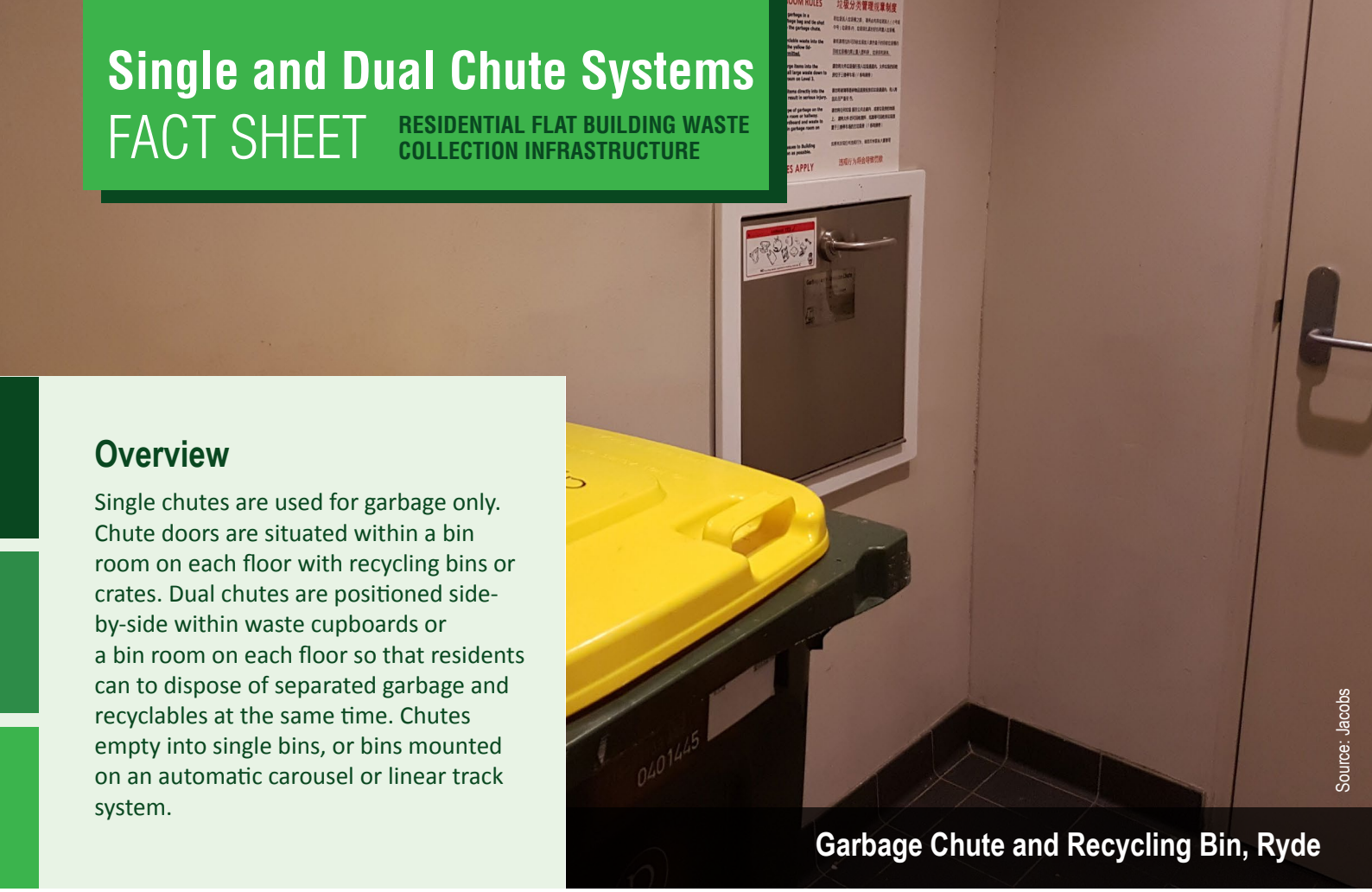
Single and Dual Chute Systems

FACT SHEET

RESIDENTIAL FLAT BUILDING WASTE COLLECTION INFRASTRUCTURE



Source: Jacobs

Garbage Chute and Recycling Bin, Ryde

Overview

Single chutes are used for garbage only. Chute doors are situated within a bin room on each floor with recycling bins or crates. Dual chutes are positioned side-by-side within waste cupboards or a bin room on each floor so that residents can to dispose of separated garbage and recyclables at the same time. Chutes empty into single bins, or bins mounted on an automatic carousel or linear track system.

Technical Information

- Stainless steel doors are 2 hour fire rated and fitted with a self-closing mechanism
- Chutes are constructed of galvanised steel or linear low density polyethylene (LLDPE) plastic and are typically 510 to 530 millimetres in diameter
- Chutes come with a PVC ventilation pipe and internal inline fan
- Bin carousel / linear track system, or compactor can be attached to the garbage chute outlet (for 240, 660 and 1100 litre bins)
- Automated bin rotation under the chute is enabled through use of a sensor plate which is activated when the bin is full
- Height clearance of 3 metres required within the chute room
- Indicative dimensions (in millimetres) for stainless steel electronic chute doors are 470 x 480 (w x l)
- Minimum dimensions for wall to wall encasement for single and dual chutes (in millimetres) of 825 x (825 to 1650) (w x l)
- Minimum bin room dimensions (in metres) of 1.7 x 2.5 (w x l)

Suitable Building Types

Best suited to medium to high-rise residential flat buildings where each floor of the building has:

- (Single chute) space available for recycling bins to be placed alongside garbage chutes
- (Dual chute) limited space for recycling bins

Education Needs

Residential education to target:

- Disposal of hazardous wastes such as batteries and bulky items such as cardboard boxes via other residential building collection systems to prevent chute blockages / dumping of waste in bin rooms
- Increased communication between residents and building managers / caretakers to facilitate correct use of the chutes, to maximise recycling and to prevent overcompaction of waste
- Source separation of recyclables and disposal of recyclables as loose items (without containment in plastic bags)
- Disposal of glass bottles mixed in with other wastes or separate to the chute system to avoid glass or bin breakage

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This project is a NSW EPA Waste Less, Recycle More initiative funded from the waste levy.

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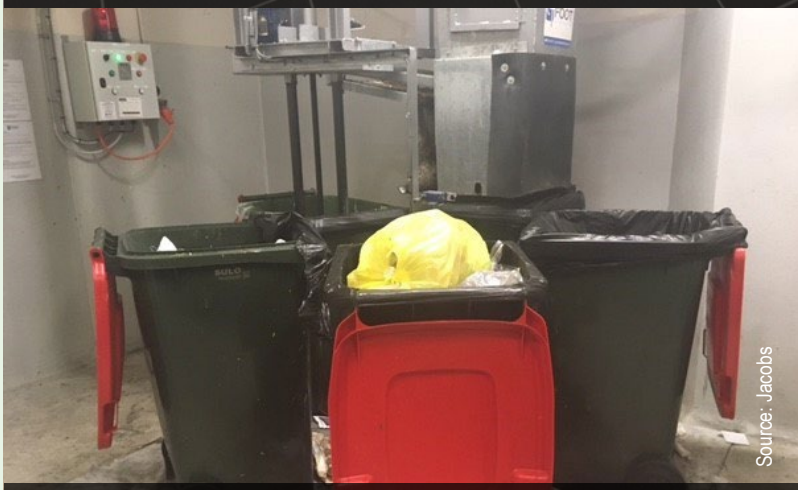
Case Studies

The Skye building in North Sydney comprises 19 residential floors above a retail area and is serviced by a single garbage chute connected to a bin carousel and compactor. Two crates are used to collect recycling on each floor of the building. Crates were chosen over 240 litre bins as it reduces the potential for odour generation and improves clean stream recycling.

Top Ryde City Living comprises 653 residential apartments across 7 tower buildings (5 to 9 levels each) above a commercial shopping centre. The towers are serviced by eight garbage chutes with 1100 litre garbage bins placed under each chute in the basement area. A bin trolley is used to transport 1100 litre garbage bins from the chute room to the collection point. Chute blockages occur at a rate of about one per fortnight. Recycling bins are provided in bin rooms on each residential floor of the building and a significant number of backup recycling bins are stacked in the chute room.

Source: Jacobs

Recycling Crates in a Bin Room, North Sydney


Source: Jacobs

Bin Carousel and Compactor, North Sydney

Strengths

Single chute:

- Different receptacles for garbage and recycling can assist with source segregation of recyclables by residents
- Cleaner recycling streams are more likely to be achieved than dual chute or diverter chute systems as residents and caretakers can more closely monitor contamination in bins
- Reduced breakage of glass and significantly reduced potential for blocked chutes

Dual chute:

- Reduced need for recycling bins or crates and space savings with construction of a waste cupboard in place of a bin room on each floor
- Decreased number of lift trips and reduced requirement for cleaning staff to transfer recycling bins from each floor to the central waste room

Weaknesses

Singe chute:

- Requires regular transfer of recycling bins (and emptying of crates into bins) from bin rooms on each floor to the central waste room
- Regular monitoring of bin or crate fullness on each floor of the building
- Recycling bin transfer may involve use of residential lift and so timing of bin transfer could reduce amenity

Dual chute:

- Chute blockages more likely due to disposal of cardboard boxes in recycling chute
- Streamlined waste collections are reliant on the effectiveness of resident education on appropriate use of chutes
- Glass bottle disposal into chute can lead to glass / bin breakage

Compliance

- Chute door and bin room must be accessible to people in wheelchairs
- Access to chute rooms / moving parts should be restricted to workers only
- Stainless steel chute doors are 2 hour fire rated, compliant with Australian Standard AS1530.4-2005. The Builder is responsible for fire rating the shaft
- Walls of chute shaft should be built to meet Rw 50 construction as noise from chutes is not regulated by the Building Code of Australia. Rw is the weighted sound reduction index.

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