CROWN XCL
XTERIOR COMPACT LAMINATES

XTERIOR COMPACT

Laminates

www.crownlam.com

PARTIAL VIEW OF FACTORY

INTRODUCTION

Crown Decor (a Royale Touche Laminate Group Company), a niche Luxury Laminate brand from India, was launched in 1978 with the idea that a laminate has unlimited potential in surface decor. They made people to look at laminates as a resilient and flexible product. They gave laminates a complete makeover with unparalleled endless design and textures. The product has rich luxurious feel that adds aesthetic value to interiors that make architect, end users and interior designer's life easy.

With over 45 years of experience in the manufacturing industry, group has eight production lines of high pressure laminates producing over 20 million sq mtr. annually in 4 different sizes and in thickness ranging from 0.6mm to 25mm which are made of 100% phenolic resin. The laminates are manufactured at a qualifying facility equipped with imported machinery from Spain, Italy and Germany. Products are created with imported design papers made from highly stable and resistant pigments which guarantees freshness years after years of its use. All the products bear Greenguard, Greenbuilding, FSC, CE, EN 438, Green Label, NEMA LD3-2005, Indian Standard & Fire Rating B-s1d0 Certification. Its's an Indian Power Brand classified product.

Crown XCL Laminate, is a high quality HPL panel. Innovative, practical and durable solution for Buliding Facade/ Cladding, Balconies, Verandah, Fences, Outdoor benches, Table Tops application. Also in product range are anti skid/ anti slippery surface laminates suitable for deck and outdoor flooring application. The exceptional characteristics of XCL panel make this product a versatile solution with simple installation and maintenance, thereby improving the look, performance and durability. We have completed several projects Pan India and Overseas.


Water Resistant

Heat Resistant


Resistant To Cigarette Burns

Colourfast


Scratch Resistant


Impact Resistant

Environment Friendly


Stain Resistant


Sleek Modern Design

Rot Resistant


Stability


Suitable for Contract use


Flame Resistant


Weather Resistant

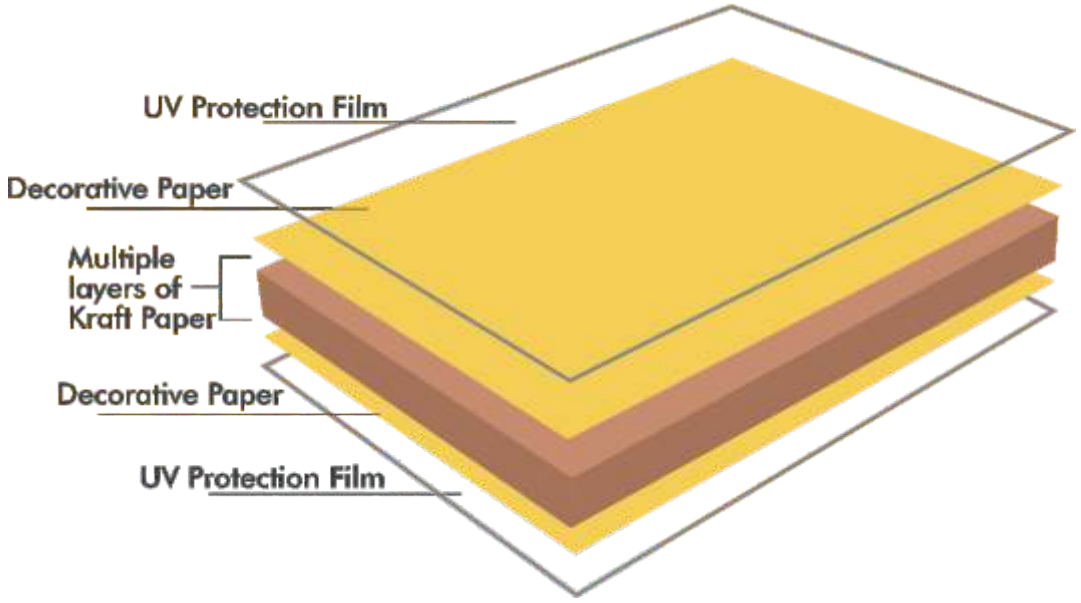

Indoor and Outdoor use


Easy To Clean


Minimum Maintenance

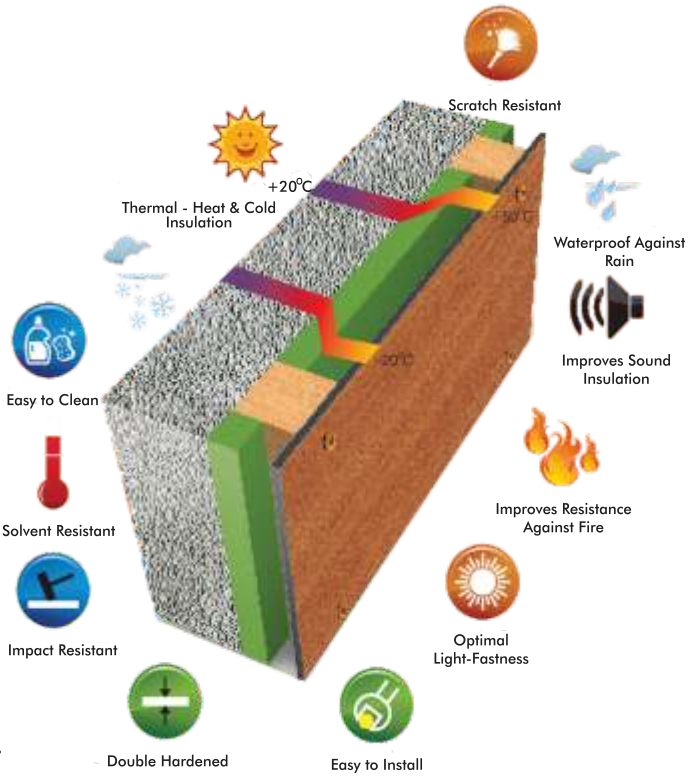
COMPOSITION

Crown XCL Panel is a solid phenolic engineered exterior facade panels having a decorative surface on both the sides. Robust and resilient, these rigid homogeneous panels are manufactured using thermosetting resins reinforced with cellulose fibre for added strength and durability. An acrylic overlay provides enhanced UV protection. With a density of 1.45gms/Cm3. XCL panel is impressively strong damage resistant and has a remarkable structural stability requiring no substrate support in thickness over 6mm.



FEATURES & BENEFITS

- ★ Decorative
- ★ High Weather Resistance
- ★ Optimal Light Fastness
- ★ Scratch Resistance
- ★ Solvent Resistance
- ★ Self Supporting
- ★ Impact Resistance
- ★ Heat Resistance
- ★ Fire Resistance
- ★ Easy to Clean and Maintain
- ★ Overall Light Weight Substructure and facade
- ★ Sustainability
- ★ Quick and Easy to Assemble
- ★ Increased Sound Proofing Function (upto 15 Db)
- ★ Decrease Air Conditioning Costs
- ★ Provide Wall Protection & Heat Insulation against Atmospheric Precipitation

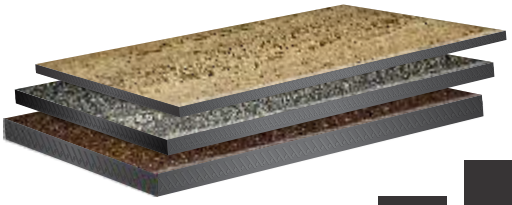


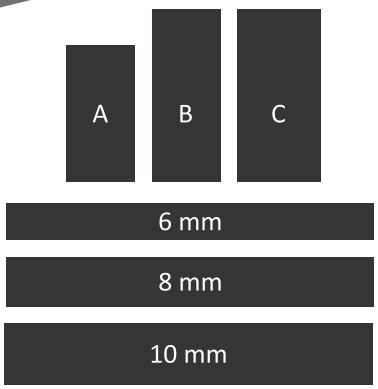
DIMENSIONS

2440 x 1220 mm (A)
3050 x 1220 mm (B)
3050 x 1300 mm* (C)
*(Available in Selected Colours)

THICKNESS

6, 8 and 10 mm





DECOR

Double - sided
Single - sided
(available upon request)

FINISH

Suede Finish
Note : Custom finishes available upon request in size 1220 x 2440 mm and 1300 x 3050 mm

PERFORMANCE

Properties	Standard Value	CrownXCL Value
Apparent Density	1.35g/cm^3	1.45g/cm^3
Flexural Strength	80N/mm^2	114N/mm^2
Modulas of elasticity	9000N/mm^2	13966N/mm^2
Tensile Strength	60N/mm^2	66N/mm^2
Dimentional stability at elevated temperatures	Lengthwise: 0.40% Crosswise: 0.80%	Lengthwise: 0.25% Crosswise: 0.40%
Artificial Weathering	Grey Scale: Rating 3 Appearance: Rating 4	Grey Scale: Rating 4 Appearance: Rating 4
UV-light resistance	Grey Scale: Rating 3 Appearance: Rating 4	Grey Scale: Rating 4 Appearance: Rating 4

FIRE BEHAVIOUR

Valid in	Test Method	CrownXCL Value
Canada	CAN/ULC S134	Passed
Europe	CSN EN 13501-1+A1	B-s1, d0 (Passed)
USA	NFPA 285	Passed
Canada + USA	ASTM E 84	Flame Spread Index: 10 Smoke Developed: 0

APPLICATIONS

FACADE

LOUVERS

GATE

PARGOLA

SHOP FRONT

BALCONY

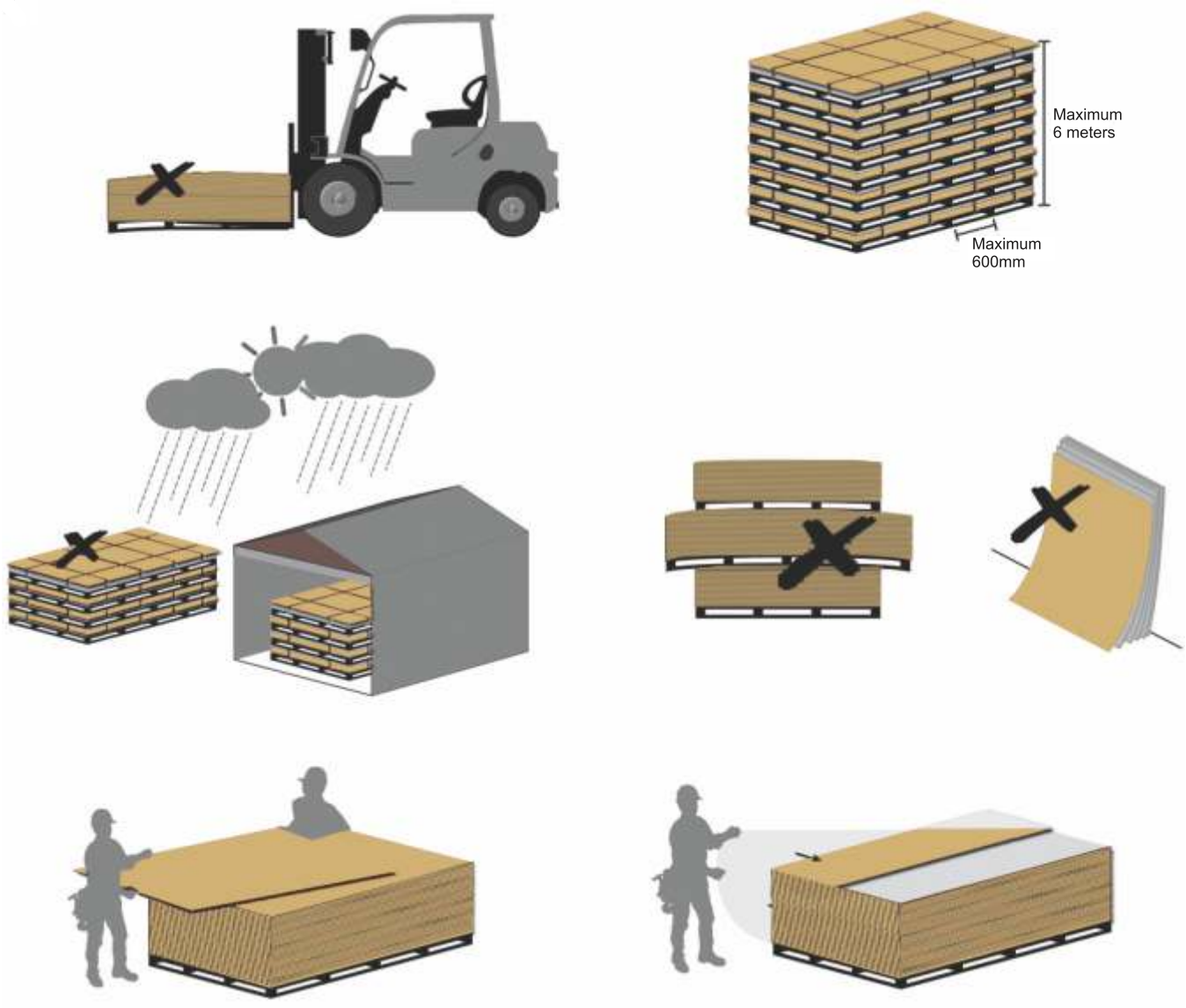
INDEX

HANDLING & LOGISTIC GUIDELINES

Handle Crown XCL panels with care in order not to damage the edges and surface of high quality material. In spite of the excellent surface hardness and the protection film, the stack weight of compact weight panel is a positive cause of damage. Therefore, any form of dirt or dust between these panels must be avoided. Panels must be secured against slippages during transportation. When loading and unloading, the panels must be lifted and not pushed or pulled over the edges.

During the handling and installation of Crown XCL panels, one must use protection equipments specially hand gloves. The panels must be stacked horizontally on flat and stable support with supporting panels. These panels must lie completely flat and the coverplates should be left on the stack. The top cover should be weighed down and must be wrapped by plastic.

Crown XCL panels are to be stored in a closed room under normal climatic conditions to avoid excess humidity and heat. Appropriate distance to be maintained between each side of the panel.



CLEANING GUIDELINES

Crown XCL panels are low maintenance. Thanks to its homogeneous and pore free surface, it does not require any special care. However, after processing and finishing or over the course of time, it maybe necessary to clean the surface.

The recommended cleaning procedures apply to surface contaminations resulting from the general use, processing and installation of Crown XCL panels.

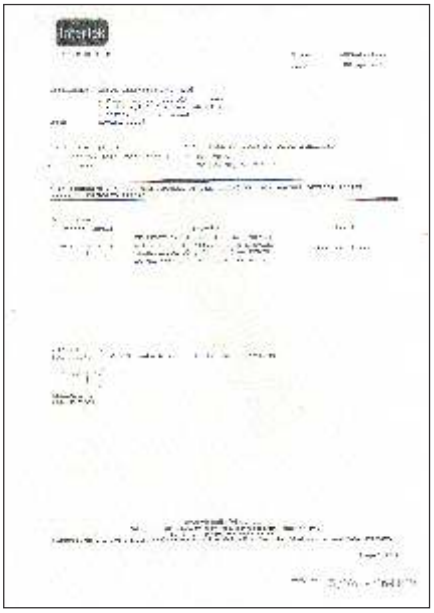
Cleaning Methods

- Light dirt can be removed with clear, luke warm water. Heavier dirt can be removed with soap suds or a liquid solution.
- Use non abrasive household cleaning products diluted in water.
- Use fine and clean cloth or sponge.
- Always rinse with clean, clear water to prevent streaks from forming.

The following cleaning agents must never be used :

- Abrasive cleaning agents (e.g. scrubbing powder and abrasive cleaning liquids)
- Solvents and solvent cleaner (e.g. acetone, benzine, thinner etc.)
- Scrubbing and abrasive cleaning rags or sponges (e.g. micro fiber cloth, scrubbing sponge, steel wool etc.)
- High pressure cleaners and steam cleaners.

CERTIFICATIONS



TECHNICAL SPECIFICATIONS

EXTERIOR GRADE COMPACT LAMINATE SIZE : 1220mm x 2440mm & 1220mm x 3050mm			
Sl. No.	Properties	EDF Grade Specification As per EN 438 - part 6	CROWN LAMINATES & Beyond Values
1	Thickness (mm.) (max.)		
	5.00⩽ t <8.00 (mm.)	6.00∓0.40mm.	6.15 mm.
2	Length (mm.)	2440.00 + 10.00/-0.00mm.	2441.00 mm.
3	Width (mm.)	1220.00 + 10.00/-0.00mm.	1221.00 mm.
4	Edge Straightness mm. (max)	1.50 mm./m.	0.90 mm./m.
5	Edge Squareness mm. (max)	1.50 mm./m.	0.80 mm./m.
6	Flatness mm. (max)		
	2.00⩽ t <6.00 mm.	8.00 mm./m.	4.00 mm./m.
	6.00⩽ t <10.00 mm.	5.00 mm./m.	2.50 mm./m.
	t⩾10.00 mm.	3.00 mm./m.	1.30 mm./m.
7	Flexural Modulus (min.)	9000 Mpa.	13966 Mpa.
8	Flexural Strength (min.)	80 Mpa.	114 Mpa.
9	Tensile Strength (min.)	60 Mpa.	66 Mpa.
10	Density, gm./cm3 (min.)	1.35 gm./cm3	1.45 gm./cm3
11	Resistence to impact by large diameter ball.		
	a) Drop height mm. (min.)		
	2.00⩽ t <5.00 mm. (t=nominal thikness)	1400 mm.	1600 mm.
	t⩾5.00 mm.	1800 mm.	2000 mm.
	b) Indentation dia. mm. (max.)	10 mm.	6 mm.
12	Resistence to wet conditions		
	a) Mass increase (%) max.		
	2.00⩽ t <5.00 mm. (t=nominal thikness)	10%	4%
	t⩾5.00 mm.	8%	3%
	b) Appearance not worse than	Rating 4	Rating 5
13	Dimensional stability at elevated temperature		
	2.00⩽ t <5.00 mm. (t=nominal thikness)		
	a) Longitudinal, % max	0.30%	0.25%
	b) Transverse, % max	0.60%	0.40%
	t⩾5.00 mm.		
	a) Longitudinal, % max	0.30%	0.12%
	b) Transverse, % max	0.60%	0.10%
14	Resistance to climatic shock		
	a) Appearance	Rating 4	Rating 4
	b) Flexural Strength index, min.	0.95	1.10
	c) Flexural Modulus index, min.	0.95	1.50
15	Resistance to artificial weathering (Including Light Fastness)	After 650MJ/m2 radiant Exposure (1500 hrs)	1500 hrs
	a) Gray scale rating (not worse than)	Rating 3	Rating 4
	b) Apperance (min.)	Rating 4	Rating 4
16	Resistance to UV light	After 1500 hrs Exposure	1500 hrs
	a) Gray scale rating (not worse than)	Rating 3	Rating 4
	b) Appearance (min.)	Rating 4	Rating 4
17	Spread of Flame	Class 1	Class 1
	Remark : E (Exterior Grade), D (Serve Use), F (Flame Retardant Grade)		

ACCESSORIES

 BOX SECTION	 DEAD LOAD BRACKET	 WINDLOAD BRACKET	 U BRACKET
 T - SECTION	 L BRACKET	 NUT BOLT	 FASTERNER
 RIVET	 MOUTH PIECE	 SELF DRILLING SCREW	 PRIMER
 TAPE	 CUTTING MACHINE	 DRILLING MACHINE	
 RIVET GUN	 SILICONE		

PROJECT PICTURES *

SWITZERLAND

SWITZERLAND

TILBURG, HOLLAND

POZNAN, POLAND

LIMASSOL, CYPRUS

PRAGUE, CZECH REPUBLIC

* Project Pictures From Materials Supplied By Us

PROJECT PICTURES *

CALGARY, CANADA

CALGARY, CANADA

CALGARY, CANADA

CALGARY, CANADA

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OTTAWA, CANADA

OTTAWA, CANADA

OTTAWA, CANADA

OTTAWA, CANADA

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PROJECT PICTURES *

LITHUANIA

LITHUANIA

LITHUANIA

LITHUANIA

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PROJECT PICTURES *

PRAGUE, CZECH REPUBLIC

PRAGUE, CZECH REPUBLIC

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PRAGUE, CZECH REPUBLIC

PRAGUE, CZECH REPUBLIC

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PROJECT PICTURES *

PRAGUE, CZECH REPUBLIC

PRAGUE, CZECH REPUBLIC

PRAGUE, CZECH REPUBLIC

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PROJECT PICTURES *

ISRAEL

KAGEL SCHOOL, HOLON

KAGEL SCHOOL, HOLON

KAGEL SCHOOL, HOLON

KAGEL SCHOOL, HOLON

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PROJECT PICTURES *

JORDAN

JORDAN

JORDAN

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PROJECT PICTURES *

INDIA

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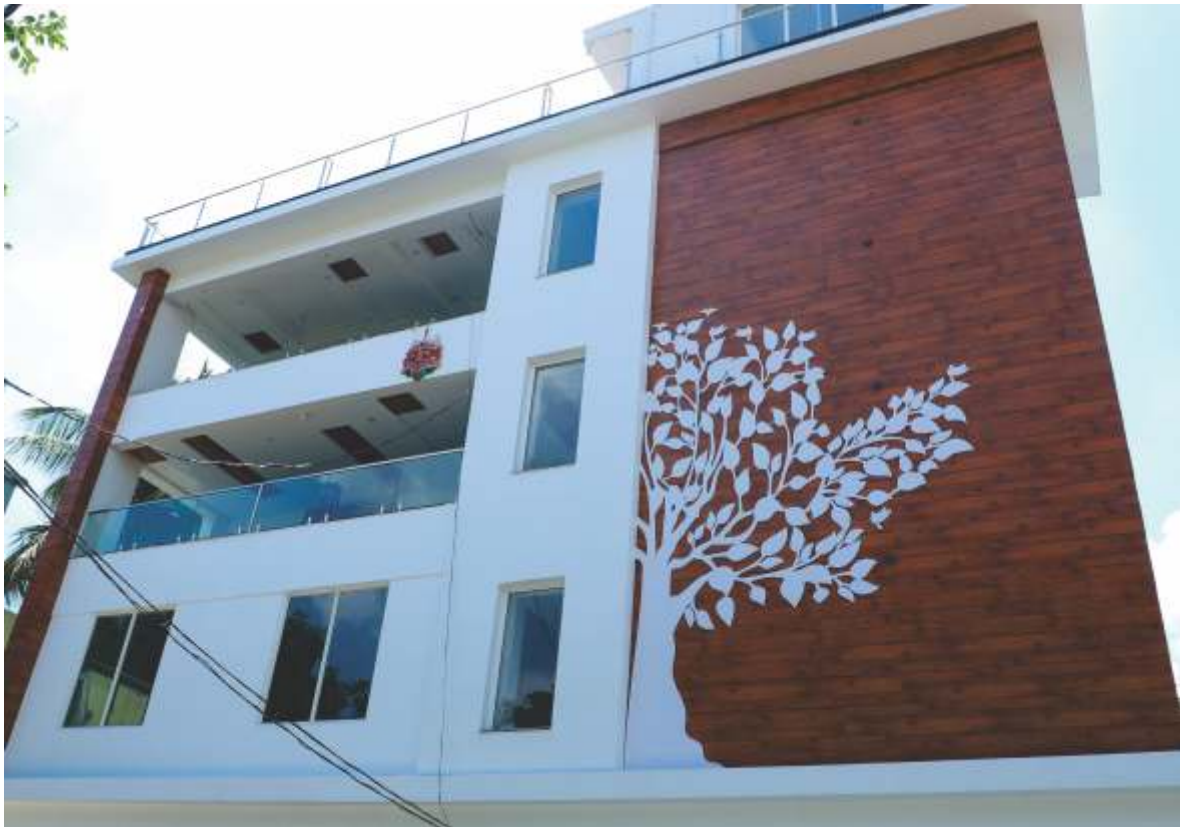
PROJECT PICTURES *

INDIA



INDIA

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PROJECT PICTURES *

INDIA

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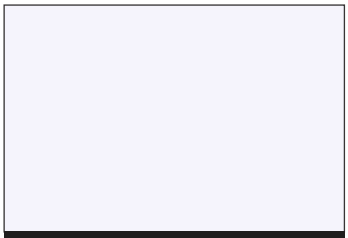
COLOUR RANGE



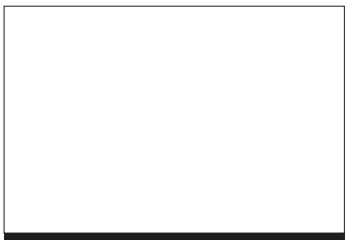
10X Light Blue White

11X Black

13X Egg White

17X Mysore Ivory

23X Coffee



601X Arctic White

602X Silver Grey

603X Dark Grey

604X Grey

605X Red

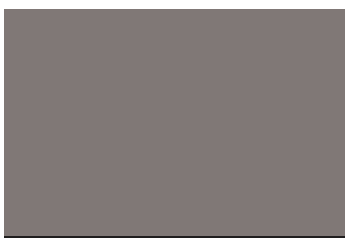
606X Green

608X Beige - F033

609X Blue - F031

610X Grey - F019

611X Beige - F032

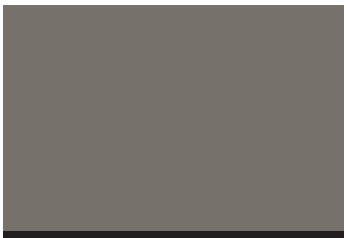


612X Gris Fonce

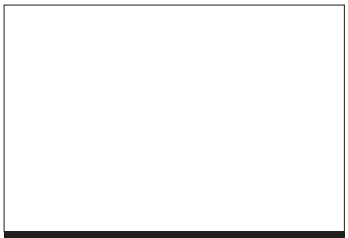
613X Monument Green

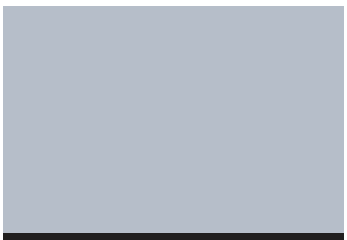
614X Pebble Grey

COLOUR RANGE


615X Metal Grey


617X Olive Green


618X White


619X Grey

620X White


621X Grey

622X White

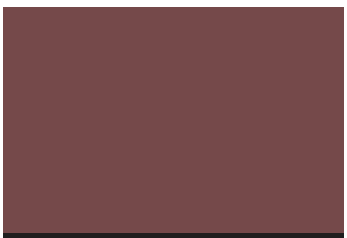

623X Medium Grey

624X White

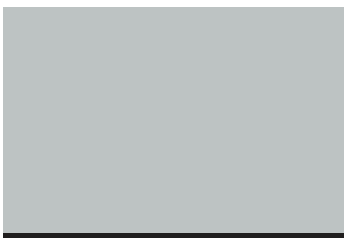

625X Light Grey

626X Cream


627X Light Grey


628X Red

629X Mysore Ivory


630X Grey


711X Red


712X Green


713X Blue

COLOUR RANGE

714X Orange	715X Yellow	716X Brown
751X Grey	851X Cold White	856X Frosty White
871X Beige(Irish Cream)	885X Grey	

COLOUR RANGE

RT 26X
LYON WALNUT EXCL

RT 27X
NORTH WALNUT EXCL

RC 35X
SAPELI

RC 459X
LANCELOT OAK

* Scan QR Code for full view

COLOUR RANGE

RC 460X
LANCELOT OAK

RC 530X
CANYON BAFFIN OAK

RC 531X
CANYON BAFFIN OAK

RC 532X
CANYON BAFFIN OAK

* Scan QR Code for full view

COLOUR RANGE

RC 631X
BAMBUS

RC 632X
BAMBUS

RC 633X
BAMBUS

RC 634X
BAMBUS

* Scan QR Code for full view

COLOUR RANGE

RC 637X
BROOKLYN

RC 638X
PINARA

RC 639X
BANANA ABACA

RC 640X
CANYON VINTAGE PINE

*** Scan QR Code for full view**

COLOUR RANGE

RC 641X
CANYON APPLE

RC 642X
CANYON MONUMENT OAK

RC 644X
CANYON MONUMENT OAK

RC 645X
AVEIRO ESCHE

* Scan QR Code for full view

COLOUR RANGE

RC 646X
BELIDOR

RC 647X
GREYSTONE

RC 648X
ORIENTAL BROWN

RC 649X
CARIO BEECH

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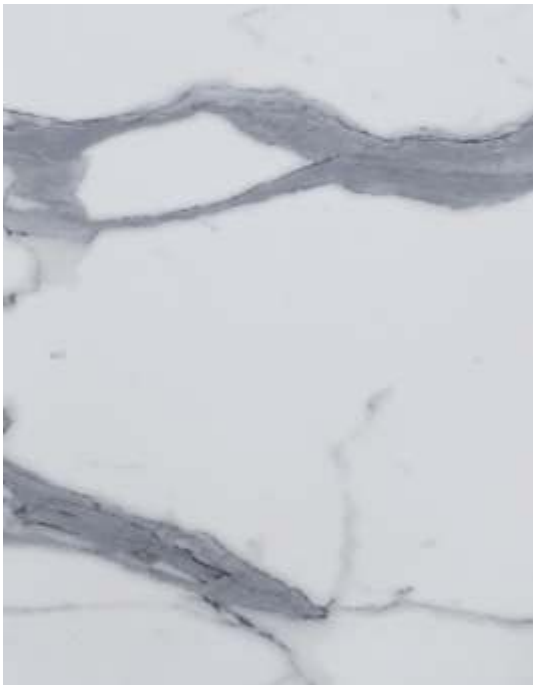
COLOUR RANGE

RC 650X
NOTICAL WOOD

RC 652X
NOTICAL WOOD
(RED)

RC 653X
SERAVEZZA



RC 654X
STATUARIO VENATO

* Scan QR Code for full view

COLOUR RANGE

RC 655X
BROOKLYN

RC 656X
MONTPELLIER

RC 657X
KUBIKUS

RC 658X
TABO SLATE

* Scan QR Code for full view

COLOUR RANGE

RC 659X
METALIC OXID

RC 660X
METALIC OXID

RC 661X
GREYSTONE

RC 662X
MAYFIELD FABRIC

* Scan QR Code for full view

COLOUR RANGE

RC 663X
MAYFIELD FABRIC

RC 664X
TEX STONE

RC 665X
WALLNUT RIGATO

RC 666X
MANHATTAN

*** Scan QR Code for full view**

COLOUR RANGE

RC 667X
CEMENT

RC 668X
SUMATRA TEAK

RC 669X
MAREMMA

RC 670X
MAREMMA

* Scan QR Code for full view

COLOUR RANGE

RC 671X
GREY CASPIO

RC 672X
GREY CASPIO

RC 673X
FIGURA OAK

RC 674X
FIGURA OAK

* Scan QR Code for full view

COLOUR RANGE

RC 675X
ASTANA PINE

RC 676X
CANYON MALIBU CHESTNUT

RC 677X
ABBEY ROAD

RC 678X
DAMAST

* Scan QR Code for full view

COLOUR RANGE

RC 679X
DELANO EICHE

RC 680X
CANYON ATLANTIC OAK

RC 682X
AVENIDA

RC 683X
ABBEY ROAD

* Scan QR Code for full view

COLOUR RANGE

RC 684X
STROMBOLI

RC 685X
MANDU SLATE

RC 686X
MANDU SLATE

RC 687X
MANDU SLATE

* Scan QR Code for full view

COLOUR RANGE

RC 688X
BEECH

RC 689X
COREAN

RC 690X
FUORI

RC 691X
BANDUNG TEAK

* Scan QR Code for full view

COLOUR RANGE

RC 692X
MARACAIBO

RC 693X
GRETA

RC 694X
ALASKA OAK

RC 910X
CRIAZA PEAR

*** Scan QR Code for full view**

COLOUR RANGE

RC 921X
MARBLE

RC 924X
MANHATTAN

RT 1414
GRACE MAPLE

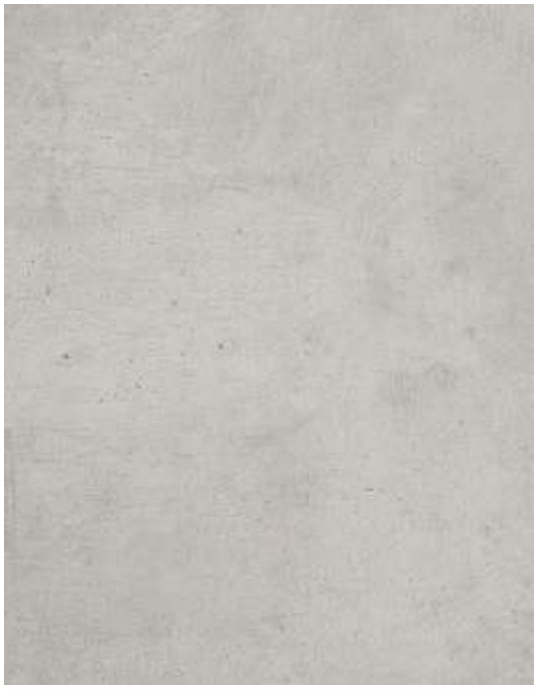
RT 1334
COLOSSED

* Scan QR Code for full view

COLOUR RANGE

RT 1335
COLOSSED

RT 1476
SILVER IO



RT 1520
MANHATTAN

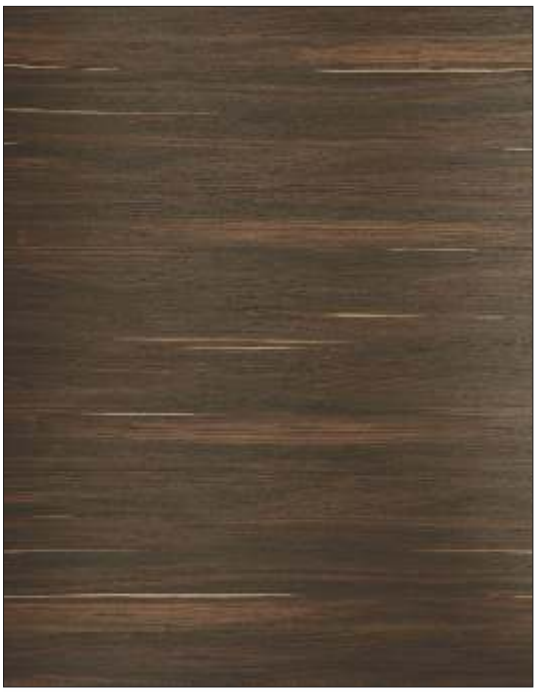
RT 1522
MANHATTAN

* Scan QR Code for full view

COLOUR RANGE

RT 1602
TRANSSIL VANIEN WOOD

RT 1603
TRANSSIL VANIEN WOOD



RT 1619
COSMOS

EXP 51
NOVECENTO PINE

* Scan QR Code for full view

COLOUR RANGE

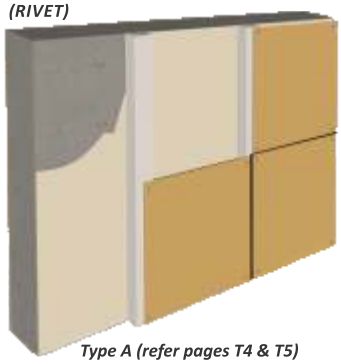
EXP 55
INDONESIAN PALM

INSTALLATION DETAILS

INSTALLATION SYSTEM

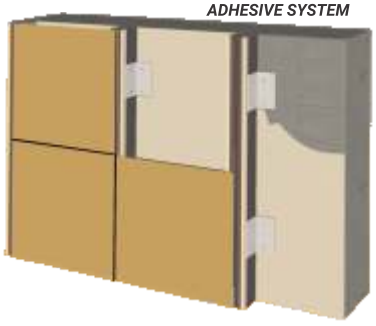
CrownXCL installation system is a thermally broken, ventilated rainscreen system that provides maximum efficiency at cost savings compared to alternatives. CrownXCL installation prevents thermal bridgeing caused by other installation systems. This reducing the environment impact of the building and can provide significant heating and cooling cost savings for your buildings. CrownXCL installation system provides ventillation behind the panel, which prevents moisture buildup and increases the longevity of panels.

EXPOSED FITTING (RIVET)



Type A (refer pages T4 & T5)

ADHESIVE SYSTEM

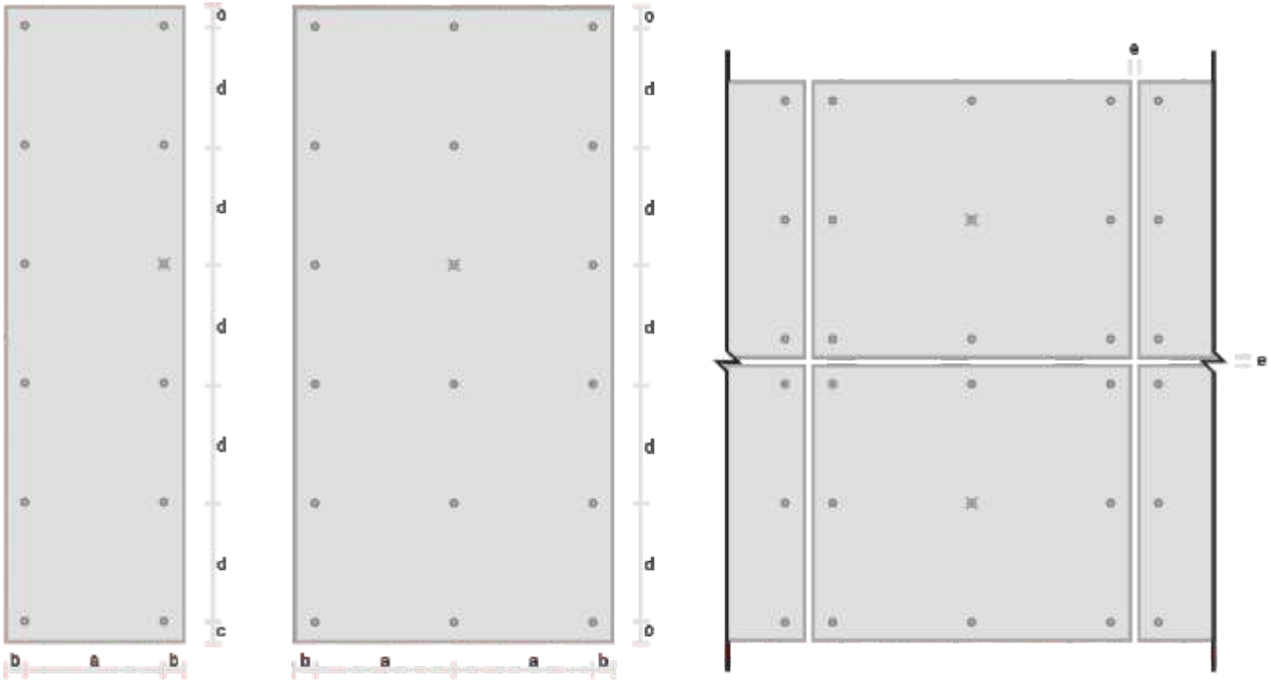


Type B (refer pages T6 & T7)

EXPOSED FITTING (L&T Rivet)

Type C (refer pages T8 & T9)

SPACING



Represents a fixed point.

The diagrams above show the optimal space between fasteners and the edge pf the panel. It also displays the optimal spacing between individual panels. These are guidelines and can be altered appropriately depending on the project.

Panel Thickness *	Maximum Fastener Spacing (a) *	Minimum Edge Distance (b, c) *	Maximum Fastener Spacing (d) *	Expansion Joint (e) *
6mm	600mm	50, 20mm	600mm	6-10mm
8mm	750mm	50, 20mm	750mm	6-10mm
10mm	900mm	50, 20mm	900mm	6-10mm

PROCESS RECOMMENDATIONS FOR CUTTING

Crown XCL Panel should be straight and perpendicular in size before cutting.

SAW & SAW BLADES

Carbide tipped saw blades are used for cutting two sides having tooth spacing of 10-15mm with cutting speed of 40-100 m/s. Cost effective results for producing a clean cut on both sides are obtained when using a marking saw. When using circular saw blades, the quality of the cut can be influenced by adjusting the angle of emergents (height adjustment.)

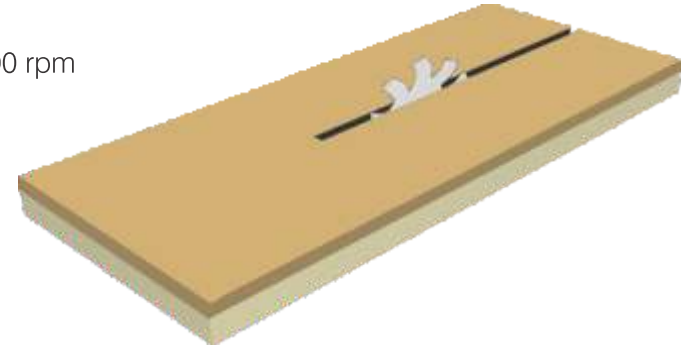
For straight cuts with hand heild circular saws, a stop bar or guide rails should be used. Fitted panels can also be machined on site using an electric hand held planning machine with carbide blade.

Cutting speed V in m/s as a function of tool diameter and speed, e.g. on circular saws.

BLADE DIAMETER IN (mm)	CUTTING SPEED V IN (m/s)					
400	20	40	60	80	100	100
380	19	38	57	76	95	114
360	18	36	54	72	90	108
340	17	34	51	68	85	102
320	16	32	48	64	80	96
300	15	30	45	60	75	90
280	14	28	42	56	70	84
260	12	26	39	52	65	78
240	12	24	26	48	60	72
					55	66
200	10	20	30		50	60
180	9	18	27		45	54
160	8	16	24		40	48
140	7	14	21		35	42
120	6	12	18		30	36
100	5	10	15		25	30
80	4	8	12		20	24
60	3	6	9		15	18
40	2	4	6		10	12
20	1	2	3		5	6
	1000	2000	3000		5000	6000

SPECIFICATION OVERVIEW FOR CUTTING MACHINE

Rated power input	2,100 w
No-load speed	4000 - 6000 rpm
Weight without cable	7.6 kg
Saw blade bore	25 mm
Saw blade diameter	235 mm
Number of Teeth	40 - 48
Cutting depth	
Cutting depth (90°)	85 mm
Cutting depth (45°)	65 mm



The cutting machine will be Bostch GKS235

PROCESS RECOMMENDATIONS FOR DRILLING

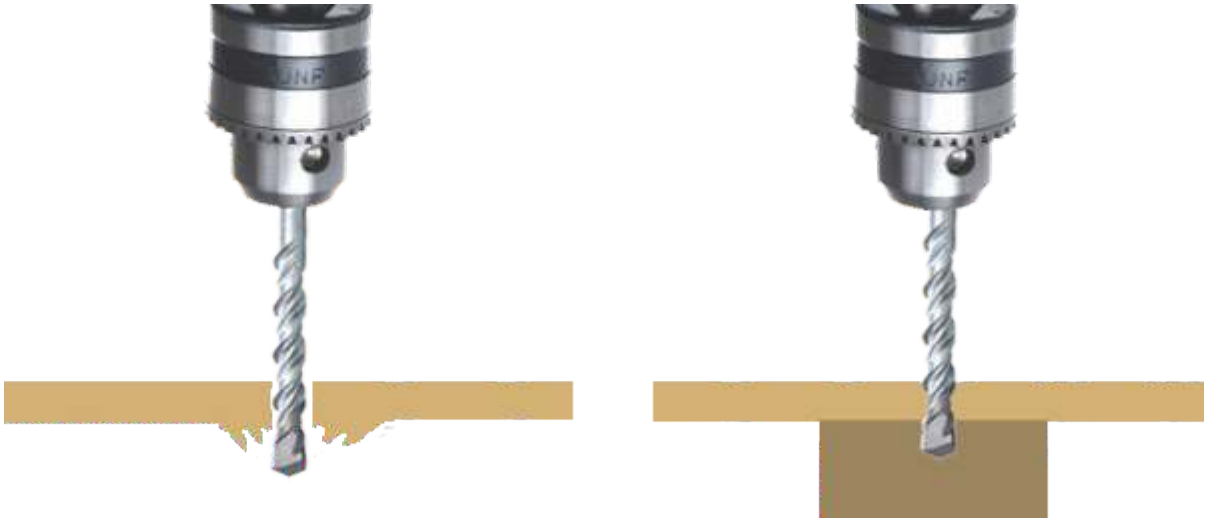
Crown XCL panel are drilled using the metal drill bits or steel bits with a cutting angle of more than 100 . The panel must be well placed to achieve a good hole.

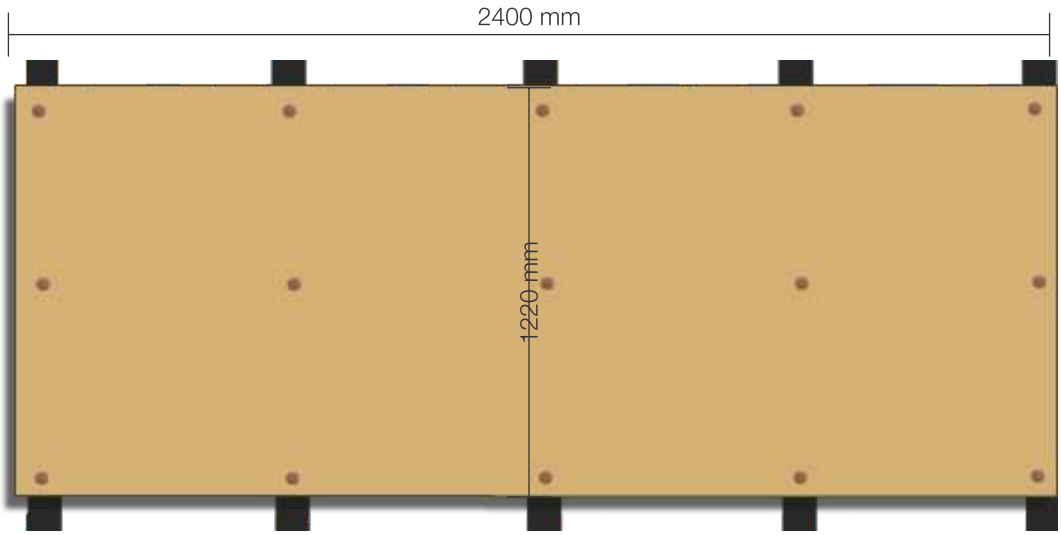
The holes of fixing panel holding the rivet must be 2 mm greater than diameter of the rivet, except the hole at the panel geometrical center.

Drilling of higher diameters must be done with universal drilling machines and with drills without a center point.

In order to prevent the front face from flaking where it comes out of the machine.

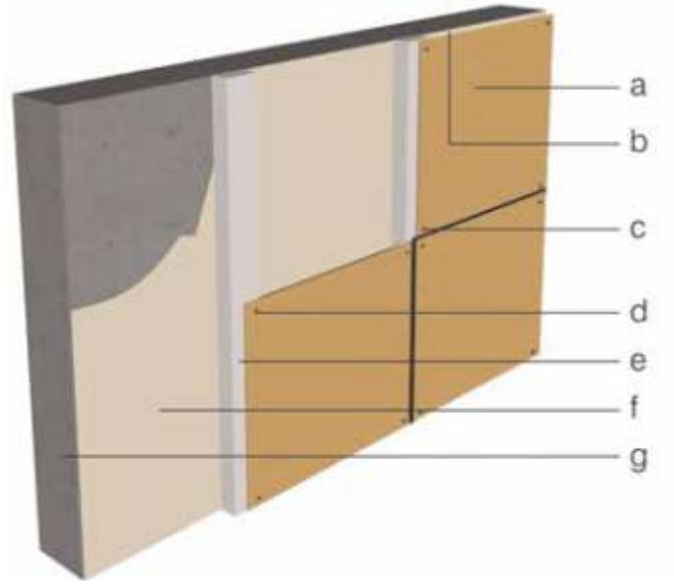
- The progression of the drill must be smooth.
- It's recommended to work on a flat table that can be drilled.
- The edges will not require a special treatment but are machinable for particular finishes.
- Machine the edge of the compact by square cutting, chaffering and beveling.





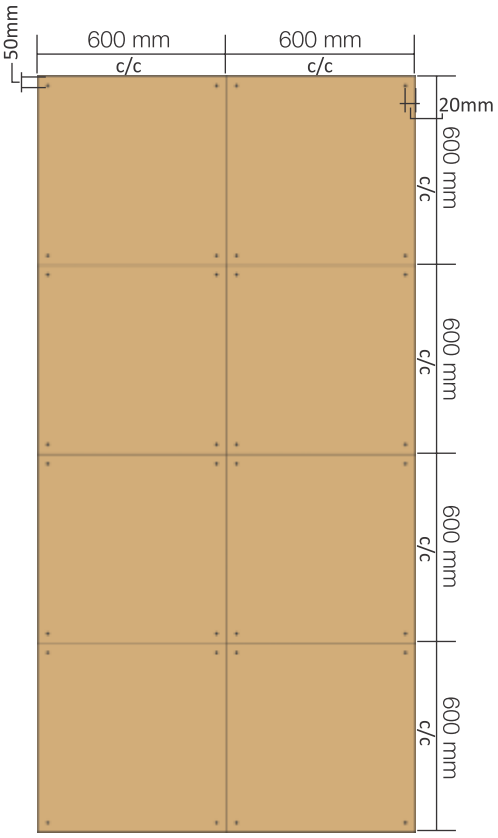
FIXATION - TYPE A

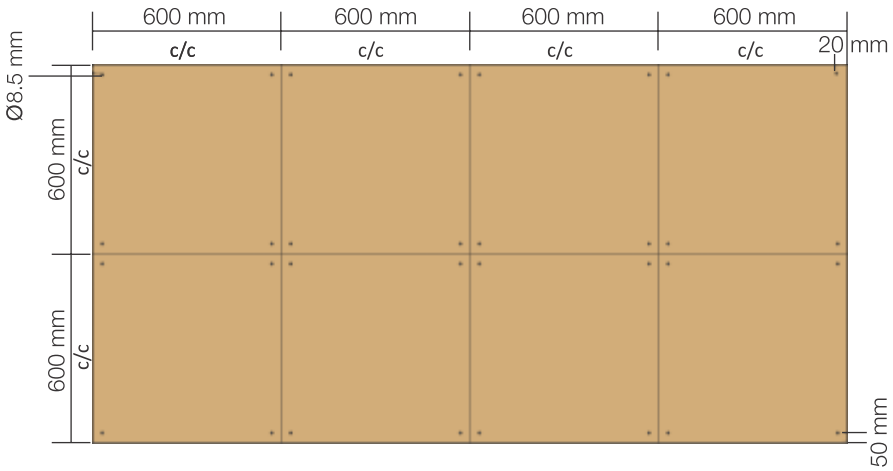
EXPOSED FITTINGS (Rivet)



BOX- SECTION DETAIL

a. **Crown XCL** panel thickness : 6,8,10 mm
b. Air cavity 20 mm (min.). The air cavity to be filled by GI or Aluminium Flasing
c. Rivet hole diameter
d. Rivet
e. Vertical fixing profile
f. Load bearing wall
g. Weather resistive barrier





a. **Crown XCL** panel thickness : 6,8,10 mm
b. Typical edge distance min 20mm
c. Hole diameter : 1.5 x rivet

Rivet size, d (in mm)	Rivet hole size, d_o (in mm)
d ≤ 25mm	d + 1.5 mm
d > 25mm	d + 2 mm

Calculation :

d = 20 + 1.5 = 21.5 mm

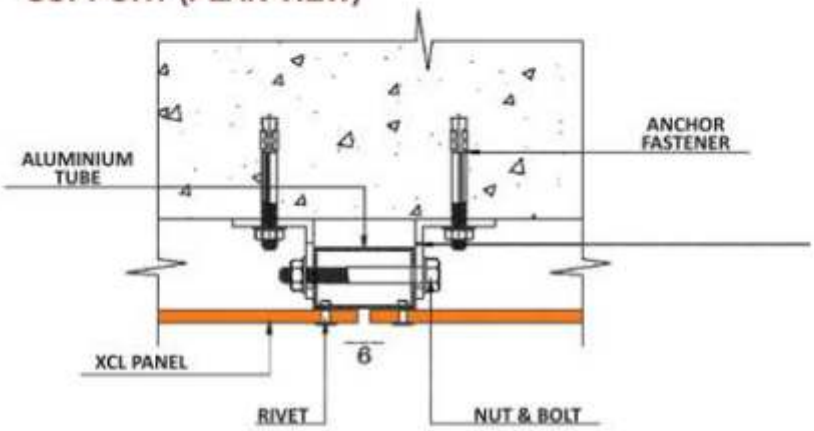
Due to the heating effect, the size of rivets gets expanded which upon cooling gets reduced (called shank diameter).

d. Fastening Spacing :

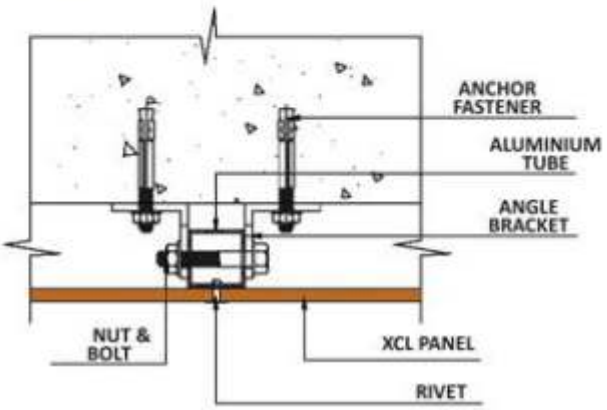
6 mm	8 mm	10 mm
600 mm	750 mm	900 mm

CAD DETAILS OF FIXATION - A (BOX SECTION)

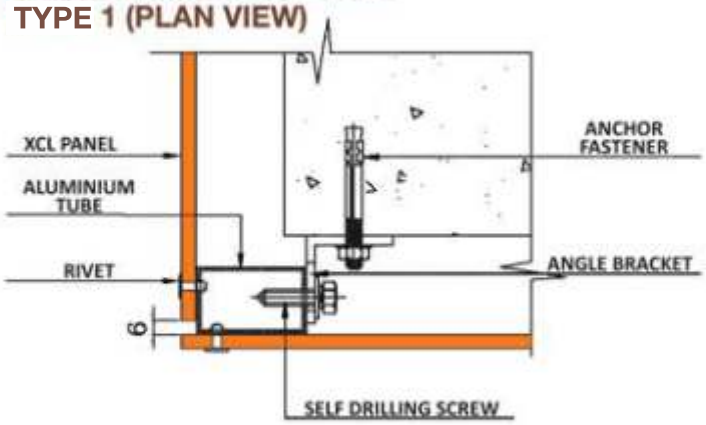
TYPICAL PLAN OF MIDDLE SUPPORT (PLAN VIEW)



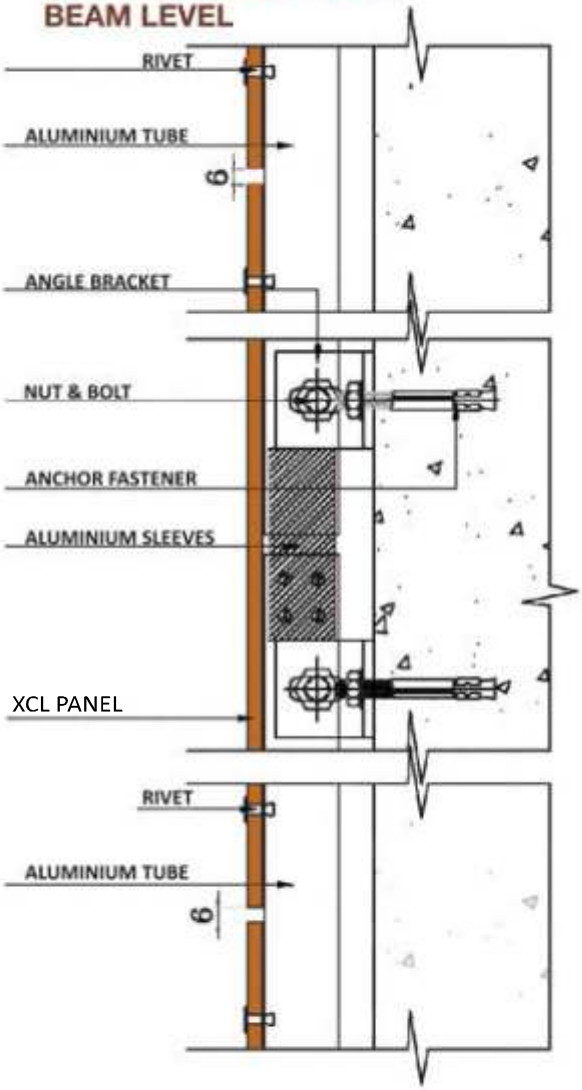
TYPICAL GROOVE DETAIL (PLAN VIEW)



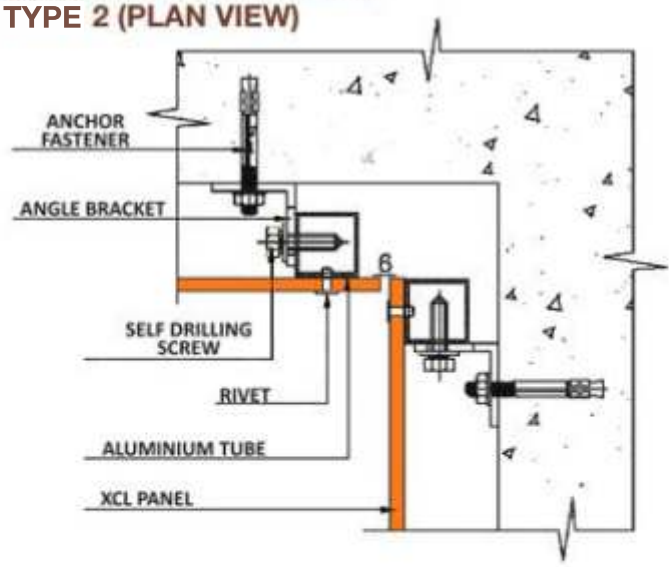
TYPICAL CORNER DETAIL TYPE 1 (PLAN VIEW)



BRACKETING DETAIL AT BEAM LEVEL

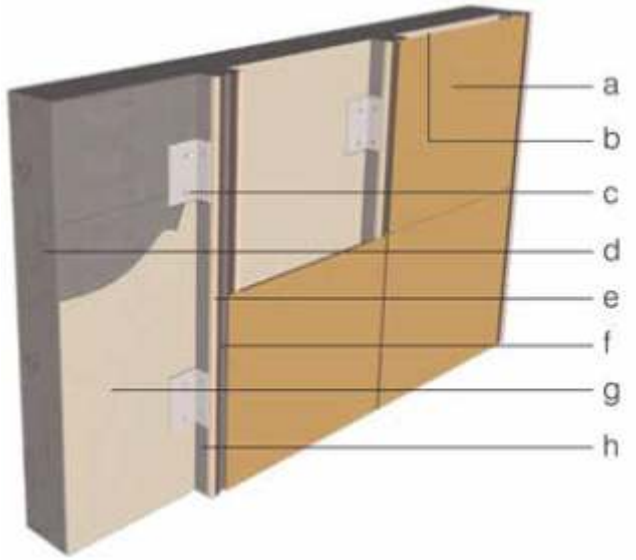


TYPICAL CORNER DETAIL TYPE 2 (PLAN VIEW)



FIXATION - TYPE B

ADHESIVE SYSTEM

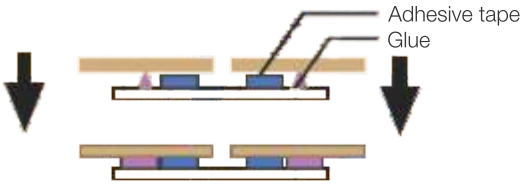


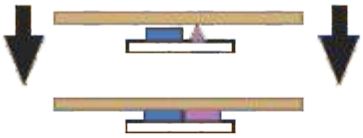
BOX- SECTION DETAIL

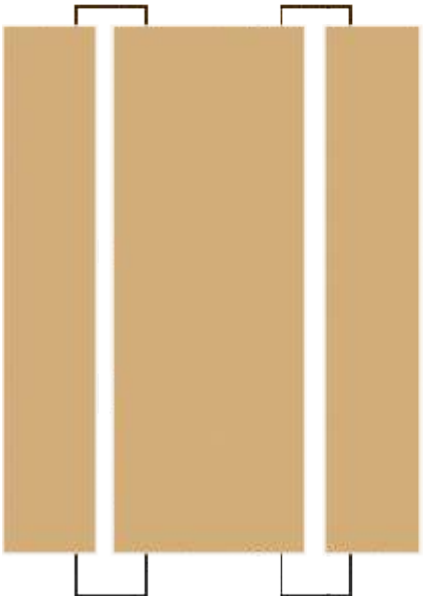
a. **Crown XCL** panel thickness : 6,8,10 mm
b. Air cavity 20 mm (min.). The air cavity to be filled by GI and Aluminium Flasing
c. Stainless Screw
d. Load Bearing Wall
e. Panel Fixing Tape
f. Panel Adhesive
g. Weather Resistive Barrier
h. Vertical Fixing Profile

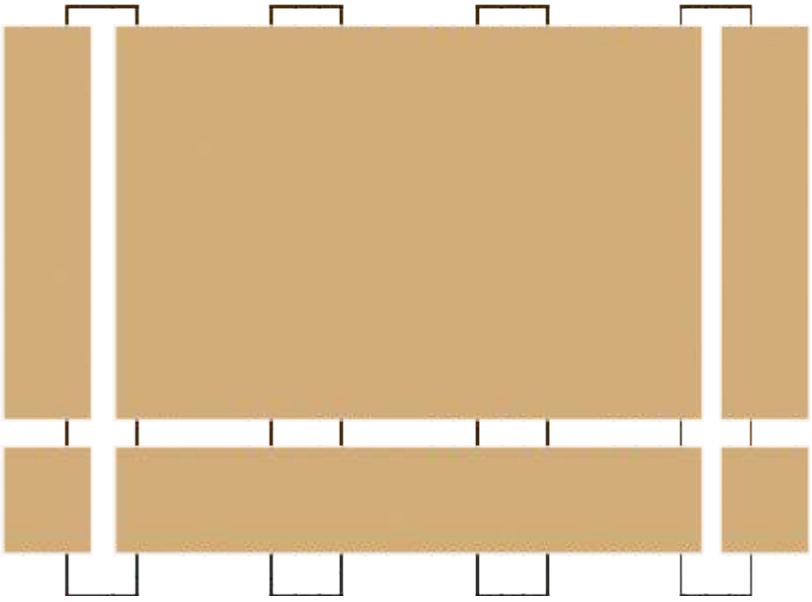
For Installation with Adhesive Panel (Spacing of the Vertical Support	
Panel Thickness	Fastening Spacing
6 mm	450 mm
8 - 10 mm	600 mm

Note: Proper Procedure must be followed for the application of glue.



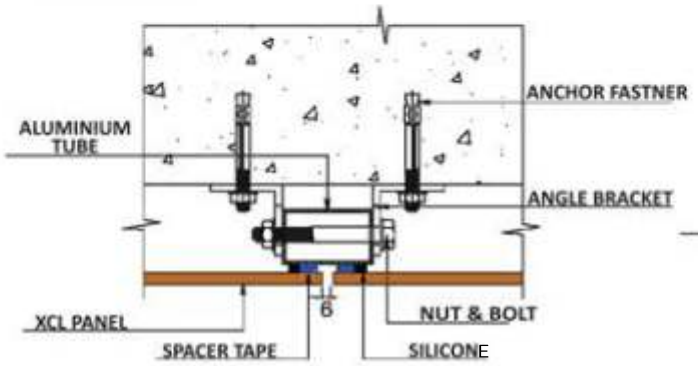




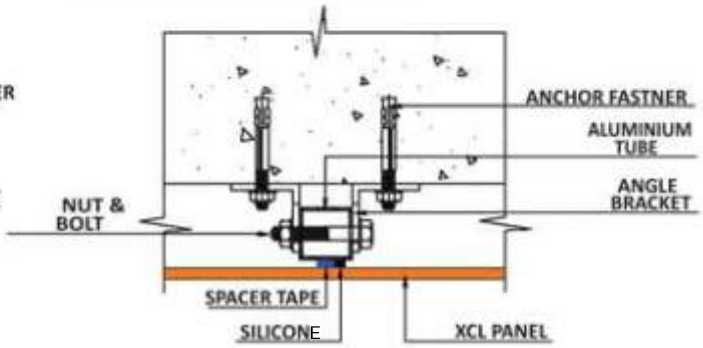


CAD DETAILS OF FIXATION - B (ADHESIVE SECTION)

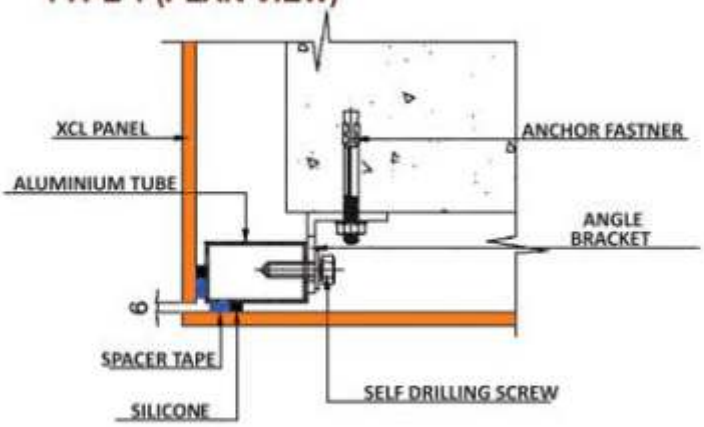
TYPICAL XCL GROOVE DETAIL (PLAN VIEW)



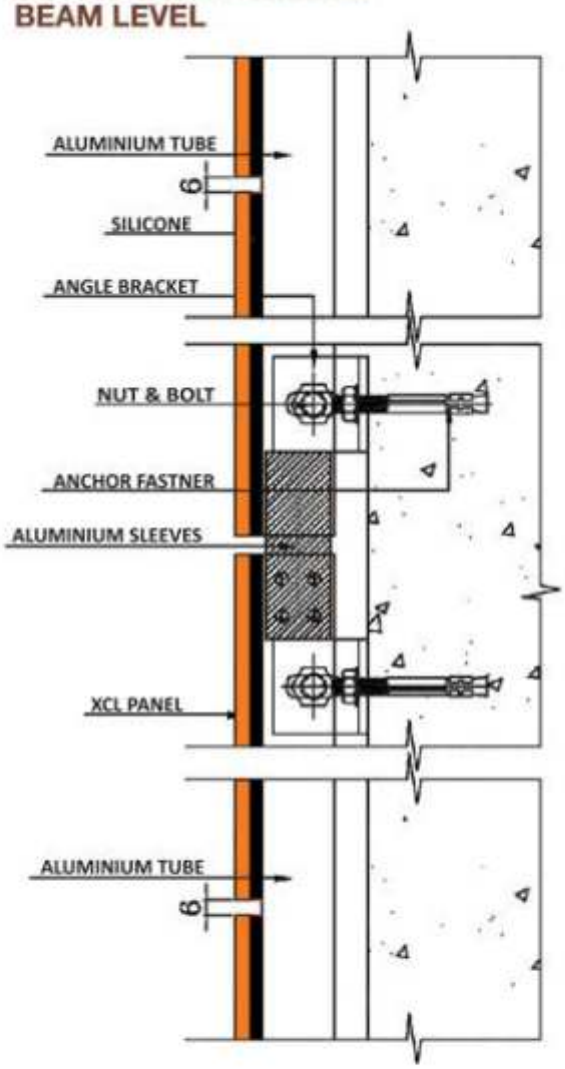
TYPICAL PLAN OF MIDDLE SUPPORT (PLAN VIEW)



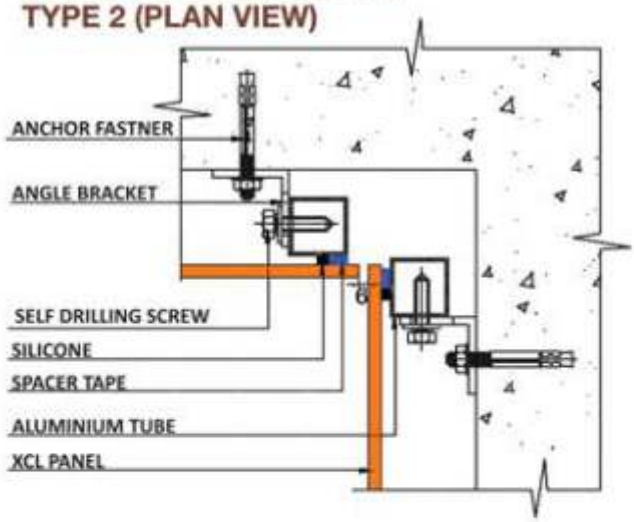
TYPICAL CORNER DETAIL TYPE 1 (PLAN VIEW)



BRACKETING DETAIL AT BEAM LEVEL

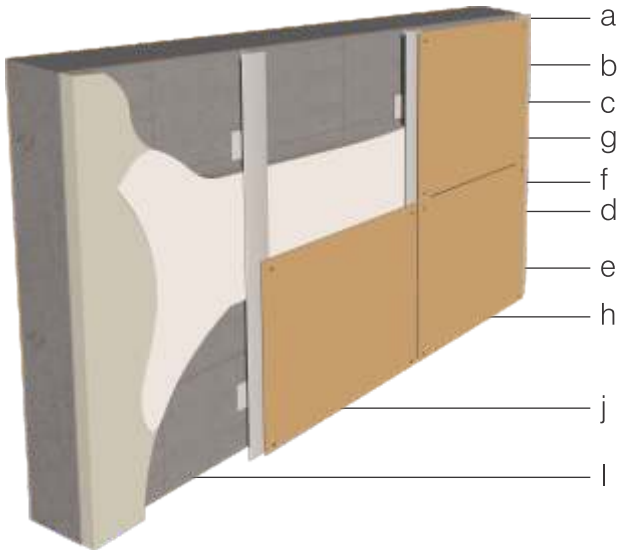


TYPICAL CORNER DETAIL TYPE 2 (PLAN VIEW)



FIXATION - TYPE C

EXPOSED FITTING TYPE 2 (L&T Rivet)



T - Section Detail

a. Load Bearing Wall

b. Air cavity 20 mm (min.). The air cavity to be filled by GI or Aluminium Flasing

c. **Crown XCL** panel thickness : 6,8,10 mm

d. Rivet Hole Diameter

e. Rivet

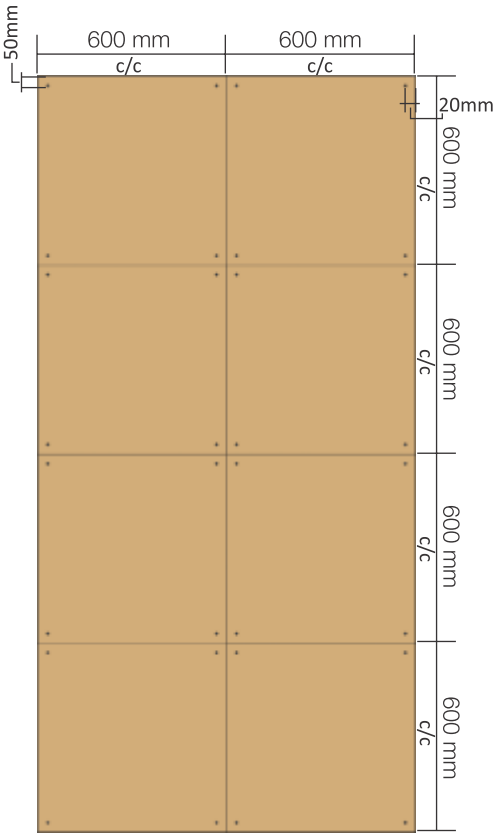
f. Vertical Fixing Profile

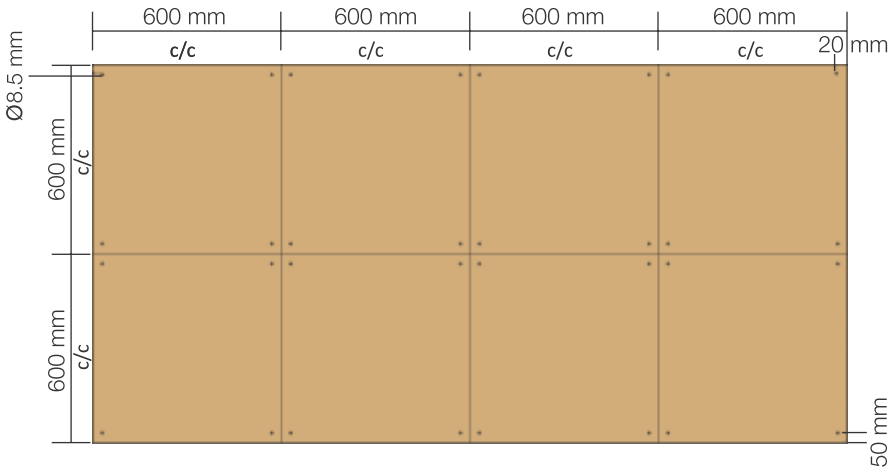
g. S.S.SCcrew

h. Fixing Bracket

I.Thermal Insulation

j. Anchor Bolt





a. **Crown XCL** panel thickness : 6,8,10 mm

b. Typical edge distance min 20mm

c. Hole diameter : 1.5 x rivet

Rivet size, d (in mm)	Rivet hole size, d_o (in mm)
d ≤ 25mm	d + 1.5 mm
d > 25mm	d + 2 mm

Calculation :

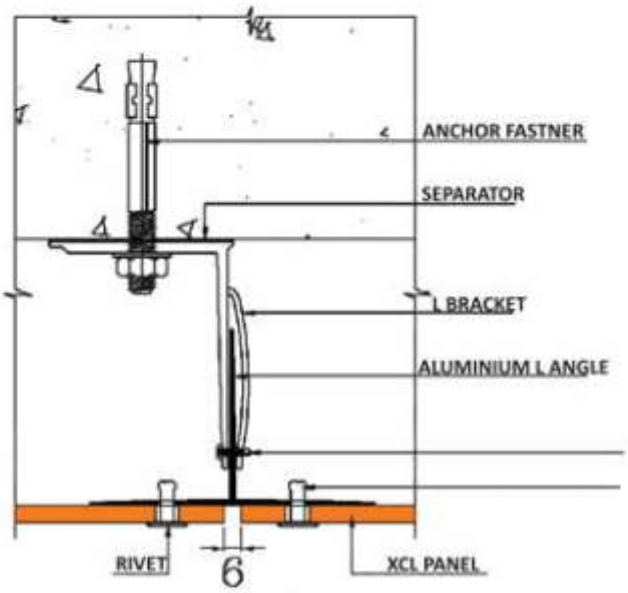
d = 20 + 1.5 = 21.5 mm

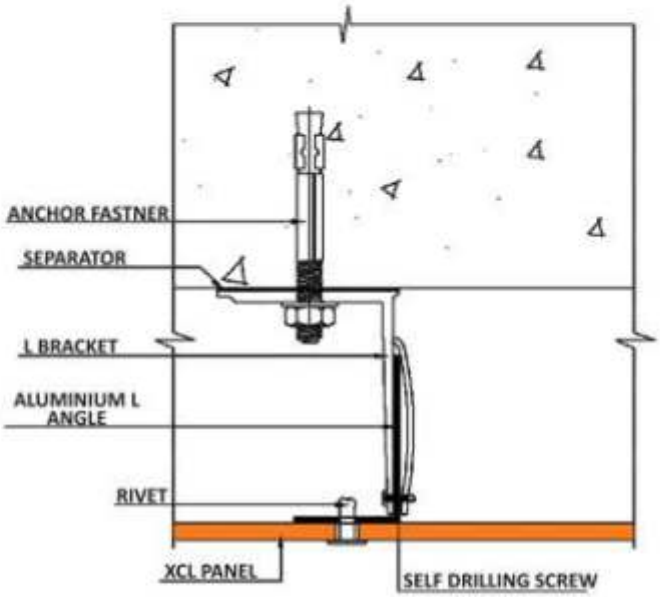
Due to the heating effect, the size of rivets gets expanded which upon cooling gets reduced (called shank diameter).

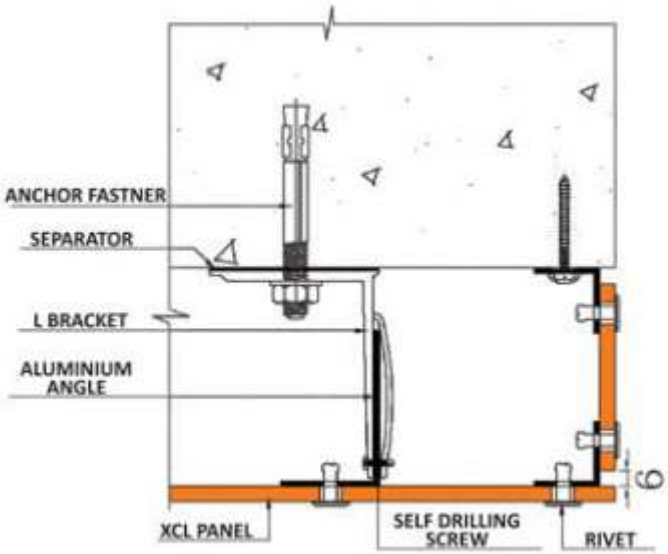
d. Fastening Spacing :

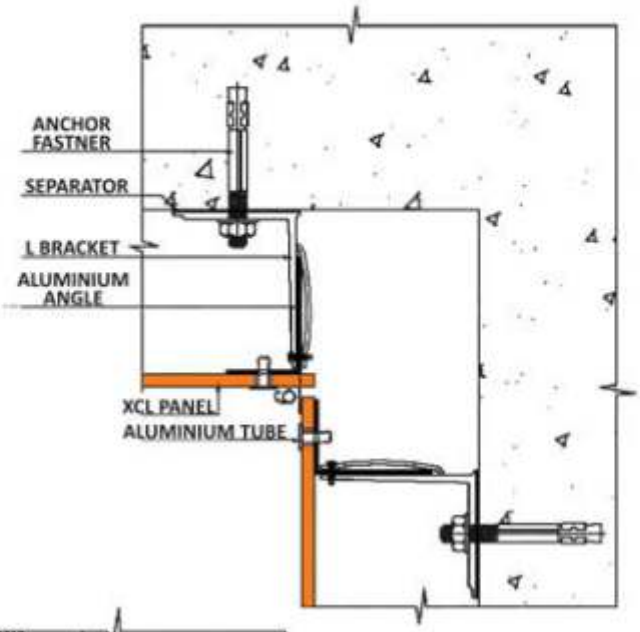
6 mm	8 mm	10 mm
600 mm	750 mm	900 mm

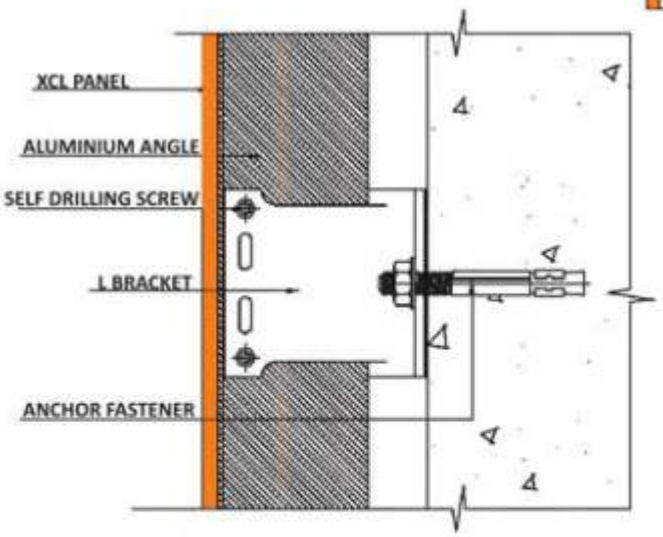
CAD DETAILS OF FIXATION - C











FUNCTION & ADVANTAGES OF REAR VENTILATED FACADE

THE BUILDING ENVELOP

Crown XCL installations utilising the rain screen system contribute to seven areas of the LEED credits across several LEED rating systems. In order to be recognised by these rating systems, they must have various sustainable attributes. One of the most important is the system durability. Because of its long life span, there are no re-furbishments required and very little maintenance. Using a ventilated insulated rain screen cladding system means less material replacement and considerably lower maintenance ncost over the lifetime of the building or structure.

The rain screen cladding system is used in conjunction with Crown XCL panels for the exterior of the building enclosure. It is especially resistant to bold mold and moisture build up, which directly contributed to the quality of the living environment. It also helps insulate the exterior of a building, which helps to address any themal bridging issues.

The biggest benefit of using rain screen systems is the temperature regulation and its ability to accommodate for the use of exterior insulation, continuous energy barrier, preventing thermal building which causes energy loss and building envelope inefficiency.

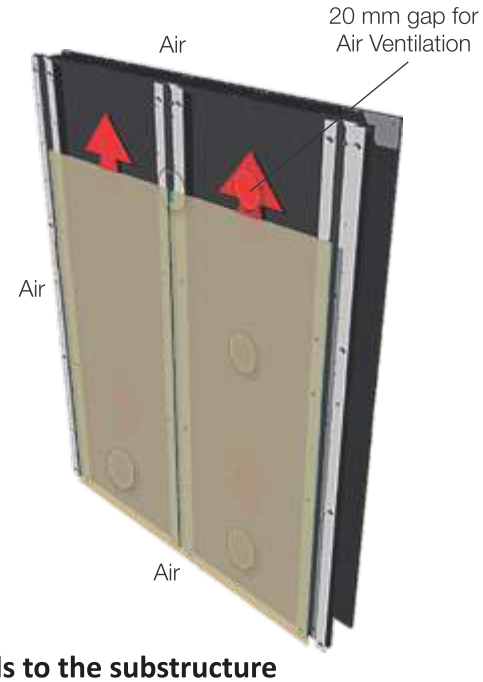
The ventilated rain screen cladding system, (on its own) also helps to cool the building as most of the sun's rays are reflected away. Additionally, any heat that does in fact pass through the exterior wall dissipates because of the ventilating effect of the air space between the Crown XCL panel and the structual wall itself. Ultimately, any residual heat that penetrates the building is very minimal.

Crown XCL panel performs best when installed in a ventilated wall assembly also called a ventilated rain screen assembly. The ventilation that occurs in the space behind the panel will ensure that the moisture content of the panel is the same on both the inside and the outside ensuring the panel expands and contacts evenly and does not cause the panel to buckle. This movement of air behind the panel also ensures that moisture does not build up in the insulation so preenting mould to find a habitat inside the wall.

COMPONENTS OF VENTILATED FACADE

XCL sizes

Panel Sizes	1220 x 2440 mm 1220 x 3050 mm *1300 x 3050 mm *(Available in Selected Colours)
Thickness	6, 8 & 10 mm



Substructure

The substructure may be made up of :

- Metallic brackets (L)
- Vertical profile (T) or Box Section

Elements used for attachment of Crown XCL panels to the substructure

Panels are attached to the substructure using screws, rivets or other hidden attaching devices

ADVANTAGES OF REAR VENTILATION SYSTEM

CALCULATIONS FOR FACADE SYSTEM

Loads to be taken into consideration

The loading to be factored into calculating the facade system is worked out using the weight of the panels themselves and the wind load. The effects of variations in temperature or humidity do not need to be taken into account when the system has been calculated and executed properly.

The installer must take into account local wind load and national building regulations.

RECOMMENDED PANEL WEIGHTS

Weight of the Panel = 1.45gm/cm3

WIND LOAD

Wind load is transmitted through panels to the substructure and unloaded through the supporting wall. Calculations are performed on a project basis by assigned engineers. Please contact your preferred system manufacturer or installer who will be able to provide the necessary values and calculations. Your Royale Touche Group representative can provide contact information, if required.

DESIGN

The following recommendations needs to be taken into consideration:

- The minimum distance between a drilled hole and the edge of the Crown XCL panel should be 20mm (or 75mm if concealed and the maximum distance should be the panel thickness x 10
- The minimum space between Crown XCL panels is 6-10mm. The Crown XCL panel will expand and contract at a rate of 2mm per meter length of panel.
- The maximum distance between screws/rivets depends on the thickness of the panel.
- A minimum of 6mm thickness is recommended for facade cladding.

SETTING UP THE SYSTEM

The system should be installed by skilled and experienced fitters using the appropriate tools and equipment. The system profile should be perfectly levelled and flat, particularly when using panels of 6mm thickness. The system manufacturer's instructions must be followed carefully especially with regard to the attachment of the parts of the profile to allow for its expansion differential for thermal loads.

Crown XCL panels should be pre conditioned, outdoor on site, for a period of 72 hours before installation. (The protective film should be removed from both sides of the panel simultaneously before installation.)

Crown XCL panels should be transported packed on the specially supplied pallets and covered with a cap sheet. Care should be taken to shield the protective film on the surface of the panles from solar radiation or other heat sources during pre-conditioning and storage.

Lift the panels straight up. Do not slide the panels against each other.

CROWN

LAMINATES & BEYOND

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