STATE OF NEW YORK
OFFICE OF GENERAL SERVICES
DESIGN AND CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 3 TO PROJECT NO. 44808

CONSTRUCTION WORK, HVAC WORK, PLUMBING WORK, AND ELECTRICAL WORK
RENOVATE BUILDING NO. 5
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVENUE
ALBANY, NY

December 5, 2013

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

CD WRITING ERRORS

1. Drawing Nos. A-501: The attached drawing was omitted from the original CDs' for this Project. Bidders are advised to examine their CDs for completeness.

CHANGES TO ADDENDUM NO. 2

2. Item No. 11 (Section 265110 FLUORESCENT FIXTURES, Noted Revised 11/18/13): Add the following Article to PART 1 GENERAL on page 265110-1:

"1.03 COMMISSIONING – FLUORESCENT FIXTURES

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

COMMON DIVISION 0 DOCUMENTS

3. DOCUMENT 003113 PRELIMINARY PROJECT SCHEDULE: Discard the Document and attached Proposed Project Schedule bound in the Project Manual and substitute the attached Document (pages 003113-1 thru 003113-2) noted "REVISED 12/2/13", and Proposed Project Schedule (pages 1 thru 5).

COMMON DIVISION 1 SECTIONS

4. Page 011000-2, Paragraphs 1.04A. and B.: Delete these Paragraphs in their entirety, and replace with the following:

   "A. Be aware that ongoing work activities by concurrent Project No. 44802-B will restrict Project Nos. 44808- C, H, P, E Contract Work from being accomplished in the following areas as stated below:
      1. 3rd Floor and 2nd Floor: Open for Contract Work April 1, 2014.
      2. 1st Floor: Open for Contract Work May 1, 2014.
      3. Ground Floor: Open for Contract Work May 15, 2014. Exception for BP-1 and BP- 2. See subparagraph C.2.a. below.
      4. Elevator Work: Existing elevators will not be available at all.
      5. Loading Dock Area: Open for Contract Work May 15, 2014.

   B. Sequencing shown in Paragraphs below is only an example and may be modified as required to progress the Work in a timely manner. Work cannot commence on floors with exceptions listed above in Paragraph A due to ongoing Hazardous Waste Abatement Activities on those floors. There will be no access to these floors other than exceptions noted. "

5. SECTION 013113 PROJECT SCHEDULE: Discard the Document bound in the Project Manual and substitute the attached Document (pages 013113-1 thru 013113-7) noted "REVISED 12/2/13".

6. SECTION 013119 PROJECT MEETINGS: Discard the Document bound in the Project Manual and substitute the attached Document (pages 013119-1 thru 013119-2) noted "REVISED 12/2/13".

7. Section 019113 GENERAL COMMISSIONING REQUIREMENTS (HVAC and Electrical Work Contracts): Discard the Section bound in the Project Manual and substitute the attached Section (pages 019113-1 thru 019113-8) noted "REVISED 12/2/13".

8. COMMISSIONING PROCESS (HVAC and Electrical Work Contracts): Discard the Section bound in the Project Manual and substitute the attached Section (pages AGCP-1 thru AGCP-16) noted "REVISED 12/2/13".

CONSTRUCTION WORK SPECIFICATIONS

9. Page 074213-6, Paragraph 2.03 A.: Delete this Paragraph in its entirety and replace with the following:
   "A. Exterior Face: Roll-formed panels fabricated from 20 gauge to 24 gauge, plain sheet steel, ASTM A 653 Grade A; galvanize to ASTM A 653 G90, with smooth surface. Face sheet thickness as required to meet performance requirements."

10. SECTION 102226 FOLDING SLIDING PARTITIONS: Add the attached Section (pages 102226-1 thru 102226-3) to the Project Manual.

HVAC WORK SPECIFICATIONS

11. Page 230517-2, Subparagraphs 2.01 B.4. a. and b.: Delete these Subparagraphs in their entirety and replace with the following:

"a. EFP
5331 Quam Ave.
St Michaels, MN 55376
(877) 769-8262
www.engineeredflex.com

b. Unisource Manufacturing, Inc.
8040 NE 33rd Drive
Portland, Oregon 97211
(800) 234-2566
www.unisource-mfg.com"

12. Page 230517-2, Subparagraphs 2.02 B.1. and 2.: Delete these Subparagraphs in their entirety and replace with the following:

"a. EFP
5331 Quam Ave.
St Michaels, MN 55376
(877) 769-8262
www.engineeredflex.com

b. Unisource Manufacturing, Inc.
8040 NE 33rd Drive
Portland, Oregon 97211
(800) 234-2566
www.unisource-mfg.com"

13. Page 230553-3, PART 2 PRODUCTS: Add the following Article:

"2.06 VALVE FINDER CEILING TACKS

A. Type: 7/8 inch dia. Head with rubberized top coating that can be written on with permanent marker, and 1/2 inch long point."

14. Page 230553-5, ARTICLE 3.04 VALVE IDENTIICATION SCHEDULE: Add the following Paragraph:

"C. Valve Finder Ceiling Tacks: Mark location of all concealed valve locations above suspended acoustical ceilings by inserting valve finder ceiling tacks into ceiling below location of valve. Label tacks with permanent marker with the same valve number that is used for the brass tag."

15. Page 230529-5, PART 2 PRODUCTS: Add the following Article:

"**2.07 ROOF PIPE SUPPORTS**

A. Prefabricated Pipe Support System designed for installation without roof penetrations, flashing or damage to the roofing material. The system shall consist of bases, made of high density polypropylene plastics with UV protection, a HDG structural steel frame and suitable pipe hangers for the application. Nuts, threaded rods and washers shall be HDG; spring, nuts and bolts for spring nuts shall be electroplated. System shall be custom designed by the manufacturer to fit piping to be installed and the actual conditions of service: Manufacturer: PHP Systems Design,5534 Harvey Wilson Dr, Houston, TX 77020; 713.672.5088; www.phpsd.com

16. Page 230923-8, PART 1 GENERAL: Add the following Article:

"1.11 COMMISSIONING - DIRECT DIGITAL BUILDING CONTROL SYSTEM

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

17. Page 232000-6, ARTICLE 2.02 COPPER AND BRASS PIPE AND TUBING: Add the following Paragraphs:
"G. ACR Tube: ASTM B 280.
H. Flared Tube Fittings Refrigerant Tube Type: SAE J513."

18. Page 232000-14, Paragraph 3.05 A.: Add the following Subparagraph:
"2. All pipe elbows shall be long radius type. Pipe shall be routed using shortest distance possible. Support risers to maintain true vertical, and support true horizontal orientations through entire run without bends."

19. Page 232000-21, ARTICLE 3.07 PIPING PENETRATIONS: Add the following Paragraph:

"F. Roof Pipe Penetration Curbs: 18 gauge galvanized steel roof curbs with integral base plate, continuously welded corners, self flashing without cant strip, pipe covers suitable for steam vent pipe, 18" overall height; Manufacturer: Roof Products & Systems Corp.; 5030 Corproate Exchange Blvd SE, Grans Rapids, MI, 49512; 800-624-8642; www.products.construction.com."

20. Page 232123-3, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING - PUMPS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

21. Page 233413-3, PART 1 GENERAL: Add the following Article:

"1.08 COMMISSIONING – AXIAL FLOW FANS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

22. Page 233413-4, Paragraph 2.02 A.: Add the following Subparagraph:

"8. Fan Class:
   a. RF-E-1, RF-W-2, RF-E-3 – Class II.

b. RF-W-4 – Class I."

23. Page 233413-5, Paragraph 3.02 B.: Add the following Subparagraph:
"1. Support floor mounted units on vibration isolation springs per specification Section 230550."

24. Page 233415-3, PART 1 GENERAL: Add the following Article:

"1.08 COMMISSIONING – CENTRIFUGAL IN – LINE FANS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify and document that O&M documentation is complete.
4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

25. Page 233421-3, PART 1 GENERAL: Add the following Article:

"1.08 COMMISSIONING – POWER ROOF VENTILATORS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify and document that O&M documentation is complete.
4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

26. Page 233421-4, Paragraph 2.01 E.: Delete this Paragraph in its entirety and replace with the following:
    "E. Dampers: Provide motorized damper. Fabricate frame and blades from extruded aluminum with bearings of bronze or nylon. Damper blades shall be coupled together with tie rods at each end and shall have waterproof felted edges. Linkage shall be nonferrous metals, connecting blades to operator. Damper and damper motor operator mounted within roof curb."

27. Page 233421-4, ARTICLE 2.02 VENTILATOR CURBS: Add the following Paragraph:
    "C. Roof curbs shall be hinged when available for specific sizes."

28. Page 233421-5, Paragraph 3.02 B.: Add the following Subparagraph:
    "1. Fastening devices shall be removable for service of damper within roof curb."

29. Page 233723-3, Paragraph 2.02 C.: Add the following Subparagraph:
    "1. Damper and damper motor mounted within roof curb."

30. Page 233723-3, Paragraph 3.01 C.: Add the following Subparagraph:
    "1. Fastening devices shall be removable for service of damper within roof curb."

31. Page 235716-2, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING – CONVERTERS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

32. SECTION 236000 REFRIGERATION: Delete this Section in its entirety.

33. Page 237313-3, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING – AIR HANDLING UNITS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

34. Page 237313-12, ARTICLE 2.02 CUSTOM MANUFACTURED UNITS: Add the following Paragraph:
"I. Sound: Maximum bare fan outlet sound power at AHU scheduled airflow:

AHU Tag	**Sound Power Data (db re: 10^{-12} watts)**							
	63	125	250	500	1000	2000	4000	8000
AHU-E-1	94	91	98	95	91	88	88	82
AHU-W-2	94	91	96	89	89	87	86	81
AHU-E-3	89	86	91	85	86	83	82	77
AHU-W-4	89	86	91	84	84	82	81	76
AHU-E-5	76	73	77	72	72	69	68	64
AHU-W-6 Supply	87	84	89	82	82	80	79	74
AHU-W-6 Return (at fan inlet)	94	91	98	95	91	88	88	82

35. Page 238126-1, ARTICLE 1.01 RELATED WORK SPECIFIED ELSEWHERE: Add the following Paragraphs:
"H. General Commissioning Requirements: Section 019113.
I. Commissioning Process: See AGCP in Appendix."

36. Page 238126-2, ARTICLE 1.04 SUBMITTALS: Add the Following Paragraph:
"G. Commissioning Documents:
   1. Prefunctional checklists.
   2. Functional test procedures."

37. Page 238126-3, PART 1 GENERAL: Add the following Article:

"1.10 COMMISSIONING – SPLIT AIR CONDITIONING SYSTEM

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

38. Page 238126-3, ARTICLE 2.01: Change Article title to read "SPLIT AIR CONDITIONING SYSTEM".

39. Page 238126-4, Paragraph 2.01 D.: Change "High Wall Evaporator Unit" to read "Ductless High Wall Evaporator Unit".

40. Page 238126-6, Subparagraph 2.01 E.5.: Add the following Subparagraph:
"f. Accessories required for long lines applications where applicable for specific system applications: Hard start kit, Hard shutoff thermal expansion valve, Solenoid valve, Crankcase heater, Additional refrigerant."

41. Page 238126-7, ARTICLE 2.01: Add the following Paragraph:
"J. Platform Curbs for support of ACCU-P-1A & B:
   1. Platform curb sized and constructed for the support of associated condensing units, 18" overall height, 18 gauge galvanized steel, internally reinforced with integral base plate and factory installed 2 by 4 wood nailer, fully mitered and welded corners, 3" cant beginning minimum of 1-1/2" above base plate of assembly and as required to match thickness of deck insulation, ¾" plywood top and 20 gauge counterflashing."

42. Page 238126-8, Paragraph 3.01 D.: Add the following Subparagraph:
"1. Place roof mounting compressor-condenser units on pad type isolators."

43. Page 238236-4, Paragraph 3.02 D.: Delete this Paragraph in its entirety, and replace with the following:
"D. Install finned tube enclosures with 4-1/2" clearance between floor and bottom of enclosures. Pipe risers and insulation on each end of continuous enclosures shall pass through a 5" high, black PVC pipe sleeve to conceal and protect the risers. "

44. Page 238239-2, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING – UNIT HEATERS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

45. Page 260221-2, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING – MOTORS AND MOTOR CONTROLLERS

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

PLUMBING WORK SPECIFICATIONS

46. SECTION 019113 GENERAL COMMISSIONING REQUIREMENTS: Add the attached Section (pages 019113-1 thru 019113-9) noted "REVISED 12/2/13" to the Project Manual. Note: This Section was originally issued as a common section for the HVAC Work and Electrical Work Contracts. Commissioning is now being added to the Plumbing Work Contract per Addendum No. 3.

47. Page 220519-1, ARTICLE 2.01 COLD WATER METERS: Delete this Article in its entirety and replace with the following:

"**2.01 COLD WATER METERS**

A. Cold Water Meters: 4" compound meter meeting NSF/ASNI Standards 61 and 372 and shall carry the NSF-61 mark on the housing. All components of the meter shall be of the lead-free bronze alloy material including the housing, measuring element and seals. The meter shall include a positive displacement chamber to measure low flows and a turbine chamber to record high flow.

B. Construction: Shall comply with ANSI and AWWA C702 standards and consist of a meter housing, interchangeable measuring element and single, sealed direct reading registers. The measuring element shall consist of the disc measuring chamber, turbo head assembly and high flow valve assembly.

C. Sealed Registers: The registers shall include direct magnetic drives and shall consist of a straight-reading odometer-type totalization display, 360 degree test circle with center sweep hand and flow finder to detect leaks. Register gearing shall consist of self-lubrication thermoplastic gear to minimize friction and provide long life.

D. Plate Strainer: Provide meter with case bronze, NSF Standard 61 standard plate strainer with a 316 stainless steel screen including 3/16" perforations. The strainer housing shall be tested to withstand 150 psi maximum working pressure and 300 psi static pressure.

E. Meter Recording Device: Provide with a meter recording device that combines the low and high flow measurements of the meter with separate high and low transmitting registers and sends a totalized reading output. The device shall have an active output pulse with a resolution of one pulse per 10 revolutions of the test circle of the high flow transmitting register. The device shall include an integral mounting bracket for direct installation to the meter.

F. Flowrate Totalizer: The meter shall be furnished with a digital indicator designed for computing and displaying the total flow (in gallons) and current flow rate (in gallons per minute). The digital indicator shall be furnished with two analog output connection points for tying into the building's direct digital control system. The analog output points shall be powered for 4 to 20 mA output. The digital indicator shall include a 1.6" x 3.5" LCD display and shall be mounted to the water meter.

G. Basis of Design Manufacturer/Model: Badger Meter, Inc. Recordall Compound Series Meter, 4" size, with Badger Bronze Plate Strainer, Badger Meter Recordall 308 Summator and Badger ER420 Flowrate/Totalizer with 4-20mA Output Signals."

48. Page 220553-3, PART 2 PRODUCTS: Add the following Article:

"2.06 VALVE FINDER CEILING TACKS

A. Type: 7/8 inch dia. Head with rubberized top coating that can be written on with permanent marker, and 1/2 inch long point."

49. Page 220553-4, ARTICLE 3.04 VALVE IDENTIICATION SCHEDULE: Add the following Paragraph:

"C. Valve Finder Ceiling Tacks: Mark location of all concealed valve locations above suspended acoustical ceilings by inserting valve finder ceiling tacks into ceiling below location of valve. Label tacks with permanent marker with the same valve number that is used for the brass tag."

50. Page 220576-2, PART 2 PRODUCTS: Add the following Article:

"**2.09 CAST IRON BACKWATER VALVES**

A. Type: ANSI A112.21.2M; galvanized cast iron body and cover, brass valve, extension sleeve, and access cover."

51. Page 221119-3, PART 2 PRODUCTS: Add the following Article:

"**2.08 TRAP PRIMERS**

A. Trap Primers: Trap primer valves shall be ½" FIP inlet × ½" MIP outlet, automatic trap primer valves which activate with a 10 PSIG pressure drop between 30–150 PSIG.
   1. Water release shall be factory set.
   2. Trap primer valve shall have a non-corrosive brass finish and shall be UPC/IAPMO listed, and ASSE certified to the ASSE 1018 standard.
   3. Provide each trap primer with a Type B Atmospheric Vacuum Breaker installed at outlet of trap primer valve."

52. Page 221123-9, PART 2 PRODUCTS: Add the following Article:

"**2.08 SANITARY WASTE DISPOSAL PUMP**

A. 10" wide x 12" deep x 17" high reservoir pump including a 1/3 horsepower motor @ 1750 RPM, 115 volt, 5.6 Amp electrical rating, 1-1/2" inlet size, 1" discharge size, 2-gallon reservoir capacity, with a vapor sealed reservoir and 130 degree F maximum working temperature.

B. The pump shall be capable of flowing 26.4 GPM of disposal waste at 12.0-feet of lift.

C. The pump shall be of unitized construction with structural foam polypropylene and include an 8-foot cord and plug and sealed switch assembly.

D. Basis of Design Manufacturer/Model: Hartell model LTS."

53. Document 221123.1 PUMPS - PREFUNCTIONAL CHECKLIST: Add the attached Document (pages 1 thru 6) to the Project Manual.

54. Document 221123.2 PUMPS –FUNCTIONAL TEST PROCEDURE: Add the attached Document (pages 1 thru 3) to the Project Manual.

55. COMMISSIONING PROCESS: Add the attached Section (pages AGCP-1 thru AGCP-16) noted "REVISED 12/2/13" to the Project Manual. Note: This Section was originally issued as a common section for the HVAC Work and Electrical Work Contracts. Commissioning is now being added to the Plumbing Work Contract per Addendum No. 3.

ELECTRICAL WORK SPECIFICATIONS

56. DOCUMENT 260924.1 AUTOMATIC LIGHTING CONTROLS – PREFUNCTIONAL CHECKLIST: Discard the Document bound in the Project Manual and substitute the attached Section (pages 1 thru 5) noted "REVISED 12/2/13".

57. DOCUMENT 260924.2 AUTOMATIC LIGHTING CONTROLS – FUNCTIONAL TEST PROCEDURES: Discard the Document bound in the Project Manual and substitute the attached Section (pages 1 thru 6) noted "REVISED 12/2/13".

58. Page 260925-1, PART 1 GENERAL: Add the following Article:

"1.07 COMMISSIONING – OCCUPANCY SENSORS FOR LIGHTING CONTROL

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the direct digital building control system. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment."

59. DOCUMENT 260925.1 OCCUPANCY SENSORS FOR LIGHTING CONTROLS - PREFUNCTIONAL CHECKLIST: Discard the Document bound in the Project Manual and substitute the attached Section (pages 1 thru 2) noted "REVISED 12/2/13".
60. DOCUMENT 260925.2 OCCUPANCY SENSORS FOR LIGHTING CONTROLS - FUNCTIONAL TEST PROCEDURES: Discard the Document bound in the Project Manual and substitute the attached Section (pages 1 thru 4) noted "REVISED 12/2/13".

61. Page 261300-7, Article 2.03 LOW VOLTAGE SWITCHBOARD SECTION: Delete this Article in its entirety, and replace with the following:

"2.03 LOW VOLTAGE SWITCHGEAR SECTION

A. General Electric AKD / Entellisys Switchgear, Eaton Magnum DS Switchgear with remote mounted AT300.

1. Listed and labeled to UL 1558 standards. Ratings as indicated on drawings.
2. Rear (and front) accessibility.
3. Sections flush at front and rear.
4. Main device: Stationary circuit breaker (see circuit breaker paragraph).
   a. Shut trip and remote close solenoid.
5. Provisions on each end of switchboard to install existing Ion Power Meters in field.
6. Fully rated copper bus bars.
   a. Ampere rating of through bus not less than frame size of main device.
7. Full length copper ground bus.
8. Full capacity copper neutral bus.
9. Sections that are designated "space" or "provision for future breaker" equipped with all accessories required to accept a future circuit breaker.
10. Circuit Breakers:
    a. Mounted in an individual compartment with grounded metal barriers at the top, bottom, front and sides and with flame retardant, track resistant glass reinforced polyester base barrier at the rear.
    b. Equipped with drawout rails, stationary breaker contacts, mechanical interlocks, necessary control and indicating devices.
    c. Mechanical interlocks shall prevent the breaker from being racked in or out unless the breaker is open, and shall prevent the breaker from being closed while it is being racked in or out.
    d. Style: Molded case, or power circuit breakers, as required to accommodate the circuit breaker components.
    e. Trip Device: Programmable solid state.
    f. Interrupting Capacity: Equal to, or greater than, the short circuit rating required for the switchboard.
    g. Component Description: See switchboard schedule for specific components required for each circuit breaker. In addition to the specific components, equip each circuit breaker with additional components as required to achieve a coordinated selective scheme between the main device and the feeder devices.
11. Automatic transfer controller to provide electrical interlocking of bus tie breaker with main breakers.
12. Remote section with interface to allow programming of transfer sequence and to allow remote operation (open and close) of main and bus tie breakers."

62. SECTION 265120 LED FIXTURES: Add the attached Section (pages 265120-1 thru 265120-6) to the Project Manual.

63. SECTION 265300 EXIT LIGHT FIXTURES: Discard the Section bound in the Project Manual and substitute the attached Section (page 265300-1) noted "REVISED 12/2/13".

CONSTRUCTION WORK DRAWINGS

64. Drawing S-201, FOUNDATION PLAN – EAST:
    a. All areas of the existing ground floor slab shown to be removed shall be replaced with reinforced concrete with a 28 day compressive strength of 4,000 psi. The existing reinforcing steel varies, but for bidding purposes shall be assumed to

consist of #10 bars at 6 inches each way, top and bottom. The existing reinforcing steel is to be cut and reinforcing steel of the same size is to be spliced with every other existing bar with a mechanical bar splice. The basis of design for the mechanical bar splice is the Lenton Lock B Series Mechanical Splicing System. The replacement concrete shall extend from the soils under the slab to the top of concrete elevation for the adjacent slab areas.

b. Extend the 13'-0" long slab removal area located between columns B-2 and C-2 to column line 1. The revised length is 37'-0".

c. Drawing S-201: All areas of the existing ground floor slab shown to be removed shall be replaced with reinforced concrete with a 28 day compressive strength of 4,000 psi. The existing reinforcing steel varies, but for bidding purposes shall be assumed to consist of #10 bars at 6 inches each way, top and bottom. The existing reinforcing steel is to be cut and reinforcing steel of the same size is to be spliced with every other existing bar with a mechanical bar splice. The basis of design for the mechanical bar splice is the Lenton Lock B Series Mechanical Splicing System. The replacement concrete shall extend from the soils under the slab to the top of concrete elevation for the adjacent slab areas.

d. Drawing S-201: Extend the 13'-0" long slab removal area located between columns B-2 and C-2 to column line 1. The revised length is 37'-0".

65. Drawing S-202, FOUNDATION PLAN – WEST:

a. Delete the slab removal area identified by Coded Note 3 between column lines B and C in its entirety.

b. All areas of the existing ground floor slab shown to be removed shall be replaced with reinforced concrete with a 28 day compressive strength of 4,000 psi. The existing reinforcing steel varies, but for bidding purposes shall be assumed to consist of #10 bars at 6 inches each way, top and bottom. The existing reinforcing steel is to be cut and reinforcing steel of the same size is to be spliced with every other existing bar with a mechanical bar splice. The basis of design for the mechanical bar splice is the Lenton Lock B Series Mechanical Splicing System. The replacement concrete shall extend from the soils under the slab to the top of concrete elevation for the adjacent slab areas.

c. Drawing S-202: Delete the slab removal area identified by Coded Note 3 between column lines B and C in its entirety.

d. All areas of the existing ground floor slab shown to be removed shall be replaced with reinforced concrete with a 28 day compressive strength of 4,000 psi. The existing reinforcing steel varies, but for bidding purposes shall be assumed to consist of #10 bars at 6 inches each way, top and bottom. The existing reinforcing steel is to be cut and reinforcing steel of the same size is to be spliced with every other existing bar with a mechanical bar splice. The basis of design for the mechanical bar splice is the Lenton Lock B Series Mechanical Splicing System. The replacement concrete shall extend from the soils under the slab to the top of concrete elevation for the adjacent slab areas.

66. Drawing Nos. S-203, and S-204, NOTES: Add the following Note:

"5. Provide spray on fireproofing at the ground floor ceiling (1st Floor Framing Plan) for all beams, columns and floor deck. See reference Drawing F-100 for UL Listing and thickness requirements."

67. Drawing Nos. S-205 thru S-214, NOTES: Add the following Note:
"5. Provide spray on fireproofing to beams, columns and floor deck between Column Lines B and C and Column Lines 1 through 4 and Column Lines B and C and Column Lines 14 through 17. See Reference Drawings F-100 through F-103 for UL Listing and thickness requirements."

68. Addendum Drawings:
a. Drawing No. A-512 noted "ADDENDUM DRAWING 12/2/13", accompanies this Addendum, and forms part of the Contract Documents.

69. Reference Drawings:
a. Drawing Nos. F-100, F-101, F-102, and F-103 are attached to this Addendum as a reference to show UL Listing and thickness requirements."

HVAC WORK DRAWINGS

70. Drawing M-001, LEGEND, ABBREVIATIONS, AND SYMBOLS:
a. Add SPS and DPS outlined in a rectangular box to the Mechanical Symbols list:
1) SPS defined as DUCT STATIC PRESSURE SENSOR
2) DPS defined as HYDRONIC DIFFERENTIAL PRESSURE SENSOR
b. Change abbreviation OED to be defines as OPEN ENDED DUCT WITH WELDED WIRE MESH SCREEN.

71. Drawing M-101, GROUND FLOOR DUCTWORK PLAN – EAST:
a. Add a SPS duct static pressure sensor tagged AHU-E-3 to 66"x20" supply air duct segment near column lines C&B'-8.
b. Delete 74"x20" transfer ducts and fire damper near column lines B-9.

72. Drawing M-102, GROUND FLOOR DUCTWORK PLAN - WEST:
a. Delete EF-14 and associated ductwork near column lines B-13.
b. Delete fire damper in 64"x18" transfer duct above double door near column lines B-14.
c. Delete 8"x4" duct branch and ED-2 serving Shower Room. Change exhaust duct size to 6"x 4" from G24 thru floor penetration and add fire damper at deck penetration.

73. Drawing M-103, FIRST FLOOR DUCTWORK PLAN - EAST:
a. Delete 14"x10" transfer duct near column lines B&B'-2.
b. Add fire/smoke damper to 26"x8" duct penetrating Lobby 102 wall near column lines D-7&8.
c. Delete (2) 24"x12" transfer ducts near column lines C-1.

74. Drawing M-104, FIRST FLOOR DUCTWORKPLAN - WEST:
a. Add a SPS duct static pressure sensor tagged AHU-W-4 to 72"x18" supply air duct segment near column lines C-11.

b. Delete 14”x10” transfer duct near column lines B&B’-16.
c. Delete 30”x12” transfer duct near column lines A-16.

75. Drawing M-105, SECOND FLOOR DUCTWORK PLAN - EAST :
a. Delete 22”x12” transfer duct near column lines B&B’-2.
b. Change supply diffuser tags in Conference Room 203 to read 225 CFM.
c. Delete (2) 24”x12” transfer ducts near column lines C-1.

76. Drawing M-106, SECOND FLOOR DUCTWORK PLAN - WEST:
a. Change supply diffuser tags in Conference Room 202 to read 225 CFM.
b. Delete 14”x10” transfer duct near column lines B&B’-16.
c. Delete 28”x10” transfer duct near column lines B’-16&17.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

77. Drawing M-107, THIRD FLOOR DUCTWORK PLAN - EAST:
a. Delete 14”x10” transfer duct near column lines B&B’-2.
b. Add a SPS duct static pressure sensor tagged AHU-E-1 to 72”x18” supply air duct segment near column lines B’-8.
c. Change supply diffuser tags in Conference Room 303 to read 225 CFM.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

78. Drawing M-108, THIRD FLOOR DUCTWORK PLAN - WEST:
a. Change supply diffuser tags in Conference Room 302 to read 225 CFM.
b. Add a SPS duct static pressure sensor tagged AHU-W-2 to 80”x18” supply air duct segment near column lines B’-11.
c. Delete 14”x10” transfer duct near column lines B&B’-16.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

79. Drawing M-109, FOURTH FLOOR DUCTWORK PLAN - EAST:
a. Delete 14”x10” transfer duct near column lines B&B’-2.
b. Change supply diffuser tags in Conference Room 403 to read 225 CFM.
c. Delete (2) 24”x12” transfer ducts near column lines C-1.

80. Drawing M-110, FOURTH FLOOR DUCTWORK PLAN - WEST:
a. Change supply diffuser tags in Conference Room 402 to read 225 CFM.
b. Delete 14”x10” transfer duct near column lines B&B’-16.
c. Delete 28”x10” transfer duct near column lines B’-16&17.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

81. Drawing M-111, FIFTH FLOOR DUCTWORK PLAN - EAST:
a. Delete 14”x10” transfer duct near column lines B&B’-2.
b. Change supply diffuser tags in Conference Room 503 to read 225 CFM.
c. Delete (2) 24”x12” transfer ducts near column lines C-1.

82. Drawing M-112, FIFTH FLOOR DUCTWORK PLAN - WEST:
a. Change supply diffuser tags in Conference Room 502 to read 225 CFM.
b. Delete 14”x10” transfer duct near column lines B&B’-16.

c. Delete 28”x10” transfer duct near column lines B’-16&17.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

83. Drawing M-113, SIXTH FLOOR DUCTWORK PLAN - EAST:
a. Delete 14”x10” transfer duct near column lines B&B’-2.
b. Change supply diffuser tags in Conference Room 603 to read 225 CFM.
c. Delete (2) 24”x12” transfer ducts near column lines C-1.
d. Clarification: Ductwork within all hatched areas on the drawing shall be constructed per the note near column lines B’-8.

84. Drawing M-114, SIXTH FLOOR DUCTWORK PLAN - WEST:
a. Change supply diffuser tags in Conference Room 602 to read 225 CFM.
b. Delete 14”x10” transfer duct near column lines B&B’-16.
c. Delete 28”x10” transfer duct near column lines B’-16&17.
d. Delete (2) 24”x12” transfer ducts near column lines C-1.

85. Drawing No. M-201, GROUND FLOOR PIPING PLAN – EAST:
a. Change refrigerant pipe size tags near column lines A&B-2&3 to 3/8” LIQ & 5/8” SUC.
b. Add temperature sensor tagged G-3-5 to Corridor G22 wall opposite Womens Room G32.
c. Add 3/4” HHWS capped ball valve for future connection near column lines A-9.
d. Change refrigerant pipe size tags near column lines C-8 to (2) 3/8” LIQ & (2) 1-1/8” SUC.

86. Drawing No. M-202, GROUND FLOOR PIPING PLAN – WEST AND TUNNEL:
a. Add 3/4” HHWR capped ball valve for future connection near column lines A-10.
b. Change refrigerant pipe size tags for both AC units in Switchgear Room G05 to 3/8” LIQ & 1-1/8” SUC.
c. Add split system fan/coil unit AC-W-G3 to Data Closet at column lines B-13. Add split system condensing unit ACCU-W-G3 adjacent to ACCU-W-G2. Add 3/8” LIQ & 5/8” SUC piping. Split system same size as ACCU-W-G2.
d. Change refrigerant pipe size tags at column lines A-16 to 3/8” LIQ & 5/8” SUC.
e. Add temperature sensor tagged G-4-6 to Corridor G10 wall opposite Womens Room G25.
f. Add temperature sensor to UH-W-G near column lines A&B-17.
g. Add temperature sensor tagged G-4-8 to Secure Storage G11 wall centered in room.
h. Add a ball valve and combination balancing valve and flow meter to 2-1/2” HHWR pipe near column lines B-16, downstream of last branch before connection to main.
i. Delete room tag Shower Room G40.

87. Drawing No. M-203, FIRST FLOOR PIPING PLAN –EAST:
a. Add 3/4” HHWS/R piping and valve assembly to serve FTR on 1st floor at column lines A&B-1, refer to detail 9/M-801. Add valve tag V-1-3-1 to control valve.

b. Add the following note to each of (3) horizontal pipe shaft wall penetrations near column lines C-2 (Note does not refer to 8" relief pipe): EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING. BUTTERFLY VALVE ON HORIZONTAL 3"HHWS WITHIN SHAFT.
c. Clarification: The 6" and 8" pipe risers within shaft at column lines C-2 route from floor below to floor above.
d. Add (2) 2" V and 1" V pipe within shaft at column lines C-2 from floor below to floor above.
e. Change refrigerant pipe size tags at column lines C-4 to 3/8" LIQ & 5/8" SUC.
f. Add tag to Data Closet 119 fan coil unit AC-E-1.
g. Add refrigerant pipe size tag at column lines C-8 to read (2) 3/8" LIQ & (2) 1-1/8" SUC UP/DN.
h. Add note to FTR at column lines D-7&8 to read FTR IN ROOMS 102 AND 113 HAVE ONLY (1) 5FT HEATING ELEMENT EACH WITH COMMON 3/4" HHWR PIPE.
i. Add valve tag V-1-3-9 to control valve serving 1st floor FTR at column lines C&D-1.
j. Add valve tag V-1-3-10 to control valve serving 1st floor FTR at column lines D-2thru4.
k. Add valve tag V-1-3-11 to control valve serving 1st floor FTR at column lines D-4thru6.
l. Add valve tag V-1-3-12 to control valve serving 1st floor FTR at column lines D-6thru7.5.
m. Add valve tag V-1-3-13 to control valve serving 1st floor FTR at column lines D-7.5thru8.
n. Change 3/4" HHWS branch with control valve tag V-2-6-1 at column line D-8 to only serve the first takeoff to FTR on floor above.
o. Add 3/4" HHWS piping and valve assembly adjacent to V-2-6-1 at column line D-8 to serve FTR on 2nd floor Conference Room 202, refer to detail 9/M-801. Add valve tag V-2-6-2 to control valve.

88. Drawing No. M-204, FIRST FLOOR PIPING PLAN – WEST:
a. Change refrigerant pipe size tags at column lines C-14 to 3/8" LIQ & 5/8" SUC.
b. Change refrigerant pipe riser note at column lines C-14 to 3/8" LIQ & 5/8" SUC UP/DN.
c. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
d. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.
e. Add 3/4" HHWS/R piping and valve assembly to serve FTR on 1st floor at column lines A&B-17, refer to detail 9/M-801. Add valve tag V-1-4-5 to control valve.

f. Change 3/4" HHWS branch with control valve tag V-2-2-11 at column line D-11 to only serve the second takeoff to FTR on floor above.
g. Add 3/4" HHWS piping and valve assembly adjacent to V-2-2-11 at column line D-11 to serve FTR on 2nd floor Conference Room 204, refer to detail 9/M-801. Add valve tag V-2-6-3 to control valve.
h. Add valve tag V-1-4-11 to control valve serving 1st floor FTR at column lines D-10&11.
i. Add valve tag V-1-4-12 to control valve serving 1st floor FTR at column lines D-11&12.
j. Add valve tag V-1-4-13 to control valve serving 1st floor FTR at column lines D-12thru14.
k. Add valve tag V-1-4-14 to control valve serving 1st floor FTR at column lines D-14thru16.

89. Drawing No. M-205, SECOND FLOOR PIPING PLAN – EAST:
a. Add the following note to each of (3) horizontal pipe shaft wall penetrations near column lines C-2: EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING. BUTTERFLY VALVE ON HORIZONTAL 3"HHWS WITHIN SHAFT.
b. Clarification: The 6" and 8" pipe risers within shaft at column lines C-2 route from floor below to floor above.
c. Add (2) 2" V and 1" V pipe within shaft at column lines C-2 from floor below to floor above.
d. Change refrigerant pipe size tags at column lines C-4 to 3/8" LIQ & 5/8" SUC.
e. Change refrigerant pipe riser note at column lines C-4 to read 3/8" LIQ & 5/8" SUC UP/DN.
f. Add refrigerant pipe size tag at column lines C-8 to read (2) 3/8" LIQ & (2) 1-1/8" SUC UP/DN.

90. Drawing No. M-206, SECOND FLOOR PIPING PLAN – WEST:
a. Change refrigerant pipe size tags at column lines C-14 to 3/8" LIQ & 5/8" SUC.
b. Change refrigerant pipe riser note at column lines C-14 to 3/8" LIQ & 5/8" SUC UP/DN.
c. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
d. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.
e. Change thermostat tag near column lines C-17 from 3-2-14 to 2-2-14.

91. Drawing No. M-207, THIRD FLOOR PIPING PLAN – EAST:
a. Add the following note to each of (3) horizontal pipe shaft wall penetrations near column lines C-2: EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING. BUTTERFLY VALVE ON HORIZONTAL 3"HHWS WITHIN SHAFT.

b. Clarification: The 6” and 8” pipe risers within shaft at column lines C-2 route from floor below to floor above.
c. Add (2) 2” V and 1” V pipe within shaft at column lines C-2 from floor below to floor above.
d. Change refrigerant pipe size tags at column lines C-4 to 3/8” LIQ & 5/8” SUC.
e. Change refrigerant pipe riser note at column lines C-4 to read 3/8” LIQ & 5/8” SUC UP/DN (TYP 2x).
f. Add refrigerant pipe size tag at column lines C-8 to read (2) 3/8” LIQ & (2) 1-1/8” SUC UP/DN.
g. Change control valve tag near column lines C-1 from 4-1-9 to 4-1-10.
h. Change control valve tag near column lines D-3 from 4-1-10 to 4-1-11.
i. Change control valve tag near column lines D-5 from 4-1-11 to 4-1-12.
j. Change control valve tag near column lines D-5 from 4-1-11 to 4-1-12.
k. Change control valve tag near column lines D-5 from 4-1-12 to 4-1-13.

92. Drawing No. M-208, THIRD FLOOR PIPING PLAN – WEST:
a. Change refrigerant pipe size tags at column lines C-14 to 3/8” LIQ & 5/8” SUC.
b. Change refrigerant pipe riser note at column lines C-14 to 3/8” LIQ & 5/8” SUC UP/DN (TYP 2x).
c. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
d. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.
e. Change control valve tag near column lines A-11 from 4-2-2 to 4-2-1.
f. Change control valve tag near column lines A-13 from 4-2-3 to 4-2-2.
g. Change control valve tag near column lines A-15 from 4-2-4 to 4-2-3.
h. Change control valve tag near column lines B-17 from 4-2-5 to 4-2-4.
i. Change control valve tag near column lines D-12 from 4-2-11 to 4-2-10.
j. Change control valve tag near column lines D-13 from 4-2-12 to 4-2-11.
h. Change control valve tag near column lines D-15 from 4-2-13 to 4-2-12.
i. Change control valve tag near column lines D-17 from 4-2-14 to 4-2-13.

93. Drawing No. M-209, FOURTH FLOOR PIPING PLAN – EAST:
a. Add the following note to each of (3) horizontal pipe shaft wall penetrations near column lines C-2: EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING. BUTTERFLY VALVE ON HORIZONTAL 3”HHWS WITHIN SHAFT.
b. Clarification: The 6” and 8” pipe risers within shaft at column lines C-2 route from floor below to floor above.
c. Add (2) 2” V and 1” V pipe within shaft at column lines C-2 from floor below to floor above.
d. Change refrigerant pipe size tags at column lines C-4 to 3/8” LIQ & 5/8” SUC.
e. Change refrigerant pipe riser note at column lines C-4 to read 3/8” LIQ & 5/8” SUC UP/DN (TYP 3x).
f. Add refrigerant pipe size tag at column lines C-8 to read (2) 3/8” LIQ & (2) 1-1/8” SUC UP/DN.

94. Drawing No. M-210, FOURTH FLOOR PIPING PLAN – WEST:
    a. Change refrigerant pipe size tags at column lines C-14 to 3/8” LIQ & 5/8” SUC.
    b. Change refrigerant pipe riser note at column lines C-14 to 3/8” LIQ & 5/8” SUC UP/DN (TYP 3x).
    c. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
    d. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.

95. Drawing No. M-211, FIFTH FLOOR PIPING PLAN – EAST:
    a. Add the following note to each of (3) horizontal pipe shaft wall penetrations near column lines C-2: EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING. BUTTERFLY VALVE ON HORIZONTAL 3”HHWS WITHIN SHAFT.
    b. Clarification: The 6” and 8” pipe risers within shaft at column lines C-2 route from floor below to floor above.
    c. Add (2) 2” V and 1” V pipe within shaft at column lines C-2 from floor below to floor above.
    d. Change refrigerant pipe size tags at column lines C-4 to 3/8” LIQ & 5/8” SUC.
    e. Change refrigerant pipe riser note at column lines C-4 to read 3/8” LIQ & 5/8” SUC UP/DN (TYP 4x).
    f. Add refrigerant pipe size tag at column lines C-8 to read (2) 3/8” LIQ & (2) 1-1/8” SUC UP/DN.
    g. Change control valve tag near column lines D-3 from 6-1-11 to 6-1-12.

96. Drawing No. M-212, FIFTH FLOOR PIPING PLAN –WEST:
    a. Change refrigerant pipe size tags at column lines C-14 to 3/8” LIQ & 5/8” SUC.
    b. Change refrigerant pipe riser note at column lines C-14 to 3/8” LIQ & 5/8” SUC UP/DN (TYP 4x).
    c. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
    d. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.

97. Drawing M-213, SIXTH FLOOR PIPING PLAN - EAST:
    a. Delete 3/M-403 and 4/M-403 title bubbles and tags.
    b. Change refrigerant pipe size tags at column lines C-4 to 3/8” LIQ & 5/8” SUC.
    c. Change refrigerant pipe riser note at column lines C-4 to read 3/8” LIQ & 5/8” SUC UP/DN (TYP 5x)

d. Clarification: Each of (4) 6” and 8” pipe risers near column lines C-2 contains a butterfly valve in the riser The 2-1/2” HHWS horizontal pipe contains a ball valve.
e. Add the following note to each of (7) horizontal pipe shaft wall penetrations near column lines C-2: EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
f. Change size of 3/4” V pipe from shaft near column lines C-2 thru roof penetration to 1” V.
g. Change refrigerant pipe size tags at column lines C-8 thru roof penetration to 3/8” LIQ & 1-1/8” SUC.

98. Drawing M-214, SIXTH FLOOR PIPING PLAN - WEST :
a. Delete 3/M-403 & 4/M-403 title bubbles and tags.
b. Change refrigerant pipe size tags at column lines C-14 to 3/8” LIQ & 5/8” SUC.
c. Change refrigerant pipe riser note at column lines C-14 to 3/8” LIQ & 5/8” SUC UP/DN (TYP 5x)
d. Add the following note to horizontal pipe near column lines C-16: BUTTERFLY VALVE AND EXPANSION JOINT ON HORIZONTAL PIPE WITHIN SHAFT. PENETRATE WALL WITH SOLID PIPE WITHIN SLEEVE, MAINTAIN FIRE RATING.
e. Add a combination balancing valve and flow meter to both the north and south branches of the tee fitting at column lines C-17.

99. Drawing M-215, PENTHOUSE PIPING PLAN:
a. Add a DPS hydronic differential pressure sensor to 10” CHWS/R risers near column lines B’&C-5.
b. Change spelling of “STANTION” to read “STANCHION”.

100. Drawing M-216, ROOF PIPING PLAN - EAST:
a. Change pipe size of 3/4” V pipe near column lines B’-3 to 1” V.
b. Change refrigerant pipe riser note at column lines C-4 to read 3/8” LIQ & 5/8” SUC UP FROM BELOW (TYP 6x).
c. Change refrigerant pipe riser note at matchline to read: (2) 3/8” LIQ, (2) 1-1/8” SUC UP FROM BELOW.
d. Clarification: Pipe risers at matchline are routed up from the 6th floor and run horizontally above roof, penetrating the lower penthouse wall below the cantilevered floor. Add note at wall penetration to read SEAL WITH TYPE 2 SEALANT.

101. Drawing M-217, ROOF PIPING PLAN - WEST:
a. Change refrigerant pipe riser note at matchline to read: (4) 3/8” LIQ, (2) 7/8” SUC, (2) 1-1/8” SUC DN FROM PENTHOUSE.
b. Clarification: Pipe risers at matchline are routed up from the 6th floor and run horizontally above roof, penetrating the lower penthouse wall below the

cantilevered floor. Add note at wall penetration to read SEAL WITH TYPE 2 SEALANT.

c. Add pipe size tags serving ACCU-P-1A & B: 3/8" LIQ & 1-1/8" SUC.
d. Add pipe size tags serving ACCU-P-2A & B: 3/8" LIQ & 7/8" SUC.
e. Change refrigerant pipe riser note at column lines C-14 to read 3/8" LIQ & 5/8" SUC UP FROM BELOW (TYP 6x).

102. Drawing M-301, DUCTWORK PARTIAL PLANS:
   a. Clarification: See M-101 for duct silencer locations.

103. Drawing M-302, DUCTWORK PARTIAL PLANS:
   a. Clarification: See M-102 for duct silencer locations.

104. Drawing M-303, DUCTWORK PARTIAL PLANS:
   a. Clarification: See M-113 and M-114 for duct silencer locations.

105. Drawing M-305, DUCTWORK SECTIONS:
   a. Add elbow duct silencer DS-8 in 24"x70" return duct at elbow nearest duct branch connection to 108"x108" main.

106. Drawing M-403, PIPING PARTIAL PLANS:
   a. Replace tags for all drains on all details to read: 3/4" BALL DRAIN VALVE WITH HOSE END CONNECTION, CAP AND CHAIN.
   b. Add unions to all the vertical pipe risers serving FTR on floor above, on all details.
   c. Add note details 1/M-403 & 2/M-403: ALL FTR SERVED BY PIPING FROM ABOVE SHALL HAVE DRAIN VALVE AT LOW POINT AND UNIONS AT EACH END OF PIPE ROUTED ALONG EXTERIOR WALL SERVING FINNED ELEMENTS. DRAIN VALVES SHALL BE 3/4" BALL DRAIN VALVE WITH HOSE END CONNECTION, CAP AND CHAIN.
   d. Add drain valves to 2/M-403 & 4/M-403 on each horizontal return pipe from floor above, upstream of ball valve.

PLUMBING WORK DRAWINGS

107. Addendum Drawings:
   a. Drawing No. P-503 noted "ADDENDUM DRAWING 12/2/13", accompanies this Addendum, and forms part of the Contract Documents.

108. Revised Drawings:
   a. Drawing Nos. P-101, P-102, P-103, P-104, P-105, P-106, P-107, P-108, P-109, P-110, P-111, P-112, P-113, P-114, P-115, P-116, P-401, P-402, P-403, P-504, P-601, and P-602 noted "REVISED DRAWING 12/2/13 accompany this Addendum and supersede the same numbered originally issued drawings.

ELECTRICAL WORK DRAWINGS

109. Drawing No. E-003, DETAIL 3/E-003: Revise dimensions in main electric room as shown on Addendum Drawing No. E-015, dated 12/2/13.

110. Drawing No. E-203, FIRST FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 103, 104, 107, 108, 111, 114, 115, 118, 137, and 138 as shown on Addendum Drawing No. E-218 dated 12/2/13.
    b. Modify the Work in Room Nos. 102, and south entry door as shown on Addendum Drawing No. E-219 dated 12/2/13.
    c. Add photocells to control canopy lighting, and canopy emergency circuit as shown on Addendum Drawing No. E-225, dated 12/2/13.

111. Drawing No. E-204, FIRST FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 103, 104, 107, 108, 111, 114, 115, 118, 137, and 138 as shown on Addendum Drawing No. E-218 dated 12/2/13.

112. Drawing No. E-205, SECOND FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 203, 209, 210, 211, 213, 216, 217, 232, 233, and 234 as shown on Addendum Drawing No. E-220 dated 12/2/13.

113. Drawing No. E-206, SECOND FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 203, 209, 210, 211, 213, 216, 217, 232, 233, and 234 as shown on Addendum Drawing No. E-220 dated 12/2/13.
    b. Relocate exit light from wall to ceiling in Conference Room 204.
    c. Relocate wall switch from west wall to south wall in Conference Room 204.
    d. Relocate wall switch to east side of Break Room 231 entrance.
    e. Relocate wall switch from east wall to north wall of Conference Room 235.

114. Drawing No. E-207, THIRD FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 303, 309, 310, 311, 313, 316, 317, 332, 333, and 334 as shown on Addendum Drawing No. E-221 dated 12/2/13.

115. Drawing No. E-208, THIRD FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 303, 309, 310, 311, 313, 316, 317, 332, 333, and 334 as shown on Addendum Drawing No. E-221 dated 12/2/13.
    b. Relocate exit light from wall to ceiling in Conference Room 304.
    c. Relocate wall switch from west wall to south wall in Conference Room 304.
    d. Relocate wall switch to east side of Break Room 331 entrance.
    e. Relocate wall switch from east wall to north wall of Conference Room 335.

116. Drawing No. E-209, FOURTH FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 403, 409, 410, 411, 413, 416, 417, 432, 433, and 434 as shown on Addendum Drawing No. E-222 dated 12/2/13.

117. Drawing No. E-210, FOURTH FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 403, 409, 410, 411, 413, 416, 417, 432, 433, and 434 as shown on Addendum Drawing No. E-222 dated 12/2/13.
    b. Relocate exit light from wall to ceiling in Conference Room 404.
    c. Relocate wall switch from west wall to south wall in Conference Room 404.
    d. Relocate wall switch to east side of Break Room 431 entrance.
    e. Relocate wall switch from east wall to north wall of Conference Room 435.

118. Drawing No. E-211, FIFTH FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 503, 509, 510, 511, 513, 516, 517, 532, 533, and 534 as shown on Addendum Drawing No. E-223 dated 12/2/13.

119. Drawing No. E-212, FIFTH FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 503, 509, 510, 511, 513, 516, 517, 532, 533, and 534 as shown on Addendum Drawing No. E-223 dated 12/2/13.
    b. Relocate exit light from wall to ceiling in Conference Room 504.
    c. Relocate wall switch from west wall to south wall in Conference Room 504.
    d. Relocate wall switch to east side of Break Room 531 entrance.
    e. Relocate wall switch from east wall to north wall of Conference Room 535.
    f. Relocate the exit light on the north side of Break Room 531 to the ceiling.

120. Drawing No. E-213, SIXTH FLOOR LIGHTING PLAN – EAST:
    a. Modify the Work in Room Nos. 603, 609, 610, 611, 613, 616, 617, 632, 633, and 634 as shown on Addendum Drawing No. E-224 dated 12/2/13.
    b. Modify the Work in Enclave Room 636 and Conference Room 637 as shown on Addendum Drawing No. E-226 dated 12/2/13.

121. Drawing No. E-214, SIXTH FLOOR LIGHTING PLAN – WEST:
    a. Modify the Work in Room Nos. 603, 609, 610, 611, 613, 616, 617, 632, 633, and 634 as shown on Addendum Drawing No. E-224 dated 12/2/13.
    b. Relocate exit light from wall to ceiling in Conference Room 604.
    c. Relocate wall switch from west wall to south wall in Conference Room 604.
    d. Relocate wall switch to east side of Break Room 631 entrance.
    e. Relocate wall switch from east wall to north wall of Conference Room 635.
    f. Relocate the exit light on the north side of Break Room 631 to the ceiling.

122. Addendum Drawings:
    a. Drawing Nos. E-014, E-015, E-218, E-219, E-220, E-221, E-222, E-223, E-224, E-225, and E-226 noted "ADDENDUM DRAWING 12/2/13", accompany this Addendum, and form part of the Contract Documents.

END OF ADDENDUM

James Dirolf, P.E.
Director of Design

JRC:jc

DOCUMENT 003113

PRELIMINARY PROJECT SCHEDULE

A Preliminary Project Schedule has been prepared for this project in CPM network format utilizing the precedence diagram method. A summary from this schedule is presented on the following pages. The detailed Preliminary Project Schedule will be made available for review by the Contractors after award of the Contract to further assist in final Project Schedule preparation in accordance with Section 013113.

After execution of the CMU-01 Agreement (blank included on last page of this document), the Project Schedule will become the basis for coordinating the work activities, measuring progress, and approving progress payments.

NOTE: The summary from the Preliminary Project Schedule included in this Document is to be used as reference in preparing a bid response. It is not intended that these examples limit the Contractor in any way in preparation of a bid response.

PROJECT NO. _____

PROJECT NAME: _____

REPORT DATE: _____

REPORT NAME(S): _____

_____

_____

_____

It is agreed that the Project Schedule defined by the above listed computer reports has been reviewed and is accepted for use in coordinating, scheduling, and monitoring the work of all related contracts.

FOR THE CONSTRUCTION CONTRACTOR: _____ DATE: _____

FOR THE HVAC CONTRACTOR: _____ DATE: _____

FOR THE PLUMBING CONTRACTOR: _____ DATE: _____

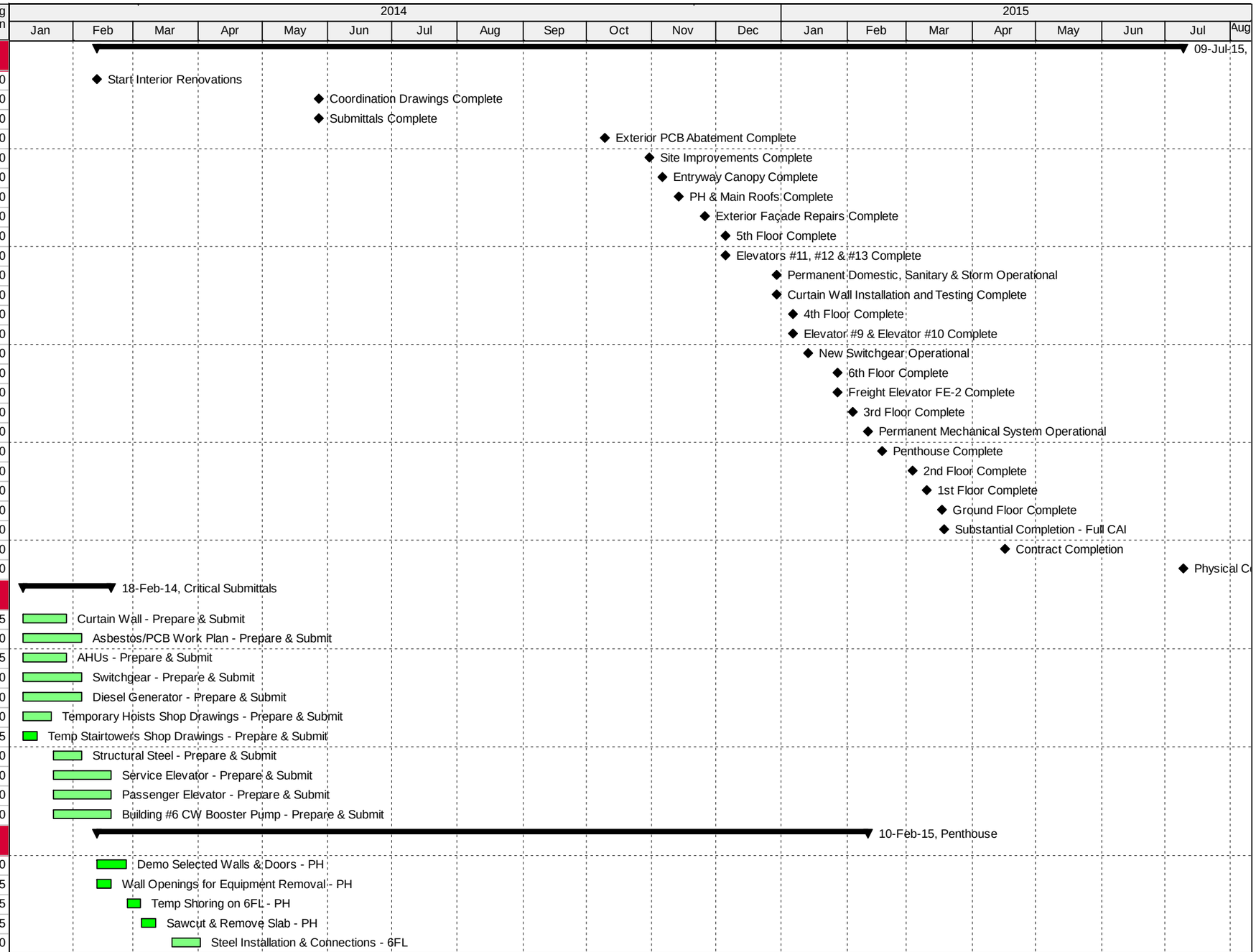
FOR THE ELECTRICAL CONTRACTOR: _____ DATE: _____

THE DIRECTOR'S REPRESENTATIVE: _____ DATE: _____

END OF DOCUMENT

JRC:jc

Activity Name	Remaining Duration
Project Milestones	
Start Interior Renovations	0
Coordination Drawings Complete	0
Submittals Complete	0
Exterior PCB Abatement Complete	0
Site Improvements Complete	0
Entryway Canopy Complete	0
PH & Main Roofs Complete	0
Exterior Façade Repairs Complete	0
5th Floor Complete	0
Elevators #11, #12 & #13 Complete	0
Permanent Domestic, Sanitary & Storm Operational	0
Curtain Wall Installation and Testing Complete	0
4th Floor Complete	0
Elevator #9 & Elevator #10 Complete	0
New Switchgear Operational	0
6th Floor Complete	0
Freight Elevator FE-2 Complete	0
3rd Floor Complete	0
Permanent Mechanical System Operational	0
Penthouse Complete	0
2nd Floor Complete	0
1st Floor Complete	0
Ground Floor Complete	0
Substantial Completion - Full CAI	0
Contract Completion	0
Physical Completion	0
Critical Submittals	
Curtain Wall - Prepare & Submit	15
Asbestos/PCB Work Plan - Prepare & Submit	20
AHUs - Prepare & Submit	15
Switchgear - Prepare & Submit	20
Diesel Generator - Prepare & Submit	20
Temporary Hoists Shop Drawings - Prepare & Submit	10
Temp Stairtowers Shop Drawings - Prepare & Submit	5
Structural Steel - Prepare & Submit	10
Service Elevator - Prepare & Submit	20
Passenger Elevator - Prepare & Submit	20
Building #6 CW Booster Pump - Prepare & Submit	20
Penthouse	
Demo Selected Walls & Doors - PH	10
Wall Openings for Equipment Removal - PH	5
Temp Shoring on 6FL - PH	5
Sawcut & Remove Slab - PH	5
Steel Installation & Connections - 6FL	10



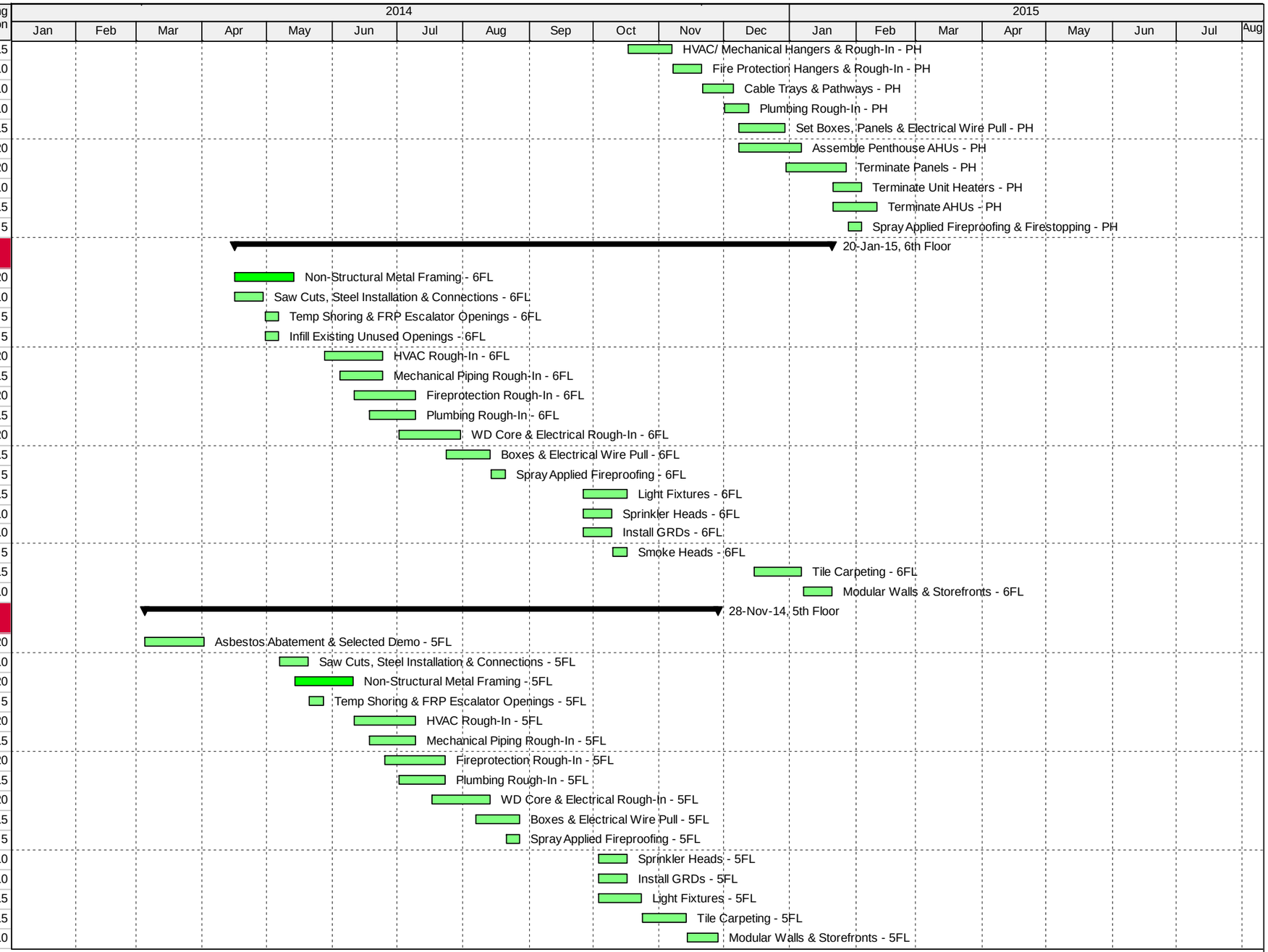
Currie & Brown

44808 SOBC Building #5 Renovation

Proposed Project Schedule

NYS Office of General Services
Serving New York

Activity Name	Remaining Duration
HVAC/ Mechanical Hangers & Rough-In - PH	15
Fire Protection Hangers & Rough-In - PH	10
Cable Trays & Pathways - PH	10
Plumbing Rough-In - PH	10
Set Boxes, Panels & Electrical Wire Pull - PH	15
Assemble Penthouse AHUs - PH	20
Terminate Panels - PH	20
Terminate Unit Heaters - PH	10
Terminate AHUs - PH	15
Spray Applied Fireproofing & Firestopping - PH	5
6th Floor	
Non-Structural Metal Framing - 6FL	20
Saw Cuts, Steel Installation & Connections - 6FL	10
Temp Shoring & FRP Escalator Openings - 6FL	5
Infill Existing Unused Openings - 6FL	5
HVAC Rough-In - 6FL	20
Mechanical Piping Rough-In - 6FL	15
Fireprotection Rough-In - 6FL	20
Plumbing Rough-In - 6FL	15
WD Core & Electrical Rough-In - 6FL	20
Boxes & Electrical Wire Pull - 6FL	15
Spray Applied Fireproofing - 6FL	5
Light Fixtures - 6FL	15
Sprinkler Heads - 6FL	10
Install GRDs - 6FL	10
Smoke Heads - 6FL	5
Tile Carpeting - 6FL	15
Modular Walls & Storefronts - 6FL	10
5th Floor	
Asbestos Abatement & Selected Demo - 5FL	20
Saw Cuts, Steel Installation & Connections - 5FL	10
Non-Structural Metal Framing - 5FL	20
Temp Shoring & FRP Escalator Openings - 5FL	5
HVAC Rough-In - 5FL	20
Mechanical Piping Rough-In - 5FL	15
Fireprotection Rough-In - 5FL	20
Plumbing Rough-In - 5FL	15
WD Core & Electrical Rough-In - 5FL	20
Boxes & Electrical Wire Pull - 5FL	15
Spray Applied Fireproofing - 5FL	5
Sprinkler Heads - 5FL	10
Install GRDs - 5FL	10
Light Fixtures - 5FL	15
Tile Carpeting - 5FL	15
Modular Walls & Storefronts - 5FL	10



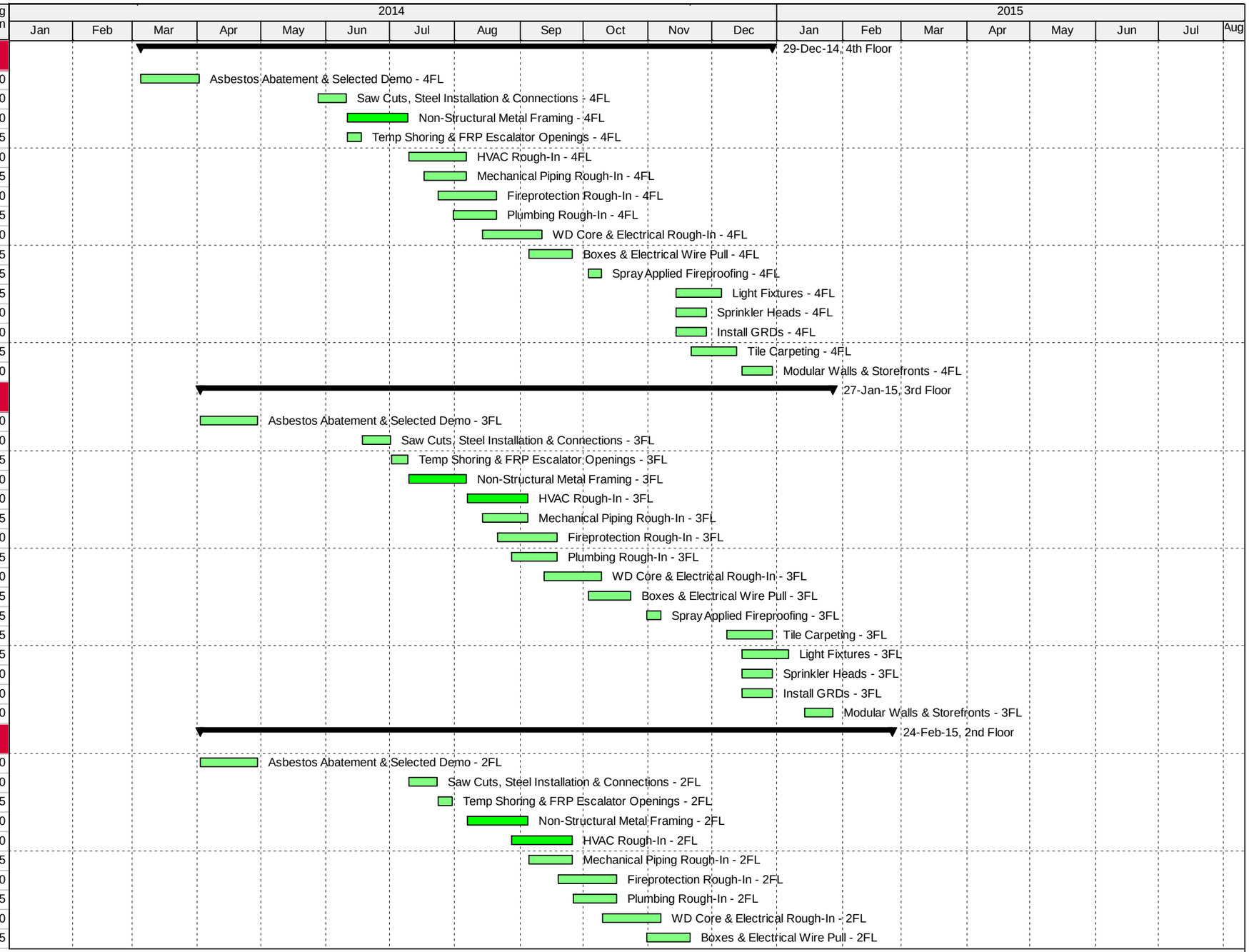
Currie & Brown

44808 SOBC Building #5 Renovation

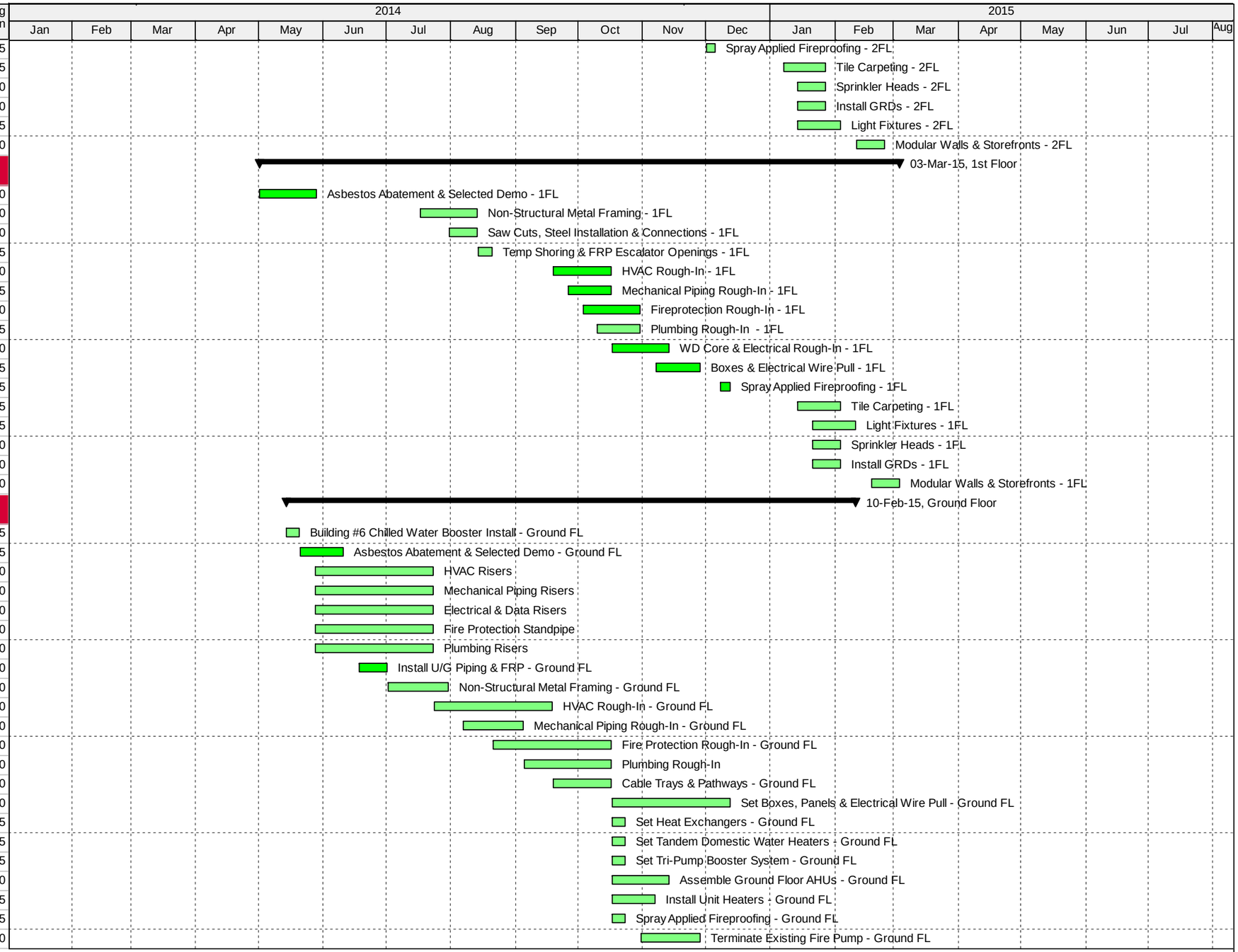
Proposed Project Schedule

NYS Office of General Services
Serving New York

Activity Name	Remaining Duration
4th Floor	
Asbestos Abatement & Selected Demo - 4FL	20
Saw Cuts, Steel Installation & Connections - 4FL	10
Non-Structural Metal Framing - 4FL	20
Temp Shoring & FRP Escalator Openings - 4FL	5
HVAC Rough-In - 4FL	20
Mechanical Piping Rough-In - 4FL	15
Fireprotection Rough-In - 4FL	20
Plumbing Rough-In - 4FL	15
WD Core & Electrical Rough-In - 4FL	20
Boxes & Electrical Wire Pull - 4FL	15
Spray Applied Fireproofing - 4FL	5
Light Fixtures - 4FL	15
Sprinkler Heads - 4FL	10
Install GRDs - 4FL	10
Tile Carpeting - 4FL	15
Modular Walls & Storefronts - 4FL	10
3rd Floor	
Asbestos Abatement & Selected Demo - 3FL	20
Saw Cuts, Steel Installation & Connections - 3FL	10
Temp Shoring & FRP Escalator Openings - 3FL	5
Non-Structural Metal Framing - 3FL	20
HVAC Rough-In - 3FL	20
Mechanical Piping Rough-In - 3FL	15
Fireprotection Rough-In - 3FL	20
Plumbing Rough-In - 3FL	15
WD Core & Electrical Rough-In - 3FL	20
Boxes & Electrical Wire Pull - 3FL	15
Spray Applied Fireproofing - 3FL	5
Tile Carpeting - 3FL	15
Light Fixtures - 3FL	15
Sprinkler Heads - 3FL	10
Install GRDs - 3FL	10
Modular Walls & Storefronts - 3FL	10
2nd Floor	
Asbestos Abatement & Selected Demo - 2FL	20
Saw Cuts, Steel Installation & Connections - 2FL	10
Temp Shoring & FRP Escalator Openings - 2FL	5
Non-Structural Metal Framing - 2FL	20
HVAC Rough-In - 2FL	20
Mechanical Piping Rough-In - 2FL	15
Fireprotection Rough-In - 2FL	20
Plumbing Rough-In - 2FL	15
WD Core & Electrical Rough-In - 2FL	20
Boxes & Electrical Wire Pull - 2FL	15



Activity Name	Remaining Duration
Spray Applied Fireproofing - 2FL	5
Tile Carpeting - 2FL	15
Sprinkler Heads - 2FL	10
Install GRDs - 2FL	10
Light Fixtures - 2FL	15
Modular Walls & Storefronts - 2FL	10
1st Floor	
Asbestos Abatement & Selected Demo - 1FL	20
Non-Structural Metal Framing - 1FL	20
Saw Cuts, Steel Installation & Connections - 1FL	10
Temp Shoring & FRP Escalator Openings - 1FL	5
HVAC Rough-In - 1FL	20
Mechanical Piping Rough-In - 1FL	15
Fireprotection Rough-In - 1FL	20
Plumbing Rough-In - 1FL	15
WD Core & Electrical Rough-In - 1FL	20
Boxes & Electrical Wire Pull - 1FL	15
Spray Applied Fireproofing - 1FL	5
Tile Carpeting - 1FL	15
Light Fixtures - 1FL	15
Sprinkler Heads - 1FL	10
Install GRDs - 1FL	10
Modular Walls & Storefronts - 1FL	10
Ground Floor	
Building #6 Chilled Water Booster Install - Ground FL	5
Asbestos Abatement & Selected Demo - Ground FL	15
HVAC Risers	40
Mechanical Piping Risers	40
Electrical & Data Risers	40
Fire Protection Standpipe	40
Plumbing Risers	40
Install U/G Piping & FRP - Ground FL	10
Non-Structural Metal Framing - Ground FL	20
HVAC Rough-In - Ground FL	40
Mechanical Piping Rough-In - Ground FL	20
Fire Protection Rough-In - Ground FL	40
Plumbing Rough-In	30
Cable Trays & Pathways - Ground FL	20
Set Boxes, Panels & Electrical Wire Pull - Ground FL	40
Set Heat Exchangers - Ground FL	5
Set Tandem Domestic Water Heaters - Ground FL	5
Set Tri-Pump Booster System - Ground FL	5
Assemble Ground Floor AHUs - Ground FL	20
Install Unit Heaters - Ground FL	15
Spray Applied Fireproofing - Ground FL	5
Terminate Existing Fire Pump - Ground FL	20



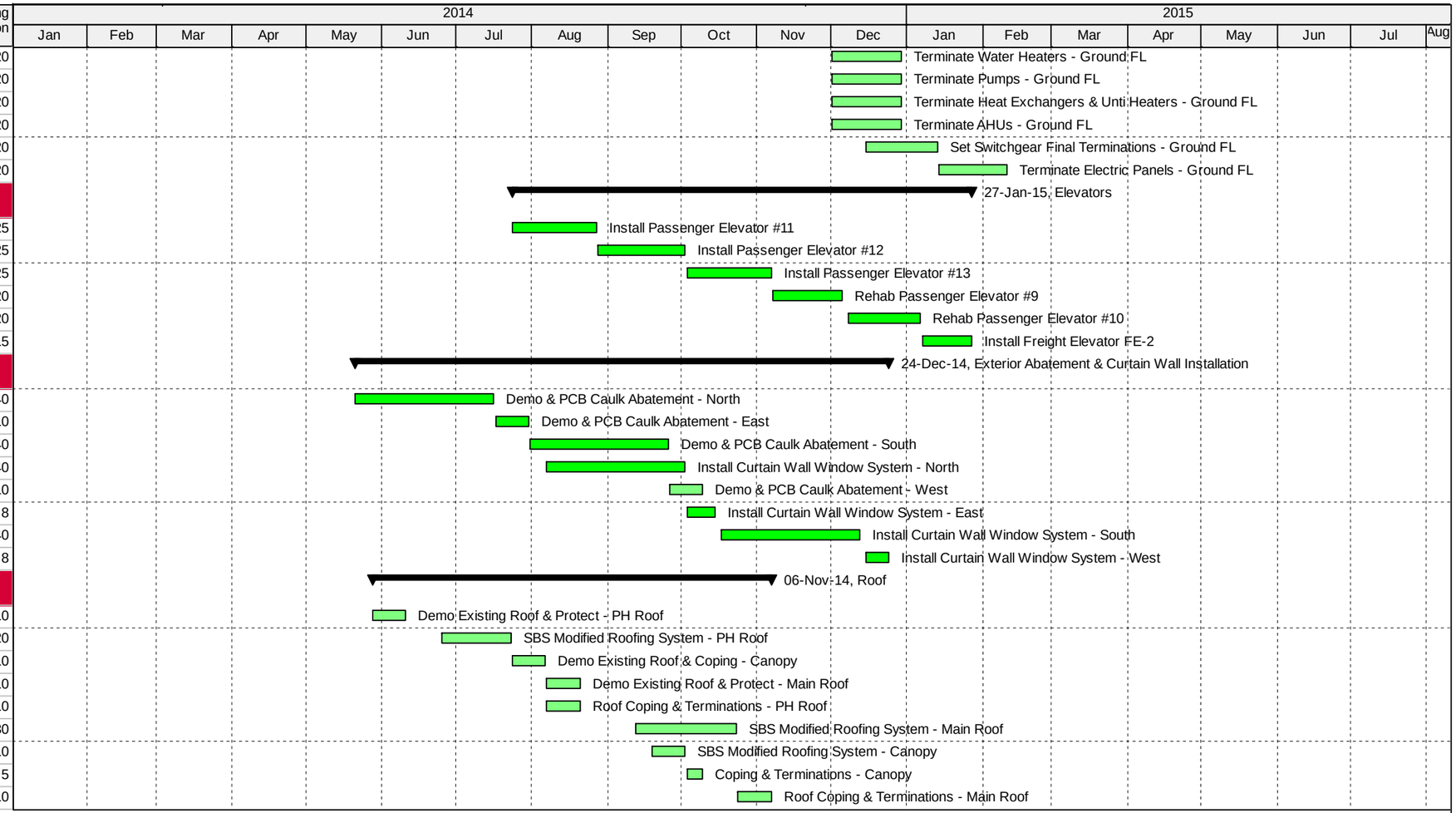
Currie & Brown

44808 SOBC Building #5 Renovation

Proposed Project Schedule

NYS Office of General Services
Serving New York

Activity Name	Remaining Duration
Terminate Water Heaters - Ground FL	20
Terminate Pumps - Ground FL	20
Terminate Heat Exchangers & Unti Heaters - Ground FL	20
Terminate AHUs - Ground FL	20
Set Switchgear Final Terminations - Ground FL	20
Terminate Electric Panels - Ground FL	20
Elevators	
Install Passenger Elevator #11	25
Install Passenger Elevator #12	25
Install Passenger Elevator #13	25
Rehab Passenger Elevator #9	20
Rehab Passenger Elevator #10	20
Install Freight Elevator FE-2	15
Exterior Abatement & Curtain Wall Installa	
Demo & PCB Caulk Abatement - North	40
Demo & PCB Caulk Abatement - East	10
Demo & PCB Caulk Abatement - South	40
Install Curtain Wall Window System - North	40
Demo & PCB Caulk Abatement - West	10
Install Curtain Wall Window System - East	8
Install Curtain Wall Window System - South	40
Install Curtain Wall Window System - West	8
Roof	
Demo Existing Roof & Protect - PH Roof	10
SBS Modified Roofing System - PH Roof	20
Demo Existing Roof & Coping - Canopy	10
Demo Existing Roof & Protect - Main Roof	10
Roof Coping & Terminations - PH Roof	10
SBS Modified Roofing System - Main Roof	30
SBS Modified Roofing System - Canopy	10
Coping & Terminations - Canopy	5
Roof Coping & Terminations - Main Roof	10



SECTION 013113

PROJECT SCHEDULE

PART 1 GENERAL

1.01 RELATED REQUIREMENTS AND INFORMATION SPECIFIED ELSEWHERE

A. Preliminary Project Schedule: Document 003113

B. Summary of Work: Section 011000.

C. Administrative Requirements: Section 013000.

D. Project Meetings: Section 013119.

1.02 SUMMARY

A. Section includes administrative and procedural requirements to plan, schedule, and document the progress of the Project, and predict and prevent delays to established milestones during performance of the Work, including the following:
1. Critical Path Method schedule and reports
2. Material location and delivery reports
3. Field condition reports
4. Special reports
5. Change management

1.03 DEFINITIONS

A. Project: Work to be performed as part of one or more Contracts.

B. Schedule: A comprehensive leveling of necessary procedural tasks, the sequencing of those tasks, and the incorporated resource allocation required to successfully complete the Work by the Project completion date.

C. Activity: An intricate part of the Work that can be identified and measured for planning, coordinating, monitoring, and controlling the project.

D. Milestone: A significant start or finish to Work on the Project defined by both the Director's Representative and the Contractors.

E. Bid Milestones and Proposed Project Schedule: Milestones included in the Contract Documents by the Director's Representative to be utilized by the Contractors in developing the Preliminary and Baseline Project Schedule.

F. CPM: Critical Path Method is a scheduling process used to plan and coordinate the Project, arranging activities based on logical relationships in order to create a network diagram of interconnected procedures.

G. Baseline Project Schedule: The initial CPM schedule for completion of the Work of the Project in accordance with the Contract duration, approved by the Director's Representative and Contractors, and completed by the Schedule Preparer.

1. Following the initial update to the Baseline Project Schedule, including but not limited to starts, finishes, activity percent complete, logic adjustments, or duration amendments, as agreed upon at the Project Schedule meeting by the Contractors and the Director's Representative, the current updated schedule rendering will be defined as the Project Schedule.
2. The Baseline Project Schedule will remain unaltered as a tool to measure progress outlined and anticipated during the Project Schedule Definition meeting.

H. PDM: Precedence Diagram Method utilizes standard CPM calculations creating and interdependent logical relationship between activities and a dependent path from project inception through completion.

I. Float: The measure of latitude in starting and/or completing an activity without impeding on the successful realization of Project milestones.

1. Float time is not for the exclusive use or benefit of either the State or the Contractors, but is a jointly owned expiring Project resource; float is available as needed to meet scheduled milestones and Project completion.
2. Recognizing float within an activity, or chain of activities, does not equate with the Contractors ability to delay progress or completion of an activity.

J. Critical Path: A progressing sequence of interdependent activities within the schedule network containing zero (0d) total float and establishing the minimum Project Substantial and Physical Completion duration.

K. Resource: Any labor, material, or equipment, shared or exclusive, required for the completion of an Activity or the Work, which recognizes an associated cost.

1.04 SCHEDULE PREPARER – Director's Representative

A. The Director's Representative will provide a representative responsible for the preparation of the Preliminary Project Schedule, the Baseline Project Schedule and all required updates and reporting for the Project Schedule.

1.05 DEVELOPMENT OF THE PROJECT SCHEDULE

A. The Director's Representative will schedule the Project Schedule Definition Meeting as outlined in Section 013119. The meeting will include a review of the Schedule Preparer's initial project schedule. The discussions and mutual agreements reached at this and subsequent meetings form the basis for the CPM Preliminary Project Schedule and the development of the CPM Project Schedule, defined as the Baseline Project Schedule, and will be used for coordinating, scheduling, and monitoring the Work of all related contracts.

1. During the period between Project Award and the execution of the CMU-01 Agreement by the Contractors and the Director's Representative, the Contractors will comply with the Preliminary Project Schedule and will be responsible for providing the necessary resources to complete the Work as defined by the Director's Representative and Schedule Preparer.

B. The Schedule Preparer is to complete the Baseline Project Schedule with information provided by the Contractors and Director's Representative and submit to the Contractors and Director's Representative for review and approval.

C. The Contractors will sign the CMU 01 Agreement form (blank included in Document 013113) within 5 calendar-days of final Baseline Project Schedule review and approval by the Director's Representative. Failure to develop and submit the Baseline Project Schedule and sign the CMU 01 Agreement form will not absolve the Contractors of the scheduling requirements. The Contractors will be required to provide the necessary resources, at no additional charge to the State, to complete the Project in the manner defined by the Schedule Preparer acting as the Director's Representative.

D. Preliminary or Baseline Project Schedules recognizing early completion will be reviewed by the Director's Representative prior to acceptance of the Preliminary or Baseline Project Schedule.

1.06 UPDATING THE PROJECT SCHEDULE

A. Bi-weekly Project Schedule meetings will be held to update the actual start, actual finish, and the percent complete of activities being performed for the purpose of determining the status of construction progress on the updated Project Schedule.

1. During the progress of Work on the Project, the Contractors are required to document actual start, actual finish, and activity percent complete on a daily basis.
2. The Contractors and Director's Representative will review the documented progress at the Project Schedule meeting prior to incorporating the information on the Project Schedule.
3. Any Contractor failing to progress their Work as outlined in the updated Project Schedule will be informed of their deficiencies and, if required, be requested to provide a recovery option.

B. The Contractors will furnish all schedule information requested by the Director's Representative**.** Any Contractor who fails to furnish accurate information during the Project Schedule meeting will be required to provide all resources necessary to execute the updated Project Schedule based on progress information documented and recorded by the Director's Representative.

C. Project Schedule updates recognizing early completion will be reviewed by the Director's Representative prior to acceptance of the Project Schedule update.

1.07 MAINTAINING SCHEDULE

A. Perform the Work in accordance with the Project Schedule and provide resources necessary to maintain the progress of activities as scheduled so that no delays are caused to other Contractors engaged in the Work.

1. Should any Contractor fail to maintain progress according to the Project Schedule, or cause delay to another Contractor, that Contractor shall provide such additional manpower, equipment, additional shifts, or other measures, at their own cost, to bring their operations back on schedule.
2. Performing activities as part of the Work out of sequence with the Project Schedule is not permitted unless written approval is obtained from the Director's Representative prior to commencement.

1.08 RECOVERY SCHEDULE

A. CPM Recovery Schedule: When periodic updates indicate the Work is 7 or more calendar-days behind the approved Baseline Project Schedule's Substantial or Physical Completion dates, the Contractors will present recovery options to the Director's Representative to be incorporated into an updated Project Schedule by the Schedule Preparer; these include, but are not limited to, allocating additional resources for activity duration reduction, modifying network logic, or revising activity sequences.

B. Any Contractor failing to furnish recovery options to the Director's Representative for a CPM Recovery Schedule within 10 calendar-days subsequent to the monthly Project Schedule update will be required to provide all resources necessary to execute an updated Project Schedule defined by a the Director's Representative and updated by the Schedule Preparer.

C. Alterations to the Project Schedule by a CPM Recovery Schedule will require the approval of the Contractors and the Director's Representative.

D. Approved alterations to the Project Schedule by a CPM Recovery Schedule, will constitute the updated Project Schedule.

1. The updated Project Schedule following the implemented CPM Recovery Schedule will be recognized as the primary baseline schedule for reporting. The Baseline Project Schedule will be retained as a secondary baseline schedule and will be utilized to measure progress against the alterations.

E. A CPM Recovery Schedule recognizing early completion will be reviewed by the Director's Representative prior to acceptance of the Project Schedule update.

1.09 SCHEDULE RELATED REPORTING

A. Detailed Estimate: Refer to Section 013000.

B. Application For Payment (BDC 169): Prepare forms and support documentation in a manner compatible with the Detailed Estimate. Show costs in support of activities progressed in the Project Schedule update reports. The percent complete amounts must reflect accepted work-in-place as agreed upon by the Director's Representative and documented in the updated Project Schedule and in Project Schedule update reports.

1. If any Contractor fails or refuses to provide information for updating the Project Schedule, or if in the judgment of the Director's Representative the information provided does not accurately reflect the ongoing Work of the Project, the Contractor will be deemed not to have provided the information necessary for progress payments and payments may be withheld.

1.10 RESOURCE ASSIGNMENTS

A. Resources recognizing the total cost associated with all efforts necessary for the completion of a unique activity within the schedule network, and the cumulative cost of the Work of the Project, are to be assigned concordant with the Detailed Estimate submitted by the Contractors and approved by the Director's Representative. All Contractors are responsible for providing the information necessary for assigning resources for the Preliminary, Baseline, and Project Schedule to the Schedule Preparer; all Contractors are responsible for reviewing the information prior to approval.

1. Any Contractor who fails to timely and accurately furnish information necessary for resource assignment to the Schedule Preparer during the development of the Preliminary, Baseline and Project Schedule, or who fails to review the Preliminary, Baseline, or Project Schedule and notify the Director's Representative of any errors within 2 calendar days of submission, will be required to provide all resources necessary to execute the Preliminary, Baseline, or Project Schedule as developed by the Schedule Preparer and approved by the Director's Representative.

PART 2 PRODUCTS

2.01 SCHEDULING SOFTWARE

A. Scheduling Software: Schedule is to be prepared utilizing the template provided by the Director's Representative and developed specifically to interface with the State's schedule program portfolio.
   1. Utilize Oracle Primavera P6© PPM or EPPM operating system.

2.02 SCHEDULE UPDATE REPORTS

A. The Schedule Preparer is to submit update reports in the format required by the Director's Representative as defined during the Project Schedule Meeting. These reports include but are not limited to, the updated P6© file, Gantt charts, logic reports, look-aheads, change management reports, and a Narrative Statement.

B. Reports are to be provided within 5 calendar-days of the Project Schedule Meeting to allow the Director's Representative and the Contractors time for review of the information for accuracy and prior to approval of progress payments.

PART 3 EXECUTION (Not Used)

END OF SECTION

NEW YORK STATE OFFICE OF GENERAL SERVICES
DESIGN AND CONSTRUCTION GROUP

CMU-01 AGREEMENT

PROJECT NO. _____

PROJECT NAME: _____

REPORT DATE: _____

REPORT NAME(S): _____

_____

_____

_____

It is agreed that the Baseline Project Schedule defined by the above listed computer reports has been reviewed and is accepted for use in coordinating, scheduling, and monitoring the work of all related contracts.

FOR THE ELEVATOR CONTRACTOR: _____ DATE: _____

FOR THE CONSTRUCTION CONTRACTOR: _____ DATE: _____

FOR THE ELECTRICAL CONTRACTOR: _____ DATE: _____

THE DIRECTOR'S REPRESENTATIVE: _____ DATE: _____

SECTION 013119

PROJECT MEETINGS

PART 1 GENERAL

1.01 INITIAL JOB MEETING

A. The Director's Representative will notify all parties concerned of the time and place of the initial job meeting. The meeting will be conducted by the Director's Representative. The agenda will be based on the Format for Initial Job Meeting, Form BDC 311, a copy of which will be transmitted to the Contractor prior to the meeting. All items on the format, as they apply, will be discussed.

1. A copy of the Facility's current Visitor Identification Policy will be distributed.

1.02 PROJECT SCHEDULE DEFINITION MEETING

A. The initial Project Schedule Definition meeting will be held within 15 calendar-days of Project award. The Director's Representative will notify all parties concerned of the time and place of the meeting. The meeting will be conducted by the Director's Representative for the purpose of providing information for the development of the Baseline Project Schedule; and the required reports and reporting formats to be submitted by the Schedule Preparer for the duration of the Project.

B. The Schedule Preparer will develop the Baseline Project Schedule according the requirements in Section 013113 and based on the discussions and mutual agreements reached at the Project Schedule Definition meeting.

1. A bi-weekly Project Schedule meeting will be held to update the Project Schedule. A qualified Contractor's Representative for each Contractor will be required to attend and provide updated information as outlined in Section 013113.

1.03 WEEKLY JOB MEETINGS

A. Unless otherwise directed, job meetings will be held every week at a time and place agreed upon by the Director's Representative, the Contractor, and the Facility Representative. Other interested parties may attend when needed, e.g., subcontractors and representatives from suppliers, public utilities, and local government. The meetings will be conducted by the Director's Representative for the following purposes:

1. Review job progress, quality of Work, and approval and delivery of materials.
2. Identify and resolve problems which impede planned progress.
3. Coordinate the efforts of all concerned so that the project progresses on schedule to on time completion.

4. Maintain sound working relationships between the Contractors and the Director's Representative, and a mutual understanding of the project requirements.
5. Maintain sound working procedures.

1.04 PRE-INSTALLATION MEETINGS

A. Pre-installation meetings will be held to review the specifications, Project Schedule, drawings and approved submittals in preparation for start of a particular activity.

B. The meetings shall be attended by the Director's Representative, a Design Representative and the Contractor's Representative including installer and representatives of manufacturers & fabricators involved in or affected by the installation and its coordination with other materials/trades.

C. The Director's Representative shall schedule the meetings prior to the start of the work. The goal of these meetings is to ensure the quality of construction and to maintain the schedule.

1.05 ATTENDANCE

A. A Contractor's Representative shall be required to attend all meetings scheduled by the Director's Representative.

B. The Contractor's Representative shall be a competent supervisor familiar with the work and have authority to act for the Contractor.

C. If the Contractor's Representative fails to attend 2 scheduled meetings without prior approval, the contractor will be directed to replace the current Contractor Representative. Further incidents of non-attendance by the Contractor's Representative, will form the basis for review of the Contractor's responsible bidder status.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 019113

GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies the Contractor's responsibilities in the commissioning process. Commissioning requires the participation of the Contractor to ensure that all systems are operating in a manner consistent with the Contract Documents.

B. The commissioning process integrates the traditionally separate functions of system documentation, equipment startup, performance testing and training. Commissioning during the construction phase is intended to achieve the following specific objectives in accordance with the Contract Documents:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

C. The systems and equipment to be commissioned are listed in this Section. The Contractor's general commissioning requirements and coordination are detailed in this Section. Specific requirements for commissioning of each system or piece of equipment are detailed in the specification Section for the individual systems or pieces of equipment. A detailed description of the overall commissioning process is included in the appendix.

D. The commissioning process does not reduce the responsibility of the Contractor to provide finished and fully functional systems and equipment.

1.02 SYSTEMS TO BE COMMISSIONED

A. The following systems will be commissioned in this project. Specific requirements for the commissioning of each system are included in the related specification Section.
   1. HVAC Work Contract:
      a. Air Handling Units
      b. Temperature Control System
      c. Exhaust Systems / Return Fans
      d. Unit Heaters
      e. Unit Ventilators
      f. Pumps
      g. Finned Tube Radiation
      h. Split Systems
      i. Variable Air Volume Boxes
      j. Variable Speed Drives
      k. Converters
      l. Hot Water Unit Heaters

2. Electrical Work Contract:
   a. Lighting Fixtures
   b. Lighting Controls and Occupancy Sensors
3. Plumbing Work Contract
   a. Pumps

B. Example Commissioning Documents: Example Pre-Functional Checklists and Functional Test Procedures are provided following the specification Sections of equipment and systems that are scheduled to be commissioned. These documents are included to provide the Contractor examples of the type of documentation that will be required as part of the commissioning process. Equipment and system specific Pre-Functional Checklists and Functional Test procedures will be developed by the Commissioning Authority based on approved submittals, and then will be provided to the Contractors.

1.03 DEFINITIONS

A. Acceptance Phase: Phase of construction after startup and initial checkout when functional performance tests, O&M documentation review and training occurs.

B. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes in accordance with the Contract Documents.

C. Commissioning authority (CA): An independent agent responsible for the direction and coordination of the commissioning activities. The CA responsible to the Director's Representative.

D. Commissioning Plan: An overall plan that provides the structure, schedule and coordination planning for the commissioning process.

E. Commissioning Team: The members of the commissioning team consist of the Commissioning Authority, the Director's Representative, the Contractor, the architect and design engineers. The owner and the building or plant operator/engineer also may be members of the commissioning team.

F. Deferred Functional Tests: Functional tests that are performed after substantial completion, due to partial occupancy, seasonal requirements, design or other site conditions that prevent the test from being performed prior to substantial completion.

G. Deficiency: A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents.

H. Factory Testing: Testing of equipment on-site or at the factory by factory personnel.

I. Functional Performance Test (FT): Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The CA develops the functional test procedures in sequential written form. The CA coordinates, oversees and documents the

actual testing. The Contractor performs the functional tests. FTs are performed after prefunctional checklists and startup are complete.

J. Phased Commissioning: Commissioning that is completed in phases (by floors, for example) due to the size of the structure or other scheduling issues, in order to minimize the total construction time. Commissioning shall be provided for each phase according to the schedule for that phase. Some repetition and/or remobilization may be required.

K. Prefunctional Checklist (PC): A list of items to inspect and component tests to conduct to verify proper installation of equipment prior to initiating functional testing.

L. Startup: The initial starting or activating of dynamic equipment, including executing prefunctional checklists.

1.04 COORDINATION

A. The CA is hired by, and works for, the Director. The CA directs and coordinates the commissioning activities. All members of the commissioning team shall work together to fulfill their contractual responsibilities and meet the objectives of the Contract Documents.

B. The CA will work with the Contractor according to established protocols to schedule the commissioning activities. The Contractor shall integrate all commissioning activities into the approved progress schedule. All parties will address scheduling problems and make necessary notifications and changes in a timely manner in order to expedite the commissioning process and maintain the approved progress schedule.

1.05 COMMISSIONING PROCESS

A. Commissioning Plan. The commissioning plan provides guidance in the execution of the commissioning process. Following the initial commissioning scoping meeting the CA will update the plan which is then considered the “final” plan, although it may be revised as the project progresses.

B. Commissioning Process. The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur. A more detailed description of the commissioning process can be found in the Appendix.

1. Commissioning during construction begins with a scoping meeting conducted by the CA where the commissioning process is reviewed with the Commissioning Team.
2. Additional meetings will be required throughout construction, scheduled by the Director’s Representative, to plan, scope, coordinate, and schedule future activities and to resolve problems. When possible, commissioning meetings will be scheduled immediately following construction meetings.
3. Equipment documentation is submitted to the CA during the submittal process, including detailed start-up procedures.
4. The CA works with the Contractor to develop startup activity lists and startup documentation. The CA provides prefunctional checklists to be completed by the Contractor during the startup process.
5. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and intersystem levels.

In each case prefunctional checklists are completed, submitted, and approved before functional testing begins.

6. The Contractor executes and documents the prefunctional checklists, and provides notification to the Director's Representative and the CA. The Contractor performs startup and initial checkout. The CA documents that the checklists and startup were completed according to the approved plans.
7. The CA develops specific equipment and system functional performance test procedures. The Contractor reviews the procedures and submits suggestions or comments. Procedures are finalized by the CA.
8. The procedures are executed by the Contractor, under the direction of the CA.
9. Items of non-compliance in material, workmanship, or setup are corrected and retested at the Contractor's expense. The Contractor is responsible for providing all resources, manpower, and materials necessary to rectify deficiencies as per requirements of the approved schedule.
10. The O&M documentation prepared by the Contractor is reviewed for completeness by the CA.
11. Commissioning is completed before Substantial Completion.
12. The CA reviews, pre-approves and coordinates the training provided by the Contractor and verifies that is was completed.
13. Deferred testing is conducted, as specified or required.

1.06 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor's commissioning responsibilities are as follows (all references apply to commissioned systems and equipment only):

1. Construction and Acceptance Phase:
   a. Attend the commissioning scoping meeting and other necessary meetings scheduled by the Director's Representative to facilitate the commissioning process.
   b. Facilitate the coordination of the commissioning work by the CA, and with the CA ensure that commissioning activities are being scheduled into the approved progress schedule.
   c. Provide detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, factory test reports, and full warranty information, including all responsibilities of the Director to keep the warranty in force. The installation, start-up and checkout materials that are actually shipped with the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the CA. The CA may request further documentation necessary for the commissioning process.
   d. In each purchase order or subcontract written, include requirements for submittal data, O&M data, commissioning tasks and training.
   e. Ensure that all subcontractors execute their commissioning responsibilities according to the Contract Documents and approved progress schedule.
   f. Assist in the process of writing detailed test procedures by clarifying the operation and control of commissioned equipment.
   g. Review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.
   h. Develop a full start-up and testing plan using manufacturer's start-up procedures and the prefunctional checklists from the CA for all

commissioned equipment. Submit to the CA for review and approval prior to startup.

i. During the startup and initial checkout process, execute all portions of the prefunctional checklists for all commissioned systems and equipment. Verify that system installations include all ports, gages, thermometers, access doors, valves, etc., required for specified functional performance testing.

j. Provide all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment.

k. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CA.

l. Address incomplete Work before functional performance testing.

m. Provide skilled technicians to execute startup of equipment and to execute the functional performance tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

n. Provide skilled technicians to perform functional performance testing under the direction of the CA for specified equipment. Provide Manufacturer's Representative as required and as specified in the Specification. Assist the CA in interpreting the monitoring data, as necessary.

o. Correct deficiencies (differences between specified and observed performance) as directed by the Director's Representative.

p. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions. Provide a copy of the O&M manuals and submittals of commissioned equipment to the CA for review and approval.

q. Provide training as specified.

r. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.

2. Warranty Period:

a. Execute seasonal or deferred functional performance testing in accordance with the specifications

b. Correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

A. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Contractor.

B. Specified special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment shall be provided by the Contractor, and turned over to the facility at the completion of the Work.

C. Datalogging equipment and software required to test equipment will be provided by the Contractor, but shall not become the property of the Director's Representative.

D. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. All equipment shall be calibrated according to the manufacturer's recommended intervals. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.01 MEETINGS

A. Scoping Meeting. Prior to the commencement of construction, the CA will schedule, plan and conduct a commissioning scoping meeting with the Commissioning Team.

B. Miscellaneous Meetings. Other meetings will be planned and conducted by the CA as construction progresses. These meetings will cover coordination, deficiency resolution and planning issues with the Contractor, appropriate sub-contractors and suppliers, the Owner's Representative, and the Director's Representative.

3.02 START-UP, PREFUNCTIONAL CHECKLISTS, AND INITIAL CHECKOUT

A. Prefunctional checklists and initial checkout shall ensure that the equipment and systems are hooked up and operational. Each piece of equipment receives full prefunctional checkout. No sampling strategies are used. The prefunctional testing for a given system must be successfully completed prior to formal functional performance testing of systems or equipment.

B. Start-up and Initial Checkout Plan. The CA shall assist the commissioning team members responsible for startup of any equipment in developing detailed start-up plans for all equipment. The primary role of the CA in this process is to ensure that there is written documentation that each of the manufacturer's recommended procedures have been completed.

C. Execution of Prefunctional Checklists and Startup.
1. Four weeks prior to startup, the Contractor shall schedule startup and checkout with the Director's Representative.
2. The Contractor shall execute startup and provide the CA with a signed and dated copy of the completed start-up and prefunctional tests and checklists.

3.03 FUNCTIONAL PERFORMANCE TESTING

A. Development of Test Procedures. Using the requirements in the specifications, the CA shall develop specific test procedures and forms to verify and document proper operation of each piece of equipment and system. The Contractor shall provide assistance to the CA in developing the procedures. Prior to testing, the CA shall provide a copy of the test procedures to the Contractor who shall review the tests for feasibility, safety, equipment and warranty protection.

B. Functional performance testing shall document that each system is operating in accordance with the Contract Documents. During the testing process, areas of deficient performance shall be identified. Deficiencies shall be corrected by the Contractor and functional testing shall be re-scheduled. The Contractor shall be responsible for all costs associated with re-testing for functional performance.

C. Each system shall be operated through all modes of operation. Proper responses to such modes and conditions as power failure, freeze condition, low oil pressure, no flow, equipment failure, etc. shall also be tested.

D. Test Methods. Each function and test shall be performed under conditions that simulate actual conditions as closely as possible. The Contractor shall execute the test and shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions. At the completion of the test, the Contractor shall return all building equipment and systems affected by these temporary modifications to their pre-test condition.

3.04 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall compile and prepare commissioning documentation for all equipment and systems and include this information in the O&M manuals.

3.05 TRAINING

A. The Contractor shall be responsible for coordinating, scheduling, and documenting that all required training has been completed successfully.

B. The Contractor shall have the following training responsibilities:
1. Provide a training plan two weeks before the planned training.
2. Provide comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of equipment.
3. Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment.
4. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
5. Training shall include:
   a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.
   b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, and any emergency procedures.
   c. Discussion of relevant health and safety issues and concerns.
   d. Discussion of warranties and guarantees.
   e. Common troubleshooting problems and solutions.
   f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
   g. Discussion of any peculiarities of equipment installation or operation.

3.06 DEFERRED TESTING

A. Unforeseen Deferred Tests. If any check or test cannot be completed due to project conditions, required occupancy condition or other deficiency, execution of checklists and functional testing may be delayed upon approval of the Director's Representative. These tests will be conducted in the same manner as the seasonal tests as soon as possible.

B. Seasonal Testing. Seasonal testing (tests delayed until weather conditions are closer to the system's design conditions) shall be completed as part of this contract. Make any final adjustments to the O&M manuals and as-builts resulting from information gained during testing.

END OF SECTION

SECTION 102226

FOLDING SLIDING PARTITIONS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Metal Fabrications: Section 055000.

B. Rough Carpentry: Section 061000.

C. Lock Cylinders: Section 087100.

1.02 SUBMITTALS

A. Shop Drawings: Show fabrication details and connections to adjacent Work.
   1. Detail Drawings: Indicate dimensioning, direction of swing, configuration, swing panels, typical head jamb, side jambs and sill details, type of glazing material, and handle height.

B. Product Data: Catalog sheets, specifications and installation instructions for each type of folding partition and accessory specified.

C. Samples:
   1. Manufacturers standard color samples.

D. Quality Control Submittals:
   1. Certifications: Certifications by testing laboratories for STC rating and/or Fire Hazard Classification.

E. Contract Closeout Submittals:
   1. Operation and Maintenance Data: Deliver two copies covering the installed products, to the Director's Representative.
      a. Include manufacturer's recommended cleaning materials, application methods, and precautions in the use of materials and methods which would damage the partition surface.

1.03 QUALITY ASSURANCE

A. Sliding partitions, accessories and trim shall be the product of a single manufacturer.

B. Manufacturer: Provide complete, precision built, engineered, pre-fitted unit by a single source manufacturer with at least 25 years experience in providing folding/sliding door systems for large openings in the North American market.

C. The manufacturer must have a quality management system registration to the ISO 9001: 2008 standard.

D. Performance Requirements: Provide from manufacturer that has independently tested typical units with the following minimum results:

E. Operation / Cycling Performance of Swing Panel: Provide system that when tested according to AAMA 920, there was no failure after 500,000 cycles (requirement for AW Performance Class).

PART 2 MATERIALS

2.01 FOLDING SLIDING PANEL PARTITIONS

A. Nan Wall Systems, Inc ; Product HSW45 or Approved equal.
   1. CRL Aluminum.
   2. Avanti Systems

2.02 MATERIALS

A. Frame and Panels: From manufacture's standard profiles, provide head and track, side jambs and panels with dimensions shown on drawings:
   1. Provide panels with horizontal mullions at specified heights form the bottom of panel
   2. Provide standard bottom rail
   3. Aluminum Extrusion: Extrusions with normal thickness of .078"
   4. Aluminum Finish: As selected from manufactures standard finishes.
   5. Glass: ¼" tempered safety glazing

B. Sliding & Swinging Hardware: Provide manufacturer's standard hardware.
   1. For each sliding panel, provide 2 two wheeled, toughened polyamide covered steel unidirectional sliding panel carriers with a one wheeled, polyamide guide roller that are attached to the panels with steel rods. Maximum carrying capacity of two carriers on a panel to be 220 lbs (100 kgs).
   2. For swing panels, provide manufacturer's standard zinc die cast powder coated hinges that are the closest match to finish of frame and panels [OR stainless steel hinges]. Provide stainless steel security hings pins with set screws.
   3. Adjustment: Provide system capable of specified amount of adjustments without removing panels from tracks.

2.03 MISCELLANEOUS MATERIALS

A. Track Assembly: Manufacturer's standard top supported galvanized steel or extruded aluminum track and trolley assembly sized to suit dimensions and operation application.
   1. Center meeting bi-parting units, with manufacturers standard center meeting molding or strike.
   2. Side stacking units.

B. Carriers: Manufacturer's standard ball bearing trolley assemblies.

C. Sound Seals: Manufacturer's standard vertical, horizontal top and horizontal bottom seals.
   1. Enclosure: NEMA 3R, surface mounted unless otherwise indicated.
   2. Manufacturer: Allen-Bradley Security Push Button Station 800H-NX22A.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings are properly prepared. Do not install the Work of this Section until conditions are satisfactory.

3.02 INSTALLATION

A. Install the Work of Section in accordance with the manufacturer's printed instructions, except as shown or specified otherwise.
   1. Field connections and fasteners shall be as recommended by the partition manufacturer for the conditions, unless otherwise indicated.
   2. Install bracing and supports as necessary to rigidly secure partition operating equipment and appurtenances.

3.03 FIELD QUALITY CONTROL

A. Testing: Test all functions and features of each partitions.

3.04 ADJUSTING AND CLEANING

A. Lubricate folding partitions and operating equipment, and adjust as required for smooth and free operation.

B. Clean surfaces that have been soiled performing the Work.

END OF SECTION

Pre-Functional Checklist

Project: OGS Building #5 – OGS#44808

Project No. 8616327

PUMPS

1. Submittal / Approvals

Submittal. The above equipment and systems integral to them are complete and ready for functional testing. This pre-functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed.

Plumbing Contractor	Date	Construction Manager	Date

Pre-functional checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report
- If this form is not used for documenting, one of similar rigor shall be used
- Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off

Approvals. This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

Commissioning Authority	Date	Owner's Representative	Date

2. Requested Documentation Submitted

Equipment Tag--->	RP – 1	BP – 1	BP – 2	BP – 3
Manufacturer's cut sheets				
O&M Manuals				
Performance data				

3. Model Verification

Equipment Tag--->	RP – 1	BP – 1
Service	WH 1 & 2	Domestic
Manufacturer		
Model No.		
Serial No.		
Volts / Ph. / Hz		
Amps		
HP		
RPM		
GPM		
Head-ft		
Motor Efficiency		
VFD		
Manufacturer		
Model		
HP rating		
Voltage rating		

Equipment Tag--->	**BP – 2**	**BP – 3**
Service	Domestic	Domestic
Manufacturer		
Model No.		
Serial No.		
Volts / Ph. / Hz		
Amps		
HP		
RPM		
GPM		
Head-ft		
Motor Efficiency		
VFD		
Manufacturer		
Model		
HP rating		
Voltage rating		

4. Physical Installation Check

No.	Equipment Tag--->	RP – 1	BP – 1	BP – 2	BP – 3
	General Installation				
1	Permanent labels affixed				
2	Mounting/support system and vibration isolation				
3	Stainless steel base and frame				
4	Flex vibration eliminator installed on suction and discharge of pump				
5	Factory and field alignment complete				
6	Factory and field alignment complete				
7	Temperature, pressure & flow gauges installed				
8	Flow sensor installed				
9	Triple duty valve or balance valve and shut off valve installed				
10	Valves installed in proper direction				
11	Valves properly labeled				
12	Strainer installed and clean				
13	Pump lubricated (checked by installer)				
14	Maintenance access acceptable for unit				
18	Clean up of equipment completed per contract documents				
	Piping				
19	Piping complete & properly supported				
20	No leaking apparent around fittings				
21	Piping type & flow direction properly labeled				
22	Piping insulated				
23	Pump casing insulated				
24	Piping system properly flushed				
25	Install a straight length of pipe before the section side of the pump: should be 5 times the diameter of the pipe				

No.	Equipment Tag--->	P – 1	P – 2	P – 3	P – 4
	Electrical and Controls				
26	Power disconnects in place and labeled				
27	The HOA switch provided				
28	Disconnect switch (tested)				
29	Electric wiring complete				
30	All electrical connections tight				
31	Proper grounding installed for unit				
32	Safeties in place and operable				
33	Starter overload breakers installed & correct size				
34	Control system interlocks hooked up & functional				
36	External control wiring must be run in a separate conduit away from all other input and output power wiring				
37	Motors: Premium efficiency verified				
	VFD				
38	VFD powered (wired to controlled equipment)				
39	VFD interlocked to control system				
40	Static pressure or other controlling sensor properly located and per drawings				
41	Static pressure or other controlling sensor calibrated				
42	Drive location not subject to excessive temperatures				
43	Drive location not subject to excessive moisture or dirt				
44	Drive size matches motor sizes				
45	Motor is rated for use with VSD's				
46	Shutdown interlocks between VSD & motor verified to be operational				
47	Separate conduit for VSD incoming power & outgoing motor leads				

5. Operational Checks

No.	Equipment Tag--->	RP – 1	BP – 1	BP – 2	BP – 3
1	The HOA switch properly activates and deactivates the unit				
2	Electrical interlocks - start / stop				
3	Direction of rotation correct				
4	Vibration & noise level acceptable				
5	No leaking apparent around fittings				

END OF CHECKLIST

Functional Test

Project: OGS Building #5 – OGS#44808

Project No. 8616327

PUMPS

Submittal: The equipment and systems integral have undergone functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas.

_____	_____	_____	_____
Plumbing Contractor	Date	Construction Manager	Date

Approvals: This filled-out checklist has been reviewed. Its completion is approved with exceptions noted below.

_____	_____	_____	_____
Commissioning Authority	Date	Owner's Representative	Date

1. Prerequisite Checklist

a. ____ The following have been started up and pre-functional checklists submitted and approved ready for functional testing

b. ____ All control system functions for this and all interlocking systems are programmed and operable per Contract Documents

c. ____ Piping system flushing complete

d. ____ Testing, Adjusting & Balance (TAB) complete and approved for the hydronic system

e. ____ All A/E punchlist items for this equipment corrected

f. ____ These functional test procedures reviewed and approved by installing contractor

g. ____ O&M manuals provided

h. ____ Sufficient clearance around equipment for servicing

2. Testing Procedures and Record

No	Sequence of Operation		Pass Y/N
1	**P – 1** Start pump. Check the volts, amperage, flow, and static pressure at the circulating pump. Amperage should be less than the rated amps Verify Lead/Lag operation is functioning with P-2	Rated _____ Volts _____ Amps [_____ ft. head] [_____ GPM] Volts T1-T2 _____ Amps T1 _____ Volts T2-T3 _____ Amps T2 _____ Volts T1-T3 _____ Amps T3 _____	
2	**P – 2** Start pump. Check the volts, amperage, flow, and static pressure at the circulating pump. Amperage should be less than the rated amps Verify Lead/Lag operation is functioning with P-1	Rated _____ Volts _____ Amps [_____ ft. head] [_____ GPM] Volts T1-T2 _____ Amps T1 _____ Volts T2-T3 _____ Amps T2 _____ Volts T1-T3 _____ Amps T3 _____	
3	**P – 3** Start pump. Check the volts, amperage, flow, and static pressure at the circulating pump. Amperage should be less than the rated amps Verify Lead/Lag operation is functioning with P-4	Rated _____ Volts _____ Amps [_____ ft. head] [_____ GPM] Volts T1-T2 _____ Amps T1 _____ Volts T2-T3 _____ Amps T2 _____ Volts T1-T3 _____ Amps T3 _____	

4	**P – 4** Start pump. Check the volts, amperage, flow, and static pressure at the circulating pump. Amperage should be less than the rated amps Verify Lead/Lag operation is functioning with P-3	Rated _____ Volts _____ Amps [_____ ft. head] [_____ GPM] Volts T1-T2 _____ Amps T1 _____ Volts T2-T3 _____ Amps T2 _____ Volts T1-T3 _____ Amps T3 _____	

END OF TEST

REVISED 12/2/13

Pre-Functional Checklist

Project: OGS Building #5 – OGS#44808

Project No. 8616327

BUILDING LIGHTING AND CONTROLS

1. Submittal / Approvals

Submittal. The above equipment and systems integral to them are complete and ready for functional testing. This pre-functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed.

Electrical Contractor	Date	Construction Manager	Date

Pre-functional checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- If this form is not used for documenting, one of similar rigor shall be used.
- Contractor's assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.

Approvals. This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

Commissioning Authority	Date	Owner's Representative	Date

2. Documentation Checks

Requested Documentation Submitted	
Manufacturer's cut sheets	
O&M Manuals	
Performance Data	

3. Installation Checks

No.	Installation Item	
1	Devices are installed per manufacturer’s instructions and specifications.	
2	Fixture mounting, location, supports, heights & clearances are per plans, specifications and manufacturer’s recommendations.	
3	Lighting control system installed per plans, specifications, and manufacturer’s recommendations.	
4	Switches, dimmers, and occupancy sensors are installed at correct height and have correct cover/escutcheon plate.	
5	All zone circuits and inputs are correctly wired, circuits labeled.	
6	Communications interconnection / interface are connected.	
7	All devices and metal raceways are properly grounded.	
8	Fixtures are plumb and level.	
9	Fixtures are coordinated with work of all other trades.	
10	Proper lamps are installed.	
11	Fixtures, lamps, reflectors and lens are clean.	
12	General appearance is good - no apparent damage.	
13	Equipment labels are affixed.	
14	Controlled components are labeled/tagged.	
15	Appropriate wiring used on electronic sensors.	
16	Service space and clearances for panel(s) in compliance with manufacturer.	
17	Environmental conditions according to manufacturer’s requirements.	

4. Operational Checks

1	Lighting control processor diagnostics performed.	
2	Lighting control communications interconnect checked.	
3	Ballasts are free from excessive noise.	
4	Emergency light batteries charged.	
5	Power is available to lighting control panel(s).	
6	Battery backup is in place and operable.	

5. Lighting Fixture Model Verification

Fixture Designation	Description	Fixture Manufacturer	Fixture Model	Wattage

Fixture Designation	Description	Fixture Manufacturer	Fixture Model	Wattage

6. Specialty Lighting Component Model Verification

Fixture Designation	Description	Fixture Manufacturer	Fixture Model	Wattage
Exit Signs				
Battery Emergency Lighting				
Emergency Lamp Units				

7. Lighting Control System Component Verification

Lighting Control Component	Fixture Designation	Manufacturer	Model
Control Panel 1			
Control Panel 2			
Control Panel 3			
Control Panel 4			

END OF CHECKLIST

REVISED 12/2/13

Functional Test

Project: OGS Building #5 – OGS#44808

Project No. 8616327

BUILDING LIGHTING AND CONTROLS

Submittal: The equipment and systems integral have undergone functional testing. This functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas.

_____	_____	_____	_____
Electrical Contractor	Date	Construction Manager	Date

Approvals: This filled-out checklist has been reviewed. Its completion is approved with exceptions noted below.

_____	_____	_____	_____
Commissioning Authority	Date	Owner's Representative	Date

1. Prerequisite Checklist

a. ____ The building lighting and controls pre-functional checklist has been completed and approved and is ready for functional testing.

b. ____ All control system functions for this systems are programmed and operable per Contract Documents.

c. ____ All A/E punch list items for this equipment have been corrected.

d. ____ These functional test procedures were reviewed and approved by installing contractor.

e. ____ Safeties and operating ranges were reviewed.

f. ____ There is sufficient clearance around equipment for servicing.

g. ____ O&M manuals provided.

2. Lighting Controller Type: (Pick one)

____ Part of EMS

____ Separate PC system

____ Stand-alone controllers (give quantity)

____ Stand-alone integrated into EMS

3. Documentation:

Verify that full documentation of the controller is *permanently* on site and includes the following:

____ Specifications and features

____ List of loads and zones each relay controls attached

____ Contact number for additional assistance attached

____ Current written list of lighting controller schedules for all zones attached

____ Programming instructions attached

4. Verification of capabilities and performance:

Verify that the controller has the following features and capabilities: (check-mark denotes acceptance)

____ Programming capabilities via keypad or EMS interface

____ Back-up power supply (automatically recharged)

____ The controlling time clock is reading the appropriate time

5. Verification of capabilities and performance:

CRT No.	ROOM	CONTROL SCHEME	CRT No.	ROOM	COMMENTS:

CRT No.	ROOM	CONTROL SCHEME	CRT No.	ROOM	COMMENTS:

Day Type and Lighting Controller No.	Schedule of Lighting Controller (hour of day)		
	Area _____	**Area _____**	**Area _____**
Weekdays			
Saturday			
Sunday			
Fixtures/rooms excluded from lighting controller			
Lighting controller verification type			
No. of local override switches			
Override switches tested			

Testing Procedures and Record – Exterior

No.	Testing Procedure	Expected Response	Pass Y/N
1	Near dusk, observe exterior lights until they come ON	All exterior lights come on at dusk	
2	Before daylight in the morning, observe the lights ON. Wait until dawn.	When sufficiently light, observe lights shut OFF	

END OF TEST

REVISED 12/2/13

Pre-Functional Checklist

Project: OGS Building #5 – OGS#44808

Project No. 8616327

OCCUPANCY SENSORS

1. Submittal / Approvals

Submittal. The above equipment and systems integral to them are complete and ready for functional testing. This pre-functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed.

Electrical Contractor	Date	Construction Manager	Date

Pre-functional checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- If this form is not used for documenting, one of similar rigor shall be used.
- Contractor's assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.

Approvals. This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

Commissioning Authority	Date	Owner's Representative	Date

2. Requested documentation submitted

Manufacturer's cut sheets	
Performance data	
O&M manuals	

3. Model verification

Occupancy Sensors	Fixture Designation	Manufacturer	Model
Ceiling Mount: Infrared/Ultrasonic Sensor			
Infrared/Ultrasonic Wall Mounted Sensor			
Ceiling Mounted Photocell			

4. Installation Checks

	Check	
1	Installed where indicated and/or where directed in field.	
2	Test all installed wiring for opens and shorts.	
3	Check and verify that AC wiring and low voltage control wiring are installed in separate raceways.	
4	Verify proper operation.	
5	Verify that there aren't any obstructions affecting proper operation.	
6	Check and verify that the master station control buttons operate the correct lighting fixtures, a/v devices, etc.	
7	Adjust sensitivity so that controlled area is lighted when area is occupied.	
8	Adjust time delay so that controlled area is lighted for 5 minutes after occupant leaves area.	
9	For sensors that are equipped with light levels sensors, adjust light levels setting so that lights are off when there is 30 foot-candles of natural light	

END OF CHECKLIST

REVISED 12/2/13

Functional Test

Project: OGS Building #5 – OGS#44808

Project No. 8616327

OCCUPANCY SENSORS

Submittal: The equipment and systems integral have undergone functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This functional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas.

_____	_____	_____	_____
Electrical Contractor	Date	Construction Manager	Date

Approvals: This filled-out checklist has been reviewed. Its completion is approved with exceptions noted below.

_____	_____	_____	_____
Commissioning Authority	Date	Owner's Representative	Date

1. Prerequisite Checklist

a. ____ The Pre-Functional checklist is complete and the unit is ready for functional testing.

b. ____ All A/E punch list items for this equipment are corrected.

c. ____ Safeties and operating ranges have been reviewed.

d. ____ There is sufficient clearance around equipment for servicing.

e. ____ O&M Manuals provided

2. Testing Procedures and Record

ROOM	Verify occupancy sensors proper operation	ROOM	Verify occupancy sensors proper operation

ROOM	Verify occupancy sensors proper operation	ROOM	Verify occupancy sensors proper operation

END OF TEST

SECTION 265120

LIGHT EMITTING DIODE FIXTURES

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. General Commissioning Requirements: Section 019113.

B. Commissioning Process: Section AGCP in Appendix.

1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Shop Drawings; Show:
1. Details of fixture construction and finishes. Catalog cuts without required details will not be approved.
2. Fixture and accessory drawings (indicate scale).
3. For continuous pattern fixtures, indicate layout, provide field held dimensions, and individual section lengths and lamp quantities. Show details of connections, corners and extensions, end plates, and mounting. Include pendant or bracket locations and show remote transformers and drivers.
4. Provide as part of fixture shop drawings the lamp information clearly indicating lamp life at 80 percent lumen output, lamp wattage, initial and mean lumen output, color temperature, CRI, LED board operating temperature, and TCLP compliance, with total mercury content of lamp indicated. Luminaire performance data must be from independent testing of complete luminaire, and may not be extrapolated from lamp data performance.
5. Provide as part of fixture shop drawings the driver catalog cut sheet clearly indicating selection, type and quantity of lamps it operates, input and output wattage and voltage, and where applicable, dimming range. Provide list of compatible dimming switches.

C. Product Data:
1. Catalog sheets, specifications, and installation instructions.
2. For Down and Semi-down Lights Used for General Illumination: Submit photometric data by an independent testing laboratory. Show optical performance developed using methods of IES of North America as follows:
   a. Candlepower data presented graphically and numerically, in 10 degree increments. Develop data for up and down quadrants normal, parallel, and at 45 degree to lamp if light output is asymmetric.
   b. Zonal lumens stated numerically in 10 degree increments as above.

D. Samples:
   1. Finishes: Only when manufacturers not indicated on documents are submitting product for consideration as an equal to the specified product, submit 4 x 6 inch samples of each type of finish specified, on metal to be used.
   2. Fixtures: Provide working sample with product substitution requests for “or equal” products of manufacturers or catalog numbers not indicated on documents; deliver one sample fixture of each type requested to Designer's office: P. O. Box CN-5380, Princeton, NJ 08540-5380.
   3. Samples shall be complete with lamps, ballasts, cords and other accessories, ready for operation.
   4. After review and approval, transfer sample fixtures from Designer's office to job site for comparison with fixtures delivered for installation.

E. Quality Control Submittals:
   1. Certificates: Certify that each product meets or exceeds specified requirements.
   2. List of Installations for LED fixtures: If brand names other than those specified are proposed for use, furnish the name, address, and telephone number of at least 5 comparable installations which can prove the proposed products have operated satisfactorily for 1 year. The installations shall present a grand total of at least 5000 fixtures or drivers.

F. Commissioning Documents:
   1. Prefunctional checklists.
   2. Functional test procedures.

G. Contract Closeout Submittals:
   1. Warranty: Copy of specified warranty.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Protect fixtures from damage using appropriate material, cartons, plastic wrapping and other protective means. Protective covers and films shall remain on fixtures until construction reaches substantial completion.

1.04 WARRANTY

A. Manufacturer’s Warranty: Warrant fixture for three years from Date of Substantial Completion.

1.05 MAINTENANCE

A. Maintenance Material:
   1. Lamps: 5 lamps of each type used.
   2. Drivers: 5 of each type and size used.

1.06 COMMISSIONING – LIGHT EMITTING DIODE FIXTURES

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the light emitting diode fixtures. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment.

PART 2 PRODUCTS

2.01 COMPONENT DESCRIPTIONS

A. Driver:
   1. UL listed.
   2. Coordinate voltage and load size with fixture lamping.
   3. Clearly indicate maximum distance for remote mounted units.
   4. Provide thermal protection.

B. Lamps:
   1. Color temperature specified shall be uniform for all LED modules within like fixture types.
   2. Color rendering index shall be a minimum of 85.
   3. Replacement lamps shall be available from fixture manufacturer for a minimum of 20 years.
   4. Comply with TC2-46/ISO standards for LED intensity measurements.
   5. Comply with TC2-50 measurement for optical properties of LED clusters and arrays.
   6. Comply with TC2-58 measurement of LED radiance and luminance, and TC-63 optical measurement of high-power LEDs.

2.02 LED FIXTURE CONSTRUCTION

A. All LED fixture housings shall: Use a minimum 22 gauge sheet steel or 16 gauge sheet aluminum; have integral end plates and trim flanges to suit ceiling construction. Provide wire way covers with captive retainers to allow access to electrical components without use of tools.

B. Recessed LED down lights shall provide an accessible auxiliary junction box secured to mounting frame.

C. Fixture construction shall provide heat sink for LED board such that LED junction temperature rating is not exceeding.

D. Punch and form housings prior to finishing (post-paint).

E. Gaskets: Provide gaskets at face plates or frames of recessed fixtures which serve as ceiling trim and which allow interior access. Provide moisture seal gaskets at exterior locations and in other areas designated. Secure frames to fixture bodies to result in tight installation, without light leaks.

F. Ventilation: Provide ventilation openings of adequate size and quantity to permit operation of lamps and ballast without affecting rated output or life expectancy. Include wire mesh screens.

G. Finish:
1. Painted surfaces, except as noted otherwise in fixture descriptions, shall utilize manufacturer's standard metal pretreatment and baked or air dried, light stabilized enamel finish; acrylic, alkyd, epoxy, polyester or polyurethane. White finishes shall have minimum 85 percent reflectance.
2. Unpainted Interior fixtures' aluminum surfaces shall utilize a clear anodic coating, satin finish, except as noted otherwise in fixture descriptions.
3. Unpainted Exterior fixtures' aluminum surfaces shall utilize a clear anodic coating.

H. Reflectors: High-purity No. 12 aluminum reflector sheet, 0.047 inch (15 gage) or heavier if specified, free from fabrication or assembly damages. No exposed rivets, springs or other hardware after installation. Shape reflectors in modified elliptical or parabolic contour to produce no apparent brightness. Lamp image or any part of lamp shall not be visible in 45 degree zone. Reflector and baffle finish shall be first-quality "Alzak" anodized finish, of specular color as specified.

I. Lenses: Extruded 100 percent virgin acrylic, UV stabilized.

J. Mounting Accessories: Provide all necessary mounting accessories for each fixture compatible with various structural and field conditions encountered.

2.03 COVE MOUNTED LED FIXTURES

A. Type D: Linear, adjustable, continuous row wall grazer. Extruded aluminum trim with formed cold rolled 20 gauge steel back box housing. Highly relective formed aluminum reflector system.
1. Integral driver.
2. Lamp: 3500K, minimum 850 lumens/foot, LED.
3. Voltage: 277.
4. UL listed for damp locations.
5. Provide length as required for continuous row, including all required connectors and accessories.
6. Single circuit, not dimming.

7. Matte white finish.
6. Acceptable Manufacturers and Catalog Number:
   a. Pinnacle #EV3WG-35HO-XX-G1-277-1C-W
   b. Mark Architectural Lighting
   c. Amerlux

2.04 RECESSED LED FIXTURES

A. Type N: Recessed maximum 7-1/4 inches deep downlight with a nominal 6” x 6” square, aluminum reflector cone, clear iridescence free white flange with open center aperture. Fixture shall utilize LED cluster lamping, and integral 277V power supply non-dimmed driver.
   1. Integral driver.
   2. Lamp: 3500K, minimum 2000 lumens, LED.
   3. Voltage: 277.
   4. UL listed for wet locations.
   5. Coordinate fixture flange with ceiling construction.
   6. Acceptable Manufacturers and Catalog Number:
      a. Philips Lightolier #C6X6L1520-DL-35K-CL-W-C6X6L20-N-2.
      b. Atlantic Lighting
      c. Kenall Lighting

2.05 SURFACE LED FIXTURES

A. Type O: Marine grade die-cast aluminum baseplate, ADA compliant, full face round fixture, surface ceiling, integral photocell.
   1. Ballast: One 1-lamp.
   2. Lamp: 20 watt 2500K LED
   3. Voltage: 277.
   4. Manufacturers and Catalog Number:
      a. Kenall #MR13FL-PP-XX-20L35-277-BPC-SA
      b. Design Plan
      c. Lithonia.

B. Type P: Heavy duty die cast aluminum housed wall pack, integral cast aluminum heat sink, UL Listed for wet location, integral photocell.
   1. Ballast: One 1-lamp.
   2. Lamp: 20 watt 2500K LED
   3. Voltage: 277.
   4. Manufacturers and Catalog Number:
      a. Philips Widelight #GS2-08-U-STANDARD-049-4K-H3-PCB
      b. Daybrite
      c. Lithonia.

PART 3 EXECUTION

3.01 COORDINATION

A. Coordinate fixture mounting type with ceiling types and suspended ceiling grid profiles prior to submission of shop drawings. Notify Director's Representative of any discrepancies. Failure to do so will result in correction or fixture replacement at no additional cost to Director.

B. Coordinate locations of all fixtures shown on reflected ceiling plan with other trades. Coordination shall include confirmation of suspended grid systems as specified and shown on reflected ceiling plan; confirmation of required plenum clearances for fixtures with ductwork, piping and structural steel; in exposed areas, coordinate fixture locations, mounting heights, and supports for fixtures with ductwork, piping, and equipment. Provide shop drawing submittal showing any changes that result from this coordination, include in submittal the reason for change.

3.02 INSTALLATION

A. Install fixtures at locations indicated on plans.

B. Assemble, wire and install lighting fixtures, with lamps, in such manner to ensure correct operation.

C. Lighting fixtures weighing less than 50 pounds shall have, in addition to requirements specified, two 12 gage steel wire safety hangers connected from opposite diagonal ends of fixture housing to structure above. These wires may be slack. Refer to specification Section 260529 for fixture mounting hardware specification.

D. Ground entire fixture to building grounding system.

E. Surface Mounted Fixtures:
   1. Attach surface-mounted lighting fixtures to ceiling system with positive clamping devices that completely surround supporting members. Attach safety wires between clamping device and adjacent ceiling hanger or to structure above. In no case shall fixture load exceed design carrying capacity of supporting member.
   2. Pierce ceiling material for hangers and outlet boxes as required.
   3. Do not remove ceiling material above surface mounted fixtures.

F. Recessed Fixtures:
   1. Note that specifications for recessed fixtures generally do not include mounting accessories, and that each fixture type may be used in several different ceiling types. Verify mounting details for each space; provide correct fixture flange mounting accessories for each condition.
   2. Attach fixtures to suspension system following NEC, provide independent fixture support.
   3. Support downlights and exit signs with rails spanning between runners of suspension system.

4. Support down lights in metal pan and gypsum board ceilings from plaster frames.
5. Center fixtures in acoustical tile unless shown otherwise.

J. Relamping, Cleaning and Adjusting:
1. Replace failed lamps immediately prior to occupancy.
2. Replace audible drivers prior to occupancy.
3. Clean lenses, reflectors and louvers of fingerprints, paint splatters, dirt and debris in accordance with manufacturer's instructions. Do not scratch or damage finish.
4. Touch up damages to painted finishes.

END OF SECTION

SECTION 265300

EXIT LIGHT FIXTURES

PART 1 GENERAL

1.0 COMMISSIONING – EXIT LIGHT FIXTURES

A. Provide commissioning as described in Specification Section 019113 and Commissioning Process Appendix. Contractor shall be responsible to perform the following:
   1. Verify and document that applicable equipment and systems are installed according to the manufacturer's recommendations, contract requirements, and industry standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of equipment and systems.
   3. Verify and document that O&M documentation is complete.
   4. Verify and document that the Facility operating personnel are properly trained.

B. Contractor shall complete Pre-functional Checklist and perform Functional Testing of the exit light fixtures. Pre-functional Checklist and Functional Test forms serve as an example of the work required to be completed. Forms will be modified as required to align with submitted equipment.

1.01 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittals Requirements" in Section 013300 does not apply to this Section.

B. Product Data: Catalog sheets, specifications and installation instructions.

C. Samples: One of each product if different from Company or catalog number specified.

1.02 QUALITY ASSURANCE

A. List of Installations: If brand names other than those specified are proposed for use, furnish the name, address, and telephone number of at least 5 comparable installations which can prove the proposed products have operated satisfactorily for one year.

PART 2 PRODUCTS

2.01 EXIT LIGHT FIXTURES

A. Type X1/X2: Exitronics #ILX-R-EM-WH, Chloride, Con-Tech Lighting or

approved equal.

1. White background with red lettering on thermoplastic housing.
2. Directional arrows where indicated on drawings.
3. Wall or ceiling mounted as indicated on plans (universal mount).
4. Single or double face as indicated on plans.
5. Nicad battery.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this Section in accordance with the manufacturer's printed instructions.

END OF SECTION

APPENDIX

COMMISSIONING PROCESS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Document describes the overall commissioning process and is provided for information only. Commissioning requires the participation of all members of a Commissioning Team as described in this Document. The goal of Commissioning is to ensure that all systems are operating in a manner consistent with the Contract Documents. Each contractor designated as responsible for a commissioned system shall be familiar with all parts of this Document and the responsibilities that are required of each contractor as relates to all other Commissioning Team members. Each contractor shall be responsible for following a Commissioning Plan to be issued by the Commissioning Agent and shall execute all Commissioning responsibilities assigned to them in this and all other related Contract Documents.

1.02 COMMISSION TEAM AND COMMISSIONING TERM DESCRIPTIONS

A. Architect / Engineer (A/E): The prime consultant (architect) and sub-consultants who comprise the design team, generally the HVAC mechanical designer/engineer and the electrical designer/engineer.

B. Commissioning authority (CA): An independent agent. The CA directs and coordinates the commissioning activities. The CA does not take an oversight role. The CA is part of the Director's team.

C. Commissioning Plan (Cx Plan): An overall plan that provides the structure, schedule and coordination planning for the commissioning process.

D. Commissioning Team (Cx Team): The members of the commissioning team consist of the Commissioning Authority, the Director's Representative, the Commissioning Team Contractors, Subcontractor's, equipment Vendors and the Architect and design Engineers. The owner and the building or plant operator/engineer also may be members of the commissioning team.

E. Commissioning Team Contractor: (Cx Team Contractor) Contractors responsible for providing the systems specified for Commissioning in Section 019113 – General Commissioning Requirements, of their respective contracts. The Cx Team Contractors are totally responsible for their various Subcontractors and Vendors. Note that each system may have multiple Cx Team Contractors; i.e. - HVAC contractor installs a variable speed drive, and Electrical contractor provides power wiring to the drive.

F. Director's Representative (DR): The OGS Project Manager or Engineer in Charge of the Construction project, hired and acting on behalf of the Owner.

G. HVAC Contractor (HC): Cx Contractor responsible for all Commissioning activities associated with the HVAC contract, and all those of HVAC subcontractors and HVAC equipment vendors for Commissioned equipment supplied under the HVAC contract.
   1. Typical HVAC Subcontractors.
      a. Testing and Air Balancing Contractor (TAB).
      b. Controls Contractor (CC).

H. Electrical Contractor (EC): Cx Contractor responsible for all Commissioning activities associated with the Electrical contract, and all those of Electrical subcontractors and Electrical equipment vendors for Commissioned equipment supplied under the Electrical contract.

I. Owner: Client or facility representatives.

J. Subcontractors (Subs): The subcontractors to the Cx Contractors who provide and install building components and systems.

K. Vendor: Supplier of equipment.

L. Functional Performance Test (FT): Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The CA develops the functional test procedures in sequential written form. The CA coordinates, oversees and documents the actual testing. The Contractor performs the functional tests. FTs are performed after prefunctional checklists and startup are complete.

M. Prefunctional Checklist (PC): A list of items to inspect and component tests to conduct to verify proper installation of equipment.

N. Deferred Testing: Functional test procedures approved by the CA and DR to be performed after Functional Completion and post Substantial Completion of the project. Deferred testing may be required due to occupancy requirements, seasonal requirements for testing or deficiencies approved for correction at a later date by the DR.

O. Functional Completion: Final written approval by the DR that all Commissioning work is complete.

1.03 SUMMARY

A Commissioning: Commissioning is a systematic process of ensuring that (selected) building systems perform interactively according to the design intent and the Owner's operational needs. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
   1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
   2. Verify and document proper performance of (selected) equipment and systems.
   3. Verify that O&M documentation left on site is complete.
   4. Verify that the Owner's operating personnel are adequately trained.

B. The commissioning process does not take away from or reduce the responsibility of the installing contractors to provide a finished and fully functioning product.

1.04 COMMISSIONING PROCESS

A. Management:

1. The CA is hired by, and works for, the Director's Representative and/or Owner. The CA directs and coordinates the commissioning activities. All Commissioning Team members work together to fulfill their contracted responsibilities and to meet the objectives of the Contract Documents.
2. It is noted that the services for the A/E and Commissioning Authority are not provided for in this contract. That is, the Cx Team contractors are not responsible for providing the CA's or A/E's services. Their responsibilities and tasks are listed in this Document to clarify the commissioning process.

B. Commissioning Process: The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.

1. Commissioning begins prior to construction with a scoping meeting planned, scheduled and conducted by the CA where the commissioning process is reviewed with the commissioning team members. The CA will provide the initial schedule of primary commissioning events at the commissioning scoping meeting. Meeting minutes will be distributed to all parties by the CA.
2. The CA will develop a commissioning plan to provide guidance in the execution of the commissioning process. A draft copy of the plan will be presented at the scoping meeting for discussion.
3. The CA will work with the Cx Team contractors according to established protocols to list and schedule the commissioning activities, using his initial listing of events from the draft Cx Plan as a basis. The HC will integrate all commissioning activities into the Construction Progress or Master Schedule.
4. Additional meetings will be required throughout construction, scheduled by the CA with necessary Commissioning Team members attending, to plan, scope, coordinate, schedule future activities and resolve deficiencies. These meetings will be held monthly or bi-weekly during initial construction and can increase in frequency to as often as one per week in the final months or critical periods of each phase of construction.
5. After the initial commissioning scoping meeting the CA will update the plan which is then considered the "final" plan, though it may be revised as the project progresses. The Contract Specifications will take precedence over the Commissioning Plan.
6. Equipment documentation, including O&M manuals are submitted to the CA during the submittal process, including detailed start-up procedures. The CA reviews the O&M documentation for completeness.
7. The CA works with the Cx Team contractors and their subcontractors to develop startup plans and startup documentation formats for commissioned equipment and systems. This includes providing prefunctional checklists to be completed, during the startup process.
8. The CA develops specific equipment and system functional performance test procedures. The Cx Team contractors and Subs review the procedures and submit suggestions or comments. Procedures are finalized by the CA.

9. The Cx Team contractors and their subcontractors, under their own direction, execute and document the prefunctional checklists and perform startup and initial checkout for all commissioned systems. The CA documents that the checklists and startup were completed according to the approved plans and will spot check selected equipment prior to performing functional testing.
10. The procedures for Functional Testing are executed by the Cx Team contractors and subcontractors, under the direction of, and documented by the CA.
11. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and intersystem levels with prefunctional checklists being completed before functional testing.
12. Items of non-compliance in material, installation or setup are corrected at the Cx Team contractors' expense and the system is retested.
13. Commissioning (Functional Completion) is completed before Project Substantial Completion.
14. The CA reviews, pre-approves and coordinates the training provided by the Cx Team contractors and their subcontractors and verifies that it is completed.
15. Deferred testing is conducted, as specified or required.

1.05 COMMISSIONING RESPONSIBILITIES

A. All Commissioning Team Members:
   1. Follow the Commissioning Plan.
   2. Attend commissioning scoping meeting and additional meetings, as necessary.

B. Architect/Engineer (A/E):
   1. Pre-Construction and Construction Phase:
      a. Attend the commissioning scoping meeting and selected commissioning team meetings as needed.
      b. Provide Design Intent and Basis of Design documents.
      c. Provide any design narrative documentation requested by the CA.
      d. Perform normal submittal review, construction observation as contracted.
      e. Any on-site observations required by contract should be completed just prior to system startup.
      f. Coordinate resolution of system deficiencies identified during commissioning, according to the contract documents.
      g. Prepare and submit final as-built design intent documentation for inclusion in the O&M manuals.

C. Commissioning Authority (CA):
   1. The CA is not responsible for design concept, design criteria, compliance with codes, design or construction scheduling, cost estimating, or construction management. The CA may assist with problem-solving, non-conformance or deficiencies, but ultimately that responsibility resides with the Director's Representative, the Cx Team contractors and the A/E. The primary role of the CA is to develop and coordinate the execution of a testing plan and to observe and document that systems are functioning in accordance with the documented design intent, in accordance with the Contract Documents. The Contractors will provide all tools or the use of tools to start, check-out and functionally test equipment and systems, except for specified testing with portable data-loggers, which shall be supplied and installed by the CA.

2. Pre-Construction and Construction Phase

a. Coordinates and directs the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines, schedules and technical expertise.

b. Coordinate the commissioning work and, with the DR and Cx Team contractors, ensure that all commissioning activities are scheduled into the Construction Progress Schedule.

c. Plan and conduct a commissioning scoping meeting and other commissioning meetings.

d. Revise, as necessary, the Commissioning Plan.

e. Request and review information (including O&M materials) required to perform commissioning tasks and develop system start-up and checkout procedures.

f. Review and approve normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.

g. Develop an enhanced start-up and initial systems checkout plan with Cx Team contractors.

h. Write and distribute prefunctional tests and checklists.

i. With necessary assistance and review from installing contractors, write the functional performance test procedures for equipment and systems. This may include energy management control system trending, stand-alone data logger monitoring or manual functional testing. Submit to Cx Team contractors for review.

j. Perform site visits, as necessary, to observe component and system installations. Attend selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies.

k. Witness all or part of any test, flushing or start-up procedures, sufficient to be confident that proper procedures were followed. Document this testing and include the documentation in O&M manuals. Notify Director's Representative of any deficiencies in results or procedures.

l. Approve prefunctional tests and checklist completion by reviewing prefunctional checklist reports and by selected site observation and spot checking.

m. Approve system startup by reviewing start-up reports and by selected site observations.

n. Review TAB execution plan.

o. Oversee and approve functional testing of Commissioned systems.

p. Coordinate, witness, and approve manual functional performance tests performed by installing contractors. Coordinate retesting as necessary until satisfactory performance is achieved.

q. Analyze any functional performance trend logs and monitoring data to verify system performance.

r. Approve air and water systems balancing by spot testing, by reviewing completed reports or by selected site observation.

s. Maintain a master deficiency and resolution log and a separate testing record. Provide the Director's Representative with written progress reports and test results with recommended actions.
t. Review and approve the preparation of the O&M manuals.
u. Review equipment warranties to ensure that the Director's responsibilities are clearly defined.
v. Oversee and approve the training of the Owners operating personnel.
w. Compile and maintain a commissioning record and building systems book(s).
x. Provide a final commissioning report (as described in this Document).

3. Warranty Period:
   a. Coordinate and supervise required seasonal or deferred testing.
   b. Return to the site at 10 months into the 12 month warranty period and review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have operating the building as originally intended. Make suggestions for improvements and for recording these changes in the O&M manuals. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports, documents and requests for services to remedy outstanding problems.

D. Director's Representative:
1. Pre-Construction and Construction Phase:
   a. Manage the contract of the A/E and of the Cx Team contractors.
   b. Attend a commissioning scoping meeting and other commissioning team meetings.
   c. Arrange for facility operating and maintenance personnel to attend various field commissioning activities and field training sessions according to the Commissioning Plan.
   d. Facilitate the coordination of the commissioning work by the CA and Cx Team contractors; ensure that commissioning activities are being scheduled into the Construction Progress schedule.
   e. Review and approve the final Commissioning Plan.
   f. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CA.
   g. Observe and witness prefunctional checklists, startup and functional testing of selected equipment.
   h. Review commissioning progress and deficiency reports.
   i. Coordinate the resolution of non-compliance and design deficiencies identified in all phases of commissioning.
   j. Assist in coordinating the training of Owner's personnel.
   k. Provide final approval for the completion of the commissioning work.
2. Warranty Period:
   a. Assist the CA as necessary in the seasonal or deferred testing.

E. Commissioning Team Contractors (Includes Subcontractors and Vendors):

1. Pre-Construction and Construction Phase

a. Designate in writing a company representative to act as "coordinator" for all commissioning activities. (Coordinator can be project supervisor or manager).

b. Facilitate the coordination of the commissioning work by the CA, and with the CA ensure that commissioning activities are being scheduled into the Construction Progress Schedule.

c. Include the cost of commissioning responsibilities in the total contract price. Provide requested documentation, prior to or during the submittal period (prior to normal O&M manual submittals), to the CA for development of start-up and functional testing procedures.

1) Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, installation, start-up and checkout materials that are shipped inside the equipment and field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Agent.

2) The Commissioning Agent may request further documentation necessary for the commissioning process.

d. In each purchase order or subcontract written, include appropriate requirements for submittal data, O&M data, commissioning tasks and training.

e. Ensure that all subcontractors execute their commissioning responsibilities according to the Contract Documents and schedule.

f. Provide a copy of the O&M manuals and submittals of commissioned equipment, through the DR, to the CA for review and approval.

g. Provide assistance to the CA in preparing the specific functional performance test procedures. The Cx Team contractors shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests. Assist in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

h. Develop a full start-up and testing plan using manufacturer's start-up procedures and the prefunctional checklists from the CA for all commissioned equipment. Submit to CA for review and approval prior to startup.

i. During the startup and initial checkout process, execute all portions of the prefunctional checklists for all commissioned equipment.

j. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CA.

k. Address current punch list items before functional testing. Air and water TAB shall be completed with deficiencies and problems remedied before functional testing of the respective air- or water-related systems.

l. Provide skilled technicians to execute starting of equipment and to execute the functional performance tests under the direction of the CA. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests,

adjustments and problem-solving. Assist the CA in interpreting the monitoring data, as necessary.

m. Correct deficiencies (differences between specified and observed performance) as interpreted by the CA, Director's Representative and A/E and retest the equipment.

n. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

o. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of all warranties.

p. During construction, maintain as-built red-line drawings for all drawings and provide final CAD as-builts for contractor-generated coordination drawings. Update after completion of commissioning (excluding deferred testing).

q. Provide training of the Owners operating staff using expert qualified personnel, as specified.

2. Warranty Period

a. Execute seasonal or deferred functional performance testing, witnessed by the CA, according to the specifications.

b. Ensure that Cx Team contractors correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

F. Vendors:

1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities for the Owner to keep warranties in force.
2. Provide information requested by CA regarding equipment sequence of operation and testing procedures.
3. Through the contractors they supply products to, analyze specified products and verify that the designer has specified the newest most updated equipment reasonable for this project's scope and budget.
4. Review test procedures for equipment installed by factory representatives.
5. Assist in equipment testing per agreements with the Cx Team contractors and subcontractors.
6. Include all special tools and instruments (only available from vendor and specific to a piece of equipment) required for testing equipment according to these Contract Documents, except for stand-alone data logging equipment that may be used by the CA.

1.06 PREREQUISITES TO FUNCTIONAL COMPLETION

A. All Commissioning must be complete prior to Functional Completion, unless approved in writing by the Director's Representative. Exceptions to this are planned system training performed after occupancy and any required seasonal or approved deferred testing. This includes for all systems, but is not limited to:

1. Completed and signed start-up and prefunctional checklist documentation.
2. Requested trend log data
3. Submission of final approved TAB report.
4. Completion of all required controls work.
5. Completion of all functional testing.
6. Required training of O&M personnel completed and approved.

7. Submission of the approved O&M manuals.
8. All identified deficiencies have been corrected or are approved as exceptions to this milestone by the Director's Representative.

B. The Director's Representative will determine the date of Functional Completion after reviewing the Commissioning Agent's recommendation for Functional Completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REPORTING

A. The CA will provide regular reports to the DR with increasing frequency as construction and commissioning progresses. Standard forms will be provided and/or referenced in the Commissioning Plan.

B. The CA will regularly communicate with all members of the commissioning team, keeping them apprised of commissioning progress and scheduling changes through memos, progress reports, etc.

C. Testing or review approvals and non-conformance and deficiency reports are made regularly.

D. A final summary report by the CA will be provided to the DR, focusing on evaluating commissioning process issues and identifying areas where the process could be improved. All acquired documentation, logs, minutes, reports, deficiency lists, communications, findings, unresolved issues, etc., will be compiled in appendices and provided with the summary report. Prefunctional checklists, functional tests and monitoring reports will not be part of the final report, but will be stored in the Commissioning Record in the O&M manuals.

3.02 SUBMITTALS

A. The CA will provide appropriate contractors with a specific request for the type of submittal documentation the CA requires to facilitate the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team. At minimum, the request will include the manufacturer and model number, the manufacturer's printed installation and detailed start-up procedures, full sequences of operation, O&M data, performance data, any performance test procedures, control drawings, wiring diagrams and details of factory tests. In addition, the installation and checkout materials that are shipped inside the equipment and the field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning authority. All documentation requested by the CA will be included by the Cx Team contractors in their O&M manual contributions.

B. The CA may request additional design narrative from the A/E and the Cx Team Contractors, depending on the completeness of the design intent documentation and sequences provided with the Specifications.

C. The Commissioning authority will review and approve submittals related to the commissioned equipment for conformance to the Contract Documents as it relates to the commissioning process, to the functional performance of the equipment and adequacy for developing test procedures. This review is intended primarily to aid in the development of functional testing procedures and only secondarily to verify compliance with equipment specifications. The Commissioning authority will notify the DR of items missing or areas that are not in conformance with Contract Documents which may affect the commissioning and which require resubmission.

D. Submittals to the CA do not constitute compliance for O&M manual documentation. The compilation and submission of O&M manuals is the responsibility of the Contractor. The CA will review and approve individual O&M documents.

3.03 START-UP, PREFUNCTIONAL CHECKLISTS AND INITIAL CHECKOUT

A. The following procedures apply to all equipment to be commissioned.

B. The project will require startup and initial checkout to be executed in phases. This phasing will be planned and scheduled in a coordination meeting of the CA, DR and the Cx Team contractors. Results will be added to the Construction Progress Schedule and Commissioning Plan.

C. General. Prefunctional checklists are important to ensure that the equipment and systems are installed and operational. It ensures that functional performance testing (in-depth system checkout) may proceed without unnecessary delays. The prefunctional testing for a given system must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.

D. Start-up and Initial Checkout Plan. The CA shall assist the Commissioning Team contractors responsible for startup of any equipment in developing detailed start-up plans. The primary role of the CA in this process is to ensure that there is written documentation that each of the manufacturer-recommended procedures have been completed.

1. The prefunctional checklists and procedures indicate required procedures to be executed as part of startup and initial checkout of the systems and the party responsible for their execution.
2. The prefunctional checklists and tests are provided by the CA to the Contractor. The Contractor determines which trade is responsible for executing and documenting each of the line item tasks and notes that trade on the form. Each form will have more than one trade responsible for its execution.
3. Any Cx Team contractor responsible for providing equipment and systems designated for Commissioning, develops the full start-up plan by combining (or adding to) the CA's prefunctional checklists with the manufacturer's detailed start-up and checkout procedures. The Cx Team contractor shall make use of the manufacturers O&M manual and the normally used field checkout sheets in developing the complete start-up plan. The plan will include checklists and procedures with specific boxes or lines for recording and documenting the checking and inspections of each procedure and a summary statement with a signature block at the end of the plan. The full start-up plan could consist of something as simple as:
   a. The CA's prefunctional checklists.
   b. The manufacturer's standard written start-up procedures copied from the installation manuals with check boxes by each procedure and a signature block added by hand at the end.

c. The manufacturer's normally used field checkout sheets.

4. The contractor submits the full startup plan to the CA for review and approval.
5. The CA reviews and approves the procedures and the format for documenting them, noting any procedures that need to be added.
6. The full start-up procedures and the approval form may be provided to the DR for review and approval, depending on management protocol.

E. Execution of Prefunctional Checklists and Startup.

1. Prior to startup, the Cx Team contractors, subcontractors and vendors schedule startup and checkout with the DR and CA. The performance of the prefunctional checklists, startup and checkout are directed and executed by the Cx Team Contractor, subcontractor or Vendor responsible for the equipment.
2. The CA shall observe, at minimum, the procedures for each piece of primary equipment, unless there are multiple units, (in which case a sampling strategy may be used as approved by the DR). In no case will the number of units witnessed be less than four nor less than 20% of the total number of identical or very similar units.
3. For lower-level components of equipment, (e.g., VAV boxes, sensors, controllers), the CA shall observe a sampling of the prefunctional and start-up procedures. The sampling procedures are identified in the commissioning plan.
4. The Cx Team contractors, subcontractors and vendors shall execute startup and provide the CA with a signed and dated copy of the completed start-up and prefunctional tests and checklists.
5. Only individuals that have direct knowledge and witnessed that a line item task on the prefunctional checklist was performed shall initial or check that item off.

F. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

1. The contractors shall clearly list any outstanding items of the initial start-up and prefunctional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet. The procedures form and any outstanding deficiencies are provided to the CA within two days of test completion.
2. The CA reviews the report and submits either a non-compliance report or an approval form to the DR. The installing Cx Team contractors, subcontractors or vendors shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, and shall notify the CA as soon as outstanding items have been corrected and resubmit an updated start-up report and a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CA recommends approval of the execution of the checklists and startup of each system to the DR using a standard form.
3. Items left incomplete, which later cause deficiencies or delays during functional testing may result in back-charges to the responsible party.

G. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the CA and DR. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

H. The Cx Team contractors have start-up, prefunctional and functional testing responsibility and are required to complete systems and sub-systems so they are fully functional, meeting the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen this responsibility or shift that responsibility partially to the Commissioning Agent or Director's Representative.

3.04 FUNCTIONAL PERFORMANCE TESTING

A. This article applies to all commissioning functional testing for all divisions.

B. Objectives and Scope.

1. The objective of functional performance testing is to demonstrate that each system is operating according to the documented design intent and Contract Documents. Functional testing facilitates bringing the systems from a state of physical completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified and corrected, improving the operation and functioning of the systems. In general, each system should be operated through all modes of operation (seasonal, occupied, unoccupied, warm-up, cool-down, part- and full-load) where there is a specified system response. Verifying each sequence in the sequences of operation is required. Proper responses to such modes and conditions as power failure, freeze condition, low oil pressure, no flow, equipment failure, etc. shall also be tested.

C. Test Methods.

1. Functional performance testing and verification may be achieved by manual testing (persons manipulate the equipment and observe performance). When a control system is part of the project, functional performance testing may use the controls to monitor the performance and analyze the results using the control system's trend log capabilities or by stand-alone data loggers. The CA may substitute specified methods or require an additional method to be executed, other than what was specified, with the approval of the DR. The CA will determine which method is most appropriate for tests that do not have a method specified.
2. Setup. Each function and test shall be performed under conditions that simulate actual conditions as close as is practically possible. The Contractor executing the test shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions. At completion of the test, the Contractor shall return all affected building equipment and systems, due to these temporary modifications, to their pre-test condition.
3. Simulated Conditions. Simulating conditions (not by an overwritten value) shall be allowed, though timing the testing to experience actual conditions is encouraged wherever practical.
4. Overwritten Values. Overwriting sensor values to simulate a condition, such as overwriting the outside air temperature reading in a control system to be something other than it really is, shall be allowed, but shall be used with caution and avoided when possible. Such testing methods often can only test a part of a system, as the interactions and responses of other systems will be erroneous or not applicable. Simulating a condition is preferable (i.e., for the above case, the outside air sensor could be heated with a hair blower rather than overwriting the value, or by altering the appropriate setpoint to see the desired response). Before simulating conditions or overwriting values, sensors, transducers and devices shall have been calibrated.
5. Simulated Signals. Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended over using the sensor to act as the signal generator via simulated conditions or overwritten values.

6. Altering Setpoints. Rather than overwriting sensor values, and when simulating conditions is difficult, altering setpoints to test a sequence is acceptable. For example, to see the AC compressor lockout work at an outside air temperature below 55F, when the outside air temperature is above 55F, temporarily change the lockout setpoint to be 2F above the current outside air temperature.
7. Indirect Indicators. Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the tested parameters, that the indirect readings through the control system represent actual conditions and responses. Much of this verification is completed during prefunctional testing.

D. Problem Solving. The CA will recommend solutions to testing problems; however the burden of responsibility to solve, correct and retest problems is with the Cx Team contractors, subcontractors and A/E.

3.05 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

A. Documentation.
1. The CA shall witness and document the results of all functional performance tests using the specific procedural forms developed for that purpose. Prior to testing, these forms are provided to the DR for review and approval and to the Cx Team contractors for review. The CA will include the filled out forms in the Final Commissioning Report.

B. Non-Conformance.
1. The CA will record the results of the functional test on the procedure or test form. All deficiencies or non-conformance issues shall be noted and reported to the DR.
2. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CA. In such cases the deficiency and resolution will be documented on the procedure form.
3. Every effort will be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures.
4. As tests progress and a deficiency is identified, the CA discusses the issue with the executing contractor.
   a. When there is no dispute on the deficiency and the Contractor accepts responsibility to correct it:
      1) The CA documents the deficiency and the Contractor's response and intentions and they go on to another test or sequence. The CA submits the non-compliance reports to the DR for signature, if required. A copy is provided to the Cx Team contractors and CA. The Cx Team contractors correct the deficiency, sign the statement of correction at the bottom of the non-compliance form certifying that the equipment is ready to be retested and send it back to the CA.
      2) The CA reschedules the test and the test is repeated.
   b. If there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible:
      1) The deficiency shall be documented on the non-compliance form with the Cx Team contractor's response and a copy given to the DR and to the Cx Team contractor.

2) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the DR. Final acceptance authority is with the DR.

3) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency, signs the statement of correction on the non-compliance form and provides it to the CA. The Contractor reschedules the test and the test is repeated until satisfactory performance is achieved.

5. Cost of Retesting.
   a. The cost for the Cx Team contractor to retest a prefunctional or functional test, if they are responsible for the deficiency, shall be theirs. If they are not responsible, any cost recovery for retesting costs shall be negotiated with the DR.
   b. For a deficiency identified, not related to any prefunctional checklist or start-up fault, the following shall apply: The CA will direct the retesting of the equipment once at no "charge" to the project for their time. However, the CA's time for a second retest will be charged to the Cx Team contractors.
   c. The time for the CA to direct, attend or witness any retesting required because a specific prefunctional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back-charged to the Cx Team contractors.
6. The Contractor shall respond in writing to the CA and DR concerning the status of each apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements and proposals for their resolution.
7. The CA retains the original non-conformance forms until the end of the project.
8. Any required retesting by any contractor shall not be considered a justified reason for a claim of delay or for a time extension by the prime contractor.

C. Failure Due to Manufacturer Defect:
1. If 10 percent, or three units, whichever is greater, of identical pieces (size alone does not constitute a difference) of equipment fail to perform to the Contract Documents (mechanically or substantively) due to manufacturing defect, not allowing it to meet its submitted performance specification, all identical units may be considered unacceptable by the DR. In such case, the Contractor shall provide the Director's Representative with the following:
   a. Within one week of notification from the DR, the Contractor or manufacturer's representative shall examine all other identical units making a record of the findings. Within two weeks of the original notice, a signed and dated, written explanation of the findings, problems, cause of failures, etc. and all proposed solutions shall be provided to the DR. The proposed solutions shall not significantly exceed the specification requirements of the original installation.
   b. The DR will determine whether a replacement of all identical units or a repair is acceptable.
   c. Two examples of the proposed solution will be installed by the Contractor and the installations will be tested for up to one week, upon which the DR and CA will decide whether to accept the solution.

d. Upon acceptance, the Contractor and/or manufacturer shall replace or repair all identical items, at their expense and extend the warranty accordingly, if the original equipment warranty had begun. The replacement/repair work shall proceed with reasonable speed beginning within one week from when parts can be obtained.

D. Approval:

1. The CA notes each satisfactorily demonstrated function on the test form. Formal approval of the functional test is made later after review by the CA and by the DR, if necessary. The CA recommends acceptance of each test to the DR using a standard form. The DR gives final approval on each test using the same form, providing a signed copy to the CA and the Contractor.

3.06 OPERATION AND MAINTENANCE MANUALS

A. Standard O&M Manuals.

1. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.

B. Review and Approvals.

1. CA Review and Approval. Prior to substantial completion, the CA shall review the O&M manuals, documentation and redline as-builts for systems that were commissioned, concurrently with the A/E. The CA will communicate concerns about the manuals to the DR. Upon a successful review of the corrections, the CA recommends approval and acceptance of these Sections, with respect to the commissioning, to the DR. The CA also reviews each equipment warranty and verifies that all requirements to keep the warranty valid are clearly stated. This work does not supersede the A/E's review of the O&M manuals according to the A/E's contract.

3.07 TRAINING OF OWNERS OPERATING AND MAINTENANCE PERSONNEL

A. The Cx Team contractors and CA shall be responsible for training coordination, scheduling and ultimately for ensuring that training is completed.

B. The CA shall be responsible for reviewing and approving the content and adequacy of the training of Owners personnel for commissioned equipment.

1. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
2. Training shall occur after functional testing is complete, unless approved otherwise by the DR.
3. Duration of Training: The Cx Team contractor shall provide training on each piece of equipment according to the durations in individual equipment specifications.

3.08 DEFERRED TESTING

A. Unforeseen Deferred Tests:

1. If any check or test cannot be completed due to the building structure, required occupancy condition or other deficiency, execution of checklists and functional testing may be delayed upon approval of the DR. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary contractors, vendors etc., will be negotiated.

B. Seasonal Testing:

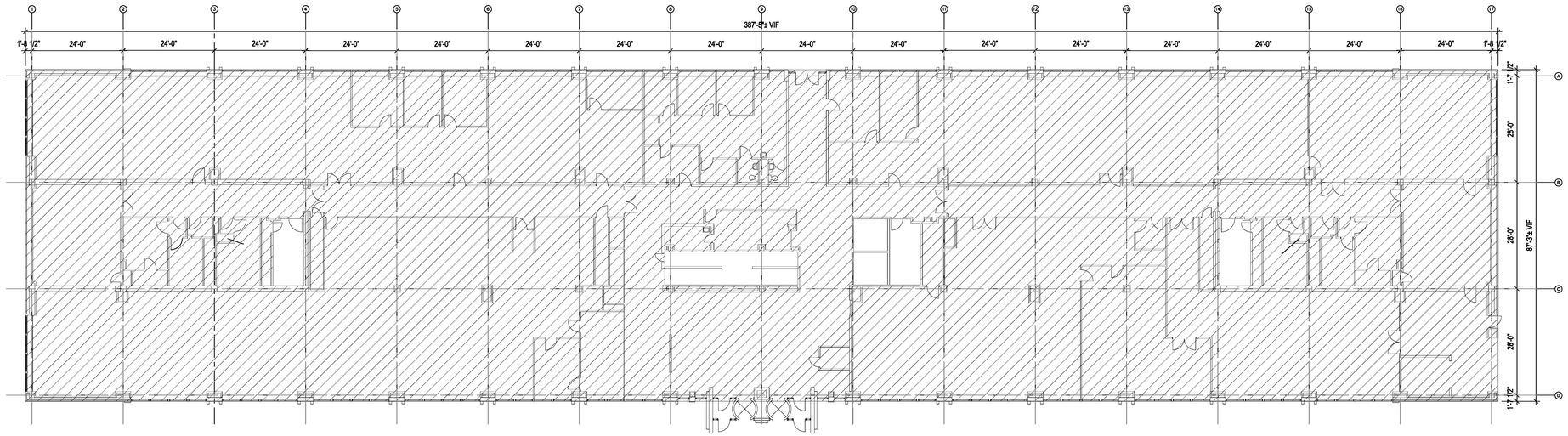
1. During the warranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design) specified in Section 019113 shall be completed as part of this contract. The CA shall coordinate this activity. Tests will be executed, documented and deficiencies corrected by the appropriate contractors, with facilities staff and the CA witnessing. Any final adjustments to the O&M manuals and as-builds due to testing will be made.

3.09 WRITTEN WORK PRODUCTS

A. The commissioning process generates a number of written work products described in various Sections of the Specifications. The Commissioning Plan lists all the formal written work products, describes briefly their contents, who is responsible to create them, their due dates, who receives and approves them and the location of the specification to create them. In summary, the written products are:

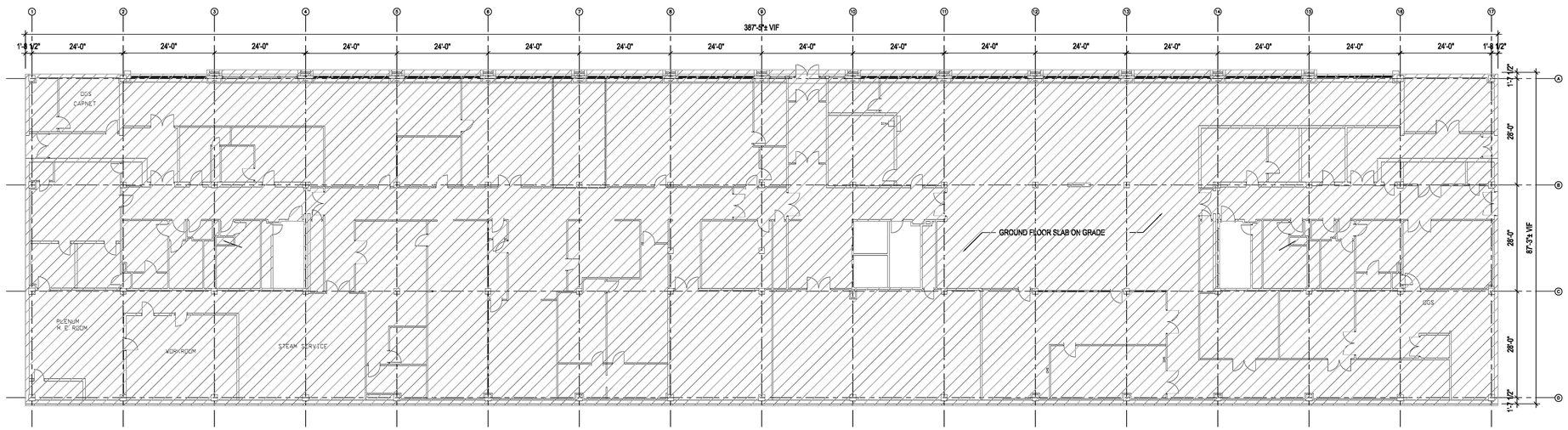
1. Product Developed By:
   a. Final Commissioning Plan: CA.
   b. Commissioning Meeting Minutes: CA.
   c. Commissioning Schedules: CA with Cx Team contractors and DR.
   d. Equipment Documentation Submittals: Cx Team contractors.
   e. Sequence Clarifications: Cx Team contractors, and A/E as needed.
   f. Prefunctional Checklists: CA.
   g. Startup and Initial Checkout Plan: Cx Team contractors and CA (compilation of documents).
   h. Startup and Initial Checkout Forms Filled Out: Cx Team contractors.
   i. Final TAB Report: TAB.
   j. Issues Log (deficiencies): CA.
   k. Commissioning Progress Record: CA.
   l. Deficiency Reports: CA.
   m. Functional Test Forms: CA.
   n. Filled Out Functional Tests: CA.
   o. O&M Manuals: Cx Team contractors.
   p. Commissioning Record Book: CA.
   q. Overall Training Plan: CA and Cx Team contractors.
   r. Specific Training Agendas: Cx Team contractors.
   s. Final Commissioning Report: CA.
   t. Miscellaneous Approvals: CA.

END OF SECTION



1ST FLOOR FIRE PROOFING PLAN

1/16" = 1'-0"



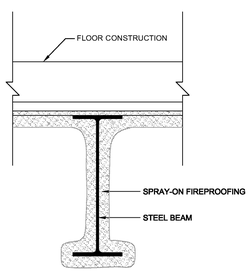
GROUND FLOOR FIRE PROOFING PLAN

1/16" = 1'-0"

3 HOUR SFRM AS PER DETAILS.

NOTES:

1. COMPLETE REMOVAL OF ASBESTOS-CONTAINING MATERIALS FROM EACH FLOOR AS APPROPRIATE PRIOR TO THE INSTALLATION OF NEW SPRAY-APPLIED FIRE RESISTANT MATERIAL (SFRM) IN THAT FLOOR/AREA.
2. ALL EXPOSED STRUCTURAL ROOF DECKING, SUPPORT BEAMS, AND SUPPORT COLUMNS SHALL RECEIVE 3 HR RATED SFRM. SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
3. THE DRAWINGS DEPICT THE EXTENT OF THE NEW SFRM. THE WORK SHALL INCLUDE ALL CONSTRUCTION MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO PROVIDE A COMPLETE AND FINISHED INSTALLATION WHETHER OR NOT SPECIFICALLY IDENTIFIED ON THE DRAWINGS.
4. ALL WORK TO BE IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.
5. MAINTAIN THE PROJECT AREA IN A CLEAN AND SAFE MANNER THROUGHOUT THE INSTALLATION PERIOD.
6. COORDINATE AND SCHEDULE ALL WORK INCLUDING THE WORK OF SUBCONTRACTORS.
7. PROTECT EXISTING-TO-REMAIN CONSTRUCTION FROM DAMAGE THROUGHOUT THE INSTALLATION PERIOD. ANY DAMAGE TO EXISTING-TO-REMAIN STRUCTURE OR EQUIPMENT SHALL BE RETURNED TO ITS CONDITION PRIOR TO THE COMPLETION.
8. MAINTAIN A CURRENT AND COMPLETE SET OF DRAWINGS AT THE JOBSITE AT ALL TIMES FOR THE USE OF ALL OF THE SUBCONTRACTORS. COORDINATE ALL INSTALLATION WORK.
9. SUBMIT A STAGING AREA PLAN DEPICTING STAGING AREA(S) AND ANY OTHER TEMPORARY IMPROVEMENTS FOR APPROVAL BY THE DIRECTOR'S REPRESENTATIVE PRIOR TO COMMENCING WITH DEMOLITION SCOPE.
10. REFER TO REFERENCE DRAWINGS 59-127 THRU 59-130 FOR STRUCTURAL DETAILS.



1
F100

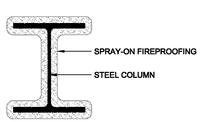
TYPICAL BEAM / DECK FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
BEAM: UL DES: N782 - 3HR
DECK: UL DES: D779 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

NOTE: COLUMN FIREPROOFING TO BE USED ON EXPOSED STEEL COLUMNS.



2
F100

TYPICAL COLUMN FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
UL DES: X772 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

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STATE OF NEW YORK · MICHAEL E. HOLLOWAY · 068351 · LICENSED PROFESSIONAL ENGINEER

CONTRACT:
HAZARDOUS MATERIALS WORK

TITLE:
HAZARDOUS MATERIALS ABATEMENT
BUILDING 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NY 12226

CLIENT:
DESIGN AND CONSTRUCTION GROUP

MARK	DATE	DESCRIPTION
1	05/14/2013	100% BID DOCUMENTS
0	05/09/2013	100% SUBMISSION

PROJECT NUMBER:	44802-B
DESIGNED BY:	KA
DRAWN BY:	KA
FIELD CHECK:	–
APPROVED:	–

SHEET TITLE:
GROUND AND FIRST FLOOR FIREPROOFING PLAN

DRAWING NUMBER:
F-100

SHEET 14 OF 111

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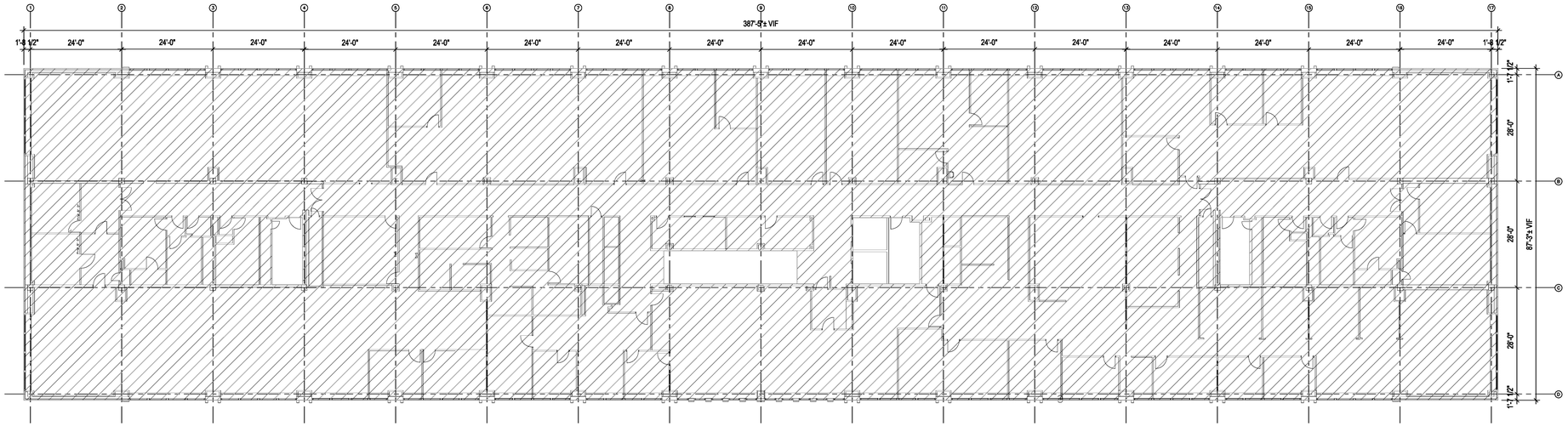
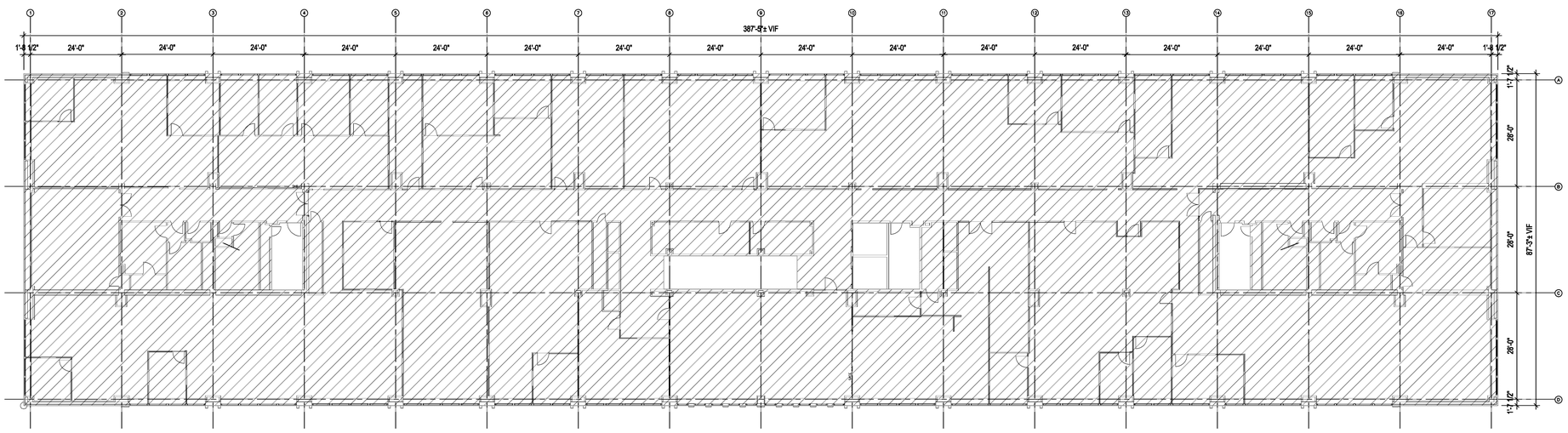


3RD FLOOR FIRE PROOFING PLAN
1/16" = 1'-0"



2ND FLOOR FIRE PROOFING PLAN
1/16" = 1'-0"

3 HOUR SFRM AS PER DETAILS.

NOTES:

1. COMPLETE REMOVAL OF ASBESTOS–CONTAINING MATERIALS FROM EACH FLOOR AS APPROPRIATE PRIOR TO THE INSTALLATION OF NEW SPRAY–APPLIED FIRE RESISTANT MATERIAL (SFRM) IN THAT FLOOR/AREA.
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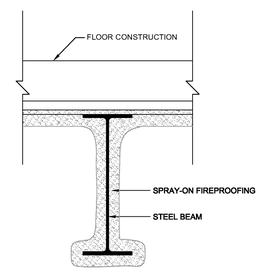
10. REFER TO REFERENCE DRAWINGS 59–127 THRU 59–130 FOR STRUCTURAL DETAILS.



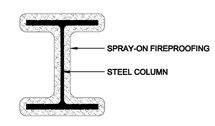
1 / F101 TYPICAL BEAM / DECK FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
BEAM: UL DES: N782 - 3HR
DECK: UL DES: D779 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

NOTE: COLUMN FIREPROOFING TO BE USED ON EXPOSED STEEL COLUMNS.



2 / F101 TYPICAL COLUMN FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
UL DES: X772 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

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STATE OF NEW YORK · MICHAEL E. HOLLOWAY · 068351 · LICENSED PROFESSIONAL ENGINEER

CONTRACT:
HAZARDOUS MATERIALS WORK

TITLE:
HAZARDOUS MATERIALS ABATEMENT
BUILDING 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NY 12226

CLIENT:
DESIGN AND CONSTRUCTION GROUP

MARK	DATE	DESCRIPTION
1	05/14/2013	100% BID DOCUMENTS
0	05/09/2013	100% SUBMISSION

PROJECT NUMBER:	44802-B
DESIGNED BY:	KA
DRAWN BY:	KA
FIELD CHECK:	–
APPROVED:	–

SHEET TITLE:
SECOND AND THIRD FLOOR FIREPROOFING PLAN

DRAWING NUMBER:
F-101

SHEET 15 OF 111

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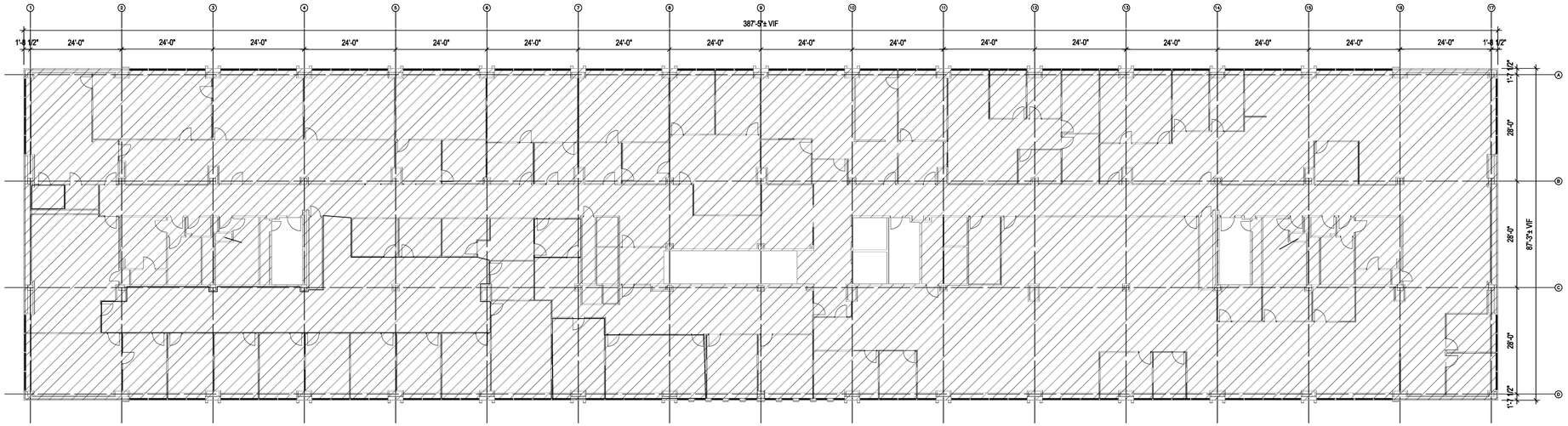
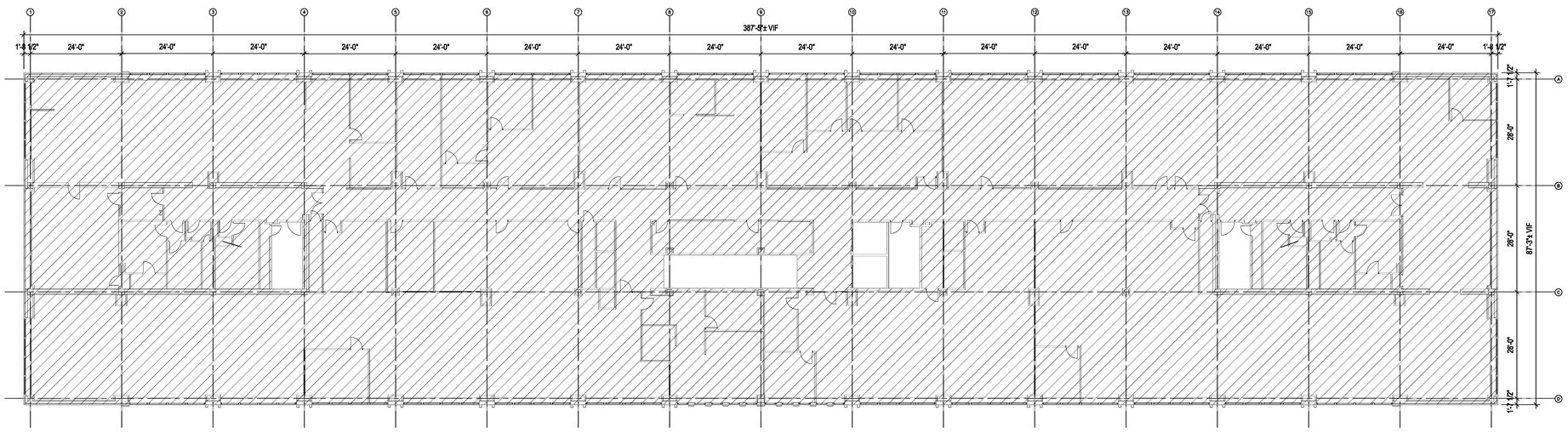


5TH FLOOR FIRE PROOFING PLAN
1/16" = 1'-0"



4TH FLOOR FIRE PROOFING PLAN
1/16" = 1'-0"

3 HOUR SFRM AS PER DETAILS.

NOTES:

1. COMPLETE REMOVAL OF ASBESTOS-CONTAINING MATERIALS FROM EACH FLOOR AS APPROPRIATE PRIOR TO THE INSTALLATION OF NEW SPRAY-APPLIED FIRE RESISTANT MATERIAL (SFRM) IN THAT FLOOR/AREA.
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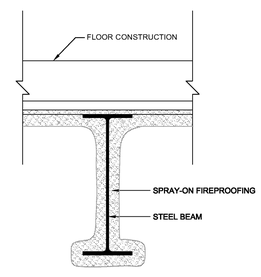
10. REFER TO REFERENCE DRAWINGS 59-127 THRU 59-130 FOR STRUCTURAL DETAILS.



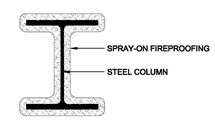
1 / F102 TYPICAL BEAM / DECK FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
BEAM: UL DES: N782 - 3HR
DECK: UL DES: D779 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

NOTE: COLUMN FIREPROOFING TO BE USED ON EXPOSED STEEL COLUMNS.



2 / F102 TYPICAL COLUMN FIREPROOFING

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
UL DES: X772 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

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CONTRACT:
HAZARDOUS MATERIALS WORK

TITLE:
HAZARDOUS MATERIALS ABATEMENT BUILDING 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NY 12226

CLIENT:
DESIGN AND CONSTRUCTION GROUP

MARK	DATE	DESCRIPTION
1	05/14/2013	100% BID DOCUMENTS
0	05/09/2013	100% SUBMISSION

PROJECT NUMBER:	44802-B
DESIGNED BY:	KA
DRAWN BY:	KA
FIELD CHECK:	–
APPROVED:	–

SHEET TITLE:
FOURTH AND FIFTH FLOOR FIREPROOFING PLAN

DRAWING NUMBER:
F-102

SHEET 16 OF 111

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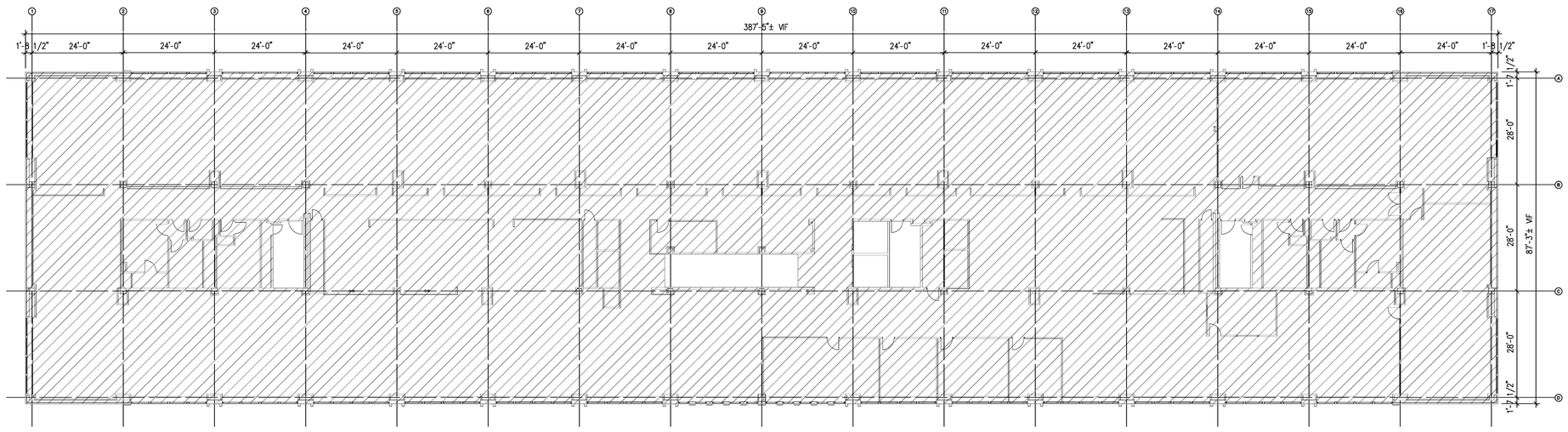

6TH FLOOR FIRE PROOFING PLAN

1/16" = 1'-0"

3 HOUR SFRM AS PER DETAILS.

NOTES:

1. COMPLETE REMOVAL OF ASBESTOS-CONTAINING MATERIALS FROM EACH FLOOR AS APPROPRIATE PRIOR TO THE INSTALLATION OF NEW SPRAY-APPLIED FIRE RESISTANT MATERIAL (SFRM) IN THAT FLOOR/AREA.
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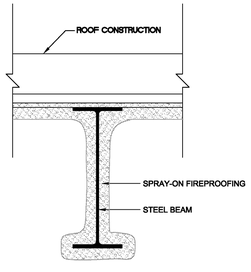


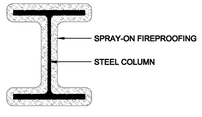
1 / F103 **TYPICAL BEAM / DECK FIREPROOFING**

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
BEAM: UL DES: N782 - 3HR
DECK: UL DES: D779 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

MANUFACTURER SHALL PROVIDE WRITTEN DOCUMENTATION FOR REQUIRED THICKNESS OF SFRM FOR BEAMS BELOW UL DESIGNATED MIN. SIZE.

NOTE: COLUMN FIREPROOFING TO BE USED ON EXPOSED STEEL COLUMNS.



2 / F103 **TYPICAL COLUMN FIREPROOFING**

SCALE: 1-1/2" = 1'-0"
CONSTRUCTION SHALL CONFORM WITH
UL DES: X772 - 3HR

SFRM SHALL BE VERMICULITE FREE AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

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CONTRACT:
HAZARDOUS MATERIALS WORK

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DESIGN AND CONSTRUCTION GROUP

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1	05/14/2013	100% BID DOCUMENTS
0	05/09/2013	100% SUBMISSION

PROJECT NUMBER:	44802-B
DESIGNED BY:	KA
DRAWN BY:	KA
FIELD CHECK:	–
APPROVED:	–

SHEET TITLE:
SIXTH FLOOR
FIREPROOFING PLAN

DRAWING NUMBER:
F-103

SHEET 17 OF 111

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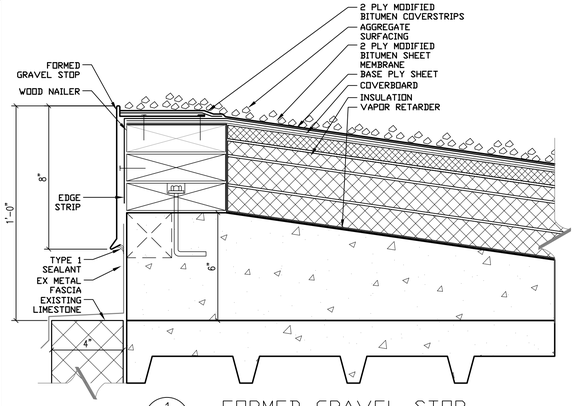
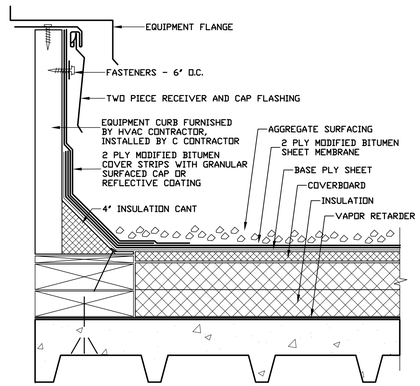
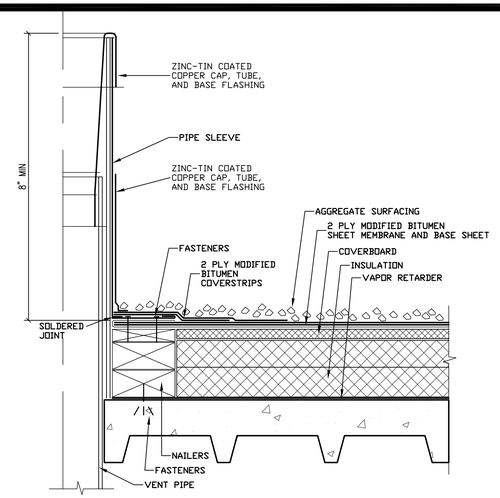


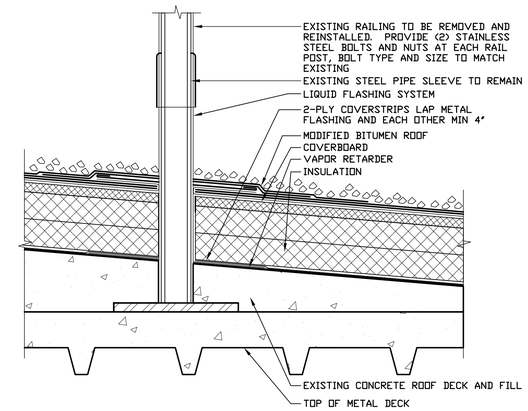
1 A-510 FORMED GRAVEL STOP
SCALE: 3"=1'-0"



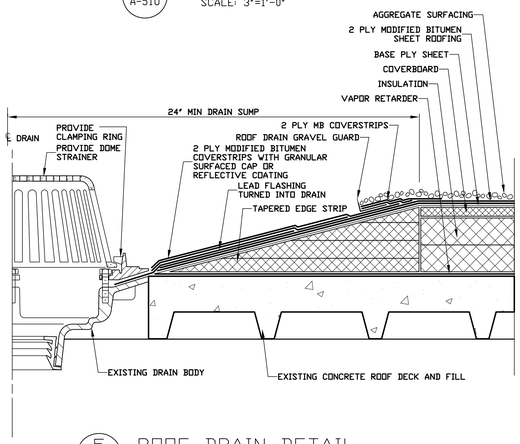
2 A-510 CURB FLASHING DETAIL
SCALE: 3"=1'-0"



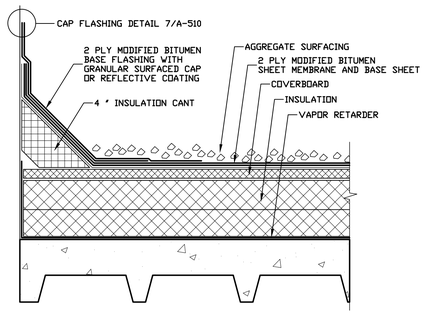
3 A-510 VENT PIPE FLASHING DETAIL
SCALE: 3"=1'-0"



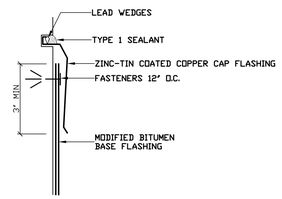
4 A-510 PIPE RAIL FLASHING DETAIL
SCALE: 3"=1'-0"



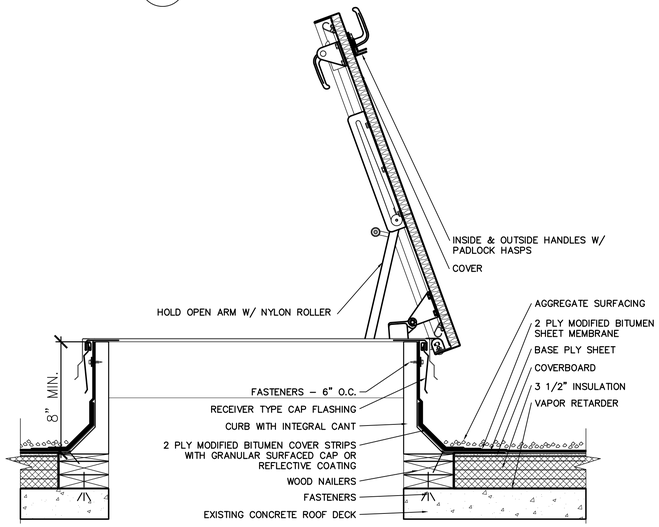
5 A-510 ROOF DRAIN DETAIL
SCALE: 3"=1'-0"



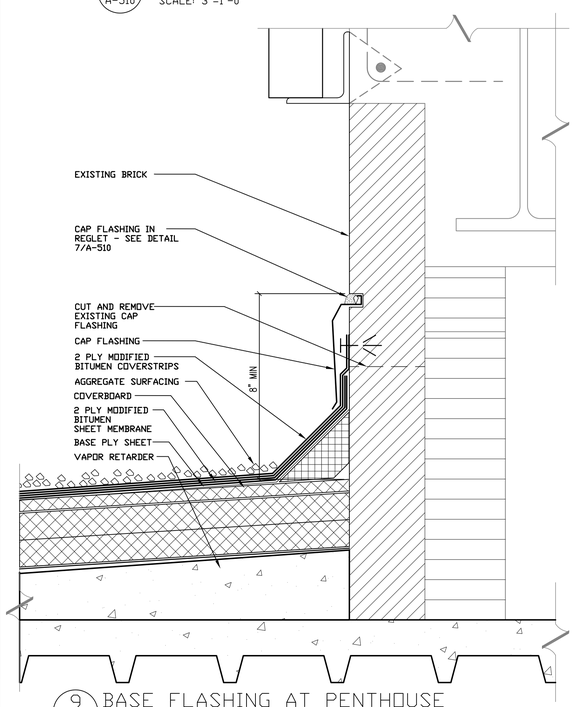
6 A-510 BASE FLASHING DETAIL
SCALE: 3"=1'-0"



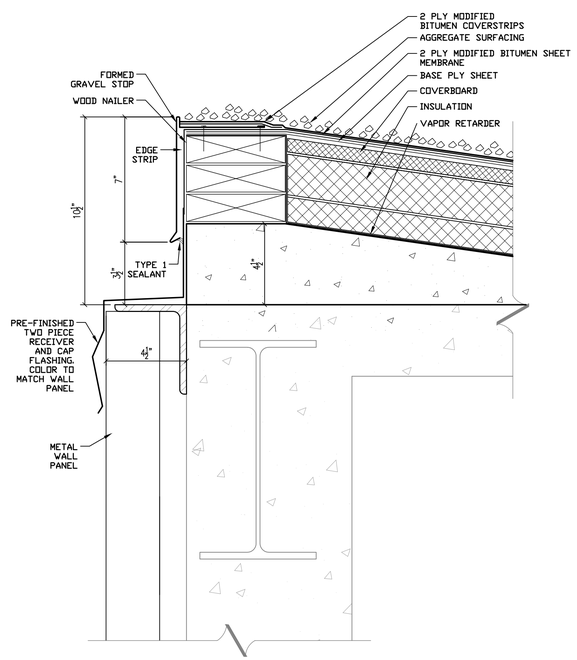
7 A-510 CAP FLASHING IN REGLET DETAIL
SCALE: 3"=1'-0"



8 A-510 ROOF HATCH DETAIL
SCALE: 1 1/2"=1'-0"



9 A-510 BASE FLASHING AT PENTHOUSE
SCALE: 3"=1'-0"



10 A-510 FORMED GRAVEL STOP-PARAPET
SCALE: 3"=1'-0"

Oct 30,2013 - 2:54pm
V:\Designing\Comm\u44808\CadArch\Roof Work\Building 5\A-500.dwg
36x24 PLOT SHEET

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

CONTRACT:
CONSTRUCTION

TITLE:
RENOVATE BUILDING NO. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVENUE
ALBANY, NY 12226

CLIENT:
NEW YORK STATE
OFFICE OF GENERAL SERVICES

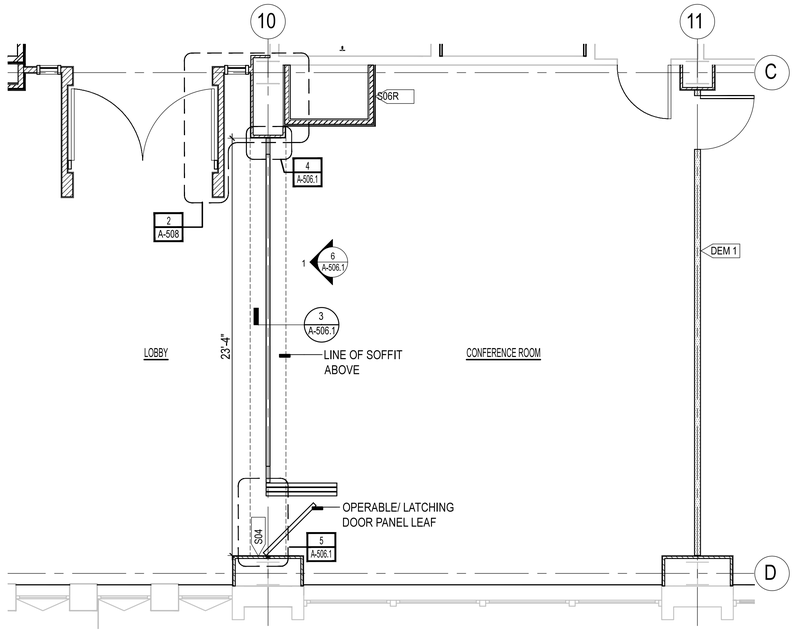
MARK	DATE	DESCRIPTION
	10/25/2013	BID DOCUMENTS
	9/13/2013	100% SUBMISSION

PROJECT NUMBER:	44808 – C
DESIGNED BY:	JM/KS
DRAWN BY:	KS
FIELD CHECK:	
APPROVED:	

SHEET TITLE:
DETAILS

DRAWING NUMBER:
A–510

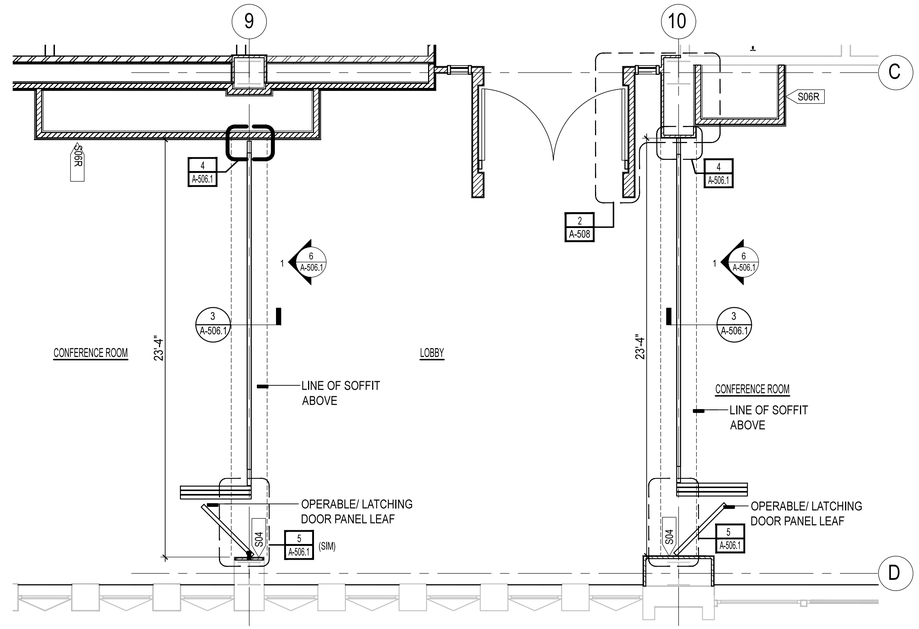
SHEET 2 OF 5



SECOND THRU FIFTH FLOOR ENLARGED CONFERENCE ROOM PLAN

1 / A-506.1

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



SIXTH FLOOR ENLARGED CONFERENCE ROOM PLAN

2 / A-506.1

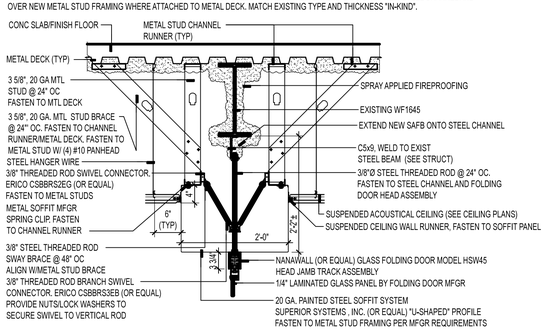
SCALE: 1/4" = 1'-0"

WALL LEGEND

SEE DRAWING A.505 FOR ALL SPECIFIC WALL TYPES

- EXISTING WALL CONSTRUCTION TO REMAIN
- MASONRY WALL CONSTRUCTION
- GYPSUM BOARD WALL CONSTRUCTION SHALL BE S00 > U.O.N.
- MODULAR WALL CONSTRUCTION
- GLASS PANEL FOLDING DOOR

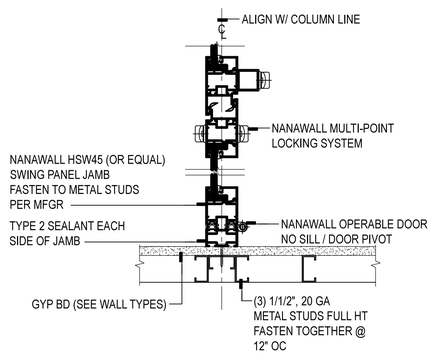
SPRAY APPLIED FIREPROOFING (SAFB) NOTE:
SELECTIVELY REMOVE SAFB FOR NEW STEEL CHANNEL AND NEW METAL STUD FRAMING. REMOVAL SHALL BE STRICTLY LIMITED TO SIZE OF NEW MATERIAL ATTACHMENTS. PROVIDE NEW SAFB AT AREAS OF SELECTIVE REMOVALS. EXTEND SAFB ONTO NEW STEEL CHANNEL AND OVER NEW METAL STUD FRAMING WHERE ATTACHED TO METAL DECK. MATCH EXISTING TYPE AND THICKNESS "IN-KIND".



FOLDING DOOR HEAD/SOFFIT DETAIL

3 / A-506.1

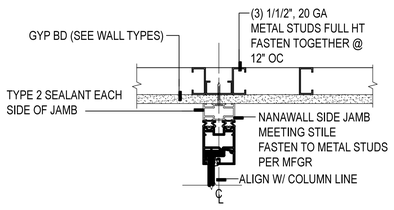
SCALE: 3/4" = 1'-0"



JAMB/ STILE DETAIL

5 / A-506.1

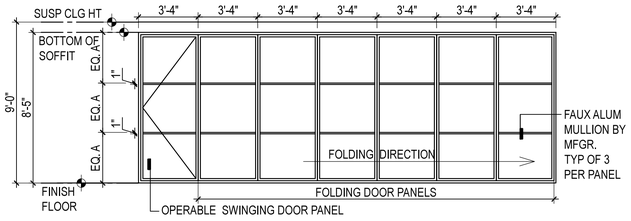
SCALE: 3" = 1'-0"



JAMB/ SWING DOOR DETAIL

4 / A-506.1

SCALE: 3" = 1'-0"



ELEVATION 1

6 / A-506.1

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

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANTS:

HAMLIN DESIGN GROUP

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163 Homestead Ave
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Fax: 518.320.8633
Web: hamlindesigngroup.com

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CALLED NORTH

REGISTERED ARCHITECT SHAWN W. HAMLIN 035275 STATE OF NEW YORK

CONTRACT:
CONSTRUCTION

TITLE:
RENOVATE BUILDING NO. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE.
ALBANY, NY 12226

CLIENT:
OFFICE OF GENERAL SERVICES

ADDENDUM DRAWING
12/2/13

MARK	DATE	DESCRIPTION
	10/25/13	BID DOCUMENTS

PROJECT NUMBER: 44808-C

DESIGNED BY:
DRAWN BY:
FIELD CHECK BY:
APPROVED BY:

SHEET TITLE:
FOLDING DOOR DETAILS
CONFERENCE ROOMS
FLOORS 2 THRU 6

DRAWING NUMBER:
A-512

SHEET #### OF 376

File: /VOLUMES/PRJ_BLDG 5/DESIGN/06 ADDENDUM 3/BLDG 5 A512.DWG
Saved: 11/27/2013 11:24:25 AM Plotted: 11/27/2013 12:51:04 PM User: Timothy Caratola
36x24 PLOT SHEET

PANEL SCHEDULE

PANEL: L6A1 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: 150 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: FTL LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	1260	#10	20/1	●			20/1	#12	120	EF- E-5	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1		●		20/1	#12	720	RECEPTACLES - OPEN OFFICE - WALL	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	300	#10	20/1			●	20/1	#12	1000	RECEPTACLE - WATER COOLER	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	300	#10	20/1	●			20/1	#12	360	RECEPTACLES - CORRIDOR	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	300	#10	20/1		●		20/1	#12	540	RECEPTACLES - BREAK ROOM	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	300	#10	20/1			●	20/1	#12	1500	RECEPTACLES - BREAK ROOM	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1	●			20/1	#12	1500	RECEPTACLES - BREAK ROOM	14
15	-	-	-	-		●		20/1	#12	180	RECEPTACLES - JANITOR'S CLOSET	16
17	-	-	-	-			●	20/1	-	-	SPARE	18
19	-	-	-	-	●			20/1	-	-	SPARE	20
21	-	-	-	-		●		20/1	-	-	SPARE	22
23	-	-	-	-			●	20/1	-	-	SPARE	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6A2 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: MLO AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: - LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	300	RECEPTACLES - BATHROOMS	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	100	FIRE SMOKE DAMPERS	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1			●	20/1	#12	400	DDC PANEL	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1	●			20/1	#12	800	VAVS - EAST	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	360	RECEPTACLES - IT CLOSET	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	#12	360	RECEPTACLES - IT CLOSET	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	360	RECEPTACLES - ELECTRICAL ROOM 6A	14
15	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1		●		20/1	#12	1200	RECEPTACLE - COPIER	16
17	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1			●	20/1	#12	1200	RECEPTACLE - COPIER	18
19	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1	●			20/1	#12	500	RECEPTACLE - PRINTER	20
21	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	500	RECEPTACLE - PRINTER	22
23	RECEPTACLES - OPEN OFFICE - WALL	360	#12	20/1			●	20/1	#12	720	RECEPTACLES - OPEN AREA	24
25	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	-	-	SPARE	26
27	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1		●		20/1	-	-	SPARE	28
29	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1			●	20/1	-	-	SPARE	30
31	-	-	-	-	●			20/1	-	-	SPARE	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: H6A VOLTS: 480/277V PHASE: 3 WIRE: 4
MAIN RATING: 100 AMPS MCB: 100 AMPS MIN AIC RATING: 22,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: ---- LOCATION: ELECTRICAL CLOSETS 215,315,415,515,615

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	LIGHTS - SOUTHEAST (THRU LCP)	3600	#12	20/1	●			20/1	#12	1300	LIGHTS - WEST ROOMS WITH SWITCHES	2
3	LIGHTS - NORTHEAST (THRU LCP)	3000	#12	20/1		●		-	-	-	-	4
5	LIGHTS - EAST (THRU LCP)	1200	#12	20/1			●	-	-	-	-	6
7	LCP-H6A	200	#12	20/1	●			-	-	-	-	8
9	-	-	-	-		●		-	-	-	-	10
11	-	-	-	-			●	-	-	-	-	12
13	-	-	-	-	●			-	-	-	-	14
15	-	-	-	-		●		-	-	-	-	16
17	-	-	-	-			●	-	-	-	-	18
19	-	-	-	-	●			-	-	-	-	20
21	-	-	-	-		●		-	-	-	-	22
23	-	-	-	-			●	-	-	-	-	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
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35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6B1 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: MLO AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: - LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	920	#10	20/1	●			20/1	#10	900	RECEPTACLES - OPEN OFFICE FURNITURE	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1		●		20/1	#10	600	RECEPTACLES - OPEN OFFICE FURNITURE	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1			●	20/1	#12	540	RECEPTACLES - OPEN OFFICE - WALL	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1	●			20/1	#12	800	RECPTACLE - VENDING	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1		●		20/1	#12	800	RECPTACLE - VENDING	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1			●	20/1	#12	800	RECPTACLE - VENDING	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	-	-	SPARE	14
15	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	-	-	SPARE	16
17	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	-	-	SPARE	18
19	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	-	-	SPARE	20
21	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		-	-	-	-	22
23	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	-	-	-	-	24
25	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1	●			-	-	-	-	26
27	RECEPTACLES - OPEN OFFICE FURNITURE	1400	#10	20/1		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6B2 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: 150 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: FTL LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	700	FIRE SMOKE DAMPERS / DOOR HOLDS	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1		●		20/1	#12	360	RECEPTACLES - OPEN OFFICE - WALLS	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	#12	360	RECEPTACLES - ENCLAVE	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	360	RECEPTACLES - ENCLAVE	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	360	RECEPTACLES - ELECTRICAL ROOM 6B	10
11	RECEPTACLES - CONF ROOM	540	#12	20/1			●	20/1	#12	360	RECEPTACLES - STORAGE	12
13	RECEPTACLES - CONF ROOM	360	#12	20/1	●			20/1	#12	360	RECEPTACLES - ELEVATOR LOBBY	14
15	-	-	-	-		●		20/1	-	-	SPARE	16
17	-	-	-	-			●	20/1	-	-	SPARE	18
19	-	-	-	-	●			20/1	-	-	SPARE	20
21	-	-	-	-		●		20/1	-	-	SPARE	22
23	-	-	-	-			●	-	-	-	-	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6C1 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: 150 AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: FTL LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	540	RECEPTACLES - OPEN OFFICE - WALL	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	800	RECEPTACLE - VENDING	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	#12	800	RECEPTACLE - VENDING	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	800	RECEPTACLE - VENDING	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	360	RECEPTACLES - LOBBY	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1			●	20/1	-	-	SPARE	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1	●			20/1	-	-	SPARE	14
15	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1		●		20/1	-	-	SPARE	16
17	-	-	-	-			●	20/1	-	-	SPARE	18
19	-	-	-	-	●			-	-	-	-	20
21	-	-	-	-		●		-	-	-	-	22
23	-	-	-	-			●	-	-	-	-	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6C2 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: MLO AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: - LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	500	FIRE SMOKE DAMPERS / DOOR HOLDS	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	180	RECEPTACLES - ELECTRICAL ROOM 6C	4
5	SPARE	-	-	20/1			●	20/1	#12	360	RECEPTACLES - OPEN OFFICE - WALL	6
7	SPARE	-	-	20/1	●			20/1	#12	500	RECEPTACLE - PRINTER	8
9	RECEPTACLES - CONF ROOM	360	#12	20/1		●		20/1	#12	500	RECEPTACLE - PRINTER	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	#12	720	RECEPTACLES	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1	●			20/1	#12	1200	RECEPTACLE - COPIER	14
15	-	-	-	-		●		20/1	#12	1200	RECEPTACLE - COPIER	16
17	-	-	-	-			●	20/1	-	-	SPARE	18
19	-	-	-	-	●			20/1	-	-	SPARE	20
21	-	-	-	-		●		20/1	-	-	SPARE	22
23	-	-	-	-			●	20/1	-	-	SPARE	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: H6C VOLTS: 480/277V PHASE: 3 WIRE: 4
MAIN RATING: 100 AMPS MCB: 100 AMPS MIN AIC RATING: 22,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: ---- LOCATION: ELECTRICAL CLOSETS 207,307,407,507,607

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	LIGHTS - SOUTHWEST (THRU LCP)	3100	#12	20/1	●			20/1	#12	1900	LIGHTS - WEST ROOMS WITH SWITCHES	2
3	LIGHTS - NORTHWEST (THRU LCP)	2800	#12	20/1		●		20/2	#12	3300	LIGHTS - PENTHOUSE	4
5	LIGHTS - WEST (THRU LCP)	1100	#12	20/1			●	-	-	-	-	6
7	LCP-H6C	200	#12	20/1	●			-	-	-	-	8
9	-	-	-	-		●		-	-	-	-	10
11	-	-	-	-			●	-	-	-	-	12
13	-	-	-	-	●			-	-	-	-	14
15	-	-	-	-		●		-	-	-	-	16
17	-	-	-	-			●	-	-	-	-	18
19	-	-	-	-	●			-	-	-	-	20
21	-	-	-	-		●		-	-	-	-	22
23	-	-	-	-			●	-	-	-	-	24
25	-	-	-	-	●			-	-	-	-	26
27	-	-	-	-		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

PANEL SCHEDULE

PANEL: L6D1 VOLTS: 208Y/120 PHASE: 3 WIRE: 4
MAIN RATING: 225 AMPS MCB: MLO AMPS MIN AIC RATING: 10,000 AMPS RMS SYM.
MOUNTING: SURFACE OTHER: - LOCATION: -

CKT. NO.	LOAD DESCRIPTION	LOAD	WIRE SIZE	TRIP	PHASE A	PHASE B	PHASE C	TRIP	WIRE SIZE	LOAD	LOAD DESCRIPTION	CKT. NO.
1	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1	●			20/1	#10	1200	RECEPTACLES - OPEN OFFICE FURNITURE	2
3	RECEPTACLES - OPEN OFFICE FURNITURE	1200	#10	20/1		●		20/1	#12	540	RECEPTACLES - OPEN OFFICE - WALL	4
5	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1			●	20/1	#12	720	RECEPTACLES - WEST END	6
7	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	#12	500	RECEPTACLES - PRINTERS OPEN OFFICE	8
9	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	#12	500	RECEPTACLES - PRINTERS OPEN OFFICE	10
11	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	-	-	SPARE	12
13	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			20/1	-	-	SPARE	14
15	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1		●		20/1	-	-	SPARE	16
17	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	20/1	-	-	SPARE	18
19	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1	●			20/1	-	-	SPARE	20
21	RECEPTACLES - OPEN OFFICE FURNITURE PRINTERS	1000	#10	20/1		●		20/1	-	-	SPARE	22
23	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1			●	-	-	-	-	24
25	RECEPTACLES - OPEN OFFICE FURNITURE	900	#10	20/1	●			-	-	-	-	26
27	RECEPTACLES - OPEN OFFICE FURNITURE	600	#10	20/1		●		-	-	-	-	28
29	-	-	-	-			●	-	-	-	-	30
31	-	-	-	-	●			-	-	-	-	32
33	-	-	-	-		●		-	-	-	-	34
35	-	-	-	-			●	-	-	-	-	36
37	-	-	-	-	●			-	-	-	-	38
39	-	-	-	-		●		-	-	-	-	40
41	-	-	-	-			●	-	-	-	-	42

ADDENDUM DRAWING
12/2/13

36x24 PLOT SHEET

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

SAGE ENGINEERING ASSOCIATES, LLP
1211 WESTERN AVENUE
ALBANY, NY 12203
(518)453-6091 FAX(518)453-6092

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CONTRACT:
ELECTRICAL

TITLE:
RENOVATE BUILDING
No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

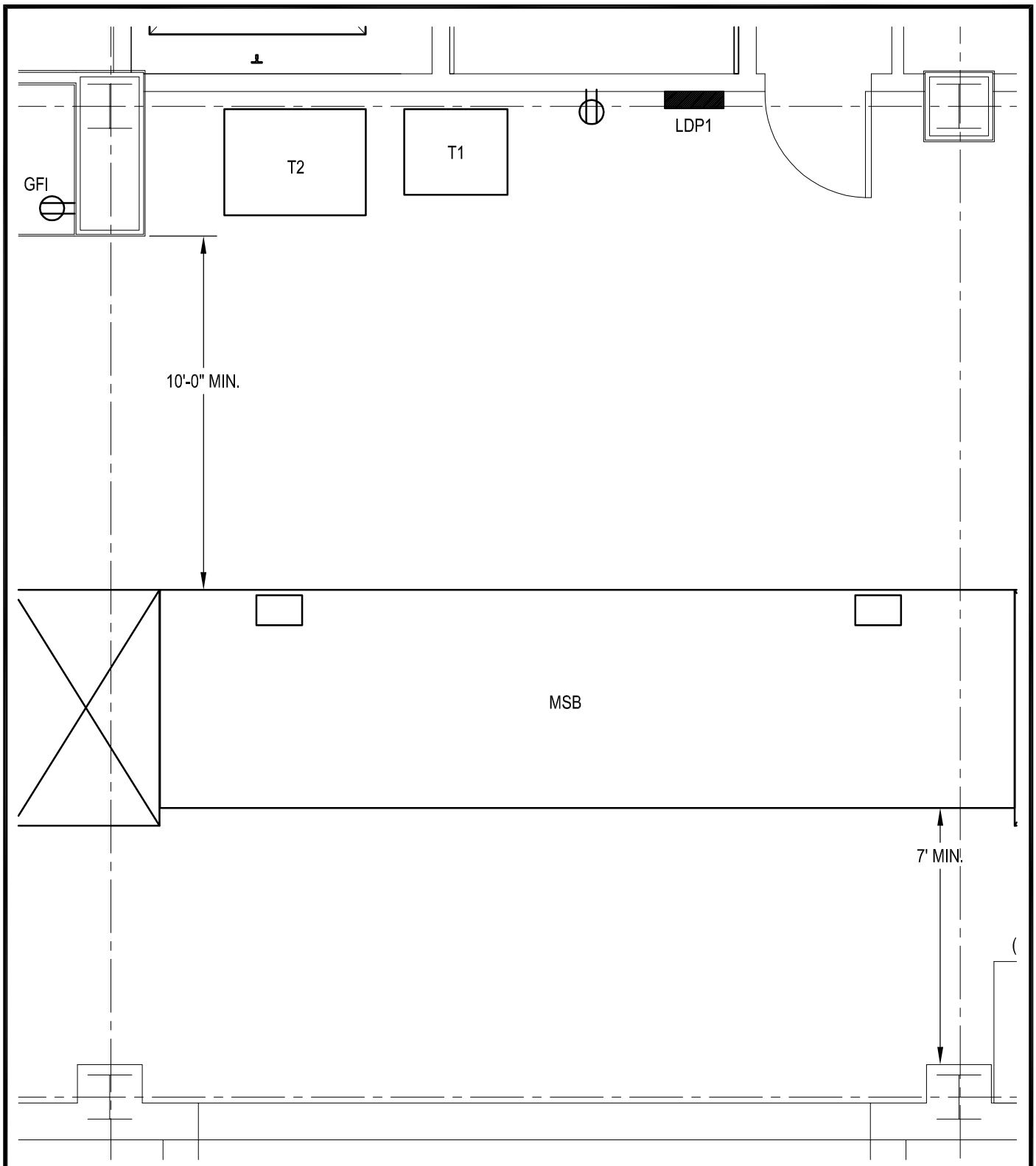
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – E
DESIGNED BY:	GC
DRAWN BY:	CMC
FIELD CHECK:	–
APPROVED:	MM

SHEET TITLE:
PANEL SCHEDULES

DRAWING NUMBER:
E-014

SHEET XX OF 376



NYS OFFICE OF GENERAL SERVICES

Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808
DATE:	12/02/13
DRAWN:	GC
APPROVED:	MM

SHEET TITLE:

DETAILS AND DIAGRAMS

PROJECT:

RENOVATE
BUILDING NO. 5

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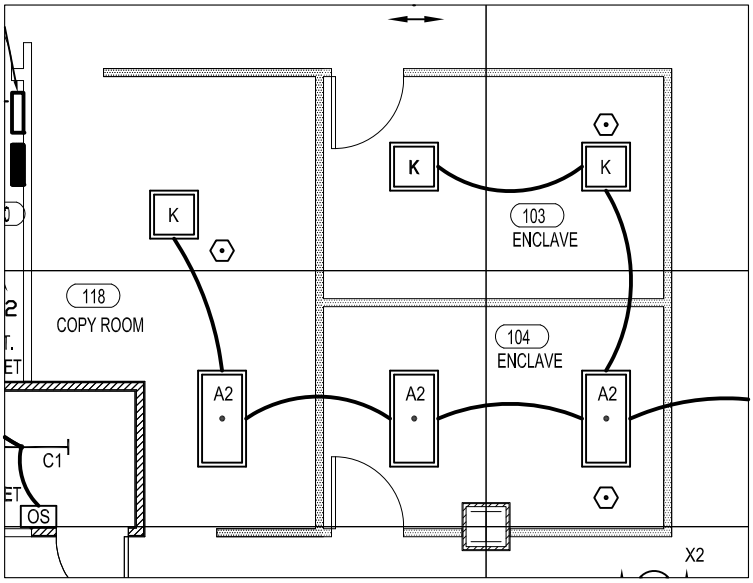
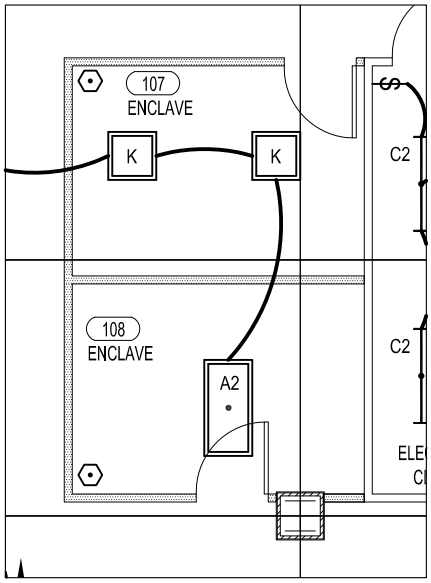
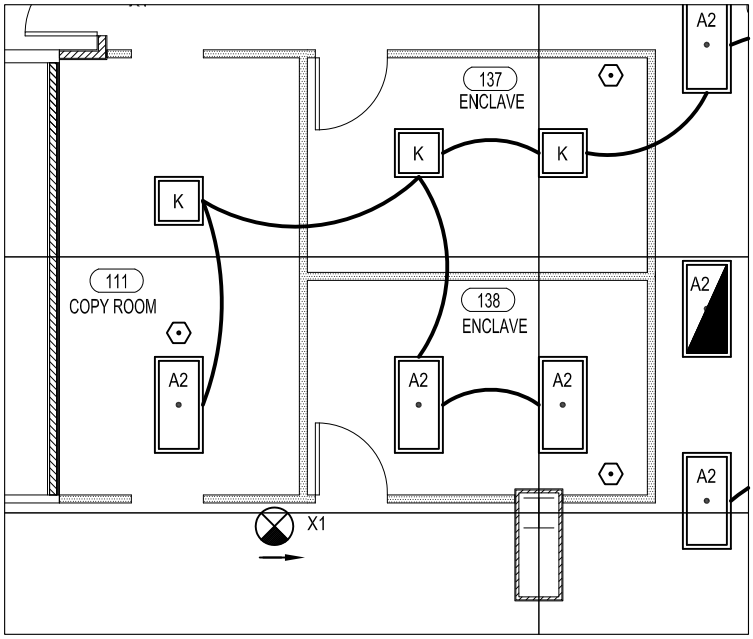
DWG NO:
E-015

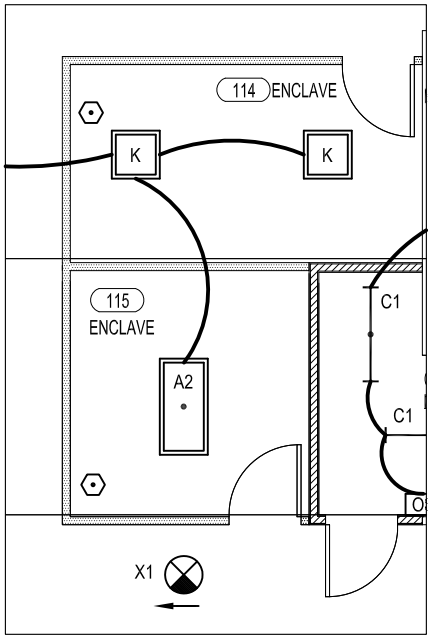
ADDENDUM DRAWING 12/02/13

MODIFIES DRAWING E-003









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
FIRST FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

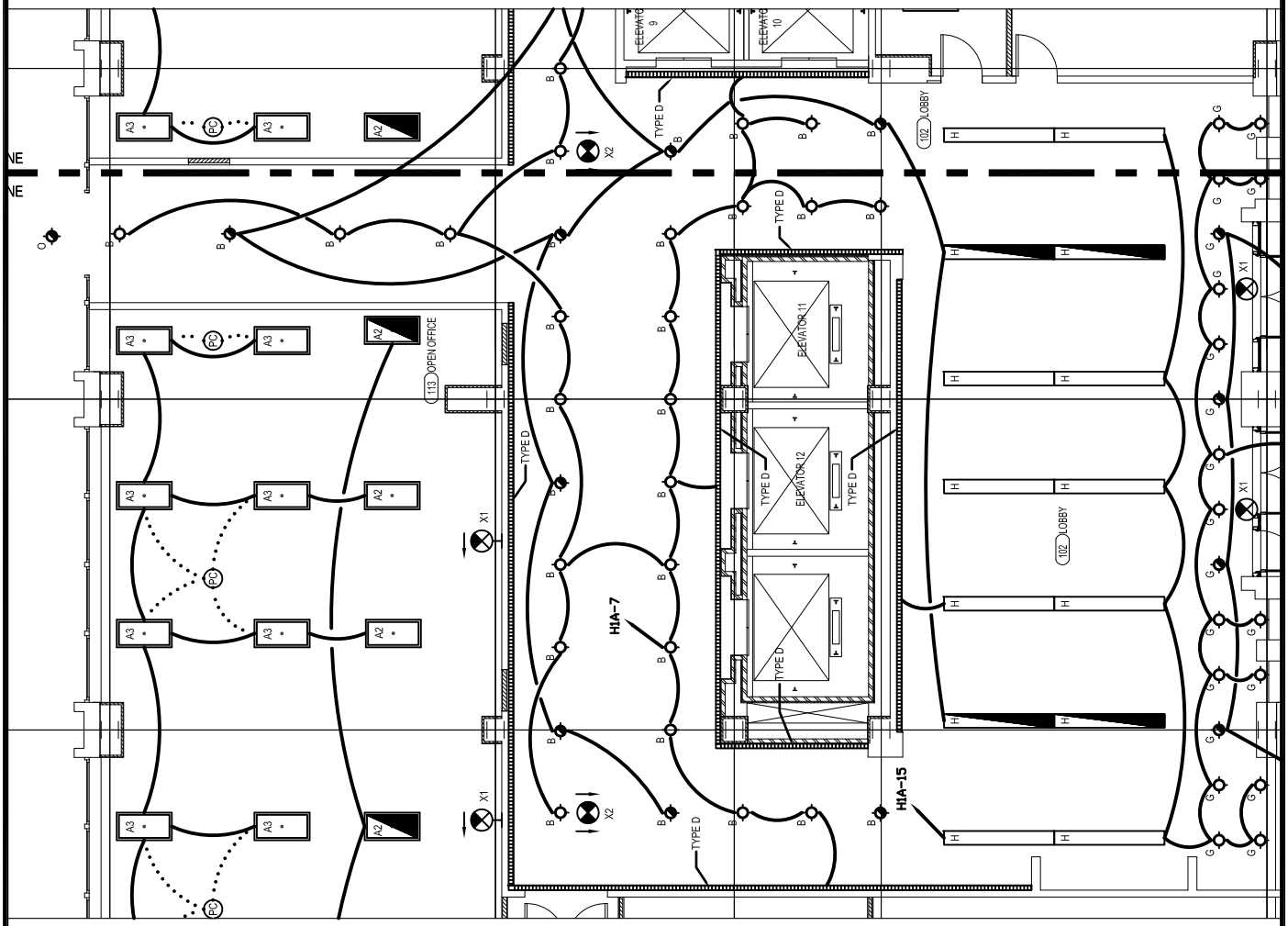
WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

DWG NO:
E-218

8.5x11 PLOT SHEET

XXXXXXX

MODIFIES DRAWINGs E-203 AND E-204



ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
FIRST FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

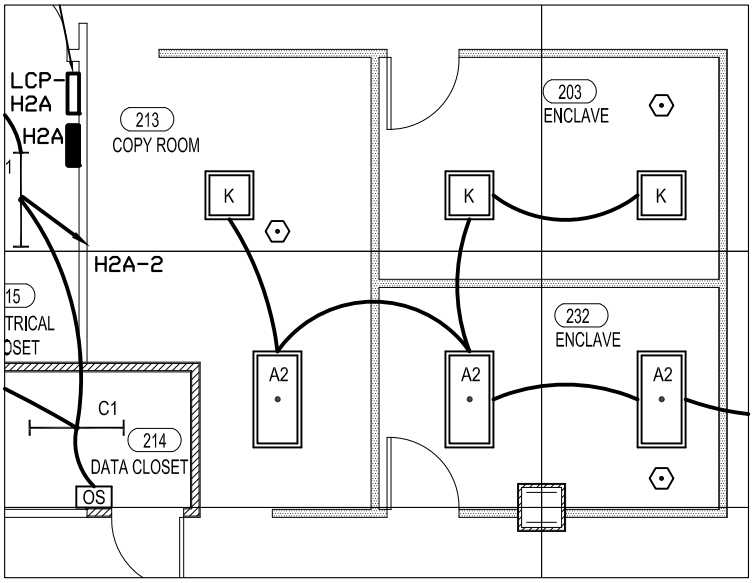
WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

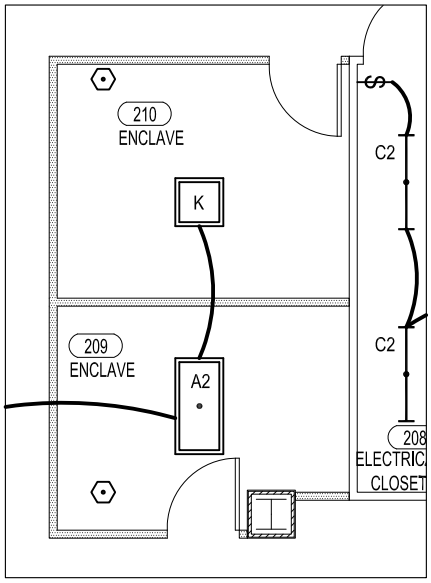
DWG NO:
E-219

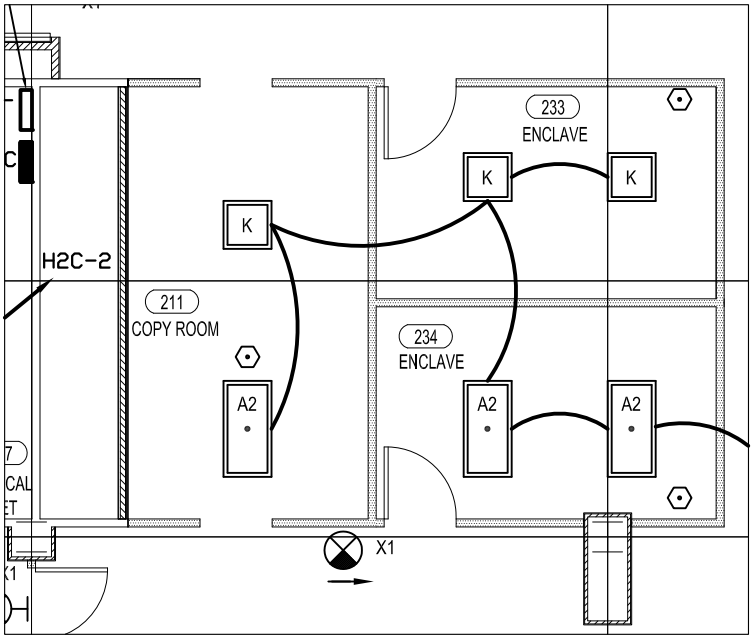
8.5x11 PLOT SHEET

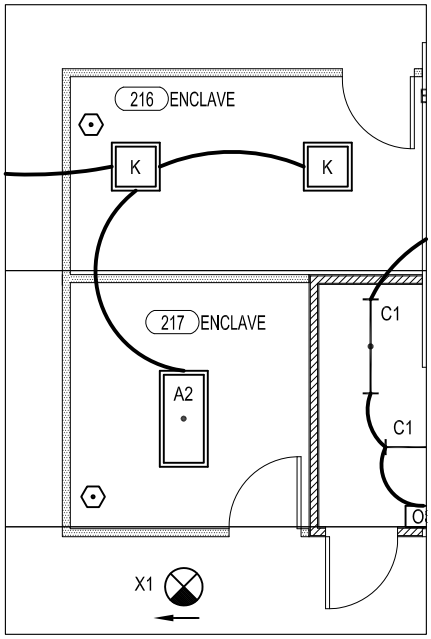
XXXXXXX

MODIFIES DRAWINGS E-203 AND E-204









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
SECOND FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

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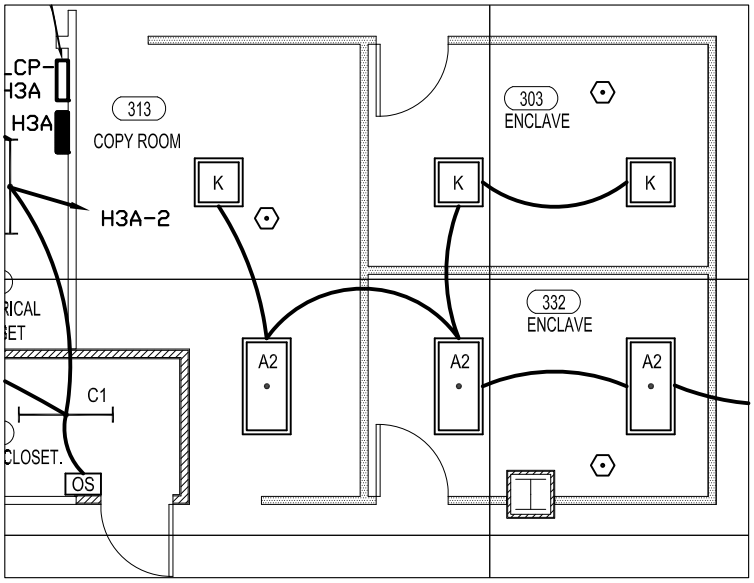
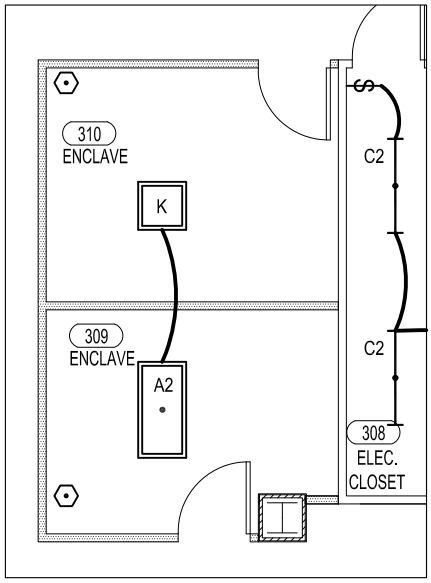
DWG NO:
E-220

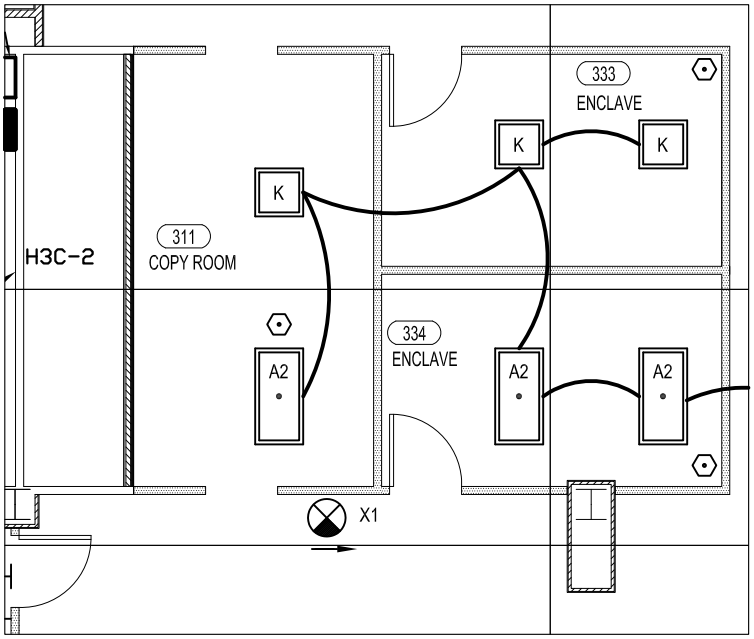
8.5x11 PLOT SHEET

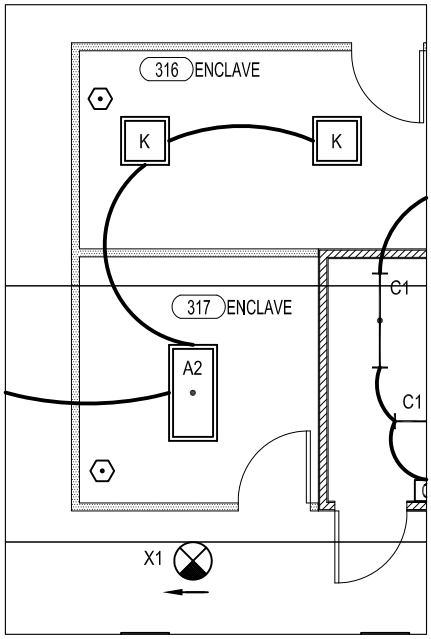
XXXXXXX

MODIFIES DRAWINGS E-205 AND E-206









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
THIRD FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

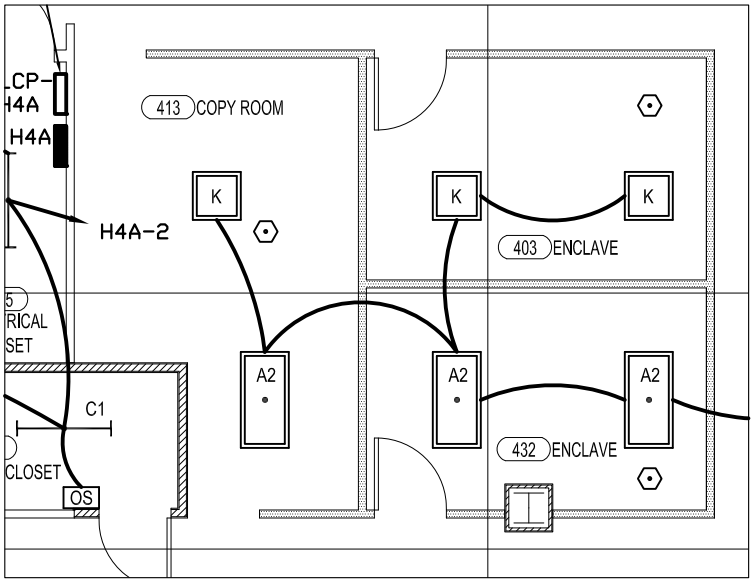
WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

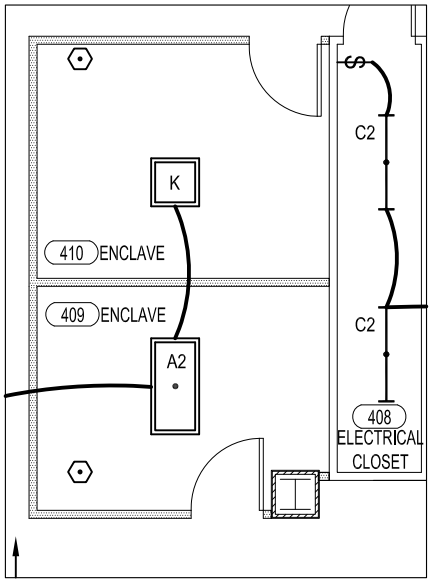
DWG NO:
E-221

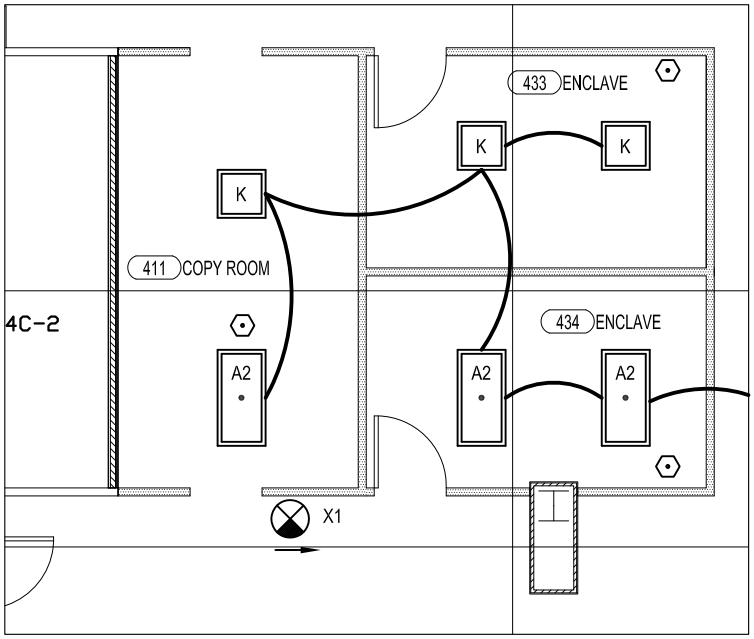
8.5x11 PLOT SHEET

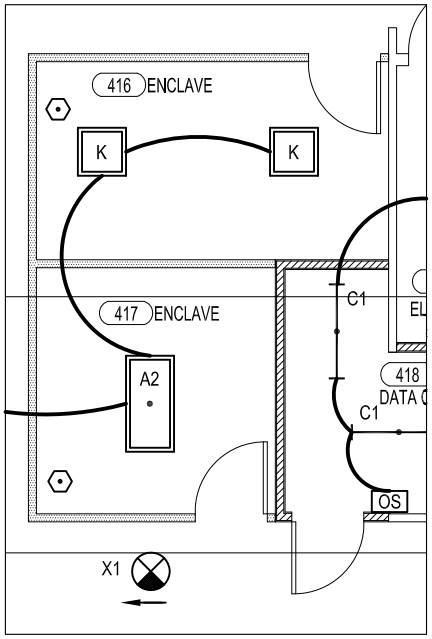
XXXXXXX

MODIFIES DRAWINGS E-207 AND E-208









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
FOURTH FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

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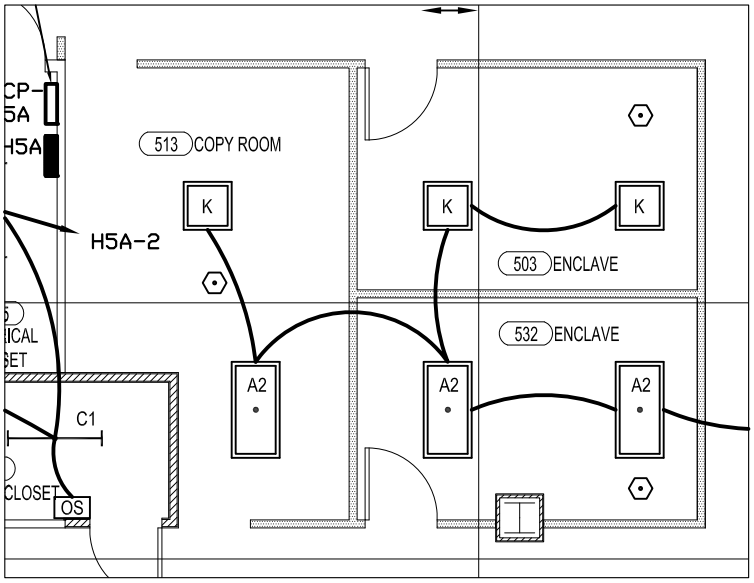
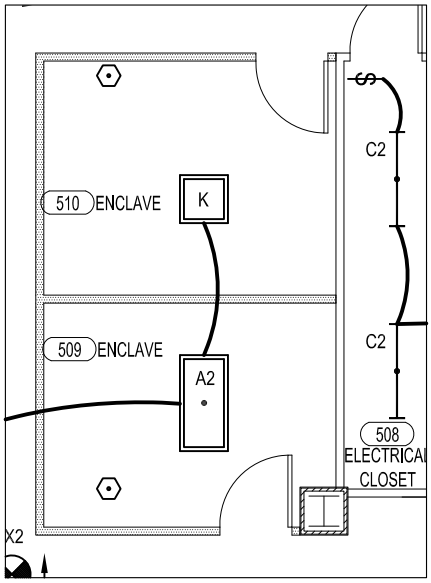
DWG NO:
E-222

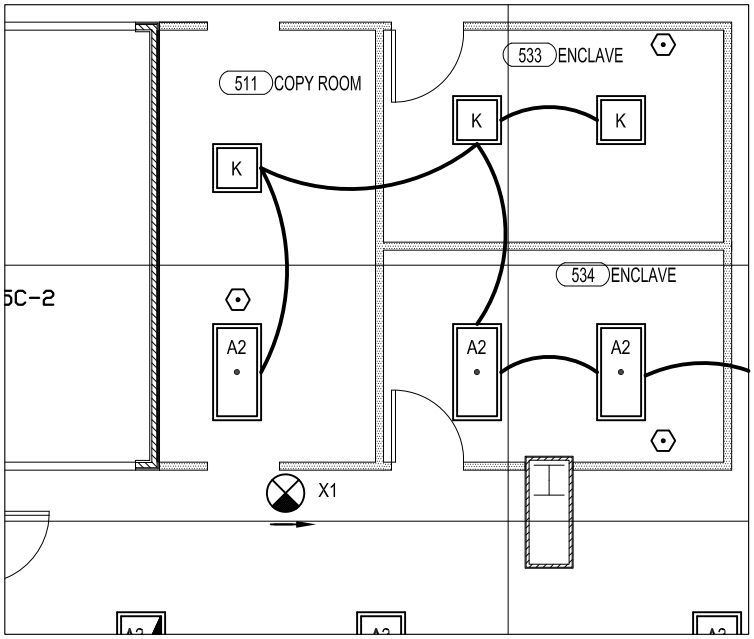
8.5x11 PLOT SHEET

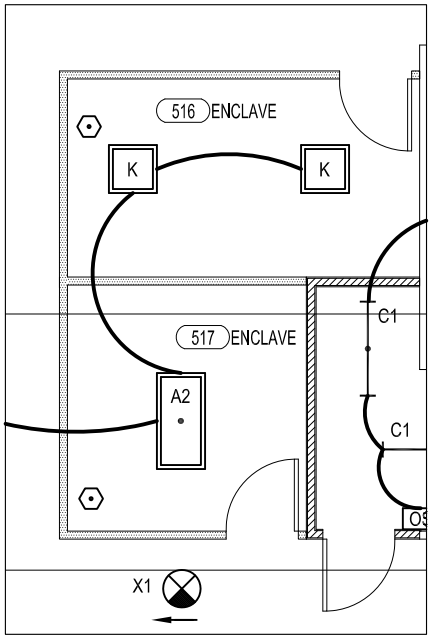
XXXXXXX

MODIFIES DRAWINGS E-209 AND E-210









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
FIFTH FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

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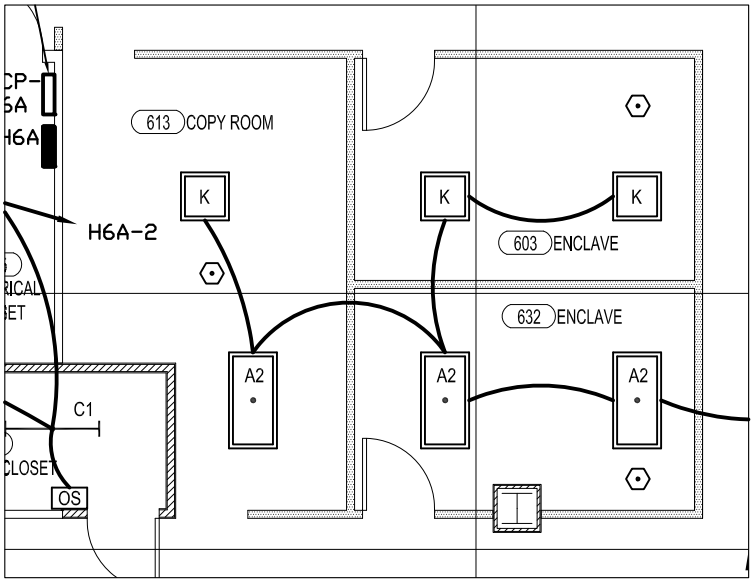
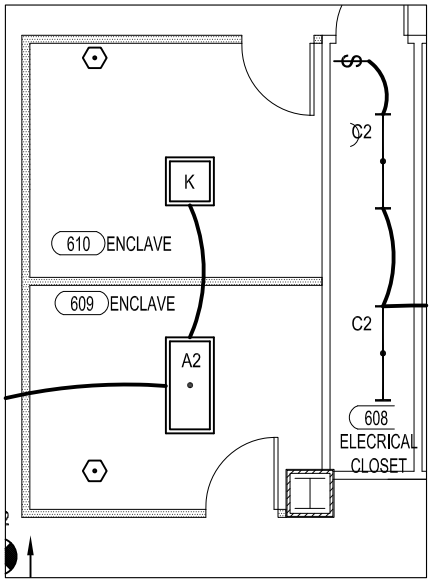
DWG NO:
E-223

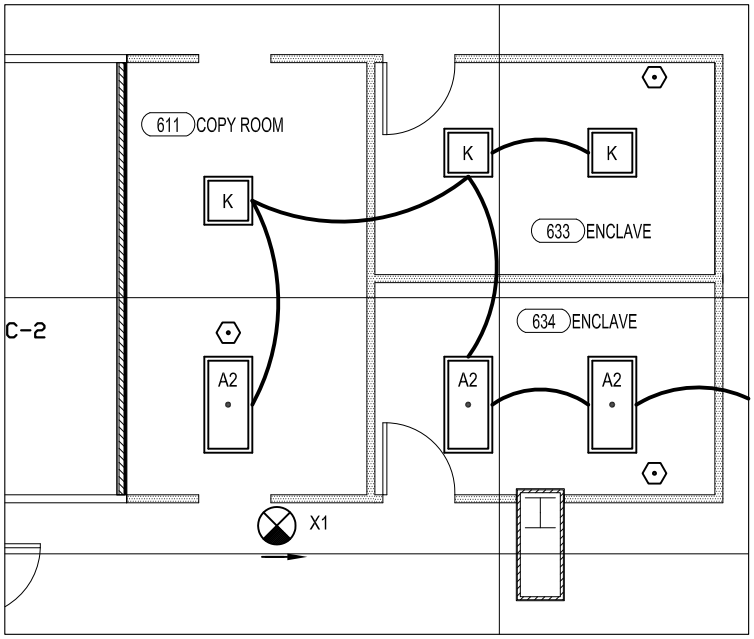
8.5x11 PLOT SHEET

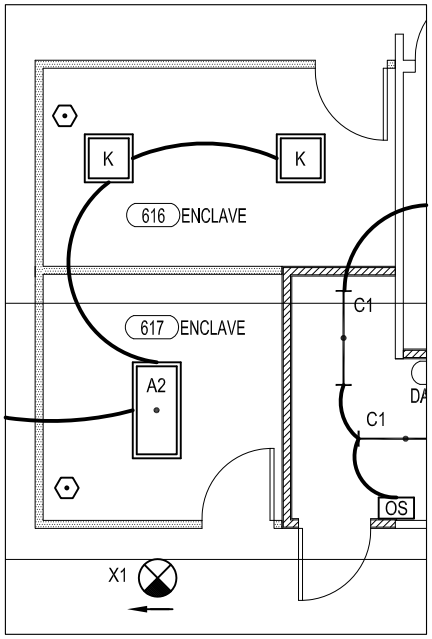
XXXXXXX

MODIFIES DRAWINGS E-211 AND E-212









ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
SIXTH FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

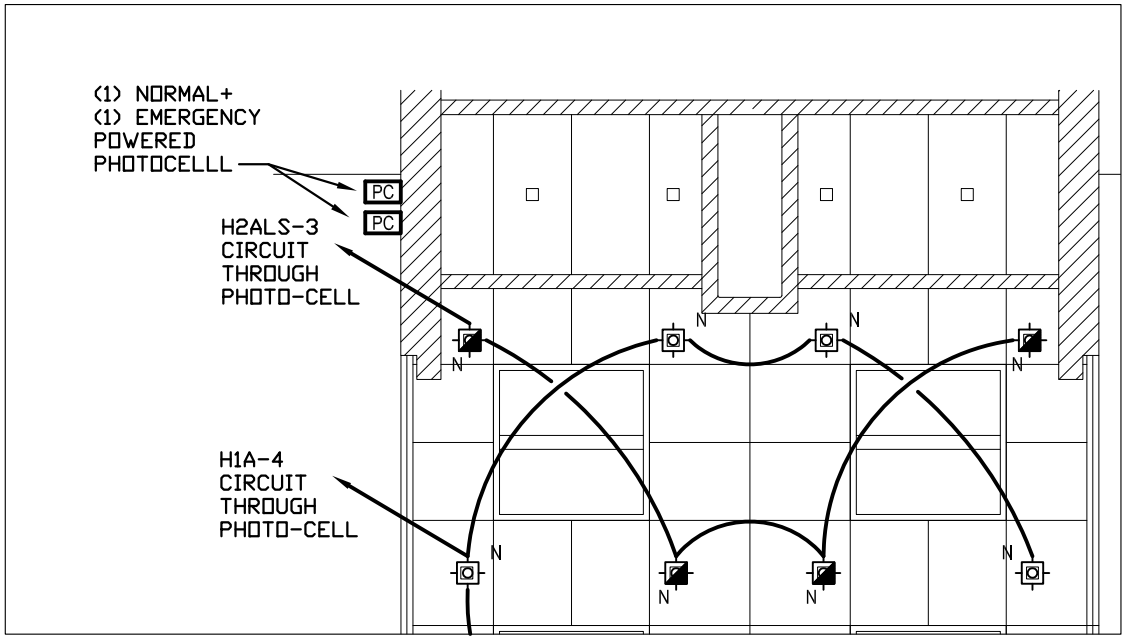
WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

DWG NO:
E-224

8.5x11 PLOT SHEET

XXXXXXX

MODIFIES DRAWINGS E-213 AND E-214



ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
FIRST FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

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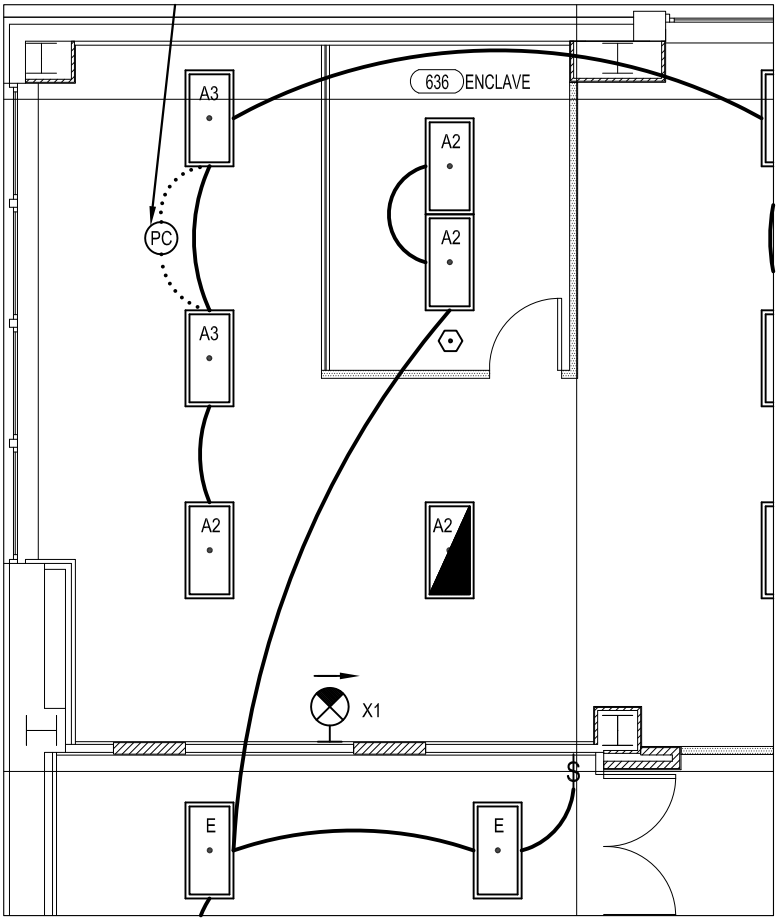
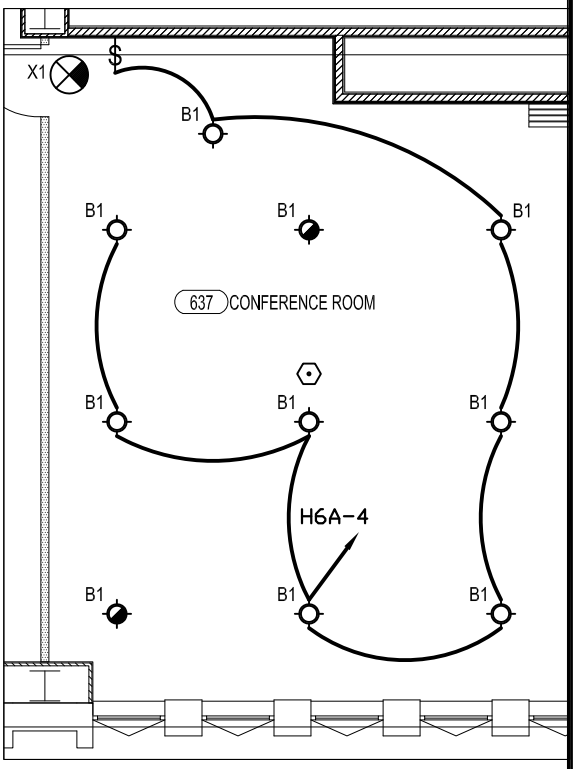
DWG NO:
E-225

8.5x11 PLOT SHEET

XXXXXXX

MODIFIES DRAWING E-203





ADDENDUM DRAWING
12/2/13

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

NYS OFFICE OF GENERAL SERVICES
Serving New York

CONTRACT:	ELECTRICAL
PROJ. NO:	44808-E
DATE:	12/2/13
DRAWN:	A.PACELLI
APPROVED:	–

SHEET TITLE:
SIXTH FLOOR
LIGHTING PLAN

PROJECT:
RENOVATE
BUILDING NO. 5

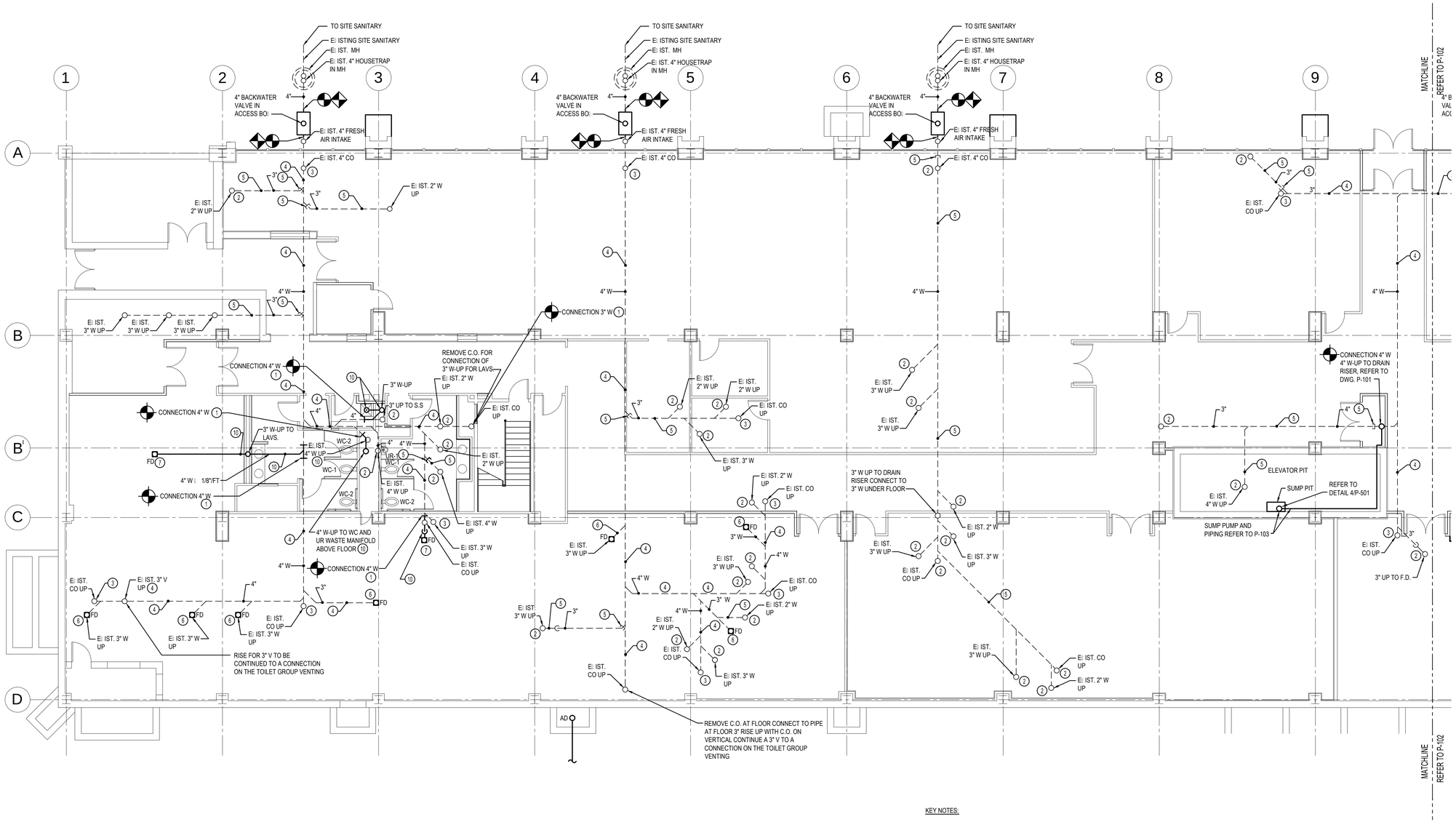
WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

DWG NO:
E-226

8.5x11 PLOT SHEET

XXXXXXX

MODIFIES DRAWING E-213



1 / P-101 BELOW SLAB STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. GROUND FLOOR UNDER SLAB PIPING INFORMATION TAKEN FROM NYS-DPW-DOA ORIGINAL PLANS DATED 12/14/59. P-CONTRACTOR TO VERIFY INFORMATION IN FIELD. ANY DISCREPANCIES OR ADDITIONAL FOUND INFORMATION SHALL BE REPORTED TO THE DIRECTORS REPRESENTATIVE.
2. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
3. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EI ISTING STRUCTURAL STEEL COMPONENTS.

KEY NOTES:

1. EI POSE EI ISTING SANITARY LINE. REMOVE ANY DEBRIS FROM EI ISTING PIPING, VERIFY PIPE SIZE AND TYPE OF MATERIAL, AND PROVIDE PIPING CONNECTIONS. CUT AND PATCH EI ISTING STRUCTURAL REINFORCED FLOOR SLAB. SUPPORT PIPING MAINTAINING PITCH FOR PATCHING OPERATIONS.
2. TERMINATE EI ISTING WASTE AT FLOOR SLAB. PROVIDE VAPOR-TIGHT PLUG PIPE OR HUB BELOW FINISH FLOOR LEVEL. COORDINATE WITH C-CONTRACTOR FOR FLOOR FINISHES AND BASES. CLEAN OUT DEBRIS AND FLUSH PIPING CLEAR PRIOR TO CAPPING PIPE. FILL PIPE WITH 3" CONCRETE OVER PLUG.
3. REPLACE C.O. AND DECK PLATE. COORDINATE WITH C-CONTRACTOR FOR FLOOR FINISHES AND BASES. FINISH FLOOR PLATES SHALL BE COMPATIBLE WITH AND APPROVED FOR USE WITH FLOOR FINISH. MAKE NECESSARY HEIGHT ADJUSTMENTS.
4. ACTIVE SANITARY PIPING LINE TO REMAIN IN SERVICE. CLEAN AND FLUSH. T.V. INSPECT ALL EI ISTING UNDERSLAB LINES REMAINING IN SERVICE. INSPECT AND RECORD OBSERVATIONS AND DATA PRIOR TO AND AT COMPLETION OF WORK. REFER TO SPECIFICATION SECTION 330526 FOR DETAILS.
5. EI ISTING SANITARY LINE TO BE ABANDONED-IN-PLACE. CUT AND CAP PIPING AT LOCATIONS SHOWN AND FILL ABANDONED PIPE WITH SAND. PROVIDE CUTTING AND PATCHING OF EI ISTING STRUCTURAL REINFORCED FLOOR SLAB.
6. REPLACE EI ISTING FD WITH FLOOR DRAIN FD-1. CUT AND PATCH EI ISTING STRUCTURAL REINFORCED FLOOR SLAB. REFER TO DETAIL 3/P502. CLEAN AND FLUSH EI ISTING TRAP AND PIPING.
7. PROVIDE FLOOR DRAIN FD-1 WITH TRAP AND CONNECTION TO EI ISTING WASTE PIPING IN SLAB. CUT AND PATCH EI ISTING STRUCTURAL REINFORCED FLOOR SLAB. CLEAN AND FLUSH EI ISTING TRAP AND PIPING. COORDINATE LOCATIONS WITH H-CONTRACTOR FOR EI UIPMENT DRAINS.
8. DISCONNECT AND REMOVE EI ISTING VENT RISER. PLUG CONNECTION ON SANITARY LINE BELOW GRADE.
9. NOT USED
10. PROVIDE PIPING IN OR BELOW FLOOR SLAB TO CONNECT TO FI TURES AND FD'S TO EI ISTING SANITARY PIPING. PROVIDE CUTTING AND PATCHING OF EI ISTING STRUCTURAL REINFORCED FLOOR SLAB FOR BELOW SLAB PIPING CONNECTIONS.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

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CONTRACT: PLUMBING

TITLE: RENOVATE BUILDING No. 5

LOCATION: STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

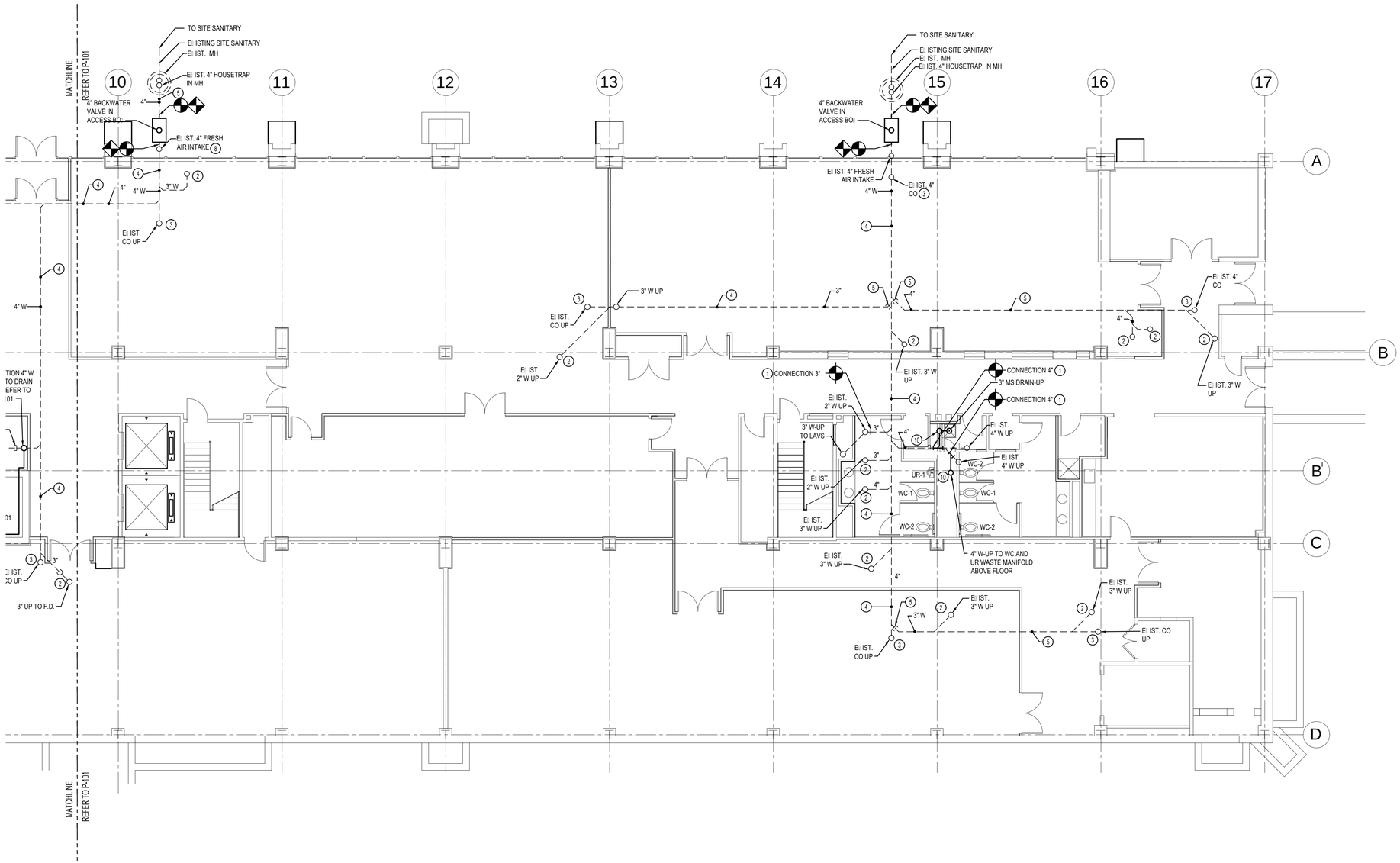
CLIENT: OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: BELOW SLAB STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–101



1 / P-102

BELOW SLAB STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. GROUND FLOOR UNDER SLAB PIPING INFORMATION TAKEN FROM NYS-DPW-DOA ORIGINAL PLANS DATED 12/14/59. P-CONTRACTOR TO VERIFY INFORMATION IN FIELD. ANY DISCREPANCIES OR ADDITIONAL FOUND INFORMATION SHALL BE REPORTED TO THE DIRECTORS REPRESENTATIVE.
2. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
3. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.

KEY NOTES:

1. E: POSE E: ISTING SANITARY LINE. REMOVE ANY DEBRIS FROM E: ISTING PIPING, VERIFY PIPE SIZE AND TYPE OF MATERIAL, AND PROVIDE PIPING CONNECTIONS. CUT AND PATCH E: ISTING STRUCTURAL REINFORCED FLOOR SLAB. SUPPORT PIPING MAINTAINING PITCH FOR PATCHING OPERATIONS.
2. TERMINATE E: ISTING WASTE AT FLOOR SLAB. PROVIDE VAPOR-TIGHT PLUG PIPE OR HUB BELOW FINISH FLOOR LEVEL. COORDINATE WITH C-CONTRACTOR FOR FLOOR FINISHES AND BASES. CLEAN OUT DEBRIS AND FLUSH PIPING CLEAR PRIOR TO CAPPING PIPE. FILL PIPE WITH 3" CONCRETE OVER PLUG.
3. REPLACE C.O. AND DECK PLATE. COORDINATE WITH C-CONTRACTOR FOR FLOOR FINISHES AND BASES. FINISH FLOOR PLATES SHALL BE COMPATIBLE WITH AND APPROVED FOR USE WITH FLOOR FINISH. MAKE NECESSARY HEIGHT ADJUSTMENTS.
4. ACTIVE SANITARY PIPING LINE TO REMAIN IN SERVICE. CLEAN AND FLUSH. T.V. INSPECT ALL E: ISTING UNDERSLAB LINES REMAINING IN SERVICE. INSPECT AND RECORD OBSERVATIONS AND DATA PRIOR TO AND AT COMPLETION OF WORK. REFER TO SPECIFICATION SECTION 330526 FOR DETAILS.
5. E: ISTING SANITARY LINE TO BE ABANDONED-IN-PLACE. CUT AND CAP PIPING AT LOCATIONS SHOWN AND FILL ABANDONED PIPE WITH SAND. PROVIDE CUTTING AND PATCHING OF E: ISTING STRUCTURAL REINFORCED FLOOR SLAB.
6. REPLACE E: ISTING FD WITH FLOOR DRAIN FD-1. CUT AND PATCH E: ISTING STRUCTURAL REINFORCED FLOOR SLAB. REFER TO DETAIL 3/P502. CLEAN AND FLUSH E: ISTING TRAP AND PIPING.
7. PROVIDE FLOOR DRAIN FD-1 WITH TRAP AND CONNECTION TO E: ISTING WASTE PIPING IN SLAB. CUT AND PATCH E: ISTING STRUCTURAL REINFORCED FLOOR SLAB. CLEAN AND FLUSH E: ISTING TRAP AND PIPING. COORDINATE LOCATIONS WITH H-CONTRACTOR FOR E: UIPMENT DRAINS.
8. DISCONNECT AND REMOVE E: ISTING VENT RISER. PLUG CONNECTION ON SANITARY LINE BELOW GRADE.
9. NOT USED.
10. PROVIDE PIPING IN OR BELOW FLOOR SLAB TO CONNECT TO FI: TURES AND FD'S TO E: ISTING SANITARY PIPING. PROVIDE CUTTING AND PATCHING OF E: ISTING STRUCTURAL REINFORCED FLOOR SLAB FOR BELOW SLAB PIPING CONNECTIONS.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

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CONTRACT:
PLUMBING

TITLE:
RENOVATE BUILDING No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

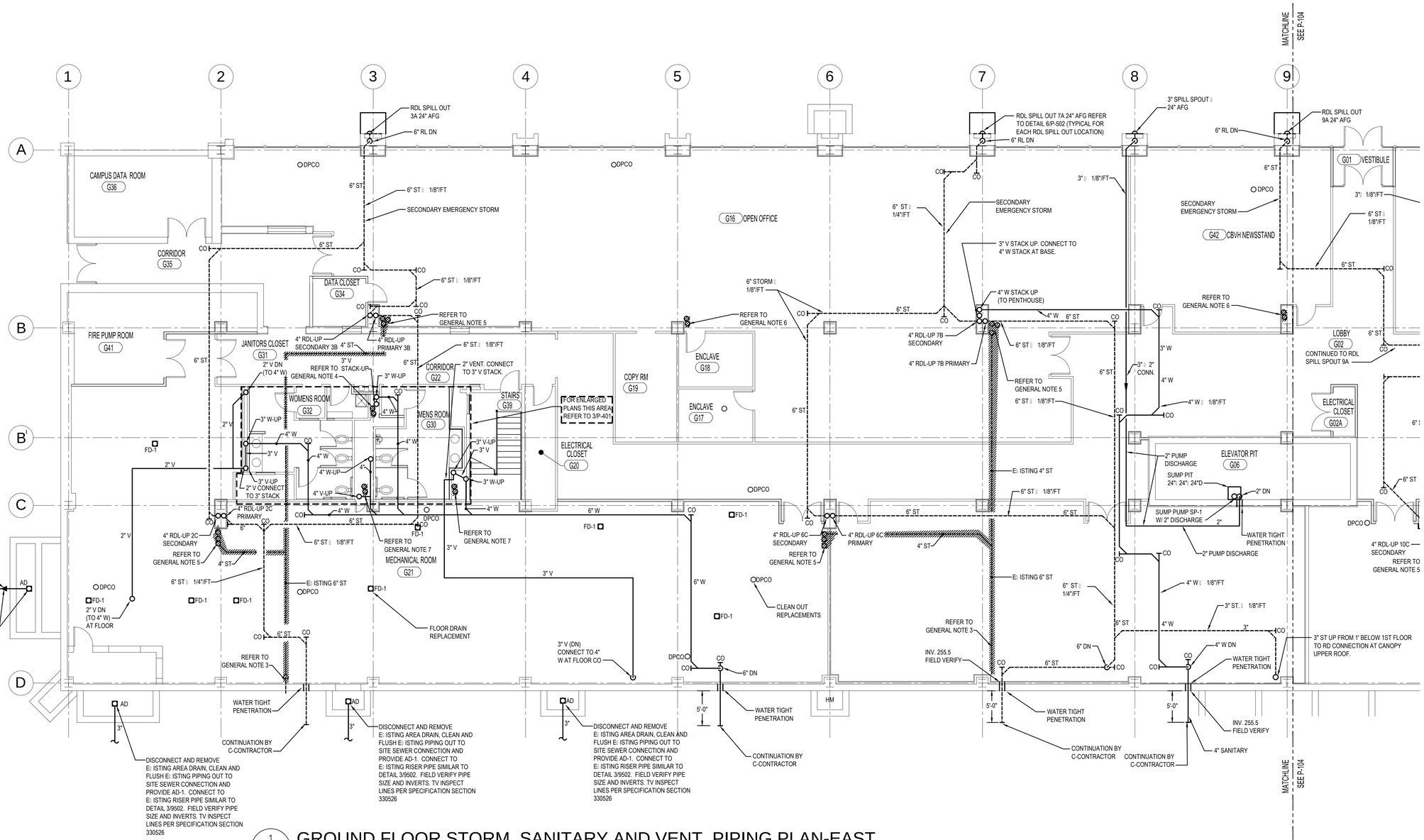
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
BELOW SLAB STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER:
P–102

SHEET 265 OF 376



1 P-103 GROUND FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.
3. DISCONNECT AND REMOVE E: ISTING STORM PIPING INDICATED TO POINT OF E: TERIOR WALL PENETRATION AND PROVIDE 6" PLUG AT WALL PENETRATION. PROVIDE REMOVAL WORK INDICATED IN THIS NOTE FOLLOWING THE COMPLETION OF ALL STORM PIPING INSTALLATION WORK SHOWN ON DRAWINGS P-103 THROUGH P-117.
4. DISCONNECT AND REMOVE E: ISTING E: ISTING 3" VENT RISER AND 3" WASTE STACK FROM THE GROUND FLOOR TO THE 6TH FLOOR PRIOR TO THE INSTALLATION OF MOP SINK MS-1 SHOWN ON DRAWINGS 3/P-401, 3/P-402 AND 3/P-403. REFER TO DRAWING P-115 FOR CONTINUATION OF 3" VENT.
5. DISCONNECT AND REMOVE E: ISTING E: ISTING 2" VENT RISER, 3" WASTE STACK AND 4" STORM RISER FROM GROUND FLOOR TO THE 6TH FLOOR. COORDINATE REMOVAL OF EACH RISER WITH THE INSTALLATION OF THE STORM PIPING SHOWN ON DRAWINGS P-103 THROUGH P-117 TO MAINTAIN STORMWATER FLOW THROUGHOUT THE DURATION OF CONSTRUCTION. REFER TO DRAWING P-115 FOR CONTINUATION THE VENT AND STORM LEADER RISER.
6. DISCONNECT AND REMOVE E: ISTING E: ISTING 2" VENT RISER AND 3" WASTE STACK FROM GROUND FLOOR TO THE 6TH FLOOR. REFER TO DRAWING P-115 FOR CONTINUATION THE VENT RISER.
7. DISCONNECT AND REMOVE E: ISTING E: ISTING 3" VENT RISER AND 4" WASTE STACK FROM GROUND FLOOR TO THE 6TH FLOOR. REFER TO DRAWING P-115 FOR CONTINUATION THE VENT RISER.

REVISED DRAWING 12/02/13

36x24 PLOT SHEET

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CONTRACT: PLUMBING

TITLE: RENOVATE BUILDING No. 5

LOCATION: STATE OFFICE BUILDING CAMPUS 1220 WASHINGTON AVE ALBANY, NEW YORK 12226

CLIENT: OFFICE OF GENERAL SERVICES

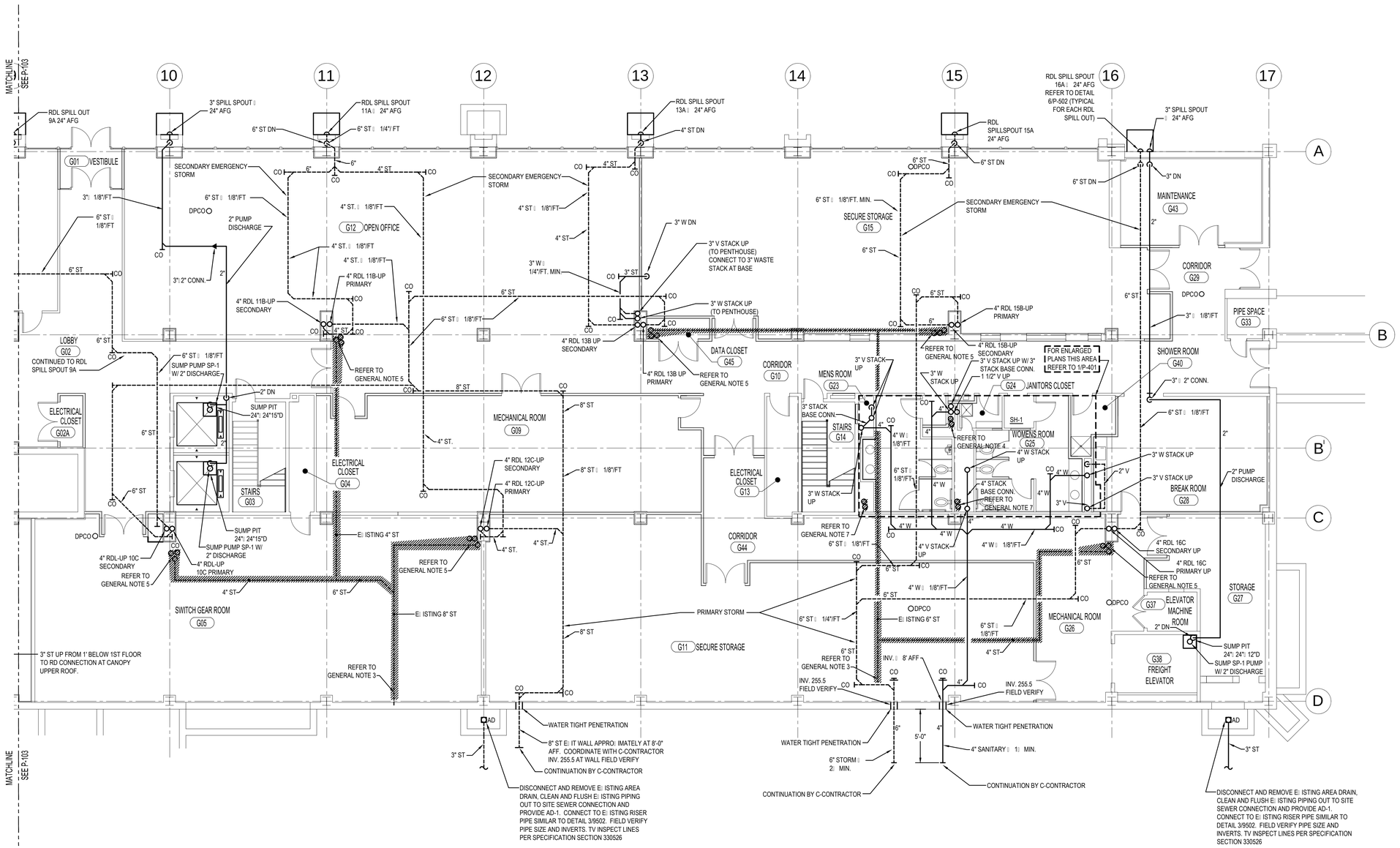
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: GROUND FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–103

SHEET 266 OF 376



1 / P-104 GROUND FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.
3. DISCONNECT AND REMOVE E: ISTING STORM PIPING INDICATED TO POINT OF E: TERIOR WALL PENETRATION AND PROVIDE 6" PLUG AT WALL PENETRATION. PROVIDE REMOVAL WORK INDICATED IN THIS NOTE FOLLOWING THE COMPLETION OF ALL STORM PIPING INSTALLATION WORK SHOWN ON DRAWINGS P-103 THROUGH P-117.
4. DISCONNECT AND REMOVE E: ISTING E: ISTING 3" VENT RISER AND 3" WASTE STACK FROM THE GROUND FLOOR TO THE 6TH FLOOR PRIOR TO THE INSTALLATION OF MOP SINK MS-1 SHOWN ON DRAWINGS 1/P-401, 1/P-402 AND 1/P-403. REFER TO DRAWING P-116 FOR CONTINUATION OF 3" VENT.
5. DISCONNECT AND REMOVE E: ISTING E: ISTING 2" VENT RISER, 3" WASTE STACK AND 4" STORM RISER FROM GROUND FLOOR TO THE 6TH FLOOR. COORDINATE REMOVAL OF EACH RISER WITH THE INSTALLATION OF THE STORM PIPING SHOWN ON DRAWINGS P-103 THROUGH P-117 TO MAINTAIN STORMWATER FLOW THROUGHOUT THE DURATION OF CONSTRUCTION. REFER TO DRAWING P-116 FOR CONTINUATION THE VENT AND STORM LEADER RISER.
6. DISCONNECT AND REMOVE E: ISTING E: ISTING 2" VENT RISER AND 3" WASTE STACK FROM GROUND FLOOR TO THE 6TH FLOOR. REFER TO DRAWING P-116 FOR CONTINUATION THE VENT RISER.
7. DISCONNECT AND REMOVE E: ISTING E: ISTING 3" VENT RISER AND 4" WASTE STACK FROM GROUND FLOOR TO THE 6TH FLOOR. REFER TO DRAWING P-115 FOR CONTINUATION THE VENT RISER.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

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CONTRACT: PLUMBING

TITLE: RENOVATE BUILDING No. 5

LOCATION: STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT: OFFICE OF GENERAL SERVICES

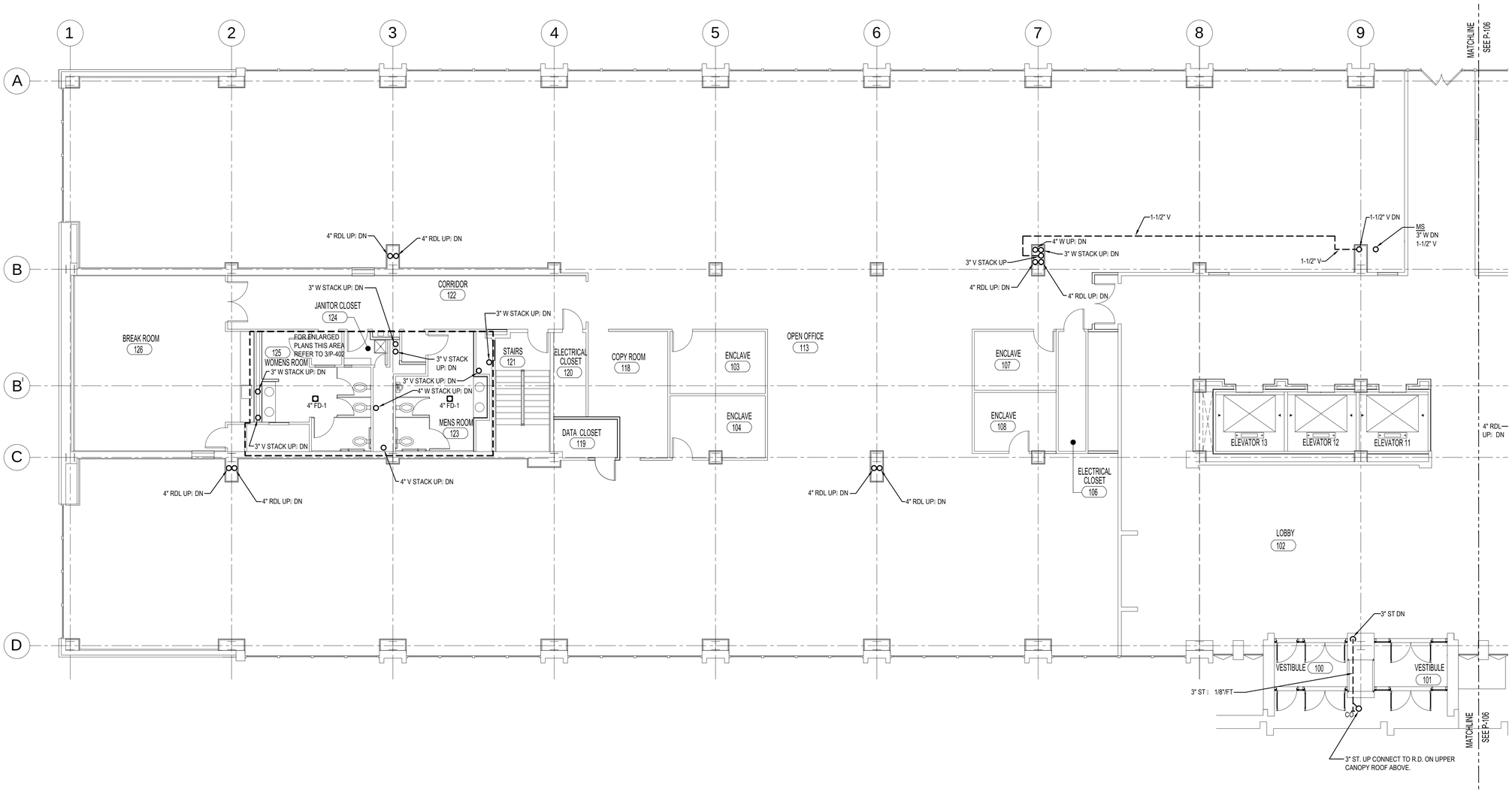
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: GROUND FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER: P–104

SHEET 267 OF 376



1 / P-105 FIRST FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

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CONTRACT:
PLUMBING

TITLE:
RENOVATE BUILDING
No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

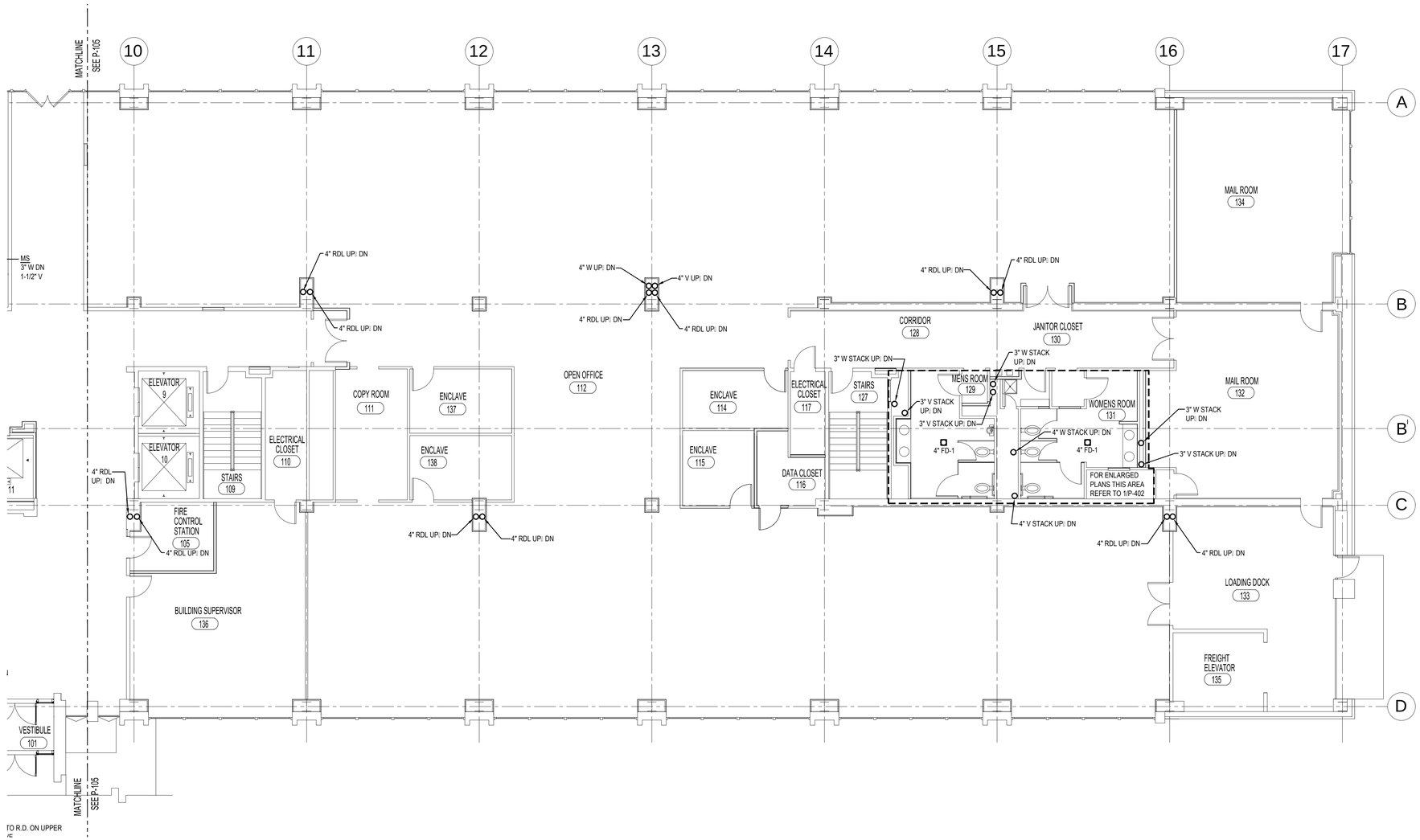
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
FIRST FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER:
P–105

SHEET 268 OF 376



1 / P-106 FIRST FLOOR STORM, SANITARY AND VENT PARTIAL PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EI ISTING STRUCTURAL STEEL COMPONENTS.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

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TITLE:
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No. 5

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CLIENT:
OFFICE OF GENERAL SERVICES

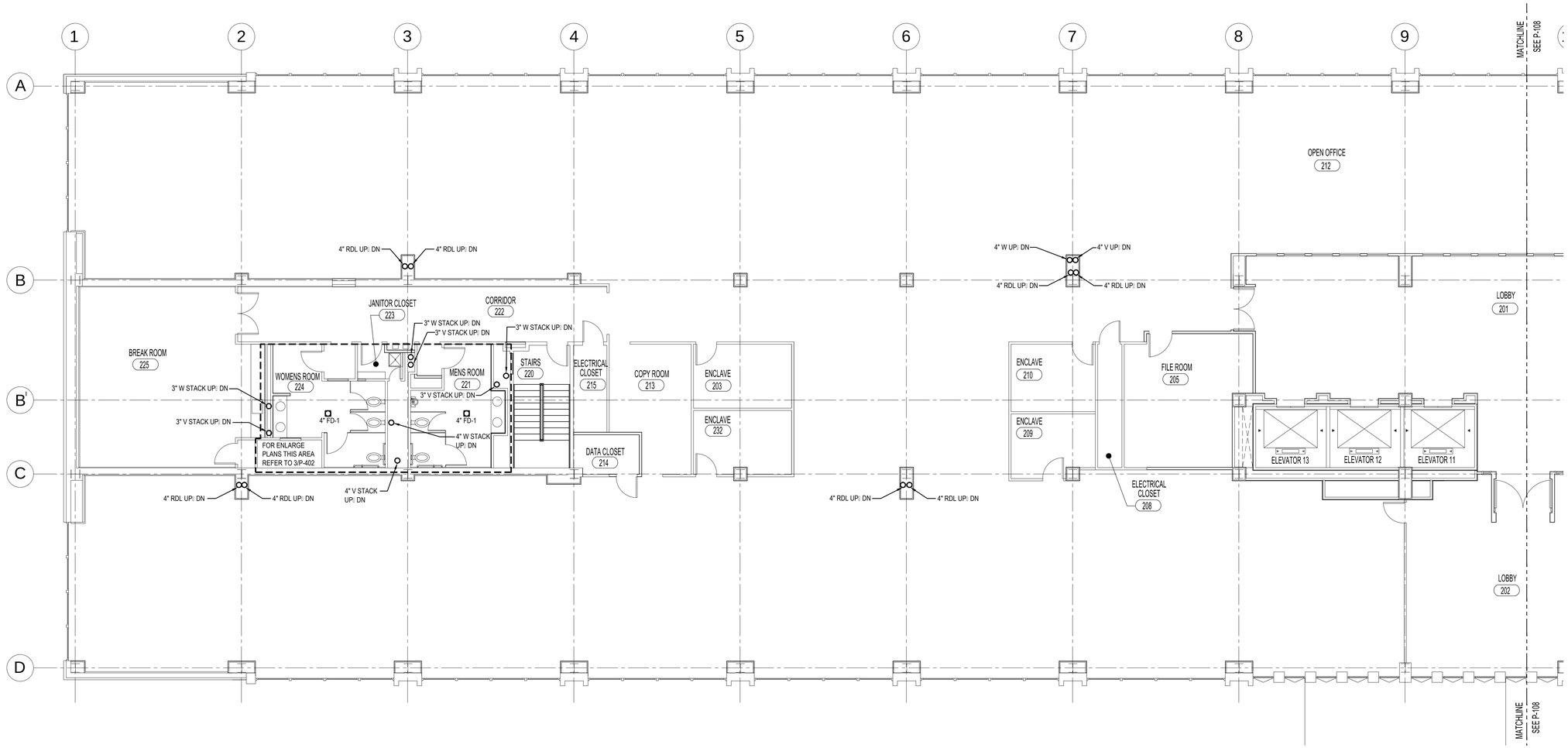
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
FIRST FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER:
P–106

SHEET 269 OF 376



1 / P-107 SECOND FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E\ ISTING STRUCTURAL STEEL COMPONENTS.

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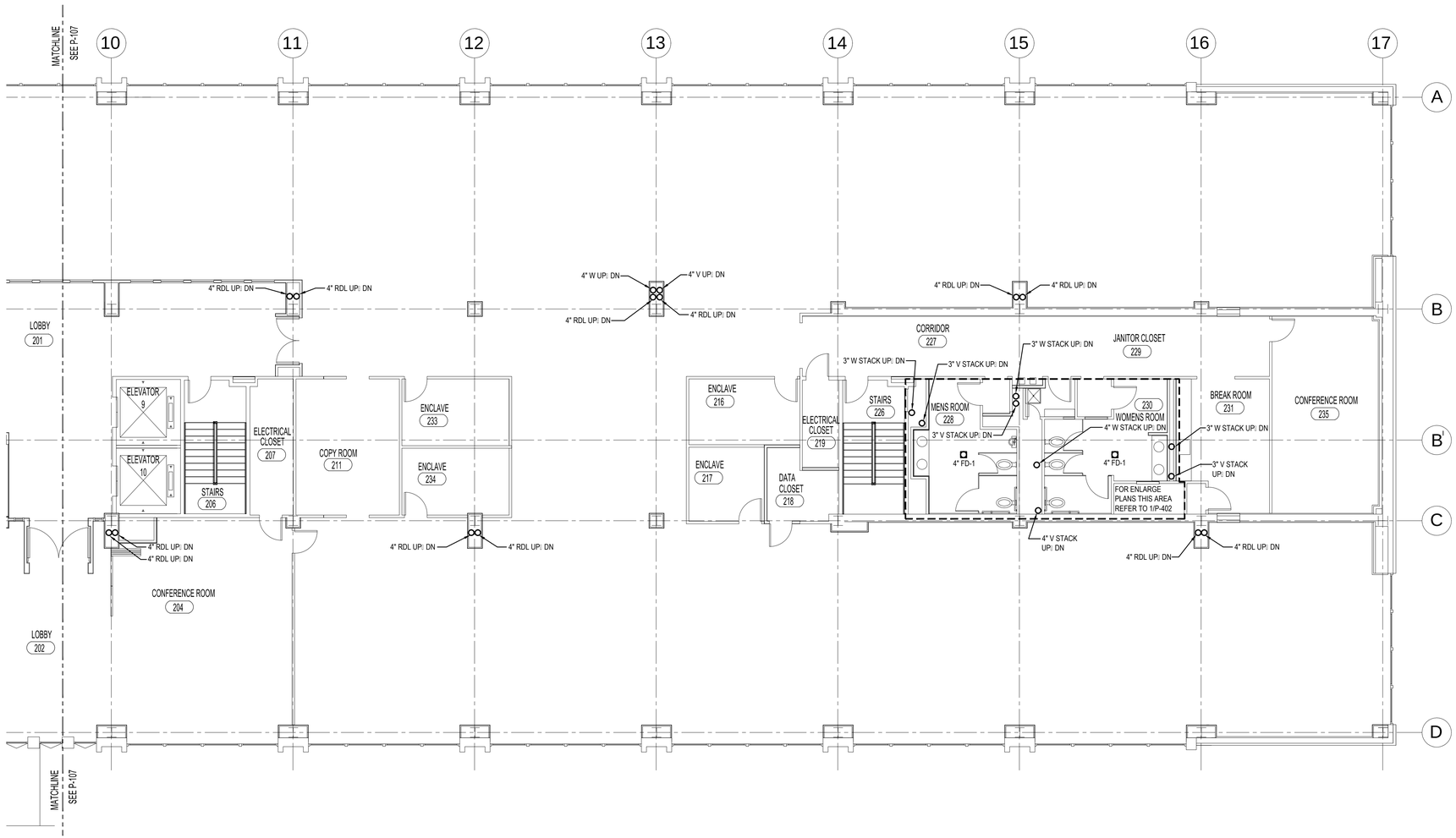
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: SECOND FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–107

SHEET 270 OF 376



1 / P-108 SECOND FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.

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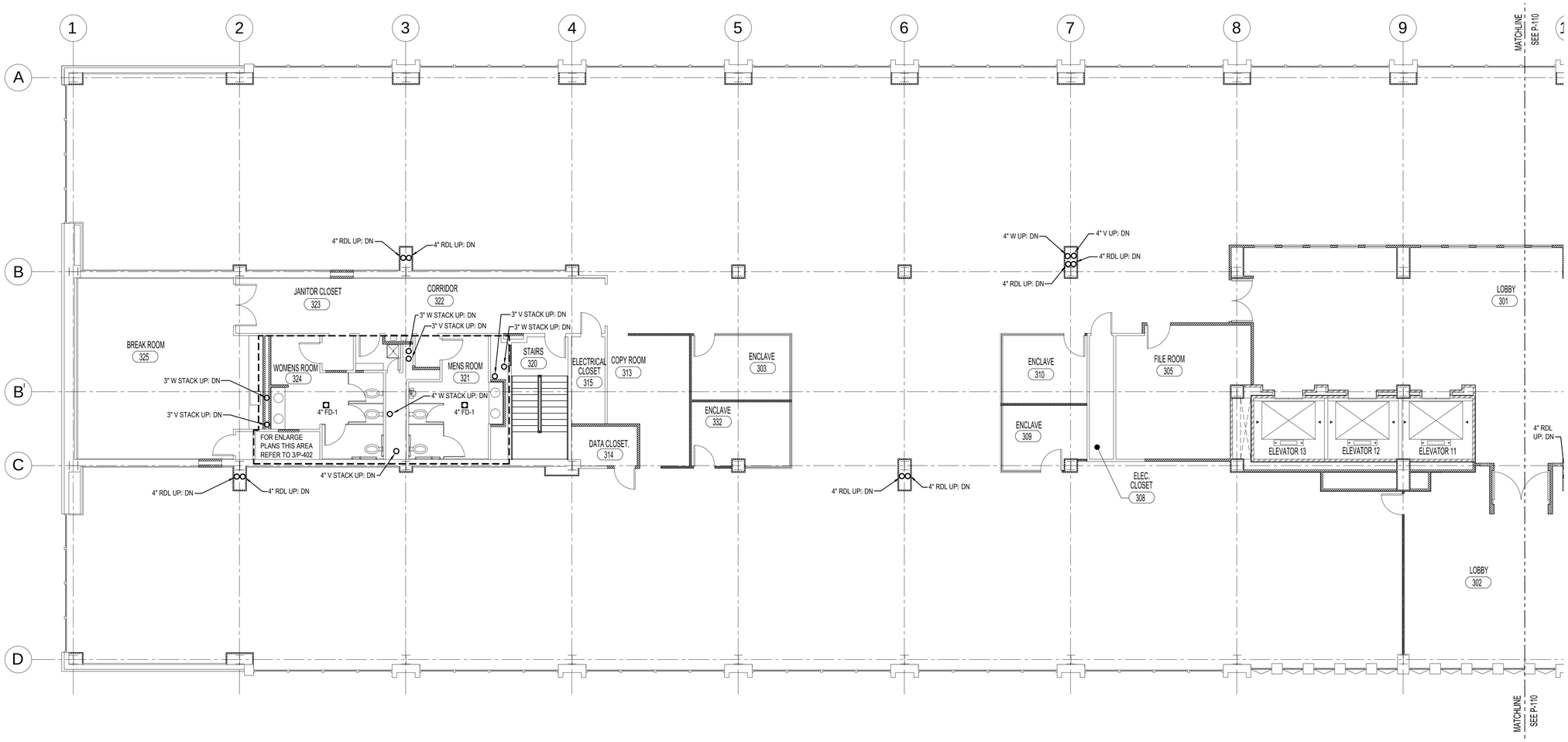
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: SECOND FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER: P–108

SHEET 271 OF 376



1 / P-109 THIRD FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E\ ISTING STRUCTURAL STEEL COMPONENTS.

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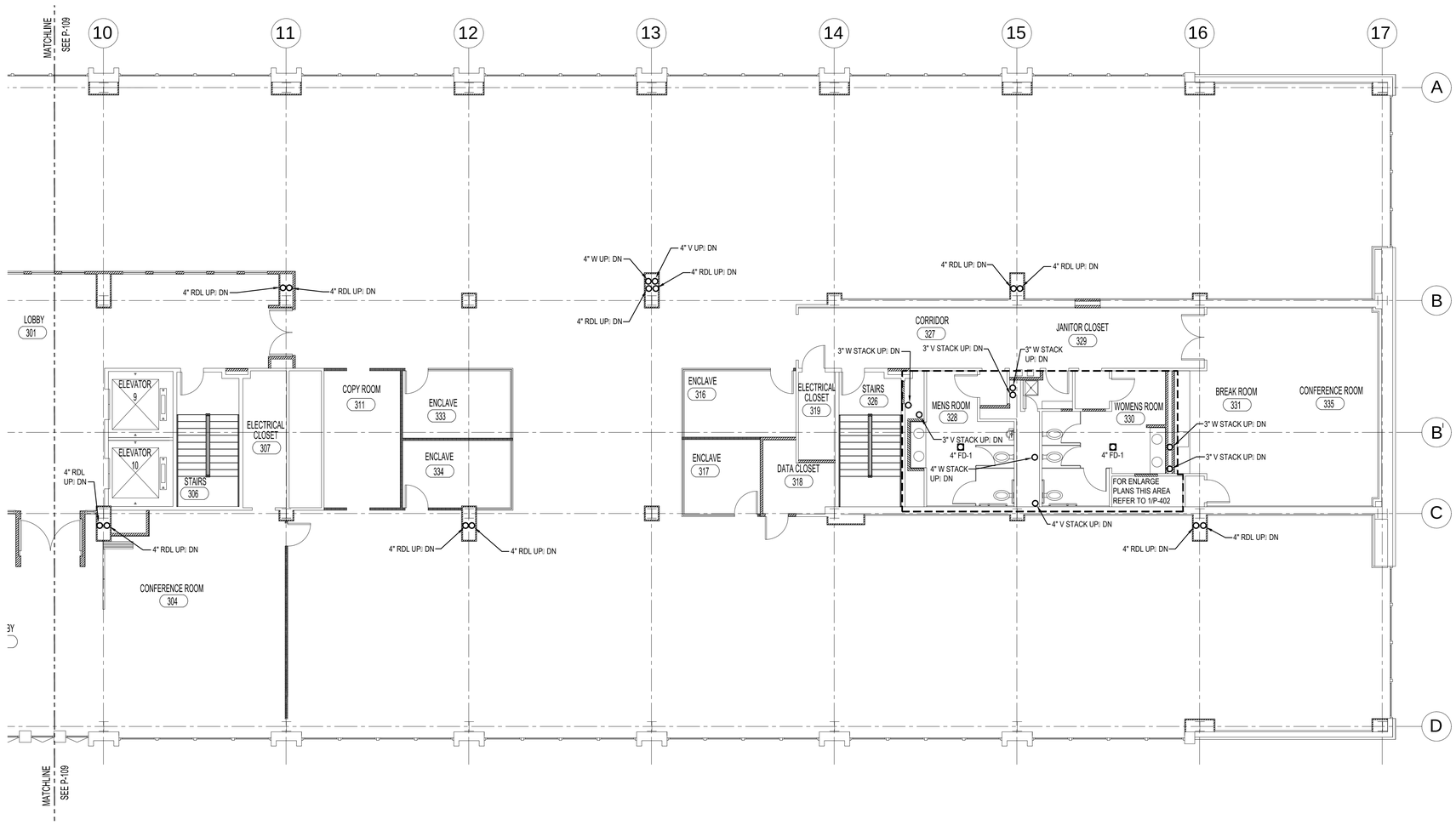
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: THIRD FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–109

SHEET 272 OF 376



1 / P-110 THIRD FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.

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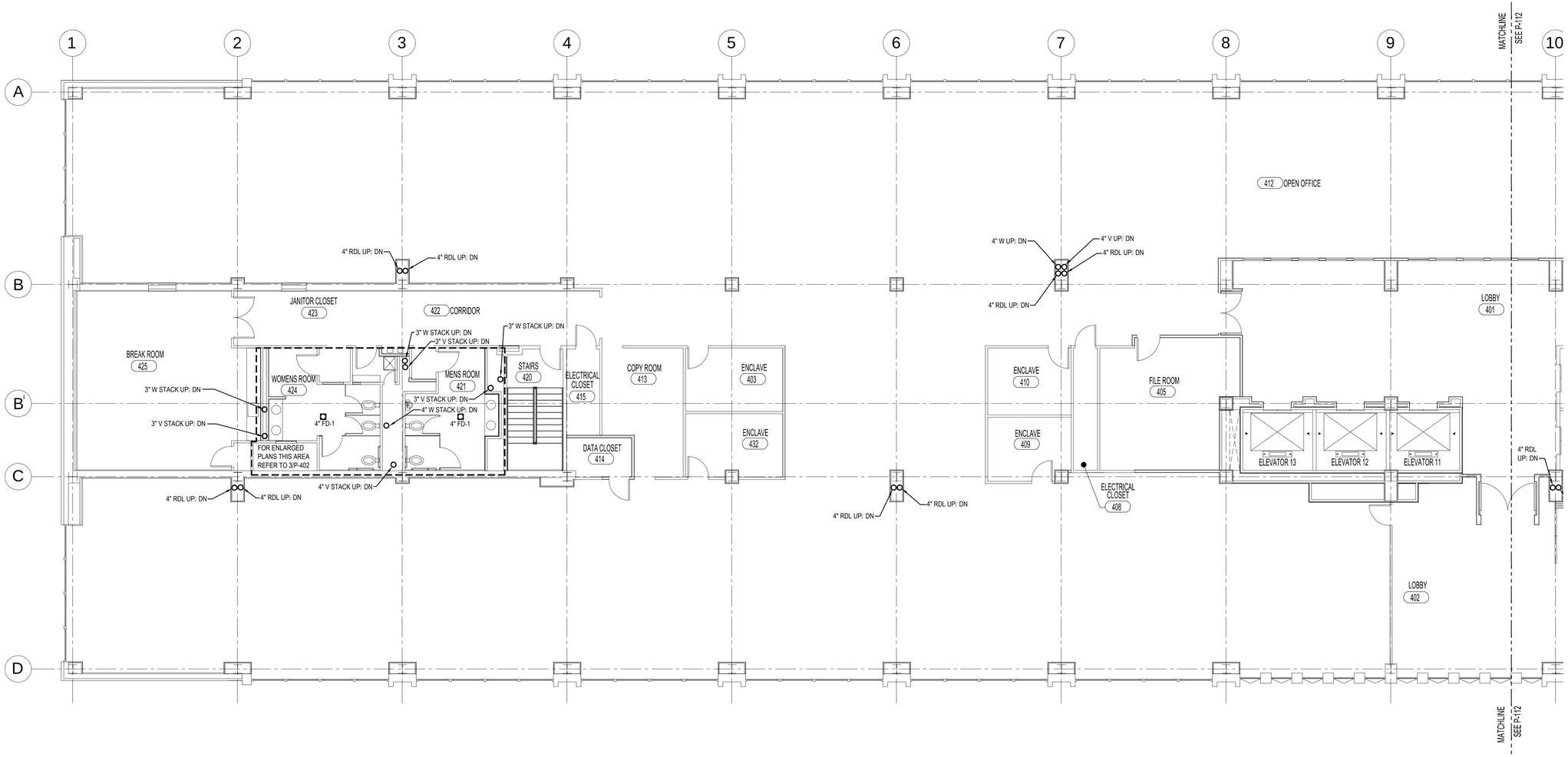
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: THIRD FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER: P–110

SHEET 273 OF 376



1 / P-111 FOURTH FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.

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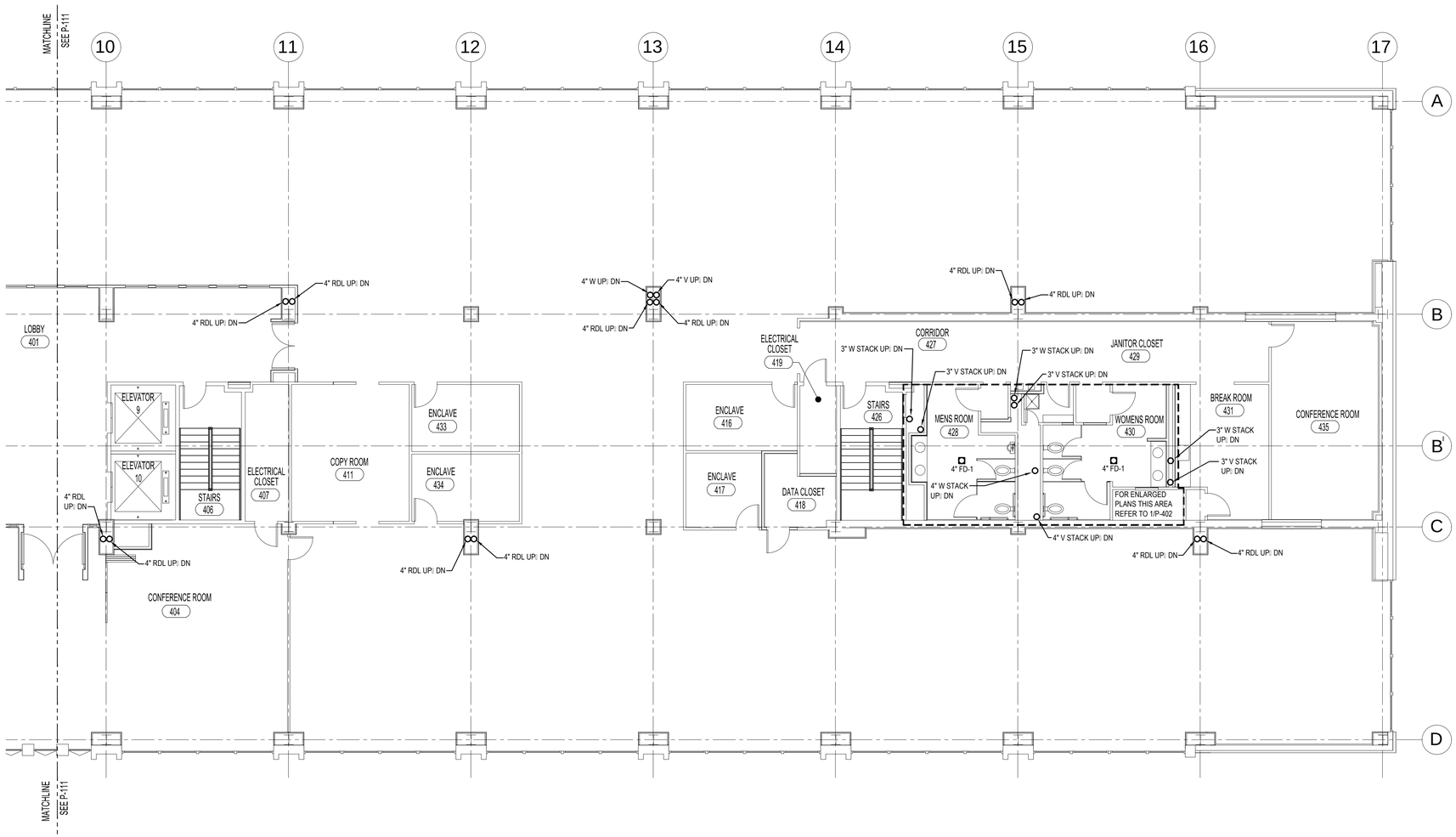
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: FOURTH FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–111



1 / P-112 FOURTH FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E: ISTING STRUCTURAL STEEL COMPONENTS.

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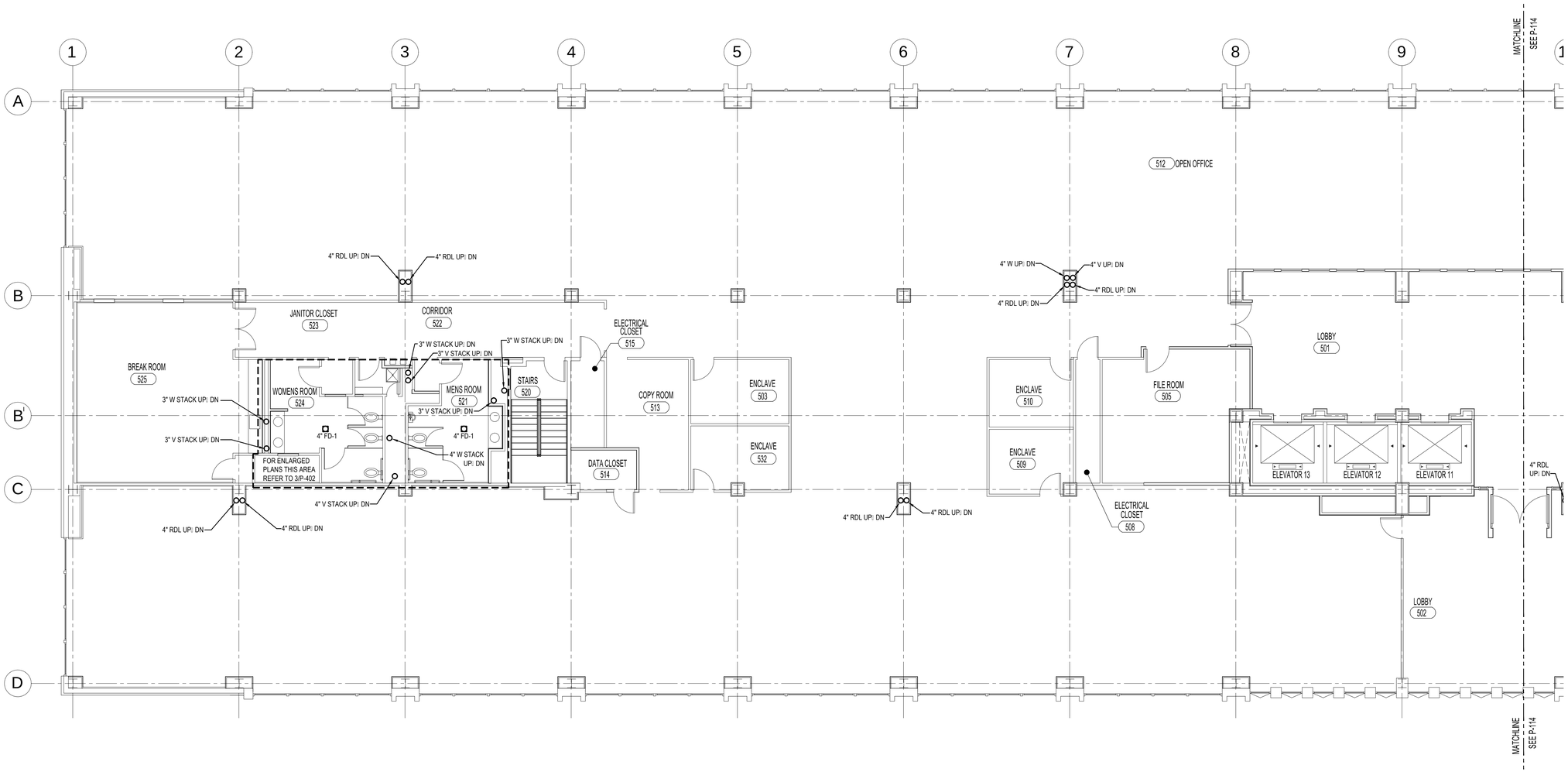
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: FOURTH FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER: P–112

SHEET 275 OF 376



1 / P-113 FIFTH FLOOR STORM, SANITARY AND VENT PARTIAL PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E\ ISTING STRUCTURAL STEEL COMPONENTS.

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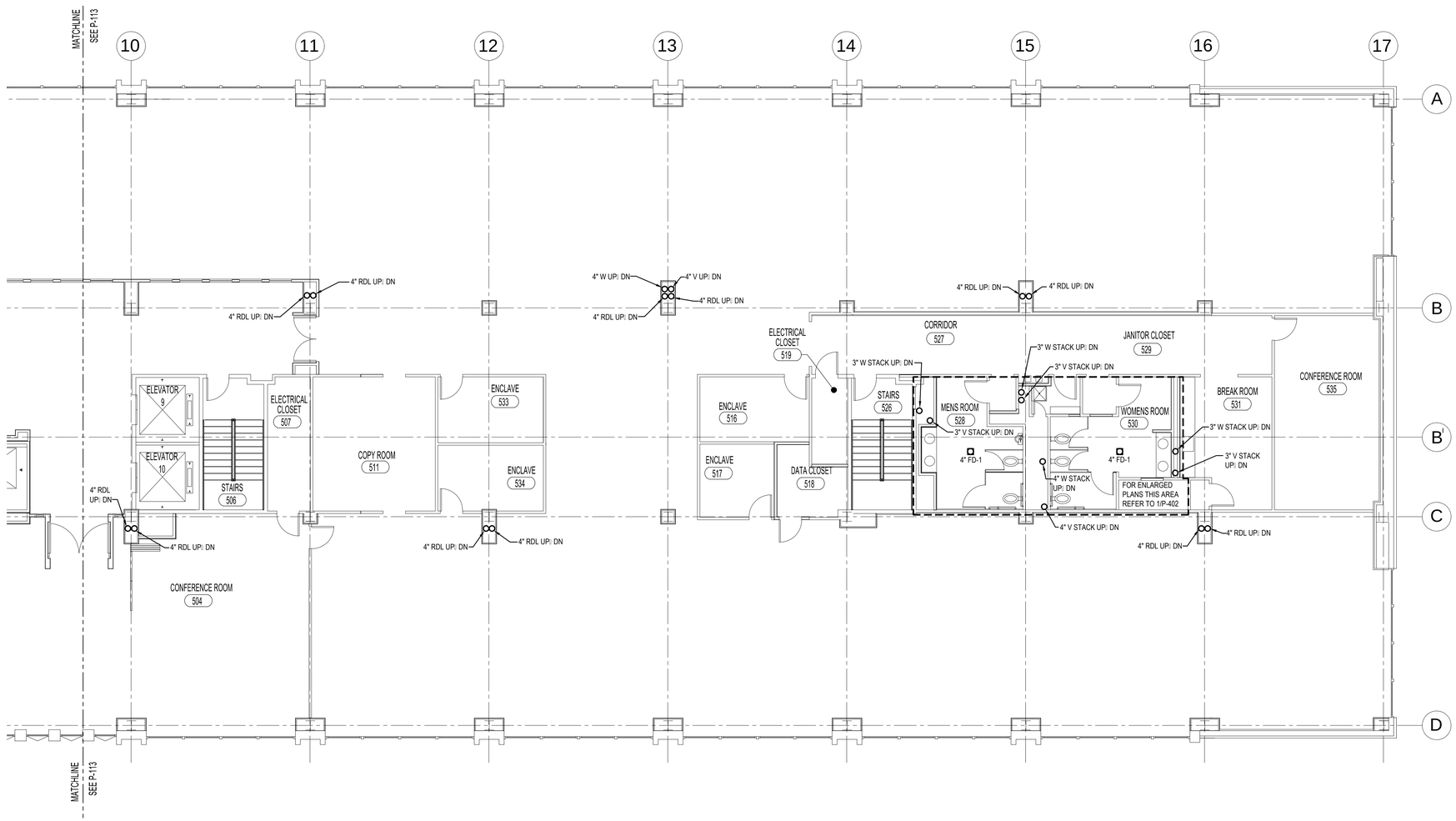
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: FIFTH FLOOR STORM, SANITARY AND VENT PIPING – EAST

DRAWING NUMBER: P–113

SHEET 276 OF 376



1 / P-114 FIFTH FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO E\ ISTING STRUCTURAL STEEL COMPONENTS.

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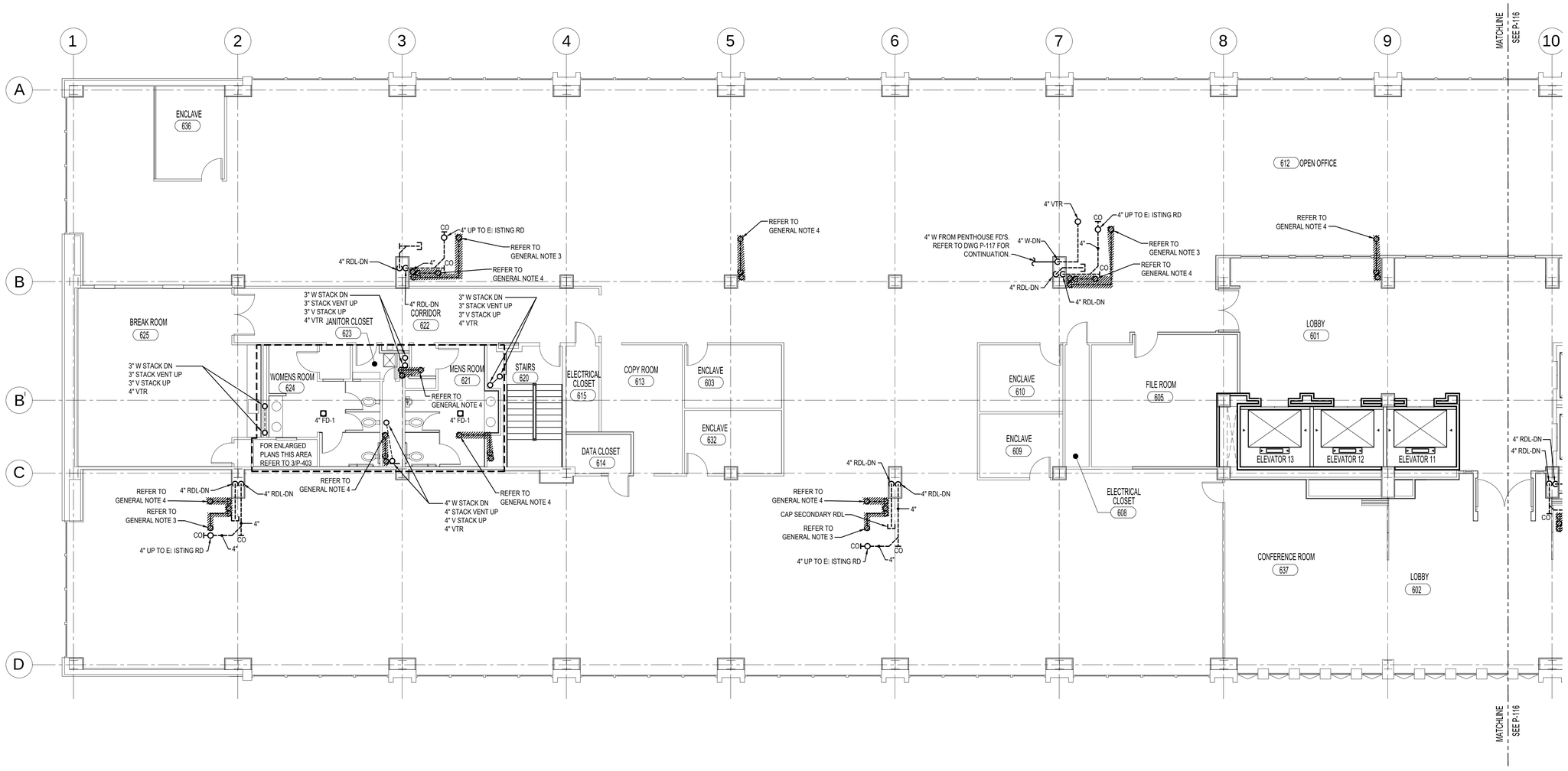
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE: FIFTH FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER: P–114

SHEET 277 OF 376



1 / P-115 SIXTH FLOOR STORM, SANITARY AND VENT PIPING PLAN-EAST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.
3. DISCONNECT AND REMOVE EXISTING STORM DRAIN PIPING AT CONNECTION POINT TO EXISTING ROOF DRAIN. PROVIDE REMOVAL WORK INDICATED IN THIS NOTE FOLLOWING THE REINSTALLATION OF THE STORM DRAIN PIPING TO THE EXISTING ROOF DRAINS AS SHOWN ON THIS DRAWING TO MAINTAIN STORMWATER FLOW THROUGHOUT CONSTRUCTION. REFER TO DRAWING P-103 FOR CONTINUATION OF STORM LEADER PIPING RISER.
4. DISCONNECT AND REMOVE EXISTING WASTE RISER STACK, VENT PIPING AND VENT THROUGH ROOF. PATCH AND SEAL ROOF PENETRATION. REFER TO DRAWING P-103 FOR CONTINUATION OF VENT AND WASTE RISER PIPING.

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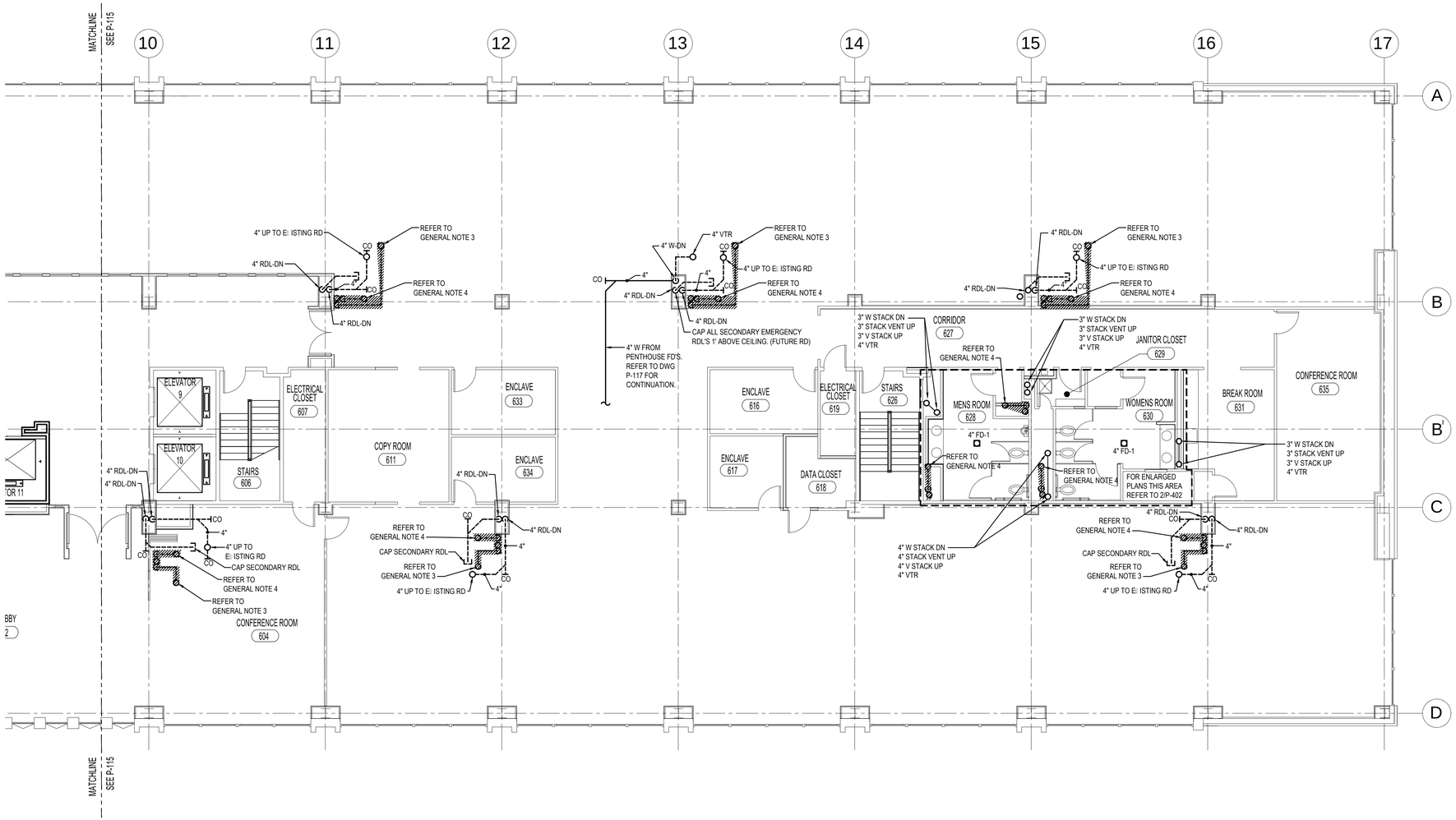
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
SIXTH FLOOR
STORM, SANITARY AND
VENT PIPING – EAST

DRAWING NUMBER:
P–115



1 / P-116 SIXTH FLOOR STORM, SANITARY AND VENT PIPING PLAN-WEST

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

GENERAL NOTES:

1. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
2. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EI ISTING STRUCTURAL STEEL COMPONENTS.
3. DISCONNECT AND REMOVE EI ISTING STORM DRAIN PIPING AT CONNECTION POINT TO EI ISTING ROOF DRAIN. PROVIDE REMOVAL WORK INDICATED IN THIS NOTE FOLLOWING THE REINSTALLATION OF THE STORM DRAIN PIPING TO THE EI ISTING ROOF DRAINS AS SHOWN ON THIS DRAWING TO MAINTAIN STORMWATER FLOW THROUGHOUT CONSTRUCTION. REFER TO DRAWING P-104 FOR CONTINUATION OF STORM LEADER PIPING RISER.
4. DISCONNECT AND REMOVE EI ISTING WASTE RISER STACK, VENT PIPING AND VENT THROUGH ROOF. PATCH AND SEAL ROOF PENETRATION. REFER TO DRAWING P-104 FOR CONTINUATION OF VENT AND WASTE RISER PIPING.

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No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

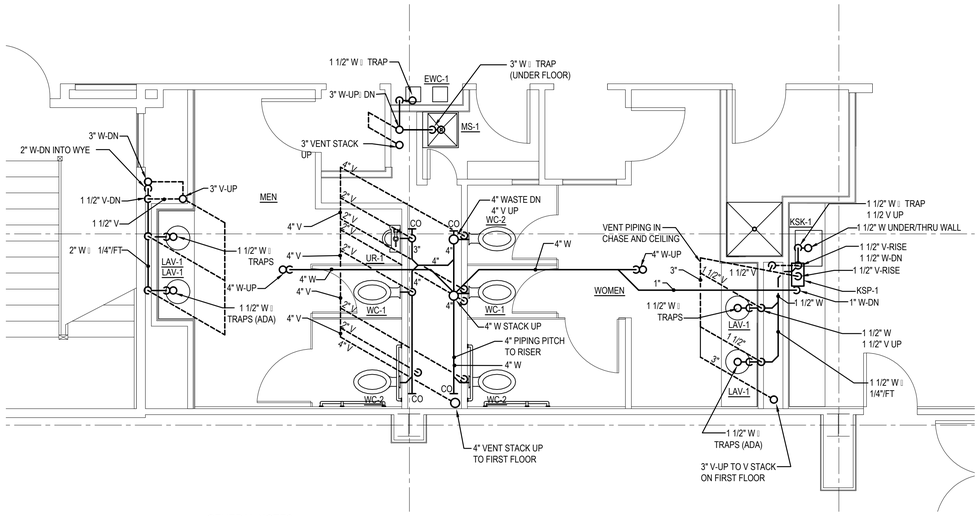
MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
SIXTH FLOOR STORM, SANITARY AND VENT PIPING – WEST

DRAWING NUMBER:
P–116

SHEET 279 OF 376

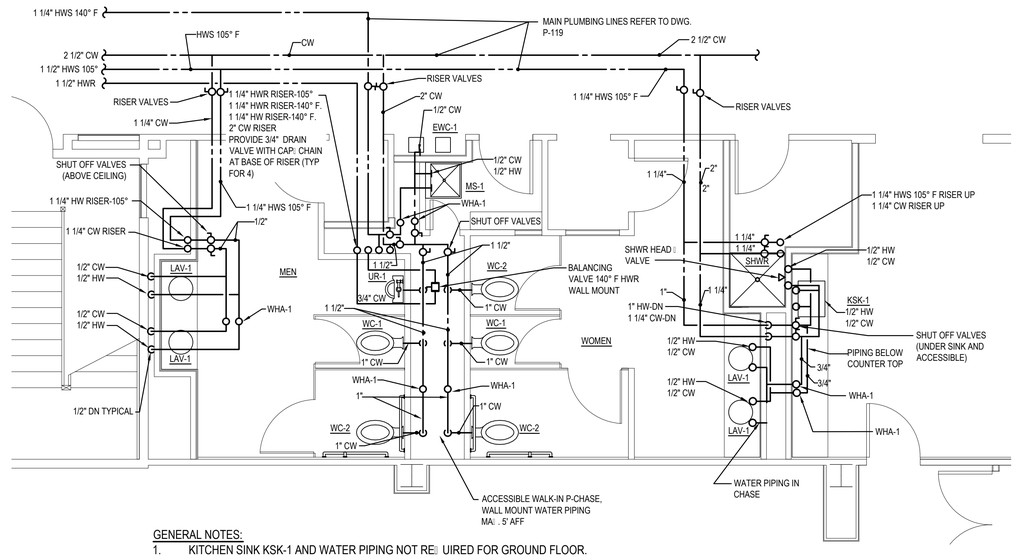


GENERAL NOTES:

1. KITCHEN SINK KSK-1 AND WASTE PIPING NOT REQUIRED FOR GROUND FLOOR.
2. REFER TO PLUMBING SANITARY, WASTE VENT DIAGRAM DWG. P-602 FOR PIPING SYSTEM DETAILS.
3. REFER TO GROUND FLOOR UNDER SLAB PLUMBING PLAN DWG P-102 FOR CONTINUATION OF SANITARY WASTE LINES.
4. VENT FIXTURES 3" TO FLOOR ABOVE, CONNECT TO 3" VENT STACK.
5. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
6. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.

1 / P-401 ENLARGED WEST TOILET ROOM PLANS - WASTE & VENT

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

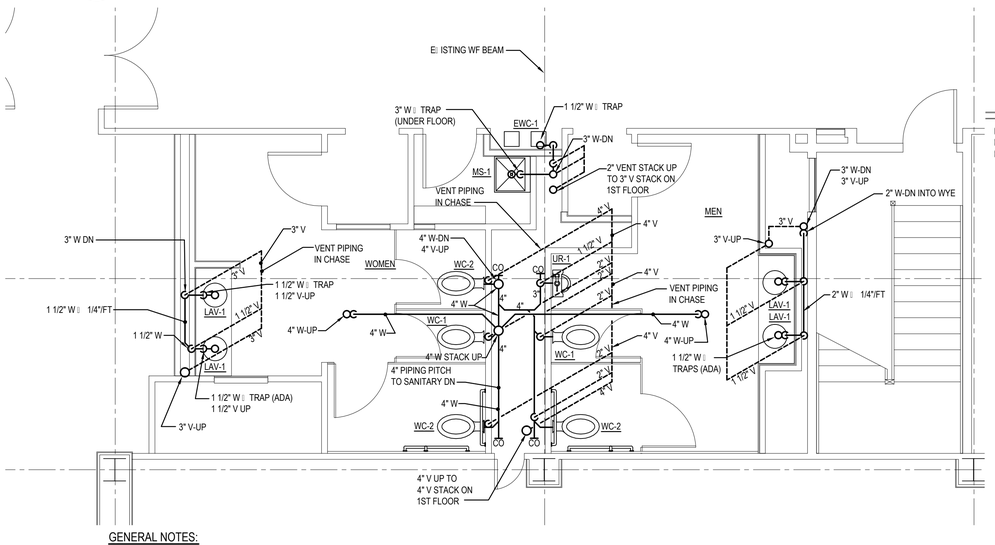


GENERAL NOTES:

1. KITCHEN SINK KSK-1 AND WATER PIPING NOT REQUIRED FOR GROUND FLOOR.
2. REFER TO PLUMBING DOMESTIC RISER DWG. P-603 FOR PIPING SYSTEM DETAILS.
3. REFER TO GROUND FLOOR PLUMBING PLAN P-118 FOR ADDITIONAL PIPING RUNS.
4. COORDINATE AND FIELD LOCATE RISER LOCATIONS AT EACH FLOOR.
5. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
6. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.

2 / P-401 ENLARGED WEST TOILET ROOM PLANS - DOMESTIC WATER

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



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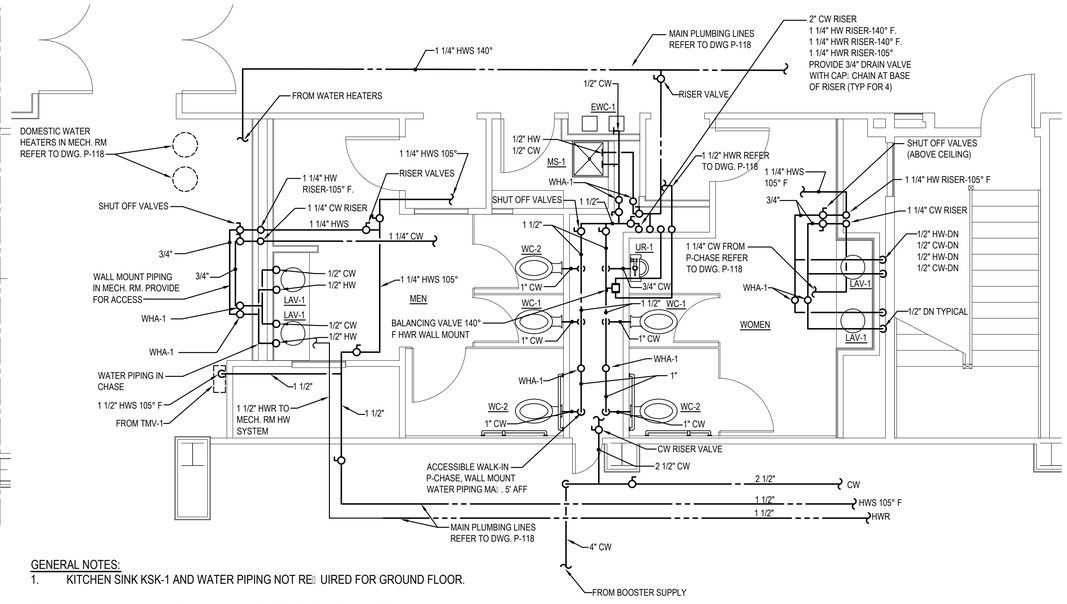
2. REFER TO PLUMBING SANITARY, WASTE VENT DIAGRAM DWG. P-602 FOR PIPING SYSTEM DETAILS.
3. REFER TO GROUND FLOOR UNDER SLAB PLUMBING PLAN DWG P-101 FOR CONTINUATION OF SANITARY WASTE LINES.
4. VENT FIXTURES 3" TO FLOOR ABOVE, CONNECT TO 3" VENT STACK.
5. FIRE STOP ALL PIPING WALL AND FLOOR PENETRATIONS WITH A 2-HOUR RATED FIRESTOPPING SYSTEM.
6. PROVIDE TYPE 1 FIREPROOFING PER SPECIFICATION SECTION 078100 AT ALL LOCATIONS WHERE PIPING SUPPORT SYSTEMS ARE CONNECTED TO EXISTING STRUCTURAL STEEL COMPONENTS.

3 / P-401 ENLARGED EAST TOILET ROOM PLANS - WASTE & VENT

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



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REVISED DRAWING
12/02/13

4 / P-401 ENLARGED EAST TOILET ROOM PLANS - DOMESTIC WATER

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

36x24 PLOT SHEET

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

SAGE ENGINEERING ASSOCIATES, LLP
1211 WESTERN AVENUE
ALBANY, NY 12203
(518)453-6091 FAX(518)453-6092

WARNING:

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CONTRACT:
PLUMBING

TITLE:
RENOVATE BUILDING
No. 5

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1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

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OFFICE OF GENERAL SERVICES

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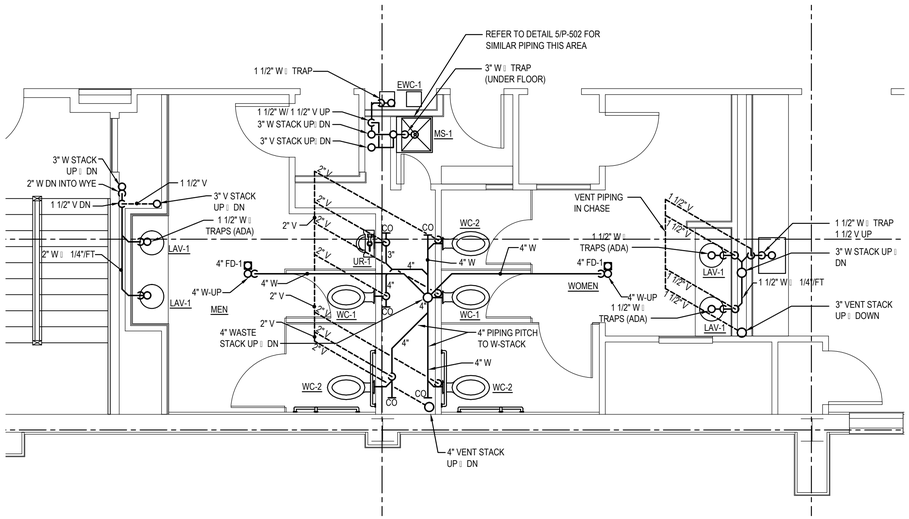
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
GROUND FLOOR
ENLARGED BATHROOM
PLANS

DRAWING NUMBER:
P-401

SHEET 296 OF 376



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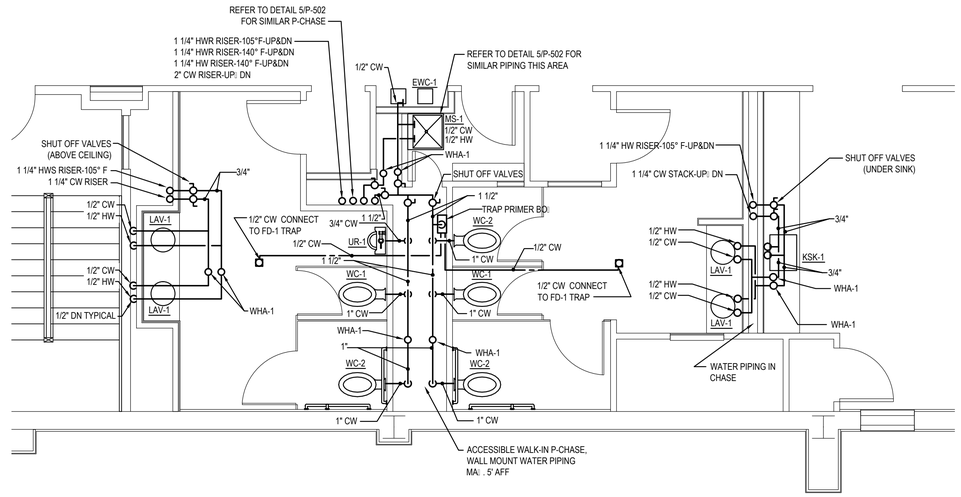
1 / P-402 ENLARGED WEST TOILET ROOM PLANS - WASTE & VENT

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



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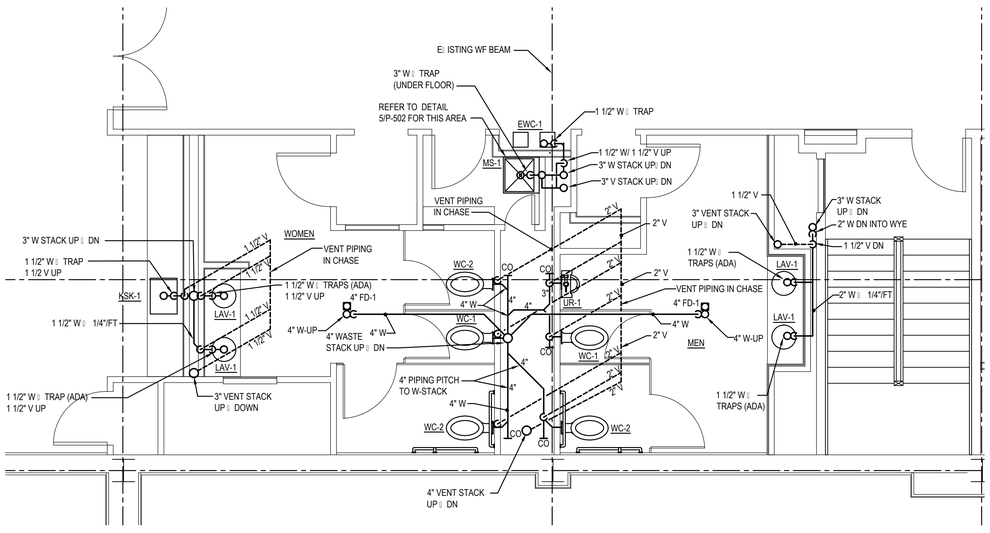
2 / P-402 ENLARGED WEST TOILET ROOM PLANS - DOMESTIC WATER

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



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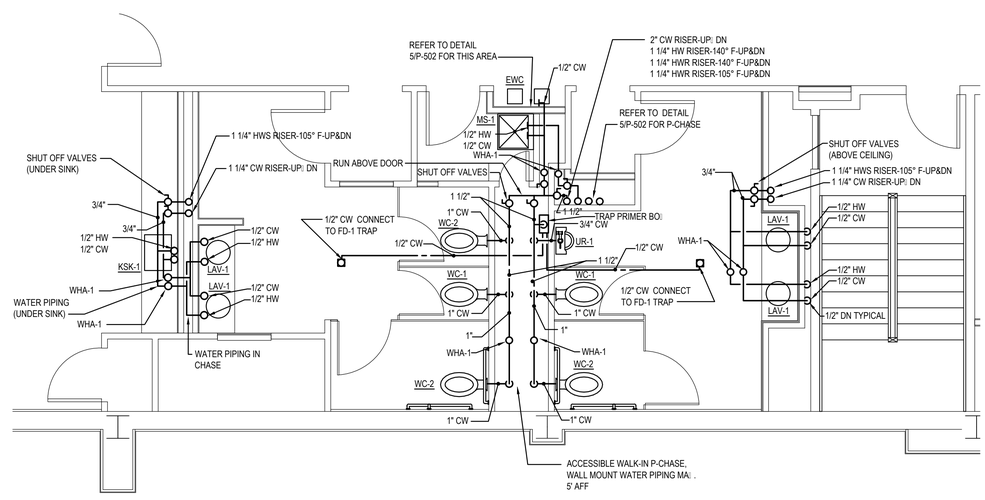
SCALE: 1/4"=1'-0"



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REVISED DRAWING
12/02/13

4 / P-402 ENLARGED EAST TOILET ROOM PLANS - DOMESTIC WATER

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

36x24 PLOT SHEET

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No. 5

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ALBANY, NEW YORK 12226

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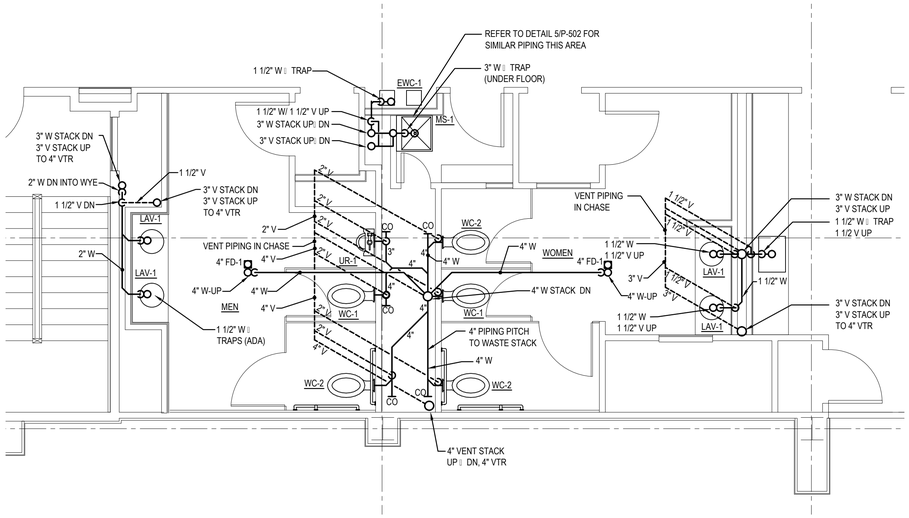
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
FIRST THROUGH FIFTH FLOOR ENLARGED BATHROOM PLANS

DRAWING NUMBER:
P–402

SHEET 297 OF 376



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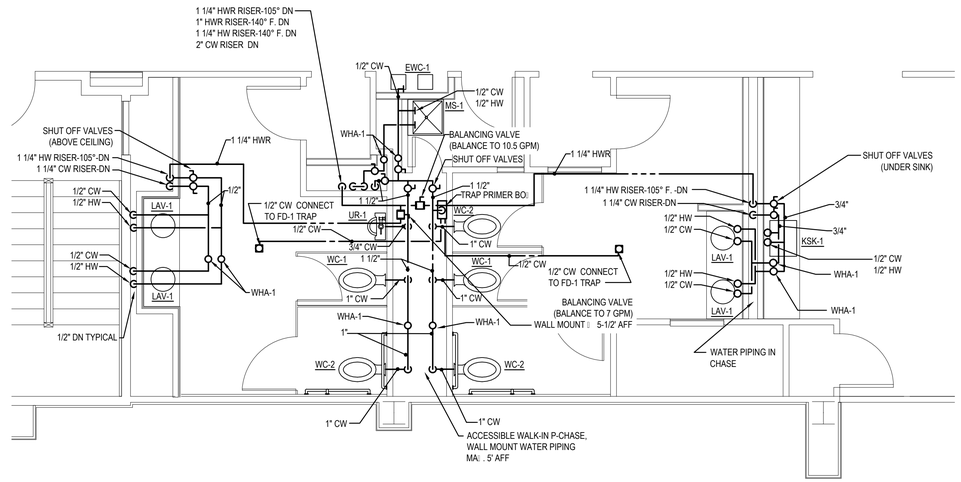
1 / P-403 ENLARGED WEST TOILET ROOM PLANS - WASTE & VENT

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



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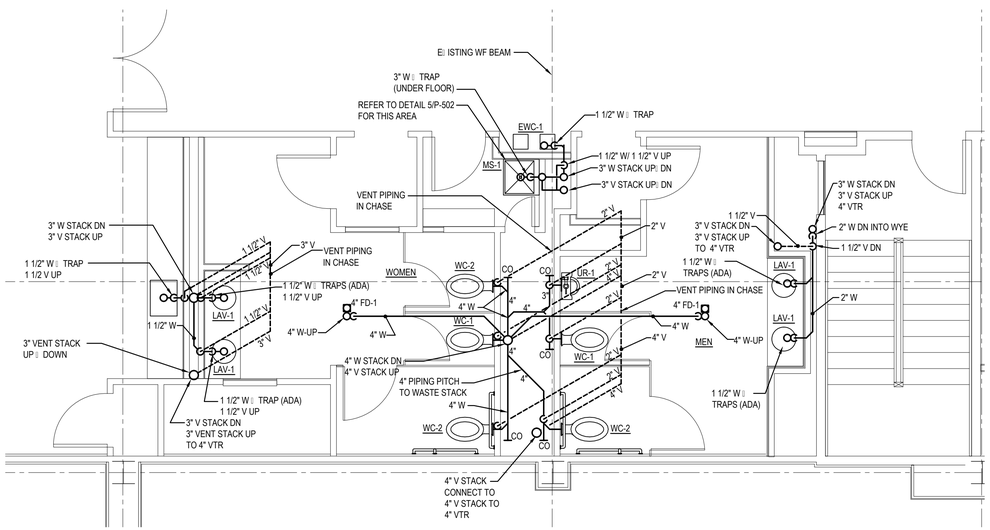
SCALE: 1/4"=1'-0"



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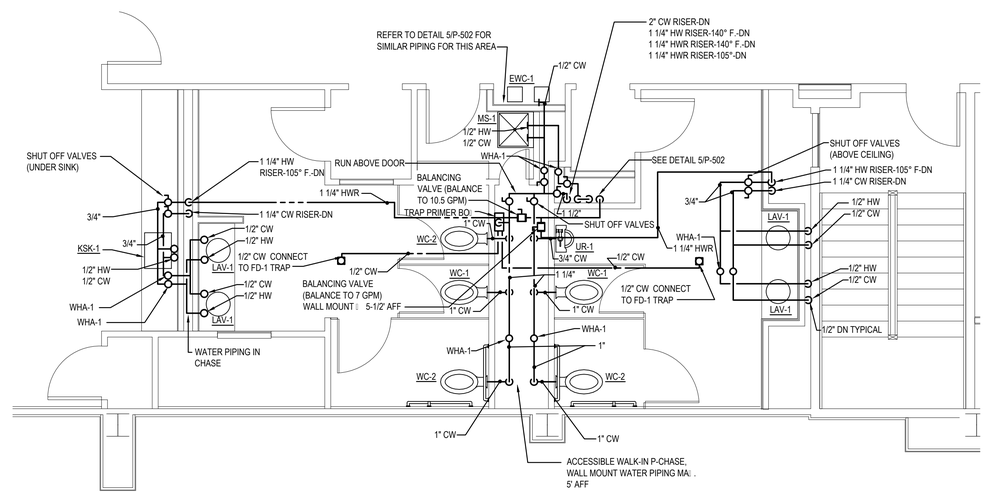
3 / P-403 ENLARGED EAST TOILET ROOM PLANS - WASTE & VENT

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



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REVISED DRAWING
12/02/13

4 / P-403 ENLARGED EAST TOILET ROOM PLANS - DOMESTIC WATER

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

36x24 PLOT SHEET

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CONTRACT:
PLUMBING

TITLE:
RENOVATE BUILDING
No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
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ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
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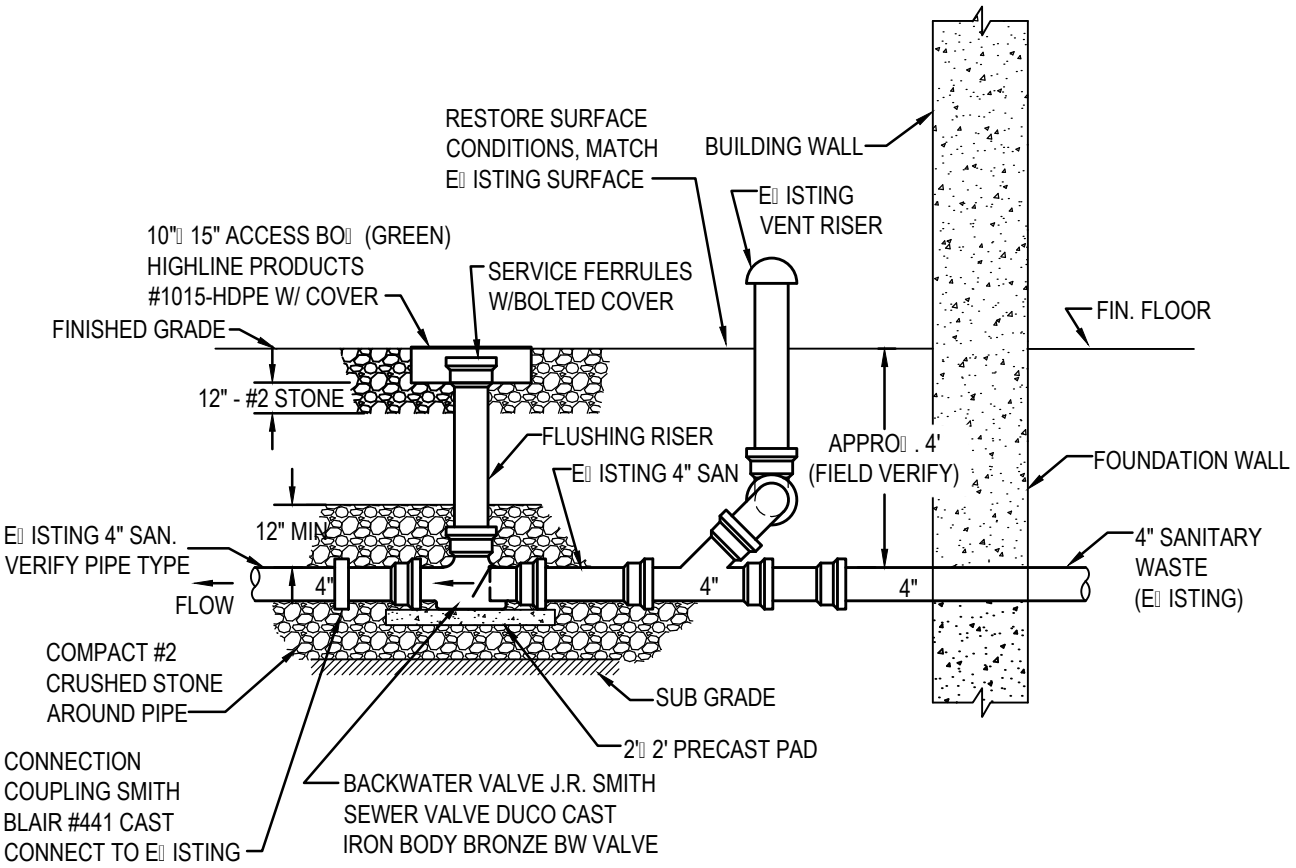
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER:	44808 – P
DESIGNED BY:	EC
DRAWN BY:	SV
FIELD CHECK:	
APPROVED:	JV

SHEET TITLE:
SIXTH FLOOR
ENLARGED BATHROOM
PLANS

DRAWING NUMBER:
P–403

SHEET 298 OF 376



ADDENDUM DRAWING 12/2/13

NYS OFFICE OF GENERAL SERVICES

Serving New York

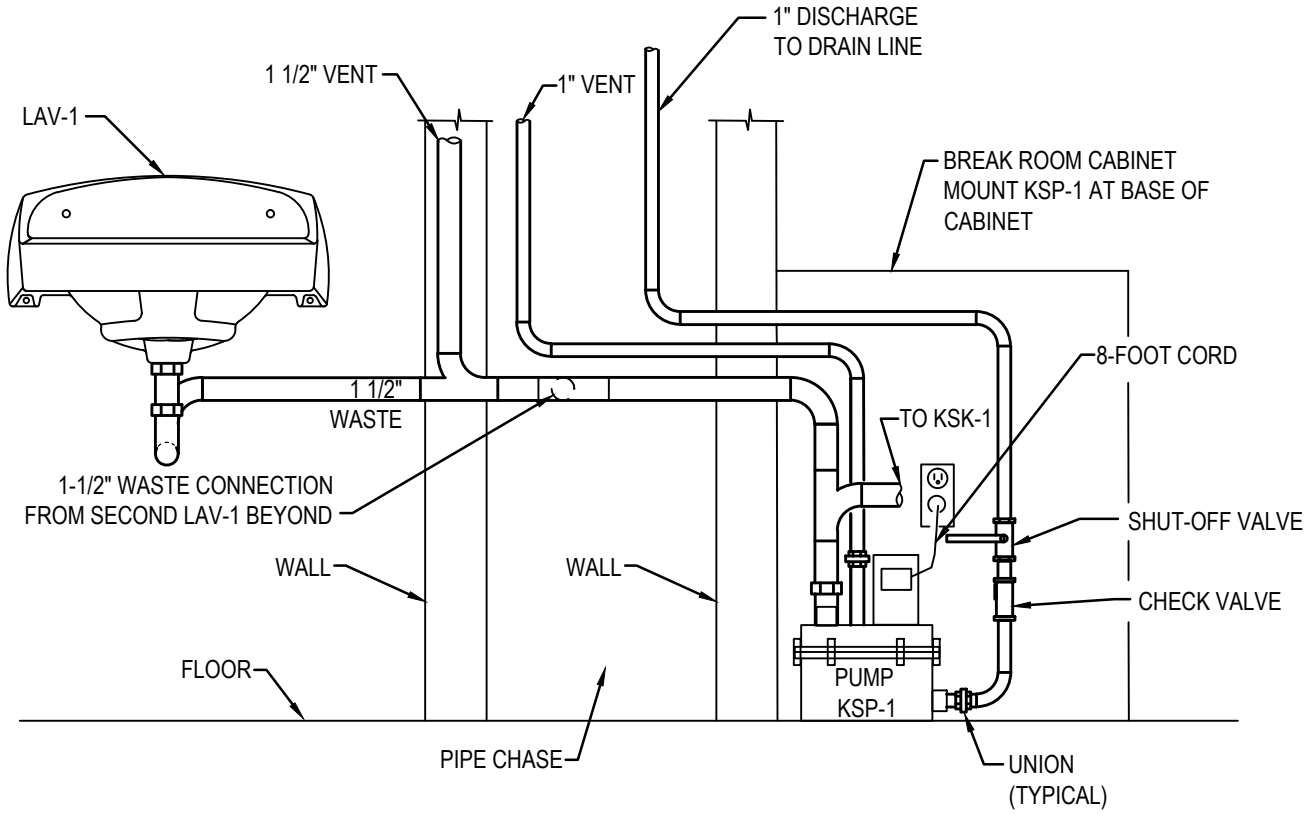
CONTRACT:	PLUMBING
PROJ. NO:	44808-P
DATE:	12/2/13
DRAWN:	J.G.C.
APPROVED:	J.V.

SHEET TITLE: SANITARY SEWER BACKWATER VALVE DETAIL

PROJECT: RENOVATE BUILDING NO. 5

WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

DWG NO: P-503



ADDENDUM DRAWING 12/2/13

NYS OFFICE OF GENERAL SERVICES

Serving New York

CONTRACT:	PLUMBING
PROJ. NO:	44808-P
DATE:	12/2/13
DRAWN:	J.G.C.
APPROVED:	J.V.

SHEET TITLE: SANITARY WASTE DISPOSAL PUMP DETAIL

PROJECT: RENOVATE BUILDING NO. 5

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DWG NO: P-504

8.5x11 PLOT SHEET

SEMI-INSTANTANEOUS STEAM TO HOT WATER HEATER SCHEDULE

TAG	LOCATION	CAPACITY (MBH)	STEAM SIDE		WATER SIDE				ELECTRICAL			REMARKS
			FLOW LB/HR	SUPPLIED PRESSURE (PSI)	RECOVERY FLOW GPM	EWT (°F)	LWT (°F)	DELTA T (°F)	VOLTS	PHASE	AMPS	
WH-1	MECH. RM	400	390	15	8	40	140	100	120	1	20	1,2
WH-2	MECH. RM	400	390	15	8	40	140	100	120	1	20	1,2

1. 100° F. TEMPERATURE RISE, 3" INLET / 2" OUTLET, ASME RATED, 150 PSI, DOUBLE WALL, UNLINED DUPLEX ALLOY UNITS, LED DISPLAY, ASHRAE 90.1 COMPLIANT, ELECTRONIC CONTROLS FOR BUILDING AUTOMATION SYSTEM.
2. 10-YEAR WARRANTY AND SPECIFIED OPTIONAL FEATURES.

WATER HAMMER ARRESTOR

TAG	SERVICE	TYPE	PDI STANDARD	NPT CONN.	REDUCING ADAPTER	LENGTH	DIA.	REMARKS
WHA-1	BRANCH	PISTON	B	3/4"	-	5 5/8"	1 5/8"	1,2

1. PROVIDE (10) SPARES OF EACH TYPE.
2. BRASS PISTON, COPPER BODY, LEAD FREE, ASSE 1010, ANSI A112.26.1, THREAD TO BE ANSI/ASME B1-20.1

PLUMBING FI TURE SCHEDULE

TAG	FI TURE TYPE	CONNECTION SIZE					REMARKS
		CW	HW	W	IW	V	
WC-1	WATER CLOSET TYPE E-1	1"	-	4"	-	2"	WALL MOUNTED W/ CARRIER, 1.6 GPF, FLUSH VALVE, 1"
WC-2	WATER CLOSET TYPE E-1 (ADA HEIGHT)	1"	-	4"	-	2"	WALL MOUNTED W/ CARRIER, 1.6 GPF, FLUSH VALVE, 1"
LAV-1	UNDERMOUNT - ADA	1/2"	1/2"	1-1/2"	-	1-1/2"	SOLID SURFACE (CORIAN) BOWL, ADA FAUCET, 0.5 GPM, ADA TRIM-INSULATED, #2
UR-1	TYPE C-1 URINAL (ADA HEIGHT)	3/4"	-	2"		1-1/2"	WALL MOUNTED W/ CARRIER, 1.0 GPF, AUTO FLUSH VALVE, 3/4"
KSK-1	COUNTERTOP SINK (DOUBLE BOWL, UNDERMOUNT)	1/2"	1/2"	1-1/2"		1-1/2"	EACH BOWL SHALL BE 14": 14", STAINLESS STEEL, SWING FAUCET, #1
MS-1	MOP SERVICE SINK	1/2"	1/2"	3"		1-1/2"	24": 24": 12", 6" DROP FRONT, STAINLESS STEEL CAP, STRAINER AND DRAIN
DPCO-1	DECK PLATE CLEANOUT	-	-	4"	-		(ROUND) MATCH FLOOR FINISH MATERIAL, POLISHED BRONZE
FD-1	TYPE H FLOOR DRAIN	-	-	4"	-	1-1/2"/2"	ACCESS GRATE, SEDIMENT BUCKET, SAFE SET FEATURE, MEDIUM DUTY
FD-2	CONDENSATE FLOOR DRAIN	-	-	3"	-	-	24" 24" 17" DEEP FLOOR DRAIN, ACID RESISTANT COATED STEEL
AD-1	AREA DRAIN	-	-	4"	-	-	STORM DRAINAGE UNIT, CAST IRON BODY/GRATE, SEDIMENT BUCKET, DOME
RPZ-1	TYPE A REDUCED PRESSURE ZONE	1"	-	-	-	-	HVAC / MECHANICAL ROOM CW MAKE UP
DCV-1	DOUBLE CHECK VALVE BACKFLOW PREVENTER	4"	-	-	-	-	DOMESTIC SERVICE, NYS USC - FCCCHR APPROVED, LEAD FREE, ASSE 1015
EWC-1	ELECTRIC WATER COOLER	1/2"	-	1-1/2"	-	1-1/2"	RECESSED DUAL FOUNTAIN UNIT, ADA, STAINLESS STEEL W/ AIR COOLED CHILLER
SH-1	SHOWER	1/2"	1/2"	4"	-	1-1/2"	
RD-1	ROOF DRAIN	-	-	VARIES	-	-	
NFWH	NON-FREEZE WALL HYDRANT	3/4"	-	-	-	-	
HB-1	HOSE BIBB	3/4"	-	-	-	-	

1. PROVIDE GLASS FILLER WITH SINK.
2. PROVIDE FAUCET, CW/HW, STOPS AND WASTE TRIM

E PANSION TANK SCHEDULE

SERVING	TYPE	CAPACITY (GAL)	MIN TEMP (DEG. F)	MA TEMP (DEG. F)	MIN. PRES (PSIG)	MA PRES (PSIG)	DIA (IN)	HEIGHT (IN)	ACC VOL (GAL)	REMARKS
ET-1,2	VERT ASME BLADDER TYPE	22	40	140	12	150	12	42	12	POTABLE WATER USE DOMESTIC HOT WATER, ASME RATED
BP 1 - 3	" " "	34	40	——	125	150	22	36	——	BOOSTER PUMP SYSTEM NSF 61 LISTED, ASME RATED

PUMP SCHEDULE

TAG	SERVING	TYPE	CAPACITY (GPM)	HEAD (FT)	ELECTRICAL			RPM	REMARKS
					VOLTS	PHASE	HP		
RP-1	WH-1 2	INLINE HORIZONTAL	42	50	460	3	1-1/2	1750	1, 2, 3
BP-1, 2, 3	DOMESTIC	VERTICAL BOOSTER PUMP PACKAGE	125	81	460	3	5	VSD	4,5,6,7
KSP-1	LAV/KSK	RESERVOIR PUMP	26.4 12' LIFT	-	120	1	1/3	1750	8

1. ALL BRONZE CONSTRUCTION.
2. PROVIDE WITH PROGRAMABLE TIMECLOCK CONTROL FOR CONTINOUS OPERATION AT OCCUPIED HOURS.
3. RECIRCULATING HOT WATER PUMP.
4. TWO PUMP RUN CAPACITY 190 GPM 58.1 TDH (25 PSI), VSD MOTOR CONTROLS, PUMP MANAGEMENT CONTROLLER W/ LCD DISPLAYS.
5. PUMPS AND CONTROLS SKID MOUNTED ON A STAINLESS STEEL BASE AND FRAME.
6. INCLUDE ISOLATION VALVES AND 4" ANSI FLANGED 316 STAINLESS STEEL SUCTION AND DISCHARGE MANIFOLDS.
7. PUMP MANAGEMENT CONTROLS 2/24 DISPLAY, LCD.
8. RESERVOIR TO HAVE VAPOR SEAL

THERMOSTATIC MI ING VALVE SCHEDULE

TAG	TYPE	MIN. FLOW (GPM)	MAX. FLOW (GPM)	SET POINT (°F)	REMARKS
TMV-1	A	0.5	21	105	1,2,3,4,5

1. MA IMUM FLOW BASED ON A 5 PSI PRESSURE DROP.
2. PROVIDE LEAD FREE VALVE, PUMP AND ACCESSORIES ON A HEAVY DUTY WELDED STRUT WALL MOUNT FRAME WITH CORROSION RESISTANT COATING.
3. ASSE 1017, CONTINUOUS RUN RECIRCULATING PUMP
4. LEAD FREE BRASS, PARAFFIN BASED THERMAL ACTUATOR, TRIPLE DUTY STOPS, REMOVABLE STRAINERS.
5. ADJUST VALVE SET POINT TO PROVIDE 105° F. HOT WATER AT ALL POINTS OF USE.

SUMP PUMP SCHEDULE

TAG	SERVICE	FLOW (GPM)	HEAD (FT.)	RPM	MOTOR			DISCHARGE (IN)	SEALED CANISTER	LOCATION	DEGREES RATED	REMARKS
					H.P.	VOLTS	PH.					
SP-1	ELEVATOR PITS, OIL MINDER SUBMERSIBLE	50	35	3600	1/2	230	3	2"	YES	ELEVATOR PIT	140	1, 2

1. PROVIDE WITH HYDRAULIC FLUID DETECTION SYSTEM
2. PROVIDE PUMP O/M SENSOR, NEMA 4 CONTROL/ALARM PANEL W/ LED INDICATORS, REMOTE MOUNTING AND CONNECTIONS, CHECK VALVE, ALERT HORN (HIGH WATER ALERT), AND FLOAT SWITCHES.

REVISED DRAWING
12/02/13

36x24 PLOT SHEET

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

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CONTRACT:
PLUMBING

TITLE:
RENOVATE BUILDING
No. 5

LOCATION:
STATE OFFICE BUILDING CAMPUS
1220 WASHINGTON AVE
ALBANY, NEW YORK 12226

CLIENT:
OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
	11/1/13	BID SUBMISSION
	09/27/13	100% SUBMISSION
	08/12/13	60% SUBMISSION

PROJECT NUMBER: **44808 – P**
DESIGNED BY: EC
DRAWN BY: SV
FIELD CHECK:
APPROVED: JV

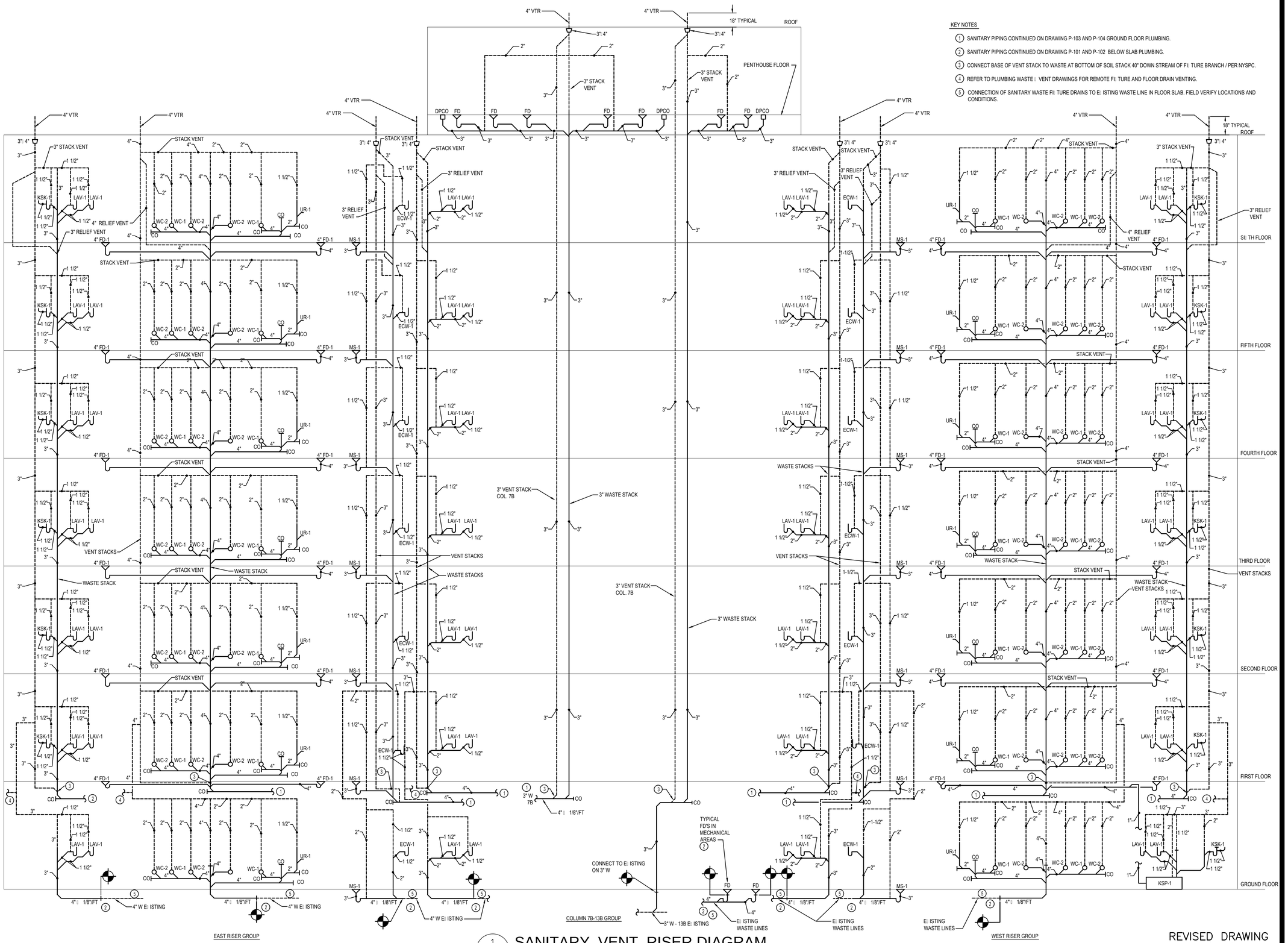
SHEET TITLE:
PLUMBING SCHEDULES

DRAWING NUMBER:
P–601

SHEET 301 OF 376

KEY NOTES

1. SANITARY PIPING CONTINUED ON DRAWING P-103 AND P-104 GROUND FLOOR PLUMBING.
2. SANITARY PIPING CONTINUED ON DRAWING P-101 AND P-102 BELOW SLAB PLUMBING.
3. CONNECT BASE OF VENT STACK TO WASTE AT BOTTOM OF SOIL STACK 40" DOWN STREAM OF FI: TURE BRANCH / PER NYSPC.
4. REFER TO PLUMBING WASTE VENT DRAWINGS FOR REMOTE FI: TURE AND FLOOR DRAIN VENTING.
5. CONNECTION OF SANITARY WASTE FI: TURE DRAINS TO E: ISTING WASTE LINE IN FLOOR SLAB. FIELD VERIFY LOCATIONS AND CONDITIONS.



1 P-602 SANITARY, VENT, RISER DIAGRAM

SCALE: N.T.S.

REVISED DRAWING 12/02/13

36x24 PLOT SHEET

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DRAWING NUMBER: P–602

SHEET 302 OF 376