISE, AND ANCHORED WITH FOUR (4) 3/4" DIAMETER 12" THREADED RODS WITH A WASHER AND DOUBLE NUTS. SHIM UNDER BASE PLATES AS REQUIRED.
5. ALL STRUCTURAL STEEL FRAMING TO HAVE ONE SHOP COAT OF RUST INHIBITIVE PAINT AFTER FABRICATION, AND ONE FINISH COAT OF APPROVED PAINT, UNLESS NOTED OTHERWISE. ALL EXPOSED STEEL TO HAVE TWO (2) COATS OF APPROVED COLOR SELECTED BY OWNER.
6. SPECIAL INSPECTIONS SHALL BE REQUIRED FOR THE STRUCTURAL STEEL MATERIALS, QUALITY CONTROL PROGRAM, BOLTS, NUTS AND WASHERS, WELDING, AND STRUCTURAL DETAILS AS IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTIONS.

STEEL GRATING AND TREADS:

1. STEEL GRATINGS SHALL BE 2" DEEP, 14 GAUGE, GALVANIZED GRIP STRUT DIAMOND SAFETY GRATING OR EQUIVALENT. INSTALL GRATINGS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS TO CREATE A TWO-SPAN CONDITION BY WELDING. WELD SIDES OF ADJACENT PANELS TOGETHER PER MANUFACTURER'S RECOMMENDATIONS.
2. STEEL STAIR TREADS SHALL BE 2" DEEP, 14 GAUGE GALVANIZED GRIP STRUT DIAMOND STAIR TREADS OR EQUIVALENT. INSTALL TREADS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS USING STANDARD ZINC COATED BOLTS.

WOOD:

1. WOOD FRAMING IS BASED ON DESIGN VALUES NOTED IN THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, 2005 EDITION
2. RAFTERS FOR CHOP OUT OPENING SHALL BE CONSTRUCTED WITH NO. 2 SOUTHERN YELLOW PINE (SYP) WITH MINIMUM  $F_b = 1050$  PSI AND  $E = 1,800,000$  PSI ALLOWABLE STRESSES.
3. ALL PLYWOOD SHALL BE MANUFACTURED AND GRADED IN ACCORDANCE WITH U.S. DEPARTMENT OF COMMERCE (DOC) PRODUCT STANDARD PS1-45 FOR PLYWOOD CONSTRUCTION FROM GROUP 1 SPECIES. EACH PLYWOOD SHEET SHALL BEAR THE "APA" GRADE TRADEMARK.
4. PLYWOOD ROOF SHEATHING SHALL CONFORM TO APA C-D RATED EXTERIOR 3/4" MINIMUM THICKNESS PLYWOOD SHEATHING UNLESS NOTED OTHERWISE. PROVIDE APPROPRIATE SPACING BETWEEN JOINTS. USE OF "H" CLIPS REQUIRED ON ROOF SHEATHING.
5. THE FACE GRAIN OF THE PLYWOOD SHALL BE LAID AT RIGHT ANGLES TO THE RAFTERS.
6. FASTENERS SHALL BE PLACED 3/8" MINIMUM FROM THE EDGE OF THE PLYWOOD SHEETS.
7. ALL PLYWOOD END JOINTS SHALL BE STAGGERED AND SHALL BE LOCATED ALONG THE CENTER LINES OF THE FRAMING MEMBERS.
8. PLYWOOD USED FOR SLOPED ATTIC ROOF, WITH THE EXCEPTION OF THE CHOP OUT, SHALL BE FIRE RETARDANT TREATED. PLYWOOD AND WOOD FRAMING USED FOR CHOP OUT SHALL NOT BE PRESERVATIVE OR FIRE RETARDANT TREATED.

METAL BUILDING:

1. METAL BUILDING MANUFACTURER SHALL BE A MEMBER OF THE METAL BUILDING MANUFACTURERS ASSOCIATION (MEMA). CONTRACTOR SHALL SUBMIT SEALED COMMONWEALTH OF VIRGINIA LICENSED PROFESSIONAL ENGINEER'S STRUCTURAL DESIGN CALCULATIONS AND SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION OF METAL BUILDING FOUNDATION.
2. SHOP DRAWINGS SUBMITTAL REQUIREMENTS: SUBMIT COMPLETE ERECTION DRAWINGS SHOWING ANCHOR BOLT SETTINGS, SIDEWALL, ENDWALL AND ROOF FRAMING, TRANSVERSE CROSS SECTIONS, COVERING AND TRIM DETAILS AND ACCESSORY INSTALLATION DETAILS TO CLEARLY INDICATE PROPER ASSEMBLY OF BUILDING COMPONENTS.
3. METAL BUILDING MANUFACTURER SHALL PROVIDE A COMPLETE AND PROPERLY INSTALLED SYSTEM AS REQUIRED FOR A WEATHER TIGHT, 20 YEAR WARRANTED BUILDING.
4. THE LOCATION OF ANCHOR BOLTS, SIZE OF COLUMN BASE PLATES, LOCATION OF GIRTS, ETC., MUST BE VERIFIED AGAINST MANUFACTURERS FRAMING ARRANGEMENT. ANY DEVIATIONS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ALL SUCH DEVIATIONS MUST BE COORDINATED AND APPROVED BEFORE CONCRETE IS PLACED.
5. THE CONCRETE PIERS ARE DESIGNED FOR VERTICAL AND LATERAL LOADS. NO MOMENT FROM RIGID FRAME COLUMNS SHALL BE TRANSMITTED TO THE FOUNDATION.
6. DESIGN OF THE PRE-ENGINEERED BUILDING TO SUPPORT ROOF, SNOW, WIND AND SEISMIC LOADS AS STATED IN THE DESIGN LOADS ABOVE IN ACCORDANCE WITH THE METAL BUILDING MANUFACTURER'S ASSOCIATION. ADDITIONAL LOADS:
- a. COLLATERAL ROOF AND FLOOR DEAD LOAD = 5 PSF

EXPANSION ANCHORS:

1. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
2. EXPANSION ANCHORS SHALL BE WEDGE TYPE WITH A SINGLE PIECE THREE SECTION WEDGE. THE ANCHORS SHALL MEET THE DESCRIPTION IN FEDERAL SPECIFICATION FF-5-325, GROUP II, TYPE 4, CLASS I FOR CONCRETE EXPANSION ANCHORS. ANCHORS SHALL BE HILTI KNIK BOLT II, MANUFACTURED BY HILTI FASTENING SYSTEMS, OR EQUIVALENT.
3. ALL EXPANSION ANCHORS SHALL BE ZINC PLATED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION SC I, TYPE III UNLESS INDICATED IN THE DRAWINGS AS STAINLESS STEEL.
4. UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUM REQUIREMENTS SHALL BE MET FOR EXPANSION ANCHORS:

ANCHOR DIAMETER	EMBEDMENT DEPTH	ALLOWABLE LOADS IN CONCRETE	
		TENSION (POUNDS)	SHEAR (POUNDS)
3/8"	2-1/2"	1,570	1,470
1/2"	3-1/2"	2,400	2,450

THERMAL LINING:

1. THE THERMAL LINING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER.
2. THE THERMAL LINING SYSTEM SHALL BE DESIGNED TO PROVIDE THE REQUIRED LEVEL OF PROTECTION AS INDICATED IN THE SPECIFICATIONS.

TEMPERATURE MONITORING SYSTEM:

1. THE TEMPERATURE MONITORING SYSTEM SHALL CONSIST OF A CENTRAL RECORDER LOCATED IN THE MONITORING EQUIPMENT ROOM AND THERMOCOUPLES AS SHOWN ON ELECTRICAL DRAWINGS, SEE SPECIFICATION FOR REQUIREMENTS.

ELECTRICAL:

1. PROVIDE ALL NECESSARY LABOR, EQUIPMENT, ETC. FOR ALL WORK INDICATED AND REQUIRED FOR COMPLETE INSTALLATION TO COMPLY WITH THE 2004 EDITION OF THE INTERNATIONAL ELECTRICAL CONSERVATION CODE, (2004 IECC).
2. ELECTRICAL SUB CONTRACTOR TO PROVIDE SYSTEM DESIGN AND PLAN LAYOUT FOR REVIEW AND APPROVAL.
3. THE ELECTRICAL CONTRACTOR SHALL KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL AND RUBBISH DAILY AND AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL RUBBISH, IMPLEMENTS, AND SURPLUS MATERIALS AND LEAVE THE BUILDING "BROOM CLEAN".
4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A WRITTEN WARRANTY STATING THAT ALL MATERIALS AND WORKMANSHIP ARE FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE.
5. MATERIALS:
- A. WIRE AND CABLE SHALL BE COPPER WITH THIN/THIN INSULATION AND BE SIZED AS PER 2008 NEC.
- B. ALL WIRING SHALL BE CONCEALED WHERE POSSIBLE. WHERE APPROVED BY THE DESIGNER, EXPOSED WIRING SHALL BE RUN PARALLEL AND PERPENDICULAR TO THE BUILDING CONSTRUCTION.
- C. DISCONNECT SWITCHES SHALL BE SQUARE-D GENERAL DUTY FUSIBLE WITH CLASS "R" FUSE CLIPS OR EQUAL.
- D. FUSES SHALL BE TIME-DELAY DUAL ELEMENT TYPE AND SHALL BE SIZED AS REQUIRED. AND QUANTITY.
- E. ALL SWITCHES AND RECEPTACLES SHALL BE SPECIFICATION GRADE AND COLOR AS CHOSEN BY OWNER.
6. THE ELECTRICAL CONTRACTOR MUST INSPECT JOB SITE PRIOR TO BIDDING JOB AND WILL INCLUDE COMPLETE RESPONSIBILITY FOR ALL LABOR AND MATERIALS AS SPECIFIED ON PLANS.
7. ELECTRICAL CONTRACTOR SHALL VERIFY THE AIC BEFORE PURCHASE OF SERVICE ENTRANCE EQUIPMENT.
8. ELECTRICAL CONTRACTOR SHALL VERIFY EQUIPMENT CAPACITY BEFORE ROUGH-IN.
9. ALL WIRING SHALL BE IN CONDUIT AND BE 12 AWG UNLESS OTHERWISE SPECIFIED. CONDUIT SHALL BE EMT OR RMC.
10. CONDUIT IN AND UNDER SLAB SHALL BE SCHEDULE 40 PVC AND SHALL BE BELOW THE FROST LINE.

PRIME PROFESSIONAL  
FIRM LOGO

Project Title

COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title

GENERAL  
NOTES

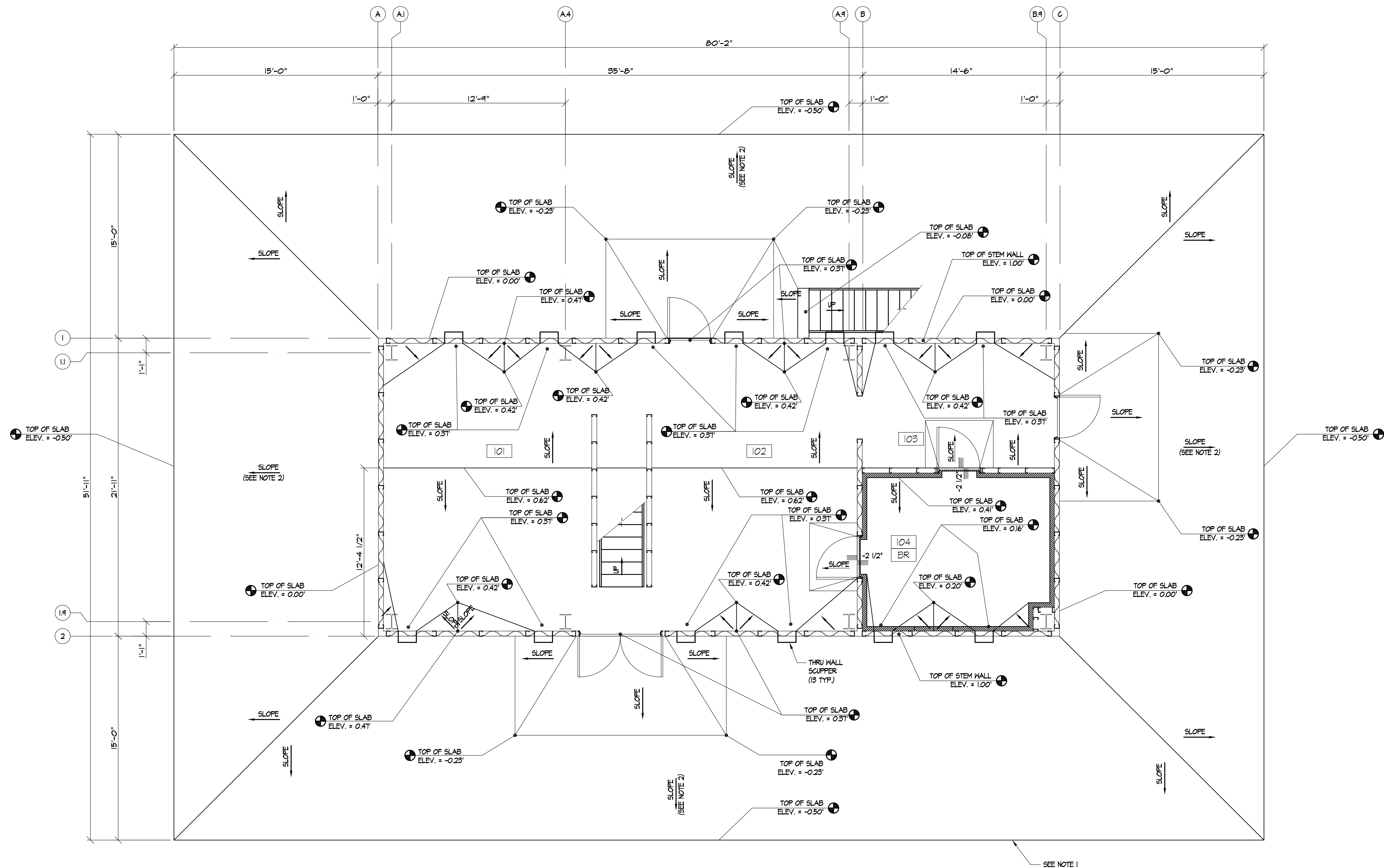
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

A0.2

3 of 18



**SLAB ELEVATION PLAN**

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

- NOTES:**
- 1 SLAB TURNDOWNS AND JOINTS ARE NOT SHOWN FOR CLARITY SEE SHEET S.I.O FOR ADDITIONAL INFORMATION.
  - 2 PROVIDE MINIMUM SLOPE TO DRAIN OF 1/4" PER FT.
  - 3 COLUMN/MAIN FRAMES ARE OPTIONAL - DEPENDING ON METAL BUILDING MANUFACTURER.

PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
**COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL**

SUB-CONSULTANT'S  
LOGO



**Department  
of  
Fire Programs**

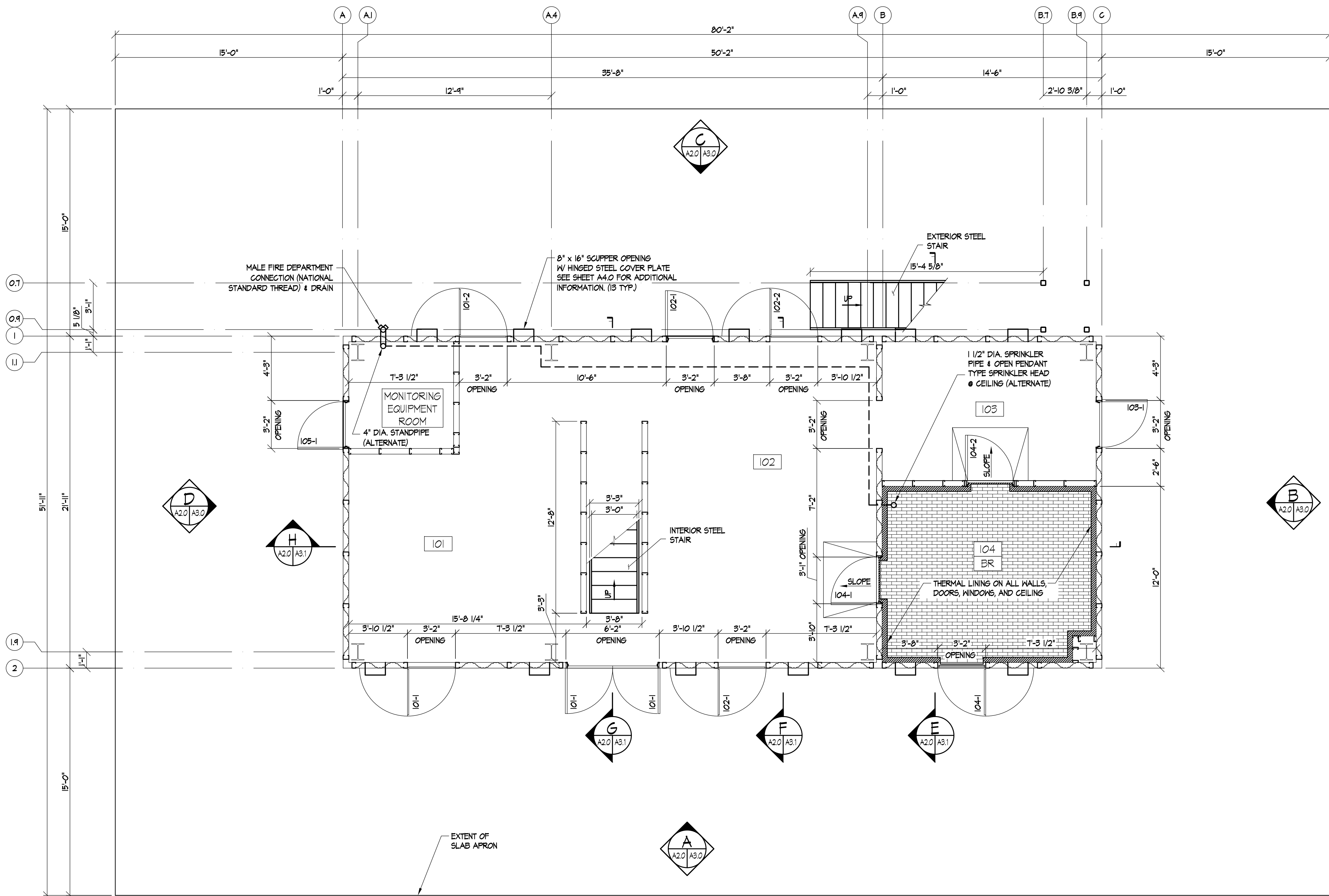
**NOT FOR  
CONSTRUCTION**  
THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title <b>SLAB ELEVATION PLAN</b>	
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.  
**A1.0**  
4 of 18

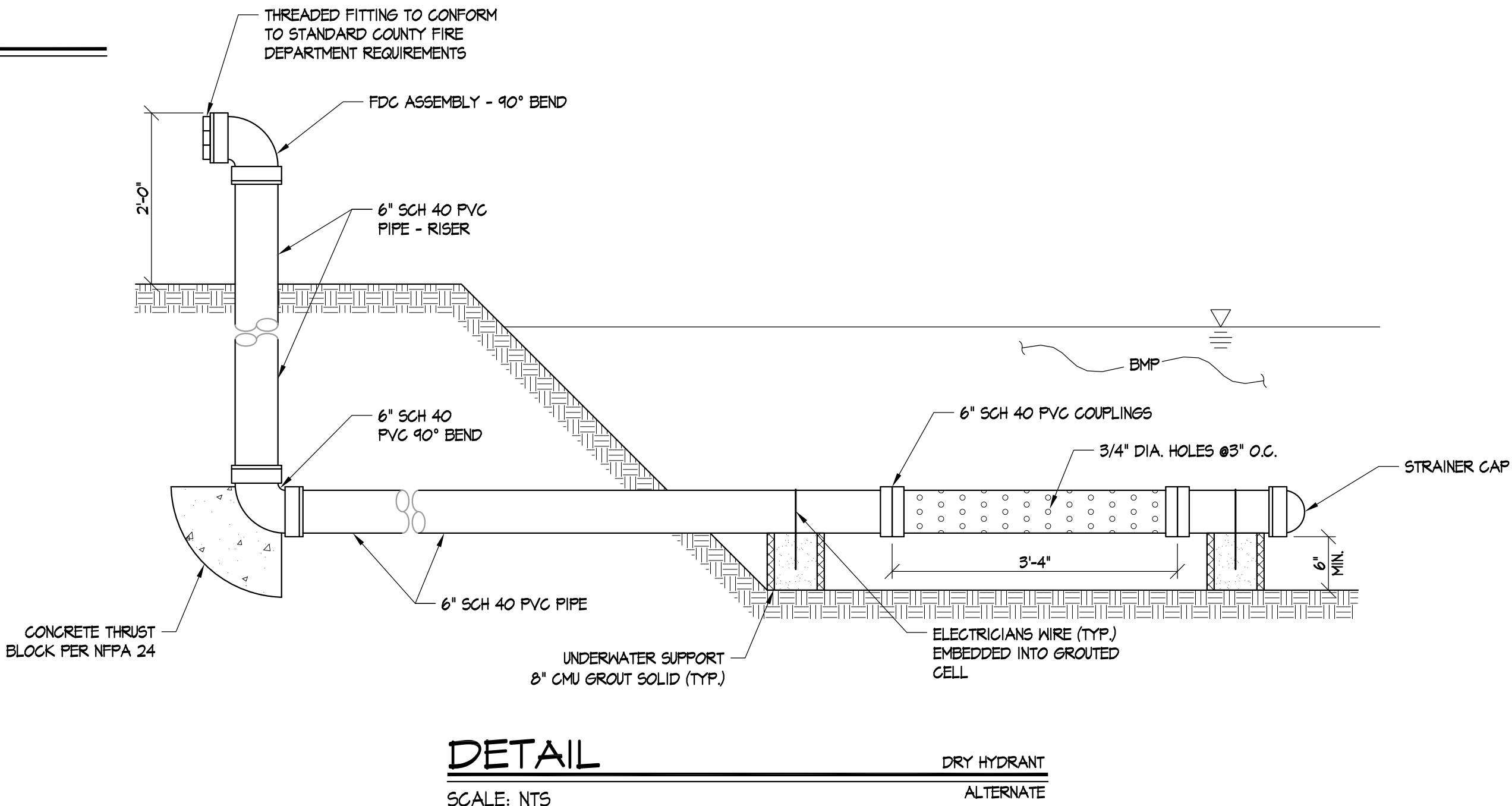


**FIRST FLOOR PLAN**

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

**NOTES:**

- ROOM 104 IS A BURN ROOM. NO BURNING IS ALLOWED IN ROOMS 101, 102, 103, MONITORING EQUIPMENT ROOM, OR ON THE STAIRS OR LANDING.
- DOORS SHALL BE HOT DIPPED GALV. HOLLOW METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE SUPPORT FRAME. DOORS SHALL HAVE PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.
- WINDOW SHUTTERS SHALL BE HOT DIPPED GALV. HOLLOW METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE FRAME SUPPORT. WINDOW SHUTTERS SHALL HAVE WINDOW SHUTTER PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.
- SEE SLAB ELEVATION PLAN ON SHEET A1.0 FOR ELEVATIONS OF CONCRETE SLAB ON GRADE.



PRIME PROFESSIONAL  
FIRM LOGO

Project Title

COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

**NOT FOR  
CONSTRUCTION**

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title	
FIRST FLOOR PLAN	
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

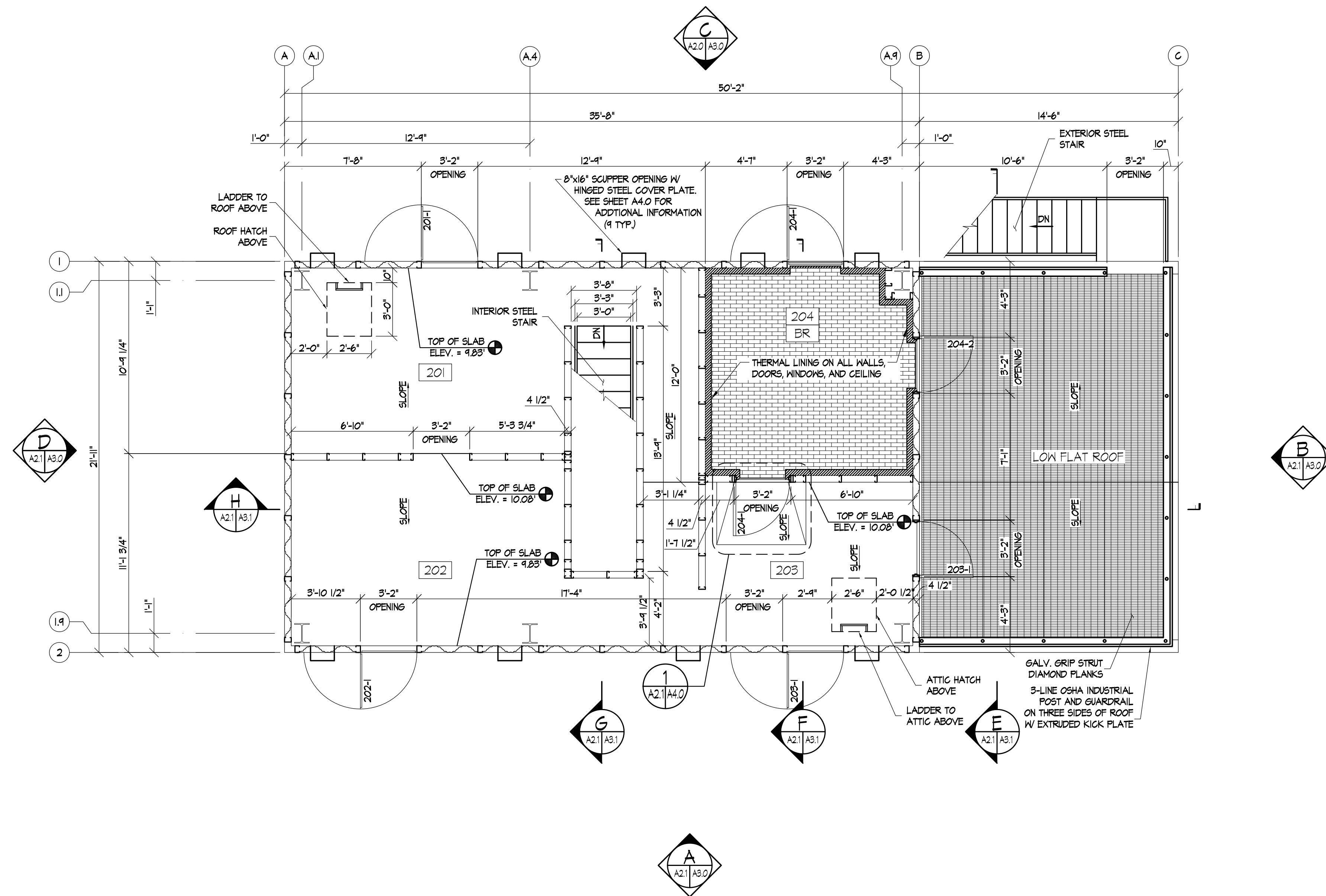
PROFESSIONAL  
SEAL

Sheet No.

**A2.0**

5 of 18





SECOND FLOOR PLAN

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

NOTES:

- INTERIOR ELEVATED FLOOR SLABS SHALL BE CONCRETE SLAB OVER METAL DECK DESIGNED TO SUPPORT THE SUPERIMPOSED LIVE LOADS INDICATED ON SHEET A0.2.
- EXTERIOR LOW FLAT ROOF SHALL BE WATERTIGHT LIGHT GAGE METAL PANELS COVERED WITH GALV. GRIP STRUT DIAMOND PLANKS.
- ROOM 204 IS A BURN ROOM. NO BURNING IS ALLOWED IN ROOMS 201, 202, 203, ON THE STAIRS, LANDING OR ON THE LOW ROOF.
- REFER TO SHEET A3.0 FOR INDUSTRIAL POST AND GUARDRAIL ELEVATION LOCATIONS.
- DOORS SHALL BE HOT DIPPED GALV. HOLLOW METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE SUPPORT FRAME. DOORS SHALL HAVE PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.
- WINDOW SHUTTERS SHALL BE HOT DIPPED GALV. HOLLOW METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE FRAME SUPPORT. WINDOW SHUTTERS SHALL HAVE WINDOW SHUTTER PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.

PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

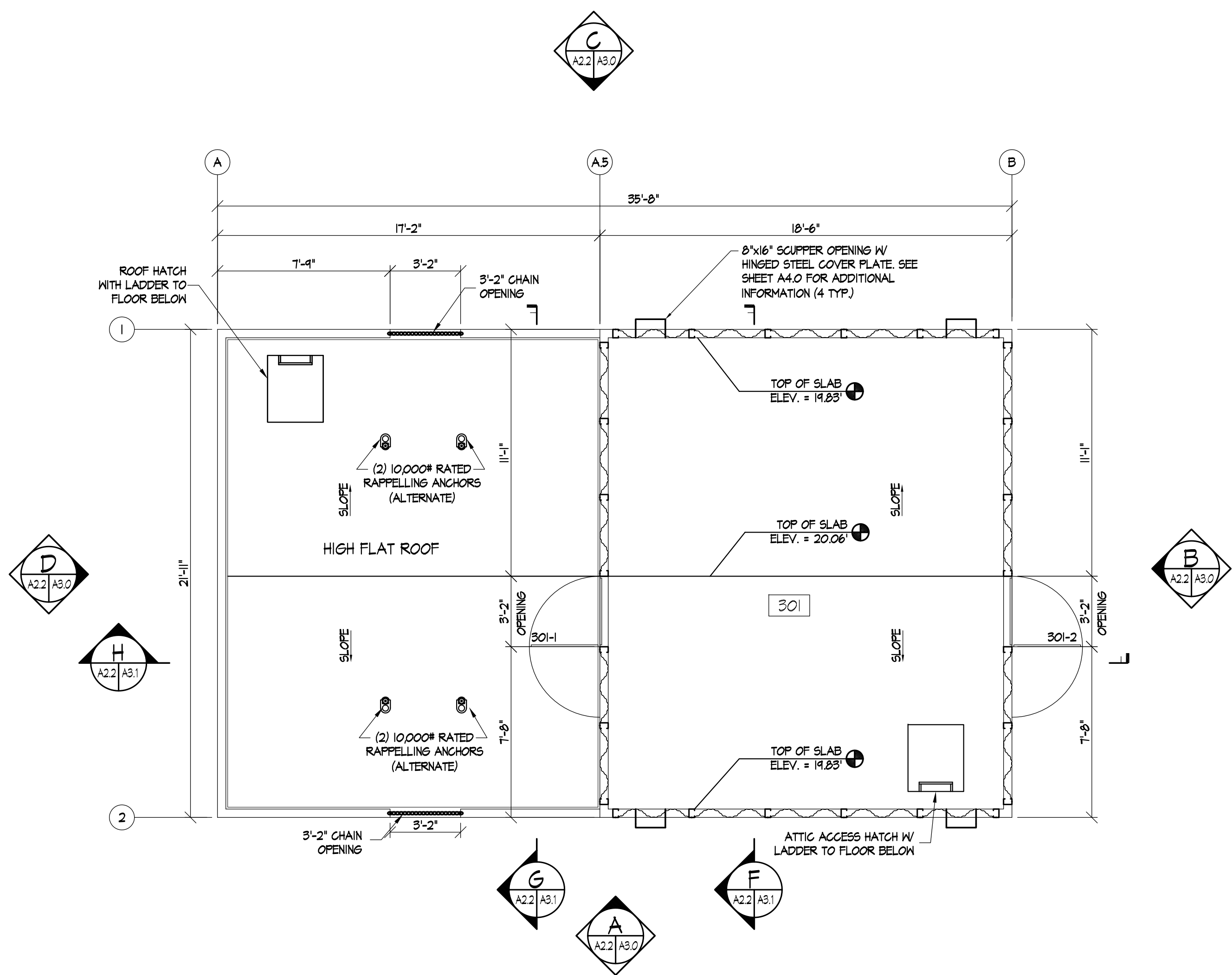
THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title	SECOND FLOOR PLAN
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

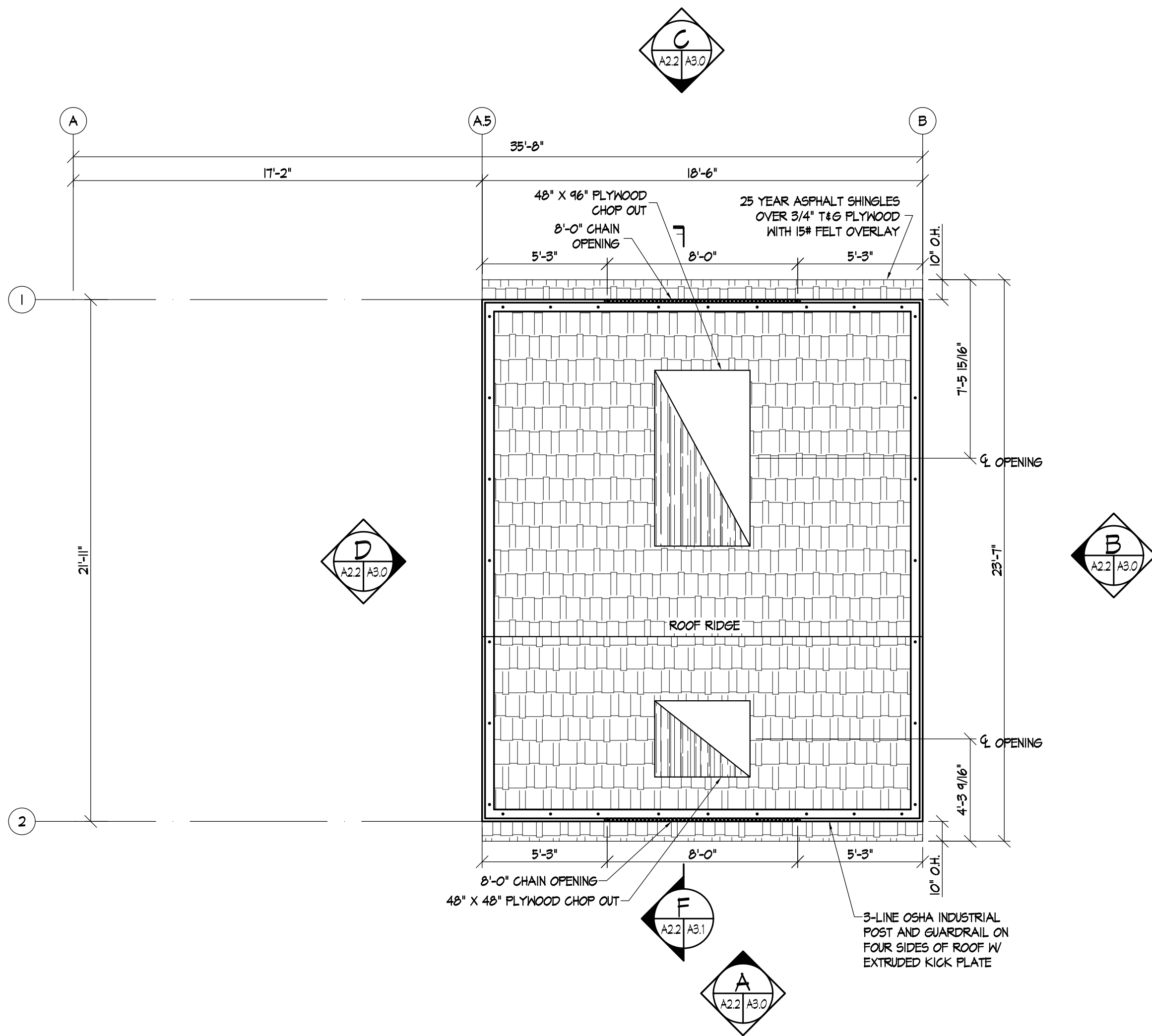
Sheet No.  
A2.1  
6 of 18



ATTIC FLOOR PLAN

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

- NOTES:
- ELEVATED ATTIC FLOOR AND ROOF SLAB SHALL BE CONCRETE SLAB OVER METAL DECK DESIGNED TO SUPPORT THE SUPERIMPOSED LIVE LOADS INDICATED ON SHEET A0.2.
  - NO BURNING IS ALLOWED IN ROOM 301 OR ON THE FLAT ROOF.
  - REFER TO SHEET A3.0 FOR INDUSTRIAL POST AND GUARDRAIL ELEVATION LOCATIONS.
  - WINDOW SHUTTERS SHALL BE HOT DIPPED GALV. HOLLOW METAL WITH CONTINUOUSLY WELDED SEAMS AND GALV. STEEL ANGLE FRAME SUPPORT. WINDOW SHUTTERS SHALL HAVE WINDOW SHUTTER PULLS ON EACH SIDE AS WELL AS A LOCKABLE LATCH THAT IS OPERABLE FROM BOTH SIDES.



SLOPED ROOF PLAN

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

- NOTES:
- SLOPED ROOF SHALL BE 3/4" TONGUE AND GROOVE PLYWOOD COVERED WITH COMPOSITE ASPHALT SHINGLES AND SHALL BE DESIGNED TO SUPPORT THE SUPERIMPOSED LIVE LOADS INDICATED ON SHEET A0.2.
  - REFER TO SHEET A3.0 FOR INDUSTRIAL POST AND GUARDRAIL ELEVATION LOCATIONS.

PRIME PROFESSIONAL  
FIRM LOGO

Project Title

COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

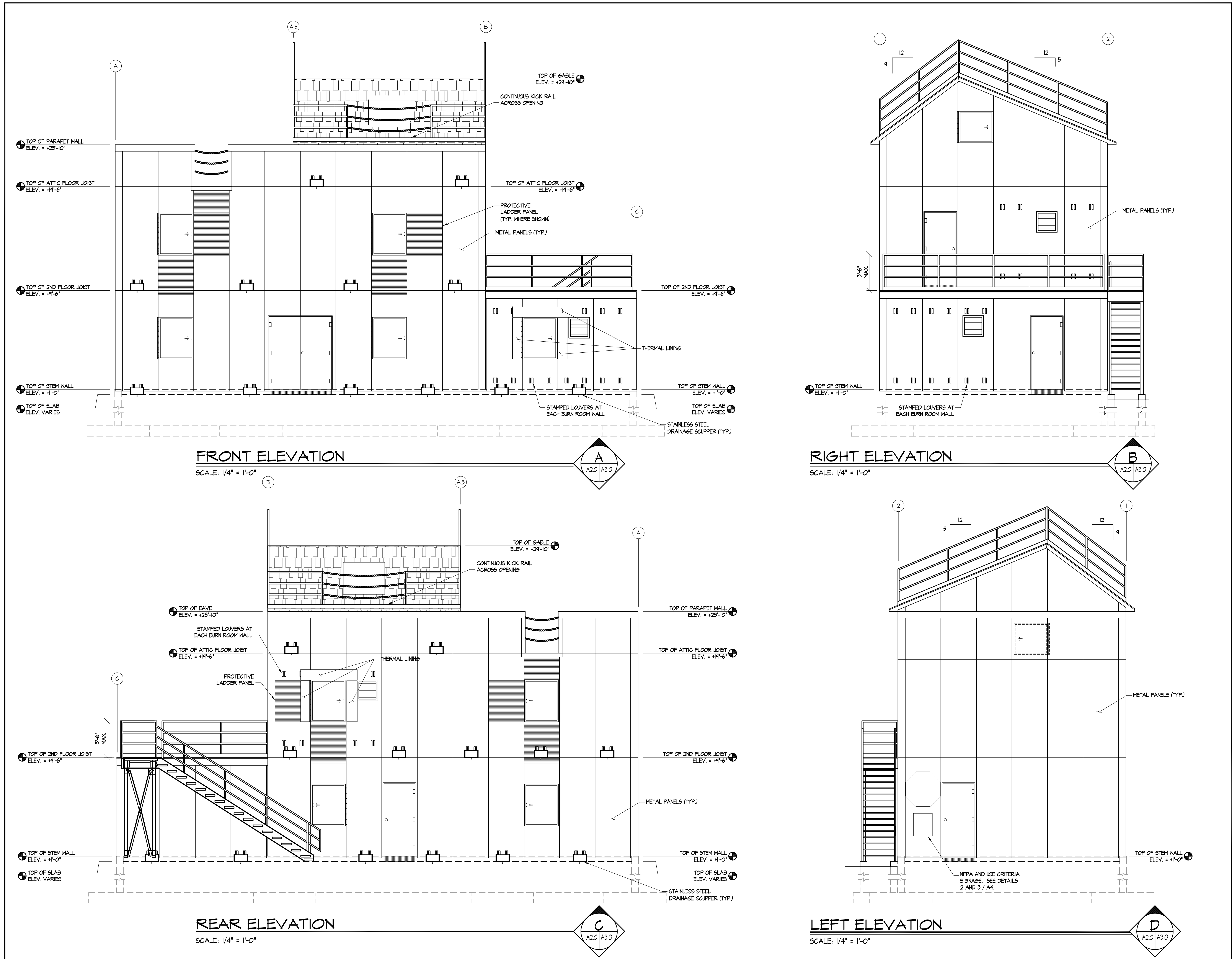
Sheet Title	
ATTIC FLOOR & SLOPED ROOF PLANS	
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

A2.2

7 of 18



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
  
COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title BUILDING ELEVATIONS	
CITY/COUNTY Drawn By: SJS	VIRGINIA Approved By: MAM
Checked By: SMF	Date: 04/11/13

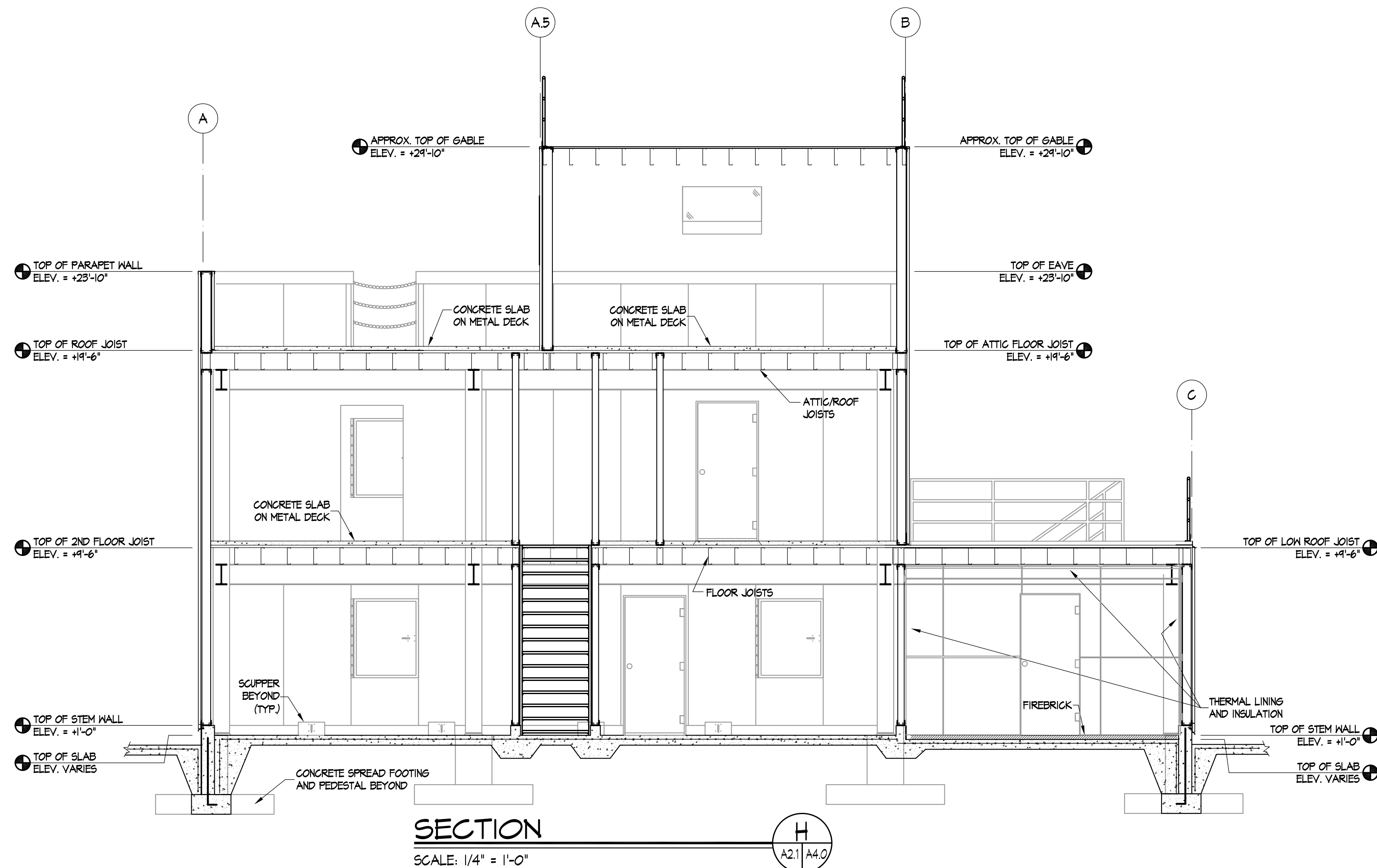
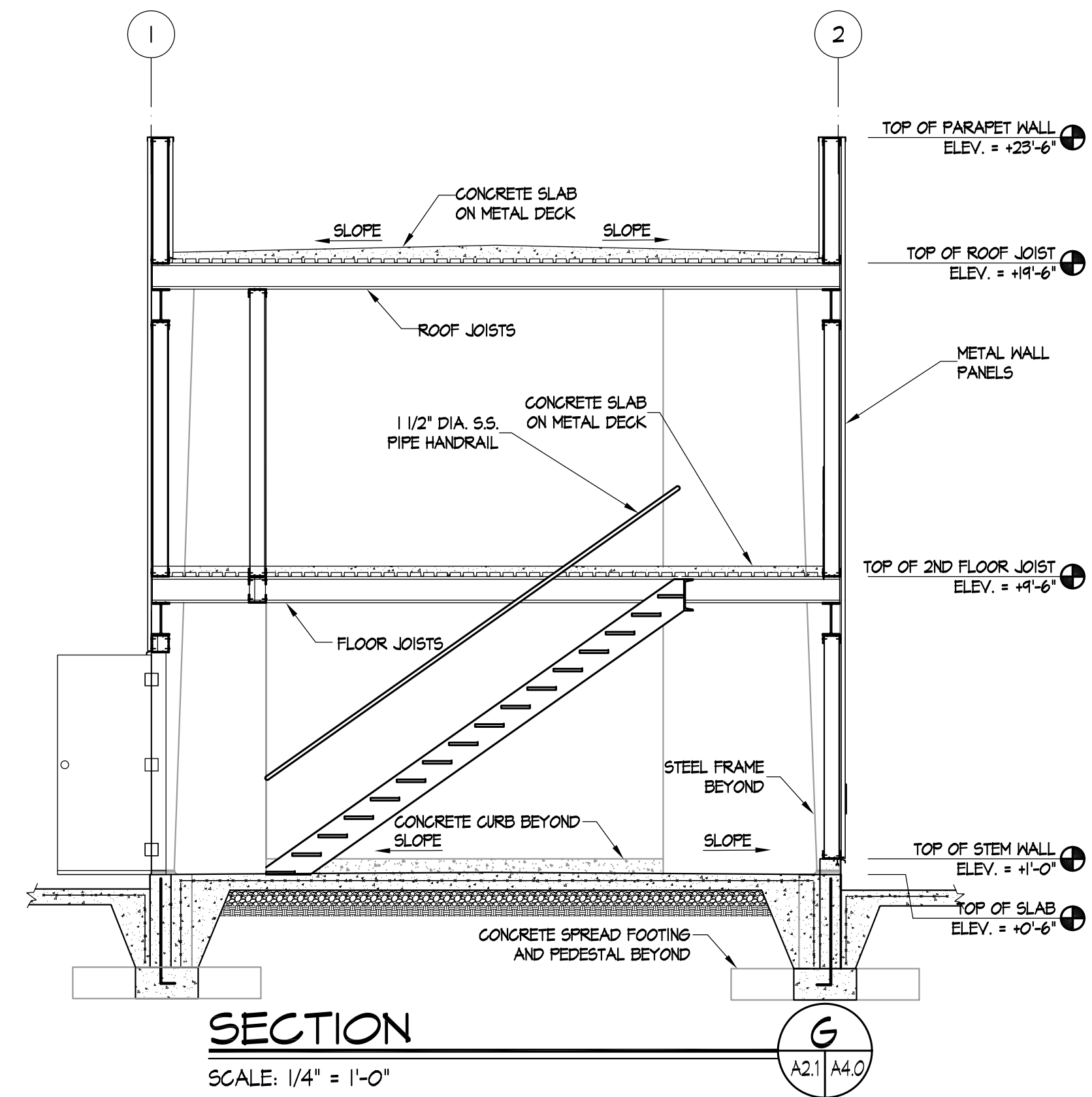
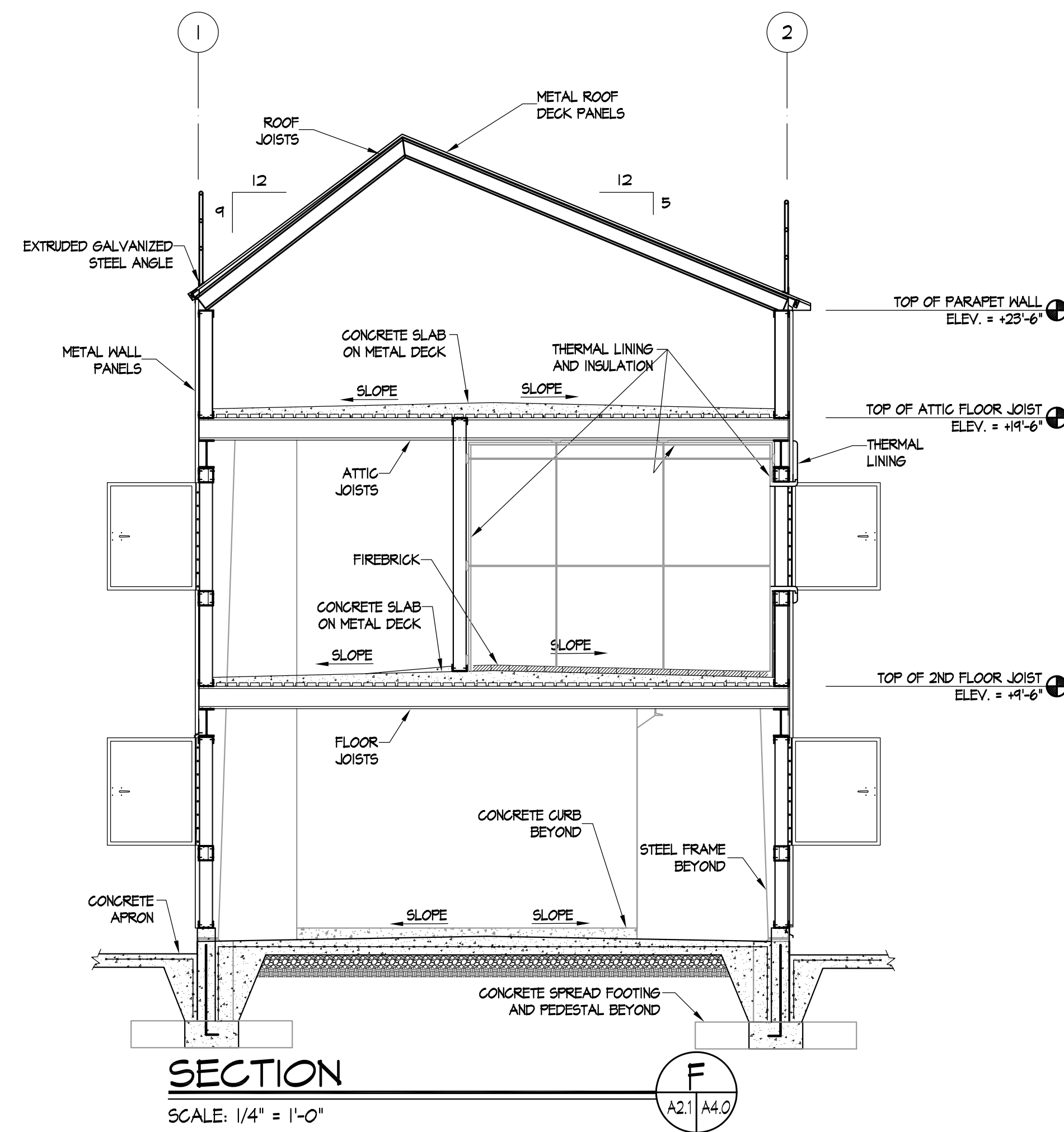
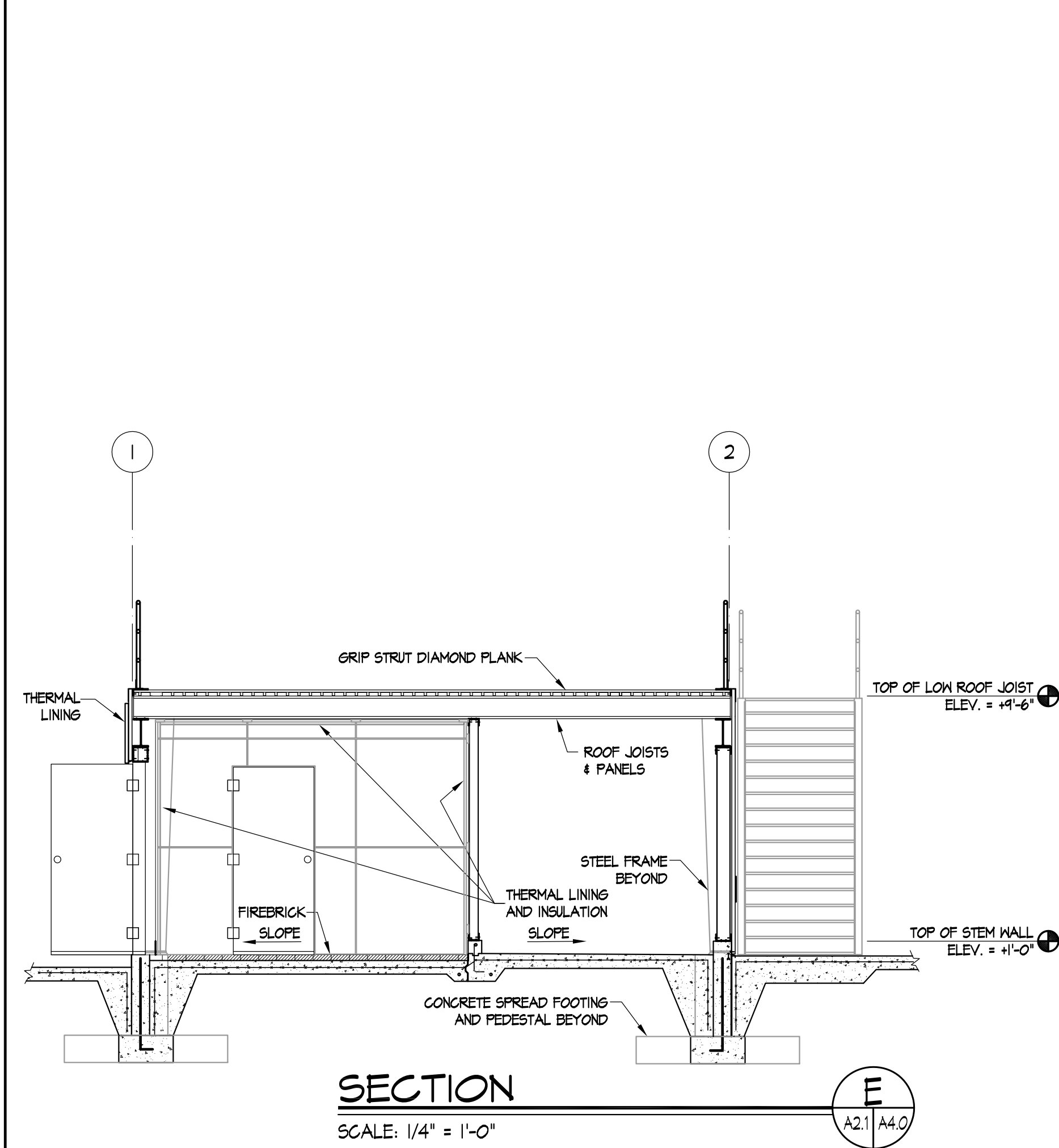
PROFESSIONAL  
SEAL

Sheet No.

A3.0

8 of 18





PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
**COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL**

SUB-CONSULTANT'S  
LOGO



**Department  
of  
Fire Programs**

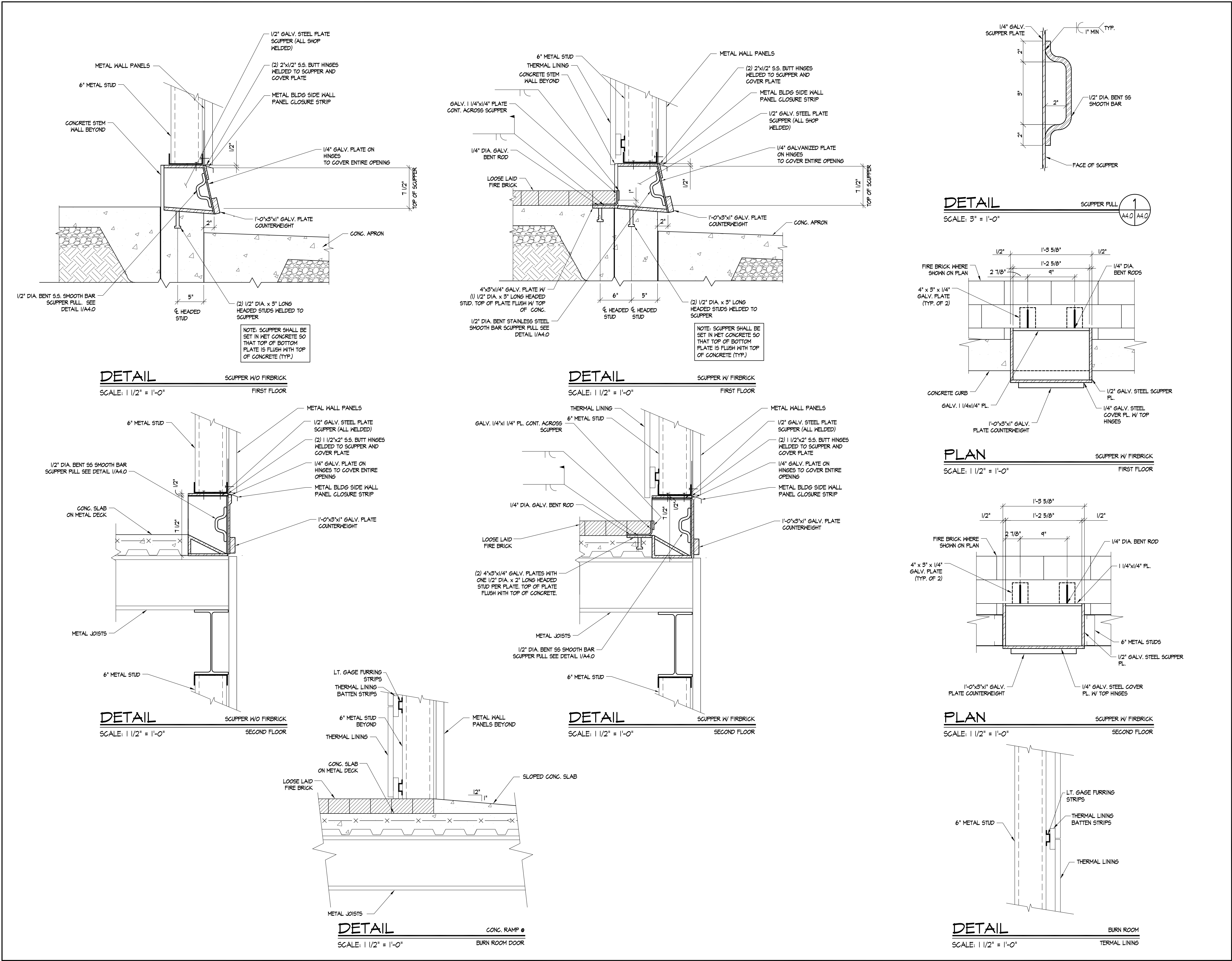
**NOT FOR  
CONSTRUCTION**  
THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title  
**BUILDING SECTIONS**  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.  
**A3.1**  
9 of 18



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
**COMMONWEALTH OF VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL**

SUB-CONSULTANT'S  
LOGO



**Department  
of  
Fire Programs**

**NOT FOR  
CONSTRUCTION**

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

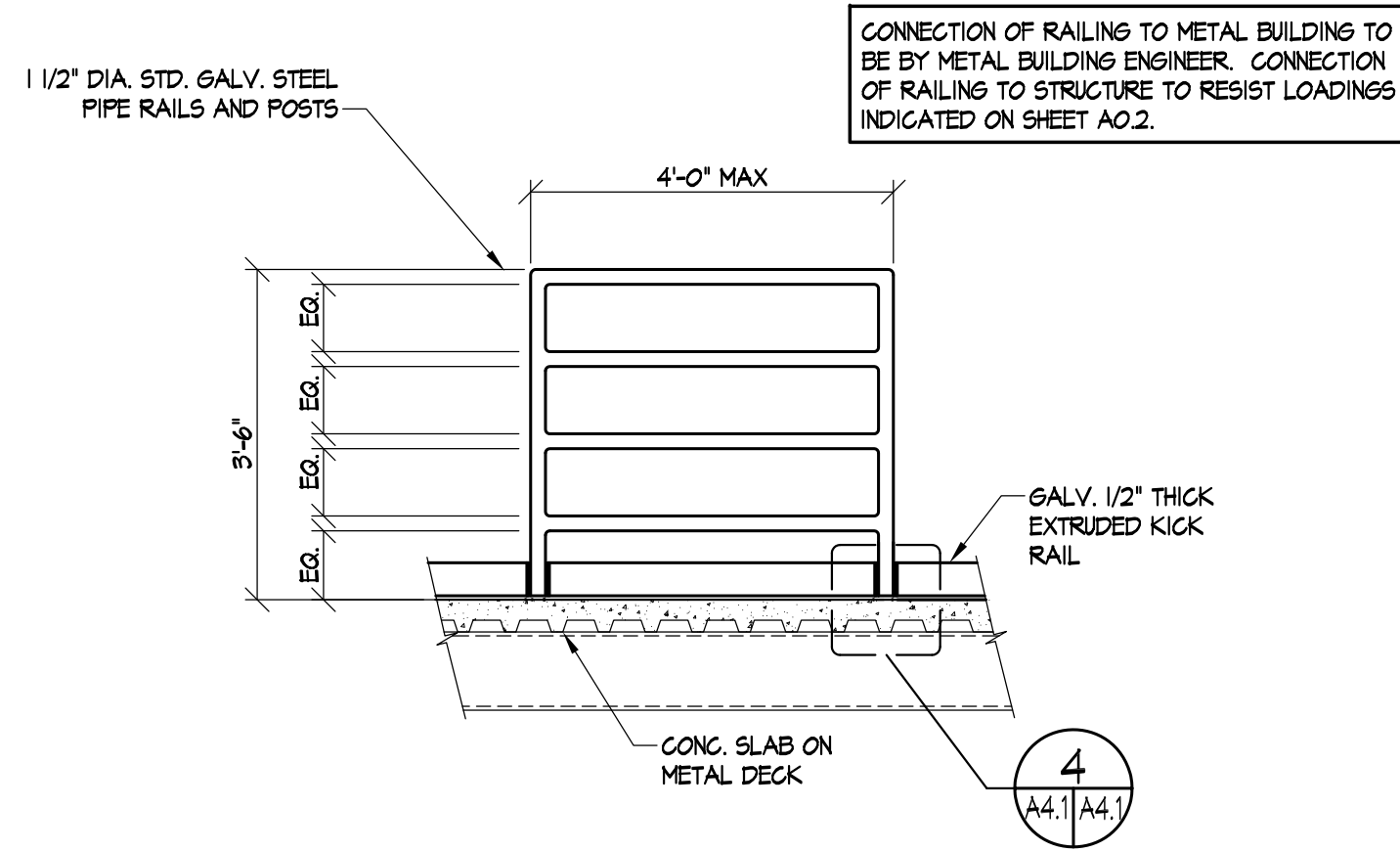
Sheet Title <b>SCUPPER, RAMP, &amp; THERMAL LINING DETAILS</b>	
CITY/COUNTY SJS	VIRGINIA MAM
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

**A4.0**

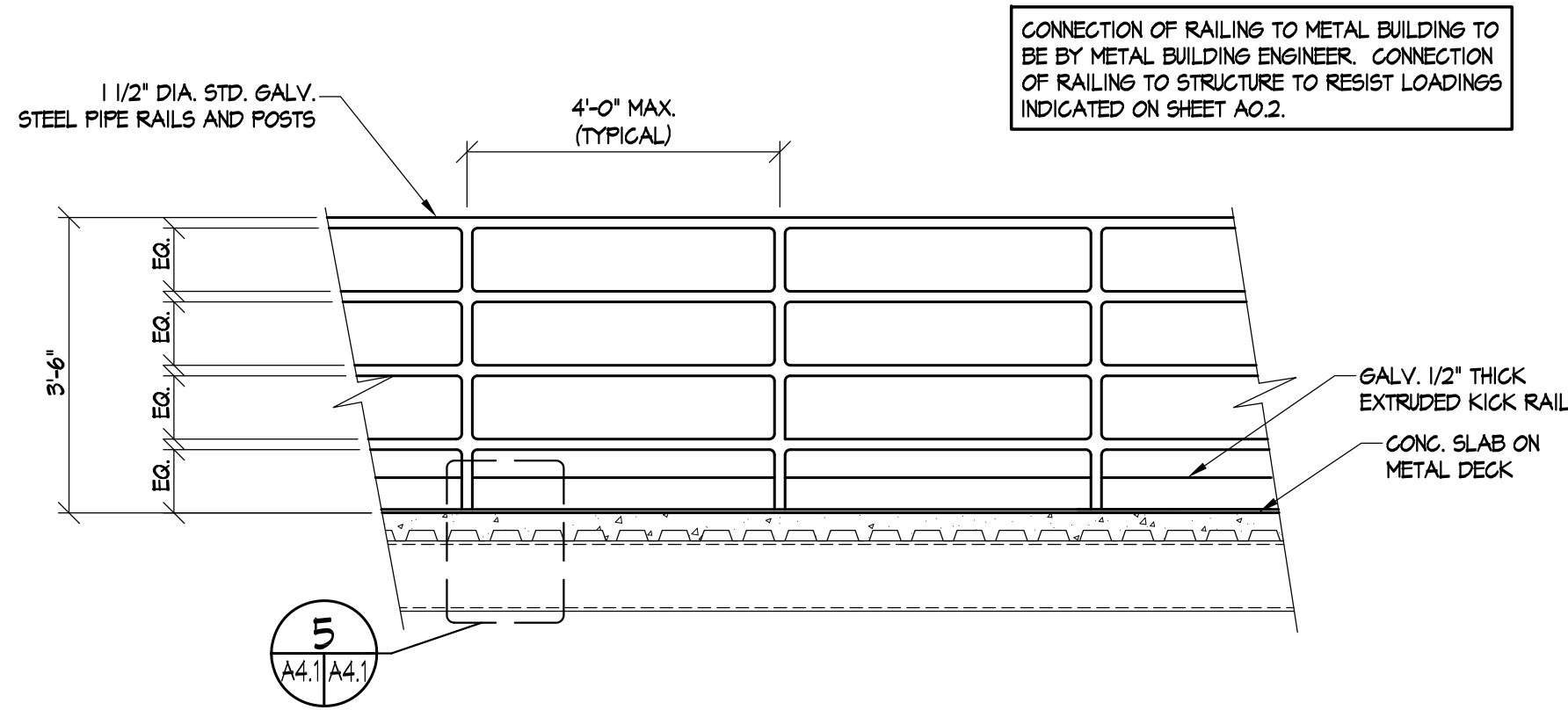
10 of 18



## DETAIL

REMOVABLE GUARDRAIL

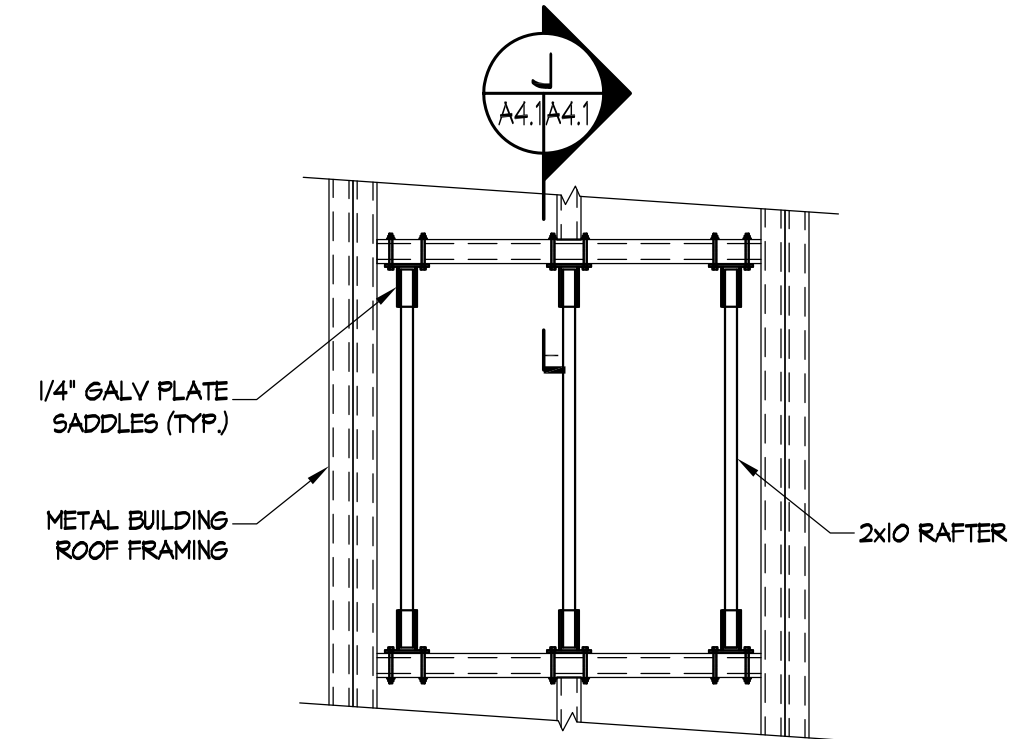
SCALE: 1/2" = 1'-0"



## DETAIL

TYPICAL GUARDRAIL

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



## DETAIL

CHOP OUT OPENING

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



## DETAIL

NFPA 1403 SIGNAGE

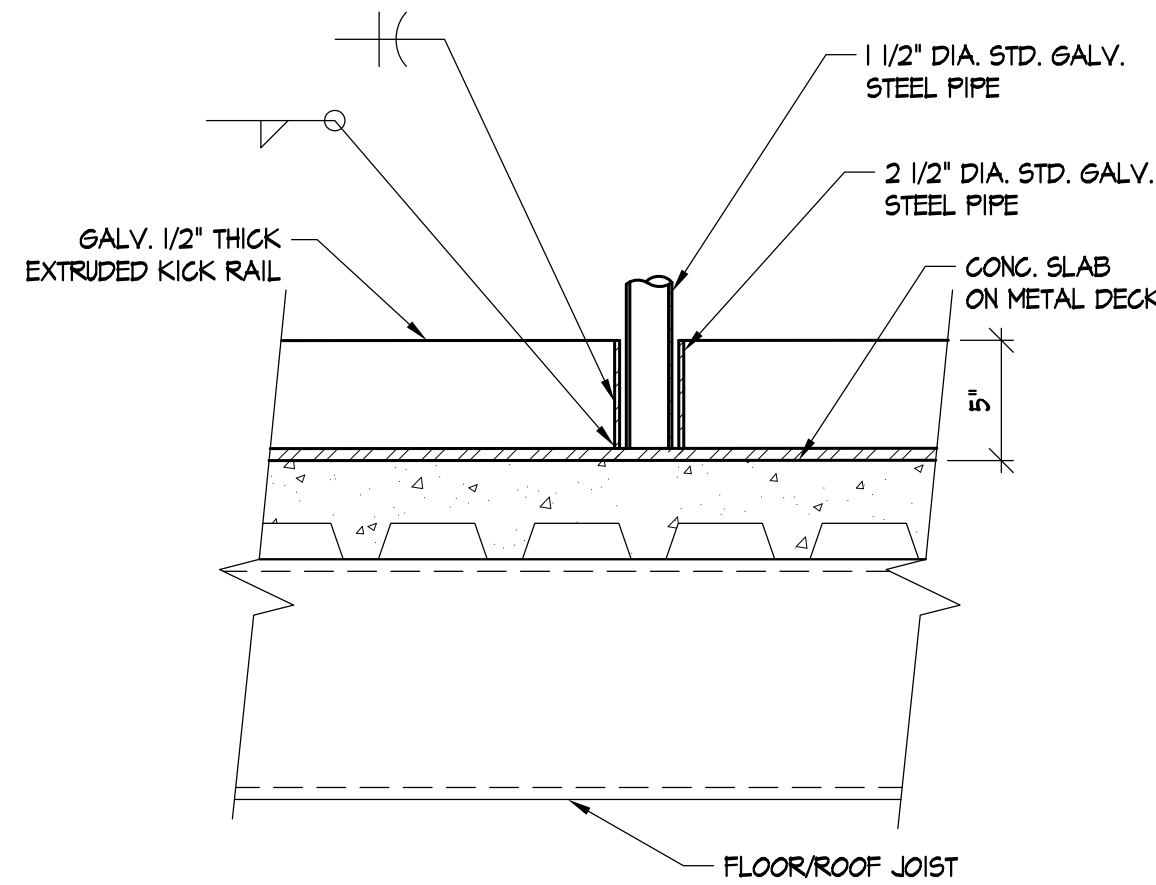
2  
A3.0 | A4.1

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

## LIVE FIRE TRAINING USAGE CRITERIA

### THE BUILDING HAS BEEN DESIGNED FOR THE FOLLOWING USAGE CRITERIA

1. MAXIMUM NUMBER OF LIVE FIRE TRAINING DAYS PER YEAR = UNLIMITED
  2. MAXIMUM NUMBER OF LIVE FIRE TRAINING EVOLUTIONS PER DAY = 10
  3. MAXIMUM DURATION OF EACH LIVE FIRE TRAINING EVOLUTION = 20 MINUTES
  4. MAXIMUM SUSTAINED WALL TEMPERATURE DURING LIVE FIRE TRAINING = 550°
  5. MAXIMUM WALL TEMPERATURE SPIKE DURING LIVE FIRE TRAINING = 100°
  6. ONLY "CLASS B" FUEL MATERIALS SHALL BE USED FOR LIVE FIRE TRAINING
  7. LIVE FIRE TRAINING SHALL BE IN ACCORDANCE WITH NFPA 1403 AND THE WRITTEN GUIDELINES OF THE VIRGINIA DEPARTMENT OF FIRE PROGRAMS
  8. LIVE FIRE TRAINING SHALL OCCUR IN BURN ROOMS ONLY. BURN ROOMS ARE 104 AND 204. NO FIRES ARE ALLOWED IN ROOMS 101, 102, 103, 201, 202, 203, MONITORING EQUIPMENT ROOM, ON THE STAIRS, LANDINGS OR ON THE LOW ROOF.
  9. NO TRAINING THAT INCLUDES TEAR GAS, EXPLOSIVES, FIRE ARMS, OR FORCED ENTRY SHALL OCCUR WITHIN OR NEAR THE BUILDING.
  10. NO VEHICLES SHALL BE ALLOWED WITHIN 15'-0" OF THE BUILDING.
- II. REPLACE ALL DAMAGED THERMAL LININGS PRIOR TO CONDUCTING FURTHER LIVE FIRE TRAINING EVOLUTIONS.

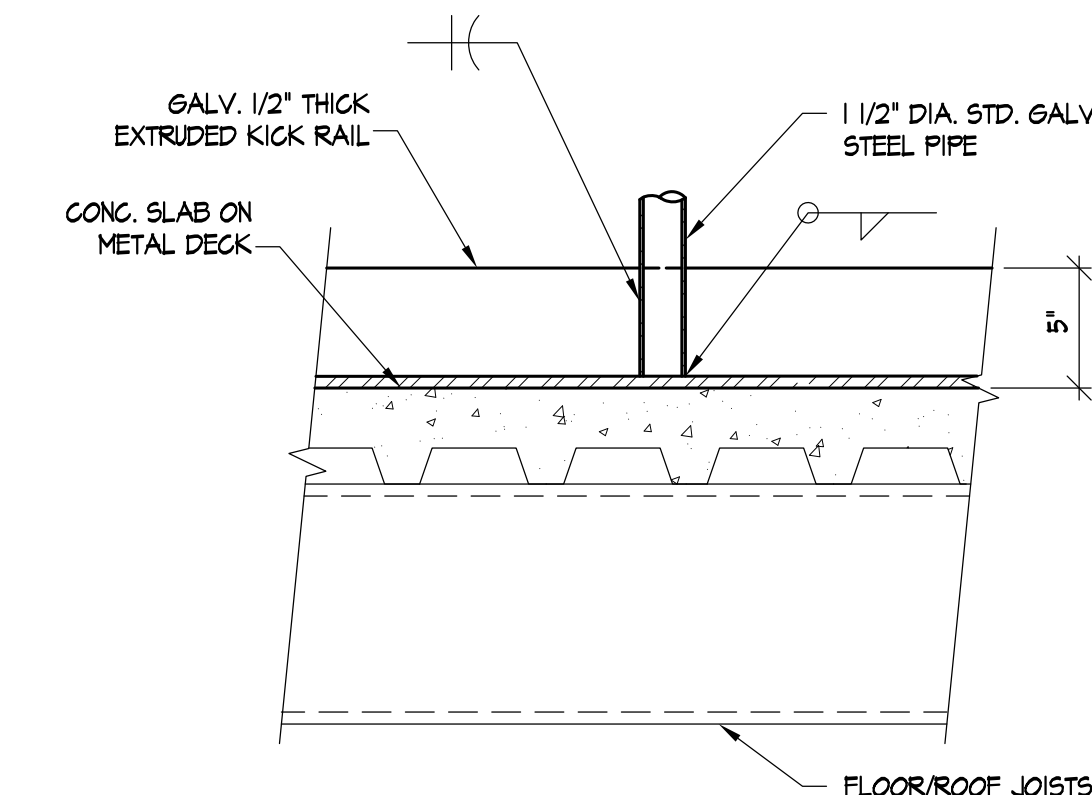


## DETAIL

REMOVABLE GUARDRAIL

4  
A4.1 | A4.1

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

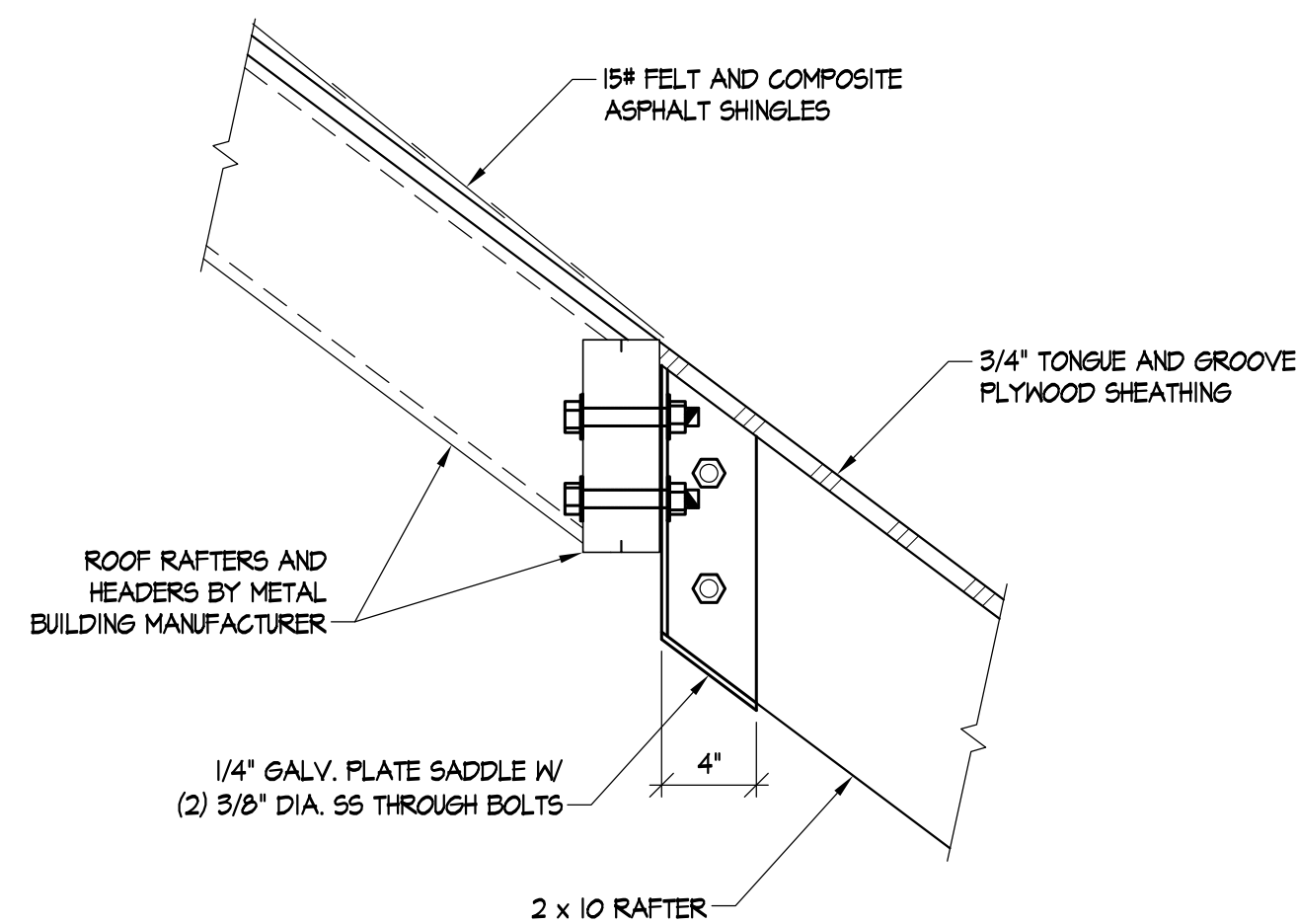


## DETAIL

TYP. GUARDRAIL

5  
A4.1 | A4.1

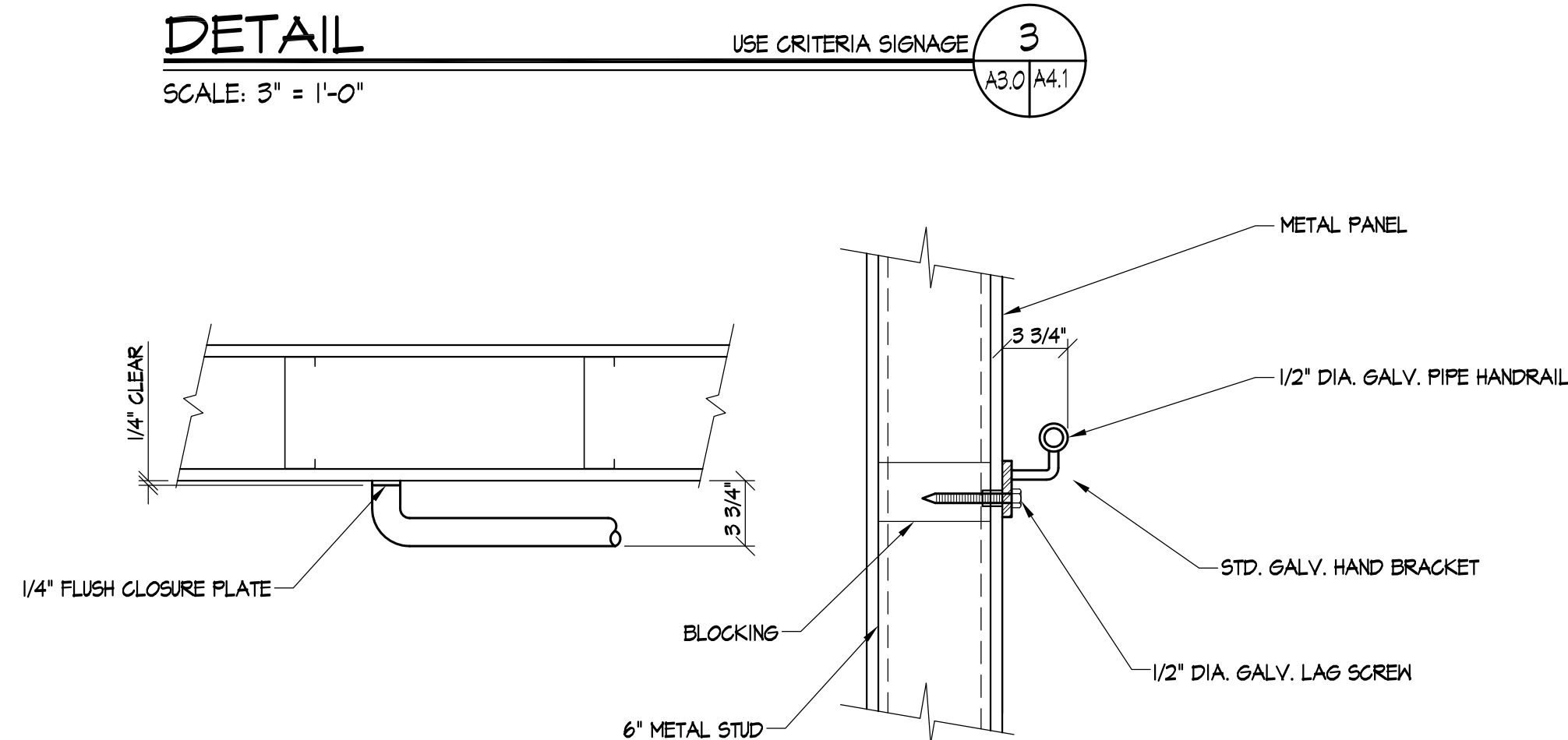
SCALE: 1 1/2" = 1'-0"



## SECTION

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

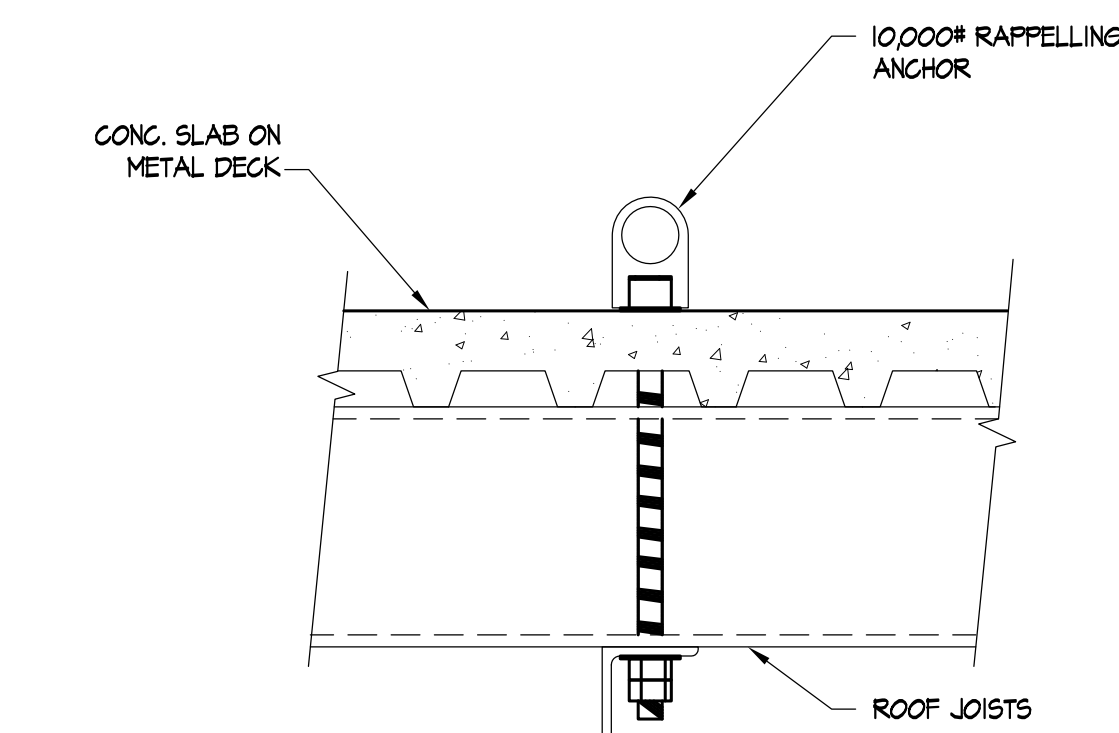
J  
A4.1 | A4.1



## DETAIL

INTERIOR HAND RAIL

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



## DETAIL

RAPELLING ANCHOR

INSTALLATION DETAILS

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

PRIME PROFESSIONAL FIRM LOGO

Project Title

COMMONWEALTH OF VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title

SIGNAGE, RAILING &  
CHOPOUT DETAILS

CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

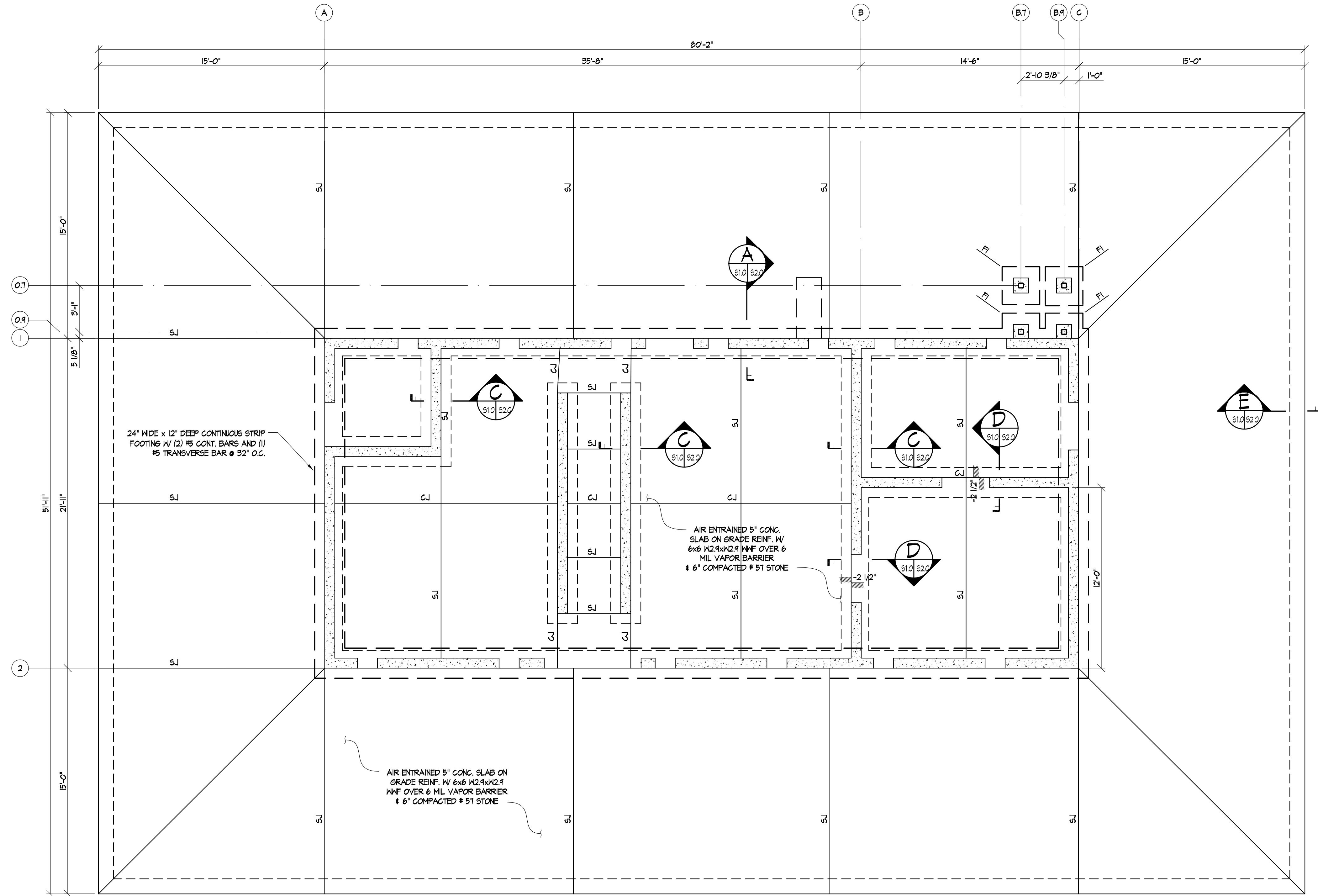
PROFESSIONAL SEAL

Sheet No.

A4.1

11 of 18



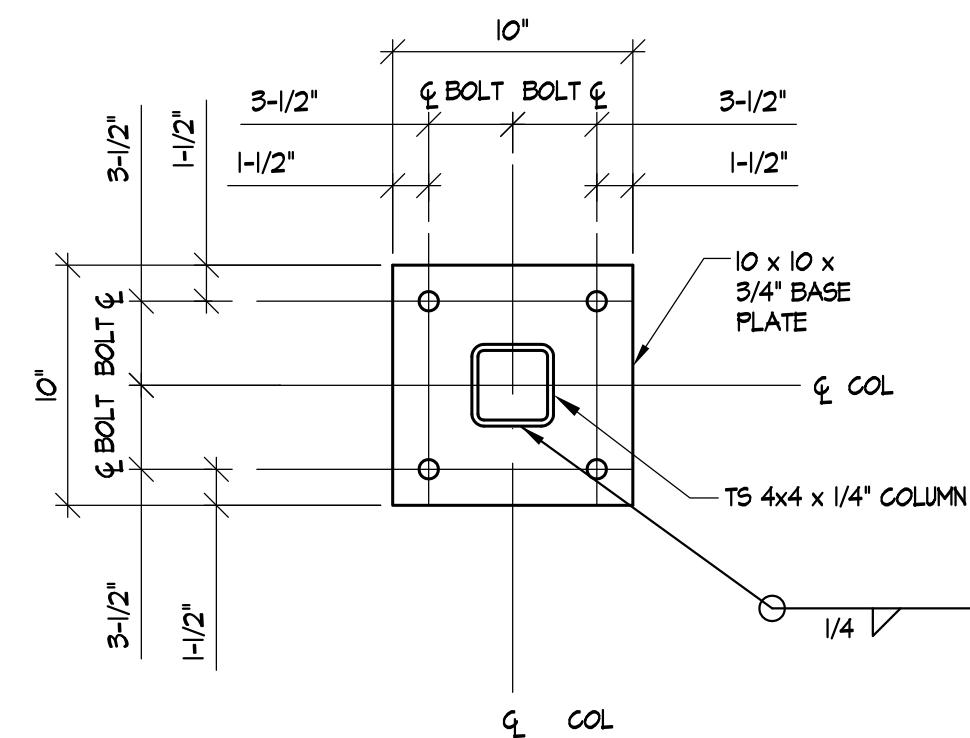


FOUNDATION PLAN

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

BEARING WALL  
DESIGN

- NOTES:
1. FOUNDATION PROVIDED FOR PRE-ENGINEERED METAL BUILDING.
  2. SEE SHEET S11 FOR METAL BUILDING UTILIZING MAIN FRAME DESIGN.
  3. SEE SHEET A10 FOR SLAB ELEVATIONS AND SLOPES.
  4. SLOPE TOP & BOTTOM OF SLAB TO MAINTAIN THICKNESS INDICATED.



DETAIL

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

BASE PLATE

COLUMN FOOTING SCHEDULE						
MARK	SIZE	DEPTH	BOTTOM REINFORCING	PEDESTAL SIZE	PEDESTAL DOWEL	PEDESTAL TIES
FI	2'-6" x 2'-6"	1'-0"	(3) #5 E.W.	1'-0" x 1'-0"	(4) #6	#3 @ 6" o.c.

PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
COMMONWEALTH OF VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title  
FOUNDATION PLAN  
(BEARING WALL DESIGN)  
& COLUMN FTG SCHEDULE  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

S1.0

12 of 18

Project Title

COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

The seal of the Virginia Department of Transportation (VDOT) is a circular emblem. It features a central figure of a woman standing on a globe, holding a staff with a cross, symbolizing the Virgin Mary. The text "VIRGINIA DEPARTMENT OF TRANSPORTATION" is inscribed around the top inner edge, and "HIGHWAY PROGRAMS" is at the bottom. The entire seal is surrounded by a decorative, sunburst-like border.

Department  
of  
Fire Programs

**NOT FOR  
CONSTRUCTION**

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

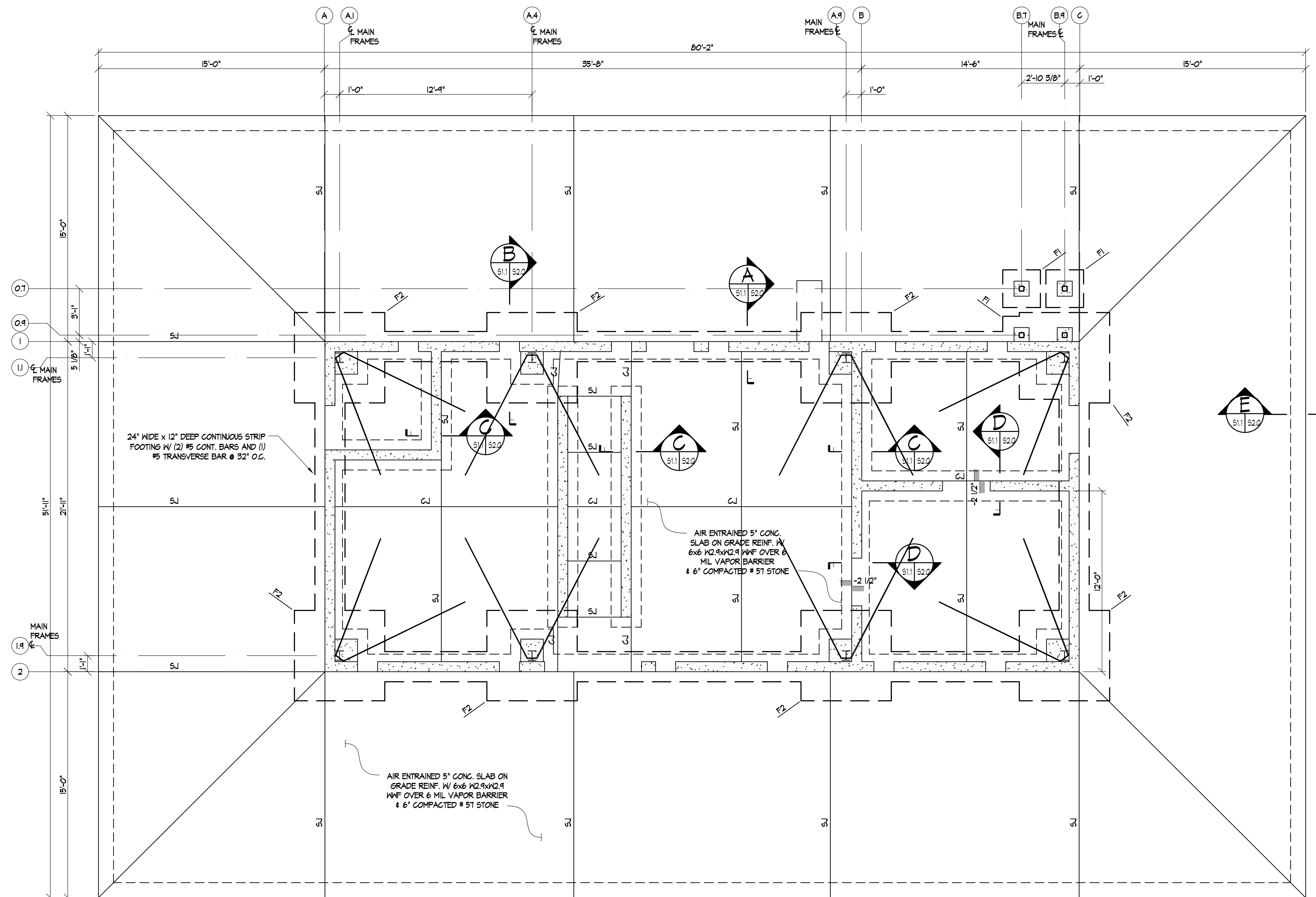
[illegible]

Sheet Title	
<p align="center"><b>FOUNDATION PLAN (MAIN FRAME DESIGN) &amp; COLUMN FTG SCHEDULE</b></p>	
CITY/COUNTY	VIRGINIA
Drawn By: SJS	Approved By: MAM
Checked By: SMF	Date: 04/11/13

Sheet No.

## S1.1

13 of 18



## FOUNDATION PLAN

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

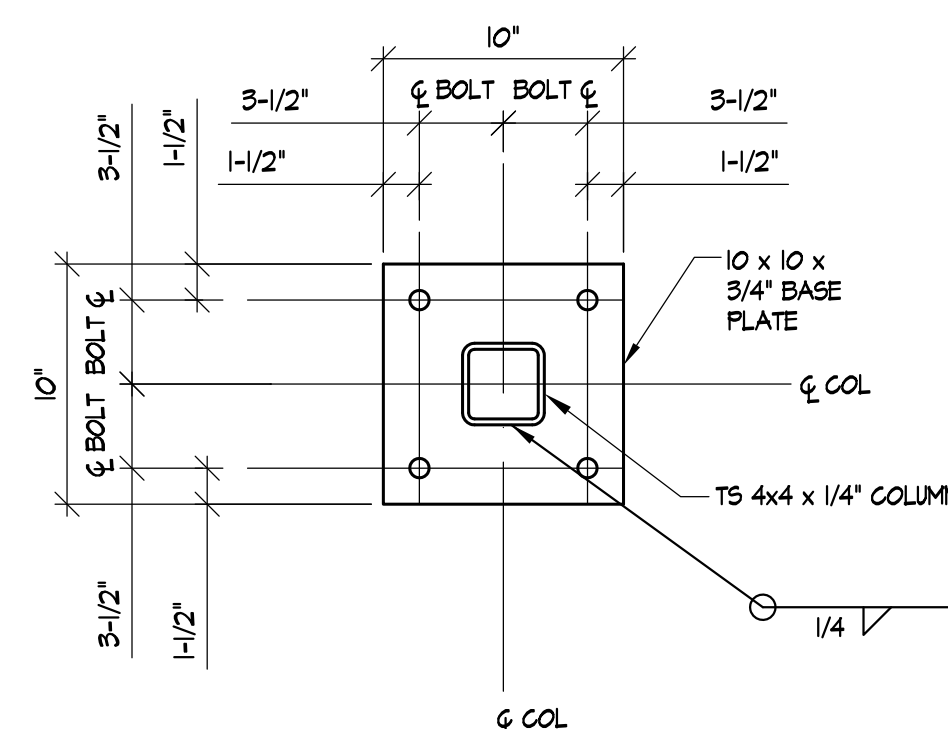
# MAIN FRAME

---

---

## DESIGN

- NOTES:
- 1 FOUNDATION PROVIDED FOR PRE-ENGINEERED METAL BUILDING.
  - 2 SEE SHEET S.I.O FOR METAL BUILDING UTILIZING EXTERIOR BEARING WALLS.
  - 3 METAL BUILDING MANUFACTURERS UTILIZING MAIN FRAME SHALL UTILIZE LOCATIONS SHOWN.
  - 4 SEE SHEET A.I.O FOR SLAB ELEVATIONS AND SLOPES.
  - 5 SLOPE TOP & BOTTOM OF SLAB TO MAINTAIN THICKNESS INDICATED.



## DETAIL

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

### COLUMN FOOTING SCHEDULE

MARK	SIZE	DEPTH	BOTTOM REINFORCING	PEDESTAL		
				SIZE	DOWEL	TIES
F1	2'-6" x 2'-6"	1'-0"	(3) #5 EWL	1'-0" x 1'-0"	(4) #6	#3 @ 6" o.c.
F2	6'-0" x 6'-0"	1'-2"	(1) #5 EWL	1'-6" x 1'-6"	(8) #6	#3 @ 9" o.c.

NOTE: COLUMN SPREAD FOOTINGS DESIGNATED F2 ARE INTENDED FOR USE WITH METAL BUILDING CONSTRUCTION UTILIZING MAIN FRAME CONSTRUCTION ONLY





PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
**COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL**

SUB-CONSULTANT'S  
LOGO



**Department  
of  
Fire Programs**

**NOT FOR  
CONSTRUCTION**

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

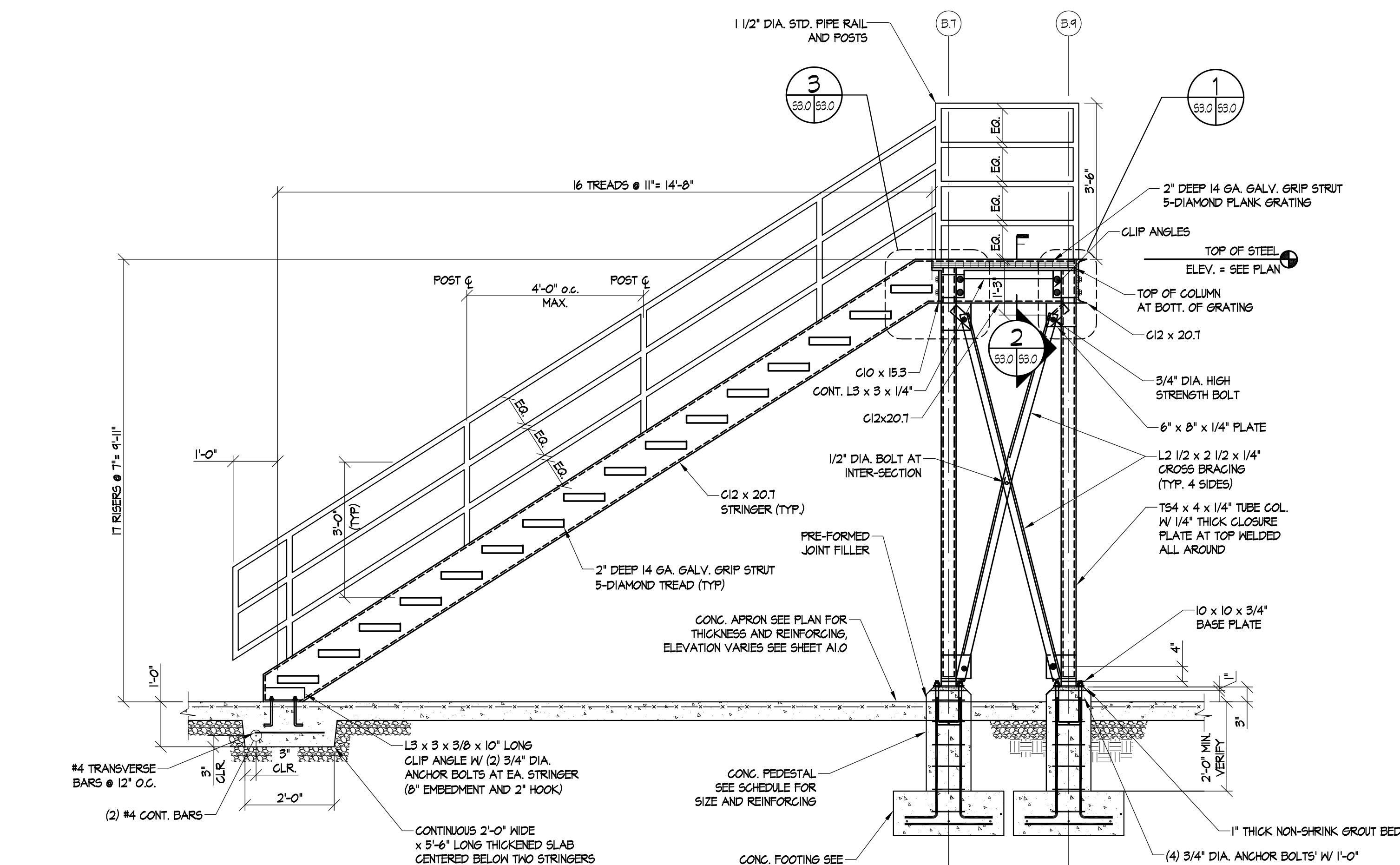
Sheet Title  
**EXTERIOR STEEL  
STAIR ELEVATION,  
SECTIONS, & DETAILS**  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

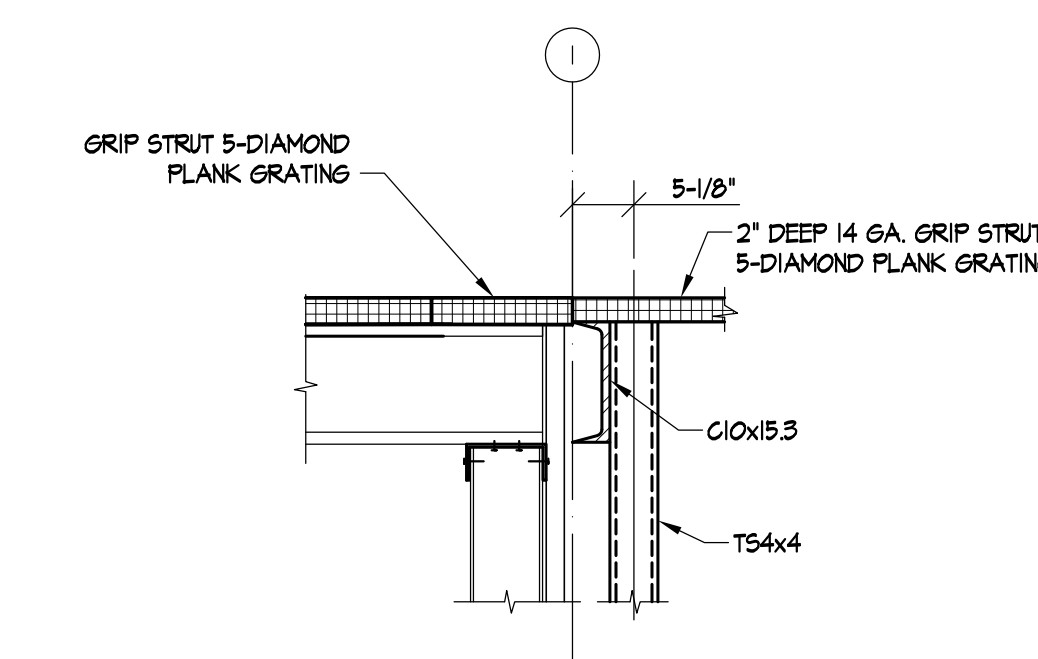
**S3.0**

15 of 18

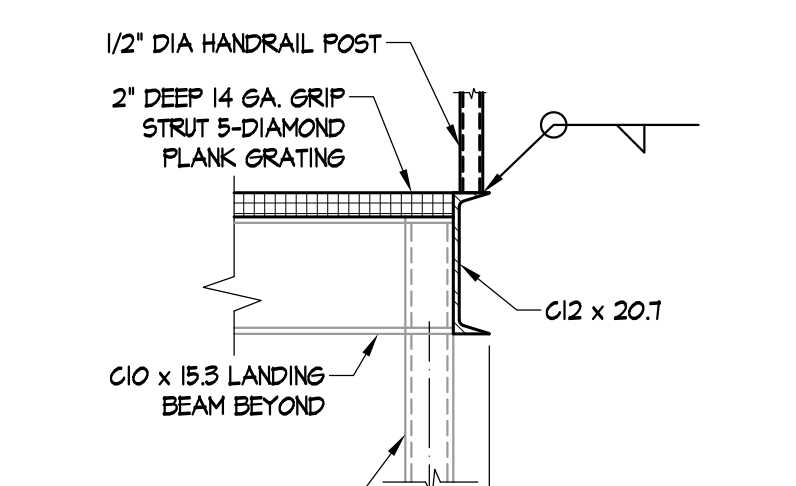


NOTE:  
ALL STEEL AND GRATING IN THIS SECTION SHALL BE  
GALVANIZED UNO.

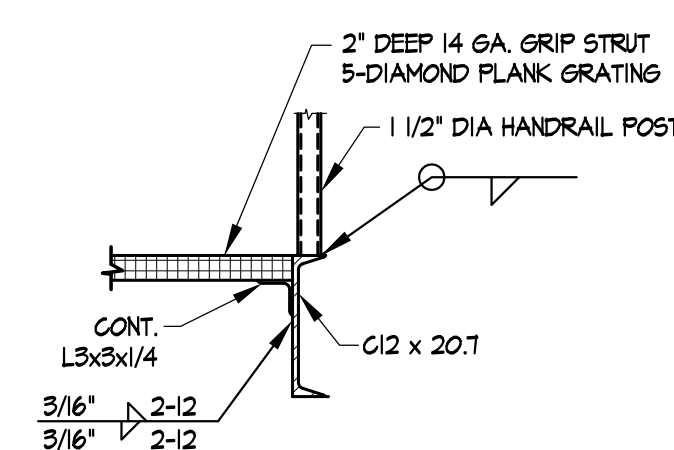
**ELEVATION** EXTERIOR STAIRS  
SCALE: 1/2" = 1'-0"



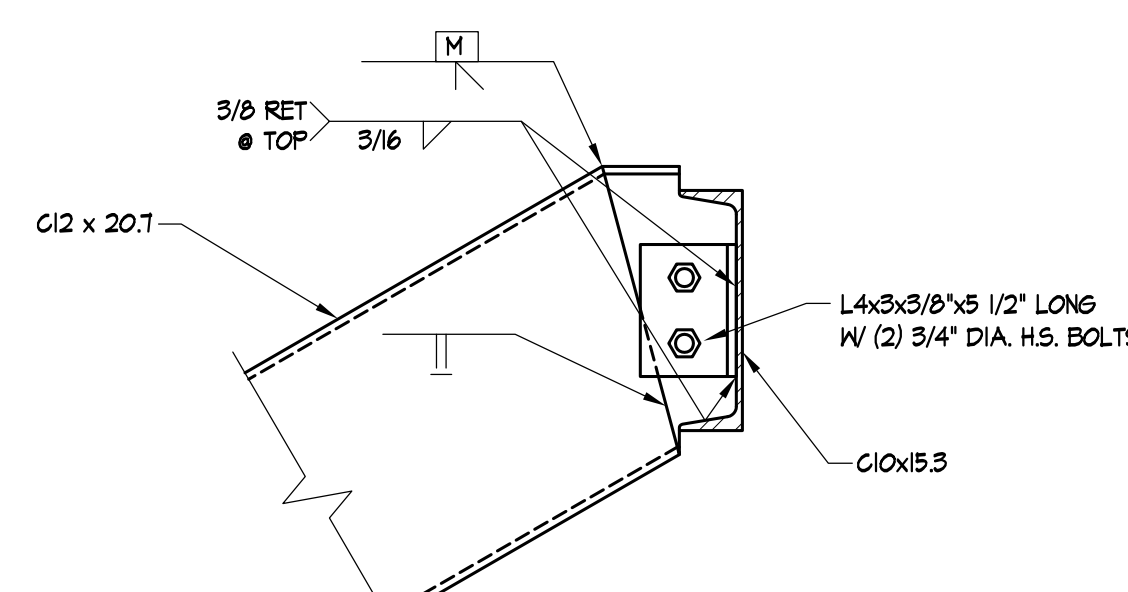
**DETAIL**  
SCALE: 3/4" = 1'-0"



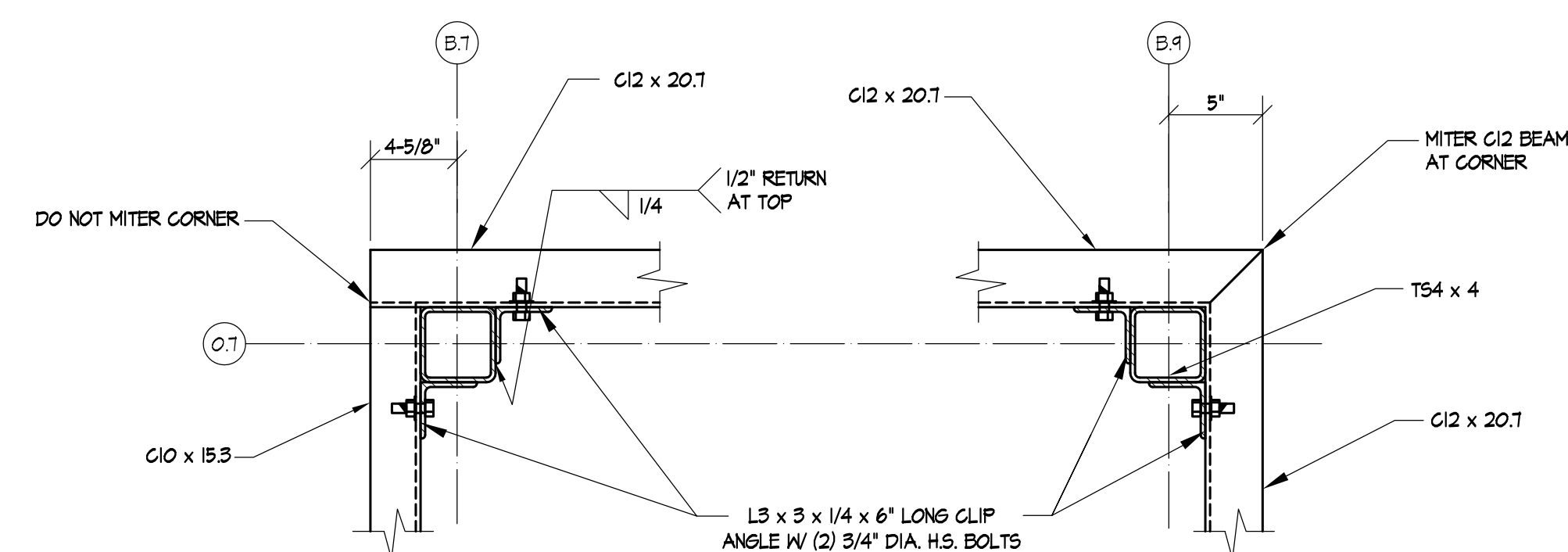
**DETAIL**  
SCALE: 3/4" = 1'-0"



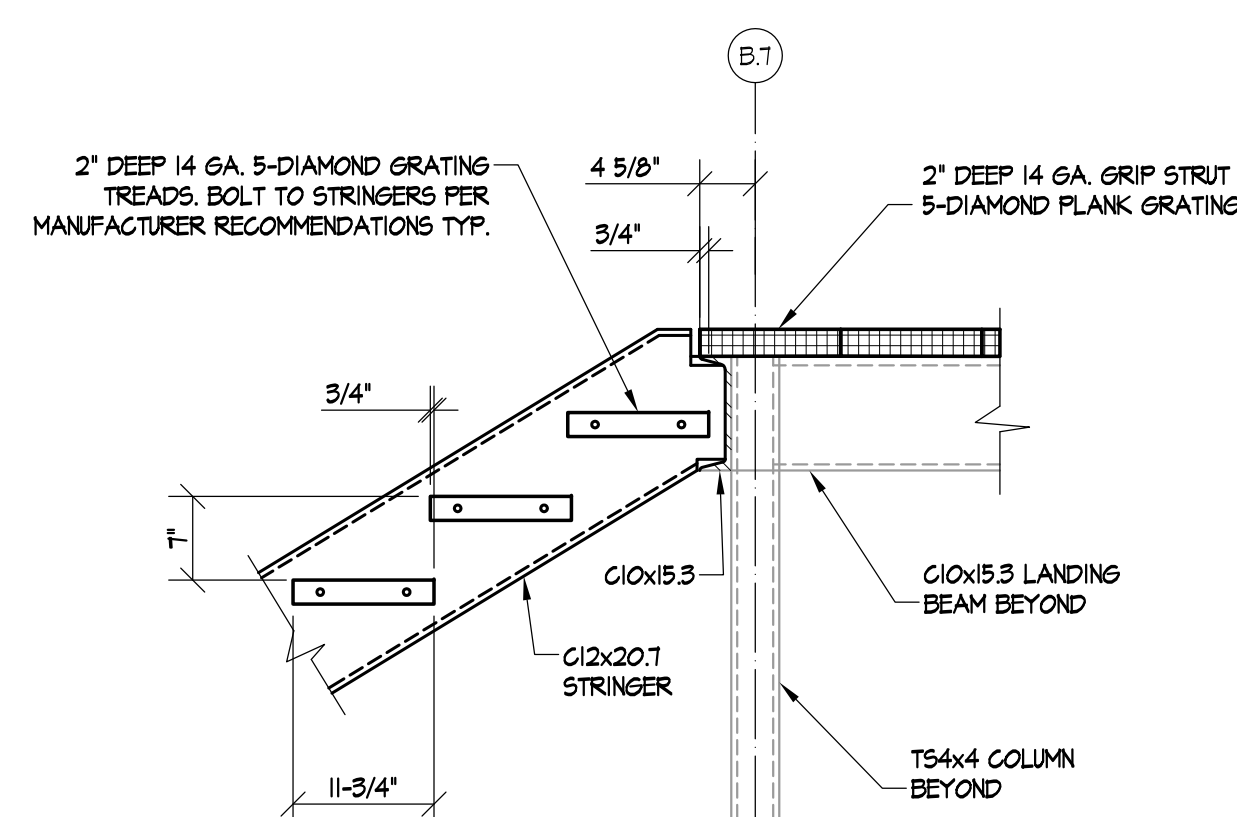
**DETAIL**  
SCALE: 3/4" = 1'-0"



**DETAIL** STAIR STRINGER SPLICE  
AND CONNECTION  
SCALE: 1 1/2" = 1'-0"

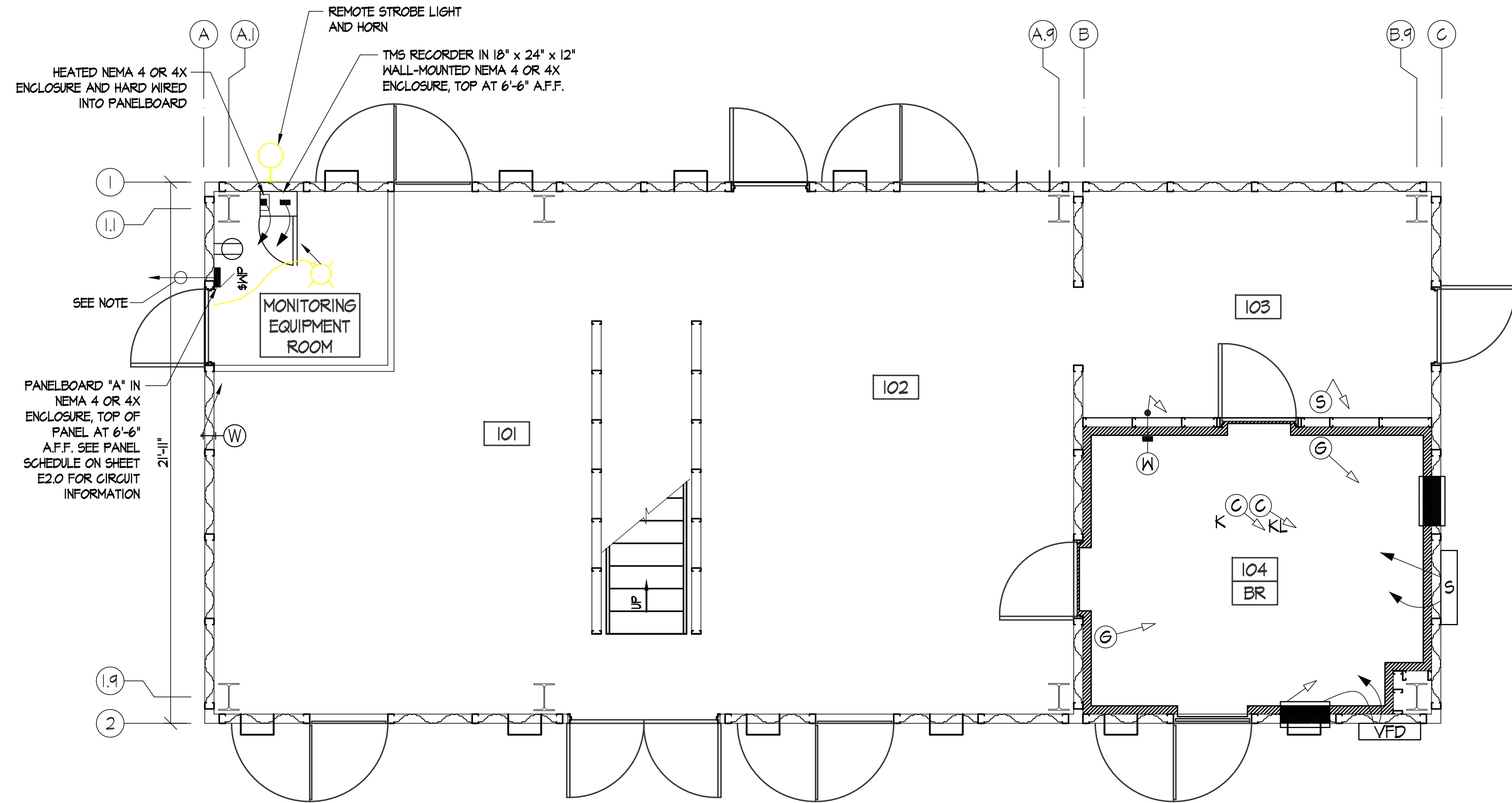


**DETAIL** LANDING BEAMS TO COLUMNS  
SCALE: 1 1/2" = 1'-0"

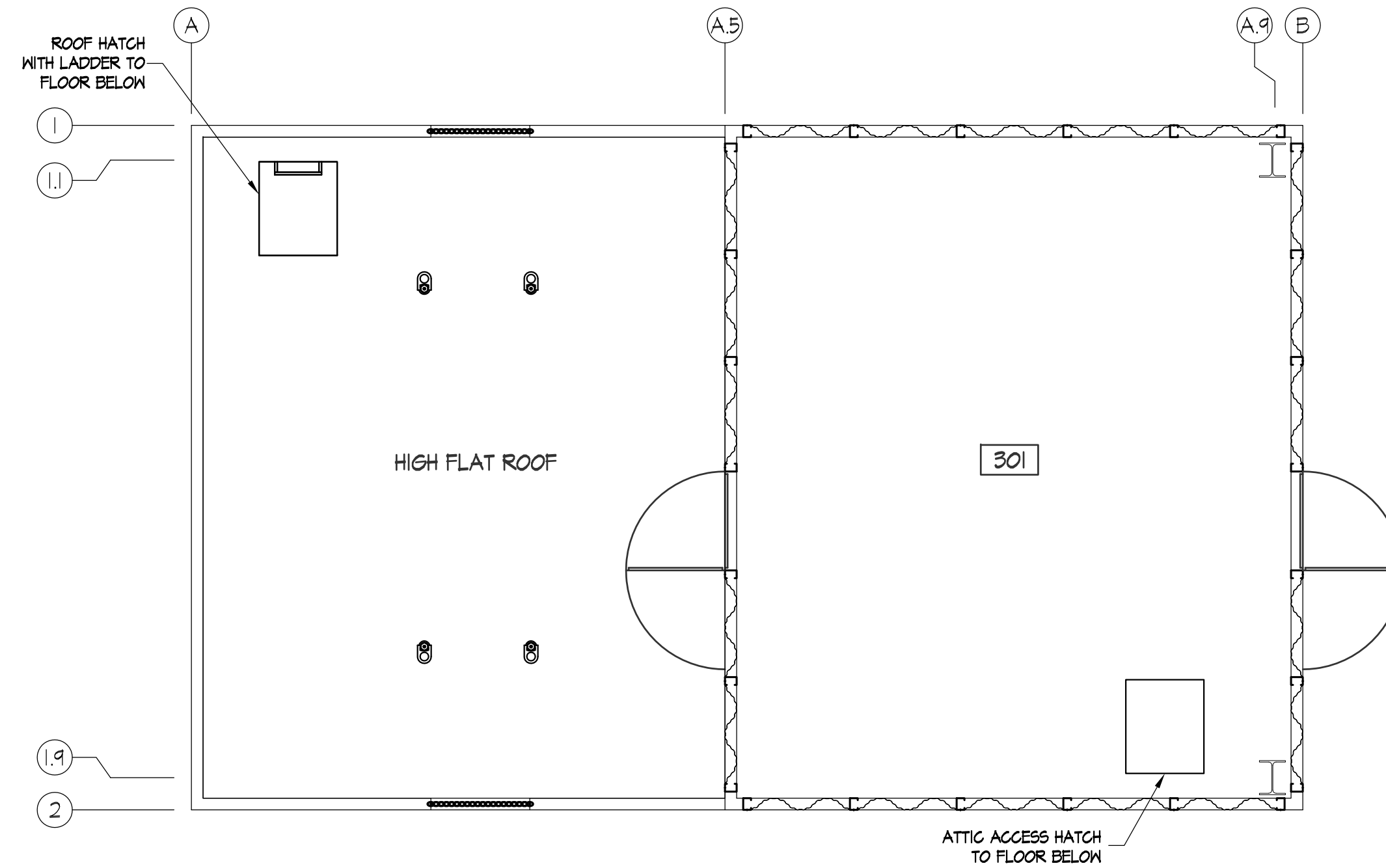


NOTE:  
RAILING NOT SHOWN  
FOR CLARITY

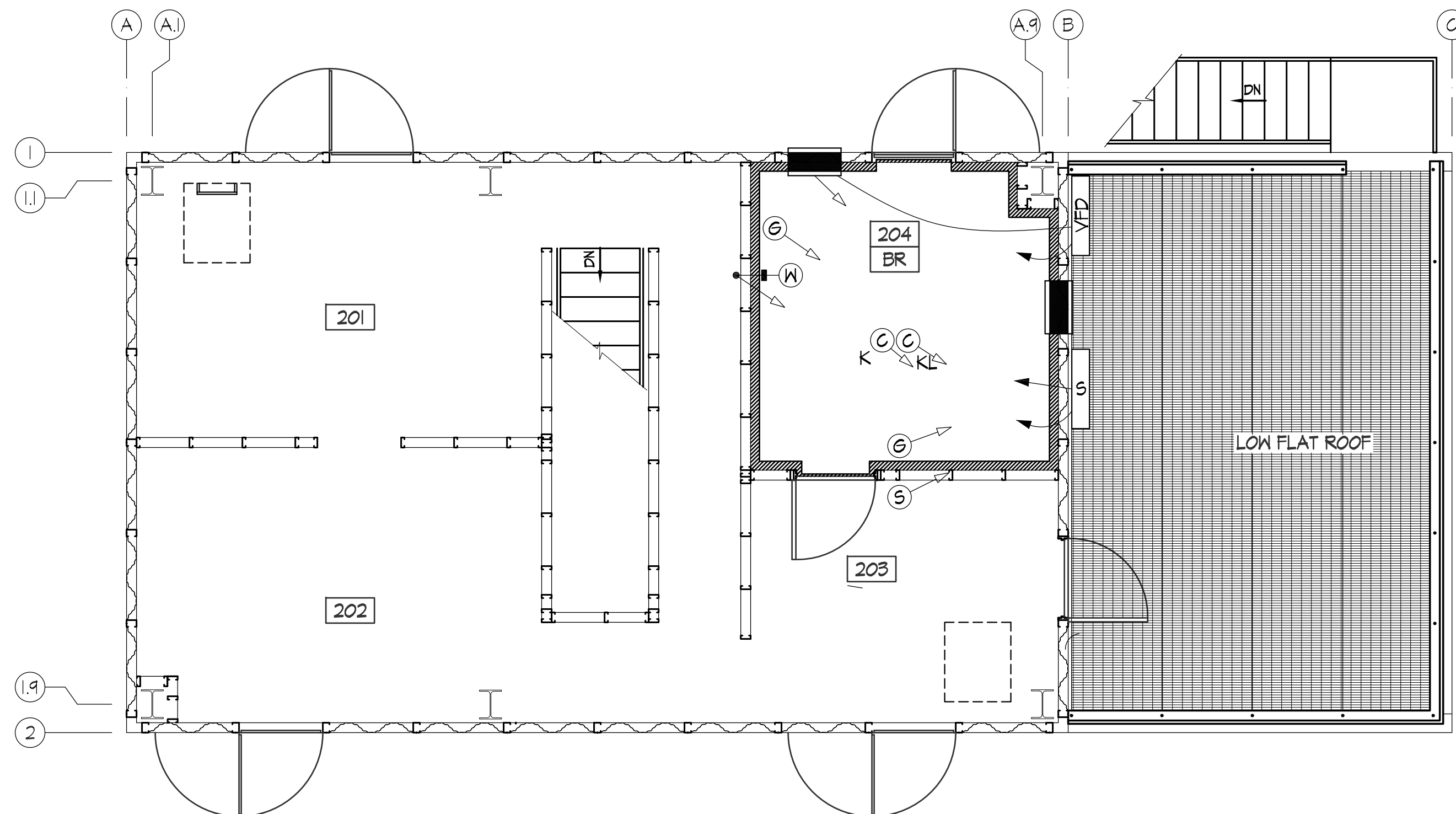
**DETAIL**  
SCALE: 3/4" = 1'-0"



**FIRST FLOOR ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"



**ATTIC FLOOR ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"



**SECOND FLOOR ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"

**NOTES:**

- ELECTRICAL PANEL "A" SHALL BE 120/208 VOLT 3 PHASE, 4 WIRE 200AMP MAIN CIRCUIT BREAKER, 30 POLE PANEL. CONTRACTOR SHALL COORDINATE POWER SOURCE TO PANEL AND SIZE FEEDER TO ACCOMMODATE VOLTAGE DROP. CONDUIT SHALL BE RUN AT A MINIMUM OF 36" BELOW GRADE AND SHALL BE PVC COATED RIGID STEEL.
- CONTRACTOR SHALL PROVIDE AN ALTERNATE PRICE FOR INSTALLATION OF EXTERIOR DUPLEX RECEPTACLES. RECEPTACLES SHALL BE RECESSED MOUNTED. PROVIDE CAST IRON RECEPTACLE WITH DIE CAST ALUMINUM COVERPLATE. DUPLEX RECEPTACLE SHALL BE CERAMIC AND HEAVY DUTY TYPE.
- ALL ELECTRICAL FIXTURES SHALL BE G.F.C.I.
- ALL WIRING SHALL COMPLY WITH THE APPLICABLE NATIONAL, STATE, AND LOCAL ELECTRICAL CODES. USE MINIMUM OF #12 AWG IN 1/2 INCH RIGID STEEL CONDUITS, UNLESS OTHERWISE NOTED.

**ABBREVIATIONS:**

- A. AMPERE (S)  
A.F.F. ABOVE FINISHED FLOOR  
A.I.C. AMPERE INTERRUPTING CAPACITY  
AWG AMERICAN WIRE GAUGE  
G.F.I. GROUND FAULT INTERRUPT  
GND GROUND  
MCB MAIN CIRCUIT BREAKER  
SWP WEATHERPROOF SINGLE POLE 20 AMP SWITCH.  
T.L. THERMAL LINING  
T.M.S. TEMPERATURE MONITORING SYSTEM  
V VOLT (S)  
W WATT  
WP WEATHERPROOF (NEMA 4X)

**SYMBOLS:**

- WEATHERPROOF CEILING MOUNTED, 100W, 120V, INCANDESCENT FIXTURE.  
WEATHERPROOF DUPLEX RECEPTACLE, 20A, 125V, GROUNDING TYPE HAVING NEMA TYPE 5-20 R CONFIGURATION, SURFACE MOUNTED, 18" MOUNTING HEIGHT A.F.F.  
JUNCTION BOX  
CONDUIT TURNED UP  
CONDUIT TURNED DOWN  
CONDUIT RUN TO RECORDER FOR TEMPERATURE MONITORING SYSTEM U.N.O.  
CONDUIT RUN TO SLAVE PANEL  
WALL-MOUNTED TYPE K DUPLEX THERMOCOUPLE, 60" A.F.F. SEE 1-16/17 U.O.N.  
RECESSED CEILING-MOUNTED TYPE K DUPLEX THERMOCOUPLE SEE 2-16/17  
RECESSED CEILING-MOUNTED TYPE K DUPLEX THERMOCOUPLE SEE 2-16/17  
PLACED BEHIND INSULATION OF THERMAL LININGS SEE 2-16/17  
EXISTING METER  
BRANCH CIRCUIT CONDUIT WITH 2 #12 AWG + GROUND WIRE, U.N.O., RUN EXPOSED TO PANELBOARD CONNECTION POINT  
GAS SENSOR  
EMERGENCY STOP  
FIRE PROP SLAVE PANEL  
FIRE PROP VFD PANEL  
REMOTE STROBE LIGHT & HORN  
EXHAUST FAN

PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
**COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL**

SUB-CONSULTANT'S  
LOGO



**Department  
of  
Fire Programs**

**NOT FOR  
CONSTRUCTION**

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

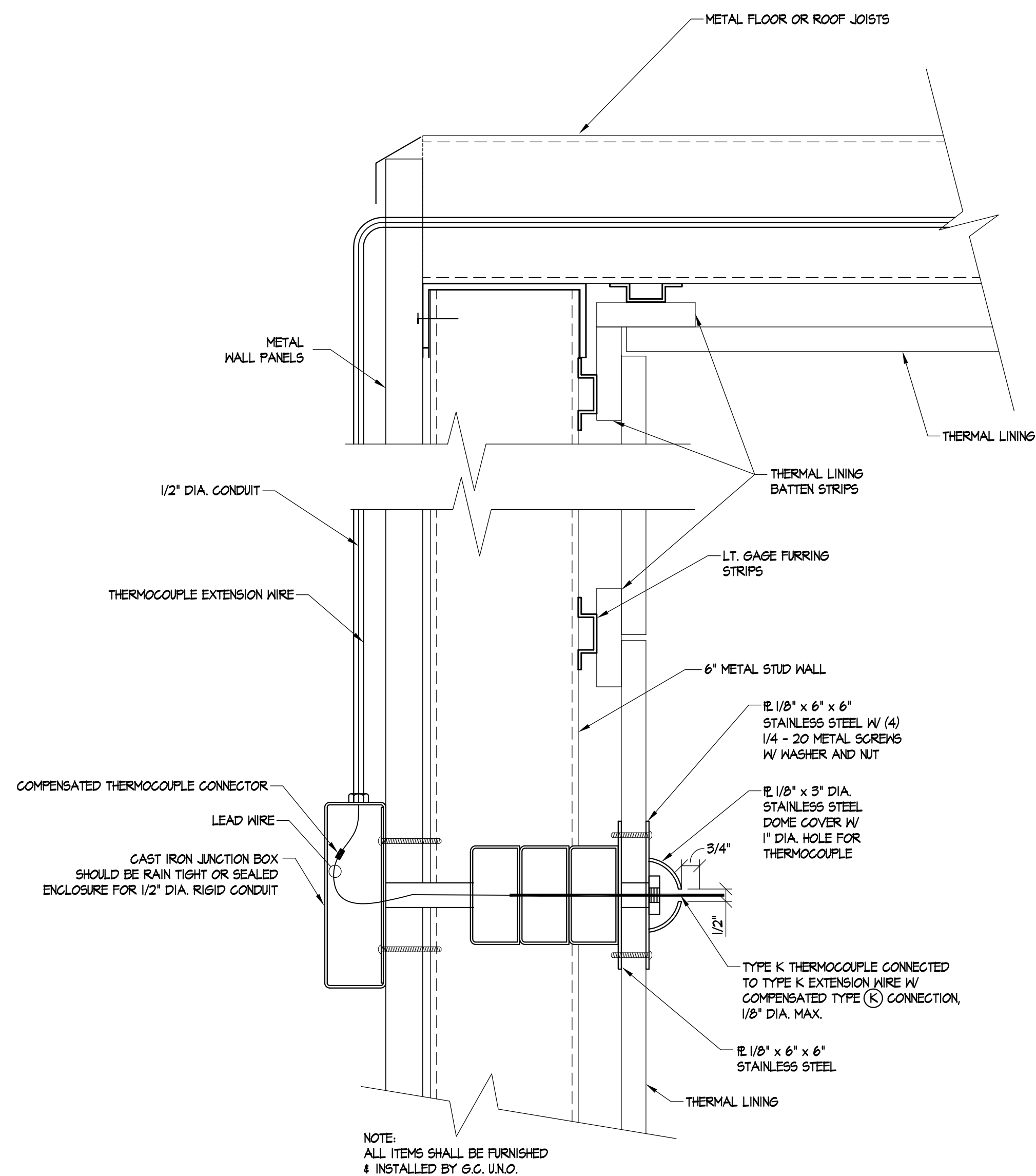
Sheet Title  
**ELECTRICAL FLOOR &  
ATTIC PLANS, NOTES,  
SYMBOLS & ABBREVIATIONS**  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

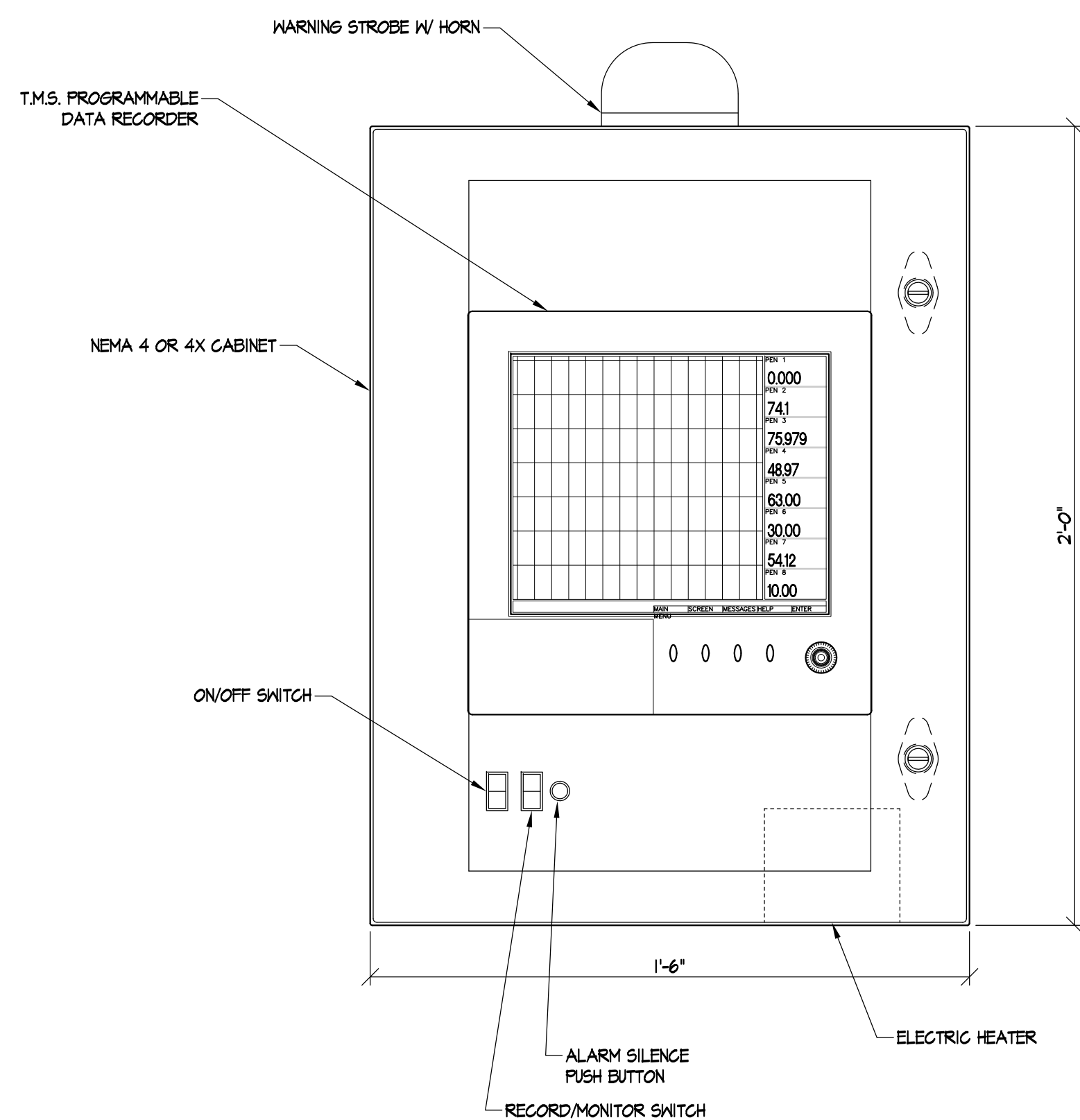
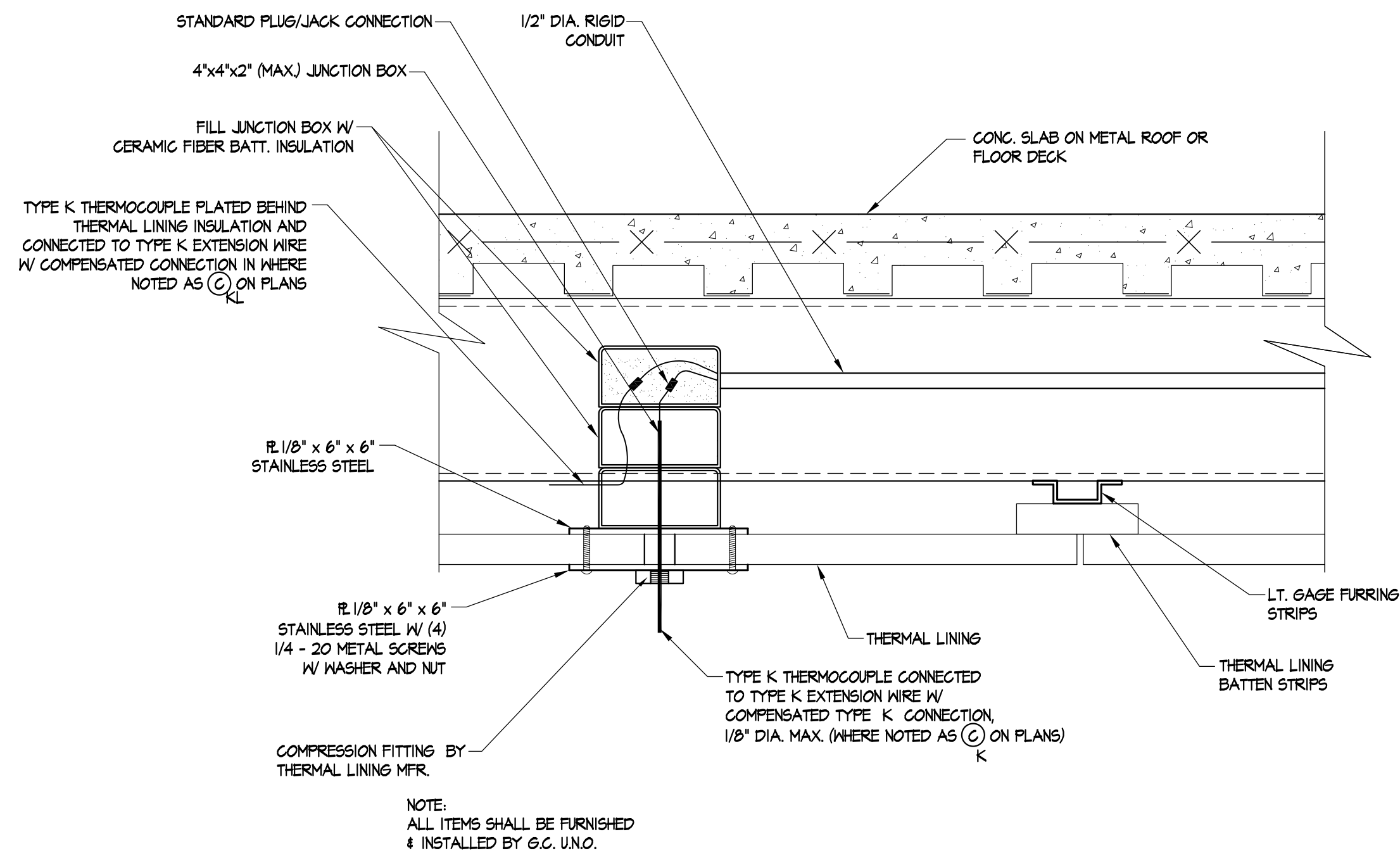
Sheet No.

**E1.0**

16 of 18



PANELBOARD SCHEDULE				LP-1						
LOCATION: 105				FED FROM: SWED M5B				① - GFI		
SERVICE: 208Y/120V 3-P 4-W				NEUTRAL BUS: 100%				② - SHUNT TRIP		
MAIN LUGS: A				GROUND BUS: STANDARD				③ - BREAKER LOCK		
MAIN BUS TYPE: -				MOUNTING: SURFACE				④ - HACR		
INTERRUPT RATING: - AIC				ENCLOSURE: NEMA 1						
DESCRIPTION	CCT. NO.	CIRCUIT BREAKER	CIRCUIT LOAD	CONNECTED LOAD (VA)			CIRCUIT LOAD	CIRCUIT BREAKER	CCT. NO.	DESCRIPTION
				A	B	C				
T.M.S. PANEL	1	20A-IP	500	680			180	20A-IP	2	LIGHT & RECEPTACLE
	3	20A-IP						20A-IP	4	
	5	20A-IP						20A-IP	6	
	7	20A-IP						20A-IP	8	
	9	20A-IP						20A-IP	10	
	11	20A-IP						20A-IP	12	
	13	20A-IP						20A-IP	14	
	15	20A-IP						20A-IP	16	
	17	20A-IP						20A-IP	18	
	19	20A-IP						20A-IP	20	
	21	20A-IP						20A-IP	22	
	23	20A-IP						20A-IP	24	
	25	20A-IP						20A-IP	26	
	27	20A-IP						20A-IP	28	
	29	20A-IP						20A-IP	30	
				680			LIGHTING DEMAND = 125% PER NEC 220-10(b)			
				TOTAL VA PER PHASE			RECEPTACLE DEMAND LOAD PER NEC TABLE 220-12			



PRIME PROFESSIONAL  
FIRM LOGO

Project Title  
COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title  
ELECTRICAL DETAILS  
& PANELBOARD  
SCHEDULE  
CITY/COUNTY VIRGINIA  
Drawn By: SJS Approved By: MAM  
Checked By: SMF Date: 04/11/13

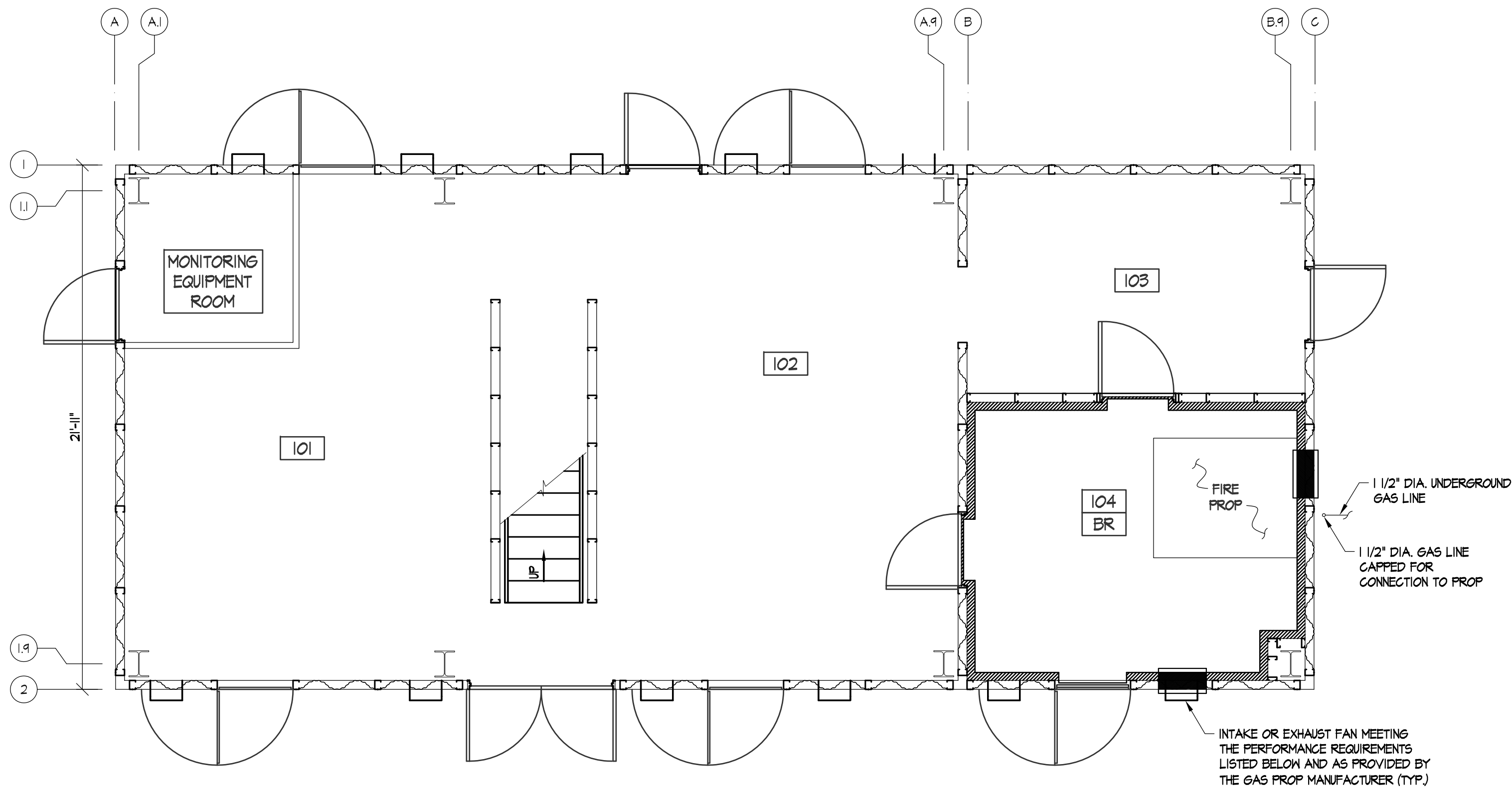
PROFESSIONAL  
SEAL

Sheet No.

E2.0

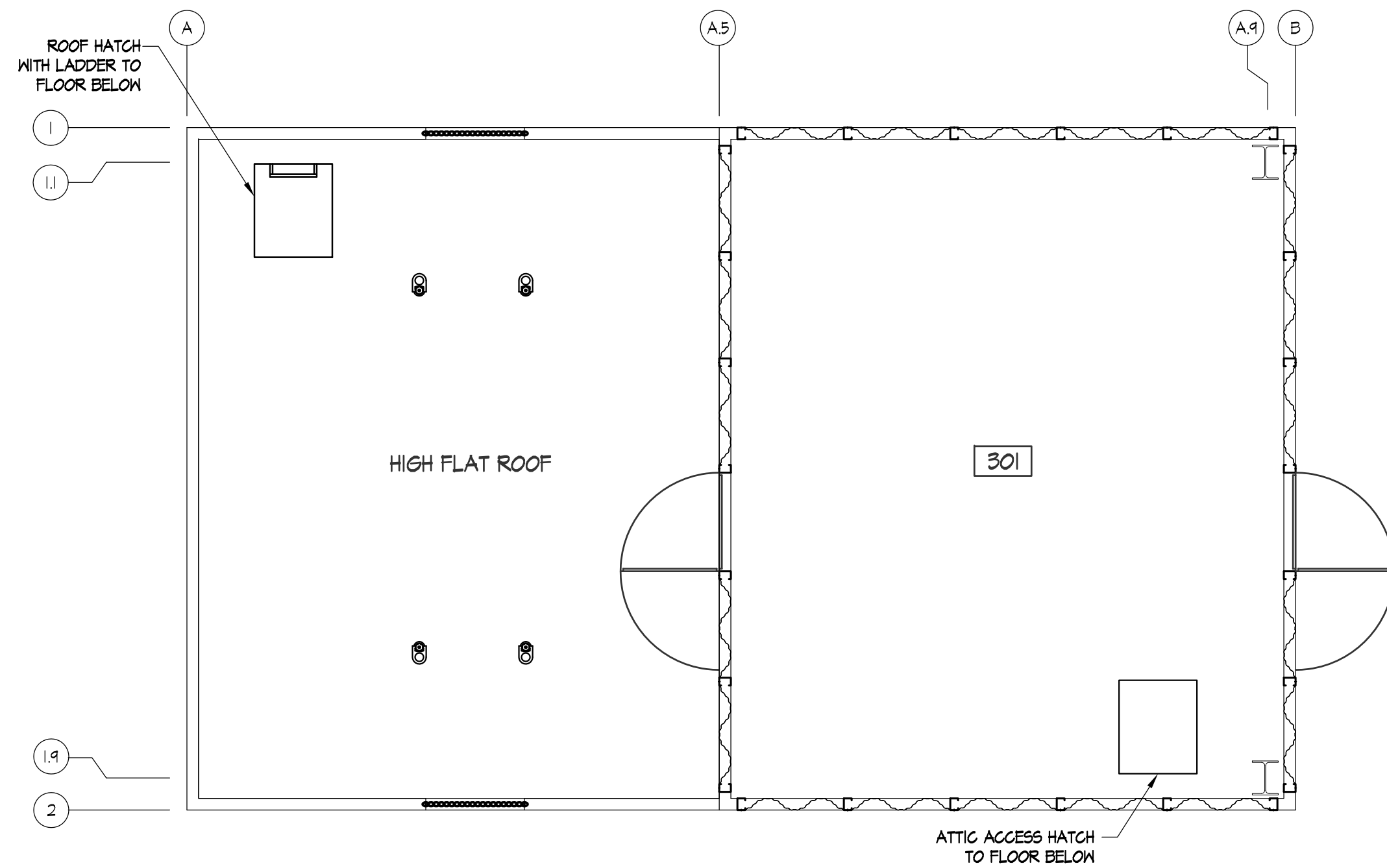
17 of 18





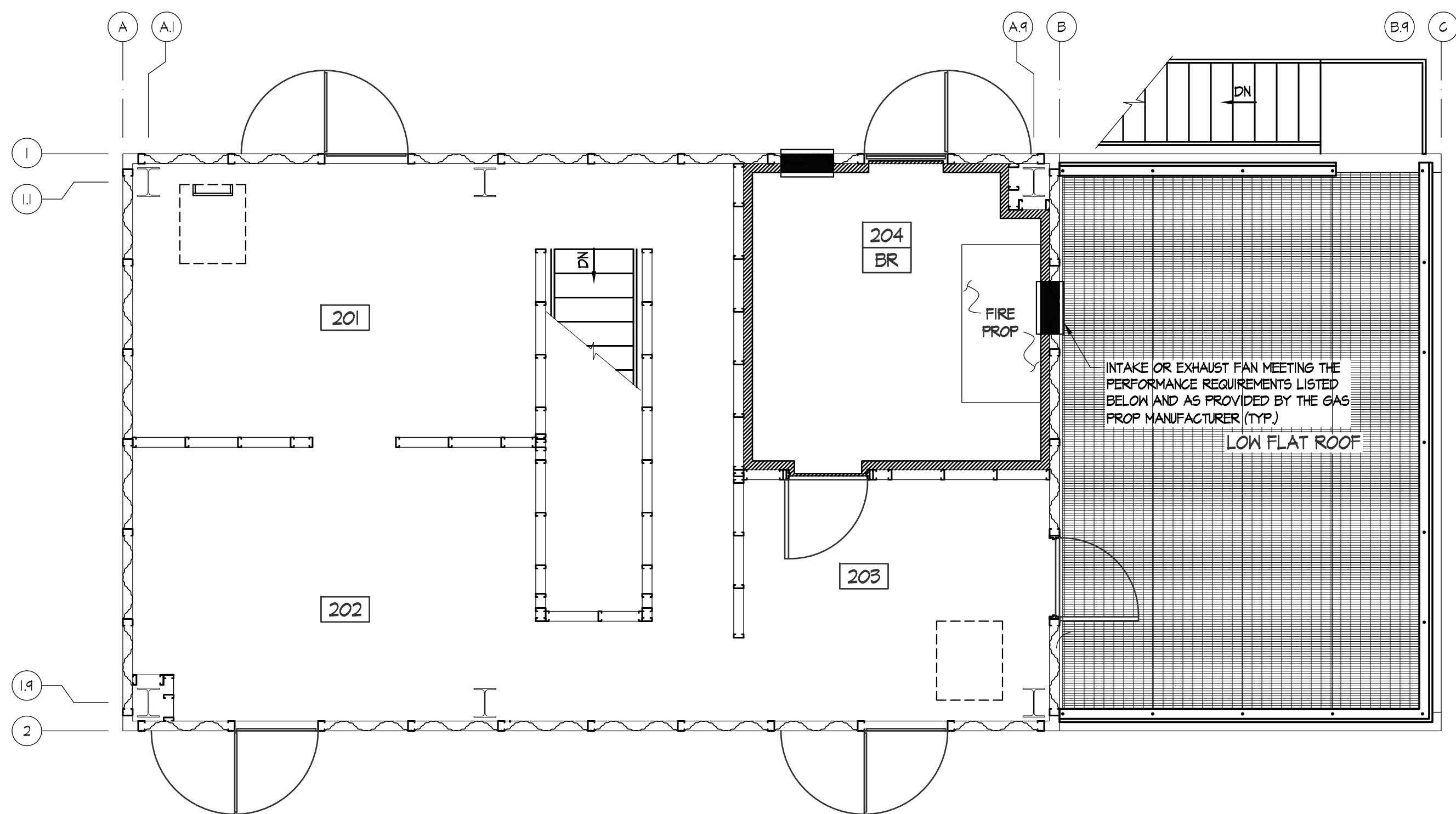
### FIRST FLOOR MECHANICAL PLAN

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



### ATTIC FLOOR MECHANICAL PLAN

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



### SECOND FLOOR MECHANICAL PLAN

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

#### NOTES

- THE AUTOMATED FIRE TRAINING SYSTEM SHALL BE EQUIPPED WITH A VENTILATION SYSTEM TO REMOVE EXCESS HEAT, COMBUSTION BY-PRODUCTS, AND UNBURNED GAS FROM EACH TRAINING COMPARTMENT WITHIN THE BUILDING AND VENTILATION SYSTEM SHALL BE DESIGNED TO FULLY PURGE EACH TRAINING COMPARTMENT AT THE RATE OF ONE (1) AIR CHANGE PER MINUTE AS PER NFPA 1403. THE LIVE FIRE TRAINING SYSTEM SHALL CONTROL THE OPERATION AND MONITOR THE AIRFLOW OF THE VENTILATION SYSTEM IN THE BURN BUILDING. THE VENTILATION SYSTEM SHALL ONLY BE ACTIVATED DURING THE FOLLOWING CONDITIONS:
  - TO FULLY PURGE THE TRAINING COMPARTMENTS AT POWER UP.
  - TO FLUSH THE BURN BUILDING PRIOR TO TRAINING.
  - TO FULLY PURGE THE TRAINING COMPARTMENTS WHEN EXCESSIVE GAS OR TEMPERATURE LEVELS ARE DETECTED DURING TRAINING.
- THE FIRE TRAINING SYSTEM SHALL HAVE A COMPARTMENT TEMPERATURE DETECTION SENSOR THAT MONITORS TEMPERATURES AT 5' A.F.F. IF TEMPERATURES IN THE TRAINING COMPARTMENT EXCEED 550° THE VENTILATION SYSTEM SHALL RUN. IF TEMPERATURES AT THE 5' LEVEL EXCEED 700°, THE SYSTEM SHALL SHUTDOWN AND THE VENTILATION SYSTEM SHALL RUN UNTIL TEMPERATURES ARE REDUCED.
- THE FIRE TRAINING SYSTEM SHALL HAVE A HARD-WIRED EMERGENCY SHUTDOWN CIRCUIT THROUGHOUT THE FACILITY TO PROVIDE WIDESPREAD ACCESS TO SHUTDOWN (E-STOP) PUSH BUTTONS. E-STOP PUSH BUTTONS SHALL BE LOCATED AT THE ENTRANCE(S) TO EACH TRAINING COMPARTMENT, ON THE SCENARIO CONTROL ASSEMBLIES, AND ON EACH CONTROL PENDANT. THE EFFECT OF PUSHING ANY E-STOP BUTTON SHALL CAUSE ALL BURNER CONTROL VALVES TO CLOSE, FACILITY GAS SUPPLY TO BE SECURED AND SMOKE PRODUCTION TO STOP. VENTILATION FANS WILL AUTOMATICALLY RUN AT MAXIMUM ONCE THE E-STOP PUSH BUTTON HAS BEEN ACTIVATED. THE VENTILATION SYSTEM WILL RUN CONTINUOUSLY AT MAXIMUM LEVEL UNTIL THE E-STOP HAS BEEN MANUALLY RESET AND SAFE OPERATING CONDITIONS EXIST.
- THE FIRE TRAINING SYSTEM SHALL HAVE A GAS DETECTION SYSTEM WHICH CONTINUALLY MONITORS UNBURNED GLASS "B" FUEL LEVELS IN THE TRAINING COMPARTMENTS AND ANY EQUIPMENT ROOMS WHERE GLASS "B" FUEL LINES ARE INSTALLED. A MINIMUM OF TWO (2) GAS SENSORS SHALL BE SUPPLIED PER TRAINING COMPARTMENT. IF GAS LEVELS REACH 10% LEL, THE VENTILATION SYSTEM SHALL RUN. IF GAS LEVELS REACH 25% LEL, THE VENTILATION SYSTEM SHALL RUN AT MAXIMUM SPEED AND ALL GAS VALVES SHALL CLOSE. THE VENTILATION SYSTEM SHALL CONTINUOUSLY RUN UNTIL GAS LEVELS ARE REDUCED BELOW 10% LEL.
- THE FIRE TRAINING SYSTEM FUEL CONTROL ASSEMBLY SHALL CONNECT TO THE GLASS "B" FUEL SUPPLY LINE. THE FUEL CONTROL ASSEMBLY SHALL CONSIST OF BOTH HIGH AND LOW PRESSURE SWITCHES. THE LINE PRESSURE SHALL BE MONITORED FOR ABNORMAL CONDITIONS AND SHALL SHUT DOWN THE SYSTEM IF THE LINE PRESSURE IS TOO HIGH OR TOO LOW. SHOULD A HIGH-PRESSURE CONDITION EXIST, THE VENTILATION SYSTEM SHALL START AND AN EMERGENCY SHUTDOWN SHALL OCCUR.
- A MINIMUM OF TWO (2) EXTINGUISHING AGENT SENSORS SHALL BE LOCATED IN EACH BURN ROOM WITH ONE (1) DIRECTLY WITHIN THE BURN PROP. THE OUTPUT OF THESE SENSORS SHALL BE UTILIZED BY THE INSTRUCTOR TO DETERMINE THE EFFECTIVENESS OF AGENT APPLICATION WITH REGARD TO RATE AT WHICH FIRE IS EXTINGUISHED.
- ALL COMPONENTS IN THIS SYSTEM SHALL PERFORM WITHIN THE FOLLOWING MINIMUM STANDARDS:
  - CONTROL ROOM EQUIPMENT:
    - TEMPERATURE: 65 TO 85° F (OPERATING)
    - 20 TO 125° F (STORAGE)
    - HUMIDITY: 0 TO 45% (NON-CONDENSING)
  - OUTDOOR EQUIPMENT:
    - TEMPERATURE: 20 TO 100° F (OPERATING)
    - 20 TO 125° F (STORAGE)
    - 0 TO 100%
  - COMPARTMENT EQUIPMENT:
    - TEMPERATURE: 32° F TO MAX. (OPERATING)
    - 20 TO 125° F (STORAGE)
    - 0 TO 100%
  - MECHANICAL: ALL TRAINING COMPARTMENT EQUIPMENT SHALL WITHSTAND DIRECT HOSE PRESSURE OF 100 PSI AT 150 GPM FROM A DISTANCE OF THREE (3) FEET.
  - TOTAL TRAINING SYSTEM: MTBF (MEAN TIME BETWEEN FAILURES) > 500 HOURS (OPERATING).
  - MTTR (MEAN TIME TO REPAIR) < 30 MINUTES (WHEN REPAIRS ARE PERFORMED BY QUALIFIED SERVICE PERSONNEL).

PRIME PROFESSIONAL  
FIRM LOGO

Project Title

COMMONWEALTH OF  
VIRGINIA  
BURN BUILDING PROP  
PROTOTYPE 2  
CLASS B FUEL

SUB-CONSULTANT'S  
LOGO



Department  
of  
Fire Programs

NOT FOR  
CONSTRUCTION

THESE DRAWINGS ARE OWNED BY THE  
COMMONWEALTH OF VIRGINIA © 2013

No.	REVISIONS	Date

Sheet Title

MECHANICAL PLANS  
& NOTES

CITY/COUNTY VIRGINIA

Drawn By: SJS Approved By: MAM

Checked By: SMF Date: 04/11/13

PROFESSIONAL  
SEAL

Sheet No.

M1.0

18 of 18