

# DM12 JONES PSC PIPE CHASE ASBESTOS ABATEMENT

State Project #H27-6100 GMK Project #14001.01 MARCH 7, 2014 ISSUED FOR CONSTRUCTION

Prepared by:



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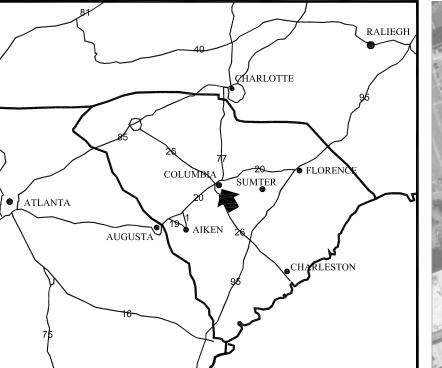
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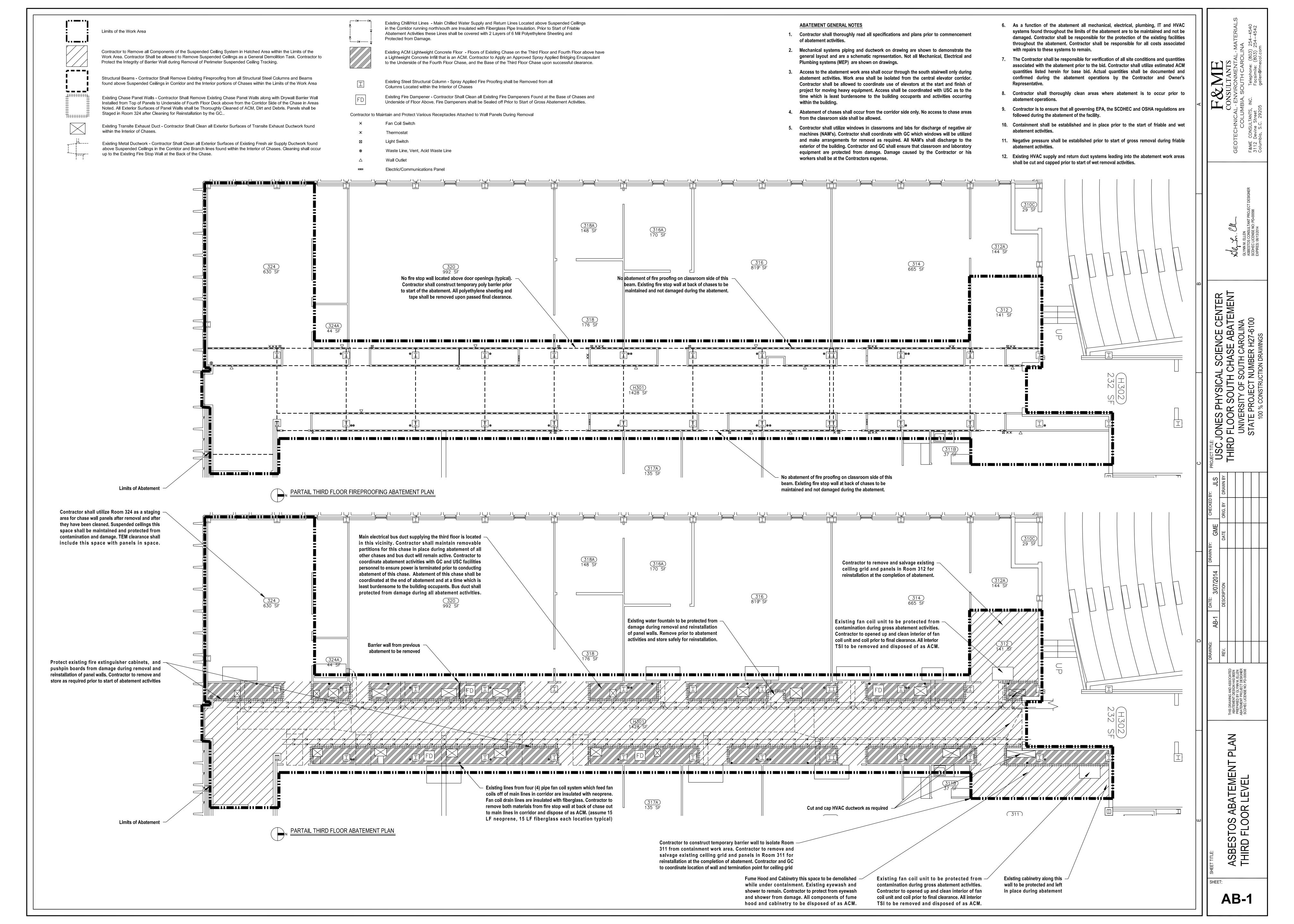
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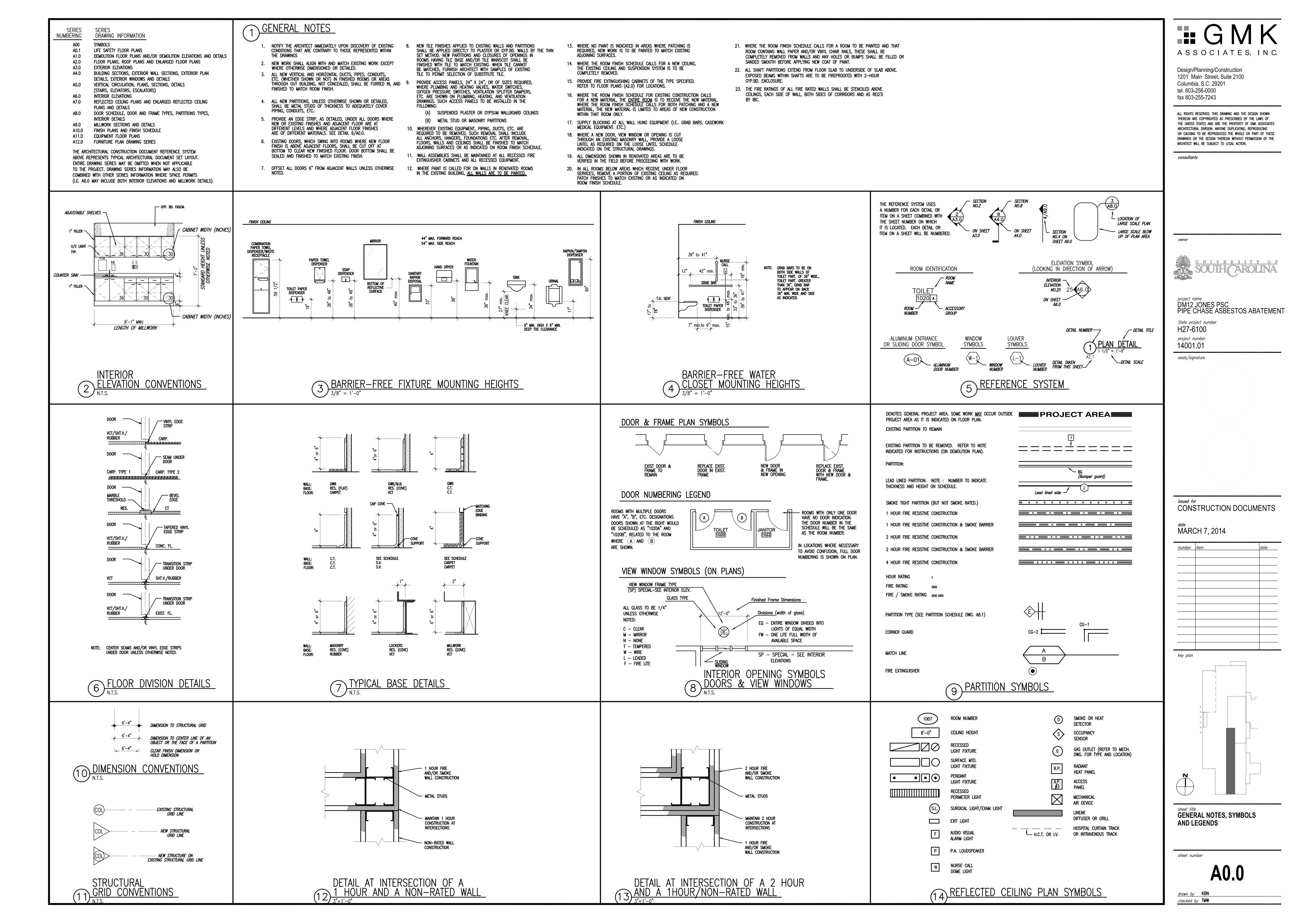
  1. THESE ARE ORIGINAL STRUCTURAL DRAWINGS FOR THE BUILDING.
- THESE ARE ORIGINAL STRUCTURAL DRAWINGS FOR THE BUILDING.
   FLOOR NUMBERING SYSTEM WAS REVISED AFTER ORIGINAL CONSTRUCTION. (CURRENT FLOOR NUMBER IS SHOWN IN PARENTHESES)

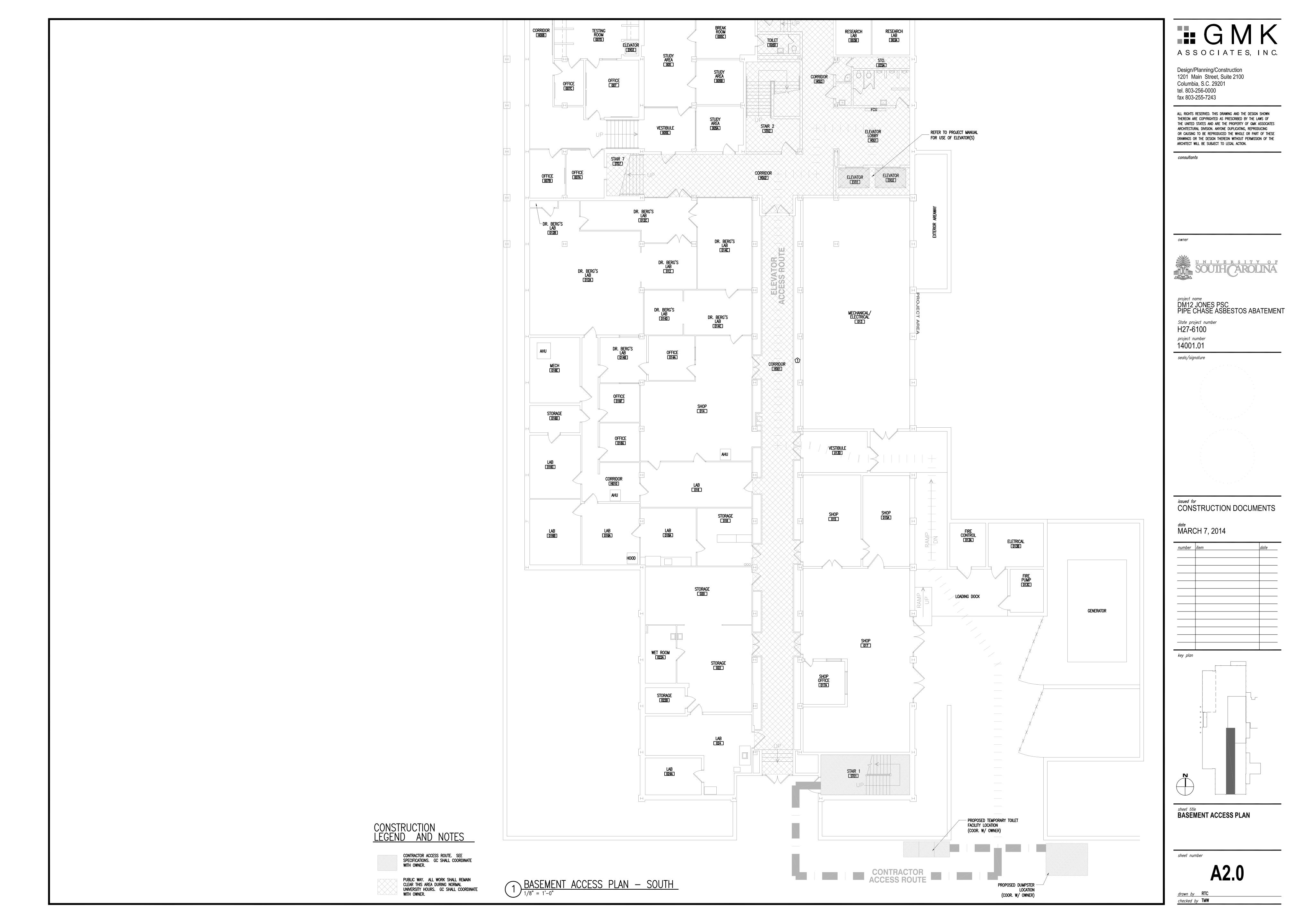
## KEY PLAN

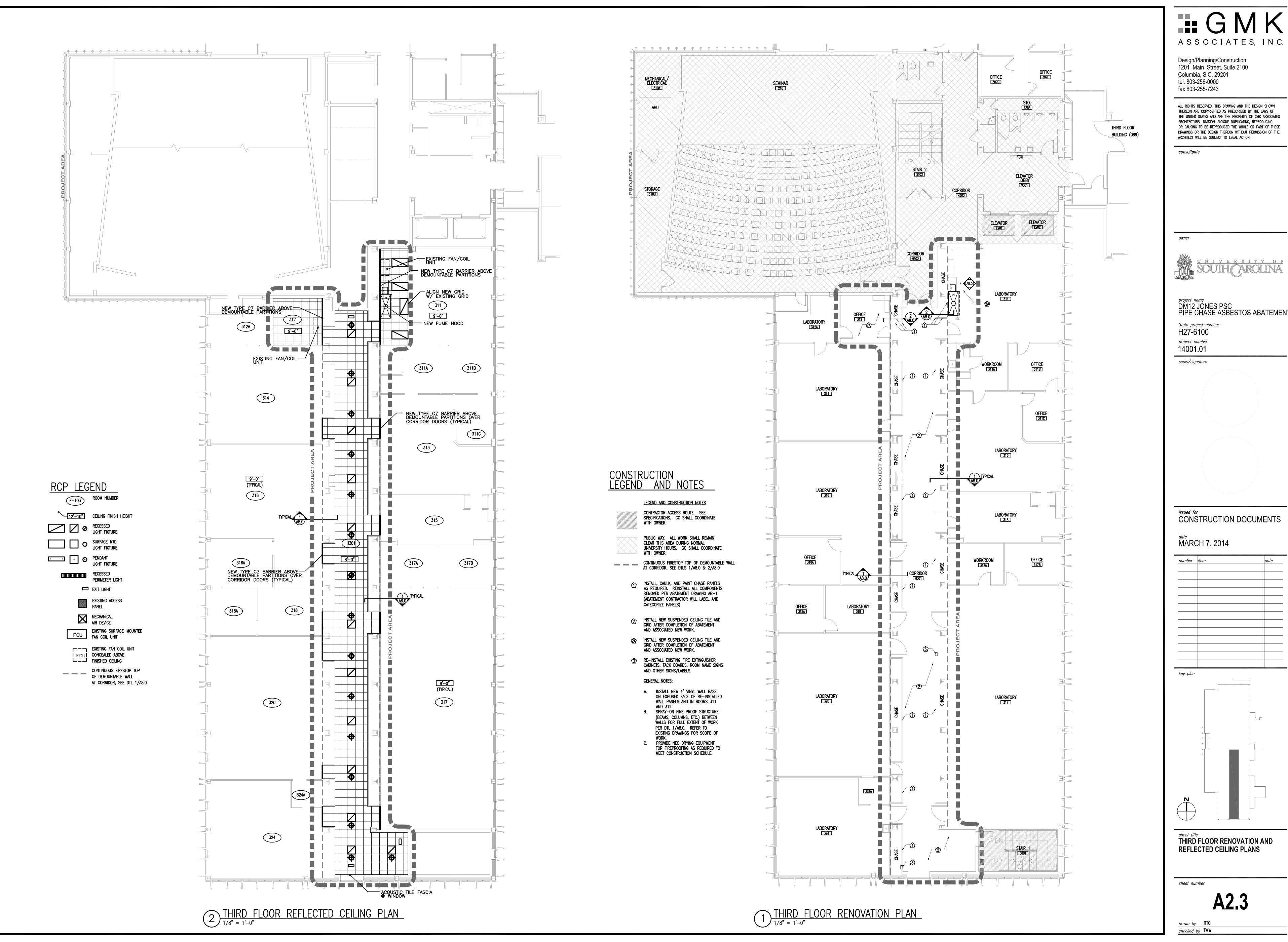








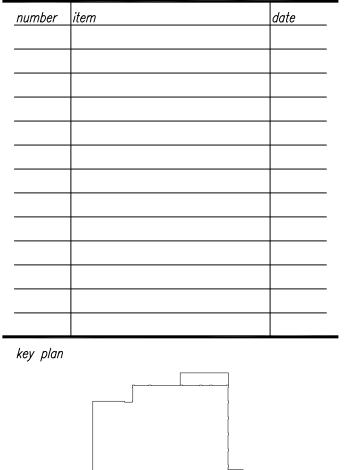


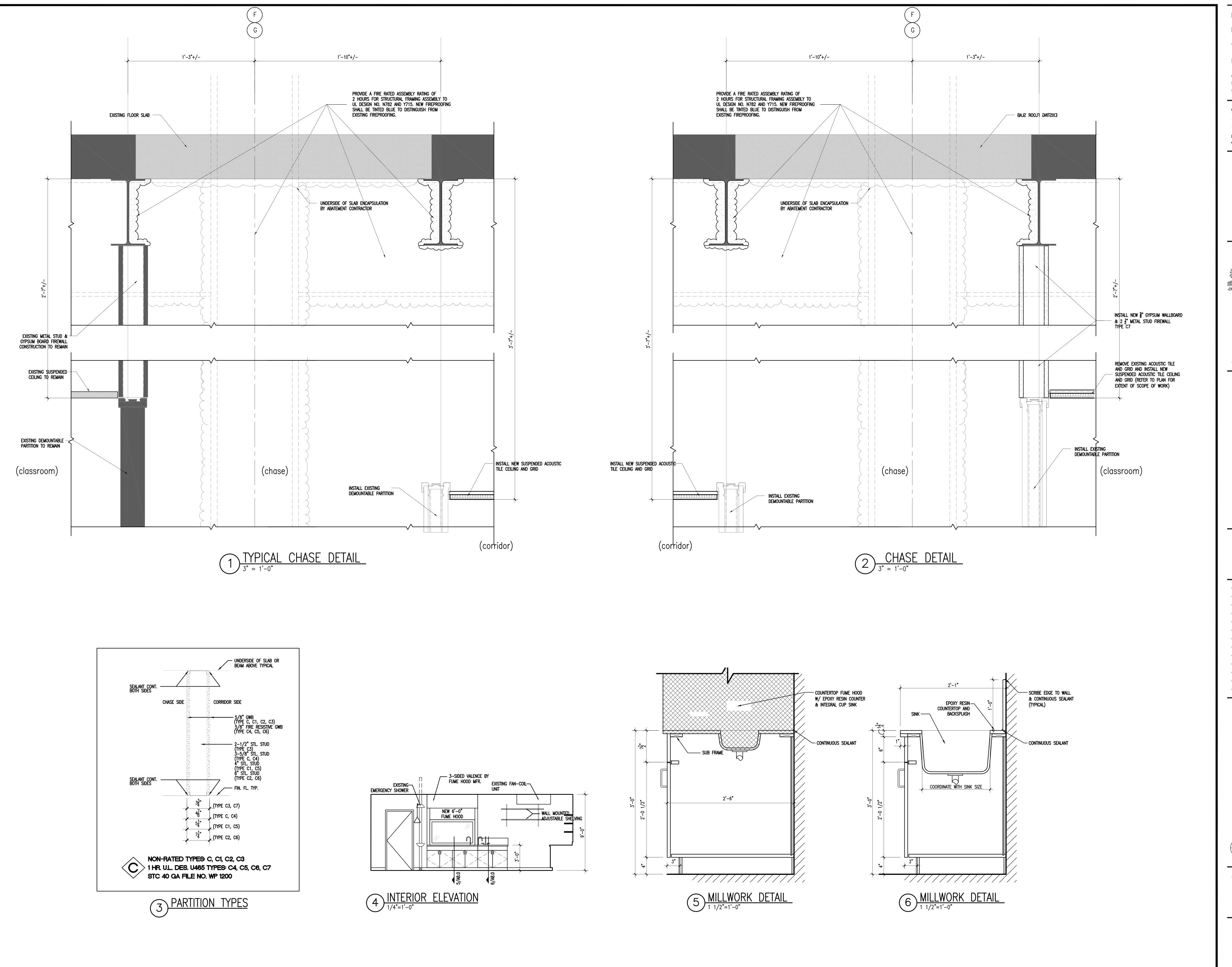


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project name
DM12 JONES PSC
PIPE CHASE ASBESTOS ABATEMENT





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consultants

owner



DM12 JONES PSC PIPE CHASE ASBESTOS ABATEMENT

State project number

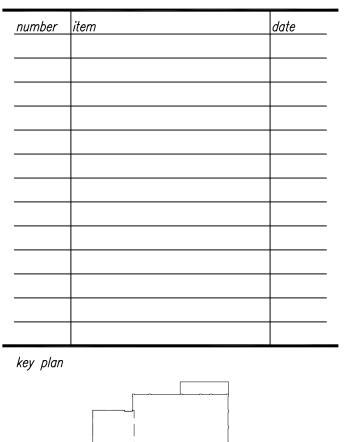
H27-6100 project number

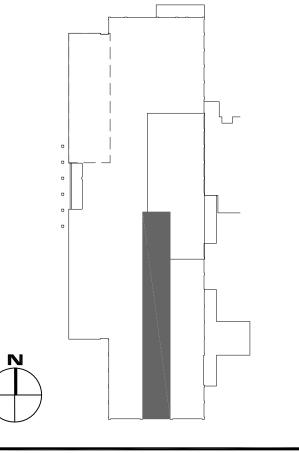
14001.01

seals/signature

CONSTRUCTION DOCUMENTS

<sup>date</sup> MARCH 7, 2014





sheet title
TYPICAL CHASE DETAILS
PARTITION TYPES, INTERIOR
ELEVATION, MILLWORK DETAILS

sheet number

**A8.0** 

drawn by RTC checked by TMW



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#### Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation
- and use of UL Certified products, equipment, system, devices, and materials. Authorities Having Jurisdiction should be consulted before construction.
- · Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance
- · When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning
- alternate materials and alternate methods of construction Only products which bear UL's Mark are considered Certified.

#### Fire-resistance Ratings - ANSI/UL 263

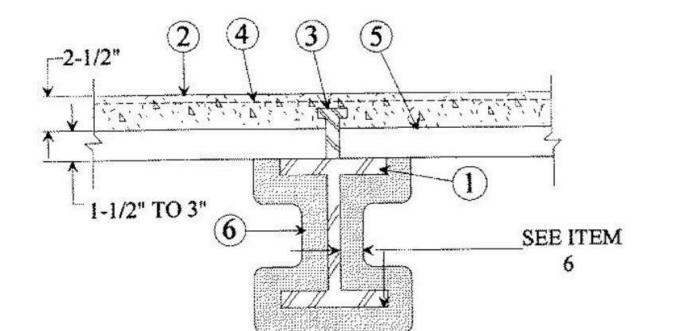
See General Information for Fire-resistance Ratings - ANSI/UL 263

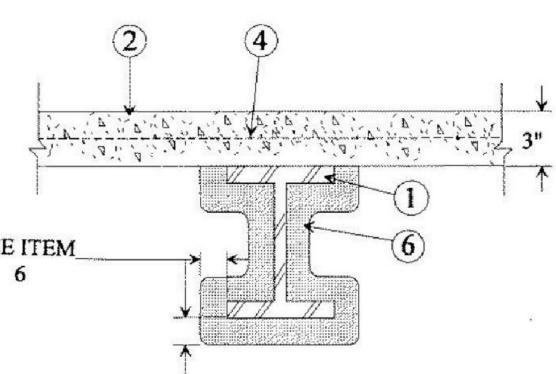
## Design No. N782

February 05, 2014

Restrained Beam Ratings - 1, 1-1/2, 2, 3 and 4 Hr Unrestrained Beam Ratings -1, 1-1/2, 2, 3 and 4 Hr

Load Restricted for Canadian Applications — See Guide BXUV7





## Steel Beam — W8x28 min size.

Welded Wire Fabric — (Optional) — 6x6-10/10 SWG.

form units, topped with normal weight concrete.

- 2. Normal Weight or Lightweight Concrete Compressive strength, 3000 psi. For normal weight concrete either carbonate or siliceous aggregate may be used. Unit weight, 148 pcf. For lightweight concrete unit
- 3. Shear Connector (Optional) Studs, 3/4 in. diam headed type or equivalent per AISC specifications. Welded to the top flange of beam through the steel floor units.
- 5. Steel Floor and Form Units\* 1-5/16 in. deep corrugated units; or 1-1/2 to 3 in. deep fluted units welded

6. Spray-Applied Fire Resistive Materials\* — Applied by mixing with water and spraying in more than one coat to the beam to the final thicknesses shown below. When fluted or corrugated steel floor units are used, crest areas shall be filled with Spray-Applied Fire Resistive Materials above the beam. Beam surfaces must be clean and free of dirt, loose scale and oil. Min average and min ind. density of 15/14 pcf respectively. Min avg and min ind density of 22/19 pcf respectively for Types Z-106, Z-106/HY , Z-106/G. Min avg and min ind density of 40/36 pcf respectively for Types AV650, Z-146, Z-146PC and Z-146T cementitious mixture. Min avg and min ind density of 50/45 pcf respectively for Types AV800, Z-156, Z-156T and Z-156PC. For method of density determination, see Design Information Section.

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with

Rating Hr	Min Thkns In.	
	Restrained Beam	Unrestrained Beam
1	5/16	5/16
1-1/2	7/16	11/16
2	11/16	1
3	1-3/16	1-5/16
or:	1.5/0	1. F/0

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are only applicable when the beams are supporting solid, normal weight, concrete slabs or floor assemblies containing only fluted floor or

	STATE OF THE STATE		
8	Min T	Min Thkns In	

Rating Hr	Restrained Beam	Unrestrained Beam
1	5/16	5/16
1-1/2	3/8	5/8
2	9/16	7/8
3	1	1-5/16
4	1-7/16	1-5/8

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with lightweight concrete.

	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
	7/16+	7/16+
-1/2	7/16+	3/4
2	11/16	1
	1-3/16	1-7/16
ļ.	1-11/16	1-15/16

+ — Thickness applied to beams' lower flange edges shall be a min of 1/4 in.

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with normal weight concrete.

	Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam	
1	3/8	3/8	
1-1/2	3/8	5/8	
2	9/16	7/8	
3	1	1-7/16	
4	1-7/16	1-15/16	

ARABIAN VERMICULITE INDUSTRIES — Types MK-6/HY, MK-6/HY Extended Set, MK-10 HB, MK-10 HB Extended Set, MK-6/HB, MK-6s, MK-6 GF, MK-6 GF Extended Set, MK-1000/HB, MK-1000/HB Extended Set, Z-106, Z-106/G, Z-146 investigated for exterior use. Types AV650 and AV800 investigated for external use.

GRACE KOREA INC - Types MK-6/HY, MK-6/HY Extended Set, MK-10 HB, MK-10 HB Extended Set, MK-6/HB, MK-6s, MK-6 GF, MK-6 GF Extended Set, MK-1000/HB, MK-1000/HB Extended Set, Z-106, Z-106/G, Z-106/HY, Z-146 investigated for exterior use .

W R GRACE & CO - CONN - Types MK-6/HY, MK-6/HY Extended Set, MK-10 HB, MK-10 HB Extended Set, MK-6/HB, MK-6s, MK-6 GF, MK-6 GF Extended Set, MK-1000/HB, MK-1000/HB Extended Set, RG, Z-106, Z-106/G, Z-106/HY, Z-146, Z-146T, Z146PC, Z-156, Z-156T and Z-156PC investigated for exterior use.

6A. Spray-Applied Fire Resistive Materials\* — Applied by mixing with water and spraying in more than one coat to the beam to the final thicknesses shown below. When fluted steel floor units are used, crest areas shall be filled with Spray-Applied Fire Resistive Materials above the beam. Beam surfaces must be clean and free of dirt, loose scale and oil. Min average and min ind. density of 15/14 pcf respectively. For method of density determination, see Design Information Section.

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with

Rating Hr	Restrained Beam	Unrestrained Beam
1	5/16	5/16
1-1/2	7/16	5/8
2	11/16	7/8
3	1-3/16	1-5/16
4	1-5/8	1-5/8

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with

,	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
1	5/16	5/16
1-1/2	3/8	5/8
2	9/16	7/8
3	1	1-5/16
4	1-7/16	1-5/8

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with lightweight or normal weight concrete.

	Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam	
1	7/16+	7/16+	
1-1/2	7/16+	3/4	
2	11/16	1	
3	1-3/16	1-7/16	
4	1-11/16	1-15/16	

+ - Thickness applied to beams' lower flange edges shall be a min of 1/4 in.

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with normal weight concrete.

	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
1	3/8	3/8
1-1/2	3/8	5/8
2	9/16	7/8
3	1	1-7/16
4	1-7/16	1-15/16

ARABIAN VERMICULITE INDUSTRIES - Type MK-6 GF, MK-6 GF Extended Set

GRACE KOREA INC - Type MK-6 GF, MK-6 GF Extended Set

#### W R GRACE & CO - CONN — Type MK-6 GF, MK-6 GF Extended Set

6B. Spray-Applied Fire Resistive Materials\* - Applied by mixing with water and spraying in more than one coat to the beam to the final thicknesses shown below. When fluted steel floor units are used, crest areas shall be filled with Spray-Applied Fire Resistive Materials above the beam. Beam surfaces must be clean and free of dirt, loose scale and oil. Min average and min ind. density of 22/20 pcf respectively. For method of density determination, see Design Information Section.

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with

	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
	5/16	5/16
1/2	7/16	9/16
	5/8	13/16
	1-1/16	1-1/4
	1-5/8	1-5/8

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the

	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
1	5/16	5/16
1-1/2	3/8	9/16
2	9/16	13/16
3	1	1-1/4
4	1-7/16	1-5/8

	Min Thkns In.	
Rating Hr	Restrained Beam	Unrestrained Beam
1	7/16+	7/16+
1-1/2	7/16+	11/16
2	11/16	15/16
3	1-3/16	1-3/8
4	1-11/16	1-15/16

+ — Thickness applied to beams' lower flange edges shall be a min of 1/4 in.

1	3/8	3/8	
1-1/2	3/8	5/8	
2	9/16	7/8	
3	1	1-7/16	
4	1-7/16	1-15/16	

GRACE KOREA INC - Type Z-106/HY

W R GRACE & CO - CONN - Z-106/HY

*Bearing the U	L Classification Mark			
Last Updated on 2014	4-02-05			
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lightweight concrete.

	М	lin Thkns In.
Rating Hr	Restrained Beam	Unrestrained Beam
	5/16	5/16
/2	7/16	9/16
	5/8	13/16
	1-1/16	1-1/4
	1-5/8	1-5/8

beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with normal weight concrete.

	Min Thkns In.					
Rating Hr	Restrained Beam	Unrestrained Beam				
1	5/16	5/16				
1-1/2	3/8	9/16				
2	9/16	13/16				
3	1	1-1/4				
4	1-7/16	1-5/8				

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with lightweight or normal weight concrete.

	Min Inkns In.						
Rating Hr	Restrained Beam	Unrestrained Beam					
1	7/16+	7/16+					
1-1/2	7/16+	11/16					
2	11/16	15/16					
3	1-3/16	1-3/8					
4	1-11/16	1-15/16					

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with normal weight concrete.

	3/8	3/8	
1/2	3/8	5/8	
	9/16	7/8	
	1	1-7/16	
	1-7/16	1-15/16	

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consultants

State project number H27-6100

project number

14001.01

seals/signature

sheet title
SPRAY-ON FIREPROOFING **UL ASSEMBLY** 

sheet number

drawn by RTC checked by TMW

N782



#### Design No. Y715 **BXUV.Y715** Fire-resistance Ratings - ANSI/UL 263

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## Design/System/Construction/Assembly Usage Disclaimer

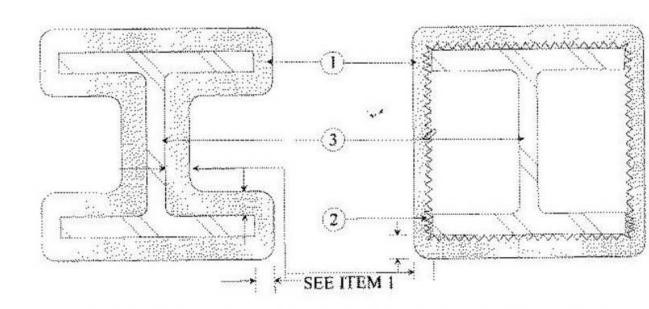
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   Authorities Having Jurisdiction should be consulted before construction.
   Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance appropriate of the field. encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
  Only products which bear UL's Mark are considered Certified.

#### Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire-resistance Ratings - ANSI/UL 263

Design No. Y715 February 05, 2014

Ratings - 1, 1-1/2, 2, 3 and 4 h



Spray-Applied Fire Resistive Materials\* — Applied by mixing with water and spraying in more than one
coat to the thicknesses shown below, to steel surfaces which are clean and free of dirt, loose scale, and oil.
Min avg and min ind density of 15/14 pcf respectively. For method of density determination, see Design
Information Section, Sprayed Material.

The thickness of Spray-Applied Fire Resistive Materials to be applied to all surfaces of the column (Item 1) required for rating periods of  $1 \, h$ ,  $1-1/2 \, h$ ,  $2 \, h$ ,  $3 \, h$ ,  $4 \, h$  may be determined by the equation:

1.05 (W/D) + 0.61

- h = Spray-Applied Fire Resistive Materials thickness in the range 0.25-3.875 in.
- R = Fire resistance rating in hours (1 4 h)
- D = Heated perimeter of steel column in inches W = Weight of steel column in pounds per foot
- W/D = 0.33 to 6.62
- As an alternate to the equation, the min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings of contour sprayed or boxed columns may be determined from the table

		Min Thk In.						
Min Col Size	W/D	1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr		
W 6X9	0.33	1-1/8	1-1/2	2	2-1/2	3-1/8		
W 6X16	0.57	13/16	1-1/4	1-11/16	2-1/2	3-5/16		
W 8X28	0.67	3/4	1-3/16	1-3/8	2	2-11/16		
W 10X49	0.83	11/16	7/8	1-1/8	1-11/16	2-1/2		
W 14X228	2.49	5/16	1/2	9/16	7/8	1-1/4		
W14X730	6.62	5/16	5/16	5/16	3/8	9/16		

The thicknesses contained in the table below are applicable when the Spray-Applied Fire Resistive Materials applied to columns' flange tips are reduced to one-half that shown in the table below:

Member		Half Flange Tip Thickness						
Min. Column Size	W/D	1 hr	1.5 hr	2 hr	3 hr	4 hr		
W 6×9	0.340	1-1/8	1-5/8	2	2-15/16	3-15/16		
W 10×12	0.347	1-1/8	1-5/8	2	2-15/16	3-7/8		
W 12×14	0.363	1-1/16	1-5/8	1-15/16	2-7/8	3-13/16		
W 12×16	0.410	1-1/16	1-9/16	1-7/8	2-13/16	3-11/16		
W 8x13	0.421	1-1/16	1-9/16	1-7/8	2-3/4	3-11/16		
W 10×15	0.429	1-1/16	1-9/16	1-7/8	2-3/4	3-5/8		
W 6×15	0.431	1	1-9/16	1-7/8	2-3/4	3-5/8		
W 6x12	0.448	1	1-1/2	1-13/16	2-11/16	3-9/16		
W 14×22	0.476	1	1-1/2	1-13/16	2-11/16	3-1/2		
W8×15	0.481	1	1-1/2	1-13/16	2-5/8	3-1/2		
W 10×17	0.482	1	1-1/2	1-13/16	2-5/8	3-1/2		
W 12×19	0.485	1	1-1/2	1-13/16	2-5/8	3-1/2		
W8x18	0.499	1	1-7/16	1-3/4	2-5/8	3-7/16		
W 16×26	0.499	1	1-7/16	1-3/4	2-5/8	3-7/16		
W 10×22	0.523	15/16	1-7/16	1-3/4	2-9/16	3-7/16		
W 12x26	0.531	15/16	1-7/16	1-3/4	2-9/16	3-7/16		
W 10×19	0.538	15/16	1-7/16	1-11/16	2-9/16	3-7/16		
W 5×16	0.550	15/16	1-7/16	1-11/16	2-1/2	3-7/16		
W4x13	0.556	15/16	1-7/16	1-11/16	2-1/2	3-7/16		
W 14×26	0.559	15/16	1-7/16	1-11/16	2-1/2	3-7/16		
W 12×22	0.560	15/16	1-7/16	1-11/16	2-1/2	3-7/16		
W 14×30	0.562	15/16	1-7/16	1-11/16	2-1/2	3-7/16		
W 6×20	0.563	15/16	1-7/16	1-11/16	2-1/2	3-7/16		

W8x21	0.577	7/8	1-3/8	1-11/16	2-1/2	3-3/8
W6x16	0.584	7/8	1-1/4	1-11/16	2-7/16	3-3/8
W8x24	0.591	7/8	1-1/4	1-5/8	2-7/16	3-1/4
W16x31	0.592	7/8	1-1/4	1-5/8	2-7/16	3-1/4
W18x35	0.602	7/8	1-1/4	1-5/8	2-7/16	3-3/16
W12x30	0.607	7/8	1-1/4	1-5/8	2-7/16	3-3/16
W10x26	0.612	7/8	1-1/4	1-5/8	2-7/16	3-3/16
W16x36	0.617	7/8	1-1/4	1-5/8	2-3/8	3-3/16
W14x34	0.633	13/16	1-1/4	1-5/8	2-3/8	3-1/8
W5x19	0.644	13/16	1-3/16	1-5/8	2-3/8	3-1/8
W10x33	0.661	13/16	1-3/16	1-9/16	2-15/16	3-1/16
W8x31	0.665	13/16	1-3/16	1-9/16	2-15/16	3-1/16
W21x44	0.672	13/16	1-3/16	1-9/16	2-15/16	3-1/16
W16x40	0.686	13/16	1-3/16	1-9/16	2-15/16	3-1/16
W8x28	0.688	3/4	1-3/16	1-9/16	2-15/16	3-1/16
W18x40	0.688	3/4	1-3/16	1-9/16	2-15/16	3-1/16
W6x25	0.696	3/4	1-3/16	1-9/16	2-15/16	3
W10x30	0.699	3/4	1-3/16	1-9/16	2-1/4	3
W12x35	0.703	3/4	1-3/16	1-9/16	2-1/4	3
W14x38	0.706	3/4	1-3/16	1-9/16	2-1/4	3
W12x40	0.734	3/4	1-1/8	1-1/2	2-1/4	2-15/16
W8x35	0.749	3/4	1-1/8	1-1/2	2-3/16	2-15/16
W24x55	0.749	3/4	1-1/8	1-1/2	2-3/16	2-15/16
W14x43	0.752	3/4	1-1/8	1-1/2	2-3/16	2-15/16
W21x50	0.754	3/4	1-1/8	1-1/2	2-3/16	2-15/16
W16x45	0.767	3/4	1-1/8	1-1/2	2-3/16	2-7/8
W18x50	0.778	3/4	1-1/8	1-1/2	2-3/16	2-7/8
W10x39	0.780	3/4	1-1/8	1-7/16	2-3/16	2-7/8
W18x46	0.786	3/4	1-1/8	1-7/16	2-3/16	2-7/8
W12x45	0.829	3/4	1-1/16	1-7/16	2-1/8	2-13/16
W14x48	0.835	3/4	1-1/16	1-7/16	2-1/8	2-3/4
W24x68	0.837	3/4	1-1/16	1-7/16	2-1/8	2-3/4
W10x49	0.840	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W24x62	0.844	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W16x50	0.846	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W21x62	0.846	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W8x40	0.849	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W18x55	0.850	3/4	1-1/16	1-7/16	2-1/16	2-3/4
W12x53	0.855	3/4	1-1/16	1-3/8	2-1/16	2-3/4
W21x57	0.857	3/4	1-1/16	1-3/8	2-1/16	2-3/4
W10v45	0.888	3/4	1-1/16	1-3/8	2-1/16	2-11/16

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W12x50	0.909	11/16	1-1/16	1-3/8	2	2-11/16
W14x53	0.915	11/16	1-1/16	1-3/8	2	2-5/8
W27x84	0.921	11/16	1-1/16	1-3/8	2	2-5/8
W10×54	0.922	11/16	1	1-3/8	2	2-5/8
W18x60	0.923	11/16	1	1-3/8	2	2-5/8
W12x58	0.925	11/16	1	1-3/8	2	2-5/8
W12x65	0.925	11/16	1	1-3/8	2	2-5/8
W21x68	0.926	11/16	1	1-3/8	2	2-5/8
W14x61	0.928	11/16	1	1-3/8	2	2-5/8
W24x76	0.933	11/16	1	1-3/8	2	2-5/8
W16x67	0.936	11/16	1	1-5/16	2	2-5/8
W16×57	0.963	11/16	1	1-5/16	1-5/16	2-9/16
W18x76	0.971	11/16	1	1-5/16	1-5/16	2-9/16
W21×73	0.989	11/16	1	1-5/16	1-5/16	2-9/16
W18x65	0.997	11/16	1	1-5/16	1-5/16	2-9/16
W8x48	1.000	11/16	1	1-5/16	1-5/16	2-1/2
W30x99	1.000	11/16	1	1-5/16	1-5/16	2-1/2
W10×60	1.010	11/16	1	1-5/16	1-7/8	2-1/2
W12x72	1.020	11/16	1	1-5/16	1-7/8	2-1/2
W24x84	1.020	11/16	1	1-5/16	1-7/8	2-1/2
W27x94	1.030	11/16	1	1-1/4	1-7/8	2-1/2
W14x68	1.040	11/16	15/16	1-1/4	1-7/8	2-1/2
W16x77	1.070	11/16	15/16	1-1/4	1-7/8	2-7/16
W24x104	1.070	11/16	15/16	1-1/4	1-7/8	2-7/16
W14x90	1.080	5/8	15/16	1-1/4	1-13/16	2-7/16
W18×71	1.080	5/8	15/16	1-1/4	1-13/16	2-7/16
W33x118	1.080	5/8	15/16	1-1/4	1-13/16	2-7/16
W18x86	1.090	5/8	15/16	1-1/4	1-13/16	2-7/16
W30×108	1.090	5/8	15/16	1-1/4	1-13/16	2-7/16
W12x79	1.110	5/8	15/16	1-1/4	1-13/16	2-3/8
W27x102	1.110	5/8	15/16	1-1/4	1-13/16	2-3/8
W14x74	1.120	5/8	15/16	1-1/4	1-13/16	2-3/8
W21x83	1.120	5/8	15/16	1-1/4	1-13/16	2-3/8
W21×101	1.130	5/8	15/16	1-3/16	1-13/16	2-3/8
W24x94	1.140	5/8	15/16	1-3/16	1-13/16	2-3/8
W10×68	1.150	5/8	15/16	1-3/16	1-3/4	2-5/16
W36x135	1.150	5/8	15/16	1-3/16	1-3/4	2-5/16
W30x116	1.160	5/8	15/16	1-3/16	1-3/4	2-5/16
W14x99	1.180	5/8	14/16	1-3/16	1-3/4	2-5/16
W33x130	1.180	5/8	14/16	1-3/16	1-3/4	2-5/16
W8×58	1.200	5/8	14/16	1-3/16	1-3/4	2-5/16

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W24x117	1.200	5/8	14/16	1-3/16	1-3/4	2-5/16
W12x87	1.220	5/8	14/16	1-3/16	1-11/16	2-1/4
W16x89	1.220	5/8	14/16	1-3/16	1-11/16	2-1/4
W18x97	1.220	5/8	14/16	1-3/16	1-11/16	2-1/4
W14x82	1.230	5/8	14/16	1-3/16	1-11/16	2-1/4
W27x114	1.230	5/8	14/16	1-3/16	1-11/16	2=1/4
W21x93	1.240	5/8	14/16	1-1/8	1-11/16	2-1/4
W21x111	1.240	5/8	14/16	1-1/8	1-11/16	2-1/4
W30x124	1.240	5/8	14/16	1-1/8	1-11/16	2-1/4
W36x150	1.270	5/8	14/16	1-1/8	1-11/16	2-3/16
W10×77	1.280	5/8	14/16	1-1/8	1-11/16	2-3/16
W33x414	1.280	5/8	14/16	1-1/8	1-11/16	2-3/16
W14x109	1.290	9/16	14/16	1-1/8	1-11/16	2-3/16
W30x132	1.320	9/16	14/16	1-1/8	1-5/8	2-3/16
W18x106	1.330	9/16	14/16	1-1/8	1-5/8	2-1/8
W24x131	1.330	9/16	14/16	1-1/8	1-5/8	2-1/8
W12x96	1.340	9/16	13/16	1-1/8	1-5/8	2-1/8
W21x122	1.350	9/16	13/16	1-1/8	1-5/8	2-1/8
W27x146	1.350	9/16	13/16	1-1/8	1-5/8	2-1/8
W36x160	1.350	9/16	13/16	1-1/8	1-5/8	2-1/8
W8x67	1.370	9/16	13/16	1-1/16	1-5/8	2-1/8
W16×100	1.370	9/16	13/16	1-1/16	1-5/8	2-1/8
W33x152	1.370	9/16	13/16	1-1/16	1-5/8	2-1/8
W14x120	1.420	9/16	13/16	1-1/16	1-9/16	2-1/16
W36x170	1.430	9/16	13/16	1-1/16	1-9/16	2-1/16
W10x88	1.450	9/16	13/16	1-1/16	1-9/16	2-1/16
W21x132	1.450	9/16	13/16	1-1/16	1-9/16	2-1/16
W12x106	1.470	9/16	13/16	1-1/16	1-9/16	2
W30x173	1.470	9/16	13/16	1-1/16	1-9/16	2
W18x119	1.480	9/16	13/16	1-1/16	1-1/2	2
W24x146	1.480	9/16	13/16	1-1/16	1-1/2	2
W27x161	1.480	9/16	13/16	1-1/16	1-1/2	2
W36x182	1.520	9/16	12/16	1	1-1/2	2
W14x132	1.560	1/2	12/16	1	1-1/2	1-15/16
W33x201	1.580	1/2	12/16	1	1-7/16	1-15/16
W21×147	1.610	1/2	12/16	1	1-7/16	1-15/16
W30x191	1.620	1/2	12/16	1	1-7/16	1-7/8
W36x194	1.620	1/2	12/16	1	1-7/16	1-7/8
W24x162	1.630	1/2	12/16	1	1-7/16	1-7/8
W27x178	1.630	1/2	12/16	1	1-7/16	1-7/8
W10×100	1 640	1/2	12/16	1	1-7/16	1-7/8

		1	L	1	ı	1
W14x145	1.640	1/2	12/16	1	1-7/16	1-7/8
W12x120	1.650	1/2	12/16	15/16	1-7/16	1-7/8
W36x230	1.690	1/2	12/16	15/16	1-3/8	1-7/8
W33x221	1.730	1/2	11/16	15/16	1-3/8	1-13/16
W36x210	1.740	1/2	11/16	15/16	1-3/8	1-13/16
W30x211	1.760	1/2	11/16	15/16	1-3/8	1-13/16
W14x159	1.780	1/2	11/16	15/16	1-3/8	1-13/16
W36x245	1.790	1/2	11/16	15/16	1-3/8	1-13/16
W10x112	1.810	1/2	11/16	15/16	1-5/16	1-3/4
W12x136	1.860	1/2	11/16	7/8	1-5/16	1-3/4
W33x241	1.870	1/2	11/16	7/8	1-5/16	1-3/4
W36x260	1.900	7/16	11/16	7/8	1-5/16	1-11/16
W14x176	1.960	7/16	11/16	7/8	1-1/4	1-11/16
W36x280	2.030	7/16	10/16	7/8	1-1/4	1-5/8
W12x152	2.040	7/16	10/16	13/16	1-1/4	1-5/8
W14x193	2.140	7/16	10/16	13/16	1-3/16	1-5/8
W36x300	2.170	7/16	10/16	13/16	1-3/16	1-5/8
W12x170	2.260	7/16	10/16	13/16	1-1/8	1-5/8
W14x211	2.320	7/16	9/16	3/4	1-1/8	1-5/8
W12x190	2.500	3/8	9/16	3/4	1-1/16	1-5/8
W14x233	2.550	3/8	9/16	11/16	1-1/16	1-5/8
W12x210	2.730	3/8	8/16	11/16	1-1/16	1-7/16
W14x257	2.780	3/8	8/16	11/16	1-1/16	1-7/16
W12x230	2.960	3/8	8/16	5/8	15/16	1-3/8
W14x283	3.030	5/16	8/16	5/8	15/16	1-3/8
W12x252	3.200	5/16	8/16	5/8	7/8	1-5/16
W14x311	3.300	5/16	7/16	5/8	7/8	1-1/4
W12x279	3.500	5/16	7/16	9/16	13/16	1-1/4
W14x342	3.580	5/16	7/16	9/16	13/16	1-3/16
W12x305	3.760	5/16	7/16	9/16	13/16	1-3/16
W14x370	3.840	5/16	7/16	1/2	3/4	1-1/8
W12x336	4.060	5/16	6/16	1/2	3/4	1-1/8
W14x398	4.090	5/16	6/16	1/2	3/4	1-1/16
W14x426	4.320	5/16	6/16	1/2	11/16	1-1/16
W14x455	4.590	5/16	6/16	7/16	11/16	1
W14x500	4.950	5/16	5/16	7/16	5/8	15/16
W14x550	5.340	5/16	5/16	7/16	5/8	7/8
W14x605	5.820	5/16	5/16	3/8	9/16	7/8
W14x665	6.210	5/16	5/16	3/8	1/2	13/16
W14x730	6.760	5/16	5/16	5/16	1/2	3/4

ARABIAN VERMICULITE INDUSTRIES - Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-10 HB, MK-6/HB, MK-6s, MK-6 GF, MK-6 GF Extended Set, MK-1000/HB, MK-1000/HB Extended Set, Sonotex 1, Type Z-146, Z-146T, Z-156 and Z-156T.

GRACE KOREA INC — Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-10 HB, MK-6/HB, MK-6 GF, MK-6 GF Extended Set, MK-6s, MK-1000/HB, MK-1000/HB Extended Set, Monokote Acoustic 1, Type Z-146, Z-146T, Z-156 and

W R GRACE & CO - CONN — Types MK-6/HY, MK-10 HB, MK-6/HB, MK-6s, MK-6 GF, MK-6 GF Extended Set, MK-1000/HB, MK-1000/HB Extended Set, Monokote Acoustic 1 , RG, Type Z-146, Z-146T, Z-156 and Z-156T.

2. Metal Lath - (Optional for contour application) - 3.4 lb per sq yd galv or painted expanded steel lath.Lath shall be lapped 1 in. and tied together with No. 18 SWG galv steel; wire spaced vertically 6 in. OC. Steel Column — Wide flange steel column, min sizes as shown in the tables.

\*Bearing the UL Classification Mark Last Updated on 2014-02-05

Questions?

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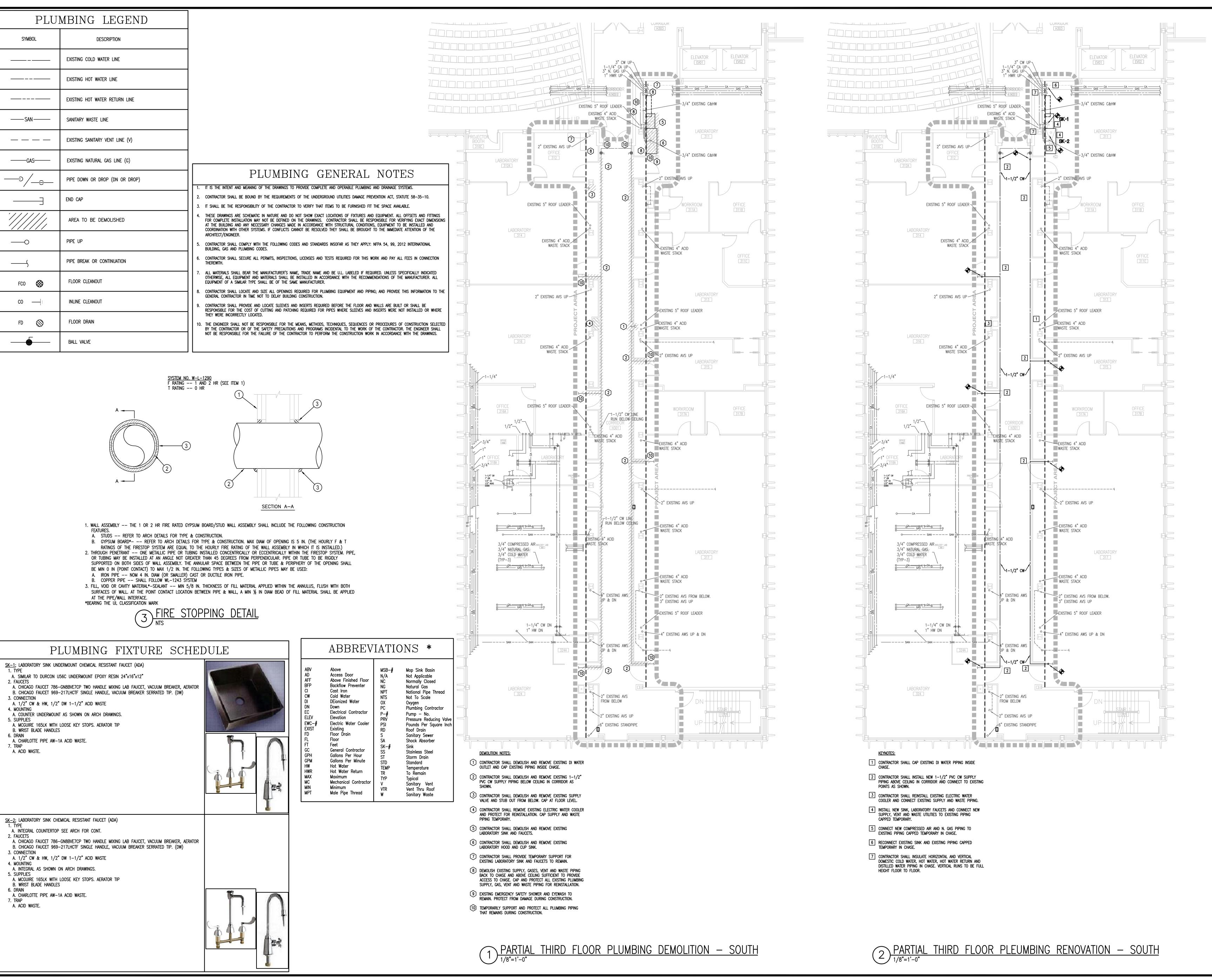
<sup>date</sup> MARCH 7, 2014



SPRAY-ON FIREPROOFING **UL ASSEMBLY** 

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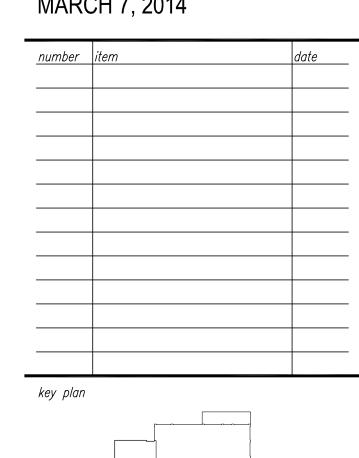
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PARTIAL THIRD FLOOR PLAN DOMESTIC WATER PIPING WASTE & VENT PIPING

sheet number

P1.3

drawn by JJR
checked by JWB

	HVAC LEGEND						
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION		
T	TEMPERATURE SENSOR OR THERMOSTAT	<u> </u>	CEILING SUPPLY DIFFUSER, RETURN GRILLE W/ FLEX DUCT CONN. FOR RETURN OR EXHAUST AIR; SEE "DIFFUSER & GRILLE SCHEDULE"	18x12 12x12	TRANSITION, FLAT ON BOTTOM (FOB) FLAT ON TOP (FOT, IF APPLICABLE)		
(\$)	WALL SWITCH		EXISTING DUCT WORK TO REMAIN		TURNING VANES		
$\qquad \qquad \oplus$	WALL HUMIDISTAT	*//////	EXISTING DUCT WORK TO BE REMOVED	<del> </del>	DUCT SMOKE DETECTORS		
•	CONNECT TO EXISTING		DUCT TURNING DOWN	- L <sub>CR</sub>	CONCEALED REGULATOR		
18x12	RECTANGULAR DUCT SIZE, FIRST FIGURE IS SIDE SHOWN		DUCT TURNING UP		MANUAL VOLUME DAMPER		
[ 18"ø	ROUND DUCT SIZE	—— ——	UNION	<u>6"ø</u>	A – DIFFUSER TAG 6"Ø – NECK SIZE 100 – CFM		
	CHANGE OF ELEVATION, RISER (R), DROP (0)		STRAINER		GATE VALVE		
<u> </u>	ACOUSTICAL LINING INSULATION		STRAINER WITH BLOW OFF		CONTROL VALVE, TWO WAY		
	FLEXIBLE DUCT		ECCENTRIC REDUCER FLAT ON TOP		END CAP		
CHWS	CHILLED WATER SUPPLY	-+0+	TEE OUTLET UP	<del>-+</del>	ELBOW TURNED DOWN		
CHWR	CHILLED WATER RETURN	-+0+	TEE OUTLET DOWN	-+0	ELBOW TURNED UP		
	CONCENTRIC REDUCER				ECCENTRIC REDUCER FLAT ON BOTTOM		

## MECHANICAL DEMOLITION NOTES

- 1. DRAWINGS SHOW GENERAL INTENT OF DEMOLITION.
  QUANTITIES, LOCATIONS, SIZES AND EQUIPMENT ARE SHOWN
  TO INDICATE TYPE OF SYSTEM INSTALLED AND DOES NOT
  NECESSARILY REPRESENTED PRODUCE. SHALL FIELD VERIFY BEFORE BIDDING.
- 2. DEMOLITION OF EQUIPMENT, SYSTEMS, AND COMPONENTS SHALL INCLUDE ALL SUPPORTS, PADS, HANGERS, INSULATION, CONTROLS, STARTERS, ACCESSORIES, AND APPURTENANCES NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. 3. WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM SHOWN TO REMOVED SHALL BE REMOVED TO THE ACTIVE MAIN OR BRANCH IF NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. THE ACTIVE MAIN OR BRANCH SHALL BE REPAIRED TO MATCH NEW INSTALLATION AS MUCH AS PRACTICAL. IF SYSTEM IS INSULATED, INSULATION SHALL BE PATCHED AND FINISHED REPAIR. (IE. VAROR PARRIER COATING ETC.)
- 4. REMOVAL OF SYSTEMS SHALL INCLUDE COMPLETE SYSTEM WHENEVER PRACTICAL. IF NOT, SYSTEM (IE: PIPE, CONDUIT, ETC.) SHALL BE REMOVED TO 1 INCH BELOW SURFACE.

REPAIR (IE: VAPOR BARRIER, COATING, ETC.)

## MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS; SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING, DIFFUSERS, ETC. 2. EXTEND ALL DRAIN LINES TO EXTERIOR AND SPILL ON GRADE. ROUTE TO AVOID INTERFERENCE WITH PASSAGEWAYS. CONDENSATE DRAINS SHALL BE TRAPPED. SLOPE DRAIN LINES 1/8" PER FOOT. 3. ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES. 4. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE ADJACENT TO ELBOWS, TO PREVENT WEIGHT OF PIPING BEING

PLACED ON THE EQUIPMENT. SUPPORT DETAILS SHALL BE SUBMITTED TO THE MECHANICAL ENGINEER. 5. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE. 6. ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED.

7. PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLATION OF DUCT, EXHAUST FANS, AND ALL OTHER EQUIPMENT AND APPURTENANCES.

8. ALL DUCT IS GALVANIZED SHEET METAL EXCEPT AS NOTED. 9. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.

	ABBREVI	ATIONS	
ABV AHU-#-1 AFF BHP CFM CC-1 CHWS CHWR DD DB EAT ELEC EWB EWT EV-3-1 F-# FL H-1 HWS HWR HP LAT LWB LWT MAX	Above Air Handler Unit — Floor — No. 1 Above Finished Floor Brake Horsepower Cubic Feet Per Minute Cooling Coil No. 1 Chilled Water Supply Chilled Water Return Duct Smoke Detector Dry Bulb Temperature Entering Air Temperature Electric or Electrical Entering Air Wet Bulb Entering Water Temperature Exhaust Valve — Third Floor — No. 1 Filter Type No. Floor Humidifier No. 1 Hot Water Supply Hot Water Return Horsepower Leaving Air Wet Bulb Leaving Water Temperature Leaving Air Temperature Leaving Air Wet Bulb Leaving Water Temperature Maximum	MBH MIN MPS N/A NIC NTS OA OBD OD PHC-1 RA RET RH SA SEER SHT SP SPEC SPL T-3-1 TEMP TSTAT TYP VFD WB WPD	Thousand BTU/Hr (thousands) Minimum Medium Pressure Steam Not Applicable Not in Contract Not To Scale Outside Air Opposed Blade Damper Outside Diameter Pressure Drop Pre—Heat Coil No. 1 Return Air Return Relative Humidity Supply Air Seasonal Energy Efficiency Ratio Sheet Static Pressure Specifications Supply Thermostat Terminal Box — 3rd Floor — No. 1 Temperature Thermostat Typical Variable Frequency Drive Wet Bulb Temperature Water Pressure Drop (in. w.g)

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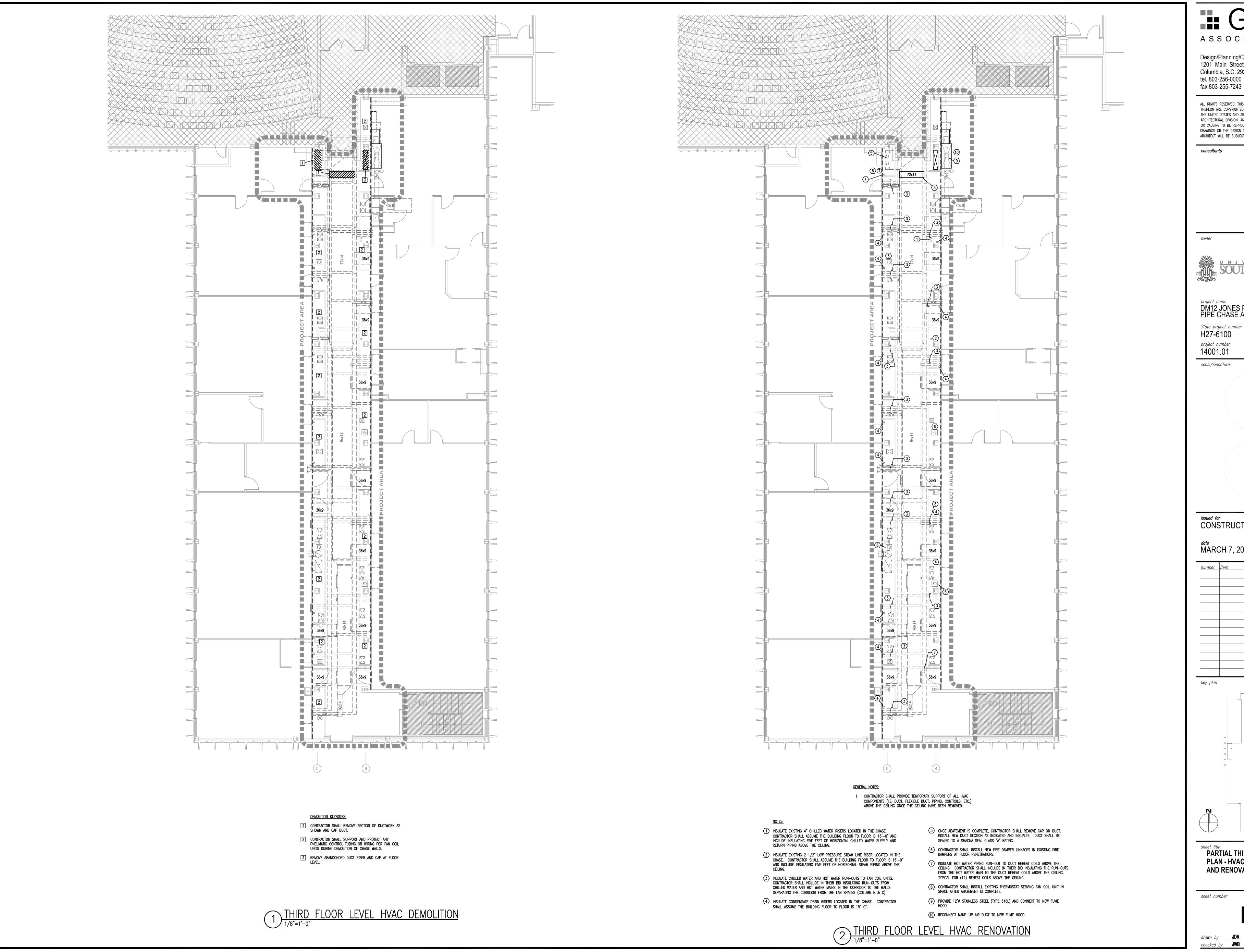
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sheet title
HVAC LEGENDS, ABBREVIATIONS, **AND NOTES** 

sheet number

drawn by JDR checked by JDR



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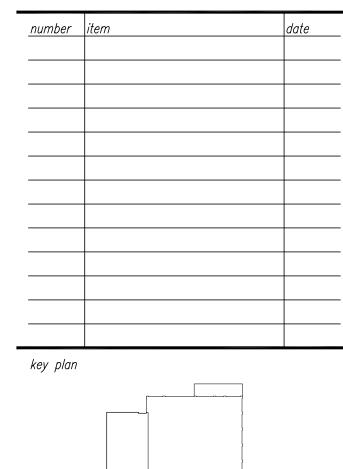
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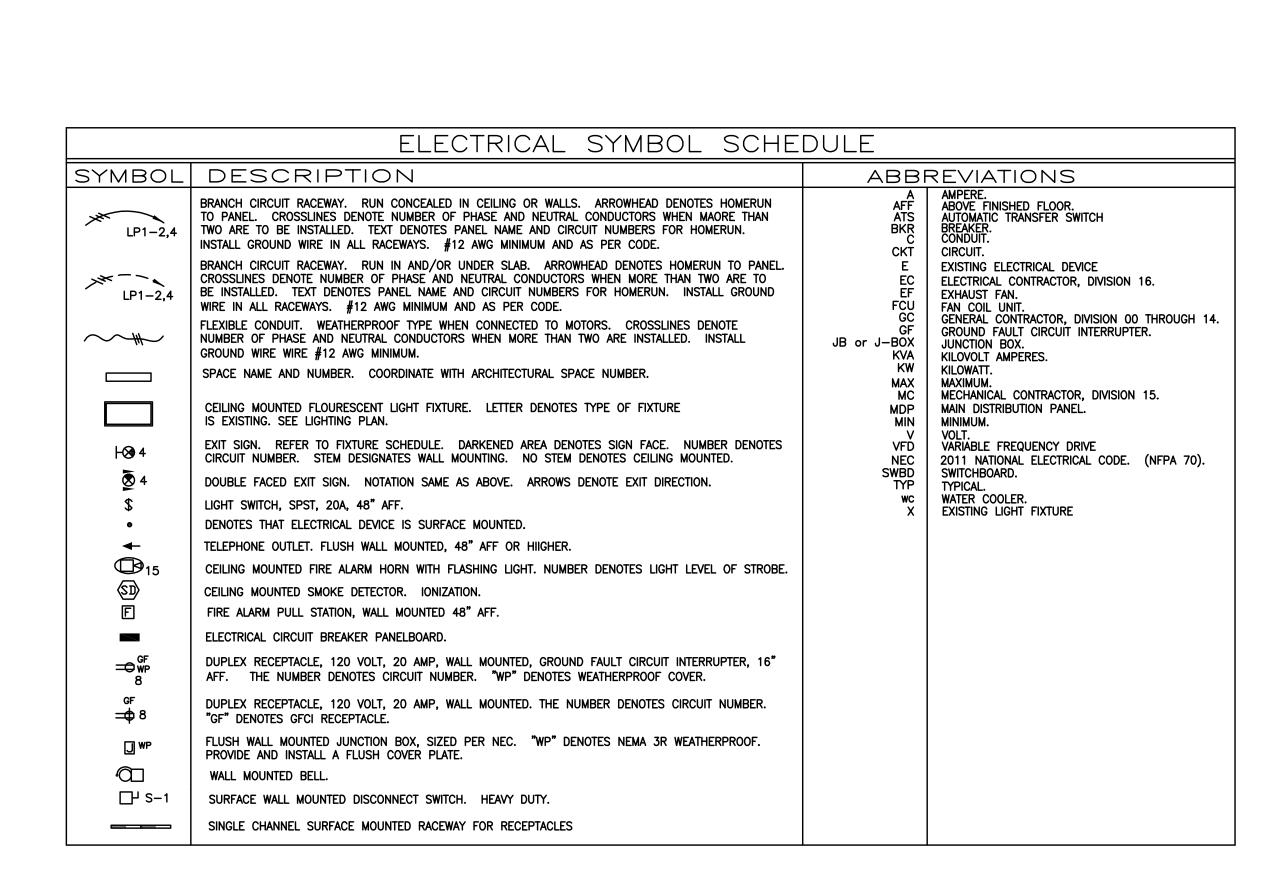
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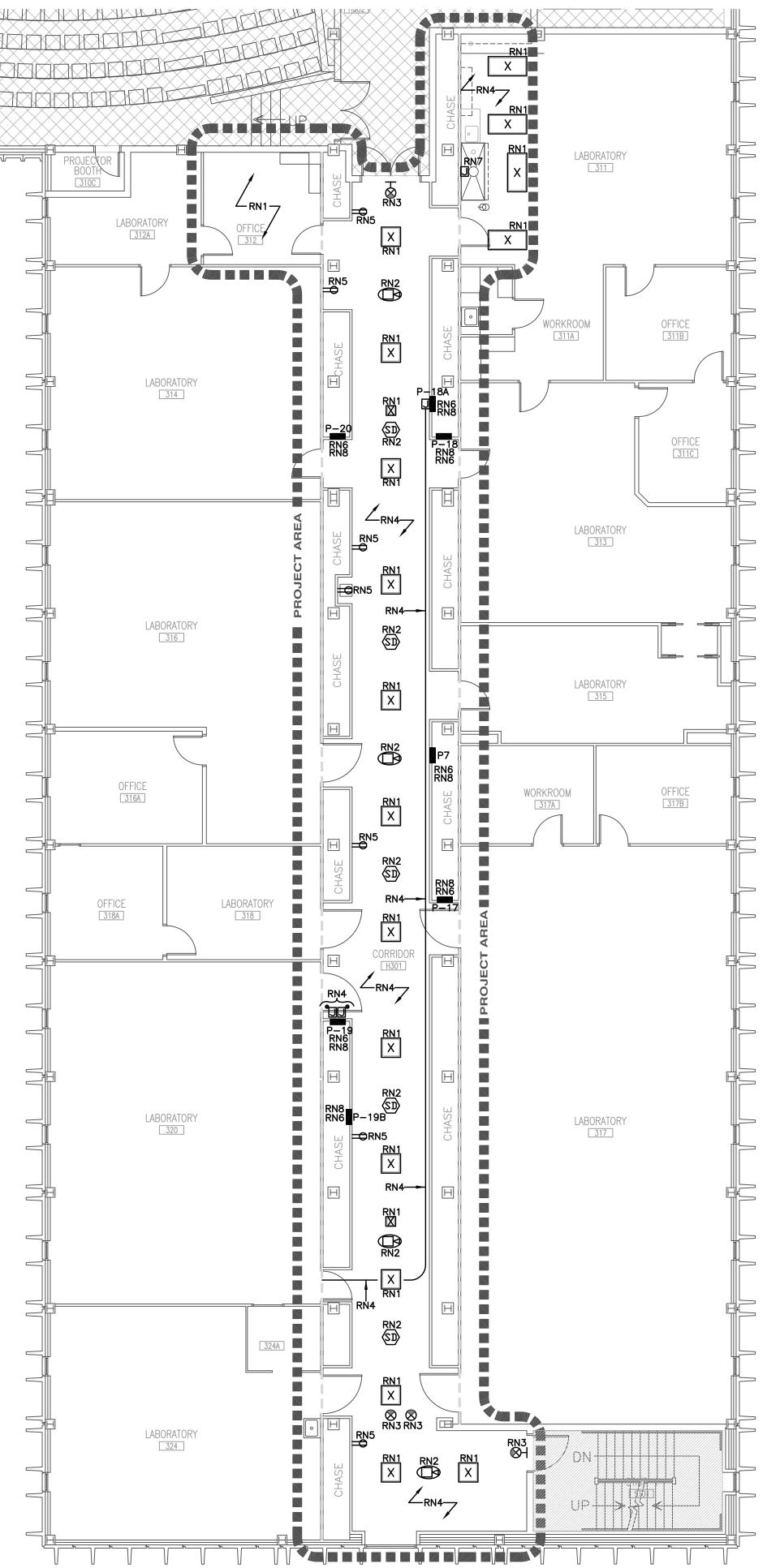


PARTIAL THIRD FLOOR **PLAN - HVAC DEMOLITION** AND RENOVATION

sheet number

drawn by JDR <u>checked</u> by **JWB** 





## THIRD FLOOR ELECTRICAL RENOVATION PLAN

**GENERAL NOTES (GN):** GN1. FOR ALL EXISTING CIRCUITS FROM DEMOLITION IN PROJECT LIMITS PROVIDE ALL REQUIRED HANGERS, FASTENERS, AND FITTINGS AS REQUIRED TO PROPERLY SUPPORT ALL EXISTING ELECTRICAL CIRCUITS IN SPACE. GN2. INSTALL BLANK COVERS MISSING ON ALL EXISTING JUNCTION BOXES.
GN3. SUPPORT EXISTING LIGHT FIXTURES WITH HANGED WITH HE WITH HANGED WITH HANGED WITH HANGED WITH HANGED WITH HANGED WIT SUPPORT EXISTING LIGHT FIXTURES WITH HANGER WIRES FROM STRUCTURE AS GN4. EC SHALL PROPERLY SUPPORT ALL EXISTING DATA AND COMMUNICATION CABLING THAT IS ABOVE EXISTING CEILING GRID AS REQUIRED. **RENOVATION NOTES (RN):** RN1. EXISTING FIXTURE FROM DEMOLITION. CLEAN LENS, RE-LAMP, AND RECONNECT TO EXISTING CIRCUIT FROM DEMOLITION. COORDINATE. RN2. EXISTING FIRE ALARM DEVICE SHALL BE RECONNECTED TO EXISTING FIRE ALARM CIRCUIT FROM DEMOLITION. RN3. CONNECT FIXTURE TO EXISTING CIRCUIT FROM DEMOLITION. COORDINATE. RN4. EXISTING EXPOSED CONDUITS AND JUNCTION BOXES BELOW CEILING GRID FROM DEMOLITION SHALL BE REROUTED AND RELOCATED ABOVE CEILING GRID OR IN CHASE WALLS. EXTEND EXISTING CIRCUITS AND SUPPORT ALL EXISTING CONDUITS PROPERLY RN5. INSTALL A NEW RECEPTACLE IN EXISTING BACKBOX AND RECONNECT TO EXISTING RECEPTACLE CIRCUIT. INSTALL A STAINLESS STEEL RECEPTACLE COVER PLATE OVER

EXISTING RECEPTACLE BACKBOX.

EXISTING BREAKERS FROM DEMOLITION. PROVIDE A NEW TYPED CIRCUIT DIRECTORY BY VERIFYING EACH BRANCH CIRCUIT LOAD IN EXISTING ELECTRICAL PANEL.

RN7. EC SHALL CONNECT NEW FUME HOOD TO EXISTING FUME HOOD CIRCUIT FROM DEMOLITION. COORDINATE.

RN8. EC SHALL RECONNECT ALL EXISTING RE—CIRCUITED BRANCH CIRCUITS FROM DEMOLITION BACK TO EXISTING SOURCE PANELS PRIOR TO DEMOLITION.

RN6. REPLACE ALL EXISTING CIRCUIT BREAKERS IN EXISTING ELECTRICAL PANEL WITH NEW CIRCUIT BREAKERS. COORDINATE VOLTAGE, CURRENT RATING, AND BREAKERS SIZE WITH

DN2 \$ → DN4 <u> —</u> DN7 — LABORATORY LABORATORY 313 LABORATORY LABORATORY 315 OFFICE WORKROOM 317B OFFICE 318A LABORATORY DN7—— 318  $\leftarrow$  DN7  $\rightarrow$ ---DN7 ■ LABORATORY LABORATORY 320 317  $\leftarrow$  DN7  $\rightarrow$ LABORATORY

# THIRD FLOOR ELECTRICAL DEMOLITION PLAN 1/8" = 1'-0"

GENERAL NOTES (GN): GN1. REMOVE ALL ABANDONED WIRING TO SOURCE OF SUPPLY.
GN2. REMOVE EXPOSED ABANDONED CONDUIT INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. GN3. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVICING EQUIPMENT THAT HAS BEEN REMOVED. GN4. DISCONNECT AND REMOVE ABANDONED BRACKETS, STEMS, HANGERS, AND OTHER DEMOLITION NOTES (DN): DN1. EXISTING LIGHT FIXTURE SHALL BE DISCONNECTED, REMOVED, AND STORED FOR REINSTALLATION. EXISTING LIGHTING CIRCUIT SHALL REMAIN AS—IS.

DN2. EXISTING ELECTRICAL DEVICE SHALL REMAIN AS—IS AND BE PROTECTED DURING DEMOLITION UNLESS OTHERWISE NOTED. COORDINATE. EXISTING CEILING MOUNTED FIRE ALARM DEVICE SHALL BE DISCONNECTED FROM EXISTING FIRE ALARM CIRCUIT AND STORED FOR REINSTALLATION. EXISTING FIRE ALARM CIRCUIT SHALL REMAIN AS-IS. SEE RENOVATION PLAN THIS SHEET. DN4. EXISTING VOICE OUTLET SHALL BE DISCONNECTED, REMOVED, AND DISPOSED. CONDUIT, WIRE, AND BACKBOX SHALL BE REMOVED BACK TO SOURCE J-BOX. REPAIR WALL TO CONDITION OF REMAINING WALL. DN5. DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICE. CONDUIT, WIRE, AND BACKBOX SHALL BE REMOVED BACK TO SOURCE PANEL. REPAIR WALL TO CONDITION OF REMAINING WALL.

DN6. EXISTING TELEPHONE PANEL SHALL BE DISCONNECTED AND REMOVED COMPLETELY. EXISTING TELEPHONE LINES FROM EXISTING TELEPHONE PANEL SHALL TO EXISTING TELEPHONE JACKS SHALL BE REMOVED COMPLETELY. REPAIR WALL TO CONDITION OF REMAINING WALL. DN7. ALL EXISTING EXPOSED CONDUIT AND DATA CABLING BELOW EXISTING CEILING GRID SHALL BE DISCONNECTED FROM EXISTING CEILING GRID, EXISTING WALLS, AND SUPPORTED

INDEPENDENTLY DURING DEMOLITION. COORDINATE.

DN8. DISCONNECT AND REMOVE EXISTING FACEPLATE AND OUTLET. EXISTING CONDUIT, WIRE, AND BACKBOX SHALL REMAIN.

DN9. EXISTING SURFACE MOUNTED TELEPHONE LINE SHALL BE REMOVED COMPLETELY.

DN10. EXISTING FUME HOOD CIRCUIT SHALL BE DISCONNECTED FROM EXISTING FUME HOOD IN DEMOLITION. EC SHALL RE—CONNECT EXISTING FUME HOOD CIRCUIT TO NEW FUME

HOOD IN RENOVATION. COORDINATE.

DN11. EC SHALL VERIFY AND RE-CIRCUIT AS REQUIRED ALL EXISTING BRANCH CIRCUITS TO EXISTING ELECTRICAL DEVICES OUTSIDE PROJECT LIMITS. COORDINATE WITH USC PERSONAL IN ORDER TO DETERMINE EXACTLY WHICH BRANCH CIRCUITS SHALL BE RE-CIRCUITED TO EXISTING ELECTRICAL PANELS OUTSIDE PROJECT LIMITS DURING DEMOLITION.

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