

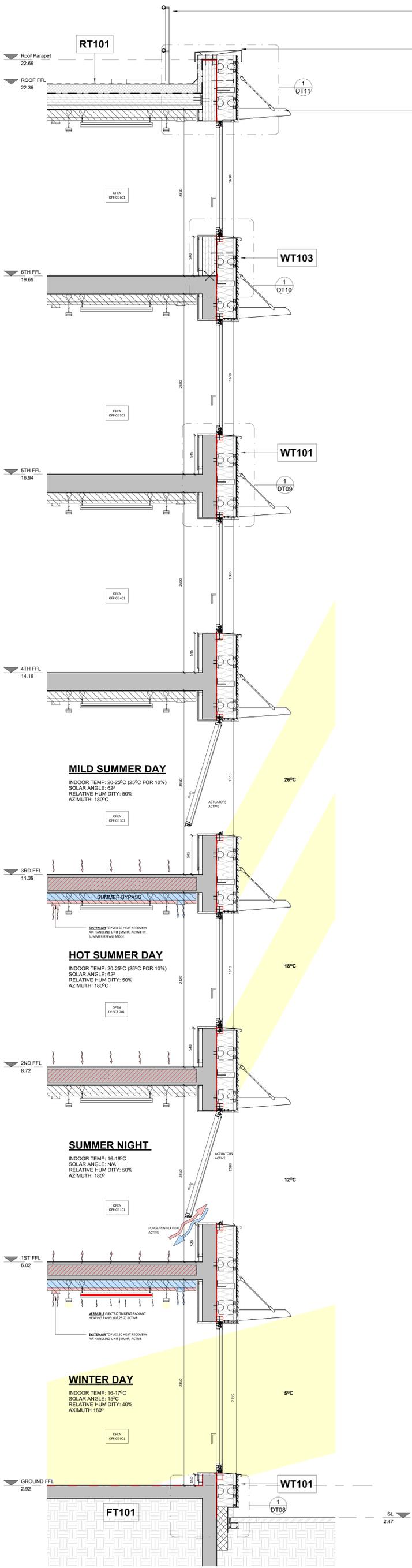


ARCHITECTURAL TECHNOLOGY

DATE 26/02/2026

DEAN LOWE SEMESTER TWO PROJECT 1

R00229832



KEEGUARD STANDARD KGU35 WEIGHTED BALUSTRADE (DS.21.1)

ELITEFORM POWDER COATED ALUMINIUM CAPPING, RAL 7016 (DS.20.0) FIXED TO **BOSIG** PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH **BOTHBLAST** SBD SELF-DRILLING DOWEL (DS.10.2)

BEYNAERS HORIZONTAL ALUMINIUM BRISE SOLEIL WITH 100 MM BLADES (DS.24.1) FIXED TO ALUMINIUM SUPPORT BRACKETS ANCHORED TO FAÇADE STRUCTURE

PROCTOR WRAPTITE AIRTIGHT MEMBRANE (DS.6.1) FACTORY-APPLIED TO EXTERNAL FACE OF **STORA** ENSO CLT PANEL (DS.4.1)

SIKA MONOTOP 40-12 STRUCTURAL REPAIR MORTAR (DS.27.0) APPLIED TO PREPARED CONCRETE SUBSTRATE

PROCTOR WRAPTITE TAPE (DS.6.3) TO SEAL INTERMEDIATE JUNCTIONS.

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUJGELB** TRIOTHERM+ THERMAL SUPPORT

ROCKWOOL SF FIRESTOP EN (DS.16.3) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS SECURED TO CONCRETE WALL

BLOWPROOF LIQUID APPLIED MEMBRANE (DS.6.2) SPRAY APPLIED TO EXISTING CONCRETE.

ROCKWOOL FIREPRO® SF FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) SECURED TO CONCRETE WALL

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

HILTI MFT-FOX VT ALUMINIUM L-BRACKET (DS.5.4) MECHANICALLY FIXED TO EXISTING CONCRETE WITH **HILTI** HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

EIOT EIOTHERM STR U 2G MECHANICAL FIXING USED TO SECURE **ROCKWOOL** RAINSCREEN DUO SLAB (DS.1.3) TO CONCRETE WALL

ROCKWOOL RAINSCREEN DUO SLAB (DS.1.3)

OCCAM TRIPLE BRICK SLIP CARRIER (DS.5.4) FIXED TO **HILTI** T-RAIL (DS.5.3) TO SUPPORT BRICK SLIP CLADDING.

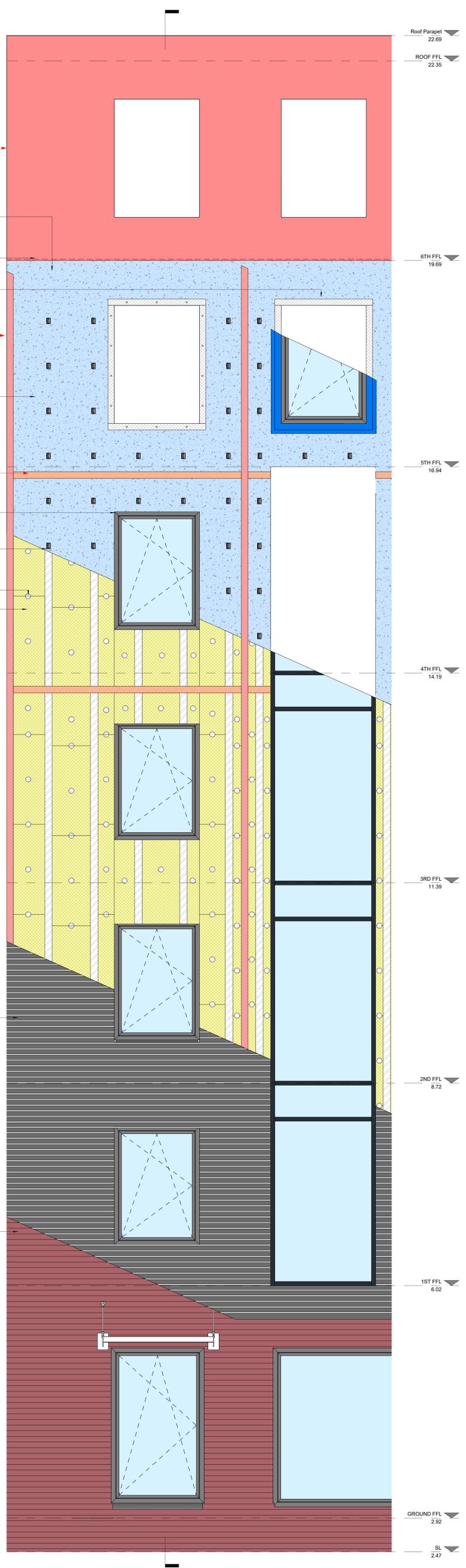
SERVICES:

SYSTEMAIR TOPEX SC HEAT RECOVERY AIR HANDLING UNIT (MVHR) (DS.25.1) EQUIPPED WITH **SYSTEMAIR** TG-R ROOM TEMPERATURE SENSOR (DS.25.2)

VERSATILE ELECTRIC TRIDENT RADIANT HEATING PANEL (DS.25.2) SUSPENDED FROM CONCRETE SOFFIT WITH ADJUSTABLE CEILING TIE HANGERS.

ZUMTOBEL LINELIGHT BALANCED-WHITE LED LINEAR LUMINAIRE (DS.25.3) SUSPENDED FROM CONCRETE SOFFIT ON ADJUSTABLE CEILING TIE SUSPENSION AND CONTROLLED BY CEILING-MOUNTED MOTION SENSOR

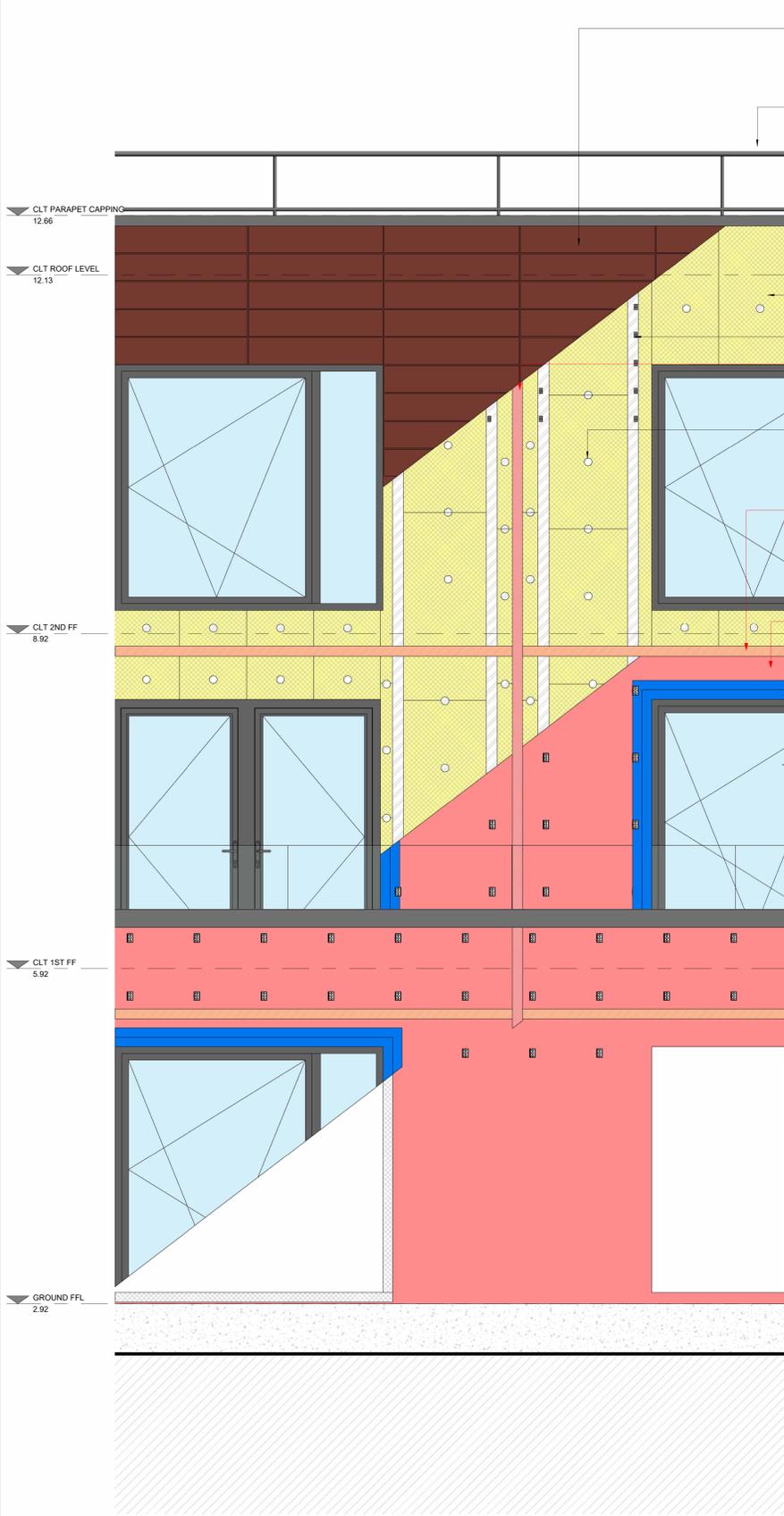
OCCAM TERRACOTTA BRICK SLIPS (DS.5.5), RAL 8004



S-PART SECTION
1:20

S-PART ELEVATION
1:20

*REFER TO ENERPHT ENVELOPE SHEETS FOR WALL AND ROOF BUILD UPS



W-PART ELEVATION
1:20

WIENERBERGER ARGETON TERRACOTTA TILES, DARK RED (DR) TO MATCH RAL 8012 REFERENCE (DS.5.8), FIXED TO FAÇADE CARRIER RAILS CONNECTED TO HILTI T-RAIL (DS.5.3).

KEEGUARD STANDARD KGU35 WEIGHTED BALUSTRADE (DS.21.1)

ELITEFORM POWDER COATED ALUMINIUM CAPPING, RAL 7016 (DS.20.0) FIXED TO BOSIG PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH ROTHBLAST SBD SELF-DRILLING DOWEL (DS.20.2).

ROCKWOOL RAINSCREEN DUO SLAB (DS.1.3)

ARGETON TERRACOTTA TILE FIXING CLIPS (DS.5.9)

ROCKWOOL SP FIRESTOP EN (DS.16.3) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS SECURED TO CONCRETE WALL

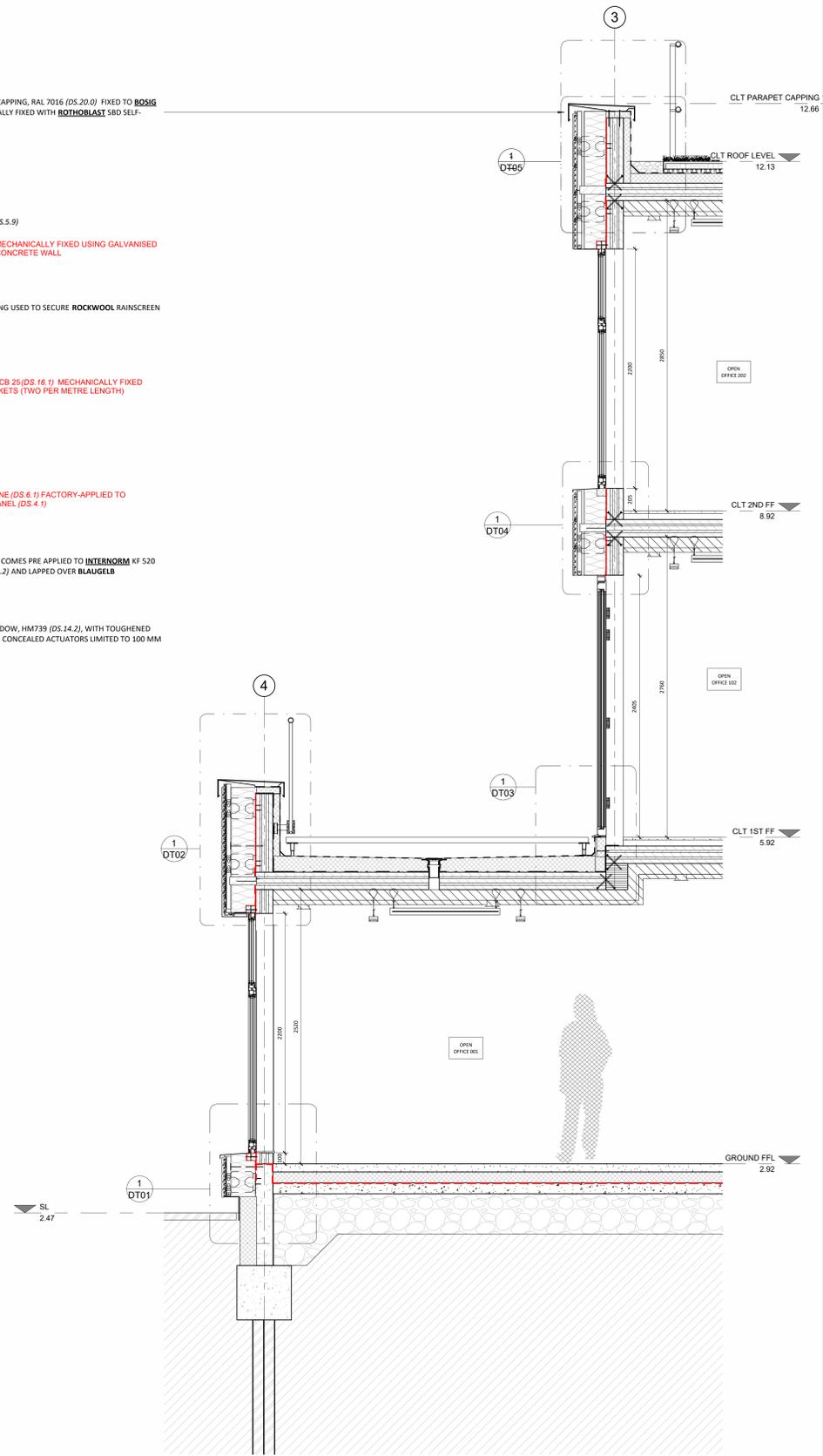
EDOT EJOTHERM STR U 2G MECHANICAL FIXING USED TO SECURE ROCKWOOL RAINSCREEN DUO SLAB (DS.1.3) TO CLT PANEL

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) SECURED TO CLT PANEL

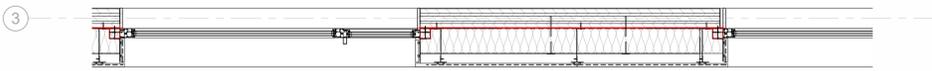
PROCTOR WRAPTITE AIRTIGHT MEMBRANE (DS.8.1) FACTORY-APPLIED TO EXTERNAL FACE OF STORAN ENSO CLT PANEL (DS.4.1)

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER BLAUGELB TRIOTHERM+ THERMAL SUPPORT

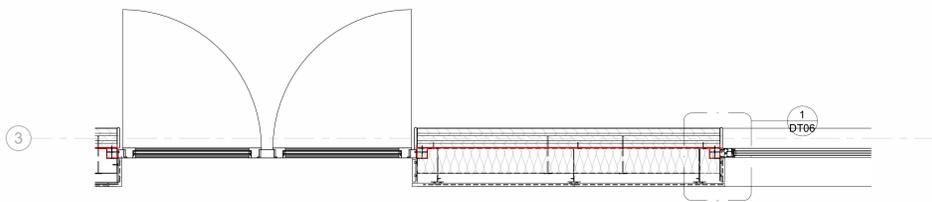
INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING



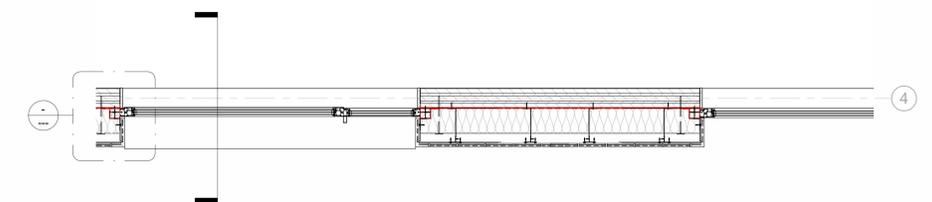
W-PART SECTION
1:20



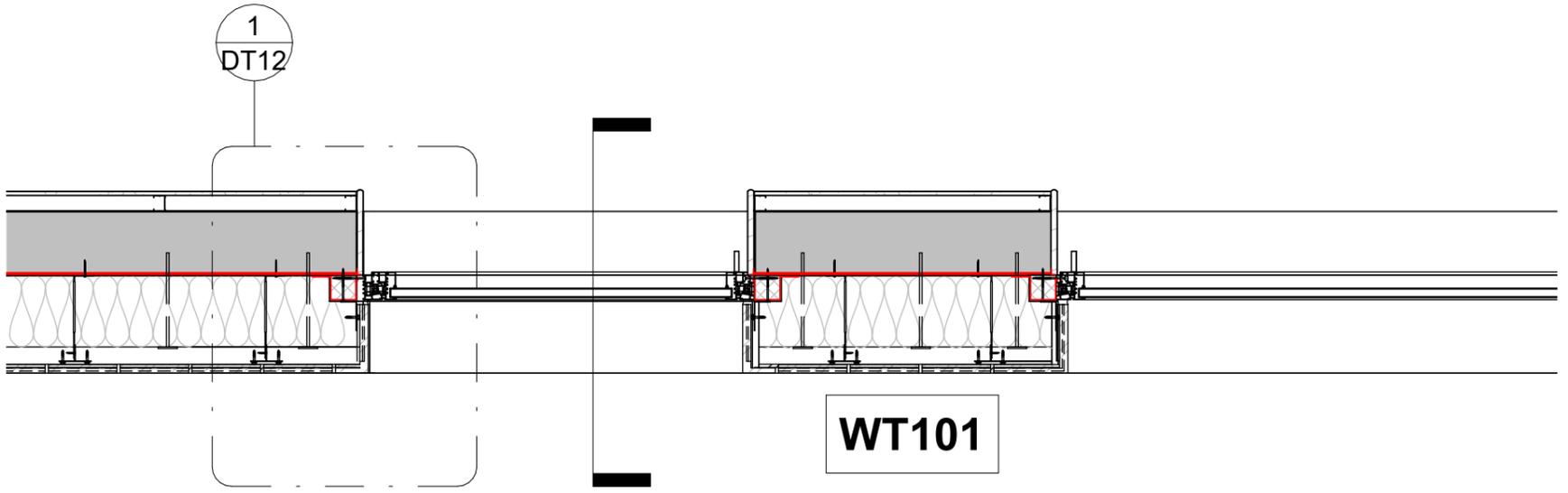
SECOND FLOOR PARTIAL PLAN
1:20



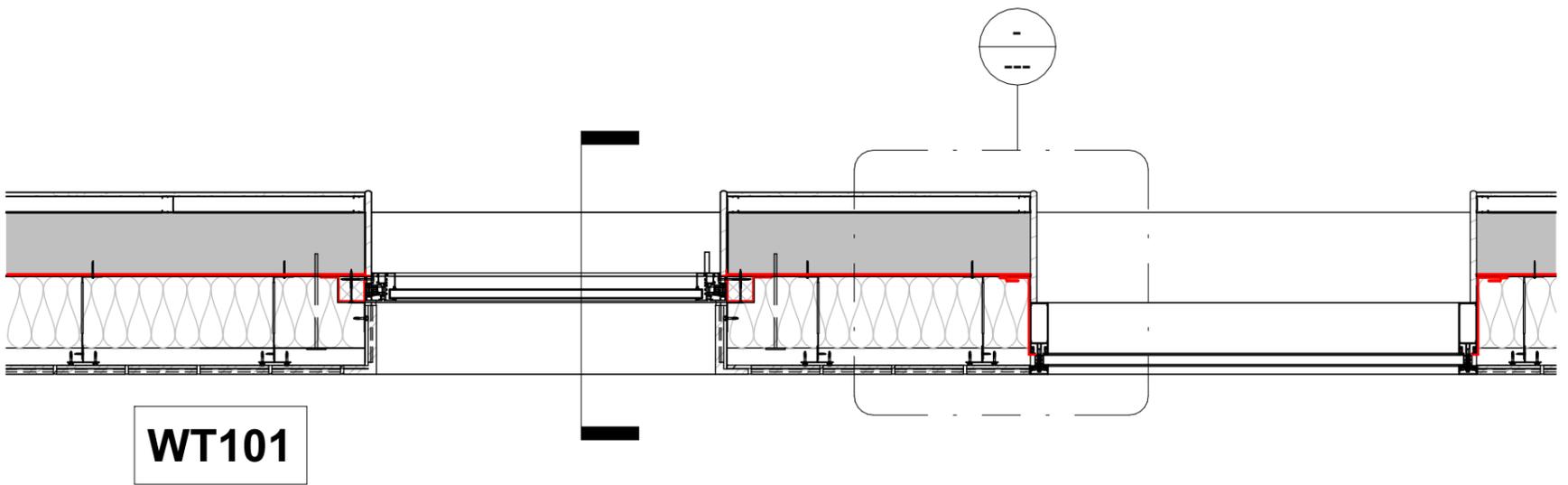
FIRST FLOOR PARTIAL PLAN
1:20



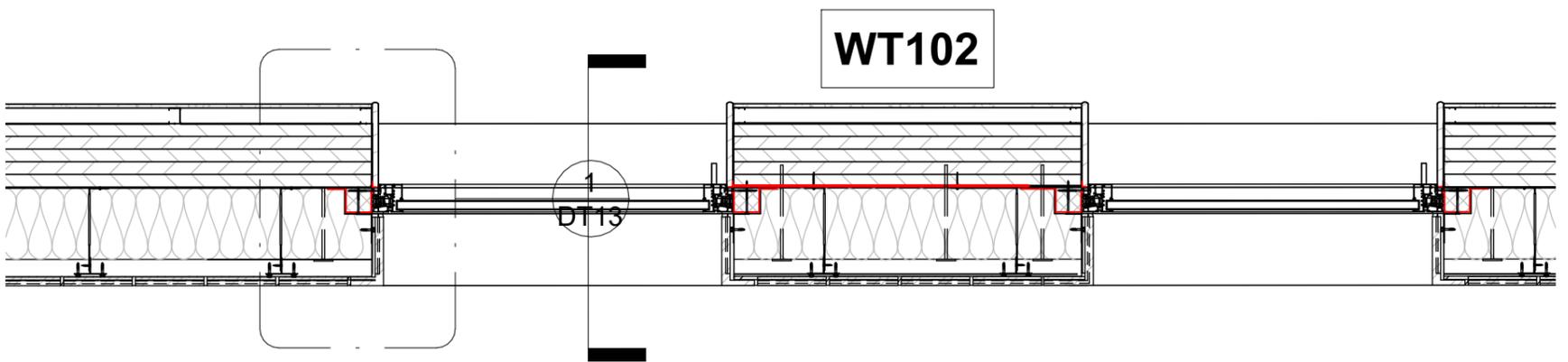
GROUND FLOOR PARTIAL PLAN
1:20



ENERPHIT PARTIAL SOUTH PLAN 00
1 : 20



ENERPHIT PARTIAL SOUTH PLAN 01
1 : 20



ENERPHIT PARTIAL SOUTH 06
1 : 20

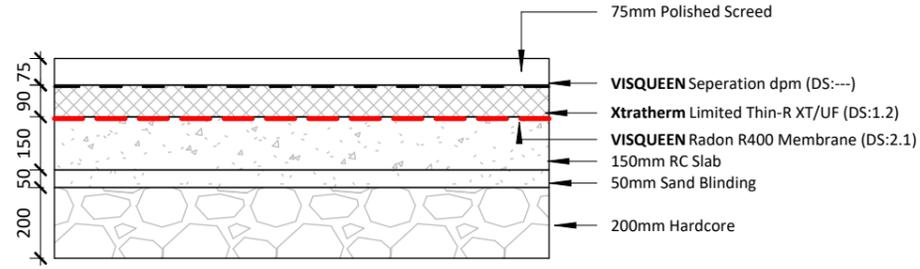
TGD-L



U-value = 0.66W/(M²K)
f_{rsi,max} = 0.745

FT001
1 : 20

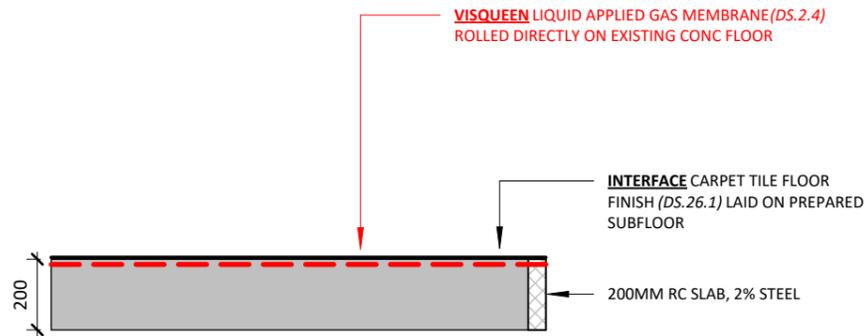
TGD-L



U-value = 0.21W/(M²K)
f_{rsi,max} = 0.567
f_{rsi} = 0.949

FT002
1 : 20

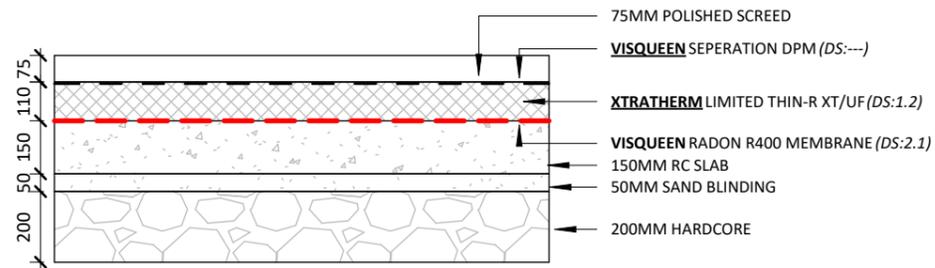
ENERPHIT



U-value = 0.24W/(M²K)
f_{rsi} = 0.450

FT101
1 : 20

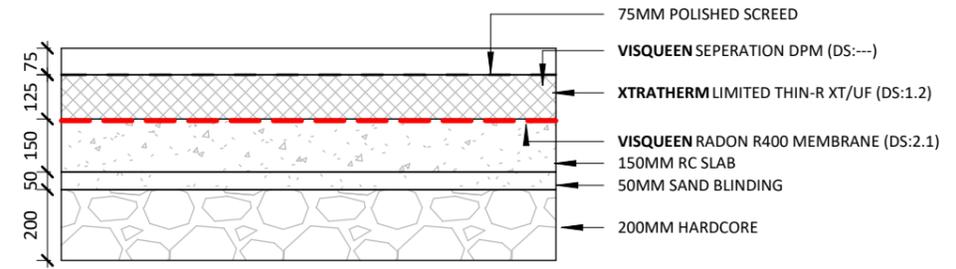
ENERPHIT



U-value = 0.15W/(M²K)
f_{rsi} = 0.955

FT102
1 : 20

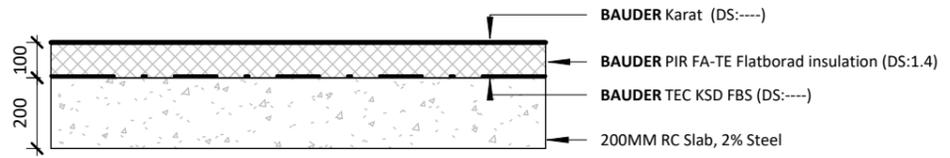
ENERPHIT



U-value = 0.15W/(M²K)
f_{rsi} = 0.960

FT103
1 : 20

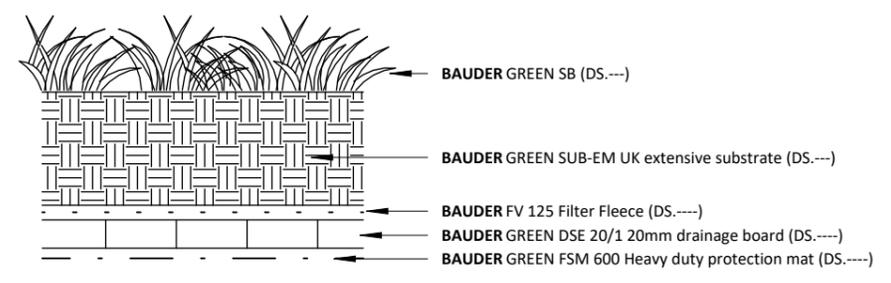
TGD-L



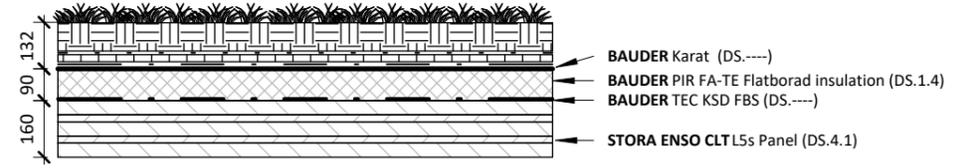
U-value = 0.21W/(M²K)
 $f_{rsi,max} = 0.567$
 $f_{rsi} = 0.949$

RT001
1 : 20

TGD-L



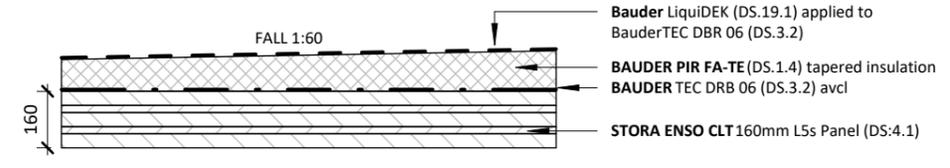
EXSTENSIVE GREEN ROOF 1 : 5



U-value = 0.17W/(M²K)
 $f_{rsi,max} = 0.567$
 $f_{rsi} = 0.960$

RT002
1 : 20

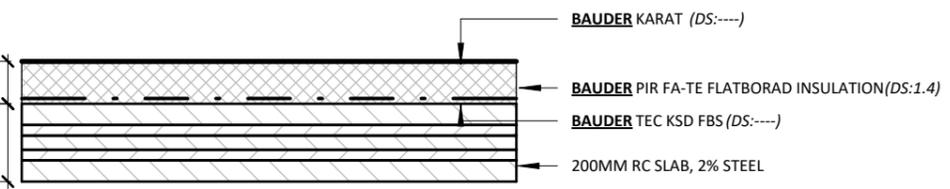
TGD-L



U-value = 0.17W/(M²K)
 $f_{rsi,max} = 0.567$
 $f_{rsi} = 0.960$

RT003
1 : 20

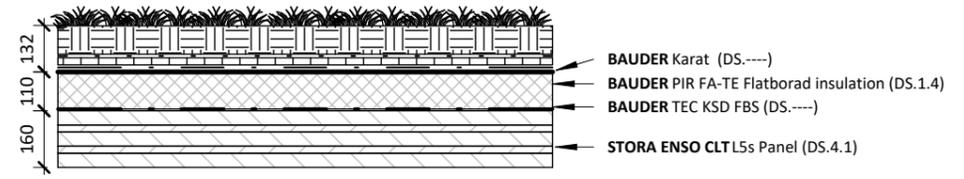
ENERPHIT



U-value = 0.14W/(M²K)
 $f_{rsi} = 0.966$

RT101
1 : 20

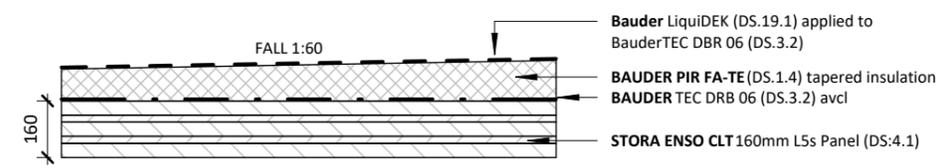
ENERPHIT



U-value = 0.15W/(M²K)
 $f_{rsi} = 0.963$

RT102
1 : 20

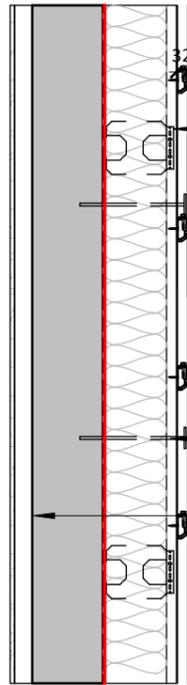
ENERPHIT



U-value = 0.15W/(M²K)
 $f_{rsi} = 0.964$

RT103
1 : 20

TGD-L



Hilti MFT-L Rail (DS. 5.3) fixed to Hilti MFT-FOX VT M Bracket (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5. Hilti MFT-FOX VT M Bracket (DS. 5.3) is anchored to 200mm cast concrete wall with Hilti HRD-H Plastic screw anchor

Hilti MFT-HP Hanger rail 22.5 (DS. 5.1) mechanically fixed to Hilti MFT-L Rail (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5.

DAKO 15mm GRFC pre fixed with Hilti MFT-HAF 50RL 8,5 hanger (DS. 5.2). Hanger mechanically fixed with self tapping screws onto Hilti MFT-HP Hanger rail 22.5. (DS. 5.1)

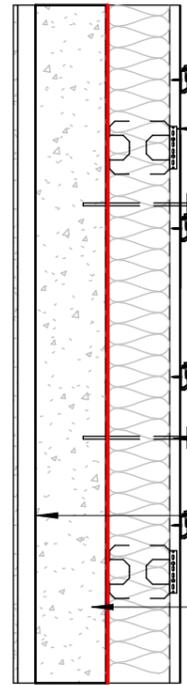
EJOT ejotherrm STR U 2G mechanical fixing used to fix Rockwool RainScreen Duo Slab (DS. 1.3) to concrete wall

12.5mm Gyproc plasterboard supported using 50mm Gypsum sfs stud

U-value = 0.23W/(M²K)
f_{rsi} = 0.632

WT001
1 : 20

TGD-L



Hilti MFT-L Rail (DS. 5.3) fixed to Hilti MFT-FOX VT M Bracket (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5. Hilti MFT-FOX VT M Bracket (DS. 5.3) is anchored to 200mm cast concrete wall with Hilti HRD-H Plastic screw anchor

Hilti MFT-HP Hanger rail 22.5 (DS. 5.1) mechanically fixed to Hilti MFT-L Rail (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5.

DAKO 15mm GRFC pre fixed with Hilti MFT-HAF 50RL 8,5 hanger (DS. 5.2). Hanger mechanically fixed with self tapping screws onto Hilti MFT-HP Hanger rail 22.5. (DS. 5.1)

EJOT ejotherrm STR U 2G mechanical fixing used to fix Rockwool RainScreen Duo Slab (DS. 1.3) to concrete wall

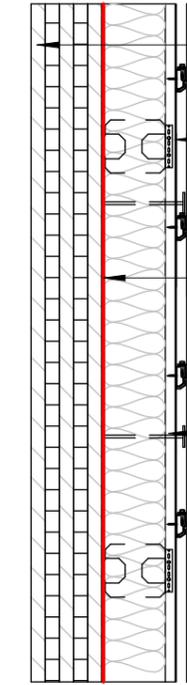
12.5mm Gyproc plasterboard supported using 50mm Gypsum sfs stud

C35 Concrete in accordance with engineers specifications

U-value = 0.23W/(M²K)
f_{rsi} = 0.632

WT002
1 : 20

TGD-L



Fireshield TimberClear (DS.16.2) Clear intumescent fire-retardant coating applied to internal face of 200mm Store enso Ls5 CLT panel (DS.4.1)

Hilti MFT-L Rail (DS. 5.3) fixed to Hilti MFT-FOX VT M Bracket (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5. Hilti MFT-FOX VT M Bracket (DS. 5.3) is anchored to 200mm cast concrete wall with Hilti HRD-H Plastic screw anchor

Proctor Wraptite (DS. 6.1) adhered to 200mm Store enso Ls5 CLT panel (DS. 4.1)

EJOT ejotherrm STR H (DS.10.4) mechanical fixing used to fix Rockwool RainScreen Duo Slab (DS.1.3) to 200mm Store enso Ls5 CLT panel (DS.4.1)

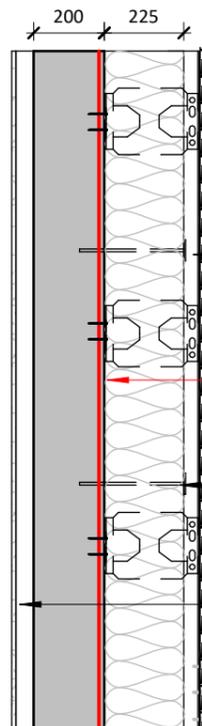
Hilti MFT-HP Hanger rail 22.5 (DS. 5.1) mechanically fixed to Hilti MFT-L Rail (DS. 5.3) with Hilti Self-drill screw S-AD 01 LSS 5.

DAKO 15mm GRFC pre fixed with Hilti MFT-HAF 50RL 8,5 hanger (DS. 5.2). Hanger mechanically fixed with self tapping screws onto Hilti MFT-HP Hanger rail 22.5. (DS. 5.1)

U-value = 0.19W/(M²K)
f_{rsi,max} = 0.632

WT003
1 : 20

ENERPHIT



OCCAM TERRACOTTA BRICK SLIPS (DS.5.5), RAL 8004, FIXED TO FIXED INTO OCCAM TRIPLE CARRIER RAILS (DS.5.4) MECHANICALLY FIXED TO HILTI MFT-T RAIL (DS.5.3)

HILTI MFT-T RAIL (DS. 5.3) FIXED TO HILTI MFT-FOX VT L BRACKET (DS. 5.3) WITH HILTI SELF-DRILL SCREW S-AD 01 LSS 5. HILTI MFT-FOX VT L BRACKET (DS. 5.3) IS ANCHORED TO 200MM CAST CONCRETE WALL WITH HILTI HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

BLOWPROOF LIQUID APPLIED MEMBRANE (DS.6.2) SPRAY APPLIED TO EXISTING CONCRETE.

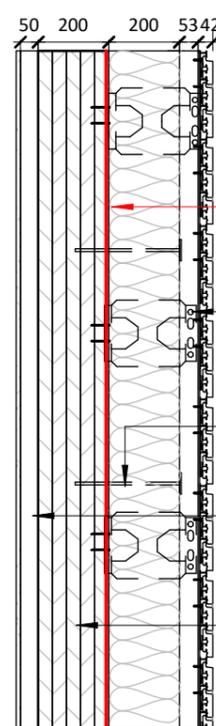
EJOT EJOOTHERM STR U 2G MECHANICAL (DS.10.10) FIXING USED TO SUPPORT ROCKWOOL RAINSCREEN DUO SLAB (DS. 1.3) TO CONCRETE WALL

BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2) FIXED TO BRITISH GYPSUM GYPFRAME 70 S 50 'C' STUD (DS.23.1)

U-value = 0.15W/(M²K)
f_{rsi} = 0.963

WT101
1 : 20

ENERPHIT



OCCAM TERRACOTTA BRICK SLIPS (DS.5.5), RAL 8004, FIXED TO FIXED INTO OCCAM TRIPLE CARRIER RAILS (DS.5.4) MECHANICALLY FIXED TO HILTI MFT-T RAIL (DS.5.3)

PROCTOR WRAPTITE (DS.6.1) PRE APPLIED TO 200MM STORA ENSO LSS WALL (DS.4.1)

HILTI MFT-T RAIL (DS. 5.3) FIXED TO HILTI MFT-FOX VT L BRACKET (DS. 5.3) WITH HILTI SELF-DRILL SCREW S-AD 01 LSS 5. HILTI MFT-FOX VT L BRACKET (DS. 5.3) IS ANCHORED TO 200MM STORA ENSO LSS WALL (DS.4.1) WITH HILTI HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

EJOT EJOOTHERM STR H MECHANICAL (DS.10.11) FIXING USED TO SUPPORT ROCKWOOL RAINSCREEN DUO SLAB (DS. 1.3) TO CONCRETE WALL

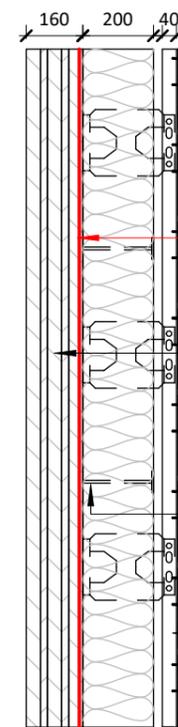
BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2) FIXED TO BRITISH GYPSUM GYPFRAME 70 S 50 'C' STUD (DS.23.1)

FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED TO 200MM STORA ENSO LSS CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON UNDERSIDE OF CLT PANEL.

U-value = 0.12W/(M²K)
f_{rsi} = 0.969

WT102
1 : 20

ENERPHIT



OCCAM TERRACOTTA BRICK SLIPS (DS.5.5), RAL 8004, FIXED TO FIXED INTO OCCAM TRIPLE CARRIER RAILS (DS.5.4) MECHANICALLY FIXED TO HILTI MFT-T RAIL (DS.5.3)

PROCTOR WRAPTITE (DS.6.1) PRE APPLIED TO 160MM STORA ENSO LSS WALL (DS.4.1)

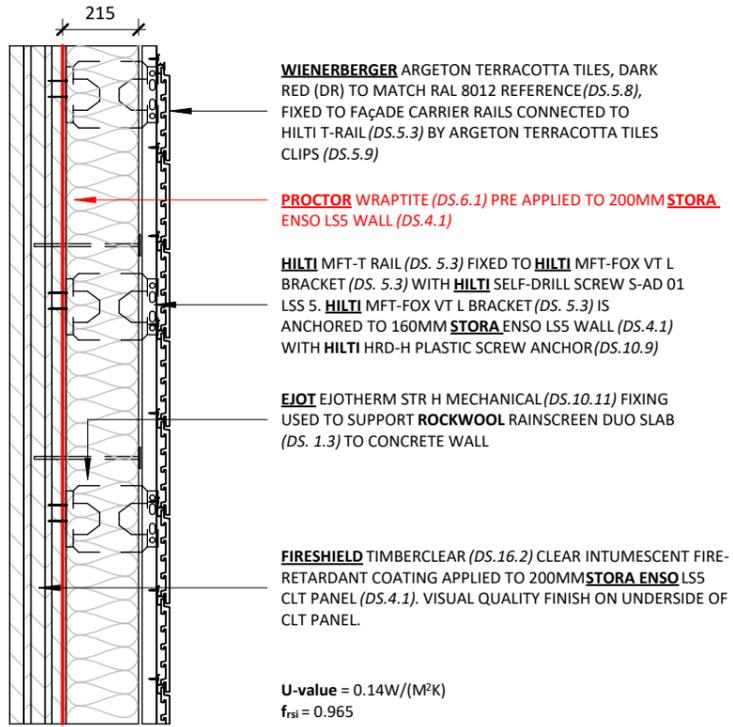
FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED TO 160MM STORA ENSO LSS CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON UNDERSIDE OF CLT PANEL.

EJOT EJOOTHERM STR H MECHANICAL (DS.10.11) FIXING USED TO SUPPORT ROCKWOOL RAINSCREEN DUO SLAB (DS. 1.3) TO CONCRETE WALL

HILTI MFT-T RAIL (DS. 5.3) FIXED TO HILTI MFT-FOX VT L BRACKET (DS. 5.3) WITH HILTI SELF-DRILL SCREW S-AD 01 LSS 5. HILTI MFT-FOX VT L BRACKET (DS. 5.3) IS ANCHORED TO 200MM STORA ENSO LSS WALL (DS.4.1) WITH HILTI HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

U-value = 0.14W/(M²K)
f_{rsi} = 0.965

WT103
1 : 20



WT104
1 : 20

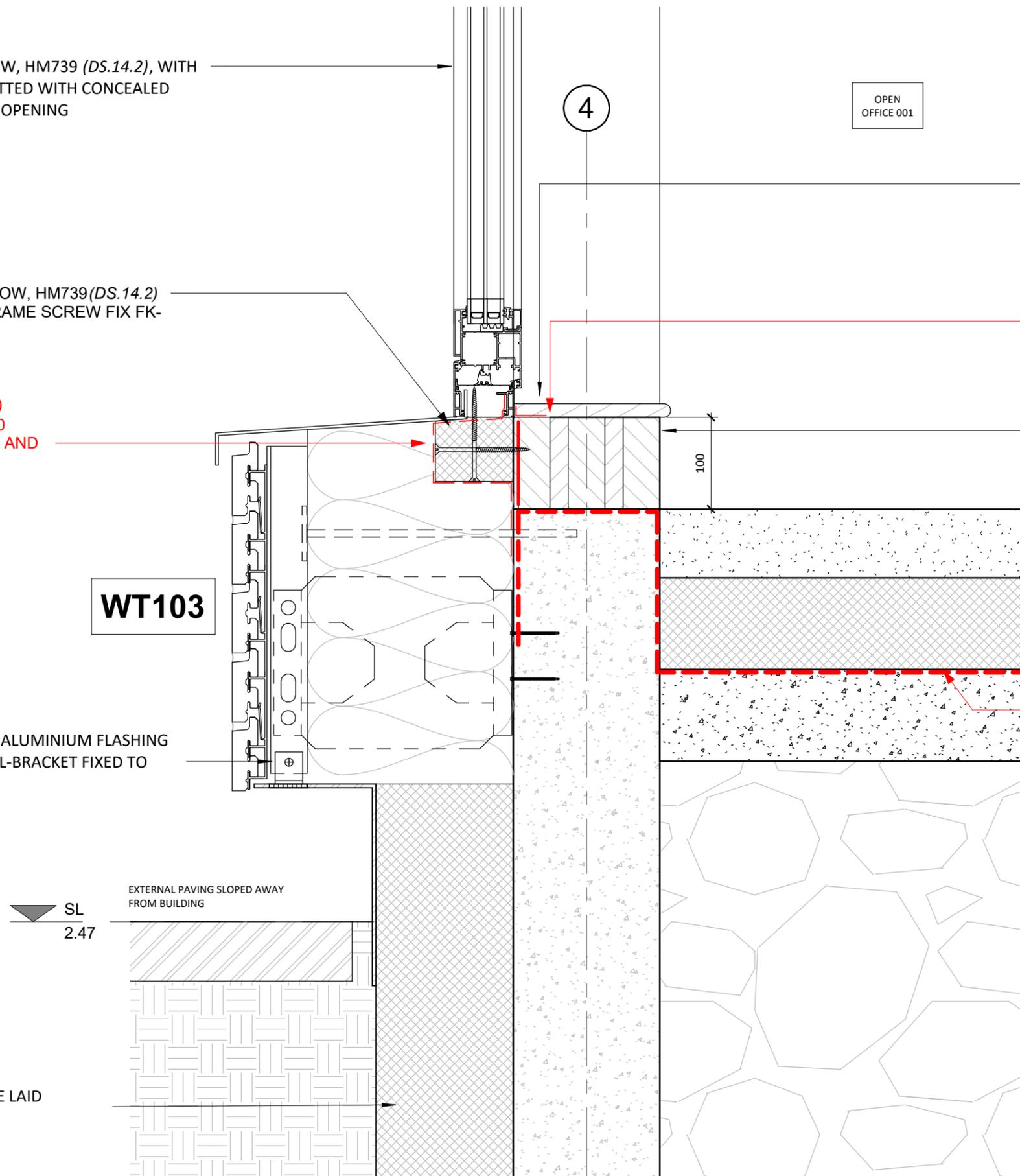
INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME SCREW FIX FK-T30 ER (DS.10.6)

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

OCCAM PRESSED POLYESTER POWDER COATED ALUMINIUM FLASHING WITH INSECT MESH (DS.XX), RAL --, BONDED TO L-BRACKET FIXED TO UNDERSIDE OF T-RAIL.

KINGSPAN GREENGUARD GG300 (DS.1.1) LOOSE LAID AGAINST CONCRETE RISING WALL



MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON CLT PANEL.

GROUND FFL
2.92

FT102

Visqueen Radon R400 membrane (DS.2.1) laid on 100mm conc slab.

ENERPHIT CLT PLINTH DETAIL

1:5

ELITEFORM POWDER COATED ALUMINIUM CAPPING, RAL 7016 (DS.20.0) FIXED TO **BOSIG** PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH **ROTHOBLAST** SBD SELF-DRILLING DOWEL (DS. 10.2).

BOSIG PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH **ROTHOBLAST** SBD SELF-DRILLING DOWEL (DS. 10.2) TO 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1)

WT103

ROTHOBLAAS VGS FULLY THREADED STRUCTURAL SCREW (DS.10.3) FIXED AT 45° THROUGH 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1) USING **ROTHOBLAAS** VGU 45° WASHER (DS.10.4)

PROCTOR WRAPTITE TAPE (DS.6.3) TO SEAL INTERMEDIATE JUNCTIONS.

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1).

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1) SCREW-FIXED TO CLT WITH **BLAUGELB** FRAME SCREW FIX FK T-30 (DS.10.5).

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

OCCAM SOLDIER PISTOL BRICK (DS.XX) CLIP FIXED TO **OCCAM** SOFFIT CARRIER FIXED TO **HILTI** T- RAIL (DS.5.3)

OCCAM SINGLE CARRIER CLIP (DS.XX) FIXED TO ALUMINIUM L BRACKET MECHANICALLY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

METALPAD EX SELF-LEVELLING PEDESTALS (DS.12.2) SUPPORTING EXTERNAL PAVING SLABS

RT103

FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON UNDERSIDE OF CLT PANEL.

ROTHOBLAAS CONSTRUCTION SEALANT GASKET (DS.16.4) SELF ADHERED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO HEAD OF **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

ENERPHIT CLT TERRACE PARAPET

3

OPEN
OFFICE 102

ALUPROF MB-79N DOOR (DS. 14.3)

TETRIS RAISED ACCESS FLOOR SYSTEM (DS. 12.1)
ON STEEL PEDESTALS WITH CARPET TILE FINISH

EFFISUS PROFLEX FR (DS. 13.1) ADHERED
TO UNDERSIDE OF **ALUPROF MB-79N**
DOOR (DS. 14.3) AND LAPPED 100MM OVER
BAUDER LIQUIDEK (DS. 19.1)

METALPAD EX SELF-LEVELLING
PEDESTALS (DS. 12.2) SUPPORTING
EXTERNAL PAVING SLABS

BLAUGELB TRIOTHERM+ THERMAL
SUPPORT (DS. 15.1) SCREW-FIXED TO
160MM **STORA ENSO** LS5 CLT PANEL
(DS. 4.1) WITH **ROTHOBLAAS** FULLY
THREADED SCREWS (DS. 10.3)

CLT 1ST FF
5.92

CLT 1ST SFF
5.84

FIRESHIELD TIMBERCLEAR (DS. 16.2) CLEAR
INTUMESCENT FIRE-RETARDANT COATING
APPLIED TO INTERNAL FACE OF 160MM **STORA**
ENSO LS5 CLT PANEL (DS. 4.1). VISUAL QUALITY
FINISH ON UNDERSIDE OF CLT PANEL.

ROTHOBLAAS CONSTRUCTION SEALANT
GASKET (DS. 16.4) SELF ADHERED TO 160MM
STORA ENSO LS5 CLT PANEL (DS. 4.1)

RT103

ROTHOBLAAS VGS FULLY THREADED STRUCTURAL
SCREW (DS. 10.3) FIXED AT 45° THROUGH 160MM
STORA ENSO LS5 CLT PANELS (DS. 4.1) & **TRÄGER**
BAUBUCHE GL75 LVL BEAM (DS. 4.2) USING
ROTHOBLAAS VGU 45° WASHER (DS. 10.4)

ENERPHIT CLT TERRACE DETAIL
1:5

3

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

INTERNORM PRESSED ALUMINIUM WINDOW CILL (DS.XX) SCREW-FIXED TO WINDOW FRAME

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1) SCREW-FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1) WITH **BLAUGELB** FRAME SCREW FIX FK T-30 (DS.10.5).

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1).

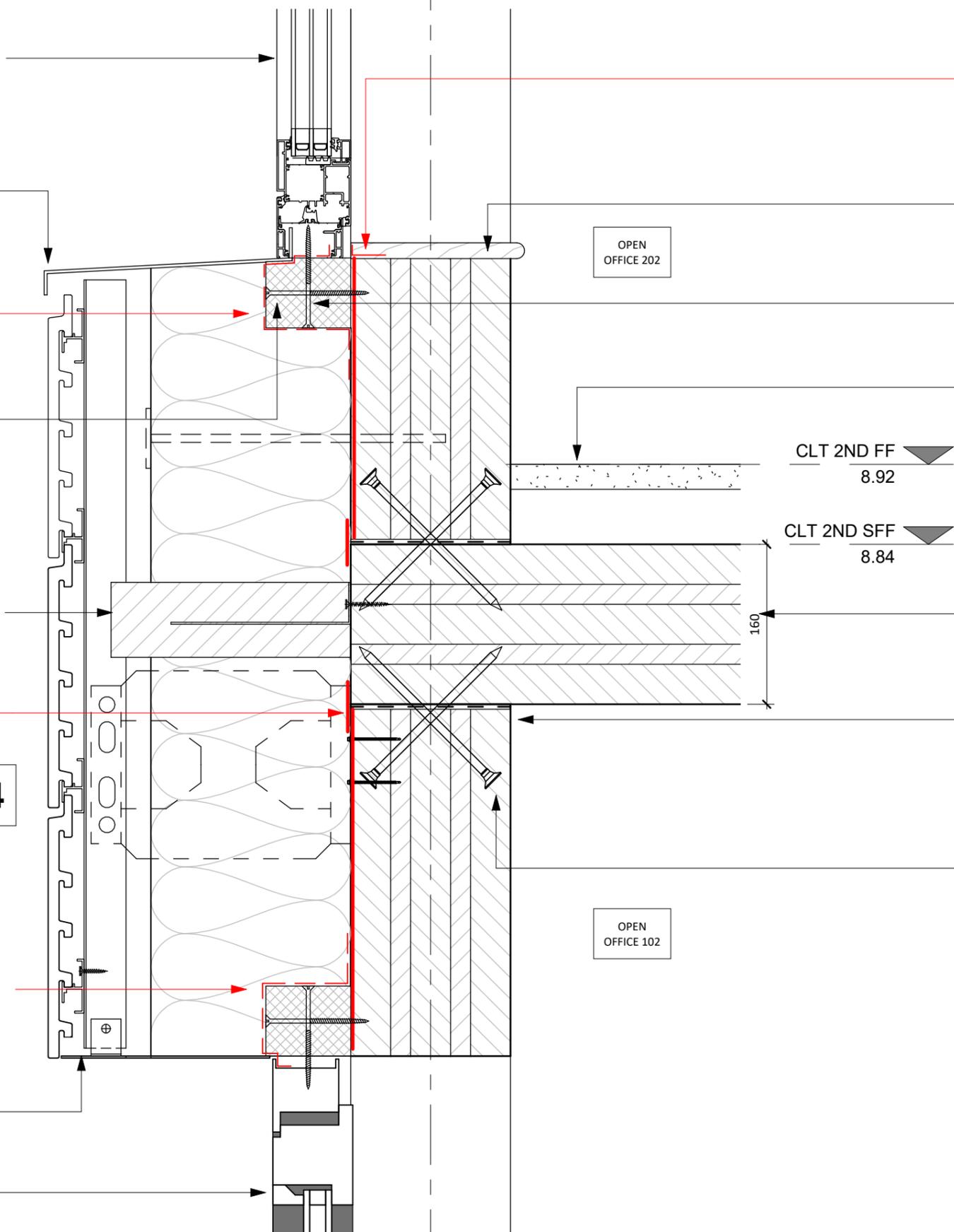
PROCTOR WRAPTITE TAPE (DS.6.3) TO SEAL INTERMEDIATE JUNCTIONS.

WT104

PRO CLIMA CONTEGA SOLIDO IQ-X TAPE (DS.13.3) BONDED TO DOOR FRAME AND SEALED TO CLT PANEL (DS.4.1) AT HEAD.

OCCAM PRESSED ALUMINIUM FLASHING, POLYESTER POWDER COATED (DS.XX), BONDED TO L-BRACKET FIXED TO UNDERSIDE OF T-RAIL.

ALUPROF MB-79N DOOR (DS.14.3)



PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME SCREW FIX FK-T30 ER (DS.10.6)

TETRIS RAISED ACCESS FLOOR SYSTEM (DS.12.1) ON STEEL PEDESTALS WITH CARPET TILE FINISH

FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON UNDERSIDE OF CLT PANEL.

ROTHOBLAAS CONSTRUCTION SEALANT GASKET (DS.16.4) SELF ADHERED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

ROTHOBLAAS VGS FULLY THREADED STRUCTURAL SCREW (DS.10.3) FIXED AT 45° THROUGH 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1) USING **ROTHOBLAAS** VGU 45° WASHER (DS.10.4)

ENERPHIT CLT INTERMIDATE FLOOR

ELITEFORM POWDER COATED ALUMINIUM CAPPING, RAL 7016 (DS.20.0) FIXED TO **BOSIG** PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH **ROTHOBLAST** SBD SELF-DRILLING DOWEL (DS.10.2).

BOSIG PHONOTHERM BOARD (DS.15.1) MECHANICALLY FIXED WITH **ROTHOBLAST** SBD SELF-DRILLING DOWEL (DS.10.2) TO 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1)

ROTHOBLAAS VGS FULLY THREADED STRUCTURAL SCREW (DS.10.3) FIXED AT 45° THROUGH 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1) USING **ROTHOBLAAS** VGU 45° WASHER (DS.10.4)

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1).

PROCTOR WRAPTITE TAPE (DS.6.3) TO SEAL INTERMEDIATE JUNCTIONS.

WT104

KEEGUARD STANDARD KGU35 WEIGHTED BALUSTRADE (DS.21.1)

CLT ROOF LEVEL
12.13

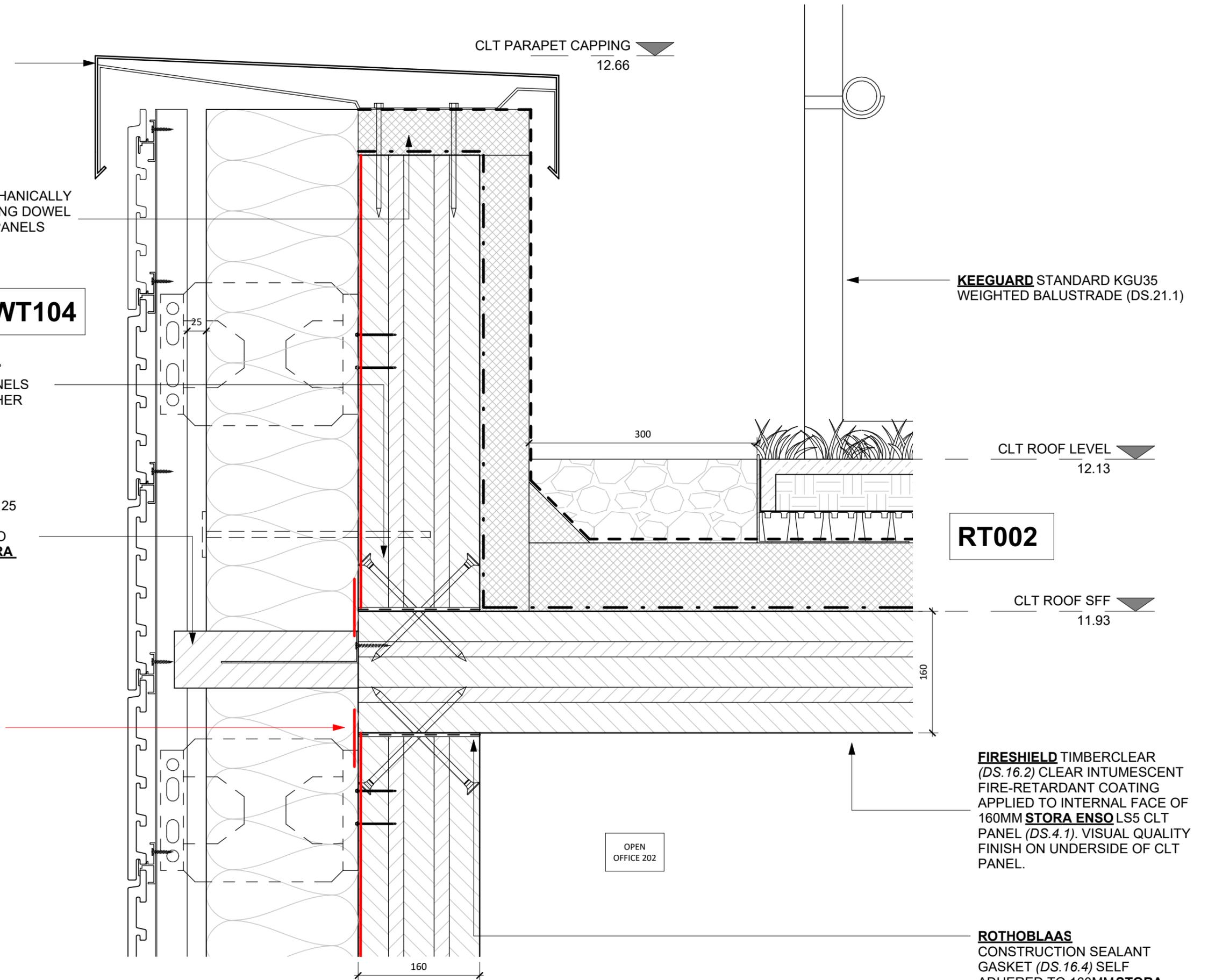
RT002

CLT ROOF SFF
11.93

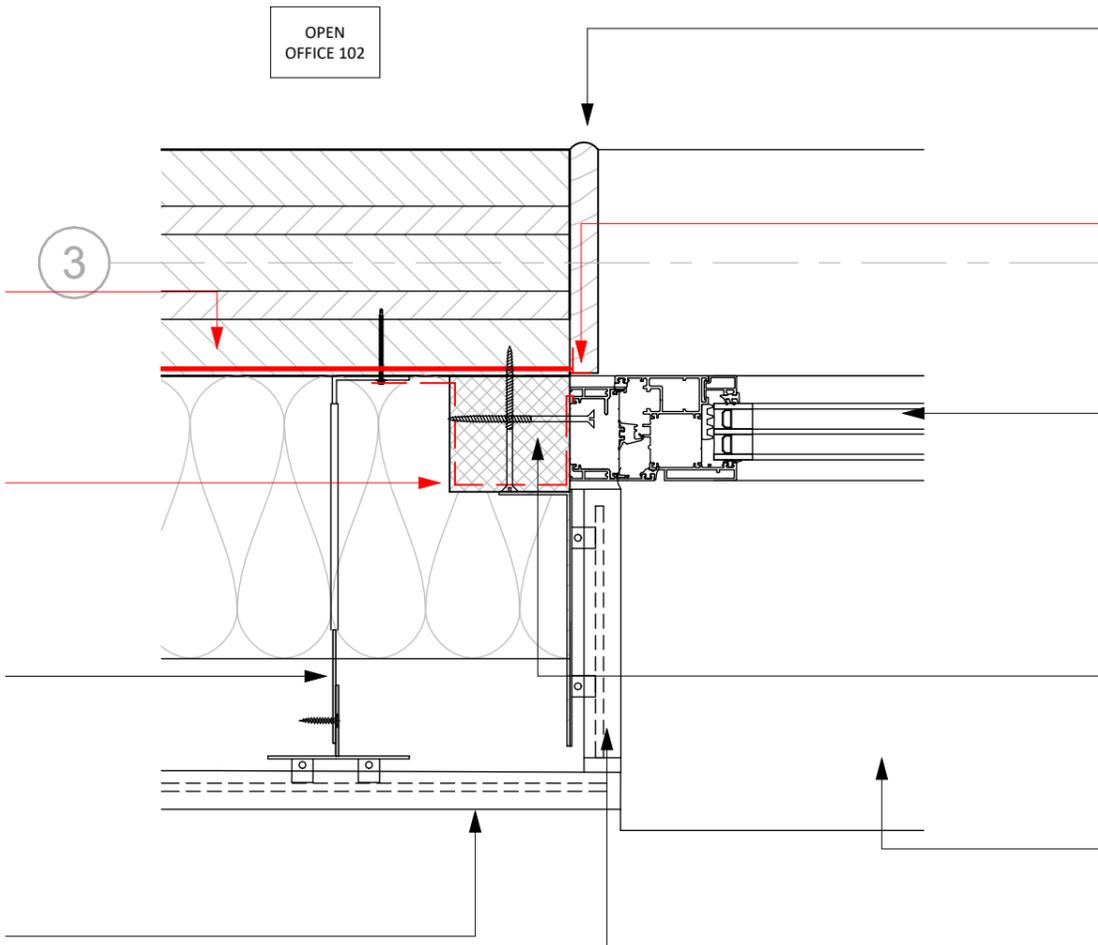
OPEN OFFICE 202

FIRESHIELD TIMBERCLEAR (DS.16.2) CLEAR INTUMESCENT FIRE-RETARDANT COATING APPLIED TO INTERNAL FACE OF 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1). VISUAL QUALITY FINISH ON UNDERSIDE OF CLT PANEL.

ROTHOBLAAS CONSTRUCTION SEALANT GASKET (DS.16.4) SELF ADHERED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)



OPEN
OFFICE 102



PROCTOR WRAPTITE MEMBRANE (DS.6.1) FACTORY APPLIED
STORA ENSO LS5 CLT PANEL (DS.4.1)

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE
APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW,
HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+
THERMAL SUPPORT

HILTI MFT-FOX VT ALUMINIUM L-BRACKET (DS.5.4)
MECHANICALLY FIXED TO **STORA ENSO** LS5 CLT PANEL
(DS.6.1) WITH **HILTI** HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

WIENERBERGER ARGETON TERRACOTTA TILES, COLOUR D31
RED-BROWN (RAL 8012 REFERENCE) (DS.5.8), CLIP-FIXED TO
FAÇADE CARRIER RAILS CONNECTED TO **HILTI** T-RAIL (DS.5.3)

MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1)
ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL
(DS.4.1)

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4)
APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW
(DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
(DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES
FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM
VENTILATION OPENING

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
(DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME
SCREW FIX FK-T30 ER (DS.10.6)

INTERNORM PRESSED ALUMINIUM WINDOW CILL, RAL 7016
(DS.XX) SCREW-FIXED TO WINDOW FRAME

WIENERBERGER ARGETON TERRACOTTA TILES, COLOUR D31
RED-BROWN (RAL 8012 REFERENCE) (DS.5.8), CLIP-FIXED TO
ANGLE BRACKET, FIXED TO **BLAUGELB** TRIOTHERM+

BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2)
FIXED TO **BRITISH GYPSUM** GYPFRAME 70 S 50 'C'
STUD (DS.23.1)

NOVORODAPIE ECLIPSE ALUMINIUM PROFILE
(DS.23.3), RAL PRE INSTALLED WITH LED STRIP.
ADHERED TO GYPSUM PASTEBOARD.

GROUND FFL
2.92

FT101

180

OPEN
OFFICE 001

VISQUEEN LIQUID APPLIED GAS MEMBRANE
(DS.2.4) ROLLED DIRECTLY ON EXISTING CONC
FLOOR

BLOWEPROOF LIQUID APPLIED MEMBRANE (DS.6.2)
SPRAY APPLIED TO EXISTING CONCRETE.

WT101

OCCAM PRESSED POLYESTER POWDER COATED
ALUMINIUM FLASHING WITH INSECT MESH
(DS.XX),RAL --, BONDED TO L-BRACKET FIXED TO
UNDERSIDE OF T-RAIL.

KINGSPAN GREENGUARD GG300 (DS.1.1) LOOSE LAID
AGAINST CONCRETE RISING WALL

SL
2.47

ENERPHIT EX PLINTH
1 : 5

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME SCREW FIX FK-T30 ER (DS.10.6)

BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2) FIXED TO **BRITISH GYPSUM** GYPFRAME 70 S 50 'C' STUD (DS.23.1)

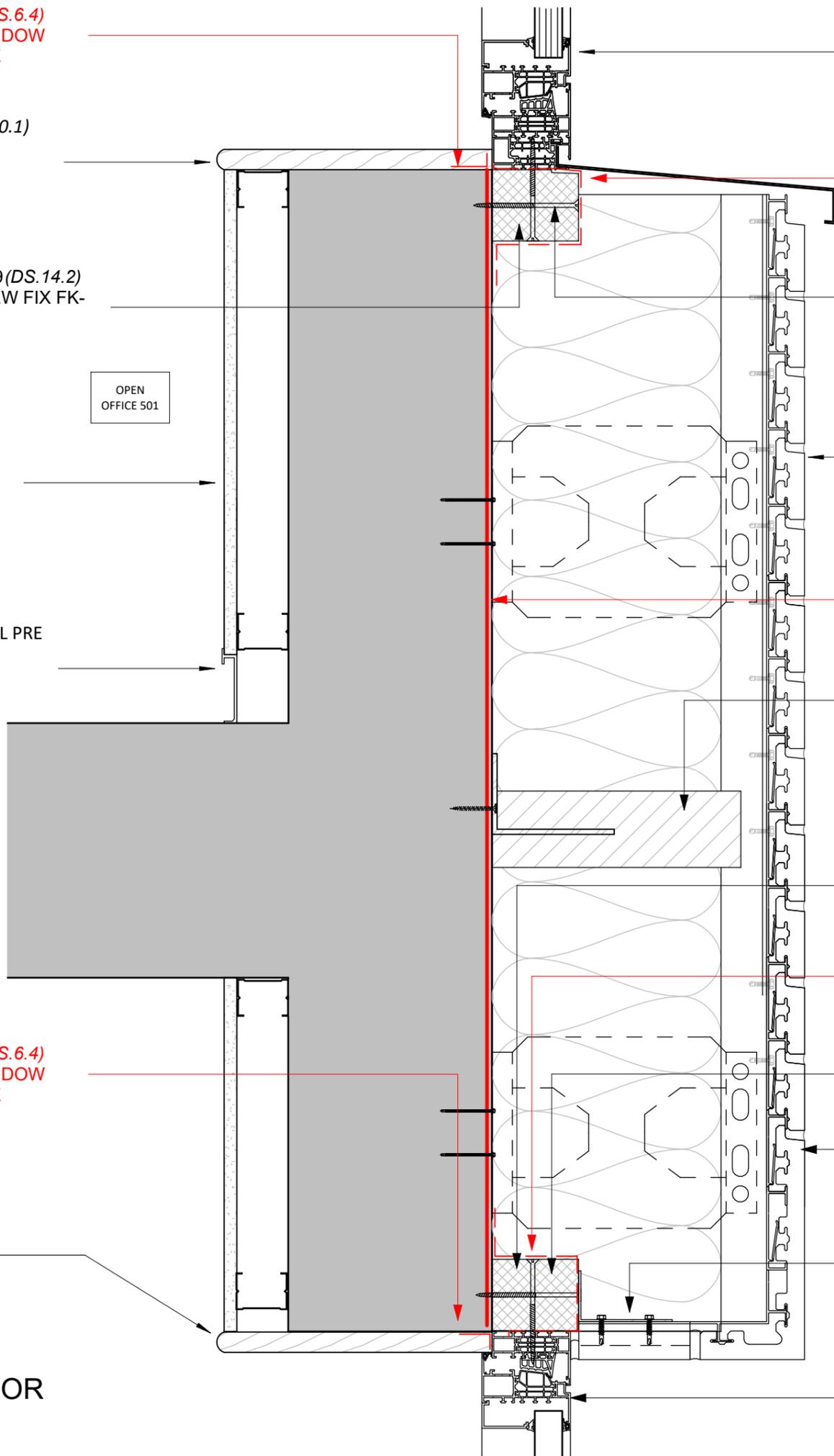
NOVORODAPIE ECLIPSE ALUMINIUM PROFILE (DS.23.3), RAL PRE INSTALLED WITH LED STRIP. ADHERED TO GYPSUM PASTEBOARD.

5TH FFL
16.94

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

ENERPHIT EX INTERMEDIATE FLOOR
1 : 5



INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1) SCREW-FIXED TO EXISTING CONCRETE WITH **BLAUGELB** FRAME SCREW FIX FK T-30 (DS.10.5).

WT101

BLOWEPROOF LIQUID APPLIED MEMBRANE (DS.6.2) SPRAY APPLIED TO EXISTING CONCRETE.

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1).

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1) SCREW-FIXED TO EXISTING CONCRETE WITH **BLAUGELB** FRAME SCREW FIX FK T-30 (DS.10.5).

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME SCREW FIX FK-T30 ER (DS.10.6)

OCCAM SOLDIER PISTOL BRICK (DS.XX) CLIP FIXED TO **OCCAM** SOFFIT CARRIER FIXED TO **HILTI** T- RAIL (DS.5.3)

OCCAM SINGLE CARRIER CLIP (DS.XX) FIXED TO ALUMINIUM L BRACKET MECHANICALLY FIXED TO **BLAUGELB** TRIOTHERM+

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4) APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

20MM **MEDITE** MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1) ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1)

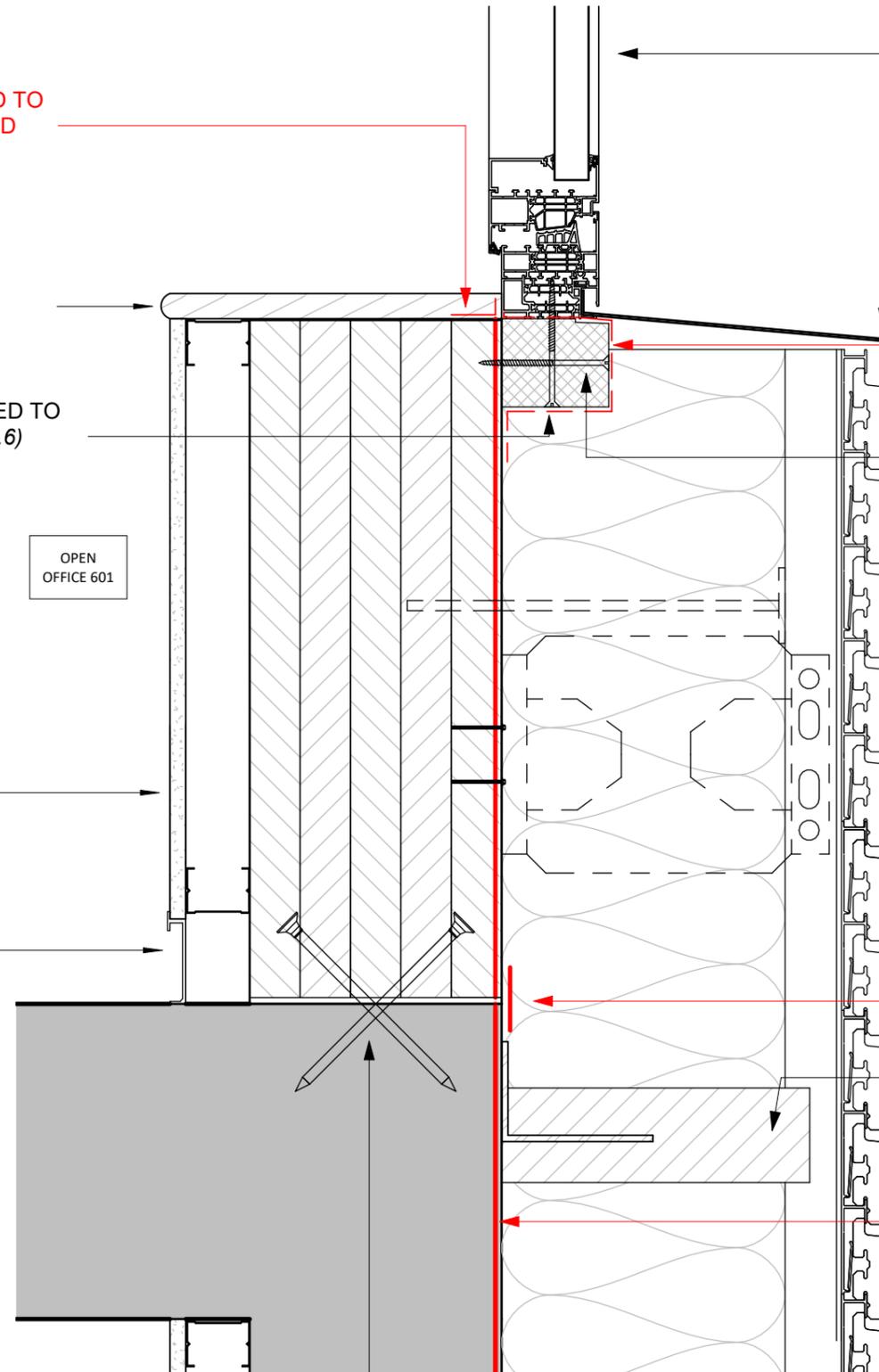
INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME SCREW FIX FK-T30 ER (DS.10.6)

BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2) FIXED TO **BRITISH GYPSUM** GYPFRAME 70 S 50 'C' STUD (DS.23.1)

NOVORODAPIE ECLIPSE ALUMINIUM PROFILE (DS.23.3), RAL PRE INSTALLED WITH LED STRIP. ADHERED TO GYPSUM PASTEBOARD.

6TH FFL
19.69

OPEN
OFFICE 601



INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM VENTILATION OPENING

INTERNORM PRESSED ALUMINIUM WINDOW CILL (DS.XX) SCREW-FIXED TO WINDOW FRAME

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+ THERMAL SUPPORT

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1) SCREW-FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1) WITH **BLAUGELB** FRAME SCREW FIX FK T-30 (DS.10.5).

WT102

PROCTOR WRAPTITE TAPE (DS.6.3) TO SEAL INTERMEDIATE JUNCTIONS.

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1) MECHANICALLY FIXED USING GALVANISED STEEL FIXING BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL (DS.4.1).

BLOWEPROOF LIQUID APPLIED MEMBRANE (DS.6.2) SPRAY APPLIED TO EXISTING CONCRETE.

ROTHOBLAAS CTC TIMBER TO CONCRETE FASTNER (DS.10.7) FIXED AT 45° THROUGH 200MM **STORA ENSO** LS5 CLT PANELS (DS.4.1) AND EXISTING CONCRETE USING **ROTHOBLAAS** VGU 45° WASHER (DS.10.4)

ENERPHIT CLT - CONC CONNECTION

1 : 5

KEEGUARD STANDARD KGU35
WEIGHTED BALUSTRADE (DS.21.1)

ROTHOBLAAS LOCKFLOOR C
(DS.10.8) FIXED TO **STORA ENSO** LS5
CLT PANELS (DS.4.1) WITH
ROTHOBLAAS LBS SCREWS (DS.10.9)

RT101

220

400

OPEN
OFFICE 601

ELITEFORM POWDER COATED ALUMINIUM CAPPING, RAL
7016 (DS.20.0) FIXED TO **BOSIG** PHONOTHERM BOARD
(DS.15.1) MECHANICALLY FIXED WITH **ROTHOBLAST** SBD
SELF-DRILLING DOWEL (DS. 10.2).

BOSIG PHONOTHERM BOARD (DS.15.1) MECHANICALLY
FIXED WITH **ROTHOBLAST** SBD SELF-DRILLING DOWEL (DS.
10.2) TO 160MM **STORA ENSO** LS5 CLT PANELS (DS.4.1)

WT102

ROCKWOOL FIREPRO® SP FIRESTOP OSCB 25 (DS.16.1)
MECHANICALLY FIXED USING GALVANISED STEEL FIXING
BRACKETS (TWO PER METRE LENGTH) FIXED TO 160MM
STORA ENSO LS5 CLT PANEL (DS.4.1).

BLAUGELB TRIOTHERM+ THERMAL SUPPORT (DS.15.1)
SCREW-FIXED TO EXISTING CONCRETE WITH **BLAUGELB**
FRAME SCREW FIX FK T-30 (DS.10.5).

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE
APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM
WINDOW, HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB**
TRIOOTHERM+ THERMAL SUPPORT

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
(DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME
SCREW FIX FK-T30 ER (DS.10.6)

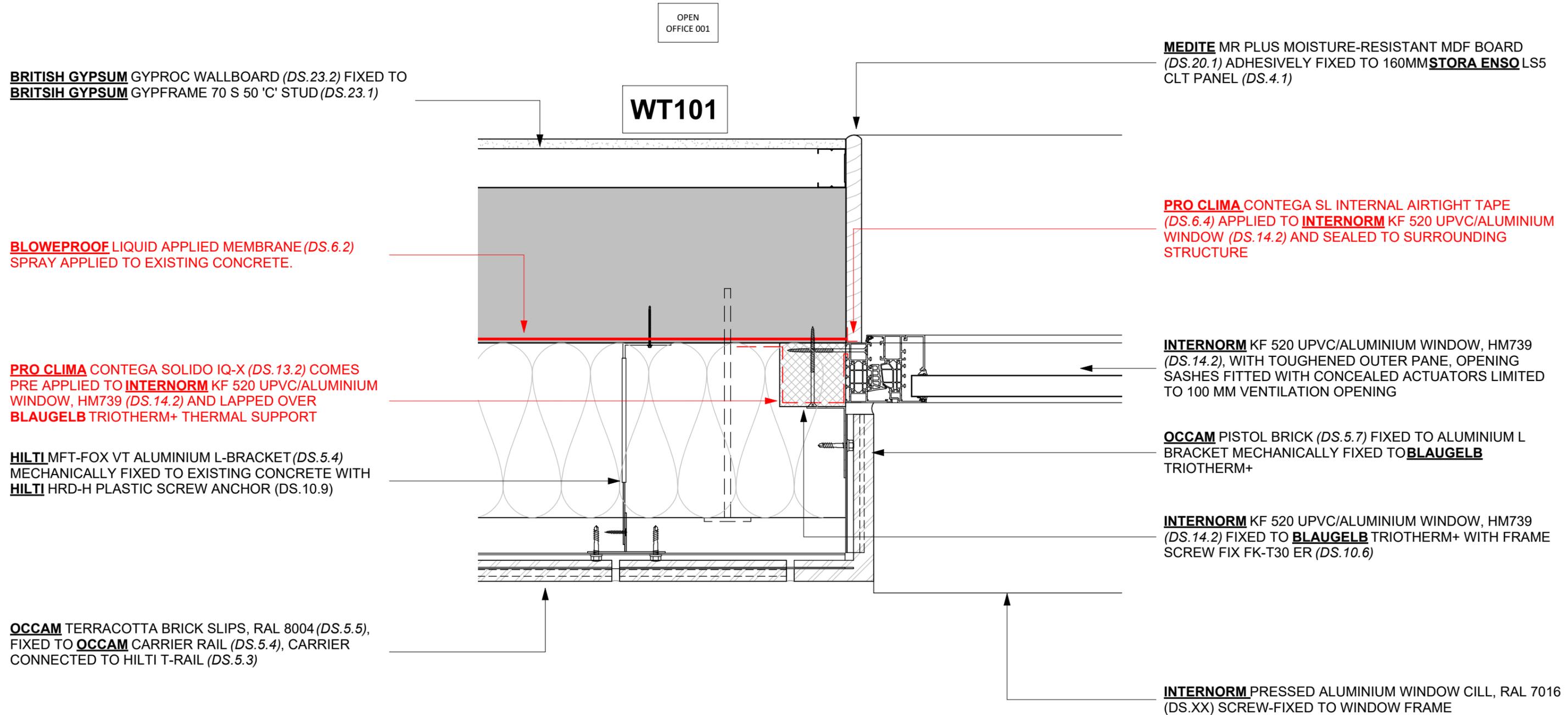
OCCAM SINGLE CARRIER CLIP (DS.XX) FIXED TO ALUMINIUM
L BRACKET MECHANICALLY FIXED TO 160MM **STORA ENSO**
LS5 CLT PANEL (DS.4.1)

OCCAM SOLDIER PISTOL BRICK (DS.XX) CLIP FIXED TO
OCCAM SOFFIT CARRIER FIXED TO **HILTI** T- RAIL (DS.5.3)

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
(DS.14.2), WITH TOUGHENED OUTER PANE, OPENING
SASHES FITTED WITH CONCEALED ACTUATORS
LIMITED TO 100 MM VENTILATION OPENING

ENERPHIT EX PARAPET

1 : 5



ENERPHIT EX JAMB DETAIL

1 : 5

BRITISH GYPSUM GYPROC WALLBOARD (DS.23.2) FIXED TO
BRITISH GYPSUM GYPFRAME 70 S 50 'C' STUD (DS.23.1)

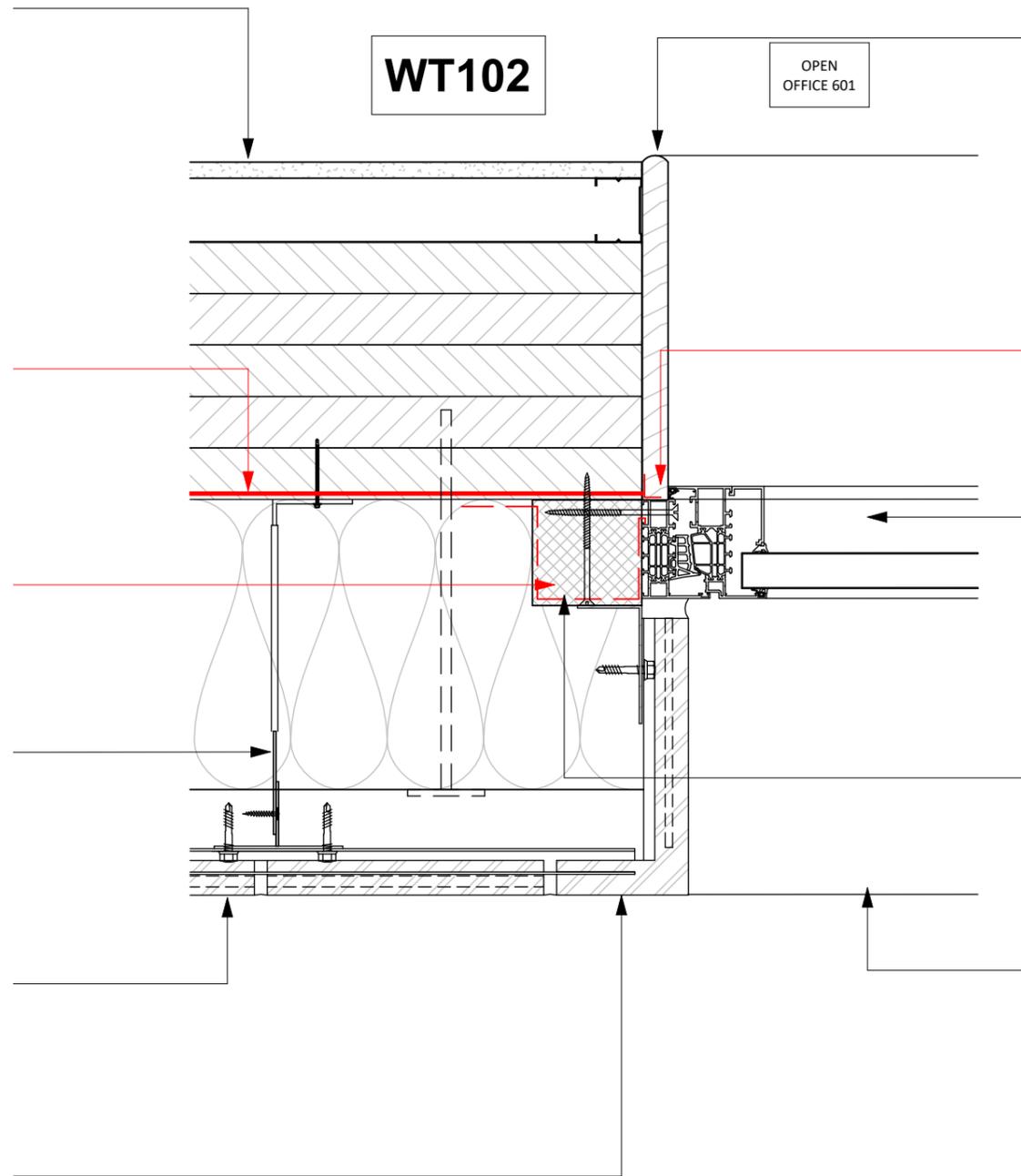
PROCTOR WRAPTITE MEMBRANE (DS.6.1) FACTORY APPLIED
STORA ENSO LS5 CLT PANEL (DS.4.1)

PRO CLIMA CONTEGA SOLIDO IQ-X (DS.13.2) COMES PRE
 APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW,
 HM739 (DS.14.2) AND LAPPED OVER **BLAUGELB** TRIOTHERM+
 THERMAL SUPPORT

HILTI MFT-FOX VT ALUMINIUM L-BRACKET (DS.5.4)
 MECHANICALLY FIXED TO **STORA ENSO** LS5 CLT PANEL
 (DS.6.1) WITH **HILTI** HRD-H PLASTIC SCREW ANCHOR (DS.10.9)

OCCAM TERRACOTTA BRICK SLIPS, RAL 8004 (DS.5.5), FIXED
 TO **OCCAM** CARRIER RAIL (DS.5.4), CARRIER CONNECTED TO
HILTI T-RAIL (DS.5.3)

OCCAM TERRACOTTA PISTOL BRICK RAL 8004 (DS.5.5), FIXED
 TO ANGLE BRACKET FIXED TO **BLAUGELB** TRIOTHERM+ WITH
 FRAME SCREW FIX FK-T30 ER



MEDITE MR PLUS MOISTURE-RESISTANT MDF BOARD (DS.20.1)
 ADHESIVELY FIXED TO 160MM **STORA ENSO** LS5 CLT PANEL
 (DS.4.1)

PRO CLIMA CONTEGA SL INTERNAL AIRTIGHT TAPE (DS.6.4)
 APPLIED TO **INTERNORM** KF 520 UPVC/ALUMINIUM WINDOW
 (DS.14.2) AND SEALED TO SURROUNDING STRUCTURE

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
 (DS.14.2), WITH TOUGHENED OUTER PANE, OPENING SASHES
 FITTED WITH CONCEALED ACTUATORS LIMITED TO 100 MM
 VENTILATION OPENING

INTERNORM KF 520 UPVC/ALUMINIUM WINDOW, HM739
 (DS.14.2) FIXED TO **BLAUGELB** TRIOTHERM+ WITH FRAME
 SCREW FIX FK-T30 ER (DS.10.6)

INTERNORM PRESSED ALUMINIUM WINDOW CILL, RAL 7016
 (DS.XX) SCREW-FIXED TO WINDOW FRAME

ENERPHIT JAMB DETAIL 6TH FLOOR

1 : 5

TABLE 2 ENERPIT STANDARDS	
COMPONENT	U-VALUE
WALLS	0.15W/m ² K
FLOORS	0.15W/m ² K
ROOFS	0.15W/m ² K
WINDOWS	0.15W/m ² K
DOORS	0.15W/m ² K

VOLUME EXISTING BUILDING(m ³)		
TOTAL EXISTING BUILDING VOLUME	5276.34m ³	
VOLUME EXISTING BUILDING(m ³)		
CLT BUILDING VOLUME	VOLUME	
GROUND FLOOR	143.01m ² X 2.52m	360.38m ³
1ST FLOOR	118.33m ² X 2.76m	325.59m ³
2ND FLOOR	88.63m ² X 2.850	252.59m ³
TOTAL		938.56m ³
TOTAL VOLUMN =	6214.9m ³	
TOTAL SURFACE AREA =	1303.55	
COMPACTNESS	1303.55m ² / 6214.9m ³ = 0.2097m ⁻¹	
MAX PERMITTED AIR PERMEABILITY	1.0/0.2097m ⁻¹ = 4.76m ³ /h/m ²	

CLT ROOF LEVEL
12.13

CLT 2ND FF
8.92

CLT 1ST SFF
5.84

GROUND FFL
2.92

