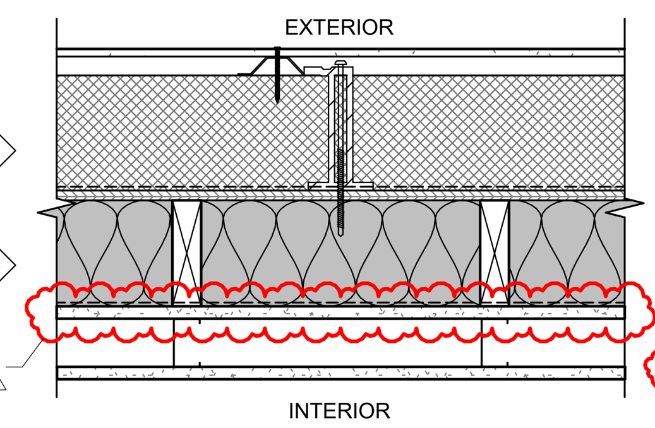
EXTERIOR WALL ASSEMBLIES

W1a
W1b

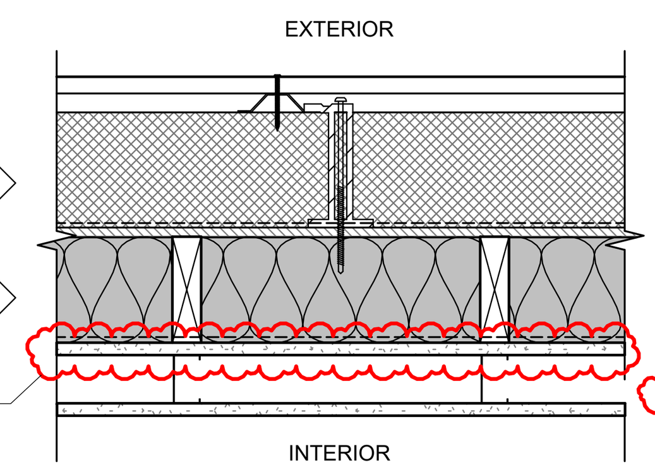


TYP. EXTERIOR WALL - *RSI 7.0 (R-40)*

- **10mm** PHENOLIC PANEL
- **25mm** METAL GIRT
- THERMALLY BROKEN ENGINEERED CLIP SYSTEM
- **152mm** SEMI-RIGID INSULATION **RSI 4.2 (R-24)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 3.9 (R-22)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- **16mm** TYPE-X GYPSUM WALLBOARD (15)
- **64mm** METAL STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- **16mm** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH

NOTES: 1. REFER TO EXTERIOR ELEVATIONS FOR PANEL LAYOUT & COLOUR
2. W1b REMOVES THE METAL STUDS

W2a
W2b

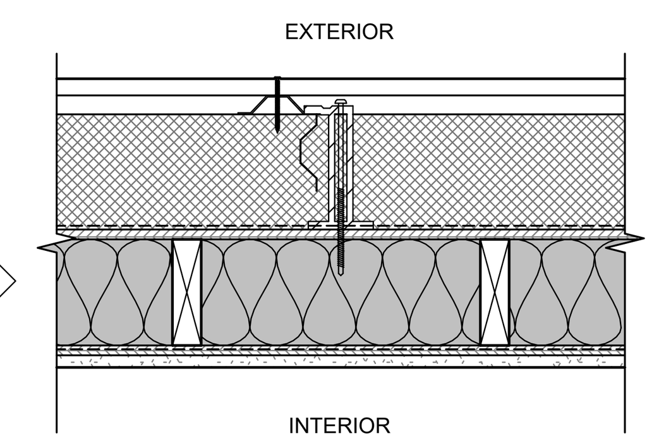


PENTHOUSE WALL - *RSI 7.0 (R-40)*

- **22mm** CORRUGATED METAL PANELS
- **25mm (1")** METAL GIRT
- THERMALLY BROKEN ENGINEERED CLIP SYSTEM
- **152mm** SEMI-RIGID INSULATION **RSI 4.2 (R-24)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm (16")** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 3.9 (R-22)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- **16mm** TYPE-X GYPSUM WALLBOARD (15)
- **64mm** METAL STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- **16mm** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH

NOTES: 1. W2b REMOVES THE METAL STUDS

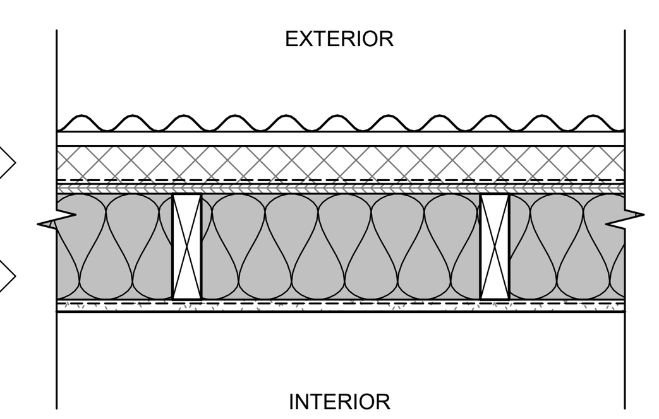
W3



ELEVATOR SHAFT PENTHOUSE WALL - *1.0 HOUR F.R.R., RSI 7.0 (R-40)*

- **22mm** CORRUGATED METAL PANELS
- **25mm (1")** METAL GIRT
- THERMALLY BROKEN ENGINEERED CLIP SYSTEM
- **152mm** SEMI-RIGID INSULATION **RSI 4.2 (R-24)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm (16")** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 3.9 (R-22)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- **13mm** PLYWOOD SHEATHING *(REFER TO STRUCTURAL)*
- **16mm (5/8")** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH

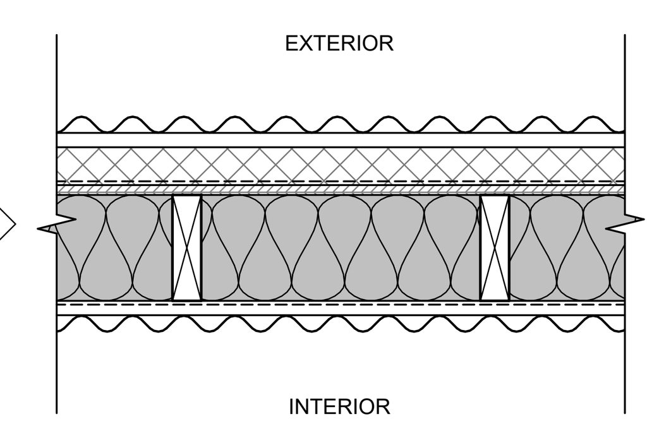
W4a
W4b



ENERGY CENTRE WALL - CORRUGATED METAL (R30)

- **22mm** CORRUGATED METAL PANEL (VERTICAL)
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **50mm** RIGID MINERAL WOOL INSULATION **RSI 1.4 (R-8)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 4.2 (R-24)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- *W1a ONLY* **- 16mm** TYPE-X GYPSUM WALLBOARD

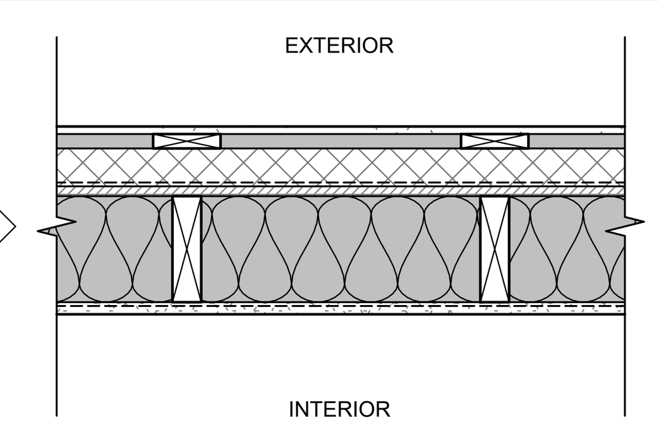
W5



ENERGY CENTRE WALL - WOOD CHIP BAY - CORRUGATED METAL

- **22mm** CORRUGATED METAL SIDING (VERTICAL)
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **50mm** SEMI-RIGID MINERAL WOOL INSULATION **RSI 1.4 (R-8)**
- **1 LAYER** WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 4.2 (R-24)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **22mm** CORRUGATED METAL SIDING (VERTICAL)

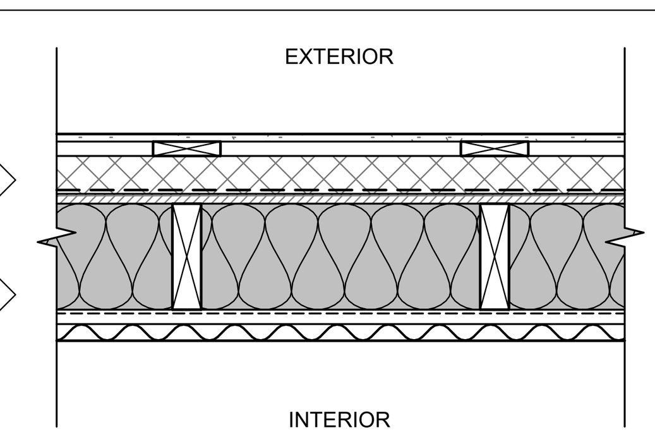
W6



ENERGY CENTRE WALL - PHENOLIC PANEL (R51)

- **10mm** PHENOLIC PANEL
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (VERTICAL)
- **50mm** RIGID MINERAL WOOL INSULATION **RSI 1.4 (R-8)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- BATT INSULATION **RSI 4.2 (R-24)** B/W WOOD STUD CAVITIES
- **6mil** CONTINUOUS POLYETHYLENE VAPOUR BARRIER
- *W3a ONLY* **- 16mm** TYPE-X GYPSUM WALLBOARD

W7a
W7b

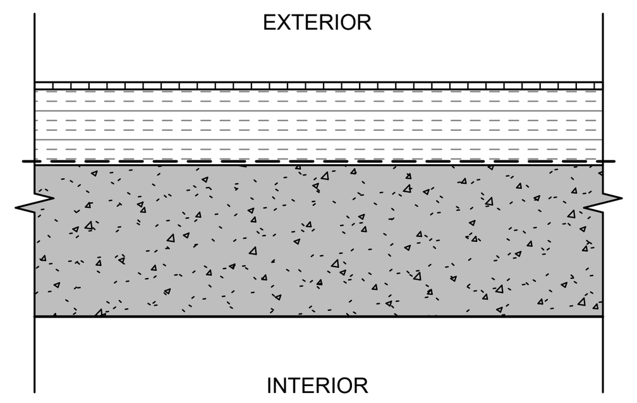


ENERGY CENTRE WALL - WOOD CHIP BAY - PHENOLIC PANEL

- **10mm** PHENOLIC PANEL
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **50mm** P.T. WOOD BLOCKING @ **406mm** O.C. (VERTICAL)
- **50mm** RIGID MINERAL WOOL INSULATION **RSI 1.4 (R-8)**
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- *W7a ONLY* **- 19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- *W7a ONLY* **- 22mm** CORRUGATED METAL SIDING (VERTICAL)

EXTERIOR WALL ASSEMBLIES

FW1

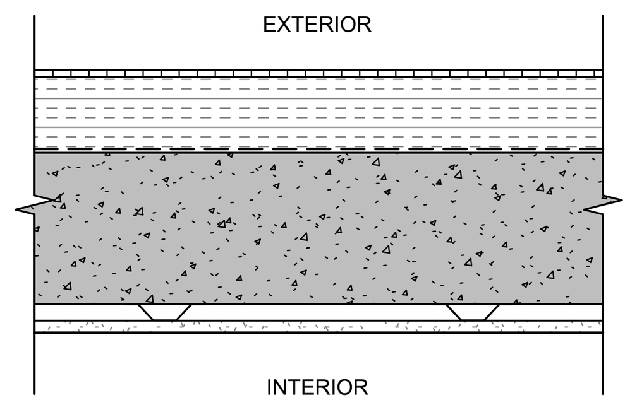


EXTERIOR FOUNDATION WALL

- DRAINAGE BOARD
- **100mm (4")** RIGID INSULATION **RSI 3.5 (R-20)**
- WATERPROOFING MEMBRANE
- **200mm** CONCRETE FOUNDATION WALL (*REFER TO STRUCTURAL*)
- PAINT FINISH

NOTE: USE CONCRETE FACED INSULATION WHERE EXPOSED.

FW2

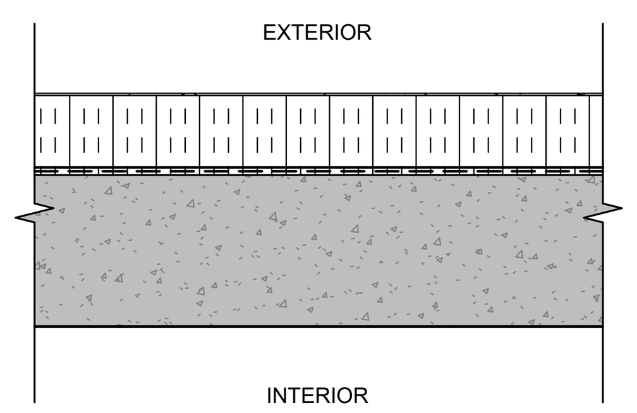


EXTERIOR FOUNDATION WALL W/FURRING

- DRAINAGE BOARD
- **100mm (4")** RIGID INSULATION **RSI 3.5 (R-20)**
- WATERPROOFING MEMBRANE
- **200mm** CONCRETE FOUNDATION WALL (*REFER TO STRUCTURAL*)
- **22mm** VERTICAL METAL HAT CHANNEL @ **406mm (16")** O.C.
- **16mm** GYPSUM WALLBOARD
- PAINT FINISH

NOTE: USE CONCRETE FACED INSULATION WHERE EXPOSED.

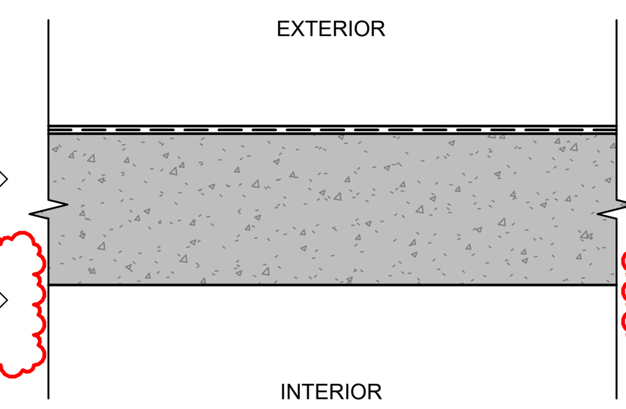
FW3



FOUNDATION WALL (INSULATED)

- RIGID INSULATION (CONCRETE FACED ABOVE GRADE AND 610mm BELOW GRADE)
- DRAINAGE MAT
- WATERPROOFING
- **200mm** CONCRETE FOUNDATION WALL (*REFER TO STRUCTURAL*)

FW4
FW5



FW4 FOUNDATION WALL

- DRAINAGE MAT
- WATERPROOFING
- **200mm** CONCRETE FOUNDATION WALL (*REFER TO STRUCTURAL*)

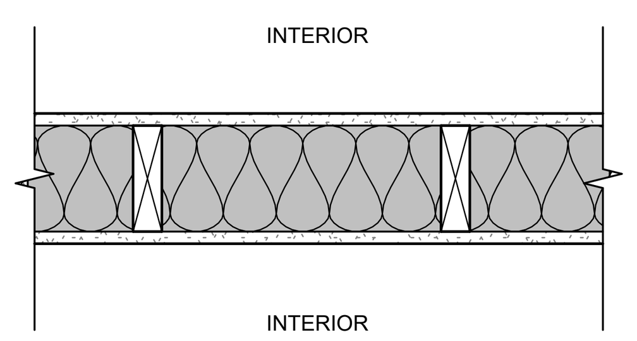
15

FW5 FOUNDATION WALL

- **200mm** CONCRETE FOUNDATION WALL (*REFER TO STRUCTURAL*)

PARTITION WALL ASSEMBLIES

P1

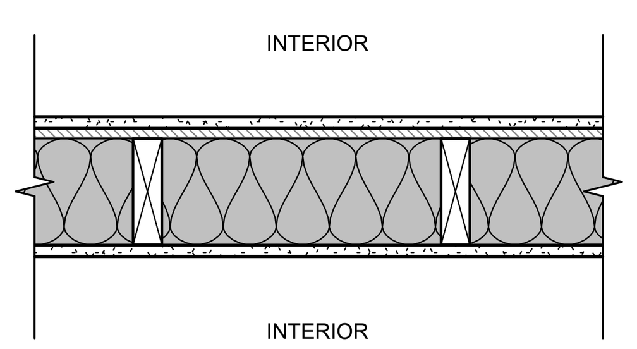


TYP. PARTITION WALL

- PAINT FINISH (*REFER TO SPECIFICATIONS*)
- **16mm** GYPSUM WALLBOARD
- **38x140mm** WOOD STUDS
- ACOUSTIC BATT INSULATION
- **16mm** GYPSUM WALLBOARD
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE: PROVIDE MOISTURE RESISTANT DRYWALL IN SHOWER AND BATHROOMS.
W1a, 1hr, 36 STC

P2

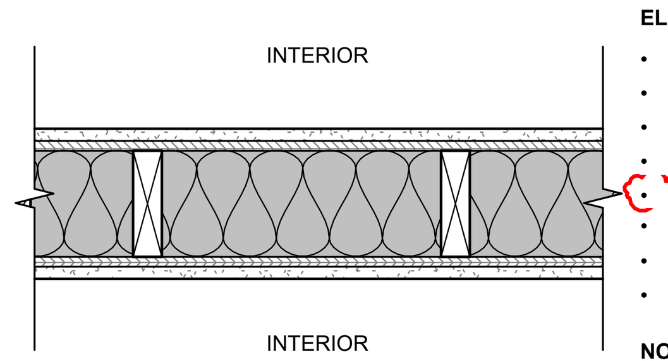


SHEAR WALL - *1.0 HOUR F.R.R.*

- PAINT FINISH (*REFER TO SPECIFICATIONS*)
- **16mm** TYPE-X GYPSUM WALLBOARD
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL FOR LOCATIONS*)
- **38x140mm** WOOD STUDS
- MINERAL WOOL BATT INSULATION
- **16mm** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE:

P3



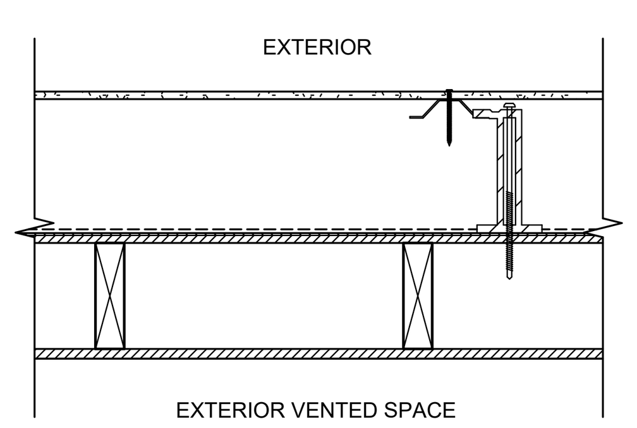
ELEVATOR SHAFT SHEAR WALL - *1.0 HOUR F.R.R.*

- PAINT FINISH (*REFER TO SPECIFICATIONS*)
- **16mm** TYPE-X GYPSUM WALLBOARD
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL FOR LOCATIONS*)
- **38x140mm** WOOD STUDS
- MINERAL WOOL BATT INSULATION (15)
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL FOR LOCATIONS*)
- **16mm** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE:

EXTERIOR ANGLED WALL FRAME

W8



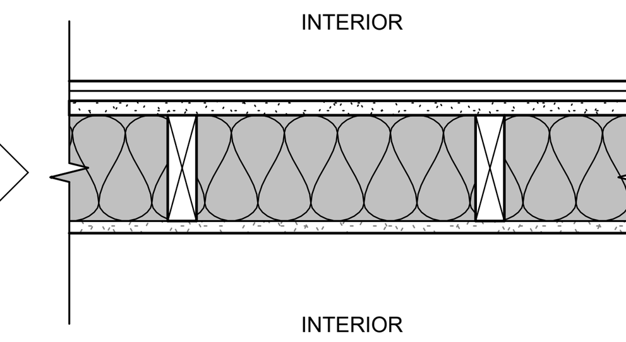
EXTERIOR ANGLED WALL FRAME

- **10mm** PHENOLIC PANEL
- **25mm** METAL GIRT
- THERMALLY BROKEN ENGINEERED CLIP SYSTEM
- **1 LAYER** SELF-ADHERED AIR / WEATHER BARRIER
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- PAINT FINISH

NOTES: 1. REFER TO EXTERIOR ELEVATIONS FOR PANEL LAYOUT & COLOUR

PARTITION WALL ASSEMBLIES

P5

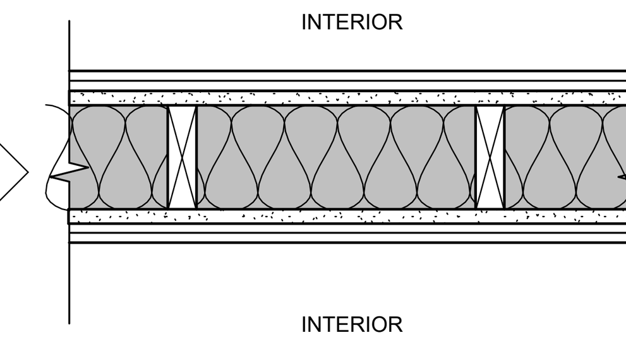


WOOD SLAT FEATURE WALLS

- STAIN FINISH (*REFER TO SPECIFICATIONS*)
- **19x50mm** HORIZONTAL WOOD SLATS SPACED WITH **50mm** VERTICAL GAPS
- **16mm** TYPE 'X' GYPSUM WALLBOARD, PTD BLACK
- **38x89mm** WOOD STUDS @ 400 O/C
- ACOUSTIC BATT INSULATION B/W STUD CAVITIES
- **16mm** TYPE 'X' GYPSUM WALLBOARD (15)
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE:

P5b

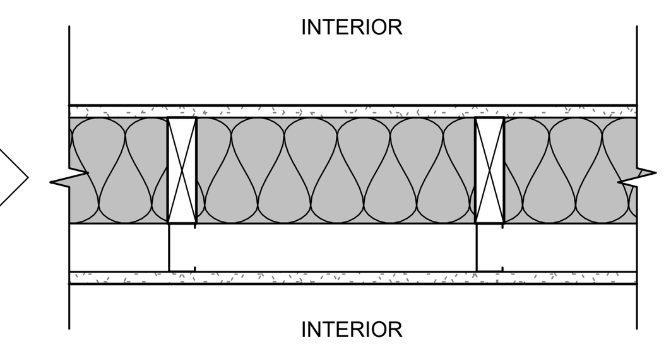


WOOD SLAT FEATURE WALLS

- STAIN FINISH (*REFER TO SPECIFICATIONS*)
- **19x50mm** HORIZONTAL WOOD SLATS SPACED WITH **50mm** VERTICAL GAPS
- **16mm** TYPE 'X' GYPSUM WALLBOARD, PTD BLACK
- **38x89mm** WOOD STUDS @ 400 O/C
- ACOUSTIC BATT INSULATION B/W STUD CAVITIES
- **16mm** TYPE 'X' GYPSUM WALLBOARD, PTD BLACK
- **19x50mm** HORIZONTAL WOOD SLATS SPACED WITH **50mm** VERTICAL GAPS
- STAIN FINISH (*REFER TO SPECIFICATIONS*)

NOTE:

P6

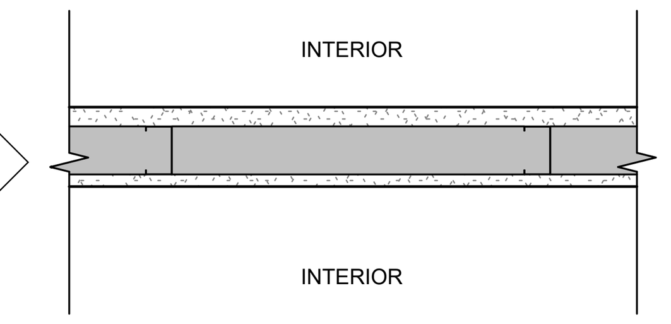


PARTITION WALL WITH FURRING

- PAINT FINISH (*REFER TO SPECIFICATIONS*)
- **16mm** GYPSUM, PTD.
- **38x89mm** WOOD STUDS @ 400 O/C
- ACOUSTIC BATT INSULATION B/W STUD CAVITIES
- **64mm** FURRING HAT TRACK
- **16mm** GYPSUM WALLBOARD
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE:

P7

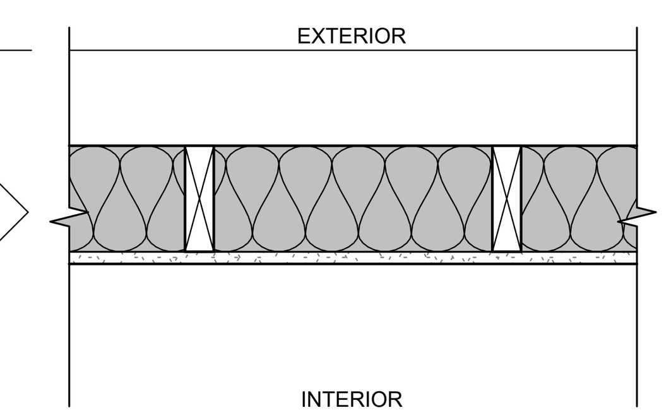


SHAFT WALL - 2 HOUR

- **25.4mm** GYPSUM WALLBOARD
- **63.5mm** CH STUDS, 20 GA @ 610 O/C
- **16mm** TYPE-X GYPSUM WALLBOARD
- PAINT FINISH (*REFER TO SPECIFICATIONS*)

NOTE: UL U415 SYSTEM A, STC 48

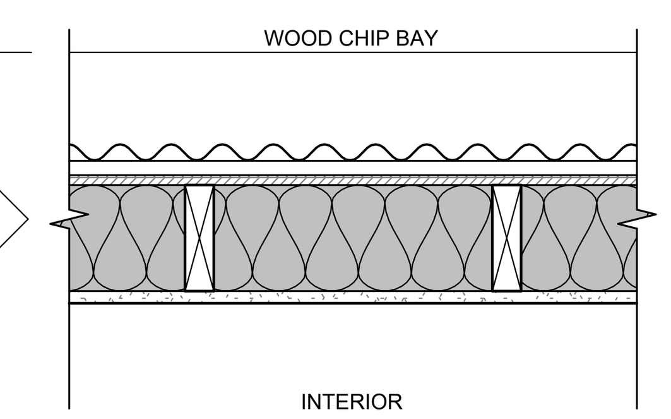
P8



ENERGY CENTRE - GYPSUM WALLBOARD

- **16mm** TYPE-X GYPSUM WALLBOARD PAINT FINISH
- **38x184mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)

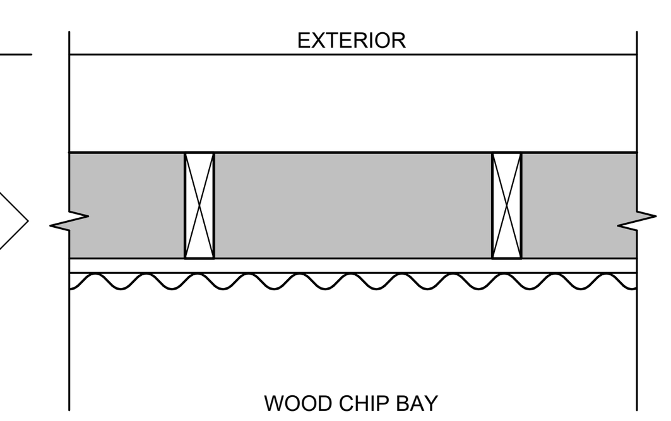
P9



ENERGY CENTRE - WOOD CHIP BAY - CORRUGATED METAL

- **22mm** CORRUGATED METAL SIDING (VERTICAL)
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **13mm** PLYWOOD SHEATHING (*REFER TO STRUCTURAL*)
- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- ACOUSTIC BATT INSULATION B/W WOOD STUD CAVITIES
- **16mm** TYPE-X GYPSUM WALLBOARD PAINT FINISH

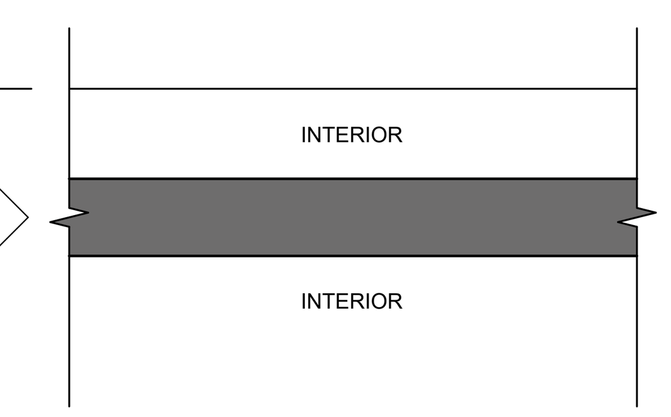
P10



ENERGY CENTRE - WOOD CHIP BAY - CORRUGATED METAL

- **38x140mm** WOOD STUD FRAMING @ **406mm** O.C. (*REFER TO STRUCTURAL*)
- **19x89mm** P.T. WOOD STRAPPING @ **406mm** O.C. (HORIZONTAL)
- **22mm** CORRUGATED METAL SIDING (VERTICAL)

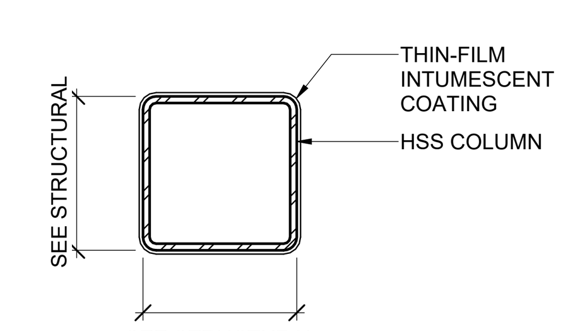
P11



COLD STORAGE ROOM WALLS - REFER TO SPECIFICATION

- **102mm** OVERALL THICKNESS
  (REFER TO SPECIFICATION FOR SYSTEM DESCRIPTION)

C1



INTERIOR STEEL COLUMNS - *1.0 HOUR F.R.R.*

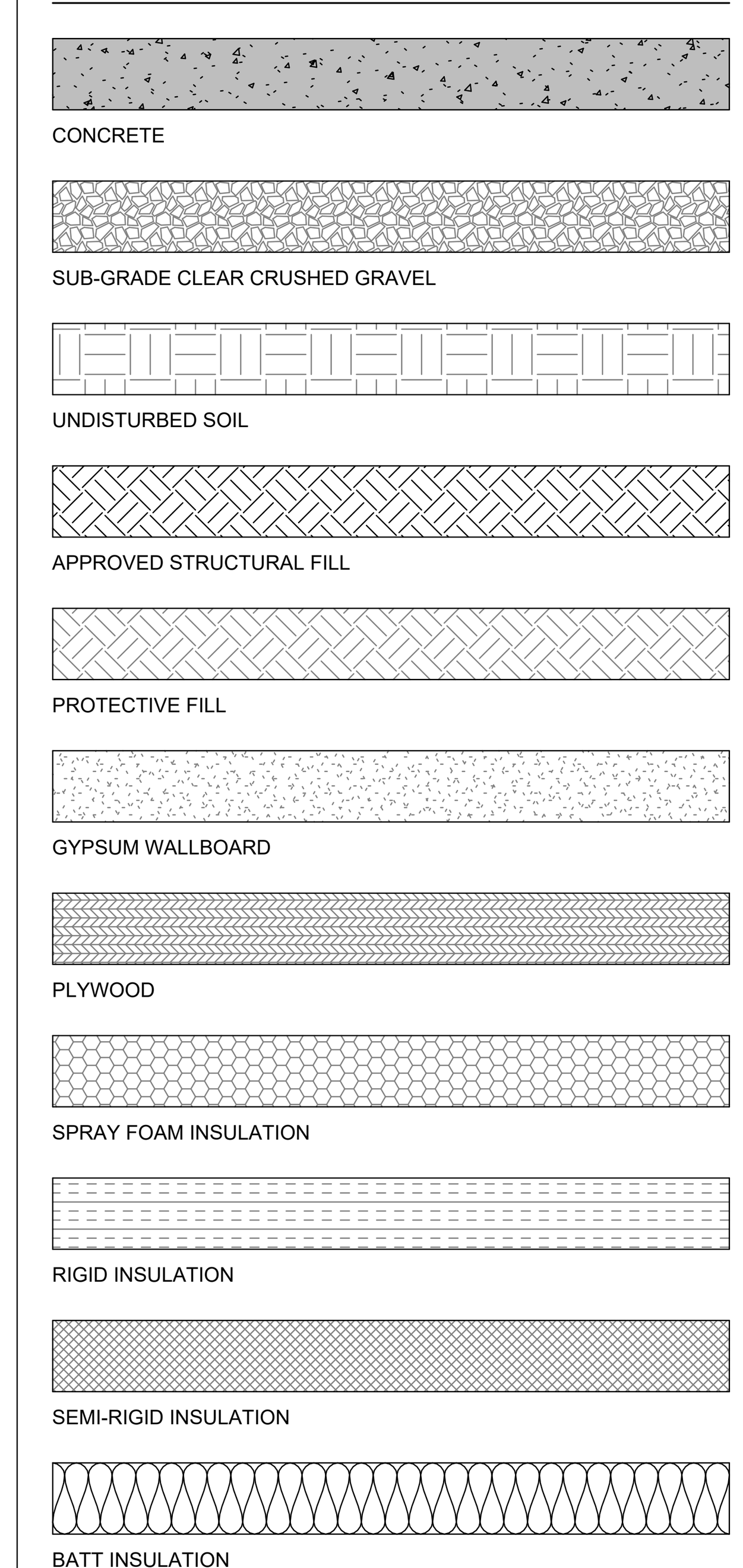
- INTERIOR APPLICATION STEEL COLUMN *(REFER TO STRUCTURAL)* THIN-FILM INTUMESCENT COATING
- F.R.R. RATING BASED ON ULC FR 2012, DESIGN NO. Z619 SEE MANUFACTURER'S INSTRUCTIONS FOR MINIMUM REQUIRED DRY FILM THICKNESS FOR F.R.R. = 1 HOUR

NOTE:

REFERENCE TAGS

# ROOM NAME	ROOM TAG
#	TAG / KEYNOTE
#	WALL / FLOOR / ROOF / SOFFIT TAG
#	DOOR TAG
#	WINDOW TAG
#	CEILING TAG
# A#	EXTERIOR ELEVATION REFERENCE
A#	INTERIOR ELEVATION REFERENCE
# A#	SECTION REFERENCE
# A#	DETAIL REFERENCE
#	GRID LINE
# LEVEL	DETAIL REFERENCE
	BREAKLINE

MATERIAL GRAPHICS



NOTES

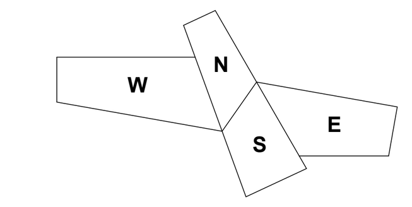
1. ALL LOAD BEARING WALLS TO HAVE 16MM TYPE 'X' GYPSUM WALL BOARD. REFER TO STRUCTURAL FOR LOAD BEARING WALLS

DNA David Nairne + Associates Ltd

kobayashi+zedda

CONSULTANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
JS

DRAWING DATE
2021.04.30

SCALE
N/A

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
ASSEMBLIES & LEGENDS

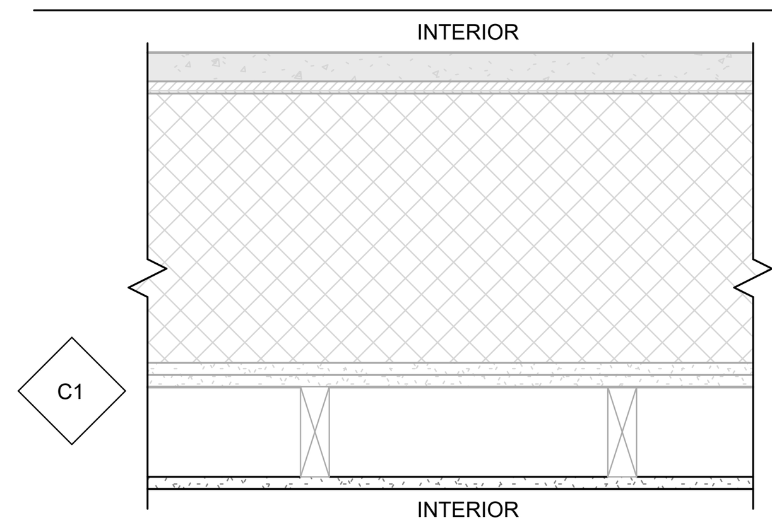
REVISION NO.
13

PROJECT NO. 5894

A004

2025-01-24 4:29:32 PM

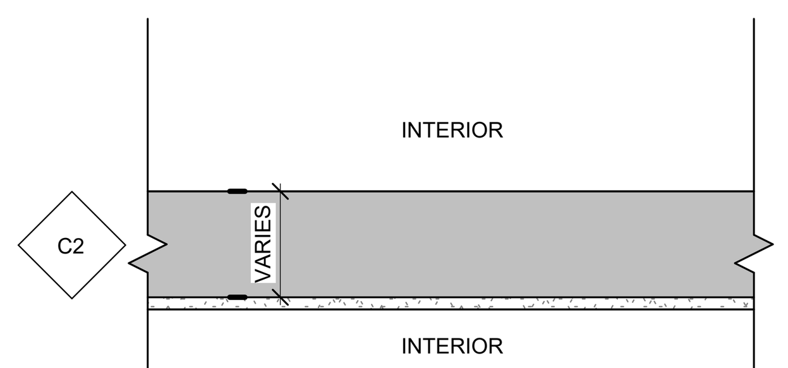
CEILING ASSEMBLIES



CEILING C1: GYPSUM CEILING

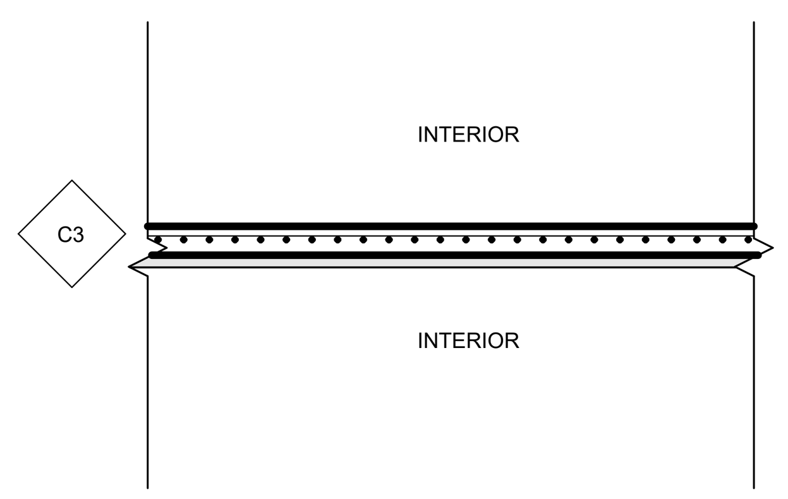
16mm TYPE 'X' GYPSUM WALLBOARD
ATTACHED DIRECTLY TO STRUCTURE

NOTE:



CEILING C2: SUSPENDED GYPSUM BOARD

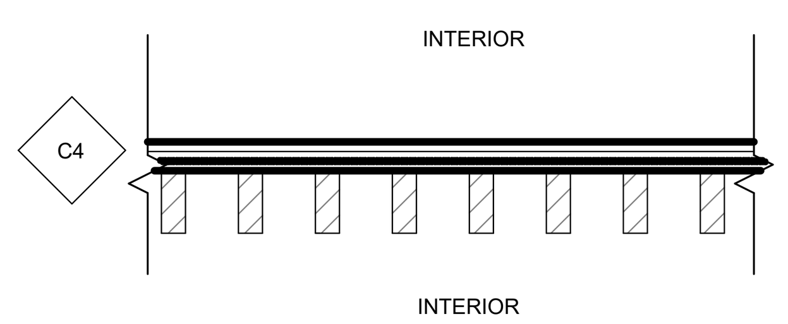
ROOF/ FLOOR STRUCTURE ON
VOID FOR BUILDING SERVICES (VARIES) W/
38x89mm WOOD FRAMING AS REQUIRED ON
16mm TYPE 'X' GYPSUM WALLBOARD



CEILING C3: ACOUSTICAL CEILING TILE

ROOF/ FLOOR STRUCTURE ON
VOID FOR BUILDING SERVICES (VARIES) W/
38mm FRAMING AS REQUIRED ON
16mm T-BAR TILES 610x1220mm (2' x 4')
PRELUDE XL 15/16" BY ARMSTRONG WORLD INDUSTRIES, OR COMPARABLE

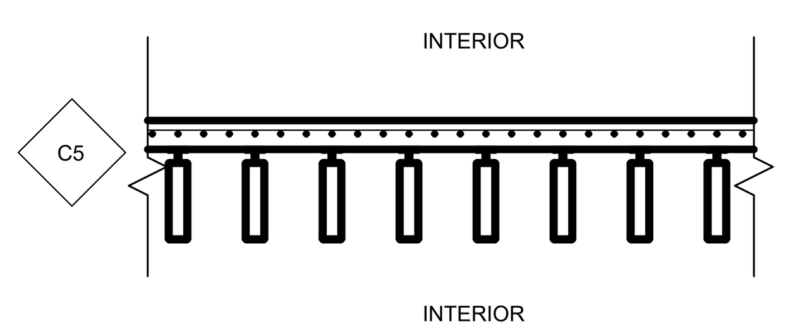
NOTE:



CEILING C4: FEATURE WOOD SLAT CEILING
ROOF/ FLOOR STRUCTURE ON

SUSPENSION SYSTEM
WOODWORKS GRILLE 7097BO BY ARMSTRONG WORLD
INDUSTRIES, OR COMPARABLE
1.25" W x 3.25" H, 2.75" SPACING

NOTE:

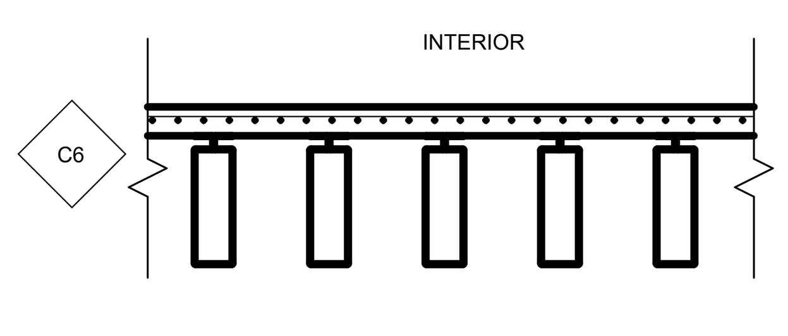


CEILING C5: LINEAR METAL CEILING - TYPE 1

ROOF/ FLOOR STRUCTURE ON

SUSPENSION SYSTEM
METALWORKS BLADES BY ARMSTRONG WORLD
INDUSTRIES, OR COMPARABLE
4" x 1"

NOTE:

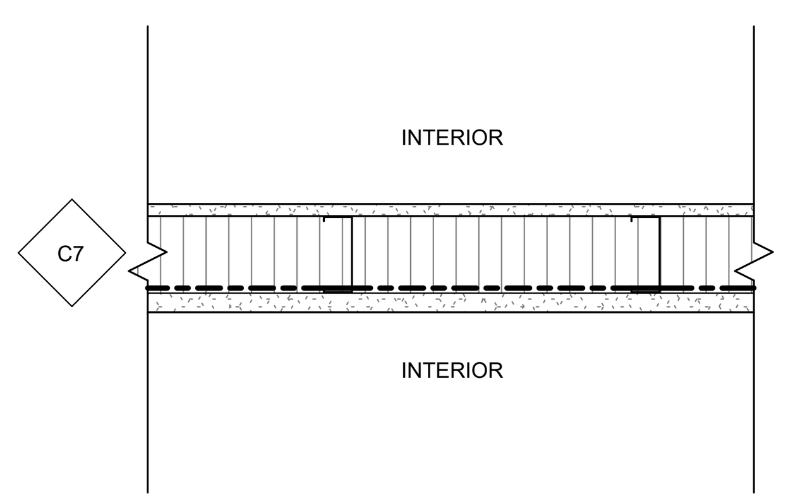


CEILING C6: LINEAR METAL CEILING - TYPE 2

ROOF/ FLOOR STRUCTURE ON

SUSPENSION SYSTEM
METALWORKS BLADES BY ARMSTRONG WORLD
INDUSTRIES, OR COMPARABLE
6" x 2"

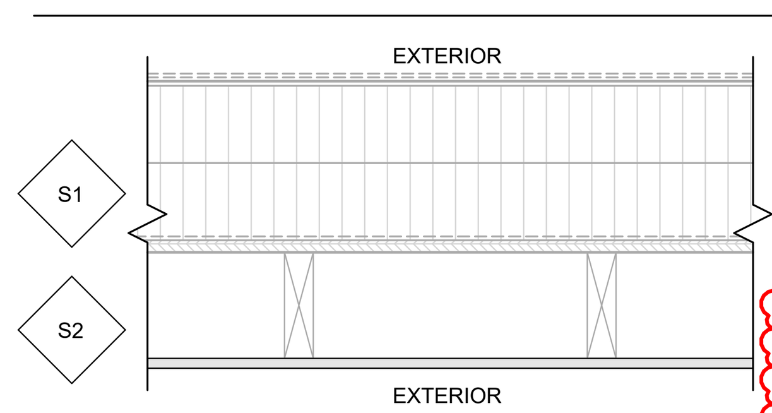
NOTE:



CEILING C7: MECHANICAL SHAFT CEILING (1HR FRR)

ROOF/ FLOOR STRUCTURE ON
5/8" TYPE 'X' GYPSUM WALLBOARD
4" C/H CHANNEL @ 16" O.C.
3" ACOUSTIC INSULATION (FILL CAVITY)
1" TYPE 'X' GYPSUM WALLBOARD

SOFFIT ASSEMBLIES



SOFFIT S1: PHENOLIC PANEL

ROOF STRUCTURE ON

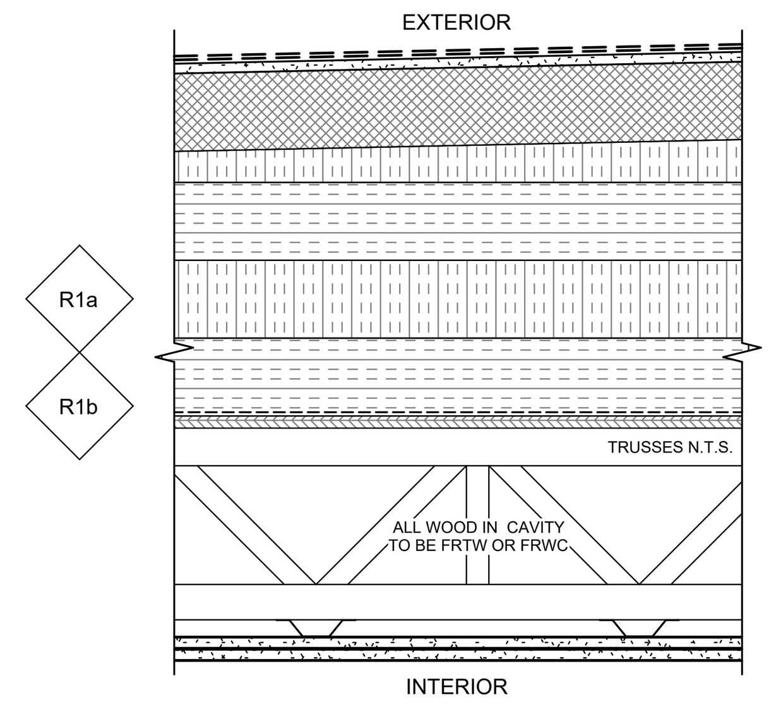
ATTACHMENT ASSEMBLY ON
TRESPA METEON UNI COLOURS, OR COMPARABLE
MIN. 10mm THICKNESS

15

SOFFIT S2: METAL SOFFIT
ROOF STRUCTURE ON

ATTACHMENT ASSEMBLY ON STEEL SOFFIT SIDING

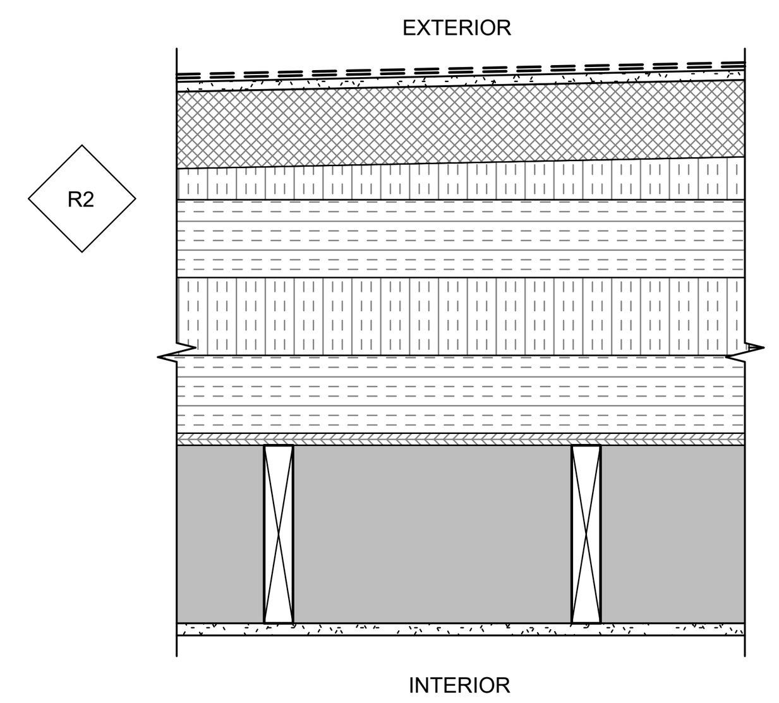
ROOF ASSEMBLIES



MAIN ROOF

- **2-PLY** SBS ROOF MEMBRANE
- **6.4mm** PROTECTION BOARD
- **102mm** SEMI-RIGID MINERAL WOOL INSULATION **MIN. RSI 14.1 (R-80)**
- **MIN. 2%** SLOPED RIGID (XPS) INSULATION - THICKNESS VARIES
- **305mm** RIGID (XPS) INSULATION **MIN. RSI 14.1 (R-80)**
- CONTINUOUS VAPOUR RETARDER
- **16mm** PLYWOOD SHEATHING
- ENGINEERED WOOD TRUSSES (*REFER TO STRUCTURAL*)
- **22mm** RESILIENT METAL CHANNEL
- **16mm** TYPE-X GYPSUM BOARD
- **16mm** TYPE-X GYPSUM BOARD
- PAINT FINISH

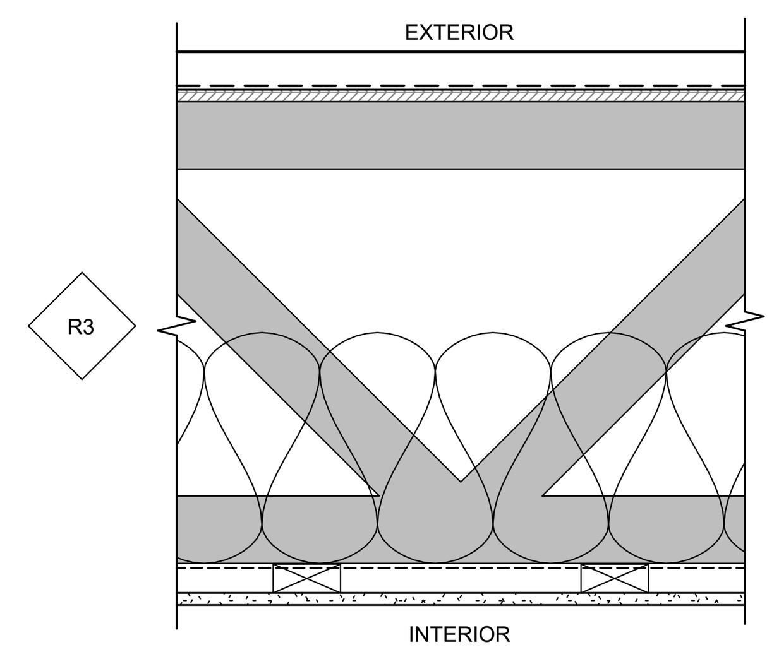
NOTE: R1b REPLACES ENGINEERED WOOD TRUSSES FOR 38x235mm WOOD JOISTS AS PER STRUCTURAL



SBS MEMBRANE ROOF

- **2-PLY** SBS ROOF MEMBRANE
- **13mm** PROTECTION BOARD
- **102mm** SEMI-RIGID MINERAL WOOL INSULATION **MIN. RSI 14.1 (R-80)**
- **MIN. 2%** SLOPED RIGID (XPS) INSULATION - THICKNESS VARIES
- **305mm** RIGID (XPS) INSULATION **MIN. RSI 14.1 (R-80)**
- CONTINUOUS VAPOUR BARRIER
- **13mm** PLYWOOD SHEATHING
- **235mm** WOOD JOISTS @ **406mm** o/c (*REFER TO STRUCTURAL*)
- **16mm** TYPE-X GYPSUM BOARD
- PAINT FINISH

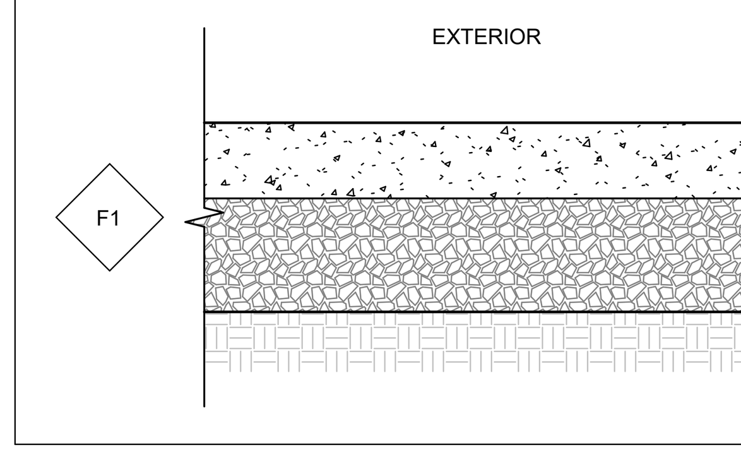
NOTE:



ENERGY CENTRE ROOF - STANDING SEAM METAL ROOF

- STANDING SEAM METAL ROOFING
- MEMBRANE UNDERLAYMENT
- **16mm** PLYWOOD SHEATHING
- ROOF TRUSSES @ 600mm O.C. (*REFER TO STRUCTURAL*)
- FIBRE GLASS INSULATION **(MIN R60)**
- POLYETHYLENE VAPOUR BARRIER
- HEAVY-DUTY INSECT SCREEN (*EXTERIOR SOFFITS ONLY*)
- **38x89mm** WOOD STRAPPING @ **400mm O.C.**
- **16mm** TYPE-X GYPSUM BOARD
  /**10mm** PHENOLIC PANEL (*REFER TO RCP FOR LOCATIONS*)

EXTERIOR FLOOR ASSEMBLIES

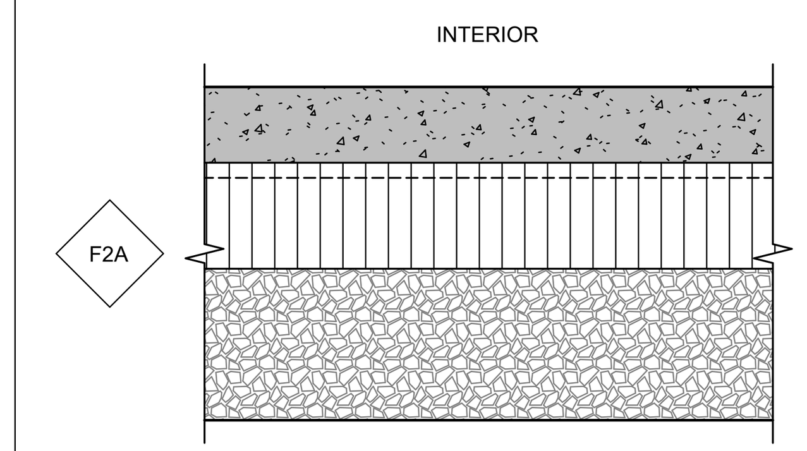


EXTERIOR CONCRETE FLOOR

- **100mm** CONCRETE SLAB-ON-GRADE (*REFER TO STRUCTURAL*)
- **150mm** CRUSHED GRAVEL (*REFER TO GEOTECHNICAL*)
- STRUCTURAL FILL AS REQUIRED (*REFER TO STRUCTURAL*)

NOTE:

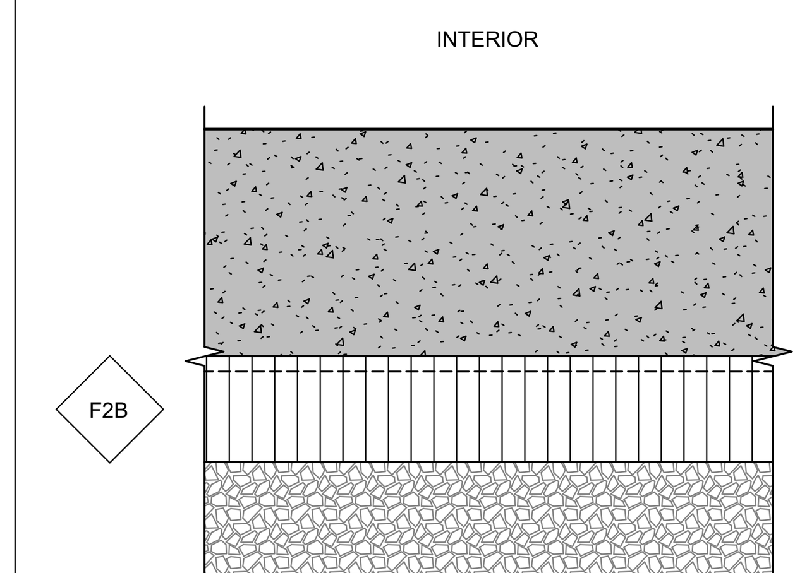
INTERIOR FLOOR ASSEMBLIES



INTERIOR CONCRETE SLAB-ON-GRADE

- FLOOR FINISH (*REFER TO FINISH PLANS & SCHEDULES*)
- **100mm** CONCRETE SLAB (*REFER TO STRUCTURAL*)
- **15mil** POLY VAPOUR BARRIER
- **140mm** RIGID INSULATION **MIN. RSI 3.5 (R-20)**
- ENGINEERED FILL (*REFER TO GEOTECHNICAL*)

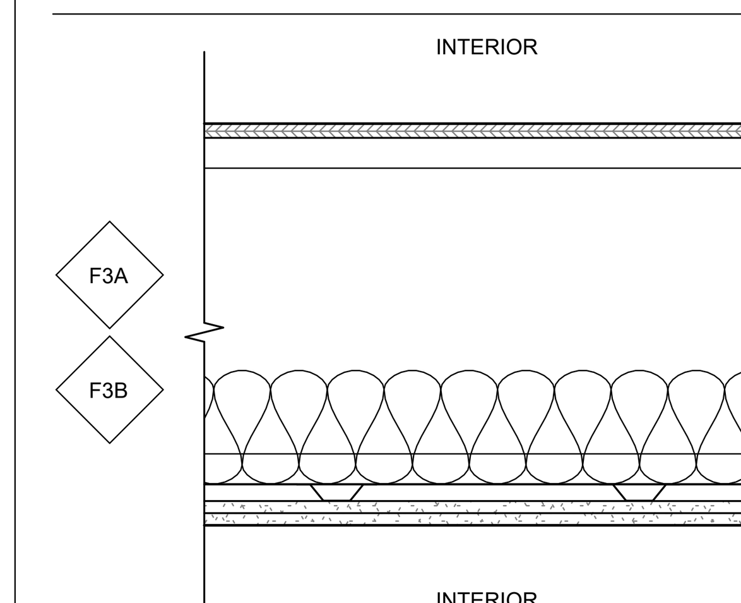
NOTE:



ELEVATOR PIT CONCRETE SLAB-ON-GRADE

- FLOOR FINISH (*REFER TO FINISH PLANS & SCHEDULES*)
- **300mm** CONCRETE SLAB (*REFER TO STRUCTURAL*)
- **15mil** POLY VAPOUR BARRIER
- **140mm** RIGID INSULATION **MIN. RSI 3.5 (R-20)**
- ENGINEERED FILL (*REFER TO GEOTECHNICAL*)

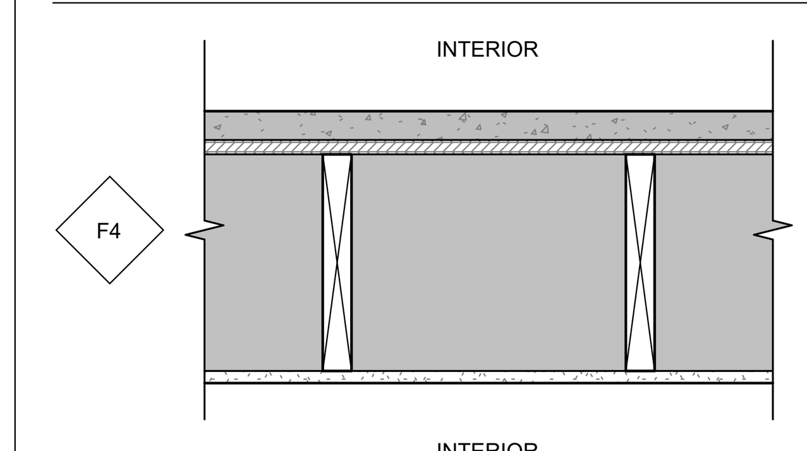
NOTE:



INTERIOR WOOD FLOOR

- FLOOR FINISH (*REFER TO FINISH PLANS & SCHEDULES*)
- **19mm** T&G PLYWOOD SHEATHING
- ENGINEERED WOOD JOISTS (*REFER TO STRUCTURAL*)
- **150mm** ACOUSTIC BATT INSULATION
- **22mm** METAL CHANNEL
- **16mm** TYPE-X GYPSUM BOARD
- **16mm** TYPE-X GYPSUM BOARD

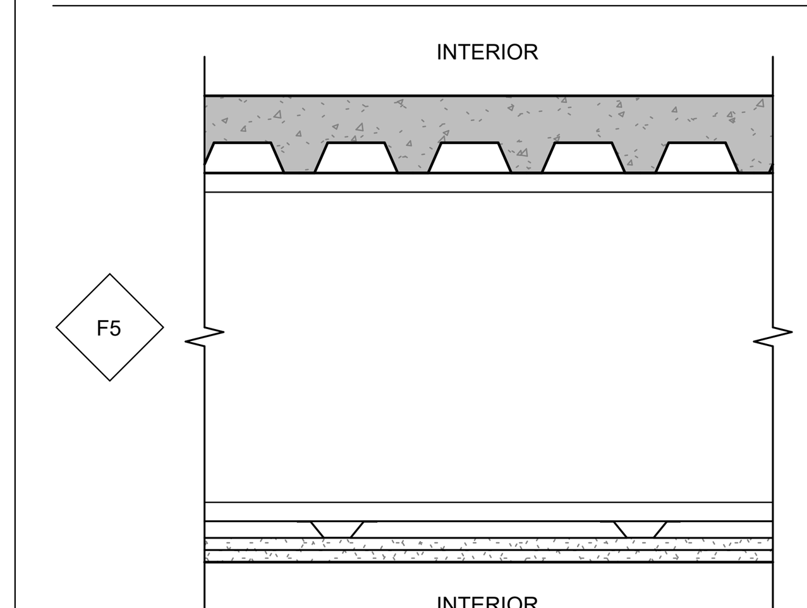
NOTE: F3B ADDS **38mm** CONCRETE TOPPING (REFER TO STRUCTURAL)



EXIT STAIR LANDING

- FLOOR FINISH (*REFER TO FINISH PLANS & SCHEDULES*)
- **38mm** CONCRETE TOPPING (*REFER TO STRUCTURAL*)
- **16mm** T&G PLYWOOD SHEATHING
- **38x235mm** WOOD JOISTS (*REFER TO STRUCTURAL*)
- **16mm** TYPE-X GYPSUM BOARD

NOTE:



INTERIOR "BRIDGE" AT ENTRY STAIR

- **64mm** POLISHED CONCRETE TOPPING (*REFER TO STRUCTURAL*)
- **38mm** CORRUGATED METAL DECKING (*REFER TO STRUCTURAL*)
- **W460x144** STEEL STRUCTURE *(REFER TO STRUCTURAL)* OR **133x457mm** WOOD STRUCTURE *(REFER TO STRUCTURAL)* W/ ADDITIONAL FURRING AS REQUIRED
- **22mm** METAL CHANNEL
- **16mm** TYPE-X GYPSUM BOARD
- **16mm** TYPE-X GYPSUM BOARD

NOTE:

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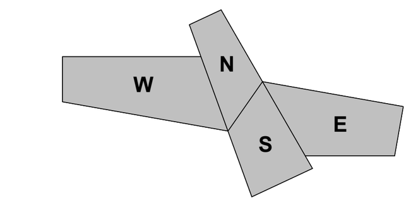
CONSULANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
KA

DRAWING DATE
11/30/21

SCALE
N/A

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
ASSEMBLIES & LEGENDS

REVISION NO.
15

PROJECT NO.
5894

A005

2025-01-24 4:29:34 PM

FLOOR PLAN GENERAL NOTES

1. ~~FURNITURE N.I.C. UNLESS OTHERWISE NOTED.~~
2. ALL INTERIOR WALLS ARE 'P1' UNLESS NOTED OTHERWISE. REFER TO STRUCTURAL FOR SHEAR WALLS, TYP.

14

FIRE SEPARATION LEGEND

- - - - - - - -	FS / F-RR = 00 MINUTES
— · — · — · —	FS / F-RR = 45 MINUTES
— — — — — —	FS / F-RR = 60 MINUTES

1 LEVEL 1 - NORTH AND WEST WINGS
1 : 75

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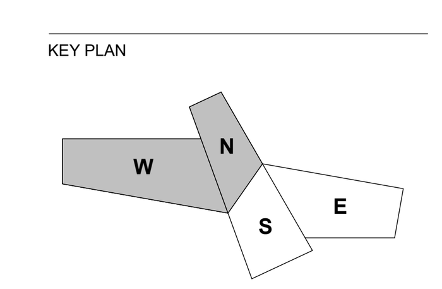
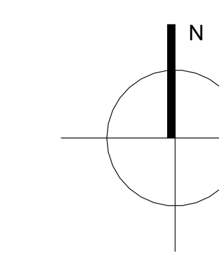
CONSULANTS IN JOINT VENTURE

KEY PLAN





NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
14	2025.01.21	ADDENDUM 04
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
JS, KA

DRAWING DATE
2021.04.30

SCALE
1:75

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
LEVEL 1 - FLOOR PLAN - NORTH AND WEST WINGS

REVISION NO.
15

PROJECT NO. 5894

A205

2025-01-24 4:29:40 PM

FLOOR PLAN GENERAL NOTES

1. FURNITURE N.I.C. UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 'P1' UNLESS NOTED OTHERWISE. REFER TO STRUCTURAL FOR SHEAR WALLS, TYP.

FIRE SEPARATION LEGEND

- FS / F-RR = 00 MINUTES
- FS / F-RR = 45 MINUTES
- FS / F-RR = 60 MINUTES

RUNTAL AT WINDOW TYP. FOR OFFICES, REFER TO MECHANICAL

RUNTAL, REFER TO MECHANICAL

WOOD COLUMN REFER TO STRUCTURAL

CORNER GUARDS

1 LEVEL 2 - NORTH AND WEST WINGS
1 : 75

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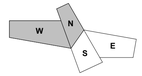
CONSULANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
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13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
JS, KA

DRAWING DATE
2021.04.30

SCALE
1:75

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
LEVEL 2 - FLOOR PLAN - NORTH AND WEST WINGS

REVISION NO.
15

PROJECT NO. 5894

A208

2025-01-24 4:29:45 PM

REFLECTED CEILING PLAN LEGEND

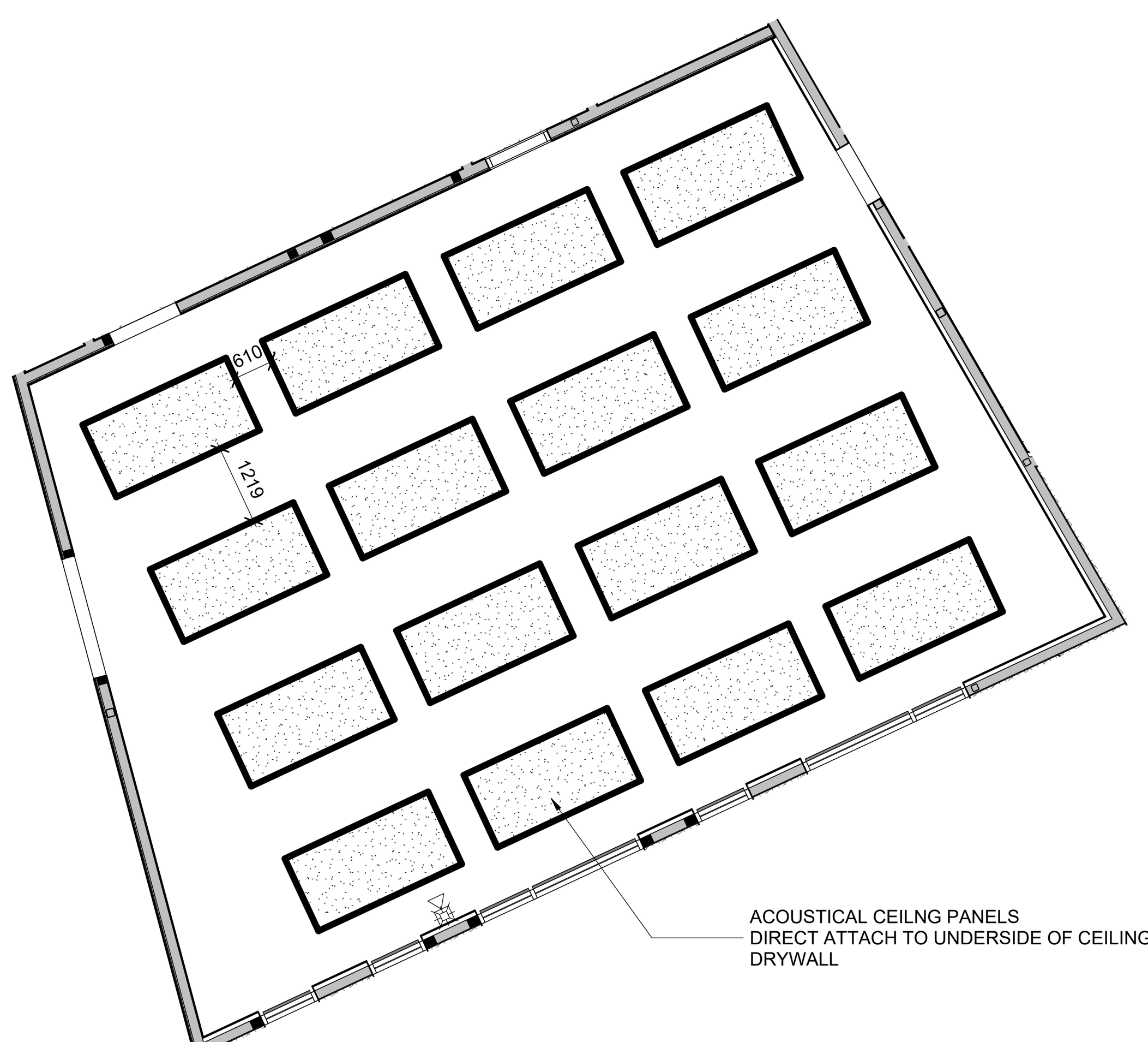
TYPE / 0000	CEILING TYPE / CEILING HEIGHT ABOVE FFL
0 / (0000)	FIXTURE TYPE / FIXTURE HEIGHT ABOVE FFL

CEILING TYPE	CEILING DESCRIPTION
C1	GYPSUM WALL BOARD ATTACHED TO THE U/S OF STRUCTURE (RATED AS REQUIRED)
C2	SUSPENDED GYPSUM BOARD
C3	ACOUSTICAL CEILING TILE (ACT-1, ACT-2 & ACT-3) REFER TO FINISH SCHEDULES
C4	FEATURE WOOD SLAT CEILING (AP-1) REFER TO FINISH SCHEDULES
C5	LINEAR METAL CEILING (AP-2, AP-3) REFER TO FINISH SCHEDULES
SOFFIT TYPE	**SOFFIT DESCRIPTION**
S1	PHENOLIC PANEL

14

1 LEVEL 1 - SOUTH AND EAST WINGS RCP
1 : 75

2 E-126 KITCHENETTE RCP
1 : 50



15

3 S-100 DINING HALL RCP
1 : 100

REFLECTED CEILING PLAN LEGEND

NOTE: REFER TO ELECTRICAL FOR LIGHT FIXTURE SCHEDULE

SYMBOL	INT/EXT	DESCRIPTION
A-1	EXTERIOR	IN-GROUND LANDSCAPE LIGHTING
A-2	EXTERIOR	IN-GROUND CIRCLE STEP LIGHT
B-1	EXTERIOR	LIGHT BOLLARD
C-1a	INTERIOR	915MM ø (36") PENDANT DIRECT / INDIRECT
C-1b	INTERIOR	610MM ø (24") PENDANT DIRECT / INDIRECT
C-2a	INTERIOR	2440MM (8') ø RING PENDANT
C-2b	INTERIOR	1830MM (6') ø RING PENDANT
C-2c	INTERIOR	1220MM (4') ø RING PENDANT
C-2d	INTERIOR	915MM (3') ø RING PENDANT
C-2e	INTERIOR	610MM (2') ø RING PENDANT
D-1	INTERIOR	DOWNLIGHT
D-2	INTERIOR	DOWNLIGHT
GG-1	INTERIOR	610x1220MM (2'x4') PANEL
L-1	INTERIOR	1220MM (4') LINEAR DIRECT / INDIRECT
L-2	INTERIOR	610MM (2') LINEAR
P-1	INTERIOR	1830MM (6') LINEAR PENDANT
P-2	INTERIOR	LINEAR PENDANT DIRECT / INDIRECT
P-3	INTERIOR	DIRECT PENDANT
R-1	INTERIOR	RECTILINEAR DOWNLIGHT
S-1	INTERIOR	1220MM (4') LINEAR
S-2	EXTERIOR	WALL LUMINAIRE
S-3	EXTERIOR	WALL LUMINAIRE
T-1	INTERIOR	TRACK LIGHT
U-1	INTERIOR	915mm (3') UNDER CABINET
U-2	INTERIOR	TAPE LIGHT
W-1	INTERIOR	1220MM (4') STRIP LIGHTING
WW-1	INTERIOR	2440MM (8') STRIP LIGHTING
X-1	EXTERIOR	18' POST MOUNTED LIGHT
BP	INTERIOR	EXIT / REMOTE HEAD / BATTERY COMBO
RH	INTERIOR	DOUBLE REMOTE HEAD
EX	INTERIOR	GREEN RUNNING MAN
WAP	INTERIOR	WIRELESS ACCESS POINT
	INTERIOR	HORN / STROBE
	INTERIOR	STROBE
	INTERIOR	HORN

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CONSULTANTS IN JOINT VENTURE

KEY PLAN

NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
14	2025.01.21	ADDENDUM 04
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
JS

DRAWING DATE
2021.04.30

SCALE
1:75

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
LEVEL 1 - REFLECTED CEILING PLAN - SOUTH AND EAST WINGS

REVISION NO.
15

PROJECT NO.
5894

A216

REFLECTED CEILING PLAN LEGEND

TYPE / 0000 — CEILING TYPE / CEILING HEIGHT ABOVE FFL
0 — FIXTURE TYPE
0000 — FIXTURE HEIGHT ABOVE FFL

CEILING TYPE	CEILING DESCRIPTION
C1	GYPSUM WALL BOARD ATTACHED TO THE U/S OF STRUCTURE (RATED AS REQUIRED)
C2	SUSPENDED GYPSUM BOARD
C3	ACOUSTICAL CEILING TILE (ACT-1, ACT-2 & ACT-3) REFER TO FINISH SCHEDULES
C4	FEATURE WOOD SLAT CEILING (AP-1) REFER TO FINISH SCHEDULES
C5	LINEAR METAL CEILING (AP-2, AP-3) REFER TO FINISH SCHEDULES

SOFFIT TYPE	SOFFIT DESCRIPTION
S1	PHENOLIC PANEL

1 LEVEL 2 - SOUTH AND EAST WINGS RCP
1 : 75

2 E-209 KITCHENETTE RCP
1 : 50

3 S-200 COUNCIL CHAMBER RCP
1 : 100

REFLECTED CEILING PLAN LEGEND

NOTE: REFER TO ELECTRICAL FOR LIGHT FIXTURE SCHEDULE

SYMBOL	INT/EXT	DESCRIPTION
A-1	EXTERIOR	IN-GROUND LANDSCAPE LIGHTING
A-2	EXTERIOR	IN-GROUND CIRCLE STEP LIGHT
B-1	EXTERIOR	LIGHT BOLLARD
C-1a	INTERIOR	915MM ø (36") PENDANT DIRECT / INDIRECT
C-1b	INTERIOR	610MM ø (24") PENDANT DIRECT / INDIRECT
C-2a	INTERIOR	2440MM (8') ø RING PENDANT
C-2b	INTERIOR	1830MM (6') ø RING PENDANT
C-2c	INTERIOR	1220MM (4') ø RING PENDANT
C-2d	INTERIOR	915MM (3') ø RING PENDANT
C-2e	INTERIOR	610MM (2') ø RING PENDANT
D-1	INTERIOR	DOWNLIGHT
D-2	INTERIOR	DOWNLIGHT
EG-1	INTERIOR	610x1220MM (2'x4') PANEL
L-1	INTERIOR	1220MM (4') LINEAR DIRECT / INDIRECT
L-2	INTERIOR	610MM (2') LINEAR
P-1	INTERIOR	1830MM (6') LINEAR PENDANT
P-2	INTERIOR	LINEAR PENDANT DIRECT / INDIRECT
P-3	INTERIOR	DIRECT PENDANT
R-1	INTERIOR	RECTILINEAR DOWNLIGHT
S-1	INTERIOR	1220MM (4') LINEAR
S-2	EXTERIOR	WALL LUMINAIRE
S-3	EXTERIOR	WALL LUMINAIRE
T-1	INTERIOR	TRACK LIGHT
U-1	INTERIOR	915mm (3') UNDER CABINET
U-2	INTERIOR	TAPE LIGHT
W-1	INTERIOR	1220MM (4') STRIP LIGHTING
W-2	INTERIOR	2440MM (8') STRIP LIGHTING
X-1	EXTERIOR	18' POST MOUNTED LIGHT
BP	INTERIOR	EXIT / REMOTE HEAD / BATTERY COMBO
RH	INTERIOR	DOUBLE REMOTE HEAD
EX	INTERIOR	GREEN RUNNING MAN
	INTERIOR	WIRELESS ACCESS POINT
	INTERIOR	HORN / STROBE
	INTERIOR	STROBE
	INTERIOR	HORN

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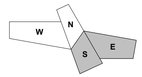
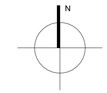
kobayashi+zedda
CONSULANTS IN JOINT VENTURE

KEY PLAN





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REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
JS

DRAWING DATE
2021.04.30

SCALE
1:75

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

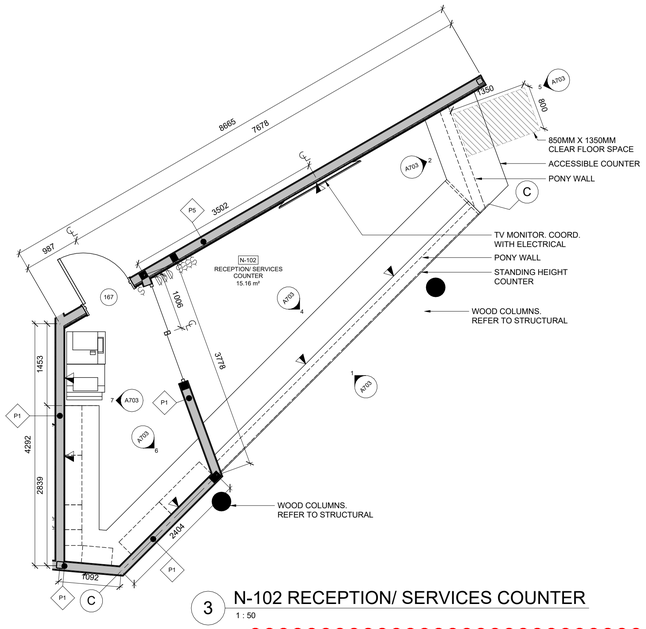
DRAWING
LEVEL 2 - REFLECTED CEILING PLAN - SOUTH AND EAST WINGS

REVISION NO.
15

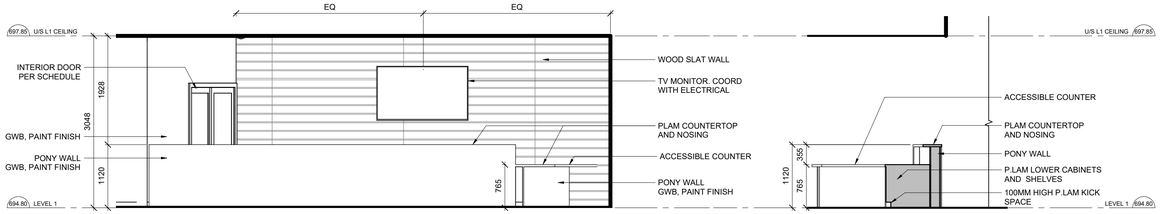
PROJECT NO. 5894

A219

2025-01-24 4:29:59 PM

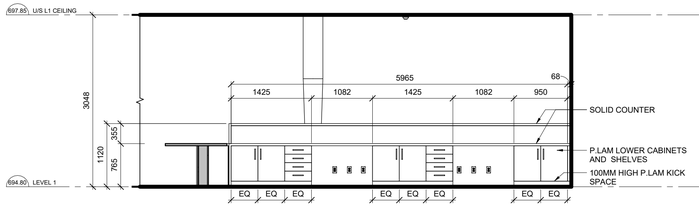


3 N-102 RECEPTION/ SERVICES COUNTER
1 : 50

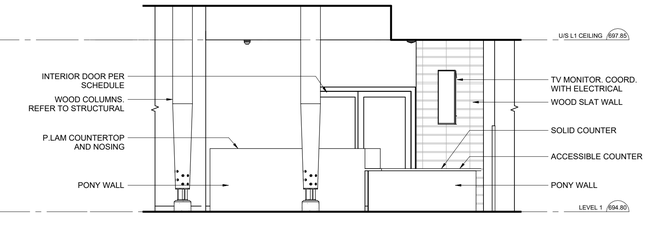


1 N-102 RECEPTION - NORTH
1 : 50

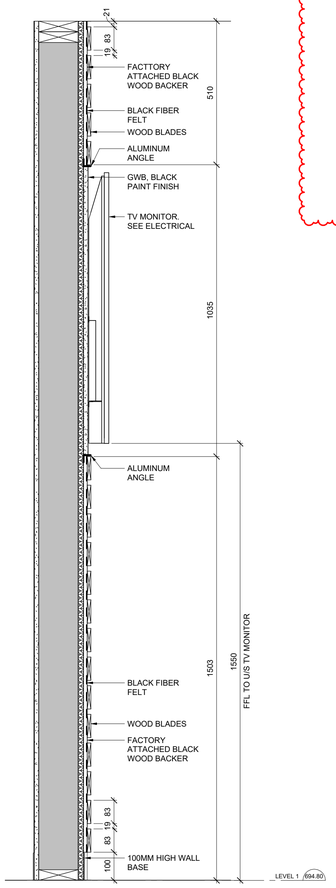
2 N-102 RECEPTION - EAST
1 : 50



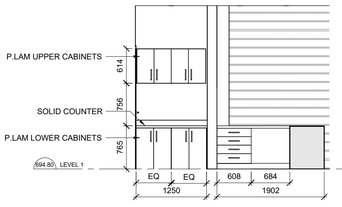
4 N-102 RECEPTION - SOUTH
1 : 50



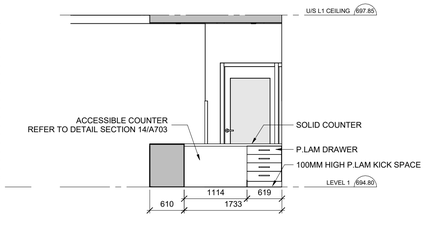
5 N-102 RECEPTION - WEST
1 : 50



8 WOOD SLAT WALL - TYP DETAIL
1 : 10

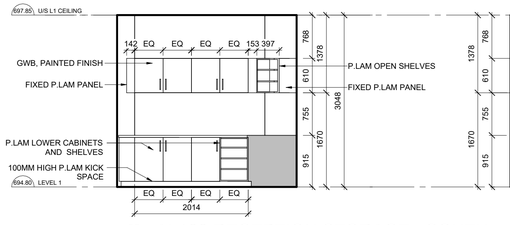


15 E-124 RECEPTION - WEST
1 : 50

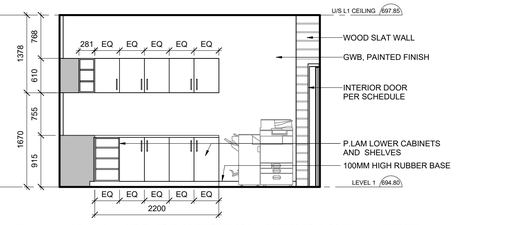


16 E-124 RECEPTION - NORTH
1 : 50

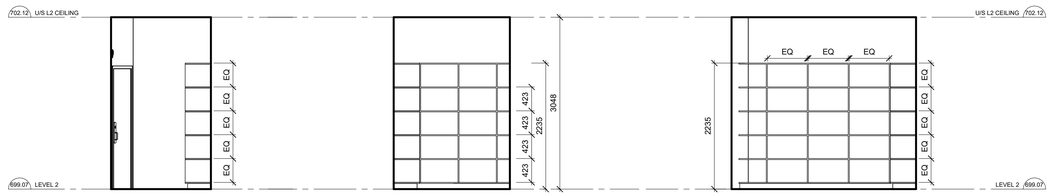
15



6 N-103 RECEPTION STORAGE - SOUTH
1 : 50



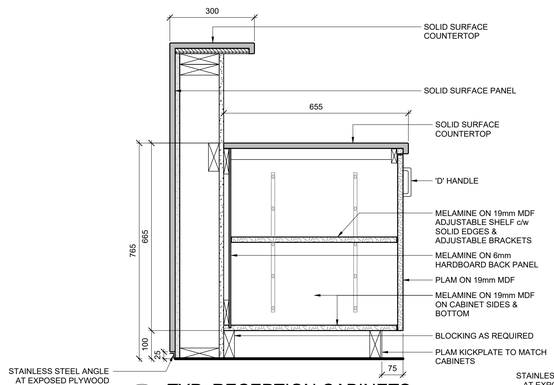
7 N-103 RECEPTION STORAGE - WEST
1 : 50



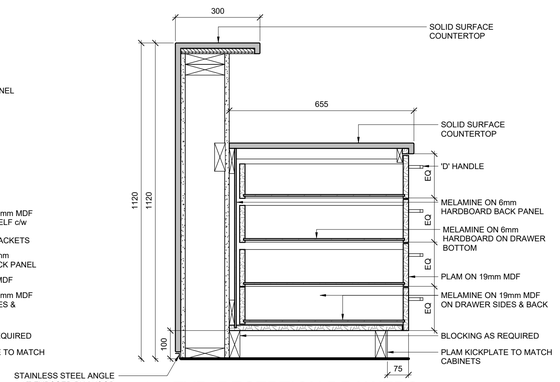
9 N-206 - BUILDING MAINT. - WEST
1 : 50

10 N-206 - BUILDING MAINT. - EAST
1 : 50

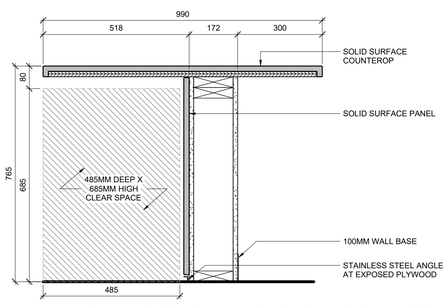
11 N-206 - BUILDING MAINT. - NORTH
1 : 50



12 TYP. RECEPTION CABINETS
1 : 10



13 TYP. RECEPTION DRAWERS
1 : 10



14 TYP. RECEPTION ACCESSIBLE COUNTER
1 : 10

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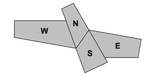
CONSULANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
KA

DRAWING DATE
11/03/21

SCALE
As indicated

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES
BUILDING

CLIENT
TESLIN TLINGIT
COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

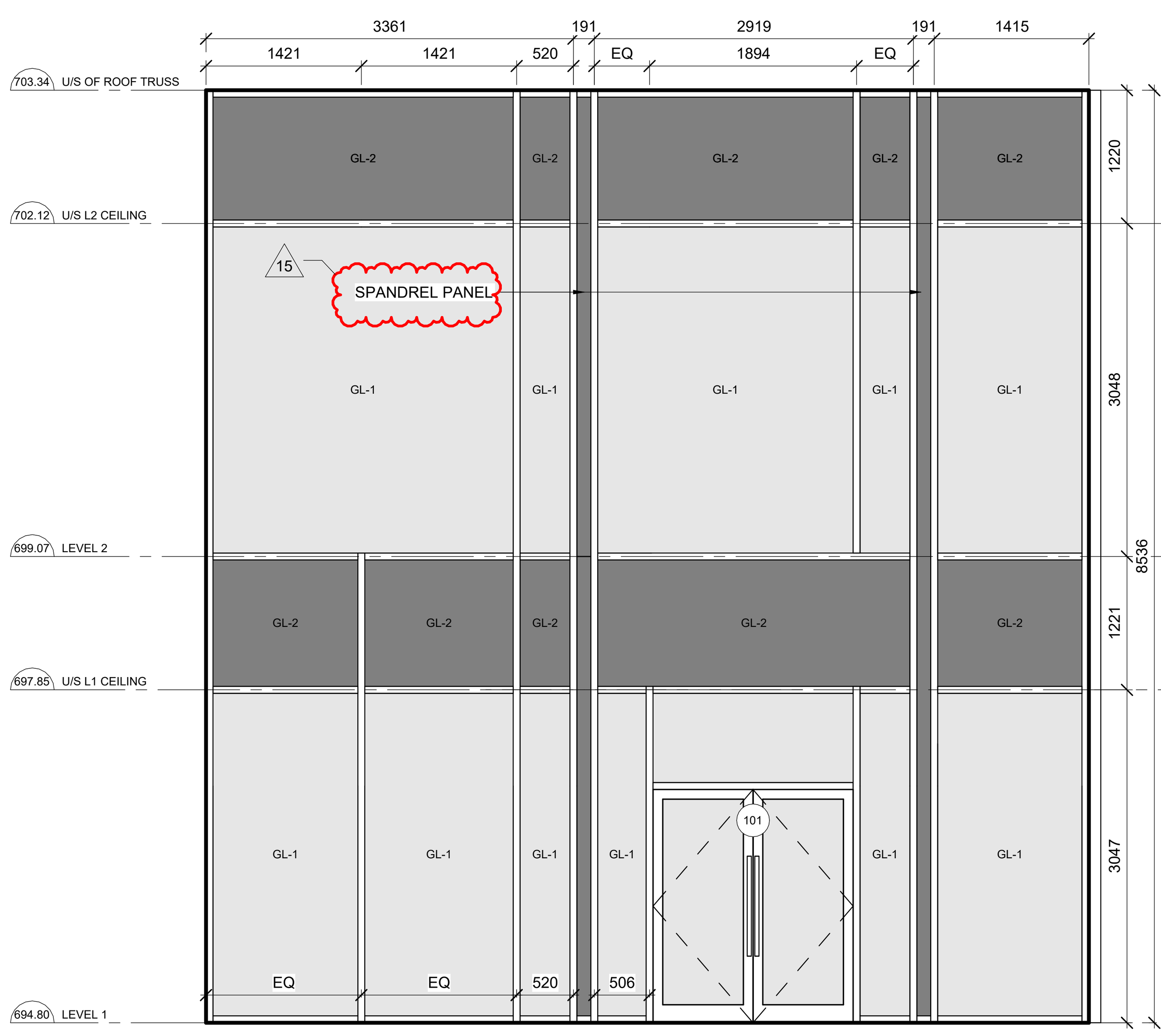
DRAWING
INTERIOR ELEVATIONS

REVISION NO.
15

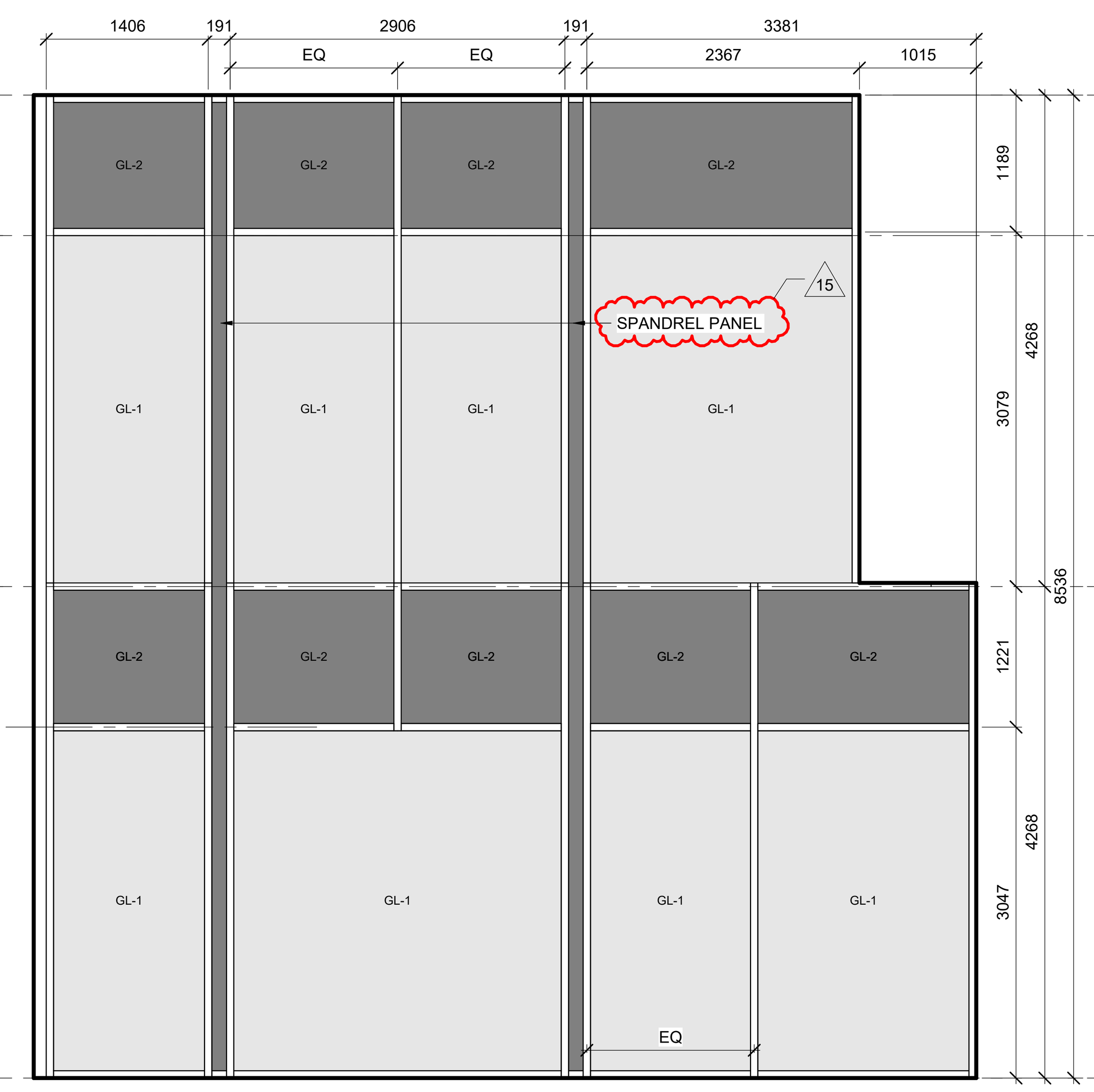
PROJECT NO. 5894

A703

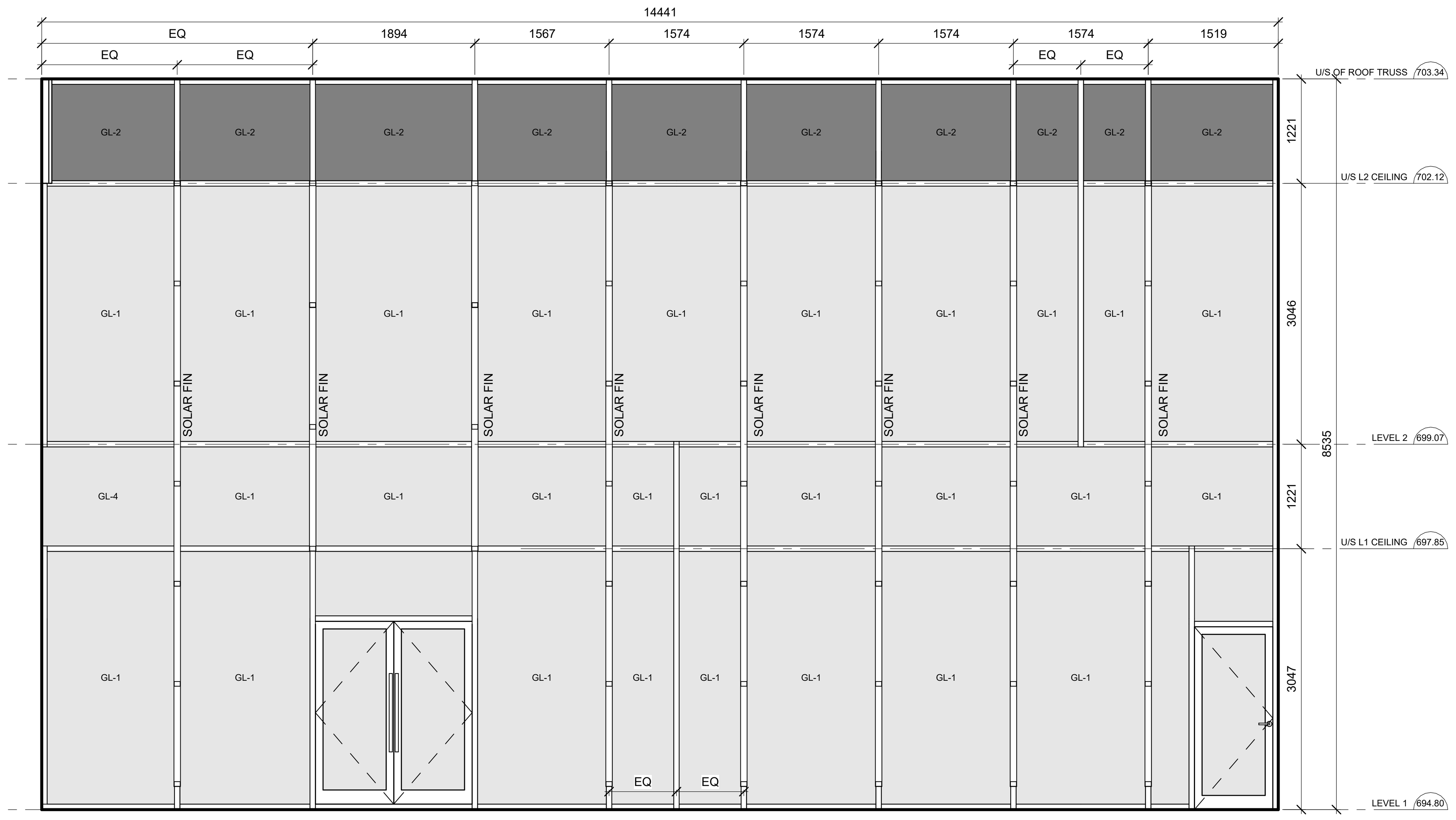
2025-01-24 4:30:00 PM



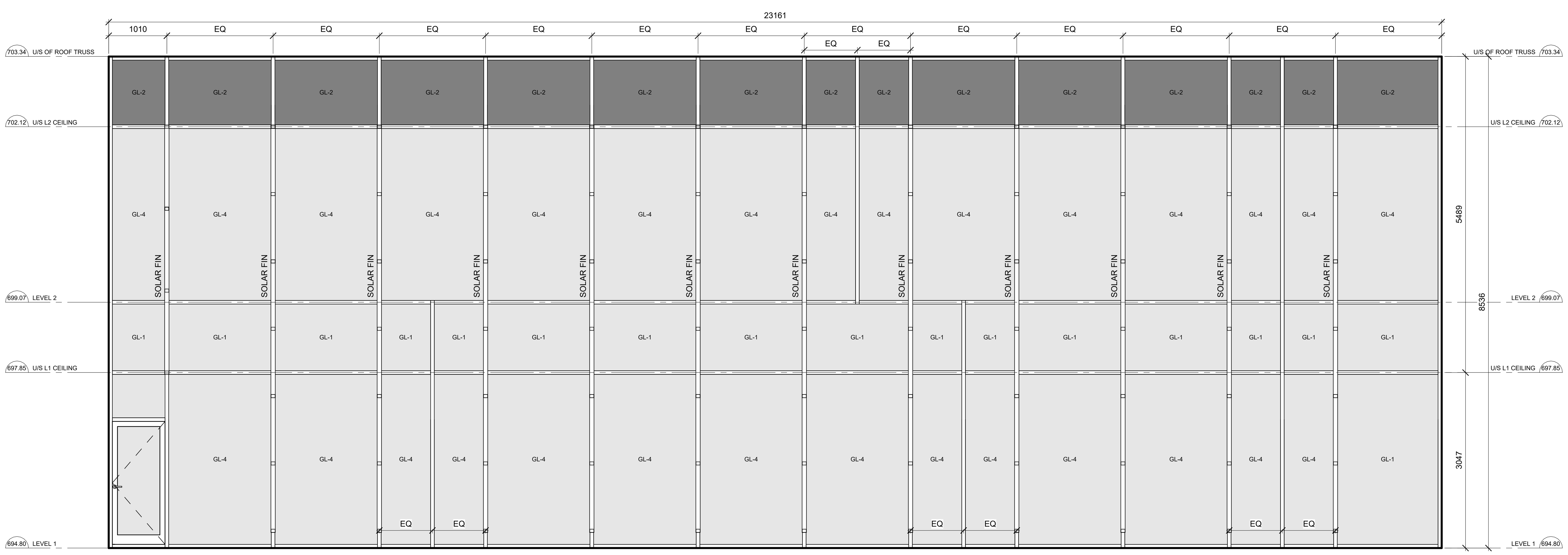
CW1	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	



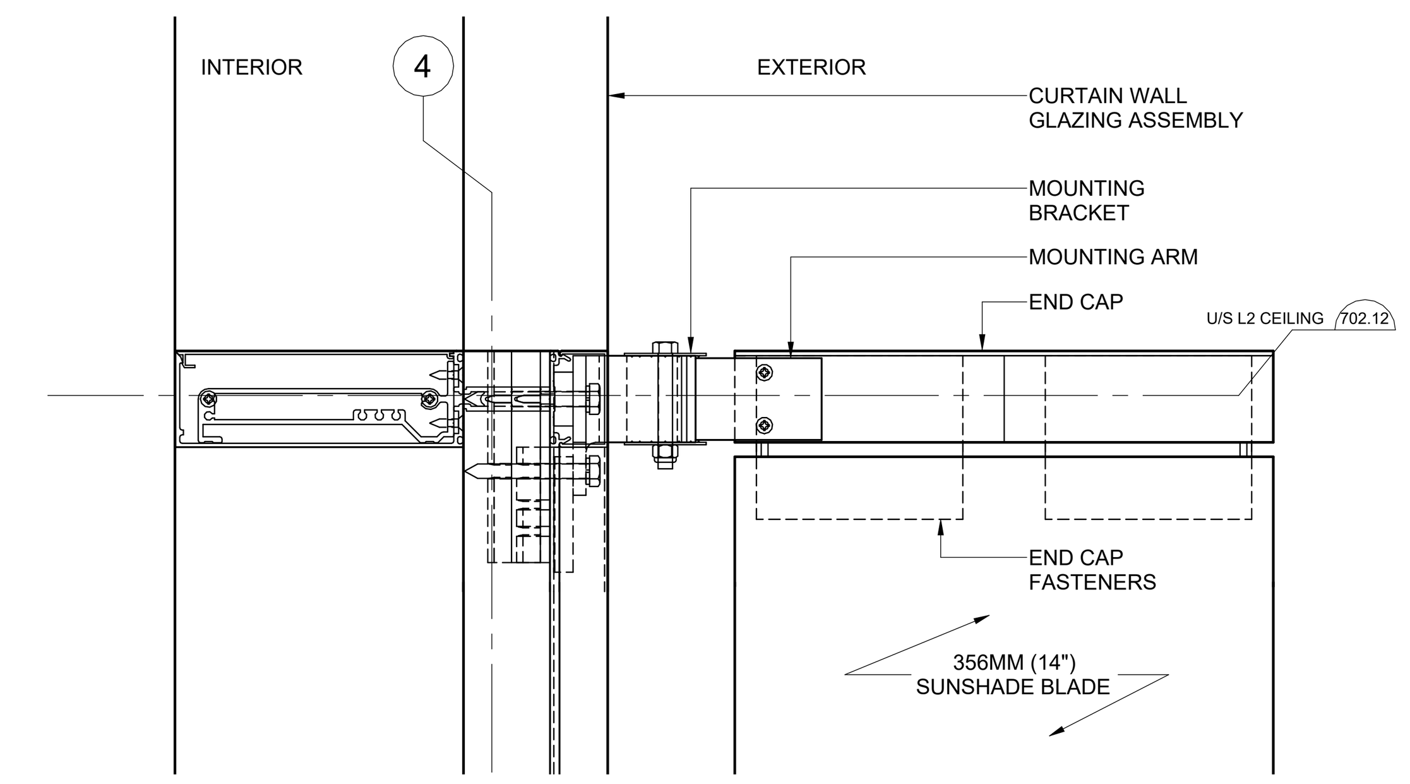
CW2	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	



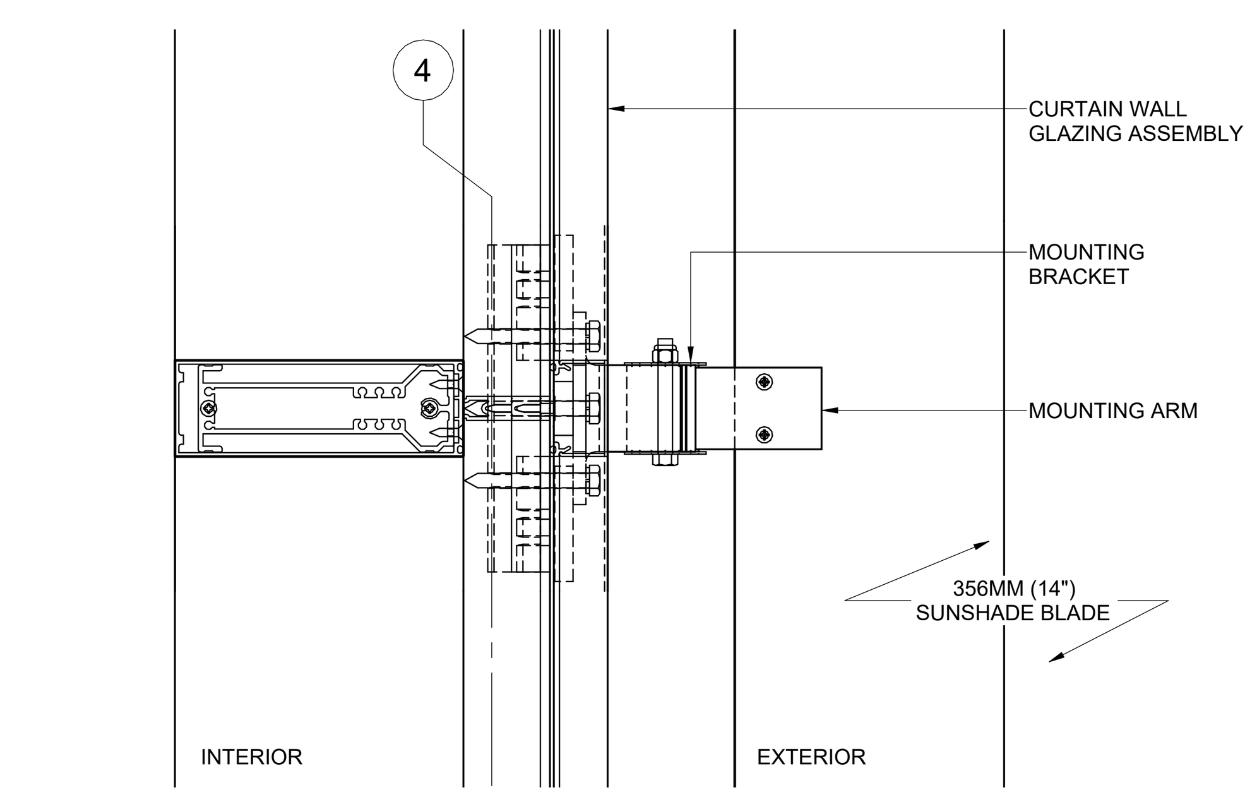
CW3	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	



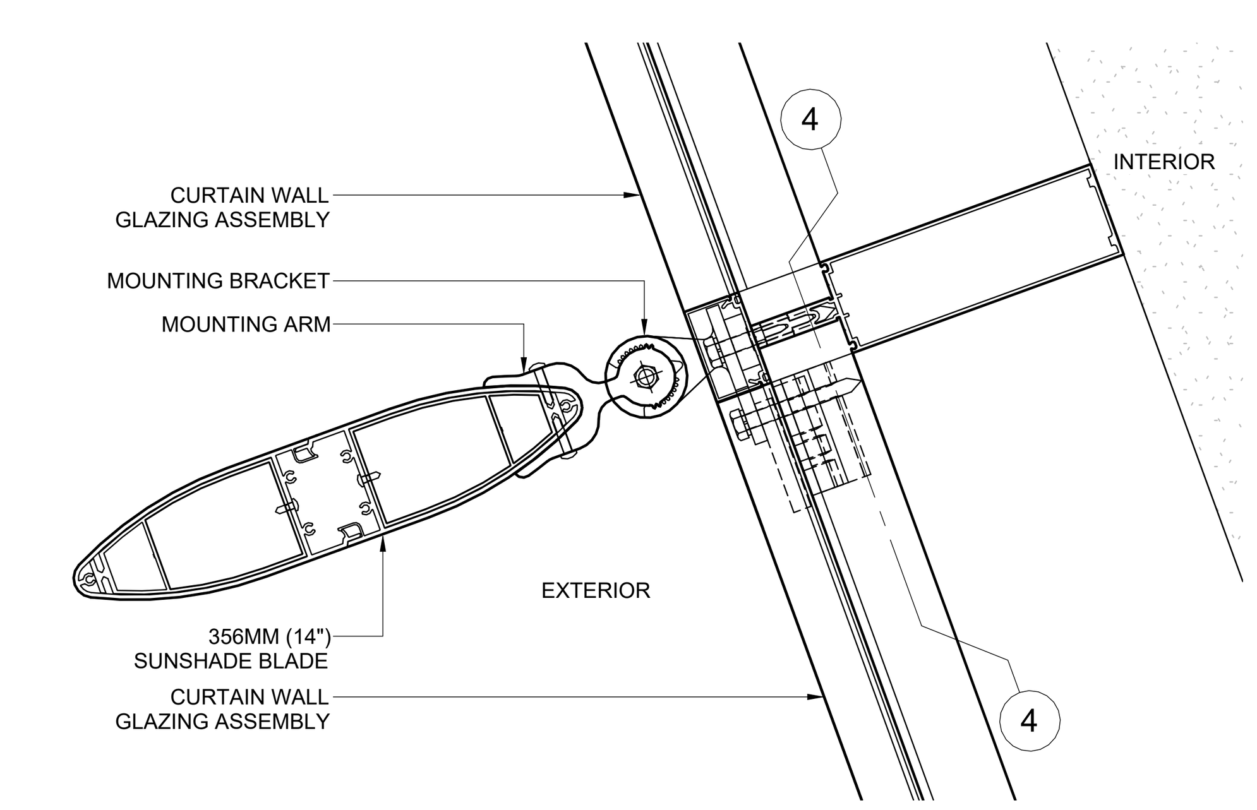
CW4	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	



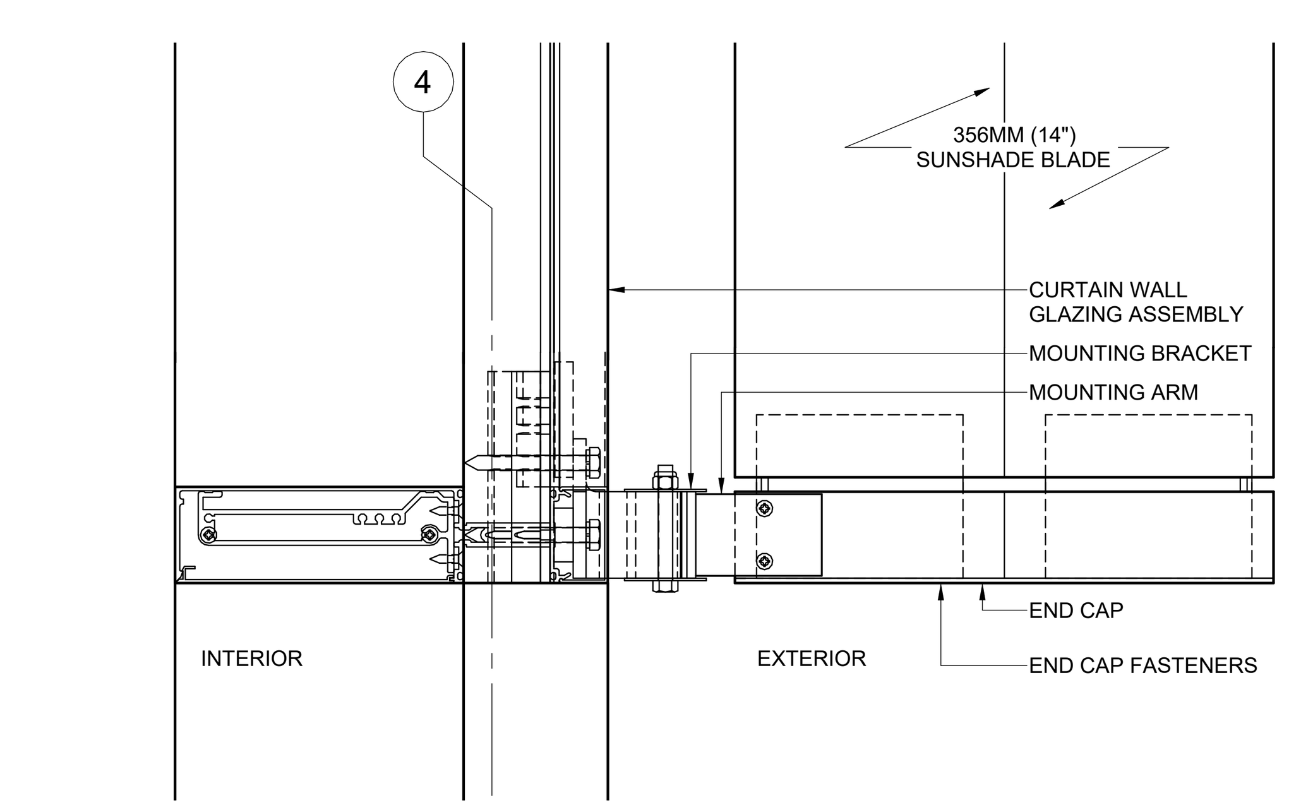
1 SOLAR FIN - HEAD CONNECTION DETAIL
1 : 5



2 SOLAR FIN - FIXED CONNECTION DETAIL
1 : 5



4 SOLAR FIN - PLAN DETAIL
1 : 5



3 SOLAR FIN - SILL CONNECTION DETAIL
1 : 5

THROUGH WALL FLASHINGS INSTALLATION PROCEDURE

1. ENSURE WEATHER RESISTANT BARRIER OVERLAPS TOP EDGE OF THROUGH WALL FLASHINGS BY A MIN. OF 100 mm. LAP VERTICAL SEAMS OF THROUGH WALL FLASHINGS AS PER MANUFACTURER'S INSTRUCTIONS.

GLAZING LEGEND WINDOWS

GL-1	TRIPLE GLAZED INSULATING UNIT, VISION
GL-2	SINGLE GLAZED, SPANDREL
GL-3	SINGLE GLAZED, TEMPERED AND LAMINATED
GL-4	SINGLE GLAZED, TEMPERED

15

GENERAL NOTES ON WINDOWS

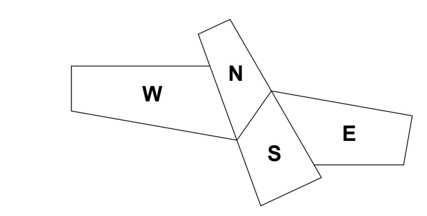
1. CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE PRIOR TO FABRICATION.
2. ALL EXTERIOR WINDOWS TO BE THERMALLY BROKEN.
3. ALL GLAZING THICKNESS TO BE PER NBCC CURRENT EDITION SPECIFICATIONS.

DNA David Nairne + Associates Ltd

kobayashi+zedda

CONSULTANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY: DNA & KZA

CHECKED BY: JR

DRAWN BY: JS, KA

DRAWING DATE: 2021.04.30

SCALE: As indicated

CONSULTANT

PROJECT NAME: COMMUNITY SERVICES BUILDING

CLIENT: TESLIN TLINGIT COUNCIL

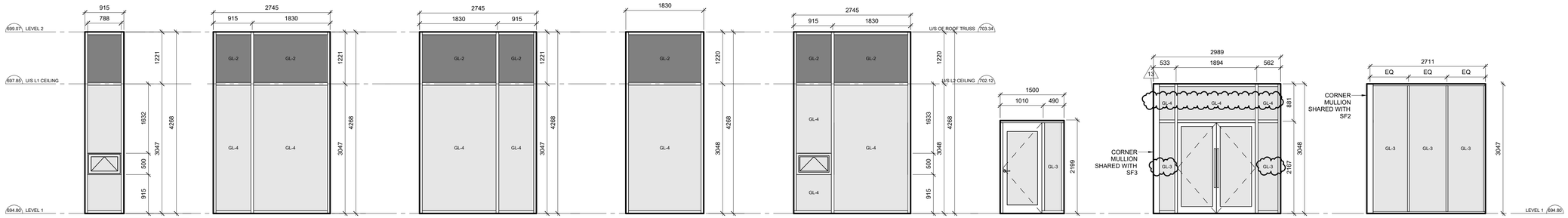
PROJECT ADDRESS: TESLIN, YUKON

DRAWING: GLAZING SCHEDULE

REVISION NO.: 15

PROJECT NO.: 5894

A903



CW5	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	

CW6	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	

CW7	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	

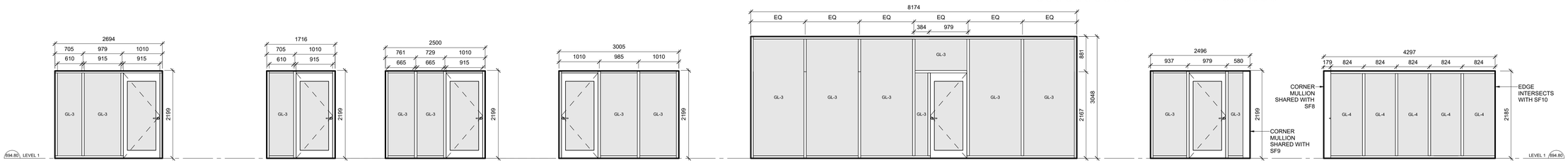
CW8	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	

CW9	EXTERIOR CURTAIN WALL
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ TRIPLE GLAZED	

SF1	EXTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF2	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM (TB)	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF3	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	



SF4	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF5	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

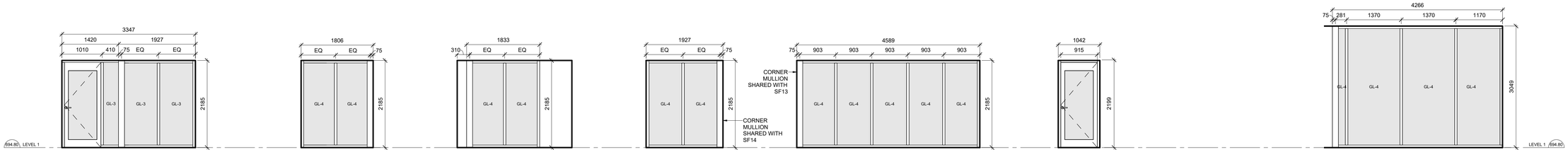
SF6	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF7	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF8	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF9	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF10	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	



SF11	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF12	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

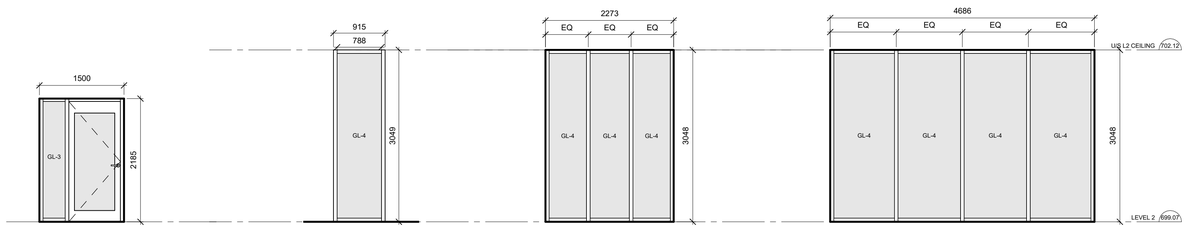
SF13	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF14	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF15	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF16	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF17	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

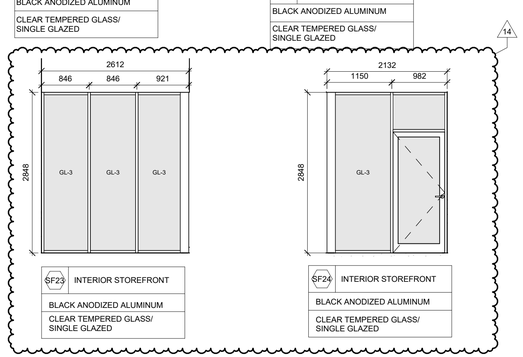


SF18	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR LAMINATED AND TEMPERED GLASS/ SINGLE GLAZED	

SF19	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF20	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

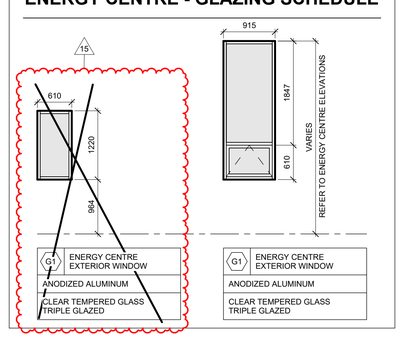
SF21	EXTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	



SF23	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

SF24	INTERIOR STOREFRONT
BLACK ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS/ SINGLE GLAZED	

ENERGY CENTRE - GLAZING SCHEDULE



G1	ENERGY CENTRE EXTERIOR WINDOW
ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS TRIPLE GLAZED	

G1	ENERGY CENTRE EXTERIOR WINDOW
ANODIZED ALUMINUM	
CLEAR TEMPERED GLASS TRIPLE GLAZED	

THROUGH WALL FLASHINGS INSTALLATION PROCEDURE

1. ENSURE WEATHER RESISTANT BARRIER OVERLAPS TOP EDGE OF THROUGH WALL FLASHINGS BY A MIN. OF 100 mm. LAP VERTICAL SEAMS OF THROUGH WALL FLASHINGS AS PER MANUFACTURER'S INSTRUCTIONS.

GLAZING LEGEND WINDOWS

15

GL-1	TRIPLE GLAZED INSULATING UNIT, VISION
GL-2	SINGLE GLAZED, SPANDREL
GL-3	SINGLE GLAZED, TEMPERED AND LAMINATED
GL-4	SINGLE GLAZED, TEMPERED

GENERAL NOTES ON WINDOWS

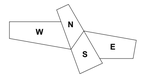
1. CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE PRIOR TO FABRICATION.
2. ALL EXTERIOR WINDOWS TO BE THERMALLY BROKEN.
3. ALL GLAZING THICKNESS TO BE PER NBCC CURRENT EDITION SPECIFICATIONS.

DNA
David Nairne - Associates Ltd

kobayashi+zedda

CONSULANTS IN JOINT VENTURE

KEY PLAN



NO.	DATE	DESCRIPTION
15	2025.01.24	ADDENDUM 05
14	2025.01.21	ADDENDUM 04
13	2024.12.17	ISSUED FOR TENDER

REVISIONS

DESIGN BY
DNA & KZA

CHECKED BY
JR

DRAWN BY
KA

DRAWING DATE
2021.04.30

SCALE
As indicated

CONSULTANT

PROJECT NAME
COMMUNITY SERVICES BUILDING

CLIENT
TESLIN TLINGIT COUNCIL

PROJECT ADDRESS
TESLIN, YUKON

DRAWING
GLAZING SCHEDULE

REVISION NO.
15

PROJECT NO. 5894

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SECTION 01 33 00
SUBMITTAL PROCEDURES

Part 1 General

1.1 SECTION INCLUDES

.1 Requirements for administrative and procedural requirements for submitting submittals for review and for information, coordination and interference drawings, and requests for interpretation.

1.2 RELATED REQUIREMENTS

.1 Section 01 25 00 Substitution Procedures, for substitution submittals.

.2 Section 01 31 00 Project Managing and Coordination, for submitting coordination drawings.

.3 Section 01 35 73 Delegated Design Procedures, for delegated design submittals.

.4 Section 01 78 00 Closeout Submittals.

.5 This section describes requirements applicable to Sections in Divisions 02 to 49.

1.3 DEFINITIONS

.1 Submittals for Review: Written and graphic information and physical samples that require Consultant's responsive action. Unless otherwise specified in individual sections, the following shall be considered Submittals for Review:

- .1 Product Data.
- .2 Shop Drawings.
- .3 Samples.
- .4 Delegated design services statements.

.2 Submittals for Information: Written and graphic information and physical samples that do not require Consultant's responsive action. Submittals may be rejected for not complying with requirements. Unless otherwise specified in individual sections, the following shall be considered Submittals for Information:

- .1 Delegated design services documentation including shop drawings, certificates, calculations, and supporting information.
- .2 Certificates.
- .3 Maintenance Data.
- .4 Test and Inspection Reports.
- .5 Closeout Submittals.
- .6 Sample warranties.

.3 Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ADMINISTRATION

.1 Provide submittals, other than samples, in electronic format.

.2 Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.3 Do not proceed with Work affected by submittal until review is complete.

.4 Present Shop Drawings, product data, samples and mock-ups using same method of measurement indicated on Drawings.

.5 Where items or information is not manufactured or produced in SI metric units, converted values within the metric measurement tolerances are acceptable.

.6 Submittals not stamped, signed by Contractor's authorized representative, dated and identified as to the specific project and specification section title and number, will be returned without being examined and shall be considered rejected.

.1 Include on each submittal a statement certifying that submittal has been reviewed, and checked, and reviewed for compliance with Contract Documents by the Contractor.

.2 Delegated-Design Services Certifications not digitally signed or signed and sealed, by the design professional, as specified, will be returned without being examined and shall be considered rejected.

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.

.8 Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on receipt of submittal. No extension of the Contract Schedule will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

.1 Initial Review: Allow 10 working days for initial review of each submittal, unless Consultant requests additional time. Allow additional time if coordination with subsequent submittals is required. Consultant will advise Contractor when a submittal being processed must be delayed for coordination. Contractor shall obtain Consultant's acceptance 30 days in advance for submittals requiring shorter review periods, and notify consultant with copy of revised Submittal Schedule.

.2 Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

.3 Resubmittal Review: Allow 5 working days for review of each resubmittal.

.9 Verify field measurements and affected adjacent Work is coordinated.

.10 Keep one reviewed copy of each submission at Project site.

.11 Consultant's computer-generated drawings are available for Contractor's use in preparing Shop Drawings. Obtain and pay for drawings directly from Consultant. Costs, not including shipping and handling, are as follows:

.1 Flat fee of $1,500.00.

.2 Use form of electronic file transfer agreement provided by Consultant, to submit request.

1.5 SUBMITTAL FORMAT

.1 Submittals without the following format and information will be rejected.

.2 Transmittal Form:

.1 Provide each submittal with a transmittal with Contractor's submittal cover sheet.

.2 Use one submittal for one topic or part of the Work.

.3 Submittal Identification:

.1 Project name and address.

.2 Sequentially number: i.e. #22. Resubmissions: add suffix to number (i.e. #22R1, #22R2).

.3 Specification Section number and name.

.4 Date and revision dates.

.5 Contractor, Subcontractor or Supplier.

.6 Drawing and Detail number.

.7 Manufacturer, Fabricator, Product and Material.

.8 Detailer when details not prepared by Sub-contractor.

.4 Contractor's Certification:

.1 Review, date and sign, Shop Drawings, product data and samples.

.2 Review submittals for adequate installation interface with work of other trades, including requirements for lighting, ductwork, and sprinklers.

.3 Review represents that:

.1 Necessary requirements have been determined and verified, or will be.

.2 Submittal has been checked and coordinated with Contract Documents.

.3 Product or system conditions that may be detrimental to successful performance have been indicated.

.4 Field measurements, field construction criteria, catalogue numbers and similar data, have been determined and verified.

.5 Shop Drawings conform with Contract Document requirements.

.5 Review Stamp Space: Provide a minimum blank space of 4 x 6 inches (102 x 150 mm) for Consultant's stamp.

1.6 ELECTRONIC SUBMISSIONS

.1 Submit electronic submittals complying with the following:

.1 Post electronic submittals as pdf electronic files directly to Project Web site specifically established for Project.

.2 Provide in Portable Document Format (*.pdf) with selectable text and graphics that are readable. Combine documents into one bookmarked document not exceeding 20 mb, with hierarchical bookmarks to form a table of contents and provide hyperlinks to the subject topic.

.3 Break down information into documents of "like" or related materials or systems.

.4 Include final ratings, parameters, specifications, options, and similar information. When Consultant returns the submittal “Reviewed As Noted” with mark-ups or comments make corrections prior to submitting final documents.

.5 Highlight specific ratings, parameters, specifications, options, and similar information, when multiple alternatives are indicated.

.6 Do not include instructions or information not related to ordering and purchasing of products or equipment.

.2 Consultant’s Digital Data Files: At Contractor's written request, electronic digital data files of the Contract Drawings will be provided by Consultant for Contractor's use in preparing submittals.

.1 One set of digital data drawing files for use in preparing Shop Drawings and Project record drawings will be included.

.2 Consultant makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

.3 Digital Drawing Software Program: AutoCAD or Revit digital drawing software program and operating system.

.4 Execute a data licensing agreement in the form of Agreement acceptable to Consultant.

.5 Conditions of Release of Data Files: As specified in Section 01 19 10 Electronic Model Database.

1.7 PRODUCT DATA

.1 Collect information into a single submittal for each element of construction and type of product or equipment.

.1 If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as product data.

.2 Mark each copy of each submittal to show which products and options are applicable.

.3 Delete information not applicable to project.

.4 Supplement standard information to provide details applicable to project.

.5 Include the following information, as applicable:

.1 Manufacturer's catalogue cuts.

.2 Manufacturer's product specifications.

.3 Standard colour charts.

.4 Statement of compliance with specified referenced standards.

.5 Testing by recognized testing agency.

.6 Application of testing agency labels and seals.

.7 Notation of coordination requirements.

.8 Availability and delivery time information.

.6 For equipment, include the following in addition to the above, as applicable:

.1 Wiring diagrams showing factory-installed wiring.

.2 Printed performance curves.

.3 Operational range diagrams.

.4 Clearances required to other construction, if not indicated on accompanying Shop Drawings.

.7 Submit product data before or concurrent with Samples.

1.8 SHOP DRAWINGS

.1 Comply with requirements for Shop Drawings as specified in the Contract conditions, and as follows:

.1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.2 Delete information not applicable to project.

.3 Supplement standard information to provide details applicable to project.

.4 Adjustments made on Shop Drawings by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with fabrication or the Work.

.5 Make changes in Shop Drawings as the Consultant may require, consistent with Contract Documents. When resubmitting, notify the Consultant in writing of any revisions other than those requested.

.6 Submit one copy for requirements requested in specification Sections and as the Consultant may reasonably request, where Shop Drawings will not be prepared due to standardized manufacture of product.

1.9 SAMPLES

.1 Submit for review samples in duplicate, unless otherwise indicated, as requested in respective specification Sections. Label samples as to origin and intended use in the Work.

.2 Deliver samples prepaid to Consultant's business address, unless otherwise indicated.

.3 Notify the Consultant in writing, at the time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.

.6 Make changes in samples which the Consultant may require, consistent with Contract Documents and deliver adjusted samples to designated testing laboratory.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.10 DESIGN DATA

.1 Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions, other performance and design criteria, and a

summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations.

1.11 REPORTS

Reports: As requested in respective specification Sections, including but not necessarily limited to:

.1 Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

.2 Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

.3 Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

.4 Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

.5 Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

.2 Workers' Compensation Board Status Reports: Submit immediately after award of Contract, submit Workers' Compensation Board status.

1.12 CERTIFICATES

.1 Certificates: As requested in respective specification Sections, including but not necessarily limited to:

.1 Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

.2 Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

.3 Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

.4 Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

1.13 COORDINATION AND INTERFERENCE DRAWINGS

.1 ~~Prepare coordination and interference drawings~~.

.2 Integrate and coordinate structural systems and architectural components with mechanical and electrical systems. Include at a minimum fire suppression, plumbing, HVAC, integrated automation, electrical, communications, electronic safety and security with the structural and architectural work.

.3 Coordinate placement of equipment to ensure that all systems, components and service runs will be properly accommodated within spaces provided. In areas where equipment and services are exposed, organize and layout services in an organized and orderly manner. Run services parallel or at right angles to each other and the building structural and architectural components.

.4 Consultant will reconfigure layout, in conjunction with the Contractor, to achieve best sight lines and aesthetics.

END OF SECTION

SECTION 01 10 00
SUMMARY OF WORK

Part 1 General

1.1 SECTION INCLUDES

.1 Description of the Work.

.2 Contract method.

.3 Work by Owner.

.4 Owner-furnished products.

.5 Division of the Work.

.6 Contract documents for construction purposes.

.7 Work sequence and scheduling.

.8 Contractor use of premises and site.

.9 Coordination with occupants.

.10 Work restrictions.

1.2 RELATED REQUIREMENTS

.1 Section 01 19 00 Specifications and Documents.

.2 This Section describes requirements applicable to Sections in Divisions 02 to 49.

1.3 DESCRIPTION OF THE WORK

.1 Work of this Contract comprises general construction and interior finishing of a new two-storey wood-framed structure, wood columns, concrete foundations, concrete slab on grade, outdoor parking, fire pit feature area, and hard and soft landscaping.

.2 Web-Based Project Software: A Project Web site administered by Owner will be used for purposes of managing communication and documents during the construction stage.

.3 Roofing testing by independent agency engaged by the Contractor.

.4 Concrete testing will be completed by an independent agency engaged by the Contractor.

.5 Airtightness testing by independent agency engaged by the Owner.

.6 Inspection and approval of prepared subgrade as well as compaction testing during granular fill placement as required and described in the Geotechnical Report will be completed by an independent agency engaged by the Owner.

1.4 CONTRACT METHOD

.1 Construct Work under single, Stipulated Sum Contract CCDC 2 – 2020.

.2 Contract Documents were prepared by the Consultant for the Owner. Any use which a third party makes of the Contract Documents, or any reliance on or decisions to be made based on them, are the responsibility of such third parties. The Consultant accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions based on the Contract Documents.

1.5 WORK BY OWNER

.1 General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

.2 Concurrent Work: Where indicated, Owner will perform construction operations at Project site. Those operations will be conducted simultaneously with Work under this Contract.

1.6 OWNER-FURNISHED PRODUCTS

.1 Owner will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products.

.2 Owner Responsibilities:

.1 Order and pay for Owner-supplied Products not already in Owner's possession.

.2 Arrange and pay for delivery of Owner-supplied Products F.O.B. the site, within time frames required by Contractor's progress schedule. If delivered sooner than required by Contractor's latest progress schedule submitted to Owner, arrange and pay for delivery to a temporary storage location and subsequent delivery to the site.

.3 Advise Contractor in writing of the value of Owner-supplied Products for Contractor's insurance purposes.

.4 Arrange and pay for delivery to Contractor of reviewed Shop Drawings, Product data, samples, and manufacturer's installation instructions.

.5 Inspect deliveries jointly with Contractor.

.6 Submit claims for transportation damage.

.7 Arrange for replacement of damaged, defective or missing items identified at time of delivery.

.8 Arrange for manufacturer's field services.

.9 Arrange for delivery of manufacturer's warranties to Contractor for inclusion in operation and maintenance manual.

.3 Contractor Responsibilities:

.1 Designate in progress schedule, time frames for delivery of Owner-supplied Products to the site and for receipt of related submittals. If the site is not ready to receive delivery of Owner-supplied Products within the time frame indicated in the latest progress schedule submitted to Owner, arrange and pay for delivery to a temporary storage location and subsequent delivery to the site.

.2 Review all required submittals and notify Consultant of any observed discrepancies or anticipated problems.

.3 Ensure that course of construction insurance is adequate to cover Owner-supplied Products.

.4 Receive and unload Owner-supplied Products at the site.

.5 Inspect deliveries jointly with Owner. Record and notify Owner and Consultant of shortages and visibly damaged or defective items.

.6 Handle Owner-supplied Products at site, including uncrating and storage.

Dispose of waste materials and debris.

.7 Take appropriate precautions to protect Owner-supplied Products from loss or damage.

.8 Repair or replace items damaged on site.

.9 Assemble, install, connect, adjust, and finish Owner-supplied Products as specified.

.10 Arrange for inspections required by authorities having jurisdiction as specified.

.11 Arrange for or perform testing as specified.

.12 Workmanship warranty for installation.

.4 Owner-Furnished Products: As indicated

1.7 DIVISION OF WORK

.1 Division of the Work among Subcontractors, suppliers or vendors is solely the Contractor's responsibility. Consultant and Owner assume no responsibility to act as an arbiter to establish subcontract limits between Sections or Divisions of the Work.

1.8 CONTRACT DOCUMENTS FOR CONTRUCTION PURPOSES

.1 Owner will supply Contractor with a complete set of Contract Documents in electronic form before commencement of the Work. Contractor may print hard copies for construction purposes as required.

1.9 WORK SEQUENCE AND SCHEDULING

.1 Coordinate Progress Schedule with Owner use during construction.

.2 Maintain fire access and control of fire protection equipment.

1.10 CONTRACTOR USE OF PREMISES AND SITE

.1 Except as otherwise specified, Contractor has unrestricted use of Project site for construction operations during construction period, unless otherwise indicated on Drawings, or limited by documentation provided by Owner through Consultant.

.2 Construction Operations: Confine construction equipment, temporary work, storage of Products, waste products and debris, and all other construction operations to limits required by laws, ordinances, permits, and Contract Documents, whichever is most restrictive.

.1 Do not unreasonably encumber Project site.

.2 Do not disturb portions of the Project site beyond areas in which the Work is indicated.

1.11 COORDINATION WITH OCCUPANTS

.1 Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Ready-for-Takeover, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total or part of the Work.

1.12 WORK RESTRICTIONS

.1 Work Restrictions, General: Comply with restrictions on construction operations.

.1 Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

.2 On-Site Work Hours: Limit work hours to Monday through Sunday, as directed by the Owner, and as follows:

.1 Normal Operating Hours: Local time, Monday through Sunday 07:30 AM to 07:00 PM, ~~and Saturday 10:00 AM to 06:00 PM.~~

.2 When work is required beyond normal operating hours arrange in advance and obtain approval in writing from Owner, via Consultant.

.3 Noise-Producing Operations: Comply Noise Control as specified in Section 01 57 00 Temporary Controls.

END OF SECTION

SECTION 06 41 00
ARCHITECTURAL WOOD CASEWORK

Part 1 General

1.1 SECTION INCLUDES

.1 Custom plastic laminate clad base cabinets, wall cabinets, open cabinet construction.

.2 Hardware and accessories.

1.2 RELATED REQUIREMENTS

.1 Division 06 Section Miscellaneous Rough Carpentry, for furring, blocking and support framing.

.2 Division 12 Section Solid Surfacing Countertops, for countertops attached to the work of this Section.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

.2 Coordinate sizes and locations of service outlets.

1.4 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.1 Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials conform to requirements.

.2 Shop Drawings:

.1 Indicate materials, component profiles, plans, sections and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.

.2 Show locations and sizes of cutouts and holes for plumbing items, electrical switches and outlets, and other items installed in cabinets.

.3 Samples:

.1 Cabinet Finishes: 8 x 10-inch (200 by 250 mm) size Samples.

.1 Provide one Sample applied to cabinet door core material with specified edge material applied to one edge.

.2 Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.5 SUBMITTALS FOR INFORMATION

.1 Qualifications Data: For fabricator and installer.

1.6 QUALITY ASSURANCE

.1 Fabricator and Installer Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.7 MOCK-UPS

.1 Mock-ups: Build mock-ups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

.1 Build mock-up of each type of base cabinet and upper cabinet, including countertops, full size.

.2 Approved mock-ups may become part of the completed Work.

1.8 DELIVERY, STORAGE, AND PROTECTION

.1 Do not deliver casework until painting and similar finish operations that might damage casework have been completed in installation areas.

.2 Store casework in installation areas or in areas where environmental conditions comply with requirements specified in Site Conditions Article.

.3 Protect finished surfaces during handling and installation with protective covering of polyethylene film or other suitable material.

1.9 SITE CONDITIONS

.1 Environmental Limitations: Do not deliver or install casework until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during remainder of construction period.

.2 Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

.1 Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.10 WARRANTY

.1 Fabricator's Special Warranty: Fabricator agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.

.1 Failures include, but are not limited to, the following:

.1 Delamination of components or other failures of glue bond.

.2 Failure of operating hardware.

.2 Warranty Periods:

.1 Delamination: Five years.

.2 Hardware: Three years.

.3 Date warranties commencing at date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Quality Standard: Unless otherwise indicated, complying with AWI/AWMAC/WI's North American Architectural Woodwork Standards (NAAWS) for grades of cabinets indicated for construction, finishes, installation, and other requirements.

.1 Grade: Custom.

.2 Conform to applicable code for combustibility requirements.

.3 Seismic Requirements: Design cabinets capable of withstanding the effects of earthquake (seismic) motions determined according to applicable code. Provide anchorage on casework exceeding 1200 mm (48 inches) in height or, where they are likely to be a hazard from overturning.

2.2 MATERIALS, GENERAL

.1 Wood Moisture Content: 5 to 10 percent.

.2 Composite Wood Products, including Plywood, and Medium-Density Fiberboard: Use products manufactured with ultra-low emitting formaldehyde resins or with no urea formaldehyde resins, and complying with the following:

.1 Third-party certification acceptable to the California Air Resources Board (CARB) indicating compliance with its regulation "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products."

.2 Contain less than 0.05 ppm when tested in accordance with EN-717-1:2004; ISO 16000-3:2010; ISO 16000-6: 2011; ISO 16000-9:2006; ISO 16000-11:2006; or CEN/TS 16516: 2013.

.3 Adhesives, and Sealants: Comply with SCAQMD Rule 1168, effective July 1, 2005, for VOC limits.

2.3 SHEET MATERIALS

.1 Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

.1 Medium Density Fibreboard (MDF): ANSI A208.2; composed of 100 percent recycled and recovered wood fibres, medium density, of grade to suit application; sanded faces, formaldehyde free binder.

.1 Product for Dry Locations: Medite II by Roseburg Forest Products.

.2 Product for Washrooms, Kitchens and High Moisture Locations: Medex by Roseburg Forest Products.

.2 Softwood Plywood: CSA-O121, APA Rated Sheathing; Exposure Durability 1, sanded grade, formaldehyde-free binder.

.3 Hardwood Plywood: 7-ply construction, and as recommended by fabricator for application indicated.

2.4 LAMINATE MATERIALS

.1 Plastic Laminate: High-pressure decorative laminate complying with ISO 4586-3.

.1 Source Limitations: Obtain from single source from single manufacturer.

.2 Edgebanding: ABS, rolled, 3 mm (1/8-inch) thick, colour to match and finish to match adjoining laminate; 90-degree full wrap.

.2 Thermally Fused Laminate (TFL) Panels: MDF or plywood core, as indicated, finished with thermally fused, melamine-impregnated decorative paper, and complying with requirements of ISO 4586, matte finish.

.1 Edgebanding: Rigid PVC extrusions, through colour with satin finish, 1.0 mm thick radiused profile, colour to match adjoining thermally fused laminate panels.

.3 Colour/ Pattern/ Finishes as follows:

.1 Upper and Lower Cabinets: Formica 7747-58, Pencil Wood, Matte Finish

2.5 PLASTIC LAMINATE-FACED CASEWORK

.1 Cabinet Construction: Flush overlay frameless with gables, adjustable shelving; dowel and bolt assembled; drawer fronts mechanically-fastened to subfronts.

.1 Drawer Construction: Fabricate with exposed front fastened to subfront with mounting screws from interior of body.

.1 Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners

.2 Exposed Panels and Open Shelving: High pressure decorative laminate, not less than 19 mm (3/4-inch) thickness; on softwood plywood or MDF core at Contractors option.

.1 Open Shelving Edges: Built-up.

.3 Semi-Exposed Surfaces:

.1 Surfaces, other than Drawer Bodies: Thermoset decorative panels.

.2 Shelves: High pressure decorative laminate; on softwood plywood or MDF core at Contractors option.

.3 Drawer Sides, Backs and Subfronts: Hardwood plywood.

.4 Drawer Bottoms: Hardwood plywood.

.4 Wall Bases for Kick-Spaces: Plywood, with rubber base as specified in Division 09 Section Resilient Base.

2.6 AUXILIARY MATERIALS

.1 Lumber for Furring, and Blocking: Softwood lumber, as specified in Division 06 Section Miscellaneous Rough Carpentry.

.1 Plywood: CSA 0121, for shimming and blocking, formaldehyde free binder.

.2 Hanging Strips: Lumber as specified for furring, and blocking, or use softwood plywood.

.3 Adhesives for Wood Products : Type recommended by NAAAWS Quality Standard for application indicated, water-resistant, urea formaldehyde free. Use waterproof adhesives at high moisture locations.

.4 Fasteners: Of size and type to suit application; corrosion resistant.

.1 Concealed Joint Fasteners: Threaded steel.

.5 Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at exterior walls and at floors.

.6 Concealed Grommets: Moulded plastic, diameter to suit required cut-out dimensions.

.7 Isolating Tape: Aluminum foil, insulating and heat dissipating butyl tape, designed for isolating wood from masonry or cementitious materials.

2.7 HARDWARE AND ACCESORIES

.1 General: Manufacturer's products specified or indicated represent standard of quality required. Provide indicated products or comparable products having the same functional and appearance characteristics.

.2 Frameless Concealed Hinges (European Type): Full metal, concealed, spring loaded, soft-closing, 110 and 170-degree hinges, built-in horizontal and vertical adjustment, one pair per door

.1 Include seismic restraint hinges as manufactured by Richelieu or Hettich.

.3 Pulls: Stainless steel, D profile, 102 mm (4 inches), one per door or drawer except provide two per drawer when over 600 mm (24 inches) wide.

.4 Adjustable Shelf Standards: Unless otherwise indicated, provide one of the following, as selected by Consultant:

.1 Type 1: Flush mounted pilaster type slotted steel standards and supports.

.1 Products: Knape & Vogt.

.1 Standards: 186/187 series or 255 standards,

.2 Shelf Support Clips: 239, or 256R ZC with rubber cushion.

.3 Shelf Brackets: Heavy duty double and triple hooked steel brackets, 186/187 series.

.2 Type 2: Flush mounted pilaster type extruded aluminum channels and aluminum shelf brackets.

.1 Products: Rakks.

.1 Standards: C-Standards.

.2 Shelf Brackets: T-Style TB2-12.

.5 Drawer Slides: Electro-plated zinc screw mounted, full extension type with captive profile to eliminate side movement, positive in and out stops and ball bearing nylon rollers, load capacity to suit drawer size with minimum static load rating of 40 kg (88 lb), in depth, lengths to suit application, side-mounted type.

.6 Drawer and Door Bumpers: Permanently fixed polyurethane type, clear colour.

.7 Drawer and Door Locks: Unless otherwise indicated, comply with the following:

.1 BHMA A156.11, Grade 1, mortise type, five-pin tumbler, brass with chrome-plated finish, keyed to building's keying system.

.2 Provide a minimum of two keys per lock and six master keys.

.3 Provide locks where indicated.

.8 Coat Hooks at Cubbies: As selected by Consultant.

.9 Screw Caps: Colour to match adjacent surface.

.10 Finish for Exposed Cabinet Hardware: Unless otherwise indicated, satin chromium plated; BHMA 626 for brass or bronze base; BHMA 652 for steel base. For items not available in required finish, provide finish selected by Consultant from those available. If more than one finish is indicated, match finish of hardware items on each set of casework as indicated.

2.8 COUNTERTOPS

.1 Refer to Division 12 Section.

2.9 CASEWORK FABRICATION

.1 Fabricate casework to dimensions, profiles, and details indicated.

.2 Complete fabrication, including assembly, to maximum extent possible before shipment to Project site.

.1 Disassemble components only as necessary for shipment and installation.

.2 Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.

.3 Shop prepare and identify components for matching during site assembly.

.4 When necessary to cut and fit on site, provide materials with ample allowance for site cutting and scribing.

.5 Apply laminate finishes in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.

.6 Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs. Seal cut edges.

.7 Conceal means of fastening various parts and members together.

.8 Provide mullions inside cabinets over 813 mm (32 inches) wide, for attachment of shelves.

.9 Kick Spaces: Unless otherwise indicated, 76 mm (3 inches) deep x 100 mm (4 inches) high; 152 mm (6 inches) deep x 203 mm (8 inches) for accessible areas.

.10 Finish Hardware:

.1 Shop install hardware. Remove hardware for finish application and reinstall after finishing.

.2 Fit hardware accurately and install in compliance with the hardware manufacturer's printed instructions.

.3 Accurately fit doors and drawers with uniform clearance at all edges.

.4 Doors and drawers shall operate freely, but not loosely, without sticking or binding, with all hardware adjusted and functioning properly.

.5 Mount pulls as indicated.

Part 3 Execution

3.1 EXAMINATION

.1 Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of framing and reinforcements, and other conditions affecting performance of the Work.

.2 Verify location and sizes of services rough-ins.

.3 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Before installation, condition casework to humidity conditions in installation areas for not less than 72 hours.

SECTION 07 42 33
SOLID PHENOLIC WALL AND SOFFIT PANELS

Part 1 General

1.1 SECTION INCLUDES

.1 Manufactured, solid phenolic exterior wall and soffit panels.

1.2 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.1 Include construction details, flashings including through-wall flashings, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

.2 Include panel profile characteristics and dimensions, and assembled panel structural properties.

.2 Shop Drawings:

.1 Indicate dimensions, panel profile and layout, spans, joints, construction details, corners, methods of anchorage, interface with adjoining construction, method and sequence of installation. Include thermal evaluation of panel assembly including insulation and thermal clips.

.2 Accessories: Include details of the flashing, trim, and anchorage, at a scale of not less than 1-1/2 inches per 12 inches (38 mm per 300 mm).

.3 Include elevation drawings of each plane showing panel layouts.

.4 Specifically diagram and label air and water defense and evidence of continuity. Indicate through diagrams how water is managed, collected, and evacuated to the exterior.

.5 Identify sealants by product name.

.6 Indicate products or means of soffit ventilation. Indicate calculations demonstrating soffit spaces are adequately vented.

.7 Energy Performance: Include thermal model test report demonstrating compliance with energy model assumption requirements.

.3 Samples:

.1 For each type of phenolic panel, 12 inches (300 mm) square, showing each panel colour, finish and texture.

.2 Provide samples of support system and fasteners.

.3 Include 12 inch (300 mm) long samples of trim, closures and flashings, as applicable.

.1 Delegated Design Submittal: Delegated design professional engineer's Letter of Assurance for commitment.

1.3 SUBMITTALS FOR INFORMATION

.1 Delegated Design Submittal: For phenolic wall and soffit panel assemblies, indicating compliance with performance requirements and design criteria, including shop drawings, analysis data, and supporting information, signed and sealed by the qualified professional engineer responsible for their preparation.

.2 Qualification Statements: For Installer, and delegated design professional engineer.

.3 Product Test Reports: From a qualified testing agency indicating panels and assemblies comply with specified requirements, including fire performance, based on comprehensive testing of current products.

1.4 CLOSEOUT SUBMITTALS

.1 Delegated Design Submittals: Delegated design professional engineer's Letter of Assurance for compliance.

.1 Include confirmation of compliance of effective U-value of installed wall system.

.2 Maintenance Data: For phenolic panels, to include in maintenance manuals. Include instructions for replacing panels.

1.5 QUALITY ASSURANCE

~~.1 Firm and individuals with a minimum of 5 consecutive years experience in the fabrication and installation of specified products on projects similar in material, design, complexity and extent to this Project, and whose work has resulted in applications with a record of successful in-service performance.~~

~~.1 Only a firm authorized, certified, licensed, or otherwise qualified by the panel manufacturer as having the necessary experience, staff, and training to fabricate and install the panels, shall install the panel system.~~

~~.2 Installer Qualifications: Fabricator of products.~~

.1 Manufacturer: company specializing in producing composite wall panels with 5 years experience with sufficient capacity to produce and deliver required units without causing delay in work.

.2 Installer: person specializing in composite wall panel installations approved by manufacturer.

.3 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with Consultant and contractor's representative.

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

1.6 MOCK-UPS

.1 Mock-Up: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

.1 Build a mockup of typical wall and soffit panel assembly, including corner, supports, attachments, and accessories, at Project site location acceptable to Consultant.

.2 Mock-Up Size: 3 panels wide by one storey height or by full width of soffit.

.3 Build mock-ups in presence of panel manufacturer's factory authorized representative.

.4 Testing Agency: Engage a qualified independent testing agency to perform mockup tests and inspections.

.1 Water Spray Test: Conduct water-spray test of mock-up of wall panel assembly, testing for water penetration according to AAMA 501.2.

.5 Approved mock-up may remain part of the Work.

1.7 DELIVERY, STORAGE, AND PROTECTION

.1 Deliver components, panels, and other manufactured items so as not to be damaged or deformed. Package panels for protection during transportation and handling.

.2 Unload, store, and erect panels in a manner to prevent bending, warping, twisting, and surface damage.

.3 Stack panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store panels to ensure dryness, with positive slope for drainage of water. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

.4 Retain strippable protective covering on panels for period of installation.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed, according to manufacturer's written instructions and warranty requirements.

1.9 SITE CONDITIONS

.1 Field Measurements: Verify locations of structural members and opening dimensions by field measurements before panel fabrication and indicate measurements on Shop Drawings.

1.10 WARRANTY

.1 Manufacturer’s Warranty: Manufacturer agrees to to repair or replace components of solid phenolic panel systems that fail in materials or workmanship within ten-year warranty period.

.1 Failures include, but are not limited to, the following

.1 Structural failure.

.2 Failure of system to meet performance requirements.

.3 Deterioration of materials beyond normal weathering.

.4 Delamination.

.5 Colour loss.

.2 Date warranty commencing at date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Delegated Design: Engage a qualified professional engineer as defined in Division 01 Section Quality Assurance and Quality Control, to design phenolic wall and soffit panel assemblies to comply with structural performance requirements, including system supports and attachment to building structure.

.2 Panel Assemblies: Design panel assemblies, including their connections to withstand, within acceptable deflection limitations indicated, their own weight, loads imposed by window washing equipment, and maximum design loads and combination of loads due to snow, rain, ice, seismic loads, pressure and suction of wind.

.1 Wind Loads: As indicated.

.2 Wall Impact Loads in Areas Accessible to the Public: Design components to withstand a concentrated load of 50 lbf (0.22 kN) applied horizontally on an

area of 1 sq. ft. (0.093 sq. m).

.3 Maximum Allowable Deflection of Panel: For wind loads, no greater than 1/200 of the span.

.4 Permanent Deflection of Framing Members: Under 1.5 times design pressure, permanent deflection of framing members shall not exceed L/100 of span length and components shall not experience failure or gross permanent distortion.

.5 Connections to structural frame shall not impose eccentric loading, or induce twisting or warping.

.6 Design clips, fasteners, and clip spacing of types indicated, with capability to sustain, without failure, a load equal to 300 percent of the design negative uplift pressure, without failure.

.1 In no case shall fasteners or connections conflict with or require revision of the finish profiles of the panel assemblies or the supporting work.

.3 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with the applicable code.

.4 System Assembly Movement: Accommodate movement within system without damage to system, or deterioration of seals, movement between system and perimeter components, when subject to dynamic loading and release of loads; and deflection of structural support framing.

.5 Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:

.1 Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

.6 Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at 300 Pa (6.24 lbf/sq. ft.) test-pressure difference.

.7 Thermal Performance:

.1 Energy Model Assumption for Wall Assembly: Not less than R40 effective.

.2 Spacings of Thermal Clips: Not less than 16 x 32 inches (400 x 800 mm) in field of wall and soffit assemblies.

.8 Thermal Movements:

.1 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 100 deg C over a 12-hour period without causing detrimental effect to system components. Facing panels to remain flat under these conditions.

.2 Surface Temperature: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

.1 Temperature Change (Range): 67 deg C, ambient; 100 deg C, material surfaces.

.9 Design panel systems to accommodate specified erection tolerances of structure.

.10 Not Permitted: Noise or vibration created by thermal and structural movement and wind; loosening or weakening of fasteners, attachments, and other components; seal failure.

.11 Assembly Design:

.1 Pressure Equalized Rain Screen: Provide panel system with pressure equalized air space behind panels, self-draining assembly, dry reveal joints with weeps and vents; panels with continuous structural perimeter extrusions;

panels secured to free-floating attachment system and miscellaneous metal subframing designed to be attached to building's structural framing.

.2 Continuous Insulation Minimum Requirements: Comply with Division 07 Section Thermal Insulation.

.12 Soffit Ventilation: Unless otherwise indicated, design and provide acceptable means of ventilation to soffit panels.

2.2 PANEL MANUFACTURERS

.1 Panels: Basis of Design Subject to compliance with requirements provide one of the following:

.1 MEG by Abet Laminati.

.2 Meteon by Trespa North America (Basis of Design)

.3 Vivix Architectural Panels by Formica Corporation.

~~2.3 FABRICATORS~~

~~.1 Use one of the following:~~

~~.1 Keith Panel Systems Co. Ltd.~~

~~.2 Flynn Canada Ltd.~~

2.4 PANEL MATERIALS

.1 Panels: Solid phenolic, engineered, water-resistant, rigid homogenous flat panel manufactured utilizing thermosetting resins reinforced with cellulose fibers, produced under high temperature and pressure, exterior use quality, with integral colour both faces.

.2 Panel Thickness: To comply with the performance requirements, but not less than 3/8-inch (10 mm).

.3 Panel Core: Fire retardant black core.

.4 Physical Properties:

.1 Modulus of Elasticity: 1,300,000 psi (9000 MPa) minimum, ISO 178.

.2 Tensile Strength: 10,100 psi (70 MPa) minimum, ISO 527-2.

.3 Flexural Strength: 14,500 (120 MPa) minimum, ISO 178.

.4 Thermal Conductivity: 2.1 Btu/in/sq. ft./h/deg F, EN 12524.

.5 Fire Performance:

.1 Flame Spread: Class A, ASTM E84.

.2 Smoke Development: Less than 450, ASTM E84.

.3 Ignition Temperature: Greater than 650 deg F (343 deg C) above ambient, ASTM D1929.

.6 Finish: Matte.

.7 Colour:

.1 Wood: NW07, Montreux Sunglow

.2 White: A03, White

.3 Red: A12.3.7, Carmine Red (Tlingit Red)

.4 Black: A90, Black

.5 Blue: A23.0.4, Mineral Blue (Tlingit Blue)

.8 Mounting Configuration: Prepare panels for exposed colour matched rivet or screw installation.

2.5 ATTACHMENT ASSEMBLY

.1 Attachment Assembly: Aluminum extrusions consisting of panel retention members including perimeter extrusions with integral weather stripping, clips, angles or panel hangers, and anchor channels, as applicable.

.1 Aluminum Extrusions: ASTM B221M, alloy and temper and shape as recommended by manufacturer for type of use and finish indicated, to meet or exceed performance criteria specified.

.2 Provide internal drainage system that allows individual panels to be installed and removed without disturbing adjacent panels.

.3 Fasteners: Stainless steel, exterior grade, of quantity and type recommended by panel manufacturer, compatible with material being fastened.

.1 Pop rivet attachment of clips and accessories will not be accepted.

2.6 MISCELLANEOUS MATERIALS

.1 Miscellaneous Metal Subframing: Provide sheet metal girts, sub-girts and similar members as required for support and alignment of panel system, designed for anchoring to building's structural metal stud framing or other supporting substrates.

.1 Sheet Metal: ASTM C 645, cold-formed, metallic-coated steel sheet, ASTM A792/A792M, Class AZM150 aluminum-zinc-alloy coating designation.

.2 Subgirts: Manufacturer's standard C, or Z-shaped sections, not less than 1.2 mm (0.047-inch) nominal thickness.

.3 Hat-Shaped, Rigid Furring Channels: Of nominal thickness required to meet performance requirements; depth as indicated.

.4 Fasteners: Of type, size, holding power, and other properties required to fasten framing assembly components to substrates and other components. Use stainless steel where in contact with pressure-treated wood.

.1 Material: Provide one of the following:

.1 Stainless steel type 316.

.2 Metal with coating protection of not less than 3000 hours salt spray resistance in accordance with ASTM B117.

.1 Basis of Design Coating Product: NZF 3000 by Leland Industries.

.5 Thermal Clips to Connect Miscellaneous Metal Subframing to Building's Structural Supports: Metallic or non metallic clip system designed to minimize thermal bridging between warm and cold sides of wall or soffit construction. Include manufacturer recommended fasteners, anchors, and bracing as applicable for applications indicated.

.2 Basis of Design Product: Cascadia Clip Fiberglass Thermal Spacer manufactured by Cascadia Windows, or provide the following:

.1 EJOT Crossfix by EJOT Fastening Systems L.P.

2.7 ACCESSORIES

.1 Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items.

.1 Trim: Manufacturer's standard aluminum extrusions.

.2 Flashing: Provide flashing formed from aluminum sheets as specified in Division 07 Section Sheet Metal Flashing and Trim, and as required to seal against weather and to provide finished appearance. Include at bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, reveals, fillers and similar locations.

.3 Dissimilar Metal Protection: Provide dissimilar metal protection, resilient butyl rubber gaskets as recommended by the panel manufacturer for application indicated.

.4 Sealants: As recommended by panel system manufacturer for sealing components and to comply with performance criteria.

.5 Thermal Clip Bedding Sealant: Neutral cure silicone sealant.

.1 Product: DOWSIL 758 Weather Barrier Sealant by Dow Chemical Canada ULC.

2.8 FABRICATION

.1 Manufacture panels under controlled environment in fabricator's plant to comply with approved shop drawings and calculations and not to exceed specified tolerances. Field fabrication of panels is not permitted.

.1 Comply with dimensions, profiles and details indicated.

.2 Pre-fabricate and assemble materials to the greatest extent possible at the factory, to minimize field erection and assembly.

.3 Do not overdrive fasteners.

.4 Provide gaskets or separator strips at metal-to-metal contact points in a manner that will minimize noise from movements within panel system.

.2 Sheet Metal Accessories: Fabricate flashing and trim to comply with in Division 07 Section Sheet Metal Flashing and Trim, that apply to design, dimensions, metal, and other characteristics of item indicated.

.3 Fabrication Tolerances: In accordance with manufacturer’s specifications.

2.9 FINISHES

.1 Protect painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

.2 Exposed Flashing and Trim: Same finish system as specified in Division 07 Section Sheet Metal Flashing and Trim for metal flashings; colour to match adjacent panel, unless otherwise indicated.

.3 Exposed Fasteners: Factory-applied finish system or plastic caps to match panels, as selected by Consultant.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, panel supports, and other conditions affecting performance of the Work.

.1 Examine support framing to verify that panel support members and anchorage have been installed within alignment tolerances required by panel manufacturer.

.2 Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by panel manufacturer.

.3 Verify that air- or water-resistive barriers have been installed over sheathing or

backing substrate to prevent air infiltration or water penetration.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Miscellaneous Metal Subframing: Install miscellaneous support members and anchorage according to ASTM C754 and panel manufacturer's written recommendations.

.1 Install thermal clips with stainless steel fasteners to building's structure, as indicated, and in accordance with clip manufacturer's written instructions.

.1 Bed clips in silicone sealant to provide air and water barrier continuity at fastener penetrations.

.2 Verify materials placed around clip supports are sealed and acceptable to their installers, and comply with performance requirements.

.2 Make provisions installation of sealants and sealant backing materials at adjoining construction and panel transitions.

.3 Lay out panels on an adjacent surface to establish placement of individual panels for balance of colour and pattern variations.

.1 Notify Consultant seven days in advance of dates and times when layout will be done.

.2 Consultant may relocate specific panels with other panels of same type and will determine final location of each panel within indicated patterns.

.3 Identify each panel with a temporary number marked on face of panel that corresponds with an identical number marked on a layout drawing, and obtain Consultant's approval before starting panel installation.

3.3 INSTALLATION

.1 General: Install panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Shop Drawings. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

.1 Install closures and trim as panel work proceeds.

.2 Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing.

.3 Install panels aligned as indicated, and flush between adjacent panels to within tolerances indicated; with continuous air spaces and weeps behind panels free of dirt and sealants that could impede the circulation of air and drainage of moisture.

.4 Refinish and seal cut panels according to manufacturer's written instructions.

.5 Install exposed fasteners to pattern indicated on Shop Drawings.

.2 Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by panel manufacturer.

.3 Attachment Assembly: Install attachment system required to support wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.

.1 Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.

.4 Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion.

.1 Install components required for a complete panel assembly including closures, trim, sealants, and similar items.

.2 Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

.5 Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and Division 07 Section Sheet Metal Flashing and Trim. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

.1 Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates.

.1 Provide S-lock seams, unless otherwise indicated.

.2 Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

.6 Seal joints at junctions of panels at adjoining construction, unless otherwise indicated, with sealant, in accordance with Division 07 Section Joint Sealants.

.7 Provide weep openings to drain water and condensation within wall assembly to the exterior.

3.4 ERECTION TOLERANCES

.1 Installation Tolerances: Shim and align panels faces flush with adjoining panel construction, and not less than the following

.1 1/8 inch in 96 inches (3 mm in 2438 mm), noncumulative, on level, plumb, and location lines as indicated and within 1/16-inch (1.5 mm) offset of adjoining faces and of alignment of matching profiles.

3.5 FIELD QUALITY CONTROL

.1 Testing Agency: Engage a qualified independent testing agency to perform field tests and inspections.

.1 Water-Spray Test: After completing the first 10 sq. m (107 sq. ft) of installation of wall panel assembly, test assembly for water penetration according to AAMA 501.2, in an area directed by Consultant.

.2 Contractor’s Responsibilty: Provide access to the work and preparation necessary for the testing agency to conduct testing.

.2 Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed solid phenolic wall panel assembly installation, and to furnish daily reports.

.1 Notify Consultant 48 hours in advance of date and time of inspection.

.2 Inspect completed installation and provide written report that installation complies with manufacturer's written instructions.

.3 Solid phenolic wall panel assemblies will be considered defective if they do not pass tests and inspections.

3.6 REPAIRS

.1 After metal framing installation, prepare and repair damaged galvanized coatings on installed metal framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

3.7 CLEANING AND PROTECTION

.1 Remove temporary protective coverings and strippable films, if any, as panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of panel installation, clean finished surfaces as recommended by panel manufacturer. Maintain in a clean condition during construction.

.2 After panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

.3 Replace panels that have been damaged or have deteriorated beyond successful repair.

.4 Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Consultant.

END OF SECTION

SECTION 07 46 19
STEEL SOFFIT SIDING

Part 1 General

1.1 SECTION INCLUDES

.1 Preformed steel siding for soffits.

1.2 RELATED REQUIREMENTS

.1 Division 06 Section Rough Carpentry, for supporting structural framing.

.2 Division 07 Section Sheet Metal Flashing and Trim, for other flashing trim.

.3 Division 07 Section Joint Sealants.

1.3 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.2 Shop Drawings: Indicate soffit plank layout, details at changes in direction, dimensions of individual components and profiles, finishes, fixtures penetrating soffits, and adjoining construction.

.1 Indicate attachment methods, trim and closure pieces.

.2 Indicate products or means of soffit ventilation. Indicate calculations demonstrating soffit spaces are adequately vented.

.3 Samples: 12-inch (300-mm) long-by-actual-width Sample of siding illustrating finish and colour. Include Samples of trim and accessories.

1.4 SUBMITTALS FOR INFORMATION

.1 Product Test Reports: For each siding, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

.1 Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by the manufacturer.

1.7 DELIVERY, STORAGE, AND PROTECTION

.1 Deliver and store packaged materials in original containers with protection and labels intact until time of use.

.2 Store materials on elevated platforms, under cover, and in a dry location.

1.8 WARRANTY

.1 Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within 15-year warranty period.

.1 Failures include, but are not limited to, the following:

.1 Structural failures including cracking, fading, and deforming.

.2 Deterioration of metals, metal finishes, and other materials beyond normal weathering.

.2 Fading is defined as loss of colour, after cleaning with product recommended by manufacturer, of more than 5 Hunter colour-difference units as measured according to ASTM D2244.

.3 Commence warranty period from date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Structural Performance: Design and size siding assembly components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of siding as calculated in accordance with applicable code.

.1 Wind Loads and Other Loads: As indicated.

.2 Maximum Siding Deflection Limits: For wind loads, no greater than L/180, and as required to prevent cracking or damage to siding.

.2 Accessibility to Soffit Spaces: Determine quantity and location of hinged access panels according locations and types of equipment and servicing requirements indicated in services documents of the Contract documents.

.3 Not Permitted: Noise or vibration created by thermal and structural movement and wind; loosening or weakening of fasteners, attachments, and other components; seal failure.

2.2 STEEL SOFFIT SIDING

.1 Steel Siding: Roll-formed product, plain single board with interlocking edges, 4-inch (102 mm) exposed face, in continuous lengths without end joints, made from galvanized steel complying with ASTM A653/A653M, G90 (Z275) coating; perforated boards for soffits.

.1 Products: Lux 6” V-Groove by Lux Architectural Products.

.1 Vented Boards: Lux 6” Solid V-Groove Soffit.

.2 Thickness: 0.0236 inches (0.559 mm (24 gauge)).

.3 Finish: Manufacturer’s standard high-performance organic finish.

.1 Colours: Fawn

2.3 SOFFIT SIDING SUPPORTS

.1 Metal Supports: Provide continuous metal furring as indicated, and in accordance with siding manufacturer's recommendations to comply with performance requirements.

.1 Design support components to transfer loads from siding to building's structural framing, and without detriment to performance of assembly or adjoining materials.

.2 Furring Sheet Metal: ASTM C645, cold-formed metallic-coated steel sheet, ASTM A792/A792M, Class AZM150 aluminum-zinc-alloy coating designation.

.1 Hat-Shaped, Rigid Furring Channels: Of nominal thickness required to meet performance requirements; depth as indicated, designed to receive siding clips. Prepunch channels with 1/4-inch diameter holes at 4-inch spacing for channels direct-mounted on sheathing.

.3 Fasteners: Stainless steel type 316, of size, holding capacity, and other properties required to fasten support components to substrates and other components.

2.4 ACCESSORIES

.1 Siding Accessories: Provide edge trim, corner trim, penetration trim, flashing, and other items as required to complete installation.

.1 Provide exposed accessories matching colour and texture of adjacent siding unless otherwise indicated, as recommended by siding manufacturer for applications indicated.

.2 Siding Clips: Manufacturer's standard 316 Stainless steel Quick-Screen Clips designed to provide concealed attachment of siding.

.3 Siding Fasteners: Stainless steel 300 series, of size and strength to securely and rigidly retain the work.

.4 Isolating Tape: Manufacturer's standard.

.5 Field Touch-up Paint: As recommended by metal siding manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of aluminum siding and soffit and related accessories.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF SIDING SUPPORTS

.1 Install furring system to anchor and transfer loads of metal siding to building's structural framing, according to ASTM C754, and panel manufacturer's written instructions.

3.3 INSTALLATION OF SIDING

.1 Comply with manufacturer's written installation instructions applicable to products and applications indicated, unless more stringent requirements apply.

.1 Conceal fasten metal siding to siding supports; aligned, level, and plumb.

.2 Install joint sealants as specified in Division 07 Section Joint Sealants, and to produce a weathertight installation.

.2 Where siding contacts dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying isolating tape or installing nonconductive spacers, as recommended by manufacturer in writing for this purpose.

.1 Install isolating tape between metal surfaces at other locations when required by panel manufacturer’s installation instructions, or when recommended by manufacturer in writing.

.3 Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

.1 Install components required for a complete metal siding system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by siding manufacturer; or, if not indicated, provide types recommended by siding manufacturer.

3.4 CLEANING

.1 Remove temporary protective coverings and strippable films, if any, as metal siding is installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal siding installation, clean finished surfaces as recommended by metal siding manufacturer. Maintain in a clean condition during construction.

.2 Replace metal siding that has been damaged or has deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 52 16
MODIFIED BITUMINOUS MEMBRANE ROOFING

Part 1 General

1.1 SECTION INCLUDES

.1 Modified bituminous membrane conventional roofing, insulation, base and cap flashings, on wood roof decks.

.2 Associated cover boards, and air and vapour retarders.

1.2 RELATED REQUIREMENTS

.1 Division 06 Section Rough Carpentry, for roof carpentry.

.2 Division 06 Sections for wood decking substrates to receive roofing membranes.

.3 Division 07 Section Sheet Metal Flashing and Trim, for weather protection for base flashings.

.4 Division 22 Section Plumbing Specialties for drains.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Coordination:

.1 Coordinate the work with the installation of associated metal flashings, as the work of this section proceeds.

.2 Pre-installation Meetings:

.1 Convene two weeks before starting work of this Section.

.2 Require attendance of Owner, Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories, and roof-mounted equipment.

.3 Review methods and procedures related to roofing installation, including manufacturer's written instructions.

.4 Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

.5 Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.

.6 Review structural loading limitations of roof deck during and after roofing.

.7 Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.

.8 Review governing regulations and requirements for insurance and certificates if applicable.

.9 Review temporary protection requirements for roofing during and after installation.

.10 Review roof observation and repair procedures after roofing installation.

.11 Review warranty provisions.

1.4 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.2 Shop Drawings: Include plans, sections, details, and attachments to other work, including the following:

- .1 Layout of membrane seams, direction of laps.
- .2 Layout, slopes, and thickness of flat and tapered insulation.
- .3 Base flashings and membrane termination details.
- .4 Flashing details at penetrations.
- .5 Tie-ins to drains
- .6 Locations of cut-offs.
- .7 Tapered insulation, including slopes.
- .8 Insulation crickets, saddles, and tapered edge strips, including slopes.
- .9 Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- .10 Tie-in with adjoining air barrier.

.3 Samples: For the following:

- .1 Roof membrane and flashings, of colour required.
- .2 Walkway pads or rolls, of colour required.

1.5 SUBMITTALS FOR INFORMATION

.1 Qualification Statements: For qualified Installer, and testing and inspection agency.

.2 Installation Data: Manufacturer's special installation requirements, including special precautions required for seaming the membrane.

.3 Manufacturer's Certificates:

- .1 Performance Requirement Certificate: Signed by roof membrane manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article, including compatibility of flashings at tie-ins with adjoining roofing, and other termination conditions.
  - .1 Submit evidence of compliance with performance requirements.
- .2 Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

.4 Product Test Reports: Comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.

.5 Wind Uplift Report: Provide report prepared, signed and sealed by a professional engineer, licensed in the Province where the Project is located, indicating compliance with performance requirements for wind uplift. Indicate wind uplift pressures, how pressures were determined, how assembly designs address design pressures, analysis data, and calculations.

.6 Field quality control reports.

1.6 CLOSEOUT SUBMITTALS

.1 Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience, and trained and approved by the manufacturer, and that is eligible to receive manufacturer's special warranty..

.2 Testing Agency for Field Quality Control Testing and Inspections: Approved by RCABC.

1.8 MOCK-UPS

.1 Erect mock-up of each assembly for review of construction, coordination of work of several sections, observation of operation and assessing field applied finishes.

.2 Provide 10 x 10 ft (3 x 3 m) mock-up illustrating stages of roof membrane system and associated components and accessories, including insulation, roof drain, cut-offs, and base and counter flashings specified in Division 07 Section Sheet Metal Flashing and Trim.

.3 Locate where directed by Consultant.

.4 Approved mock-up may remain as part of the Work.

1.9 DELIVERY, STORAGE, AND HANDLING

.1 Deliver products in manufacturer's original containers, dry, undamaged, seals and labels intact.

.2 Store products in weather protected environment, clear of ground and moisture.

.3 Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

.4 Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

.5 Stand roll materials on end.

1.10 ENVIRONMENTAL REQUIREMENTS

.1 Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

.2 Do not apply roofing membrane to damp, wet or frozen deck surfaces or in conditions of frost.

.3 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.11 WARRANTY

.1 Manufacturer and Installer Warranty: Roofing manufacturer, roofing installer and landscaping installer jointly agree to repair or replace components of roofing system that fail in materials or workmanship within 10-year warranty period.

.1 Warranty Type: non-prorated

.2 Include for removal and replacement of defective membrane.

.3 Membrane warranty shall not to be limited by other components that are only available or manufactured by the membrane manufacturer.

.4 Letters modifying standard warranty not permitted.

.5 Sealants and Adhesives: Include in warranty, and provided by respective manufacturers.

.2 Date warranty commencing at date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Quality Standard: Conform to the “Minimum Standards” of the RCABC Roofing Practices Manual applicable to RCABC’s10-year guarantee, unless otherwise specified; the RCABC guarantee is not required.

.2 General Performance: Installed roofing system and flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.

.3 Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

.4 Roofing System Uplift Requirements:

.1 Design roofing system to comply with the requirements for wind uplift in accordance with requirements of applicable code, and tested by a qualified testing agency to resist wind uplift pressures at corners, perimeters, and field of roof, for each roof area, in accordance with CSA A123.21.

2.2 MATERIALS - GENERAL

.1 Low Emitting Materials:

.1 Use foamed plastic insulations free of HCFCs, CFCs and CFC compounds complying with the Environmental Management Act Ozone Depleting Substances and Other Halocarbons Regulations.

2.3 MANUFACTURERS - MEMBRANE MATERIALS

.1 Basis of Design: Subject to conformance to requirements provide roofing system materials as manufactured by Soprema, Inc.

2.4 MEMBRANE MATERIALS

.1 Modified Bituminous Sheets: ASTM D6163 and ASTM D6164, containing asphalt and polymer modifiers of styrene butadiene styrene (SBS).

.1 Base Sheet Membrane: Sopraply 520 Base, 2.5 mm thick, reinforced.

.1 Application: Torch on.

.2 Top Surface: Smooth.

.2 Base Sheet Flashing Sopraply Stick Duo.

.1 Application: Torch on; self-adhesive with silicone release sheet at wood copings.

.2 Top Surface: Sanded, for torch-on application of cap sheet.

.3 Cap Sheet Membrane: Sopraply Traffic Cap, 4 mm thick, reinforced.

.1 Application: Torch on.

.2 Top Surface: Granule-surfaced grey.

.4 Cap Sheet Flashing: Same material and application as cap sheet membrane.

2.5 AIR AND VAPOUR RETARDER

.1 Self-Adhesive Sheet Vapour Retarder: Membrane composed of SBS modified bitumen and high density polyethylene grid; bottom surface self-adhesive protected by silicone release sheet.

.1 Product: Soprema Sopravap'R.

2.6 BOARD INSULATION

.1 Closed-cell polyisocyanurate foam insulation pane:

CAN/ULC-S704 Class 2, Type III (25psi); and ASTM C1289 Type II, Class 1, Grade 3 (25 psi)

.1 Product: Sopra-ISO PLUS by Soprema, Inc, or comparable product by Owens Corning, or Dupont.

.2 Mineral Wool Board Insulation Top Layer: ASTM C726; unfaced mineral wool board insulation; impregnated bitumen top layer:

.1 Products: TopRock DD Plus by Rockwool, or Soprarock DD Plus by Soprema.

.2 Nominal Density: 220 kg/cu. m top layer; 160 kg/cu. m bottom layer; ASTM C612.

.3 Thermal Resistance: 0.68 sq. m K/W at 24 deg C; ASTM C518.

.4 Non-Combustibility: Compliant with CAN/ULC-S114.

.5 Surface Burning Characteristics: Flame-spread 0; smoke-developed indexes 5; CAN/ULC-S102.

.6 Exterior Spread of Flame on Roof Surface: Class A; CAN/ULC-S107.

.7 Single Board Thickness: As indicated.

.3 Tapered Insulation:

.1 Same material as specified for insulation bottom layer, with single density, factory-tapered to slope of 6 mm per 300 mm (1:48), unless otherwise indicated; 12 mm per 300 mm (1:24) at saddles and crickets.

.2 Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain.

.3 Tapered Insulation: SOPRA-ISO PLUS Tapered.

2.7 INSULATION ACCESSORIES AND COVER BOARD (OVERLAY BOARD)

.1 Cover Board: Semi rigid protection board composed of mineral fortified asphaltic core formed between two saturated fiberglass felts, thickness 0.25 inches (6.4 mm).

.1 Product: Soprema Sopraboard by Soprema, Inc.

.2 Jointing Material for Cover Board: Tape or sealant as recommended by membrane manufacturer.

.3 Insulation Joint Tape: Asphalt treated glass fibre reinforced; 6 inch (150 mm) wide; self-adhering.

.4 Insulation Adhesive: Two-component polyurethane; type approved by roofing system manufacturer for application of insulation indicated.

.5 Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

2.8 AUXILIARY MEMBRANE ROOFING MATERIALS

.1 General: Furnish auxiliary materials recommended by roofing membrane manufacturer for intended use and compatible with roofing membrane.

.2 Flexible Flashings: Same material and colour as roofing membrane, black colour.

.1 At tie-ins with adjoining roofing and other termination conditions, provide flashing materials compatible with materials being joined.

.3 Cold-Applied Liquid Flashing Membranes: Provide the following, each as recommended by the manufacturer for the applications indicated.

.1 Single component polyurethane bitumen resin waterproof liquid specially formulated for compatibility and use with roofing membrane and base flashings.

.1 Product Alsan Flashing Membrane by Soprema, Inc.

.2 Two-component polymethyl methacrylate (PMMA), with catalyst, vertical grade, formulated for adhered use on metal substrates; colour gray; conforming to ASTM C836; and field-reinforced with manufacturer's 360-degree needle-punched non-woven polyester reinforcing fleece.

.1 Product: Alsan RS 230 Flashing System by Soprema, Inc.

.4 Counter Flashings, and Cap Flashings: As specified in Division 07 Section Sheet Metal Flashings and Trim.

.5 Prefabricated Roof Penetration Flashings:

.1 General: Provide flashings extending not less than 8 inches (200 mm) above finished roof surface.

.2 Vent Flashings: Spun aluminum, types to suit high snow load conditions, with integral deck flange for stack and exhaust vents. Include vandal-resistant aluminum caps riveted to vent to prevent removal, and seal between pipe and vent.

.1 Product: Vents by Menzies Metal Products, or comparable product.

.3 Service Jacks Flashings: Spun aluminum, types to suit high snow load conditions, with integral premoulded urethane insulation, deck flange, cap or gooseneck flashing with neoprene grommeted holes for piping or conduits.

.1 Product: Mechanical / Electrical Flashings by Thaler Roofing Products, Menzies Metal Products, or comparable product.

.6 Primers: Types as recommended by membrane manufacturer for use with specified products for applications indicated.

.7 Roofing Nails: Steel, galvanized, hot dipped or corrosion-resistant, spiral nail screws, 3 mm (1/8 inch) diameter with 25 mm (1 inch) diameter round top cap; length sufficient to penetrate solid wood not less than 38 mm (1-1/2 inches), and penetrate plywood substrates not less than 19 mm (3/4 inch), and acceptable to roofing system manufacturer.

.8 Termination Bars and Devices: Aluminum, surface mounted, prepunched, maximum possible length per location, with attachment flanges and anchors, and gumlip sealant.

.1 Include stainless-steel hose clamps for terminating liquid flashings at round penetrations.

.9 Joint and Crack Filler: Type as recommended by waterproofing system manufacturer for application indicated.

.10 Sealants: As recommended by membrane manufacturer.

2.9 ACCESSORIES

.1 Walkway Pads: SBS modified bituminous sheets with reinforcement, red granule surfacing, torch-on application.

.1 Product: Soprema Soprasaf't.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system. Review with roofing manufacturer's technical personnel and Consultant present.

.1 Verify surfaces and site conditions are ready to receive work.

.2 Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains valleys, or eaves.

.3 Verify deck surfaces are dry and free of snow or ice.

.4 Verify roof openings, curbs, pipes, conduit, sleeves, ducts, and vents through roof are solidly set, and wood cants strips, wood nailing strips and reglets are in place.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation, according to roofing system manufacturer's written instructions.

.1 Remove sharp projections.

.2 Treat joints and cracks in substrates according to roofing system manufacturer's written instructions.

.3 Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

.1 Remove roof-drain plugs when no work is taking place or when rain is forecast.

.2 If roof drains will be temporarily blocked or unserviceable due to partial installation of roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under membrane roofing system components.

3.3 GENERAL

.1 Install roofing system in accordance with membrane manufacturer's written instructions, and referenced Quality Standard.

.2 Coordinate installation of roofing system so components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

.1 At end of each day's work, provide water cut-offs to cover exposed roofing membrane sheets with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed. Minimize or eliminate staggered joints to accommodate water cut-offs.

.2 Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system. Use

membrane flashings consistent with permanent detailing sealed to base layer with minimum 4-inch (100 mm) laps.

.3 Remove and discard temporary seals before beginning work on adjoining roofing.

.4 Provide permanent waterproof cut-off areas to compartmentalize membrane in accordance with referenced Quality Standard, but not exceeding 50 sq ft (15 x 150 m).

.3 Install cap sheets within 48 hrs of installation of base sheets.

.4 Coordinate installation and transition of roofing system components serving as an air barrier with air barrier specified under Division 07 Section Self-Adhering Sheet Air Barriers.

.5 Substrate-Joint Penetrations: Prevent adhesives, primers and similar products from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

.6 Start installation of roofing in presence of manufacturer's technical personnel.

.7 Fire Protective Measures: Perform torch application according to NFPA 241, including two-hour fire watch after torches have been extinguished, unless more stringent requirements are required by Quality Standard or applicable code.

3.4 AIR AND VAPOUR RETARDER APPLICATION

.1 Install self-adhesive vapour barrier on to substrate, overlapping side and end laps in conformance with manufacturer's written instructions. Prime substrate when recommended by manufacturer.

.2 Unroll and align on substrate. Ensure all edges are supported.

.3 Overlap perimeter strip to air/vapour barrier on adjoining walls.

.4 Completely seal vapour retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSULATION APPLICATION

.1 Install insulation according to manufacturer written instructions.

.2 Ensure vapour retarder is clean and dry.

.3 Install layers of flat and tapered with joints staggered minimum 6 inches (150 mm) in adjacent rows, and offset minimum 12 inches (305 mm) from joints of previous layers. ~~Maximum thickness of each layer not to exceed 2 inches (50 mm).~~

.4 Set base layer and each layer of insulation in insulation adhesive according to manufacturer’s written instructions, firmly pressing and maintaining insulation in place.

.5 Trim insulation neatly to fit around penetrations and projections and to fit tight to intersecting sloping roof decks, without forcing..

.6 Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.

.7 At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).

.1 Trim insulation so that water flow is unrestricted.

.8 Fill gaps exceeding 1/4 inch (6 mm) with insulation.

.9 Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

.10 Install tapered insulation to conform to roof slopes indicated.

.11 Apply no more insulation than can be covered with membrane in same day.

.12 Install tapered insulation to conform to roof slopes indicated.

.13 Tape joints of insulation when recommended by, and in accordance with insulation manufacturer's written instructions.

.14 Immediately cover boards with subsequent materials; do not leave exposed.

3.6 COVER BOARD INSTALLATION

.1 Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction.

.1 Tape or seal joints if required by roofing membrane manufacturer.

.2 Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.

.3 At internal roof drains, conform to slope of drain sump.

.1 Trim cover board so that water flow is unrestricted.

.4 Cut and fit cover board tight to nailers, projections, and penetrations.

.5 Set cover board in ribbons of bead-applied insulation adhesive, unless otherwise required by roofing manufacturer, firmly pressing and maintaining insulation in place.

.6 Immediately cover boards with subsequent materials; do not leave exposed.

3.7 MEMBRANE APPLICATION

.1 Apply membrane and primer, taking into account slope variations indicated. Lap and seal edges and ends permanently waterproof. Lap cap sheets staggered and offset from base sheets.

.2 Apply perimeter strips under blocking to provide continuity of vapour and air barrier of envelope.

.3 Apply membrane smooth, free from air pockets, wrinkles, or tears. Ensure full bond of membrane to substrate.

.4 Extend membrane onto vertical surfaces minimum of 8 inches (200 mm) above finished roof surface. Secure base sheets to vertical surfaces of parapets and similar conditions with termination bars, and protect with gum lip metal flashing, unless otherwise indicated.

.5 Lap and seal wall air/vapour membrane over roofing membrane cap sheet not less than 4 inches (100 mm). Remove granular surfacing cap sheet prior to lapping.

.6 Lap and seal roofing membrane cap sheet over air/vapour membrane not less than 4 inches (100 mm).

.7 Seal membrane around roof protrusions and penetrations.

.8 Roof Drains:

.1 Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring and at overflows.

.2 Install stripping according to roofing system manufacturer's written instructions.

3.8 FLASHINGS INSTALLATION

.1 Apply flexible sheet base flashings and perimeter flashing to seal membrane to vertical elements.

.2 Install flashings and auxiliary materials to tie into and lap adjoining roofing and other termination conditions, to details acceptable to manufacturers of roofing being joined; laps not less than 8 inches (200 mm).

.3 At tie-ins with adjoining waterproofing or roofing, and other termination conditions, provide flashing materials compatible with materials being joined.

.4 Install prefabricated roof penetration flashings and expansion joint flashings in accordance with manufacturer's instructions.

.5 Liquid Flashings:

.1 Apply liquid flashing in accordance with manufacturer's written instructions, and details.

.2 Seal flashings and flanges of items penetrating or protruding through the membrane with two-component liquid flashing.

.3 Use single component liquid flashing for vertical surfaces outside of drainage plane.

.4 Extend liquid flashing not less than 3 inches (75 mm) in each direction from edge of item being flashed.

.5 Embed granules, matching colour of roof membrane, into wet compound.

.6 Install hose clamps at round penetration terminations.

.7 Seal areas and surfaces exposed to mechanical damage, including around door openings, with two-component liquid flashing.

3.9 INSTALLATION OF WALKWAYS

.1 Walkway Pads: Install walkway pads using units of largest standard sizes possible, according to walkway pad manufacturer's written instructions.

.1 Unless otherwise indicated, install walkways at the following locations:

.1 Perimeter of each rooftop unit.

.2 Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.

.3 Between each roof access point and each rooftop unit location or path connecting rooftop unit locations.

.4 Top and bottom of each roof access ladder.

.5 Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.

.6 As required by roof membrane manufacturer's warranty requirements.

.2 Provide 3-inch (75 mm) clearance between adjoining pads.

.3 Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.10 FIELD QUALITY CONTROL

.1 Testing Agency Tests and Inspections: Engage a qualified testing agency to perform tests and inspections including monitoring procedures followed, ambient temperatures and wind velocity during application, and to prepare reports.

.1 Tests: Non-destructive testing to determine compliance with requirements for watertightness. If conditions prevent the use of non-destructive testing, flood testing will be used.

.2 Inspections: In accordance with referenced Quality Standard, including monitoring procedures followed, ambient temperatures and wind velocity during application.

.2 Roofing will be considered defective if it does not pass tests and inspections.

3.11 PROTECTION, REPAIR, AND CLEANING

.1 Protect roofing system from damage and wear during remainder of construction period.

.1 When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Consultant and Owner.

.2 Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Ready-for-Takeover, and according to warranty requirements.

.3 Clean adjacent construction soiled by work of this section. Use cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 08 11 16
ALUMINUM DOORS AND FRAMES

Part 1 General

1.1 SECTION INCLUDES:

.1 Exterior and interior aluminum doors and frames.

1.2 RELATED REQUIREMENTS

.1 Section 06 10 00 – Rough Carpentry.

.2 Section 08 06 10 – Door Schedule.

.3 Section 08 14 16 – Flush Wood Doors.

.4 Section 08 71 00 – Door Hardware.

.5 Section 08 80 00 – Glazing.

.6 Section 09 21 16 – Gypsum Board Assemblies.

.7 Section 09 22 16 – Non-Structural Metal Framing.

1.3 REFERENCE STANDARDS

.1 American Architectural Manufacturers Association (AAMA)

.1 AAMA 609/610-15, Cleaning and Maintenance Guide for Architecturally Finished Aluminum.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.

.3 CSA Group (CSA)

.1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.4 The Master Painters Institute (MPI)

.1 Architectural Painting Specification Manual - current edition.

.5 Underwriters Laboratories (UL)

.1 UL 2761-2011 Sealants and Caulking Compounds.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for doors and frames and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Indicate materials and profiles and provide full-size, scaled details of components for each type of door and frame. Indicate:

.1 Interior trim and exterior junctions with adjacent construction.

.2 Junctions between combination units.

.3 Elevations of units.

.4 Core thicknesses of components.

.5 Type and location of exposed finishes, method of anchorage, number of anchors, supports, reinforcement, and accessories.

.6 Location of caulking.

.7 Each type of door system including location.

.8 Arrangement of reinforcing for hardware and joints.

.9 Arrangement of hardware and required clearances.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples returned for inclusion into work.

.3 Submit one 300 x 300 mm corner sample of each type door and frame.

.4 Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.

.5 Frame sample to show glazing stop, door stop, jointing detail, finish, wall trim.

1.5 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for cleaning and maintenance of aluminum finishes for incorporation into manual.

.3 Warranty Documentation: submit warranty documents specified.

1.6 QUALITY ASSURANCE

.1 Mock-Up:

.1 Provide site mock-up for work of this Section indicating methods and materials, and procedures proposed to achieve final results in accordance with Section 01 45 00– Quality Control, and to comply with following requirements, using materials indicated for completed work:

.1 Build mock-ups in location and of size as directed by Consultant.

.2 Obtain Consultant's acceptance of mock-ups before starting construction; mock-up used throughout construction period as standard of acceptance for subsequent work.

.3 Mock-up may form part of permanent structure when accepted by Consultant; repair or replace unacceptable mock-ups at no additional cost to Owner.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

1.8 WARRANTY

.1 Manufacturer's warranty: Submit, for Consultant’s acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty in addition to and not limit other rights Owner may have under Contract Documents.

Part 2 Products

2.1 MANUFACTURERS

.1 Alumicor

.2 Kawneer

.3 Ferguson

2.2 DESIGN CRITERIA

.1 Design frames and doors in exterior walls to:

.1 Accommodate expansion and contraction within service temperature range of -35 to 35 degrees C.

.2 Limit deflection of mullions to maximum 1/175th of clear span when tested to ASTM E330 under wind load of 1.2 kPa.

.3 Movement within system.

.4 Movement between system and perimeter framing components or substrate.

.2 Size glass thickness and glass unit dimensions to limits in accordance with CAN/CGSB-12.20.

.3 Include continuous air barrier and vapour retarder through door system. Primarily in line with inside pane of glass and heel bead of glazing compound.

2.3 MATERIALS

.1 Aluminum extrusions: to Aluminum Association alloy AA6063-T5 anodizing quality.

.2 Steel reinforcement: to CSA G40.20/G40.21, grade 300 W.

.3 Fasteners: finished to match adjacent material.

.4 Door bumpers: black neoprene.

.5 Isolation coating: bituminous paint

.6 Glass: tempered glass to CAN/CGSB-12.1, Type 2, Class A.

.7 Glazing materials: Refer to Section 08 80 00 – Glazing.

.8 Sealants: colour in accordance with Section 07 92 00- Joint Sealants.

2.4 EXTERIOR ALUMINUM DOORS

.1 Exterior Curtain Wall:

.1 Refer to Section 08 44 00 - Curtain Wall

2.5 INTERIOR ALUMINUM DOORS

.1 Type 1: Interior Vestibule Doors: SF-2, SF-3, SF-23, SF-24

.1 Aluminum entrance doors shall be installed as an integral part of entrances.

.2 Standard of Acceptance: Kawneer 350 Standard Entrance, Alumicor Canadiana

.2 Type 2: Remaining Aluminum Doors

.1 Refer to Section 10 22 10 – Glazed Aluminum Partitions

.3 Reinforce mechanically-joined corners of doors to produce sturdy door unit.

.4 Glazing stops: interlocking snap-in type for dry glazing. Exterior stops: tamperproof type.

.5 Hardware: Supplied by Section 08 71 00 – Door Hardware, preparation and installation part of the work of this Section.

2.6 EXTERIOR ALUMINUM FRAMES

.1 Exterior Curtain Wall:

.1 Refer to Section 08 44 00 - Curtain Wall

2.7 INTERIOR ALUMINUM FRAMES

.1 Type 1: Interior Vestibule (SF-2, SF-3, SF-23, SF-24): Non-thermally broken system for single glazing, centre glazed, stick assembly

.1 Exposed aluminum surfaces: To AA DAF-45-M10C21A41 Architectural Class I, anodized 18 μm minimum thickness coloured clear.

.1 Acceptable material: Class I Anodic Finish.

.2 Colour: selected by Consultant from Manufacturer's standard colours.

.3 Standard of Acceptance: Kawneer TriFab VG 450, Alumicor FlushGlaze 1800.

.2 Type 2: Remaining interior glazing / doors as indicated in door / interior glazing schedule.

.1 Refer to Section 10 22 10 – Glazed Aluminum Partitions

2.8 ALUMINUM FINISHES

.1 Colour anodized to AAMA 611, Black.

2.9 STEEL FINISHES

.1 Finish steel clips and reinforcing steel with zinc coating to CAN/CSA-G164.

2.10 FABRICATION

.1 Doors and framing by same manufacturer.

.2 Fabricate doors and frames to profiles and maximum face sizes as indicated.

.3 Provide structural steel reinforcement as required.

.4 Fit joints tightly and secure mechanically.

.5 Conceal fastenings.

.6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided under Section 08 71 00 - Doors Hardware.

.7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for aluminum doors and frames installation in accordance with manufacturer's written instructions.

3.2 INSTALLATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Set frames plumb, square, level at correct elevation in alignment with adjacent work.

.3 Anchor securely.

.4 Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

.5 Adjust door components to ensure smooth operation.

.6 Make allowances for deflection of structure to ensure structural loads not transmitted to frames.

.7 Glaze aluminum doors and frames in accordance with Section 08 80 50 - Glazing.

.8 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within aluminum work except where exposed use permitted by Consultant.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Perform cleaning of aluminum components in accordance with AAMA 609.1 - Voluntary Guide Specification for Cleaning and Maintenance of Architectural Anodized Aluminum.

.3 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

.4 Clean aluminum with damp rag and approved non-abrasive cleaner.

.5 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

.6 Clean glass and glazing materials with approved non-abrasive cleaner.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by aluminum door and frame installation.

END OF SECTION

SECTION 08 42 13
ALUMINUM-FRAMED ENTRANCES

Part 1 General

1.1 SECTION INCLUDES

.1 Exterior aluminum-framed entrance door systems.

.2 Fabrication requirements for entrance door frames specified in other Sections.

1.2 RELATED REQUIREMENTS

.1 Division 08 Sections Glazed Aluminum Curtain Walls, and Windows, for openings and entrance door adaptor framing to receive doors.

.2 Division 08 Section Glazing.

.3 Division 26 – Electrical, for electrical connections for electrified hardware.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Coordinate work of this section with installation of air barrier placement.

.2 Installation Templates: Distribute for doors and other work specified to be factory prepared for installing entrances.

.3 Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish. Coordinate hardware for automatic entrances with hardware required for rest of Project.

.4 Electrical System Roughing-in: Coordinate layout and installation of automatic entrances with connections to power supplies.

1.4 SUBMITTALS FOR REVIEW

.1 Product Data: For aluminum-framed entrance door systems.

.1 Construction details, material descriptions, dimensions of individual components and profiles, and finishes.

.2 Operating characteristics, electrical characteristics, and furnished accessories.

.2 Shop Drawings:

.1 Indicate dimensions, framed opening requirements and tolerances, weights, loads, required clearances, coordination of connections to opening framing, affected related Work.

.2 Include diagrams for power, signal, and control wiring.

.3 Samples: 300 x 300 mm (12 x12 inches) in size exampling prefinished aluminum surface.

.1 Include Samples of hardware and accessories involving colour and finish selection.

.4 Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.5 SUBMITTALS FOR INFORMATION

.1 Qualifications Statements: For Installer.

.2 Energy Performance Certificates: For aluminum-framed entrance and storefront systems, accessories, and components, from manufacturer.

.1 Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance.

.3 Product Test Reports: For aluminum-framed entrance door systems, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: For aluminum-framed doors, to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with minimum five documented experience, and trained and approved by manufacturer for installation and maintenance of units required for this Project.

1.8 DELIVERY, STORAGE, AND PROTECTION

.1 Protect prefinished aluminum surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

1.9 WARRANTY

.1 Special Manufacturer's Warranty: Manufacturer agrees to repair or replace components of aluminum-framed that fail in materials or workmanship within 10-year warranty period. Failures include, but are not limited to:

.1 Structural failures including, but not limited to, excessive deflection.

.2 Faulty operation of hardware and operating components.

.3 Deterioration of metals, and other materials beyond normal weathering and use.

.2 Special Warranty on Anodized Finishes: Manufacturer agrees to repair, refinish or replace aluminum that shows evidence of deterioration of anodized finishes within 10-year warranty period.

.1 Deterioration includes, but is not limited to, the following:

.1 Colour fading more than 5 Delta E units when tested according to ASTM D2244.

.2 Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

.3 Cracking, peeling, or chipping.

.3 Date warranties to commence at date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances representing those indicated for this Project

without failure due to defective manufacture, fabrication, installation, or other defects in construction.

.2 Structural Loads:

.1 Wind Loads: As indicated.

.2 Other Design Loads: As indicated.

.3 Wind Load Resistance: Test according to ASTM E330 as follows:

.1 Achieve same performance as adjoining curtain wall assemblies, but not less than 1.5 kPa (31.2 lbf/sq. ft).

.4 Air Infiltration: Test according to ASTM E283 for infiltration as follows:

.1 Maximum air leakage of 5 L/s per sq. m (1.0 cfm/sq. ft) at a static-air-pressure differential of 300 Pa (6.24 lbf/sq. ft).

.5 Water Penetration under Static Pressure: Test according to ASTM E331 as follows:

.1 No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 300 Pa (6.24 lbf/sq. ft).

.6 Energy Performance: Provide entrances with the following minimum performance values. Increase values to suit prevailing localized climatic conditions as determined by modeling.

.1 Thermal Transmittance (U-factor), Glazed Entrance Doors, Frame Only: Not more than 1.3 W/sq. m x K (0.225 Btu/sq. ft. x h x deg F), as determined according to NFRC 100.

.2 Condensation Resistance: Glazing and framing areas shall have a temperature index of no less than 45, as determined according to AAMA/WDMA/CSA 101/I.S.2/A440.

.7 Expansion / Contraction (Thermal Movements): System to provide for expansion and contraction within system components as specified in Division 08 Sections for glazed curtain walls.

.8 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. Locate air seals to prevent contact between interior humid air and exterior cold air and structure components, and to prevent moisture accumulation on these surfaces during cold weather.

.9 Glazing Design: Design glass as specified in Division 08 Section Glazing.

.10 Products Requiring Electrical Connection: Listed, labelled and classified by CSA or UL testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated, and marked for intended location and application.

2.2 MANUFACTURERS

.1 Aluminum-Framed Entrances Products: Subject to compliance with requirements, provide aluminum-framed entrances from same manufacturer used to provide curtain walls indicated in Division 08 Section Glazed Aluminum Curtain Walls and Windows.

2.3 MATERIALS

.1 Extruded Aluminum: ASTM B221/B221M.

.2 Sheet Aluminum: ASTM B209/B209M.

.3 Fasteners: Stainless steel.

2.4 ENTRANCE DOORS

.1 Exterior Swing Doors: Extruded aluminum, thermally broken frame; doors designed for flush centre glazing.

.1 Nominal Door Dimensions: Wide stile design; 57 mm (2-1/4 inches) thick; 141 mm (5-9/16 inches) wide stiles and top rail, 179 mm (7-1/16 inches) bottom rail.

.2 Standard of Acceptance:

.1 560 Insulclad by Kawneer Company Canada. (Basis of design)

.2 AA425 Thermal Entrances by Kawneer Company Canada

.3 Thermaporte 7700, T400A by Alumicor

.2 Glazing, General: Comply with Division 08 Section Glazing.

.1 Insulating Glass Unit: Double-glazed.

.1 Outer Glazing Layer: 6 mm clear float glass; fully tempered; Low-E coating on surface #2.

.1 Low-E Coating: Solarban 90 by Vitro Architectural Glass.

.2 Interpane Space: Minimum 13 mm, Argon gas.

.3 Inner Glazing Layer: 6 mm clear float glass; fully tempered.

.4 Edge Seal: Black warm edge spacer.

.5 Performance Requirements:

.1 Winter U Value: 1.36 W/sq. m K (0.24 Btu/sq. ft. x h x deg F).

.2 Solar Heat Gain Coefficient: 0.23.

.3 Glazing Stops and Gaskets: Square lock-in screwless type with continuous preformed gasket of black extruded closed cell or dense elastomer material of durometer appropriate to function.

2.5 ENTRANCE DOOR HARDWARE

.1 General: Unless otherwise specified in Division 08 Section Door Hardware, provide entrance door and door hardware as indicated, in quantity, grade, type, and size recommended by manufacturer for each application indicated.

.2 Hinges: Heavy-duty, heavy-weight stainless steel ball bearing five knuckle butt type.

.3 Deadlock: Maximum security type with cylinder guard, five-ply laminated steel bolt and exit only function. No hole, requiring a blank-off cover plate on other side of lockable doors will be acceptable; other doors to be blank. Where lever handles are required provide continuous door stops and full height astragal for double doors.

.4 Panic Devices: CAN/CGSB 69.19-93 / ANSI / BHMA A156.3 / ULC ORD C305, barrier free accessible, standard and/or fire, mortise device, keyed to suit system, complete with strikes and concealed rod device, jamb-mounted (over glass) or to mid rail with finish to match door framing. Device to be key deactivated as required.

.5 Strikes: Stainless steel jamb-mounted flat, long lip or radiused type to suit requirements. Provide electric strike for use with secure access doors where required.

.6 Door Closers: Single acting types, provision for 180 degree opening, cushioned for shock, hold-open where indicated, delayed action for barrier-free accessibility.

.1 Surface mounted type with parallel arm and full cover finished to match doors.

.2 Basis of Design Product: 8900 Heavy Duty series, by Dorma USA, Inc., or comparable product.

.7 Concealed Overhead Stops.

.8 Concealed Flush Bolts: For top and bottom of inactive leaf of paired doors, flush mounted, key operated from inside.

.9 Thresholds: Barrier-free accessible, full width of door plus frame, notched to suit frame profile, drilled for countersunk fasteners.

.10 Push / Pulls: Stainless steel, 25 mm (1 inch) diameter, off-set type, including push bar where applicable, concealed through fastening, minimum centre line fastening of 230 mm (9 inches), mounting to suit barrier-free access requirements.

.11 Weather Stripping: Pile type to manufacturer's standard, unless otherwise specified, at following locations:

.1 Door frame jambs and heads.

.2 Door meeting stile of active leaf in double doors - adjustable astragal with double line of weather stripping.

.3 Door threshold / sill.

.4 Door Bottom Rail: Recessed vinyl weather seal with closed ends.

2.6 FABRICATION

.1 Form or extrude aluminum shapes before finishing.

.2 Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

.3 Fabricate components that, when assembled, have the following characteristics:

.1 Profiles that are sharp, straight, and free of defects or deformations.

.2 Accurately fitted joints with ends coped or mitered.

.3 Physical and thermal isolation of glazing from framing members.

.4 Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.

.5 Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

.4 Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

.1 Reinforce interior strike side jamb frames with steel reinforcement, securely anchored to prevent deflection of jamb frame due to prying of door by an intruder.

.2 Provide compression weather stripping at fixed stops.

.5 Entrance Doors: Reinforce doors as required for installing entrance door hardware.

.1 At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.

.2 At exterior doors, provide weather sweeps applied to door bottoms.

.6 Entrance Door Hardware Installation: Factory install hardware and electronic hardware to greatest extent possible. Prepare components with internal reinforcement for door hardware, electronic hardware and security devices as specified in other Sections. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

.7 Install glazing to glazing method required to achieve performance requirements.

2.7 FINISHES

.1 Exposed Aluminum Surfaces: Same finish as adjoining curtain wall framing as specified in Division 08 Section Glazed Aluminum Curtain Walls and Windows.

.2 Concealed Aluminum Surfaces: Mill finish.

Part 3 Execution

3.1 EXAMINATION

.1 Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of the Work.

.2 Examine roughing-in for electrical systems to verify actual locations of power connections before electrified hardware installation.

.3 Verify that electrical penetrations in fenestration framing including and annular space between electrical wires and conduit, are sealed.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install entrances in accordance with manufacturer's written instructions.

.2 Coordinate door installation with installation of opening framing specified in other Section of Division 08.

.3 Do not install damaged components.

.4 Align assembly plumb and level, free of warp or twist. Fit joints to produce hairline joints free of burrs and distortion.

.5 Rigidly secure nonmovement joints.

.6 Install surface-mounted hardware using concealed fasteners to greatest extent possible.

.7 Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within system to exterior.

.8 Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.

.9 Provide thresholds where indicated. Set continuous sill members and flashing in full sealant bed, as specified in Division 07 Section Joint Sealants, to produce weathertight installation.

.10 When glass is required to be field installed, install glass panels and glazing materials in accordance with manufacturer's instructions, and to achieve performance requirements.

.11 Seal perimeter and other joints watertight unless otherwise indicated.

.12 Doors: Install to produce smooth operation and tight fit at weather stripping, and produce a weathertight enclosure

.13 Metal Protection:

.1 Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or installing nonconductive spacers.

.2 Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

3.3 ADJUSTING AND CLEANING

.1 Remove protective material from prefinished aluminum and glass surfaces.

.2 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

.3 Test, adjust, and ease hardware of doors for smooth operation, and for weathertight closure.

END OF SECTION

SECTION 08 44 13
GLAZED-ALUMINUM CURTAIN WALLS AND WINDOWS

Part 1 General

1.1 SECTION INCLUDES

.1 Glazed aluminum-framed curtain walls and exterior windows in punched openings.

- .1 Vision glass.
- .2 Associated firestops, sealants, aluminum facings, closures, sills, copings and flashings.
- .3 Glass spandrels.
- .4 Sun control devices.

1.1 RELATED REQUIREMENTS

.1 Division 07 Section Self-Adhering Sheet Air Barriers, for air and vapour seal between curtain wall system and adjacent construction.

.2 Division 07 Section Joint Firestopping, for perimeter fire-containment systems field installed with glazed aluminum curtain walls.

.3 Division 07 Section Sheet Metal Flashing and Trim.

.4 Division 07 Section Joint Sealants, for installation of joint sealants installed with glazed aluminum curtain walls and for sealants to the extent not specified in this Section.

.5 Division 08 Section Glazing, for curtain wall glazing.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Coordinate work of this section with installation of firestopping and smoke seals, and air barrier placement.

1.3 PRE-INSTALLATION MEETING

.1 Convene a pre-installation meeting at Project site minimum two weeks before commencing work of this Section.

.2 Include parties directly affecting work of this Section, including, curtain wall manufacturer’s technical representative, installer’s job foreman, representatives of door systems installed in curtain wall system.

- .1 Review curtain wall system drawings, specifications, and other contract documents affecting work.
- .2 Review submittals, completed and yet to be completed.
- .3 Review materials, shop and site fabrication, installation requirements, and structural silicone joints.
- .4 Review required inspections, operational testing, and certifying procedures.
- .5 Review and finalizing of construction schedule related to other work affecting curtain wall installation and verification of availability of materials, installer's personnel, equipment, and facilities required to make progress and avoid delays.
- .6 Review preparation and installation procedures and coordination and scheduling required with related work.

.7 Review weather and forecasted weather conditions and procedures for coping with unfavourable conditions.

.8 Tour, inspect, and discuss conditions, connections to building structure, and other preparatory work performed by other installers.

.9 Record and submit copies of minutes including discussions, decisions, agreements, and disagreements to each party attending and concerned parties not in attendance.

1.4 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.1 Include component dimensions, describe components within assembly, anchorage and fasteners, glass, finish coating, internal drainage details and water flow drainage diagrams.

.2 Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work. Indicate the following:

.1 Design parameters, material ordering, fabrication, and erection, assemblies, materials, finishes, methods of joining and anchoring, types of sealants, gaskets, thermal breaks, provision for expansion and contraction, drainage, pressure equalization compartments, and adjacent construction.

.2 Dimension limits of movements for moving joints and provisions for expansion and contraction.

.3 Relative layout of adjacent assemblies including walls, beams, columns, and slabs with dimensions noted.

.4 Perimeter sealant joint sizes, including tolerances and minimum/maximum joint sizes required.

.5 Location of anchorage points with deadload and windload reactions noted and loads superimposed to structure.

.6 Building elevations showing wind loads for each portion of the building.

.7 Detailed requirements for insulation materials, firestopping, smoke seals, vapour retarders, and air barriers and their installation.

.8 Clear designation showing the path of water drainage from the system.

.9 Installation instructions for the Project.

.10 Joinery details.

.3 Appearance Mock-Up Shop Drawings:

.1 Indicate proposed assembly and individual components.

.2 In addition, include visual desk top mock-ups of critical assembly elements including the following:

.1 Four-way stack joint intersection illustrating mullion and rail connection and gasket seals.

.2 Typical anchor assembly.

.3 Typical mullion with sun control device assembly.

.4 Inside corner assembly.

.5 Outside corner assembly.

.4 Performance Mock-Up Shop Drawings:

.1 Indicate components of test assemblies, including test frame and enclosures, and fastening of test assemblies to test frame.

.5 Samples:

.1 300 x 300 mm (12 x 12 inches) in size illustrating prefinished aluminum surface, specified glass, glazing materials illustrating edge and corner.

.2 Include 300 mm (12 inches) long samples of each type of curtain wall framing, tapes and gaskets; 150 mm (6 inch) lengths for sealant.

.6 Delegated Design Submittal: Delegated design professional engineer's Letter of Assurance for commitment.

1.5 SUBMITTALS FOR INFORMATION

.1 Delegated Design Submittals: Documentation for curtain wall assemblies and windows, indicating compliance with performance requirements including shop drawings, analysis data, and supporting information, signed and sealed by the qualified professional engineer responsible for their preparation.

.2 Qualifications Statements: For Installer, delegated design professional engineer, and testing agency.

1.6 CLOSEOUT SUBMITTALS

.1 Delegated Design Submittals: Delegated design professional engineer's Letter of Assurance for compliance.

.2 Maintenance Data: For curtain walls and windows to include in maintenance manuals.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience, trained and approved by manufacturer for application indicated.

.2 Testing Agency Qualifications: Qualified in accordance with ASTM E699 for testing indicated and acceptable to Owner and Consultant.

1.8 SITE MOCK-UPS

.1 Build mock-ups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation, and verify in-place performance requirements.

.1 Build mock-up of a minimum of one structural bay in width extending from floor to floor; extend as necessary to suit requirements for testing.

.2 Include as a minimum, intermediate mullion, corner mullion, sill rail/muntin, and vision glass light. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, perimeter sealant and adjacent construction.

.2 Engage an independent qualified testing agency to perform tests.

.3 Provide access to the work and preparation necessary for testing agency to conduct testing. Include lateral air seal and damming of designated stack joints.

.4 Construct portable air-tight plywood chambers approximately 39 inches (1 m) deep, complete with a door, and suitable for performing required tests; of area and construction acceptable to testing agency. Provide a water supply of the volume and pressure required to facilitate testing.

.5 Notify Consultant 14 days in advance of the dates and times when site mock-ups will be constructed and tested.

.6 Mock-Up Testing Program:

.1 Have Consultant review mock-up for aesthetic effects and quality standards for fabrication and installation. Do not commence tests until unacceptable items have been corrected.

.2 Test mock-ups according to requirements in Field Quality Control article.

.3 Quantity and Types of Tests: As determined by the testing agency, but not less than the requirements indicated in the Field Quality Control article.

.4 Glazed aluminum curtain walls will be considered defective if they do not pass tests. Adjust, remove, rebuild and re-test, as directed by Consultant, until work complies with specified requirements.

.5 Prepare and submit test reports.

.7 Approved mock-ups may remain as part of the Work.

1.9 DELIVERY, STORAGE, AND PROTECTION

.1 Handle work of this Section in accordance with AAMA CW-10 Care and Handling of Architectural Aluminum from Shop to Site.

.2 Protect prefinished aluminum surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

.3 Protect glass with a protective film.

1.10 ENVIRONMENTAL REQUIREMENTS

.1 Do not install sealants when ambient temperature, and surface temperature of the area to receive the sealant is outside the sealant manufacturer's acceptable range.

.2 Maintain acceptable temperature range during and after installation of sealants until cured.

1.11 WARRANTIES

.1 Manufacturer's Assembly Special Warranty: Manufacturer agrees to repair or replace glazed aluminum curtain wall assemblies that do not comply with specified requirements or that fail in materials or workmanship within 10-year warranty period.

.1 Failures include, but are not limited to, the following:

.1 Structural failures including, but not limited to, excessive deflection.

.2 Noise or vibration created by wind and thermal and structural movements.

.3 Deterioration of metals, metal finishes and other materials beyond normal weathering.

.4 Water penetration through fixed glazing and framing areas.

.5 Failure of operating components.

.2 Special Warranty on Anodized Finishes: Manufacturer agrees to repair, refinish or replace aluminum that shows evidence of deterioration of anodized finishes within 10-year warranty period.

.1 Deterioration includes, but is not limited to, the following:

.1 Colour fading more than 5 Delta E units when tested according to ASTM D2244.

.2 Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

.3 Cracking, peeling, or chipping.

.3 Date warranties to commence at date of Ready-for-Takeover.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Single Responsibility: Design, engineer, fabricate and install curtain wall assemblies complying with requirements indicated using a single entity.

.2 Delegated Design: Engage a qualified professional engineer as defined in Division 01 Section Quality Assurance and Quality Control, to design curtain wall assemblies and windows to comply with structural performance requirements, including attachment to building structure.

.1 Design glass according to requirements specified in Division 08 Section Glazing.

.2 Design lateral loads for glass or mullions acting as guards in accordance with applicable code.

.3 Curtain Wall System Design: Self-supporting thermally broken tubular aluminum sections, prefinished; vision glass; related flashings, anchorage and attachment devices.

.1 System Design: Comply with requirements of the Rainscreen Principle (NRC), demonstrating pressure-equalization and compartmentalization of the drainage path; integral air barrier and vapour retarder.

.2 Attachment to Structure: Concealed, in pockets on top sides of floor slabs.

.3 Assembled systems to permit re-glazing of individual glass units without requiring removal of structural mullion sections

.4 Structural:

.1 System Design: Design and size components, including glass, to withstand dead loads, and live loads caused by positive and negative wind loads acting on normal to plane of wall, as calculated in accordance with applicable code, and as measured in accordance with ASTM E330.

.1 Wind Loads: Provide for 60 second gust velocity with a probability of return of 1 in 10 years.

.2 Design curtain wall anchors to accommodate thermal, seismic, and building movements without causing detrimental effect to system components and sealants, and to have a minimum expected service life of fifty years in accordance with CSA S478.

.3 Interstorey Drift (Horizontal Building Movement): Accommodate design displacement of adjacent stories indicated.

.1 Design Displacement: As indicated.

.2 Test Performance: Meeting criteria for passing based on building occupancy type when tested according to AAMA 501.4 at design displacement and not less than 1.5 times the design displacement.

.4 Effects of Combinations of Loads: Design system to withstand the most unfavourable combinations of loads.

.5 Deflection:

.1 Deflection: Design structural performance of aluminum components of curtain wall in accordance with CSA S157/S157.1.

.2 Deflection Normal to Wall Plane: Limit mullion/rail deflection to L/175, and 2L/175 for mullions/rails cantilevered at soffits or parapets, with full recovery of glazing materials.

.3 Deflection Parallel to Glazing Plane: L/360 of clear span or 1/8-inch (3 mm), whichever is smaller.

.4 Reduce deflection values when performance of structural glazing or water tightness will be compromised, or when detrimental effect to system components will occur.

.6 System Assembly Movement: Accommodate without damage to system, components or deterioration of seals, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, deflection of structural support framing, tolerance of supporting components, column shortening, long-term creep of structural members, story drift, and deflection from uniformly distributed and concentrated live loads.

.7 Joint Movement Capability between System and Adjacent Construction: Design expansion joints with movement capability as indicated, but not less than plus or minus 50 percent of joint width, without detrimental effects to assembly and adjacent construction.

.5 Energy Performance: Provide curtain walls with the following minimum performance values. Increase values to suit prevailing localized climatic conditions as determined by modeling.

.1 Thermal Transmittance (U-factor): Fixed glazing and framing areas (overall area) shall have U-factor of not more than 1.71 W/sq. m x K (0.30 Btu/sq. ft. x h x deg F) as determined according to NFRC 100.

.2 Solar Heat-Gain Coefficient (SHGC): Fixed Glazing and Framing Areas: SHGC for the system of not more than 0.26, as determined in accordance with NFRC 200.

.3 Condensation Resistance: Prevent condensation and frost on inside surfaces of system when subject to outside temperature of minus 10 degrees C and 24 kph wind speed and inside temperature of 21 degrees C when interior relative humidity is 25 percent.

.4 Vapour seal with interior atmospheric pressure of 1-inch (25 mm) sp, 22C, 40 per cent RH: No failure

.6 Thermal Movements:

.1 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 67 degrees C over a 12-hour period without causing detrimental effect to system components. Facing panels to remain flat under these conditions.

.2 Surface Temperature: System to be capable of withstanding metal surface temperature range of 100 deg C without buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance. Design frames so that edges of inner pane of insulating glass units do not fall more than 8 deg C below the temperature of the centre of the inner pane.

.7 Air and Water Infiltration:

.1 Air Infiltration: Limit air infiltration through assembly to 0.31 cfm/min/sq ft (0.15 L/s per sq. m) of wall area, measured at a reference differential pressure

across assembly of 6.24 lbf/sq. ft. (300 Pa) as measured in accordance with ASTM E283.

.2 Water Leakage:

.1 Fixed Assemblies: None, when measured in accordance with ASTM E331, at pressure differential of 15 lbf/sq. ft. (720 Pa).

.8 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.1 Inconspicuously locate vents and drain holes not to contribute to staining, streaking or marking of glass or framing. Size vents to provide instantaneous pressure equalization. Provide baffles to vent openings to prevent direct rainwater entry.

.2 Incorporate vertical and horizontal compartments behind exterior caps and frame-supported structural sealant glazed joints to suit spatial distribution of wind pressures.

.3 Draining of condensation occurring on the interior side of the air barrier plane to the exterior not permitted.

.9 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. Position thermal insulation on exterior surface of air barrier and vapour retarder. Locate air seals to prevent contact between interior humid air and exterior cold air and structure components, and to prevent moisture accumulation on these surfaces during cold weather.

.10 Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

.11 Provisions for Movement of System: Unless otherwise indicated, provide the following.

.1 Horizontal Differential Racking Movement: 1 inch (25 mm) in any one storey.

.2 Vertical Differential Movement: 16 mm between any two floors, frame beams and slabs.

.3 Differential Movement: 1-1/2 inches (38 mm) for seismic action without release or fracture of glass.

.12 Design glass and glazing in accordance with requirements of Division 08 Section Glass and Glazing for glass types, and with glass thicknesses not less than 6 mm.

2.2 MANUFACTURERS

Basis of Design: Subject to compliance with requirements, provide 1600 UT System 1 curtain wall manufactured by Kawneer Company Canada, or comparable product from one of the following:

.1 Thermawall 2600 Series by Alumicor Ltd.

.2 Flynn Canada Ltd.

2.3 MATERIALS

.1 Extruded Aluminum: ASTM B221/B221M.

.2 Sheet Aluminum: ASTM B209/B209M, AA 5005-T6.

.3 Galvanized Steel Sheet: ASTM A653/A653M; with Z275 zinc coating.

.4 Steel Sections: CAN/CSA-G40.21/G40.21, Grade 300W, or equivalent grade ASTM A36/A36M sections; shaped to suit mullion sections, zinc coated.

.5 Fasteners: Stainless steel.

2.4 COMPONENTS

.1 Curtain Wall Mullions with Caps, and Window Framing:

~~.1 Profile: 64 mm width x not less than 190 mm depth (2.5 x 7.5 inches) overall.~~

.2 Sections thermally broken with interior tubular section insulated from exterior pressure plate; matching stops and glass fibre pressure plate of sufficient size and strength to provide adequate bite on glass with mullion caps.

.3 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.

.4 Internal seals to eliminate "stack effect" air movement within internal spaces.

.5 Mullion Caps: Aluminum, finish to match curtain wall mullion sections, secured with concealed fastening method, profiles as indicated. Where indicated, provide tamperproof mullion caps.

.6 Glazing Method: Retain mechanically with gaskets on four sides

.2 Entrance Door Adaptor Framing: Extruded aluminum sections of sizes and thicknesses required to support and transfer loads of entrance doors to supporting curtain wall mullions, and designed to receive required hardware and electrical services; finish to match adjacent doors, unless otherwise indicated.

.1 Sightline Dimension: As acceptable to Consultant.

.3 Reinforced Mullion: Same profile and dimensions as unreinforced mullion. Extruded aluminum cladding with internal reinforcement of shaped steel structural section.

.4 Firestopping: As specified in Division 07 Section Firestopping.

.5 Aluminum Windows (Vents)

.1 Acceptable Products:

.1 Kawneer Glassvent UT

.2 Alumicor UniVent 1350

.2 Hardware; manual operated projected out-swing (awning) windows:

.1 Material shall be corrosion resistant and compatible with aluminum. Hardware must prove its strength and suitability by being installed on units, which are tested in accordance with specifications.

.2 Fasteners: Provide nonmagnetic stainless steel screws, epoxy adhesives, or other material warranted by the manufacturer. Where locks, handles or operators screw anchor through aluminum, reinforce interior with stainless steel splined grommet nuts.

.3 Finish: Finish to match adjacent framing finish.

.4 Sash: corner keyed, sealed, and hydraulically staked.

.3 Ventilator hinges:

.1 Type: 4 Bar with Friction Device. Material: 300 Series stainless steel with nylon friction block encased in sliding brass or stainless steel shoe.

.4 Ventilator locks:

.1 Type: Single lever claw handle lock, minimum two per ventilator.

.2 Material: Die-cast zinc.

.5 Fibreglass screens in extruded aluminum frame.

.6 Roto operators:

.1 Type: Dual arm roto.

.2 Material: Die cast zinc case, crank handle and knob, hardened steel worm gear and gear Arm, stainless steel arm roller and track

.6 Aluminum Exterior Doors

.1 Refer to Section 08 42 13 – Aluminum Framed Entrance.

.7 Air/Vapour Barrier Transition Flashings:

.1 Generally: Transition flashing strips as specified in Division 07 Sections Modified Bituminous Sheet Air Barriers, and Fluid-Applied Membrane Air Barriers, as applicable.

.2 At Transitions where Deflection is Indicated or Anticipated: Preformed silicone rubber transition strip seal system comprising flexible silicone sheet seal, and site-applied silicone sealant for bonding seal to substrate. Sealant type as recommended for application by strip seal manufacturer. Provide one of the following products:

.1 DOWSIL Silicone Transition System by Dow Chemical Canada ULC.

.2 Silicone Extruded Sheet by Tremco Commercial Sealants and Waterproofing.

2.5 SUN CONTROL

.1 Sunshades: Fin assemblies consisting of extruded aluminum profiles designed for mechanical attachment to curtain wall.

.1 Orientation: Vertical.

.2 Projection from Wall: As indicated.

.3 Fin Profile: Straight with square edges, unless otherwise indicated.

.4 Finish: Match adjacent glazed aluminum curtain wall.

.5 Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

.6 Steel Reinforcement: As required by manufacturer.

.7 Basis of Design: Kawneer Versoleil Sunshades

2.6 GLASS SPANDRELS

.1 Insulated Glass Spandrels: Provide insulated spandrel assemblies as follows:

.1 Spandrel Glass: Insulating glass units as specified for vision glazing

.2 Air space.

.3 Metal Back Pan: Aluminum sheet, joints sealed airtight at mullion framing. Colour to match extrusions.

.4 Insulation Mineral-Wool Board Inner Insulation: Thickness as indicated, R 4.2/inch thickness; faced; non-combustible per ASTM E136 or CAN/ULC S114.

.1 Product: CurtainRock by Rockwool, or comparable product by Owens Corning.

2.7 GLAZING MATERIALS

.1 Glazing, General: Comply with Division 08 Section Glazing; provide safety glass in accordance with applicable code.

.1 Insulating Glass Unit: Triple-glazed.

.1 Outer Glazing Layer: 6 mm clear float glass; heat strengthened or tempered as required; Low-E coating on surface #2.

.1 Low-E Coating: Solarban 90 by Vitro Architectural Glass.

.2 Interpane Space: Minimum 13 mm, Argon gas.

.3 Intermediate Glazing Layer: 6 mm clear float glass; heat strengthened or tempered as required; Low-E coating on surface #4.

.4 Interpane Space: Minimum 13 mm, Argon gas.

.5 Inner Glazing Layer: 6 mm clear float glass; heat strengthened or tempered as required

.6 Edge Seal: Black warm edge spacer.

.7 Performance Requirements:

.1 Winter U Value: 1.4 W/sq. m K (0.25 Btu/sq. ft. x h x deg F).

.2 Solar Heat Gain Coefficient: 0.32.

2.8 SEALANT MATERIALS

.1 Concealed Sealant Used within System (Not Used for Glazing): Silicone, neutral cure medium modulus, ASTM C920, Type S, NS, Class 50; VOC content less than 100 g/L.

.1 Product: DOWSIL 795 by Dow Chemical Canada ULC, or comparable product.

.2 Weatherseal Sealants at Joints to Perimeters of Openings: Silicone, and as specified in Division 07 Section Joint Sealants. Colour as selected by Consultant.

2.9 AUXILIARY MATERIALS

.1 Provide matching extruded aluminum sill flashings, coping flashings and building expansion joint flashings to complement assemblies.

.2 Fasteners and Accessories: Stainless steel, austenitic grade, 300 series for connections outside of air barrier plane; corrosion resistant for connections inboard of air barrier plane, and compatible with adjacent materials.

.1 Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.

.2 Reinforce members as required to receive fastener threads.

.3 Anchors: Stainless steel, austenitic grade, 300 series for connections outside of air barrier plane; corrosion resistant for connections inboard of air barrier plane, and compatible with adjacent materials. Type as recommended by manufacturer.

.4 Air/Vapour Barrier Gasket Seals: Silicone or silicone compatible material, designed to remain flexible at low temperatures; heat-resistant where required due to proximity of heating units or exposure to interstitial spaces.

.5 Touch-Up Primer for Galvanized Steel Surfaces: SPCC Paint 20 zinc rich.

.6 Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.10 FABRICATION

.1 Fabricate assemblies in accordance with Shop Drawings.

.2 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

.3 Factory assemble frame units. Fit and assemble units too large for handling or shipping in factory for accuracy; disassemble or crate in unit form, and mark for delivery to Project site.

.4 Fabricate curtain wall assemblies square and true, free from distortion, waves, twists, and buckles. Use continuous members to greatest extent possible.

.1 Flatness of Exposed Metal Faces: Visually flat to Consultant's approval.

.5 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof. Machine cut joints; mitre corners. Use plated screws or back-weld; seal with non-hardening sealant. Prevent sealant from impairing seating of glazing materials in glazing space. Remove excess sealant from framing faces.

.1 Accurately shape mullion and cover cap intersections with minimal width hairline joints, sufficient to permit thermal movements.

.2 Provide pressure equalizing and weep holes for enclosed air spaces in curtain wall assemblies.

.6 Anchors:

.1 Prepare components to receive anchor devices. Fabricate anchors adjustable in any direction with minimum adjustment of 38 mm (1.5 inches).

.7 Fasteners:

.1 Arrange fasteners and attachments to ensure concealment from view, unless otherwise indicated.

.2 Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.

.3 Reinforce members as required to receive fastener threads.

.8 Drill and notch members to drain without permitting air infiltration.

.9 Reinforce concealed framing members for external imposed loads with loads transferred directly to floor, and structure above.

.10 Provide flexible, continuous gasket air/vapour barrier seals within framing assemblies for attaching air/vapour transition strips to adjoining construction.

.1 At heads of curtain wall openings provide preformed silicone transition strip seal system.

.11 Fabricate and install glazing in accordance with Shop Drawings, to glazing method required to achieve performance requirements.

.1 Install glass panels in accordance with ASTM C1401. Maintain required glueline thickness and minimum structural bites.

.2 Fill joint with standard sealant application procedures, install backer rod or bond breaker tape to avoid three-sided sealant adhesion.

.3 Prepare substrates and apply silicone sealant in accordance with manufacturer's written instructions.

.4 Bond glass to metal support members with structural silicone sealant using 2-sided method, unless otherwise indicated.

.5 Install sealant without gaps, twisting, stretching, or puncturing backing material. Ensure uniform depth to achieve correct profile, coverage, and performance.

.6 Use temporary glass supports to retain glass panels while sealant is applied and allowed to cure.

.7 Provide concave, smooth, uniform, exposed sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening.

.12 Facings and Closures: Provide facings, closure pieces to complete the assembly as indicated and as required to seal against weather and to provide finished appearance; minimum 2 mm (0.07 inches) thick extruded aluminum; same finish as adjoining curtain wall, unless otherwise indicated.

.13 Aluminum Flashings and Trim:

.1 General: Fabricate in accordance with Division 07 Section Sheet Metal Flashing and Trim, with same finish as adjacent curtain wall.

.2 Finish: Same finish as adjacent storefronts and windows.

.14 Isolate aluminum from dissimilar metals, other than stainless steel, with rubber isolation pads or tape. Bituminous paint not permitted.

.15 Touch up damaged galvanized surface with zinc-rich paint.

.16 Make provisions in curtain wall system to receive doors and hardware as indicated, and as specified in Division 08 Section Aluminum-Framed Entrances.

2.11 FINISHES

.1 Exposed Surfaces of Aluminum Curtain Wall Members, Closures, Sills and Flashings:

.1 Colour Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

.2 Colour: Black.

.3 Concealed Aluminum Surfaces: Mill finish.

.2 Concealed Steel Items: Galvanized in accordance with ASTM A123 to 610 g/sq m.

Part 3 Execution

3.1 EXAMINATION

.1 Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

.2 Verify dimensions and method of attachment with other work.

.3 Verify wall openings and adjoining air and vapour barrier materials are ready to receive the work of this section.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install curtain wall system in accordance with Shop Drawings, and manufacturer written instructions.

.2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

.3 Provide alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.

.4 Align assemblies plumb and level, free of warp or twist. Maintain assembly dimensional

tolerances and align with adjacent work.

.5 Install venting window units level and plumb, securely anchored, and without distortion.

.6 Conceal fasteners except where unavoidable for structural anchorage or applications of hardware.

.7 Provide thermal isolation where components penetrate or disrupt building insulation. Install gap-filling insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.8 Trim: Install sill, head flashings and other trim. Brake trim to shape as required or as indicated; accurately cut and fit with hairline joints.

.9 Coordinate installation of fire stop at each floor slab edge and at intersections with vertical construction, in accordance with Division 07 Section Joint Firestopping.

.10 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials. Ensure integrity of and lap and seal. Provide solid backing at self-adhered membrane connections.

.1 Install preformed silicone transition strip seal system where indicated. Comply with seal manufacturer's written instructions.

.11 Install glazing in accordance with Shop Drawings, to glazing method required to achieve performance requirements, and as specified in Fabrication Article.

.12 Install perimeter sealant to method required to achieve performance criteria, and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

.13 Metal Protection:

.1 Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.

.2 Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

3.3 ERECTION TOLERANCES

.1 Maximum Variation from Plumb: 3 mm (1/8-inch) maximum each plane.

.2 Maximum Misalignment of Two Adjoining Members Abutting in Plane: 0.8 mm (0.03 inches).

.3 Maximum Sealant Space Between Curtain Wall and Adjacent Construction: 13 mm (1/2-inch).

.4 Location: Limit variation from plane to 3 mm (1/8-inch).

.5 Racking in Elevation: Nil.

.6 Tolerances: Non cumulative.

3.4 FIELD QUALITY CONTROL – CONSTRUCTION INSPECTION

.1 Testing Agency Services: Owner will engage an independent qualified inspection company to perform inspections during installation curtain wall assemblies, including:

.1 Verification of insulation, vapour retarder, and air barrier installation.

.2 Checks of interfaces and termination seals with other elements.

.3 Review of panel to panel air seals, review of roof/wall interface.

.4 Review of panel fastening, exterior sealants and similar items.

.5 Checks of air and vapour seals/barriers for continuity, penetrations and correct orientation.

.6 Checks for continuity of insulation plane.

.7 Verification of flashing placement and continuity.

3.5 FIELD QUALITY CONTROL – CURTAIN WALL TESTING

.1 Testing Agency Services: Engage an independent qualified testing agency to perform tests and inspections.

.2 Thermographic Inspection: An infrared scan of the building envelope will be performed at the completion of the envelope construction, identifying thermal anomalies to be investigated and adjustments necessary to comply with performance requirements.

.3 Water and Air Tests, General:

.1 Number of Test Areas: Three, as designated by Consultant.

.2 Perform tests before beginning of installation of interior finishes.

.4 Water Spray Test: AAMA 501.2, and shall not evidence water penetration.

.1 Test Area: A minimum area of 33 ft (10 m) by one storey of glazed aluminum curtain wall, including an inside and/or corner condition.

.2 Perform at least three tests at each location, prior to 10, 35, and 70 percent completion.

.5 Air Infiltration: Testing: Areas shall be tested for air leakage of 1.5 times the rate specified in the Performance Requirements Article, but not more than 4.76 cfm/min/sq ft (2.25 L/s/ sq. m), of fixed wall area when tested according to ASTM E783 at a minimum static air pressure differential of 1.57 lbf/sq. ft. (75 Pa).

.1 Test Area: A minimum area of 33 ft (10 m) by one story of glazed aluminum curtain wall.

.2 Perform a minimum of two tests in each area.

.6 Water Penetration Testing: Areas shall be tested according to ASTM E1105 at a minimum uniform static air pressure differential of 0.67 times the static air pressure differential specified in the Performance Requirements Article, but not less than 15 lbf/sq. ft. (720 Pa) and shall not evidence water penetration.

.1 Test Area: Minimum area of 10 ft (3 m) by one storey of glazed aluminum curtain wall.

.2 Perform a minimum of two tests in each area.

.7 Contractor's Responsibilities:

.1 Provide access to the work and preparation necessary for testing agency to conduct testing. Include lateral air seal and damming of designated stack joints.

.2 Construct portable air-tight plywood chambers approximately 39 inches (1 m) deep, complete with a door, and suitable for performing required tests; of area and construction acceptable to testing agency. Provide a water supply of the volume and pressure required to facilitate testing.

.8 Glazed aluminum curtain walls will be considered defective if they do not pass tests and inspections. Adjust, remove, reinstall and re-test, as directed by Consultant, until work complies with specified requirements. Costs of re-testing shall be paid by the Contractor.

.9 Do not proceed with tests in succeeding locations until work complies with specified

requirements.

.10 Prepare test and inspection reports.

END OF SECTION

Building Element	Location	Substrate	Colour	Finish
Exterior Cladding – Main Building				
Wall – Phenolic, wood	Typical	Phenolic	Trespa, NW07, Montreux Sunglow	Satin
Wall – Phenolic, White	West Wing	Phenolic	Trespa, A03, White	Satin
Wall – Phenolic, Red	South Wing	Phenolic	Trespa, A12.3.7, Carmine Red	Satin
Wall – Phenolic, Black	North Wing	Phenolic	Trespa, A90, Black	Satin
Wall – Phenolic, Blue	East Wing	Phenolic	Trespa, A23.0.4 Mineral Blue	Satin
Soffit - Metal	Typical	Steel	Lux V-Groove Soffit, Fawn	SMP
Roof Fascia	Roof	Phenolic	Trespa, A90, Black	Satin
Roof Overhang Flashing and Cap Flashing	Roof	Galv. Steel	Cascadia, Black	SMP
Flashing at Reveals & Window Heads	Typical	Galv. Steel	Cascadia, Black	SMP
Roof Membrane	Roof	SBS	Soprema, Grey	-
Roof Vents	Roof	Steel	White	Pre-finished
Openings				
Hollow Metal Door Frames - Exterior	Typical	Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Light Industrial Paint
Hollow Metal Doors - Exterior		Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Light Industrial Paint
Hollow Metal Door Frames - Interior	Typical	Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Latex Paint
Hollow Metal Doors - Interior	Typical	Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Latex Paint
Wood Doors - Veneer	Typical	Plain Sliced White Oak	Clear	W.B. Varnish
Aluminum Frames and Doors	Typical	Aluminum	Black	Anodized
Aluminum Curtain Wall	Typical	Aluminum	Black	Anodized
Spandrel	Typical	Glass	3-967, Black-Gray	-
Overhead Coiling Shutter	Kitchen	Aluminum	Clear Anodized	-
Mechanical Louvers and Hoods	Typical	Galv. Steel	BM 2134-30, Iron Mountain	Powder Coated
Roof Vents	Roof	Steel	Black	Pre-finished
Interior Wall Finishes				
Gypsum Wallboard	Typical	GWB	BM OC-117, Simply White	Latex Paint
Concrete Walls	Typical	Concrete	BM OC-117, Simply White	Semi-Gloss Latex Paint
Wall Tile	Typical	Ceramic	Olympia Arctic White	Mapei 38 Avalanche Grout
Resilient Base	Typical	Rubber	Charcoal	-
Wood Columns (Exposed)	Typical			W.B. Varnish

Building Element	Location	Substrate	Colour	Finish
Steel Columns (Exposed)	Typical	Intumescent Coating	BM 2120-10, Jet Black	Silicone Alkyd
Fiberglass Reinforced Panels	Kitchen	FRP	Bright White	Pebbled
Wood Slat Walls	Typical		Light Cherry	
Interior Floor Finishes				
Entrance Floor Grille	Entries	Aluminum	Black	-
Stairwell System	Stairwells	Rubber	Charcoal	-
Safety Flooring	Kitchen	-	Forbo, 174922 Concrete	-
Luxury Vinyl Tile – Type 1	Atrium, Corridor, storage, kitchen, copy room, Washroom	Vinyl	Interface, Textured Stone, Polished Cement, non-directional	-
Carpet Tile - Type 1	Offices	Carpet, Shaw	Distor 5T127_26515 Sight & Glitch 5T128_26515 Sight & Manipulate 5T130_26515 Sight	Ashlar
Carpet Tile - Type 2	Meeting Rooms & Executive Council	Carpet, Shaw	Distor 5T127_26515 Sight & Glitch 5T128_26515 Sight & Manipulate 5T130_26515 Sight & Color Form 5T112_81326 Hyper Green	Ashlar
Alternative Floor Tiles	Atrium Floor Tiles	Porcelain	Tierra Sol, Oslo, Cenere 12x24	
Interior Ceiling Finishes				
Gypsum Board Ceilings	Typical	GWB	Ceiling White	Matte Latex Paint
Acoustic Ceiling Tile	Typical	-	Standard White	Pre-Finished
Corridor Slat Suspended Ceiling	Corridor	SVG D.Fir Wood	Light Cherry	W.B. Varnish
Slat Suspended Baffle	Atrium, Council Chamber, Dining Room	Metal	Coriander	
Millwork				
Cabinets – P.Lam	Typical	Formica	7747-58 Pencil Wood	Matte Finish
Upper Cabinets – P.Lam	Typical	Formica	7747-58 Pencil Wood	Matte Finish
Counters – Solid Counter	Typical	Formica Everform	781 Luna Concrete	-
Equipment				

Building Element	Location	Substrate	Colour	Finish
Walk-in Cooler	Kitchen	Metal	Standard White	Pre-Finished
Elevator	Typical	Metal	Stainless	-
Roller Shades	Typical	Polyester	TBD	
Sealants				
Sealant	Perimeter of door frames		Black	
Sealant	Perimeter of grey doors frames		Grey	
Sealant	Perimeter of white windows/doors frames		White	
Sealant – Perimeter of Grey Frames			Grey	
Sealant – Porcelain sinks			Transparent	
Sealant – solid Counters			Transparent	
ENERGY CENTRE				
Soffit – Phenolic	Energy Centre	Phenolic	Trespa, NW07, Montreux Sunglow	-
Wall – Phenolic	Energy Centre	Phenolic	Trespa, NW07, Montreux Sunglow	-
Wall - Corrugated Metal	Energy Centre	Galv. Steel	Westform, Brite White	SMP
Roof – Standing Seam Metal	Energy Centre	Galv. Steel	Westform, Brite White	SMP
Roof Fascia	Roof	Galv. Steel	Cascadia, Bright White	SMP
Roof Overhang Flashing and Cap Flashing	Roof	Galv. Steel	Cascadia, Bright White	SMP
Mechanical Louvers and Hoods	Typical	Galv. Steel	White	Powder Coated
Hollow Metal Door Frames - Exterior	Typical	Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Light Industrial Paint
Hollow Metal Doors - Exterior		Galv. Steel	BM HC-166 Kendall Charcoal	Semi-Gloss Light Industrial Paint
Overhead Roller Door		Galv. Steel	White	Powder Coated
Flashing at Reveals & Window Heads	Typical	Galv. Steel	Cascadia, Bright White	SMP
Gypsum Wallboard	Typical	GWB	BM OC-117, Simply White	Latex Paint

SECTION 09 54 23
LINEAR METAL CEILINGS

Part 1 General

1.1 SECTION INCLUDES

.1 Linear metal baffles and suspension systems for ceilings.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate layout and installation of linear metal ceiling system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.3 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.2 Shop Drawings:

.1 Indicate ceiling and suspension system layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to system, and access panels.

.3 Samples: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below:

.1 Linear Metal Baffle: 12-inch (300 mm) long Samples of each type and colour, and end cap.

.2 Suspension System Members: 12-inch (300 mm) long Sample of each type.

.3 Acoustic Backer: 12-inch (300 mm) long.

.4 Delegated Design Submittal: Delegated design professional engineer’s Letter of Assurance for commitment.

1.4 SUBMITTALS FOR INFORMATION

.1 Delegated Design Submittal: For items specified to comply with seismic performance requirements and design criteria for attachment devices, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

.2 Qualifications Statements: For Installer, and delegated design professional engineer.

.3 Product Test Reports: For each ceiling assembly, for tests performed by a qualified testing agency.

.4 Attachment Device Test Reports: Indicating capability to sustain, without failure, load indicated without pulling out from substrate.

1.5 CLOSEOUT SUBMITTALS

.1 Maintenance Data: For finishes to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

.1 Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

.1 Linear Ceiling Components: Quantity of each baffle, carrier, and accessories equal to 2 percent of quantity installed.

.2 Fasteners: Furnish not less than 1 box for each 50 boxes or fraction thereof, of each type and size of fastener installed.

1.7 CLOSEOUT SUBMITTALS

.1 Delegated Design Submittals: Delegated design professional engineer's Letter of Assurance for compliance.

1.8 MOCK-UPS

.1 Mock-Ups: Build mock-ups not less than 96 x 96 inches (2440 x 2440 mm) square, including linear metal baffles, suspension system, and accessories, to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for materials and execution.

.1 Approved mock-ups may become part of the completed Work.

1.9 DELIVERY, STORAGE, AND HANDLING

.1 Deliver linear baffles, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they are protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

.2 Handle linear baffles, suspension system components, and accessories carefully to avoid damaging units and finishes in any way.

1.10 SITE CONDITIONS

.1 Environmental Limitations: Do not install linear ceilings until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section Quality Assurance and Quality Control, to design seismic restraints and attachment devices, according to applicable code.

.2 Installation Standards: Conform to:

.1 CISCA (Ceilings and Interior Systems Contractors Association) – Ceiling Systems Handbook requirements, and ASTM C636/C636M.

.2 Suspension System: ASTM E580/E580M; direct-hung tee system with main runners supported by hangers attached directly to building structure.

.3 Suspension System:

.1 Ceiling System: Capable of supporting imposed loads including integral mechanical and electrical components to a maximum deflection of L/360.

.2 Seismic Performance: Ceiling shall withstand the effects of earthquake motions determined according to applicable code.

2.2 LINEAR METAL BAFFLE CEILINGS

.1 Metal Baffle Ceiling: Provide manufacturer's standard linear metal baffles system.

.2 Basis of Design Product: Subject to compliance with requirements provide Metalworks Blades – Classics by Armstrong World Industries.

.1 Baffle Fabrication: Manufacturer's standard perforated aluminum profiles with factory-installed end capclip-attached to and be securely retained on suspension system carriers without separate fasteners, and finished to comply with requirements indicated.

.2 Dimensions and Baffle Spacing:

.1 AP-2: 94-1/2 x 6 x 2 inches (2400 x 152 x 51 mm), model 8157D62.

.2 AP-3: 94-1/2 x 4 x 1 inches (2400 x 102 x 25 mm), model 8157D41.

.3 Finish: Manufacturer’s standard factory-applied polyester paint.

.4 Colour: Coriander

.5 Surface Burning Characteristics: Class A.

.3 Acoustic Backer: Ceiling manufacturer’s black fibreglass fleece acoustic infill bag.

2.3 METAL SUSPENSION SYSTEMS

.1 Direct-Hung Tee System: Manufacturer’s standard grid system, and accessories according to ASTM C635/C635M, and complying with the following requirements:

.1 Structural Classification: Heavy-duty.

.2 Hanger Wires: Galvanized carbon steel, ASTM A641, soft tempered, pre-stretched, yield stress load of at least three times design load, but not less than 0.016-inch (0.41 mm) diameter.

.3 Tee Grid: Commercial quality cold-rolled steel, and manufacturer's standard finish, 15/16-inch face width.

.4 Grid Colour: Manufacturer’s standard black, unless otherwise selected by Consultant.

.2 Accessories: Stabilizer bars, clips, and other items required for a complete installation of ceiling system as recommended by ceiling manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, including structural framing and substrates to which linear metal ceilings attach, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of ceilings.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install linear metal ceilings to comply with manufacturer's written instructions, referenced installation standards, and seismic design requirements complying with ASTM E580.

.2 Suspend ceiling hangers from building's structural members and as follows:

.1 Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

.2 Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

.3 Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

.4 Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

.5 When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

.6 Do not attach hangers to steel roof deck. Attach hangers to structural members.

.7 Space hangers not more than 48 inches (1220 mm) o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.

.8 Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

.3 Install linear baffles in coordination with suspension system. Fit adjoining units aligned with flush, tight joints.

3.3 CLEANING

.1 Clean exposed surfaces of linear strip ceilings, after removing strippable, temporary protective covering if any. Comply with manufacturer's written instructions for stripping of temporary protective covering, cleaning, and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and bent units.

END OF SECTION

SECTION 09 65 10
RESILIENT FLOORING

Part 1 General

1.1 SECTION INCLUDES

.1 Resilient sheet and tile flooring.

.2 Flooring metal edge strips.

1.2 RELATED REQUIREMENTS

.1 Division 03 Sections for cast-in-place concrete, toppings and underlayments for floor preparation to receive resilient flooring.

.2 Division 09 Section Resilient Base.

1.3 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.2 Shop Drawings: For each type of resilient flooring.

.1 Include sheet flooring layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

.3 Samples: For each of the following.

.1 300 x 300 mm (12 x 12 inches) in size illustrating colour and pattern for each floor material for each colour specified.

.2 300 mm (12 inch) long samples of edge strip trim for selection.

.3 Heat-Welding Bead: manufacturer's standard-size Samples, but not less than 230 mm (9 inches) long, of each colour required.

.4 Welded-Seam Samples: For seamless-installation technique indicated and for each resilient sheet flooring product, colour, and pattern required; with seam running lengthwise and in centre of 150 x 230 mm (6 x 9 inch) Sample applied to a rigid backing and prepared by Installer for this Project.

1.4 SUBMITTALS FOR INFORMATION

.1 Qualification Statements: For Installer.

1.5 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.6 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Stock Materials: Provide a minimum 5 percent of each type and of each colour of flooring from same production run for project maintenance upon completion. Neatly package and identify materials and deliver to location specified by Owner.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for resilient flooring installations, and seaming methods indicated.

1.8 DELIVERY, STORAGE, AND PROTECTION

.1 Protect roll materials from damage in accordance with manufacturer's recommendations.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Store materials for three days prior to installation in area of installation to achieve temperature stability.

.2 Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 72 hours after installation of materials.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Fire Performance: Comply with flame/smoke rating requirements of in accordance with CAN/ULC-S102.2.

2.2 MANUFACTURERS

.1 Products: Subject to compliance with requirements provide flooring by manufacturers indicated, or comparable products.

2.3 RESILIENT TILE FLOORING

.1 Luxury Vinyl Tile:

.1 Basis of Design Product: Textured Stone provide by Interface.

.2 Tile Standard: ASTM F1700, Class III, Printed Film Vinyl Tile; Type A, Smooth Surface, or Type B, Embossed Surface, as selected by Consultant.

.3 Thickness: 4.5 mm

.4 Size: 20 inches x 20 inches (500 mm x 500 mm).

.5 Surface Treatment: Factory applied aluminium oxide polyurethane.

.6 Colours and Patterns: As selected by Consultant from manufacturer's full range.

.7 Wear Layer Tickness: 22 mil

2.4 RESILIENT SHEET FLOORING

.1 Vinyl Sheet Flooring – Food Service Kitchens, Labs, Other Areas Where Indicated.: Slip-resistant, commercial grade.

.1 Product: Safestep R11 by Forbo Flooring Systems, or comparable product

.2 Thickness: 2 mm (0.080-inch).

.3 Width: 2 m (78.74 inches)

.4 Slip Resistance: Exceeds ADA requirement of 0.6 for flat surfaces and 0.8 for ramps per ASTM D2047.

.5 Seaming Method: Heat welded.

.6 Pattern and Colour: As selected by Consultant from manufacturer's standard product range.

.2 Vinyl Sheet Flooring – Washrooms, Other Areas Where Indicated: Slip-resistant:

.1 Product Standard and Type: Comply with one of the following:

.1 ASTM F1303, Type 2, Grade 1, with Class A, B, or C backing. Altro

.2 ASTM F1913, without backing.

.2 Static Coefficient of Friction: ASTM D2047, not less than 0.60.

.3 Overall Minimum Thickness: 2 mm (0.080-inch).

.4 Seamless Installation Method: Heat welded.

.5 Products: Provide one of the following:

.1 Aquarius by Altro Flooring.

.2 Granit Safe-T by Tarkett Company.

.6 Colours: As selected by Consultant from manufacturer's standard colour range.

2.5 RESILIENT BASE AND ACCESORIES

.1 Resilient Base, Resilient Tactile Accessories: As specified in Division 09 Section Resilient Base and Accessories.

2.6 INTEGRAL-FLASH-COVE BASE

.1 Metal cap strip to terminate sheet flooring and cant strip and associated accessories, as recommended by flooring manufacturer.

.1 Cant Strip: Manufacturer’s standard plastic cove stick designed for use with specified flooring.

.2 Cap Strip: Cap strip projection not to exceed thickness of tile where flash-cove base abuts wall tile.

2.7 ACCESSORIES

.1 General: Provide accessories and auxiliary necessary and required by flooring manufacturer to complete installation.

.2 Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by resilient flooring and adhesive manufacturer. Include manufacturer recommended primers for bonding leveling and patching compound to substrate.

.3 Primers and Adhesives: Waterproof; types recommended by flooring and underlayment manufacturer. Maximum VOC limit of 50 g/L.

.4 Metal Edge Strips between Flooring and Adjoining Floor Finish:

.1 Floor Finishing Accessories: Extruded aluminum with mill finish.

.2 Size: Of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.

.3 Products:

.1 Generally: As selected by Consultant from Johnsonite product range, satin anodized aluminum finish.

.2 At Terminations with Carpet: Schluter Schiene, satin anodized aluminum finish.

.5 Seam Welding Materials: Manufacturer's solid-strand product for heat welding seams. Colour to match flooring.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

.2 Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor coverings.

.3 Verify items penetrating flooring have been installed.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.

.2 Concrete Substrates: Prepare according to ASTM F710.

.1 Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

.2 Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

.3 Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

.4 Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

.3 Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

.4 Do not install floor coverings until they are same temperature as space where they are to be installed.

.1 Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

.5 Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.3 INSTALLATION

.1 Comply with manufacturer's written instructions for installing floor coverings.

.2 Tile Flooring:

.1 Lay out floor tiles from centre marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

.1 Lay tiles square with room axis, unless otherwise indicated.

.2 Match floor tiles for colour and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

.1 Lay tiles in pattern of colours and sizes indicated.

.3 Sheet Flooring:

.1 Unroll floor coverings and allow them to stabilize before cutting and fitting.

.2 Lay out floor coverings as follows:

.1 Maintain uniformity of floor covering direction.

.2 Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches (150 mm) away from parallel joints in floor covering substrates.

.3 Net fit seams.

.4 Match edges of floor coverings for colour shading at seams.

.5 Avoid cross seams.

.4 Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.

.5 Extend floor coverings into toe spaces, door reveals, closets, and similar openings. Terminate flooring at centreline of door openings where adjacent floor finish is dissimilar, unless otherwise indicated.

.6 Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on substrates. Use chalk or other nonpermanent marking device.

.7 Adhere floor coverings to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

.8 Integral-Flash-Cove Base: Cove resilient flooring 127 mm (5 inches) high, unless otherwise indicated, up vertical surfaces. Support resilient flooring at horizontal and vertical junction with cove strip. Butt at top against cap strip.

.9 Resilient Base: Install bases as specified in Division 09 Section Resilient Base.

.10 Install metal edge strips. Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.4 CLEANING AND PROTECTION

.1 Comply with manufacturer's written instructions for cleaning and protecting resilient flooring.

.2 Perform the following operations immediately after completing resilient flooring installation:

.1 Remove adhesive and other blemishes from surfaces.

.2 Sweep and vacuum surfaces thoroughly.

.3 Damp-mop surfaces to remove marks and soil.

.3 Protect resilient flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

.4 Cover resilient flooring until Substantial Performance.

.1 Protect flooring from damage from rolling loads with plywood coverings. Protect areas not subject to rolling loads with lapped cardboard or building paper with taped joints.

END OF SECTION

SECTION 09 68 13
TILE CARPETING

Part 1 General

1.1 SECTION INCLUDES

.1 Carpet tile, including edge strips.

1.2 RELATED REQUIREMENTS

.1 Division 03 Section Cast-in-Place Concrete, for floor substrate surface.

.2 Division 09 Section Resilient Base, for wall base.

1.3 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product. For carpet tile include physical and performance characteristics; sizes, patterns, colours, and method of installation.

.2 Samples: For carpet tiles illustrating colour and pattern design for each carpet colour selected. Include each type of edge strip.

1.4 SUBMITTALS FOR INFORMATION

.1 Qualification Statements: For Installer.

.2 Product Certificates: For each type of carpet, signed by product manufacturer. Include registration numbers and statements certifying that installed carpet has been manufactured to manufacturer’s specifications.

1.5 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.6 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Stock Materials: Provide 5 percent of total area installed and not less than 10 sq. m of carpet tiles of each colour and pattern selected.

1.7 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience, and approved by the manufacturer.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Store materials for three days prior to installation in area of installation, to achieve temperature stability.

.2 Maintain minimum 21 deg. C and maximum 35 deg. C ambient temperature three days prior to, during and 48 hours after installation materials. Maintain continuous ventilation and heating facilities similar to the requirements for the completed building thereafter.

1.9 WARRANTY

.1 Manufacturer’s Special Warranty: Provide a ten-year manufacturers' written labour and material covering failure in carpet tile materials and workmanship.

.1 Failures include, but are not limited to:

.1 Abrasive wear not more than ten percent, excluding pulls, cuts, pilling, shedding, matting or damage due to use of improper cleaning agents or methods subject to proper care and maintenance.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Conform to applicable code for carpet flammability requirements in accordance with CAN/ULC-S102.2, or other standards acceptable to authority having jurisdiction.

2.2 TILE CARPETING

.1 Carpet Tile: Multi-Level Pattern Loop, glue-down application.

.1 Product: Distort, Glitch, Manipulate, Color Form by Shaw.

.2 Colour: As selected by Consultant from manufacturer’s full colour range.

.3 Fiber Content: Ecosolution Q100 Nylon

.4 Tile Direction Pattern: As selected by Consultant.

.5 Surface Pile Weight: 610 g./sq. m.

.6 Backing: Manufacturer’s standard, vinyl.

.7 Size: 460mm x 910mm

.8 Applied Soil-Resistance Treatment: Manufacturer's standard material.

.9 Emissions: Less than 0.5 mg/sq. m/h.

.10 Flammability: ASTM D2859; Pass.

.11 Electrostatic Propensity: 0.2 kV according to ISO 6356.

2.3 ACCESSORIES

.1 Sub-Floor Filler: White premix latex; non-shrinking, minimum 20 MPa, type as recommended by flooring material manufacturer.

.2 Adhesives: Premium grade, low VOC, solvent-free, waterproof types to suit substrate application and usage conditions.

.1 Carpet Adhesive: Release type to suit carpet backing and as recommended by carpet manufacturer; maximum VOC content of 50 g/L.

.3 Primers and Sealers: As recommended by carpet manufacturer.

.4 Edge/Transition Strips: Types and products as indicated, of height required to protect exposed edge of carpet and adjoining flooring, and of maximum lengths to minimize running joints.

Part 3 Execution

3.1 EXAMINATION

.1 Verify that surfaces are smooth and flat to tolerances specified in the Quality Standard, and are ready to receive work.

.2 Verify concrete floors are dry to a maximum moisture content of 7 percent; and exhibit negative alkalinity, carbonization, or dusting.

.3 Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

.1 Prepare floor to CRI Carpet Installation Standard.

.2 Remove subfloor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler.

.3 Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

.4 Seal and prime substrates in accordance with manufacturer's recommendations and sand smooth.

.5 Vacuum clean substrate.

3.3 INSTALLATION

.1 Install carpet tile and adhesive in accordance with manufacturer's written instructions, supplemented by CRI Carpet Installation Standard.

.2 Integrate and blend carpet from different cartons to ensure minimal variation in colour match.

.3 Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

.4 Lay carpet tile in patterns as indicated; ensure matching dye lot, pattern, and texture. Layout tiles as indicated on Shop Drawings.

.5 Locate change of colour or pattern between rooms under door centerline.

.6 Fully adhere carpet tile to substrate.

.7 Bind cut edges where not concealed by edge strips.

.8 Fit carpet tile tightly and neatly at perimeters and around fixtures, fitments and penetrations.

.9 Edge Strips: Install one-piece edge strips to exposed carpet tile edges, conforming to high and low spots in sub-floor. Securely anchor.

3.4 CLEANING

.1 Remove excess adhesive without damage, from floor, base, and wall surfaces.

.2 Clean and vacuum carpet surfaces.

3.5 PROTECTION

.1 Do not permit traffic over unprotected floor surface.

.2 Protect carpet tile against damage from rolling loads with plywood coverings until Substantial Performance.

END OF SECTION

SECTION 09 80 00
ACOUSTICAL CEILING PANELS

Part 1 General

1.1 SECTION INCLUDES

.1 Non-woven layered and formed Polyester felt fiber ceiling panels.

1.2 REFERENCE STANDARDS

.1 ASTM International

- .1 ASTM C840 Standard Specification for Application and Finishing of Gypsum Board
- .2 1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
- .3 ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
- .4 ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- .5 ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- .6 ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- .7 ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material
- .8 ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint

.2 Underwriter's Laboratories of Canada (ULC)

- .1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

.3 ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

1.3 COORDINATION

.1 Do not begin installation of wall panel system until work above ceiling has been inspected by Consultant.

.2 Cooperate with mechanical and electrical Subcontractors.

.3 Coordinate layout and installation of acoustic wall panels and components with other work supported by or penetrating through walls, including light fixtures, HVAC

equipment, electrical and other work required to be incorporated in or coordinated with the wall system.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit samples in accordance with Section 01 33 00- Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for acoustic panels, and system accessories. Include product characteristics, performance criteria, physical size, finish and limitations.

.3 Delegated Design Submittals:

.1 Submit delegated design shop drawings stamped and signed by professional engineer registered or licensed in Yukon.

.2 Indicate components and installation methods to conform to specified seismic design and construction requirements of Contract Documents and in general accordance with ASTM E580/E580M.

.3 Include supporting details, treatment of cross runners, main runners, and wall closures at terminal ends, light fixtures and services within the wall, seismic isolation joints and partition bracing.

1.5 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 77 00- Closeout Submittals.

.2 Submit operation and maintenance data for acoustical suspension for incorporation into manual.

.3 Submit final certificate from design professional responsible for delegated detail design of ceiling indicating conformity with accepted shop drawings.

1.6 MAINTENANCE MATERIALS

.1 Provide extra acoustical units in accordance with Section 01 77 00- Closeout Submittals.

.2 Provide acoustical units amounting to 2 % of gross ceiling area for each pattern and type of acoustical panel, suspension system and trim required for project, minimum 1 complete factory-sealed package of each.

.3 Ensure extra materials are from same production run as installed materials.

.4 Deliver extra materials for acoustical panel in original unopened packages clearly identified, including colour and texture.

.5 Deliver to Owner, upon completion of the work of this section.

1.7 CERTIFICATIONS

.1 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements. Include certification of sustainable requirements.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20-40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

Part 2 Products

2.1 DESIGN CRITERIA

.1 Design Requirements:

.1 Intermediate duty system to ASTM C 635/ASTM C635M.

.2 Maximum deflection: 1/360th of span to ASTM C 635/ASTM C635M deflection test.

.2 Seismic design requirements:

.1 Design acoustical ceiling installation to resist effects of earthquake motions under seismic design conditions specified in Contract Documents. Provide components as necessary to implement design.

2.2 ACOUSTICAL WALL UNITS

.1 Acoustical Panels: to ASTM E1264 and as follows.

.1 Class A Fire Rating with ASTM E1264.

.2 Composition: Non-woven layered and formed Polyester felt fiber

.3 Texture: soft

.4 Colour: black

.5 Size: 1219 mm x 2438 mm x 25.4 mm

.6 Edge profile: Square Edge

.7 Acoustical Performance: 0.90 NRC to ASTM C423

.8 Flame spread rating: Class A

.9 Dimensional Stability: HumiGuard Plus

.10 Basis of Design: FELTWORKS as manufactured by Armstrong World Industries.

Part 3 Execution

3.1 EXAMINATION

.1 Verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical wall panels a in accordance with manufacturer's written instructions.

3.2 INTERFACE WITH OTHER WORK

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, to be built into acoustical wall panel components.

3.3 PREPARATION

.1 Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.4 ACOUSTICAL CEILING PANEL INSTALLATION

.1 Install acoustic ceiling panels in accordance with manufacturer’s instructions and as indicated.

3.5 SITE QUALITY CONTROL

.1 Arrange for periodic site visits by design professional responsible for delegated ceiling design work to review installed work for conformity to design.

.2 Submit written site reports by designer to Consultant within 3 days of visit.

3.6 CLEANING

.1 Progress and Final Cleaning: clean in accordance with Section 01 74 00- Cleaning.

.1 Leave Work area clean at end of each day.

3.7 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by acoustical suspension installation.

END OF SECTION

SECTION 11 31 00
RESIDENTIAL APPLIANCES

Part 1 General

1.1 SECTION INCLUDES

.1 Residential appliances.

1.2 RELATED REQUIREMENTS

.1 Division 22 Plumbing: Domestic water, piping and drainage.

.2 Division 23 Heating, Ventilating, and Air-Conditioning (HVAC), for ducting for connecting hood fans.

.3 Division 26 Electrical: Power.

1.3 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.1 Include installation details, material descriptions, dimensions ofindividual components, and finishes for each appliance.

.2 Include rated capacities, operating characteristics, dimensions, furnished accessories, and finishes for each appliance.

1.4 SUBMITTALS FOR INFORMATION

.1 Qualifications Statements: For Installer.

.2 Field quality control reports.

1.5 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: For each residential appliance to include in operation and maintenance manuals. Include warranty documentation provided with unit.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: An employer of workers trained and approved by manufacturer for installation and maintenance of units required for this Project.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Electrical Appliances: Conform to applicable code for CSA or UL approval and certification, and marked for intended location and application.

2.2 APPLIANCES - GENERAL

.1 ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling programme, as indicated.

.2 Products, General: Provide products by manufacturers as indicated, or comparable product.

2.3 APPLIANCES

.1 Electric Range Slide-in range with one oven and complying with AHAM ER-1.

.1 Width: 30 inches.

.2 Electric Burner Elements: Four.

.2 Microwave Oven:

.1 Type: Convection.

.2 Capacity: 2.0 cu. ft. (0.06 cu. m).

.3 Overhead Exhaust Hood:

.1 Type: Wall-mounted exhaust-hood system.

.2 Dimensions: 30 inches (762 mm) width x 30 inches (762 mm) depth.

.3 Exhaust Fan: Variable-speed fan built into hood and with manufacturer's standard 500-cfm (236-L/s) capacity.

.4 Venting: Vented to outside through wall with weatherproof wall cap, backdraft damper, and rodent-proof screening.

.4 Refrigerator/Freezers - Electric:

.1 Refrigerator/Freezer: Two-door refrigerator/freezer with freezer on bottom, and complying with AHAM HRF-1.

.1 ~~Type 1:~~ Freestanding, 30 inches wide (762 mm)

~~.2 Type 2: Undercounter, 24 inches wide.~~

.2 ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.

.5 Dishwashers:

.1 Dishwasher: Complying with AHAM DW-1.

.2 Type: Built-in undercounter.

.3 Dimensions: 24 inches (610 mm) wide

.4 Controls: Touch-pad controls with four wash cycles and hot-air and heat-off drying cycle options.

.5 ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.

.6 Front Panel: To match kitchen cabinets.

2.4 ACCESSORIES

.1 Pipe and Fittings: When material supplied with appliance is inappropriate for connecting to utilities provide items as recommended by appliance manufacturer.

.2 Fasteners and Anchors: Galvanized or stainless steel type, anchors, screws, bolts, expansion shields, set screws; required by the type of construction to which they are attached.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.

.2 Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.

.3 Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 General: Comply with manufacturer's written instructions, and CSA and UL requirements.

.2 Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.

.3 Set and adjust units level and plumb.

.4 Utilities: Comply with plumbing and electrical requirements.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections.

.1 Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.

.2 Leak Test: After installation, test for leaks. Repair leaks and retest until no leaks exist.

.3 Operational Test: After installation, start units to confirm proper operation.

.4 Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.

.2 An appliance will be considered defective if it does not pass tests and inspections.

.3 Prepare test and inspection reports.

3.4 SCHEDULE

.4 Refer to Section 11 44 50 – F.S.E Schedule for Room E-117 Kitchen Equipment. Schedule.

.5 Electric Range: Room N-201 and S-202

.6 Microwave Oven: Room E-107, W-111, N-201, E-207 and S-202.

.7 Overhead Exhaust hood: Room N-201 and S-202.

.8 Refrigeration/ Freezer: Room E-107, W-111, N-201, E-207, S-202

END OF SECTION

SECTION 12 24 13
ROLLER WINDOW SHADES

Part 1 General

1.1 SECTION INCLUDES

.1 Interior roller window coverings and associated hardware, manual and motor-operation.

1.2 RELATED REQUIREMENTS

.1 Division 06 Rough Carpentry: Wood blocking for mounting roller shades and accessories.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Coordination:

.1 Coordinate the work above ceiling or behind wall finish for blocking and anchor support and positioning.

1.4 SUBMITTALS FOR REVIEW

.1 Product Data: For each type of product.

.2 Shop Drawings:

.1 Indicate dimensions in relation to window jambs, operator details, top rail, conditions between adjacent blinds, corner conditions anchorage details, hardware and accessories details, and required clearances.

.2 Include schedule indicating location of each shade type.

.3 Motor-Operated Shades: Include details of installation and diagrams for power, signal, and control wiring.

.3 Samples:

.1 Shadeband Material: Not less than 10 inches (254 mm) square. Mark interior face of material if applicable.

.2 Roller Shade: Full-size operating unit, not less than 16 inches (400 mm) wide by 36 inches (900 mm) long for each type of roller shade indicated.

1.5 SUBMITTALS FOR INFORMATION

.1 Qualifications Statements: For Installer.

.2 Product Certificates: For each type of shadeband material.

.3 Product Test Reports: For each type of shadeband material, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: For roller shades to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

.1 Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

.1 Roller Shades: Full-size units equal to 5 percent of quantity installed for each size, colour, and shadeband material indicated, but no fewer than two units.

1.8 QUALITY ASSURANCE

.1 Installer Qualifications: Fabricator of products or Installers trained and approved by manufacturer.

1.9 MOCK-UP

.1 Build mock-up of each type of roller shade assembly to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

.2 Approved mock-ups may remain part of the Work.

1.10 DELIVERY, STORAGE, AND HANDLING

.1 Deliver roller shades in factory-labelled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Do not install roller shades until finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.12 SITE CONDITIONS

.1 Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Consultant of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

.1 Shadeband Material Flame-Resistance: Conform to NFPA 701 and CAN/ULC S109. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

.2 Electrical Components, Devices, and Accessories: Listed and classified by UL or CSA.

.3 Comply with Window Covering Manufacturer's Association (WCMA) standard ANSI/WCMA A100.1 - Safety of Corded Window Covering Products, and current regulations restricting use of corded window coverings.

2.2 MANUFACTURERS

.1 Source Limitations: Obtain roller shades from single source from single manufacturer.

.2 Products: Subject to conformance to requirements provide products by MechoShade Systems, Inc., or products from one of the following:

.1 Levolor Contract Shading Systems.

.2 Altex Roller Shades

.3 Solarfective Products Ltd.

2.3 SHADES

.1 Description: Exposed headbox-mounted, single and combination roller shades.

.2 Light-Filtering Fabric: Roller shade manufacturer's standard woven fabric, stain and fade resistant, PVC-free, zero VOC fabric.

.1 Product: Manufacturer's Ecoveil Group, as selected by Consultant.

.2 Openness Factor:

.1 3 percent openness generally.

.2 1 percent openness for Atrium areas and other rooms as selected by Consultant.

.3 Colours and Patterns: As selected by Consultant from manufacturer's full range.

.3 Shadeband Bottom (Hem) Bar: Manufacturer's standard extruded aluminum. Exposed type with end caps. Colour and Finish: As selected by Consultant.

.4 Shade Orientation: Shadecloth to roll at window side of roller.

.5 Provide for infinite positioning of window shade to any desired height, and maintaining that position without slippage, when operation is released..

.6 Accessories:

.1 Exposed Headbox: Rectangular, extruded-aluminum enclosure including front fascia, top and back covers, endcaps, and removable bottom closure.

.1 Endcap Covers: To cover exposed endcaps.

.2 Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller mounting configuration, roller assemblies, operating mechanisms, installation accessories, and installation locations and conditions indicated.

2.4 MANUALLY OPERATED SHADES

~~.1 Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.~~

~~.1 Bead Chains: Manufacturer's standard stainless steel.~~

~~.1 Loop Length: Full length of roller shade.~~

~~.2 Limit Stops: Provide upper and lower ball stops.~~

~~.3 Chain Retainer Type: Chain retainer, jamb or wall mounted.~~

.2 Cordless Control System

.1 Basis of Design: Newton High-Speed Lite-Lift by Altex Roller Shades or

.2 Approved alternate manual cordless control system.

2.5 ELECTRICALLY OPERATING SYSTEM

.1 Provide factory-assembled, motorized direct drive shade-operator system of size and capacity and with features, characteristics, and accessories suitable for conditions indicated, complete with electric motor and factory-prewired motor controls, power disconnect switch, enclosures protecting controls and operating parts, and accessories required for reliable operation without malfunction. Include wiring from motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

.1 Electric Motor: Type designed to be enclosed in roller.

.2 Electrical Characteristics: Single phase, 110 v AC, 60 Hz.

.2 Wall Switches: Flush mounted, three-button, with metal cover plate per Electric controls with NEMA ICS 6, Type 1 enclosure; for individual and group control. Quantity: one per room.

.3 Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop shade at fully raised and fully lowered positions.

.4 Crank-Operator Override: Crank and gearbox operate shades in event of power outage or motor failure.

.5 Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features; isolated from voltage spikes and surges.

.6 Provide shade hardware system that allows for field adjustment of motor or replacement of any operable hardware component without requiring removal of brackets, regardless of mounting position.

.7 Operating Features:

.1 Group switching with integrated switch control; single faceplate for multiple switch cutouts.

.2 Capable of interface with audiovisual control system.

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, locations of connections to building electrical system, and other conditions affecting performance of the Work.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions using hardware and accessories to provide smooth operation without binding.

.2 Locate shadebands with dimension to interior face of glass as in indicated on Shop Drawings.

.3 Securely screw end plugs to conceal exposed cut aluminum of exterior hem bar.

.4 Electrical Connections: Connect electrically operated roller shades to building’s electrical system.

3.3 ADJUSTING

.1 Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

.1 Clean roller shade surfaces, after installation, according to manufacturer's written instructions.

.2 Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Ready-for-Takeover.

.3 Replace damaged roller shades that cannot be repaired, in a manner approved by Consultant, before time of Ready-for-Takeover.

3.5 SCHEDULE

.1 Atrium: Motor-operated.

- CW-1 Double height section only and above main vestibule, but exclude main vestibule.
- CW-2 Double height section only.
- CW-3
- CW-4

.2 Offices, and Meeting Rooms: Manual.

- CW-1 at E-100, E229 and E200
- CW-2 at N-104 and N208
- All CW-5
- CW-6, CW-7, CW-8, CW-9
- SF-4, SF8, SF-17, SF21 at S-200 windows and doors.

END OF SECTION