



# Certificate of Conformity



Global-Mark Pty Ltd,  
Suite 4.07, 32 Delhi  
Road, North Ryde  
NSW 2113, Australia

Tel: +61 (0)2 9886  
0222 - [www.Global-Mark.com.au](http://www.Global-Mark.com.au)

**Certificate Holder:**

AFS Systems Pty Ltd  
110 Airds Road  
Minto, NSW, 2566

Tel: 1300 727 237

[afsformwork.com.au](http://afsformwork.com.au)

Certificate number: CM 30107 Rev 4

THIS TO CERTIFY THAT

## AFS REDIWALL®

**Type and/or use of product:**

AFS REDIWALL® is a permanent formwork system for internal and external loadbearing and non-loadbearing reinforced concrete walls with structural, fire, weatherproofing, acoustic and thermal performance characteristics.

**Description of product:**

AFS REDIWALL® comprises:

1. Interlocking PVC panel extrusions as permanent formwork, and associated PVC accessories.
2. Fibre cement sheet or PVC end closures.
3. Reinforcing steel.
4. Concrete fill.
5. A range of finishing options as described in A2.

AFS REDIWALL® types are as follows, the numerical values representing the thickness of the wall in millimetres:

1. RW110C Single Reinforcement.
2. RW156C Single Reinforcement.
3. RW200C Single or Double Reinforcement.
4. RW256S Double Reinforcement.
5. RW275S Double Reinforcement.
6. RW300S Double Reinforcement.

**Scope of certification:** The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website [www.abcb.gov.au](http://www.abcb.gov.au). This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

**Disclaimer:** The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this certificate.

The purpose of Global-Mark **construction site audits** is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In placing the **CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the **expertise of external bodies** (laboratories, and technical experts).

Herve Michoux  
Global-Mark Managing Director

Peter Gardner  
Unrestricted Building Certifier

Date of issue: 10/05/2022

Date of expiry: 10/05/2025



# Certificate of Conformity

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S)

**BCA 2019 +A1**

| Performance Requirement(s)      | Volume One including Amendment 1 |   | Volume Two including Amendment 1 |   |
|---------------------------------|----------------------------------|---|----------------------------------|---|
|                                 |                                  | CP1   | Structural stability             |   |
|                                 | CP2                              | Spread of fire  | P2.3.1                           | Spread of fire  |
|                                 | CP3                              | Spread of fire and smoke in patient care and aged care buildings              |                                  |   |
|                                 | CP4                              | Materials and assemblies  |                                  |   |
|                                 | CP7                              | Emergency equipment   |                                  |   |
|                                 | FP1.4                            | Weatherproofing   | P2.2.2                           | Weatherproofing   |
|                                 | FP5.2                            | Sound Transmission and Insulation – Walls                                     | P2.4.6                           | Sound insulation  |
|                                 | FP5.5                            | Sound Transmission through walls in residential care buildings                |                                  |   |
| Deemed-to-Satisfy Provision(s): | B1.1                             | Resistance to actions   | 3.0.2                            | Resistance to actions   |
|                                 | B1.2                             | Determination of Individual actions   | 3.0.3                            | Determination of Individual actions   |
|                                 | B1.4(b)(i) and B1.4(i)           | Determination of structural resistance of materials and forms of construction | 3.0.4(d)                         | Determination of structural resistance of materials and forms of construction |
|                                 |                                  |   | 3.7.3.2(a)                       | Separating walls  |
|                                 |                                  |   | 3.7.3.3                          | Services in separating walls  |
|                                 | B1.6                             | Construction of buildings in flood hazard areas                               | 3.10.3.0                         | Flood hazard areas  |
|                                 | Schedule 5                       | Fire resistance of building elements  | Schedule 5                       | Fire resistance of building elements  |
|                                 | C1.1 / Spec C1.1                 | Fire-resisting construction   | 3.1.4.3                          | Termite management systems  |
|                                 | C1.10(a)(ii) / Spec C1.10 – 4.   | Fire hazard properties  |                                  |   |
|                                 | C3.15(a)(iii)                    | Openings for service installations  |                                  |   |
|                                 | F6.2(a)                          | Pliable building membrane   | 3.8.7.2(a)                       | Pliable building membrane   |

|   |  |   |                              |   |
|---|--|---|------------------------------|---|
|   | <b>G5.2</b>                                | Construction in Bushfire Prone Areas – Protection   | <b>3.10.5.0</b>              | Construction in Bushfire Prone Areas – Application  |
|   | <b>J1.5</b>                                | Building fabric – Walls   | <b>3.12.1.4</b>              | Building fabric – Walls   |
| <b>State or territory variation(s):</b> | <b>NT B1.4(i)</b>                          | Termite actions   | <b>Qld 3.1.4.3</b>           | Termite actions   |
|   | <b>Qld B1.6</b>                            | Construction of buildings in flood hazard areas   | <b>NT 3.1.4.3(d) and (e)</b> | Termite actions   |
|   | <b>Vic B1.6</b>                            | Construction of buildings in flood hazard areas   |                              |   |
|   | <b>SA B1.6</b>                             | Does not apply  | <b>NT P2.4.6</b>             | Sound insulation  |
|   | <b>SA C1.1(a)(iv) and (v), (c) and (d)</b> | Fire-resisting construction   | <b>Qld 3.10.3.0</b>          | Replaced by the Building Act 1975 and the Queensland Development Code 3.5 – Construction of buildings in flood hazard areas |
|   | <b>NSW G5.2</b>                            | Construction in bushfire prone areas  | <b>SA Part 3.10.3</b>        | Does not apply  |
|   |  |   | <b>Vic 3.10.3.0</b>          | Flood hazard areas  |
|   | <b>NSW Section J</b>                       | BASIX replaces national BCA provisions  | <b>NSW 3.10.5.0</b>          | Construction in bushfire prone areas  |
|   | <b>NT Section J</b>                        | For a Class 2 building and a Class 4 part of a building Section J is replaced by BCA 2009 Section J. Section J does not apply to Class 3 and 5 – 9 buildings. | <b>QLD 3.10.5.0</b>          | Construction in bushfire prone areas  |
|   | <b>Qld Section J</b>                       | For a Class 2 building, Section J is replaced by BCA 2009 Section J.  |                              |   |

**SUBJECT TO THE FOLLOWING LIMITATIONS AND CONDITIONS AND THE PRODUCT TECHNICAL DATA IN APPENDIX A AND EVALUATION STATEMENTS IN APPENDIX B**

**Limitations and conditions:**

- 1) The structural design of AFS REDIWALL® for compliance with NCC Volume One B1.1 and B1.4(b)(i) and NCC Volume Two 3.0.2 and 3.0.4 shall be carried out by a professional engineer in accordance with AFS Rediwall Volume 1 Design, Performance & Compliance Guide March 2021 Edition and AS 3600:2018 (Incorporating Amendment No.1) for the actions determined in accordance with NCC Volume One B1.2 or NCC Volume Two 3.0.3 as applicable.
- 2) For applications retaining earth and/or liquid that need to be made waterproof, AFS Rediwall Volume 2 Wall Construction Detailing & Finishing Treatment Guide, March 2021 Edition must be followed.
- 3) For NCC Volume One B1.4(i) and NCC Volume Two 3.4.1.3, AFS REDIWALL® is deemed to be termite resistant in accordance with AS 3660.1:2014 Clause 3.2 (b) and (f) for concrete and PVC materials respectively. Voids in the PVC elements and concrete may

**Building classification/s:** Unrestricted

- provide concealed access pathways to other parts of the building and appropriate detailing and incorporation of a termite management system complying with AS 3660:2014 shall be adopted as necessary.
- 4) AFS REDIWALL® in flood hazard areas per NCC Volume One B1.6 and Volume Two 3.10.3.0 shall, in addition to Limitation 1), be designed and constructed in accordance with ABCB Standard for Construction of Buildings in Flood Hazard Areas, Feb 2019.
  - 5) The relevant fire hazard properties of AFS REDIWALL® in accordance with NCC Volume One C1.10(a)(ii) and Specification C1.10 are as follows:
    - a) AS 5637.1:2015 –
      - i) Group Number: 1
      - ii) SMOGRA<sub>RC</sub>: 20.4-28.3 m<sup>2</sup>/s<sup>2</sup> x 1000
    - b) AS/NZS 1530.3:1999 (R2016) –
 

|                              |                              |
|------------------------------|------------------------------|
| i) Ignitability Index: 10-12 | iii) Heat Evolved Index: 0-1 |
| ii) Spread-of-Flame Index: 0 | iv) Smoke-Developed Index: 6 |
  - 6) The FRL of AFS REDIWALL® for Type A, Type B and Type C construction is in accordance with NCC Volume One Schedule 5 as follows:
    - a) RW156C with single layer of N12 reinforcement spaced at 350mm centres vertically and 400 mm centres horizontally; maximum wall height 3.0 m; and maximum load 233 kN/m – FRL 240/240/240
    - b) RW200C RW256S, RW275S and RW300S with single layer of N12 reinforcement spaced at 350mm centres vertically and 400 mm centres horizontally; maximum wall height 3.0 m; and maximum load 333 kN/m – FRL 240/240/240
    - c) For configurations outside the scope of a) and b), the FRL shall be determined in accordance with AS 3600:2018 (incorporating Amendment 1).
  - 7) The FRL of AFS REDIWALL® for compliance with NCC Volume One CP1 and CP2 and NCC Volume One P2.3.1 is as follows:
    - a) RW110C with single layer of N12 reinforcement spaced at 350mm centres vertically and 400 mm centres horizontally and the ratio of axial load to ultimate strength no greater than 0.32:
      - i) maximum effective height not exceeding 2.2 m – FRL 60/60/60
      - ii) maximum 2.7 m wall height, restrained such that effective height is reduced to 2.025 m – FRL 90/90/90
    - b) RW110C as per a), except in non-loadbearing applications – FRL –/120/120
    - c) For RW110C configurations outside the scope of a) and b), the FRL shall be determined in accordance with AS 3600:2018 (incorporating Amendment 1), a Deemed-to-Satisfy design method specified in Schedule 5 – 2.(d)(ii).
  - 8) AFS REDIWALL® system options described in Appendix A2 comply with Volume One Performance Requirements CP1, CP2, CP3, CP4 and CP7, and Volume Two P2.3.1, and Deemed-to-Satisfy Provisions Volume One C3.15(a)(iii), G5.2 and Volume Two 3.7.3.2(a), 3.7.3.3 and 3.10.5.0, provided the following safety measures, by wall type and application (refer to AFS Rediwall Volume 1 Design, Performance & Compliance Guide, August 2020 Edition, Tables A4 and A5), are adhered to:
    - a) External walls required to be fire-resisting or non-fire-resisting – all wall options that have a continuous cavity (open between one level of the building and the next) between the external face of the Rediwall and the outer leaf or cladding (types e., f. and g.) must have a fire stopping system installed horizontally at each slab level to prevent vertical fire spread through the cavity to the level above.
    - b) External walls above fire exit discharge –

- |  |   |  |
|--|---|--|
|  | <ul style="list-style-type: none"> <li>i) For unclad Rediwall with PVC left in place and direct-stick non-combustible cladding and glue-fixed tile systems (types a., h., and i.), provision of appropriate protection above fire exit discharges shall be provided. The minimum requirement for this protection is a protective awning having the following attributes: <ul style="list-style-type: none"> <li>(1) non-combustible;</li> <li>(2) compliant with the requirements of Volume One Clause D1.7;</li> <li>(3) capable of resisting impact from falling debris;</li> <li>(4) projection of at least 3 m perpendicular to the subject external wall; and</li> <li>(5) width of at least the fire exit door width plus 300 mm to each side of the fire exit door.</li> </ul> </li> <li>ii) Wall options that have a continuous cavity (open between one level of the building and the next) between the external face of the Rediwall and the outer leaf or cladding (types e., f. and g.) must have a fire stopping system installed horizontally at each slab level to prevent vertical spread of fire through the cavity to the level above.</li> <li>c) Spandrels – all wall options that have a continuous cavity (open between one level of the building and the next) between the external face of the Rediwall and the outer leaf or cladding (types e., f. and g.) must have a fire stopping system installed horizontally at each slab level to prevent vertical fire spread through the cavity to the level above.</li> <li>d) Painted metal cladding complying with BCA Clause C1.9(e) is an acceptable over-cladding. As for the listed finishing types that have a continuous cavity (open between one level of the building and the next), there must be a fire stopping system installed horizontally at each slab level to prevent vertical fire spread through the cavity to the level above.</li> <li>e) AFS REDIWALL<sup>®</sup> boundary walls (unfinished with PVC lining left in place) located directly adjacent an existing neighbouring boundary wall must: <ul style="list-style-type: none"> <li>i) be flashed with a non-combustible material; and,</li> <li>ii) have a maximum 50 mm width cavity between Rediwall and the adjacent wall, which must be a non-combustible fire-resisting wall; and,</li> <li>iii) not have an opening (in either wall), unless it is a fire window as specified in the BCA.</li> </ul> </li> <li>f) For ground level applications of AFS REDIWALL<sup>®</sup> to a height not exceeding 2 m, if the over-cladding has a cavity (types e., f. and g.) that continues beyond the extent of Rediwall, and is continuous (open between one level of the building and the next), installation of a fire-stopping system in the cavity at the top of the Rediwall is necessary.</li> <li>g) For AFS REDIWALL<sup>®</sup> retaining walls where a waterproofing membrane is attached to the external face of Rediwall (type j), the membrane must be buried below ground.</li> <li>h) Service penetration treatment options specified and detailed in accordance with the referenced documents in Appendix A5 comply with Specification C3.15. Fire-stopping systems are required to have been tested to AS 1530.4:2014 in a concrete wall. Fire dampers require the addition of 6mm fibre cement board to be fitted between the wall face and the retaining angles on both sides of the wall, completely around the perimeter and extending 20mm beyond the retaining angles. Service penetrations through unclad Rediwall do not require local removal of the PVC formwork from the face area.</li> <li>i) Openings in fire-resisting walls that have a continuous cavity (open between one level of the building and the next - types e., f. and g.) require installation of non-combustible fire-resisting cavity barriers.</li> <li>j) Where AFS REDIWALL<sup>®</sup> is used for non-loadbearing internal walls (fire resisting and non- fire resisting), no additional safety measures are required.</li> </ul> <p>9) The PVC formwork of AFS REDIWALL<sup>®</sup> is deemed combustible as per the NCC Schedule 3 definition. For external wall applications where the PVC formwork remains in place, compliance with the Performance Requirements is met when the safety measures specified in limitation note 8) as relevant are followed. When the PVC facings of the wall are removed (with only the PVC webs</p> |  |
|--|---|--|

remaining embedded within the concrete wall), the result is a wall that behaves equivalent to a bare concrete wall that is deemed non-combustible.

- 10) Over-cladding of AFS REDIWALL® has the following limitations:
  - a) Brick veneer shall be structurally supported independently to Rediwall, ie. not suspended off Rediwall or built off shelf angles fixed to Rediwall.
  - b) Brick veneer ties shall comply with the requirements of AS 3700:2018.
  - c) Mechanical fixings shall not penetrate all the way through Rediwall.
  - d) Direct-stick and mechanically fixed cladding systems that are suspended off Rediwall shall not exceed 32 kg/m<sup>2</sup>.
- 11) Compliance with NCC Volume One FP1.4 and NCC Volume Two P2.2.2 for weathertightness is limited to:
  - a) Serviceability pressure limit of +0.68kPa / -1.27kPa;
  - b) Structural design of the supporting structure must be carried out to the appropriate design loads; and,
  - c) Appropriate joints (vertical and horizontal joints) must be provided to address building movements.
- 12) AFS REDIWALL® provides insulation against sound transmission specified in NCC Volume One FP5.2 and FP5.5, and Volume Two P2.4.6, having the following airborne sound transmission properties:
 

|   |   |
|---|---|
| a) RW110C: R <sub>w</sub> 50, R <sub>w</sub> + C <sub>tr</sub> 45 | d) RW256S: R <sub>w</sub> 60, R <sub>w</sub> + C <sub>tr</sub> 55 |
| b) RW156C: R <sub>w</sub> 54, R <sub>w</sub> + C <sub>tr</sub> 50 | e) RW275S: R <sub>w</sub> 61, R <sub>w</sub> + C <sub>tr</sub> 56 |
| c) RW200C: R <sub>w</sub> 58, R <sub>w</sub> + C <sub>tr</sub> 53 | f) RW300S: R <sub>w</sub> 61, R <sub>w</sub> + C <sub>tr</sub> 56 |
- 13) Compliance with NCC Volume One F6.2(a) (limited to Class 2 buildings and Class 4 parts of a building) and NCC Volume Two 3.8.7.2(a) for condensation management requires a pliable building membrane in an external wall in accordance with NCC Volume One F6.2(a) or NCC Volume Two 3.8.7.2(a) as applicable.
- 14) AFS REDIWALL® contributes to the thermal resistance of the building fabric, thereby contributing to the requirements of NCC Volume One J1.5 and NCC Volume Two 3.12.1.4 as follows:
  - a) R-Values for the AFS REDIWALL® wall element (left) and the R-Values for the AFS REDIWALL® wall including external and internal air films, determined in accordance with AS/NZS 4859.1:2002 (incorporating Amendment No.1) are as follows:
 

|   |   |
|---|---|
| i) RW110C – element R 0.091 m <sup>2</sup> .K/W   | with air films R 0.26 m <sup>2</sup> .K/W |
| ii) RW156C – element R 0.123 m <sup>2</sup> .K/W  | with air films R 0.29 m <sup>2</sup> .K/W |
| iii) RW200C – element R 0.153 m <sup>2</sup> .K/W | with air films R 0.32 m <sup>2</sup> .K/W |
| iv) RW256S – element R 0.192 m <sup>2</sup> .K/W  | with air films R 0.36 m <sup>2</sup> .K/W |
| v) RW275S – element R 0.205 m <sup>2</sup> .K/W   | with air films R 0.38 m <sup>2</sup> .K/W |
| vi) RW300S – element R 0.223 m <sup>2</sup> .K/W  | with air films R 0.39 m <sup>2</sup> .K/W |
  - b) All wall types have a surface density greater than 220kg/m<sup>2</sup>.
- 15) Rediwall PVC formwork will remain serviceable against deterioration for at least 100 years against the following exposure environments:
  - a) Acid sulphate soils.
  - b) Carbonation.
  - c) Salt attack.



## APPENDIX A – PRODUCT TECHNICAL DATA

### A1 Type and intended use of product

Internal wall applications within the scope of this certificate are as follows:

- Non-loadbearing fire-resisting internal walls
- Loadbearing fire-resisting internal walls
- Non-loadbearing non-fire-resisting internal walls
- Loadbearing non-fire-resisting internal walls
- Separating walls in Class 1 buildings
- Non-loadbearing fire walls
- Loadbearing fire walls
- Internal service shaft wall (inner face of the shaft wall)
- Internal lift shaft wall (inner face of the shaft wall)
- Internal walls in fire isolated exits
- Internal walls in fire-control rooms

External wall applications within the scope of this certificate are as follows:

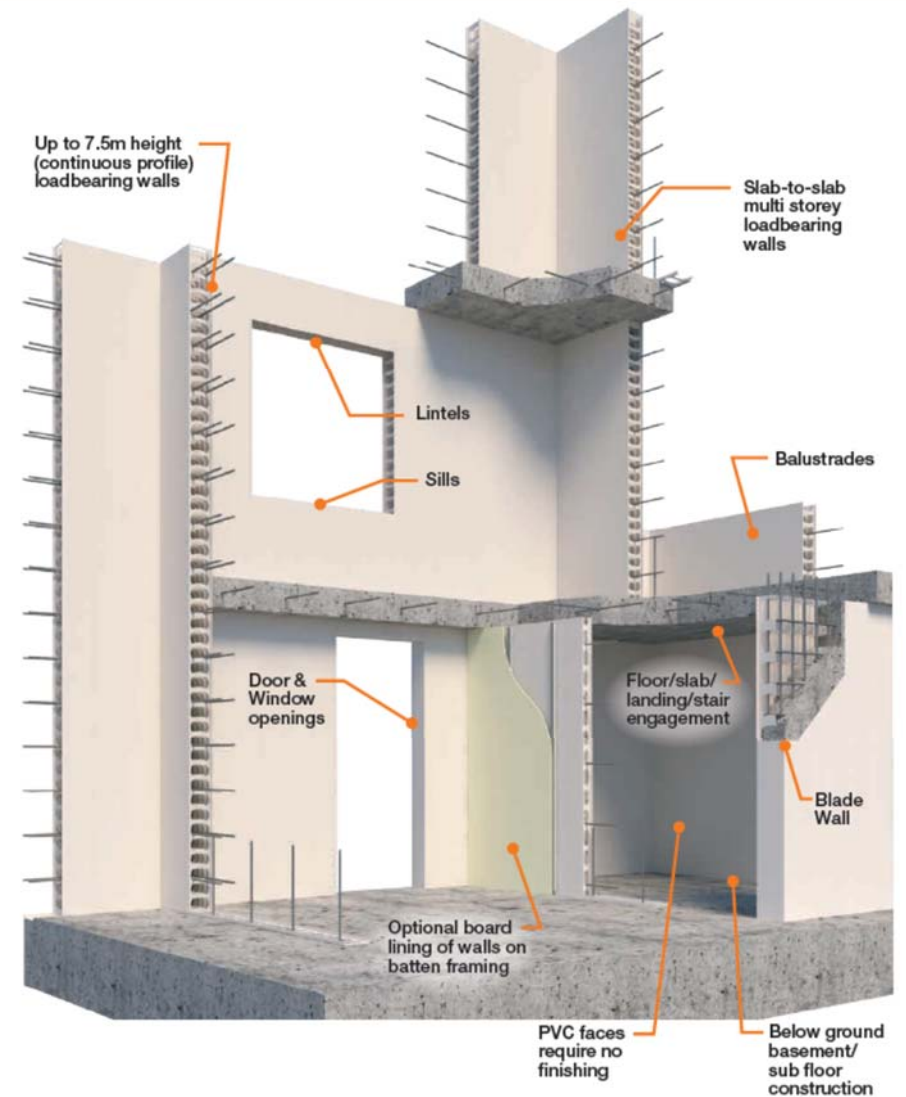
- Non-loadbearing fire-resisting external walls
- Loadbearing fire-resisting external walls/spandrels
- Non-loadbearing non-fire-resisting external walls
- Loadbearing non-fire-resisting external walls/spandrels
- External walls above fire exits
- Retaining walls (external face of panel)
- External walls less than 2m above ground level
- Boundary wall

### A2 Description of product

Figure to right provides example applications of the AFS REDIWALL® system.

The basic wall configuration is left unclad, but a range of finishing options as described below are available:

- Unclad and PVC left in place.
- Cement render or similar non-combustible render finish over unclad Rediwall.
- Plasterboard lining directly affixed to surface of unclad Rediwall.
- Plasterboard lining affixed to unclad Rediwall using cold-formed steel furring channels.
- Face brick with inner Rediwall skin forming a cavity wall.
- Mechanically fixed tile systems (<math><32 \text{ kg/m}^2</math>) to unclad Rediwall.



- g. Mechanically fixed non-combustible cladding plus adhesive to unclad Rediwall.
- h. Direct-stick non-combustible cladding plus adhesive to unclad Rediwall
- i. Glue-fixed tile systems (<32 kg/m<sup>2</sup>) plus adhesive to unclad Rediwall.
- j. Waterproof membrane attached to external face of Rediwall.

## A3 Product specification

Product selection, and incorporation into the building design, shall be made by a professional Architect or Engineer or other appropriate person who:

- Has qualifications and experience acceptable to the relevant approval authorities; and,
- Has ready access to:
  1. AFS Rediwall Volume 1 – Design, Performance & Compliance Guide, March 2021 Edition;
  2. AFS Rediwall Volume 2 – Wall Construction Detailing & Finishing Treatment Guide, March 2021 Edition; and,
  3. AS 3600:2018 (incorporating Amendment 1).

## A4 Manufacturer and manufacturing plant(s)

AFS Systems – 110 Airds Road, Minto, NSW, 2566

Tel: 1300 727 237

Email: afssales@csr.com.au

## A5 Installation requirements

Only to be installed under the supervision of a suitably qualified tradesperson (such as, but not limited to a Certificate III in Concreting, Certificate III in Formwork/Falsework, or equivalent) in accordance with:

- Relevant project specific Engineering & Architectural plans, detailing & specification documentation, and
- AFS Rediwall Volume 1 – Design, Performance & Compliance Guide, March 2021 Edition, and
- AFS Rediwall Volume 2 – Wall Construction Detailing & Finishing Treatments Guide, March 2021 Edition, and
- AFS Rediwall Volume 3 – Installation Guide, March 2021 Edition.

It is the sole responsibility of the installer of the AFS REDIWALL® system to ensure that its installation carried out complies with the above requirements, and to provide written confirmation to the Certificate Holder that the installation works carried out have complied to the above requirements.

The construction shall include the following:

- Temporary bracing of the formwork systems as specified by the project structural engineer.
- Coating or linings in accordance with the AFS Rediwall Volume 2 – Wall Construction Detailing and Finishing Guide, March 2021 Edition, including adherence with the specified inspection and maintenance program for the site location.

## A6 Other relevant technical data

Referenced documents within the technical literature identified in Appendix A, A3 and Appendix A, A5.



## APPENDIX B – EVALUATION STATEMENTS

### B1 Evaluation methods

The following assessment methods have been used to determine compliance with NCC 2019 (incorporating Amendment No.1):

| Code Clause                              | Assessment Method(s)  | Evidence of suitability  | Evidence reference in B2                 |
|--|-----------------------|--|--|
| <b>NCC Volume One</b>                    |                       |  |  |
| B1.1                                     | Volume One A2.3(2)(a) | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                                  |
| B1.2                                     | Volume One A2.3(2)(a) | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                                  |
| B1.4(b)(i)                               | Volume One A2.3(2)(a) | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 23                                  |
|  |                       | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                                  |
| B1.6                                     | Volume One A2.3(2)(a) | Volume One A5.2(1) (f) – Another form of documentary evidence  | Item 21                                  |
| Schedule 5                               | Volume One A2.3(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 4, 24, and 25                   |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                            |
| CP1                                      | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 2, 3, 4, 5, 6, 7, 24 and 25        |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                            |
| CP2                                      | Volume One A2.2(2)(a) | Volume One A5.2(1) (d) – Report issued by an Accredited Testing Laboratory   | Items 1, 2, 3, 4, 5, 6, 7, 24, 25 and 26 |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                            |
| CP3                                      | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 2, 3, 4, 5, 6, 7, 24 and 25     |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                            |
| CP4                                      | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1 and 4                            |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 9                                   |
| CP7                                      | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 2, 3, 4, 5, 6, 7, 24 and 25     |
|  |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                            |
| C1.1 and Specification C1.1              | Volume One A2.3(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 2, 3, 4, 5, 6, 7, 24 and 25        |
| C1.10(a)(ii) and Specification C1.10 -4. | Volume One A2.3(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 4, 24 and 25                    |
| C3.15(a)(iii)                            | Volume One A2.3(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 10 and 11                          |
| FP1.4                                    | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Item 12                                  |

| Code Clause           | Assessment Method(s)  | Evidence of suitability  | Evidence reference in B2             |
|-----------------------|-----------------------|--|--------------------------------------|
|                       |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 13                              |
| FP5.2                 | Volume One A2.2(2)(a) | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 14 to 19                       |
|                       | Volume One A2.2(2)(d) | Comparison with the Deemed-to-Satisfy Provisions   | Item 22                              |
| FP5.5                 | Volume One A2.2(2)(a) | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 14 to 19                       |
|                       | Volume One A2.2(2)(d) | Comparison with the Deemed-to-Satisfy Provisions   | Item 21                              |
| F6.2(a)               | Volume One A2.3(2)(a) | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| G5.2                  | Volume One A2.3(2)(a) | Volume One A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 2, 3, 4, 5, 6 and 7         |
|                       |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                        |
| J1.5                  | Volume One A2.3(2)(a) | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 20                              |
|                       |                       | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| <b>NCC Volume Two</b> |                       |  |                                      |
| P2.2.2                | Volume Two A2.2(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Item 12                              |
|                       |                       | Volume Two A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 13                              |
| P2.3.1                | Volume Two A2.2(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 2, 3, 4, 5, 6, 7, 24 and 25 |
|                       |                       | Volume Two A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                        |
| P2.4.6                | Volume Two A2.2(2)(a) | Volume Two A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 14 to 19                       |
|                       |                       | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| Schedule 5            | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 4, 24 and 25                |
|                       |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                        |
| 3.0.3                 | Volume Two A2.3(2)(a) | Volume One A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| 3.1.4.3               | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Item 22                              |
| 3.7.3.2(a)            | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 4, 24 and 25                |
|                       |                       | Volume One A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Items 8 and 9                        |
| 3.7.3.3               | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 10 and 11                      |
| 3.8.7.2(a)            | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| 3.10.3.0              | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                              |
| 3.10.5.0              | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(d) – Report issued by an Accredited Testing Laboratory  | Items 1, 2, 3, 4, 5, 6 and 7         |

| Code Clause   | Assessment Method(s)  | Evidence of suitability  | Evidence reference in B2 |
|---|-----------------------|--|--------------------------|
| 3.0.2   | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                  |
| 3.0.4(d)  | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                  |
| 3.12.1.4  | Volume Two A2.3(2)(a) | Volume Two A5.2(1)(e) – Certificate or report from a professional engineer or other appropriately qualified person | Item 20                  |
|   |                       | Volume Two A5.2(1)(f) – Another form of documentary evidence   | Item 21                  |
| <b>Note:</b> The following assessment methods have been used within the professional engineer's report, Item 9: |                       |  |                          |
|   | Volume One A2.2(2)(c) | Expert judgement   |                          |
|   | Volume One A2.2(2)(d) | Comparison with the Deemed-to-Satisfy Provisions   |                          |

## B2 Reports

The following reports have been used as evidence to determine compliance with NCC 2019 (incorporating Amendment No.1):

| Ref | Author                              | Reference                                     | Date       | Description   | NATA Registration                                |
|-----|-------------------------------------|---|------------|---|--|
| 1   | Warringtonfire                      | RTF190226 R2.0                                | 31/01/2020 | Wall and ceiling lining tested in accordance with AS ISO 9705:2003 (R2016) and AS 5637.1:2015.<br>Test Results: Group number 1; SMOGRA <sub>RC</sub> = 28.3 m <sup>2</sup> /s <sup>2</sup> x 1000.  | Accreditation No. 3277<br>Site No. 3270          |
| 2   | CSIRO – Infrastructure Technologies | Certificate No. 2580<br>For Test No. FSV 1654 | 5/09/2014  | Certificate of Test – AS 1530, Methods for fire tests on building materials, components and structures, Part 4-2005 – 200mm thick load-bearing Rediwall.  | Accreditation No. 165<br>Corporate Site No.3625  |
| 3   | CSIRO – Infrastructure Technologies | Assessment Report No. FCO 3399                | 16/10/2020 | The fire resistance of AFS Rediwall load bearing vertical separating element in accordance with AS 1530.4:2014.   | Accreditation No. 165<br>Corporate Site No. 3625 |
| 4   | AWTA Product Testing                | 17-003237                                     | 21/06/2017 | AS/NZS 1530.3:1999 Methods for Fire Tests on Building Materials, Components and Structures – Part 3: Simultaneous Determination of Ignitability, Flame Propagation, Heat Release and Smoke Release – “Rediwall walling system with PVC facing”. | Accreditation No. 1356                           |
| 5   | Exova Warringtonfire                | 51713900.1                                    | 3/11/2017  | External Wall reaction to fire testing of a 110mm thick external wall system in accordance with AS5113:2016.  | Accreditation No. 3277<br>Site No. 3270          |
| 6   | Warringtonfire<br>Tanmay Bhat       | 51713600 R2.0                                 | 17/05/2019 | Fire resistance of AFS Rediwall loadbearing wall systems. Assessment of walls for likely FRL in accordance with AS 1530.4-2014.   | Accreditation No. 3277<br>Site No. 3270          |
| 7   | Warringtonfire                      | SFC 51713600.2                                | 17/05/2019 | The fire resistance performance of AFS Rediwall loadbearing wall systems if tested in accordance with AS1530.4-2014.  | Accreditation No. 3277<br>Site No. 3270          |

| Ref | Author   | Reference                         | Date        | Description  | NATA Registration                               |
|-----|--|-----------------------------------|-------------|--|---|
| 8   | Stephen Grubits & Associates<br>Carlos Quaglia       | 2013/277.65 R2.4                  | 5/11/2020   | Assessment Summary for SGA Report Number 2013/277.65 R1.4 – CSR Rediwall compliance with CP1 and CP2.  | N/A   |
| 9   | Stephen Grubits & Associates<br>Carlos Quaglia       | 2013/277.78 R1.6                  | 12/02/2021  | Rediwall CodeMark Certification – For CodeMark Evaluation.   | N/A   |
| 10  | CSIRO – Infrastructure Technologies<br>Chris Wojcik  | FSV 2094                          | 21/05/2020  | Fire-resistance test on services penetrating vertical separating elements  | Accreditation No. 165<br>Corporate Site No.3625 |
| 11  | CSIRO – Infrastructure Technologies<br>Keith Nichols | FCO-3380 Rev E                    | 19/10/2020  | The fire resistance of AFS Rediwall and AFS Logicwall including various service penetrations in accordance with AS 1530.4-2014 and AS 4072.1-2005 Amdt 1.                      | Accreditation No. 165<br>Corporate Site No.3625 |
| 12  | CSIRO – Infrastructure Technologies<br>S J Smith     | HHI 2817A                         | 13/10/2015  | Assessment of the CSR AFS REDIWALL polymer-based permanent formwork system for resistance to water penetration, tested to parts of ASTM E514/E514M-14a and AS/NZS 4347.1-1995. | N/A   |
| 13  | AECOM Australia Pty Ltd<br>Kieran Rice               | 60602764 Rev 0                    | 13/05/2019  | AFS Rediwall System – Weatherproofing Verification Report.   | N/A   |
| 14  | Acoustic Logic<br>Justin Leong                       | 20181292.1/1801A/R0/JL            | 18/01/2019  | AFS Rediwall 156mm Base Wall – Acoustic Performance Opinion – AFS7001.   | N/A   |
| 15  | Acoustic Logic<br>Justin Leong                       | 20181292.1/1801A/R0/JL            | 18/01/2019  | AFS Rediwall 200mm Base Wall – Acoustic Performance Opinion – AFS8001.   | N/A   |
| 16  | Acoustic Logic<br>Justin Leong                       | 20181292.1/1801A/R0/JL            | 18/01/2019  | AFS Rediwall 256mm Base Wall – Acoustic Performance Opinion – AFS9001.   | N/A   |
| 17  | Acoustic Logic<br>Justin Leong                       | 20181292.1/1801A/R2/JL            | 18/01/2019  | AFS Rediwall 110mm Base Wall – Acoustic Performance Opinion – AFS6001.   | N/A   |
| 18  | Acoustic Logic<br>George Wei                         | 20181292.5/2004A/R1/GW            | 20/04/2020  | 275mm thick AFS Rediwall – Acoustic assessment   | N/A   |
| 19  | Acoustic Logic<br>George Wei                         | 20181292.5/2004A/R2/GW            | 20/04/2020  | 300mm thick AFS Rediwall – Acoustic assessment   | N/A   |
| 20  | James M. Fricker Pty Ltd<br>James Fricker            | 107wRW01_RediwallC&S_(bare)v3_JMF | 21/04/2020  | “Total R” Thermal Performance Calculations to AS/NZS 4859.1 2018 –RW110C, RW156C, RW200C, RW256S, RW275S and RW300S.   | N/A   |
| 21  | AFS Systems Pty Ltd                                  | BMS1668 0419 – RED00038 AUG20     | August 2020 | AFS Rediwall Design, Performance & Compliance Guide  | N/A   |
| 22  | ExcelPlas Pty Ltd                                    | 8248                              | 20/03/2019  | Technical Report on the Durometer Hardness Measurement of Polymer Samples  | Accreditation No. 17149<br>Site No. 18750       |

| Ref | Author                                   | Reference         | Date       | Description   | NATA Registration                                |
|-----|--|-------------------|------------|---|--|
| 23  | Mahaffey Associates Pty Ltd<br>Ben Sabaa | BAS/20/L01/20050  | 16/03/2020 | AFS Rediwall PVC Permanent Formwork Durability Assessment   | N/A  |
| 24  | Warringtonfire                           | RTF 190307        | 28/01/2020 | Wall and ceiling lining tested in accordance with AS ISO 9705:2003 (R2016) and AS 5632.1:2015.  | Accreditation No. 3277<br>Site No. 3270          |
| 25  | CSIRO                                    | FNE 12656         | 10/02/2021 | Certificate of Test – AS/NZS 1530.3:1999 Methods for fire tests on building materials, components and structures – Part 3: Simultaneous determination of ignitability, flame propagation, heat release and smoke release. | Accreditation No. 165<br>Corporate Site No. 3625 |
| 26  | Warringtonfire                           | RTF200140 ASCR1.0 | 16/07/2020 | Classification of a non-loadbearing external wall system in accordance with AS 5113:2016 Amendment 1  | Accreditation No. 3277<br>Site No. 3270          |