

IBSTOCK[®]
building sustainability

Rainscreen Cladding Manual

Elementix[®]

Rainscreen cladding **just got easier...**

Welcome to Ibstock

Ibstock, the UK’s largest brickmaker is one of the best known and trusted brands in the construction industry, with a reputation built on an unrivalled choice of over 500 different bricks from 21 manufacturing and distribution units across the UK. This heritage and manufacturing capability has been used to develop a range of innovative products, which in addition to bricks includes prefabricated brickwork components and external wall insulation systems as well as a diverse selection of special shaped bricks and pavers.

Ibstock has brought all this experience together in a range of novel rainscreen cladding systems that offers the specifier a virtually unlimited range of colours and sizes as well as exceptional environmental credentials. For the installer this means systems that are quicker, easier and more cost effective to install.

The company is committed to ensuring a more sustainable future through its manufacturing, its communities and its products - investing over £70 million over the last 10 years. This has lead to many industry firsts including being the first UK brick manufacturer to be awarded

a ‘very good’ rating for the responsible sourcing standard, BES 6001, which now applies to all of its brickworks across the UK.

All Ibstock rainscreen cladding systems are backed by unique technical, design and site support services. This includes a team of regionally based Design Advisors who are experienced in developing practical solutions to design challenges that are quality assured to ISO 9001. Further support is provided by a comprehensive technical services department and a CAD team to help realise the most complex designs.

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Elementix®

Welcome to Ibstock's Rainscreen cladding systems Using Rainscreen Claddings

Rainscreen systems have been used for centuries in Europe and were first introduced to the UK in the 1950s. They became popular in the UK in the 1980s for the re-cladding of tower blocks but this problem-free system is now more widely used in new build. Therefore, they can be successfully used in both new and old projects. In old buildings new life is given by changing the appearance and increasing thermal efficiency. In new build, the system’s proven principles allow a low risk, effective solution.

Rainscreen cladding is not a traditional cavity construction like brick and block. The principle of rainscreen cladding is that the majority of the rain is stopped at the outer face and the small amount of rain that penetrates is taken away by the updraft in the cavity or drains out at the bottom of the cladding.

Rainscreen Technology

Any external wall must satisfy a number of criteria: it must be durable, weatherproof, fire resistant and must not transmit heat and sound. Rainscreen claddings must therefore also meet these criteria. With rainscreens, the outer leaf resists rain penetration, keeping the inner leaf relatively dry by the separation of an airspace.

The cladding is supported by a frame, normally aluminium, within the cavity and located back to the structure with brackets and primary fixings.

Rainscreen systems rely on ingress of air at the bottom of the cladding - a ventilated cavity not less than 38mm (to allow the stack effect to work) and egress of air (normally baffled to avoid rain ingress) at the top of the cladding.

The majority of the water is kept out by the cladding material. The updraft in the cavity (stack effect) takes away the small amount of water which passes through the cladding.



[Elementix® gallery](#)

Any water which penetrates through the cladding and is not taken away can drain down the back of the cladding and out through the bottom.

Condensation is controlled by allowing the fabric to breathe and condensation to pass into the ventilated cavity and be taken away by the updraft within the cavity.

Using the building’s thermal mass, if air permeable insulation is placed in the cavity whilst the condensation is evacuated, the heat is retained with the continuous insulation not allowing any cold bridging and keeping the temperature constant within the building. This will reduce cooling and heating requirements. As the building temperature is kept static, there are also beneficial results for maintenance and longevity.

The UK experience of rainscreen cladding is very positive. The systems have been commonly used for over 40 years. The principles are well understood and there is a great deal of expertise available from professionals and contractors.

Ibstock has developed three rainscreen cladding systems under the Elementix® brand name. There are very few situations where these systems cannot be used - they are suitable for steel and concrete frame buildings, masonry and steel, or timber stud wall construction. They can be used for both new build and refurbishing the exterior of an existing building.

Sustainability

Elementix® rainscreen cladding tiles are manufactured from naturally inert materials and are non toxic.

The term ‘adaptable’ building is used to describe a structure that has the ability to be modified or extended at a minimum cost to suit the changing needs of the people using the structure. Thoughtful design can provide the flexibility for these needs to be met without requiring expensive and energy intensive renovations. The ease of assembly and disassembly of rainscreen panels and components means a structure can be re-shaped or extended incorporating the re-use of the rainscreen system.

The Ibstock rainscreen cladding systems also offer further sustainability benefits as the express and eco-freedom versions are manufactured in the UK. Ibstock is the only manufacturer to offer a UK manufactured system which, of course, cuts down the delivery mileage required. Elementix® eco-freedom is also manufactured from 94% recycled material, adding further to its sustainability credentials.

For further information, please contact Ibstock’s nationwide network of Design Advisors on 0844 800 4576.

Elementix[®] express

Terracotta rainscreen just got easier...

Elementix® express has been engineered with the installer in mind to ensure ease and speed of construction.

The range of natural colours and surface finishes adds definition and detailing to a façade in an instant.



Keele Cemetary, Keele
Elementix® express - Natural Finish | Red



Great Linford Local Centre, Milton Keynes
Elementix® express - Natural Finish | Blue



Hastie Street, Glasgow
Elementix® express - Natural Finish | Red



Eastbury School, Barking
Elementix® express - Natural Finish | Cream



Stafford Police Station
Elementix® express - Natural Finish | Blue



Mount Vernon Hospital, Hillingdon
Elementix® express - Natural Finish | Cream engraved



Swinton Queens Primary School, Rotherham
Elementix® express - Natural Finish | Red



St Marys School, Newcastle
Elementix® express - Natural Finish | Cream



Keele Cemetary, Keele
Elementix® express - Natural Finish | Red



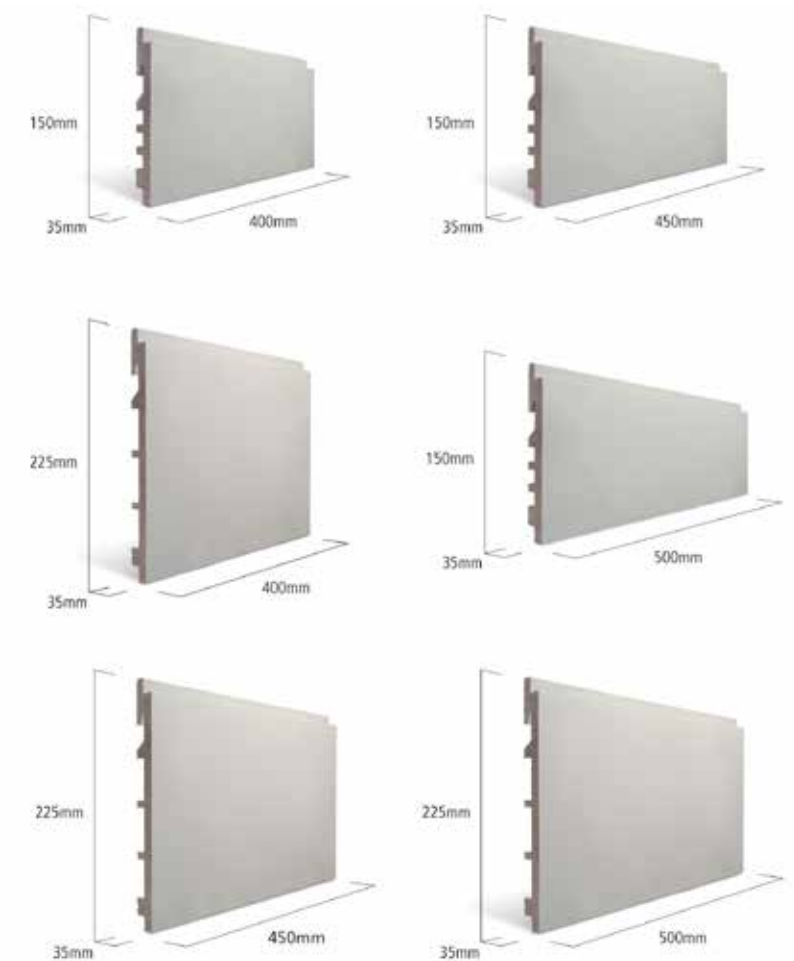
Houghton Road, Darlington
Elementix® express - Natural Finish | Cream



Elementix® express key features

- Quick and easy to install
- Minimal components for cost-effectiveness
- Matches Fireborn® Natural colours and Forticrete® Medici® finishes
- Damaged tiles are easily replaced
- Tested to CWCT (Centre for Window and Cladding Technology) Standard
- Manufactured in the UK
- Maintenance free
- Flexibility of tile size

Sizes



Special feature

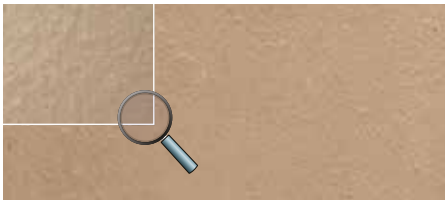
The length can be finished to any size within the above dimensions at no extra cost as the tiles are cut after firing.

Standard colours

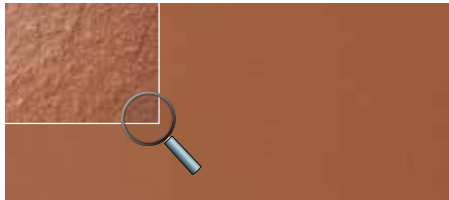
This is a range of five natural clay colours. They provide a selection of bold finishes which radiates the depth of colour and warmth only possible from fired ceramics.



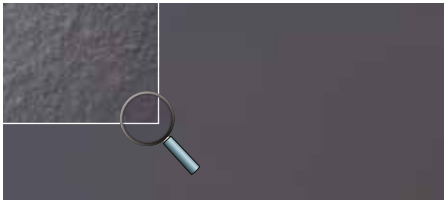
Natural Finish I Cream 5221



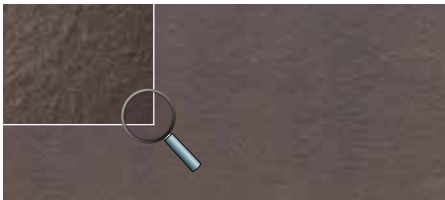
Natural Grey 5224



Natural Finish I Red 5220



Natural Finish I Blue 5222



Natural Brown 5223

Medici® colours

These feature all the vitality of polished stone. The high-quality aggregate used in their manufacture provides a richness and variation in colour only seen with natural stone.



Bronzino



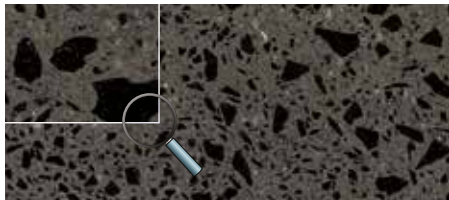
Romano



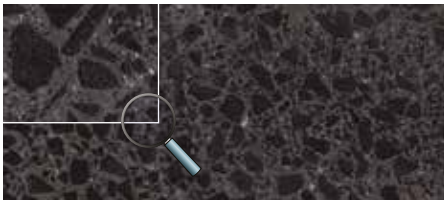
Spirito



Carrara



Veronese



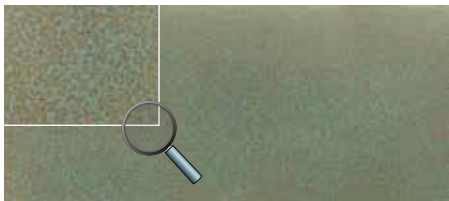
Bellini



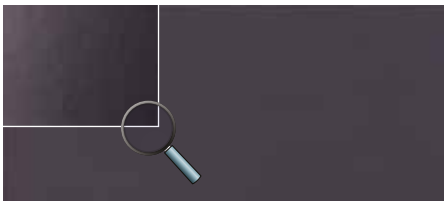
Fresco

Glazed colours

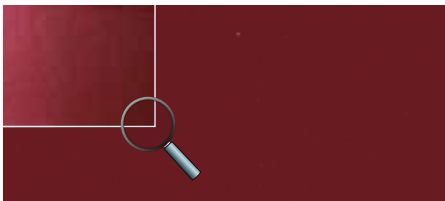
Real ceramic glazes ensure unmatched vibrancy and durability. Our unique expertise with glazing means that virtually any colour can be produced.



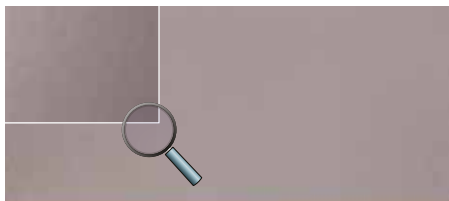
Copper



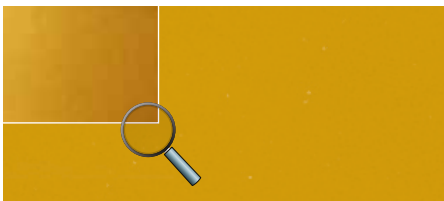
Cobalt



Burgundy



Silver



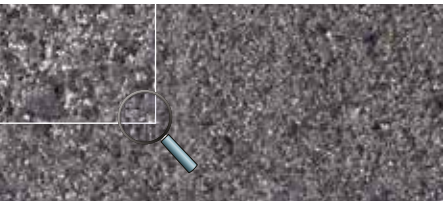
Yellow



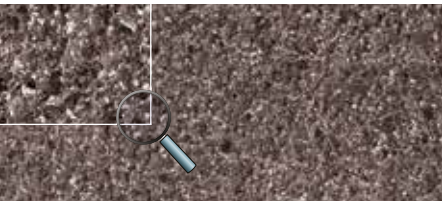
White

Shot-blast colours

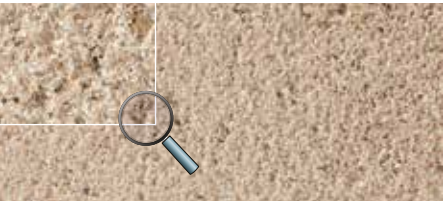
Subtle tones and hues characterise this range of tiles. They replicate the regional colour variations found with natural stone.



Pewter



Autumn



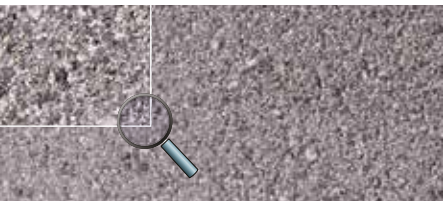
Bathstone



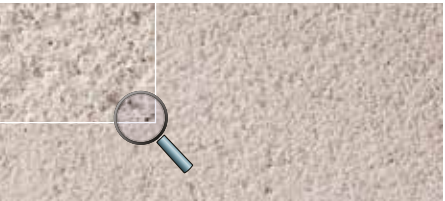
Sports Green®



Sandstone



Steel Grey



Ivory



Yorkstone

navy blue

iodine

royal blue

mid blue

blue bird

sky blue

conifer

jade

bottle green

buckingham

copper

mint

aqua marine

garland

lime

lemon

toffee

plum

dark salmon

nectarine

black

conker

pewter

dark grey

light grey

antique white

white

cream

Special feature

We can glaze tiles to virtually any RAL colour.

Elementix® express installation sequence

- 1 Primary support brackets
- 2 Vertical carrier rail
- 3 Connectors
- 4 Anti-rattle clips
- 5 Elementix® express tile

1 Primary support brackets

Primary support brackets are fixed to the substrate at a maximum of 1m vertical centres (wall brackets to be isolated from the building substrate, thermally enhanced insulators are available. These sit directly behind the brackets, see standard sections).

2 Vertical carrier rail

Vertical carrier rails are fixed back to the primary support brackets (rails are supplied in 2.915m lengths and cut to suit on site). The vertical rail position is dictated by the length of tile specified.

3 Connectors

The connectors are then fitted into the carrier rail slots (two required per tile).

Suitable substrates

Elementix® express can be fixed back to:

- Steel frame
- Concrete frame
- Brickwork
- Lightweight steel framing
- Timber frame
- Dense concrete block (min 1450kg/m³)
- Existing masonry

4 Anti-rattle clips

Anti-rattle clips are slotted onto the top of the express tile (two required per tile).

5 Elementix® express tile

The express tile is then hooked over the connectors. The tiles need to be installed from the bottom upwards to ensure there is an overlap between each tile.

Horizontal joints

Horizontal joints are a standard 10mm.

Vertical joints

Width to be determined by the specifier - 4mm is recommended.

Green rating

- UK manufactured ensures minimal delivery mileages.
- High strength and durable ceramic tiles reduces damage on site and ongoing maintenance.
- Lightweight cladding reduces structural weight compared with traditional masonry.
- Made from abundant natural clays in factories that hold very good ratings to BES 6001, the Standard for Responsible Sourcing and BS 14001, the Environmental Management Standard.
- New composite stone options minimise the need for natural stone extraction.
- All components are fully recyclable.
- A+ BREEAM rating



Easy to fit

Tile Size	Total System Weight	Tile Weight	Durability	Transverse Strength (Impact Resistance)	Water Absorption	Tolerance
400mm x 150mm	65Kg/m²	3.6Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm
450mm x 150mm	65Kg/m²	4.0Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm
500mm x 150mm	65Kg/m²	4.5Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm
400mm x 225mm	65Kg/m²	5.4Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm
450mm x 225mm	65Kg/m²	6.1Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm
500mm x 225mm	65Kg/m²	6.8Kg	Frost Resistant	Category E to BS 8200	< 8%	+/- 1mm

Elementix[®] express

Technical specifications

A non-loadbearing external cladding tested to CWCT standards, fixed back to and providing weather protection to an inner leaf, drained and back ventilated, suitable for both new build and refurbishment projects.

Components

- Elementix® express Natural Clay Tiles or Concrete Tiles
- Elementix® express Vertical Carrier Rail
- Elementix® express Connector
- Elementix® express Anti Rattle Clip

Installation Generally

Typically aluminium Elementix® express vertical carrier rails are fixed to the primary supporting structure with brackets, the bracket size and spacing are dependant on site wind loading and panel layout. Elementix® express connectors are fitted to the vertical carrier rails, the Elementix® express tiles can then be fitted quickly without the use of tools. Anti rattle clips are then fitted to the top of each tile. A range of fittings and accessories are available for reveals, soffits, returns etc and more information on these is available from Ibstock Brick Limited.

Primary Support Structure

(delete as necessary) Steel frame / concrete frame / brickwork / dense concrete blockwork (minimum 1450 kg/m³) / lightweight steel framing / timber frame / existing masonry.

Rainscreen Cladding System

Manufacturer: Ibstock Brick Limited, Leicester Road, Ibstock Leicestershire, LE67 6HS. Tel: 01530 26199 Fax: 01530 257457.

Reference: Ibstock Elementix® express Rainscreen Cladding System

Type: Drained and back ventilated

Rainscreen Panel

Manufacturer: Ibstock Brick Limited

Product Reference: Ibstock Elementix® express Rainscreen Cladding

Material: Clay, 140 and 215mm high, 400mm, 450mm and 500mm long. Other lengths up to 500mm long are available.

Thickness: 35mm

Finish/Colour: Natural Red / Natural Cream / Natural Blue / Natural Brown / Natural Grey / Stone and Glazed

Fasteners: Aluminium Elementix® express connectors

Number and location of fasteners: 2 no. Elementix® express connectors per tile, located in the hook at the back of the tile and into the slots in the vertical carrier rail. Connectors provide restraint to each tile. 2 no. Elementix® express Anti Rattle Clips per tile placed approx 1/7 inboard of the edge of the tile.

Joint Type: Horizontal joint: Labyrinth joint. Vertical joint: Open joint:

Joint Width: 2-10mm vertically to suit project requirements and 10mm horizontally.

Air Gap

Minimum 38mm

Secondary Support System

Manufacturer: Nvelope Rainscreen Systems Limited, Unit 10 Blenheim Court, Brownfields, Welwyn Garden City. AL7 1AD Tel: 01707 333396. Fax: 01707 333343.

Product Reference: Nvelope NV Brackets.

Material: Aluminium wall brackets joined to Elementix® express vertical carrier rail with stainless steel fasteners.

Fasteners: Consult Nvelope Rainscreen Systems Limited.

Number and Location: Bracket layout to suit site wind loading and substrate, consult Nvelope Rainscreen Systems Limited.

Backing Wall

Vapour Control Layer: As clause 780

Thermal Insulation: As clause 776

Breather Membrane: As clause 785

Accessories:

Incorporated Components:

Other Requirements:

776 Thermal Insulation

Material:

- **Manufacturer:**
- **Product Reference:**

Thickness: Not less than.....

Fixing: Attached to the outer face or supported within the backing wall so as not to bulge, sag, delaminate or detach during installation or in situ during the life of the rainscreen cladding.

REFER TO INSULATION MANUFACTURER FOR APPLICATION ADVICE.
780 VAPOUR CONTROL LAYER

Material:

- **Minimum vapour resistance:**
- **Manufacturer:**
- **Product reference:**

Continuity: No breaks and with minimum of joints. Penetrations and abutments; Seal to vapour control layer. If necessary, prime substrates to achieve full bond.

Sheet laps; Not less than 150mm, seal with tape. Prime substrates as necessary to achieve full bond.

Sheet tape: Double sided sealant with vapour resistivity not less than vapour control sheet.

- **Size (width and thickness):**

Sheet repairs and punctures: Seal with lapped patch of vapour control membrane and continuous band of sealant tape along edges.

REFER TO VAPOUR CONTROL LAYER MANUFACTURER FOR APPLICATION ADVICE.

785 Breather Membrane

Material:

Manufacturer:

- **Product reference:**

Continuity: No breaks. Minimise joints.
- Penetrations and abutments: Attach to breather membrane with tape. Achieve full bond.
- Laps; not less than 150mm, bond with tape. Achieve full bond.

Tape: As recommended by breather membrane manufacturer.

Repairs: Lapped patch of breather membrane material secured with continuous band of tape on edges.

Junctions at flashings, sills, gutters etc. Overlap and allow free drainage to exterior.

REFER TO BREATHER MEMBRANE MANUFACTURER FOR APPLICATION ADVICE.

985 Damage

Repairs; Damaged or broken tiles can be easily replaced by carefully lifting the tile to be replaced along with the two tiles above it, care should be taken to ensure these do not fall out. **WEAR PERSONAL PROTECTIVE EQUIPMENT.** Damage to the vertical supporting rails may require removal of a section of tiles to remediate. Unbroken tiles can be re-used.

995 Maintenance

Elementix® express Rainscreen Cladding requires little or no maintenance. Refer to Ibstock Brick Limited for guidance on specific topics if required.

Recycling

Elementix® express Rainscreen cladding tiles are manufactured in the UK from naturally inert materials and are not prone to off-gassing of volatile materials. Clay products are non-toxic.

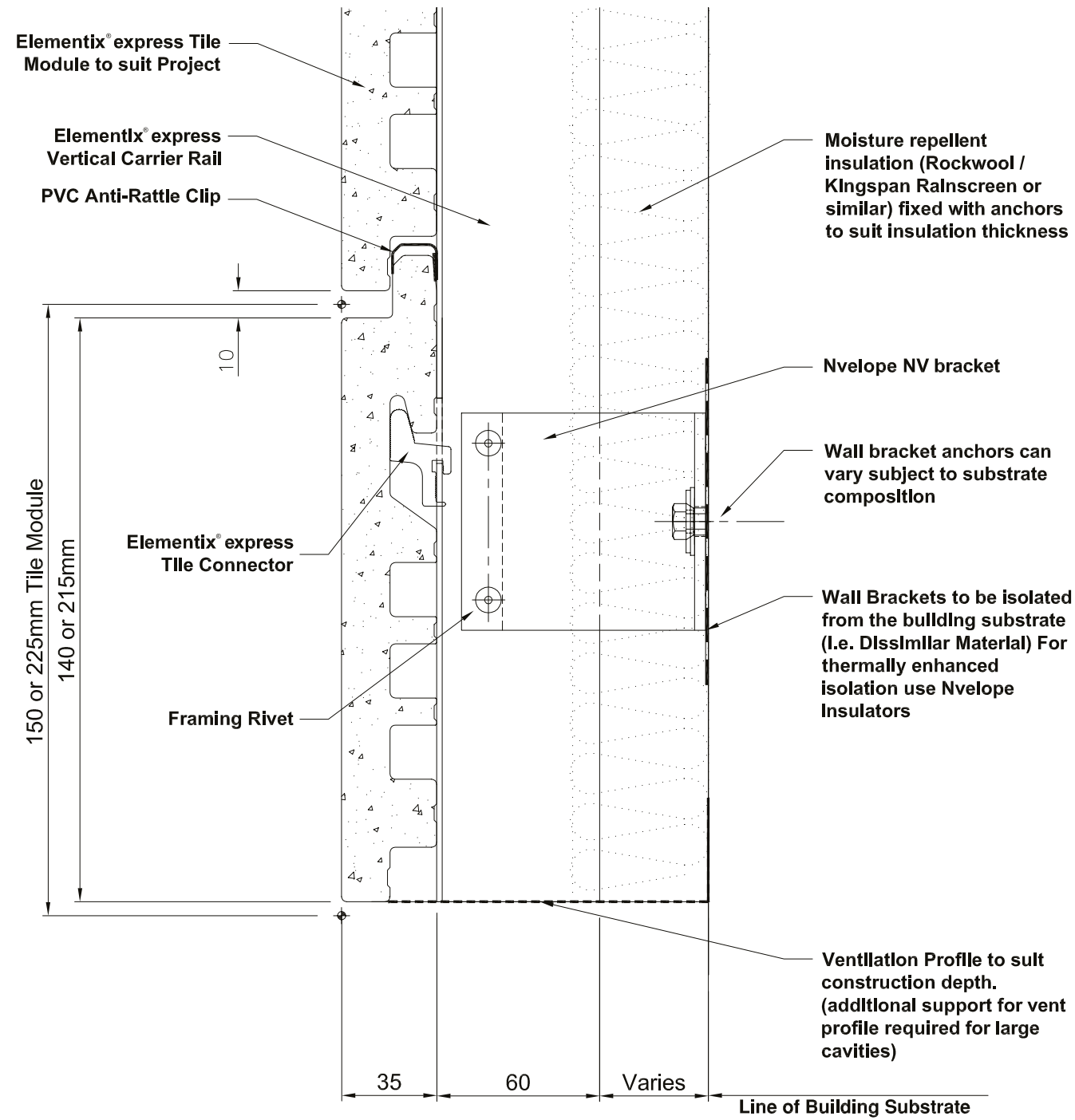
Despite the potential longevity of fired clay products, they are sometimes demolished well before the end of their useful life. The following are possible uses for recycled clay building materials:

- Reclaim and re-use.
- Filling and stabilising material for infrastructure works.
- Aggregates for in-situ and precast concrete and mortars.

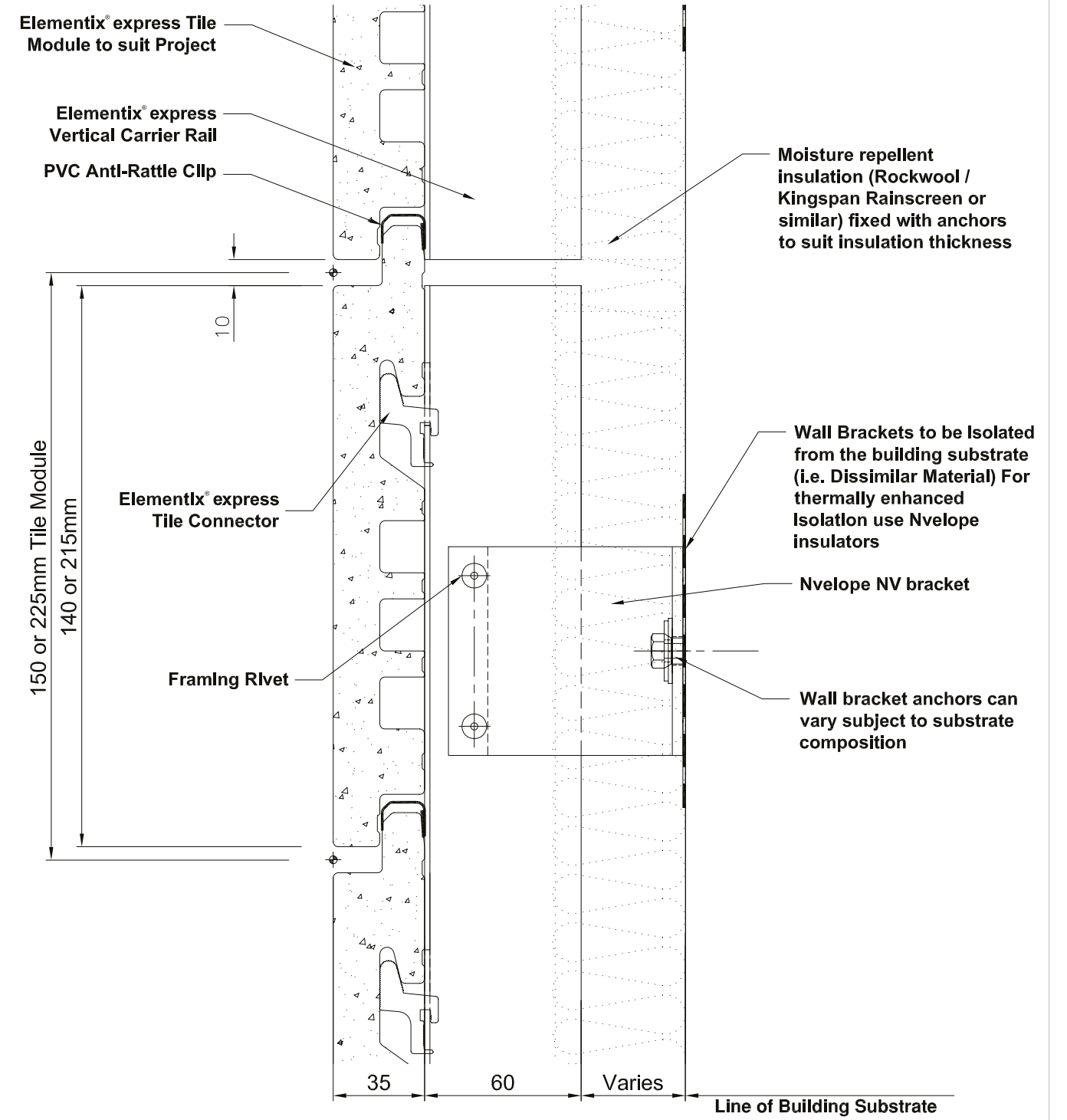
The majority of the aluminium used in Nvelope extrusions is from recycled sources.

'Adaptable building' is used to describe a structure that has the ability to be modified or extended at minimum cost to suit the changing needs of the people using the structure. Thoughtful design can provide the flexibility for these needs to be met without requiring expensive and energy intensive renovations. The ease of assembly and disassembly of Elementix® express panels and components means a structure can be re-shaped or extended incorporating the re-use of the Elementix® express system.

Elementix® express technical specifications

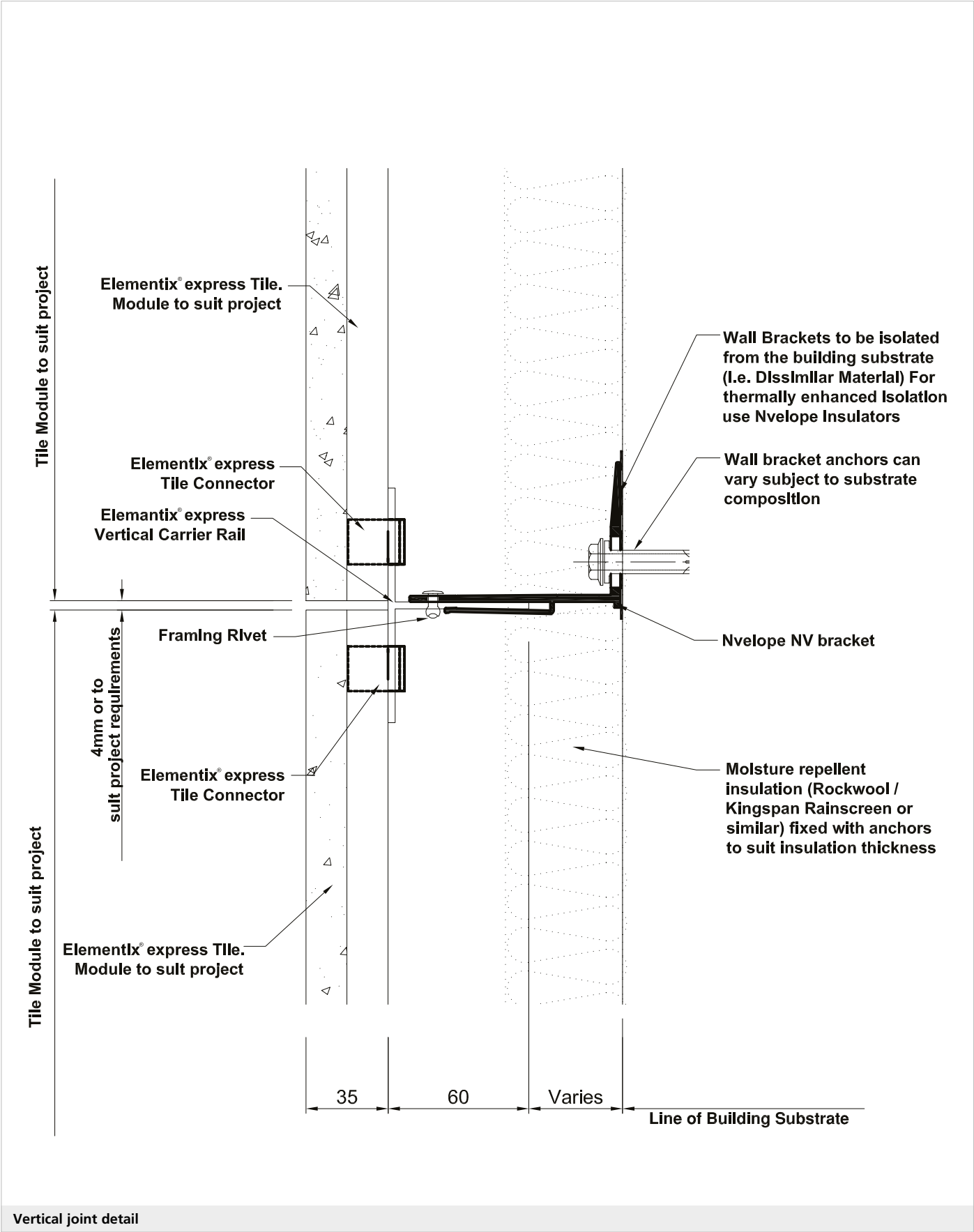
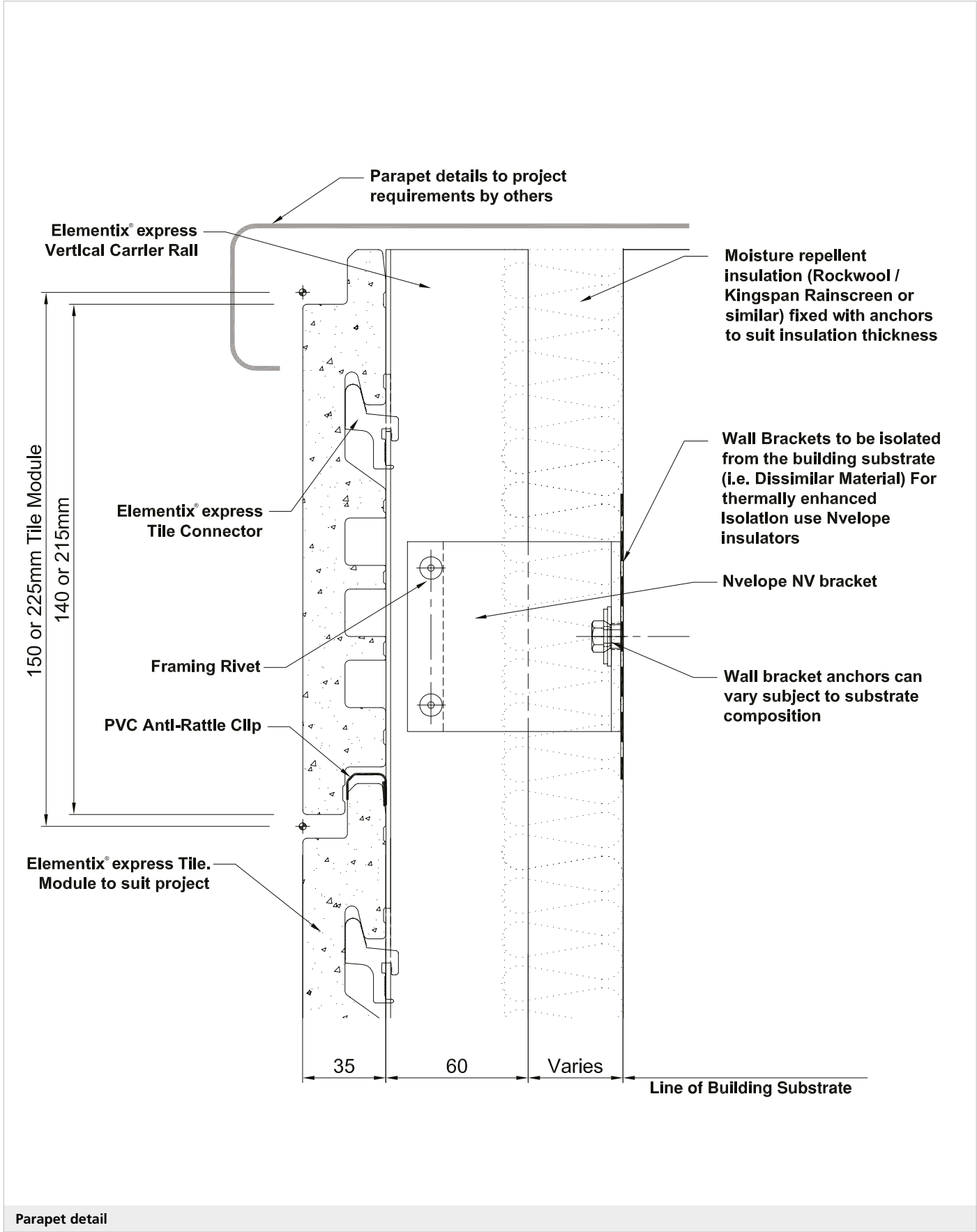


Base detail

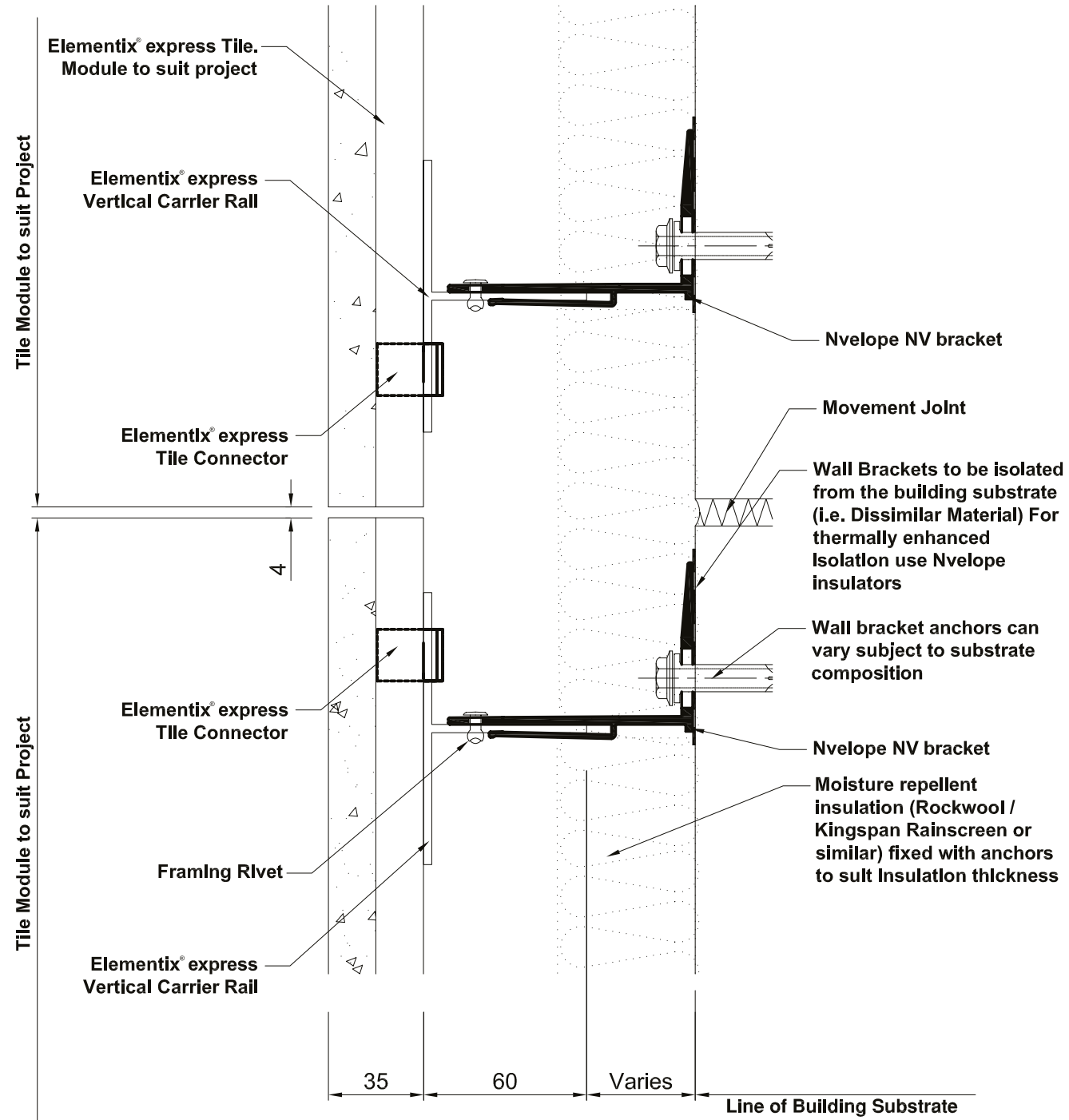


Horizontal joint detail

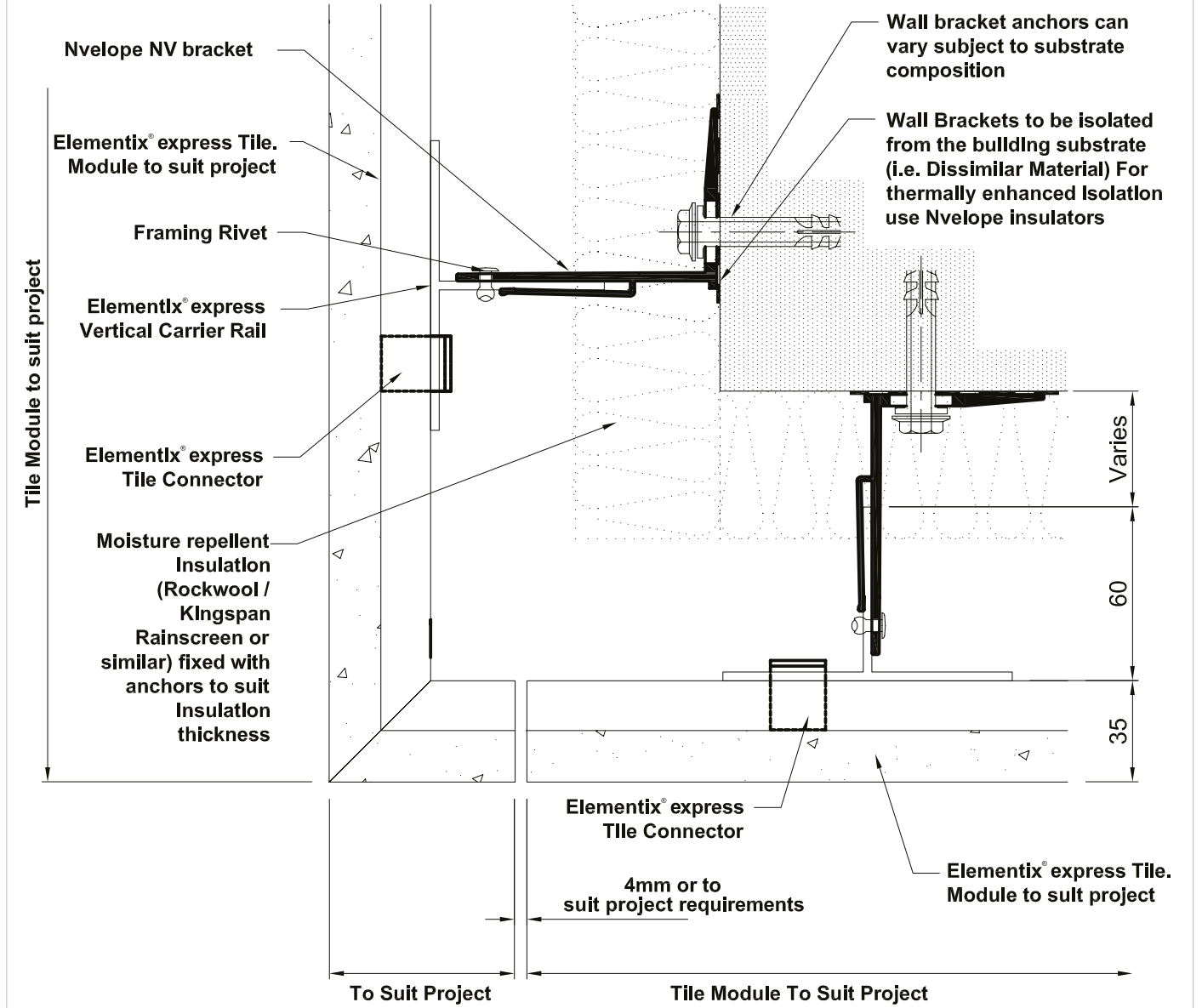
Elementix® express technical specifications



Elementix® express technical specifications

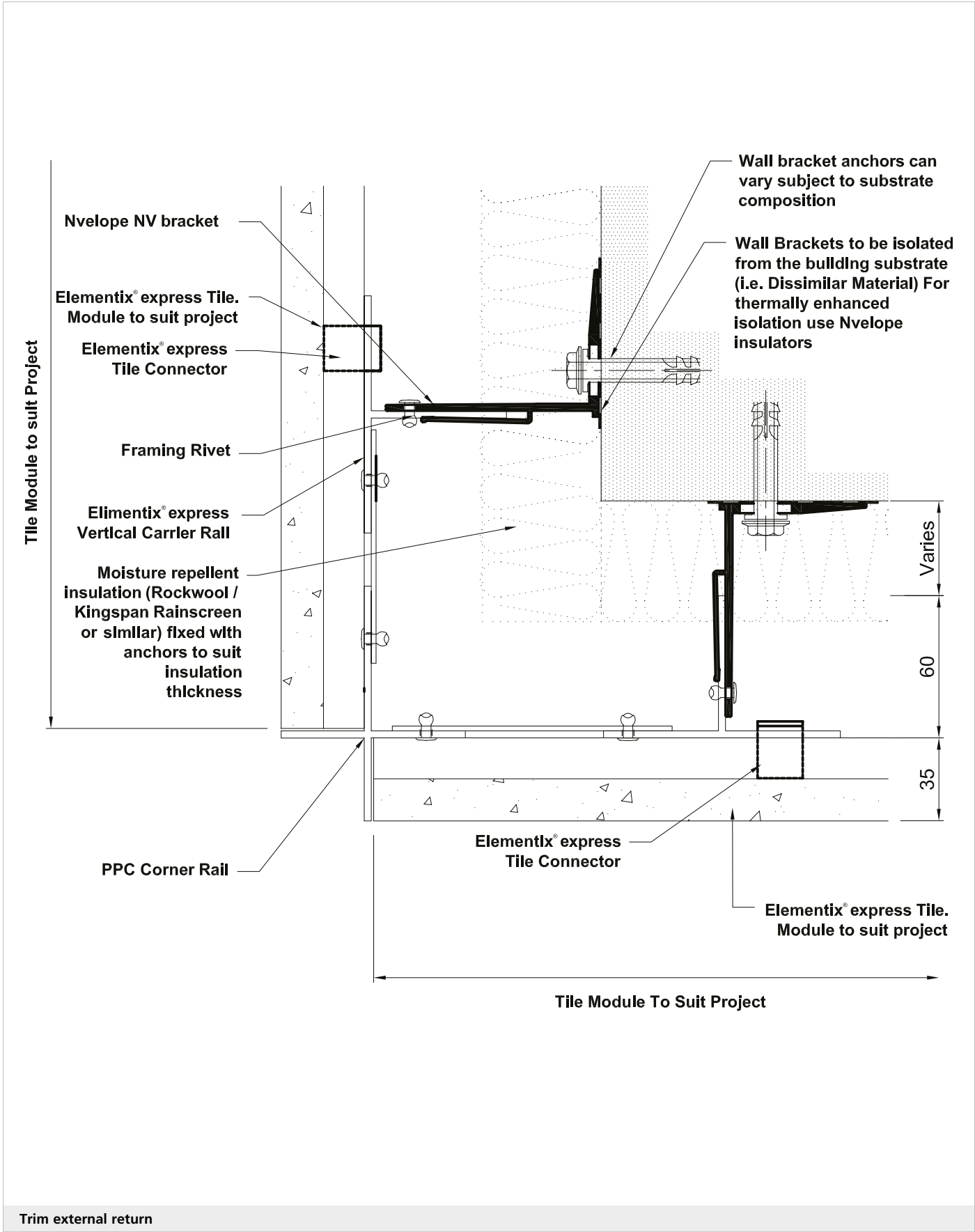
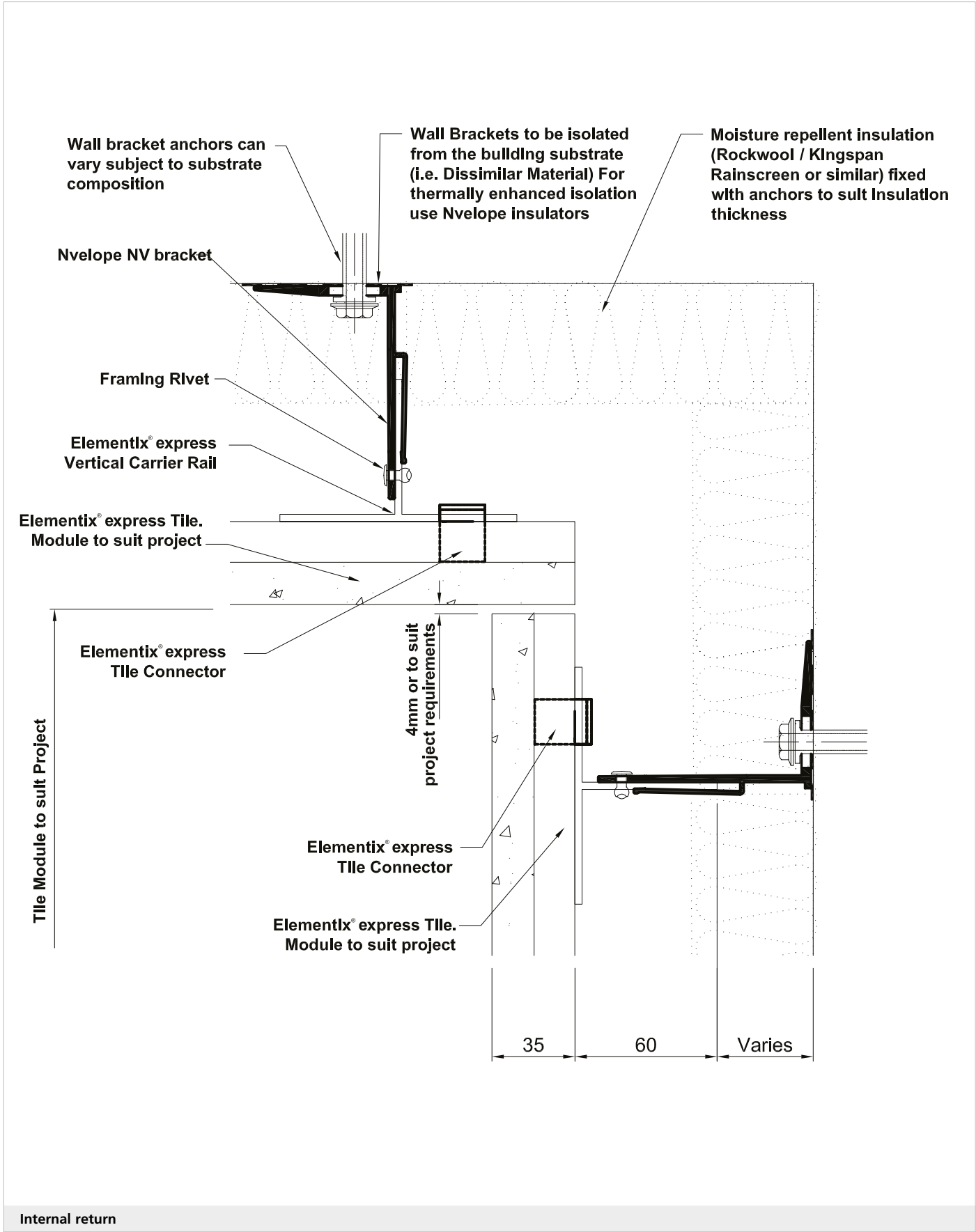


Vertical movement joint detail

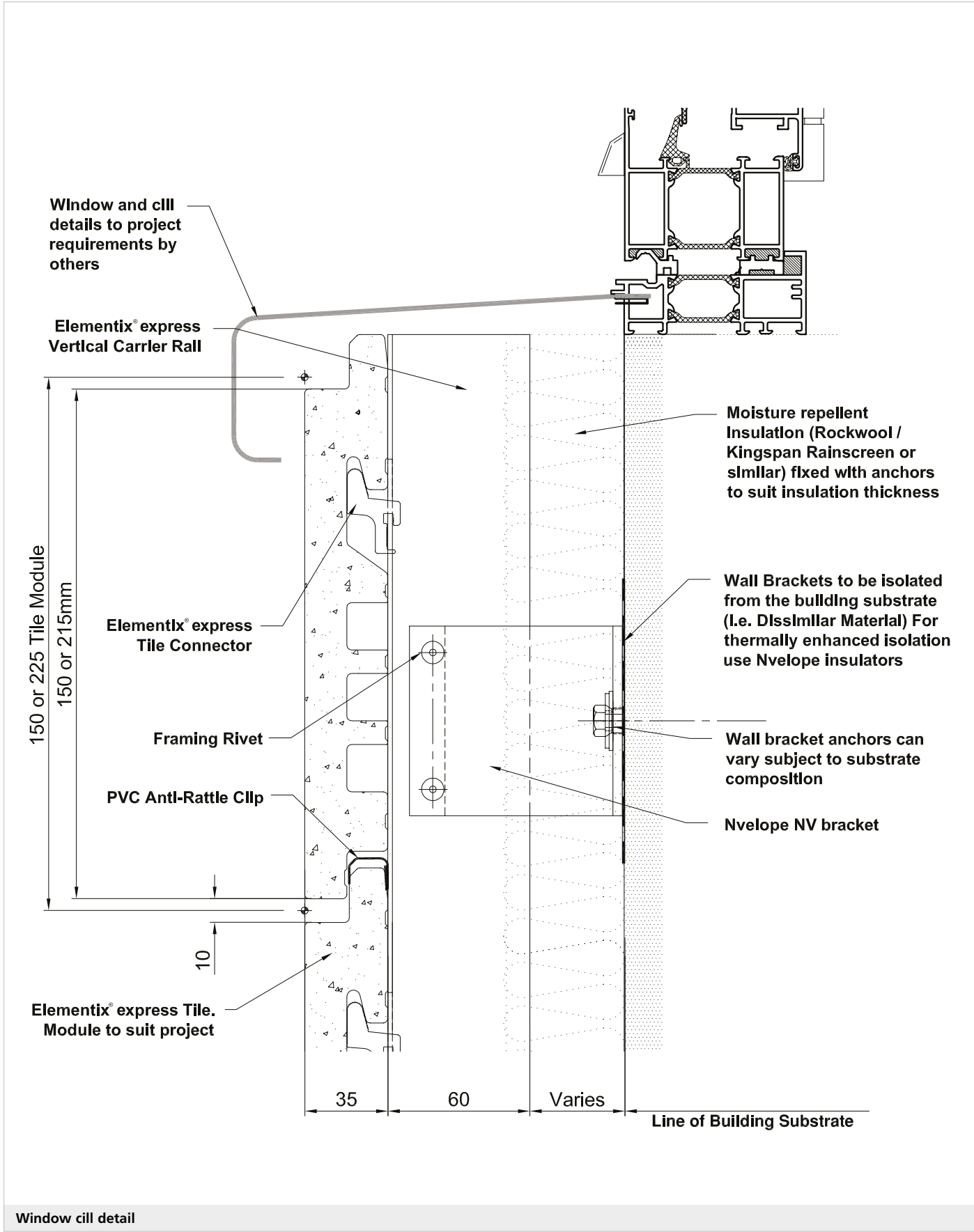


Bonded external return

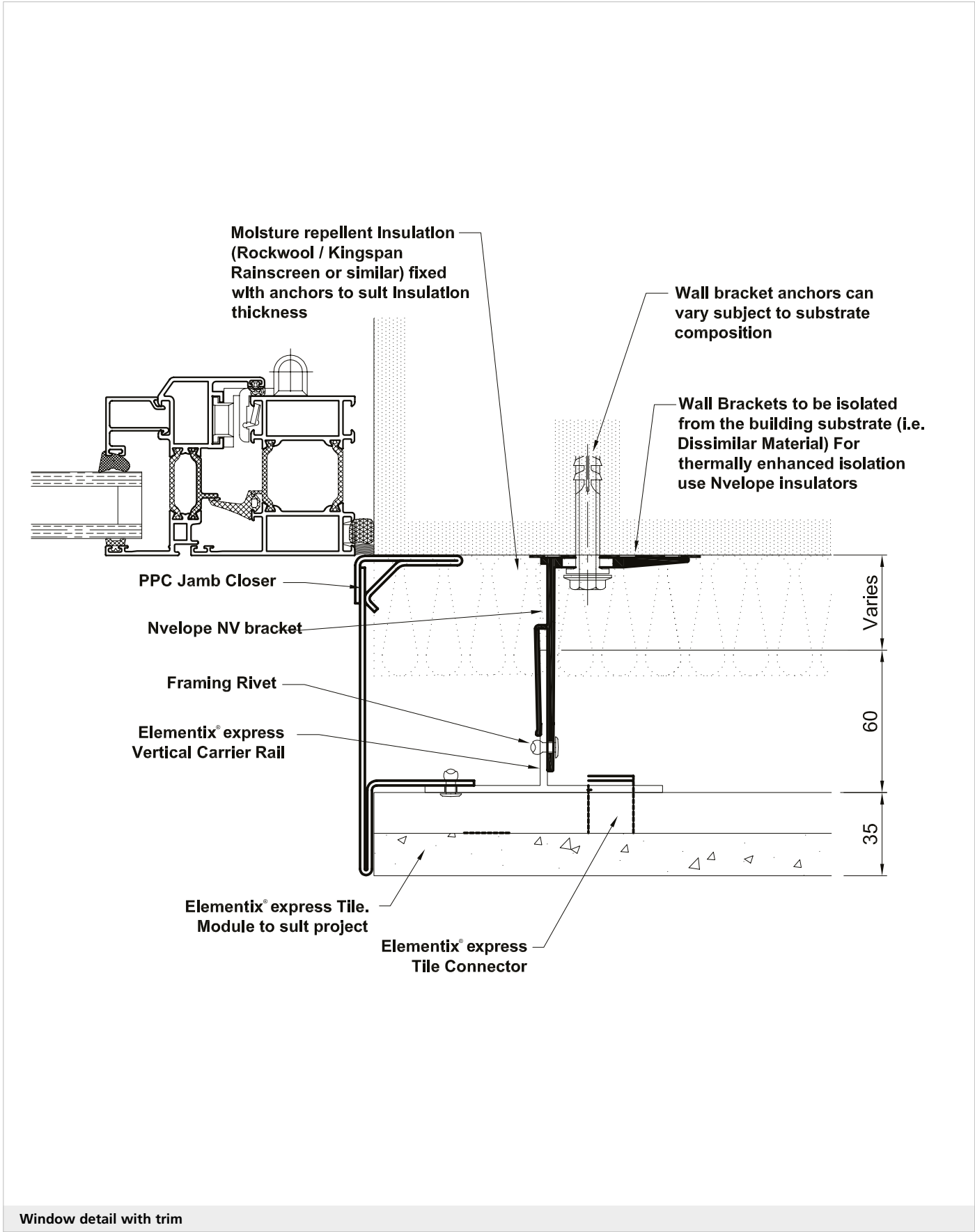
Elementix® express technical specifications



Elementix® express technical specifications

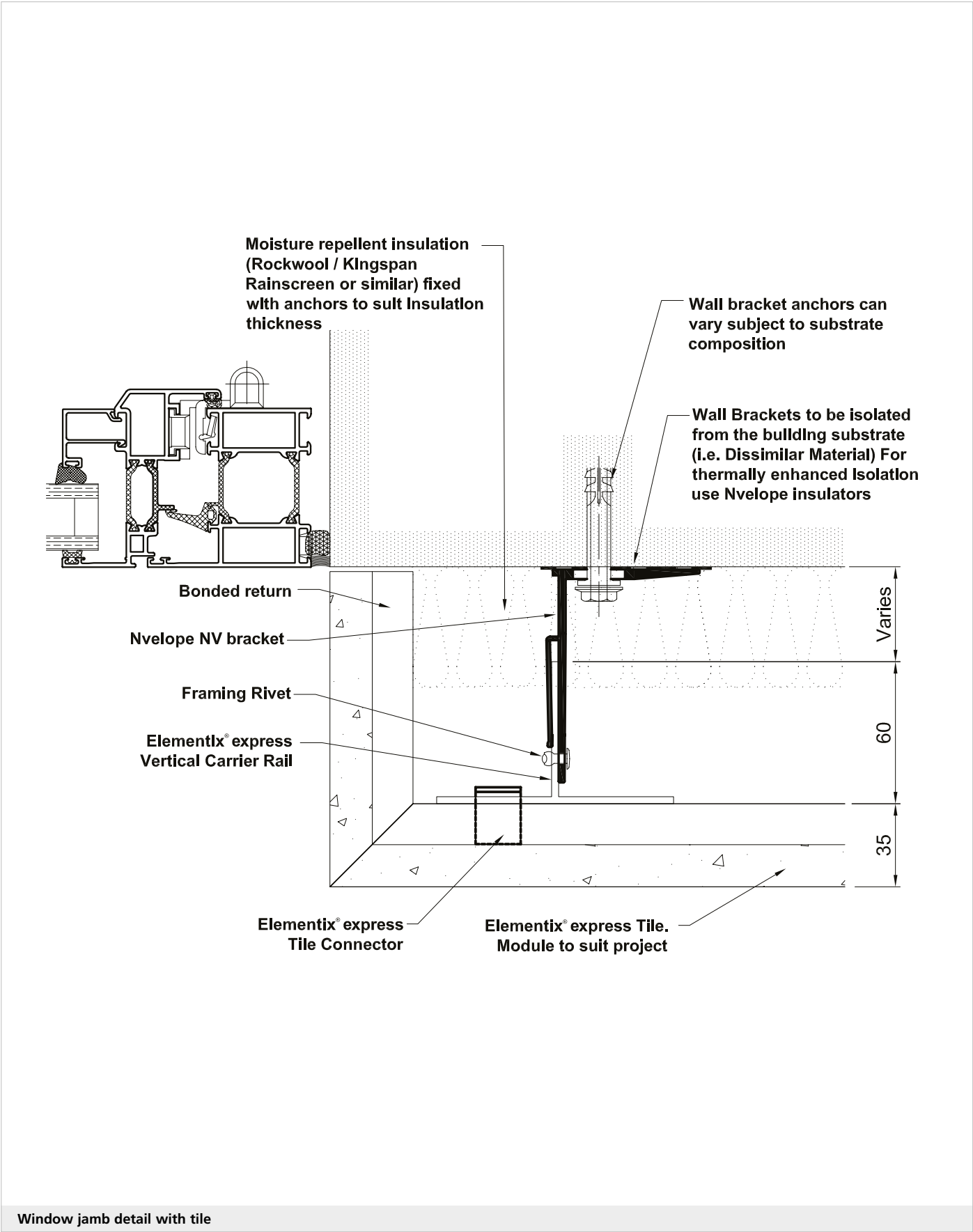
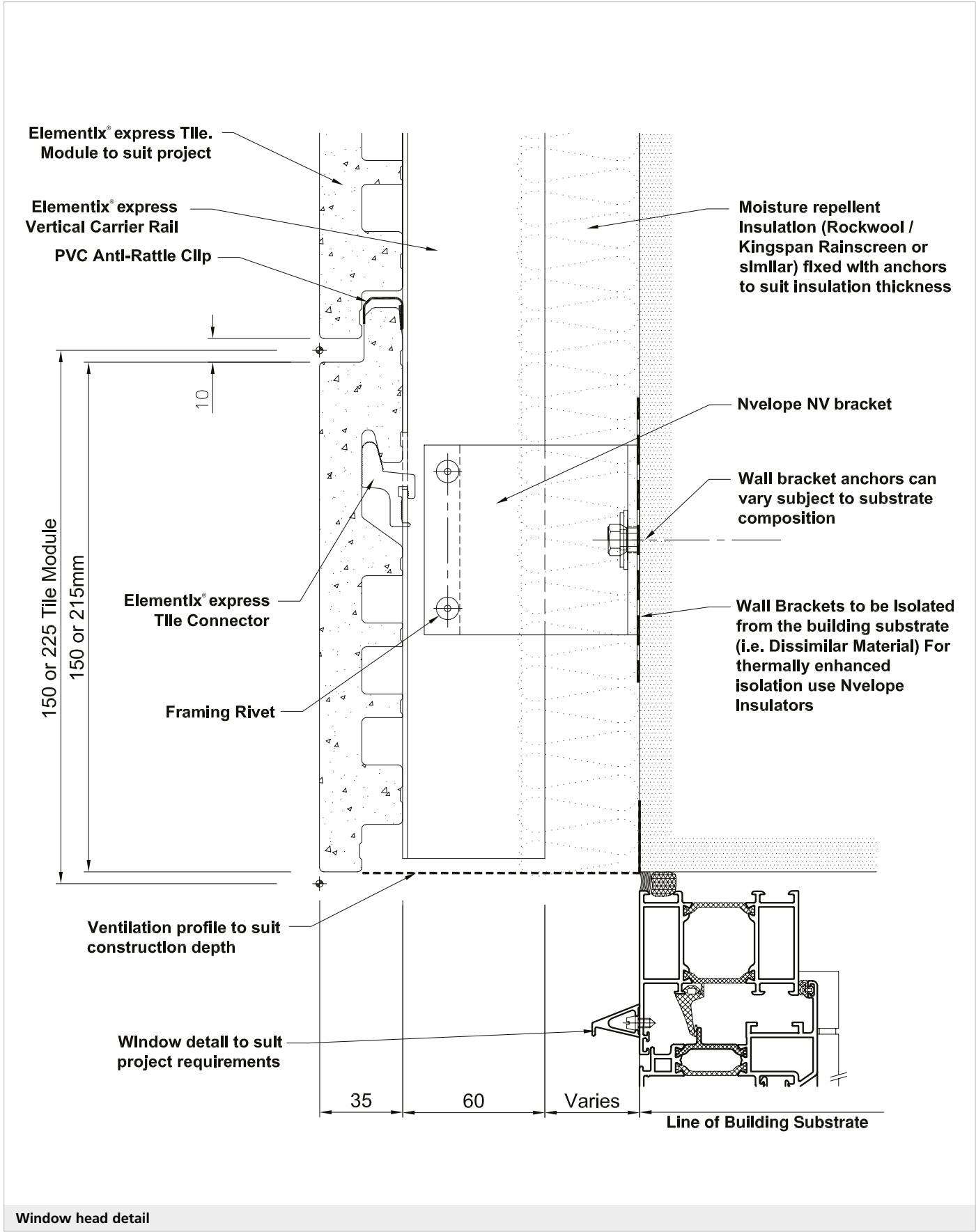


Window cill detail



Window detail with trim

Elementix® express technical specifications



www.ibstock.com

search: elementix



CONTACT NUMBERS

Ibstock Sales Office:

0844 800 4575

Design & Technical Helpline:

0844 800 4576

Sample & Literature Hotline:

0844 800 4578

Special Shapes and Brickwork
Components Sales Office:

0844 736 0350

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100-2012

Celebrating 30 YEARS of the Ibstock Design Magazine

We're celebrating three
decades of innovation
inspiration and dedication

IBSTOCK[®]
building sustainability

From the UK's largest brick manufacturer

