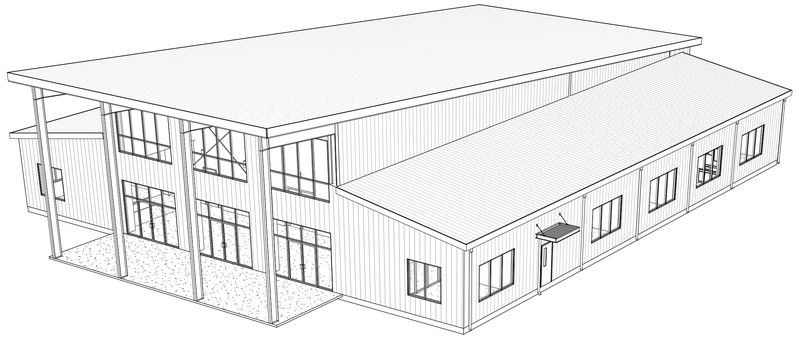
SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406



ARCHITECT:
BRADFIELD RICHARDS RHODES AND
ASSOCIATES, ARCHITECTS, INC.
211 PERIMETER CENTER PARKWAY,
SUITE 1070
ATLANTA, GEORGIA 30346

THOMAS RHODES, PRINCIPAL
678.990.5656
TRHODES@BRR-ARCHITECTS.COM

STRUCTURAL ENGINEER:
CONSTRUCTION ENGINEERING SERVICES
PO BOX 1658
CLARKESVILLE, GA 30523

SAMUEL T. WILLIAMS, PE
706.768.2343
TIM.WILLIAMS077@GMAIL.COM

MECHANICAL / PLUMBING ENGINEER:
JHE ENGINEERS, LLC
5014 KINGSBRIDGE PASS
POWDER SPRINGS, GEORGIA 30127

JUSTIN HARDY, PE
678.234.8156
JUSTIN@HLMEP.COM

ELECTRICAL ENGINEER:
JHE ENGINEERS, LLC
5014 KINGSBRIDGE PASS
POWDER SPRINGS, GEORGIA 30127

GUIDO ALVAREZ, PE
954.864.2147
GUIDO@HLMEP.COM

OWNER:
SOUTH RIDGE CHURCH
FREDERICKSBURG, VA

JEFF GEYER
469.713.7970

APPLICABLE CODES

BUILDING CODES APPLICABLE TO THIS PROJECT INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

BUILDING CODE:	2015 Virginia Construction Code
LIFE SAFETY:	NFPA 101 Life Safety 2012
FIRE CODE:	2015 Virginia Statewide Fire Prevention Code
ENERGY CODE:	2015 Virginia Energy Conservation Code
MECHANICAL CODE:	2015 Virginia Mechanical Code
ELECTRICAL CODE:	2014 National Electrical Code (NFPA 70)
PLUMBING:	2015 Virginia Plumbing Code
FUEL & GAS CODE:	2015 Virginia Fuel Gas Code
ACCESSIBILITY CODE:	2010 ADA Standards for Accessible Design

PROJECT DATA

OCCUPANCY CLASSIFICATION: A-3

OCCUPANT LOAD: 424 TOTAL OCCUPANTS

BUILDING AREA: 11,000 GROSS SQUARE FEET

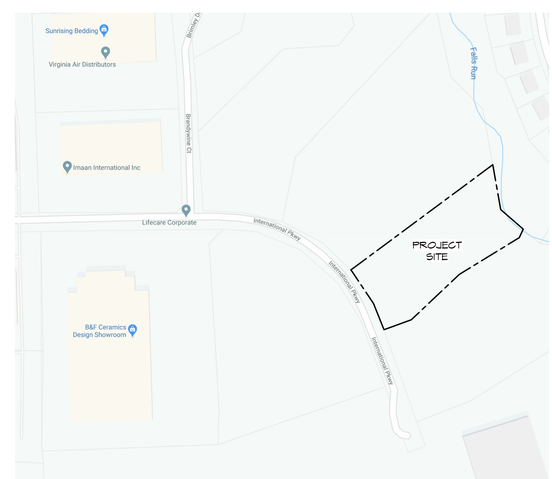
BUILDING HEIGHT AND AREA MODIFICATIONS:
UNLIMITED AREA

CONSTRUCTION TYPE:
TYPE IIB - SPRINKLED

FIRE PROTECTION OF STRUCTURAL ELEMENTS:
NOT REQUIRED PER CONSTRUCTION TYPE

FIRE PROTECTION REQUIREMENTS:
NOT REQUIRED PER 2015 VIRGINIA CONSTRUCTION CODE 2015 TABLE 1020.1

LOCATION



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COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101884
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

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COVERSHEET

SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

G0

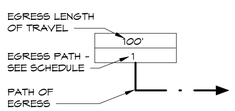
LIFE SAFETY - OVERALL					
Number	Name	Area	Occupancy	SF Per Person	Occupancy Load
100 - MAIN					
104	AUDITORIUM	2162 SF	ASSEMBLY	15	145
105	F.O.H.	51 SF	ASSEMBLY	15	4
106	PLATFORM	605 SF	ASSEMBLY	15	41
107	GREEN ROOM	153 SF	ASSEMBLY	15	11
108	CHECK IN	177 SF	BUSINESS	100	2
110	STUDIO	278 SF	ASSEMBLY	15	19
114	AVL. / ELECTRICAL	152 SF	ASSEMBLY	15	11
115	STARTING POINT	231 SF	BUSINESS	100	3
116	SRVNG	107 SF	BUSINESS	100	2
					238
200 - PRESCHOOL					
202	PRE-SCHOOL CLASSROOM	220 SF	ASSEMBLY	15	15
204	PRESCHOOL CLASSROOM	251 SF	ASSEMBLY	15	17
207	PRESCHOOL CLASSROOM	325 SF	ASSEMBLY	15	22
					54
300 - ELEMENTARY					
302	ELEM. CLASSROOM	165 SF	ASSEMBLY	15	11
303	ELEM. CLASSROOM	169 SF	ASSEMBLY	15	12
305	ELEM. CLASSROOM	176 SF	ASSEMBLY	15	12
307	PLAYGROUND	910 SF	ASSEMBLY	15	61
					96
400 - MIDDLE SCHOOL / HIGH SCHOOL					
402	MS / HS CLASSROOM	267 SF	ASSEMBLY	15	18
403	MS / HS CLASSROOM	266 SF	ASSEMBLY	15	18
					36
TOTAL OCCUPANT LOAD					424

FIXTURE REQUIREMENTS					
TOTAL OCCUPANCY	MENS WC REQUIRED	WOMEN WC REQUIRED	LAVATORIES REQUIRED	DRINKING FOUNTAINS REQUIRED	SERVICE SINK REQUIRED
590	2	4	3	1	1

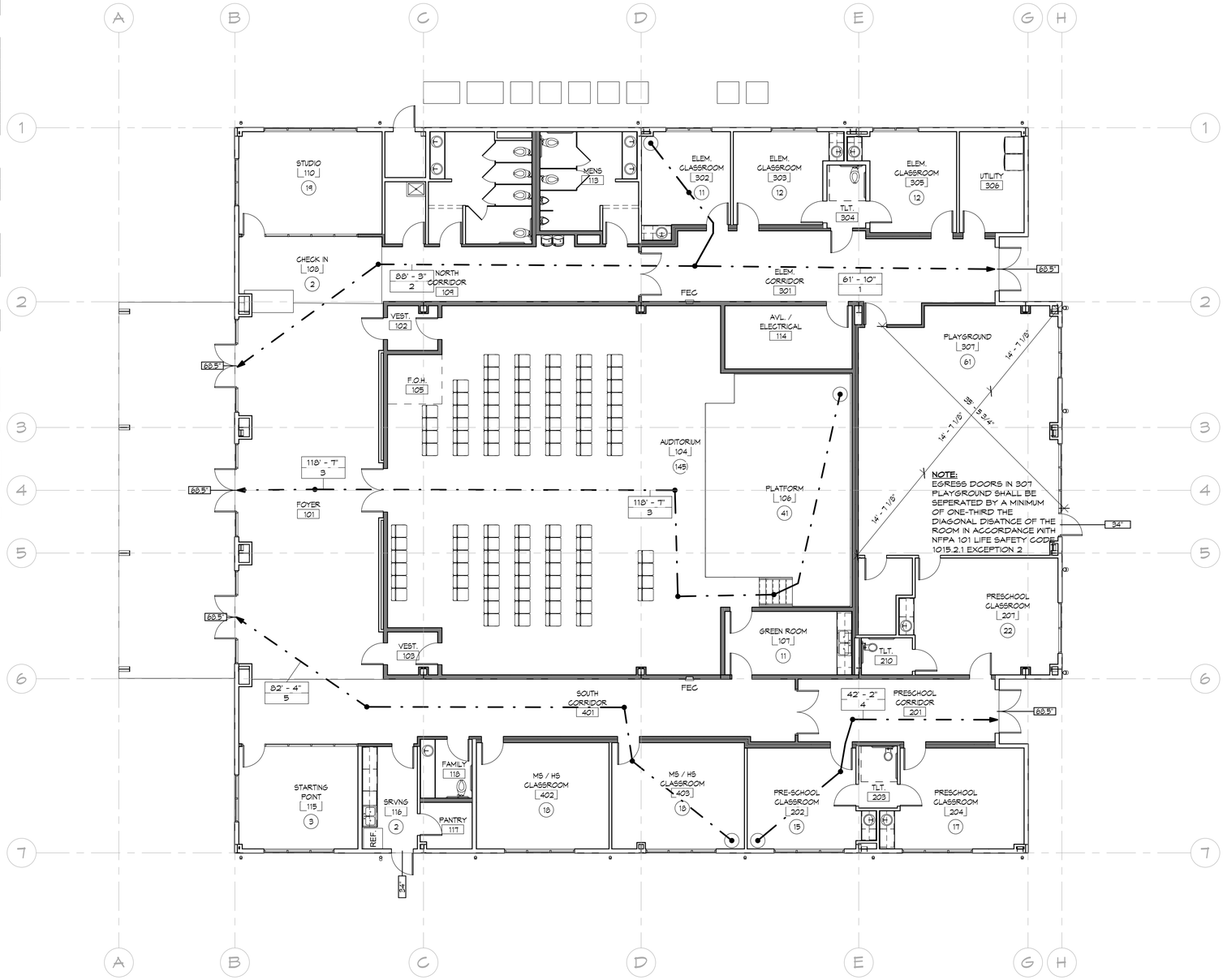
MENS WC PROVIDED		WOMENS WC PROVIDED		LAVATORIES PROVIDED	DRINKING FOUNTAIN PROVIDED	SERVICE SINK PROVIDED
Count	Fixture Type	Count	Fixture Type	Count	Count	Count
MENS		WOMENS		Lavatory	Drinking Fountain	Service Sink
2	WC	6	WC	13	2	1

EGRESS REQUIREMENTS:			
TOTAL OCCUPANCY: 590	X 0.2" PER OCCUPANT	118" REQUIRED	445" PROVIDED
			(3) 68.5" AT FOYER + (1) 68.5" AT STUDENT CORRIDOR + (1) 68.5" AT NAUMBALAND COORIDOR + (2) 34" AT NAUMBALAND CLASSROOM 1 + (1) 34" AT STARTING POINT

LIFE SAFETY - EGRESS LEGEND



PATH OF TRAVEL SCHEDULE		
MARK	FROM ROOM	LENGTH
1	ELEM. CLASSROOM 302	61' - 10 1/2"
2	ELEM. CLASSROOM 302	88' - 3"
3	PLATFORM 106	118' - 7"
4	PRE-SCHOOL CLASSROOM 202	42' - 2 1/2"
5	MS / HS CLASSROOM 403	82' - 4 1/2"



E3 LIFE SAFETY PLAN

1/8" = 1'-0"

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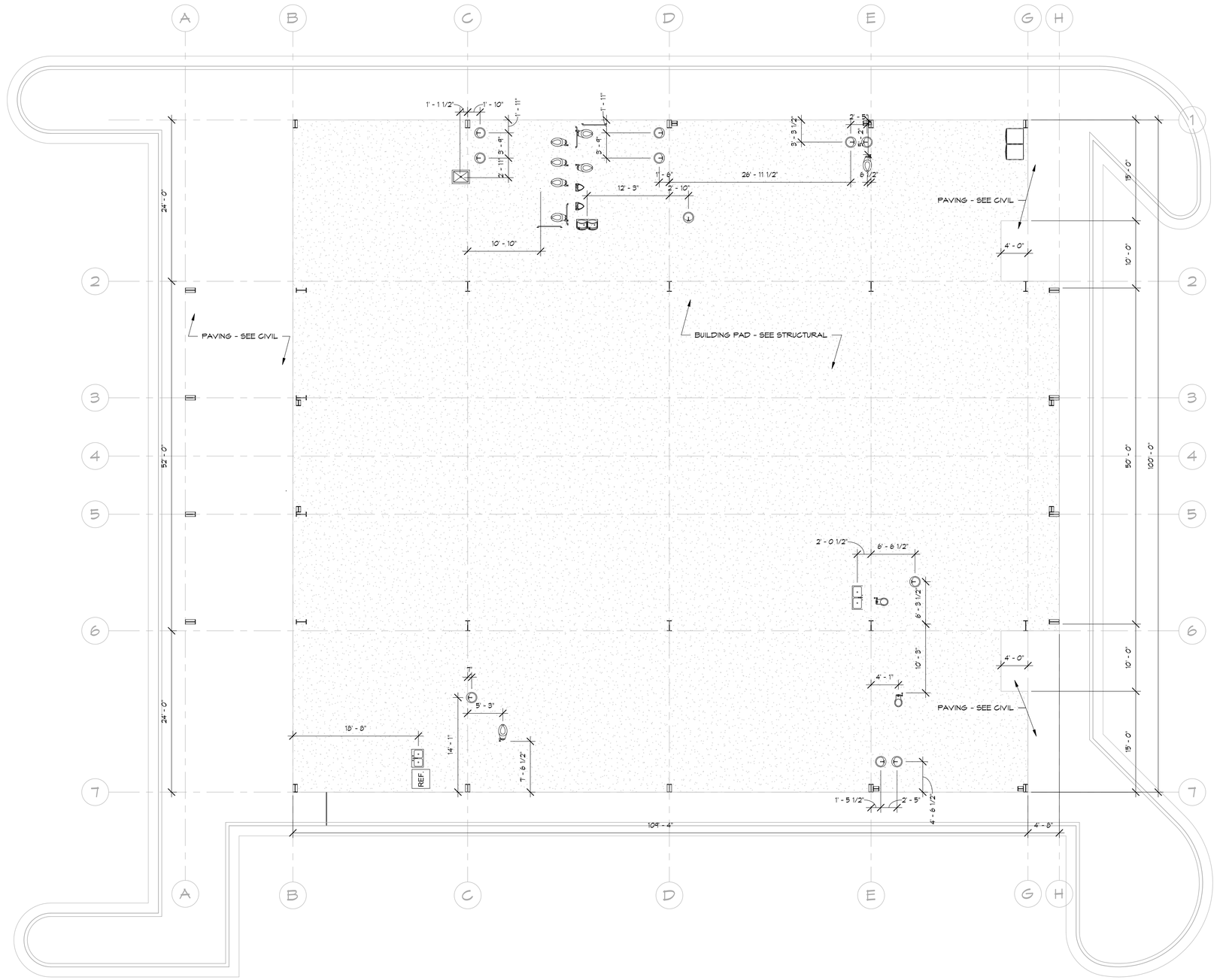
LIFE SAFETY

SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

L-1



E3 SLAB PLAN
1/8" = 1'-0"

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SLAB PLAN

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2020 INTERNATIONAL PARKWAY
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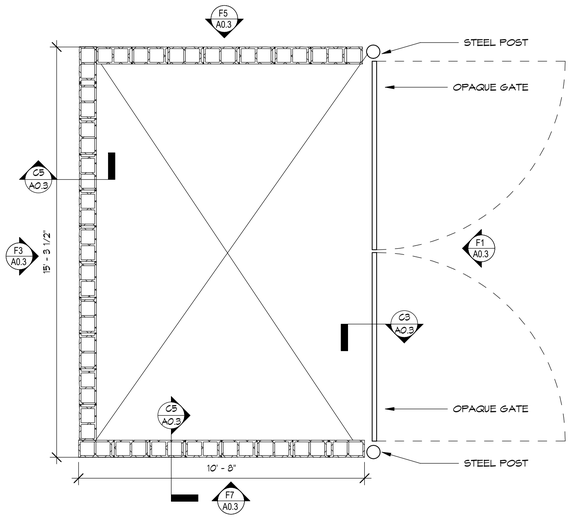
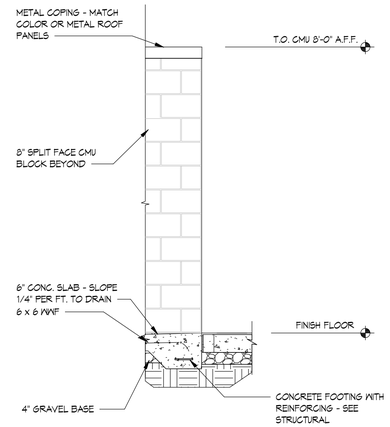
BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

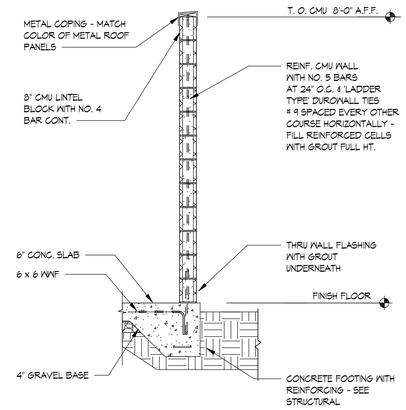
A0.2



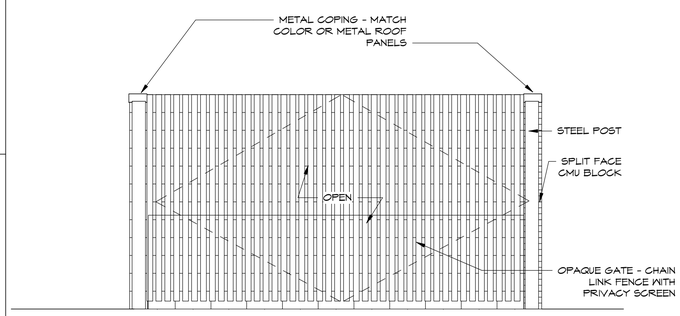
C1 DUMPSTER PLAN
3/8" = 1'-0"



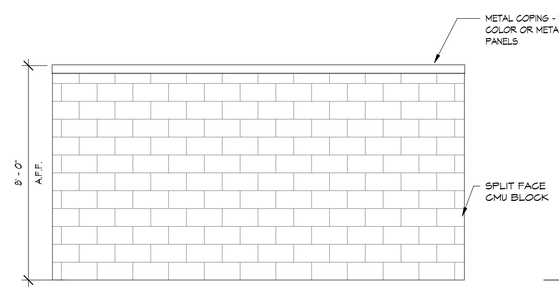
C3 SECTION
1/2" = 1'-0"



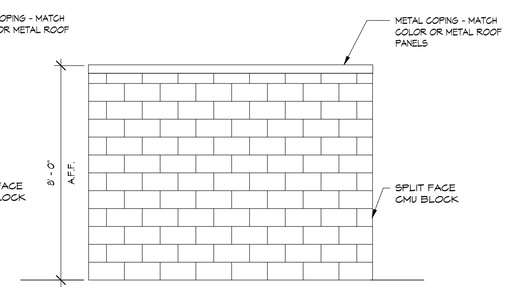
C5 SECTION
1/2" = 1'-0"



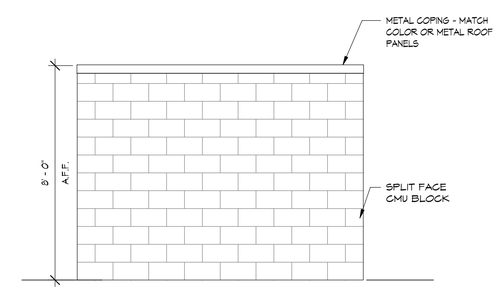
F1 FRONT ELEVATION
3/8" = 1'-0"



F3 REAR ELEVATION
3/8" = 1'-0"



F5 SIDE ELEVATION
3/8" = 1'-0"



F7 SIDE ELEVATION
3/8" = 1'-0"

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THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

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DUMPSTER DETAILS

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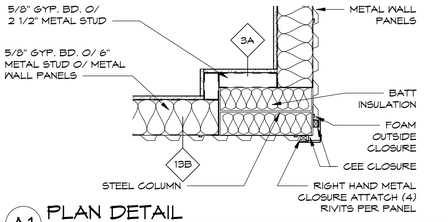
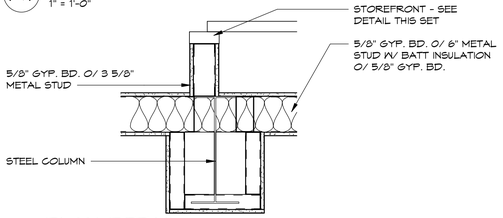
2020 INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

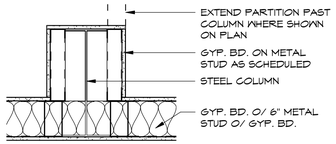
A0.3



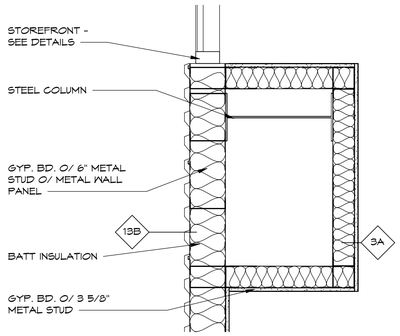
A1 PLAN DETAIL
1" = 1'-0"



B1 PLAN DETAIL
1" = 1'-0"



C1 PLAN DETAIL
1" = 1'-0"



D1 PLAN DETAIL
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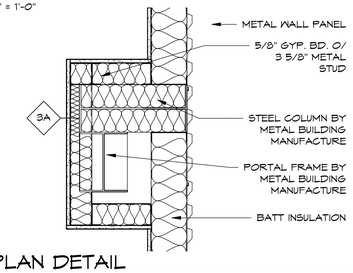

E1 PLAN DETAIL
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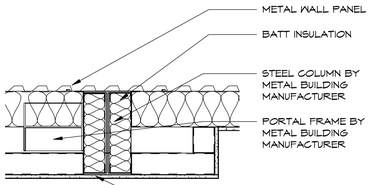

F1 PLAN DETAIL
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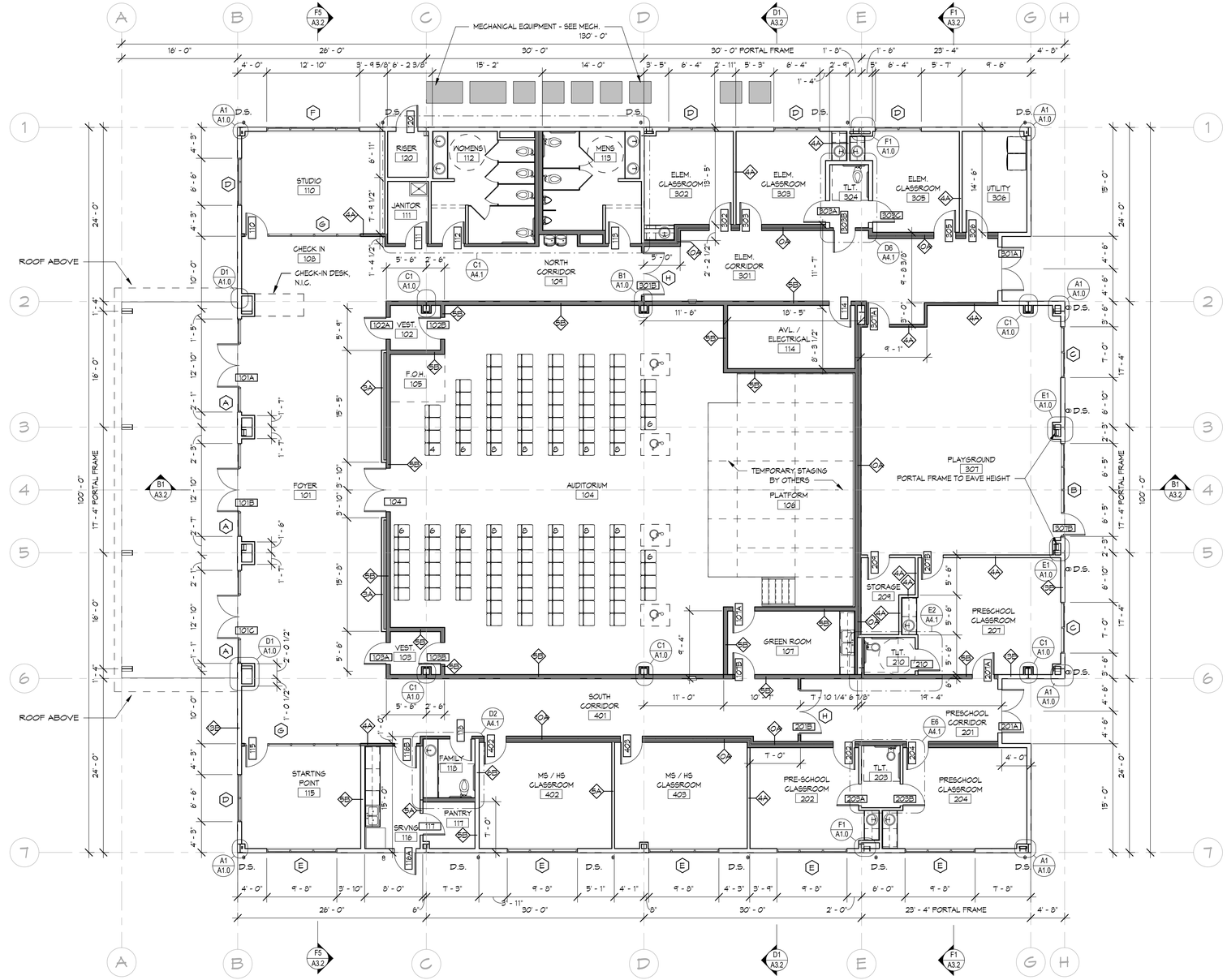

E3 MAIN LEVEL FLOOR PLAN
1/8" = 1'-0"

PLAN LEGEND

NEW CONSTRUCTION WALL TO ABOVE CEILING - BRACE TO DECK

NEW CONSTRUCTION WALL TO DECK

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
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ARCHITECT

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FLOOR PLAN - MAIN LEVEL

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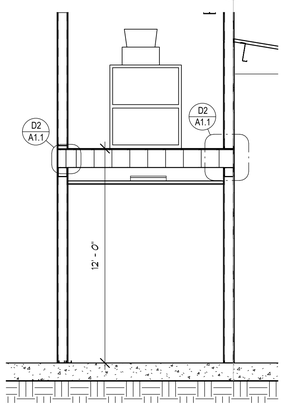
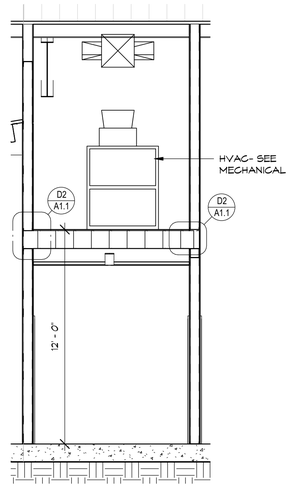
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

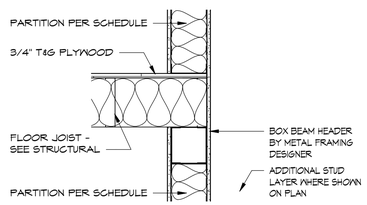
A1.0



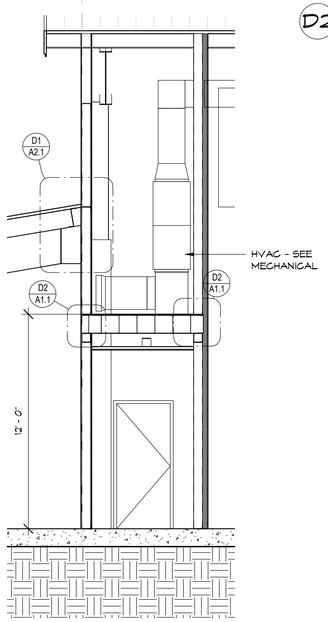
C1 MEZZANINE AVL
1/4" = 1'-0"



C2 MEZZANINE GREEN ROOM
1/4" = 1'-0"



D2 FLOOR JOIST DETAIL
1" = 1'-0"



F1 MEZZANINE VESTIBULE
1/4" = 1'-0"

E3 MECHANICAL MEZZANINE
1/8" = 1'-0"

PLAN LEGEND

NEW CONSTRUCTION WALL TO ABOVE CEILING - BRACE TO DECK

NEW CONSTRUCTION WALL TO DECK

COMMONWEALTH OF VIRGINIA
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FLOOR PLAN - MECHANICAL MEZZANINE

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FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
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TEL. 678.990.5656
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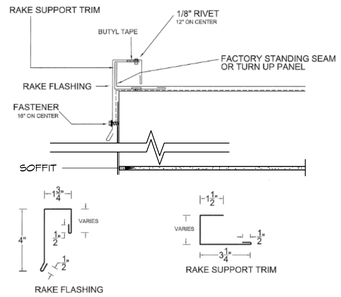
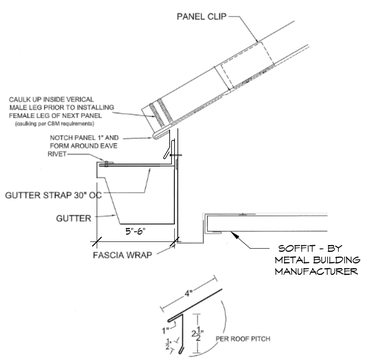
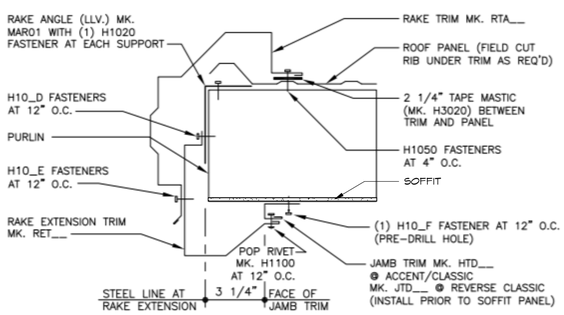
A1.1



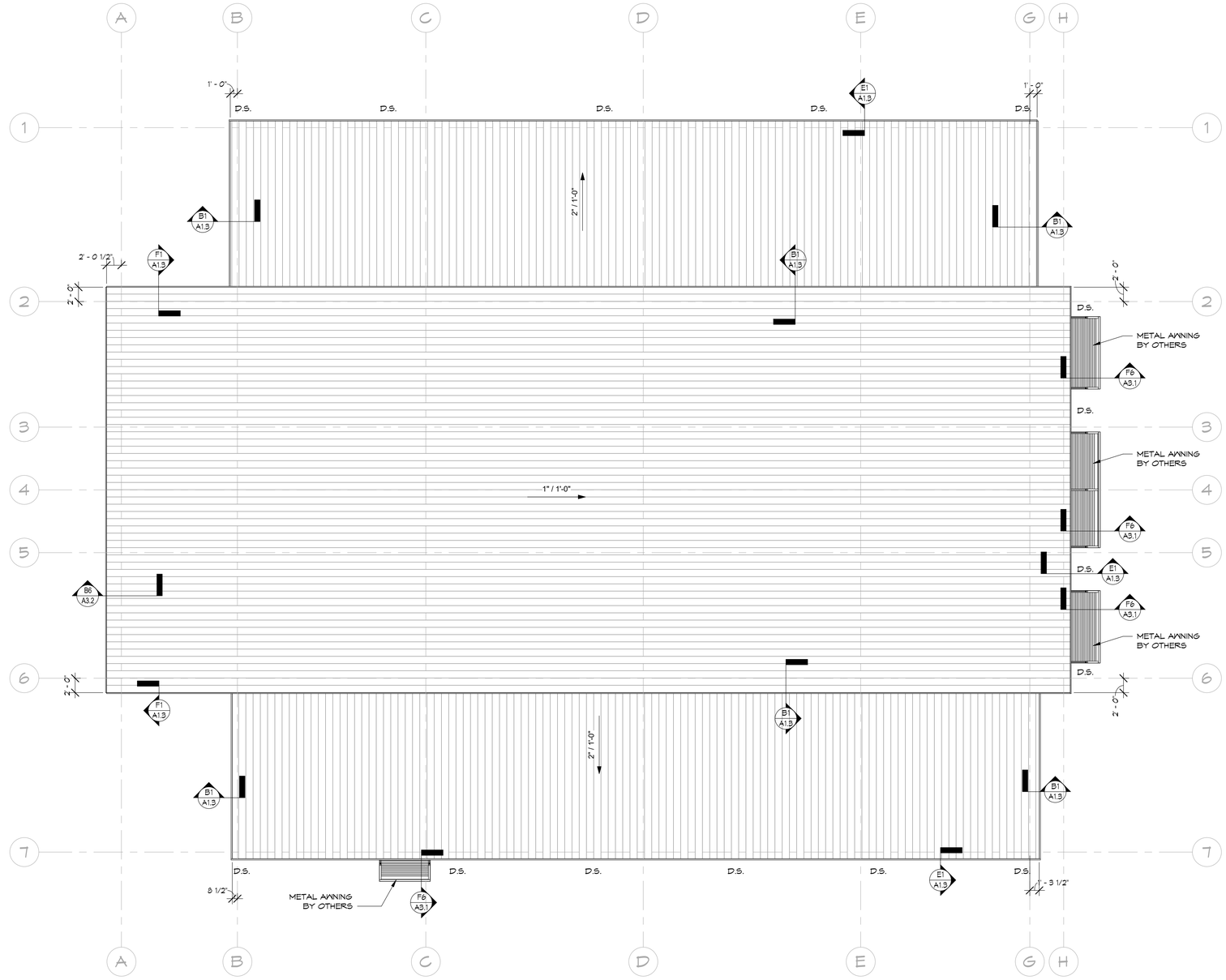
B1 RAKE DETAIL
1" = 1'-0"



E1 EAVE W/ GUTTER DETAIL
1" = 1'-0"



F1 RAKE DETAIL AT FRONT ENTRY
1" = 1'-0"



F3 ROOF PLAN
1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TJR
CAD File:

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ROOF PLAN

SOUTH RIDGE CHURCH
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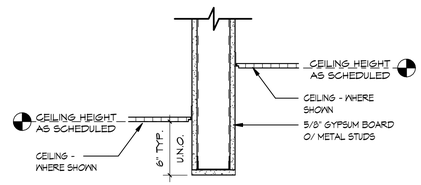
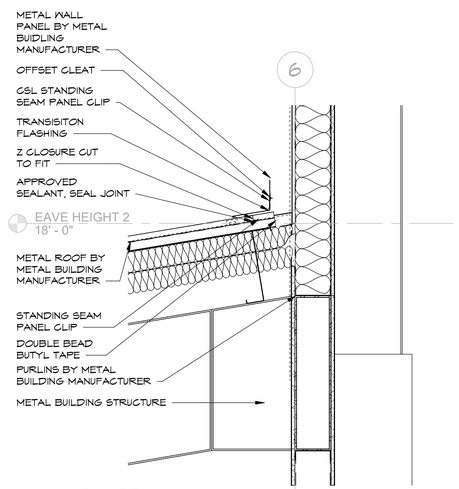
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

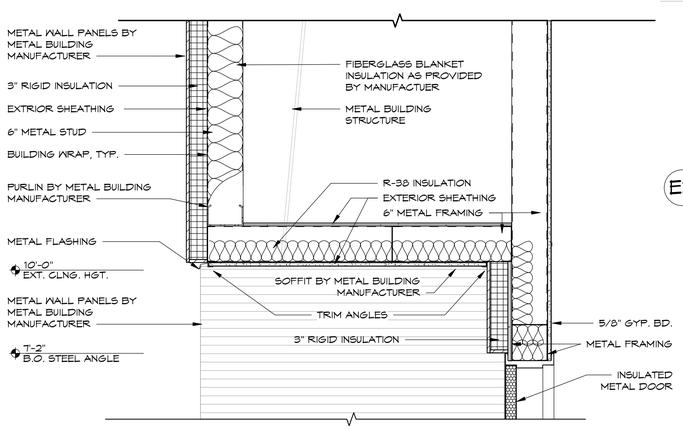
A1.3



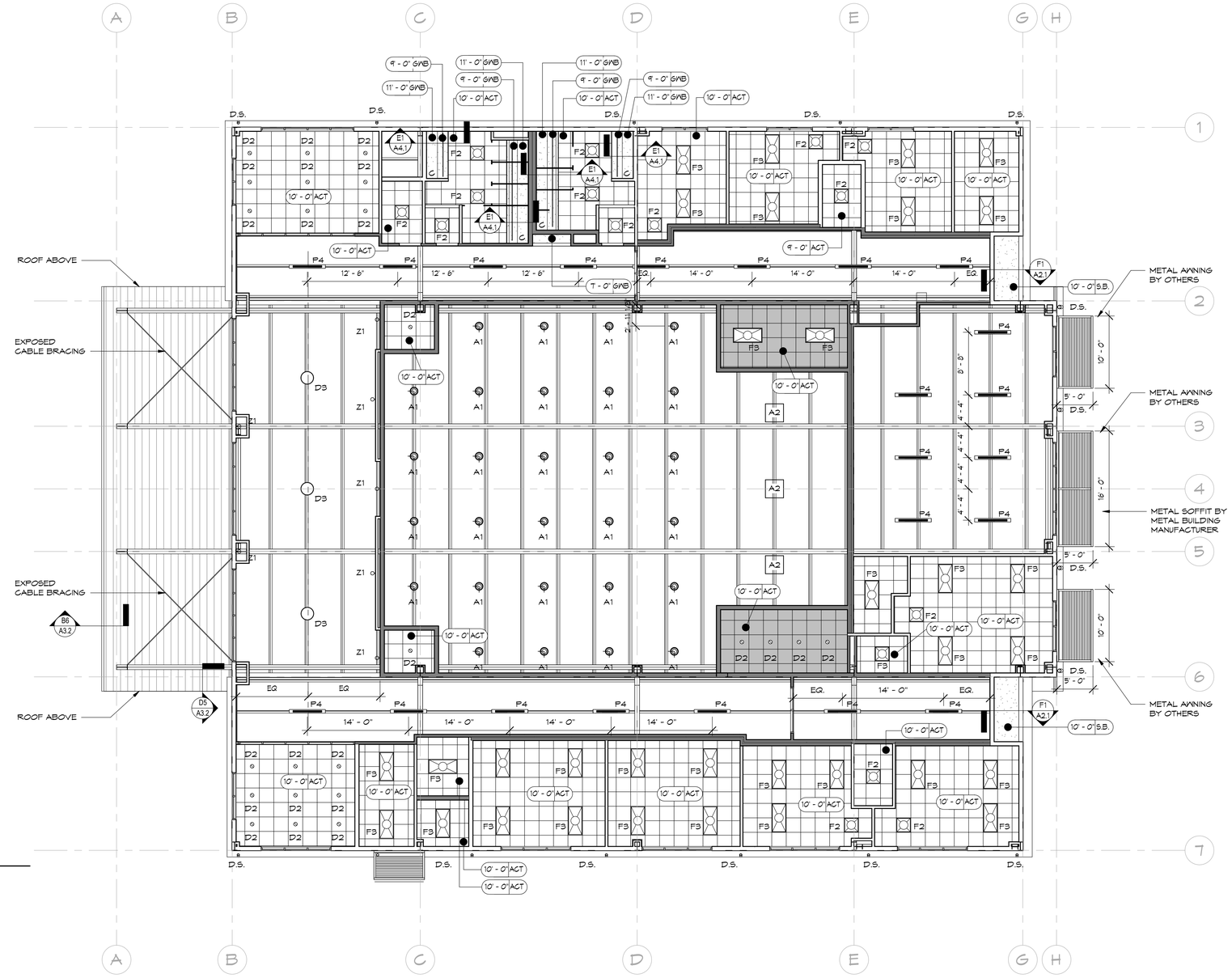
B1 HEADER DETAIL
1 1/2" = 1'-0"



D1 ROOF DETAIL
1" = 1'-0"



F1 ALCOVE DETAIL
1" = 1'-0"



E3 MAIN LEVEL FLOOR PLAN
1/8" = 1'-0"

RCP LEGEND

- BLACK ACOUSTICAL CEILING TILE AND GRID
- WHITE ACOUSTICAL CEILING TILE AND GRID
- GYPSUM BOARD, PAINT
- SOFFIT BOARD (S.F.)
- EXISTING STRUCTURE EXPOSED, PAINT

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

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REFLECTED CEILING PLAN – MAIN LEVEL

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FREDRICKSBURG, VA 22406

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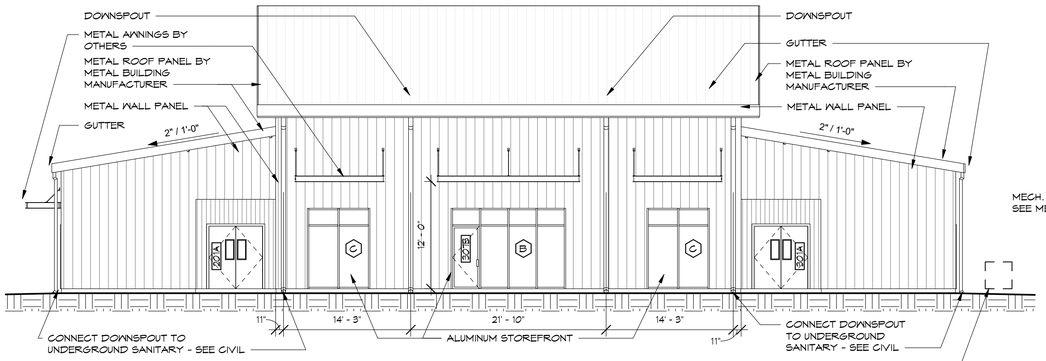
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

A2.1

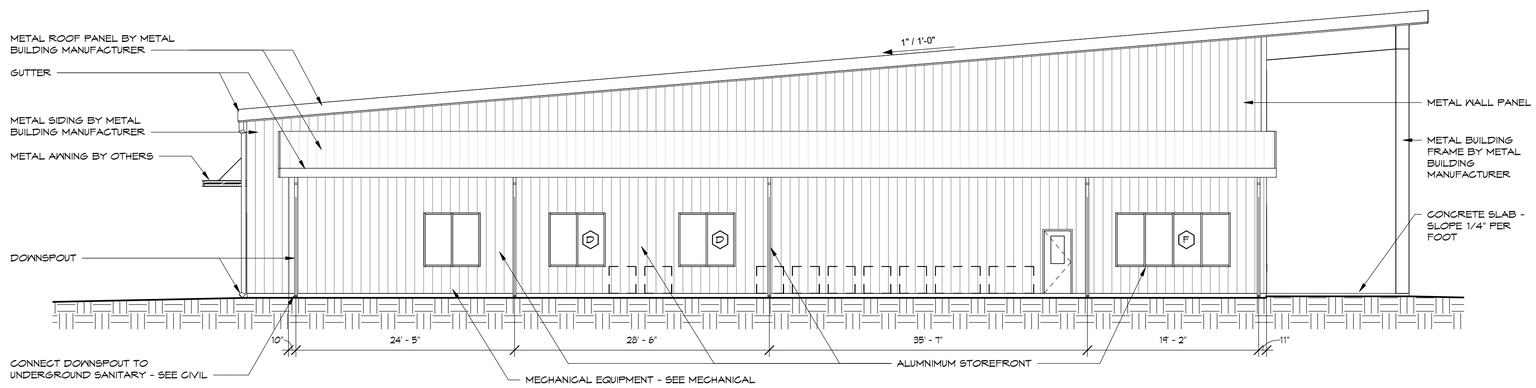


B1 REAR ELEVATION
1/8" = 1'-0"

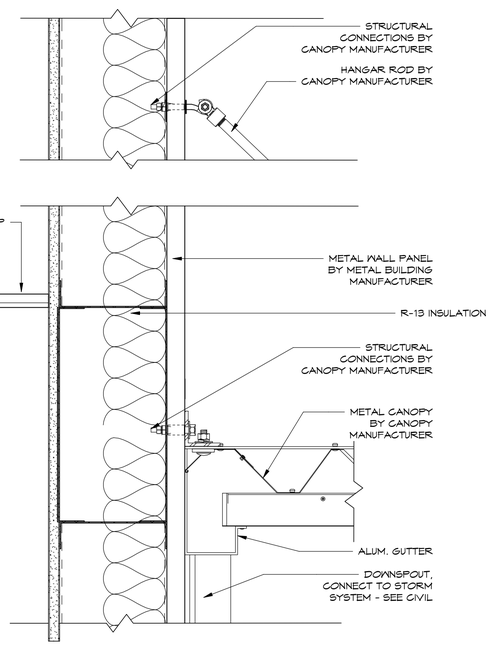
B5 FRONT ELEVATION
1/8" = 1'-0"

GENERAL NOTES:

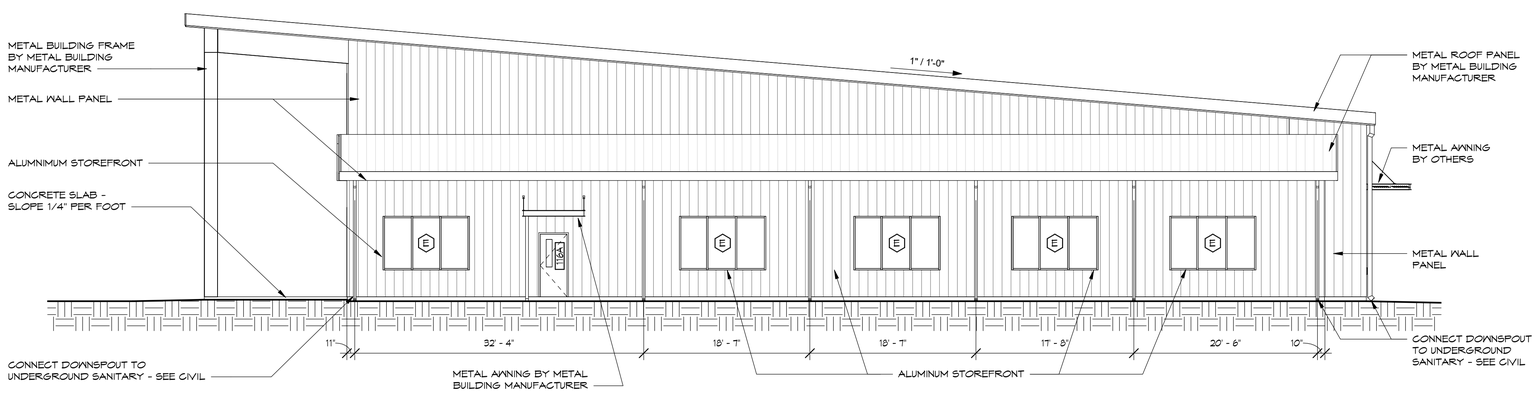
1. ALL METAL WALL PANEL TO BE ARCHITECTURAL III SIDING
2. ALL METAL ROOF PANEL TO BE LOCKSEAM 360



D1 SIDE ELEVATION AT CLASSROOMS
1/8" = 1'-0"



F6 SECTION AT AWNING DETAIL
3" = 1'-0"



F1 SIDE ELEVATION
1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101884
12-21-20
ARCHITECT

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EXTERIOR ELEVATIONS

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FREDERICKSBURG, VA 22406

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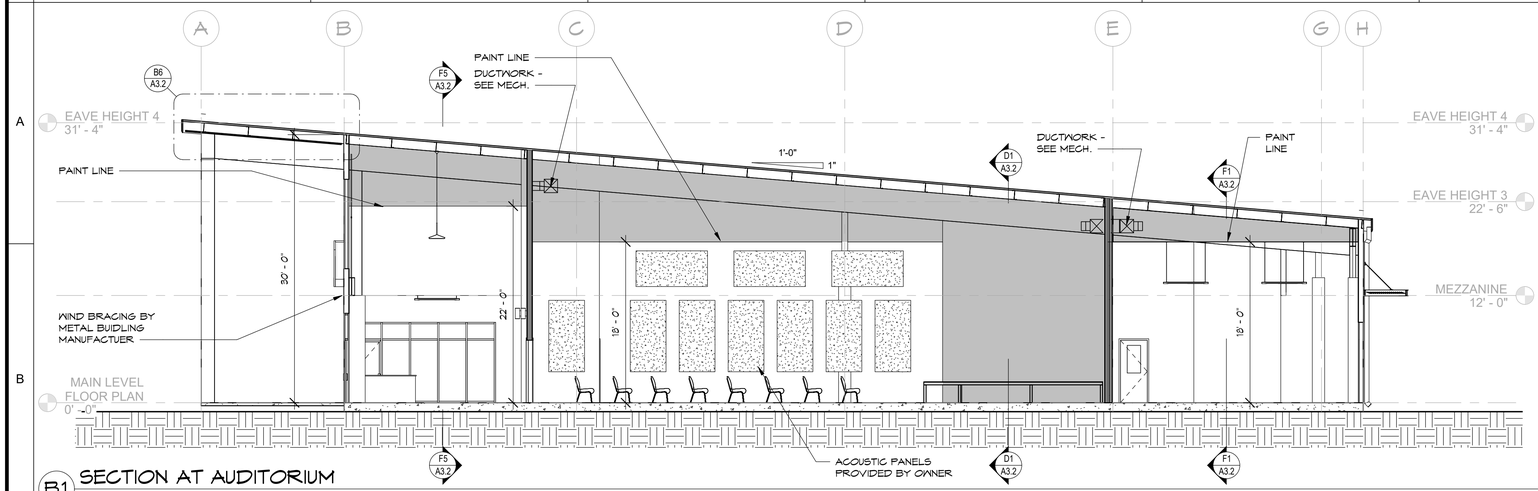
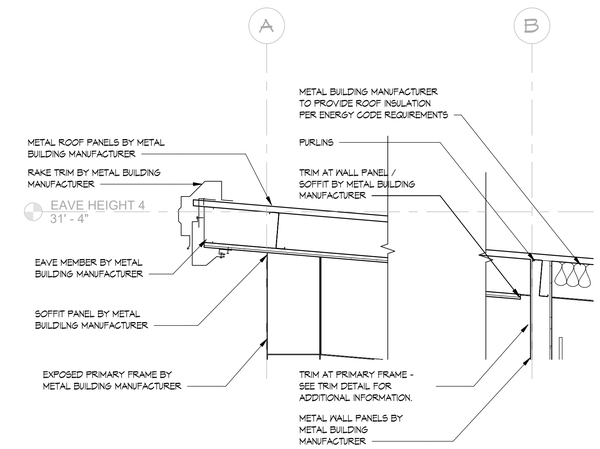
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

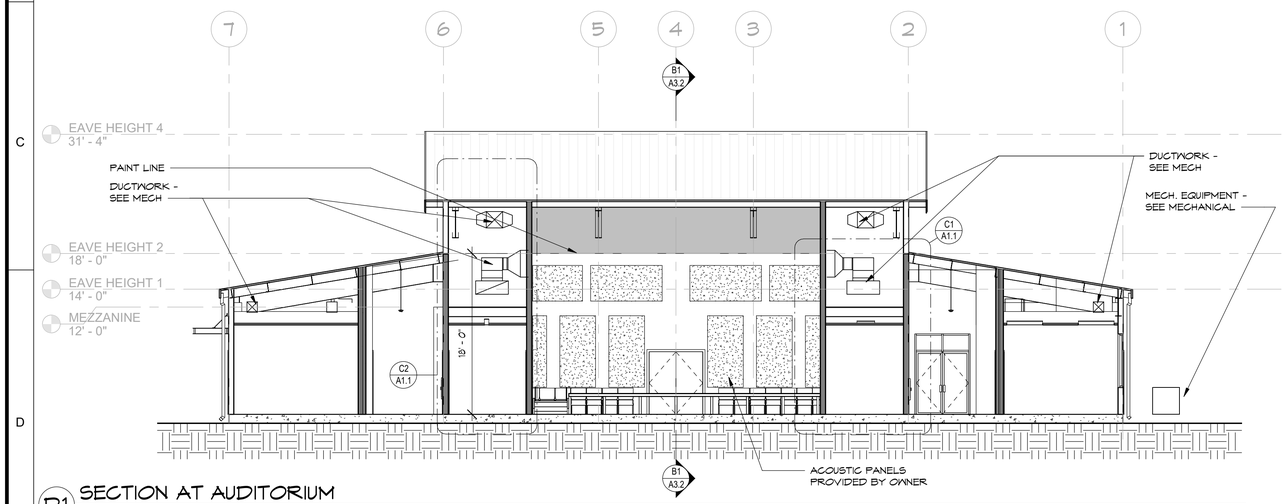
A3.1



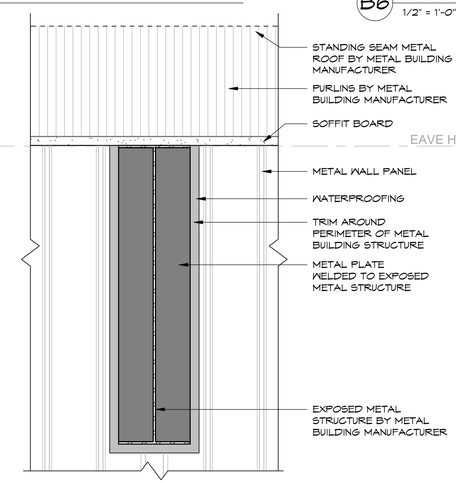
B1 SECTION AT AUDITORIUM
1/8" = 1'-0"



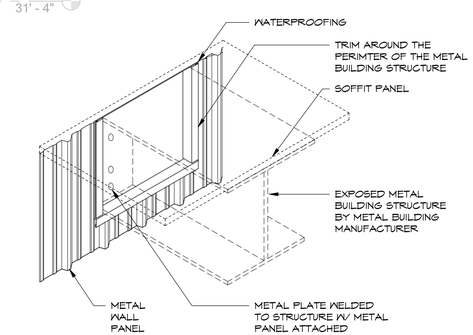
B6 SECTION DETAIL AT COVERED ENTRY
1/2" = 1'-0"



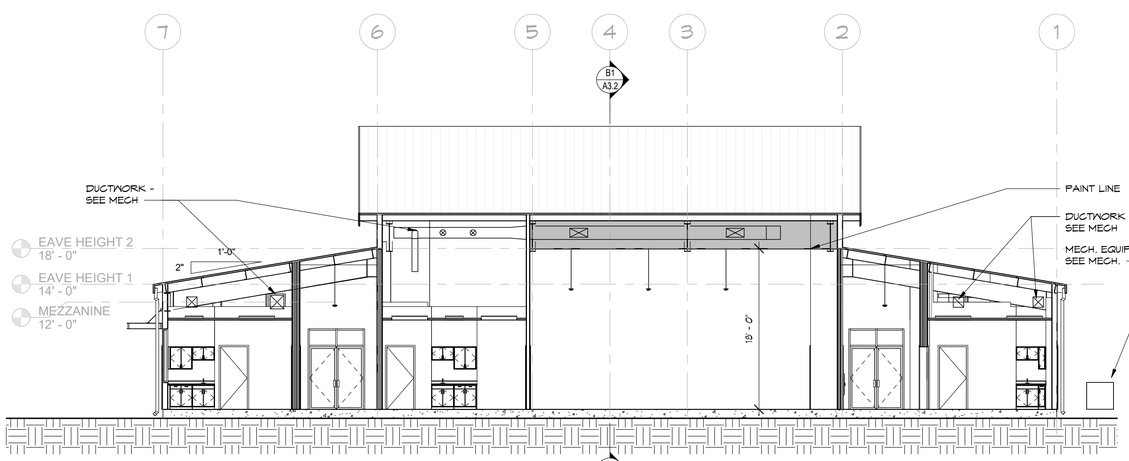
D1 SECTION AT AUDITORIUM
1/8" = 1'-0"



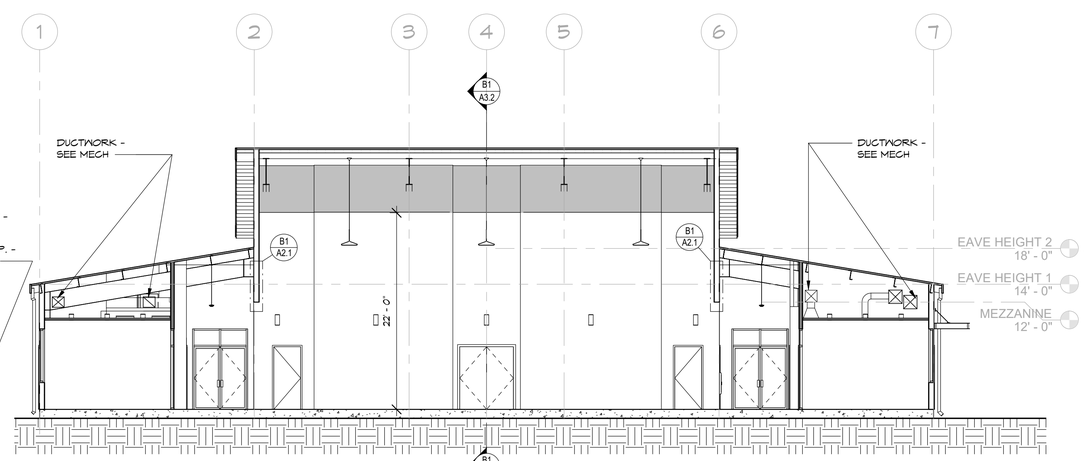
D5 BEAM TRIM DETAIL
1 1/2" = 1'-0"



D7 BEAM TRIM DETAIL - ISO
NTS



F1 SECTION AT PLAYGROUND
1/8" = 1'-0"



F5 SECTION AT FOYER
1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

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BUILDING SECTIONS

SOUTH RIDGE CHURCH
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FREDRICKSBURG, VA 22406

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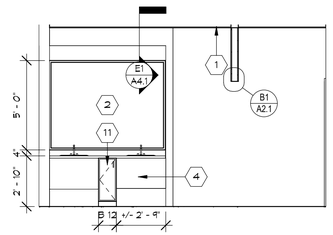
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

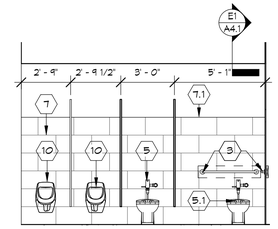
A3.2

KEYNOTE LEGEND

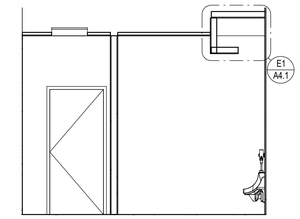
Key Value	Keynote Text
1	ACT CEILING
2	MIRROR W/ CONT/ ALUM. CHANNEL TRIM @3'2" A.F.F. PROVIDE FILLER BEHIND MIRROR TO MATCH THICKNESS OF TILE, TYP. U.N.O.
3	36" AND/OR 42" HANDICAP GRAB BAR
4	LAVATORY APRON AND COUNTER
5	FLOOR MOUNTED WATER CLOSET
5.1	FLOOR-MOUNTED WATER CLOSET HC
5.2	FLOOR MOUNTED WATER CLOSET KIDS AGES 5-8
7	WALL TILE; SEE FINISH SCHED.
7.1	SCHLUTER RONDEC TOP AND OUTSIDE CORNER TRIM AT TILE. TYP. U.N.O
8	SOLID PHENOLIC PARTITION FLOOR MOUNTED / O.H. BRACED
10	URINAL MOUNTED @ 24" TO RIM
11	6" DIA. STAINLESS STEEL GROMMET FOR TRASH DROP TYP.
12	EPOXY ON MMGWB
13	MOP SINK



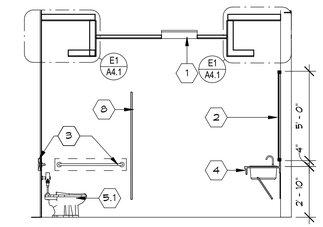
B3 MENS - ELEVATION 1
1/4" = 1'-0"



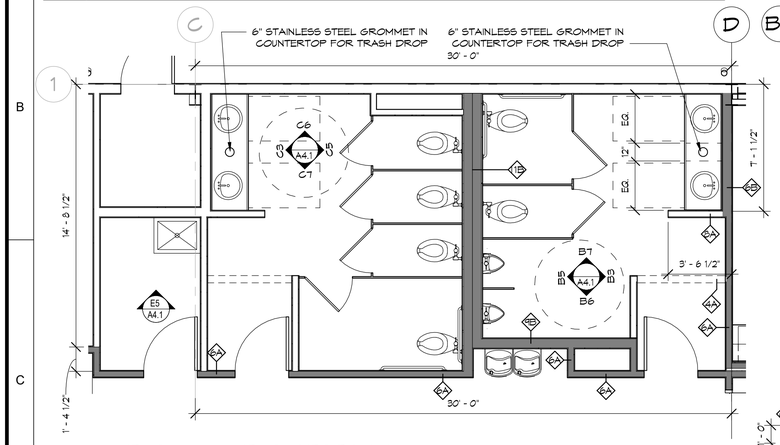
B5 MENS - ELEVATION 2
1/4" = 1'-0"



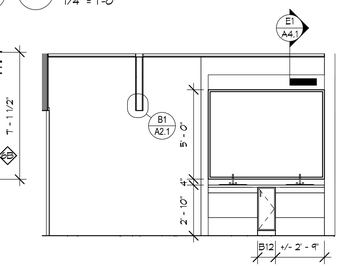
B6 MENS RESTROOM 3
1/4" = 1'-0"



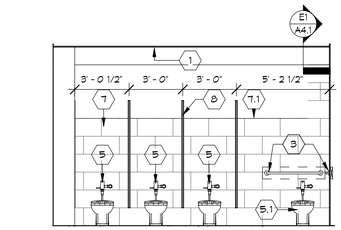
B7 MENS RESTROOM 4
1/4" = 1'-0"



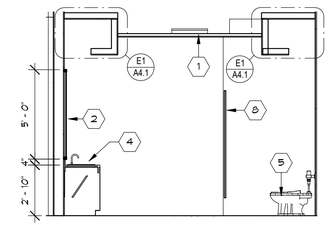
C1 MENS & WOMENS RESTROOM
1/4" = 1'-0"



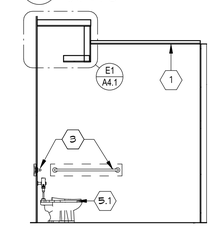
C3 WOMENS RESTROOM
1/4" = 1'-0"



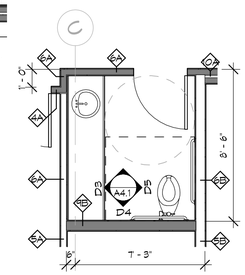
C5 WOMENS RESTROOM 2
1/4" = 1'-0"



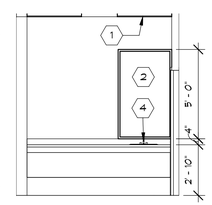
C6 WOMENS RESTROOM 3
1/4" = 1'-0"



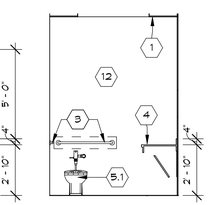
C7 WOMENS RESTROOM 4
1/4" = 1'-0"



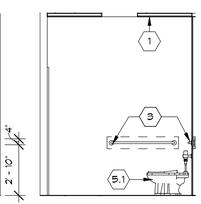
D2 FAMILY
1/4" = 1'-0"



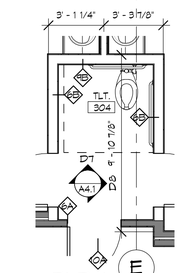
D3 FAMILY
1/4" = 1'-0"



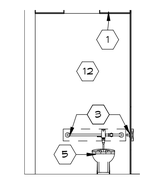
D4 FAMILY
1/4" = 1'-0"



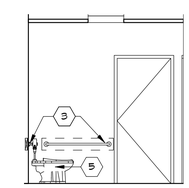
D5 FAMILY
1/4" = 1'-0"



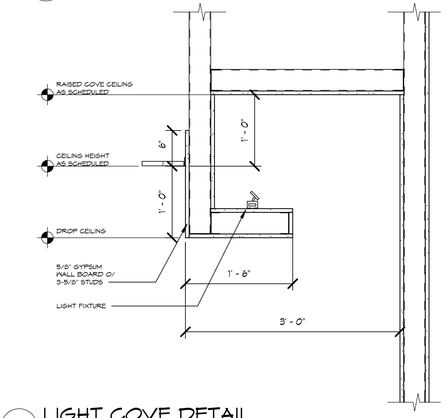
D6 ELEM.
1/4" = 1'-0"



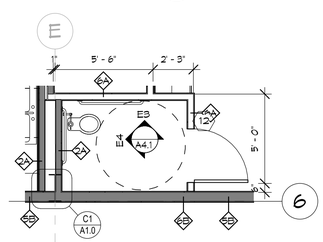
D7 ELEM.
1/4" = 1'-0"



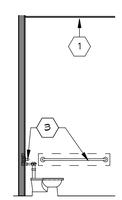
D8 ELEM.
1/4" = 1'-0"



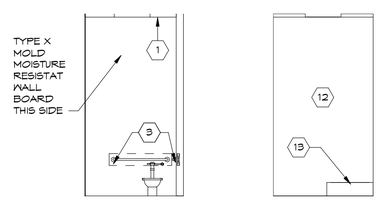
E1 LIGHT COVE DETAIL
1" = 1'-0"



E2 PRESCHL.
1/4" = 1'-0"

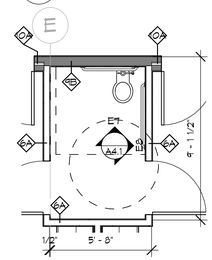


E3 PRESCHL.
1/4" = 1'-0"

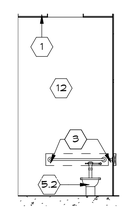


E4 PRESCHL.
1/4" = 1'-0"

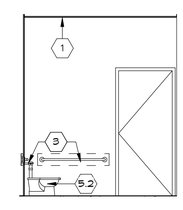
E5 JANITOR
1/4" = 1'-0"



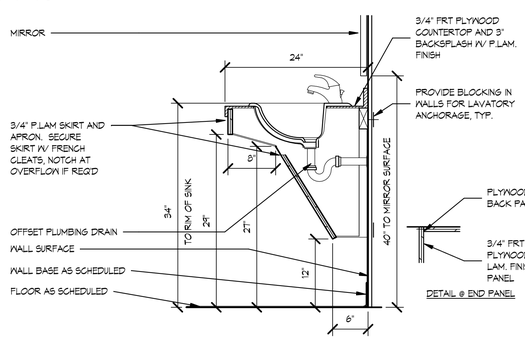
E6 PRESCHL.
1/4" = 1'-0"



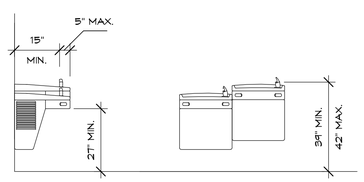
E7 PRESCHL.
1/4" = 1'-0"



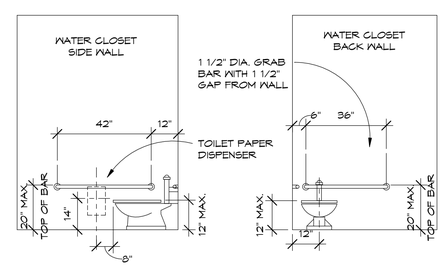
E8 PRESCHL.
1/4" = 1'-0"



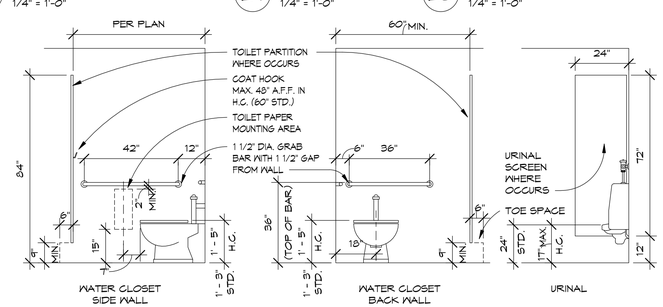
F2 COUNTER ASSEMBLY DETAIL
1" = 1'-0"



F3 WATER FOUNTAIN DETAIL TYP.
1/2" = 1'-0"



F5 MOUNTING HEIGHT DETAILS CHILDREN
3/8" = 1'-0"



F6 MOUNTING HEIGHT DETAILS
3/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

REVISIONS

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Job Number:	2002-00
Date:	02/12/20
Drawn By:	Author
Checked By:	TJR
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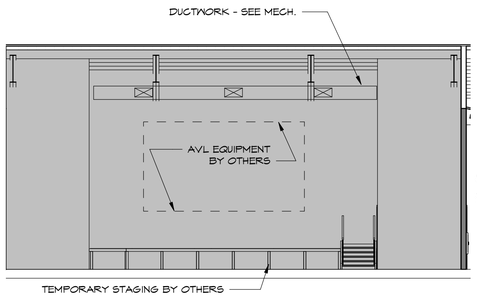
BATHROOM ELEVATIONS AND DETAILS

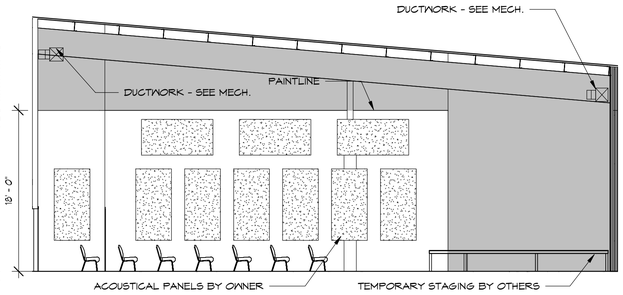
SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

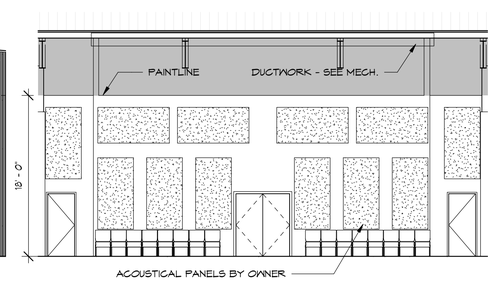
A4.1



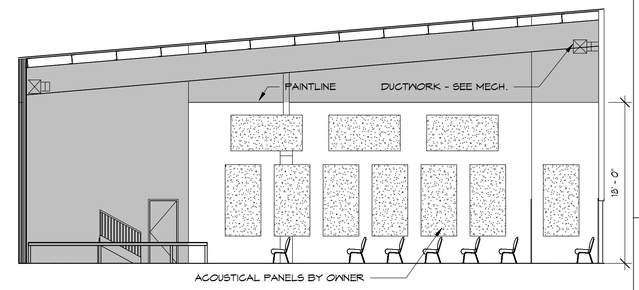
A1 AUDITORIUM INTERIOR ELEVATION 1
1/8" = 1'-0"



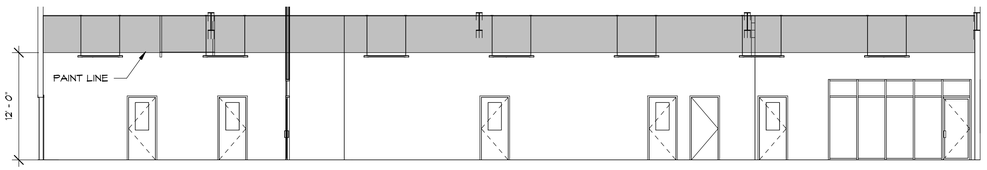
A2 AUDITORIUM INTERIOR ELEVATION 2
1/8" = 1'-0"



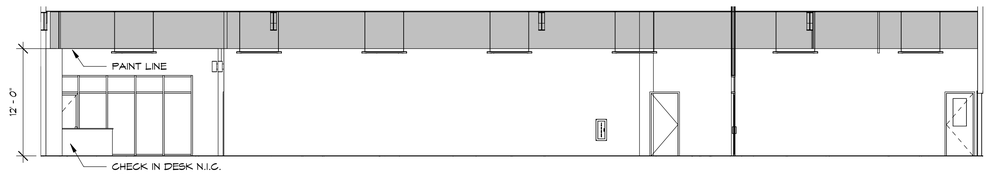
A5 AUDITORIUM INTERIOR ELEVATION 3
1/8" = 1'-0"



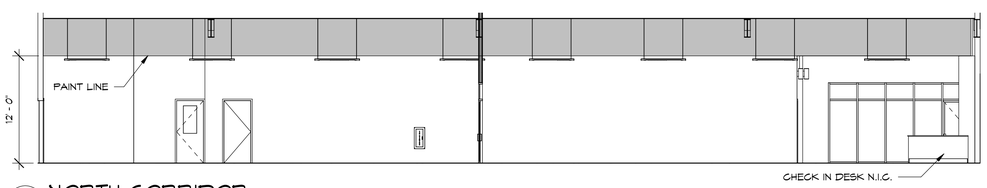
A6 AUDITORIUM INTERIOR ELEVATION 4
1/8" = 1'-0"



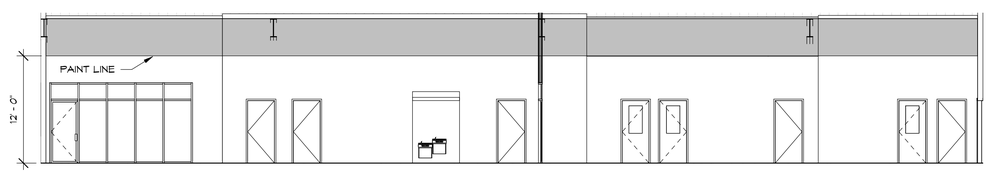
B1 SOUTH CORRIDOR
1/8" = 1'-0"



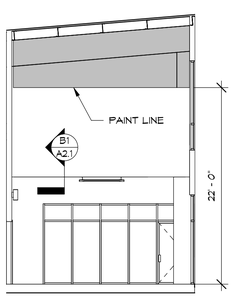
B5 SOUTH CORRIDOR
1/8" = 1'-0"



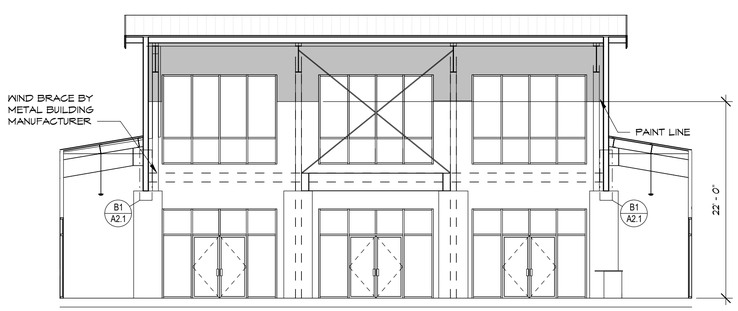
C1 NORTH CORRIDOR
1/8" = 1'-0"



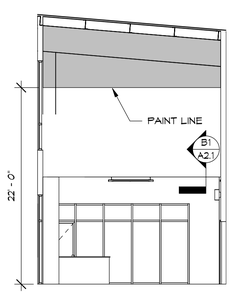
C5 NORTH CORRIDOR
1/8" = 1'-0"



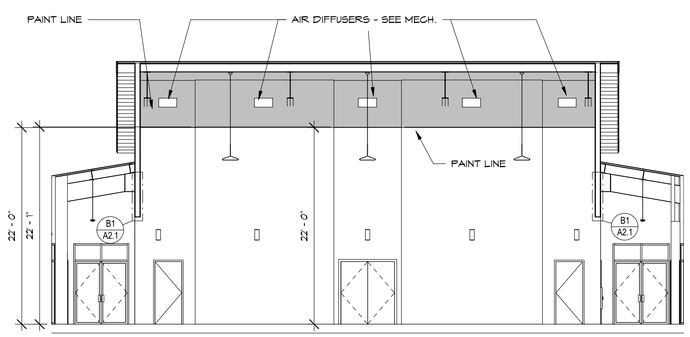
F3 LOBBY - SOUTH
1/8" = 1'-0"



E1 LOBBY - EAST
1/8" = 1'-0"



F4 LOBBY - NORTH
1/8" = 1'-0"



F1 LOBBY - WEST
1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-19
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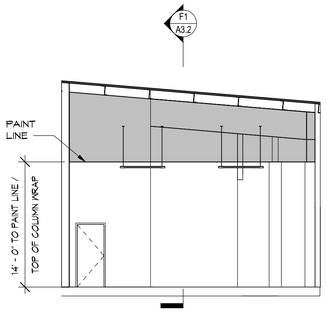
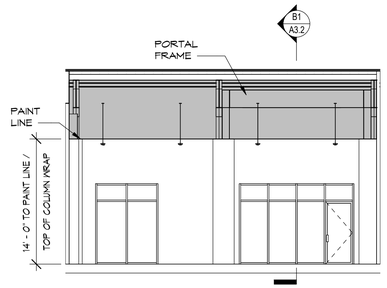
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

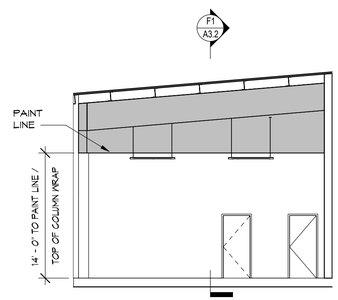
A4.2



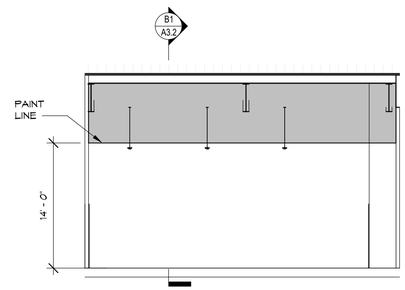
D1 PLAYGROUND
1/8" = 1'-0"



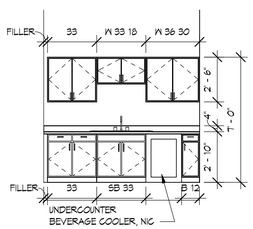
D2 PLAYGROUND
1/8" = 1'-0"



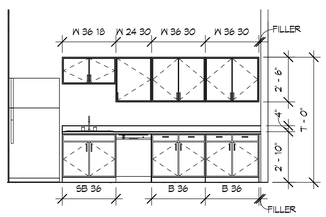
D4 PLAYGROUND
1/8" = 1'-0"



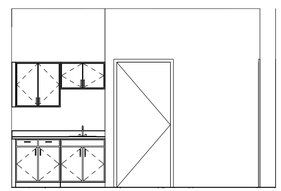
D5 PLAYGROUND
1/8" = 1'-0"



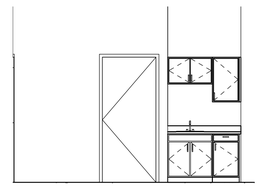
E1 GREEN ROOM
1/4" = 1'-0"



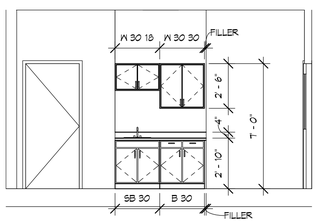
E2 SERVING
1/4" = 1'-0"



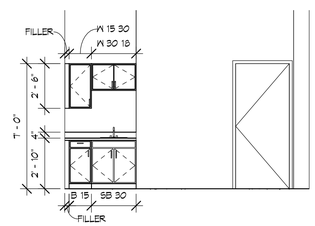
E4 PRESCHOOL CR.
1/4" = 1'-0"



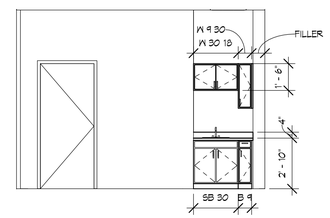
E5 PRESCHOOL CR.
1/4" = 1'-0"



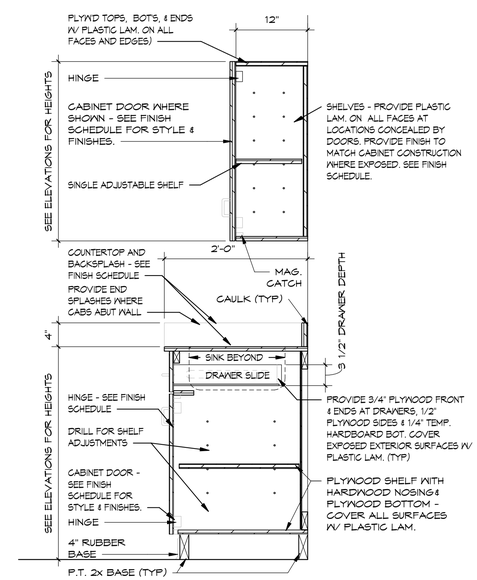
F2 PRESCHOOL CR.
1/4" = 1'-0"



F4 ELEM. CR.
1/4" = 1'-0"



F5 ELEM. CR.
1/4" = 1'-0"



GENERAL NOTES:

1. *ALL CASEWORK IS NOT IN CONTRACT AND SHALL BE PROVIDED SEPARATELY BY OWNER.*
2. PROVIDE DOORS & FALSE FRONTS AT ALL SINKS. DO NOT PROVIDE SHELF BELOW SINK.

F7 CABINET SECTION TYP.
1" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

Job Number: 2002-00
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Drawn By: Author
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1040 CROWN POINTE PKWY.
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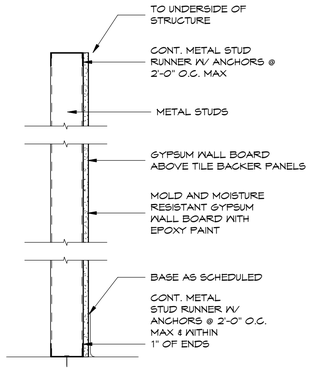
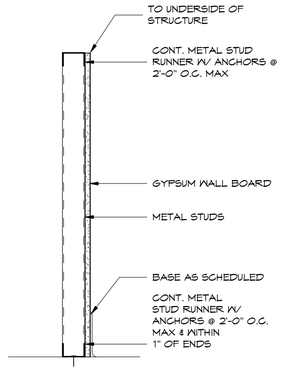
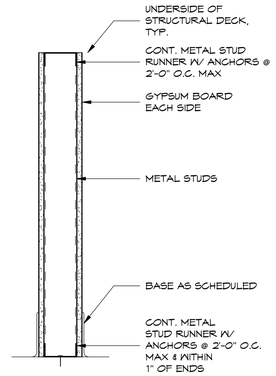
A4.3



2A 3-5/8" METAL STUD W/ (1) LAYER 5/8" MOLD AND MOISTURE RESISTANT GYPSUM WALL BOARD W/ EPOXY PAINT

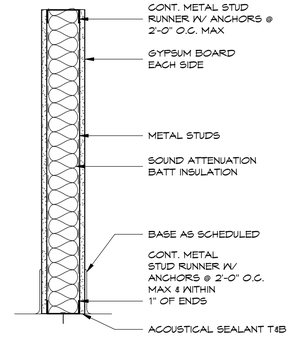


3A 2-1/2" METAL STUD W/ (1) LAYER 5/8" GYPSUM BOARD ONE SIDE



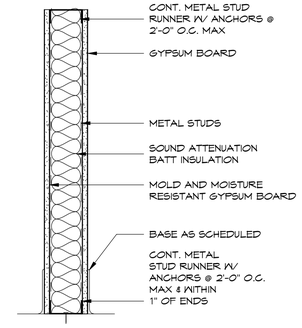
4A 3-5/8" METAL STUD W/ 5/8" GYPSUM BOARD EACH SIDE

4B TYPE "4A" SIM. - WITH 6" METAL STUD



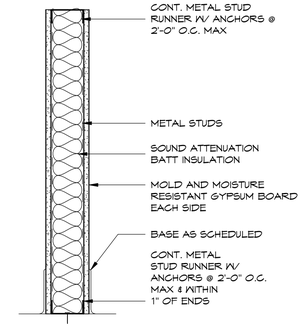
5A 3-5/8" METAL STUD W/ 5/8" GYPSUM BOARD EACH SIDE WITH SOUND ATTENUATION BATT INSULATION

5B TYPE "5A" SIM. - WITH 6" METAL STUD

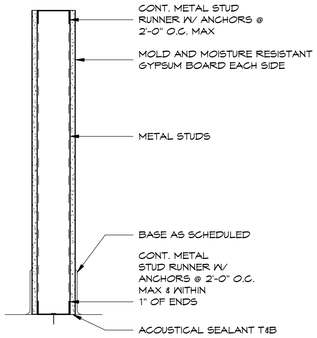


6A 3-5/8" METAL STUD W/ (1) LAYER 5/8" MOLD AND MOISTURE RESISTANT GYPSUM BOARD ONE SIDE AND (1) LAYER 5/8" GYPSUM BOARD OTHER WITH SIDE SOUND ATTENUATION BATT INSULATION

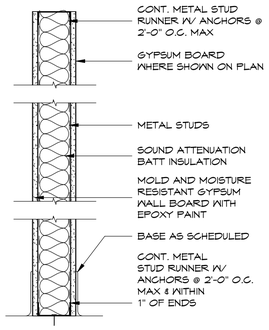
6B TYPE "6A" SIM. - WITH 6" METAL STUD



7A 3-5/8" METAL STUD W/ 5/8" MOLD AND MOISTURE RESISTANT GYPSUM BOARD EACH SIDE WITH SOUND ATTENUATION BATT INSULATION

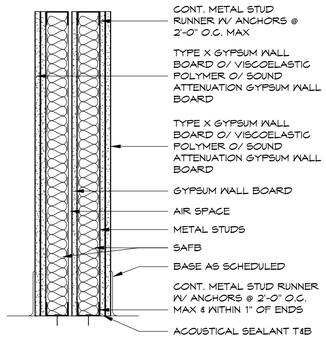


8A 3-5/8" METAL STUD W/ 5/8" MOLD AND MOISTURE RESISTANT GYPSUM BOARD EACH SIDE

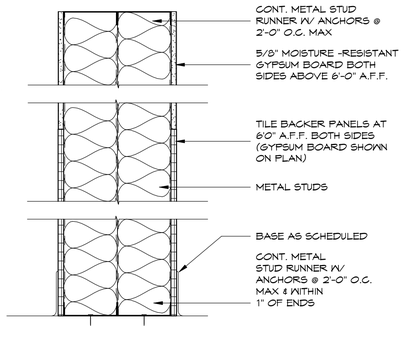


9A 3-5/8" METAL STUD @ 16" O.C. W/ 5/8" MOLD AND MOISTURE RESISTANT GYPSUM WALL BOARD WITH EPOXY PAINT & 5/8" MOISTURE RESISTANT GYPSUM BOARD OTHER SIDE WITH SOUNDATTENUATION BATT INSULATION

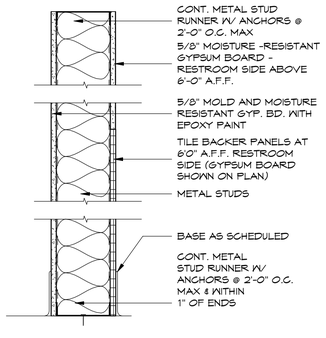
9B TYPE "9A" SIM. - WITH 6" METAL STUD



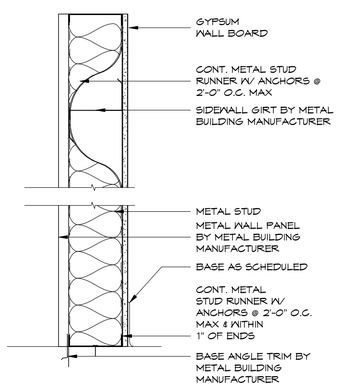
10A 5/8" GYPSUM WALL BOARD O/ 5/8" SOUND ATTENUATION GYPSUM WALL BOARD W/ VISCOELASTIC POLYMER INBETWEEN ON BOTH SIDES O/ 2-1/2" STUDS W/ 2.5" SAFB INSULATION O/ 2-1/2" STUDS W/ 2.5" SAFB INSULATION



11B TILE BACKER PANELS UP TO 6'-0" W/ 5/8" MOLD AND MOISTURE RESISTANT GYP. BD. ABOVE O/ W/ ACOUSTIC POLYMER INBETWEEN (2) 6" METAL STUD W/ TILE BACKER PANELS UP TO 6'-0" W/ 5/8" MOLD AND MOISTURE RESISTANT GYP. BD. ABOVE



12B TILE BACKER PANELS UP TO 6'-0" W/ 5/8" MOLD AND MOISTURE RESISTANT GYP. BD. ABOVE ON RESTROOM SIDE O/ 6" METAL STUD W/ 5/8" MOLD AND MOISTURE RESISTANT GYP. BD. WITH EPOXY PAINT



13B 1/2" METAL WALL PANEL O/ 5/8" SHEATHING O/ 6" METAL STUD W/ R-19 INSULATION O/ 5/8" GYPSUM BOARD.

F1 PARTITION TYPES

1 1/2" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
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PARTITION TYPES

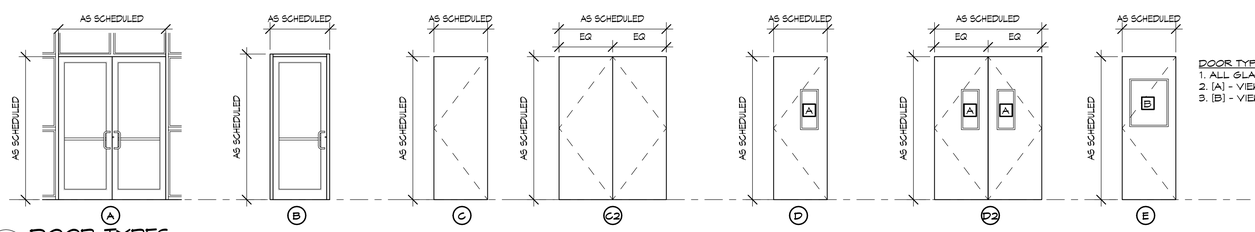
SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

A7.1

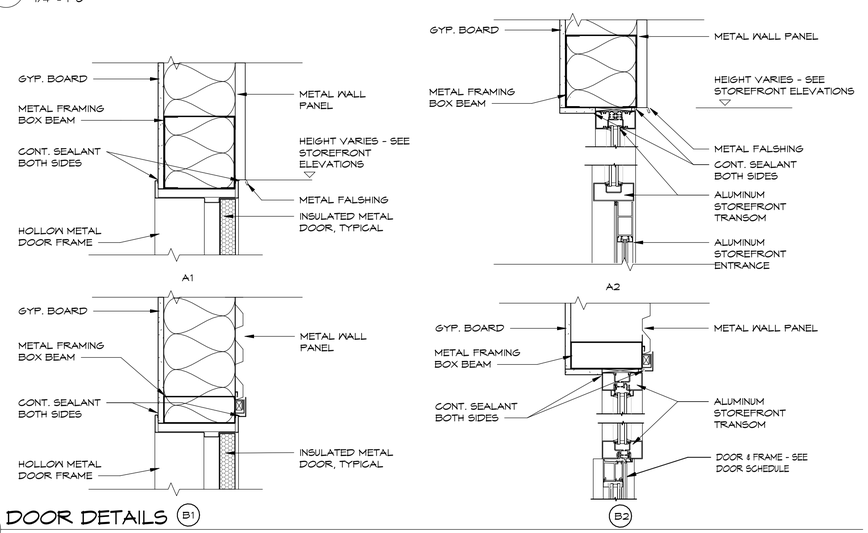
DOOR SCHEDULE

DOOR NO.	ROOM NAME	DOOR TYPE	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICKNESS	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME TYPE	LABEL	DETAILS (xx/xx) HEAD	DETAILS (xx/xx) JAMB	DETAILS (xx/xx) THRESHOLD	CLOSER	HARDWARE	COMMENTS
100 - MAIN																
101A	FOYER	A	6' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A2	B2	ALUMINUM			
101B	FOYER	A	6' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A2	B2	ALUMINUM			
101C	FOYER	A	6' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A2	B2	ALUMINUM			
102A	VEST.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
102B	VEST.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
103A	VEST.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
103B	VEST.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
104	AUDITORIUM	C2	6' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
107A	GREEN ROOM	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
107B	GREEN ROOM	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
110	CHECK IN	B	3' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A6	B6/B7	---			
111	JANITOR	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
112	WOMENS	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
113	MENS	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
114	AVL. / ELECTRICAL	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
115	STARTING POINT	B	3' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A6	B6/B7	RESILIENT			
116A	SRVNG	D	3' - 0"	7' - 0"	0' - 1 3/4"	INSULATED MTL.	PAINT	HM	PAINT		A1	B1	ALUMINUM			
116B	SRVNG	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
117	PANTRY	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
118	FAMILY	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
120	RISER	E	3' - 0"	7' - 0"	0' - 1 3/4"	INSULATED MTL.	PAINT	HM	PAINT		A1	B1	ALUMINUM			
200 - PRESCHOOL																
201A	PRESCHOOL CORRIDOR	D2	6' - 0"	7' - 0"	0' - 1 3/4"	INSULATED MTL.	PAINT	HM	PAINT		A1	B1	ALUMINUM			
201B	PRESCHOOL CORRIDOR	A	6' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A6	B7	RESILIENT			
202	PRE-SCHOOL CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
203A	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
203B	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
204	PRESCHOOL CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
207A	PRESCHOOL CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
207B	PLAYGROUND	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
209	STORAGE	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
210	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
300 - ELEMENTARY																
301A	ELEM. CORRIDOR	D2	6' - 0"	7' - 0"	0' - 1 3/4"	INSULATED MTL.	PAINT	HM	PAINT		A1	B1	ALUMINUM			
301B	ELEM. CORRIDOR	A	5' - 10"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A6	B7	RESILIENT			
302	ELEM. CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
303	ELEM. CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
303A	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
303B	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
303C	TLT.	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	RESILIENT			
305	ELEM. CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
306	UTILITY	C	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	RESILIENT			
307A	PLAYGROUND	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. STAIN	HM	PAINT		A3	B3	---			
307B	PLAYGROUND	B	3' - 0"	7' - 0"	0' - 1 3/4"	ALUM.	FACT. PAINT	ALUM.	PAINT		A6	B6/B7	ALUMINUM			
400 - MIDDLE SCHOOL / HIGH SCHOOL																
402	MS / HS CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	---			
403	MS / HS CLASSROOM	E	3' - 0"	7' - 0"	0' - 1 3/4"	WOOD	FACT. PAINT	HM	PAINT		A5	B5	---			

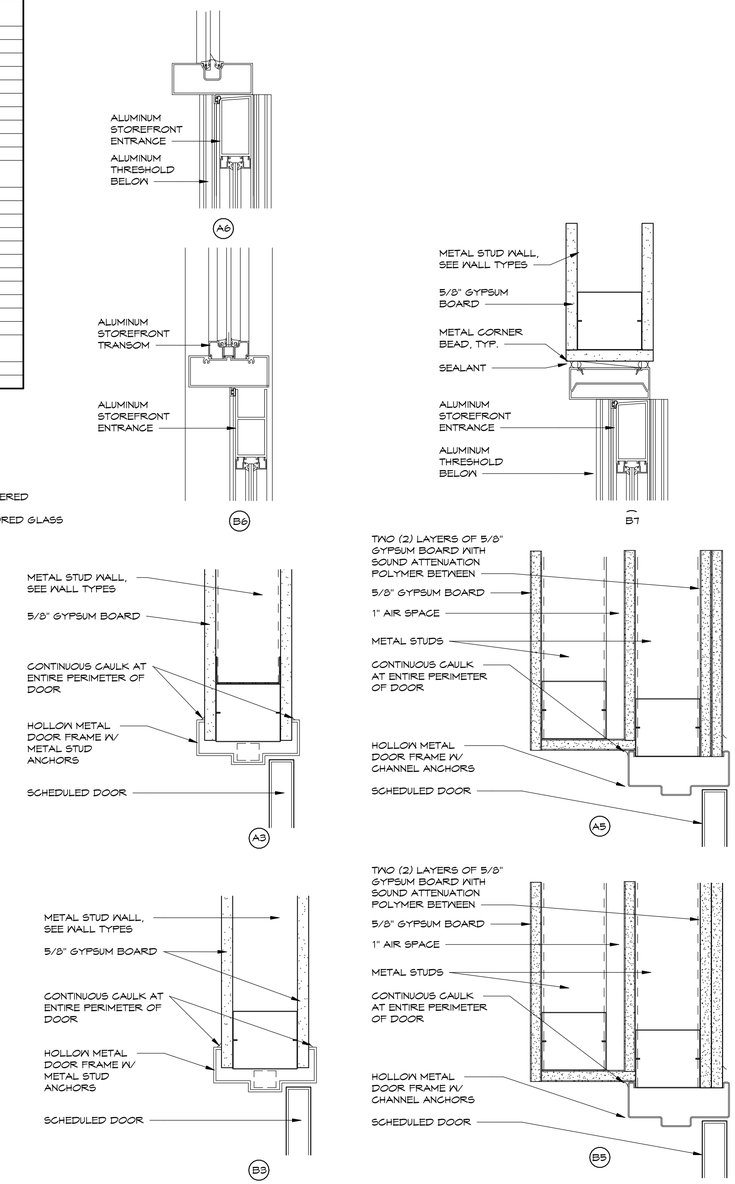


DOOR TYPE NOTES:
1. ALL GLAZING IN DOORS TO BE TEMPERED
2. [A] - VIEW LITE WITH CLEAR GLAZING
3. [B] - VIEW LITE WITH ONE-WAY MIRRORED GLASS

D1 DOOR TYPES
1/4" = 1'-0"



F1 DOOR DETAILS
1 1/2" = 1'-0"



F6 INTERIOR DOOR DETAILS
3" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 03/28/15
Drawn By: ---
Checked By: TJR
CAD File:

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DOOR SCHEDULE AND DETAILS

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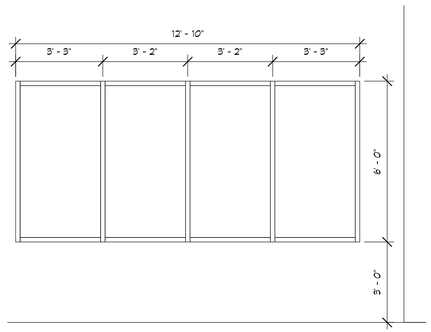

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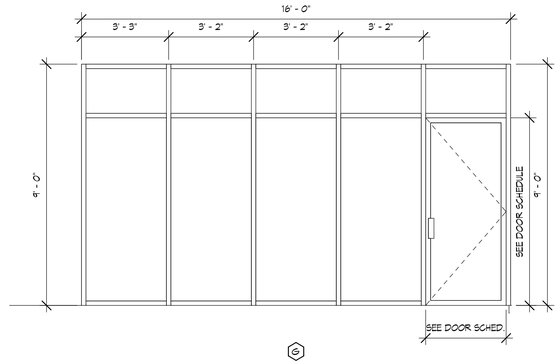

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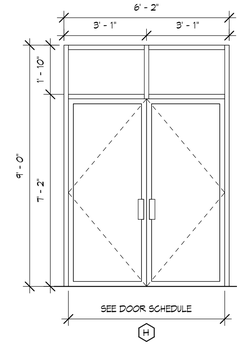

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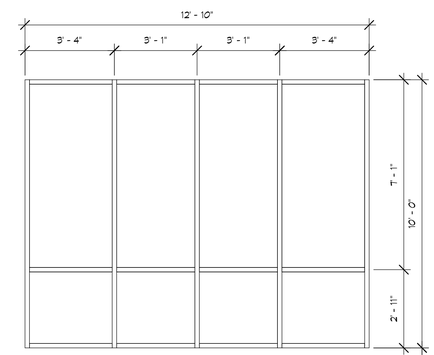

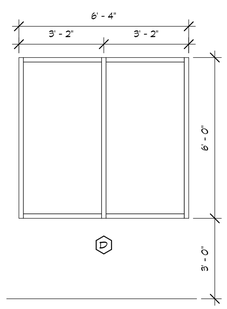

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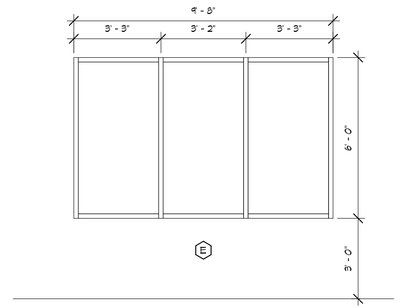

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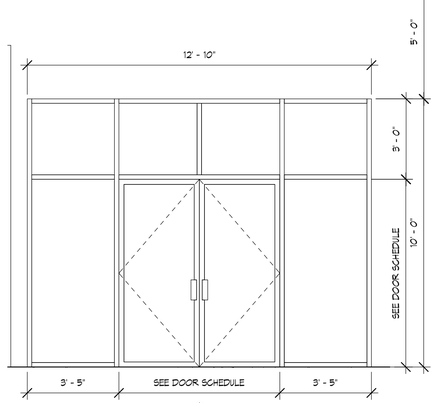
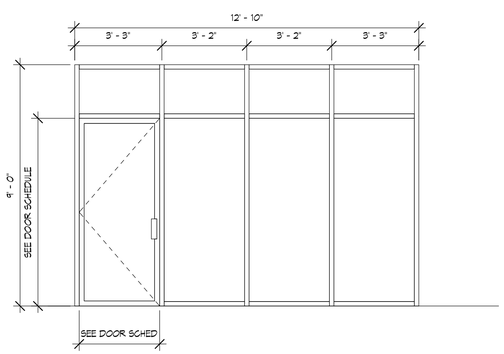


A



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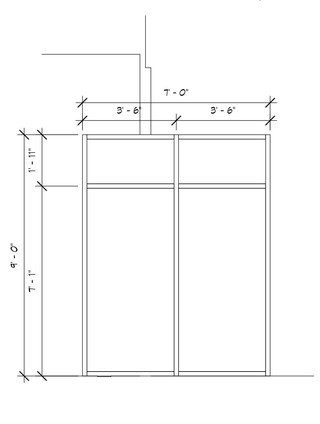
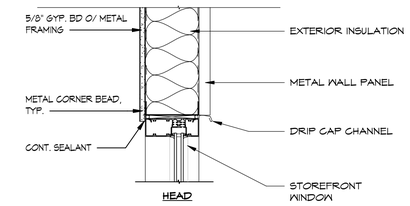


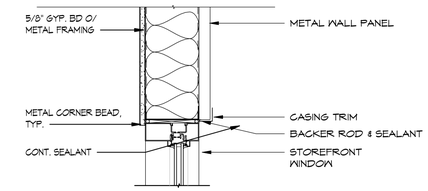
C

B1 STOREFRONT ELEVATIONS

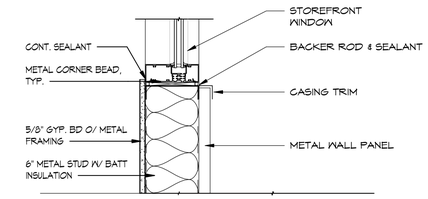
3/8" = 1'-0"



HEAD



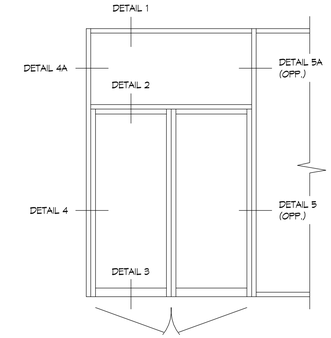
JAMB



SILL

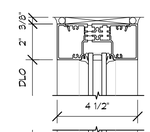
C7 WINDOW DETAIL

1 1/2" = 1'-0"

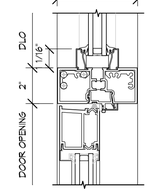


TYPICAL ELEVATIONS

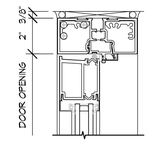
DETAIL 1
TRANSOM HEAD



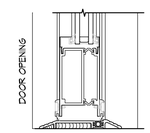
DETAIL 2
TRANSOM BAR WITH SURFACE CLOSER

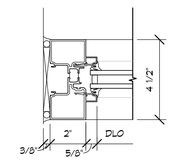


DETAIL 2A
DOOR HEADER WITH SURFACE CLOSER

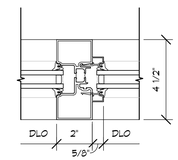


DETAIL 3
THRESHOLD

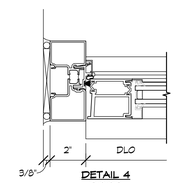




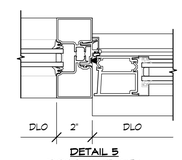
DETAIL 4A
TRANSOM JAMB



DETAIL 5A
TRANSOM JAMB WITH SIDELITE



DETAIL 4
DOOR JAMB



DETAIL 5
DOOR JAMB WITH SIDELITE

F8 STOREFRONT DETAILS

3" = 1'-0"

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101884
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 04/09/20
Drawn By: Author
Checked By: TJR
CAD File:

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STOREFRONT AND WINDOW DETAILS

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A8.2

FINISH SCHEDULE

No.	ROOM NAME	FLOOR MATERIAL	FLOOR STYLE	FLOOR COLOR	FLOOR MANUFACTURER	BASE MATERIAL	BASE STYLE	BASE COLOR	BASE MANUFACTURER	WALL FINISH	WALL COLOR	WALL MANUFACTURER	CEILING STYLE	FINISH COMMENTS
100 - MAIN														
101	FOYER	SEALED CONC. / WALK OFF CARPET	--- / WELCOME II	--- / BLACK CHOCOLATE	--- / SHAW	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7016 MINDFUL GRAY	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	WALKOFF CARPET AT EACH ENTRANCE TO FOYER
102	VEST.	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	ACT	
103	VEST.	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	ACT	
104	AUDITORIUM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
105	F.O.H.	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
106	PLATFORM	---	---	---	---	---	---	40 BLACK	JOHNSONITE	PAINT	SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
107	GREEN ROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
108	CHECK IN	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
109	NORTH CORRIDOR	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
110	STUDIO	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	ACT	
111	JANITOR	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	40 BLACK	JOHNSONITE	PAINT	SW7024 FUNCTIONAL GRAY	SHERWIN WILLIAMS	ACT	
112	WOMENS	PORCELAIN TILE	LODGE	SABI SABI	DALTILE	PORCELAIN TILE	LODGE COVE	SABI SABI	DALTINE	PORCELAIN TILE/PAINT	VITALIA BLANCO VIOSO / SW7058 MAGNETIC GRAY	DALTILE / SHERWIN WILLIAMS	ACT	
113	MENS	PORCELAIN TILE	LODGE	SABI SABI	DALTILE	PORCELAIN TILE	LODGE COVE	SABI SABI	DALTINE	PORCELAIN TILE/PAINT	VITALIA BLANCO VIOSO / SW7058 MAGNETIC GRAY	DALTILE / SHERWIN WILLIAMS	ACT	
114	AVL. / ELECTRICAL	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
115	STARTING POINT	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	ACT	
116	SRVNG	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
117	PANTRY	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
118	FAMILY	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	76 CINAMMON	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
120	RISER	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
200 - PRESCHOOL														
201	PRESCHOOL CORRIDOR	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
202	PRE-SCHOOL CLASSROOM	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW6495 GREAT FALLS	SHERWIN WILLIAMS	ACT	
203	TLT.	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	76 CINAMMON	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
204	PRESCHOOL CLASSROOM	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW6495 GREAT FALLS	SHERWIN WILLIAMS	ACT	
207	PRESCHOOL CLASSROOM	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW6495 GREAT FALLS	SHERWIN WILLIAMS	ACT	
209	STORAGE	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
210	TLT.	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	76 CINAMMON	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
300 - ELEMENTARY														
301	ELEM. CORRIDOR	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
302	ELEM. CLASSROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
303	ELEM. CLASSROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
304	TLT.	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	76 CINAMMON	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	ACT	
305	ELEM. CLASSROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
306	UTILITY	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	40 BLACK	JOHNSONITE	PAINT	SW7024 FUNCTIONAL GRAY	SHERWIN WILLIAMS	ACT	
307	PLAYGROUND	LVT	NATURAL CREATIONS ARBOR ART TP027	WEATHERED OAK MEDIUM	ARMSTRONG	RESILIENT	4" STANDARD	76 CINAMMON	JOHNSONITE	PAINT	SW7058 MAGNETIC GRAY	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
400 - MIDDLE SCHOOL / HIGH SCHOOL														
401	SOUTH CORRIDOR	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7018 DOVETAIL	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
402	MS / HS CLASSROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	
403	MS / HS CLASSROOM	SEALED CONC.	---	---	---	RESILIENT	4" STANDARD	29 MOON ROCK	JOHNSONITE	PAINT	SW7048 URBANE BRONZE / SW6991 BLACK MAGIC	SHERWIN WILLIAMS	EXPOSED TO STRUCTURE	

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-20
ARCHITECT

REVISIONS

No.	Description	Date

Job Number: 2002-00
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FINISH SCHEDULE

SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

A9.1

E3 MAIN LEVEL FINISH PLAN

1/8" = 1'-0"

GENERAL NOTES:

1. COORDINATE WITH FINISH SCHEDULE FOR ADDITIONAL INFORMATION.
2. GRAPHICAL REPRESENTATION OF FLOOR FINISHES SHALL BE USED FOR PLACEMENT DESIGNATION PURPOSES ONLY AND SHOULD NOT BE USED AS A MEANS AND METHOD OF INSTALLATION.

FLOOR FINISHES LEGEND

- CARPET 1
- CARPET 2
- CARPET 3
- CARPET 4
- WALK-OFF CARPET
- LUXURY VINYL TILE (LVT)
- TILE
- STAINED/SEALED CONCRETE

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
Lic. No. 040101843
12-21-2020
ARCHITECT

REVISIONS

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FINISH PLAN

SOUTH RIDGE CHURCH
2020 INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

A9.2

STRUCTURAL NOTES:

1. DESIGN IN ACCORDANCE WITH USBC 2015, LATEST VIRGINIA BUILDING CODE AND STAFFORD COUNTY CODE.

   THIS IS A TYPE III OCCUPANCY DESIGN, WITH APPROPRIATE COEFFICIENTS

2. DESIGN LOADS ARE AS FOLLOWS:
   ROOF DEAD LOAD 15 PSF
   CEILING DEAD LOAD 10 PSF
   ELEVATED FLOOR DEAD LOAD 20.3 PSF
   GRADE FLOOR DEAD LOAD 60 PSF

   FLOOR LIVE LOAD (Equivalent Uniformly Distributed Load)
   ASSEMBLY 100 PSF (Movable Seats) - INCLUDES LOBBY)
   CLASSROOMS 40 PSF
   CORRIDOR ABOVE 1st FLOOR 80 PSF
   CORRIDOR 1sT FLOOR 100 PSF
   RESTROOMS / TOILETS 60 PSF

   SNOW LOAD
   GROUND Pu 5 PSF
   IMPORTANCE FACTOR Isnow 1.0
   EXPOSURE FACTOR Ce 1.0
   THERMAL FACTOR Ct 1.0
   ROOF SNOW COEFFICIENT 1.0

   WIND LOAD
   WIND VELOCITY (3 SEC GUST) 115 MPH
   IMPORTANCE FACTOR I wind 1.0
   EXPOSURE CATEGORY C
   ENCLOSURE ENCLOSED

   SEISMIC LOAD

Date	12/8/2020, 2:53:36 PM
Design Code Reference Document	ASCE7-10
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
SS	0.144	MCER ground motion. (for 0.2 second period)
S1	0.055	MCER ground motion. (for 1.0s period)
SMS	0.23	Site-modified spectral acceleration value
SM1	0.133	Site-modified spectral acceleration value
SDS	0.153	Numeric seismic design value at 0.2 second SA
SD1	0.089	Numeric seismic design value at 1.0 second SA
SDC	B	Seismic design category
Fa	1.6	Site amplification factor at 0.2 second
Fv	2.4	Site amplification factor at 1.0 second
PGA	0.072	MCEG peak ground acceleration
FPGA	1.6	Site amplification factor at PGA
PGAM	0.116	Site modified peak ground acceleration
TL	8	Long-period transition period in seconds
SsRT	0.144	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.161	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.055	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.062	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
CRS	0.895	Mapped value of the risk coefficient at short periods
CR1	0.899	Mapped value of the risk coefficient at a period of 1 s

3. MATERIALS ARE TO BE AS FOLLOWS:
   ANCHOR BOLTS ASTM A50
   CONCRETE f'c= 4000 PSI 28 DAYS U.N.O.
   EXPANSION BOLTS HILTI KWIK BOLTS OR EQUAL
   REINFORCEMENT ASTM A615
   WELDED WIRE FABRIC ASTM185
   VAPOR BARRIER USE ARCH. STD. (10 MIL) POLY
   MORTAR TYPE 'N' PER ASTM C270
4. A SAFE SOIL BEARING CAPACITY IS PER SOILS REPORT INCLUDED IN THIS DESIGN CRITERIA. NOTIFY ARCHITECT/ENGINEER OF ANY VALUES BELOW THIS FIGURE. TESTING BEARING CAPACITY IS REQUIRED
5. PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH ACI315-LATEST ED. "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES"
6. CONCRETE PROTECTION FOR REINFORCEMENT:
   CONCRETE CAST AGAINST EARTH--------3"
   CONCRETE EXPOSED TO WEATHER OR EARTH:
   #5 BAR OR SMALLER----------1 1/2"
   #6 BAR OR LARGER----------2"
7. UNLESS NOTED, LAP HORIZONTAL BARS 30 DIAMETERS AND ALL VERTICAL BARS 24 DIAMETERS.
8. HORIZONTAL REINFORCEMENT IN SLAB TURNDOWNS AND FOOTINGS SHALL BE CONTINUOUS AROUND CORNERS
9. WELDING TO BE BY QUALIFIED WELDERS USING E70XX ELECTRODES AND IN ACCORDANCE W/ AWS D1.1
10. GENERAL CONTRACTOR SHALL PERFORM IN PLACE SOIL DENSITY TESTING AT FOOTINGS AND CONCRETE TESTING AND SHALL MAKE RESULTS OF THESE TESTS AVAILABLE ON JOB SITE
11. COORDINATE THESE DRAWINGS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SITE PLAN
12. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL ALSO APPLY FOR ALL LIKE OR SIMILAR CONDITIONS UNLESS NOTED OTHERWISE
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY BRACING OF ALL WORK DURING CONSTRUCTION
14. PRINCIPLE OPENINGS, DEPRESSIONS, CURBS, RAMPS, ETC. ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL COORDINATE SIZE AND LOCATIONS OF THESE ITEMS WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SMALLER OPENINGS, PIPE SLEEVES, REVEALS, RECESSES, GROOVES, ETC. MAY NOT APPEAR ON THESE DRAWINGS AND MUST BE COORDINATED WITH ALL DISCIPLINES. OPENINGS THROUGH BEAMS, GIRDERS AND/OR COLUMNS SHALL BE VERIFIED BY THE ARCHITECT.
15. ALL LEVELING GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. EXPOSED GROUT SHALL BE NON-STAINING
16. MINIMUM REQUIRED REBAR SPLICE LAP LENGTH IN CMU WALLS IS 48 BAR DIAMETERS

FOUNDATION NOTES:

1. ALL SOILS WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS OF THE GEOTECHNICAL ENGINEER OR TESTING AGENCY FOUNDATION DESIGN PRESSURES ARE 3000 PSF DL+LL.
2. ALL FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED, NATIVE SOILS AT OR EXCEEDING DEPTHS SHOWN ON THE DRAWINGS.
3. ALL FOOTING EXCAVATIONS SHALL BE AS NEAT AS PRACTICABLE.
4. OVER-EXCAVATIONS IN DEPTH SHALL BE FILLED WITH CONCRETE. ALL LOOSE SOILS SHALL BE REMOVED FROM EXCAVATIONS PRIOR TO PLACEMENT OF REINFORCING OR CONCRETE.
5. TYPICAL SLAB: 4" CONCRETE @ 10 MIL WATERPROOF MEMBRANE, AND 4" CRUSHED ROCK (#57) (NO FINES) ON RECOMPACTED OVER UNDISTURBED OR IMPORT PER OWNER'S AGENT - GEOTECHNICAL SERVICES.
6. PROVIDE CONTROL JOINTS PER PLAN. SUBMIT ALTERNATE JOINT LAYOUT PLAN FOR REVIEW IF CHANGED.
7. PROVIDE DOWEL JOINTS INSTEAD OF CONTROL JOINTS AS REQUIRED FOR DISCONTINUOUS FOUNDATION CONSTRUCTION.

COMMONWEALTH OF VIRGINIA
SAMUEL T. WILLIAMS
Lic. No. 68470
PROFESSIONAL ENGINEER
12-23-20

REVISIONS

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Date: 03/01/20
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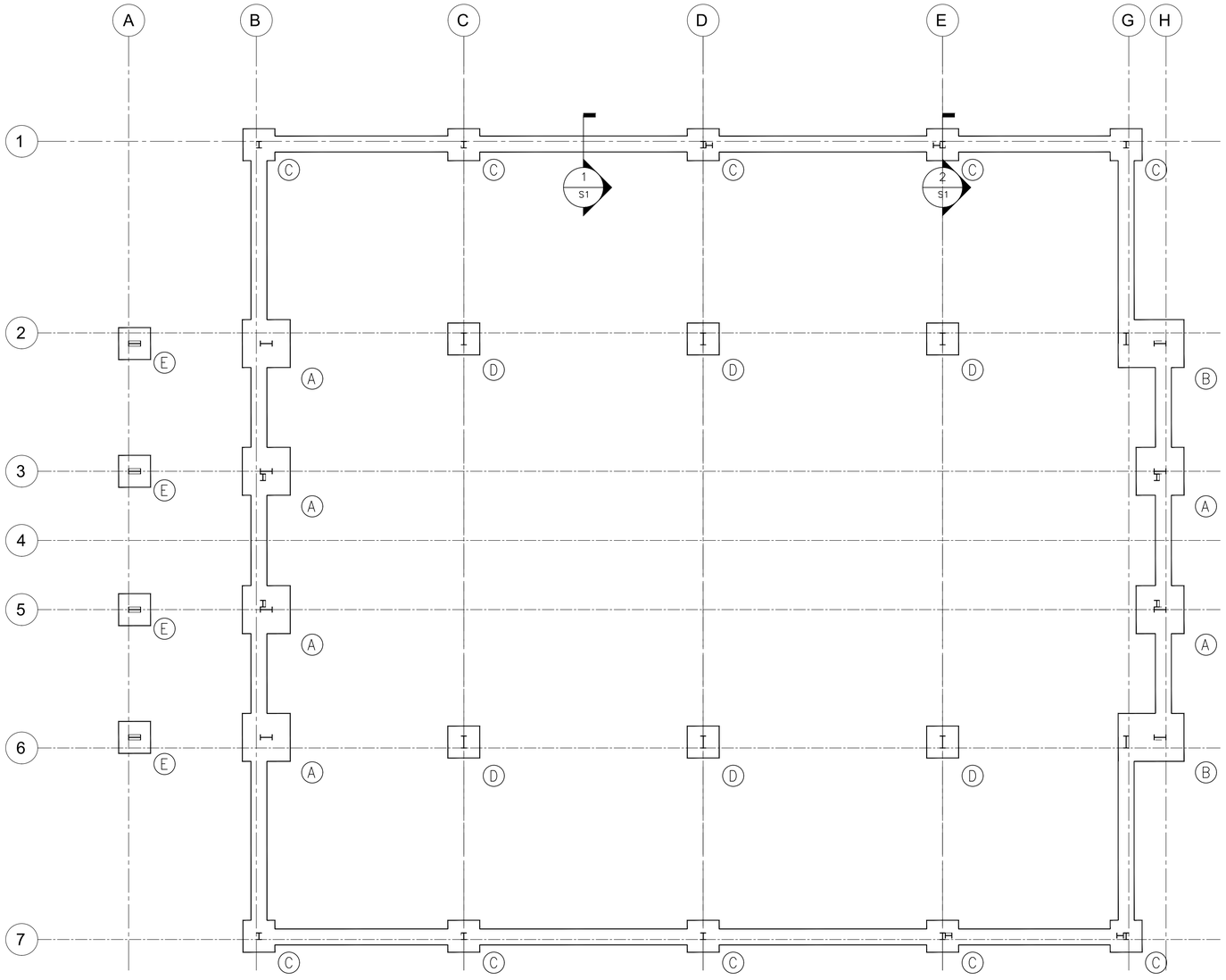
STRUCTURAL NOTES

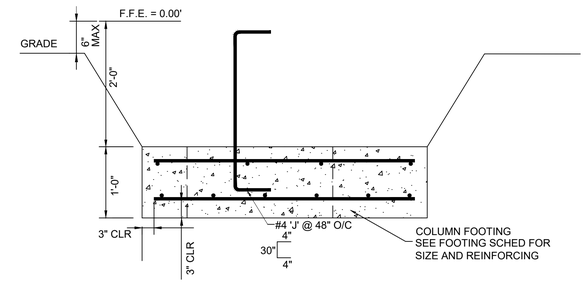
SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

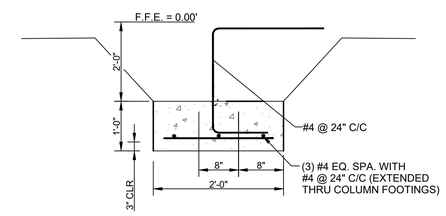
S0.1



S1 FOUNDATION PLAN
1/8" = 1'-0"



2/S1 SECTION
NTS



1/S1 SECTION
NTS

FOOTING SCHEDULE			
MARK	SIZE	REINFORCING, EACH WAY	REMARKS
A	6'-0"x 6'-0"x 1'-0"		
B	6'-0"x 8'-3"x 1'-0"		
C	4'-0"x 4'-0"x 1'-0"		
D	4'-0"x 4'-0"x 1'-0"		
E	4'-0"x 4'-0"x 1'-0"		

COMMONWEALTH OF VIRGINIA
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Lic. No. 38400
PROFESSIONAL ENGINEER
12-23-20

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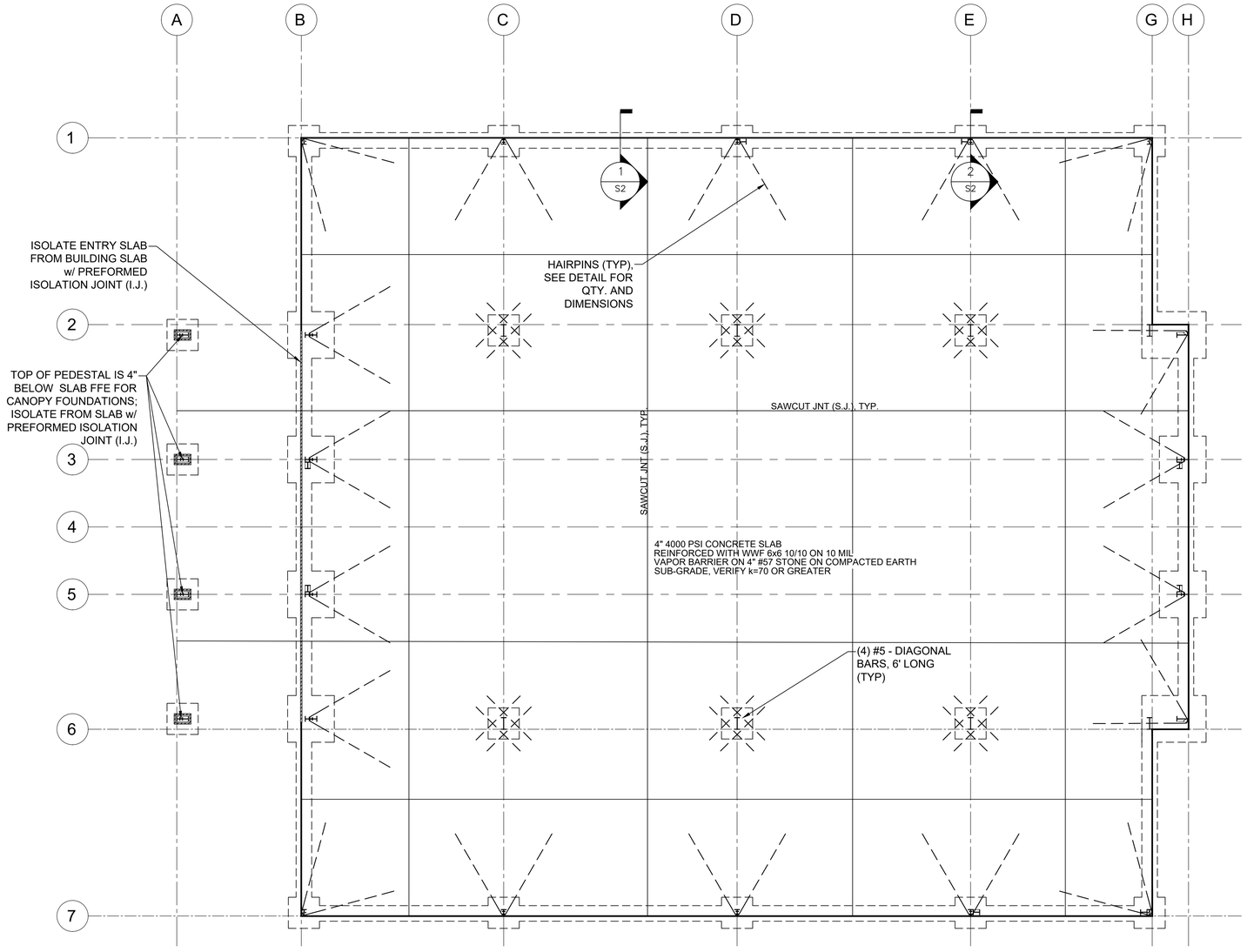
FOUNDATION PLAN

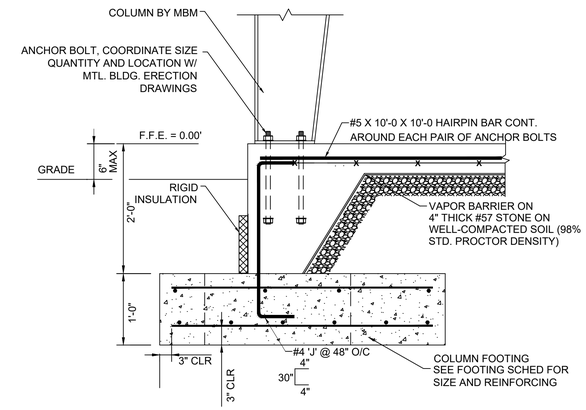
SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

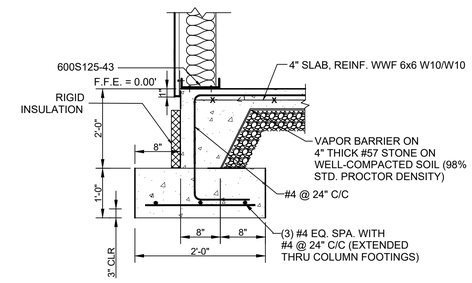
S1.0



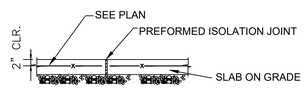
S1 SLAB PLAN
1/8" = 1'-0"



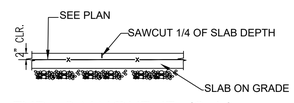
2 SECTION
S2 NTS



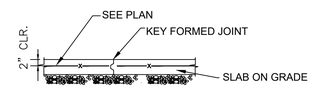
1 SECTION
S2 NTS



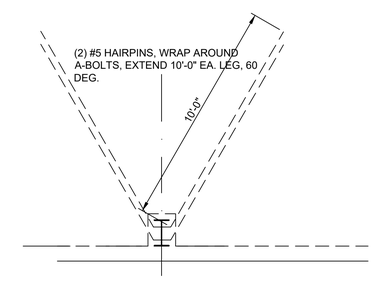
TYP. ISOLATION JT. (I.J.)
NOT TO SCALE



TYP. SAWCUT JT. (S.J.)
NOT TO SCALE



TYP. CONTROL JT. (C.J.)
NOT TO SCALE



TYP. HAIRPIN DETAIL
NOT TO SCALE

COMMONWEALTH OF VIRGINIA
SAMUEL T. WILLIAMS
Lic. No. 48400
PROFESSIONAL ENGINEER
12-23-20

REVISIONS

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SLAB PLAN

SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

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ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
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ATLANTA, GEORGIA 30338
TEL. 678.990.5656
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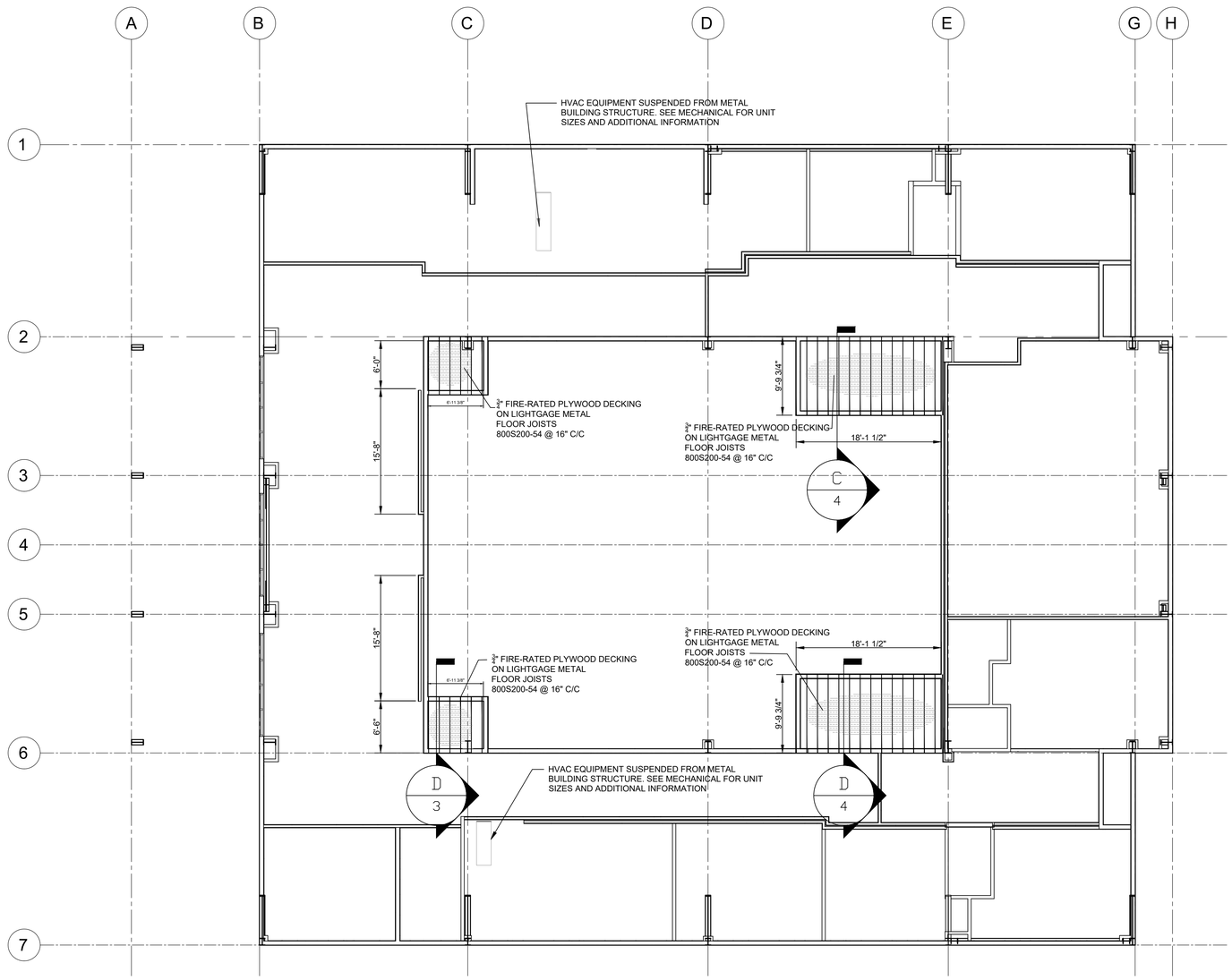
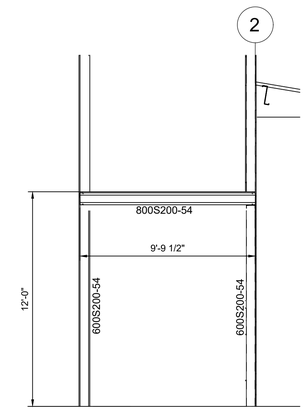
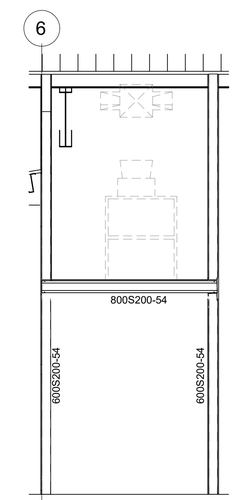
S2.0



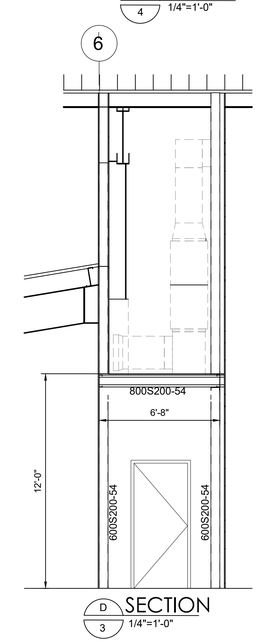
C4 FRAMING PLAN - MECHANICAL MEZZANINES
1/8" = 1'-0"



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



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



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

COMMONWEALTH OF VIRGINIA
SAMUEL T. WILLIAMS
Lic. No. 18400
PROFESSIONAL ENGINEER
12-23-20

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 03/01/20
Drawn By: Author
Checked By: TJR
CAD File:

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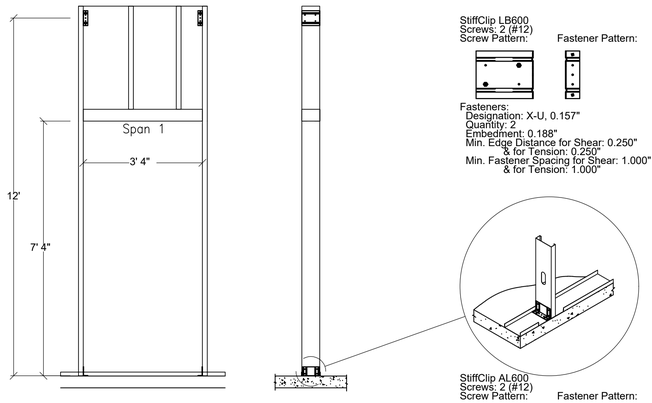
FRAMING PLAN-MEZZANINES

SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

S3.0



TYPICAL HEADER / JAMB

JAMB		
Section	600S200-54mil, 50 ksi	

HEADER			
Span1	Vertically	2x800S162-54mil, 50 ksi	
	Closure	2 x 600T125-33, 33 ksi	

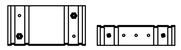
StiffClip LB600
Screws: 2 (#12)
Screw Pattern:

Fastener Pattern:

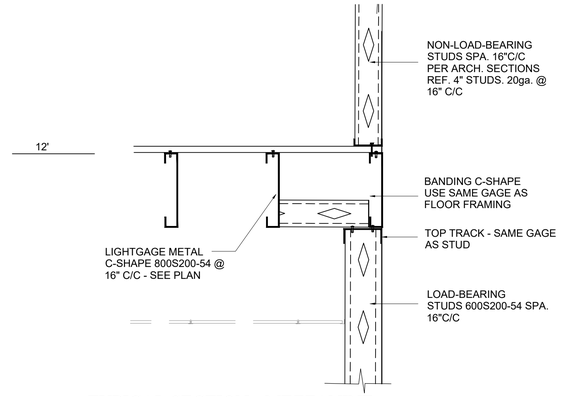
Fasteners:
Designation: X-U, 0.157"
Quantity: 2
Embedment: 0.188"
Min. Edge Distance for Shear: 0.250"
& for Tension: 0.250"
Min. Fastener Spacing for Shear: 1.000"
& for Tension: 1.000"

StiffClip AL600
Screws: 2 (#12)
Screw Pattern:

Fastener Pattern:

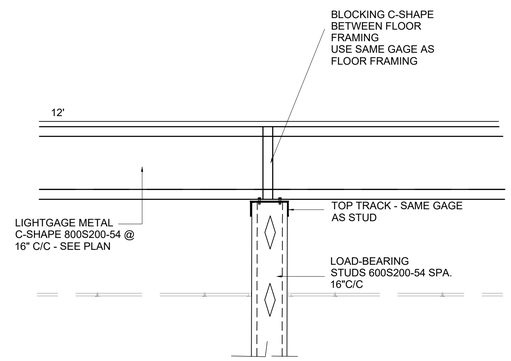


Fasteners:
Designation: X-U, 0.157"
Quantity: 2
Embedment: 0.750"
Min. Edge Distance for Shear: 2.750"
& for Tension: 2.750"
Min. Fastener Spacing for Shear: 2.750"
& for Tension: 2.750"



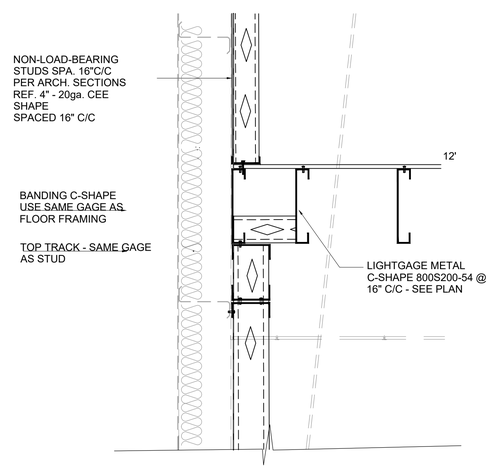
TYPICAL SECTION - MEZZANINE

NOT TO SCALE



TYPICAL SECTION

NOT TO SCALE



TYP. SECTION AT MBM STEEL LINE

NOT TO SCALE

COMMONWEALTH OF VIRGINIA
SAMUEL T. WILLIAMS
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MEZZANINE FRAMING SECTIONS

SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
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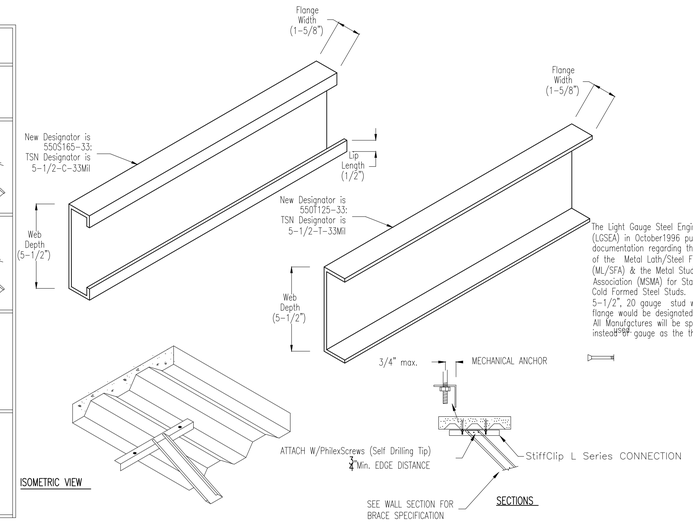
S3.1

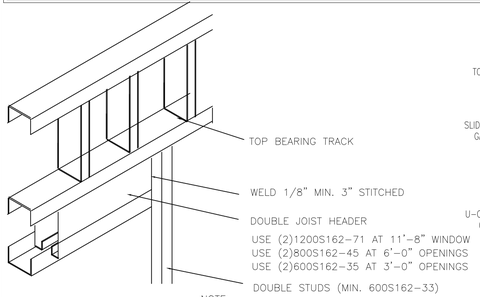
NORMINAL SCREW SIZE	= THREADS PER INCH	+ SCREW LENGTH	HEAD STYLE	DRILL POINT TIP	STEEL THICKNESS RANGE	APPLICATIONS
LIGHT GAUGE						LIGHT GAUGE STEEL FRAMING 25 ga. TO 20 ga.
7 – 20	x	7/16"	PAN	NEEDLE	.035–.090	FOR PAN HEADS USE #2 PHILLIPS BIT
8 – 18	x	1/2"	HWH	NEEDLE	.035–.100	FOR #8 HEX HEADS USE 1/4" HEX DRIVE
LIGHT TO MEDIUM GAUGE						MEDIUM GAUGE STEEL FRAMING 20 ga. TO 18 ga.
8 – 18	x	1/2"	PAN	TEKS / 2	.035–.090	FOR PAN HEADS USE #2 PHILLIPS BIT
8 – 18	x	1/2"	HWH	TEKS / 2	.035–.100	FOR #8 HEX HEADS USE 1/4" HEX DRIVE
10 – 16	x	3/4"	PAN	TEKS / 2	.035–.100	FOR #10 HEX HEADS USE 5/16" HEX DRIVE
10 – 16	x	3/4"	HWH	TEKS / 2	.035–.100	
10 – 16	x	1–1/2"	HWH	TEKS / 2	.035–.100	
LIGHT TO MEDIUM GAUGE						MEDIUM TO HEAVEY GAUGE STEEL FRAMING 20 ga. TO 16 ga.
8 – 18	x	1/2"	PAN	TEKS / 3	.035–.090	FOR PAN HEADS USE #2 PHILLIPS BIT
8 – 18	x	1/2"	HWH	TEKS / 3	.035–.100	FOR #8 HEX HEADS USE 1/4" HEX DRIVE
10 – 16	x	3/4"	PAN	TEKS / 3	.035–.100	FOR #10 HEX HEADS USE 5/16" HEX DRIVE
10 – 16	x	3/4"	HWH	TEKS / 3	.035–.100	
10 – 16	x	1–1/2"	HWH	TEKS / 3	.035–.100	
HEAVIER GAUGE						LIGHT GAUGE STEEL FRAMING ATTACHMENT OF ACCESSORIES 16 ga. TO 12 ga.
12 – 14	x	3/4"	HWH	TEKS / 3	.110–.210	
12 – 14	x	1"	HWH	TEKS / 3	.110–.210	FOR #12 HEX HEADS USE 5/16" HEX DRIVE
12 – 14	x	1–1/4"	HWH	TEKS / 3	.110–.210	
12 – 14	x	1–1/2"	HWH	TEKS / 3	.110–.210	FOR #14 HEX HEADS USE 3/8"" HEX DRIVE
14 – 14	x	3/4"	HWH	TEKS / 4	.110–.220	FOR ATTACHING LIGHT STEEL FRAMING TO "I" BEAMS
14 – 14	x	1"	HWH	TEKS / 4	.110–.220	
TRIM					THICKNESS OF TRIM	ATTACHING TRIM TO STEEL FRAMING
6	x	7/8"	PHIL FLAT	NEEDLE	.105	1/4" TO 5/8"
6	x	1"	PHIL FLAT	TEKS / 2	.105	1/4" TO 5/8" USE #1 PHILLIPS BIT
6	x	1–1/2"	PHIL FLAT	NEEDLE	.105	1/2" TO 1–1/4"
6	x	1–5/8"	PHIL FLAT	TEKS / 2	1.05	1/2" TO 1–1/4"
6	x	2–1/8"	PHIL FLAT	NEEDLE	.105	5/8" TO 1–7/8"
6	x	2–1/4"	PHIL FLAT	TEKS / 2	.105	5/8" TO 1–7/8"

NEEDLE TIPS ARE USED FOR 20 GA. AND LESS



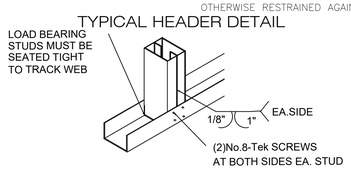
The Light Gauge Steel Engineers Association (LGSEA) in October1996 published documentation regarding the combined efforts of the Metal Lath/Steel Framing Association (ML/SFA) & the Metal Stud Manufacturers Association (MSMA) for Standardization of Cold Formed Steel Studs. They determined a 5-1/2", 20 gauge stud with a 1-5/8" flange would be designated a 550S165-33. All Manufactures will be specifying Mils instead of gauge as the thickness to be used.

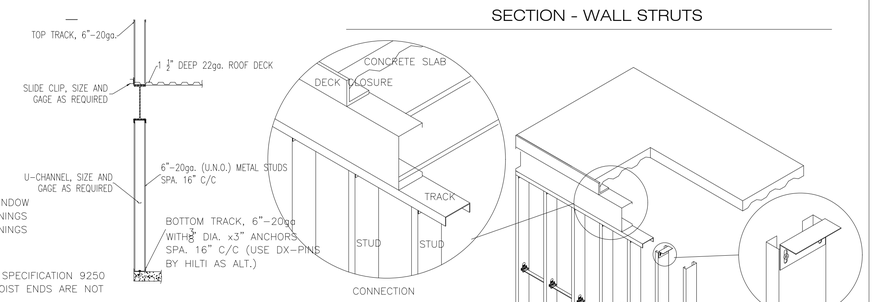
ISOMETRIC VIEW



NOTE:
ALL STEEL FRAMING SHALL COMPLY WITH CSI SPECIFICATION 9250
END BLOCKING SHALL BE PROVIDED WHERE JOIST ENDS ARE NOT OTHERWISE RESTRAINED AGAINST ROTATION.

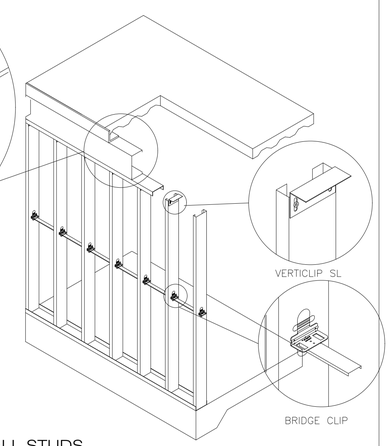
TYPICAL HEADER DETAIL





SECTION - EXTERIOR.WALL

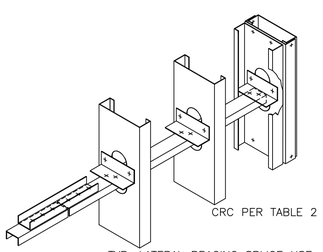
SECTION - WALL STRUTS



SECTION - WALL STUDS

WHERE BRACING TERMINATES AT BUILD-UP JAMB OR POST, EXTEND CHANNEL INTO PUNCH-OUT. ATTACH W/ CONNECTOR PER TABLE 3 USING (2) #10-16 SCREWS TO JAMB/POST AND (2) #10-16 SCREWS TO U-CHANNEL

CONNECTOR PER TABLE 1. ATTACH USING (4) #10-16 SCREWS. CLIP ANGLE TO BE PLACED AT EACH STUD.



TYP. LATERAL BRACING SPLICE USE (1) 12" LONG CRC INVERTED OVER CENTER OF SPLICE w/(3)#10-16 SCREWS ON EACH SIDE OF SPLICE.

THIS BRACING IS NOT SUITABLE FOR WALL STUDS DEEPER THAN 6"

EACH END OF LATERAL BRACING MUST BE RIGIDLY FIXED OR OTHERWISE PREVENTED FROM HORIZONTAL MOVEMENT.

SECTION - BRACE

TABLE 1

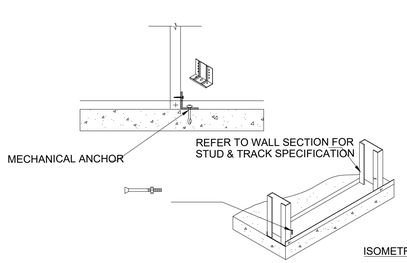
STUD WIDTH	CONNECTOR
3-5/8"	DIETRICH U543/X543
4"	DIETRICH U543/X543
6"	DIETRICH U545/X545

TABLE 2

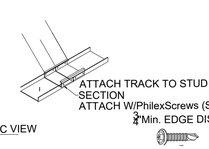
STUD WIDTH	CRC
3-1/2" - 6"	DIETRICH 150U50-54
2-1/2"	DIETRICH 075U50-54

TABLE 3

STUD WIDTH	CONNECTOR
3-5/8"	DIETRICH B543
4"	DIETRICH B543
6"	DIETRICH B545



SECTION - TRACK CONNECTION



SECTION - TRACK SPLICE

ABBREVIATED TERMS:
CMU = CONCRETE MASONRY UNIT
EA. = EACH
EIFS = EXTERIOR INTERROGATED FINISH SYSTEM
W/ =WITH BRIDGE CLIP
@ = AT
lg. = LONG
P.A.F. = POWDER ACTUATED FASTENERS
V.I.F. = VERIFY IN FIELD
dia. = DIAMETER
DIM. = DIMENSION
B.O. = BY OTHER
WF = WIDE FLANGE
F.H.S. = FULL HEIGHT STUD
REF: = REFERENCE
ARCH. = ARCHITECT
T.O.D. = TOP OF DECK
T.O.S. = TOP OF STEEL
T.O.F.F. = TOP OF FINISH FLOOR

PART 2–PRODUCTS

Deflection and Bridging Clips:
1. Steel: ASTM A 653/A 653M, SS Grade 50 (340), Class 1, 50 ksi (340 MPa) minimum yield strength, 65 ksi (450 MPa) minimum tensile strength, G–60 (Z180) hot–dipped galvanized coating.
2. Material Thickness of VertiClip SL, SLB and SLS Series: 0.068 inches (1.73 mm) minimum.
3. Material Thickness of VertiClip SLD Series: 0.036 inches (.91 mm) minimum.
4. Material Thickness of BridgeClip: 0.036 inches (.91 mm) minimum.
5. Design clips for positive attachment to structure and stud web using step–bushing technology to provide frictionless vertical movement.
6. Provide clips with attached bushing and screw of the series, size and configuration as shown on Drawings.

SPECIFICATION FOR LIGHT WEIGHT STEEL FRAMING

ASTM STANDARDS:
1) STANDARD SPECIFICATION FOR STEEL SHEET, ZINC–COATED (GALVANIZED) BY THE HOT–DIP PROCESS, STRUCTURAL (PHYSICAL) QUALITY.
2) STANDARD SPECIFICATION FOR THE APPLICATION AND FINISHING OF GYPSUM BOARD.
3) STANDARD SPECIFICATION FOR THE INSTALLATION OF INTERIOR LATHING, FURRING.
4) STANDARD SPECIFICATION FOR THE APPLICATION OF INTERIOR GYPSUM PLASTER.
5) STANDARD SPECIFICATION FOR THE APPLICATION OF PORTLAND CEMENT BASED PLASTER.
6) STANDARD SPECIFICATION FOR STEEL DRILL SCREWS FOR THE APPLICATION OF GYPSUM BOARD OR METAL PLASTER BASES TO STEEL STUDS FROM 0.033 IN. TO 0.112 IN. THICKNESS.
7) STANDARD SPECIFICATIONS FOR LOAD BEARING (TRANSVERSE AND AXIAL) STEEL STUDS, RUNNERS (TRACK) AND BRACING OR BRIDGING FOR SCREW APPLICATION OF GYPSUM BOARD AND METAL PLASTER BASES.
8) STANDARD SPECIFICATION FOR THE INSTALLATION OF LOAD BEARING (TRANSVERSE AND AXIAL) STEEL STUDS AND RELATED ACCESSORIES.

SPECIFICATIONS:
9) AMERICAN IRON AND STEEL INSTITUTE (AISI) COLD–FORMED STEEL DESIGN MANUAL", LATEST EDITION).
10) AMERICAN WELDING SOCIETY (AWS): STRUCTURAL WELDING CODE (D1.1 SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES (E1.3).
11) MILITARY SPECIFICATION (MIL.SPEC.) MIL–P–21035. PAINT, HIGH ZINC DUST CONTENT, GALVANIZING REPAIR.
12) FEDERAL SPECIFICATIONS (FED. SPEC.) FF–P–395...PIN, DRIVE, GUIDED AND PIN DRIVE, POWER ACTUATED (FASTENERS FOR POWER ACTUATED AND HAND ACTUATED FASTENING TOOLS) FF–S–325...SHIELD, EXPANSION; NAIL, EXPANSION; AND NAIL, DRIVE SCREW (DEVICES, ANCHORING MASONRY).

MATERIALS:
13) ALL STUDS AND ACCESSORIES SHALL BE OF THE TYPE, SIZE, STEEL THICKNESS AND SPACING SHOWN ON THE PLANS. STUDS, RUNNERS (TRACK), BRACING AND BRIDGING SHALL BE MANUFACTURED PER ASTM SPECIFICATION C–955.
14) ALL GALVANIZED STUDS AND ACCESSORIES, (.0566" thick) 16GA. OR HEAVIER, SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A–653 WITH A YIELD OF 50 KSI AND AS SET FORTH IN THE AISI "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION (1989 ADDENDUM).
15) ALL GALVANIZED STUDS AND ACCESSORIES, (.0451" thick) 18GA., 20 OR LESS, SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM – A–653 OR EQUAL,. WITH A YIELD OF 33 KSI AND AS SET FORTH IN AISI "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION (1989 ADDENDUM).
16) ALL GALVANIZED STUDS AND ACCESSORIES, 20GA., SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A–653, WITH A YIELD OF 33 KSI AND AS SET FORTH IN AISI "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION (1989 ADDENDUM).
17) ALL GALVANIZED STUDS AND ACCESSORIES SHALL HAVE A MINIMUM G–60 COATING.
18) PHYSICAL PROPERTIES AND ALLOWABLE LOAD CAPABILITIES OF MEMBERS SHALL BE DEVELOPED IN ACCORDANCE WITH AISI "SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS:, LATEST EDITION (1989 ADDENDUM).
19) IN ACCORDANCE WITH AISI RIGID COLLATERAL FACING MATERIAL ATTACHED TO NON BEARING WALLS MAY BE CONSIDERED AS ADEQUATE SUPPORT OF MEMBERS AGAINST ROTATION.
20) PERFORATIONS WILL BE ALLOWED IN WEB OF STUDS ONLY, AT A MINIMUM EDGE DISTANCE OF 2"–0", A MINIMUM OF 4"–0"O/C AND IN STRICT ACCORDANCE WITH THE AISI "COLD FORMED STEEL DESIGN MANUAL" (1989 ADDENDUM).

EXECUTION:
21) PRODUCTS SHALL BE PROTECTED FROM CONDITIONS THAT MAY CAUSE ANY PHYSICAL DAMAGE.
22) MATERIALS SHALL BE STORED ON A FLAT PLANE.
23) IT SHALL BE THE RESPONSIBILITY OF THE PROJECT ARCHITECT OR ENGINEER OR THEIR APPOINTED PERSONNEL TO DETERMINE WHAT IS DAMAGE (E.G. RUSTED, DENTED, BENT OR TWISTED). ANY DAMAGED MATERIALS SHALL BE REMOVED FROM THE JOB SITE IMMEDIATELY.

INSTALLATION: GENERAL
24) METHODS OF CONSTRUCTION MAY BE EITHER PIECE (STICK–BUILT), OR BY FABRICATION INTO PANEL EITHER ON OR OFF SITE.
25) CONNECTIONS SHALL BE ACCOMPLISHED WITH SELF–DRILLING SCREWS OR WELDING SO THAT THE
26) TRANSVERSELY LOADED STUDS NEED NOT SIT SQUARELY IN TRACKS BUT MUST BE ATTACHED TO THEM WITH THE EXCEPTION OF SPECIAL SLIP CONDITIONS WHICH MUST BE DESIGNED ACCORDINGLY.
27) AXIALLY LOADED STUDS SHALL BE INSTALLED SEATED SQUARELY (WITHIN 1/16") AGAINST THE WEB PORTION OF THE TOP AND BOTTOM TRACKS. TRACKS SHALL REST ON A CONTINUOUS, UNIFORM BEARING SURFACE.
28) CUTTING OF STEEL FRAMING MEMBERS MAY BE ACCOMPLISHED WITH A SAW OR SHEAR. TORCH CUTTING OF LOAD BEARING MEMBERS IS NOT PERMITTED. CUTTING OF LOADED MEMBERS IS NOT PERMITTED UNLESS UNDER SUPERVISION OF THE PROJECT ENGINEER.
29) UTILIZE TEMPORARY BRACING AS REQUIRED AND KEEP IN PLACE UNTIL WORK IS PERMANENTLY STABILIZED.
30) BRIDGING SHALL BE OF SIZE AND TYPE SHOWN ON THE ATTACHED SKETCHES.
31) DIAPHRAGM RATED SHEATHING MATERIALS MAY BE SUBSTITUTED FOR BRIDGING AT NON BEARING WALLS ONLY, HOWEVER, IT SHALL BE INSTALLED PRIOR TO LOADING THE WALL.
32) INSTALL HEADERS IN ALL OPENINGS IN AXIALLY LOADED WALLS THAT ARE LARGER THAN THE STUD SPACING IN THAT WALL. FORM HEADERS AS SHOWN ON THE DRAWINGS.
33) INSULATION EQUAL TO THE JOB REQUIREMENTS SHALL BE INSTALLED INTO ALL JAMBS, HEADERS, AND POST TYPE CONDITIONS THAT WILL BE INACCESSIBLE AFTER THEIR INSTALLATION INTO THE WALL.
34) PROVIDE JACK STUDS TO SUPPORT EACH END OF HEADERS. THESE STUDS SHALL BE CONNECTED TO THE HEADER AND MUST SEAT SQUARELY IN THE LOWER TRACK OF THE WALL, AND BE PROPERLY ATTACHED TO IT.
35) IF BY DESIGN, A HEADER IS LOW IN THE WALL, THE LESS THAN FULL–HEIGHT STUDS (CRIPPLES) THAT OCCUR OVER THE HEADER SHALL BE DESIGNED TO CARRY ALL IMPOSED LOADS.
36) WALL TRACK SHALL NOT BE USED TO SUPPORT ANY LOAD UNLESS SPECIFICALLY DESIGNED FOR THAT PURPOSE.
37) ALL AXIALLY LOADED MEMBERS SHALL BE ALIGNED VERTICALLY ALONG THE WEB AND FLANGES, TO ALLOW FOR FULL TRANSFER OF THE LOADS DOWN TO THE FOUNDATION. VERTICAL ALIGNMENT SHALL BE MAINTAINED AT FLOOR/WALL INTERSECTIONS OR ALTERNATE PROVISIONS FOR THE LOAD TRANSFER MAY BE MADE.
38) HOLES THAT ARE FIELD CUT INTO STEEL FRAMING MEMBERS SHALL BE WITHIN LIMITATIONS OF THE PRODUCT AND ITS DESIGN. PROVIDE REINFORCEMENT WHERE HOLES ARE CUT THROUGH LOAD BEARING MEMBERS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY PROJECT ARCHITECT OR ENGINEER.
39) TOUCH UP ALL STEEL BARED BY WELDING USING ZINC RICH PAINT.
40) STUDS SHALL BE SPACED TO SUIT THE DESIGN REQUIREMENTS AND LIMITATIONS OF COLLATERAL FACING MATERIAL.
41) GYPSUM BOARD SHALL BE ATTACHED TO STEEL STUDS IN ACCORDANCE WITH ASTM SPECIFICATIONS C–840, EXCEPT THAT THE STEEL DRILL SCREWS USED (SPECIFICATION ASTM C–954) SHALL BE SPACED NOT MORE THAN 8" ON CENTER AT THE EDGES AND ENDS, AND NOT MORE THAN 12" ON CENTER, IN THE FIELD OF THE BOARD.
42) METAL PLASTER BASES SHALL BE ATTACHED IN ACCORDANCE WITH ASTM SPECIFICATION C–841, EXCEPT SCREW HEADS SHALL BE OF SIZES AND TYPES SUITABLE FOR POSITIVE (NO MOVEMENT) ATTACHMENT.
43) CARE SHOULD BE TAKEN TO ALLOW FOR ADDITIONAL STUDS AT INTERSECTIONS, CORNERS, DOORS, WINDOWS, CONTROL JOINTS, ETC., AND AS CALLED FOR IN THE DRAWING.
44) PROVISIONS FOR STRUCTURE MOVEMENT (EXPANSION) SHALL BE ALLOWED WHERE INDICATED AND NECESSARY BY DESIGN OR CODE REQUIREMENTS.
45) SPLICING OF AXIALLY LOADED MEMBERS SHALL NOT BE PERMITTED.
46) WIRE TYING OF MEMBERS IS NOT PERMITTED.

INSTALLATION: PANELIZED CONSTRUCTION:
47) PANELS SHALL BE DESIGNED TO RESIST CONSTRUCTION AND HANDLING LOADS AS WELL AS LOADS REQUIRED BY CODE.
48) HANDLING AND LIFTING OF PREFABRICATED PANELS SHALL NOT CAUSE PERMANENT DISTORTION IN ANY MEMBER OF COLLATERAL MATERIAL AND IS THE RESPONSIBILITY OF THE PANEL CONTRACTOR.
49) MAKE ALL STUD TO TRACK CONNECTIONS PRIOR TO HOISTING OF PANEL.
50) WHERE SPLICING OF TRACK IS NECESSARY BETWEEN STUD SPACING, A PIECE OF STUD SHALL BE PLACED IN THE TRACK FASTENED WITH TWO SCREWS OR WELDS PER FLANGE TO EACH PIECE OF TRACK.
51) COMPLETE BEARING SHALL BE MAINTAINED UNDER TRACKS TO PROVIDE FOR LOAD TRANSFER IN AXIALLY LOADED ASSEMBLIES. IF THE ERECTING CONTRACTOR.
52) ATTACHMENT OF THE PANEL TO THE STRUCTURE SHALL BE AS SHOWN ON THE DRAWINGS.
53) ALIGN ALL PANEL TO PROVIDE CONTINUITY OF ANY WALL/FLOOR SURFACE.

INSTALLATION: NON–PANELIZED (STICK–BUILT) CONSTRUCTION

55) ALIGN TRACK ACCURATELY AT SUPPORTING STRUCTURE AND FASTEN TO STRUCTURE AS SHOWN ON THE DRAWINGS.
56) TRACK INTERSECTIONS SHALL BUTT EVENLY.
57) STUDS SHALL BE PLUMBED, ALIGNED, AND SECURELY ATTACHED TO FLANGES OR WEBS OF UPPER AND LOWER TRACKS, AXIALLY LOADED STUDS SHALL BE SEATED SQUARELY IN BOTH TOP AND BOTTOM TRACKS.
58) WHERE SPLICING OF TRACK IS NECESSARY BETWEEN STUD SPACING, A PIECE OF STUD SHALL BE PLACED IN THE TRACK FASTENED WITH TWO SCREWS OR WELDS PER FLANGE TO EACH PIECE OF TRACK.
59) COMPLETE BEARINGS SHALL BE MAINTAINED UNDER TRACKS TO PROVIDE FOR LOAD TRANSFER IN AXIALLY LOADED ASSEMBLIES. IF THE ERECTING CONTRACTOR IS BEARING ON WORK SET BY ANOTHER TRADE, IT IS HIS RESPONSIBILITY TO INSURE THAT BEARING CRITERIA ARE MET. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT OR ENGINEER PRIOR TO THE COMMENCEMENT OF THE WORK.

FASTENINGS AND ATTACHMENTS:
60) ANCHORAGE OF THE TRACKS TO THE STRUCTURE SHALL BE WITH METHODS DESIGNED FOR THAT SPECIFIC APPLICATION. SIZE, PENETRATION, TYPE, AND SPACING SHALL BE DETERMINED BY DESIGN.
61) WELDS SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1, AWS D1.3, AND AISI MANUAL SECTION 4.2 WELDS MAY BE BUTT, FILLET, SPOT, OR GROOVE TYPE, THE APPROPRIATENESS OF WHICH SHALL BE DETERMINED BY, AND WITHIN THE DESIGN CALCULATIONS. ALL WELDS SHALL BE TOUCHED UP USING ZINC RICH PAINT.
62) STEEL DRILL SCREWS SHALL BE OF THE MINIMUM DIAMETER INDICATED BY THE DESIGN OF THAT PARTICULAR ATTACHMENT DETAIL. PENETRATION THROUGH JOINED MATERIALS SHALL NOT BE LESS THAN 3 EXPOSED THREADS.
63) SCREWS SHALL HAVE A PROTECTIVE COATING AT LEAST EQUIVALENT TO CADMIUM PLATING (ASTM A–165 TYPE NS) FOR USE IN EXTERIOR ASSEMBLIES.

TOLERANCES:

64) VERTICAL ALIGNMENT (PLUMB) OF STUDS SHALL BE WITHIN 1/960TH (1/8" IN 10'–0") OF THE SPAN.
65) HORIZONTAL ALIGNMENT (LEVEL) OF WALL SHALL BE WITHIN 1/960TH (1/8" IN 10'–0") OF THEIR RESPECTIVE LENGTHS.
66) SPACING OF STUDS SHALL NOT BE MORE THAN + OR – 1/8" FROM THE DESIGNED SPACING PROVIDING THAT THE CUMULATIVE ERROR DOES NOT EXCEED THE REQUIREMENTS OF THE FINISHING MATERIALS.
67) PREFABRICATED PANELS SHALL NOT BE MORE THAN 1/8" OUT OF SQUARE WITHIN THE LENGTH OF THAT PANEL.

68) ALL MEMBERS SHALL BE CHECKED FOR BEARING, COMPLETENESS OF ATTACHMENTS, REINFORCEMENT, ETC.
69) ALL ATTACHMENTS SHALL BE CHECKED FOR CONFORMANCE WITH THE STRUCTURAL DRAWINGS. ALL WELDS SHALL BE TOUCHED UP AS SPECIFIED ABOVE.
70) GENERAL INSPECTION OF STRUCTURE SHALL BE COMPLETED PRIOR TO APPLYING LOADS TO THOSE MEMBERS.
71) INSPECTIONS WHERE AND AS REQUIRED BY LOCAL CODES SHALL BE CONTROLLED INSPECTIONS.

COMMONWEALTH OF VIRGINIA
SAMUEL T. WILLIAMS
Lic. No. 48400
PROFESSIONAL ENGINEER
12-23-20

REVISIONS

No.	Description	Date

Job Number: 2002-00
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LIGHTGAGE METAL DETAILS

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(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

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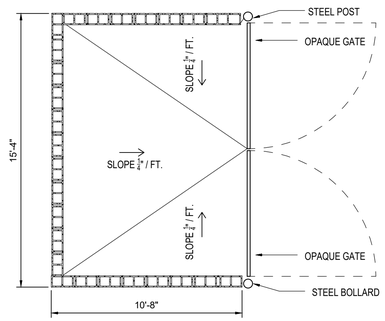
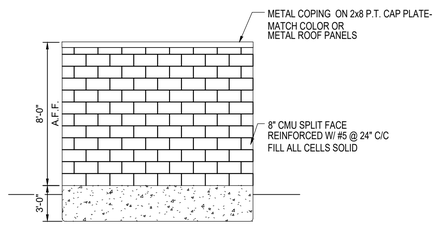


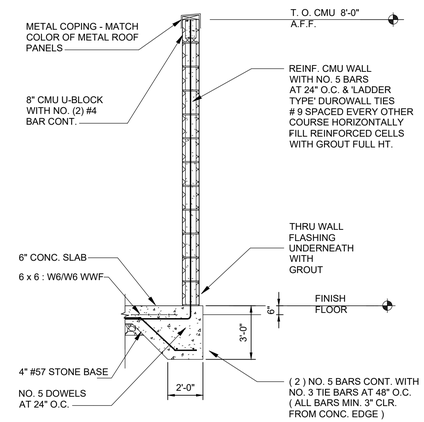
FOUNDATION PLAN

1/4" = 1'-0"



WALL ELEVATION

1/4" = 1'-0"



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DUMPSTER FOUNDATION AND FRAMING

SOUTH RIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
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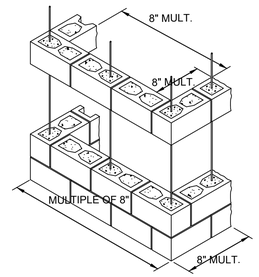
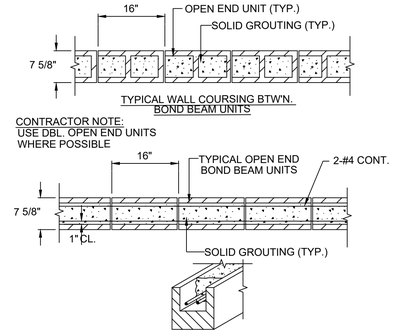


TYP. 8" WALL

TYP COMMON BOND

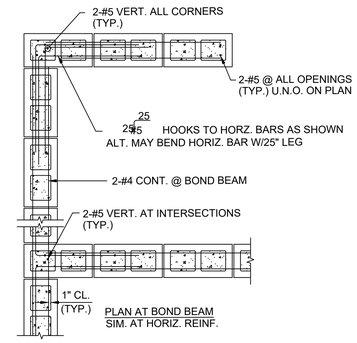


TYPICAL WALL COURSING BTW'N. BOND BEAM UNITS

CONTRACTOR NOTE:
USE DBL. OPEN END UNITS
WHERE POSSIBLE

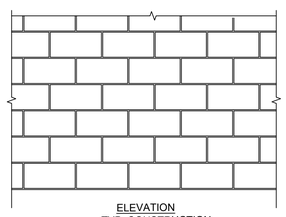
TYPICAL BOND BEAM COURSE

TYPICAL CMU BLOCK COURSES

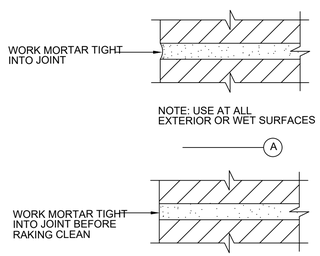


PLAN AT BOND BEAM
SIM. AT HORIZ. REINF.

TYP REINFORCING AT CORNER



ELEVATION
TYP. CONSTRUCTION
U.N.O. OR S.A.D.



NOTE: USE AT ALL EXTERIOR OR WET SURFACES

NOTE: USE ONLY AT WALLS THAT ARE PROVIDE WITH PLASTER FINISH OR EQUIV. SEALER

1. CONCRETE BLOCK SHALL BE GRADE N-1 UNITS CONFORMING TO ASTM C-90, WITH MINIMUM PRISM STRENGTH, f'm, OF 1500 psi.
2. MORTAR SHALL BE TYPE S CONFORMING TO ASTM C-270, WITH MINIMUM COMPRESSIVE STRENGTH OF 1800 psi AT 28 DAYS. MIX IS 1 PART PORTLAND CEMENT, 1/2 PART LIME PUTTY, AND 4-1/2 PARTS SAND (BY VOLUME). IF PLASTIC TYPE CEMENT IS USED, OMIT THE LIME PUTTY.
3. GROUT SHALL CONFORM TO ASTM C-476, WITH MINIMUM COMPRESSIVE STRENGTH OF 2500 psi AT 28 DAYS. MIX IS 1 PART CEMENT, 3 PARTS SAND, 2 PARTS PEA GRAVEL, TO BE FLUID CONSISTENCY. GROUT ALL CELLS.
4. THE THICKNESS OF GROUT BETWEEN BLOCK UNITS AND REINFORCING STEEL SHALL NOT BE LESS THAN 1/2" AND BETWEEN PARALLEL PARALLEL REINFORCING BARS NOT LESS THAN 3/4"
5. IF WORK IS STOPPED ONE HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINTS BY STOPPING GROUT 1 1/2" BELOW THE TOP OF THE BLOCK.
6. SPECIAL INSPECTION PER SECTION 1701 OF THE UNIFORM BUILDING CODE BY AN INSPECTOR APPROVED BY THE ENGINEER AND THE APPLICABLE BUILDING DEPARTMENT IS REQUIRED, UNLESS OTHERWISE NOTED.

CONCRETE U-BLOCK LINTEL SCHEDULE

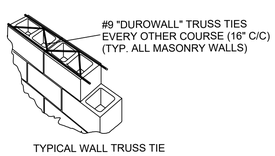
OPENING WIDTH	UP TO 6'-0"	UP TO 6'-8"	UP TO 7'-4"	UP TO 8'-0"	UP TO 12'-0"
8"/12"	2#3	2#4	2#4	2#5	2#6

NOTE:
BLOCK TO HAVE MIN. 8" BEARING EACH END

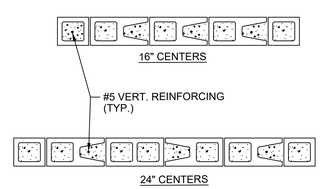
LOOSE STEEL LINTEL SCHEDULE

OPENING	UP TO 6'-0"	UP TO 6'-8"	UP TO 8'-4"	UP TO 8'-8"	UP TO 10'-8"
ANGLE	L3 1/2 X 3 1/2 X 1/4	L4 X 3 1/2 X 1/4	L5 X 3 1/2 X 1/4	L6 X 3 1/2 X 1/4	L6 X 4 X 7/16

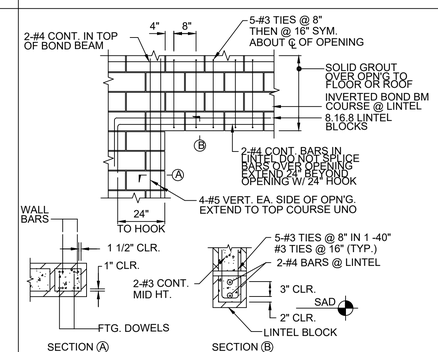
NOTE: ANGLES SHALL HAVE A MIN. OF 8" BEARING EACH END. WHERE ANGLE SHOWN IN SCHEDULE HAS UNEQUAL LEGS PROVIDE S.L.O. IN ALL CASES ANGLES SHOWN IN SCHEDULE ARE FOR EACH 4" OF MASONRY.



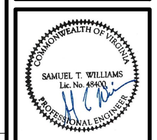
TYPICAL WALL TRUSS TIE
USE ON ALL CMU
EVERY OTHER BLOCK COURSE



VERTICAL REIN. PLACEMENT



HEADER / JAMB REINFORCING



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SOUTH RIDGE
(LOT #1 INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

S6.0

I. GENERAL PROVISIONS

A. OVERVIEW

1. ALL WORK DONE UNDER THIS CONTRACT SHALL COMPLY WITH ALL STATE AND LOCAL CODES HAVING JURISDICTION AND WITH THE REQUIREMENTS OF THE UTILITY COMPANIES WHOSE SERVICES MAY BE USED. ALL MODIFICATIONS REQUIRED BY THESE CODES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGES. WHERE CODE REQUIREMENTS ARE LESS THAN THOSE SHOWN ON THE PLANS OR IN THE SPECIFICATIONS, THE PLANS AND SPECIFICATIONS SHALL BE FOLLOWED. WHERE APPLICABLE, NFPA REQUIREMENTS SHALL BE MET.
2. IN CASE OF ANY CONFLICTS BETWEEN CONTRACT DOCUMENTS, THE STRICTER/MORE STRINGENT SHALL GOVERN.
3. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION AND DELIVER CERTIFICATES OF APPROVAL TO THE ENGINEER. ALL FEES AND COSTS OF ANY NATURE WHATSOEVER INCIDENTAL TO THESE PERMITS, INSPECTIONS AND APPROVALS MUST BE ASSUMED AND PAID BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF O.S.H.A.
5. THE WORKMANSHIP AND MATERIALS COVERED BY THESE SPECIFICATIONS SHALL CONFORM TO ALL ORDINANCES AND REGULATIONS OF THE CITY, COUNTY AND/OR OTHER AUTHORITIES HAVING JURISDICTION.
6. CONTRACTOR SHALL VISIT THE SITE AND EXAMINE EXISTING CONDITIONS BEFORE SUBMITTING BID. NO ALLOWANCE WILL BE MADE FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS WHEN SUCH CONDITIONS CAN BE DETERMINED BY OBSERVATION.
7. PRIOR TO SUBMITTING DATA FOR OR PURCHASING EQUIPMENT REQUIRING ELECTRICAL SERVICE, THE CONTRACTOR SHALL VERIFY THAT ELECTRICAL CHARACTERISTICS OF EQUIPMENT SUBMITTALS COMPLY WITH ELECTRICAL SERVICE PROVIDED FOR THE SPECIFIED ITEMS OF EQUIPMENT.
8. UPON RECEIPT OF THE CONTRACTOR OF REVIEWED SUBMITTALS FOR EQUIPMENT PROVIDED UNDER THIS DIVISION, THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL SERVICE REQUIREMENTS, I.E., MOTOR HORSEPOWER AND FULL LOAD AMPS, ELECTRICAL SERVICE CHARACTERISTICS (VOLTAGE AND PHASE), AND NUMBER OF SERVICES FOR EACH ITEM OF EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS WITH THE ELECTRICAL DRAWINGS AND SPECIFICATIONS.
9. ITEMS ON OR PROJECTING THROUGH THE CEILING SHALL BE COORDINATED WITH OTHER TRADES.
10. EQUIPMENT MODEL NUMBERS ARE PROVIDED FOR GENERAL GUIDANCE, CONTRACTOR SHALL PROVIDE EQUIPMENT THAT MEETS THE PHYSICAL CAPACITIES AS SCHEDULED AND GENERAL ARRANGEMENT AS INDICATED IN THE DRAWING SET. CONTRACTOR SHALL VERIFY EXACT, CURRENT MODEL NUMBERS WITH THE MANUFACTURERS.

B. OPERATION AND MAINTENANCE INSTRUCTIONS

1. THE CONTRACTOR SHALL PROVIDE TWO OPERATION AND MAINTENANCE MANUALS. THE MANUALS SHALL BE COMPILED IN HARD BACK, THREE RING NOTEBOOKS. O&M MANUALS SHALL HAVE PERMANENT LABELS ON FRONT AND SIDE. THE FOLLOWING INFORMATION SHALL APPEAR IN EACH MANUAL:
2. PROVIDE MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, ROUTINE AND NORMAL OPERATING INSTRUCTIONS; REGULATION, CONTROL, STOPPING, SHUTDOWN AND EMERGENCY INSTRUCTIONS; AND SUMMER AND WINTER OPERATING INSTRUCTIONS. PROVIDE MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR AND REASSEMBLY; ALIGNING AND ADJUSTING INSTRUCTIONS. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.

C. INSTRUCTIONS OF OWNER PERSONNEL

1. BEFORE FINAL INSPECTION, AT A TIME DESIGNATED BY THE DESIGNER, PROVIDE A COMPETENT REPRESENTATIVE TO INSTRUCT OWNER'S DESIGNATED PERSONNEL IN OPERATION, ADJUSTMENT AND MAINTENANCE OF PRODUCTS, EQUIPMENT AND SYSTEMS UNDER THIS DIVISION OF THE SPECIFICATIONS. FOR EQUIPMENT REQUIRING SEASONAL OPERATIONS, PERFORM INSTRUCTIONS FOR OTHER SEASONS WITHIN SIX MONTHS UNLESS REQUESTED OTHERWISE.

D. COORDINATION

1. THE PRODUCTS OF PARTICULAR MANUFACTURERS HAVE BEEN USED AS THE BASIS OF DESIGN IN PREPARATION OF THESE DOCUMENTS. ANY MODIFICATIONS TO THE MECHANICAL SYSTEMS AND THEIR COMPONENTS, THE ELECTRICAL SYSTEMS, THE BUILDING STRUCTURE AND ARCHITECTURE, OR ANY OTHER PORTION OF THE BUILDING THAT RESULT FROM THE USE OF ANY OTHER THAN THAT BASIS OF DESIGN EQUIPMENT SHALL BE COORDINATED WITH ALL OTHER TRADES. SUCH COORDINATION SHALL OCCUR BEFORE PURCHASE OR DELIVERY OF PRODUCTS FROM THE MANUFACTURER DRAWINGS OR INSTALLED ACCORDINGLY. ANY RELATED MODIFICATIONS SHALL BE PERFORMED WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.
2. RESIDENTIAL GRADE HVAC COMPONENTS SHALL NOT BE PERMITTED WITHOUT SPECIFIC OWNER INSTRUCTION AND ENGINEER APPROVAL.

E. EXECUTION

1. THE PLANS DO NOT GIVE EXACT ELEVATIONS OR LOCATIONS OF LINES, NOR DO THEY SHOW ALL THE OFFSETS, CONTROL LINES, OR OTHER INSTALLATION DETAILS. THE CONTRACTOR SHALL CAREFULLY LAY OUT HIS WORK AT THE SITE TO CONFORM TO THE STRUCTURAL CONDITIONS, TO PROVIDE PROPER GRADING OF LINES, TO AVOID ALL OBSTRUCTIONS, TO CONFORM TO DETAILS OF INSTALLATION SUPPLIED BY THE MANUFACTURERS OF THE EQUIPMENT TO BE INSTALLED, AND TO THEREBY PROVIDE AN INTEGRATED, COORDINATED AND SATISFACTORY OPERATING INSTALLATION. DO NOT SCALE DRAWINGS.
2. IF THE CONTRACTOR PROPOSES TO INSTALL EQUIPMENT, INCLUDING PIPING AND DUCTWORK, REQUIRING SPACE CONDITIONS OTHER THAN THOSE SHOWN, OR TO REARRANGE THE EQUIPMENT, HE SHALL ASSUME FULL RESPONSIBILITY FOR THE REARRANGEMENT OF THE SPACE AND CONNECT ARRANGEMENT AT NO ADDITIONAL COST TO THE OWNER, AND SHALL HAVE THE ENGINEER REVIEW THE CHANGE BEFORE PROCEEDING WITH THE WORK. THE REQUEST FOR SUCH CHANGES SHALL BE ACCOMPLISHED BY SHOP DRAWINGS OF THE SPACE IN QUESTION.
3. TEMPORARY FILTERS SHALL BE PROVIDED FOR FANS THAT ARE USED DURING CONSTRUCTION. AT THE TIME OF STARTING THE BALANCING OF THE AIR DISTRIBUTION SYSTEM, NEW FILTERS SHALL BE INSTALLED.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER LOCATION AND SIZE OF ALL SLOT, HOLES OR OPENINGS IN THE BUILDING STRUCTURE PERTAINING TO HIS WORK, AND FOR THE CORRECT LOCATION OF SLEEVES, INSERTS, CORES, ETC.
5. THE CONTRACTOR SHALL SO COORDINATE THE WORK OF THE SEVERAL VARIOUS TRADES THAT IT MAY BE INSTALLED IN THE MOST DIRECT AND WORKMANLIKE MANNER WITHOUT HINDERING OR HANDICAPPING THE OTHER TRADES. PIPING INTERFERENCES SHALL BE HANDLED BY GIVING PRECEDENCE TO PIPE LINES WHICH REQUIRE A STATED GRADE FOR PROPER OPERATION. FOR EXAMPLE SEWER LINES AND CONDENSATE PIPING SHALL TAKE PRECEDENCE OVER WATER LINES IN DETERMINATION OF ELEVATIONS. WHERE THERE IS INTERFERENCE BETWEEN SEWER LINES AND CONDENSATE LINES, THE SEWER LINES SHALL HAVE PRECEDENCE AND PROVISIONS SHALL BE MADE IN THE CONDENSATE LINES FOR LOOPING THEM AROUND THE SEWER LINES. IN ALL CASES, LINES REQUIRING A STATED GRADE FOR THEIR PROPER OPERATION SHALL HAVE PRECEDENCE OVER ELECTRICAL CONDUIT AND DUCTWORK.
6. ALL PIPING AND DUCTWORK IN FINISHED AREAS- EXCEPT WHERE NOTED TO THE CONTRARY- SHALL BE INSTALLED IN A CHASE, FURRED SPACE, OR ABOVE CEILINGS, ETC. IN ALL CASES, PIPES AND DUCTS SHALL BE INSTALLED AS HIGH AS POSSIBLE. RUNS OF PIPING SHALL BE GROUPED WHENEVER IT IS FEASIBLE TO DO SO.
7. PIPING SHALL BE INSTALLED TO PASS INSPECTIONS BY LOCAL PLUMBING INSPECTION DEPARTMENT, STATE AND FEDERAL AUTHORITIES AND INSURANCE COMPANY HAVING JURISDICTION. ANY CHANGES OR ADDITIONS WHICH MAY BE NECESSARY TO OBTAIN SUCH INSPECTIONS AND APPROVAL SHALL BE MADE BY THE CONTRACTOR AS PART OF THIS CONTRACT AND WITHOUT ADDITIONAL COST TO THE OWNER.
8. PIPING, DUCTWORK OR EQUIPMENT SHALL NOT BE INSTALLED IN ELECTRICAL EQUIPMENT ROOMS OR ELEVATOR MACHINE ROOMS EXCEPT AS SERVING ONLY THOSE ROOMS. OUTSIDE OF ELECTRICAL EQUIPMENT ROOMS, DO NOT RUN PIPING OR DUCTWORK OR LOCATE EQUIPMENT, WITH RESPECT TO SWITCHBOARDS, PANEL BOARDS, POWER PANELS, MOTOR CONTROL CENTERS, DRY TYPE TRANSFORMERS OR ROOF TOP AIR CONDITIONING UNIT ELECTRICAL PANELS.
9. PROVIDE ACCESS TO EQUIPMENT AND APPARATUS REQUIRING OPERATION, SERVICE OR MAINTENANCE WITHIN THE LIFE OF THE SYSTEM. INCLUDING, BUT NOT LIMITED TO, MOTORS, VALVES, FILTERS, DAMPERS, SHOCK ABSORBERS, ETC. EQUIPMENT LOCATED ABOVE LAY-IN TYPE CEILINGS IS CONSIDERED ACCESSIBLE.
10. DAMAGED EQUIPMENT SHALL BE REPAIRED OR REPLACED AT THE OPTION OF THE ARCHITECT.

F. ELECTRICAL WORK

1. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS DIVISION SHALL COMPLY WITH THE ELECTRICAL SYSTEM CHARACTERISTICS INDICATED ON THE ELECTRICAL DRAWINGS AND SPECIFIED IN DIVISION 16.
2. EQUIPMENT UNIT MOTOR SPEED CONTROLS, STARTERS, SYSTEM CONTROLS, PILOT LIGHTS, PUSH-BUTTONS, ETC., SHALL BE FURNISHED COMPLETE AS A PART OF THE MOTOR APPARATUS WHICH IT OPERATES. ALL COMPONENTS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND DIVISION 16. ALL MOTOR STARTERS SHALL BE PROVIDED WITH AN H-O-A SWITCH AND CONTROL TRANSFORMER. ALL STARTERS AND DISCONNECT SWITCHES SHALL BE FURNISHED UNDER DIVISION 15. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR PRIOR TO HIS WIRING OF EQUIPMENT.
3. CONTROL WIRING (120V AND LESS) SHALL BE PROVIDED UNDER DIVISION 15 AND EXTENDED FROM THE STARTERS, CONTROL TRANSFORMERS OR 120V POWER CIRCUITS INDICATED ON THE ELECTRICAL DRAWINGS. ALL WIRING FOR 120 VOLTS SHALL BE DONE BY A LICENSED ELECTRICIAN.
4. ALL ELECTRICAL CHARACTERISTICS SHALL BE TAKEN FROM THE ELECTRICAL DRAWINGS AND SPECIFICATIONS AND COORDINATED BEFORE EQUIPMENT IS ORDERED OR PURCHASED.

G. CUTTING AND PATCHING

1. THE CONTRACTOR SHALL ASSUME ALL COST OF, AND BE RESPONSIBLE FOR, ARRANGING FOR ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE INSTALLATION OF HIS PORTION OF THE WORK. ALL CUTTING SHALL BE CAREFULLY AND NEATLY DONE SO AS NOT TO DAMAGE OR CUT AWAY MORE THAN IS NECESSARY OF ANY EXISTING PORTIONS OF THE STRUCTURE.
2. ALL SURFACES SHALL BE PATCHED TO THE CONDITION OF THE ADJACENT SURFACES.
3. THE CONTRACTOR SHALL MAKE SUITABLE PROVISIONS FOR ADEQUATELY WATERPROOFING AT HIS FLOOR PENETRATIONS OF WATER PROOF MEMBRANE FLOORS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO FLOOR DRAINS, OPEN SIGHT DRAINS, HUB DRAINS, CLEANOUTS, AND SLEEVES FOR THE VARIOUS PIPING. THIS ALSO APPLIES TO MEMBRANE ROOFING SYSTEMS.
4. ALL PENETRATIONS AND WATER PROOFING OF PENETRATIONS IN MEMBRANE ROOFING SYSTEMS SHALL BE COORDINATED WITH AND PERFORMED BY THE MANUFACTURER/INSTALLER.
5. THE CONTRACTOR SHALL INSTALL, AS REQUIRED, IN CONCRETE, CARPENTRY OR MASONRY CONSTRUCTION, ALL NECESSARY HANGERS, SLEEVES, EXPANSION BOLTS, INSERTS AND OTHER FIXTURES AND APPURTENANCES NECESSARY FOR THE SUPPORT OF PIPE, DUCT, EQUIPMENT AND DEVICES FURNISHED UNDER EACH SECTION OF THE SPECIFICATION.
6. FOR WALLS BETWEEN INTERIOR AND BELOW GRADE AREA, THE LINK-SEAL SYSTEM AS MANUFACTURED BY THUNDERLINE CORPORATION SHALL BE USED TO SEAL PIPE TO WALL PENETRATIONS. INSTALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. ESCUTCHEONS SHALL BE INSTALLED ON ALL PIPES WHERE THEY PASS THROUGH FLOORS, CEILINGS, WALLS OR PARTITIONS IN FINISHED AREAS WHERE EXPOSED TO VIEW.
8. WHERE AND HVAC OR PLUMBING REPLACEMENT SCOPE IS INDICATED, MECHANICAL CONTRACTOR SHALL PROVIDE FOR THE DEMOLITION OF EXISTING SYSTEMS THAT ARE BEING REPLACED OR ABANDONED

H. ACCESS DOORS

1. FURNISH AND INSTALL ACCESS DOORS AT EACH POINT REQUIRED TO PROVIDE ACCESS TO CONCEALED VALVES, CLEANOUTS AND OTHER DEVICES REQUIRING OPERATION, ADJUSTMENT OR MAINTENANCE. ACCESS DOORS SHALL BE 16 GAUGE STEEL, PRIME COAT FINISH, WITH MOUNTING STRAPS, CONCEALED HINGES AND SCREWDRIVER LOCKS, DESIGNED FOR THE DOORS TO OPEN 180 DEGREES.
2. ACCESS DOORS INSTALLED IN FIRE WALLS OR PARTITIONS SHALL BE UL LABELED TO MAINTAIN THE FIRE RATING OF THE WALL OR PARTITION.

I. FLAME SPREAD AND SMOKE DEVELOPED PROPERTIES OF MATERIALS

1. MATERIALS AND ADHESIVES USED THROUGHOUT THE MECHANICAL AND ELECTRICAL SYSTEMS FOR INSULATION, AND JACKETS OR COVERINGS OF ANY KIND, OR FOR PIPING OR CONDUIT SYSTEM COMPONENTS, SHALL HAVE A FLAME SPREAD RATING NOT OVER 25 WITHOUT EVIDENCE OF CONTINUED COMBUSTION AND WITH A SMOKE DEVELOPED RATING NOT HIGHER THAN 50. IF SUCH MATERIALS ARE TO BE APPLIED WITH ADHESIVES, THEY SHALL BE TESTED AS APPLIED WITH SUCH ADHESIVES, OR THE ADHESIVES USED SHALL HAVE A FLAME SPREAD RATING NOT OVER 25 AND A SMOKE DEVELOPED RATING NOT HIGHER THAN 50.

II. INSULATION

A. GENERAL PIPE INSULATION

1. FIBERGLASS SHALL BE ACCEPTABLE FOR INDOOR HOT & COLD DOMESTIC; HYDRONIC PIPING; AND INSULATED DRAINAGE PIPING. PROVIDE PREFABRICATED FITTINGS FOR ELBOWS AND TEE'S. PROVIDE PREFAB PVC FITTINGS OR WHITE ALL SERVICE (INTEGRAL TO PREFAB PIPING ELBOW) PIPING ELBOW JACKETING. PROVIDE PIPE LABELING FOR ALL INSULATED, JACKETED INDOOR PIPING. PVC JACKETING SHALL NOT BE PERMITTED IN RETURN PLENUM AREAS. ALL JACKEING SEAMS SHALL BE SEALED AIR-TIGHT FOR CONTINUOUS VAPOR BARRIER.
2. FITTINGS AND VALVES SHALL BE INSULATED WITH PRE-FORMED FITTINGS, FABRICATED SECTIONS OF PIPE INSULATION, TANK INSULATION, BLANKET INSULATION, OR INSULATING CEMENT. THICKNESS SHALL BE EQUAL TO ADJACENT PIPE INSULATION. FINISH SHALL BE WITH PRE-FORMED PVC FITTING COVERS OR AS OTHERWISE SPECIFIED ON CONTRACT DRAWINGS.
3. FLANGES, COUPLINGS AND VALVE BONNETS SHALL BE COVERED WITH AN OVERSIZED PIPE INSULATION SECTION SIZED TO PROVIDE THE SAME INSULATION THICKNESS AS ON THE MAIN PIPE SECTION. AN OVERSIZED INSULATION SECTION SHALL BE USED TO FORM A COLLAR BETWEEN THE TWO INSULATION SECTIONS WITH LOW-DENSITY BLANKET INSULATION BEING USED TO FILL GAPS. JACKETING SHALL MATCH THAT USED ON STRAIGHT PIPE SECTIONS. ROUGH CUT ENDS SHALL BE COATED WITH SUITABLE WEATHER OR VAPOR RESISTANT MASTIC AS DICTATED BY THE SYSTEM LOCATION AND SERVICE. ON HOT SYSTEMS WHERE FITTINGS ARE TO BE LEFT EXPOSED, INSULATION ENDS SHOULD BE BEVELED AWAY FROM BOLTS FOR EASY ACCESS.

B. INSULATION THICKNESS

1. DOMESTIC COLD WATER INSULATION SHALL BE 1" MINIMUM OR AS REQUIRED BY LOCAL ENERGY CODES.
2. FOR MEDIA BELOW 60 DEGREES INSULATION SHALL BE 1" UP TO 1-¼" PIPE SIZE; 1.5" THICK UP TO 3" PIPE SIZE; AND 2" THICK BEYOND 3" PIPE SIZE.
3. CHILLED WATER PIPING INSULATION SHALL BE 1" UP TO 1-1/4" PIPE SIZE, 1.5" UP TO 3".

C. FIBERGLASS PIPE INSULATION

1. ONE PIECE FIBROUS GLASS PIPE INSULATION WITH FACTORY APPLIED ALUMINUM FOIL AND WHITE KRAFT PAPER FLAME RETARDANT VAPOR BARRIER JACKET.
2. PROVIDE SELF_SEALING LONGITUDINAL JACKET LAPS AND BUTT STRIPS. AVERAGE THERMAL CONDUCTIVITY: 0.23 BTU/IN. PER SQUARE FOOT PER DEGREES F PER HOUR AT 75 DEGREES F MEAN TEMPERATURE.
3. PROVIDE INSULATION CEMENT, FIBERGLASS REINFORCEMENT FABRIC, VAPOR BARRIER COATING, FOR CONTINUOUS, AIR-TIGHT INSULATION WITH VAPOR BARRIER.

D. FOAMGLASS PIPE INSULATION

1. FOAM GLASS TYPE PIPE INSULATION SHALL HAVE MAXIMUM K_FACTOR OF 0.38 AT 50 DEGREES F MEAN TEMPERATURE. MINIMUM DENSITY SHALL BE 8 LB/CU. FT., 1 1/2" THICK MINIMUM. PROVIDE MASTIC, FIBERGLASS REINFORCED STRAPPING TAPE TO ASSURE AIR-TIGHT MOISTURE-PROOF INSULATION. PROVIDE WITH ALUMINUM JACKETING THAT SHALL BE 0.016" THICK WITH FITTING COVERS 0.024" THICK. PROVIDE WITH 5 WATT/FT HEAT TRACING BELOW INSULATION FOR OUTDOOR, ABOVE-GROUND INSTALLATION.
2. PROVIDE FOAM GLASS INSERTS AT PIPE HANGERS, CLAMPS, OR OTHER SUPPORTS IN FIBERGLASS OR ELASTOMERIC PIPE INSULATION INSTALLATIONS INSERTS SHALL BE SAME THICKNESS AS ADJOINING PIPE INSULATION. VAPOR SEAL SHALL BE AS HEREINBEFORE SPECIFIED. ALUMINUM JACKETING SHALL NOT BE REQUIRED FOR INDOOR INSERTS (PVC OR WHITE ALL-SERVICE FOIL/KRAFTJACKETING MEDIA SHALL BE USED).

E. ELASTOMERIC (CLOSED CELL FOAM) PIPE INSULATION

1. ELASTOMERIC SHALL BE PROVIDED FOR ALL REFRIGERANT PIPING AND OUTDOOR INSULATED PIPING AND MAY BE USED FOR INDOOR DOMESTIC OR CONDENSATE PIPING. PIPING WILL REQUIRE JACKETING- ALUMINUM FOR OUTDOOR PIPING OR FOIL/WHITE KRAFT MEDIA OR PVC FOR INDOOR PIPING. PROVIDE WITH FULL ADHESIVE ADHERING SEAMS AND JOINTS FOR CONTINUOUS VAPOR BARRIER. ELBOWS SHALL BE FORMED BY CUTTING SEGMENTS AT 30 DEGREE ANGLES (3 SEGMENTS AT EACH 90 DEGREE BEND) WITH MASTIC AT ALL SEAMS. PROVIDE PREFORMED JACKETING ELBOWS AT ALL PIPING ELBOWS.

F. FIBERGLASS BLANKET INSULATION FOR DUCTWORK (INDOOR DUCT ONLY)

1. INSULATION SHALL BE BLANKET TYPE FIBERGLASS INSULATION WITH AVERAGE THERMAL CONDUCTIVITY NOT EXCEEDING 0.29 BTU_IN. PER SQUARE FEET PER DEGREES F PER HOUR AT MEAN TEMPERATURE OF 75 DEGREES F. WITH A MINIMUM DENSITY OF 1 LB/CU. FT., 2" THICK MINIMUM AND FOIL INSULATION FACE. PROVIDE FIRE RETARDANT ADHESIVE OR FOIL REINFORCED KRAFT TAPE, 3" WIDE AT ALL SEAMS. SECURE INSULATION TO DUCT WITH 18 GAUGE TIE-WIRE OR 1/2" X 0.015" GALVANIZED STEEL STRAPS. PROVIDE COMPLETE AIR-TIGHT VAPOR BARRIER FOR ALL DUCTWORK. STAPLES SHALL NOT BE PERMITTED FOR ANY INSULATION ATTACHMENT. PROVIDE GRAY SEALER FOR SEALING JOINTS, PENETRATION AND PUNCTURES.
2. CONTINUE INSULATION THROUGH WALL AND CEILING OPENINGS AND SLEEVES, EXCEPT TERMINATE DUCT INSULATION AT FIRE DAMPERS AND AT FLEXIBLE DUCT CONNECTIONS AT AIR HANDLING UNITS.
3. PROTECT INSULATION FROM PHYSICAL DAMAGE AT POINTS OF SUPPORT WHERE INSULATION MUST CARRY LOAD IMPOSED BY SUPPORT. COORDINATE THIS REQUIREMENT WITH TYPES OF HANGER AND SUPPORT USED. HANGERS THAT PENETRATE INSULATION SHALL BE SEALED WITH MASTIC TO PRESERVE CONTINUOUS VAPOR BARRIER.

G. ELASTOMERIC (CLOSED CELL FOAM) DUCT LINER

1. INSTALL INSIDE OF DUCT WITH FULL ADHESIVE COVERAGE ATTACHMENT TO THE SURFACE TO WHICH IT IS APPLIED; 1" FOR INDOOR AND 1-1/2" FOR OUTDOOR. R VALUES SHALL BE R-4.2 FOR 1" AND R-6.2 FOR 1-1/2". FIBERGLASS DUCT LINER SHALL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. PROVIDE WITH ANTIMICROBIAL PROTECTION. PROVIDE MASTIC AT ALL INTERIOR SEEMS FOR CONTINUOUS VAPOR BARRIER. PROVIDE DUCT LINER AT FIRST FIVE FEET OF SUPPLY DUCT FOR REFRIGERATION/COOLING AIR HANDLING EQUIPMENT, UPSIZING INDICATED DUCT SIZE TO ACCOUNT FOR INSULATION THICKNESS. FIBERGLASS DUCT LINER OR DUCT BOARD SHALL NOT BE PERMITTED.

III. VIBRATION ISOLATION

A. ALL MOTORIZED AIR MOVING AND FLUID MOVING EQUIPMENT PIECE SHALL BE PROVIDED WITH VIBRATION ISOLATION MOUNTING OR SUPPORTS.

B. PAD-TYPE ISOLATORS SHALL BE NEOPRENE IN-SHEAR ISOLATION PADS WITH CROSSED DOUBLE RIBS. A STEEL SHIM PLATE SHALL BE PROVIDED BETWEEN THE TWO LAYERS. PADS SHALL BE MOLDED USING OIL RESISTANT 25,000 PSI TENSILE STRENGTH NEOPRENE.

C. HANGING ISOLATORS FOR ITEMS 300 LBS OR LESS SHALL BE BRIDGE-BEARING NEOPRENE MOUNTINGS AND SHALL HAVE A MINIMUM STATIC DEFLECTION OF 0.2" AND ALL DIRECTIONAL SEISMIC CAPABILITY. THE ELEMENTS SHALL PREVENT THE CENTRAL THREADED SLEEVE AND ATTACHMENT BOLT FROM CONTACTING THE CASTING DURING NORMAL OPERATION. THE SHOCK ABSORBING NEOPRENE MATERIALS SHALL BE COMPOUNDED TO BRIDGE-BEARING SPECIFICATIONS. MASON HD, KINETICS

D. HANGING ISOLATORS FOR EQUIPMENT ABOVE 300 LBS SHALL BE STEEL SPRING-TYPE INCORPORATING STEEL HOUSING, NEOPRENE OR LDS RUBBER SPRING CUP SIZED FOR 1" DEFLECTION. INSTALL SPRING IN PLUMB CONFIGURATION WITH MAXIMUM 1" DEFLECTION FROM ANY HORIZONTAL DISTORTION. THE ELEMENTS SHALL PREVENT THE CENTRAL THREADED SLEEVE AND ATTACHMENT BOLT FROM CONTACTING THE CASTING DURING NORMAL OPERATION. CONTRACTOR SHALL SELECT SPRING COLOR/RATING BASED ON EQUIPMENT WEIGHT. AMBER BOOTH SH, KINETICS SH, MASON 30 OR EQUIVALENT.

IV. DUCTWORK AND FITTINGS

A. MATERIAL AND TYPE

1. DUCT CONSTRUCTION SHALL CONFORM TO THE RECOMMENDATIONS OF THE SMACNA HVAC DUCT CONSTRUCTION MANUAL. DUCTBOARD SHALL NOT BE PERMITTED.
2. RIGID, SQUARE DUCTWORK SHALL BE CONSTRUCTED OF LOCK FORMING QUALITY GALVANIZED STEEL SHEETS PER ASTM A527. GALVANIZED COATING SHALL BE NOT LESS THAN 1.25 OUNCES (TOTAL FOR BOTH SIDES) PER SQUARE FOOT OF SHEET. DUCTWORK SHALL BE CLASSIFIED AND CONSTRUCTED SMACNA PRESSURE CLASSES: +2 FOR SUPPLY AND -2 FOR RETURN AND EXHAUST. DUCTWORK GAUGE SHALL BE 26 GAUGE UP TO 30" AND 22 GAUGE ABOVE 30" IN CROSS SECTIONAL HEIGHT, WIDTH, OR DIAMETER.
3. CONCEALED ROUND DUCTS UP TO 12" IN DIAMETER IN PRESSURE CLASSES 2" AND LOWER SHALL BE LONGITUDINAL SEAM CONSTRUCTION.
4. EXPOSED ROUND DUCTWORK OR ROUND ABOVE 12" SHALL BE SPIRAL LOCK_SEAM CONSTRUCTION. ROUND FITTINGS SHALL BE FUSION WELDED BUT SEAM TYPE WITH ALL WELDS CONTINUOUS ALONG SEAMS. ALL DIVIDED FLOW FITTINGS SHALL BE MANUFACTURED AS SEPARATE FITTINGS _ TAP COLLARS WELDED INTO SPIRAL DUCT SECTIONS WILL NOT BE PERMITTED. ALL DIVIDED FLOW FITTINGS 12" IN DIAMETER AND SMALLER SHALL HAVE RADIUSED ENTRANCE PRODUCED BY MACHINE OR PRESS FORMING; ALL DIVIDED FLOW FITTINGS 14" AND LARGER SHALL HAVE CONICAL ENTRANCE PRODUCED BY MACHINE OR PRESS FORMING. ALL DIVIDED FLOW ENTRANCES SHALL BE FREE OF WELD BUILD_UP, BURRS AND IRREGULARITIES. FITTINGS SHALL BE OF THE SAME MANUFACTURER AS THE DUCTWORK.
5. DUCT SEALANT SHALL BE POLYMERIC RUBBER BASE MASTIC, MINERAL IMPREGNATED WOVEN FIBER TAPE WITH ADHESIVE, OR HEAT_SHRINK WITH ADHESIVE. TAPE THICKNESS UP TO 10" = 2"; UP TO 20" = 3"; OVER 20" = 4"
6. INSULATED FLEXIBLE DUCT SHALL BE CLASS 1 AIR DUCT IN ACCORDANCE WITH UL 181 AND SHALL COMPLY WITH NFPA 90A AND 90B. INSULATED FLEXIBLE DUCT SHALL CONSIST OF AN INNER FILM LAYER FOR MINIMUM WORKING PRESSURE OF 6" WATER GAUGE BONDED TO A STEEL OR ALUMINUM SPRING WIRE HELIX, FIBERGLASS INSULATION, AND A VAPOR BARRIER JACKET. INSULATION SHALL HAVE A MAXIMUM U_VALVE OF .23 BTU/HR/SQFT/DEG F AT 75 DEGREES F MEAN TEMPERATURE. VAPOR BARRIER JACKET SHALL HAVE A MAXIMUM VAPOR TRANSMISSION RATE OF 0.1 GRAINS/SQ. FT./HR/INCH HG (PERM). THE ASSEMBLY SHALL HAVE A MAXIMUM FLAME AND SMOKE RATING OF 25/50 PER ASTM E84 AND NFPA 255. FLEXIBLE DUCTS SHALL BE INSTALLED IN AN EXTENDED CONDITION FREE OF SAGS AND KINKS, USING ONLY THE MINIMUM LENGTH REQUIRED TO MAKE THE CONNECTION. ABRUPT BENDS AND TURNS THAT CRIMP THE DUCT AND RESTRICT AIR FLOW SHALL NOT BE PERMITTED. HORIZONTAL SUPPORTS SHALL BE 3/4" WIDE, 22 GAUGE FLAT GALVANIZED STEEL SHEET BANDING MATERIAL. FLEXIBLE DUCTS SHALL BE SUPPORTED ON 36" CENTERS. MAXIMUM LENGTH OF FLEXIBLE DUCT IN PRESSURE CLASS 2" AND BELOW SHALL BE 12 FEET. FLEXIBLE DUCT SHALL NOT BE USED ABOVE INACCESSIBLE CEILINGS.
7. GREASE DUCT SERVING TYPE I HOODS SHALL BE 16 GAUGE BLACK IRON OR 18 GAUGE STAINLESS STEEL WELDED WITH AIR TIGHT SEAM. PROVIDE DUCT CLEANOUTS AT ALL CHANGES OF DIRECTION. FOR INSTALLATIONS THAT WILL RESULT IN A DUCT OR SECTION OF DUCT WITHIN 18" OF COMBUSTIBLE MATERIAL, PROVIDE FIRE-RATED INSULATION AS REQUIRED FOR A ZERO INCH CLEARANCE TO COMBUSTIBLE INSTALLED PER MANUFACTURER'S AND/OR RATING AGENCY REQUIREMENTS COMPLETE WITH ALL REQUIRED PENETRATION TREATMENTS, NUMBER IF INSULATING LAYERS AND APPROVED PREFABRICATED, RATED ACCESS PANELS. DO NOT PROVIDE VENTED ROOF CURBS FOR FIRE WRAPPED GREASE EXHAUST DUCTS.
8. DISHWASHER EXHAUST DUCT SHALL BE STAINLESS STEEL.

B. DAMPERS

1. DAMPERS SHALL BE SINGLE BLADE BUTTERFLY TYPE IN DUCTS UP TO AND INCLUDING 18" X 12" SIZE; FOR DUCTS LARGER THAN 18" X 12", IN EITHER OR BOTH DIMENSIONS, THE DAMPERS SHALL BE THE MULTI_BLADE TYPE. SINGLE BLADE BUTTERFLY DAMPER SHALL BE CONSTRUCTED OF NOT LESS THAN 16_GAUGE GALVANIZED STEEL BLADE MOUNTED IN A GALVANIZED STEEL FRAME. FOR RECTANGULAR DAMPERS, THE TOP AND BOTTOM EDGES OF THE BLADE SHALL BE CRIMPED TO STIFFEN THE BLADE. DAMPER SHALL BE PROVIDED WITH AN EXTENDED ROD TO PERMIT INSTALLATION OF A DAMPER REGULATOR.
2. MULTI_BLADE DAMPERS SHALL BE THE OPPOSED BLADE TYPE, CONSTRUCTED OF NOT THAN 16_GAUGE GALVANIZED STEEL BLADES MOUNTED IN GALVANIZED STEEL CHANNEL FRAME. BLADE SPACING SHALL NOT EXCEED 6 INCHES AND THE TOP AND BOTTOM EDGES OF THE BLADES SHALL BE CRIMPED TO STIFFEN THE BLADES. DAMPER BLADES SHALL BE INTERCONNECTED BY RODS AND LINKAGES TO PROVIDE SIMULTANEOUS OPERATION OF ALL BLADES. DAMPERS SHALL BE PROVIDED WITH EXTENDED RODS TO PERMIT INSTALLATION OF DAMPER OPERATORS.
3. DUCT MOUNTED DIAL REGULATORS WITH OPERATING HANDLE SHALL BE PROVIDED OR DAMPERS WHICH ARE LOCATED ABOVE HARD CEILINGS OR INACCESSIBLE LOCATIONS. CONCEALED CEILING MOUNTED DIAL REGULATORS SHALL BE PROVIDED ON VOLUME CONTROL DAMPERS WHICH ARE LOCATED ABOVE HARD CEILINGS. CONCEALED REGULATORS SHALL BE PROVIDED WITHIN DIFFUSER FACE WITH SCREW ADJUSTMENT.
4. PROVIDE DAMPERS AT ALL SUPPLY AND RETURN DUCT RUN OUTS TO EACH AIR DISTRIBUTION DEVICE WITH ACCESSIBLE ADJUSTMENT LEVER OR DIAL-TYPE REGULATOR ACTUATOR.

C. DUCT FITTINGS

1. SPIN_IN COLLARS SHALL BE GALVANIZED STEEL FOR USE WITH RECTANGULAR OR SQUARE SHEET METAL DUCTWORK. SPIN-IN COLLARS SHALL HAVE AIR SCOOP (FOR SUPPLY DUCTS) AND DAMPER (SUPPLY AND RETURN).
2. TURNING VANES SHALL BE INSTALLED IN ALL 90 DEGREES SQUARE AND RECTANGULAR ELBOWS AND AT OTHER LOCATIONS SHOWN ON THE DRAWINGS WITH THE EXCEPTION OF KITCHEN EXHAUST.
3. CURVED ELBOWS SHALL HAVE A CENTERLINE RADIUS NOT LESS THAN 1 1/2 TIMES THE DUCT WIDTH.
4. DISSIMILAR METALS SHALL BE ISOLATED TO PREVENT GALVANIC CORROSION. JOINTS NOT PROVIDED WITH GASKETS SHALL BE ISOLATED WITH 1/16 INCH MINIMUM THICKNESS ASPHALT IMPREGNATED BUILDING PAPER.
5. PROVIDE DAMPERS AT RETURN DUCT AND OUTSIDE AIR DUCT CONNECTIONS DOWNSTREAM OF ANY DUCT CONNECTIONS OR TAKE OFFS.
6. FLEXIBLE DUCT CONNECTIONS SHALL BE NON-COMBUSTIBLE GLASS FABRIC DOUBLE COATED WITH NEOPRENE 30 OZ. PER SQUARE YARD.
7. FIRE DAMPERS SHALL BE THE FOLDING BLADE FUSIBLE LINK TYPE CONFORMING TO UL 555 AND LABELED FOR INSTALLATION IN FIRE RATED WALLS AND FLOORS. DAMPERS IN FLOOR SHALL HAVE SPRING OPERATOR. DAMPERS, EXCEPT FOR LOWER SECTIONS OF A MULTIPLE SECTION ASSEMBLY, AND THOSE INSTALLED BEHIND GRILLES AND REGISTERS, SHALL HAVE BLADES OUT OF THE AIR STREAM WHEN DAMPER IS IN THE OPEN POSITION. DAMPERS IN WALLS OR FLOORS RATED 2 HOURS OR LESS SHALL BE RATED FOR 1 1/2 HOURS; DAMPERS IN WALLS RATED 3 OR 4 HOUR SHALL BE RATED FOR 3 HOURS. DAMPERS SHALL BE CONSTRUCTED OF GALVANIZED STEEL. PROVIDE AT EACH FIRE RATED WALL PENETRATION (REFER TO ARCH. DRAWINGS)
8. SMOKE DAMPERS SHALL BE THE MULTI-BLADE TYPE CONFORMING TO UL 555S WITH AN ASSEMBLY TEMPERATURE RATING OF 250 DEGREES F. DAMPER SHALL BE CONSTRUCTED OF GALVANIZED STEEL, AND SHALL BE PROVIDED WITH A FACTORY-MOUNTED ELECTRIC DAMPER OPERATOR, SUITABLE FOR OPERATION ON 120V, 60 HZ SUPPLY. PROVIDE AT EACH SMOKE BARRIER LOCATION (REFER TO ARCH DRAWINGS).
9. DUCT-TO-DUCT JOINTS IN ROUND DUCT UP TO AND INCLUDING 60" IN DIAMETER SHALL BE MADE BY USING SLEEVE COUPLINGS, REINFORCED BY ROLLED BEADS. DUCT-TO-FITTING JOINTS IN ROUND DUCT UP TO AND INCLUDING 60" IN DIAMETER SHALL BE MADE BY SLIP_FIT OF THE PROJECTING COLLAR ON THE FITTING INTO THE DUCT. SLEEVE SHALL BE THE SAME GAUGE GALVANIZED STEEL AS THE DUCT; INSERTION LENGTH OF SLEEVE COUPLING AND FITTING COLLAR SHALL BE NOT LESS THAN 2". AFTER THE JOINT IS SLIPPED TOGETHER, SHEET METAL SCREWS SHALL BE INSTALLED FOR MECHANICAL STRENGTH; SCREWS SHALL BE EQUALLY SPACED, NO MORE THAN 12" ON CENTERS AND WITH A MINIMUM OF 3 SCREWS IN EACH JOINT. SCREWS SHALL BE PLACED AT 1/2" FROM THE JOINT BEAD. DUCT-TO-DUCT JOINTS IN DUCTS UP TO AND INCLUDING 12" IN DIAMETER FOR PRESSURE CLASS 2" AND BELOW MAY BE THE BEADED-CRIMP TYPE AND EACH JOINT SHALL BE FASTENED WITH SHEET METAL SCREWS, EQUALLY SPACED, NOT MORE THAN 12" ON CENTERS AND WITH A MINIMUM OF 3 SCREWS IN EACH JOINT. THE BEADED-CRIMP JOINT SHALL PROVIDE AT LEAST A 1" LAP TO ACCOMMODATE THE SHEET METAL SCREWS.
10. ALL DUCT JOINTS (LONGITUDINAL, TRANSVERSE) AND DUCT PENETRATIONS SHALL BE SEALED USING METHODS OUTLINED IN SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
11. DUCT COLLARS SHALL BE PROVIDED WHERE DUCTS PASS THROUGH MASONRY WALLS AND PARTITIONS WHICH EXTEND FULL HEIGHT TO THE UNDERSIDE OF THE STRUCTURE AND SHALL BE FABRICATED FROM 22 GAUGE GALVANIZED STEEL SHEET. DUCT COLLAR SHALL BE PROVIDED ON BOTH SIDES OF WALLS AND PARTITIONS, EXCEPT COLLAR SHALL BE OMITTED ON THAT SIDE OF THE WALL ON WHICH REGISTERS AND GRILLES ARE INSTALLED. FLANGES SHALL BE INSTALLED TIGHT AGAINST THE WALL. THE SPACE BETWEEN THE DUCT AND THE WALL SHALL BE PACKED WITH FIBERGLASS BLANKET INSULATION.
12. DUCT HANGERS AND SUPPORTS SHALL BE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. IN ADDITION, HANGERS SHALL BE SPACED NOT OVER 8'_0" ON CENTERS. FOR RECTANGULAR DUCTS, WITH LONGEST DIMENSIONS UP THROUGH 60" HANGERS, THE HANGERS SHALL BE GALVANIZED STEEL STRAP TYPE; WITH LONGEST DIMENSION 61" AND LARGER, HANGERS SHALL BE TRAPEZE TYPE CONSTRUCTED OF GALVANIZED STEEL ANGLES WITH ROUND HANGERS RODS. SIZES FOR STRAP HANGERS AND TRAPEZE ANGLES AND RODS SHALL BE BASED ON DUCT SIZE AS SCHEDULED IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
13. FOR ROUND DUCTS; THE HANGERS SHALL BE THE GALVANIZED STEEL STRAP HANGERS. SIZES AND NUMBER FOR STRAP HANGERS SHALL BE BASED ON DUCT SIZE AS SCHEDULED IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

D. ROOF CAPS

1. UNLESS OTHERWISE SPECIFIED, ROOF INTAKE AND EXHAUST CAPS SHALL BE ROUND, MINIMUM 16 GAUGE SPUN-ALUMINUM WITH CONTINUOUSLY WELDED CURB CAP. PROVIDE WITH MANUFACTURER'S ROOF CURB. PROVIDE SLOPED CURB FOR PITCHED ROOFS. EXHAUST ROOF HOODS PROVIDED WITH BACKDRAFT DAMPER. OA HOODS SHALL BE PROVIDED WITH A 120/1 MOTORIZED DAMPER TO CLOSE WHEN EQUIPMENT SERVED IS POWERED DOWN UNLESS INDIVIDUAL MOTORIZED DAMPERS ARE INDICATED AT EQUIPMENT BRANCHES.

E. LOUVERS

1. LOUVERS SHALL BE STATIONARY ALUMINUM, 4" DEEP WITH DRAINABLE BLADES, HIDDEN MULLION, ALL 0.081" ALUMINUM WALL THICKNESS, AND KYNAR FINISH TO BE COORDINATED WITH ARCHITECT FOR COLOR. LOUVER SIZED FOR 50% FREE AREA FOR 800 FPM AIRSPEED TO PREVENT WATER ENTRAINMENT. PROVIDE EACH LOUVER WITH A MINIMUM 18" DEEP FULL SIZE PLENUM WITH DUCT CONNECTION SIZED AS INDICATED. PROVIDE OUTDOOR AIR SUPPLY LOUVERS INLET PLENUMS WITH ELASTOMERIC LINER AND PROVIDE MOTORIZED DAMPER AT CONNECTED DUCT. LAYOUT BASIS IS RUSKIN ELF375DX. PROVIDE WITH INSECT SCREENING AT LOUVER FACE.

V. HVAC EQUIPMENT

A. CONTRACTOR SHALL VERIFY REASONABLE OPERATION OF EXISTING UNIT TO REMAIN IN USE AND MAKE ANY REPAIRS OR COMPONENT REPLACEMENT REQUIRED TO HAVE THE UNITS OPERATE A FULL CAPACITY. ALL RUST AND EXTERIOR DAMAGE SHOULD BE REPAIRED AND PAINTED. A TECHNICIAN'S REPORT SHOULD BE ATTAINED AND DELIVERED TO THE OWNER FOR APPROVAL FOR EXISTING EQUIPMENT REPAIRS.

B. ALL NEW AND REUSED UNIT ACCESS AND CONNECTION OPENINGS SHALL BE SEALED WITH PROVIDED GROMMETS, GASKETS FOR AIR TIGHT CONSTRUCTION WITH CONTINUOUS CASE INSULATION. CONTRACTOR TO REPAIR OR REPLACE DAMAGED DOORS, SEALS, GASKETS, GROMMETS ETC THAT PREVENT AIR-TIGHT CASING.

C. ALL EXHAUST SHALL BE DUCTED FROM UNIT OUTLET TO ROOF CAP INLET OR LOUVER WITH CONTINUOUSLY SEALED DUCTING. NO EXHAUST SHALL BE OPENED INTO THE BUILDING EXTERIOR. PROVIDE ENCLOSED DUCT TRANSITION TO EACH ROOF CAM OR WALL LOUVER.

D. ALL AIR MOVING EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATION AND FLEXIBLE DUCT CONNECTIONS.

E. CONTRACTOR SHALL PROVIDE GRAVITY DRAINAGE FOR ALL CONDENSATE-PRODUCING HEATING/COOLING EQUIPMENT VIA GRAVITY DRAINAGE OR CONDENSATE PUMP IF GRAVITY DRAINAGE CANNOT BE ACHIEVED.

F. PROVIDE 2 SETS OF FILTERS FOR EACH FILTERED HVAC EQUIPMENT PIECE. PROVIDE FILTER AT INITIAL START-UP, JUST BEFORE TEST AND BALANCE AND AGAIN AT TURN OVER TO OWNER. ALL AIR INLETS AND OUTLETS SHALL BE SEALED WITH FILTER MEDIA DURING GENERAL CONSTRUCTION PRIOR TO TEST AND BALANCE.

G. SPLIT SYSTEMS

1. INDOOR UNITS SHALL BE INSTALLED DEAD LEVEL WITH PROVISIONS FOR POSITION, CONDENSATE DRAINAGE AND REFRIGERANT PIPE CONNECTIONS THAT DO NOT BLOCK EQUIPMENT SERVICE OR FILTER ACCESS. PROVIDE CONDENSERS WITH ANTI-SHORT CYCLE TIMER, CRANKCASE HEATER, LOW AMBIENT CONTROLS, COIL GUARDS. INDOOR AND OUTDOOR PIECES SHALL BE BY IDENTICAL MANUFACTURER LISTED BY THE MANUFACTURE AS COMPATIBLE. CASED COOLING COILS SHALL BE SPECIFICALLY LISTS AND WITH MATCHING SIZE WHEN USED WITH A FURNACE. FURNACES SHALL BE HIGH EFFICIENCY FOR USE WITH PVC FLUE AND INTAKE REQUIRING FLUE CONDENSATE NEUTRALIZER AND DRAIN.
2. REFRIGERANT PIPING SHALL BE RUN PARALLEL TO BUILDING WALLS IN WHICH INSTALLED UNLESS OTHERWISE INDICATED ON THE DRAWINGS WITH CONTINUOUS ELASTOMERIC INSULATION AND JACKETING INDOOR AND OUT. PROVIDE WITH AIR TIGHT VAPOR ENCAPSULATION BY USE OF MASTIC AND JACKETING. PROVIDE PIPE HANGER WITH SADDLES AT PIPE SUPPORTS FOR REFRIGERANT PIPING. TYPE L OR K (UNDERGROUND) COPPER TUBING INTENDED FOR ACR APPLICATIONS- DEHYDRATED, CHARGED WITH NITROGEN, AND PLUGGED BY THE MANUFACTURER. PROVIDE FORMED FITTINGS, SUCH AS ELBOWS (SHALL BE LONG SWEEP) AND TEES, ALL JOINTS SHALL BE BRAZED WITH OXY-ACETYLENE TORCHES BY A QUALIFIED TECHNICIAN. SOFT COPPER TUBING SHALL NOT BE ALLOWED UNLESS NOTED ON THE DRAWINGS.
3. PROVIDE INDOOR UNITS LOCATED ABOVE CEILINGS WITH SLOPED SECONDARY DRAIN PAN WITH A CAPPED VALVE AND THREADED HOSE OUTLET. UNIT AND EXTERIOR DRAIN PAN SUPPORT SHALL BE INDEPENDENT SUCH THAT DRAIN PAN CAN BE REMOVED WITHOUT AFFECTING AIR HANDLING UNIT INSTALLATION.
4. THE PREFERENCE SHALL BE A FLOAT SWITCH IN THE EXTERNAL DRAIN PAN TO SHUT THE UNIT DOWN. IF NOT ALLOWED BY CODE OR INSPECTOR, ROUTE THE CONDENSATE TO A CONSPICUOUS LOCATION- OVER A MOP SINK OR SERVICE SINK IF POSSIBLE.
5. FOR LONG REFRIGERANT LINE LENGTHS ABOVE 100', PROVIDE ALL ACCESSORIES, ACCUMULATORS, RESIZED PISTONS AND LINE SETS PER MANUFACTURER REQUIREMENTS.
6. FLOOR MOUNTED VERTICAL UNITS SHALL BE MOUNTED ON A 24" TALL, FULL SIZE RETURN PLENUM WITH METAL GAUGE SUFFICIENT TO SUPPORT UNIT WEIGHT.

H. FANS -GENERAL

1. FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH AMCA 210.
2. ALL FANS SHALL BE SUPPORTED INDEPENDENT OF CONNECTED DUCT OR CEILING SUPPORTS AND PROVIDED WITH FLEXIBLE INLET/OUTLET CONNECTIONS.
3. FAN WHEELS SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
4. FANS SHALL BE DIRECT DRIVE WITH SPEED CONTROLLER, DIRECT DRIVE ECM. FANS SHALL NOT BE BELT DRIVE UNLESS SPECIFICALLY NOTED ON PLANS. V-BELT DRIVES SHALL BE DESIGNED FOR NOT LESS THAN 150% OF CONNECTED DRIVING CAPACITY AND MOTOR SHEAVES SHALL BE ADJUSTABLE TO PROVIDE NOT LESS THAN 20% SPEED VARIATION. SHEAVES SHALL BE SELECTED TO DRIVE THE FAN AT A SPEED TO PRODUCE THE SCHEDULED CAPACITY INDICATED ON THE DRAWINGS WHEN SET AT THE APPROXIMATE MIDPOINT OF THE SHEAVE ADJUSTMENT. MOTORS WITH V-BELT DRIVES SHALL BE PROVIDED WITH ADJUSTABLE BASES.
5. SAFETY/DISCONNECT SWITCHES (UNLESS SCHEDULED AS UNIT-INTEGRAL) AND STARTERS SHALL BE PROVIDED
6. BY ELECTRICAL CONTRACTOR AND SHALL CONFORM TO REQUIREMENTS OF ELECTRICAL DRAWINGS AND SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL COORDINATE MOUNTING LOCATION TO MAINTAIN MAINTENANCE CLEARANCES. ALL THREE PHASE FANS SHALL BE PROVIDED WITH STARTER AND/OR CONTACTORS AS REQUIRED TO CONTROL FANS AND AUXILIARY DEVICES SUCH AS CONTROLS SYSTEM TIE-IN OR DAMPER ACTUATION.

I. CENTRIFUGAL ROOF FANS

1. FANS SHALL BE CENTRIFUGAL ROOF EXHAUSTERS WITH WATERPROOF DESIGN SO THAT WATER CANNOT ENTER THE BUILDING THROUGH FAN HOUSING WHETHER OR NOT FAN IS OPERATING. FAN SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER ON INLET, A BIRD SCREEN ON OUTLET AND A FACTORY FABRICATED ROOF CURB. GENERAL EXHAUST LAYOUT BASIS (NON- KITCHEN APPLICATIONS)- COOK ACED
2. FAN SHALL HAVE A ONE-PIECE ALUMINUM HOUSING ENCLOSING THE MOTOR AND DRIVE, AN ALUMINUM SHROUD ENCLOSING THE FAN WHEEL, AND AN ALUMINUM CURB CAP. CURB CAP SHALL HAVE A 1 INCH WIDE BY 1/4 INCH THICK FOAM RUBBER GASKET FACTORY APPLIED TO UNDERSIDE PERIMETER OF CURB CAP. AN INTERNAL POWER WIRING POST SHALL EXTEND FROM MOTOR COMPARTMENT THROUGH CURB CAP. WHERE WIRING POST PENETRATES HOUSING AND CURB CAP, PENETRATION SHALL BE SEALED.
3. FAN WHEEL SHALL BE FORWARD CURVED OR BACKWARD INCLINED CENTRIFUGAL TYPE OF ALUMINUM CONSTRUCTION. FAN WHEEL SHALL BE STATICALLY AND DYNAMICALLY BALANCED. ON BELT DRIVE UNITS, SHAFT BEARINGS SHALL BE SELF-ALIGNING, PILLOW BLOCK BALL TYPE. BEARINGS NOT PERMANENTLY SEALED AND LUBRICATED SHALL HAVE EXTENDED GREASE FITTINGS FOR EASY ACCESS.
4. MOTOR AND DRIVE SHALL BE LOCATED IN A VENTILATED COMPARTMENT OUTSIDE OF THE AIR STREAM. FAN SHALL HAVE FACTORY INSTALLED DISCONNECT SWITCH PRE-WIRED TO MOTOR AND MOUNTED WITHIN MOTOR COMPARTMENT. MOTOR AND DRIVE SHALL BE MOUNTED ON VIBRATION ISOLATORS.
5. KITCHEN EXHAUST FANS SHALL BE UL 762 RATED AND PROVIDED WITH POWER/CONTROL WIRING OUTSIDE OF FAN HOUSING AND CURB. FANS SHALL BE MOUNTED WITH 18" MINIMUM HEIGHT FROM FAN BASE TO ROOF /FLASHING AND DISCHARGE HEIGHT A MINIMUM OF 40" ABOVE ROOF SURFACE. SIDE INLET FANS SHALL BE PROVIDED WITH INLET HEIGHT SUCH THAT ALL ROOF MOUNTED HORIZONTAL DUCT CAN BE MOUNTED 20" ABOVE ROOF. PROVIDE NON-VENTED CURB FOR FIRE-WRAP APPLICATIONS AND VENTED CURB FOR ENCLOSURE SHAFT APPLICATIONS.
6. LOCATE EXHAUST FAN DISCHARGE 10' FROM ANY INTAKE OR BUILDING OPENING OR 2' ABOVE SAID OPENINGS IF CODE ALLOWS.

J. IN-LINE/CEILING FANS

1. FAN SHALL BE IN-LINE CENTRIFUGAL TYPE WITH SQUARE OR RECTANGULAR HOUSING AND BACKDRAFT DAMPER. FANS SHALL BE DESIGNED FOR HORIZONTAL OR VERTICAL MOUNTING. LAYOUT BASIS IS COOK GN/GC.
2. FAN HOUSING SHALL BE STEEL WITH FACTORY APPLIED BAKED ENAMEL PAINT ON EXTERIOR. HOUSING SHALL BE INTERNALLY INSULATED WITH 1/2" THICK (MINIMUM) COATED FIBERGLASS INSULATION. INSULATION SHALL COMPLY WITH ASTM E84 AND NFPA 255 FOR MAXIMUM RATINGS OF FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50. HOUSING SHALL HAVE MOUNTING BRACKETS AT EACH CORNER.
3. FAN WHEEL SHALL BE BACKWARD INCLINED CENTRIFUGAL TYPE OF ALUMINUM CONSTRUCTION. ON BELT DRIVE UNITS, SHAFT BEARINGS SHALL BE SELF-ALIGNING, PILLOW BLOCK BALL TYPE. BEARINGS NOT PERMANENTLY LUBRICATED AND SEALED SHALL HAVE EXTENDED GREASE FITTINGS.
4. MOTOR AND DRIVE SHALL BE MOUNTED ON VIBRATION ISOLATORS. FAN SHALL HAVE A FACTORY INSTALLED DISCONNECT SWITCH MOUNTED ON EXTERIOR OF HOUSING AND PRE-WIRED TO FAN MOTOR.
5. PROVIDE ALUMINUM GRILLE OPTION FOR CEILING MOUNTED FANS. FANS SHALL BE ROUTED TO ROOF CAP OR LOUVER SIZED AT 800 FPM OUTLET AIRSPEED.

VI. PIPING

A. USE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED TOGETHER.

B. DOMESTIC WATER & PUMPED CONDENSATE

1. UNDERGROUND WATER SERVICE PIPING 3" IN SIZE AND LARGER SHALL BE CLASS 50 DUCTILE IRON PIPE, AWWA C151, WITH HUB AND SPIGOT, PUSH_ON JOINTS, AND CLASS 50 OR GREATER MECHANICAL JOINT DUCTILE IRON FITTINGS ALL CEMENT LINED PER AWWA C104. MECHANICAL JOINTS FOR DUCTILE IRON PIPE SHALL BE MADE WITH A FOLLOWER GLAND, GASKET, BOLTS AND NUTS. PUSH-ON JOINTS FOR DUCTILE PIPE SHALL BE MADE WITH A ONE PIECE LUBRICATED COMPRESSION RUBBER GASKET AS PER AWWA C111.
2. UNDERGROUND STEEL PIPE AND FITTINGS INCLUDING THE PORTION THROUGH THE FLOOR SHALL BE PROTECTED AGAINST CORROSION BY APPLICATION OF PROTECTIVE COATINGS. PRIOR TO COATING, PIPE AND FITTINGS SHALL BE CLEANED OF ALL RUST, SCALE, DIRT AND OIL. PIPES AND FITTINGS SHALL BE GIVEN TWO COATS OF A COAL-TAR BASE BITUMINOUS PROTECTIVE COATING, EACH HAVING A DRY FILM THICKNESS OF 7-9 MILS. THE COMBINED THICKNESS OF BOTH COATS COMBINED SHALL BE 15-18 MILS.
3. UNDERGROUND WATER SERVICE PIPING 2 1/2" IN SIZE AND SMALLER (TO A POINT 1'-0" ABOVE THE FINISHED FLOOR) SHALL BE. TYPE "K" HARD DRAWN COPPER TUBING, ASTM B88, WITH BRAZED JOINTS AND WROUGHT COPPER, ANSI B16.22, OR CAST BRONZE, ANSI B16.18, SOCKET FITTINGS. . BRAZED JOINTS SHALL BE MADE USING BCUP-5 BRAZING ALLOY WITH A COMPATIBLE FLUX.
4. ABOVE-GROUND WATER PIPING - 4" AND SMALLER SHALL BE. TYPE "L" HARD DRAWN COPPER TUBING, ASTM B88, WITH SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22, OR CAST BRONZE, ANSI B16.18, SOCKET FITTINGS. SOLDER JOINTS SHALL BE MADE USING A 95-5 TIN-ANTIMONY SOLDER (NO-LEAD SOLDER) WITH A COMPATIBLE FLUX.
5. UNDERGROUND WATER PIPING TO TRAP PRIMERS OR HVAC CONDENSATE PUMP DISCHARGE SHALL BE. TYPE "L" SOFT DRAWN COPPER TUBING, ASTM B88, WITHOUT FITTINGS.
6. FLANGED JOINT SHALL BE MADE WITH RING TYPE NON-METALLIC GASKETS, BOLTS AND NUTS.
7. THREADED JOINTS AT EQUIPMENT CONNECTIONS SHALL BE MADE UP WITH TEFLON TAPE. AFTER CUTTING BUT PRIOR TO THREADING, PIPE SHALL BE REAMED AND SHALL HAVE BURRS REMOVED.
8. GROOVED MECHANICAL JOINTS: GROOVED JOINTS FOR COPPER AND GALVANIZED STEEL PIPES SHALL BE INSTALLED USING BOLTED MECHANICAL COUPLING, PRESSURE-RESPONSIVE GASKET ALONG WITH GROOVED AND FITTINGS. LAYOUT BASIS SHALL BE ANVIL GRUV-LOCK,
9. DIELECTRIC ADAPTERS SHALL BE PROVIDED BETWEEN COPPER AND IRON PIPE CONNECTIONS AND BETWEEN FERROUS AND NONFERROUS PIPING OR EQUIPMENT.
10. UNDERGROUND WATER PIPING SHALL HAVE A MINIMUM COVER OF 3'- 0" TO THE TOP OF THE PIPE.
11. INSTALL WATER HAMMER ARRESTORS ABOVE CEILING ON THE HOT AND COLD WATER BRANCH LINES SERVING A BATTERY OF FIXTURES; ON THE COLD WATER BRANCH LINES SERVING INDIVIDUAL FLUSH VALVE WATER CLOSETS AND URINALS; AND ELSEWHERE AS INDICATED ON THE DRAWINGS. PROVIDE ACCESS PANEL FOR WHA LOCATED ABOVE HARD CEILINGS.
12. VACUUM BREAKERS SHALL BE PROVIDED ON ALL HOSE OUTLETS, HOSE BIBS AND HYDRANTS UNLESS THE DRAWINGS INDICATE THAT A BACKFLOW PREVENTER IS TO BE PROVIDED ON THE PIPING SERVING THE OUTLET.
13. INSTALL 1/2" CW LINE FROM NEAREST CW MAIN OR BRANCH LINE TO ALL FLOOR DRAINS WITH TRAP PRIMER FOR TRAP PRIMING. UNDERGROUND PIPING FROM TRAP PRIMER TO FLOOR DRAINS SHALL BE INSTALLED WITHOUT FITTINGS. TRAP PRIMERS SHALL BE PROVIDED FOR ALL FLOOR DRAINS AND HUB DRAINS.
14. CONNECT HOT AND COLD WATER PIPING SYSTEM TO EQUIPMENT AS INDICATED, AND COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE SHUT-OFF BALL VALVE AND UNION FOR EACH CONNECTION, PROVIDE DRAIN VALVE ON DRAIN CONNECTIONS. PROVIDE SINGLE SHUTOFF BALL VALVE FOR HEADERS SERVING HOT OR COLD WATER TO MULTIPLE FIXTURES WITHIN A SINGLE WALL OR CHASE. PROVIDE ACCESS PANEL FOR VALVES INSTALLED ABOVE HARD CEILINGS.
15. ALL DOMESTIC WATER SERVICE AND SUPPLY PIPING INSTALLED UNDER THIS DIVISION SHALL BE DISINFECTED WITH CHLORINE BEFORE IT IS PLACED INTO OPERATION. THE CHLORINATING MATERIAL SHALL BE LIQUID CHLORINE CONFORMING TO FED. SPEC. BB-C-120 AND SHALL BE INTRODUCED TO THE SYSTEM BY EXPERIENCED OPERATORS ONLY. THE CHLORINE SOLUTION APPLIED TO THE PIPING SECTIONS OR SYSTEM SHALL CONTAIN AT LEAST FIFTY PARTS PER MILLION OF AVAILABLE CHLORINE AND SHALL REMAIN IN THE SECTIONS OR SYSTEM FOR A PERIOD OF NOT LESS THAN SIXTEEN (16) HOURS. DURING THE DISINFECTION PERIOD ALL VALVES SHALL BE OPENED AND CLOSED AT LEAST FOUR TIMES. AT THE END OF THE RETENTION PERIOD, NO LESS THAN 50 PPM OF CHLORINE SHALL BE PRESENT IN THE EXTREME END OF THIS SYSTEM. AFTER THE DISINFECTION PERIOD THE CHLORINATED WATER SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAR WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN TWO-TENTHS - (0.2) - PARTS PER MILLION. THE CONSTRUCTION MANAGER SHALL SUBMIT TO THE ARCHITECT WRITTEN CERTIFICATION THAT THE SYSTEM WAS DISINFECTED. CERTIFICATION SHALL INCLUDE NAME OF PROJECT, NAME OF OWNER, NAME OF OPERATORS, DATE OF DISINFECTION, TIMES OF DISINFECTION PERIOD, MAXIMUM CHLORINE LEVEL AND RESIDUAL CHLORINE LEVEL.

C. NATURAL GAS

1. ABOVE-GROUND MAXIMUM 2-1/2" GAS PIPING SHALL BE BLACK STEEL PIPE, .SCHEDULE 40, ASTM A53 WITH STANDARD WEIGHT WROUGHT STEEL SOCKET-WELD FITTINGS PER ASTM A234 OR THREADED CONNECTIONS. PIPE SIZES 3" AND UP OR WITH PRESSURE ABOVE 5PSI SHALL ONLY BE PERMITTED WITH SOCKET-WELDED JOINTS (NO THREADED CONNECTIONS).
2. STEEL GAS PIPING TO BE INSTALLED UNDERGROUND SHALL BE FURNISHED WITH A FACTORY APPLIED COATING WHICH SHALL CONSIST OF A RESILIENT, EXTRUDED, POLYETHYLENE SLEEVE WHICH IS SEALED TO THE PIPE. THE PLASTIC COATING SHALL BE NOT LESS THAN 25 MILS THICK AND SEALED TO THE PIPE WITH A HOT APPLIED ADHESIVE WHICH RETAINS ITS ELASTICITY IN HOT AND COLD ENVIRONMENTS.
3. FIELD APPLIED WRAPPING TAPE FOR FITTINGS AND JOINTS SHALL BE COAL TAR WITH HEAVY VINYL OR POLYESTER FILM BACKING MEETING FEDERAL SPECIFICATION HH-T-30A, TAPECOAT CT OR TAPECOAT 20 OR JT JOINT COATINGS, INC., WITH PRIMER, APPLICATION PROCEDURES AND HEATING IN ACCORDANCE WITH THE TAPE MANUFACTURER'S RECOMMENDATIONS.
4. ARRANGE WITH THE UTILITY COMPANY TO PROVIDE GAS SERVICE TO INDICATED LOCATION WITH SHUTOFF AT TERMINATION. MAKE ALL ARRANGEMENTS WITH UTILITY AS TO THE EXTENT OF ITS WORK, AND PAY ALL COSTS, FEES AND SECURE PERMITS INVOLVED TO OBTAIN SERVICE FOR THE BUILDING.
5. PROVIDE SHUTOFF IN GAS SERVICE PIPE AT ENTRY IN BUILDING, EXT/END PIPE TO GAS METER LOCATION INDICATED; PROVIDE PARTS AND ACCESSORIES REQUIRED BY UTILITY TO CONNECT TO METER.
6. PROVIDE VALVE AND UNION SHALL BE PROVIDED AT EACH CONNECTION TO A PIECE OF EQUIPMENT. EQUIPMENT PROVIDED WITH A FLANGED INLET SHALL HAVE A FLANGED CONNECTION.
7. DRIP LEGS, 6-INCHES LONG, SHALL BE PROVIDED IN GAS PIPING AT ENDS OF HORIZONTAL RUNS, AT THE BASE OF RISERS AND AT CONNECTIONS TO EQUIPMENT. DRIP LEG CAP SHALL BE REMOVABLE WITH MINIMUM 4" BETWEEN CAP AND WALL OR ROOF.
8. GAS PIPING WITHIN THE BUILDING SHALL BE RUN ABOVE FLOOR SLAB.
9. PRESSURE REGULATORS ARE TO BE PROVIDED ON ALL EQUIPMENT IF NOT PROVIDED AS PART OF THE EQUIPMENT. COORDINATE INLET/OUTLET PRESSURES WITH ACTUAL DELIVERED PRESSURE AND EQUIPMENT INLET PRESSURES. CONTRACTOR SHALL ARRANGE FOR ADJUSTMENT OF GAS PRESSURE TO PREVENT EXCESSIVE OR INSUFFICIENT GAS PRESSURE TO ALL EQUIPMENT PIECES.
10. PROVIDE FLEX HOSE CONNECTION TO ALL INDOOR APPLIANCES NOT SUPPLIED WITH THE EQUIPMENT PIECE BY THE OWNER OR EQUIPMENT PROVIDER.
11. THREADED JOINTS SHALL BE MADE WITH A MIXTURE OF GRAPHITE AND OIL APPLIED TO MALE THREADS ONLY. AFTER CUTTING AND PRIOR TO THREADING, PIPE SHALL BE REAMED AND SHALL HAVE BURRS REMOVED.
12. WELDED JOINTS SHALL BE FUSION WELDED IN ACCORDANCE WITH ANSI B31, SECTION 6.
13. FLANGED JOINTS SHALL BE FACED TRUE, PROVIDED WITH GASKET AND MADE SQUARE AND TIGHT.
14. BRAZED JOINTS SHALL BE MADE UP USING BCUP-5 BRAZING ALLOY WITH A COMPATIBLE FLUX.
15. ALL STEEL FITTINGS AND JOINTS IN UNDERGROUND PIPING SHALL BE FIELD-COATED USING A PRIMER AND FLEXIBLE POLYETHYLENE TAPE AND THE SAME MANUFACTURER AS THE PIPE COATING. DAMAGED COATING SHALL BE REPAIRED WITH PRIMER AND TAPE AS SPECIFIED FOR FITTINGS AND JOINTS.

D. SANITARY WASTE &VENT, STORM, GREASE WASTE

1. UNDERGROUND SANITARY, WASTE AND VENT PIPING, AND STORM DRAINAGE PIPING, AND INDOOR PIPING ABOVE 8" IN SIZE SHALL BE SERVICE WEIGHT (COATED) CAST IRON SOIL PIPE AND FITTINGS, ASTM A74, WITH GASKET HUB AND SPIGOT JOINTS, ASTM C564. GASKET JOINTS FOR CAST IRON PIPE SHALL BE MADE WITH LUBRICATED NEOPRENE COMPRESSION GASKETS. PVC SHALL BE PERMITTED IF ALLOWED BY LOCAL CODE. UNDERGROUND PVC PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS MEETING ASTM D-1785 AND ASTM D-2665.
2. ABOVE-GROUND SANITARY, WASTE AND VENT AND STORM DRAINAGE PIPING 8" AND SMALLER SHALL BE SERVICE WEIGHT CAST IRON SOIL PIPE AND FITTINGS, ASTM A888 AND CISPI 301, WITH STANDARD NO-HUB COUPLINGS. PVC SHALL BE PERMITTED OUTSIDE OF RETURN AIR PLENUMS WITH OWNER APPROVAL. NEOPRENE RUBBER GASKET AND MINIMUM 24 GAUGE TYPE 304 STAINLESS STEEL SHIELD AND FOUR STAINLESS STEEL BANDS FOR SIZES 1 1/2" THROUGH 4", SIX BANDS MINIMUM FOR SIZED 5" AND LARGER. 6" PIPE AND UP: NEOPRENE ELASTOMERIC GASKET AND SERIES 300 STAINLESS STEEL SHIELD AND MULTIPLE DRAW BANDS AND SCREW CLAMPS CONFORMING TO ASTM C-564 AND CISPI STANDARD 310-90. ABOVE-GROUND SANITARY PIPING, LOCATED OUTSIDE OF RETURN AIR PLENUMS MAY ALSO BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS MEETING ASTM D-1785 AND ASTM D-2665 PER OWNER APPROVAL.
3. ALL WASTE PIPING 1" IN SIZE AND SMALLER SHALL BE TYPE "L" HARD DRAWN COPPER TUBING, ASTM B88, WITH SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22, OR CAST BRONZE, ANSI B16.18, SOCKET FITTINGS. SOLDERED JOINTS FOR TYPE 'L' COPPER TUBING AND CAST DMV BRONZE PIPE SHALL BE MADE WITH 95-5 TIN-ANTIMONY (NO LEAD) SOLDER AND COMPATIBLE FLUX.

E. PIPING HANGERS

1. PROVIDE CLEVIS SUPPORTS WITH BEAM CLAMP, CONCRETE ANCHORS (CONCRETE STRUCTURE), SCREWED BRACKET (WOOD STRUCTURE). PROVIDE HANGER OUTSIDE OF INSULATION WITH RIGID FOAM GLASS INSULATION SECTION AT HANGERS. PROVIDE 16 GAUGE PIPING SADDLE AT EACH HANGER. NO WELDING OR CUTTING OF STEEL STRUCTURAL MEMBERS SHALL BE PERMITTED. LAYOUT BASIS SHALL BE ANVIL 260.
2. PROVIDE SEISMIC HANGERS PER DRAWING REQUIREMENTS.
3. HANGER INSTALLATION FOR HOT WATER PIPING SHALL NOT PREVENT MOVEMENT FOR PIPING EXPANSION.
4. SPACING AS FOLLOWS:

STEEL PIPE 1/2" TO 1-1/4" - 7' ; 1-1/2" TO 2-1/2" - 9' ; 3"&4" - 12' ; 6"&8" - 17' ; 10" AND UP- 22'

COPPER PIPE 1/2" TO 1" - 5' ; 1-1/4" TO 2" - 7' ; 2-1/2" AND UP - 9'

CAST IRON: 10' WITH SUPPORT AT EACH JOINT, TAKEOFF, AND FITTING.

PVC DRAINAGE (140 DEG F SERVICE UP TO 6"- 80 DEG F ABOVE 6") UP TO 3" - 3' ; 4" TO 6" - 4' ; ABOVE 6" - 8'

PVC VENT (80 DEG F SERVICE) UP TO 1-1/2" - 5' ; 2"-3" - 6' ; ABOVE 3" 7'

VII. VALVES/PUMPS

A. GENERAL

1. VALVES SHALL HAVE THE NAME OR TRADEMARK OF THE MANUFACTURER AND THE WORKING PRESSURE STAMPED OR CAST ON THE VALVE BODY.
2. ALL VALVES IN EACH SYSTEM, EXCEPT FOR SPECIAL TYPES SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.
3. ALL VALVES REQUIRING PACKING SHALL BE DESIGNED AND CONSTRUCTED SUCH THAT THEY CAN BE REPACKED UNDER PRESSURE.
4. VALVE HAND WHEELS/ ACTUATOR SHALL BE MALLEABLE IRON EXCEPT WHERE SPECIFIED OTHERWISE.
5. ALL VALVES INSTALLED IN HORIZONTAL LINES SHALL BE INSTALLED WITH THE STEMS HORIZONTAL OR ABOVE. VALVE ACTUATOR SHALL BE ORIENTED, WHEN INSTALLED, TO PROVIDE MAXIMUM ACCESSIBILITY FOR OPERATION.
6. PROVIDE ACCESS PANELS FOR VALVES LOCATED IN WALLS OR ABOVE HARD CEILINGS.

B. VALVES FOR HYDRONIC / DOMESTIC WATER SYSTEM

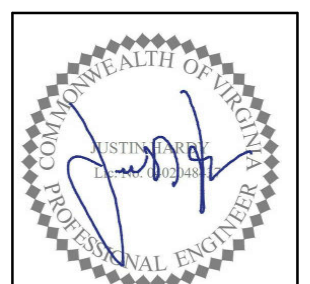
1. BALL VALVES (FOR PIPING 3" AND SMALLER) SHALL HAVE BRONZE BODY, STAINLESS STEEL BALL, LEVER HANDLE, FOR SYSTEMS UP TO 125 PSIG. GATE VALVES SHALL NOT BE PERMITTED FOR PIPES 3" AND SMALLER. VALVE LAYOUT BASIS SHALL BE WATTS B6000-SS
2. GATE VALVES (FOR DOMESTIC PIPING 4" IN SIZE AND LARGER): VALVE SHALL HAVE IRON BODY, BRONZE TRIM, NON-RISING STEM, SOLID WEDGE AND FLANGED ENDS FOR 200 POUND W.O.G. LAYOUT BASIS FOR VALVE SHALL BE NIBCO F-619.
3. BUTTERFLY VALVES (FOR HYDRONIC PIPING 4" AND LARGER): VALVE SHALL HAVE DUCTILE IRON BODY, EXTENDED NECK, GEOMETRIC DRIVE MOLDED-IN SEAT LINER, EPDM LINER AND ALUMINUM BRONZE DISC - INSTALL BETWEEN STD. ANSI CLASS 125/150 FLANGES - CONFORMING TO MSS-SP67/MSS-SP25/API-609. LAYOUT BASIS SHALL BE NIBCO WD 2000.
4. CHECK VALVES (4" IN SIZE AND LARGER): VALVE SHALL BE HORIZONTAL SWING TYPE WITH IRON BODY, BRONZE TRIM AND FLANGED ENDS FOR 200 POUND W.O.G. VALVE LAYOUT BASIS SHALL BE NIBCO F-918-B.
5. CHECK VALVES (3" IN SIZE AND SMALLER): VALVE SHALL BE HORIZONTAL SWING TYPE WITH BRONZE BODY, COMPOSITION DISC AND SOLDER ENDS FOR 200 POUND W.O.G. LAYOUT BASIS SHALL BE NIBCO S/T-413.
6. HOSE END DRAIN VALVES: VALVE SHALL BE 3/4" IN SIZE WITH BRONZE BODY, NON-RISING STEM, SOLID WEDGE, THREADED INLET AND HOSE OUTLET WITH CAP AND CHAIN FOR 200 POUND W.O.G.
7. UNDERGROUND GATE VALVES AND VALVE BOXES: GATE VALVES (4" IN SIZE AND LARGER) SHALL BE AWWA APPROVED WITH IRON BODY, BRONZE TRIM, NON-RISING STEM, PARALLEL SEAT DOUBLE DISC, SQUARE OPERATING NUT AND MECHANICAL JOINT ENDS FOR 200 POUND W.W.P. VALVE BOXES SHALL BE PROVIDED OVER EACH UNDERGROUND GATE VALVE. VALVE BOXES SHALL BE ADJUSTABLE CAST IRON ROADWAY TYPE WITH BELLED LOWER SECTION AND REMOVABLE LID. LID SHALL BE LABELED "WATER" AND BOXES NOT IN PAVED AREAS SHALL BE SET IN A 12" X 12" X 6" CONCRETE PAD. VALVE BOXES LAYOUT BASIS SHALL BE MUELLER H-10360 PROVIDE ONE T-WRENCH FOR EACH SIZE OPERATING NUT.

C. VALVES FOR NATURAL GAS SYSTEM

1. PLUG VALVES (3" IN SIZE AND LARGER): VALVES SHALL BE THE SEMI-STEEL TYPE WITH CAST IRON BODY, LUBRICATED CAST IRON PLUG, FLANGED ENDS AND WRENCH OPERATED FOR 175 POUND W.O.G. VALVES LAYOUT BASIS SHALL BE WALWORTH1797F
2. PLUG VALVES (2 1/2" IN SIZE AND SMALLER): VALVES SHALL HAVE BRONZE BODY AND PLUG, THREADED ENDS AND SQUARE HEAD FOR 175 POUND W.O.G. VALVE LAYOUT BASIS SHALL BE: WALWORTH NO. 1736
3. BALL VALVES (1/2", 3/4", AND 1" UP TO 1/2 PSI FOR APPLIANCE CONNECTION): VALVE SHALL BE LEVER HANDLE, 600 PSI CWP RATED - 1/2 PSI FOR INDOOR APPLIANCE CONNECTIONS PER ANSI Z21.15 & CGA 9.1A. LAYOUT BASIS SHALL BE NIBCO GB1A.
4. LUBRICATED PLUG VALVES SHALL BE LUBRICATED AT THE FACTORY AND SEALANT SHALL BE DESIGNED FOR NATURAL GAS. PROVIDE SIX (6) STICKS OR TUBES OF SEALANT UTILIZED AND TURN SUCH OVER TO THE OWNER. PROVIDE ONE (1) VALVE WRENCH FOR EACH SIZE AND TYPE OF VALVE HEAD AND TURN SUCH WRENCHES OVER TO THE OWNER.
5. PRESSURE REGULATING VALVE: VALVE SHALL HAVE INTERCHANGEABLE ALUMINUM ORIFICE, MOLDED DEEP CONVOLUTION DIAPHRAGM WITH O-RING SEAL, PLATED STEEL DIAPHRAGM PLATE, STAINLESS STEEL LEVER PIN, ONE PIECE MOLDED BUNA-N VALVE SEAT, DIE CAST ZINC VALVE STEM, DELRINFI VENT VALVE WITH BUNA-N SEAT, SPRING LOADED INTERNAL RELIEF VALVE ASSEMBLY, 1" AND 3/4" THREADED VENT WITH STAINLESS STEEL SCREEN, FIBERGLASS REINFORCED POLETHELYNE SEAL CAP WITH INTEGRAL RELIEF VALVE STOP, AND FIELD INTERCHANGEABLE ADJUSTMENT SPRING, CSA 6-18 APPROVED. PROVIDE THREE SPRINGS AT RATED OUTLET PRESSURE PLUS SPRING FOR NEXT HIGHES AND LOWEST PRESSURE RATING FOR BALANCING PURPOSES. PROVIDE ALL VENTING REQUIRED BY THE MANUFACTURER FOR ALL INDOOR MOUNTED REGULATORS. LAYOUT BASIS SHALL BE ACTARIS B42N.
6. CONTRACTOR SHALL PROVIDE REGULATORS AT ALL APPLIANCE CONNECTIONS REGARDLESS OF SUPPLY PRESSURE UNLESS THE REQUIRED EQUIPMENT DELIVERY PRESSURE CAN BE DELIVERED WITHOUT THE USE OF A REGULATOR.
7. CONTRACTOR TO COORDINATE INLET/OUTLET PRESSURES WITH DRAWINGS AND GAS EQUIPMENT MANUFACTURERS REQUIREMENTS.
8. INSTALL ALL REGULATORS CLEAR OF ANY EQUIPMENT ACCESS SUCH THAT VALVE SPRINGS AND ORIFICE CAN BE ACCESSED WITHOUT REMOVING VALVE.

D. CLOSE-COUPLED, IN-LINE CENTRIFUGAL PUMPS

1. DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, CENTRIFUGAL, OVERHUNG-IMPELLER, CLOSE-COUPLED, IN-LINE PUMP; DESIGNED FOR INSTALLATION WITH PUMP AND MOTOR SHAFTS MOUNTED HORIZONTALLY OR VERTICALLY. PUMP SHALL BE SUPPORTED INDEPENDENT OF PIPING. INSTALL A CHECK VALVE AT ALL PUMP OUTLETS. MOTOR: SINGLE SPEED, AND RIGIDLY MOUNTED TO PUMP CASING. LAYOUT BASIS FOR HOT WATER RECIRCULATION PUMPS SHALL BE GRUNDFOS UP15-18 OR UP-15-29 FOR PIPING RUNS IN EXCESS OF 100'.
2. CASING: RADIALLY SPLIT, CAST IRON, WITH REPLACEABLE BRONZE WEAR RINGS, THREADED GAGE TAPPINGS AT INLET AND OUTLET, AND FLANGED OR THREADED (HOT WATER RECIRCULATION PUMPS) CONNECTIONS.
3. IMPELLER: ASTM B 584, CAST BRONZE; STATICALLY AND DYNAMICALLY BALANCED, KEYED TO SHAFT, AND SECURED WITH A LOCKING CAP SCREW. TRIM IMPELLER TO MATCH SPECIFIED PERFORMANCE.
4. PUMP SHAFT: STAINLESS STEEL.
5. IN SUBPARAGRAPH BELOW, SELECT FIRST OPTION FOR TEMPERATURE RATING OF 225 DEG F (107 DEG C); SELECT SECOND OPTION FOR 250 DEG F (121 DEG C).
6. MECHANICAL SEAL: CARBON ROTATING RING AGAINST A CERAMIC SEAT HELD BY A STAINLESS-STEEL SPRING, AND EPT BELLOWS AND GASKET. INCLUDE WATER SLINGER ON SHAFT BETWEEN MOTOR AND SEAL.
7. PACKING SEAL: STUFFING BOX, WITH A MINIMUM OF FOUR RINGS OF GRAPHITE-IMPREGNATED BRAIDED YARN WITH BRONZE LANTERN RING BETWEEN CENTER TWO GRAPHITE RINGS, AND BRONZE PACKING GLAND.
8. PUMP BEARINGS: PERMANENTLY LUBRICATED BALL BEARINGS UP THROUGH 5 HP. LARGER MOTORS HAVE GREASE-LUBRICATED BALL BEARINGS.



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MECHANICAL AND PLUMBING SPECIFICATIONS

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

M001

AIR HANDLING UNIT (FURNACE) / CONDENSING UNIT SCHEDULE

TAG	TRANE MODEL COIL/CU	SPACE CONDITIONED	TONS	EER	No. CIRCUITS	AHU CFM	FAN ESP	AHU MOTOR HP	OA CFM	TOTAL COOLING MBH	SENSIBLE COOLING MBH	GAS OUTPUT HEATING MBH	GAS INPUT HEATING MBH	AHU VOLTS/ PHASE	CONDENSER VOLTS/ PHASE	NOTES
AHU/CU-1 - HORIZ.	S9V2B100/TXF064-4TTA 060	CLASSROOM WING	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,5
AHU/CU-2 - HORIZ.	S9V2B100/TXF064-4TTA 060	CLASSROOM WING	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,5
AHU/CU-3 - VERT.	S9V2B100/TXC060-4TTA 060	PLAYGROUND	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,5
AHU/CU-4 - VERT.	TWE/TTA 090	ASSEMBLY	7.5	10	2	2,650	0.5	3	400	90	68	160	200	208/3	208/3	1,2,5,6,7
AHU/CU-5 - VERT.	S9V2B100/TXC060-4TTA 060	STAGE	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,5
AHU/CU-6 - VERT.	TWE/TTA 090	ASSEMBLY	7.5	10	2	2,650	0.5	3	400	90	68	160	200	208/3	208/3	1,2,5,6,7
AHU/CU-7 - HORIZ.	S9V2B100/TXF064-4TTA 060	CLASSROOM WING	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,3,4
AHU/CU-8 - HORIZ.	S9V2B100/TXF064-4TTA 060	CLASSROOM WING	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,3,4
AHU/CU-9 - VERT.	S9V2B100/TXC060-4TTA 060	MAIN ENTRY	5	14	1	1,750	0.5	1	200	60	45	108	120	120/1	208/3	1,2,3,4
TOTALS			50.0						2,200							

NOTE 1: INDOOR COIL EAT = 80/67 FOR COOLING, 70 FOR HEATING. OUTDOOR COIL EAT = 95F FOR COOLING; 47F FOR HEATING. ESP DOES NOT INCLUDE FILTERS.

NOTE 2: PROVIDE INTERNAL DRAIN PAN FLOAT SWITCH. PROVIDE CONDENSATE PUMP.

NOTE 3: PROVIDE 4" CONCRETE BASE WITH NEOPRENE PAD ISOLATORS FOR OUTDOOR UNITS. CONTROL WIRING IN FLEX CONDUIT, LOW AMBIENT CONTROLS AND ANTI-SHORT CYCLE TIMER.

NOTE 4: VERTICAL AHU INSTALLATION WITH FACTORY BASE RAIL (15 TON UNITS), LINED RETURN PLENUM BELOW UNIT FRAMED WITH ANGLE IRON SUPPORTS TO BEAR AHU WEIGHT (FURNACES).

NOTE 5: HORIZONTAL AHU INSTALLATION WITH NEOPRENE/SPRING ISOLATION HANGERS OR SUPPORT FRAMING ,SUPPORTS AND EXTERNAL DRAIN PAN/FLOAT SWITCH FOR AHU.

NOTE 6: PROVIDE WITH CANFAB ECONOMIZER MODULE WITH INTEGRAL SENSORS, CONTROL MODULE AND MOTORIZED DAMPERS TO PROVIDE DRY BULB ECONOMIZER CONTROL. PROVIDE MOTORIZED DAMPER

NOTE 7: PROVIDE WITH REZNOR SC DUCT HEATER AT INDICATED CAPACITY WITH FLUE/INTAKE AND CONCNETRIC WALL TERMINATION.

TRANE, CARRIER, LENNOX, YORK OR OTHER ALTERNATE MAUFACTURERS SHALL BE ACCEPTABLE WHERE EQUIPMET CAPACITIES ANC CHARACTERISTICS ARE AS SPECIFIED.

DUCTLESS AIR HANDLING UNIT / HEAT PUMP UNIT SCHEDULE

TAG	AHU/CU	TONS	AHU TYPE	AHU CFM	FAN ESP	AHU MOTOR POWER	TOTAL COOLING MBH	HEATING MBH AT 17 DEG F	MAX LINESET LENGTH (FT)	VOLTS/ PHASE	SPACE CONDITIONED
DAHU/DHP-1	DAIKIN FBQ48PVJU/RZQ48TAVJU	4	WALL MOUNT	700	--	,19 AMP	48.0	54	100	208/1	EQ ROOM

NOTE 1: PROVIDE ACCESSORY DISCONNECT, CONDENSATE PUMP, AND WALL MOUNTED THEMOSTAT/CONTROLLER

NOTE 2: PROVIDE UNIT PREFAB ROOF CURB SUPPORT FOR OUTDOOR UNIT.

AIR DEVICE SCHEDULE

MARK	SERVES	LAYOUT BASIS	TYPE	FACE SIZE	MOUNTING	DESIGN FINISH	MATERIAL	NOTES
S-1	CLASSROOMS	TITUS OMNI	PLAQUE-FCE CEILING DIFFUSER	24X24	2x2 T-BAR	WHITE	STEEL	1
S-2	HALLS/PLAYGROUND	TITUS 300_S	ADJUSTABLE DBL DEFLECTION SIDEWALL	PER PLANS	WALL/DUCT	WHITE	ALUMINUM	3
S-3	SANCTUARY	TITUL DL	DRUM LOUVER	48X12	WALL			
R-1	CLASSROOMS	TITUS 50 F	1/2" EGGCRATE RETURN	24X24	2X2 T-BAR	WHITE	ALUMINUM	2
R-2	HALLS/PLAYGROUND/SANCTUARY	TITUS 350FL	SIDEWALL RETURN	PER PLANS	WALL	WHITE	STEEL	-

NOTES

1 . NECK SIZE TO MATCH DUCT RUN OUT SIZE AS SHOWN ON MECHANICAL PLANS.

2 .PROVIDE MANUFACTURER'S ACCESSORY INSULATED PLENUM WITH RUN OUT SIZED CONNECTION.

3 .BALANCING DEVICE AT AIR DEVICE FACE

4 .BALANCING DEVICE AT RUN OUT TAKEOFF

5 .DIVERT BLADES TO 45 DEGREE LATERALLY AND 35 DEGREES BELOW HORIZONTAL.

END

EXHAUST/VENTILATION FAN SCHEDULE

TAG	GREENHECK MODEL	TYPE	SERVES	CFM	ESP	MOTOR HP	RPM	SONES	DRIVE	VOLTS/ PHASE	FAN INTERLOCK	NOTES
F-1	GC-144	CEILING	JAN	100	0.250	90	1,100	6.0	DIRECT	120/1	WALL SWITCH	ALL
F-2	GN-720	INLINE	WOMENS	500	0.500	350	1,325	3.0	DIRECT	120/1	INTERLOCKED W/ TIMECLOCK	ALL
F-3	GC-144	CEILING	JAN	100	0.250	90	1,100	6.0	DIRECT	120/1	WALL SWITCH	ALL
F-4	GC-144	CEILING	JAN	100	0.250	90	1,100	6.0	DIRECT	120/1	WALL SWITCH	ALL
F-5	GC-144	CEILING	JAN	100	0.250	90	1,100	6.0	DIRECT	120/1	WALL SWITCH	ALL
F-6	GC-144	CEILING	JAN	100	0.250	90	1,100	6.0	DIRECT	120/1	WALL SWITCH	ALL

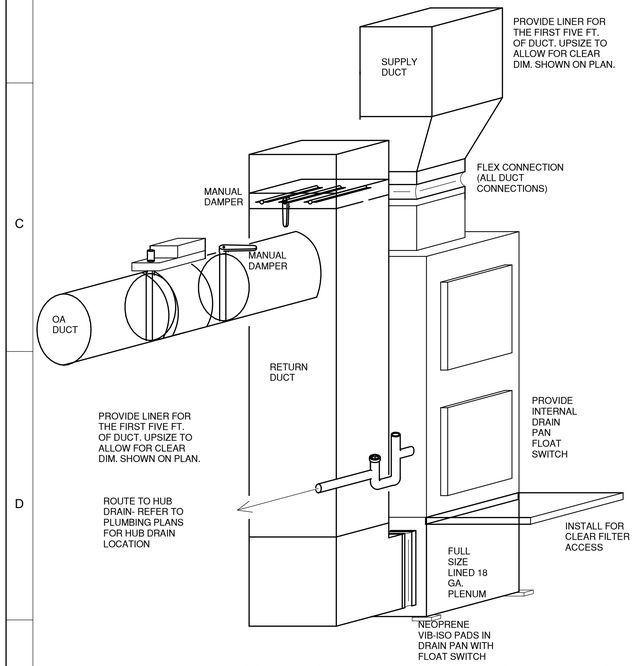
1. UNIT MOUNTED DISCONNECT.

2. COORDINATE VOLTAGES WITH ELECTRICAL DRAWINGS.

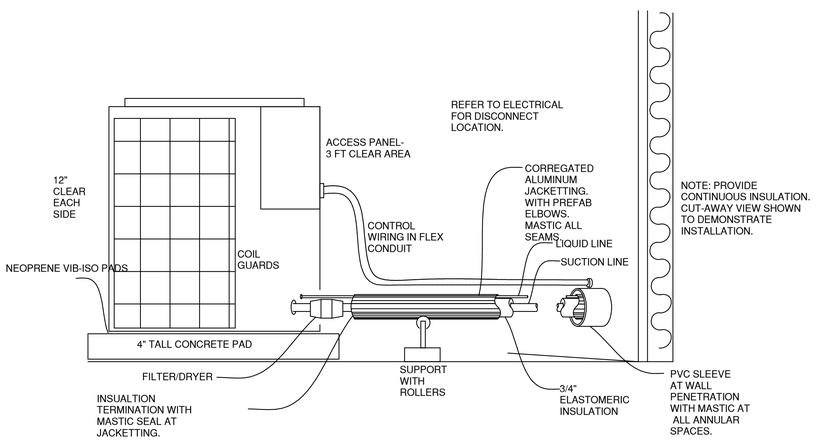
3. PROVIDE WITH FACTORY SPEED CONTROLLER.

4. PROVIDE INDOOR FANS WITH BACKDRAFT DAMPER, SPRING/NEOPRENE ISOLATION HANGERS AND ACCESSORY WALL CAP AT SIZE INDICATED ON DRAWINGS.

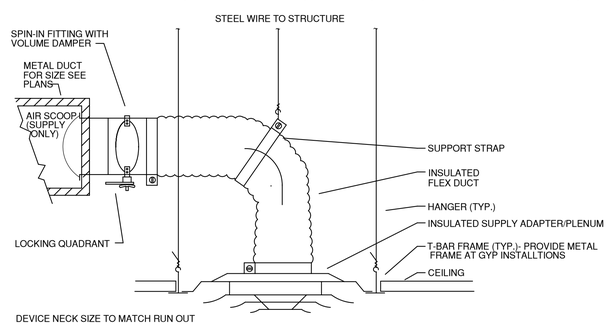
END



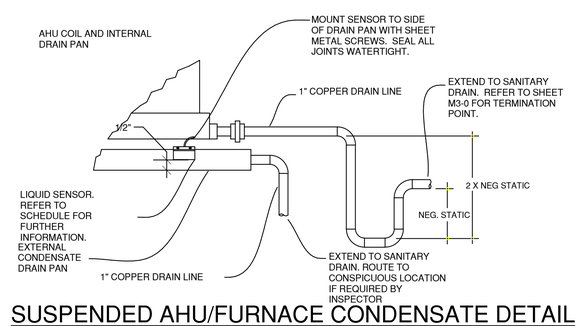
VERTICAL AIR HANDLING UNIT- (1-5 TON) DETAIL



GRADE MOUNTED CONDENSER/HEAT PUMP DETAIL



DIFFUSER / RETURN DETAIL



SUSPENDED AHU/FURNACE CONDENSATE DETAIL

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
LICENSED PROFESSIONAL ENGINEER
12/4/2020

REVISIONS

No.	Description	Date

Job Number: -
Date: 03/02/2020
Drawn By: DH
Checked By: TJR
CAD File:

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MECHANICAL SCHEDULES AND DETAILS

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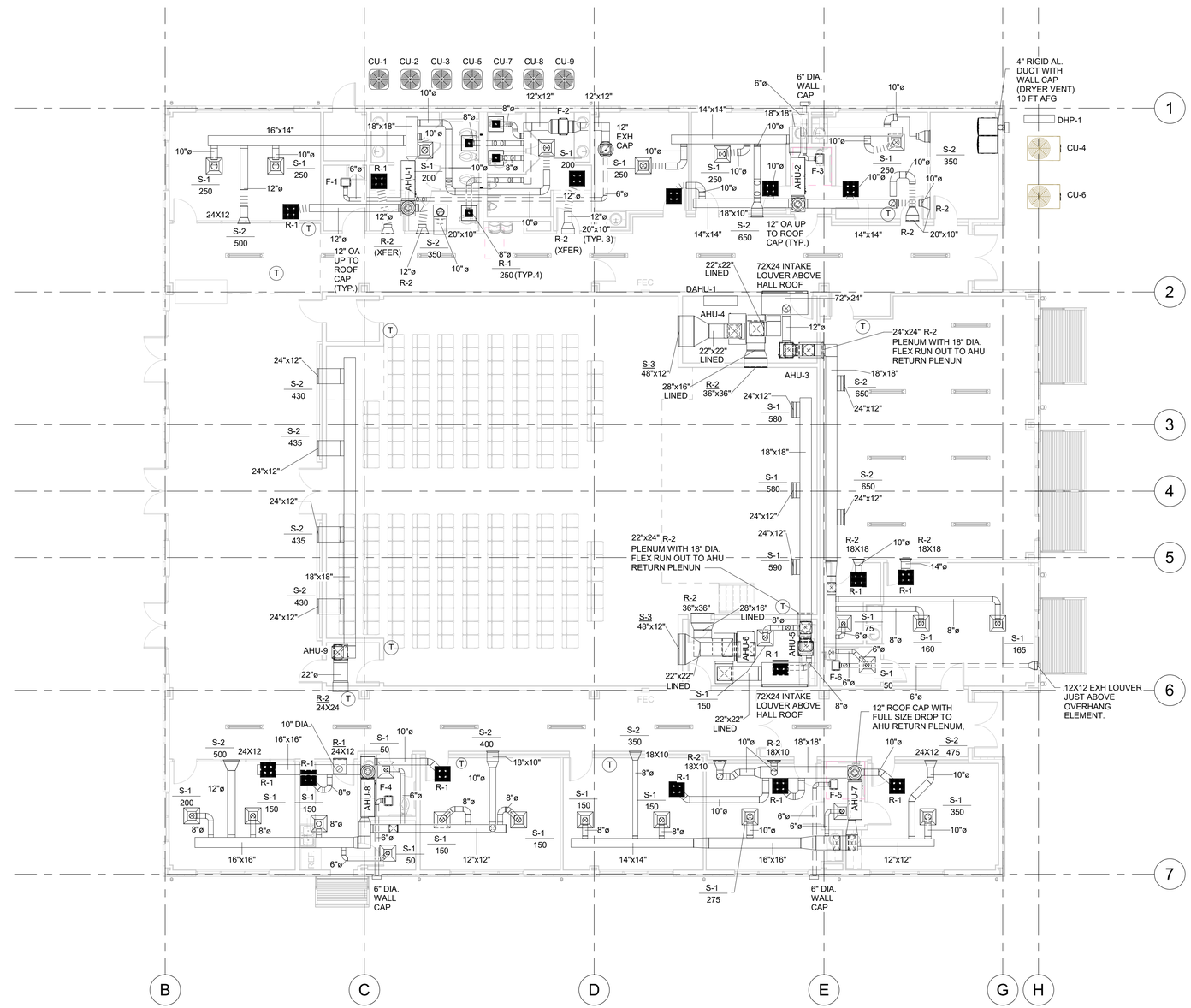
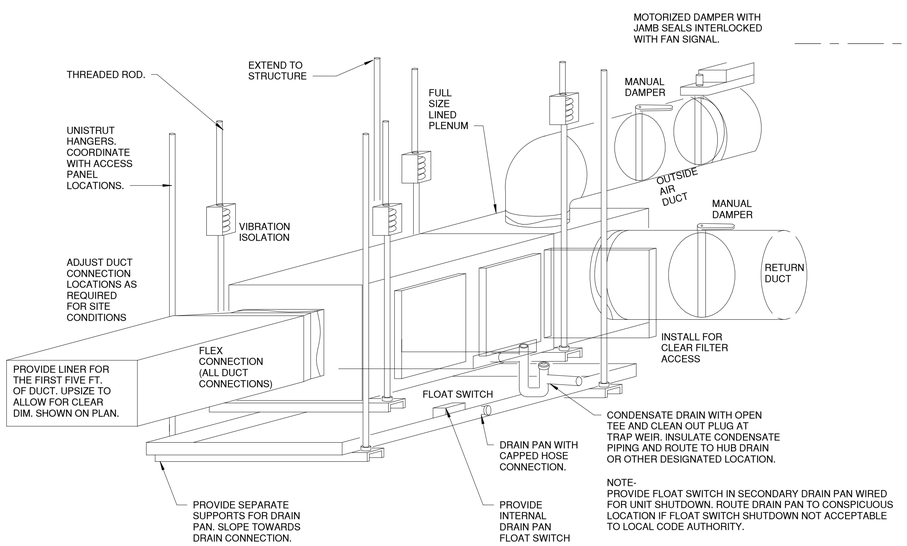
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

M002



1 Main Level Mechanical Floor Plan
1/8" = 1'-0"



NOTE-
PROVIDE FLOAT SWITCH IN SECONDARY DRAIN PAN WIRED FOR UNIT SHUTDOWN. ROUTE DRAIN PAN TO CONSPICUOUS LOCATION IF FLOAT SWITCH SHUTDOWN NOT ACCEPTABLE TO LOCAL CODE AUTHORITY.

SUSPENDED AIR HANDLING UNIT DETAIL

COMMONWEALTH OF VIRGINIA
LISTED PROFESSIONAL ENGINEER
12/4/2020

REVISIONS

No.	Description	Date

Job Number: –
Date: 03/03/2020
Drawn By: DH
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CAD File:

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MECHANICAL FLOOR PLAN

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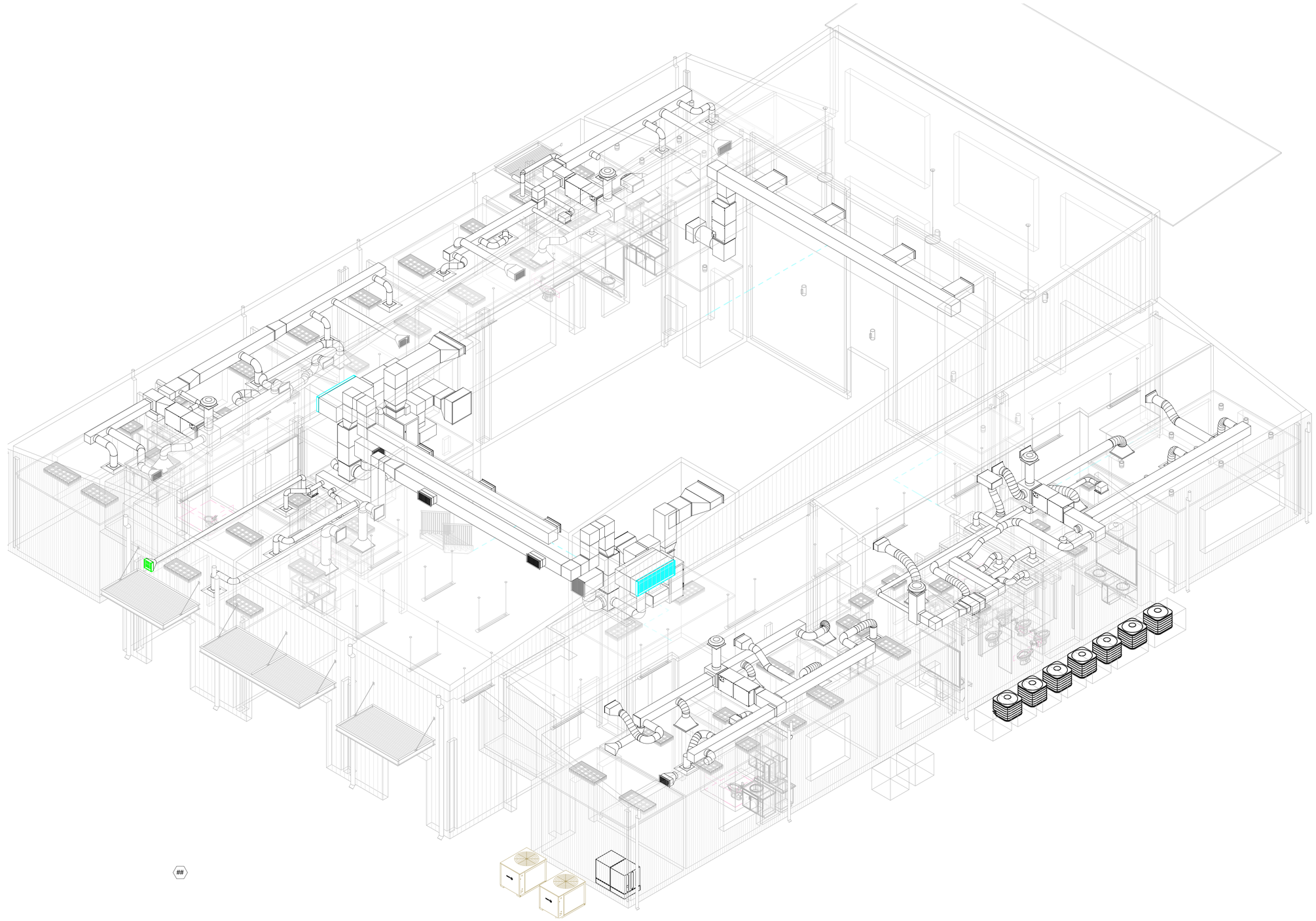
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

M101



1 Mechanical Perspective View

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
LICENSED PROFESSIONAL ENGINEER
12/4/2020

REVISIONS

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MECHANICAL PERSPECTIVE PLAN

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M102

ELECTRICAL LEGEND

	LED TROFFER, TYPE AS NOTED		DUPLEX RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	LED TROFFER, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		FLOOR MOUNTED RECEPTACLE IN FLUSH MOUNTED BOX PROVIDE FLUSH BRASS COVER, NEMA 5-20R
	LED TROFFER, TYPE AS NOTED		DUPLEX RECEPTACLE ABOVE COUNTER OR AS NOTED, NEMA 5-20R
	LED TROFFER, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		QUAD RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	RECESSED CAN FIXTURE, TYPE AS NOTED	IG	DUPLEX RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	RECESSED CAN FIXTURE, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		SPECIAL PURPOSE RECEPTACLE 18" AFF OR AS NOTED, SEE SCHEDULE
	FLUORESCENT STRIP FIXTURE		WALL / CEILING MOUNTED JUNCTION BOX
	WALL MOUNTED FIXTURE, TYPE AS NOTED	60/3/1	UNFUSED DISCONNECT SWITCH RATING/POLES/NEMA RATING
	PENDANT FIXTURE, TYPE AS NOTED	60/3/3R/40	FUSED DISCONNECT SWITCH RATING/POLES/NEMA RATING/FUSE SIZE
	PENDANT FIXTURE, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		MOTOR
	TRACK LIGHT FIXTURE, TYPE AS NOTED		GROUND
	EMERGENCY LIGHT		TRANSFORMER
	EXIT/EMERGENCY LIGHT COMBINATION / REMOTE HEAD	M	UTILITY GRADE METER
	CEILING MOUNTED EXIT SIGN	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	WALL MOUNTED EXIT SIGN		TELEPHONE OUTLET, PROVIDE 4" BOX SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING
$	SINGLE POLE SWITCH, 44" AFF		DATA OUTLET, PROVIDE 4" BOX SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING
$$	TWO SINGLE POLE SWITCHES GANGED TOGETHER FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF	TV	TELEVISION/CABLE OUTLET
$$$	THREE SINGLE POLE SWITCHES GANGED TOGETHER 44" AFF		TELEPHONE OUTLET, PROVIDE 4" BOX FLUSH IN FLOOR, 3/4" C ABOVE CEILING
$3	THREE WAY SWITCH, 44" AFF		DATA OUTLET, PROVIDE 4" BOX FLUSH IN FLOOR, 3/4" C ABOVE CEILING
$3$3	TWO THREE WAY SWITCHES GANGED TOGETHER FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF		DOOR HOLD-OPEN DEVICE
$4	FOUR WAY SWITCH, 44" AFF	T	TRANSFORMER, SEE ONE LINE
$D	WALL BOX DIMMER 1000W UNLESS NOTED DIFFERENTLY 44" AFF	S	SPEAKER STROBE
$WP	WEATHER PROOF SWITCH, 44" AFF		HORN
$M	MOTOR RATED SWITCH, 44" AFF OR AS NOTED		PULL STATION
$OS	COMBINATION SWITCH AND OCCUPANCY SENSOR, 44" AFF		FIRE ALARM STROBE, MIN 75 CANDELA CEILING / WALL MOUNT
$T	DIGITAL TIMER SWITCH, 44" AFF		DUCT MOUNTED SMOKE DETECTOR
OS	CEILING MOUNTED OCCUPANCY SENSOR	S	SMOKE DETECTOR
OS	WALL MOUNTED OCCUPANCY SENSOR, 44" AFF	H	HEAT DETECTOR
TC	TIME CLOCK	TS	TAMPER SWITCH
LC	LIGHTING CONTACTOR	FS	FLOW SWITCH
PC	PHOTO CELL		RACEWAY CONCEALED IN WALL OR ABOVE CEILING
	8" CONE SPEAKER IN CEILING EC TO PROVIDE BLACK SPEAKER		RACEWAY EXPOSED
	8" CONE SPEAKER IN WALL EC TO PROVIDE BLACK SPEAKER		RACEWAY CONCEALED IN FLOOR SLAB, BELOW SLAB OR GRADE BELOW SLAB OR GRADE, OR UNDER RAISED ACCESS FLOOR
V	VOLUME CONTROL		DENOTES CONDUIT TURNING UP IN PLAN VIEW
	PLYWOOD EQUIPMENT BACKBOARD 4'X8' UNLESS NOTED OTHERWISE		DENOTES CONDUIT TURNING DOWN IN PLAN VIEW
CCTV	CLOSED CIRCUIT TELEVISION CAMERA		STUB UP
	COAXIAL CABLE OUTLET	XXXX	SHORT CIRCUIT AVAILABLE CURRENT

(NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS AND ARE USED AS APPLICABLE TO THIS PROJECT)

ABBREVIATIONS

A, AMPS	AMPERES
A/C	AIR CONDITIONER
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CURRENT
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BKBD	BACKBOARD
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
DIST	DISTRIBUTION
DN	DOWN
DP	DISTRIBUTION PANEL
DWG	DRAWING
EB	ENCASED BURIAL
EC	EMPTY CONDUIT
EEW	ENERGIZED ELECTRICAL WORK
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELR	END-OF-LINE RESISTOR
EWC	ELECTRIC WATER COOLER
<E>	EXISTING
<ER>	EXISTING TO REMAIN
<EX>	EXISTING
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERES
GND	GROUND
GALV	GALVANIZED
GRS	GALVANIZED RIGID STEEL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HD	HEAT DETECTOR
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
ISC	INTERRUPTING SHORT CIRCUIT
IG	ISOLATED GROUND
INST	INSTANTANEOUS
JB	JUNCTION BOX
KAIC	KILO (THOUSAND) AMPERES INTERRUPTING CAPACITY
KCMIL	KILO (THOUSAND) CIRCULAR MILS
KV	KILO (THOUSAND) VOLTS
KVA	KILO (THOUSAND) VOLT-AMPERES
KW	KILO (THOUSAND) WATTS
KWH	KILO (THOUSAND) WATT-HOURS
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILS
MCCB	MOLDED CASE
MLO	MAIN LUGS ONLY
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRICAL SAFETY CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN, NUMBER
NTS	NOT TO SCALE
PNL	PANELBOARD
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL CONDUIT
RMC	RIGID METALLIC CONDUIT (GALVANIZED)
RMS	ROOT-MEAN-SQUARE
RNC	RIGID NON-METALLIC CONDUIT
SCA	SHORT CIRCUIT AVAILABLE
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBD	TO BE DETERMINED
TCP	TEMPERATURE CONTROL PANEL
TD	TIME DELAY
TEL	TELEPHONE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITER'S LABORATORIES
UON	UNLESS OTHERWISE UNDERGROUND PULLBOX
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
WH	WATER HEATER
WP	WEATHERPROOF
WT	WATERTIGHT
XFMR	TRANSFORMER

ELECTRICAL SPECIFICATIONS/NOTES

NOTE: MANUFACTURER'S NAMES ON WHICH THIS SPECIFICATION IS BASED INDICATE THE MINIMUM QUALITY OF PRODUCT REQUIRED. SUBSTITUTION MAY BE MADE TO THOSE SPECIFIED IF DEEMED EQUIVALENT BY THE OWNER'S REPRESENTATIVE. ALL WORK AND PRODUCTS SHALL MEET THE REQUIREMENTS OF THE LANDLORD.

1. THE GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS SHALL BE CONSIDERED AS PART OF THIS SPECIFICATION.

2. ALL WORK TO BE IN ACCORDANCE WITH THE RULES AND REGULATION OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND THE MOST RECENT EDITION OF NATIONAL ELECTRIC CODE.

3. CONTRACTOR SHALL FILE PLANS WITH AND OBTAIN APPROVALS FROM MUNICIPAL AGENCIES. ALL PERMITS AND CERTIFICATES OF INSPECTION SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.

   PERTINENT CERTIFICATES SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE, PRIOR TO FINAL BILLING.

4. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING. BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS.

   HE SHALL CAREFULLY EXAMINE THE EXISTING CONDITIONS AND LIMITATIONS THEREOF. HE SHALL ASCERTAIN CONDITIONS UNDER WHICH THE WORK MUST BE PERFORMED, INCLUDING THE HANDLING OF MATERIALS, SECURITY AND LIMITING FIELD DIMENSIONS. FURTHER, THIS CONTRACTOR SHALL PROVIDE FIELD VERIFICATION OF LOCATION OF POINTS OF CONNECTION TO LANDLORD'S ELECTRICAL AND TELEPHONE EQUIPMENT AND DISTANCE FROM LEASED SPACE.

   ANY DISCREPANCIES WITH THE CONSTRUCTION DOCUMENTS DISCOVERED AS A RESULT OF THE AFOREMENTIONED FIELD SURVEY, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE, PRIOR TO COMMENCING ANY WORK. ANY ADDITIONAL COSTS RESULTING FROM CONTRACTOR'S FAILURE TO DO SO SHALL BE HIS RESPONSIBILITY AND SHALL BE BORNE BY HIM.

5. ELECTRICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN HIS WORK AS THE JOB PROGRESSES; AN ACCURATE RECORD OF ALL WORK AS ACTUALLY INSTALLED.

   UPON COMPLETION OF THE WORK AND BEFORE FINAL PAYMENT IS AUTHORIZED, SHALL TURN OVER TO THE OWNER'S REPRESENTATIVE A RECORD SET OF PRINTS SHOWING THESE CHANGES.

6. SUBMIT MATERIAL LISTS AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE OWNER'S REPRESENTATIVE FOR REVIEW. SUBMITTALS SHALL BE IN ACCORDANCE WITH GENERAL CONDITIONS AND SHALL BEAR THE STAMP OF THE ELECTRICAL CONTRACTOR SHOWING THAT HE HAS REVIEWED AND APPROVED THEM. LACK OF SUCH CONTRACTOR'S APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY THE OWNER.

7. THIS CONTRACTOR SHALL DO ALL CUTTING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK HEREIN SPECIFIED.

   ALL OPENINGS THROUGH STRUCTURALLY SUPPORTED SLABS MUST BE COREBORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND AT LEAST 2" AFF.

   ALL SLEEVES, OPENINGS, ETC. THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED AFTER CONDUIT INSTALLATION TO RETAIN FIRE RATING.

8. ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIR.

   HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS CHANNELS, RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK AND SHALL BE SECURED TO THE BUILDING STRUCTURE, NOT TO PIPING OR DUCTWORK.

   ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUIT SHALL BE RUN IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES AND SEPARATED AT LEAST 3" FROM WATER LINES WHEREVER THEY RUN ALONG SIDE OR ACROSS SUCH LINES.

9. EVERY PART OF THE INSTALLATION SHALL BE TESTED, OPERATED AND LEFT IN PERFECT WORKING ORDER.

   TEST ALL WIRES AND CABLES INSTALLED UNDER THIS CONTRACT WITH A 1,000 VOLT MEGOHM METER. ANY READINGS THAT ARE LOWER THAN REQUIRED BY GOOD PRACTICE OR APPLICABLE CODES, PROMPTLY REPLACE THE MATERIALS OR EQUIPMENT INVOLVED.

   SHOULD TESTING REVEAL ANY OTHER DEFECTS, PROMPTLY CORRECT SUCH DEFECTS AND RERUN TESTS UNTIL THE ENTIRE INSTALLATION IS SATISFACTORY IN ALL RESPECTS.

10. GUARANTEE:
    CONTRACTOR IS TO GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE OF THE PROJECT BY THE OWNER. IT IS UNDERSTOOD BY HIS ACCEPTANCE OF THE CONTRACT THAT THIS CONTRACTOR WILL MAKE GOOD ANY AND ALL WORK WHICH IN ANY WAY HAS BECOME DEFECTIVE AS TO THE QUALITY OF MATERIALS AND WORKMANSHIP FOR ANY CAUSE OTHER THAN ORDINARY WEAR AND TEAR.

    FOR THE SAME PERIOD, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY HIM.

11. THE CONTRACTOR, BEFORE FINAL ACCEPTANCE BY THE OWNER WILL BE GRANTED, SHALL CLEAN ALL LIGHTING FIXTURES, DEVICE PLATES, SERVICE FITTINGS AND OTHER ITEMS FURNISHED UNDER THIS CONTRACT. HE SHALL INSURE THAT ALL DIRECTORIES ARE IN PLACE WITH COMPLETED OR REVISED SCHEDULES AND ALL IDENTIFICATIONS AND MARKINGS OF EQUIPMENT, CABLES AND OTHER ITEMS ARE COMPLETED.

12. THIS CONTRACTOR SHALL COORDINATE SEQUENCE OF WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY VOLTAGE OF MECHANICAL EQUIPMENT AND FLUORESCENT FIXTURE BALLASTS, PRIOR COMMENCING ANY WORK.

13. THIS CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY POWER AND SHALL PAY THE COST FOR THE UTILITY CONNECTION AND SHALL BE RESPONSIBLE FOR THE PROPER MAINTENANCE OF THE TEMPORARY WORK AND FOR THE REMOVAL OF SAME.

    CONTRACTOR SHALL PAY ALL UTILITY CHARGES IN CONNECTION WITH THE TEMPORARY POWER.

    CONTRACTOR SHALL PROVIDE GROUND FAULT PROTECTION FOR ALL POWER EQUIPMENT USED ON THE PREMISES DURING CONSTRUCTION.

14. SCOPE OF WORK
    CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, SUPPLIES, EQUIPMENT AND FEES REQUIRED TO COMPLETELY INSTALL, TEST AND PLACE THE HEREIN SPECIFIED EQUIPMENT, COMPONENTS, CONTROLS, AND SYSTEMS IN SERVICE.

    COMPLETE POWER AND LIGHTING DISTRIBUTION SYSTEMS INCLUDING ALL PANELS AND COMPLETE BRANCH CIRCUIT WIRING SYSTEM.

    COMPLETE UTILITY MOTOR WIRING SYSTEM (EXCEPT AS NOTED).

    COMPLETE LIGHTING FIXTURE INSTALLATION.

    COMPLETE TELEPHONE CONDUIT SYSTEM. CONDUIT FROM POINT OF CONNECTION TO LANDLORD'S SYSTEM AND ALL TERMINAL DEVICES, BOXES, CONDUIT, PLATES, ETC.

    TEMPORARY ELECTRICAL SERVICE AS REQUIRED FOR CONSTRUCTION.

    WIRING AND FINAL CONNECTION TO ALL SIGNS AND GRAPHICS, FURNISHED BY THE OWNER.

    PROVISIONS FOR FIRE ALARM/SMOKE EVACUATION SYSTEM AND EXTENSION TO LANDLORD'S SYSTEM.

    TESTING OF ALL CABLES AND CIRCUIT WIRING AFTER INSTALLATION.

    TESTING OF ALL ELECTRICAL EQUIPMENT.

    WARRANTY OF ALL WORK FOR A PERIOD OF ONE YEAR FROM DATE OF PROJECT CLOSE-OUT.

15. ELECTRICAL SERVICE
    PROVIDE ELECTRICAL AS INDICATED ON THE DRAWING.

    ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD OR THE POWER COMPANY SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

    CLOSELY COORDINATE ENTIRE INSTALLATION WITH THE POWER COMPANY.

    CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE LOCAL UTILITY FOR INSTALLATION OF METERING.

16. CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE LOCAL TELEPHONE UTILITY FOR TELEPHONE SERVICE TO THE SPACE, CONDUIT SYSTEM FOR TELEPHONE DISTRIBUTION TO THE LEASED PREMISES SHALL BE PROVIDED WHERE REQUIRED FOR UTILITY COMPANY WIRES.

    COORDINATE INSTALLATION OF TELEPHONE WORK AND INSTALL ALL CONDUIT FOR TELEPHONE SYSTEM.

    OUTLET BOXES SHALL BE 4" SQUARE MINIMUM WITH SINGLE DEVICE COVER AND TELEPHONE PLATE.

    PROVIDE INTERIOR TYPE 4-D PLYWOOD 24" X 24" TO SERVE AS TELEPHONE TERMINAL BOARD.

17. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND FINISHED INSTALLATION.

17.1. THE WORD "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE.

17.2. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEARS ON THE UNDERWRITER'S LABORATORY LIST OF APPROVED ITEMS AND SHALL MEET THE REQUIREMENTS OF RECOGNIZED STANDARDS.

17.3. EQUIPMENT SHALL BE SIZED IN CONFORMITY WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES.

18. CONDUIT SHALL BE STANDARD STEEL, RIGID, IMC OR EMT (THIN WALL) ACCORDING TO CODE REQUIREMENTS. CONDUIT SHALL BE CONCEALED IN FINISHED AREAS, EXCEPT AS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.

19. SURFACE RACEWAYS SHALL BE METAL TYPE OF THE SIZE AND CHANNEL REQUIRED FOR SERVICE, CONSTRUCTED OF GALVANIZED STEEL WITH SNAP-ON COVERS, WITH 1/8" MOUNTING SCREW KNOCKOUTS IN BASE APPROXIMATELY 8" O.C. PROVIDE FITTINGS INDICATED WHICH MATCH AND MATE WITH RACEWAY. FINISH WITH MANUFACTURER'S STANDARD PRIME COATING SUITABLE FOR PAINTING.

20. ALL CONDUCTORS SHALL BE SOFT DRAWN, ANNEALED COPPER, WITH 600V INSULATION:

20.1. #10 AND SMALLER - SOLID WITH SINGLE BRAID.

    # 8 AND LARGER - STRANDED WITH AT LEAST DOUBLE BRAID.

    MINIMUM WIRE SIZE SHALL BE #12, EXCEPT #14 MAY BE USED FOR CONTROL APPLICATIONS.

20.2. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES.

20.3. GENERAL WIRING SHALL HAVE THW, THHN OR THWN INSULATION.

20.4. ALUMINUM CONDUCTORS ARE NOT PERMITTED FOR BRANCH CIRCUIT WIRING.

20.5. WIRES SHALL BE COLOR CODED IN KEEPING WITH NEC STANDARDS

21. OUTLET BOXES AND COVERS SHALL BE ONE PIECE, GALVANIZED OR SHERARDIZED STEEL, KNOCK-OUT TYPE W/FIXTURE STUDS AS REQ. JUNCTION BOXES, PULL BOXES AND COVERS SHALL BE GALVANIZED STEEL, CODE GAUGE AND SIZE.

22. WIRING DEVICES: WALL SWITCHES, SINGLE POLE, DOUBLE POLE, AND THREE WAY SHALL BE GENERAL DUTY, FLUSH, TOGGLE SWITCHES; SPECIFICATION GRADE, 20A, 120/277V, WITH SCREW TERMINALS: MANUFACTURERS SHALL BE HUBBELL, BRYANT, PASS AND SEYMORE, OR LEWTON.

    GENERAL DUTY DUPLEX RECEPTACLES SHALL BE 2-POLE, 3-WIRE GROUNDING TYPE, SPECIFICATION GRADE, 20A, 125V, NEMA 5-20R UNLESS OTHERWISE INDICATED,. MANUFACTURES SHALL BE HUBBELL, BRYANT, PASS AND SEYMORE, OR LEVITRON.

    GROUND FAULT INTERRUPTER RECEPTACLE SHALL BE GENERAL DUTY, DUPLEX RECEPTACLES, GROUND FAULT CIRCUIT INTERRUPTER, FEED THROUGH TYPE, CAPABLE OF PROTECTING CONNECTED DOWNSTREAM RECEPTACLES ON A SINGLE CIRCUIT, GROUNDING TYPE UL-RATED CLASS A, GROUP 1, 20A, 120V, 60 HZ; WITH SOLID-STATE GROUND FAULT SENSING AND SIGNALING; WITH 5 MILLIAMPERES GROUND- FAULT TRIP LEVEL; IN NEMA 5-15R CONFIGURATION. MANUFACTURERS SHALL BE HUBBELL, BRYANT, PASS AND SEYMORE, OR LEVITRON.

    DUPLEX ISOLATED GROUND TYPE RECEPTACLE SHALL BE 2-POLE, 4-WIRE, 15A STRAIGHT BLADE DEVICE WITH SEPARATE ISOLATED GROUND AND BUILDING GROUND CONNECTIONS, IN NEMA 5-15R CONFIGURATION, AS MANUFACTURED BY HUBBELL IG-5362.

    TELEPHONE OUTLET COVER SHALL BE SIERRA #P-12.

    WIRING DEVICE ACCESSORIES INCLUDING ALL WALL PLATES SHALL BE PROVIDED AT EACH DEVICE. WALL PLATES SHALL BE SAME COLOR AS DEVICE AND MANUFACTURED AS A COMPANION TO THE DEVICE MOUNTING HEIGHTS OF DEVICES SHALL BE TO THE FOLLOWING CENTERLINES:

TOGGLE SWITCHES	4'-0"
RECEPTACLES	1'-6"
WALL TELEPHONE OUTLETS	4'-0"
DISCONNECT SWITCHES	5'-6"
PANELBOARDS	5'-0"

23. THIS CONTRACTOR SHALL PROVIDE, INSTALL AND CONNECT A COMPLETE SYSTEM OF GROUNDING FOR ALL EQUIPMENT AND STRUCTURES. A GOOD MECHANICAL AND ELECTRICAL CONNECTION SHALL BE MADE WITH APPROVED GROUNDING CONNECTORS.

    ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS SHALL COMPLY WITH ALL LOCAL, STATE AND NEC CODES AND REGULATIONS.

    PANELS, CONDUIT SYSTEMS, MOTOR FRAMES, LIGHTING FIXTURES AND OTHER EQUIPMENT THAT ARE A PART OF THIS INSTALLATION SHALL BE SECURELY GROUNDED BOTH MECHANICALLY AND ELECTRICALLY IN ACCORDANCE WITH ALL CODES.

    MAIN GROUNDING SYSTEM SHALL BE SIZED TO CONFORM WITH SECTION 250, TABLE 250-94 OF THE NATIONAL ELECTRICAL CODE. PROVIDE CONDUIT TO PROTECT GROUND WIRE FROM DAMAGE TO AN AREA 6 FT. ABOVE FLOOR.

    MAKE ALL JOINTS AND CONNECTIONS OF THE CONDUIT SYSTEM TIGHT TO MAINTAIN CONTINUITY OF MECHANICAL AND ELECTRICAL GROUND THROUGHOUT ENTIRE SYSTEM.

    GROUND ALL 3 WIRE RECEPTACLES TO THE OUTLET BOXES.

    GROUND NEUTRAL FROM THE TRANSFORMER CONNECTED TO WATER LINE.

    GROUND CONDUCTOR SHALL BE SUPPLIED IN ALL NON-METALLIC CONDUIT.

24. PANELBOARDS SHALL BE 3-PHASE, 4-WIRE DISTRIBUTED PHASE TYPE WITH SOLID NEUTRAL GROUND LUG, GROUND BUS AND NUMBER OF CIRCUIT BREAKERS AS SHOWN ON THE PANEL SCHEDULE. BUSWAYS SHALL BE HARD DRAWN COPPER. CABINET SHALL BE CONSTRUCTED OF CODE GAUGE STEEL WITH HINGED DOOR HAVING DIRECTORY CARD, NEATLY AND PROPERLY INSCRIBED AND SET IN FRAME WITH TRANSPARENT COVER.

    ALL BREAKERS SHALL BE BOLTED TYPE, THERMAL MAGNETIC WITH ALL TWO OR THREE POLE BREAKERS HAVING COMMON TRIP. CIRCUIT BREAKERS SHALL BE RATED FOR MINIMUM 10,000 AMP SYMMETRICAL SHORT CIRCUIT CURRENT AT 120/208V AND 14,000 AMP FOR 277/480V.

    CIRCUIT BREAKERS SERVING LIGHTING CIRCUITS SHALL BE RATED FOR SWITCH SERVICE.

    PANELBOARDS AND BREAKERS SHALL BE AS MANUFACTURED BY SQUARE-D OR EQUAL.

    PANEL SHALL BE CIRCUITED SO THAT THE LOAD IS DISTRIBUTED EVENLY ACROSS ALL THREE PHASES.

25. PROVIDE SAFETY AND DISCONNECT SWITCHES, FUSED OR NON-FUSED, AS CALLED FOR ON DRAWING AND AS REQUIRED BY CODE. SWITCHES SHALL BE HEAVY DUTY, LOAD AND HORSEPOWER RATED AS MANUFACTURED BY SQUARE-D, GENERAL ELECTRIC, OR EQUAL. SWITCH ENCLOSURE TO BE SUITABLE FOR APPLICATION.

    FURNISH AND INSTALL DUAL ELEMENT CURRENT LIMITING FUSES OF TYPE AND AMPACITY DESIGNED TO PROTECT SYSTEM AGAINST AVAILABLE SHORT CIRCUIT FAULT CURRENT.

26. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS) SYSTEM FOR MAIN PANEL MDP.

    SYSTEM TO BE AS MANUFACTURED BY INTERMATIC, PG100 SERIES OR APPROVED EQUIVALENT.

27. LIGHTING FIXTURES:
    THE CONTRACTOR SHALL PROVIDE A NEW LIGHTING FIXTURE OF THE TYPE SPECIFIED FOR EACH LIGHTING OUTLET SHOWN WITH COMPLETE LAMPS OR TUBES. ALL FIXTURES SHALL BE HUNG AND MOUNTED IN PLACE, PROPERLY WIRED, TESTED AND LEFT READY FOR OPERATION.

28. PAINTING OF ELECTRICAL CONDUITS, ETC., IF REQUIRED, WILL BE BY GENERAL CONTRACTOR.

29. FINALLY:
    IT IS THE INTENT THAT THE FOREGOING WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT ANY MATERIAL OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO FULLY COMPLETE THE WORK SHALL BE FURNISHED.

    THE LOCATION OF RECEPTACLES AND FIXTURES SHOWN ON THE DRAWING IS APPROXIMATE AND THE OWNER SHALL HAVE THE RIGHT TO RELOCATE ANY RECEPTACLES OR FIXTURES BEFORE THEY ARE INSTALLED WITHOUT ADDITIONAL COST.

COMMONWEALTH OF VIRGINIA
GUIDO INOA ALVAREZ
Lic.No.0402051423
PROFESSIONAL ENGINEER

REVISIONS

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ELECTRICAL LEGEND/SPECS

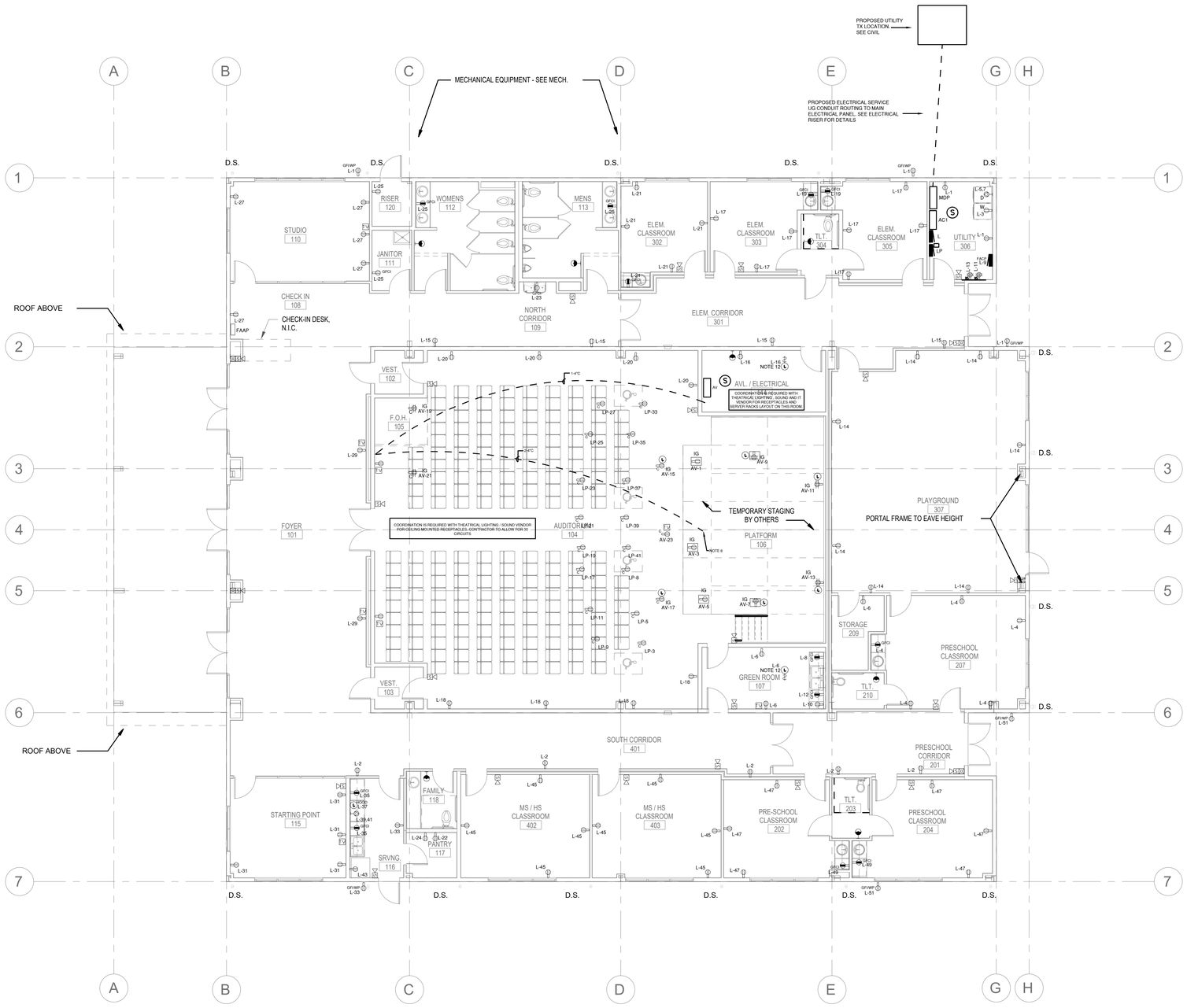
SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

E000

POWER AND SYSTEMS NOTES:

1. TV OUTLET WITH CABLE T.V. CONNECTION. FIELD COORDINATE ELECTRICAL REQUIREMENTS.
2. ALARM SYSTEM CONTROL FINAL CONNECTION BY ALARM CONTRACTOR. STACK ALARM PANEL ABOVE TELEPHONE PANEL. COORDINATE OUTLET MOUNTING HEIGHT WITH ALARM CONTRACTOR.
3. PROVIDE 3' X 4' X 3/4" FIRE RESISTANT PLYWOOD BACKBOARD PAINTED WHITE FOR TELEPHONE SYSTEM. CONNECT #6 AWG, INSULATED, STRANDED, COPPER GROUND WIRE FROM TELEPHONE SYSTEM TO GROUND BUS AT MAIN PANEL.
4. CONTRACTOR TO PROVIDE 2-3" CONDUIT FOR TELEPHONE SERVICE FROM ELECTRICAL ROOM TO D-MARK POINT. COORDINATE WITH UTILITY COMPANY PRIOR TO INSTALLATION.
5. IF GFI RECEPTACLE IS NOT READABLE ACCESSIBLE CONTRACTOR SHALL PROVIDE GFI BREAKER INSTEAD. TYPICAL FOR KITCHEN EQUIPMENT AND DRINKING FOUNTAIN.
6. ALL RECEPTACLES TO BE CHILDPROOF RATED.
7. CONTRACTOR TO PROVIDE J-BOX FOR ACCESS CONTROL. PROVIDE ¾" EMPTY CONDUIT ABOVE CEILING SPACE AND PULL STRING FOR FUTURE WIRING INSTALLATION. COORDINATE WITH SECURITY VENDOR PRIOR TO INSTALLATION.
8. STUB UP CONDUIT UNDER PLATFORM AND IN SOUND BOOTH.
9. CONTRACTOR TO PROVIDE 2 1X4 UTILITY LED FIXTURES WITH SWITCH ABOVE THIS ROOM FOR MECHANICAL MEZZANINE.
10. OUTLET FOR OWNERS PROVIDED STRING LED LIGHTS.
11. PROVIDE DEDICATED CIRCUIT FOR TOILETS AND FAUCETS AUTOMATIC ACTUATORS.
12. J-BOX TO PROVIDE POWER TO AC PLATFORM ABOVE. PROVIDE SWITCH AND 1X4 UTILITY LED FIXTURE NEXT TO ACCESS TO PROVIDE LIGHTING ON PLATFORM.



POWER PLAN

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

COMMONWEALTH OF VIRGINIA
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POWER PLAN

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

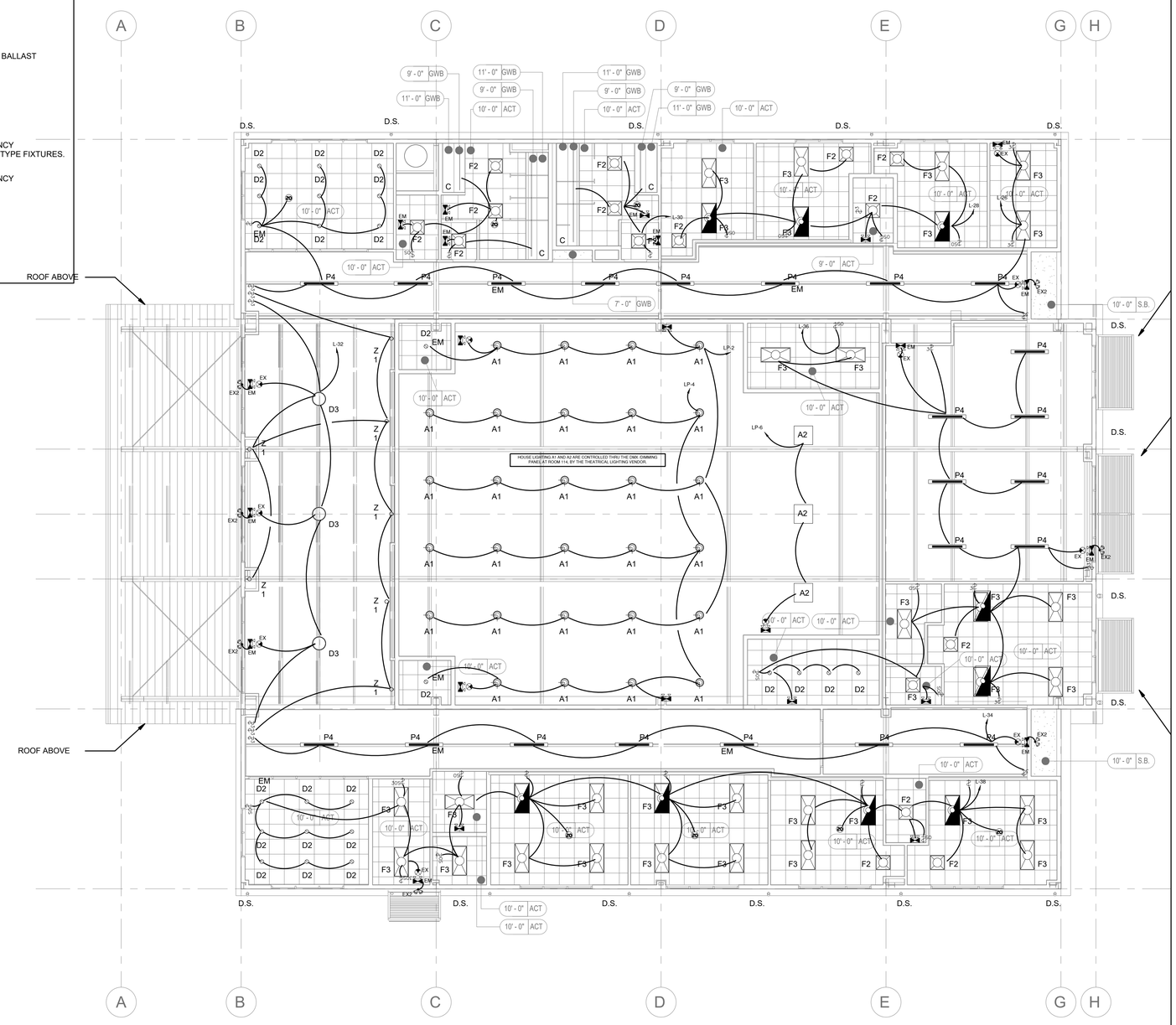
E101

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	CATALOG NUMBER	LAMPS	NOTES
A1	DIMMABLE LED PRODUCTION FIXTURE	PRESCOLITE MC10LED9L27K8WFL4526BL DMXR	LED	REFER TO LIGHTING DESIGNER DRAWINGS FOR ALL REQUIREMENTS.
A2	DIMMABLE LED PRODUCTION DOWN LIGHT	LIGHT SOURCE - RL1--W60-078-30K-I (IDC PLUGON HEADER)-J	LED	REFER TO LIGHTING DESIGNER DRAWINGS FOR ALL REQUIREMENTS.
B1	FLUORESCENT WRAP AROUND	TECHLIGHT - W9232D10RS	(2) F32T8/SP30	PROVIDE 1400 LUMEN INTEGRAL EMERGENCY BATTERY BALLAST.
C	LUMENPULSE	LCS2 RO 277 48 35K CL WH - 4' UNIT	LED	
D1	6" LED DOWN LIGHT	CREE - KR6-20L-30K-120-KR6T-SSGC-WF	LED/30K	PROVIDE 1400 LUMEN INTEGRAL BATTERY BALLAST FOR ALL 'D1E' TYPE FIXTURES.
D2	6" LED DIMMABLE DOWN LIGHT	CREE - KR6-20L-30K-120-10VKR6T-SSGC-WF	LED/30K	
D3	ARCHITECTURAL CYLINDER DOWNLIGHT	TBD	TBD	TBD
F3	RECESSED LED SHALLOW PLENUM TROFFER VISIONEERING -	LRT-F-2X4-LED8-30K-038L-UNV	74W/30K/LED	PROVIDE 1400 LUMEN INTEGRAL EMERGENCY BATTERY BALLAST FOR ALL 'F3E' MARKED TYPE FIXTURES.
P4	CORRIDOR LED LINEAR PENDANT	STARTEK - SP-N-4-30K-CA-X-X-NS-AD-120/277-PN	LED/30K	PROVIDE 1400 LUMEN INTEGRAL EMERGENCY BATTERY BALLAST FOR ALL 'P4E' TYPE...
EX2	EMERGENCY REMOTE HEAD	ELITE LIGHTING MAXILUME ELM-832	LED/5W	TIE TO INTERIOR EMERGENCY LIGHT.
EX	EMERGENCY EXIT SIGN	ELITE LIGHTING MAXILUME ELX-602-G-AL-1-CLEAR	LED/5W	PROVIDE INTEGRAL EMERGENCY BATTERY BACK UP
EM	EMERGENCY LIGHT	ELITE LIGHTING MAXILUME ELM-LED-803	LED/1W	PROVIDE INTEGRAL EMERGENCY BATTERY BACK UP

LIGHTING NOTES:

1. PROVIDE NON-CONTACTORED, NON-SWITCHED HOT CONDUCTOR OF SAME CIRCUIT TO EACH EMERGENCY LIGHTING FIXTURE, EXIT SIGN AND NIGHT LIGHT.
2. SEE POWER PLAN FOR THEATRICAL LIGHTING / SOUND CEILING RECEPTACLES LAY-OUT. COORDINATE REQUIREMENTS WITH VENDOR PRIOR TO INSTALLATION.
3. INTERLOCK FANS WITH LIGHTS IN THE RESTROOMS.
4. CONTRACTOR TO PROVIDE VENDOR CONTROLS LAY-OUT FOR ENGINEERS APPROVAL TO MAXIMIZE SENSOR COVERAGE. ALL CONTROLS TO BE HUBBELL OR EQUAL.
5. FIXTURES WITH 'EM' REQUIRES EMERGENCY BATTERY BACK UPS WITH IN THE UNIT OR REMOTE. 90 MIN MINIMUM. NL EQUALS 24/7 ON.
6. MAIN SEATING AREA LIGHTING IS CONTROLLED THRU A DMX LIGHTING CONTROL PANEL BY OTHERS. THEATRICAL LIGHTING CONTROLS CONTRACTOR TO COORDINATE MAIN STAGE AND HOUSE LIGHTING CONTROLS WITH ENGINEERS FOR FINAL REQUIREMENTS. ELECTRICAL CONTRACTOR TO PROVIDE CONDUITS AND BOXES.
7. ALL SMALL OFFICES AND SERVICE ROOMS SHALL HAVE A WALL MOUNTED OCCUPANCY SENSOR. OPEN AREAS SHALL BE CONTROLLED THRU A CEILING MOTION SENSOR AND EXTERIOR LIGHTING THRU A TIME CLOCK UNLESS OTHERWISE NOTED.



LIGHTING PLAN

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

COMMONWEALTH OF VIRGINIA
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LIGHTING PLAN

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(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

E201

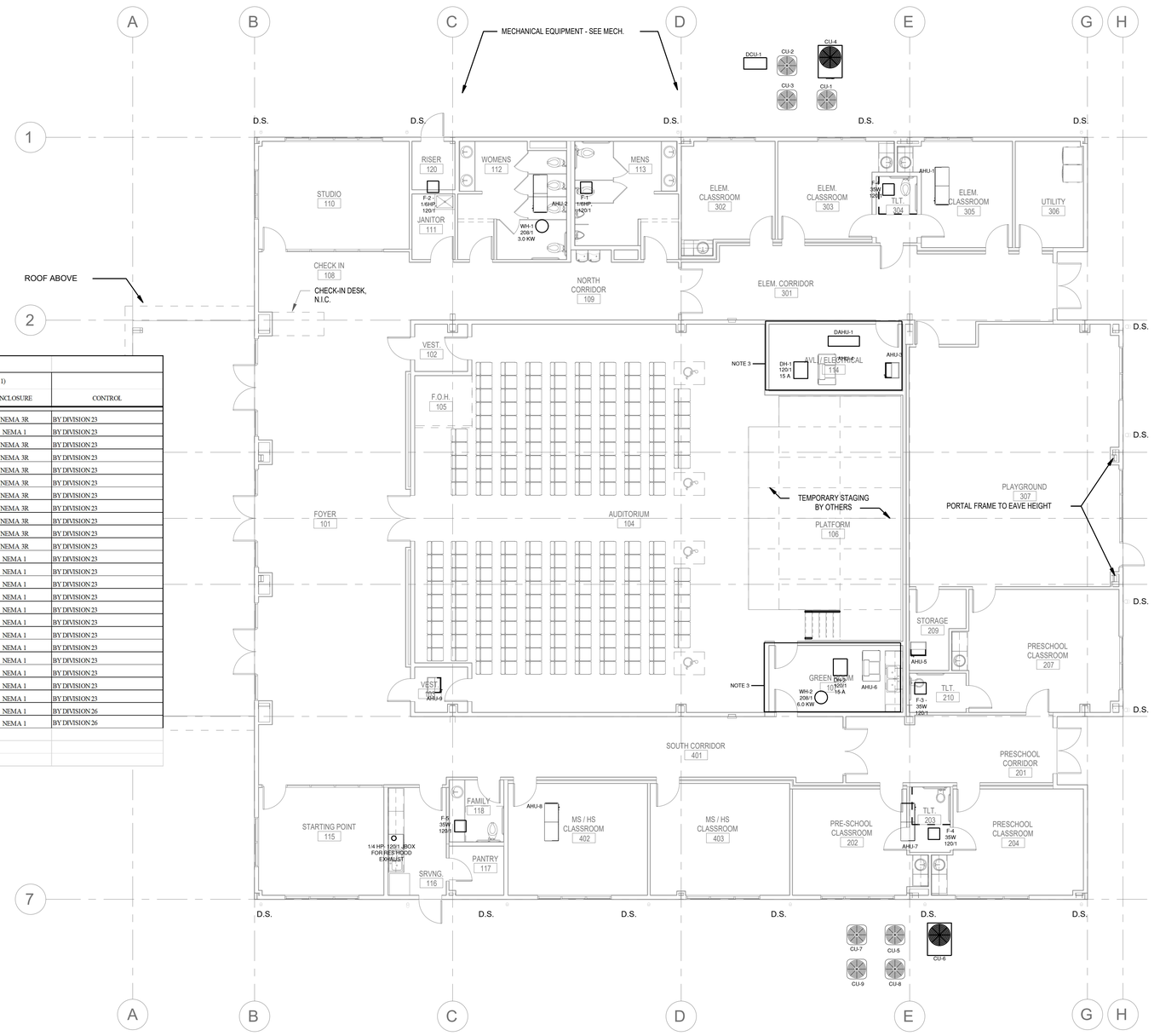
ELECTRICAL HVAC PLAN NOTES:

1. SEE MECHANICAL SCHEDULE FOR UNITS ELECTRICAL SERVICE REQUIREMENTS. IN CASE OF DISCREPANCIES BETWEEN SCHEDULE , VALUES SHOWN ON THE FLOOR AND EQUIPMENT LABELS, THE LABEL VALUES SUPERCEDES.
2. CONNECT TO RESTROOM LIGHTING CIRCUIT. FAN TO OPERATE WHENEVER RESTROOM LIGHTS ARE ON.
3. EQUIPMENT MOUNTED ON MEZZANINE.

MECHANICAL EQUIPMENT SCHEDULE

EQUIPMENT NAME	VOLTAGE	PHASE	HP	KW	KW / POLE	FLA	MCA	MOCP	BREAKER AMPACITY	PANEL	FEEDER	DISCONNECT (NOTE 1) SIZE	POLES	FUSE SIZE	ENCLOSURE	CONTROL
DCU-1	208	1			2.42	23.3	29.1	35	35	AC1-37,39	2 # 8 ,1# 10 G 3/4 °C.	60	2	NF	NEMA 3R	BY DIVISION 23
DAHU-1	208	1			0.15	1.4	1.8	15	15	AC1-41,43	2 # 12 ,1# 12 G 1/2 °C.	30	2	NF	NEMA 1	BY DIVISION 23
CU-1	208	3			2.02	16.8	21.0	35	35	AC1-49,51,53	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-2	208	3			2.02	16.8	21.0	35	35	AC1-55,57,59	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-3	208	3			2.02	16.8	21.0	35	35	AC1-2,4,6	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-4	208	3			3.17	26.4	33.0	45	45	AC1-8,10,12	3 # 6 ,1# 10 G 1 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-5	208	3			2.02	16.8	21.0	35	35	AC1-14,16,18	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-6	208	3			3.17	26.4	33.0	45	45	AC1-20,22,24	3 # 6 ,1# 10 G 1 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-7	208	3			2.02	16.8	21.0	35	35	AC1-26,28,30	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-8	208	3			2.02	16.8	21.0	35	35	AC1-32,34,36	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
CU-9	208	3			2.02	16.8	21.0	35	35	AC1-38,40,42	3 # 8 ,1# 10 G 3/4 °C.	60	3	NF	NEMA 3R	BY DIVISION 23
AHU-1	120	1			1.47	12.2	15.3	20	20	AC1-1	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-2	120	1			1.47	12.2	15.3	20	20	AC1-3	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-3	120	1			1.47	12.2	15.3	20	20	AC1-5	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-4	208	3			1.15	9.6	12.0	20	20	AC1-44,46,48	3 # 12 ,1# 12 G 1/2 °C.	30	3	NF	NEMA 1	BY DIVISION 23
AHU-5	120	1			1.47	12.2	15.3	20	20	AC1-7	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-6	208	3			0.94	7.8	12.0	20	20	AC1-50,52,54	3 # 12 ,1# 12 G 1/2 °C.	30	3	NF	NEMA 1	BY DIVISION 23
AHU-7	120	1			1.47	12.2	15.3	20	20	AC1-9	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-8	120	1			1.47	12.2	15.3	20	20	AC1-11	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
AHU-9	120	1			1.47	12.2	15.3	20	20	AC1-13	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
DH-1 (AHU-4)	120	1			1.00	10.0	12.0	15	15	AC1-15	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
DH-2 (AHU-6)	120	1			1.00	10.0	12.0	15	15	AC1-17	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
F1/F2	120	1			0.50	3.0	3.6	15	15	AC1-19	2 # 12 ,1# 12 G 1/2 °C.	30	1	NF	NEMA 1	BY DIVISION 23
WH-1 - JANITOR	208	1			1.50	12.0	15.0	20	20	AC1-21,23	2 # 12 ,1# 12 G 1/2 °C.	30	2	NF	NEMA 1	BY DIVISION 26
WH-1 - UTILITY	208	1			3.00	28.0	28.0	35	35	AC1-25,27	2 # 8 ,1# 10 G 3/4 °C.	60	2	NF	NEMA 1	BY DIVISION 26

NOTES:
1. DISCONNECT SWITCH IS NOT REQUIRED IF UNIT IS PROVIDED WITH DISCONNECT OR IF UNIT HAS CORD/PLUG AND RECEPTACLE.



HVAC POWER PLAN
SCALE: 1/8" = 1'-0"

COMMONWEALTH OF VIRGINIA
GUIDO INOA ALVAREZ
Lic.No.0402051423
PROFESSIONAL ENGINEER

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TJR
CAD File:

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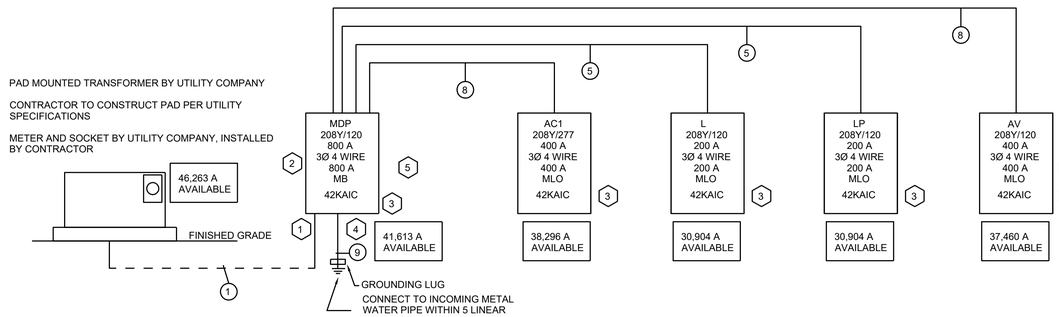
HVAC POWER PLAN

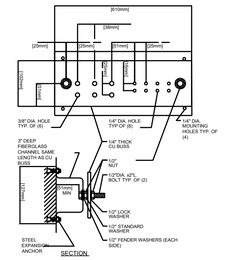
SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

E301



1 POWER RISER
N.T.S.



2 GROUNDING LUG
N.T.S.

NOTES

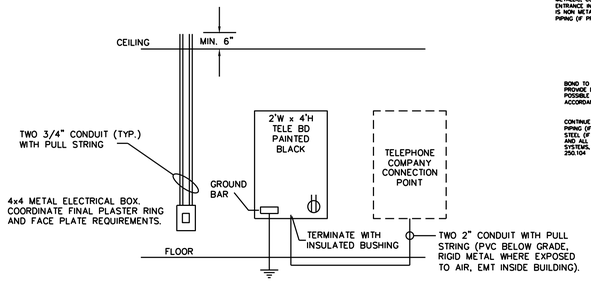
1. ALL CONDUCTORS ALUMINUM AND RATED 75 DEGREES C.
2. CONDUCTORS AND CONDUIT ARE MINIMUM REQUIREMENTS. CONTRACTOR MAY INCREASE SIZES FOR CONVENIENCE OR EASE OF CONDUCTOR INSTALLATION.
3. EQUIPMENT FULLY RATED FOR AVAILABLE FAULT CURRENT. NOTIFY ENGINEER IF UTILITY FAULT CURRENT EXCEEDS THAT WHICH IS SHOWN ON DRAWINGS.
4. PROVIDE ARC FLASH PROTECTION PER NEC 240.87 (B). ATTACH PHENOLIC SIGNS TO MDP WITH DIRECTIONS TO REDUCE ARC FLASH

KEY NOTES

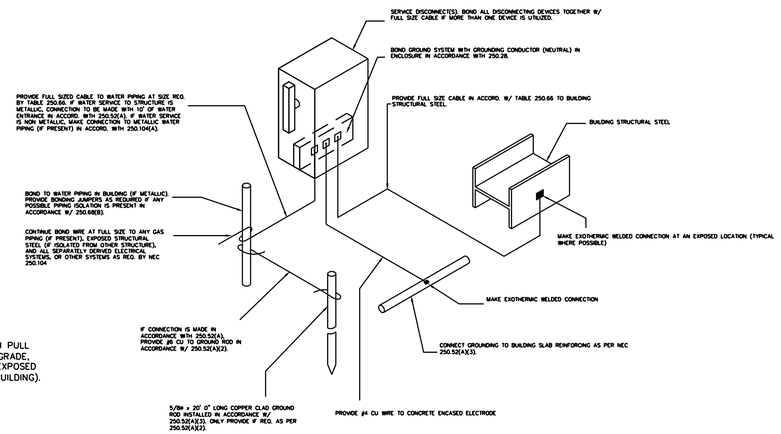
1. SEAL CONDUIT AFTER INSTALLATION OF CONDUCTORS IN UNDERGROUND CONDUITS.
2. "SERVICE ENTRANCE RATED"
3. 36" CLEARANCE REQUIRED PER NEC 110.26(A)
4. PROVIDE HOUSEKEEPING PAD.
5. PROVIDE ARC FLASH PROTECTION PER NEC 240.87 (B). ATTACH PHENOLIC SIGNS TO MDP WITH DIRECTIONS TO REDUCE ARC FLASH
6. WIRE AV PANEL GROUND DIRECTLY TO GROUNDING LUG

WIRING SCHEDULE

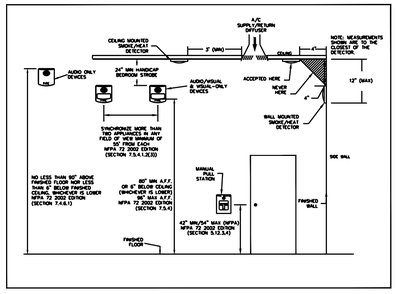
1. 4 RUNS 4 - 250 KCMIL 2 1/2" CONDUIT (EACH)
2. 1#3/0 CU IN 1" PVC CONDUIT
3. #6 CU
4. 2 RUNS 4 - 250 KCMIL + 1#1 GROUND IN 2 1/2" CONDUIT (EACH)
5. 4 - 250 KCMIL + 1#4 GROUND IN 2 1/2" CONDUIT
6. 2 RUNS 4 - 500 KCMIL + 1#2/0 GROUND IN 2 1/2" CONDUIT (EACH)
7. 2 RUNS 4 - 500 KCMIL + 1#2/0 GROUND IN 3" CONDUIT (EACH)
8. 2 RUNS 4 - 250 KCMIL + 1#2 GROUND IN 2 1/2" CONDUIT (EACH)
9. 1#3/0 CU GROUND IN 1" PVC CONDUIT



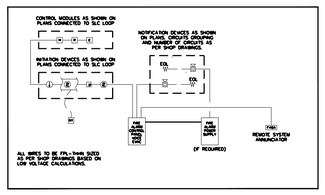
3 TELEPHONE RISER
N.T.S.



4 SERVICE GROUND INSTALLATION DETAIL
N.T.S.



5 FIRE ALARM DEVICES MOUNTING DETAIL
N.T.S.



6 FIRE ALARM RISER DIAGRAM
N.T.S.

FIRE ALARM SPECIFICATIONS:

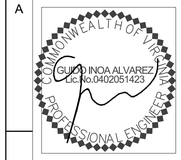
1. INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF NFPA 70, 2007 NFPA 72, AND ALL LOCAL RULES AND REGULATIONS.
2. ALL EQUIPMENT SHALL BE IDENTIFIED, COMPATIBLE AND LISTED FOR THE APPLICATION BEING USED.
3. ALL EQUIPMENT MUST HAVE AN UNIQUE IDENTIFICATION NUMBER.
4. CONTRACTOR SHALL PROVIDE ALL REQUIRED PERMITS.
5. MINIMUM CONDUIT SIZE WILL BE 3/4". MAX CONDUIT FILL SHALL BE 40%.
6. CONTRACTOR SHALL WARRANTEE ALL WORKMANSHIP AND MATERIALS FOR A MINIMUM OF ONE YEAR FROM FINAL INSPECTION.
7. CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER FOR CLARIFICATION.
8. CONTRACTOR SHALL INVESTIGATE THE PROJECT SITE AND ALL EXISTING SYSTEMS PRIOR TO BIDDING AND CONSTRUCTION.
9. SUBMIT SHOP DRAWINGS TO TO CITY/FIRE MARSHALL FOR APPROVAL PRIOR TO ROUGH-IN, AND TO ENGINEER FOR REVIEW.
9. VERIFY LOCATION OF ALL DEVICES WITH FIRE MARSHALL AND OWNER REPRESENTATIVE AT ROUGH-IN.
10. PROVIDE AND INSTALL ALL FIRE MARSHALL APPROVED SIGNAL TRANSMISSION EQUIPMENT FOR MUNICIPAL TIE-IN. COORDINATE WITH FIRE DEPARTMENT.
11. THIS IS A PROTECTED PREMISES REMOTE SUPERVISING STATION FIRE ALARM SYSTEM, USING A TWO PHONE DIALER AT FIRE ALARM CONTROL PANEL (FACP). FACP MUST SERVES THE PROTECTED PREMISES AND INDICATES THE "ALARM" SENDING A SIGNAL TO THE CENTRAL STATION THRU A DIALER AND VIA NOTIFICATION APPLIANCES INSIDE THE PROTECTED PREMISES.
12. FIRE ALARM CONTROL PANEL SHALL BE CROSS LISTED AND COMPATIBLE WITH OTHER COMPONENTS USED AND VOICE EVACUATION CAPABLE
13. ALL INITIATING AND INDICATION CIRCUITS MUST BE SUPERVISED.
14. ALL NEW CONDUITS MUST BE CONCEALED IN WALLS.
15. EVACUATIONS SIGNALS SHALL BE TEMPORAL IN ACCORDANCE WITH NFPA 72 3-7.2(A) AND ANSI S3.41.
16. CIRCUIT BREAKER SUPPLYING POWER TO THE FIRE ALARM PANEL AND COMPONENTS NEED TO BE CLEARLY MARKED WITH RED PAINT.
17. SIZE GUTTERS AND JUNCTIONS BOXES ACCORDING TO 314.28 AND 314.71 OF "NEC" (NFPA 70).
18. POWER UP AND POWER DOWN OF THE FIRE ALARM PANEL MUST BE DONE IN THE PROPER SEQUENCE: POWER DOWN: DISCONNECT BATTERY AND THEN TURN OFF THE AC POWER AT THE BREAKER. POWER UP: TURN ON THE AC POWER AT THE BREAKER AND THEN CONNECT THE BATTERY. NOTE: DO NOT DISCONNECT THE AC POWER FEED FROM THE TERMINAL BLOCK TO DISCONNECT POWER.
19. THE SOUND LEVEL OF ALL NOTIFICATION DEVICES SHALL BE AT LEAST 15db/A ABOVE THE EQUIVALENT SOUND LEVEL OR 5 DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, MEASURED 5 FT. ABOVE THE FLOOR IN THE OCCUPIED AREA.
20. BATTERY BACK-UP SHALL BE PROVIDED FOR 24 HOURS STANDBY AND 15 MINUTES IN ALARM.
21. FIRE ALARM SYSTEM MUST BE ADDRESSABLE.
22. SYSTEM SHALL HAVE A REMOTE SUPERVISION STATION MONITORING SERVICE. COORDINATE INTERCONNECTION (PHONE/INTERNET) WITH CLIENT.

ELECTRICAL RISER AND DETAILS

SCALE: NTS

GENERAL ELECTRICAL NOTES:

1. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, 2014 EDITION (NEC) WITH VIRGINIA'S LATEST AMENDMENTS, ALL LOCAL CODES, RULES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE ALL ELECTRICAL SITE WORK WITH GENERAL CONTRACTOR.
3. ALL ELECTRICAL EQUIPMENT, DEVICES, WIRE, ETC., SHALL BE LISTED, FOR THE INTENDED USE, WITH UNDERWRITER'S LABORATORY, INC. (U.L.) WHERE STANDARDS HAVE BEEN ESTABLISHED BY U.L.
4. ELECTRICAL CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT UNLESS NOTED OTHERWISE.
5. IT SHALL BE UNDERSTOOD THAT ALL WORK PERFORMED SHALL BE DONE BY A LICENSED ELECTRICAL CONTRACTOR AND IN A FIRST-CLASS WORKMANLIKE MANNER. SAID CONTRACTOR SHALL MEET ALL REQUIREMENTS SET FORTH BY ANY LOCAL ORDINANCE AND GOVERNING AUTHORITIES.
6. IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATION TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL BE EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
7. MAINTAIN RECORD DRAWINGS (AS-BUILTS) ON A DAILY BASIS. SUBMIT 3 COPIES TO ARCHITECT 5 WORKING DAYS PRIOR TO ANY REQUIRED INSPECTIONS. SUBMIT RECORD DRAWINGS TO OWNER WITHIN 30 DAYS OF SYSTEM ACCEPTANCE, INCLUDING RISER AND FLOOR PLANS.
8. PROVIDE 6 SETS OF SHOP DRAWINGS FOR APPROVAL. NO EQUIPMENT TO BE ORDERED BEFORE SHOP DRAWINGS ARE APPROVED.
9. PROVIDE OPERATING AND MAINTENANCE (O&M) MANUALS TO THE OWNER FOR ALL EQUIPMENT REQUIRING MAINTENANCE, ALONG WITH APPROVED SHOP DRAWINGS. SUBMITTAL TO OWNER SHALL INCLUDE EQUIPMENT RATING, SELECTED OPTIONS AND ROUTINE MAINTENANCE REQUIREMENTS. ALSO PROVIDE CONTACT INFORMATION FOR ONE QUALIFIED SERVICE AGENCY.
10. POWER TO BE ON CONTINUOUSLY 5 WEEKS PRIOR TO COMPLETING PROJECT.
11. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL CONDITIONS, LOCATIONS, DIMENSIONS AND COUNTS AS SHOWN AND/OR NOTED ON THE DRAWINGS. THIS SHALL INCLUDE ANY AND ALL FABRICATIONS PRIOR TO INSTALLATION. NOTIFY ENGINEER OF ANY DISCREPANCIES AT ONCE. FAILURE TO DO SO AND CONTRACTOR PRECEDES AT HIS OWN RISK.
12. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR THE ADVANCED ORDERING OF LONG LEAD ITEMS, AS NOT TO INTERFERE WITH THE PRODUCTION OF OTHER TRADES RESULTING IN ANY DOWN OR LAG TIME.
13. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND/OR NOTED ON THE DRAWINGS.
14. THE ELECTRICAL CONTRACTOR SHALL KEEP ALL AREAS IN WHICH WORK IS BEING PERFORMED, FREE FROM DEBRIS AND UNUSED MATERIALS AT ALL TIMES AND SAID AREAS SHALL BE LEFT BROOM CLEAN AT THE END OF EACH WORKING DAY. AT THE COMPLETION OF THE PROJECT ALL EQUIPMENT, DEVICES AND FIXTURES TO BE CLEANED.
15. WHERE CORE DRILLING OF FLOOR/WALLS IS REQUIRED, CONTRACTOR SHALL SEAL OPENINGS WATERTIGHT AFTER UTILITIES HAVE BEEN INSTALLED. LOCATION OF CORED HOLES SHALL COORDINATE WITH LOCATION OF EQUIPMENT IN A MANNER TO BE CLEAN AND FUNCTIONAL. THE CONTRACTOR SHALL INSTALL ONLY ONE CONDUIT PER HOLE AND SEAL THE OPENING AROUND THE CONDUIT AS SPECIFIED. WALL/FLOOR FIRE RATING MUST BE MAINTAINED.
16. ALL ELECTRICAL ELEMENTS TO BE THOROUGHLY PROTECTED FROM DAMAGE AFTER INSTALLATION AND SHALL HAVE TRIM INSTALLED AFTER ADJOINING FINISH MATERIALS ARE INSTALLED.
17. ELECTRICAL CONTRACTOR TO PROVIDE TEMPORARY POWER FOR ALL TRADES.
18. CONTRACTOR TO REMOVE ALL ABANDONED OR UNUSED WIRING, CONDUIT AND BOXES.
19. UNLESS NOTED AS EXISTING, ALL EQUIPMENT, WIRING, DEVICES, ETC. SHALL BE NEW.
20. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR TO ORIGINAL CONDITIONS ANY AND ALL DAMAGES TO BUILDING SURFACES, EQUIPMENT AND FURNISHINGS CAUSED DURING PERFORMANCE OF WORK.
21. ALL CONDUCTORS SHALL BE COPPER, RATED 75 C WET/DRY EXCEPT WHERE OTHERWISE SHOWN IN THE RISER. MINIMUM WIRE SIZE SHALL BE #12 AWG EXCLUDING CONTROL WIRING. MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT TO BE INSTALLED PER NEC 310(B)(2).
27. WIRE WAYS SHALL BE SIZED AS REQUIRED, PER NEC, UNLESS OTHERWISE NOTED (UON).
28. ALL CONDUITS, FIXTURES, DEVICES TO HAVE GROUND EXTENDED OR RACEWAY USE AS EQUIPMENT GROUNDING AS PER NEC TABLE 250-122, UON.
29. NEUTRAL NOT TO BE SHARED, UON. NEUTRAL SHALL RUN PARALLEL TOGETHER WITH THE CURRENT CARRYING CONDUCTOR, INCLUDING PASSING THROUGH THE GANG BOX OF ANY SWITCHES CONTROLLING THAT CURRENT CARRYING CONDUCTOR.
30. NO ELECTRICAL CIRCUITS OR WIRING FROM ADJACENT SPACES TO BE USED IN THIS PROJECT.
31. ALL CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. EXACT ROUTING SHALL BE DETERMINED IN THE FIELD, UNLESS OTHERWISE NOTED (UON).
32. ALL DISCONNECT SWITCHES SHALL BE SIZED BY NEC TO ACCOMMODATE EQUIPMENT SERVED, INCLUDING REQUIRED FUSES, UON. SWITCHES SHALL BE HORSE POWER RATED AND SIZED FOR 150% MAX. HORSEPOWER, HEAVY DUTY TYPE.
33. ALL ELECTRICAL EQUIPMENT SHALL BE RAIN TIGHT (NEMA 3R, UON) WHERE EXPOSED TO THE WEATHER. ALL FLEX CONDUITS CONNECTED TO SUCH EQUIPMENT SHALL BE LIQUID TIGHT.
34. FOR ELECTRICAL CONDUITS, PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WARNING TAPE WHICH SAYS "WARNING BURIED ELECTRIC" SHALL BE PLACED IN TRENCHES ABOVE ALL UNDERGROUND ELECTRIC CONDUITS. WHERE CONDUITS PASS UNDERNEATH PAVED AREAS, THEY SHALL BE RGS. WHERE UNDERGROUND CONDUITS ARE NOT EXPOSED TO MECHANICAL DAMAGE OR ARE NOT UNDER PAVED AREAS, THEY SHALL BE SCHEDULE 40 PVC. ALL CONDUIT RISERS SHALL BE RGS.
35. ALL LOW VOLTAGE CABLING AND SYSTEM ARE THE RESPONSIBILITY OF THE VENDOR THAT IS PROVIDING THE SYSTEM INCLUDING PERMITTING.
36. FOR TELEPHONE SYSTEM: (A) PROVIDE GROUNDING FOR ALL TELEPHONE OUTLETS AND EQUIPMENT PER REQUIREMENTS OF TELEPHONE COMPANY. (B) VERIFY LOCATION OF TELEPHONE SERVICE WITH TELEPHONE COMPANY, PRIOR TO SUBMITTING BID. (C) ALL CABLES INSIDE THE SPACE TO BE HOME RUN TO MAIN DISTRIBUTION LOCATION.
37. MAINTAIN A MINIMUM OF 48" IN FRONT OF ALL ELECTRICAL EQUIPMENT. PRIOR TO INSTALLING ANY EQUIPMENT COORDINATE WITH OTHER TRADES TO INSURE THAT CLEARANCES ARE MAINTAINED.
38. ALL CIRCUIT BREAKERS SHALL BE INVERSE TIME TYPE (THERMAL MAGNETIC). TWO AND THREE POLE CIRCUIT BREAKERS SHALL BE COMMON TRIP. NO TIE HANDLES PERMITTED.
39. ALL FUSES TO BE CURRENT LIMITING AT SERVICE ENTRANCE. ALL OTHER FUSES ACCORDING TO MANUFACTURER SPECIFICATIONS.
40. ALL CONDUCTORS SHALL BE IN CONDUITS. ALL CONDUITS SHALL BE INTERMEDIATE (IMC) OR RIGID GALVANIZED STEEL (RGS) EXCEPT THAT: (A) POLY VINYL CHLORIDE (PVC) CONDUITS MAY BE USED IN CONCRETE SLABS AND UNDERGROUND PROVIDED ELBOWS AND RISERS ARE RGS; (B) ELECTRICAL NON-METALLIC TUBING (ENT) MAY BE USED IN OR ON WALLS OR CEILINGS WHERE NOT SUBJECT TO MECHANICAL DAMAGE, DAMP CONDITIONS OR CORROSIVE CONDITIONS AND ALLOWED BY CODE; (C) LIQUID TIGHT FLEXIBLE CONDUIT WHERE REQUIRED AND PERMITTED BY CODE, (D) FLEXIBLE METALLIC CONDUIT WHERE REQUIRED IN DRY LOCATIONS AND PERMITTED BY CODE. ALL CONDUITS IN HAZARDOUS AREAS PER NEC SHALL MEET THE REQUIREMENTS OF NEC CHAPTER 5.
41. PROVIDE LAMPS WITH FIXTURES, VERIFY LAMP TYPE WITH MANUFACTURER. CONTRACTOR TO RELAMP ANY EXISTING FIXTURES BEING USED. ALL RECESSED LIGHT FIXTURES IN CONTACT WITH INSULATION SHALL BE RATED FOR SUCH USE.
42. ALL FLUORESCENT LUMINARIES THAT UTILIZE DOUBLE-ENDED LAMPS SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINARE AS PER NEC 410.130(G).
43. COORDINATE CABLE, TV, VOICE AND DATA REQUIREMENTS WITH OWNER TO MEET THEIR REQUIREMENTS. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL POWER, DATA AND VOICE TO ALL EQUIPMENT MENTIONED OR NOT AND SYSTEMS INSTALLED AS REQUIRED.
44. ALL DEVICES TO MATCH BUILDING STANDARD OR BE DECORA SERIES.
45. TYPICAL WALL SWITCHES TO BE AT 48" A.F.F. TYPICAL OUTLET TO BE 18" A.F.F. TYPICAL COUNTERTOPS OUTLET TO BE 42" A.F.F. OR 6" ABOVE COUNTERTOPS (NOT TO EXCEED 52" A.F.F.). ALL SWITCHES TO BE GANGED WITH CONTINUOUS FACE PLATES. ALL DEVICES THAT ARE ADJACENT TO BE SPACES 6" O.C.
46. CONTRACTOR TO BALANCE LOADS IN ALL PHASES AND PROVIDE NEW PANEL SCHEDULES IDENTIFYING ALL CIRCUITS IN PANEL.
47. ELECTRICAL CONTRACTOR SHALL VERIFY CIRCUIT PROTECTIVE DEVICE RATING FOR EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE ALL EQUIPMENT LOAD AND PROTECTION WITH NAMEPLATE DATA PRIOR TO INSTALL OR WIRING.
48. ALL EMERGENCY LIGHTS AND EXIT SIGNS TO BE CONNECTED TO UNSWITCHED CIRCUIT SIDE AND HAVE 90 MINUTES BATTERY BACKUP.
49. METER CANS, HUBS, & LUGS FOR SAME ARE TO BE FURNISHED & INSTALLED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO VERIFY SPECIFIC TYPE OF METER CAN TO BE USED WITH UTILITY PRIOR TO BID. COORDINATE ELECTRIC SERVICE WITH POWER COMPANY.
50. CONTRACTOR TO PROVIDE COMPLETE SHOP DRAWINGS INCLUDING RISER, CUT SHEETS, BATTERY CALCULATIONS AND ALL OTHER NECESSARY INFORMATION. CONTRACTOR TO COORDINATE IF ADDITIONAL PANELS/POWER SUPPLIES ARE REQUIRED.
51. SMOKE DETECTORS NOT TO BE LOCATED WITHIN 3 FEET FROM A MECHANICAL DIFFUSER OR REGISTER.
52. ELECTRICAL CONTRACTOR SHALL COORDINATE SERIES RATING OF BREAKERS INTERRUPTING CAPACITY.
53. CONTRACTOR TO VERIFY ANY EXISTING ELECTRICAL EQUIPMENT AND TO REPAIR, REPLACE OR ADD ANY REQUIRED COMPONENTS TO MAKE EQUIPMENT TO OPERATE CORRECTLY.
54. FEEDERS AND BRANCH CIRCUITS MUST BE IDENTIFIED AND DOCUMENTED AS PER NEC 210.5 AND THE FOLLOWING COLORS:
54.1. 120/240V, SINGLE PHASE: L1=BLACK; L2=RED; N=WHITE
54.2. 120/208V, 3-PHASE: L1=BLACK; L2=RED; L3=BLUE; N=WHITE
54.2. 120/240V, 3-PHASE: L1=BLACK; L2=ORANGE (HIGH LEG); L3=BLUE; N=WHITE
54.3. 277/480V, 3-PHASE: L1=BROWN; L2=ORANGE OR PURPLE; L3=YELLOW; N=GRAY
55. PROVIDE RED/WHITE CORE NAMEPLATE ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT WITH THE WORDS "WARNING, POTENTIAL ARC FLASH HAZARD. APPROPRIATE PERSONNEL AND TOOLS REQUIRED WHEN WORKING ON THIS EQUIPMENT" ENGRAVED THEREON IN 1/4" HIGH LETTERS.
56. ALL SWITCHGEAR, PANELS, DISCONNECTS, SWITCHES, GENERATORS AND OTHER ELECTRICAL EQUIPMENT SHALL BE INSTALLED FULLY ABOVE FLOOD ELEVATION. FIELD COORDINATE WHETHER ANY MOUNTING RACKS ARE REQUIRED. NOTIFY ENGINEER IF THIS ELEVATION WOULD RESULT IN THE TOP OF THE EQUIPMENT OR DEVICE BEING MORE THAN 6'-6" ABOVE LOCAL GRADE.
57. IN THE FOLLOWING SPACES (ROOMS) - PRIVATE OFFICE, OPEN OFFICES, COMPUTER CLASSROOMS - WITHIN ANY BUILDING, AT LEAST 50% OF ALL 125 VOLT 15- AND 20-AMP RECEPTACLES, INCLUDING THOSE INSTALLED IN MODULAR PARTITIONS, SHALL BE CONTROLLED BY AN AUTOMATIC CONTROL DEVICE. THE RECEPTACLES MAY EITHER BE CONTROLLED BY A PROGRAMMABLE TIME CLOCK SERVING NO MORE THAN ONE FLOOR AND NO MORE THAN 25,000 SQ.FT.; OR BY AN OCCUPANCY SENSOR SET TO TURN OFF WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING A SPACE.



REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TJR
CAD File:

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ELECTRICAL RISER AND DETAILS

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

E401

PANEL NAME	LOCATION:	VOLTAGE: 208 Y/ 120V 3 PHASE	MOUNTING/ ENCLOSURE: SURFACE / NEMA 1
MDP	ELECTRICAL RM	800A MCB	

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
400	3		A/V	2.50	1	34.94			2	32.44	PANEL AC1		3	400
				2.50	3		35.84		4	33.34				
				2.50	5			30.14	6	27.64				
20	3		SPARE	0.00	7				8	0.00	SPARE		3	20
				0.00	9				10	0.00				
				0.00	11				12	0.00				
20	3		SPARE	0.00	13	5.50			14	5.50	PANEL LP		3	200
				0.00	15		7.50		16	7.50				
				0.00	17			7.50	18	7.50				
20	3		SPARE	0.00	19	19.75			20	19.75	PANEL L		3	200
				0.00	21		17.65		22	17.65				
				0.00	23			17.07	24	17.07				
20	3		SPARE	0.00	25				26	0.00	SPARE		3	20
				0.00	27				28	0.00				
				0.00	29				30	0.00				
*PROVIDE LOCK ON				PHASE TOTAL		60.2	61.0	54.7	KVA					
**PROVIDE HACR TYPE CIRCUIT BREAKER											TOTAL CONNECTED LOAD	176 KVA		488 A
											TOTAL DEMAND LOAD	157 KVA		435 A

L	LIGHTING	37.1	46.4
R	RECEPTACLE	28.5	19.2
M	MOTOR	0.6 2.4	1.2
H	HEATING	3.0	80.8
AC	AC	80.8	
K	KITCHEN	0.0 65%	0.0
	MISCELLANEOUS	9.0	9.0
T	TRANSFORMED FROM SUB PANEL	0.0	0.0

FILL IN KVA OF LARGEST MOTOR
AND DIVERSITY FACTOR FOR KITCHEN

PANEL NAME	LOCATION:	VOLTAGE: 208 Y/ 120V 3 PHASE	MOUNTING/ ENCLOSURE: SURFACE / NEMA 1
L	ELECTRICAL RM	225A MLO	

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20	1	R	UTILITY RM 306	1.20	1	1.92			2	0.72	S. CORRIDOR	R	1	20
20	1		WASHER	1.60	3		2.32		4	0.72	CLASS 207	R	1	20
30	2		DRYER	2.25	5			2.75	6	0.50	GREEN 107	R	1	20
				2.25	7	3.05			8	0.80	GREEN APP	K	1	20
20*	1	R	FAP	1.23	9		2.35		10	1.12	REFRIGERATOR GREEN ROOM	K	1	20
20	1	R	PHONE BD	1.20	11			2.16	12	0.96	GREEN APP	K	1	20
20	1	R	PHONE BD	1.20	13	2.16			14	0.96	PLAYGROUND 307	R	1	20
20	1	R	N. CORRIDOR RECEP	0.72	15		2.04		16	1.32	AV 114	R	1	20
20	1	R	ELEM. 305-303	1.20	17			1.92	18	0.72	AUDITORIUM 104	R	1	20
20	1	R	GFI ELEM 305-303	1.20	19	1.92			20	0.72	AUDITORIUM 104	R	1	20
20	1	R	ELEM 302	1.20	21		1.82		22	0.62	WALKIE TALKIES STATION	R	1	20
20**	1	R	DF	0.60	23			1.22	24	0.62	WALKIE TALKIES STATION	R	1	20
20	1	R	JANITORS / BATH	1.00	25	2.80			26	1.80	LIGHTING	L	1	20
20	1	R	STUDIO 110	0.72	27		2.52		28	1.80	LIGHTING	L	1	20
20	1	R	FOYER 101	0.72	29			2.52	30	1.80	LIGHTING	L	1	20
20	1	R	STARTING POINT 115	1.20	31	3.00			32	1.80	LIGHTING	L	1	20
20	1	R	SERVING 116	0.70	33		2.50		34	1.80	LIGHTING	L	1	20
20	1	K	APP 116	1.00	35			2.80	36	1.80	LIGHTING	L	1	20
20	1	K	HOOD 116	1.00	37	2.80			38	1.80	LIGHTING	L	1	20
50	2	K	RANGE 116	2.50	39		2.50		40	0.00	SPARE	R	1	20
		K		2.50	41			2.50	42	0.00	SPARE	R	1	20
20	1	K	FRIDGE 116	0.90	43	0.90			44	0.00	SPARE	R	1	20
20	1	L	CLASS 402-403	1.20	45		1.20		46	0.00	SPARE	R	1	20
20	1	L	CLASS 202-204	1.20	47			1.20	48	0.00	SPARE	R	1	20
20	1	L	CLASS 202-204 GFI	1.20	49	1.20			50	0.00	SPARE	R	1	20
20	1	L	SERVICE RECEP	0.40	51		0.40		52	0.00	SPARE	R	1	20
20	1	L	SPARE	0.00	53				54	0.00	SPARE	R	1	20
				PHASE	PHASE TOTAL	19.8	17.7	17.1	KVA					
*PROVIDE LOCK ON BREAKER											TOTAL CONNECTED LOAD	54 KVA		151 A
**PROVIDE GFCI BREAKER											TOTAL DEMAND LOAD	49 KVA		137 A

L	LIGHTING	16.6	20.8
R	RECEPTACLE	21.0	15.5
M	MOTOR	0.0 2.4	0.0
H	HEATING	0.0	0.0
AC	AC	0.0	
K	KITCHEN	10.8 65%	7.0
	MISCELLANEOUS	6.1	6.1
T	TRANSFORMED FROM SUB PANEL	0.0	0.0

FILL IN KVA OF LARGEST MOTOR
AND DIVERSITY FACTOR FOR KITCHEN

PANEL NAME	LOCATION:	VOLTAGE: 208 Y/ 120V 3 PHASE	MOUNTING/ ENCLOSURE: SURFACE / NEMA 1
LP		225 MLO	

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20	1	L	SPARE	0.00	1	1.50			2	1.50	MAIN LIGHTING	L	1	20
20	1	L	THEATRICAL LIGHTS	1.00	3		2.50		4	1.50	MAIN LIGHTING	L	1	20
20	1	L	THEATRICAL LIGHTS	1.00	5			2.50	6	1.50	MAIN LIGHTING	L	1	20
20	1	L	SPARE	0.00	7	1.00			8	1.00	THEATRICAL LIGHTING	L	1	20
20	1	L	THEATRICAL LIGHTS	1.00	9		1.00		10	0.00	SPARE	L	1	20
20	1	L	THEATRICAL LIGHTS	1.00	11			1.00	12	0.00	SPARE	L	1	20
20	1	L	SPARE	0.00	13				14		SPARE		1	20
20	1	L	SPARE	0.00	15				16		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	17			1.00	18		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	19	1.00			20		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	21		1.00		22		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	23			1.00	24		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	25	1.00			26		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	27		1.00		28		SPARE		1	20
20	1	L	SPARE	0.00	29				30		SPARE		1	20
20	1	L	SPARE	0.00	31				32		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	33		1.00		34		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	35			1.00	36		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	37	1.00			38		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	39		1.00		40		SPARE		1	20
20	1	L	THEATRICAL LIGHTS	1.00	41			1.00	42		SPARE		1	20
				PHASE TOTAL		5.5	7.5	7.5	KVA					
*PROVIDE HACR TYPE CIRCUIT BREAKER											TOTAL CONNECTED LOAD	21 KVA		57 A
											TOTAL DEMAND LOAD	26 KVA		71 A

L	LIGHTING	20.5	25.6
R	RECEPTACLE	0.0	0.0
M	MOTOR	0.0 2.4	0.0
H	HEATING	0.0	0.0
AC	AC	0.0	
K	KITCHEN	0.0 65%	0.0
	MISCELLANEOUS	0.0	0.0
T	TRANSFORMED FROM SUB PANEL	0.0	0.0

FILL IN KVA OF LARGEST MOTOR
AND DIVERSITY FACTOR FOR KITCHEN

	LOCATION:	VOLTAGE: 208 Y/ 120V 3 PHASE	MOUNTING/ ENCLOSURE: SURFACE / NEMA 1
AC1	ELECTRICAL RM	400 MLO	

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20	1	AC	AHU-1	1.50	1	4.00			2	2.50	CU-3	AC	3	35*
20	1	AC	AHU-2	1.50	3		4.00		4	2.50		AC		
20	1	AC	AHU-3	1.50	5			4.00	6	2.50		AC		
20	1	AC	AHU-5	1.50	7	4.67			8	3.17	CU-4	AC	3	45*
20	1	AC	AHU-7	1.50	9		4.67		10	3.17		AC		
20	1	AC	AHU-8	1.50	11			4.67	12	3.17		AC		
20	1	AC	AHU-9	1.50	13	4.00			14	2.50	CU-5	AC	3	35*
15	1	H	DH-1	1.50	15		4.00		16	2.50		AC		
15	1	H	DH-2	1.50	17			4.00	18	2.50		AC		
20	1	M	F1/F2	0.60	19	3.77			20	3.17	CU-6	AC	3	45*
20	2		WH-1	1.50	21		4.67		22	3.17		AC		
				1.50	23			4.67	24	3.17		AC		
35	2		WH-2	3.00	25	5.50			26	2.50	CU-7	AC	3	35*
				3.00	27		5.50		28	2.50		AC		
35*	3	AC	CU-2	2.50	29			5.00	30	2.50	CU-8	AC	3	35*
		AC		2.50	31	5.00			32	2.50		AC		
		AC		2.50	33		5.00		34	2.50		AC		
20	1		SPARE	0.00	35			2.50	36	2.50		AC		
35*	2	AC	DCU-1	3.00	37	5.50			38	2.50	CU-9	AC	3	35*
		AC		3.00	39		5.50		40	2.50		AC		
15	2	AC	DAHU-1	0.30	41			2.80	42	2.50	AHU-4	AC	3	20*
		AC		0.30	43	1.80			44	1.50		AC		
20	1		SPARE	0.00	45		1.50		46	1.50		AC		
20	1		SPARE	0.00	47			1.50	48	1.50		AC		
35*	3	AC	CU-1	2.50	49	4.00			50	1.50	AHU-6	AC	3	20*
		AC		2.50	51		4.00		52	1.50		AC		
		AC		2.50	53			4.00	54	1.50		AC		
				PHASE TOTAL		32.4	33.3	27.6	KVA					
*PROVIDE HACR TYPE CIRCUIT BREAKER											TOTAL CONNECTED LOAD	93 KVA		259 A
											TOTAL DEMAND LOAD	91 KVA		253 A

L	LIGHTING	0.0	0.0
R	RECEPTACLE	0.0	0.0
M	MOTOR	0.6 2.4	1.2
H	HEATING	3.0	80.8
AC	AC	80.8	
K	KITCHEN	0.0 65%	0.0
	MISCELLANEOUS	9.0	9.0
T	TRANSFORMED FROM SUB PANEL	0.0	0.0

FILL IN KVA OF LARGEST MOTOR
AND DIVERSITY FACTOR FOR KITCHEN

	LOCATION:	VOLTAGE: 208 Y/ 120V 3 PHASE	MOUNTING/ ENCLOSURE: SURFACE / NEMA 1
AV	PRODUCTION	400A MLO	

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20	1	R	PLATFORM RECEPT	0.50	1	0.50			2	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	3		0.50		4	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	5			0.50	6	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	7	0.50			8	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	9		0.50		10	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	11			0.50	12	0.00	SPARE		1	20
20	1	R	PLATFORM RECEPT	0.50	13	0.50			14	0.00	SPARE		1	20
20	1	R	SPEAKER	0.50	15		0.50		16	0.00	SPARE		1	20
20	1	R	SPEAKER	0.50	17			0.50	18	0.00	SPARE		1	20
20	1	R	SOUND BOOTH	1.00	19	1.00			20	0.00	SPARE		1	20
20	1	R	SOUND BOOTH	1.00	21		1.00		22	0.00	SPARE		1	20
20	1	R	TV	1.00	23			1.00	24	0.00	SPARE		1	20
20	1		SPARE	0.00	25				26	0.00	SPARE		1	20
20	1		SPARE	0.00	27				28	0.00	SPARE		1	20
20	1		SPARE	0.00	29				30	0.00	SPARE		1	20
20	1		SPARE	0.00	31				32	0.00	SPARE		1	20
20	1		SPARE	0.00	33				34	0.00	SPARE		1	20
20	1		SPARE	0.00	35				36	0.00	SPARE		1	20
20	1		SPARE	0.00	37				38	0.00	SPARE		1	20
20	1		SPARE	0.00	39				40	0.00	SPARE		1	20
20	1		SPARE	0.00	41				42	0.00	SPARE		1	20
				PHASE	PHASE TOTAL	2.5	2.5	2.5	KVA					
*PROVIDE LOCK ON BREAKER											TOTAL CONNECTED LOAD	8 KVA		21 A
**PROVIDE GFCI ON BREAKER											TOTAL DEMAND LOAD	8 KVA		21 A

L	LIGHTING	0.0	0.0
R	RECEPTACLE	7.5	7.5
M	MOTOR	0.0 2.4	0.0
H	HEATING	0.0	0.0
AC	AC	0.0	
K	KITCHEN	0.0 65%	0.0
	MISCELLANEOUS	0.0	0.0
T	TRANSFORMED FROM SUB PANEL	0.0	0.0

FILL IN KVA OF LARGEST MOTOR
AND DIVERSITY FACTOR FOR KITCHEN

ELECTRICAL PANELS AND SCHEDULES

SCALE: NTS

COMMONWEALTH OF VIRGINIA
GUIDO INOA ALVAREZ
Lic.No.0402051423
PROFESSIONAL ENGINEER

REVISIONS

No.	Description	Date

Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TJR
CAD File:

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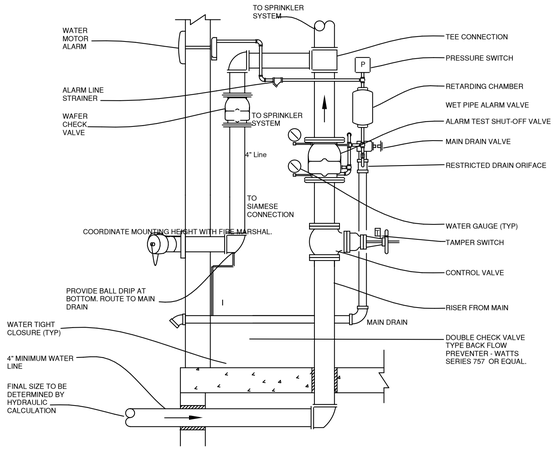
ELECTRICAL PANELS AND SCHEDULES

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

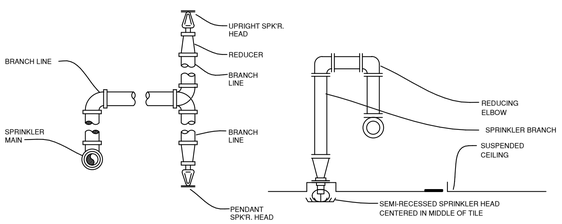
BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

E501

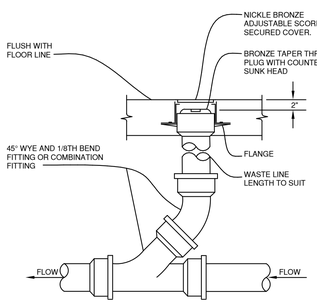


SPRINKLER RISER DETAIL-LOCAL FDC

NOTE: DETAIL IS GENERIC FOR A TYPICAL RISER SYSTEM
ACTUAL RISER SHOP DRAWING BY SPRINKLER SUB-CONTRACTOR

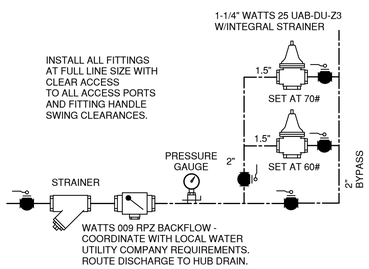


SPRINKLER HEAD DETAIL



NOTE:
CLEAN-OUT TO BE J.R. SMITH MODEL 4100-F SERIES OR EQUAL INSTALLATION SHALL BE FLUSH WITH SURROUNDING FLOOR SURFACES.

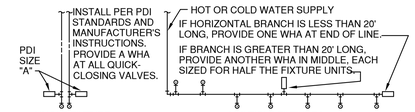
FLOOR CLEANOUT DETAIL



2" WATER SERVICE DETAIL

SPRINKLER NOTES

1. BIDDING CONTRACTORS MUST REVIEW ALL DRAWINGS, CONSTRUCTION DOCUMENTS AND SPECIFICATION PRIOR TO BID.
2. FIRE SPRINKLER CONTRACTOR'S START POINT SHALL BE AT THE 4" PIPING MAIN SERVING THIS AREA, REUSING EXISTING MAINS AND BRANCHES WHERE POSSIBLE AND PROVIDING NEW BRANCHES AS REQUIRED FOR NEW HEAD LAYOUT.
3. SELECTED CONTRACTOR SHALL PREPARE FIRE SPRINKLER SHOP DRAWINGS AND HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NFPA 13, AND FIRE SPRINKLER SPECIFICATION. FIRE SPRINKLER CONTRACTOR SHALL CONFIRM THE OCCUPANCY OF EACH SPACE PRIOR TO START OF WORK TO DETERMINE THE OCCUPANCY CLASSIFICATION. DRAWINGS SHALL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION , THE ARCHITECT AND THE OWNER'S FIRE PROTECTION CONSULTANT FOR REVIEW AND APPROVAL. FABRICATION AND INSTALLATION SHALL NOT COMMENCE WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO OBTAINING APPROVED SHOP DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CURRENT FLOW TEST FOR THE HYDRAULIC CALCULATIONS.
4. DESIGN , MATERIALS, AND INSTALLATION SHALL CONFORM TO THE APPLICABLE CODES AS SHOWN, THE LOCAL FIRE DEPARTMENT (AHJ), THE OWNER'S INSURANCE CARRIER, TRUSS MANUFACTURER, STRUCTURAL ENGINEER, AND THE OWNER'S REVIEWING CONSULTANT.
5. ALL MATERIALS USED SHALL BE UL LISTED AND FM APPROVED.
6. SPRINKLER PIPE SHALL BE PER NFPA STANDARDS, ACCORDING TO THEIR LISTINGS. ALL PIPING SHALL HAVE A CORROSION RESISTANT RATIO OF 1.0 OR GREATER. CRIMP TYPE INSTALLATIONS ARE NOT ACCEPTABLE.
7. CONTRACTOR TO PROVIDE ACCESS PANELS FOR ALL VALVES IN CONCEALED SPACES.
8. CONTRACTOR TO LABEL ALL SPRINKLER PIPING ..
9. THE CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE DESIGN PROFESSIONAL FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
10. THE FIRE PROTECTION ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NOR SHALL THEY BE REQUIRED TO SUPERVISE THE CONDUCT OF THE WORK, THE CONSTRUCTION PROCEDURES FOLLOWED BY RESPECTIVE ANY PERSON OTHER THAN THE ENGINEERING FIRMS EMPLOYEES.
11. THE INSTALLING FIRE SPRINKLER CONTRACTOR SHALL PERFORM ALL FIRE PROTECTION AND RELATED SYSTEMS ACCEPTANCE TESTING TO BE WITNESSED BY OWNERS CONSULTANT. TESTING WILL OCCUR AFTER INSTALLATION OF ALL SYSTEMS HAVE BEEN COMPLETED. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A LIFT, AIR AND WATER PUMPS FOR SYSTEM PRESSURIZATION, AND ANY NECESSARY HAND TOOLS AND APPARATUS FOR COMPLETE TESTING AND DRAINING OF THE SYSTEMS. ONE TEST OF ALL SYSTEMS SHOULD BE COMPLETED WITHIN (1) DAY. IF ALL OR ANY SYSTEM SHOULD FAIL, THE CONTRACTOR SHALL BE RESPONSIBLE TO BE PRESENT AND FURNISH ALL ITEMS LISTED ABOVE UNTIL SUCH TIME THAT THE SYSTEMS ARE FOUND ACCEPTABLE AND IN ACCORDANCE WITH NFPA 13,, 25, BUILDING AND FIRE CODES (INCLUDING LOCAL ORDINANCES) AND THE BID DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING OWNERS CONSULTANT WHEN INSTALLATIONS IS COMPLETE AND TESTING MAY BEGIN. PLEASE ALLOW 5-10 WORKING DAYS FOR SCHEDULING.

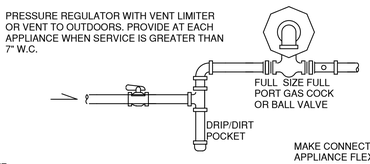


PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1-1/4"	61-113
E	1-1/2"	114-154
F	2"	154-330

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	3	--
LAVATORY/SINK	2	2
SHOWER/BATHTUB	2	2

DO NOT PROVIDE AIR CHAMBERS. PROVIDE WATER HAMMER ARRESTORS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE # 1010 AND ANSI # A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE. SIOUX CHIEF "MINI-RESTER" MAY BE USED AT EACH FIXTURE. PROVIDE ACCESSIBILITY TO "WHA" WHERE REQUIRED BY LOCAL CODE.

WATER HAMMER ARRESTOR DETAIL



NOTE:
CONTRACTOR SHALL VERIFY ALL GAS FIRED EQUIPMENT CONNECTION LOCATIONS IN THE FIELD PRIOR TO INSTALLING ANY GAS PIPE MAINS OR BRANCHES. INSTALL THE GAS TRAIN SUCH THAT ACCESS PANEL SWINGSHALL NOT BE IMPEDED.

MAKE CONNECTION TO OR APPLIANCE FLEX HOSE QUICK CONNECTION FITTING OR UNIT GAS MANIFOLD INSIDE CABINET WITH GROUND JOINT UNION. PROVIDE GROMMET IN CABINET FOR WATER-TIGHT SEAL FOR HVAC CONNECTIONS.

GAS PIPING EQUIPMENT CONNECTION DETAIL.

PLUMBING FIXTURE SCHEDULE

FIXTURE TAG	DRAIN	VENT	CW	HW	FIXTURE DESCRIPTION	FIXTURE SPECIFICATION	VALVE/FACUET SPECIFICATION
WC-1 STANDARD FLUSH VALVE TLT	3	1-1/2"	1-1/4" (1" CON.)		SLOAN ST-2009	VITREOUS CHINA, FLOOR MOUNTED SIPHON JET, 1-1/2" TOP SPUD ; CENTOCO 500 STSCCSS, EXTRA HEAVY DUTY SOLID PLASTIC, ELONGATED OPEN FRONT SEAT, WHITE, INSTALLED PER ADA REQUIREMENTS. 1.28 GPF	AUTOMATIC VALVE SLOAN 111-ES HARDWIRED- NO WALL PLUG OR BATTERY
WC-2 WATER CLOSET ADA COMPLIANT	3	1-1/2"	1-1/4" (1" CON.)		SLOAN ST-2029	VITREOUS CHINA, FLOOR MOUNTED SIPHON JET, 1-1/2" TOP SPUD ; CENTOCO 500 STSCCSS, EXTRA HEAVY DUTY SOLID PLASTIC, ELONGATED OPEN FRONT SEAT, WHITE, INSTALLED PER ADA REQUIREMENTS. 1.28 GPF INSTALL PER ADA REQUIREMENTS.	AUTOMATIC VALVE SLOAN 111-ES HARDWIRED- NO WALL PLUG OR BATTERY
UR-1&2 URINAL	2	1-1/4"	3/4"		SLOAN SU-1005-.5	VITREOUS CHINA, WALL HUNG SIPHON JET WITH FLUSHING RIM, 3/4" TOP SPUD ; JAY R. SMITH 0644 FLOOR CARRIER. MOUNT UR-2 AT HANDICAP HEIGHT.	AUTOMATIC FLUSH- HARD WIRED SLOAN ROYAL180-1.0 ES-S TMO W/ XFORMER
LV-1- WALL LAVATORY	1.5	1.25	0.5	0.5	KOHLER GREENWICH K-2030	VITREOUS CHINA, 20"X18" WALL HUNG 4" CENTERS, WITH OVERFLOW AND GRID DRAIN, JAY R. SMITH 0700-M31 SERIES CARRIER. PROVIDE CHROME PLATED LOOSE KEY ANGLE STOP, ESCUTCHEON, P-TRAP AND SUPPLIES . INSTALLED PER ADA ACCESSIBILITY; TRUEBRO LAV GUARD UNDERSINK PROTECTIVE COVERS FOR P-TRAP AND ANGLE VALVE ASSEMBLIES MODEL 102	AUTOMATIC SLOAN OPTIMA ETF-600 FAUCET 0.5GPM VANDAL RESISTANCE AERATOR CONCELAED HARD-WIRE WITH XFORMER
MS-1 MOP SERVICE BASIN	3	1.5	0.75	0.75	FIAT MSB-2424	ONE PIECE SERVICE BASIN; AND 3.0 GPM FLOW RESTRICTOR; DELTA 28T910 STAINLESS STEEL MOP HOLDER; 28T911 HEAVY DUTY 31" LONG REINFORCED HOSE, BRASS COUPLING, STAINLESS STEEL HANGER BRACKET, W/RUBBER GRIP.	DELTA 28T9 WITH INTERGRAL VACUUM BREAKER
FD-1 FLOOR DRAIN	3	1.5			JAY R. SMITH 2010.00	CAST IRON BODY AND FLASHING COLLAR; 6" NICKEL BRONZE ROUND STRAINER; VANDLE PROOF GRATE; SEDIMENT BUCKET; P-050 TRAP PRIMER OPTION. CAST IRON GRATES NOT PERMITTED.	
FCO-1 FLOOR CLEAN OUT	4				JAY R. SMITH 4020S	CAST IRON CLEANOUT; NICKEL BRONZE 6" ROUND ADJUSTABLE SCORIATED VANDAL PROOF TOP; GASKET SEAL ABS THREADED PLUG WITH SLOT TO RECEIVE 1/2" BAR STOCK. ARFCO- ACID RESITANT OPTION.	
WCO-1 WALL CLEAN OUT	4				JAY R. SMITH 4420.00	CAST IRON SPIGOT FERRULE; CAST BRONZE TAPER THREADED COUNTERSUNK PLUG WITH SLOT TO RECEIVE 1/2" BAR STOCK	
GCO-1 GRADE CLEAN OUT	4				JAY R. SMITH 4261L	CAST IRON SPIGOT FERRULE; CAST BRONZE TAPER THREADED COUNTERSUNK PLUG WITH SLOT TO RECEIVE 1/2" BAR STOCK; CHROME PLATED BRONZE ROUND FRAME AND VANDAL PROOF COVER	
EWC-1 ELEC WTR COOLER	1.5	1.25	0.5		OASIS P8ACSL	WALL HUNG, BARRIER FREE. SPLIT LEVEL; 8 GPH OF 50° WATER AT 90 ° AMBIENT; 1/4 HP, 120V/1PH. PROVIDE QUARTER TURN ANGLED STOP, P-TRAP AND SUPPLIES. INSTALLED PER ADA ACCESSIBILITY.	
WH-1 WALL HYDRANT			0.75		WOODFORD RB67	CHROME ROUND BOX FINISH, AUTOMATIC DRAINING G W/NICKEL 37HA, 3/4" MALE HOSE THREAD DOUBLE CHECK BACKFLOW PREVENTER, FIELD TESTABLE, LOOSE KEY.	
WHA WATER HAMMER ARRESTOR					JAY R. SMITH 5000 SERIES	STAINLESS STEEL PRESSURIZED COMPRESSION CHAMBER; THREADED NIPPLE CONNECTION; SIZE AS INDICATED ON DRAWINGS	
SK-1 2 COMP KITCHEN SINK	1.5	1.25	0.5	0.5	ELKAY BPSR2317	23X17 DBL COMPARTMENT, 20-GAUGE 304 STAINLESS STEEL SELF-RIMMING, FULLY COATED UNDERSIDE, 3-HOLE SWIVEL GOOSENECK SPOUT, INSTALL PER ADA ACCESSIBILITY. VERIFY EXISTING COUNTER OPENING FIT PRIOR TO ORDERING.	DELTA 26C3944 - 1.5 GPM AERATOR 6" WRIST HANDLES- 6" GOOSENECK
WB-1 MISC. WATER SUPPLY BOX			0.5	0.5	OATEY IMOB	HIGH IMPACT POLYSTYRENE BOX W/FACE PLATE; QUARTER TURN BALL VALVES; 6' LONG STAINLESS STEEL HOSE.	
WB-2 WASH. MACH. BOX	2"	1-1/4"	1/2"	1/2"	WATTS 2M2 DUAL CLOSURE	2M2 WB WITH ROUGH-IN KIT-BR AND FINISH KIT. MOUNT RECESSED IN WAL BEHIND WASHING MACHINE AT 48"AFF.	
SH-1 ADA SHOWER	3	1.5	0.5	0.5	KOHLER K-12100 36X36	ADA ACRYLIC SHOWER UNIT WITH ADA HOT/COLD LABELLED MIXING VALVE AND SHOWER HEAD WITH ADJUSTBLE SPRAY HEAD HOSE AND HEAD SUPPORT. COORDINATE ROUGH-IN SIZE WITH WALL CLEARANCES.	
SH-1 ROLL IN ADA SHOWER	3	1.5	0.5	0.5	FREEDOM SHOWERS APFQ6233BF75	ADA GELCOAT SHOWER UNIT WITH MAUNFACTURER ACCESSORY APFHHGBLS ADA HOT/COLD LABELLED MIXING VALVE AND SHOWER HEAD WITH ADJUSTBLE SPRAY HEAD HOSE AND HEAD SUPPORT. COORDINATE ROUGH-IN SIZE WITH WALL CLEARANCES.	
SH-2 STANDARD SHOWER INSERT	3	1.5	0.5	0.5	KOHLER K-16890 36X36	ACRYLIC SHOWER UNIT WITH CENTER DRAIN, PROVIDE WITH HOT/COLD INDICATED THERMOSTATIC MIXING SHOWER VALVE AND COALIAS	
SH-3 POLE SHOWER ASSMEBLY			0.75	0.75	BRADLEY COL-4C	CENTRALLY RISING VENT WITH SUPPLIES FROM ABOVE, EQUA-FLO PRESSURE BALANCING VALVE, SEVERE SERVICE SHOWERHEAD AT 6'-0" STANDARD HEIGHT, PRIVACY COMPARTMENTS (5) WITH CURTAINS.	
MXV-1 MIXING VALVE				.75(X2)	POWERS LM490	MULTI-FIXTURE MIXING VALVE, SOLID BRASS WITH INTEGRAL CHECK. THREADED UNION CONNECTIONS. ASSE1017	
TP-1 PRESSURE ACT.TRAP PRIMER			0.5		PPP PR-500	PRESSURE ACTIVATED TRAP PRIMER- PROVIDE DISTRIBUTION FITTING FOR UP TO 4 OUTLETS AS SHOWN ON DRAWINGS.	
BFP-1 RPZ BACKFLOW					WATTS 909	BRONZE BODY WITH THREADED ENDS. EACH BACKFLOW SHALL BE PROVIDED WITH BALL VALVES, TEST COCKS AND STRAINERS. ROUTE	

1. ALL FIXTURES, EQUIPMENT, TRIM, FITTINGS, ETC. SHALL COMPLY WITH LOCAL, STATE AND/OR FEDERAL REGULATIONS AND CODES, INCLUDING BUT NOT LIMITED TO WATER AND ENERGY CONSERVATION CODES, AND THE AMERICANS WITH DISABILITIES ACT (ADA). THE SCHEDULE REFLECTS FIXTURES AND EQUIPMENT WHICH ARE
MINIMUM CRITERIA AND SHALL BE THE BASIS FOR CONTRACTORS BASE BID. WHERE SPECIFIED FIXTURES AND/OR EQUIPMENT ARE NOT IN COMPLIANCE WITH GOVERNING CODES AND REGULATIONS, THE CONTRACTOR SHALL PROVIDE AN ALTERNATE BID FOR THE SUBSTITUTIONS OF COMPLYING FIXTURES, EQUIPMENT, THE ABSENCE OF AN ALTERNATE BID SHALL BE CONSTRUED TO MEAN THAT THE CONTRACTORS BASE BID INCLUDES ALL COSTS NECCESSARY TO MEET ALL REGULATIONS AND CODES.

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PLUMBING SCHEDULE AND DETAILS

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22019

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

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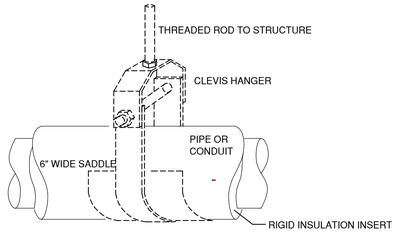
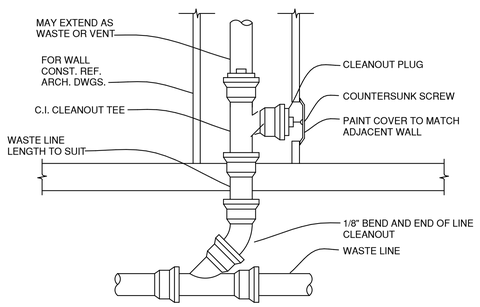
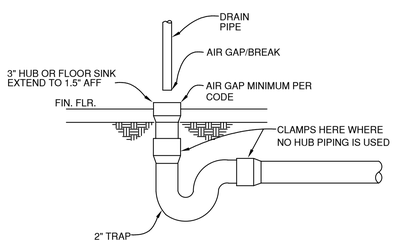


PIPING HANGERS
1. PROVIDE CLEVIS SUPPORTS WITH BEAM CLAMP, CONCRETE ANCHORS (CONCRETE STRUCTURE), SCREWED BRACKET (WOOD STRUCTURE). PROVIDE HANGER OUTSIDE OF INSULATION WITH RIGID FOAM GLASS INSULATION SECTION AT HANGERS. PROVIDE 16 GAUGE PIPING SADDLE AT EACH HANGER. NO WELDING OR CUTTING OF STEEL STRUCTURAL MEMBERS SHALL BE PERMITTED. LAYOUT BASIS SHALL BE ANVIL 260. ROD SIZE PER CLEVIS HANGER DIMENSIONS FOR EACH PIPE SIZE: 3/8" FOR 2" PIPE OR LESS,1/2" UP TO 3" PIPE AND 5/8" FOR 4" PIPE
2. HANGER INSTALLATION FOR HOT WATER PIPING SHALL NOT PREVENT MOVEMENT FOR PIPING EXPANSION.
SPACING AS FOLLOWS:
STEEL PIPE: 1/2" TO 1-1/4" - 7' ; 1-1/2" TO 2-1/2" - 9' ; 3"&4" - 12' ; 6"&8" - 17' ; 10" AND UP- 22'
COPPER PIPE: 1/2" TO 1" - 5' ; 1-1/4" TO 2" - 7' ; 2-1/2" AND UP - 9'
CAST IRON: 10' WITH SUPPORT AT EACH JOINT, TAKEOFF, AND FITTING.
PVC DRAINAGE (140 DEG F SERVICE UP TO 6"- 80 DEG F ABOVE 6"): UP TO 3" - 3' ; 4" TO 6" - 4' ; ABOVE 6" - 8'
PVC VENT (80 DEG F SERVICE): UP TO 1-1/2" - 5' ; 2"-3" - 6' ; ABOVE 3" - 7'

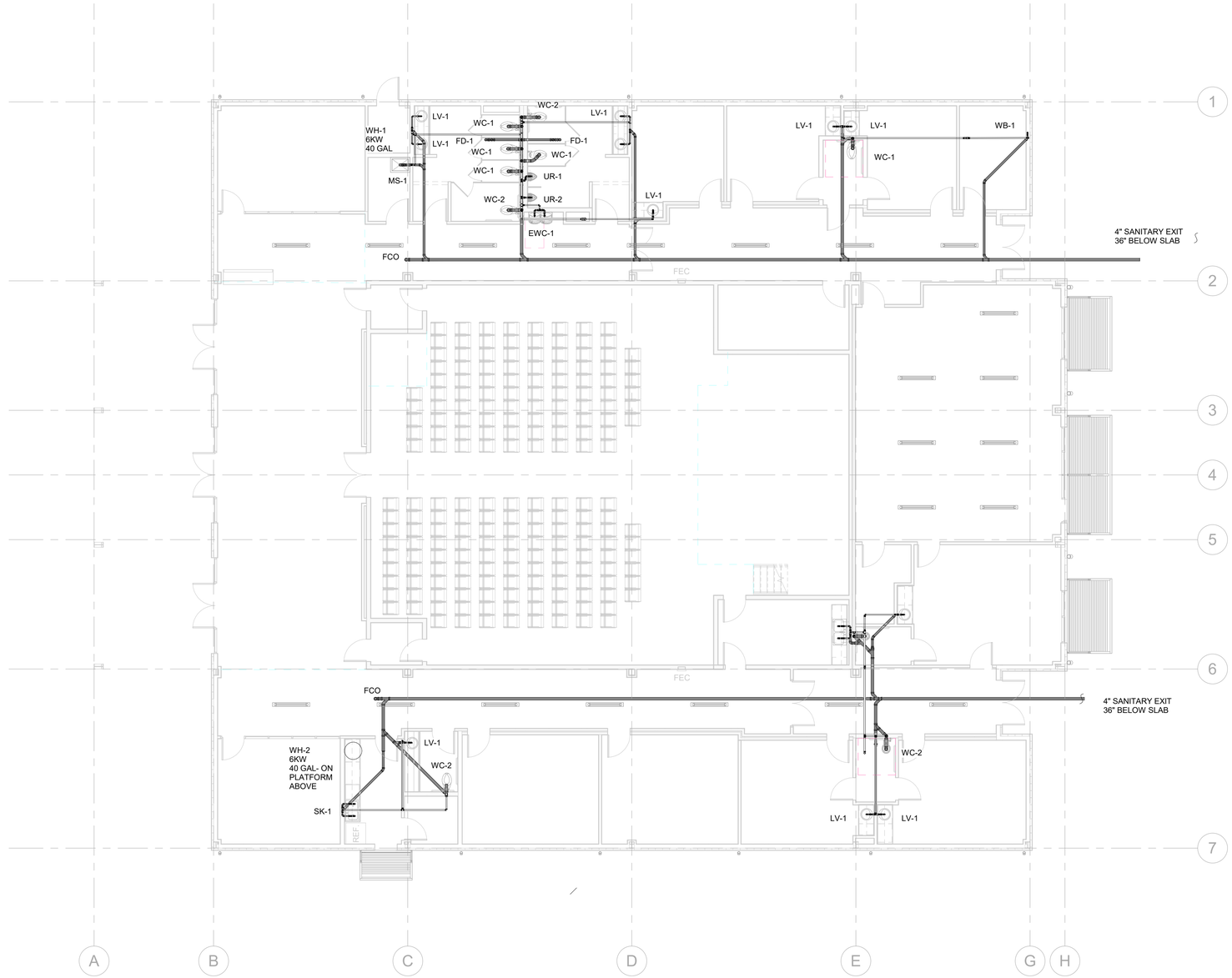
PIPE HANGER DETAIL



WALL CLEANOUT DETAIL



HUB /FLOOR SINK DRAIN DETAIL



1 Plumbing Floor Plan - SAN/VENT
1/8" = 1'-0"

KEY NOTES WASTE MAIN FLOOR PLAN

12/4/2020

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PLUMBING FLOOR PLAN- SAN/VENT

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

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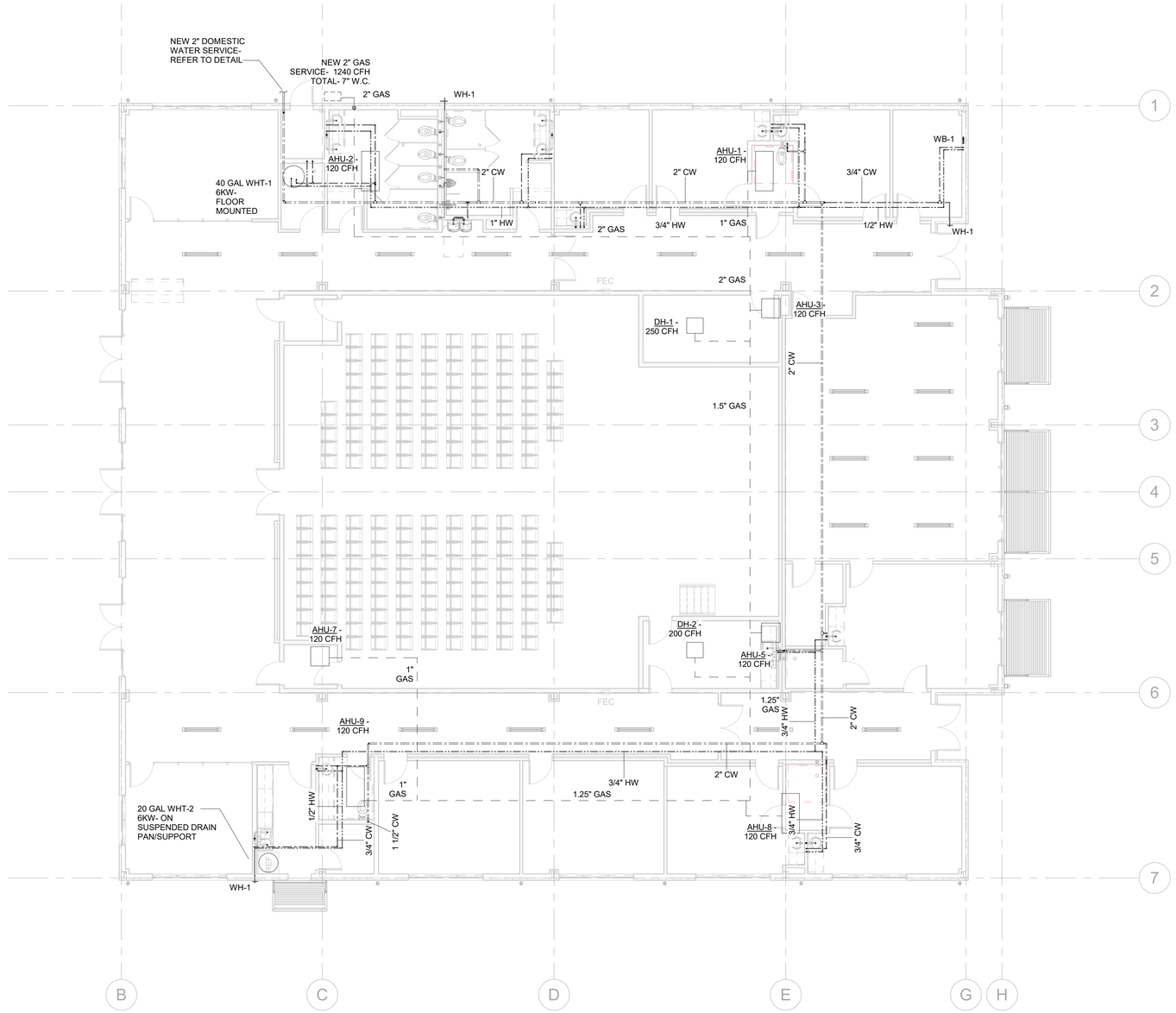

1 Plumbing Floor Plan - Overhead Piping
1/8" = 1'-0"

WATER HEATER SCHEDULE

MARK	TYPE	LAYOUT BASIS	STORAGE GALLONS	GAS INPUT MBH	OUTPUT MBH	ELECTRICAL CAPACITY (KW)	GPH RECOVERY @80 DEG RISE	TEMP SETTING	ELEC VOLT/PHASE	EXPANSION TANK ACCPETANCE (GAL)
WHT-1	ELECTRIC STORAGE	AOS DEN-40	40	--	--	6.0	31	110	208/1	5
WHT-2	ELECTRIC STORAGE	AO SMITH DEN-20	20	--	--	6.0	31	110	208/1	2.5

1. PROVIDE ARMSTRONG LST EXP TANK AND T&P SET AT 150 PSI DISCHARGE TO HUB DRAIN. DO NOT ROUTE INTO DRAIN PAN.
2. PROVIDE 2" DEEP DRAIN PAN BENEATH STORAGE TYPE WATER HEATER TO ENCASE ENTIRE WATER HEATER FOOTPRINT.
3. WHT-2 PROVIDE SUSPENDED ACCESSORY DRAIN PAN/WATER HEATER SUPPORT- HOLD-RITE QUIK-STAND MODLE 50HSWP OR EQ.

KEY NOTES SUPPLY MAIN FLOOR PLAN

1. DOMESTIC COLD WATER CONTINUES TO MAIN. INVERT ELEVATION = -2 FT MIN.
2. NATURAL GAS CONTINUES TO MAIN. INVERT ELEVATION = -2 FT MIN.
3. 3/4" DOMESTIC COLD WATER DOWN IN WALL TO WALL HYDRANT.
4. 8" DOMESTIC COLD WATER FOR FIRE PROTECTION SYSTEM CONTINUES TO MAIN. INVERT ELEVATION = -2 FT MIN.
5. 8" FIRE PROTECTION. FIRE PROTECTION SYSTEM BY OTHERS.

COMMONWEALTH OF VIRGINIA
THOMAS J. RHODES
LICENSED PROFESSIONAL ENGINEER
12/4/2020

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PLUMBING FLOOR PLAN OVERHEAD

SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDERICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

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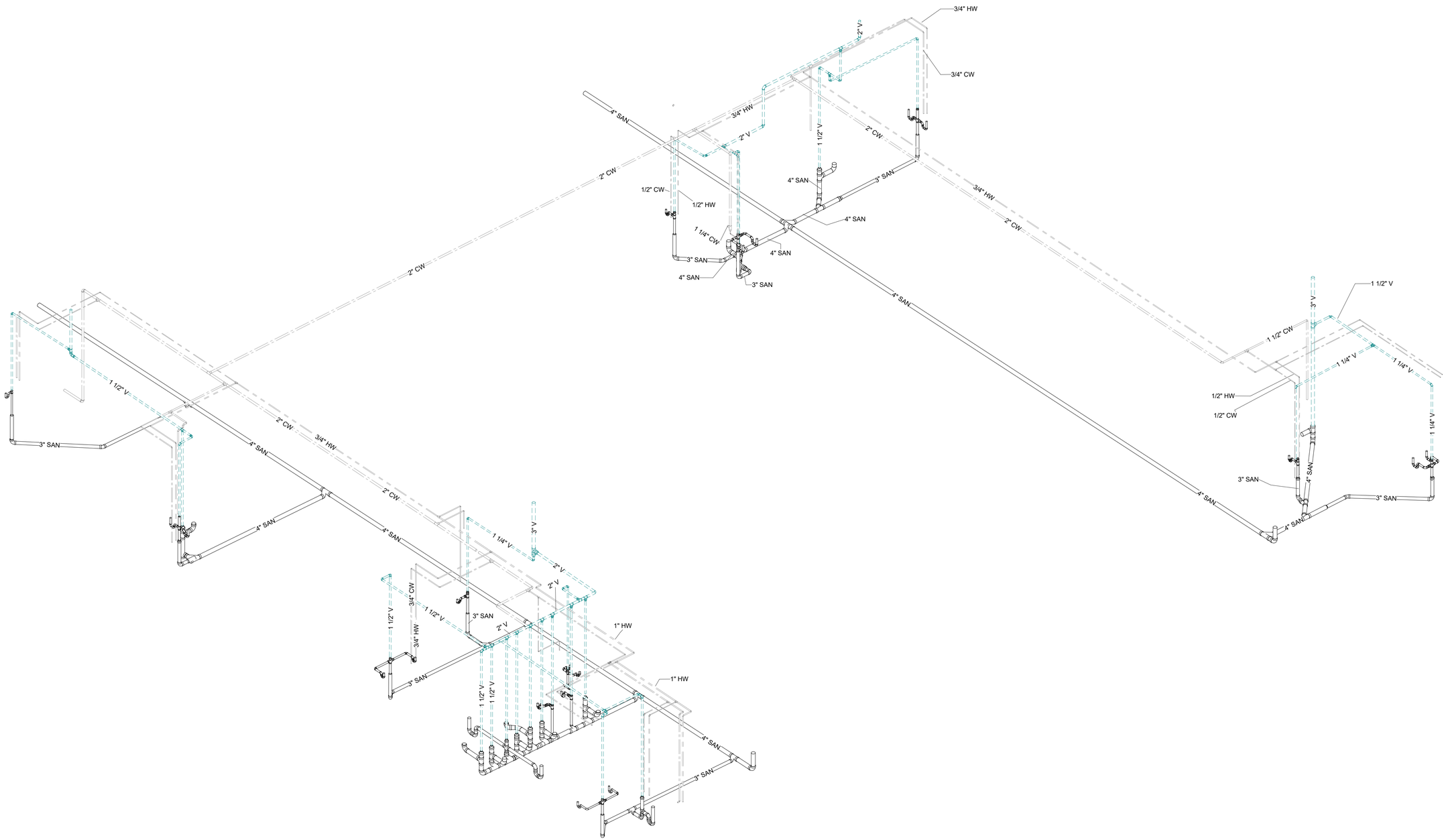

1 PLUMBING RISERS

COMMONWEALTH OF VIRGINIA
LISTED PROFESSIONAL ENGINEER
12/4/2020

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PLUMBING RISER DIAGRAMS

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(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATES
ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

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