FULLY SPRINKLERED BUILDING

NORTH (building)

Shepherdstown Opera House
RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane # 277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects pllc AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

Issue / Revision	Seal
6/4/20 Issued to WV Fire Marshal	
6/22/20 Issued for bid	
10/23/20 For Construction	
02/25/21 General Revisions	

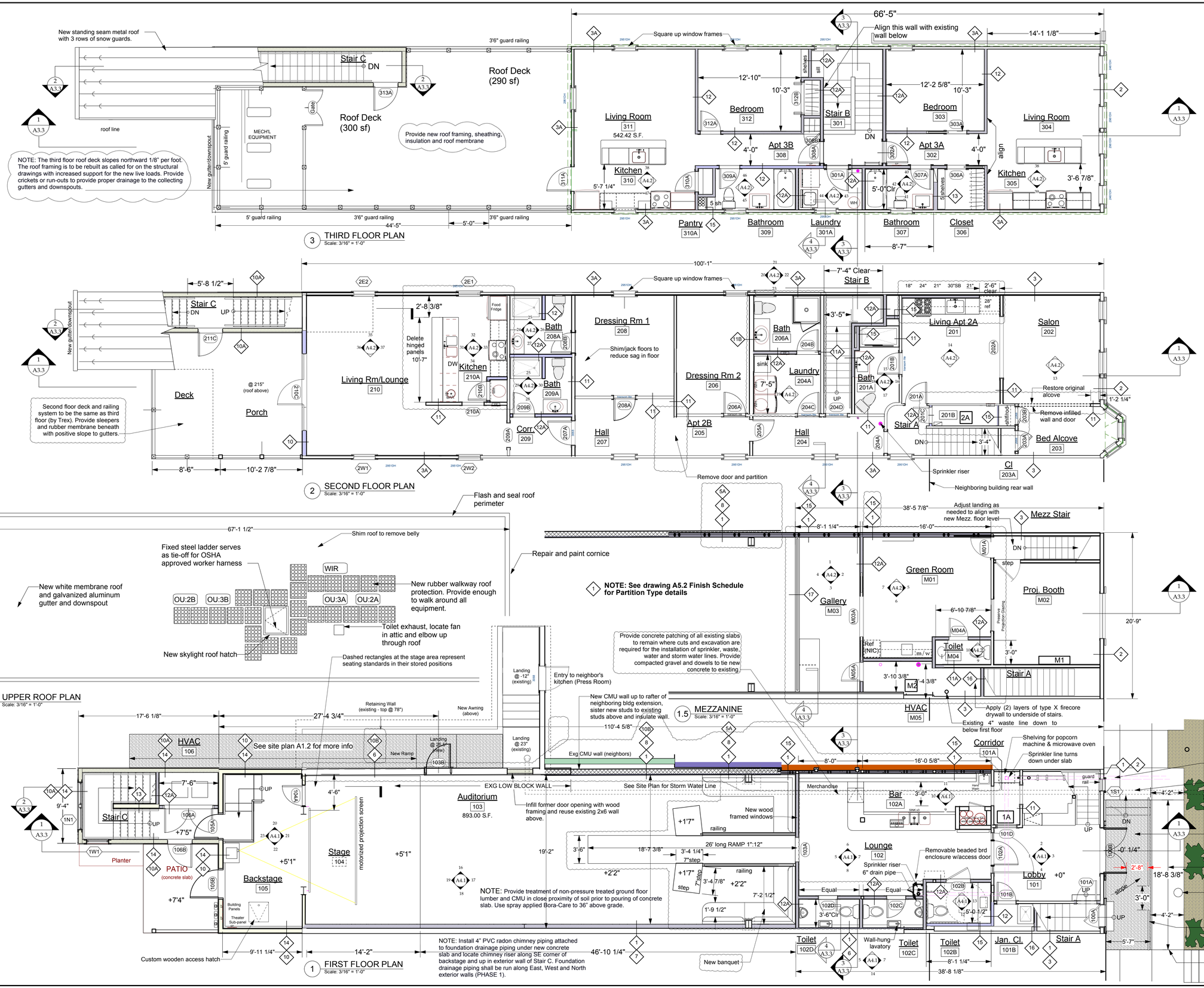
STATE OF WEST VIRGINIA — MATTHEW W. GROVE NO. 2616 — REGISTERED ARCHITECT

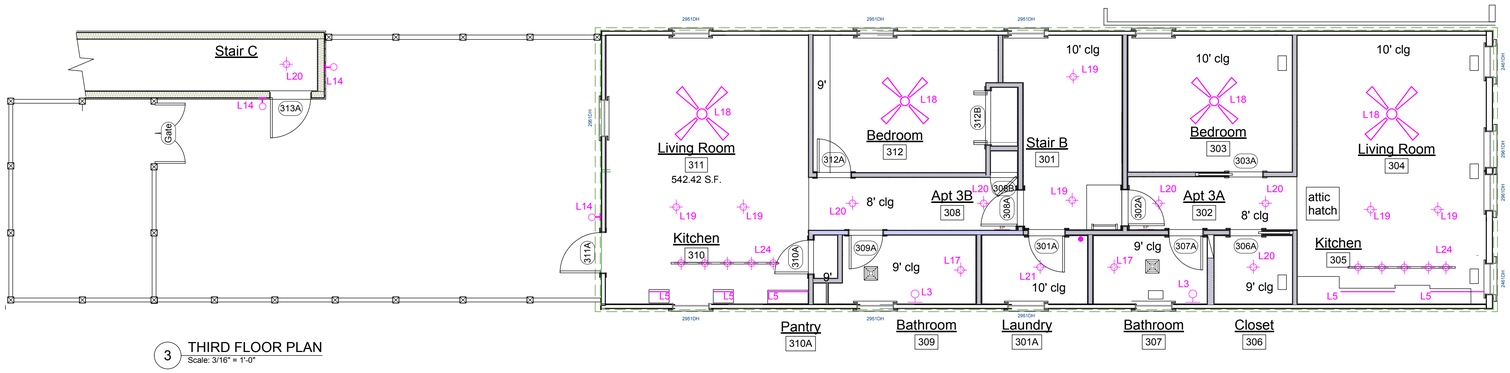
Drawing Title

Construction Floor Plans

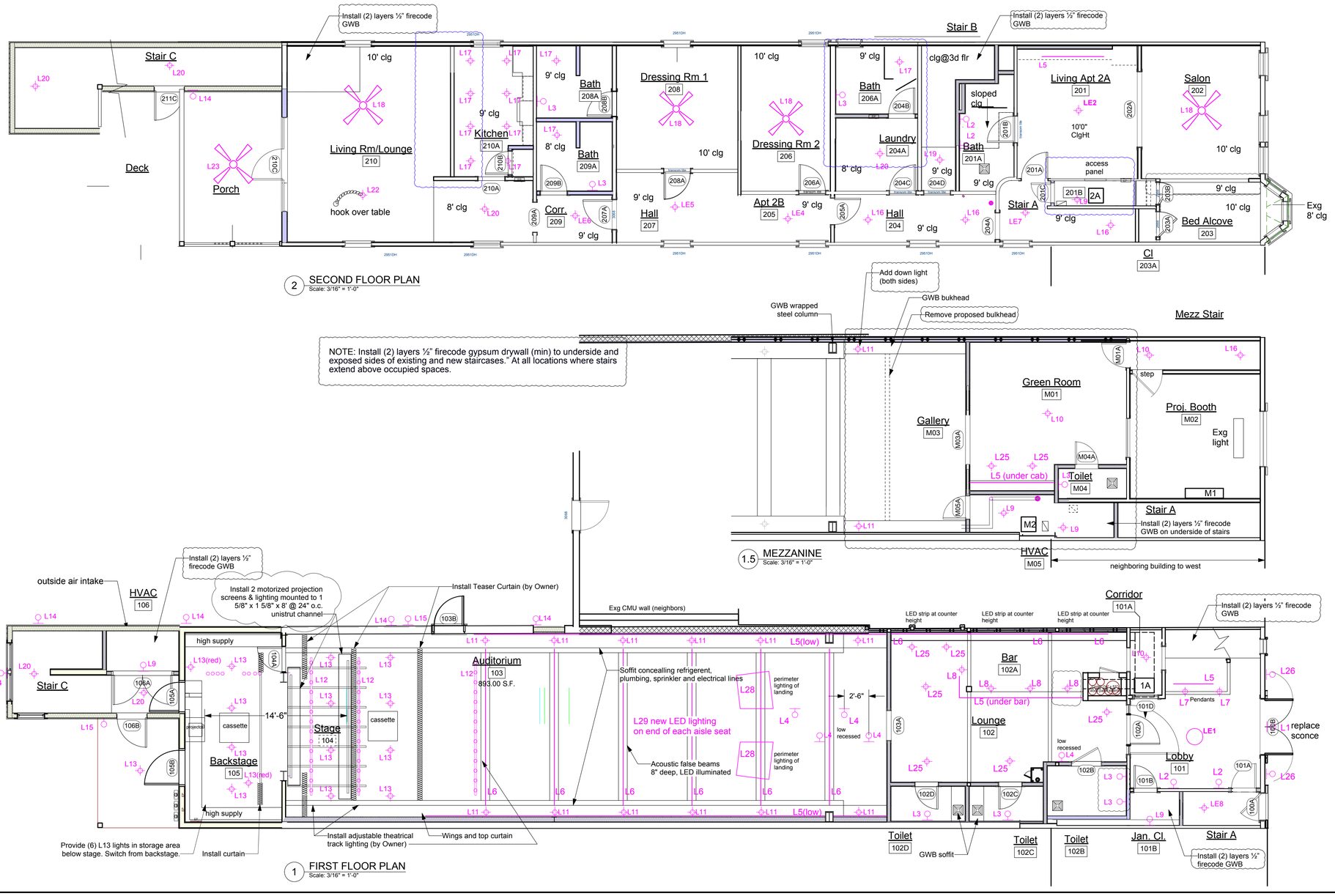
Date May 28, 2020
Scale As Noted Project Number 20820
Drawing Number

A2.2





3 THIRD FLOOR PLAN
Scale: 3/16" = 1'-0"



2 SECOND FLOOR PLAN
Scale: 3/16" = 1'-0"

1.5 MEZZANINE
Scale: 3/16" = 1'-0"

1 FIRST FLOOR PLAN
Scale: 3/16" = 1'-0"

FULLY SPRINKLERED BUILDING

NORTH (building)

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STATE OF WEST VIRGINIA — MATTHEW W. GROVE NO. 2616 REGISTERED ARCHITECT

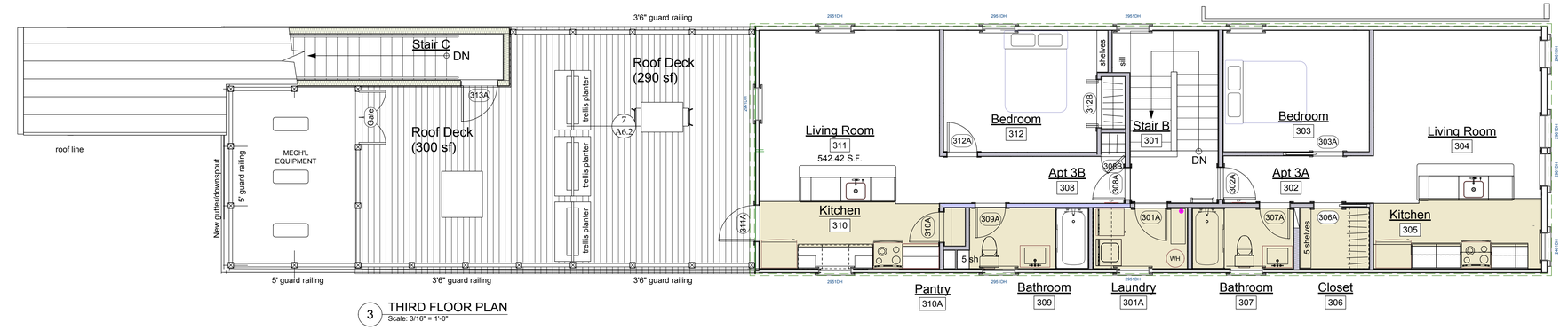
Drawing Title

RCP Floor Plans

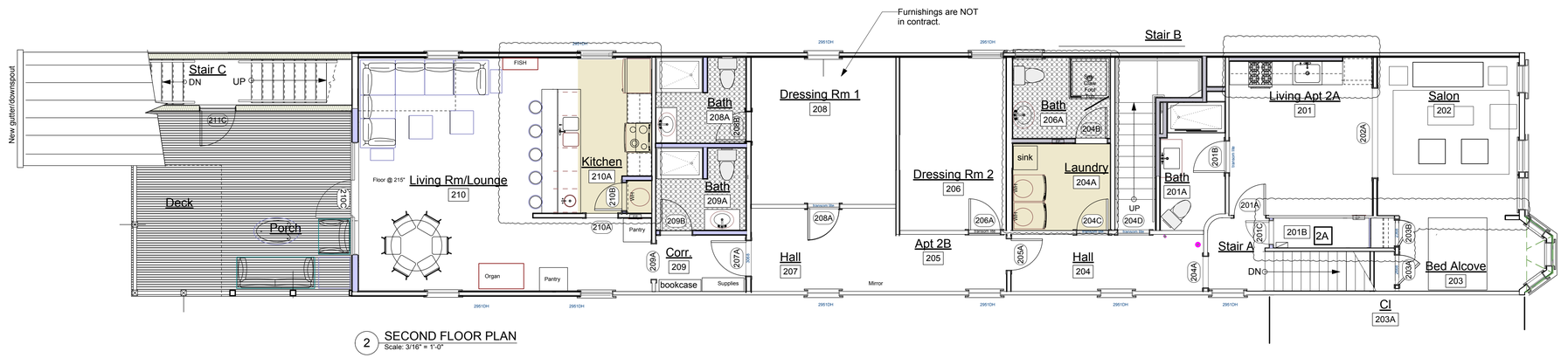
Date May 28, 2020
Scale As Noted Project Number 20820

Drawing Number

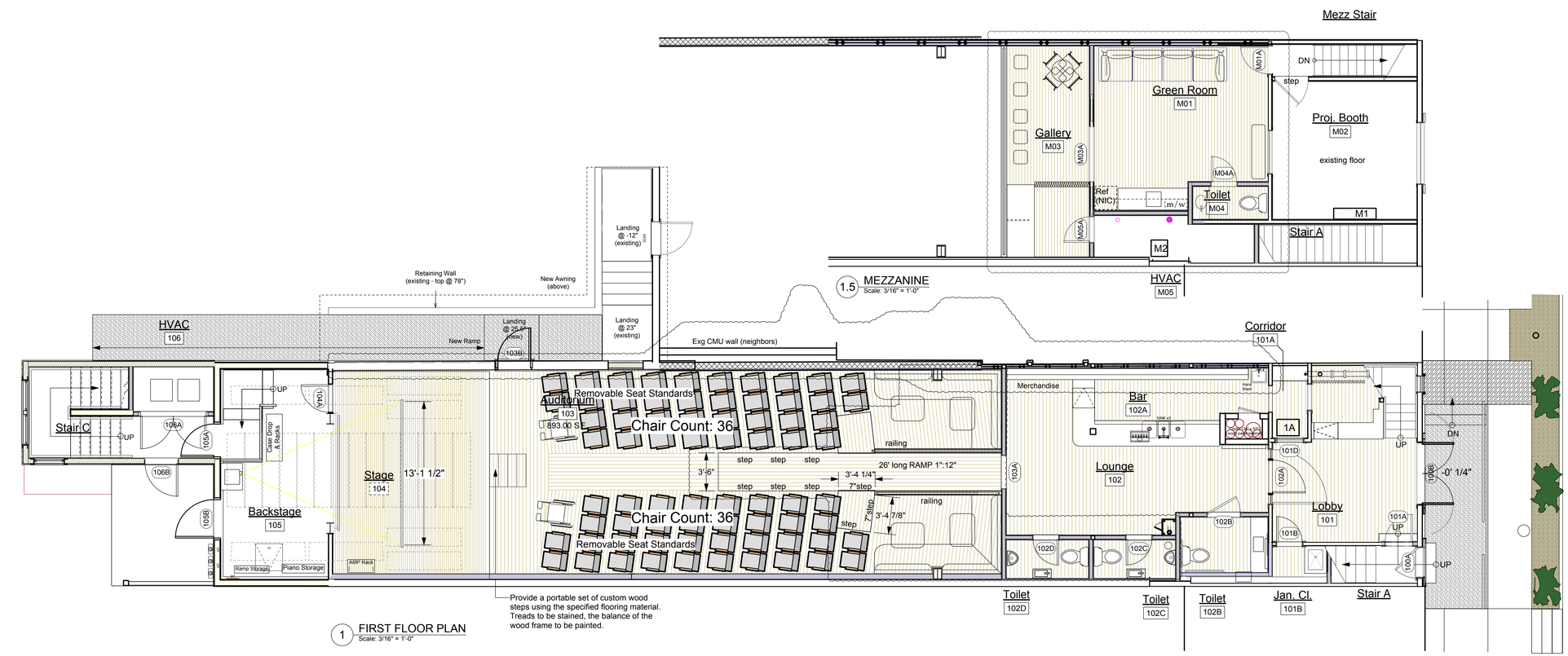
A2.3



3 THIRD FLOOR PLAN
Scale: 3/16" = 1'-0"



2 SECOND FLOOR PLAN
Scale: 3/16" = 1'-0"



Provide a portable set of custom wood steps using the specified flooring material. Treads to be stained, the balance of the wood frame to be painted.

1 FIRST FLOOR PLAN
Scale: 3/16" = 1'-0"

FULLY SPRINKLERED BUILDING

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10/23/20 For Construction	
02/25/21 General Revisions	

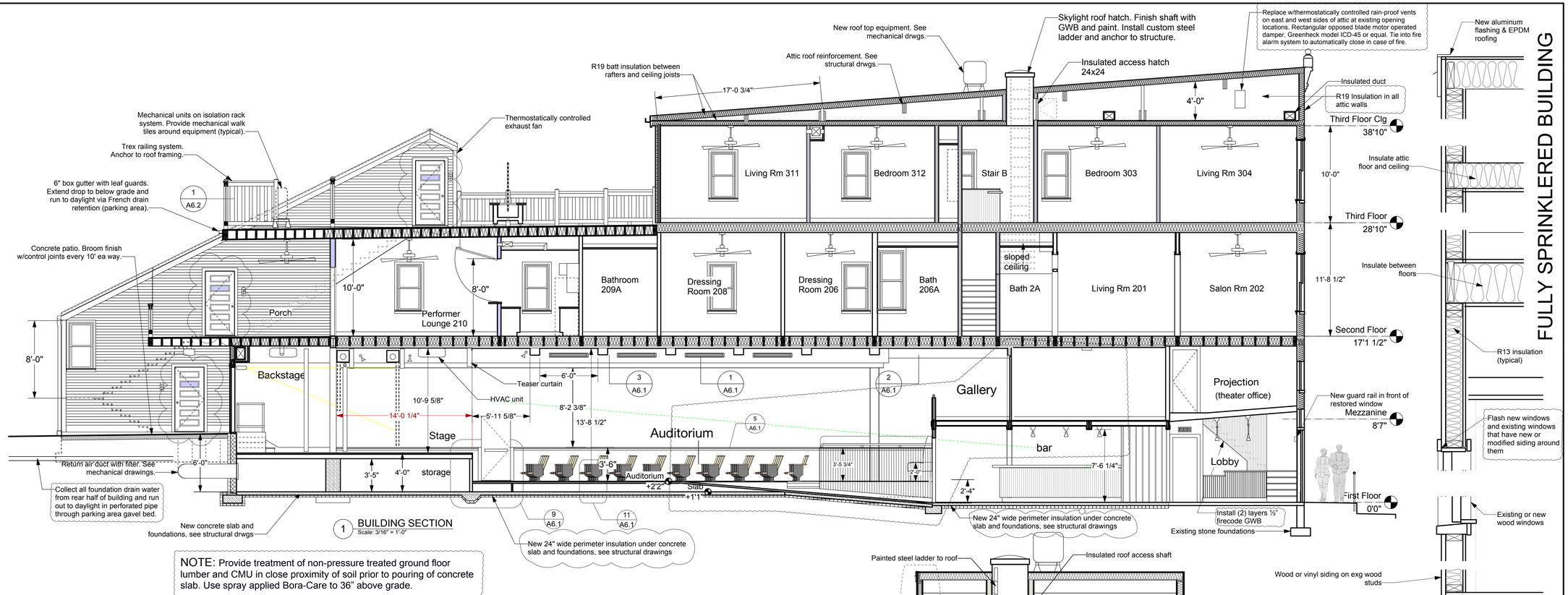
STATE OF WEST VIRGINIA · MATTHEW W. GROVE · NO. 2616 · REGISTERED ARCHITECT

Drawing Title

FFE Floor Plans

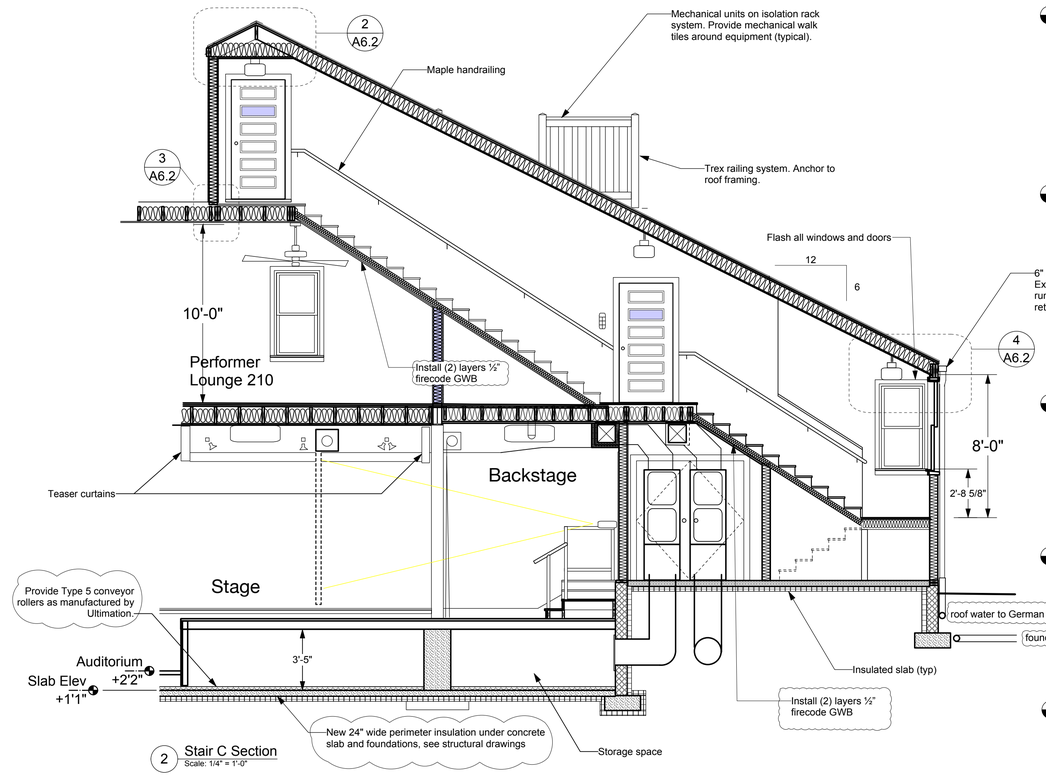
Date May 28, 2020
Scale As Noted Project Number 20820
Drawing Number

A2.4

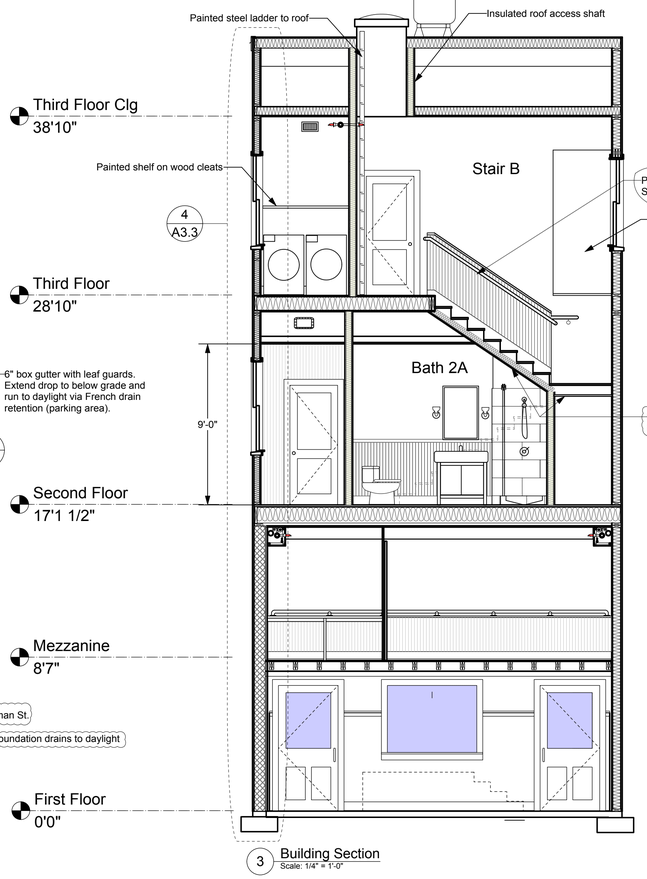


1 BUILDING SECTION
Scale: 3/16" = 1'-0"

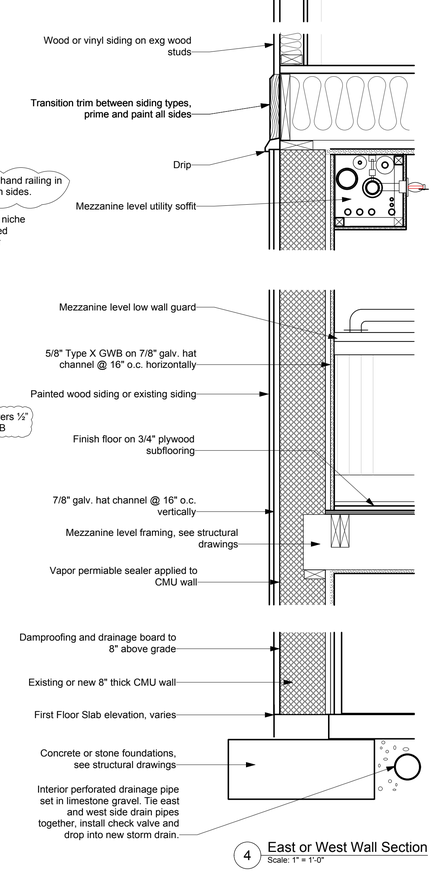
NOTE: Provide treatment of non-pressure treated ground floor lumber and CMU in close proximity of soil prior to pouring of concrete slab. Use spray applied Bora-Care to 36" above grade.



2 Stair C Section
Scale: 1/4" = 1'-0"



3 Building Section
Scale: 1/4" = 1'-0"



4 East or West Wall Section
Scale: 1" = 1'-0"

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02/2521 General Revisions	

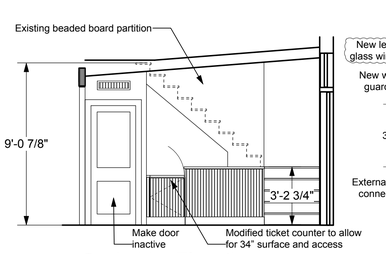
STATE OF WEST VIRGINIA · MATTHEW W. GROVE NO. 2616 · REGISTERED ARCHITECT

Drawing Title

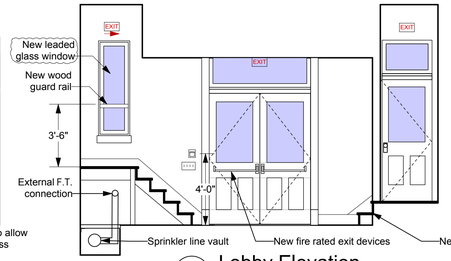
Building & Wall Sections

Date May 28, 2020
Scale As Noted Project Number 20820
Drawing Number

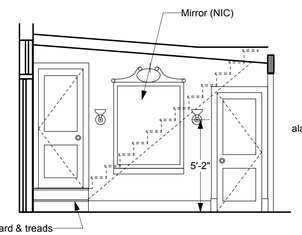
A3.3



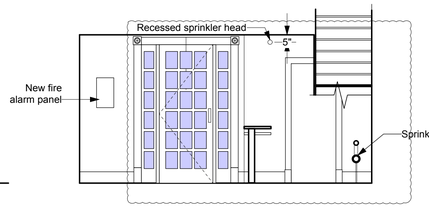
1 Lobby Elevation
Scale: 1/4" = 1'-0"



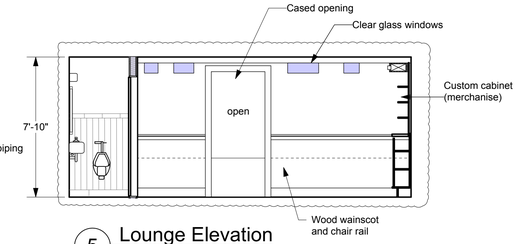
2 Lobby Elevation
Scale: 1/4" = 1'-0"



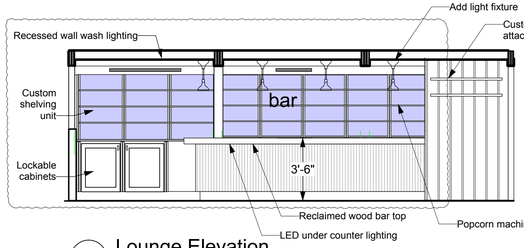
3 Lobby Elevation
Scale: 1/4" = 1'-0"



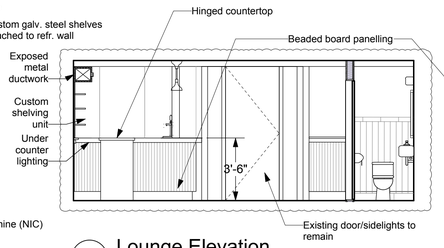
4 Lobby Elevation
Scale: 1/4" = 1'-0"



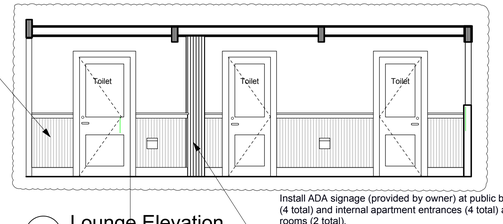
5 Lounge Elevation
Scale: 1/4" = 1'-0"



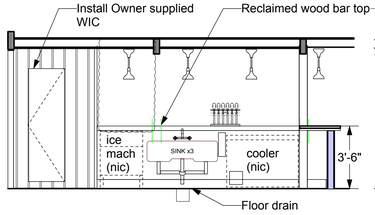
6 Lounge Elevation
Scale: 1/4" = 1'-0"



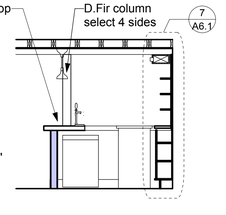
7 Lounge Elevation
Scale: 1/4" = 1'-0"



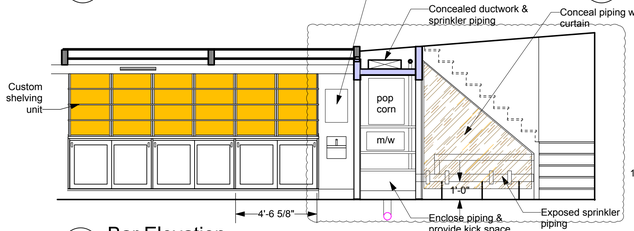
8 Lounge Elevation
Scale: 1/4" = 1'-0"



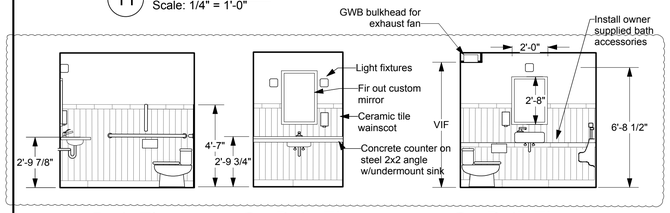
9 Bar Elevation
Scale: 1/4" = 1'-0"



10 Bar Elevation
Scale: 1/4" = 1'-0"



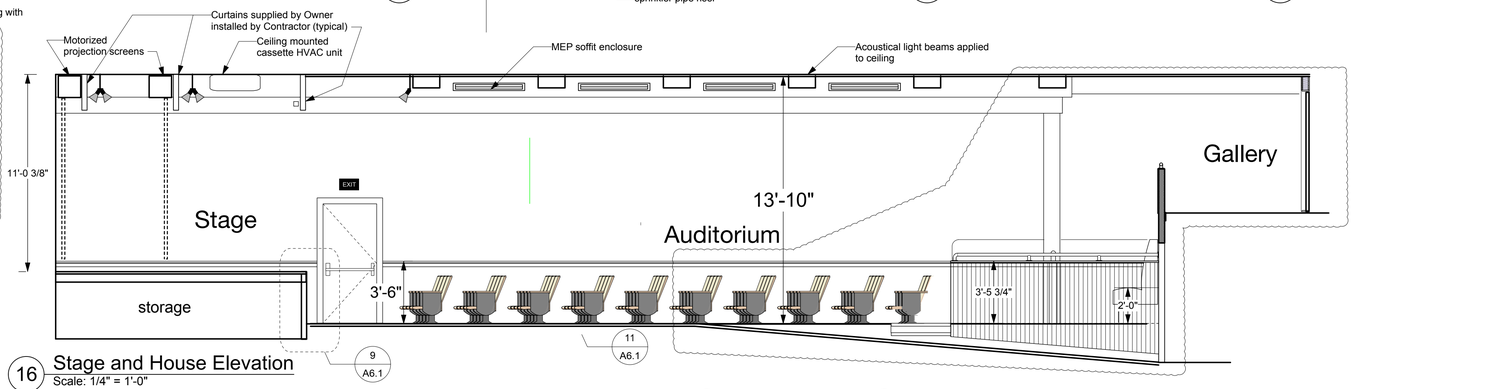
11 Bar Elevation
Scale: 1/4" = 1'-0"



12 Bath Elev
Scale: 1/4" = 1'-0"

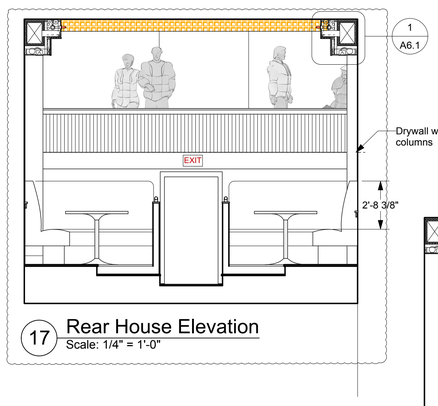
13 Bath Elev
Scale: 1/4" = 1'-0"

14 Bath Elev
Scale: 1/4" = 1'-0"

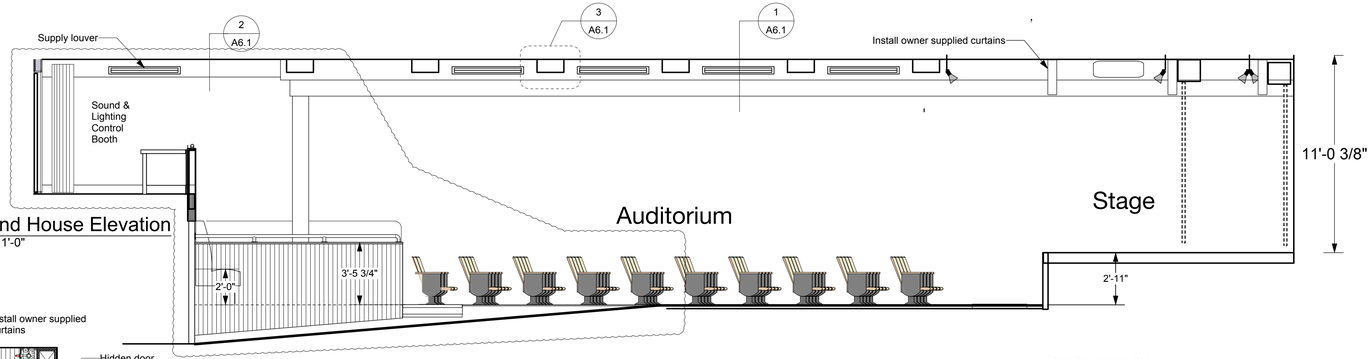


16 Stage and House Elevation
Scale: 1/4" = 1'-0"

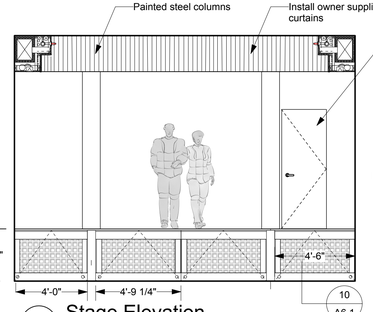
15 Omitted
Scale: 1/4" = 1'-0"



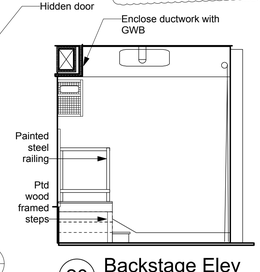
17 Rear House Elevation
Scale: 1/4" = 1'-0"



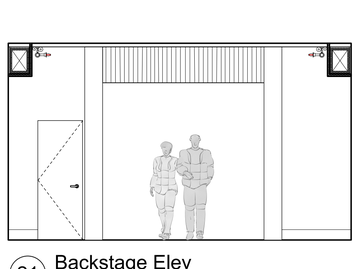
18 Stage and House Elevation
Scale: 1/4" = 1'-0"



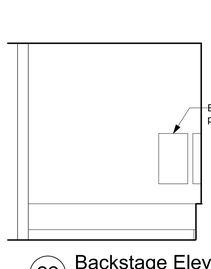
19 Stage Elevation
Scale: 1/4" = 1'-0"



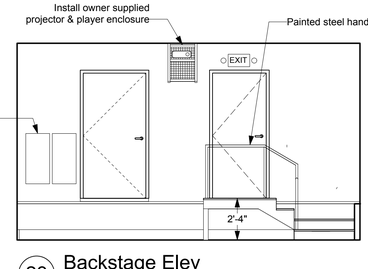
20 Backstage Elev
Scale: 1/4" = 1'-0"



21 Backstage Elev
Scale: 1/4" = 1'-0"



22 Backstage Elev
Scale: 1/4" = 1'-0"



23 Backstage Elev
Scale: 1/4" = 1'-0"

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STATE OF WEST VIRGINIA — MATTHEW W. GROVE NO. 2616 — REGISTERED ARCHITECT

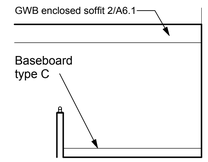
Drawing Title

Interior Elevations

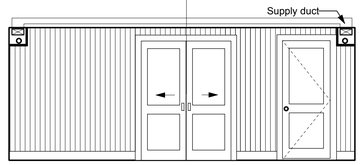
Date May 28, 2020
Scale As Noted Project Number 20820

Drawing Number

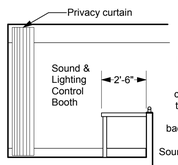
A4.1



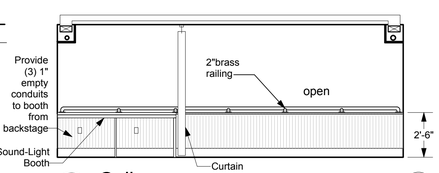
1 Gallery
Scale: 1/4" = 1'-0"



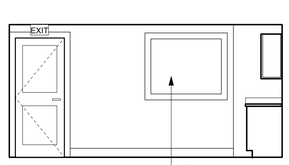
2 Gallery
Scale: 1/4" = 1'-0"



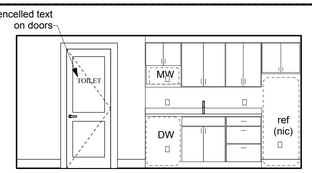
3 Gallery
Scale: 1/4" = 1'-0"



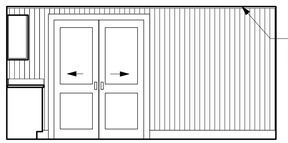
4 Gallery
Scale: 1/4" = 1'-0"



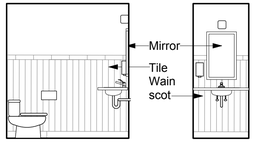
5 Green Room
Scale: 1/4" = 1'-0"



6 Green Room
Scale: 1/4" = 1'-0"

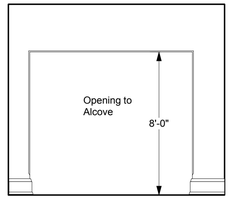


7 Green Room
Scale: 1/4" = 1'-0"

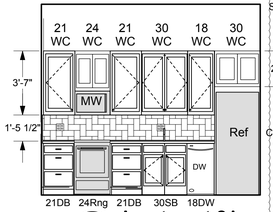


9 Toilet M04
Scale: 1/4" = 1'-0"

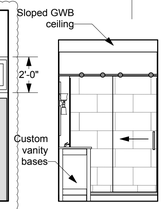
10 Toilet M04
Scale: 1/4" = 1'-0"



13 Salon Looking to Alcove
Scale: 1/4" = 1'-0"

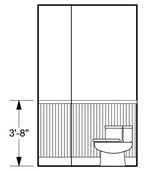


14 Apartment 2A
Scale: 1/4" = 1'-0"

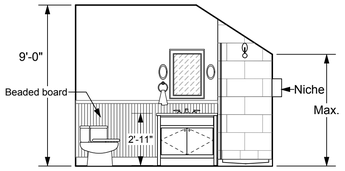


15 Bath 201A
Scale: 1/4" = 1'-0"

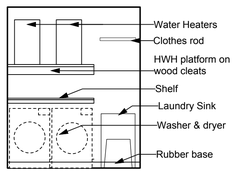
16 Bath 201A
Scale: 1/4" = 1'-0"



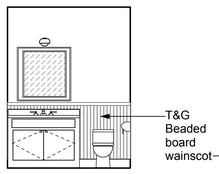
17 Bath 201A
Scale: 1/4" = 1'-0"



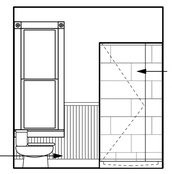
18 Bath 201A
Scale: 1/4" = 1'-0"



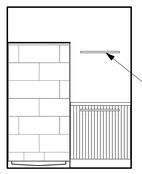
19 Laundry 204A
Scale: 1/4" = 1'-0"



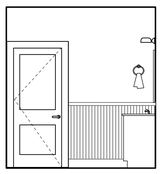
20 Bath 206A
Scale: 1/4" = 1'-0"



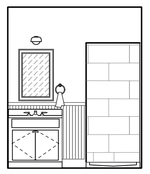
21 Bath 206A
Scale: 1/4" = 1'-0"



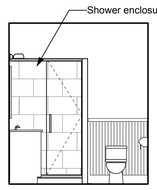
22 Bath 206A
Scale: 1/4" = 1'-0"



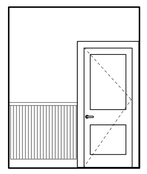
23 Bath 206A
Scale: 1/4" = 1'-0"



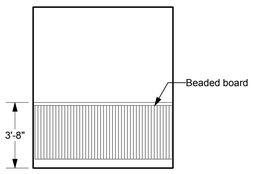
24 Bath 208A
Scale: 1/4" = 1'-0"



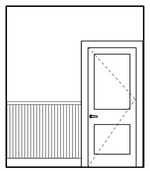
25 Bath 208A/209A
Scale: 1/4" = 1'-0"



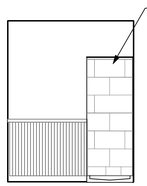
26 Bath 208A
Scale: 1/4" = 1'-0"



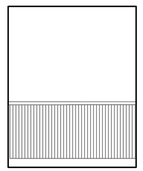
27 Bath 208A
Scale: 1/4" = 1'-0"



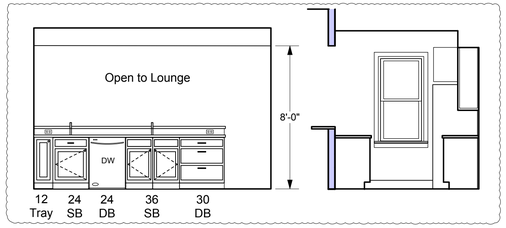
28 Bath 209A
Scale: 1/4" = 1'-0"



29 Bath 209A
Scale: 1/4" = 1'-0"

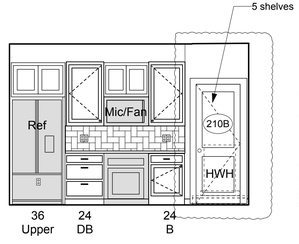


30 Bath 208A
Scale: 1/4" = 1'-0"

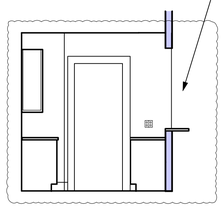


31 Pantry 210A/Kitchen 210B
Scale: 1/4" = 1'-0"

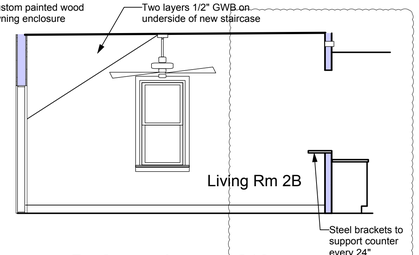
32 Kitchen 210B
Scale: 1/4" = 1'-0"



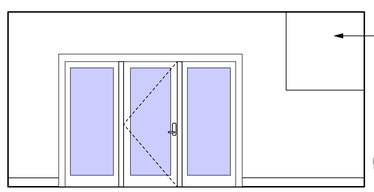
33 Kitchen 210B
Scale: 1/4" = 1'-0"



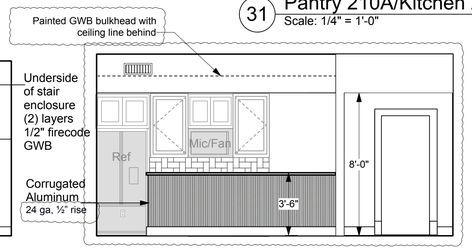
34 Kitchen 210B
Scale: 1/4" = 1'-0"



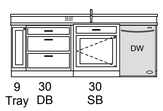
35 Performer Lounge 210
Scale: 1/4" = 1'-0"



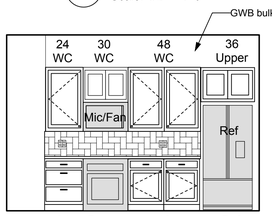
36 Performer Lounge 210
Scale: 1/4" = 1'-0"



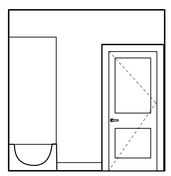
37 Performer Lounge 210
Scale: 1/4" = 1'-0"



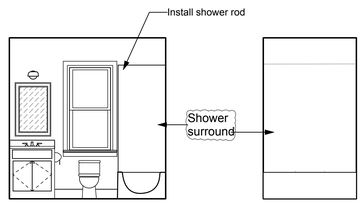
38 Kitchen 305/310 Island
Scale: 1/4" = 1'-0"



39 Kitchen 305
Scale: 1/4" = 1'-0"

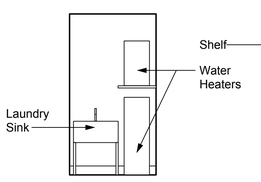


40 Bath 307
Scale: 1/4" = 1'-0"

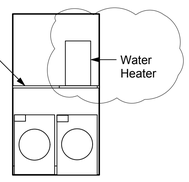


41 Bath 307
Scale: 1/4" = 1'-0"

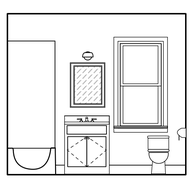
42 Bath 307/309
Scale: 1/4" = 1'-0"



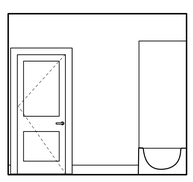
43 Laundry 301A
Scale: 1/4" = 1'-0"



44 Laundry 301A
Scale: 1/4" = 1'-0"



45 Bath 309
Scale: 1/4" = 1'-0"



46 Bath 309
Scale: 1/4" = 1'-0"

47 Kitchen 310
Scale: 1/4" = 1'-0"

Install ADA signage (provided by owner) at public bathrooms (4 total) and internal apartment entrances (4 total) and laundry rooms (2 total).

FULLY SPRINKLERED BUILDING

NORTH (building)

Shepherdstown Opera House
RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects pllc AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

Issue/Revision
6/4/20 Issued to WV Fire Marshal
6/22/20 Issued for bid
10/23/20 For Construction
02/25/21 General Revisions

Seal
STATE OF WEST VIRGINIA · MATTHEW W. GROVE NO. 2616 · REGISTERED ARCHITECT

Drawing Title
Interior Elevations

Date May 28, 2020
Scale As Noted
Project Number 20820
Drawing Number
A4.2

Door Schedule

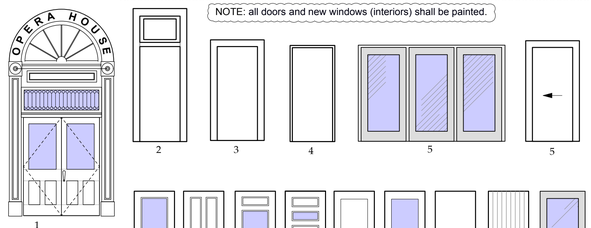
Mark		Door Location	Type	Door Material	Nominal Size: Width	Height	Thk	Operation	Door Style: Shape	Style	Door Frame: Glaz. Style	Jamb Thk	Jamb Depth	Frame Type	Material	Frame Details: Head Detail	Jamb Detail	Sill Detail	Fire Rating: Frame	Door Slab	HW Set	Openings: RO Width	RO Height	Comments
													VIF											
100	A	Stair A Ext Door	Exg A	Wood/Glass	2'10"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood	13	10-1	Exg	-	-	1	2'11 1/2"	6'8 3/4"	Existing historic doors
100	B	Opera House Entry	Exg A	Wood/Glass	5'8"	6'8"	1 3/4"	Swing Bi-part	Square	Solid	None	3/4"	4 1/2"	Exg 1	Wood	13	10-1	Exg	-	-	2	5'9 1/2"	6'8 3/4"	Existing historic doors
101	A	Lobby-Stair A	D	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	11-5	11-5	-	60 min	60 min	3	2'7 1/2"	6'8 3/4"	1 hr separation between use groups
101	B	Janitor's Closet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-1	10-1	16	-	-	4	2'5 1/2"	6'8 3/4"	
101	D	Lobby-Ticket Cntr	D	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-1	10-1	-	-	-	-	2'7 1/2"	6'8 3/4"	Inactive Panel
102	A	Lobby-Lounge	Existing	Wood/Glass	4'11 1/2"	7'0"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-1	10-1	-	-	-	TBD	5'1"	7'0 3/4"	
102	B	ADA Toilet	D	Wood	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	3'1 1/2"	6'8 3/4"	
102	C	Toilet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	2'5 1/2"	6'8 3/4"	
102	D	Toilet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	2'5 1/2"	6'8 3/4"	
103	A	Lounge-Auditorium	-	-	3'0"	7'0"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	3	Wood/HM	11-5	11-5	-	-	-	7	3'1 1/2"	7'0 3/4"	
103	B	Auditorium Exit	F	HM	3'0"	7'0"	1 3/4"	Swing Simple	Square	Solid	None	2"	7 1/2"	3	Wood/HM	11-5	11-5	14	45 min	45 min	8	3'4"	7'2"	
104	A	Stage-Backstage	F	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	-	-	-	5A	2'7 1/2"	6'8 3/4"	This door may be trimless, acoustic treatment
105	A	Backstage Exit	F	HM	3'0"	7'0"	1 3/4"	Swing Simple	Square	Solid	None	2"	7 1/2"	4	HM	12	12	18	60 min	60 min	9	3'4"	7'2"	
105	B	Backstage Loading	F	HM	3'6"	7'0"	1 3/4"	Swing Simple	Square	Solid	None	2"	7 1/2"	4	HM	12	12	17	-	-	10	3'10"	7'2"	
106	A	HVAC Closet	F	HM	6'0"	6'8"	1 3/4"	Swing Bi-part	Square	Solid	None	2"	4 1/2"	4	HM	12	12	18	60 min	60 min	11	6'4"	6'10"	
106	B	Stair C Exit	C1*	HM/GI	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	4	HM	12	12	17	60 min	60 min	9	3'1 1/2"	6'8 3/4"	*100 sq in of glass
201	A	Apartment Entry	B	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	3"	Exg 3	Wood	11-1	11-1	Exg 15	60 min	60 min	12	2'9 1/2"	6'8 3/4"	Remove trim, install HM frame, reinstall trim
201	B	Bathroom	Exg B	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood	13	10-2	Exg 15	-	-	Exg	2'9 1/2"	6'8 3/4"	
201	C	Toilet	D	Wood	2'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	2'1 1/2"	6'8 3/4"	
202	A	Salon	-	-	7'8"	6'8"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-2	10-2	Exg	-	-	-	7'9 1/2"	6'8 3/4"	
203	A	Closet	Exg B	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-2	10-2	Exg	-	-	Exg	2'7 1/2"	6'8 3/4"	Adjust door to close properly
203	A	Bedroom	Exg B	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-4	10-4	Exg	-	-	5	2'9 1/2"	6'8 3/4"	
203	B	HVAC Closet	Exg B	Wood	2'2"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-2	10-2	Exg	-	-	Exg	2'3 1/2"	6'8 3/4"	Adjust door to close properly
204	A	Stair A - Hall	-	-	2'8"	6'8"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-2	10-2	Exg			-	2'9 1/2"	6'8 3/4"	
204	B	Bathroom	D	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	Flush wood	-	-	6	2'9 1/2"	6'8 3/4"	
204	C	Laundry	B	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood/Glass	13	10-2	Exg	Exg	60 min	15	2'9 1/2"	6'8 3/4"	*adjust frame for reverse swing of door
204	D	Stair B Opening	-	-	2'8"	6'8"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood/Glass	13	10-2	Exg	-	-	-	2'9 1/2"	6'8 3/4"	
205	A	Apartment Entry	B	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3*	Wood	11-5	11-5	15	60 min	60 min	13	2'9 1/2"	6'8 3/4"	*widen door frme
206	A	Dressing Room	Exg C	Wood/Glass	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood/Glass	13	10-4	Exg	-	-	Exg	2'9 1/2"	6'8 3/4"	Adjust door hardware to improve function
207	A	Hall-Corridor	D	Wood	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 3	Wood	10-2	10-2	Exg	-	-	14	3'1 1/2"	6'8 3/4"	
208	A	Dressing Room	Exg C	Wood/Glass	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood/Glass	13	10-4	Exg	-	-	5	2'9 1/2"	6'8 3/4"	Reverse swing of door
208	B	Bathroom	Exg C*	Wood/Glass	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	6 1/2"	Salvaged 3	Wood	10-2	10-2	15	-	-	5	2'7 1/2"	6'8 3/4"	*Owner supplied door, trim salvaged on site
209	A	Corridor	-	-	3'0"	6'8"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood	10-2	10-2	Exg	-	-	-	3'1 1/2"	6'8 3/4"	
209	B	Bathroom	Exg C*	Wood/Glass	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Salvaged 3	Wood	10-4	10-4	15	-	-	5	2'9 1/2"	6'8 3/4"	
210	A	Kitchen	-	-	2'8"	6'8"	1 3/4"	Cased Opening	Square	Solid	None	3/4"	4 1/2"	Exg 2	Wood	10-4	10-4	Exg	-	-	-	2'9 1/2"	6'8 3/4"	
210	B	Closet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	Salvaged 3	Wood	10-4	10-4	15	-	-	5A	2'5 1/2"	6'8 3/4"	
210	C	Rear Ext'r Entry	H	Wood/GI/Metal	9'6"	6'8"	1 3/4"	Swing Complex	Square	Solid	None	3/4"	4 1/2"	5	Wood/Metal	10-5	10-5	Integral	-	-	13	9'7 1/2"	6'8 3/4"	Metal clad wood
211	C	Stair C Entry	C1*	HM/GL	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	14	60 min	60 min	9	3'1 1/2"	6'8 3/4"	*100 sq in of glass
301	A	Laundry	D	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	6 1/2"	3	Wood	10-5	10-5	16	60 min	60 min	15	2'9 1/2"	6'8 3/4"	
302	A	Aprtmnt 3A Entry	D	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	6 1/2"	3	Wood	10-5	10-5	15	60 min	60 min	13	2'9 1/2"	6'8 3/4"	
303	A	Bedroom	D	Wood	2'6"	6'8"	1 3/4"	Pocket Simple	Square	Solid	None	3/4"	4 5/8"	6	Wood	10-5	10-5	15	-	-	16	2'7 1/2"	6'8 3/4"	
306	A	Pantry	I	Wood	2'4"	6'8"	1 3/4"	Pocket Simple	Square	Solid	None	3/4"	6 1/2"	6	Wood	10-5	10-5	15	-	-	16	2'5 1/2"	6'8 3/4"	
307	A	Bathroom	D	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	6 1/2"	3	Wood	10-5	10-5	15	-	-	5	2'7 1/2"	6'8 3/4"	
308	A	Aprtmnt 3B Entry	D	Wood	2'8"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	6 1/2"	3	Wood	10-5	10-5	15	60 min	60 min	13	2'9 1/2"	6'8 3/4"	
308	B	Closet	D	Wood	2'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	0"	4 5/8"	3	Wood	10-5	10-5	-	-	-	5A	2'0"	6'8"	
309	A	Bathroom	D	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 5/8"	3	Wood	10-5	10-5	15	-	-	5	2'7 1/2"	6'8 3/4"	
310	A	Closet	I	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 5/8"	3	Wood	10-5	10-5	-	-	-	5A	2'7 1/2"	6'8 3/4"	
311	A	Roof Deck Entry	H	Wood/Glass	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 5/8"	3	Wood	11-5	11-5	17	-	-	13	3'1 1/2"	6'8 3/4"	
312	A	Bedroom	D	Wood	2'6"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 5/8"	3	Wood	10-5	10-5	15	-	-	5	2'7 1/2"	6'8 3/4"	
312	B	Closet	I	Wood	4'0"	6'8"	1 3/4"	Bi-fold Bi-part	Square	Solid	None	3/4"	4 5/8"	3	Wood	10-5	10-5	-	-	-	17	4'1 1/2"	6'8 3/4"	
313	A	Roof Deck-Stair C	C1*	HM/GL	3'0"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	11-5	11-5	17	60 min	60 min	9	3'1 1/2"	6'8 3/4"	*100 sq in of glass
Gate		HVAC Deck	G	Trex	4'6"	6'8"	1 3/4"	Swing Bi-part	Square	Solid	None	0"	0"	3	Wood	-	-	-	-	-	*	4'6"	6'8"	*Lockable gate latch
M01	A	Mezz Stair	D	Wood	2'6"	6'8"	1 3/8"	Swing Simple	Square	Solid	None	0"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	2'6"	6'8"	
M03	A	Gallery	D	Wood	5'0"	6'8"	1 3/4"	Pocket Bi-part	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	-	-	-	18	5'1 1/2"	6'8 3/4"	
M04	A	Toilet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	6	2'5 1/2"	6'8 3/4"	
M05	A	HVAC Closet	D	Wood	2'4"	6'8"	1 3/4"	Swing Simple	Square	Solid	None	3/4"	4 1/2"	3	Wood	10-5	10-5	16	-	-	4	2'5 1/2"	6'8 3/4"	

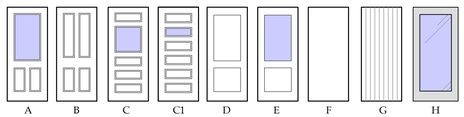
FULLY SPRINKLERED BUILDING

FRAME TYPES

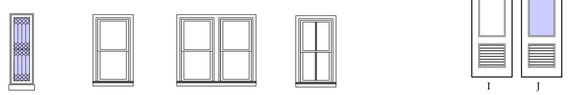
Note: Rosettes and plinth blocks are not called for on new door openings. Any existing openings that did have rosettes and plinth blocks but are missing, shall have new ones (1 ¼" thick) made with no relief, and only eased edges.

NOTE: all doors and new windows (interiors) shall be painted.



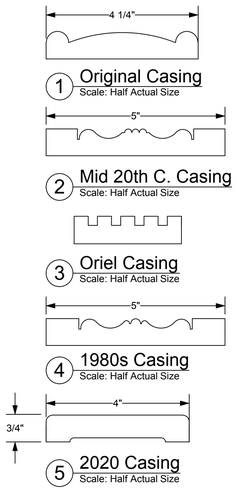


DOOR TYPES

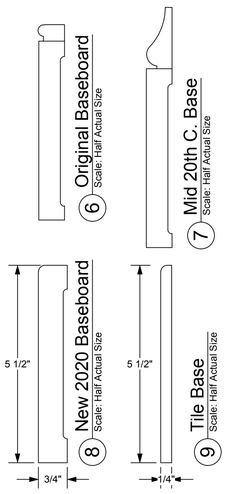


WINDOW TYPES

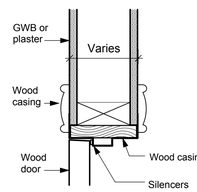
CASING DETAILS



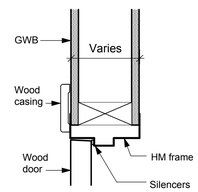
BASEBOARD DETAILS



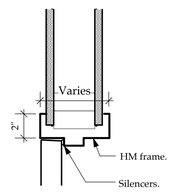
DOOR FRAME DETAILS



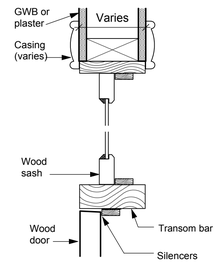
10 Typ Wd Frame
Scale: 2" = 1'-0"



11 Flush HM Frame
Scale: 2" = 1'-0"

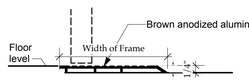


12 HM Frame
Scale: 2" = 1'-0"

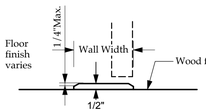


13 Transom
Scale: 2" = 1'-0"

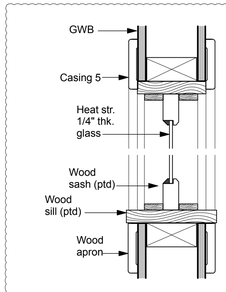
THRESHOLD DETAILS



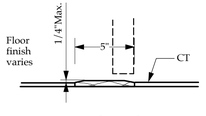
14 Offset Aluminum
Scale: 2" = 1'-0"



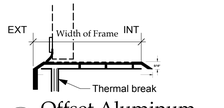
15 Wood Threshold
Scale: 2" = 1'-0"



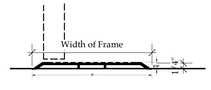
19 Wood Window
Scale: 2" = 1'-0"



16 Marble Threshold
Scale: 2" = 1'-0"



17 Offset Aluminum
Scale: 2" = 1'-0"



18 Level Aluminum
Scale: 2" = 1'-0"

Window Schedule

Des.	Type	Size	Location	Frame Material	Glazing	Low E	Remarks/Options
1S1	A	VIF (existing frame)	Mezzanine Stair	Wood (painted)	Leaded glass to match transom	No	Replicate original window. Provide new interior window guard
1W1	B	30" x 60"	Stair C	Metal Clad Wood	5/8" insulated	Yes	
1N1	C	(2) 30" x 60"	Stair C	Metal Clad Wood	5/8" insulated	Yes	
2E1	B	30" x 60"	Performer Lounge	Metal Clad Wood	5/8" insulated	Yes	
2E2	B	30" x 60"	Performer Lounge	Metal Clad Wood	5/8" insulated	Yes	
2W1	B	30" x 60"	Performer Lounge	Metal Clad Wood	5/8" insulated	Yes	
2W2	B	30" x 60"	Performer Lounge	Metal Clad Wood	5/8" insulated	Yes	

NORTH (building)

Shepherdstown Opera House

RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane # 277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects plic AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane Gerrardstown, WV 25420 304-267-2120
18 West Boscawen Street Winchester, VA 22601 540-773-2328

Issue/Revision

6/4/20 Issued to WV Fire Marshal
6/22/20 Issued for bid
10/23/20 For Construction
02/25/21 General Revisions

Seal

STATE OF WEST VIRGINIA · MATTHEW W. GROVE NO. 2616 · REGISTERED ARCHITECT

Drawing Title

Door & Window Schedule

Date May 28, 2020
Scale As Noted Project Number 20820
Drawing Number

A5.1

PLUMBING FIXTURE SCEDEULE

DES.	FIXTURE	TRAP	WASTE	VENT	COLD WATER	HOT WATER	MANUFACTURER/ MODEL #	DESCRIPTION
MS	MOP SINK	3"	3"	1 ½"	½"	½"	MOP SINK: MSB-2424 FAUCET: FIAT 830-AA	FLOOR MOUNTED 24"X24"X10" WHITE, MOLDED ONE PIECE CONSTRUCTION. 3" INTEGRAL DRAIN WITH REMOVABLE STAINLESS STEEL DOME STRAINER AND LINT BASKET. FAUCET SHALL BE CHROME PLATED W/ VACUUM BREAKER, PAIL HOOK, WALL SUPPORT AREM, ¾" HOSE CONNECTION, VALVES ON 8" CENTERS. PROVIDE WITH 30" FLEXIBLE HEAVY DUTY ⅝" RUBBER HOSE AND STAINLESS STEEL HOSE SUPPORT BRACKET. ANSI A-112.18.1-1975.
RD	ROOF DRAIN	–	–	–	–	–	JOSAM 21500 SERIES OR (APPROVED EQUAL)	4" PIPE OUTLET SIZE, COATED CAST IRON ROOF DRAIN, LARGE POLYPROPYLENE LOCKING DOME, WEJOC NON-PUNCTURING CLAMP RING WITH INTERGRAL GRAVEL STOP, LARGE SUMP WITH WIDE ROOF FLANGE AND BOTTOM OUTLET. PROVIDE WITH DECK CLAMP.
FD	FLOOR DRAIN (102B, 102C, M04, M05, 206A, 208A, 209A, 307A, 309A)	2"	1-¼"	–	½"	–	JOSAM 30000-A SERIES W/ ½" TRAP PRIMER (OR APPROVED EQUAL)	CAST IRON FLOOR DRAIN, TWO-PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEJLOC INVERTIBLE NON-PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET AND ADJUSTABLE SATIN NIKALOY ROUND SUPER-FLO STRAINER WITH INTERGRAL BRONZE BACKWATER VALVE.
FS	FLOOR SINK (102A)	3"	1-½"	–	½" FOR TP	–	ZURN Z1900 PROVIDED BY PLUMBING CONTRACTOR	–
UR	WATERFREE URINAL	2"	1-½"	–	–	–	SLOAN MODEL 1004000	–

PLUMBING FIXTURE SCEDEULE

DES.	FIXTURE	TRAP	WASTE	VENT	COLD WATER	HOT WATER	MANUFACTURER/ MODEL #	DESCRIPTION
WC	FLOOR MOUNTED TANK TYPE WATER CLOSET	INTEGRAL	3"	1-1/2"	½"	–	KOHLER "HIGHLINE" MODEL: #K-3427	FLOOR MOUNTED, SIPHON JET, WHITE, VITREOUS CHINA, ELONGATED BOWL, WATER SAVER 1.6 GPF. PROVIDE PLASTIC, CLOSED FRONT SEAT AND COVER, WITH CHECK HINGES. PROVIDE CHROME PLATED FLUSH VALVE.
L-1	LAVATORY (201A, 208A, 209A, 307A, 309A)	1-½"	1-½"	1 ¼" (U.O.N.)	½"	½"	FIXTURE: KOHLER "CAXTON" UNDERMOUNT MODEL #K-20000 FAUCET: WATER-CREATION F2-0009 W/ POP-UP DRAIN.	PROVIDE RECTANGULAR WHITE, VITREOUS CHINA, FRONT OVERFLOW, UNDER-MOUNT TYPE, APPROXIMATELY 20"X16". PROVIDE FLEXIBLE CHROME PLATED WATER SUPPLIES AND 17-GAUGE CHROME PLATED "P" TRAP AND EXTENSION TO WALL.
L-2	LAVATORY (102B, 102C, M04, M05)	1-½"	1-½"	1 ¼" (U.O.N.)	½"	½"	FIXTURE: KOHLER "CAXTON" UNDER-MOUNT MODEL #K-2209 FAUCET: ZURN Z6913-XL HARD-WIRED MOTION SENSOR.	PROVIDE OVAL WHITE, VITREOUS CHINA, FRONT OVERFLOW, UNDER-MOUNT TYPE, APPROXIMATELY 17"X14". PROVIDE FLEXIBLE CHROME PLATED WATER SUPPLIES AND 17-GAUGE CHROME PLATED "P" TRAP AND EXTENSION TO WALL.
L-3	LAVATORY (102C, 102D)	1-½"	1-½"	1 ¼" (U.O.N.)	½"	½"	FIXTURE: CERASTYLE, MODEL 001500-U 25"X50" CITY CERAMIC RECTANGULAR VESSEL FAUCET: REMER BY NAMEEKS MODEL L11USNL-CR CHROME SINGLE HOLE, SINGLE HANDLE, ADA COMPLIANT.	PROVIDE RECTANGULAR WHITE, VITREOUS CHINA, FRONT OVERFLOW, WALL MOUNT TYPE, APPROXIMATELY 25"X50". PROVIDE FLEXIBLE CHROME PLATED WATER SUPPLIES AND 17-GAUGE CHROME PLATED "P" TRAP AND EXTENSION TO WALL.
SH-1	SHOWER STALL (201A)	2"	2"	1 ¼"	½"	½"	FIXTURE: MAAX AKER PLASTICS SHOWER BASE ICON6034 DOORS: AURA SLIDING GLASS FAUCET: SPEAKMAN SM-3060-1	–
SH-2	SHOWER STALL (206A)	2"	2"	1 ¼"	½"	½"	FIXTURE: MAAX AKER PLASTICS SHOWER BASE ICON4242 DOOR: AURA SLIDING GLASS FAUCET: SPEAKMAN SM-3060-1	–
SH-3	SHOWER STALL (208A, 209A)	2"	2"	1 ¼"	½"	½"	FIXTURE: MAAX AKER PLASTICS SHOWER BASE ICON4834 DOORS: AURA SLIDING GLASS FAUCET: SPEAKMAN SM-3060-1	–
SH/T	SHOWER TUB COMBINATION (307A, 309A)	2"	2"	1 ¼"	½"	½"	FIXTURE: AKER PLASTICS BARRIER FREE TUB/SHOWER MODEL BFTS-60. COORDINATE RIGHT HAND & LEFT HAND AS REQUIRED. SHOWER HEAD: SPEAKMAN SM-3070-1	BARRIER FEE, 60"X33" ONE-PIECE GELCOATED FIBERGLASS TUB/SHOWER WITH 17- ¾" APRON STRUCTURALLY ENFORCED WALL SURROUND, AND A FACTORY MOUNTED WHITE BAR PACKAGE.
S-1	KITCHEN SINK (210B, 305, 310)	1 ½"	1 ½"	1 ¼"	½"	½"	SINK: ELKAY LR3322 FAUCET: AMERICAN STANDARD HERITAGE 7231 (POLISHED CHROME)	SELF-RIMMING TYPE 302, 18 GA. STAINLESS STEEL. 33"W X 22"L X 8", DOUBLE BOWL, 4-HOLE PUNCHED, COATED UNDERSIDE. FAUCET: GOOSENECK, SWING SPOUT, LEVER HANDLES. WITH FOOD WASTE DISPOSER.
S-2	KITCHEN SINK (M01, 201)	1 ½"	1 ½"	1 ¼"	½"	½"	SINK: ELKAY "CROSSTOWN" ECTSR25229BG1 FAUCET: AMERICAN STANDARD QUINCE 4433.300	SELF-RIMMING TYPE 304, 18 GA. STAINLESS STEEL. 22.5"L X 16.75"W X 9"D, SINGLE BOWL. FAUCET: HIGH ARC W/ PULL-DOWN SPRAY WITHOUT FOOD WASTE DISPOSER.
S-3	PANTRY SINK (210A)	1 ½"	1 ½"	1 ¼"	½"	½"	SINK: ELKAY HD33569 FAUCET: AMERICAN STANDARD QUINCE 4433.300	SELF-RIMMING TYPE 304, 18 GA. STAINLESS STEEL. 20"W X 15.5"L X 9", SINGLE BOWL, UNDER-MOUNT. FAUCET: HIGH ARC W/ PULL-DOWN SPRAY WITHOUT FOOD WASTE DISPOSER.
S-4	HAND SINK (102A)	1 ½"	1 ½"	1 ¼"	½"	½"	SINK: ADVANCE TACO 7-PS-60 W/ GOOSE NECK FAUCET	WALL MOUNTED STAINLESS STEEL PROVIDE CHROME PLATED P-TRAP, ETC.
S-5	THREE – COMPARTMENT SINK (102A)	1 ½"	1 ½"	1 ¼"	½"	½"	REGENCY 39" LONG, TYPE 304, 16 GA. STAINLESS STEEL FAUCET: ZURN Z842K4	FAUCET WITH DOUBLE JOINTED SPOUT AND WRIST BLADE HANDLES.
S-6	LAUNDRY SINK (204C)	1 ½"	1 ½"	1 ¼"	½"	½"	AMERICAN STANDARD FIAT	FIAT 20" FREE STANDING POLYETHYLENE UTILITY SINK WITH FAUCET, P-TRAP AND SUPPLYS.
WH	WALL HYDRANT	–	–	–	¾"	–	ZURN Z-1300	NON-FREEZE, FLUSH INSTALLATION, NICKLE BRONZE BOX AND HINGED COVER W/ OPERATING KEY LOCK AND "WATER" CAST IN COVER, ¾" HOSE OUTLET, W/AUTOMATIC DRAINING VACUUM BREAKER. VALVE SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH WALL AND PLACE THE VALVE SEAT INSIDE OF THE BUILDING TO FREEZING. BRONZE SEAT AND REPLACABLE WASHERS. MOUNT 24" ABOVE FINISHED GRADE.
WCO	WALL CLEANOUT	–	–	–	–	–	ZURN Z-1441-BP	DURA-COATED, CAST IRON BODY, GAS AND WATERTIGHT BRONZE THREADED PLUG, WITH ROUND SMOOTH STAINLESS STEEL ACCESS COVER AND SECURING SCREW.
FCO	FLOOR CLEANOUT	–	–	–	–	–	ZURN ZB-1400	ADJUSTABLE, DURA-COATED, CAST IRON BODY W/ POLISHED BRONZE SCORIATED TOP, GAS AND WATERTIGHT ABS THREADED PLUG.
IMB	ICE MAKER BOX	–	–	–	½"	–	GUY GRAY BIM875	

PLUMBING SYMBOLS

(THIS IS A SCHEDULE OF STANDARD SYMBOLS AND MAY NOT ALL APPEAR ON THIS PROJECT)

SAN	SANITARY PIPING	SAN
SAN	SANITARY PIPING-UNDERGROUND	
SD	STORM DRAIN PIPING	SD
SAN	STORM DRAIN PIPING BELOW SLAB	SD
SSD	SUB-SOIL DRAIN	SSD
FM	FORCED MAIN	FM
V	VENT PIPE	V
CW	DOMESTIC COLD WATER	CW
HW	DOMESTIC HOT WATER	HW
110°	DOMESTIC HOT WATER (110°F)	HW
140°	DOMESTIC HOT WATER (140°F)	HW
HWR	DOMESTIC HOT WATER RECIRC.	HWR
IW	INDIRECT WASTE	IW
G	NATURAL GAS FUEL	GAS
F	FIRE SUPPLY / SERVICE PIPE	F
SP	WET SPRINKLER PIPE	SP
SED	SPRINKLER EXPRESS DRAIN	SED
IR	IRRIGATION PIPE	IR
CA	COMPRESSED AIR	CA
	PIPE TURNING DOWN	DN
	PIPE TURNING UP	UP
	TOP TAKE OFF	
	BOTTOM TAKE OFF	
	PIPE CONTINUES	
	GATE VALVE	GV
	GATE VALVE	GV
	CHECK VALVE	CV
	BALANCING/REGULATING VALVE	BV
	OUTSIDE SCREW & YOKE VALVE	OS&Y
S	GAS SOLENOID VALVE	SOL
	GAS COCK	GC
	PRESSURE REDUCING VALVE	PRV
	BACKFLOW PREVENTER ASSEMBLY	BFP
	WALL HYDRANT	WH
	HOSE BIBB	HB
	UNION	
	MIXING VALVE ASSEMBLY	MV
	TAMPER SWITCH	TS
	BACKWATER VALVE	BWV
	PIPE REDUCER	RED
	PIPE SLEEVE	SLV
	FIRE HOSE VALVE	FHV

DCBP	DOUBLE CHECK VALVE BACKFLOW PREVENTOR	DCBP
RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR	RPBP
	FLOW SWITCH	FS
A–B	PRESSURE GAUGE (A–B IS RANGE, PSIG)	PG
A–B	THERMOMETER (A–B IS RANGE, °F)	T
A	SHOCK ARRESTOR (WITH PDI RATING INDICATED)	SA
	CLEANOUT (HORIZONTAL/VERTICAL)	CO
	VENT THRU ROOF	VTR
	DRY-PIPE VALVE ASSEMBLY	DPV

X / #

P	SANITARY/VENT STACK
W	WATER RISERS
SD	STORM DRAIN/RAINLEADER
F	FIRE MAIN/STANDPIPE/RISER
G	GAS PIPE RISER
GD	GARAGE DRAIN
DS	DRY STANDPIPE
FD	FOUNDATION DRAIN
SP	SPRINKLER PIPE RISER
CD	CONDENSATE DRAIN RISER
SED	SPRINKLER EXPRESS DRAIN

1 / P-1	DETAIL DESIGNATION DETAIL LOCATION (REFER TO DRAWING/SHEET)	
	POINT OF TERMINATION OF DEMOLITION	
	CONNECT TO EXISTING	
0'-0"	GRADE ELEVATION	
	AIR VENT VALVE	AV
	TEMPERATURE AND PRESSURE RELIEF VALVE	TPV
	IN-LINE CIRCULATING PUMP	ILCP
	FLOOR DRAIN (SANITARY)	FD
	AREA DRAIN (STORM)	AD
	ROOF DRAIN (STORM)	RD
	OPEN SITE DRAIN	OSD
	EMERGENCY FLOOR DRAIN (SANITARY)	EFD
	TRAP PRIMER VALVE	TP
	SHUT-OFF VALVE IN VERTICAL	

PLUMBING SYSTEM SCHEDULE

(THIS IS A SCHEDULE OF STANDARD SYSTEMS. SOME SYSTEMS MAY NOT APPEAR ON THIS PROJECT)

SYSTEM	PIPE SIZE OR SERVICE	PIPE MATERIAL: SEAM	BLACK STL (SCH OR WT)	COPPER (TYPE)	PVC (SCH)	GALVANIZED (SCH)	CAST IRON NO-HUB	CONNECTION: GROOVED	THREAD AND COUPLE	WELD	SOLDER	NEOPRENE GASKET	SOLVENT WELD	FITTINGS: PRESSURE CLASS	BLACK STEEL	CAST IRON	DUCTILE IRON	MALLEABLE IRON	WROUGHT COPPER	PVC	INSULATION: THICKNESS	GLASS FIBER	CELLULAR FOAM	KRAFT VP JACKET (ASJ)	KEYED NOTES
SANITARY WASTE	UNDERGROUND				DWV								X							DWV					2
	UNDERGROUND						X					X				X									
	ABOVE GROUND						X					X				X									
SANITARY VENT	ABOVE GROUND				DWV								X							DWV					2
	ABOVE GROUND			DWV							X								DWV						
GAS	OUTDOOR < 2"	CW	STD						X					150#				X							1
	OUTDOOR > 2"	CW	STD							X				STD	X										1
	INDOOR < 2"	CW	STD						X					150#				X							
	INDOOR > 2"	CW	STD							X				STD	X										
	UNDERGROUND				POLYE							X								POLYE					
	UNDERGRD ALL	CW	STD							X				150#				X							3
DOMESTIC COLD WATER	UP TO 2"			L							X								X		1/2"		X		
	2 1/2"	CW				STD		CUT									GAL								
	2 1/2"			L				ROLL			X								X		1/2"	X			
	OVER 2 1/2"			L				ROLL			X								X		1"	X			
	OVER 2 1/2"	ERW				STD		CUT									GAL				1"	X			
DOMESTIC HOT WATER	UP TO 2"			L							X								X		1"		X		
	2 1/2"			L				ROLL			X								X		1"	X			
	2 1/2"	CW				STD		CUT									GAL								
	3" & 4"	CW		L				ROLL			X								X		1"	X			
	3" & 4"	CW				40		CUT									GAL				1"	X			
	OVER 4"	CW		L				ROLL			X								X		1-1/2"	X			
	OVER 4"	CW				40		CUT									GAL				1-1/2"	X			
STORM	UNDERGROUND				DWV								X							DWV					
	UNDERGROUND						X					X				X									
	ABOVE GROUND	CW					X					X				X									4
	ABOVE GROUND	CW			DWV								X							DWV					2,4

KEYED NOTES:
1. OUTDOOR PIPING TO BE PAINTED.
2. PVC NOT TO BE USED IN RETURN AIR PLENUMS OR THROUGH RATED WALLS.
3. UNDERGROUND PIPING TO BE PLASTIC COATED.
4. INSULATE HORIZONTAL PIPING 1/2" THICK
5. SLOPE HORIZONTAL STORM AND WASTE DRAINAGE PIPING:
   PIPE SIZE 2-½" OR LESS.....¼" PER FT.
   PIPE SIZE 3" TO 6".....⅛" PER FT.
   PIPE SIZE 8" TO LARGER.....⅛" PER FT.

NORTH (building)

Shepherdstown

Opera House

RENOVATIONS

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Shepherdstown
West Virginia

Owner

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Mech/Elect Engineer

FHC Engineering, PC
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Winchester, VA 22601
540 247-2939

Structural Engineer

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REDESIGN REVISIONS 02.23.21	
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ALAN N. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
06/04/20

Drawing Title

GENERAL NOTES & SYMBOLS

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

P0.1

HYDRONIC FIRE PROTECTION SYSTEM NOTES

GENERAL
A. Provide a complete wet pipe system of automatic sprinklers in heated areas.
B. The system shall be installed in accordance with the rules and regulations of NFPA Pamphlet No. 13, local fire department and Owner's insurance company.
C. System piping shall be hydraulically designed throughout all areas in accordance with the rules and regulations of NFPA Pamphlet No. 13 using the design densities required by code. Sprinkler system design shall accommodate a potential load of the greater density of mixed use (if applicable). Provide mains and branches designed to support head density and spacing as required by the hazard classification of the individual spaces being sprinkled.
D. The hydraulic calculations for the sprinkler system pipe sizing shall be based on the actual site residual and static pressures as measured at the nearest fire hydrant.
E. Sprinkler piping shall be installed and coordinated with the ductwork and other mechanical and electrical services in the ceiling cavities by the Contractor to provide the clearances for lighting fixtures as indicated on the drawings.
F. Provide sprinkler system with required drain lines, test connections, spare heads, tools, Siamese connections, alarms, circuit closers, monitor switches, alarm valves, isolation valves, air compressors, etc.
G. Water Flow Alarm Switches as required by NFPA Standards.
H. Supervisory Switches as required by NFPA Standards.
I. The Automatic Sprinkler Design/Build Contractor will perform the final sprinkler system design, including hydraulic calculations, as required by all applicable codes and the local Fire Marshall to accommodate this facility. The fire sprinkler contractor will prepare and provide sprinkler shop drawings that have been stamped and signed by a professional engineer, liscensed in the State of Virginia, and submit them for review by the Fire Marshal.

CODES AND STANDARDS
A. The referenced codes shall include any and all supplements, addenda, memoranda, information bulletins and any other changes and additions effective prior to the Date of Substantial Completion by adoption of the local Authority Having Jurisdiction.
B. Modifications required by the Authorities Having Jurisdiction shall be made without additional charge to the Owner.
C. Where alterations to and/or deviations from the Contract Documents are required by the Authorities, report the requirements to the Architect and secure his approval before starting the alterations.
D. Where Contract Documents' requirements are in excess of Code requirements, the Contract Documents shall govern.
E. All rules and regulations of the Underwriters Laboratories (UL) shall be complied with whether or not indicated in the Contract Documents.
F. Provide all work in accordance with the following codes and standards:
International Building Code (IBC), latest edition in force.
National Electric Code.
Local Fire Prevention Code.
NFPA Standard #13 – Installation of Sprinkler Systems, latest edition in force.
NFPA Standard #24 – Installation of Private Water Supplies, latest edition in force.

QUALITY ASSURANCE
A. Basis of Design: As indicated on the drawings and as specified in Part 2 of this section.
B. Acceptable Manufacturers: If they comply with these specifications, products by the following manufacturers will be acceptable.
1. Pipe and fittings: Allied Tube & Conduit, U.S. Pipe and Foundry, Victaulic.
2. Valves: Mueller, Nibco, Stockham, Milwaukee, Grinell, Victaulic, Watts, Clay Valve.
3. Fire department connections: Potter-Roemer, Allenco.
4. Sprinkler heads: Reliable, Central, Viking.

PIPE, FITTINGS AND VALVES
A. Interior Piping:
1. Interior pipe shall be new and designed for 175 psi working pressure.
2. Pipe shall be black steel, conforming to ASTM A 135, Schedule 40. Schedule 40 pipe may be threaded (ANSI B 2.1), welded (ANSI B 31.10) or grooved (UL approved).
3. Schedule 10 pipe (lightwall) may be welded (ANSI B 31.10, a, b) or roll-grooved (UL approved). Lightwall pipe shall not be cut-grooved.
B. Underground Piping:
1. Ductile Iron:
a. Pipe shall be Class 50 OR 51, with integrally cast bell and spigot for mechanical joints.
b. Fittings shall be Class 2, short body pattern to match spigot gland and rubber gasket on adjoining pipe or fitting.
c. Joining Gaskets shall be plain rubber Type A, ANSI A 21.11 and ASTM F 36.
C. Fittings:
1. Fittings shall be new and designed for 175 psi working pressure.
2. Cast iron flange fittings shall conform to ANSI B 16.1 and shall be UL approved.
3. Cast iron threaded fittings shall conform to ANSI B 16.4 and shall be UL approved. Malleable iron fittings may be used on 4-inch or smaller diameter pipe and shall conform to ANSI B 16.3 and shall be UL approved.
4. Weld fittings shall be black steel, same weight as adjoining pipe, and shall conform to ANSI B 16.9, ANSI B 16.25, ASTM A 234, ANSI B 16.5 or ANSI B 16.11.
5. Grooved couplings and mechanical fittings shall be malleable iron conforming to ASTM A 47 and shall be UL approved. Gasket material shall be EPDM or butyl rubber.
E. Unions and Flanges:
1. Cast-iron flange unions shall be black standard, 175 psi working pressure WOG, UL approved, conforming to ASTM A 126 and ANSI B 16.1.
2. Mechanical couplings for use with grooved pipe/fittings shall be malleable iron (conforming to ASTM A 47) or ductile iron (conforming to ASTM A 536) and shall be UL approved. Couplings shall be of hinged, two-piece design, secured in position with tight fitting, heat treated carbon steel bolts and nuts (conforming to ASTM A 183). Gasket material shall be EPDM or butyl rubber.

VALVES
A. Gate Valves:
1. 2 inches and smaller: 200-pound WSP, bronze, OS&Y, rising stem, screwed bonnet, solid wedge disc, screwed, UL listed, ASTM A 126, Class B.
2. 2 1/2 inches and larger: 175-pound WOG, IBBM, OS&Y, rising stem, bolted bonnet, solid wedge disc, flanged, UL listed, ASTM A 126, Class B.
B. Check Valves:
1. 2-1/2 inches and larger: 175-pound WOG, IBBM, swing, bolted cap, renewable seat, flanged, UL listed, ASTM A 126, Class B.
C. Butterfly Valves:
1. UL listed with full lug type ductile iron body, aluminum bronze disc, 316 stainless steel stem, Buna-N seat, phenolic ring, bubble-tight closure at 175 psi and worm gear manual operator with crank or handwheel and indicator. Provide a tapped hole in gear operator casing for attachment of supervisory switch.
2. UL listed with grooved-end design, grade "H" butyl seat, bubble-tight closure at 200 psi, manual gear operator, standard trim. Provide a tapped hole in case of gear operator for attachment of supervisory switch.

FIRE DEPARTMENT CONNECTIONS
A. Provide fire department connections with local fire department standard hose threads.
B. Provide fire department connections with finish selected by Architect.
C. Wall-Mounted Siamese Inlet: Provide flush wall-mounted, two-way, brass body, Siamese connections at locations indicated on the drawings. Provide double clapper valves, plugs, chains and wall plate. Factory raised lettering label on plate shall read as indicated on the drawings.
1. Basis of Design: Potter-Roemer Series #5750; or Allenco Series #270.

SPRINKLER HEADS
A. Sprinkler head discharge characteristics, identification, temperature ratings, classifications and performance shall comply with NFPA 13.
B. Sprinkler heads shall have UL and FM approval.
C. Provide sprinkler head orifice size as required by coverage and hydraulic calculations.
D. Unless specified otherwise, provide sprinkler head finishes as follows:
1. Concealed spaces: Rough bronze.
2. Exposed in unfinished spaces: Rough bronze.
3. Exposed in finished spaces: Polished or satin chrome.
E. Upright Type, Standard: Encapsulated, fusible alloy and spring lever actuator. Basis of Design: Reliable Model G-SSU.
F. Pendent Type, Standard: Encapsulated fusible alloy and spring lever actuator. Basis of Design: Reliable Model G-SSP.
G. Concealed Type: Standard pendent head of either adjustable or non-adjustable type and two-piece cup/coverplate assembly. Provide white coverplates for heads installed in ceiling tiled spaces. Provide factory-standard coverplate finish, as selected by Architect, in all other areas. Basis of Design: Reliable Model G1.

ACCESSORIES
A. Water Flow Detector:
1. For wet sprinkler systems, provide paddle-type, clamp-on flow switch with field-adjustable retard and automatic recycle. Flow switch shall have UL label. Provide electrical characteristics compatible with Division 16 Fire Alarm System. Provide auxiliary contacts on flow switch for connection to other building alarm systems.
a. Basis of Design: Reliable Model A.
B. Valve Supervisory Switch: Provide UL listed valve-mounted supervisory switch arranged to detect the open or closed position of control valve. Provide tamper switch, required trim and electrical characteristics compatible with Division 16 Fire Alarm System. Provide auxiliary contacts for connection to other building alarm systems. Basis of Design: Potter-Roemer, Inc. Figure #6220 Series.
C. Ball Drip: Provide cast brass automatic ball drip with 3/4-inch threaded outlet. Basis of Design: Allenco Model #2112NY; or Potter-Roemer, Inc. Model #5982.
D. Inspector's Sight Test Connection: Provide semi-steel sight test connection with glass tube and having flow equivalent to one 1/2-inch sprinkler head.

SPRINKLER HEAD TYPES
A. Unfinished Spaces (mechanical rooms, storage rooms, janitor's closets, other areas not having finished ceilings): Upright, pendent or sidewall type as required to provide specified coverage and maintain maximum headroom.
B. Flat, White Ceiling Areas: Concealed type with white coverplate.
C. Main Building Public Lobby: Concealed type with coverplate finish selected by Architect.

PIPING SUPPORTS
A. Pipe supports shall conform to NFPA requirements.

PRESSURE TESTING
A. Provide pressure tests for the entire system including all tenant improvements, changes, etc., in accordance with NFPA Standard No. 13 and local Authorities Having Jurisdiction.

GENERAL REQUIRMENTS

SECTION 15000 – GENERAL PLUMBING REQUIREMENTS
PART 1 GENERAL
A. Provide under this Division complete plumbing and fire protection systems, fully adjusted, tested, and commissioned for use as indicated on the Drawings and as specified herein.
1.2 CODES AND STANDARDS
A. Codes and standards listed herein, insofar as they apply, form a part of these Specifications, the same as if they were fully written and shall be followed as minimum requirements. Where standards conflict, that standard with the more stringent requirements shall be applicable. Where these specifications require higher grade material or workmanship than the referenced standards, provide the highest grade of material and workmanship specified.
B. Prior to purchase or installation, give written notice to the Architect of any materials or apparatus believed in violation of laws, ordinances, rules or regulations, or Authorities Having Jurisdiction.
C. The referenced codes shall include any and all supplements, addenda, memoranda, information bulletins and any other changes and additions effective prior to the permit issue date by adoption of the local Authority Having Jurisdiction.
D. Make any and all modifications required by the Authorities Having Jurisdiction without additional charge to the Owner.
E. Where alterations to and/or deviations from the Contract Documents are required by the Authorities, report the requirements to the Architect and secure approval before starting the alterations.
F. Where Contract Documents' requirements are in excess of Code requirements and are permitted under the Code, the Contract Documents shall govern.
G. All rules and regulations of the Underwriters Laboratories shall be complied with whether or not indicated in the Contract Documents.
H. All work shall comply with the following codes and standards.
1. Codes:
International Building Code, latest edition in force
International Plumbing Code, latest edition in force
International Fuel Gas Code, latest edition in force
National Electric Code.
2. Standards: In addition to the requirements shown or specified, comply with the latest current applicable standards, specifications and codes published by the following (where the following publications list recommendations and guidelines, the recommendations and guidelines shall be considered requirements of this contract and the items and systems shall be constructed and/or tested in accordance with the recommendations and guidelines):
American Society of Mechanical Engineers (ASME).
American National Standards Institute (ANSI).
American Water Works (AWWA).
American Society for Testing and Materials (ASTM).
National Fire Protection Association (NFPA).
Underwriters Laboratories (UL).
Plumbing Drainage Institute
Manufacturer's Standardization Society of the Valves and Fittings Industry, Inc. (MSS).
1.3 PERMITS
A. Obtain and pay for all permits, licenses, and inspection certificates required for all work in accordance with the provisions of the Contract Documents.
1.4 GUARANTEE
A. Guarantee in form satisfactory to the Owner, that all Work installed is free from defects in workmanship and/or materials. Guarantee that all apparatus will develop capacities and characteristics specified for a period of one year from the date of final acceptance by the Owner or certification of substantial completion, whichever occurs later.
B. During the guarantee period, remedy, without cost to the Owner, defective workmanship, materials, and apparatus performance. Remedial work shall be completed within a reasonable time specified by the Owner. In default thereof, the Owner may have such work done and charge all costs to the Contractor.
1.5 COMPLETE PERFORMANCE OF WORK
A. Execute work in strict accordance with the best practice of the trades in a thorough, substantial, workmanlike manner by competent workmen.
B. Provide labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and indicated, or which may be reasonably implied as essential whether mentioned in the Contract Documents or not.
C. In cases of doubt as to the Work intended, or in the event of need for explanation thereof, request supplementary instructions from the Architect.
1.6 COOPERATION WITH OTHER TRADES
A. Coordinate efforts of all trades and furnish in writing, with copies to the Architect and Owner, any information necessary to permit the work of all trades to be installed satisfactorily and with least possible interference or delay.
B. Where the work of various trades will be installed in close proximity to one another, or where there is evidence that the work of one trade will interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment. If one trade installs his work before coordinating with work of other trades, make necessary changes to correct the condition without extra charge.
1.7 DRAWINGS
A. The Drawings show the general layout of the various items of equipment. However, layout of equipment, accessories, specialties, ductwork, and piping systems are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required valve, fitting, trap, duct, elbow, transition, turning vane, or similar items required for a complete installation. Consult the Architectural Drawings and details for exact location of rough-ins, fixtures and equipment. Where same is not definitely located, obtain the information from the Architect before proceeding.
B. Follow the Drawings in laying out the work and check drawings of all trades to verify spaces in which work will be installed. Maintain maximum headroom throughout. Where space conditions appear inadequate, request clarification from the Architect before proceeding with the installation.
1.8 MANUFACTURER'S RECOMMENDATIONS
A. Except where specifically indicated differently in the Contract Documents, apply, install, connect, erect, use, clean, and condition manufactured articles, materials, and equipment per manufacturer's current printed recommendations. Keep copies of such printed recommendations at job site
1.9 SUBMITTALS
A. After the Contract is awarded, but prior to proceeding with the Work, obtain complete submittals from the manufacturers, suppliers, vendors, subcontractors, for all materials and equipment specified in this Division and submit data and details of such materials and equipment to the Architect.
B. Prior to forwarding submittals to the Architect, review and certify that the equipment, materials, methods, etc. represented by the submittals are in compliance with the Contract Documents.
C. A minimum period of two weeks, exclusive of transmittal time, will be required in the Engineer's office each time a submittal is submitted or resubmitted for review. This time period shall be considered by the Contractor when scheduling his work.
D. Approval of product data shall not relieve the Contractor of the responsibility for errors that may be contained therein, or for deviations from requirements in the Contract Documents. It shall be clearly understood that the Architect or Engineer noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the product data the Contract Documents shall govern the work and are neither waived nor superseded in any way by submittal review.
PART 2 PRODUCTS
2.1 MATERIALS
A. The word "Provide" is defined as requiring the Contractor to "furnish, erect, test, adjust and install complete and ready for use" the item to which it refers.
B. Unless otherwise specified, provide new, first-class quality materials and apparatus required for the work. Furnish, deliver, erect, connect and finish work in every detail, and select and arrange work to fit properly into the building spaces. Where no specific kind or quality of material is given, provide a first class standard article as approved by the Architect.
C. Equipment designated as "Basis of Design" has been coordinated for structural penetrations; duct, piping, and electrical connection; operating and service (maintenance) requirements; and physical size with regard to space where equipment is housed. Other specified manufacturers of like equipment are acceptable contingent on the Contractor providing a complete installation and maintaining full responsibility to provide, at no additional cost, any modifications to the structure or configuration of adjoining equipment and the installation that is required to properly install, operate, and service the equipment being used.
PART 3 EXECUTION
3.1 EXCAVATION AND BACKFILLING
A. General: Provide excavation and backfilling of trenches required for the installation of all utility services and underground piping within the building, and to points of connection with exterior underground utilities outside of the building.
B. Trenching: Excavate to the required depths and grade the bottoms of trenches to secure the required slope for pipe lines. Where encountered, excavate rock to a minimum depth of six inches below the bottom of pipe. Excavate the bottom of the trench by hand to provide firm, uniform bearing for the bottom quarter of the pipe. Excavate recesses for joints for pipe having bells, sleeves, other enlargement at the joints. Provide separate trenches for water and sewer lines.
C. Backfilling: Do not backfill trenches until the piping has been tested as required and reviewed and approved by the Architect and/or any Local Authorities having jurisdiction thereof.
1. Provide backfill consisting of sand or selected excavated material, placed to a depth of one foot above the top of the conduit or pipe and compacted by hand tamping. Provide backfill for the remainder of the trench in accordance with the requirements of Division 2, using materials as specified therein, and compact as required to produce the specified density.
3.2 SLEEVES, FORMED OPENINGS, PLATES, AND INSERTS
A. Provide sleeves for all piping passing through masonry, concrete, tile and gypsum wall construction.
B. Provide sleeves and formed openings of sufficient size to pass continuous, uninterrupted insulation of the specified thickness.
C. Check floor and wall construction finishes to determine proper length of sleeves for various locations and make actual lengths to suit the following.
1. Terminate sleeves flush with walls, partitions, and ceilings.
2. In areas where pipes are exposed, extend sleeves 2 inches above finished floor.
D. 3.3 RECORD DRAWINGS
A. Maintain at the project site a complete set of "Record Drawings" reflecting an accurate as-built record of all Work. In addition, mark the "Record Drawings" to show changes and deviations in the Work from that shown on the Contract Documents. This requirement shall not be construed as authorization for the Contractor to make changes in the layout or work without definite instructions from the Architect.

NORTH (building)

Shepherdstown Opera House

RENOVATIONS

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Shepherdstown
West Virginia

Owner

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Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
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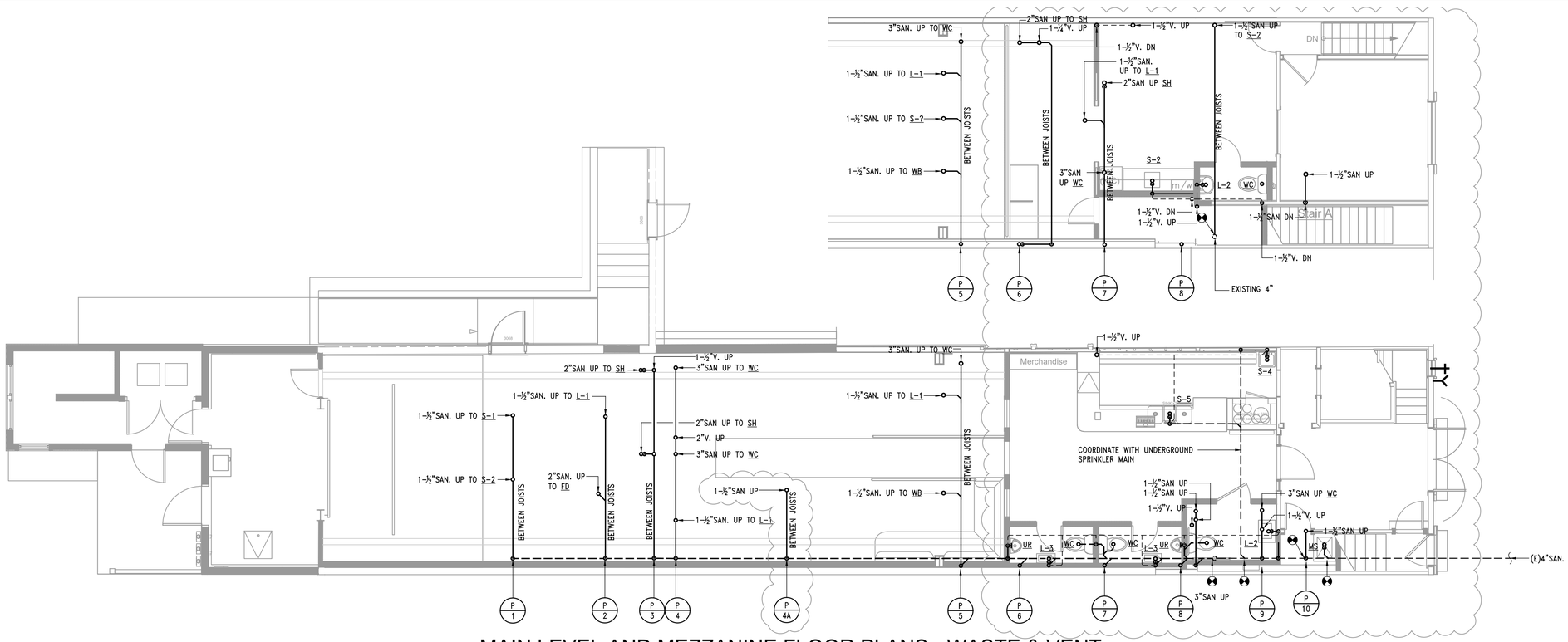
ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/20

Drawing Title

SPECIFICATIONS

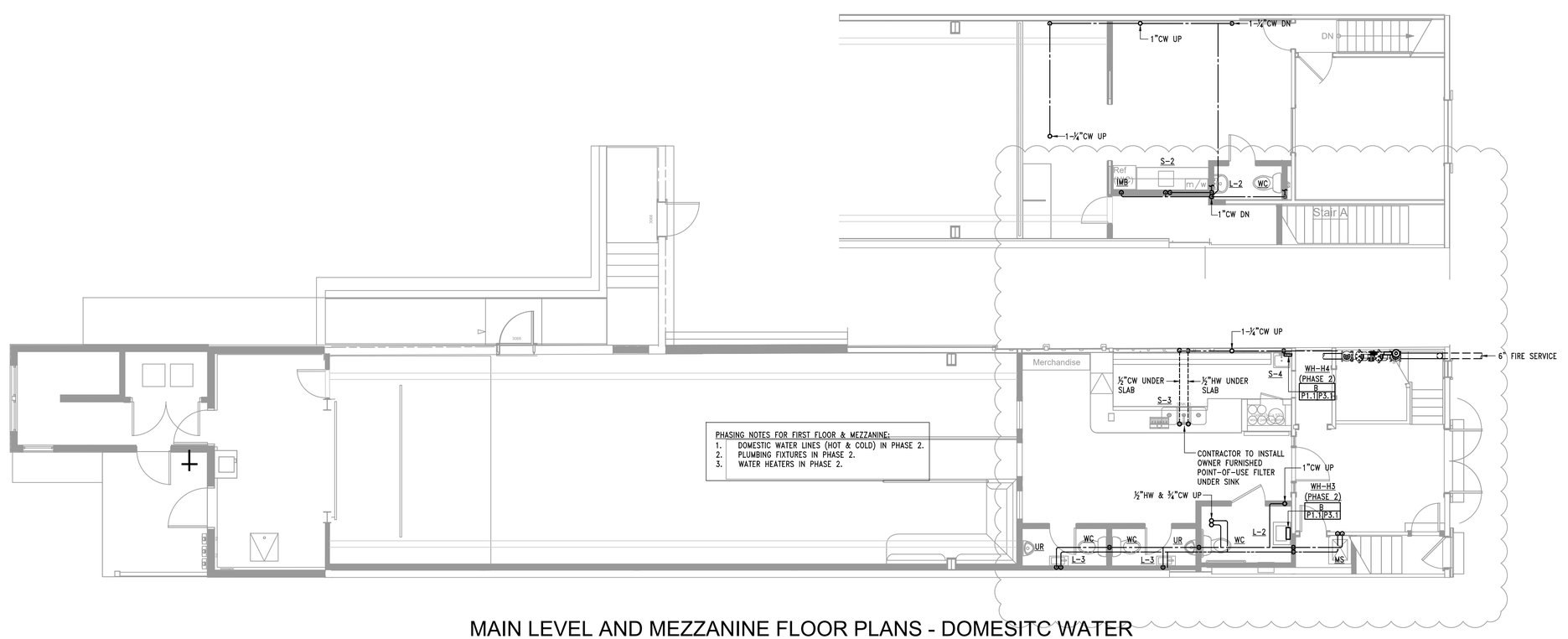
Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

P0.2



MAIN LEVEL AND MEZZANINE FLOOR PLANS - WASTE & VENT

SCALE: 3/16" = 1'-0"



MAIN LEVEL AND MEZZANINE FLOOR PLANS - DOMESITC WATER

SCALE: 3/16" = 1'-0"

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Shepherdstown Opera House RENOVATIONS

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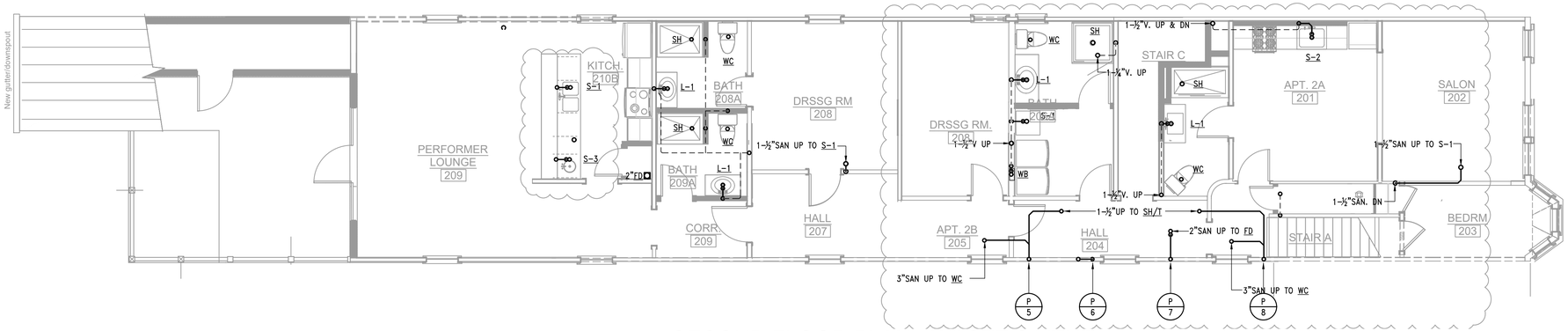
ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

Drawing Title

MAIN LEVEL & MEZZANINE FLOOR PLANS

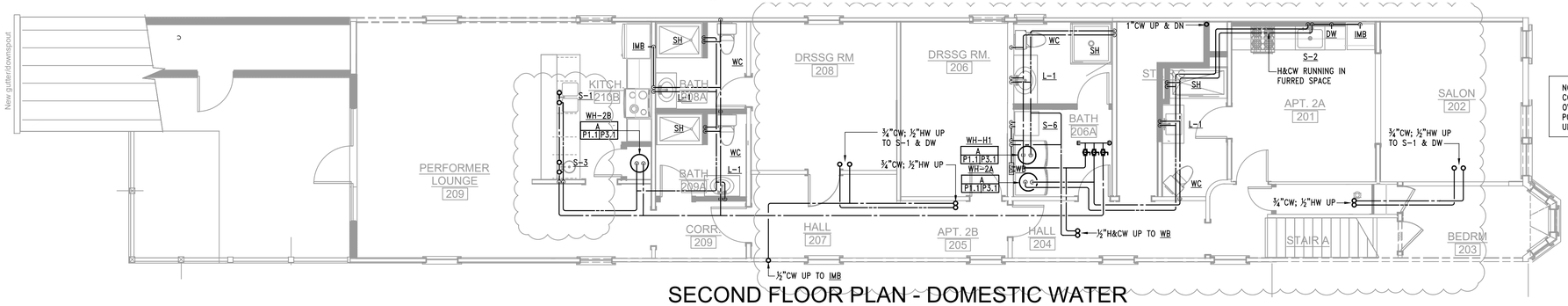
Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

P1.1



SECOND FLOOR PLAN - WASTE & VENT

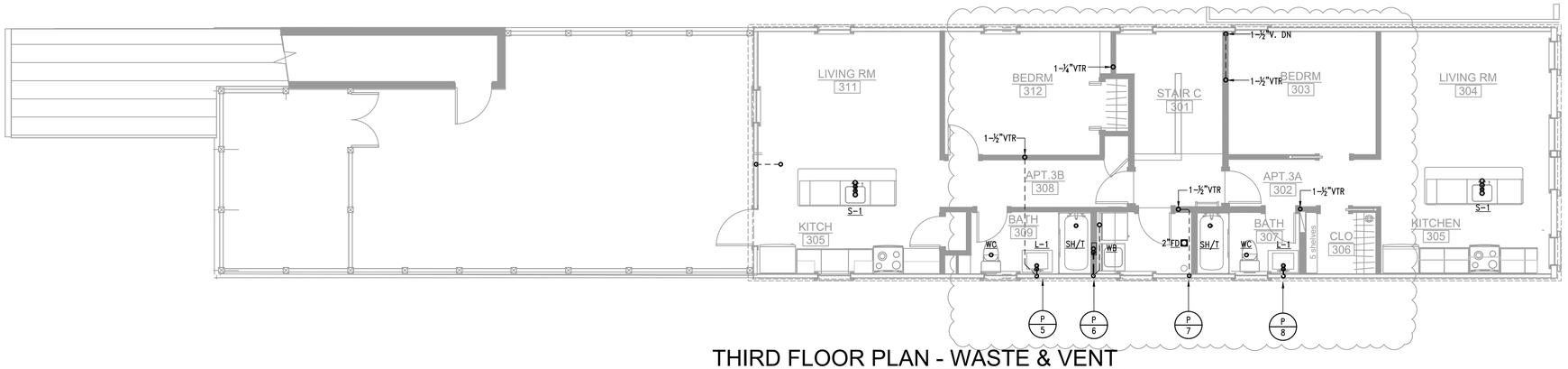
SCALE: 3/16" = 1'-0"



NOTE:
CONTRACTOR SHALL INSTALL OWNER FURNISHED POINT-OF-USE WATER FILTER UNDER EACH KITCHEN SINK

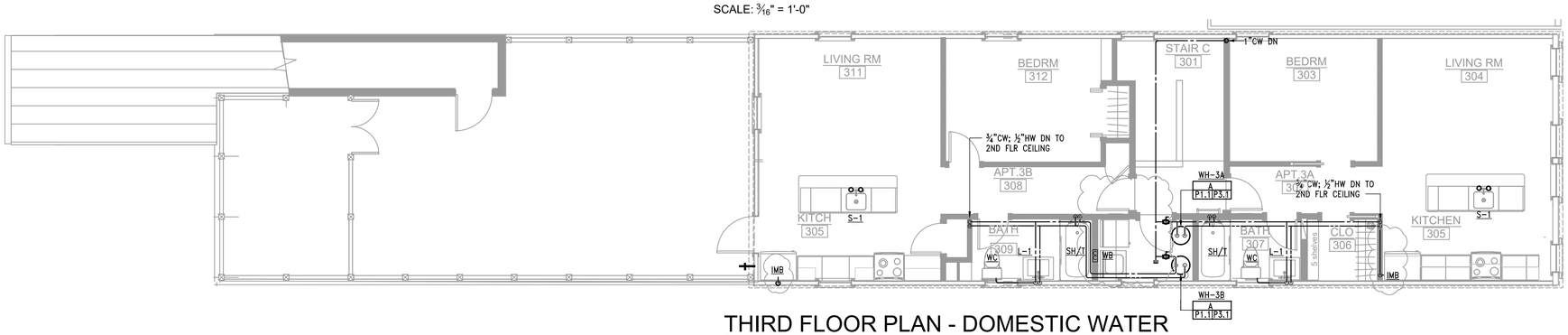
SECOND FLOOR PLAN - DOMESTIC WATER

SCALE: 3/16" = 1'-0"



THIRD FLOOR PLAN - WASTE & VENT

SCALE: 3/16" = 1'-0"



NOTE:
CONTRACTOR SHALL INSTALL OWNER FURNISHED POINT-OF-USE WATER FILTER UNDER EACH KITCHEN SINK

THIRD FLOOR PLAN - DOMESTIC WATER

SCALE: 3/16" = 1'-0"

NORTH (building)

Shepherdstown Opera House RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects plle AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

Issue/Revision	Seal
REVISION #1 10.23.20	
FOR CONSTRUCTION 10.23.20	
REDESIGN REVISIONS 02.23.21	
FOR CONSTRUCTION 10.23.20	

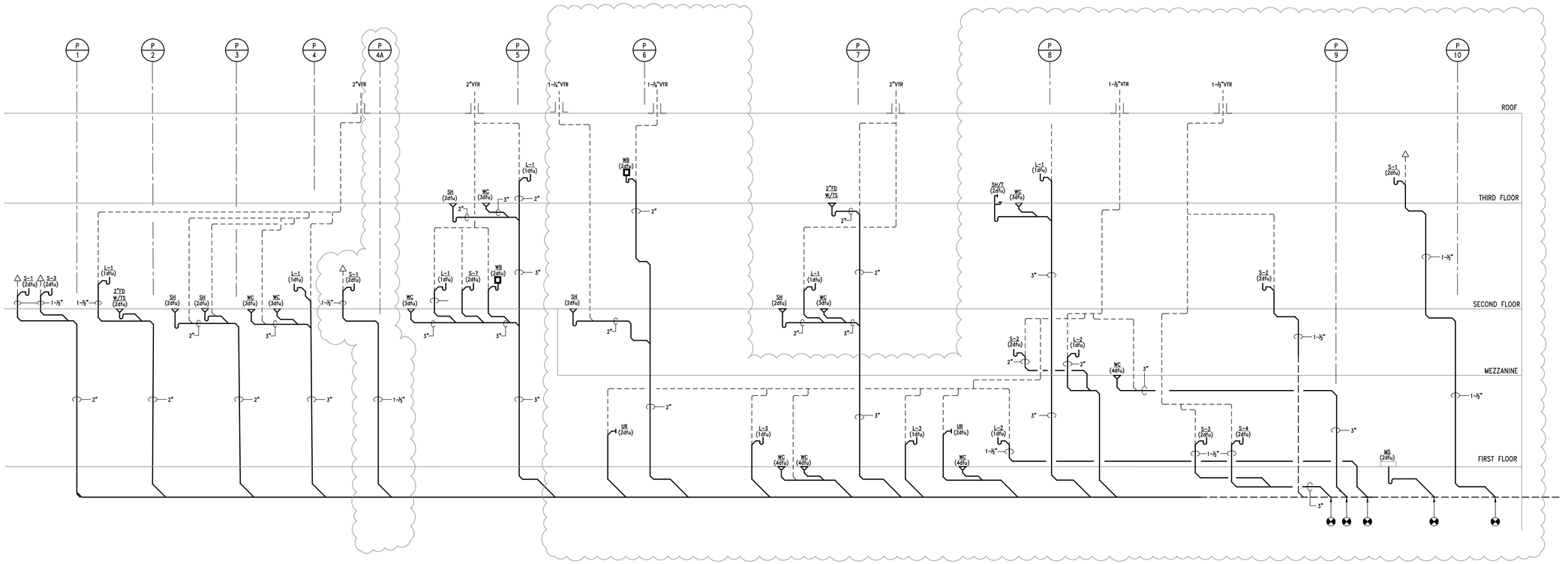
ALAN V. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
6/4/20.

Drawing Title

2ND & 3RD FLOOR PLANS

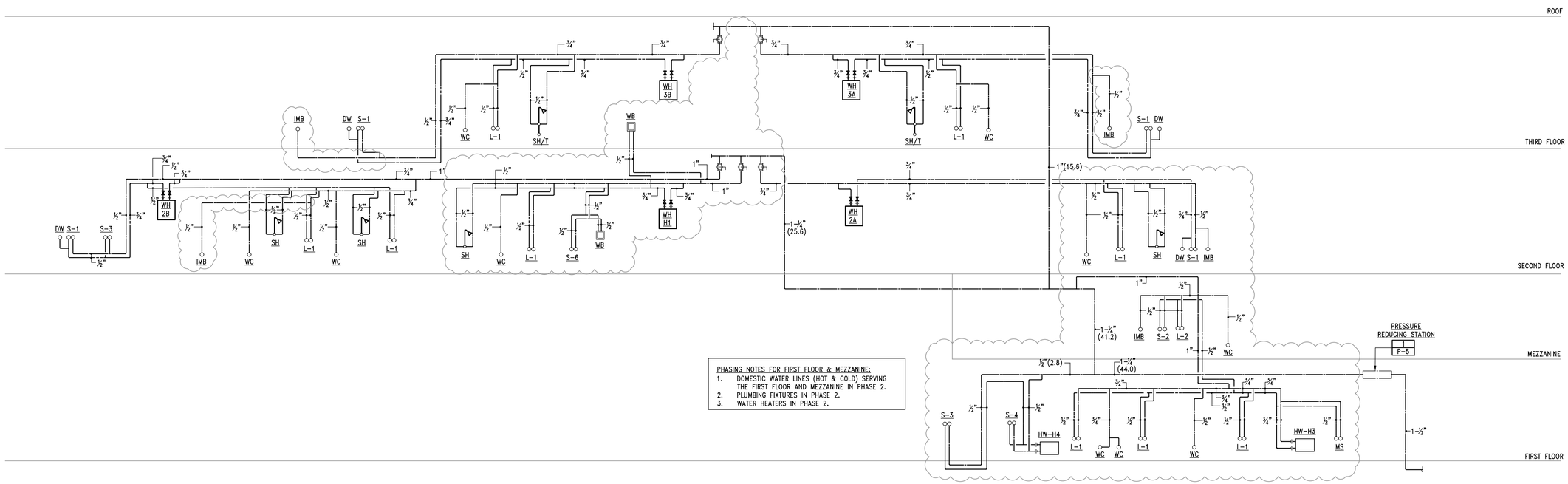
Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

P1.2



WASTE & VENT RISER DIAGRAM

SCALE: NONE



PHASING NOTES FOR FIRST FLOOR & MEZZANINE:

1. DOMESTIC WATER LINES (HOT & COLD) SERVING THE FIRST FLOOR AND MEZZANINE IN PHASE 2.
2. PLUMBING FIXTURES IN PHASE 2.
3. WATER HEATERS IN PHASE 2.

DOMESTIC WATER RISER DIAGRAM

SCALE: NONE

NORTH (building)

Shepherdstown

Opera House

RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

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Mech/Elect Engineer

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4 Weems Lane #277
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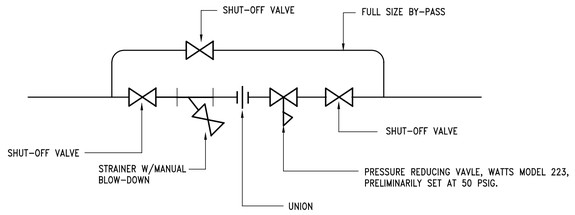
ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/20

Drawing Title

RISER DIAGRAMS

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

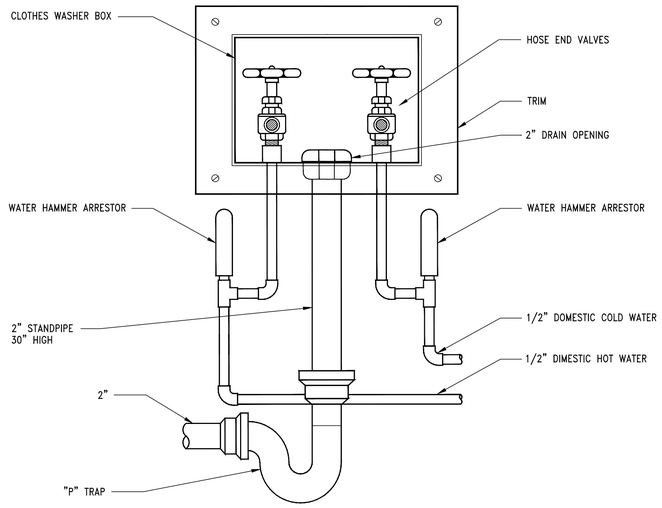
P2.1



E
P1.2|P3.1

PRESSURE REDUCING STATION DETAIL

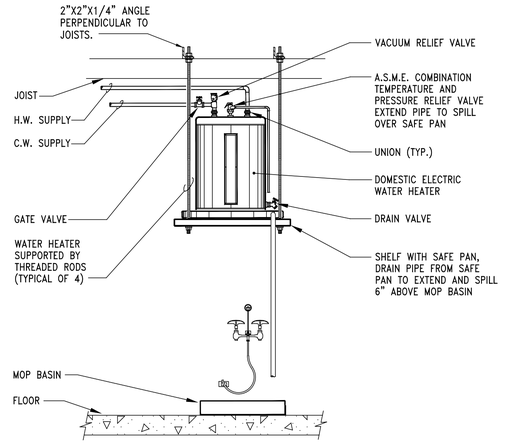
SCALE : NONE



C
P1.2|P3.1

WASHER SUPPLY & DRAIN DETAIL

SCALE : NONE



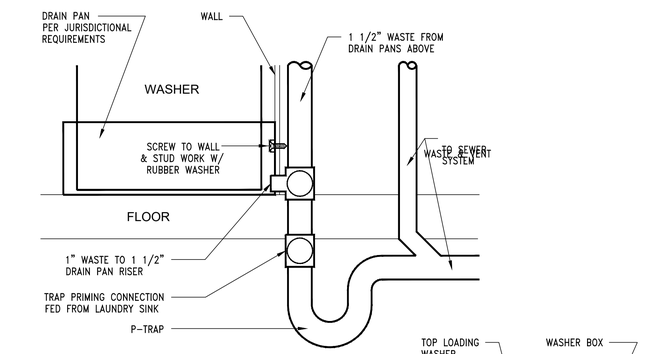
SCHEDULE OF CAPACITIES

W.H. NO.	STORAGE GALLONS	G.P.H. RECOVERY @ 80 F RISE	OPER. WGT. LBS.	ELECTRIC				BASIS OF DESIGN
				VOLTS	PH	Hz	KW	
2A	28	12.5	335	240	1	60	2.5	A.O. SMITH PROLINE MODEL ENJB-30
2B	28	12.5	335	240	1	60	2.5	A.O. SMITH PROLINE MODEL ENJB-30
3A	28	12.5	335	240	1	60	2.5	A.O. SMITH PROLINE MODEL ENJB-30
3B	28	12.5	335	240	1	60	2.5	A.O. SMITH PROLINE MODEL ENJB-30
H1	38	21.0	435	240	1	60	4.5	A.O. SMITH PROLINE MODEL ENLB-40
H2			NOT USED					

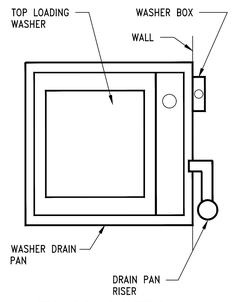
A
P1.2|P3.1

DOMESTIC ELECTRIC WATER HEATER DETAIL

SCALE : NONE



SECTION

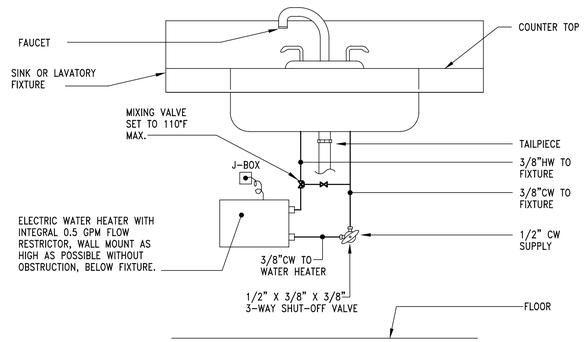


PLAN VIEW

D
P1.2|P3.1

WASHER DRAIN PAN DETAIL

SCALE : NONE



SCHEDULE OF CAPACITIES

W.H. NO.	TEMP. RISE °F		ELECTRIC			BASIS OF DESIGN
	0.5 GPM	1.0 GPM	KW	VOLTS	AMPS	
WH-3	57	-	4.2	240	20	CHRONOMITE MODEL SR-20L
WH-4	57	-	4.2	240	20	CHRONOMITE MODEL SR-20L

B
P1.1|P3.1

INSTANTANEOUS DOMESTIC WATER HEATER DETAIL (PHASE 2)

SCALE : NONE

NORTH (building)

Shepherdstown Opera House

RENOVATIONS

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Shepherdstown
West Virginia

Owner

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Mech/Elect Engineer

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REDESIGN REVISIONS 02.23.21	
FOR CONSTRUCTION 10.23.20	

ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020.

Drawing Title

DETAILS & SCHEDULES

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

P3.1

METAL DUCT SYSTEMS SCHEDULE

(THIS IS A SCHEDULE OF STANDARD SYSTEMS, ALL SYSTEMS MAY NOT APPEAR ON THIS PROJECT)

LOCATION	SERVICE	PRESSURE, SEAL & LEAKAGE CLASS				JOINING METHOD		MATERIAL					INSULATION				
		2-INCH WG	SEAL CLASS	LEAKAGE CLASS (RECTANGULAR)	LEAKAGE CLASS (ROUND)	SMACNA TRANSVERSE JOINT REINFORCEMENT	WELDED	GALVANIZED SHEET STEEL (0" - 30") (SEE NOTE 1)	GALVANIZED SHEET STEEL (25" - 42") (SEE NOTE 1)	GALVANIZED SHEET STEEL (43" - 48") (SEE NOTE 1)	CARBON SHEET STEEL	STAINLESS STEEL	MINERAL-FIBER BLANKET	MINERAL-FIBER BOARD	MINERAL-FIBER BOARD W/FIELD APPLIED JACKET	FIRE RATED BLANKET OR BOARD
CONCEALED (CONDITIONED)	SUPPLY	X	C	12	6	NOTE 2		26GA.	24GA.	22GA.			1-½"			
	RETURN	X	C	12	6			26GA.	24GA.	22GA.			1-½"			
	EXHAUST	X	B	12	6			26GA.	24GA.	22GA.			–			
	OUTDOOR AIR	X	C	12	6			26GA.	24GA.	22GA.			1-½"			
CONCEALED (UNCONDITIONED)	SUPPLY	X	B	12	6			26GA.	24GA.	22GA.			1-½"			
	RETURN	X	B	12	6			26GA.	24GA.	22GA.			1-½"			
	EXHAUST	X	C	12	6			26GA.	24GA.	22GA.			–			
	OUTDOOR AIR	X	C	12	6			26GA.	24GA.	22GA.			1-½"			
EXPOSED (CONDITIONED)	SUPPLY	X	C	12	6			26GA.	24GA.	22GA.				1-½"		
	RETURN	X	C	12	6			26GA.	24GA.	22GA.				1-½"		
	EXHAUST	X	B	12	6			26GA.	24GA.	22GA.				–		
	OUTDOOR AIR	X	C	12	6			26GA.	24GA.	22GA.				1-½"		
EXPOSED (UNCONDITIONED)	SUPPLY	X	B	12	6			26GA.	24GA.	22GA.				1-½"		
	RETURN	X	B	12	6			26GA.	24GA.	22GA.				1-½"		
	EXHAUST	X	C	12	6			26GA.	24GA.	22GA.				–		
	OUTDOOR AIR	X	C	12	6			26GA.	24GA.	22GA.				1-½"		
OUTDOORS	SUPPLY	X	A	12	6			26GA.	24GA.	22GA.					2"	
	RETURN	X	C	12	6			26GA.	24GA.	22GA.					2"	
	EXHAUST	X	C	12	6			26GA.	24GA.	22GA.					2"	
	OUTDOOR AIR	X	C	12	6		▼	26GA.	24GA.	22GA.					2"	
UNDERGROUND	SEE NOTE 2															

NOTES:

1. SHEET METAL GAUGES ARE BASED ON THE CONTRACTOR PROVIDING SMACNA DESIGNATED TRANSVERSE JOINT REINFORCEMENT CONNECTIONS USING A MAXIMUM OF 4 FOOT DUCT LENGTHS. DEVIATIONS ARE PERMITTED PROVIDED THE DUCTWORK MEETS MINIMUM SMACNA STANDARDS.

2. CONCRETE ENCASED PVC-COATED GALVANIZED SHEET STEEL WITH THICKER COATING ON DUCT EXTERIOR.

HVAC PIPING SYSTEMS SCHEDULE

(THIS IS A SCHEDULE OF STANDARD SYSTEMS. SOME SYSTEMS MAY NOT APPEAR ON THIS PROJECT)

SYSTEM	PIPE SIZE OR SERVICE	PIPE MATERIAL				CONNECTION						FITTINGS			INSULATION				
		TYPE C1220 PHOSPHOROUS DEOXIDIZED SEAMLESS COPPER	COPPER (TYPE)	PVC (SCH)		THREAD AND COUPLE	WELD	SOLDER	NEOPRENE GASKET	SOLVENT WELD		PRESSURE CLASS (PSIG)	WROUGHT COPPER	PVC	THICKNESS	GLASS FIBER	CLOSED CELLULAR FOAM	KRAFT VP JACKET (ASJ)	KEYED NOTES
COOLING SYSTEMS REFRIGERANT PIPING	LIQUID		L					X				535	X		1"		X		
	SUCTION		L					X				535	X		1"		X		
	HOT-GAS		L					X				535	X		1"		X		
VRF REFRIGERANT PIPING	LIQUID, GAS & DISCHARGE (ALL SIZES)	X						X							1"		X		
CONDENSATE DRAIN PIPING	ALL SIZES		L	40				X		X				DWV	1"		X		1

MECHANICAL SPECIFICATIONS

GENERAL

A. DESCRIPTION OF THE WORK – The scope of work indicated on these drawings shall include fully functioning mechanical systems, adjusted, tested, balanced and ready for use. Provide all items necessary to complete the systems. Examine the drawings of other trades (including but not limited too architectural, structural, electrical, plumbing, etc.) to become familiar with all aspects of those designs. Coordinate work with that to be performed by others, and that affecting mechanical systems, to determine the extent of mechanical work required. It shall be the responsibility of the mechanical sub-contractor to obtain all drawings of all trades.

CODES AND STANDARDS

A. Provide work conforming in all respects to the latest applicable codes of the Authority Having Jurisdiction and all applicable rules, regulations, laws and ordinances of Local Authorities. Install all equipment in compliance with accepted industry standards and manufacturer's recommendations.

B. The referenced codes shall include any and all supplements, addenda, memoranda, information bulletins and any other changes and additions effective prior to the permit issue date by adoption of the local Authority Having Jurisdiction.

C. Make any and all modifications required by the Authorities Having Jurisdiction without additional charge to the Owner.

D. Where alterations to and/or deviations from the Contract Documents are required by the Authorities, report the requirements to the Architect and secure approval before starting the alterations.

E. All work shall comply with the following codes:
2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL Energy Conservation Code
2015 INTERNATIONAL Mechanical Code (IMC)
2015 INTERNATIONAL Plumbing Code (IPC)
2015 NFPA 101 LIFE SAFETY CODE
2014 National Electric Code (NEC)
2015 INTERNATIONAL Existing Building Code (IEBC)

All work shall comply with the following standards:
American Society of Mechanical Engineers (ASME).
Air Conditioning and Refrigeration Institute (ARI).
American National Standards Institute (ANSI).
Air Diffusion Council (ADC).
American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).
American Society for Testing and Materials (ASTM).
National Fire Protection Association (NFPA).
Air Moving and Conditioning Association (AMCA).
Underwriters Laboratories (UL).
National Electric Manufacturer's Association (NEMA).
Sheet Metal and Air Conditioning Contractor's National Association "Duct Construction Standards"(SMACNA).
Manufacturer's Standardization Society of the Valves and Fittings Industry, Inc. (MSS).
Associated Air Balance Council (AABC).
National Environmental Balancing Bureau (NEBB).

PERMITS

A. Obtain and pay for all permits, licenses and inspection certificates required for all work in accordance with the provisions of the Contract Documents.

GUARANTEE

A. Guarantee in form satisfactory to the Owner, that all Work installed is free from defects in workmanship and/or materials. Guarantee that all apparatus will develop capacities and characteristics specified for a period of one year, to include one full heating and one full cooling season, from the date of final acceptance by the Owner or certification of substantial completion, whichever occurs later.

B. During the guarantee period, remedy, without cost to the Owner, defective workmanship, materials, and apparatus performance. Remedial work shall be completed within a reasonable time specified by the Owner. In default thereof, the Owner may have such work done and charge all costs to the Contractor.

COMPLETE PERFORMANCE OF WORK

A. Execute work in strict accordance with the best practice of the trades in a thorough, substantial, workmanlike manner by competent workmen.

B. Provide labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and indicated, or which may be reasonably implied as essential whether mentioned in the Contract Documents or not.

C. In cases of doubt as to the Work intended, or in the event of need for explanation thereof, request supplementary instructions from the Architect.

GENERAL CONTRACTOR COORDINATION OF ALL TRADES

A. It is the GC's responsibility to coordinate all trades. Where the work of various trades will be installed in close proximity to one another, or where there is evidence that the work of one trade will interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment. If one trade installs his work before coordinating with work of other trades, make necessary changes to correct the condition without extra charge.

DRAWINGS

A. These drawings are diagrammatic and indicate the general location of systems and components. Provide all items necessary for a properly working system at no additional cost, even if not specifically shown or mentioned on the drawings.

SUBMITTALS

A. After the Contract is awarded, but prior to proceeding with the Work, obtain complete submittals from the manufacturers, suppliers, vendors, subcontractors, for all materials and equipment shown or specified on these drawings and submit data and details of such materials and equipment to the Architect and Engineer.

B. Prior to forwarding submittals to the Architect and Engineer, review and certify that the equipment, materials, methods, etc. represented by the submittals are in compliance with the Contract Documents.

C. Check all materials and equipment after their arrival on the job site and verify their compliance with the Contract Documents.

D. Approval of product data shall not relieve the Contractor of the responsibility for errors that may be contained therein, or for deviations from requirements in the Contract Documents. It shall be clearly understood that the Architect or Engineer noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the product data the Contract Documents shall govern the work and are neither waived nor superseded in any way by submittal review.

ELECTRICAL EQUIPMENT PRECAUTIONS

A. Do not install ductwork or piping for heating, refrigeration, plumbing, fire protection, process piping, or any piping systems not included as part of the electrical work, above any electric equipment, transformer, or telephone and electrical equipment.

ACCESSIBILITY

A. Locate all equipment which must be serviced, operated, or maintained in fully accessible position. Equipment shall include, but not be limited to, valves, traps, cleanouts, motors, controllers, drain points, etc. If required for better accessibility, furnish access doors (minimum of 18"x18") for this purpose. Minor deviations from the Contract Documents may be made to allow for better accessibility. Submit any desired change to the Architect for approval prior to performing the work.

B. Wherever access is required through walls or ceilings to equipment, valves, fire dampers, or other concealed equipment installed under this Division, provide a hinged access door and frame.

EQUIPMENT NOISE AND VIBRATION

A. Provide equipment and systems that, as defined herein, are quiet and free of apparent vibration in operation.

B. It is intended that vibration shall not be apparent to the senses in occupied areas of the building. To this end, provide both the balancing of rotating machinery and vibration isolation devices at various locations.

OPERATING INSTRUCTIONS

A. Provide the services of a factory trained specialist to supervise the start-up of all equipment shown and/or specified on these drawings and to instruct the Owner's operators on the operation of the mechanical system.

OPERATING AND MAINTENANCE MANUALS

A. Provide three (3) copies of operating instructions and maintenance data manuals for each specific item of equipment and materials.

RECORD DRAWINGS (REFER TO OWNER'S DIVISION 1 REQUIREMENTS)

A. Maintain a complete set of "Record Drawings" reflecting an accurate as-built record of all Work. In addition, mark the "Record Drawings" to show the precise location of hidden-from-view work and equipment, including air distribution equipment above ceilings, concealed or embedded piping, valves, and all changes and deviations in the Work from that shown on the Contract Documents. This requirement shall not be construed as authorization for the Contractor to make changes in the layout or work without definite instructions from the Owner.

TESTING, ADJUSTING AND BALANCING

A. Provide an independent testing, adjusting and balancing (TAB) agency to perform all tests and adjustments necessary to accomplish complete balancing of the HVAC system. The TAB agency shall perform all tests and make all adjustments necessary to ensure that water and air systems are balanced to within +10%, -5% of the specified quantities. The TAB agency shall submit reports of all work conducted for approval. The TAB agency shall be an AABC member in good standing, or a firm certified by NEBB.

IDENTIFICATION FOR HVAC DUCTWORK, PIPING AND EQUIPMENT

A. Install plastic laminated, permanent self-adhesive duct labels on air ducts as follows:
Blue – For cold-air supply ducts.
Yellow – for hot-air supply ducts.
Green – for exhaust, outside, relief, return and mixed air ducts.

B. Label refrigerant piping (liquid, suction, hot-gas, discharge) with black letters on white background.

INSULATION

A. MATERIALS

i. FOAMED PLASTIC PIPE INSULATION
Closed-cell synthetic foam in continuous lengths with a maximum K-factor of 0.27 per inch of thickness at 75 degrees F mean temperature. Where piping is located outside of the building, wrap piping insulation with weather-resistant jacketing. Basis of Design: Armstrong "AP Armaflex". Foamed plastic insulation, regardless of fire hazard classification, shall not be used in contact with HVAC air streams.

ii. BLANKET DUCT INSULATION
Flexible glass fiber type of a density which produces a maximum K-factor of 0.26 per inch of thickness at 75 degrees F mean temperature. Jacket shall be aluminum foil reinforced with fiberglass scrim laminated to kraft paper. Provide UL label. Basis of Design: Manville "Microlite" with FSKL facing.

B. APPLICATION

i. PIPING THERMAL INSULATION
Insulate the following piping systems with 1/2-inch thick heat resistant polyethylene foam. Foamed plastic tubing shall not be installed in plenum ceilings, air shafts, or any other air passageways; utilize 1/2-inch thick glass fiber insulation with flame-retardant, vapor barrier jacket in these cases.
- Condensate drain lines and auxiliary drain pans
- Refrigerant piping (all refrigerant pipes shall be insulated: suction gas, discharge gas and liquid.

ii. DUCTWORK BLANKET THERMAL INSULATION
All ducts shall be insulated as follows unless specified otherwise:
- Concealed Rectangular: Insulate with 1-1/2-inch thick blanket type insulation adhered to ductwork with 4-inch wide bands of duct insulation adhesive applied on 12-inch centers and fastened with metal clips on 18-inch centers. Joints, seams and stick-clip penetrations shall be sealed with vapor barrier sealer and tape of same type as facing.
- Round Ducts: Insulate with 1-1/2-inch thick blanket type insulation adhered to ducts with 4-inch wide bands of insulation adhesive applied every 90 degrees around duct as a minimum, or on 12-inch longitudinal centers as a maximum and bound with cord or wire half-hitched on 8-inch centers. Joints, seams, and penetrations shall be sealed with vapor barrier sealer and 4-inch wide adhered strips of same type as facing.
- Transitions from Round to Rectangular: Insulate with 1-1/2-inch thick blanket as specified for round duct.

AIR DISTRIBUTION

A. DUCTWORK

i. Provide constant air volume ductwork fabricated of galvanized sheet steel suitable for 2-inch static pressure class with duct transverse joint reinforcement and intermediate reinforcement as specified in the SMACNA duct construction standards. Ductwork seal and leakage classes shall be as specified in the "Mechanical Duct Systems Schedule" on this sheet.

ii. All ductwork shall be constructed and erected in a workmanlike manner. Ducts shall be straight and smooth on the inside with neatly finished joints, airtight, and shall be free from vibration under all conditions of operation. The internal ends of slip joints shall be made in the direction of air flow. The ducts shall be securely attached to the building construction in an approved manner. Changes in dimensions and shape of ducts shall be gradual and made using transitions detailed in SMACNA figure 2-9. All duct sizes shall fall within the limiting dimensions indicated on the Drawings, unless otherwise approved. Radius elbows, unless otherwise specified on the Drawings, shall have centerline radius equal to 1-1/2 times the width of the duct. Air turns shall be installed in all 90 degree elbows and shall permit the air to make the turns without appreciable turbulence. Provide double thickness turning vanes for ducts 31 inches or wider. Single thickness turning vanes may be used for ducts between 13 and 30 inches wide.

iii. Support all ducts from building structure in a neat, secure manner and, wherever possible, group parallel runs of horizontal ducts together on trapeze hangers. Support vertical riser ducts at the floor line with steel angles to the floor construction. Hanging ducts from other pipes or ducts will not be permitted. Support ducts in accordance with SMACNA.

iv. All round flex duct taps shall be made using conical spin-in fittings; straight dovetail round fittings will not be acceptable. All flex duct taps on spiral ductwork shall be factory-fabricated. When the depth of tapped ductwork will not accept a round fitting, a factory-fabricated oval dovetail fitting of equivalent free area shall be used. Oval dovetail fittings shall have liquid sealant applied all around.

v. Sheet metal ductwork Drawings shall be made after actual job measurements are obtained. Sheet metal ductwork drawings shall indicate the coordination by the Contractor with sprinkler piping, other mechanical and electrical services installed under Divisions 23 and 26, and the Structural and Architectural requirements.

vi. The interior of all ductwork, casings, grilles, registers, diffusers, etc. shall be thoroughly cleaned. Dust/dirt marks at air distribution devices shall necessitate system disassembly as required for proper cleaning of component interiors. No equipment shall be operated until the air conveying systems are clean.

vii. All ductwork shall be installed tight to and supported from the structure above unless indicated otherwise on the Drawings.

viii. Flex duct – No flex duct is allowed.

ix. Duct insulation shall not be continuous through fire and combination fire/smoke dampers. Provide insulation on all sleeves at fire and combination fire/smoke dampers in insulated or sound lined ductwork.

iix. Sealant on exposed metal ductwork shall be limited to the surfaces within the metal joints and not on the surface of the ductwork. Exposed ductwork with visible sealant on the surface of the metal will be rejected and replaced.

B. FLEXIBLE CONNECTIONS
Provide sound isolating flexible connections at ductwork connections (supply & return) of all equipment with rotating machinery (including, but not limited to, air handlers, fans, energy recovery ventilators and where shown on the Drawings. Flexible connections shall be fire, water, and weather resistant canvas "Ventglas." Flexible connections shall be installed with a minimum of one inch slack and a minimum of two inch uniform gap between adjoining metal. The fabric shall be folded in with the metal or attached with metal collar frames at each end to prevent air leakage.

MECHANICAL SYMBOLS LIST

(THIS IS A LIST OF STANDARD SYMBOLS, ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT)

- 26x12 — RECTANGULAR DUCT (INCHES) – FIRST DIMENSION VISIBLE SIDE
- 10# — NEW ROUND DUCT (INCHES)
- 26x12 — EXISTING RECTANGULAR DUCT (INCHES) – FIRST DIMENSION VISIBLE SIDE
- 26x12 — DUCT TO BE REMOVED (INCHES) – FIRST DIMENSION VISIBLE SIDE
- 26x12 — DUCT WITH INTERNAL INSULATION OR ACOUSTICAL LINING. DUCT SIZE IS SHEETMETAL SIZE REQUIRED.
- 26x12 — DUCT WITH OUTER TREATMENT (OTHER THAN INSULATION)
- SUPPLY AIR DUCT TURNING DOWN
- SUPPLY AIR DUCT TURNING UP
- RETURN AIR DUCT TURNING DOWN
- RETURN AIR DUCT TURNING UP
- R — DUCT RISING UP
- D — DUCT DROPPING DOWN
- 26x12 / 12x12 — ECCENTRIC TRANSITION
- 26x12 / 12x12 — CONCENTRIC TRANSITION
- FDT — TRANSITION (FOT = FLAT ON TOP; FOB = FLAT ON BOTTOM)
- VD — FLEX DUCT (SINGLE LINE) AND SPIN-IN CONNECTION WITH VOLUME DAMPER
- VD — FLEX DUCT (DOUBLE LINE) AND SPIN-IN CONNECTION WITH VOLUME DAMPER
- FLEXIBLE CONNECTION
- MITERED ELBOW WITH TURNING VANES
- RADIUS ELBOW
- FD — FIRE DAMPER
- MOD — MOTORIZED DAMPER
- SFD — COMBINATION MOTORIZED SMOKE/FIRE DAMPER
- VD — VOLUME DAMPER
- SCREENED OPENING
- AIR FLOW (OUT OF DEVICE/OPENING)
- AIR FLOW (INTO DEVICE/OPENING)
- 4-WAY BLOW LOUVERED FACE CEILING DIFFUSER WITH ROUND NECK
- 4-WAY BLOW PERFORATED FACE DIFFUSER
- T — THERMOSTAT

- UC — DOOR UNDER CUT (SEE ARCH.)
- DL — DOOR LOUVER (SEE ARCH.)
- DIRECTION OF FLOW
- 2 — PITCH IN DIRECTION SHOWN
- PIPE TURNING DOWN
- PIPE TURNING UP
- TOP TAKE OFF
- BOTTOM TAKE OFF
- GATE VALVE
- BALL VALVE
- GLOBE VALVE
- CHECK VALVE
- DEZURIK SHUT-OFF AND BALANCING VALVE
- UNION
- FLEXIBLE COUPLING
- STRAINER
- TWO WAY CONTROL VALVE
- BUTTERFLY VALVE
- THREE WAY CONTROL VALVE
- FS — FLOW SWITCH
- PRESSURE GAUGE
- D — CONDENSATE DRAIN
- G — GAS
- R — REFRIGERANT PIPING
- ⅝"X1-⅛"X⅞" — VRF HEAT RECOVERY REFRIGERANT PIPE SIZES (LIQUID,GAS, DISCHARGE)
- ⅛"X ½" — VRF NON-HEAT RECOVERY REFRIGERANT PIPE SIZES (LIQUID, GAS)
- F — FIRE SPRINKLER PIPING
- NEW TO EXISTING
- LIMIT OF DEMOLITION
- 1 — SHEET NOTE TAG
- F-# — EQUIPMENT DESIGNATIONS
  - F FAN
  - P PUMP
  - H HEATER
  - AHU AIR HANDLING UNIT
  - CU CONDENSING UNIT
  - RTU ROOF TOP UNIT
  - IU INDOOR UNIT
  - OU OUTDOOR UNIT
- A / M-3 — SECTION MARKER
  - SHEET WHERE SECTION IS SHOWN
- 1 / M-2 — DETAIL MARKER
  - SHEET WHERE DETAIL IS SHOWN
- C / 55 — DESIGNATION
  - SUPPLY AIR DIFFUSER ID TAG
  - CFM

ABBREVIATIONS

(THIS IS A LIST OF STANDARD ABBREVIATIONS, ALL ABBREVIATIONS MAY NOT APPEAR ON THIS PROJECT)

ABV.	ABOVE	EXH	EXHAUST	S.C.S.	SMOKE CONTROL SYSTEM
A/C	AIR CONDITIONING	EXIST.	EXISTING	S.F.	SQUARE FEET
ADJ	ADJUSTABLE	F.D.	FIRE DAMPER	S.F.D.	COMBINATION SMOKE/FIRE DAMPER
A.F.F.	ABOVE FINISHED FLOOR	FL	FLOOR	SHT	SHEET
ARCH.	ARCHITECTURAL	FLEX	FLEXIBLE	S.L.	ACOUSTICAL SOUND LINING
@	AT	F.P.S.	FIRE PRESSURIZATION SYSTEM	S.O.	SCREENED OPENING
B.D.	BACK DRAFT DAMPER (GRAVITY)	GA.	GAUGE	SPEC.	PROJECT SPECIFICATIONS
		HC	HEATING COIL (DUCT)	S.R.	SUPPLY REGISTER
BLDG.	BUILDING	HP	HORSEPOWER	S.R.O.	SCREENED RETURN OPENING
BLW	BELOW	2-HR	2-HOUR RATED DUCT ENCLOSURE	STAT.	THERMOSTAT
B.S.	BIRD SCREEN	L.D.	LINEAR DIFFUSER	STRUCT.	STRUCTURAL
CAP.	CAPACITY	L.F.	LINEAR FOOT	T.G.	TRANSFER GRILLE
CAV	CONSTANT AIR VOLUME	MAX.	MAXIMUM	TRAN.	TRANSITION
C.D.	CEILING DIFFUSER	MIN	MINIMUM	TYP.	TYPICAL
CFM	CUBIC FEET PER MINUTE	M.O.D.	MOTOR OPERATED DAMPER	U.H.	UNIT HEATER
C.G.	CEILING GRILLE	N.C.	NORMALLY IN CLOSED POSITION	U.T.R.	UP THRU ROOF
CLG.	CEILING	NK	NECK	VAV	VARIABLE AIR VOLUME
CONN.	CONNECTION	N.O.	NORMALLY IN OPEN POSITION	V.D.	MANUAL VOLUME DAMPER
CONT.	CONTINUATION	O.A.	OUTSIDE AIR	VERT.	VERTICAL
C.R.	CEILING REGISTER	O.A.I.L.	OUTSIDE AIR INTAKE LOUVER	W/	WITH
DN.	DOWN	R.A.	RETURN AIR	W/O	WITHOUT
D.	CONDENSATE DRAIN	R.G.	RETURN GRILLE		
DTL.	DETAIL	RM.	ROOM		
DWG. NO.	DRAWING NUMBER	R.R.	RETURN REGISTER		
EA.	EACH	S.A.	SUPPLY AIR		
E.A.	EXHAUST AIR				
E.G.	EXHAUST GRILLE				
E.R.	EXHAUST REGISTER				
E.S.P.	EXTERNAL STATIC PRESSURE				

NORTH (building)

Shepherdstown Opera House RENOVATIONS

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Owner

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540 247-2939

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ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020

Drawing Title

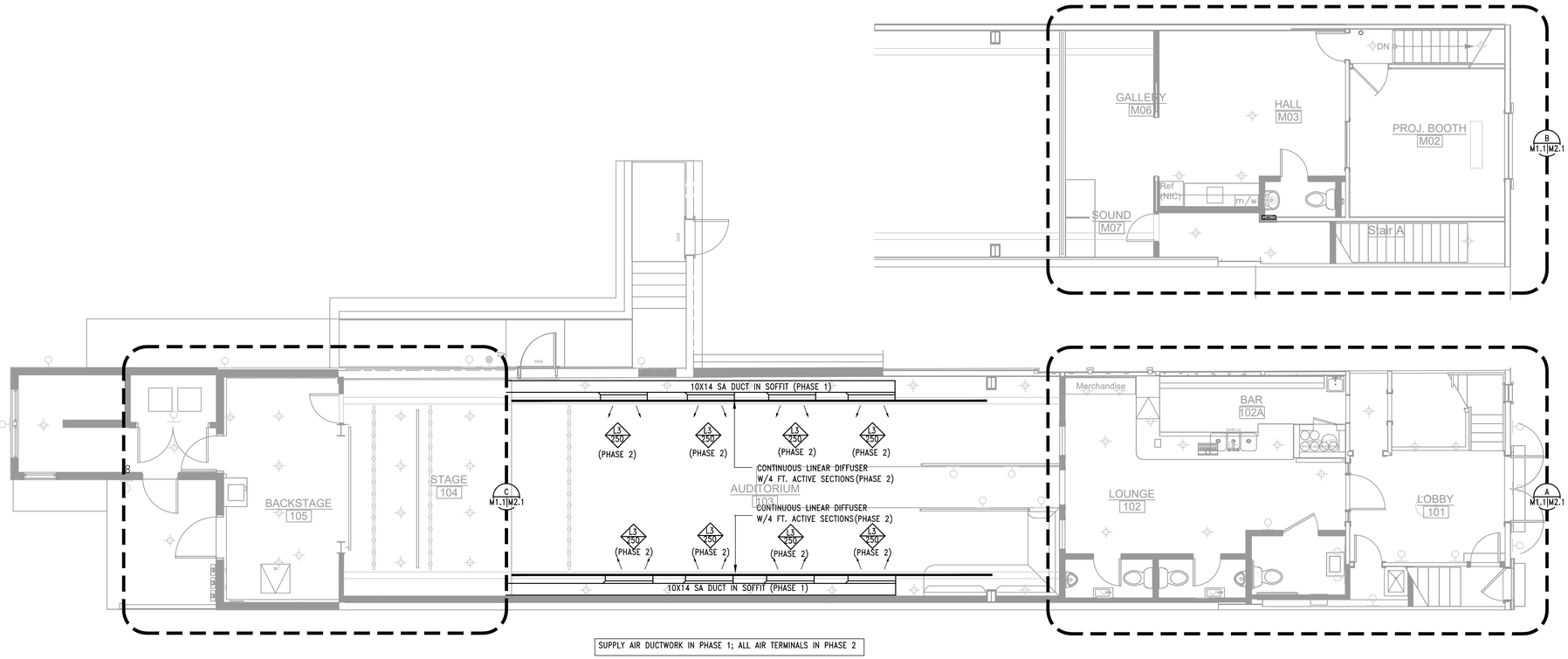
GENERAL NOTES & SYMBOLS

Date OCTOBER 23, 2020

Scale As Noted Project Number 19820

Drawing Number

M0.1



SUPPLY AIR DUCTWORK IN PHASE 1; ALL AIR TERMINALS IN PHASE 2

MAIN LEVEL AND MEZZANINE FLOOR PLANS

SCALE: 3/16" = 1'-0"

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Shepherdstown Opera House

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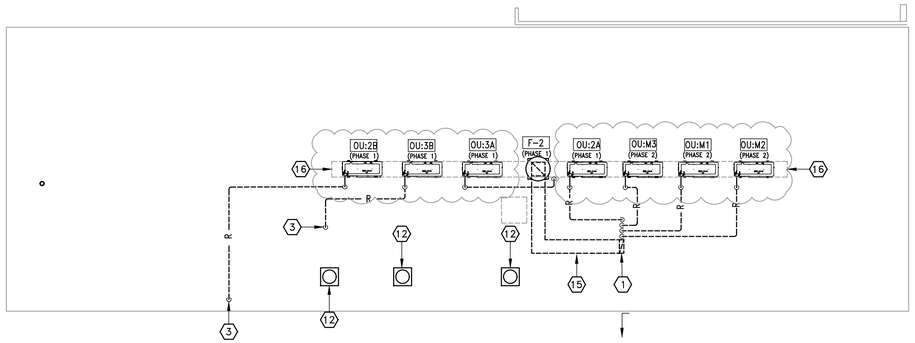
ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

Drawing Title

MAIN LEVEL AND MEZZANINE FLOOR PLANS

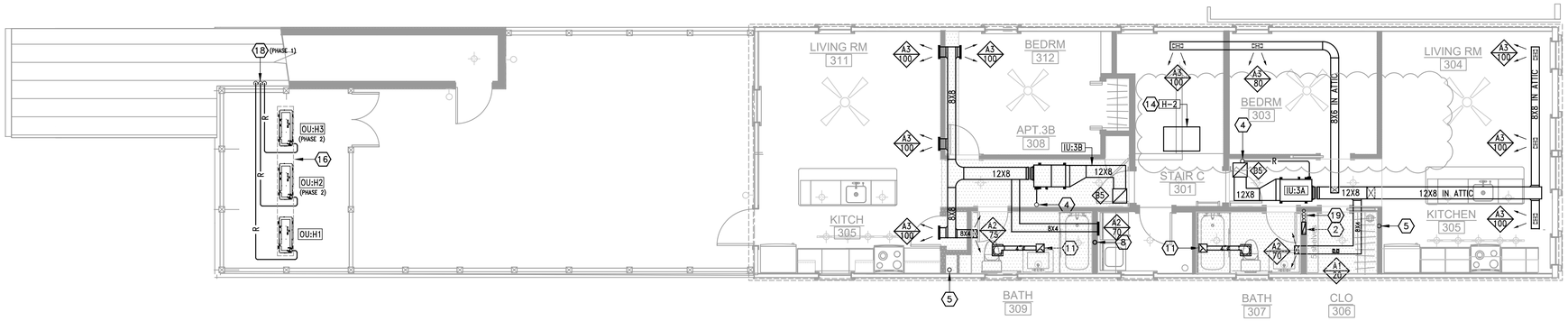
Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

M1.1



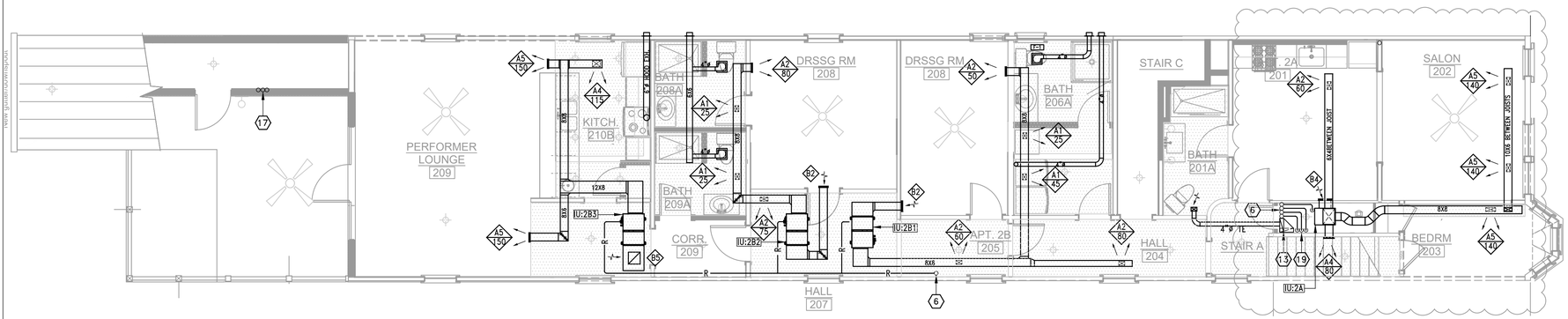
ROOF PLAN

SCALE: 3/16" = 1'-0"



THIRD FLOOR PLAN

SCALE: 3/16" = 1'-0"



SECOND FLOOR PLAN

SCALE: 3/16" = 1'-0"

KEYED SHEET NOTES

1. 12"X4" TOILET EXHAUST DUCT DOWN.
2. 12"X4" UP TO ATTIC AND DOWN TO 2ND FLOOR.
3. REFRIGERANT LINES DOWN THROUGH ATTIC FLOOR
4. REFRIGERANT LINES UP TO ATTIC SPACE
5. REFRIGERANT LINES UP TO TO ATTIC AND DOWN TO 2ND FLOOR
6. REFRIGERANT LINES UP TO 3RD FLOOR
7. REFRIGERANT LINES IN ATTIC (TYPICAL)
8. 4" DRYER VENT UP THROUGH ROOF TO ROOF CAP.
9. NOT USED.
10. NOT USED
11. 8"X8" TOILET EXHAUST DUCT UP TO ROOF CAP.
12. EXHAUST ROOF CAP – PENN VENTILATOR MODEL WCC06 MOUNTED ON COMPATIBLE 12" HIGH ROOF CURB (TYPICAL OF 3).
13. 14"x4" TOILET EXHAUST DUCT UP AND DOWN.
14. LOCATED IN ATTIC
15. 12"X4" TOILET EXHAUST DUCT IN ATTIC
16. MOUNT CONDENSING UNITS ON FIELD FABRICATED RACK (FABRICATED FROM STEEL ANGLES OR TREATED WOOD – CONTRACTOR TO SUBMIT RACK DETAILS AS A SUBMITTAL FOR REVIEW BY AE TEAM.
17. THREE SETS OF REFRIGERANT LINES UP AND DOWN – REFER TO M3.1 FOR SIZING.
18. THREES SETS OF REFRIGERANT LINES DOWN – REFER TO M3.1 FOR SIZING.
19. REFRIGERANT PIPE RISERS DOWN – FOR IU:M1/OU:M1 & IU:M2/OU:M2 IN PHASE 1.

PHASING NOTES

1. OU:M1 IN PHASE 2; REFRIGERANT PIPE RISER IN PHASE 1.
2. OU:M2 IN PHASE 2; REFRIGERANT PIPE RISER IN PHASE 1.
3. OU:H2 IN PHASE 2; REFRIGERANT PIPE RISER IN PHASE 1.
4. OU:H3 IN PHASE 2; REFRIGERANT PIPE RISER IN PHASE 1.

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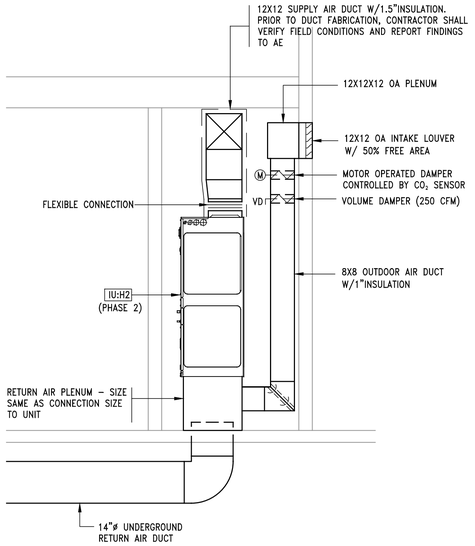
Drawing Title

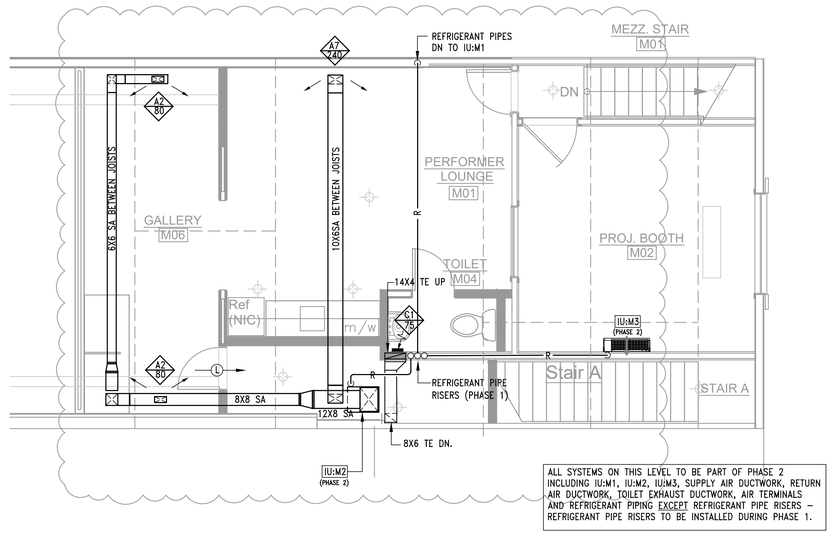
2ND & 3RD FLOOR PLANS

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

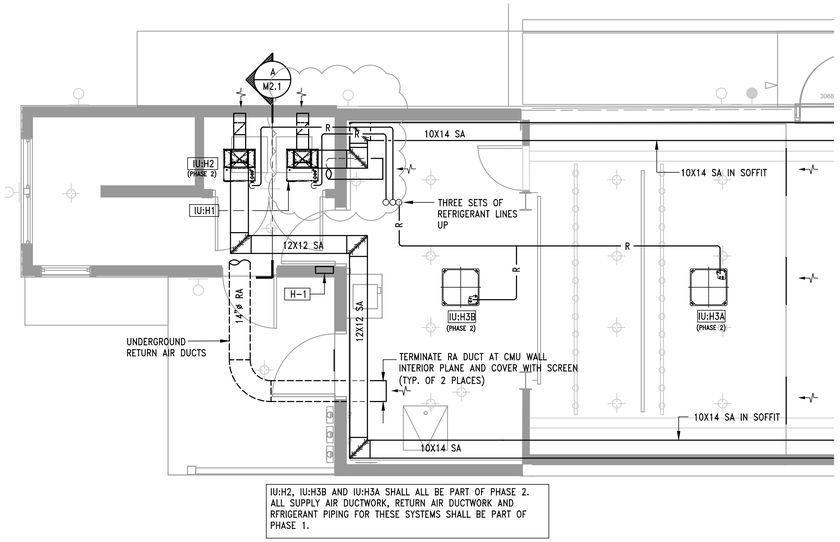
M1.2



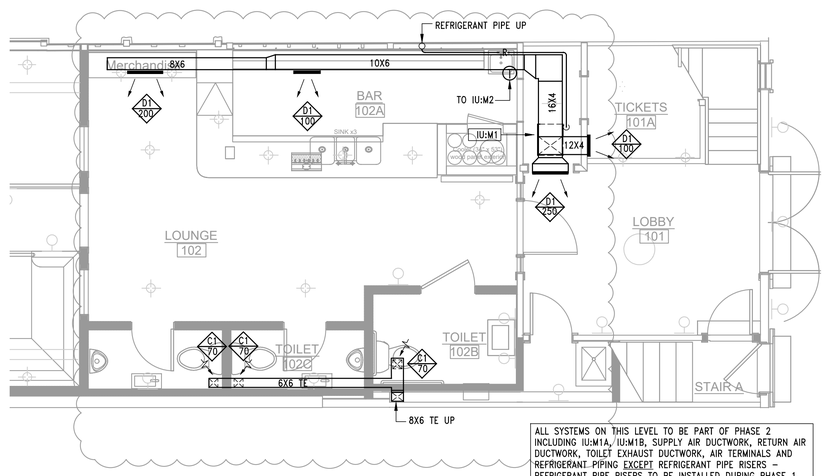
A M2.1|M2.1 **SECTION**
SCALE: 1/2"=1'-0"



B M1.1|M2.1 **MEZZANINE PLAN**
SCALE: 1/4" = 1'-0"



C M1.1|M2.1 **PARTIAL 1ST FLOOR PLAN**
SCALE: 1/4" = 1'-0"



A M1.1|M2.1 **PARTIAL 1ST FLOOR PLAN**
SCALE: 1/4" = 1'-0"

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ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020

Drawing Title

ENLARGED PARTIAL PLANS

Date OCTOBER 23, 2020
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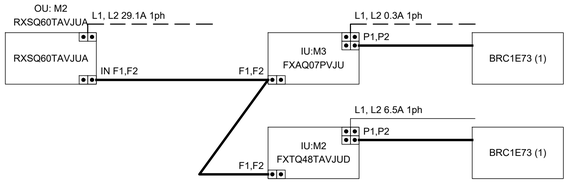
Drawing Number

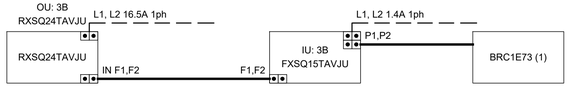
M2.1

FIRST FLOOR & MEZZANINE (PHASE 2)

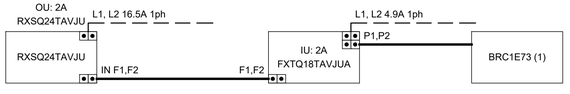
APARTMENT 3A



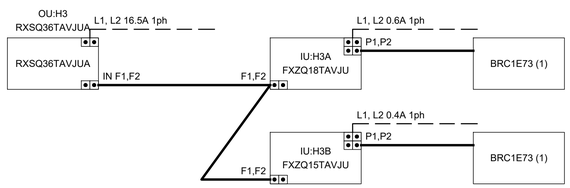
FIRST FLOOR & MEZZANINE (PHASE 2)



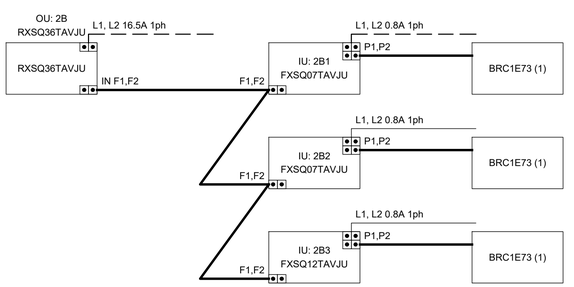
APARTMENT 3B



APARTMENT 2A



STAGE / BACKSTAGE SYSTEM (PHASE 2)



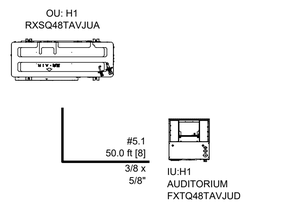
APARTMENT 2B

AUDITORIUM SYSTEM #1

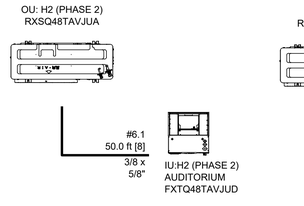
AUDITORIUM SYSTEM #2 (PHASE 2)

VRV WIRING DIAGRAMS

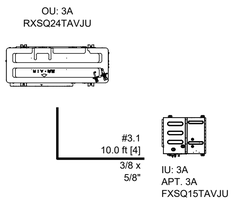
SCALE: NONE



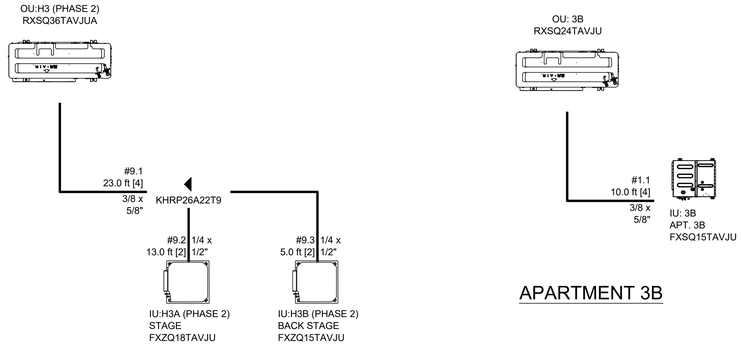
AUDITORIUM SYSTEM #1



AUDITORIUM SYSTEM #2

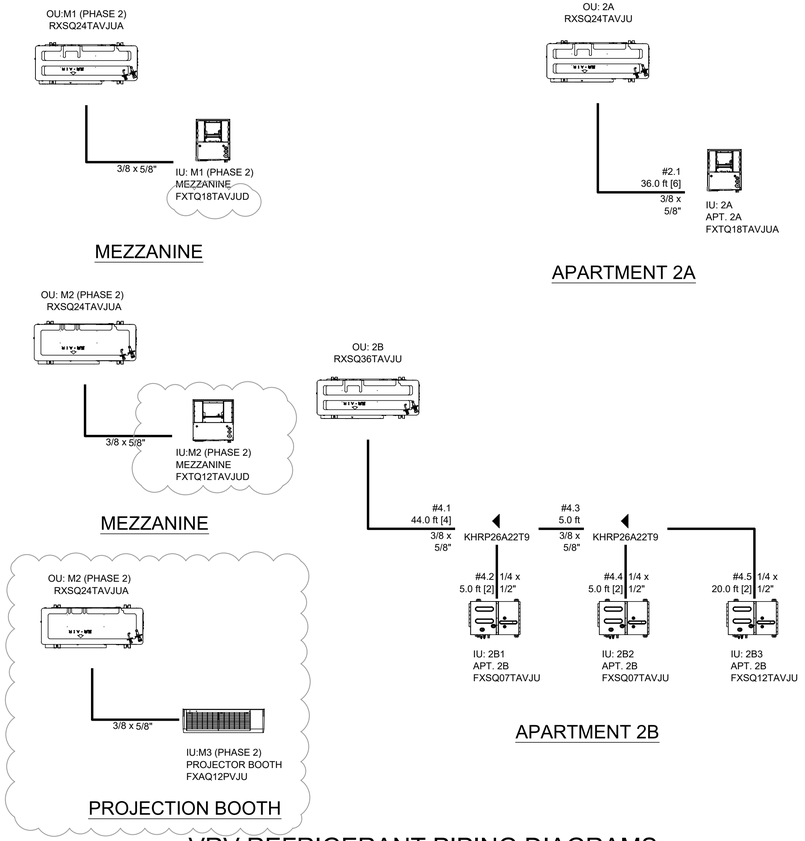


APARTMENT 3A



STAGE/BACK STAGE

APARTMENT 3B



VRV REFRIGERANT PIPING DIAGRAMS

SCALE: NONE

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Drawing Title

VRV PIPE & WIRING DIAGRAMS

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M3.1

VARIABLE REFRIGERANT VOLUME - AIR-COOLED CONDENSING UNIT SCHEDULE

TAG: ROOM	BASIS OF DESIGN (DAIKIN)	NOMINAL TONNAGE	DESCRIPTION	COOLING CAPACITY		HEATING CAPACITY		REFRIGERANT CHARGE		CONNECTION RATIO (%)	ELECTRICAL				DIMENSIONS	WEIGHT (lbs)	EFFICIENCY (NonDucted/Ducted)				
				BTU/h	AMBIENT DESIGN (°F DB)	BTU/h	AMBIENT DESIGN (°F DB / WB)	Factory Charge (lbs)	Add'l Refrigerant (lbs)		VOLTAGE-PHASE	MIN CIRCUIT AMPS (MCA)	MAX OVERCURRENT PROTECTION (MOP)	RUNNING CURRENT(RLA)	(WxHxD) (inch)		EER	IEER	COP 47	COP17	SCHE
OU: 3B	RXSQ24TAVJU	2	Air cooled heat pump (1)	20,745	95.0	25,527	6.0 / 5.5	6.4	0.4	62.5	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	14.3/11	18/15.7	n/a/3.69	n/a/2.54	n/a/n/a
OU: 2A	RXSQ24TAVJU	2	Air cooled heat pump (1)	20,578	95.0	25,389	6.0 / 5.5	6.4	1.4	75.0	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	14.3/11	18/15.7	n/a/3.69	n/a/2.54	n/a/n/a
OU: 3A	RXSQ24TAVJU	2	Air cooled heat pump (1)	20,745	95.0	25,514	6.0 / 5.5	6.4	0.4	62.5	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	14.3/11	18/15.7	n/a/3.69	n/a/2.54	n/a/n/a
OU: 2B	RXSQ36TAVJU	3	Air cooled heat pump (1)	33,935	95.0	30,412	6.0 / 5.5	6.4	2.4	75.0	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	12/10	18/16	n/a/3.75	n/a/2.7	n/a/n/a
OU: H1	RXSQ48TAVJUA	4	Air cooled heat pump (1)	41,846	95.0	37,845	6.0 / 5.5	7.5	2.0	100.0	208-230V 1ph	29.1	35.0	19.0	37.0 x 39.0 x 12.6	176.4	10.3/9.4	18/16	n/a/3.8	n/a/2.82	n/a/n/a
OU: H2	RXSQ48TAVJUA	4	Air cooled heat pump (1)	41,846	95.0	37,845	6.0 / 5.5	7.5	2.0	100.0	208-230V 1ph	29.1	35.0	19.0	37.0 x 39.0 x 12.6	176.4	10.3/9.4	18/16	n/a/3.8	n/a/2.82	n/a/n/a
OU:M1	RXSQ24TAVJUA	2	Air cooled heat pump (1)	20,710	95.0	24,707	6.0 / 5.5	6.4	1.4	75	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	14.3/11	18/15.7	n/a/3.69	n/a/2.54	n/a/n/a
OU: M2	RXSQ24TAVJUA	2	Air cooled heat pump (1)	20,710	95.0	24,707	6.0 / 5.5	6.4	1.4	50	208-230V 1ph	16.5	25.0	15.3	35.4 x 53.0 x 12.6	172	14.3/11	18/15.7	n/a/3.69	n/a/2.54	n/a/n/a
OU: M3	RXSQ24TAVJUA	2	Air cooled heat pump (1)	20,170	95	24,707	6.0/5.5	6.4	1.4	50	208-230V 1ph	16.5	25.0	15.3	35.4 x 53.0 x 12.7	173	14.3/12	18/15.8	n/a/3.70	n/a/2.55	n/a/n/a
OU:H3	RXSQ36TAVJUA	3	Air cooled heat pump (1)	30,023	95.0	30,729	6.0 / 5.5	6.4	1.2	91.7	208-230V 1ph	16.5	25.0	15.3	37.0 x 39.0 x 12.6	172.0	12/10	18/16	n/a/3.75	n/a/2.7	n/a/n/a

Schedule Notes:

Manufacturer must be certified, listed, and labeled per AHRI 1230.
System rating data based on design ambient conditions for cooling and for heating.
Manufacturer must provide 10 years parts warranty on all FCUs and Condensing Units. Warranty conditions must be clarified during submittal phase.
Submitted performance data must be fully de-rated for all components and accessories, including but not limited to, line length, vertical separation, connection ratio, design conditions, condenser coil coating.
Condensing units must have fully modulating INVERTER compressors.
Condensing units must have auto changeover functions
Demand limiting relay contact must be provided.
EEV actuators must be removable from valve body without disturbing the refrigerant system.
FCU thermostats must provide +/- 1 degree dead-band set-point and control capability.
Manufacturers submittal must include refrigerant piping diagram with pipe diameters, lengths, and refrigerant volume.
Substitute manufacturer shall be responsible for additional piping and refrigerant.
Contractor to verify piping dimensions.
Installing contractor must have successfully completed manufacturers certified installation class within past 36 months.
Contractor to furnish and install insulation on refrigerant piping.
Manufacturers Representative must have local stock of parts and factory certified technician on staff.
Manufacturers Representative shall provide proof of ongoing installation training at their local facility for at least the past 5 years.

VARIABLE REFRIGERANT VOLUME - INDOOR UNIT SCHEDULE

TAG	ROOM	BASIS OF DESIGN (DAIKIN)	NOMINAL TONNAGE	TYPE	CONNECTED TO:		SUPPLY FAN	COOLING CAPACITY			HEATING CAPACITY		ELECTRICAL			DIMENSIONS	WEIGHT	Options and Accessories
					CONDENSING UNIT	ZONE CHANGEOVER DEVICE	AIR FLOW RATE cfm	TOTAL BTU/h	SENSIBLE BTU/h	ENTERING AIR °F DB / °F WB	TOTAL BTU/h	ENTERING AIR °Fdb	POWER SUPPLY	Min Circuit Amps	Max Overcurrent Protection	WxHxD	Net	
													Voltage - Phase	MCA	MOP	inch	lbs	
IU: 3B	APT. 3B	FXSQ15TAVJU	1.3	MSP Concealed Ducted Unit	OU: 3B	No	530	12,779	10,228	75.0 62.4	17,067	70.0	208-230V 1ph	1.4	15.0	27.6 x 9.7 x 31.5	60.0	BRC1E73 (1)
IU: 2A	APT. 2A	FXTQ18TAVJUA	1.5	Multi Position Air Handler	OU: 2A	No	600	14,960	11,206	75.0 62.2	19,999	70.0	208-230V 1ph	4.9	15.0	17.5 x 45.0 x 21.0	115.0	BRC1E73 (1)
IU: 3A	APT. 3A	FXSQ15TAVJU	1.3	MSP Concealed Ducted Unit	OU: 3A	No	530	12,779	10,228	75.0 62.4	17,060	70.0	208-230V 1ph	1.4	15.0	27.6 x 9.7 x 31.5	60.0	BRC1E73 (1)
IU: 2B1	APT. 2B	FXSQ07TAVJU	0.6	MSP Concealed Ducted Unit	OU: 2B	No	281	7,179	5,484	78.8 65.5	8,530	70.0	208-230V 1ph	0.8	15.0	21.7 x 9.7 x 31.5	55.0	BRC1E73 (1)
IU: 2B2	APT. 2B	FXSQ07TAVJU	0.6	MSP Concealed Ducted Unit	OU: 2B	No	281	7,179	5,484	78.8 65.5	8,530	70.0	208-230V 1ph	0.8	15.0	21.7 x 9.7 x 31.5	55.0	BRC1E73 (1)
IU: 2B3	APT. 2B	FXSQ12TAVJU	1.0	MSP Concealed Ducted Unit	OU: 2B	No	335	11,458	9,237	78.8 65.5	13,648	70.0	208-230V 1ph	0.8	15.0	21.7 x 9.7 x 31.5	55.0	BRC1E73 (1)
IU:H1	AUDITORIUM	FXTQ48TAVJUD	4.0	Multi Position Air Handler (Factory Disconnect)	OU: H1	No	1,520	40,448	29,054	75.0 62.5	53,998	70.0	208-230V 1ph	6.5	15.0	21.0 x 53.4 x 21.0	149.9	BRC1E73 (1)
IU:H2	AUDITORIUM	FXTQ48TAVJUD	4.0	Multi Position Air Handler (Factory Disconnect)	OU: H2	No	1,520	40,448	29,054	75.0 62.5	53,998	70.0	208-230V 1ph	6.5	15.0	21.0 x 53.4 x 21.0	149.9	BRC1E73 (1)
IU: M1	MEZZANINE	FXTQ18TAVJUD	1.5	Multi Position Air Handler (Factory Disconnect)	OU:M1	No	600	15,086	8,700	75.0 62.4	19,000	70.0	208-230V 1ph	4.9	15.0	17.5 x 45.0 x 21.0	115.0	BRC1E73 (1)
IU:M3	PROJECTOR BOOTH	FXAQ12PVJU	1	Wall Mounted Unit	OU: M3	No	290	8,000	6,000	75.0 62.4	8,500	70.0	208-230V 1ph	0.4	15.0	31.3 x 11.4 x 9.3	26.5	BRC1E73 (1)
IU:M2	MEZZANINE	FXTQ12TAVJUA	1	Multi Position Air Handler (Factory Disconnect)	OU: M2	No	400	10,060	8,732	75.0 62.4	13,400	70.0	208-230V 1ph	6.5	15.0	21.0 x 53.4 x 21.0	149.9	BRC1E73 (1)
IU:H3A	STAGE	FXZQ18TAVJU	1.5	4-Way Discharge Ceiling Cassette (2' x 2')	OU:H3	No	511	15,127	11,496	75.0 62.4	20,121	70.0	208-230V 1ph	0.6	15.0	22.6 x 10.2 x 22.6	41.9	BRC1E73 (1), BYFQ60C3V
IU:H3B	BACK STAGE	FXZQ15TAVJU	1.3	4-Way Discharge Ceiling Cassette (2' x 2')	OU:H3	No	405	12,738	9,565	75.0 62.4	17,057	70.0	208-230V 1ph	0.4	15.0	22.6 x 10.2 x 22.6	36.4	BRC1E73 (1), BYFQ60C3V

Schedule Notes:

1. Standard Limited Warranty: 10-year warranty on compressor and all parts
2. **Provide IU:H1 AND IU:H2 with Global Plasma Solutions Bipolar Ionization System Model GPS-FC24-AC**
3. **Provide IU:H1 and IU:H2 with Merv 13 Hepa filters.**

COMMERCIAL RETURN /EXHAUST GRILLE SCHEDULE

DESIG.	TYPE	CFM RANGE	NECK SIZE	MAX P.D. (IN. W.C.)	MAX. VEL. (FPM)	MAX NC	DEF./BLOW	BASIS OF DESIGN (TITUS)
C1	EXHAUST	0 - 133	6"X6"	<0.10	600	<30	3/4"BLADE SPACING, 35° DEFLECTION	350RL
C2	EXHAUST	134 - 222	8"X8"	<0.10	600	<30	3/4"BLADE SPACING, 35° DEFLECTION	350RL
C3	EXHAUST	223 - 355	10"X10"	<0.10	600	<30	3/4"BLADE SPACING, 35° DEFLECTION	350RL
C4	EXHAUST	356 - 528	12"X12"	<0.10	600	<30	3/4"BLADE SPACING, 35° DEFLECTION	350RL

LINEAR BAR GRILLE SCHEDULE

DESIG.	TYPE	CFM RANGE	DEPTH	MAX P.D. (IN. W.C.)	MAX. VEL. (FPM)	MAX NC	DEF./BLOW	BASIS OF DESIGN (TITUS)
D1	SUPPLY	1 - 175 CFM/LF	4"	<0.10	600	<30	1/8" BAR THICKNESS, 1/4" SPACING, 0° DEFLECTION	CT-480

ELECTRIC HEATER SCHEDULE

DESIG.	DESCRIPTION	AREA SERVED	CFM	CAPACITY		TEMP. RISE	ELECTRICAL DATA			BASIS OF DESIGN (QMARK)	NOTES
				KW	MBH	(°F)	AMP	VOLT	PH		
H-1	WALL HEATER	STAIR	200	6.00	20.5	45	13.4	240	1	EFQ6008-EFQSM	INTEGRAL T-STAT
H-2	CABINET HEATER	ATTIC	350	5.00	17.1	45	13.4	240	1	CU935	INTEGRAL T-STAT

FAN SCHEDULE

DESIG. F-	SERVICE	CFM	E.S.P. ("$H_2$0)	RPM	VOLTS	PHASE	HP (FLA)	ACCESSORIES	WEIGHT (LBS.)	BASIS OF DESIGN
1	TOILET EXH.	50	0.125	1700	115	1	55 WATTS	BDD	-	PENN ZEPHR Z1
2	TOILET EXH.	200	0.375	1700	115	1	1/6 hp	ROOF CURB,BDD	-	LOREN COOK 120 ACEB

RESIDENTIAL 2-WAY SUPPLY REGISTER SCHEDULE

DESIG.	TYPE	CFM RANGE	NECK SIZE	MAX P.D. (IN. W.C.)	MAX. VEL. (FPM)	MAX NC	DEF./BLOW	BASIS OF DESIGN (HART & COOLEY)
A1	2-WAY	0 - 55	6"X4"	0.03	700	<30	1/3" SPACED FINS, SET AT 20°	661
A2	2-WAY	56 - 75	8"X4"	0.03	700	<31	1/3" SPACED FINS, SET AT 20°	661
A3	2-WAY	76 - 100	10"X4"	0.03	700	<32	1/3" SPACED FINS, SET AT 20°	661
A4	2-WAY	101 - 125	8"X6"	0.03	700	<33	1/3" SPACED FINS, SET AT 20°	661
A5	2-WAY	126 - 170	10"X6"	0.03	700	<34	1/3" SPACED FINS, SET AT 20°	661
A6	2-WAY	171 - 205	12"X6"	0.03	700	<35	1/3" SPACED FINS, SET AT 20°	661
A7	2-WAY	206 - 240	10"X8"	0.03	700	<36	1/3" SPACED FINS, SET AT 20°	661

RESIDENTIAL FILTER RETURN GRILLE SCHEDULE

DESIG.	TYPE	CFM RANGE	NECK SIZE	MAX P.D. (IN. W.C.)	MAX. VEL. (FPM)	MAX NC	DEF./BLOW	BASIS OF DESIGN (HART & COOLEY)
B1	RETURN	0 -101	6"X6"	<.10	600	<30	1/2" SPACED FINS, SET AT 20°	673
B2	RETURN	102 - 178	8"X8"	<.11	600	<30	1/3" SPACED FINS, SET AT 20°	673
B3	RETURN	178 - 276	10"X10"	<.12	600	<30	1/3" SPACED FINS, SET AT 20°	673
B4	RETURN	277 - 395	12"X12"	<.13	600	<30	1/3" SPACED FINS, SET AT 20°	673
B5	RETURN	395 - 535	14"X14"	<.14	600	<30	1/3" SPACED FINS, SET AT 20°	673

CONTINUOUS LINEAR DIFFUSER SCHEDULE

DESIG.	# OF 3/4" SLOTS	MAX. AIRFLOW (CFM/FT)	MAX P.D. (IN. W.C.)	MAX NC	DUCT SIZE	BORDER TYPE	BASIS OF DESIGN (TITUS)	COMMENTS
L1	1	31	<0.10	30	1- 5/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS
L2	2	62	<0.10	30	3-1/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS
L3	3	93	<0.10	30	4-5/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS
L4	4	124	<0.10	30	6-1/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS
L5	5	155	<0.10	30	7-5/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS
L6	6	186	<0.10	30	9-1/8"	15	ML-38	1. BLANK NON-ACTIVE SECTIONS

NORTH (building)

Shepherdstown Opera House RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247–2939

Structural Engineer

Ruckman Engineering, PLC
22–B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects pllc AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

Issue/Revision	Seal
REVISION #1 10.23.20	
FOR CONSTRUCTION 10.23.20	
REDESIGN REVISIONS 02.23.21	
FOR CONSTRUCTION 10.23.20	

ALAN W. JOHNSON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020

Drawing Title

EQUIPMENT SCHEDULES

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

M4.1

ELECTRICAL ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR	KW	KILOWATT
A	AMP	M.C.B.	MAIN CIRCUIT BREAKER
C.B.	CIRCUIT BREAKER	M.H.	MOUNTING HEIGHT
C.	CONDUIT	M.L.O.	MAIN LUGS ONLY
D	DEDICATED	N.E.C.	NATIONAL ELECTRIC CODE
E.C.	EMPTY CONDUIT	N.F.S.S.	NON-FUSED SAFETY SWITCH
EPO	EMERGENCY POWER OFF	PNL	PANEL
E.W.C.	ELECTRIC WATER COOLER	PC	PERSONAL COMPUTER
F.A.	FIRE ALARM	ø	PHASE
FAAP	FIRE ALARM ANNUNCIATOR PANEL	P	POLE
FACP	FIRE ALARM CONTROL PANEL	REC.	RECEPTACLE
F.S.S.	FUSED SAFETY SWITCH	RM.	ROOM
G.A.P.	GRAPHIC ANNUNCIATOR PANEL	TYP.	TYPICAL
G.F.I.	GROUND-FAULT INTERRUPTER	TR	TAMPER RESISTANT
HP	HORSEPOWER	U.O.N.	UNLESS OTHERWISE NOTED
H.W.HTR.	HOT WATER HEATER	V	VOLT
I.G.	ISOLATED GROUND	W	WATT
J.B.	JUNCTION BOX	WP.	WEATHERPROOF
		XFMR	TRANSFORMER

LIGHTING FIXTURE SCHEDULE

FIXT. TYPE	SYMBOL	BRAND	DESCRIPTION	CATALOG NO.	COLOR TEMP.	LUMENS	MAX. INPUT WATTS	VOLTAGE
1		BARNLIGHT	EXTERIOR WALL SCONCE	BLE-G-DCS16-355-G65-355 -NA-NA-NA-CLR-DD-E26	2700	1000	-	120
2		REJUVENATION	ROSE CITY 2-1/4" SCONCE	ITEM#: A7468; FINISH: OLD BRASS SOCKET TYPE: E26; SHADE: B0466	2700	800	-	120
3		REJUVENATION	THURMAN WALL SCONCE	ITEM#: A0744 FINISH: BRUSHED NICKEL; SOCKET TYPE: E26; SHADE: B0351	-	-	-	120
4		WAC LIGHTING	HORIZONTAL LED LEDGE STEP & WALL LIGHT	WL-LED140-C-BR	3000K	-	-	120
5		WAC LIGHTING	LOW VOLTAGE LED TAPE LIGHT	INVISILED 24V PRO HIGH OUTPUT WHITE LIGHT	3000K	lm/ft	-	24 (NOTE 1)
6		WAC LIGHTING	LOW VOLTAGE LED TAPE LIGHT	MULTI-SPECTRUM H.O.	3000K	lm/ft	-	24 (NOTE 1)
6A		EXTRUSION LIGHTING	LOW VOLTAGE LED STRIP LIGHTING	(5) X 18045ANODA_2 (1) X 4090-24V (2) X DMX512s (4) X 24308 END CAPS (1) X WMP-RGB+CCT DMX (9) X K-1920-120-RGB-24 (1) X 4020-24V				
7		REJUVENATION	ROSE CITY 2-¼"FITTER CHAIN PENDANT	ITEM#: A1245 FINISH: OLD BRASS; SOCKET TYPE: E26; SHADE: B0462	2700	800	-	120
8		REJUVENATION	ROSE CITY 2-¼"FITTER CHAIN PENDANT 20" O.A.	ITEM#: A5959 FINISH: OLD BRASS; SOCKET TYPE: E26; SHADE: B0467	-	-	-	120
9		LEVITON	PORCELAIN SOCKET	#9874	2700	800	-	120
10		REJUVENATION	EASTMORELAND 10" FLUSH MOUNT	ITEM#: A5959 FINISH: OLD BRASS; SOCKET TYPE: E26; SHADE: B0467	2700	800	60	120
11		WILLIAMS	TUNABLE 4.5" RECESSED DOWNLIGHT	4DR-L13/9TC-DIM-120-A-WW-OF-BL-BL	-	-	24	120
12	-	TBD	STAGE LIGHTING	FURNISHED BY OWNER INSTALLED BY CONTRACTOR	-	-	-	120
13		STONCO	VAPOR PROOF LIGHTING	#VK1GC	2700	800	100	120
14		SOUTHWIRE (HOMEDEPOT)	OUTDOOR WALL SCONCE	L1707SVBLK INDUSTRIAL, HAMMERED BLK, WEATHER TIGHT	2700	800	-	120
15		CARPENTER EMERGENCY	OUTDOOR WALL SCONCE	AWEL2-N-E-CW-PC	-	-	9.0	120
16		REJUVENATION	ROSE CITY 2-¼"FITTER CHAIN PENDANT 32" O.A.	ITEM#: A5959 FINISH: OLD BRASS; SOCKET TYPE: E26; SHADE: B0467	-	-	-	120
17		CREE LIGHTING	RECESSED LED DOWNLIGHT	CR4 575L 35K 120 E26	3500K	575	-	120
18		HUNTER	52" WINGATE TUNABLE WHITE LED	-	TUNABLE LED	-	-	120
19		REJUVENATION	ROSE CITY	ITEM#: A5959 FINISH: OLD BRASS; SOCKET TYPE: E26; SHADE: B0467	-	-	-	120
20		REJUVENATION	THURMAN 3 ¼" SURFACE MOUNTED	ITEM#: A4976 FINISH: BRUSHED NICKEL; SOCKET TYPE: E26; SHADE: B3584-OP	-	-	100	120
21		REJUVENATION	ROSE CITY 6" FITTER LED ROD PENDANT	ITEM#: A0016 FINISH: OLD BRASS SHADE: B0473	2700K	990	12	120
22		REJUVENATION	BALDWIN SINGLE CHAIN PENDANT 84" LONG	ITEM#: A3167 FINISH: OIL RUBBED BRONZE SHADE: B5344	2700K	800	-	120
23		HUNTER	52" OCEANA OUTDOOR WITH LED LIGHT	-	-	-	-	120
24		WAC LIGHTING	FIVE (5) LED TRACK LUMINAIRES MODEL L-LED20S-35-WT AND 8' LONG TYPE L TRACK		3500	1400	23	120
25		WAC LIGHTING	LOW VOLTAGE WALL WASHER	HR-D425LED W/ HR-8402E HOUSING	-	750	-	120
26		TBD	POSTER LIGHT BOX	TBD	-	-	-	120
27		RAB LIGHTING	RECESSED EMERGENCY WAFER LIGHT	WFR6R129FA120WS W/DRI-25-EMGR-DC EMERGENCY DRIVER	4000	990	12	120 (NOTE 2)
		EXITLIGHT COMPANY	LED RECESSED EMERGENCY LIGHT	EL-RSLIM	-	-	3	120
		EXITLIGHT COMPANY	EDGE LIT LED EXIST SIGN	ELSM-R-RM (PROVIDE SINGLE OR DOUBLE SIDED AS REQUIRED; WHITE HOUSING FINISH)	-	-	5	120
		EXITLIGHT COMPANY	WET LOCATION COMBINATION EXIT SIGN & EMERGENCY LIGHT	WLCOHD	-	-	5	120
		EXITLIGHT COMPANY	COMBINATION EXIT SIGN & EMERGENCY LIGHT	COMBOJR-R	-	-	5	120
E	-	-	NEW LOCATION OF EXISTING SALVAGED LIGHT FIXTURE - REFER TO ARCHITECTUAL PLANS		-	-	-	120

NOTES:
1. CONTRACTOR SHALL PROVIDE 120V-24V TRANSFORMER(S) PER LIGHTING MANUFACTURER'S RECOMMENDATIONS. LOCATION OF TRANSFORMER(S) SHALL BE FIELD COORDINATED WITH ARCHITECT.
2. THESE LIGHTS ARE INTENDED FOR EMERGENCY USE ONLY - NORMALLY OFF, ENERGIZE UPON LOSS OF POWER.

ELECTRICAL SPECIFICATIONS

WIRING METHODS
A. ALL CONDUCTORS SHALL BE COPPER, CONFORMING TO THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, STRANDED FOR NO. 8 AWG AND LARGER, SOLID FOR NO. 10 AWG AND SMALLER.
B. THE USE OF ALUMINUM CONDUCTORS FOR ANY PURPOSE SHALL NOT BE ACCEPTABLE.
C. MINIMUM SIZE CONDUCTOR SHALL BE NO. 12 AWG.
D. CONDUCTORS SHALL BE THERMOPLASTIC TYPE THHN/THWN. ALL WIRE AMPACITIES SHALL BE LIMITED TO THE 75 DEGREES CENTIGRADE COLUMN OF TABLE 310-16 OF THE NEC.
E. ALL CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
G. ALL WIRING IN NON-PATIENT CARE AREAS SHALL BE INSTALLED IN CONDUIT (EMT OR FLEXIBLE METAL CONDUIT). MINIMUM CONDUIT SIZE SHALL BE 1/2 INCH. INSTALL ALL CONDUITS IN RUNS WHICH ARE PARALLEL AND PERPENDICULAR WITH BUILDING LINES. TYPE MC OR AC CABLE MAY BE USED IN LIEU OF EMT IN CONCEALED SPACES WHERE PERMITTED BY CODE.
H. INSTALL ALL CONDUITS IN RUNS WHICH ARE PARALLEL AND PERPENDICULAR WITH BUILDING LINES.
I. ALL VOICE, DATA AND TV OUTLETS SHALL BE PROVIDED WITH PLASTER RING AND NYLON PULL STRING UP TO CEILING PLENUM ABOVE, IN HOLLOW SLAB TO CEILING WALLS. IN WALLS THAT ARE SLAB TO SLAB OR INSULATED, PROVIDE A 1900 BOX WITH A SINGLE GANG PLASTER RING, EXTEND A 1-INCH CONDUIT UP TO CEILING PLENUM FROM 1900 BOX AND INSTALL A NYLON PULL STRING.
J. CONTRACTOR SHALL PROVIDE MINIMUM NO. 10 AWG CONDUCTOR SIZE IN BRANCH CIRCUIT RUNS OVER 75 FEET IN LENGTH FOR 120V CIRCUITS.
K. ALL RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE. WHERE RACEWAYS CANNOT BE CONCEALED, IT SHALL BE INSTALLED AT ARCHITECT'S DIRECTION.
L. CONTRACTOR SHALL PROVIDE TYPED PANEL DIRECTORIES FOR ALL PANELS. THE DIRECTORY SHALL INDICATE DEVICE SERVED AND LOCATION OF DEVICE.
M. ALL CONNECTORS AND/OR COUPLERS SHALL BE STEEL. CAST FITTINGS ARE NOT ACCEPTABLE.
N. CONTRACTOR SHALL DERATE CONDUCTORS PER NATIONAL ELECTRICAL CODE AND PROVIDE ONE NEUTRAL CONDUCTOR FOR EACH THREE PHASE CONDUCTORS IF MORE THAN THREE PHASE CONDUCTORS ARE INSTALLED IN A SINGLE PIPE.
O. CONTRACTOR SHALL PROVIDE AND INSTALL TYPE AC, HCF, OR 4-CONDUCTOR MC CABLE FOR ALL BRANCH CIRCUIT WIRING SERVING ISOLATED GROUND TYPE RECEPTACLES (I.G.). THE CONTRACTOR SHALL ENSURE THAT THE ISOLATED GROUND CONDUCTOR IS A MINIMUM NO. 12 AWG COPPER CONDUCTOR AND THAT A SEPARATE EQUIPMENT GROUND PATH IS PROVIDED (UL LISTED). THE ISOLATED GROUND AND EQUIPMENT GROUND MAY NOT BE COMBINED.

SERVICE EQUIPMENT
A. PROVIDE THE ELECTRICAL SERVICE ENTRANCE AND DUCT BANK REQUIREMENTS AS SHOWN AND IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ELECTRIC COMPANY PROVIDING SERVICE TO THE PROJECT.
B. COORDINATE ALL WORK FOR ELECTRICAL SERVICE WITH POWER COMPANY SERVICING THE PROJECT AND PROVIDE SERVICE ENTRANCE DUCT BANKS, PADS, TRANSFORMERS, AND METERS TO THEIR STANDARDS AND REGULATIONS.
C. THE CONTRACTOR SHALL NOTIFY THE LOCAL ELECTRIC UTILITY COMPANY OF THE REQUIREMENTS AND SHALL ARRANGE FOR ALL SERVICE FACILITIES, CONNECTIONS, AND METERING EQUIPMENT.
D. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NOT FURNISHED BY THE UTILITY COMPANY FOR BRINGING SERVICE INTO THE BUILDING. ANY COSTS FOR THE UTILTY COMPANY'S WORK WILL BE PAID BY THE OWNER.
E. PROVIDE MAIN SERVICE EQUIPMENT OF THE SIZE AND TYPE INDICATED BEARING A UL LABEL.

GROUNDING
A. GENERAL
  i. MINIMUM REQUIREMENTS FOR EQUIPMENT GROUNDING SHALL BE GOVERNED BY THE LATEST NATIONAL ELECTRIC CODE AND OSHA. GROUNDING REQUIREMENTS FOR THIS PROJECT ARE INTENDED TO EXCEED SUCH MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL FURNISH AND INSTALL ANY AND ALL ITEMS NECESSARY TO MEET THESE REQUIREMENTS AT NO EXTRA COST, EVEN IF SUCH ITEMS ARE NOT DETAILED ON THE DRAWINGS OR LISTED HEREIN.
  ii. THE WORK SPECIFICALLY ENTAILS AN EQUIPMENT SYSTEM WHICH SHALL BE A PERMANENT, CONTINUOUS-BONDING SYSTEM WITH NONCURRENT-CARRYING PARTS OF THE ELECTRICAL SYSTEM, BUILDING STEEL, AND MAJOR STRUCTURAL AND EQUIPMENT.
B. MAIN GROUNDING SYSTEM
THE MAIN GROUNDING SYSTEM SHALL EXTEND FROM A GROUND BUS LOCATED AT THE MAIN ELECTRICAL SERVICE. GROUND CONNECTION SHALL BE MADE FROM THE GROUND BUS TO THE STREET SIDE OF THE MAIN WATER SERVICE PIPE AHEAD OF ALL METERS AND VALVES AND TWO 10-FOOT LONG GROUND RODS PLACED A MINIMUM OF 10 FEET APART LOCATED OUTSIDE OF THE BUILDING.
C. DISTRIBUTION SYSTEM GROUNDING
ALL FEEDERS, IF RUNNING IN METAL RACEWAY SYSTEM USING COMPRESSION CONNECTORS, NEED NOT CARRY A GROUND WIRE, UNLESS OTHERWISE REQUIRED BY CODE. THE CONDUIT IS THEN DEPENDED ON FOR GROUND CONTINUITY. ALL COUPLINGS SHALL BE MADE TIGHT TO PERSERVE THIS CONTINUITY. EACH CONDUIT ORIGINATING FROM A PANEL WHERE A GROUNDING BUSHING IS BONDED TO THE GROUNDING BUS OF THE PANEL SHALL HAVE A SEPARATE GROUND CONDUCTOR.

FEEDERS AND BRANCH CIRCUITS
A. FEEDERS
  i. CLASSIFY CIRCUITS AS FEEDERS IF CONDUCTORS ARE LARGER THAN NO. 4 AWG.
  ii. INSTALL FEEDERS OF 208 VOLTS IN ELECTRIC METALLIC TUBING IN THE INTERIOR OF THE BUILDING, PROVIDING THE FOLLOWING CONDITIONS ARE STRICTLY ADHERED TO; IF NOT, PROVIDE RIGID STEEL CONDUIT FO THESE FEEDERS.
    a. METALLIC TUBING SHALL NOT BE INSTALLED IN CONTACT WITH THE EARTH OR WHERE PROHIBITED BY NEC OR LOCAL CODES.
  iii. FITTINGS FOR ELECTRIC METALLIC TUBING SHALL BE COMPRESSION TYPE; HOWEVER, AT THE OPTION OF THE CONTRACTOR, FITTINGS MAY BE SET SCREW OR INDENTOR TYPE IF MADE OF STEEL. A SEPARATE GROUND CONDUCTOR SHALL BE PROVIDED IF NECESSARY.
  iv. WHERE TWO OR MORE FEEDERS PASS THROUGH A PULL BOX, EACH SHALL BE CLEARLY IDENTIFIED WITH TAGS GIVING THE ELECTRICAL CHARACTERISTICS, SOURCE, AND DESTINATION OF EACH FEEDER CIRCUIT.
B. BRANCH CIRCUITS
  i. HOMERUNS TO THE PANELBOARD MAY BE RUN TOGETHER IN ONE CONDUIT, PROVIDED ALL CONNECTIONS ARE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL ELECTRICAL CODE REQUIREMENTS AND THE MAXIMUM UNBALANCED CURRENT IN NEUTRAL DOES NOT EXCEED THE CAPACITY OF THE WIRE. NO MORE THAN THREE SINGLE PHASE CIRCUITS SERVED FROM DIFFERENT PHASES OR ONE THREE PHASE CIRCUIT SHALL BE INSTALLED IN ONE RACEWAY.
  ii. ALL BRANCH CIRCUIT WIRING FOR MECHANICAL EQUIPMENT SHALL BE INSTALLED IN EMT OF 1/2" MINIMUM.
  iii. CONDUCTORS SHALL BE CONTINUOUS (SPLICE FREE) FROM TERMINATION TO TERMINATION. PROVIDE PULLBOXES AS NECESSARY TO ELIMINATE SPLICES WHERE SPLICES ARE ABSOLUTELY NECESSARY; SPLICE IN READILY ACCESSIBLE PULL, JUNCTION OR OUTLET BOX.

WIRING DEVICES
A. ALL WIRING DEVICES SHALL BE PROVIDED AS LOCATED IN THE ARCHITECTURAL PLANS AND AS IDENTIFIED IN THE SYMBOL LIST.
B. ALL OUTLET BOXES SHALL BE GALVANIZED STEEL, AT LEAST 1 - 1/2 INCH DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE WIRING DEVICES AND/OR WIRING TO BE INSTALLED.
C. OUTLET BOXES FOR WIRING DEVICES IN FINISHED WALLS SHALL BE ONE PIECE STANDARD GANG TYPE OF SIZE TO ACCOMMODATE NUMBER OF DEVICES NOTED. BOXES SHALL HAVE PLASTIC COVERS TO BRING BOX OPENING FLUSH WITH FINISHED WALL OR NOT MORE THAN 1/4 INCH IN BACK OF SAME.
D. WIRING DEVICES OF THE SAME OR SIMILAR TYPE SHOWN ADJACENT TO EACH OTHER ON THE DRAWINGS SHALL BE INSTALLED IN A MULTI-GANGED OUTLET BOX AND UNDER A COMMON COVERPLATE. REFER TO ALL APPLICABLE NOTES.
E. PROVIDE THE FOLLOWING TYPE OF DEVICES FOR THE PROJECT: NOTE: FINAL APPROVAL OF DEVICE AND COVERPLATE COLOR SHALL BE BY ARCHITECT.
  1) DUPLEX RECEPTACLES 2P, 3W, 20A, 125V; P&S CAT. NO. 26352-W (WHITE).
  2) DUPLEX RECEPTACLES 2P, 3W, 20A, 125V; GROUND FAULT CIRCUIT INTERRUPTER; P&S CAT.
  6) SINGLE-WAY FLUSH TUMBLER SWITCH (20A); P&S CAT. NO. 2621-W (WHITE).
  8) THREE-WAY FLUSH TUMBLER SWITCH (20A); P&S CAT. NO. 2623-W (WHITE).
  9) COVER PLATES FOR DEVICES LISTED ABOVE SHALL BE (WHITE).
  10) COVER PLATES AT WALL COVERING SHALL BE PAINTED TO MATCH, SEE ARCHITECTURAL FINISH PLANS.
F. CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE NEUTRAL CONDUCTOR FOR EACH GROUND FAULT INTERRUPTER RECEPTACLE.

PANELBOARDS
A. PROVIDE DEAD FRONT PANELBOARDS SIZED, RATED AND COMPLETE WITH THE QUANTITY AND SIZE OF CIRCUIT BREAKERS AS SHOWN ON THE CONTRACT DRAWINGS AND AS SPECIFIED BELOW.
B. PANEL BOARDS SHALL BE STANDARD CATALOG ITEMS COMPLYING WITH NEC, UL, AND NEMA STANDARDS AND BEAR THE LABEL OF UL.
C. PANELBOARDS SHALL BE IDENTIFIED BY LAMINATED PLASTIC NAMEPLATES INDICATING PANELBOARD DESIGNATION.
D. PROVIDE COPPER FULL-SIZE PHASE AND NEUTRAL BUSSES WHICH HAVE BEEN RATED IN ACCORDANCE WITH UL 67 HEAT-RISE TESTS. BUS BAR CONNECTIONS SHALL BE COLUMN CONSECUTIVE PHASE-SEQUENCE TYPE. PANELBOARDS SHALL HAVE BUS BARS DRILLED AND EQUIPPED WITH ALL HARDWARE FOR BOLT-IN BREAKERS.
E. PROVIDE BOLTED ON GROUNDING BUS(ES) WITH MAIN LUG(S) UNLESS OTHERWISE NOTED.
F. PANELBOARD SHORT CIRCUIT BRACING AND BREAKER INTERRUPTING CAPACITY SHALL BE AS INDICATED ON THE MANUFACTURERS' SHORT CIRCUIT AND FAULT CURRENT STUDY. LEVELS SHALL NOT BE LESS THAN 10,000 AMPERES RMS SYMMETRICAL FOR 120/208 VOLT SERVICE.
G. PROVIDE MANUFACTURES' STANDARD #16-GAGE (MINIMUM) GALVANIZED SHEET STEEL CABINETS WITH ENAMEL HINGED FRONT COVER FOR DOOR IN DOOR CONSTRUCTION TO BOX, MASTER-KEYED DOOR LOCKS, MULTIPLE KNOCKOUTS, WIRING GUTTERS, AND TYPED CIRCUIT DIRECTORY DEPICTING EACH POLE POSITION IN A TWO COLUMN FASHION.
H. BUSBARS SHALL BE SIZED TO LIMIT THE TEMPERATURE RISE WITHIN THE PANELBOARD TO 50°C WITH A 40°C AMBIENT TEMPERATURE. BUSBARS SHALL BE ROUND EDGE COPPER WITH BOLTED JOINT CONNECTIONS. BOLTED JOINT CONNECTION LOCATIONS SHALL BE READILY ACCESSIBLE FOR MAINTENANCE.
I. PANELBOARD MAIN LUGS CONNECTED TO #6 AWG OR LARGER CONDUCTORS SHALL BE FURNISHED TO ACCOMMODATE COMPRESSION CONNECTORS. ADEQUATE WIRING SPACE SHALL BE PROVIDED TO ACCOMMODATE THE COMPRESSION CONNECTORS.
J. ALL TWO SECTION PANELBOARDS SHALL HAVE EQUIVALENT SHORT CIRCUIT BRACING AND BE CONNECTED WITH COPPER CABLE EQUAL TO OR GREATER THAN THE MAIN BUS AMPERAGE CAPACITY.
K. PANELBOARD NEUTRAL BARS SHALL BE SIZED TO ACCOMMODATE THE NEUTRAL FEEDER SIZES NEUTRAL BARS AS MUCH AS 200% ABOVE THE NEC MINIMUM REQUIREMENTS.
L. CONTRACTOR SHALL PROVIDE BRANCH CIRCUIT WIRING, CONDUIT AND OVERCURRENT PROTECTION MEETING SUBMITTED AND APPROVED EQUIPMENT'S RESPECTIVE NAMEPLATE DATA (MAXIMUM OVERCURRENT PROTECTION (MOCP) AND MINIMUM CIRCUIT AMPACITY (MCA)).
M. ALL SURFACE-MOUNTED PANELS SHALL BE MOUNTED ON 12 GAUGE FORMED STEEL CHANNEL HAVING A CROSS-SECTION DIMENSION OF AT LEAST 1-½ INCHES. THE CHANNEL AND FITTINGS SHALL HAVE GALVKROM OR HOT-DIPPED GALVANIZED FINISH. CHANNELS SHALL BE INSTALLED VERTICALLY AND OR HORIZONTALLY.
N. CONTRACTOR SHALL INSTALL PANELBOARDS WITH PROPER NEC CLEARANCES. NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED, ENTER OR PASS THROUGH SUCH REQUIRED CLEARANCE SPACE.

28 KLUS MICRO-ALU SERIES LED CHANNEL STRIP LIGHT W/ BLACK EXTRUDED ENCLOSURE.

ELECTRICAL GENERAL NOTES

GENERAL
A. Provide under this Division complete plumbing and fire protection systems, fully adjusted, tested, and commissioned for use as indicated on the Drawings and as specified herein.CODES AND STANDARDS
A. Codes and standards listed herein, insofar as they apply, form a part of these Specifications, the same as if they were fully written and shall be followed as minimum requirements. Where standards conflict, that standard with the more stringent requirements shall be applicable. Where these specifications require higher grade material or workmanship than the referenced standards, provide the highest grade of material and workmanship specified.
B. Prior to purchase or installation, give written notice to the Architect of any materials or apparatus believed in violation of laws, ordinances, rules or regulations, or Authorities Having Jurisdiction.
C. The referenced codes shall include any and all supplements, addenda, memoranda, information bulletins and any other changes and additions effective prior to the permit issue date by adoption of the local Authority Having Jurisdiction.
D. Make any and all modifications required by the Authorities Having Jurisdiction without additional charge to the Owner.
E. Where alterations to and/or deviations from the Contract Documents are required by the Authorities, report the requirements to the Architect and secure approval before starting the alterations.
F. Where Contract Documents' requirements are in excess of Code requirements and are permitted under the Code, the Contract Documents shall govern.
G. All rules and regulations of the Underwriters Laboratories shall be complied with whether or not indicated in the Contract Documents.
H. All work shall comply with the following codes and standards.
  1. Codes:
     2015 INTERNATIONAL CONSTRUCTION CODE (IBC) | USBC, Part I
     2015 INTERNATIONAL ENERGY CONSERVATION CODE (w/ASHRAE 90.1 - 2004)
     2015 INTERNATIONAL MECHANICAL CODE (IMC)
     2015 INTERNATIONAL PLUMBING CODE (IPC)
     2015 INTERNATIONAL FUEL GAS CODE (IFGC)
     2014 INTERNATIONAL ELECTRIC CODE (NEC) www.nfpa.org
     2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC) | USBC, Part II
     2015 INTERNATIONAL FIRE CODE (IFC)
  2. Standards: In addition to the requirements shown or specified, comply with the latest current applicable standards, specifications and codes published by the following (where the following publications list recommendations and guidelines, the recommendations and guidelines shall be considered requirements of this contract and the items and systems shall be constructed and/or tested in accordance with the recommendations and guidelines):
     American Society of Mechanical Engineers (ASME).
     American National Standards Institute (ANSI).
     American Water Works (AWWA).
     American Society for Testing and Materials (ASTM).
     National Fire Protection Association (NFPA).
     Underwriters Laboratories (UL).
     Plumbing Drainage Institute
     Manufacturer's Standardization Society of the Valves and Fittings Industry, Inc. (MSS).

PERMITS
A. Obtain and pay for all permits, licenses, and inspection certificates required for all work in accordance with the provisions of the Contract Documents.

GUARANTEE
A. Guarantee in form satisfactory to the Owner, that all Work installed is free from defects in workmanship and/or materials. Guarantee that all apparatus will develop capacities and characteristics specified for a period of one year from the date of final acceptance by the Owner or certification of substantial completion, whichever occurs later.
B. During the guarantee period, remedy, without cost to the Owner, defective workmanship, materials, and apparatus performance. Remedial work shall be completed within a reasonable time specified by the Owner. In default thereof, the Owner may have such work done and charge all costs to the Contractor.

COMPLETE PERFORMANCE OF WORK
A. Execute work in strict accordance with the best practice of the trades in a thorough, substantial, workmanlike manner by competent workmen.
B. Provide labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and indicated, or which may be reasonably implied as essential whether mentioned in the Contract Documents or not.
C. In cases of doubt as to the Work intended, or in the event of need for explanation thereof, request supplementary instructions from the Architect.

COOPERATION WITH OTHER TRADES
A. Coordinate efforts of all trades and furnish in writing, with copies to the Architect and Owner, any information necessary to permit the work of all trades to be installed satisfactorily and with least possible interference or delay.
B. Where the work of various trades will be installed in close proximity to one another, or where there is evidence that the work of one trade will interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment. If one trade installs his work before coordinating with work of other trades, make necessary changes to correct the condition without extra charge.

DRAWINGS
A. The Drawings show the general layout of the various items of equipment. However, layout of equipment, accessories, specialties, ductwork, and piping systems are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required valve, fitting, trap, duct, elbow, transition, turning vane, or similar items required for a complete installation. Consult the Architectural Drawings and details for exact location of rough-ins, fixtures and equipment. Where same is not definitely located, obtain the information from the Architect before proceeding.
B. Follow the Drawings in laying out the work and check drawings of all trades to verify spaces in which work will be installed. Maintain maximum headroom throughout. Where space conditions appear inadequate, request clarification from the Architect before proceeding with the installation.

MANUFACTURER'S RECOMMENDATIONS
A. Except where specifically indicated differently in the Contract Documents, apply, install, connect, erect, use, clean, and condition manufactured articles, materials, and equipment per manufacturer's current printed recommendations. Keep copies of such printed recommendations at job site.

SUBMITTALS
A. After the Contract is awarded, but prior to proceeding with the Work, obtain complete submittals from the manufacturers, suppliers, vendors, subcontractors, for all materials and equipment specified in this Division and submit data and details of such materials and equipment to the Architect.
B. Prior to forwarding submittals to the Architect, review and certify that the equipment, materials, methods, etc. represented by the submittals are in compliance with the Contract Documents.
C. A minimum period of two weeks, exclusive of transmittal time, will be required in the Engineer's office each time a submittal is submitted or resubmitted for review. This time period shall be considered by the Contractor when scheduling his work.
D. Approval of product data shall not relieve the Contractor of the responsibility for errors that may be contained therein, or for deviations from requirements in the Contract Documents. It shall be clearly understood that the Architect or Engineer noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the product data the Contract Documents shall govern the work and are neither waived nor superseded in any way by submittal review

MATERIALS
A. The word "Provide" is defined as requiring the Contractor to "furnish, erect, test, adjust and install complete and ready for use" the item to which it refers.
B. Unless otherwise specified, provide new, first-class quality materials and apparatus required for the work. Furnish, deliver, erect, connect and finish work in every detail, and select and arrange work to fit properly into the building spaces. Where no specific kind or quality of material is given, provide a first class standard article as approved by the Architect.
C. Equipment designated as "Basis of Design" has been coordinated for structural penetrations; duct, piping, and electrical connection; operating and service (maintenance) requirements; and physical size with regard to space where equipment is housed. Other specified manufacturers of like equipment are acceptable contingent on the Contractor providing a complete installation and maintaining full responsibility to provide, at no additional cost, any modifications to the structure or configuration of adjoining equipment and the installation that is required to properly install, operate, and service the equipment being used.

SLEEVES, FORMED OPENINGS, PLATES, AND INSERTS
A. Provide sleeves for all piping passing through masonry, concrete, tile and gypsum wall construction.
B. Provide sleeves and formed openings of sufficient size to pass continuous, uninterrupted insulation of the specified thickness.
C. Check floor and wall construction finishes to determine proper length of sleeves for various locations and make actual lengths to suit the following.
  1. Terminate sleeves flush with walls, partitions, and ceilings.
  2. In areas where pipes are exposed, extend sleeves 2 inches above finished floor.

RECORD DRAWINGS
A. Maintain at the project site a complete set of "Record Drawings" reflecting an accurate as-built record of all Work. In addition, mark the "Record Drawings" to show changes and deviations in the Work from that shown on the Contract Documents. This requirement shall not be construed as authorization for the Contractor to make changes in the layout or work without definite instructions from the Architect.

FIRE ALARM
A. Fire alarm system design shall be design-build by a licensed fire alarm contractor. The contractor shall perform a system design that will provide all devices as required by the Fire Marshal to accommodate this facility. The fire alarm contractor will prepare and provide stamped and signed fire alarm system shop drawings (by a separate registered fire protection engineer) and submit them for review and approval by the Fire Marshal.

ELECTRICAL SYMBOLS LIST

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
	2'X4' LED TROFFER WITH EMERGENCY BATTERY BALLAST/INVERTER	N/A
	2'X4' LED TROFFER	N/A
	COMMERCIAL CEILING MOUNTED (RECESSED) DOWNLIGHT	N/A
	CEILING MOUNTED (RECESSED) DOWNLIGHT WITH EMERGENCY BATTERY BALLAST/INVERTER	N/A
	SURFACE MOUNTED PENDANT LIGHT	N/A
	WALL SCONCE	AS NOTED
	WALL SCONCE WITH EMERGENCY BATTERY BALLAST/INVERTER	AS NOTED
	SURFACE MOUNTED LED LIGHT	N/A
	CEILING MOUNTED LED EXIT LIGHT W/ EMERGENCY BATTERY PACK AND FULLY CONCEALED DRIVER - ARROWS INDICATE DIRECTION	PER CODE
	WALL MOUNTED LED EXIT LIGHT W/ EMERGENCY BATTERY PACK AND FULLY CONCEALED DRIVER - ARROWS INDICATE DIRECTION	PER CODE
	WALL MOUNTED EXIT LIGHT W/EMERGENCY BATTERY PACK & TWIN LED HEADS.	PER CODE
	EMERGENCY LIGHT WITH TWIN LED HEADS	
S# #	SWITCH DESIGNATION (NOT ALWAYS USED) BLANK - SINGLE POLE SWITCH 3 - THREE-WAY 4 - FOUR-WAY D - DIMMING D_3 - THREE-WAY DIMMING 0 - OCCUPANCY SENSOR (LEVITON MODEL OSSMT-MD)	42"
	MULTI-TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR - LEVITON MODEL OSC10-MOW.	NA
A	SYMBOL AND LETTER INDICATES TYPE OF LIGHTING FIXTURE	NA
#	KEYED NOTE DESIGNATION	NA
	WALL MOUNTED DUPLEX RECEPTACLE 2P-3W-20A-125V (MOUNTED VERTICALLY)	18" AFF U.O.N.
	WALL MOUNTED DUPLEX RECEPTACLE 2P-3W-20A-125V (MOUNTED HORIZONTALLY)	18" AFF U.O.N.
	WALL MOUNTED DUPLEX RECEPTACLE 2P-3W-20A-125V GROUND FAULT INTERRUPTER TYPE	46" AFF U.O.N.
	WALL MOUNTED QUAD RECEPTACLE 2P-3W-20A-125V	18" AFF U.O.N.
	WALL MOUNTED QUAD RECEPTACLE 2P-3W-20A-125V GROUND FAULT INTERRUPTER TYPE	46" AFF U.O.N.
	TELEVISION CABLE J-BOX (SINGLE GANG PLASTER RING WITH WHITE COVERPLATE AND TV/CABLE SYSTEM JACK INSTALLED	AS NOTED
W	PROVIDE FLUSH MOUNTED CONNECTION BOX FOR WASHING MACHINE AND DRYER (INCLUDING HOT AND COLD WATER CONNECTIONS WITH SHUT-OFF VALVES) PROVIDE WITH PROVIDE SINGLE 2P,3W,20A,125V RECEPTACLE FOR WASHER AND SINGLE 3P,4W,30A,250V RECEPTACLE FOR DRYER. COORDINATE WITH PLUMBING CONTRACTOR.	48" AFF U.O.N.
G	JUNCTION BOX FOR GARBAGE DISPOSAL	12" AFF U.O.N.
D	JUNCTION BOX FOR DISHWASHER	12" AFF U.O.N.
	DATA LOCATION - FINAL DATA DISTRIBUTION TO BE DETERMINED BY OWNER. GC TO PROVIDE JUNCTION BOX WITH 1" CONDUIT AND PULL STRING TO CEILING CAVITY. OWNER WILL PROVIDE FACE PLATES, CABLING AND FINAL CONNECTIONS.	18" AFF U.O.N.
	VOICE OUTLET	18" AFF U.O.N.
J J	WALL OR CEILING MOUNTED JUNCTION BOX.	AS REQUIRED
Sm	MOTOR RATED TOGGLE DISCONNECT SWITCH	NA
	METAL RACEWAY (OR TYPE AC OR MC WITH OUTER METAL ARMOR OR SHEATH) FOR USE IN PATIENT CARE AREAS.	NA
	FLEXIBLE METAL RACEWAY (TYPE AC OR MC) FOR USE IN NON-PATIENT CARE AREAS.	NA
	CONDUCTORS IN RACEWAY - TICK MARKS INDICATE NUMBER OF CONDUCTORS I.E. 3 #12 CONDUCTORS WITH A SEPARATE EQUIPMENT GROUND PATH (GROUNDING WIRE IS NOT GENERALLY SHOWN BY TICK MARKS). WHERE ONLY TWO WIRES WILL BE IN THE RACEWAY, NO TICK MARKS WILL BE INDICATED.	NA NA
P-1,3,5	MULTIPLE BRANCH CIRCUIT HOMERUN TO PANEL BOARD - NUMBER OF ARROWHEADS INDICATE NUMBER OF CIRCUITS IN RUN. LETTERS & NUMBERS NEXT TO ARROWHEADS DESIGNATE PANEL BOARD AND CIRCUIT NUMBERS.	NA
P-1	SINGLE BRANCH CIRCUIT HOME RUN TO PANELBOARD (LETTER AND NUMBER DESIGNATE PANELBOARD AND CIRCUIT)	
	HOMERUN TO SWITCH LOCATION	NA
#	POWER DISTRIBUTION PANEL DESIGNATION	NA
	FUSED SAFETY SWITCH 3/30/20 (# OF POLES / SWITCH RATING / FUSE RATING)	NA
	DISCONNECT SWITCH SUPPLIED WITH MECHANICAL EQUIPMENT	NA

FIRE ALARM SYMBOLS LIST

(IN ACCORDANCE WITH NFPA 170)

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
30	FIRE ALARM ADA STROBE LIGHT (NUMBER INDICATES CANDELA)	80" AFF U.O.N.
30	COMBINATION HORN/STROBE (NUMBER INDICATES CANDELA)	80" AFF U.O.N.
	HORN	80" AFF U.O.N.
P	MANUAL PULL STATION	48" AFF U.O.N.

NORTH (building)

Shepherdstown Opera House RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Grove & Dall'Olio Architects pllc — Architecture, Planning, Interiors, Landscape — AIA, LEED AP
Matthew W. Grove — matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

Issue/Revision	
REVISION #1	10.23.20
FOR CONSTRUCTION	10.23.20
REDESIGN REVISIONS	02.23.21
FOR CONSTRUCTION	10.23.20

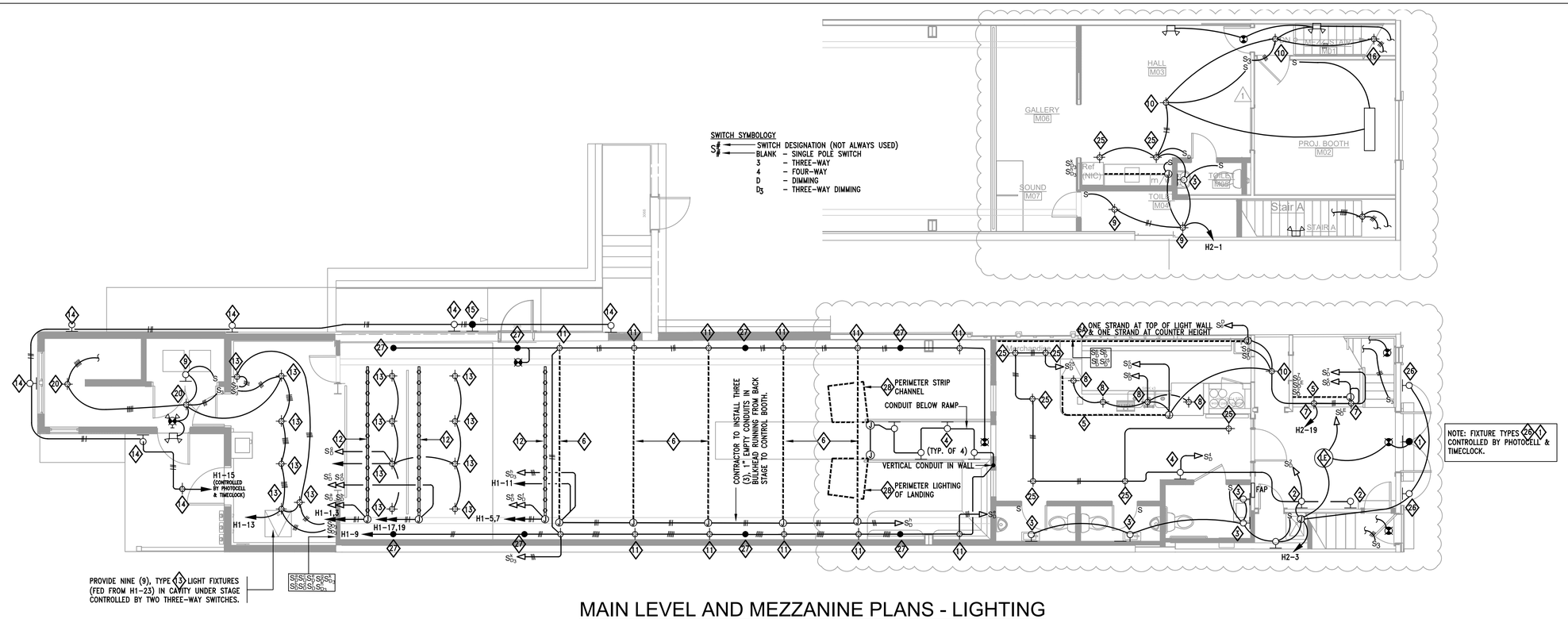
Seal: ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020.

Drawing Title

GENERAL NOTES & SYMBOLS

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

E0.1

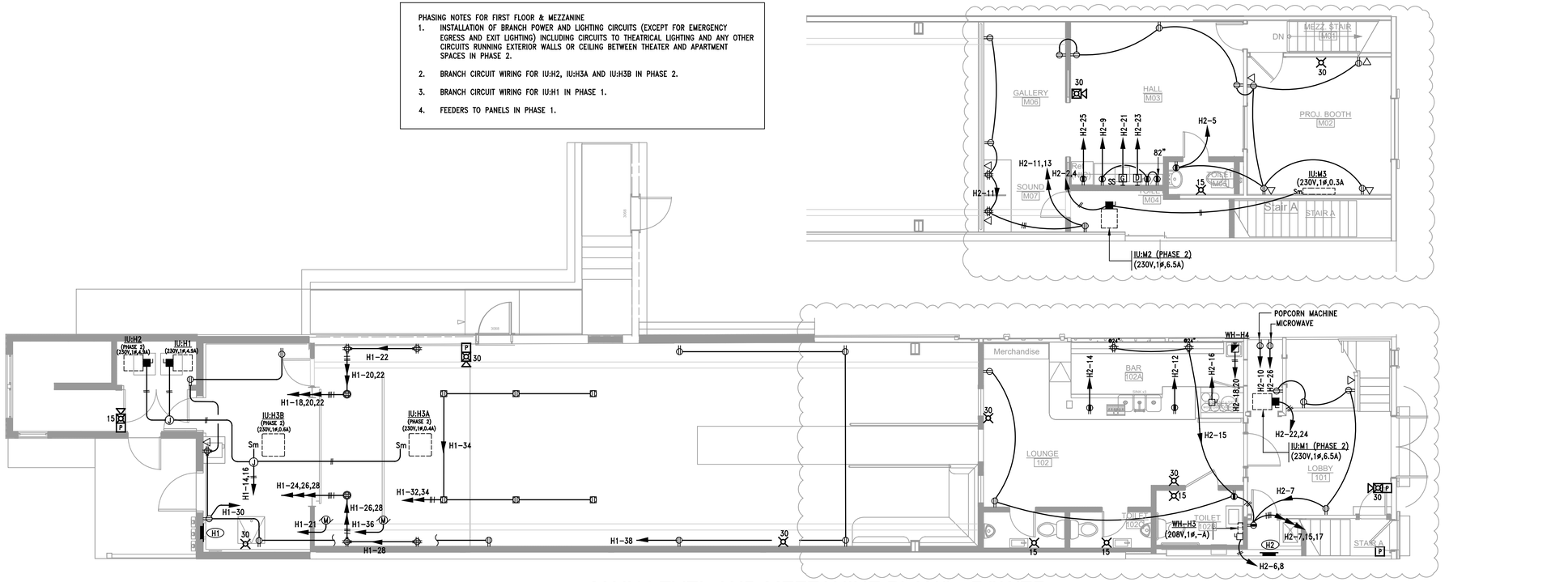


MAIN LEVEL AND MEZZANINE PLANS - LIGHTING

SCALE: 3/16" = 1'-0"

PHASING NOTES FOR FIRST FLOOR & MEZZANINE

1. INSTALLATION OF BRANCH POWER AND LIGHTING CIRCUITS (EXCEPT FOR EMERGENCY EGRESS AND EXIT LIGHTING) INCLUDING CIRCUITS TO THEATRICAL LIGHTING AND ANY OTHER CIRCUITS RUNNING EXTERIOR WALLS OR CEILING BETWEEN THEATER AND APARTMENT SPACES IN PHASE 2.
2. BRANCH CIRCUIT WIRING FOR IU:H2, IU:H3A AND IU:H3B IN PHASE 2.
3. BRANCH CIRCUIT WIRING FOR IU:H1 IN PHASE 1.
4. FEEDERS TO PANELS IN PHASE 1.



MAIN LEVEL AND MEZZANINE PLANS - POWER

SCALE: 3/16" = 1'-0"

NORTH (building)

Shepherdstown Opera House

RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects plic AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA 22601, 540-773-2328

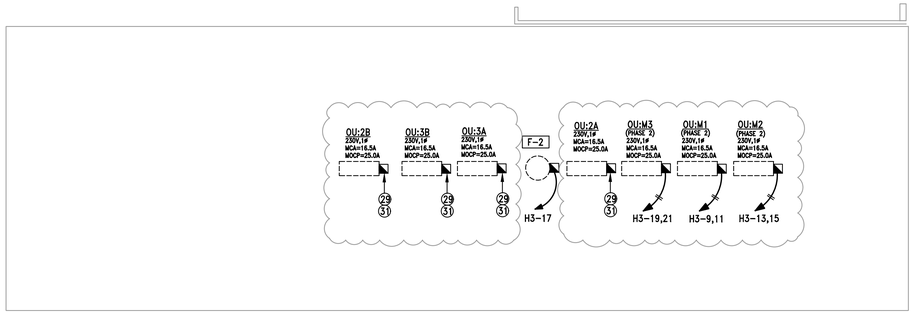
Issue/Revision	Seal
REVISION #1 10.23.20	ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06/04/2020
FOR CONSTRUCTION 10.23.20	
REDESIGN REVISIONS 02.23.21	
FOR CONSTRUCTION 10.23.20	

Drawing Title

MAIN LEVEL & MEZZANINE PLANS

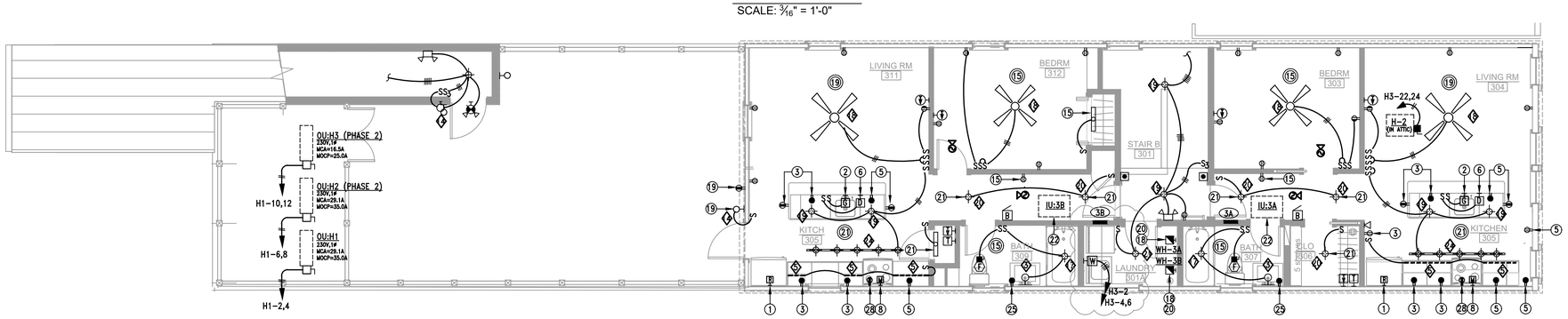
Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

E1.1



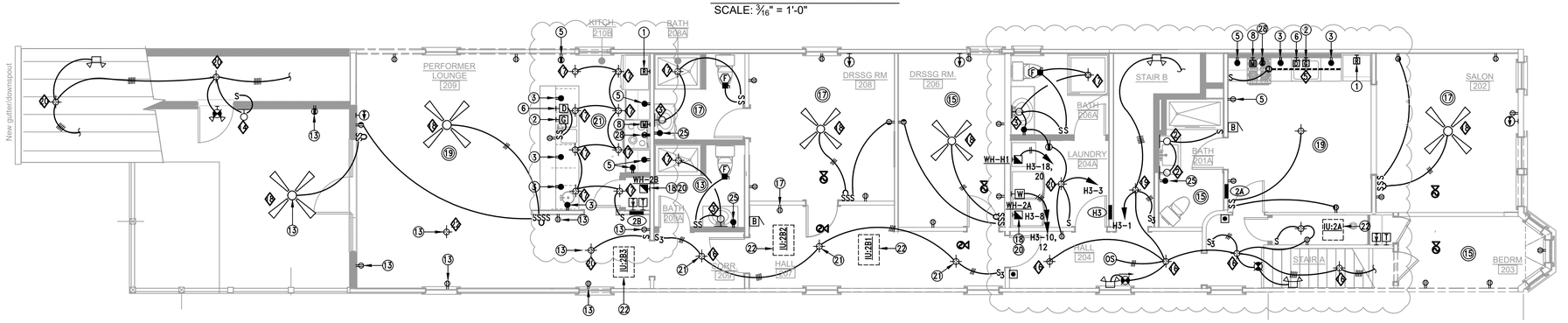
ROOF PLAN

SCALE: 3/16" = 1'-0"



3RD FLOOR PLAN

SCALE: 3/16" = 1'-0"



2ND FLOOR PLAN

SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES

1. ALL WORK IN APARTMENTS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF NEC CURRENTLY IN FORCE WITHIN THE PROJECT JURISDICTION FOR SPACING OF ALL OUTLETS, AND ALL OTHER RESIDENTIAL REQUIREMENTS.
2. ALL BRANCH CIRCUIT WIRING FOR APARTMENTS SHALL BE INSTALLED IN METAL CLAD RACEWAY (MC) WITH SEPERATE GROUND CONDUCTOR. REFER TO LOAD CENTER SCHEDULE FOR WIRE SIZE AND CIRCUIT ASSIGNMENTS.
3. CONTRACTOR SHALL PRE-WIRE, SEPARATE HOMERUNS, ALL APARTMENT TV OUTLETS TO MASTER TV OUTLET APARTMENT USING THE CABLE NOTED IN SYMBOLS LIST.
4. CONTRACTOR SHALL PRE-WIRE, WITH SEPARATE HOMERUNS, ALL APARTMENT TELEPHONE OUTLETS USING THE CABLE NOTED IN THE SYMBOLS LIST.
5. CONTRACTOR MUST TEST ALL PRE-WIRED SYSTEMS BEFORE CLOSING UP WALLS.
6. BACK-TO-BACK OUTLETS OF ANY TYPE SHALL NOT BE PERMITTED BETWEEN APARTMENT UNITS.
   A. OUTLETS ON THESE WALLS MUST BE SEPARATED A MINIMUM OF 24" TO MAINTAIN FIRE RATING OF THE WALLS.
   B. OR OUTLETS SHALL BE WRAPPED WITH UL APPROVED FIRE RATING ASSEMBLIES MATERIAL EQUAL TO 3M FIRE BARRIER PADS.
   C. PROVIDE LOWERYS SOUND PADS INSIDE OUTLET BOXES.
7. PROVIDE GFI PROTECTED OUTLETS FOR ENTIRE KITCHEN
8. PROVIDE GFI OUTLET IN WEATHERPROOF BOX (P&S WP-26 COVERPLATE) FOR TERRACE/BALCONIES.
9. ALL APARTMENT SMOKE DETECTORS SHALL BE CIRCUITED TOGETHER AND EXTENDED TO THE DESIGNATED CIRCUIT.
10. IN ACCORDANCE WITH NEC PARAGRAPHS 422-D, 440-12 EXCEPTIONS 430-102 THE INTENDED DISCONNECT FOR AIR CONDITIONING UNITS IS A KEY LOCKABLE CIRCUIT BREAKER OR HANDLE LOCKS IN THE OFF POSITION UTILIZING A KEY CONTROLLED ONLY BY BUILDING MANAGEMENT.
11. WIRING DEVICES - PRIOR TO ORDERING, THE CONTRACTOR SHALL RE-VERIFY STYLE, COLOR, AND PLATE COVERS WITH ARCHITECT. PRIOR TO LOCATING SWITCHES, RE-VERIFY ALL LOCATIONS WITH THE ARCHITECT.
12. REFER TO ARCHITECTURAL PLANS FOR THICKNESS OF WALL TO ACCOMMODATE RECESSED LOAD CENTER.
13. CONTRACTOR SHALL PROVIDE "ARC FAULT" TYPE CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS SERVING RECEPTACLES IN BEDROOMS.

APARTMENT UNIT SYMBOLS LIST

SYMBOL	DESCRIPTION
	FLUSH CEILING MOUNTED LIGHT FIXTURE
	WALL-MOUNTED LIGHT FIXTURE
	WALL MOUNTED CLOSET LIGHT (MOUNT ABOVE DOOR HEADER INSIDE OF CLOSET)
S	SINGLE POLE FLUSH TUMBLER SWITCH (MOUNT 42" AFF/UON).
S_3	THREE-WAY FLUSH TUMBLER SWITCH (MOUNT 42" AFF/UON).
S_D	600 WATT DIMMER SWITCH (MOUNT @ 42" AFF UON) LIGHTOLIER TOGGLE STYLE TYPE MATCHING SWITCH STYLE.
	WALL-MOUNTED DUPLEX RECEPTACLE (2P, 3W, 15A, 125V) - MOUNT 18" AFF/UON.
	WALL-MOUNTED DUPLEX RECEPTACLE (2P, 3W, 15A, 125V) - TOP HALF SWITCHED (MOUNT 18" AFF/UON).
	WALL-MOUNTED DUPLEX RECEPTACLE (2P, 3W, 20A, 125V GFI) BATHROOM/APPLIANCE CIRCUIT - MOUNT 6" ABOVE COUNTERS (KITCHEN/BATHROOMS) 18"AFF OTHER AREAS EXTEND TO CIRCUITS NOTED.
	WALL-MOUNTED DUPLEX (2P, 3W, 15A, 125V) OUTLET TO BE GFCI TYPE WITH HINGED WEATHERPROOF COVERPLATE.
	RANGE RECEPTACLE (3P, 4W, 50A, 125/250V) NEMA 14-50R WITH 50A, 2P CIRCUIT BREAKER EXTEND TO CIRCUIT No.28 AND 30.
D	FLUSH-MOUNTED SINGLE RECEPTACLE (2P,3W,20V,125V) FOR DISHWASHER (EXTEND TO CIRCUIT NO. 6). PROVIDE MATCHING PLUG, PROVIDE CONNECTION TO DISHWASHER FOLLOWING DISHWASHER MANUFACTURER'S SPECIFICATIONS TO ASSURE INTEGRITY OF UL LISTING. COORDINATE PLUG INCLUSION WITH SUPPLIER OF DISHWASHER - MOUNT @ 24" A.F.F. - LOCATE BELOW SINK.
G	FLUSH-MOUNTED JUNCTION BOX FOR DISPOSAL, CONTROLLED BY HORIZONTALLY MOUNTED FLUSH TUMBLER SWITCH (EXTEND TO CIRCUIT No.2) MOUNT 24" AFF-LOCATE UNDER SINK.

SYMBOL	DESCRIPTION
M	MICROWAVE HOOD COMBINATION (2P,3W,20A,125V) MAX. 1480W 120V (EXTEND TO CIRCUIT NO. 8) MOUNTED ABOVE RANGE.
R	WALL-MOUNTED SINGLE RECEPTACLE (2P, 3W, 20A, 125V) FOR REFRIGERATOR (EXTEND TO CIRCUIT NO. 1) - MOUNT 48" AFF.
W	PROVIDE FLUSH MOUNTED CONNECTION BOX FOR WASHING MACHINE AND DRYER (INCLUDING HOT AND COLD WATER CONNECTIONS WITH SHUT-OFF VALVES) COORDINATE WITH PLUMBING INSTALLER PROVIDE SINGLE 2P,3W,20A,125V RECEPTACLE FOR WASHER - EXTEND 2#12+G TO UNITS LOAD CENTER PROVIDE SINGLE 3P,4W,30A,250V RECEPTACLE FOR DRYER - EXTEND 3#10+G TO UNITS LOAD CENTER
WH	FLUSH MOUNTED JUNCTION BOX FOR ELECTRIC WATER HEATER
TV	MASTER APARTMENT TELEVISION SYSTEM OUTLET (MOUNTED 12" ABOVE CLOSET SHELF). A. PROVIDE 6"X6"X2-⅛" FLUSH-MOUNTED BOX WITH TWO GANG COVER PLATES.
TV	TELEVISION SYSTEM OUTLET (SINGLE GANG PLASTER RING WITH WHITE COVER PLATE AND TV/CABLE SYSTEM JACK INSTALLED (MOUNT 18" AFF UON). A. PROVIDE RG6QUAD 90% SHIELDED TYPE COAXIAL CABLE FROM OUTLET TO CONDOMINIUM MASTER TELEVISION OUTLET. B. COORDINATE CABLE TYPE WITH CABLE TV SERVICE PROVIDER. C. PROVIDE FIRE RATED BOX WHERE REQUIRED.
T	MASTER APARTMENT SYSTEM TELEPHONE OUTLET A. PROVIDE 6"X6"X2-⅛" FLUSH-MOUNTED BOX WITH TWO GANG COVER PLATE.
▽	TELEPHONE SYSTEM OUTLET - MOUNT 18" AFF GENERAL A. APARTMENT OUTLETS - SINGLE GANG PLASTER RING WITH WHITE TELEPHONE OUTLET COVERPLATE. C. PROVIDE FIRE RATED BOX AT PARTY WALLS OR UTILIZE FIRE RATED WRAP ASSEMBLIES BY 3M.

SYMBOL	DESCRIPTION
	FUSED SAFETY SWITCH - IF FIELD FURNISHED AND INSTALLED, DO NOT MOUNT ON EQUIPMENT, MOUNT ON UNISTRUCT ATTACHED TO ROOF.
	SMOKE DETECTOR WITH AUDIBLE ALARM (APARTMENTS ONLY), SURFACE MOUNTED. A. UNIT SHALL HAVE 120V POWER SUPPLY (CIRCUIT #26) WITH BATTERY BACK-UP. B. UNITS LOCATED IN AREAS WITHOUT DROPPED CEILING SHALL BE WALL MOUNTED A MAXIMUM OF 12" BELOW FINISHED CEILING. C. ALL SMOKE DETECTORS SHALL BE INTERCONNECTED TO SIMULTANEOUSLY ALARM WHEN ANY SINGLE DETECTOR SENSES SMOKE.
	APARTMENT LOAD CENTER (DEPTH OF PANEL CAN NOT EXCEED 3 7/8")
F	RECESSED TOILET EXHAUST FAN. CONNECT TO CIRCUIT.
	DOOR BELL (PUSHBUTTON) - INTERCONNECT WITH CHIME.
#	GENERAL ROOM CIRCUIT DESIGNATION - SPECIFIC CIRCUIT DESIGNATIONS SHALL PREVAIL
#	SPECIFIC CIRCUIT DESIGNATION. IF NO SPECIFIC CIRCUIT IS INDICATED FOR LIGHTING AND/OR RECEPTACLES, CIRCUIT TO THE GENERAL ROOM CIRCUIT.
B	WALL MOUNTED DOORBELL/CHIME INTERCONNECTED WITH DOORBELL PUSHBUTTON. CONNECT WITH GENERAL LIGHTING CIRCUIT #21.
	FLUSH CEILING MOUNTED JUNCTION BOX FOR FUTURE COMBINATION FAN/LIGHT UNIT.

NORTH (building)

Shepherdstown Opera House RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer

FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247-2939

Structural Engineer

Ruckman Engineering, PLC
22-B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects pllc AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane, Gerrardstown, WV. 25420, 304-267-2120
18 West Boscawen Street, Winchester, VA. 22601, 540-773-2328

Issue/Revision	Seal
REVISION #1 10.23.20	
FOR CONSTRUCTION 10.23.20	
REDESIGN REVISIONS 02.23.21	
FOR CONSTRUCTION 10.23.20	

ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 06.04.2020

Drawing Title

2ND & 3RD FLOOR PLANS

Date OCTOBER 23, 2020
Scale As Noted Project Number 19820
Drawing Number

E1.2

RESIDENTIAL LOAD CENTER — APT. 2B

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	100A	-	10K	RECESSED	CH BR	-	-

TYPE LEGEND			REMARKS
L	LIGHTING	KITCHEN EQ	
R	RECEPTACLES	EXISTING	
M	MECH EQUIP	OTHER	

CKT. #	ITEM SERVED	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	ITEM SERVED	CKT. #
1	REFRIGERATOR	#12	-	20A	1	0	A	0	1	20A	-	#12	GARBAGE DISPOSAL	2
3	SMALL APPLIANCE	#12	-	20A	1	1500	B	0	1	15A	-	-	PROVISION	4
5	SMALL APPLIANCE	#12	-	20A	1	1500	C	1200	1	20A	-	#12	DISHWASHER	6
7	PROVISION	-	-	15A	1	0	A	0	1	20A	-	312	MICROWAVE	8
9	PROVISION	-	-	15A	1	0	B	0	1	20A	-	#12	WASHER	10
11	PROVISION	-	-	15A	1	0	C	2500	2	30A	-	#10	DRYER	12
13	LIGHTS & RECEPT.	#12	-	20A	1	0	A	2500						14
15	LIGHTS & RECEPT.	#12	-	20A	1	0	B	0	1	15A	-	-	PROVISION	16
17	LIGHTS & RECEPT.	#12	-	20A	1	0	C	1250	2	20A	-	#12	WATER HEATER	18
19	LIGHTS & RECEPT.	#12	-	20A	1	0	A	1250						20
21	GENERAL LIGHTING	#12	-	20A	1	1640	B	100	2	15A	-	#12	IU	22
23	GENERAL LIGHTING	#12	-	20A	1	1640	C	100						24
25	BATHROOM GFI	#12	-	20A	1	0	A	0	1	15A	-	#12	SMOKE DETECTORS	26
27	PROVISION	-	-	15A	1	0	B	4000	2	50A	-	#8	RANGE	28
29	AC COND. UNIT	#10	-	25A	2	1932	C	4000						30
31						1932	A	0	-	-	-	-	WATER HEATER	32
33	SPACE	-	-	-	-	0	B	0	-	-	-	-		34
35	SPACE	-	-	-	-	0	C	0	-	-	-	-	SPACE	36

RESIDENTIAL LOAD CENTER CALCULATION (NEC 220.20)

GENERAL LIGHTING LOAD (AREA X 3 WATTS/SF)	=	3,275 VA	1ST 10 KVA @ 100%	=	10,000 VA
SMALL APPLIANCE LOAD (TWO, 20A CIRCUITS)	=	3,000 VA	REMAINDER OF LOAD @ 40%	=	4,466 VA
RANGE	=	9,600 VA	HEAT PUMP	=	5000 VA
WATER HEATER	=	2,500 VA	TOTAL LOAD	=	**19,466** VA
DISHWASHER	=	1,200 VA			**94 AMPS**
DISPOSAL (3/4HP)	=	1,590 VA			
CLOTHES DRYER	=	0 VA			
CLOTHES WASHER	=	0 VA			
TOTAL	=	21,165 VA			

RESIDENTIAL LOAD CENTER — APT 2A

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	100A	-	10K	RECESSED	CH BR	-	-

TYPE LEGEND			REMARKS
L	LIGHTING	KITCHEN EQ	
R	RECEPTACLES	EXISTING	
M	MECH EQUIP	OTHER	

CKT. #	ITEM SERVED	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	ITEM SERVED	CKT. #
1	REFRIGERATOR	#12	-	20A	1	0	A	0	1	20A	-	#12	GARBAGE DISPOSAL	2
3	SMALL APPLIANCE	#12	-	20A	1	1740	B	0	1	15A	-	-	PROVISION	4
5	SMALL APPLIANCE	#12	-	20A	1	0	C	1200	1	20A	-	#12	DISHWASHER	6
7	PROVISION	-	-	15A	1	0	A	0	1	20A	-	312	MICROWAVE	8
9	PROVISION	-	-	15A	1	0	B	0	1	20A	-	#12	WASHER	10
11	PROVISION	-	-	15A	1	0	C	2500	2	30A	-	#10	DRYER	12
13	PROVISION	-	-	15A	1	0	A	2500						14
15	LIGHTS & RECEPT.	#12	-	20A	1	0	B	0	1	15A	-	-	PROVISION	16
17	LIGHTS & RECEPT.	#12	-	20A	1	0	C	1250	2	20A	-	#12	WATER HEATER	18
19	LIGHTS & RECEPT.	#12	-	20A	1	0	A	1250						20
21	GENERAL LIGHTING	#12	-	20A	1	1890	B	100	2	15A	-	#12	IU	22
23	SPACE	-	-	-	-	0	C	100						24
25	BATHROOM GFI	#12	-	20A	1	0	A	0	1	15A	-	#12	SMOKE DETECTORS	26
27	PROVISION	-	-	15A	1	0	B	4000	2	50A	-	#8	RANGE	28
29	AC COND. UNIT	#10	-	25A	2	1932	C	4000						30
31						1932	A	0	-	-	-	-	SPACE	32
33	SPACE	-	-	-	-	0	B	0	-	-	-	-	SPACE	34
35	SPACE	-	-	-	-	0	C	0	-	-	-	-	SPACE	36

RESIDENTIAL LOAD CENTER CALCULATION (NEC 220.20)

GENERAL LIGHTING LOAD (AREA X 3 WATTS/SF)	=	1,650 VA	1ST 10 KVA @ 100%	=	10,000 VA
SMALL APPLIANCE LOAD (TWO, 20A CIRCUITS)	=	3,000 VA	REMAINDER OF LOAD @ 40%	=	3,816 VA
RANGE	=	9,600 VA	HEAT PUMP	=	5000 VA
WATER HEATER	=	2,500 VA	TOTAL LOAD	=	**18,816** VA
DISHWASHER	=	1,200 VA			**90 AMPS**
DISPOSAL (3/4HP)	=	1,590 VA			
CLOTHES DRYER	=	0 VA			
CLOTHES WASHER	=	0 VA			
TOTAL	=	19,540 VA			

RESIDENTIAL LOAD CENTER — APT 3B

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	100A	-	10K	RECESSED	CH BR	-	-

TYPE LEGEND			REMARKS
L	LIGHTING	KITCHEN EQ	
R	RECEPTACLES	EXISTING	
M	MECH EQUIP	OTHER	

CKT. #	ITEM SERVED	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	ITEM SERVED	CKT. #
1	REFRIGERATOR	#12	-	20A	1	0	A	0	1	20A	-	#12	GARBAGE DISPOSAL	2
3	SMALL APPLIANCE	#12	-	20A	1	1740	B	0	1	15A	-	-	PROVISION	4
5	SMALL APPLIANCE	#12	-	20A	1	0	C	1200	1	20A	-	#12	DISHWASHER	6
7	PROVISION	-	-	15A	1	0	A	0	1	20A	-	312	MICROWAVE	8
9	PROVISION	-	-	15A	1	0	B	0	1	20A	-	#12	WASHER	10
11	PROVISION	-	-	15A	1	0	C	2500	2	30A	-	#10	DRYER	12
13	PROVISION	-	-	15A	1	0	A	2500						14
15	LIGHTS & RECEPT.	#12	-	20A	1	0	B	0	1	15A	-	-	PROVISION	16
17	LIGHTS & RECEPT.	#12	-	20A	1	0	C	1250	2	20A	-	#12	WATER HEATER	18
19	LIGHTS & RECEPT.	#12	-	20A	1	0	A	1250						20
21	GENERAL LIGHTING	#12	-	20A	1	1890	B	100	2	15A	-	#12	IU	22
23	SPACE	-	-	-	-	0	C	100						24
25	BATHROOM GFI	#12	-	20A	1	0	A	0	1	15A	-	#12	SMOKE DETECTORS	26
27	PROVISION	-	-	15A	1	0	B	4000	2	50A	-	#8	RANGE	28
29	AC COND. UNIT	#10	-	25A	2	1932	C	4000						30
31						1932	A	0	-	-	-	-	SPACE	32
33	SPACE	-	-	-	-	0	B	0	-	-	-	-	SPACE	34
35	SPACE	-	-	-	-	0	C	0	-	-	-	-	SPACE	36

RESIDENTIAL LOAD CENTER CALCULATION (NEC 220.20)

GENERAL LIGHTING LOAD (AREA X 3 WATTS/SF)	=	1,890 VA	1ST 10 KVA @ 100%	=	10,000 VA
SMALL APPLIANCE LOAD (TWO, 20A CIRCUITS)	=	3,000 VA	REMAINDER OF LOAD @ 40%	=	3,912 VA
RANGE	=	9,600 VA	HEAT PUMP	=	5000 VA
WATER HEATER	=	2,500 VA	TOTAL LOAD	=	**18,912** VA
DISHWASHER	=	1,200 VA			**91 AMPS**
DISPOSAL (3/4HP)	=	1,590 VA			
CLOTHES DRYER	=	0 VA			
CLOTHES WASHER	=	0 VA			
TOTAL	=	19,780 VA			

RESIDENTIAL LOAD CENTER — APT. 3A

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	100A	-	10K	RECESSED	CH BR	-	-

TYPE LEGEND			REMARKS
L	LIGHTING	KITCHEN EQ	
R	RECEPTACLES	EXISTING	
M	MECH EQUIP	OTHER	

CKT. #	ITEM SERVED	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	ITEM SERVED	CKT. #
1	REFRIGERATOR	#12	-	20A	1	0	A	0	1	20A	-	#12	GARBAGE DISPOSAL	2
3	SMALL APPLIANCE	#12	-	20A	1	1740	B	0	1	15A	-	-	PROVISION	4
5	SMALL APPLIANCE	#12	-	20A	1	0	C	1200	1	20A	-	#12	DISHWASHER	6
7	PROVISION	-	-	15A	1	0	A	0	1	20A	-	312	MICROWAVE	8
9	PROVISION	-	-	15A	1	0	B	0	1	20A	-	#12	WASHER	10
11	PROVISION	-	-	15A	1	0	C	2500	2	30A	-	#10	DRYER	12
13	PROVISION	-	-	15A	1	0	A	2500						14
15	LIGHTS & RECEPT.	#12	-	20A	1	0	B	0	1	15A	-	-	PROVISION	16
17	LIGHTS & RECEPT.	#12	-	20A	1	0	C	1250	2	20A	-	#12	WATER HEATER	18
19	LIGHTS & RECEPT.	#12	-	20A	1	0	A	1250						20
21	GENERAL LIGHTING	#12	-	20A	1	1740	B	100	2	15A	-	#12	IU	22
23	SPACE	-	-	-	-	0	C	100						24
25	BATHROOM GFI	#12	-	20A	1	0	A	0	1	15A	-	#12	SMOKE DETECTORS	26
27	PROVISION	-	-	15A	1	0	B	4000	2	50A	-	#8	RANGE	28
29	AC COND. UNIT	#10	-	25A	2	1932	C	4000						30
31						1932	A	0	-	-	-	-	SPACE	32
33	SPACE	-	-	-	-	0	B	0	-	-	-	-	SPACE	34
35	SPACE	-	-	-	-	0	C	0	-	-	-	-	SPACE	36

RESIDENTIAL LOAD CENTER CALCULATION (NEC 220.20)

GENERAL LIGHTING LOAD (AREA X 3 WATTS/SF)	=	1,740 VA	1ST 10 KVA @ 100%	=	10,000 VA
SMALL APPLIANCE LOAD (TWO, 20A CIRCUITS)	=	3,000 VA	REMAINDER OF LOAD @ 40%	=	3,852 VA
RANGE	=	9,600 VA	HEAT PUMP	=	5000 VA
WATER HEATER	=	2,500 VA	TOTAL LOAD	=	**18,852** VA
DISHWASHER	=	1,200 VA			**91 AMPS**
DISPOSAL (3/4HP)	=	1,590 VA			
CLOTHES DRYER	=	0 VA			
CLOTHES WASHER	=	0 VA			
TOTAL	=	19,630 VA			

PANELBOARD SCHEDULE — H3

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	-	200A	-	-	-	-	-

TYPE LEGEND				REMARKS
L	LIGHTING	K	KITCHEN EQ	
R	RECEPTACLES	E	EXISTING	
M	MECH EQUIP	O	OTHER	

CKT. #	ITEM SERVED	TYPE	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	TYPE	ITEM SERVED	CKT. #
1	STAIR A & B, HALL 204	O	#12,#12G.	1/2"	20A	1	1035	A	1200	1	20A	1/2"	#12,#12G.	O	3RD FLOOR WASHER	2
3	204A, 206A	O	#12,#12G.	1/2"	20A	1	600	B	3680	2	40A	3/4"	#8,#10G.	O	3RD FLOOR DRYER	4
5	SPACE	-	-	-	-	-	0	C	3680							6
7	SPACE	-	-	-	-	-	0	A	1200	1	20A	1/2"	#12,#12G.	O	2ND FLOOR WASHER	8
9	OU:M1	M	#10,#10G.	1/2"	25A	2	1900	B	3680	2	40A	3/4"	#8,#10G.	O	2ND FLOOR DRYER	10
11							1900	C	3680							12
13	OU:M2	M	#8,#10G.	3/4"	35A	2	1900	A	0	-	-	-	-	-	SPACE	14
15							1900	B	0	-	-	-	-	-	SPACE	16
17	F-2	M	#12,#12G.	1/2"	20A	1	500	C	2250	2	25A	1/2"	#10,#10G.	O	WH-H1	18
19	OU:M3	M	#12,#12G.	1/2"	20A	2	1900	A	2250							20
21							1900	B	2500	2	30A	1/2"	#10,#10G.	M	H-2	22
23	SPACE	-	-	-	-	-	0	C	2500							24

	A	B	C	TOTAL
CONNECTED LOAD (VA)	9485	16160	14510	40155

TYPE	LOAD (VA)	SUBLOADS (VA) PNL	PNL	PNL	CONN LD(VA)	SIZING FACTOR	SIZING LOAD (VA)	
LIGHTING	0	-	-	-	0	125%	0	
RECEPTACLES	0	-	-	-	0	*	0	
MECH EQUIP	16900	-	-	-	16900	100%	16900	
KITCHEN EQ	0	-	-	-	0	100%	0	**
# OF KITCH EQ	0	-	-	-	0			
EXISTING	0	-	-	-	0	125%	0	
OTHER	23255	-	-	-	23255	100%	23255	
				CONNECTED TOTAL (VA)	40155		40155	SIZING TOTAL (VA)
				CONNECTED AMPACITY (A)	167.31		167.31	SIZING AMPACITY (A)
				DEMAND TOTAL (VA)	40155			
				DEMAND AMPACITY (A)	167.31	##		

NOTES
* 1ST 10KVA @ 100%, REMAINING @ 50%
** SIZE. FAC. IN ACCORDANCE TO NEC 220-20
***PROVIDE CIRCUIT BREAKER SHOWN.

PANELBOARD SCHEDULE — H2

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	-	225A	10K	RECESSED	SQ D	-	-

TYPE LEGEND				REMARKS
L	LIGHTING	K	KITCHEN EQ	
R	RECEPTACLES	E	EXISTING	
M	MECH EQUIP	O	OTHER	

CKT. #	ITEM SERVED	TYPE	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	TYPE	ITEM SERVED	CKT. #
1	LIGHTS: MEZZANINE	L	#12,#12G.	1/2"	20A	1	500	A	782	2	20A	3/4"	#8,#10G.	M	IU: M2 & IU: M3	2
3	LIGHTS: LOUNGE, BAR	L	#12,#12G.	1/2"	20A	1	600	B	782							4
5	RECEPT: PROJ. BOOTH, HALL	R	#12,#12G.	1/2"	20A	1	1620	C	2400	2	25A	1/2"	#10,#10G.	O	WH-H3	6
7	RECEPT: LOBBY, TICKETS	R	#12,#12G.	1/2"	20A	1	720	A	2400							8
9	RECEPT: MEZZ. PANTRY	R	#12,#12G.	1/2"	20A	1	540	B	1900	1	20A	1/2"	#12,#12G.	R	POPCORN MACHINE	10
11	RECEPT: SOUND	R	#12,#12G.	1/2"	20A	1	720	C	1900	1	20A	1/2"	#12,#12G.	R	ICE MAKER	12
13	RECEPT: SOUND	R	#12,#12G.	1/2"	20A	1	540	A	1900	1	20A	1/2"	#12,#12G.	R	COOLER	14
15	RECEPT: BAR	R	#12,#12G.	1/2"	20A	1	720	B	1200	1	20A	1/2"	#12,#12G.	O	WALK-IN COOLER EVAP.	16
17	RECEPT: LOBBY, TOILET	R	#12,#12G.	1/2"	20A	1	540	C	2400	2	25A	1/2"	#10,#10G.	O	WH-H4	18
19	LIGHTS: BAR & TICKET	L	#12,#12G.	1/2"	20A	1	500	A	2400							20
21	MEZZ. PANTRY DISPOSAL	R	#12,#12G.	1/2"	20A	1	1127	B	750	2	20A	1/2"	#12,#12G.	M	IU: M1	22
23	MEZZ. PANTRY DISHWSHER	R	#12,#12G.	1/2"	20A	1	1200	C	750							24
25	MEZZ. REFRIGERATOR	R	#12,#12G.	1/2"	20A	1	1200	A	1000	1	20A	1/2"	#12,#12G.	R	RECEPT: MICROWAVE	26
27	SPACE	-	-	-	-	-	0	B	0	-	-	-	-	-	SPACE	28
29	SPACE	-	-	-	-	-	0	C	0	-	-	-	-	-	SPACE	30
31	SPACE	-	-	-	-	-	0	A	0	-	-	-	-	-	SPACE	32
33	SPACE	-	-	-	-	-	0	B	0	-	-	-	-	-	SPACE	34
35	SPACE	-	-	-	-	-	0	C	0	-	-	-	-	-	SPACE	36
37	SPACE	-	-	-	-	-	0	A	0	-	-	-	-	-	SPACE	38
39	SPACE	-	-	-	-	-	0	B	0	-	-	-	-	-	SPACE	40
41	SPACE	-	-	-	-	-	0	C	0	-	-	-	-	-	SPACE	42

	A	B	C	TOTAL
CONNECTED LOAD (VA)	11942	7619	11530	31091

TYPE	LOAD (VA)	SUBLOADS (VA) H2	PNL	PNL	CONN LD(VA)	SIZING FACTOR	SIZING LOAD (VA)	
LIGHTING	1600	3500	-	-	5100	125%	6375	
RECEPTACLES	15627	5580	-	-	21207	*	15604	
MECH EQUIP	3064	7490	-	-	10554	100%	10554	
KITCHEN EQ	0	-	-	-	0	100%	0	**
# OF KITCH EQ	0	-	-	-	0			
EXISTING	0	-	-	-	0	125%	0	
OTHER	10800	8800	-	-	19600	100%	19600	
				CONNECTED TOTAL (VA)	56461		52133	SIZING TOTAL (VA)
				CONNECTED AMPACITY (A)	235.25		217.22	SIZING AMPACITY (A)
				DEMAND TOTAL (VA)	50858			
				DEMAND AMPACITY (A)	211.91	##		

NOTES
* 1ST 10KVA @ 100%, REMAINING @ 50%
** SIZE. FAC. IN ACCORDANCE TO NEC 220-20
***PROVIDE CIRCUIT BREAKER SHOWN.

PANELBOARD SCHEDULE — H1

VOLTAGE	PHASE	WIRE	MCB (A)	MLO (A)	AIC	MOUNTING	MANUFAC.	MDL #	DWG REF
120 / 240	1	3	400A	-	-	-	-	-	-

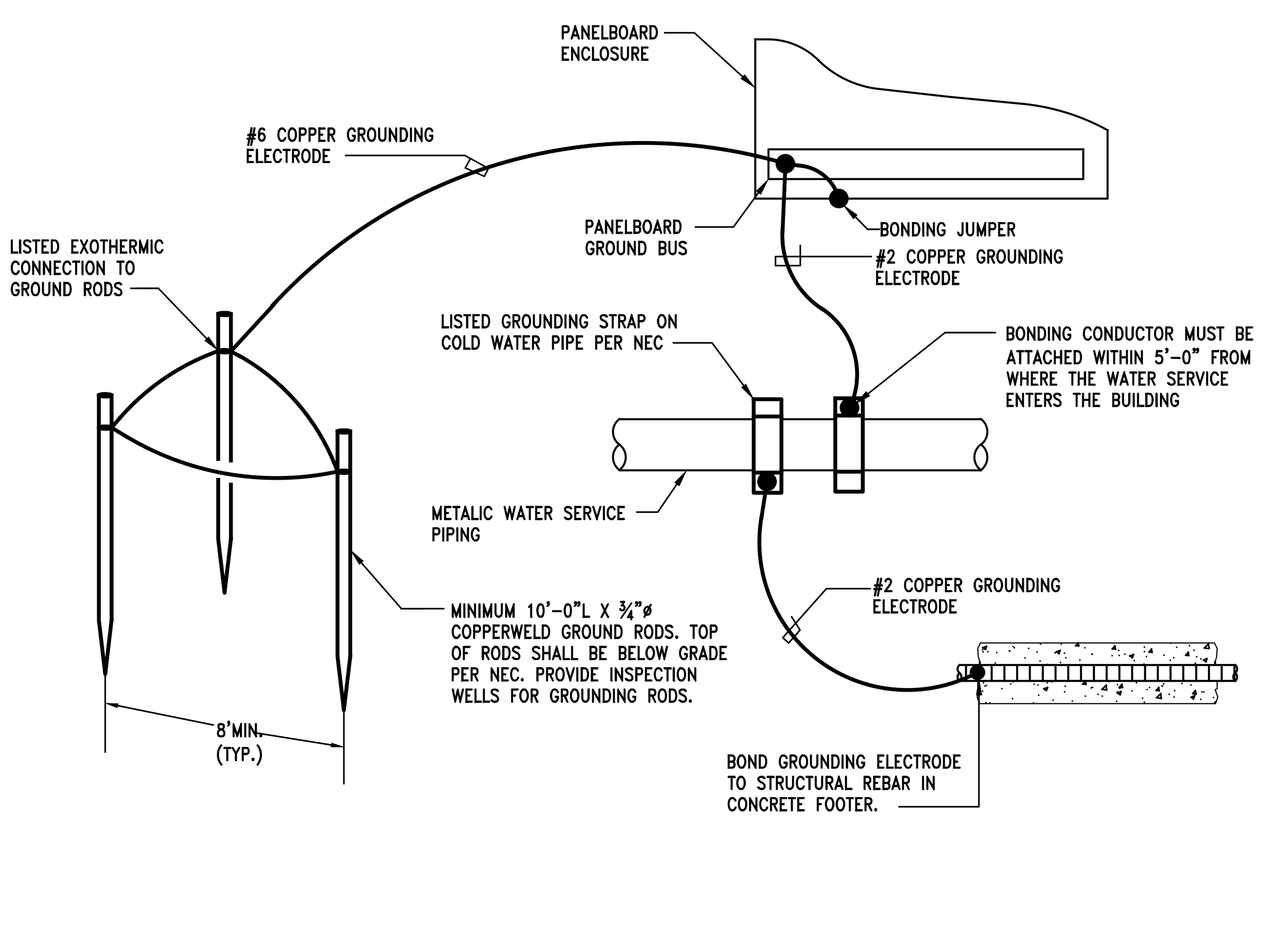
TYPE LEGEND				REMARKS
L	LIGHTING	K	KITCHEN EQ	
R	RECEPTACLES	E	EXISTING	
M	MECH EQUIP	O	OTHER	

CKT. #	ITEM SERVED	TYPE	WIRE	CONDUIT	CKT. BRK TRIP	CKT. BRK P	LOAD (VA)	PHASE	LOAD (VA)	CKT. BRK P	CKT. BRK TRIP	CONDUIT	WIRE	TYPE	ITEM SERVED	CKT. #
1	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	A	3350	2	35A	3/4"	#8,#10G.	M	OU:H1	2
3	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	B	3350							4
5	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	C	3350	2	35A	3/4"	#8,#10G.	M	OU:H2	6
7	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	A	3350							8
9	LIGHTS: AUDITORIUM	L	#12,#12G.	1/2"	20A	1	350	B	1900	2	25A	1/2"	#10,#10G.	M	OU:H3	10
11	LIGHTS: AUDITORIUM	L	#12,#12G.	1/2"	20A	1	1000	C	1900							12
13	LIGHTS: BACK STAGE	L	#12,#12G.	1/2"	20A	1	600	A	1245	2	20A	1/2"	#12,#12G.	M	IU:H1, H2, H3A, H3B	14
15	LIGHTS: EXTERIOR	L	#12,#12G.	1/2"	20A	1	800	B	1245							16
17	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	C	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (EAST)	18
19	LIGHTS: TRACK	L	#12,#12G.	1/2"	20A	1	1050	A	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (EAST)	20
21	3/4 HP SCEEN MOTOR	O	#12,#12G.	1/2"	20A	1	1587	B	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (EAST)	22
23	SPACE	-	-	-	-	-	0	C	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (WEST)	24
25	SPACE	-	-	-	-	-	0	A	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (WEST)	26
27	SPACE	-	-	-	-	-	0	B	360	1	20A	1/2"	#12,#12G.	R	RECEPT: STAGE (WEST)	28
29	SPACE	-	-	-	-	-	0	C	540	1	20A	1/2"	#12,#12G.	R	RECEPT: BACK STAGE	30
31	SPACE	-	-	-	-	-	0	A	540	1	20A	1/2"	#12,#12G.	R	RECEPT: AUDITORIUM	32
33	SPACE	-	-	-	-	-	0	B	540	1	20A	1/2"	#12,#12G.	R	RECEPT: AUDITORIUM	34
35	SPACE	-	-	-	-	-	0	C	1587	1	20A	1/2"	#12,#12G.	M	3/4 HP SCREEN MOTOR	36
37	SPACE	-	-	-	-	-	0	A	900	1	20A	1/2"	#12,#12G.	R	RECEPT: AUDITORIUM	38
39	SPACE	-	-	-	-	-	0	B	0	-	-	-	-	-	SPARE	40
41	SPACE	-	-	-	-	-	0	C	0	-	-	-	-	-	SPARE	42

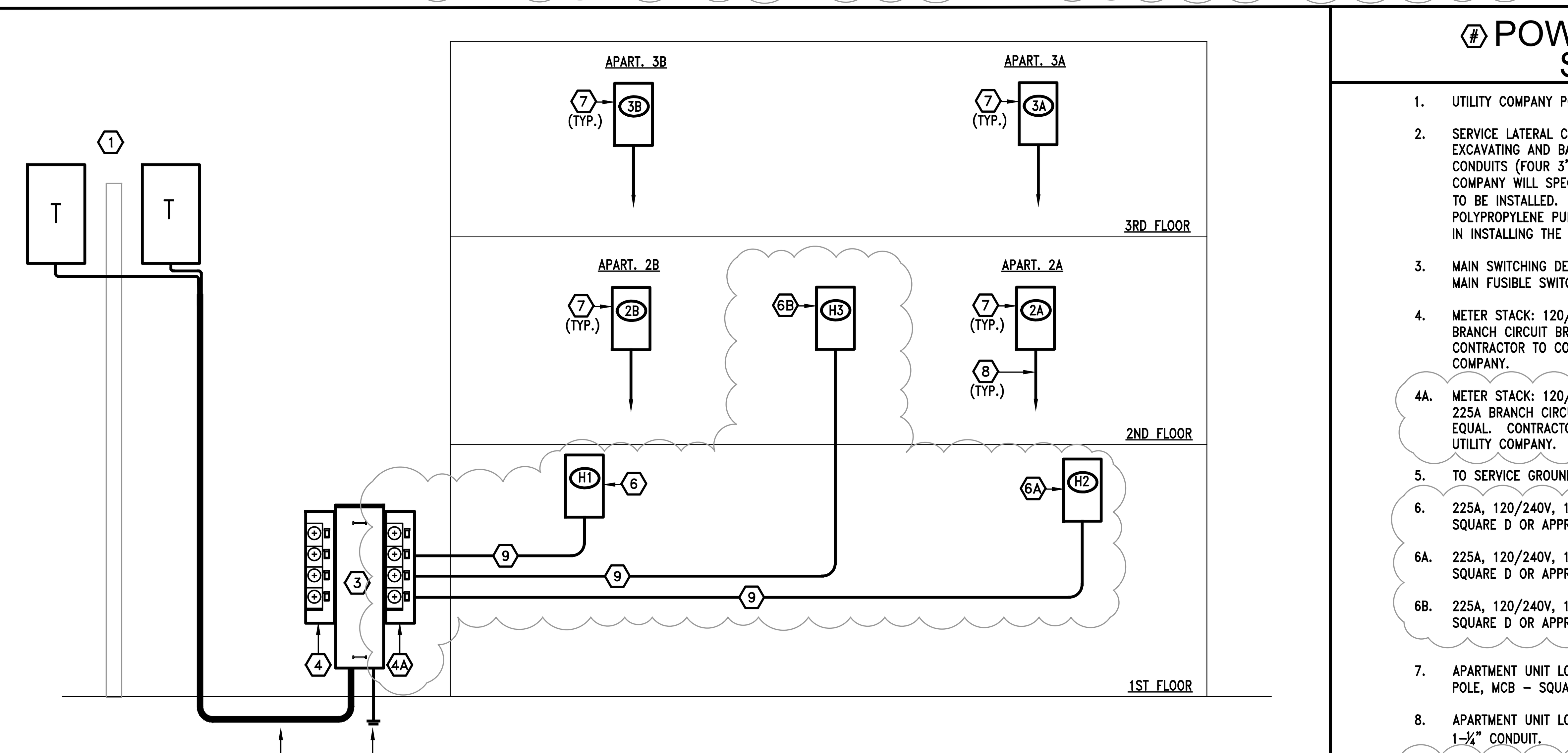
	A	B	C	TOTAL
CONNECTED LOAD (VA)	13855	11542	11197	36594

TYPE	LOAD (VA)	SUBLOADS (VA) PNL	PNL	PNL	CONN LD(VA)	SIZING FACTOR	SIZING LOAD (VA)	
LIGHTING	9050	-	-	-	9050	125%	11313	
RECEPTACLES	4680	-	-	-	4680	*	4680	
MECH EQUIP	21277	-	-	-	21277	100%	21277	
KITCHEN EQ	0	-	-	-	0	100%	0	**
# OF KITCH EQ	0	-	-	-	0			
EXISTING	0	-	-	-	0	125%	0	
OTHER	1587	-	-	-	1587	100%	1587	
				CONNECTED TOTAL (VA)	36594		38857	SIZING TOTAL (VA)
				CONNECTED AMPACITY (A)	152.48		161.90	SIZING AMPACITY (A)
				DEMAND TOTAL (VA)	36594			
				DEMAND AMPACITY (A)	152.48	##		

NOTES
* 1ST 10KVA @ 100%, REMAINING @ 50%
** SIZE. FAC. IN ACCORDANCE TO NEC 220-20
***PROVIDE CIRCUIT BREAKER SHOWN.



GROUNDING DETAIL
SCALE: NONE



POWER RISER DIAGRAM
SCALE : NONE

POWER RISER KEYED SHEET NOTES

1. UTILITY COMPANY POLE MOUNTED TRANSFORMER(S).
2. SERVICE LATERAL CONDUITS – CONTRACTOR SHALL PROVIDE ALL NECESSARY EXCAVATING AND BACKFILL AND SHALL FURNISH AND INSTALL SERVICE LATERAL CONDUITS (FOUR 3" SCHEDULE 40 PVC FOR PRICING PURPOSES ONLY), THE UTILITY COMPANY WILL SPECIFY THE ACTUAL TYPE, QUANTITY AND SIZE OF THE CONDUITS TO BE INSTALLED. THE CONTRACTOR SHALL INSTALL A ¼" DIAMETER, NYLON OR POLYPROPYLENE PULLING ROPE IN EACH CONDUIT FOR THE UTILITY COMPANY'S USE IN INSTALLING THE CONDUCTORS.
3. MAIN SWITCHING DEVICE: 240Y/120Vac, 800A, 1ø INCOMING AND 1ø OUTGOING W/ MAIN FUSIBLE SWITCHES – SQUARE D MODEL EZM1800FSU OR APPROVED EQUAL.
4. METER STACK: 120/240V, 125A, 4 HOLE, 1ø INCOMING AND 1ø OUTGOING, 2-POLE BRANCH CIRCUIT BREAKERS – SQUARE D MODEL EZM114125 OR APPROVED EQUAL. CONTRACTOR TO COORDINATE METER SOCKET CHARACTERISTICS WITH LOCAL UTILITY COMPANY.

4A. METER STACK: 120/240V, 225A, 3 HOLE, 1ø INCOMING AND 1ø OUTGOING, 2-POLE 225A BRANCH CIRCUIT BREAKERS – SQUARE D MODEL EZM113225 OR APPROVED EQUAL. CONTRACTOR TO COORDINATE METER SOCKET CHARACTERISTICS WITH LOCAL UTILITY COMPANY.

5. TO SERVICE GROUND – SEE DETAIL THIS SHEET.
6. 225A, 120/240V, 1ø, 3W, 10K AIC RATING, 42 POLE, MLO, HOUSE PANEL "H1" – SQUARE D OR APPROVED EQUIAL.

6A. 225A, 120/240V, 1ø, 3W, 10K AIC RATING, 42 POLE, MLO, HOUSE PANEL "H2" – SQUARE D OR APPROVED EQUAL.

6B. 225A, 120/240V, 1ø 3W, 10K AIC RATING, 24 POLE, MLO, HOUSE PANEL "H3" – SQUARE D OR APPROVED EQUAL.

7. APARTMENT UNIT LOAD CENTER – 100A, 120/240V, 1ø, 3W, 10K AIC RATING, 36 POLE, MCB – SQUARE D OR APPROVED EQUAL.
8. APARTMENT UNIT LOAD CENTER FEEDER – ONE SET OF (3) #2 + (1) #8 GND. IN 1-¼" CONDUIT.
9. HOUSE PANEL FEEDER – ONE SET OF (3) #4/0 + (1) #2 GND. IN 2-½" CONDUIT.
10. NOT USED

NORTH (building)

Shepherdstown Opera House
RENOVATIONS

131 W. German St.
Shepherdstown
West Virginia

Owner

131 West German Street, LLC

Mech/Elect Engineer
FHC Engineering, PC
4 Weems Lane #277
Winchester, VA 22601
540 247–2939

Structural Engineer
Ruckman Engineering, PLC
22–B Ricketts Drive
Winchester, VA 22601

GDA Architecture Planning Interiors Landscape
Grove & Dall'Olio Architects pllc AIA, LEED AP
Matthew W. Grove matthew@GDAaia.com • GDAaia.com
325 Migration Lane Gerrardstown, WV 25420 304-267-2120
18 West Boscawen Street Winchester, VA 22601 540-773-2328

Issue/Revision		Seal
REVISION #1	10.23.20	ALAN W. JOHNSTON REGISTERED 11939 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
FOR CONSTRUCTION	10.23.20	
REDESIGN REVISIONS	02.23.21	
FOR CONSTRUCTION	10.23.20	06/04/2020.

Drawing Title

PANEL SCHEDULES

Date OCTOBER 23, 2020
Scale As Noted   Project Number 19820
Drawing Number

E2.1