

**APPRAISAL
CERTIFICATE
No. 264 A**

Re-issued April 1996

This Certificate replaces BTL Appraisal
Certificate No.264 (1994)
issued in March 1994.

Building Industry Authority Certificate
of Accreditation No 93/006A.
Valid until further notice.

**CS CAVITY
SLIDERS**

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Please refer to this document as "BTL
Appraisal Certificate No.264A, March, 1996".

Readers are advised to check that this
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Index" in BUILD, the bi-monthly
magazine published by the Building
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(BRANZ), or by contacting Building
Technology Limited (BTL).



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This Appraisal was produced by BTL,
a company wholly owned by BRANZ.

Product

This Certificate relates to CS Cavity Slider units Timberform, Powderseal and System 50 and models and variations as detailed under Description. All units are suitable for installation into conventional wall construction.

The CS Cavity Sliders units have been appraised for use with sliding doors in internal locations in residential, commercial and light industrial buildings.

This Certificate does not cover:

- door leaves (except Soundstop).
- Extra High units for doors over 2.7 m in height.
- Commandoor activating devices.
- the use of door leaves heavier than 50 kg for System 50, 55 kg for Commandoor and 120 kg for all other units.

All CS Cavity Sliders are manufactured and marketed by Cavity Sliders Limited.



Building Regulations

New Zealand Building Code (NZBC)

In the opinion of BTL, if CS Cavity Sliders are used in accordance with the statements and conditions of this Certificate, the relevant provisions of the following NZBC Clauses will be met:

B1 STRUCTURE; B2 DURABILITY; D1 ACCESS ROUTES; and F2 HAZARDOUS BUILDING MATERIALS.

Specific NZBC compliance details are contained within this Certificate.

Technical Specification

Description

CS Cavity Sliders are units for sliding doors suitable for installation into timber, steel, concrete or masonry construction where a fire resistance rating is not required.

System 50 is a self assembly unit with timber jambs and is for use with standard size doors only (see Table 2).

Timberform is a fully-assembled unit with either timber jambs grooved for wall linings or conventional timber jambs for architraves.

Powderseal is a fully-assembled unit with powder-coated aluminium grooved jambs.

The models covered by this Certificate, identified in Table 1, are available in both the Timberform and Powderseal range of CS Cavity Sliders.

The following variations are also covered by this Certificate:

- Bracewall and Double Overtaking: Extra High; Extra Wide; Full Height Detail; No Closing Jamb; and No Closing Jamb with Full Height detail.
- Commandoor: Extra High; Extra Wide; and No Closing Jamb.
- Easi-Open: Extra High; and Full Height Detail.

All CS Cavity Sliding door units provide for doors which slide into an aluminium framed cavity wall element. Each door is hung off carriages which have two wheels fitted with steel ball bearings, a polypropylene guide block and acetal tyres. A pivoting hanger mechanism ensures that both wheels always run in the track.

The bottom plate, as well as the horizontal top plate, which also forms the carriage track, are one-piece aluminium extrusions. Extruded aluminium studs are used for the vertical framing members.

Kiln-dried dressed radiata pine timber noggs and blocking allow for nail or screw fixing of sheet wall linings.

CS Cavity Sliders are available for single or double sliding doors in a range of standard sizes, except for Commandoor and Easi-Open which are available for single doors only. Units with dimensions outside the standard range can be supplied on request. The standard sizes available are identified in Table 2.

Commandoor requires an additional 100 mm in the trim height for the drive unit. Easi-Open must use a unit with a door cavity 100 mm narrower than the door to allow for 100 mm protrusion of the door.

Commandoor, Easi-Open and Soundstop units are always supplied with doors fitted. Other units, except System 50, may be supplied with doors fitted on request. Soundstop door leaf is the only door leaf covered by this Certificate. All other door leaves may be of any type of manufacture provided they have a durability of at least 5 years, are within the required dimensional and weight limits, are capable of being top hung and having a groove in the bottom if a tee guide is used.

System 50 is limited to doors of up to 50 kg, Commandoor 55 kg and all other units 120 kg.

The activating devices for Commandoor are not covered by this Certificate.

Note: The use of CS Cavity Sliders in exterior locations is not covered by this Certificate. Where they are to be used in exterior locations, Cavity Sliders Limited must be consulted for fixing and weathering details.

Table 1

Bracewall	Units provided with a factory-fitted bracing panel.
Commandoor	Units for automatic doors.
Double Overtaking	Units for two single doors emerging side by side from the same cavity to close off a double door width opening.
Easi-Open	Units for toilets for people with disabilities.
Extra High	Units for doors between 1981 mm and 2700 mm high.
Extra Wide	Units for doors wider than 910 mm.
Full Height Detail	Units where the bottom of the track finishes flush with the bottom of the ceiling.
No Closing Jamb	Units not requiring a closing jamb.
No Closing Jamb With Full Height Detail	Units not requiring a closing jamb and where the bottom of the track finishes flush with the bottom of the ceiling.
Servery	Units for serveries.
Soundstop	Units for areas where noise control is important and an STC rating is required.

Bracewall

Bracewall has a 17.5 mm plywood sheet complying with NZS 3614 fixed on one side of the aluminium framing members to provide bracing.

Bracewall must not be installed in saunas or steam rooms.

Commandoor

Commandoor is available as a single door unit only. It requires an additional 100 mm in the trim height for the drive unit, is limited to doors of up to 55 kg in weight, and must be supplied with the door fitted.

Easi-Open

Easi-Open must be supplied with the door and handle fitted. The handle specified must be Cavlok™ CL 100 manufactured by Cavity Sliders Ltd. The door leaf must protrude 100 mm from the cavity.

Extra High

Extra High units are available for doors between 1981 mm and 3000 mm. Units for doors over 2700 mm are not covered by this Certificate.

Table 2		
Door Size (mm)	Trim Size (mm)	
	Single Doors	Double Doors
1980 x 610	2075 x 1250	2075 x 2450
1980 x 660	2075 x 1350	2075 x 2650
1980 x 710	2075 x 1450	2075 x 2850
1980 x 760	2075 x 1550	2075 x 3050
1980 x 810	2075 x 1650	2075 x 3250
1980 x 860	2075 x 1750	2075 x 3450
1980 x 910	2075 x 1850	2075 x 3650

Soundstop

Soundstop is supplied with a sound-insulated door manufactured by Cavity Sliders Ltd that can achieve a Sound Transmission Class (STC) of up to 43.

System 50

System 50, a self-assembly unit, is not supplied with a door fitted, and is limited to doors of up to 50 kg in weight.

Handling and Storage

CS Cavity Sliders are supplied with transportation plates to prevent distortion of the frames during delivery and handling. Units for other than local deliveries are packed in cardboard. Handling, as with any joinery product, must be with due care to avoid damage.

System 50 is supplied in self-assembly form, packed in a cardboard box.

On site, units must be stored upright supported across their width (e.g. against a wall) to prevent distortion of the frame and in a dry and clean area protected from dust and direct sunlight.

Design Information

General

This Certificate must be read in conjunction with the manufacturer's installation instructions (as given in Basis of Appraisal).

Units can be supplied with timber jambs or prefinished powdercoated aluminium jambs in a variety of colours.

CS Cavity Sliders are designed to fit standard stud walls (nominally 100 mm). Double Overtaking fits into 144 mm ex 150 mm thick walls.

An intermediate stud is included in the framing for stability in all units for doors wider than 910 mm, except for Easi-Open units which are made for doors of a maximum width of 1043 mm (cavity depth 933 mm).

Structure

When used in accordance with the provisions of this Certificate, CS Cavity Sliders,

including the Soundstop door leaf, will meet the provisions of NZBC B1.3.1, B1.3.2, B1.3.3 and B1.3.4.

Where vertical loads are imposed from above, CS Cavity Sliders require supporting members which span the full trim-size.

CS Cavity Sliders for doors over 2.7 m in height are outside the scope of this Certificate.

CS Cavity Sliders are capable of withstanding wind loadings up to 1 kPa and likely soft and hard body impact loadings associated with residential, commercial and light industrial buildings.

Bracing

CS Cavity Sliders Bracewall units are for areas where wall bracing is needed in conjunction with a cavity sliding unit. When used in accordance with Section 6.9 of NZS 3604:1990, Bracewall will provide a rating of 127 (earthquake) and 110 (wind) Bracing Units per metre width of bracing panel. These Bracing Unit values have been derived from BRANZ Technical Paper P21 1991.

Wider units may be specified where a higher bracing value is required.

Durability

The drive unit, carriages, rollers, Easi-Open handle and Soundstop door leaf for the CS Cavity Sliders covered by this Certificate will meet the durability performance requirements of NZBC B2.3(d) of 5 years with normal maintenance. Normal maintenance may include replacing the drive roller for Commandoor and the carriages for System 50.

The door units covered by this Certificate, being non-structural internal partitions, except Bracewall, will meet the 5 year minimum requirement of NZBC B2.3(d) when correctly installed.

Bracewall, when kept dry, will meet the requirements of B2.3(a) for 50 years, when fixed directly to timber or when fixed to concrete with glued-in EPCON® System Ceramic 6™ Epoxy bolts.

Bracewall can be used in wet areas such as bathrooms and laundries but only if the ventilation meets the requirements of Acceptable Solution E3/AS1 Paragraph 1.2.

Maintenance

The effective life of the seals used with Soundstop will depend on the frequency of use of the door. Normal maintenance will include replacing seals when they wear or lose effectiveness.

To reduce friction and wear, the wheel bearings may be lubricated with oil or grease (e.g. Mobil Waxrex 582).

Spread of Fire

CS Cavity Sliders are not suitable for use with fire doors or smoke control doors.

Door leaves are exempted from the surface finish requirements for resisting the spread of fire (refer Acceptable Solution C3/AS1 Paragraph 8.1.4(d)).

Means of Escape

All CS Cavity Sliders covered by this Certificate are suitable for use in single detached dwellings (SH purpose groups).

In all other purpose groups, CS Cavity Sliders are not permitted within or for providing access to exitways.

When CS Cavity Sliders are used on escape routes, the relevant provisions of NZBC C2.3.3 must be met.

CS Cavity Sliders (except Servery) covered by this Certificate may, in accordance with

Acceptable Solution C2/AS1 Paragraph 7.2.3(a), be used on escape route open paths where the number of occupants using the door does not exceed 20.

Doorway clear openings on escape routes must comply with Acceptable Solution C2/AS1 Table 2 and Paragraphs 7.2.5(a) and (e).

Locking devices shall comply with Acceptable Solution C2/AS1 Paragraph 7.2.2 to allow for easy operation in emergency.

In the event of power failure, Commandoor automatically switches off and operates manually. Commandoor may be used where manually operated sliding doors are acceptable, provided they are fitted with door handles which enable the door to be opened manually.

Commandoor may be used at a final exit if alternative swing doors of the required width are provided immediately adjacent to the sliding door in accordance with Acceptable Solution C2/AS1 Paragraph 7.2.8.

Access Routes

The claims made in respect to Access Routes are only applicable to Commandoor and Easi-Open.

Commandoor

When Commandoor is installed in accordance with this Certificate, it will meet the performance requirements of NZBC D1.3.3(n), provided a photo-electric detector which complies with AS4085-1992 is installed as part of the whole unit.

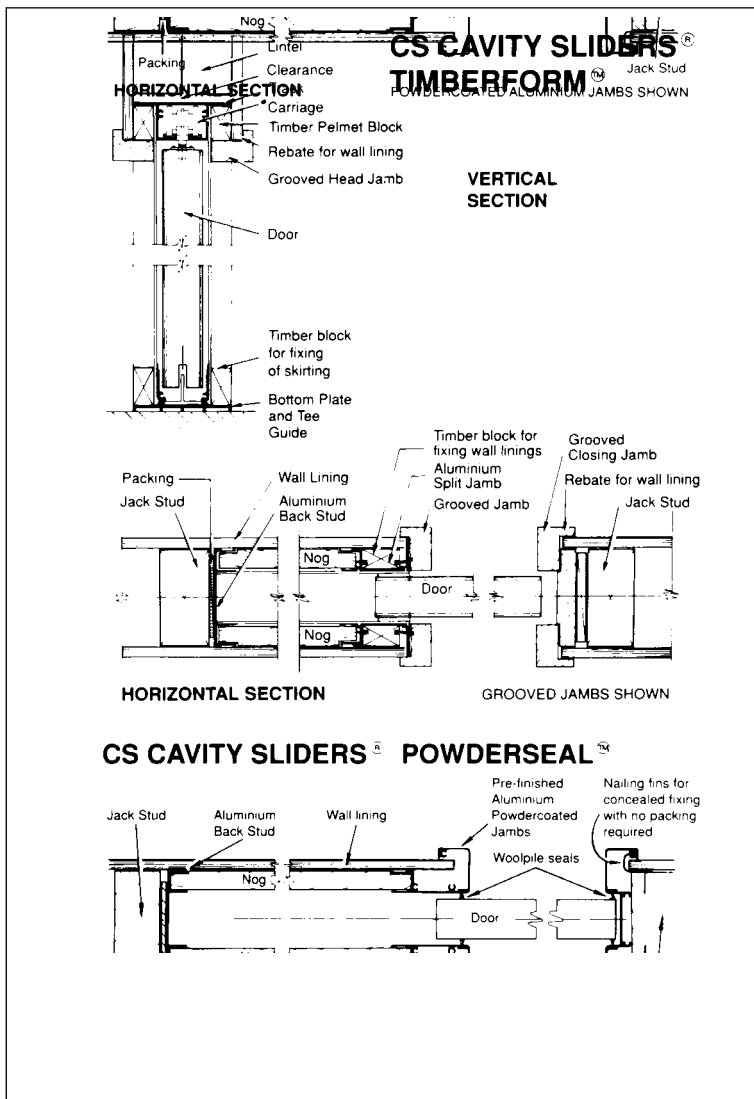
In the opinion of BTL, Commandoor complies with the following operation and installation requirements AS 4085-1992: the door commences opening within 0.1 s of receiving an actuation signal; the drive unit is adjustable to ensure that the door is held in the open position while any person or object is in the plane of the safety detector (photo-electric detector); the drive unit is adjustable to close after 1, 3, 5 and 7 s delay; in the event of malfunction, the door is able to be opened with a maximum force of 58.8 N (assuming the drive unit is set to a maximum spring setting of 6 kg); the door has a maximum kinetic energy limitation less than 27 J; and all electrical wiring complies with NZS 6200:1988.

Easi-Open

Easi-Open will meet the requirements of NZBC D1.3.4(f). Easi-Open complies with Acceptable Solution D1/AS1 Paragraph 7.0.5 and the minimum clear opening and door handle requirements of NZS 4121:1985. The unit has a minimum clear opening width of 760 mm, the door handle is fitted by Cavity Sliders Ltd at a height between 900 mm and 1200 mm above the floor, and is lever action with the end turned towards the door.

Hazardous Building Materials

At no stage during the handling, installation, or serviceable life does BTL consider that these products constitute a hazard to people. CS



Cavity Sliders will therefore meet the provisions of NZBC F2.3.1.

Sound Transmission

In applications where sound insulation between rooms and a sound transmission class (STC) is required, Soundstop comprising an acoustic door and seals can be used. Soundstop achieves an STC of up to 43.

Installation

CS Cavity Sliders must be installed in accordance with the manufacturer's installation instructions (as given in Basis of Appraisal).

The instructions for the assembly of System 50 are printed on the outside of the box it is supplied in.

The following is a summary of the important aspects.

The required opening size in which a unit is to be fitted (trim size), allows for clearance all around to fit the unit in place, which must be packed after plumbing the assembly. Fixing of the aluminium framing members to the surrounding structure is through pre-drilled holes using the number, type and size of fasteners required by the manufacturer.

Care must be taken when installing the frame. The top and bottom plates must be correctly aligned so that the door will slide smoothly.

The doors are installed by fixing mounting plates and carriages to the top which are then fitted onto the track.

The cavity wall must not be lined until the door is fitted and slides smoothly. When lining the cavity wall, care must be taken not to use a fastener length which will penetrate through the nogging and subsequently damage the door surface. Adhesive fixing rather than nailing fixing of wall linings is recommended.

Where units are installed on a concrete slab on ground, the slab must meet the requirements of NZBC E2.3.3.

Bracewall

Where Bracewall is installed on a concrete slab, the slab must be thickened to a depth of 150 mm in a strip 300 mm wide (150 mm both sides of the bolts) for the full length of the unit.

Note: Cast in bolts may be used for existing slabs with a minimum thickness of 100 mm. This method is not covered by this Certificate and Cavity Sliders Ltd must be contacted regarding specific design.

Soundstop

Soundstop requires additional care, to ensure tight perimeter and threshold seals to achieve the specified STC ratings.

Basis of Appraisal Tests

Tests were carried out by Anthony Bearings, Australia on wheels used in CS Cavity Sliders as

well as the track and carriages for System 50, Timberform and Powderseal to assess their wear characteristics.

The load capacity of the aluminium track and wheels was tested by McKechnie Brothers (NZ) Limited.

Testing was carried out by the Acoustics Testing Service of the University of Auckland to establish the sound transmission loss of Soundstop.

Bracing ratings for Bracewall were determined by John Yolland Associates, Auckland, in accordance with BRANZ Technical Paper P21, and BRANZ Technical Recommendation No. 10.

The wind and impact loading of CS Cavity Sliders was determined by calculation, and history of use and opinion by BTL.

Testing was carried out by Commandoor International Limited on the drive unit, carriages and track for Commandoor to assess strength, reliability and durability.

Other BTL Investigations

BTL has examined the quality and composition of the materials used, the manufacturing process and the methods adopted for quality control and found them all to be satisfactory.

Installations of CS Cavity Sliders have been inspected by BTL to assess practicability of installation and to establish reliability of use.

BTL have established that Commandoor complies with the installation and operation requirements of AS 4085-1992.

Cavity Sliders Limited's installation instructions "Installation Instructions for CS Cavity Sliders 'Powderseal'", "Installation Instructions for CS Cavity Sliders 'System 50'", "Installation Instructions for CS Cavity Sliders 'Timberform'", "Installation Instructions for CS Cavity Sliders 'Powderseal & Timberform Bracewall'", "Installation Instructions for CS Cavity Sliders 'Powderseal and Timberform Commandoor'", "Installation Instructions for CS Cavity Sliders 'Powderseal & Timberform Double Overtaking'", and "Extra Instructions for Fitting CS Cavity Sliders 'Soundstop'" all dated April 1994 and "System 50 Assembly Instructions" dated October 1993 have been examined.

BTL is satisfied the tests and other investigations demonstrate fitness for purpose and compliance with the relevant provisions of the NZBC.

Sources of Information

Anthony Bearings Pty Ltd. Australia. Product Information Bulletin No 1 Wear testing on ball bearing wheel in aluminium sliding doors. December 1976.

Anthony Bearings Pty Ltd. Australia. Test Report NJ-302 Bearing Assembly. April 1990.

AS 4085: 1992 Automatic sliding door assemblies.

BRANZ Technical Paper P21. 1991 A wall bracing test and evaluation procedure.

BRANZ Technical Recommendation No. 10. Supplement to P21: An evaluation method of P21 test results for use with NZS 3604:1990.

John Yolland & Associates Ltd, Auckland Report Number 88/14 Wall bracing test on aluminium framed wall partition panels. 26 September 1988.

John Yolland & Associates Ltd, Auckland Report Number 92/31 Recalculation of bracing unit values of CS Cavity Slider unit to revised P21 calculation procedure, 20 November 1992.

McKechnie Brothers (NZ) Ltd. Technical Department Report TR 014/88. Load tests on door track 7931 18 July 1988.

New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, Wellington 1992.

NZS 3604:1990. Code of practice for light timber frame buildings not requiring specific design.

NZS 3614:1971. Specification for the manufacture of construction Plywood.

NZS 3615:1981. Specification for strength properties and design methods for construction plywood.

NZS 4229: 1986. Code of practice for concrete masonry buildings not requiring specific design.

The Building Regulations 1992.

University of Auckland, Acoustics Testing Service. Report on transmission loss of a cavity slider type door construction. Project 88TO9, August 1988.



In the opinion of BTL, CS Cavity Sliders are suitable for the appraised use. This opinion is conditional on the statements and conditions within this Certificate.

This Certificate is valid until further notice, subject to the conditions below.

Conditions of Certification

1. CS Cavity Sliders continue to comply with manufacturing specifications of Cavity Sliders Limited. These specifications and quality assurance measures are as viewed and approved by BTL.
2. The products comply with the provisions of this Appraisal Certificate and Cavity Sliders Limited's installation instructions (as given in **Basis of Appraisal**).
3. Cavity Sliders Limited continues to have the products reviewed by BTL.
4. The overall quality and performance of the products is maintained. Cavity Sliders Limited shall notify BTL of any change in specification or quality assurance measures prior to them coming into effect.
5. The opinion expressed in this Appraisal Certificate relating to compliance with the New Zealand Building Code is in respect of the Building Code in force at the date of issue of this Appraisal Certificate.

A handwritten signature in black ink, appearing to read 'R J Wells'.

R J Wells for BTL

A handwritten signature in black ink, appearing to read 'G H Rowe'.

G H Rowe for BTL

April 1996

This Certificate is an re-appraisal of BRANZ Appraisal Certificate 161(1988), which was issued in November 1988. The re-issued Certificate takes into account the re-issue of NZS 3604:1990, the provisions of the New Zealand Building Code, and additions to the product range.

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