Committee Input No. 24-NFPA 82-2017 [Global Input]

The committee is considering adding new material types and associated standards to Chapter 6.

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Committee Statement

Committee Statement: The committee is considering adding new material types and associated standards to Chapter 6.
Response Message:

Committee Input No. 13-NFPA 82-2017 [Chapter 6]

Chapter 6 Waste and Linen Chutes and Transport Systems

6.1 General.

6.1.1

Approved waste and linen chutes and transport systems, including gravity waste and linen chutes, full pneumatic waste or linen conveying systems, and gravity pneumatic waste or linen conveying systems, shall comply with the provisions of this chapter.

6.1.2

Chute intake doors shall be installed at a minimum at alternate floor levels.

6.2* Gravity Waste or Linen Chutes.

6.2.1 General.

General access gravity chutes shall be permitted to be supplied with unlocked doors and shall be permitted to be available to all occupants at all times.

6.2.1.1

Linen gravity chutes shall only be limited access chutes.

6.2.1.2

A limited access chute shall be secured either by locking the intake door or the entry door into the service room so that it can be used only by authorized personnel.

6.2.1.3

A gravity waste or linen chute also shall be permitted to be used to interface with a pneumatic transport system.

6.2.2 Construction.

6.2.2.1 Chute Supports.

6.2.2.1.1

A steel or steel-jacketed refractory chute supported at intervals by the building structure shall be provided with expansion joints between support levels.

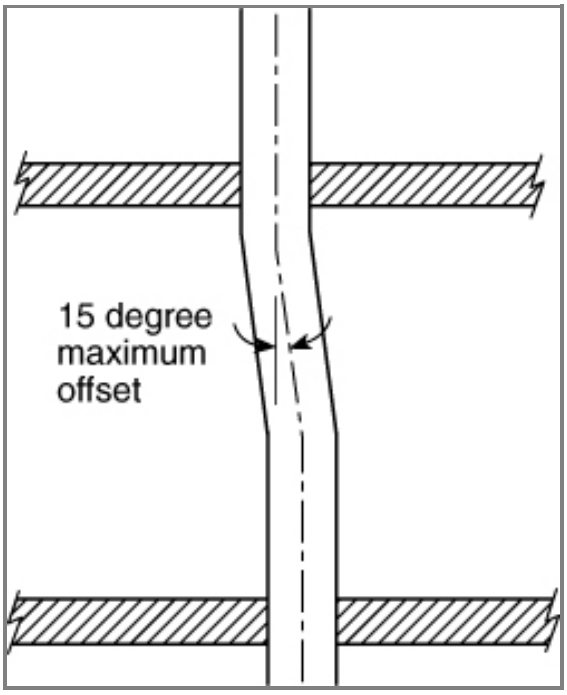
6.2.2.1.2

Other chutes shall be supported on a substantial noncombustible foundation.

6.2.2.2 Chute Offsets.

See Figure 6.2.2.2.

Figure 6.2.2.2 Gravity Metal Chute, Maximum Offset.



6.2.2.2.1

Gravity metal chutes shall be constructed straight and plumb where allowed by the building configuration.

6.2.2.2.2

Gravity metal chutes shall be permitted to be offset a maximum of 15 degrees from plumb with the approval of the authority having jurisdiction.

6.2.2.2.3

Offsets shall be limited to a maximum of one offset for every two floors.

6.2.2.2.4

A single offset shall be completed (returned to vertical) between floors.

6.2.2.2.5

No access door shall be less than 1.2 m (4 ft) above an offset.

6.2.2.2.6

The portion of chute between the highest intake door and the chute termination shall be permitted to be offset a maximum of 45 degrees from the plumb, subject to the approval of the authority having jurisdiction.

6.2.2.2.7

For the purpose of this standard, a single chute offset from vertical shall include a return of the chute to vertical.

6.2.2.3 Standard Dimensions of Waste and Linen Gravity Chutes.

Standard gravity chutes shall be a minimum of 571 mm (22½ in.) by 571 mm (22½ in.) or 610 mm (24 in.) in diameter.

6.2.2.4 Chute Venting.

6.2.2.4.1

A waste or linen chute shall extend (full size) at least 0.92 m (3 ft) above the roof of a building of Type II-000, Type III, Type IV, or Type V construction. *(See NFPA 5000, Building Construction and Safety Code.)*

6.2.2.4.2

The chute shall be permitted to extend less than 0.92 m (3 ft) above the roof of a building of Type I, Type II-222, or Type II-111 construction subject to the approval of the authority having jurisdiction. *(See NFPA 5000.)*

6.2.2.4.3

The chute shall be open to the atmosphere, with the opening being the same cross-sectional area as the chute.

6.2.2.4.4

The portion of chute between the highest intake door and the top of the chute vent shall be permitted to be offset a maximum of 45 degrees from the plumb, subject to the approval of the authority having jurisdiction.

6.2.2.5 Masonry Waste Chutes.

6.2.2.5.1

Masonry waste chutes shall be constructed of clay or shale brickwork not less than 203 mm (8 in.) thick or of reinforced concrete not less than 152 mm (6 in.) thick. Such chutes shall be lined with low-duty refractory brick (as defined in ASTM C 27) not less than 114 mm (4½ in.) thick.

6.2.2.5.2

Equivalent construction with walls providing a 2 hour fire resistance rating with equivalent structural features shall be acceptable.

6.2.2.5.3

Lined masonry chutes that comply with 6.2.2.5 shall not require automatic sprinkler protection.

6.2.2.6 Lined Metal Waste Chutes.

6.2.2.6.1

Metal waste chutes shall be permitted to be lined with low-duty refractory brick (as defined in ASTM C 27) not less than 63.5 mm (2½ in.) thick or equivalent castable refractories.

6.2.2.6.2

Lined metal chutes that comply with 6.2.2.6.1 shall not require automatic sprinkler protection.

6.2.2.6.3

All unlined steel chutes shall be protected internally by automatic sprinklers. *(See 6.2.6.1.)*

6.2.2.7 Metal Chute Wall Thickness.

6.2.2.7.1

Metal waste or linen chutes shall be made of stainless steel, galvanized steel, or aluminum-coated steel with no screws, rivets, or other projections on the interior surface of the chute.

6.2.2.7.2

Laps or joints shall be designed so that liquid will drain to the interior of the chute.

6.2.2.7.3

The steel shall not be lighter than 16 U.S. gauge.

6.2.2.7.4

Special waste chutes designed to handle dense or heavy material over 1500 kg/m^3 (10 lb/ft^3) shall be made of steel not lighter than 14 U.S. gauge.

6.2.2.8 Medium-Heat Chimneys.

6.2.2.8.1

Listed medium-heat appliance chimney sections shall be acceptable for use as trash chutes.

6.2.2.8.2

Listed medium-heat chimney shall not require automatic sprinkler protection.

6.2.3 Chute Enclosure (Chase).

6.2.3.1 General.

6.2.3.1.1

Vertical waste or linen chute enclosures shall be constructed of materials consistent with the building construction type.

6.2.3.1.2

The walls of the enclosure shall be continuous and have a fire resistance rating of not less than 2 hours for chutes connecting four or more stories and not less than 1 hour if the building for chutes connecting less than four stories.

6.2.3.1.3

Openings in the fire resistance-rated enclosure shall have a fire protection rating as follows:

(1) 1½-hour fire protection rating for 2-hour fire resistance-rated enclosures

(2) 1-hour fire protection rating for 1-hour fire resistance-rated enclosures

6.2.3.2 Chute Discharge Doors.

6.2.3.2.1*

The bottom of a waste chute shall be protected by an approved automatic closing or self-closing door or fire damper of construction that is equivalent to the opening fire protection rating for the chute in 6.2.3.1.3.

6.2.3.2.2

The waste chute discharge door shall not be required to have a positive latch.

6.2.3.2.3

The bottom of a linen chute shall be protected by a listed automatic closing or self-closing fire door or fire damper that provides a fire protection rating in accordance with 6.2.3.1.3.

6.2.3.2.4

Chute discharge doors or fire dampers shall be permitted to be held open by a fusible link.

6.2.3.3 Chute Intake Doors.

6.2.3.3.1 General Access Gravity Waste Chutes.

6.2.3.3.1.1

All chute intake doors into a waste chute shall be provided with a self-closing, positive latching and gasketed fire door assembly in accordance with 6.2.3.1.3.

6.2.3.3.1.2

The fire door assembly shall be installed in accordance with its listing.

6.2.3.3.1.3

The design and installation shall be such that no part of the frame or door projects into the chute.

6.2.3.3.1.4

The area of each chute intake door shall be limited to one-third of the cross-sectional area of a square chute and 44 percent of the area of a round chute.

6.2.3.3.2 Limited-Access Gravity Chutes.

6.2.3.3.2.1

All chute intake doors into a linen or waste chute shall be provided with a self-closing, positive-latching and gasketed fire door assembly in accordance with 6.2.3.1.3.

6.2.3.3.2.2

The fire door assembly shall be installed in accordance with its listing.

6.2.3.3.2.3

The design and installation shall be such that no part of the frame or door projects into the chute.

6.2.3.3.2.4

A lock shall be provided for the chute intake door.

6.2.3.3.2.5

The area of each waste chute intake door shall be limited to two-thirds of the cross-sectional area of the chute.

6.2.3.3.2.6

The area of each linen chute intake door shall not exceed the cross-sectional area of the chute.

6.2.4 Chute Discharge Rooms.

6.2.4.1 General.

6.2.4.1.1

Waste and linen chutes shall terminate or discharge directly into a room having a minimum fire resistance rating not less than that specified for the chute enclosure.

6.2.4.1.2

Openings into a chute discharge room shall be protected by an approved self-closing fire door assembly having a minimum fire protection rating not less than that specified for the chute enclosure.

6.2.4.1.3 Chute-to-Incinerator Interface.

Trash gravity chutes shall not discharge directly into an incinerator.

6.2.5 Chute Intake Rooms.

6.2.5.1 General.

6.2.5.1.1

Every chute intake shall be in a room that is separated from the other parts of the building by walls, partitions, floors, and floor-ceiling assemblies having a fire resistance rating of not less than the required rating of the chute enclosure as specified in 6.2.3.1.

6.2.5.1.2

Openings into a chute intake room shall be protected by an approved automatic or self-closing fire door assembly having a fire protection rating as follows:

(1) 1 ½-hour fire protection rating for 2-hour fire resistance-rated enclosures

(2) ¾-hour fire protection rating for 1-hour fire resistance-rated enclosures

6.2.5.1.3

Where chute intake rooms are protected by automatic sprinklers, the room shall be enclosed in a minimum of 1-hour fire resistance-rated construction.

6.2.5.1.4

The size of the chute intake room shall not be less than that required to maintain a minimum 152.4 mm (6 in.) clearance between the closed chute intake door and the closed door.

6.2.5.2* Limited-Access Chute Intake Room.

6.2.5.2.1

If entrance to a limited-access chute intake room is provided with a lock, the chute intake door shall not require a lock.

6.2.6 Automatic Sprinklers.

6.2.6.1 Gravity Chute.

6.2.6.1.1

Gravity chutes shall be protected internally by automatic sprinklers unless the chute is in accordance with 6.2.2.5 or 6.2.2.6.

6.2.6.1.2

A sprinkler shall be installed at or above the top chute intake of the chute.

6.2.6.1.3

Automatic sprinklers installed in gravity chute intakes shall be recessed out of the chute area through which the material travels.

6.2.6.1.4

A sprinkler shall be installed within the chute at alternate floor levels in chutes connecting more than two stories, with a mandatory sprinkler located at the lowest service level.

6.2.6.1.5

Sprinkler system installation shall comply with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

6.2.6.2 Chute Discharge Room.

6.2.6.2.1

Automatic sprinklers shall be installed in chute discharge rooms.

6.3* Full Pneumatic Waste and Linen Conveying Systems.

6.3.1 General.

A full pneumatic waste or linen transport system consists of full vacuum stations equipped with inner doors and a locked outer door, an air source at the top of the riser, an air inlet control damper, flanged riser piping, transport piping, collectors (receivers), and a fan and fan damper.

6.3.2 Construction.

6.3.2.1 General.

6.3.2.1.1

Full vacuum chute intake doors shall be a minimum of 508 mm (20 in.) in diameter, shall have an inner door that is under processor control, and shall not yield under system vacuum.

6.3.2.1.2

The outer chute intake door shall be provided with a gasketed, self-closing, positive-latching fire door assembly with a fire protection rating of not less than 1 hour.

6.3.2.1.3

The door frame shall be fastened into the station and shall be flush with the rated shaft wall.

6.3.2.1.4

Minimum outer door size shall be 457 mm (18 in.) and shall be side hinged. Full vacuum stations shall be constructed from a minimum of 14 U.S. gauge stainless or galvanized steel.

6.3.2.2 Multibag Loading of Waste or Linen Systems.

6.3.2.2.1

During the multibag loading procedure, both the outer and the inner doors shall be permitted to be open.

6.3.2.2.2

Only one inner door shall be open at a time.

6.3.2.3 Chute Intake Rooms.

6.3.2.3.1

Every chute intake door shall be in a room that is separated from other parts of the building by walls, partitions, floors, and floor-ceiling assemblies having a fire resistance rating of not less than 1 hour.

6.3.2.3.2

Openings into such a room shall be protected by an approved self-closing fire door assembly with a fire protection rating of not less than ¾ hour.

6.3.2.4 Riser Pipe.

6.3.2.4.1

Full pneumatic riser pipe shall have a minimum diameter of 508 mm (20 in.) and shall be constructed from 16 U.S. gauge (minimum) stainless steel or galvanized or aluminum coated steel, with no screws, rivets, or other projections on the interior surface of the pipe.

6.3.2.4.2

To avoid vacuum leaks, riser pipe shall be flanged, gasketed, and bolted.

6.3.2.5 Air Source.

6.3.2.5.1

A full pneumatic system requires a full-diameter air source for conveying materials on a moving air stream.

6.3.2.5.2

The air source shall be a roof vent and curb, an all-weather elbow, or a louver through the side of the building.

6.3.2.6 Full Vacuum Station Supports.

6.3.2.6.1

Full vacuum stations shall be supported at each floor by mounting plates or a steel channel that will bridge the shaft opening.

6.3.2.6.2

Stations shall be bolted to prevent movement under transport conditions.

6.3.2.6.3

On floors where no station is installed, the riser pipe shall be supported at each floor.

6.3.2.7 Riser Offsets.

Full pneumatic risers shall be permitted to be offset to fit building design requirements.

6.3.3 Riser Enclosure (Chase).

6.3.3.1 General.

6.3.3.1.1

Full pneumatic stations and vertical risers shall be mounted within a continuous enclosure constructed of materials that are noncombustible and that extend from floor to floor.

6.3.3.1.2

The walls of the enclosure shall have a fire resistance rating of not less than 1 hour if the building is less than four stories in height and not less than 2 hours if the building is four or more stories in height. *(See 6.3.2.7 for offsets in full pneumatic riser piping.)*

6.3.3.2 Chute Intake Doors.

6.3.3.2.1

All full vacuum chute intake outer doors shall be provided with a gasketed, self-closing, positive-latching fire door assembly with a fire protection rating of not less than 1 hour.

6.3.3.2.2

The door frame shall be installed onto the station and shall be set flush to the shaft wall.

6.3.3.2.3

The width of the opening shall be permitted to be equivalent to the internal diameter of the chute, and the height shall be a maximum of one and a half times the diameter.

6.3.3.2.4

Minimum door size for a waste or linen loading door shall be 457 mm (18 in.) and shall be side-hinged.

6.3.4* Automatic Sprinklers Systems.

6.3.4.1

Full pneumatic-type risers shall be protected internally by automatic sprinklers.

6.3.4.2

A sprinkler shall be required at or above the top chute intake door and at alternate floor levels in buildings over two stories, with a mandatory sprinkler located at the lowest chute intake door.

6.3.4.3

Sprinklers shall be recessed out of the station area through which the material travels.

6.3.4.4

Sprinkler system installation shall comply with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

6.3.5 Transport Piping.

6.3.5.1 Transport Piping Size and Thickness.

6.3.5.1.1

Transport piping shall have a minimum wall thickness of 16 U.S. gauge galvanized or stainless steel and shall be sized to fit the system's needs.

6.3.5.1.2

Waste and linen transport systems shall be a minimum of 406 mm (16 in.) in diameter.

6.3.5.1.3

Where all materials entering the pneumatic-powered system are processed through a shredder, the transport pipe shall be permitted to be less than 406 mm (16 in.) in accordance with the authority having jurisdiction.

6.3.5.2 Penetrating of Fire-Rated Assemblies.

6.3.5.2.1

Automatic fire dampers shall be installed at all points where the waste or linen transport system penetrates fire-resistive partitions or floor assemblies. *[See Figure 6.3.5.2.1(a) through Figure 6.3.5.2.1(c).]*

Figure 6.3.5.2.1(a) Full Pneumatic Riser with Offset.

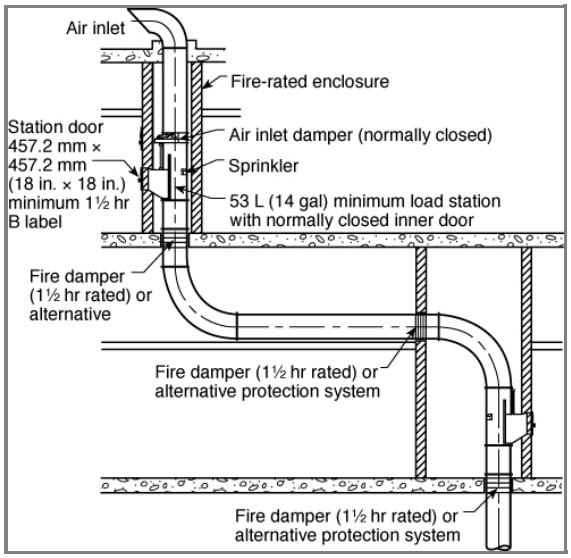


Figure 6.3.5.2.1(b) Full Pneumatic System with Penetration of an Evacuation Corridor.

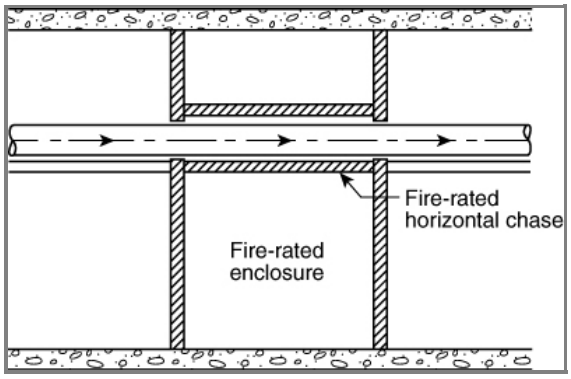
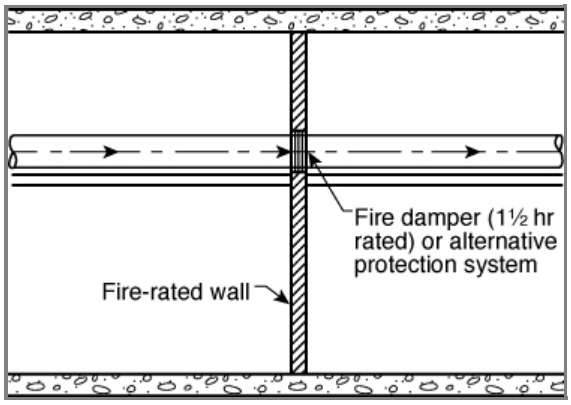


Figure 6.3.5.2.1(c) Full Pneumatic System with Penetration of a 2-Hour Fire-Rated Wall.



6.3.5.2.2

The system shall shut down automatically upon the closing of one of the fire dampers.

6.3.5.2.3*

Fire dampers shall not be required where an engineered alternative system is provided that is acceptable to the authority having jurisdiction.

6.3.5.3 Exiting from 2-Hour Fire-Rated Shafts.

6.3.5.3.1

Where the pneumatic transport pipe exits a 2-hour fire-rated shaft, the pipe wall thickness shall be increased to 11 U.S. gauge from within the shaft to four pipe diameters beyond the shaft wall.

6.3.5.3.2

The 11 U.S. gauge pipe shall be supported at 0.92 m (3 ft) intervals.

6.3.6 Collector Discharge Area.

6.3.6.1

The room or area where the collector discharges waste or linen shall be separated from the occupied part of the building by a 2-hour fire resistance-rated wall.

6.3.6.2

The room or area shall be protected by a sprinkler system. Sprinkler system installation shall comply with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

6.4* Gravity Pneumatic Trash or Linen Conveying System.

6.4.1 General.

A gravity pneumatic transport system shall comply with the requirements of Section 6.4.

6.4.2 Construction.

6.4.2.1 General.

All the requirements of Section 6.2 shall apply to gravity pneumatic conveying systems.

6.4.2.2 Dampers.

6.4.2.2.1

Where an open funnel is employed as an interface between the gravity chute storage section and the transport discharge damper, a normally closed, specially designed 11 U.S. gauge, blade-type damper shall be installed at the bottom of the chute and above the funnel opening.

6.4.2.2.2

At the point of entry into the transport piping tee, a material discharge damper shall be required to close off the transport piping when that riser is not being sequenced.

6.4.2.3 Chute Automatic Sprinklers.

Where material is to be stored at the bottom of the chute and above the riser discharge damper (above the transport tee), automatic sprinklers shall be installed below the last service door on the chute.

6.4.2.4 Discharge Room Criteria.

6.4.2.4.1

Where a gravity pneumatic system has any opening in the connection between the chute and the transport pipe, the interface and the discharge damper shall be in a room that is separated from other parts of the building by walls, partitions, and floor-ceiling assemblies having a minimum fire resistance rating not less than that specified for the chute.

6.4.2.4.2

Openings to such rooms shall be protected by an approved automatic closing or self-closing fire door assembly having a fire protection rating of not less than 1½ hours.

6.4.2.4.3

Automatic sprinklers shall be installed in chute discharge rooms.

6.4.3 Transport Piping.

6.4.3.1 Piping Size and Thickness.

6.4.3.1.1

Transport piping shall have a minimum wall thickness of 16 U.S. gauge galvanized or stainless steel and shall be sized to fit the system's needs.

6.4.3.1.2

Waste and linen transport systems shall be a minimum of 406 mm (16 in.) in diameter.

6.4.3.1.3

Where all materials entering the pneumatic-powered system are processed through a shredder, the transport pipe shall be permitted to be less than 406 mm (16 in.) in accordance with the authority having jurisdiction.

6.4.3.2 Penetrating of Fire-Rated Assemblies.

6.4.3.2.1

Automatic fire dampers shall be installed at all points where the waste or linen transport system penetrates fire resistance-rated partitions or floor assemblies.

6.4.3.2.2

The system shall shut down automatically upon the closing of one of the fire dampers.

6.4.3.2.3

Fire dampers shall not be required where an engineered alternative system is provided that is acceptable to the authority having jurisdiction.

6.4.3.3 Exiting from 2-Hour Fire-Rated Shafts.

6.4.3.3.1

Where the pneumatic transport pipe exits a 2-hour fire-rated shaft, the pipe wall thickness shall be increased to 11 U.S. gauge from within the shaft to four pipe diameters beyond the shaft wall.

6.4.3.3.2

The 11 U.S. gauge pipe shall be supported at 0.92 m (3 ft) intervals.

6.4.4 Gravity Pneumatic Collector Discharge Area.

6.4.4.1

The room or area where the collector discharges waste or linen shall be separated from the occupied part of the building by a 2-hour fire resistance-rated wall.

6.4.4.2

Where the room or area of collector discharge is within or abutting an occupied building, the room or area shall be protected by a sprinkler system.

6.4.4.3

Sprinkler system installation shall comply with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

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Committee Statement

Committee Statement: The committee would like to review and solicit Public Comments regarding standardizing the terminology utilized throughout Chapter 6.
Response Message: