4.2 Openings in External Walls

The Siniat Jamb Stud system is a purpose designed opening frame system for external walls. It is typically used for window and door openings as it is durable, strong and fast to install.

The unique Jamb Stud profile is a heavy duty cold formed steel section 1.5mm thick, high grade tensile steel (G450). It is the superior solution for frame openings. The system does not require welding but rather installed with steel framing screws and Siniat's concrete screw anchors.

The Jamb Stud profile is coupled with a unique Jamb Stud Connector Bracket which allows access to install all the fixings into the Connector Bracket even for pre-fabricated door frames where access is normally restricted. This is the only bracket available with this feature.

Charts are available in this section to design the opening frame based upon wall height and opening width as well as the wind load, which is the dominant load governing the opening frame design.

Framing

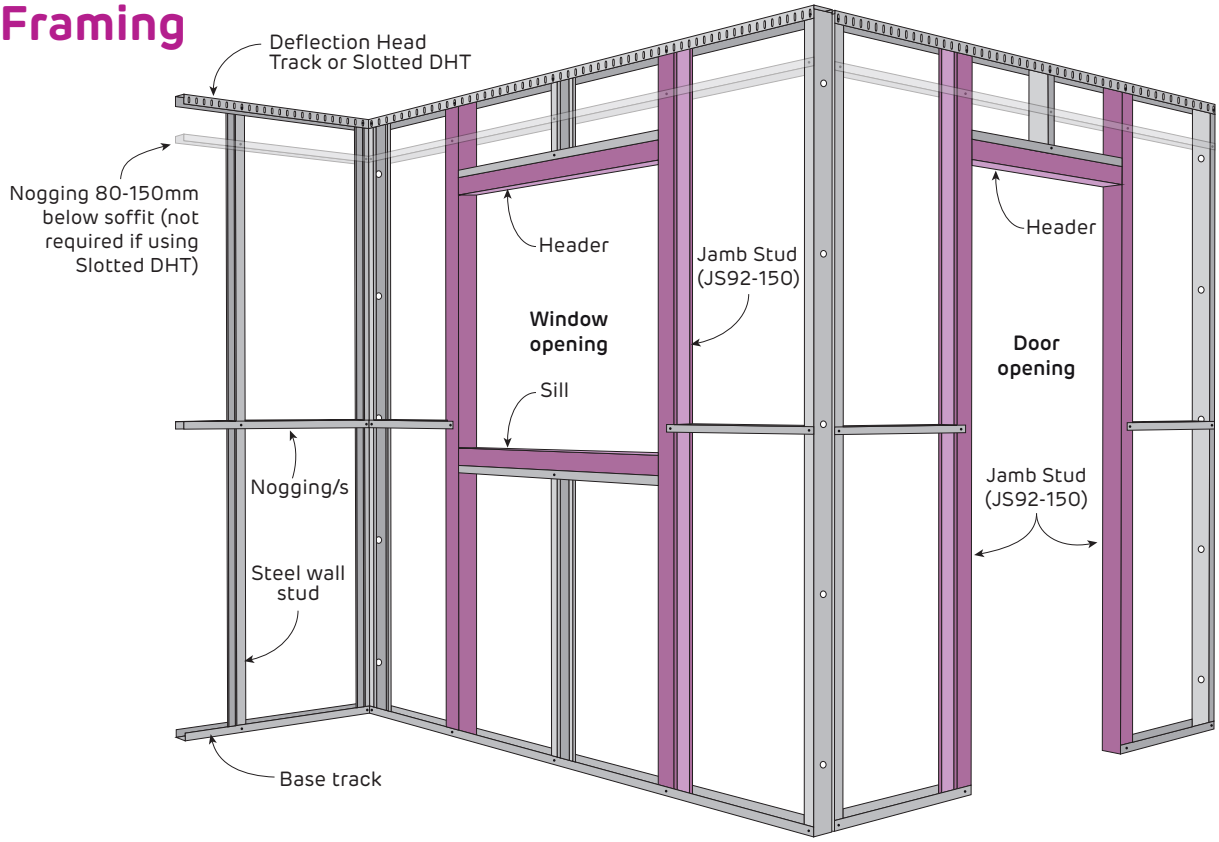


FIGURE 1 Typical External Steel Frame Wall with Window and Door Openings

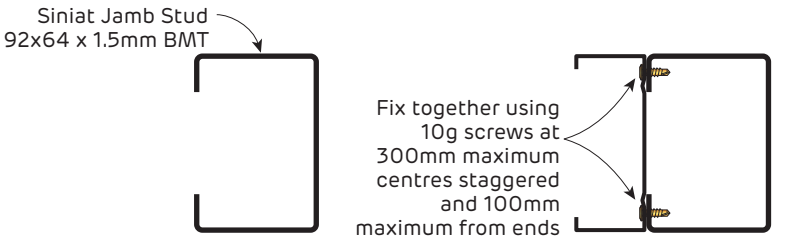


FIGURE 2 Jamb Stud Configurations
Plan

Siniat Stud and Track are 92 x 1.15mm BMT

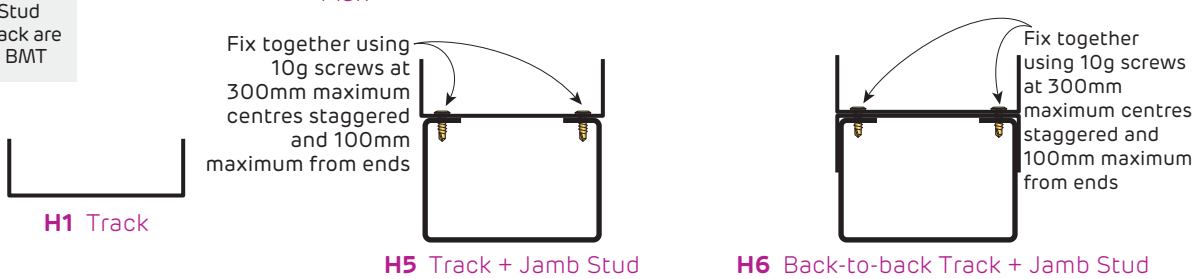


FIGURE 3 Header Configurations
Section

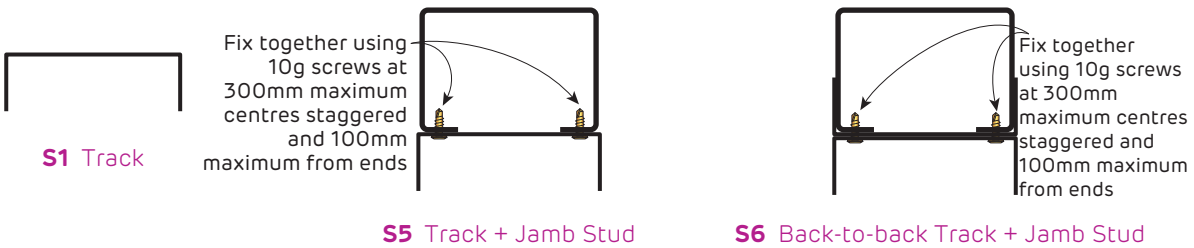


FIGURE 4 Sill Configurations
Section

Components

FIGURE 5 80mm wide Universal Bracket (UB80)
For 92mm studs
Perspective

FIGURE 6 Jamb Stud Connector Bracket (JSCB)
For 92mm Jamb Stud
Perspective

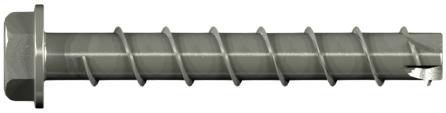


FIGURE 7 Siniat 8 x 65mm Screw Anchor (SA8x65)
Perspective

Refer to Section 1 for available profile sizes

FIGURE 8 Stud
92 x 1.15mm BMT
Profile

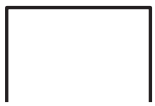


FIGURE 9 Deflection Head Track
92 x 1.15mm BMT
Profile

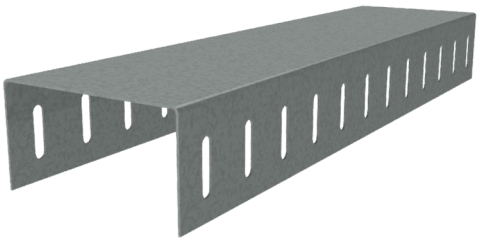


FIGURE 10 Slotted Deflection Head Track
92 x 1.15mm BMT
Perspective

FIGURE 11 Base Track
92 x 1.15mm BMT
Profile

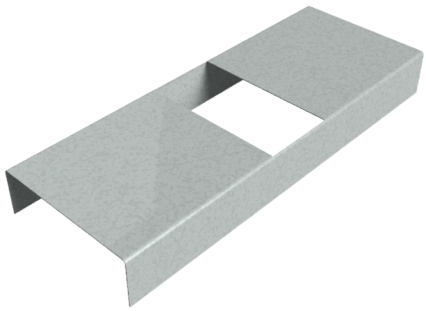
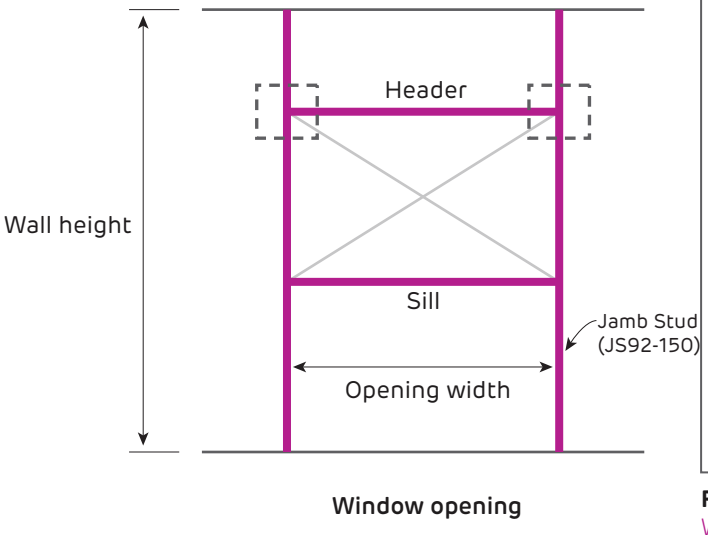


FIGURE 12 Continuous Nogging Track
92 x 0.7mm BMT
Perspective

Jamb Stud Openings
Header Connections for Windows



Window opening

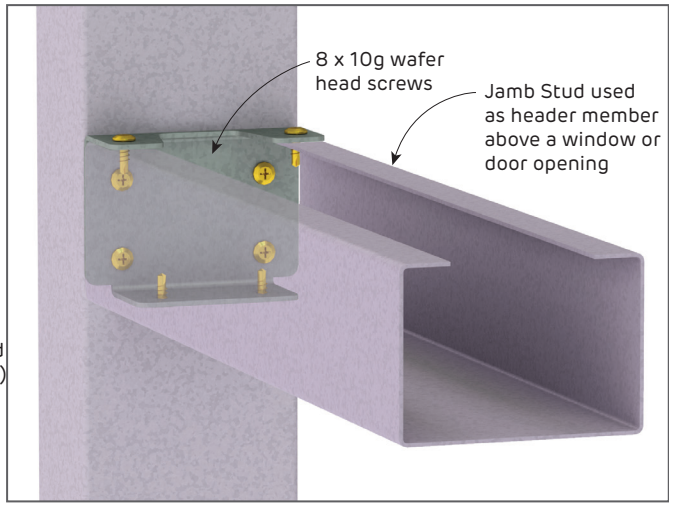
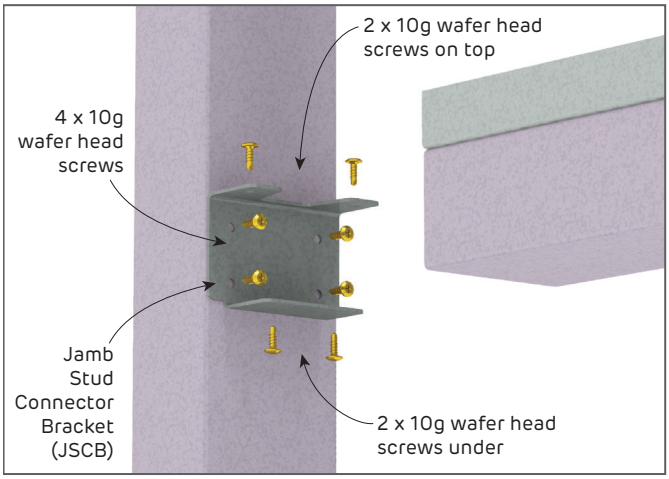
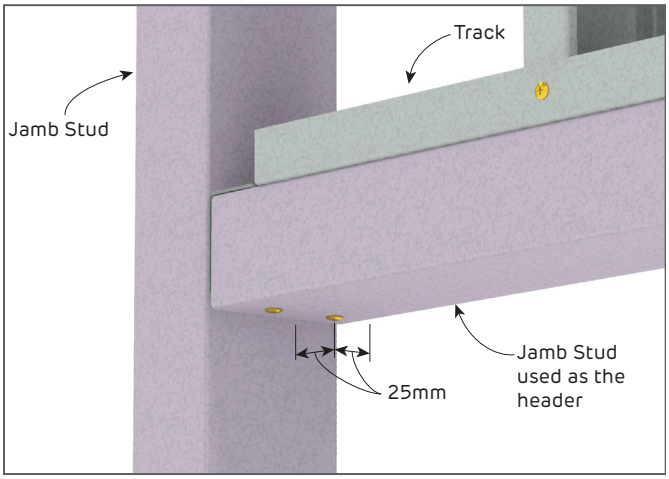


FIGURE 13 Jamb Stud Connector Bracket
With access from above and below
Perspective



Step 1



Step 2

FIGURE 14 Header to Jamb Stud Connection
Perspective

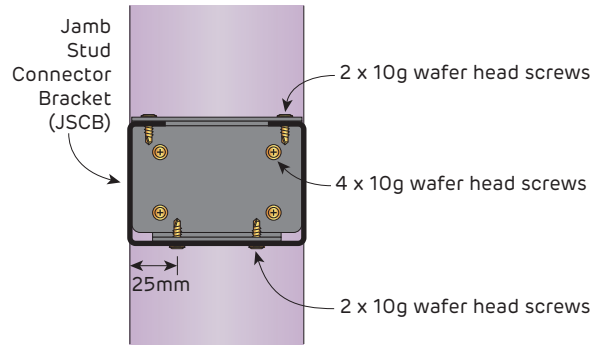


FIGURE 15a Header to Jamb Stud Connection
With Jamb Stud Connector Bracket
Section

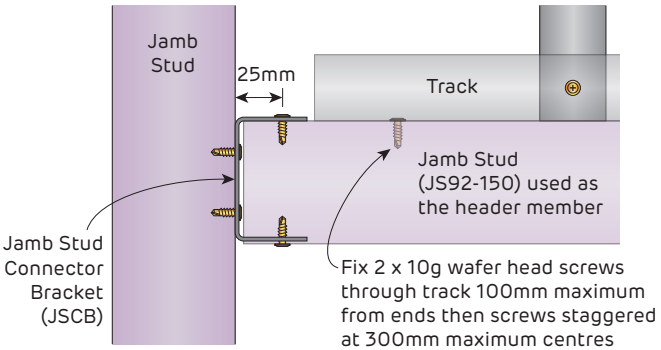
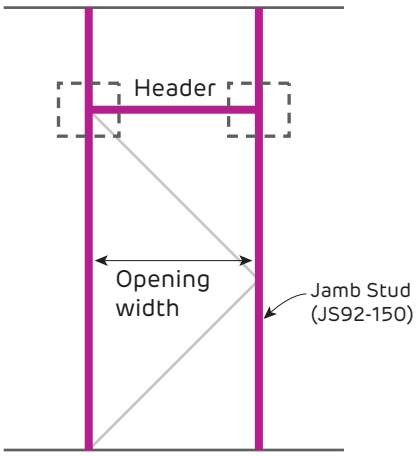


FIGURE 15b Header to Jamb Stud Connection
With Jamb Stud Connector Bracket
Elevation

Jamb Stud Openings

Header Connections for Prefabricated Door Frame



Door opening

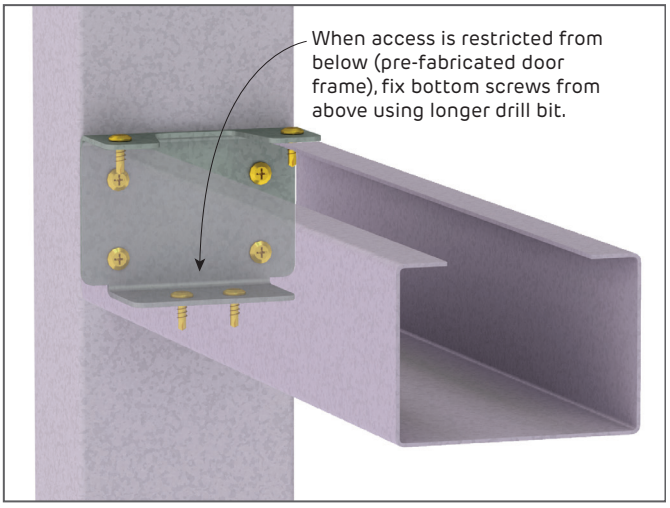


FIGURE 16 Jamb Stud Connector Bracket
With access from above only (pre-fabricated door frames)
Perspective

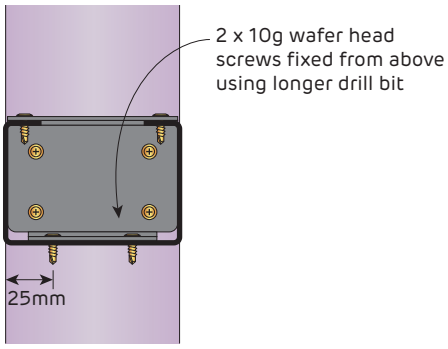


FIGURE 17a Header to Jamb Stud Connection for Prefabricated Door Frames
Section

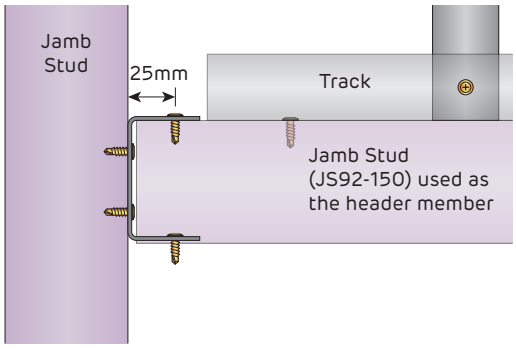
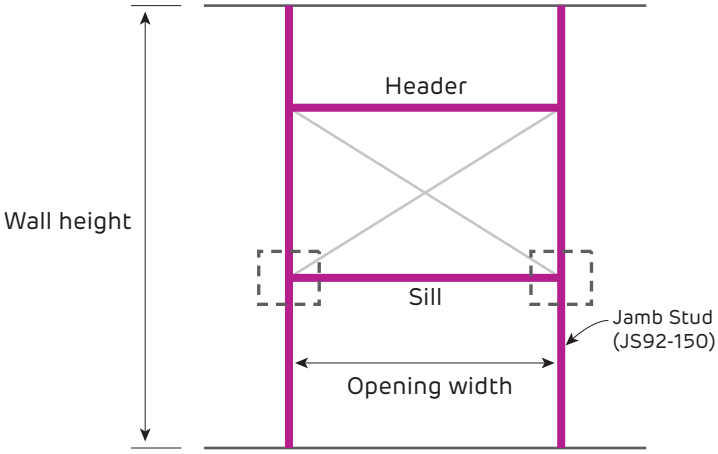
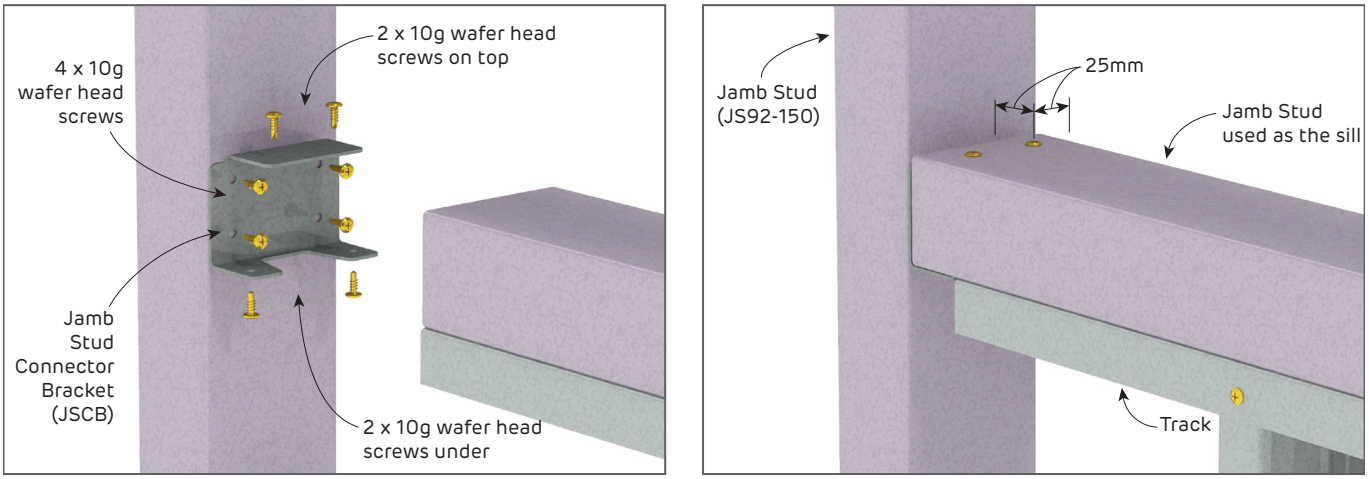


FIGURE 17b Header to Jamb Stud Connection for Prefabricated Door Frames
Elevation

Jamb Stud Openings
Sill Connections for Windows



Window opening



Step 1 Step 2

FIGURE 18 Sill to Jamb Stud Connection
Perspective

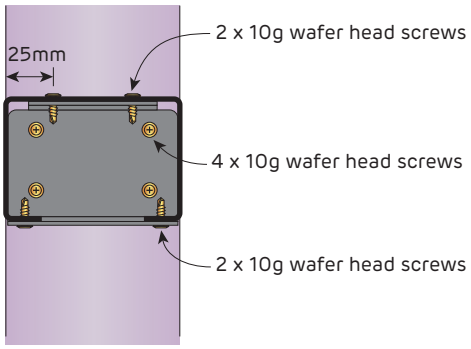


FIGURE 19a Sill to Jamb Stud Connection
With Jamb Stud Connector Bracket
Section

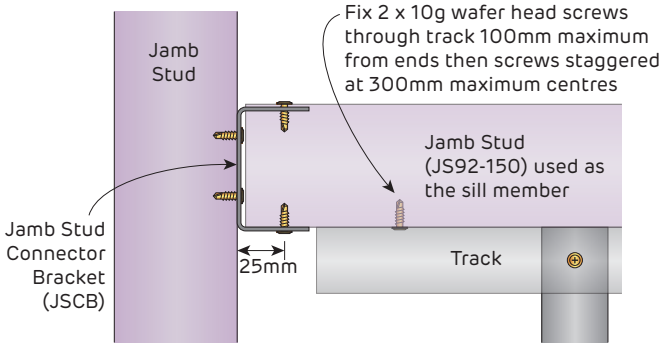
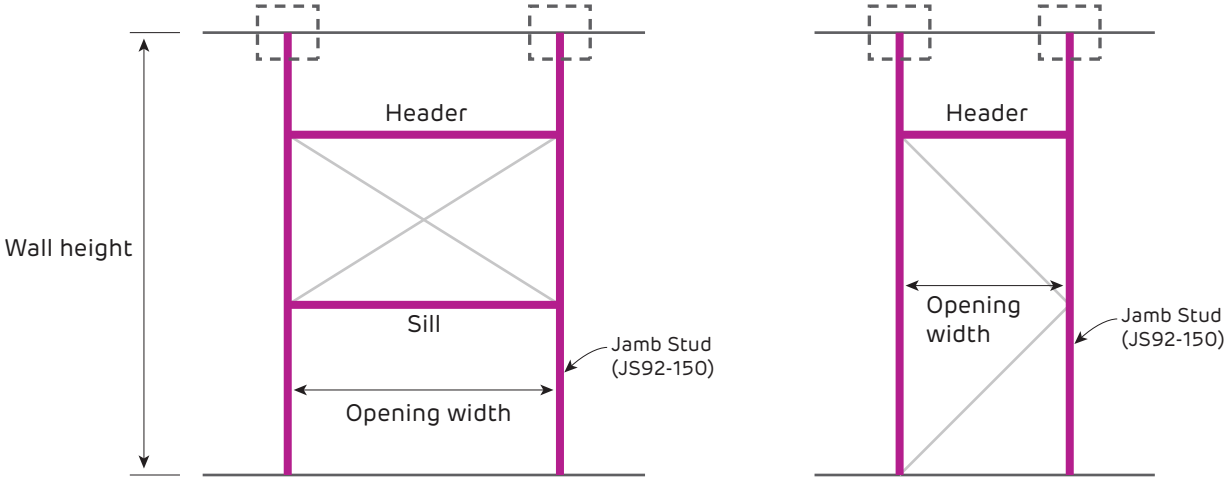
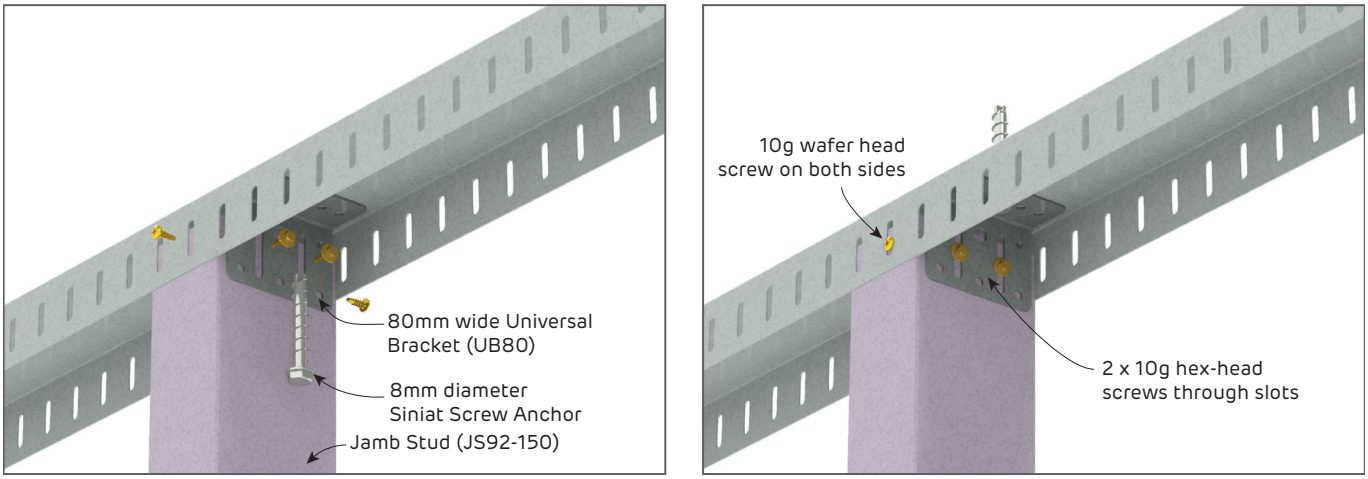


FIGURE 19b Sill to Jamb Stud Connection
With Jamb Stud Connector Bracket
Elevation

Jamb Stud Openings

Head Track Connections for Doors and Windows





Step 1 Step 2

FIGURE 20 Jamb Stud Head Connection HC4
Perspective

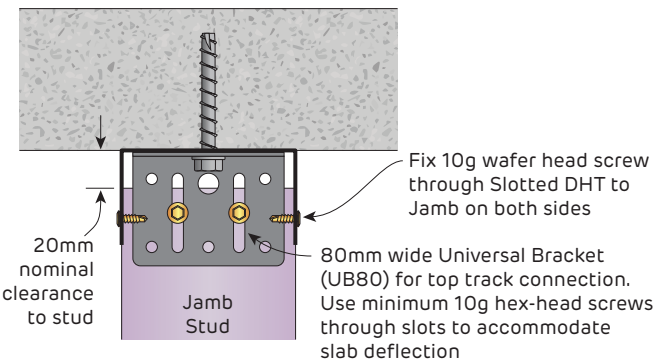


FIGURE 21a Head Connection HC4
With Universal Connector Bracket
Section

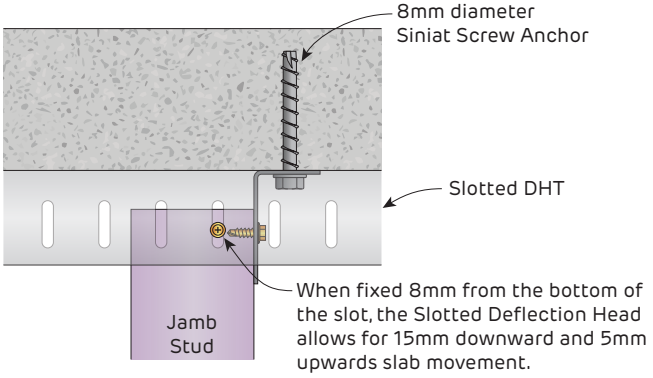
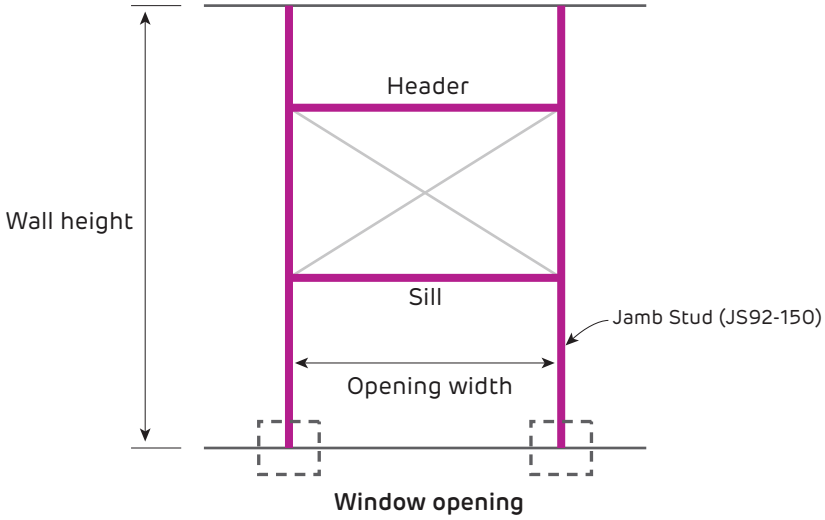
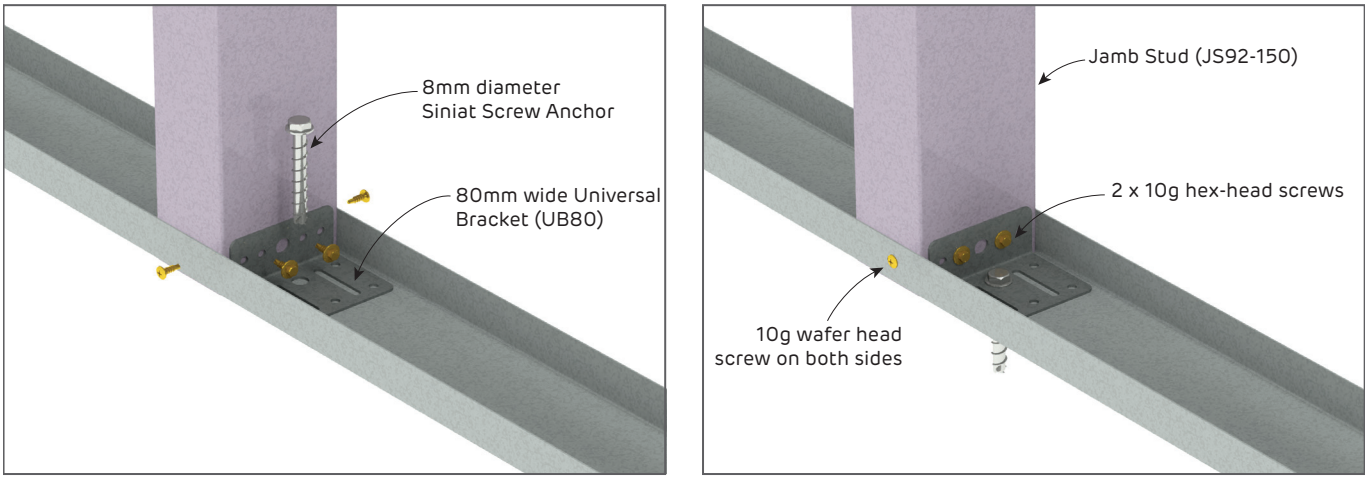


FIGURE 21b Head Connection HC4
With Universal Connector Bracket
Elevation

Jamb Stud Openings
Base Track Connections for Windows





Step 1 Step 2

FIGURE 22 Jamb Stud Base Connection BC4
Perspective

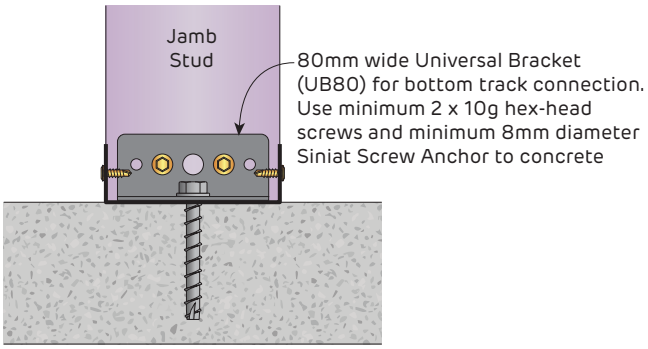


FIGURE 23a Base Connection BC4 for Window Opening
Section

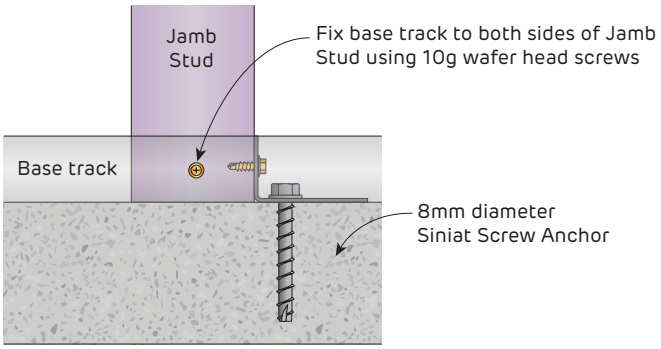
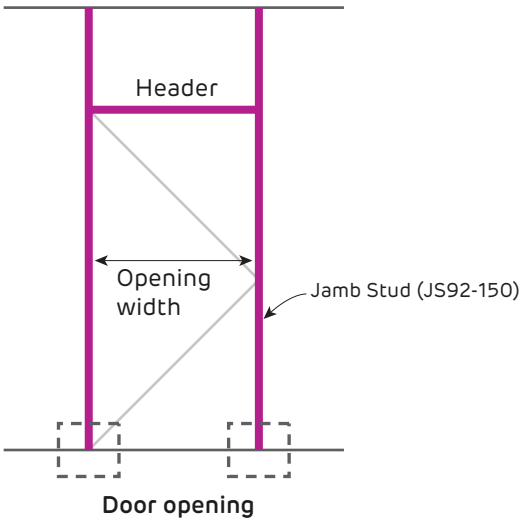


FIGURE 23b Base Connection BC4 for Window Opening
Elevation

Jamb Stud Openings
Base Track Connections for Doors



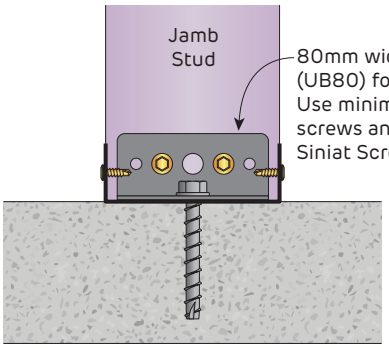


FIGURE 24a Base Connection BC4 for Door Opening
Section

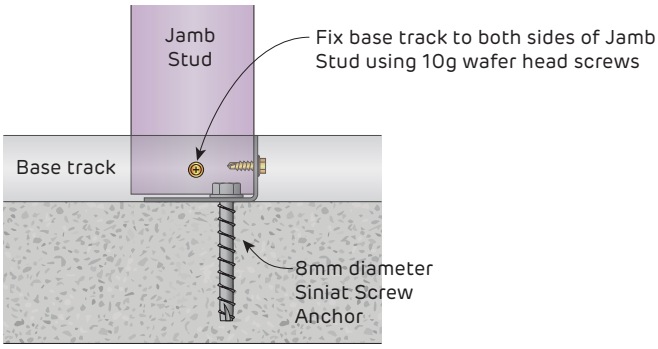


FIGURE 24b Base Connection BC4 for Door Opening
Elevation

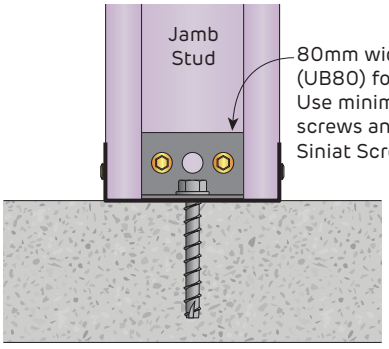


FIGURE 25a Base Connection BC4 for Prefabricated Door Frames
Section

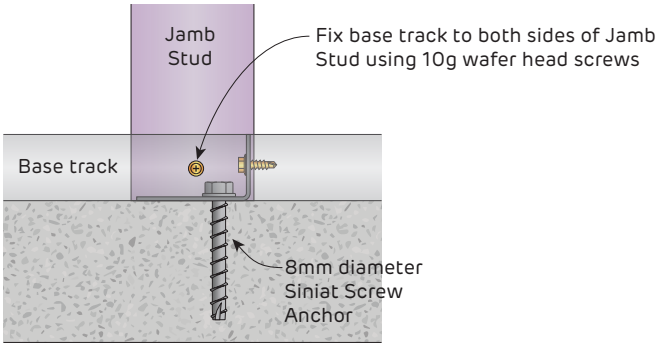


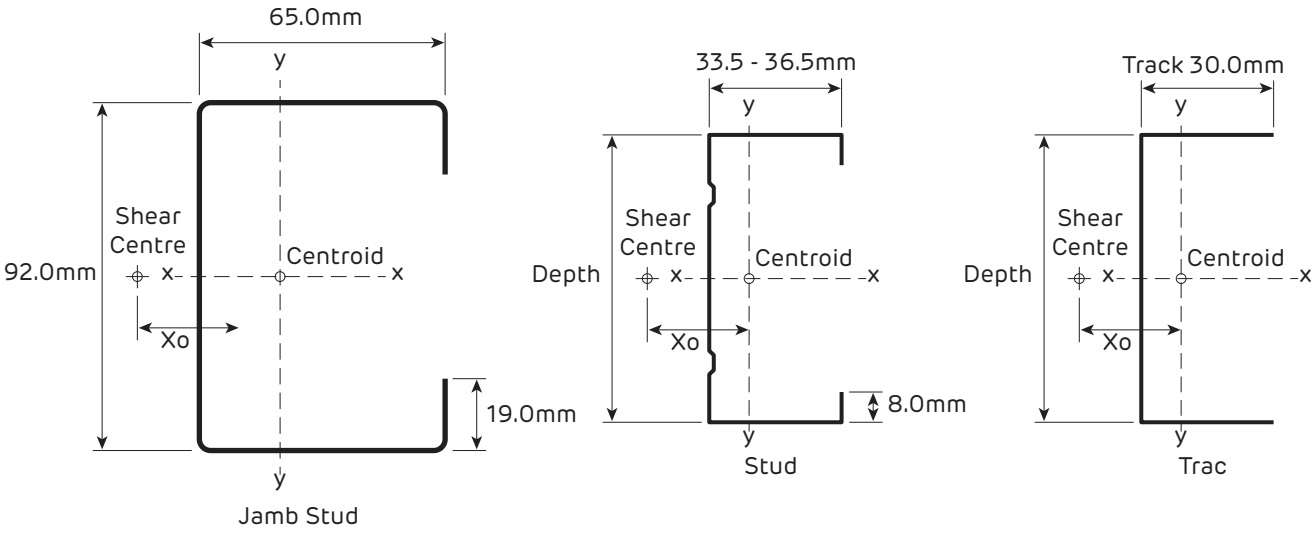
FIGURE 25b Base Connection BC4 for Prefabricated Door Frames
Elevation

Steel Profile Information

Material

Manufacturer	Profile	Grade	Ultimate	Yield	Coating
Siniat	Jamb Stud	G450	480 MPa	450 MPa	Z350
Siniat	Stud and Track	G300	340 MPa	300 MPa	AM150

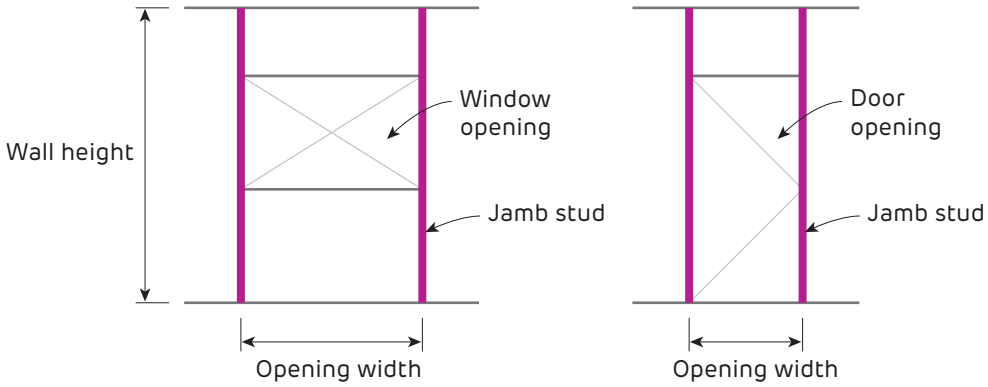
1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*

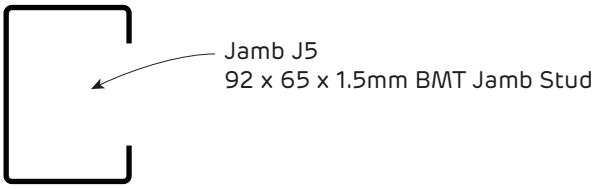


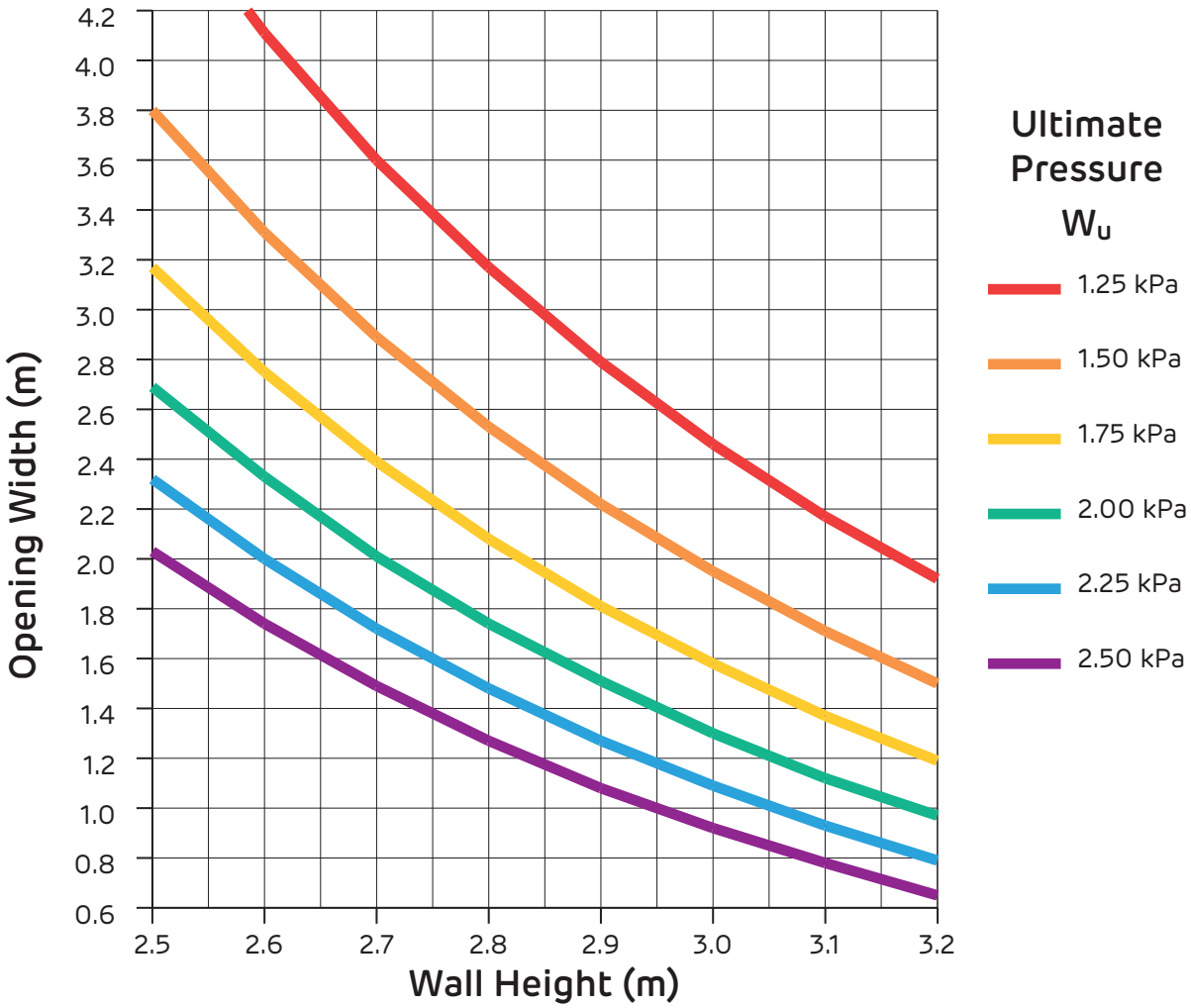
Section Properties

Profile	Dimensions (mm)			Shear Centre from Centroid (mm)	Area (mm^2)	Moment of Inertia (mm^4)		Section Modulus (mm^3)		Torsion Constant J (mm^4)	Warping Constant Iw (mm^6)
	Depth	Width	BMT	Xo		Ixx	Iyy	Zxx	Zyy		
Jamb Stud	92	65	1.5	-59.31	375.1	543,360	232,230	11,812	5,903	281.3	512,090,000
Stud	92	35	1.15	-24.7	194.7	251,300	30,770	5,548	1,199	85.8	48,940,000
Track	92	30	1.15	-15.6	172.6	220,300	13,780	4,714	583	76.1	21,050,000

Jamb Stud Openings in External Steel Stud Walls
Chart 1 Opening - REGION A - HEIGHT/240

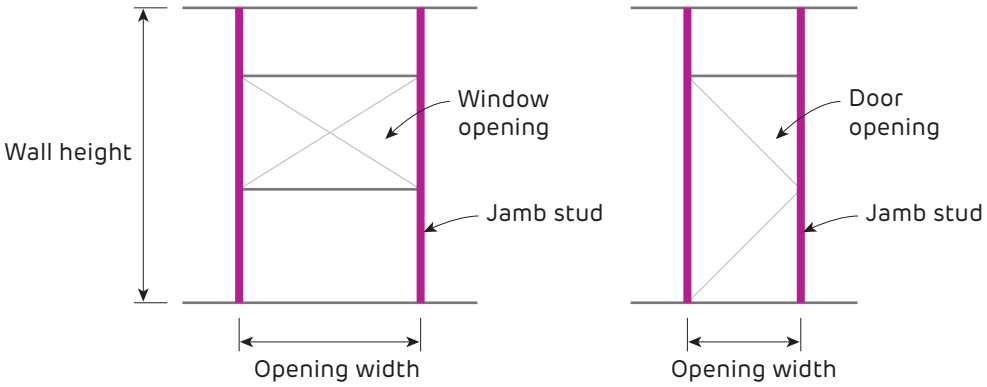


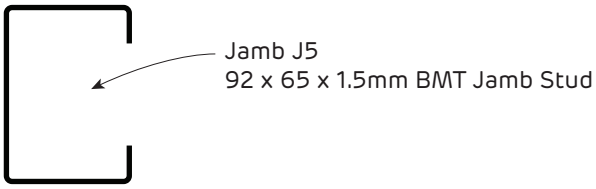


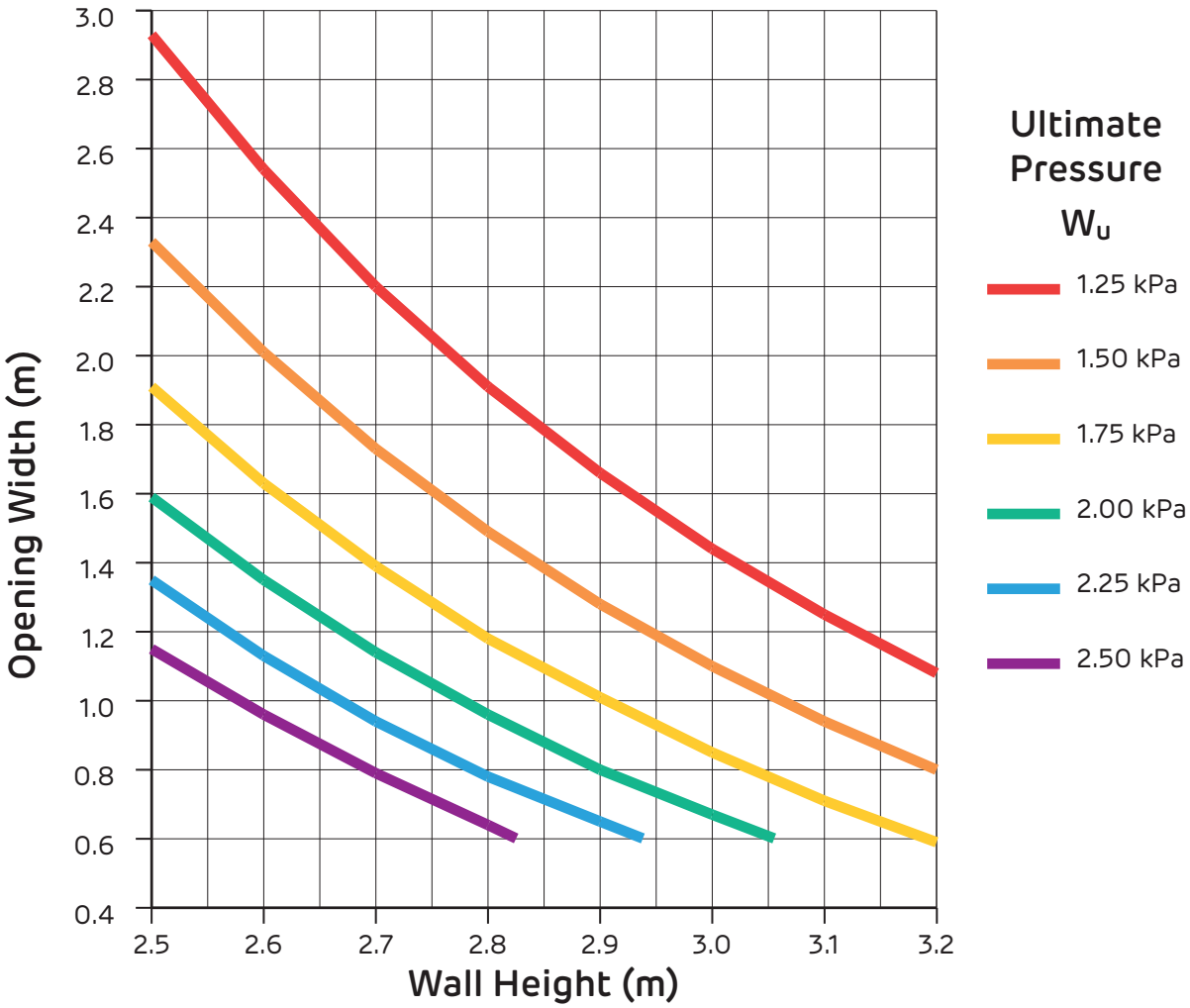


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 67% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 2 Opening - REGION A - HEIGHT/360

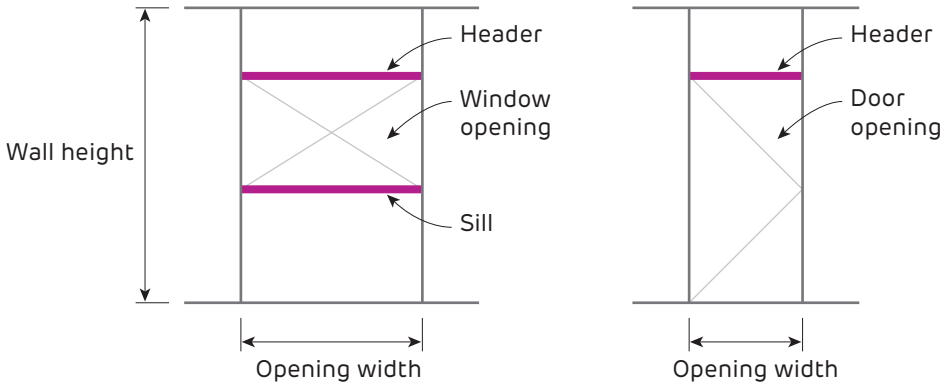


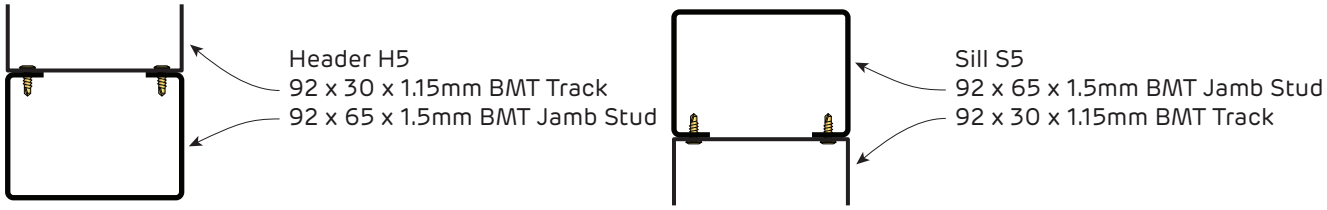


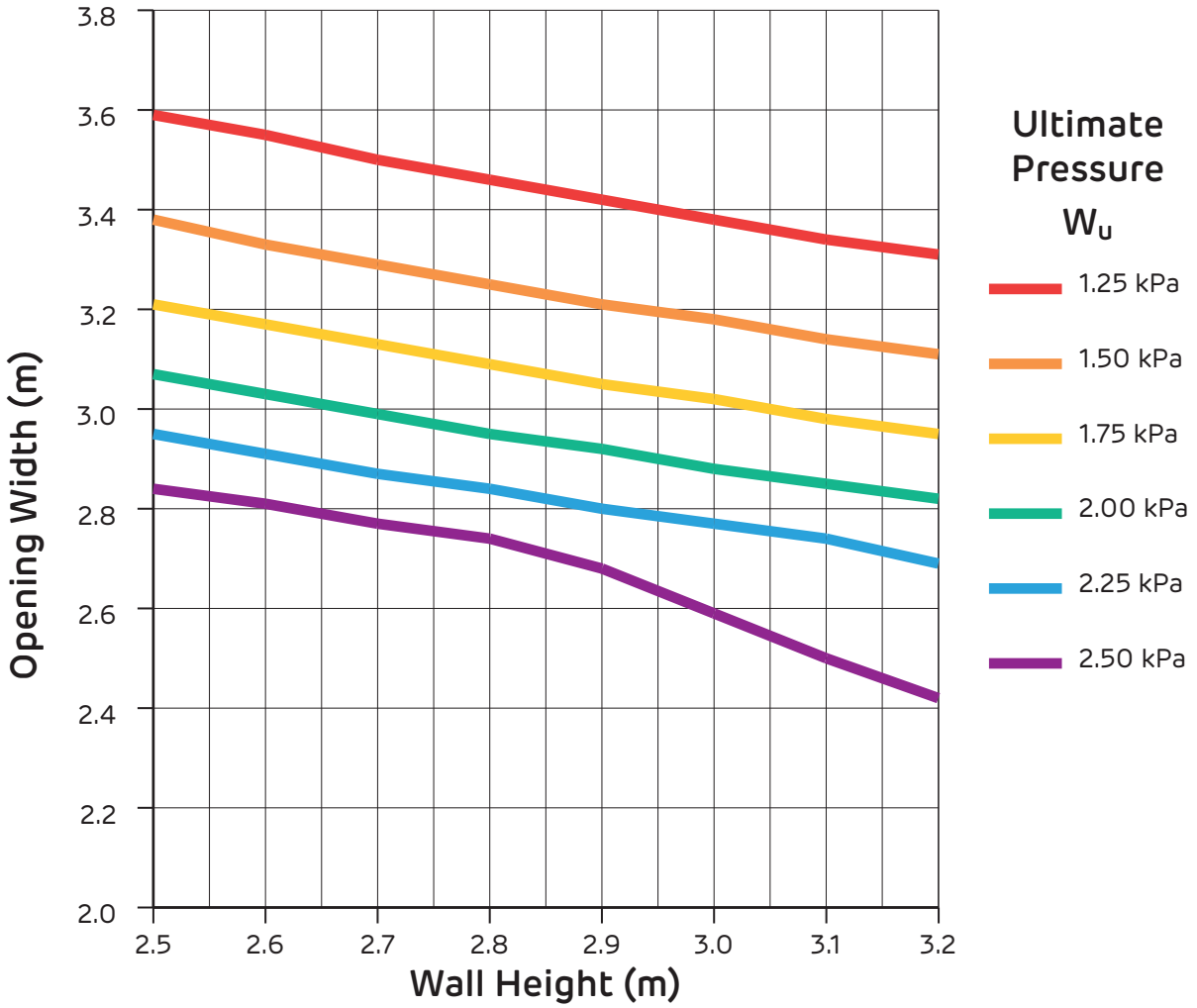


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 67% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 3 Opening Width - REGION A - SPAN/240

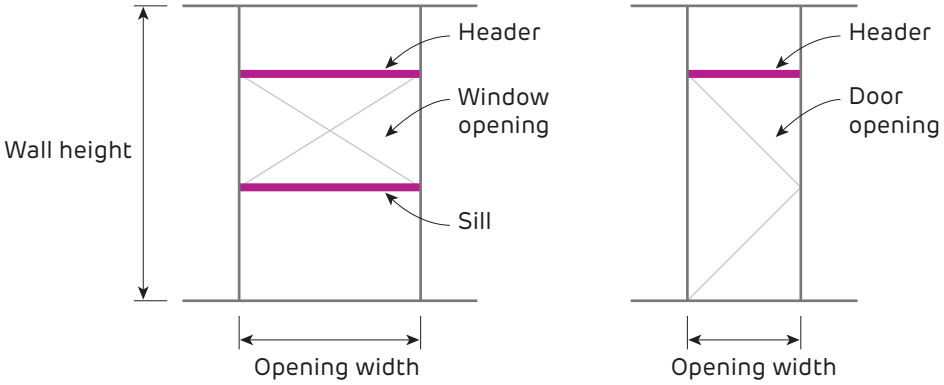


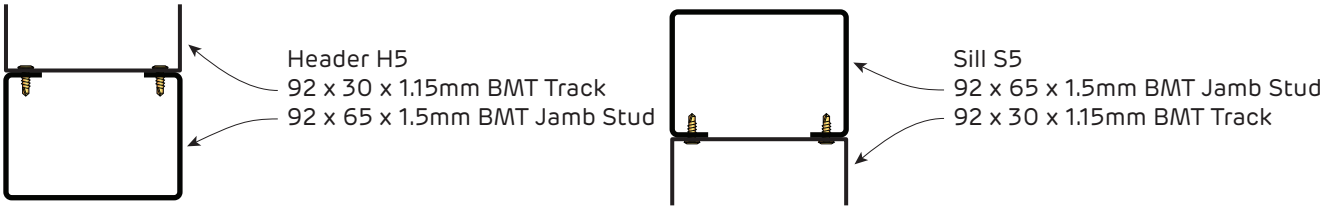


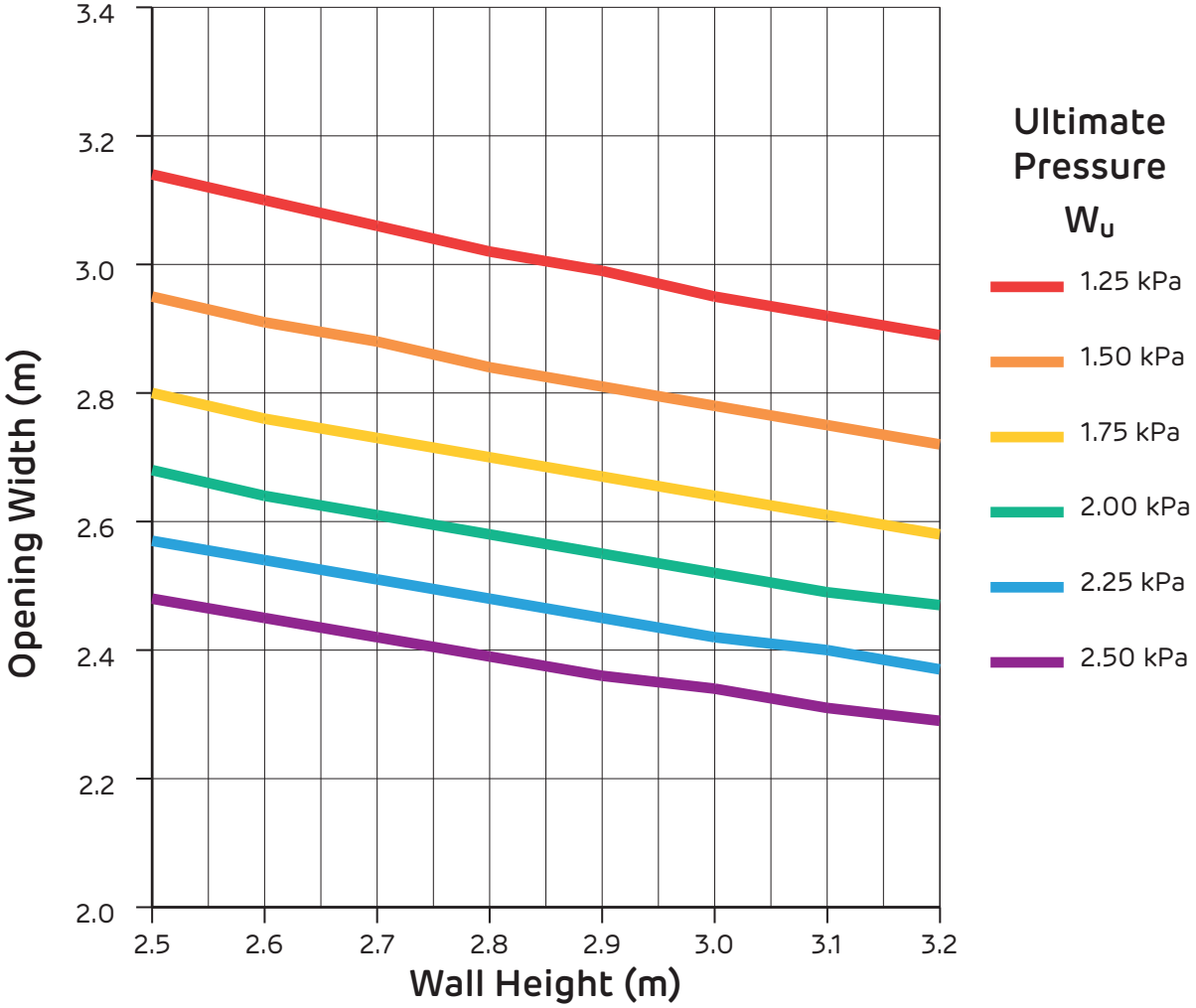


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 67% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 4 Opening Width - REGION A - SPAN/360

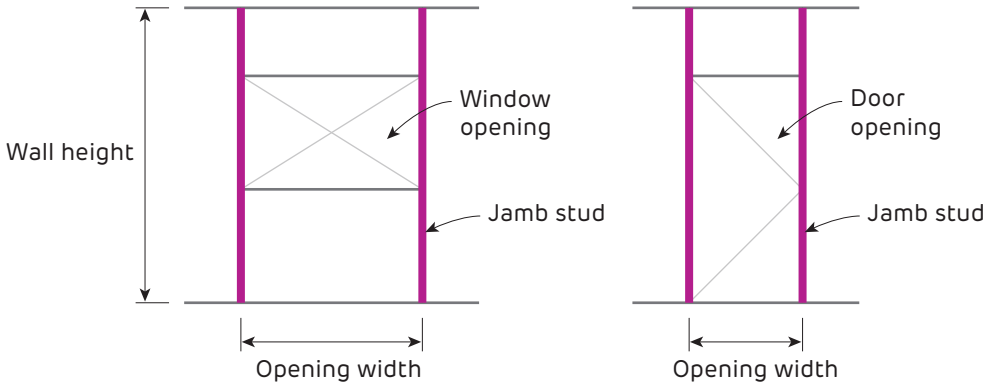


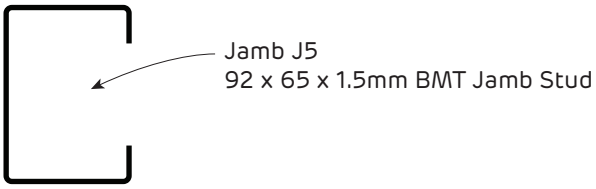


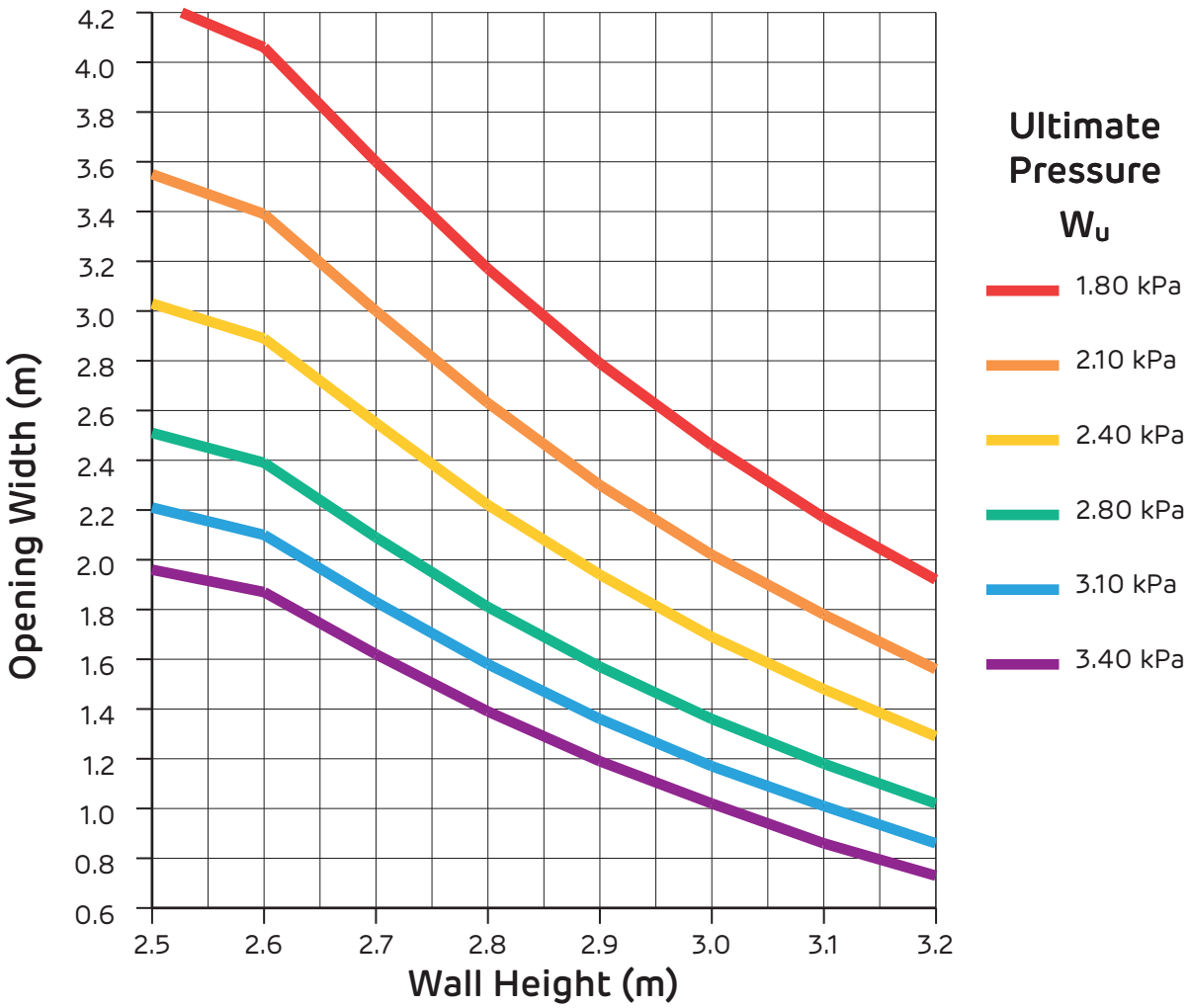


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 67% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 5 Opening Width - REGION B - HEIGHT/240

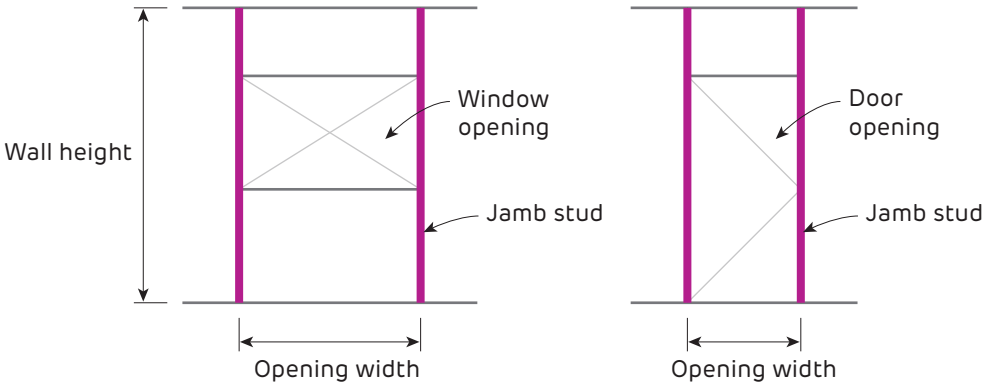


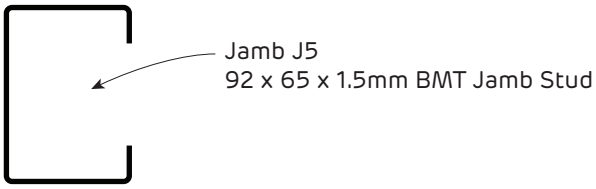


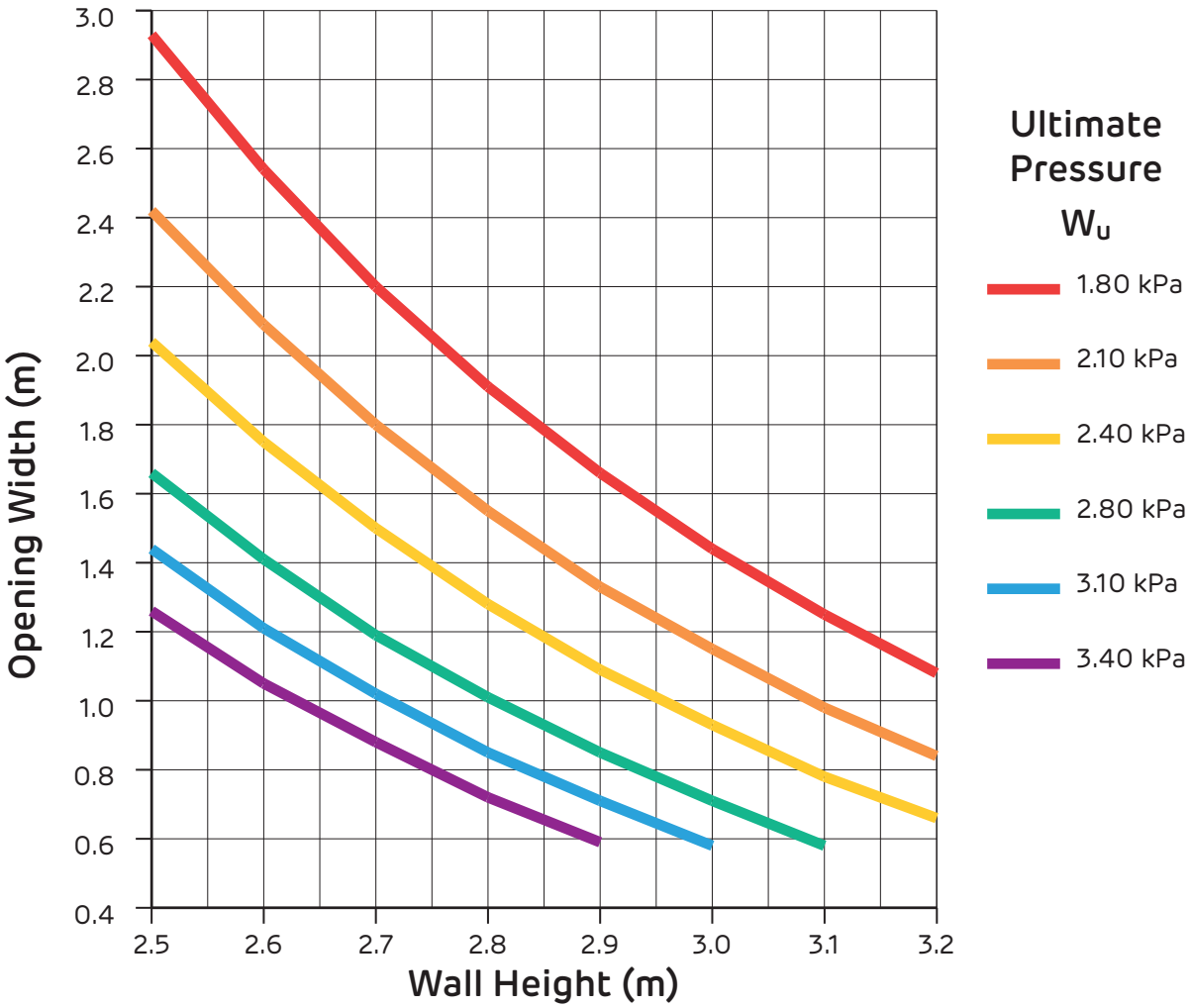


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 47% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 6 Opening Width - REGION B - HEIGHT/360

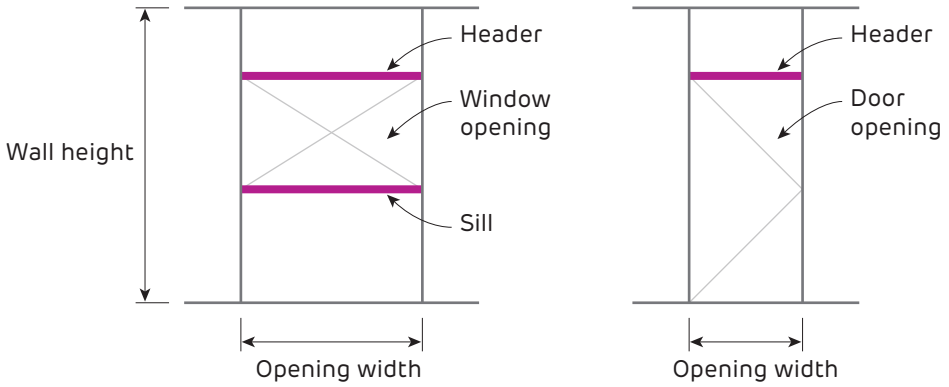


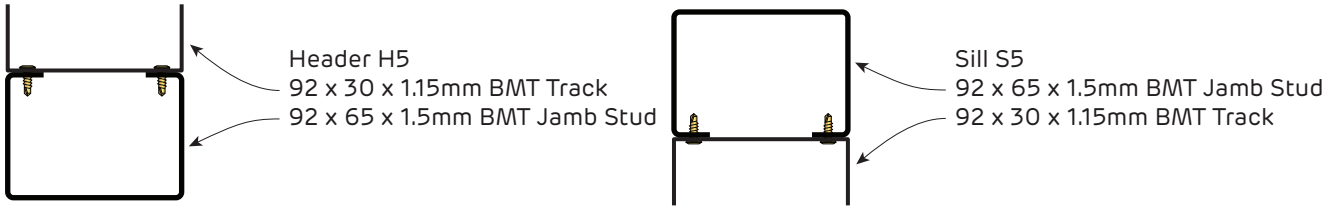


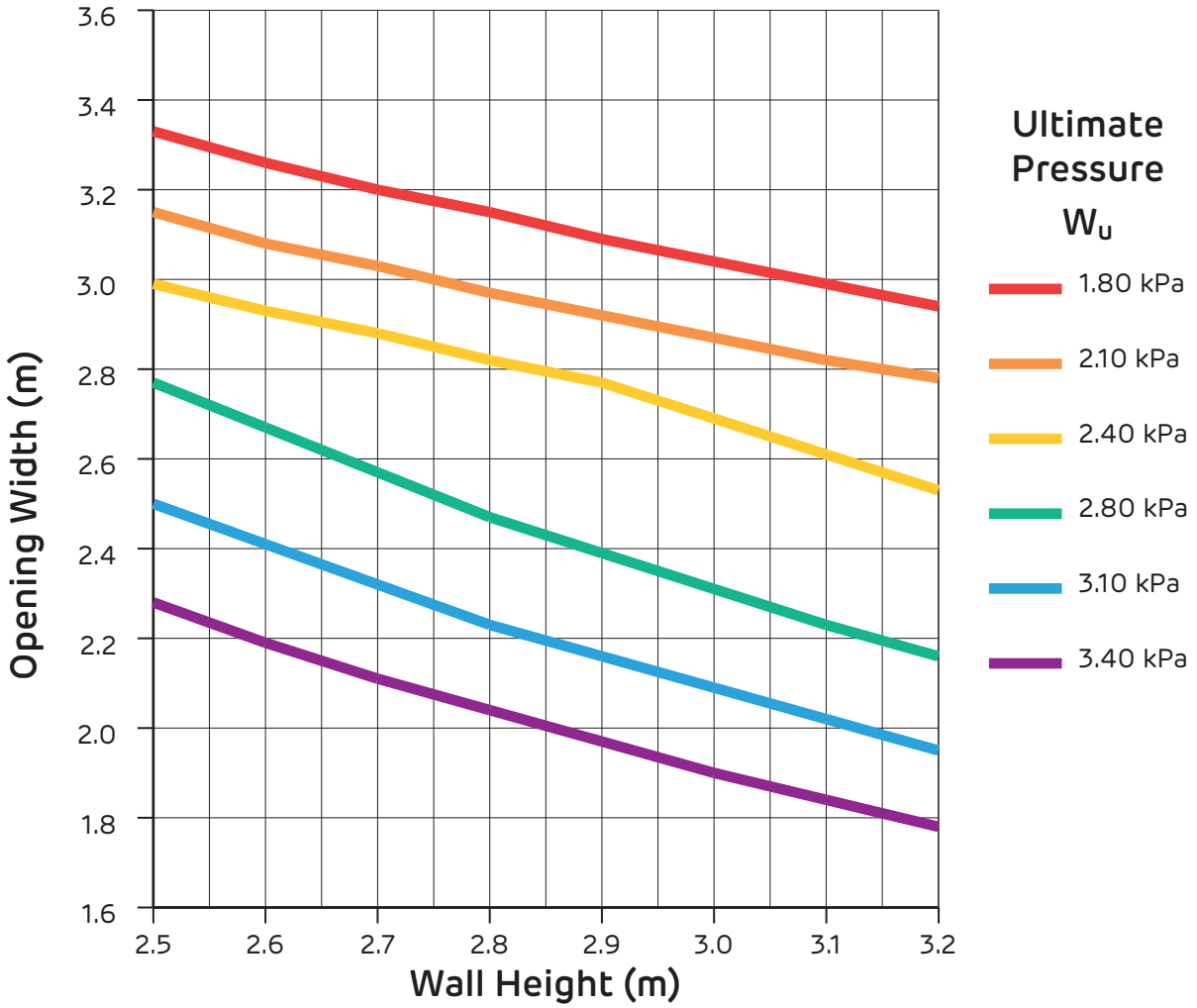


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 47% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 7 Opening Width - REGION B - SPAN/240

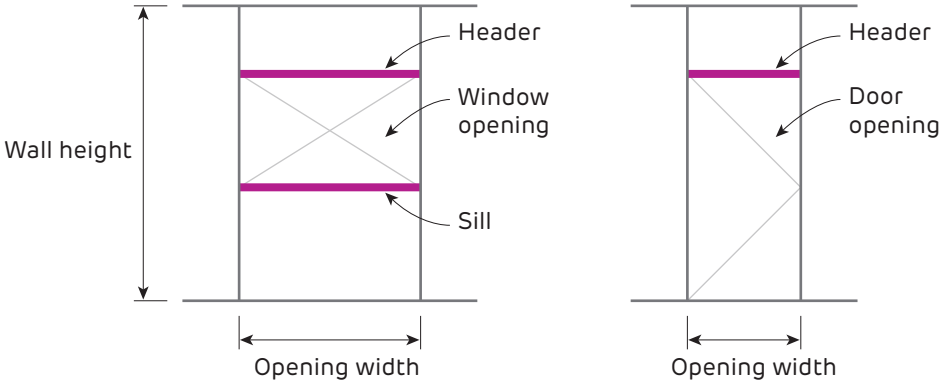


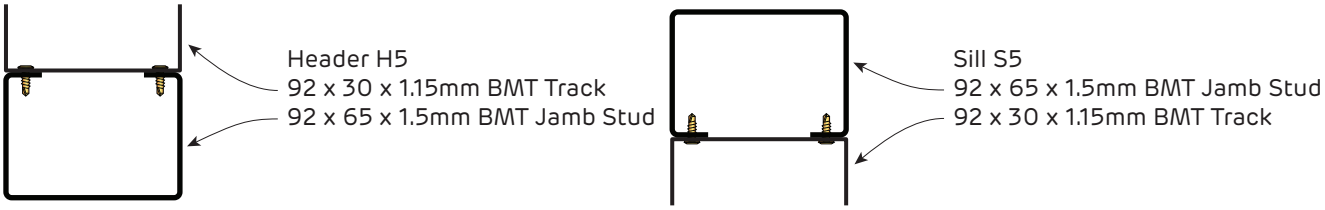


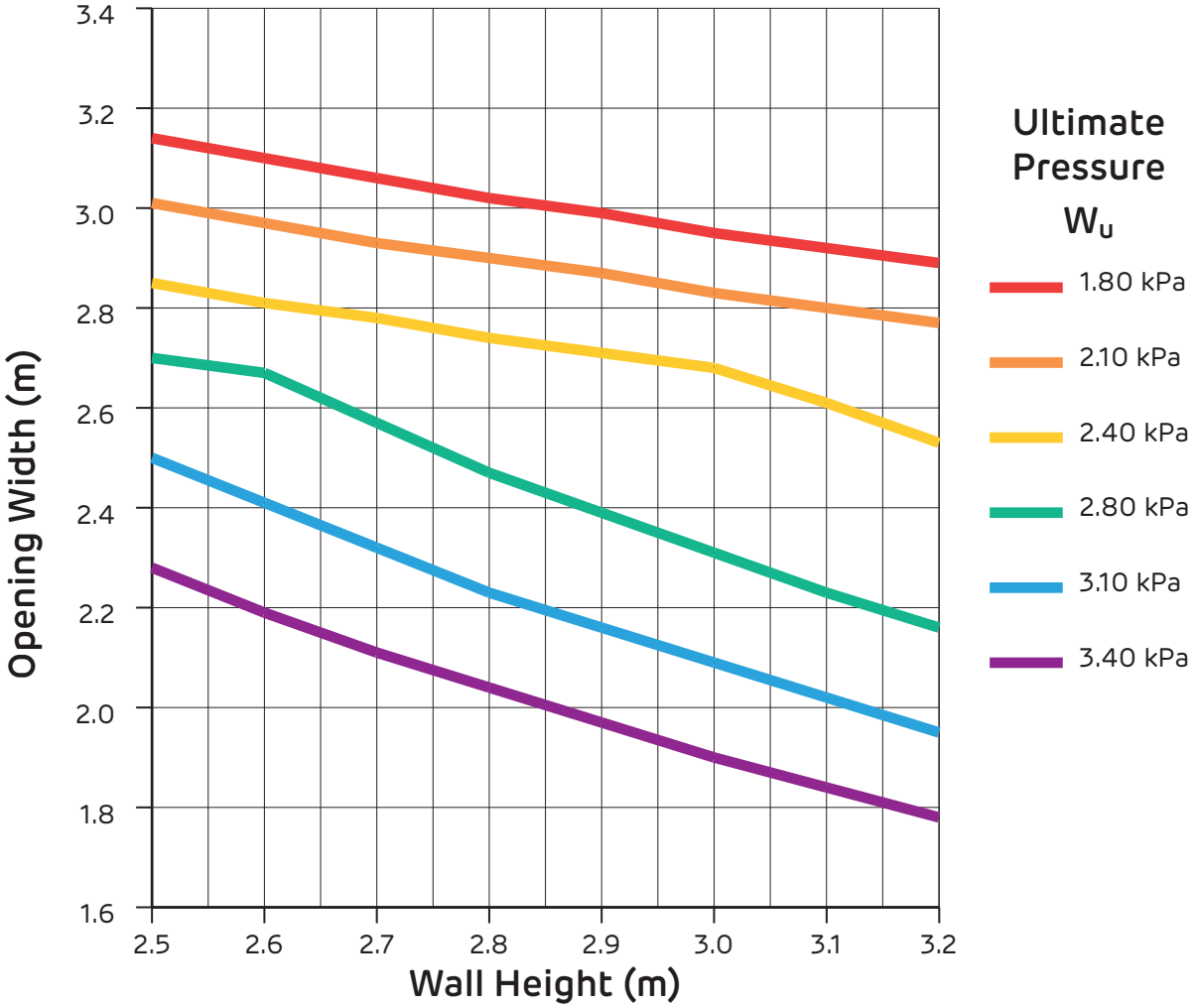


1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 47% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

Jamb Stud Openings in External Steel Stud Walls
Chart 8 Opening Width - REGION B - SPAN/360







1. Opening widths based upon ultimate lateral pressures and the deflection limits stated. No additional loads considered.
2. Serviceability wind pressure taken as 47% of ultimate which is suitable for buildings of Importance Level 2 to 4.
3. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat Track G300 with AM150 corrosion coating. Check maximum production lengths.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
4. Calculations in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Connections to substrate with Universal Bracket and 8mm diameter Siniat Screw Anchor. Refer to Siniat Product Data Sheet for anchor capacities in concrete.
6. Head and base tracks must be 1.15mm BMT.
7. Maximum weight of wall lining = 50 kg/m^2.
8. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.