

City of Lynchburg  
Procurement Division  
900 Church Street  
Lynchburg, Virginia 24504  
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**Addendum for Invitation for Bids  
Interior Renovations and Generator Upgrades to Miller Park Fire Station No. 6  
2015-978**

Date: 05/22/215  
From: Lisa Moss, Buyer VCA  
RE: Addendum No. 1

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This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Bidder shall indicate receipt of this Addendum and all previously issued Addenda on the Bid Form.

1. Is the frame material for openings S02 & S03 HM or wood? All other openings with the exception of opening 106, indicate wood.

**Door S02 shall be existing to remain. Door S03 shall have a wood frame, not HM.**

2. Note # 3 on the door schedule says that door number S01B will get new hardware. Will this be for a single door or pair of doors?

**Door S01B shall receive hardware set HW-5 as specified in revised specification Section 08 7100.**

3. Division 8 section 08 7100 list various hardware sets but there are none assigned to the openings in the door schedule?

**See revised Specification Section 08 7100 and reissued sheet A3.0.**

4. What type veneer is required on the Stile & Rail Doors. Oak, Birch, Maple ????

**All new doors shall be paint grade to match existing. Any suitable face for paint finish including MDF is contractor option.**

5. Toilet accessory specs do not include mirrors, soap dispensers or paper towel dispensers. Do I price only what is called for in the specs?

**Soap dispensers and paper towel dispensers will be furnished by the owner. Provide 24" x 36" mirror, one per sink or lavatory location and one additional at Bath #3 (see elevation 1/A1.1). Mirror shall be Bobrick 165-2436 or approved equal.**

6. Floor to be repaired in apparatus bay, remove spalled areas or entire slab (specs describe surface repair).

**Slab repair at Apparatus Bay shall consist of removing damaged area indicated on sheet A1.0. An allowance of 8 square foot for additional removal and repair of concrete slab is indicated in note #1.**

7. A3.0-Finish schedule for 1st floor lists existing concrete and in the remarks section refers to specification section on concrete finishes but does not ask for a finish. Please clarify whether these floors receive sealant.

**Concrete floors on the first floor shall receive clear sealer as specified in Section 033511.**

8. Page A/1.2- note "clean brick see spec". Do not see in masonry section, please clarify cleaning required and areas to be addressed.

**Exposed brick in Storage 301, Meeting 302 and Exercise 304 shall be cleaned with TSP in warm water and rinsed with clear water to remove dust and dirt.**

9. Does Bath 303 require a shower door?

**Shower in Bath 303 shall be a pre-fabricated unit. Shower door will be provided as part of unit. In lieu of fixture P-5, provide Kohler 4-piece prefabricated 36" Advantage shower with receptor and 6500 series shower door or equal product.**

10. A1.0-mezzanine-detail on A2.1 shows GWB@ toilet. Does bottom of joists that are in space 105 receive drywall? Left exposed?

**Provide GWB on underside of joists located in Room 105.**

11. A1.1-Sleeping quarters-please identify the rectangle located beside the head of the beds and whether or not this item and beds are included or NIC

**Rectangles located beside the head of the beds are indications of furnishings. All furnishings are NIC.**

12. A1.1-Confirm floor finish in space 206: PT= Quarry Tile

**PT- Porcelain tile. Add the following paragraph "D" to 2.01 TILE under Specification Section 09 3000-Tiling.**

**D. Porcelain Tile: , and as follows:**

1. **Size and Shape: 12"x24".**
2. **Thickness: 7/16 inch**
3. **Face: Plain.**
4. **Surface Finish: Non-slip.**
5. **Color(s): To be selected by Architect from manufacturer's standard range.**
6. **Trim Units: Matching bullnose and cove base shapes in sizes coordinated with field tile.**
7. **Products:**
  - a. **American Olean, Product :Relevance. [www.americanolean.com](http://www.americanolean.com).**
  - b. **Florida Tile, Product: Time/2.0, [www.floridatile.com](http://www.floridatile.com).**

13. A1.1-Bath 3 space 209, note reads "thinset CT on existing wall TR711" A3.0 finish schedule list existing plaster on these walls. Please clarify.

**Provide thinset tile on walls as indicated on plan. Extend tile to a height of 7'-6" A.F.F.**

14. A3.0 Opening schedule-S02 and S03 are listed as wood doors in a frame material HM but a frame elevation type F-2 noting a wood frame. Please clarify

See response to Question #1 above.

15. Generator upgrade plan general notes 3 waives fees, is the same true for the interior renovation work?

**The City will issue a letter to the successful contractor that is performing work for the City of Lynchburg on city property. The contractor shall not be required to pay a fee for the building permits required to perform the work. Building Permits are still required, but associated fees are waived.**

16. 2/A2.1,3/A2.1-Can you provide more information on the 2" compressible gasket required? Are we talking about caulking backer rod? How is the panel to be secured at the wall/gasket? Is the middle of the panel supposed to be open at the floor? Is the panel anchored at the floor?

**The 2" compressible gasket shall be the smooth finish, black foam pipe insulation set in clear silicone to hold in place. The panels are not attached to the wall, they are secured to the floor with concealed clip angles at front and rear of panel. The black iron pipe running between the panels provides lateral support. Panel is open at the middle.**

17. Please confirm that HVAC and Plumbing lines are to be exposed or concealed on the second and third floors/ceilings.

**Plumbing lines shall be run concealed as much as possible. Refrigerant lines shall be run concealed as much as possible. HVAC ductwork will be exposed. Third floor ceiling is new construction and therefore should have all utilities concealed in attic type space. Confined spaces where utilities cannot be conceal will be routed exposed. The second floor is existing plaster and utilities, such as, sanitary lines and ductwork will be exposed and run in an orderly manner. All exposed work is painted.**

18. P2.3 does not show washing machine emergency drain connection as required in specification section 113100-2.03-A

**Route pipe to face of exterior wall & terminate w/insect screen.**

19. Building section on A2.0 at the three small round windows has us repairing broken glass. I this desired at just these three windows or is all broken glass on exterior and interior windows to be repaired? What type of glass is required? The older existing glass is "wavy" glass, some has been replaced with float glass.

**Repair only the small round windows using clear float glass where required.**

20. There are windows in the building that are not indicated on the drawings to receive the interior energy panels. Are these going to get panels as well, or only the ones indicated on drawings?

**Omit energy panel from all windows in the existing tower. Provide energy panels to windows located in the main structure.**

21. Note 3 on drawings says metal framed energy panel with tinted glass on interior side of existing windows. Specification 085113, 2.02 components states frames pvc with magnetic seal. Will aluminum

frame with magnetic seal be acceptable per note 3 or is PVC required? Which is correct plan note or spec?

**Energy panels shall be as specified, plan note is incorrect. Provide PVC frame as specified, however product data for aluminum frame is required to be submitted if substitution is requested.**

22. Glazing is called to be single pane polycarbonate in spec 085113, 2.02. Drawing note states tinted glass. Which is correct?

**Provide clear polycarbonate.**

23. Specified mfg. from 085113 is Magnetite. There are multiple series, which one is required? Heritage, Heatshield, Sound Control, Energy Efficiency, Museum/UV, Eclipse, or Privacy?

**Basis of design shall be Heritage Series.**

24. Demolition Note: #23: Says that door and frame will be removed. Then prepare opening to receive new work. Will the new work be for a single door or a pair of doors swinging out as is indicated in Note #1 from the door schedule?

**Door and frame shall be existing to remain. Rework door and frame to change swing as indicated. Fix indicated leaf in place using surface bolts. Provide hardware similar to hardware specified in Question #2 above.**

25. Plan page S1.0 – Reinforcing floor will remove any existing wood bridging that I would expect to be in place, wooden bridging would not be practical with the metal joists, a metal bridging strap would require exposing the top and the bottom of the ceiling of the reinforced area which is more work than that indicated. Please advise on what is required.

**Since floor joists are laterally supported top & bottom by flooring & ceiling, bridging is not required.**

26. After reading through the spec sheets there appears to be two different sets of specifications from different engineers. There are some small inconsistencies between the two. Are we to follow the first set for the interior renovation and the second for the generator portion?

**Specifications from Architectural Partners will cover all renovation work to be performed except for that related to the generator installation per the drawings and specifications for that portion of the job. The drawings and specifications for the generator portion of the job are as produced by Virginia A&E.**

27. The job summary that was received has a generator included in the scope of work, however the plans indicate that the generator will be a future project. How would you like that addressed?

**The generator upgrade is to be included in this job. Its installation will be per the drawings and specifications for the generator portion of the work as provided by Virginia A&E.**

28. Please provide Range hood model required.

**Model No. VCWH53648 Hood with interior ventilation kit VINV300/600. Hood finish shall be stainless steel.**

29. What is expected with the lead abatement? Abatement contractors recommend disposing of molding, jambs and doors with lead based paint coatings. Plans direct us to reuse. Is the desire to have us include the cost of stripping lead containing coatings from existing materials?

**Existing wood doors shall be reused. Moldings and casings may be reused or discarded at the contractor's option. New moldings and casings shall match existing molding and casing profile.**

**30. Confirm whether or not pipe, conduit, duct is to be concealed or surface mounted on existing walls and ceilings to remain.**

**The intent is to leave pipe, conduit, and duct exposed overhead below the existing ceilings. No new pipe or conduit will be routed through the exterior brick walls. Existing interior walls with new pipe and conduit routed through will be cut and patched to match existing finish.**

**31. I see in the spec book that there is a Hazardous Material Report available for Asbestos and Lead. It is H&P Project No: 20141269. How do I go about getting this report?**

**It's posted with the other project information on the City's web site.**

**32. In spec section 262416 there is a reference made to spec section 264313 as to the Surge Protective Devices required in the panel boards. That section seems to be missing from the spec manual we have available. Please advise.**

**See attached Specification Section 264313.**

**CLARIFICATIONS / MODIFICATIONS**

**33. Drawing A2.3 – Change note referring to painting from “Alternate #1” to “Alternate #3.”**

**34. Drawing A2.1/Section 4 – Add #4 reinforced dowels @ 32” o.c. at CMU wall. Epoxy dowels into existing concrete floor 4”. Dowels shall be extended vertically into cores of CMU 16” (2 course high) and fully grouted.**

**35. Drawing P2.3 – add requirement to insulate all exposed sanitary drain, waste & vent piping with 1/2” acoustical fiberglass wrap and PVC blanket. See attached drawing P2.3, Rev.1.**

Company Name: \_\_\_\_\_ Address: \_\_\_\_\_ Date: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Print Name: \_\_\_\_\_ Telephone No.: \_\_\_\_\_

Fax No.: \_\_\_\_\_

**SECTION 08 7100  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Hardware for wood and hollow steel doors.
- B. Lock cylinders for doors for which hardware is specified in other sections.
- C. Thresholds.
- D. Weatherstripping, seals and door gaskets.

**1.02 RELATED REQUIREMENTS**

- A. Section 08 1416 - Flush Wood Doors.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

**PART 2 PRODUCTS**

**2.01 DOOR HARDWARE - GENERAL**

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
  - 1. Applicable provisions of federal, state, and local codes.
- D. Finishes: All door hardware the same finish unless otherwise indicated.
  - 1. Primary Finish: Satin chrome plated over nickel on brass or bronze, 626 (approx US26D).
  - 2. Finish Definitions: BHMA A156.18.
  - 3. Exceptions:
    - a. Where base metal is specified to be different, provide finish that is an appearance equivalent according to BHMA A156.18.

**2.02 HINGES**

- A. Hinges: Provide hinges on every swinging door.
  - 1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
  - 2. Provide ball-bearing hinges at all doors having closers.
  - 3. Provide hinges in the quantities indicated.
  - 4. Provide non-removable pins on exterior outswinging doors.
  - 5. Provide hinges with decorative tips to match existing.
- B. Manufacturers - Hinges:
  - 1. Assa Abloy McKinney: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Hager Companies: [www.hagerco.com](http://www.hagerco.com).
  - 3. Stanley Black & Decker: [www.stanleyblackanddecker.com](http://www.stanleyblackanddecker.com).
  - 4. PBB, Inc.: [www.pbbinc.com](http://www.pbbinc.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

**2.03 PUSH/PULLS**

- A. Push/Pulls: Comply with BHMA A156.6.
  - 1. Provide push and pull on doors not specified to have lockset, latchset, exit device, or auxiliary lock.
  - 2. On solid doors, provide matching push plate and pull plate on opposite faces.
- B. Manufacturers - Push/Pulls:
  - 1. Assa Abloy McKinney: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Hager Companies: [www.hagerco.com](http://www.hagerco.com).

3. Hiawatha, Inc: [www.hiawathainc.com](http://www.hiawathainc.com).
4. Triangle Brass Manufacturing Co., Inc: [www.trimcobbw.com](http://www.trimcobbw.com).
5. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.04 LOCKS AND LATCHES**

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
  1. Hardware Sets indicate locking functions required for each door.
  2. If no hardware set is indicated for a swinging door provide an office lockset.
  3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
  4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
  1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Match owners keying .
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".
  1. Roller Latches:

#### **2.05 CYLINDRICAL LOCKSETS**

- A. Locking Functions: As defined in BHMA A156.2, and as follows:
  1. Passage: No locking, always free entry and exit.
  2. Privacy: F76, emergency tool unlocks.
  3. Office: F82 Grade 1, key not required to lock, unlocks upon exit.
  4. Classroom: F84, key required to lock.
  5. Store Door: F91, locked by key from both sides, not an emergency exit (must be unlocked during occupied hours).
  6. Exit Only: F89, may not be left unlocked.
- B. Manufacturers - Cylindrical Locksets:
  1. Assa Abloy Corbin Russwin, Sargent, or Yale: [www.assaabloydss.com](http://www.assaabloydss.com).
  2. Best Access Systems, division of Stanley Security Solutions: [www.bestlock.com](http://www.bestlock.com).
  3. Hager Companies: [www.hagerco.com](http://www.hagerco.com).
  4. Schlage, an Allegion brand: [www.allegion.com/us](http://www.allegion.com/us).
  5. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.06 AUXILIARY LOCKS**

- A. Locking Functions: As defined in BHMA A156.5, and as follows:
  1. Deadbolt at Gear Locker 105 partition.

#### **2.07 FLUSHBOLTS**

- A. Flushbolts: Lever extension bolts in leading edge of door, one bolt into floor, one bolt into top of frame.
  1. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
  2. Floor Bolts: Provide dustproof strike except at metal thresholds.
- B. Manual Flushbolts: Provide lever extensions for top bolt at over-size doors.

#### **2.08 CLOSERS**

- A. Closers: Complying with BHMA A156.4.
  1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
  2. Provide a door closer on every exterior door.
  3. Provide a door closer on every fire- and smoke-rated door. Spring hinges are not an acceptable self-closing device unless specifically so indicated.
  4. On pairs of swinging doors, if an overlapping astragal is present, provide coordinator to ensure the leaves close in proper order.

- B. Manufacturers - Closers:
  - 1. Assa Abloy Corbin Russwin, Norton, Rixson, Sargent, or Yale: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. DORMA Group North America: [www.dorma-usa.com/usa](http://www.dorma-usa.com/usa).
  - 3. Hager Companies: [www.hagerco.com](http://www.hagerco.com).
  - 4. LCN, an Allegion brand: [www.allegion.com/us](http://www.allegion.com/us).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

## **2.09 STOPS AND HOLDERS**

- A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
  - 1. Provide wall stops, unless otherwise indicated.
  - 2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
  - 3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.

## **2.10 GASKETING**

- A. Gasketing : Sound gaskets at the doors into the Sleeping Quarters.
- B. Gaskets: Complying with BHMA A156.22.
  - 1. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
    - a. Where exterior door is also required to have fire or smoke rating, provide gaskets functioning as both smoke and weather seals.
  - 2. On each exterior door, provide door bottom sweep, unless otherwise indicated.
- C. Thresholds:
  - 1. At each exterior door, provide a threshold unless otherwise indicated.

## **2.11 PROTECTION PLATES AND ARCHITECTURAL TRIM**

- A. Protection Plates:
  - 1. Kickplate: Provide as indicated below.
    - a. At doors indicated in schedule.
  - 2. Mop Plates:
    - a. At doors indicated in schedule.
- B. Manufacturers - Protection Plates and Architectural Trim:
  - 1. Assa Abloy McKinney: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Hager Companies: [www.hagerco.com](http://www.hagerco.com).
  - 3. Hiawatha, Inc: [www.hiawathainc.com](http://www.hiawathainc.com).
  - 4. Triangle Brass Manufacturing Co., Inc: [www.trimcobbw.com](http://www.trimcobbw.com).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Mounting heights for hardware from finished floor to center line of hardware item:
  - 1. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

### **3.02 ADJUSTING**

- A. Adjust work under provisions of Section 01 7000.
- B. Adjust hardware for smooth operation.

## **HARDWARE SETS**

### **4.01 GENERAL**

- A. These Hardware Sets indicate requirements for single doors of that type, with conditional requirements for pairs and other situations.
- B. Pairs of Swinging Doors: Provide one of each specified item on each leaf unless specifically stated otherwise. Treat pairs as two active leaves unless otherwise indicated.

### **4.02 HARDWARE SCHEDULE**

- A. HW-1:
  - 1. 1 ½ pair hinges.
  - 2. 1 Lockset – Storage Function.
  - 3. 1 Door stop.
- B. HW-2:
  - 1. 1 ½ pair hinges.
  - 2. 1 Lockset – Privacy Function.
  - 3. 1 Door Stop.
- C. HW-3:
  - 1. 3 pair hinges.
  - 2. 1 pair overhead door stops.
  - 3. 1 pair dummy latch trim.
  - 4. 1 pair roller latches- mount at head of door.
- D. HW-4:
  - 1. 1 Door closer.
  - 2. Balance of hardware- existing to remain.
- E. HW-5:
  - 1. 4 pair hinges.
  - 2. 1 Lockset – Passage function – Active leaf
  - 3. 1 pair surface bolts – inactive leaf.
  - 4. 1 closer – active leaf.
- F. HW-6:
  - 1. 4 pair hinges.
  - 2. 1 lockset – Entry Function – active leaf.
  - 3. 1 pair surface bolts- inactive leaf.
  - 4. 1 closer -active leaf.
  - 5. 1 set weatherstrip
- F. HW-7:
  - 1. 1 1/2 pair hinges.
  - 2. 1 Lockset - Office Function
  - 3. 1 door stop.
- F. HW-8:
  - 1. 1 lockset – Privacy Function.
  - 2. Balance of hardware existing to remain.

**END OF SECTION**

**SECTION 264313**  
**SURGE PROTECTIVE DEVICES (SPD'S)**

**PART 1 GENERAL**

**1.01 ELECTRICAL GENERAL PROVISIONS**

A. Provisions of Section 260100 - Electrical General Provisions shall be made an integral part of this section.

**1.02 SCOPE:** Furnish and install the surge protective device (SPD) equipment having the electrical characteristics, ratings, and modifications as specified herein and as shown on the drawings. To maximize performance and reliability and to obtain the lowest possible let-through voltages, the surge protection shall be integrated into electrical distribution equipment such as switchgear, switchboards, panelboards, busway (integrated within bus plug), or motor control centers.

**1.03 RELATED SECTIONS**

A. Section 262416 - Panelboards

**1.04 REFERENCES:** SPD units and all components shall be designed, manufactured, and tested in accordance with the latest applicable UL Standard (ANSI/UL 1449 3<sup>RD</sup> Edition).

**1.05 SUBMITTALS – For Review/Approval**

A. Provide verification that the SPD complies with the required ANSI/UL 1449 3rd Edition listing by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory (NRTL). Compliance may be in the form of a file number that can be verified on UL's website or on any other NRTL's website, as long as the website contains the following information at a minimum: model number, SPD Type, system voltage, phases, modes of protection, Voltage Protection Rating (VPR), and Nominal Discharge Current (I<sub>n</sub>).

B. Where applicable, submit the following additional information:  
1. Descriptive bulletins  
2. Product sheets

**1.06 SUBMITTALS – FOR CONSTRUCTION:** For record purposes, submit final as-built drawings and information for items listed in Section 1.05 and shall incorporate all changes made during the manufacturing process.

**1.07 QUALIFICATIONS**

A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.

B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.

C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

D. The SPD shall be compliant with the Restriction of Hazardous Substances (rohs) Directive 2002/95/EC.

**1.08 DELIVERY, STORAGE AND HANDLING**

A. Handle and store equipment in accordance with manufacturer's instructions.

B. Include one copy of manufacturer's instructions with the equipment at time of shipment.

C. Operation and Maintenance Manuals: Ship operation and maintenance manual with each SPD shipped.

**PART 2 PRODUCTS**

**2.01 VOLTAGE SURGE SUPPRESSION – GENERAL**

A. Electrical Requirements

1. Unit Operating Voltage – Refer to drawings for operating voltage and unit configuration.
2. Maximum Continuous Operating Voltage (MCOV) – The MCOV shall not be less than 115% of the nominal system operating voltage.
3. The suppression system shall incorporate thermally protected metal-oxide varistors (MOV's) as the core surge suppression component for the service entrance and all other distribution levels. The system shall not utilize silicon avalanche diodes, selenium cells, air gaps, or other components that may crowbar the system voltage leading to system upset or create any environmental hazards.
4. Protection Modes – The SPD must protect all modes of the electrical system being utilized. The required protection modes are indicated by bullets in the following table:

| Configuration      | Protection Modes |     |     |     |
|--------------------|------------------|-----|-----|-----|
|                    | L-N              | L-G | L-L | N-G |
| Wye                | •                | •   | •   | •   |
| Delta              | N/A              | •   | •   | N/A |
| Single Split Phase | •                | •   | •   | •   |
| High Leg Delta     | •                | •   | •   | •   |

5. Nominal Discharge Current ( $I_n$ ) – All SPD's applied to the distribution system shall have a 20ka  $I_n$  rating regardless of their SPD Type (includes Types 1 and 2) or operating voltage. SPD's having an  $I_n$  less than 20ka shall be rejected.
6. ANSI/UL 1449 3rd Edition Voltage Protection Rating (VPR) – The maximum ANSI/UL 1449 3rd Edition VPR for the device shall not exceed the following:

| MODES         | 208Y/120 | 480Y/277 | 600Y/347 |
|---------------|----------|----------|----------|
| L-N; L-G; N-G | 700      | 1200     | 1500     |
| L-L           | 1200     | 2000     | 3000     |

B. SPD Design

1. The SPD's shall be maintenance free and shall not require any user intervention throughout its life. SPD's containing items such as replaceable modules, replaceable fuses, or replaceable batteries shall not be accepted. SPD's requiring any maintenance of any sort such as periodic tightening of connections shall not be accepted. SPD's requiring user intervention to test the unit via a diagnostic test kit or similar device shall not be accepted.
2. Balanced Suppression Platform: The surge current shall be equally distributed to all MOV components to ensure equal stressing and maximum performance. The surge suppression platform must provide equal impedance paths to each matched MOV. Designs incorporating replaceable SPD modules shall not be accepted.
3. Electrical Noise Filter: Each unit shall include a high-performance EMI/RFI noise rejection filter. Noise attenuation for electric line noise shall be up to 50 db from 10 khz to 100 mhz using the MIL-STD-220A insertion loss test method. Products unable able to meet this specification shall not be accepted.
4. Internal Connections: No plug-in component modules or printed circuit boards shall be used as surge current conductors. All internal components shall be soldered, hardwired with connections utilizing low impedance conductors.

5. Monitoring Diagnostics: Each SPD shall provide the following integral monitoring options:
  - a. Protection Status Indicators: Each unit shall have a green / red solid-state indicator light that reports the status of the protection on each phase.
    - (1) For wye configured units, the indicator lights must report the status of all protection elements and circuitry in the L-N and L-G modes. Wye configured units shall also contain an additional green / red solid-state indicator light that reports the status of the protection elements and circuitry in the N-G mode. SPD's that indicate only the status of the L-N and L-G modes shall not be accepted.
    - (2) For delta configured units, the indicator lights must report the status of all protection elements and circuitry in the L-G and L-L modes.
    - (3) The absence of a green light and the presence of a red light shall indicate that damage has occurred on the respective phase or mode. All protection status indicators must indicate the actual status of the protection on each phase or mode. If power is removed from any one phase, the indicator lights must continue to indicate the status of the protection on all other phases and protection modes. Diagnostics packages that simply indicate whether power is present on a particular phase shall not be accepted.
  - b. Remote Status Monitor: The SPD must include Form C dry contacts (one NO and one NC) for remote annunciation of its status. Both the NO and NC contacts shall change state under any fault condition.
  - c. Audible Alarm and Silence Button: The SPD shall contain an audible alarm that will be activated under any fault condition. There shall also be an audible alarm silence button used to silence the audible alarm after it has been activated.
  - d. Surge Counter: The SPD shall be equipped with an LCD display that indicates to the user how many surges have occurred at the location. The surge counter shall trigger each time a surge event with a peak current magnitude of a minimum of  $50 \pm 20A$  occurs. A reset pushbutton shall also be standard, allowing the surge counter to be zeroed. The reset button shall contain a mechanism to prevent accidental resetting of the counter via a single, short-duration button press. In order to prevent accidental resetting, the surge counter reset button shall be depressed for a minimum of 2 seconds in order to clear the surge count total. The ongoing surge count shall be stored in non-volatile memory. If power to the SPD is completely interrupted, the ongoing count indicated on the surge counter's display prior to the interruption shall be stored in non-volatile memory and displayed after power is restored. The surge counter's memory shall not require a backup battery in order to achieve this functionality.
6. Overcurrent Protection: The unit shall contain thermally protected MOV's. These thermally protected MOV's shall have a thermal protection element packaged together with the MOV in order to achieve overcurrent protection of the MOV. The thermal protection element shall disconnect the MOV(s) from the system in a fail-safe manner should a condition occur that would cause them to enter a thermal runaway condition.
7. Fully Integrated Component Design: All of the SPD's components and diagnostics shall be contained within one discrete assembly. SPD's or individual SPD modules that must be ganged together in order to achieve higher surge current ratings or other functionality shall not be accepted.

8. Safety Requirements
  - a. The SPD shall minimize potential arc flash hazards by containing no user serviceable / replaceable parts and shall be maintenance free. SPD's containing items such as replaceable modules, replaceable fuses, or replaceable batteries shall not be accepted. SPD's requiring any maintenance of any sort such as periodic tightening of connections shall not be accepted. SPD's requiring user intervention to test the unit via a diagnostic test kit or similar device shall not be accepted.
  - b. SPD's designed to interface with the electrical assembly via conductors shall require no user contact with the inside of the unit. Such units shall have any required conductors be factory installed.

**2.02 SYSTEM APPLICATION**

- A. All SPD's shall be tested and demonstrate suitability for application within ANSI/IEEE C62.41 Category C, B, and A environments.
- B. Surge Current Capacity: The minimum surge current capacity the device is capable of withstanding shall be as shown in the following table:

| Minimum surge current capacity based on ANSI / IEEE C62.41 location category |   |           |          |
|--|---|-----------|----------|
| Category   | Application   | Per Phase | Per Mode |
| C  | Service Entrance Locations (Switchboards, Switchgear, MCC, Main Entrance) | 250 ka    | 125 ka   |
| B  | High Exposure Roof Top Locations (Distribution Panelboards)               | 160 ka    | 80 ka    |
| A  | Branch Locations (Panelboards, mccs, Busway)                              | 120 ka    | 60 ka    |

- C. SPD Type: All SPD's installed on the line side of the service entrance disconnect shall be Type 1 SPD's. All SPD's installed on the load side of the service entrance disconnect shall be Type 1 or Type 2 SPD's.

**2.03 PANELBOARD REQUIREMENTS**

- A. The SPD units shall be tested and demonstrate suitability for application within ANSI/IEEE C62.41 Category B environments.
  1. The SPD shall not limit the use of through-feed lugs, sub-feed lugs, and sub-feed breaker options.
  2. SPD's shall be installed immediately following the load side of the main breaker. SPD's installed in main lug only panelboards shall be installed immediately following the incoming main lugs.
  3. The panelboard shall be capable of re-energizing upon removal of the SPD.
  4. The SPD shall be interfaced to the panelboard via a direct bus bar connection.
  5. The SPD shall be included and mounted within the panelboard by the manufacturer of the panelboard.
  6. The SPD shall be of the same manufacturer as the panelboard.
  7. The complete panelboard including the SPD shall be UL67 listed.

**PART 3 EXECUTION**

- 3.01 FACTORY TESTING:** Standard factory tests shall be performed on the equipment under this section. All tests shall be in accordance with the latest version of NEMA and UL standards.
- 3.02 INSTALLATION:** Install all equipment per the manufacturer's recommendations and the contract drawings.
- 3.03 WARRANTY:** The manufacturer shall provide a full ten (10) year warranty from the date of shipment against any SPD part failure when installed in compliance with manufacturer's written instructions and any applicable national or local code.

**END OF SECTION**