HIMMEL™

INTERIOR SYSTEMS

ALUMINIUM PARTITIONS SPECIFIERS' MANUAL

himmel.com.au

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CSR

NOTES

HIMMEL™
INTERIOR SYSTEMS

WELCOME

This manual has been prepared by Himmel Interior Systems to assist the architect, builder and installer to specify, prepare and install aluminium partitioning systems.

It has been written as a working guide for the industry, however it is not intended to replace good trade practice and experience is essential to obtaining a quality installation. Nor does this manual override specific advice received from Himmel Interior Systems technical services.

While it is not possible to detail every condition that may be encountered, Himmel Interior Systems will advise on any special situations that may occur. Our technical team is available to assist with design for project specific extrusions to compliment the Himmel Interior Systems range, to allow designers and specifiers to introduce a specific look to larger projects.

Architects and specifiers should ensure that the details provided in this manual are followed, and determine to their own satisfaction that the job is complete to an acceptable standard of trade practice.

HIMMEL™
INTERIOR SYSTEMS

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GENERAL INFORMATION

COMPANY OVERVIEW

WHAT WE DO

Himmel Interior Systems offer a global product portfolio of commercial interior systems to the Australian market. Our services include aluminium partitions, suspended ceiling grid, ceiling tiles and acoustic wall coverings.

OUR MISSION

We aim to lead the market in the creation of productive and intelligent spaces by delivering superior acoustic and aesthetic solutions. Himmel Interior Systems offer a high level of service with products available across Australia through the Gyprock Trade Network and trusted distribution partners.

OUR HISTORY

Established in 2017, Himmel Interior Systems was introduced after the amalgamation of two commercial interior systems business within CSR Building Products Limited - Ceilector and Alsupply Aluminium.

The word Himmel translates to ‘sky’ or ‘heaven’ in German, Swedish, Danish & Norwegian. The sky is an important concept, it is always evolving and has the ability to influence the mood of individuals in any space at any point in time.

At Himmel Interior Systems, we strive for our product portfolio and services to emulate the sky; to be flexible and always changing and to have the ability to change the feeling of the spaces that we work and live in.

ALUMINIUM PARTITIONING SUITE

Designed by Himmel Interior Systems in Australia, our aluminium partitioning suite incorporates a host of proven innovative concepts to assist both design and installation.

Aluminium is a proven construction material for buildings, vehicles, appliances and products, both as a framing and cladding material. In the building industry, it is by far the most common material used for window and door joinery, curtain walls and shop fronts. It is widely used in every aspect of the transport, leisure, boating and household appliance industries. Its selection is based on many criteria – one being its ease of fabrication to provide visual appeal and easy maintenance.

Space provides places for people - both from within and outside an organisation - to come together and invent new solutions for all challenges. As a result, design is emerging as an innovation imperative as it continues to show how hard working spaces can reinforce and align organisational components that contribute to a company’s ability to invent new solutions.

Our innovative range of systems support, inspire and enable people to collaborate, share knowledge, learn together, build and produce innovation and success.

PRODUCT OVERVIEW

Himmel Interior Systems series of aluminium partitioning systems incorporates a number of design elements that are largely interchangeable.

Himmel have consulted with architects, designers, builders and glazing companies and have designed an aluminium system to suit all design and budget requirements.

A SERIES 104
A Series 104 provides a central line glazing with numerous configurations and design options offering a complete partition system for plasterboard and glazing.

A Series 104 has the following features:
» Standard profile size of 104mm x 25mm, 104mm x 35mm or 104mm x 50mm
» Standard wall size based on 64mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm - 45mm can be used
» Shadowline details optional

A SERIES 132
A Series 132 provides a central line glazing with numerous configurations and design options, offering a complete partition system for plasterboard and glazing.

» A Series 132 has the following features:
» Standard profile size of 132mm x 25mm, 132mm x 35mm, 132mm x 50mm
» Standard wall size based around 92mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm and 45mm can be used
» Shadowline details optional

C SERIES 45
C Series 45 is used as a commodity system when the budget is a factor. It can be designed into the A Series for a slimmer look.
C Series 45 has the following features:

» Standard glazing profile of 45mm wide x 25mm high
» Standard wall size based around 64mm or 92mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm and 45mm can be used
» Can be fixed to standard openings or fixed to 104 or 132 series head/sill track

PRODUCT OVERVIEW

DS SERIES 45

Doors + Sliders

» Designed to fit with Himmel Aluminium Systems
» Available in 45mm thick doors only
» Styles and rails sizes 60mm, 66mm, 83mm and 114mm
» Can accommodate glass thicknesses of 13mm thick laminated glass

E SERIES 104

E Series 104 provides an edgeline glazing and twin glazing design with clean lines to provide a clean look to your partition system.
E Series 104 gives a standard detail of 104mm x 25mm, 104mm x 35mm, 104mm x 50mm.

» E Series 104 has the following features:
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses of 35mm - 45mm can be used
» Standard wall size based around 64mm steel stud with one layer of 13mm Gyprock plaster board on each side

E SERIES 132

E Series 132 provides an edgeline glazing and twin-glazing design with clean lines to provide a clean look to your partition system.
E Series 132 gives a standard detail of 132mm x 25mm, 132mm x 35mm or 132mm x 50mm.

» E Series 132 has the following features:
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses of 35mm – 45mm can be used
» Standard wall size based around 92mm steel stud with one layer of 13mm Gyprock plaster board on each side

PRODUCT OVERVIEW

Himmel Interior Systems excel at developing custom aluminium profiles for unique designs. Our innovation in this area sets us apart from our competitors. If you have a unique design challenge that requires a new take on aluminium partitioning, contact us to discover how we can best assist you on 1300 374 253 or email specificationsupport@csr.com.au

TECHNICAL SERVICES + SPECIFICATION

Technical advice is available from our experienced team.
Please see our company information page for your closest team, or email specificationsupport@himmel.com.au.

The Himmel Interior Systems product catalogue is hosted on www.himmel.com.au
CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

Specifcations are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au

TECHNICAL INFORMATION

A unique combination of properties puts aluminium and its alloys among our most versatile engineering and construction materials. All alloys are light in weight, yet some have strengths greater than that of structural steel. The majority of alloys are highly durable under most service conditions. No coloured salts are formed to stain adjacent surfaces or discolour products with which they come in contact, such as fabrics in the textile industry and solutions in chemical equipment. They have no toxic reaction. Aluminium and most of its alloys have good electrical and thermal conductivities and high reflectivity to both heat and light.

Aluminium and most of its alloys can easily be worked into any form and readily accept a wide variety of surface finishes.

ALUMINIUM

HANDLING, STORING AND MAINTENANCE

Aluminium is one of the easiest materials to keep in good condition. It has a high natural resistance to corrosive conditions normally encountered during shipment and storage. The principal things to guard against are surface abrasions or water stains. Suppliers make every effort to pack aluminium so 'traffic marks' or 'rub marks' don't occur during shipment and that it remains dry. All incoming shipments should be inspected promptly, since suppliers generally have a time limit in which damage claims will be honoured.

Traffic marks may appear as scratches, surface abrasions, or a condition resembling cinders embedded in the metal. They result from mechanical abrasion and subsequent oxidation. Their disadvantage lies in unsightliness and their effect on finishing operations.

Water stain is a superficial condition and the mechanical properties of the metal having such a stain are not affected. If a shipment of aluminium arrives in a wet condition, it should be thoroughly dried before storing. This may be done by evaporation in air or by means of dry air currents. When the moisture is removed in this manner within a short period, no stain will result. Once safely dry, the metal should not be stored near obvious water sources as steam or pipes and should be kept at a reasonable distance from open doors and windows.

CLEANING

Aluminium has a natural beauty and lustre of its own, yet its surface can be treated in various ways to protect and enhance appearance, which can be maintained with regular, low maintenance attention. The surface of fabricated aluminium, whether untreated, anodised or coated, can be spoiled by improper care. Usual care is no more than periodic cleaning, similar to window glass. Anodising treatment will substantially enhance appearance, render the surface more resistant to various forms of attack and facilitate cleaning and maintenance.

Grime which causes deterioration cannot be prevented from settling on exposed surfaces. If cleaned reasonably frequently then the mildest methods of washing will produce satisfactory results. There are many ways to clean aluminium, from water to harsh abrasives. The type of cleaning that should be used is governed by the finish, degree of soiling, and the size, shape and location of the surface to be cleaned. The mildest method possible should be used, particularly for aluminium which has been anodised.

With anodised aluminium, surface deterioration occurs as a result of grime deposition and moisture attack. In coastal environments it is caused by airborne chlorides, in industrial or urban environments by sulphur compounds. Grime deposits absorb contaminated moisture like a sponge, assisting attack on the film, which cannot be restored without removal. In rural areas, cleaning may be needed every six months. In industrial and marine environments, cleaning is recommended at least every three months, preferably monthly.

The following cleaning materials and procedures are listed in order of mild to harsh. The mildest treatment should be tried on a small area and if not satisfactory only then should the next be examined.

1. Plain water
2. Water with mild soap or detergent
3. Solvents, e.g. kerosene, turpentine, white spirit
4. Non-etching chemical cleaner
5. Wax-base polish
6. Abrasives + Abrasive wax

After applying the cleaning agents, the surface should be washed down thoroughly and dried with a clean cloth to prevent streaking. There should be no concentration of the cleaner at the bottom edges of the aluminium. If using proprietary cleaners, the manufacturer's recommendation should be obtained and followed carefully.

If abrasives are used, the aluminium finish may be altered. If there is a grain in the finish then cleaning should be performed with the grain. If the condition of the surface indicates the use of abrasive or etching materials, consult a cleaning specialist. If all other methods fail it may be necessary to resort to heavy-duty cleaning. This involves the use of cleaners containing strong etching chemicals or coarse abrasives.

FINISHING OPTIONS

ANODISING

The Anodising Process

Aluminium has the natural ability to produce a protective oxide film on exposure to atmosphere. This natural oxide is hard and resistant to both water and normal atmospheric conditions, but the protection it offers is inadequate if other agents are present to start a corrosive attack on the aluminium. For this reason processes were sought whereby the natural oxide film could be reinforced by anodising to form a coating which is hard, could be coloured and was even more resistant to wear and corrosion; especially in aggressive coastal and industrial environments. Anodising is an electrochemical process whereby the aluminium surface is converted to a hard transparent film of oxide which is an integral part of the aluminium. The anodising process takes place in a diluted solution of sulphuric acid in which the aluminium forms the positive pole (the anode), and the electrode - the negative pole (the cathode) of the cell.

A current is passed through the cell and oxide is formed in the pores of the aluminium surface.
The anodised aluminium can now be coloured or left in its natural silver.

ANODISING AND COLOURING PROCESS

The process starts with a clean and rinse to remove cutting fluids etc from the substrate. An etch follows which is used to remove the naturally formed oxide layer and to give the metal an even matt appearance over the whole surface area. The metal is then rinsed.

Continuing the process, the metal is placed in cold water to neutralize any residue from the etch. The metal is then rinsed again. The anodising process then takes place which is followed by a final rinse. The colouring process is next. This is achieved by using an electrochemical process to deposit nickel or tin into the open pores created by the anodising process. The pores are then sealed to ensure no airbome contaminants can enter which could cause premature attack of the newly formed oxide layer. The colour is retained and the metal is then rinsed.

POWDERCOATING

Pre-treatment

In order to obtain good paint adhesion, the aluminium extrusions must first be pretreated. The eight stages are firstly, a detergent cleaner to remove oil and smut. This is followed by a rinse then an acid etch. After the etch, the aluminium is dipped into two consecutive rinse tanks to flush impurities from the aluminium substrate then immersed in a chromate conversion tank prior to a final rinse. The extrusions are then placed into a drying oven.

The chromate conversion layer applied to the substrate becomes an integral part of the aluminium and forms a corrosion resistant layer for the powder to adhere to.

Spraying Methods

The main principle of painting is the charging of powder particles.

The powder particles are charged when forced down a Teflon tube which is wrapped around the barrel of the spray gun. By rubbing against this tube the particles of powder gain a positive charge. Once the charged particles exit the spray gun, they are attracted to the earthed aluminium extrusions and the powder wraps around the extrusion to give an even, uniform finish. After spraying, the extrusions are cured at specified temperatures and times in order for the coating to flow out and cure.

GLASS OPTIONS

GLASS INFORMATION

For more information on all glass types consult with our partners Viridian Glass or the Australian Glazing Associations.

Glass Thickness
Typical to all Himmel Aluminium Systems the glass thickness range the suites can accommodate is 6mm - 13mm maximum for laminated glass. For more information on glass thickness and compliance with the Australia Building Code requirements, refer to the “Human Impact Safety Requirements”.

Glass Weight
Generally 2mm Glass thickness per m2 = 5kg, ie 6mm glass = 15kg/m2

8mm	20kg	m^2
10mm	25kg	m^2
12mm	30kg	m^2

GLASS TO METAL CONTACT

Glass should be installed without glass-to-metal contact, as thermal movement created by the different coefficients of expansion between glass and metal can cause breakage, particularly in annealed and laminated glass.
Himmel Aluminium Systems provide for backing seals (ACE Captive Wedge) or glazing tapes. Where present these gaskets should be pre-installed as while some systems can be double wedged, this is a more costly glazing procedure, and not normally recommended by gasket and wedge suppliers or glass companies.

GLASS OPTIONS

PARTITION FRAME DESIGN

Many partition systems have removable beads and adequate pocket depth to get both the edge cover and edge clearance required. However some systems with fixed pockets on two or more sides require “shuffle” glazing and the edge clearance must be increased to install the glass. As the edge cover must be less than half the rebate depth in this system, this often decreases the edge cover below the allowable limits of the glass thickness.

As illustrated in Detail 1 & 2 (on the following page) the glass size cannot be more than the sight size plus the depth of one rebate, less a glazing clearance of 2mm-4mm (dependant on glass thickness, type, frame straightness and squareness). When installed this glass is then centred in the frame.

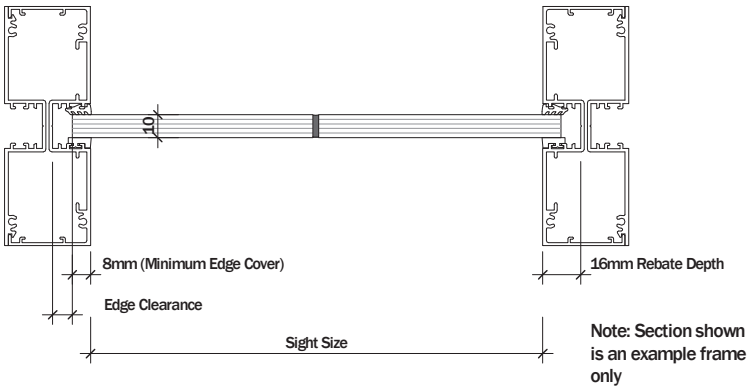
Therefore an 18mm rebate will only allow a maximum edge cover of 7mm or 8mm (1⁄2 rebate depth minus 1⁄2 of clearance) with the maximum glass thickness derived from Table 1 (above).

TABLE 1

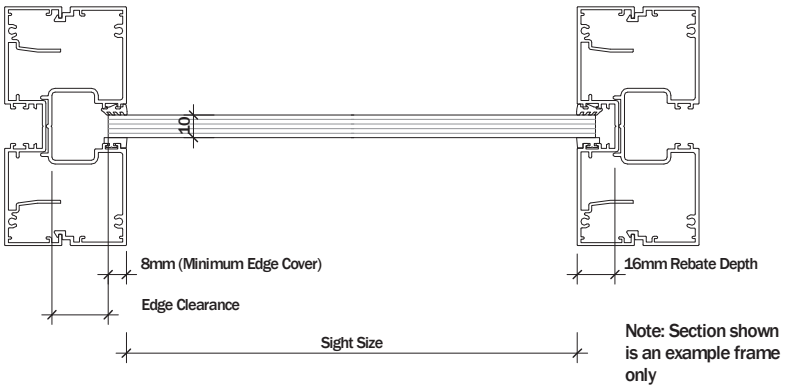
Glass thickness (mm)	Minimum edge cover	Minimum edge clearance	Total rebate depth (mm)
6	6	4	10
8	8	5	13
10	8	5	13
12	9	6	15

GLASS OPTIONS

Detail 1. Shuffle Glazing Tolerances - 2 Or More Glass Panels



Detail 2. Shuffle Glazing Tolerances - 1 Glass Panel



Note. Edge cover is defined as fully supporting the glass – glazing gasket or wedge extending beyond the frame backing should not be considered as part of the edge cover.

Internal cleated corners can also reduce the pocket depths and make it impossible for the glass to comply.

ACOUSTICS IN GLASS

SOUND

Airborne sound is produced when an object vibrates, for example, the moving parts of a jet engine vibrate creating a disturbance in the air which spreads out in all directions. This air pressure disturbance sets off a chain reaction of a sequence of air pressure changes (high and low pressure) and is known as a sound wave. The changes caused by the sound wave are known as a sound pressure level and indicate how loud a sound is. Sound pressure level is measured in decibels (dB) and shown below is the level for some common sounds.

Source	
Threshold of audibility	0
Virtual silence	10
Quiet room	20
Quiet whisper (1M)	30
Bedroom	40
Quiet Street	50
Conversation (1M)	50 - 60
Car (15M)	70

Sound pressure level—dB	
Vacuum Cleaner (3M)	70
Busy Residential Road	80
Jackhammer (15M)	80
Bulldozer (15M)	80
Noisy Factory	90
Large Jet (150M overhead)	110
Chainsaw (1M)	117
Threshold of pain	120

HUMAN ASPECT

It is well documented that exposure to high noise over time can be damaging to health. Including sleep disorders, raised blood pressure, increased risk of heart attack and mental disorders.

WINDOWS AND NOISE

External solid wall elements such as brick or masonry usually provide a good level of noise insulation. However windows may not perform as well, so it is important that the windows are glazed with an appropriate glass to reduce the impact of any noise.
Reducing the noise by:

- 3 db is just noticeable
- 5 db is clearly detectable
- 10 db has a 50% decrease in noise level
- 20 db has a 75% decrease in noise level

IMPROVING SOUND INSTALLATION

The glazing options for windows and doors include:

- Single glazing (a single layer of glass)
- Laminated glass (two sheets of glass laminated together with an interlayer) Commonly used in car windscreens.
- Double glazing – two pieces of glass separated by an airspace. This is usually in a sealed unit. The thicker the product, the better the sound insulation or acoustic performance.

Increasing the glass thickness will improve the window's acoustic performance. However, most standard residential window systems are limited on the glass thickness that the frame can accommodate. Therefore due to these frame constraints, single glazed glass may not be thick enough to provide any significant acoustic benefit.

LAMINATED GLASS

One of the properties of interlayer used in laminated glass is its sound damping qualities. Therefore laminated glass offers better sound insulation when compared to single glazing of the same thickness.

Acoustic performance can be enhanced even further with the use of specifically developed acoustic dampening interlayers.
The use of laminate glass with a standard or acoustic interlayer will generally provide the best noise control for a given thickness in most standard window and door framing systems.

OTHER FACTORS

As well as glass types, other factors that can influence the acoustic properties of a window or door include the type of frame, how it opens (sliding or hinged), how well it seals and the surrounding structure. A gap as small as 1% of total window area will result in 10 decibel decrease in acoustic performance. Importantly, when addressing the task of reducing unwanted sound transmission, the whole of the building must be considered, not just the windows and doors. Any openings, such as gaps around frames, air bricks and insulation of roof space (if any), will have an effect on the amount of noise reduction achieved by reglazing with a suitable product.

ACOUSTICS IN GLASS

REGULATORY REQUIREMENTS

The NCC covers the internal acoustic considerations in Volume 1 for multiple dwellings Class 2, 3 and 9c buildings, but does not provide specific guidance for other building types. In some circumstances, such as near main roads and airports, additional requirements may be required. These are generally covered by Local Government authorities.

AS/NZS 2107 contains recommendations for the internal sound levels that should be achieved for various rooms based on their intended use. While the standard is not called up in the NCC, it does provide guidance for building designers and planning authorities.

ACOUSTIC PERFORMANCE OF GLASS

Generally speaking, thicker glass performs better in attenuating noise. However, different glass thicknesses perform differently at different frequencies. At the lower frequencies, 12mm glass is much more effective than 6mm or 4mm while there is little difference at the higher frequencies. Where the noise problem is traffic and other low frequency noises, a thicker glass will provide the most benefit.

The graph lines in Figure 31 rise and then suddenly dip. This happens when the glass vibrates in unison with the frequency of the sound. This is called the 'coincidence dip'. Laminated glass performs slightly better than monolithic glass of the same thickness, especially at higher frequencies.

The graph, Figure 32, compares 6mm laminated glass with 6mm float glass. Note the coincidence dip in the float glass at 2000 Hz compared with a smaller dip for the laminated glass.

Table 2 Acoustic Considerations for Dwellings
Source: AS/NZS 2107

Environment	Satisfactory	Maximum
Classrooms	35 dB(A)	40 dB(A)
Conference Rooms	30 dB(A)	35 dB(A)
Hotel/Motel Sleeping Rooms	30 dB(A)	35 dB(A)
Residential		
Recreation Areas	30 dB(A)	40 dB(A)
Sleeping Areas	30 dB(A)	35 dB(A)
Work Areas	35 dB(A)	40 dB(A)

Figure 31 Acoustic Performance of Float Glass
Source: Australian Fenestration Training Institute

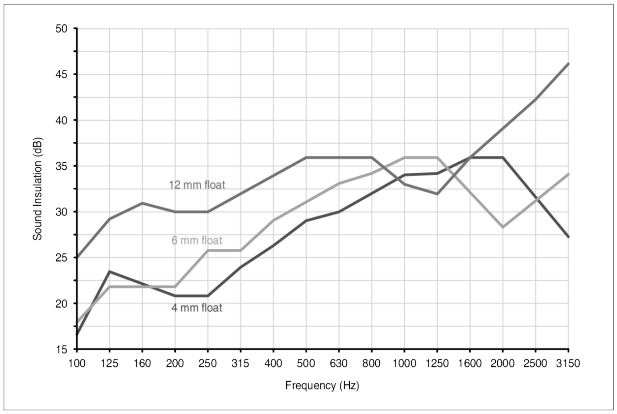
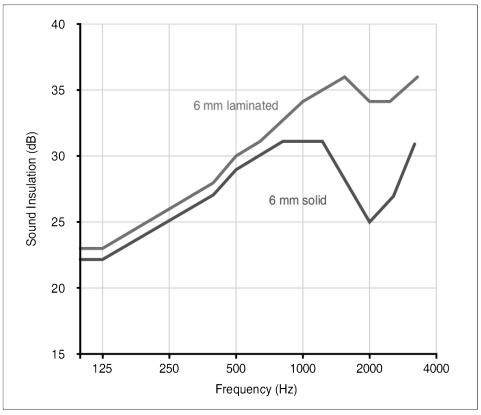


Figure 32 Acoustic Performance of Laminated Glass
Source: Australian Fenestration Training Institute



ACOUSTICS IN GLASS

HIGH PERFORMANCE SOLUTIONS

A variety of high performance solutions can be tailored for different applications. For specific or high level noise, an acoustic engineer can provide a solution. They will assesses the level and types of noise affecting the building and specifiy the appropriate solution. A common misunderstanding is that double glazing is effective at attenuating noise. Studies have shown that ordinary double glazing with a standard gap of about 12mm does not substantially improve acoustic performance, as the gap is too small to provide any real benefit. The most effective solution is to increase the gap to at least 100mm. This is most commonly referred to as secondary glazing, as it involves two separate window frames. Another solution is to use two pieces of glass (either in an IGU or Laminate) with each a different thickness. For instance, one pane might be 4 mm and the other 6 mm. Each pane in a dissimilar glass unit will block different sound frequencies.

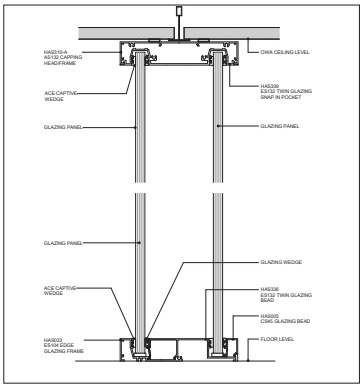


Figure 33 Acoustic Twin Glazing
Source Himmel Aluminium Systems

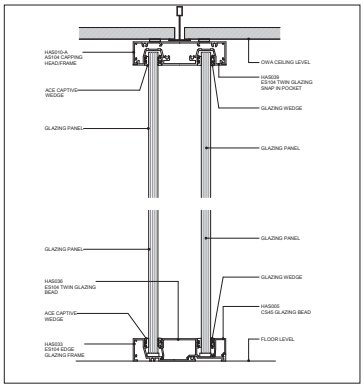


Figure 34 Acoustic Twin Glazing
Source Himmel Aluminium Systems

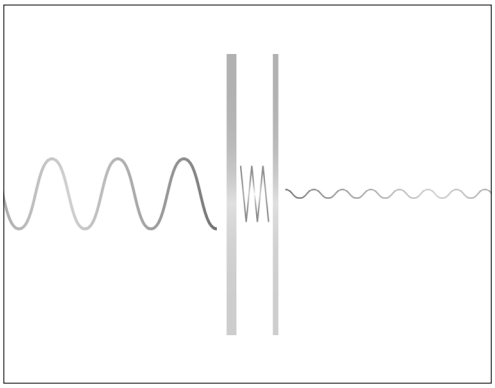


Figure 35 Illustrates Sound As It Travels
Through The Dissimilar Glasses

The thicker pane targets lower frequency sounds like a neighbour's stereo or traffic noise. The thinner pane targets higher frequency sounds like screaming and jet aircraft. This leads to a reduction in amplitude (loudness) across a wider spectrum of frequencies and the result is a much higher acoustic rating than for a window with standard glazing. The thicker glass should be about 40% thicker than the thinner glass to have the most benefit. Recent advances in the manufacture of the interlayer of laminated glass have provided an improvement in acoustic performance. Acoustic laminates have a thicker (0.52 mm) specialised interlayer than is commonly used and provide some improvement over standard laminates. These interlayers are most effective when used with dissimilar glass thicknesses.

NOISE REDUCTION BY GLASS TYPE

Table 3 shows the indicative noise reduction for various options compared to 3 mm glass.

Voice Noise Reduction	%	Traffic Noise Reduction	%
6.38 mm laminated glass	13	6.38 mm laminated glass	24
10 mm glass	24	10 mm glass	38
10.38 mm laminated glass	29	10.38 mm laminated glass	43
4 mm/12 mm gap/6 mm	19	4 mm/12 mm gap/6.38 mm laminated glass	46
10 mm/12 mm gap/6 mm	34	6 mm/100 mm gap/4 mm	57
6.38 mm laminated/8 mm gap/4 mm	46		

SPECIFICATION

ONLINE RESOURCES

Natspec branded sections for download are available from the following resources.
All Himmel Interior Systems aluminium partitions are covered in the relevant section:

0520 HIMMEL ALUMINIUM SYSTEMS COMBINED

www.natspec.com.au

Natspec is the leading specification system in Australia's construction industry used by over 1,100 design practices, providing detailed specification resources that can be easily modified to suit any project.

www.himmel.com.au

We aim to lead the market in the creation of productive and intelligent spaces by delivering superior acoustic and aesthetic solutions. Himmel Interior Systems offer a high level of service with products available across Australia through the Gyprock Trade Network and trusted distribution partners.

Specifcations are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

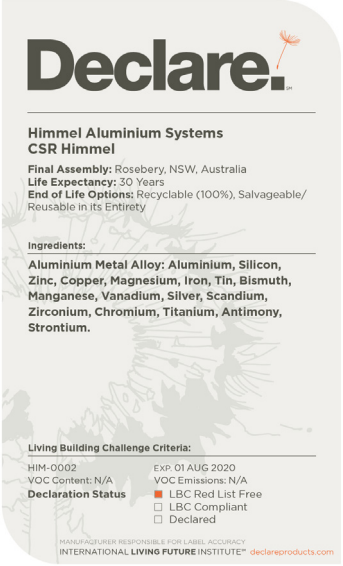
www.himmel.com.au
www.natspec.com.au

SUSTAINABILITY

DECLARE

Himmel Interior Systems aluminium partition suites carry Declare labelling.
Declare; the ingredient label for building products. It's a nutrient label for the building industry, that ensures consumers have all the information about the products they buy. Declare states where the product is made, if it contains any red list chemicals and it's end-of-life options.

Himmel Interior Systems, believe that product transparency is crucial to increasing the availability of healthy products in the marketplace. We will continue to strive for more of our products to join our Declare family, in commitment to the mission of creating change in the industry.



ALUMINIUM

Unlike timber, plastic, ceramics, fibrous plaster and many other products, aluminium can be recycled indefinitely due to its high intrinsic value. Aluminium is also the most cost-effective metal or material to be recycled.

Aluminium has been recycled since it was first commercially produced and today recycled aluminium accounts for one-third of global consumption worldwide. Recycling is an essential part of the aluminium industry and makes good sense economically, technically and ecologically. All aluminium products retain value, even at the end of their useful life, which guarantees that it is possible to continue to create value by recycling them into new products.

RONDO STEEL STUD SYSTEMS

SYSTEM SOLUTIONS

Rondo has a system to solve even the most complex technical requirements.

Rondo Steel Stud and Track is designed to not only be stronger, but safer, reducing handling errors on site. Unlike other profiles in the market, Rondo Steel Stud and Track have a hemmed return lip to increase rigidity preventing unwanted rotation as well as eliminating sharp edges. The vertical rib in the stud face allows the wall linings to be placed centrally, ensuring easier and fast fixing, while the deeper knurling provides better screw location and retention. Rondo studs also lock perfectly into each other, creating the best boxed stud profile in the market.

Rondo are also able to provide seismic designs for walls and ceilings, which can be tailored to suit each project's seismic requirements. Rondo developed market-leading seismic designs through the use of Australian and Australia Standards, research into the latest seismic advances, and an all-inclusive testing program which included full scale testing in Australia on a shake table, with the help of seismic engineers. Rondo has provided seismic designs to major projects across Australia including Adelaide Medical Nursing School, New Royal Adelaide Hospital, SAHMRI, QEII New Children's Hospital in Perth, and Gosford Hospital in NSW.

Rondo also offers a selection of Acoustic Mounts that complement the Rondo Range of Wall and Ceiling Systems and have been tested to comply with the Australian National Construction Code (NCC). Rondo is able to supply full test data for analysis by acoustic engineers and architects for the tests which Rondo has commissioned.

DESIGN SOLUTIONS

Every Rondo customer has access to the very best technical advice from our engineers and technical services team, who offer a comprehensive design service.

This free in-house design service can be utilised for all projects where our products are specified. Our team of Professional Engineers are experienced in cold formed steel design and this offer extends all our systems and products for any application.
Rondo designs to the current Australian Standards, including all loading codes (AS1100 series), design codes (AS/NZS4600) and more recently SA TS 101 for post-installed concrete fasteners. We are also constantly up to date with Australian Standards and regularly update technical resources in line with changes. As a company, we also have regular interactions with fastener suppliers to ensure our designs are current and up to date. Design capacities for Rondo standard details are always confirmed with anchor suppliers, before detailing and documenting is complete.

Rondo also sits on a number of committees including the BD35 Standards Committee for the revision of AS/NZS2785 Suspended Ceiling Code, the AWCI Executive Committee, which represents the Wall and Ceilings Industry within Australia and the AWCI Technical Committee, which provides support to the Wall and Ceiling Industry within Australia for all technical matters relating to the industry.

RONDO STEEL STUD SYSTEMS

RONDO STEEL STUD DRYWALL FRAMING SYSTEM

Summary
The Rondo Steel Stud Drywall Framing System provides a durable, practical and lightweight structure for internal plasterboard walls and for specific external wall systems. The availability of various sizes, complimentary components such as noggin tracks, curved tracks and special cleats ensure Rondo Stud and Track wall systems are available to suit almost all situations.

Suitable For
- Non-Load Bearing Partition Walls
- Load Bearing Walls by Design
- Steel Stud Ceiling Systems
- Window and Door Jambs
- Non-Fire Rated Systems
- Fire Rated Systems
- Acoustic Wall Systems by Design
- External Wall Systems by Design
- Lightweight Floor Joists
- Bulkheads

Special Features
- Available in custom lengths
- Majority of Stud and Track is hemmed for safety and increased strength
- Bell mouthed service holes to mitigate damages
- Flexible Track available for curved walls
- Manufactured with a minimum coating of Z275
- Profiles widths range from 51 to 150mm, and gauges from 0.50 to 1.12BMT
- Includes unique QUIET STUD profile for better acoustic performance

In Practice
Rondo's Stud and Track Systems have been used all over the world, including in the Mumbai International Airport Development in India and Australia's largest tertiary institution and award-winning project, RMIT University in Melbourne. For the high-profile Fiona Stanley Hospital Project in Perth, its design required special length products – therefore, Rondo produced large quantities of the non-standard Stud and Track sizes to ensure the project could progress rapidly.

Important Note
Rondo recommends its products and systems are installed by a qualified tradesperson according to the relevant codes and standards.

RONDO STEEL STUD SYSTEMS

INSTALLATION GUIDE WALLS

Step One
Set out the track locations in accordance with the floor plans. Ensure internal walls are perpendicular to the external walls, by using the 1 4 5 triangle method.

Step Two
Secure the top and bottom tracks in position using appropriate fasteners, at not more that 600mm centres. The first fastener should be no more than 100mm from the start or finish of each track or any opening. Deflection head tracks should be used for walls 4.8m and higher.

Step Three
Cut the studs to length – for friction fit this is 6mm shorter than the wall height and for deflection heads this is 20mm shorter than the wall height.

Step Four (A)
(Where noggings are specified)
Refer to nogging tables for number of Noggins required. If Noggings are required, use Rondo Nogging track with pre-punched holes at nominated centres. Nogging track should be installed with flanges facing the floor.
Fit studs into the pre-punched holes and into both the top and bottom tracks with the service holes starting from the bottom. Then, with a twisting action rotate the studs into position. Ideally, the studs should be orientated in the same direction to make fitting the lining board easier. Nogging track section should then be lifted to required height and fixed to each steel stud.

Step Four (B)
(Where noggings are not required)
Fit the stud into both the top and bottom tracks with the service holes starting from the bottom, then with a twisting action rotate the stud into position. Ideally the studs should be orientated in the same direction to make fitting the lining board easier.

Step Five
Fit the lining board to one side of the wall first. The lining board should be fitted such that the board is screwed to the open side of the stud first. This will prevent any misalignment of the board along the wall.

Step Six
Allow the services to be run in the wall cavity.

RONDO STEEL STUD SYSTEMS

MAXIMUM WALL HEIGHTS
TABLE 6: INTERNAL NON-LOAD BEARING WALLS – L/240 PLASTERBOARD

STUD WIDTH		51MM		64MM			76MM			92MM			150MM	
BMT		0.50	0.75	0.50	0.75	1.15	0.55	0.75	1.15	0.55	0.75	1.15	0.75	1.15
PLASTERBOARD LININGS (MM)		SINGLE STUDS @600mm CENTRES												
LINED BOTH SIDES	1x10mm	2770	2910	3330	3930	4170	3700	4430	4650	4540	4830	5110	6550	7220
	1x13mm	3200	3320	3720	4220	4430	4130	5020	5220	4940	5500	5750	6990	7540
	1x16mm	3380	3520	3910	4350	4520	4300	5250	5420	5180	5710	5920	7190	7650
LINED ONE SIDE	1x10mm	2320	2600	2720	3130	3530	3200	3580	4050	3610	4130	4690	5330	6810
	1x13mm	2320	2600	2720	3250	3580	3240	3820	4050	3610	4180	4690	5370	6810
	1x16mm	2320	2600	2750	3280	3590	3250	3870	4050	3610	4200	4690	5370	6810
PLASTERBOARD LININGS (MM)		SINGLE STUDS @450mm CENTRES												
LINED BOTH SIDES	1x10mm	3020	3200	3580	4180	4460	4020	4780	5070	4850	5270	5620	7140	7750
	1x13mm	3420	3570	3930	4430	4690	4410	5330	5570	5210	5890	6190	7520	8040
	1x16mm	3550	3710	4130	4600	4820	4580	5580	5790	5450	6120	6390	7620	8130
LINED ONE SIDE	1x10mm	2520	2860	2930	3410	3870	3500	3910	4450	4050	4520	5150	6510	7400
	1x13mm	2520	2860	2930	3530	3930	3580	4170	4450	4050	4610	5150	6510	7400
	1x16mm	2520	2860	3020	3560	3950	3600	4200	4450	4050	4630	5150	6510	7400
PLASTERBOARD LININGS (MM)		SINGLE STUDS @400mm CENTRES												
LINED BOTH SIDES	1x10mm	3130	3320	3690	4280	4590	4160	4930	5240	4990	5460	5840	7340	7970
	1x13mm	3510	3680	4020	4530	4810	4530	5450	5720	5330	6050	6380	7610	8190
	1x16mm	3620	3750	4220	4710	4950	4700	5710	5950	5560	6280	6580	7750	8300
LINED ONE SIDE	1x10mm	2630	2970	3070	3540	4020	3640	4070	4620	4210	4700	5360	6740	7650
	1x13mm	2630	2970	3070	3660	4090	3740	4320	4620	4210	4800	5360	6740	7650
	1x16mm	2630	2970	3140	3700	4100	3760	4380	4620	4210	4820	5360	6740	7650
PLASTERBOARD LININGS (MM)		SINGLE STUDS @300mm CENTRES												
LINED BOTH SIDES	1x10mm	3390	3620	3960	4570	4930	4510	5310	5690	5340	5930	6390	7840	8570
	1x13mm	3730	3940	4260	4780	5120	4830	5770	6110	5640	6450	6860	8110	8740
	1x16mm	3800	4020	4450	4980	5270	5010	6030	6330	5860	6690	7070	8230	8850
LINED ONE SIDE	1x10mm	2890	3270	3380	3900	4430	4010	4480	5090	4630	5180	5900	7350	8290
	1x13mm	2890	3270	3380	4010	4490	4130	4730	5090	4640	5290	5920	7350	8290
	1x16mm	2890	3270	3460	4050	4510	4150	4790	5090	4640	5310	5930	7350	8290

NOTES

1. Deflection Limit is span/240 (or span/360 as applicable) to a maximum of 30mm at 0.25 kPa, in accordance with the BCA Specification C1.8 – 2005
2. Maximum wall heights refer to the structural wall heights only. Maximum wall heights may be reduced from those in the table for fire rated walls, refer to your plasterboard manufacturer for this information
3. The tabulated heights are not for axial loads but do include self weight and lateral pressures
4. Shelf loading is not permitted on the tabulated wall heights
5. Loadings: a. Pultimate = 0.375 kPa
   b. Pservice = 0.25 kPa
6. These walls are not for external applications
7. All loading in accordance with AS1170:2002
8. Walls analysed in accordance with AS4600:2005
9. Noggings in accordance with table shown on facing page
10. BMT = Base Metal Thickness
11. Above wall heights are suitable for up to 2 layers of the nominated thickness
12. See table on Page 22 for Nogging requirement
13. Table assumes the same or like gauge is used for both Stud and Track sections. Above wall heights may change if using dissimilar gauge product

RONDO STEEL STUD SYSTEMS

MAXIMUM WALL HEIGHTS
TABLE 7: INTERNAL NON-LOAD BEARING WALLS – L/360 BRITTLE SUBSTRATES – CFC ETC.

STUD WIDTH		51MM		64MM			76MM			92MM			150MM	
BMT		0.50	0.75	0.50	0.75	1.15	0.55	0.75	1.15	0.55	0.75	1.15	0.75	1.15
PLASTERBOARD LININGS (MM)		SINGLE STUDS @600mm CENTRES												
LINED BOTH SIDES	1x10mm	2540	2660	2990	3480	3680	3340	4010	4210	4030	4410	4650	5830	6420
	1x13mm	2900	3010	3320	3720	3900	3700	4510	4680	4370	4970	5180	6190	6740
	1x16mm	3000	3120	3500	3890	4040	3870	4740	4890	4590	5190	5370	6380	6890
LINED ONE SIDE	1x10mm	2000	2270	2340	2700	3070	2780	3100	3530	3210	3590	4090	5260	6030
	1x13mm	2000	2270	2340	2850	3160	2930	3400	3530	3240	3730	4130	5260	6030
	1x16mm	2000	2270	2450	2890	3180	2960	3460	3530	3250	3760	4150	5260	6030
PLASTERBOARD LININGS (MM)		SINGLE STUDS @450mm CENTRES												
LINED BOTH SIDES	1x10mm	2740	2890	3190	3680	3930	3600	4300	4550	4290	4770	5070	6320	7000
	1x13mm	3070	3210	3490	3900	4120	3920	4750	4970	4590	5270	5540	6630	7270
	1x16mm	3130	3280	3670	4090	4280	4100	5000	5180	4810	5510	5740	6810	7410
LINED ONE SIDE	1x10mm	2210	2500	2580	2980	3380	3060	3420	3880	3540	3950	4500	5790	6630
	1x13mm	2210	2500	2580	3110	3470	3220	3700	3880	3610	4100	4570	5790	6630
	1x16mm	2210	2500	2690	3150	3490	3260	3770	3880	3620	4130	4580	5790	6630
PLASTERBOARD LININGS (MM)		SINGLE STUDS @400mm CENTRES												
LINED BOTH SIDES	1x10mm	2820	2990	3280	3770	4040	3720	4420	4690	4400	4920	5250	6530	7260
	1x13mm	3140	3290	3560	3980	4220	4020	4850	5090	4690	5400	5700	6820	7510
	1x16mm	3190	3350	3750	4180	4380	4190	5100	5310	4900	5640	5900	6990	7650
LINED ONE SIDE	1x10mm	2290	2600	2680	3090	3510	3180	3550	4040	3680	4110	4680	6020	6900
	1x13mm	2290	2600	2680	3230	3600	3350	3840	4040	3760	4260	4750	6020	6900
	1x16mm	2290	2600	2800	3270	3620	3390	3900	4040	3780	4290	4770	6020	6900
PLASTERBOARD LININGS (MM)		SINGLE STUDS @300mm CENTRES												
LINED BOTH SIDES	1x10mm	3030	3240	3510	4010	4330	4000	4720	5050	4700	5300	5700	7090	7920
	1x13mm	3320	3510	3760	4200	4490	4270	5110	5410	4960	5730	6090	7330	8130
	1x16mm	3340	3540	3940	4400	4660	4440	5360	5620	5160	5960	6290	7490	8260
LINED ONE SIDE	1x10mm	2520	2860	2950	3410	3870	3500	3910	4450	4050	4520	5150	6630	7590
	1x13mm	2520	2860	2950	3530	3950	3670	4180	4450	4150	4670	5230	6630	7590
	1x16mm	2520	2860	3070	3570	3970	3710	4240	4450	4180	4710	5250	6630	7590

MINIMUM NUMBER OF NOGGINGS

WALL HEIGHT (M)	LINING CONDITION	NUMBER OF NOGGINGS
0 - 4.4	Both sides	0
4.4 - 8.8		1
0 - 3.0	Lined one side	1
3.0 - 6.0		2
6.0 - 8.0		3
8.0+		4

NOTE: Walls connected to the underside of a concrete slab must be installed with deflection head track and an additional row of Noggings 100mm down if unlined,or lined one side only

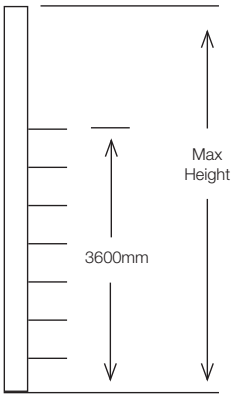
RONDO STEEL STUD SYSTEMS

SHELF LOAD TABLES
PERMISSIBLE SHELF LOADINGS FOR STEEL STUD WALLS
TABLE 6: MAXIMUM ALLOWABLE LOADS
(2400MM - 3600MM WALL HEIGHT. WALLS LINED BOTH SIDES WITH 1X13MM PLASTERBOARD)

MAXIMUM ALLOWABLE LOAD IN KG PER METRE RUN OF SHELF (FOR FASTENERS DESIGNED BY STRUCTURAL ENGINEER)																
WALL HEIGHT (MM)		**2400**			**2700**			**3000**			**3300**			**3600**		
STUD SIZE		**64 X 0.50 BMT**			**64 X 0.50 BMT**			**76 X 0.55 BMT**			**76 X 0.55 BMT**			**92 X 0.55 BMT**		
SHELF WIDTH (MM)		**200**	**300**	**400**	**200**	**300**	**400**	**200**	**300**	**400**	**200**	**300**	**400**	**200**	**300**	**400**
NUMBER OF SHELVES EQUALLY SPACED OVER FULL HEIGHT	1	127	95	77	58	43	33	140	107	87	62	45	38	73	57	47
	2	102	80	65	58	43	33	120	93	77	58	45	38	73	57	47
	3	63	47	38	28	22	17	70	53	43	30	23	18	37	28	23
	4	53	40	33	27	20	17	60	47	38	30	23	18	35	27	22
	5	42	32	25	18	13	12	47	35	28	20	15	12	23	18	15
	6	37	27	22	17	13	10	42	32	25	18	15	12	23	18	15
LOAD MULTIPLICATION FACTOR FOR ALTERNATIVE STUD SIZES																
64 X 0.75 BMT		1.75	1.75	1.75	1.75	1.75	1.75	1.20	1.20	1.20	1.20	1.20	1.20			
76 X 0.55 BMT		1.40	1.40	1.40	1.40	1.40	1.40	1.00	1.00	1.00	1.00	1.00	1.00			
76 X 0.75 BMT		2.20	2.20	2.20	2.20	2.20	2.20	1.55	1.55	1.55	1.55	1.55	1.55			
92 X 0.55 BMT		1.60	1.60	1.60	1.65	1.65	1.65	1.15	1.15	1.15	1.15	1.15	1.15	1.00	1.00	1.00
92 X 0.75 BMT		2.75	2.75	.275	2.80	2.80	2.80	1.95	1.95	1.95	1.95	1.95	1.95	1.65	1.65	1.65

TABLE 7: MAXIMUM ALLOWABLE LOADS (4200MM - 6000MM WALL HEIGHT)

MAXIMUM ALLOWABLE LOAD IN KG PER METRE RUN OF SHELF (FOR FASTENERS DESIGNED BY STRUCTURAL ENGINEER)													
WALL HEIGHT (MM)		**4200**			**4800**			**5400**			**6000**		
STUD SIZE		**150 X 0.75 BMT**			**150 X 0.75 BMT**			**150 X 0.75 BMT**			**150 X 1.15 BMT**		
SHELF WIDTH (MM)		**200**	**300**	**400**	**200**	**300**	**400**	**200**	**300**	**400**	**200**	**300**	**400**
NUMBER OF SHELVES EQUALLY SPACED OVER FULL HEIGHT	1	658	550	483	500	433	367	367	300	233	383	283	217
	2	375	325	283	267	233	200	183	158	133	200	150	117
	3	283	242	217	183	167	150	125	108	92	133	100	82
	4	225	200	175	158	133	117	100	83	72	100	78	63
	5	192	158	142	125	108	100	82	72	57	83	63	52
	6	158	133	123	108	100	83	70	62	47	72	53	43



DESIGN ASSUMPTIONS:

1. Stud spacing = 600mm
2. Deflection checked to the lesser of H/480 under shelf loads (G) or H/360 under shelf loads with combined internal pressure (G + Ws)
3. Internal pressure checked at 0.375kPa (Wu) ultimate and 0.25kPa (Ws) service
4. Walls are lined both sides with 13mm plasterboard
5. Studs are continuous in length and no splicing is allowed
6. All calculations are based on Rondo sections
7. Shelving is attached to one side of the wall only
8. BMT = Base Metal Thickness
9. To obtain kg per stud per shelf, multiply the values in the above table by 0.6

RONDO STEEL STUD SYSTEMS

SHELF LOAD TABLES
NON-FIRE RATED STEEL STUD SYSTEMS

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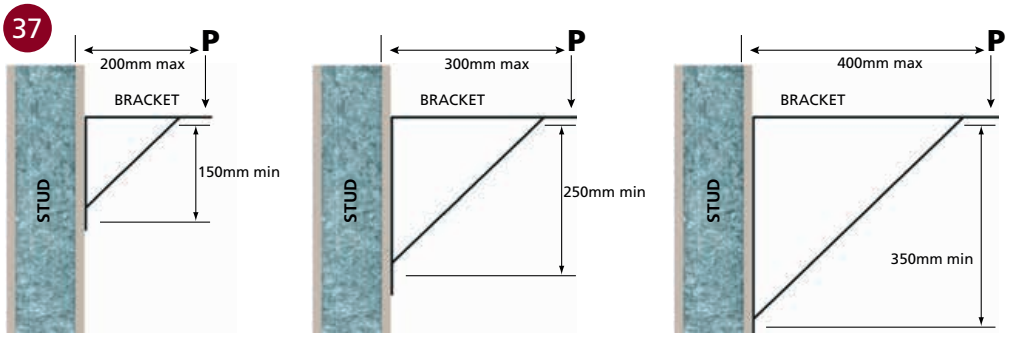

■ BRACKETS

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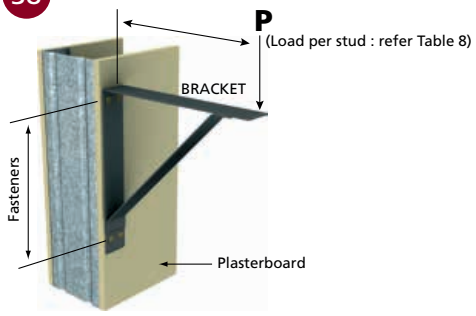


■ FASTENERS

TABLE 8: MAXIMUM LOADINGS FOR BRACKETS

STUD GAUGE (BMT)	MAXIMUM LOADING 'P' PER STUD (KG) (WHERE FASTENERS CONSIST OF 2# 10 GAUGE FASTENERS AT EACH LOCATION)		
	TYPE 1 BRACKET	TYPE 2 BRACKET	TYPE 3 BRACKET
0.50	25	30	33
0.55	27	33	36
0.75	36	44	49
1.15	57	70	76

NOTES:
1. Fixings shown in Figure 3 consist of 2# 10 gauge fasteners at each fixing location
2. Design is for bracket connection only - bracket and shelf design by others
3. Loads greater than those listed above must be independently designed for
4. Fasteners used must be 10 guage and have the properties listed in Table 15

TABLE 9: FASTENER PROPERTIES (10 GUAGE)

STUD GAUGE (MM)	PULLOUT FORCE kN (Ø N_{ou})	SHEEAR STRENGTH KN (Ø V_b)
0.50	0.34	0.54
0.55	0.37	0.62
0.75	0.50	0.99
1.15	0.77	1.87

NOTE: Pullout and shear capacity based on Grade 300 steel brackets of minimum thickness 1.50mm

BUILDING ACOUSTICS

Building acoustics can be separated into sound absorption and sound transmission. Sound absorption relates to control of sound that is generated within a room and how it affects people in that room.

Sound transmission relates to sound that passes through a dividing element (direct sound, controlled by the element's sound insulation), and through the surrounding structure (indirect or flanking transmission).

Methods of controlling noise in buildings can be based on systems, structure and lining materials and their absorption and transmission properties. CSR Gyprock recommends that an acoustic engineer be consulted for all projects where acoustics are important.

FLANKING TRANSMISSION

Flanking sounds reach adjoining areas by indirect paths, rather than through the dividing element. The perimeter junction of walls, floors and ceilings that surround the dividing element are the main paths for flanking transmission. Other paths include open windows, ducts, doorways and suspended ceilings.

Noise sources that have a high degree of low frequency noise such as traffic, aircraft and DVD sound systems have potential for transmission through the building structure. Transmission of this type of noise follows structural load paths and can be controlled by breaking these load paths or providing complete separation of the structure.

Noise sources that generate a high amount of mid and high frequency noise, such as services and speech, tend to transmit via air paths and direct transmission in lightweight construction.
Typical problem areas for this type of transmission include doors and door frames, glazing, suspended ceiling cavities and ductwork. Practical methods for addressing common situations within buildings can be seen in Section J and Z in this guide.

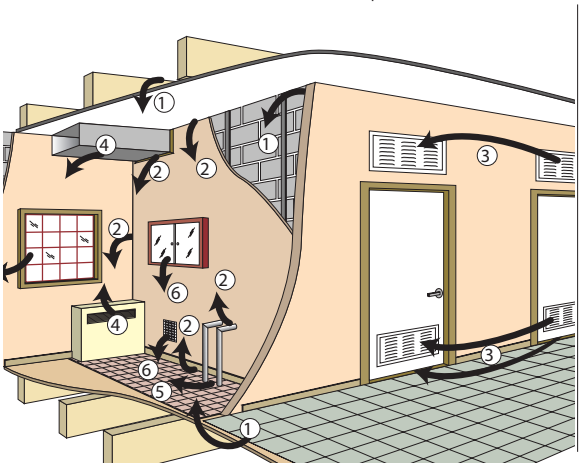
SOUND IMPACT RATINGS

The BCA has performance requirements relating to sound impact for floors and some walls.
For floors, this is specified as a maximum value such as: Lnw = 62. Note that lower values of Lnw indicate better acoustic impact performance.

The Northern Territory has no requirements for impact rating of floors. Walls may be required to meet the definition of Discontinuous Construction. This means that wall leaves must be separated by at least 20mm and no mechanical connection is permitted, except that masonry may have resilient ties. Systems that meet this specification are noted in the appropriate system specifications.

Common flanking transmission paths

1. Ceiling plenums, floors, walls
2. Poor seals between structural elements and around service penetrations
3. External air-borne paths
4. Heating and ventilation ducting
5. Rigid plumbing connections and penetrations
6. Back-to-back cabinets and switches/power outlets



SYSTEM PERFORMANCE

The Rw, Rw + Ctr and Ln,w values in this manual refer to expected results of a laboratory test on an element.

Extensive testing over many years has been carried out by CSR at laboratories including the Commonwealth Experimental Building Station (later CSIRO) at North Ryde NSW, National Acoustic Laboratory at Lindfield NSW, CSIRO Laboratories at Highett, Victoria and even, up to 1978, at the Gyprock NATA registered laboratory. Extensive development testing has been carried out at Rintoul Laboratories, Seven Hills NSW since 1995, and some of the systems subsequently validated at other laboratories.

Performance values provided by PKA Acoustic Consulting use a prediction system based on these tests, and the system has been updated to include the most current CSR sponsored testing. The prediction system has been calibrated against the round robin European test of a standard plasterboard wall in 24 European acoustic laboratories, and has successfully predicted the performance of a calibration wall for an acoustic laboratory in Brisbane.

As testing from different laboratories can vary (the European 24 laboratory test of the standard plasterboard wall was Rw47 to Rw52), it is possible that laboratory tests may be 1 to 2 Rw points above a prediction.

All care has been taken with preparation of these predictions and it is assumed that construction is strictly in accordance with this manual and relevant Gyprock and Cemintel installation guides.

BUILDING ACOUSTICS

SITE PERFORMANCE VS LABORATORY PERFORMANCE

As houses are not built like laboratories, it is unlikely that performance measured in ideal test conditions will be achieved in a building. Designers should take care to select systems compatible with the support structure to provide the desired level of insulation.

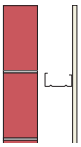
The BCA specifies deemed to satisfy acoustic values that are laboratory results, and in some cases allows lower values when site tested. For example, in a Class 2 building the separating wall can have Rw + Ctr = 50 (a laboratory result), or DnT,w + Ctr = 45 (tested on site). The difference of 5 is that expected between site and laboratory, although it might not always be the case. CSR Gyprock recommends that where designers are selecting systems based on expected site performance, an acoustic engineer be consulted.

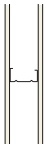
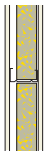
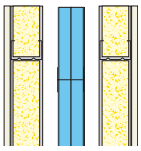
ACOUSTIC INTEGRITY

The acoustic integrity of a system can be influenced by the combination of elements that make up the system. Single leaf and uninsulated systems are more dependant on high quality installation, as relatively minor defects can cause major degradation of the system performance.

Building systems that allow defects to be hidden from view have a higher chance of gaps being left unsealed, making them more vulnerable to performance degradation.

The likelihood and effect of defects occurring with typical systems is shown:

ACOUSTIC INTEGRITY		
WALL SYSTEM	**CHANCE OF GAPS BEING LEFT UNSEALED**	**EFFECT OF DEFECTS ON PERFORMANCE**
 Single skin masonry wall	High	High Degradation
 Masonry with stud, uninsulated	High	High Degradation

ACOUSTIC INTEGRITY		
 Single stud, uninsulated	Low	High Degradation
 Single stud, insulated	Low	Moderate Degradation
 Double stud, insulated	Low	Low Degradation

BACKGROUND NOISE

Low levels of noise transmitted from other areas can be partially obscured by background noise.
Where the background noise level is low, such as in remote areas, consideration should be given to providing a higher than standard level of sound insulation.

VARIATION IN OCCUPANT PERCEPTION OF NOISE

Tolerance for noise varies greatly between people, and variations of up to 15dB can be considered acceptable. This means consideration should be given to the occupant's expectation of the internal acoustic environment. Users of concert halls and practice rooms may have higher acoustic expectations than guests of inner city hotels.

BUILDING ACOUSTICS

MINIMUM PERFORMANCE LEVELS FOR INTERNAL WALLS & CEILINGS

The BCA sets out minimum performance levels for internal walls and ceilings based on acceptable standards for affordable housing. The performance requirements are in terms of R_w, R_w+C_{tr} and $L_{n,w}$.

These levels may need to be increased for:

- Variation in occupant perceptions of noise, e.g. high, medium or low cost housing.
- Local authorities have higher or additional requirements.
- Background noise levels are low.
- Flanking transmission of the surrounding structure. Lightweight structures can be more prone to low frequency flanking.
- The presence of services will vary which BCA provisions are applicable, and could mean separate construction is required.
- The lack of simplicity in construction could reduce actual performance. Minimum Performance Levels for Services

The BCA sets out minimum performance levels for isolation of noise from services based on acceptable standards for affordable housing. The performance levels are in terms of R_w and R_w+C_{tr}.

These levels may need to be increased for:

- The nature of the noise source and adjacent occupant activity. Some noises are particularly annoying to occupants.
- Variation in occupant perceptions of noise, e.g. high, medium or low cost housing.
- Background noise levels may be very low.
- The lack of simplicity in construction could reduce actual performance.

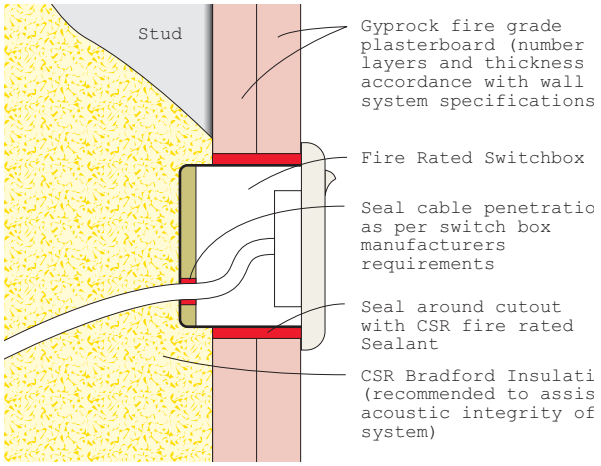
MINIMUM PERFORMANCE LEVELS FOR EXTERNAL WALLS

The BCA does not set minimum performance levels of transmission for external walls. Guidance should be sought from an acoustic consultant or local authority for setting the design requirements of these elements, as they may be affected by road or aircraft noise.

Issues that may affect the design levels for external walls are:

- Variation in occupant perceptions of noise, e.g. high, medium or low cost housing.
- Background noise levels are low.
- Flanking transmission of the surrounding structure, particularly at windows and doors.
- The lack of simplicity in construction could reduce actual performance.

TYPICAL POWER OUTLET/LIGHT SWITCH INSTALLATION USING FIRE RATED SWITCH BOX



PENETRATIONS

The acoustic performance of walls and ceilings can be reduced by penetrations for plumbing, electrical switches, light fittings, etc. For construction that is acoustically sensitive, it is recommended that, wherever possible, such penetrations are avoided. In other cases, rated proprietary sealants and products should be used.

There is a wide range of services and materials that may be required to penetrate sound rated walls and ceilings, and in varied configurations and concentrations. CSR Gyprock recommends that an acoustic engineer be consulted for advice on all details for projects with specific acoustic objectives.

The patented Gyprock Silencer has been developed for use in Gyprock walls to provide fire and acoustic ratings for various penetrations. For use with steel framed stud walls, StrataWall and Security Wall, it can maintain fire rating up to –/120/120 FRL and maintain the system acoustic rating. Taps, pipes, power outlets, light switches and similar penetrations can be installed in the Silencer.

Fire and acoustic rated switch boxes are available from manufacturers such as BossFire to assist in maintaining the acoustic integrity of wall systems.

BUILDING ACOUSTICS

GAPS, CRACKS & HOLES

Small openings allow airborne sound to pass through an element and can significantly reduce sound insulation performance. For optimum sound insulation, the element must be airtight. Perimeters and penetrations for services must be sealed with an acoustic sealant that is capable of accommodating the expected building movement.

For systems that are multi-layered, such as masonry composite systems, each layer must be air tight, as services such as power points and switches can act as airborne flanking paths. To remedy this, consider using acoustic rated power boxes, the Gyprock Silencer, and insulation in the cavity. Refer to appropriate details in this guide.

ACOUSTIC TERMINOLOGY DEFINITIONS

R_w – Weighted Sound Reduction Index. A measure of the sound insulation performance of a building element. R_w is a laboratory measurement similar to STC.
R_w is measured and calculated using the procedures from the relevant Australian and International Standards. The related field measurement is abbreviated as $D_{nT,w}$.
The higher the number the better the insulation performance.

$D_{nT,w}$ – Weighted Standardised Field Level Difference.
A measurement of the sound insulation performance of a building element. It describes the difference in noise level on each side of a wall or floor, and indicates the level of speech privacy between spaces. It is measured in the field and is therefore subject to the inherent inaccuracies involved in such a measurement.
The higher the number the better the insulation performance.

C_{tr} – A spectrum adaptation value used to modify the sound insulation performance of a wall or floor. Sound insulation performance can be described by R_w or the $D_{nT,w}$ but these are not accurate for all noises, especially for low frequency bass noise from modern stereo systems. C_{tr} values are negative values which are added to either the R_w or $D_{nT,w}$. The standards set out testing methodologies for the sound insulation properties of building elements and incorporates these factors and explains their use.
Smaller negative C_{tr} values are more favourable than large negative values.

dB(A) – The 'A'-scale and dB(A) noise level are used to degrade the performance of a sound level meter to simulate what humans hear. The human ear is poor at hearing low frequency noise. dB(A) is used to compare measured sound with perceived sound.
A number of noise criteria refer to, and are measured in dB(A).
The larger the dB(A) level the louder the noise.

$L_{n,w}$ – Weighted Normalised Impact Sound Pressure Level.
A measure of the noise impact performance of a floor/ceiling. It is measured in very controlled conditions in a laboratory and is characterised by how much impact sound reaches the receiving room via the ceiling/floor from a standard tapping machine test.
The lower the number the better the performance.

$L'_{nT,w}$ – Weighted Standardised Field Impact Sound Pressure Level. A measure of the noise impact performance of a floor/ceiling. It is similar to $L_{n,w}$ except it is measured in the field and is therefore subject to the inherent inaccuracies involved in such a measurement. The lower the number the better the performance.

NRC – Noise Reduction Coefficient. A measure of the ability of a material to absorb sound.
NRC is generally a number between 0 and 1. A material with an NRC rating of 1 absorbs 100 % of incoming sound, that is, no sound is reflected back from the material.

STC – Sound Transmission Class. A measure of the sound insulation performance of a building element used in the BCA prior to 2000. It is measured in very controlled conditions in a laboratory.

CAC – Ceiling Attenuation Class. A single number rating from a laboratory test to measure sound reduction between rooms via the ceiling.

$D_{nc,w}$ – Weighted Suspended Ceiling Normalised Level Difference. Similar to CAC.
Source: Building Code of Australia, Sound Insulation Guideline.

α_w – Weighted Sound Absorption Coefficient
Calculated According to AS ISO 11654-2002
A Weighted reference curve from 250Hz to 4000Hz is shifted until an octave band result exhibits deviation.
Shape indicators mean that one or more frequencies is considerably higher than the weighted reference curve.
(L) denotes excess performance at 250Hz
(M) denotes excess performance at 500Hz, 1000Hz
(H) denotes excess performance at 2000Hz, 4000Hz

BUILDING ACOUSTICS

THERMAL PERFORMANCE

External wall systems and roof systems in this manual include thermal ratings expressed as $R_{t(WIN)}$ and $R_{t(SUM)}$, to represent Total R-values for the Winter and Summer design conditions as required by AS4859.1, which is called upon by the BCA.

The Total R-values presented are based on assumptions in accordance with the methods of AS/NZS4859.1 – Materials for thermal insulation of buildings – General criteria and technical provisions. Any included bulk insulation is a CSR Bradford product that has a material R-Value compliant with the standard, and building elements have thermal values sourced from the AIRAH handbook.

No allowance has been made for thermal bridging from the structural members. Thermal performances quoted are based on an assessment through the insulation path.

The contribution to Total R-values depends on installation, workmanship and environmental conditions and it is assumed that cavities are non-ventilated.

- In rooms such as bathrooms, kitchens, and laundries, moisture laden air should be exhausted to the outside of the building, not into the roof space.

- Installing wall wraps/sarking into the structure to control the flow of water vapour from the warm to the cool regions to prevent condensation within the structure. This is a complex problem and can occur under a variety of conditions (not just in cold and tropical climates) so selection of the right wall wrap/sarking needs to consider the local climate, building use and orientation, material R-Value of the insulation, as well as the degree and location of ventilation.

Additional literature on condensation is available from sources including the CSIRO, BRANZ, ASHRAE, and the ABCB.
The control of moisture within a building is a requirement of the Building Code of Australia and is the responsibility of the designer.

GYPROCK PLASTERBOARD

SELECTING A LEVEL OF FINISH

Levels of finish are defined in the Australian/Australia Standard AS/NZS2589.1 Gypsum linings – Application and Finishing for non-fire rated applications. This standard is intended to provide builders, plasterboard installers and finishers, and their customers with the various defined methods and practices necessary to meet the customer's expectations in terms of the 'Level of Finish'.

Three Levels of Finish (3, 4 and 5) are defined, and minimum specifications to achieve are detailed in the standard for each of the installation processes from framing preparation to finishing. All details may not be suitable for fire rated systems or multilayer systems.

It is essential to determine the level of finish required before the frame construction begins, as specific tolerances are required for frame alignment as well as for plasterboard fixing and finishing for each of the levels of finish. Unless these requirements are met throughout construction, it may not be possible to attain the desired finish level without extensive corrective measures.

The level of finish specified also affects the methods of jointing, particularly butt joints and back-blocking requirements, the number of coats of joint compound applied, and the fitting and finishing of stopping beads. Refer to FIG B4.

It should be noted that, generally, residential applications should be prepared to a minimum Level 4 Finish unless specifically a higher or lower level of finish is agreed to by all contracting parties. Other commercial applications should be specified in contract documents.

Factors affecting the level of finish include the surface's visibility, the texture and gloss level of the final decoration and lighting conditions. Critical or glancing light is that projected across the surface at low angles of incidence, as opposed to diffused lighting or light striking the surface at close to right angles.

A good method to overcome differences in opinions of quality is to prepare a sample area in a suitable position and for all parties to agree on the finish. The following flow chart will assist in selecting the most appropriate Level of Finish for each area. For further information on levels of finish, refer to Plasterboard Expectations, available from the Association of Wall & Ceiling Industries.

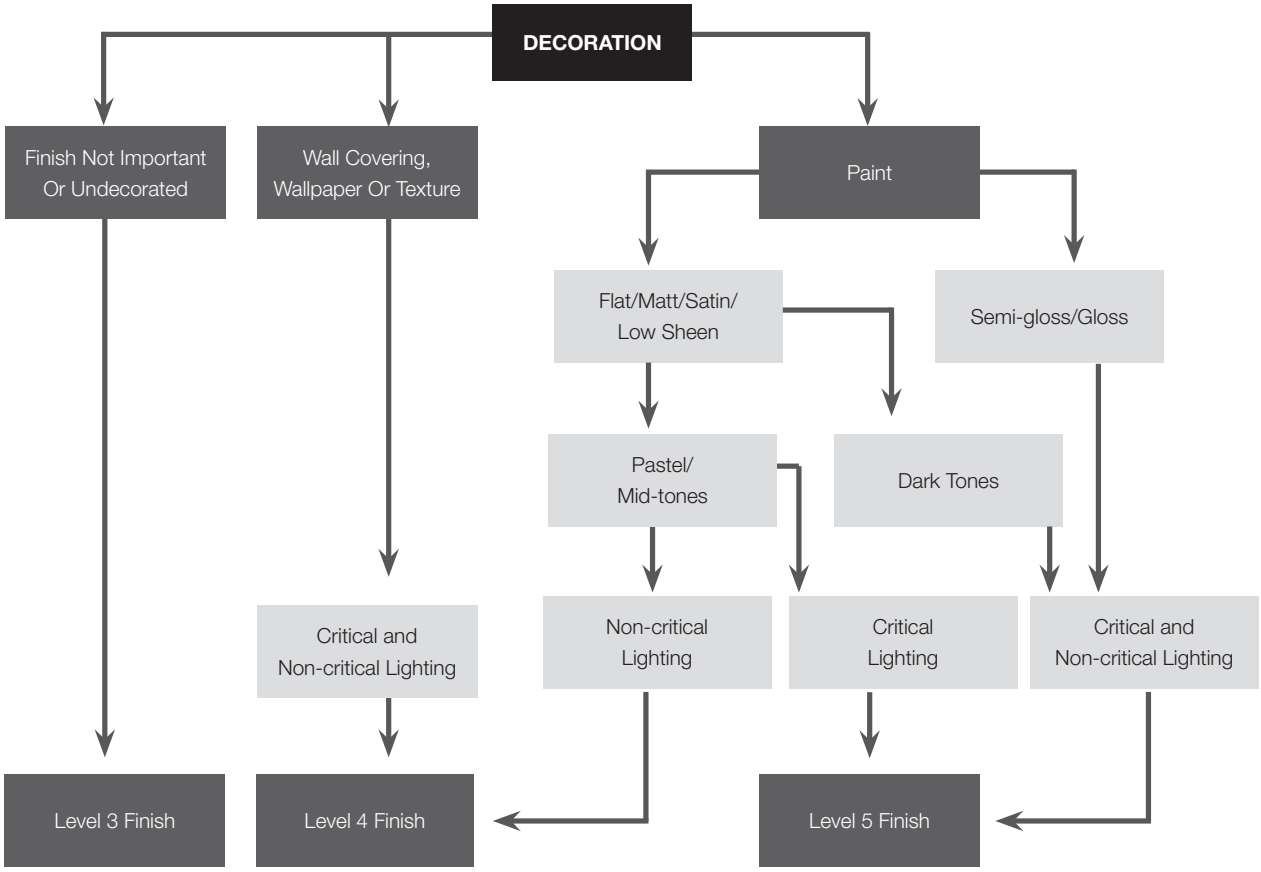
Level 3
For use in areas that do not require a finish, such as above ceilings and inside service shafts and other inaccessible spaces. All joints are to be taped with two applications of compound and all fastener heads are to be covered. Compound is to be finished smooth, such as by scraping ridges etc with a trowel.

Level 4
This is generally the accepted level of finish for residential construction. Joints are to have a tape coat, and two separate coats are to be applied over the tape coat and fastener heads. All joint compound should be sanded to a smooth finish free of tool marks and ridges. Refer to Gyprock Installation guides for details.

Level 5
This level of finish should be used wherever gloss or semi-gloss paints are to be used, where paint is mid or dark coloured, or where critical light conditions occur such as from windows, skylights, or silhouette and spot lighting. A three coat jointing system is required as for level four. All joint compound should be sanded to a smooth finish free of tool marks and ridges. This should be followed by the application of proprietary surface preparations by skim coating to remove differential surface textures and porosity.

Skim coating is a term used to describe a thin finish coat, rolled, trowelled or airless sprayed and then possibly sanded, to achieve a smooth and even finish. It is normally less than 1mm in thickness and is applied over the entire surface to fill imperfections in the joint work, smooth the paper texture and provide a uniform surface for decorating.

GYPROCK PLASTERBOARD



SUMMARY OF GYPROCK 'LEVEL OF FINISH' DEPENDENT INSTALLATION REQUIREMENTS

It should be noted that, generally, residential applications should be prepared to a minimum level 4 finish unless specifically a higher or lower level of finish is agreed to by all parties.
Key to Symbols: – = Not Applicable. ✓ = Required. Other symbols, see notes.

Level of Finish	Max. Frame Alignment Deviation mm	Joint Between Frame Members and Back-block				* Adhesive + Fastener Fixing	OR	* Fastener Only Fixing	Jointing and Finishing (minimum)
		Ceilings		Walls					Butt and Recessed Joints Internal and External Corners
		Butt	Recessed	Butt	Recessed				
3	4	–	–	–	–	✓	OR	✓	Tape Coat + Second Coat
4	4	✓	✓ **1 2**	✓**1**	–	✓	OR	✓	Tape Coat + Second Coat + Finish Coat
5	3	✓	✓	✓**1**	–	✓	OR	✓	Tape Coat + Second Coat + Finish Coat + Skim Coat to the entire surface

NOTES
1 Where a butt joint in a wall is less than 400mm long and is located more than 2 metres from the floor, there may be no need to provide back-blocking.
2 Back-blocking required only where 3 or more recessed joints occur in a continuous ceiling area.
3 Back-blocking is not required in suspended ceilings with no rigid connection between ceiling and walls.
* Tiled and or fire rated installations MUST be all fastener fixed, adhesive is not permitted.

SURFACE FINISHING + LIGHTING

Builders, plasterers and painters work hard to achieve the appearance of a flat surface when installing walls and ceilings.

However some surface variation is inevitable due to some factors:
- Natural variations in the framing.
- The hand-finished nature of a plasterboard wall or ceiling.
- Subtle differences between the textures of plasterboard and the jointing compounds.

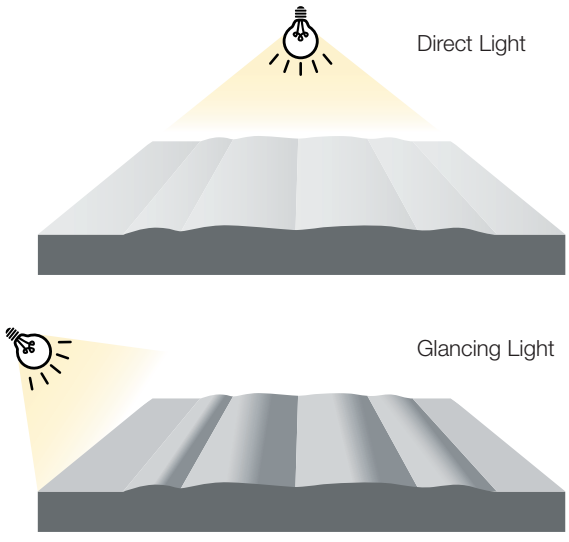
Under the majority of lighting conditions a plasterboard surface finished to a Level 4 standard, as defined in AS/NZS 2589:2007 'Gypsum Linings - Application and finishing', will appear flat. In critical lighting conditions, an effect referred to as 'glancing light', will highlight any surface variations.

WHAT IS GLANCING LIGHT?
Glancing light (or critical light) is a condition which exists when light hits the plasterboard surface at an acute angle and casts shadows that highlight any surface irregularities. On plasterboard walls and ceilings this can make the surface look uneven and highlight the appearance of joints.

This is most commonly found in situations where there are:

- Floor to ceiling windows.
- Windows directly adjacent to walls.
- Unshaded batten holder ceiling lights.
- Ceiling mounted fluorescent lights.
- Wall lights and downlights close to walls.
- Windows at the end of long corridors.
- Brightly lit rooms.
- Lights installed just below skillion/raked ceilings.
- Reflections of light from water features.

CONSIDERATIONS TO MINIMISE GLANCING LIGHT
The best time to consider potential glancing light issues is during the design phase, which allows choices to be made that can greatly reduce the impact of glancing light.



SURFACE FINISHING + LIGHTING

Methods to minimise glancing/critical lighting effects from natural lighting sources

- Do not take window glazing right up to the ceiling level.
- Avoid placing windows or glass doors immediately adjacent to the end of a wall.
- Provide sun shades over the windows and glass doors.
- Recess the window to stop the sunlight reaching the wall.

APPLIED FINISH SELECTION

The chosen finish selected for walls and ceilings plays a very important role in determining the effects of glancing light.
A Level 4 finish presents the painter with a surface of two different materials, namely the plasterboard paper surface and the jointing compound, which have different textures and porosity.

In order to achieve a consistent finish across these materials it is vital that a plasterboard primer sealer is applied.
AS2311, 'Guide to the painting of buildings', requires that **a sealer plus two coats of water based paint must be applied as a minimum**. Such a system will provide a surface with minimal difference in texture and porosity.

Roller application for all coats is strongly recommended as it imparts a light texture to the surface and minimises visible differences. If spray application is used, each paint coat should be back rolled while still wet, to create a lightly textured finish, and allowed to dry completely before applying the next coat. Paint applied with a longer pile roller tends to mask imperfections better than those applied with a short pile roller.

A similar paint system is recommended for a level 5 finish to ensure the best possible result.

PAINT FINISHES

The choice of gloss level can also have a significant impact on the perceived quality of the surface in glancing light conditions.
A matt paint finish provides the highest level of light diffusion and helps to disguise any surface irregularities. It is recommended that a matt finish be used in areas where a higher gloss is not required for functional reasons, such as ceilings. Textured or heavy patterned finishes tend to hide imperfections.
Higher gloss levels, such as satin, semi gloss and gloss, can accentuate any minor variations in the surface and are recommended only for use over a level 5 finish.

COLOUR SELECTION

Light colours diffuse light more effectively than dark shades and reduce the effects of glancing light. In rooms where a dark colour is to be used a level 5 finish is recommended.

WALL PAPER FINISHES

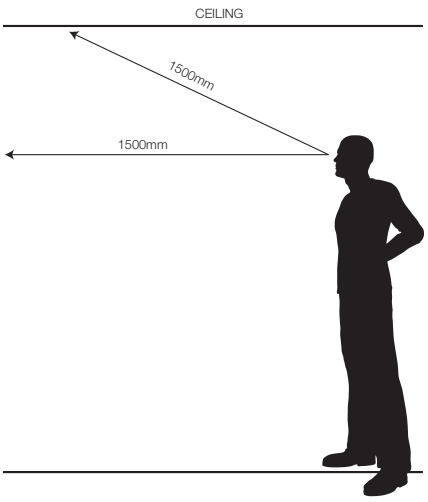
Gyprock plasterboard walls may be finished with wall paper. A Level 4 Finish is recommended. A primer sealer should be applied to the surface prior to wall paper application. This will also assist with future removal.
Thin wall papers may still highlight imperfections in the wall surface. Textured or heavy patterned finishes tend to hide imperfections.

INSPECTION OF PLASTERBOARD

The Guide to Standards and Tolerances (Victorian Building Commission 2007) outlines the following standard for inspection of vertical and horizontal surfaces.

"Generally, variations in the surface colour, texture and finish of walls, ceilings, floors and roofs, and variations in glass and similar transparent materials are to be viewed where possible from a normal viewing position. A normal viewing position is looking at a distance of 1.5 m or greater (600 mm for appliances and fixtures) with the surface or material being illuminated by 'non-critical light'. 'Non-critical light' means the light that strikes the surface is diffused and is not glancing or parallel to that surface.
Slight variations in the colour and finish of materials do not always constitute a defect".

INSPECTION OF PLASTERBOARD



SURFACE FINISHING + LIGHTING

Large window areas are a popular feature of modern design and the preference for open plan living and working often results in ceilings and walls that extend through a number of spaces. These features can lead to challenging lighting conditions for wall and ceilings surfaces. When designing a project it is important to consider the effect of both natural and artificial light and how it will fall on the walls and ceilings across the whole day.

In particular, attention should be given to light entering the building in mornings and evenings when the sun is lower in the sky and casts elongated shadows that can highlight any surface variations in walls and ceilings.

SHADING
For windows that are positioned where glancing light can be an issue, the use of external shading or vertical louvres may help to mitigate any problems. Curtains or interior blinds are also helpful in this situation.

WINDOW PLACEMENT AND ORIENTATION
Ideally windows should not abut walls or ceilings and should be oriented away from the east and west. External reflective surfaces, such as pools or neighbouring buildings, can reflect light into the space, should be considered as they can exacerbate the problem.

JOINT ORIENTATION
The installation of plasterboard walls and ceilings should be considered as there are a number of design and installation choices which can impact the appearance of the surface.

Running the plasterboard so that the long joints are parallel to the direction of the light will help reduce the effects of glancing light. The use of longer sheets to reduce the number of butt joints is also beneficial.

ARTIFICIAL + NATURAL LIGHTING
Any imperfection in a completed lining installation will be made obvious by a condition called critical lighting or glancing light, where the incident light from an artificial or natural light source is nearly parallel to the surface. Glancing light also exaggerates the size of imperfections making them glaringly obvious.
The worst result is achieved by an unshaded light source located directly on a ceiling or wall where the light shines parallel to the surface.

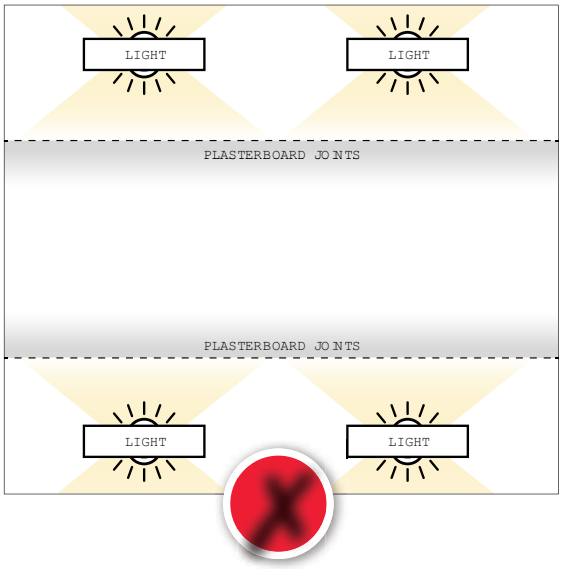
Cases where this situation may exist include:
- Unshaded batten holder light fittings
- Fluorescent lights mounted on the ceiling
- Wall mounted up lights and downlights

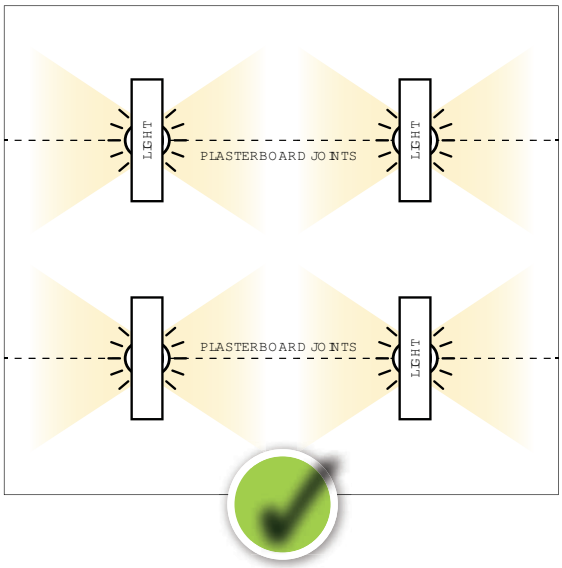
SURFACE FINISHING + LIGHTING

METHODS TO MINIMISE GLANCING/CRITICAL LIGHTING EFFECTS FROM ARTIFICIAL LIGHTING SOURCES

- Shaded batten holder light fittings.
- Ceiling mounted pendant lights.
- Recessed ceiling lights such as downlights and recessed fluorescents (although recessed lights are more likely to be associated with glare problems).
- Consider the use of more lights of lower intensity at regular spacings, ensuring lit areas overlap. This will improve ambiance and reduce the visible effects of glancing light, and minimise shadows that can occur from a single row or single light source.
- Allow a generous angle of incidence to the surface for feature lighting such as spotlights, to minimise the highlighting of imperfections.
- Do not locate an isolated unshaded light source close to a wall or ceiling in a space which has generally low levels of light.
- Do not use uplights, wall-washers and spotlights in areas with a smooth wall finish to eliminate light being emitted at a glancing angle to the surface.
- Preferably, locate fluorescent lights about 450mm below the ceiling as this will give a more even distribution of light.
- When installing ceiling mounted fluorescent lights it is recommended to position the light fittings over the long edge joints. Refer to the following illustration.

CEILING MOUNTED FLUORESCENT LIGHT





SURFACE FINISHING + LIGHTING

GLASS VIEWING REQUIREMENTS

Glass quality is defined by AS/NZS 4667:2000 Quality requirements for cut-to-size and processed glass, which sets out the allowable tolerances for thickness, size, squareness, flatness, bow, surface imperfections and internal imperfections.

1. Clean with proprietary glass cleaner
2. Stand 3m from the glass and at 90º (Square on) to the glass (AS/NZS 4667:2000 says to stand at a distance of >2m)
3. View in normal daylight conditions - there should be no visible imperfections
4. If faults are evident, clean the surface again to see if they can be removed
5. Re-examine and mark any remaining faults
6. Glass quality also identifies items that may occur as a result of manufacture and may not be considered a defect

ANODISED ALUMINIUM VIEWING

Visual inspection of anodising after manufacture should be done from a distance of not less than 2m in daylight, but not direct sunlight.

It is sometimes possible to observe, on close inspection or from certain viewing angles, variations in brightness, banding, streaming and other visual effects on the significant surfaces.

These seldom impair the performance of anodised aluminium and should not be grounds for rejecting the product on a performance basis.

VIEWING POWDER-COATED ALUMINIUM

Powder coating surface finishing - appearance in situ gives the following criteria when accessing finish quality.

View powder-coasted aluminium from a minimum of 2m. Further distance may be allowed depending on the use of the product and its in situ viewing distances.

A significant defect is one that is visible from 2m and has an outside diameter more than 1.5mm. From 2m, the coating on the primary visible internal and external surfaces shall be of uniform appearance, colour, texture and be free from significant defects.

However, the coating may contain one minor defect as defined for every 1m of extruded length. A minor defect may be visible from 2m and has an outside diameter of up to and including 1.5mm.

TRACKLOK

The TRACKLOK® suite of products have been designed and tested to secure part height partition walls to structure over.

TRACKLOK products use logic, robust engineering and real world experience to ensure resilient outcomes for non-structural elements. The TRACKLOK range offers architects, engineers and construction professionals an easy to use, cost effective and comprehensive bracing solution.

The range of bracing solutions include:

- TRACKLOK - connect directly to the partition head, starter or glazing pocket.
- TRACKLOK RETRO - retroactive installation to affix to head track, speeding up bracing process.
- TRACKLOK TIMBA - bracing of timber framed walls to affix to timber top plate.
- TRACKLOK VERT - allows vertical bracing to mitigate service clashes, available in RETRO format.
- TRACKLOK FLAT - allows for unlimited vertical deflection and mitigates service clashes, available in RETRO and TIMBA format.
- GAPLOK - take a 40mm section out of grid, bridge the gap and reinstate the grid's structural integrity, providing clearance required for TRACKLOK® unit.

The range complies to and provides compliance with AS1170.4 and provides compliance with Australian National Construction Code Section B – Structure and Section D Access and Egress.

INSTALLATION

Must be installed in accordance with manufacturers specification and within the parameters of AS1170. Install sheets are available online for TRACKLOK® products at www.tracklok.com/downloads Partition walls must be installed as per manufacturers recommendation. Create a minimum clearance of 10mm from unit to ceiling tile and/or grid. Installation at centres and configurations as referenced in set out sheets. Set out sheets cover standard partitioning requirements; construction outside of available set out sheet information will require consultation and approval.

Approved seismic fixings to be used for attachment to structure over. Architect and/or Structural engineer and relevant regulatory bodies must approve variations of installation. Bracing material must be fixed with 10-gauge drill point wafer head tech screws. Steel bracing material must be 64mm .50 - .55 BMT or 92mm .50 - .55 BMT. Although all aluminium head track with a material thickness of 1.3mm – 1.8mm is acceptable for use, we do not take responsibility or liability for performance of, or installation of partition or glazing head track. Installation is required 100mm – 300mm from the end of blade walls.

T section walls are deemed self-supporting requiring unit to be placed at distance specified by the set out sheets. The unit must not be deformed or altered in any way. Ceiling void heights over 2.0 meters require stud bracing to be boxed. Continuous head track over door requires unit to be installed on latch side, broken head track over door requires units to be installed on latch side and hinge side. Tenancy changes requiring walls to be moved require new units to be installed.

LIMITATIONS

For interior application only. Designed to secure standard steel, aluminium and timber partition walls and glazed walls. Not applicable for supporting walls constructed from concrete, tilt slab or block. Structural engineer and regulatory body must seismically approve configurations outside of specifications. The unit and or bracing material must not be used as an anchor point or fixing point by associated trades. Use of this product does not increase the seismic load capacity of installed ceiling grid.

A SERIES 104

SUITE OVERVIEW

A Series 104 provides a central line glazing with numerous configurations and design options offering a complete partition system for plasterboard and glazing.

A Series 104 has the following features:
» Standard profile size of 104mm x 25mm, 104mm x 35mm or 104mm x 50mm
» Standard wall size based on 64mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm - 45mm can be used
» Shadowline details optional

TECHNICAL SERVICES + SPECIFICATION

Technical advice is available from our experienced team.
Please see our company information page for your closest team, or email specificationsupport@himmel.com.au

The Himmel Interior Systems product catalogue is hosted on www.himmel.com.au

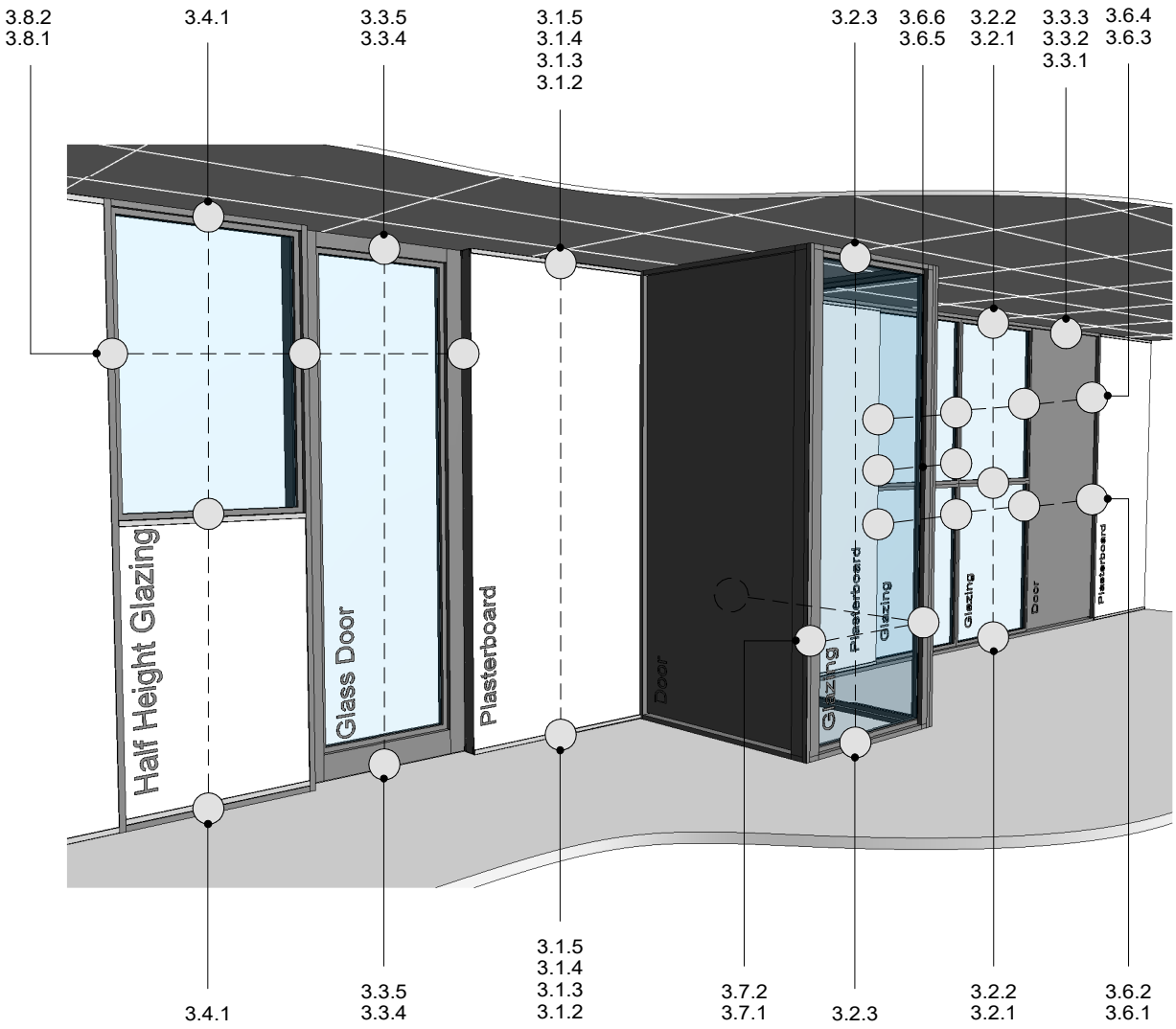
CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

Specifications are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au

HIMMEL
INTERIOR SYSTEMS



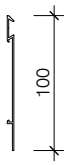
TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK®
THE RED BOOK™

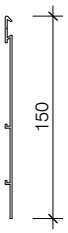
HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 DETAIL REFERENCES

3.1.0	1 : 25 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

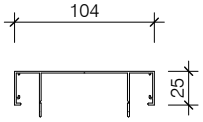
CSR



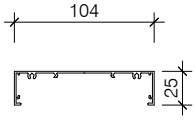
HAS009
100MM SKIRTING



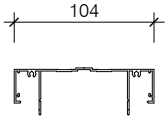
HAS009-150
150MM SKIRTING



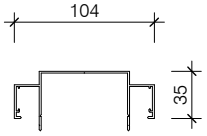
HAS010
AS104 HEAD/SILL TRACK



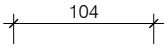
HAS010-A
AS104 CAPPING HEAD/FRAME



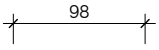
HAS010-R
AS104 HEAD-SILL TRACK



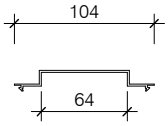
HAS010-SH
AS104 SHADOWLINE HEADTRACK



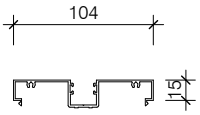
HAS011-A
AS104 FLAT TERMINATION CAP



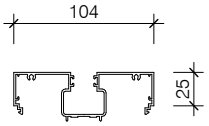
HAS011-JP
AS104 FLAT TERMINATION CAP



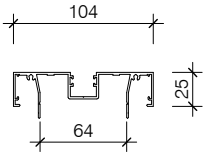
HAS011-SH
AS104 SHADOW CAP



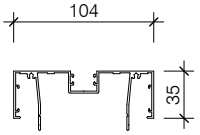
HAS012-MAP
AS104 MULLION ADAPTOR



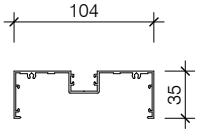
HAS014A
AS104 GLAZING ADAPTOR



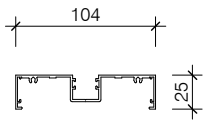
HAS014FM
AS104 PLASTERBOARD POCKET CAPPING FRAME



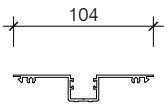
HAS014-35FM
AS104 PLASTERBOARD POCKET CAPPING FRAME



HAS015-35FLM
AS104 MEDIUM POCKET CAPPING/FRAME



HAS015-25FLM
AS104 SNAP IN POCKET

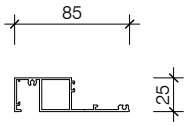


HAS016
AS104 SNAP IN POCKET

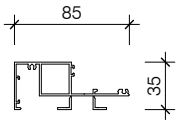
HAS017
AS104 SNAP IN DOORSTOP UP TO 40MM DOORS

HAS017-35
AS104 SNAP IN DOORSTOP UP TO 35MM DOORS

HAS018
AS104 SNAP IN DOORSTOP UP TO 50MM DOORS



HAS019BA
AS104 GLAZING BAR/SILL



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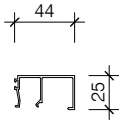
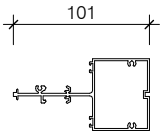
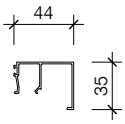
AS104 GLAZING BAR/SILL



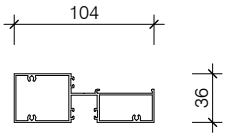
HAS020
AS104 GLAZING BEAD



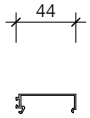
HAS021-B
AS104 GLAZING SILL/TRANSOM



HAS020-35
AS104 GLAZING BEAD

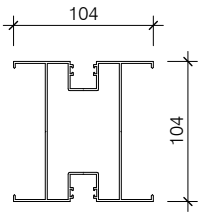


HAS021-A
AS104 GLAZING SILL/TRANSOM

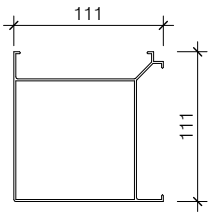


HAS022
AS104 TRANSOM BEAD

HAS023
AS104 POCKET FLUSH FILLER



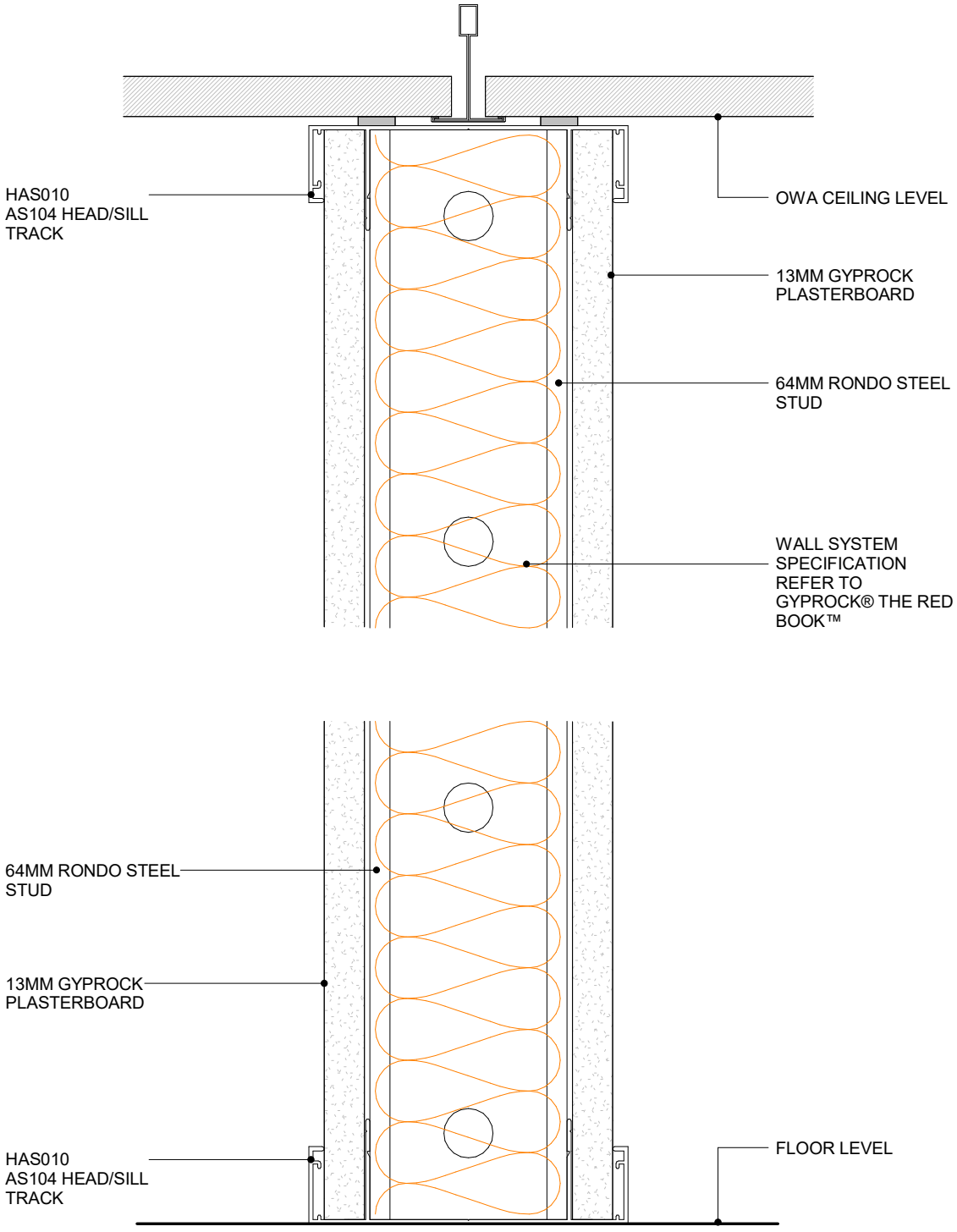
HAS024CP
AS104 GLAZING CORNER POST



HAS024FCP
AS104 FLUSH CORNER POST

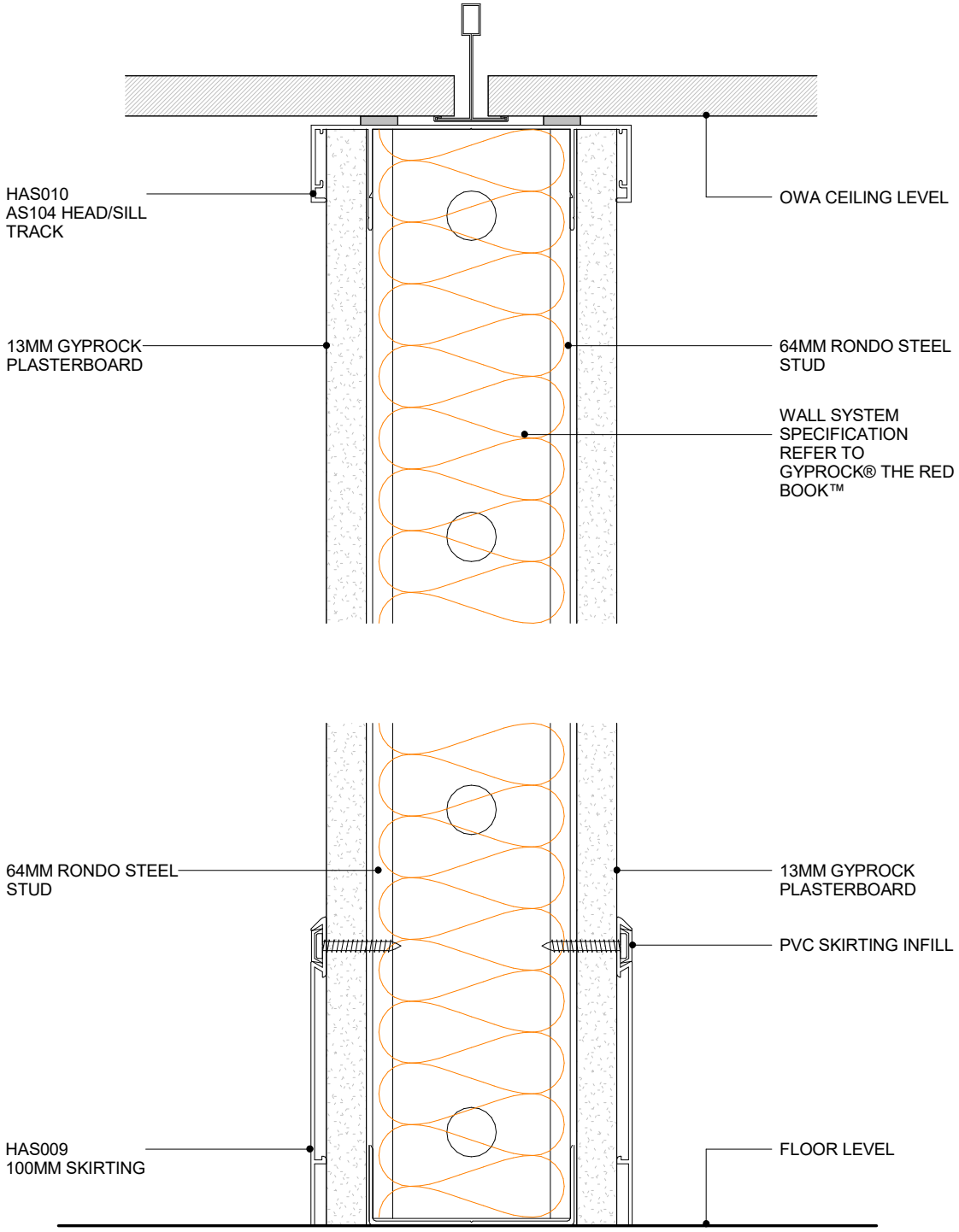
HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 STANDARD SUITE PROFILES

HIMMEL
INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - STEEL STUD WALL CROSS SECTION

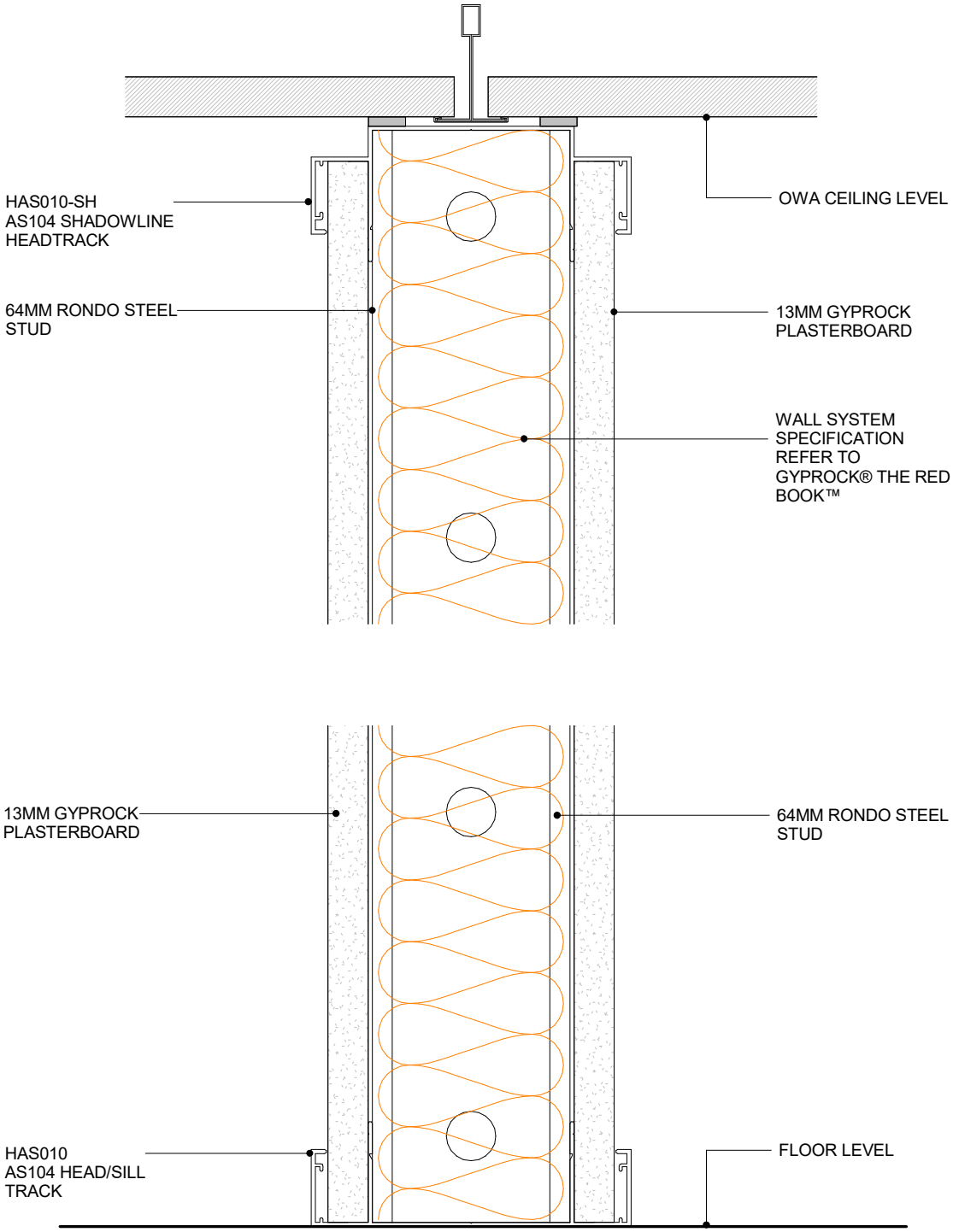
3.1.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - FULL HEIGHT STEEL STUD WALL 100MM SKIRTING CROSS SECTION

3.1.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

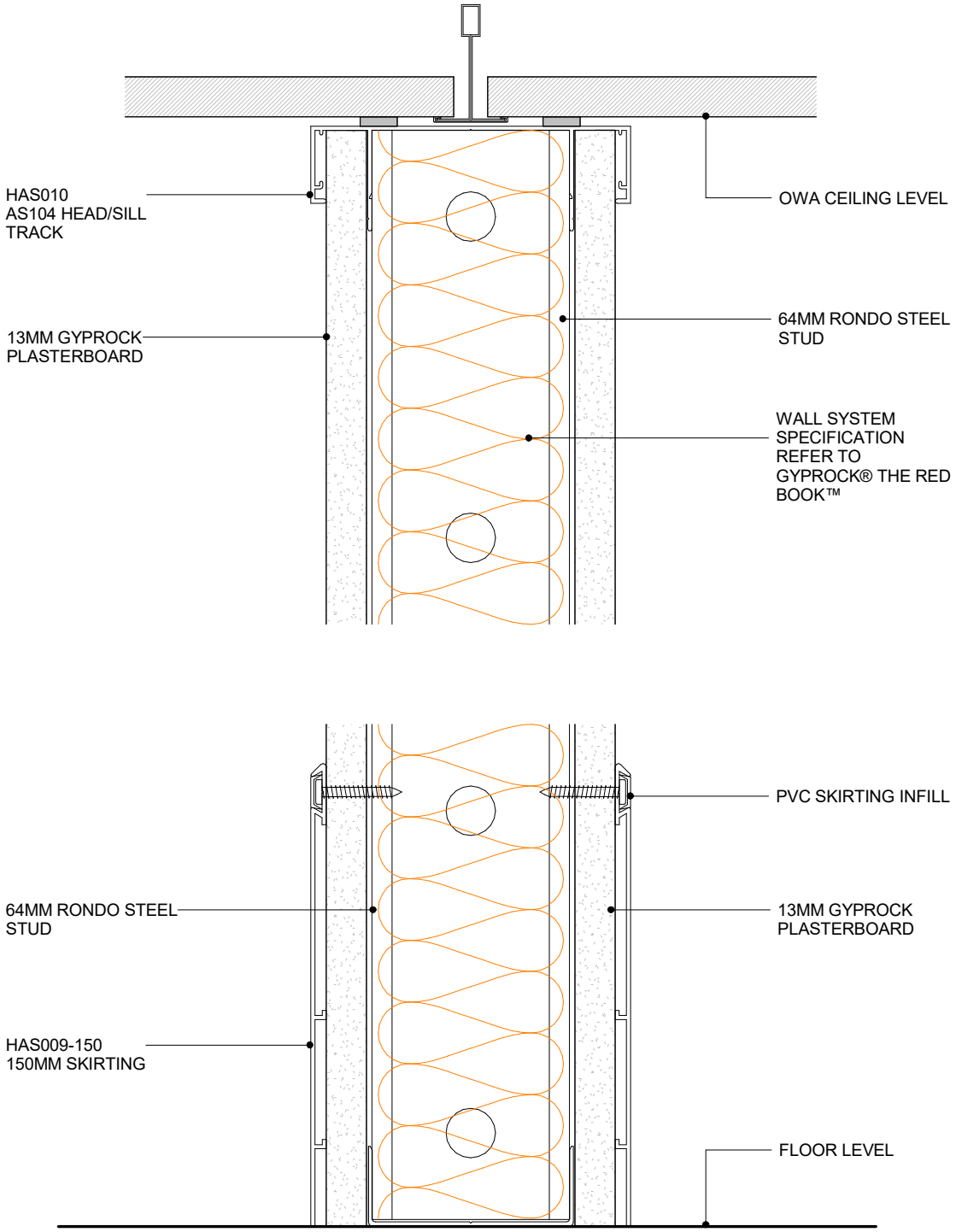
HIMMEL
INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - STEEL STUD WALL SHADOWLINE CROSS SECTION

3.1.4	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

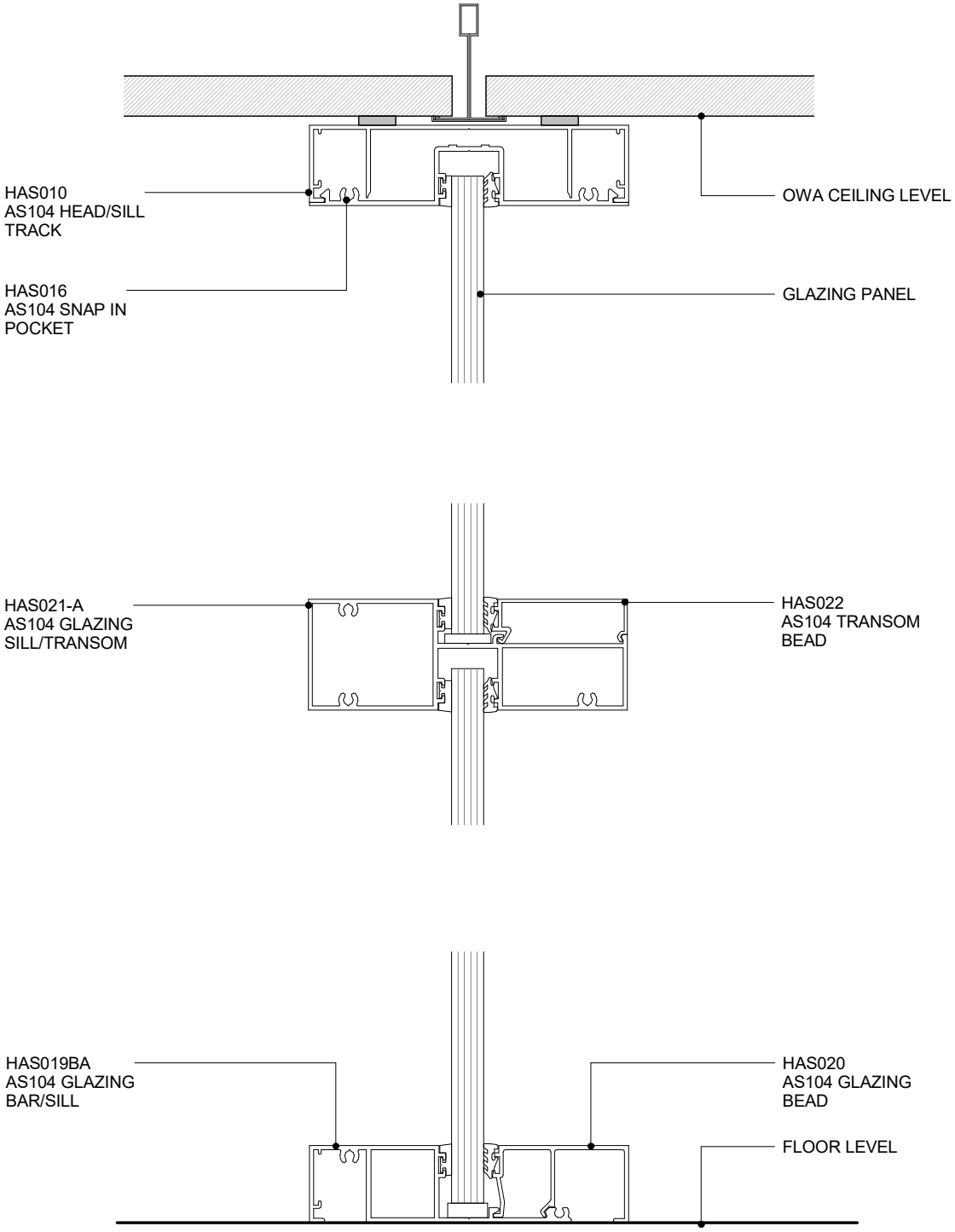
CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - FULL HEIGHT STEEL STUD WALL 150MM SKIRTING CROSS SECTION

3.1.5	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

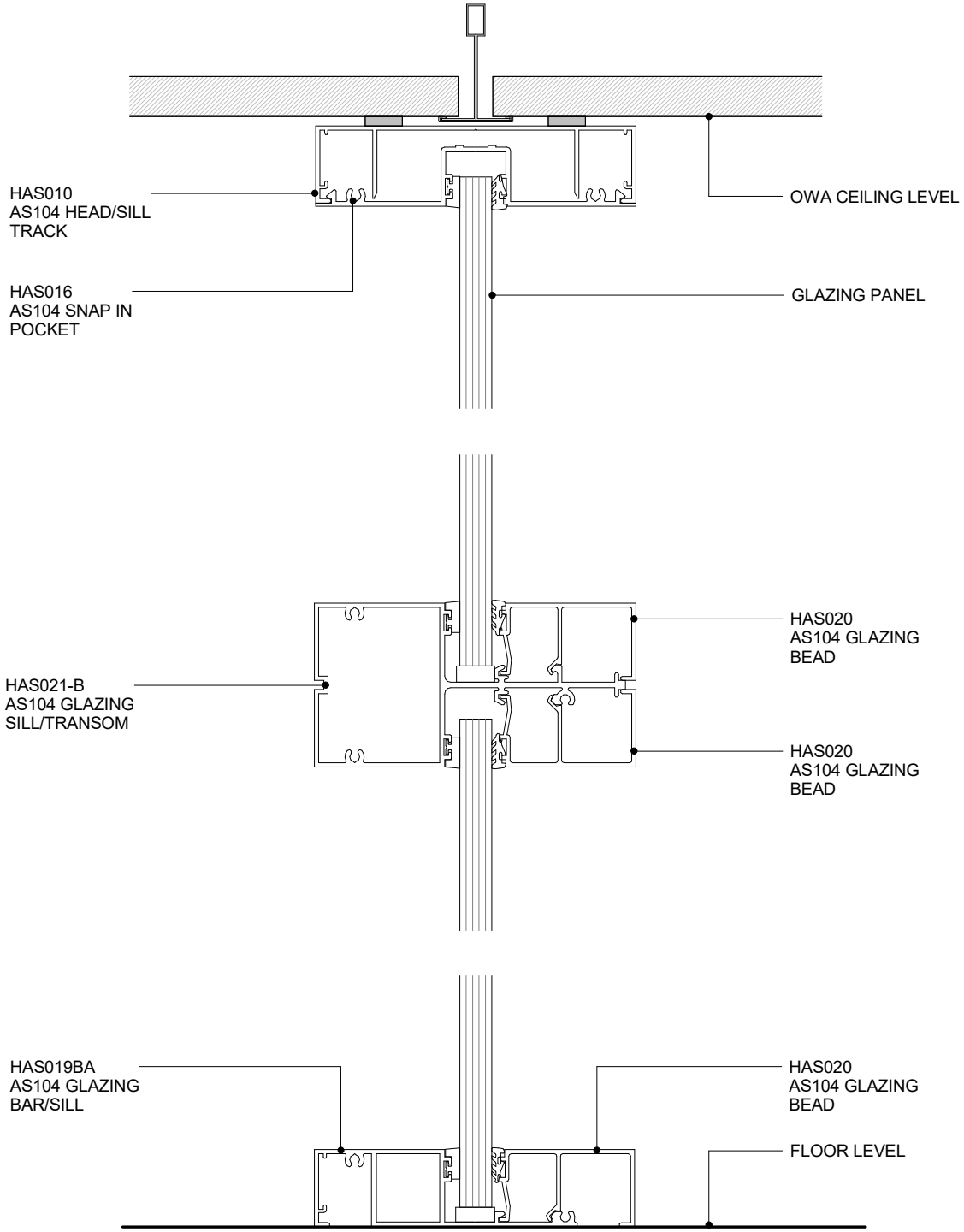
HIMMEL INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - TRANSOM IN GLAZED WALL CROSS SECTION

3.2.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - OPTIONAL TRANSOM IN GLAZED WALL CROSS SECTION

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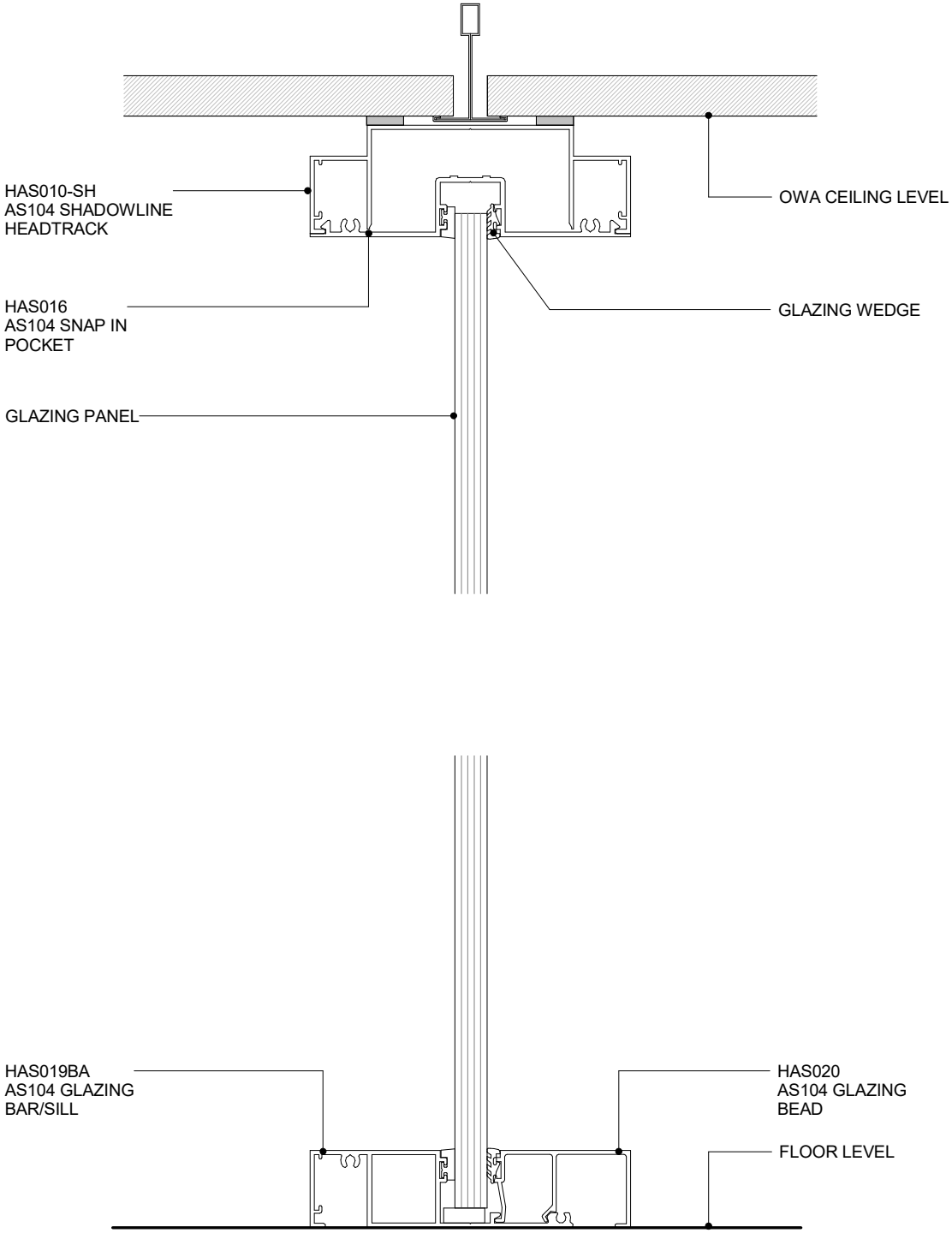
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

HIMMEL INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - FULL HEIGHT GLAZING SHADOWLINE CROSS SECTION

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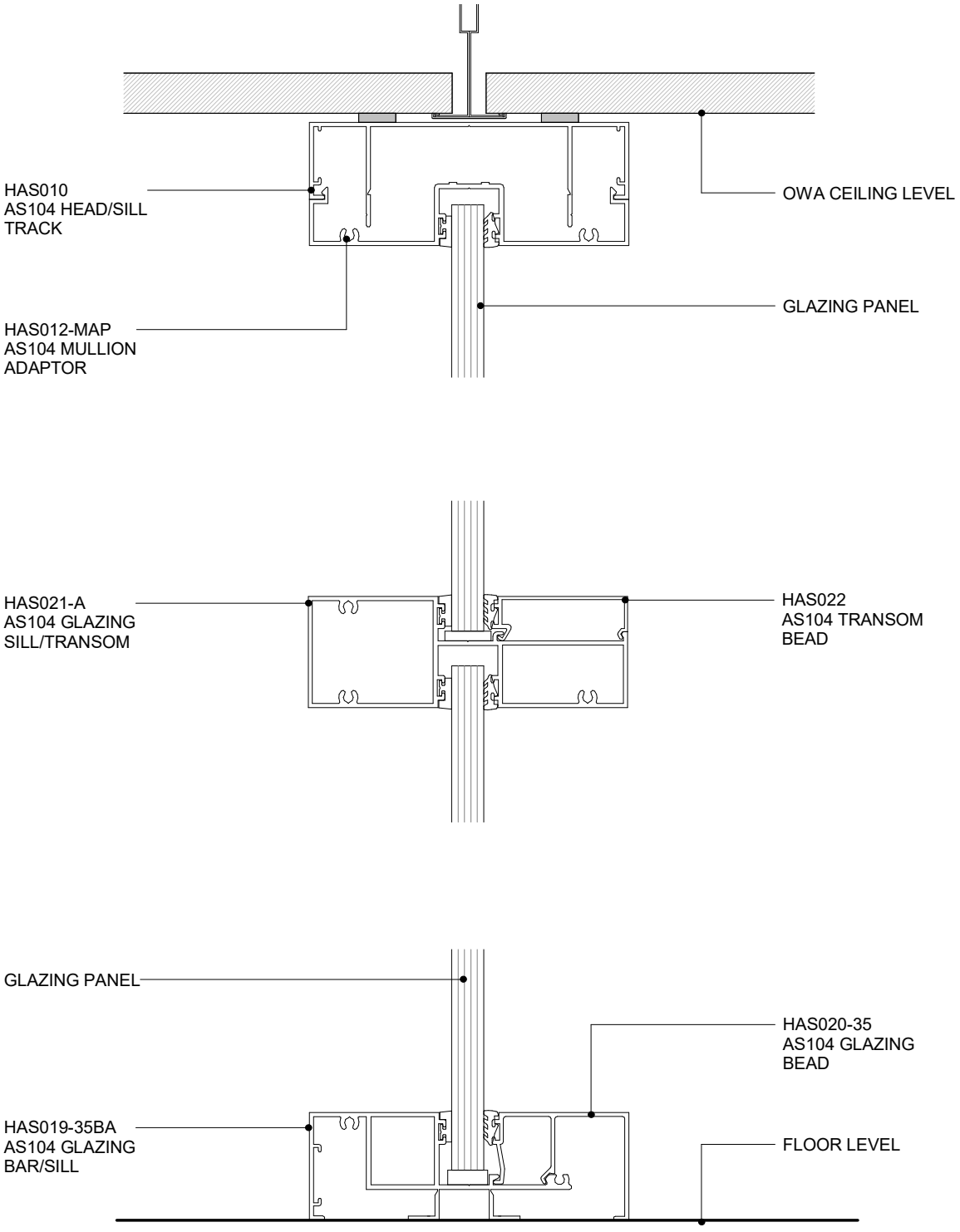
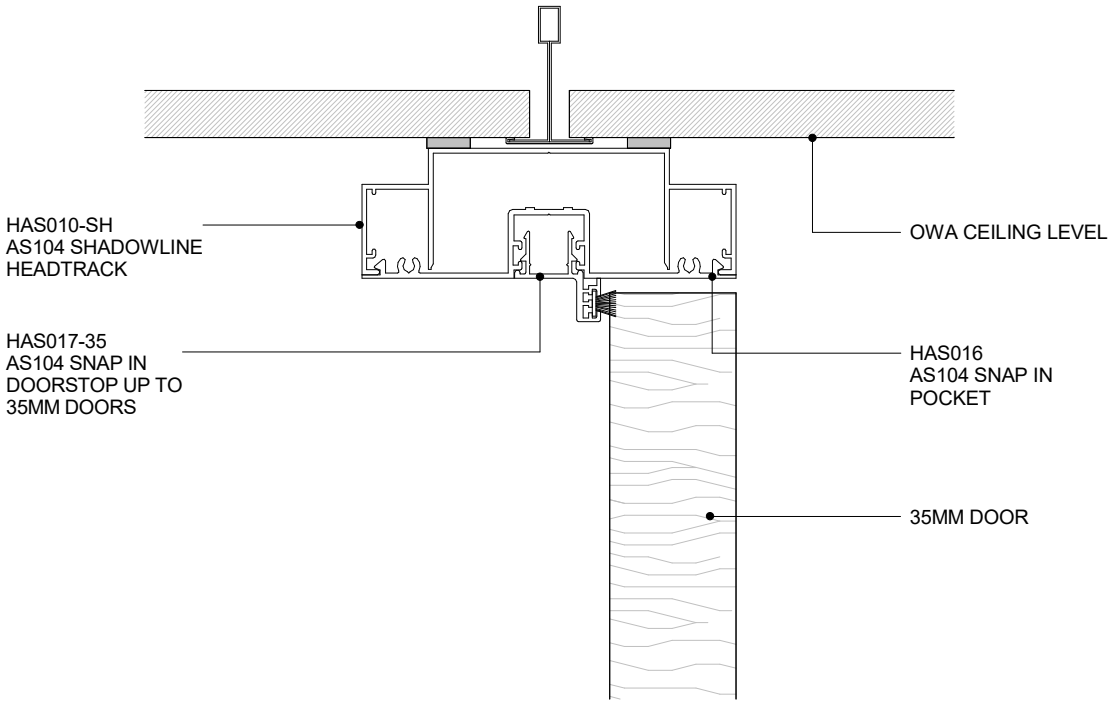
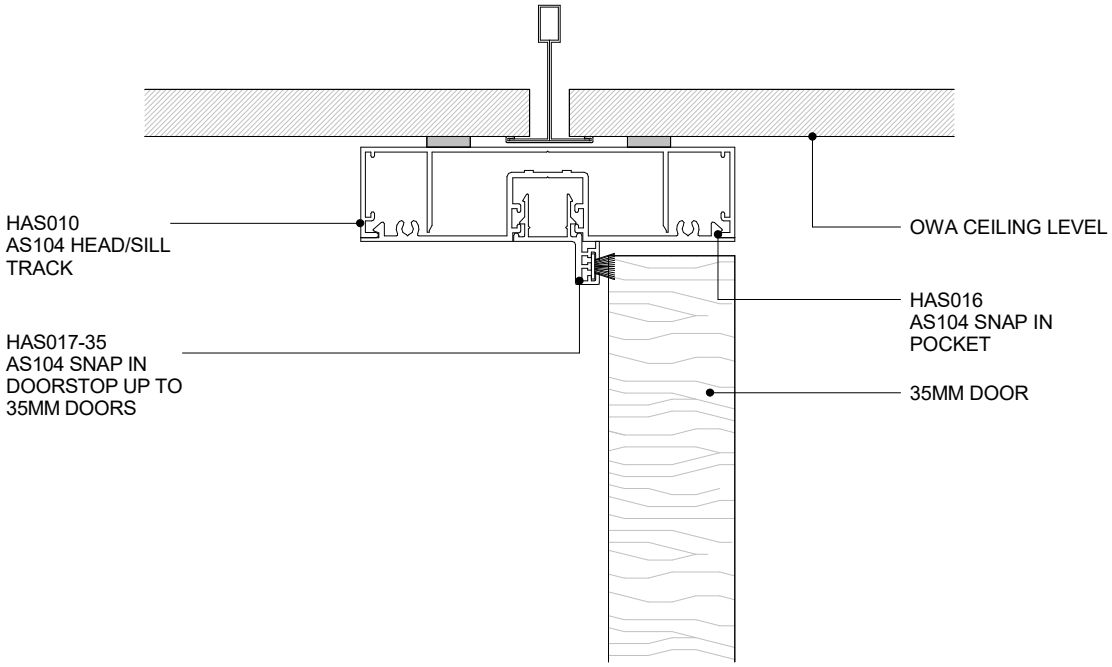


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 35MM TRANSOM IN GLAZED WALL CROSS SECTION

3.2.4	1 : 2 @ A4	08/28/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

HIMMEL
INTERIOR SYSTEMS

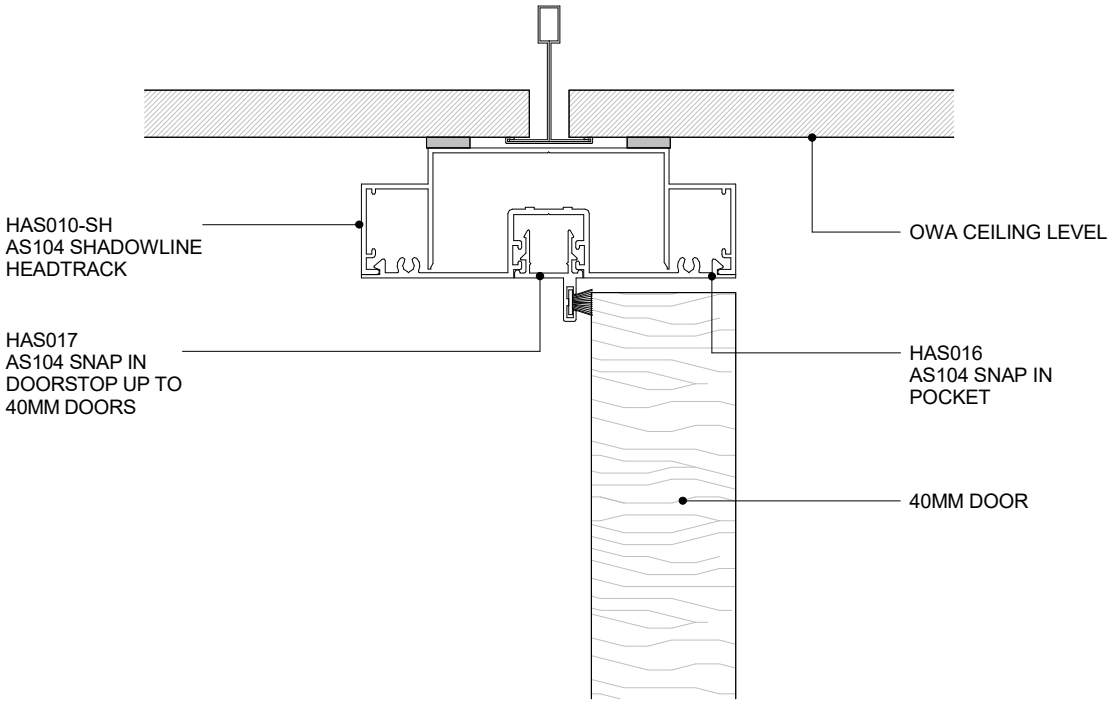


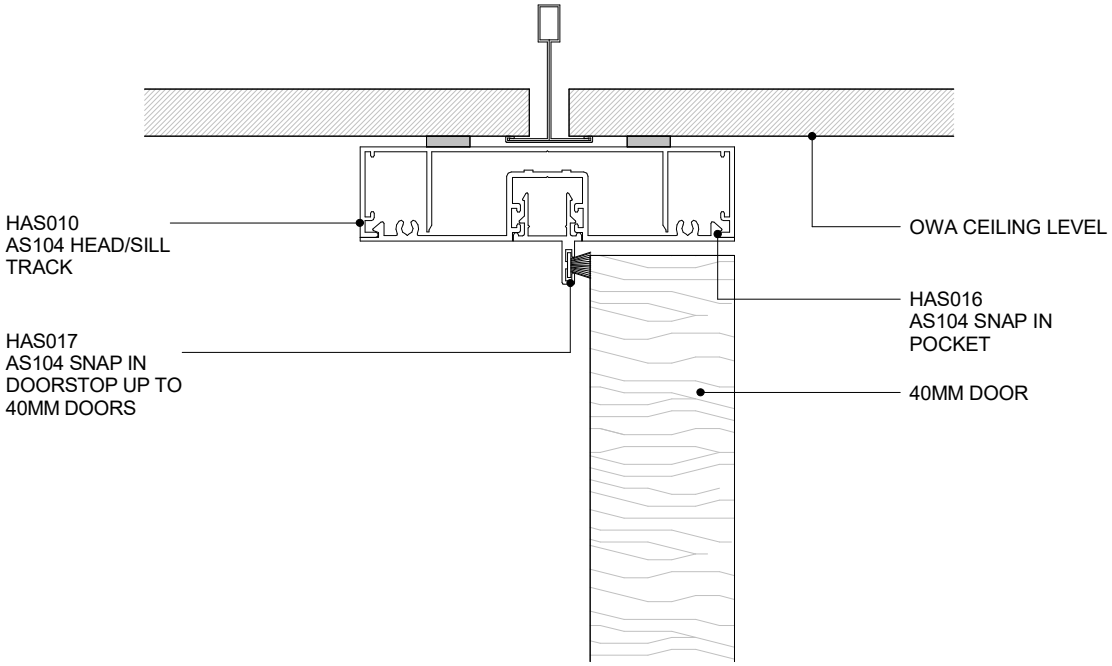


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 35MM DOOR HEADTRACK DETAILS CROSS SECTION

3.3.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



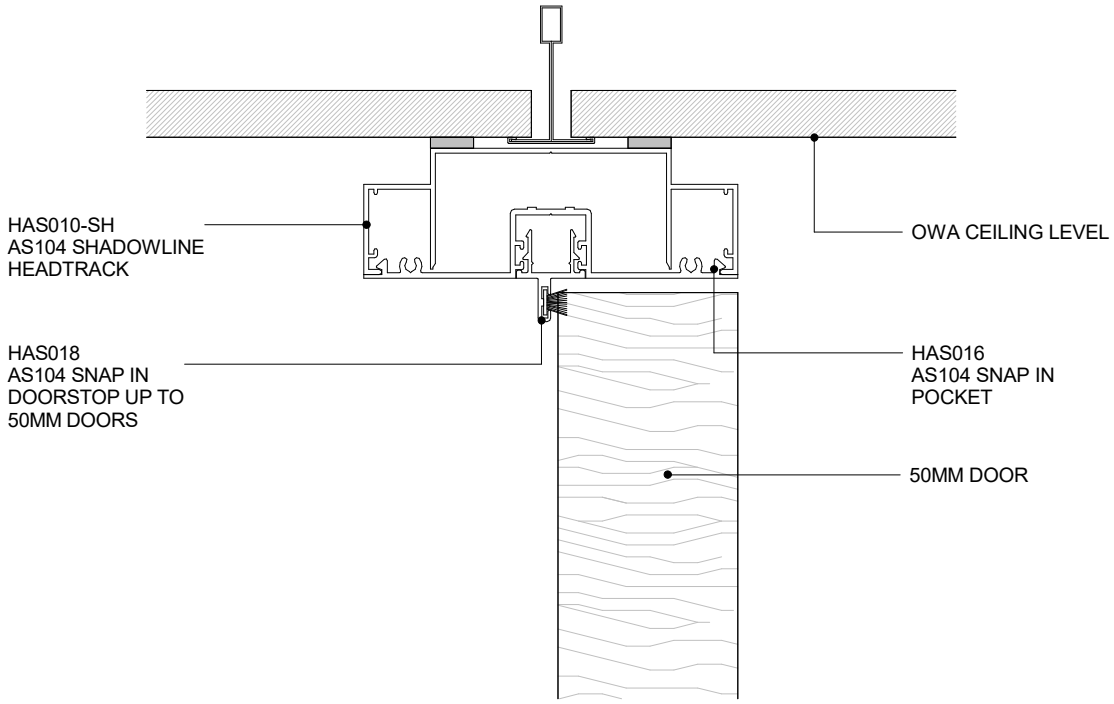


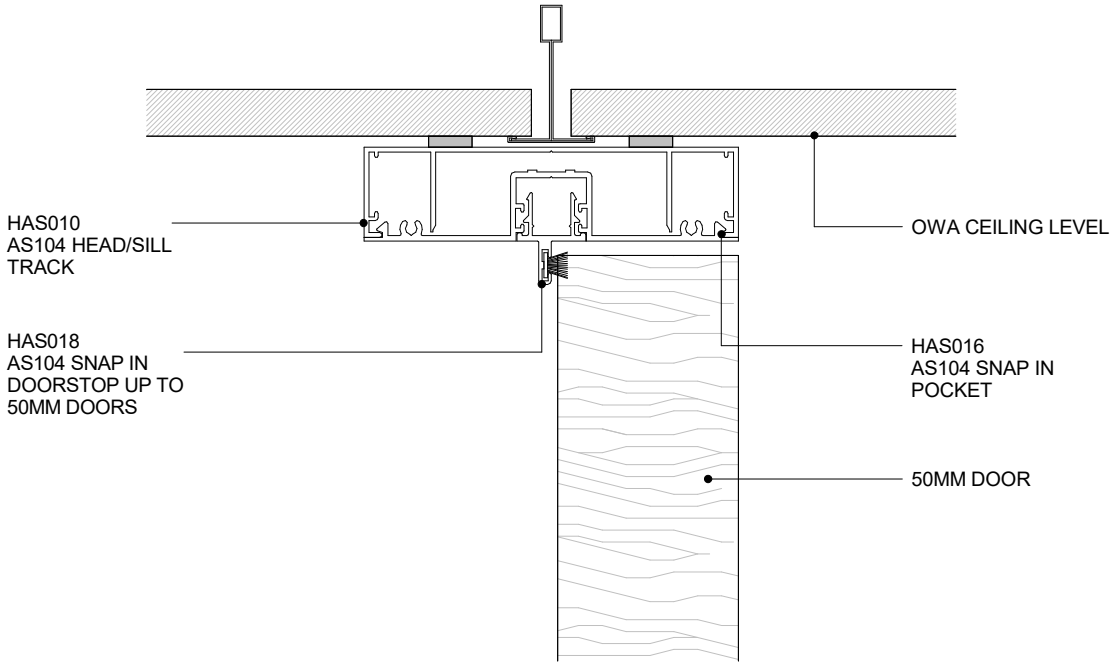
HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 40MM DOOR HEADTRACK DETAILS CROSS SECTION

3.3.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

HIMMEL INTERIOR SYSTEMS

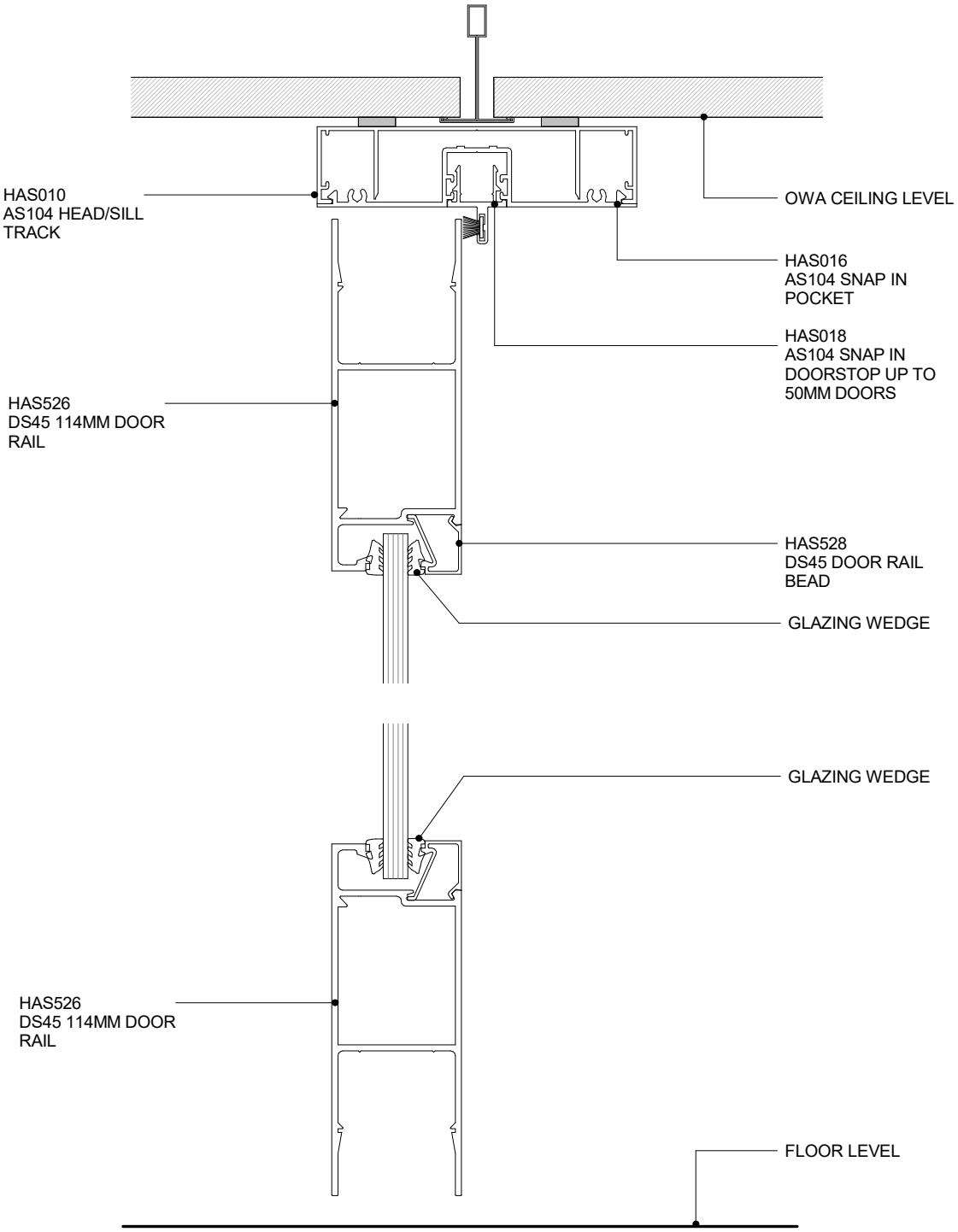




HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 50MM DOOR HEADTRACK DETAILS CROSS SECTION

3.3.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - DS SERIES 114MM DOOR CROSS SECTION

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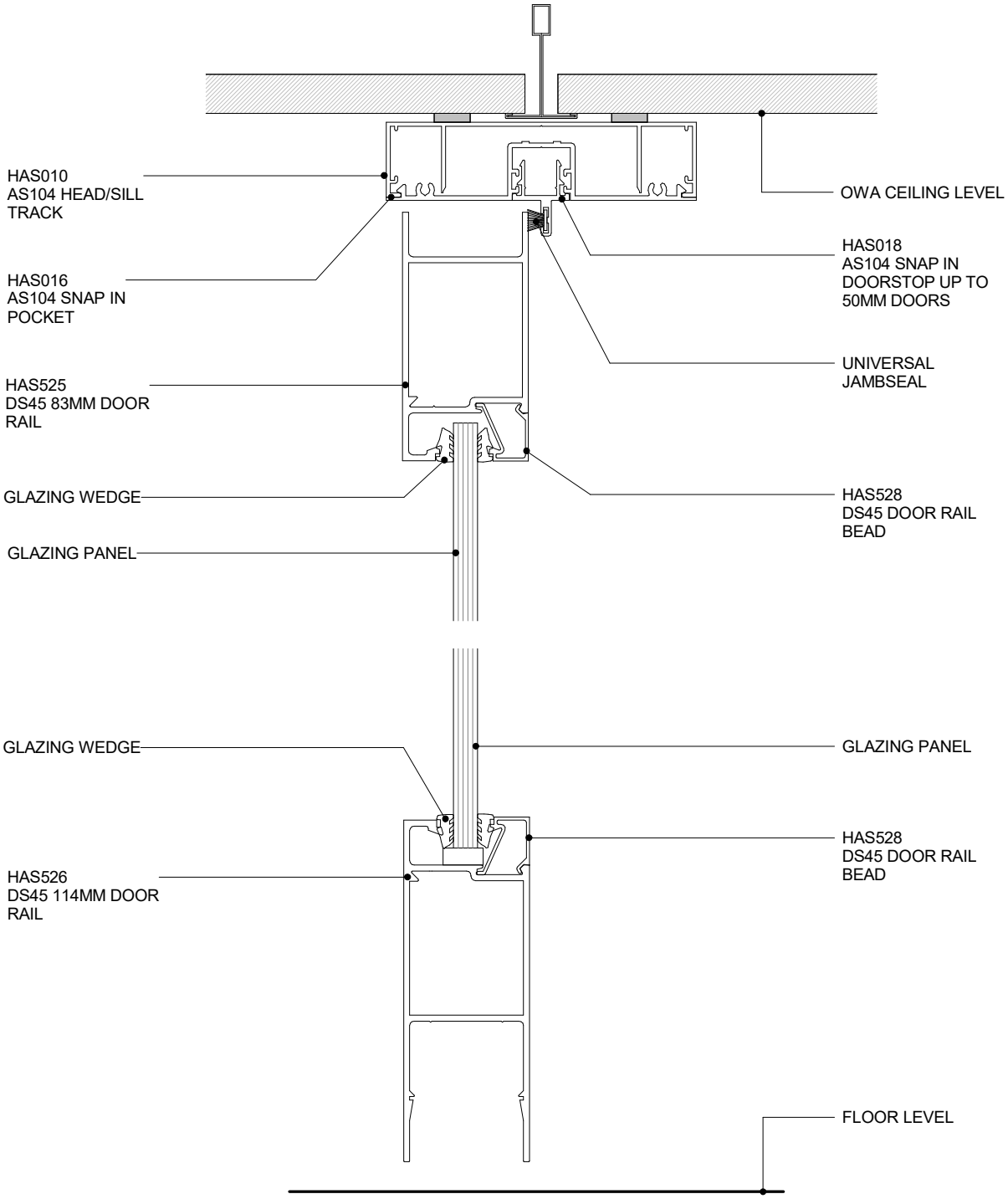
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

HIMMEL INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - DS SERIES 83-114MM DOOR CROSS SECTION

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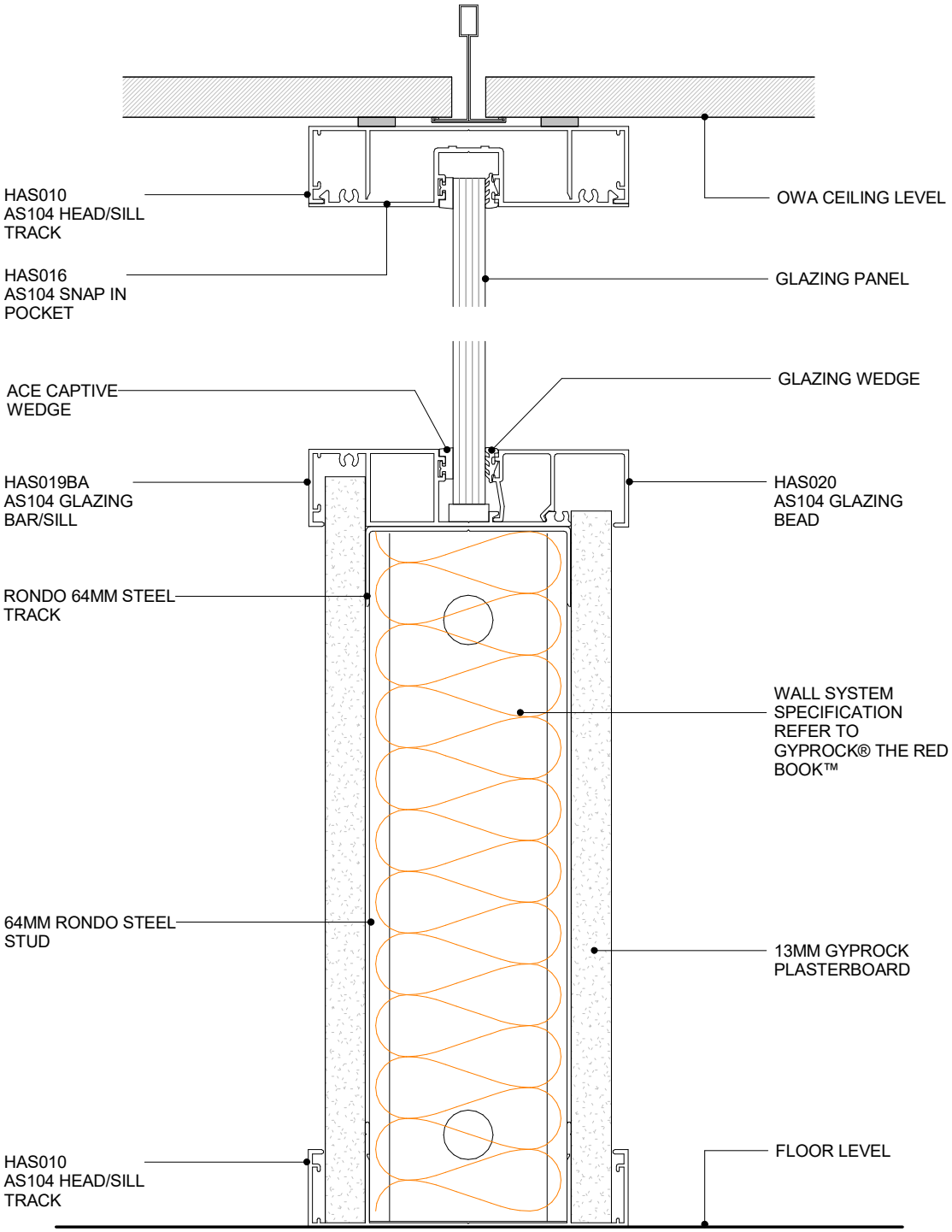
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

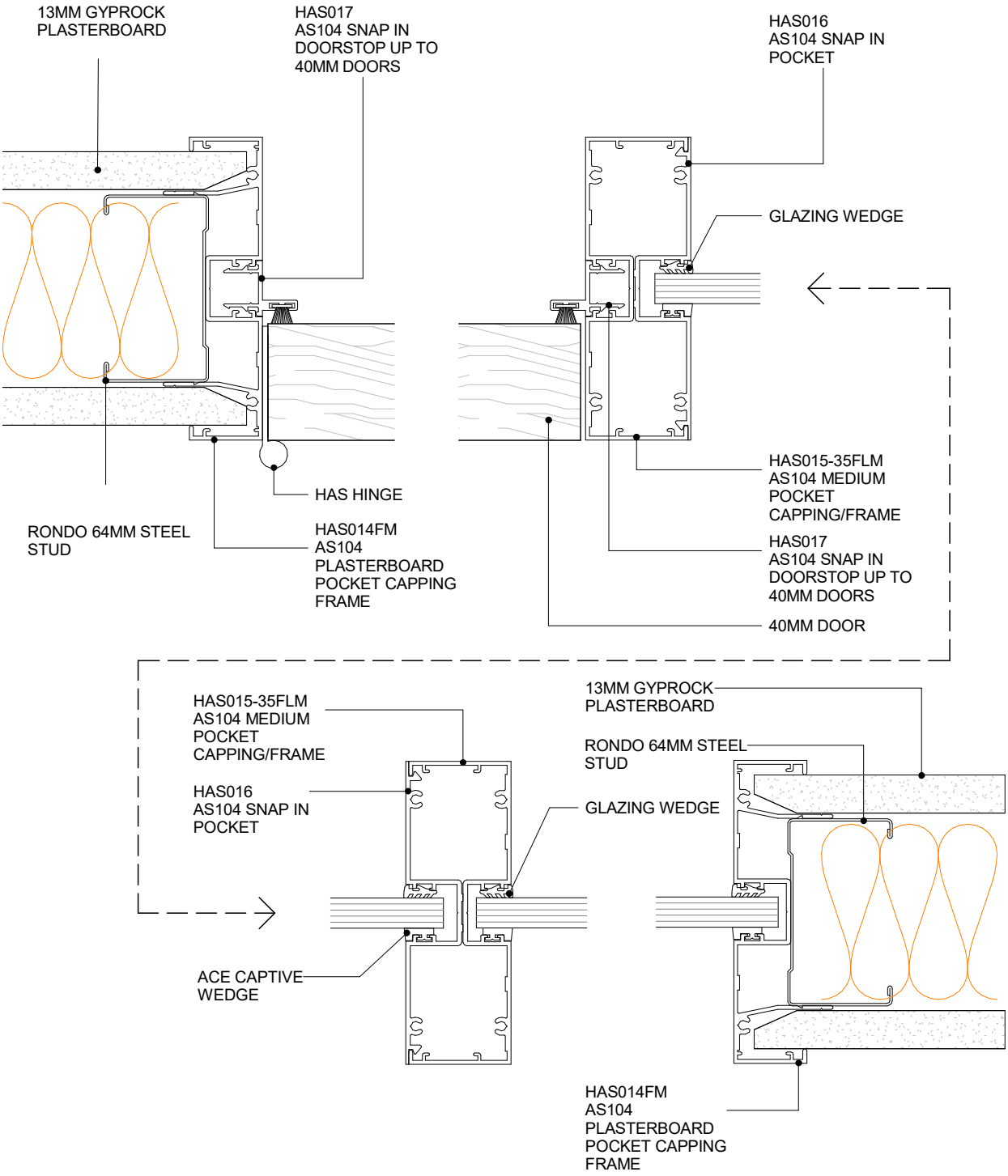


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - HALF HEIGHT GLAZED WALL CROSS SECTION

3.4.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

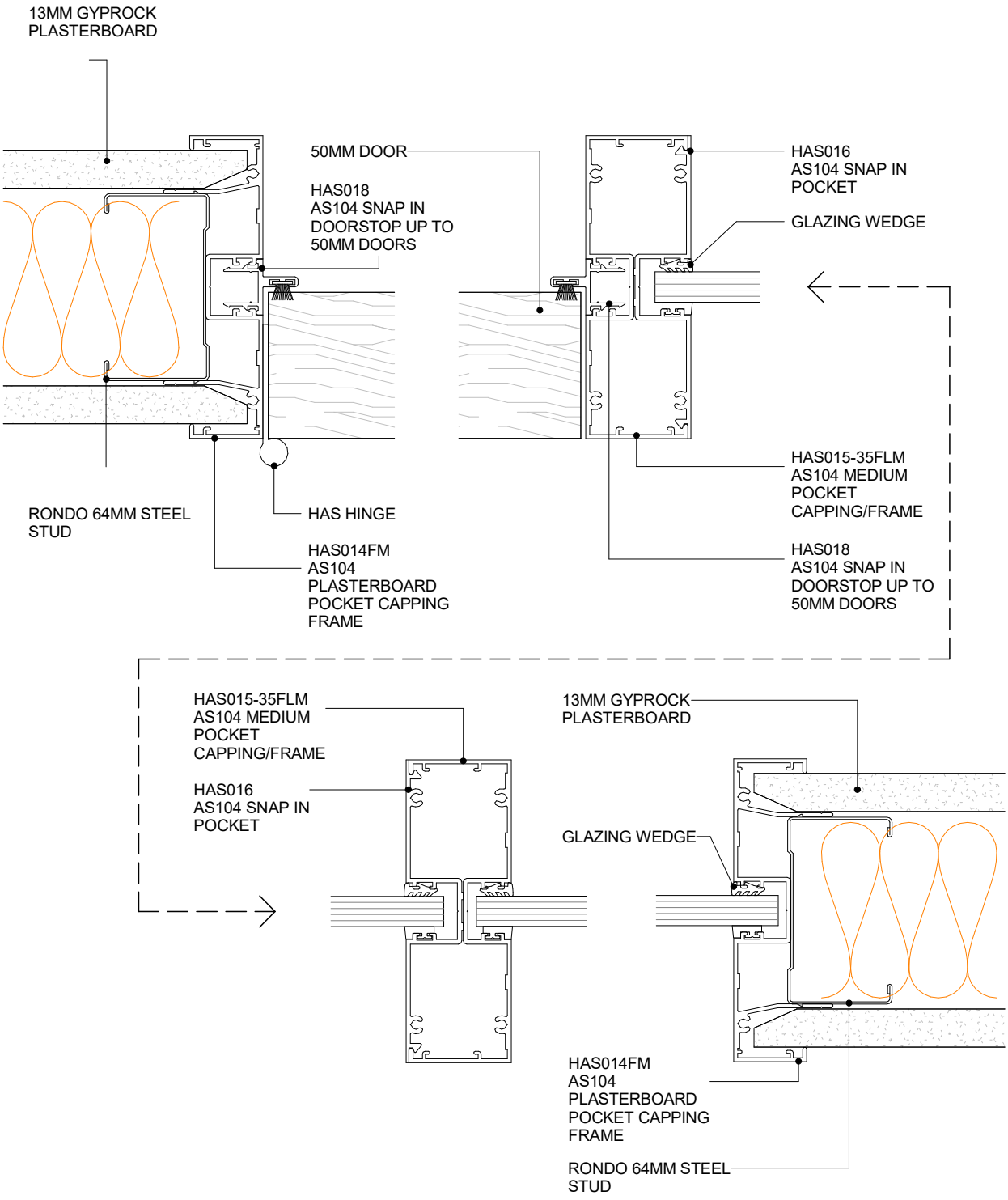
HIMMEL
INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - DOOR-GLAZING MULLION 1 PLAN VIEW

3.6.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

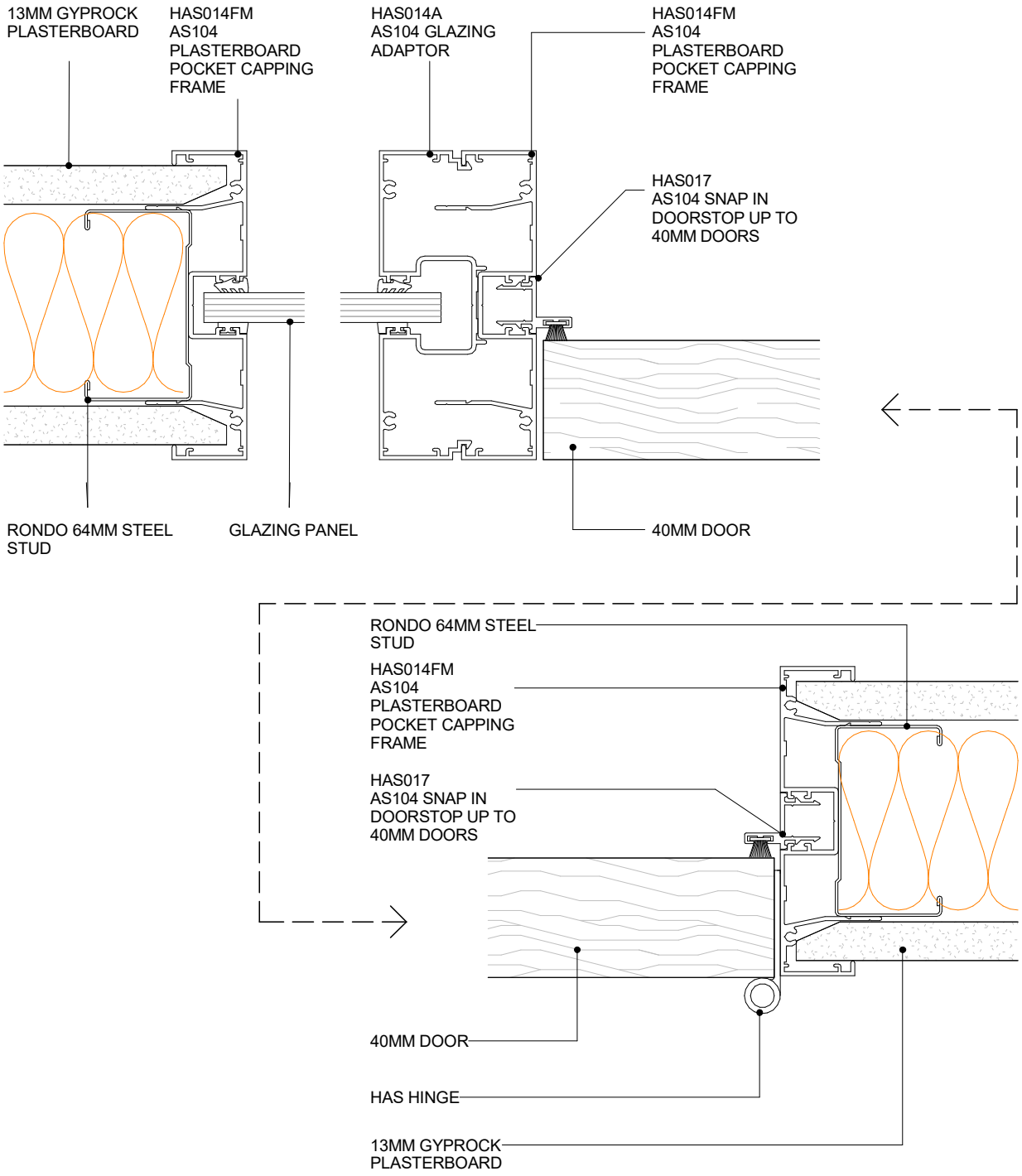


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - DOOR-GLAZING MULLION 2 PLAN VIEW

3.6.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

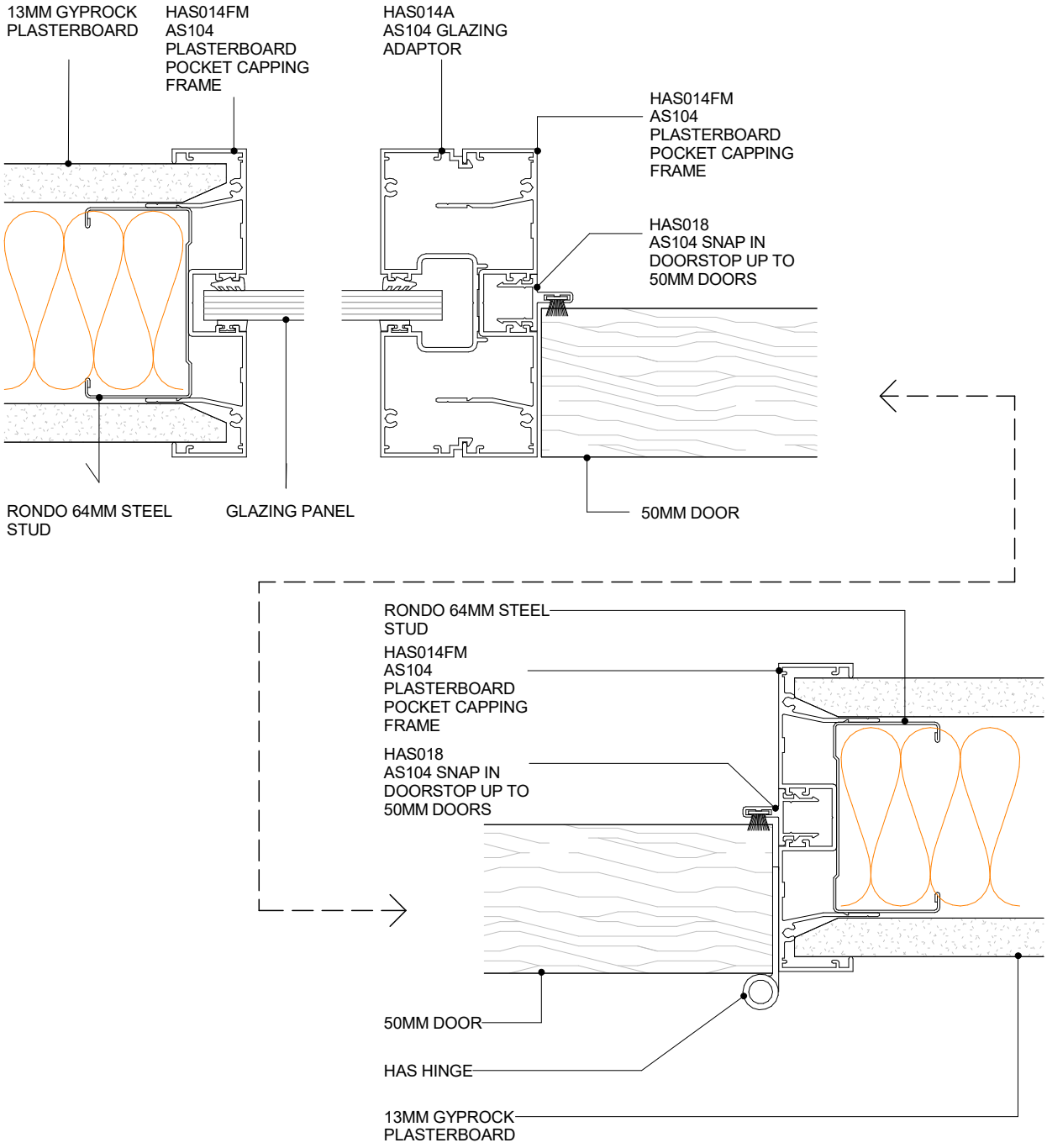
HIMMEL INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 40MM DOOR TO HEADTRACK PLAN VIEW

3.6.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

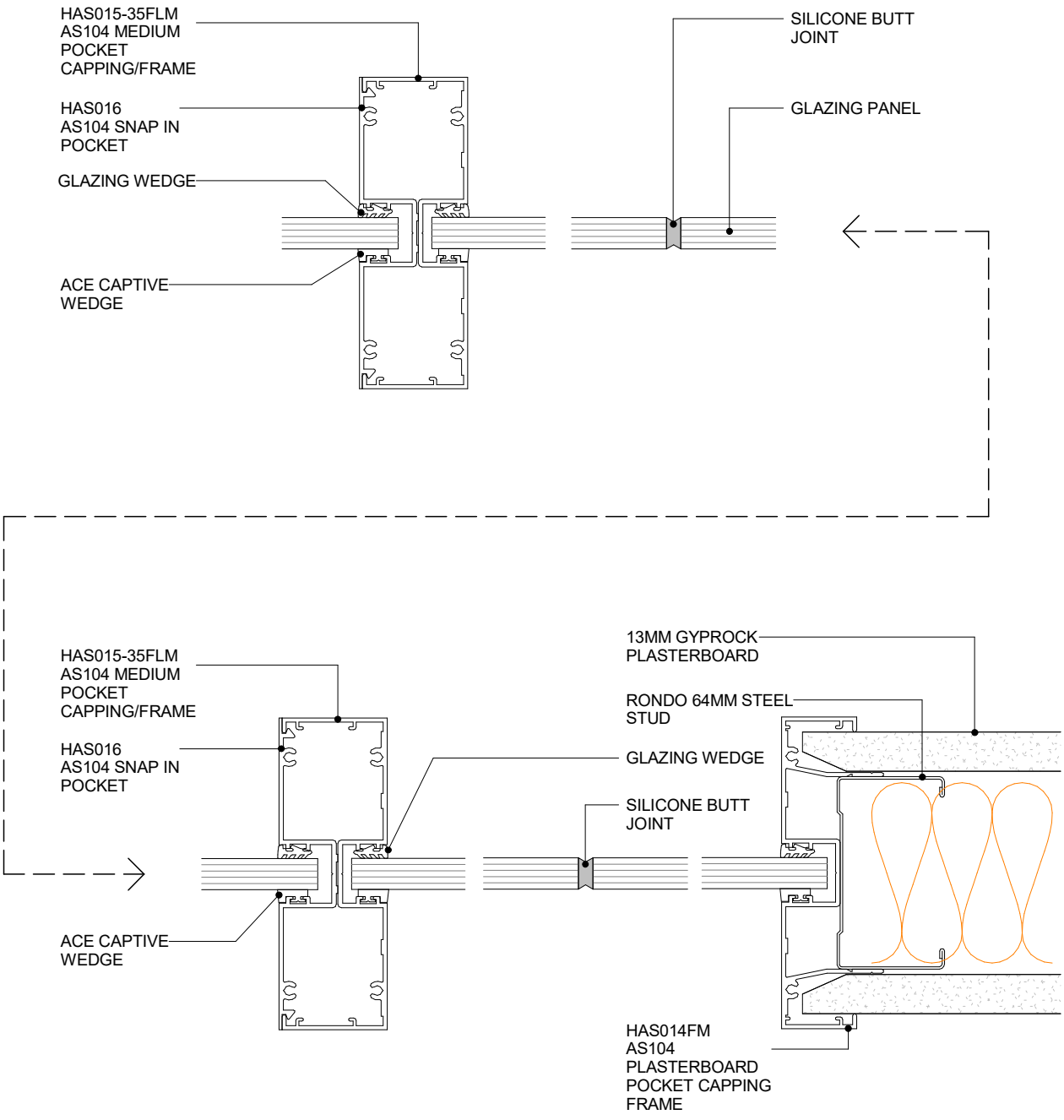
CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 50MM DOOR TO HEADTRACK PLAN VIEW

3.6.4	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

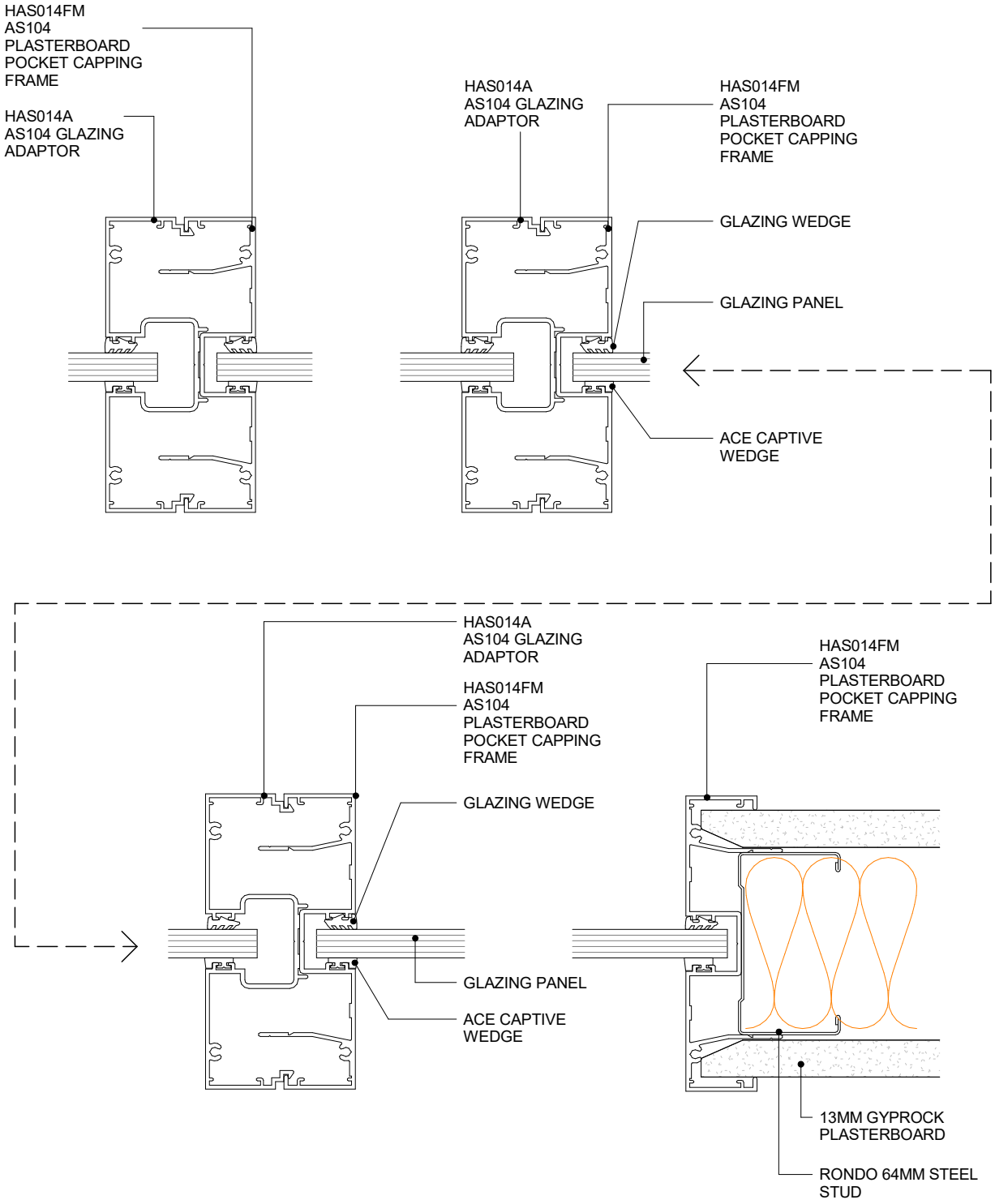
HIMMEL INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - GLAZING MULLION SILICONE JOINTS PLAN VIEW

3.6.5	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

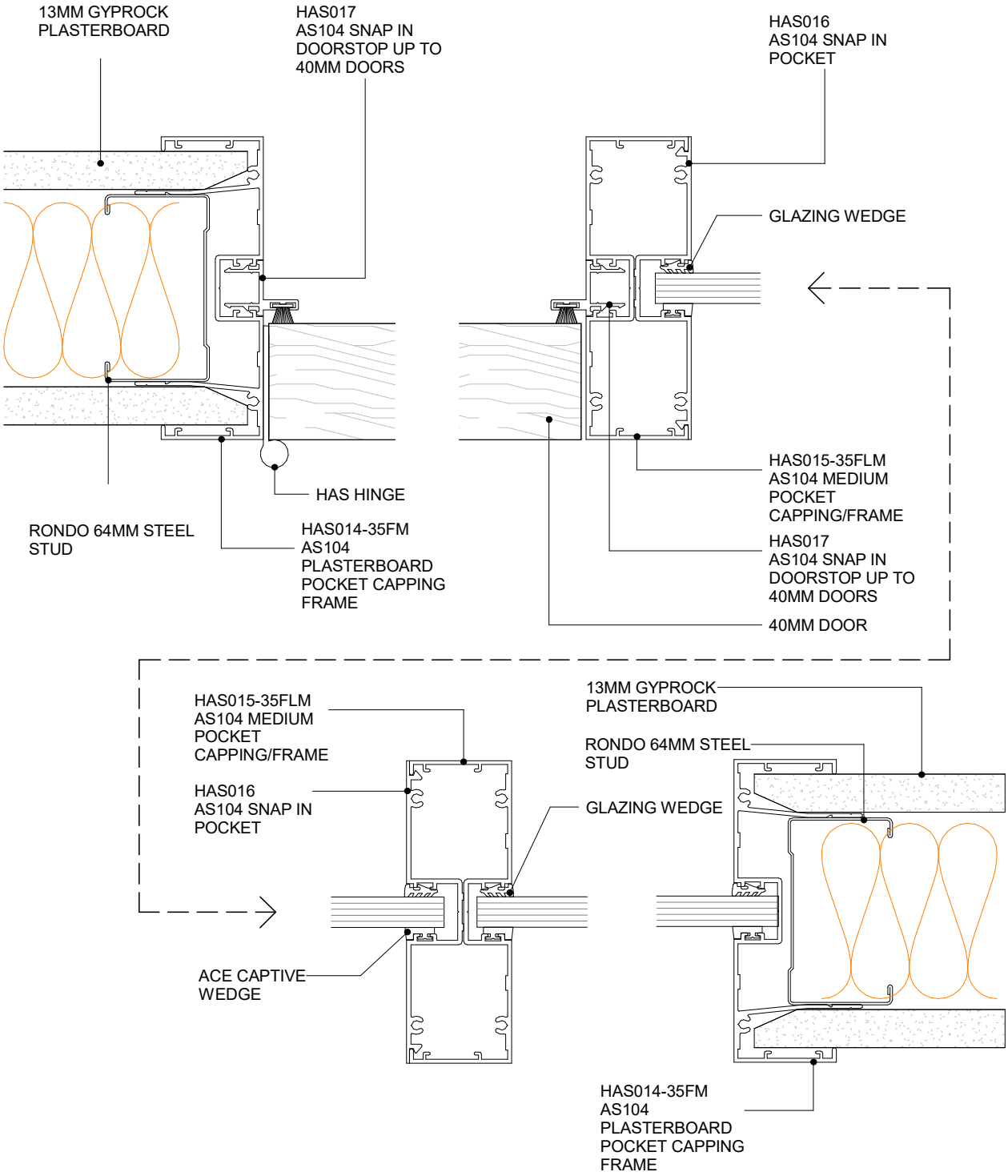
CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - GLAZING MULLION - NO JOINTS PLAN VIEW

3.6.6	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

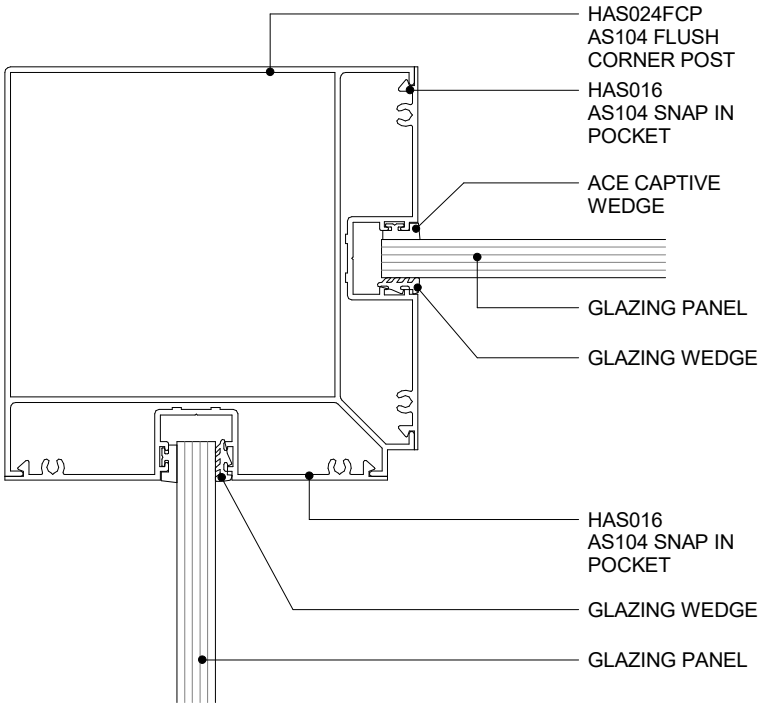
HIMMEL
INTERIOR SYSTEMS

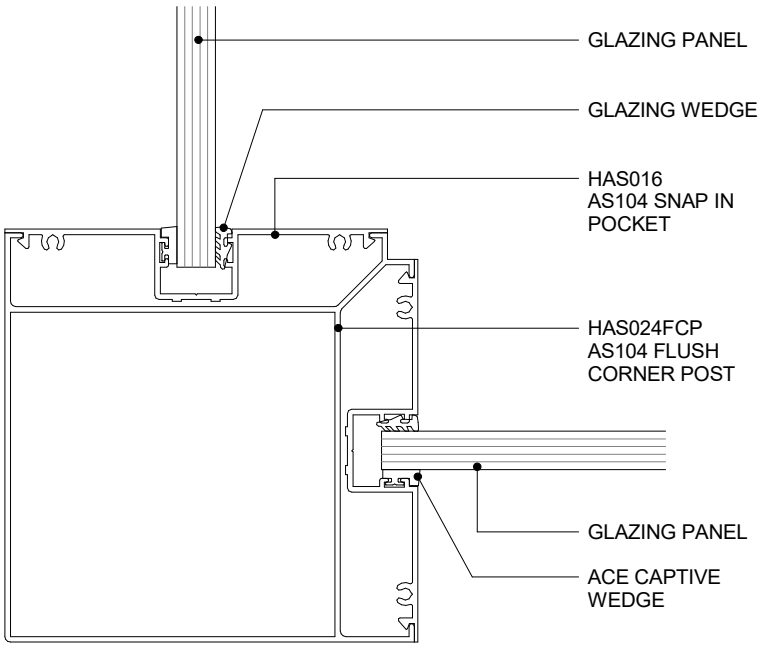


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - DOOR-GLAZING 35MM MULLION PLAN VIEW

3.6.7	1 : 2 @ A4	08/28/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

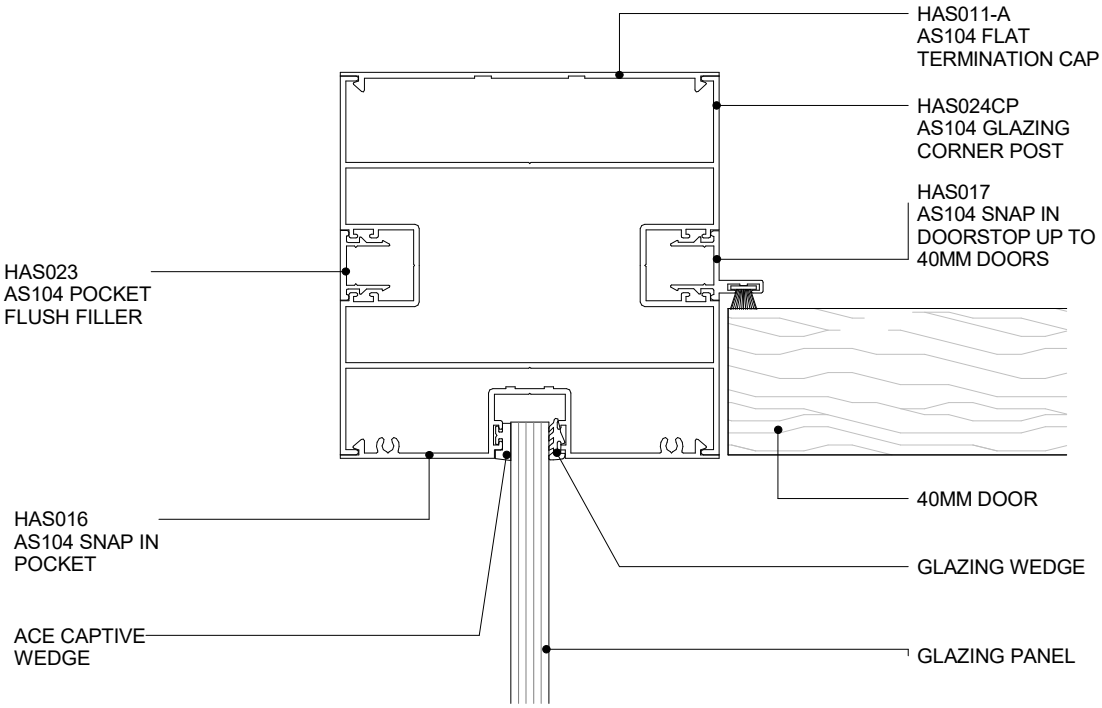


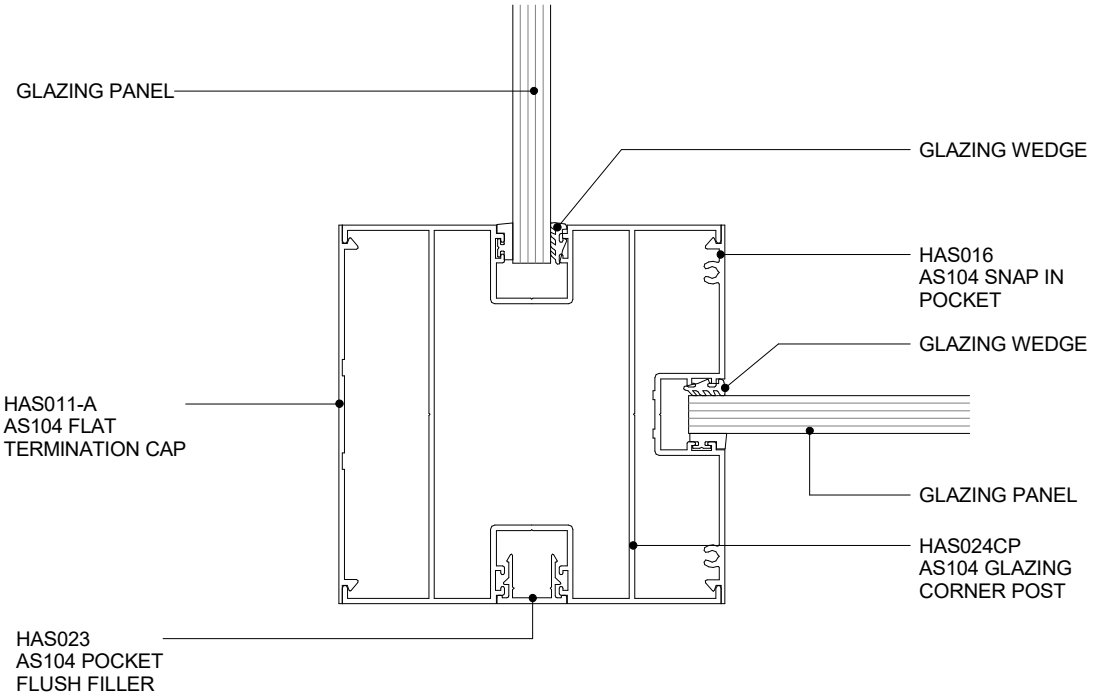


HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - GLAZING CORNER POSTS SINGLE GLASS PLAN VIEW

3.7.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

HIMMEL
INTERIOR SYSTEMS

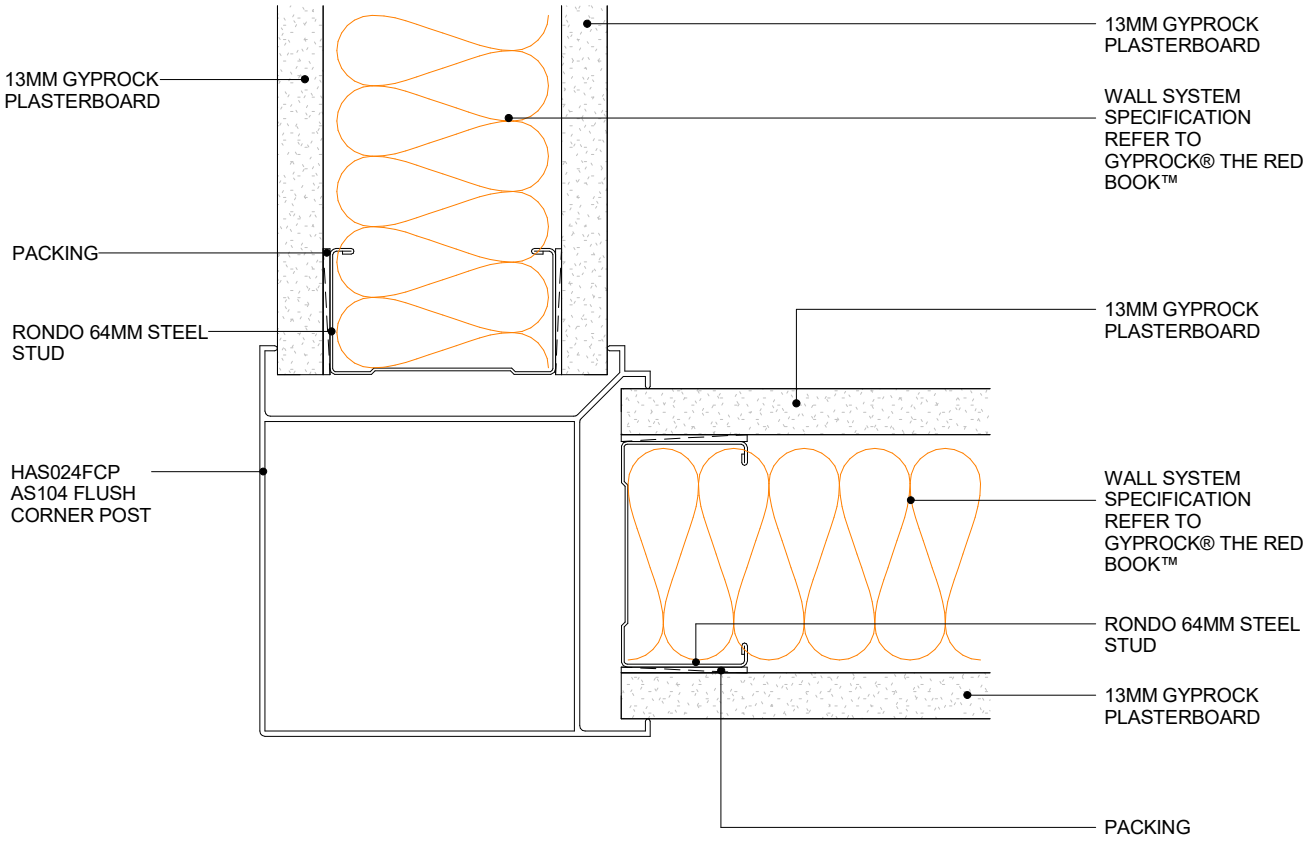




HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - LARGE GLAZING POSTS PLAN VIEW

3.7.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

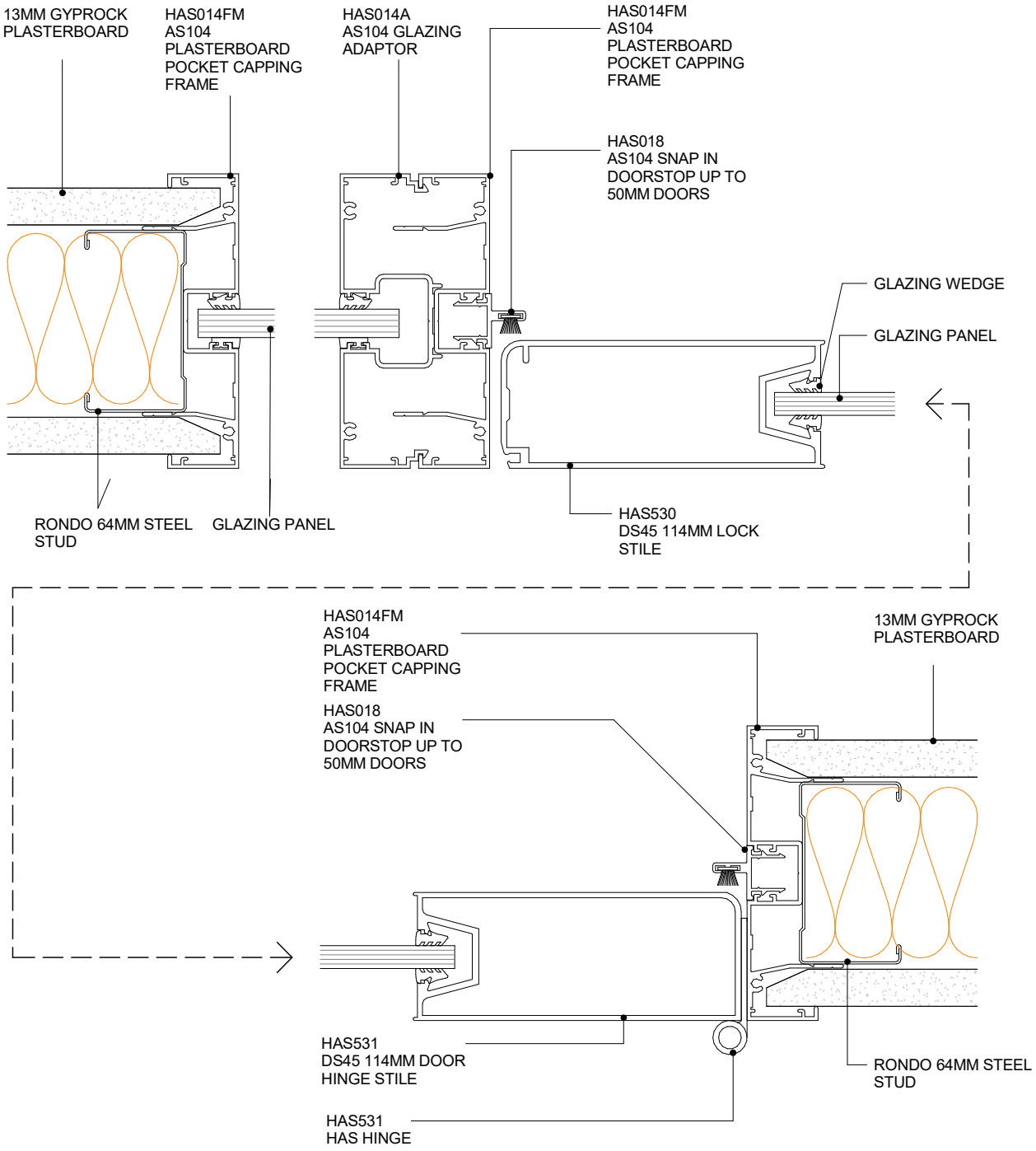
CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - WALL CORNER POST PLAN VIEW

3.7.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

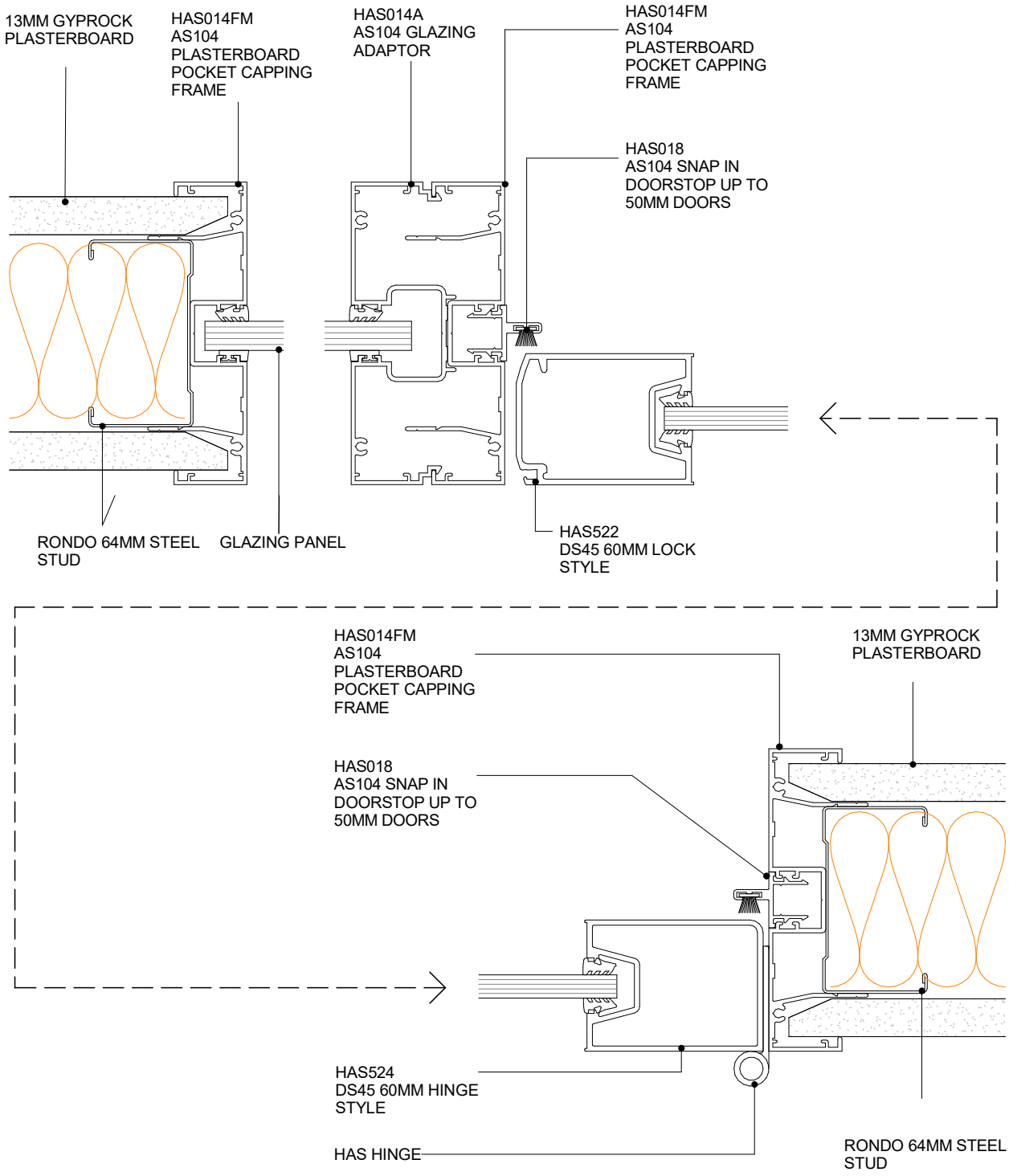
HIMMEL
INTERIOR SYSTEMS



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 50MM MULLION & DS SERIES 114MM DOOR
PLAN VIEW

3.8.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



HIMMEL ALUMINIUM SYSTEMS
A SERIES 104 64MM - 50MM MULLION & DS SERIES 60MM DOOR PLAN VIEW

3.8.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

A SERIES 132

SUITE OVERVIEW

A Series 132 provides a central line glazing with numerous configurations and design options, offering a complete partition system for plasterboard and glazing.

» A Series 132 has the following features:
» Standard profile size of 132mm x 25mm, 132mm x 35mm or 132mm x 50mm
» Standard wall size based around 92mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm and 45mm can be used
» Shadowline details optional

TECHNICAL SERVICES + SPECIFICATION

Technical advice is available from our experienced team.
Please see our company information page for your closest team, or email specificationsupport@himmel.com.au

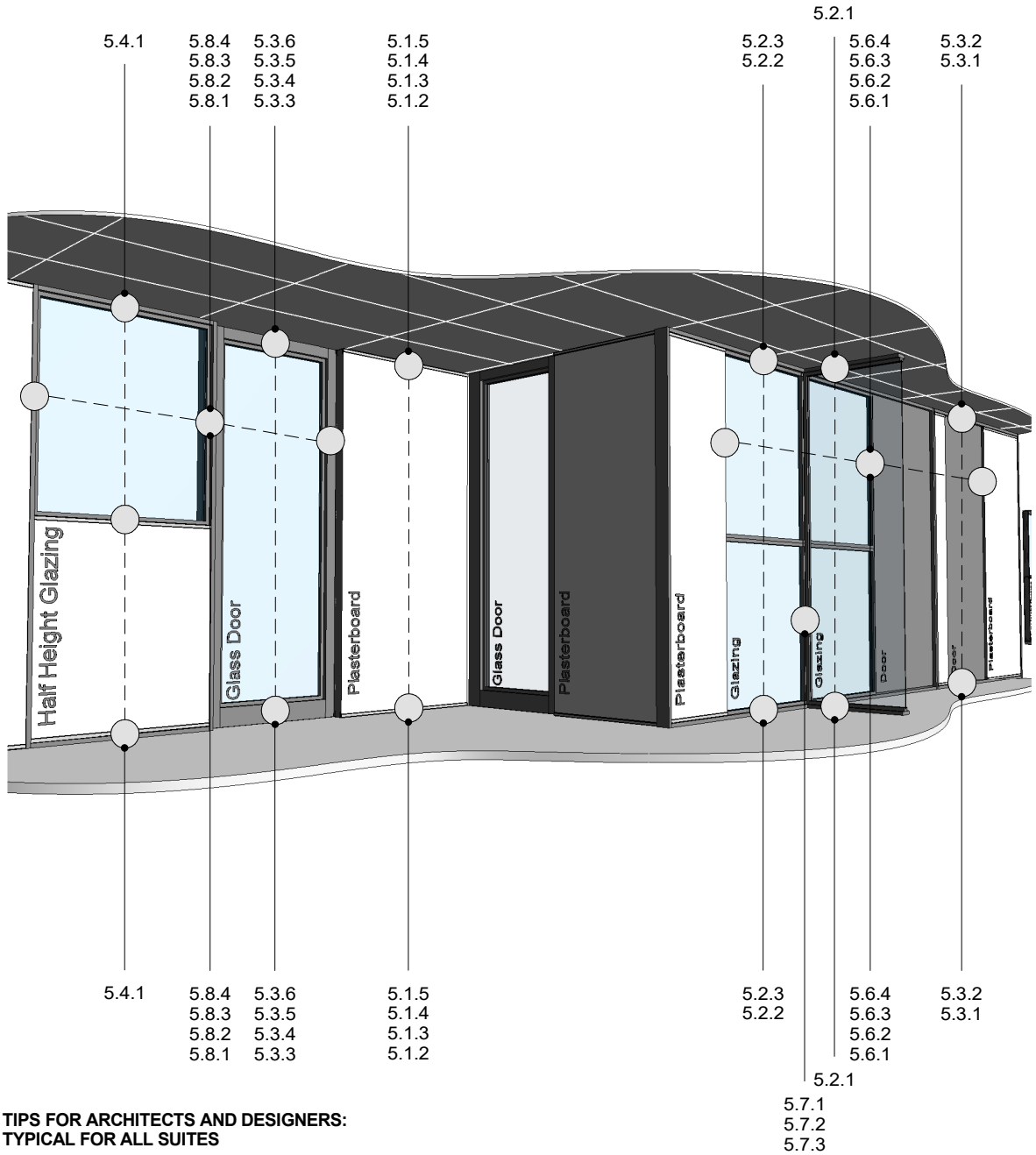
The Himmel Interior Systems product catalogue is hosted on www.himmel.com.au

CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

Specifications are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au



TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

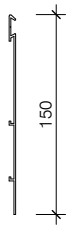
- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK® THE RED BOOK™

HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 DETAIL REFERENCES

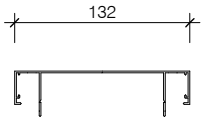
5.1.0	1 : 25 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

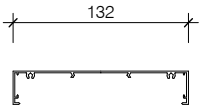
HAS009
100MM SKIRTING



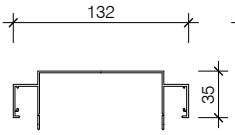
HAS009-150
150MM SKIRTING



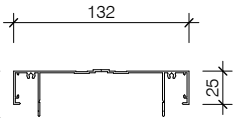
HAS310
AS132 HEAD/SILL TRACK



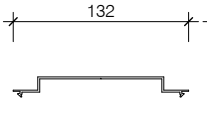
HAS310-A
AS132 CAPPING HEAD/FRAME



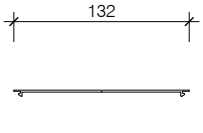
HAS310-SH
AS132 SHADOWLINE HEAD TRACK



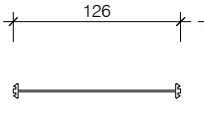
HAS310-R
AS132 HEAD/SILL TRACK



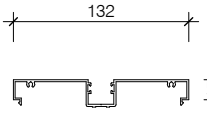
HAS311-SH
AS132 SHADOW CAP



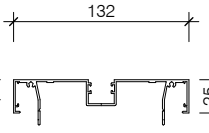
HAS311-FF
AS132 FLAT FILLER CAP



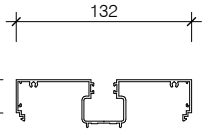
HAS311-JP
AS132 JOINTING PLATE



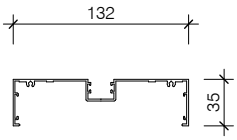
HAS312-MAP
AS132 MULLION ADAPTOR



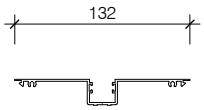
HAS314-FM
AS132 PLASTERBOARD POCKET CAPPING/FRAME



HAS314-A
AS132 GLAZING ADAPTOR



HAS315-35FLM
AS132 MEDIUM POCKET CAPPING/FRAME

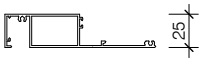


HAS316-GAP
AS132 SNAP IN POCKET

HAS317-35
AS132 CLIP IN 35MM DOOR STOP

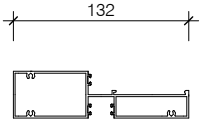
HAS317-40
AS132 CLIP IN 40MM DOOR STOP

HAS318-45
AS132 CLIP IN 45MM DOOR STOP

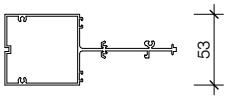


HAS319-BA
AS132 GLAZING SILL

HAS320
AS132 GLAZING BEAD



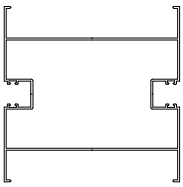
HAS321-A
AS132 GLAZING SILL/TRANSOM



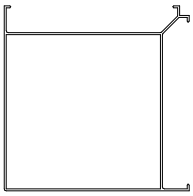
HAS321-B
AS132 GLAZING SILL TRANSOM

HAS322
AS132 TRANSOM BEAD

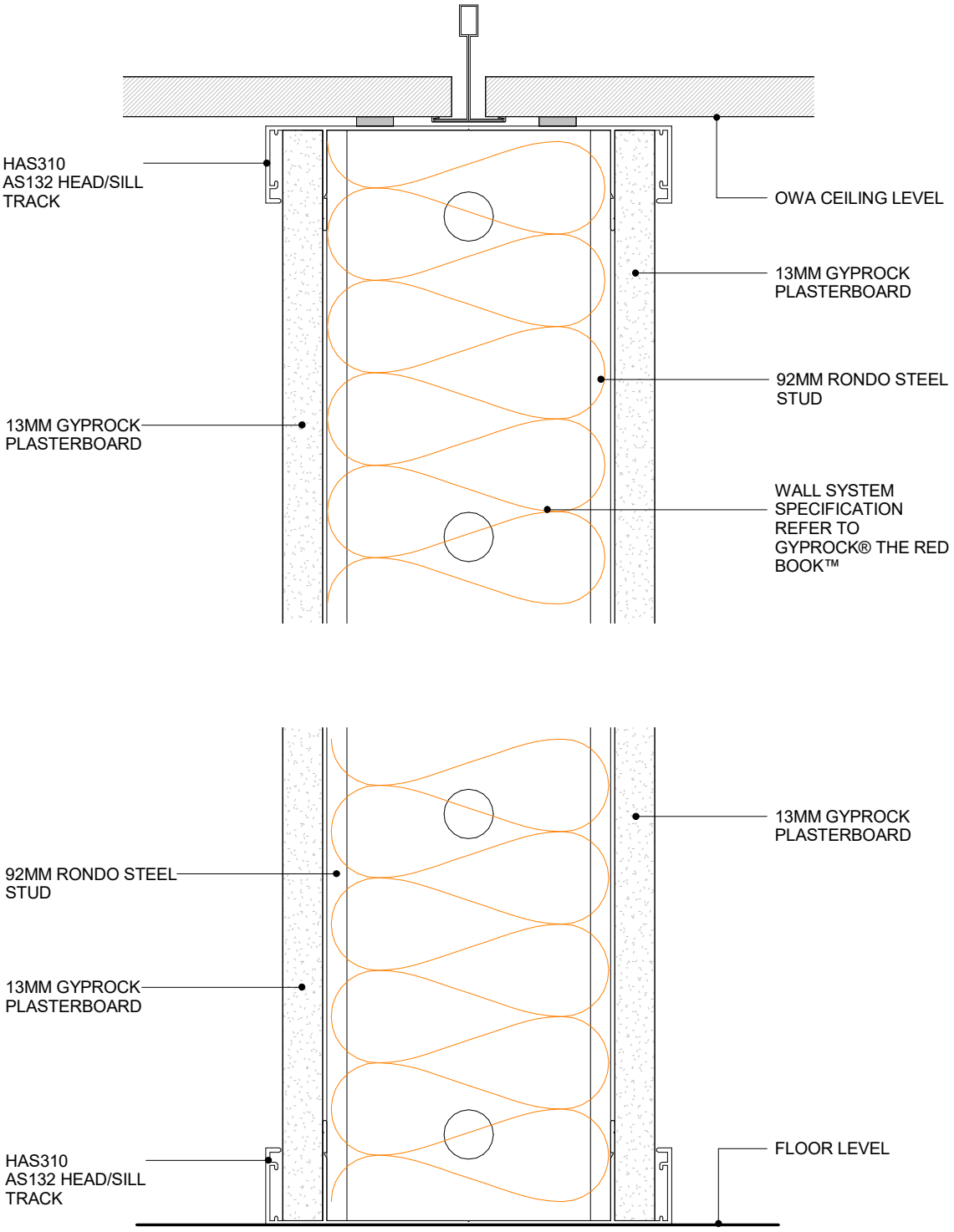
HAS023
AS132 POCKET FLUSH FILLER



HAS324-CP
AS132 GLAZED CORNER POST

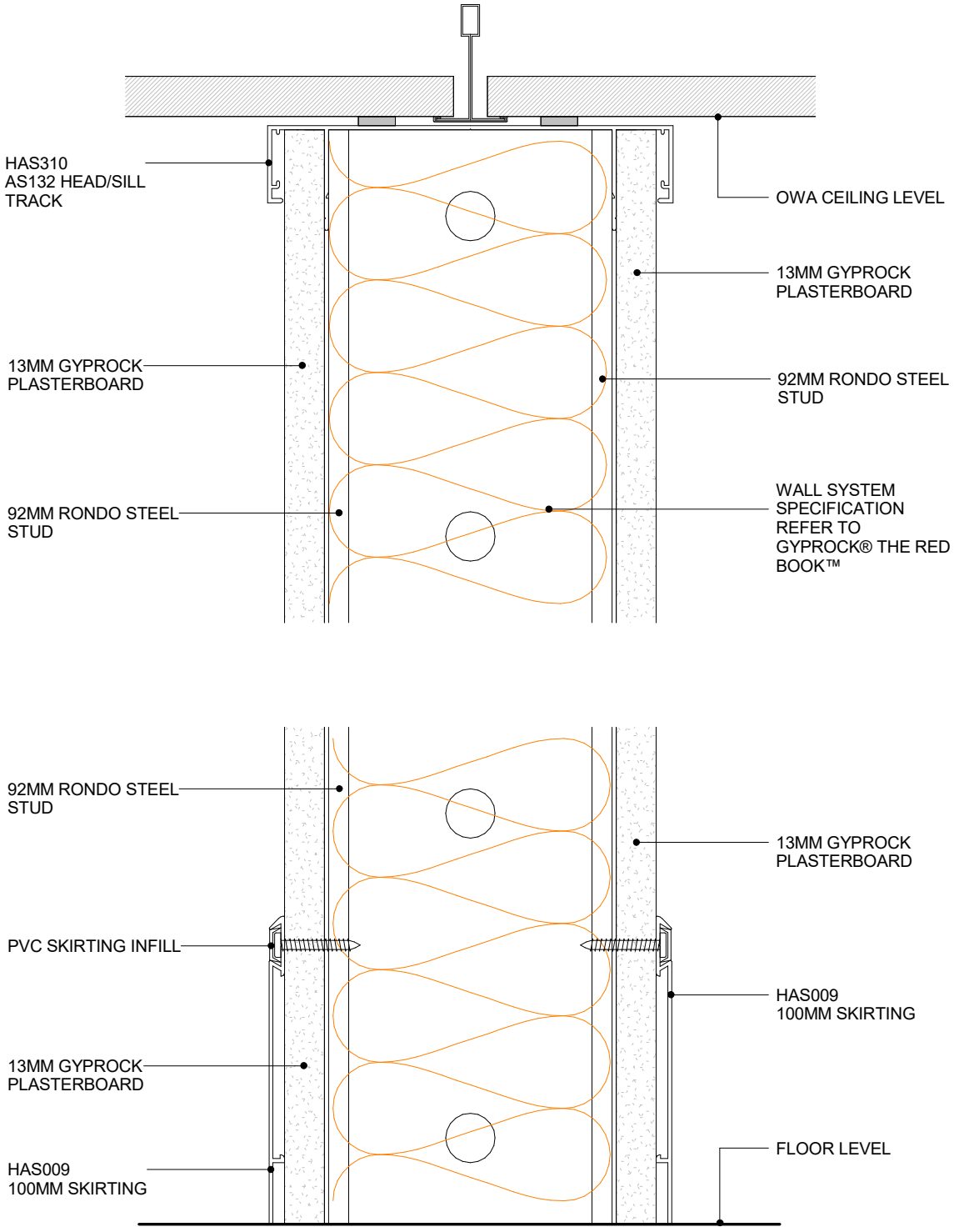


HAS324-FCP
AS132 FLUSH CORNER POST



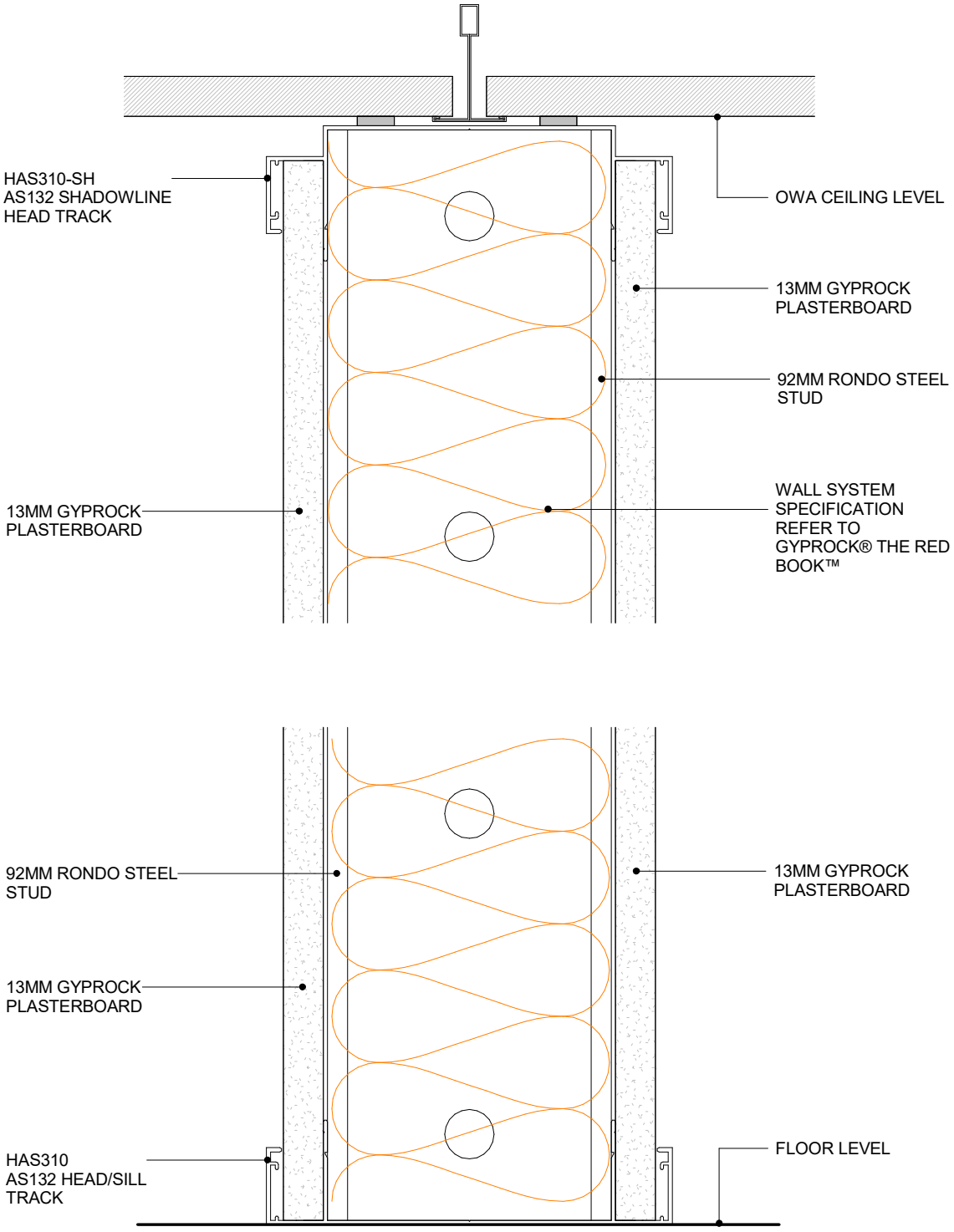
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - STEEL STUD WALL CROSS SECTION

5.1.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



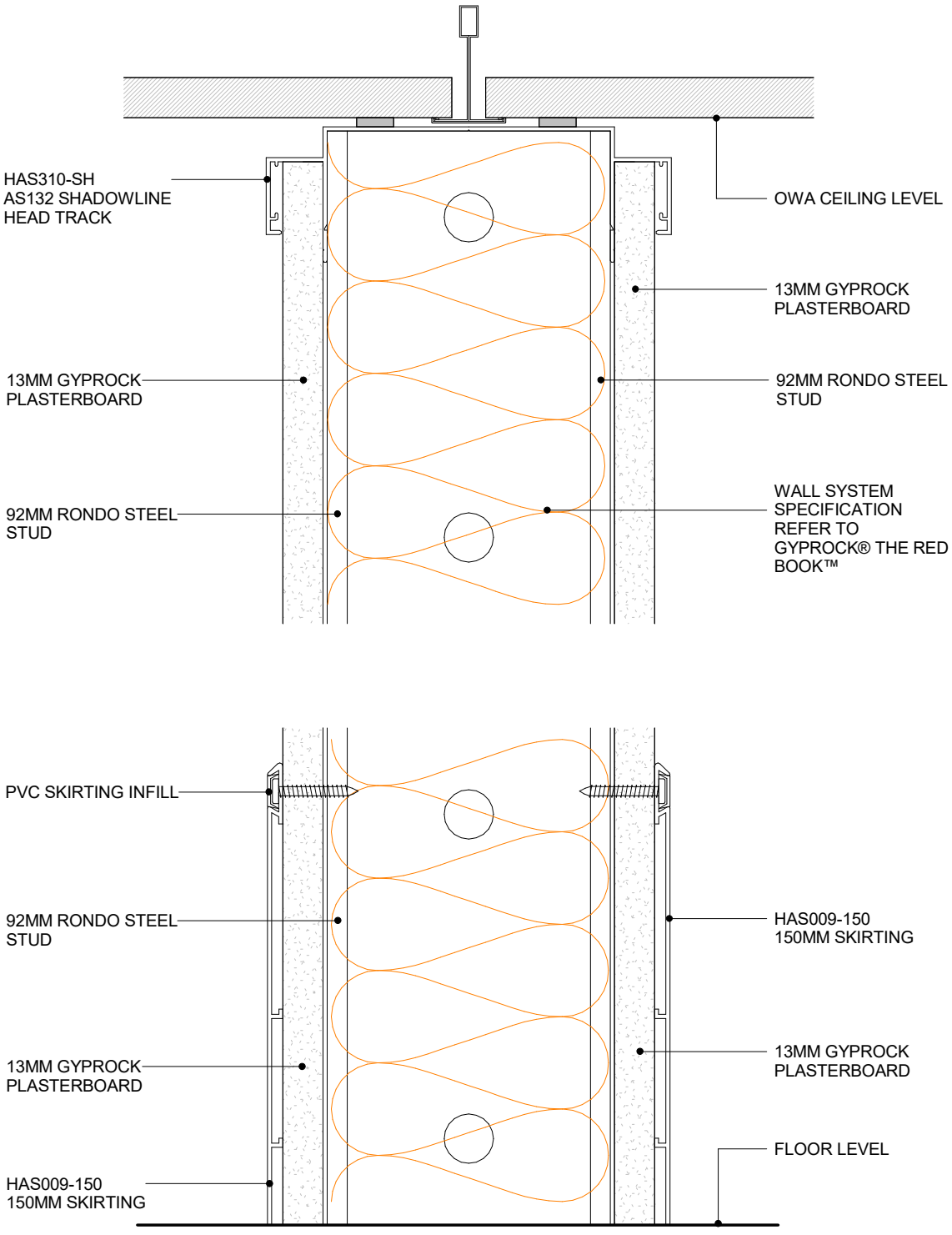
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - STEEL STUD WALL 100MM SKIRTING CROSS SECTION

5.1.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



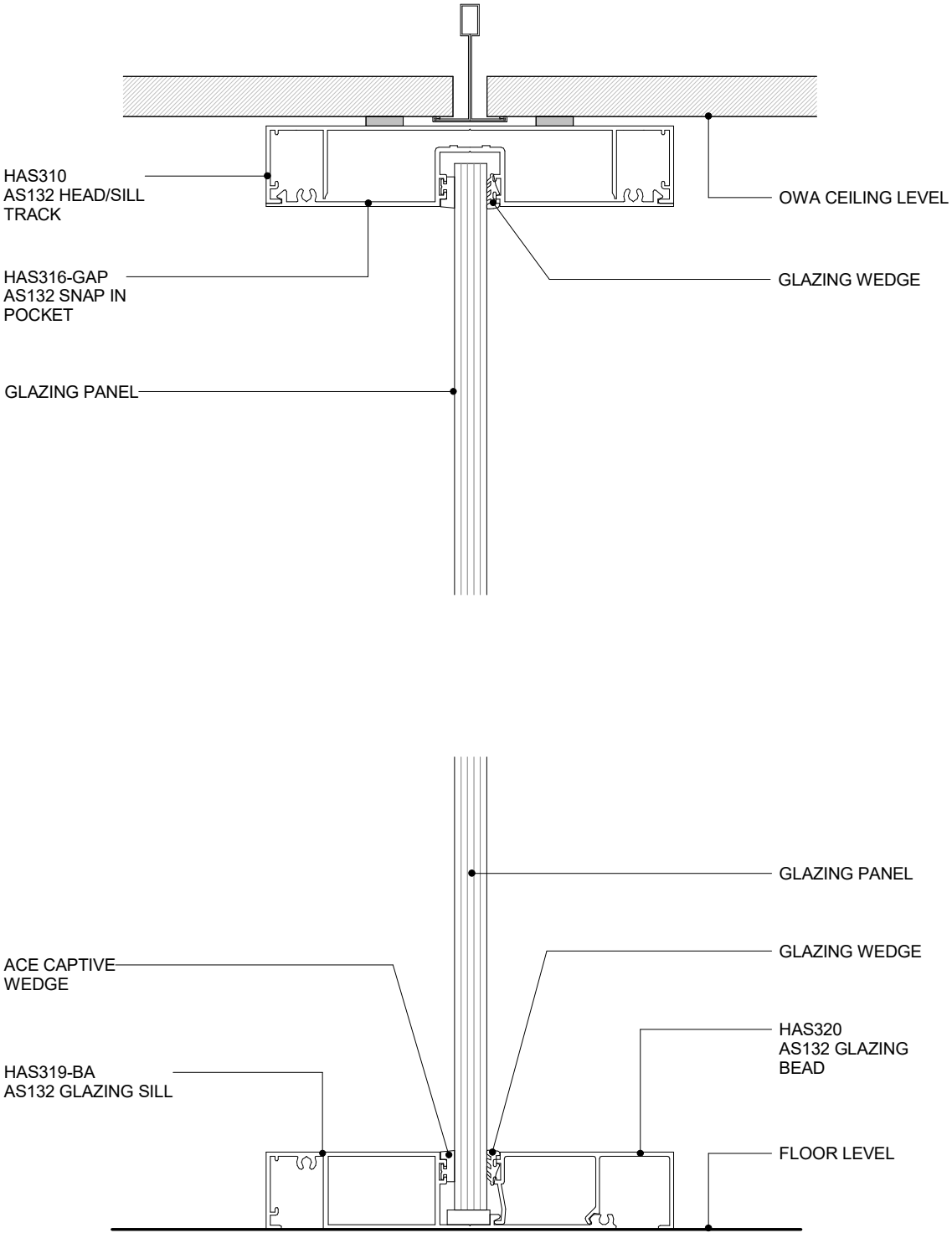
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - STEEL STUD WALL SHADOWLINE DETAIL
CROSS SECTION

5.1.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



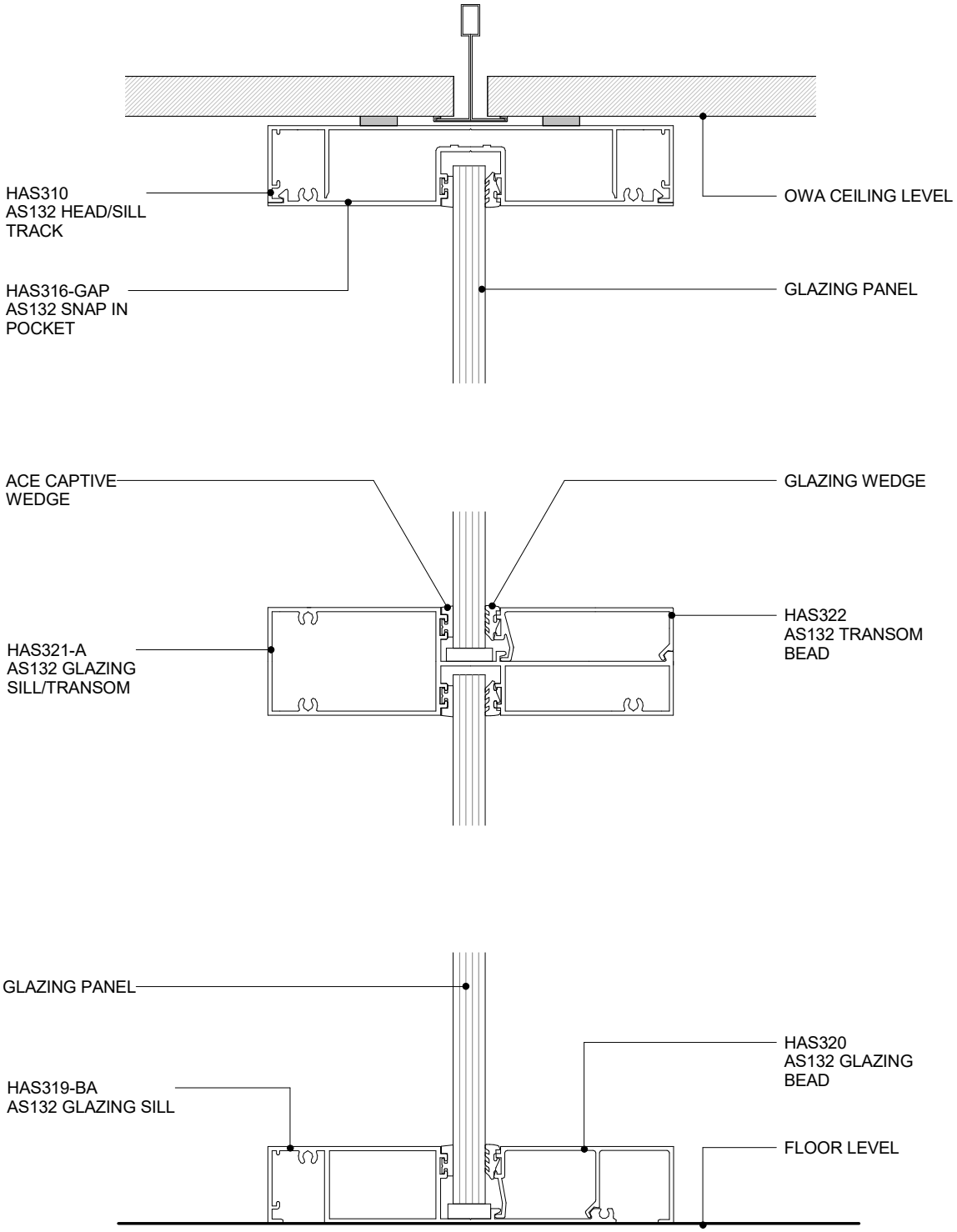
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - STEEL STUD SHADOWLINE DETAIL 150MM SKIRTING CROSS SECTION

5.1.5	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



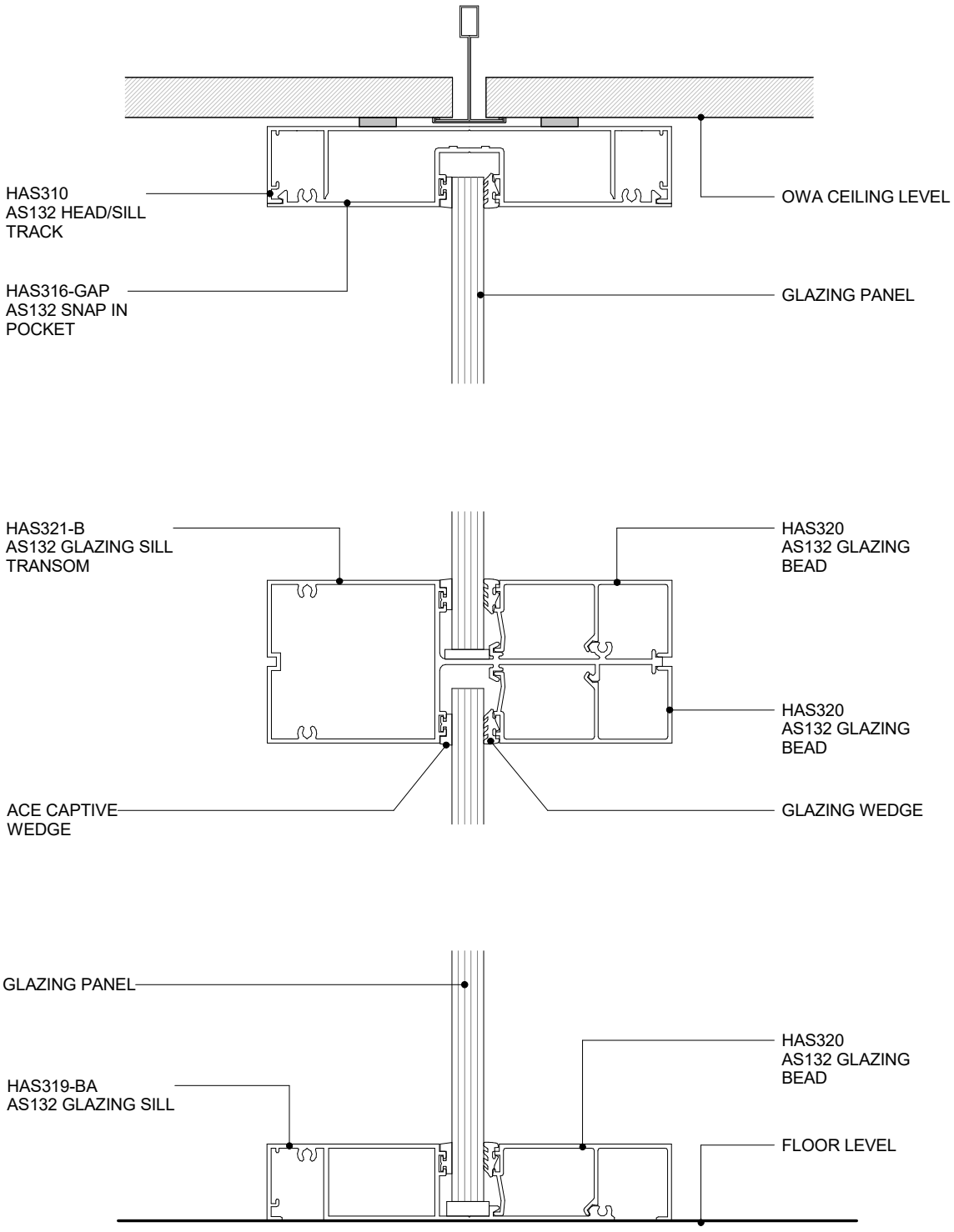
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - FULL HEIGHT GLAZING WALL CROSS SECTION

5.2.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - TRANSOM IN GLAZED WALL TYPE 1 CROSS SECTION

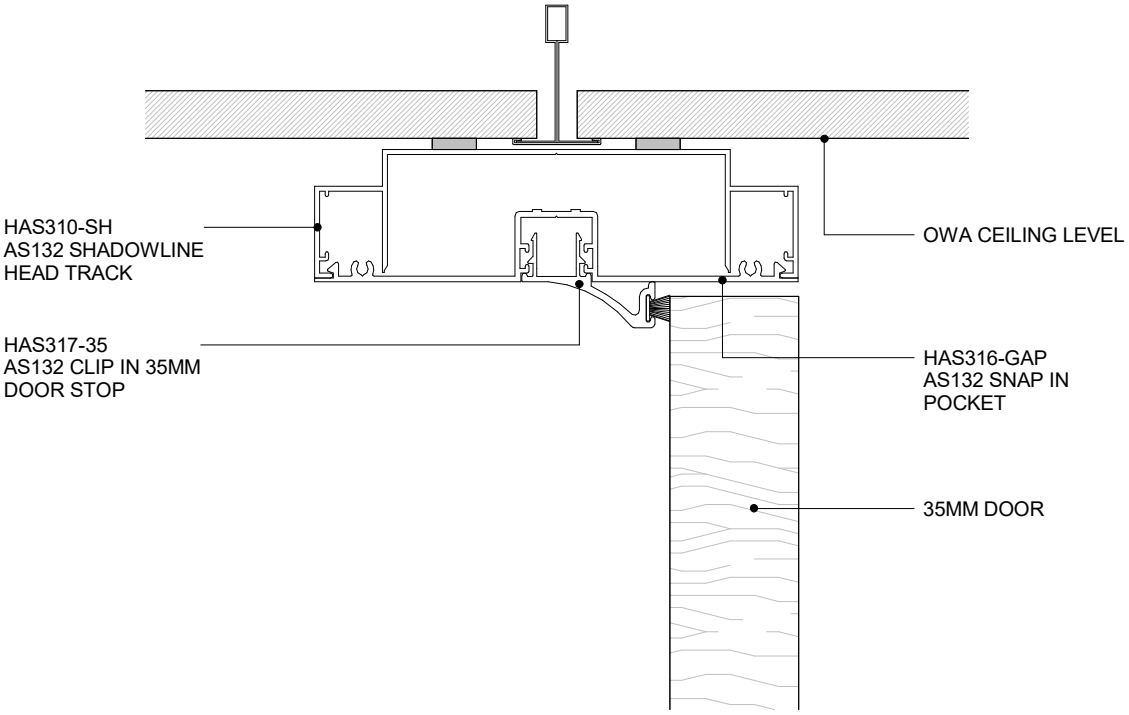
5.2.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

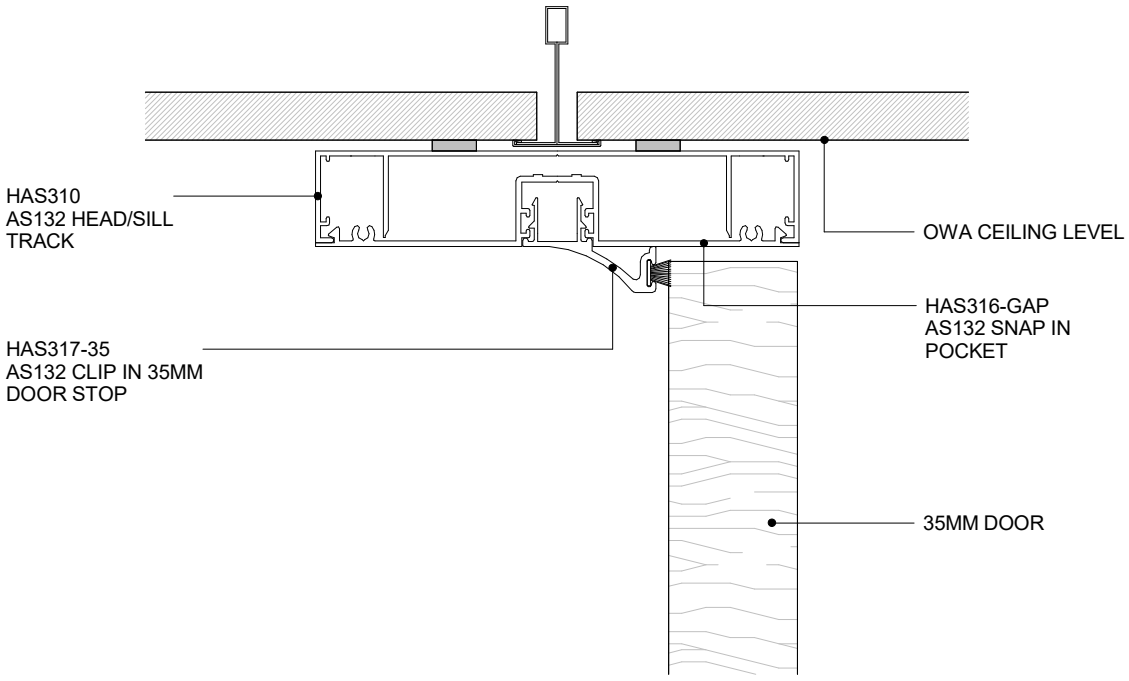


HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - TRANSOM IN GLAZED WALL TYPE 2 CROSS SECTION

5.2.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

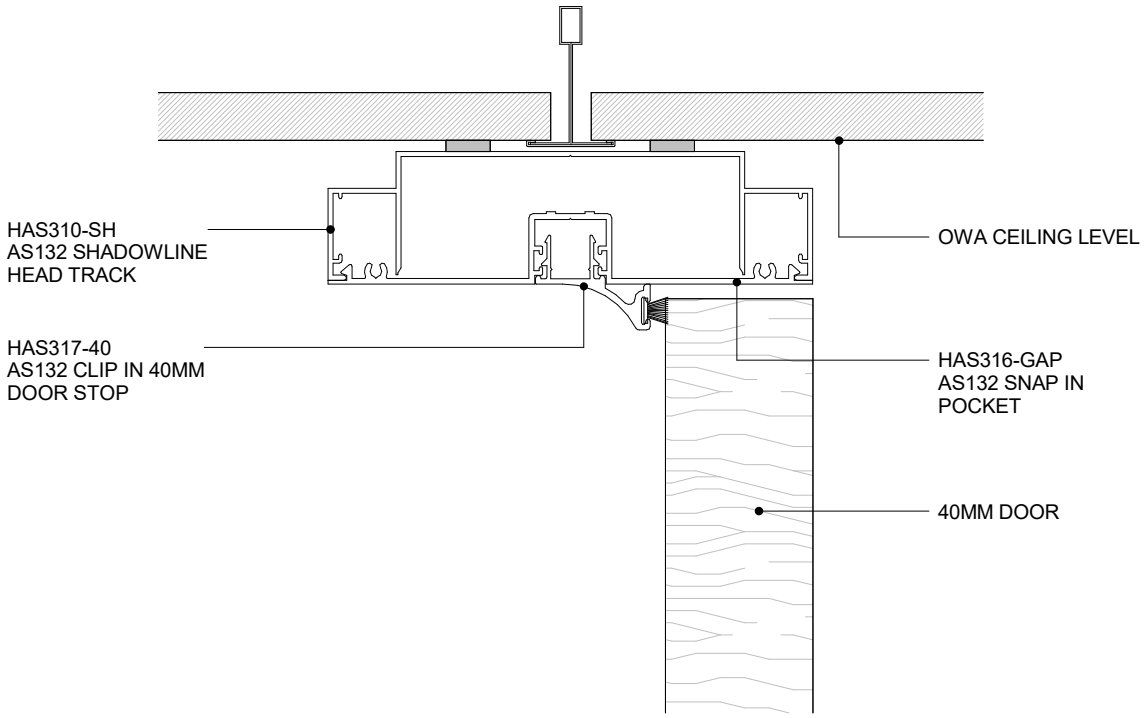
CSR

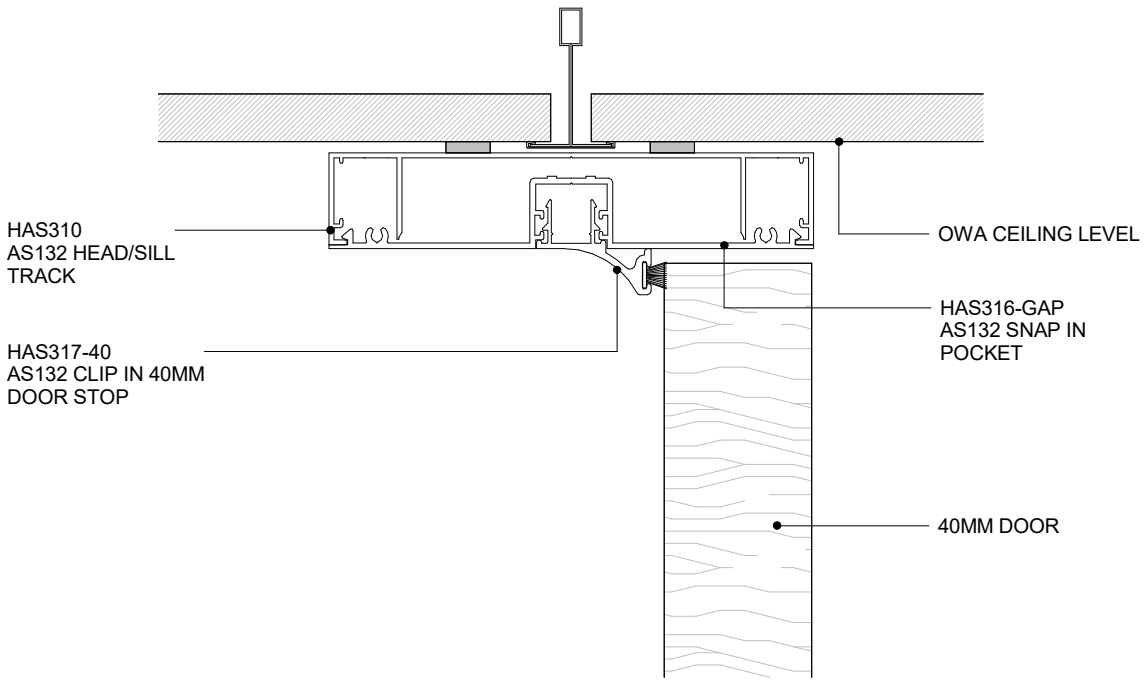




HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 35MM DOOR HEADTRACK CROSS SECTION

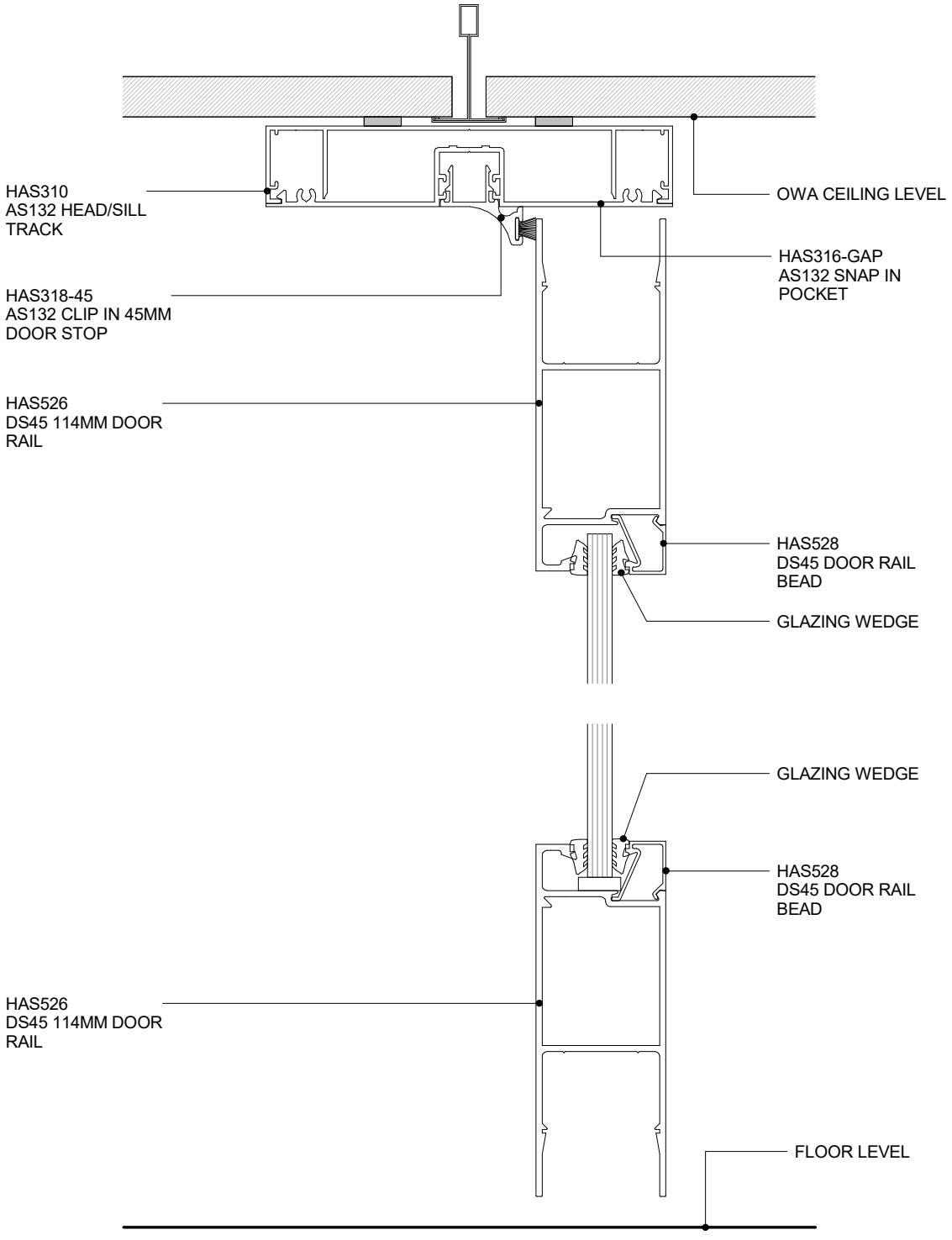
5.3.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE





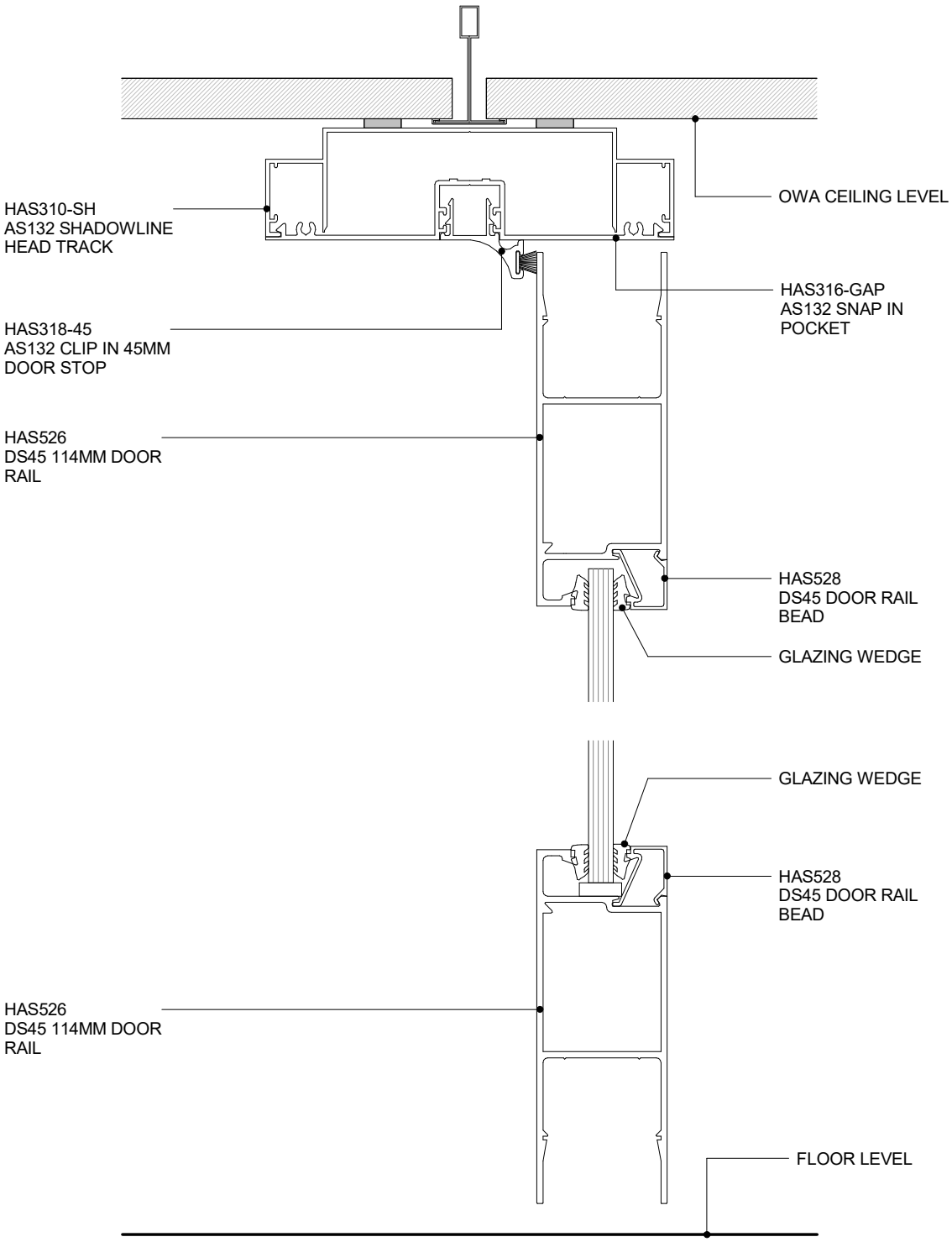
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 40MM DOOR HEADTRACK CROSS SECTION

5.3.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DS DOOR HEADTRACK TYPE 1 CROSS SECTION

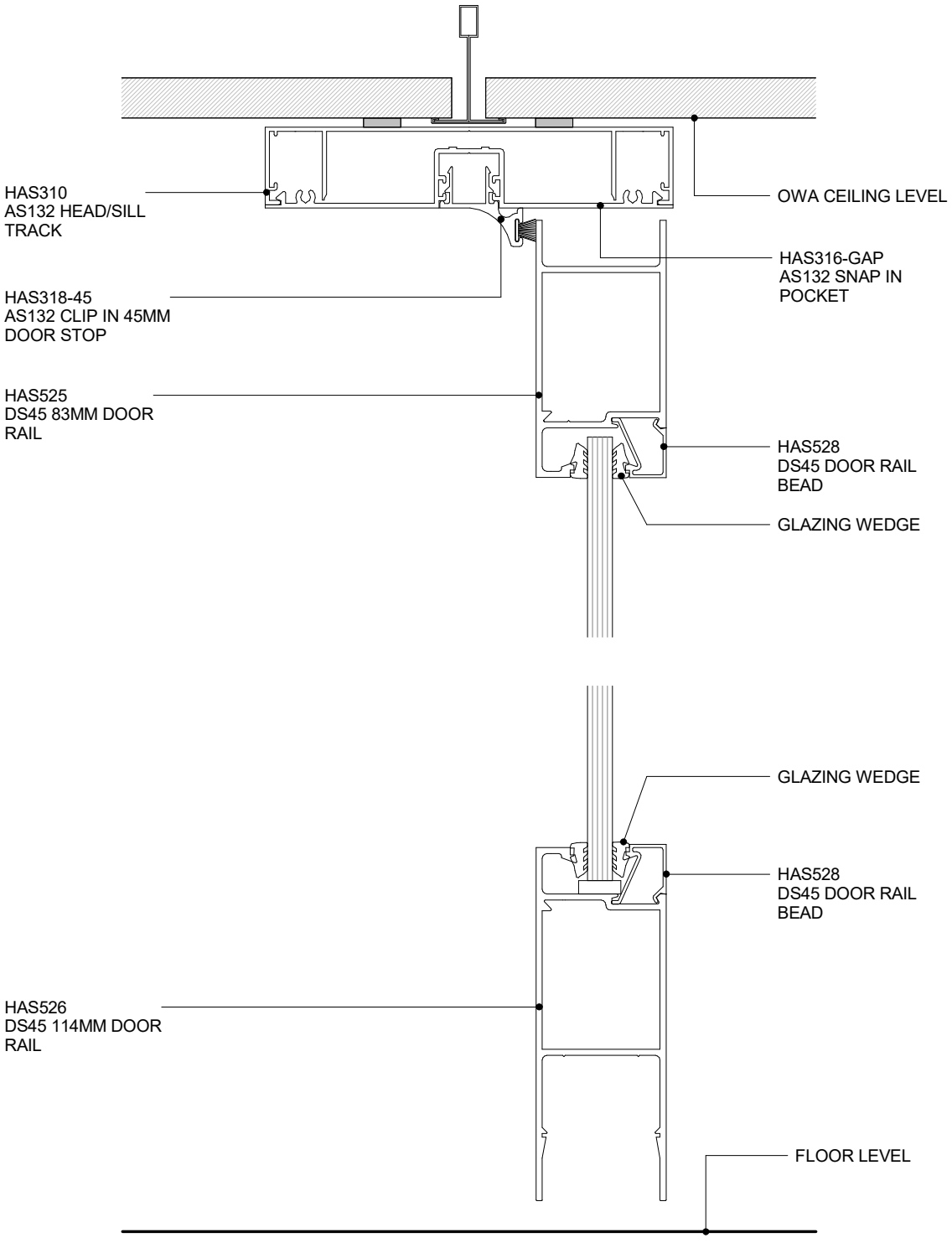
5.3.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DS SHADOWLINE DOOR HEADTRACK
TYPE 1 CROSS SECTION

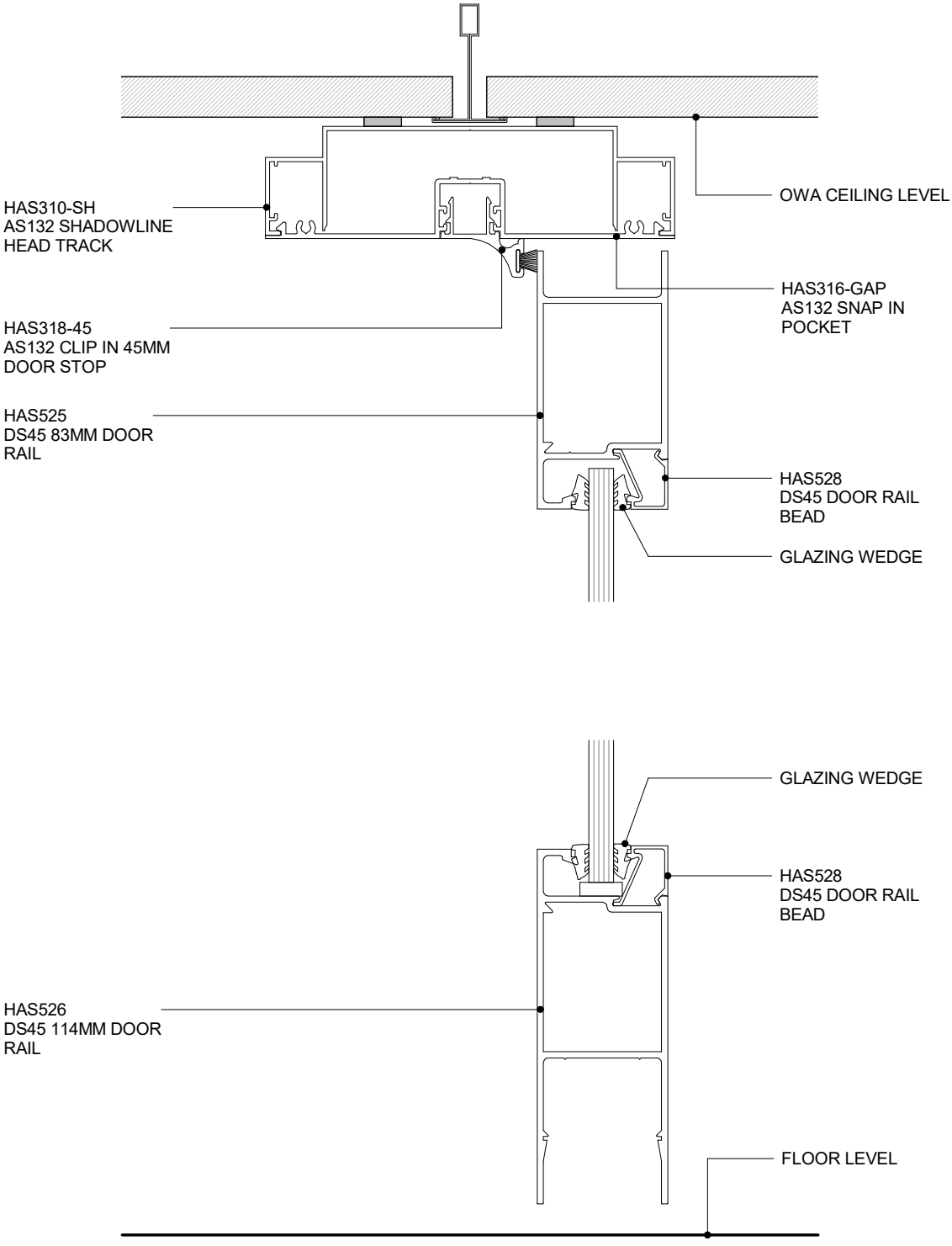
5.3.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



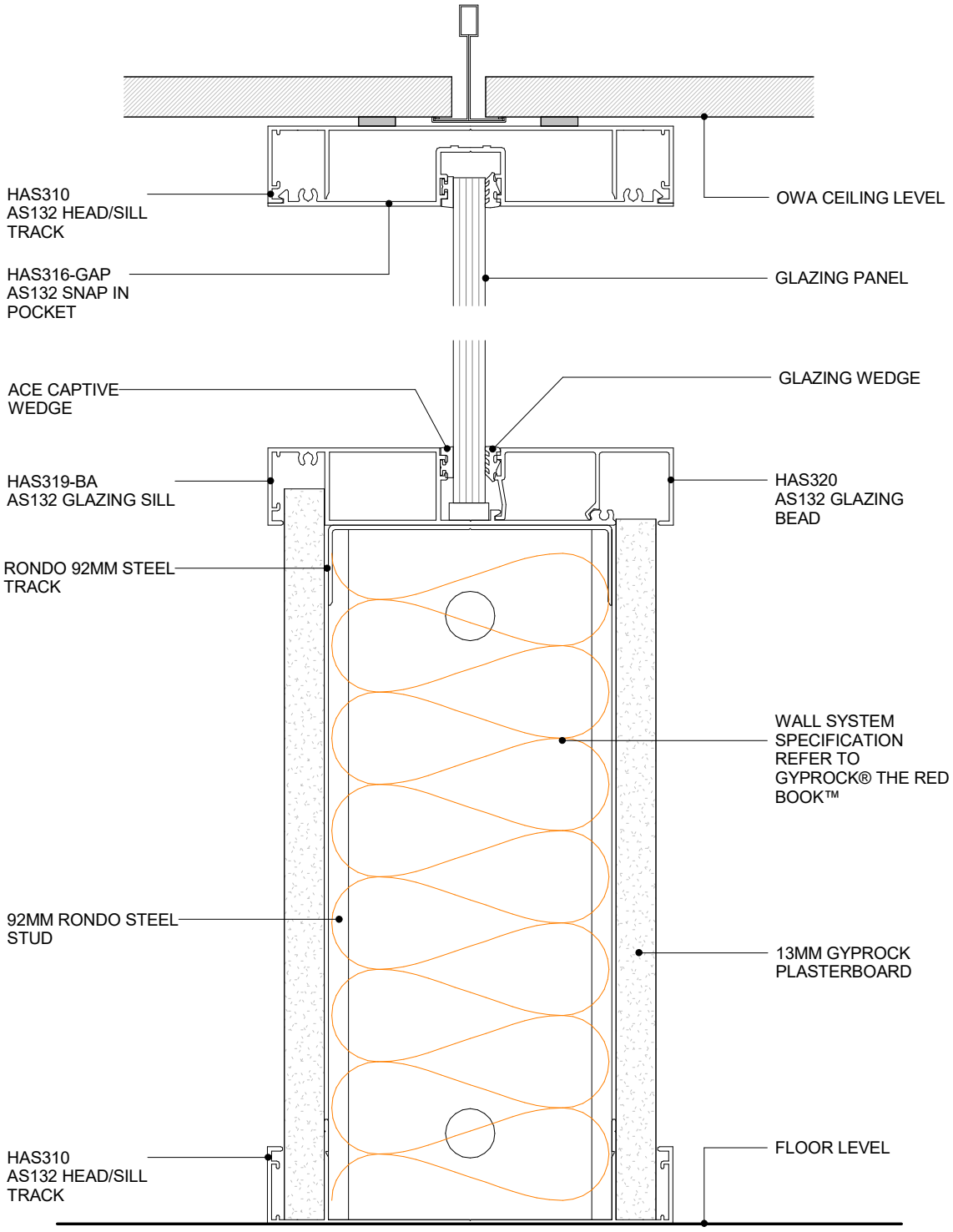
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DS DOOR HEADTRACK TYPE 2 CROSS SECTION

5.3.5	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



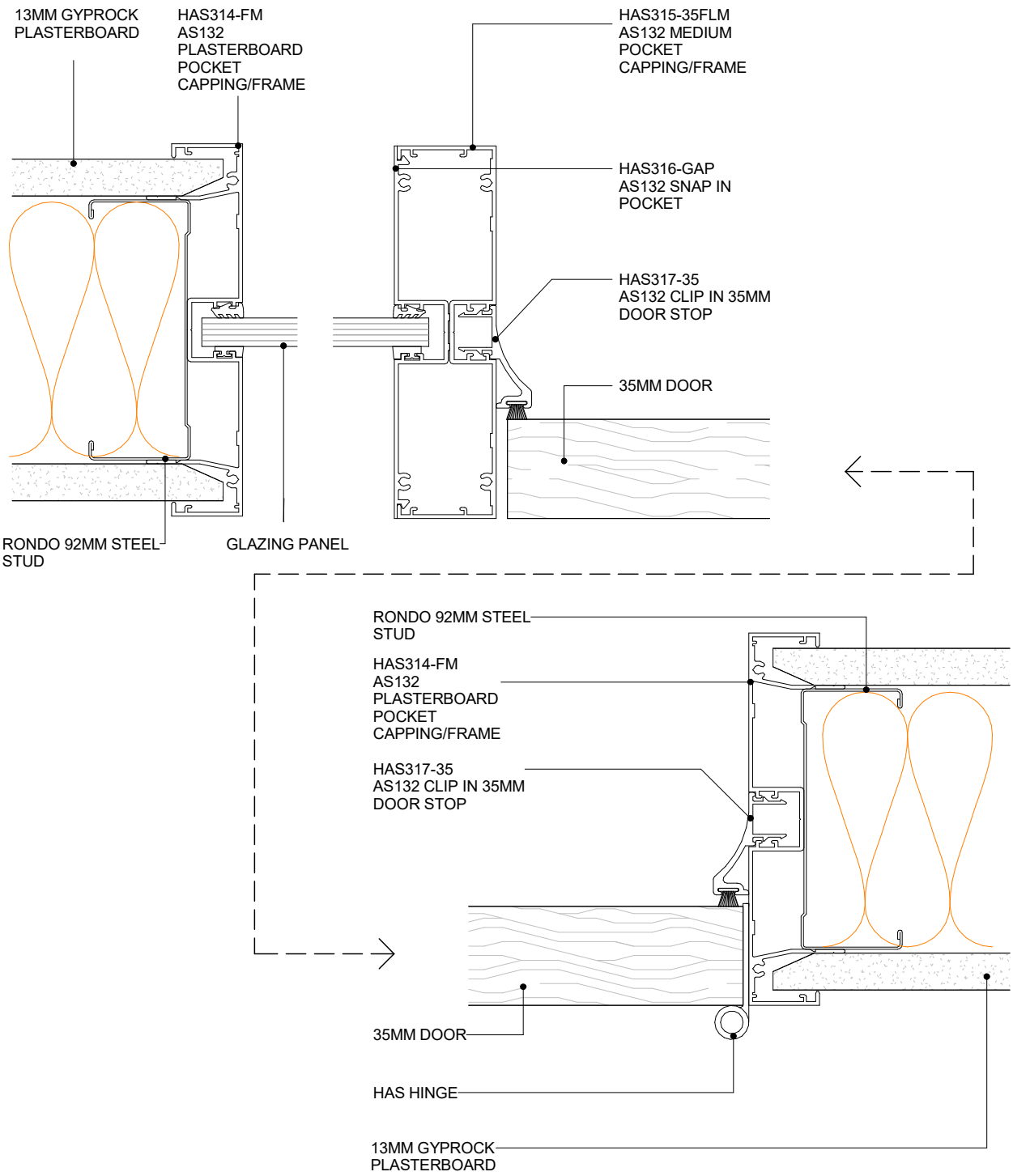
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DS SHADOWLINE DOOR HEADTRACK
TYPE 2 CROSS SECTION

5.3.6	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



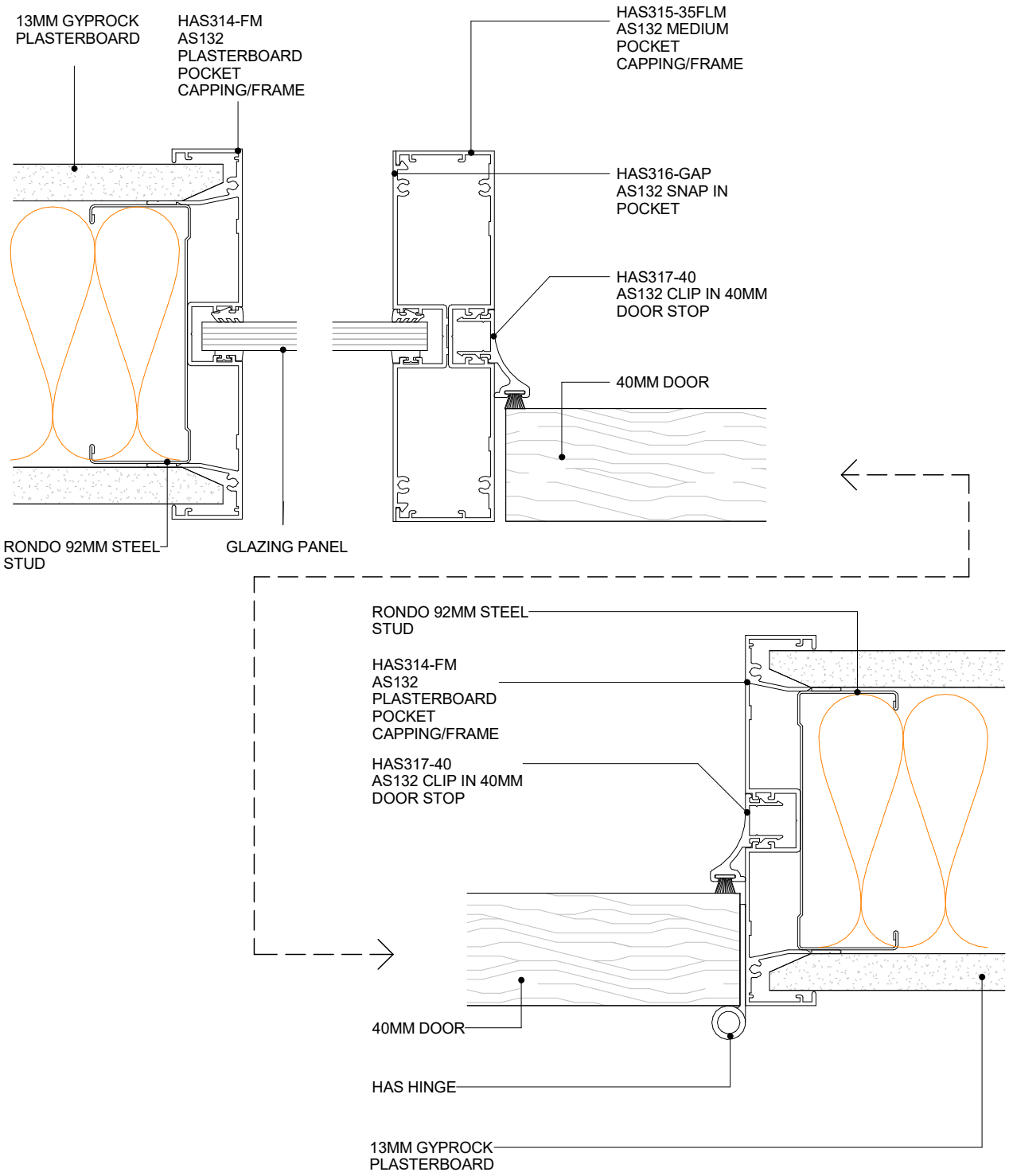
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - HALF HEIGHT GLAZED WALL CROSS SECTION

5.4.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



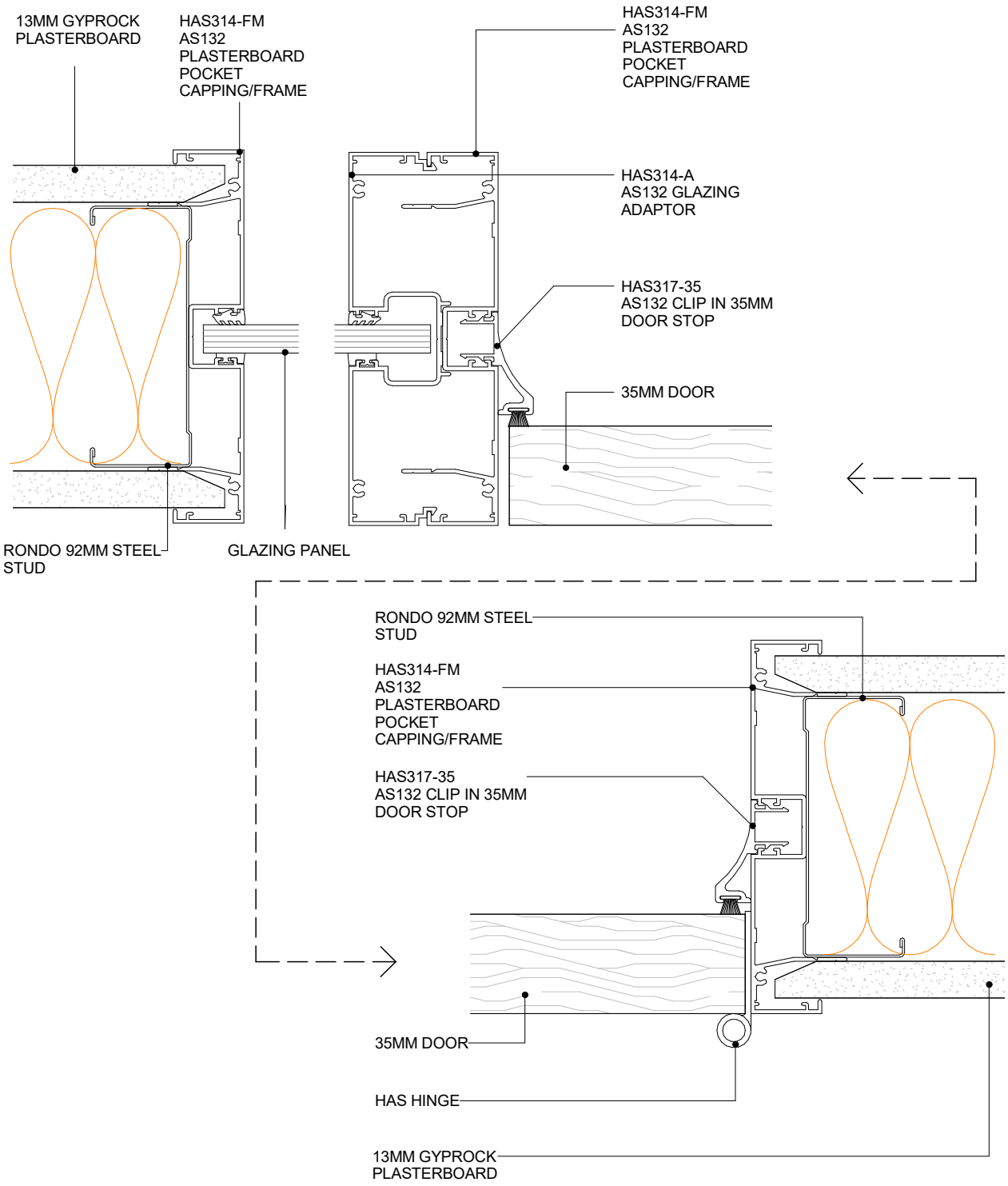
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 35MM MULLION & DOOR WALL SECTION PLAN VIEW

5.6.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 40MM MULLION & DOOR WALL SECTION PLAN VIEW

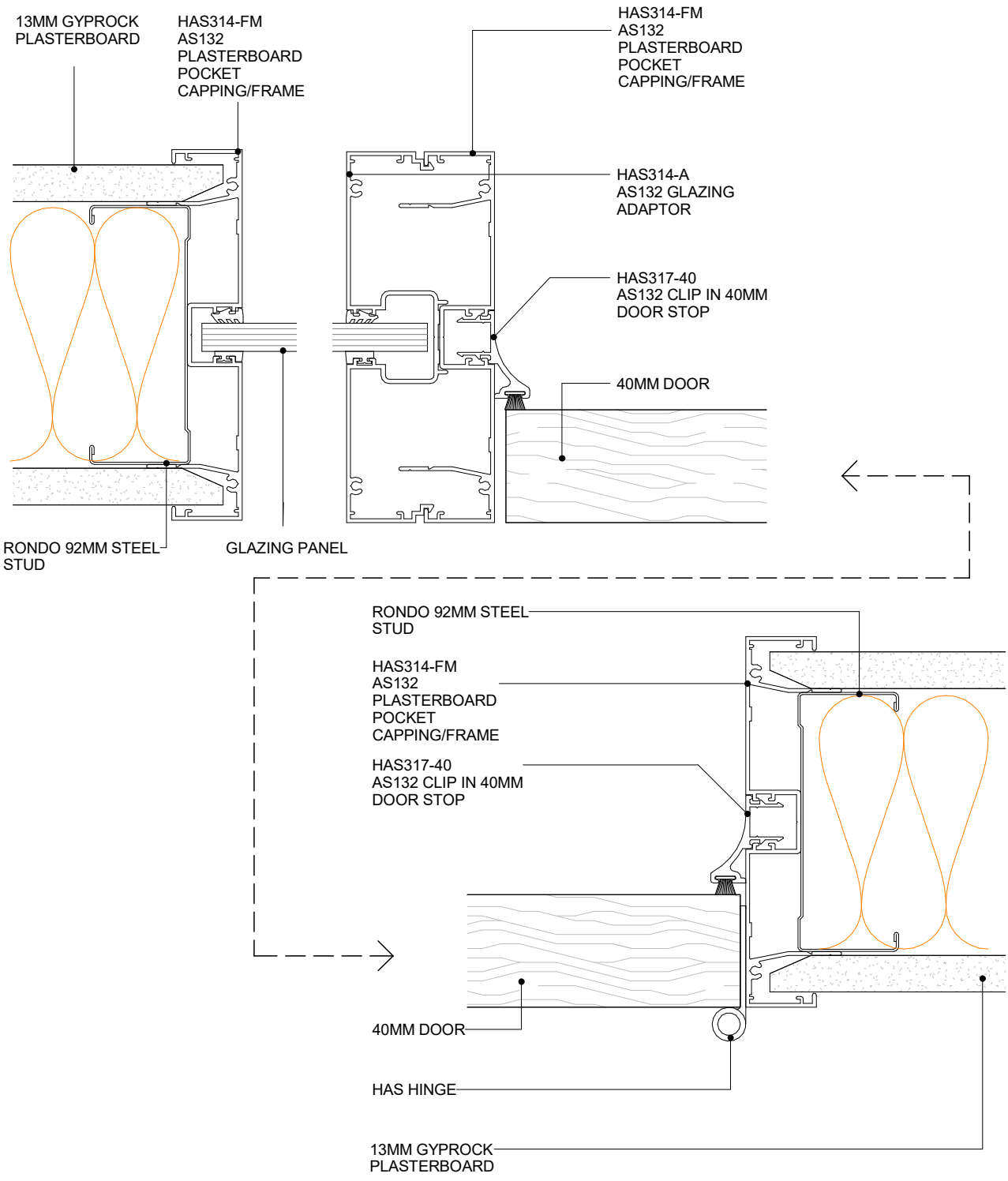
5.6.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 35MM DOOR JAMB TRACK PLAN VIEW

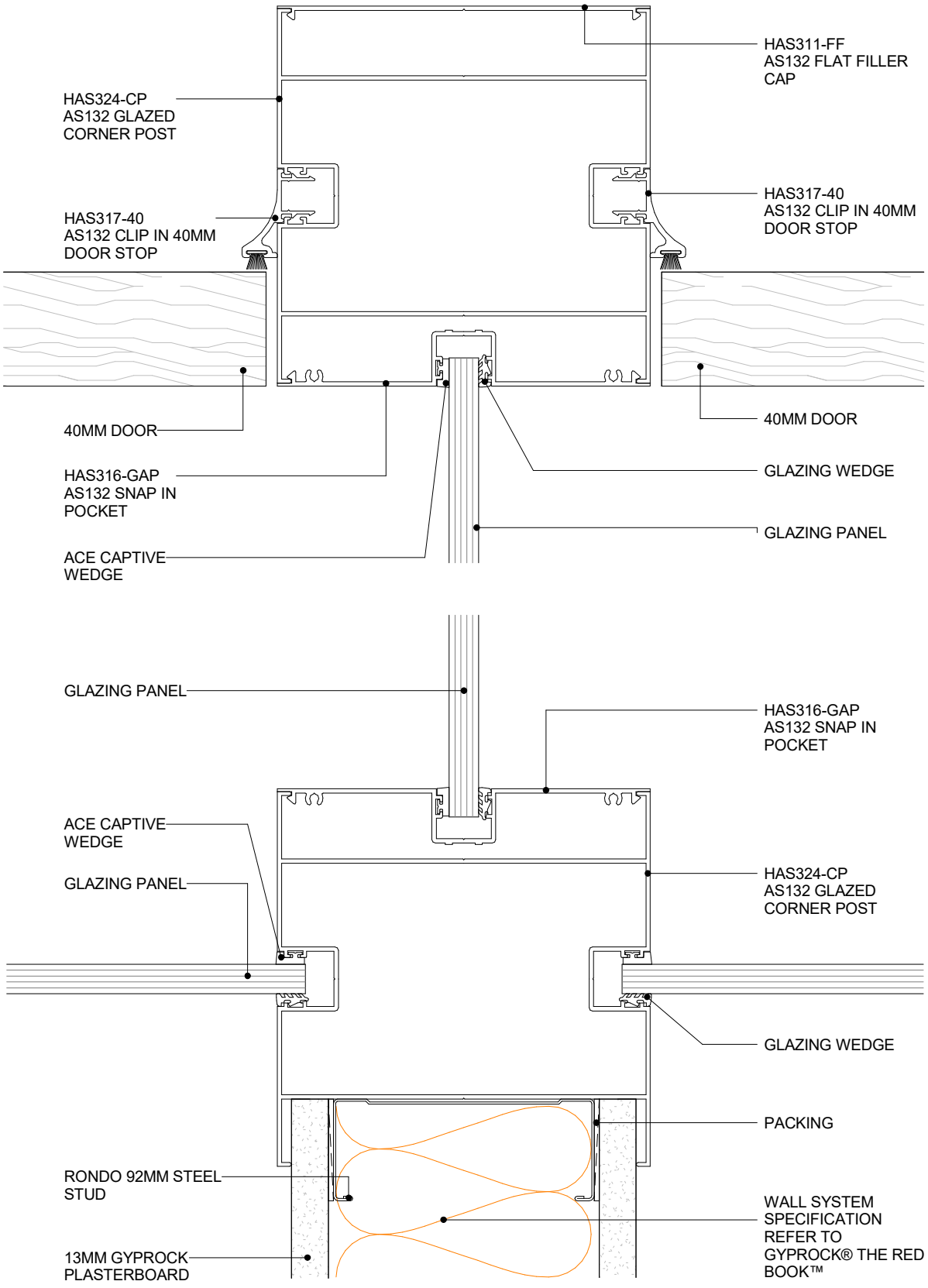
5.6.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



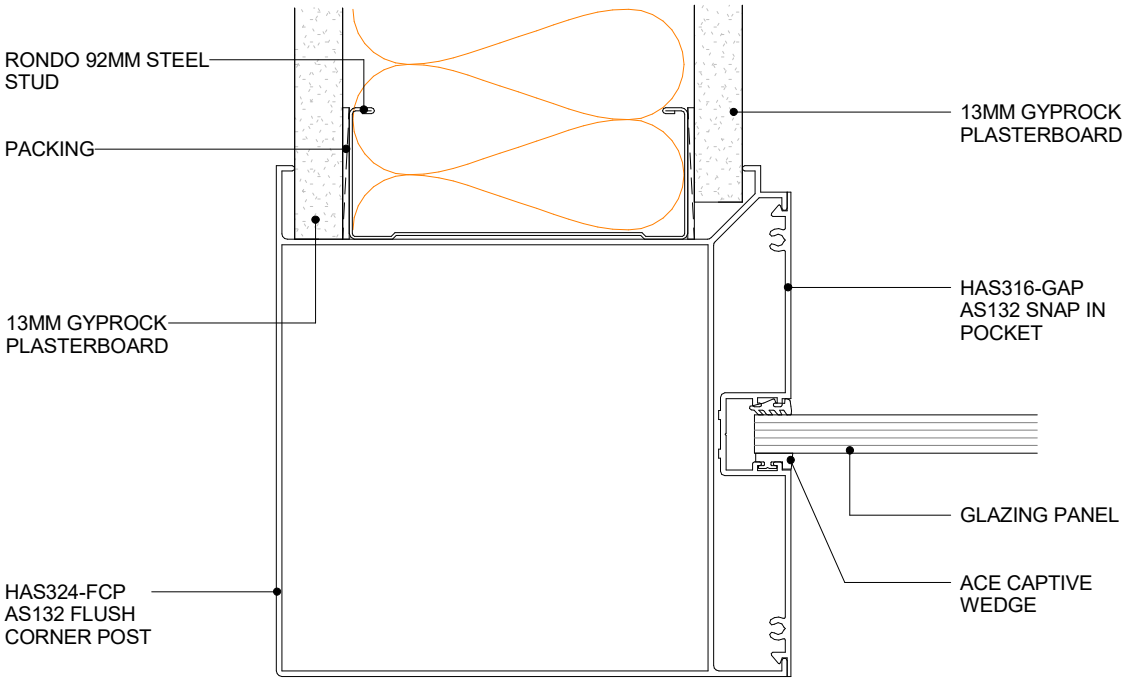
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 40MM DOOR JAMB TRACK PLAN VIEW

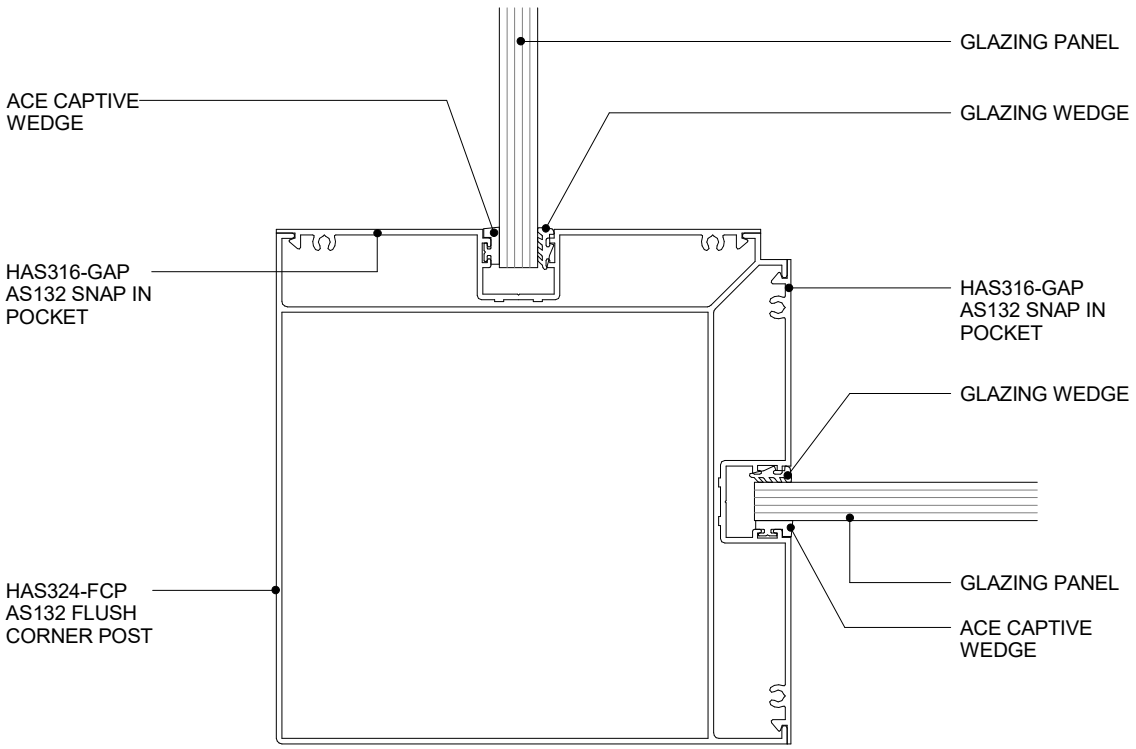
5.6.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - LARGE GLAZING POSTS PLAN VIEW

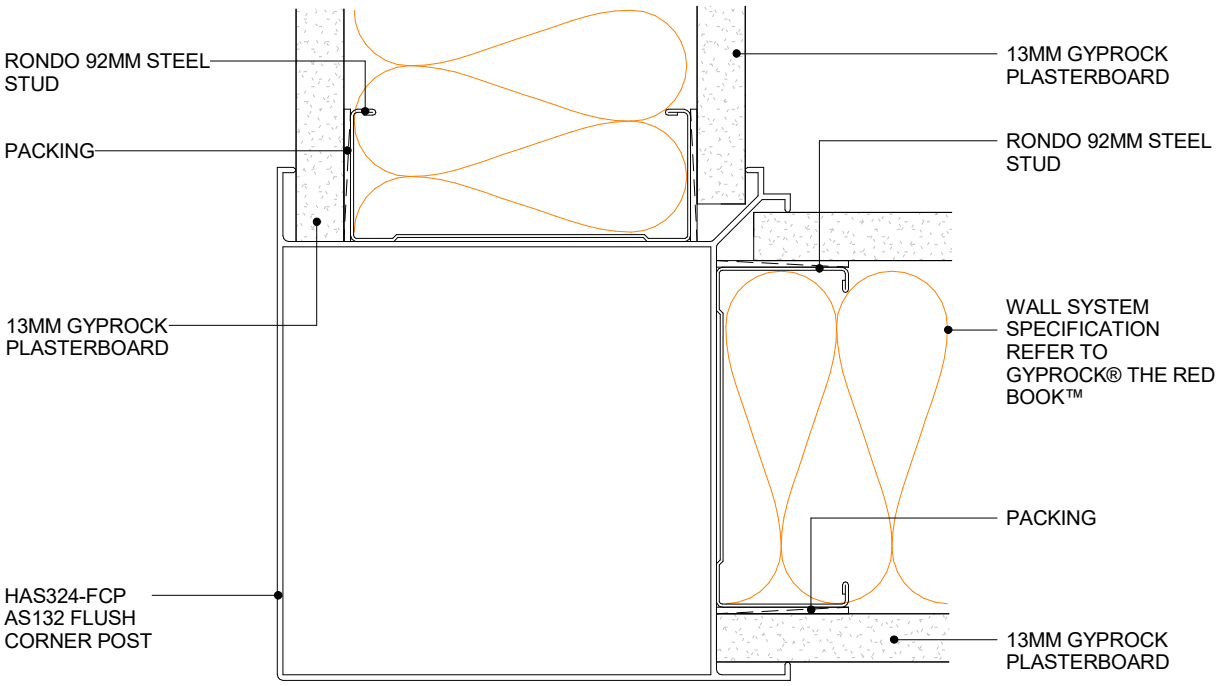
5.7.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE





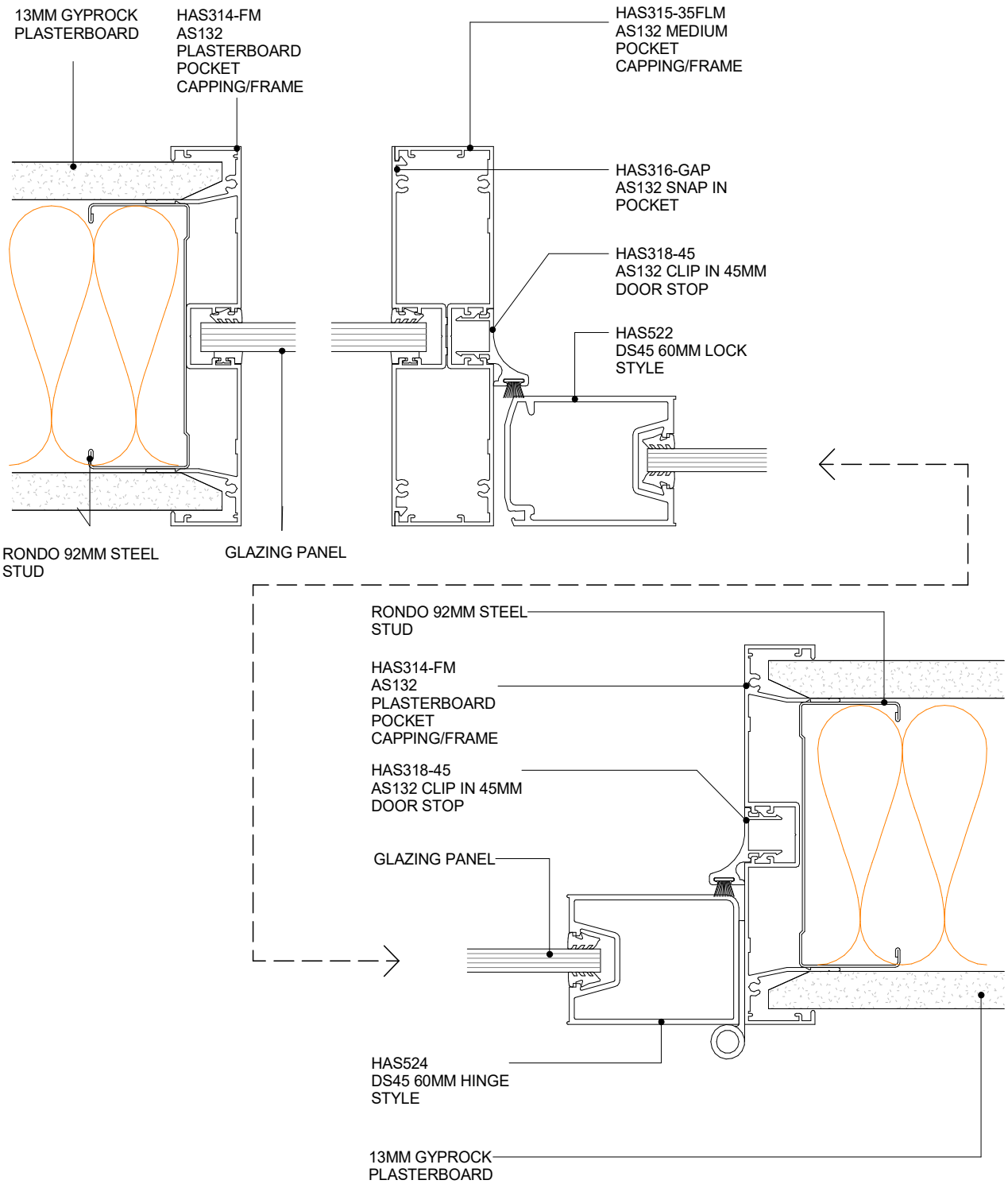
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - GLAZING CORNER POST SINGLE GLASS PLAN VIEW

5.7.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



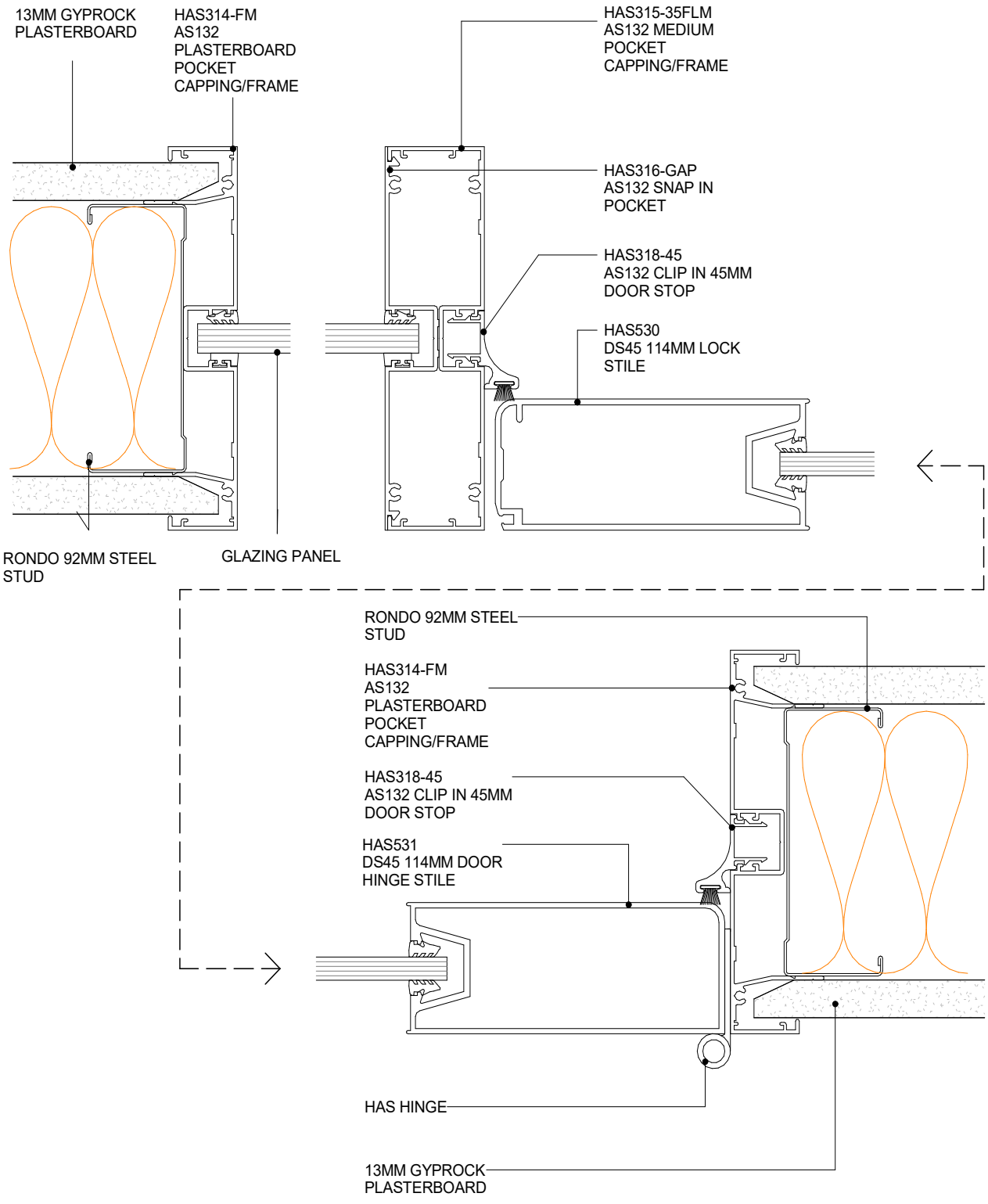
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - WALL CORNER POST CROSS SECTION

5.7.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



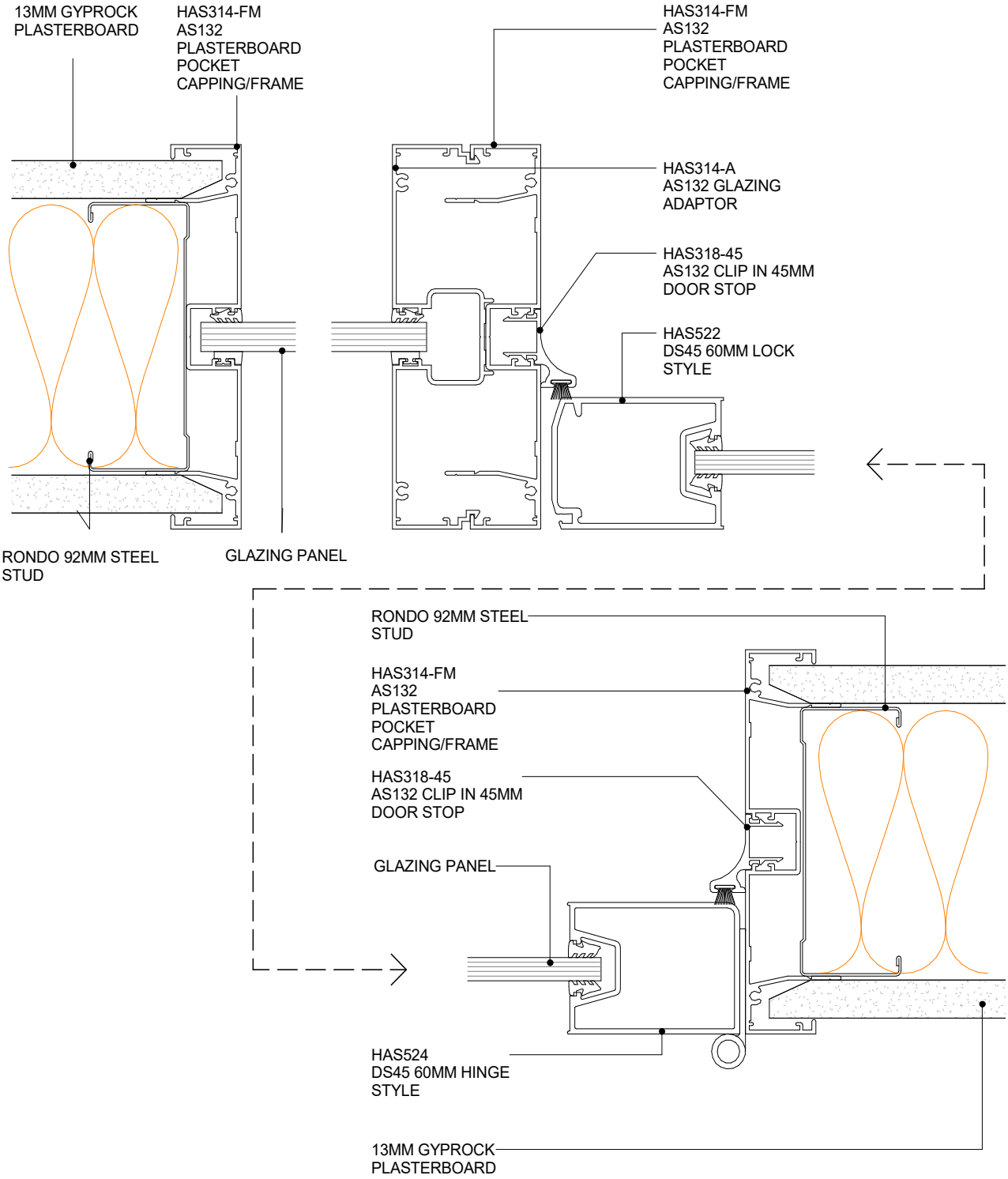
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - MULLION & DOOR TYPE 1 WALL SECTION PLAN VIEW

5.8.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



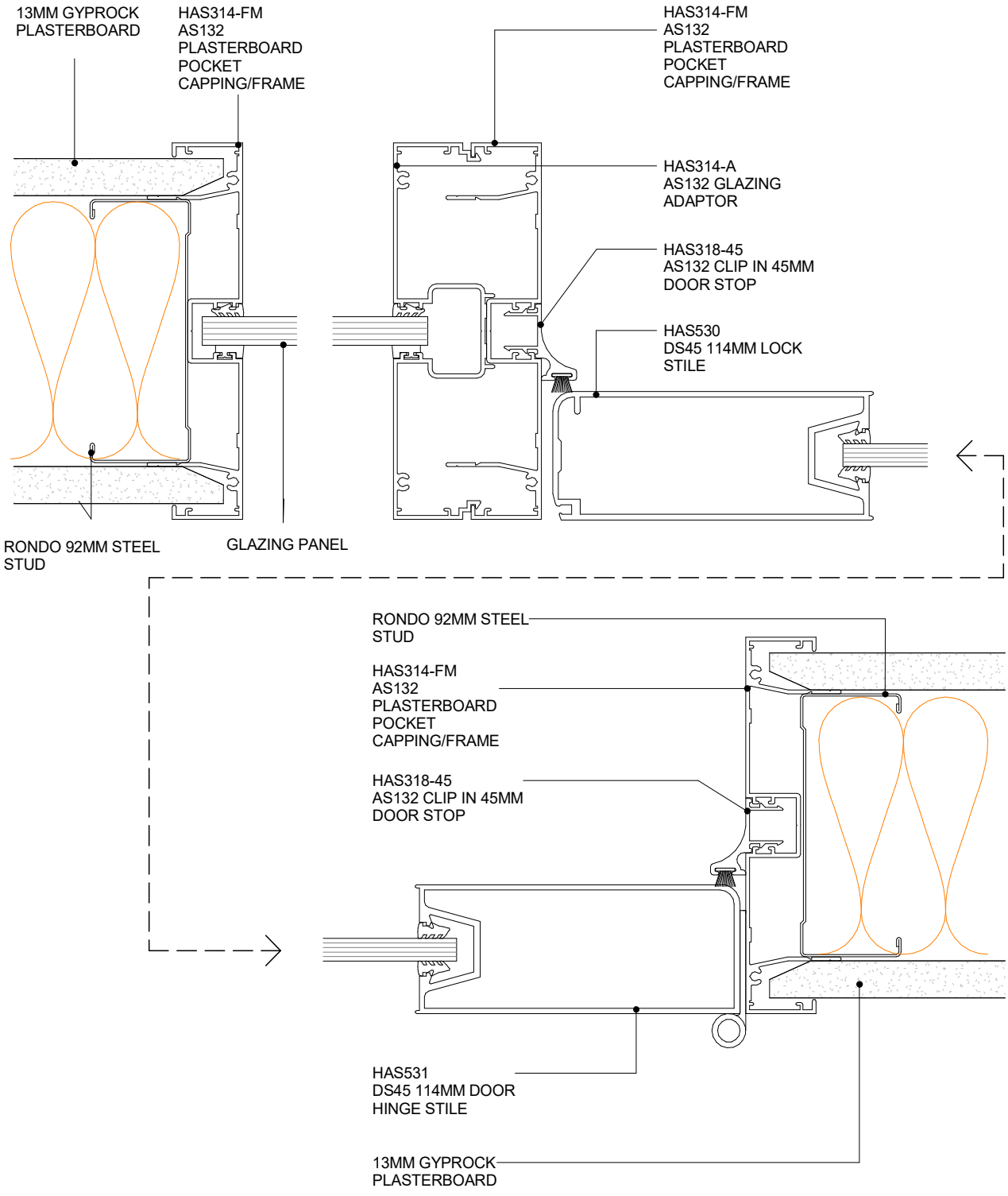
HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - MULLION & DOOR TYPE 2 WALL SECTION PLAN VIEW

5.8.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DOOR JAMB TRACK TYPE 1 PLAN VIEW

5.8.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
A SERIES 132 92MM - 45MM DOOR JAMB TRACK TYPE 2 PLAN VIEW

5.8.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

C SERIES 45

SUITE OVERVIEW

C Series 45 is used as a commodity system when the budget is a factor. It can be designed into the A Series for a slimmer look.

C Series 45 has the following features:
» Standard glazing profile of 45mm wide x 25mm high
» Standard wall size based around 64mm or 92mm steel stud with one layer of 13mm Gyprock plaster board on each side
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses between 35mm and 45mm can be used
» Can be fixed to standard openings or fixed to 104 or 132 series head/sill track

TECHNICAL SERVICES + SPECIFICATION

Technical advice is available from our experienced team.
Please see our company information page for your closest team, or email specificationsupport@himmel.com.au

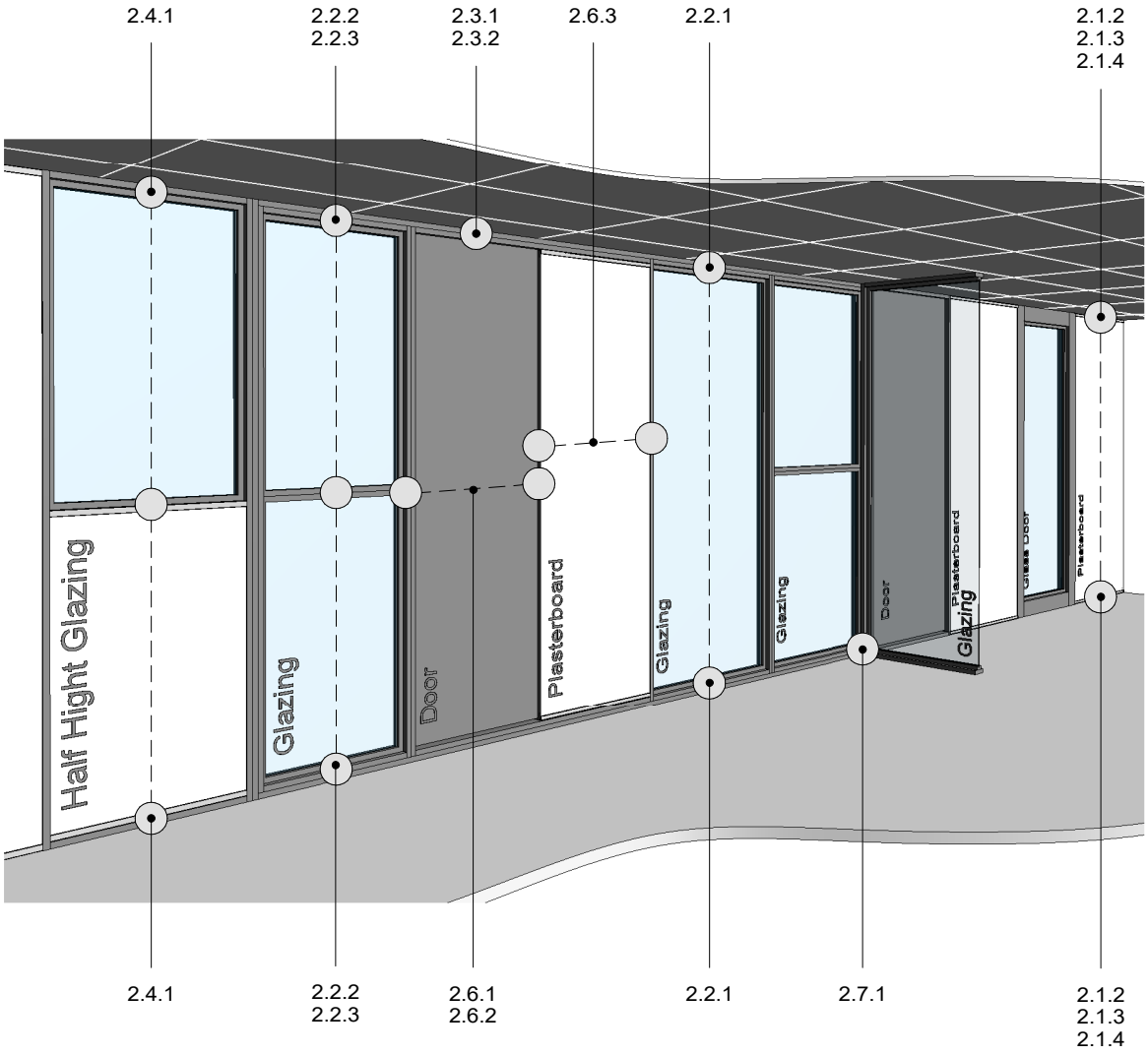
The Himmel Interior Systems product catalogue is hosted on www.himmel.com.au

CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

Specifications are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au

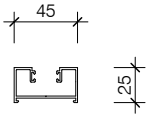


TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

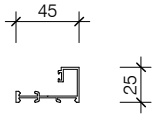
- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK® THE RED BOOK™

HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 DETAIL REFERENCES

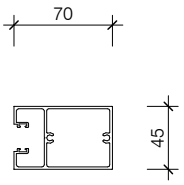
2.1.0	1 : 25 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



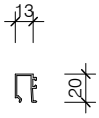
HAS001
CS45 GLAZING MULLION/TRANSOM



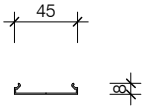
HAS004
CS45 GLAZING MULLION/SILL



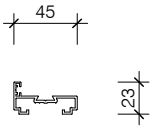
HAS004-GP70
CS45 GLAZING 70MM FRAME



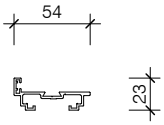
HAS005
CS45 GLAZING BEAD



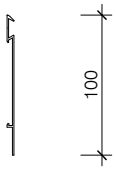
HAS006
CS45 FRAME COVER



HAS007
CS45 DOORJAMB SUITS DOORS TO 35MM THICK

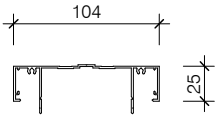


HAS008
CS45 DOORJAMB SUITS DOORS TO 40-45MM THICK

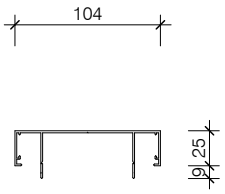


HAS009
100MM SKIRTING

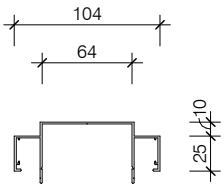
HAS009-150
150MM SKIRTING



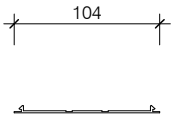
HAS010-R
AS104 HEAD-SILL TRACK



HAS010
AS104 HEAD/SILL TRACK



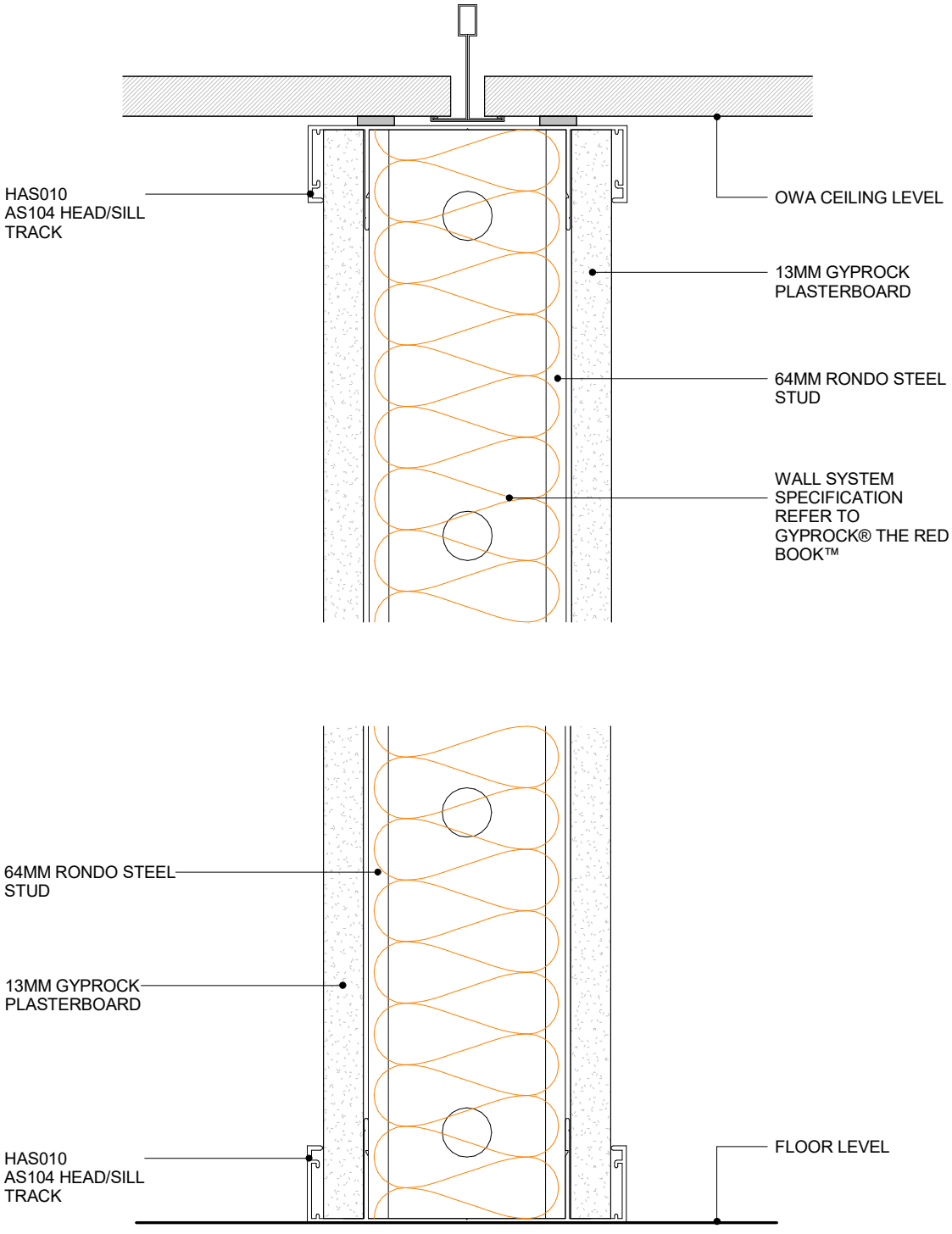
HAS010-SH
AS104 SHADOWLINE HEADTRACK



HAS011
AS104 FLAT TERMINATION CAP

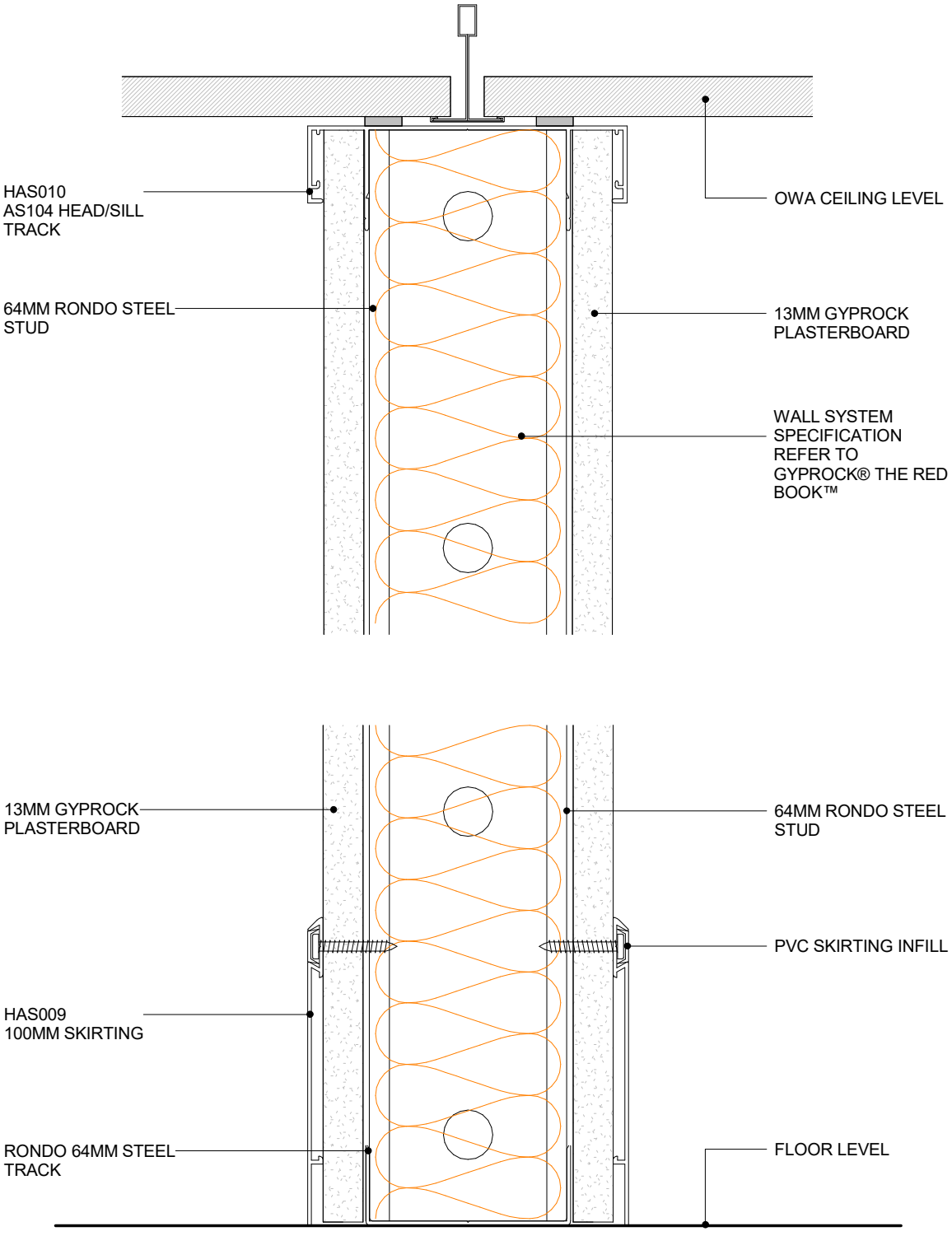
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 STANDARD SUITE PROFILES

2.1.1	1 : 5 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



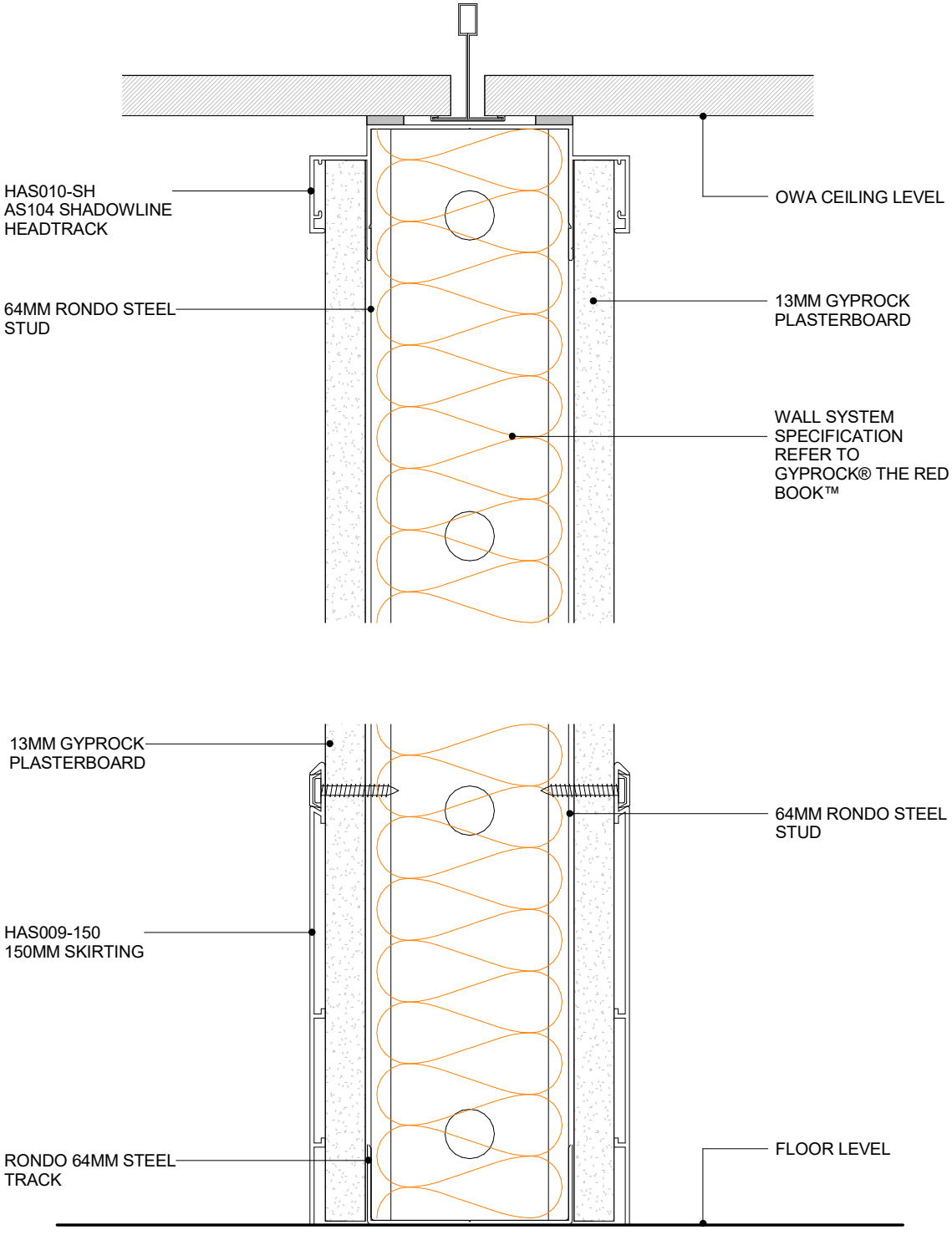
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - STEEL STUD WALL ALTERNATIVE CROSS SECTION

2.1.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



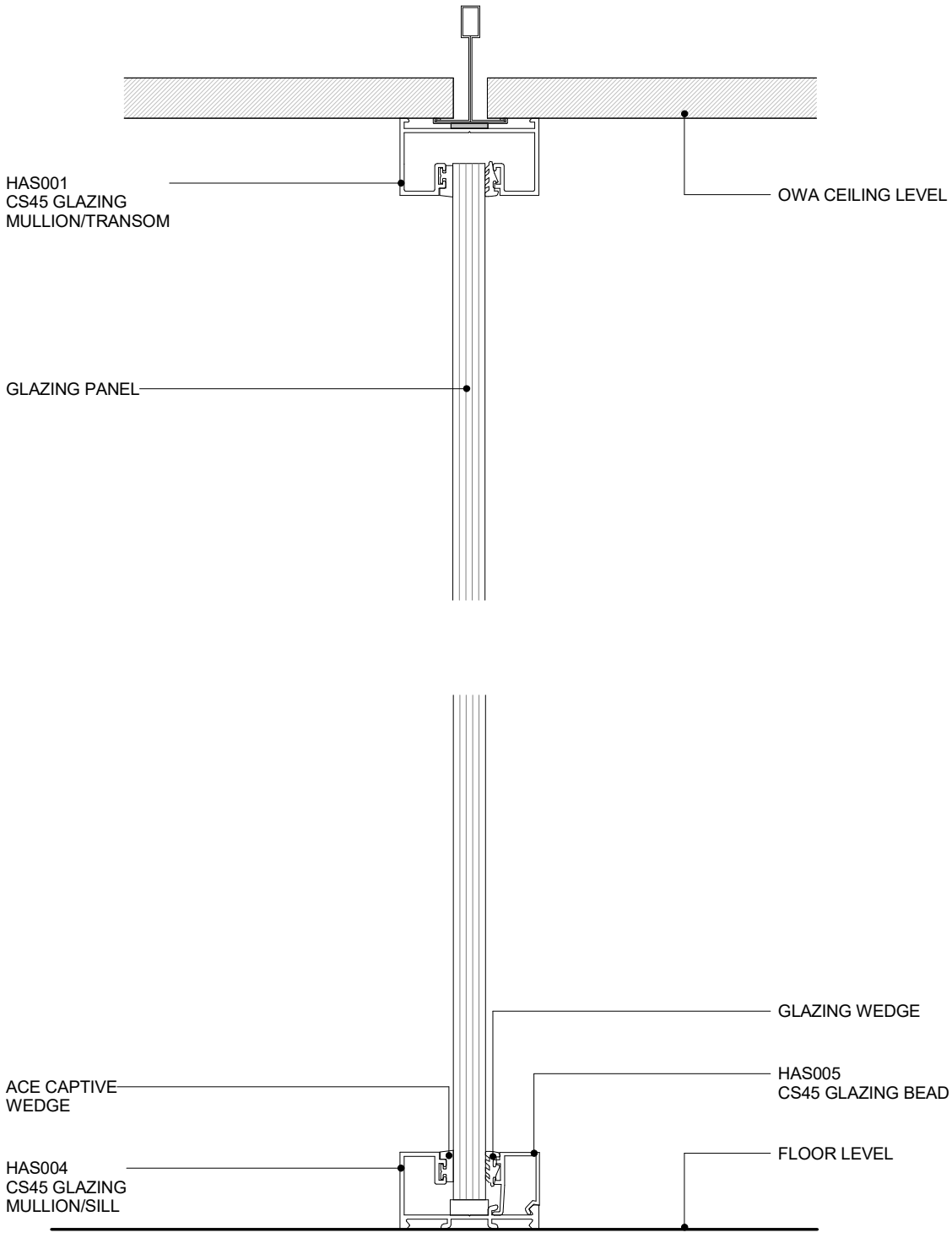
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - STEEL STUD WALL CROSS SECTION

2.1.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



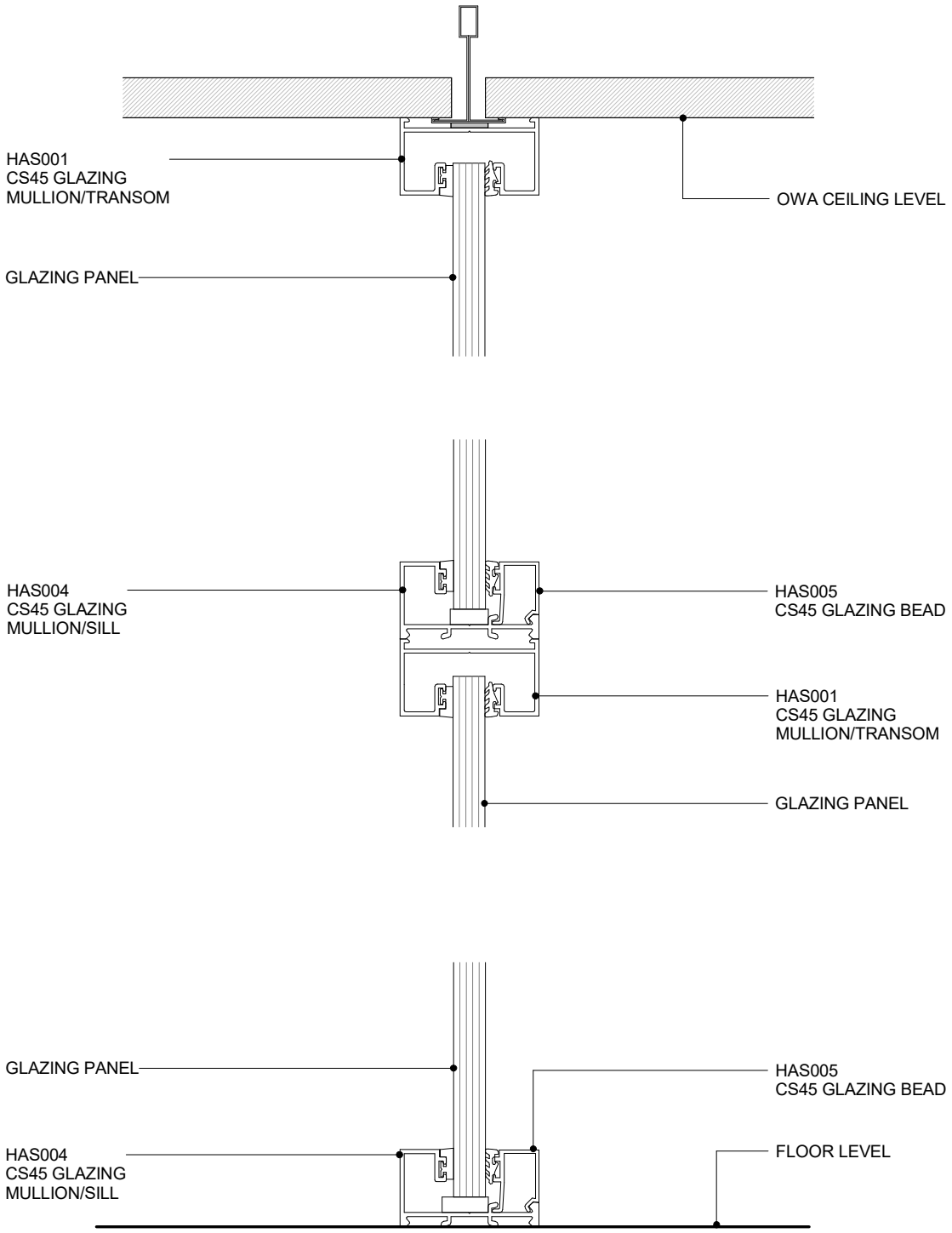
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - SHADOWLINE STEEL STUD WALL CROSS SECTION

2.1.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



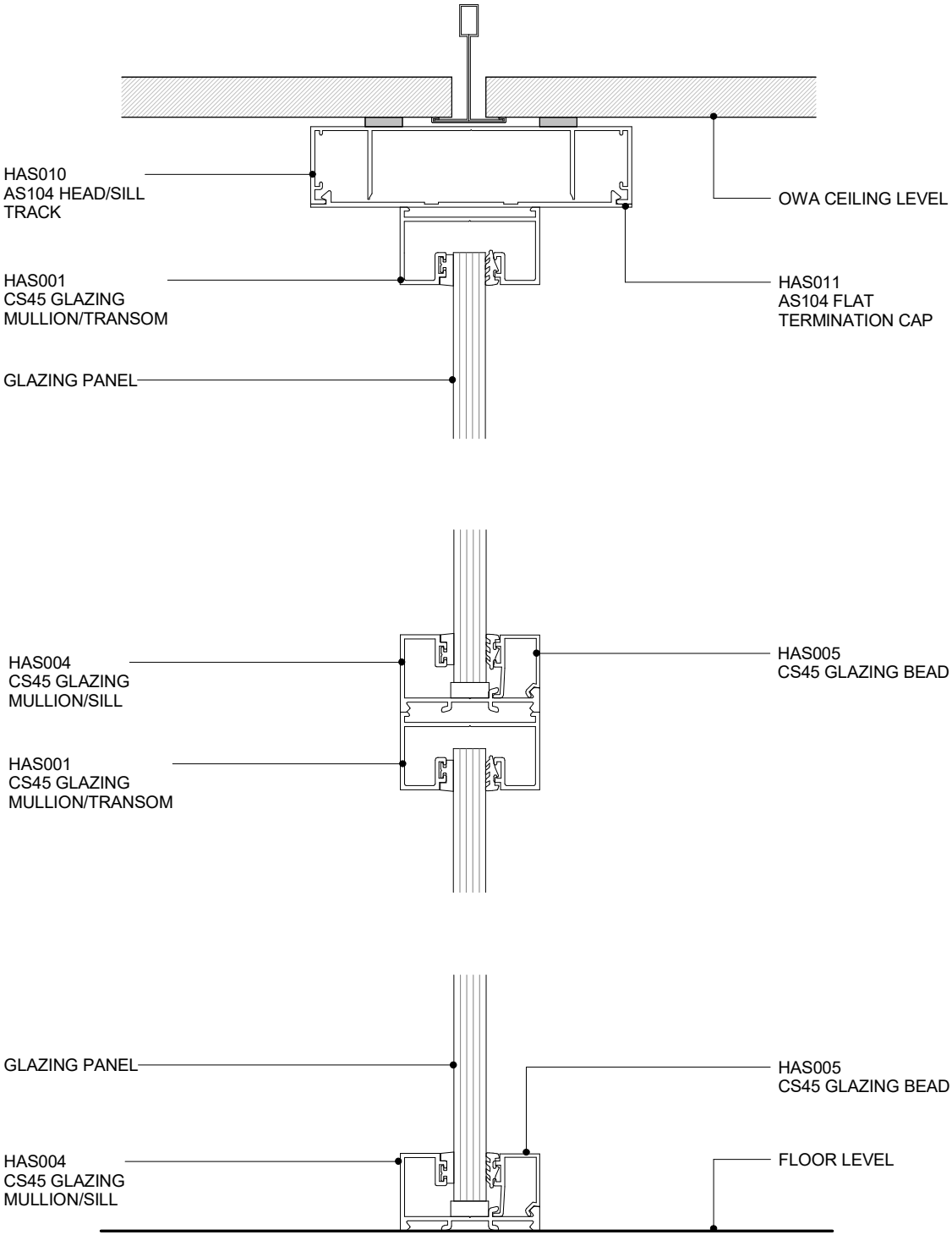
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - FULL HEIGHT GLAZING SYSTEM CROSS SECTION

2.2.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



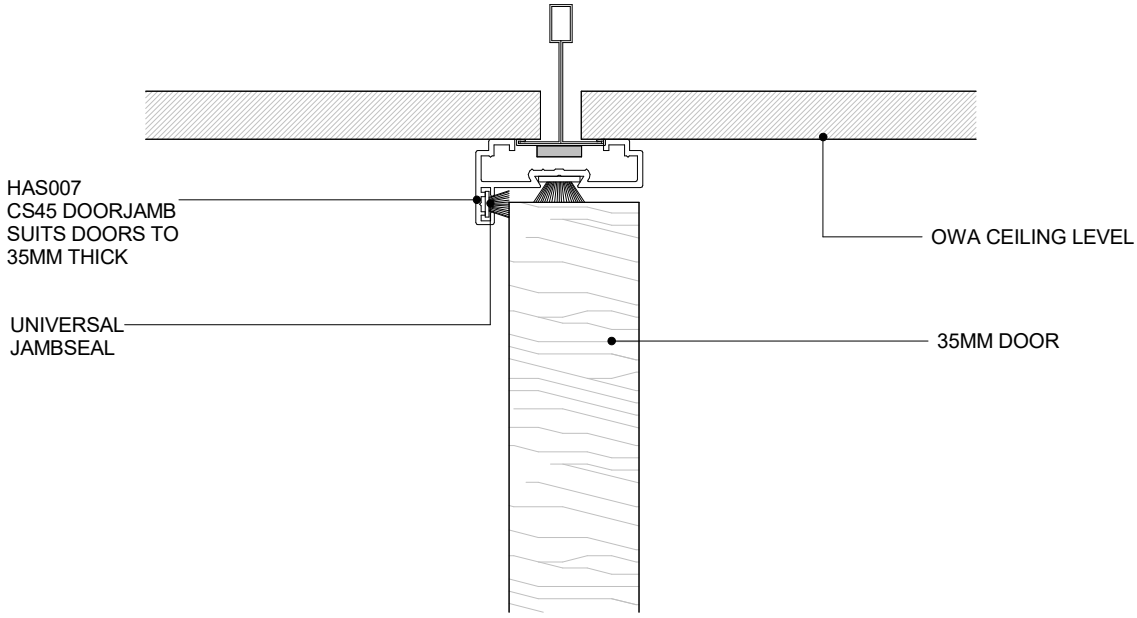
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - GLAZING TRANSOM CROSS SECTION

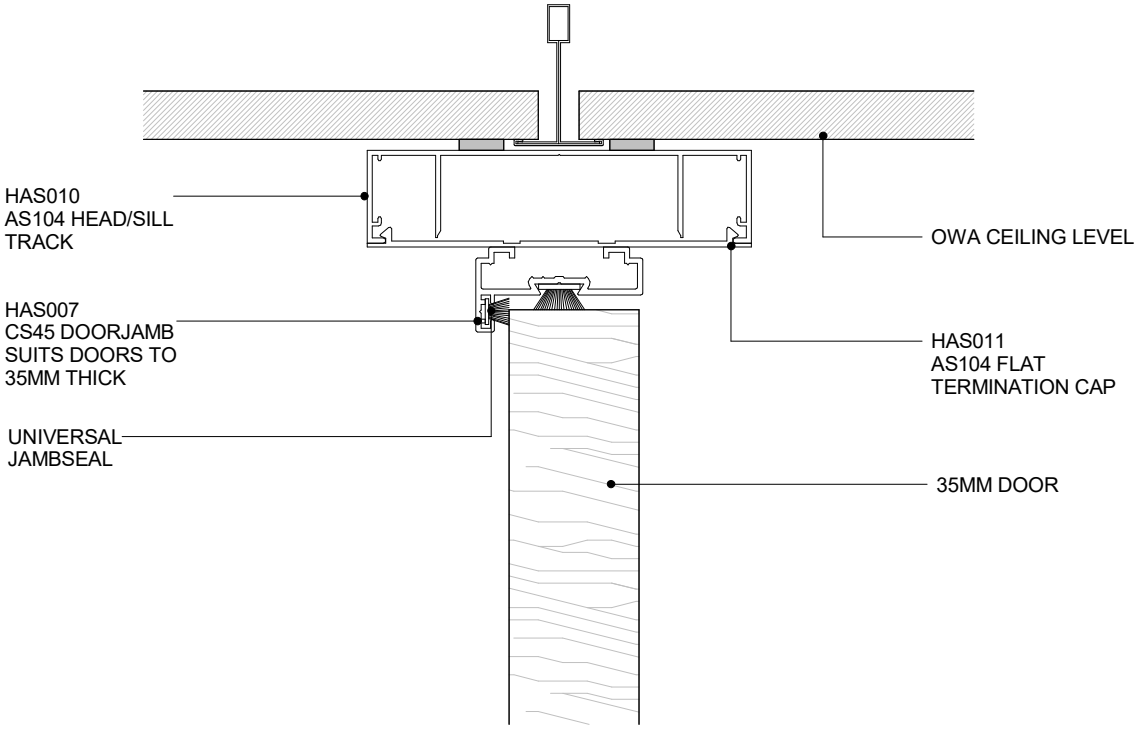
2.2.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - GLAZING TRANSOM WITH HEADTRACK CROSS SECTION

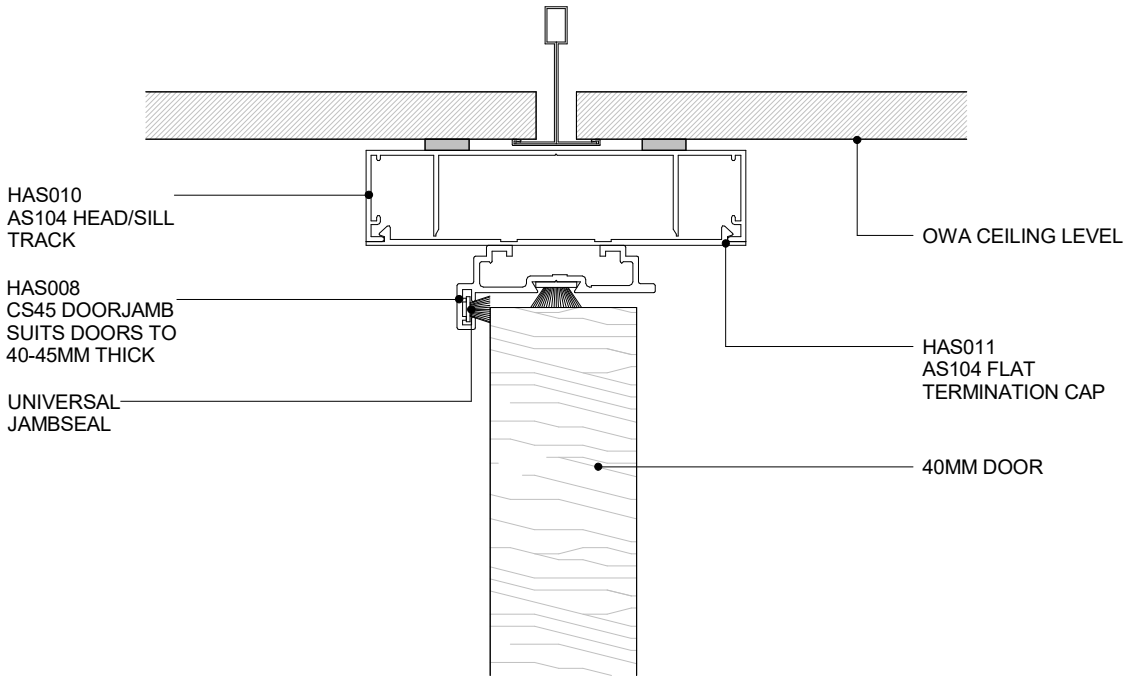
2.2.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

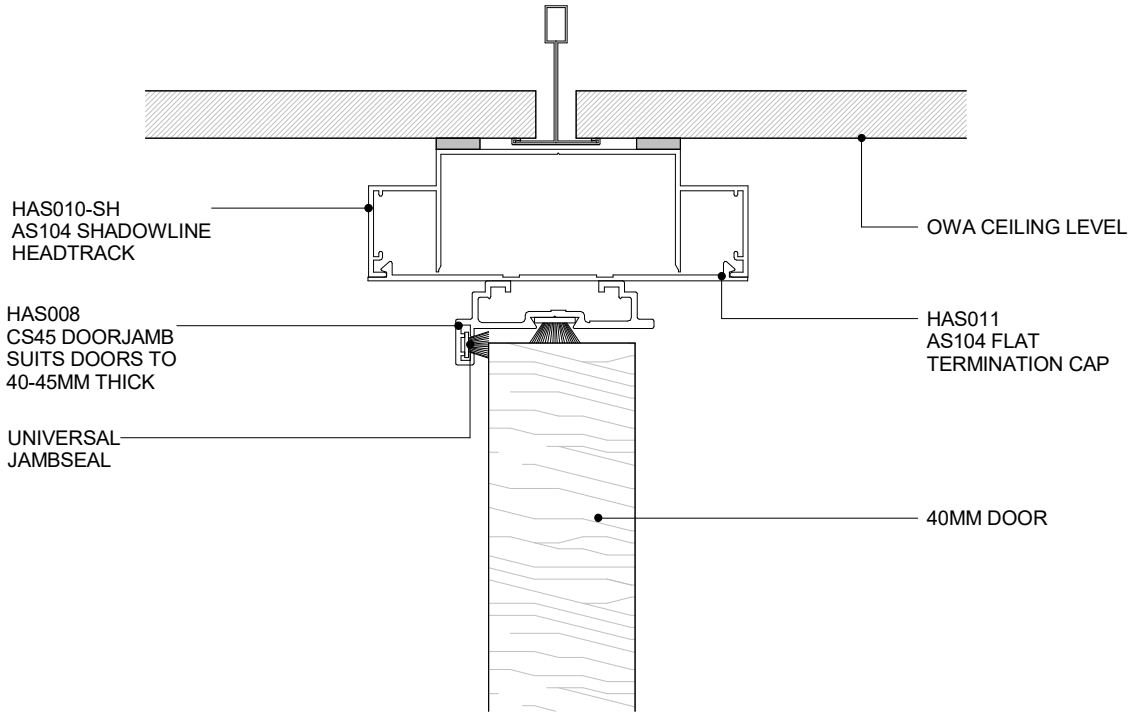




HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - 40MM DOOR HEADERS CROSS SECTION

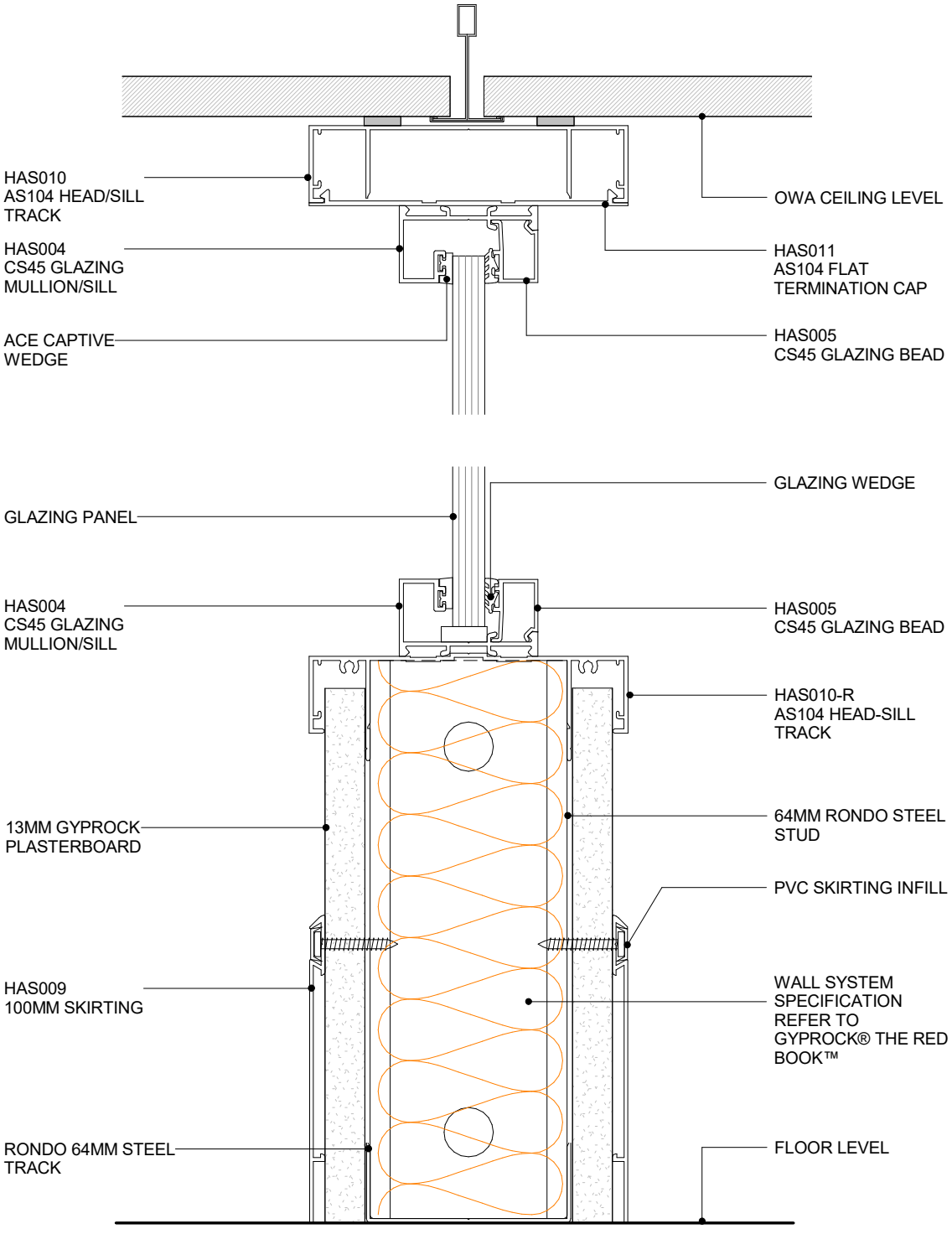
2.3.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE





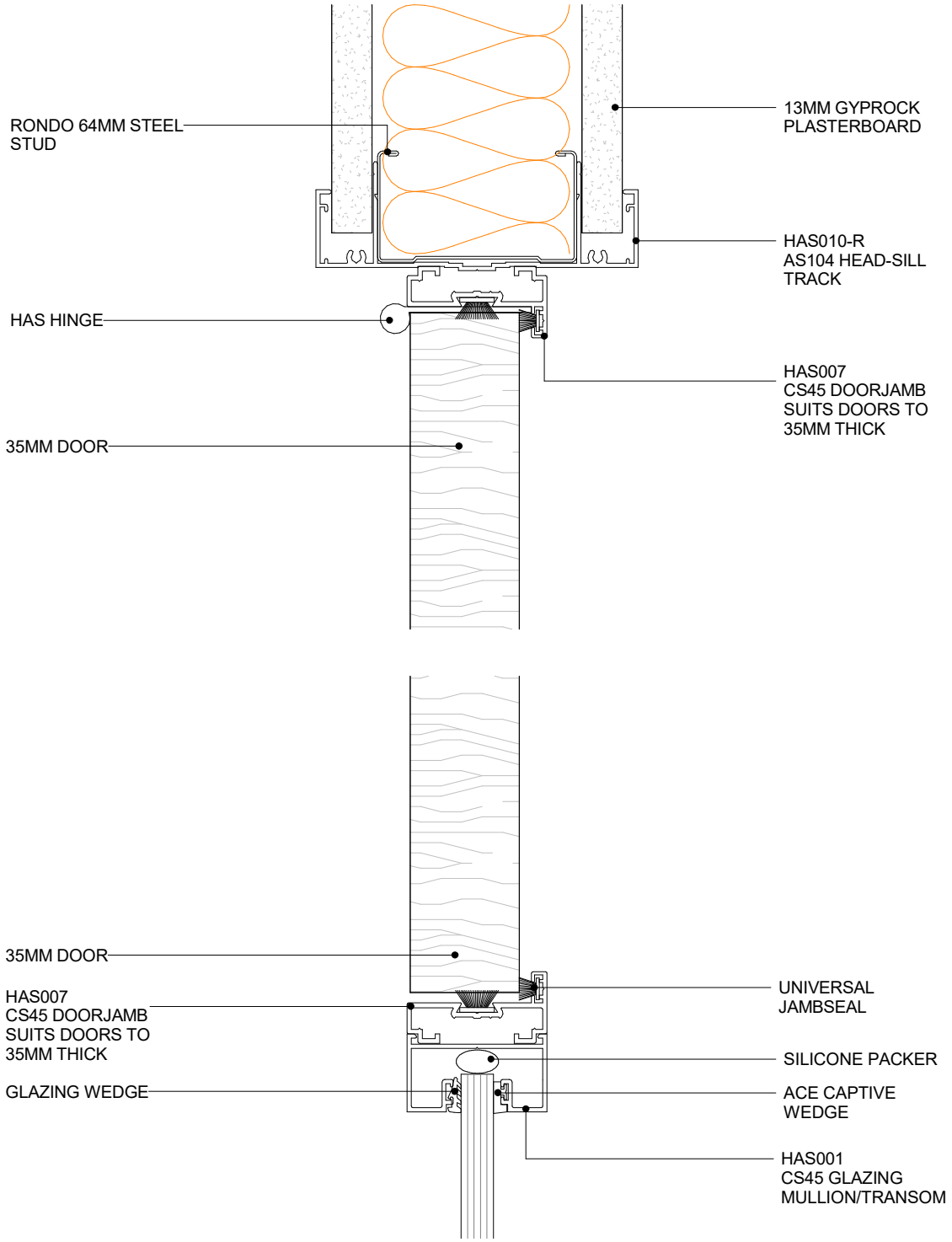
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - 50MM DOOR HEADTRACKS CROSS SECTION

2.3.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



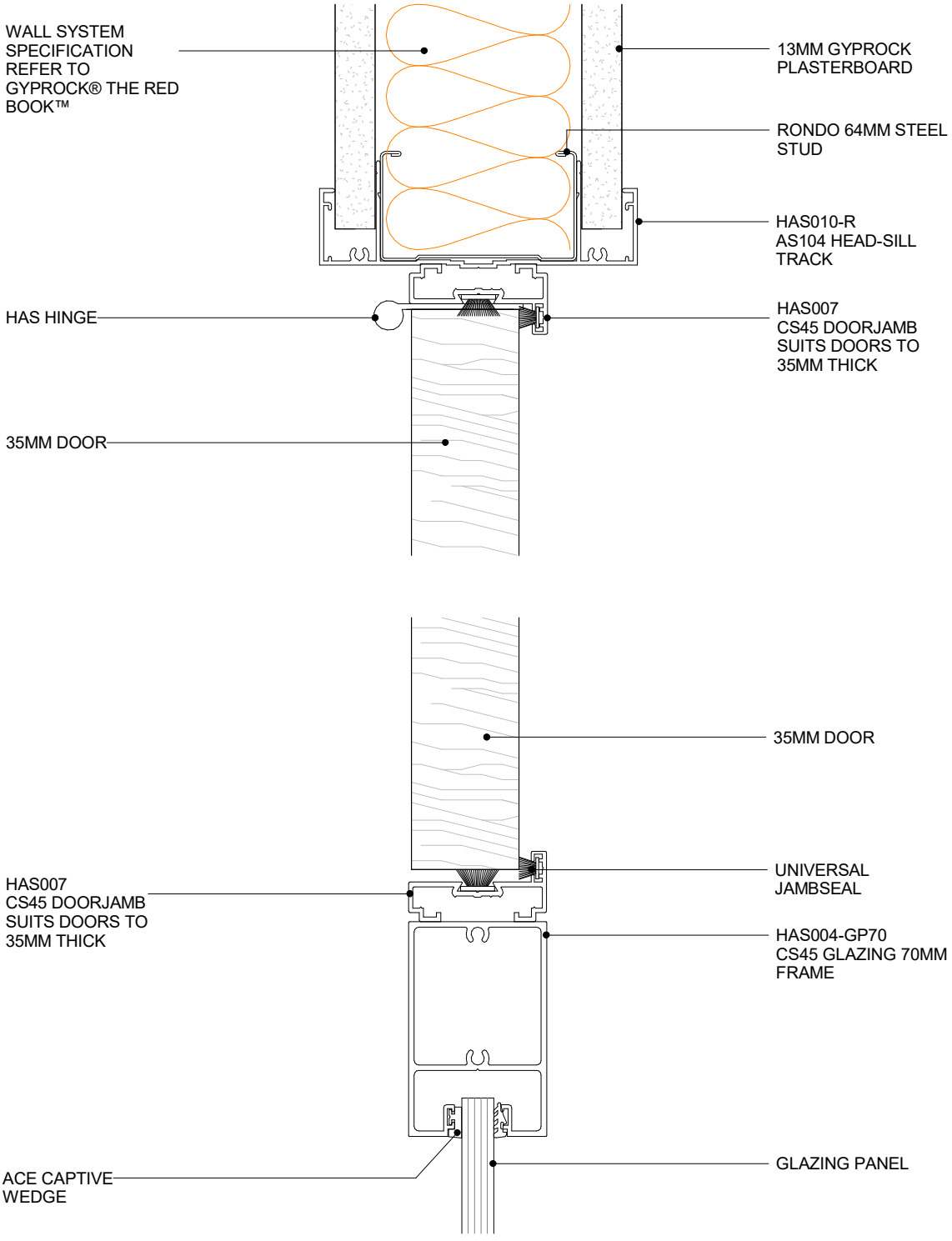
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - HALF HEIGHT GLAZING WALL CROSS SECTION

2.4.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



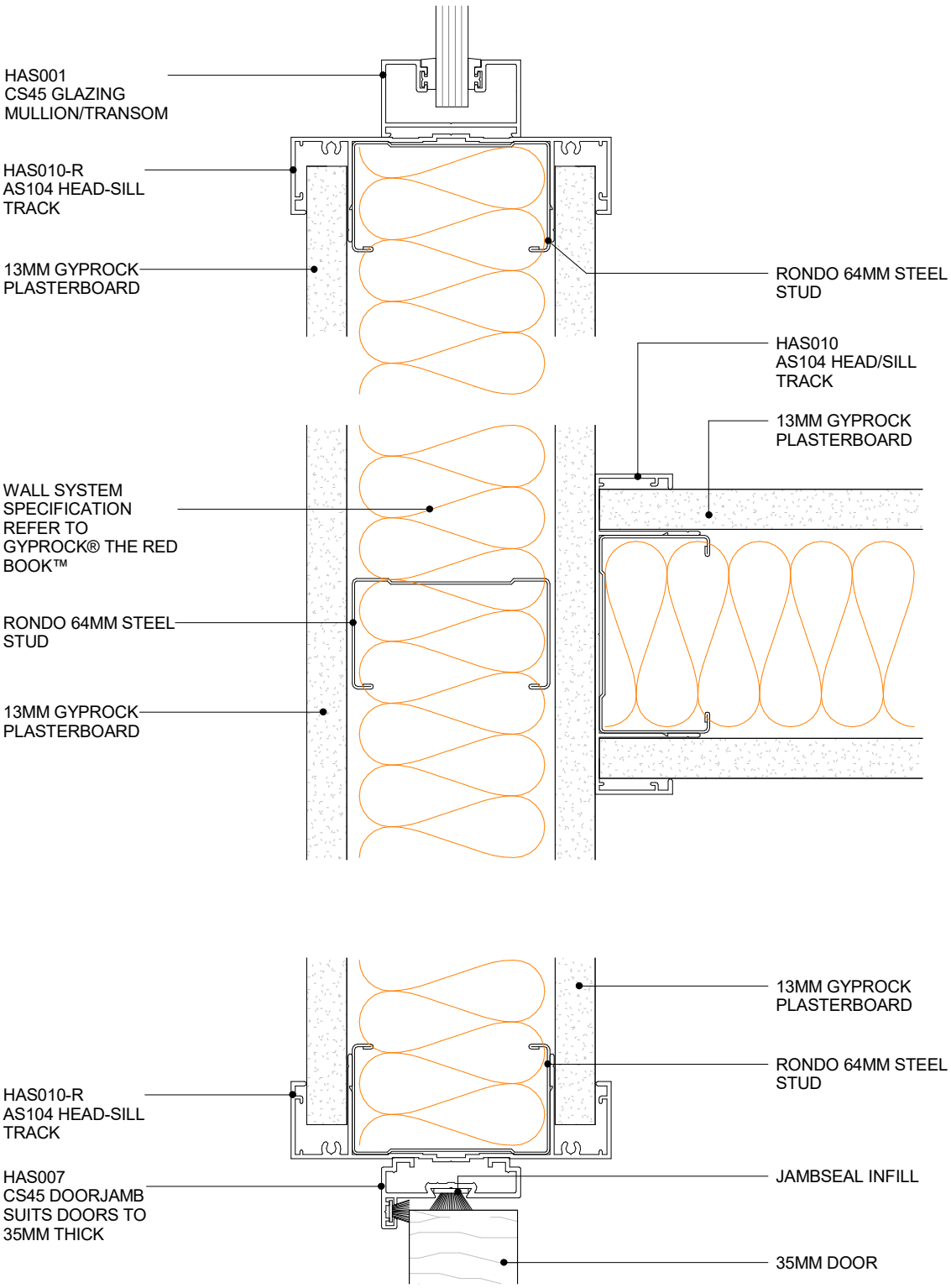
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - DOOR TO GLAZING POST OPTION 1 PLAN VIEW

2.6.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



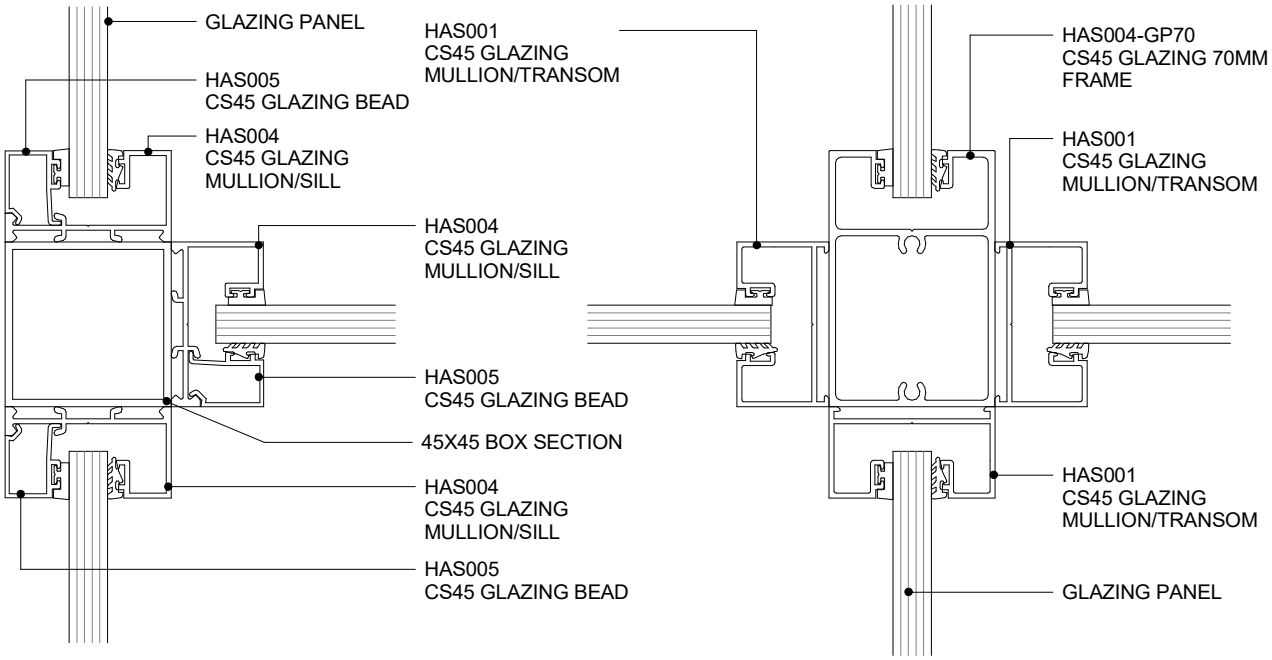
HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - DOOR TO GLAZING POST OPTION 2 PLAN VIEW

2.6.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - WALL INTERSECTION PLAN VIEW

2.6.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
C SERIES 45 - GLAZING POST PLAN VIEW

2.7.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

E SERIES 104

SUITE OVERVIEW

E Series 104 provides an edgeline glazing and twin glazing design with clean lines to provide a clean look to your partition system. E Series 104 gives a standard detail of 104mm x 25mm, 104mm x 35mm or 104mm x 50mm.

» E Series 104 has the following features:
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses of 35mm - 45mm can be used
» Standard wall size based around 64mm steel stud with one layer of 13mm Gyprock plaster board on each side

TECHNICAL SERVICES + SPECIFICATION

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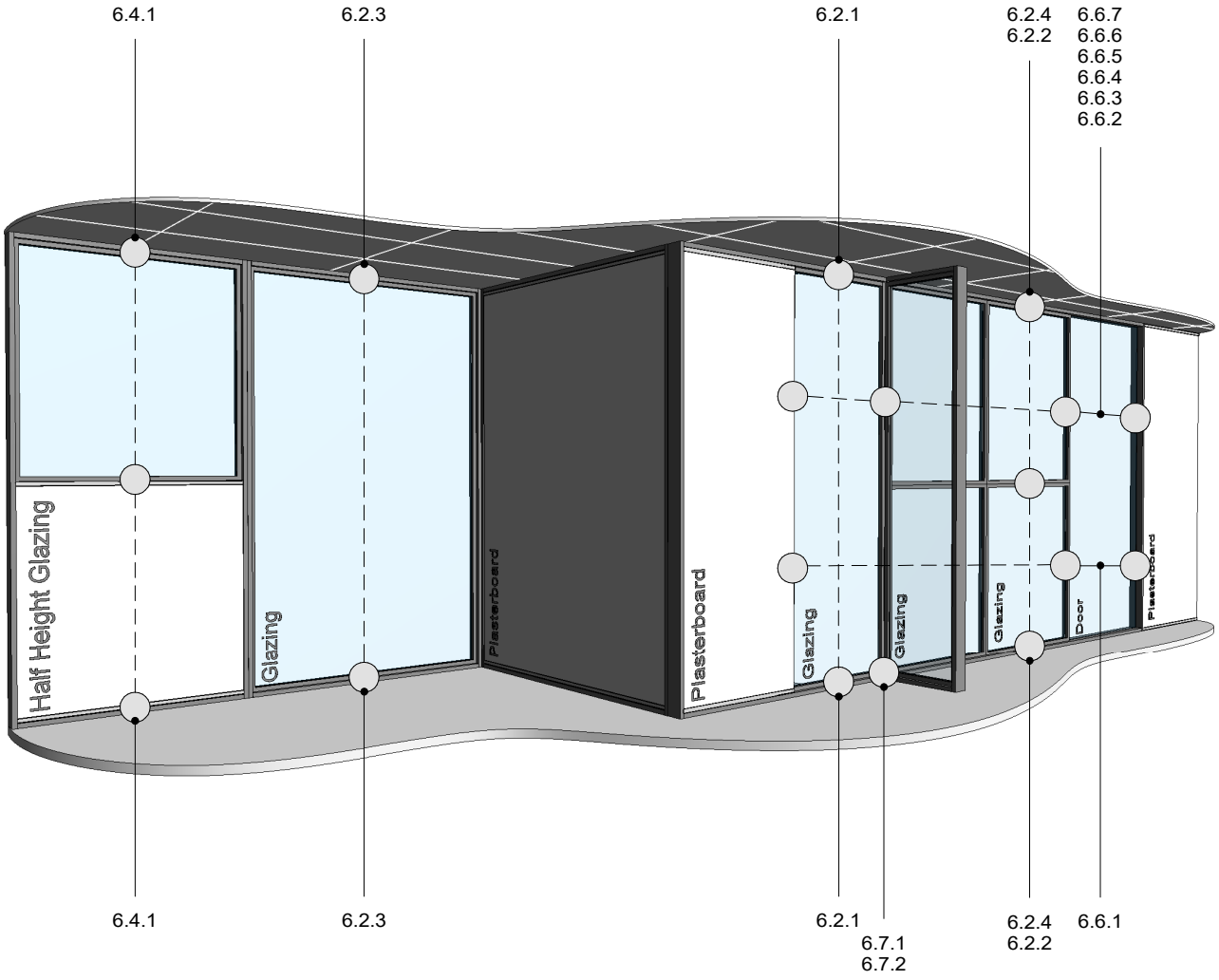
CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

Specifications are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au



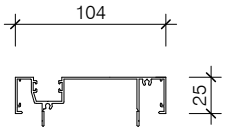
TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK® THE RED BOOK™

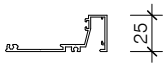
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - DETAIL REFERENCES

6.1.0	1 : 25 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

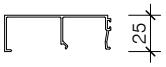
CSR



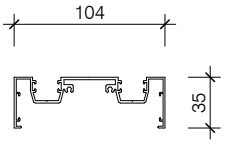
HAS032
ES104 EDGE POCKET CAPPING



HAS033
ES104 EDGE GLAZING FRAME

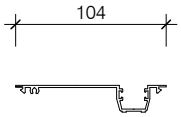


HAS034
ES104 EDGE GLAZING BEAD

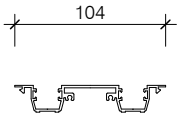


HAS035
ES104 TWIN GLAZING MULLION FRAME

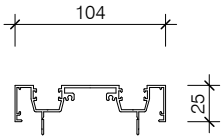
HAS036
ES104 TWIN GLAZING BEAD



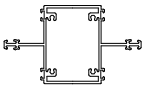
HAS038
ES104 EDGE GLAZING SNAP IN POCKET



HAS039
ES104 TWIN GLAZING SNAP IN POCKET

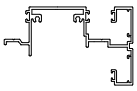


HAS040
ES104 TWIN GLAZING FRAME



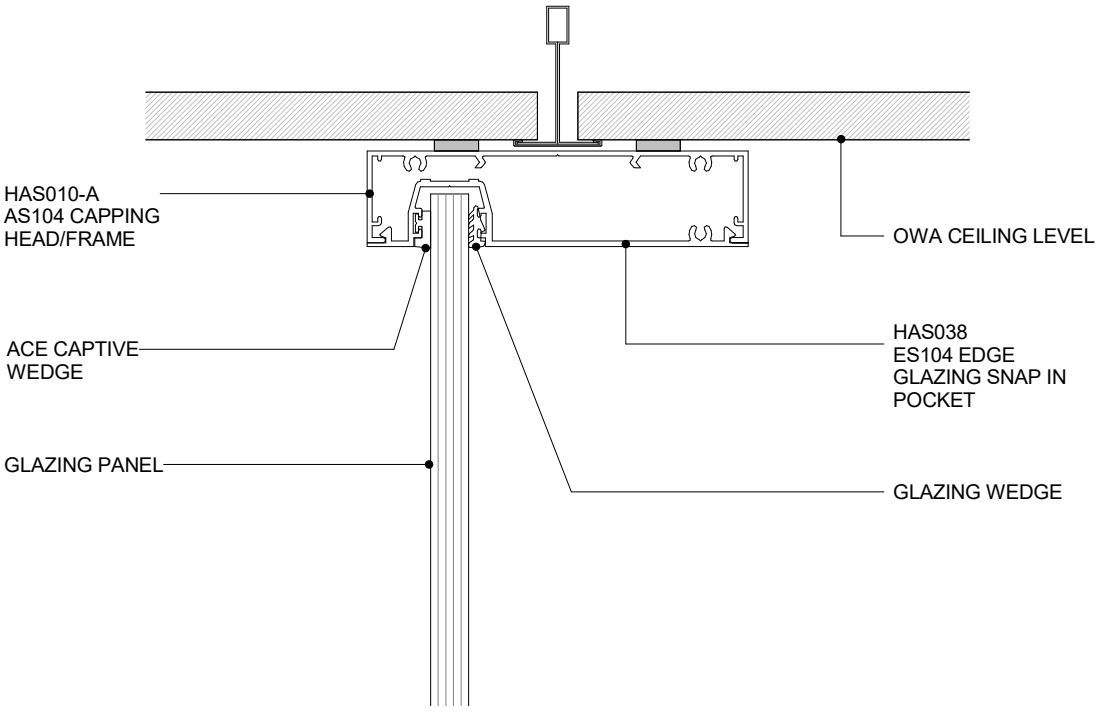
HAS041
ES104 TWIN GLAZING TRANSOM BAR

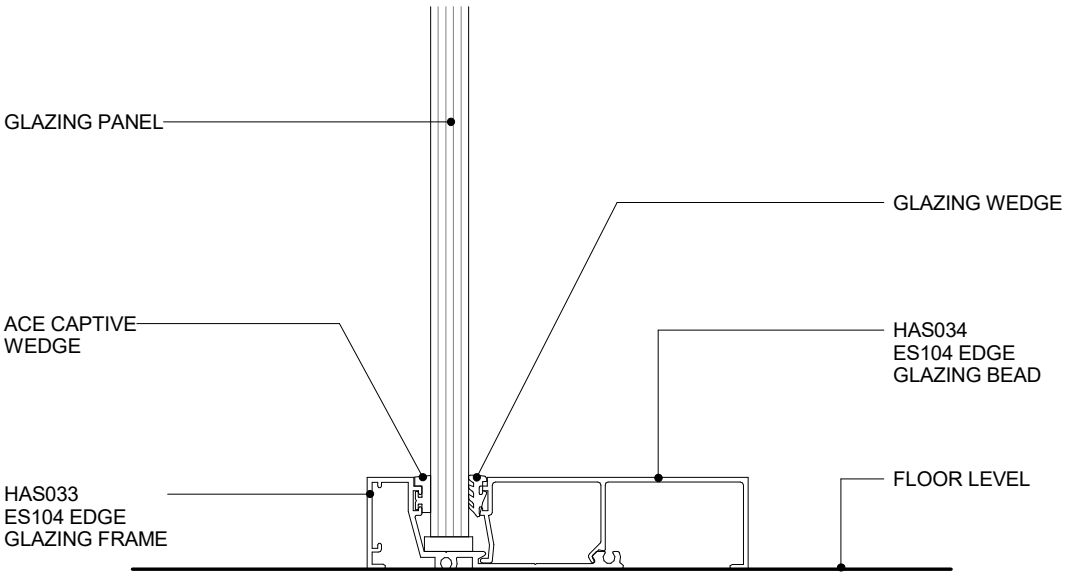
HAS042
ES104 TWIN GLAZE TRANSOM CAP



HAS043
ES104 TWIN GLAZE TWO PCE MULLION

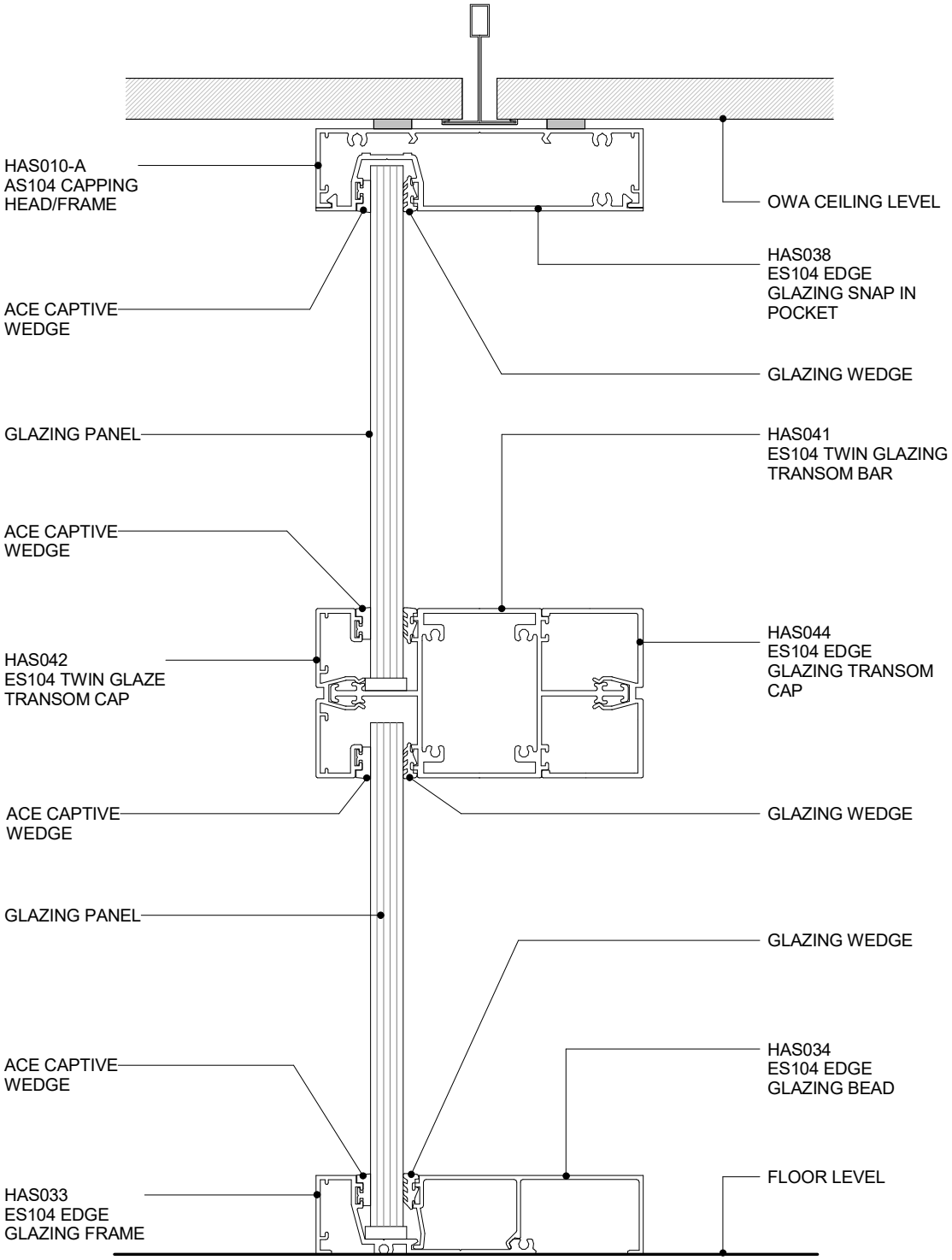
HAS044
ES104 EDGE GLAZING TRANSOM CAP





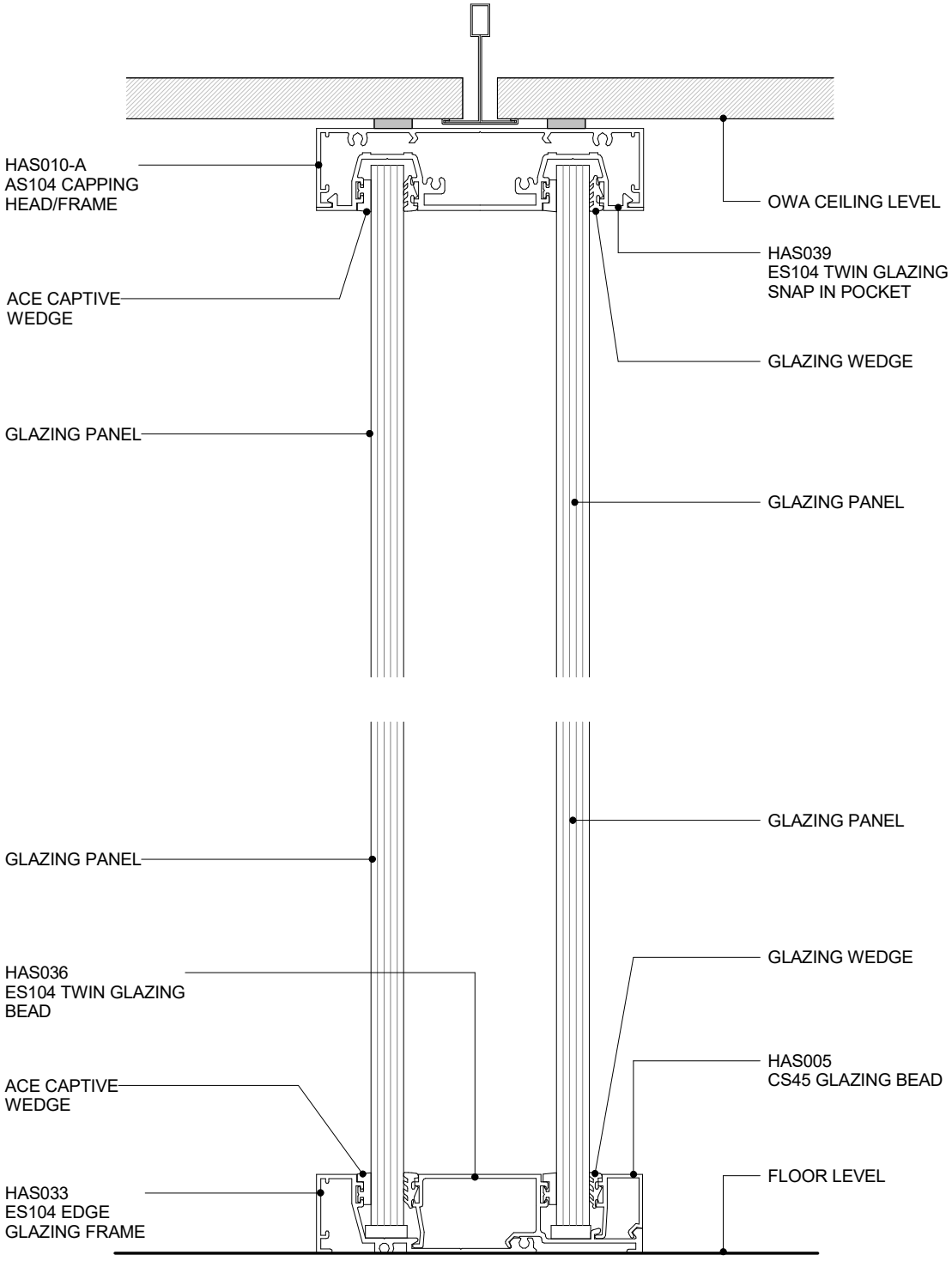
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING

6.2.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



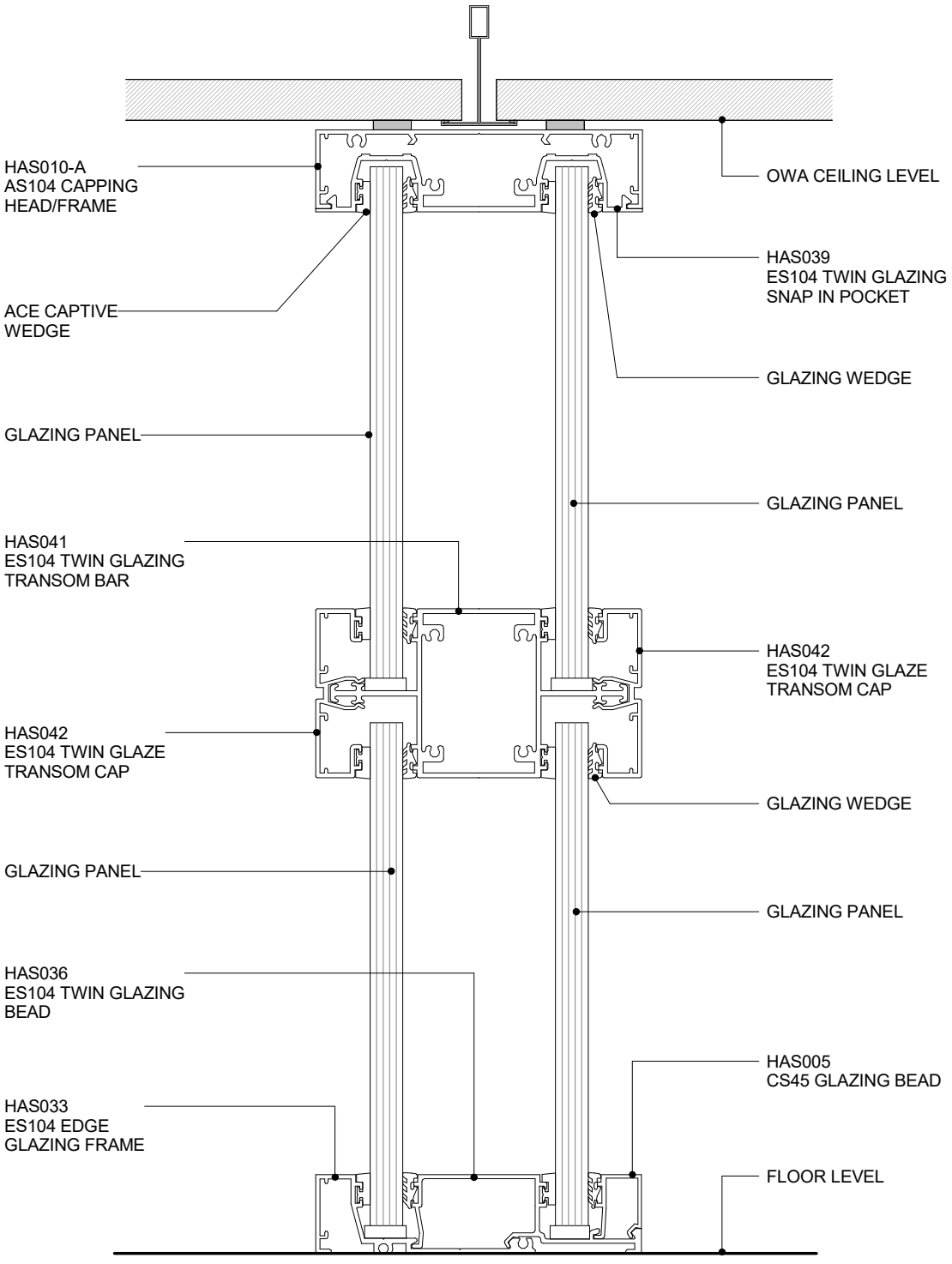
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING WALL-TRANSOM CROSS SECTION

6.2.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



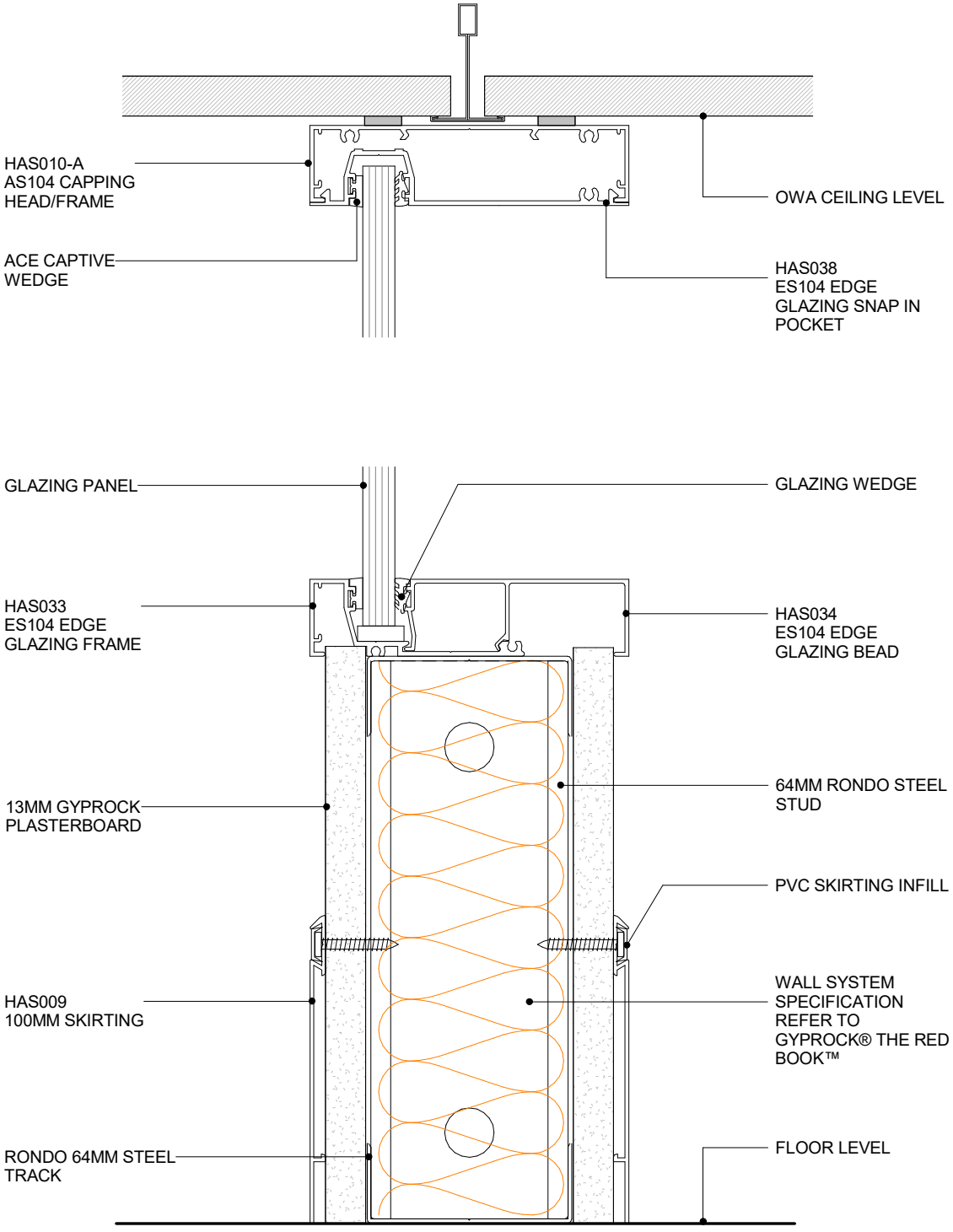
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - DOUBLE GLAZING WALL CROSS SECTION

6.2.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



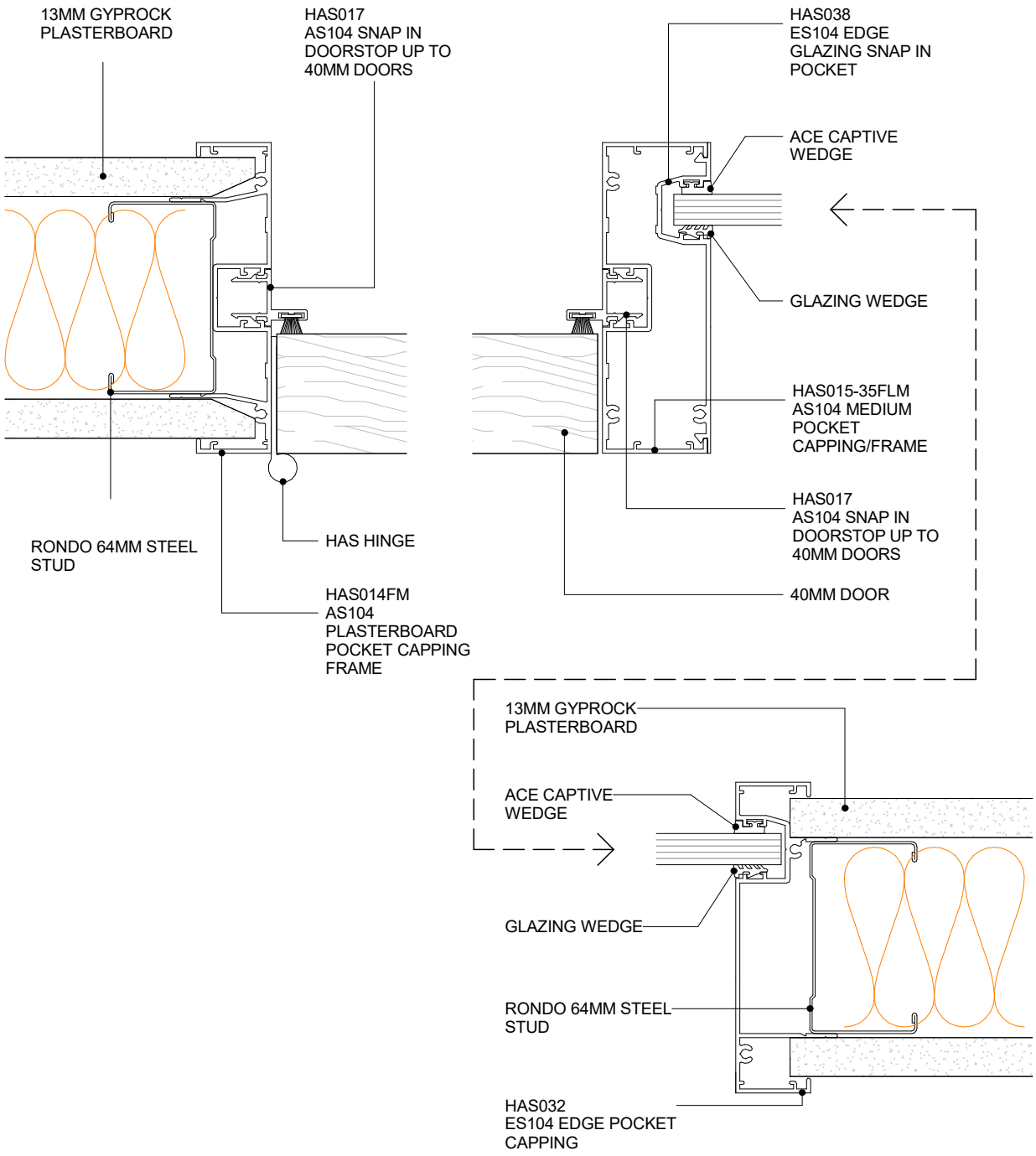
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - TWIN GLAZING WALL TRANSOM CROSS SECTION

6.2.4	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



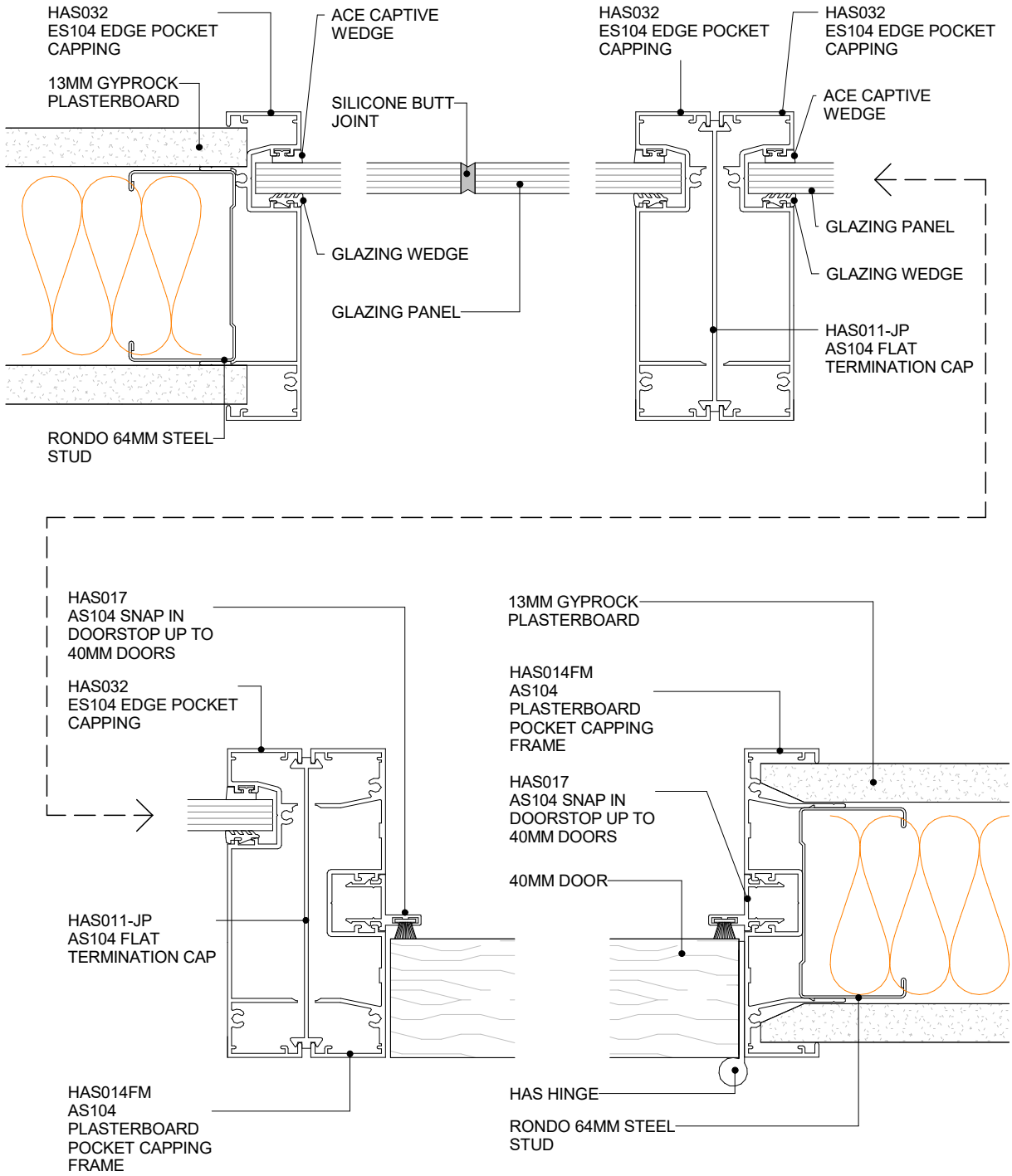
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - HALF HEIGHT GLASS WALL CROSS SECTION

6.4.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - DOOR GLAZING MULLIONS PLAN VIEW

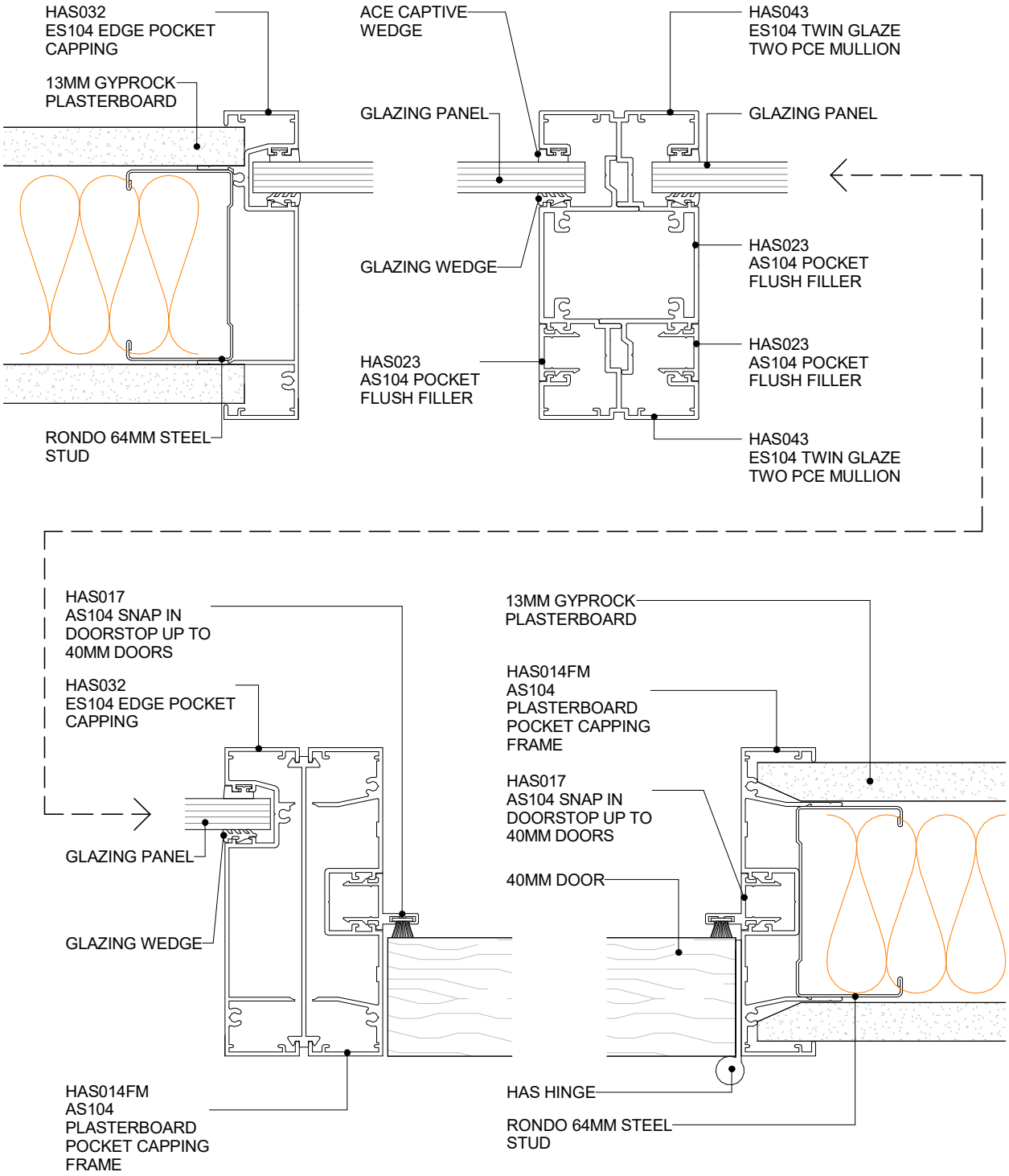
6.6.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING MULLIONS TYPE 1 PLAN VIEW

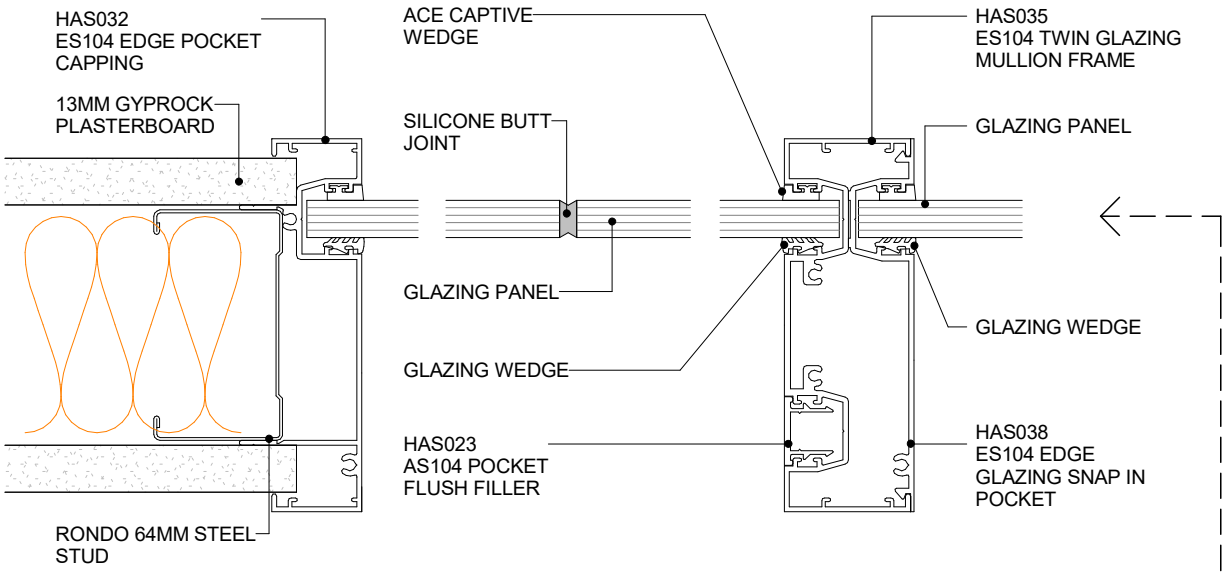
6.6.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

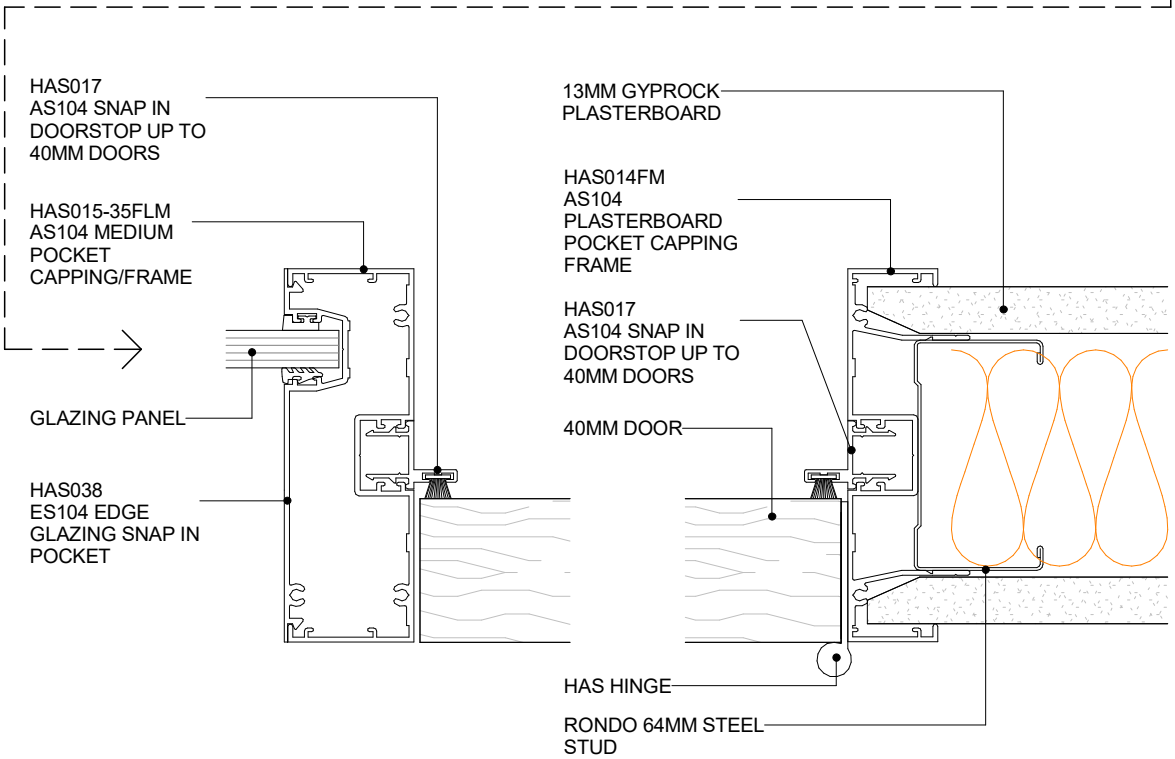
CSR



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING MULLIONS TYPE 2 PLAN VIEW

6.6.3	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

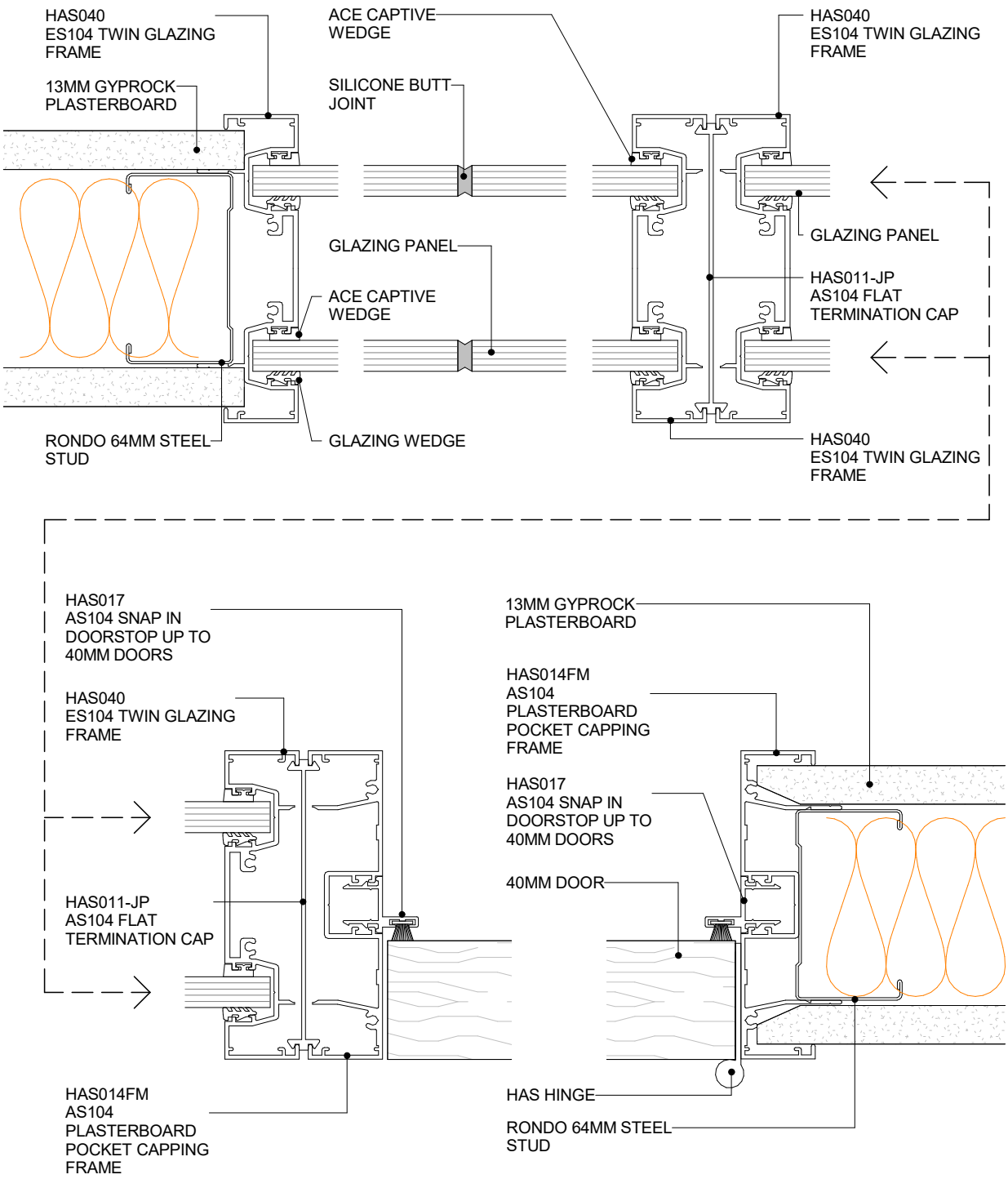




HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING MULLIONS TYPE 3 PLAN VIEW

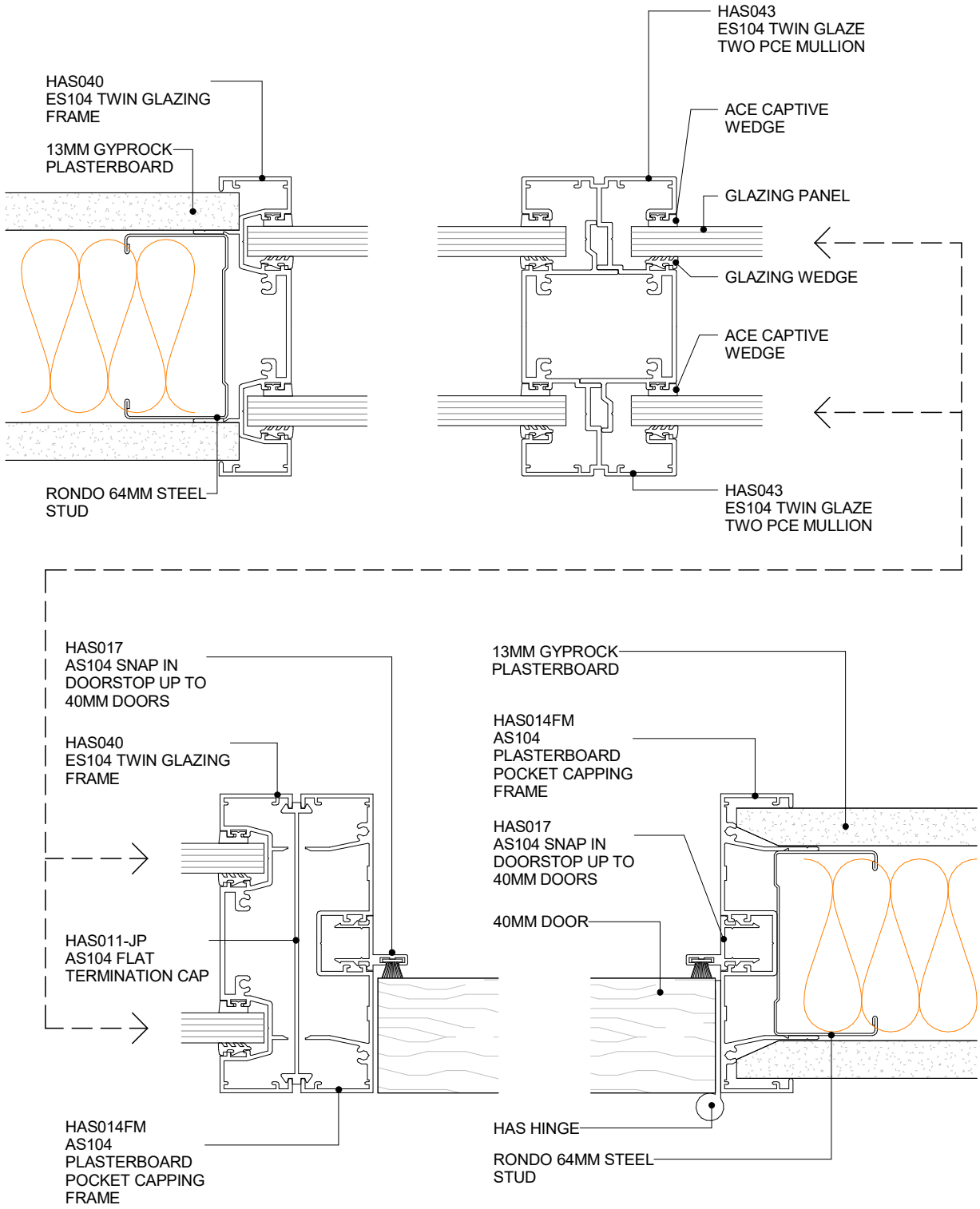
6.6.4	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - TWIN GLAZING MULLIONS TYPE 1 PLAN VIEW

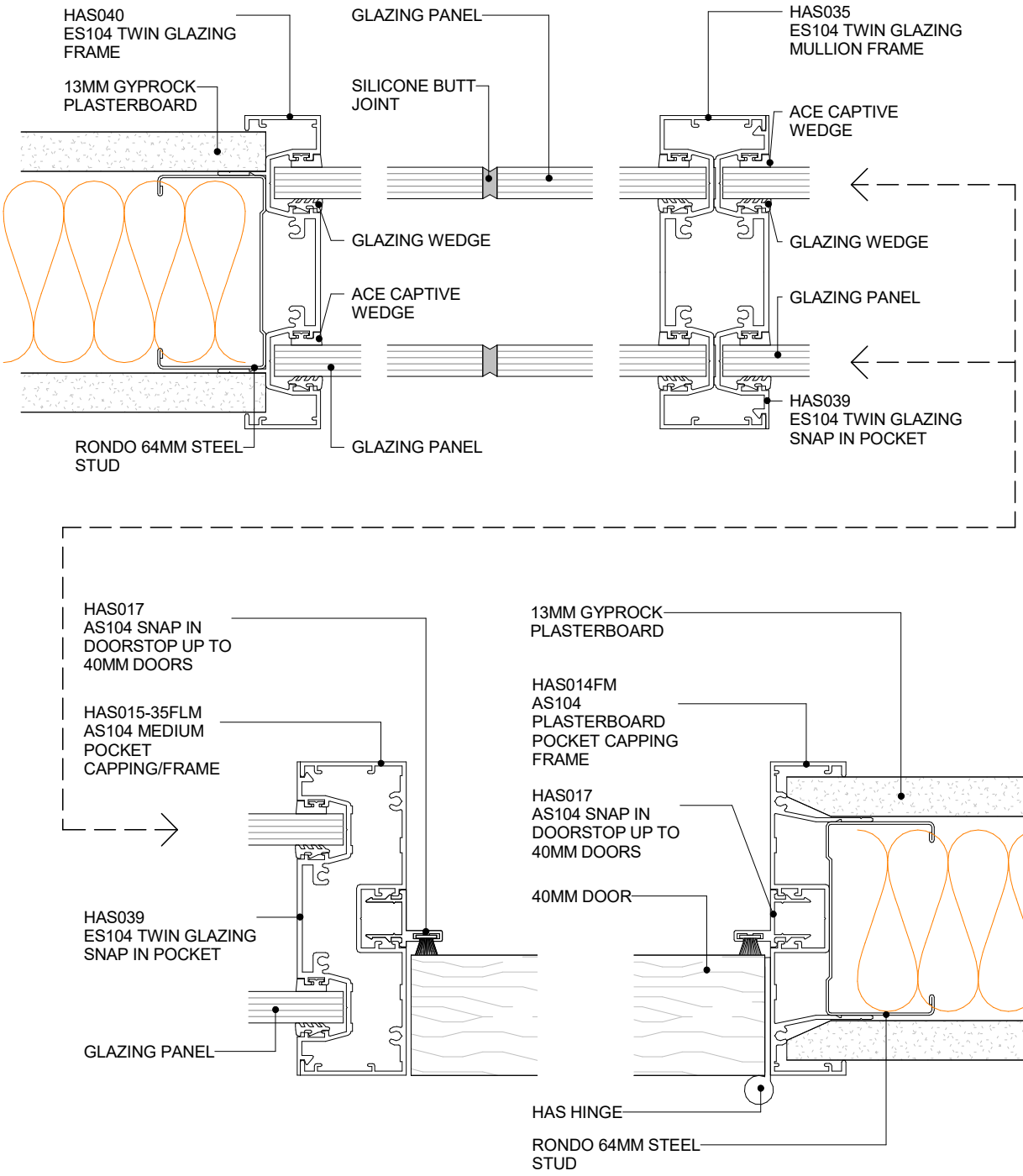
6.6.5	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - TWIN GLAZING MULLIONS TYPE 2 PLAN VIEW

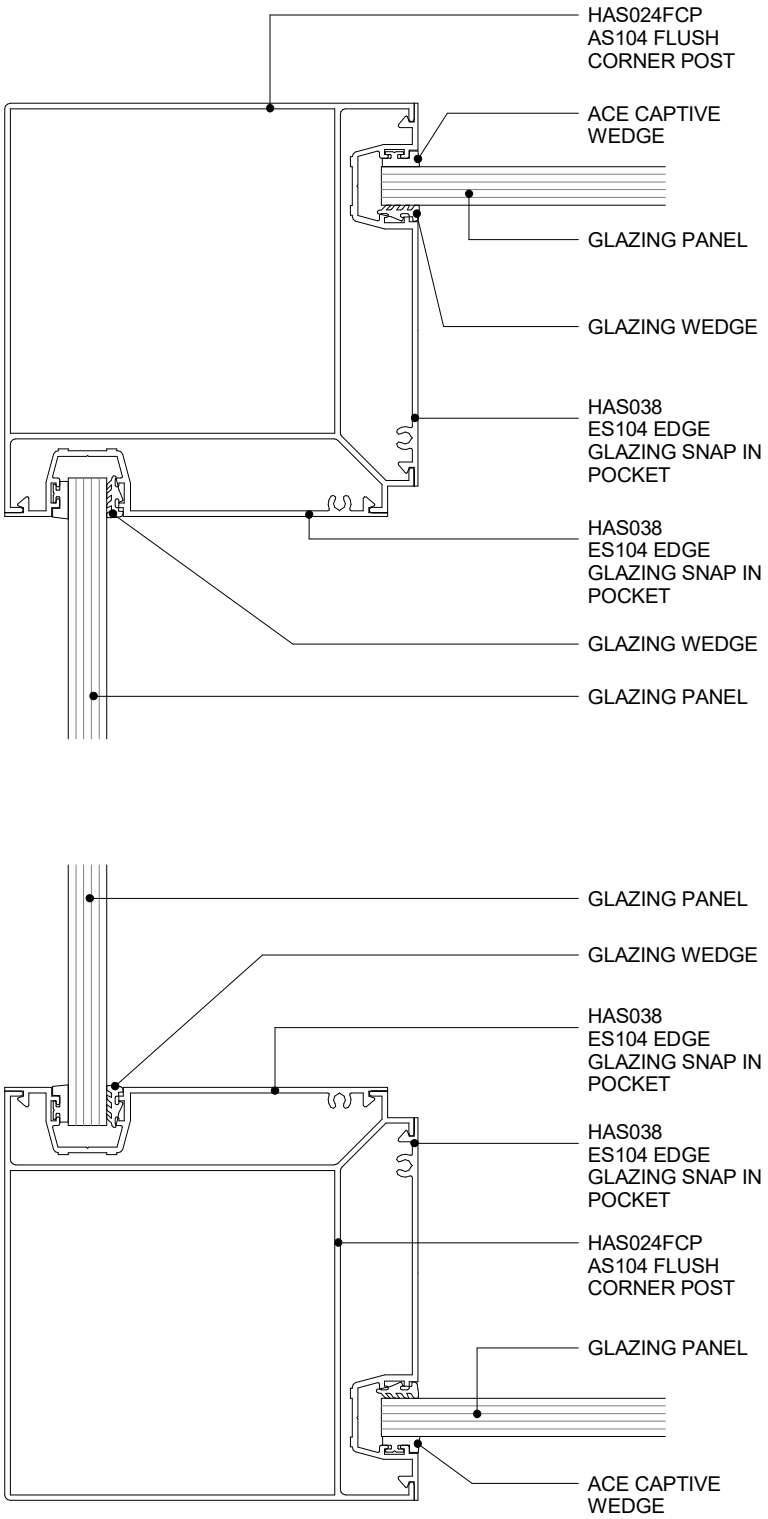
6.6.6	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



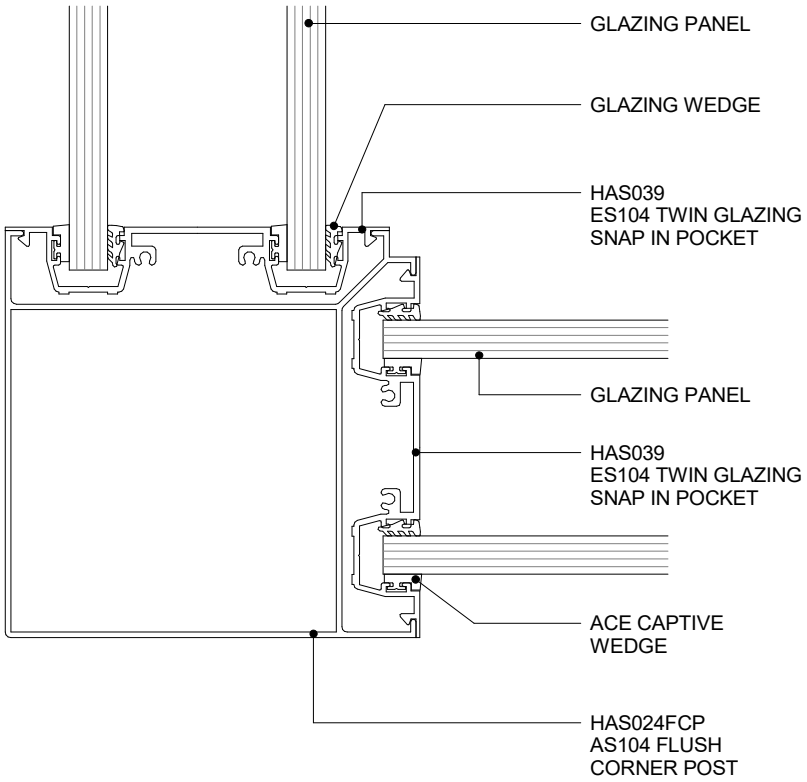
HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - TWIN GLAZING MULLIONS TYPE 3 PLAN VIEW

6.6.7	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - EDGE GLAZING CORNER POSTS SINGLE GLASS PLAN VIEW

6.7.1	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 104 - TWIN GLAZING CORNER POSTS GLASS PLAN VIEW

6.7.2	1 : 2 @ A4	15/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

E SERIES 132

SUITE OVERVIEW

E Series 132 provides an edgeline glazing and twin-glazing design with clean lines to provide a clean look to your partition system.
E Series 132 gives a standard detail of 132mm x 25mm, 132mm x 35mm or 132mm x 50mm.

» E Series 132 has the following features:
» Can accommodate glass thicknesses between 6mm and 13mm
» Door thicknesses of 35mm – 45mm can be used
» Standard wall size based around 92mm steel stud with one layer of 13mm Gyprock plaster board on each side

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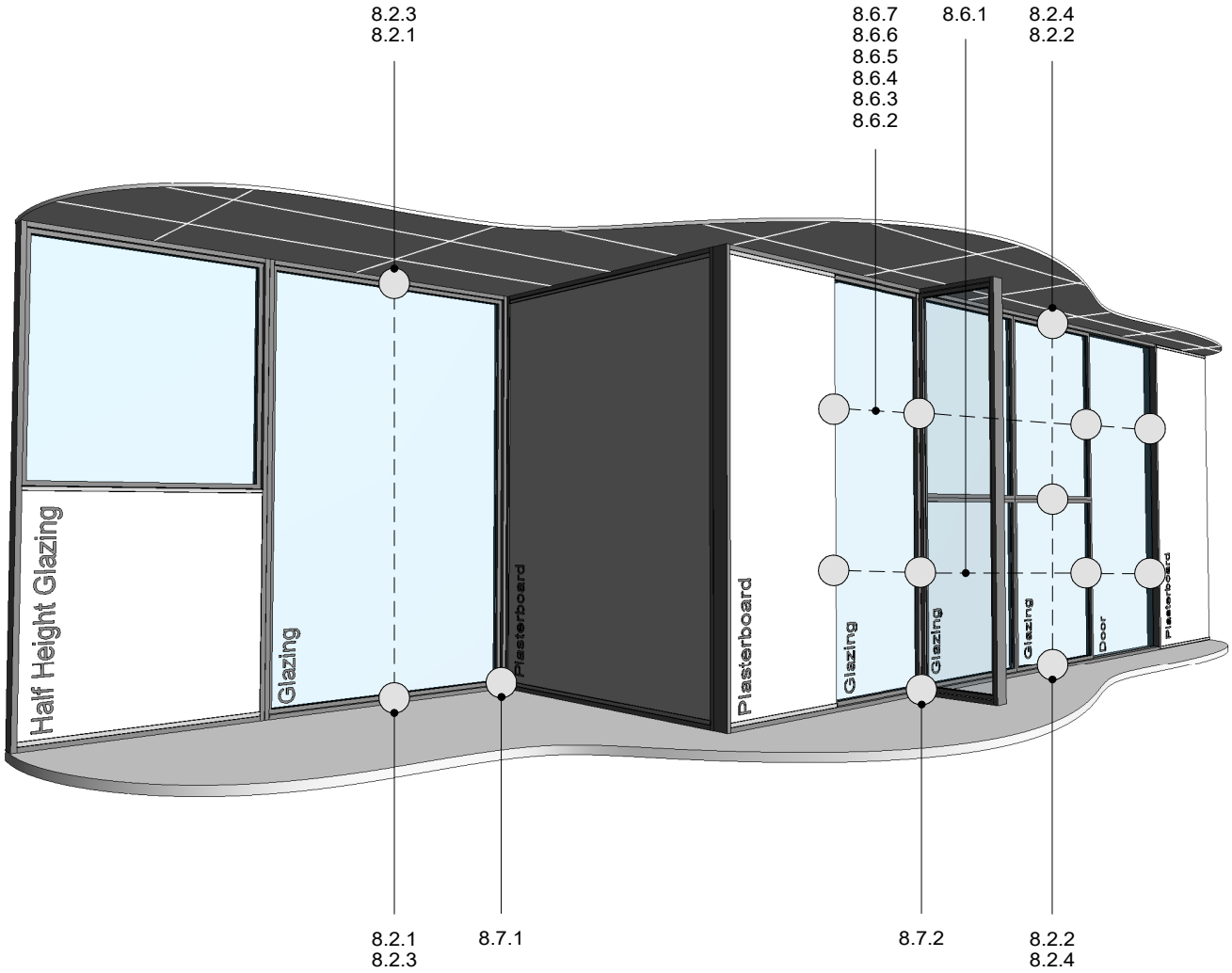
www.natspec.com.au

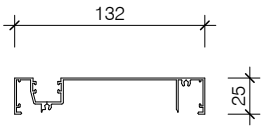


TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK® THE RED BOOK™

HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - DETAIL REFERENCES

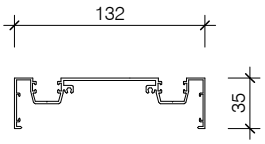
8.1.0	1 : 25 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HAS332
AS132 EDGE POCKET CAPPING

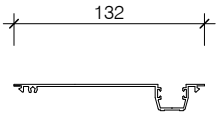
HAS033
ES104 EDGE GLAZING FRAME

HAS334
ES132 EDGE GLAZING BEAD

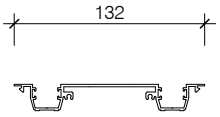


HAS335
ES132 TWIN GLAZING MULLION FRAME

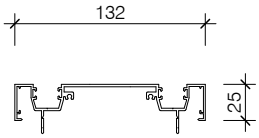
HAS336
ES132 TWIN GLAZING BEAD



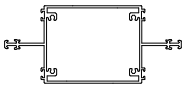
HAS338
ES132 EDGE GLAZING SNAP IN POCKET



HAS339
ES132 TWIN GLAZING SNAP IN POCKET

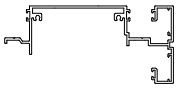


HAS340
ES132 TWIN GLAZING FRAME



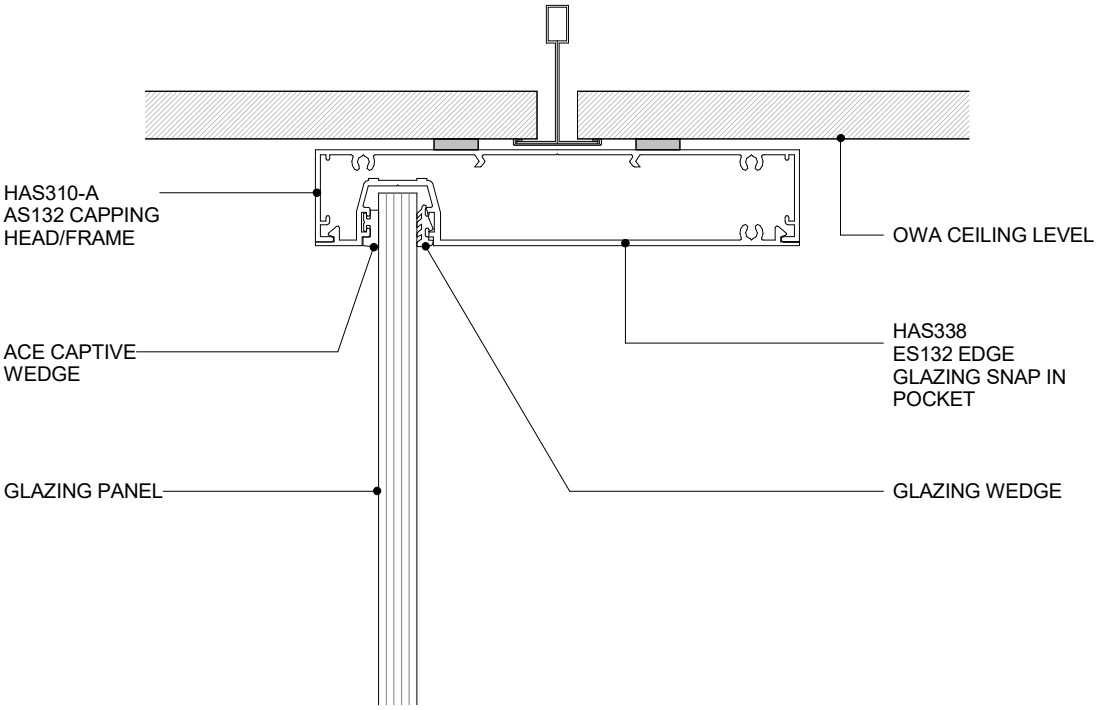
HAS341
ES132 TWIN GLAZING TRANSOM BAR

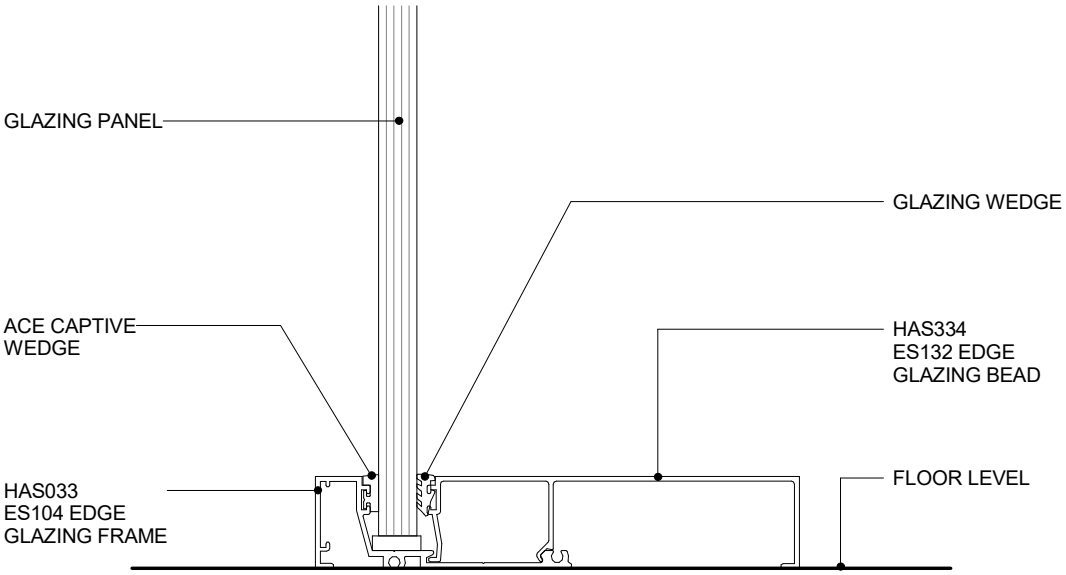
HAS042
ES104 TWIN GLAZE TRANSOM CAP



HAS343
ES132 TWIN GLAZE TWO PCE MULLION

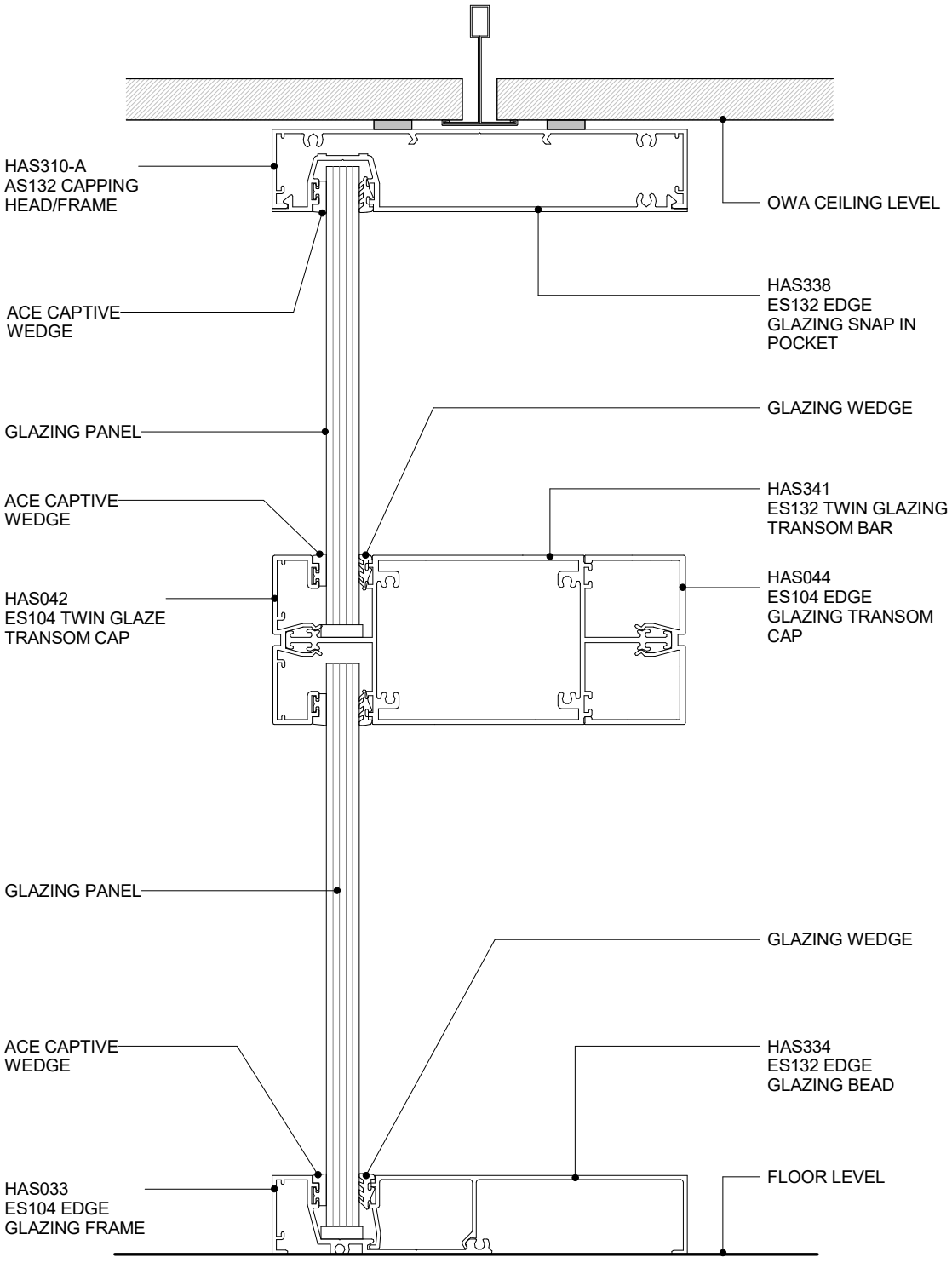
HAS044
ES104 EDGE GLAZING TRANSOM CAP





HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - LARGE EDGE GLAZING CROSS SECTION

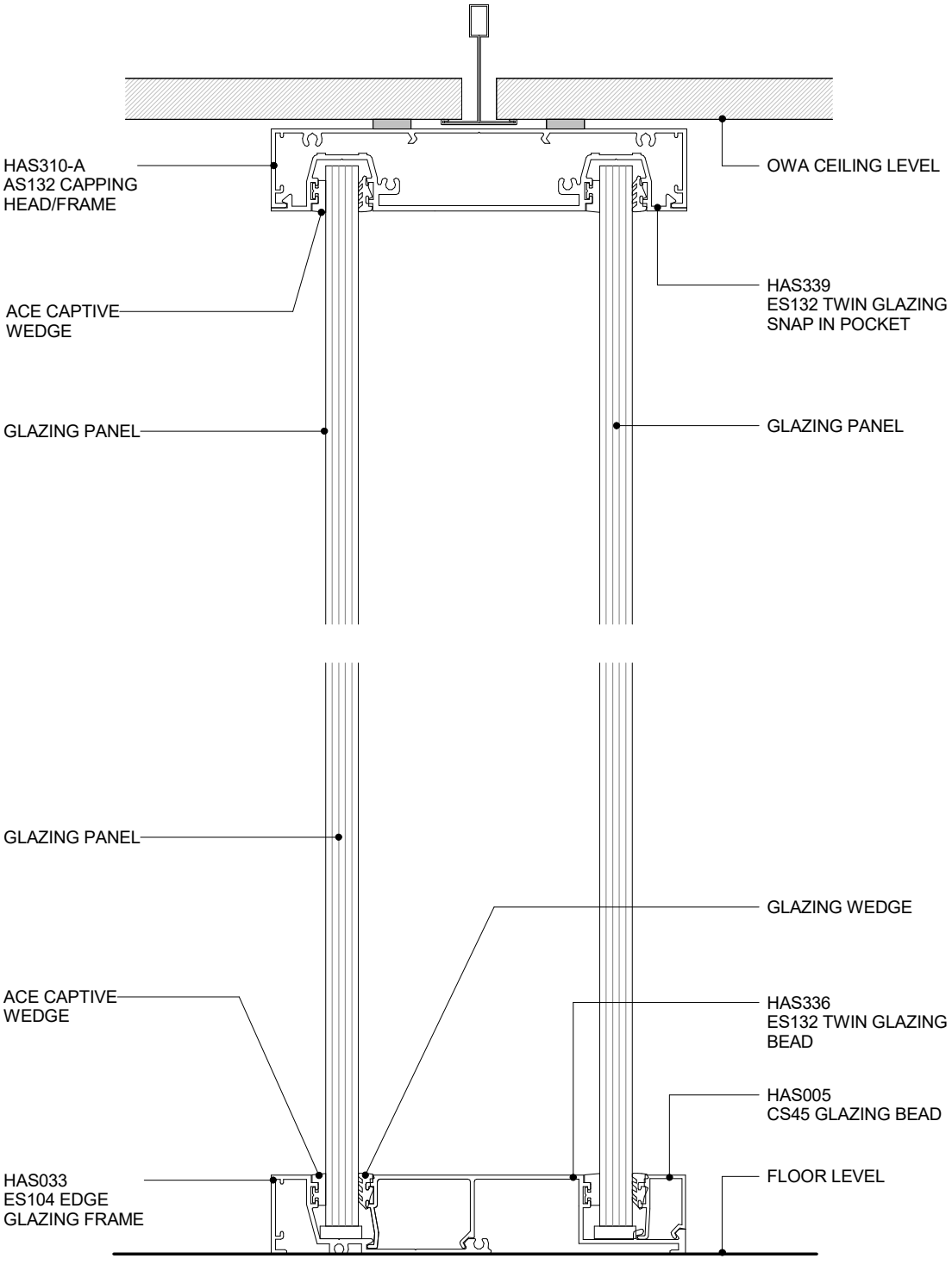
8.2.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - LARGE EDGE GLAZING WITH MULLION CROSS SECTION

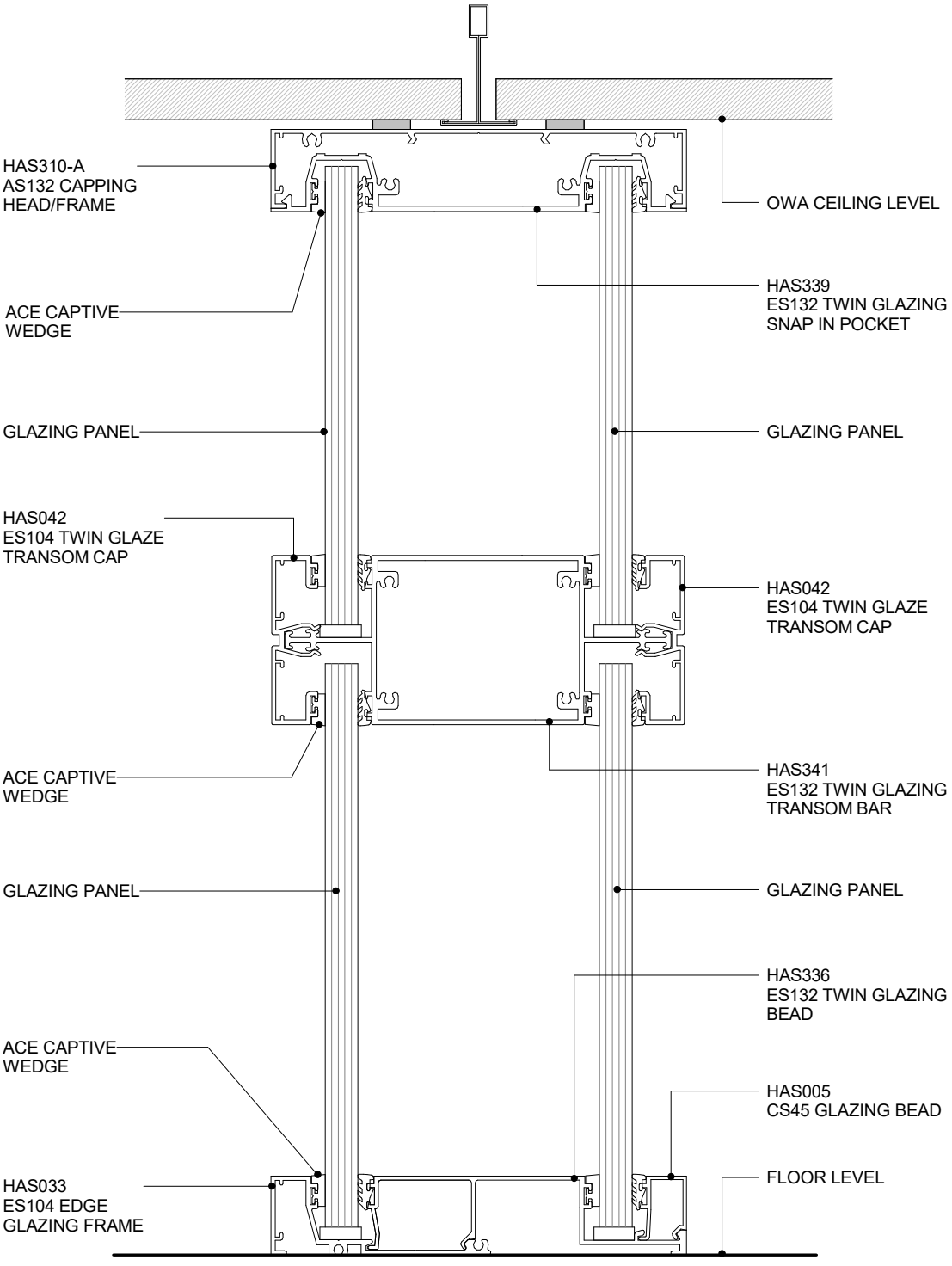
8.2.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



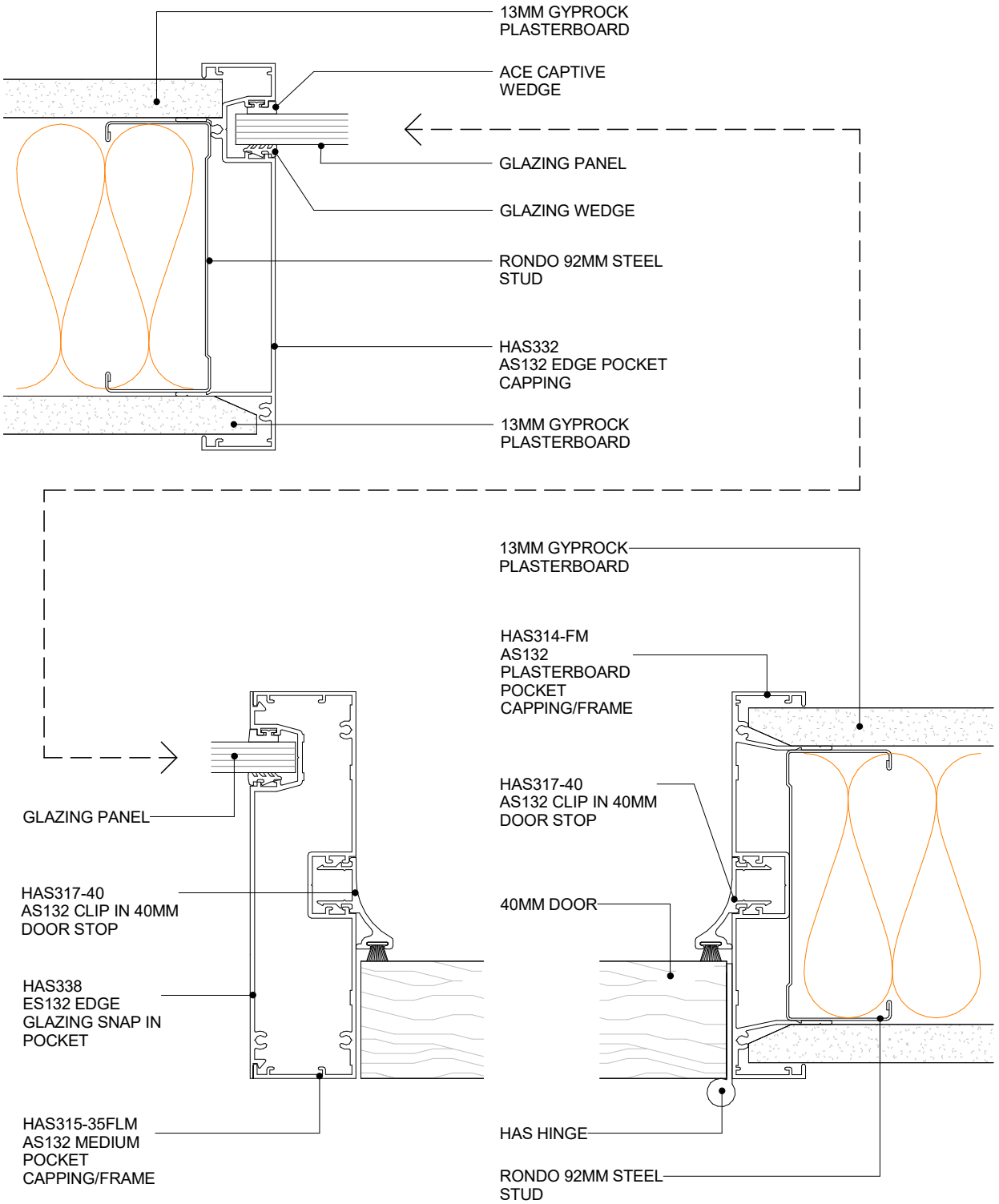
HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZING WALL CROSS SECTION

8.2.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



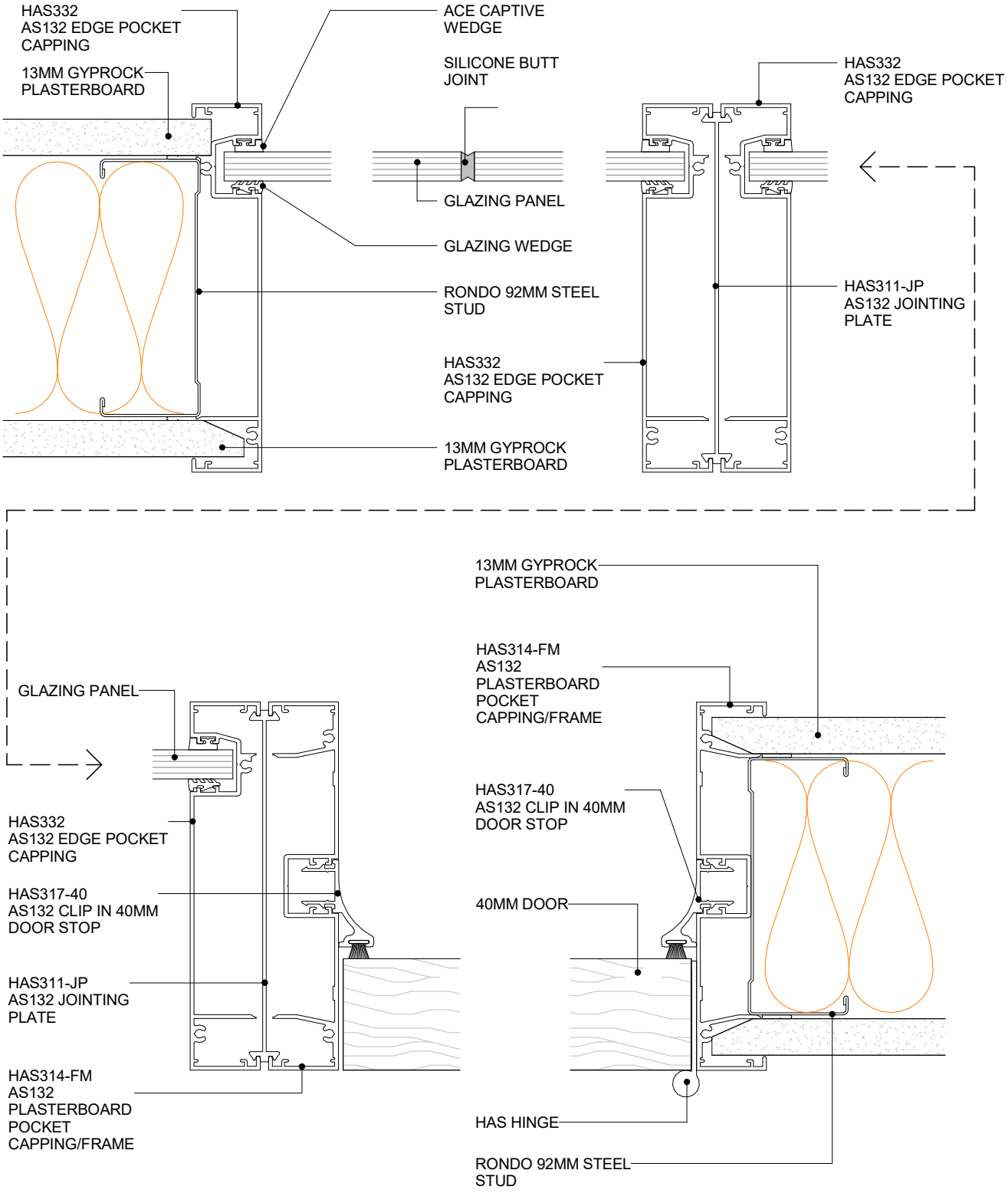
HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZING WALL WITH MULLION CROSS SECTION

8.2.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - EDGE GLAZING MULLION & DOOR WALL TYPE 1 PLAN

8.6.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



E SERIES 132

HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - EDGE GLAZING MULLION & DOOR WALL TYPE 2 PLAN

8.6.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

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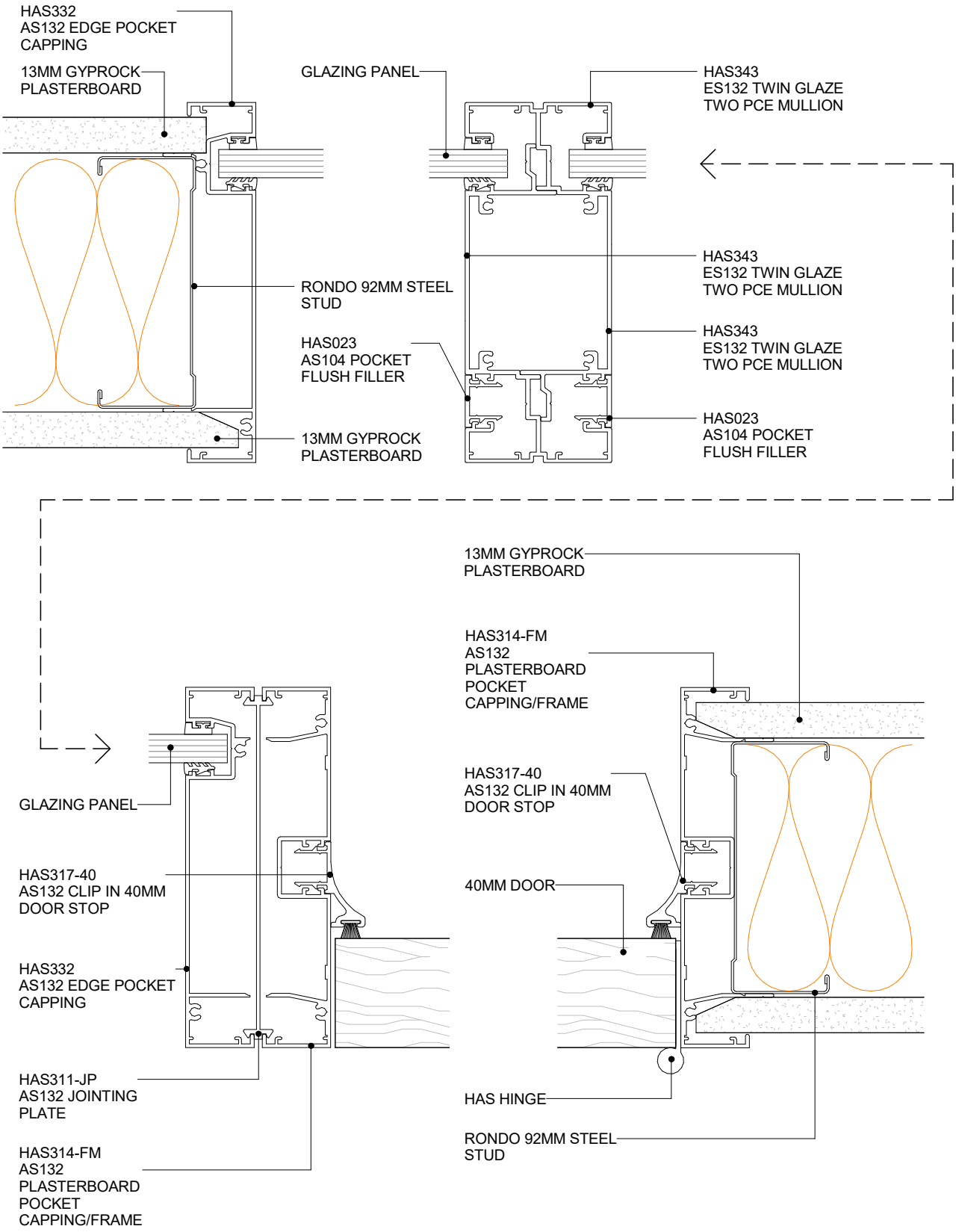
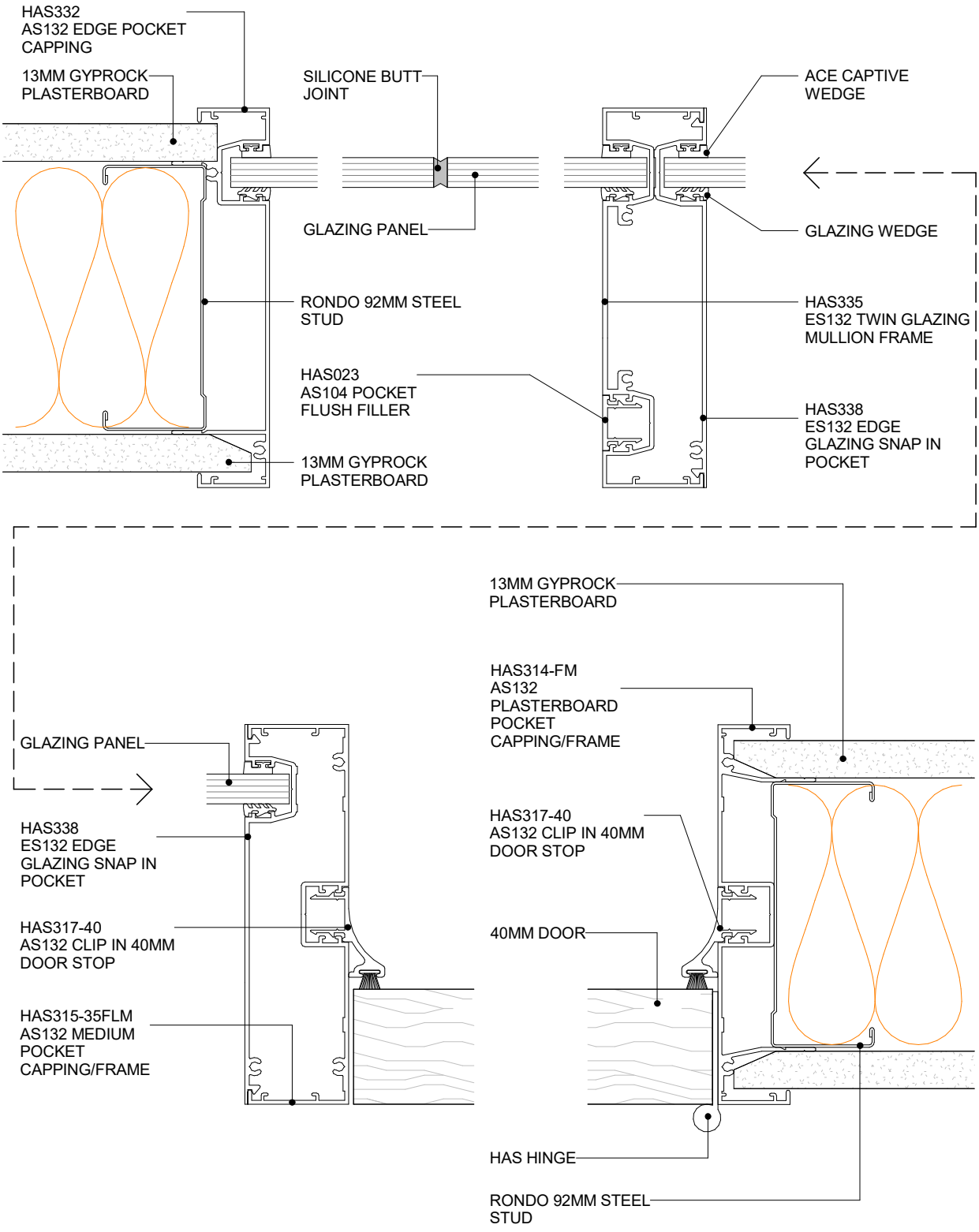


HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - EDGE GLAZING MULLION & DOOR WALL TYPE 3 PLAN

8.6.3	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR

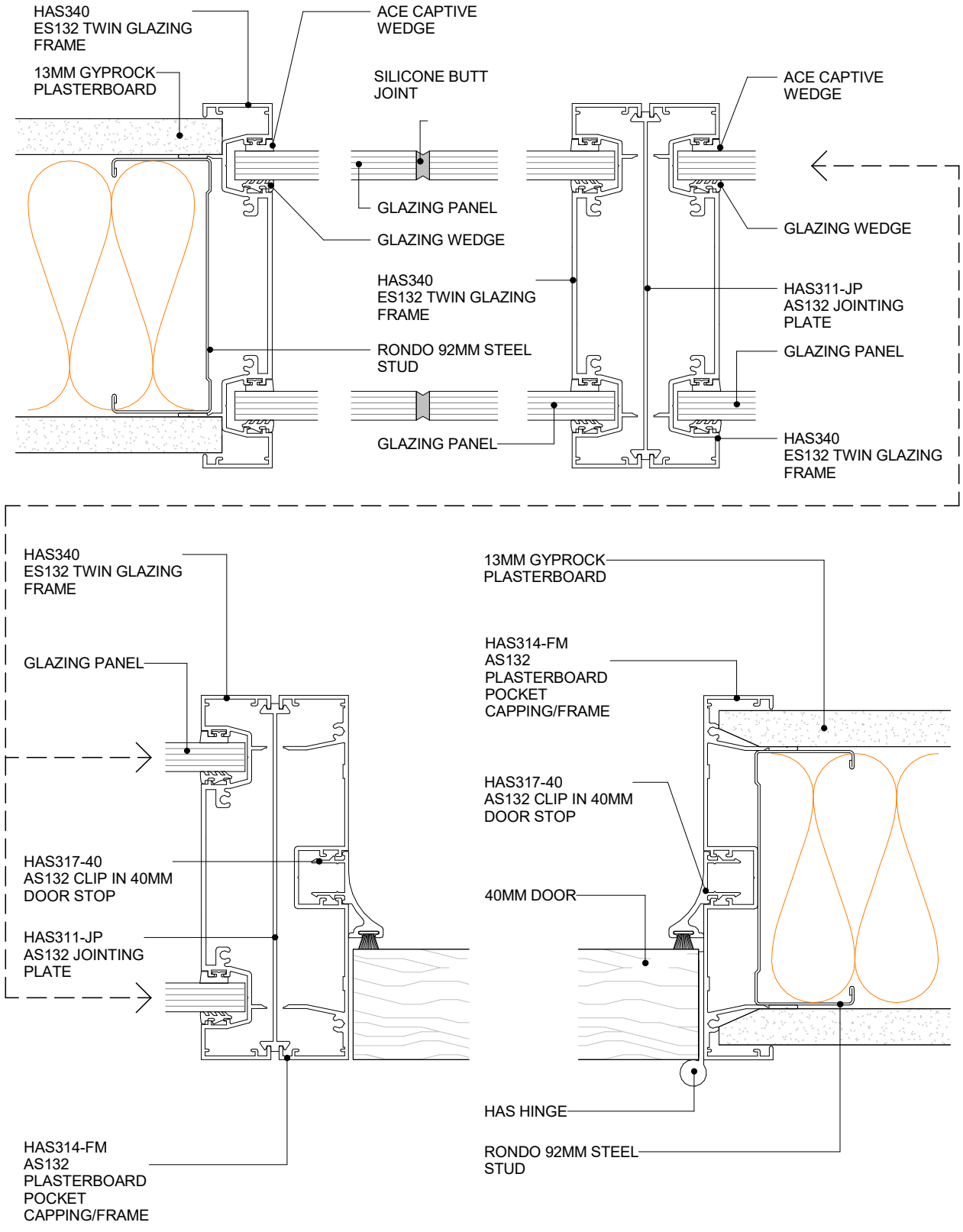


E SERIES 132

HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - EDGE GLAZING MULLION & DOOR WALL TYPE 4 PLAN

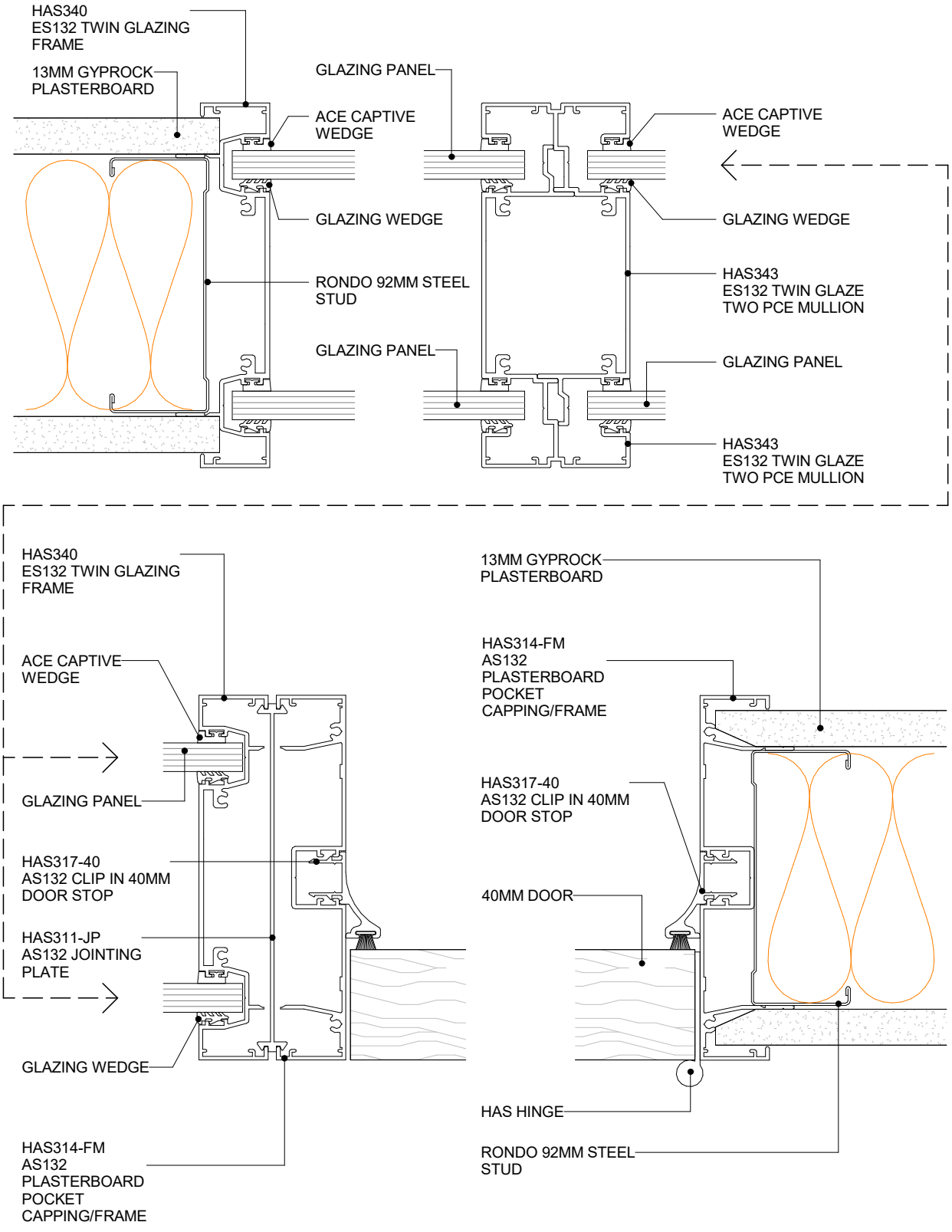
8.6.4	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



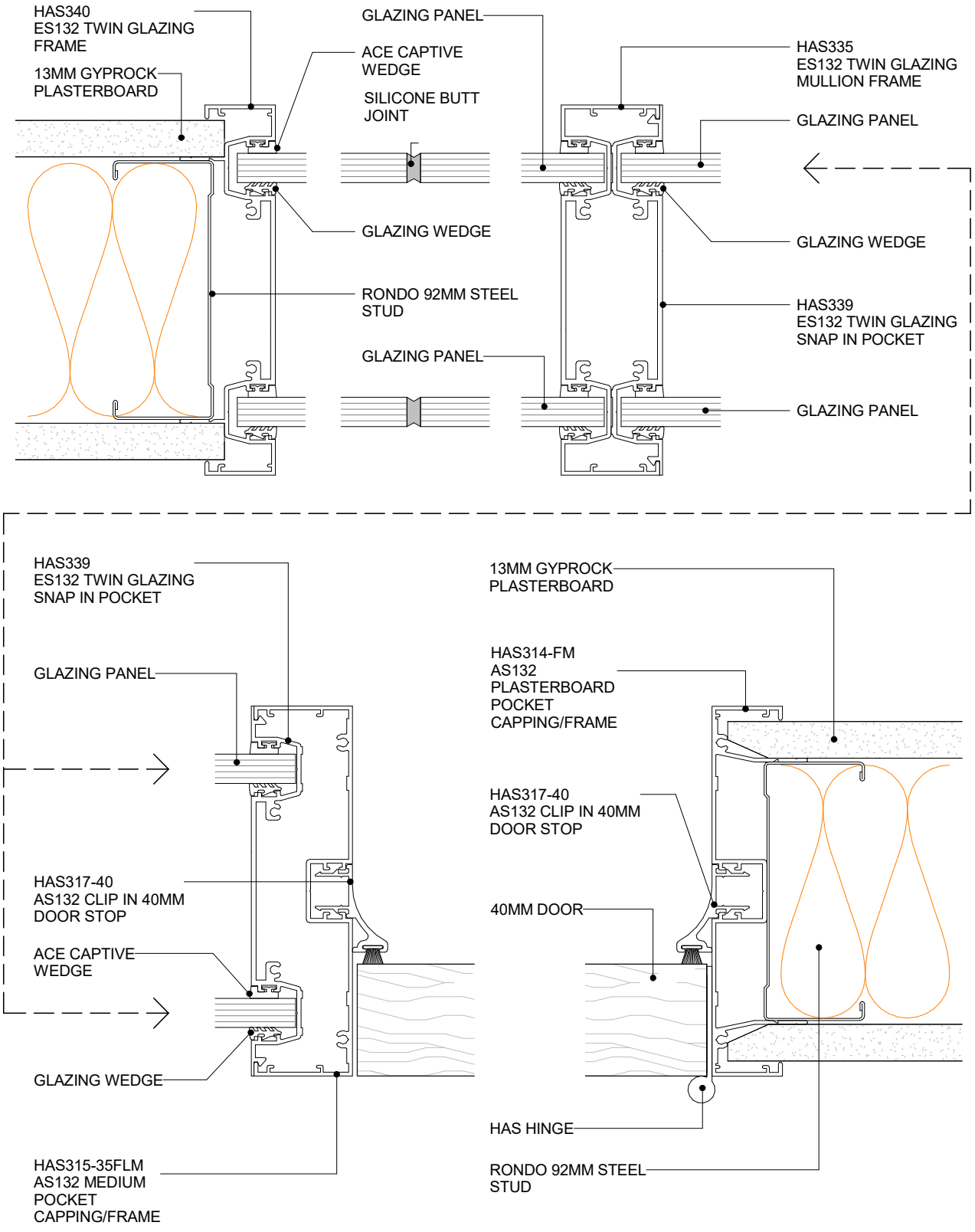
HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZED MULLION & DOOR WALL TYPE 1 PLAN

8.6.5	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZED MULLION & DOOR WALL TYPE 2 PLAN

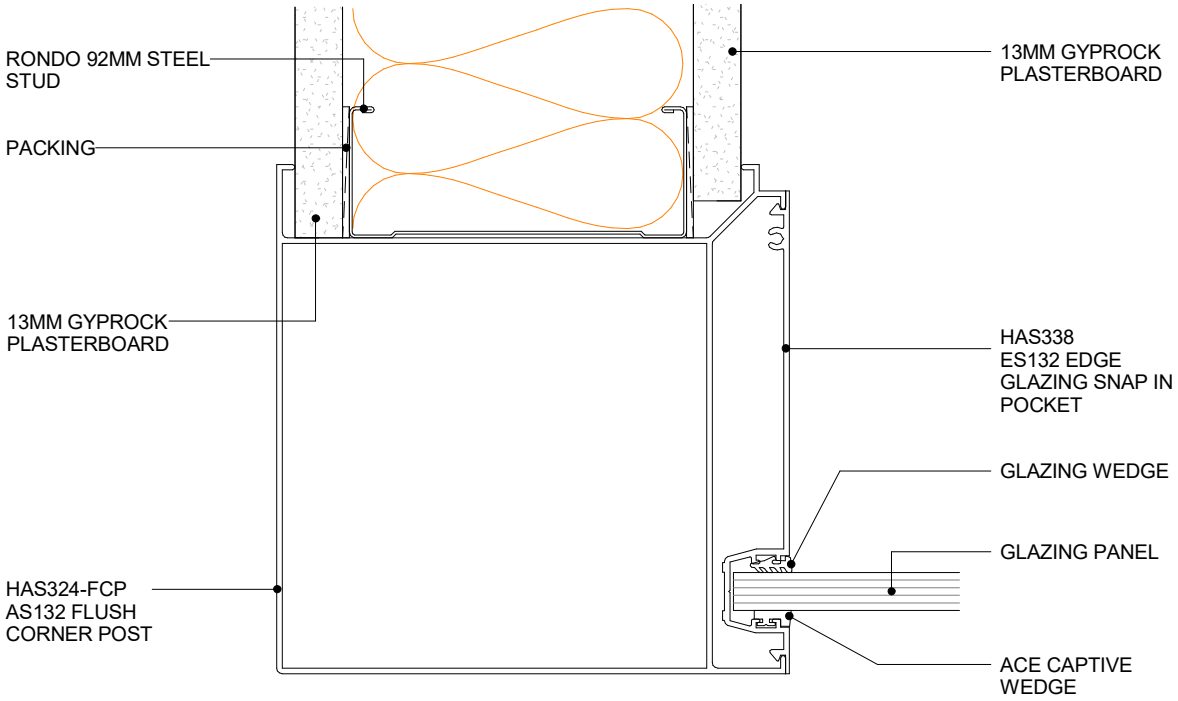
8.6.6	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

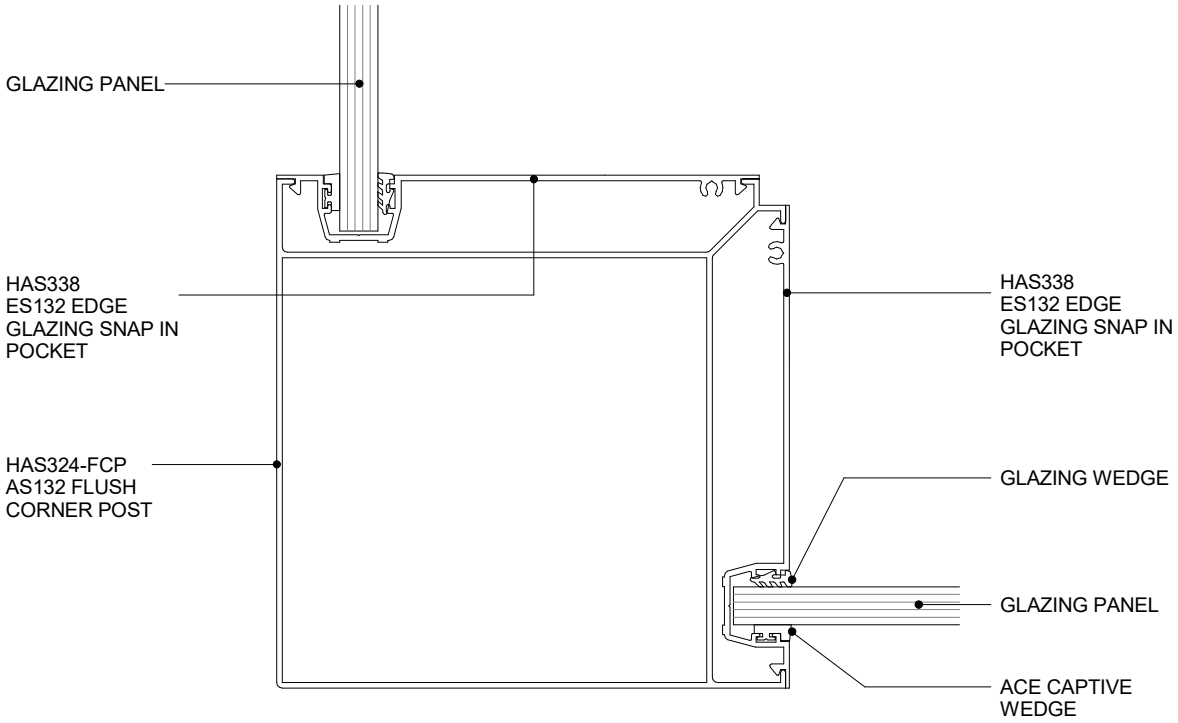


HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZED MULLION & DOOR WALL TYPE 3 PLAN

8.6.7	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



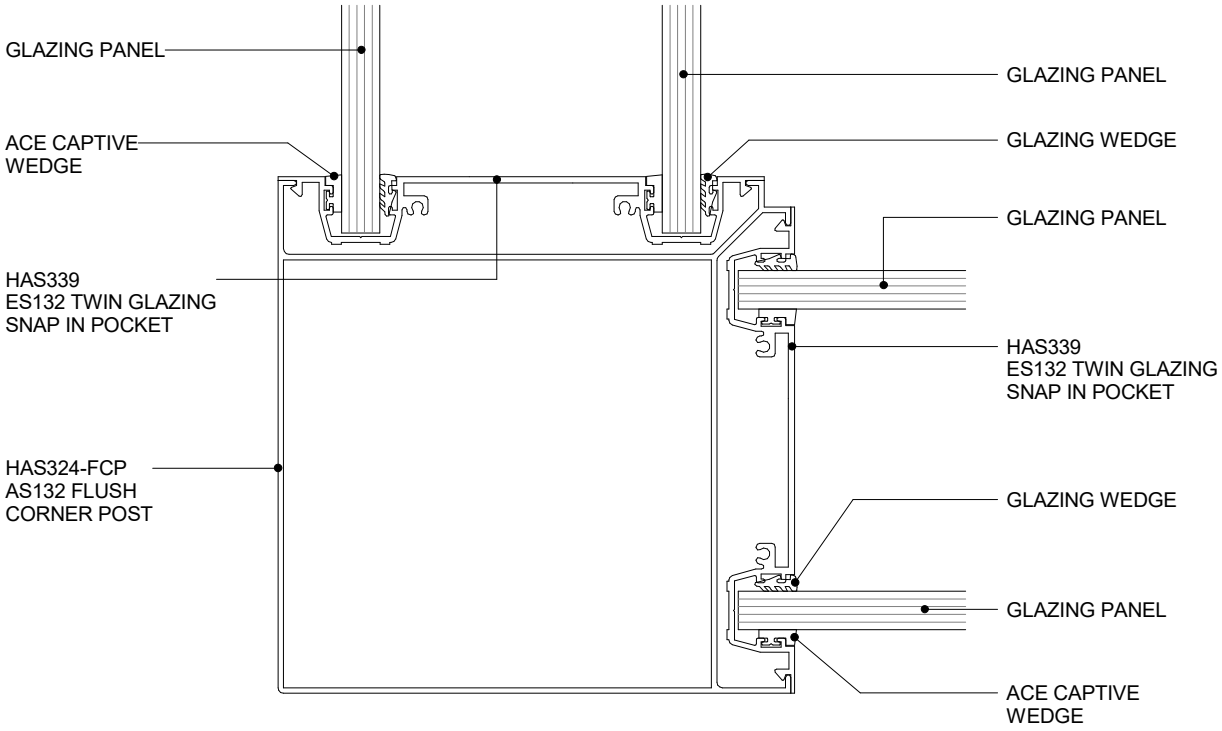


E SERIES 132

HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - EDGE GLAZING CORNER POSTS SINGLE GLASS PLAN

8.7.1	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

CSR



HIMMEL ALUMINIUM SYSTEMS
E SERIES 132 - TWIN GLAZING CORNER POST GLASS PLAN

8.7.2	1 : 2 @ A4	11/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

DS SERIES 45

SUITE OVERVIEW

DS Series Doors

» Designed to fit with Himmel Aluminium Systems
» Available in 45mm thick doors only
» Styles and rails sizes 60mm, 66mm, 83mm and 114mm
» Can accommodate glass thicknesses of 13mm thick laminated glass

DS Series Sliders

Designed to fit with Himmel Aluminium Systems, available in numerous configurations based around the 45mm door series.

TECHNICAL SERVICES + SPECIFICATION

Technical advice is available from our experienced team.
Please see our company information page for your closest team, or email specificationsupport@himmel.com.au

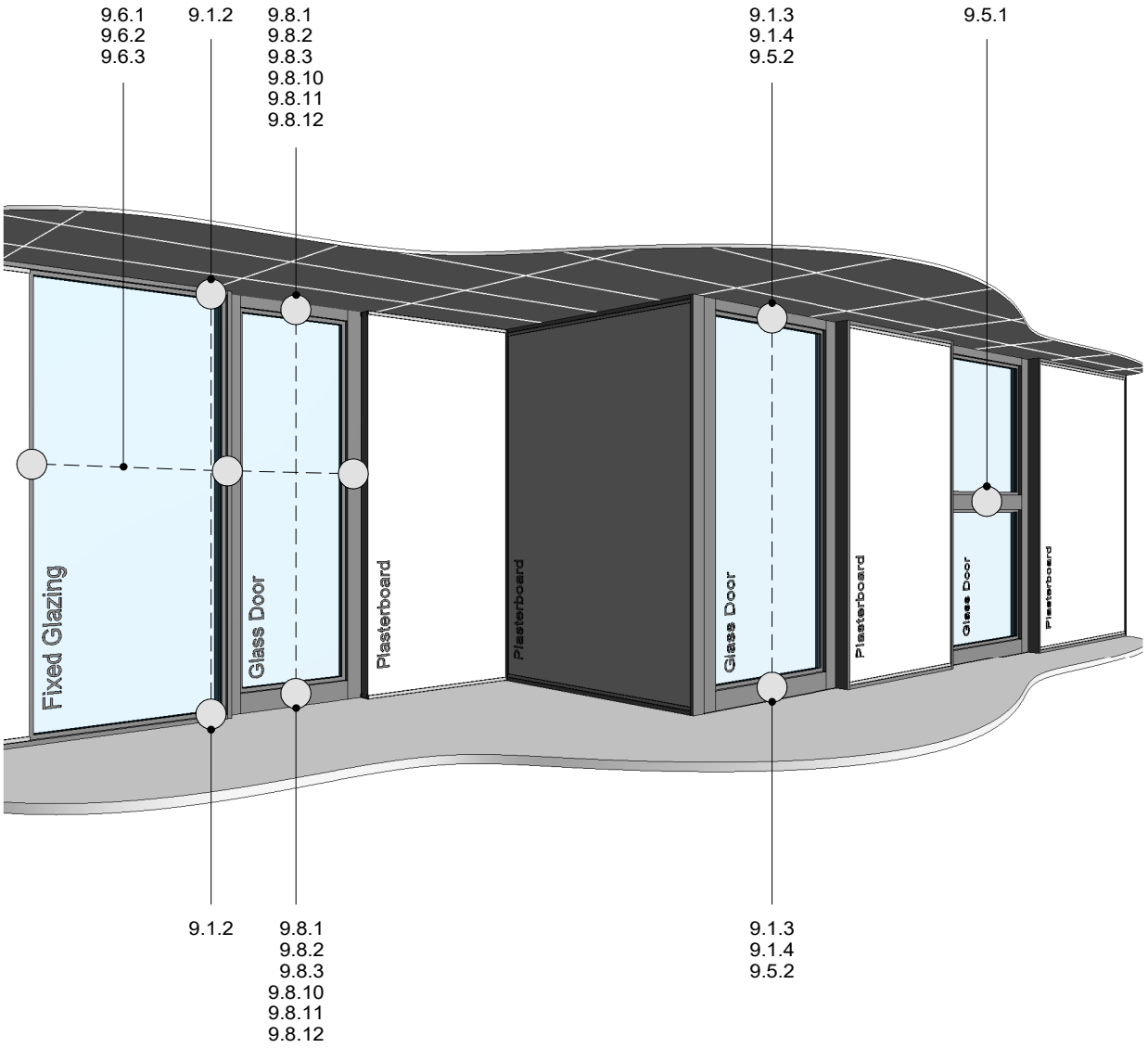
The Himmel Interior Systems product catalogue is hosted on www.himmel.com.au

CAD details are either individual components or fully assembled details for convenient transfer to specifiers drawings.
The file formats available for download are .DWG, .DXF, .PDF and Autodesk Revit .RVT

If our standard CAD detail is not showing the design you are looking for, please email specificationsupport@himmel.com.au and our team can help you achieve your required design.

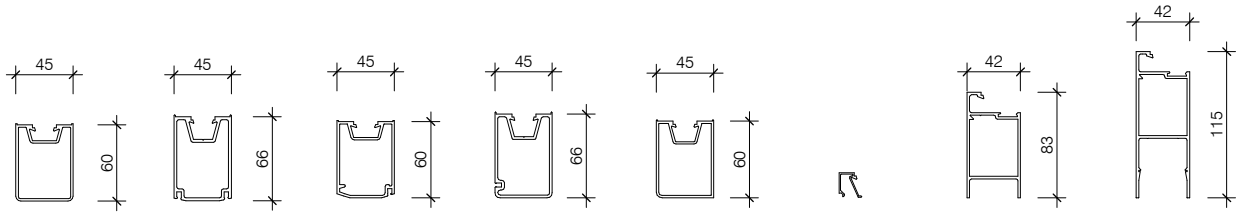
Specifications are also available online with Natspec branded section 0520 HIMMEL ALUMINIUM SYSTEMS from the following resources.

www.himmel.com.au
www.natspec.com.au

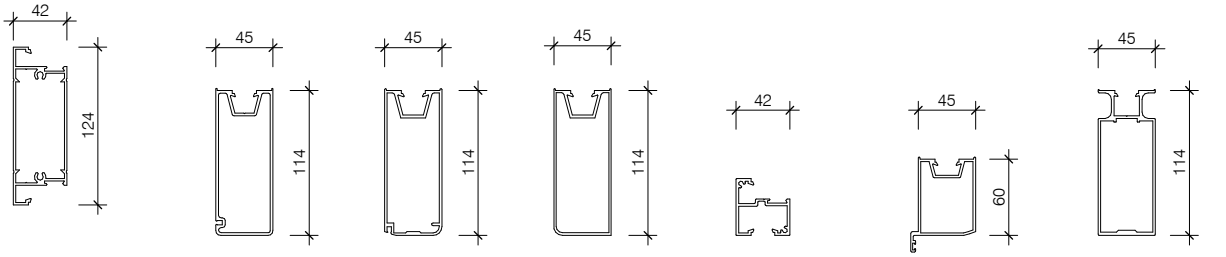


TIPS FOR ARCHITECTS AND DESIGNERS:
TYPICAL FOR ALL SUITES

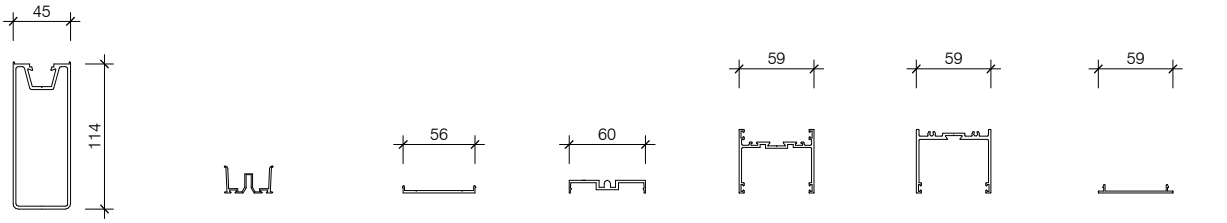
- 6MM - 12.76MM MAXIMUM LAMINATED GLASS SIZE
- 13MM GYPROCK PLASTERBOARD ONLY
- 104MM PROFILES = 64MM STUD
- 132MM PROFILES = 92MM STUD
- FOR WALL SYSTEM SPECIFICATION REFER TO GYPROCK®
THE RED BOOK™



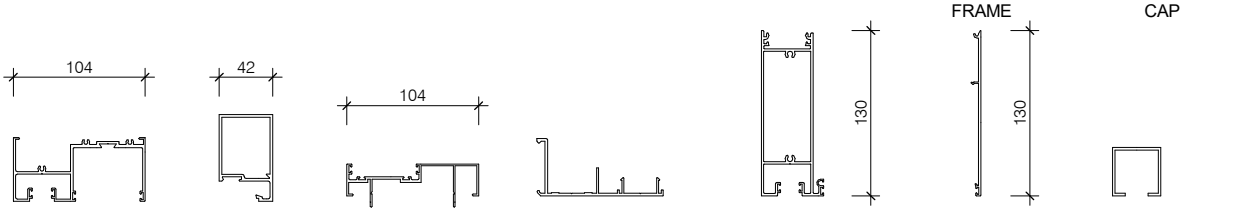
HAS520 DS45 60MM PLAIN STYLE
HAS521 DS45 66MM PIVOT STILE
HAS522 DS45 60MM LOCK STYLE
HAS523 DS45 66MM SIDE ACOUSTIC STILE
HAS524 DS45 60MM HINGE STYLE
HAS528 DS45 DOOR RAIL BEAD
HAS525 DS45 83MM DOOR RAIL
HAS526 DS45 114MM DOOR RAIL



HAS527 DS45 124MM MID-RAIL
HAS529 DS45 114MM DOOR SIDE ACOUSTIC STILE
HAS530 DS45 114MM LOCK STILE
HAS531 DS45 114MM DOOR HINGE STILE
HAS532 DS45 45MM MID-RAIL
HAS533 DS45 60MM MEETING STILE
HAS534 DS45 114MM FINGER PULL STILE



HAS535 DS45 114MM PLAIN STILE
HAS507 INTERNAL GUIDE
HAS508-A DS45 BOTTOM ROLLER TRACK A
HAS508-B DS45 BOTTOM ROLLER TRACK B
HAS509 DS45 SLIDING DOOR LOCATING FRAME
HAS510 DS45 BOTTOM ROLLER TOP GUIDE FRAME
HAS511 DS45 BOTTOM ROLLER TOP GUIDE CAP

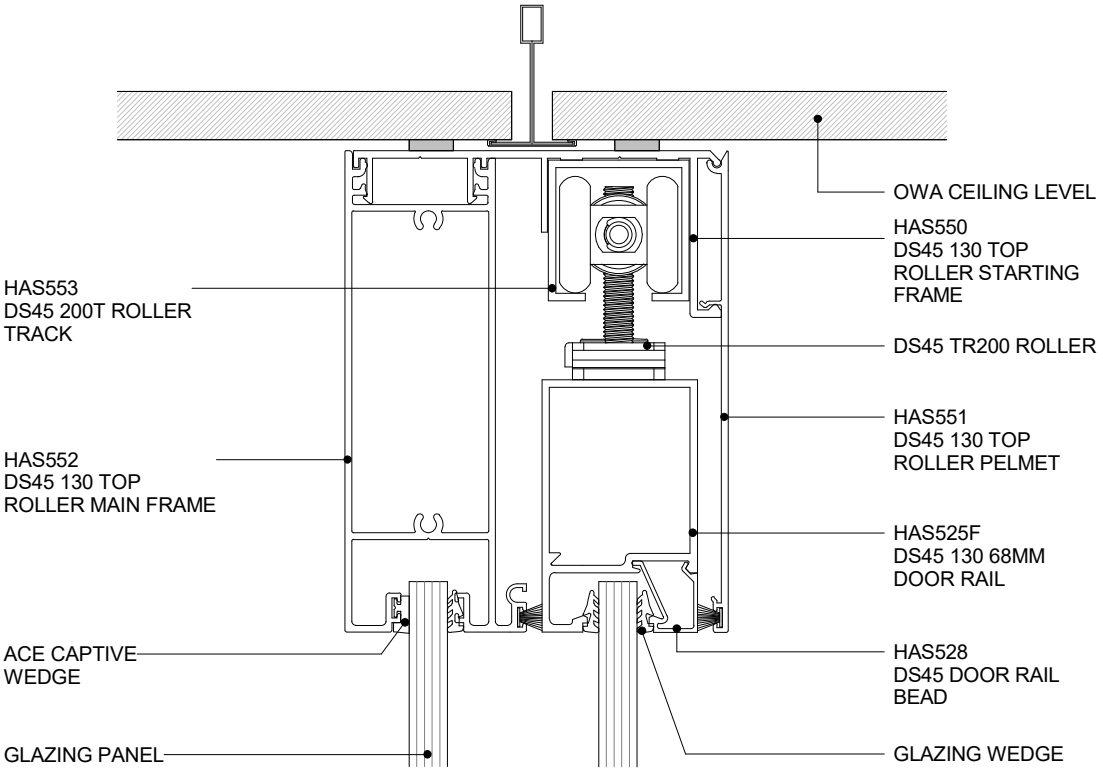


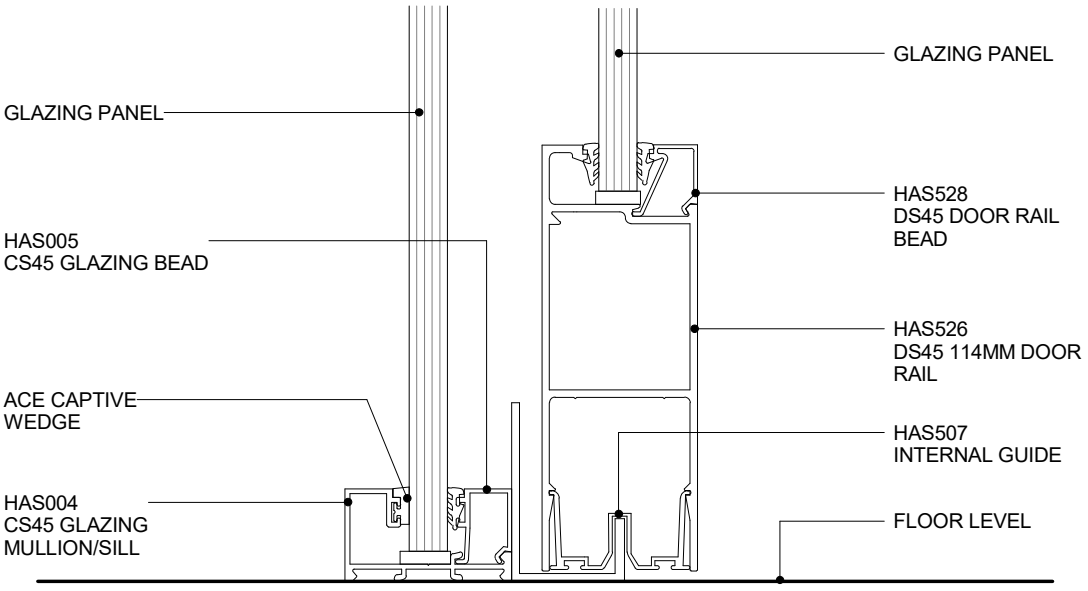
HAS512 DS45 BOTTOM ROLLER 1 PC TOP GUIDE FRAME
HAS525F DS45 130 68MM DOOR RAIL
HAS549 AS104 DOOR STOP LOCATING FRAME
HAS550 DS45 130 TOP ROLLER STARTING FRAME
HAS552 DS45 130 TOP ROLLER MAIN FRAME
HAS551 DS45 130 TOP ROLLER PELMET
HAS553 DS45 200T ROLLER TRACK

HAS554 DS45 130 TOP ROLLER PELMET CAP

HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES STANDARD SUITE PROFILES

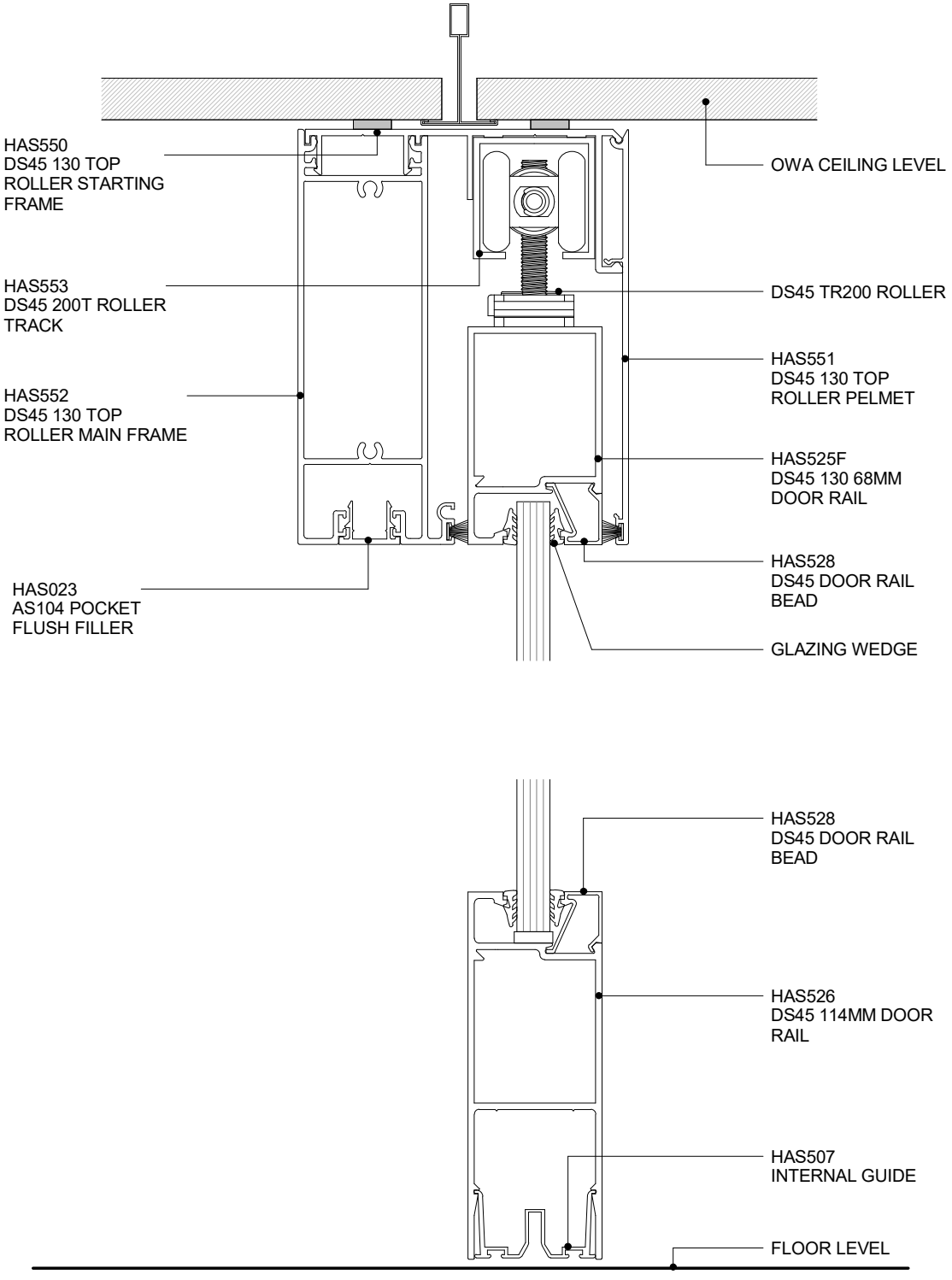
9.1.1	1 : 5 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE





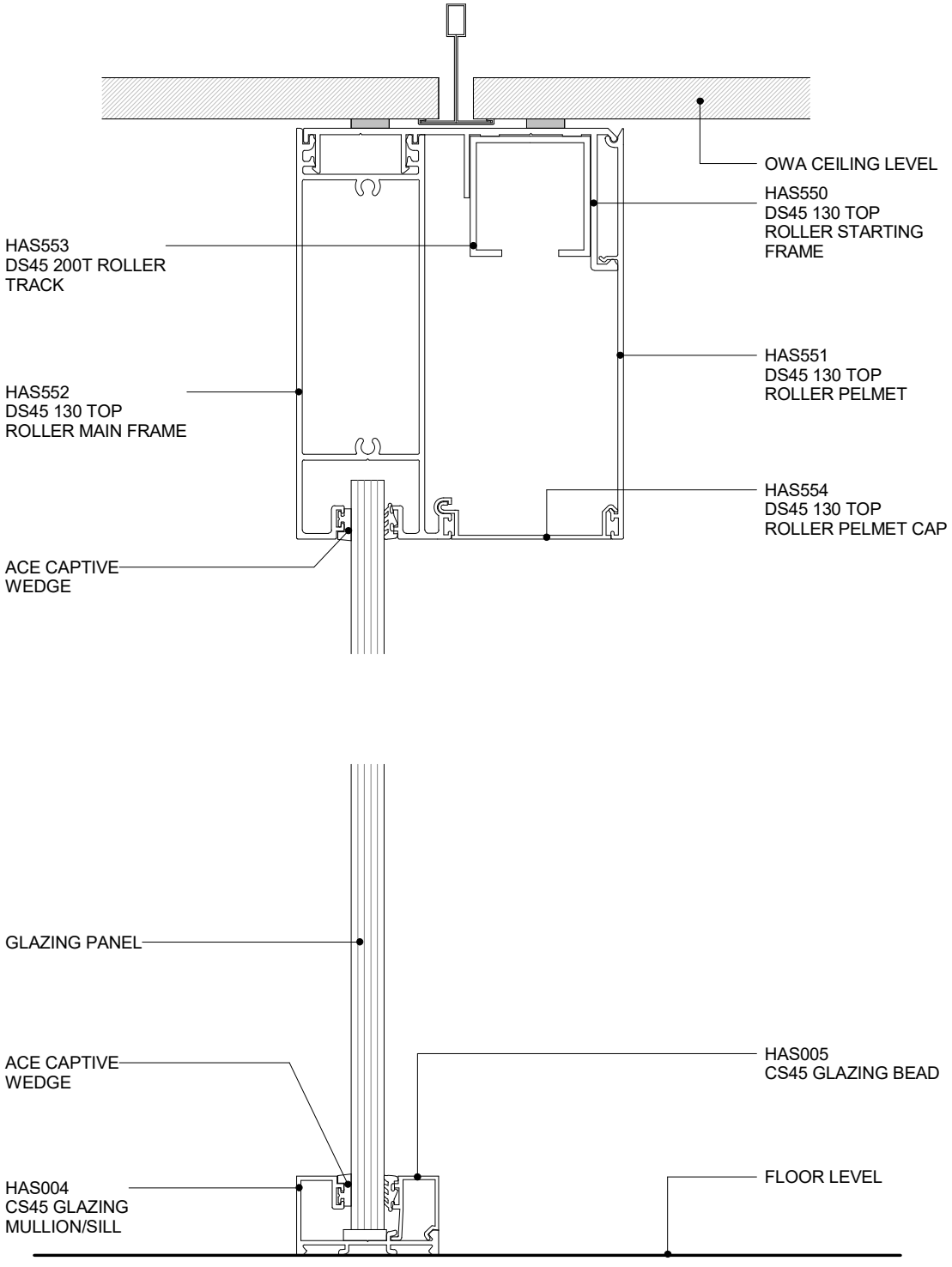
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - 130 SLIDER - 114MM BOTTOM DOOR RAIL & GLAZING CROSS SECTION

9.1.2	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



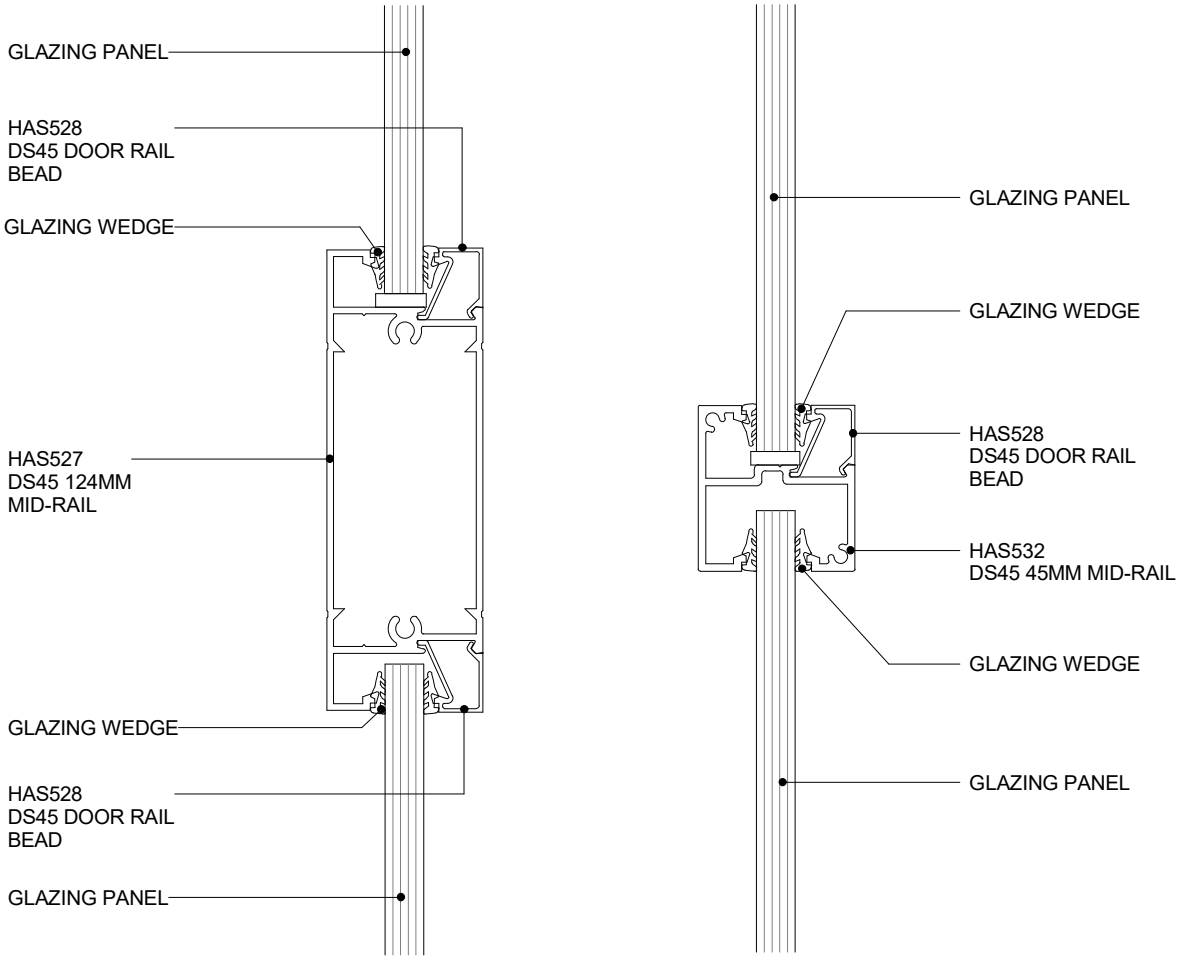
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - 130 SLIDER - 114MM DOOR RAIL & OPENING CROSS SECTION

9.1.3	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



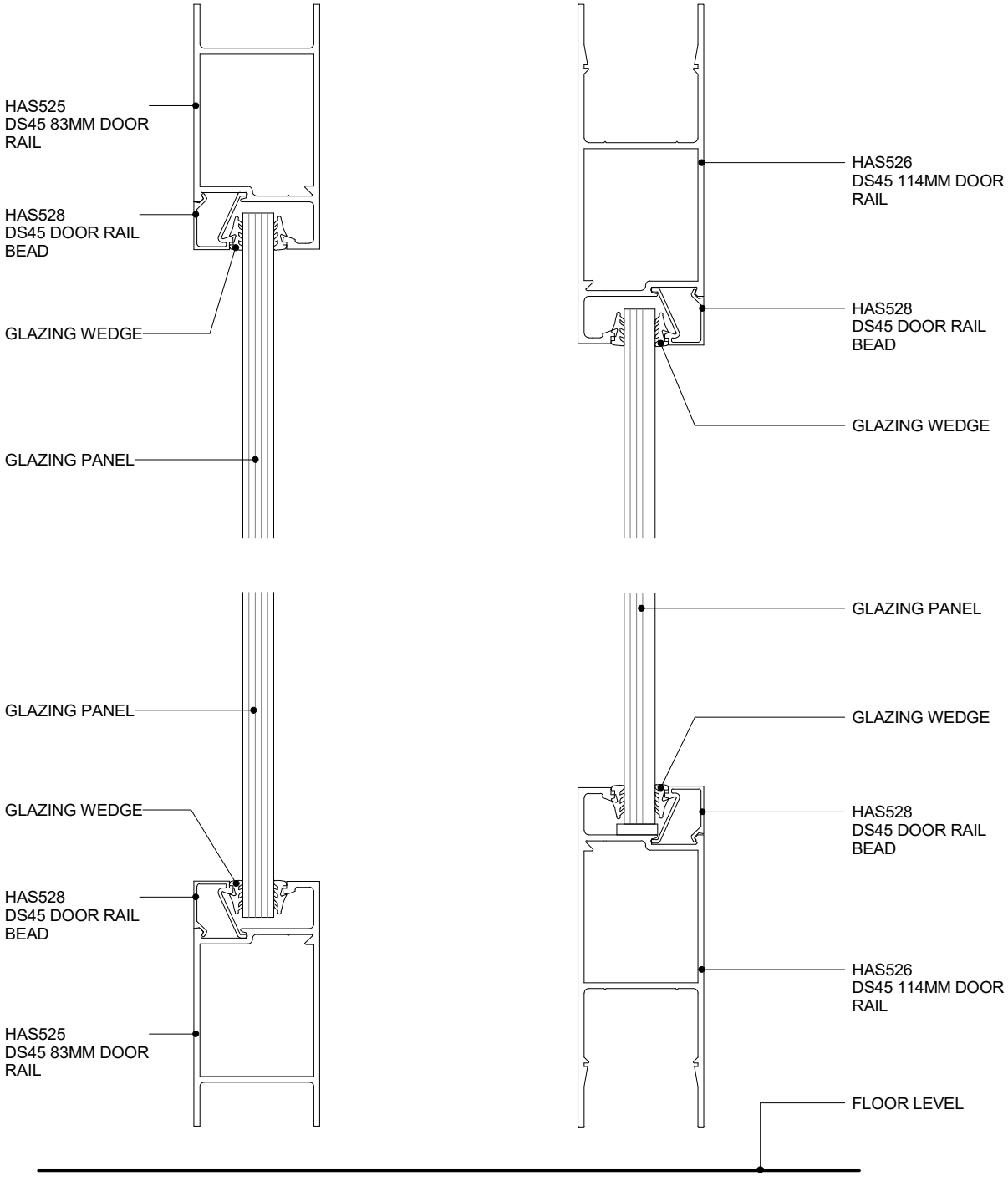
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - 130 SLIDER DOOR & GLAZING CROSS SECTION

9.1.4	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



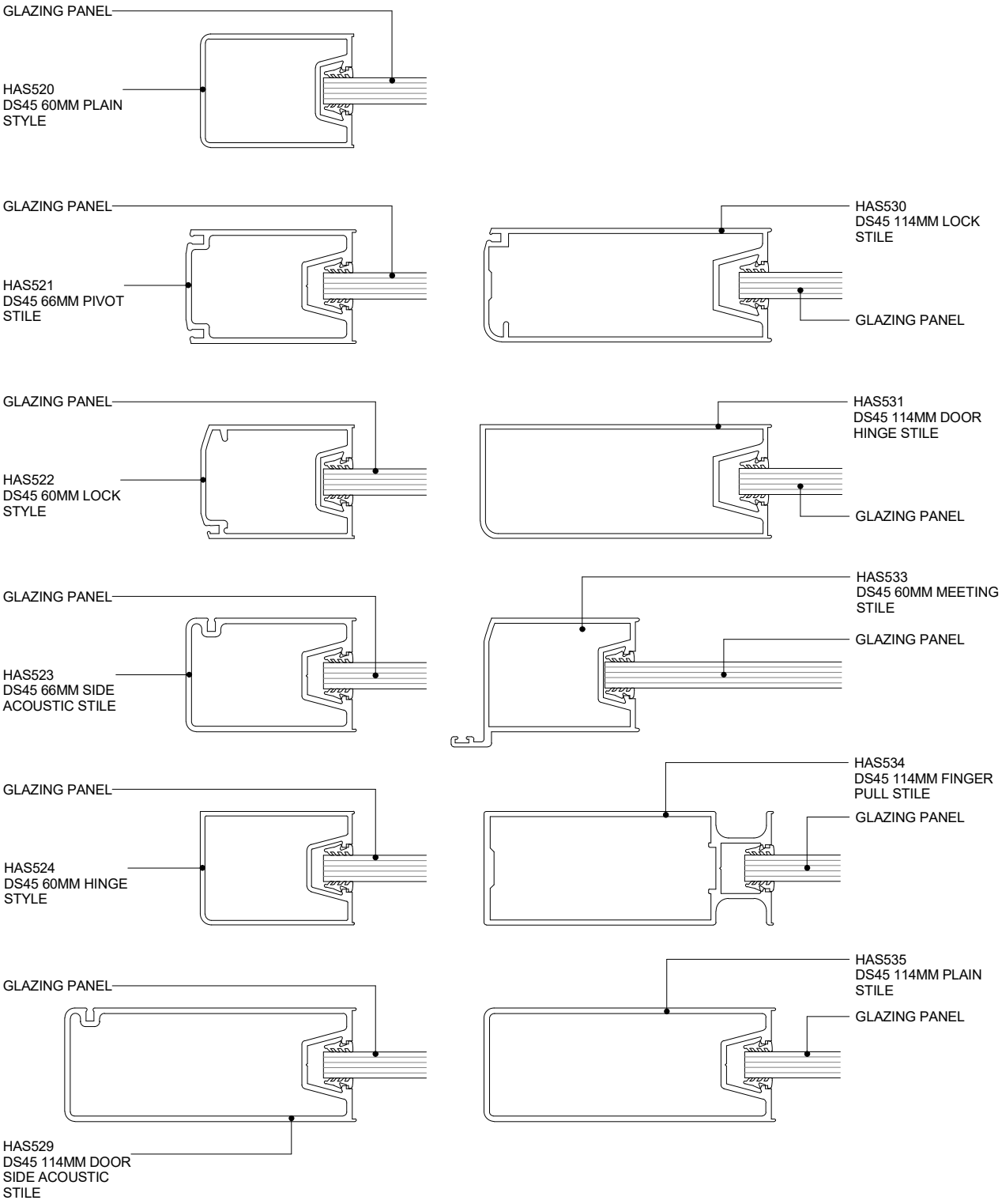
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - 125MM AND 45MM MID RAILS CROSS SECTION

9.5.1	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



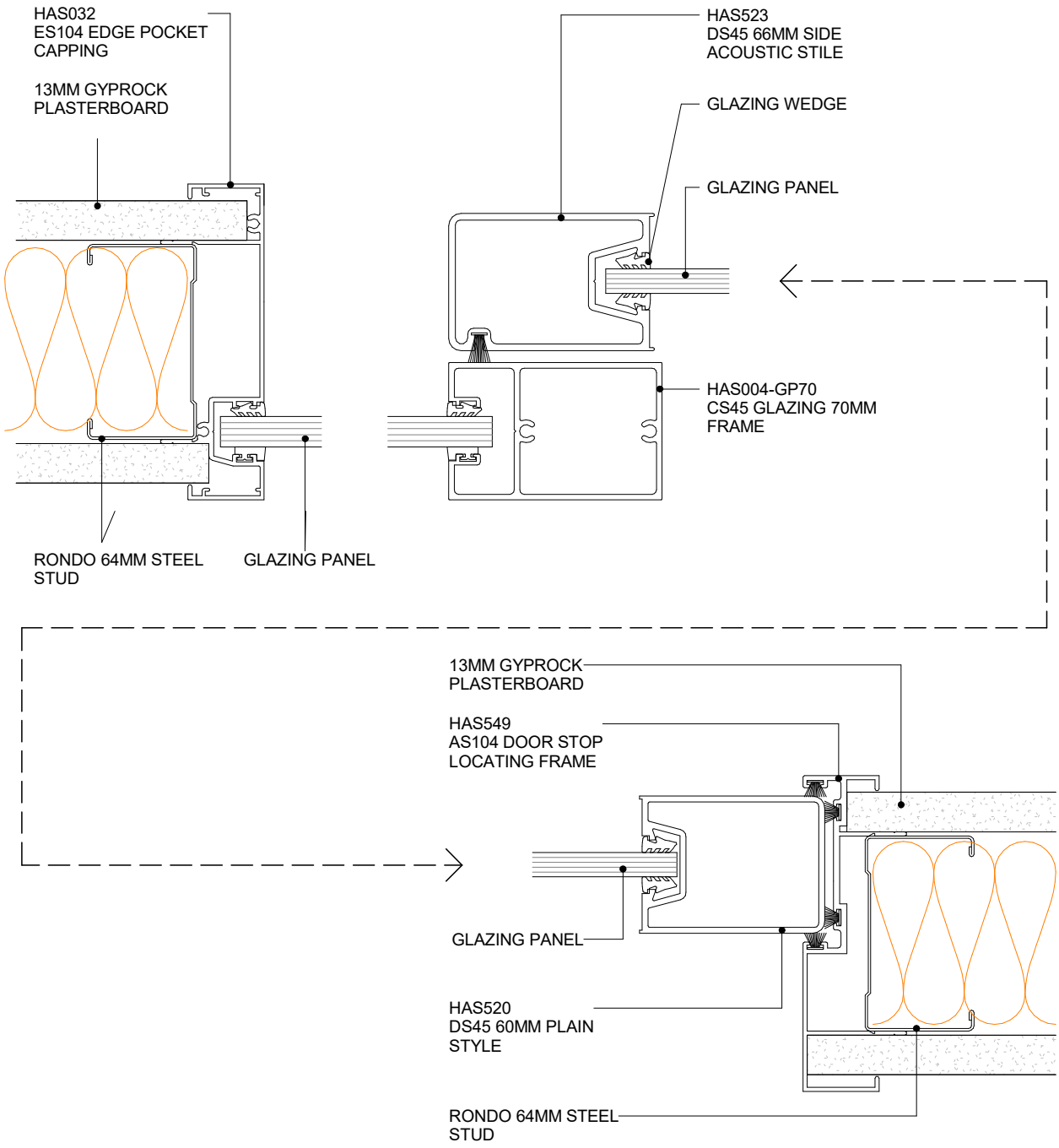
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - 114MM BOTTOM RAIL 83MM TOP RAIL CROSS SECTION

9.5.2	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



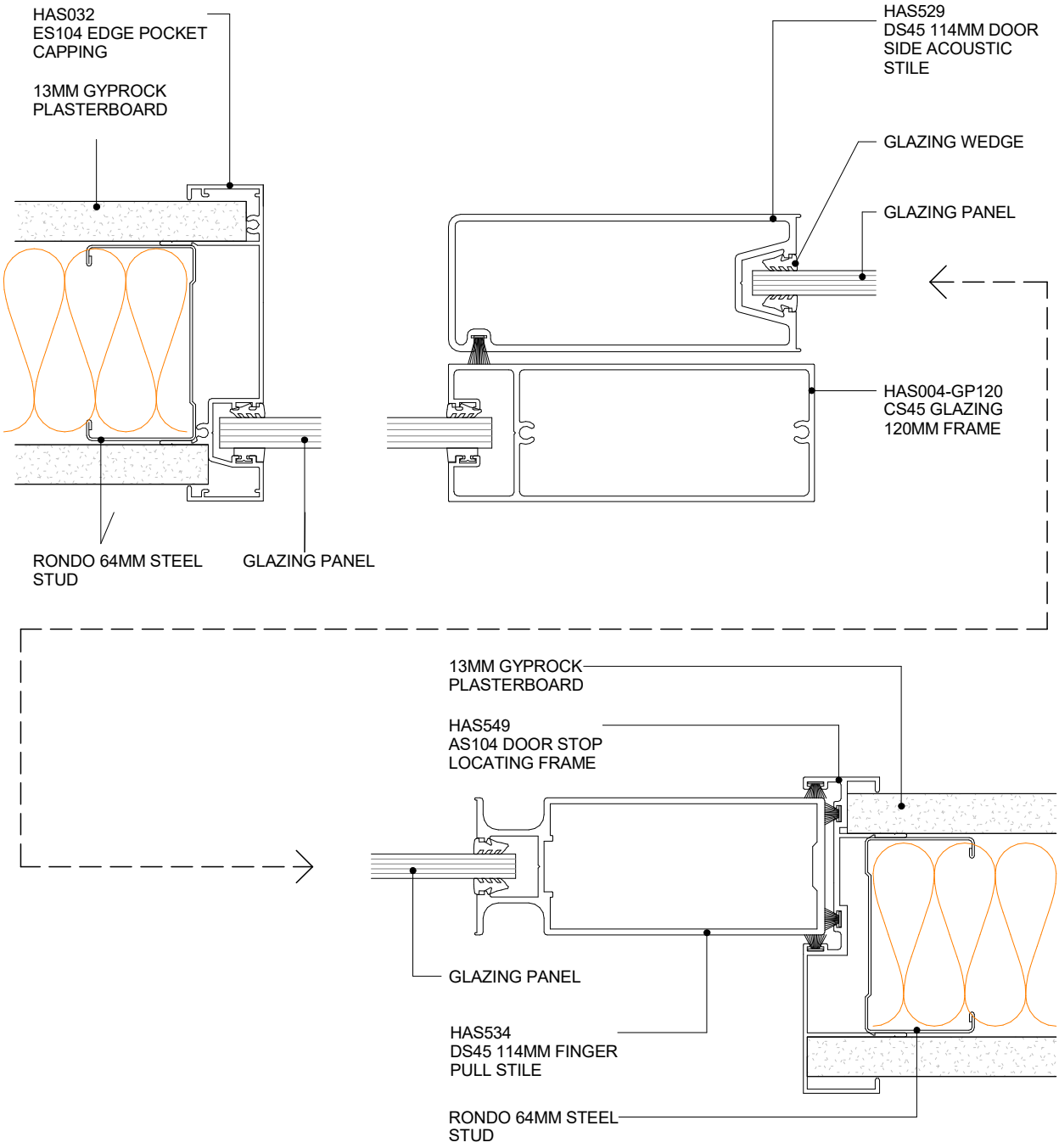
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR STILE TYPES

9.5.10	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



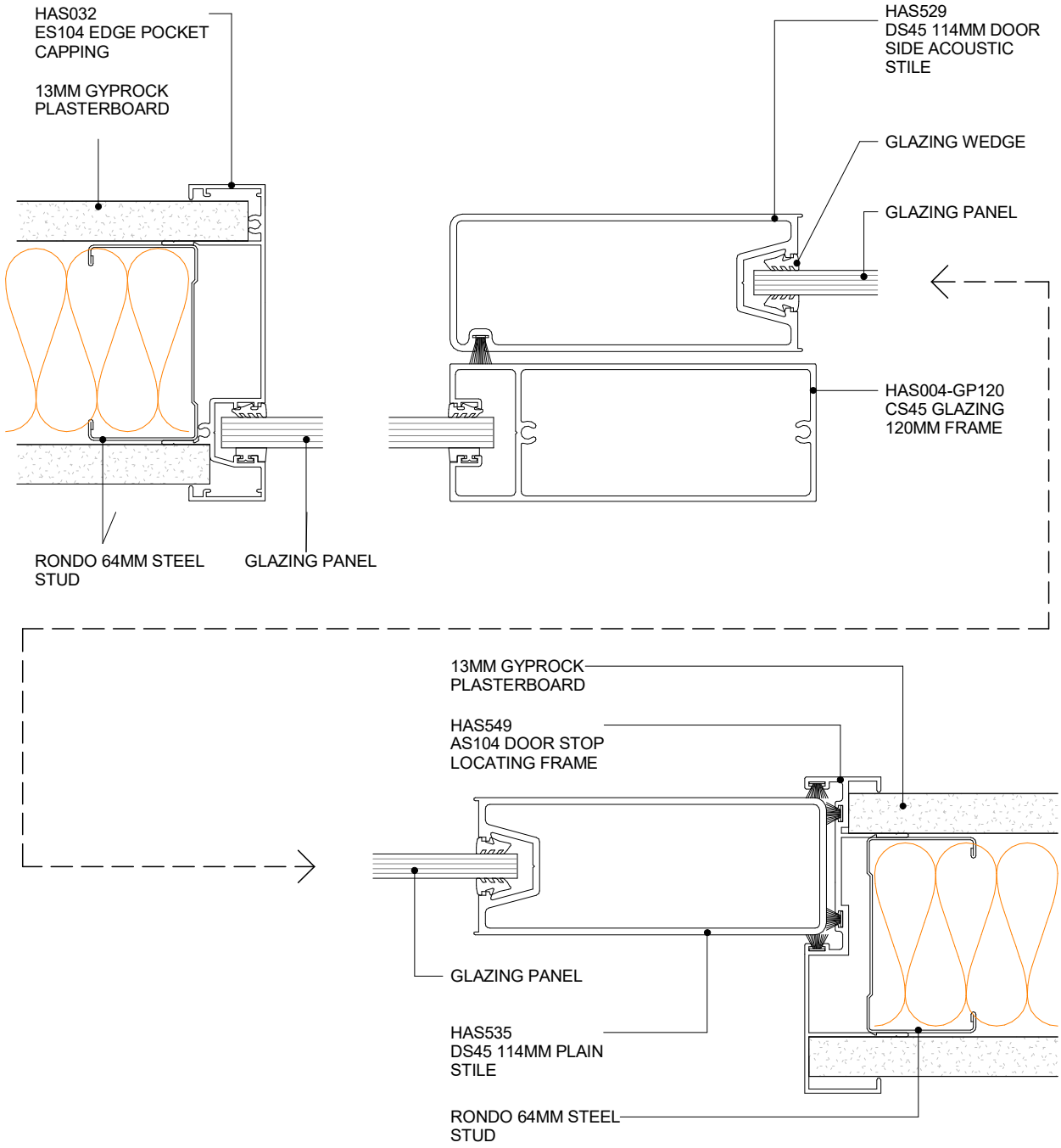
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - SLIDER 66MM DOOR STILE PLAN VIEW

9.6.1	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



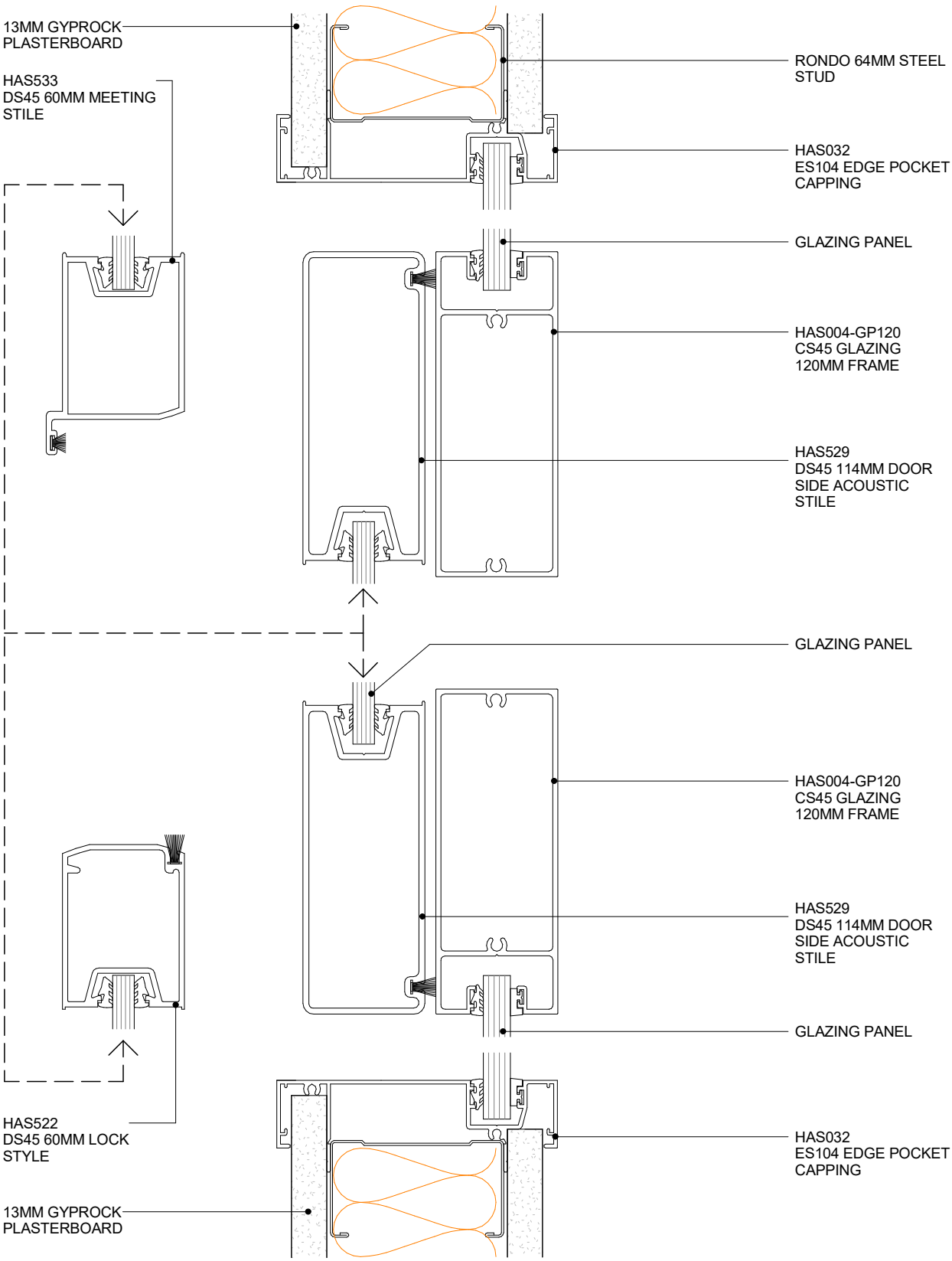
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - SLIDER 114MM DOOR STILE TYPE 1 PLAN VIEW

9.6.2	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



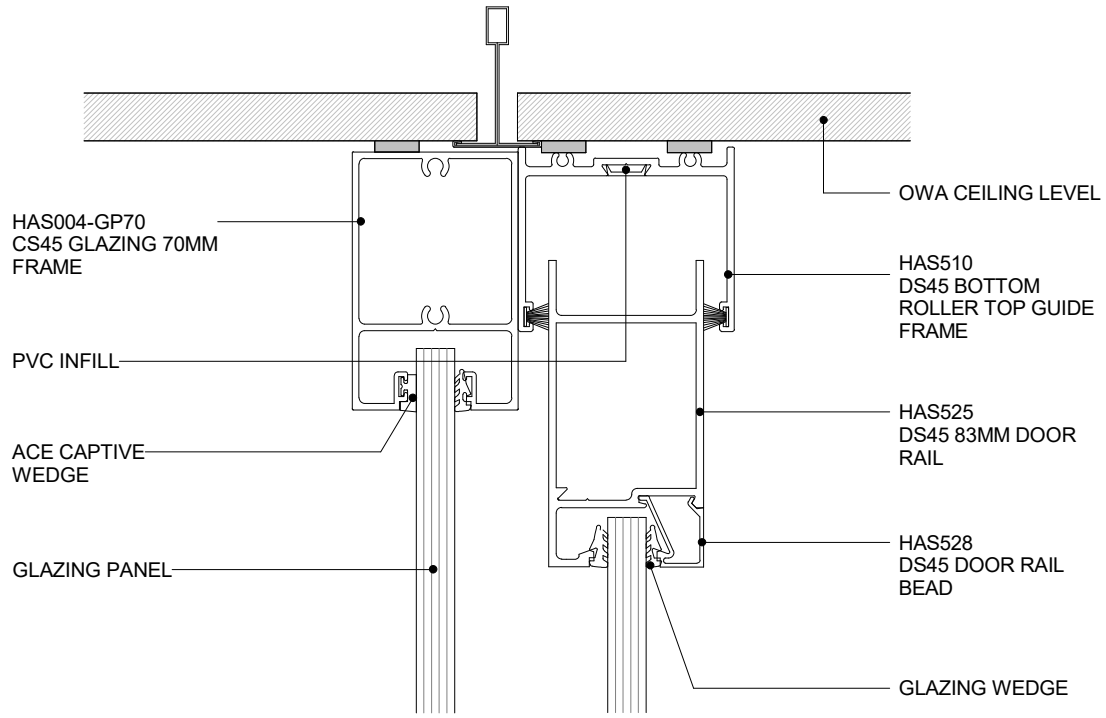
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - SLIDER 114MM DOOR STILE TYPE 2 PLAN VIEW

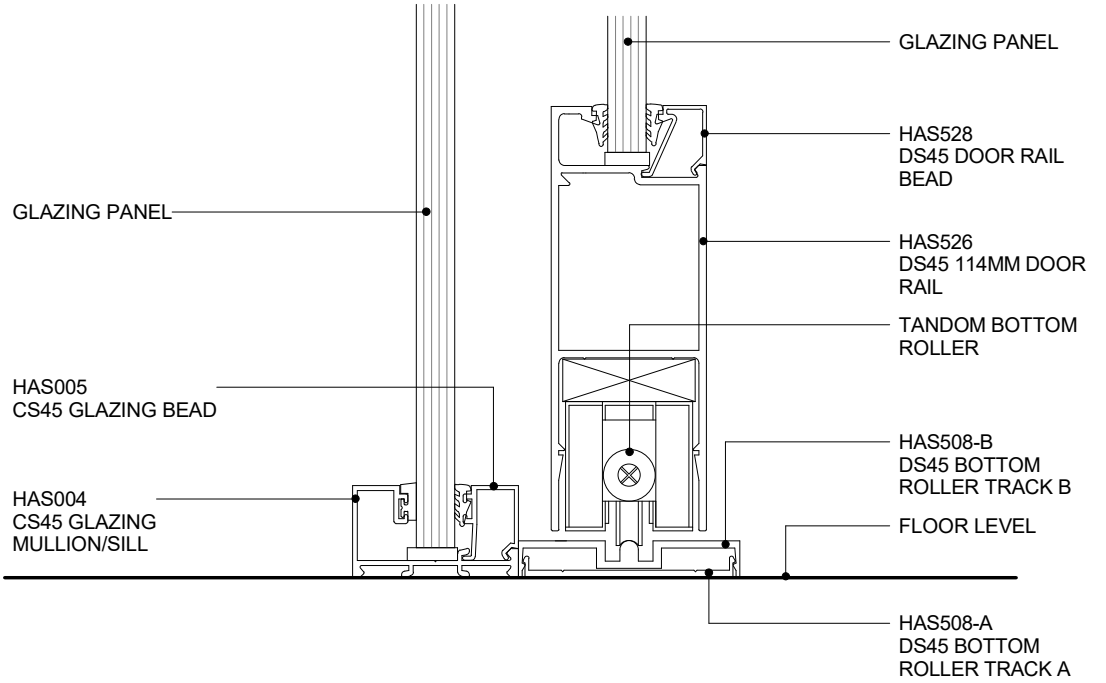
9.6.3	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - SLIDER 60MM MEETING STILE PLAN VIEW

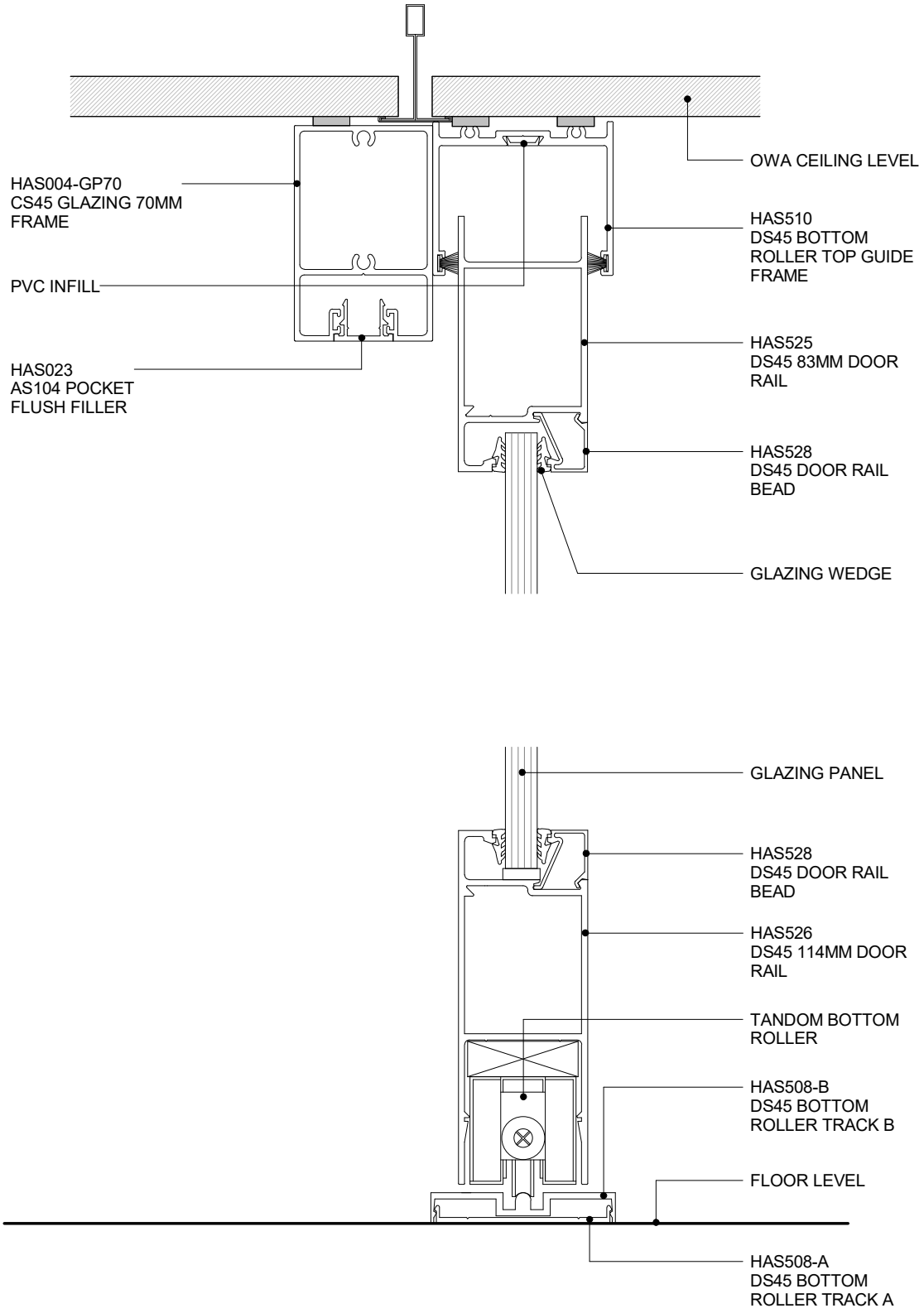
9.6.4	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE





HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH BOTTOM ROLLER CROSS SECTION

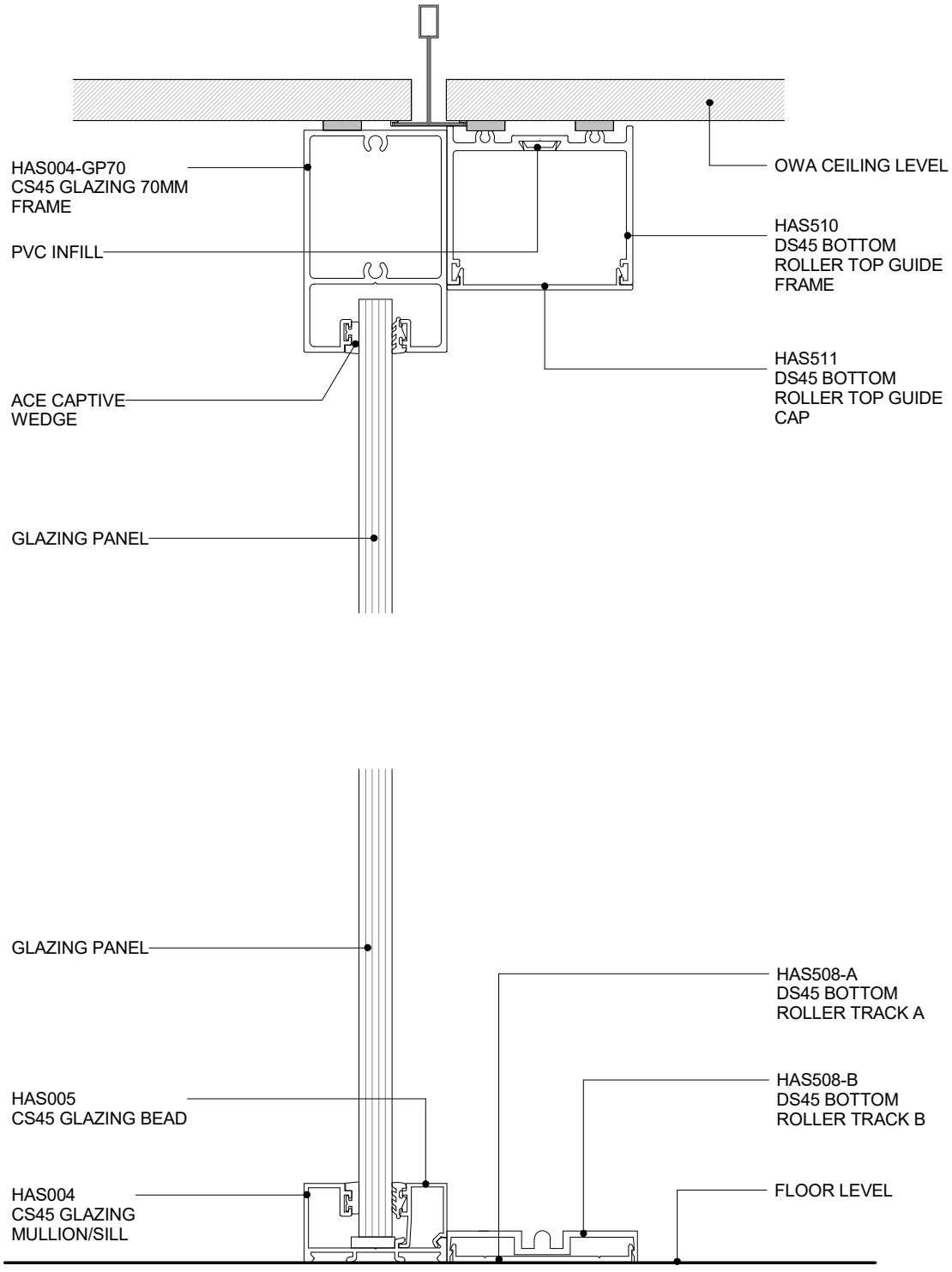
9.8.1	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH BOTTOM ROLLER & OPENING CROSS SECTION

9.8.2	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

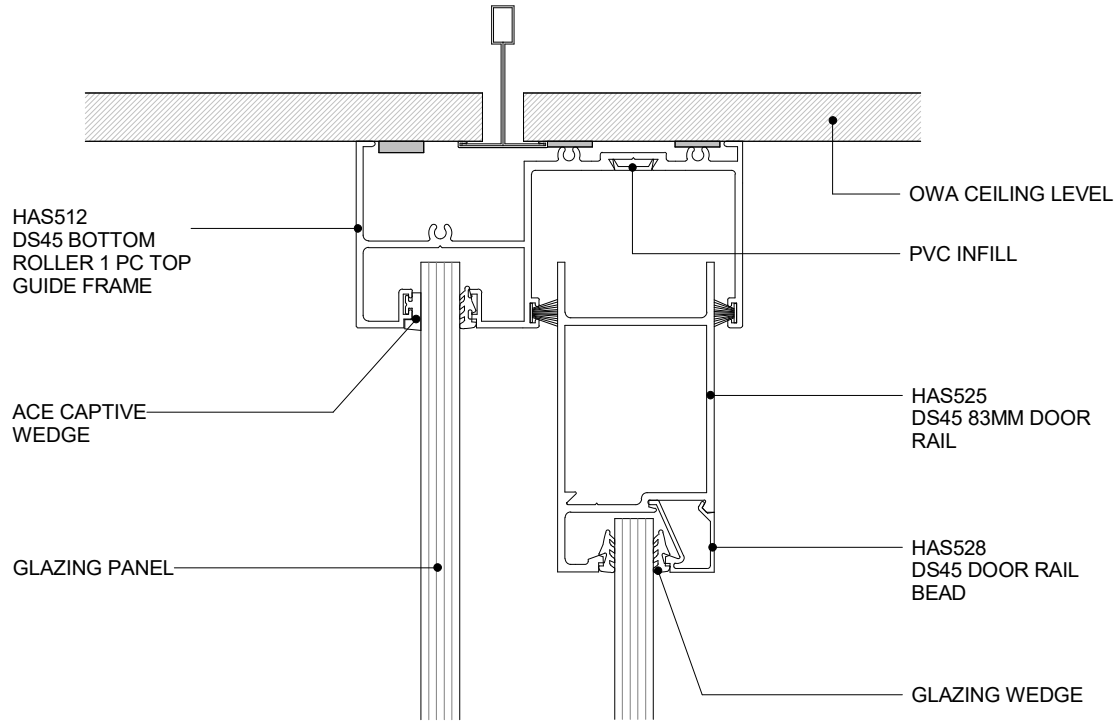
CSR

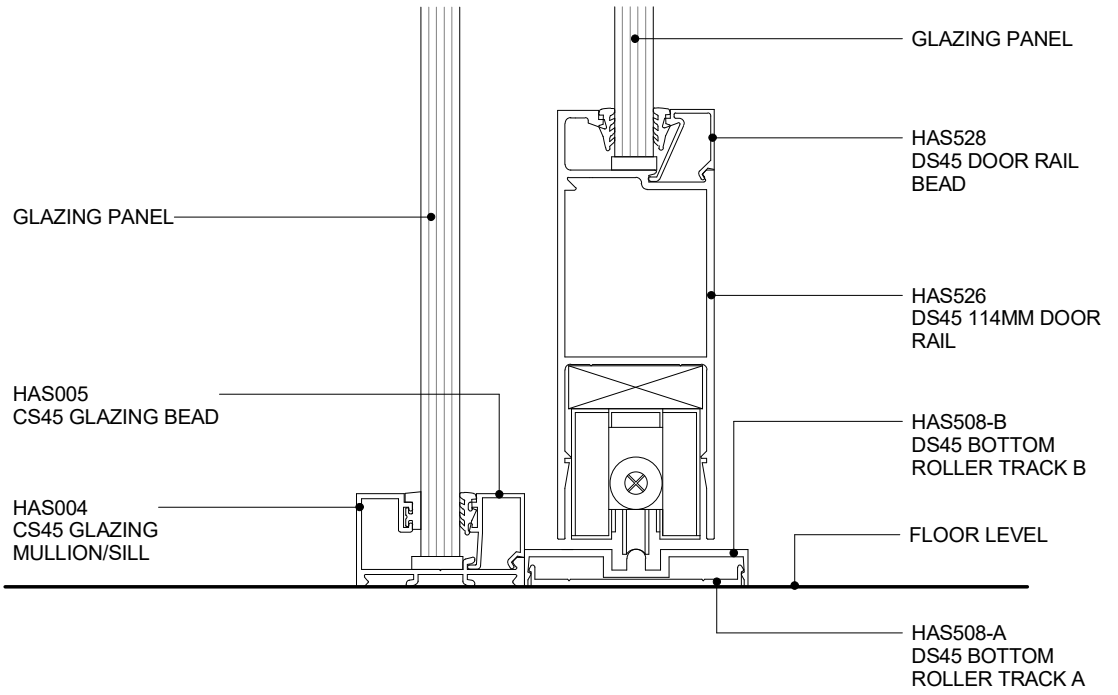


HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH BOTTOM ROLLER & GLAZING CROSS SECTION

9.8.3	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE

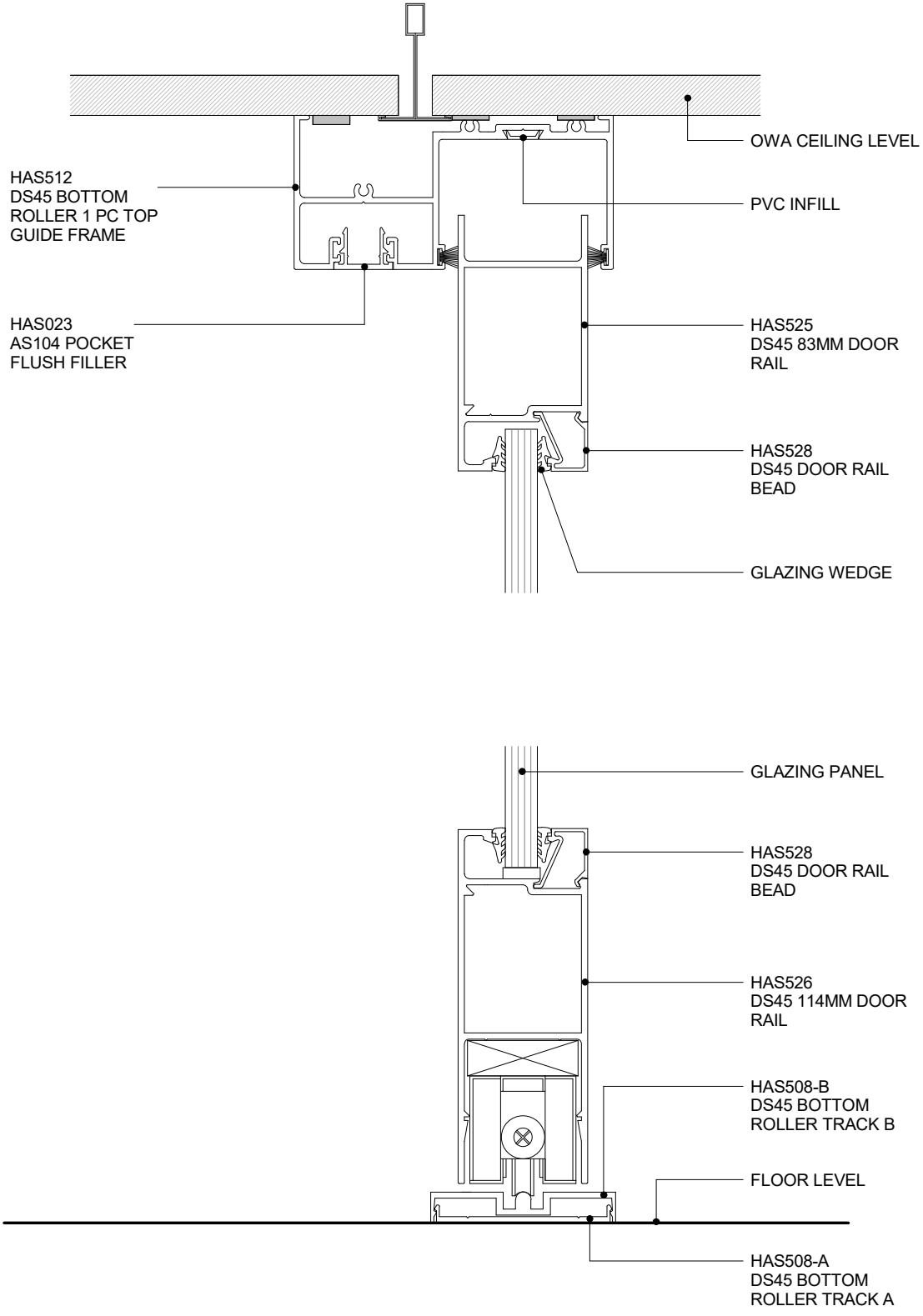
CSR





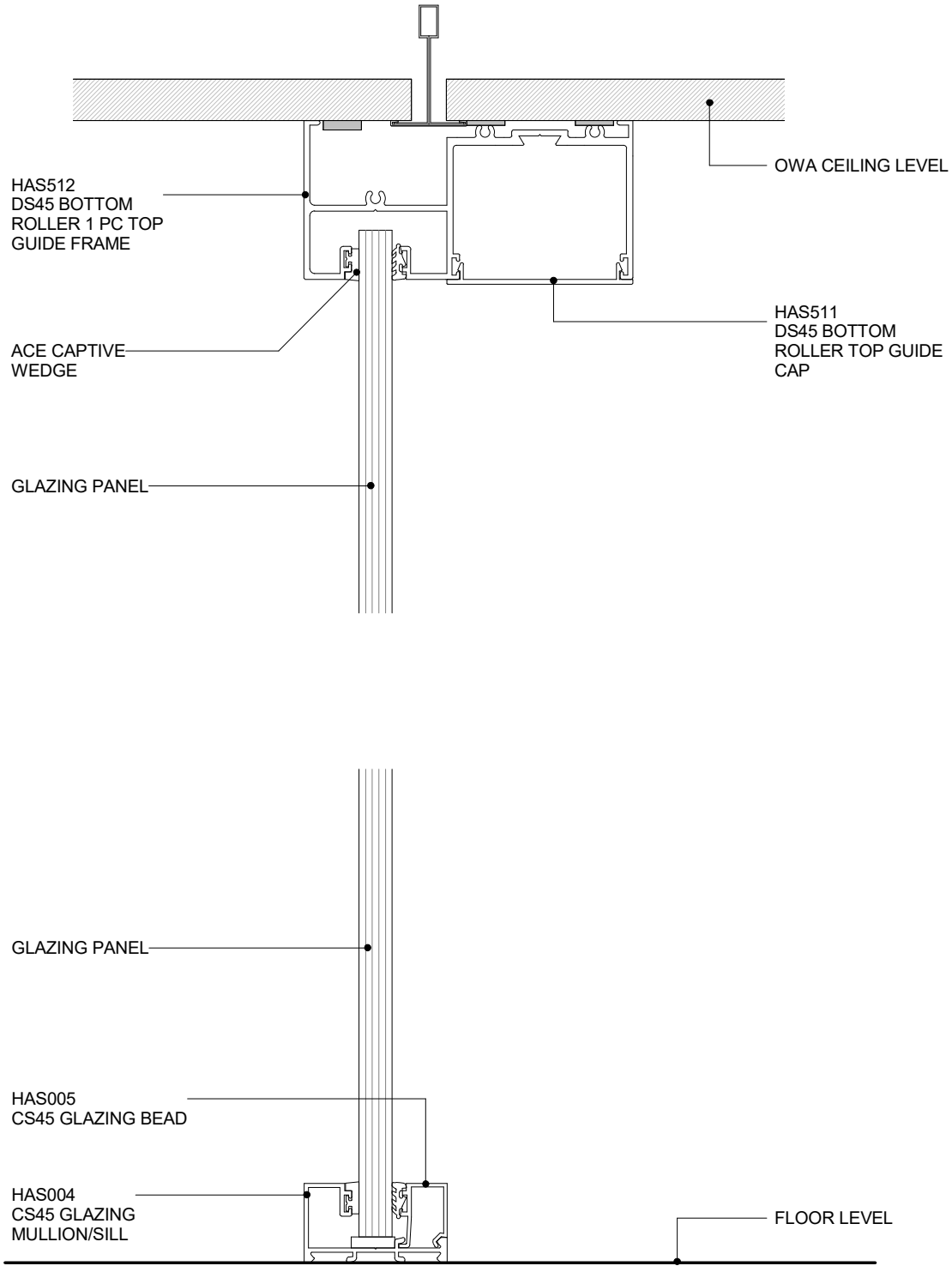
HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH 1 PC HEAD FRAME BOTTOM ROLLER CROSS SECTION

9.8.10	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH 1 PC HEAD FRAME BOTTOM ROLLER & OPENING CROSS SECTION

9.8.11	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
SHEET	SCALE	ISSUED DATE	SUBJECT TO CHANGE WITHOUT NOTICE



HIMMEL ALUMINIUM SYSTEMS
DS45 SERIES - DOOR WITH 1 PC HEAD FRAME BOTTOM ROLLER
GLAZING CROSS SECTION

9.8.12	1 : 2 @ A4	30/07/19	WWW.HIMMEL.COM.AU
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