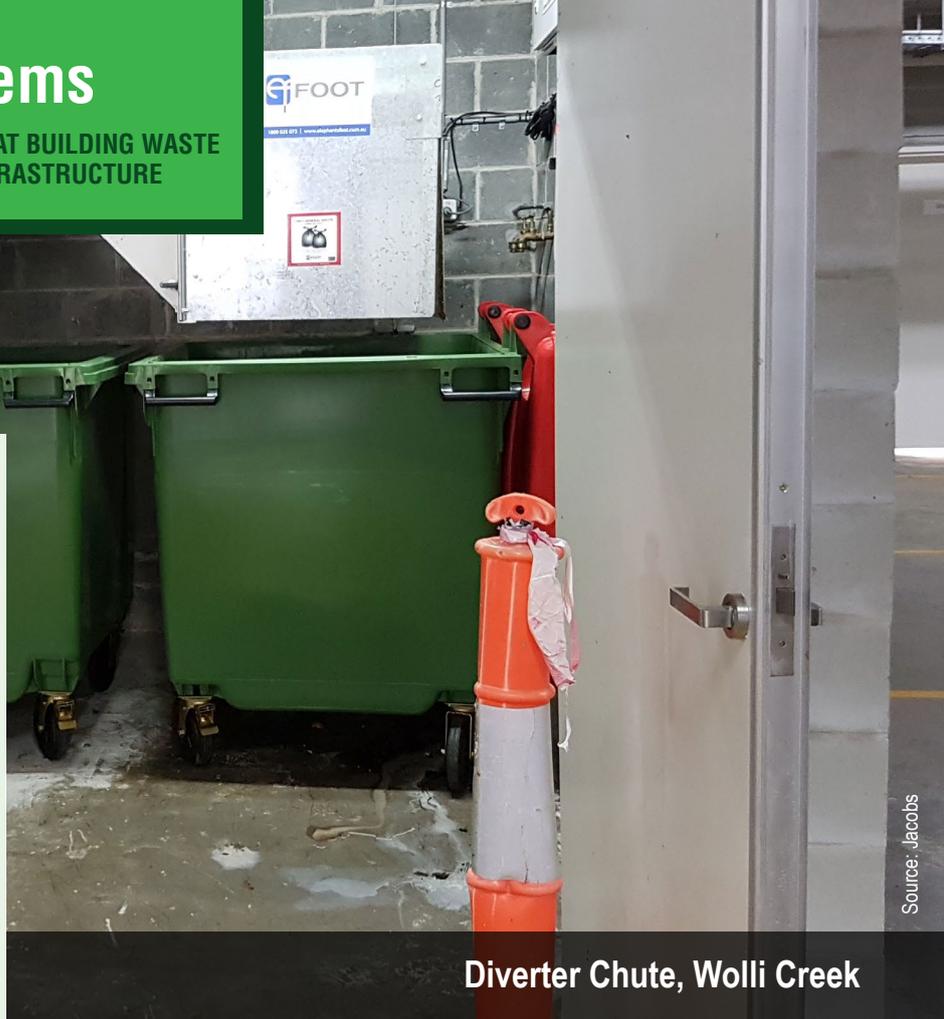


Chute Diverter Systems

FACT SHEET RESIDENTIAL FLAT BUILDING WASTE COLLECTION INFRASTRUCTURE

Overview

Chute diverter systems collect garbage and recycling within a single chute pipe. The chute door LED control panel installed on each floor enables residents to select a garbage or recycling function when disposing of waste. Chutes empty into either a single garbage and recycling bin set up, or bins mounted on an automatic carousel and linear track system.



Diverter Chute, Wolli Creek

Source: Jacobs

Technical Information

- Stainless steel electronic chute doors are standard size and fitted with a self-closing mechanism
- Chutes are constructed of galvanised steel or linear low density polyethylene (LLDPE), and are typically between 510 to 530 millimetres in diameter
- Base of chute is manufactured using high density steel with easy to replace impact wear plates and cushioning rubbers
- Chute can be closed down during maintenance and cleaning using a manual override
- LED control panel signals to the user when the chute is in-use or the chute door is locked
- When a user chooses a disposal type, the chute door will unlock. If recycling is selected, there is a timer delay of 5 to 10 seconds while the chute diverter mechanism moves from the garbage default
- Bin carousel / linear track system, or compactor can be attached to the 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 chute room
- A dampener (rubber flat) can be installed over the chute outlets to prevent waste spillage
- Minimum wall to wall encasement (in millimetres) of 825 x 825 (w x l) (similar to standard chute) plus 200 (clearance required from chute opening to access door of the waste cupboard)

Suitable Building Types

Best suited to medium-rise residential flat buildings where there is limited space for dual chutes or recycling bins on each floor of the building. For buildings of 15 floors or more, an additional power supply is required to stabilise power control, and an increased chute diameter (to 610 millimetres) is recommended. Requires ongoing education of residents.

Education Needs

Residential education to target:

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

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

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Case Studies

A Chute Diverter System was installed as part of the new **Orchard Park development at Wollri Creek**. The building comprises of 156 residential apartments over 10 levels, above a commercial base level. The ground level chute room fits 2 x 1100 litre bins (separate garbage and recycling) under the chute. Bins are monitored hourly Monday to Friday and manually removed once full. The bins are also rotated on a Sunday to prevent the bins from overflowing. An air purifier unit (perfume free) was installed separately of the chute system to prevent nuisance odours. Residents were also provided with a welcome pack and can register complaints online or via text message to the building manager.

Within three months of initial occupation (and about 65% of the residential units inhabited) no noise complaints had been received. However, there had been 7 chute blockages (4 in the first month down to 1 in the third month) and residents were dumping waste on the floor nearby the chute door. The building manager revised educational messaging during this time and signage is now multi-lingual and uses images to convey meaning.



Diverter Chute Door and Control Panel, Wollri Creek

Source: Jacobs

Strengths

- Reduced need for recycling bins or crates on each floor of the building, and space savings with construction of a waste cupboard to house the chute door, in place of a bin room on each floor
- Space savings within the chute shaft itself compared to a dual chute system
- Decreased number of lift trips and reduced requirement for cleaning staff to transfer recycling bins from each floor to the central waste room
- Chute outlet design configurations can be custom made to suit the space and needs of the chute room

Weaknesses

- Chute blockages due to disposal of cardboard boxes and other bulky waste items into the chute are common place
- The delay required for chute to divert to recycling can be longer in high-rise buildings where people on different floors require use of the chute at the same time
- 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 breakage and/or bin breakage and potential worker health and safety incident for workers
- The chute dampener should be in place to prevent rubbish spilling over bin and the floor kept clean of waste to ensure safe and optimum functionality

Compliance

- Chute door must be accessible to people in wheelchairs.
- Access to chute rooms / moving parts should be restricted to residents.
- 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.