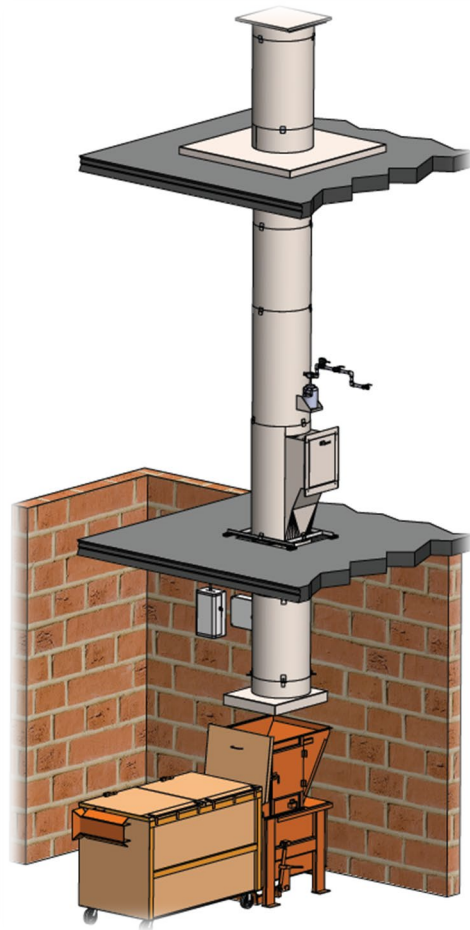


Trash, Linen, Recycling & Compost Chutes

Installation & Owner's Manual



CHUTES International™

1-800-882-4883

chutes.com

Attention: Review the Entire Manual Before Installation

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1. INTRODUCTION

CHUTES International™ is the leading chute manufacturer in the United States. CHUTES International™ offers a variety of patent-protected, quality products that showcase our commitment to innovation and industry-leading alignment with global environmental requirements and green energy. Customer feedback and surveys show that CHUTES International™ has combined superior product quality, superior debris, trash, and linen removal systems, and world-class customer service.

CHUTES International™ Trash, Linen, and Recycling Chutes are designed to provide a clean and efficient method of removing waste and soiled linens from upper floors to a centrally located discharge area on a lower floor.

Our chute systems are manufactured using standard 16-gauge (minimum) aluminized steel. Aluminized steel is the preferred steel as it is economical and durable. Other gauges (14 gauge and 12 gauge) and material options (304 stainless steel and 430 stainless steel) are available upon the customer's request.

Chutes are available in various diameters. However, the NFPA (National Fire Protection Agency) requires a minimum diameter of 24" or a 22.5 square cross-section. We provide standard sizes of Ø24", Ø28", Ø30", and Ø36".

Generally, each floor has two types of chute sections: one straight section ('B' or 'C' section) and one with a built-in intake throat and door opening. Unusually high floors have extra straight sections or varying configurations, depending on job site conditions.

Each chute has a full-diameter aluminum vent cap and flashing, ¾" piping, and a flushing spray head for use in a D&S system, solder capsule thermal element (fusible link) sprinkler heads, and various optional accessories.

CHUTES International™ Manufacturing accepts no responsibility for any non-compliant installations of its products and reserves the right to void the warranties of improperly installed products.

NFPA REQUIRES ANNUAL INSPECTION OF CHUTE & COMPONENTS BY AUTHORIZED REPRESENTATIVE AS SPECIFIED BY MANUFACTURER

2. CHUTES COMPONENTS

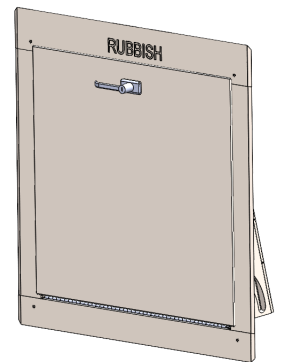
INTAKE DOORS

Intake doors are classified into two categories: Bottom-Hinged (public access), typically used for trash, recycling, and compost, and Side-Hinged (restricted access), typically used for soiled linen, as in hotels or hospitals. NFPA 82 requires that all doors be self-closing and positively latching, have a fire protection rating, be labeled for a 2-hour rated enclosure, and have a 60-minute rating for a 1-hour rated enclosure, and a maximum temperature rise of 250-°F in 30 minutes.

Bottom-Hinged Door:

The standard 15" X 18" bottom-hinged door is recommended for 24" diameter trash chutes. When opened, the bottom-hinged door allows easy waste disposal into the chute while eliminating unnecessary spillage and overflow of trash onto the floor. Where specified, wave-operated, handicap-accessible hopper-style doors for trash chutes are available. This option provides easy waste disposal into the chute, eliminating the need to manually open the door.

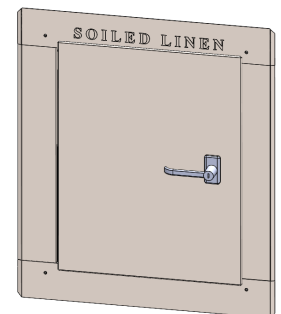
Other standard door sizes include 18" x 18", 21" x 18", and 24" x 24", depending on the different chute diameters.



Side-Hinged Door:

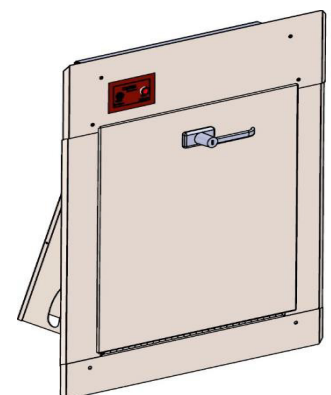
The standard 18" X 18" side-hinged door is recommended for 24" diameter linen chutes. The side-hinged door is recommended for linen chutes only. By design, the side hinge provides wider access to the chute, perfect for bundles of soiled linen. NFPA requires these doors to be of "limited access", meaning the exterior or hallway doors that provide access to the linen chute must remain locked and controlled at all times, or the linen door itself must be locked when the key is removed.

Standard-size doors include 15" x 15" (access door), 18" x 18", 21" x 21", and 24" x 24".



Electric Interlock Doors:

An electric interlock system can upgrade any chute and add an additional level of safety by locking out all other intake doors when one intake door is in use (with a light indicator). This protects the person using the chute from falling debris from the intake doors above. Maintenance personnel can lock all intake doors when servicing the chute and equipment by unplugging the door system or using an optional key switch at the power supply control box. When equipped with this feature, it is recommended that all doors

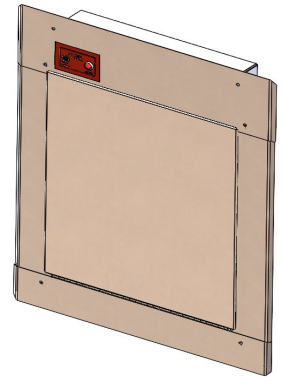


be locked when the discharge container is out of position or while maintenance is performed in the discharge area.

The interlock system is pre-wired and designed to be plugged into a standard 120V receptacle, which steps down to 24V DC in the power supply box (120V receptacle supplied by others).

Pneumatic Interlock Doors:

These doors are designed for ease of operation. Pneumatic doors are activated by a sensor located in the door trim. The user motions in front of the sensor, which engages the interlock system, and the door opens and closes automatically. An air compressor, a regulator, and a time-controlled electronic dump valve in the discharge area power pneumatic doors. The pneumatic doors can be locked out for routine maintenance by manually turning off the dump valve (located in the control box) to release all air from the system. The pneumatic system is pre-wired with 1/8" supply hoses and is designed to be plugged into an oil-free air compressor (120V receptacle source for air compressor supplied by others).



It is recommended that the regulator be set between 90-100PSI for continuous operation.

Automatic Wave Doors:

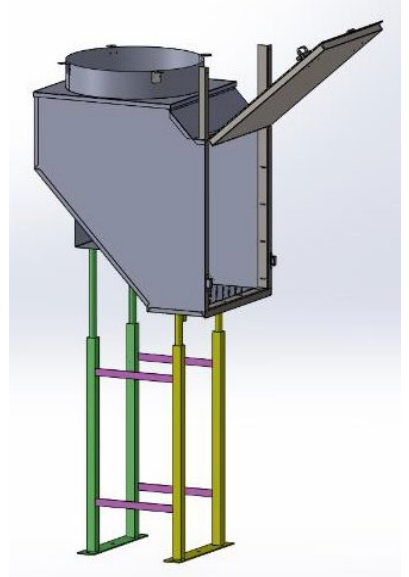
These doors are also activated by a sensor located in the door trim. The user motions in front of the sensor, which opens and closes the door automatically, utilizing low voltage with no compressor required. Far less maintenance is required. Features include: touchless operation, automatically locks out other doors, offers service and lock-out modes, low maintenance, fully electric self-opening and closing, has fire protection-rated control boxes and doors, indicator light, button included, fully ADA compliant with quiet and smooth operation, and loaded with safety features.

DISCHARGE DOORS

Linen and most types of rubbish are highly combustible. It is against the NFPA code to store trash or linen in the chute. The discharge door MUST remain open and be equipped with a fusible link that automatically closes off the chute in case of a fire in the discharge room. The collection room must have a hose or hand fire extinguisher and an automatic sprinkler system installed (supplied by others). Please refer to the installation instructions before installing or operating any chute system. There are three types of discharge outlets:

Hopper-Type Discharge:

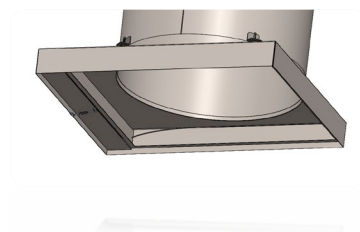
The hopper-type discharge door has a fire protection rating and is specifically used on linen chutes. The discharge door is top-hinged and held open by two springs and two 165°F fusible links. The hopper-type discharge extends into the discharge room from the ceiling and is supported by a two- or four-legged support. The hopper discharge should be kept clean and free of damage. It is not intended as a 'shut off' door when changing carts. Two-legged support frames are provided for 24" and 28" diameter linen chutes up to 15 stories high. Four-legged supports are provided for all 30" and 36" linen chutes (regardless of height) and any 24" or 28" linen chute that is taller than 15 stories.



Accordion-Type Damper Discharge:

The accordion discharge is recommended for use on trash chutes. It is a fire-rated fire damper held open by a 165°F fusible link and equipped with tension coils on either side of the damper to permit closing in the event the link breaks. The discharge should be inspected monthly to ensure the link is intact and no waste has been collected in the horizontal ledge, which might interfere with its closing path.

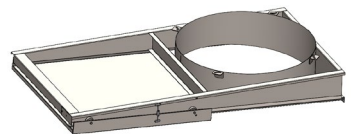
NOTE: *The accordion door should be visually inspected annually, with a mechanical inspection every four years, as per NFPA 82.*



Rolling Incline Type Discharge:

The rolling incline door, not fire-rated, is held open by a 165°F fusible link. The door will roll shut when the link reaches 165 degrees. Monthly inspections of the discharge should be made to ensure that the link is intact and that no waste has been collected in the horizontal tracks of the discharge, which might interfere with its closing path.

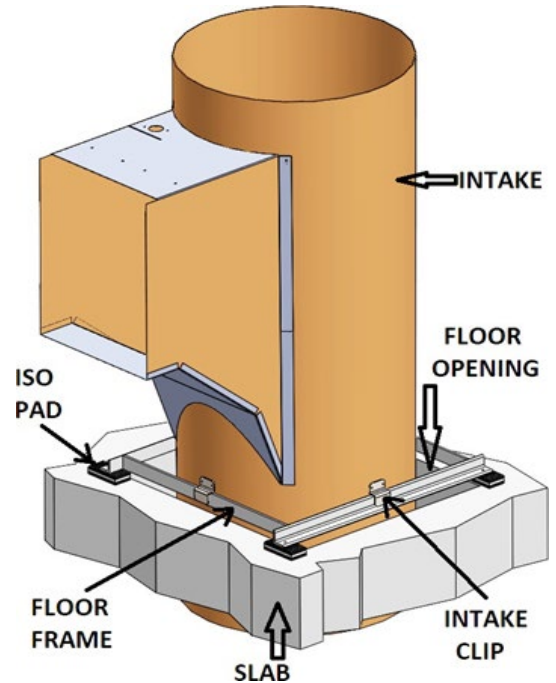
NOTE: *The rolling incline door should be visually inspected annually, with a mechanical inspection every four years, as per NFPA 82.*



INTAKES

The intake section of a chute is the main component of the interface between the door and the sections of the chute. Intakes differ in size depending on the chute diameter, type of intake door, and throat length. The diameter of the chute and the throat length will determine the centerline to face wall dimension. Our standard throat length is 10 inches.

All intake sections provide access to the chute system via the intake door. Intake sections utilize intake clips to connect to the floor frame. Each floor frame supports the weight of the sections of that floor (the only exception is the discharge room).



SECTIONS

The chute system consists mainly of sections that convey debris or linen from the intake to the discharge room. The sections are standard in lengths of 2', 3', or 4'. Depending on site conditions, a chute system may contain B, E, C, or S-style sections.

B-Section:

These sections have three (3) Z-clips, which sleeve and seat on top of another section, using gravity to hold it in place. B-sections are used on vertically aligned floors with no more than five sections.

E-Section:

This section is similar to the B-section and is used to expand into the above intake section. E-sections are used for floor height adjustments.

C-Section: These sections have four (4) bolt-on arc clips connected by four carriage bolts. C-sections are used in the discharge room if more than five sections are stacked and/or if an offset causes a weight imbalance.

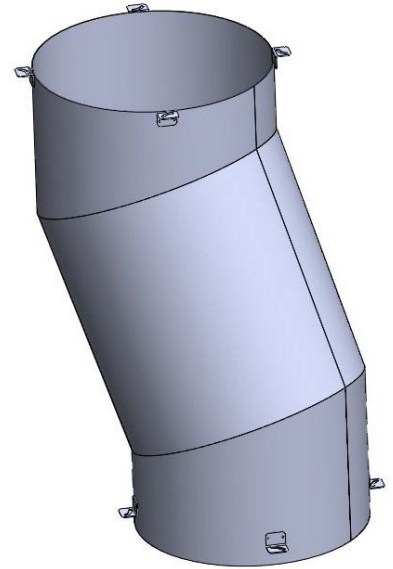
S-Section: These sections are screwed together and are only used above the roof flashing to extend the height of the vent cap.



OFFSETS

Offsets are used when structural impediments prevent a chute from being straight and plumb. According to NFPA 82, the venting section of a chute (area above the top intake) can offset up to 90 degrees. Chute sections between floor levels (area below the top intake) and in the discharge room can offset up to 15 degrees from the original centerline. Offsets are only allowed on every other floor. Additionally, all offsets will require the approval of the local authority having jurisdiction (AHJ).

All discharge offsets are made from 12-gauge aluminized steel. Depending on the number of floors, CHUTES International™ recommends a backing plate and support at the impact area. In situations where an AHJ has approved an offset angle of more than 15 degrees and/or the offset distance is long, CHUTES International™ recommends an access door or hatch to remedy possible clogging issues.

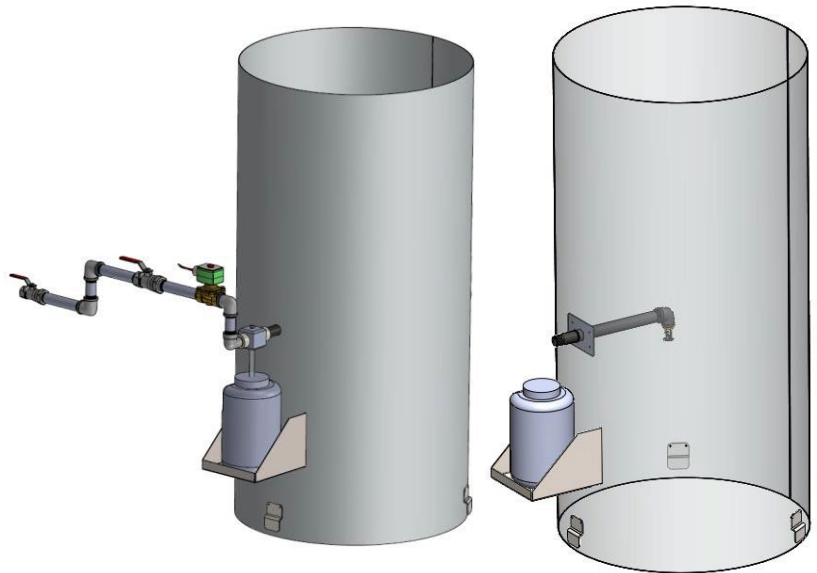


WASH-DOWN SECTION

Each chute system comes standard with a wash-down section. A flushing spray head is connected to a $\frac{3}{4}$ " pipe, extending into the middle of the chute section above the highest intake. The wash-down section is necessary when the optional disinfecting and sanitizing unit (D&S System) is included.

When specified, these sections come with a D&S bottle tray, a DEMA proportioning valve, and a bottle for the D&S Clean Butler solution.

NOTE: Hookup by others.



FLOOR FRAMES

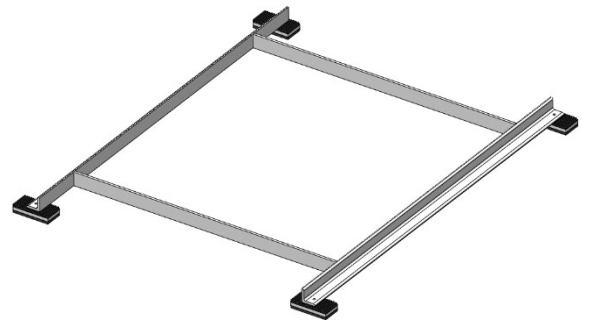
Floor frames secure the chute to the building's structure. Each floor frame supports the weight of its corresponding floor except at the first floor (discharge level), where the frame supports both the first floor and the discharge level. As a result, the first-floor floor frame is always made of $\frac{1}{4}$ " thick angle steel, regardless of the size of the chute.

For chute systems 28" in diameter or less, floor frames will be manufactured from $\frac{3}{16}$ " steel. All floor frames will be manufactured of $\frac{1}{4}$ " thick steel on any chute 30" diameter or greater. It's important to ensure that a minimum 2" bearing surface supports each frame leg.

By customer request or installation team recommendation, floor frames and other support systems can be upgraded. There are generally four types of frames:

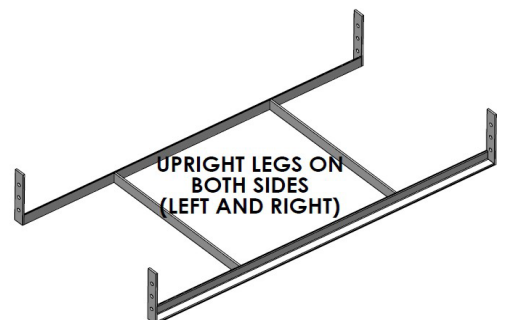
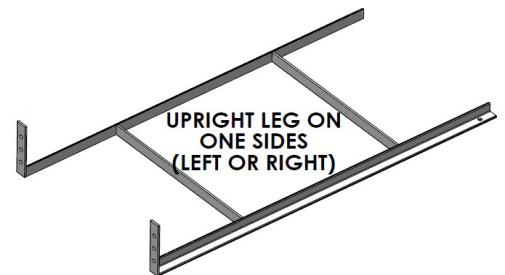
H Frame:

The H frames are typical floor frames with a central opening to match the chute cross-section. The front and back legs are 6" long unless the customer specifically requests a different size or any adjustment. There are $\frac{1}{2}$ " diameter holes 2" from the edge of each leg to connect it to the slab and an isolator pad when specified. [Please refer to Isolator (ISO) Pad]



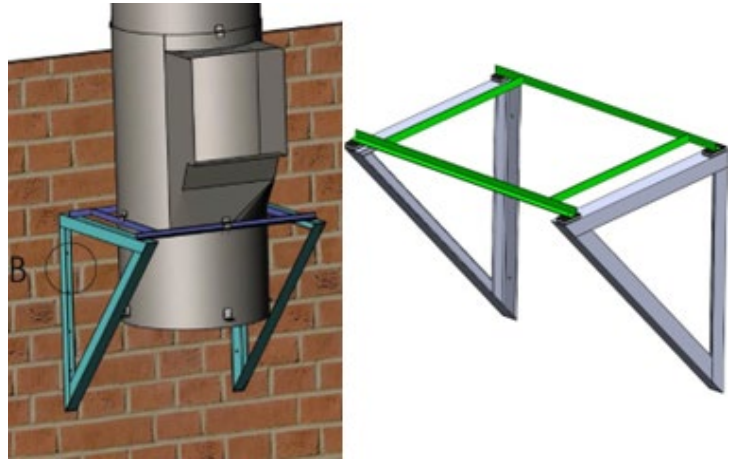
Up Leg Frame:

These frames are used when the shaft does not have a minimum slab ledge allowance. In this scenario, the upright legs will be anchored on the wall. This frame helps to manage the chute intake's short center-to-wall distance constraint. The frame will be shipped as one welded piece. Ensure that the structural attachment is load-bearing.



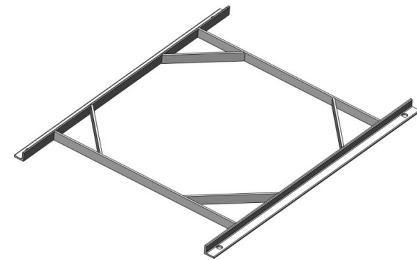
Cantilever Frame:

Cantilever frames (two triangular pieces) are used when only one wall of the chute support is present. This will primarily occur when the chute sections are installed on the outside of a building or inside an extra-large shaft. These frames are used in conjunction with the standard H-frame. Ensure that the structural attachment is load-bearing.

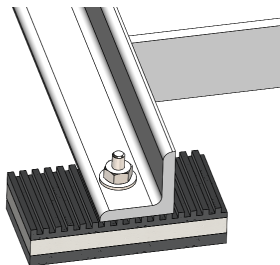


Frame for 45° Rotated Intake:

When the chute intake must face 45° off-center, additional frame beams are added to align the intake clips to the floor frame.

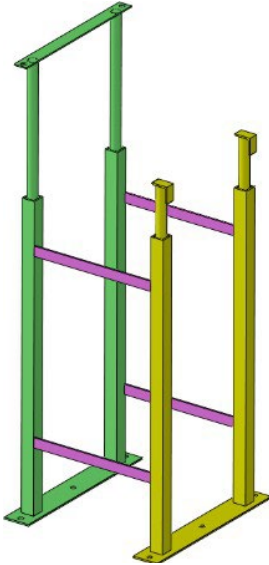


ISOLATOR (ISO) PAD



Optional isolator pads are used to dampen impact, reduce vibration, and minimize noise. CHUTES International™ provides a variety of ISO pads: Cork Pads (0.875" thick), Korfund Pads (1.0" thick), Mason BR Pads (2.5", 3", and 6.5" thick), Mason ND Pads (1.5", 1.875", and 2.75" thick), Mason Super W Pads (0.375", 0.75", and 1.0" thick), Kinetics RDS Seismic Neoprene (2.75", 3.0", 4.12", and 4.25" thick), and Kinetics RD Seismic Neoprene (1.5", 1.75", 2.5", and 2.75" thick).

HOPPER STAND

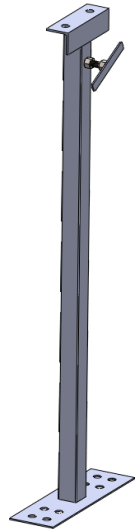


4-Legged Frame: This frame is used on linen hopper discharges. The double stand frame comes standard with all hoppers on 30" diameter and larger chutes or smaller diameter systems greater than 15 stories. It is also highly recommended when no wall support is present. The front frame, shown in yellow, will help avoid wobbling and vibration. It is distanced from the back frame depending upon the center-to-door distance of the hopper provided.

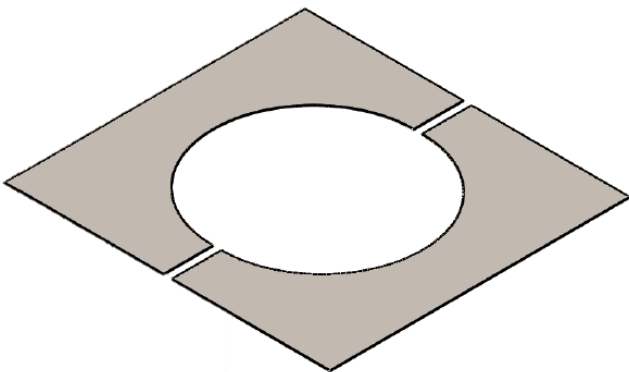
2-Legged Frame: This support frame (green part only) is standard on 24" and 30" diameter chute systems 15 stories or less. When wall support is present for the door, the front frame (yellow) is unnecessary, as the wall provides front support.

ADJUSTABLE PEDESTAL

Adjustable pedestals support offset impact areas and any additional chute areas with heavy loads.



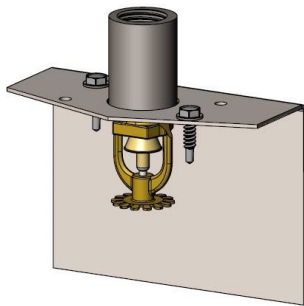
FLOOR RETAINING FLANGE



Standard flanges are made of 16-gauge aluminized steel. Their primary purpose is to protect/suppress the discharge room from fire expansion into the shaft. Flanges fit tightly around the chute and must be fire-caulked by others according to their jurisdiction.

SPRINKLER SYSTEM

Sprinkler heads, held closed by a solder capsule thermal element, are boxed separately and shipped with the chute (hook-up is performed by others). The sprinkler heads furnished with the chute should be installed in accordance with NFPA standards.



Per NFPA 82, sprinkler heads are required at the highest and lowest intake sections and the intakes on every other floor. These heads are installed in the top corner of the intake throat to protect from falling material and are behind a shield to prevent linen or trash from contacting or getting caught on the sprinkler head. The protective shield also ensures that water sprays into the chute in the event of a fire and not toward the intake door.

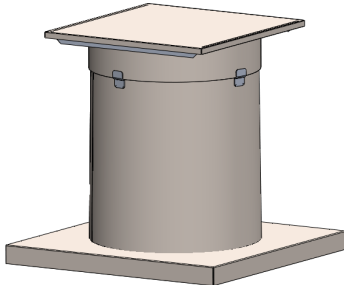
These automatic sprinkler heads are pendant-type at 165° F. When activated, the sprinkler head sprays the chute with water. CHUTES International™, per the NFPA code, requires these provided sprinklers - do not replace them with sprinklers with a glass sensor. The sprinkler subcontractor is responsible proper installation of the sprinkler heads. Once used, the fused head must be replaced.

FLUSHING SPRAY HEAD

Trash & recycle chutes should be flushed with water and disinfectant periodically to keep them clean. A standard flushing spray head is furnished in the wash-down section above the top intake. When supplied with water (hook-up by others), the head radiates a flow of water to the inner chute wall. The water will tend to channel when first started but will spread out as cleaning occurs. How often and long the chute should be flushed depends upon many variables, such as usage, size, condition, water temperature, and pressure.



VENT



Our vents are made of corrosion-resistant aluminum. All chutes have a natural updraft, and the vent dissipates odors and hot gases in the event of a fire within the chute.

NFPA codes require a full-diameter vent that penetrates and extends 3' above the roof. CHUTES International™ full-diameter vent comes complete with roof flashing, riser, and metal safety cap, and is made of 0.0808" thick aluminum to better resist the external elements.

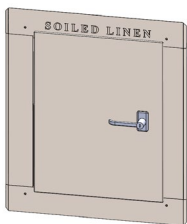
3. ACCESSORIES

DISINFECTING AND SANITIZING UNIT (D&S UNIT)

A disinfecting and sanitizing unit (D&S) is recommended for trash and/or recycling chutes to help control odor and bacteria (hook-up by others). This optional unit consists of a reservoir bottle for the D&S solution, a proportioning valve with tubing, and a shelf to hold the bottle. The proportioning valve siphons the solution from the bottle using the water supply and injects the solution into the $\frac{3}{4}$ " piping and out of the flushing spray head.



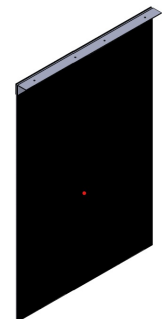
ACCESS DOOR



The Access Door (installed by others) is located above the top intake of the chute and provides access to both the chute and the D&S system, as well as the bottle that holds the cleaning solution. It measures 15" x 15", is side-hinged, and is constructed of stainless steel. Like the intake doors, it has a fire protection rating of 90 minutes and a maximum temperature rise of 250-⁰F in 30 minutes.

RUBBER BAFFLES

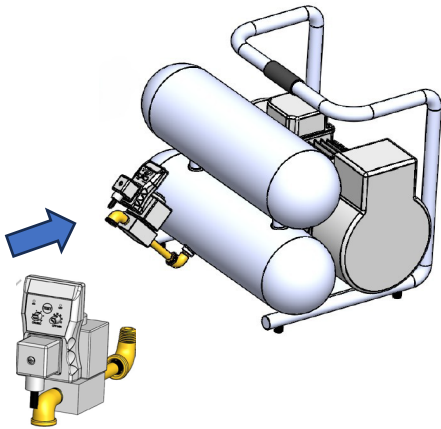
Rubber baffles are installed in the throat of the chute intake section and provide a flexible barrier between the chute opening and the intake door. An optional accessory, they help divert odors and lightweight debris and add aesthetic appeal.



HEAT DETECTION SENSOR

The heat sensor option can be installed on electric, automatic wave, and pneumatic interlock systems. This safety feature will shut down the chute system in the event of a fire emergency, locking and disabling the chute intake door operation. The heat detection sensor box should be installed near the chute discharge.

Compressor– For Pneumatic Systems ONLY:



Electronic Dump Valve

The pneumatic compressor provides air to open and close the pneumatic doors. It comes with a time-controlled electronic dump valve and connecting tubing. The installation manual has the recommended time settings for draining the compressor.

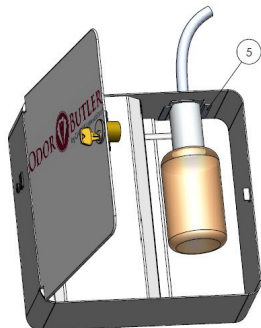
Failing to follow the manufacturer's recommended time for draining the compressor can damage the doors and ultimately compromise the chute system.

Regular draining (manual or automatic) of the compressor's air tank is required to protect parts from rust and corrosion and to maintain warranty coverage.

ODOR BUTLER CONTROL BOXES

Odor Butler is a highly effective, concentrated multi-component blend of natural odor-neutralizing compounds designed specifically for waterless vapor delivery systems. These formulations do not contain water or surfactants and are not diluted with water before application. The concentrated blend of odor-neutralizing compounds is blown as a dry vapor into rooms and air handling systems or diffused through a pipe with equally spaced holes where the vapor neutralizes odors in the treated air.

Self-Contained Vapor Generator:



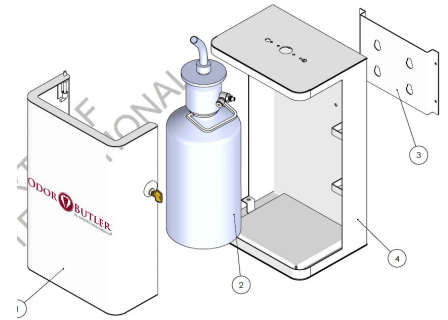
This can be used as a stand-alone system and expanded to operate remote vapor stations.

It utilizes a 24 V electrical system (115 V fire protection-rated certified transformer provided).

Everything required to operate the system includes mounting brackets, fittings, 1 x metal, and 1 x poly vapor discharge tube.

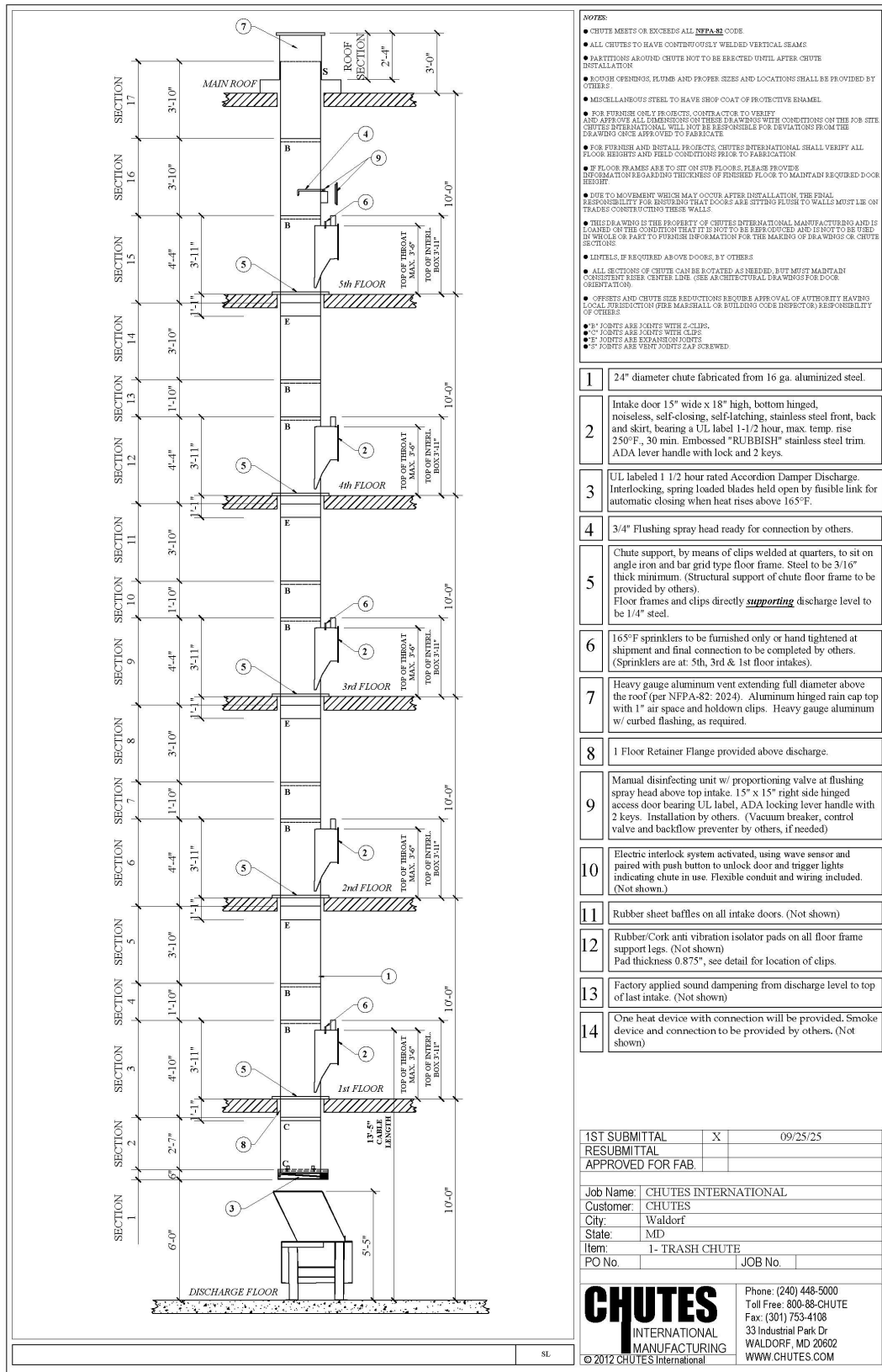
Remote Vapor- 1.3-gal Capacity:

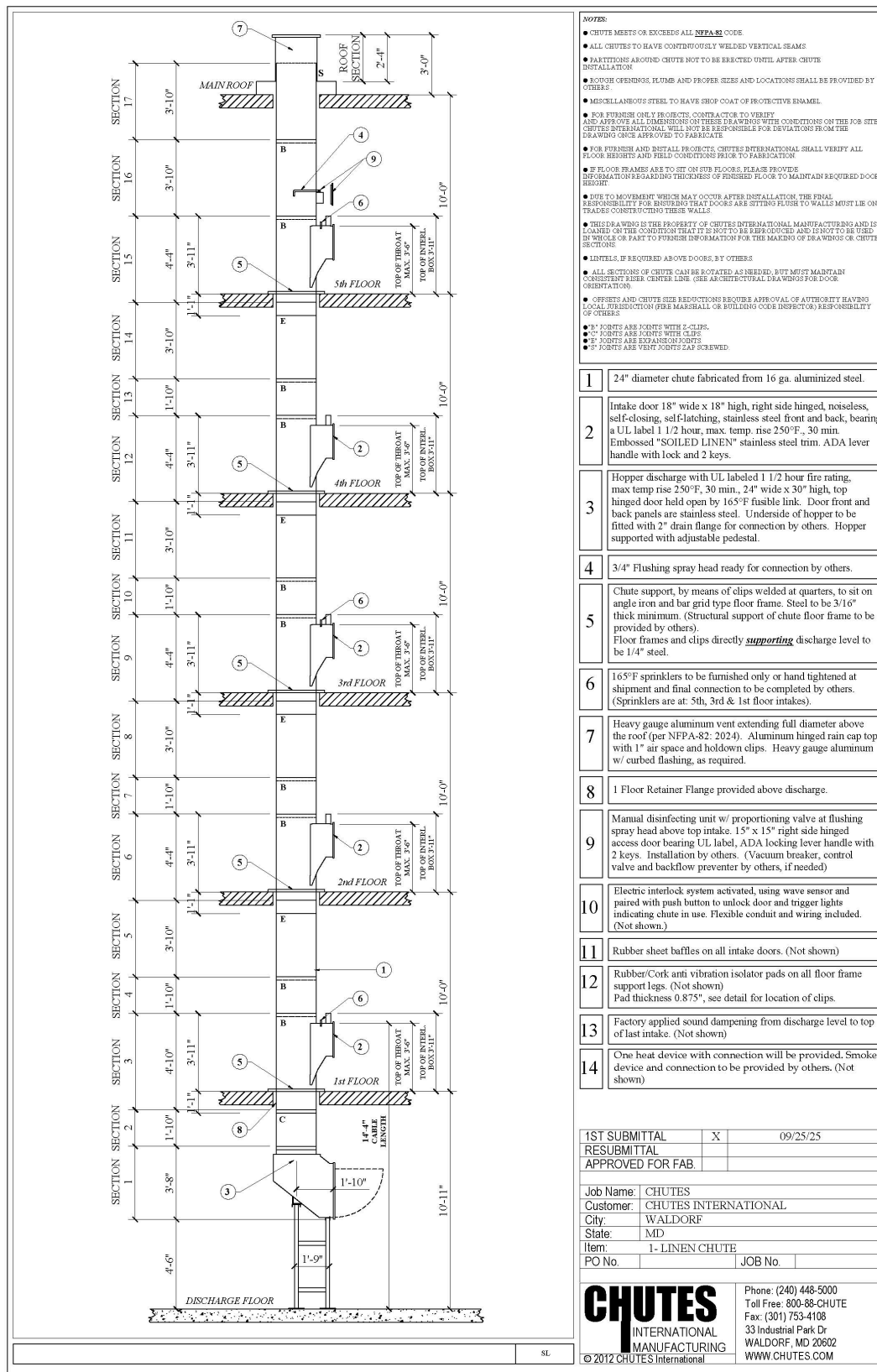
This application is ideal when a larger reservoir is needed. It can work for extended service periods with high-volume output. This unit must be paired with the vapor generator and is suitable for outdoor use.



4. TYPICAL TRASH AND LINEN LAYOUT

Use the submittal drawing when installing trash, recycling, or linen chutes. Generally, linen chutes use Hopper Discharge Doors, and Trash and Recycle use Accordion Fire Damper (AC) Doors or Rolling Incline (RI) Discharge Doors based on the customer preference. These typical layouts will show you the most common and basic components without custom parts, such as offsets and additional support systems.



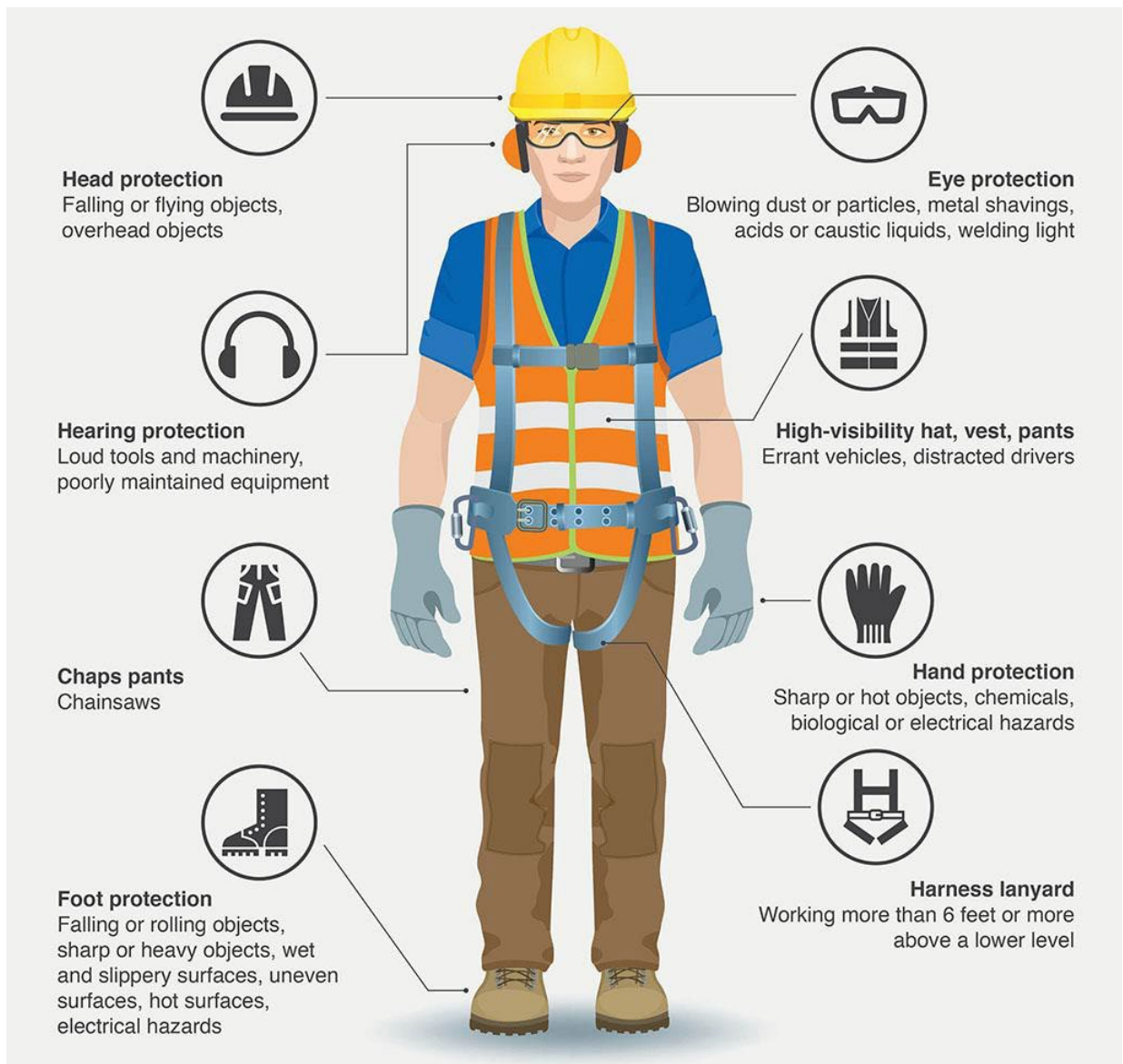


5. INSTALLATION INSTRUCTIONS

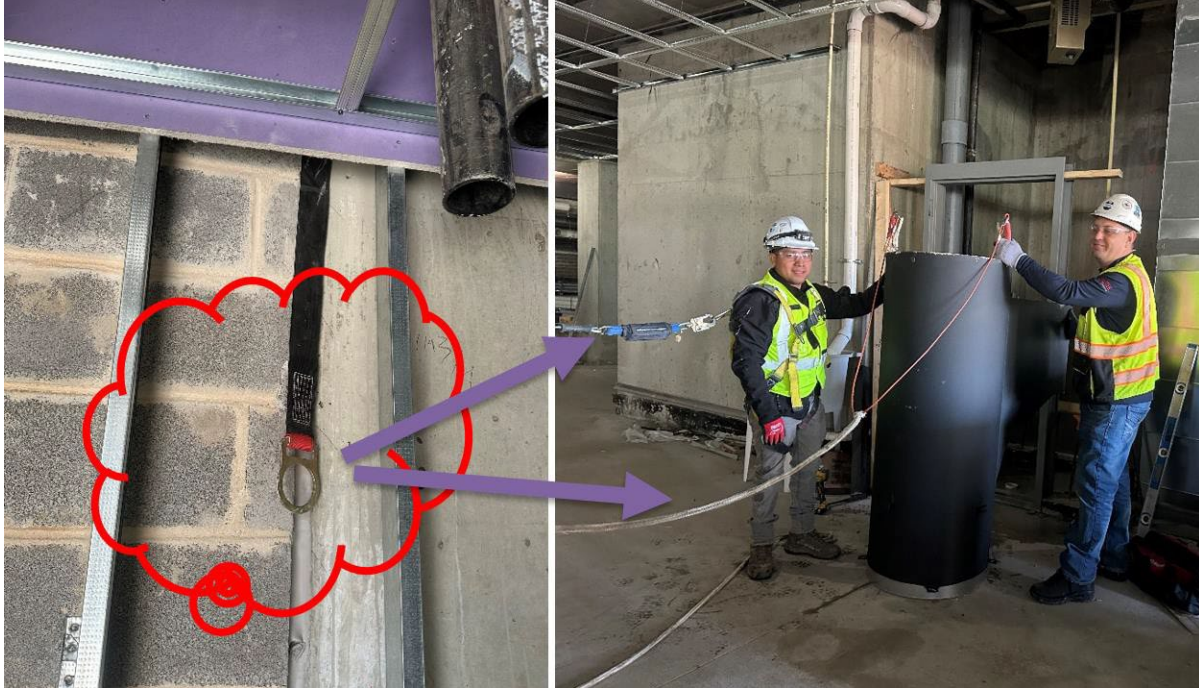
RECOMMENDED SAFETY GEAR FOR INSTALLER

CAUTION: Please follow all job site safety requirements

CHUTES International recommends using all safety gear and PPE necessary to adhere to local, state, and Federal laws and the manufacturer's installation instructions. The following chart shows our recommended Personal Protection Equipment (source: University of Minnesota).



As typical chute installations are more than 6' above a lower level, use construction site harness anchors for safety.



REQUIRED TOOLS AND SITE PREPARATION

Only a few simple tools are required to install CHUTES International Trash, Recycling, and Linen Chutes:

- ✓ Hammer (recommended: rubber mallet)
- ✓ 2 Flat Head Screw Drivers
- ✓ Cordless Drill with 5/16" Hex Head Bit
- ✓ Hammer Drill/Anchor Pins
- ✓ Wrench Ratchet Set (for Discharge)
- ✓ Measuring Tape
- ✓ Level
- ✓ Extension Cord (for Automatic Wave Door)
- ✓ Ladder
- ✓ Self-Tapping Sheet Metal Screws
- ✓ All Required PPE

INSTALLATION OF CHUTE SECTIONS

Use the submittal drawing when installing trash, recycling, or linen chutes. Generally, linen chutes use Hopper Discharge Doors, and Trash and Recycle use Accordion Fire Damper (AC) Doors or Rolling Inclined (RI) Discharge Doors based on the customer's preference. These typical layouts will show you the most common and basic components without custom parts, such as offsets and additional support systems. Refer to the Approved FAB (fabrication) drawing for all details regarding the parts to be provided and the necessary information for chute installation. All sections are numbered consecutively from the discharge up.



Confirm that the slab penetrations are properly sized (chute diameter plus at least 4"). In the event of multiple chutes in one shaft, allow at least 18" between chutes. Ensure all openings are aligned plumb according to the detailed shop drawing and are clear of obstructions. Also, confirm that floor heights and other applicable dimensions are in accordance with the approved fabrication drawings.

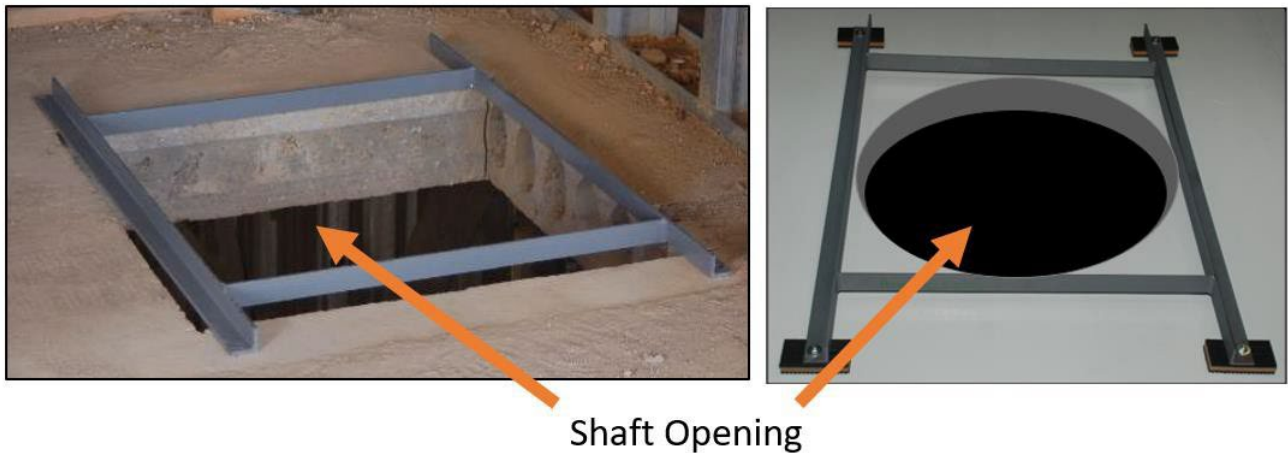
All materials are prefabricated to the dimensions shown on the fabrication drawings. No field cutting or fitting is required. All sections are 'slip-jointed' to permit slight variations in height. Upon receipt of the chute, sort through all parts and pieces, matching each piece to the fabrication drawing and shipping memo to confirm job dimensions and quantities. **PLEASE NOTE: You have 24 hours after receipt of the order to report any problems to CHUTES International. Therefore, please thoroughly check all orders immediately upon receipt.**

CHUTES recommends staging for installation. Stock floors accordingly based on section numbering. This step will simplify the installation process and avoid confusion about the steps.

Installation of Floor Frames

Starting from the floor above the discharge room, install the floor frame for the first intake or section (if there is no intake on the first floor) that passes through the slab. Based on site jurisdiction, the frame should be secured to the flooring. If cork-style isolator pads are selected, the floor frames will come with the pads already connected to the legs. Center the floor frame over the opening in the slab.

Ensure all frames are securely in place and level horizontally. Follow the proper anchoring recommended by the building's structural engineer (s).



Installation of Sections and Clip Positioning

Insert the first intake section through the floor frame and slab opening. Ensure that all four (4) clips are properly engaged on the floor frame.



Insert the B or C section (above the intake) into the intake section, using a flathead screwdriver to guide the section if needed.

For C sections, ensure that all clips are in contact, aligned, and seated against the top of the intake section. Connect the bolts and ensure the use of washers, as they are vital to the integrity of the chute assembly.

In the case of B sections, they will sleeve into the section below.

Discharge sections will be installed after the completion of the rest of the chute system.

Proceed to the next floor and repeat the steps, inserting the tail of the intake into the E section on the floor below. Depending upon the floor heights, it may be easier to sleeve sections by lowering them from the floor above.

Repeat the above steps until you reach the top intake section, then install the wash-down section and any additional vent sections.

Installation of Washdown and Vent Sections

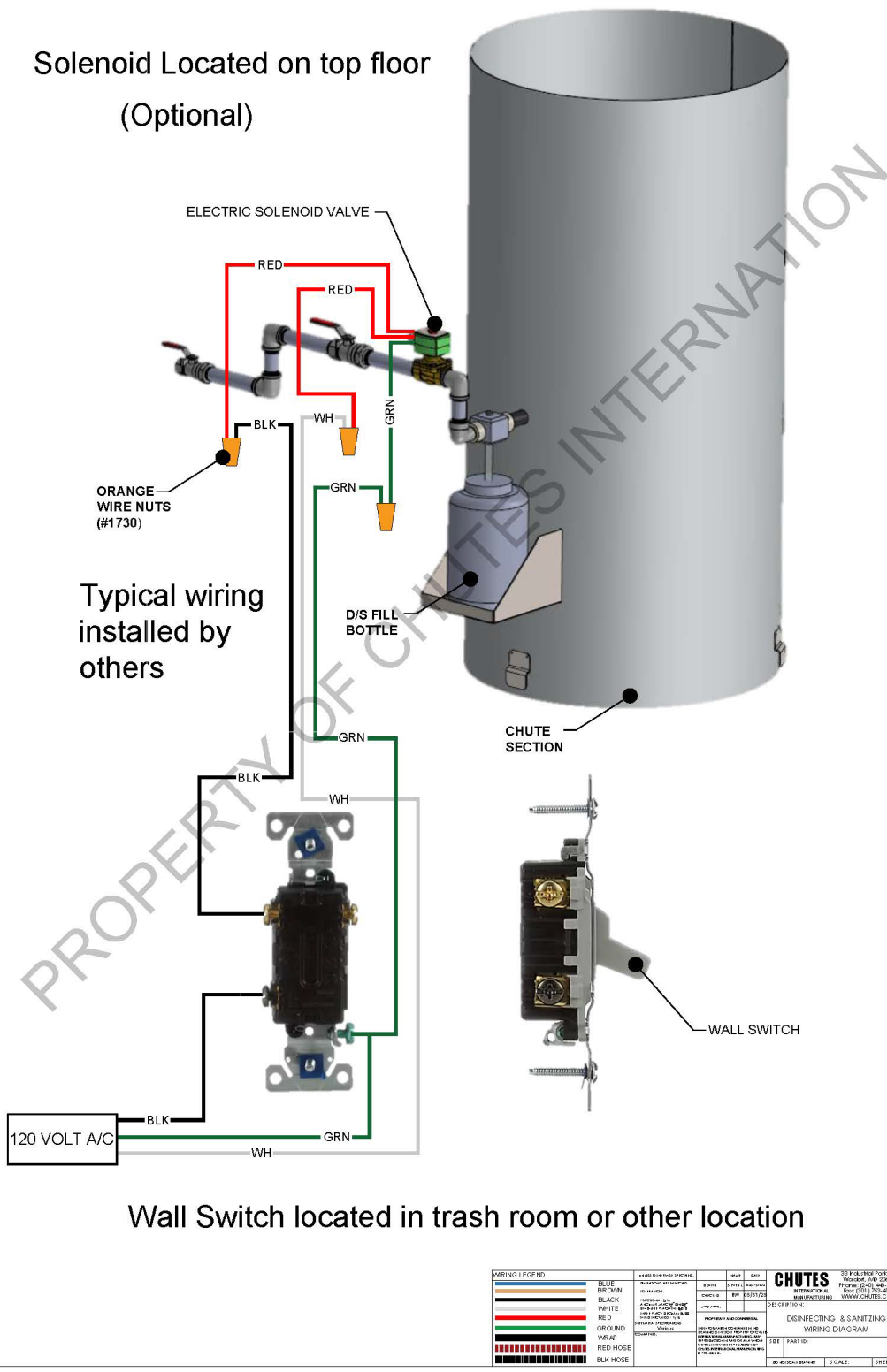


Install the wash-down section, keeping the 'wash down pipe' facing to the front of the chute or in line with the intake doors.

Add vent sections to the top of the wash-down section until the vent riser penetrates the top of the roof deck. Vent sections only (sections above the top intake) may be screwed together at joints with self-tapping sheet metal screws.

Inspecting sprinklers and wash down units to ensure they are ready for connection by others. The automatic sprinkler heads, furnished with the chute, should be installed and piped (by others) following NFPA standards.

Solenoid Located on top floor (Optional)



Installation of Roof Section and Flashing

Install roof flashing and riser over the protruding vent section, and seat the flashing firmly on the roof, whether flat, pitched, or with a curb (roof curb provided by others), according to job site conditions.



For shop installation, always fasten through the roof structure using wooden screws for wood, and tap/con for concrete.

Flat and pitched roof flashing has to be sealed and weatherproofed by others.

Install the roof riser section with a vent cap over the roof flashing, ensuring that the bottom of the roof section is firmly seated. Secure the roof section to the roof flashing with 6 (six) self-tapping sheet metal screws.

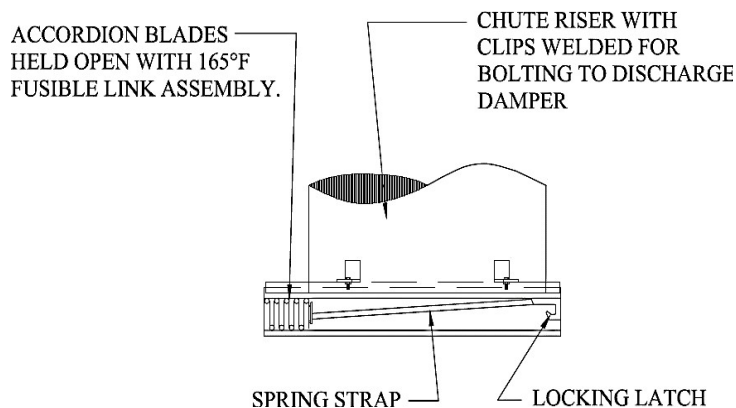


INSTALLATION OF CHUTE DISCHARGE SECTION(S) AND DISCHARGE DOOR



Ensure that the height of the discharge door to the finished floor level matches the approved fabrication drawings to avoid subsequent problems with the compactor installation or carts.

Install all clipped discharge sections below the first floor, beginning with the section number directly below the section that penetrates the slab, and install downward until all sections are in place. Note: All chutes begin with section number 2. You will not find section 1 on the drawing, as section 1 represents the discharge fire door.

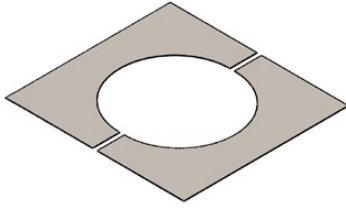


Align clips on the discharge door or hopper with clips on the bottom of the chute section. Ensure the door is facing the desired direction.

Install the four (4) bolts, nuts, and washers provided, level and square with adjacent walls, and then tighten securely.

Ensure that the discharge is held open by the 165°F fusible link attachment.

When installing the floor retainer flange to the ceiling of the discharge room, install it tightly around the chute. All fire-stopping or caulking provided by others.



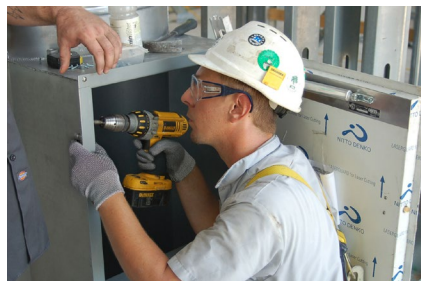
INSTALLATION OF CHUTE INTAKE DOORS

A fully assembled door and frame are mounted into the chute intake throat with self-tapping sheet metal screws. Installation may be in masonry or drywall-type walls. Door closer tensions come pre-adjusted. The stainless-steel protective covering should not be removed until after the drywall finish work and painting are complete. The trim is packed separately (in the same shipment, but not yet installed on the door frame). The trim is installed during chute installation or after drywall finish work and painting at the contractor's discretion. All doors are identified with floor numbers for easy installation at the contractor's discretion.



Ensure that the face of the intake door is square and plumb to the proposed face wall line, as provided by the general contractor.

Insert intake doors into the chute throat and align the square face with the intake. Secure the door with zap screws in pre-punched slots inside the door frame. Re-measure to ensure the face of the door is flush with the wall line (provided by the general contractor).



Affix all stainless-steel trim to intake doors (4 pieces: 1 top trim with/without embossing, 1 bottom trim, and 2 side trims). Note that the top and bottom trim pieces overlap the side trim pieces.

It is recommended that protective stainless-steel film be left on all trim pieces and doors until the drywall finish work and painting (by others) are completed.

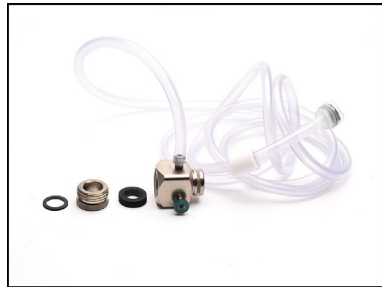
After completing the installation, verify that all doors operate and function correctly.



INSTALLATION OF DISINFECTING AND SANITIZING UNIT (D&S Unit)

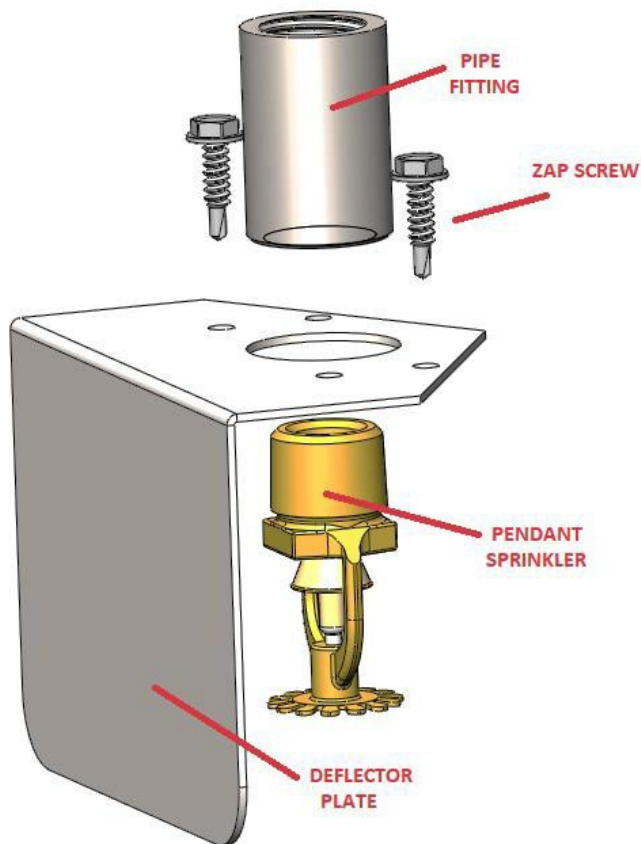
The D&S unit is to be connected to the flushing spray head by others.

The disinfectant is regulated through a proportioning valve using a siphoning action.



The D&S Unit is located above the top intake throat. The 15"x15" side-hinged access door should be installed (as a side-hinged door) by others to allow access to the maintenance and servicing of the unit.





SPRINKLER HEAD ASSEMBLY

CHUTES International™ provides sprinkler heads for alternating floors, including the top and bottom intakes. The sprinkler head assembly consists of a deflector plate, a pendant sprinkler pipe fitting, and zap screws.

To connect the water source:

Remove the self-tapping sheet metal screw on the top.

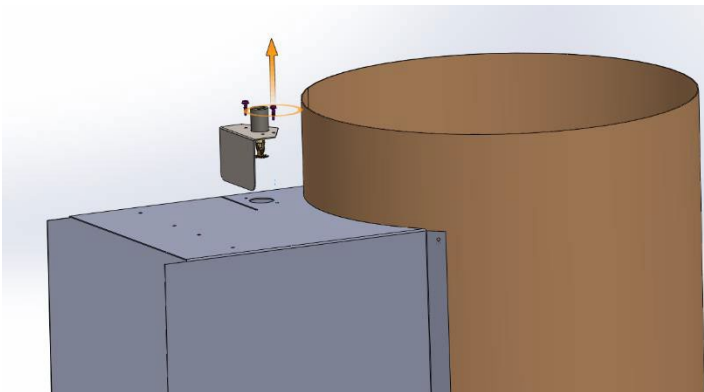
Pull the sprinkler head assembly out of the intake throat.

Ensure you remove the pendant sprinkler and use PTFE thread seal tape to ensure a watertight connection. NOTE: sprinklers are only hand-tightened for transportation purposes.

Ensure the connections to the water source are at the top of the pipe fitting.

Reinsert the assembly back into the slot and use the same self-tapping sheet metal screws to secure it in place.

Note: Some linen and custom chutes may not have a removable drop-in sprinkler head assembly. The door must be opened to install the sprinkler head in these situations.



INTERLOCK SYSTEMS

Automatic Wave Door:

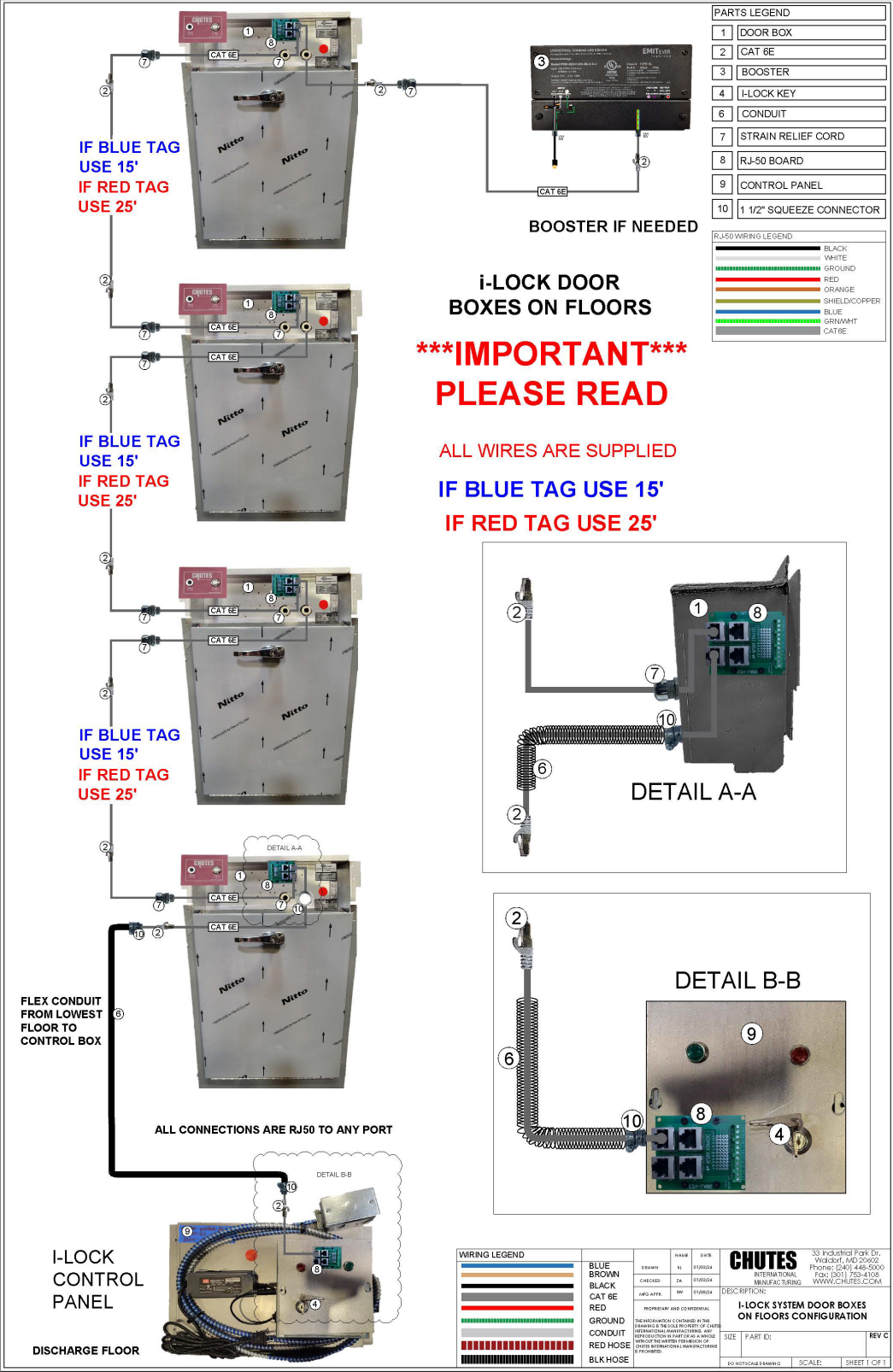
• Unlike our other doors, CHUTES International™ requires this door system to be installed using the following steps.

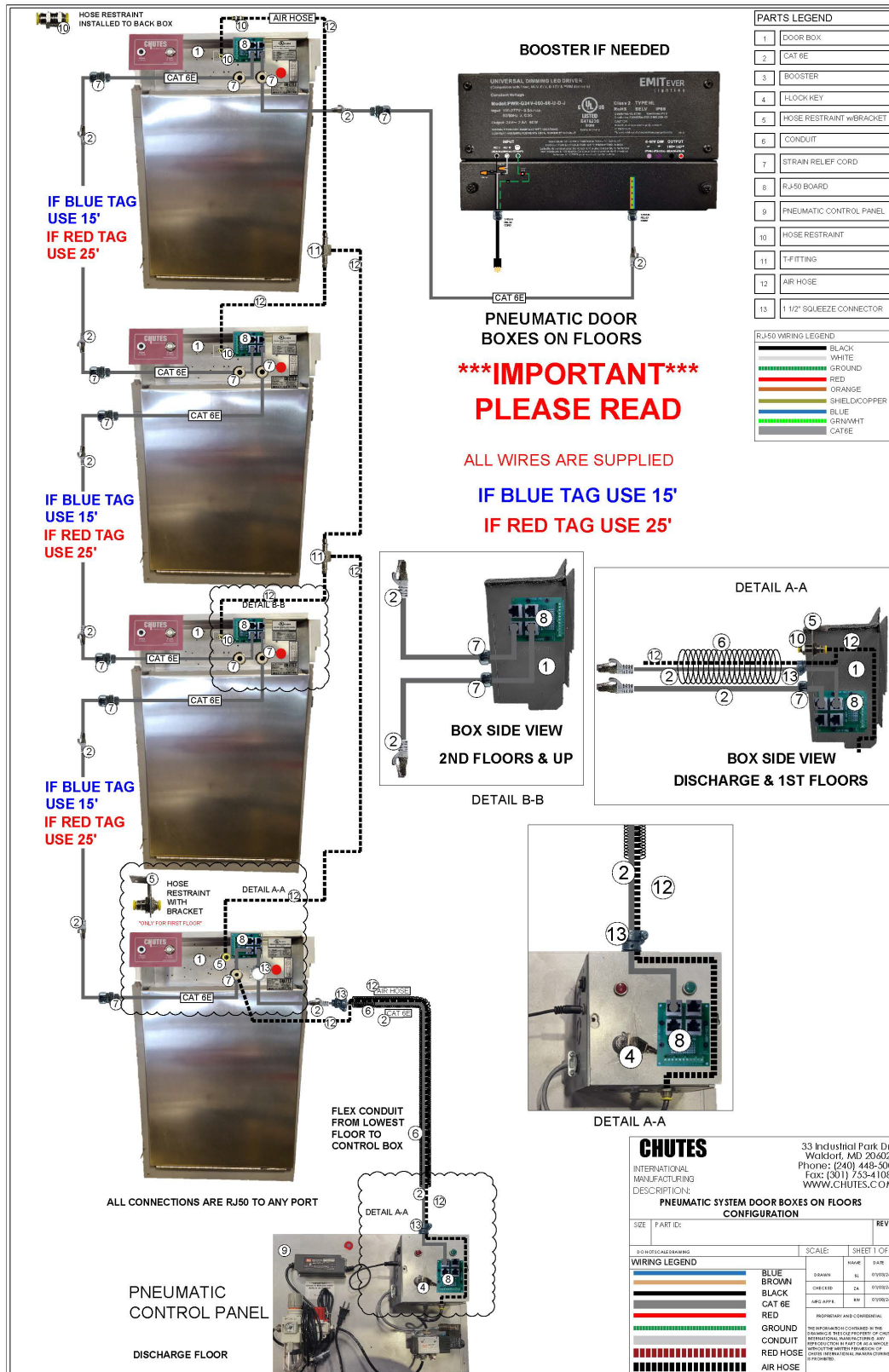
• Do not install the automatic wave door system using the battery backup. Doing so will VOID the warranty.

- Temporarily or permanently install the Master Control Panel in the discharge room first. 120V temporary power will be needed for this install. (extension cord recommended)
- Start installing doors and harnesses at the lowest intake.
- Each interlock door will be supplied with a quick-connect wiring harness connected to the rear of the door control box. Start at the first intake floor and carefully feed the wiring harness down the chute shaft, inside the floor frames.
- Connect harnesses and test door function. If the door function works correctly, continue to the next intake. If not, troubleshoot the problem and repair it before proceeding to the next door. Continue until the final door is installed and working correctly.
- Per code, wire harnesses must be loosely secured within 12 inches of each intake box and every 4 feet. Note that drywall will be installed inside and outside the wall; ensure wires are protected from damage during installation.
- If permanently installing the master control panel, it needs to be mounted within 5 feet of the chute discharge. Secure the wiring harness from the intake above the discharge room and make the proper connections via a quick connection to the master control panel.
- Upon completion of a successful test, install trim on all doors.
- Proper care should be exercised during the construction phase:
 - Ensure all doors are locked.
 - Ensure all wiring harnesses are protected from the masonry or drywall construction phase.
 - Ensure that the main wiring harness is protected until it has been permanently connected to the control box.
- Please contact CHUTES International with any technical questions about the electrical or pneumatic interlock system @ 1-800-882-4883.

Electric Interlocks:

- Upon completion of chute section installation, install interlock-equipped doors like standard intake doors from the top intake floor to the bottom intake floor.
- Each interlock door will be supplied with a quick-connect wiring harness connected to the rear of the door control box. Start at the top intake floor and carefully feed the wiring harness down the chute shaft, outside and inside the floor frames.
- Repeat these steps for each intake, from the top down to the discharge room.
- At each intake, attach the wiring harness using the supplied quick connect.
- Per code, wire harnesses must be loosely secured within 12 inches of each intake box and every 4 feet. Note that drywall will be installed inside and outside the wall; ensure wires are protected from damage during installation.
- The master control panel needs to be mounted in the discharge area within 5 feet of the chute discharge. Secure the wiring harness from the intake above the discharge room and make the proper connections via a quick connection to the master control panel.
- Plug the power cord into a 120V receptacle (supplied by others). The system is now ready for operation.
- Test each door, starting at the bottom intake and working up to the top intake.
- Upon completion of a successful test, install trim on all doors.
- Proper care should be exercised during the construction phase:
 - Ensure all doors are locked.
 - Ensure all wiring harnesses are protected from the masonry or drywall construction phase.
 - Ensure that the main wiring harness is protected until it has been permanently connected to the control box.
- Electrical interlock doors will not open without power. To open them, the interlock door trim must be removed, and the electric interlock cylinder must be raised manually until the electrical interlock system is functional.
- Please contact CHUTES International with any technical questions about the electrical or pneumatic interlock system @ 1-800-882-4883.





Pneumatic Interlocks:

- Upon completion of chute section installation, install pneumatic interlock-equipped doors in the same manner as interlock intake doors from the top intake floor to the bottom.
- Each pneumatic door will be supplied with tubing and a harness to be connected through the rear of the door control box. Start at the top intake floor and carefully feed the wiring harness down the chute shaft, and inside the floor frames.
- Quick connects inside each door control box on top of the door will allow tubing and cable to be connected to each door (i.e., 3rd-floor door tubing and cable will drop down and connect to 2nd-floor door).
- Per code, wire harnesses and hoses must be loosely secured within 12 inches of each intake box and every 4 feet. Note that drywall will be installed inside and outside the wall; ensure wires are protected from damage during installation.
- The tubing harness attached to the door on the first intake will be routed to the discharge area and connected to the regulator & control box. This will energize the pneumatic system.
- The air compressor, regulator, shut-off valve, and control box need to be mounted in the discharge area within 5 feet of the chute discharge. The shut-off valve will enable all air to be manually dumped from the system for routine maintenance or service or in an emergency.
- Once all pneumatic doors have been connected and installed, plug the air compressor into a 120V receptacle (supplied by others).
- Test each door, starting at the bottom and working up to the top intake.
- Upon completion of a successful test, install the trim.
- Proper care should be exercised during the construction phase:
 - Ensure all doors are locked.
 - Ensure all tubing harnesses are protected from the masonry or drywall construction phase.
 - Ensure that the main supply harness is protected until it has been permanently connected to the regulator and air compressor supply unit.
- Before preparing the pneumatic interlock system for regular operation:
 - Check that all quick-connect wiring harnesses are securely attached.
 - Inspect and clean all components at each intake before installing face plates.
 - Remove protective film from the door trim.

- **AUTOMATIC DOOR - STAND CLEAR** This sign (or similar) is recommended to be posted in trash or recycling disposal areas to notify persons of the automatic moving parts

Heat Detection System:

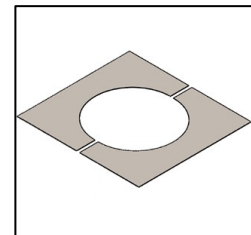
- If the optional heat detection system is installed, once the heat inside the trash room reaches a temperature of 165° F, the electrical interlocking system will shut down, and the intake doors will remain locked.
- The heat sensor device should be mounted on a wall within 3 feet of the chute discharge.
- The flex conduit and sensor junction box will be supplied and connected to the control box provided with each chute installation system. (Electrical or pneumatic options only).
- Others provide a smoke detection connection in the control box for hook-up.

Sound Isolation and Anti-Vibration System:

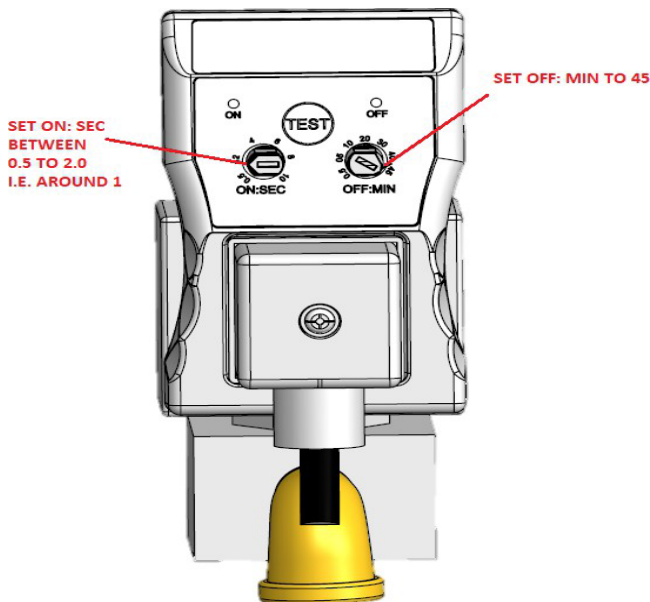
- Floor frames are supplied with isolator pads when specified.
- Factory-applied sound-dampening material is applied to sections when specified.
- Foil-backed Batt wrap insulation is supplied when specified.

Additional Floor Retainer Flanges at Individual Floors:

- When specified, additional floor retainer flanges may be added for additional fire suppression protection.
- Mount to the underside of the floor slabs or ceilings to hold fire-retardant insulation (mineral fiberfill or fire protection).
- These floor retainer flanges should be secured to the floor slab/ceiling.



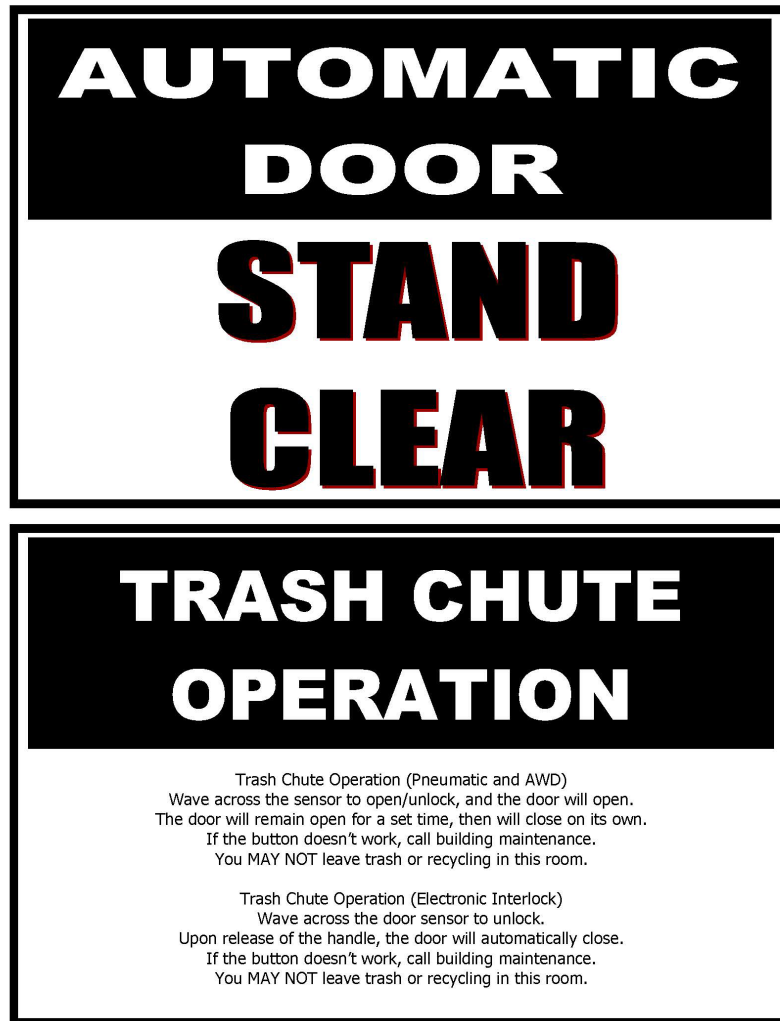
Timer-Controlled Electronic Drain Valve for Air Compressor Unit:



The optimum drain assembly consists of a solid-state timer coupled to a solenoid valve. The instruction manual outlines the installation procedure. The unit is suitable for all compressed air system components, regardless of size or capacity. Adjust the interval and discharge time to suit the particular compressed air system. Install the timer using its provided installation manual.

6. PRECAUTIONS ON DOORS AND LOAD LIMIT

AUTOMATIC DOOR STAND CLEAR SIGN ON THE WAVE-TYPE DOORS



MAXIMUM LOAD AND SIZE LIMIT



7.MAINTENANCE and TROUBLESHOOTING

MAINTENANCE

Maintenance required for the intake doors includes lubricating the door hinges and plungers, as well as keeping the doors clean and free from debris. Keep doors free from structural damage caused by misuse, carelessness, or vandalism. Electric Interlock and Pneumatic Intake doors should never be wedged in the open position; this will cause the doors to malfunction and operate improperly. Annual chute washings of chutes and door inspections are strongly recommended.

NFPA requires that waste and linen chutes and transport systems, including chute intake and discharge doors, be inspected and maintained at least annually in accordance with the manufacturer's instructions.

NFPA requires the removal of the fusible link on the accordion and rolling incline door for testing every four years to ensure proper operation.

The NFPA requires that a written record of the inspection be signed and kept for inspection by the authority having jurisdiction (AHJ).

COMPRESSOR – For Pneumatic Systems ONLY

Draining the air tank if the automatic drain valve is not installed:

The frequency at which you should drain the air tank depends on the environmental conditions and the amount of operating time logged. The average draining frequency is every 2-3 days.

1. Place the air compressor above a container capable of holding water.
2. With compressed air in the air tank, slowly turn the drain valve knob to the forward (open) or straight position. The water will drain out.
3. After all of the accumulated water has drained out, turn the drain valve knob to the closed or left position to avoid leakage.
4. Keep track of maintenance performed.

Regular draining (manual or automatic) of the compressor's air tank is required to protect parts from rust and corrosion and to maintain warranty coverage.

Cleaning or changing the air filter:

The air filter is designed to reduce noise and help prevent particulates in the air from entering and damaging the air compressor.

After being used for a period, the air filter will become clogged. This will reduce the air intake capabilities of the air compressor, reducing performance. Therefore, the air filter must be cleaned or replaced regularly to maintain optimal air quality.

1. Open the lid on the air filter, then remove the air filter element.
2. To clean the element, blow off or brush off the dirt and dust.
3. If clogged, replace with a new filter.
4. Keep track of maintenance performed.

Testing for leaks:

Ensure all connections are secure, but avoid over-tightening.

A small hose or pipe connection leak will reduce the air compressor's performance.

To test for small leaks, spray a small amount of soapy water on the area where a leak is suspected. If the soap bubbles, replace the broken part.

Cleaning:

Clean items with a soft brush or wipe with a moistened cloth using a biodegradable solvent. Do not use flammable liquids such as gasoline or alcohol. Always keep parts clean from dirt and dust for better performance.

Troubleshooting

No.	Door Malfunction Troubleshooting		
	Malfunction	Diagnosis	Solution
1	The door does not close or latch	1. Check the plunger to ensure the spring is in the correct place by pressing the plunger with your hands 2. Clean all dirt/debris from the door frame. 3. Ensure the door closer is moving without issues.	Remove the plunger and clean out any debris inside the cylinder. Adjust the closure by rotating the outer cylinder to speed up the closing stroke (see sticker on the closer)

2	The pneumatic hoses are leaking air.	Check if the pneumatic compressor's drain valve is still functional and the timer is set to the recommended dial setting.	Turn on the drain valve until all the fluid in the pneumatic system is removed, and check that the automatic drain valve is set to the correct settings.
3	If the actuator breaks, would the wall need to be removed?	In the unlikely event that the actuator goes bad, you will not need to remove the wall.	Bypass the entire mechanism on the left side of the door. To the left of the two white relays, look for the gray wire. There is a quick disconnect, and you can plug in a jumper to force it open. To do this, take 24V off the red wire and ground, and then connect it directly to the actuator. We could send a jumper, or they can make one. If a gear becomes stripped, the actuator will still move, but you may need to assist it in doing so. If you force the voltage onto it, it will open, and then you can replace it.
4	Stickers say 'do not adjust anything,' but the specifications require adjustable doors.	Door timing can be adjusted, but the customer MUST contact CHUTES technical support.	There are two timers: one controls the duration of the whole cycle, and the second controls the duration before the door starts to close.
5	The electric solenoid doesn't latch.	Technically, this is not needed for the door to function correctly. NFPA requires a positive latch.	The door currently has an opposing force holding it shut. Once NFPA confirms this for us, the positive latch requirement will be removed.
6	Are the touchless doors OSHA and ANSI-approved? (due to the force of the closure)	ANSI and OSHA Compliant.	
Final	If the malfunction persists, please get in touch with CHUTES International with any technical questions related to the electrical or pneumatic interlock system @ 1-800-882-4883		