



KOROK®

EXTERNAL WALL SYSTEMS

OCTOBER 2024
Version 45

KOROK 



KOROK®

EXTERNAL WALL SYSTEMS

Fire, acoustic and weather protection with clip-together simplicity

KOROK® External Wall Systems are cost-effective weather-tight systems that offer an all-in-one solution providing pre-finished exteriors, superior fire and acoustic ratings and fast, easy construction, generally without the need for heavy lifting equipment.

KOROK® is lightweight and economical when used for fire-rated boundary walls in commercial constructions. Installation can generally be managed by a small installation crew and no cranes are required on site. KOROK®'s lightweight composition reduces the need for "engineered" slab foundations, leading to significant cost savings and programme advantages.

Developed specifically for New Zealand conditions, KOROK® External Wall Systems can be used in most exterior situations including very high wind zones without the need for additional cladding.

KOROK® External Wall Systems offer solutions that enhance the fire and acoustic ratings without the need for extra internal framing.

This manual has been developed using recognised Australian and New Zealand standards together with sound engineering principles substantiated through BRANZ.

This manual in no way supersedes the requirements of any Statutory Authority or New Zealand Building Code but is rather a guide to the performance of KOROK® under certain loading conditions.

The manual provides builders, engineers, designers and architects with a user-friendly format for installing and designing KOROK® for non-load bearing applications.

In brief, KOROK® has:

- Fire-rated systems ranging from 30 minutes to 240 minutes.
- Acoustic systems ranging from STC 36 to STC 76.
- Panel dimensions of 250mm wide, in lengths up to 9.0 metres.
- Panels that weigh (nominally) 10.2kg per lineal metre.
- Panels available in galvanised or factory-applied painted steel.

Typical Applications are:

- Dividing and boundary walls for sheds, factories and warehouses.
- Cinema walls.
- Intertenancy walls for apartments, terraced housing, hotels and retirement complexes.
- Lift shaft and duct walls.
- Acoustic barriers.



Due to its unique composition, KOROK® provides exceptional fire resistance over a long period of time.

However, to achieve the stated fire resistance ratings, it is critically important to adhere strictly to the design, installation and construction details otherwise the fire resistance rating may be degraded.

KOROK® panels have been tested and appraised by the Building Research Association of New Zealand (BRANZ). In some cases, a fire resistance rating has been based on an appraisal from the same organisation.

Where specific acoustic control performance is required, KOROK® can provide a number of proven, acoustic-rated wall systems, or can assist in developing a fully customised solution.

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THE ALL-IN-ONE WALL SOLUTION FOR FIRE, ACOUSTIC AND WEATHER PROTECTION



- Roll formed steel with factory-applied painted finish
- Lightweight with aerated concrete core
- Fire ratings up to -/240/240
- Acoustic ratings up to STC76
- Panels interlock with clip-together simplicity
- Rapid installation, reduced build time

EXTERNAL WALL SYSTEMS

Widely specified for internal walls because of their superior acoustic and fire ratings, KOROK® panels can also be used for external walls.

KOROK® External Wall Systems have been developed and tested specifically for New Zealand conditions, and can be used in a wide range of exterior locations, including very high wind zones, without the need for additional exterior cladding.

REDUCED BUILD TIME

Made of aerated concrete encased in a roll-formed, steel shell, KOROK® interlocking panels are strong, lightweight, and can be easily assembled by a small crew using a scissor lift.

This makes KOROK® much faster to install than

conventional wall systems resulting in significant reductions in build time.

The unique, interlocking panel design ensures on-site performance ratings are predictable and reliable.

CUSTOM MADE TO ORDER

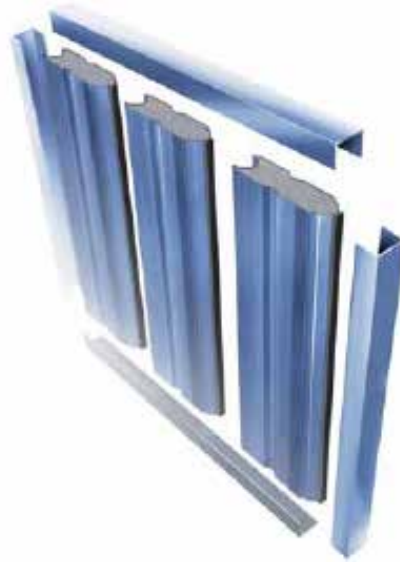
KOROK® panels are custom manufactured to order in lengths up to 9 metres ready for immediate assembly. This system of manufacture minimises the need for cutting panels to size on site and reduces waste.

For external use, KOROK® panels are pre-painted in the COLORSTEEL® colour range and can be supplied in a wide range of standard colours, or project specific colours if required.

INTRODUCTION

SUPERIOR FIRE AND ACOUSTIC PERFORMANCE WITH CLIP-TOGETHER SIMPLICITY

- BRANZ appraised.
- Roll formed galvanised steel or colour steel outer shell.
- Lightweight with aerated concrete core.
- Non-combustible.
- Fire ratings up to -/240/240.
- Acoustic ratings up to STC 76.
- Panels interlock with clip-together simplicity for rapid installation.



When acoustic and fire regulations demand a high performance, no-risk solution, KOROK® will exceed New Zealand Building Code requirements for internal and external non-load bearing walls simply and cost effectively.

Exceptionally strong yet lightweight, the interlocking panels can be easily erected by a small crew, making KOROK® much faster to install than conventional wall systems.

Construction using KOROK® also allows a building to be made weather resistant much earlier in the construction cycle allowing internal work and finishing to be started sooner.

ACOUSTIC PERFORMANCE

KOROK®'s inherent mass and interlocking design gives it outstanding acoustic reduction properties making it highly suitable in buildings where acoustic performance is critical, such as cinemas, lecture theatres, apartments, recording studios and industrial/commercial intertenancy situations.

The unique interlocking design eliminates the risk of sound "leaks" between panels, and makes installation much faster and more simple than traditional systems.

FIRE PERFORMANCE

KOROK® delivers proven two-way fire resistance over a long period of time. KOROK® has been tested and appraised by the Building Research Association of New Zealand (BRANZ).

100% REUSABLE, MINIMUM WASTE

KOROK® is manufactured in New Zealand and offers unique benefits in terms of sustainability and environmental performance:

- Walls can be reused by simply dismantling the panels and reinstalling them in another location.
- The raw components (steel and concrete) are 100% recyclable.
- Panels are custom manufactured to size, minimising waste at the factory and on the construction site.
- DECLARE - KOROK® has Declare Certification for our panels, the most accessed sustainability certification in the building industry <https://declare.living-future.org/products/korok-panel>. See page 43.

INTRODUCTION

USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication. KOROK® Building Systems NZ Ltd accepts no liability for reliance upon publications that have been superseded. If you are unsure whether this is the current publication, visit www.korok.com or call 0800 773 777.

This may be freely copied (in full) or reproduced (in full) and is available by contacting us at KOROK® on 0800 773 777 or info@korok.com, or from www.korok.com

BEWARE OF SUBSTITUTIONS

All KOROK® systems have been designed and tested to ensure they are suitable for New Zealand conditions and provide specific resistance to fire and acoustic transmission.

As such, only tested KOROK® panels and components can be used in the construction of each KOROK® system, ensuring that the finished wall will meet its performance specification.

KOROK® is unable to support system performance where substitute products are used as they have not been tested by us as part of our systems and we cannot be responsible for the ongoing quality and performance of these products.

PURPOSE

KOROK® provides wall systems that physically separate spaces, providing secure divisional walls and intertenancy sound and fire transmission resistance.

KOROK® supplies separate systems for specific market segments (terraced housing, apartments, warehouse/retail/factory, cinemas, lift shafts/stairs/ducts, external). Please ensure that the system selected is identified as being appropriate for the location it is being installed in.

SCOPE OF USE

New Zealand Building Code (NZBC)

CLAUSE B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. The KOROK® External Wall System meets the requirements for loads arising from self-weight, earthquake, wind, impact and creep and shrinkage [i.e. B1.3.3 (a), (f), (h), (i), (j) and (q)].

CLAUSE B2 DURABILITY: Performance B2.3.1 (b), 15 years, Performance B2.3.1 (c), 5 years. The KOROK® External Wall Systems meet these requirements.

CLAUSE C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4, C3.5 and C3.6. The KOROK® External Wall Systems will meet or contribute to meeting these requirements.

CLAUSE C6 STRUCTURAL STABILITY: Compliance with (NZBC) Clause C6 'Structural Stability'.

In order to satisfy the requirements of the New Zealand Building Code (clause C6) relating to "structural stability" designers must ensure that KOROK® elements are supported by primary elements that have at least the same fire rating as the KOROK® system that is used.

Where the primary elements supporting the KOROK® system are outside the fire cell, there is no requirement to apply the same FRR as the KOROK® system. Notwithstanding, post fire stability requirements of the NZBC must also be satisfied.

CLAUSE E2 EXTERNAL MOISTURE: Performance E2.3.2. The KOROK® External Wall Systems will meet this requirement.

CLAUSE F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The KOROK® External Wall Systems meet this requirement and will not present a health hazard to people.

MAINTENANCE

All cladding products are subject to the cumulative effects of weather, dust and other deposits. KOROK® External Wall Systems are designed and warranted for outdoor use. The product is be maintained in accordance with New Zealand Steel Maintenance and Warranty Literature (<https://www.colorsteel.co.nz/assets/default-site/Environmental-Categories-Warranty-Guide-WEB-7.24.pdf>).

MATERIAL SAFETY DATA SHEET

A Material Safety Data Sheet (MSDS) is available on request from KOROK® Building Systems NZ Ltd or from our website: www.korok.com

INTRODUCTION

WARRANTY

KOROK® Building Systems NZ Ltd supplies the KOROK® wall components and warrants the components to be free from defects in material and workmanship. KOROK® Building Systems NZ Ltd will at its own option replace and/or repair any product found to be defective, provided it has been stored, installed and maintained strictly in accordance with the requirements and recommendations of KOROK® technical literature. This warranty is in addition to any statutory rights to the customer.

KOROK® Building Systems NZ Ltd cannot be held responsible for deterioration to products caused by poor handling or storage practices after the product has arrived at the customers site.

All KOROK® building products are designed to satisfy New Zealand conditions.

DISCLAIMER

KOROK® Building Systems NZ Ltd reserves the right, at any time, at its own discretion and without notice, to discontinue or change the features, designs, materials, colours and other specifications of its products and to either permanently or temporarily withdraw any such products from sale without incurring any liability.

This booklet is published as a general guide only and must not be used in preference to detailed technical advice from an appropriately qualified person where application differs from those described herein.

To the best of KOROK® Building Systems NZ Ltd knowledge, all information is correct at the time of printing.

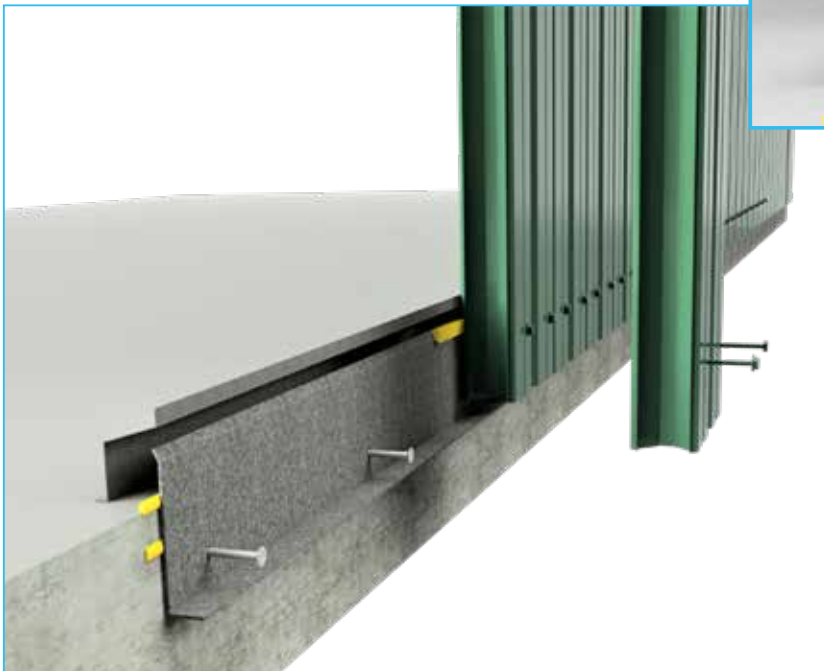
Whilst every effort has been made to ensure the material contained within this document is accurate and correct, no responsibility or liability, in part or whole by the authors, editors or publishers of this manual will be accepted for misuse, misreading or deviation from the recommended installation details.

LIABILITY

KOROK® New Zealand accepts no liability if any KOROK® Fire-rated System or Acoustic Rated System is not designed and installed in strict accordance with instructions contained in this publication.

KOROK®

EXTERNAL WALL SYSTEMS



KOROK® EXTERNAL WALL SYSTEMS SUMMARY

Table 1: KOROK® External Wall Systems

| SPEC. CODE | STC | FRR | OVER CLAD | SYSTEM SUMMARY | PAGE |
|------------|-----|-----------|-----------|---|------|
| EX1 | 36 | -/120/120 | No | KOROK® 78mm COLORSTEEL® panels (400 Kg/m ³ density) with no linings attached | 7 |
| EX2 | 42 | -/180/180 | No | KOROK® 78mm COLORSTEEL® panels (400 Kg/m ³ density) with steel battens at 600mm maximum centres on the internal side, lined with 1 layer of 19mm GIB Fyrelite® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelite® or acceptable GIB® alternatives | 8 |
| EX3 | 36 | -/120/120 | Yes | KOROK® 78mm panels (400 Kg/m ³ density) Longrun profiled steel cladding system as selected | 9 |
| EX4 | 42 | -/180/180 | Yes | KOROK® 78mm panels (400 Kg/m ³ density) The internal side lined with 1 layer of 19mm GIB Fyrelite® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelite® or acceptable GIB® alternatives Longrun profiled steel cladding system as selected | 10 |
| EX5 | 42 | -/180/180 | Yes | KOROK® 78mm panels (400 Kg/m ³ density) The internal side lined with 1 layer of 19mm GIB Fyrelite® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelite® or acceptable GIB® alternatives Longrun profiled steel cladding system as selected | 11 |

Important Notes

1. Fire Resistance Ratings are 2-way.
2. KOROK® External Wall Systems EX1 and EX2, the KOROK® panels must be installed *vertically* and are only supplied in a COLORSTEEL® finish.
3. Housing and communal residential buildings are excluded.

EX1

| SPEC. CODE | STC | FRR | SYSTEM SUMMARY |
|------------|-----|-----------|---|
| EX1 | 36 | -/120/120 | KOROK® 78mm COLORSTEEL® panels (400 Kg/m ³ density) with no linings attached |

KOROK® PANEL

Only install KOROK® 78mm COLORSTEEL® panels vertically. KOROK® 78mm COLORSTEEL® panels are installed vertically, to the face of a KOROK® Exterior 3mm Base Angle, located on the edge of the floor slab.

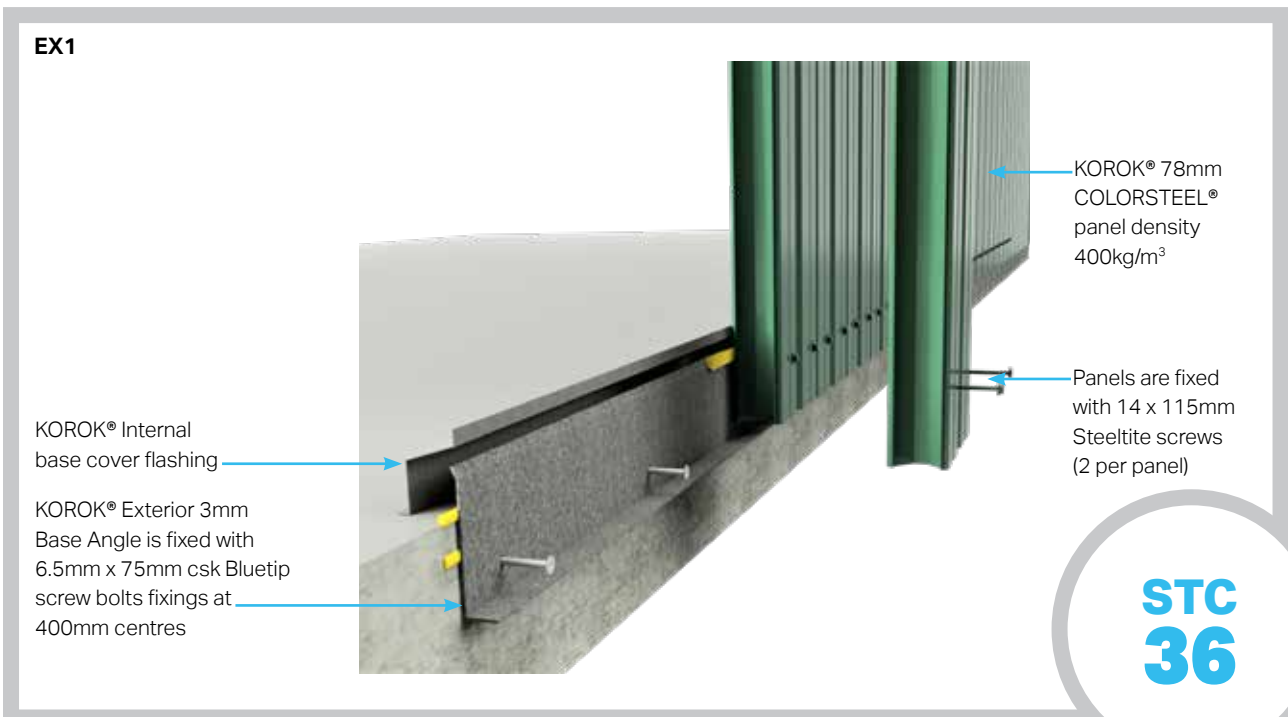
Fix the KOROK® panels to the KOROK® Exterior 3mm Base Angle with 14g x 115mm Steeltite screws, 2 per panel, and at the top support, 2 per panel.

INSTALLATION

Please see page 24 of this publication for installation details.

SEALANT

Beads of fire-rated sealant are required. Refer to the installation section of this publication for more information on sealant application, and to the KOROK® Components Summary for approved sealants.



EX2

| SPEC. CODE | STC | FRR | SYSTEM SUMMARY |
|------------|-----|-----------|--|
| EX2 | 42 | -/180/180 | KOROK® 78mm COLORSTEEL® panels (400 Kg/m ³ density) with steel battens at 600mm maximum centres on the internal side, lined with 1 layer of 19mm GIB Fyrelite® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelite® or acceptable GIB® alternatives |

KOROK® PANEL

The EX2 system is the EX1 system, with additional lining for increased Fire Resistance.

KOROK® 78mm COLORSTEEL® panels are installed vertically, to the face of a KOROK® Exterior 3mm Base Angle, located on the edge of the floor slab.

EX2 systems with an unsupported span over **4 metres** require **three (3)** 14g Steeltite screws per panel to fix the wall system to the KOROK® Exterior 3mm Base Angle.

INTERNAL FRAMING

Steel battens, 28mm in depth and no less than 34mm in surface width and at least .55 galv steel in gauge. Battens to be fastened at 500mm centres using pairs of 10g x 30mm self tapping screws into the panel joints. Noggins of similar material to be used at plasterboard joints.

Steel battens spaced at a maximum of 600mm centres to suit plasterboard linings.

SEALANT

Refer to the installation section of this publication for more information on sealant application, and to the KOROK® Components Summary for approved sealants.

LINING

Internal face, 19mm GIB Fyrelite® or acceptable GIB® alternatives. Vertical or horizontal fixing permitted, sheets touch fitted.

Offset joints in double layer systems: For vertical fixing all sheet joints must be formed over framing and sheet joints must be offset. The second layer may be fixed horizontally, in this case no battens are required behind longitudinal joints. Linings are to be fixed hard to floor.

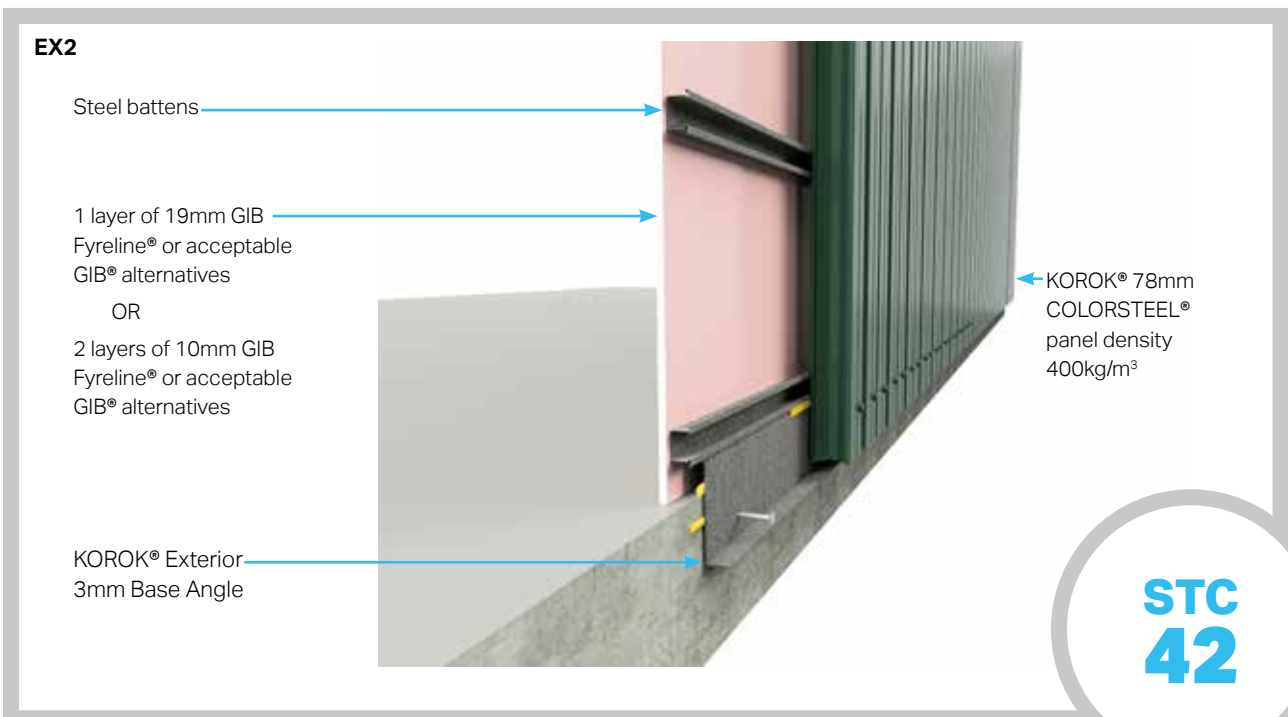
FASTENING THE LINING

Fasten the lining as per the manufacturer's instructions.

JOINTING

19mm GIB Fyrelite®, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.

2 x 10mm GIB Fyrelite® inner layer unstopped. Outer layer, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.



EX3 - OVER-CLAD

| SPEC. CODE | STC | FRR | SYSTEM SUMMARY |
|------------|-----|-----------|--|
| EX3 | 36 | -/120/120 | KOROK® 78mm panels (400 Kg/m ³ density) Longrun profiled steel cladding system as selected |

KOROK® PANEL

KOROK® 78mm panels are installed vertically.

KOROK® 78mm panels, located in KOROK® C-track 60mm high x 80mm wide x 1.15B.M.T. C-track is fixed at a maximum of 400mm centres bedded on a bead of fire-rated sealant.

See the vertical installation sections of the KOROK® Technical & Installation Manual for installation details.

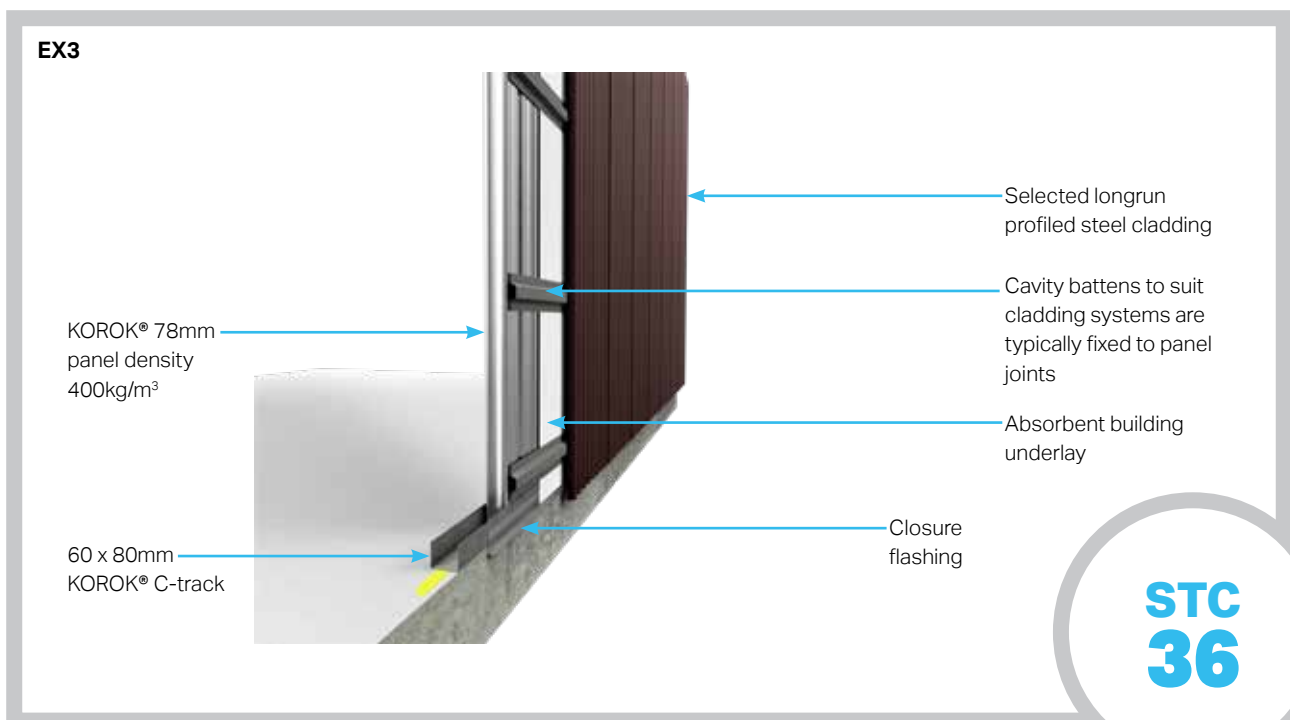
SEALANT

Beads of fire-rated sealant are required around the perimeter of the KOROK® system. Refer to the KOROK® Technical and Installation Manual for more information on sealant application, and to the KOROK® Components Summary for approved sealants.

CLADDING

The longrun profiled steel cladding system and its components will be subject to specific engineering design.

Battens to suit cladding systems are typically fixed to panel joints.



EX4 - 19MM FYRELINE DIRECT FIX, OVER-CLAD

| SPEC. CODE | STC | FRR | SYSTEM SUMMARY |
|------------|-----|-----------|---|
| EX4 | 42 | -/180/180 | KOROK® 78mm panels (400 Kg/m ³ density) The internal side lined with 1 layer of 19mm GIB Fyrelite® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelite® or acceptable GIB® alternatives Longrun profiled steel cladding system as selected |

KOROK® PANEL

KOROK® 78mm panels are installed vertically.

KOROK® 78mm panels, located in KOROK® C-track 60mm high x 80mm wide x 1.15B.M.T. C-track is fixed at a maximum of 400mm centres bedded on a bead of fire-rated sealant.

See the vertical installation sections of the KOROK® Technical & Installation Manual for installation details.

SEALANT

Beads of fire-rated sealant are required around the perimeter of the KOROK® system. Refer to the KOROK® Technical and Installation Manual for more information on sealant application, and to the KOROK® Components Summary for approved sealants, and to the KOROK® Components Summary for approved sealants.

LINING

Internal face 19mm GIB Fyrelite® or acceptable GIB® alternatives vertical or horizontal fixing permitted, sheets touch fitted.

Offset joints in double layer systems: For vertical fixing all sheet joints must be formed over framing and sheet joints must be offset. The second layer may be fixed horizontally, in this case no studs are required behind longitudinal joints. Linings to be fixed hard to floor.

FASTENING THE LINING

19mm GIB Fyrelite® sheets are fixed to the KOROK® using 6 gauge x 32 mm self-tapping plasterboard screws at approximately 200 mm centres around the perimeter and

along the centreline of each sheet, adjusted as necessary so that the screws engage in the steel facing of the KOROK®.

The 10 mm GIB Fyrelite® sheets may be placed vertically or horizontally, with sheet joints staggered 600 mm between layers.

10 mm GIB Fyrelite® is to be fixed as follows:

1st layer: 6 gauge x 25 mm self-tapping plasterboard screws at 600 mm centres around the perimeter and along the centreline of each sheet.

2nd layer: 6 gauge x 32 mm self-tapping plasterboard screws at 300 mm centres around the perimeter and along the centreline of each sheet.

Sheet end joints: 6 gauge x 32 mm self-tapping plasterboard screws at 200mm centres.

JOINTING

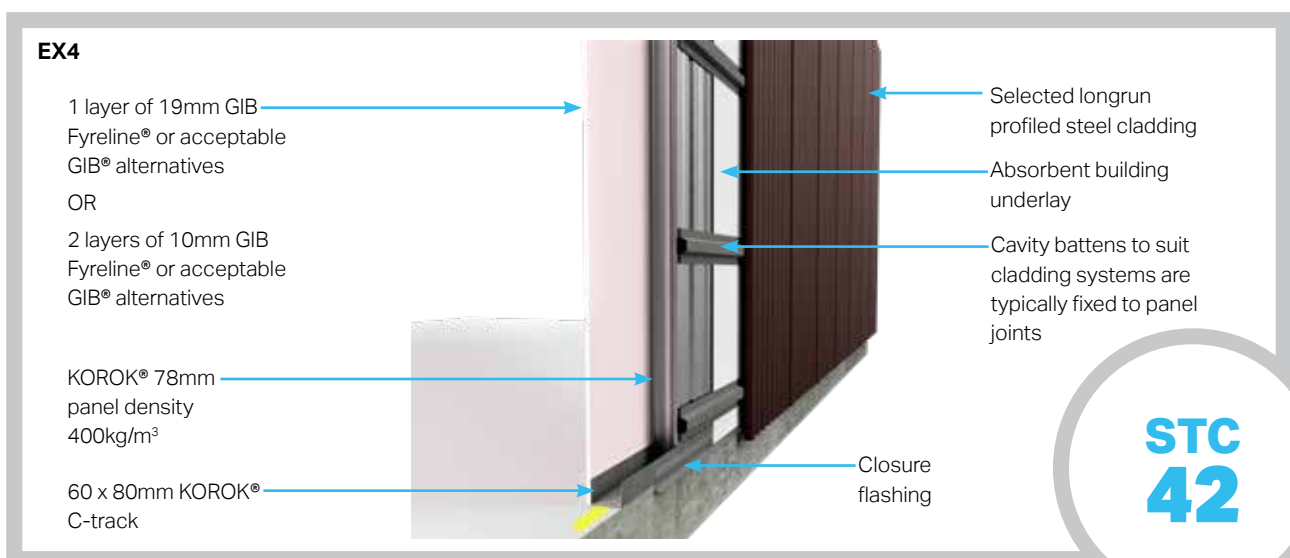
19mm GIB Fyrelite®, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.

2 x 10mm GIB Fyrelite® inner layer unstopped. Outer layer, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.

CLADDING

The longrun profiled steel cladding system and its components will be subject to specific engineering design.

Battens to suit cladding systems are typically fixed to panel joints.



EX5 - 19MM FYRELINE BATTEN FIX, OVER-CLAD

| SPEC. CODE | STC | FRR | SYSTEM SUMMARY |
|------------|-----|-----------|---|
| EX5 | 42 | -/180/180 | KOROK® 78mm panels (400 Kg/m ³ density) The internal side lined with 1 layer of 19mm GIB Fyrelime® or acceptable GIB® alternatives or 2 layers of 10mm GIB Fyrelime® or acceptable GIB® alternatives Longrun profiled steel cladding system as selected |

KOROK® PANEL

KOROK® 78mm panels are installed vertically.

KOROK® 78mm panels, located in KOROK® C-track 60mm high x 80mm wide x 1.15B.M.T. C-track is fixed at a maximum of 400mm centres bedded on a bead of fire-rated sealant.

See the vertical installation sections of the KOROK® Technical & Installation Manual for installation details.

SEALANT

Beads of fire-rated sealant are required around the perimeter of the KOROK® system. Refer to the KOROK® Technical and Installation Manual for more information on sealant application, and to the KOROK® Components Summary for approved sealants, and to the KOROK® Components Summary for approved sealants.

INTERNAL FRAMING

Steel battens, 28mm in depth and no less than 34mm in surface width and at least .55 galv steel in gauge. Battens to be fastened at 500mm centres using pairs of 10g x 30mm self tapping screws into the panel joints. Noggins of similar material to be used at plasterboard joints.

Steel battens spaced at a maximum of 600mm centres to suit plasterboard linings.

LINING

Internal face, 19mm GIB Fyrelime® or acceptable GIB® alternatives vertical or horizontal fixing permitted, sheets touch fitted.

Offset joints in double layer systems: For vertical fixing all sheet joints must be formed over framing and sheet joints must be offset. The second layer may be fixed horizontally, in this case no battens are required behind longitudinal joints. Linings are to be fixed hard to floor.

FASTENING THE LINING

Fasten the lining as per the manufacturer's instructions.

JOINTING

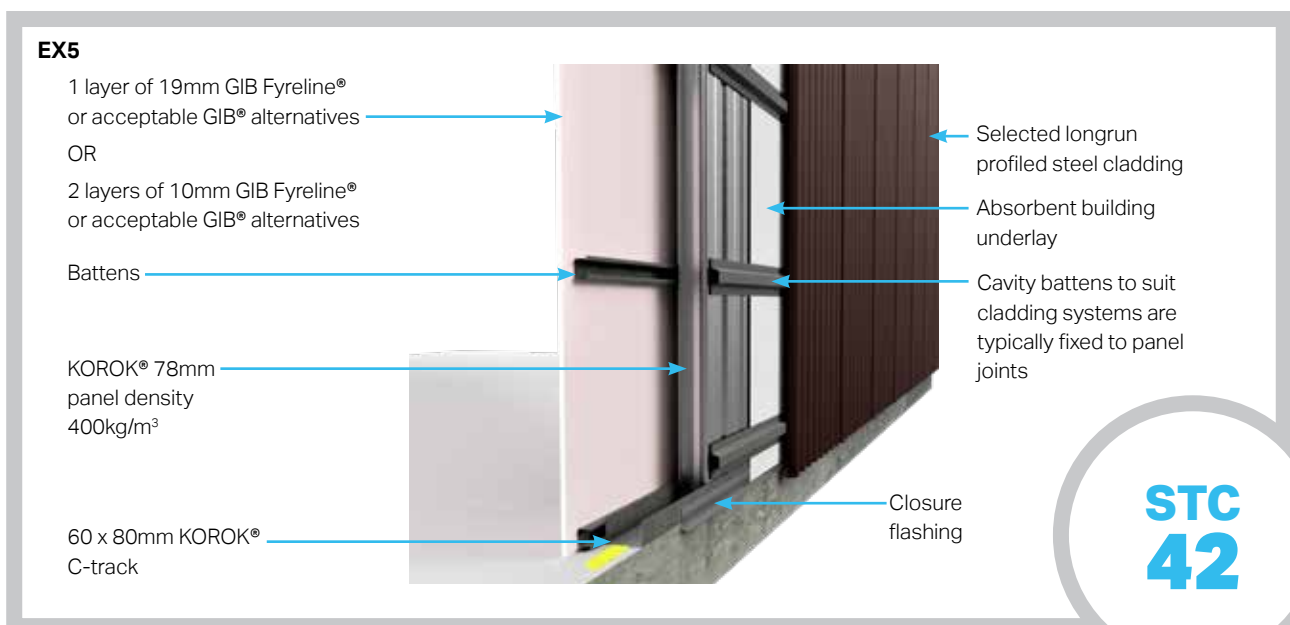
19mm GIB Fyrelime®, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.

2 x 10mm GIB Fyrelime® inner layer unstopped. Outer layer, all screw heads stopped and all sheet joints tape reinforced and stopped in accordance with manufacturer's instructions.

CLADDING

The longrun profiled steel cladding system and its components will be subject to specific engineering design.

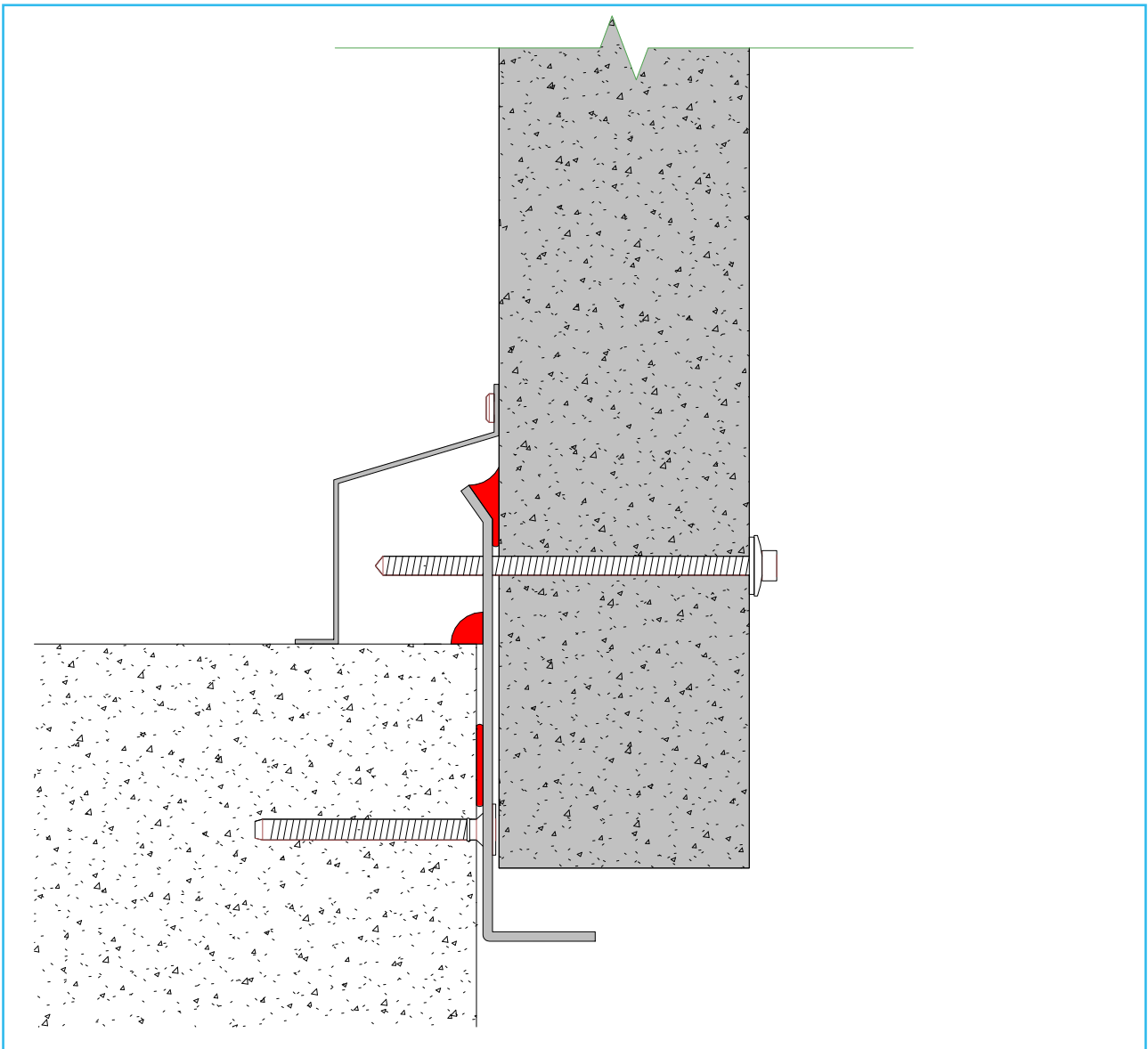
Battens to suit cladding systems are typically fixed to panel joints.



STC 42

KOROK®

DRAWING DETAILS



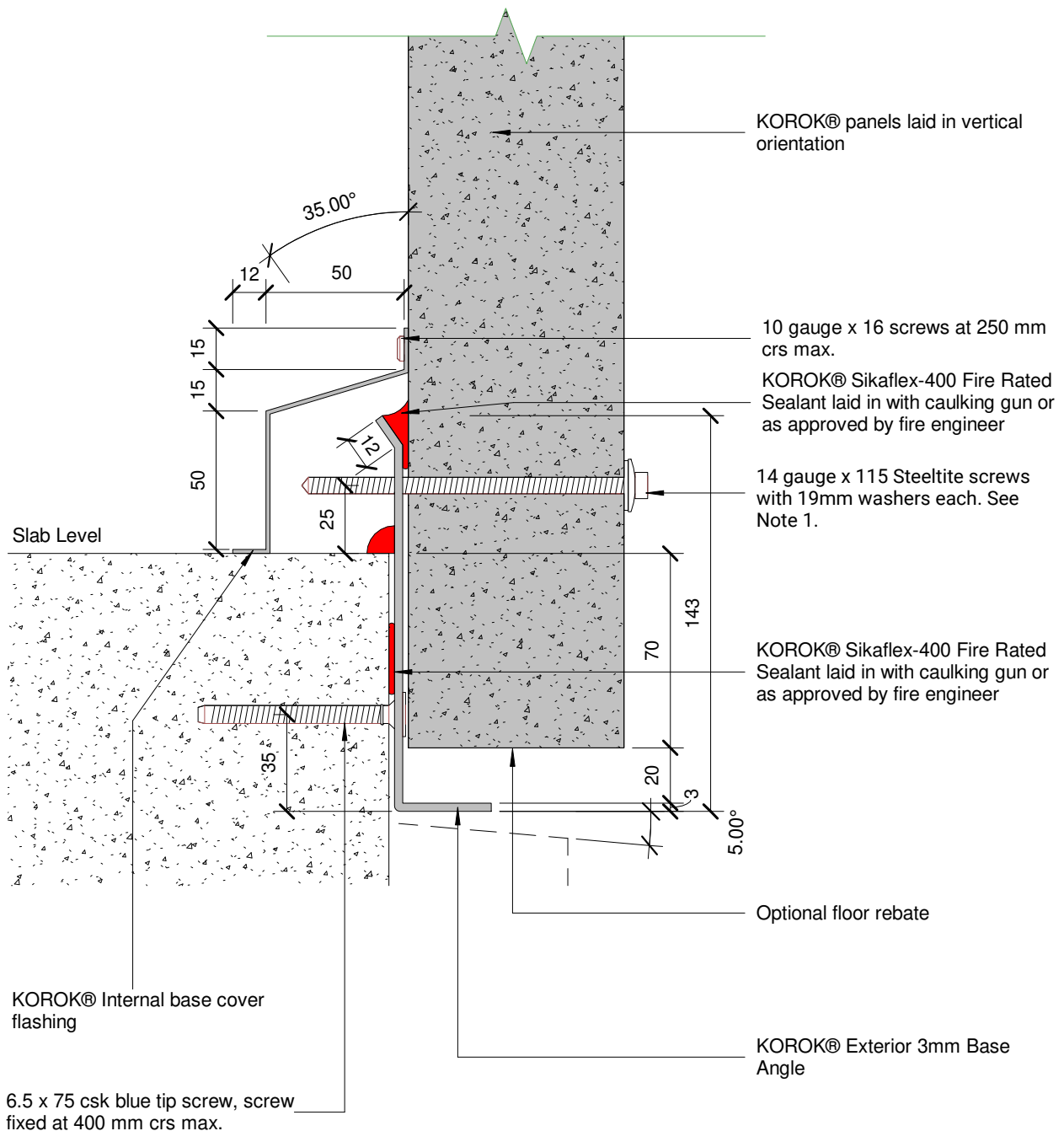
KOROK® EXTERNAL WALL DETAILS

EXTERNAL WALL BOTTOM FIXING SECTION DETAIL WITH BASE ANGLE

Note 1:

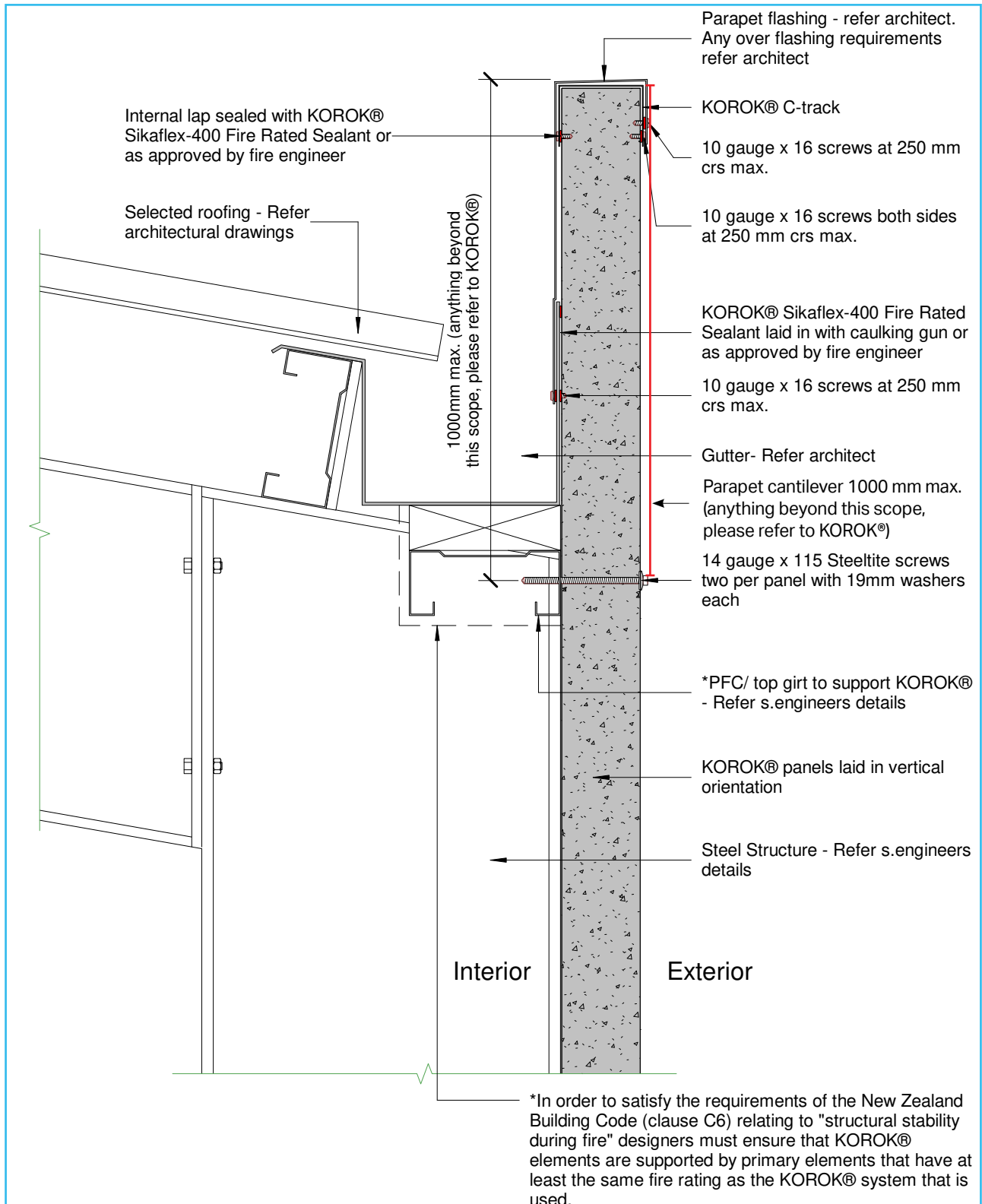
Two (2) 14g x 115mm Steeltite screws per panel must be used to fix the EX1 and EX2 systems to the KOROK® Exterior 3mm Base Angle.

EX2 Systems with an unsupported span over 4 metres require **three (3)** 14g Steeltite screws per panel to fix the wall system to the KOROK® Exterior 3mm Base Angle.



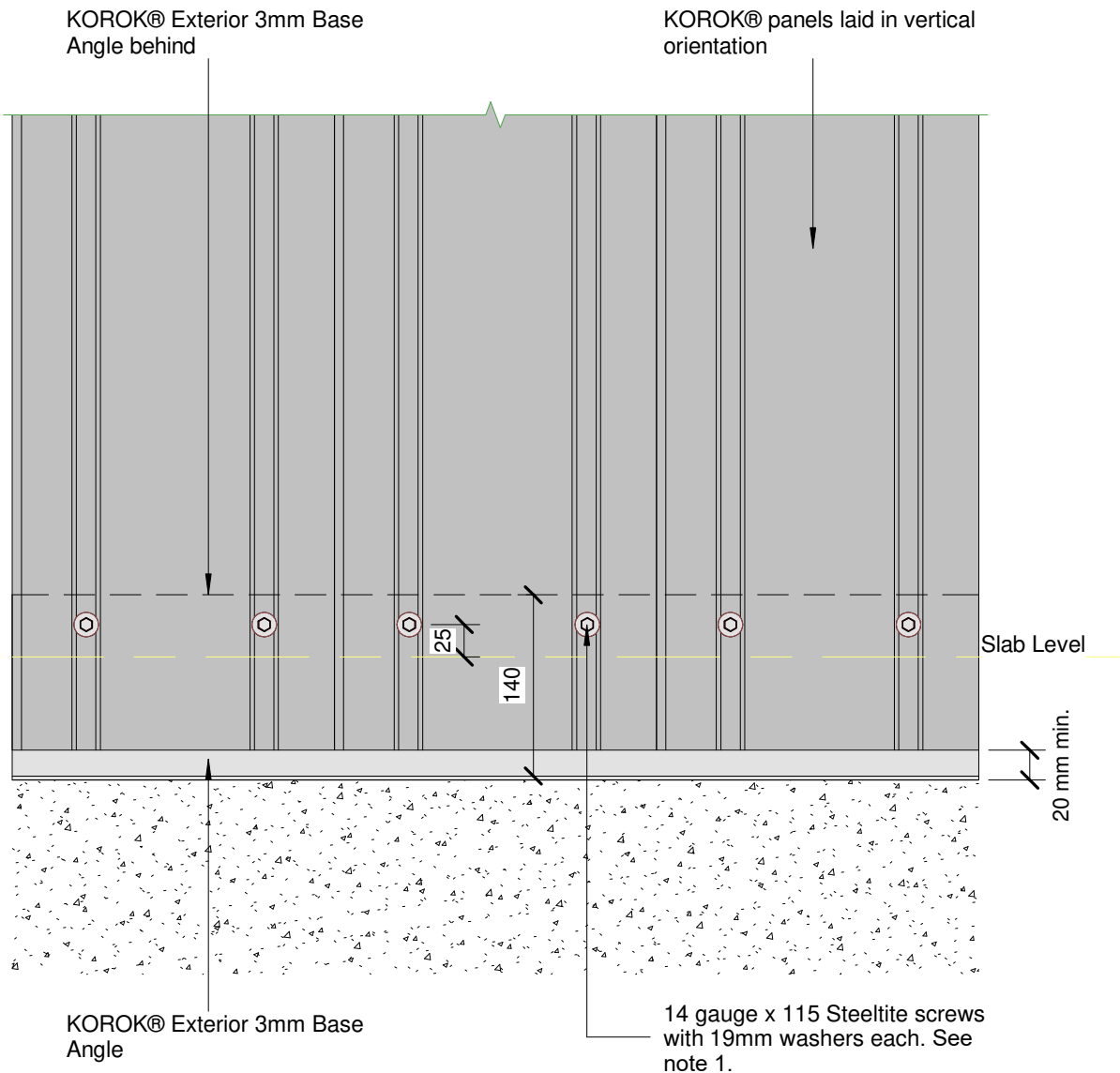
KOROK® EXTERNAL WALL DETAILS

TYPICAL PARAPET DETAIL FOR EX1 AND EX2



KOROK® EXTERNAL WALL DETAILS

EXTERNAL WALL BOTTOM FIXING OUTSIDE ELEVATION FOR EX1 AND EX2



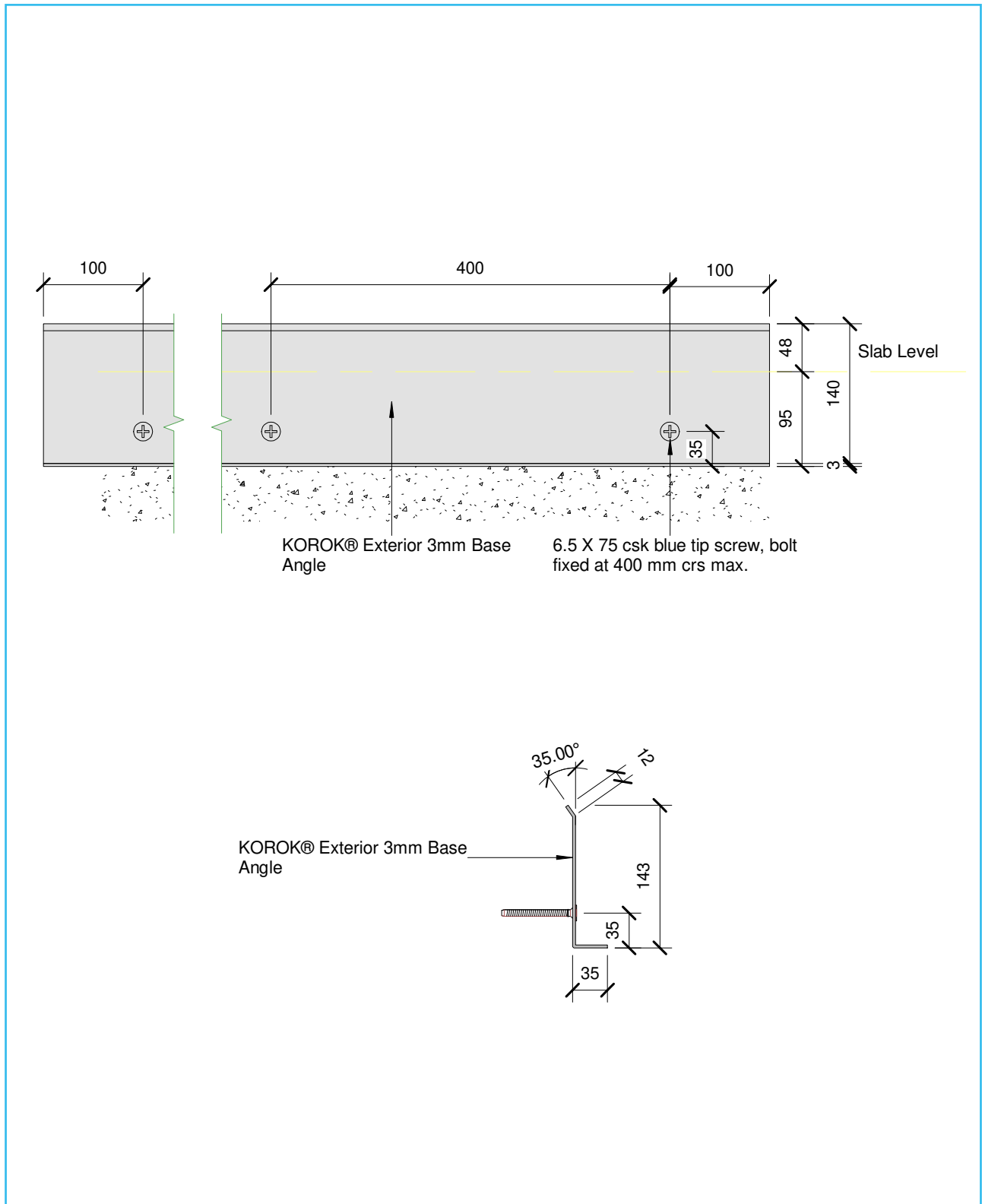
Note 1:

Two (2) 14g x 115mm Steeltite screws per panel must be used to fix the EX1 and EX2 systems to the KOROK® Exterior 3mm Base Angle.

EX2 Systems with an unsupported span over 4 metres require **three (3)** 14g Steeltite screws per panel to fix the wall system to the KOROK® Exterior 3mm Base Angle.

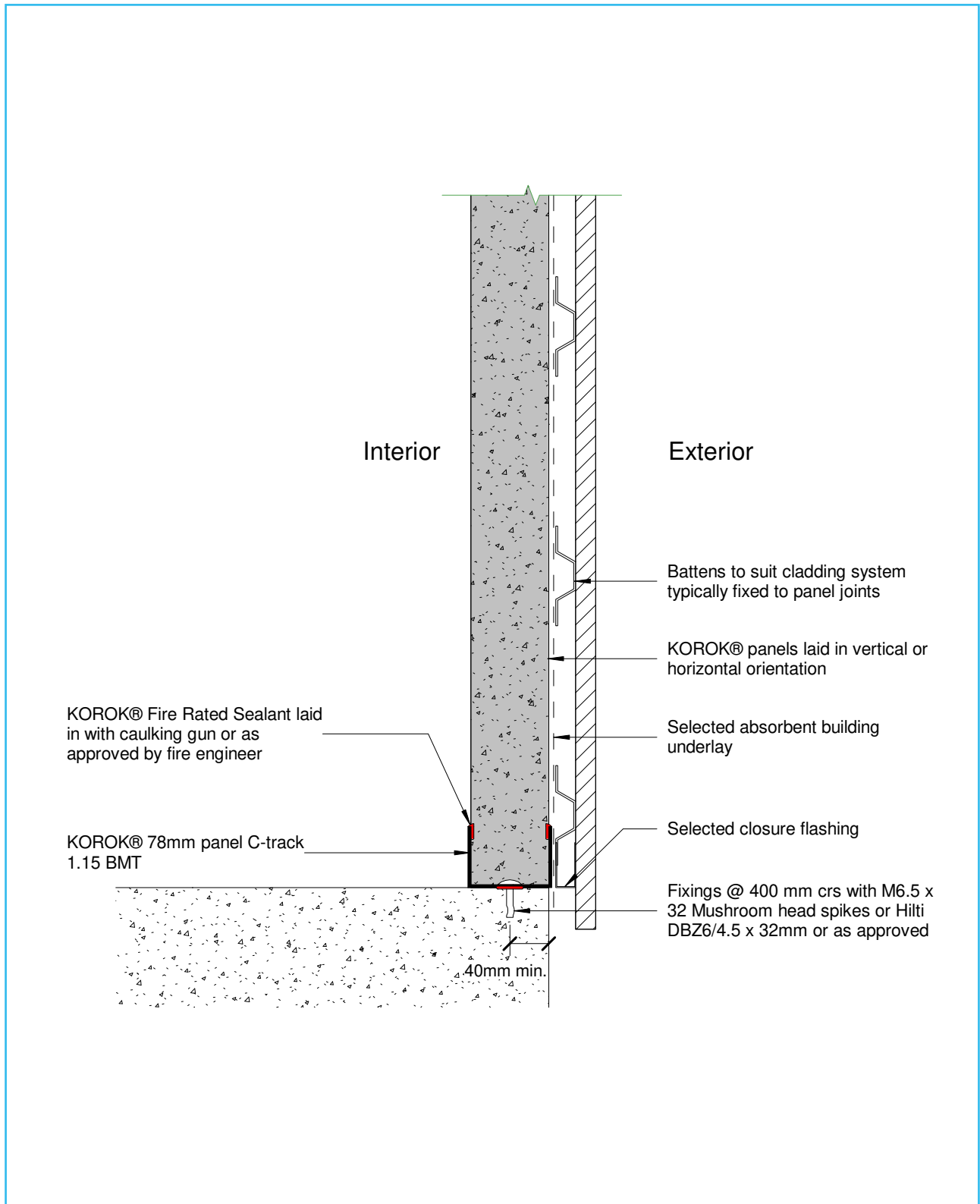
KOROK® EXTERNAL WALL DETAILS

BASE ELEVATION WITH KOROK® EXTERIOR 3MM BASE ANGLE FOR EX1 AND EX2



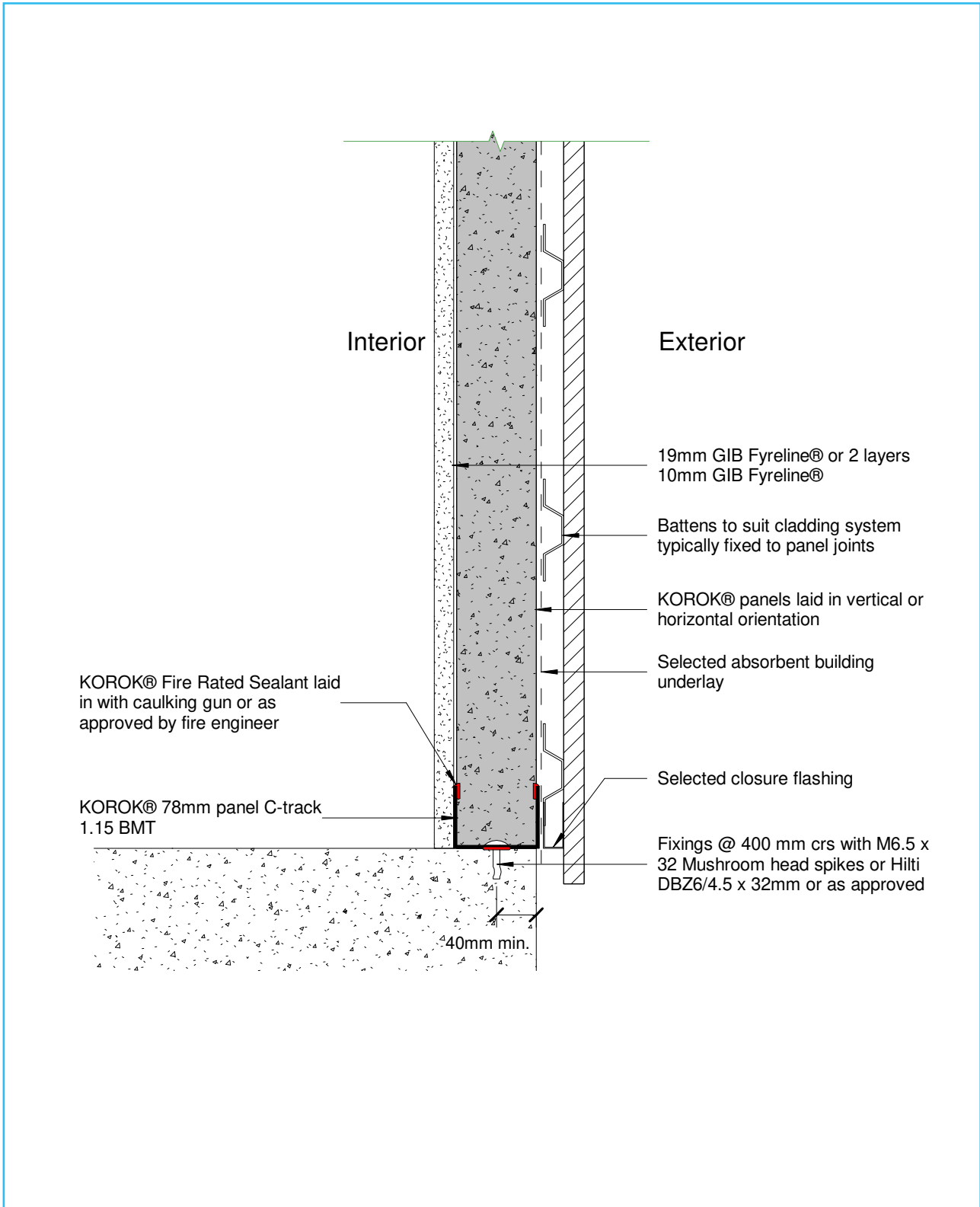
KOROK® EXTERNAL WALL DETAILS

BOTTOM OF SLAB SECTION VIEW EX3



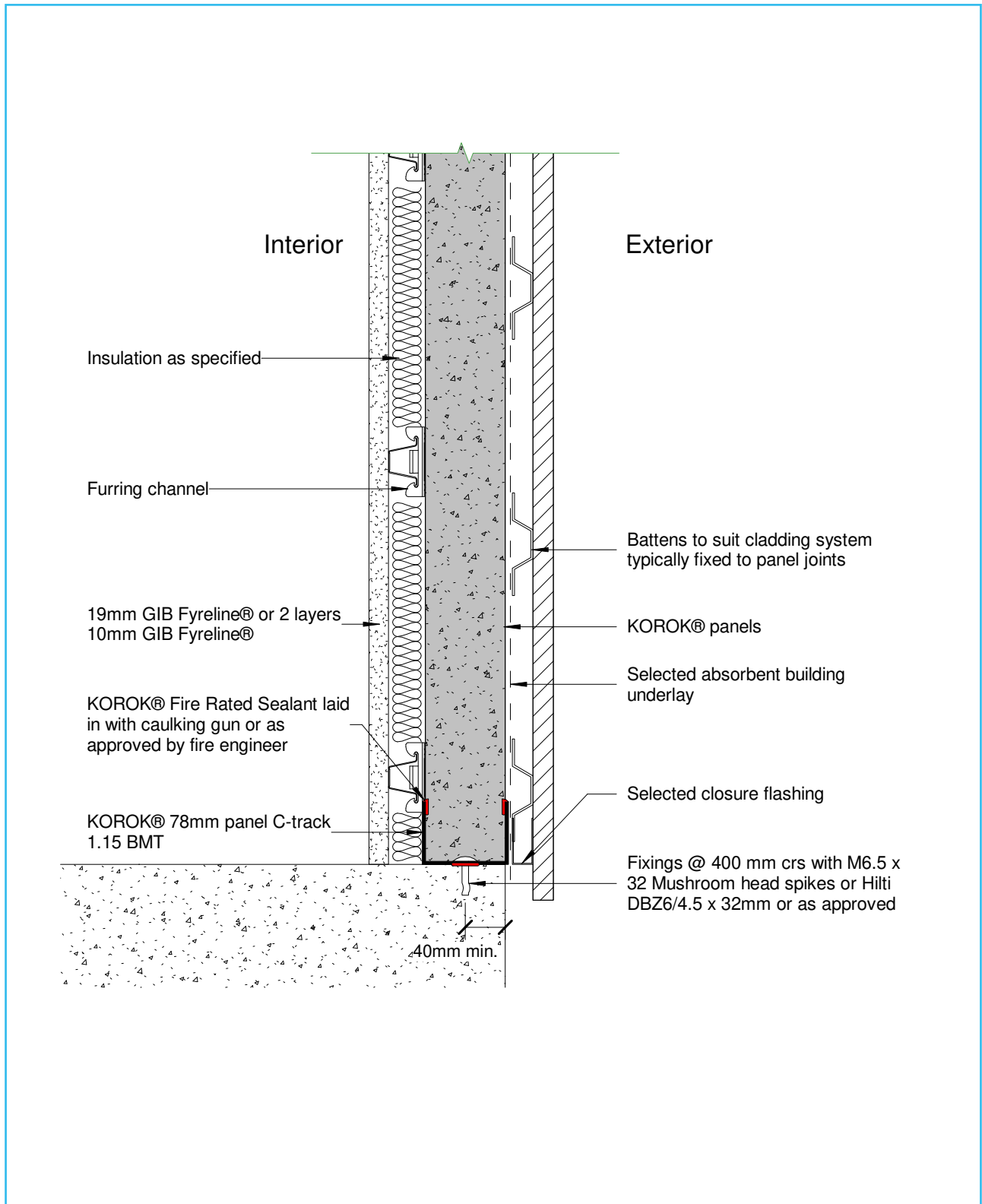
KOROK® EXTERNAL WALL DETAILS

BOTTOM OF SLAB SECTION VIEW EX4



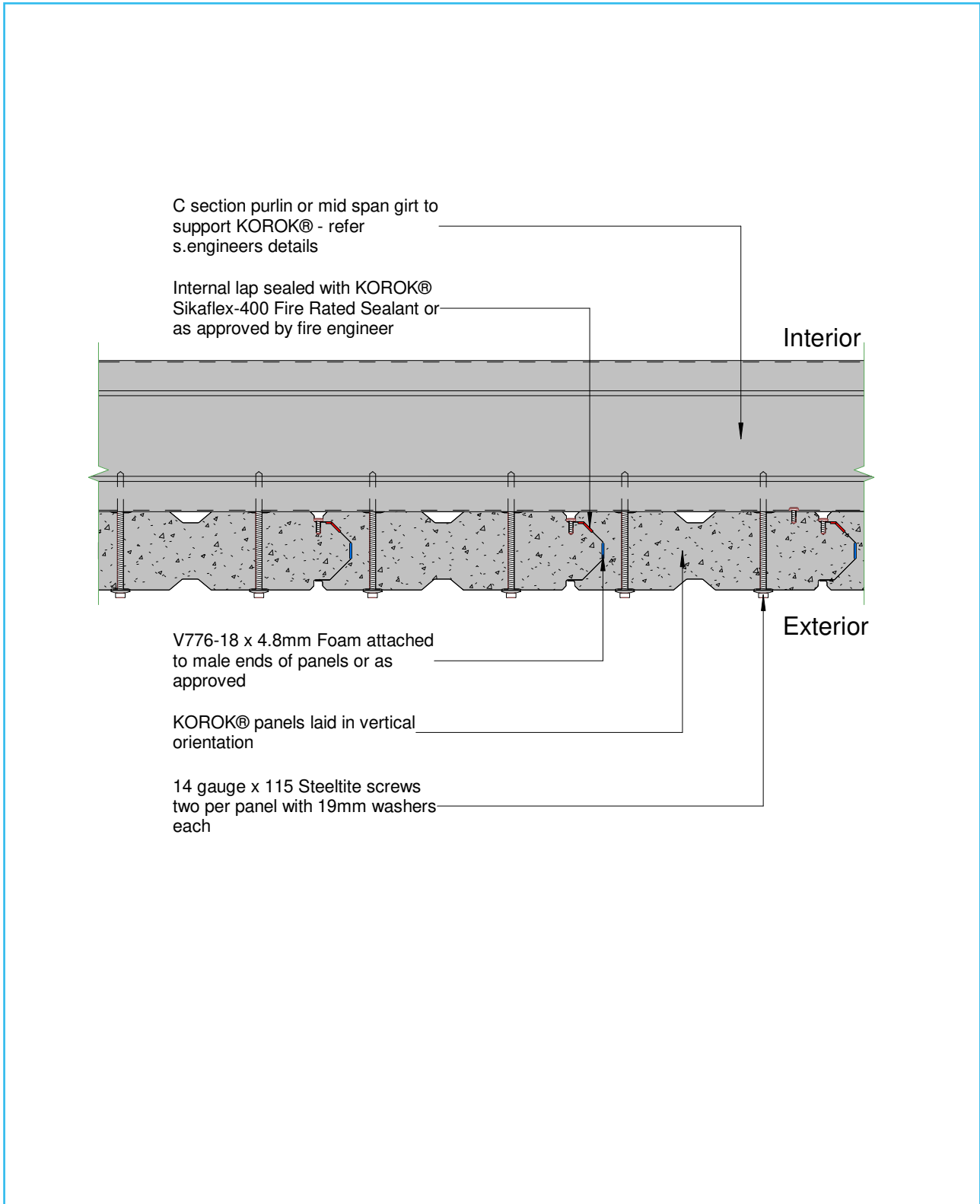
KOROK® EXTERNAL WALL DETAILS

BOTTOM OF SLAB SECTION VIEW EX5



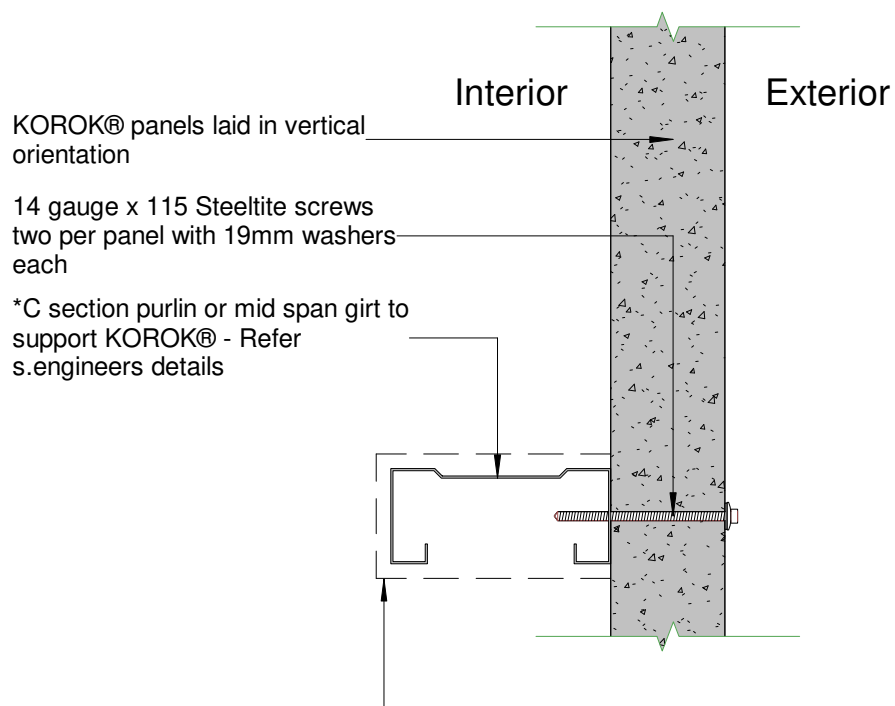
KOROK® EXTERNAL WALL DETAILS

TYPICAL MID SPAN GIRT PLAN FOR EX1 AND EX2



KOROK® EXTERNAL WALL DETAILS

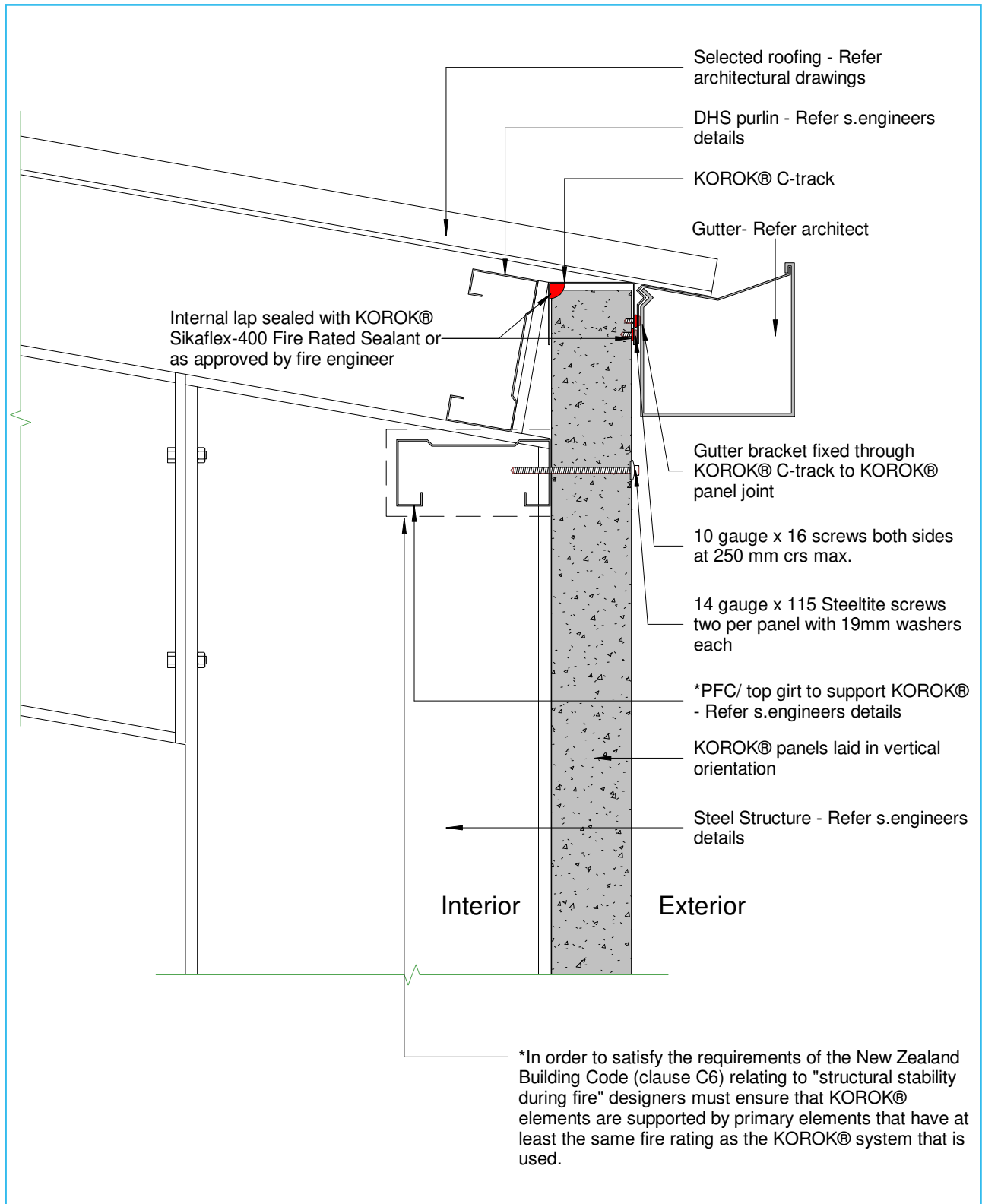
MID SPAN GIRT SECTION



*In order to satisfy the requirements of the New Zealand Building Code (clause C6) relating to "structural stability during fire" designers must ensure that KOROK® elements are supported by primary elements that have at least the same fire rating as the KOROK® system that is used.

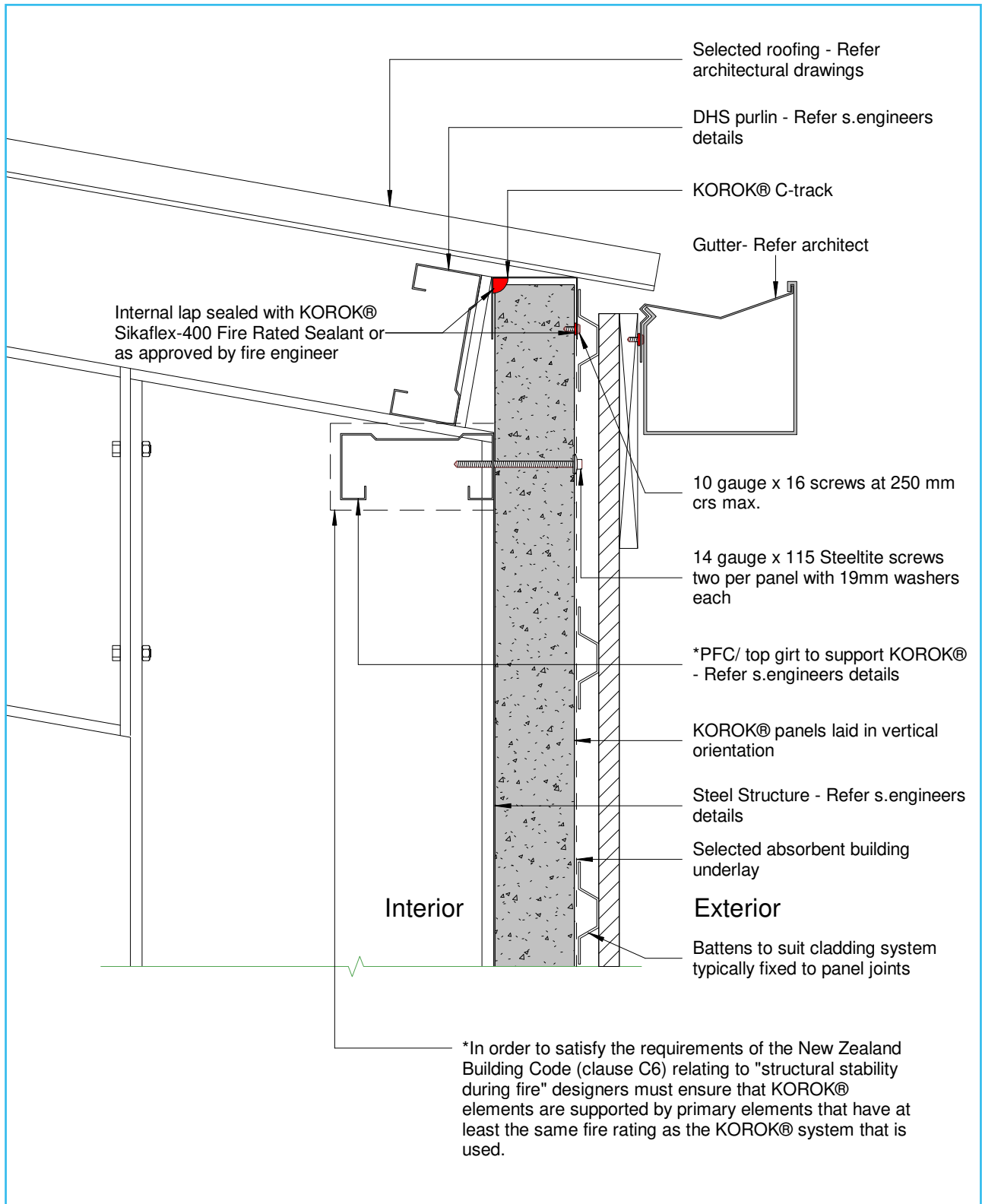
KOROK® EXTERNAL WALL DETAILS

TYPICAL GUTTER FOR EX1 AND EX2



KOROK® EXTERNAL WALL DETAILS

TYPICAL GUTTER FOR EX3, EX4 AND EX5



KOROK®

INSTALLATION INSTRUCTIONS



EXTERNAL WALL SYSTEMS INSTALLATION

TRANSPORT

Generally the lengths of KOROK® are delivered to site by long trailers and articulated trucks. Therefore access to and on building sites must be adequate to accommodate these types of vehicles.

Off loading and site storage or craning onto site is the responsibility of the client and suitable arrangements must be made prior to delivery.

KOROK® products are packed and protected against damage during delivery but care must be exercised during unloading.

Lengths must be adequately supported during unloading and where packs are broken and panels lifted by hand, care must be taken not to slide or drag the panel and scrape the finished surfaces of the product.

HANDLING AND STORAGE

KOROK® panels must be stored under clean, dry and ventilated conditions.

Where it is necessary for KOROK® Panels to be stored on-site they must be placed away from the building operations, if possible, in the order in which they will be fixed.

Storage must provide a firm and dry base, protected from the weather, accidental damage and moisture.

The panels must be stored on bearers no more than 2000mm apart. Stack heights are limited to 8 pallets.

Adequate cover must be provided and water must not lie on or between the panel surfaces, which will cause staining and degradation of the surface coatings.

If pallets become wet the KOROK® panels must without delay be separated, wiped with a clean cloth and stacked so that the circulation of air will complete the drying process.

ON SITE HANDLING AND STORAGE

Handle KOROK® panels carefully prior to installation. Avoid knocks, bumps and scratches, which may lead to maintenance issues later.

Store KOROK® panels on site flat or in their pallets and ensure that KOROK® panels are dry prior to installation.

CLEANING

At the completion of the job and at the finish of each day's work, it is essential that the completed area be thoroughly cleaned of all swarf, rivet stems, nails drillings and screws, etc. normally associated with the installation of metal panels.

STRIPPABLE FILM

KOROK® panels may be coated with a plastic film to provide protection during handling and transportation. This film has a very short life when exposed to exterior conditions and must be removed immediately after installation.

It must not be left lying in the sun or at the site for more than a few hours. Failure to remove the film will lead to difficulties later with its removal.

CUTTING OF KOROK® PANELS

It is recommended that KOROK® panels are cut using a Hilti DCH300 Electric Concrete Cutter with dust removal system. Hot swarf must not be allowed to contact pre-painted or galvanized sheet material. Any grinding, welding or drillings carried out above the wall level must be done with the panels appropriately covered to avoid swarf contact.

Failure to do so will result in unsightly staining of the surface as the metal particles rust or oxidise.

INSTALLATION

Specific design advice must be sought where KOROK® is to be subject to point loads or other distributed loading other than wind.

Ensure connections between KOROK® panels are properly made.

Ensure connections of KOROK® panels to the structure are adequate.

EXTERNAL WALL SYSTEMS INSTALLATION

The panels need to be handled with care prior to installation to avoid knocks, bumps and scratches which may lead to maintenance issues at a later date. Panels to be stored on their flat or in their pallets.

When using long panels, care must be taken when lifting the panels into place that they do not deflect so much that the skin is wrinkled.

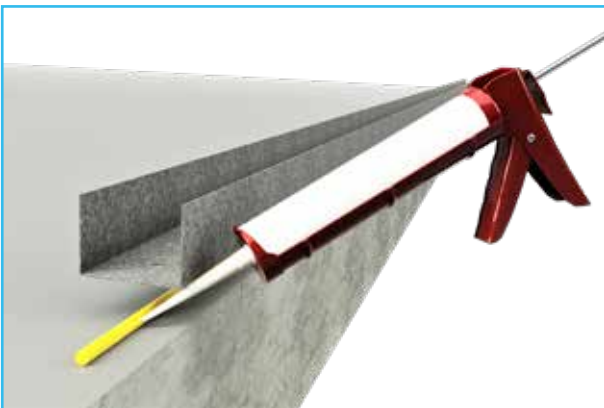


STEP 1 - EX1 AND EX2 SYSTEMS

This step is not required for EX3, EX4 and EX5 systems.

Install KOROK® Exterior 3mm Base Angle.

First apply 1 row of 10mm bead of Sikaflex-400 fire-rated sealant to the back of the KOROK® Exterior 3mm Base Angle. Place the Angle in position against the concrete slab and drill 6mm holes into the slab at the pre-drilled 400mm centres.



STEP 1A - EX3, EX4 AND EX5 SYSTEMS

This step is not required for EX1 and EX2 systems.

Ensure C-track is sealed to the structure. A continuous bead of fire-rated sealant is run along the floor before the C-track is laid and fixed.

OR

The sealant can be applied directly to the C-track before fixing in place.

Using a masonry drill bit, drill the track at 400mm centres. Secure the track with the specified fixings.



STEP 2 - EX1 AND EX2 SYSTEMS

This step is not required for EX3, EX4 and EX5 systems.

Fasten the slab mounted Angle to the concrete slab with the 6.5x75mm Blue Tip screws.

If the slab is uneven, add a second bead of sealant in the corner of the KOROK® Exterior 3mm Base Angle and the slab.

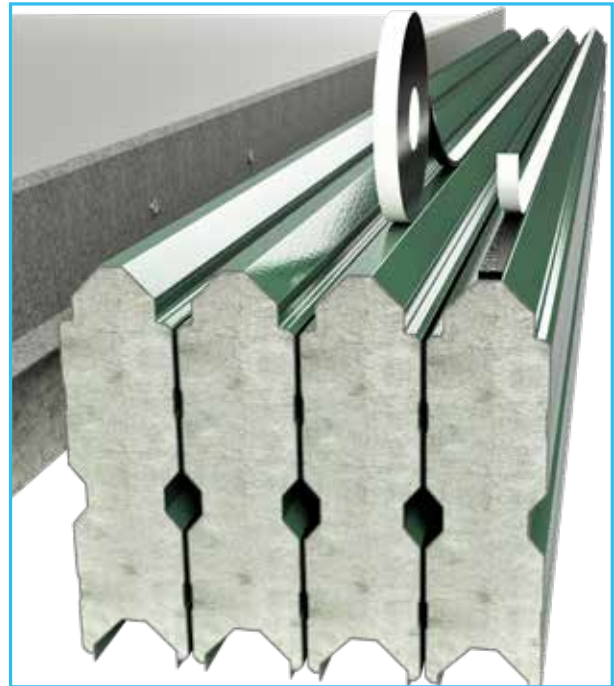
EXTERNAL WALL SYSTEMS INSTALLATION

STEP 3 - EX1 AND EX2 SYSTEMS

This step is not required for EX3, EX4 and EX5 Systems.

Prepare the KOROK® panels for installation.

Apply KOROK® foam to the male ends of the panels and remove the paper. Do this while the panels are still in the pack for efficiency.



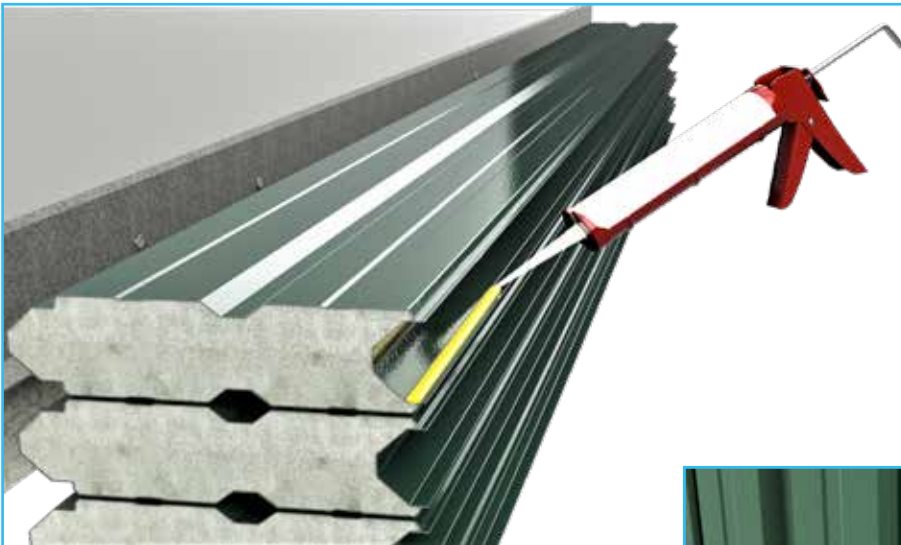
STEP 4 - EX1 AND EX2 SYSTEMS

This step is not required for EX3, EX4 and EX5 systems.

Apply fire-rated sealant to the KOROK® panels.

Remove the panels from the pack and apply a bead of KOROK® sealant to the internal lap of the female end just prior to installing the panel.

When laying the panels horizontally ensure the surface is clean and free from grit as the panel coating may scratch and mark.

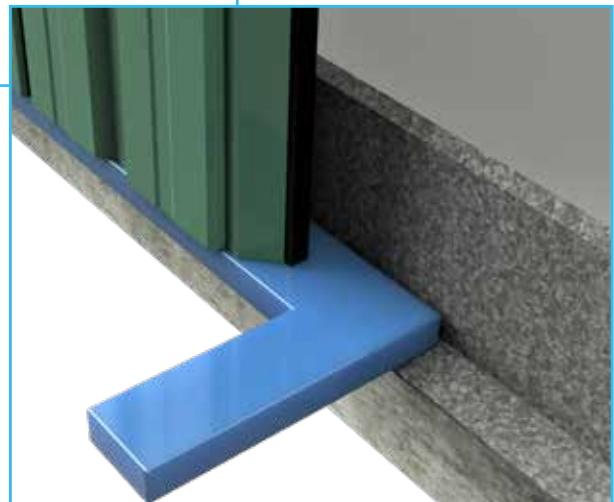


STEP 5 - EX1 AND EX2 SYSTEMS

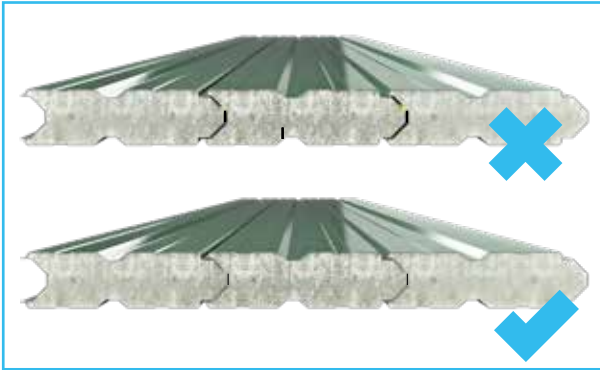
Install first KOROK® panel.

Ensure the first panel is plumbed vertical and is screw fixed into place. Lift KOROK® panels vertically into place and set the bottom of the panel on top of a 20 mm KOROK® packer.

This supports the panels during installation and maintains the 20 mm gap between the bottom of the panel and the lip of the KOROK® Exterior 3mm Base Angle. Fix each panel off before fitting the next panel and before moving the packer.



EXTERNAL WALL SYSTEMS INSTALLATION



STEP 6

Before fastening, ensure the panels are clicked together correctly to maintain performance.



STEP 7

Fix panels to supports.

Remove the strippable film where the panels are to be fastened.

With the 20 mm packer in place, fasten the KOROK® panels to the KOROK® Exterior 3mm Base Angle with 14g x 115mm Steeltite screws. At the top support use 2 Steeltite screws per panel.

Two (2) 14g x 115mm Steeltite screws per panel must be used to fix the EX1 and EX2 systems to the KOROK® Exterior 3mm Base Angle.

EX2 Systems with an unsupported span over 4 metres require **three (3)** 14g Steeltite screws per panel to fix the wall system to the KOROK® Exterior 3mm Base Angle.

Once the panel is fastened off, the packer is moved along to support the next panel.



STEP 8

Repeat steps 5-7 until the wall is complete.

EXTERNAL WALL SYSTEMS INSTALLATION



STEP 9

Fix KOROK® panels to any midspan supports.

Fix the KOROK® panels to any required midspan supports as per the wall design.

STEP 10

Add KOROK® C-track to top and sides.

Cap off the top and sides of the newly assembled wall with KOROK® C-track.



STEP 11 - EX1 AND EX2 SYSTEMS

Screw off the completed wall.

On the internal side of the wall, screw off the walls with KPS Wafer 10-16x16mm screws. Screws are inserted into each panel joint at 1 metre horizontal centres.

STEP 11A - EX3, EX4 AND EX5 SYSTEMS

Screw off the completed wall.

On either the internal side or the external side of the wall, screw off the walls with KPS Wafer 10-16x16mm screws. Screws are inserted into each panel joint at 1 metre horizontal centres.

EXTERNAL WALL SYSTEMS INSTALLATION



STEP 12 - EX3, EX4 AND EX5 SYSTEMS CLADDING INSTALLATION

The longrun profiled metal cladding system shall be installed as designed by a suitably qualified and capable practitioner, including all closures, flashings, etc.

Install Building Underlay

Install absorbent building underlay as specified.

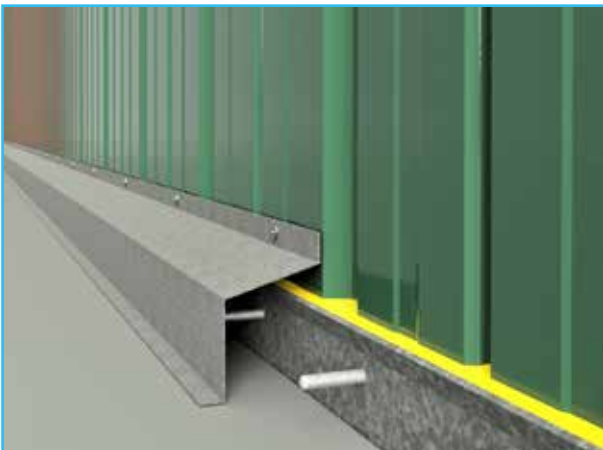
Install Cavity Battens

Fasten the cavity battens into the KOROK® panel joints at the specified centres.

Space the cavity battens at the specified spans.

Install the longrun profiled metal cladding

Fasten the cladding at the specified centres and fastening pattern through the cavity battens into the KOROK® panel.



STEP 13 - EX1 AND EX2 SYSTEMS

Install flashings

Barge, gutter and corner flashings are installed to complete the wall. Generally these are completed by the roofing/ cladding contractor.

Install the KOROK® internal base cover flashings where applicable.

EX3, EX4 and EX5 Systems do not require the KOROK® internal base cover flashings.

Final check.

At the completion of the job and at the finish of each day's work, it is essential that the completed area be thoroughly cleaned of all swarf, rivet stems, nails, drillings and screws etc. normally associated with the installation of metal KOROK® panels. Remove any remaining strippable film, check all fixings are correctly installed, all fire and acoustic sealant is applied correctly.

DESIGN CONSIDERATIONS

DESIGN WIND PRESSURES

The KOROK® External Wall Systems are designed to be used for buildings situated in specific design wind pressures:

- EX1 and EX2 systems: 1.76 kPa; or
- EX3, EX4 and EX5 systems: 2.5 kPa.

MAXIMUM PERMISSIBLE HEIGHT

The total height of the KOROK® system is related to the surrounding environment and primary structure.

Span tables are based on ambient conditions.

When used as part of a fire-rated system, the maximum unsupported vertical span of the KOROK® 78mm panels for EX systems is 6.0 metres. Greater spans or walls where additional load carrying capacity is required are subject to specific engineering design and/or fire engineering assessment.

EX3, EX4, EX5 WALL SYSTEMS

Where additional load carrying capacity is required, KOROK® offers solutions for any non-combustible cladding up to 50 kg/m² with a maximum furring channel/top hat depth of 100 mm.

For maximum wall heights please contact us at KOROK® on 0800 773 777.

SUPPORT

KOROK® panels are non-load bearing and are designed to be fixed to supporting structures.

In order to satisfy the requirements of New Zealand Building Code (Clause C6) relating to “structural stability during fire”, designers must ensure that KOROK® elements are supported by primary elements that have at least the same fire rating as the KOROK® system that is used, unless the primary structure lies outside the fire cell.

FRAMING

Frames must be designed to meet the requirements of NZBC Part B and consider the loading imposed on them by the KOROK® wall.

PLASTERBOARD LININGS

All plasterboard linings must be fixed in accordance with the manufacturer’s instructions.

FIRE

KOROK® External Wall Systems provide a range of 2-way Fire Resistance Ratings (FRR) as outlined in the Summary Table.

ACOUSTIC PERFORMANCE

The KOROK® External Wall Systems have been independently tested to ensure compliance with the NZBC requirements, as outlined in the Summary Table.

EXTERNAL MOISTURE

The KOROK® External Wall Systems EX1 and EX2 have been appraised for use as a single skin, non-load-bearing, fire and acoustically rated external walls for all buildings of importance levels 1 to 5 as defined by AS/NZS 1170. The KOROK® External Wall Systems have been appraised for vertical, straight in-fill panel walls with no penetrations.

Housing and communal residential buildings are excluded.

USE OF SPAN TABLES

Span tables are based on ambient conditions.

When used as part of a fire-rated system, the maximum unsupported vertical span of the KOROK® 78mm panels for EX systems is 6.0 metres. Greater spans or walls where additional load carrying capacity is required are subject to specific engineering design and/or fire engineering assessment.

Shelf loading requires specific engineering design.

Vertical Panel Tables have been generated to a maximum unsupported span of 8m height.

DESIGN CONSIDERATIONS

OVER-CLAD SYSTEMS

KOROK® External Over-Clad Wall systems EX3, EX4 and EX5, are clad using lightweight systems up to 15 kg/m², typically roll-formed profiled metal wall claddings.

KOROK® External Over-Clad Wall systems will be subject to specific engineering design.

KOROK® External Over-Clad Wall systems where additional load capacity is required will be subject to specific engineering design and/or fire engineering design and are outside the scope of this manual.

Designers and Specifiers select, design and specify exterior cladding systems. Claddings must be fixed over a drained and vented cavity system attached to the KOROK® 78mm wall panels.

Cladding Systems must be attached to the KOROK® panel and at the panel joints using the appropriate length screw – refer to Table 2 for Characteristic Strengths of Fasteners.

Table 2: Characteristic Strengths of Fasteners

| Screw Location | Characteristic Strength (kN) | | |
|----------------------------------|------------------------------|-------|-----------------|
| | Into panel joint | | Into panel face |
| Screw Type | Tension | Shear | Tension |
| 10 G 16 SDS Wafer-head Tek screw | 1.16 | 1.22 | 0.46 |
| 12 G Type 17 Hex-head Tek screw | | | 0.60 |
| 14 G Type 17 Hex-head Tek screw | 1.38 | 2.39 | 0.31 |

Note 1: Designers may determine the Capacity Strength by applying the appropriate factor

ABSORBENT BUILDING UNDERLAYS

Selected Absorbent Building Underlays shall be in accordance with Table 3 for Properties of wall underlays.

Table 3: Properties of wall underlays

| Category | Applications | Absorbency |
|---|---|--|
| Flexible Wall Underlay (absorbent underlays only) | Direct fixed <i>non-absorbent</i> claddings (1) | NZS 2295: 2006 section 2 Minimum Absorbency 100 g/m ² tested to NZS 2295 |

1. Use only absorbent underlays where directly in contact with the KOROK® panel and/or the profiled metal wall cladding.

And shall:

1. be run horizontally
2. have upper sheets lapped over lower sheets to ensure that direction of laps will allow water to be shed to outside of the wall underlay
3. be lapped not less than 75 mm at horizontal joints
4. be lapped not less than 150 mm at vertical joints
5. extend 35 mm below bottom C-track; and
6. be restrained from bulging into a drained cavity.

DESIGN CONSIDERATIONS

SELECTED CAVITY BATTENS

shall:

1. be a minimum 20 mm in thickness
2. be a minimum of 40 mm wide
3. have a manufacturer's 50 year durability statement: and
4. be fastened through the wall underlay into the KOROK® panel joints.

SELECTED LONGRUN PROFILED METAL WALL CLADDING

Profiles covered include the following:

1. Corrugated – with a minimum crest height of 16.5 mm and
2. Trapezoidal – symmetrical and asymmetrical with a minimum crest height of 19 mm.

The cladding shall be screw-fixed through the cavity battens into the KOROK® panel.

Fixings shall be in accordance with the following:

1. be a minimum of 12-gauge Type 17 hexagonal head
2. penetrate the KOROK® panel by a minimum of 3 threads
3. be a minimum of Class 4 and
4. include neoprene or EPDM sealing washers.

VENTING, FLASHINGS AND CLOSURES

Shall be in accordance with the New Zealand Metal Roof and Wall Cladding Code of Practice V2.2 2012.

PENETRATIONS

Penetrations through fire-rated walls must be carefully considered by the designer at the design stage and suitable penetration details shall be selected for construction. Unconsidered or poorly planned penetrations through KOROK® External fire-rated Wall Systems risk compromising the performance of KOROK® External fire-rated Wall Systems. Refer to the guidance of the Acceptable solution C/ AS2 or undertake an Engineered solution using the guidance of the Verification Method to determine the maximum permitted size of the penetration opening and, hence, ensure compliance with the NZBC.

KOROK® External fire-rated Wall Systems that have unprotected areas that exceed the allowances given in C/AS2 are outside the scope of this manual and shall be specifically designed using an engineered solution in all instances.

DESIGN CONSIDERATIONS

DURABILITY

Location

Corrosion conditions across New Zealand vary according to local topography and climatic conditions such as strong onshore winds or localised areas of geothermal activity and cannot be precisely defined. The correlation of NZS 3604 Exposure Zones with the corrosion categories published in ISO 9223 may not apply to all locations. As such, the following information must be used along with local knowledge and experience and the derivation of localised corrosion zones is recommended. Advice on the corrosivity conditions of particular sites should be obtained from the relevant Building Consent Authority.

Serviceable Life

Table 4 gives the expected serviceable life of the KOROK® External Wall Systems when used in accordance with the provisions of this manual.

Table 4: KOROK® panel serviceable life

| KOROK® Panel | NZS 3604 | Zone B | Zone C | Zone D | Geothermal |
|-----------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| External Shell Type | ISO 9223 | C1 & C2 | C3 | C4 only | |
| | General description | Mild & moderate | Severe | Very severe | Geothermal |
| Galvsteel G2 | | Not recommended – for external face | Not recommended – for external face | Not recommended – for external face | Not recommended – for external face |
| COLORSTEEL® MAXAM™ | Perforation ¹ | 25 years | 20 years | 20 years | Consult with local BCA |
| | Paint ² | 15 years | 15 years | 15 years | Consult with local BCA |

1. Against perforation as a result of corrosion.

2. Covering the paint surface against flaking, peeling and excessive fade.

All serviceable life expectations are presented for rain washed and fully exposed components.

KOROK® EX panels are to be handled and installed in accordance with New Zealand Steel Literature (available at <https://www.colorsteel.co.nz/assets/default-site/Environmental-Categories-Warranty-Guide-WEB-7.24.pdf>) and NZ Metal Roof and Wall Cladding Code of Practice (available at www.metalroofing.org.nz).

KOROK® EX panels are to be maintained as outlined in New Zealand Steel literature (see the New Zealand Steel brochure for Environmental Categories & Warranty Guide), and the aerated concrete core shall remain dry in service.

Where the internal faces of the KOROK® EX panels will experience regular use of chemical cleaning agents or be in the presence of vapours that may attack galvanised steel components during service then KOROK® Building Systems NZ Limited must be contacted (0800 773 777 info@korok.com) to determine the correct panel coating selection is made to ensure the required service life of the system is achieved.

PANEL PROPERTIES

KOROK® PANELS

KOROK® panels are roll-formed from zinc-coated steel strips. The steel from which the shells are manufactured conforms to AS1397: 2011.

Steel shells have a base metal thickness of 0.4 mm B.M.T. with a Z275 zinc coating. These panels have an aerated concrete core and weigh nominally 10.2 kg per lineal metre.

KOROK® panels have 250 mm coverage when installed.

LOADING COMBINATIONS

All loading combinations are in accordance with AS/NZS 1170.0:2002.

GENERAL DESIGN NOTES

The designs specified in this manual have been carried out in accordance with AS/NZS1170 and laboratory testing carried out by BRANZ Limited.

The tables and charts are prepared for the use of KOROK® in wall applications i.e. floor systems cannot be modelled from the safe load tables in this manual. Interpolation of the tables is acceptable.

REFERENCES

The following references including standards and codes of practice govern the manufacture of components, use and design and installation of KOROK® systems.

STANDARDS

NZS 2589.1-2017

Gypsum Linings in residential and light commercial construction.

AS/NZS 1170.0-2002

Structural design actions. Part 0: General Principles

NZS 7202-1986

Part 1 Specification for gap filling adhesives

AS 4072.1-2005

Components for the protection of openings in fire-resistant separating elements

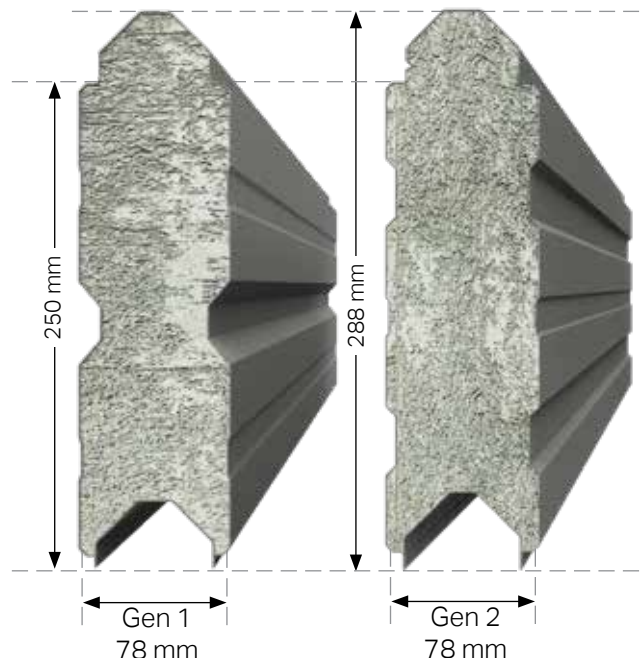
AS 1530.4-2014

Methods for fire tests on building materials, components and structures

MANUFACTURERS DOCUMENTS

Refer to KOROK® Systems Manuals.

- Autex® Insulation Data Sheets
- GIB® Site Guide
- GIB® Fire-rated Systems
- Penetrations and closures in GIB® Fire-rated Systems
- GIB® Noise Control Systems
- Hilti® New Zealand Technical Manual
- Pink® Batts® Data Sheets
- Powers Fasteners Specification & Design Manual
- Rondo® Steel Stud & Tracks Installation Manual
- USG® Drywall Steel Stud & Track System
- USG® Boral Plasterboard Installation Manual NZ



KOROK® PANEL PROPERTIES: 78 MM 400 KG/M³

KOROK® PANEL PROPERTIES

- Base Metal Thickness 0.4 mm B.M.T.
 - Mass kg per lineal metre 10.2 nominal
 - Mass kg/m² 40.8 nominal
- EI** 60 kNm² per panel (*bending stiffness, minor axis*)
- EI** 387 kNm² per panel (*bending stiffness, major axis*)
- EA** 4060 kN per panel (*axial stiffness*)
- GJ** 583 kNm² per panel (*torsional stiffness*)

VERTICAL SPAN WALLS

- Maximum bending moment / panel 1.43 kNm (ULS)
- Maximum axial end crush force / panel 25 kN (ULS)
3.4 kN (SLS)
- Maximum horizontal reaction (crushing on flat) / panel
8.9 kN (ULS) 3.1 kN (SLS)

THERMAL RESISTANCE

- R Value 0.30 (m²K)/W
- U Value 3.2 W/(m²K)

DEFINITIONS

ULS: Value shown is for Ultimate Limit State loading

SLS: Value shown is for Serviceability Limit State loading

USE OF TABLES

1. These Span Tables are based on ambient conditions.
2. When used as part of a fire-rated system, the maximum unsupported vertical span of the KOROK® 78 mm panels is 6.0 metres. Greater spans or walls where additional load carrying capacity is required are subject to specific engineering design and/or fire engineering assessment.
3. Shelf loading requires specific engineering design.
4. Determine the loads on the KOROK® in accordance with AS/NZS 1170.0.
5. Use Table 6 - Vertical Span to ensure that walls spanning vertically can carry the loads previously calculated. Interpolation of points in the tables is allowed.
6. The Tables have been generated for a range of deflection limits i.e. Span/150, Span/200, Span/250, Span/300 in the vertical KOROK® panel configurations.
7. The walls must be checked for both ultimate limit state (ULS) loading and serviceability limit state (SLS) loading.
8. Vertical Span Tables have been generated to a maximum unsupported span of 8.0 metres height.

SUPPORTING STRUCTURES

KOROK® walls must be supported. The supporting structures themselves must be specifically designed to carry the load of the KOROK® walls.

The fastener strengths shown in this section may be used to design the connections. Maximum spacing of fasteners is shown on installation information.

INSTALLATION NOTE

All KOROK® C-track to structure, KOROK® C-track to KOROK®, and KOROK® to KOROK® panel connections shall be in accordance with details specified in this manual unless specified otherwise by the Project Engineer and/or in consultation with KOROK® technical engineers.

KOROK® PANEL PROPERTIES: 78 MM 400 KG/M³

TABLE 5 - SHEAR STRENGTH PER FASTENER FOR THE FOLLOWING CONNECTIONS

| CONNECTION | LOAD DIRECTION | TYPE | DESIGN STRENGTH (KN) ULS | DESIGN STRENGTH (KN) SLS |
|---|----------------|--|--------------------------|--------------------------|
| Panel to panel | In-plane | 10x16 galvanised Steeltite wafer head screws | 1.01 | 0.83 |
| Panel sides to C-track | In-plane | 10x16 galvanised Steeltite wafer head screws | 0.95 | 0.78 |
| Panel sides to C-track | Out-of-plane | 10x16 galvanised Steeltite wafer head screws | 0.91 | 0.74 |
| Panel ends to C-track | In-plane | 10x16 galvanised Steeltite wafer head screws | 0.91 | 0.74 |
| Panel ends to C-track | Out-of-plane | 10x16 galvanised Steeltite wafer head screws | 2.21 | 0.77 |
| C-track to concrete | In-plane | 6.5x32 Rawl Mushroom spikes | 7.84 | 2.27 |
| C-track to concrete | Out-of-plane | 6.5x32 Rawl Mushroom spikes | 7.84 | 2.27 |
| C-track to steel support | In-plane | Hilti® X-ENP-10 L15 Nails | 4.32 | 2.31 |
| C-track to steel support | Out-of-plane | Hilti® X-ENP-10 L15 Nails | 4.32 | 2.31 |
| KOROK® aluminium bracket to panel joint | Out-of-plane | Hex Head Type 17 14g x 35mm screws | 0.92 | 0.92 |

TABLE 6 - VERTICAL SPAN

| SPAN (M) | ULS DESIGN | SLS DESIGN L/150 | SLS DESIGN L/200 | SLS DESIGN L/250 | SLS DESIGN L/300 |
|----------|------------|------------------|------------------|------------------|------------------|
| 2 | 10.05 | | 9.05 | 7.75 | 6.77 |
| 2.5 | 7.3 | 6.05 | 4.95 | 4.2 | 3.64 |
| 3 | 5.04 | 3.7 | 3 | 2.53 | 2.18 |
| 3.5 | 3.7 | 2.42 | 1.96 | 1.64 | 1.4 |
| 4 | 2.82 | 1.68 | 1.34 | 1.12 | 0.95 |
| 4.5 | 2.23 | 1.21 | 0.96 | 0.79 | 0.67 |
| 5 | 1.79 | 0.9 | 0.71 | 0.58 | 0.49 |
| 6 | 1.22 | 0.54 | 0.42 | 0.34 | 0.28 |
| 7 | 0.89 | 0.34 | 0.26 | 0.21 | 0.17 |
| 8 | 0.66 | 0.23 | 0.17 | 0.14 | 0.11 |

Maximum pressure that can be resisted by a vertical span (kPa)

Vertical Span Table has been generated to a maximum of 8m wall height. Length of the wall is not a consideration when calculating span.

TABLE 7 - KOROK® FASTENERS SPACINGS

| Publication | KOROK® Wall System or similar | Panel Thickness (mm) | Panel Orientation | Maximum Wall Span/Width (m) | Panel to Panel | | | Panel to Structure | | | Notes: |
|-----------------------|-------------------------------|----------------------|-------------------|---|----------------------|----------------------|-----------------|---|---------------------|-----------------|--------|
| | | | | | Maximum centres (mm) | One Side Only | KPS Wafer Screw | Maximum centres (mm) | Panel Face or Joint | KPS Wafer Screw | |
| External Wall Systems | EX1, EX2 | 78 | Vertical | 6.0 m between supporting girts (see note 1) | 1000 | Internal | 10-16 | Minimum 2 fixings per panel See Note 3. | Face | 14-115 | |
| External Wall Systems | EX3, EX4, EX5 | 78 | Vertical | 6.0 m between supporting girts (see note 1) | 1000 | Internal or external | 10-16 | As per KOROK® Technical and Installation Manual | Face | 10-16 or 10-30 | |

NOTES

- 78 mm Panel Properties - Span tables are based on ambient conditions. When used as part of a fire-rated system, the maximum unsupported vertical span of the KOROK® EX systems is 6.0 metres. Greater spans are subject to specific engineering design and/or fire engineering assessment.
- Design Wind Pressures - may require specific engineering design and result in mid-span girts.
- Two (2)** 1.4g x 1.15mm Steelite screws per panel must be used to fix the EX1 and EX2 systems to the KOROK® Exterior 3mm Base Angle. **EX2 systems with an unsupported span over 4 metres** require **three (3)** 1.4g Steelite screws per panel to fix the wall system to the KOROK® Exterior 3mm Base Angle.

KOROK® COMPONENTS SUMMARY

| Product Image | Item Description |
|---|--|
|  | PN1144 (Colour) KOROK® C-track 60 x 80 x 60mm 1.15B.M.T. |
|  | PN1140 (Galvanised) KOROK® C-track 60 x 80 x 60mm 1.15B.M.T. |
|  | PN1130 (Colour) KOROK® panel 78 mm wide 250 mm cover 400 kg/m³ density |
|  | PN1318 (Galvanised) KOROK® GEN 2 panel 78 mm wide 250 mm cover 400 kg/m³ density |
|  | PN1185 Hilti DBZ 6/4.5 x 32mm |
|  | PN1190 6.5 x 32 Rawl Mushroom spikes |
|  | PN1170 KPS Wafer 10-16x16mm Class 3 |
|  | PN1171 KPS Wafer 10-16x30mm Class 3 |
|  | For EX1 and EX2 PN1161 KOROK Acrylic Fire Seal PN1165 Sikaflex-400 Fire-rated Sealant |
|  | For EX3, EX4 and EX5 PN1157 KOROK MS Fire Seal PN1160 Hilti CP606 |
|  | PN1168 KOROK® Foam Strip |

| Product Image | Item Description |
|--|--|
|  | PN1193 6.5x75mm Blue Tip screws |
|  | PN1174 Hex Head SDS 14g x 22mm |
|  | PN1198 Hex Head Type 17 14g x 35mm |
|  | PN1178 Hex Head SDS 14g x 115mm |
|  | PN1180 (Colour) Hex Head SDS 14g x 115mm |
|  | Hilti X-ENP-19 L15 fasteners (strip of 10) |
|  | Hilti DX76 fasteners (as above) |
|  | Hilti DX76 yellow charges |
|  | PN1150 KOROK® Angle |
|  | KOROK® Base Steel Plate |
|  | PN1143 KOROK® Exterior 3mm Base Angle |
|  | PN1234 KOROK® Internal base cover flashing |



NOTES

Lined area for notes

SUSTAINABILITY

KOROK® is a high performance product with minimal impact on the planet

KOROK® is made to order, ensuring minimal on-site waste

KOROK® is fully re-usable

KOROK® is fully recyclable

KOROK® is manufactured in NZ

Declare.

KOROK panel
KOROK Building Systems NZ Ltd

Final Assembly: Hamilton, New Zealand
Life Expectancy: 50 Year(s)
End of Life Options: Salvageable/Reusable in its Entirety, Recyclable (100%)

Ingredients:

Inner Core: Portland Cement; Water; Fly Ash; Washed Fine Sand; Anionic Detergent Blend; Nonionic Surfactant; Polypropylene Filaments; **Outer Steel Shell :** Low Carbon Steel; Antimony; Zinc

Living Building Challenge Criteria: Compliant

I-13 Red List:

- LBC Red List Free % Disclosed: 100% at 100ppm
- LBC Red List Approved VOC Content: Not Applicable
- Declared

I-10 Interior Performance: Not Applicable

I-14 Responsible Sourcing: Not Applicable

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Member 2024-2025



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