Cladding - Rain screen and others

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Page Author
Structures Team

Related Topics
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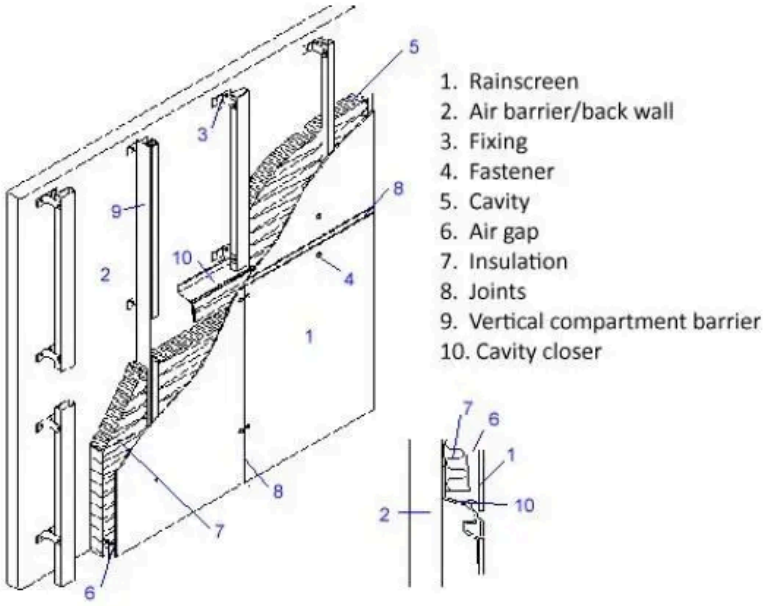
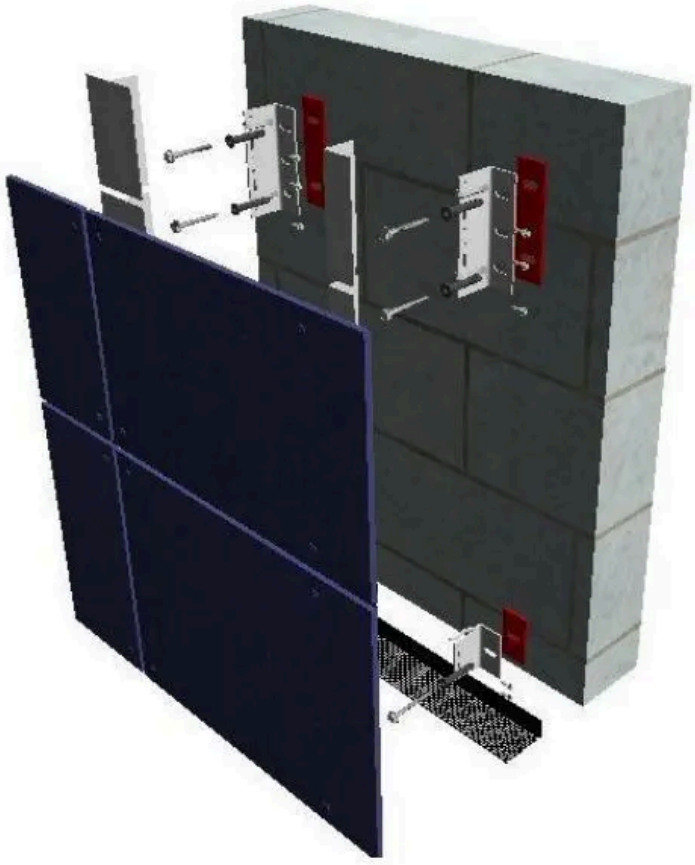
Introduction

Rain-screen cladding typically comprises of an outer skin of panels (i.e. the rain-screen), an air cavity and a backing wall. The rain-screen panels are supported off rails, fixed to either a built-up backing wall (such as masonry, SFS, concrete or composite insulation panels) or to the opaque areas of curtain walling (either stick or unitised). The cavity located behind the rain-screen cladding panels may be “drained and ventilated” or “pressure-equalised”.



Rainscreen cladding components



Installing rainscreen cladding component by component

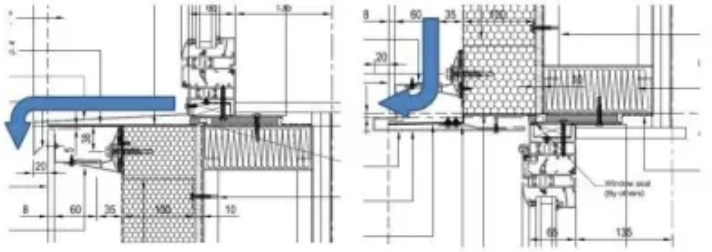
What to check on site

- Check that onsite conditions are suitable for installation.
- Cross check the onsite installation against the relevant construction issue drawings. Is the installation as per the agreed design?
- Take spot check measurements of the width of the horizontal and vertical joints between panels. Are they within the specified /design tolerances?
- Check whether the joints are open or sealed, as per the design.
- Inspect that the cavity behind the panels is the correct depth.
- Inspect whether the drainage paths are clear. Make sure there are no obstructions in the drainage route.
- Check that frame drainage integral to window, door and curtain wall systems is accommodated at the sill, reveal and head interfaces.
- Inspect whether the rails are correctly positioned, as per the design.
- Inspect whether the fixings and fasteners are the right type/shape and correctly positioned, as per the design.
- Where the backing wall is a framed back wall, check that any brackets supporting the rain screen are fixed to the studs or to horizontal rails that are fixed to the studs.
- Check whether the type, thickness and location of insulation is as per the design.
- Inspect whether any compartment barriers or cavity closers are correctly positioned.
- Check that any breather membranes / vapour control layers are correctly positioned and are sealed around penetrations (such as brackets), windows, doors and curtain walling systems.
- Inspect whether thermal separators are included between brackets and supporting structure as per the design.

Good and Bad Examples Example Images

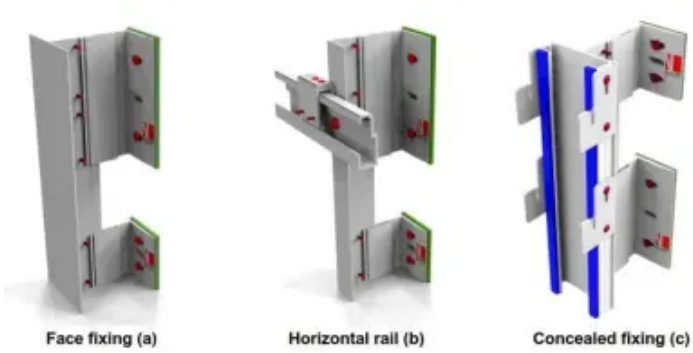
Rain-screen panels hooked over a horizontal rail from their hidden fixings. The bracket has a levelling screw to allow adjustment of the panel location and a locking screw to prevent movement of the panel when in the correct position.

Poorly installed / damaged vapour control layer



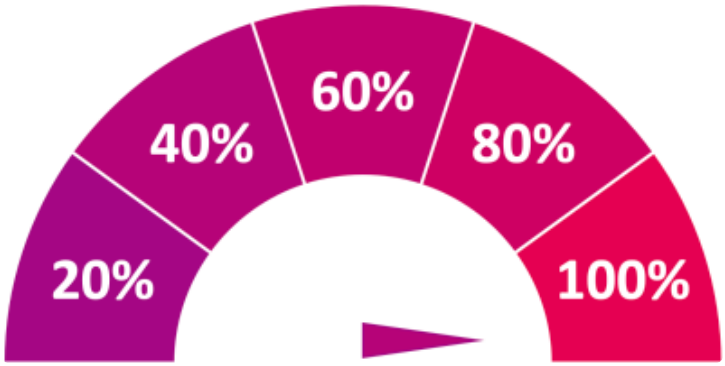
Drainage path at window cill and head interface

Fixings into the sheathing board rather than the steel stud.



Different ways of supporting the rainscreen panels off the helping hand brackets

Inspections + Testing



Exceptions:

No Exceptions

Minimum Required Testing

CWCT - Spray Bar Test
Benchmark Sign Off for Finished Performance/Colour (Should include the client, Lendlease, Lendlease Technical Expert and Facade Team)
Wind Load Testing

Minimum Required Certifications

Conformance Certificate (Proving Compliance with BS 8414)

Records, Resources, Literature

Required Records for the Activity

Progress Photographs
A Records Test Results
Marked up drawings
Test Results
Sign off sheets which must be uploaded to the correct records management system immediately
Schedule of works undertaken
Stick system technical data including glazing CE/EN marking data
Installation checklist

Stick system warranty
Water tightness test report
Airtightness test report

Required Lendlease Mandatory Documents

M100 - Single Source ITP

M101 - Single Source ITP Review Form

Standards and Literature

CWCT Technical note 53 - Method statement for installation

CWCT Technical note 70 - Thermal and moisture performance of cavities

CWCT Technical note 76 - Impact testing of cladding panels

CWCT Technical note 77 - Assessment and certification of rain-screen systems

CWCT Technical note 78 - Interfaces and joints

BS 8298-4:2010 - Code of practice for the design and installation of natural stone cladding and lining. Rainscreen and stone on metal frame cladding systems

Metal Cladding and Roofing Manufacturers Association, Guidance Document 08 - Introductory guide to rain-screen support systems

Metal Cladding and Roofing Manufacturers Association, Guidance Document 11- Fixings and fasteners for rain-screen systems

Building Regulations Approved Document A, Section 3 “Wall Cladding” - Fixings

CWCT Test Methods for Building Envelopes, Section 10 - Onsite spray bar testing

The Construction Fixings Association’s (CFA) guidance note: “Procedure for Site Testing Construction Fixings 2012”

BS 8539:2012 - Code of practice for selection and installation of post-installed anchors in concrete and masonry

BS EN 1990:2002 - Eurocode - Basis of structural design (+A1:2005)

BS EN 1991-1-4:2005 - Eurocode 1: Actions on structures. General actions - Wind actions (+A1:2010)

BS EN 1991-1-5:2003 - Eurocode 1 - Actions on structures. General actions - Thermal actions (+NA: 2007)

Insulation

BS EN 13162:2012+A1:2015. Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification

BS EN 13167:2012+A1:2015. Thermal insulation products for buildings. Factory made cellular glass (CG) products. Specification

Membranes

BS EN 13967:2012 - Flexible sheets for waterproofing - plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet - definitions and characteristics (+A1:2017)

BS EN 13970:2004. Flexible sheets for waterproofing. Bitumen water vapour control layers. Definitions and characteristics

BS EN 13984:2013. Flexible sheets for waterproofing. Plastic and rubber vapour control layers. Definitions and characteristics

BS 5250:2011 - Code of practice for control of condensation in buildings (+A1:2016)

CWCT Technical note 33 - Breather membranes and vapour control layers

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