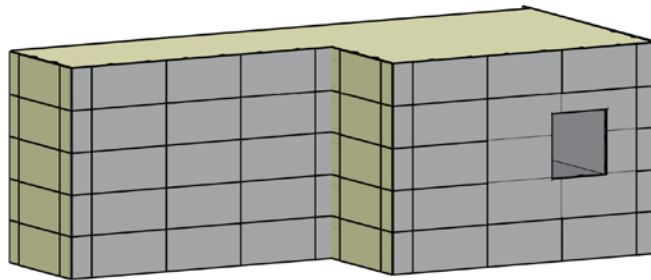




KONN Concrete Panel Installation Guide

Professional step-by-step field reference for mechanically fastened concrete panel cladding / rainscreen assemblies.



Document control

Document type: Installation field guide - redesigned professional draft

Primary reference: KONN detail drawing package; supplemental handling and rail/clip guidance from supplied references

Use note

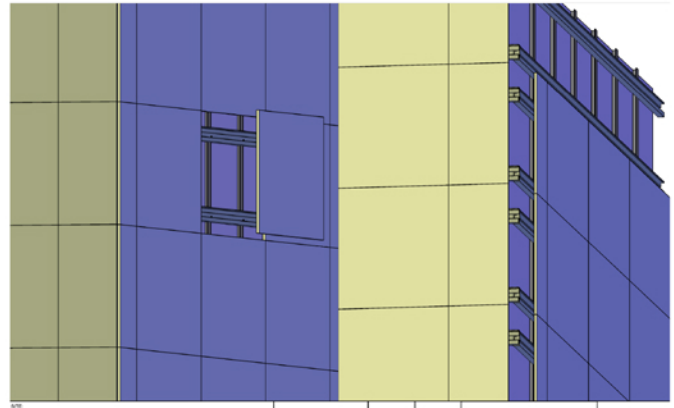
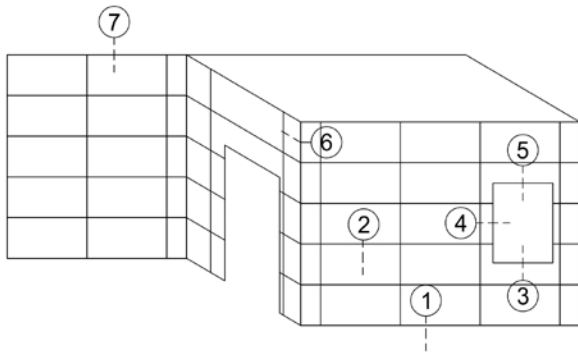
This document is a field coordination guide. Project-specific stamped drawings, approved shop drawings, local code, and manufacturer requirements govern the final installation.

Scope

This guide converts the supplied KONN details into a clear field sequence for exterior concrete panel cladding/rainscreen work.

Typical assembly: back-up wall, weather barrier, thermal break, Z-bars, extrusion/rails, brackets, fasteners, flashings, and finished concrete panels.

Design intent: concealed mechanical attachment with panel alignment, adjustment, drainage/ventilation, and clean architectural reveals.



Main components

Concrete panel: visible finished cladding; protect face and edges during staging, lifting, and installation.

Corner panel: preformed or configured corner face for clean outside corner returns.

Bracket + extrusion: concealed support system used to engage, level, and align panels.

Z-bar + thermal break: support, spacing, and thermal separation behind the rail assembly.

Weather barrier + flashing: continuous water management layer and termination drainage.

General sequence at a glance

1. Review approved shop drawings and establish the control grid.
2. Prepare substrate, weather barrier, and flashing.
3. Install thermal breaks and Z-bars.
4. Cut, align, and install extrusion/rails.
5. Coordinate rail expansion gaps and movement joints.
6. Install brackets and leveling hardware.
7. Prepare concealed clips or anchors where used.
8. Install the first panel or first row, then continue field panels.
9. Complete window, end, and outside corner details.
10. Make final adjustments, inspect, clean, and hand over.

Protect finished architectural panels

Treat each concrete panel as a finished facade element. Keep panels clean, dry, padded, and protected from standing water, mud, impact, staining materials, and edge damage. Wear clean gloves and use proper lifting support for larger panels.



CORRECT

Carry panels on edge, support the face, and avoid bending or twisting. Do not carry panels flat in a way that creates flex or point loading.



INCORRECT



For long-term storage, keep the panels stored horizontally.



During installation, the panels may be placed on edge on the floor.

Handling rules

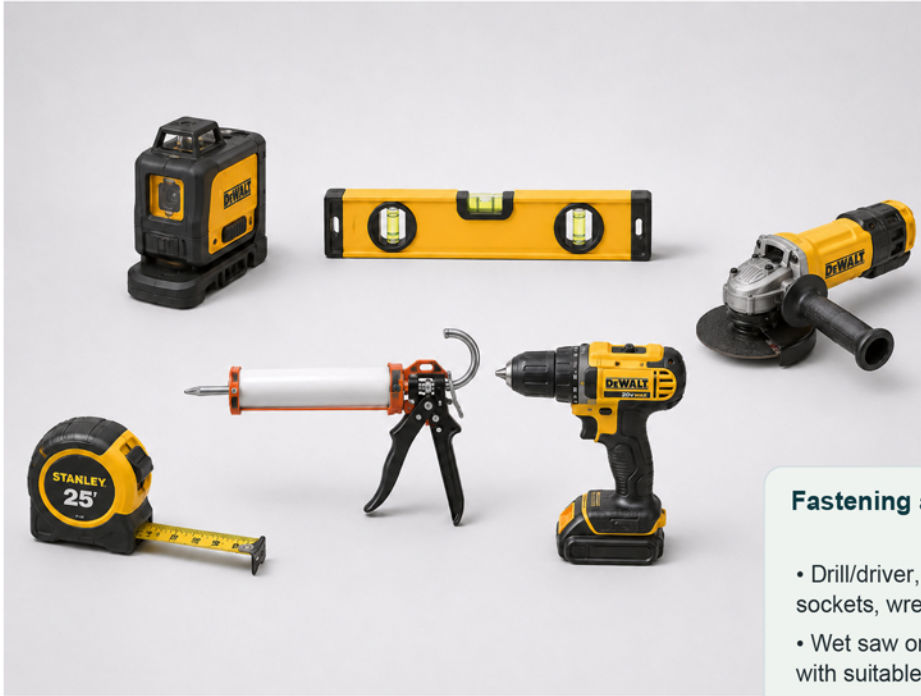
- Use two people or a panel lifter for large panels.
- Keep the finished face away from tools, scaffold, and abrasive surfaces.
- Protect corners and exposed edges during staging and installation.

Storage rules

- Store panels off the ground and away from standing water.
- Use padded racks, spacers, and clean non-marking separators.
- Inspect every panel before installation begins.

Do not proceed if...

Do not install if panels, substrate, anchors, fasteners, weather barrier, or flashing conditions are wet, damaged, loose, unverified, misaligned, or not approved.



Fastening and cutting tools

- Drill/driver, torque control, bits for substrate/metal, sockets, wrenches, approved fasteners and anchors.
- Wet saw or approved masonry/concrete cutting equipment with suitable diamond blade and dust control.

Layout and survey tools

- Laser level, standard level, tape measure, chalk line, plumb reference, straightedge, story pole, and permanent marker/pencil.
- Use the approved datum and control grid before drilling or fastening any permanent components.

Weatherproofing and safety

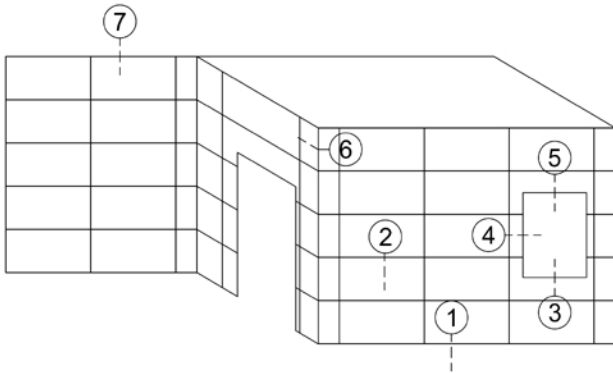
- Project-approved membrane accessories, sealant, backer rod, tapes, flashing, and corrosion-compatible fasteners.
- Eye/ear protection, gloves, respirator for silica dust, hard hats, fall protection, and safe lifting equipment.

Minimum field preparation

- Review all shop drawings, panel schedules, detail keys, hardware locations, and panel marks before installation.
- Confirm substrate is dry, clean, flat, structurally sound, and ready for the specified anchors.
- Verify that windows, doors, membranes, flashings, transitions, and penetrations are ready before cladding blocks access.
- Inspect each panel for cracks, chips, stains, discoloration, or dimensional issues before installing.

Important

Use only approved anchors, clips, bolts, rails, brackets, sealants, and fasteners for the actual wall assembly, wind load, panel weight, panel size, exposure, and local code.



Field actions

1. Review approved elevations, panel schedule, bracket spacing, fastener schedule, and detail keys.
2. Verify field dimensions, opening sizes, corner conditions, and termination points.
3. Mark base datum, vertical datum, panel grid, rail/extrusion lines, bracket locations, window references, and corner references.
4. Confirm joint widths and reveal alignments before drilling permanent holes.

Quality check

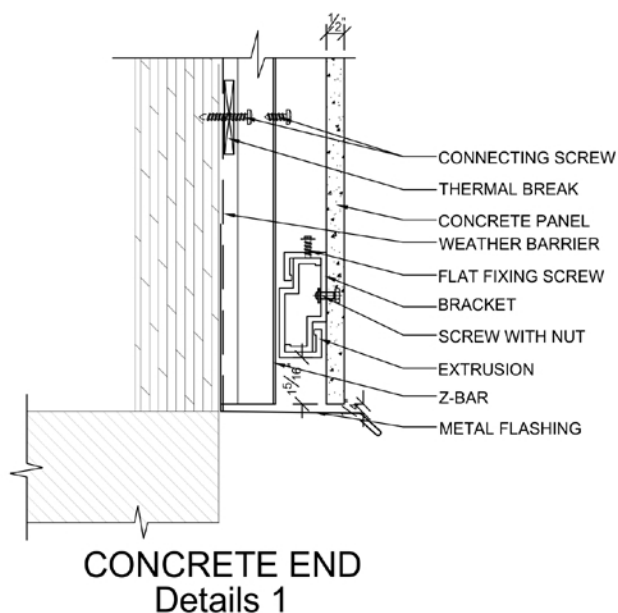
- Grid lines run through inside/outside corners and around openings.
- First bay/mock-up is approved before production installation.

Visual reference

Source reference: KONN detail key plan showing typical detail locations.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



Field actions

1. Confirm back-up wall is structurally sound, dry, clean, flat, and capable of receiving specified anchors.
2. Install or inspect the continuous weather barrier. Seal overlaps, penetrations, transitions, and envelope details.
3. Install metal flashing at terminations, base, head, jamb, sill, and material transitions before cladding blocks access.
4. Confirm drainage/weep paths are open and not blocked by sealant or fasteners.

Quality check

- Weather barrier is continuous behind the system.
- Flashing sheds water out and away from the wall assembly.
- Fastener penetrations are sealed where required.

Visual reference

Source reference: KONN concrete end detail with flashing, weather barrier, Z-bar, extrusion, bracket, and panel.

Important note

Exterior installations require a complete drainage path and weather barrier integration before panel installation.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



Field actions

1. Transfer Z-bar locations from the approved layout to the substrate.
2. Install thermal break material at specified locations before metal-to-structure fastening.
3. Fasten Z-bars plumb and true using approved anchors and shims where required.
4. Do not crush thermal break materials or distort the weather barrier while tightening anchors.
5. Check installed Z-bars with laser, straightedge, or stringline for installation tolerances.

Quality check

- Z-bars are plumb, aligned, and secure.
- Thermal break materials remain intact and continuous where specified.
- Substrate anchors match engineering requirements.

Visual reference

Source reference: KONN wall/extrusion layout diagram; use project shop drawings for final spacing.

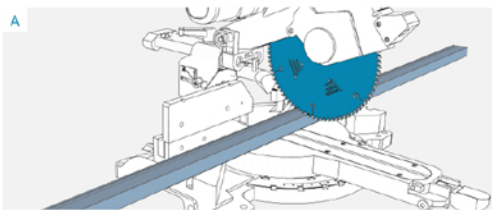
Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.

Installing Rails on Sub-Frame

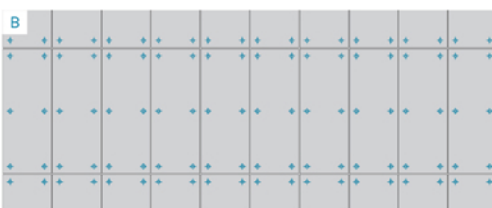
01 Cutting Extrusions

Cut extrusions in the field with TCG non-chip, grind-proof saw blade with carbide teeth count 72-100 (10in diameter) or other recommended non-ferrous metal cutting methods (FIG. A).



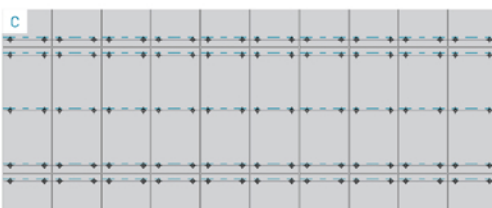
02 Review Shop Drawings

Set elevations of rail datum/work points and locate rail positions per the approved shop drawings (FIG. B).



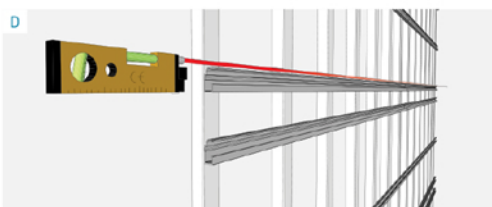
03 Clip Offset

Note the offset of panel clip/anchor location relative to the rail and layout rails accordingly (5/16") (FIG. C).



04 Rail Installation

Install rails level, plumb, and true to the finished plane of the facade (FIG. D).



Field actions

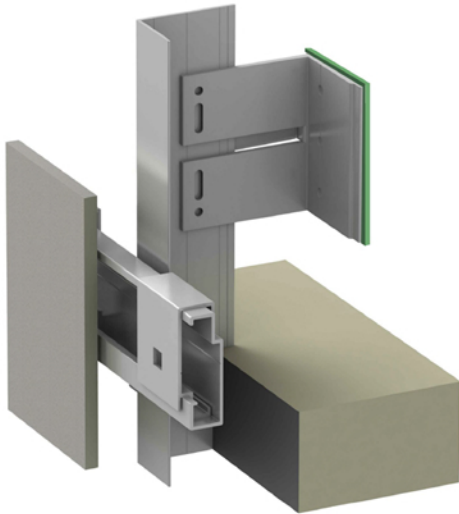
1. Cut extrusion using approved non-ferrous metal cutting methods and deburr cut ends.
2. Set rail datum and work points from approved shop drawings.
3. Account for panel clip/anchor offset when laying out rail centerlines.
4. Fasten rails to Z-bars/sub-girts/back-up wall using specified stainless self-drilling fasteners or approved anchors.
5. Install rails level, plumb, and true to the finished facade plane.

Quality check

- Rails are straight and coplanar.
- Fastener type, spacing, thread, and size are confirmed against engineering.
- Rail positions match panel bracket/clip locations.

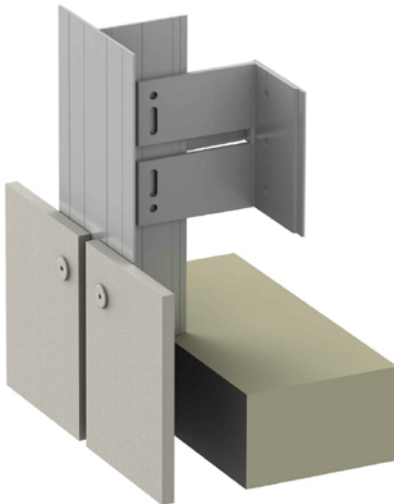
Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



1. Concealed fastening with undercut anchor

As an alternative to the visible fastening, GFRC & UHPC Panels can be mechanically fastened concealed using embedded undercut anchors.



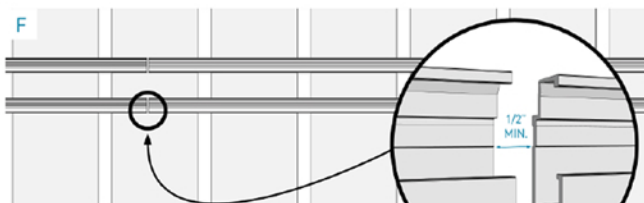
2. Face Fastened System

Fastening with Face means can be fitted quickly and permanently. The panels are fastened with floating- and fixed points to cancel out thermal length variations in the materials used.



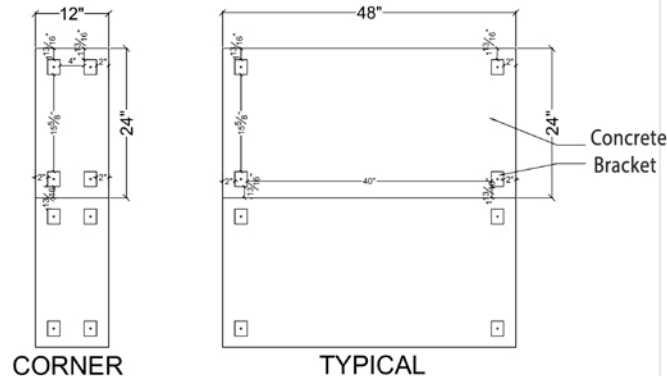
Allow space between joining rails' sections for expansion of aluminum
(Example: $\pm 1/4$ in per 10 ft, therefore minimum 1/2 in gap between two 10 ft rails) [FIG. F].

NOTE: Do NOT bridge rails with fixed connections to back-up wall



Quality check

- Expansion gaps are visible and unobstructed.
- No fixed rail connection bridges building movement joints unless approved by engineer.
- Panel joints align with system movement strategy.



Field actions

1. Install KONN brackets on the extrusion/rail at the approved spacing.
2. Use screw-with-nut assemblies, flat fixing screws, connecting screws, and leveling screws only where detailed.
3. Pre-set leveling hardware so panels can be adjusted without forcing.
4. At corners and openings, verify bracket locations against the relevant panel return or opening detail.
5. Confirm each panel has the required number of support points before installation.

Quality check

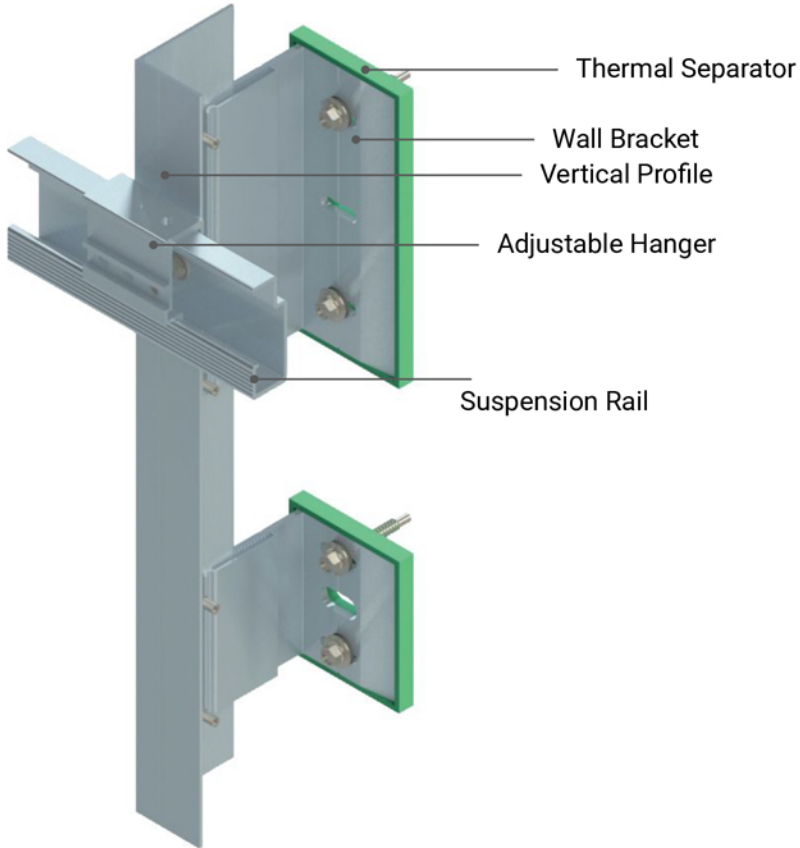
- Brackets are secure, aligned, and not over-tightened.
- Leveling hardware moves freely for final adjustment.
- Bracket locations match panel size, corner returns, and opening conditions.

Visual reference

Source reference: KONN typical concrete panel and corner panel bracket arrangement.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



Easy

- No complex undercut hole required
simple standard hole sufficient
- No special tools to install required
- Holes can even be drilled on site Quick and easy installation with the battery riveting tool from GESIPA® PowerBird® Pro

Secure

No over torquing of the TUF-S
High pullout values with the installed thread
No unwinding
Removable possible via hex head
Can be used in soffit application
Approved for fastening system with the existing ETA assessment ETA-15/0476

The TUF-S blind fastener from SFS is superior to previous approaches to the attachment of HPL or fiber cement cladding panels with regards to installation and long-term security.



TUF-S blind fastener

1.



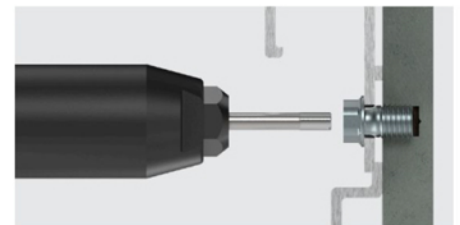
Pre-drill using a Ø 6 mm blind-hole drill with depth-stop – in HPL and fiber cement panel with VHM

2.



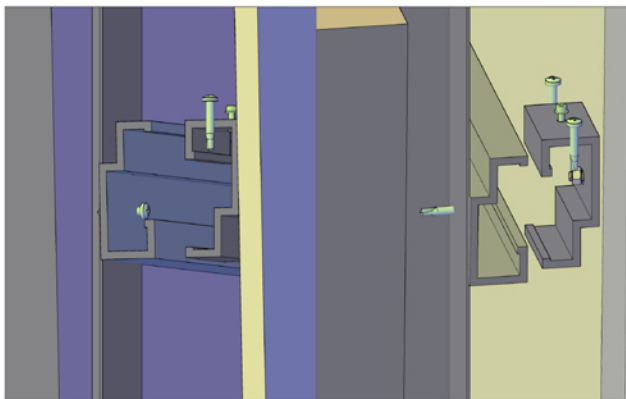
Position the pre-drilled hanger over the hole in the panel and push through the TUF-S blind fastener

3.



Remove the mandrel using a GESIPA® PowerBird® Pro battery riveting tool combined with nose piece 17/36 or 17/40

Step 8 | Install the first panel / first row

**Field actions**

1. Start from the approved datum, corner condition, or shop drawing starting point.
2. Lift the panel using clean gloves, suction cups, panel lifters, or other safe handling methods. Avoid contact with the finished face and edges.
3. Engage the panel with the bracket/rail system carefully. Do not force the panel into place.
4. Before final tightening, check level, plumb, facade plane, joint width, reveal alignment, and corner return.
5. Correct the bracket/rail support before proceeding if the panel does not seat correctly.

Quality check

- First panel is perfectly level and plumb.
- Joint width matches the approved reveal.
- Panel face aligns with the finished facade plane.

Visual reference

Source reference: KONN system view showing panel engagement with concealed bracket and rail components.

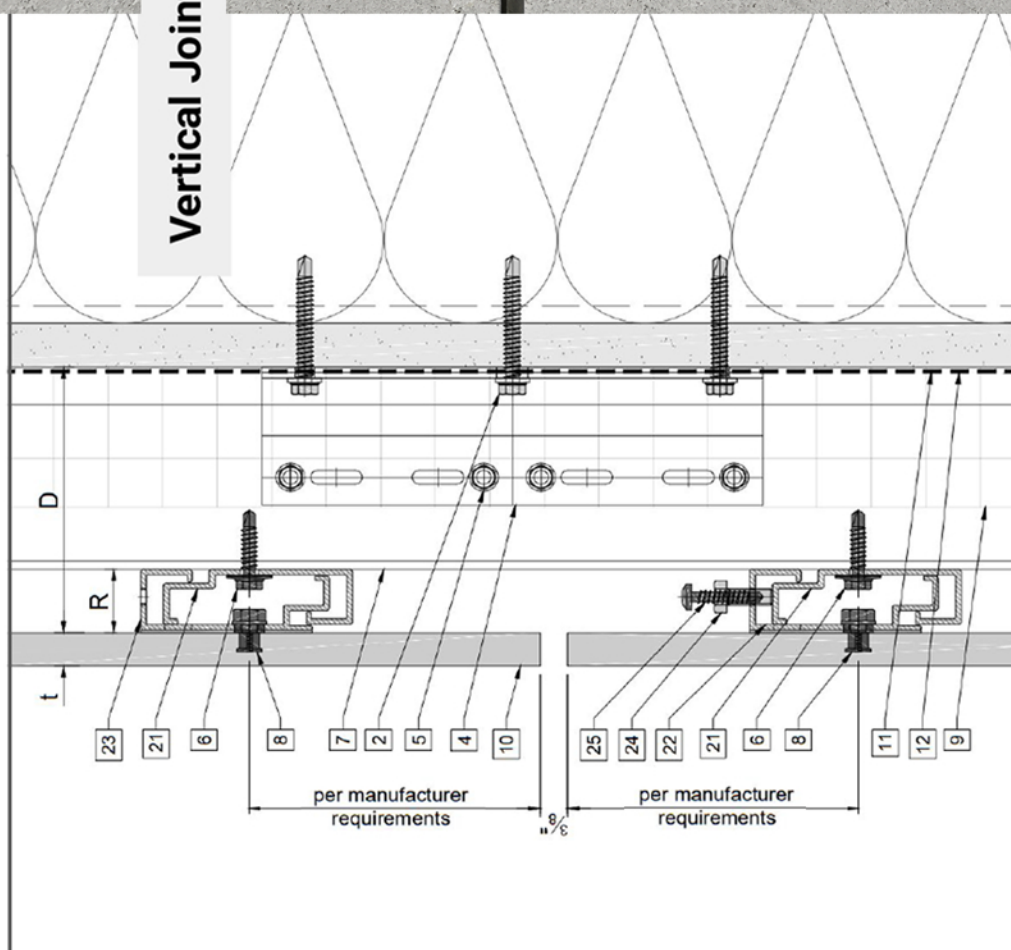
Important note

Errors in the first panel or first row will repeat across the elevation.

Detail / coordination notes

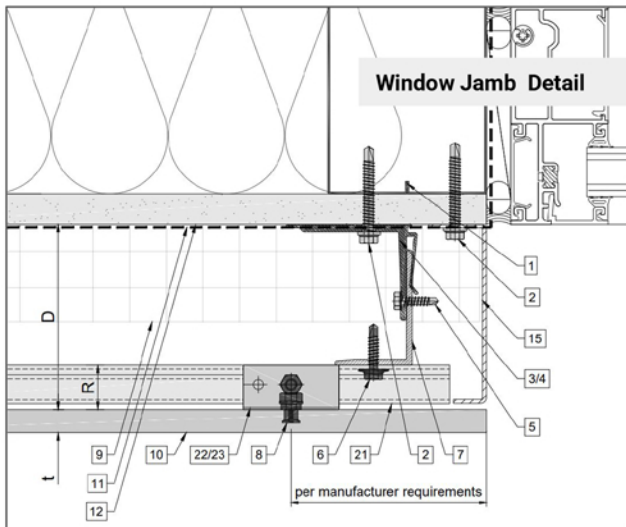
Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.

Vertical Joint Detail



1. Steel stud (16 GA typical)
2. Perimeter anchor
3. Alpha V wall bracket
4. Alpha V+ wall bracket
5. st/st self-drilling screw
6. st/st self-drilling screw
7. Vertical L-profile
8. Undercut anchor
9. Insulation
10. Panel
11. A/V barrier
12. Exterior wall
13. Outer corner closure
14. Inner corner closure
15. Jamb closure
16. Horizontal L-profile
17. Coping
18. Perforated window head closure
19. Window sill
20. Perforated base closure
21. C-carrier rail
22. C-hanger, adjustable
23. C-hanger, non-adjustable
24. Leveling bolt M6
25. Fixing screw
26. Rivet
27. D - System depth
28. t - Panel thickness
29. R - C-carrier rail and C-hanger

Step 10 | Execute window details



- | | |
|-------------------------------|-------------------------------------|
| 1. Steel stud (16 GA typical) | 16. Horizontal L-profile |
| 2. Perimeter anchor | 17. Coping |
| 3. Alpha V wall bracket | 18. Perforated window head closure |
| 4. Alpha V+ wall bracket | 19. Window sill |
| 5. st/st self-drilling screw | 20. Perforated base closure |
| 6. st/st self-drilling screw | 21. C-carrier rail |
| 7. Vertical L-profile | 22. C-hanger, adjustable |
| 8. Undercut anchor | 23. C-hanger, non-adjustable |
| 9. Insulation | 24. Leveling bolt M6 |
| 10. Panel | 25. Fixing screw |
| 11. A/V barrier | 26. Rivet |
| 12. Exterior wall | 27. D - System depth |
| 13. Outer corner closure | 28. t - Panel thickness |
| 14. Inner corner closure | 29. R - C-carrier rail and C-hanger |
| 15. Jamb closure | |

Field actions

1. Confirm window installation, sill pan/head flashing, jamb flashing, and weather barrier integration before cladding.
2. Install rails/brackets around the opening per detail; maintain drainage and ventilation cavity.
3. Install cut panels or marked panels without blocking weep or drainage at the head, jamb, or sill.
4. Use leveling screws around opening conditions to align the panel face and reveal.
5. Seal only where specified; do not seal drainage paths shut.

Quality check

- Water can drain out at sill/head as detailed.
- Jamb and head reveals are aligned and symmetrical.
- Panel edges near openings are supported and protected.

Visual reference

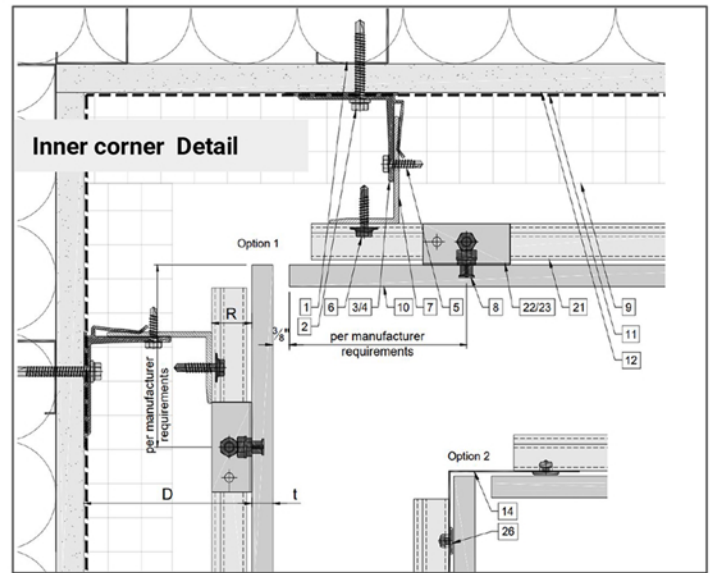
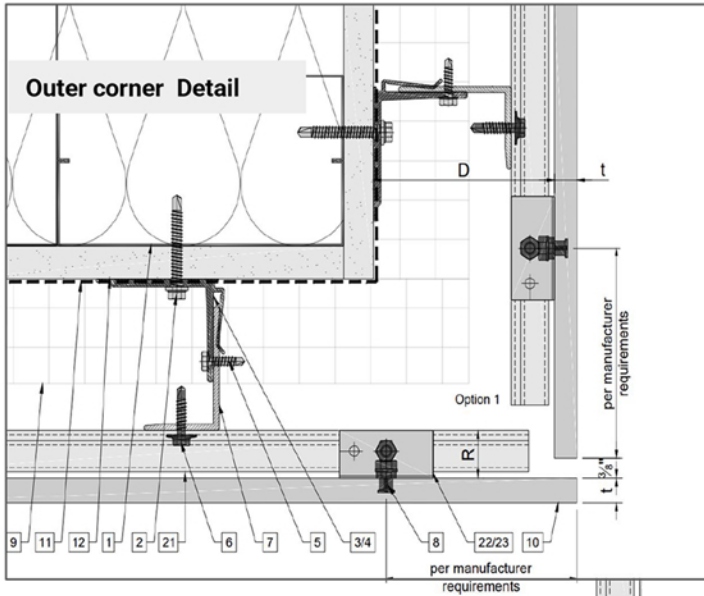
Source reference: KONN concrete window detail with fasteners, flashing, rail/bracket support, and leveling hardware.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



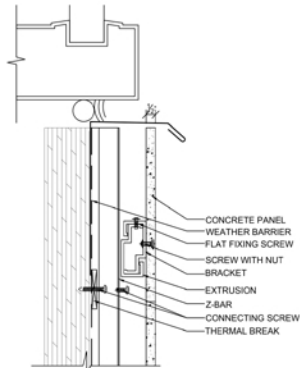
- | | |
|-------------------------------|-------------------------------------|
| 1. Steel stud (16 GA typical) | 17. Coping |
| 2. Perimeter anchor | 18. Perforated window head closure |
| 3. Alpha V wall bracket | 19. Window sill |
| 4. Alpha V+ wall bracket | 20. Perforated base closure |
| 5. st/st self-drilling screw | 21. C-carrier rail |
| 6. st/st self-drilling screw | 22. C-hanger, adjustable |
| 7. Vertical L-profile | 23. C-hanger, non-adjustable |
| 8. Undercut anchor | 24. Leveling bolt M6 |
| 9. Insulation | 25. Fixing screw |
| 10. Panel | 26. Rivet |
| 11. A/V barrier | 27. D - System depth |
| 12. Exterior wall | 28. t - Panel thickness |
| 13. Outer corner closure | 29. R - C-carrier rail and C-hanger |
| 14. Inner corner closure | |
| 15. Jamb closure | |
| 16. Horizontal L-profile | |

Field actions

1. Establish a vertical laser line at the outside corner before setting corner panels.
2. Install corner brackets/rails on both planes and confirm the two planes are square/plumb.
3. Set the corner concrete panel first where the approved sequence requires it.
4. Bring field panels into the corner from both sides while maintaining reveal width and face alignment.
5. Protect exposed corner edges from scaffold contact, impact, and temporary loading.

Quality check

- Corner line is straight and plumb from bottom to top.
- Both facade planes are flush with the corner return.
- Corner reveals are consistent and not pinched.



Concrete Panel / Window Intercept Detail

Field actions

1. Adjust leveling screws and brackets to achieve the final facade plane.
2. Tighten fasteners to specified torque in a balanced sequence so panels and rails do not twist.
3. Inspect all panels for chips, cracks, staining, blocked drainage, misaligned reveals, or loose hardware.
4. Clean panels using approved methods only: soft brush, clean water as permitted, microfiber cloth, or manufacturer-approved cleaner.
5. Complete punch list, document photos, and hand over maintenance notes.

Quality check

- No visible damage, staining, or loose fasteners.
- Drainage and ventilation paths remain open.
- All detail conditions are verified: ends, middle joints, windows, and corners.

Visual reference

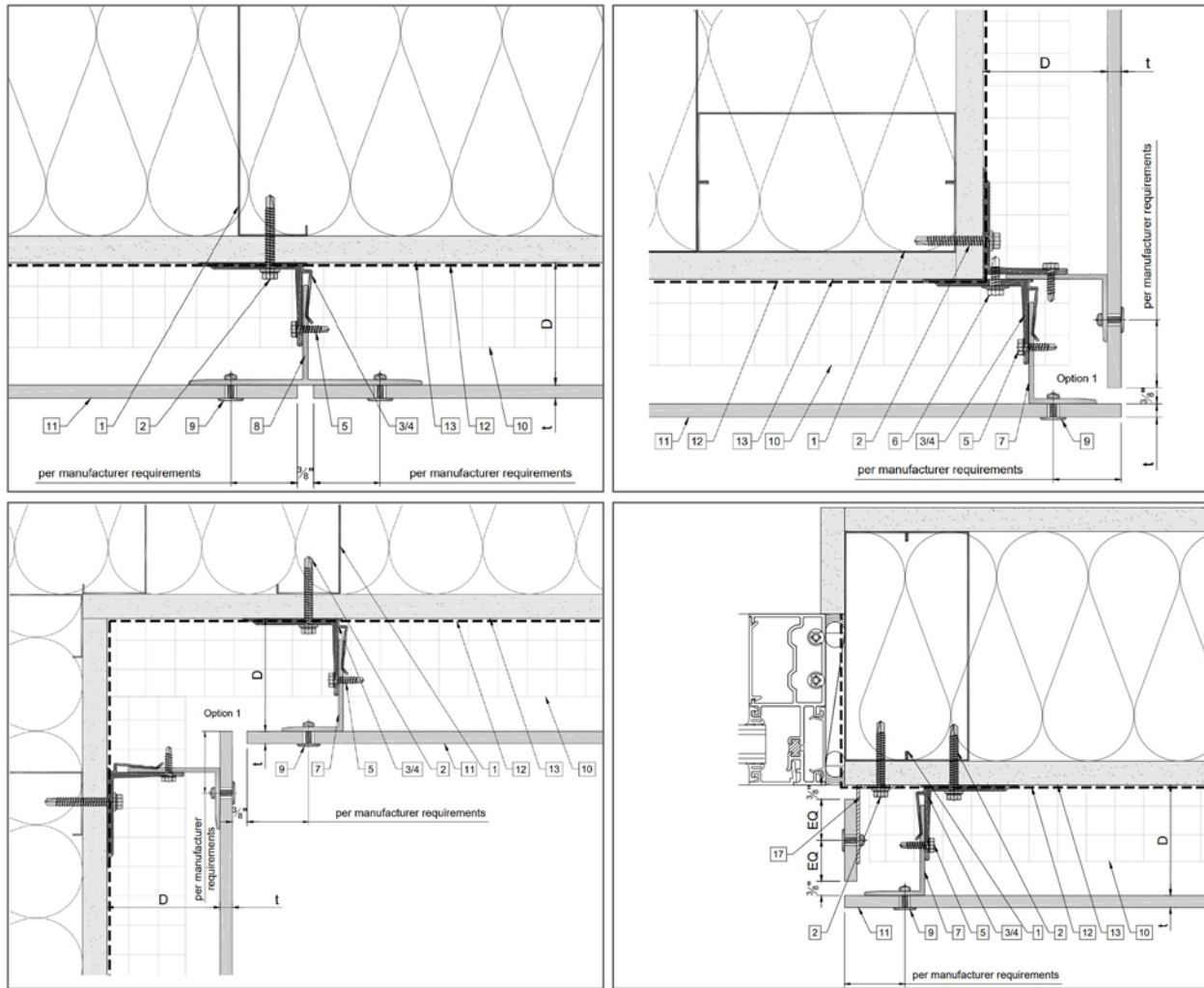
Source reference: KONN vertical window/edge condition; use all final details for alignment and fastening checks.

Important note

Avoid cleaners, harsh solvents, abrasive pads, metal scrapers, and pressure washing unless specifically approved.

Detail / coordination notes

Keep field dimensions, panel marks, joint widths, and hardware locations coordinated with the approved shop drawings. Do not force panels into place. If a panel does not seat correctly, remove it and correct the support system before continuing.



1. Steel stud (16 GA typical)
2. Perimeter anchor
3. Alpha V wall bracket
4. Alpha V+ wall bracket
5. st/st self-drilling screw
6. st/st self-drilling screw
7. Vertical L-profile
8. Vertical T-profile
9. Blind rivet
10. Insulation
11. Panel
12. A/V barrier
13. Exterior wall
14. Outer corner closure
15. Inner corner closure
16. Jamb closure
17. Aluminum angle
18. Coping
19. Perforated window head closure
20. Window sill
21. Perforated base closure
22. D - System depth t - Panel thickness

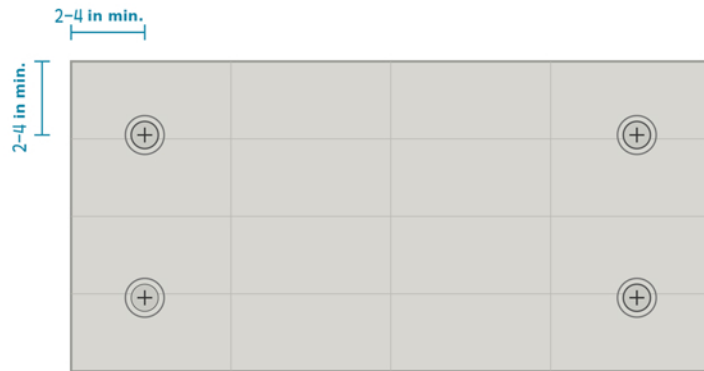
Inspection item	Initial / note
Shop drawings, panel schedule, and detail keys reviewed	
Substrate dry, clean, flat, structurally sound, and ready for anchors	
Weather barrier continuous and sealed at penetrations/transitions	
Metal flashing installed at base, head, jamb, sill, terminations, and transitions	
Thermal breaks and Z-bars installed plumb, true, and without crushing	
Rail/extrusion installed level, plumb, coplanar, and with expansion gaps	
Brackets and leveling hardware installed at correct locations	
Concealed clips/anchors installed on fully supported panel surfaces where used	
First panel/row level, plumb, and approved before continuing	
Joint widths and reveal alignment maintained across field panels	
Window head/jamb/sill details drain and do not trap water	
Outside corner plumb, protected, and aligned on both facade planes	
Fasteners tightened to specified torque and correct configuration	
Panels cleaned with approved methods only	
Punch list, photos, and handover notes completed	

Final note

This field guide is subordinate to project-specific stamped structural drawings, approved shop drawings, manufacturer instructions, and local code requirements.

Exposed Fastener System

KONN concrete panels



Visible corner fasteners - clean grid alignment

What this method means

Panels are mechanically attached directly to the prepared wall or support framing using visible fasteners. The fasteners are placed near the four panel corners, with edge distance and screw type confirmed by engineering and approved shop drawings.

Typical guide only: final wind-load design, substrate capacity, and anchors must be engineered for each project.



Final note

This field guide is subordinate to project-specific stamped structural drawings, approved shop drawings, manufacturer instructions, and local code requirements.

Scope

Use: exterior or interior KONN concrete panels where a visible, direct mechanical attachment is acceptable. This system reduces rail/bracket complexity, simplifies inspection, and creates an intentional exposed screw pattern.

Main components

- KONN concrete panel
- Approved exterior-grade fastener
- EPDM/neoprene washer or gasket where required
- Prepared substrate: steel stud, concrete, masonry, or wood backing
- Weather barrier, flashing, and sealant for exterior walls

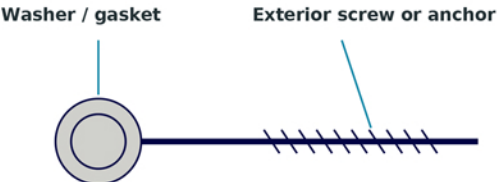
General sequence at a glance

- Review approved shop drawings and panel schedule
- Prepare wall, weather barrier, flashing, and layout grid
- Mark fastener points and pre-drill where required
- Place panel, maintain reveal, and fasten corners
- Check alignment, joint width, screw seating, and finish



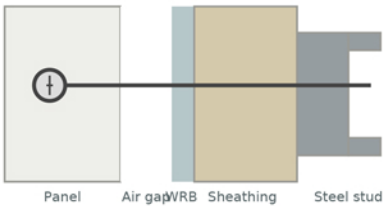
Fastener assembly and wall section

Typical screw assembly



Use a washer large enough to distribute pressure on the panel surface. Do not over-tighten; the washer should seat firmly without crushing the panel.

Typical exterior wall section



The exposed fastener passes through the panel and into the approved support. Exterior installations still require continuous water management behind the panel.

Basic fastener specification - typical starting point

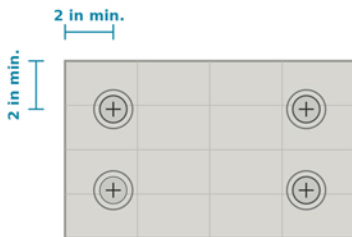
Substrate	Typical fastener	Minimum engagement / embedment	Notes
Steel stud / metal sub-girt	#12-14 self-drilling screw, 410 SS or corrosion-resistant coated	Minimum 3 threads beyond steel; verify gauge	Use torque control; avoid stripped holes
Concrete / masonry	1/4 in concrete screw or M6-M8 approved anchor	1-1/2 to 2 in embedment typical	Pre-drill to anchor maker requirements
Wood / plywood backing	#12 exterior-grade stainless or coated screw	1-1/4 in penetration minimum	Backing must be engineered and dry
Washer / gasket	EPDM/neoprene bonded washer, 3/4 to 1 in OD typical	N/A	Use where movement or water sealing is required



General rule

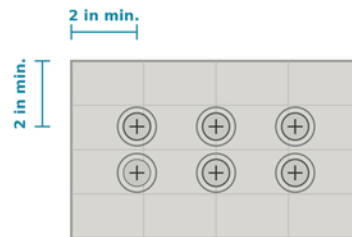
Fastener distances are measured from the finished panel edge to the centerline of the screw. Do not locate screws too close to panel edges. The values below are typical field guidelines and must be confirmed by structural design, panel thickness, fastener type, and project wind loads.

Case A - standard field panel



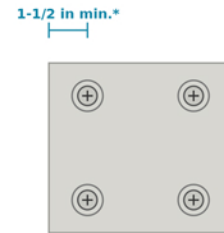
Use four corner fasteners for standard panel sizes when engineering confirms capacity. Keep screw heads aligned in a consistent grid.

Case B - large panel / high wind



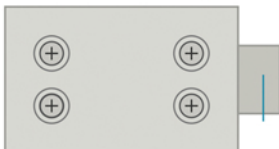
For larger panels or higher wind zones, increase edge distance and add intermediate fasteners along approved support lines.

Case C - narrow strip / cut panel



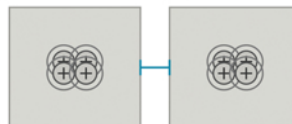
*Do not reduce edge distance unless the panel thickness, cut quality, washer size, and engineering approval allow it.

Outside corner / return panel



Near outside corners or returns, use increased edge distance where possible. Protect exposed edges during fastening and do not force the panel into a tight corner.

Middle joint between panels



Maintain the specified open joint between panels. Keep fasteners symmetrical on each side of the joint and do not bridge the movement gap.

Opening / window edge



Around openings, avoid placing screws too close to cut-outs. Add framing/support around the opening before installing panels.

Need project support?

For installation coordination, shop-drawing review, product information, and technical clarification, contact KONN before work begins on site.

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Online resources

Scan to visit KONN website for products, technical data, and quick quote requests.



Final note

This field guide is subordinate to project-specific stamped structural drawings, approved shop drawings, manufacturer instructions, and local code requirements.