HYBRID Curtain Wall

Product Manual
Curtain Wall
2008
Introduction

The Company
Senior Aluminium Systems are a group of companies based in the United Kingdom supported through regional Service Centres. Its' operations include the main business of stockholding in both systemized and standard aluminium extrusions. Anodised (natural and bronze), and powder coated sections are all available, along with all of the necessary accessories for manufacture. The incorporation of new or modified sections, system compatible, is carried out when required. Timber profile are all supplied pre-finish.

The emphasis is on service to our clients, with response speed being very much of the essence. Deliveries are made on dedicated vehicles in our own livery, into all areas of the country on a regular basis - collections can be easily arranged for direct release (ex. works) to our clients' instructions. Short notice collections can also be arranged in the event of the occasional, and inevitable 'emergency'.

The Product Range
The HYBRID product range includes Casements, Tilt and turn open in, Overswing and a Curtain Wall system.

Other product ranges available from Senior Aluminium Systems include:
- Entrances and Doors,
- Windows,
- Mid-Rise Curtain Walls,
- Commercial Windows,
- Patent Glazing,
- Sub Frame,
- Standard Angles and Rectangular Tubes,
- Residential Windows,
- Residential Doors,
- Patio Doors and
- Secondary Glazing.

Quality Assurance
We are committed to the aims of ISO 9001 Quality Assurance.

In the event of questions or queries concerning the contents of this manual or any other product on offer from Senior Aluminium Systems, please do not hesitate to contact your Regional Service Centre:

Senior Aluminium Systems Denaby (Head Office) 01709 772600
Senior Aluminium Systems Scotland 01506 407640
Senior Aluminium Systems South 01633 277880

Senior Aluminium Systems Plc operate a policy of continuing development and reserve the right to amend and improve their products without notification. Every effort will however be made to ensure that up-dates are circulated to our clients for information as deemed necessary.

All items contained in this manual are subject to our normal terms and conditions, a copy of which is available on request. Whilst we make every effort to ensure the accuracy of the drawings and measurements contained in this manual, we neither warrant nor guarantee the accuracy and you should undertake your own measurements and not place any reliance on or act in consequence of the contents herein.
Hybrid Curtain Wall

Scope
This specification covers the materials, sections and accessories generally available from stock through the Senior Aluminium Systems group of companies. It illustrates typical recommendations for the fabrication of our HYBRID series Curtain Walling. Refer to SD Manual or SPW500 Manual for data on insert door assembly. There are also a range of HYBRID window and door inserts available and are illustrated in separate manuals.

All windows & door inserts should be suitably fixed to the curtain wall to carry any loads during operation. The sections and fittings described in this manual are not definitive or exclusive in application but show typical assemblies using standard materials and accessories. These details are suitable for installations in both new buildings and re-furbishments, which should comply with the latest building regulations.

Construction
HYBRID Curtain Wall framing is a traditional stick system and is constructed using mechanical methods at butt joints. A proprietary sealant to protect against water entry should always be used on all metal-to-metal and gasket to gasket joints during assembly. Treat all cut faces as detailed in the manual. Seal all permanently exposed cut timber faces with SC3333 and either XA0481 or 188R (Available from Arch coatings: 01977 673363).

Vertical sections are designed to run through which enables individual panels to be made separately and ease the problems associated with handling or transporting large, or multi panel, frames when fully assembled.

The HYBRID system is compartmental drained. Due to tolerances in mullion widths, please refer to page HCW.D.102 of this manual.

Accessories
All accessories shown in this manual are deemed to be both typical, and suitable for, the installations intended. They are generally standard items, which carry with them the manufacturer’s guarantees and are components that are held in stock.

Materials
Extruded aluminium is Aluminium Alloy 6063.T6 to BS EN 755 part 9: 2008.

Powder Coating is to BS EN 12206-1:2004.
Gasketry is manufactured in accordance with BS3734.
Timber is certified by MPA Stuttgart with quality class BS 11, laminated according to DIN 1052 melamine glue, weather-proof and heat proof, humidity 12% +/- 2%, only lamellaes in principle free of knots are laminated.

Testing
HYBRID Curtain Walling has been independently tested to CWCT specification sequence B and has achieved the following results:
- Air Permeability 600Pa
- Water Tightness 600Pa
- Wind Resistance 2400Pa

When tested in accordance with EN 13830: 2003 the following results were achieved:
- Air Permeability 600Pa
- Water Tightness 600Pa
- Wind Resistance 2400Pa

Separate figures are available for Thermal U-values depending on type of frame and glazing material.

Glazing
Note: All Glazing should be carried out to the recommendations of BS6262.
Single glazing adaptor sections are designed to take glass thickness of 10mm and 6mm.

Each pane of glass is individually inserted into a fully rebated and prepared opening. Gasket seal to the inside create a bond between the glass and the main structure.

Glass is retained in position by pressure plates screwed into extruded screw ports in the face of the main sections. Cover caps conceal the fixings screws for an aesthetic exterior appearance.

For Double-glazing there is a standard unit thickness of 28mm.
Double-glazing is carried out in the same manner as single glazing.
Doors and windows can be incorporated directly into the aluminium framing using standard assembly and glazing methods.

Window and Door Inserts
Senior Aluminium Systems offer an extensive range of window and door systems. Please refer to the relevant technical manuals.
All windows & door inserts should be suitably fixed to the curtain wall to carry any loads during operation.

Site Installation
Site fixing of finished frames should take into account all applicable standards with regard to both the method employed and safe working practices.
Frame fixings should be suitable for the purpose given site conditions, live loads and materials into which the installation is to be made. If in doubt, please check with your fixings supplier regarding type and method to be used.

Machinery Requirements
Senior Aluminium Systems HYBRID Curtain Wall systems are designed to facilitate assembly with a minimum of equipment. It is however advisable that a positive approach be made to available machinery, and it’s use, to ensure good quality of finished work with any aluminium and timber product.
# Hybrid Curtain Wall

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Hybrid Curtain Wall

Section Identification

HT50080 80mm Timber Transom/Mullion

HT50120 120mm Timber Transom/Mullion

HT50160 160mm Timber Transom/Mullion

HT50220 220mm Timber Transom/Mullion

HT50300 300mm Timber Transom/Mullion

SCW015 Fixing Bracket

SPW389 65mm Cill Insert

SPW387 115mm Cill Insert

SPW386 165mm Cill Insert

SMR841 Curtain Wall Insert Adaptor

SCW002 17mm Capping

SCW003 15mm Capping

SCW055 50mm Horizontal Drip Capping

SCW008 50mm Capping

SCW007 Area Felt Cap

SMR997 17mm Radius Cap

SMR998 22mm Radius Cap

SMR933 28mm To 6mm Adaptor

SMR976 28mm To 10mm Adaptor

HA185 Pocket Closer

SMPO02 Plastic Pocket Closer

SCW094 Glass Support

SMRTB15 Thermal Break

SCWPPP Plastic Pressure Plate
Hybrid Curtain Wall

Section Identification

HA151 Curtain Wall Bracket For HT50080
HA152 Curtain Wall Bracket For HT50120
HA153 Curtain Wall Bracket For HT50160
HA154 Curtain Wall Bracket For HT50220
HA150 Curtain Wall Bracket
HA155 Curtain Wall Bracket For HT50300
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Half Full Size
Hybrid Curtain Wall
General Arrangement - Jamb

Half Full Size
Hybrid Curtain Wall
General Arrangements - Single Glaze Adaptors

Diagram showing components such as SMR933, SMR976, SMR-G4, SMRTB15, SFS1093480, and SCW002.
Hybrid Curtain Wall
General Arrangement - Closers and Adaptors

DPM OR FLASHING BY OTHERS

SCREW FIXING OR SUITABLE ADHESIVE

FIXINGS TO SUIT MEMBRANE/FLASHING MATERIAL. ANY ADHESIVE MUST BE SUITABLE FOR SMP002 (RIGID PVC) AND MEMBRANE/FLASHING MATERIAL.
HCW.A.105
Hybrid Curtain Wall
General Arrangement - Transoms and Window/Door Inserts

WINDOW/DOOR INSERTS
(REFER TO RELEVANT
MANUALS FOR FURTHER
DETAILS)
Hybrid Curtain Wall
General Arrangement - Double Glazed 90° Corner

16SWG Aluminium Folded Section & Ply Backing or Similar (By Others)

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HCW.A.101 Hybrid Curtain Wall

General Arrangement - SD Door Insert Into Curtain Wall - Head & Cill

SFG114 To Be Flush With Front Face Of HA185

REFER TO SFG & SD MANUAL FOR DOOR LEAF AND THRESHOLD OPTIONS
Hybrid Curtain Wall

General Arrangement - SD Door Insert Into Curtain Wall - Jambs

Note: Will Require Finishing ie Powder Coating
## Hybrid Curtain Wall

### Section Identification

#### HT50080
80mm Timber Transom/Mullion

- **Timber**: T50080
- **Box**: 213.333 cm³
- **Iyy**: 83.333 cm³

#### HT50120
120mm Timber Transom/Mullion

- **Timber**: T50120
- **Box**: 720.000 cm³
- **Iyy**: 120.000 cm³
Hybrid Curtain Wall
Section Identification

HT50160
160mm Timber Transom/Mullion
TIMBER HT50160
Ixx 1708.6667cm²
Iyy 166.6670cm²

HT50220
220mm Timber Transom/Mullion
TIMBER HT50220
Ixx 4436.6667cm²
Iyy 229.1667cm²
Hybrid Curtain Wall
Section Identification

HT50300
300mm Timber Transom/Mullion

TIMBER HT50300

lxx 11250,0000cm^4
lxy 312,5000cm^4
Hybrid Curtain Wall

Section Identification

SMR933
28mm To 6mm Adaptor
EXTERNAL PERIMETER 151mm

SMR976
28mm To 10mm Adaptor
EXTERNAL PERIMETER 135mm

HA185
Pocket Closer
EXTERNAL PERIMETER 165mm

SMP002
Plastic Pocket Closer

HA101
Curtain Wall Nosing
EXTERNAL PERIMETER 231mm

11.09
Hybrid Curtain Wall
Section Identification

SCW055
Horizontal Drip Cap
EXTERNAL PERIMETER 162mm

SCW002
17mm Cap
EXTERNAL PERIMETER 172mm

SCW003
15mm Cap
EXTERNAL PERIMETER 164mm

SCW008
50mm Cap
EXTERNAL PERIMETER 303mm

SCW007
Aerofoil Cap
EXTERNAL PERIMETER 296mm
INTERNAL PERIMETER 227mm

SMR997
17mm Radius Cap
EXTERNAL PERIMETER 172mm

SMR998
22mm Radius Cap
EXTERNAL PERIMETER 190mm

SMRTB15
Thermal Break

SCWPPP
Plastic Pressure Plate
Hybrid Curtain Wall
Section Identification

64
SPW389
85mm Cill Insert
EXTERNAL PERIMETER 268mm

115
SPW387
115mm Cill Insert
EXTERNAL PERIMETER 368mm

165
SPW386
165mm Cill Insert
EXTERNAL PERIMETER 470mm

SMR841
Curtain Wall Insert Adaptor
EXTERNAL PERIMETER 168mm
INTERNAL PERIMETER 97mm
Hybrid Curtain Wall
Section Identification

HCW.B.107

HA151
Curtain Wall Bracket
For HT50080
EXTERNAL PERIMETER 486mm

HA152
Curtain Wall Bracket
For HT50120
EXTERNAL PERIMETER 679mm
Hybrid Curtain Wall
Section Identification

HCW.B.108

HA153
Curtain Wall Bracket
For HT50180
EXTERNAL PERIMETER 872mm

HA154
Curtain Wall Bracket
For HT50220
EXTERNAL PERIMETER 1182mm
HCW.B.109

Hybrid Curtain Wall
Section Identification

HA155
Curtain Wall Bracket
For HT50300
EXTERNAL PERIMETER 780mm

HA150
Curtain Wall Bracket
EXTERNAL PERIMETER 430mm
HCW.C.101 Hybrid Curtain Wall

28mm DG Glass Packs
- SGP28x1mm 28mm x 100mm DG Glass Packer @ 1mm thick, Green.
- SGP28x2mm 28mm x 100mm DG Glass Packer @ 2mm thick, Black.
- SGP28x3mm 28mm x 100mm DG Glass Packer @ 3mm thick, White.
- SGP28x4mm 28mm x 100mm DG Glass Packer @ 4mm thick, Grey.
- SGP28x5mm 28mm x 100mm DG Glass Packer @ 5mm thick, Blue.
- SGP28x6mm 28mm x 100mm DG Glass Packer @ 6mm thick, Red.

SFSPW4830S St/St 4.8x30 PH Wood Screw

SFSCW4325S St/St 4.3x25 C'Sk Hd Wood Screw

SFSCS07 No.8x15LG CSK HD Self Tapping Screw

SMRG4 Interior Welded Corner Gasket (150mm x 150mm)

SCW094CUT Glass Support x 100LG

SPSC07 Transparent Coverplate

SPS1 1.5mm Fixing Packer

SPS3 3mm Fixing Packer

SPS5 5mm Fixing Packer

SMRCB Coverplate Baffle Pressing

SFSCW4325S St/St 4.3x25 C'Sk Hd Wood Screw

SFSCS07 No.8x15LG CSK HD Self Tapping Screw

SMRG4 Interior Welded Corner Gasket (150mm x 150mm)

SCW094CUT Glass Support x 100LG

SPSC07 Transparent Coverplate

SPS1 1.5mm Fixing Packer

SPS3 3mm Fixing Packer

SPS5 5mm Fixing Packer

SMRCB Coverplate Baffle Pressing

SFSCW4325S St/St 4.3x25 C'Sk Hd Wood Screw

SFSCS07 No.8x15LG CSK HD Self Tapping Screw

SMRG4 Interior Welded Corner Gasket (150mm x 150mm)

SCW094CUT Glass Support x 100LG

SPSC07 Transparent Coverplate

SPS1 1.5mm Fixing Packer

SPS3 3mm Fixing Packer

SPS5 5mm Fixing Packer

SMRCB Coverplate Baffle Pressing
Due To Tolerances In Timber And Lacquer, The Mullion Widths Are 50mm +/-1.0mm. It Will Be Necessary To Monitor The Mullion Centres During Installation To Maintain Setting Out Dimensions.

HORIZONTAL TRANSOM SIZE = (CTR to CTR) - 50mm

GLASS/PANEL OR WINDOW SIZE = CTR to CTR - 22mm

HORIZONTAL NOSING And THERMAL BREAK (HA101 & SMRTB15)

HORIZONTAL PRESSURE PLATE = (CTR to CTR) - 54mm

HORIZONTAL CAP = (CTR to CTR) - 51mm

CENTRE LINE SIZE
Drilling & Machining Details For Transom/Mullions HA101

DRILL Ø4.5 HOLES AND FIT WITH Ø4.8x30 PH WOOD SCREWS FIXING (SFSPW4830S) TRANSOM TO MULLION

NOTE: PUNCH TOOLING FOR THIS OPERATION AND HOLES IS AVAILABLE FROM SENIOR ALUMINIUM SYSTEMS.
NOTE: A DRILLING JIG IS AVAILABLE FOR THIS OPERATION

<table>
<thead>
<tr>
<th>TRANSOM/MULLION</th>
<th>DIM 'A'</th>
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NOTE: SEAL ALL SHADED AREAS WITH TREMSIL 500

SFSPW4830S
St/St 4.8x 30 PH Wood Screw

Seal all timber mullions ends with SC3333 and either XA0481 or 188R. All transoms ends to be treated with Hy-seal.
HCW.E.103
Hybrid Curtain Wall
Transom to Mullion Preparation

SFSPW4830S
St/St 4.8x 30 PH Wood Screw

Page HCW.E.101 For Drilling & Cutting Details
Hybrid Curtain Wall

Pointing Detail At Typical Corner

SMRG4
GASKET

SEAL WITH
PROPRIETARY
GASKET
SEALANT

HCW.E.104
10.08

SMRG4C
CORNER GASKET

POINT SEAL
WITH PROPRIETARY
GASKET SEALANT

TRIM

Trim Back Gasket Arrow
At Corners As Shown

PREPARATION FOR SMRG4C CORNER GASKET
Machine Drainage Slots to Underside of Horizontal Cover Caps
75mm From Each End and 500mm Max Centres

Remove Retaining Nib Inline With Cap Drain Slot

Drill 5.0 Dia Pressure Relief Holes approx 1 metre Centres in Lower Level of Pressure Plate
Note: Ensure that Pressure Relief Holes and Drainage Slots do Not Align and are Positioned no closer than 50mm to each other

Pre-Drilled Fixing Holes - Ensure First Hole is no More Than 50mm From Either End Redrill if Necessary

Front Edge Of Slot In-Line With Inside Face Of Cap

Typical Drainage Detail Through Transom

Remove Retaining Nib Inline With Cap Drain Slot
SFS1093480 Self Drilling Screw c/w Washer

SCW003 Cover Cap

SCW002 Cover Cap

SMRTB15 Thermal Break

SFS1093480 Self Drilling Screw c/w Washer

SCWPPP Plastic Pressure Plate
Drill 5.0 Dia Pressure Relief
Holes approx 1 metre Centers in Lower Level of Pressure Plate

GLASS AND GASKETS OMITTED FOR CLARITY
TORQUE SETTING 6Nm
FILL IN AND POINT THERMAL BREAK WITH TREMSIL 500 FULL WIDTH OF VERTICAL PRESSURE PLATE

POINT WITH TREMSIL 500 AFTER FIXING PRESSURE PLATES, THIS SHOULD BE DONE IMMEDIATELY BEFORE FITTING COVER CAP (SHOWN EXPLODED FOR CLARITY)

Hybrid Curtain Wall
Sealing Detail At Cruciform Joint
NOTE: Glass & Gaskets
Not Shown For Clarity

SCWPPP
Plastic Pressure Plate

SCW002
Cover Cap

Point
Seal
With
Tremsil
500

SMRCB

SFS1093480
Self Drilling Screw
c/w Washer
Hybrid Curtain Wall

Mullion Splice Joint

NOTES:
BRACKET DESIGN TO BE CHECKED BY STRUCTURAL ENGINEERS.
ALL FIXING BOLTS AND ISOLATION MATERIALS BY OTHERS.
BACK PLATE OF BRACKETS MUST BE IN CONTINUOUS CONTACT
WITH SUBSTRATE SURFACES THE CAPACITY OF ANCHOR USED IS
DEPENDANT ON THE SITE FIXING CONDITIONS APPLICABLE TO
EACH INDIVIDUAL CASE, EG. SUBSTRATE CONDITIONS.
IT IS ESSENTIAL FOR ALL BRACKET TYPES, THAT A CHECK IS
COMPLETED TO ENSURE THAT THE TENSION AND SHEAR FORCES
APPLIED CAN BE CARRIED THROUGH THE STUD FIXINGS.
THIS BRACKET IS ALSO AVAILABLE IN BAR LENGTH - HA150.
Hybrid Curtain Wall
Mullion Movement Joint - Floor Mounted

M10 LOCK NUT
M10 HEX NUT
NYLON ISOLATING WASHER

HA150F FIXING BRACKET

SEE PAGE HCW.E.108

NOTES:
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M10x100LQ HEX HD BOLT STAINLESS STEEL BY OTHERS
TO ENGINEERS DESIGN

HA150F FIXING BRACKET

SLEEVE TO SUIT MULLION
Hybrid Curtain Wall
Mullion Movement Joint - Suspended

NOTES:-
BRACKET DESIGN TO BE CHECKED BY STRUCTURAL ENGINEERS.
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APPLIED CAN BE CARRIED THROUGH THE STUD FIXINGS.
THIS BRACKET IS ALSO AVAILABLE IN BAR LENGTH - HA150.
Hybrid Curtain Wall
Cill Fixing Detail

HCW.E.114
08.10

NOTES:-
BRACKET DESIGN TO BE CHECKED BY STRUCTURAL ENGINEERS.
ALL FIXING BOLTS AND ISOLATION MATERIALS BY OTHERS.
PLATES AND BRACKETS MUST BE IN CONTINUOUS CONTACT WITH SUBSTRATE SURFACES THE CAPACITY OF ANCHOR USED IS DEPENDANT ON THE SITE FIXING CONDITIONS APPLICABLE TO EACH INDIVIDUAL CASE, EG. SUBSTRATE CONDITIONS.
IT IS ESSENTIAL FOR ALL BRACKET TYPES, THAT A CHECK IS COMPLETED TO ENSURE THAT THE TENSION AND SHEAR FORCES APPLIED CAN BE CARRIED THROUGH THE STUD FIXINGS.
THIS BRACKET IS ALSO AVAILABLE IN BAR LENGTH - HA150.
NOTES:-
BRACKET DESIGN TO BE CHECKED BY
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ALL FIXING BOLTS AND ISOLATION MATERIALS BY
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PLATES AND BRACKETS MUST BE IN
CONTINUOUS CONTACT WITH SUBSTRATE
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IT IS ESSENTIAL FOR ALL BRACKET TYPES, THAT
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CARRIED THROUGH THE STUD FIXINGS.
THIS BRACKET IS ALSO AVAILABLE IN BAR
LENGTH - HA150.

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Hybrid Curtain Wall

Typical Mullion Detail At Cill - Pocket Closer Or Sub Cill Adaptor

NOTE: SMP002 PVC POCKET CLOSER SHOULD BE CONTINUOUS OVER WIDTH OF FRAMES AS REQUIRED.

NOTE: SMR841 CLIP IN SUB CILL ADAPTOR AND SPW389, SPW387 & SPW386 CLIP IN SUB CILLS SHOULD BE CONTINUOUS OVER WIDTH OF FRAMES AS REQUIRED.

SEAL JOINT WITH TREMSIL 500

PVC Pocket Closer

SMR841
Clip In Sub Cill Adaptor
Fixings to suit membrane/flashin g material. Any adhesive must be suitable for SMP002 (Rigid PVC) and membrane/flashin g material.

Remove nibs to clear screw heads.

Detail to suit structure.

DPM to structure (by others) max 2mm thickness.

SCW094CUT Glass Support.

Remove nibs to clear screw heads.

SFSCS07 No8x16 C'SK ST Screw.

Max 2mm pressing (by others).
Hybrid Curtain Wall

Jamb Detail

MAX 2mm THICKNESS
DPM TO STRUCTURE
(BY OTHERS)

REMOVE NIBS TO
CLEAR SCREW HEADS

SFSCS07
No8x16 C'SK ST SCREW

FIXINGS TO SUIT
MEMBRANE/FLASHING
MATERIAL. ANY
ADHESIVE MUST BE
SUITABLE FOR
SMP002 (RIGID PVC)
AND
MEMBRANE/FLASHING
MATERIAL.

SMP002

SCW002

SCWPPP

SMRTB15

DPM TO STRUCTURE
(BY OTHERS)

No8x16 C'SK ST SCREW

Hybrid Curtain Wall

HCW.E.118

08.10
Hybrid Curtain Wall

Jamb And Cill Details

SCW094CUT
Glass Support

SCW055
Horizontal Drip Cap

SMR841
Sub Cill Adapter

TRELLEBORG
CLADSEAL P-FIX

SCW056
Horizontal Drip Cap

SCW094CUT
Glass Support

POINT SEAL NOSING
AND SMRTB15
THERMAL BREAK

SPW389
65mm Clip In Sub Cill

SPW387
115mm Clip In Sub Cill

SPW386
165mm Clip In Sub Cill

NOTE: SMR841 CLIP IN SUB CILL ADAPTOR AND SPW389, SPW387 & SPW386 CLIP IN SUB CILLS SHOULD BE CONTINUOUS OVER WIDTH OF FRAMES AS REQUIRED.

SMR841 Clip In Sub Cill
Adaptor Glazed Into Curtain Wall and Sealed To Structure.
Hybrid Curtain Wall

Aero Foil Cap Joining

SCW007 CAP TO BE FITTED IN 3m LENGTHS MAXIMUM.
HORIZONTAL PRESSURE PLATES MAY RUN CONTINUOUS
JOINTS SHOULD BE IN MIDDLE OF TRANSOMS NOT IN LINE
WITH MULLIONS.

SFSPS28 Screw
(2 Per Endcap)
#8x12mmLG

SCW007PLT
GLUE FLUSH INTO
CAPPING AND LOCATE
SQUARE END INTO
PORTS ON RETURN
NOTE: 90° CORNER SHOWN
TRIM END TO SUIT ANGLE
OF CAPPING

USE 30° CUT END
TO ASSIST LOCATION
GLUE INTO ONE SIDE
OF CAPPING

SCW007PLT
SCWEC End Cap

SCW007
NOTE: WHEN USING DOOR & WINDOW INSERTS, PACK & FIX TO SUIT OPERATION OF THE PRODUCT CONCERNED. REFER TO RELEVANT FABRICATION MANUAL.
03.11

HYBRID Curtain Wall

Manual Update

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<tr>
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<tr>
<td>HCW.E.102</td>
<td>Note added regarding sealing transom and mullion ends</td>
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