



METALKRAFT ENGINEERING PVT. LTD.

An ISO 9001:2015 Certified Company



Chutes

Garbage -

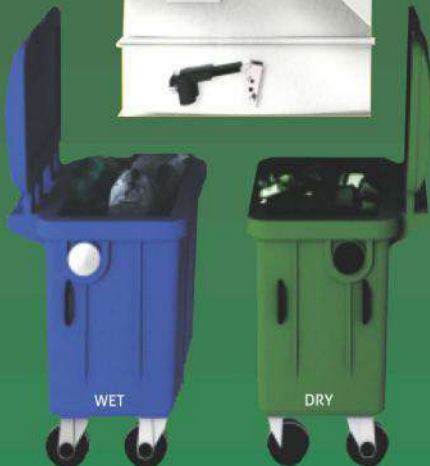
- Stainless Steel / Galvanized Iron / Polyethylene

Linen -

- Stainless Steel / Galvanized Iron / Polyethylene

Debris-

- Mild Steel / Polyethylene



CENTRALIZED GARBAGE/ LINEN COLLECTION SYSTEM

High rise residential/commercial/hotels/hospitals or mall building need to have a fast and economical method of collecting garbage/linen at a single point. It is impractical to collect garbage from floor to floor or use lifts for this purpose. Garbage chutes are designed for this purpose which enables users to dispose garbage from their respective floors and collect and manage it in the garbage room.

Linen chutes collect linen from various floors and collect in linen room in hotels/hospitals.

Metalkraft offers high quality & technologically advanced stainless steel chutes for this purpose with advanced features like segregation system, inter locking doors, fire protection and alarm systems, cleaning systems, Odour control system etc. which are in accordance with international building standards.

CHUTE SECTIONS

- Chutes Body (intermediate pieces).
- Hoppers and Doors.
- Disinfectant and Sanitization Unit.
- Exhaust Section.
- Bird/Insect Screen with Weather Cowl.
- Cleaning Sprinklers.
- Automatic Brush Cleaning.
- Fire Discharge Doors.
- Odor Control Unit
- Centralized Control Panel.
- Garbage Segregation System.
- Garbage Trolleys.
- Garbage Compactor.
- Garbage Trolley Management System.



CHUTE SIZES AND MATERIAL OF CONSTRUCTION

Shape of chute is recommended to be circular as per building standards. Square cross sections are also manufactured as per customer requirements.

SIZES

- 400 mm to 900 mm Diameter.

MATERIAL OF CONSTRUCTION

SS 316/ SS 304/ SS 430/ GI/ PE.



Waste Segregation at User Level



Quick, simple and convenient disposal of waste

APPLICABLE STANDARDS:

Chutes manufactured by Metalkraft are as per following standards

- NFPA 82 : 2009
- NS 1703 : 2005
- NBS 2005 : BIS
- BIS 6924 : 2001
- UL10B for fire rating.

ADVANTAGES OF CHUTES

- Garbage collection at a single point in a building.
- Segregation of garbage is possible at the time of collection.
- Low cost and effective method of garbage collection.
- Ensures safety and Security in Garbage Collection.

TECHNICAL FEATURES (How to choose your chutes)

Chute may be installed inside the building or outside depending upon site conditions. If installed inside, then it should be installed in a separate shaft of 2HR Fire Rating. All installations can be customized as per building physical requirements.

MATERIAL THICKNESS -

We strongly recommend a material thickness of 1.5mm SS Sheet. Stainless steel has benefits of being resistant to humidity and alkalis contained within refuse. SS has very high impact strength. GI is also available with us but we recommend SS above all material.

BUILDING TYPE — RESIDENTIAL

| CHUTE SIZE | PLASTIC BAG VOLUME | NO. OF APARTMENTS |
|------------|--------------------|-------------------|
| 450MM | 12 LITERS | 20+ |
| 500MM | 20 LITERS | 30+ |
| 600MM | 40 LITERS | 40+ |
| 750MM | 45 LITERS | 60+ |
| 800MM | 50 LITERS | 75+ |

BUILDING TYPE - COMMERCIAL

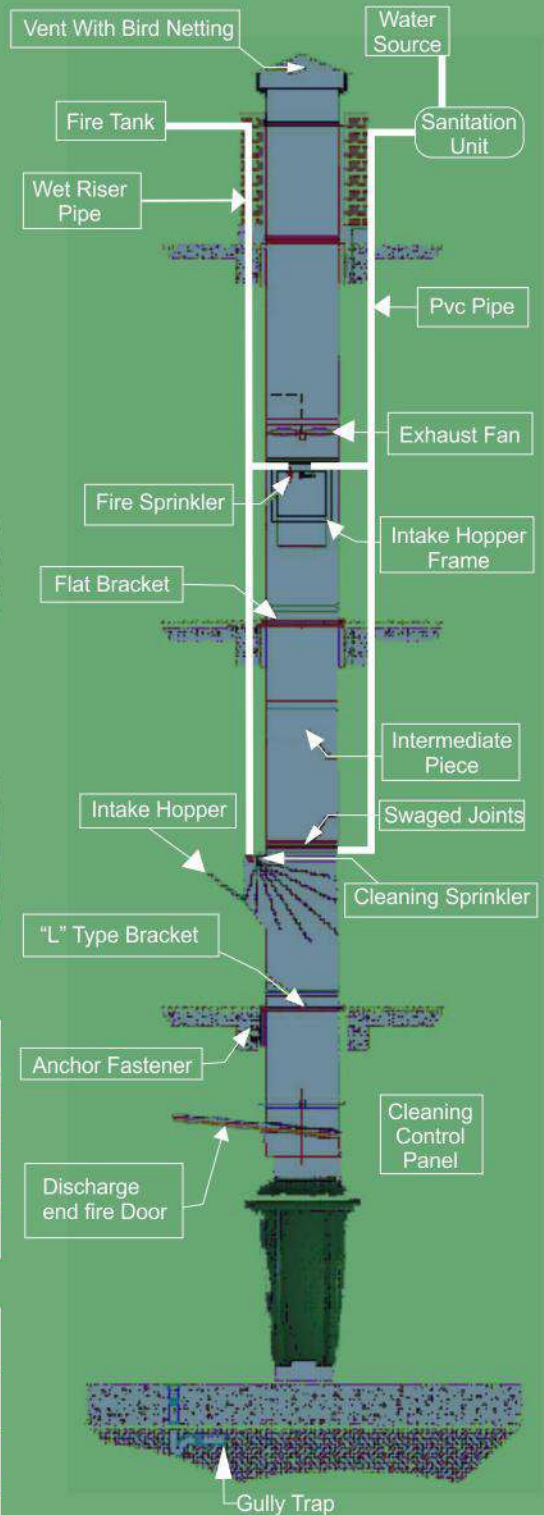
| TYPE OF BUILDING | CHUTE DIA | RECOMMENDED CHUTE TYPE |
|------------------|-----------|------------------------|
| COMMERCIAL | 600MM | BI SORTER CHUTE |
| HOTEL | 750MM | TRI SORTER CHUTE |
| HOSPITALS | 750MM | TRI SORTER CHUTE |
| MALLS | 750MM | TRI SORTER CHUTE |



Safety &



Low cost method of controlling and



Schematic layout of Garbage chute for Typical Floors

DESCRIPTION OF CHUTE SECTIONS

CHUTE BODY (INTERMEDIATE PIECES) -

Circular Duct is manufactured from required material and finalized diameter. All ducts are joined at site telescopically by making a male –female joint section. Swaging and mechanical crimping is also done. This provides excellent circular dimensional stability to the chute and enhances long term leak-proof performance.



FLOOR FRAMES -

MS frame works for fixing chute to RCC level by dash fasteners is constructed from 35x35x5mm thick MS Angle and 50x5mm MS Flats with proper drill holes and shapes as per site requirements. Frame works is rust proofed for internal use and hot-DIP Galvanized for external use .

OFFSETS -

Offsets should be avoided at the most but can be provided if there are no options as per site conditions. Angle of offsets is determined as per site conditions. Offsets are provided at bottom with high impact plate to reduce speed of falling garbage from heights.



COATING OPTIONS -

- ANTI CORROSIVE EXTERIOR COAT - Black color anti corrosive paints of thickness 0.3 to 1mm to prevent corrosion.
- SOUND DAMPENING COAT - Daubert 432 or equivalent paint of black color and coating thickness depends upon chute material thickness. It reduces sound level upto 5-20 DB.
- FIRE INTUMSCENT OR LACUER COATING- Used for exterior installation and various colors. Thickness of 0.3 to 1mm and 1 hour fire rated coating.

INTAKE HOPPERS AND DOORS –

METALKRAFT offers 90 minute fire rated intake hoppers doors for garbage/linen chutes.

Doors of different sizes are available depending upon the type of chute provided.

Some common type of doors are given below :--

- **Bottom Hinged Standard Doors –**
Manual opening and auto closing doors with latch and locking system. Full SS304 construction with full length hinge in the bottom.
- **Bottom Hinged Interlocking Doors –**
Electronically interlocked doors which enables only one user to use at a time. Chute shutdown possible under emergency and can be connected to fire alarm. Doors can be configurable as per requirements.
- **Side Hinged Interlocking Doors –**
Linen Chute electronically interlocked doors with keyed access. Linen Chutes doors can be manual opening, push button opening or access control system for secure usage of chute.
- **Segregated Garbage Chute Doors –**
Doors used for BI-Sorter door with user panel in SS frame along with doors. Selection buttons for different types of garbage in doors panel. Indication of Busy, Trolley Full, Chute Cleaning and Maintenance Available.

Wireless operation is also possible with Remote controlling option. Usage time of doors can also be fixed .Access control system can also be provided.



**Bottom Hinged
Standard Doors**



**Side Hinged
Interlocking Doors**



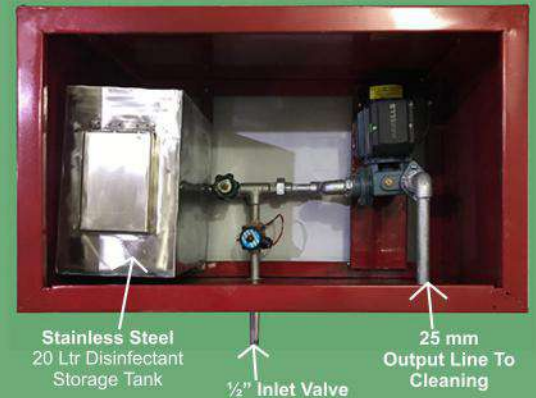
**Segregated Garbage
Chute Doors**

DISINFECTANT & SANITIZATION UNIT

Disinfectant and Sanitization unit is placed at the terrace level. It is fitted with solenoid valves, NRV and motors to mix proportionate amount of water with disinfectant liquid and spraying it inside the chute through the cleaning sprinklers. It is provided with 200 ltrs HDPE water tank and 20 liters SS disinfectant storage tank to be filled manually.

REQUIREMENTS-

- Minimum ½ bar pressure water supply from overhead tank to be provided from your end.
- Single phase electrical supply in garbage room or roof top as per convenience.
- All piping will be CPVC 25mm dia pipes and in our scope of works.
- 15 LPM water to be provided for operation of system.



Disinfectant Unit

EXHAUST SECTION –

Reduced diameter ventilation section at the roof top above the topmost in take level is provided consisting of an exhaust fan of high RPM. It provides 20/40 air changes per hour which removes foul smell and odor from chute. The exhaust fan can be timer controlled from the control panel and operates at fixed intervals. It controls power consumption and also does not require continuous monitoring. For linen chutes instead of exhaust system roof top insect/bird net is provides for gases to exit and restrict entry of birds and insects inside chute.

REQUIREMENTS –

- Single phase electrical connection at garbage room.
- Roof top RCC cut out of dia more than dia of chute.



Exhaust Section

FIRE SPRINKLER SYSTEM—

Standard response fire sprinklers are installed at the top most and bottom most intake level of chute and all alternate floors, TYCO make ½ LPS(BSP) pendant type sprinklers are used and connected to 1” or 2” wet riser of fire protection system. These sprinklers start off above temperature rise of 68°C.

FIRE ALERT AND SAFETY SYSTEM—

System is equipped with temperature sensor at regular intervals and also garbage room to monitor any change in temperature above pre-set temperature levels. In case of temperature rise above critical level specially designed safety action mechanism automatically starts water spray through cleaning sprinkle. If this system is used then no need to use fire sprinklers or discharge end fire rated doors. Also it saves fire sprinklers piping cost. Alarms also synchronized with this system.

CLEANING SPRINKLERS –

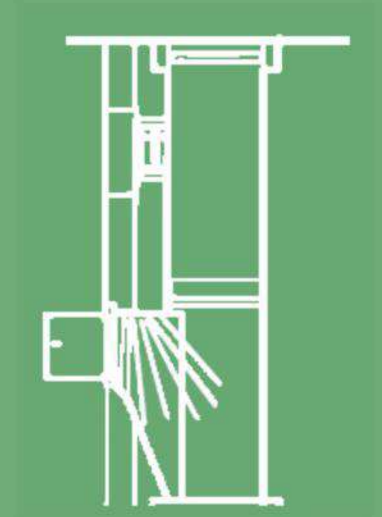
Brass make cleaning sprinklers are installed at every floors level connected to central sanitization unit. All piping is done by 25MM CPVC pipes and in our scope. This ensures complete cleaning of chute walls from inside. Discharge of each sprinkler is different which ensures equivalent supply of water despite being at different heights.

AUTOMATIC BRUSH CLEANING SYSTEM –

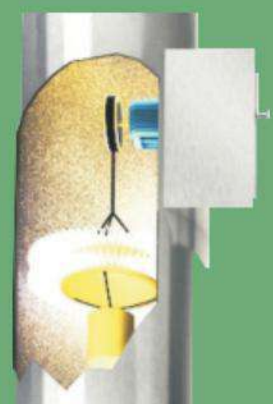
The internal cylindrical walls of the chute are cleaned by this system. This system is designed to clean the internal surface of the chute. It consists of a stiff nylon brush which is replaceable. This is automatically lowered and raised in the chute using a geared motor system. This operates from the roof top. Water is sprayed through the cleaning sprinklers during the cycle. This complete cycle is synchronized and controlled by the central control panel. Available in various sizes depending upon diameters of the chute system is constructed with 6mm SS wire rope and PA66 nylon brushes.

REQUIREMENTS –

1HP, 3 Phase connection at garbage room.



FIRE SPRINKLER SYSTEM



BRUSH CLEANING SYSTEM

FIRE DISCHARGE DOOR –

TYPE 'C' AUTOMATIC FIRE SHUTTER DOOR –

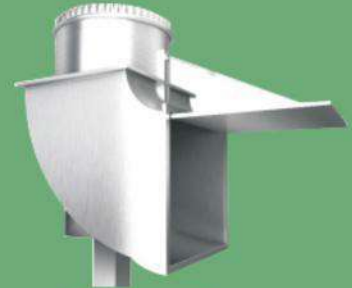
Primarily used in garbage chute 'C' type doors are sliding doors on a channel framework consisting of a fusible link. It is placed at a 15° Angle and is 1.5hr, 250 degree fire rated door. The fusible link defuses when ever temperature rises above 68°C and the doors automatically shuts off. This prevents any upward movements of fire inside the chute.



C Type Shutter Door

TYPE 'D' HUNG DOORS FOR LINEN CHUTES-

A top hinged doors connected with a counter spring balance and fusible link is fitted at discharge end of linen chutes. Whenever temperature rises above 68°C the 1.5 hr rated gate drops and close automatically . This prevents fire at the bottom from spreading upwards.



D Type Hung Door

ODOUR CONTROL UNIT –

Odor Control Unit is designed for installation in Garbage/Trash Room for controlling or reducing the odor generated from decomposing garbage. This unit vaporizes a neutralizer liquid and emits it into the garbage room at regular intervals, the odor molecules combines with these molecules and the smell is removed . It operates with a 1/2 H.P Compressor.



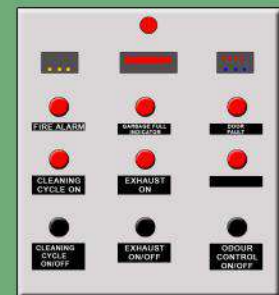
Odour Control Unit

CENTRALIZED CONTROL PANEL –

Master control panel is installed in the garbage room. Heavy duty branded components is used in manufacturing of the panel.

FEATURES –

- Controls sanitizer operation.
- Synchronizes usage of brush cleaning system.
- Exhaust fan timer control.
- Bisorter /Trisorter operation control.
- Floor usage indication
- Trolley managements control.
- Synchronizing chute with central fire control system.
- Maintenance/ Emergency locking of doors.
- Access control system for doors of linen chute.



Central Control Panel

Both PCB based and PLC based models of control panels are available.

GARBAGE SEGREGATION SYSTEM -

Segregated chutes are manufactured by METALKRAFT which enables segregation of garbage into 2 Trolleys (DRY/WET) or 3 Trolleys (TRI-SORTER CHUTES)

PROCEDURE AND ADVANTAGE -

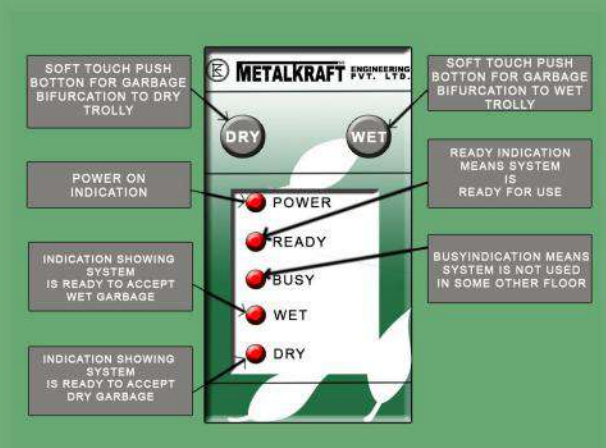
- Selection of type of garbage is done on floor level.
- Rotary flap door adjusts itself automatically to divert garbage to respective trolley.
- Fully automatic system enables access to only 1 door at a time. All other doors remain locked.
- Eco-friendly system since it enables recycling of garbage sorted separately.
- Cost of multiple chutes is saved and cost of operation is very low.



GARBAGE SEGREGATION SYSTEM

OPERATIONAL SEQUENCE-

- User selects the type of garbage from respective switches in doors panel (2 Switches for Bi-sorter Chutes and 3 Switches for tri-sorter chutes).
- Bifurcator unit provided in the garbage rooms adjusts itself accordingly to divert packet into appropriate trolley.
- Ready indicator is blown at floor and door lock opens.
- Garbage can is dropped by manually opening and closing the doors.
- All others doors show "BUSY" indicator and remain locked unless the above doors is closed.
- If door under use is not closed within 10 seconds or not closed properly, then buzzer will buzz off.
- Separate trolleys at the bottom have sorted trash collected in them



DOOR PANEL

REQUIREMENTS -

Minimum size of Garbage Room – 300 cm X 300 cm X 250 cm. Electrical 3 Phase /Neutral line of 15A at garbage room for operation.

GARBAGE TROLLEY

- Available in HPDE/GI models.
- Two wheeled or 4 wheeled depending upon volume with lids.

CAPACITY—120L, 240L, 360L, 660L, 1100L.

GARBAGE COMPACTOR

Garbage collected in garbage room can be reduced in volume by up to 70% using our compactors. Compactors compact garbage using a hydraulic system. This compaction cycle can be automated using sensors.

This reduces requirements of manpower and maintenance.

REQUIREMENTS—3 Phase/7.5 HP electrical connection in garbage rooms.

GARBAGE TROLLEY MANAGEMENT SYSTEM

- Garbage Trolleys are placed on a circular frame work which contains 4-5 no. of trolleys.
- Whenever the trolley below the chutes is filled the system automatically rotates and the next empty trolley is placed below the chutes.
- The cycle is repeated until all trolleys are filled one by one.
- Indication for cleaning of trolleys is given if all trolleys are full.



GARBAGE TROLLEY



GARBAGE COMPACTOR

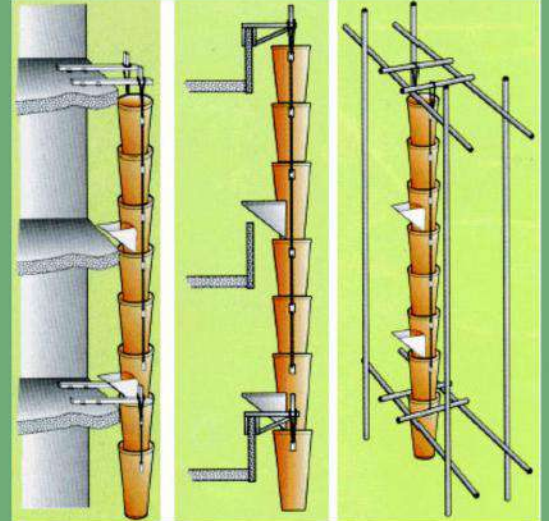
DEBRIS CHUTES

Construction sites generate huge quantity of debris in their functioning. Disposal of this debris is a huge task. It requires a lot of labour and resources. Removal of these debris can also be fatal as it may cause a lot of accident.

These accident can cause severe amount of legal and financial problem to the construction companies. This loss is very large.

We construct debris chutes which can also solve most of the above problems and give added advantages for construction sites as given below.

1. Made of high grade plastic(FRP) or duly spray primed and painted MS Sheet.
2. Reusable for next sites.
3. Easily installed and dismantled.
- 4.As per OSHAS and ISO 14000 norms.
5. Reduces dust and noise levels at site.
6. Heavily reduces manpower used for debris disposal.
7. Strongly grouted in building structure using fasteners.
8. Hoppers are provided on each opening.
9. Custom manufactured and installed as per customers requirement.
- 10.Chutes are very strong and impact resistant .





METALKRAFT ENGINEERING PVT. LTD.

MetalKraft Engineering Pvt. Ltd.
58, Mahila Udhya Park - 1, Ecotech-3
Greater Noida-201306
Mobile:- 09971904964, 07982510835
09560485481
www.garbagechutes.in
email: metalkraft58@gmail.com,
info@garbagechutes.in