GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF GENERAL SERVICES

Major Renovation and Modernization of FEMS Engine House No. 16

Addendum No. 4

Issued: July 1, 2015

This Addendum No. 4 is issued and hereby published on the DGS website on July 1, 2015. Except as modified hereby, the Request for Proposals ("RFP") remains unmodified.

Item #1 Request for Information

Please see Attachment No. 1(Section I Request for Information Items)

Item#2 Specifications

Please see Attachment No. 1 (Section II Specification Items)

Item #3 Drawings

Please see Attachment No. 1 (Section III Drawing Items)

Item #4 Attachment A Offer Letter

Delete:

Offer Letter in its entirety.

Insert:

Please see revised Form of Offer Letter and Bid Form.

Supporting Documents:
Attachment 1-Responses to Questions, Specifications, and Drawings
Attachment 2-Form of Offer Letter and Bid Form
Attachment 3- Terrazzco Flooring Substitute

By: _____ **Date:** 7-1-15
James Marshall
Supervisory Contract Officer

- End of Addendum No. 4 -

Attachment 1

Responses to Questions, Specifications, and Drawings

Renovation of
DC-FEMS Fire Station 16
Addendum No. 4

This addendum is supplemental to the plans and specifications for the Renovation of DC-FEMS Fire Station 16. All changes, deletions and additions shall be part of the contract as if originally shown in the plans and specifications.

DESCRIPTION OF ADDENDUM

I. BID REQUEST FOR INFORMATION ITEMS

Item No. 1: The following is a consolidated table of the RFI Questions Answered by the A/E Team:

No.	Section Reference	Question	Response
1	115213	Specification Section 115213 – Projection Screens is provided, however no projection screens can be found on the drawings. If new projection screens are to be installed, please provide room numbers as to where they are to be installed.	Projection screen added to front of Classroom 309. See A9-02
2	040120-1	Spec section 040120-1, para.1.3 refers to “Allowances”. There is no specification for “Allowances”.	See added Specification Section 01 2100
3	040120-2	Spec section 040120-2, para. 1.4.A refers to “Unit Prices”. There is no specification for “Unit Prices”.	See added Specification Section 01 2200
4	A0-01	The door schedule on Page A0-01- MARK 220A lists a ‘?’ under Door Type, Material, and Finish. Please provide.	Table updated
5	A0-01	MARK 323 shows door type ‘AA’ which is not listed under detail 20, page A0-01. Please provide.	Table updated
6	A0-02	Window schedule on page A0-02 lists Mark E1 as a Louver. Detail 2 on A0-02 shows E1 as a Window. Please Clarify.	Detail changed
7	A0-02	Type L is not listed on the window schedule although it is illustrated in Detail 2 on page A0-02.	Type L eliminated.
8	A8-01	Detail 2 on Page A8-01 shows a new exhaust hood, sink and disposal, and coffee pot .However, no spec is provided under 114000 – Food Service Equipment. Please provide a specification.	The hood is shown and detailed on sheet M7-01, the coffee maker is Owner Provided, Kitchen sink and Disposal covered in Section 224100
9	A9-02	Could you please clarify notation #1 (Gyp board bulkhead) on the RCP (ex. A9-02), the placement of the necessary bulkheads needed isn’t very clear, could you please provide more details.	Bulkheads are used on the project in two ways 1 - for separation of different ceiling materials in this case the bulkhead is only 6 "and should extend below the lowest ceiling by 1" and 2 - for transition between ceiling heights of the same material for accommodation of mechanical equipment. The bulkheads are constructed from metal stud and track framing with 5/8" gypsum board sheathing on all exposed surfaces

10	Bike Racks	Can BRWS-101 bike rack be approved as an alternate? Please see the attached cut sheet for review.	This will not be approved as an alternate the bicycle racks are intended as bollard style racks. This has been further delineated in Section 05500 of the specification.
11	Budget	What is the Budget for the Construction?	DGS does not intent to disclose budget for this project.
12	Flooring	In reference to the Resinous Flooring Scope:	See Below
13	Flooring	We would like the opportunity to bid Florock Resinous Flooring as an equal to the products specified for the above named project	Only if a substitution request is submitted according to the requirements of the specifications.
14	Flooring	Please see the attached request for approval of an equal epoxy terrazzo product and manufacturer not listed in the specifications. I have attached the technical data sheet and test report as supportive back up information. Please let me know if you have any questions or concerns.	The material is acceptable provided the company can match the original colors for the repair work. For new work the full range of manufacturer colors and aggregate should be available for selection. See Attachment 3.
15	Flooring	The elevator will be out of service from phase 1 and phase 2. Shall temporary means of ADA access be required for the existing upper floors?	None is required - Only able bodied firefighters are allowed above the first floor during construction.
16	NTP	What is the anticipated Notice to Proceed?	August 2015
17		Please have the Architect review the Hollow Metal Spec regarding the thickness of the metal for the Doors and Frames. 12 ga material is 0.093, 14 ga material is 0.067, and 16 ga material is 0.053	Section 081113 has been modified to reflect current standards
18		Are equals being accepted, other than the three that were listed?	Only if a substitution request is submitted according to the requirements of the specifications and approved by the Owner
19		According to the specification 4 inch base is to be installed. However, the finish schedule shows no base. Please confirm which one is to be followed.	There are two types of 4" base Ceramic (CWB) , and Vinyl (VWB). These are called out by room in the finish schedule along with the wood base in some corridors and the terrazzo base in some areas.
20		The drawings do not show locations of fire extinguishers and cabinets. Please provide an estimated quantity of extinguishers and cabinets to be replaced.	One fire extinguisher and cabinet at each stair door for floors 2,3 and the attic. On the first floor one in the pantry by the electrical panels and one in the Bay by the watch desk.
21		Upon reviewing the documents and the site visit yesterday, this project is fairly detailed and Perennial would like to work with a strategic partner at the GC level. Understanding that the site visit was mandatory, and our preferred partner was not in attendance, would Perennial's attendance be sufficient for our 'team' to propose on the project?	Yes, please see Amendment No.2.
22		Given that the project approach is essential to the success of this project, will DGS consider interviewing contractor teams for this procurement contrary to the language in the RFP?	DGS has the option to conduct interviews, please see Section D.4 of RFP

23	Construction work hours is said to be from 6am to 6pm the RFP. Please advise if this falls within the local noise ordinance.	City noise ordinance does not quote a time however in a Commercial Zone (this project) however in a Commercial Zone (this project) noise Levels are 65 dB(A) during the daytime, and 60 dB(A) during the nighttime.
24	Will DGS fund the public space permits for the project along with the building permit?	Contractor shall be responsible for payment of any Public Space Permit, Occupancy Permit and refundable deposit
25	Are utility tap fees to be included in bid?	Yes, please refer to Attachment A (Exhibit 1) from RFP.
26	What is the status of Pepco design? (New switchgear needs to be installed in phase 1 per electrical phasing notes. 8 week lead after Pepco approves gear submittals...)	PEPCO has reviewed the vault and transformer feeding the building and found them adequate. They are now reviewing the new equipment in the building and should be completed before the NTP.
27	We are requesting a second site visit for those who were not able to attend the first.	There will be no additional Site Visits scheduled.
28	Are we to assume that existing FF&E will be removed and re-installed by owner?	FF&E deemed desirable by the Owner will be packed, moved and stored offsite then reinstalled after the construction is finished by the Owner's staff. All undesirable FF&E will be disposed of by the GC under this Contract.
29	Please provide a wall type for temporary walls.	Note 33 on CS-06 notes the walls as type K2
30	In the drawings it is mentioned that we are to refinish and re-install the existing limestone toilet partitions. The wall behind the toilet partitions are limestone, however, they are glued to the wall. These would be very difficult to remove and we assume that only the toilet partitions are to be salvaged, not the limestone on walls. Please Advise.	Incorrect these are marble panels and sheet A8-03 shows how the panels are to be reused. To meet the requirements of the job all of the panels are to be salvaged. The panels are held to the original plaster walls with plaster breaking the plaster off the back of the panels should be relatively easy.

II. SPECIFICATION ITEMS:

Item No. 1: The following sections are edited as shown in the document and replace sections issued for the bid dated 01-22-15:

	Table of Contents
055000	Metal Fabrications
	Bollards for bikes defined
075419	Polyvinyl-Chloride (PVC) Roofing
	Removed sheets not applicable for the installation.
077200	Roof Accessories
	Attic Walkway and Roof Ship Ladder added
081113	Hollow Metal Doors and Frames
	Update Metal Thickness for doors and frames
083614	Four-Fold Doors
	Change to Hydraulic operation
087100	Door Hardware
	New Entry Hardware entered
114000	Food Service Equipment
	Decon Sink added cabinetry base of design added

Item No. 2: The following sections have been added to the documents.

011001	Finish Key
012100	Allowances
012200	Unit Prices

III. DRAWING ITEMS

Item No. 1: The following Drawing sheets are edited as shown in the document and replace drawing sheets issued for the bid dated 09-08-14:

C1-00	COVER
	Narrative Note added
C1-02	DEMO
	Front apron demo adjusted
C1-04	SITE
	Asphalt added at rear of building
C1-05	UTILITY
	Sanitary information added courtyard added
A0-01	DOOR SCHEDULE
	Door information adjusted per RFI
A0-02	WINDOW SCHEDULE
	Louver removed other louvers adjusted
A3-01	BASEMENT - FIRST FLOOR PLAN
	Adjustments to Apparatus Bay Equipment Lighting removed from plan for clarity
A3-02	SECOND - THIRD FLOOR PLAN
	Notes updated Lighting removed from plan for clarity
A4-01	ATTIC AND ROOF PLANS Lighting removed from plan for clarity
	Notes updated Louver adjusted
A5-02	BUILDING SECTIONS
	Dimensions added for Bay Doors
A7-21	STAIR PLANS & DETAILS

	Elevator Pit drawing corrected
A8-01	ENLARGED PLANS Adjustments to Apparatus Bay Equipment
A9-02	SECOND - THIRD FLOOR REFLECTED CEILING PLAN Ceiling Height adjusted for mechanical equipment
A9-04	SECOND - THIRD FLOOR FINISH PLAN Wood Floor Note added Lighting removed from plan for clarity
A9-05	BASEMENT - FIRST FLOOR FF&E PLANS Lighting removed from plan for clarity
M1-01	MECHANICAL BASEMENT AND FIRST FLOOR PLANS – NEW WORK Note added.
M1-01A	MECHANICAL BASEMENT AND FIRST FLOOR PLANS PIPING – NEW WORK Basement changes
M1-02	MECHANICAL SECOND AND THIRD FLOOR PLANS – NEW WORK Note added.
M1-03A	MECHANICAL ATTIC AND ROOF PLANS PIPING – NEW WORK Phasing Clarification
M2-01	MECHANICAL SCHEDULES Schedule Changes
M7-01	MECHANICAL HOOD DETAILS Note added.
M7-02	MECHANICAL HOOD DETAILS Note added
M7-03	MECHANICAL HOOD DETAILS Note added
P1-01	PLUMBING BASEMENT AND FIRST FLOOR PLANS – DOMESTIC WATER AND GAS Ice machine relocation.
P1-01A	PLUMBING BASEMENT AND FIRST FLOOR PLANS – WASTE AND STORM Ice machine relocation.
P1-02	PLUMBING BASEMENT AND FIRST FLOOR PLANS – DOMESTIC WATER AND GAS Piping to fixtures.
P4-01	PLUMBING DOMESTIC WATER AND GAS RISER DIAGRAM Ice machine relocation piping to fixtures.
P4-03	PLUMBING DOMESTIC WATER AND GAS RISER DIAGRAM Ice machine relocation piping to fixtures.
P4-04	PLUMBING DOMESTIC WATER AND GAS RISER DIAGRAM Ice machine relocation piping to fixtures.
FP1-01	FIRE PROTECTION BASEMENT AND FIRST FLOOR Note Added.
FP1-02	FIRE PROTECTION BASEMENT AND FIRST FLOOR Note Added.
FP1-03	FIRE PROTECTION BASEMENT AND FIRST FLOOR Note Added.
FP3-01	FIRE PROTECTION RISERS AND DETAILS Riser diagram adjusted..
E1-01	ELECTRICAL BASEMENT AND FIRST FLOOR PLANS – LIGHTING NEW WORK Lights shifted.
E1-02	ELECTRICAL SECOND AND THIRD FLOOR PLANS – LIGHTING NEW WORK Lights shifted.
E2-01	ELECTRICAL BASEMENT AND FIRST FLOOR PLANS – POWER NEW WORK

Outlets relocated/ deleted.

E2-02 ELECTRICAL SECOND AND THIRD FLOOR PLANS – POWER NEW WORK
Note added.

E4-01 ELECTRICAL PANEL SCHEDULES - NEW WORK
Schedules modified for change in power.

END OF ADDENDUM+

Division	Section Title	Revision Date	Pages

PROCUREMENT AND CONTRACTING DOCUMENTS GROUP

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS
NOT APPLICABLE

SPECIFICATIONS GROUP

General Requirements Subgroup

DIVISION 01 - GENERAL REQUIREMENTS

011000	Summary	12/19/14	8
011000	Finish Key	06/19/15	2
012100	Allowances	06/19/15	4
012200	Unit Prices	06/19/15	4
012300	Alternates	06/19/15	2
013000	Project Management and Coordination	12/19/14	8
013115	Coordination Drawings CADD	12/19/14	2
013200	Construction Progress Documentation	12/19/14	11
013223	Photographic Documentation	12/19/14	3
013300	Submittal Procedures	12/19/14	14
013500	Special Procedures	12/19/14	7
014000	Quality Requirements	12/19/14	10
014200	References	12/19/14	16
015000	Temporary Facilities and Controls	12/19/14	14
015240	Construction Waste Management	12/19/14	6
016000	Product Requirements	12/19/14	10
017000	Execution Requirements	12/19/14	11
017423	Final Cleaning	12/19/14	3
017700	Closeout Procedures	12/19/14	7
017823	Operation and Maintenance Data	12/19/14	10
017839	Project Record Documents	12/19/14	5
017861	Spare Parts and Maintenance Materials	12/19/14	3
017870	Warranties	12/19/14	3
017900	Demonstration and Training	12/19/14	5
017990	Quality Assurance Summary Report	12/19/14	5
018113.13	Sustainable Design Requirements - LEED for New Construction and Major Renovations	12/19/14	4
019113	General Commissioning Requirements	12/19/14	10

Facility Construction Subgroup

DIVISION 02 - EXISTING CONDITIONS

024119	Selective Structure Demolition	12/19/14	7
028200	Contaminated Site Material Removal	12/19/14	3

DIVISION 03 - CONCRETE

033000	Cast-in-place Concrete	12/19/14	7

DIVISION 04 - MASONRY

040120	Maintenance of Unit Masonry	12/19/14	10
040140	Maintenance of Stone Assemblies	12/19/14	15
042000	Unit Masonry	12/19/14	16

DIVISION 05 - METALS

055000	Metal Fabrications	06/19/15	11
055100	Metal Stairs	12/19/14	8
055120	Structural Steel	12/19/14	6
055210	Steel Joists	12/19/14	4
055310	Steel Deck	12/19/14	3
057000	Decorative Metal	12/19/14	6

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

061053	Miscellaneous Rough Carpentry	12/19/14	7
064023	Interior Architectural Woodwork	12/19/14	9

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

070150.19	Preparation for Re-roofing	12/19/14	5
071326	Self-adhering Sheet Waterproofing	12/19/14	6
072100	Thermal Insulation	12/19/14	3
073226	Synthetic Roof Tiles	12/19/14	9
075419	Polyvinyl-chloride (PVC) Roofing	06/19/15	12
076200	Sheet Metal Flashing And Trim	12/19/14	11
077200	Roof Accessories	06/19/15	7
077253	Snow Guards	12/19/14	2
078413	Penetration Firestopping	12/19/14	7
079200	Joint Sealants	12/19/14	9

DIVISION 08 - OPENINGS

081113	Hollow Metal Doors and Frames	06/19/15	10
081416	Flush Wood Doors	12/19/14	7
083113	Access Doors and Frames	12/19/14	4
083614	Four-fold Doors	06/19/15	9
085200	Wood Windows	12/19/14	7
086300	Metal-framed Skylights	12/19/14	7

087100	Door Hardware	06/19/15	23
088000	Glazing	12/19/14	13
088300	Mirrors	12/19/14	4
089000	Louvers and Vents	12/19/14	6
DIVISION 09 - FINISHES			
092116.23	Gypsum Board Shaft Wall Assemblies	12/19/14	7
092216	Non-structural Metal Framing	12/19/14	6
092300	Gypsum Plastering	12/19/14	6
092900	Gypsum Board	12/19/14	8
093000	Tiling	12/19/14	15
095123	Acoustical Tile Ceilings	12/19/14	9
096400	Wood Flooring	12/19/14	5
096513	Resilient Base and Accessories	12/19/14	5
096519	Resilient Tile Flooring	12/19/14	6
096566	Resilient Athletic Flooring	12/19/14	4
096623	Resinous Matrix Terrazzo Flooring	12/19/14	7
096723	Resinous Flooring	12/19/14	6
097200	Wall Coverings	12/19/14	4
099113	Exterior Painting	12/19/14	7
099123	Interior Painting	12/19/14	9
DIVISION 10 - SPECIALTIES			
101100	Visual Display Surfaces	12/19/14	7
101200	Display Cases	12/19/14	5
101400	Signage	12/19/14	7
102113	Toilet Compartments	12/19/14	4
102800	Toilet, Bath, and Laundry Accessories	12/19/14	7
104413	Fire Extinguisher Cabinets	12/19/14	6
104416	Fire Extinguishers	12/19/14	3
105113	Metal Lockers	12/19/14	8
107500	Flagpoles	12/19/14	3
DIVISION 11 - EQUIPMENT			
111319	Stationary Loading Dock Equipment	12/19/14	4
113100	Residential Appliances	12/19/14	6
114000	Foodservice Equipment	06/19/15	6
115213	Projection Screens	12/19/14	4
DIVISION 12 - FURNISHINGS			
122113	Horizontal Louver Blinds	12/19/14	4
123530	Residential Casework	12/19/14	7
129300	Site Furnishings	12/19/14	4

DIVISION 14 - CONVEYING EQUIPMENT

142100	Electric Traction Elevators	12/19/14	11

Facility Services Subgroup

DIVISION 21 - FIRE SUPPRESSION

210513	Common Motor Requirements for Fire Suppression Equipment	12/19/14	3
210517	Sleeves and Sleeve Seals for Fire Suppression Piping	12/19/14	4
210518	Escutcheons for Fire-suppression Piping	12/19/14	2
210548	Vibration and Seismic Controls for Fire Suppression Piping and Equipment	12/19/14	4
210553	Identification for Fire Suppression Piping and Equipment	12/19/14	3
211200	Fire Suppression Standpipes	12/19/14	13
211313	Wet-pipe Sprinkler Systems	12/19/14	19
211316	Dry-pipe Sprinkler Systems	12/19/14	19

DIVISION 22 - PLUMBING

220513	Common Motor Requirements for Plumbing Equipment	12/19/14	3
220516	Expansion Fittings And Loops for Plumbing Piping	12/19/14	4
220517	Sleeves and Sleeve Seals for Plumbing Piping	12/19/14	4
220518	Escutcheons for Plumbing Piping	12/19/14	2
220519	Meters and Gages for Plumbing Piping	12/19/14	5
220523	General-duty Valves for Plumbing Piping	12/19/14	16
220529	Hangers and Supports for Plumbing Piping and Equipment	12/19/14	8
220553	Identification for Plumbing Piping and Equipment	12/19/14	3
220716	Plumbing Equipment Insulation	12/19/14	15
220719	Plumbing Piping Insulation	12/19/14	20
221116	Domestic Water Piping	12/19/14	13
221119	Domestic Water Piping Specialties	12/19/14	11
221316	Sanitary Waste and Vent Piping	12/19/14	9
221319	Sanitary Waste Piping Specialties	12/19/14	8
221323	Sanitary Waste Interceptors	12/19/14	3
221413	Facility Storm Drainage Piping	12/19/14	10
221423	Storm Drainage Piping Specialties	12/19/14	5
221429	Sump Pumps	12/19/14	6
223400	Fuel-fired, Domestic-water Heaters	12/19/14	7
224100	Residential Plumbing Fixtures	12/19/14	14

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

230513	Common Motor Requirements for HVAC Equipment	12/19/14	3
230516	Expansion Fittings And Loops for HVAC Piping	12/19/14	5
230517	Sleeves and Sleeve Seals for HVAC Piping	12/19/14	4

230518	Escutcheons for HVAC Piping	12/19/14	2
230519	Meters And Gages for HVAC Piping	12/19/14	8
230523	General-duty Valves for HVAC Piping	12/19/14	9
230529	Hangers And Supports for HVAC Piping And Equipment	12/19/14	11
230533	Heat Tracing for HVAC Piping	12/19/14	4
230553	Identification for HVAC Piping and Equipment	12/19/14	6
230593	Testing, Adjusting, and Balancing for HVAC	12/19/14	17
230713	Duct Insulation	12/19/14	18
230716	HVAC Equipment Insulation	12/19/14	17
230719	HVAC Piping Insulation	12/19/14	20
230800	Commissioning Of HVAC	12/19/14	12
230900	Instrumentation and Control for HVAC	12/19/14	21
230993	Sequence Of Operations for HVAC Controls	12/19/14	9
231123	Facility Natural-gas Piping	12/19/14	12
232113	Hydronic Piping	12/19/14	16
232123	Hydronic Pumps	12/19/14	6
233113	Metal Ducts	12/19/14	16
233119	HVAC Casings	12/19/14	8
233300	Air Duct Accessories	12/19/14	15
233416	Centrifugal HVAC Fans	12/19/14	7
233423	HVAC Power Ventilators	12/19/14	7
233524	Straight Rail Vehicle Exhaust Removal System	12/19/14	5
233600	Air Terminal Units	12/19/14	6
233713	Diffusers, Registers, and Grilles	12/19/14	4
233813	Commercial-kitchen Hoods	12/19/14	8
235100	Breechings, Chimneys, And Stacks	12/19/14	6
235216	Condensing Boilers	12/19/14	9
235533	Fuel-fired Unit Heaters	12/19/14	5
236423	Scroll Water Chillers	12/19/14	9
237313	Modular Indoor Central-station Air-handling Units	12/19/14	15
237339	Indoor, Direct Gas-fired Heating and Ventilating Units	12/19/14	7
238123	Computer-room Air-conditioners	12/19/14	6
238216	Air Coils	12/19/14	4
238239	Unit Heaters	12/19/14	9

DIVISION 26 - ELECTRICAL

260519	Low-voltage Electrical Power Conductors and Cables	12/19/14	4
260526	Grounding and Bonding for Electrical Systems	12/19/14	5
260529	Hangers and Supports for Electrical Systems	12/19/14	4
260533	Raceways and Boxes for Electrical Systems	12/19/14	8
260553	Identification for Electrical Systems	12/19/14	8
260800	Commissioning of Electrical Systems	12/19/14	11
260923	Lighting Control Devices	12/19/14	6

262416	Panelboards	12/19/14	6
262726	Wiring Devices	12/19/14	8
262813	Fuses	12/19/14	2
262816	Enclosed Switches and Circuit Breakers	12/19/14	6
263213	Engine Generators	12/19/14	14
263600	Transfer Switches	12/19/14	8
265100	Interior Lighting	12/19/14	14
265600	Exterior Lighting	12/19/14	6
DIVISION 27 - COMMUNICATIONS			
272100	Data Communications Network Equipment	12/19/14	1
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY			
283111	Digital, Addressable Fire-alarm System	12/19/14	13
	Site and Infrastructure Subgroup		
DIVISION 31 - EARTHWORK			
314800	Underpinning	12/19/14	4
DIVISION 32 - EXTERIOR IMPROVEMENTS			
323120	Ornamental Fencing	12/19/14	5

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PRODUCT DATA SHEET 0 - SECTION 011001 – SUMMARY FINISH SCHEDULE KEY

1. GENERAL

a. RELATED DOCUMENTS

1) Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

b. SUMMARY

A. This Section includes the following:

1. Finish keys for use with the Finish Schedule and other areas in the documents.

FINISH SCHEDULE				
SYMBOL	DESCRIPTION	MANUFACTURER	COLOR	REMARKS
		CEILING		
C-1	2X2 ACT	ARMSTRONG	WHITE	ULTIMA / #1912
C-2	2X2 VINYL FACE	ARMSTRONG	WHITE	CLEAN ROOM VL / #868
C-3	GYP. BD.	-	PAINT P-3	-
C-4	WOOD.PNLY./PAINTED	SMOOT	PAINT P-3	T&G PANELING / AP-821 / 1/2"X3"
C-5	EXPOSED CONSTR	-	-	-
		WALLS		
W-1	CMU/BRICK	-	PAINT P-3	-
W-2	GYP. BD. (PAINTED)	-	PAINT P-3	-
W-3	CMU/BRICK CT-1 & CT-2	-	PAINT P-3	-
W-4	GYP.BD.(PT.) / CT-1 & CT-2	-	PAINT P-3	-
W-5	GYP.BD.(PT.) / CT-1 & CT-3	-	PAINT P-3	-
W-6	GYP.BD.(PT.)	-	PAINT P-2, P-3, & P-5	PAINT WOOD CAP P-5, PAINT SLIDE POLE ENCLOSURE GYP. WALLBOARD P-2
CT-1	CERAMIC TILE 6X6	DALTILE	SEMI GLOSS 0135-ALMOND	FIELD
CT-2	CERAMIC TILE 6X6	DALTILE	SEMI GLOSS 0DM1-VERMILLION	HIGHLIGHT-PUBLIC T., KITCHEN, WOMEN'S T/SHOWER, J.C.
CT-3	CERAMIC TILE	DALTILE	SEMI GLOSS	HIGHLIGHT-MEN'S

	6X6		DH69-DENIM	TOILET/SHOWER
		BASE		
B-1	CERAMIC TILE 6X6	DALTILE	SEMI GLOSS 0135-ALMOND	PUBLIC T., KITCHEN, DISINFECTING RM., J.C., TOILET/SHOWER
B-2	VINYL	JOHNSONITE	40-BLACK	-
B-3	WOOD/PAINTED	SMOOT	PAINT P-1	STAIR
B-4	WOOD			
		FLOORS		
T-1	CERAMIC TILE 3X3	DALTILE	KEYSTONES D336-PUMICE	FOYER, PUBLIC T., DISINFECTING RM., J.C.. KITCHEN, TOILET/SHOWER
V-1	VCT	ARMSTRONG	CHARCOAL 51915	FIELD
V-2	VCT	ARMSTRONG	MARASCHINO 51880	ACCENT-WATCH RM., COMPANY OFFICE, MULTI-PURP. RM., DORMITORIES
V-3	VCT	ARMSTRONG	LEMON YELLOW 51812	ACCENT-HALLWAY, DORMITORIES
WD-1	WOOD			
		PAINTS		
P-1	PAINT	BENJAMIN MOORE PAINTS	MOOR-O-MATIC COLOR SYSTEM 1631	TREADS, RAILINGS, & BASE-APPARATUS RM. & STAIR
P-2	PAINT	BENJAMIN MOORE PAINTS	MOOR-O-MATIC COLOR SYSTEM 300	GYP. BD.-SLIDE POLE ENCLOSURE WALLS
P-3	PAINT	BENJAMIN MOORE PAINTS	MOOR-O-MATIC COLOR SYSTEM 860	WALLS/WOOD CEILING
P-4	PAINT	BENJAMIN MOORE PAINTS	MOOR-O-MATIC COLOR SYSTEM 805	DOORS
P-5	PAINT	BENJAMIN MOORE PAINTS	MOOR-O-MATIC COLOR SYSTEM 861	DOOR FRAME/MILLWORK WOOD CAP
		PLASTIC LAMINATE		
PL-1	-	WILSONART	4783-60 WHITE TIGRIS	HEADBOARD/WORK SURFACE/NIGHTSTAND
PL-2	-	WILSONART	1500-60 GREY	CLOSET SHELF/NIGHTSTAND FASCIA
PL-3	-	WILSONART	1595-60 BLACK	BASE
PL-4	-	WILSONART	4806-60 ILLAWARRA BRUSH	WOMEN'S T/S, OFFICERS' T/S - VANITY
PL-5	-	WILSONART	4746-60 WOOLAMAI	MEN'S TOILET/SHOWER - VANITY

			BRUSH	
		TOILET PARTITIONS		
TP-1	FLOOR BRACED SERIES 500	BRADLEY	WARM GRAY #0412	BAKED ENAMEL
TP-2	URINAL SCREEN	BRADLEY	WARM GRAY #0412	BAKED ENAMEL
		LOCKERS		
LKR-1	SINGLE TIER VENTILATED	LYON	CARDINAL RED - 65	GEAR LOCKER RM.
LKR-2	SINGLE TIER QUIET	LYON	GY655 - 7G	MEN'S & WOMEN'S LOCKER RM.
		OTHER		
MISC.-1	BENCH	LYON	GY655-7G	84"W X 9-1/2"D X 18"H (#5797) - WOMEN'S T/S RM
MISC.-2	BENCH	LYON	GY655-7G	48"W X 9-1/2"D X 18"H (#5794) - MEN'S T/S RM
		ELAVATOR		
HDRL.-1	HANDRAIL	OVAL	DH-157	BACK OF CAB ONLY
PLPNL-1	WALL PANELS	WILSONART	4830K	SATIN STAINLESS STEEL PLASTIC LAMINATE ON 3/4" PANEL WITH 3/4" REVEAL PAINTED P-3

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - PRODUCTS

3.1 Not Used

SECTION 01 21 00 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements beyond established allowances will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Quantity allowances.
3. Contingency allowances

C. Contractor agrees that allowance quantities and amounts shall be valid and in effect for the duration of the Project or as stated in the Solicitation.

D. Related Sections include the following:

1. Division 01 Section "Unit Prices" for procedures for using unit prices.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Contracting Officer’s Technical Representative (COTR) of the date when final selection and purchase of each product or system described by an allowance must be completed as dictated by the Project Schedule to avoid delaying the Work.

B. At COTR's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by COTR from the designated supplier.

1.4 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: Refer to Section 01 22 00 "Unit Prices."

1.7 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 001: Lump Sum Allowance: Include the sum of $150,000 for new fittings, fixtures and equipment (FF&E) as required by District. This is in addition to items reflected in the contract drawings and specifications.

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.

B. Allowance No. 002: Unit Cost Allowance: Include the sum of $30,000 for cleaning exterior masonry: Include all exterior brick and masonry as specified in Section 040120 "Maintenance of Unit Masonry" and as shown on Drawings.

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 01 22 00 "Unit Prices."

C. Allowance No. 003: Unit-Cost Allowance: : Include the sum of $10,000 for repointing and repairing of masonry damaged from previous exterior accessories or other items as specified in Section 040120 "Maintenance of Unit Masonry" and as shown on Drawings.

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 01 22 00 "Unit Prices."

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

B. Contractor agrees that Unit Price quantities and amounts shall be in effect for duration of the Contract, or as stated on the Request for Proposal and Bid Forms.

C. Related Sections include the following:

1. Division 01 Section "Allowances" for procedures for using allowances.

1.3 DEFINITIONS

A. Unit price is an amount proposed by Offerors, stated on the Proposal Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1. For quantities indicated on Bid Form, provide unit price and extension.

2. Unit prices include required material, delivery, labor and equipment, hauling, disposal, insurance, overhead, profit, and applicable taxes.

1.4 PROCEDURES

A. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

B. District reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at District's expense, by an independent surveyor.

C. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

1.5 ADJUSTMENT OF ALLOWANCES

A. To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by the unit prices contained in the bid form where applicable, and verified by final measurements of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
2. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 001 – Masonry Cleaning:

1. Description: Cleaning of brick and masonry as specified in Section 040120 "Maintenance of Unit Masonry".
2. Unit of Measurement: Square Foot.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances."

B. Unit Price No. 002 – Masonry Repair and/or Repointing:

1. Description: Masonry Repair and/or Repointing according to Section 040120 "Maintenance of Unit Masonry".
2. Unit of Measurement: Square Foot.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 21 00 "Allowances."

END OF SECTION 01 22 00

SECTION 012300-ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

B. Contractor agrees that Alternate quantities and amounts shall be in effect for duration of the Contract or as stated on the Request for Proposal Bid Forms.

1.2 DEFINITIONS

A. Alternate: An amount proposed by Offerors and stated on the Proposal Form for certain work defined in the Solicitation Requirements that may be added to or deducted from the Base Proposal amount if District decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: 35% CBE Participation.

1. Base Bid: CBE Participation in accordance with all the requirements of the Request For Proposal (Solicitation Number DCAM-15-CS-0130), Section C Economic Inclusion.
2. Alternate: In Request For Proposal (Solicitation Number DCAM-15-CS-0130), Section C - Economic Inclusion, replace all references to “50%” with “35%”.

~~A.~~ ~~Alternate No. 1: Two (2) Year Warranty on all HVAC Systems.~~

~~1. Base Bid: Full 1-year warranty on all HVAC systems as shown on HVAC Drawings and as Specified in Division 23.~~
~~2. Alternate: Additional 1-year warranty on all HVAC systems as shown on HVAC Drawings and as Specified in Division 23.~~

~~B.~~ ~~Alternate No.~~

~~1. Base Bid: 2.~~
~~Alternate:~~

END OF SECTION 012300

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Steel framing and supports for countertops.
2. Steel framing and supports for mechanical and electrical equipment.
3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
4. Shelf angles.
5. Loose bearing and leveling plates.
6. Steel weld plates and angles for casting into concrete not specified in other Sections.
7. Miscellaneous steel trim including steel angle corner guards.
8. Metal ships' ladders.
9. Downspout guards.
10. Abrasive metal nosings.
11. Metal downspout boots.
12. Metal bollards with Covers.
~~12.~~13. Metal Bolard Bicycle Racks.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.
2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

C. Related Sections include the following:

1. Division 03 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
2. Division 04 Section "Unit Masonry" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
3. Division 05 Section "Structural Steel Framing."
4. Division 05 Section "Metal Stairs."
5. Division 05 Section "Metal Gratings."
6. Division 06 Section "Rough Carpentry" for metal framing anchors.

1.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and

other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F , material surfaces.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Nonslip aggregates and nonslip-aggregate surface finishes.
2. Paint products.
3. Grout.

B. LEED Submittal:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.

a. Include statement indicating costs for each product having recycled content.

2. Product Data for Credit MR 5.1 and MR 5.2: Documentation of product having been Extracted, Processed and Manufactured regionally (within 500 miles of project site).

C. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.

D. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.3, "Structural Welding Code--Sheet Steel."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
2. Provide allowance for trimming and fitting at site.

1.7 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.3 FERROUS METALS

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.

B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Steel Tubing: ASTM A 500, cold-formed steel tubing.

D. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

E. Slotted Channel Framing: Cold-formed metal channels with continuous slot complying with MFMA-3.

1. Size of Channels: 1-5/8 by 1-5/8 inches.
2. Material: Galvanized steel complying with ASTM A 653/A 653M, , with G90 coating; 0.108-inch nominal thickness.

2.4 NONFERROUS METALS

A. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.

2.5 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563 ; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1.

D. Anchor Bolts: ASTM F 1554, Grade 36.

E. Eyebolts: ASTM A 489.

F. Machine Screws: ASME B18.6.3.

G. Lag Bolts: ASME B18.2.1.

H. Wood Screws: Flat head, ASME B18.6.1.

I. Plain Washers: Round, ASME B18.22.1.

J. Lock Washers: Helical, spring type, ASME B18.21.1.

K. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

L. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594 .

2.6 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 09 painting Sections.

1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

C. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Products:

    a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
    b. Carboline Company; Carbozinc 621.
    c. ICI Devoe Coatings; Catha-Coat 313.
    d. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
    e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
    f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
    g. Tnemec Company, Inc.; Tneme-Zinc 90-97.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

E. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.

F. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

G. Concrete Materials and Properties: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

2.7 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches , with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.8 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts if units are installed after concrete is placed.

C. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.9 METAL SHIPS' LADDERS

A. Provide metal ships' ladders where indicated. Fabricate of open-type construction with channel or plate stringers and pipe and tube railings unless otherwise indicated. Provide brackets and fittings for installation.

1. Fabricate ships' ladders, including railings from aluminum.
2. Fabricate treads from extruded-aluminum plank grating. Limit openings in gratings to no more than 3/4 inch in least dimension.
3. Fabricate treads from abrasive-surface floor plate.
4. Comply with applicable railing requirements in Division 05 Section "Pipe and Tube Railings."

2.10 LOOSE STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Weld adjoining members together to form a single unit where indicated.

B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches, unless otherwise indicated.

C. Prime loose steel lintels located in exterior walls with zinc-rich primer.

2.11 SHELF ANGLES

A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.

1. Provide mitered and welded units at corners.
2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.

B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.

C. Prime shelf angles located in exterior walls with zinc-rich primer.

D. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

2.12 DOWNSPOUT GUARDS

A. Fabricate downspout guards from 3/8-inch- thick by 12-inch- wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.

B. Prime downspout guards with zinc-rich primer.

2.13 METAL DOWNSPOUT BOOTS

A. Provide downspout boots made from cast aluminum in heights indicated with inlets of size and shape to suit downspouts. Provide units with flanges and holes for countersunk anchor bolts.

1. Outlet: Vertical, to discharge into pipe.

2.14 ABRASIVE METAL NOSINGS

A. Cast-Metal Units: Cast aluminum, with an integral-abrasive, as-cast finish consisting of aluminum oxide, silicon carbide, or a combination of both. Fabricate units in lengths necessary to accurately fit openings or conditions.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Safety Tread Co., Inc.
b. Balco Inc.
c. Safe-T-Metal Company, Inc.

B. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ACL Industries, Inc.
b. American Safety Tread Co., Inc.
c. Amstep Products.
d. Armstrong Products, Inc.
e. Balco Inc.
f. Granite State Casting Co.
g. Wooster Products Inc.

2. Provide ribbed units, with abrasive filler strips projecting 1/16 inch above aluminum extrusion.
3. Provide solid-abrasive-type units without ribs.

C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

D. Drill for mechanical anchors and countersink. Locate holes not more than 4 inches from ends and not more than 12 inches o.c., evenly spaced between ends, unless otherwise indicated. Provide closer spacing if recommended by manufacturer.

1. Provide two rows of holes for units more than 5 inches wide, with two holes aligned at ends and intermediate holes staggered.

E. Apply clear lacquer to concealed surfaces of extruded units.

2.15 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Prime plates with zinc-rich primer.

2.16 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete.

2.17 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

C. Prime exterior miscellaneous steel trim with zinc-rich primer.

2.18 METAL BOLLARDS

A. Fabricate metal bollards from Schedule 80 steel pipe.

1. Where bollards are indicated to receive push-button controls for door operators, provide necessary cutouts for push-button controls and hole for wiring.
2. Install Bollard Covers prior to final punch list. Provide products from one of the following:

a. Interstate Products.
b. Innoplast.
~~c.~~ Quickswitch.

2.19 METAL BICYCLE BOLLARDS

A. Bike Bollard:
1. Basis of Design: Reliance Foundry; R-7530-B.or approved equal.
2. Size: 39 inches high x 10 inches diameter.
3. Design: Cylindrical and fluted, with tapered bottom, ball top and bike arms.
4. Material:
a. Aluminum: ASTM B26; 20 percent recycled-material content.
b. Ductile Cast Iron: ASTM A536, Grade 65-45-12; 30 percent recycled-material content.
5. Arms: Match body.
6. Color Coating:
c. Type: Polyester powder coat over epoxy primer.
d. Color: Black textured semi gloss.
7. Installation:
e. Fixed, existing concrete, adhesive.
8. Security post cover, new post:

~~2.19~~2.20 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

~~2.20~~2.21 STEEL AND IRON FINISHES

A. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

B. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.212.22 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

2.222.23 COPPER-ALLOY FINISHES

A. Finish designations for copper alloys comply with the system established for designating copper-alloy finish systems defined in NAAMM's "Metal Finishes Manual for Architectural and Metal Products."

B. Extruded-Nickel Silver Finish: M11 (Mechanical Finish: specular, as fabricated).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 INSTALLING METAL BOLLARDS

A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.

B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.5 INSTALLING NOSINGS, TREADS, AND THRESHOLDS

A. Center nosings on tread widths unless otherwise indicated.

B. For nosings embedded in concrete steps or curbs, align nosings flush with riser faces and level with tread surfaces.

C. Seal thresholds exposed to exterior with elastomeric sealant complying with Division 07 Section "Joint Sealants" to provide a watertight installation.

3.6 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.

END OF SECTION 055000

SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Adhered PVC membrane roofing system.
2. Vapor retarder.

B. Section includes the installation of acoustical roof deck rib insulation strips furnished under Division 05 Section "Steel Decking."

C. Related Sections:

1. Division 06 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
2. Division 06 Section "Sheathing" for wood-based, structural-use roof deck panels.
3. Division 07 Section "Thermal Insulation" for insulation beneath the roof deck.
4. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
5. Division 07 Section "Joint Sealants" for joint sealants, joint fillers, and joint preparation.
6. Division 22 Section "Storm Drainage Piping Specialties" for roof drains.

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.

1. Corner Uplift Pressure: 225 lbf/sq. ft.

2. Perimeter Uplift Pressure: 150 lbf/sq. ft.
3. Field-of-Roof Uplift Pressure: 75 lbf/sq. ft.
4. Fire/Windstorm Classification: Class 1A-60.
5. Hail Resistance: MH.

D. Energy Performance: Provide roofing system with initial Solar Reflectance Index not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

E. Energy Performance: Provide roofing system that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. LEED Submittals:

1. Product Data for Credit SS 7.2: For roof materials, indicating that roof materials comply with Solar Reflectance Index requirement.
2. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.

1. Base flashings and membrane terminations.
2. Tapered insulation, including slopes.
3. Roof plan showing orientation of steel roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing.
4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

D. Samples for Verification: For the following products:

1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
2. Roof insulation.
3. 10 lb of aggregate ballast in gradation and color indicated.
4. Roof paver, full sized, in each color and texture required.
5. Walkway pads or rolls.
6. Metal termination bars.
7. Battens.
8. Six insulation fasteners of each type, length, and finish.
9. Six roof cover fasteners of each type, length, and finish.

E. Qualification Data: For qualified Installer and manufacturer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.

G. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.

H. Field quality-control reports.

I. Maintenance Data: For roofing system to include in maintenance manuals.

J. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for membrane roofing system identical to that used for this Project.

B. Source Limitations: Obtain components including roof insulation fasteners for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.

C. Exterior Fire-Test Exposure: ASTM E 108, Class B; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

D. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

E. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.

9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.

1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, roof pavers, and other components of membrane roofing system.
2. Warranty Period: 15 years from date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PVC MEMBRANE ROOFING

A. PVC Sheet: ASTM D 4434, Type II, Grade I, glass fiber reinforced, felt backed.

1. Products: Subject to compliance with requirements, provide the following:

a. Sarnafil Inc.; Sarnafil G410.
b. Carlisle Syntec Systems; Sureflex
c. GAF; EverguardPVC

2. Thickness: 60 mils , minimum.
3. Exposed Face Color: Tan

~~B. PVC Sheet: ASTM D 4434, Type III, fabric reinforced.~~

~~1. Manufacturers: Subject to compliance with requirements, provide products by the following:~~

~~a. Sarnafil Inc.; Sarnafil G410.~~
~~b. Carlisle Syntec Systems; Sureflex~~
~~c. GAF; EverguardPVC~~

~~2. Thickness: 60 mils, minimum.~~
~~3.~~1. ~~Exposed Face Color: Tan~~

~~C. PVC Sheet: ASTM D 4434, Type IV, fabric reinforced.~~

~~1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:~~

~~a. Sarnafil Inc..~~

~~2. Thickness: 60 mils, nominal.~~
~~3. Exposed Face Color: Tan~~

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

a. Plastic Foam Adhesives: 50 g/L.
b. Gypsum Board and Panel Adhesives: 50 g/L.
c. Multipurpose Construction Adhesives: 70 g/L.
d. Fiberglass Adhesives: 80 g/L.
e. Contact Adhesive: 80 g/L.
f. Other Adhesives: 250 g/L.
g. PVC Welding Compounds: 510 g/L.
h. Adhesive Primer for Plastic: 650 g/L
i. Single-Ply Roof Membrane Sealants: 450 g/L.
j. Nonmembrane Roof Sealants: 300 g/L.
k. Sealant Primers for Nonporous Substrates: 250 g/L.

l. Sealant Primers for Porous Substrates: 775 g/L.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet membrane.

C. Bonding Adhesive: Manufacturer's standard, water based.

D. Slip Sheet: Manufacturer's standard, of thickness required for application.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.3 SUBSTRATE BOARDS

A. Substrate Board: ASTM C 1396/C 1396M, Type X gypsum board, 5/8 inch thick.

B. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick.

1. Products: Subject to compliance with requirements, provide the following:

a. Georgia-Pacific Corporation; Dens Deck.

C. Substrate Board: ASTM C 1278/C 1278M, cellulosic-fiber-reinforced, water-resistant gypsum substrate, 1/2 inch thick.

1. Products: Subject to compliance with requirements, provide the following:

a. USG Corporation; Securock.

D. Substrate Board: ASTM C 728, perlite board, 3/4 inch thick, seal coated.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate board to roof deck.

2.4 VAPOR RETARDER

A. Polyethylene Film: ASTM D 4397, 6 mils thick, minimum, with maximum permeance rating of 0.13 perm.

1. Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

2. Adhesive: Manufacturer's standard lap adhesive, FM Approvals approved for vapor-retarder application.

B. Laminated Sheet: Kraft paper, two layers, laminated with asphalt and edge reinforced with woven fiberglass yarn with maximum permeance rating of 0.50 perm and with manufacturer's standard adhesive.

C. Glass-Fiber Felts: ASTM D 2178, Type IV, asphalt impregnated.

2.5 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by PVC membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.

C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 ASPHALT MATERIALS

A. Roofing Asphalt: ASTM D 312, Type III or Type IV.

B. Asphalt Primer: ASTM D 41.

2.7 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick~~,~~ and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."
4. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
5. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.

6. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

D. Install acoustical roof deck rib insulation strips, specified in Division 05 Section "Steel Decking," according to acoustical roof deck manufacturer's written instructions, immediately before installation of overlying construction and to remain dry.

3.3 SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

1. Fasten substrate board to top flanges of steel deck according to recommendations in FM Approvals' "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification.
2. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions.

3.4 VAPOR-RETARDER INSTALLATION

A. Polyethylene Film: Loosely lay polyethylene-film vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2 inches and 6 inches, respectively.

1. Continuously seal side and end laps with adhesive.

B. Laminate Sheet: Install laminate-sheet vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2 inches and 6 inches, respectively. Bond vapor retarder to substrate as follows:

1. Apply adhesive at rate recommended by vapor-retarder manufacturer. Seal laps with adhesive.

C. Built-up Vapor Retarder: Install two glass-fiber felt plies lapping each felt 19 inches over preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Glaze-coat

completed surface with hot roofing asphalt. Apply hot roofing asphalt within plus or minus 25 deg F of equiviscous temperature.

D. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into membrane roofing system.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.

1. Install sheet according to ASTM D 5036.

B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.

E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.

F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

I. Install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing membrane roofing system.

3.6 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.7 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.10 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

1. Owner: _____.
2. Address: _____.
3. Building Name/Type: _____.
4. Address: _____.
5. Area of Work: _____.
6. Acceptance Date: _____.

7. Warranty Period: _____.
8. Expiration Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

   a. Lightning;
   b. Peak gust wind speed exceeding _____ mph ;
   c. Fire;
   d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
   e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
   f. Vapor condensation on bottom of roofing; and
   g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work

according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 075419

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Roof curbs.
2. Equipment supports.
3. Roof hatches.
4. Attic walkways.
5. Weathervanes.

B. Related Sections include the following:

1. Division 05 Section "Metal Fabrications" for metal vertical ladders, ships' ladders, and stairs for access to roof hatches.
2. Division 05 Section "Pipe and Tube Railings" for safety railing system not attached to roof hatch curbs.
3. Division 06 Section "Rough Carpentry" for roof sheathing, wood cants, and wood nailers.
4. Division 07 steep-slope roofing Sections for ridge vents.
5. Division 07 low-slope roofing Sections for roofing accessories.
6. Division 07 Section "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.
7. Division 07 Section "Roof Specialties" for fascia, copings, and gravel stops.
8. Division 08 Section "Unit Skylights" for small individual skylights.
9. Division 23 Section "HVAC Power Ventilators" for power roof-mounted ventilators.

1.3 SUBMITTALS

A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.

C. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:

1. Size and location of roof accessories specified in this Section.
2. Method of attaching roof accessories to roof or building structure.

3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.

1.4 QUALITY ASSURANCE

A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

2.2 METAL MATERIALS

A. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 coated and mill phosphatized for field painting.

B. Prepainted, Metallic-Coated Steel Sheet: Steel sheet metallic coated by hot-dip process and prepainted by coil-coating process to comply with ASTM A 755/A 755M.

1. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 coated.
2. Exposed Finishes: High-Performance Organic Finish (2-Coat Fluoropolymer): Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.

a. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements in AAMA 2604, except as modified below:

1) Humidity Resistance: 2000 hours.

C. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and mill finish.

D. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 temper.

1. Exposed Finish: Apply the following finish, as specified or indicated on Drawings:

a. Natural finish.
b. Brushed Satin: CDA M32-06x (Mechanical Finish: directionally textured, medium satin; Coating: clear organic, air drying, as specified below):

E. Stainless-Steel Shapes or Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304 or Type 316, No. 2D finish.

F. Steel Shapes: ASTM A 36/A 36M, hot-dip galvanized to comply with ASTM A 123/A 123M, unless otherwise indicated.

2.3 MISCELLANEOUS MATERIALS

A. Polyisocyanurate Board Insulation: ASTM C 1289, 3 inch thick.

B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

C. Polyethylene Sheet: 6-mil- thick, polyethylene sheet complying with ASTM D 4397.

D. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

1. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft..

E. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.

F. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.

G. Elastomeric Sealant: ASTM C 920, silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

H. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, and heavy bodied for hooked-type expansion joints with limited movement.

I. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.4 ROOF CURBS

A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints, with integral metal cant and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Available Manufacturers:

   a. Colony Custom Curbs.
   b. LM Curbs.
   c. Thaler Metal Industries Ltd.

2. Material: Aluminum sheet, 0.090 inch thick.

   a. Finish: High-performance organic coating.
   b. Finish: Mill.

3. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of 12 inches, unless otherwise indicated.

2.5 EQUIPMENT SUPPORTS

A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or sealed mechanical corner joints, with integral metal cant and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Available Manufacturers:

   a. Colony Custom Curbs.
   b. LM Curbs.
   c. Thaler Metal Industries Ltd.

2. Material: Aluminum sheet, 0.090 inch thick.

   a. Finish: High-performance organic coating.
   b. Finish: Mill.

3. Metal Counterflashing: Manufacturer's standard removable counterflashing, fabricated of same metal and finish as equipment support.
4. Fabricate units to minimum height of 12 inches, unless otherwise indicated.

2.6 WEATHERVANES

A. Weathervanes: Provide metal weathervane, internally reinforced at top of tower roof, including directional compass point cross bars with lettering. Fabricate with welded or sealed mechanical

corner joints, with integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Basis of Design Manufacturer:

   a. West Coast Weathervanes.

2. Material: Copper sheet, 0.090 inch thick.

   a. Finish: Natural with brushed highlights.

3. Metal Counterflashing: Manufacturer's standard removable counterflashing, fabricated of same metal and finish as equipment support.
4. Fabricate units to minimum height of 36 inches, unless otherwise indicated.

2.7 ROOF HATCHES

A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.

1. Available Manufacturers:

   a. Babcock-Davis; a Cierra Products Inc. Company.
   b. Bilco Company (The).
   c. Hi Pro International, Inc.
   d. J. L. Industries, Inc.

2. Loads: Fabricate roof hatches to withstand 40-lbf/sq. ft. external and 20-lbf/sq. ft. internal loads.
3. Type and Size: Single-leaf lid, 30 by 96 inches.
4. Curb and Lid Material: Aluminum sheet, 0.090 inch thick.

   a. Finish: High-performance organic coating.
   b. Finish: Mill.

5. Insulation: Polyisocyanurate board.
6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
7. Fabricate units to minimum height of 12 inches, unless otherwise indicated.
8. Hardware: Stainless-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.

2.8 ATTIC WALKWAYS

A. Roof Walkway: Metal planking formed from multiple C-shaped channels with upper surface punched in serrated diamond or rectangular shapes to produce raised slip-resistant surface and drainage holes. Provide support framing, brackets, connectors, nosings, and other accessories and components needed for complete installation. Include step units or stairs of similar construction for changes in elevation. Equip with safety railings that are acceptable to authorities having jurisdiction, where height of walkway or stairs requires them.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Erectastep System platforms, posts, Handrails, etc.or comparable product by one of the following:

    1. Steel Solutions Inc. – Franklin, WI.
    2. Atkore International – Unistrut Catwalk Systems.

2. Plank Width: 24 inches min. or manufacturer's standard(610 mm).
3. Walkway Width: 24" min.
4. Channel Depth: 4 inches (38 mm).
5. Metal Material: 0.108-inch-(2.74-mm-)thick zinc-coated (galvanized) steel sheet or 0.1875-inch-(2.54-mm-)thick aluminum sheet.
6. Support Stands: Manufacturer's standard, Bolted to existing structure.
7. Finish: Manufacturer's standard.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
2. Verify dimensions of roof openings for roof accessories.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Install roof accessories to fit substrates and to result in watertight performance.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.

D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

E. Roof Curb Installation:

1. Set roof curb so top surface of roof curb is level.

F. Equipment Support Installation:

1. Set equipment support so top surface of equipment support is level.

G. Roof Hatch Installation:

1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.

H. Roof Walkway Installation:

1. Verify location of points of access to roof-mounted equipment via use of attic walkways.
2. Verify that attic walkway support posts are in place and the attic is insulated prior to placement of roof walkway onto the vertical supports.

I. Seal joints with elastomeric sealant as required by manufacturer of roof accessories.

3.3 TOUCH UP

A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 09 painting Sections.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.4 CLEANING

A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 077200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes hollow-metal work.

B. Related Requirements:

1. Section 087100 "Door Hardware for door hardware for hollow-metal doors.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, fire-resistance ratings**,** and finishes.

B. LEED Submittals:

1. Product Data for Credit MR 4.1 and MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
2. Product Certificates for Credit MR 5.1 and MR 5.2: For products and materials required to comply with requirements for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw

material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional (within 500 miles of project site).

C. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

D. Samples for Verification:

1. For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches .
2. For "Doors" and "Frames" subparagraphs below, prepare Samples approximately **12 by 12 inches** to demonstrate compliance with requirements for quality of materials and construction:

a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow-metal panels and glazing if applicable.

E. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.7 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

1. Provide additional protection to prevent damage to factory-finished units.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Amweld International, LLC.
2. Ceco Door Products; an Assa Abloy Group company.
3. Curries Company; an Assa Abloy Group company.
4. Deansteel.
5. Fleming-Baron Door Products.
6. National Custom Hollow Metal.
7. Steelcraft; an Ingersoll-Rand company.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.3 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Standard-Duty Doors and Frames: SDI A250.8, Level 1. At locations indicated in the Door and Frame Schedule

1. Physical Performance: Level C according to SDI A250.4.
2. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: **1-3/4 inches**.
c. Face: Metallic coated, cold-rolled steel sheet, minimum thickness of ~~.0747~~ 0.067 inch.
d. Edge Construction: Model 1, Full Flush.
e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.

3. Frames:

a. Materials: Metallic-coated, cold-rolled steel sheet, minimum thickness of ~~.1046~~ 0.093 inch.
b. Construction: Full profile welded.

4. Exposed Finish: Prime.

2.4 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level B according to SDI A250.4.
2. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches
c. Face: Metallic-coated steel sheet, minimum thickness of ~~0.0747~~0.067 inch, with minimum A40 coating.
d. Edge Construction: Model 1, Full Flush.
e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.

1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than **2.1 deg F x h x sq. ft./Btu** when tested according to ASTM C 1363.

3. Frames:

a. Materials: Metallic-coated steel sheet, minimum thickness of ~~0.1046~~0.093 inch, with minimum A40 coating.
b. Construction: Full profile welded.

4. Exposed Finish: Prime.

2.5 HOLLOW-METAL PANELS

A. Provide hollow-metal panels of same materials, construction, and finish as adjacent door assemblies.

2.6 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch , and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.7 MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

C. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

D. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

E. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

F. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

G. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

H. Grout: ASTM C 476, except with a maximum slump of 4 inches , as measured according to ASTM C 143/C 143M.

I. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

J. Glazing: Comply with requirements in Section 088000 "Glazing."

K. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.8 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch , steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Fire Door Cores: As required to provide fire-protection and temperature-rise ratings indicated.
3. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
4. Top Edge Closures: Close top edges of doors with inverted closures of same material as face sheets.
5. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.
6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:

a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:

1) Two anchors per jamb up to 60 inches high.
2) Three anchors per jamb from 60 to 90 inches high.
3) Four anchors per jamb from 90 to 120 inches high.
4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

1) Three anchors per jamb up to 60 inches high.
2) Four anchors per jamb from 60 to 90 inches high.
3) Five anchors per jamb from 90 to 96 inches high.
4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.

c. Compression Type: Not less than two anchors in each frame.

d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

6. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow-metal work.
5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.9 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
2. Color and Gloss: Match Architect's sample.

2.10 ACCESSORIES

A. Louvers: Provide louvers for interior doors, where indicated, which comply with SDI 111C, with blades or baffles formed of 0.020-inch- thick, cold-rolled steel sheet set into 0.032-inch- thick steel frame.

1. Sightproof Louver: Stationary louvers constructed with inverted-V or inverted-Y blades.

B. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

C. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch , measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch , measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch , measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch , measured at jambs at floor.

C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

    a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch .
    b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch .
    c. At Bottom of Door: **3/4 inch** plus or minus 1/32 inch .
    d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch .

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.

D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 081113

SECTION 083614 – FOUR-FOLD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes Electromechanically operated sectional doors.

B. Related Sections:

1. Division 05 Section "Metal Fabrications" for miscellaneous steel supports.
2. Division 09 Section(s) "Exterior Painting" and "Interior Painting" for finish painting of factory-primed doors.
3. Division 26 Sections for electrical service and connections for powered operators and accessories.

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Four-fold doors shall meet performance requirements specified without failure due to defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.

B. Delegated Design: Design Four-fold doors, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E 283 or DASMA 105.

1. Air Infiltration: Maximum rate of 0.08 cfm/sq. ft. at 15 and 25 mph .

D. Doors shall be designed to withstand external or internal horizontal wind loads of 20 pounds minimum per square foot. The maximum allowable deflection shall not exceed 1/120 of the span. Fiber stresses in main members shall be limited to 27,000 pounds per square inch. Steel frames shall be designed in accordance with the AISC “Steel Construction Manual”. .

E. Seismic Performance: Sectional doors shall withstand the effects of earthquake motions determined according to.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
2. Seismic Component Importance Factor: 1.0.

F. Operation Cycles: Provide sectional door components and operators capable of operating for not less than number of cycles indicated for each door. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

1.4 ACTION SUBMITTALS

A. Product Data: For each type and size of sectional door and accessory. Include the following:

1. Construction details, material descriptions, dimensions of individual components, profile door sections, and finishes.
2. Rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:

1. Flat Door Sections: 6 inches square.
2. Frame for Paneled Door Sections: 6 inches long of each width of stile and rail required.
3. Panel for Raised-Panel Door Sections: 12 inches square at panel corner, but not smaller than required to show raised-panel profile.

1.5 INFORMATIONAL SUBMITTALS

A. Warranties: Sample of special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sectional doors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.

B. Source Limitations: Obtain sectional doors from single source from single manufacturer.

1. Obtain operators and controls from sectional door manufacturer.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Standard for Sectional Doors: Fabricate sectional doors to comply with DASMA 102 unless otherwise indicated.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Faulty operation of hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use; rust through.
d. Delamination of exterior or interior facing materials.

2. Warranty Period: Five years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Four-fold industrial metal doors manufactured by Electric Power Door. 522 West 27th Street, Hibbing, MN 55746, 1-800-346-5760 **Model 41 Hydraulic Four Fold**.

2.2 BIFOLD STEEL DOOR SECTIONS

A. Materials and Fabrication:

1. Steel Tubing, Electric Welded: ASTM A513
2. Steel Tubing, Structural Welded: ASTM A500 Grade B
3. Structural Shapes and plates: ASTM 36
4. Castings, Cast Iron: ASTM A48
5. Face Sheets: Steel sheet metal, flat, hot rolled, 14 gauge minimum ASTM A569
6. Glazing: 1” clear insulating glass units
7. The use of cold formed shapes for structural members or stiffeners fabricated from sheets or strips of any material will not be allowed.

B. Construction: Custom metal fabrications as indicated.

8. Door panel frames (leaves) will have both horizontal and vertical structural framing, and shall be constructed of standard structural steel, square steel tubing, or rectangular steel tubing sections of ample size and strength for loads and stresses imposed under the specified conditions. Minimum steel tube thickness of the vertical perimeter members shall not be less than 0.083” or 14 gauge. Interior door panel frame members shall be steel tubing not less than 0.083” or 14 gauge thick and spaced at not more than 24 inches center to center. Pan style construction or the use of cold/hot formed sheet metal channels, hats, angles, or other sheet formed members in the panel construction will not be allowed.

9. The structural frames for the door panels shall be of welded construction and all joints shall be ground smooth wherever exposed and/or where sheeting overlaps the framing members.
10. Door panel frame members shall be true to dimension and square in all dimensions.
11. Door panels shall not be bowed, warped, or out of line by more than 1/8" in 20 feet.
12. Exposed welds and welds which interfere with the installation of various parts shall be ground smooth.
13. Unglazed portions of the door panel frames shall be sheeted on both sides with 12 gauge flat hot rolled steel which is welded to the door panel frame. Exterior sheeting above and below the windows shall be inset to have the appearance of the existing doors. Welds to be 9" O.C. All exposed seams of the door panel sheeting shall be caulked with Eclectic Brand E6100 adhesive caulk after fabrication and prior to prime painting.

C. Insulation: Unglazed portions of the door sections shall be insulated with 2" of fibrous glass batt-type insulation providing a U-value of .12 or less. The insulating material shall be fitted to cover the entire surface of the door panel between the structural members.

D. Door Finish: Pre-treatment as required by primer manufacturer. Basis of design primer to be Diamond Vogal AZ5400. Basis of design finish coat to be Diamond Vogal AZ5411.

E. Finish coat to match Architect's sample of Duron Chinese Red.

F. Glazing, Grill/Louver Options:

1. Vision Panels (FF200 Series): Provide vision panels of the type, size, shape and location as noted on the drawings.
2. Provide 1" clear insulated glass units.
3. Window frames are to match the appearance of existing doors.

2.3 TRACKS, SUPPORTS, AND ACCESSORIES

A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances shown on Drawings, and complying with ASTM A 653/A 653M for minimum G60 zinc coating. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track spaced 2 inches apart for door-drop safety device. Slope tracks at proper angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.

B. Door Guides:

~~B.~~1. The door guides shall be an upside down channel shape fabricated from ¼" thick steel plate. Include wall support brackets. Guides shall be capable of being mounted within 4" of headroom.

C. Guide Roller Assemblies:

2. The door shall have a minimum of two anti-friction bearing guide rollers. The guide rollers shall be of sufficient size to transmit the windload from the door panel to the steel door guides.

D. Jamb Hinges: Door shall be complete with shop-applied strap type jamb hinges. Jamb hinge seams must be welded. Jamb hinges shall be gusseted along both edges. Each hinge shall be supported on Timken roller bearings. Hinges shall be through bolted on panel. Grease zerk fittings shall be provided on all hinges for greasing hinge pintles.

E. Hinge Pintles: Jamb hinges shall have continuous 7/8" diameter steel pintles the full height of the opening.

F. Fold Hinges: Door shall be complete with barrel type fold hinges. Fold hinge seams must be welded. Fold hinges shall be of dual capture design and have no less than two (2) shear planes. Fold hinges shall be equipped with a 5/8" (for doors up to 15') or 7/8"(for doors 15' or wider) diameter hinge pin with grease chase and grease zerk for lubrication. All fold hinges shall be equipped with two (2) Timken roller bearings.

G. Weather strip: Doors shall be completely weather stripped with impregnated dual durometer snap-on type weather seal at the jambs and head, cloth inserted rubber sweep at sill, combination reversing edge and rubber seal at meeting edges, and sponge rubber and metal astragal between door sections.

H. Operating Unit: Doors shall be hydraulically operated using one (1) top mounted cylinder actuator per side. Rotary type actuators will not be allowed. The cylinder rods shall be retracted when door is in closed position.

1. The operator shall be furnished complete and shall consist of an integral pump and tank assembly attached to the motor, mounting brackets, control panel, adjustable limits, hydraulic cylinders, push buttons, and all necessary brackets and fittings to provide a smooth and satisfactory operation.

2. Operator shall open or close the door, starting the door in motion smoothly, the accelerating to mid-swing and bring it to an adjustable slow smooth stop.

3. The operator mechanism shall be instantly reversible and capable of functioning without chatter and/or vibration.

4. Provide an emergency override system so door can be operated in case of power failure.

5. Door panels shall be free to operate manually after emergency override system is activated.

6. The system shall automatically reset itself after returning to power operation without readjusting any limit switches.

7. Electric Motors: Each electric motor shall be 2 H.P. minimum suitable for operation on 460 volt, 3 phase, 60 Hz power. Motor shall be 1725 RPM, totally enclosed fan cooled, with "C" face for mounting to pump unit. Specify different voltage if required.

8. Pump Unit: Each pump unit shall be rated to provide maximum 1,100 PSI oil pressure at 3 gallons per minute pumping rate. Oil pressure gauge shall be provided.

9. Reservoir Tank: Each reservoir tank shall have a 4.5 gallon capacity and be equipped with oil level gauge and filler cap with vent plug.

10. Valves: Electric Solenoid Valves, flow control valves, and safety pressure relief valves shall be incorporated into a single machined manifold block which is fixed to the integral motor-pump-reservoir unit. These valves shall control starting, stopping, acceleration, deceleration, speed, and direction. The valves should be able to start the doors slowly, increase to maximum speed at mid cycle, and slow to a smooth stop. All movements shall be accomplished without vibration and/or chatter.

11. Hydraulic Hose:: The hydraulic hose shall be minimum 3/8" diameter I.D. hose to consist of an inner synthetic rubber tube with one braid of high tensile strength steel wire reinforcement and an outer synthetic rubber cover which is resistant to oil, weather, and

abrasion. Temperature range to be –40 degrees to +250 degrees F. Minimum burst pressure to be 9,000 PSI. Hose to be SAE 100 R1 type at.

12. Hydraulic Tubing: The hydraulic tubing shall be minimum ½" diameter O.D. x 0.049 wall steel tubing – annealed, low carbon, 47,500 PSI tensile strength, SAE J525, flushed and tested. All fittings shall be included.

13. Needle type disconnect flow control valves shall also be provided to allow for manual operation of the doors without having to disconnect the cylinder actuators from the door panels.

14. Wall Mounting Brackets: Provide wall mounting brackets for motor and pump assembly.

15. Each power pack unit shall also have an electrical junction box with terminals for wiring to the electric solenoid valves.

16. Hydraulic fluid shall be Lubriplate 231052 –70.

17. A NEMA 4 control panel housing the motor starter, relays, timers, transformer, etc. shall also be provided with each power pack unit. Control panel assembly shall be U.L. labeled. Specify other NEMA Classes if required.

18. Controls: Doors shall be opened and closed from remote switches located near the door opening. Pushbuttons shall be located on the interior of the building where shown and shall be the three-button type, with the buttons marked "OPEN", "CLOSE", and "STOP". The "OPEN" button shall be of the type requiring only momentary pressure by the operator to cause the door to go from the closed to fully open position. The "CLOSE" button shall require constant pressure from the operator to maintain the closing motion of the door. When the door is in full motion and the "STOP" button is pressed, the door shall stop instantly and remain in the stop position; from the stop positions, the door may then be operated in either direction by pushing the "OPEN" or "CLOSE" button. Pushbuttons shall be NEMA rated for the environment specified.

19. Limit Switches: Shall be NEMA rated switches mounted to cylinder actuators.

20. Sensing Device: Pneumatic-type reversing edges shall be located full length of the door on the leading edges of the two center sections. Reversing edges will automatically reverse the doors should they come in contact with an obstruction during closing. This reversing edge shall not substitute for a limit switch.

21. Photo Electric Eyes: A photo electric eye shall be located on both sides of the opening. These photo eyes will automatically reverse the door if an obstruction is in the door opening during closing. Photo eyes shall be through beam type. Photo enclosures to be NEMA 4X or IP6.

22. Radio controls: Provide Pulsar model 831RE receivers and 8833T Transmitters. Provide one (1) transmitter per door opening. (Change quantity as required)

~~2.4 HARDWARE~~

~~A. General: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.~~

B. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide 3-inch- diameter roller tires for 3-inch- wide track and 2-inch-diameter roller tires for 2-inch- wide track.

C. Jamb Hinges: Door shall be complete with shop –applied strap type jamb-hinges. Jamb hinges to be constructed from steel 3" x 3/8" bar. Any seams where the barrel of the jamb hinge joins the strap must be fully welded. For 2 inch thick doors, on the jamb hinges where the actuators are located, a pair of gussets consisting of 1" x 3/8" x 21" long steel bars shall be welded to the surface of the hinge strap and barrel. The rest of the jamb hinges on 2 inch thick doors will not be required to have gussets. For doors 3 or more inches thick all of the jamb hinges will be gusseted. Each hinge shall be supported on Timken roller bearings properly sized to cary the weight of the jamb and center door panels. Jamb hinges shall be attached to the door panel with bolted connections. Grease zerk fittings shall be provided on all hinges for greasing hinge pintles.

D. Hinge Pintles: Jamb hinges shall have a continuous 7/8" diameter steel pintle extending through the wall mounted jamb support plates and the strap hinge barrels for the full height of the opening. Stainless steel pintles used on exterior mounted or in corrosive areas.

E. Fold Hinges: Door shall be complete with butt-type fold hinges. Fold hinges on doors up to 15" wide shall be constructed from 6" x 3/8" steel plate or bar. Any seams where the barrel of the fold hinge joins the strap must be fully welded. Hinge pins on the fold hinges shall be fully captured in the hinge stationary barrels above and below the rotating hinge. Fold hinges shall be equipped with a 13/16" diameter hinge pins. Folding hinge pins shall have a grease chase with grease zerk fittings provided for lubrication. All fold hinges shall be equipped with bearings properly sized to carry the weight of the center door panel. Fold hinges shall be attached to the center and jamb door panel with bolted connections.

F. Weather-stripping: Doors shall be fully weather-stripped. The door manufacturer shall have factory tested similar door seal systems for air leakage per ASTM E283 with test results verified by an independent testing laboratory.

G. Supply dual durometer, all temperature, ultra violet stable PVC electrometric snap-on type weather seal including 1" x 1" x 1/8" steel doorstop angles for application to the doorjambs and head.

H. Cloth inserted 1/8" rubber sweeps with aluminum retainer bars shall be supplied for application to the sill area.

I. A combination reversing edge/weather seal shall be included for sealing in the center meeting edges of the door panels. The Reversing edge/weather seal shall be fabricated from a 1" diameter gum rubber pressure sensing tube covered with weather resistant vinyl impregnated onto rip-stop nylon fabric.

J. Closed cell sponge rubber attached to metal astragal bars shall be used to seal the folding joint between the door sections.

2.5 LOCKING DEVICES

A. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

2.6 ELECTRIC DOOR OPERATORS

A. General: Each four-fold door shall be operated by an overhead mounted electro-mechanical drive unit designed for high cycle operation. Operator consists of an electric motor, gear reducer, and rotating drive arm. The door shall be operated with connecting rods attached to the rotating drive arm on the operator and to control arms attached to the jamb door section and to the door lintel. The connecting rods shall be positive drive, keeping the door under firm control at all times. The connecting rods shall be fitted with spherical bearings and control arms shall be equipped with oil impregnated bronze bearings on polished shafts. Exterior mounted operators shall have a formed weather hood. Durability requirement in first paragraph below is separate from "operation cycles," which apply to whole door system and are discussed in "Performance Requirements" Article.

B. Operator shall be instantly reversible, open and close rapidly and start and stop gradually. Operator shall be adjustable to allow door to fully clear the opening. Operator shall automatically lock the door in the closed position. Operator shall be equipped with disengaging mechanism to convert to free wheeling mode for manual operation..

C. Electric motor shall be of sufficient size to operate doors under normal operating conditions at no more than 75 percent of rated capacity. The motor shall be wound for three phase 208/260/480 VAC, 60 Hertz operation. Headroom is required for mounting type in first subparagraph below.

D. Electrical Controls:

E. Control Panel: Each door shall be furnished with a NEMA 12 control panel enclosure. The control panel assembly shall be U.L. labeled and house a reversing across-the-line type magnetic motor starter having thermal-overload protection along with control relays, timers, fuses, terminal strips, and other electronic components as required to provide the specified operating sequences. All components shall be neatly labeled and pre-wired to numbered terminal strips that correspond to all the door's additional electrical components that are located outside of the electrical control panel enclosure. Power circuits in excess of 200 volts shall be provided with control transformers to reduce the voltage in the control circuit to 120 volts.

F. Pushbuttons: Pushbuttons shall be located on the interior of the building where shown and shall be the three button type, with the buttons marked "OPEN", "CLOSE", and "STOP". The "OPEN" button shall be of the type requiring only momentary pressure by the operator to cause the door to go from the closed to the fully open position. The "CLOSE" button shall require constant pressure from the operator to maintain the closing motion of the door. When the door is in motion and the "STOP" button is pressed, the door shall stop instantly and remain in the stop position; from the stop position, the door may then be operated in either direction by pushing the "OPEN" or "CLOSE" button. Pushbuttons shall be NEMA 12/13 rated.

1. Interior units, full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
2. Exterior units, full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.

G. Limit Switches: Shall be rotary can-type switches with NEMA rated micro switches.

H. Photo Eyes: a photo electric eye shall be located on both sides of the opening. These photo eyes will automatically reverse the door if an obstruction is in the door opening during closing. Photo eyes shall be through beam type. Photo enclosure to be NEMA 4X or IP6.

I. Reversing Device: Pneumatic-type reversing edges shall be located full length of the door on the leading edges of the two center sections. Reversing edges will automatically reverse the doors should they come in contact with an obstruction during closing. The reversing edges shall not substitute for limit switches. Electric sensing edge optional.

J. Controls Sequencing Requirements: Three button pushbutton station, marked open, closed, stop. When Activated: To open door – push the "open" pushbutton. The door will move to its fully open position and stop. Only momentary pressure is required on the "open" pushbutton. To close door—push the "close" pushbutton. The door will move to the fully closed position and stop. Constant pressure is required on the "close" pushbutton. To stop the door travel – push the "stop" pushbutton. Radio controls: Radio controls will be active at all times. To open door – send an "open" signal from the radio control, the door will travel to the full open position, and stop. Only momentary signal is required. Sensing Edge and Phtoo Eyes: If a sensing edge or photo eye is activated by an obstruction while the door is closing, the door will stop, reverse its direction of travel, and return to the open position. Clear the obstruction from the path of door travel before again attempting to close door.

K. Obstruction Detection Device: Equip motorized door with indicated external automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.

1. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.

a. Self-Monitoring Type: Provide one interior and one exterior mounted photo eye (sender/receiver type) with mounting brackets. Photo eyes shall be NEMA 4.

2. Sensor Edge: Provide electric safety edges on leading edge of all doors to reverse door upon contact with obstruction.. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.

a. Self-Monitoring Type: Four-wire configured device designed to interface with door-operator control circuit to detect damage to or disconnection of sensor edge.

L. Loop Detectors: Provide 'open' and 'safety' loop detectors as required. Control panel shall have an Auto/Manual switch for activating and deactivating the 'open' loop function

M. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf.

N. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.

O. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

P. Wiring: Door manufacturer shall supply controls only. Electrical contractor shall install controls and furnish and install conduits and wiring for jobsite power and control wiring.

Q. Audible and Visual Signals: Audible alarm and visual indicator lights in compliance with regulatory requirements for accessibility.

R. Radio-Control System: Basis of Design is Pulsar Model MMTC831RE and MMTC8833T. Consisting of the following:

1. Three-channel universal coaxial receiver to open, close, and stop door; two per operator.
2. Multifunction remote control.
3. Remote antenna and mounting kit.

~~2.7~~2.4 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. General: Thoroughly clean, pre-treat and prime surfaces of door assembly including fixed panels trim, support and closure pieces.

1. Pre-treatment: As required by primer manufacturer.

2. Primer: Provide PG series Stratum Urethane Primer

3. Finish Paint: Provide IG – series Pinnacle 460 Acrylic Polyurethane, (DC Fire Station Red)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.

B. Examine locations of electrical connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install four fold metal doors in strict accordance with the approved drawings by qualified door erection crews. All door openings shall be completely prepared by the general contractor prior to the installation of the doors. Permanent or temporary electric wiring shall be brought to the door opening before installation is started and shall be completed so as not to delay the inspection test.

B. Doors shall be set plumb, level, and square, and with all parts properly fastened and mounted. All moving parts shall be tested and adjusted and left in good operating condition.

3.3 STARTUP SERVICES

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

A. Inspection of the doors and a complete operating test will be made by the installer in the presence of the general contractor or architect as soon as the erection is complete. Any defects noted shall be corrected. After door approval in the above test, the general contractor must assume the responsibility for any damage or rough handling of the doors during construction until the building is turned over to the owner and final inspection is made.

B. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.

C. Lubricate bearings and sliding parts as recommended by manufacturer.

D. Adjust doors and seals to provide weathertight fit around entire perimeter.

E. Align and adjust motors, pulleys, belts, sprockets, chains, and controls according to manufacturer's written instructions.

F. Touch-up Painting: Immediately after welding galvanized materials, clean welds and abraded galvanized surfaces and repair galvanizing to comply with ASTM A 780.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 083613

SECTION 114000 - FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

SCHEDULE 2 - Types of food service and related equipment required include the following:

1. Cooking equipment.
2. Self-contained refrigeration equipment.
3. Dishwasher.
4. Kitchen Sink and Disposer.
5. Microwave Oven.
6. Exhaust Hood and Fire Suppression system.

B. Related Sections:

1. Division 21, 22, and 23 Sections for supply and exhaust fans; exhaust ductwork; service roughing-ins; drain traps; atmospheric vents; valves, pipes, and fittings; fire-extinguishing systems; and other materials required to complete foodservice equipment installation.
2. Division 23 Section "Commercial-Kitchen Hoods" for ventilation hoods.
3. Division 26 Sections for connections to fire-alarm systems, wiring, disconnect switches, and other electrical materials required to complete foodservice equipment installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include the following:

1. Manufacturer's model number.
2. Accessories and components that will be included for Project.
3. Clearance requirements for access and maintenance.

B. Samples for Verification: For each factory-applied color finish required, in manufacturer's standard sizes.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For foodservice equipment to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Closeout Procedures Operation and Maintenance Data," include the following:

1. Product Schedule: For each foodservice equipment item, include the following:

a. Designation indicated on Drawings.

b. Manufacturer's name and model number.
c. List of factory-authorized service agencies including addresses and telephone numbers.

1.5 QUALITY ASSURANCE

A. NSF Standards: Provide equipment that bears NSF Certification Mark or UL Classification Mark certifying compliance with applicable NSF standards.

B. UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.

C. Regulatory Requirements: Install equipment to comply with the following:

1. NFPA 54, "National Fuel Gas Code."
2. NFPA 70, "National Electrical Code."
3. NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of construction contiguous with foodservice equipment by field measurements before fabrication. Indicate measurements on Coordination Drawings.

1.7 COORDINATION

A. Coordinate foodservice equipment layout and installation with other work, including layout and installation of lighting fixtures, HVAC equipment, and fire-suppression system components.

B. Coordinate sizes, locations, and requirements of the following:

1. Overhead equipment supports.
2. Equipment bases.
3. Floor depressions.
4. Insulated floors.
5. Floor areas with positive slopes to drains.
6. Floor sinks and drains serving foodservice equipment.
7. Roof curbs, equipment supports, and penetrations.

PART 2 - PRODUCTS

2.1 COUNTERS, BASE CABINETS, AND WALL CABINETS

A. Stainless-Steel Table: In Fire Station Kitchen.

1. Products: Basis of design Danver Stainless Steel. Or approved equal from the following:

a. Elkay; Weldbuilt.

2. Description: Flat-top table.

3. Top Construction:

   a. Material: Stainless steel, Type 304, 0.0781-inch specified thickness, reinforced and sound deadened.
   b. Back Splash: Manufacturer's standard height.
   c. Edge: Bullnose on front edge, straight on sides and back.

4. Undershelf:

   a. Stainless steel, Type 304, 0.0500-inch specified thickness.
   b. Welded.11/02/07 - 100% Construction Documents FOODSERVICE EQUIPMENT

5. Crossbracing:

   a. Bolted to legs.
   b. Stainless- steel tubing.

6. Cabinet:

   a. Body: Stainless steel, Type 430, 0.0500-inch specified thickness.
   b. Doors: Hinged, stainless steel, Type 304, 0.0375-inch specified thickness.
   c. Drawers: Stainless-steel drawer and face plate.

7. Legs: Stainless-steel tubing.
8. Feet: Stainless-steel, flanged, adjustable bullets.

B. Stainless-Steel Sink: In Decon. Room.

1. Products:

   1. Elkay; Weldbuilt.

2. Description: 2 compartment sink with left and right drainage boards.
3. Top Construction:

   1. Material: Stainless steel, Type 304, 0.0781-inch specified thickness, reinforced and sound deadened.
   2. Back Splash: Manufacturer's standard height.
   3. Edge: Bullnose on front edge, straight on sides and back.

4. Undershelf:

   1. Stainless steel, Type 304, 0.0500-inch specified thickness.
   2. Welded.11/02/07 - 100% Construction Documents FOODSERVICE EQUIPMENT

5. Crossbracing:

   1. Bolted to legs.
   2. Stainless- steel tubing.

6. Legs: Stainless-steel tubing.
~~8.~~7. Feet: Stainless-steel, flanged, adjustable bullets.

2.2 COOKING EQUIPMENT

A. Range: Equipment Item #25

1. Basis-of-Design Product: Grizzly Medium Duty 60" Gas Restaurant Range or a comparable product by one of the following:

   a. Garland
   b. U.S. Range

2. Top Configuration:

   a. Open-Burner Unit:

      1) Standard Burners: Six; 12"x12" cast top grates with aeration bowls

   b. Griddle: 24" wide raised griddle/broiler; 30,000 BTU/hr. input w/ three manual control valves

3. Base Configuration:

   a. Standard Ovens: Two.
   b. Storage Base: One.

4. Options and Accessories:

   a. High back shelf.
   b. Stainless-steel sides.
   c. Stainless-steel back.
   d. Legs for curb base.
   e. Toe Base: 4 inches high.
   f. Oven Racks: One for each oven.

5. Electrical Service: Equip unit for connection to service indicated on Drawings.
6. Gas Service: Natural gas.

2.3 SELF-CONTAINED REFRIGERATION EQUIPMENT

A. Refrigerator: Equipment Item #23

1. Basis-of-Design Product: True; T-35 or a comparable product by one of the following:

   a. Traulsen
   b. Turbo Air

2. Description: Reach-in type.

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Manufacturer's standard.
   c. Doors: Full length.

3. Options and Accessories:

   a. Casters.
   b. Stainless-steel back with rear louvers.
   c. Re-hinging feature for doors.
   d. Shelves: 3 per section, vinyl coated wire, adjustable

4. Electrical Service: Equip unit with plug and cord for service indicated on Drawings.

B. Ice-Making Machine: Equipment Item #24

1. Basis-of-Design Product: Manitowac; QM45 Series Ice Cube Machine or a comparable product by one of the following:

a. Hoshizaki

2. Description: Undercounter unit.

a. Production: Ice cubes, dice.
b. Capacity: 65lb per 24-hour period.

3. Options and Accessories:

a. Storage Bin:

1) Storage Capacity: 30lb
2) One piece seamless bin liner

b. Stainless-steel cabinet, stand and legs.
c. Water filter.
d. Front air intake and exhaust
e. Computerized control

4. Electrical Service: Equip unit for connection to service indicated on Drawings.

C. Ice-Making Machine: Equipment Item # 11.2

1. Basis-of-Design Product: Manitowoc Q-210 – (to include Tri-liminator Water Filter System) Ice Cube Machine or a comparable product by one of the following:

a. Hoshizaki

2. Description: Freestanding water-cooled unit.

a. Production: Ice cubes, dice.
b. Capacity: 290lb per 24-hour period.

3. Options and Accessories:

a. Storage Bin: Manitowac B-420 Storage Bin

1) Storage Capacity: 310lb
2) One piece seamless bin liner

b. Stainless-steel cabinet, stand and legs.
c. Water filter.
d. Computerized control

4. Electrical Service: Equip unit for connection to service indicated on Drawings.

2.4 MISCELLANEOUS MATERIALS

A. Installation Accessories, General: NSF certified for end-use application indicated.

B. Elastomeric Joint Sealant: ASTM C 920; silicone. Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic) related to exposure, and Use M, G, A, or O as applicable to joint substrates indicated.

1. Public Health and Safety Requirements:

a. Sealant is certified for compliance with NSF standards for end-use application indicated.
b. Washed and cured sealant complies with the FDA's regulations for use in areas that come in contact with food.

2. Cylindrical Sealant Backing: ASTM C 1330, Type C, closed-cell polyethylene, in diameter greater than joint width.

2.5 FINISHES

A. Stainless-Steel Finishes:

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

a. Run grain of directional finishes with long dimension of each piece.
b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

B. Powder-Coat Finishes: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard, baked-polymer, thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install foodservice equipment level and plumb, according to manufacturer's written instructions.

1. Connect equipment to utilities.
2. Provide cutouts in equipment, neatly formed, where required to run service lines through equipment to make final connections.

B. Complete equipment assembly where field assembly is required.

1. Provide closed butt and contact joints that do not require a filler.
2. Grind field welds on stainless-steel equipment until smooth and polish to match adjacent finish.

C. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.

D. Install cabinets and similar equipment on bases in a bed of sealant.

E. Install closure-trim strips and similar items requiring fasteners in a bed of sealant.

F. Install joint sealant in joints between equipment and abutting surfaces with continuous joint backing unless otherwise indicated. Produce airtight, watertight, vermin-proof, sanitary joints.

3.2 CLEANING AND PROTECTING

A. After completing installation of equipment, repair damaged finishes.

B. Clean and adjust equipment as required to produce ready-for-use condition.

C. Protect equipment from damage during remainder of the construction period.

END OF SECTION 114000

DC/WATER GENERAL CONSTRUCTION NOTES:

1. CONTACT: NOTIFY THE FOLLOWING DC WATER DEPARTMENTS PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION:
   a) CONSTRUCTION INSPECTION SECTION AT 202-787-4024 AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION TO SCHEDULE PRE-CONSTRUCTION MEETING.
   b) DEPARTMENT OF WATER SERVICES AT 202-612-3400 OR 3460 AT LEAST ONE WEEK PRIOR TO THE COMMENCEMENT OF WATER UTILITY CONSTRUCTION.
   c) DEPARTMENT OF SEWER SERVICES AT 202-264-3824 OR 3829 AT LEAST ONE WEEK PRIOR TO THE COMMENCEMENT OF SEWER UTILITY CONSTRUCTION.
2. STANDARDS: ALL CONSTRUCTION, MATERIALS, AND APPURTENANCES SHALL COMPLY WITH THE LATEST EDITIONS OF THE DC WATER PROJECT DESIGN MANUAL, STANDARD DETAILS & DESIGN GUIDELINES, AND SPECIFICATIONS.
3. LEAD SERVICE REPLACEMENT: IF THIS PROJECT INCLUDES THE REPLACEMENT OF A WATER MAIN THAT HAS EXISTING LEAD WATER SERVICE LATERALS, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DC WATER CONSTRUCTION INSPECTION SECTION AT 202-787-4024 AT LEAST 90 DAYS PRIOR TO CONSTRUCTION TO ALLOW ADEQUATE TIME TO INITIATE STANDARD LEAD SERVICE REPLACEMENT PROTOCOL. LATERAL REPLACEMENT INCLUDES THE FULL LENGTH OF PIPE IN PUBLIC SPACE.
4. OWNER RESPONSIBILITY: THE OWNER IS RESPONSIBLE FOR ALL WORK AND COSTS ASSOCIATED WITH EXCAVATION, INSTALLATION, AND RESTORATION OF PUBLIC SPACE TO PERFORM A WATER/SEWER CONNECTION/ABANDONMENT. ONCE THE CONTRACTOR HAS OBTAINED A PUBLIC SPACE PERMIT HE/SHE MUST THEN CONTACT DC WATER PRIOR TO PERFORMING THE EXCAVATION TO INSTALL/INSPECT THE UTILITY WORK. THE OWNER SHALL BE HELD RESPONSIBLE FOR ALL DAMAGES TO EXISTING STRUCTURES AND UTILITIES CAUSED BY CONSTRUCTION ACTIVITY.
5. DC WATER RESPONSIBILITY: DC WATER IS ONLY RESPONSIBLE FOR INSTALLATION OF SMALL WATER SERVICE TAPS (2" DIAMETER AND LESS) TO THE PUBLIC MAIN, SMALL WATER SERVICE TAP REMOVALS FROM THE PUBLIC MAIN, FURNISHING & INSTALLING THE METER IN PUBLIC SPACE, AND INSPECTION OF WORK PERFORMED ON THE PUBLIC SYSTEMS.
6. MISS UTILITY: CONTACT MISS UTILITY AT 800-257-7777 48 HOURS BEFORE ANY DIGGING.
7. PLAN SET: A SET OF SIGNED & SEALED AND DC WATER STAMPED PLANS SHALL BE KEPT AT ALL TIMES AT THE JOB SITE ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY.
8. ABANDONMENTS: THE OWNER MUST PHYSICALLY DISCONNECT EXISTING WATER, SEWER, AND STORM LATERALS THAT ARE TO BE ABANDONED AT THEIR CONNECTION TO THE PUBLIC MAIN.
9. UNMETERED WATER: THERE SHALL BE NO UNMETERED CONNECTIONS TO THE CITY'S WATER SYSTEM, INCLUDING CONNECTIONS BYPASSING METERS FOR TESTING ON-SITE PLUMBING OR FOR OBTAINING CONSTRUCTION WATER.
10. PRESSURE TESTING AGAINST VALVES: PRESSURE TESTING AGAINST VALVES WILL NOT BE ALLOWED.
11. WATER METER INSTALLATION: TO SCHEDULE THE INSTALLATION OF A DOMESTIC WATER METER CONTACT PERMIT OPERATIONS AT 202-646-8600. DC WATER WILL FURNISH AND INSTALL THE METER AFTER THE CONNECTION TO THE MAIN HAS BEEN MADE AND THE METER PIT/VAULT HAS BEEN INSTALLED.
12. CROSS CONTAMINATION CONTROL: ASSE 1048 CERTIFIED BACKFLOW PREVENTION ASSEMBLIES ARE REQUIRED ON ALL FIRE SERVICES AND ARE TO BE LOCATED INSIDE THE BUILDING (UNLESS A EXTERNAL LOCATION IS NECESSARY OR REQUIRED BY DC WATER) WHERE IT IS SUPPLIED, OWNED, OPERATED, AND MAINTAINED BY THE OWNER. DC WATER DOES NOT FURNISH NOR INSTALL FIRE DOUBLE CHECK DETECTOR FIRE PROTECTION BACKFLOW PREVENTION ASSEMBLIES.
13. UTILITY SERVICE DISRUPTIONS: PHASE ALL UTILITY WORK TO MAINTAIN UTILITY SERVICES TO THE SURROUNDING AREA DURING ALL PHASES OF CONSTRUCTION. LIMIT REQUIRED UTILITY SHUT-DOWNS IN NUMBER AND DURATION. COORDINATE THESE SHUT DOWNS WITH DC WATER CONSTRUCTION INSPECTION STAFF.
14. WATER VALVE OPERATION: THE CONTRACTOR IS REQUIRED TO COORDINATE WITH DC WATER FOR ALL NECESSARY WATER MAIN SHUT DOWNS WITH ADEQUATE ADVANCED NOTICE. ONLY DC WATER EMPLOYEES MAY SHUT DOWN A PUBLIC WATER MAIN. A CERTIFIED PLUMBER IS ONLY AUTHORIZED TO TURN OFF VALVES INSIDE METER PITS.
15. WATER GATE VALVE LOCATION: LOCATE GATE VALVES FOR DOMESTIC AND FIRE SERVICES AS CLOSE TO THE PUBLIC WATER MAIN TEE AS POSSIBLE. HOWEVER, IF NECESSARY ADJUSTMENTS ARE REQUIRED DUE TO CONFLICTS COORDINATE WITH A DC WATER INSPECTOR.
16. MATERIAL: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING SHOP CUTS TO THE APPROPRIATE DC WATER OFFICE FOR APPROVAL OR OBTAINING A DC WATER APPROVAL STAMP FOR ALL WORK IN PUBLIC SPACE IN ADVANCE OF INSTALLATION. ONLY APPROVED MATERIALS MAY BE USED.
17. TEMPORARY CONDITIONS MINIMUM COVER: A NOMINAL FOUR FEET OF COVER IS REQUIRED FOR ALL WATER MAINS AT FINAL GRADE. COVER OF LESS THAN FOUR FEET REQUIRES DC WATER APPROVAL.
18. AS-BUILT: DEVELOPERS, CONTRACTORS AND/OR PLUMBERS MUST SUBMIT FINAL CONSTRUCTION AS-BUILT INFORMATION TO THE APPROPRIATE DC WATER INSPECTOR(S) FOR REVIEW AND APPROVAL, UPON COMPLETION OF INSTALLATION OF NEW SERVICES OR ABANDONMENT OF EXISTING SERVICES. WHEN THE FINAL AS-BUILT IS APPROVED ALL DEPOSITS WILL BE RETURNED TO THE APPLICANT. SEE DC WATER AS-BUILT REQUIREMENTS FOR ADDITIONAL INFORMATION.
19. CONFLICTS: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITIES. A MINIMUM OF ONE FOOT VERTICAL AND FIVE FEET HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM ANY UTILITIES AND PUBLIC WATER AND SEWER MAINS.
20. FIRE HYDRANT USE: THE USE OF A FIRE HYDRANT AS A WATER SOURCE IS PROHIBITED UNLESS A PERMIT HAS BEEN OBTAINED FROM DC WATER FOR USE OF A SPECIFIC HYDRANT(S). DAILY OR EXTENDED USE PERMITS CAN BE OBTAINED FROM THE DC WATER PERMIT OPERATIONS DEPARTMENT 202-646-8600.
21. FIRE HYDRANT STATUS: THE CONTRACTOR SHALL NOTIFY FEMS AT 202-277-1889, PRIOR TO TAKING ANY FIRE HYDRANT OUT OF SERVICE OR RENDERING ANY HYDRANT INACCESSIBLE FOR ANY REASON. FEMS IS ALSO TO BE PROVIDED WITH THE LOCATION OF ANY NEW INSTALLATION OF PRIVATE FIRE HYDRANTS.
22. DC WATER SAFETY OFFICE: THE DC WATER SAFETY OFFICE CAN BE CONTACTED AT 202-787-4350.
23. SEWER BACKWATER PREVENTION: THE PLUMBING SYSTEM MUST BE INCOMPLIANCE WITH SECTION 715 OF THE 2006 INTERNATIONAL PLUMBING CODE WHICH STATES A BACKWATER VALVE IS REQUIRED FOR ALL PLUMBING FIXTURES BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER.

SITE NOTES:

1. WHERE NEW WORK MEETS EXISTING, NOTE FIELD LOCATION AND ELEVATIONS OF EXISTING FEATURES BEFORE BEGINNING CONSTRUCTION AND REPORT ANY DISCREPANCY TO THE ARCHITECT OR ENGINEER.
2. VERIFY LOCATION OF EXISTING UTILITIES BEFORE PROCEEDING WITH WORK. NOTIFY OWNER'S REPRESENTATIVE, DC WATER UTILITY INSPECTOR, DC WATER (202-787-4024) AND "MISS UTILITY" (1-800-257-7777) 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATIONS. HAND DIG TEST PITS AT ALL UTILITY CROSSINGS AND DETERMINE EXACT CLEARANCE OF ALL PROPOSED INSTALLATIONS WELL IN ADVANCE OF CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS WITH PLAN ELEVATIONS.
3. WORK AND MATERIALS IN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE APPLICABLE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS. ON-SITE WORK AND MATERIALS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE DISTRICT OF COLUMBIA PLUMBING CODE.
4. ELEVATIONS SHOWN HEREON ARE BASED ON D.C. DATUM.
5. DIMENSIONS ARE TO FACE OF WALL AND CURB, EDGE OF WALK AND PAVEMENT, CENTERLINE OF COLUMN, PIPE AND UTILITY STRUCTURE. UNLESS OTHERWISE NOTED.
6. FRAMES AND COVERS OF EXISTING STRUCTURES TO BE ADJUSTED TO MATCH NEW FINISHED GRADES.
7. OMISSIONS AND/OR ADDITIONS OF UTILITIES FOUND DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OR ENGINEER IMMEDIATELY OF ANY INFORMATION CONCERNING FOUND UTILITY, NOT SHOWN ON PLANS.
8. EXISTING SURFACE CONDITIONS DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED TO MATCH EXISTING CONDITIONS. CONTRACTOR TO COORDINATE EXTENT WITH ARCHITECT OR ENGINEER.
9. TEST PITS ARE REQUIRED AT ALL LOCATION(S) WHERE PROPOSED UTILITIES CROSS EXISTING UTILITIES. INVESTIGATION(S) TO IDENTIFY HORIZONTAL LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES. THE ENGINEER IS TO BE NOTIFIED OF THIS INFORMATION.
10. IF A 1" MINIMUM VERTICAL CLEARANCE CAN NOT BE MAINTAINED AT UTILITY CROSSING, THE CONTRACTOR IS TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH WORK.
11. TRANSITION CURB, GUTTER, PAVING AND SIDEWALK TO MEET EXISTING IN LINE AND ON GRADE OR AS DIRECTED BY ENGINEER.
12. ALL DEBRIS AND EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED OFF-SITE LOCATION.
13. ALL ON-SITE WATER LINES TO HAVE A MINIMUM COVER OF 4'-0". WATER FITTINGS SHALL BE PROPERLY TIED AND ANCHORED, PER DC WATER STANDARDS AND SPECIFICATIONS.
14. WHERE PORTIONS OF EXISTING BITUMINOUS OR CONCRETE PAVING ARE TO BE REMOVED, THE EXISTING PAVEMENT SHALL BE SAW-CUT.
15. REMOVE FRAMES AND COVERS OF SEWER MANHOLE/INLETS AND/OR WATER MAIN VALVE CASTINGS TO BE ABANDONED AND FILL TO GRADE.
16. ALL CURB SPOT SHOTS ARE TOP OF CURB, UNLESS OTHERWISE NOTED.
17. NOTIFY WASHINGTON GAS AT 202-750-4205, 48 HOURS PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY TRANSMISSION MAIN. FOR FURTHER INFORMATION OR PROBLEMS, CONTACT MR. CHUCK WHITLEY AT WASHINGTON GAS AT 703-750-4205.
18. PROVIDE A MINIMUM OF 5 FEET HORIZONTAL AND 1 FOOT VERTICAL CLEARANCE BETWEEN 12" DIAMETER AND SMALLER DISTRIBUTION EXISTING GAS FACILITIES AND PROPOSED FACILITIES.
19. PROVIDE A MINIMUM OF 5 FEET HORIZONTAL AND 2 FEET VERTICAL CLEARANCE BETWEEN 16" DIAMETER OR GREATER TRANSMISSION GAS FACILITIES AND PROPOSED FACILITIES.
20. ALL PROPOSED WORK TO BE CONSTRUCTED IN ACCORDANCE WITH LATEST STANDARDS AND SPECIFICATIONS OF THE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION AND WATER AND SEWER AUTHORITY.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING SIDEWALK, CURB AND GUTTER TO REMAIN OR TO REPLACE SIDEWALK, CURB AND GUTTER DAMAGED DURING CONSTRUCTION.
22. EXISTING FULL DEPTH PAVEMENT SECTION, CURB AND GUTTER TO BE REMOVED AND REPLACED TO EXTENT NECESSARY TO FACILITATE CONSTRUCTION OF NEW UTILITIES. MATERIALS TO COMPLY WITH DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
23. REFER TO SUBSURFACE EXPLORATION & GEOTECHNICAL ENGINEERING ANALYSIS FOR GEOTECH REPORT.

SITE LEGEND:

* THESE DIMENSIONS TO THE FACE OF CURB ARE AT THE REQUEST OF DC PERMITTING OFFICE. VERIFY LOCATION OF UTILITIES WITH MEP DRAWINGS AND NOTIFY ENGINEER OF ANY DISCREPANCIES. REFER TO MEP DRAWINGS FOR ACTUAL LOCATION.

TEST PITS ARE REQUIRED AT ALL PROPOSED UTILITY CROSSINGS WITH ALL EXISTING UTILITY LINES TO DETERMINE THE EXACT HORIZONTAL LOCATION, ELEVATION AND ADD SIZE OF THE EXISTING UTILITIES. A MINIMUM OF ONE FOOT VERTICAL CLEARANCE SHALL BE PROVIDED BETWEEN EXISTING AND PROPOSED UTILITIES. TEST PITS SHOULD BE COMPLETED PRIOR TO ORDERING ANY STRUCTURES OR PIPE MATERIALS. NOTIFY ENGINEER OF ANY CONFLICT WITH PROPOSED PLANS.

URBAN FORESTRY NOTES:

TREE PLANTING SHALL COMPLY WITH THE DISTRICT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES SECTION 611 AND STANDARD DRAWINGS NO. 611.10 AND 611.11. DECIDUOUS TREES SHALL ONLY BE PLANTED BETWEEN OCTOBER 15 AND MAY 1 AS PER THE SPRING AND FALL PLANTING SEASON DATES. COMPANION PLANTS (I.E. PERENNIALS, GRASSES, BULBS, SHRUBS, ETC.) TO BE INSTALLED IN TREE BOXES MUST CONFORM TO DDOT MINIMUM HEIGHT STANDARDS TO PRESERVE SIGHTLINES, HAVE A SHALLOW ROOT SYSTEM, AND BE PLANTED AT MINIMUM 2 FEET FROM THE ROOT FLARE (CROWN) OF THE STREET TREE. DO NOT USE EXISTING SOIL ON-SITE OR AMEND AS TOPSOIL. PEAT MOSS IS NOT ALLOWED FOR USE AS A SOIL AMENDMENT. FINISH OFF 2 FOOT CLEAR ZONE AROUND TREES WITH A 2-3" LAYER OF MULCH, BUT DO NOT PLACE UP AGAINST OR MOUND AROUND ROOT FLARE. CONTACT RESPECTIVE WARD ARBORIST WHEN THE STREET TREES ARE READY TO BE PLANTED, PROVIDING AT LEAST 48 HOURS NOTICE.

ABBREVIATIONS:

APPROX.	APPROXIMATE	IP	IRON PIPE
ASPH.	BITUMINOUS CONCRETE	INV	INVERT
BLDG.	BUILDING	LP	LIGHT POLE
BC	BLUESTONE CURB	MAT	MATCH
BFP	BACK-FLOW PREVENTION	MH	MANHOLE (STRUCTURE)
BOC	BOTTOM OF CURB	MST	MEASURED
BRK	BRICK	O/H	OVERHEAD
CC	CONCRETE CURB	OHE	OVERHEAD LINE ELECTRIC
CG	CURB & GUTTER	PCC	PORTLAND CEMENT CONCRETE
CI	CURB INLET	PM	PARKING METER
CJ	CONTRACTION JOINT	POB	POINT OF BEGINNING
CL	CENTER LINE	PROP	PROPOSED
CLF	CHAIN LINK FENCE	RAD	RADIUS
CO	CLEAN OUT	REC	RECORD
CONC.	CONCRETE	SAN	SANITARY
COMB	COMBINE(D)	SEW	SEWER
CY	CUBIC YARD	SF	STORM FILTER
DI	DRAIN INLET	STD	STANDARD
DIP	DUCTILE IRON PIPE	STM	STORM
DOM	DOMESTIC	STY	STORY (FLOOR)
DWG	DRAWING(S)	S/W	SIDEWALK
E	ELECTRICAL	T	TELEPHONE
EC	END OF CURB	TOC	TOP OF CURB
ELEV	ELEVATION	TYP	TYPICAL
ELEC	ELECTRIC(AL)	UGE	UNDERGROUND ELECTRIC
EJ	EXPANSION JOINT	W	WATER
ENT	ENTRANCE	WL	WATER LINE
EX	EXISTING	WM	WATER MAIN
FH	FIRE HYDRANT	WV	WATER VALVE
FR	FROM	XHCI	EXTRA HEAVY CAST IRON PIPE
FS	FILTERRA SYSTEM		
FT	FEET/FOOT		
G	GAS		
GRD	GUARD		
GRNT	GRANITE		

DEMOLITION:

1. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR SHUTOFF, CAPPING AND CONTINUATION OF UTILITY SERVICES AS REQUIRED.
2. CONTRACTOR SHALL REMOVE AND TRANSPORT ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM ALL DEMOLITION OPERATIONS TO A LEGAL DISPOSAL OFF SITE.
3. REMOVAL OF ASPHALT AND CONCRETE PAVEMENT SHALL INCLUDE THE REMOVAL OF ALL SURFACE, BASE AND SUBBASE MATERIALS.
4. EXISTING CONDITIONS SHOWN HEREON WERE TAKEN FROM A SURVEY PREPARED BY WILES MENSCH CORPORATION DATED: MARCH 6, 2010 AND FROM AVAILABLE UTILITY COMPANY RECORDS.
5. ALL UNDERGROUND UTILITY LOCATIONS, INCLUDING WATER, STORM DRAINAGE, SANITARY SEWER, ELECTRICAL, TELEPHONE AND GAS WERE TAKEN FROM AVAILABLE RECORDS AND FIELD VERIFIED WHERE POSSIBLE. THE LOCATION OF ALL UTILITIES SHOWN ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO COMMENCING WORK. REPORT ANY DISCREPANCY TO THE ENGINEER. MARKING LOCATIONS OF EXISTING UTILITIES, CONTACT "MISS UTILITY" AT 1-800-257-7777, 48-HOURS PRIOR TO ANY EXCAVATION.
6. THE CONTRACTOR MUST HAND-DIG TEST PITS AT ALL UTILITY CROSSINGS TO DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES AS WELL IN DEMOLITION WORK AND PRIOR TO ORDERING PIPE MATERIALS AND STRUCTURE. UTILITIES FOUND DURING DEMOLITION OR CONSTRUCTION ACTIVITIES SHALL BE THE RESPONSIBILITY OF ANY CONTRACTOR ENGAGED IN EXCAVATION AT THIS SITE. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY UTILITY FINDINGS WHICH DEVIATE FROM THE CONDITIONS SHOWN.
7. ALL SEDIMENT AND EROSION CONTROL METHODS SHALL BE INSTALLED BEFORE THE START OF ANY EXCAVATION AND/OR DEMOLITION AS PER DISTRICT OF COLUMBIA EROSION AND CONTROL HANDBOOK. IF ANY ONSITE INSPECTION REVEALS FURTHER EROSION CONTROL MEASURES ARE NECESSARY, THE SAME SHALL BE PROVIDED. REFER TO SHEETS C1-03 AND C1-07 SEDIMENTATION AND EROSION CONTROL PLANS AND DETAILS.
8. SEE SEDIMENTATION AND EROSION CONTROL PLAN FOR ALL EXISTING TREES TO REMAIN AND BE PROTECTED.
9. NOTE PROXIMITY OF ADJACENT STRUCTURES AND UTILITY LINES AND MAINTAIN CONTINUED SERVICE DURING CONSTRUCTION. COORDINATE WITH RESPECTIVE UTILITY COMPANIES AND ENGINEER SHOULD RELOCATION OF SERVICE BE REQUIRED.
10. EXISTING UTILITIES (STRUCTURES AND LINES) NOT REQUIRED FOR FUTURE SERVICE TO BE REMOVED TO FACILITATE CONSTRUCTION. UTILITIES TO BE CAPPED AS PER UTILITY PURVEYOR'S STANDARDS AND SPECIFICATIONS. COORDINATE REQUIREMENTS WITH UTILITY PURVEYOR'S.
11. REMOVAL OF ALL WALLS/RETAINING WALLS AND FENCES SHALL INCLUDE THE REMOVAL OF THEIR FOUNDATION UNLESS OTHERWISE INDICATED ON THESE DRAWINGS.
12. ALL EXISTING DC STREETLIGHT POLES THAT ARE BEING PERMANENTLY REMOVED MUST BE RETURNED IN GOOD CONDITION TO THE DISTRICT OF COLUMBIA WAREHOUSE AT 1735 15TH STREET NE OFF WEST VIRGINIA AVENUE CONTACT NUMBER 202-576-5258.
13. EXISTING WATER AND SEWER SERVICES NOT REQUIRED FOR FUTURE USE TO BE REMOVED TO EXTENT NECESSARY TO FACILITATE NEW CONSTRUCTION. REMAINDER OF SERVICE TO BE CAPPED AT MAIN AND EXISTING VALVES AND TEES TO BE REMOVED PER DC WATER STANDARDS SPECIFICATIONS. COORDINATE REQUIREMENTS WITH DC WATER INSPECTOR AT 202-787-4024. PAVEMENT TO BE REMOVED PER DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
14. CONTRACTOR TO BE RESPONSIBLE FOR LAYOUT, EXTENT AND DESIGN OF SHEETING, SHORING AND SUPPORT OF EXISTING UTILITIES AND ADJACENT STRUCTURES, SHORING, BRACING AND UNDERPINNING SHALL BE DESIGNED BY A STRUCTURAL ENGINEER, LICENSED IN THE DISTRICT OF COLUMBIA, HIRED BY THE CONTRACTOR AS NECESSARY TO ENSURE SUPPORT OF SURROUNDING STRUCTURES AND UTILITIES.
15. CONTRACTOR TO RELOCATE PARKING METERS IF REQUIRED AND AS DIRECTED BY D.C. BUREAU OF PARKING. COORDINATE REQUIREMENT WITH LARRY BROWN OF PARKING SERVICES AT 202-671-2291.
16. NOTIFY DC WATER UTILITY INSPECTOR, CHIEF UTILITY INSPECTION (202) 787-4024 OF DISTRICT OF COLUMBIA WATER & SEWER AUTHORITY 48 HOURS PRIOR TO START OF CONSTRUCTION.
17. UNLESS OTHERWISE SHOWN ON THESE DRAWINGS, EXISTING PAVEMENT ON 13TH STREET, NW. AND PUBLIC ALLEY TO REMAIN. PROVIDE PRE-CONSTRUCTION VIDEO OF EXISTING PAVEMENT. EXISTING PAVEMENT, DISTURBED OR DAMAGED DURING CONSTRUCTION, SHALL BE REPLACED PER DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS AT NO ADDITIONAL COST.
18. PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES VERIFY INVERT ELEVATION OF EXISTING UTILITIES. NOTIFY ENGINEER OF ANY DISCREPANCIES WITH INFORMATION SHOWN PRIOR TO ORDERING ANY STRUCTURES.
19. CONTACT "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO CONSTRUCTION.
20. CONTACT DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION-PUBLIC SPACE MAINTENANCE ADMINISTRATION 48 HOURS PRIOR TO START OF CONSTRUCTION AT (202) 645-6030 OR (202) 645-6031
21. ALL PROPOSED UTILITY WORK TO BE PERFORMED UNDER THE INSPECTION OF THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY.
22. USE MANHOLE ENTRY SEALS WHERE REQUIRED.
23. CONTRACTOR TO PROVIDE A PRE AND POST TV VIDEO SEWER ON EXISTING SEWER AROUND THE SITE PER DC WATER STANDARDS AND SPECIFICATIONS.

UTILITY REFERENCES:

SEWER: SEWER MAP E4 & E5 NW DATE: 01/27/58

WATER: WATER MAP E4 & E5 NW DATE: 10/26/51

GAS: WASHINGTON GAS WG-26343 DATE: 12/30/09

DEMOLITION LEGEND:

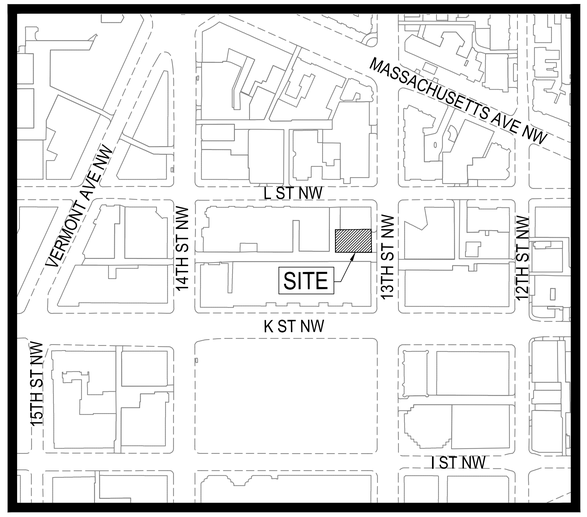
PAVEMENT DEMOLITION

CONCRETE DEMOLITION

DEMOLITION KEY-NOTE 1

TERMINATE DEMOLITION

CAPPED UTILITY W



VICINITY MAP

1"=200'

SQUARE: 248 LOTS: 814

ADDRESS: 1018 13TH STREET, NW.
WASHINGTON, DC.

4 PROJECT NARRATIVE:

1018 13TH STREET, NW. IS A FIRE STATION IN NORTHWEST WASHINGTON, DC. THE BUILDING IS A 3 STORY BRICK BUILDING AND WILL BE RENOVATED ON THE INTERIOR OF THE BUILDING. EXISTING SANITARY LATERAL, 3" WATER SERVICE AND PARTIAL STORM LATERAL ARE TO BE ABANDONED IN PLACE. NEW WORK INCLUDES NEW ALLEY WORK, A NEW CONCRETE DRIVEWAY, AS WELL AS A NEW 3" DOMESTIC WATER SERVICE, 6" FIRE SERVICE, TWO 4" SANITARY LATERALS, A NEW OIL AND GRIT SEPARATOR AND 6" STORM LATERAL.

MISS UTILITY
1-800-257-7777
missutility.net

CIVIL DRAWING INDEX:

C1-00 NOTES, LEGEND AND ABBREVIATIONS
C1-01 EXISTING CONDITIONS PLAN
C1-02 DEMOLITION PLAN
C1-03 SEDIMENTATION AND EROSION CONTROL PLAN
C1-04 SITE PLAN
C1-05 UTILITY PLAN
C1-06 DC/WATER DETAILS
C1-07 SEDIMENTATION AND EROSION CONTROL DETAILS
C1-08 UTILITY PROFILES
C1-09 DC/WATER FORMS

Key Plan

Owner

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Registration No.: -

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		03-25-2015	DCWATER 2ND SUBMISSION	SPT	MLL
		03-17-2015	DDOE/ DCWATER SUBMISSION	SPT	MLL

PROJECT DRAWINGS — CIVIL

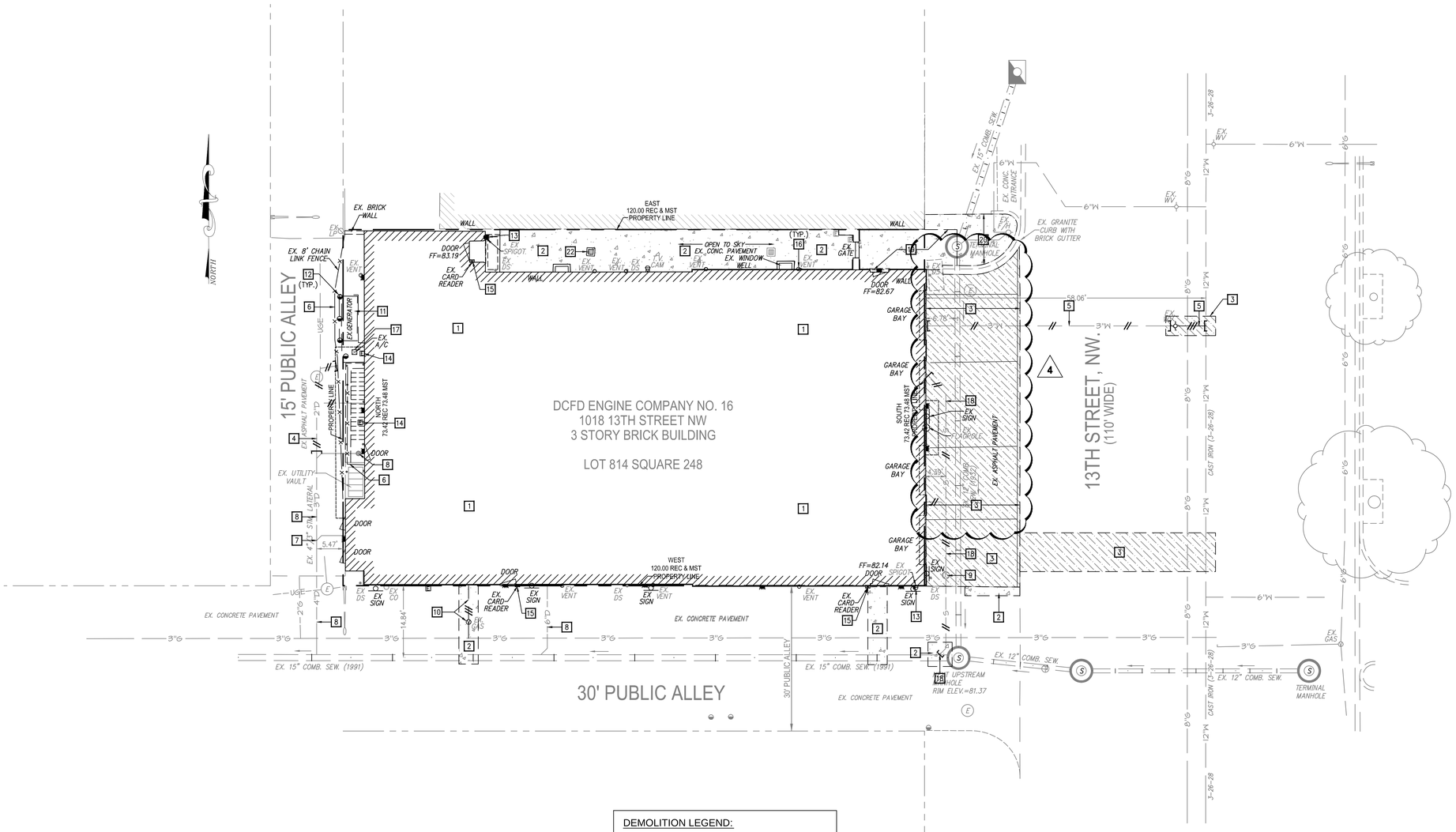
Drawing Title: NOTES, LEGEND AND ABBREVIATIONS

Drawing No.: C1-00

Job Title: DCFEMS Station 16

Project Address: 1018 13th-Street
Washington, DC 20005

Building ID No. 934
Project No. 2908.01
Issue Date 03-24-2015
Sheet 005 of 100



DEMOLITION LEGEND:

- PAVEMENT DEMOLITION
- CONCRETE DEMOLITION
- FULL DEPTH PAVEMENT DEMOLITION
- DEMOLITION KEY-NOTE: 1
- TERMINATE DEMOLITION
- CAPPED UTILITY: W
- UTILITY TO BE REMOVED: W
- UTILITY TO BE ABANDONED: W
- EXISTING ABANDONED UTILITY: W

DEMOLITION KEYNOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR INTERIOR DEMOLITION AND RENOVATION OF THE EXISTING BUILDING.
2. EXISTING CONCRETE PAVEMENT AND BASE SECTION TO BE REMOVED TO FACILITATE NEW UTILITIES.
3. EXISTING ASPHALT SURFACE COURSE AND BASE SECTION TO BE REMOVED TO FACILITATE NEW UTILITIES.
4. EXISTING STORM LATERAL TO BE ABANDONED IN PLACE IF NOT REQUIRED FOR FUTURE USE.
5. EXISTING 3" WATER LATERAL TO BE ABANDONED. EXISTING TEES AND VALVES TO BE REMOVED AND 3" WATER LATERAL TO BE CAPPED AT MAIN PER DC/WATER STANDARDS AND SPECIFICATIONS.
   I-FOR LEAD JOINT, REMOVE THE TEE AND REPLACE WITH A STRAIGHT PIECE OF DUCTILE IRON PIPE;
   II-FOR MECHANICAL JOINT PLUG THE TEE;
   III-THE REMAINING WATER SERVICE PIPE IS ABANDONED IN PLACE; AND
   IV-SALVAGE THE WATER METER AND RETURN TO WASA.
6. EXISTING FENCE AND RELATED APPURTENANCES TO BE REMOVED TO FACILITATE NEW CONSTRUCTION.
7. LIMIT OF EXISTING STORM LINE TO BE ABANDONED.
8. EXISTING STORM LATERAL TO REMAIN.
9. EXISTING OIL/ GRIT SEPARATOR TO BE ABANDONED IN PLACE. CLEAN EXISTING STRUCTURE PRIOR TO PUNCHING HOLES AT THE BOTTOM AND FILLING IT WITH GRAVEL TO BE COMPACTED AT 2 FEET LIFTS.
10. EXISTING GAS SERVICE LATERAL AND VALVE TO BE REMOVED TO FACILITATE NEW CONSTRUCTION. COORDINATE REQUIREMENTS WITH WASHINGTON GAS FOR PERMANENT DISCONNECTION AT THE MAIN.
11. EXISTING GENERATOR AND PAD TO BE REMOVED TO FACILITATE NEW CONSTRUCTION.
12. EXISTING BOLLARD TO BE REMOVED TO FACILITATE NEW CONSTRUCTION.
13. EXISTING SPIGOT AND RELATED APPURTENANCES TO BE REMOVED.
14. EXISTING ELECTRIC BOX AND RELATED APPURTENANCES NOT REQUIRED FOR FUTURE SERVICE TO BE REMOVED TO EXTENT NECESSARY TO FACILITATE NEW CONSTRUCTION. COORDINATE REQUIREMENTS WITH PEPCO PRIOR TO REMOVAL.
15. EXISTING CARD READER TO BE REMOVED.
16. EXISTING VENT TO BE REMOVED.
17. EXISTING A/C UNIT AND RELATED APPURTANCES TO BE REMOVED TO FACILITATE NEW CONSTRUCTION.
18. EXISTING SANITARY LATERAL TO BE ABANDONED IN PLACE AND CAPPED AT THE MAIN PER DC/WATER STANDARDS AND SPECIFICATIONS.
19. EXISTING CONCRETE SIDEWALK AND BASE SECTION TO BE REMOVED TO FACILITATE NEW CONSTRUCTION.
20. EXISTING CONCRETE SIDEWALK PAVEMENT TO BE REMOVED TO FACILITATE NEW CONSTRUCTION. EXISTING BASE SECTION TO REMAIN.
21. EXISTING AREA DRAIN TO BE REMOVED TO FACILITATE NEW CONSTRUCTION. EXISTING PIPING TO REMAIN TO BE RE-USED FOR PROPOSED TRENCH DRAIN.

10' 5' 0 10' 20'
1" = 10'

Key Plan

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	03-25-2015	DCWATER 2ND SUBMISSION	SPT	MLL
	03-17-2015	DDOE/ DCWATER SUBMISSION	SPT	MLL

PROJECT DRAWINGS — CIVIL

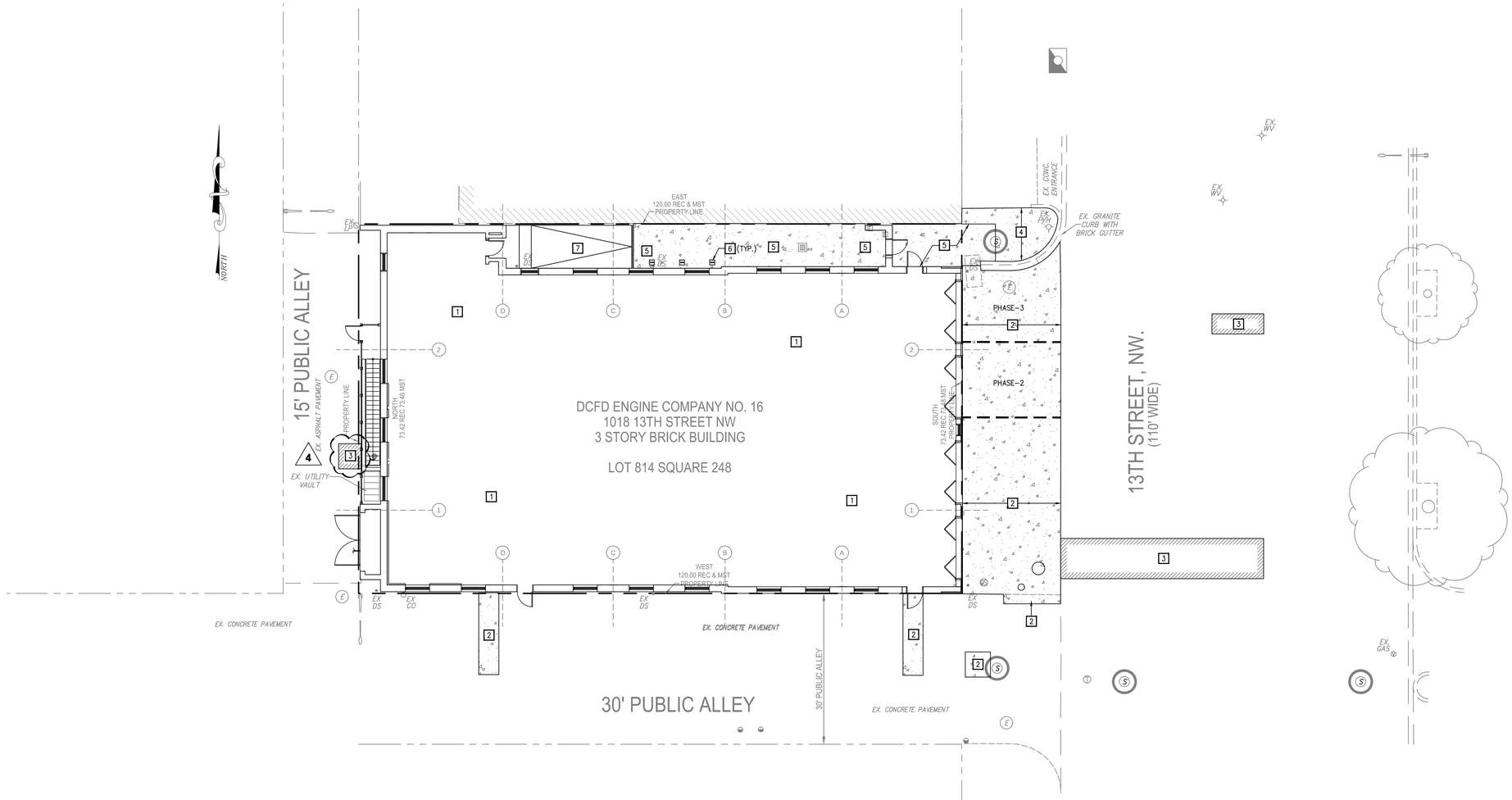
Drawing Title: DEMOLITION PLAN

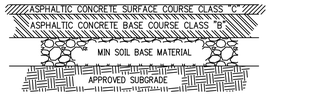
Drawing No.: C1-02

Job Title: DCFEMS Station 16

Project Address: 1018 13th-Street Washington, DC 20005

Building ID No. 934
Project No. 2908.01
Issue Date 03-24-2015
Sheet 007 of 100

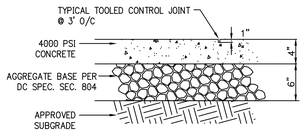




NOTE:
ASPHALT AND SOIL BASE MATERIALS SHALL CONFORM TO THE REFERENCED PARAGRAPHS AND TABLES OF THE DC DEPARTMENT OF HIGHWAYS AND TRAFFIC STANDARDS AND SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES LATEST EDITION AND SUPPLEMENTS.

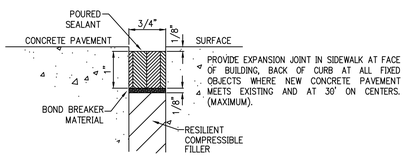
RECOMMENDED PAVEMENT SECTIONS	
RECOMMENDED PAVEMENT SECTIONS	
BITUMINOUS CONCRETE SURFACE COURSE	1.5
BITUMINOUS CONCRETE BASE COURSE	2.5
SOIL BASE MATERIALS	8.0

NEW ASPHALT PAVEMENT
(NOT TO SCALE)



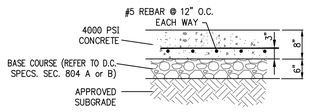
NOTE:
1. PROVIDE EXPANSION JOINT WHERE NEW CONCRETE SIDEWALK MEETS EXISTING AT ALL FIXED OBJECTS AND AT 30' CENTERS.

TYPICAL CONCRETE SIDEWALK
(NOT TO SCALE)



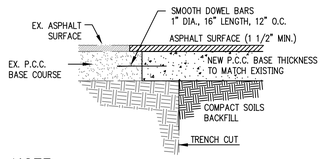
PROVIDE EXPANSION JOINT IN SIDEWALK AT FACE OF BUILDING, BACK OF CURB AT ALL FIXED OBJECTS WHERE NEW CONCRETE PAVEMENT MEETS EXISTING AND AT 30' ON CENTERS. (MAXIMUM).

SIDEWALK EXPANSION JOINT DETAIL
(NOT TO SCALE)



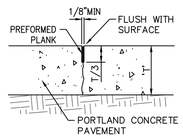
NOTES:
1. PROVIDE EXPANSION JOINTS ALONG FACE OF BUILDINGS, WHERE NEW CONCRETE PAVEMENT MEETS EXISTING FIXED OBJECTS AND AS SHOWN ON THE SITE PLAN.

TYPICAL CONCRETE PAVEMENT DETAIL FOR DRIVEWAY APRON
(NOT TO SCALE)



NOTE:
* NEW SURFACE, BASE AND SUBBASE COURSES TO MATCH EXISTING.
* ASPHALT PAVEMENT MATERIALS SHALL CONFORM TO THE REFERENCED PARAGRAPHS & TABLES OF THE DC DEPARTMENT OF HIGHWAYS AND TRAFFIC STANDARDS & SPECIFICATIONS FOR HIGHWAYS & STRUCTURES LATEST EDITION & SUPPLEMENTS.

PAVEMENT REPAIR
(NOT TO SCALE)



SIDEWALK CONTRACTION JOINT
(NOT TO SCALE)

SITE KEYNOTES:
1. EXISTING BUILDING TO BE RENOVATED. REFER TO ARCHITECTURAL DRAWING FOR DETAILS.
2. NEW CONCRETE PAVEMENT PER DDOT/STANDARDS AND SPECIFICATIONS.
3. NEW ASPHALT SURFACE COURSE AND BASE SECTION PER DC/DDOT STANDARDS AND SPECIFICATIONS.
4. NEW CONCRETE SIDEWALK PER DDOT/STANDARDS AND SPECIFICATIONS.
5. NEW CONCRETE SIDEWALK WITH BASE SECTION PER DDOT/STANDARDS AND SPECIFICATIONS.
6. NEW BIKE RACKS. REFER TO ARCHITECTURAL DRAWING FOR DETAILS.
7. NEW RAMP. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.

10' 5' 0 10' 20'
1" = 10'

Key Plan

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	03-25-2015	DCWATER 2ND SUBMISSION	SPT	MLL
	03-17-2015	DDOE/ DCWATER SUBMISSION	SPT	MLL

PROJECT DRAWINGS — CIVIL

Drawing Title: SITE PLAN AND DETAILS
Drawing No.: C1-04
Job Title: DCFEMS Station 16
Project Address: 1018 13th-Street, Washington, DC 20005
Building ID No.: 934
Project No.: 2908.01
Issue Date: 03-24-2015
Sheet 009 of 100

SANITARY LOAD COMPUTATION

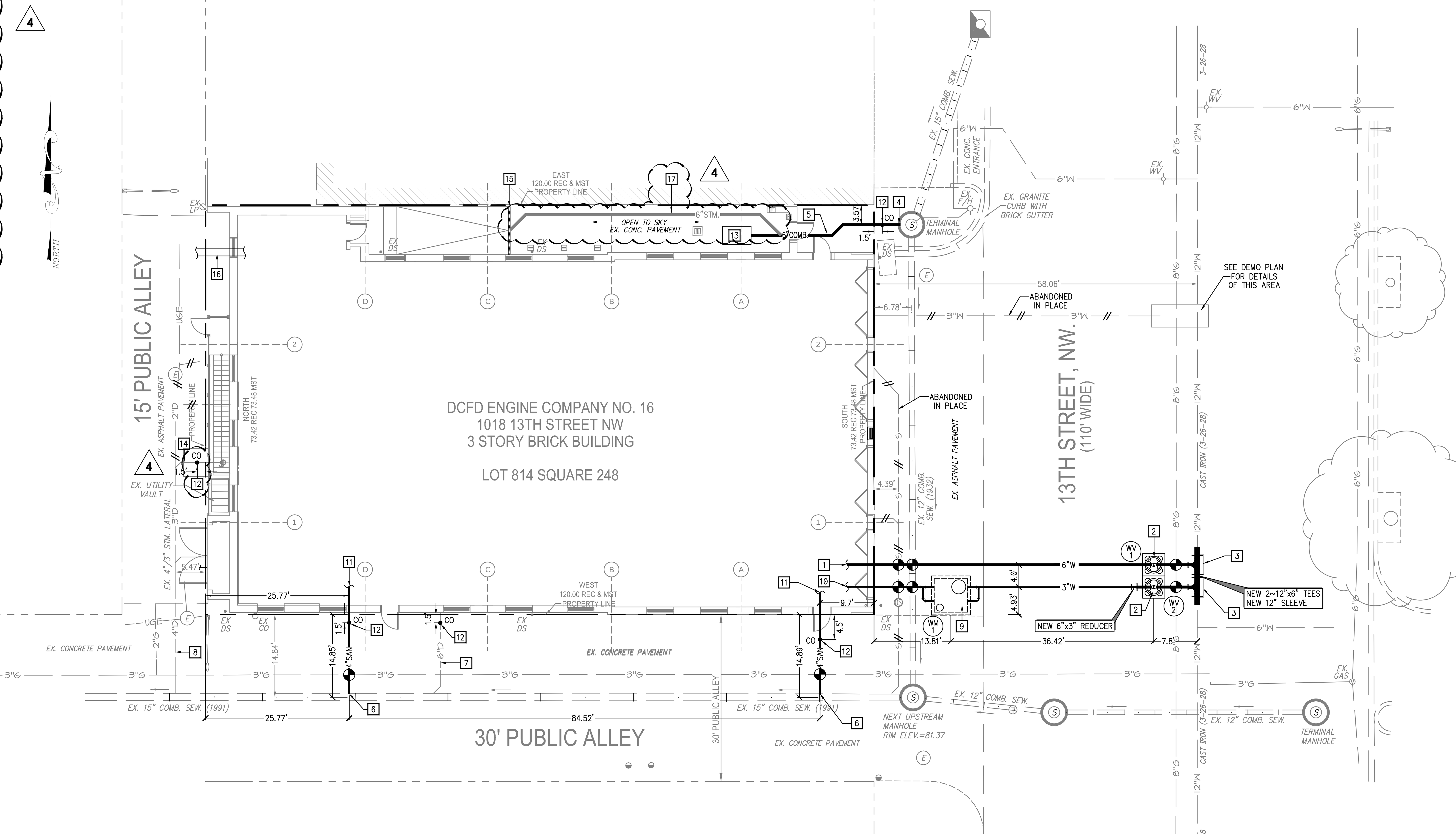
COMM. NO. F09-56 0

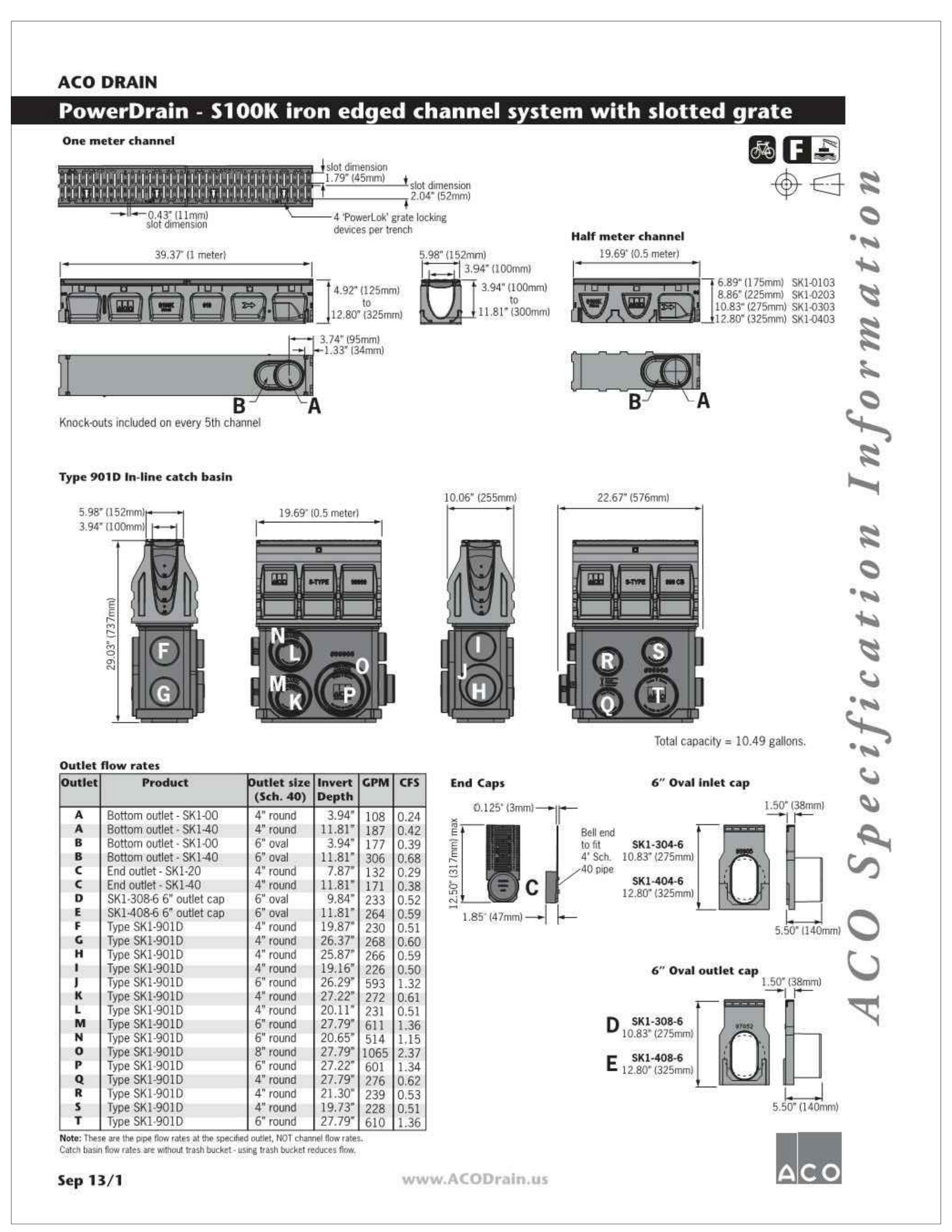
WASTE PIPE CALCULATIONS

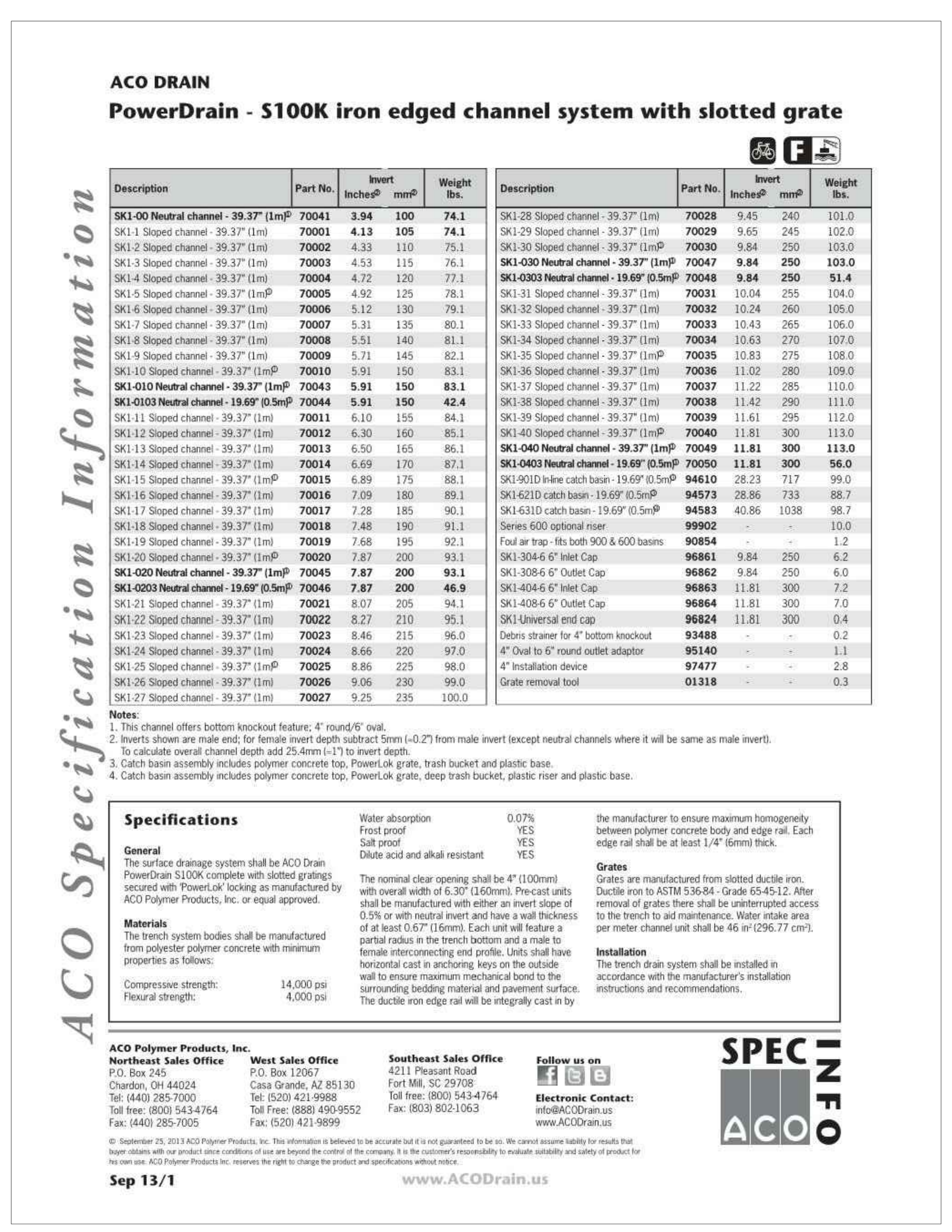
FIXTURES	QTY	DFU	TOTAL
BATHROOM GROUP	0	5	0
BATHTUB	0	2	0
CLOTHES WASHER	1	2	2
DISHWASHING MACHINE	2	2	4
DRINKING FOUNTAIN	2	0.5	1
KITCHEN SINK	4	2	8
JANITOR SINK	0	2	0
LAVATORY	16	1	16
HOSE BIBB OR HYDRANT	3	0	0
RESTAURANT SINK	0	2	0
SERVICE SINK	3	2	6
SHOWER HEAD	11	2	22
STALL OR WALL URINAL	3	4	12
FLOOR DRAINS	17	0	0
WATER CLOSET FV	16	4	64
2" FLOOR DRAINS	0	2	0
3" FLOOR DRAINS	3	3	9
4" FLOOR DRAINS	7	4	28
MISC. GPM FLOW......................			0
TOTAL DRAINAGE FIXTURE UNITS....................			172
BUILDING WASTE SIZE LEAVING......................			4"

NOTE: ALL CALCULATIONS BASED ON INTERNATIONAL PLUMBING CODE 2003

4







INLET SIZING COMPUTATIONS FOR TRENCH DRAIN

1. A = DRAINAGE AREA = 3,325 SQUARE FEET = 0.0763 ACRES
   C = RUNOFF COEFFICIENT (100% IMPERVIOUS) = 0.95
   I = 15 YR STORM INTENSITY = 7.56 IN/HR
   Q = CIA
   Q = 0.95 x 7.56 IN/HR x 0.0763 AC
   Q = 0.55 CFS

2. COMPUTE TRENCH DRAIN OPERATING AS WEIR
   H = ASSUME HEAD = 0.10 FT
   G = ACCELERATION DUE TO GRAVITY = 32.2 FT/S^2
   ORIFICE COEFFICIENT = 0.67
   A = Q/[0.67 (2 x 32.2 x 0.10)^0.5]
   A = 0.55/1.08
   A = 0.32 SQUARE FEET
   *ASSUMING GRATE IS 50% CLOGGED, A = 0.65 SQUARE FEET
   LENGTH OF TRENCH = 8.54'

THEREFORE, USE A 4" TRENCH DRAIN

UTILITY KEYNOTES:

1. NEW 6" DIP CLASS 52 FIRE SERVICE LATERAL. BACKFLOW PREVENTER ASSEMBLY TO MEET ASSE-1048.
2. NEW 6" WATER VALVE WITH 4.0' CASING PER DC/WATER STANDARDS AND SPECIFICATIONS. REFER TO DC/WATER STANDARD DRAWING W-20.01.
3. NEW CONCRETE THRUST BLOCK PER DC/WATER STANDARDS AND SPECIFICATIONS. REFER TO DC/WATER STANDARD DRAWING W-40.01.
4. NEW CONNECTION TO EXISTING MANHOLE PER DC/WATER STANDARDS AND SPECIFICATIONS.
5. NEW 6" PVC SCH-40 COMBINED SEWER LATERAL.
6. NEW WYE BRANCH CONNECTION PER DC/WATER STANDARDS AND SPECIFICATIONS REFER TO DC/WATER STANDARD DRAWING S-80.01.
7. EXISTING 6" STORM LATERAL TO BE REUSED.
8. EXISTING 4" STORM LATERAL TO BE REUSED.
9. NEW 72"x72"x72" I.D. WATER METER VAULT PER DC/WATER STANDARDS AND SPECIFICATIONS. REFER TO DC/WATER STANDARD DRAWING DG-23.01. WATER METER VAULT TO BE CONSTRUCTED PER H-20 LOADING.
10. NEW 3" DIP CLASS 52 DOMESTIC WATER SERVICE LATERAL. BACKFLOW PREVENTER VALVE TO MEET ASSE-1015.
11. NEW 4" PVC SCH-40 SANITARY SEWER LATERAL.
12. NEW CLEANOUT PER DC/WATER STANDARDS AND SPECIFICATIONS. REFER TO DC/WATER DETAIL S-80.02.
13. NEW OIL/GRIT SEPARATOR. REFER TO PLUMBING DRAWING FOR DETAILS.
14. EXISTING 3" STORM LATERAL TO BE REUSED.
15. NEW 4" TRENCH DRAIN WITH HS-20 LOADING TO TIE INTO EXISTING AREA DRAIN PIPING. REFER TO THIS SHEET FOR DETAIL OF THE TRENCH DRAIN.
16. NEW ELECTRICAL SERVICE LINE. COORDINATE WITH PEPCO FOR REQUIREMENTS. ~~REFER TO MEP DRAWING FOR DETAILS.~~
17. NEW 6" PVC SCH-40 STORM SEWER LATERAL. REFER MEP DRAWINGS FOR DETAILS.

4

10' 5' 0 10' 20'
1" = 10'

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Seal
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PROJECT DRAWINGS — CIVIL

Drawing Title: UTILITY PLAN

Drawing No.: C1-05

Job Title: DCFEMS Station 16

Project Address: 1018 13th-Street
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Building ID No. 934
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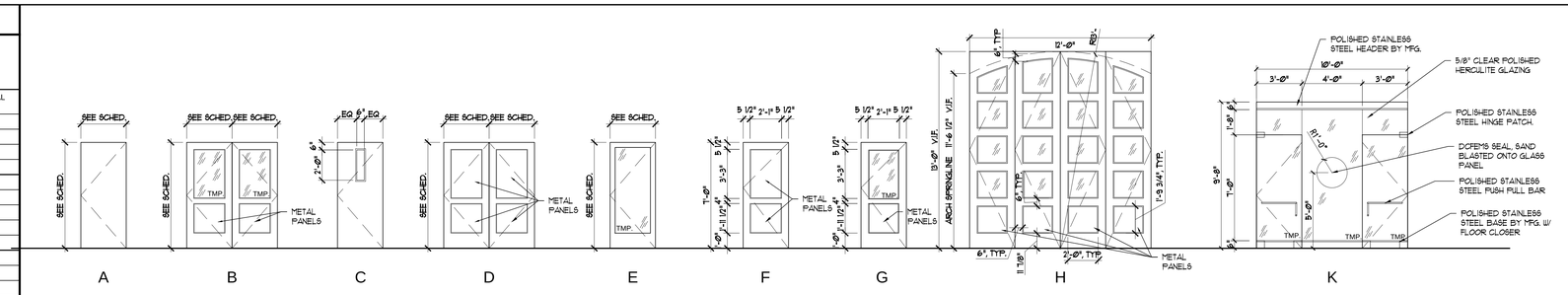
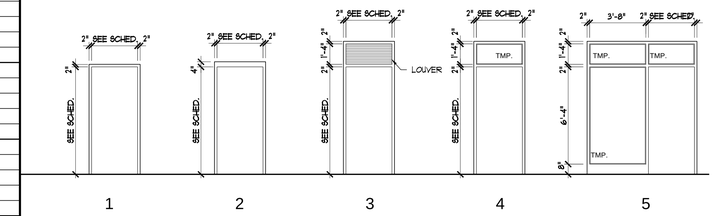
Issue Date 03-24-2015
Sheet 010 of 100

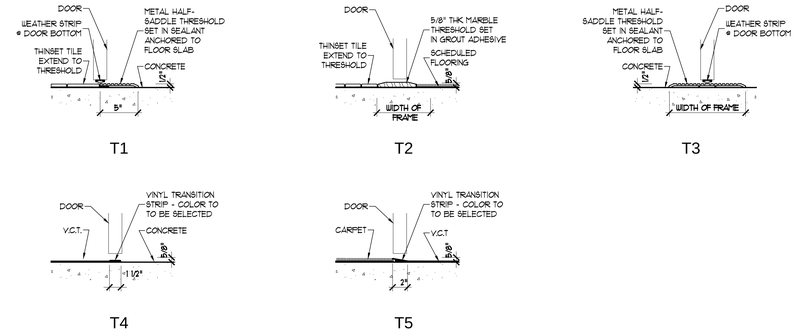
DOOR SCHEDULE

MARK	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICK	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLAZING	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL SILL	FIRE LABEL	HDWR SET	REMARKS
100A	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	4	STL.	PTD.	--	--	--	--	10	NEW DOOR IN EXISTING FRAME, DECORATIVE METAL TRANSOM #1 SEE 3/A0-02
100B	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H13	J13	--	--	01	--
102	PR 3'-0"	7'-0"	1 3/4"	D	STL.	PTD.	WIRE	2	STL.	PTD.	H13	J13	--	1 1/2 HR.	06	--
105A	3'-0"	7'-0"	1 3/4"	C	STL.	STL.	WIRE	2	STL.	PTD.	H13	J13	--	1 1/2 HR.	02	--
105B	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	--	--	--	--	11	NEW DOOR IN EXISTING FRAME
106	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	03	--
106A	4 @ 3'-0"	13'-0"	1 3/4"	H	STL.	PTD.	--	--	STL.	PTD.	H7	J7	--	--	12	--
106B	4 @ 3'-0"	13'-0"	1 3/4"	H	STL.	PTD.	--	--	STL.	PTD.	H7	J7	--	--	12	--
106C	4 @ 3'-0"	13'-0"	1 3/4"	H	STL.	PTD.	--	--	STL.	PTD.	H7	J7	--	--	12	--
106D	4 @ 3'-0"	13'-0"	1 3/4"	H	STL.	PTD.	--	--	STL.	PTD.	H7	J7	--	--	12	--
106E	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	3	STL.	PTD.	--	--	--	--	11	NEW DOOR IN EXISTING OPENING
106F	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	3	STL.	PTD.	--	--	--	--	11	NEW DOOR IN EXISTING OPENING
111	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	04	--
112	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	05	--
113	PR 3'-0"	7'-0"	1 3/4"	B	STL.	PTD.	TMP.	2	STL.	PTD.	H13	J13	--	--	06	--
115A	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	01	--
115B	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	07	--
115C	2'-6"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	08	--
115D	2'-6"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	08	--
115E	2'-6"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	08	--
115F	2'-6"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	08	--
200A	3'-0"	7'-0"	1"	K	GLASS	POL.	TMP	N/A	S.S	POL.	--	--	--	--	12	--
200B	3'-0"	7'-0"	1"	K	GLASS	POL.	TMP	N/A	S.S	POL.	--	--	--	--	12	--
202	3'-0"	7'-0"	1 3/4"	C	STL.	STL.	WIRE	2	STL.	PTD.	H5	J5	--	1 1/2 HR.	02	--
203	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	03	--
205	3'-0"	7'-0"	1 3/4"	C	STL.	STL.	WIRE	2	STL.	PTD.	H5	J5	--	1 1/2 HR.	02	--
206A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
206B	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
206C	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
206D	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
206E	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
207	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	20	--
208A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
208B	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
208C	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
208D	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
208E	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
209	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	20	--
210	3'-0"	7'-0"	1 3/4"	G	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	07	--
211A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
211B	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
211C	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
211D	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
211E	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
212	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	--	STL.	PTD.	--	--	--	--	20	--
213	3'-0"	7'-0"	1 3/4"	G	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	07	DOOR SHALL HAVE BLINDS TO MATCH ADJACENT WINDOWS
214A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
214B	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
214C	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
214D	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
214E	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
214F	2'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
215	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	20	--
216A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	04	--
218	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	23	--
220A	PR 3'-0"	7'-0"	1 3/4"	B	STL	PTD	TMP	1	STL	PTD	H5	J5	--	--	06	--
220B	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	24	--
220C	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	25	--
224	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	24	--
227A	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	25	--
227B	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	25	--
227C	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	25	--
230	3'-0"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	04	--
231	2'-6"	7'-0"	1 3/4"	F	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	04	--
300A	3'-0"	7'-0"	1 3/4"	C	STL.	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
300B	3'-0"	7'-0"	1 3/4"	C	STL.	PTD.	--	1	STL.	PTD.	H5	J5	--	--	19	--
302	3'-0"	7'-0"	1 3/4"	C	STL.	STL.	WIRE	2	STL.	PTD.	H5	J5	--	1 1/2 HR.	02	--
303	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	22	--
304A	3'-0"	7'-0"	1 3/4"	E	STL	PTD.	TMP.	17/A0.03	STL.	PTD.	H5	J5	--	--	16	--
304B	3'-0"	7'-0"	1 3/4"	E	STL	PTD.	TMP.	17/A0.03	STL.	PTD.	H5	J5	--	--	09	--
305	3'-0"	7'-0"	1 3/4"	C	STL.	PTD.	WIRE	2	STL.	PTD.	H5	J5	--	1 1/2 HR.	02	--
306	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	16	--
307	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	16	--
309A	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
309B	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	08	--
310	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	09	--
311	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	09	--
312	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	09	--
313	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	09	--
314	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	09	--
315	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	20	--
316A	3'-0"	7'-0"	1 3/4"	E	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	09	--
316B	3'-0"	7'-0"	1 3/4"	E	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	09	--
316C	3'-0"	7'-0"	1 3/4"	F	STL.	PTD.	TMP.	1	STL.	PTD.	H5	J5	--	--	09	--
316D	3'-0"	7'-0"	1 3/4"	F	STL.	PTD.	TMP.	1	STL.	PTD.	H5	J5	--	--	09	--
317	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	4	STL.	PTD.	H5	J5	--	--	09	--
318	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	20	--
319	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	09	--
320	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	TMP.	5	STL.	PTD.	H5	J5	--	--	09	--
321	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	25	--
322	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	22	--
323	PR 2'-6"	7'-0"	1 3/4"	D	S.C.W.	PTD.	--	1	STL.	PTD.	H5	J5	--	--	26	--
324	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	24	--
325	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	1	STL.	PTD.	H5	J5	--	--	07	--
A00	3'-5 1/2"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	--	08	--
A01	3'-0"	7'-0"	1 3/4"	C	STL.	STL.	WIRE	2	STL.	PTD.	H5	J5	--	1 1/2 HR.	02	--
B02	3'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	2	STL.	PTD.	H13	J13	--	--	16	--
B03	2'-6"	7'-0"	1 3/4"	A	STL.	PTD.	--	1	STL.	PTD.	H15	J15	--	--	14	--
B05A	3'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	2	STL.	PTD.	--	--	--	10	10	NEW DOOR IN EXISTING FRAME TO BE REFINISHED, ELECTRIC LOCKSET READER
B05B	3'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	1	STL.	PTD.	H15	J15	--	--	15	--
B06	3'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	2	STL.	PTD.	H13	J13	--	--	09	--
B07	4'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	1	STL.	PTD.	H15	J15	--	--	13	--
B09	3'-0"	7'-0"	1 3/4"	A	STL.	PTD.	--	1	STL.	PTD.	H15	J15	--	--	17	--
M01A	3'-0"	7'-0"	1 3/4"	A	STL	PTD.	--	2	STL.	PTD.	H13	J13	--	1 1/2 HR.	22	--

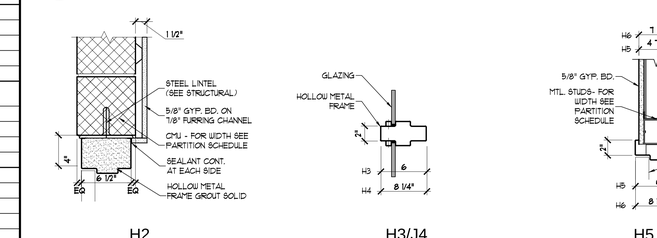


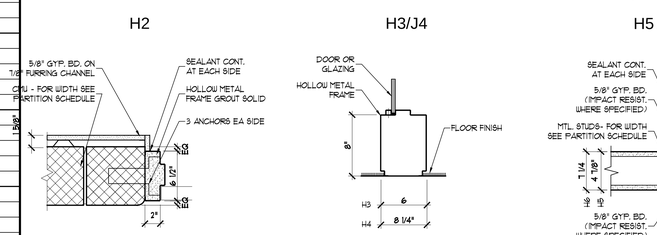
20 A0-01 DOOR TYPES
1/4" = 1'-0"

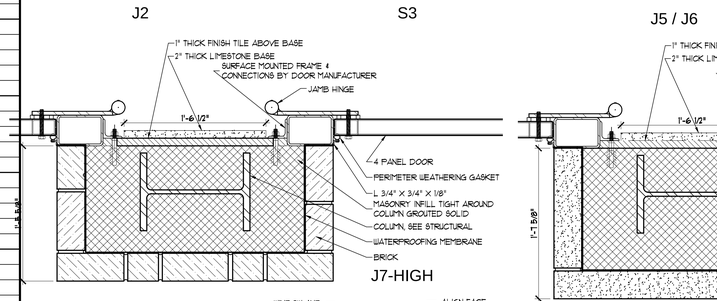


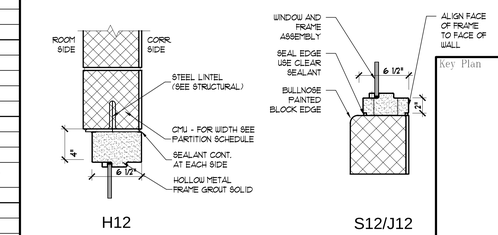


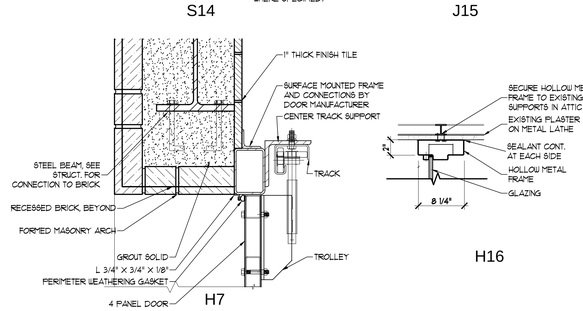
19 A0-01 FRAME TYPES
1/4" = 1'-0"











9 A0-01 THRESHOLD TYPES
1 1/2" = 1'-0"

6 A0-01 FRAME DETAILS
1 1/2" = 1'-0"

Key Plan

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Designed: LGA	4	06-19-15	ADDENDUM 4	LGA	LGA
Drawn : NJD	-	01-22-15	FOR BID/PERMIT	CMA	
Checked: PRE	-	08-15-11	FOR PERMIT	NJD	LGA
	Revision	Date	Description	By	App

PROJECT DRAWINGS

DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Seal

Registration No.: -

Date: -

Architect:

Date: -

Drawing Title: DOOR SCHEDULE

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW Washington, D.C. 20005

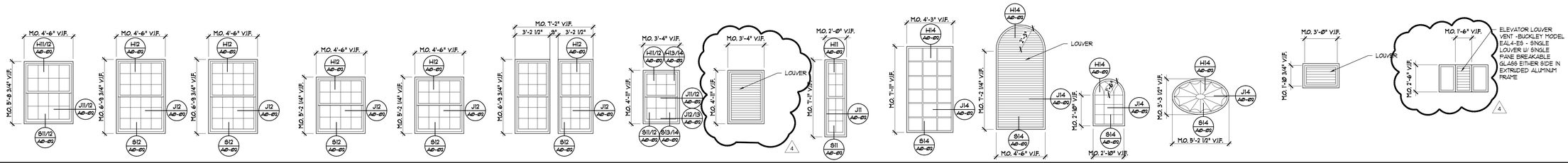
Drawing No.: A0-01

Building ID No. 934

Project No. 2908.01

Issue Date 01-22-15

Sheet 014 of 100



A B B1 C C1 D E E1 F G H J K M N

2 A0-02 WINDOW TYPES

1/4" = 1'-0"

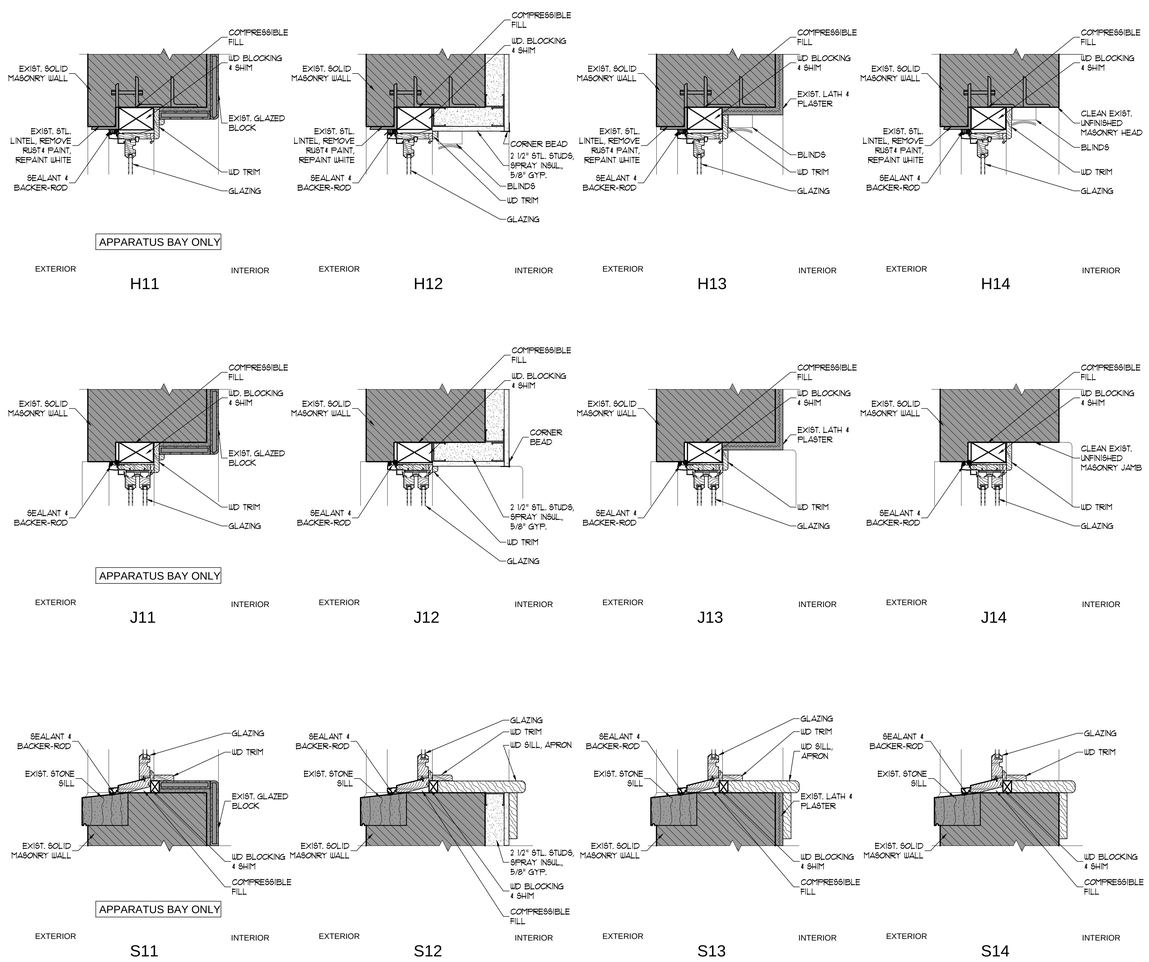
WINDOW SCHEDULE

MARK	SIZE			TYPE	FRAME		DETAILS				GLAZING	REMARKS
	WIDTH	HEIGHT	THICK		MATERIAL	FINISH	HEAD	SILL	JAMB	MULLION		
A	4'-6"	5'-8 3/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H11/12	S11/12	J11/12			
B	4'-6"	6'-9 3/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H12	S12	J12			PROVIDE WINDOW BLINDS
B1	4'-6"	6'-9 3/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H12	S12	J12		FROSTED	PROVIDE WINDOW BLINDS
C	4'-6"	5'-2 1/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H12	S12	J12			PROVIDE WINDOW BLINDS
C1	4'-6"	5'-2 1/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H12	S12	J12		FROSTED	PROVIDE WINDOW BLINDS
D	3'-2 1/2"	6'-9 3/4"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H12	S12	J12			PROVIDE WINDOW BLINDS
E	3'-4"	4'-11"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H11/12/13/14	S11/12/13/14	J11/12/13/14			PROVIDE WINDOW BLINDS
E1	3'-4"	4'-11"	1/4"	LOUVER	ALUM./WD.	PTD.	H11/12/13/14	S11/12/13/14	J11/12/13/14			
F	2'-0"	7'-1"	1/4"	SINGLE HUNG	ALUM./WD.	PTD.	H11	S11	J11			
G	4'-3"	7'-11"	1/4"	CASEMENT	ALUM./WD.	PTD.	H14	S14	J14			
H	4'-6"	9'-5 1/4"	1/4"	LOUVER	ALUM./WD.	PTD.	H14	S14	J14			
J	2'-10"	4'-2"	1/4"	ARCHED PICTURE	ALUM./WD.	PTD.	H14	S14	J14			
K	5'-2 1/2"	3'-3 1/2"	1/4"	FIXED OVAL	ALUM./WD.	PTD.	H14	S14	J14			
M	3'-0"	1'-10 3/4"	1/4"	LOUVER	ALUM./WD.	PTD.	H11/12	S11/12	J11/12			
N	1'-6"	2'-6"	1/4"	LOUVER	ALUM./WD.	PTD.	H11/12	S11/12	J11/12			

1

3 A0-02 DECORATIVE METAL TYPES

1/2" = 1'-0"



1 A0-02 WINDOW HEAD/ JAMB/ SILL DETAILS

1 1/2" = 1'-0"

Key Plan

LEMAY ERICKSON WILLCOX ARCHITECTS

11250 Roger Bacon Drive
Suite Number Sixteen
Reston, Virginia 20190
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Revision	Date	Description	By	App
4	06-19-15	ADDENDUM 4	LGA	LGA
-	01-22-15	FOR BID/PERMIT	CMA	LGA
-	08-15-11	FOR PERMIT	NJD	LGA

Designed: LGA
Drawn: NJD
Checked: PRE

Seal: DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Registration No.: -
Date: -
Architect:
Date: -

PROJECT DRAWINGS: 03 - ARCHITECTURAL

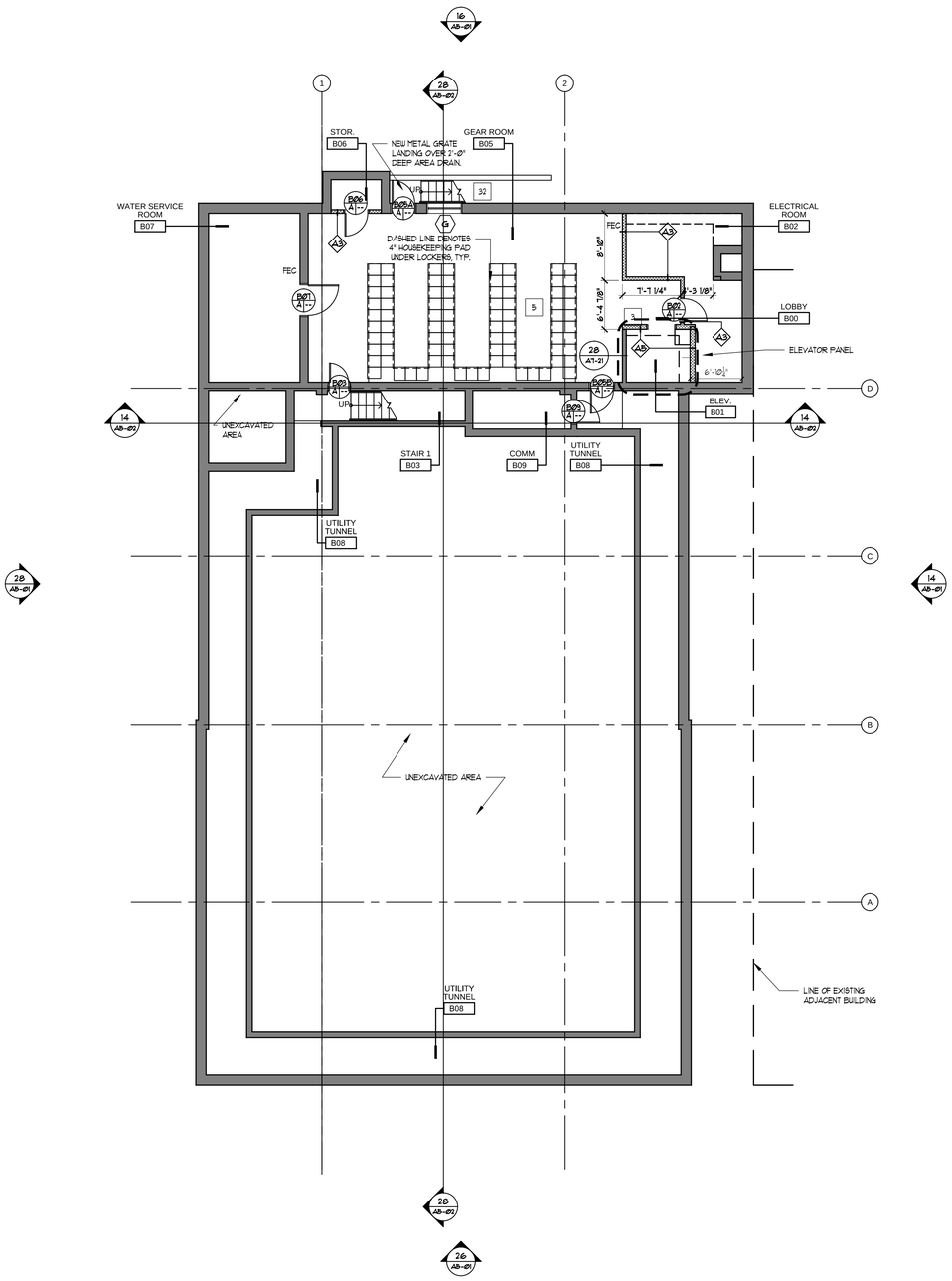
Drawing Title: WINDOW SCHEDULE

Drawing No.: A0-02

Job Title: DCFEMS Station 16

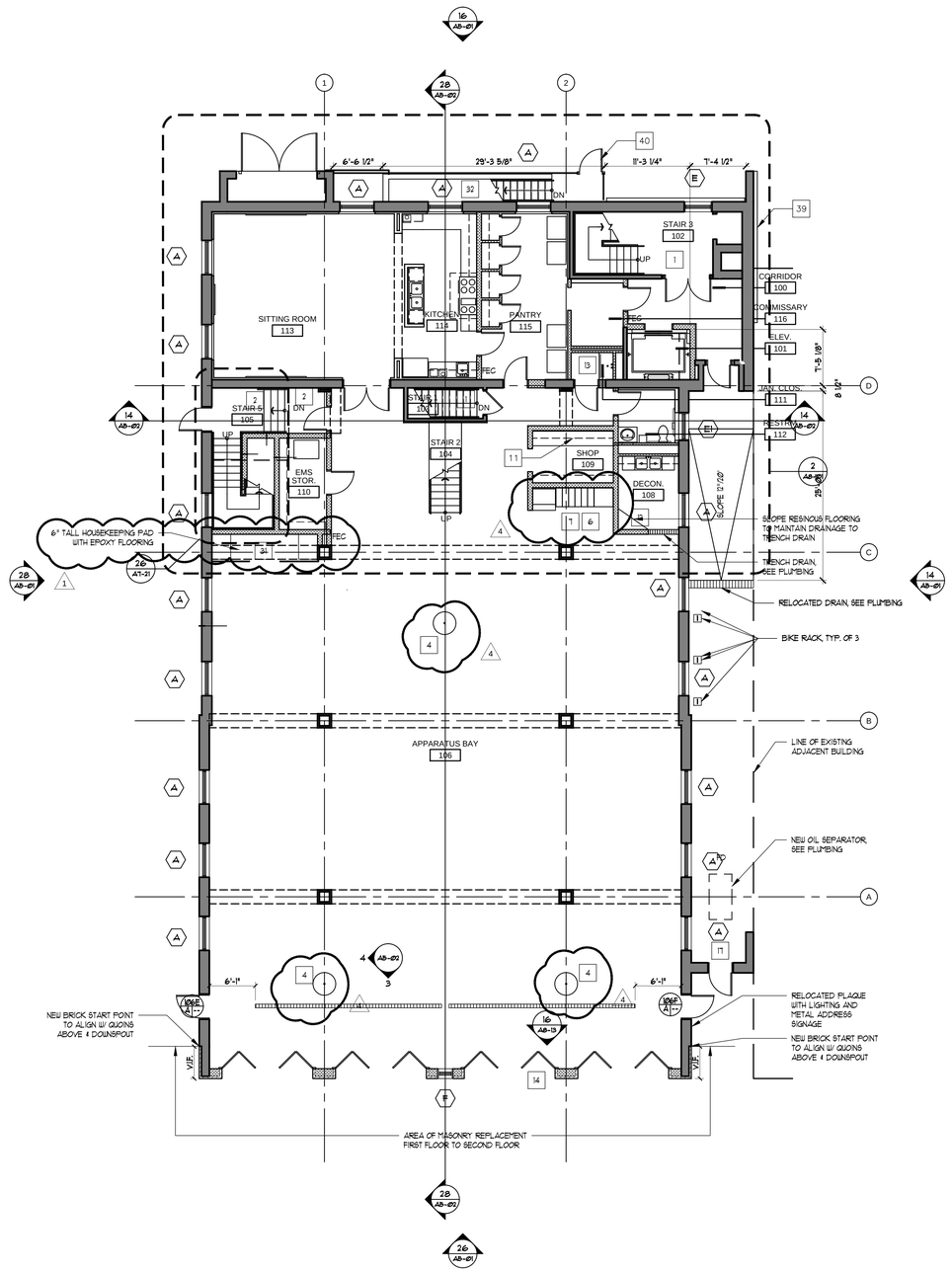
Project Address: 1018 13th Street, NW
Washington, D.C. 20005

Building ID No.	934
Project No.	2908.01
Issue Date	01-22-15
Sheet	015 of 100



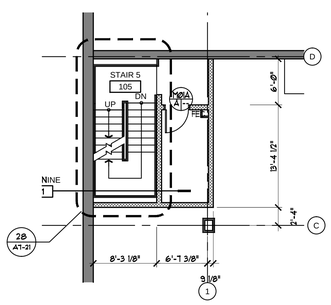
27 A3-01 BASEMENT FLOOR PLAN

1/8" = 1'-0"



12 A3-01 FIRST FLOOR PLAN

1/8" = 1'-0"



3 A3-01 MEZZANINE PLAN

1/8" = 1'-0"

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A. GENERAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL ITEMS AND EQUIPMENT NOTED BELOW AND ON PLANS AS WELL AS PROVIDING ALL UTILITIES AND CONNECTIONS REQUIRED FOR COMPLETE AND SATISFACTORY OPERATION, UNLESS SPECIFICALLY NOTED OTHERWISE.

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SHEET NOTES

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2. CONCRETE FILLED METAL PAN LANDINGS AND STEPS. REFERENCE NEW STAIR DETAILS.
3. SLIDE POLE INFILL, SEE STRUCTURAL DRAWINGS.
4. NEW SAFETY CAGE AND SEALING SYSTEM - MCINTIRE BRASS WORKS MODEL 20 OR APPROVED EQUAL
5. PPE LOCKERS (PERSONAL PROTECTIVE EQUIPMENT) - SEE SPECIFICATION
6. HOSE STORAGE SHELVING - SPACESAVER OR APPROVED EQUAL
7. AIR/ OXYGEN STORAGE RACK - RACKIT SCBA SYLINDER STORAGE RACK BY RESOLVE SPECIALTY PRODUCTS INC. OR APPROVED EQUAL
8. NOT USED
9. NOT USED
10. NOT USED
11. WORK BENCH
12. FLOOR SINK AND EYE WASH SYSTEM, SEE MPE DRAWINGS.
13. FLOOR SINK WITH BUCKET HANGER ON FAUCET AND MOP HOLDER MOUNTED TO WALL, SEE MPE DRAWINGS FOR FLOOR SINK.
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15. NOT USED
16. NOT USED
17. REINSTALL EXISTING IRON GATE SAME LOCATION WITH REVERSED SWING AS SHOWN.
18. NOT USED
19. NOT USED
20. KITCHENETTE - SEE ENLARGED PLAN AND ELEVATIONS FOR ADDITIONAL INFORMATION.
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22. COPIER MACHINE
23. DRINKING FOUNTAIN
24. NOT USED
25. EXISTING TOWER STRUCTURE
26. NOT USED
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28. STRIP PAINT FROM CUPOLA AND REPAINT. INSTALL HINGED HATCH WITH LATCH IN PLACE OF EXISTING HATCH. INSTALL NEW WEATHERVANE ON TOP. SEE DETAIL 5/A5-03.
29. REFINISH EXTERIOR OF DORMERS.
30. SHIPS LADDER TO ROOF
31. WATCH DESK, FURNISH WITH FURNITURE PACKAGE, CONTRACTOR INSTALL. CONTRACTOR TO RELOCATE EXISTING BRASS PIPE RAILS. ATTACH DESK FOR CONTROLS AND COMMUNICATIONS TO CMU WALL. COORDINATE WIRING WITH UNDER-SLAB CONDUIT AND DESK GROMMET HOLES.
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33. ADHERED MEMBRANE ROOFING SYSTEM.
34. COPPER DOWNSPOUT, CORE DRILLED THROUGH LIMESTONE CORNICE, SEE DETAIL 15/A5-03
35. COPPER GUTTER SECURED TO EXISTING ROOF FASCIA, SLOPE TO DOWNSPOUT. COORDINATE FINAL DESIGN OF COPPER GUTTER WITH ARCHITECT AFTER DEMO IN THE FIELD OF OLD ROOFING MATERIALS. INSTALLATION OF NEW GUTTERS, DOWNSPOUTS AND FLASHING REQUIRE CAREFUL COORDINATION OF EXITING ROOF STRUCTURE AND LIMESTONE CORNICE.
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40. ALUMINUM ORNAMENTAL FENCE
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Key Plan

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Drawn :	NJD
Checked:	PRE

Revision	Date	Description	By	
4	06-19-15	ADDENDUM 4	LGA	LGA
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DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Seal

Registration No.: -

Date: -

Architect:

Date: -

PROJECT DRAWINGS: 03 - ARCHITECTURAL

Drawing Title: BASEMENT - FIRST FLOOR PLAN

Drawing No.: A3-01

Job Title: DCFEMS Station 16

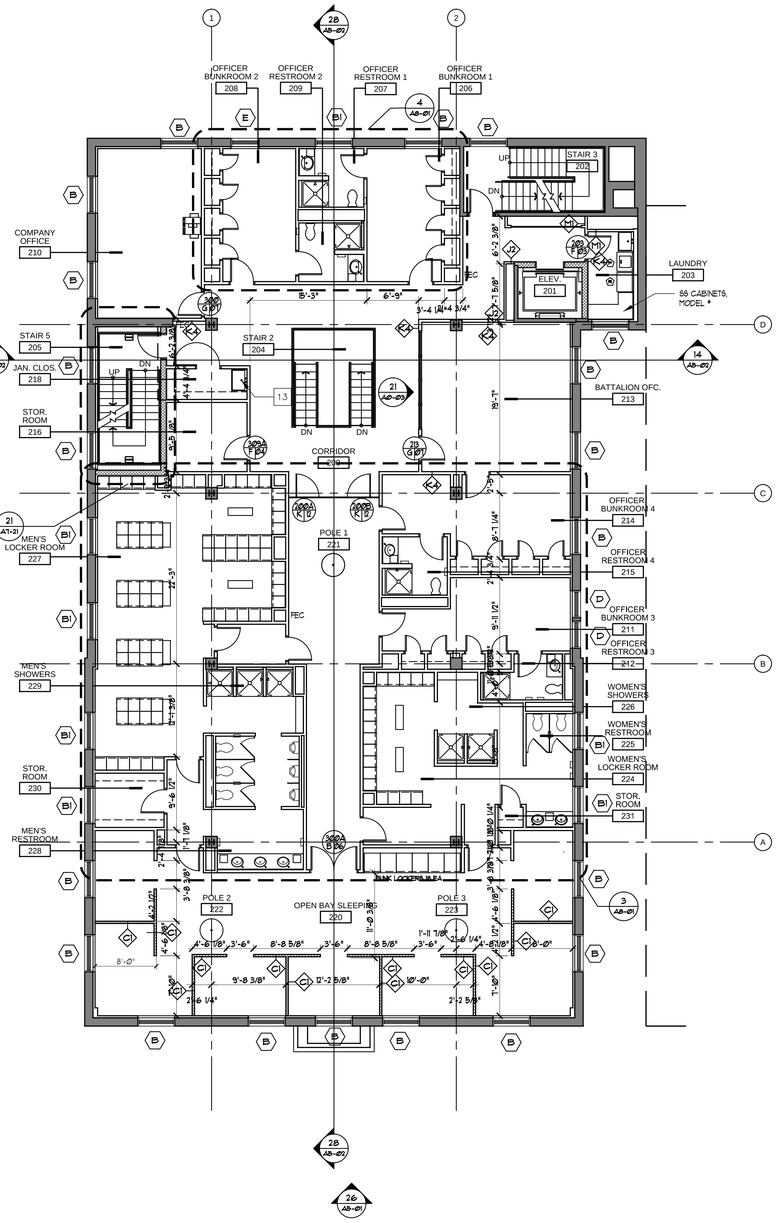
Project Address: 1018 13th Street, NW
Washington, D.C. 20005

Building ID No.: 934

Project No.: 2908.01

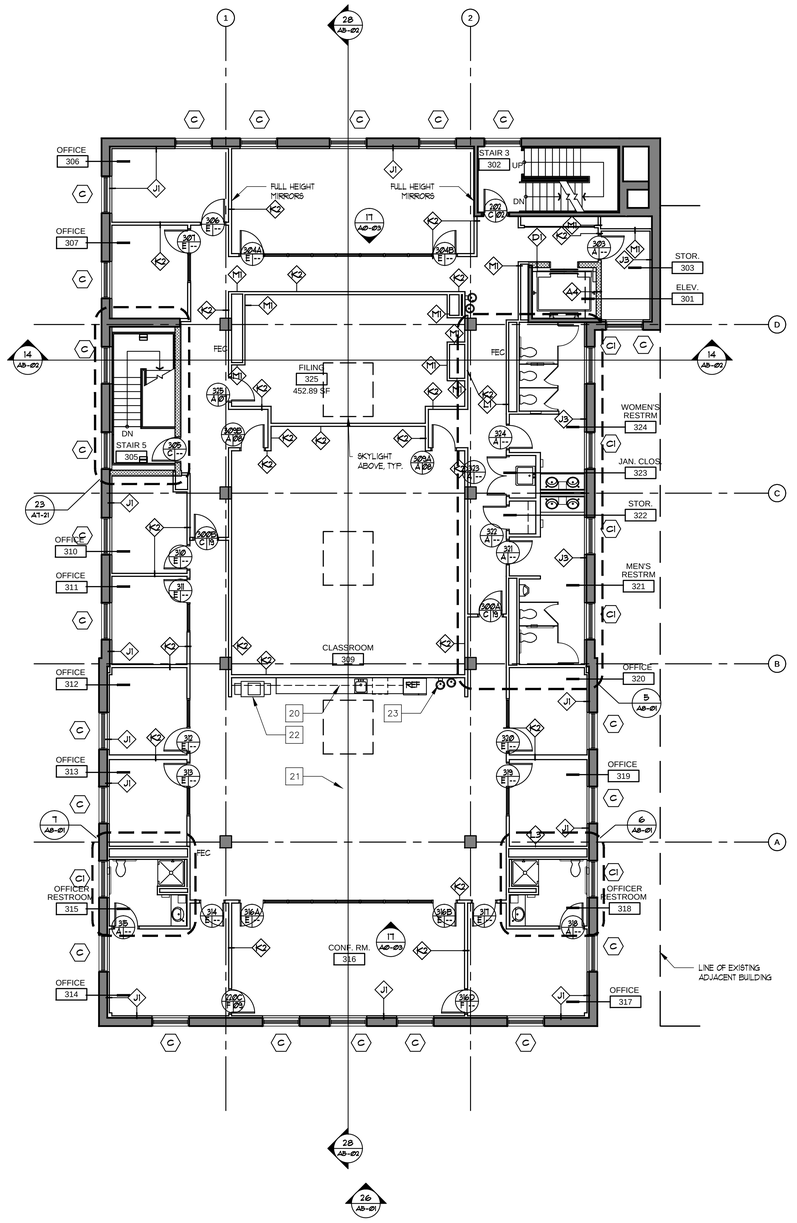
Issue Date: 01-22-15

Sheet: 020 of 100



27 A3-02 SECOND FLOOR PLAN

1/8" = 1'-0"



12 A3-02 THIRD FLOOR PLAN

1/8" = 1'-0"

GENERAL PLAN NOTES:

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Key Plan

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Reston, Virginia 20190
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703.956.5601 F
www.lewarchitects.com

Designed: LGA	4	06-19-15	ADDENDUM 4	LGA	LGA
Drawn: NJD	-	01-22-15	FOR BID/PERMIT	CMA	LGA
Checked: PRE	-	08-15-11	FOR PERMIT	NJD	LGA
Revision	Date	Description		By	App

PROJECT DRAWINGS: 03 - ARCHITECTURAL

DISTRICT OF COLUMBIA PAUL R. ERICKSON 101173 LICENSED ARCHITECT

Seal

Registration No.: -

Date: -

Architect:

Date: -

Drawing Title: SECOND - THIRD FLOOR PLAN

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW Washington, D.C. 20005

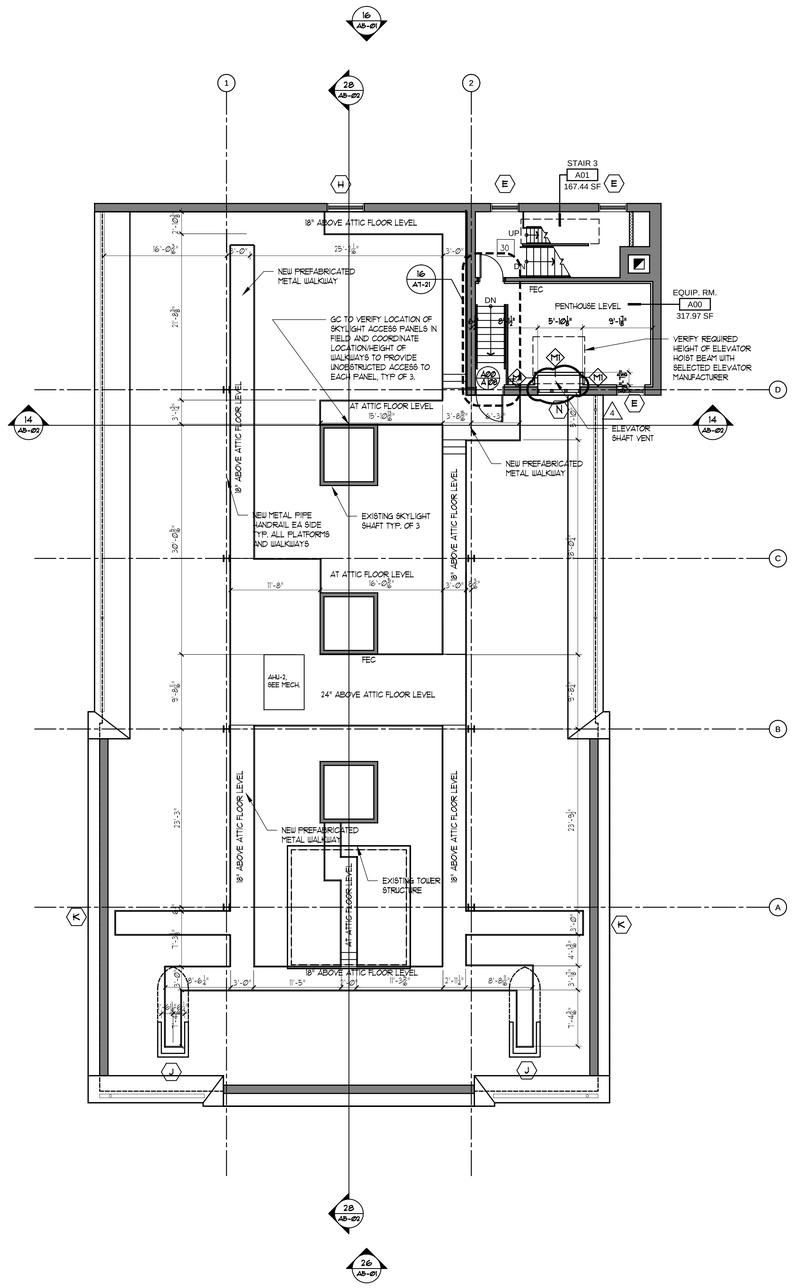
Drawing No.: A3-02

Building ID No. 934

Project No. 2908.01

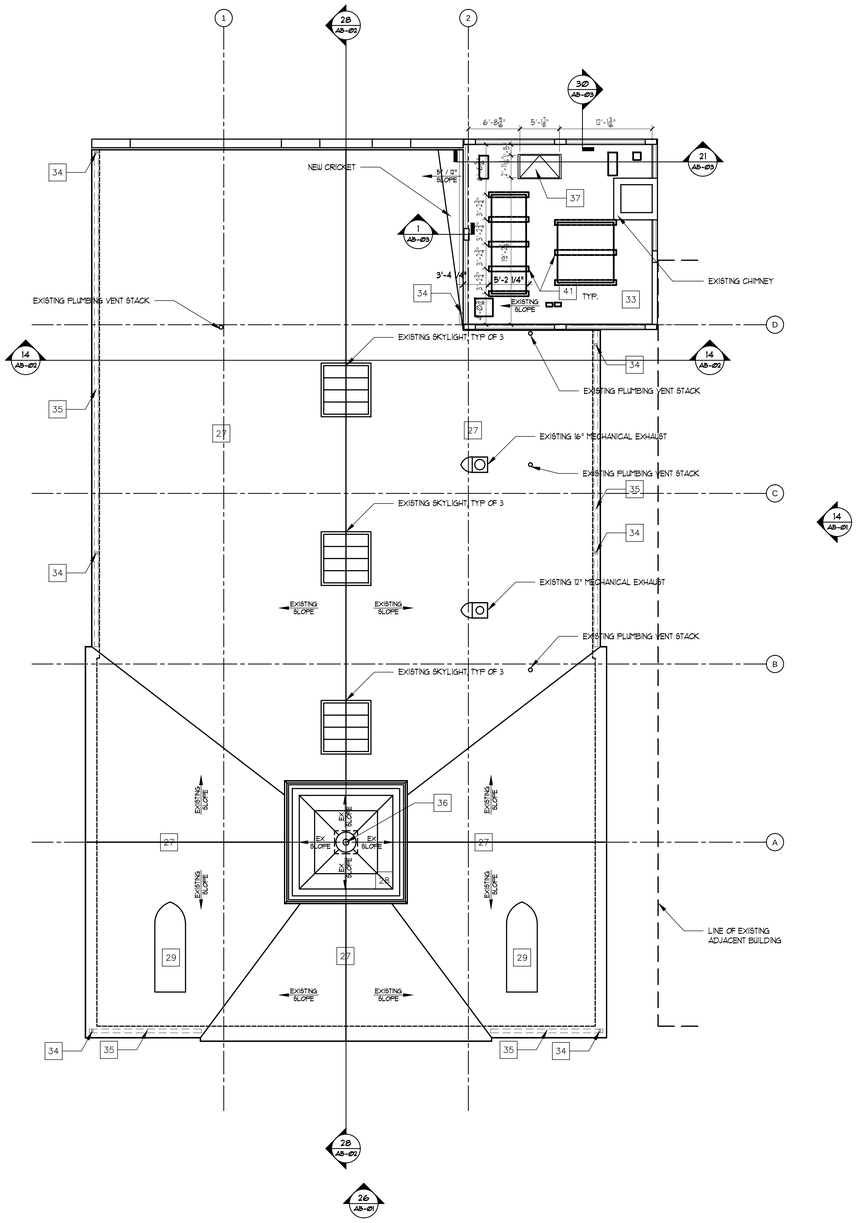
Issue Date 01-22-15

Sheet 021 of 100



27 A4-01 ATTIC FLOOR PLAN

1/8" = 1'-0"



2 A4-01 ROOF PLAN

1/8" = 1'-0"

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Drawn : NJD	4	06-19-15	ADDENDUM 4	LGA	LGA
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	Revision	Date	Description.	By	App

PROJECT DRAWINGS — 03 - ARCHITECTURAL

Seal: DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Registration No.: -

Date: -

Architect:

Date: -

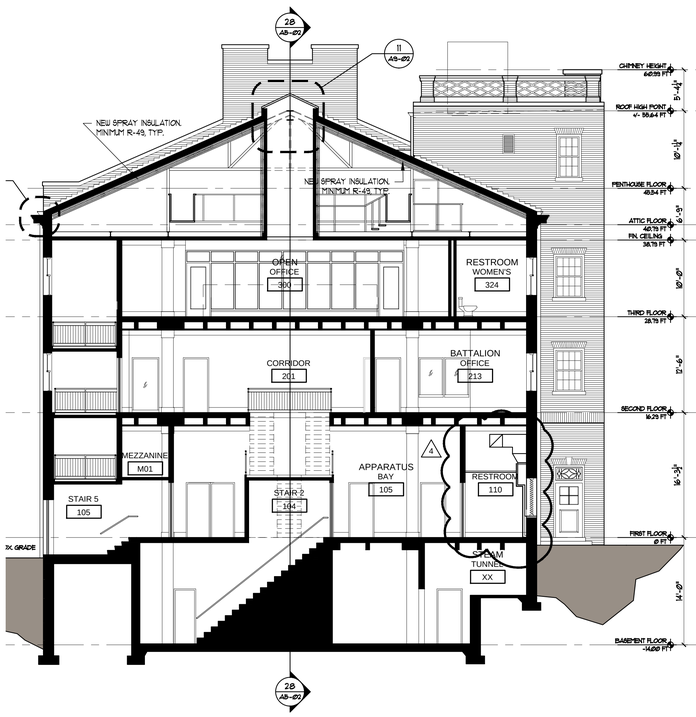
Drawing Title: ATTIC - ROOF PLANS

Drawing No.: A4-01

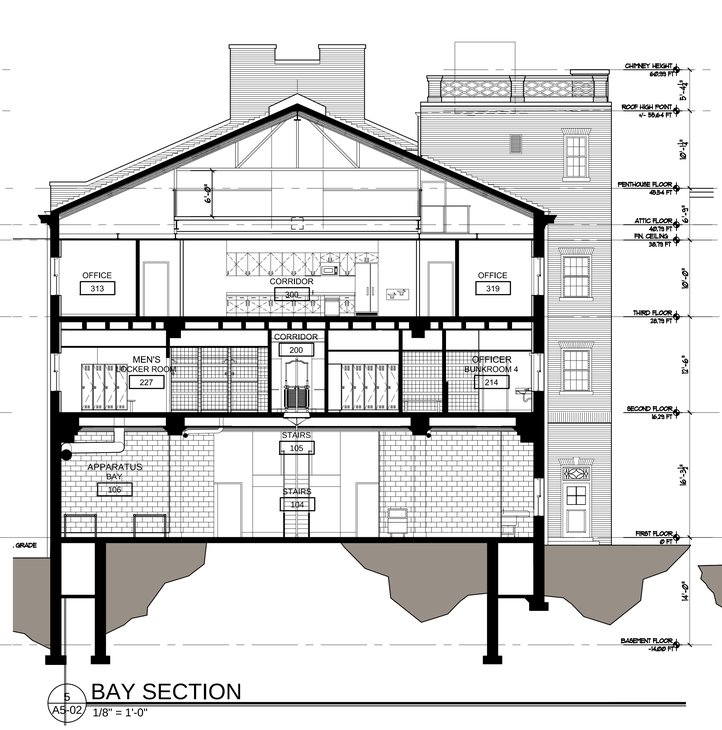
Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW
Washington, D.C. 20005

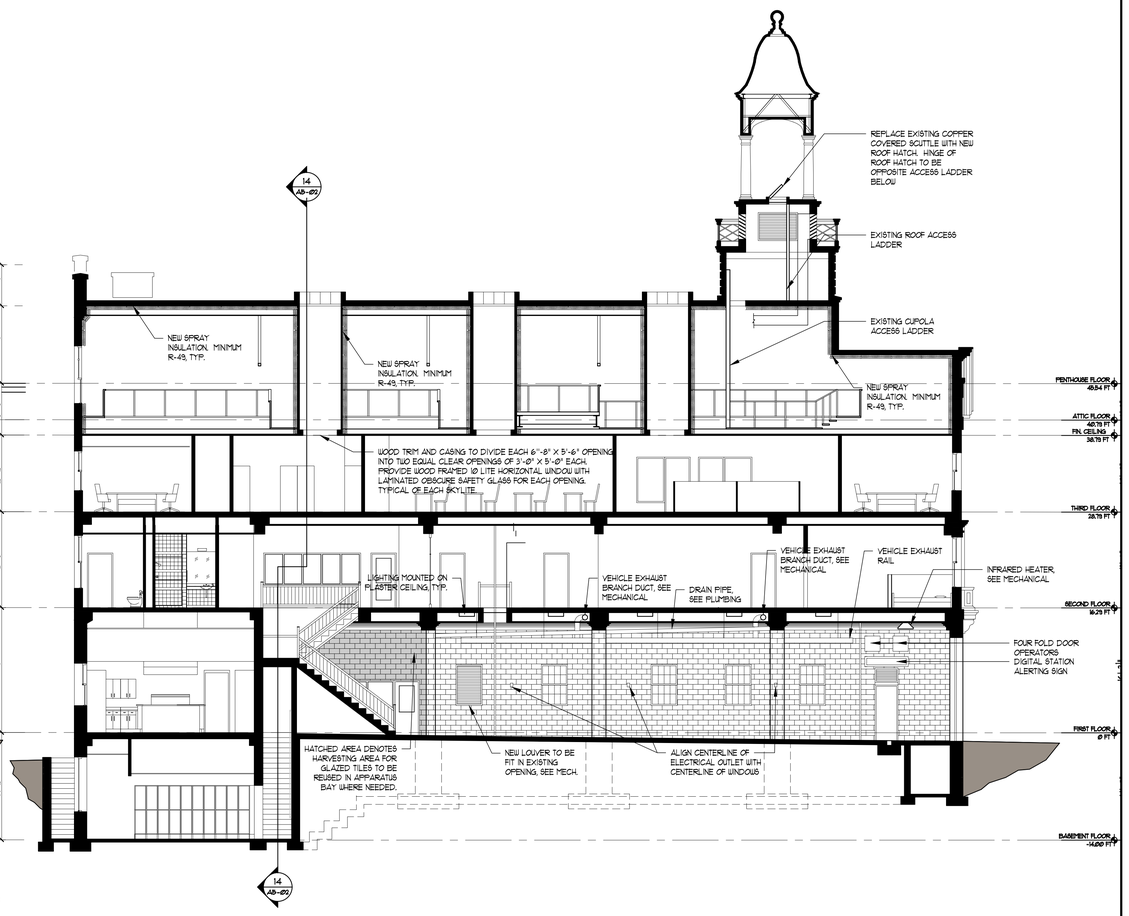
Building ID No.	934
Project No.	2908.01
Issue Date	01-22-15
Sheet	022 of 100



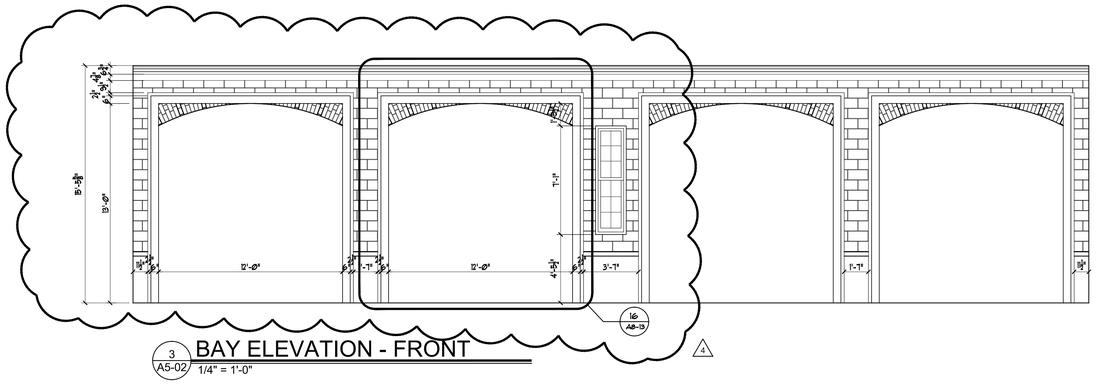
14 A5-02 NORTH - SOUTH SECTION
1/8" = 1'-0"



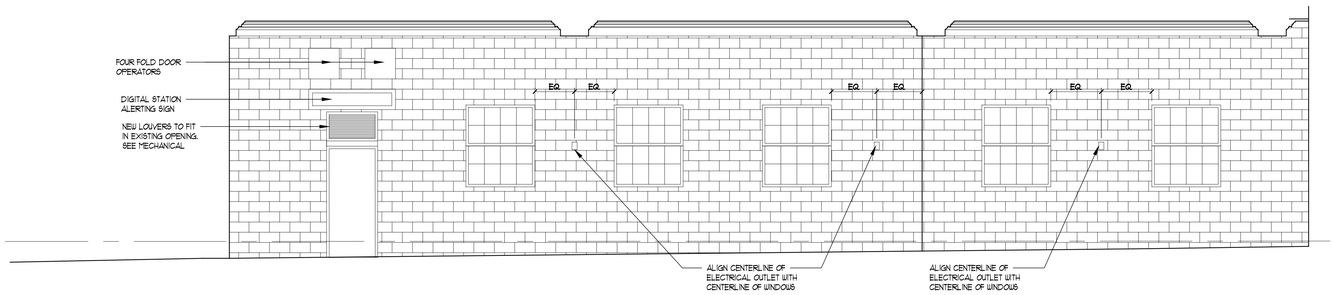
5 A5-02 BAY SECTION
1/8" = 1'-0"



28 A5-02 EAST - WEST SECTION
1/8" = 1'-0"



3 A5-02 BAY ELEVATION - FRONT
1/4" = 1'-0"



4 A5-02 BAY ELEVATION - SIDE
1/4" = 1'-0"

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DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Seal
Registration No.: -
Date: -
Architect:
Date: -

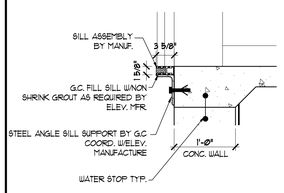
PROJECT DRAWINGS: 03 - ARCHITECTURAL

Drawing Title: BUILDING SECTIONS
Drawing No.: A5-02

Job Title: DCFEMS Station 16

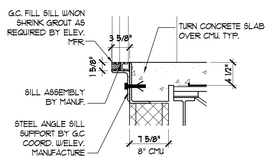
Project Address: 1018 13th Street, NW, Washington, D.C. 20005

Building ID No. 934
Project No. 2908.01
Issue Date 01-22-15
Sheet 024 of 100



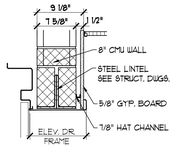
ELEVATOR DOOR SILL (CONCRETE)

30 A7-21 1" = 1'-0"



ELEVATOR DOOR SILL (MASONRY)

25 A7-21 1" = 1'-0"

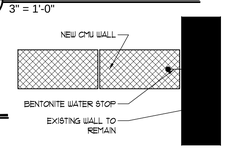


ELEVATOR HEAD (MASONRY)

24 A7-21 1" = 1'-0"

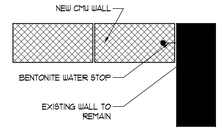
DETAIL AT TREAD

19 A7-21 3" = 1'-0"



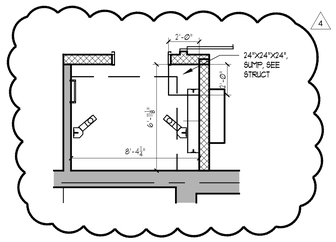
ELEVATOR PLAN DETL

28 A7-21 1" = 1'-0"



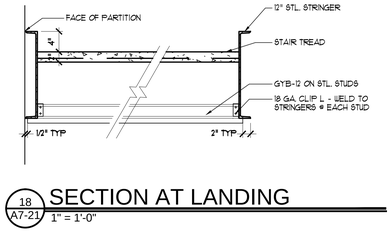
ELEVATOR CORNER DETL

27 A7-21 1" = 1'-0"



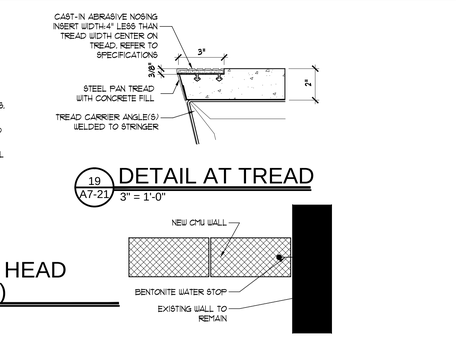
ELEVATOR PIT PLAN

26 A7-21 1/4" = 1'-0"



SECTION AT LANDING

18 A7-21 1" = 1'-0"



GENERAL CONSTRUCTION NOTES:

ASSEMBLY AND WELDING NOTES

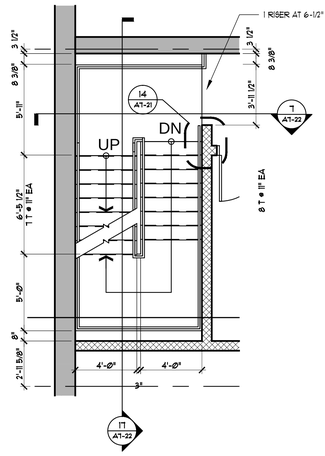
1. ALL WELDS NOT CONCEALED AFTER FINAL ASSEMBLY TO BE CONTINUOUS AND GROUND SMOOTH, UNLESS OTHERWISE NOTED.
2. AT TOP AND BOTTOM EXTENSIONS OF BALUSTERS THROUGH CHANNEL WEBS FILL ALL GAPS IN FACE OF CHANNEL WITH STEEL-MODIFIED EPOXY PUTTY AND GRIND AND/OR FILE SMOOTH AS REQUIRED TO PRODUCE SHARP CORNERS.
3. WELD BOTTOM TRIM CHANNELS TO STRINGERS TOP TRIM CHANNELS TO TOP RAILS, AND POSTS TO STRINGERS AND TOP RAILS WITH CONTINUOUS FULL PENETRATION GROOVE WELDS.
4. ATTACH HANDRAILS TO BRACKETS WITH COUNTERSUNK, TAMPER-RESISTANT FASTENERS

PIPE DIMENSIONS

1. NOMINAL PIPE SIZE (NPS) ACTUAL OUTSIDE DIAMETER

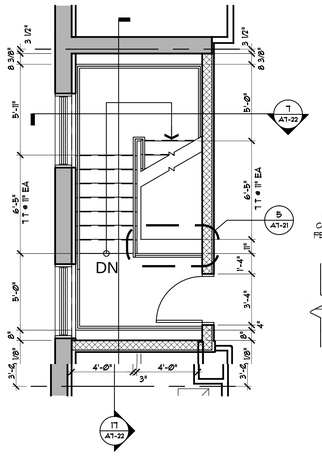
1"	1.315"
1 1/4 "	1.660"
1 1/2 "	1.900"

2. PIPE SIZES INDICATED ON DETAILS NOTE THE OVERALL NOMINAL DIMENSIONS BUT DO NOT INCLUDE INFORMATION RELATED TO SCHEDULE OR WALL THICKNESS. FABRICATE RAILINGS FROM MATERIALS REQUIRED TO ACHIEVE STRUCTURAL PERFORMANCE INDICATED IN SPECIFICATIONS. SUBMIT FOR RECORD CALCULATIONS (SIGNED



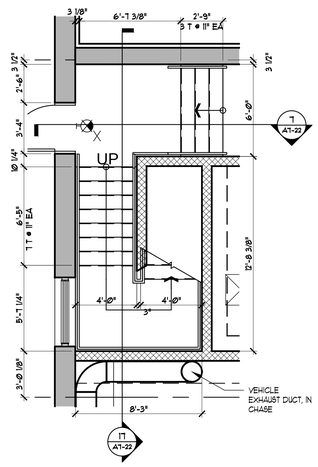
STAIR 5 - MEZZANINE

28 A7-21 1/4" = 1'-0"



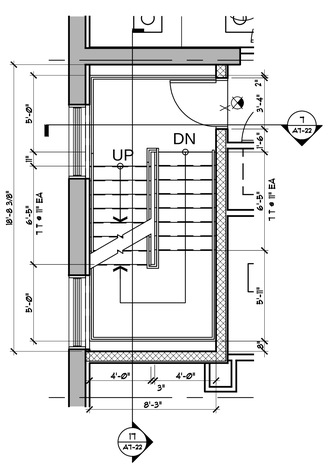
STAIR 5 - THIRD FLOOR

23 A7-21 1/4" = 1'-0"



STAIR 5 FIRST FLOOR

26 A7-21 1/4" = 1'-0"

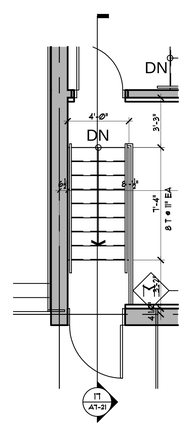


STAIR 5 - SECOND FLOOR

21 A7-21 1/4" = 1'-0"

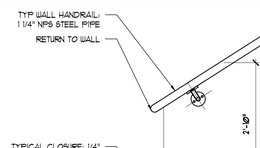
ATTIC STAIR SECTION

17 A7-21 1/2" = 1'-0"



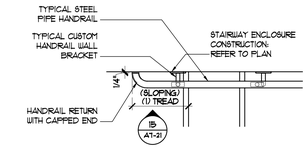
ATTIC STAIR PLAN

16 A7-21 1/4" = 1'-0"



WALL ELEVATION AT BOTTOM

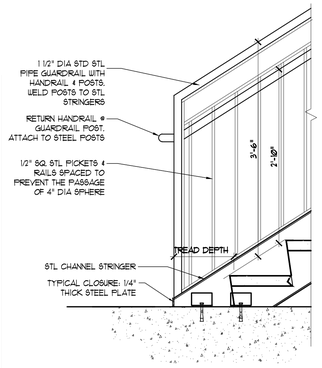
15 A7-21 1" = 1'-0"



TERMINATION AT LOWEST FLOOR (WALL SIDE)

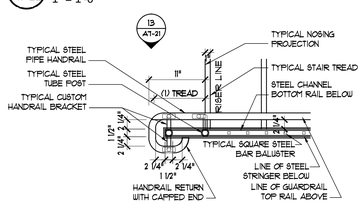
PLAN AT WALL EXTENSION

14 A7-21 1" = 1'-0"



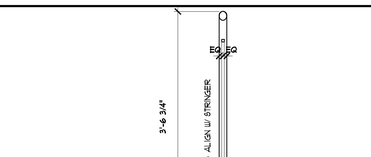
ELEVATION AT BOTTOM LANDING

13 A7-21 1" = 1'-0"



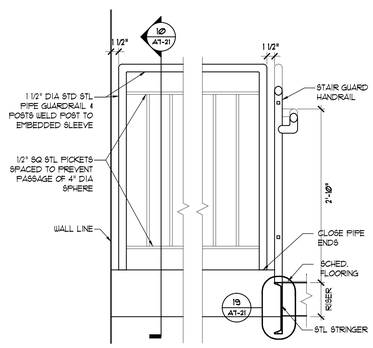
PLAN AT BOTTOM LANDING

12 A7-21 1" = 1'-0"



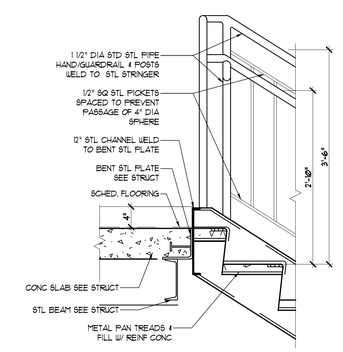
SECTION AT GUARDRAIL

10 A7-21 1" = 1'-0"



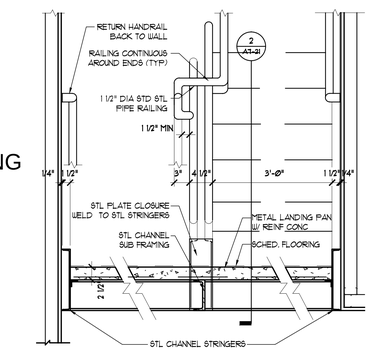
PLAN AT TOP LANDING

5 A7-21 1" = 1'-0"



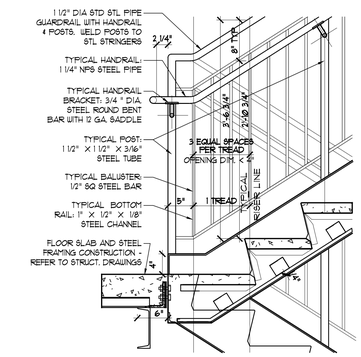
ELEVATION AT TOP LANDING

8 A7-21 1" = 1'-0"



SECTION AT TOP LANDING

3 A7-21 1" = 1'-0"



ELEVATION AT MID-LANDING

7 A7-21 1" = 1'-0"

SECTION AT MID-LANDING

2 A7-21 1" = 1'-0"

Key Plan

LEMAY ERICKSON WILLCOX ARCHITECTS

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DISTRICT OF COLUMBIA PAUL R. ERICKSON 101173 LICENSED ARCHITECT

Seal

Registration No.: -

Date: -

Architect:

Date: -

Revision	Date	Description	By	App
Designed: LGA	4	06-19-15	ADDENDUM 4	LGA	LGA
Drawn: NJD	-	01-22-15	FOR BID/PERMIT	CMA	LGA
Checked: PRE	-	08-15-11	FOR PERMIT	NJD	LGA

PROJECT DRAWINGS: 03 - ARCHITECTURAL

Drawing Title: STAIR PLANS & DETAILS

Drawing No.: A7-21

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW Washington, D.C. 20005

Building ID No.: 934

Project No.: 2908.01

Issue Date: 01-22-15

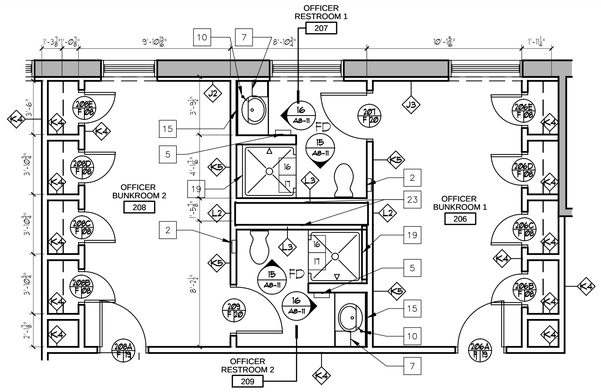
Sheet: 026 of 100

TOILET ACCESSORIES LEGEND

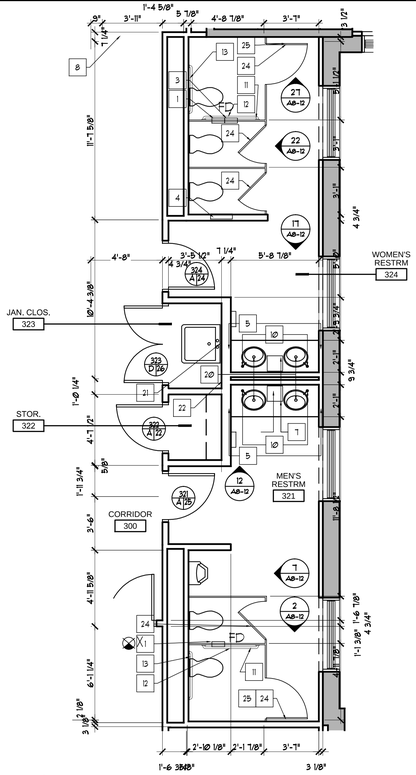
1	TOILET TISSUE DISPENSER - PARTITION MOUNT
2	TOILET TISSUE DISPENSER - RECESS WALL MOUNT
3	SANITARY NAPKIN WASTE RECEPTACLE - PARTITION MOUNT
4	TOILET TISSUE DISPENSER COMBO - RECESS WALL MOUNT
5	HAND DRYER
6	NOT USED
7	TRASH RECEPTACLE - FREE STANDING
8	NOT USED
9	NOT USED
10	LIQUID SOAP DISPENSER - UNDER COUNTER MOUNT
11	ADA GRAB BAR 18" - VERTICAL WALL MOUNT W/ COVER FLANGES
12	ADA GRAB BAR 36" - HORIZONTAL WALL MOUNT W/ COVER FLANGES
13	ADA GRAB BAR 24" - HORIZONTAL WALL MOUNT W/ COVER FLANGES
14	ADA GRAB BAR "L" - HORIZONTAL WALL MOUNT W/ COVER FLANGES
15	MIRROR UNIT - SURFACE WALL MOUNT
16	SHOWER CURTAIN ROD - WALL MOUNT W. COVER FLANGES
17	SHOWER CURTAIN - RING MOUNT ON ROD
18	ADA FOLDING SEAT - REVERSABLE SURFACE WALL MOUNT
19	TILE SHOWER SHELF, SEE 4/A8-13
20	UNDERLAVATORY GUARDS - FORM FITTED TO PIPING
21	MOP AND BROOM HOLDER - SURFACE WALL MOUNT
22	PAPER TOUEL DISPENSER - SURFACE WALL MOUNT
23	ROBE HOOK - SURFACE WALL OR DOOR MOUNT
24	ROBE HOOK W/ BUMPER- SURFACE DOOR MOUNT
25	DOOR BUMPER - SURFACE DOOR MOUNT
26	FULL LENGTH MIRROR - SURFACE WALL MOUNT

EQUIPMENT LEGEND

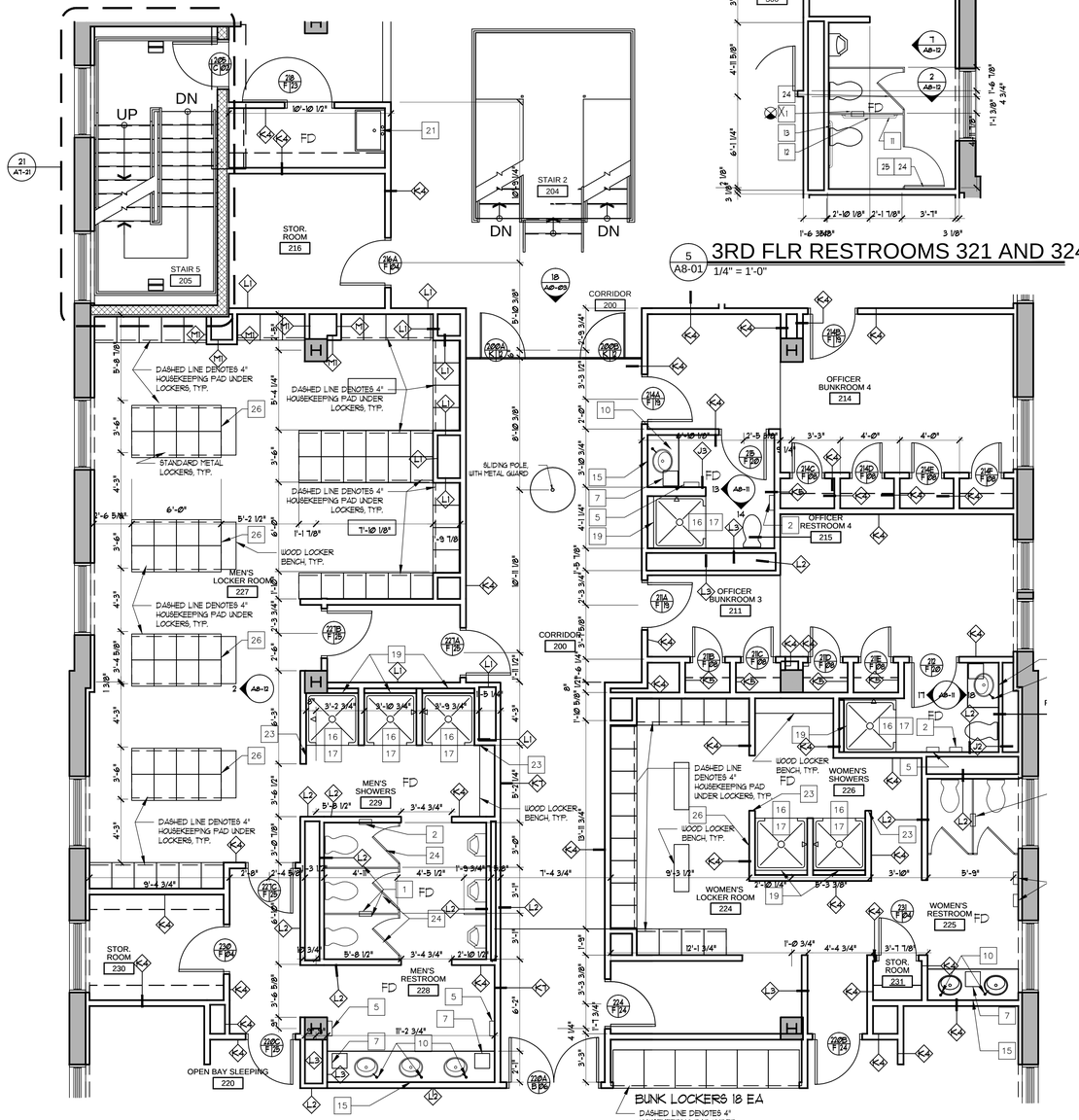
A	GAS RANGE AND OVEN W/ ELECTRIC START
B	EXHAUST HOOD SYSTEM WITH REMOTE LIGHT SWITCH
C	ANSUL SYSTEM CABINET WITH CONTROLLER AND TANKS
D	REMOTE ANSUL SYSTEM ACTIVATION SWITCH
E	FAN CONTROLLER FOR HOOD WITH REMOTE SWITCH
F	FAN AND LIGHT SWITCH LOCATION
G	UNDER COUNTER DISHWASHER
H	CABINET MOUNTED MICROWAVE OVEN
J	DISPOSAL
K	UNDER COUNTER ICE MAKER
L	ICE MAKER WITH STORAGE BIN
M	COFFEE MAKER WITH POT WARMERS AND WATER SUPPLY
N	NOT USED
P	FRONT LOAD RESIDENTIAL CLOTHES WASHER
R	FRONT LOAD RESIDENTIAL CLOTHES DRYER
S	FIRE ALARM ANNUNCIATOR PANEL
T	HOOK MOUNTED FIRE EXTINGUISHER
U	VENDING MACHINES, OWNER FURNISHED AND INSTALLED
V	REFRIGERATOR



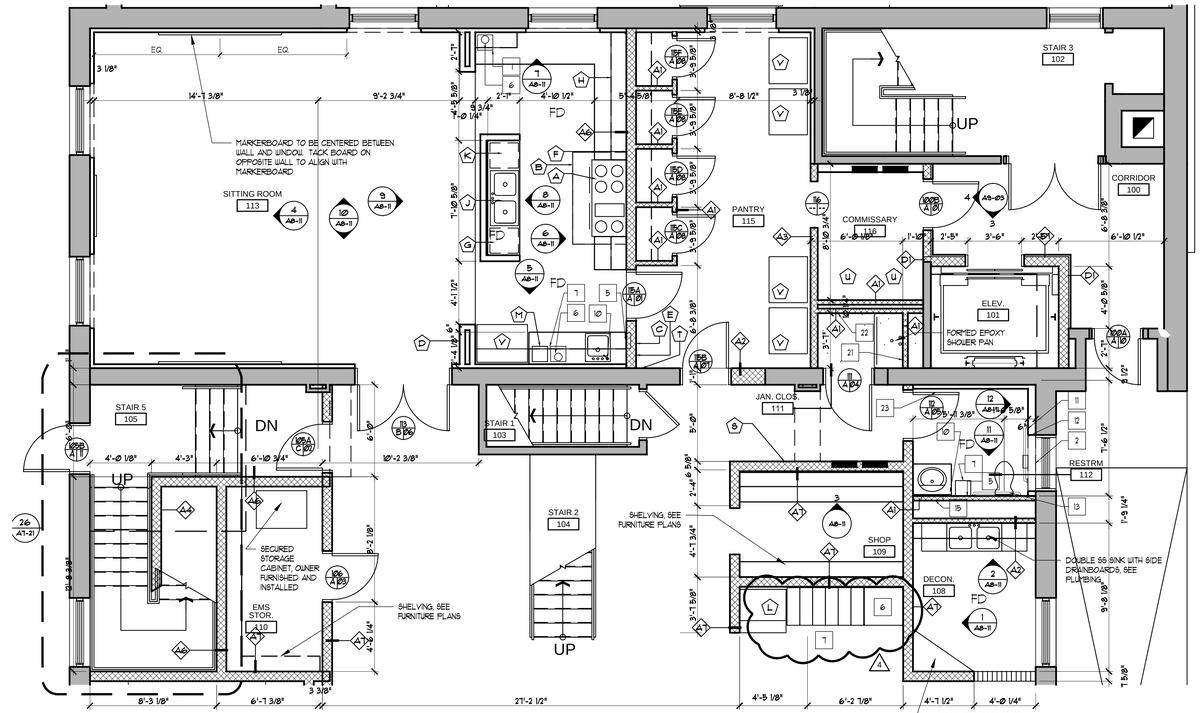
4 A8-01 2ND FLR OFFICER RESTROOM
1/4" = 1'-0"



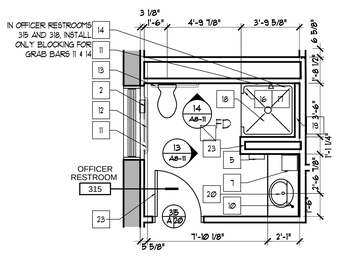
5 A8-01 3RD FLR RESTROOMS 321 AND 324
1/4" = 1'-0"



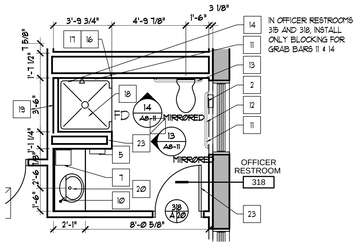
3 A8-01 2ND FLR LOCKER ROOMS
1/4" = 1'-0"



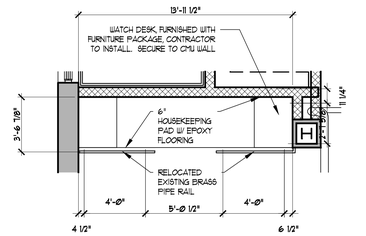
2 A8-01 1ST FLR KITCHEN AREA
1/4" = 1'-0"



7 A8-01 OFFICER RESTROOM 315
1/4" = 1'-0"



6 A8-01 OFFICER RESTROOM 318
1/4" = 1'-0"



1 A8-01 1ST FLOOR WATCH DESK
1/4" = 1'-0"

Key Plan

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	Revision	Date	Description	By	App

Seal

Registration No.: -

Date: -

Architect:

Date: -

PROJECT DRAWINGS — 03 - ARCHITECTURAL

Drawing Title: ENLARGED PLANS

Drawing No.: A8-01

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW
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Building ID No.	934
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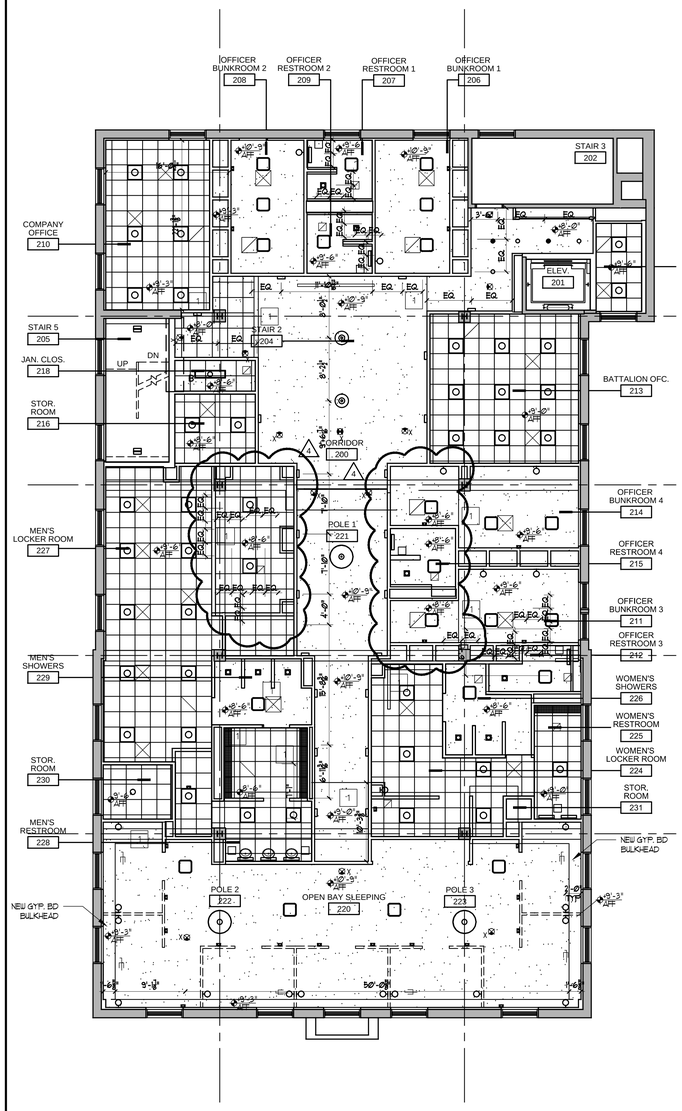
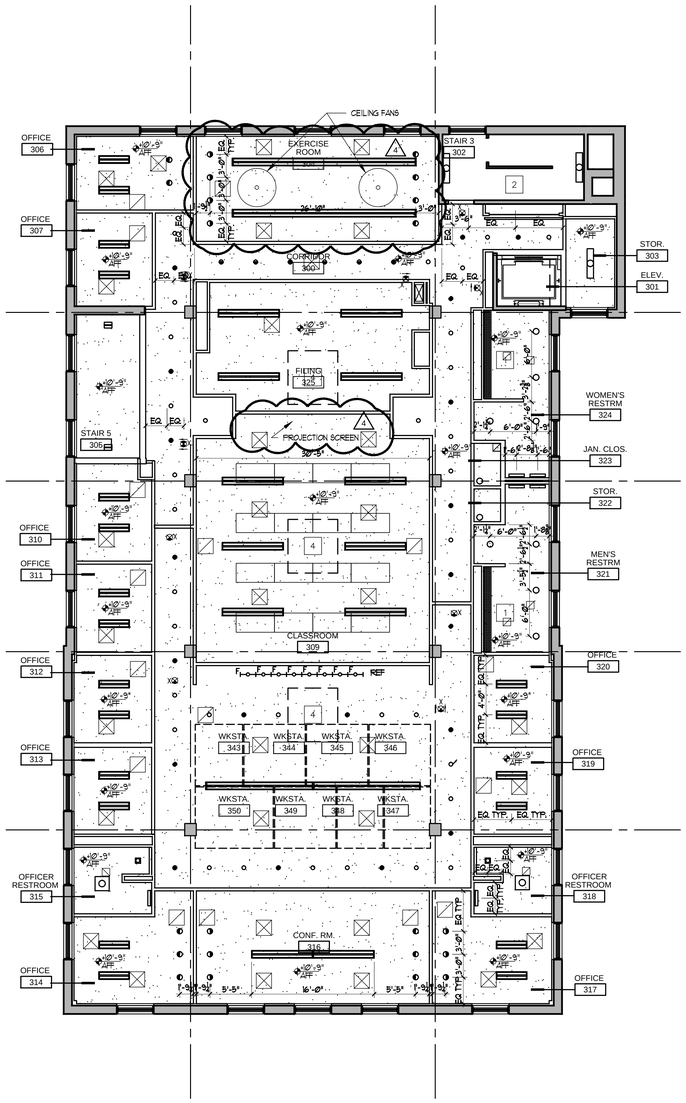
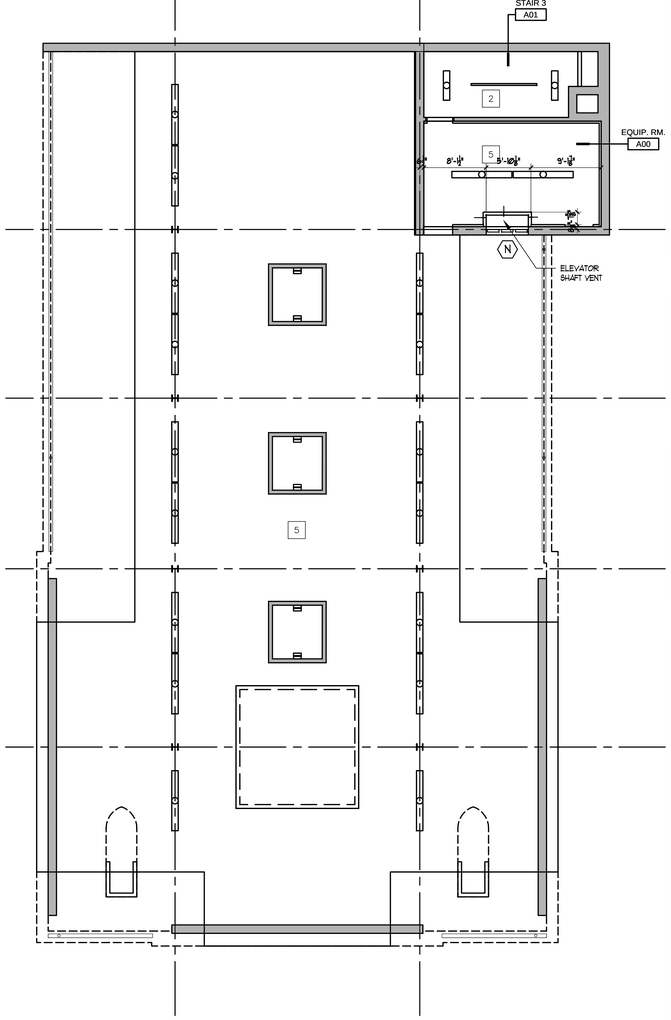
Sheet	028 of 100



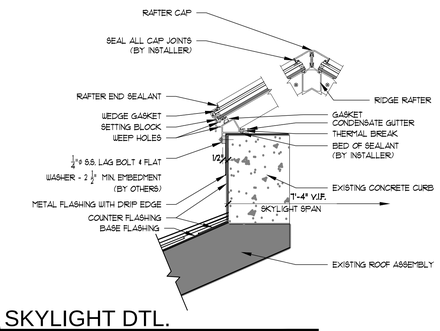
24 SECOND FLOOR REFLECTED CEILING PLAN
A9-02 1/8" = 1'-0"



12 THIRD FLOOR REFLECTED CEILING PLAN
A9-02 1/8" = 1'-0"



1 ATTIC REFLECTED CEILING PLAN
A9-02 1/8" = 1'-0"



11 SKYLIGHT DTL.
A9-02 1 1/2" = 1'-0"

LIGHTING LOCATION LEGEND

AA	EXTERIOR SECURITY LIGHT - WALL MOUNT
BB	EXTERIOR WALL WASH UP LIGHT - IN GROUND MOUNT
A	2' x 2' APPARATUS BAY CEILING LIGHT = CEILING MOUNT
B	1' x 4' FLUORESCENT CEILING LIGHT - CEILING MOUNT W/ COVER
C	1' x 8' FLUORESCENT CEILING LIGHT - CEILING MOUNT W/ COVER
D	2' x 2' FLUORESCENT CEILING LIGHT - CEILING GRID MOUNT
E	1' x 1' FLUORESCENT WALL SCONCE - WALL MOUNT
F	FLUORESCENT UNDERCOUNTER LIGHT - UNDER CABINET MOUNT W/ COVER
G	REFURBISHED ANTIQUE FLUORESCENT CEILING LIGHT - CEILING MOUNT
H	LOW VOLTAGE SPOT - CEILING MOUNT
J	WATER RESISTANT FLUORESCENT CEILING LIGHT - CEILING MOUNT W/ COVER
K	WALL WASHER METAL HALIDE - UNDER LANDING MOUNT
L	LOW VOLTAGE ART LIGHTING ON TRACK - WALL MOUNT
M	2' x 2' FLUORESCENT CEILING LIGHT - CEILING MOUNT W/ COVER
N	6" FLUORESCENT DOWN LIGHT - CEILING MOUNT
P	LOW VOLTAGE LED STEP LIGHTS - WALL MOUNT
R	LOW VOLTAGE READING LIGHT ON FLEX ARM - WALL MOUNT
S	1' x 4' FLUORESCENT PENDANT UP/DOWN LIGHT - CEILING MOUNT
T	1' x 4' FLUORESCENT INDIRECT LIGHT - CEILING MOUNT
U	1' x 8' FLUORESCENT PENDANT UP/DOWN LIGHT - CEILING MOUNT
V	STAGGERED STRIP FLOURSCENT ABOVE SPECULAR SILVER GRID
W	6" x 2' FLUORESCENT WALL LIGHT - WALL MOUNT OVER MIRRORS
X	6" FLUORESCENT CAN WALL WASHER - CEILING MOUNT

CEILING TYPES

- 2'-0" x 2'-0" OR 2'-0" x 4'-0"(AS SHOWN) GRID AND ACOUSTIC CEILING TILE (ACT-), SEE SPEC FOR TYPE
- GYPSUM BOARD
- EXISTING PLASTER CEILING TO REMAIN

REFLECTED CEILING PLAN KEY NOTES

1. GYP. BOARD BULKHEAD
2. EXPOSED, STRUCTURE ABOVE, PTD
3. PATCH AND REPAIR PLASTER WHERE EXISTING FIREPOLES ARE TO BE REMOVED
4. OPEN TO EXISTING SKYLIGHT ABOVE, TYP OF 3
5. NEW SPRAY INSULATION ON UNDERSIDE OF EXISTING ROOF IN ATTIC AND PENTHOUSE, MINIMUM R-49

GENERAL REFLECTED CEILING PLAN NOTES:

1. GENERAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL ITEMS AND EQUIPMENT INDICATED AND PROVIDING ALL UTILITIES AND CONNECTIONS REQUIRED FOR COMPLETE AND SATISFACTORY OPERATION, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. EXCEPT AS INDICATED OR DETAILED OTHERWISE, CEILING GRID SYSTEM SHALL BE CENTERED IN EACH INDIVIDUAL ROOM. PROVIDE A SERIES OF CUT ACOUSTIC CEILING TILES AROUND THE ROOM PERIMETER. PERIMETER CUT CEILING TILES SHALL BE EQUAL DIMENSIONS AT WALLS OPPOSITE TO ONE ANOTHER, TYPICAL. PERIMETER CUT CEILING TILES SHALL NOT BE LESS THAN 6" WIDE THROUGHOUT.
3. COORDINATE ALL LIGHTING AND MECHANICAL INDICATED ON THIS DRAWING WITH MEP DRAWINGS. DEVICES AND FIXTURES SHOWN ARE FOR COORDINATION AND LOCATIONS ONLY. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
4. COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING, AND STRUCTURAL ELEMENTS THAT OCCUR IN CEILING SPACE.
5. AT ALL EXISTING PLASTER CEILING LOCATIONS NOTED TO REMAIN, WHERE NEW DUCT WORK, LIGHTING, WIRING, PIPING, ETC IS INDICATED OR REQUIRED, CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE, PATCH, REPAIR, AND PAINT TO ACHIEVE AN INCONSPICUOUS FINAL APPEARANCE. SEE GENERAL NOTES AT DEMOLITION PLAN FOR ADDITIONAL GENERAL CONTRACTOR REQUIREMENTS.

Key Plan

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Checked: PRE	-	08-15-11	FOR PERMIT	NJD	LGA
	Revision	Date	Description	By	App

Seal: DISTRICT OF COLUMBIA · PAUL R. ERICKSON · 101173 · LICENSED ARCHITECT

Registration No.: -
Date: -
Architect:
Date: -

PROJECT DRAWINGS: 03 - ARCHITECTURAL

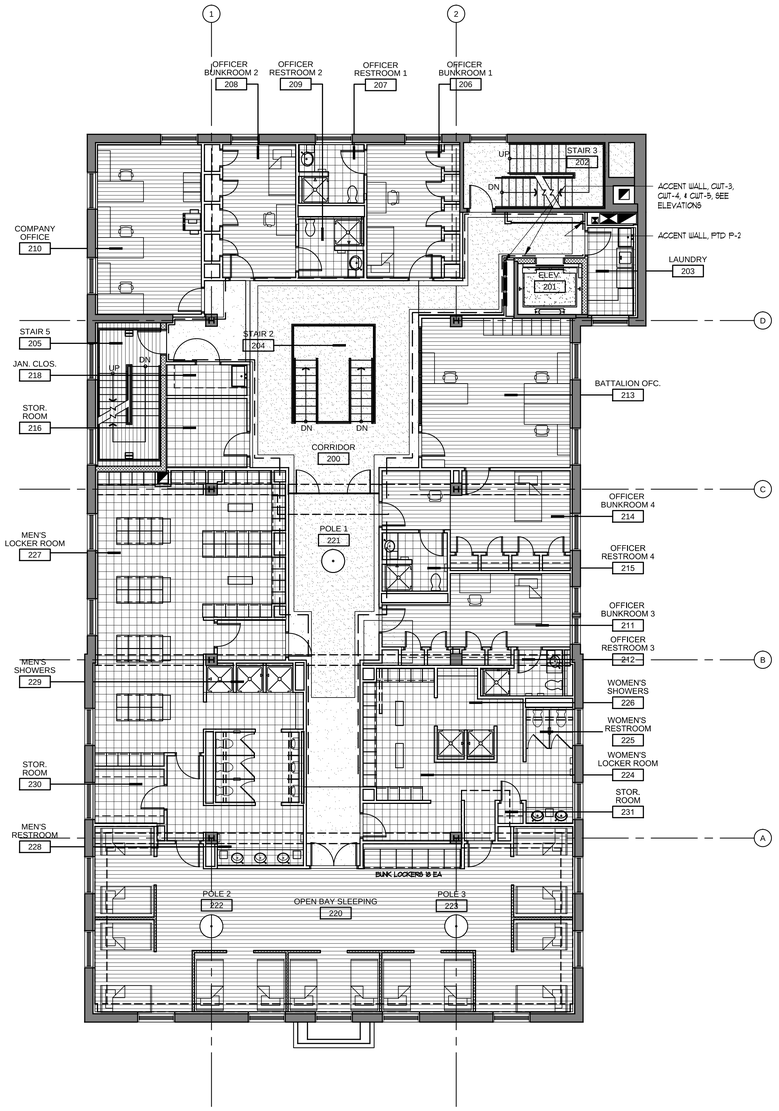
Drawing Title: SECOND - THIRD FLOOR REFLECTED CEILING PLAN

Drawing No.: A9-02

Job Title: DCFEMS Station 16

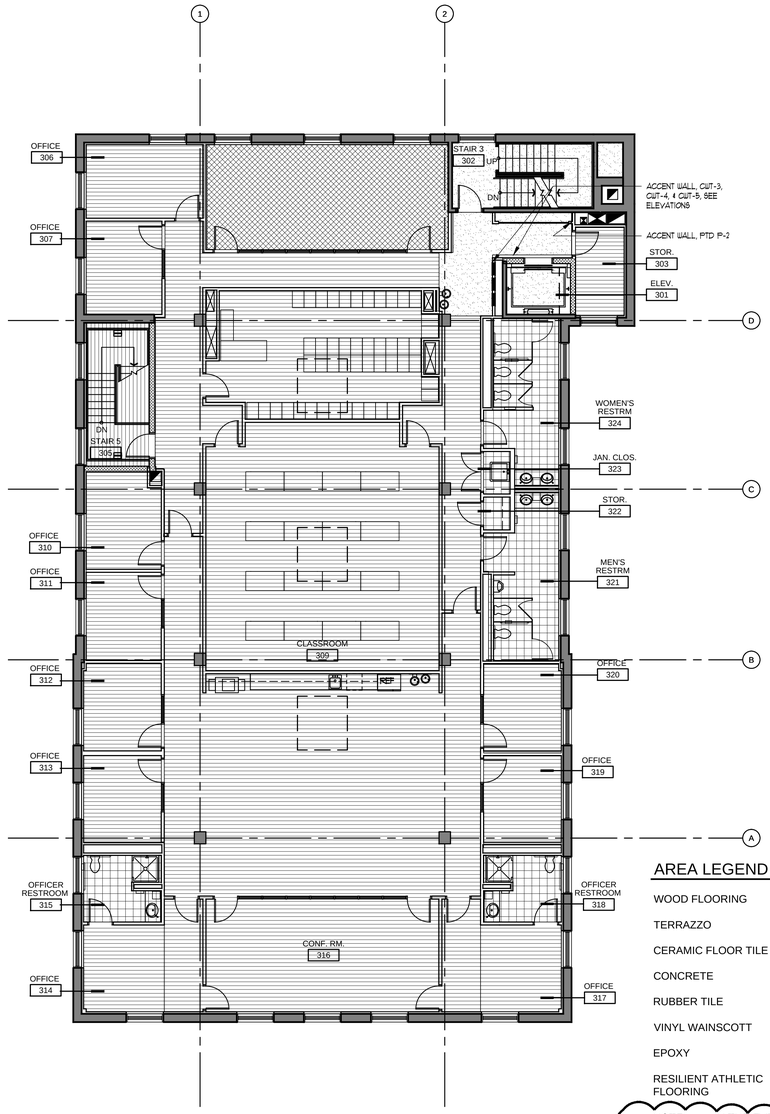
Project Address: 1018 13th Street, NW Washington, D.C. 20005

Building ID No. 934
Project No. 2908.01
Issue Date 01-22-15
Sheet 033 of 100



24 A9-04 SECOND FLOOR FINISHES PLAN

1/8" = 1'-0"



12 A9-04 THIRD FLOOR FINISHES PLAN

1/8" = 1'-0"

AREA LEGEND

- WOOD FLOORING
- TERRAZZO
- CERAMIC FLOOR TILE
- CONCRETE
- RUBBER TILE
- VINYL WAINSCOTT
- EPOXY
- RESILIENT ATHLETIC FLOORING

NOTE: IN THE EVENT THAT STOCKPILED EXISTING WOOD FLOORING DOES NOT COVER ALL AREAS SHOWN AS WOOD FLOORING, STOCKPILED WOOD SHALL BE REUSED ON ENTIRE THIRD FLOOR, SECOND FLOOR OPEN BAY SLEEPING #220 AND BATTALION OFC #213. NEW WOOD SHALL NOT BE USED IN THE SAME SPACE AS STOCKPILED WOOD. 4

3"=1'-0" | 1 1/2"=1'-0" | 1"=1'-0" | 3/4"=1'-0" | 1/2"=1'-0" | 1/4"=1'-0" | 3/16"=1'-0" | 1/8"=1'-0"

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-	08-15-11	FOR PERMIT	NJD	LGA

DISTRICT OF COLUMBIA PAUL R. ERICKSON 101173 LICENSED ARCHITECT

Seal

Registration No.: -

Date: -

Architect:

Date: -

PROJECT DRAWINGS: 03 - ARCHITECTURAL

Drawing Title: SECOND - THIRD FLOOR FINISH PLAN

Drawing No.: A9-04

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW
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Building ID No.	934
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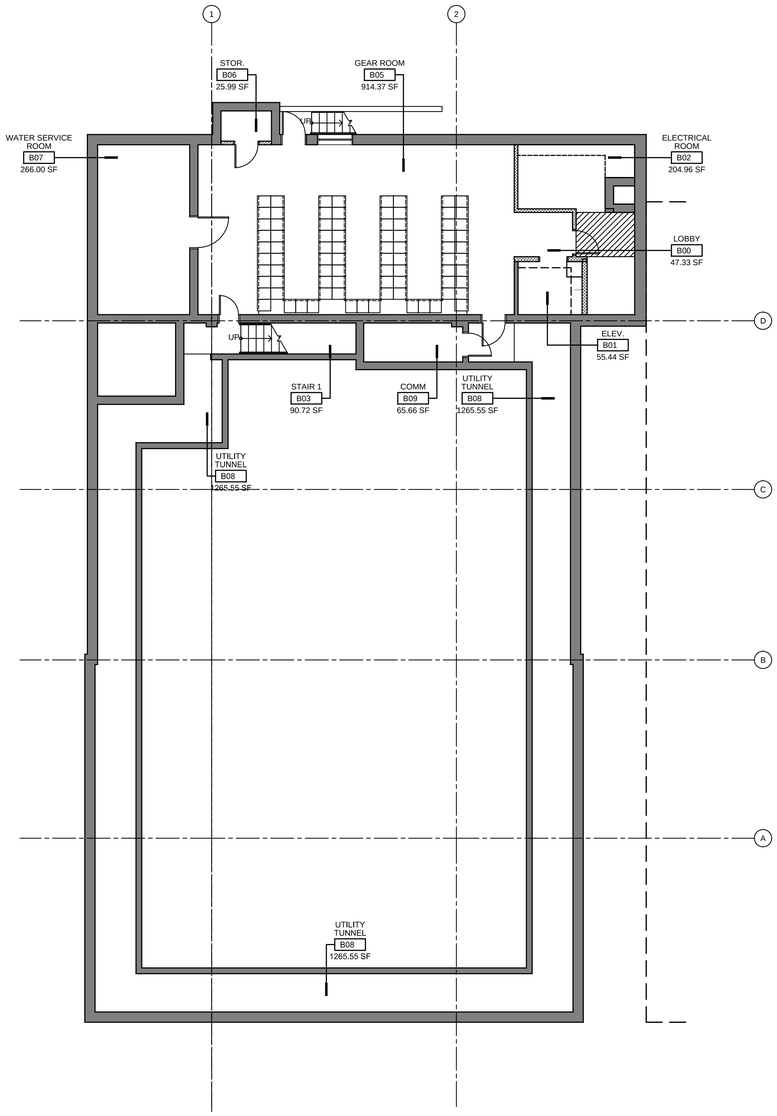
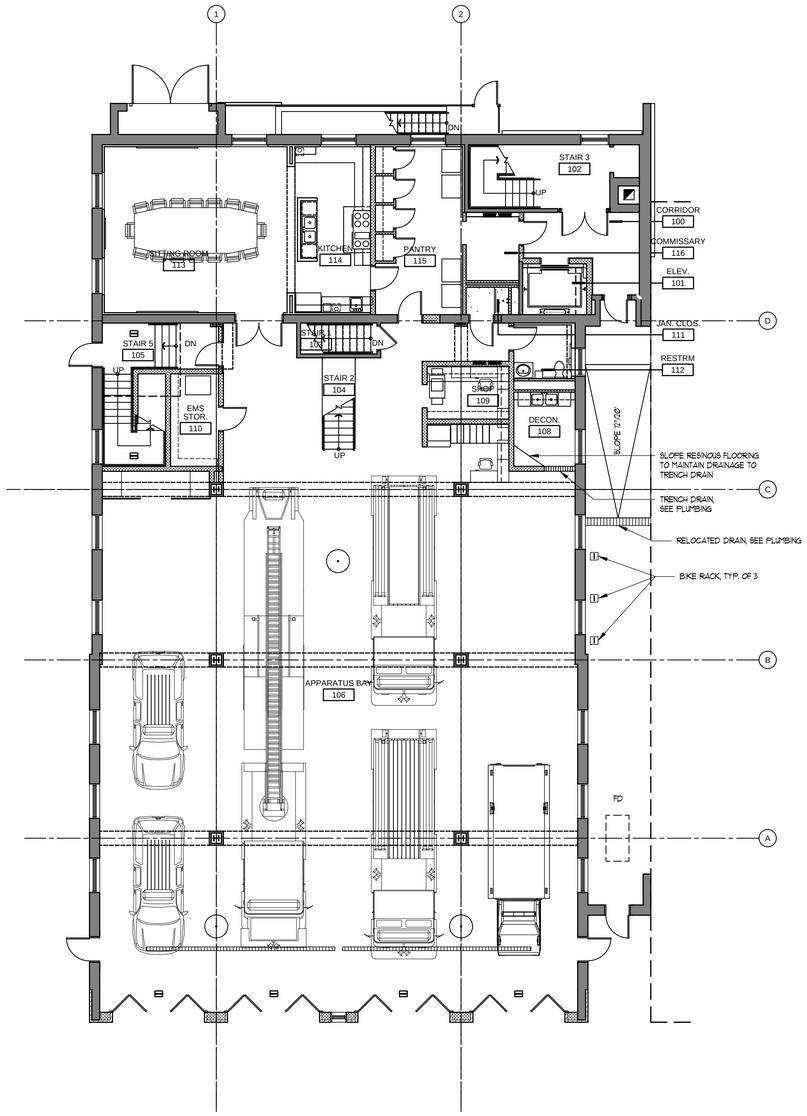


2 A9-05 BASEMENT FLOOR FF&E PLAN

1/8" = 1'-0"



1 A9-05 FIRST FLOOR FF&E PLAN

1/8" = 1'-0"

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	Revision	Date	Description	By	App

PROJECT DRAWINGS: 03 - ARCHITECTURAL

Drawing Title: BASEMENT - FIRST FLOOR FF&E PLANS

Drawing No.: A9-05

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, NW
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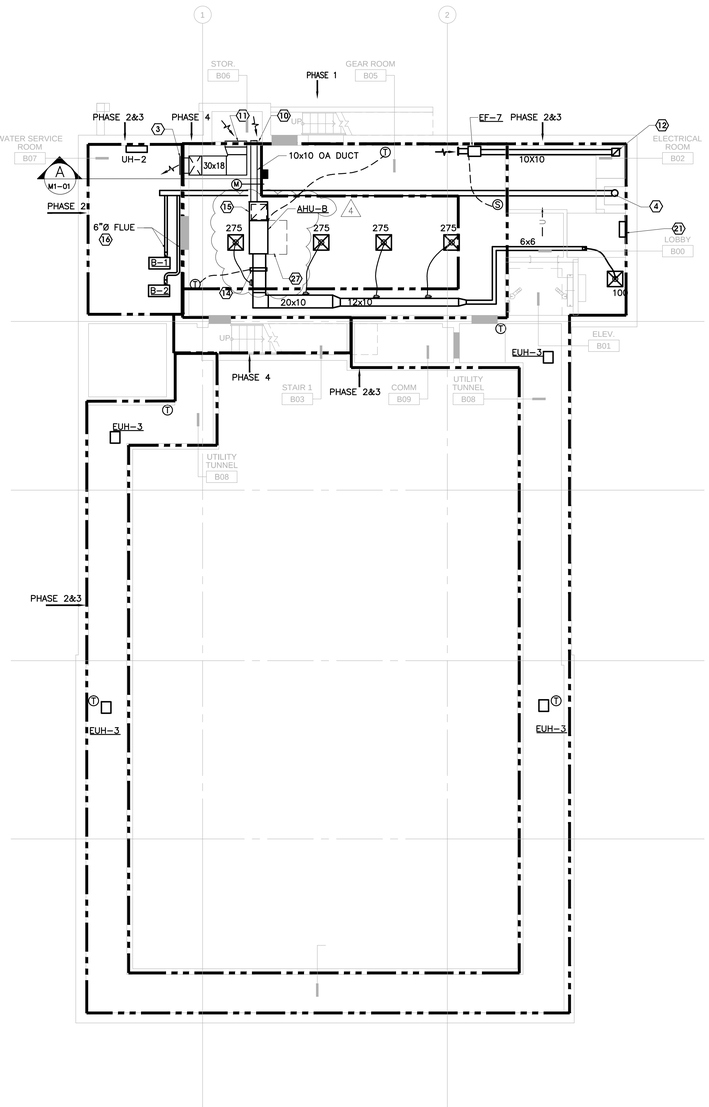
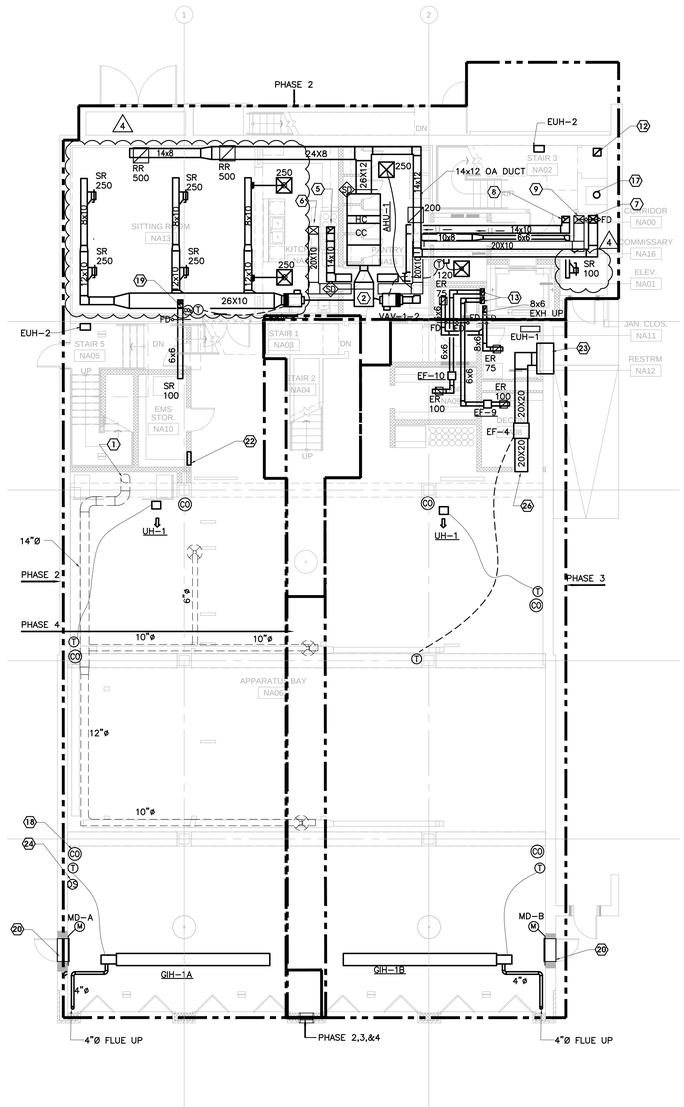
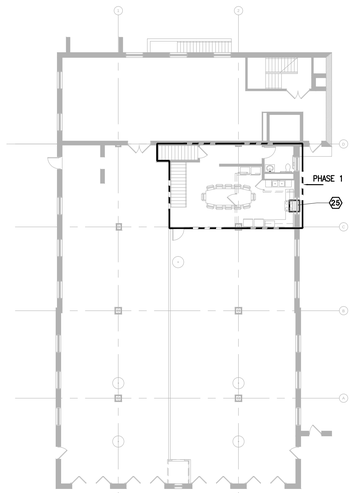


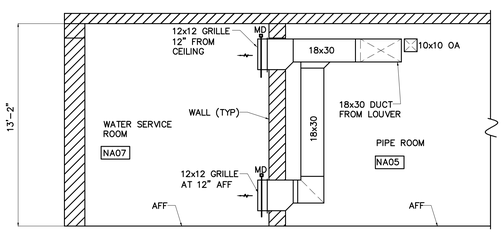
1 **MECHANICAL BASEMENT PLAN - DUCTWORK - NEW WORK**
SCALE: 1/8"=1'-0"



2 **MECHANICAL FIRST FLOOR PLAN - DUCTWORK - NEW WORK**
SCALE: 1/8"=1'-0"



3 **MECHANICAL FIRST FLOOR PLAN - HVAC- PHASE 1 TEMPORARY**
SCALE: 1/16"=1'-0"



A **MECHANICAL SECTION**
SCALE: 1/4"=1'-0"

GENERAL NOTES

1. REFER TO DRAWING M0-00 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

2. INDICATED PHASING LIMITS AND SHOWN DELINEATION LINES BETWEEN CONSTRUCTION PHASES ARE FOLLOWING THE GENERAL REQUIREMENTS AND LIMITS SET BY THE ARCHITECTURAL PHASING PLANS CS-06 AND CS-07 BUT ARE NOT INTENDED TO SHOW EXACT LOCATION OF TEMPORARY WALL/PARTITIONS. THE FOLLOWING IS A GENERAL DESCRIPTION OF WORK ANTICIPATED PER CONSTRUCTION PHASE. FLOOR PLANS REFLECT THE CONDITION OF MECHANICAL SYSTEMS ON THEIR FINAL STAGE. INTERMEDIATE CONSTRUCTION IS IDENTIFIED ON FLOOR PLANS LABELED: "HVAC-TEMPORARY"

I. BASEMENT:
A. PHASE 1:
- INSTALL BOILERS AND ASSOCIATED FLUES AND UH-2.
- INSTALL ALL OUTSIDE AIR DUCT AND LOUVERS.
- INSTALL EF-7 AND ASSOCIATED DUCTWORK.
- INSTALL AHU-B AND ALL ASSOCIATED DUCTWORK AND DIFFUSERS.
- INSTALL DDC CONTROL PANEL.

B. PHASE 2:
- INSTALL UNIT HEATERS IN TUNNEL.

II. FIRST FLOOR:
A. PHASE 1:
- INSTALL TEMPORARY WINDOW AC UNIT SERVING TEMPORARY PANTRY/CONFERENCE ROOM.

B. PHASE 2:
- INSTALL AHU-1 AND ALL ASSOCIATED VAV BOXES, DUCTWORK AND DIFFUSERS.
- INSTALL UH-1 AND GIH-1A AND ALL SENSORS.
- INSTALL 36"X21" OUTSIDE AIR LOUVER.
- INSTALL EUH-2 IN STAIR 3 AND 5.
- INSTALL 14"ø VEHICLE EXHAUST DUCT IN VERTICAL SHAFT.
- INSTALL 14"X12" OA DUCT, 12"X10" EA DUCT, AND 16"X12" MAKE UP AIR DUCT.
- CONNECT ALL CAPPED DUCT FROM PHASE 1.

C. PHASE 3:
- INSTALL EF-9 AND EF-10 AND ASSOCIATED DUCTWORK AND AIR DEVICES.CAP OFF DUCT CONNECTIONS TO RISERS UNDER PHASE 2
- INSTALL VAV-1-3 AND ASSOCIATED DUCTWORK AND AIR DEVICES.CAP OFF INLET DUCT CONNECTION TO PHASE 2.
- INSTALL UH-1 AND GIH-1B.
- INSTALL EF-4 ANDS ASSOCIATED DUCTWORK AND LOUVER.
- INSTALL 36"X21" OUTSIDE AIR LOUVER.
- INSTALL ALL SENSORS.

SPECIFIC NOTES

1. 14"ø VEHICLE EXHAUST DUCT UP. WORK IS NOT IS CONTRACT AND IS SHOWN FOR REFERENCE ONLY. OWNER'S VENDOR WILL REMOVE, STORE AND PROVIDE NEW PARTS WITH EXISTING. CONTRACTOR TO COORDINATE INSTALLATION OF VERTICAL DUCT WITH VEHICLE EXHAUST SYSTEM VENDOR.
2. 30X10 SUPPLY DUCTWORK FROM AHU-1.
3. PROVIDE COMBUSTION AIR FOR BOILER ROOM. PROVIDE ONE 24x24 GRILLE 1FT AFF AND ONE 24x24 GRILLE 1FT BELOW CEILING. EACH GRILLE SHALL BE EQUIPPED WITH MOTORIZED DAMPER AND INTERLOCK WITH BOILER OPERATION.
4. 10"ø FLUE VENT UP TO ROOF.
5. 12x10 EXHAUST DUCT DOWN TO KITCHEN HOOD. PROVIDE TRANSITION TO PROPERLY CONNECT DUCT TO HOOD OUTLET. FIRE WRAP W/ 2" THICK FIRE BLANKET INSULATION PROTOTYPE: 3M MODELING.
6. 20x10 MAKE-UP AIR DUCT DOWN TO THE KITCHEN HOOD. PROVIDE TRANSITION TO PROPERLY CONNECT DUCT TO HOOD INLET.
7. 14x12 OUTSIDE AIR DUCT UP TO 36"X12" OUTSIDE AIR LOUVER .
8. 14x10 EXHAUST DUCT UP TO EF-3 ON ROOF.
9. 16x12 MAKE UP AIR DUCT UP TO MAU-1 IN ATTIC SPACE.
10. 24x12 OUTSIDE AIR LOUVER WITH BACKDRAFT DAMPER.
11. 30x18 OUTSIDE AIR LOUVER WITH BACKDRAFT DAMPER.
12. 10X10 EXHAUST DUCT UP.
13. 6x6 EXHAUST DUCT UP.
14. HOT WATER RE-HEAT COIL, RH-1, 2 GPM.
15. BUILT UP PLENUM FULL SIZE OF RETURN UNIT AND 24" LONG WITH BOTTOM 20"X20" RETURN REGISTER BALANCE TO 750 CFM.
16. DOUBLE WALL STAINLESS STEEL PIPE AL294C, TO BE USED IN THE BOILER ROOM AND SINGLE WALL STAINLESS STEEL PIPING AL294C IN CHIMNEY ONLY.
17. 10"ø FLUE VENT UP AND DOWN.
18. PROVIDE CARBON MONOXIDE SENSOR MOUNTED 18" AFF. (TYPICAL OF 6). SENSOR IS PART OF VEHICLE EXHAUST SYSTEM. SEE NOTE 1.
19. MOUNT CO2 SENSOR 48" AFF. (SEE NOTE 18).
20. PROVIDE NEW 36"X14" OUTSIDE AIR LOUVER WITH MOTORIZED DAMPER IN EXISTING WINDOW OPENING. INTERLOCK WITH EF-4 OPERATION. LOUVER BY ARCHITECT/MINIMUM 66% FREE AREA.
21. DDC CONTROL PANEL STATION.
22. VENTILATION CONTROL PANEL.
23. 48"X24" EXHAUST LOUVER WITH PLENUM BEHIND. PITCH BOTTOM OF LOUVER TOWARDS LOUVER.
24. DOOR SWITCH.INTERLOCK WITH OPERATION OF EF-4.
25. TEMPORARY WINDOW AC UNIT.
26. 20"X20" OPEN END DUCT WITH 1/4" WIREMESH.
27. PROVIDE ACCESS PANEL FULL LENGTH OF UNIT AND 24" WIDE. (4)

Key Plan

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4	06-17-15	ADDENDUM 4	MC, TD, TM	VS, MW, EF
3	03-26-15	DC COMMENTS	MC, TD, TM	VS, MW, EF
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PROJECT DRAWINGS — MECHANICAL

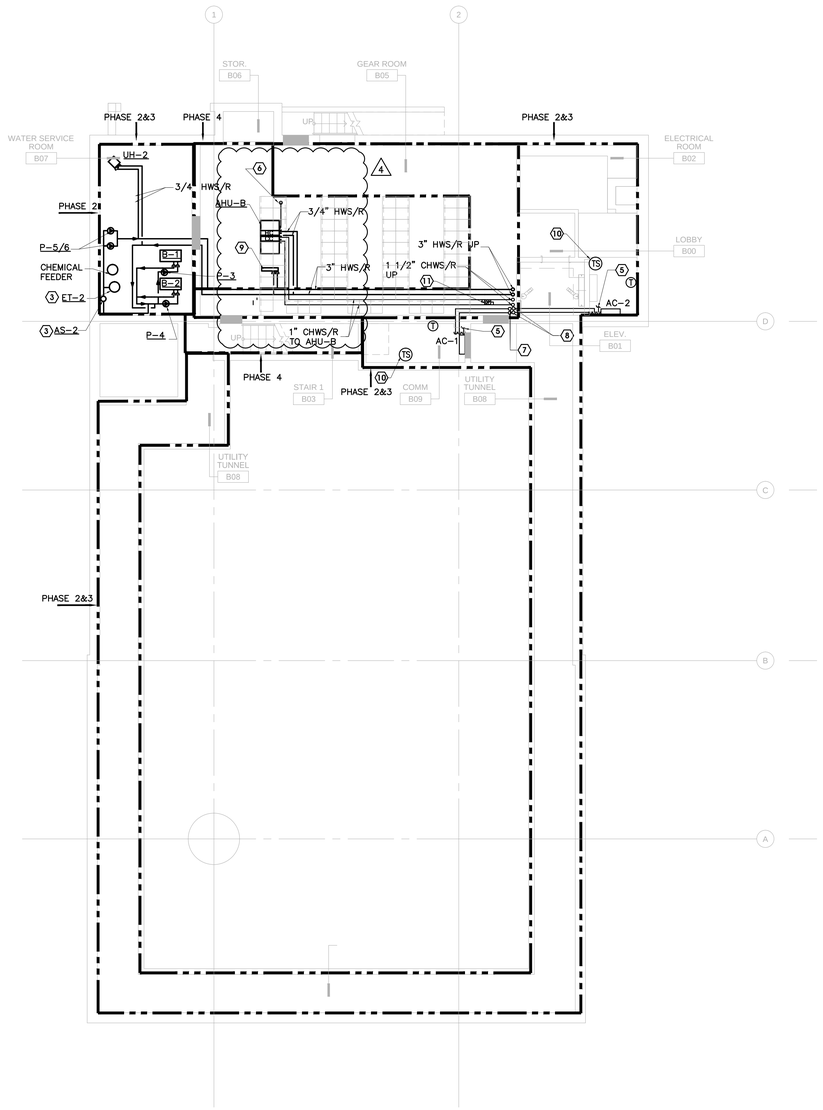
Drawing Title: MECHANICAL BASEMENT AND FIRST FLOOR PLANS - DUCTWORK - NEW WORK

Drawing No.: M1-01

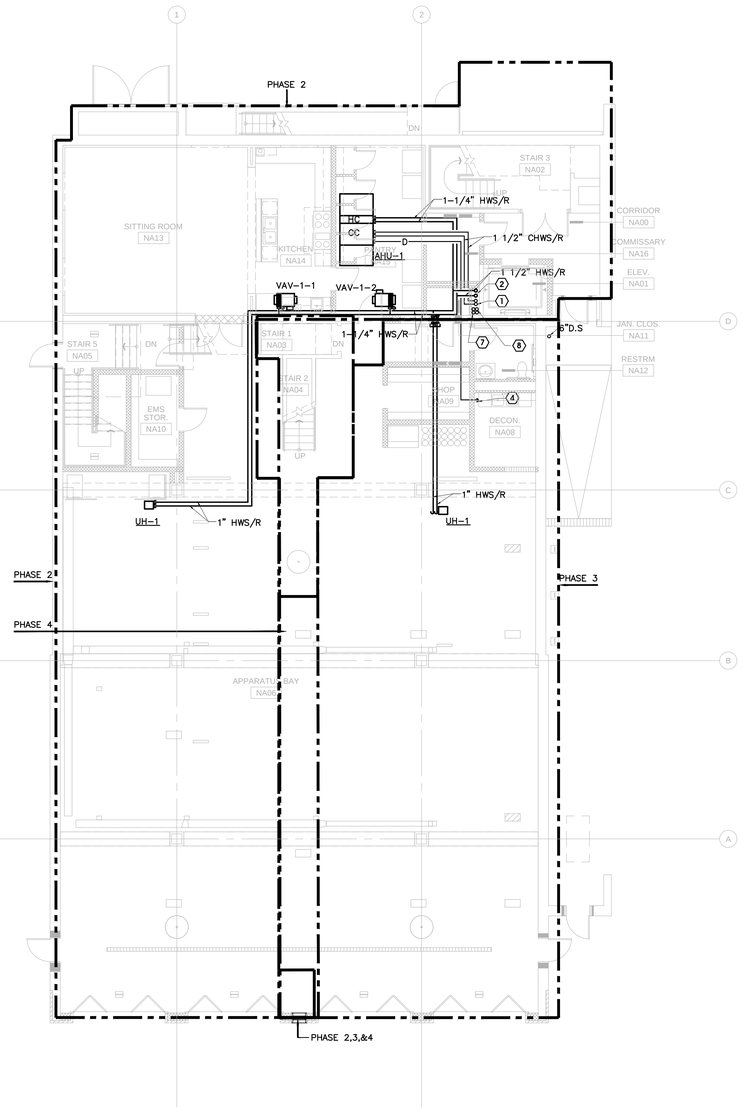
Job Title: DCFEMS Station 16

Project Address: 1018 13th Street Washington, DC 20005

Building ID No.	934
Project No.	2908.01
Issue Date	01-22-15
Sheet	49 OF 100



1 **MECHANICAL BASEMENT PLAN - PIPING - NEW WORK**
SCALE: 1/8"=1'-0"



2 **MECHANICAL FIRST FLOOR PLAN - PIPING - NEW WORK**
SCALE: 1/8"=1'-0"

GENERAL NOTES

1. REFER TO DRAWING M0-00 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

2. INDICATED PHASING LIMITS AND SHOWN DELINEATION LINES BETWEEN CONSTRUCTION PHASES ARE FOLLOWING THE GENERAL REQUIREMENTS AND LIMITS SET BY THE ARCHITECTURAL PHASING PLANS CS-06 AND CS-07 BUT ARE NOT INTENDED TO SHOW EXACT LOCATION OF TEMPORARY WALL/PARTITIONS. THE FOLLOWING IS A GENERAL DESCRIPTION OF WORK ANTICIPATED PER CONSTRUCTION PHASE. FLOOR PLANS REFLECT THE CONDITION OF MECHANICAL SYSTEMS ON THEIR FINAL STAGE.
INTERMEDIATE CONSTRUCTION IS IDENTIFIED ON FLOOR PLANS LABELED: "HVAC-TEMPORARY"

3. ALL HWS/R BRANCHES TO VAV BOXES SHALL BE 3/4".

PHASING PLANS:

I. BASEMENT:
A. PHASE 1:
- INSTALL BOILERS HWS/R PIPES AND CHILLED WATER PIPING.
- INSTALL PUMPS P-3, P-4, P-5 AND P-6.
- INSTALL AIR SEPARATOR AS-1 AND EXPANSION TANK ET-1.
- INSTALL AHU-B AND ASSOCIATED PIPING.
- INSTALL AC-2 AND REFRIGERANT PIPING.

B. PHASE 2:
- INSTALL AC-1 AND REFRIGERANT PIPING.

II. FIRST FLOOR:
A. PHASE 2:
- INSTALL AHU-1 HWS/R AND CHS/R PIPING.
- INSTALL VAV BOXES AND UH-1.

B. PHASE 3:
- EXTEND HWS/R PIPING TO UH-1.
- INSTALL VAV-1-3 AND HWS/R PIPING. CAP OFF PIPING FOR CONNECTION IN PHASE 2.
- INSTALL HWS/R FEEDING UH-1.

SPECIFIC NOTES

(1) 2" CHWS/R UP. 1 1/2" CHWS/R TO AHU-1. 1 1/2" CHWS/R DN TO AHU-B.

(2) 3" HWS/R DN AND 2 1/2" HWS/R UP.

(3) SUPPORT EXPANSION TANK AND AIR SEPARATOR FROM STRUCTURE ABOVE. SEE SHEET M3-01 FOR EXPANSION TANK AND AIR SEPARATOR INSTALLATION DETAILS.

(4) TERMINATE 1" CONDENSATE DRAIN OVER UTILITY SINK.

(5) EXTEND 3/4" CONDENSATE DRAIN PIPE AND CONNECT TO NEAREST STORM PIPE.

(6) EXTEND 1" CONDENSATE DRAIN PIPE AND CONNECT TO NEAREST STORM PIPE.

(7) REFRIGERANT PIPE UP TO CU-1. SIZE REFRIGERANT PIPE PER MANUFACTURER'S RECOMMENDATIONS.

(8) REFRIGERANT PIPE UP TO CU-2. SIZE REFRIGERANT PIPE PER MANUFACTURER'S RECOMMENDATIONS.

(9) HOT WATER RE-HEAT COIL, RH-1, EQUAL TO TRANE MODEL DTOB09, CAPACITY 27 MBH, 2 GPM.

(10) TEMPERATURE SENSOR CONNECTED TO BMS.

(11) DIFFERENTIAL PRESSURE SENSOR ON THE CHILLED WATER PIPING..

Key Plan

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PROJECT DRAWINGS — MECHANICAL

Drawing Title: MECHANICAL BASEMENT AND FIRST FLOOR PLANS - PIPING - NEW WORK

Drawing No.: M1-01A

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, Washington, DC 20005

Building ID No.	934
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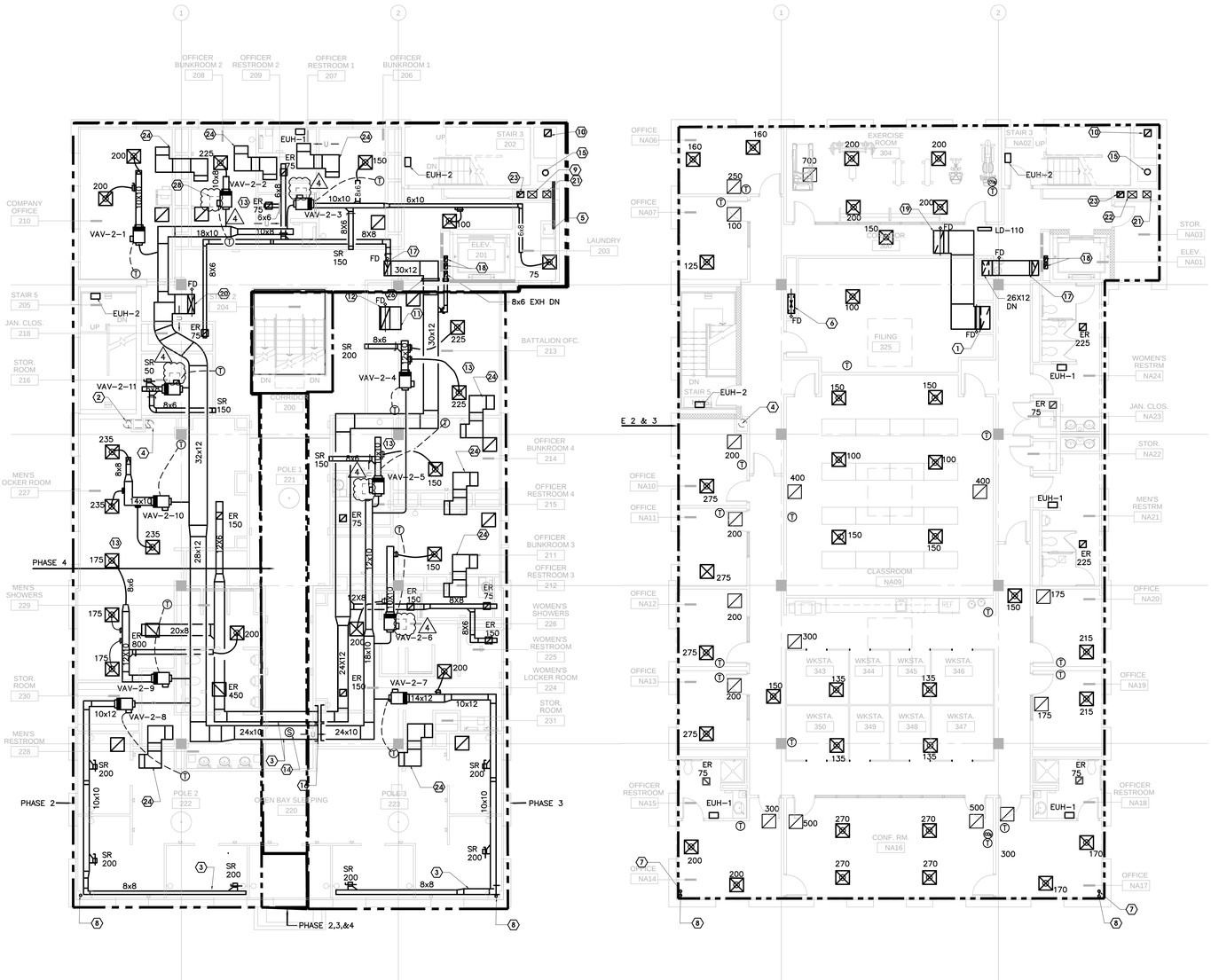


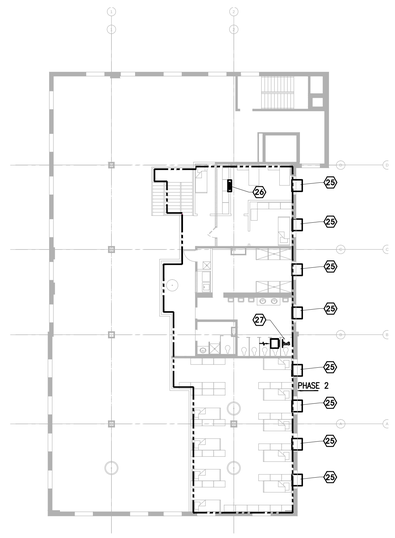
NOTE: THIS IS A CEILING PLENUM RETURN FLOOR.

1 MECHANICAL SECOND FLOOR PLAN - DUCTWORK - NEW WORK

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

2 MECHANICAL THIRD FLOOR PLAN - DUCTWORK - NEW WORK

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



3 MECHANICAL SECOND FLOOR PLAN - HVAC - PHASE 2 TEMPORARY

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

GENERAL NOTES

1. REFER TO DRAWING M0-00 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. INDICATED PHASING LIMITS AND SHOWN DELINEATION LINES BETWEEN CONSTRUCTION PHASES ARE FOLLOWING THE GENERAL REQUIREMENTS AND LIMITS SET BY THE ARCHITECTURAL PHASING PLANS CS-06 AND CS-07 BUT ARE NOT INTENDED TO SHOW EXACT LOCATION OF TEMPORARY WALL/PARTITIONS. THE FOLLOWING IS A GENERAL DESCRIPTION OF WORK ANTICIPATED PER CONSTRUCTION PHASE. FLOOR PLANS REFLECT THE CONDITION OF MECHANICAL SYSTEMS ON THEIR FINAL STAGE. INTERMEDIATE CONSTRUCTION IS IDENTIFIED ON FLOOR PLANS LABELED: "HVAC-TEMPORARY"
3. ALL RETURN GRILLES ON THE SECOND FLOOR SHALL BE TITUS TYPE PAR.
4. ALL SUPPLY AND RETURN DIFFUSERS ON THE THIRD FLOOR SHALL HAVE FRAME TYPE 3 WITH TRIM FRAME AND SHALL HAVE DUCT CONNECTIONS FROM ABOVE. PLEASE REFER TO LOWER ATTIC FLOOR PLAN FOR DUCT CONNECTIONS.

PHASING PLANS:

I. SECOND FLOOR:
A. PHASE 2:
- INSTALL 34"X12" SUPPLY AIR DUCT RISER.
- INSTALL ALL VAV BOXES, THERMOSTATS, DIFFUSERS AND RETURN GRILLES IN THIS PHASE.
- INSTALL 26"X12" EXHAUST AIR DUCT RISER.
- INSTALL 40"X14" RETURN AIR DUCT RISER.
- INSTALL UH-3s IN STAIRS.
- EXTEND 30"X12" EXHAUST DUCT TO PHASE 3 AND KEEP IT OPEN.

B. PHASE 3:
- INSTALL ALL VAV BOXES, THERMOSTATS, DIFFUSERS AND RETURN GRILLES IN THIS PHASE.
- INSTALL 40"X14" RETURN AIR DUCT RISER.
- EXTEND OPEN END DUCT FROM PHASE 2 AND CONNECT TO NEW DUCT IN THIS PHASE.

II. THIRD FLOOR:
A. PHASE 2:
- INSTALL ALL AIR DEVICES AS INDICATED BY THE BOUNDARY LINES.
- INSTALL 40"X12" SUPPLY AIR DUCT RISER TO AHU-2 IN ATTIC SPACE.
- INSTALL 26"X12" EXHAUST AIR DUCT TO EF-2 IN ATTIC SPACE.
- INSTALL 40"X14" RETURN AIR DUCT RISER TO AHU-2 IN ATTIC SPACE.
- INSTALL UNIT HEATERS.
- INSTALL ALL EXHAUST REGISTERS IN TOILETS AS INDICATED BY THE BOUNDARY LINE.

SPECIFIC NOTES

1. 40"x14" RETURN AIR RISER DOWN.
2. 14"ø VEHICLE EXHAUST DUCT DOWN.
3. RUN DUCTWORK IN BULKHEAD. FOR DETAIL, SEE ARCHITECTURAL DRAWINGS.
4. 14"ø VEHICLE EXHAUST DUCT UP AND DOWN.
5. 4"ø DRYER VENT TERMINATED AT CHIMNEY WALL
6. 34"X12" SUPPLY AIR DUCT TO AHU-2 IN ATTIC SPACE.
7. 4"ø FLUE UP TO ROOF TERMINATED WITH CAP.
8. 4"ø FLUE DOWN TO INFRARED HEATER AT FIRST FLOOR.
9. 20"x10" MAKE UP AIR DUCT UP AND DOWN.
10. 10"X10" EXHAUST DUCT UP AND DOWN.
11. 40"X14" OPEN END DUCT WITH 1" SOUND LINING AND WIREMESH.
12. 40"X14" RETURN DUCT UP.
13. CEILING SPACE SHALL BE A RETURN AIR PLENUM.
14. DUCT STATIC PRESSURE SENSOR.
15. 10"ø BOILER'S VENT PIPE UP AND DOWN.
16. OPEN END DUCT. EXTEND AND CONNECT DUCT IN PHASE 3.
17. 26"X12" EXHAUST DUCT UP.
18. 6"X6" EXHAUST DUCT UP AND DOWN.
19. 40"x14" RETURN DUCT UP.
20. 34"X12" SUPPLY AIR RISER UP.
21. 14"X12" OUTSIDE AIR DUCT TO 36"X12" OUTSIDE AIR LOUVER.
22. 20"X10" MAKE UP AIR DUCT TO MAU-1 IN ATTIC SPACE.
23. 14"X10" EXHAUST DUCT UP TO EF-3 ON ROOF.
24. 24"X10" WALL OPENING.
25. PROVIDE TEMPORARY WINDOW AC UNIT, 12 MBH EACH.
26. PROVIDE TEMPORARY THRU THE WALL ROOM TO ROOM TRANSFER FAN MAX. 200 CFM, SIMILAR TO SUNCOURT-TW208P, PLUG-IN TYPE, 115V.
27. TEMPORARY EXHAUST FAN SIZED AT 200 CFM.
28. PROVIDE 18"X18" ACCESS PANEL. (TYPICAL). (4)

Key Plan

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PROJECT DRAWINGS — MECHANICAL

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Drawing No.: M1-02

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, Washington, DC 20005

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Issue Date	01-22-15
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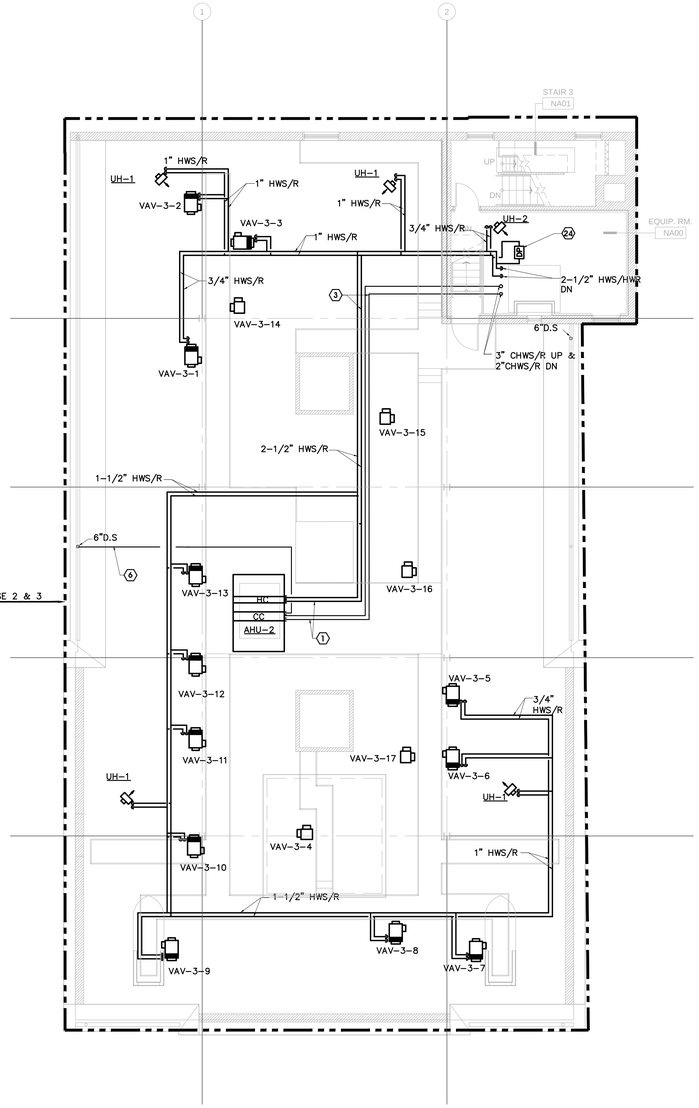
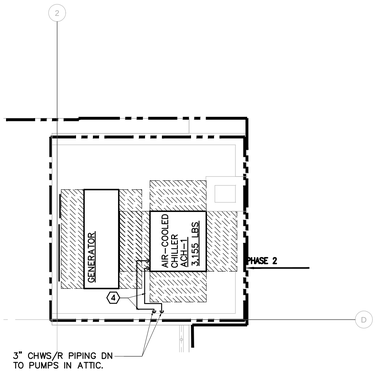
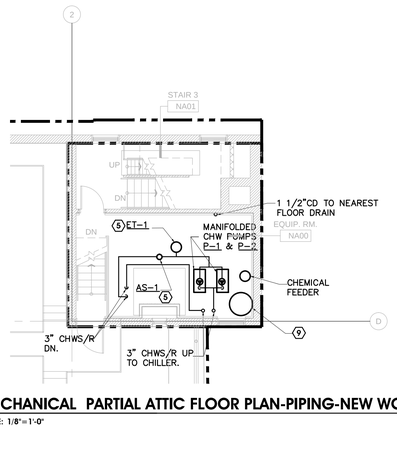


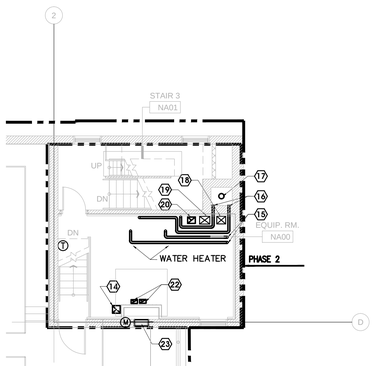
1 MECHANICAL ATTIC PLAN - PIPING - NEW WORK
SCALE: 1/8"=1'-0"



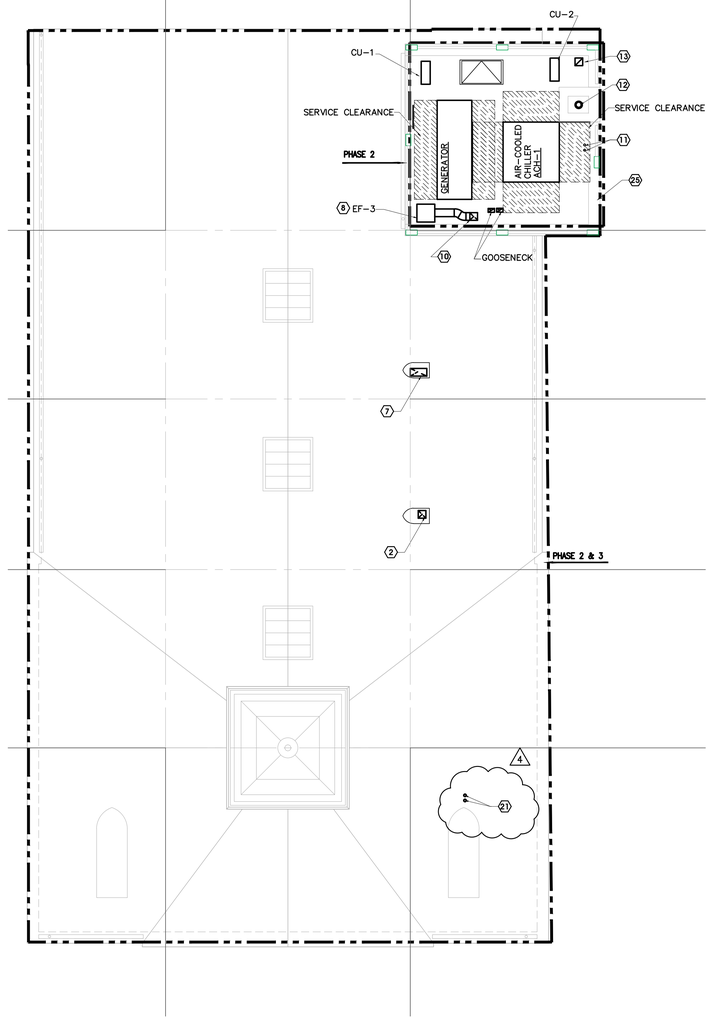
2 MECHANICAL PARTIAL ROOF PLAN-PIPING-NEW WORK
SCALE: 1/8"=1'-0"



3 MECHANICAL PARTIAL ATTIC FLOOR PLAN-PIPING-NEW WORK
SCALE: 1/8"=1'-0"



4 MECHANICAL PARTIAL ATTIC FLOOR PLAN-DUCTWORK-NEW WORK
SCALE: 1/8"=1'-0"



5 MECHANICAL ROOF PLAN - DUCTWORK - NEW WORK
SCALE: 1/8"=1'-0"

GENERAL NOTES

1. REFER TO DRAWING M0–00 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. INDICATED PHASING LIMITS AND SHOWN DELINEATION LINES BETWEEN CONSTRUCTION PHASES ARE FOLLOWING THE GENERAL REQUIREMENTS AND LIMITS SET BY THE ARCHITECTURAL PHASING PLANS CS–06 AND CS–07 BUT ARE NOT INTENDED TO SHOW EXACT LOCATION OF TEMPORARY WALL/PARTITIONS. THE FOLLOWING IS A GENERAL DESCRIPTION OF WORK ANTICIPATED PER CONSTRUCTION PHASE. FLOOR PLANS REFLECT THE CONDITION OF MECHANICAL SYSTEMS ON THEIR FINAL STAGE. INTERMEDIATE CONSTRUCTION IS IDENTIFIED ON FLOOR PLANS LABELED: "HVAC–TEMPORARY"
3. ALL HWS/R BRANCHES TO VAV BOXES SHALL BE 3/4".

PHASING PLANS:

I. ATTIC FLOOR:
A. PHASE 2:
- INSTALL HWS/R PIPES FOR ALL ASSOCIATED VAV BOXES.
- INSTALL HWS/R PIPES AND CHWS/R FOR AHU–2.
- INSTALL AIR COOLED CHILLER ON ROOF.
- INSTALL EXHAUST FAN EF–3 ON ROOF.
- INSTALL FLUE PIPING FOR WATER HEATERS.
- INSTALL PUMPS P–1 AND P–2 AND ASSOCIATED PIPING, EXPANSION TANK ET–1 AND BUFFER TANK.
- INSTALL CU–1 AND CU–2 ON ROOF.

SPECIFIC NOTES

1. 2" HWS/R AND 2 1/2" CHWS/R TO AHU–2.
2. 12"X12" EXHAUST DUCT DOWN. PROVIDE GOOSENECK.
3. 2 1/2" HWS/R AND 2 1/2" CHWS/R TO UNITS.
4. PROVIDE HEAT TRACING (EHT–1) FOR CHWS/R PIPING ON ROOF.
5. SUPPORT EXPANSION TANK AND AIR SEPARATOR FROM STRUCTURE ABOVE. SEE SHEET M3–01 FOR EXPANSION TANK AND AIR SEPARATOR INSTALLATION DETAILS.
6. 1" CONDENSATE DRAIN PIPE TO STORM DRAIN.
7. 26"X12" EXHAUST DUCT DOWN. PROVIDE GOOSENECK.
8. DISCHARGE EF–3 DUCTWORK UPWARD. PROVIDE AUXILIARY DRAIN AT BOTTOM OF FAN HOUSING.
9. 300 GALLONS BUFFER TANK (3,000LBS).
10. 14"X10" EXHAUST DUCT DOWN TO FIRST FLOOR KITCHEN HOOD.
11. 3"ø COMBUSTION PIPE DOWN TO WATER HEATERS.
12. 10"ø BOILERS EXHAUST FLUE DOWN.
13. 10"X10" EXHAUST DUCT TERMINATED WITH GOOSENECK.
14. 14"X10" EXHAUST AIR DUCT UP AND DOWN.
15. 3"ø COMBUSTION PVC PIPE UP TO ROOF TERMINATED WITH 90 DEG. ELBOW DOWN.
16. 3"ø FLUE PIPE TERMINATED AT CHIMNEY WALL.
17. 10"ø BOILER'S EXHAUST FLUE DUCT UP AND DOWN.
18. 14"X12" OUTSIDE AIR DUCT UP AND DOWN.
19. 20"X10" MAKE UP AIR DUCT UP AND DOWN.
20. 14"X10" EXHAUST AIR DUCT UP AND DOWN.
21. 4"ø FLUE UP TERMINATED WITH CAP.
22. 6"X6" EXHAUST DUCT UP AND DOWN.
23. 36"X12" METAL SCREEN LOUVER FOR ELEVATOR SHAFT VENTILATION MOUNTED ON THE WALL OF THE ELEVATOR SHAFT AS HIGH AS POSSIBLE. VENT SHALL REMAIN CLOSED UNTIL SUCH TIME AS A FIRE ALARM INITIALIZES AN OPEN POSITION.
24. DIFFERENTIAL PRESSURE SENSOR.
25. PROVIDE RAILING SYSTEM AROUND ROOF BOUNDARY TO MEET OSHA STANDARDS AND BUILDING CODES.

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Drawn: MC, TD, TM
Checked: VS, MW, EF

Revision	Date	Description	By	App
4	06–17–15	ADDENDUM 4	MC, TD, TM	VS, MW, EF
3	03–26–15	DC COMMENTS	MC, TD, TM	VS, MW, EF
	01–22–15	FOR BID/PERMIT	MC, TD, TM	VS, MW, EF

PROJECT DRAWINGS

Drawing Title: MECHANICAL ATTIC AND ROOF PLANS - PIPING - NEW WORK

Drawing No.: M1-03A

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street, Washington, DC 20005

Seal
Engineer Name:
Registration Number:
Expiration Date:
Architect
Date:

Building ID No.	934
Project No.	2908.01
Issue Date	01-22-15
Sheet	54 OF 100

AIR HANDLING UNIT SCHEDULE

UNIT DESIG	TOTAL CFM	MIN. O.A.	SUPPLY FAN						HEATING COIL					COOLING COIL							APPROXIMATE WEIGHT (LBS)	BASIS OF DESIGN TRANE	TOTAL DIMENSIONS (L x W x H)
			ESP (IN WG)	MAX RPM	MAX BHP	HP	V/#	FLA	MBH	EDB (°F)	LDB (°F)	GPM	MAX WPD (FT WG)	TOTAL MBH	SENS MBH	GPM	WPD (FT WG)	EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB			
AHU-1	2070	800	1.0	1400	1.076	1-1/2	208/3	4.8	114	45	90.1	7.5	0.20	102	63	15	10	83.3	69.6	55	54	350	BCHC072E2	47 X 48 X 22
AHU-2	10,000	3,500	2.5	1750	13.25	15	208/3	47	466	42	85	30	5	489	309	70	10	83	70	55	54.7	3000	CSAA-21	86 x 63 x 38
AHU-B	1200	450	0.8	1245	0.631	0.75	230/3	2.9	45	46	81	3	8	58	36	10	10	82	69	55	54	130	BCHC036E2	44 x 40 x 18

NOTES:

1. UNIT CONSTRUCTION SHALL BE DOUBLE WALL, INSULATED PANEL.
2. UNIT SHALL BE PROVIDED WITH MERV8 FILTERS.
3. PROVIDE STAINLESS STEEL DRAIN PAN.
4. PROVIDE VFDs FOR AHU-1 AND 2.
5. PROVIDE DUCT SMOKE DETECTORS FOR AHU-1 AND 2. UPON ACTIVATION OF DUCT SMOKE DETECTOR, UNIT SHALL SHUTDOWN AND DETECTOR SHALL SEND AN ALARM SIGNAL TO FACP.
6. UNIT SHALL BE SINGLE POINT POWER CONNECTION.
7. CONNECT TO EMERGENCY POWER.
8. PROVIDE CONDENSATE PUMPS FOR ALL UNITS.
9. PROVIDE ACCESS DOORS ON BOTH SIDES OF UNIT.

AIR-COOLED CHILLER SCHEDULE

CHILLER NO.	LOCATION	CAPACITY TONS	FULL LOAD PERFORMANCE (EER)	IPLV (EER)	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL POWER (KW)	EVAPORATOR FLOW (GPM)	EVAPORATOR PD (FT HD)	EVAPORATOR T IN (°F)	EVAPORATOR T OUT (°F)	EVAPORATOR DESIGN AMBIENT (°F)	EVAPORATOR MIN. AMBIENT (°F)	BASIS OF DESIGN DAIKIN	MAX OPERATING WEIGHT (LBS)	DIMENSIONS (L x W x H)
ACH-1	STAIR TOWER ROOF	58.7	10.8	15.8	–	281	300	65.5	100	10	58	44	95	0	AGZ060E	3,200	94 x 88 x 100

NOTES:

1. CHILLER SHALL OPERATE AT VARIABLE FLOW WITH MINIMUM FLOW AT 85 GPM.
2. PROVIDE DISCONNECT SWITCH AND VFDs.
3. CHILLER SHALL BE MOUNTED ON ARCHITECTURAL CURB WITH VIBRATION ISOLATORS.
4. PROVIDE SOUND BLANKETS ON THE COMPRESSORS.
5. PROVIDE HEAT TRACE ON THE EVAPORATOR.

MAKE-UP AIR FAN SCHEDULE

UNIT DESIG.	AREA SERVED	CAPACITY CFM	CAPACITY E.S.P. (IN WG)	GAS HEAT INPUT (BTUH)	GAS HEAT OUTPUT (BTUH)	GAS HEAT TYPE	FAN BHP	FAN HP	FAN RPM	FAN MCA	FAN V/PH/HZ	SONES	WEIGHT (LBS)	DIMENSIONS (LxWxH)	BASIS OF DESIGN CAPTIVEAIRE	REMARK
MAU-1	KITCHEN-1 FLOOR	1120	1.5	88,000	80,000	NATURAL	0.774	1.5	1349	7	208/60/3	25	700	103X28X30	A1-D.250-G10	1,2

NOTES:

1. PROVIDE UNIT WITH DISCONNECT SWITCH.
2. INTERLOCK WITH KITCHEN EXHAUST FAN (EF-3).
3. PROVIDE VFDs.

DUCTLESS SPLIT SYSTEM UNIT SCHEDULE

UNIT DESIG.	TOTAL/SEN. MBH	MIN. SEER	FAN TOTAL CFM	FAN FLA	MOUNTING HEIGHT (FT)	OUTDOOR ELECTRICAL FLA/MCA/MOCP	OUTDOOR ELECTRICAL V/PH/HZ	MANUFACTURER'S OUTDOOR MODEL NO.	MANUFACTURER'S INDOOR MODEL NO.	PHYSICAL DIMENSIONS D (IN)	PHYSICAL DIMENSIONS H (IN)	PHYSICAL DIMENSIONS W (IN)	WEIGHT (LBS)	REMARKS
AC-1/CU-1	18/18	16.3	480	0.75	7'-6"	–/14.1/20	208/1/60	DAIKIN RXS18DVJU	DAIKIN FTXS18HVJU	10	12	35	29	1,2,3,4
AC-2/CU-2	18/18	16.3	480	0.75	7'-6"	–/14.1/20	208/1/60	DAIKIN RXS18DVJU	DAIKIN FTXS18HVJU	10	12	35	29	1,2,3,4

NOTES:

1. ELECTRICAL POWER FOR INDOOR UNIT TO BE FED FROM THE OUTDOOR UNIT. CONNECT TO EMERGENCY POWER.
2. BUILT-IN MICROPROCESSOR SYSTEM WITH A REMOTE LCD WIRELESS TYPE CONTROLLER, ANTI-MOLD WAHABLE FILTER.
3. INSTALL REFRIGERANT OIL TRAP AND PIPING BETWEEN OUTDOOR AND INDOOR UNITS IN ACCORDANCE WITH THE UNIT MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
4. MAXIMUM ALLOWABLE VERTICAL REFRIGERANT HEIGHT BETWEEN INDOOR AND OUTDOOR UNITS IS 100 FT. PROVIDE OUTDOOR CONDESNING UNITS WITH FROST PROTECTION.

PUMP SCHEDULE

DESIG.	LOCATION	SERVES	TYPE	MEDIA	GPM	DESIGN HEAD (FT.WG)	RPM	MAX BHP	HP	V/PH	WEIGHT (LBS.)	BASIS OF DESIGN WEINMAN
P-1	ATTIC	ACH-1	END SUCTION	CHW	100	55	1750	2.22	3	208/3	300	END-SUCTION MODEL 0575 SIZE 1.5 Q
P-2	ATTIC	ACH-1	END SUCTION	CHW	100	55	1750	2.22	3	208/3	300	END-SUCTION MODEL 0575 SIZE 1.5 Q
P-3	BASEMENT BOILER RM	PRIMARY-HEATING SYSTEM	INLINE	HW	45	25	1750	0.431	0.75	208/3	110	INLINE MODEL 0320 SIZE 2007
P-4	BASEMENT BOILER RM	PRIMARY-HEATING SYSTEM	INLINE	HW	45	25	1750	0.431	0.75	208/3	110	INLINE MODEL 0320 SIZE 2007
P-5	BASEMENT BOILER RM	SECONDARY-HEATING SYSTEM	INLINE	HW	100	50	1750	1.97	3	208/3	235	INLINE MODEL 0320 SIZE 2595
P-6	BASEMENT BOILER RM	SECONDARY-HEATING SYSTEM	INLINE	HW	100	50	1750	1.97	3	208/3	235	INLINE MODEL 0320 SIZE 2595

NOTES:

1. PROVIDE VFDs ON P-1, 2, 5, AND 6.
2. CONNECT P-3, P-4, P-5 AND P-6 TO EMERGENCY POWER.

EXPANSION TANK SCHEDULE

TANK NO.	LOCATION	SYSTEM SERVED	TANK TYPE (OPEN OR CLOSED)	TANK VOLUME (GAL.)	SIZE DIA. (IN.)	SIZE LENGTH (IN.)	ACCEPTANCE VOLUME (GAL.)	INITIAL FILL PRESS. (PSIG)	MAX. OPER. PRESS. (PSIG)	A.S.M.E. WORK PRESS. (PSIG)	BASIS OF DESIGN BELL & GOSSETT
ET-1	ATTIC	CHW	CLOSED	8	12	20	2.4	10	30	125	D-15
ET-2	BOILER RM.	HW	CLOSED	8	12	20	2.4	10	30	125	D-15

NOTES:

1. PROVIDE AIR SEPARATOR WITH STRAINER.

GAS-FIRED BOILER

BOILER NO.	LOCATION	MBH INPUT/OUTPUT	EWT/LWT F	BASIS OF DESIGN AERCO	WEIGHT (LBS)	FLA (AMPS)	DIMENSIONS (L x W x H)
B-1	BASEMENT BOILER RM	750/653	150/120	BMK-750	800	5	28" X 34" x 80"
B-2	BASEMENT BOILER RM	750/653	150/120	BMK-750	800	5	28" X 34" x 80"

NOTES:

1. PROVIDE AUTO SHUT-OFF (GAS) SWITCH BY THE ROOM DOOR. SEE PLUMBING/ELECTRICAL DRAWINGS.
2. PROVIDE AGA APPROVED GAS TRAIN.
3. INDIVIDUAL FLUE SIZE IS 6" DIAMETER.
4. CONNECT TO EMERGENCY POWER.

GAS-FIRED INFRARED HEATERS

DESIG. NO.	LOCATION	INPUT CAPACITY (MBH)	INPUT CAPACITY (KW)	TUBE LENGTH (FT)	ELECTRICAL V/PH/HZ	ELECTRICAL FLA	DIMENSIONS (L x W x H)	BASIS OF DESIGN SPACE-RAY
GIH-1	VEHICLE BAY	50	14.7	20	115/1/60	2.6	20' x 31" x 6"	ETU-50-30-N5
–	–	–	–	–	–	–	–	–

NOTES:

1. LOW INTENSITY, DIRECT VENTED INFRARED HEATERS. PROVIDE MULTIPLE HEATER CONTROL, VENT CAP, AND THERMOSTAT.
2. CONNECT TO EMERGENCY POWER.

AIR SEPARATOR SCHEDULE

TANK NO.	LOCATION	SYSTEM SERVED	TYPE	PIPE SIZE INLET DIA. (IN.)	PIPE SIZE OUTLET DIA. (IN.)	A.S.M.E. WORK PRESS. (PSIG)	BASIS OF DESIGN AMTROL
AS-1	ATTIC	CHW	TANGENTIAL	3	3	150	3 AS-L
AS-2	BOILER RM.	HW	TANGENTIAL	2-1/2	2-1/2	150	2-1/2 AS-L

NOTES:

1. PROVIDE AIR SEPARATOR WITH STRAINER.

HOT WATER UNIT HEATER SHEDULE

DESIG. NO.	LOCATION	OUTPUT CAPACITY (MBH)	TOTAL FLOW CAPACITY (GPM)	EWT/LWT (F)	ELECTRICAL FAN (HP)	ELECTRICAL V/PH/HZ	ELECTRICAL FLA	DIMENSIONS (L x W x H)	BASIS OF DESIGN TRANE
UH-1	SEE PLANS	40	5	150/120	1/20	115/1/60	1.3	14" x 12" x 20"	S-60
UH-2	SEE PLANS	9	1	150/120	1/10	115/1/60	2.76	10" X 14"X 15"	S-24

NOTES:

1. PROVIDE ENCLOSED FAN MOTOR, CONTROLS AND THERMOSTAT.
2. CONNECT TO EMERGENCY POWER.

ELECTRIC UNIT HEATER SCHEDULE

TAG#	AREA SERVED	CAPACITY MBH	CAPACITY KW	ELECTRICAL V/PH	ELECTRICAL AMPS	FAN CFM	FAN HP	BASIS OF DESIGN QMARK	REMARK
EUH-1	SEE PLANS	5.1	1.8	120/1	15	150	1/100	CWH1201DSF	WALL MOUNTED. NOTE 1
EUH-2	SEE PLANS	10.2	3.0	208/1	14.8	160	1/100	CWH3404F	WALL MOUNTED. NOTE 1
EUH-3	SEE PLANS	10.2	3.0	208/1	14.5	350	1/100	MUH0381	CEILING HUNG. NOTES 1 AND 2.

1. PROVIDE UNIT WITH BUILT-IN THERMOSTAT AND DISCONNECT SWITCH.
2. PROVIDE CEILING MOUNTED BRACKET

ELECTRIC HEAT TRACE SCHEDULE

TAG#	AREA SERVED	LOCATION	MINIMUM AMBIENT TEMP.(F)	WATTS/FT	PIPE SIZE (IN.)	ELECTRICAL (V/PH/HZ)	BASIS OF DESIGN
EHT-1	CHILLED WATER	SEE PLAN	0	8	SEE PLAN	120/1/60	RAYCHEM 8XL1CR

NOTE :

1. PROVIDE 2" THICK MINERAL WOOL INSULATION WITH ALUMINUM JACKET.
2. CONNECT TO EMERGENCY POWER.

FAN SCHEDULE

DESIG.	LOCATION	FAN TYPE	DRIVE	CFM	ESP (IN.WG)	RPM	MAX BHP	DESIGN HP	SONES	V/PH/HZ	WEIGHT (LBS.)	DIMENSIONS (LxWxH)	BASIS OF DESIGN	REMARKS
EF-1	ATTIC	3RD FLR EXHAUST	DIRECT DRIVE	675	0.5	1725	0.1	1/4	6.5	120/1/60	56	21x17x17	GREENHECK SQ-100-A	NOTES 1
EF-2	ATTIC	2ND FLR EXHAUST	DIRECT DRIVE	2375	0.5	1725	0.44	3/4	13.5	120/1/60	67	21X21X21	GREENHECK SQ-130-A	NOTES 1
EF-3	ROOF	KITCHEN EXHAUST	BELT DRIVE	1400	1.25	2254	1.092	2	33	208/3/60	165	24X20X24	CAPTIVEAIRE RDUS-U2122CA	NOTES 2, 3, 4, 6
EF-4	APPARATUS	ROOM EXHAUST	DIRECT DRIVE	3,000	0.5	1400	0.9	1	20	208/1/60	110	23X23X22	GRREENHECK SQ-140-VG	NOTE 1,2,9
SF-5	ATTIC	ATTIC SUPPLY	DIRECT DRIVE	5000	0.35	1770	0.67	3/4	33	208/3/60	859	24" ROUND	GREENHECK AX-54-160-0416-A0.75	NOTES 1,,4,7
RF-6	ATTIC	RETURN FOR AHU-2	DIRECT DRIVE	7500	1	1770	3.65	5	N/A	208/3/60	350	33" ROUND	GREENHECK QEID-20-75-A50	NOTES 1,,2
EF-7	GEAR RM	ROOM EXHAUST	DIRECT DRIVE	450	0.5	1725	0.1	1/8	5	120/1/60	75	16X15X15	GREENHECK SQ-95-D	NOTES 1,7
EF-8	ATTIC	VEHICLE EXHAUST	DIRECT DRIVE	2000	1.25	1725	–	10	5	208/3/60	350	34X24X36	NEDERMAN NCF 80/20	NOTE 5
EF-9,10	DECON/ SHOP	ROOM EXHAUST	DIRECT DRIVE	100	0.35	1725	–	1/30	5	120/1/60	30	12X13X12	GREENHECK SQ-70-D	NOTES 1,7
EF-11	ATTIC	ATTIC EXHAUST	DIRECT DRIVE	4500	0.35	1770	0.67	3/4	33	208/3/60	859	24" ROUND	GREENHECK AX-54-160-0414-A7	NOTES 1

NOTES:

1. PROVIDE FANS WITH VIBRATION ISOLATORS, ELECTRICAL DISCONNECT SWITCH, AND BACK DRAFT DAMPER.
2. PROVIDE FANS WITH VFD.
3. PROVIDE FAN WITH MANUFACTURER PROVIDED ROOF CURB.
4. PROVIDE DISCONNECT SWITCH.
5. NOT IN CONTRACT. SHOWN FOR REFERENCE ONLY.
6. UNIT SHALL BE UL LISTED FOR GREASE REMOVAL.
7. PROVIDE FAN WITH VARIABLE SPEED CONTROLLER. AND MOTORATED SWITCH.
8. PROVIDE VARIABLE SPEED VENTER, VFD DRIVE, CONSTANT PRESSURE CONTROLLER, TRANSDUCER, ROOF MOUNTING KIT AND (2) BALANCING BAFFLES
9. PROVIDE TWO SPEED MOTOR, VIBRATION ISOLATORS. FAN CAPACITY AT LOW SPEED SHALL BE 800 CFM. PROVIDE AUTO-ON AND OFF MANUAL OFF OPTIONS.

DIFFUSERS AND GRILLES SCHEDULE

TYPE	SERVICE	NECK SIZE (IN.)	OVERALL SIZE (IN.)	SLOT NO.-WIDTH	CFM RANGE	MAXIMUM ROOM NC	BASIS OF DESIGN	REMARKS
CEILING DIFFUSER	SUPPLY AIR	6"	24"x24"	N/A	0-100	25	TITUS MODEL TMS	NOTES: 1,2,3,4
CEILING DIFFUSER	SUPPLY AIR	8"	24"x24"	N/A	101-200	25	TITUS MODEL TMS	NOTES: 1,2,3,4
CEILING DIFFUSER	SUPPLY AIR	10"	24"x24"	N/A	251-350	25	TITUS MODEL TMS	NOTES: 1,2,3,4
RETURN DIFFUSER	RETURN AIR	22"X22"	24"x24"	N/A	0-1000	25	TITUS MODEL PAR	NOTES: 1,2,3,4
SIDE WALL REGISTER	SUPPLY AIR	10"X6"	10"X6"	N/A	0-200	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4
SIDE WALL REGISTER	SUPPLY AIR	12"X8"	12"X8"	N/A	201-300	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4 4
SIDE WALL REGISTER	SUPPLY AIR	12"X10"	12"X10"	N/A	301-400	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4
LINEAR DIFFUSER	SUPPLY AIR	N/A	24" LONG	2- 4"	0-125	25	TITUS MODEL ML-39	NOTES: 1,2,3,4,5,
RETURN AIR REGISTER	RETURN AIR	10"X6"	10"X6"	N/A	0-200	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4
RETURN AIR REGISTER	RETURN AIR	12"X8"	12"X8"	N/A	201-300	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4
RETURN AIR REGISTER	RETURN AIR	12"X10"	12"X10"	N/A	301-400	25	TITUS MODEL 300 RS	NOTES: 1,2,3,4
EXHAUST REGISTER	EXHAUST AIR	6"x6"	6"x6"	N/A	0-100	25	TITUS MODEL 350 RL	NOTES: 1,2,3,4
EXHAUST REGISTER	EXHAUST AIR	10"x10"	10"x10"	N/A	101-300	25	TITUS MODEL 350 RL	NOTES: 1,2,3,4
EXHAUST REGISTER	EXHAUST AIR	12"X12"	12"X12"	N/A	301-450	25	TITUS MODEL 350 RL	NOTES: 1,2,3,4

NOTES:

1. PROVIDE OPPOSED BLADE VOLUME DAMPERS ONLY ON DIFFUSERS SERVING THE THIRD FLOOR.
2. COORDINATE COLORS WITH ARCHITECT BEFORE ORDERING DIFFUSERS.
3. PROVIDE FRAME TYPE 3 WITH TRIM FRAME IN ALL PLASTER CEILING INSTALLATION.
4. PROVIDE FRAME TYPE 3 IN LAY-IN CEILING INSTALLATION.
5. PROVIDE WITH PLENUM.

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Revision	Date	Description	By	App
4	06-17-15	ADDENDUM 4	MC, TD, TM	VS, MW, EF
3	03-26-15	DC COMMENTS	MC, TD, TM	VS, MW, EF
	01-22-15	FOR BID/PERMIT	MC, TD, TM	VS, MW, EF

PROJECT DRAWINGS — MECHANICAL

Drawing Title: MECHANICAL SCHEDULES

Drawing No.: M2-01

Job Title: DCFEMS Station 16

Project Address: 1018 13th Street Washington, DC 20005

Seal
Engineer Name:
Registration Number:
Expiration Date:
Architect
Date:

Building ID No.	934
Project No.	2908.01
Issue Date	01-22-15
Sheet	55 OF 100