KOROK®

FIRE RATED PROTECTION OF JUNCTIONS BETWEEN KOROK® WALL SYSTEMS AND STRUCTURAL STEEL

OCTOBER 2024
Version 1.3

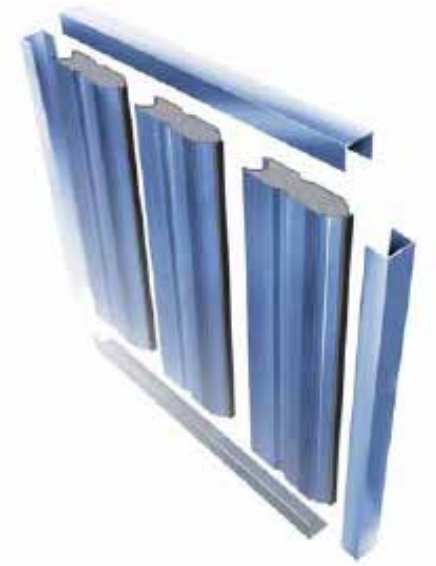
KOROK

CONTENTS

INTRODUCTION

SUPERIOR FIRE AND ACOUSTIC PERFORMANCE WITH CLIP-TOGETHER SIMPLICITY

- BRANZ tested
- Roll formed galvanised steel or colour steel outer shell
- Lightweight with an aerated concrete core
- Fire ratings up to -/240/240
- Acoustic ratings up to STC 76
- Panels interlock with clip-together simplicity for rapid installation
- Can be installed horizontally or vertically
- Non-combustible



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® 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 faster and simpler.

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.

INTRODUCTION (CONT.)

USE ONLY THE CURRENT SPECIFICATION

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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.

NEW ZEALAND BUILDING CODE (NZBC) COMPLIANCE

The NZBC sets out both the legal minimum sound transmission between tenancies (Clause G6) and minimum levels of fire resistance (Clauses C3 and C6). The KOROK® Intertenancy Systems Manual provides guidance on the specification and construction of systems that will both meet and exceed those minimum levels. However, designers must consider the comfort of occupants when selecting a system that will satisfy the occupants' expectations when using the space rather than the minimum required by law.

NZBC Clause B1 – Structure
The KOROK® Systems meet the requirements for loads arising from self-weight, earthquake, wind, impact and creep and shrinkage.

NZBC Clause B2 – Durability
Under normal conditions of dry internal use, KOROK® Intertenancy Systems have a serviceable life in excess of 50 years and satisfy the requirements of NZBC Clause B2 – Durability.

NZBC Clause C3 - Fire affecting areas beyond the source
KOROK® Intertenancy Systems can be used to provide passive fire protection in accordance with the requirements of NZBC Clause 3 – Spread of Fire.

NZBC Clause C6 - Structural Stability
Compliance with (NZBC) Clause C6 'Structural Stability'.

In order to satisfy the requirements of the New Zealand Building Code (clause 6) 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.

NZBC Clause G6 – Airborne and Impact Sound
KOROK® Intertenancy Systems, both meet and exceed the minimum requirements outlined in NZBC Clause G6. Consideration must be given to both the minimum requirements and the comfort of occupants.

SCOPE OF USE

Designers are responsible for the design of buildings.

Fire protection systems for steel structures are selected to maintain the temperature of the steel for a specified time under a certain temperature limit (called critical temperature).

There are different solutions available for the fire protection of steel structures. The following systems are most commonly applied:

- Fire rated boards applied to multiple sides
- Cementitious sprays
- Intumescent paints

Specific fire engineering design to meet differing column sizes, beam sizes and loads is required.

DESIGN SOLUTIONS

The construction details described in this publication, provide builders, engineers, designers, and architects a quick reference for assessing, designing, and installing fire rated junctions between KOROK® walls that directly attach to structural steel columns and beams without impacting performance of the fire protection systems applied to the steel columns and beams.

This includes construction details for base, head, corner, and T-junctions with KOROK® panels either horizontally or vertically installed.

Structural steel columns and beams that are integrated within KOROK® Intertenancy, Shaft and Duct wall systems provide designers and engineers an opportunity to design alternative construction details and methodologies to achieve the required fire resistance solutions.

DESIGN CONSIDERATIONS

FIRE RESISTANCE RATINGS (FRR)

The KOROK® 51 mm wall system (K51) and KOROK® 78mm wall system (FS1) will achieve a minimum -/60/60 FRR using the construction details described in this publication at the interface of structural steel columns and beams.

The structural steel supporting the KOROK® wall system maintains the designed fire rated performance when protected at the KOROK® wall interface.

Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

For -/120/120 solutions please contact your KOROK® representative on 07 849 7062.

SPAN OF KOROK® PANELS

When used as part of a fire rated system, the maximum unsupported vertical span of the KOROK® 78mm panel is 6.0 metres. The maximum unsupported horizontal span of the KOROK® 78mm panel is 5.0 metres. Greater spans or walls where additional load carrying capacity is required are subject to specific engineering design and/or fire engineering assessment.

When used as part of a fire rated system, the maximum unsupported vertical span of the KOROK® 51mm panel is 5.0 metres. The maximum unsupported horizontal span of the KOROK® 51mm panel is 4.0 metres. Greater spans or walls where additional load carrying capacity is required are subject to specific engineering design and/or fire engineering assessment.

DEFLECTION C-TRACK DETAILS

Dead and live loads can cause significant deflection in some structures.

KOROK® can provide deflection C-track details where deflection loadings are considered.

Contact your KOROK® representative on 0800 773 777 for a solution specific to your project.

INSTALLATION

Refer to the KOROK® Technical and Installation Manual.

LININGS/COATINGS

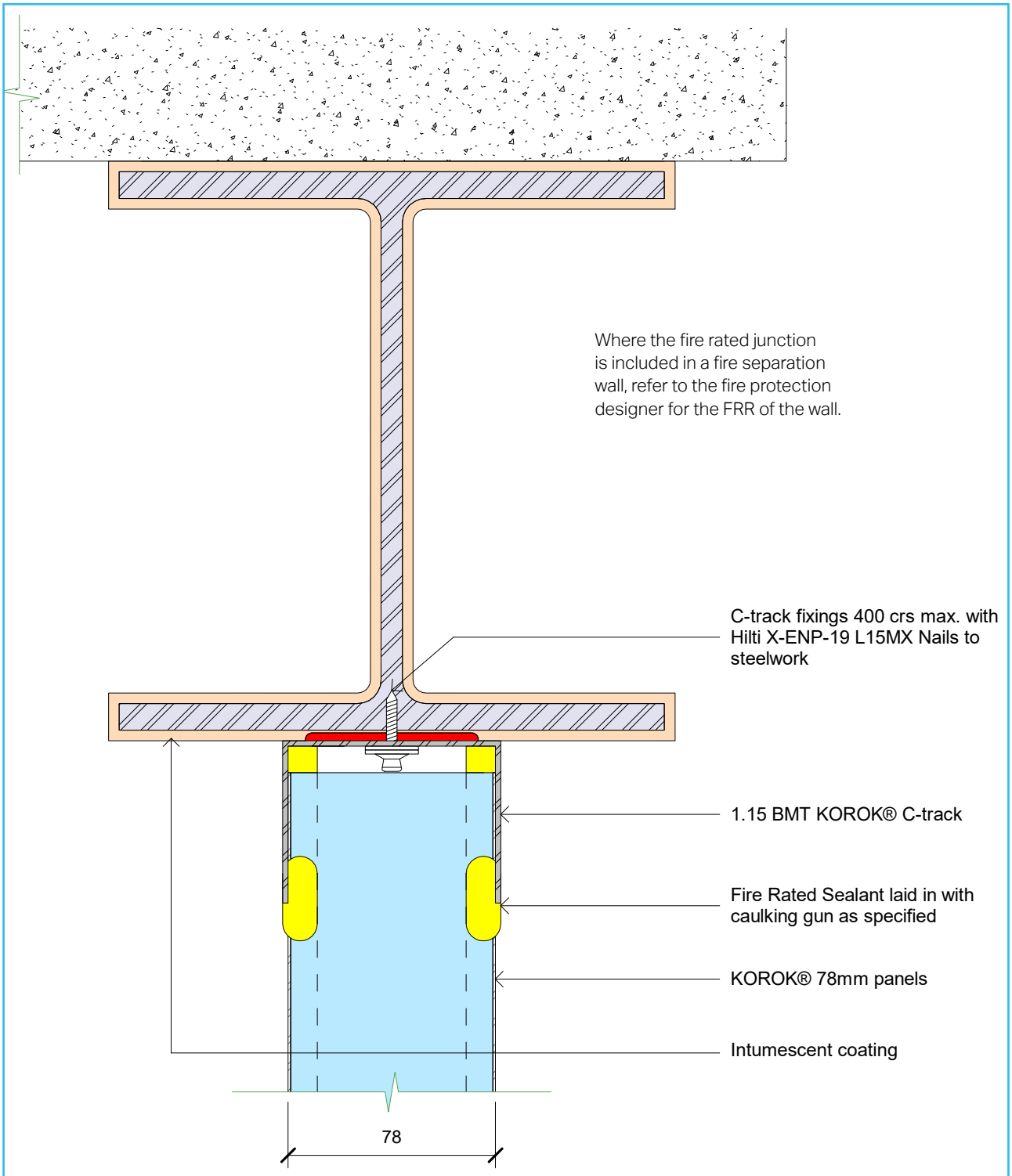
Linings and coatings are to be installed as per the manufacturers' installation instructions.

FIRE RATED PROTECTION OF JUNCTIONS -

FIRESHIELD® STEEL 1001, FIRESHIELD® STEEL 1002, NULLIFIRE® SC902, INTERCHAR® 212, INTERCHAR® 2090 INTUMESCENT COATINGS

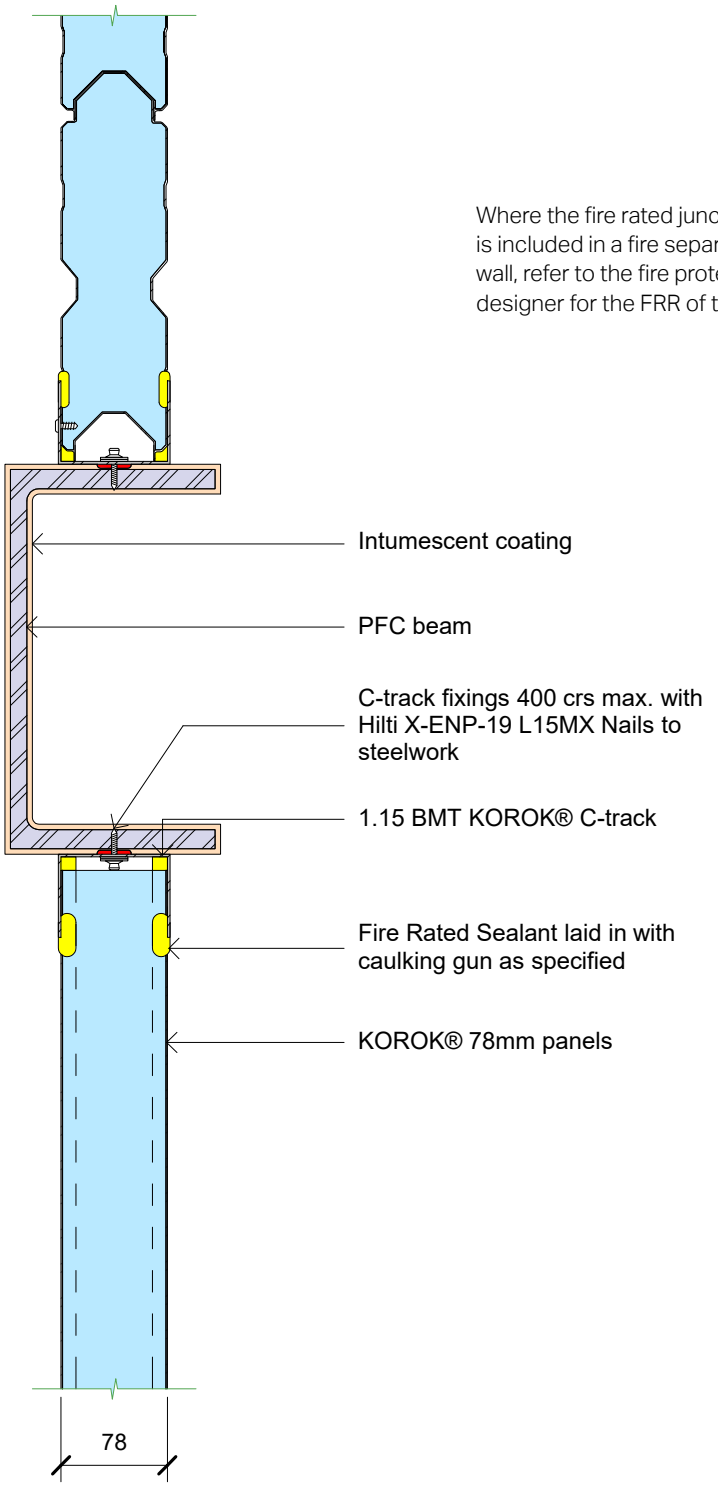
Specific column sizes, beam sizes and loading conditions require specific design of the fire protection linings and coatings.

BEAM - FIRESHIELD® STEEL 1001, FIRESHIELD® STEEL 1002, NULLIFIRE® SC902 , INTERCHAR® 212, INTERCHAR® 2090



Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

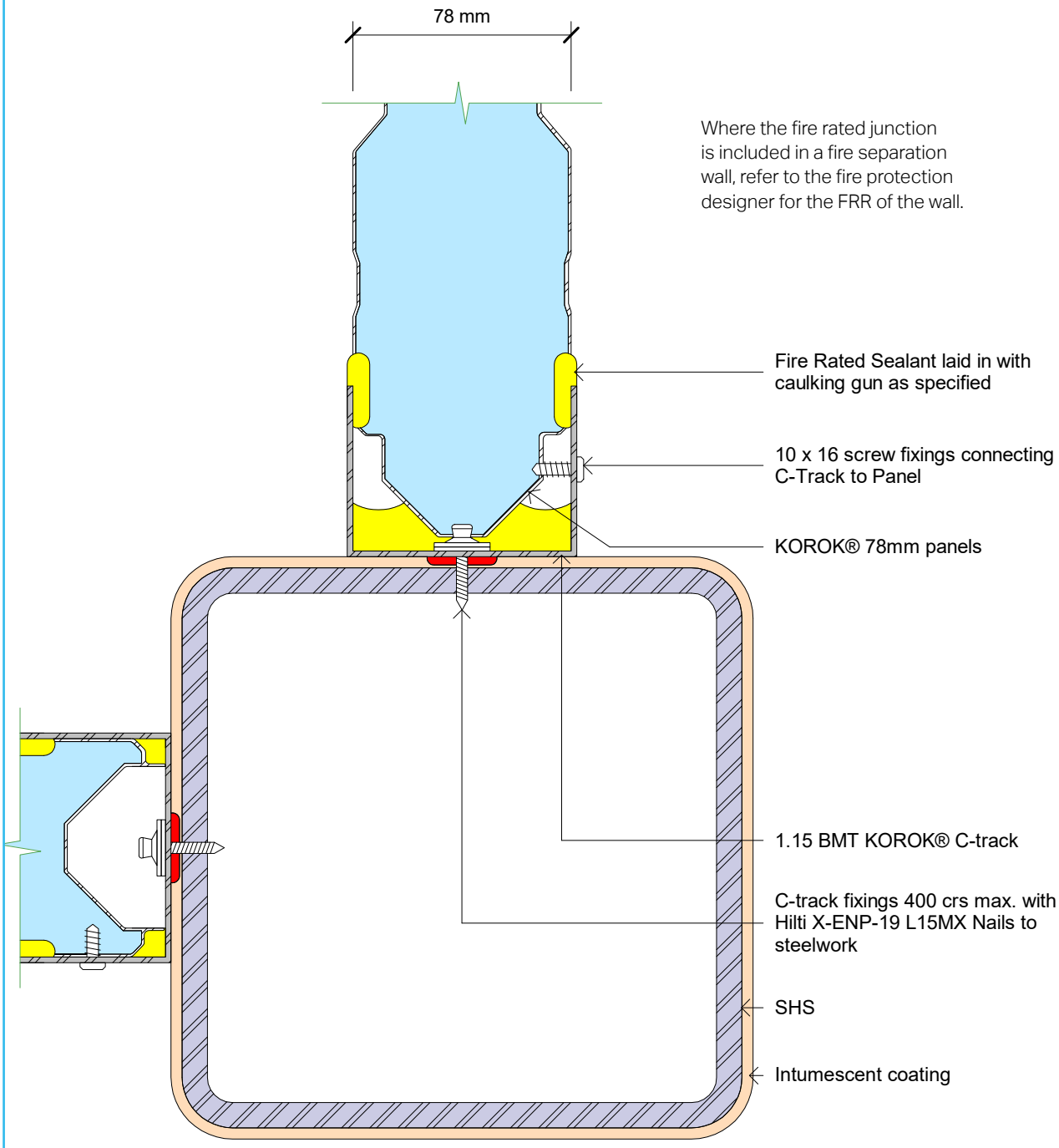
BEAM - FIRESHIELD® STEEL 1001, FIRESHIELD® STEEL 1002, NULLIFIRE® SC902 , INTERCHAR® 212, INTERCHAR® 2090



Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

COLUMN - FIRESHIELD® STEEL 1001, FIRESHIELD® STEEL 1002, NULLIFIRE® SC902 , INTERCHAR® 212, INTERCHAR® 2090



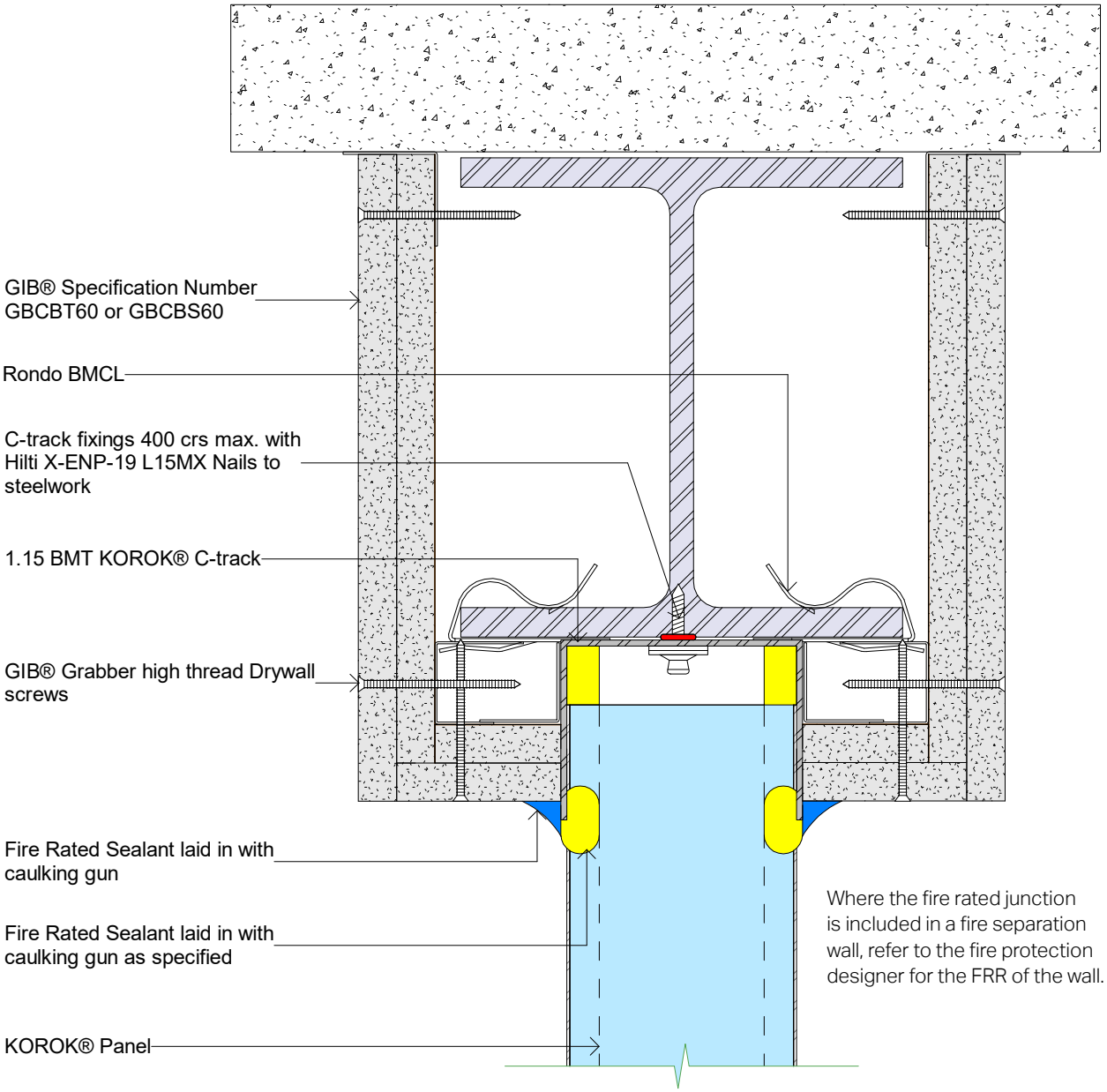
Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

FIRE RATED PROTECTION OF JUNCTIONS -

GIB® PLASTERBOARD LININGS

Specific column sizes, beam sizes and loading conditions require specific design of the fire protection linings and coatings.

BEAM - GIB® GBCBT60 OR GBCBS60



Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

13mm GIB Fyreline® installed as per the manufacturer's instructions and engineer's specifications

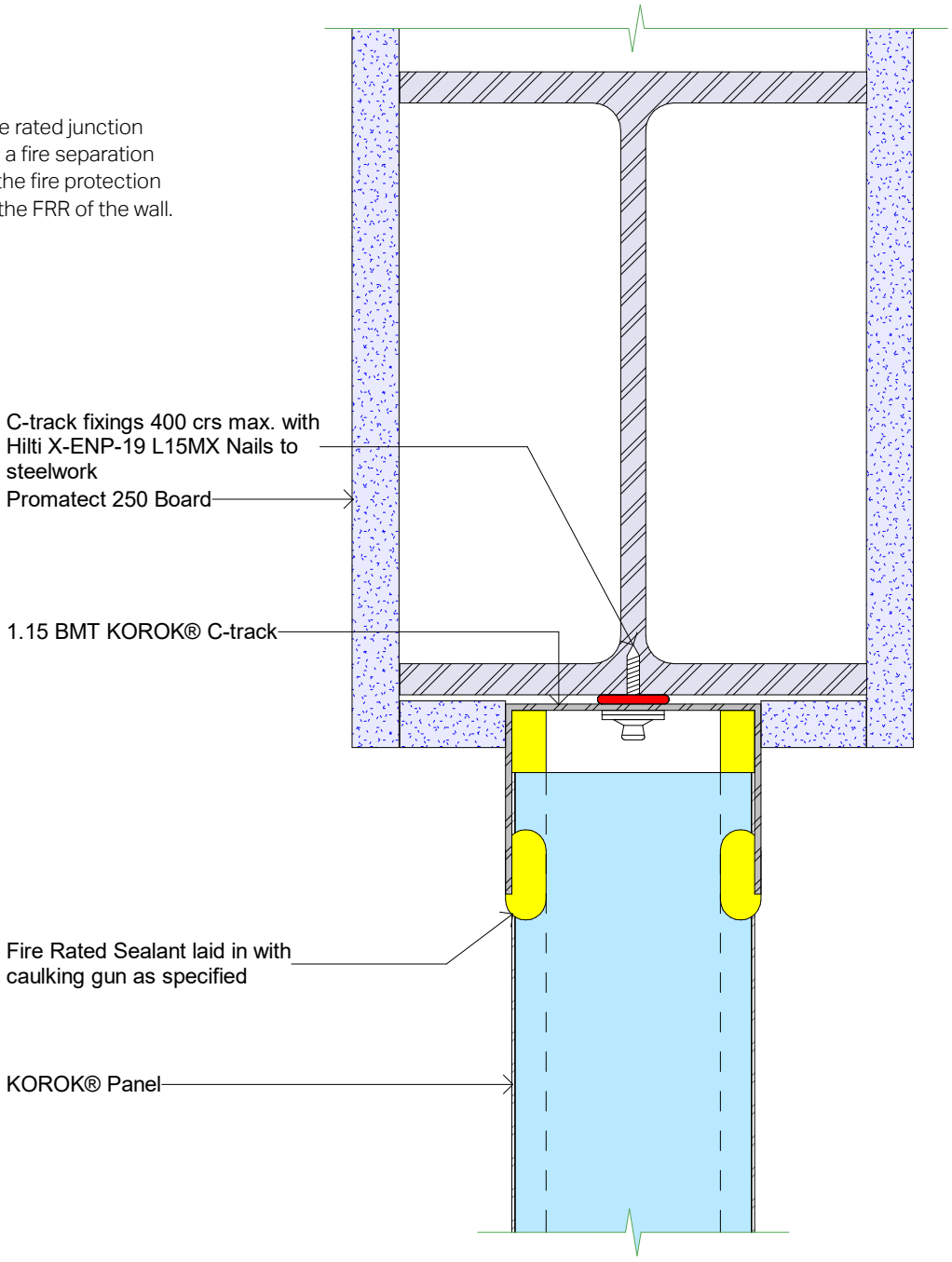
FIRE RATED PROTECTION OF JUNCTIONS -

PROMATECT® LININGS

Specific column sizes, beam sizes and loading conditions require specific design of the fire protection linings and coatings.

BEAM - PROMATECT 250 BOARD

Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

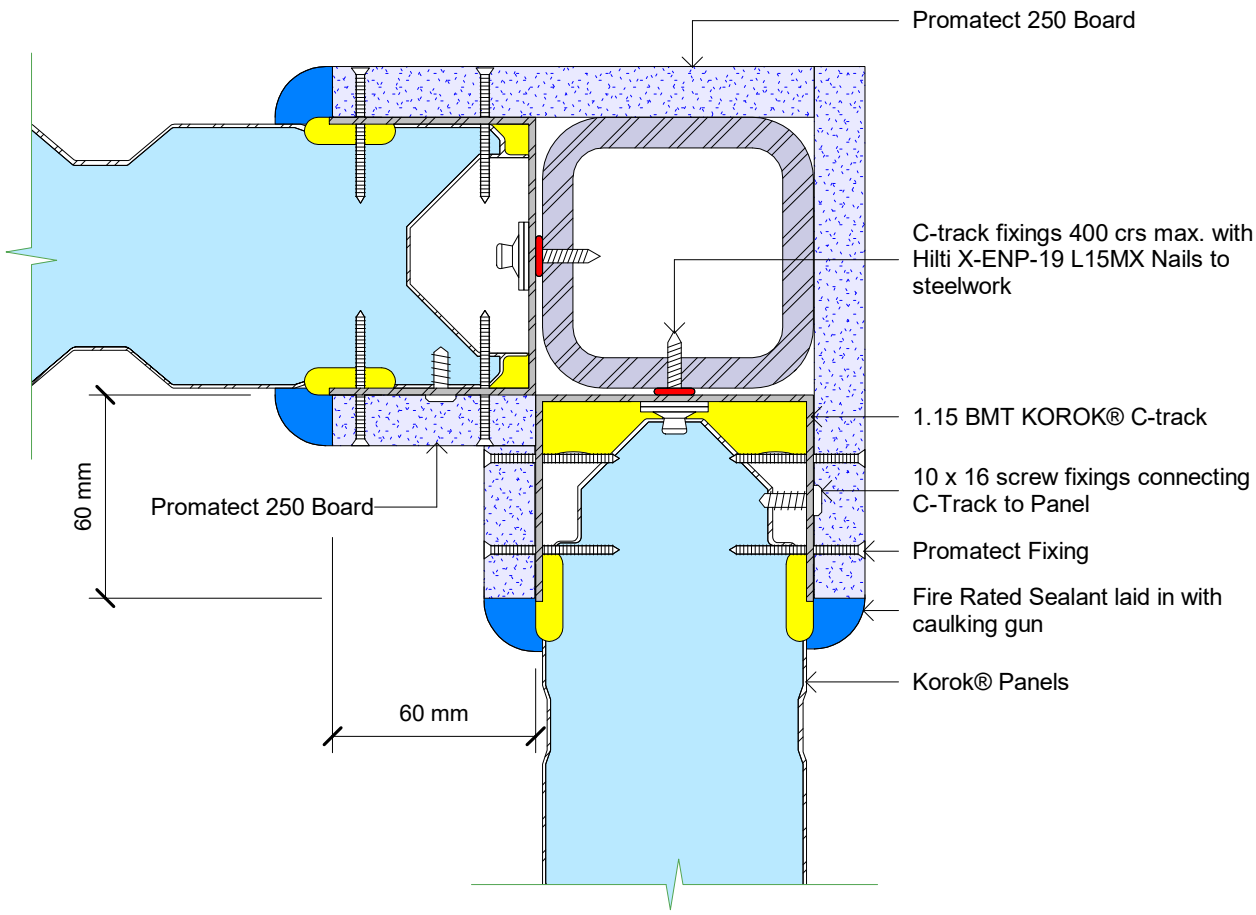


Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Promatect 250 Board minimum 15mm thick installed as per manufacturer's instructions and engineer's specifications

CORNER DETAIL - PROMATECT 250 BOARD

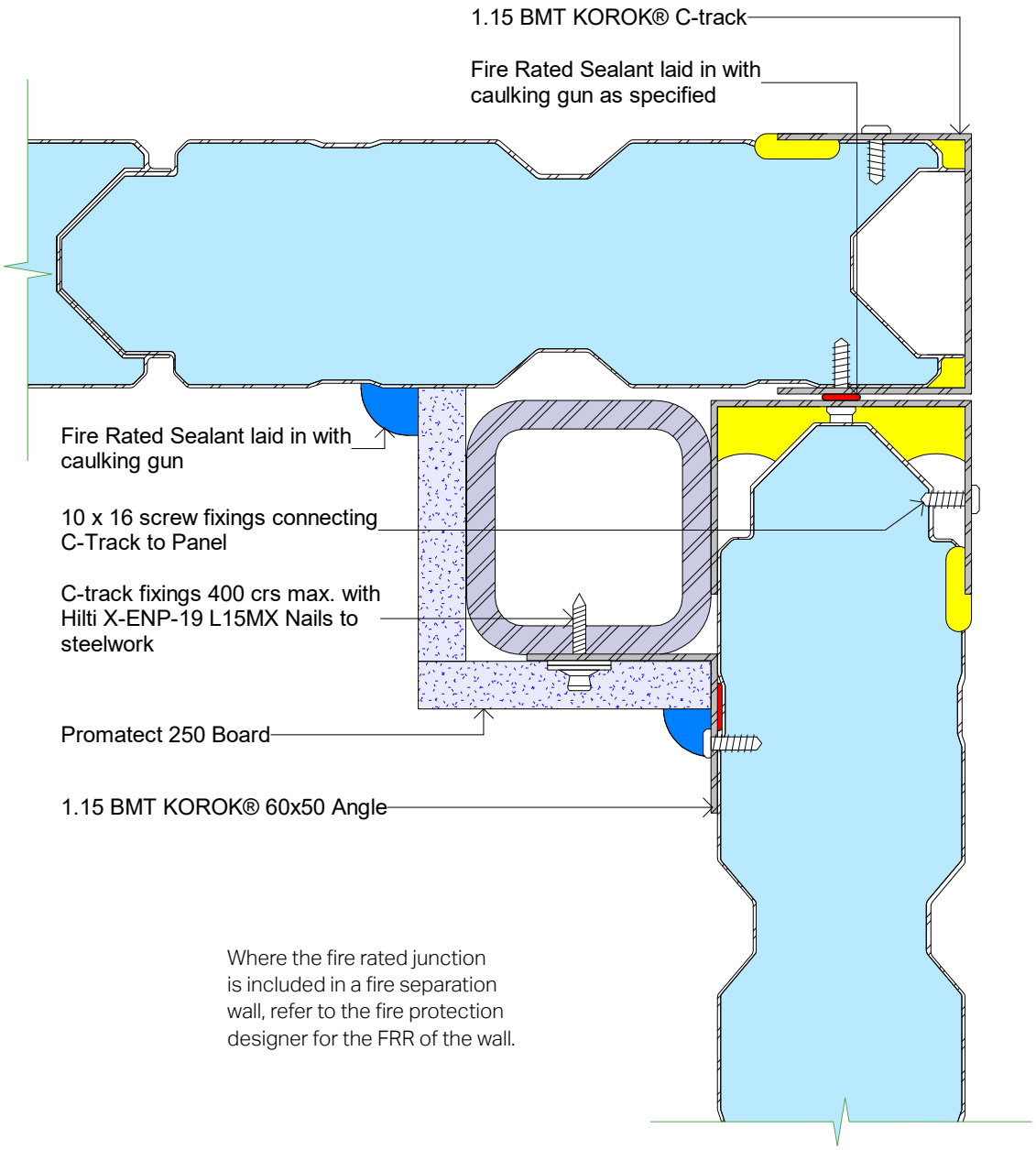
Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.



Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Promatect 250 Board minimum 15mm thick lapped 60mm onto the KOROK® wall and installed as per manufacturer's instructions and engineer's specifications

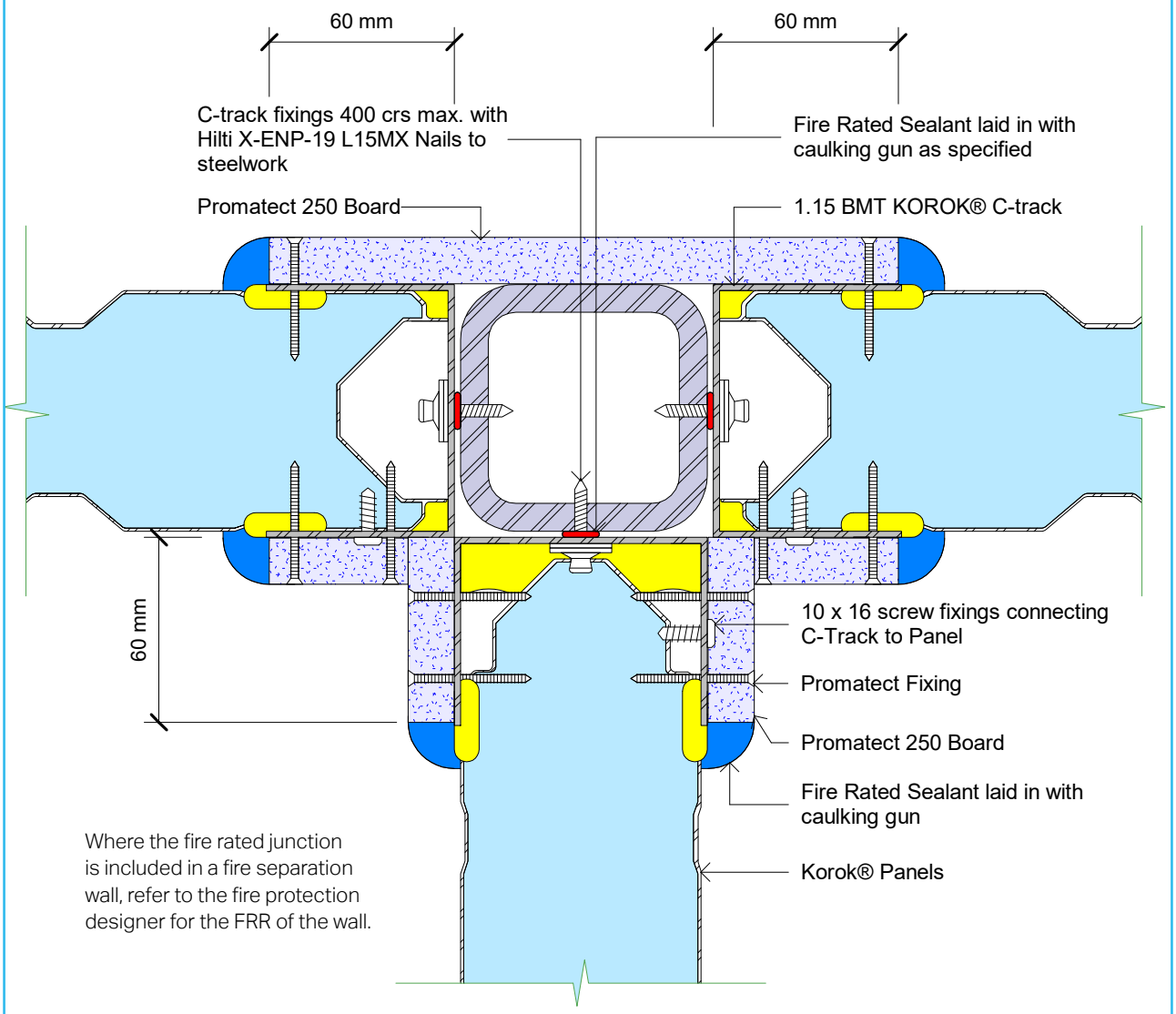
CORNER DETAIL - PROMATECT 250 BOARD



Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Promatect 250 Board installed as per manufacturer's instructions and engineer's specifications

T JUNCTION DETAIL - PROMATECT 250 BOARD



Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

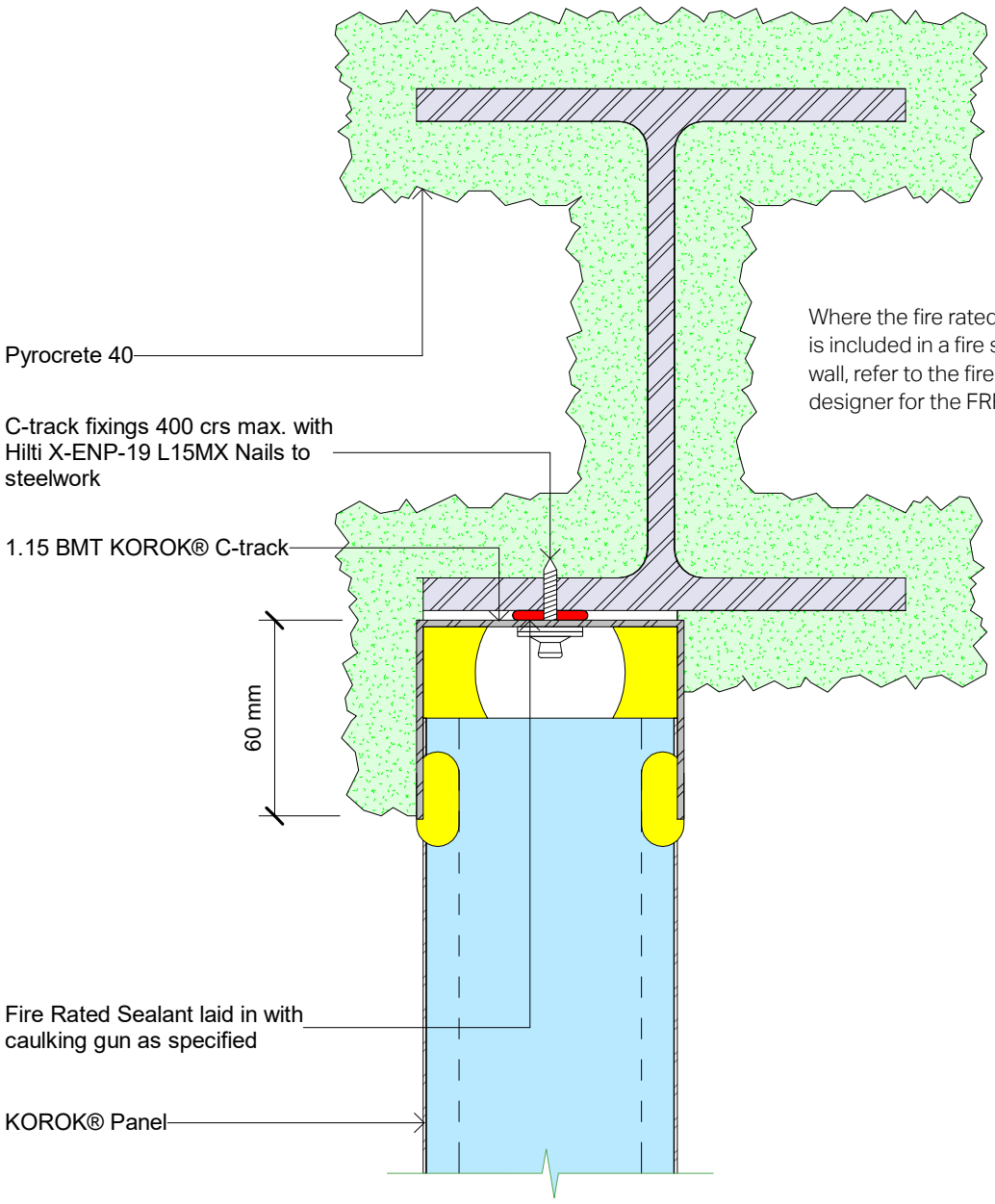
Promatect 250 Board minimum 15mm thick lapped 60mm onto the KOROK® wall and installed as per manufacturer's instructions and engineer's specifications

FIRE RATED PROTECTION OF JUNCTIONS -

PYROCRETE 40

Specific column sizes, beam sizes and loading conditions require specific design of the fire protection linings and coatings.

BEAM - PYROCRETE 40

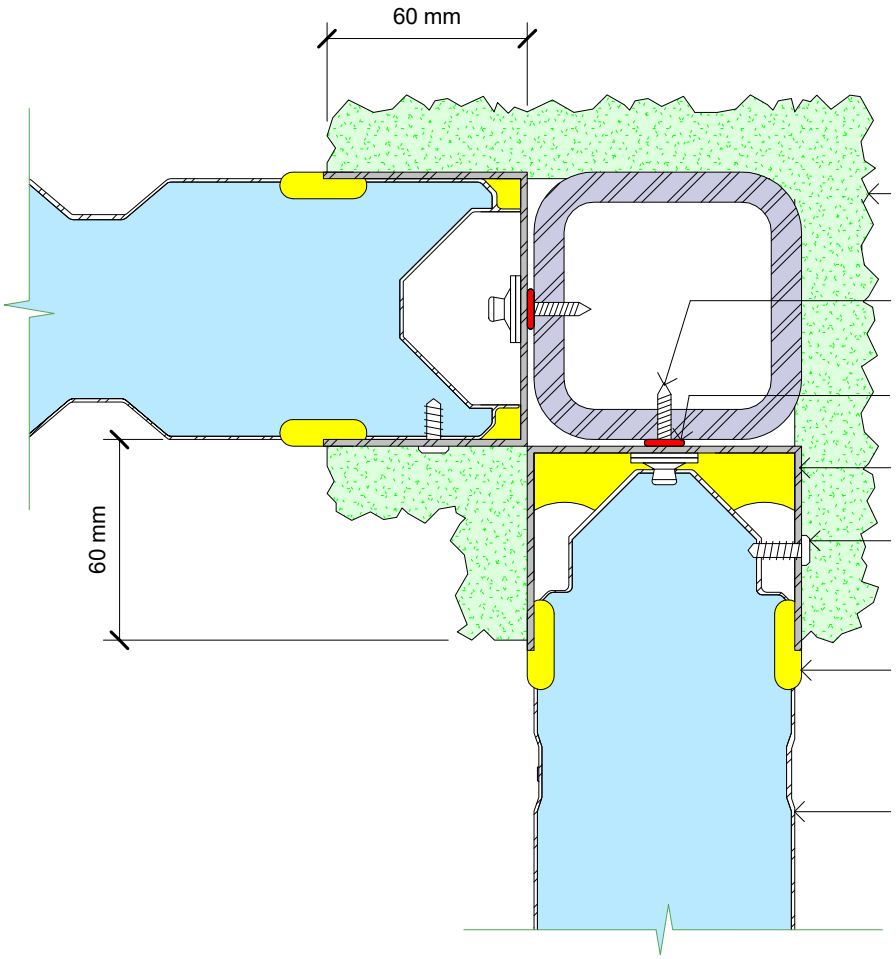


Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Pyrocrete 40 min. 20mm thick is oversprayed 60mm onto one side of the KOROK® C-Track and installed as per the manufacturer's and engineer's specification.

CORNER DETAIL - PYROCRETE 40

Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.

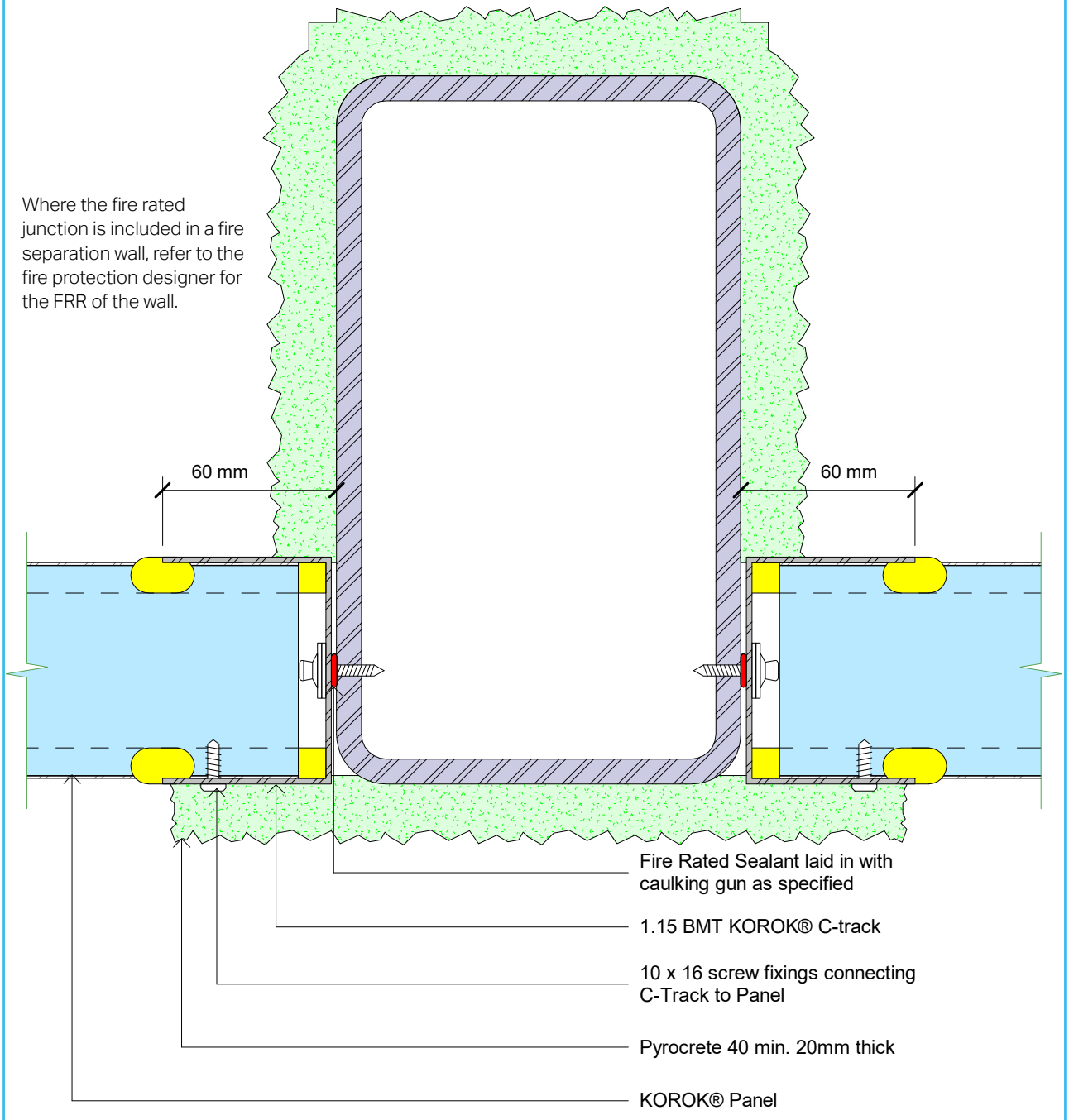


Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Pyrocrete 40 min. 20mm thick is oversprayed 60mm onto one side of the KOROK® C-Track and installed as per the manufacturer's and engineer's specification.

COLUMN - PYROCRETE 40

Where the fire rated junction is included in a fire separation wall, refer to the fire protection designer for the FRR of the wall.



Sealant configuration - All sealant locations in red and a minimum of 2 yellow beads are required for each C-Track

Pyrocrete 40 min. 20mm thick is oversprayed 60mm onto one side of the KOROK® C-Track and installed as per the manufacturer's and engineer's specification.

NOTES

NOTES

SUSTAINABILITY

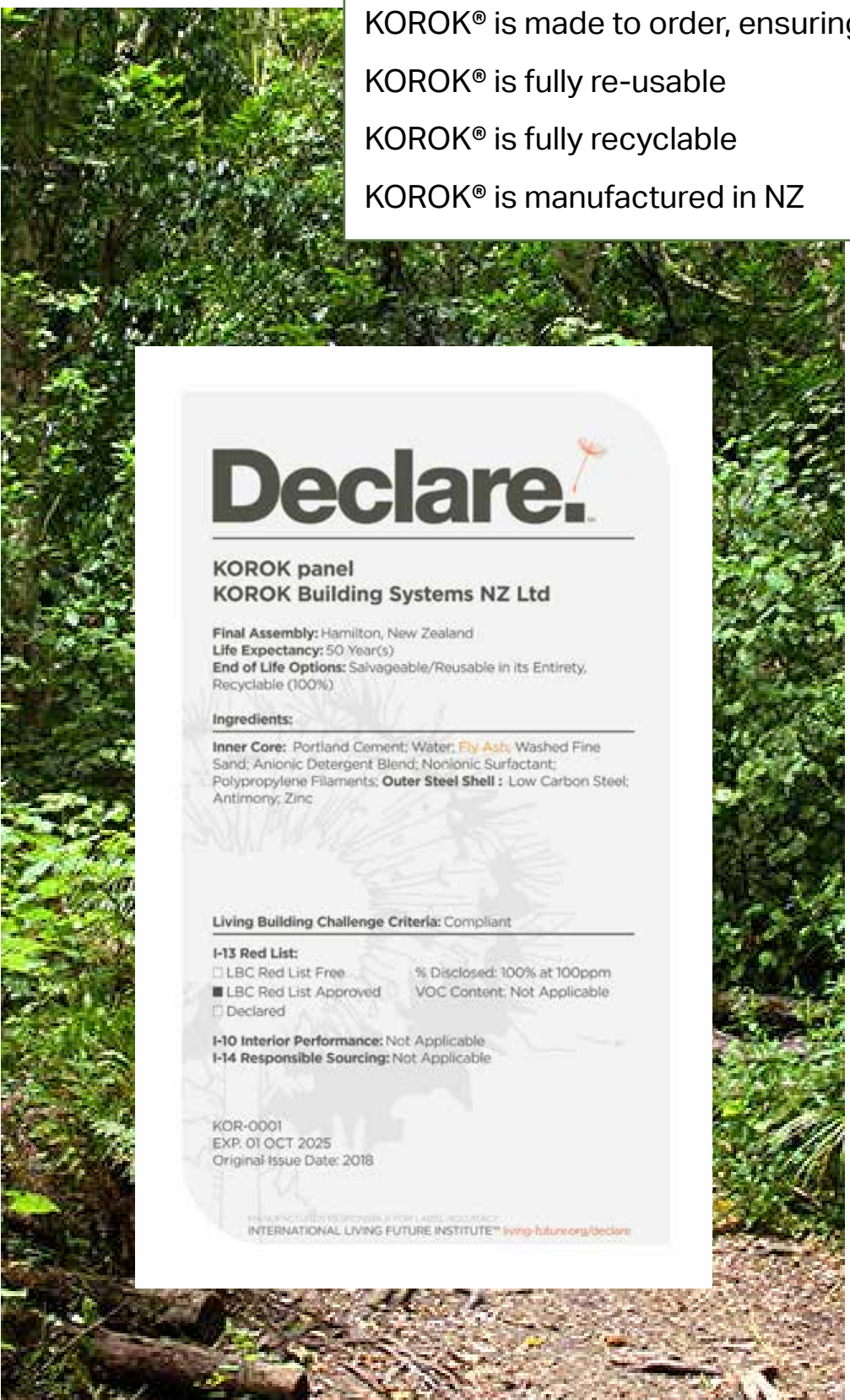
KOROK® is a high performance product with minimal impact on the planet

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
■ LBC Red List Approved
☐ Declared

% Disclosed: 100% at 100ppm
VOC Content: Not Applicable

I-10 Interior Performance: Not Applicable
I-14 Responsible Sourcing: Not Applicable

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INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

NZGBC
TE KAUNIHERA HANGANGA TAUTAIAO
Member 2024-2025

AUSTRALASIA EPD®
ENVIRONMENTAL PRODUCT DECLARATION

NEW ZEALAND MADE®

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