

ELECTRONIC BLUEPRINT is the principal point of reference and knowledge base for Architects, Engineers and Builders and the only package that fully integrates regulatory & standards requirements with comprehensive, editable specifications, CAD details and approved industry training.

ELECTRONIC BLUEPRINT Update



Dear Specifier

Thank you for receiving the ELECTRONIC BLUEPRINT Update.

Bi-monthly issues are emailed (six per year) to keep architects, engineers and builders informed of:

- Changes to the Building Code of Australia and relevant Australian Standards
- Commentary on the changes and other important design considerations
- Appropriate specifications and drawing details to comply with those standards
- A range of building products that meet the particular requirements.

Due to tightened SPAM laws, we must ask you to confirm, if you have not already done so, that you wish to receive ELECTRONIC BLUEPRINT Updates six times per year. We sincerely apologise for this inconvenience. [Please click here to reconfirm.](#)

Changes to the BCA and Australian Standards affect all aspects of the Building Industry. [Click here](#) to obtain a complimentary report "Proposed Changes to Australian Standards and Building Code of Australia" and a complimentary Distance Learning Package (CPD applicable).

Should you require more information of any of the matters raised herein, please refer to our website www.electronicblueprint.com.au or contact us by email info@electronicblueprint.com.au.

Rod Johnston – Principal Author

Karen Bloomfield – Chief Executive Officer

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Distance Learning Packages

The Electronic Blueprint [Distance Learning Packages](#) allow Architects, Engineers and Builders to upgrade their Continuing Professional Development and obtain the required CPD points.

Product Directory

The [Product Directory](#) enables specifiers and purchasers to quickly access a list of building products that comply with the specific requirements of the Electronic Blueprint.

Industry Alert

[Press Releases](#) - New products available from Breezway Australia and Concrete Colour Systems.

We are conscious that professionals receive large quantities of technical information. To cease receiving these newsletters (six per year) please email us at info@electronicblueprint.com.au. Email addresses are never sold nor used for reasons other than Electronic Blueprint notification and information.

Architects, Engineers and Builders – Breaking News

Standards Australia to publish AS 1170.4 and AS 3700 Amendment 3, but new earthquake provisions will not be included in BCA 2007 !!!

This article alerts Architects, Engineers and Builders of a developing crisis in the design and construction of buildings to meet earthquake requirements.

Standards Australia will proceed in 2007 with the publication of the new AS 1170.4-2007 *Earthquake loads in Australia* and AS 3700-2001 *Masonry structures* Amendment 3. Both standards have passed all committee stages, achieving full committee consensus, and receiving the support of the Australian Building Codes Board. The combined effect of both standards is to simplify design for earthquake in Australia, relaxing previous stringency whilst specifying more practical and effective construction.

However, despite the support of the Australian Building Codes Board, Standards Australia and several industry associations, the Building Codes Committee has declined to call up both documents in the Building Code of Australia (BCA 2007).

The problem for Architects, Engineers and Builders is as follows:

The new standards represent responsible design, based on the consensus view of broad-based expert committees. Their adoption will lead to safer, more practical and more economical design (see the following articles). However, if a designer ignores the new standards, but reverts instead to the older, less effective documents referenced in the current BCA, they will most likely incur greater building cost, but potentially achieve lesser safety.

Architects, Engineers and Builders are urged to consider the ethical, legal and economic implications of this dilemma. The following articles describe some (but not all) of the practical aspects of the new standard and amendment. Electronic Blueprint supports Standards Australia in its resolve to publish the new documents, and suggests that, where such provisions do not conflict with the current BCA requirements, the new design and detailing provisions should be adopted.

Two recent Powerpoint presentations to the Association of Consulting Engineers Australia (by Simon Matthews and Rod Johnston) describing the new standards and their implications are available (free) from Electronic Blueprint in the [Technical Literature section](#).



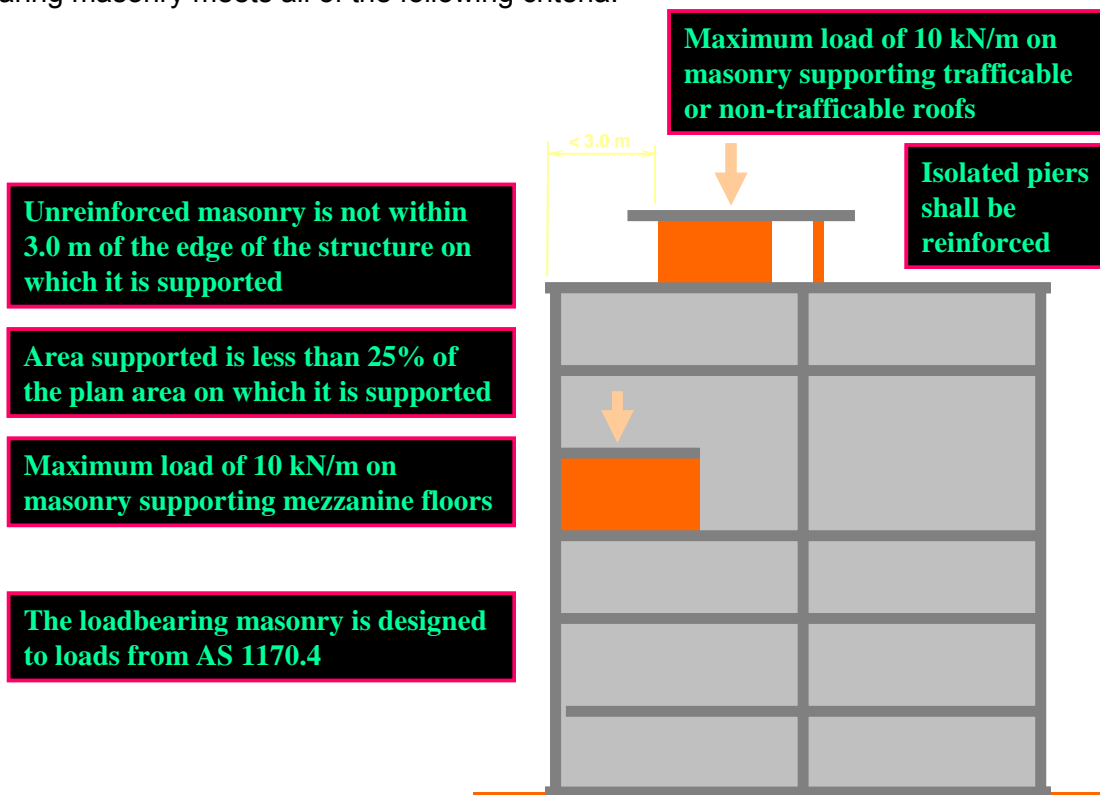
Architects – New earthquake limits on loadbearing masonry buildings

AS 3700 Amendment 3 includes limits on the height of buildings constructed of unreinforced loadbearing masonry, for various combinations of Hazard Factor, Z, and Subsoil Classifications. These height limits are not intended to restrict buildings that incorporate non-loadbearing unreinforced masonry or reinforced masonry.

AS 3700 Amendment 3 (Appendix AA) Height Limits for Load-bearing Unreinforced Masonry Buildings (metres)						
Hazard,z Locations	≤ 0.06 Hobart Launceston Brisbane Gold Coast Cairns	0.07 Tamworth Townsville	0.08 Sydney Melbourne Canberra Alice Springs Rockhampton	0.09 Perth Darwin Wollongong Gosford	0.10 Adelaide	≥ 0.11 Newcastle Bundaberg Broome Dampier Meckering Dowerin
Subsoil type						
A - Strong Rock	15	15	15	15	15	12
B – Rock	15	15	15	15	12	12
C – Shallow Soil	15	15	15	12	12	12
D - Deep or Soft Soil	15	15	12	12	12	10
E - Very Soft Soil	12	12	12	12	10	10

For precise definitions of sub-soil types and more comprehensive lists of locations of each hazard factor, refer to AS 110.4-2007.

The height limits of buildings incorporating loadbearing masonry may be relaxed when the particular loadbearing masonry meets all of the following criteria.



For further information on this topic, or for relevant Continuing Professional Development Distance Learning Packages, please contact **ELECTRONIC BLUEPRINT** at info@electronicblueprint.com.au

Engineers – Structural design for earthquake loads

Set out below are the steps required for the determination of earthquake loads on buildings using AS 1170.4-2007.

1. Annual probability of exceedance and k_p

Using AS 1170.0 and the BCA, determine the acceptable annual probability of exceedance for earthquake loads for the particular building Importance. Using Table 3.1, determine the appropriate Probability Factor, k_p . For example, for Earthquake Load acting on a building of Importance Level 2, the design event for safety has an annual probability of exceedance of 1 : 500 and $k_p = 1.0$.

2. Hazard factor, z

Using Section 3, determine the Hazard Factor, z , for the particular location. For example, in Hobart $z = 0.03$, in Brisbane $z = 0.05$, in Sydney, Melbourne and Canberra $z = 0.08$, in Perth $z = 0.09$, in Adelaide $z = 0.10$ and in Newcastle $z = 0.11$.

3. Housing

If the structure meets the specified limitations for domestic structures (housing) with a height not greater than 8.5 m, use Appendix A to determine any design and/or detailing requirements. Otherwise proceed as below. In most parts of Australia, houses will be exempt from specific design requirements for earthquake.

4. Subsoil

Using Section 4, determine the Site Subsoil Class.

A = Strong rock, B = Rock, C = Shallow soil, D = Deep or soft soil, E = Very soft soil.

5. Earthquake Design Category

Using Section 2, including Table 2.1, determine the appropriate Earthquake Design Category (EDC). This will depend on Hazard Factor (location), Site Subsoil Class, Height and Importance.

6. EDC I

For EDC I, use Clauses 5.2 and 5.3 to determine base shear and horizontal forces up the building, which are taken as 10% of the seismic weight, W_i , at the particular level.

7. EDC II

For EDC II, use Clauses 5.2 and 5.3 and Section 6 to determine the horizontal forces by static analysis. This considers:

- Probability Factor, k_p ,
- Hazard Factor, z ,
- Ductility, μ ,
- Structural Performance Factor, S_p , and
- Spectral Shape Factor, $C1(T)$, which depends on Sub Soil Class and Period of vibration.

8. EDC III

For EDC III, use Clauses 5.2 and 5.3 and Section 7 to carry out a dynamic analysis to determine the horizontal forces.

9. Parts

Using Section 8 where appropriate, determine the earthquake forces on the Parts (those members that are not part of the seismic force resisting system)

Following are some of the points that structural engineers should consider when designing and detailing buildings for earthquake load.

- Be aware of the probabilities of exceedance in the BCA.
- Be aware that horizontal loads equal to 10% of seismic weight (based on EDC I) are often less than the values calculated using EDC II.
- Consider detailing housing to resist racking forces due to moderate earthquake, even though AS 1170.4-2007 exempts most houses.
- When considering the use of loadbearing unreinforced masonry, adhere to the height limits of AS 3700 Appendix AA.
- For minor masonry structures and mezzanine floors supported by loadbearing unreinforced masonry within larger buildings, adhere to the restrictions in AS 3700 Appendix AA.
- Employ the detailing provisions of AS 3700 Appendix AA.
- Incorporate reinforced masonry or reinforced concrete shear cores into buildings supported by unreinforced loadbearing masonry.
- Check vertical load capacity of all loadbearing unreinforced masonry elements (including piers), when subjected to the expected inter-storey drift.

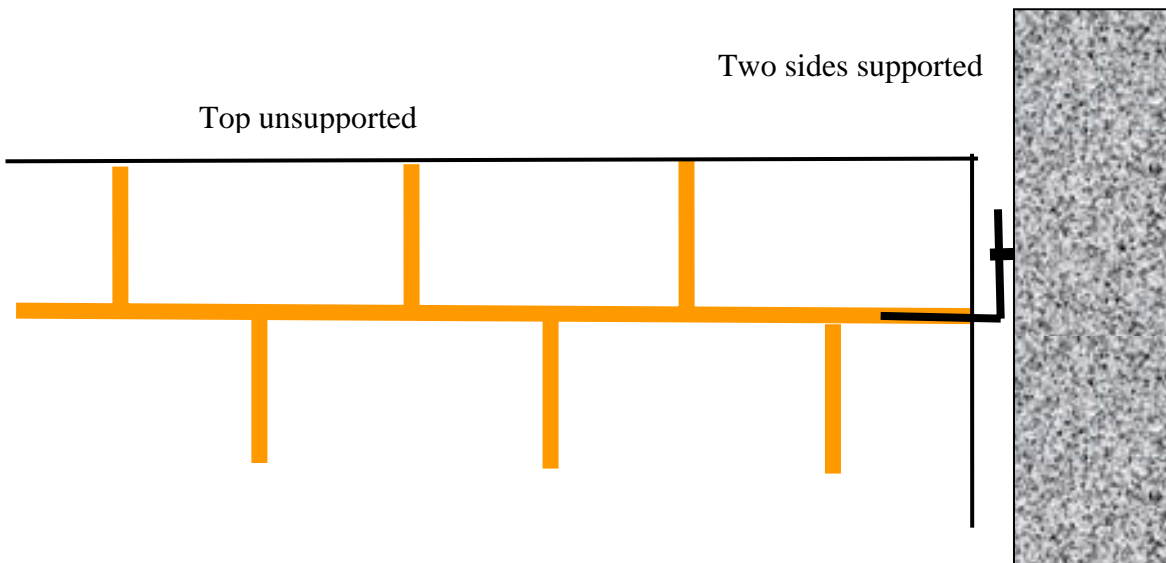


Source: R Johnston

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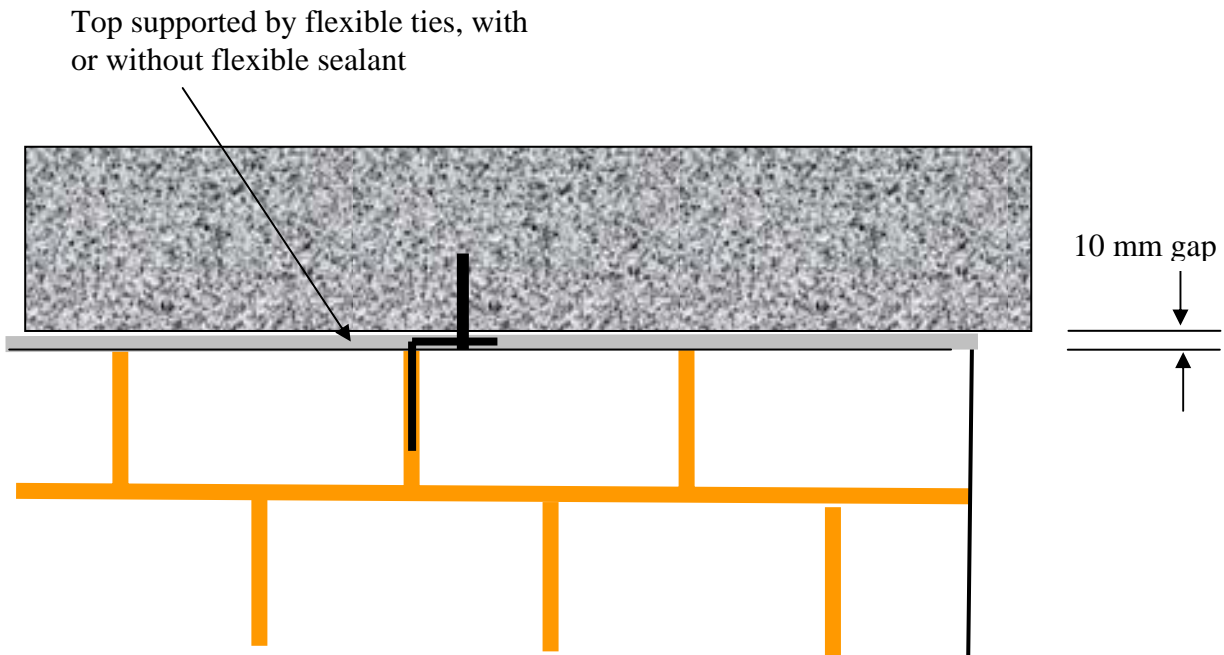
Builders – Details, connections and separation for earthquake compliance

The following details are similar to those that will be included in AS 3700 Amendment 3. They provide guidance to designers and builders to ensure that masonry walls have the required separation and/or support for suitable earthquake performance. Details must be properly designed by the Engineer and built accurately by the Builder. Clause references are to AS 3700.



1. Type T1 (No top support) shall be used only if two side supports are provided.

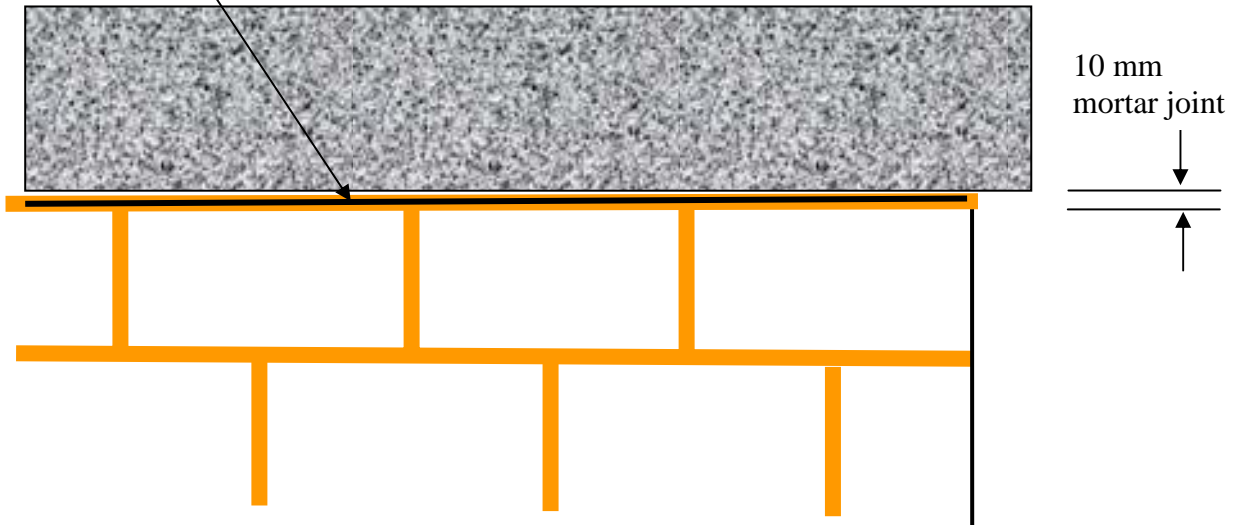
Top Support T1 – No Top Support



1. Type T2 requires at least 10 mm gap, with or without flexible sealant, and with flexible ties to a rigid support.
2. Flexible ties shall provide out-of-plane support for the wall, while permitting in-plane movement.

Top Support T2 – Flexible Ties with Gap to a Rigid Support

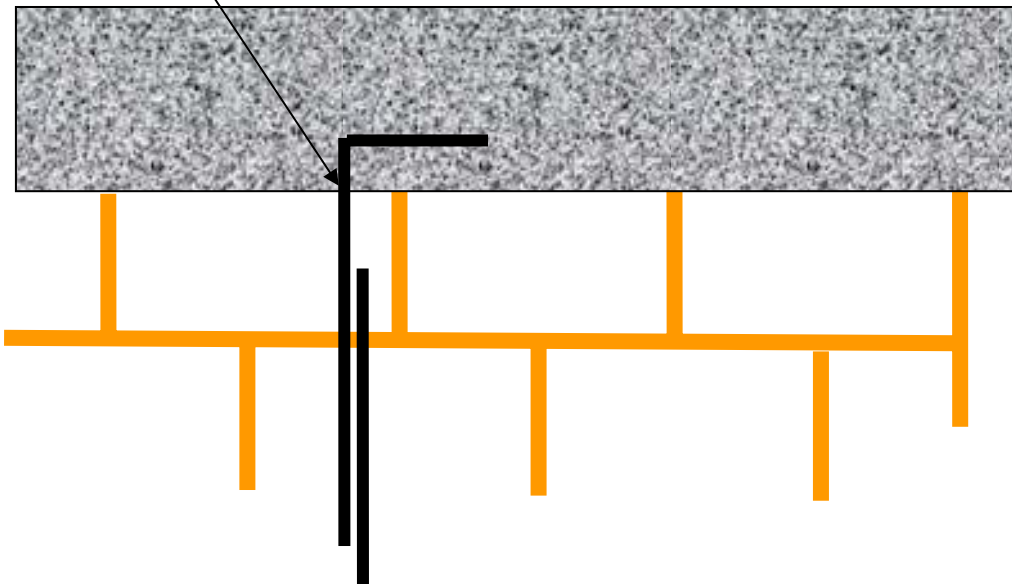
Structure to bear on slip material
set in 10 mm mortar joint



1. Type B3 (Bed with slip joint or DPC) shall comply with Clauses 4.9 and 4.7.3.
2. Slip joint material, dpc or similar shall have a shear factor k_v not less than 0.15 and not more than 0.3, determined in accordance with Clause 3.3.5.

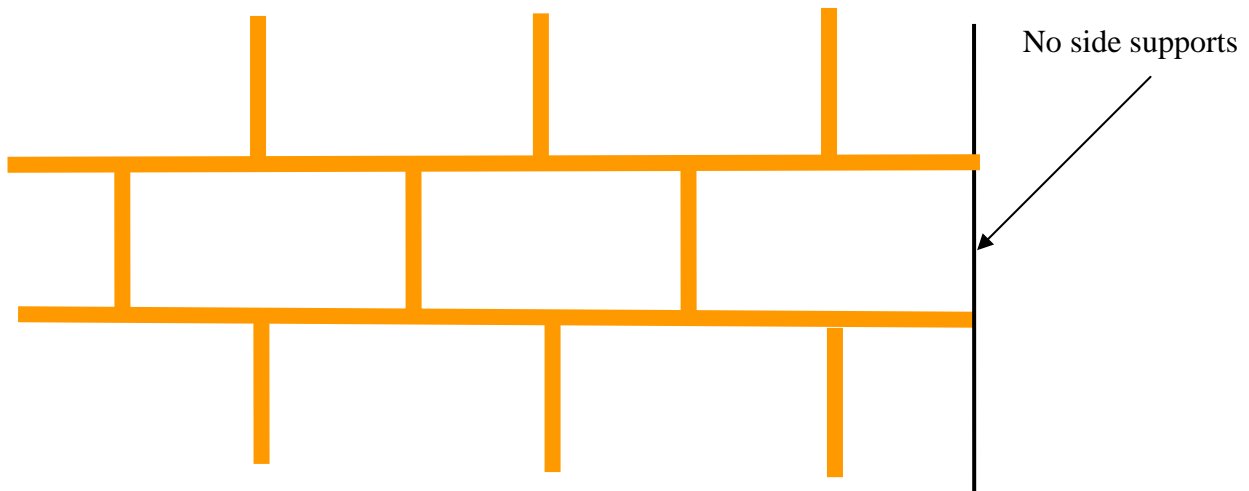
Top Support T3 – Mortar Bed with Slip Joint or DPC

Steel starter bars set in grout in wall and cast
into concrete slab. (No gap between slab and
wall)



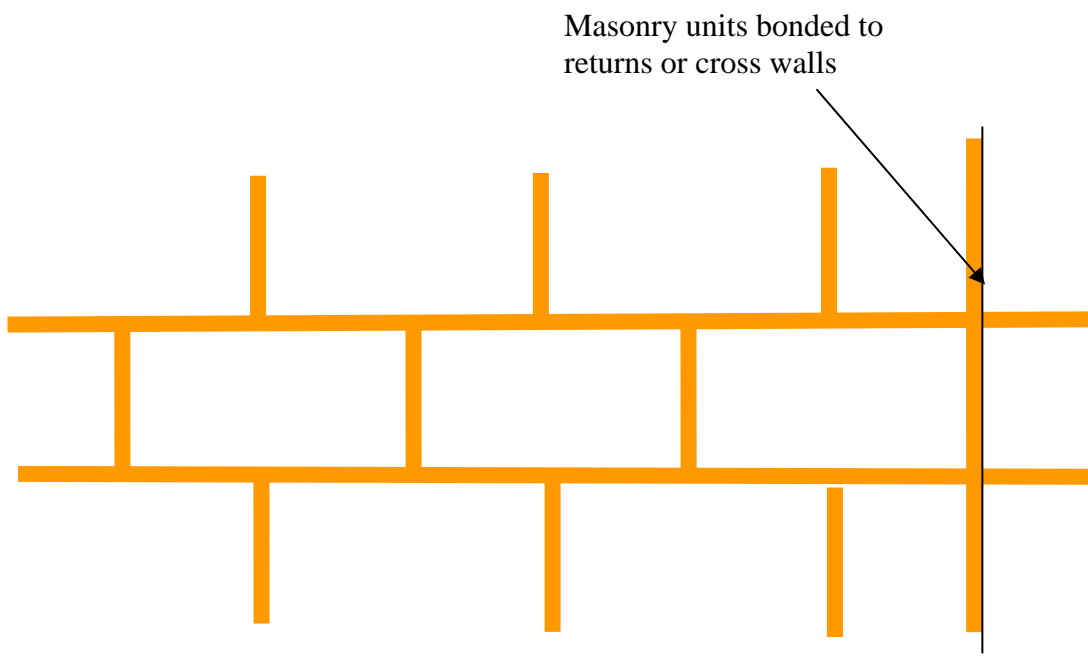
1. Type T4 shall be such that the interface is confined by bonded reinforcement.
2. Shear strength of the joint shall be determined in accordance with Clauses 8.6 and 3.3.4(d).

Top Support T4 – Steel Starter Bars



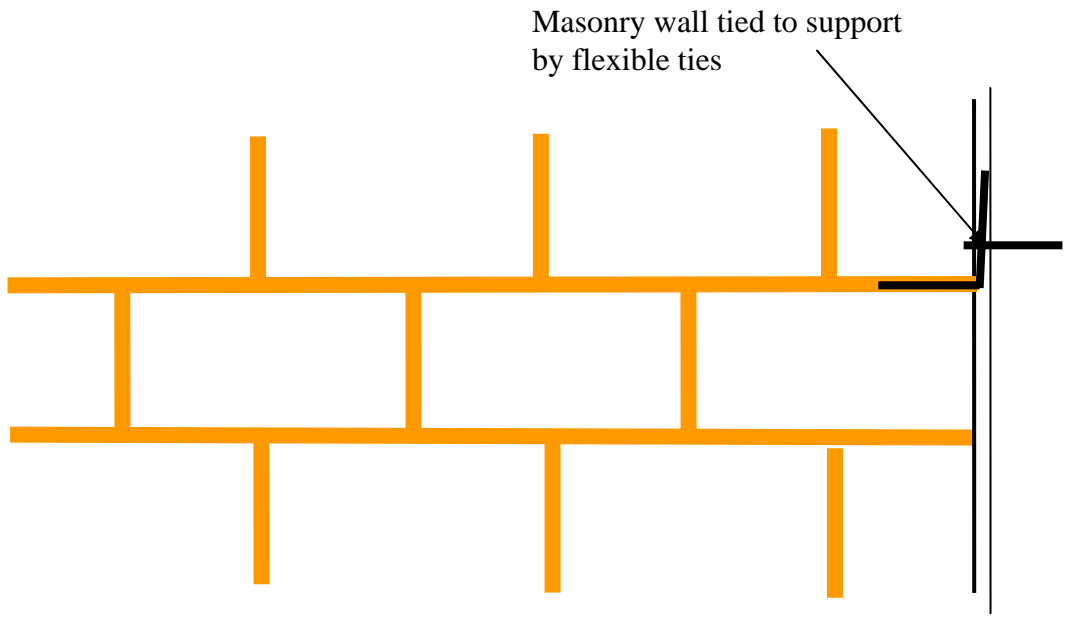
1. Type S1 (No side support) shall be used only if both the top and bottom of the masonry wall are supported by the structure.

Side Support S1 – No Side Support



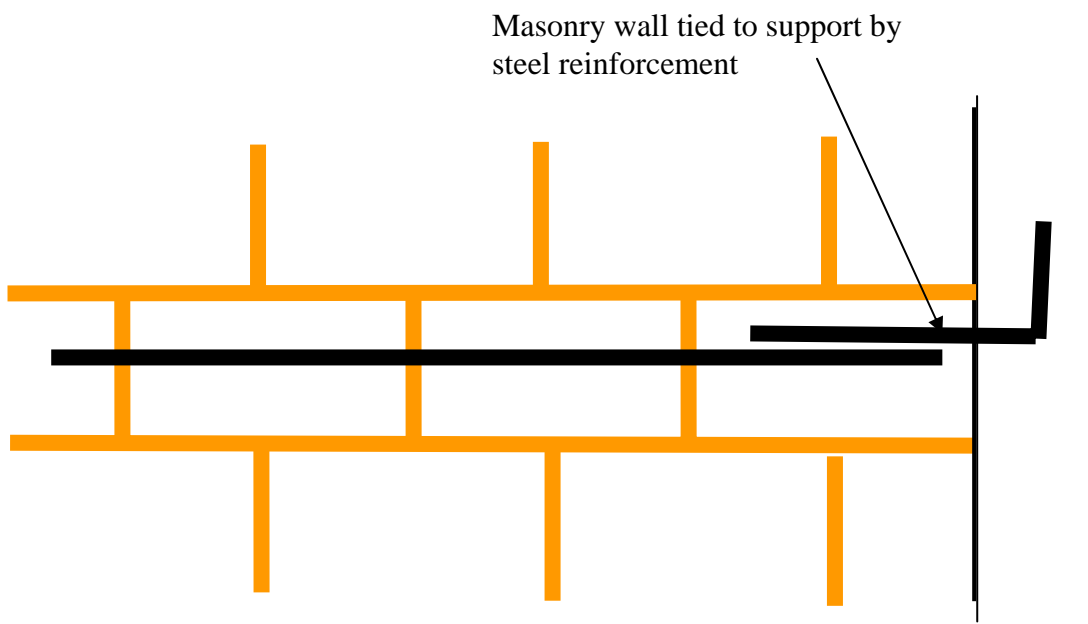
1. Type S2 (Built into returns or cross-walls) shall comply with Clauses 4.11.2 or 4.11.3.

Side Support S2 – Built into Returns or Cross-walls



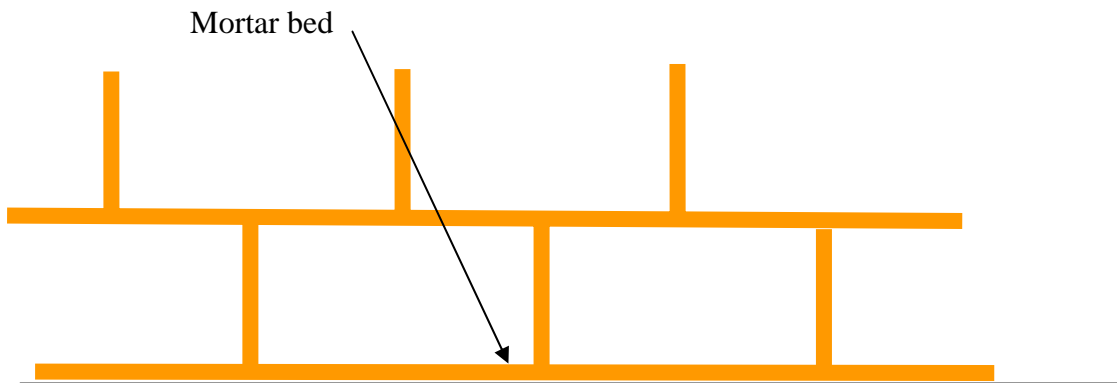
1. Type S3 (Tied to piers, mullions or cross-walls) shall comply with Clause 4.11.3.
2. Flexible ties shall provide out-of-plane support for the wall, while permitting in-plane movement

Side Support S3 – Tied to piers, mullions or cross-walls



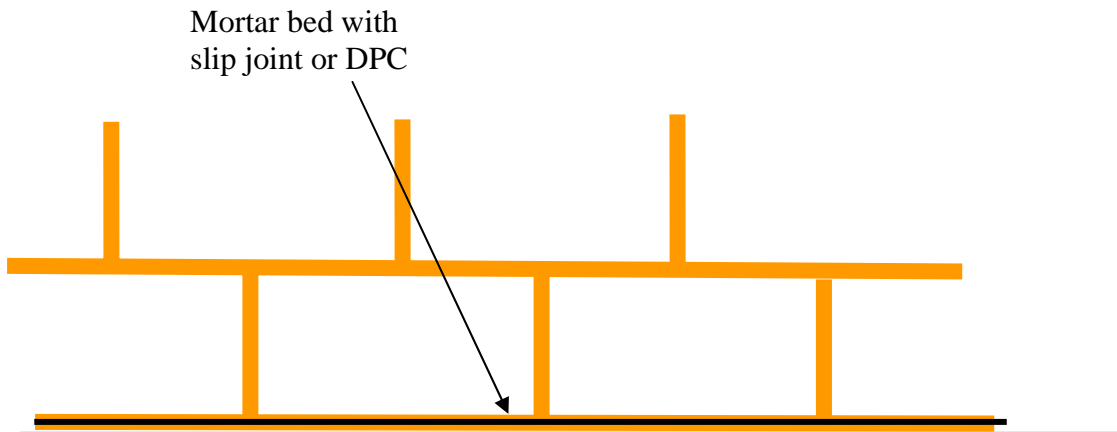
1. Type S4 (Steel reinforcement) shall be such that the interface is confined by bonded reinforcement.
2. The shear strength of the joint shall be determined in accordance with Clauses 8.6 and 3.3.4(d).

Top Support S4 – Steel Reinforcement



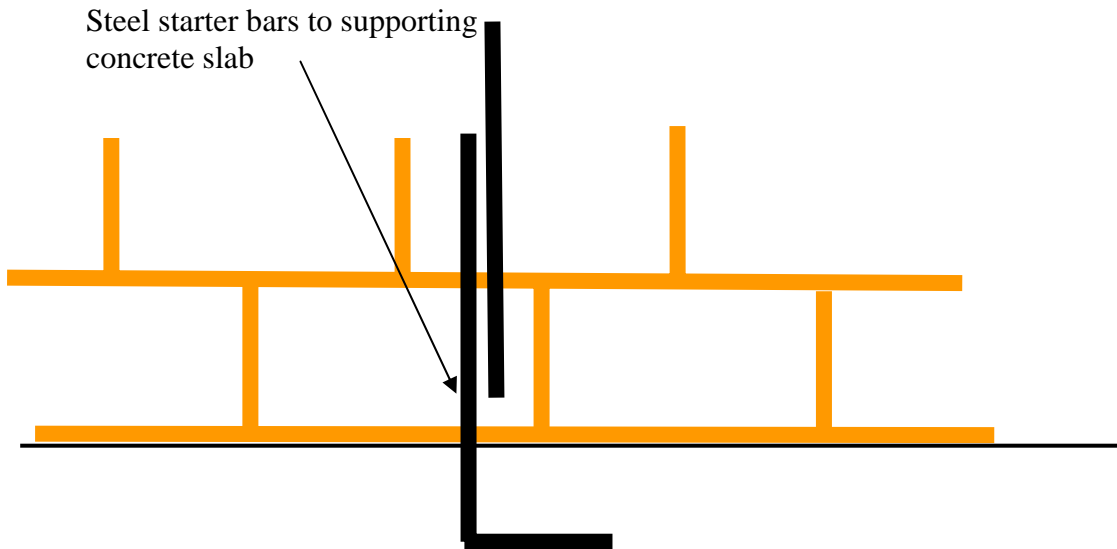
1. Type B1 (Mortar bed) shall comply with Clause 4.9 of this Standard.

Bottom Support B1 – Mortar Bed



1. Type B2 (Bed with slip joint or DPC) shall comply with Clauses 4.9 and 4.7.3
2. The shear strength of the joint shall be determined in accordance with Clauses 7.5 and 3.3.4(a) and 3.5.
3. Slip joint material, dpc or similar shall have a shear factor k_v not less than 0.15 and not more than 0.3, determined in accordance with Clause 3.3.5.

Bottom Support B2 – Mortar Bed with Slip Joint or DPC



1. Type B3 (Steel starter bars) shall be such that the interface is confined by bonded reinforcement.
2. The shear strength of the joint shall be determined in accordance with Clauses 8.6 and 3.3.4(d).

Bottom Support B3 – Steel Starter Bars



For further information on this topic, or for relevant Continuing Professional Development Distance Learning Packages, please contact **ELECTRONIC BLUEPRINT** at info@electronicblueprint.com.au

Distance Learning Packages

The **ELECTRONIC BLUEPRINT** Distance Learning Packages provide Architects, Engineers and Builders with the opportunity to upgrade their Continuing Professional Development and obtain the required CPD points. Each presentation is a Power Point presentation on CD, complete with full text, audio voice-over and tutoring opportunity.

B - Building Modules – Specifications, Details and Inspections for Builders.

D - Design Modules – Advanced Concepts and Specifications for Architects and Designers.

E - Engineering Modules – Complex design calculations and engineering detailing.

Individual information about the modules and an order form may be obtained from the website at;

<http://www.electronicblueprint.com.au/distancelp.html>

Section	Type Code	Module Content
0 – General Design Considerations	A4	Standard Specifications and Details
	A4	Occupational Health & Safety
	A4	Quality Assurance
	A4	Construction Programme
	A4	Maintenance
	E4	Bush Fire Design
	E4	Acoustics
	E4	Fire Resistance
	E4	Sustainability: Energy Efficiency & Greenhouse Gas
	E4	Sustainability: Indoor Air Quality
	E4	Sustainability: Water Efficiency
	E4	Sustainability: Salinity
	E4	Slip Resistance
1 – Site Establishment	B2	Building: Materials, Construction & Inspection of Site Establishment
	D4	Design: Design, Specification & Detailing of Site Establishment
2 – Earthworks & Drainage	B2	Building: Materials, Construction & Inspection of Earthworks & Drainage
	D4	Design: Design, Specification & Detailing of Earthworks & Drainage
	E4	Engineering: Engineering Considerations of Earthworks & Drainage
3 – Concrete	B2	Building: Materials, Construction & Inspection of Concrete
	D4	Design: Design, Specification & Detailing of Concrete
	E4	Engineering: Engineering Considerations of Concrete
4 – Retaining Walls	B2	Building: Materials, Construction & Inspection of Retaining Walls
	D4	Design: Design, Specification & Detailing of Retaining Walls
	E4	Engineering: Engineering Considerations of Retaining Walls
5 – Drainage & Plumbing	B2	Building: Materials, Construction & Inspection of Drainage & Plumbing
	D4	Design: Design, Specification & Detailing of Drainage & Plumbing
	E4	Engineering: Engineering Considerations of Drainage & Plumbing
6 – Windows, Doors & Glazing	B2	Building: Materials, Construction & Inspection of Windows, Doors & Glazing
	D4	Design: Design, Specification & Detailing of Windows, Doors & Glazing
7 – Structural Steel Work	B2	Building: Materials, Construction & Inspection of Structural Steel
	D4	Design: Design, Specification & Detailing of Structural Steel Work
	E4	Engineering: Engineering Considerations of Structural Steel Work
8 – Wall, Roof & Floor Framing	B2	Building: Materials, Construction & Inspection of Wall, Roof & Floor Framing
	D4	Design: Design, Specification & Detailing of Wall, Roof & Floor Framing
	E4	Engineering: Engineering Considerations of Wall, Roof & Floor Framing
9 – Carpentry, Joinery, Cladding & Flooring	B2	Building: Materials, Construction & Inspection of Carpentry, Joinery, Cladding & Flooring
	D4	Design: Design, Specification & Detailing of Carpentry, Joinery, Cladding & Flooring
10 – Roof Cladding	B2	Building: Materials, Construction & Inspection of Roof Cladding
	D4	Design: Design, Specification & Detailing of Roof Cladding
	E4	Engineering: Engineering Considerations of Roof Cladding
11 – Roof Plumbing	B2	Building: Materials, Construction & Inspection of Roof Plumbing
	D4	Design: Design, Specification & Detailing of Roof Plumbing
12 - Masonry	B2	Building: Materials, Construction & Inspection of Masonry
	D4	Design: Design, Specification & Detailing of Masonry
	E4	Engineering: Engineering Considerations of Masonry
13 – Ceiling & Wall Lining	B2	Building: Materials, Construction & Inspection of Ceiling & Wall Lining
	D4	Design: Design, Specification & Detailing of Ceiling & Wall Lining

14 – Insulation	B2	Building: Materials, Construction & Inspection of Insulation
	D4	Design: Design, Specification & Detailing of Insulation
	E4	Engineering: Engineering Considerations of Insulation
15 – Floor & Wall Tiling	B2	Building: Materials, Construction & Inspection of Floor & Wall Tiling
	D4	Design: Design, Specification & Detailing of Floor & Wall Tiling
16 – Electrical Installation	B2	Building: Materials, Construction & Inspection of Electrical Installation
	D4	Design: Design, Specification & Detailing of Electrical Installation
17 – Kitchen	B2	Building: Materials, Construction & Inspection of Kitchen
	D4	Design: Design, Specification & Detailing of Kitchen
18 – Vehicular Doors	B2	Building: Materials, Construction & Inspection of Vehicular Doors
	D4	Design: Design, Specification & Detailing of Vehicular Doors
19 - Painting	B2	Building: Materials, Construction & Inspection of Painting
	D4	Design: Design, Specification & Detailing of Painting
20 – Resilient Floor Coverings	B2	Building: Materials, Construction & Inspection of Resilient Floor Coverings
	D4	Design: Design, Specification & Detailing of Resilient Floor Coverings
21 – Carpets & Soft Furnishings	B2	Building: Materials, Construction & Inspection of Carpets & Soft Furnishings
	D4	Design: Design, Specification & Detailing of Carpets & Soft Furnishings
22 – Windows & Door Shutters	B2	Building: Materials, Construction & Inspection of Windows & Door Shutters
	D4	Design: Design, Specification & Detailing of Windows & Door Shutters
23 – Mechanical Ventilation & Services	B2	Building: Materials, Construction & Inspection of Mechanical Ventilation & Services
	D4	Design: Design, Specification & Detailing of Mechanical Ventilation & Services
24 – Cleaning	B2	Building: Materials, Construction & Inspection of Cleaning
	D4	Design: Design, Specification & Detailing of Cleaning
25 - Landscaping	B2	Building: Materials, Construction & Inspection of Landscaping
	D4	Design: Design, Specification & Detailing of Landscaping
26 - Fencing	B2	Building: Materials, Construction & Inspection of Fencing
	D4	Design: Design, Specification & Detailing of Fencing
27 - Paving	B2	Building: Materials, Construction & Inspection of Paving
	D4	Design: Design, Specification & Detailing of Paving
	E4	Engineering: Engineering Considerations of Paving
28 – Metalwork & Balustrades	B2	Building: Materials, Construction & Inspection of Metalwork & Balustrades
	D4	Design: Design, Specification & Detailing of Metalwork & Balustrades

PRODUCT DIRECTORY

Enabling specifiers fast access a list of building products that comply with the specific requirements of the **ELECTRONIC BLUEPRINT**.

Supplier	Product Details	ELECTRONIC BLUEPRINT SECTION(S)
Abey Australia Pty Ltd	Wall ties for all environments, including stainless steel cavity ties for use in Marine (R3) and Severe Marine (R4) environments	12
Action Tanks (NSW)	Rotational moulded polyethylene rainwater tanks, polyethylene above ground and underground rainwater management systems; stormwater Detention-Retention	5
Ausdrain	Drainage cells for horizontal and vertical applications ; Geotextiles; Protection Boards; Underground rainwater storage & re-use; Stormwater infiltration & filtration; Retention tanks; Septic leach drainage.	2,4,5
Blockout Industries Pty Ltd	Roller shutters for thermal & sound insulation, and the protection of windows from bush fire.	22
Breezway Australia Pty Ltd	Energy and cyclone rated louvre windows made from non-corrosive materials complying with AS 2047; Skylights manufactured in accordance with AS2485 and AS1288 and energy rated according to WERS Scheme; Solid timber loft ladders with a high load capacity of 160kg; insulated and dust retardant trap doors	6, 9
Brunswick Sales	Vertical control joint ties to AS 2699 Part 1. Available fully galvanised or grade 316 stainless steel.	12
Canterbury Windows & Doors	Timber framed windows and doors.	6
Complete Leafscreeener Services	Gutter protection suitable for bushfire prone areas.	11
Concrete Colour Systems	Pigments and systems for resurfacing, colouring and stencilling existing and new concrete surfaces	3
Connolly Key Joint Pty Ltd	Preformed concrete control joints and ancillary products	3
C&M Brick	Retaining wall systems to meet the requirements of AS 4678; Water-repellent masonry blocks; Concrete block systems, including insulated blocks and acoustic block systems, to meet the BCA requirements; Segmental pavers for roadways, driveways, gardens and pool surrounds to meet AS 3727 Residential pavements	4, 12
CVC Centravac	Built –In Vacuum Systems	23
Easy Living Home Elevators	Home & commercial elevators, dumbwaiters and limited mobility lifts to AS 1735	23
Electronic Blueprint	Steel mullions for brickwork and blockwork to provide wind and earthquake resistance to the new AS/NZS 1170.2 and AS 1170.4. Resilient ties to comply with BCA Vol 1&2 for the separation of leaves of cavity walls to eliminate the transmission of impact sound	7, 12
Ensystex Australasia	Termite barriers complying with the requirements of AS 3660.1 Non-toxic, in-ground or above-ground, termite colony elimination and protection system complying with AS3660.2.	3,8,12
Everbreeze Ventilation	Design, supply, installation and maintenance of quality ventilation systems complying with BCA and AS 1668.2	23, 6, 8
Fibercon	Steel fibre reinforcement used for enhancing toughness and impact resistance of concrete	3, 27
Ensystex Australasia Pty Ltd	Non-toxic, in-ground or above-ground, termite colony elimination and protection system complying with AS3660.2	3, 7
Erosion Control Systems	Retaining wall systems up to and over 1500mm for both domestic and commercial applications in accordance with AS 4678 (Including Amendment 1)	4
Fibercon	Steel fibre reinforcement used for enhancing toughness and impact resistance of concrete	3, 27
Ford Timbers Pty Ltd	Hardwoods with enhanced performance.	8,9,10,26, 28
Hanson Building Products	Retaining wall systems to meet the requirements of AS 4678; Water-repellent masonry blocks; Concrete block systems, including insulated blocks and acoustic block systems, to meet the BCA requirements; Segmental pavers for roadways, driveways, gardens and pool surrounds to meet AS 3727 Residential pavements Energy Efficient Masonry Housing Systems	4,12
Helifix (Australia) Pty Ltd	Products to repair cracked or damaged brickwork	12
Master Builders Association	Construction area safety signage.	1

Nofire Technologies Australia	A one part non-flammable water based intumescent coating similar in appearance to ordinary latex base paint which immediately foams and swells (intumesces) upon exposure to flame or heat, providing an effective insulation and heat shield to protect the subsurface.	7, 19
Nu-lok Roofing Systems	Interlocking Roofing systems	10
Ozaquasaver.com Pty Ltd	Water Saving Devices	5
Raven Product Pty Ltd	Sealing Systems, for doors and windows, which are frequently multi-purpose, sealing against a combination of intrusions and leakages including sound (AS 1191), fire (intumescent) & smoke (to AS 1530.4 & AS/NZS 1905.1), rain, draughts, dust, embers, light insects, vermin, and energy inc. heating & air conditioning (to AS 4420.4, AS 4420.5, AS 2047, AS 1939, AS 1530.7)..	6, 18
Resene Paints (Aust) Ltd	Environmentally friendly (low VOC) paints complying to APAS requirements and Electronic Blueprint Sustainability Specification.	19
Robert Bosch (Australia) Pty. Ltd.	Commercial and domestic continuous flow gas hot water systems-Hydropower, Pilot & Electronic ignition, available in natural gas & LPG. All gas hot water systems compliant with AS 4552.	5
RootBarrier	Moisture and tree root shields	3
Skydome Skylight Systems	Tubular skylights, roof windows, domed skylights, overhead glazing, mechanical roof ventilation	6, 23
SmartFlo Gutters	Enclosed self-shedding gutter systems.	11
Specialised Saftey Solutions	Retractable door jamb system allowing conventional doors to be opened in opposite direction as a safety mechanism when the door is locked from the inside.	6
Stramit Building Products	Cold-rolled galvanised steel products complying with AS 4600 Permanent formwork of cold-rolled steel complying with AS 1538 and AS 1397 Sheet steel metal roof and wall cladding complying with AS 1397 Metal rainwater goods complying with AS 2179.1	3, 7, 8, 10, 11
Sunplus CPC Solar	Commercial and domestic evacuated tube solar hot water system complying with AS 2712 Solar and heat pump water heaters – Design and construction.	5
Tankmasta	Underground rainwater tanks and fittings for the purpose of domestic, commercial, or industrial rainwater harvesting	5
TERMseal	Non-toxic termite resistant waterproofing system complying with AS 3660.1 and AS 3740.	3,4,5,12, 15,19
Tripstop Pty Ltd	Concrete construction joints for misalignment and trip hazard control	27

Industry Alert

- Breezway Australia Pty Ltd release new Altair Powerlouvre™ Window. [More details](#)
- Concrete Colour Systems release new colours and handbooks. [More details](#)



All here in the offices of the Electronic Blueprint wish you and your families a happy, safe and very enjoyable festive season. We look forward to keeping you up-to-date in 2007!