

SECTION 149100 - FACILITY CHUTES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes waste chutes.
- B. Related Sections:
 - 1. Division 05 Section "Metal Fabrications" for metal supporting framework at floor penetrations.
 - 2. Division 07 Section "Sheet Metal Flashing and Trim" for roof vent flashing and counterflashing.
 - 3. Division 07 Section "Roof Accessories" for roof curbs.
 - 4. Division 07 Section "Penetration Firestopping" for annular spaces at doors, floors, or roofs.
 - 5. Division 21 Section "Wet-Pipe Sprinkler Systems for buildings fire sprinklers and piping.
 - 6. Division 22 Section "Domestic Water Piping" for water-service connections.
 - 7. Division 26 Sections for electrical-service connections.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, materials descriptions, dimensions of individual components and profiles, and finishes for chutes.
- B. Shop Drawings: For chutes. Include plans, elevations, sections, details, weights, operational clearances, and attachments to other work. Indicate method of field assembly.
 - 1. Wiring Diagrams: Power, signal, **[and]** control wiring **[and electrical interfaces]**.
 - 2. Pneumatic Diagram: Indicate pneumatic control schematic and any pneumatic/electrical interface.
- C. Product Certificates: For each type of chute, from manufacturer to include material certifications from the materials supplier.
- D. Operational and Maintenance Data: For chutes to include in operation and maintenance manuals
 - 1. Include manufacturer's recycling plan guidelines.

1.4 QUALITY ASSURANCE

- A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated.
 - 1. Test Pressure: Test at atmospheric (neutral) pressure according to NFPA 252 or UL 10B.
 - 2. Intake Door: Class B labeled; 1-1/2-hour fire rated with 250 deg F (140 deg C) maximum temperature rise over 30 minutes.
 - 3. Discharge Door: Waste Chute: Approved door panel construction in accordance with NFPA 82.
 - 4. Access Door: Class B labeled; 1-1/2-hour fire rated with 250 deg F (140 deg C) maximum temperature rise over 30-minutes.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by Underwriters' Laboratories or other testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Standard: Provide chutes in full compliance with NFPA 82.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Provide chutes manufactured by CHUTE SOURCE, LLC or equal product by one of the following, subject to full compliance with all requirements:
 - 1. Western Chutes; Division of Buchanan Co., Inc.
 - 2. Wilkinson Chutes Canada, Inc.

2.2 CHUTES

- A. Chute Metal: **[Aluminum-coated, cold-rolled, commercial steel sheet; ASTM A 463/A 463M, Type 1 with not less than T1-40 (T1M-120) coating] [Type 430 stainless steel, ASTM A 240/A 240M] [Type 304 stainless steel, ASTM A 240/A 240M].**
 - 1. Thickness: 0.060 inch (1.6 mm) (formerly, 16 gage) for all chute sections: Intake, tube and vent. Offset tube thickness per manufacturer's recommendations, but not less than 0.60 inch.
 - 2. Spiral chute tube is prohibited.
- B. Size: **[24-inch (610-mm) diameter] [As indicated on Drawings] <Insert dimension>**. Selected diameter shall apply to the entire length of the chute from the discharge door at the base of the chute to the top of the vent (a point at least 3'-0" above the roof).
 - 1. Chute diameter area at the vent may be augmented by transitions to or from an equivalent, rectangular sectional area if dictated by building configuration.

2.3 DOORS

- A. Intake Door Assemblies: Of type and description indicated; to provide fire-protection and temperature-rise ratings indicated; and with frame anchors at top bottom and both sides suitable for enclosing chase construction of either drywall or masonry in accordance with UL Certification requirements.
1. Door Fronts for all Doors to be ASTM A 240/A 240M, Type 304, 22 gage stainless-steel with Manufacturer's standard No. 3 directional polish finish.
 2. Door Types: **<Select types needed with accessories available>**
 - a. Bottom Hinged, **[Limited Access][General Access]** Rubbish Chute Frame and Fire Door Assembly with specified stainless steel door fronts and 18 gage aluminized steel door backs and hopper wings. Mechanism enclosure box and cover under specified embossed trim; Removable/replaceable door panel; Self-closing and self-latching with default, full latch extension in permanent door-closed position during an active fire scenario.
 - 1) Supply with: **[Thru-wall Collar;] [Primer-Painted Frame;] [Zinc-Plated Frame;] [1/4" Rubber Baffle;] [Default Door-closed position in the event of closer failure;] [Cylinder Locks with two keys per door;] [Cylinder Locks with two keys per door keyed to building Master Key System;] [Foot Pedal Operation without keyed locks;] [Electric Interlocks (without cylinder locks) with default to full lock in the event of power loss (master switch at discharge level);] [Timed Electric Interlocks (without cylinder locks) with default to full lock in the event of power loss (master switch at discharge level);] [Point ID for Electric Interlocks;] [Sound Dampening on chute exterior;] [Sound Isolator Pads at floor support;] [and Tee Handle] [and Lever Handle]** per locations shown on drawings.
 - a. Bottom Hinged, ADA-ABA, UFAS, and ICC/ANSI 117.1 Compliant, Fully Pneumatic, General Access, Single Hand Palm Button Operation, Rubbish Chute Frame and Fire Door Assembly with zinc-plated frame; specified stainless steel door fronts and 18 gage aluminized steel door backs and hopper wings; Redundant opening; Mechanism enclosure boxes and covers under specified embossed trim; Removable/replaceable door panel; Self-closing with default Door-closed position in the event of closer failure. Self-latching with default, full latch extension in permanent door-closed position during an active fire scenario.
 - 1) Supply with: **[Thru-wall collar;] [1/4" Rubber Baffle] [Electric Interlocks with default to full lock in the event of power loss (master switch at discharge level);][Timed Electric Interlocks with default to full lock in the event of power loss (master switch at discharge level);] [Point ID for Electric Interlocks;] [Sound Dampening on chute exterior;] [Sound Isolator Pads at floor support;] [and Tee Handle] [and Lever Handle]** per locations shown on drawings.
 3. Size: Manufacturer's standard size for door type, chute type, and diameter indicated.
 4. Stainless Steel Trim to match door panel material and finish, identifiably embossed with "RUBBISH".
 5. Locks: Cylinder lock keys are removable only when cylinder is locked. .
 6. Foot Operators: Hopper-type door operators unlatch and open door when foot pedal is depressed.

7. Electric Interlock: Interlock system will be in the locked position at all times. The activation of a single intake door will occur by pushing the illuminated push button and opening that specific door; all other intake doors shall remain locked & de-energized.
 8. Timed Electrical Interlocks: shall automatically release energized interlock at floor of use after a 10-second delay.
 9. Master Switch: Interlock system shall be operable from discharge room to automatically lock intake doors.
 10. “Smart System” for electrical interlock to show open door condition at main panel and remote access for service personnel for maintenance.
- B. Discharge-Door Assemblies: Aluminum-coated-steel doors as required to provide fire-protection and temperature-rise ratings as indicated by discharge type; equipped with fusible link that causes door to close in the event of fire.
1. Direct Vertical Discharge: Provide inclined, horizontally rolling door panel of construction equivalent to chute intake door panel as required by NFPA 82.
 - a. Shutter-type units are prohibited unless they specifically bear a UL Label indicating a Listing for horizontal application at the base of a trash chute.
- C. Heat/Smoke Detector System (if required by Authorities having Jurisdiction):
1. Interlock temperature-rise element with chute intake doors to close when temperature inside chute reaches a predetermined temperature.
 2. Interlock smoke detector located outside the discharge door with solenoid to close discharge door.
 3. When Manufacturer’s compactor is present, smoke or heat detectors will interlock with the provided UL Listed power supply and remove power to the compactor and the electric interlocks.
- D. Access Door Assemblies: Provide 15”x15” Access Door with specifications matching the Side hinged, Limited Access Linen Chute Frame and Fire Door Assembly
- E. Master Switch Control System: Control system with manual switches that lock doors of chute during shutdown hours and service operations.
- 2.4 ACCESSORIES
- A. Fire Sprinklers: NPS 1/2 (DN 13) fire sprinklers ready for piping connections in accordance with the International Building Code 2009 as amended.
 - B. Disinfecting and Sanitizing Unit: NPS 3/8 disinfecting and sanitizing spray head unit located in chute above highest intake door, including 1-gal. (3.8-L) tank and adjustable proportioning valve with bypass for manual control of sanitizing and flushing operation, ready for hot-water piping connection, and with access for head and piping maintenance. Provide access door as specified above.
 - C. Intake Door Baffles: Rubber baffles, 1/4” thick.

- D. Sound Dampening: Provide Daubert 932 sound coat vibration dampening compound to trash chute exterior. Not for application on Linen Chutes. Korfund Sound Isolator Pads to be provided at each floor support frame.
- E. Odor Control System: Provide Manufacturer's UL Labeled, wall-mounted atomization unit with manual and automatic control of odor elimination fluid for both duration and frequency of spray. Indicate location of sprayer on wall. Provide powder coated steel cabinet for fogger and 5-gallon container for fluid. Provide one-year supply of odor elimination product.
 - 1. **The odor control system is a carefully designed and integrated system of atomization equipment and an odor elimination formulation.**
 - 2. **Substitution of an odor elimination product of any description other than the manufacturer's non-pathogenic, non-opportunistic, safety control tested, non-perfumed, naturally occurring organic, bio-technically systematized, odor control formulation is strictly prohibited.**
 - 3. **Unauthorized use of non-systematized products may result in harm to both the delivery equipment and to building occupants/employees exposed to unauthorized materials of atomization.**
 - 4. **The use of any odor elimination product other than the manufacturer's prescribed product will void the equipment warranty, and voids all product liability insurance.**

2.5 FABRICATION

- A. General: Factory-assemble chutes to greatest extent practical with continuously welded or lock-seamed joints without bolts, rivets, or clips projecting on chute interior. Spiral chute sections shall not be permitted. Include intake-door assemblies and metal supporting framing at each floor, and chute expansion joints between each support point.
- B. Roof Vent: Fabricate vent unit to extend **[36 inches (910 mm)] [48 inches (1200 mm)]** above roof with full-diameter, screened vent and metal safety cap or glass explosion-release cap. **[Fabricate with roof-deck flange.][Fabricate with roof curb flange.]**
- C. Fire Sprinklers: Comply with NFPA 13. Locate fire sprinklers at or above the top service opening of chutes, within the chute at alternate floor levels in buildings more than two stories tall, and at the lowest service level.
- D. Equipment Access: Fabricate chutes with access for maintaining equipment located within the chute, such as flushing and sanitizing units, fire sprinklers, and plumbing and electrical connections.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with NFPA 82 requirements and with chute manufacturer's written instructions. Assemble components with tight, slip joints for expansion. Anchor securely to supporting structure to withstand impact and stresses on vent units. Install chute and components to maintain fire-resistive construction of chute and enclosing chase.

- B. Install chutes plumb, without obstructions that might prevent materials from free falling within chutes.
- C. Chute Offsets: Offsets (bends) in the chute, if required, shall be made the same diameter as the chute of #16 US gauge aluminized steel and have an additional layer of #13 US gage aluminized steel reinforcing the impact area or other reinforcing as recommended for project conditions by the Manufacturer. Offsets are not to deviate more than 15° off the vertical axis of the chute below the highest intake, nor more than 45° off the vertical axis above the highest intake without decreasing the chute diameter.
- D. Anchor roof flanges of chute vents before roofing and flashing are installed or after the installation of the roof curb. **<Provide plan dimensions of roof curb>**.
- E. Intake and Discharge Doors: Interface door units with throat sections of chutes for safe, snag-resistant, sanitary depositing of materials in chutes by users.
 - 1. Coordinate installation of foot-pedal door operator with installation of door and chase.
 - 2. Interconnect sanitizer control with door interlock system.
- F. Electrical Interlock System: Comply with applicable NECA 1 recommendations.
- G. Test chute components after installation. Operate doors, locks, and interlock systems to demonstrate that hardware is adjusted and electrical wiring is connected correctly. Complete test operations before installing chase enclosures.
- H. Test fire sprinklers and heat- and smoke-sensing devices for proper operation.
- I. Operate sanitizing unit through one complete cycle of chute use and cleanup, and replenish chemicals or cleaning fluids in unit containers.

3.2 CLEANING

- A. After completing chase enclosure, clean exposed surfaces of chute system's components. Do not remove labels of independent testing and inspecting agencies.

3.3 DEMONSTRATION

- A. Demonstrate use of chute and equipment to Owner's personnel.
- B. Demonstrate replenishment of sanitizing-unit chemicals or cleaning fluids.

END OF SECTION 149100