

HCPS – ROOF ACCESSORIES

DOCUMENT NUMBER: 07 72 00

APPLICATION: ELEMENTARY, MIDDLE AND HIGH SCHOOL

DATE OF ISSUE:


01-17-13 - First Issue

NOTES:

1. Revisions to this specification, as may be required for adaptation to fit project-specific conditions, require Owner's written approval prior to bidding.
2. **Prior to publishing the specifications**, the Design Professional (A/E) who prepares the project manual shall **edit the information appearing in red brackets [...] , or as otherwise instructed, as appropriate to the project.** Delete brackets and change edited text to match the formatting of adjacent text.
3. Editing instructions are included as blue hidden text within this specification. **Do not edit this specification unless you can see the hidden editing instructions.** If the sample editing instructions immediately following this paragraph are invisible, refer to *Microsoft Office Word (2007) Help* for guidance on displaying hidden text, and then show all formatting marks. **Do not print hidden text in the final document.**

Editing instructions appear as blue hidden text. Toggling the “Show/Hide formatting marks” command (using the  button) toggles the display of hidden text.

To display hidden text
in Word documents

Click the Microsoft Office Button , and then click Word Options. In the Word Options dialog box, click Display, and then under **Always show these formatting marks on the screen**, select the **Hidden text** check box.

4. Roof Deck Testing – For new or replacement roof accessories on existing buildings, the Design Professional shall conduct fastener pullout resistance testing in compliance with **FBC Test Protocols: Test Application Standard (TAS) No. 105-98 – Test Procedure for Field Withdrawal Resistance Testing.** Design Professional shall then determine which type(s) of mechanical fastener(s), when used to attach any roofing component to a specific deck, will provide sufficient resistance to static uplift force to meet applicable wind-load requirements. Alternative testing may be performed for systems with adhered roof insulation and membrane providing testing meets the requirements of the appropriate FBC TAS

ATTACHMENTS:

Specification Section 07 72 00 – HCPS Roof Accessories, **dated 01-17-13**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Specify roof hatches and safety rail systems based on project requirements.

- A. This Section includes the following:
1. Furnishing and installing factory fabricated roof hatches.
 2. Furnishing and installing factory fabricated fall protection, safety rail and ladder extension system on **[new] [existing]** roof hatches.
- B. Related Sections include the following:

Edit the information appearing in red brackets below, as appropriate to the Project Manual.

1. Refer to the Table of Contents for Sections related to roofing system.
2. Refer to Division **[1]** Section **["Unit Prices"]** for Work in this Section affected by unit prices.
3. Refer to Division **[6]**, Section **["Rough Carpentry"]** for wood blocking and nailers.
4. Refer to Division **[7]**, Section **["Roof and Deck Insulation"]** for roof board insulation.
5. Refer to Division **[7]**, Section **["Sheet Metal Flashing and Trim"]** for sheet metal flashing and related work.
6. Refer to Division **[7]**, Section **["Building Sealants"]** for sealant related work.
7. Refer to Division **7**, Section **07 50 00.1 "Roofing Installer's Five (5) Year Warranty"**

1.3 DEFINITIONS

- A. DESIGN UPLIFT PRESSURE – The uplift pressure, calculated according to procedures in the Single Ply Roofing Institute (SPRI) "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," "Wind Design Guide for Roof Edge Systems" and as required by the Florida Building Code (current edition) *before* multiplication by a safety factor.
- B. FACTORED DESIGN UPLIFT PRESSURE – The uplift pressure, calculated according to procedures in the SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," "Wind Design Guide for Roof Edge Systems" and as required by the Florida Building Code (current edition) *after* multiplication by a safety factor.

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- C. OTHER ROOFING TERMINOLOGY: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Installed roofing accessories shall remain watertight, shall not permit the passage of water, and shall resist specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction.

Edit the information appearing in red brackets below, as appropriate to the Project.

- B. Uniform Wind Uplift Load Capacity: Installed roof accessories shall withstand negative (uplift) design wind loading pressures complying with the following criteria:
1. Design Code: **[ASCE/SEI 7-10]**.
 2. Building Category: **[3]**
 3. Importance Factor: **[1.15]**
 4. Wind Speed: **[120]** mph minimum.
 5. Exposure Category: **[C]** minimum.
 6. Topographic Factor: **[1.0]**.
- C. Florida Product Approvals Listing: Provide roof accessories that are approved for use in Florida and which are listed in Florida's Product Approval System Website [<http://www.floridabuilding.org/pr/>].
- D. Fire Classification: UL 790 Class A.

1.5 SUBMITTALS

- A. Procedure: Submittals shall be in accordance with Division 1 requirements, and as follows:
1. Submittals specified herein shall be submitted at one time directly to the Design Professional for review and approval in electronic format on CD-ROM, and in printed format, in a 3-ring binder tabbed by Specification Section number.
 - a. All electronic format drawings shall be submitted as portable document format (PDF) files.
 - b. Product data, sample warranties, fastener pull testing reports or other information shall be submitted as portable document format (PDF) files.
 2. Allow ten (10) calendar days for submittal review.

Require sufficient quantity of duplicate submittals to conduct the review and communicate the disposition to the Contractor. The Owner requires a single CD-ROM containing the final approved submittal in electronic format.

- a. Submit **[insert quantity]** copies of the CD-ROM and **[insert quantity]** copies of the 3-ring binder, each labeled with all pertinent information needed to identify the submittal.

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3. Where submission of samples, shop drawings, or other items are required from suppliers or subcontractors, it shall be the Contractor's responsibility to see that such submittal items are complete, properly submitted and, if required, corrected and resubmitted so as not to delay the progress of the Work. All submittals shall be made by the Contractor. Submittals received from sources other than through Contractor will be returned "without action," (not reviewed and not approved).
4. Contractor shall not submit for review the products of manufacturers not listed as approved in the Contract Documents, including any addenda. Submittals for products that are not approved shall be rejected and will delay the review process. The Contractor shall assume full responsibility for any delays caused by unapproved manufacturer submittals.
5. **Maximum Review of the Same Submittal:** The same submittal will only be reviewed a maximum of two (2) times. If the same submittal is not correct within the two (2) submittal limit for the same item, Contractor will be shall assume full responsibility for any delays caused by subsequent reviews.

B. **Content:** Submittals shall contain the following minimum information:

1. **Product Data:** Manufacturer's latest edition of technical product data for each roof accessory specified including roof hatches and roof hatch safety rail systems. Include data substantiating that materials comply with requirements. Mark proposed products clearly by circling, underlining or highlighting with a highlighter color that will reproduce when copied.
2. **Material Safety Data Sheets:** MSDS for each product shall be included immediately following its specific product data.
3. **Manufacturer's Instructions:** Detailed installation instructions for the roof accessories being installed, to include general and specific recommendations, product storage and handling, weather restrictions and parameters, and application requirements.
4. **Florida Product Approvals:** Provide documentation substantiating that all products submitted are approved for use in Florida.
5. **Shop Drawings:** Include plans with dimensions, profiles, locations, accessories and attachments to other work for all specified products.
6. **Samples for Verification:** Manufacturer to provide upon request samples of all material finishes and hardware.
7. **Manufacturer's Certificates:** Certify that products of this section meet or exceed specified requirements.
8. **Maintenance Data:** For roof accessories to include in maintenance manuals.
9. **Manufacturer's Instructions:** Provide complete instructions for proper installation of roof accessories.
10. **Roof Accessory Manufacturer's Warranty:** Provide manufacturer's standard warranty forms as outlined within this specification.
11. **Roof Accessory Installer's Final Warranty:** Installer shall provide specified completed warranty form at project closeout.

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1.6 QUALITY ASSURANCE

- A. Coordinated Installation: Coordinate layout and installation of roof accessories with roof membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure and noncorrosive installation. Ensure all new or existing roof system warranties remain in full effect.
1. Except as otherwise indicated, perform roof accessory work as a single integrated unit of work, without division of responsibility between separate installers. Single installer responsibility required.
- B. Manufacturer Qualifications: Provide primary products from manufacturers, which have produced specified products successfully for not less than 5 years. Provide secondary products only as recommended by manufacturer of primary products for use with roof accessories specified.
- C. Installer Qualifications: A single installer must perform the work of this Section and have not less than 5 years of successful experience in installation of roof accessories similar to those specified for this project, and which be acceptable to and approved by manufacturer of primary roof accessories.
1. Installer shall maintain full-time, non-working supervisor/foreman on job site during times that installation is in progress. Installer's supervisor/foreman shall have minimum of 5 years of experience in work of similar nature and scope in specified roofing system.
 2. Installer shall have an office located within a 100 mile radius of the Owner's Maintenance Operations Center, located at 4805 E. Dr. Martin Luther King Jr. Blvd., Tampa, Florida 33605.
- D. Reference Standards: In addition to applicable regulations of authorities having jurisdiction, comply with the following:
1. Florida Building Code (FBC) – Current Edition
 2. Factory Mutual Global (FM) – Insulation fastener type and spacing requirements
 3. ANSI/SPRI ES-1 – Standard Field Test procedure for determining the withdrawing resistance of roofing fasteners
 4. ASTM A666 – Standard Specification for Stainless Steel Sheet, Strip, Plate and Flat Bar
 5. ASTM B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 6. ASTM E108 – Fire Tests of Roof Coverings
 7. NFPA 241 – Standard for Safeguarding Construction, Alteration and Demolition Operations
 8. NFPA 58 – Standard for the Storage and Handling of Liquefied Petroleum Gases
 9. NRCA ML102 – The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual
 10. NRCA ML214 – The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual
 11. OSHA 2207 – Occupational Safety and Health Administration Construction Industry Standards

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12. OSHA Regulation 29 CFR 1926 - Occupational Safety and Health Administration Construction Industry Regulation
13. SMACNA - Sheet Metal & Air-Conditioning Contractors' National Association, Inc., Architectural Sheet Metal Manual
14. UL FRD – Underwriters’ Laboratory, Fire Resistance Directory
15. UL RMSD – Underwriters’ Laboratory, Roofing Materials and Systems Directory
16. UL 580 –Standard Tests For Uplift Resistance Of Roof Assemblies
17. UL 790 – Tests For Fire Resistance Of Roof Covering Materials
18. UL 997 – Wind Resistance of Prepared Roof Covering Materials
19. UL 1256 – Fire Test of Roof Deck Constructions

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roof accessory materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store all material in a dry, protected, well-ventilated area elevated above grade.
- C. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roof accessory manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- D. Handle and store roof accessory materials and place equipment in a manner to avoid permanent deflection of roof deck.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verified required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Existing Construction: Prior to commencement of installation, Contractor shall verify condition of existing construction, including:
 - a. Roof deck and/or substrate condition as being acceptable for Work specified in this Section.
 - b. Varying deck and wall thickness for length of required anchoring devices.
- C. Environmental Limitations
 1. Do not install roof accessories during rain or start installation if rain is probable during installation.
 2. Do not install roof accessories when there is ice, frost, surface moisture, or dampness visible on the surface to which accessories are to be applied.

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1.9 WARRANTIES

- A. **Roof Accessory Manufacturer's Warranty:** Provide manufacturer's standard warranty forms as outlined below:
1. **Roof Hatch:** Materials shall be free of defects in material and workmanship for a period of five (5) years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge. Electrical motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.
 2. **Roof Hatch Safety Rail System:** Materials shall be free of defects in material and workmanship for a period of twenty (20) years from the date of purchase. Within this time period, manufacturer shall replace defective components at no charge to the Owner.
- B. **Roof Accessory Installer's Warranty:** Submit Roof Accessory Installer's warranty, signed by Installer, covering the Work of this Section. The roofing installer's warranty shall guaranty aspects of performance and watertightness for each of the aforementioned roof accessory components for a period of five (5) years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF HATCHES

A/E may specify alternate roof hatch size based on project requirements. Roof hatch materials must be specified as either aluminum or stainless steel as shown.

- A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integrated deck mounting flange and lid frame counter flashing. Fabricate with fully welded corner joints on cover and curb with continuous weathertight perimeter gasketing.
1. Basis of Design Manufacturer:
 - a. The Bilco Company – Type “S” Roof Hatch, 36” x 30” standard size
 - b. Additional manufacturers may be acceptable if products comply fully with the requirements of this section.
- B. Type and Size: Single-leaf lid, 36 by 30 inches. Pre-assembled form the manufacturer.
- C. Performance Requirements:
1. Cover shall be reinforced to support a minimum live load of 40 psf with a maximum deflection of 1/150th of the span or a maximum design pressure of + or - 70 psf with a factor of safety of 2.
 2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
 3. Operation of the cover shall not be affected by temperature.
- D. Cover: Shall be **[11 gauge aluminum]** **[14 gauge type 304 stainless steel]** brakeformed, hollow metal design with 1” concealed fiberglass insulation, 3” beaded, overlapping flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is

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bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

- E. Curb: Shall be 12” in height and of **[11 gauge aluminum] [14 gauge type 304 stainless steel]** fully welded at corners with integral metal cap flashing of the same gauge and material as the curb. The curb shall be formed with a 3½” flange for securing to the roof deck with high density 1” fiberboard insulation on the outside of the curb.
- F. Lifting Mechanism: Compression spring operators enclosed in telescopic tubes. Automatic hold-open arm with grip handle release.
- G. Hardware: All hardware shall be zinc plated/chromate sealed or stainless steel as specified. Hinges shall be heavy-duty pintle hinges with Type 316 stainless steel hinge pins. Latch shall be provided with interior and exterior turn handles and padlock hasps.

2.2 ROOF HATCH SAFETY RAIL SYSTEM

A/E may specify alternate roof hatch safety rail system size based on roof hatch size.

- A. Roof Hatch Safety Rail System: Steel tube railing system mounted on roof hatch providing an ergonomically correct power grip in a safe upright egress and ingress through roof hatches in addition to protection from accidental falls through roof opening while roof hatch is open. Includes top and mid-rail and wrap around self-closing gravity gate mounted with heavy duty hinges acting as a ladder extension.
 - 1. Basis of Design Manufacturer:
 - a. SafePro L.P. – Roof Hatch Fall Protection Safety Rail Model No SP-3630
 - b. Additional manufacturers may be acceptable if products comply fully with the requirements of this section.
 - B. Fabrication: 1½” hot rolled electric welded steel tubing, ASTM A500, Grade B, hot formed. Factory formed and fully welded construction, free of sharp edges and snag points.
 - 1. Finish: Factory finished with manufacturer’s standard powder coating.
 - 2. Color: Safety Yellow.
 - C. Size: Formed to fit roof hatch size of 36 by 30 inches. Installed 42 inches above roof surface when mounted on standard roof hatch cap flashing
 - D. Performance Requirements:
 - 1. Meets and exceeds OSHA Standard CFR 29 1910.23 and CFR 29 1910.27.
 - E. Gate System: Gravity self-closing, non-collapsible full wrap around steel tubing grab hold, welded construction. Heavy duty hinges with 5/8” hinge pin with built in pinch-less gate stop and pull up full open positioning.
 - F. Fasteners: Stainless steel 316 grade bolts.

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- G. Labels: Furnish with manufacturer's standard labels containing safety warnings, fall dangers, "No Hoisting" warning and manufacturer identification.

PART 3 - EXECUTION

A/E may delete Items 3.1 and 3.2 below if these requirements are included within other HCPS Specification Sections issued for the same project.

3.1 MINIMUM CONSTRUCTION SAFETY PRECAUTIONS

- A. The contractor shall take every precaution to maintain a safe campus for students, faculty, facility staff, workmen and visitors. It is the contractor's sole responsibility to maintain a safe work site. All materials and work required to create and maintain a safe work site shall be included in the cost of the Work. Any conditions deemed unsafe by the Owner's inspectors shall be immediately addressed by the contractor, at no additional cost to the Owner. Minimum requirements include the following:
1. Barricades: Contractor shall restrict access to work site by placing rigid barricades around kettles, tank trucks, ladders and roof access points and other work areas, including, but not limited to, staging areas for hoisting, debris removal, and materials storage. Rigid barricades may include flexible safety fence (snow fence) or any other fence-like barricade that can be easily relocated but which cannot be easily crossed by pedestrians.
 2. Work on Occupied Buildings
 - a. The following Work is strictly **prohibited** on occupied buildings:
 - 1) Demolition or removal of any existing roofing materials
 - 2) Construction, repair, or replacement of structural framing, including roof deck, parapet walls or roof edges
 - 3) Installation or replacement of roofing insulation or cover boards.
 - 4) Loading of roof deck with roofing materials or heavy equipment at any time prior to final completion
 - 5) Use of hot asphalt for mopping in insulation or membrane sheets
 - b. After the installation of the roof membrane system has been completed and the roof assembly is watertight, the following Work is **allowed** on occupied buildings:
 - 1) Installation of sheet metal flashing and trim
 - c. Contractor shall coordinate the use of hot asphalt or cold-applied adhesives with on site personnel to ensure fumes/vapors do not permeate building interiors. At a minimum, contractor shall:
 - 1) Ensure all HVAC units with outside air louvers are shut down in the vicinity of roofing work.
 - 2) If HVAC units cannot be shut down, contractor shall install filter media along all exterior intake louvers in the vicinity of roofing work.

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- d. When operations are scheduled that may cause undue noise, vibration or other hindrance to Owner's full use of building, coordinate method and time of operations with the Owner a minimum of three (3) days in advance so as not to interfere with Owner's operations.
 - e. If noise, vibration or other impacts of construction disturb Owner's educational activities, as determined solely by Owner, Contractor shall immediately cease the particular operation causing such disturbance. Operation shall resume only when the building, or affected portions thereof, are no longer occupied, or when the Contractor has taken steps to mitigate or eliminate the disturbance associated with the operation.
3. Fire Extinguishers: Required on each roof where work is performed and at each location where a kettle is in service. A minimum of three (3) 20-lb fire extinguishers (20A-120BC) in proper working order shall be on the roof, located within 30 feet of the area where hot-asphalt or hot air welding operations are being performed.
 4. Hot Asphalt Safety Rules:
 - a. The use of hot asphalt for mopping in *any roofing materials* is allowable only after *all* of the following conditions are met:
 - 1) Students and faculty are not present within the building(s) on which hot asphalt is being applied, and
 - 2) Administrative and custodial staff are not directly below the area(s) where hot asphalt is being applied, and
 - 3) Asphalt fume recovery units are installed and functioning properly
 - b. Locate kettle at least 10 feet away from any building and any egress path or exit, and at least 20-feet away from building air intakes, unless the intakes are turned off and sealed.
 5. General Safety Rules:
 - a. Air conditioning units and ventilating fans should be shut down before torch work is done in surrounding areas. When working close enough to an air conditioning unit that dust, dirt, fumes etc. may enter the building, damage the finish of the equipment, or damage the equipment, the units shall be covered.
 - b. The Owner requires an approved protective barrier where hot asphalt is used.
 - c. In the attics of roofs having combustible decks, install temporary smoke detectors prior to commencement of torching application and remove the smoke detectors one week after all torching operations on that building have been completed.
 - d. The Contractor shall provide a competent individual "watchman" who will remain on site for a minimum of one hour after work is completed to monitor the areas where roofing materials have been applied in a manner in which combustible materials are susceptible to igniting, including at the end of each work shift. The individual shall have heat detection equipment such as infra-red cameras or digital thermometers. The individual shall also have a cell phone with the telephone number of the closest fire department programmed into the phone.

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- e. Foremen and the “watchman” shall have successfully completed fire safety training provided by the local fire department, or other acceptable source for fire safety training, prior to commencement of the Work.
- f. Flammable liquids shall not be stored on the roof. 20lb liquid propane (LP) gas tanks and 5-gallon metal gas cans may be kept on the roof while the Work is in progress, provided they are removed and stored on the ground at the completion of each day’s work shift.

B. Safety Equipment

1. The contractor shall provide equipment or verify workmen provide equipment or work-wear for the project that is approved for use by OSHA. This includes:
 - a. Work shoes
 - b. Hard hats
 - c. Gloves
 - d. Long sleeve shirts and long pants
 - e. Power tools
 - f. Scaffolding

C. Ladder Safety

1. Comply with all OSHA requirements, and the following:
 - a. Place ladders on solid surfaces and at proper angles to the roof.
 - b. Tie ladders off at the roof and place barricades around ladders.
 - c. Do not place ladders in front of doors or entrances unless those are closed and blocked to use while the ladder is in place.
 - d. Use only ladders that are in good condition and not damaged.

D. Vehicle Safety

1. Park vehicles belonging to the contracting firm or workmen only in locations approved by Owner.
2. Contractor’s parking area, if near a building, shall be clearly delineated with warning lines for pedestrians. Dump trucks parked on the work site shall be surrounded with barricades.
3. Provide observers on the ground any time vehicles near the school are backing up.
4. Maintain a safe speed when moving vehicles on school property.

E. Materials Hoisting Safety

1. Hoisting operations shall be performed only on unoccupied buildings and only in areas barricaded to entry.
2. All equipment shall be in good working order and designed for hoisting operation for which is being used.
3. Workmen shall be on the ground and the roof during hoisting and shall maintain a safe operation.

F. Securing of Site

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1. Immediately following each day's work, the site shall be secured by the following minimum means:
 - a. Remove ladders from the site or lock ladders with chains and padlocks on the ground to prevent movement.
 - b. Remove tools from the site and roof unless locked in proper tool boxes such as "job boxes."
 - c. Remove flammable liquids from the roof and site.
 - d. Lock kettle valve to prevent opening and draining of hot asphalt.

3.2 EXAMINATION

A. Asbestos in Existing Roofs

1. Prior to any work being performed on existing roofing assemblies, the Owner's environmental consultant will conduct testing on existing roofing materials in accordance with requirements of the Asbestos Hazard Emergency Response Act (AHERA), as outlined in the Code of Federal Regulations, Chapter 40, Part 763, Subpart E, in order to determine whether Asbestos-Containing Material (ACM) exists within the roof. All existing roofing materials shall be presumed to be ACM, unless test results published by the Owner's environmental consultant indicate otherwise.
2. For existing roofing materials either presumed or positively confirmed as ACM, removal and disposal shall comply with applicable EPA regulations, and the following minimum requirements:
 - a. 29 CFR 1926.1101: OSHA's Asbestos Standard for the Construction Industry
 - b. 40 CFR Part 61, Subpart M: National Emission Standards for Hazardous Air Pollutants – Asbestos
 - c. Where conflicts exist among applicable requirements, the most stringent shall apply.
3. Contractor's supervisory personnel overseeing roofing demolition activities shall be trained and certified in the removal of roofing material containing asbestos.
4. All presumed or positively confirmed ACM shall be deposited as soon as is practical at an EPA-approved waste disposal or conversion site. A copy of the waste shipment records shall be sent to the Owner, at the following address:

Hillsborough County Public Schools
District Safety Office, ATTN: Mr. Glen Lathers
4224 West Crest Avenue
Tampa, FL 33614
5. Contractor may disregard the asbestos-related requirements outlined above only if test results published by the Owner's environmental consultant clearly indicate ACM is not present within existing roofing materials.

B. Contractor's Inspection

1. Examine substrates, areas and conditions with installer present, to verify actual locations, dimensions and other conditions affecting performance of the work.

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

3.3 INSTALLATION

- A. Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking and fastener disengagement.
- B. Install roof accessories to fit substrates and to result in watertight performance.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 1. Coat concealed side of uncoated aluminum or stainless steel roof accessories with bituminous coating where in contact with wood, ferrous metal or cementitious construction.
 2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
 3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.
- D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
- E. Seal joints with elastomeric sealant as required by roof accessory manufacturer.
- F. Roof Hatch Installation:
 1. Install roof hatch so top surface of hatch curb is level.
 2. Verify that roof hatch operates properly. Clean, lubricate and adjust operating mechanism and hardware.
- G. Roof Hatch Safety Rail System Installation:
 1. Install roof hatch safety rail system in accordance with manufacturer's instructions using bolts furnished by railing manufacturer.
 2. Install roof hatch safety rail system by through-bolting to integral curb flashing of roof hatch, avoiding penetration of roof base flashing.
 3. Adjust gate for smooth operation, free of binding.

3.4 REPAIR AND CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions.
- B. Clean off excess sealants.

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- C. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar repair procedures.

END OF SECTION