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OpenAire Construction Details

Samples of Polycarbonate use in China

One of our polycarbonate suppliers has a couple of projects in china and a Shanghai office. All PDF documents from this supplier have been shared.

POLYCARBONATE PROJECTS IN CHINA

INNOVATIVE PLASTICS

INSPIRE+
CREATE

LEXAN™ SHEET PORTFOLIO FROM SPECIALTY FILM & SHEET

CHEMISTRY THAT MATTERS™

SABIC
Innovative
Plastics™

Lexan* Thermoclear* Easy Clean sheet glazes Chongqing's first stadium rooftop

SABIC Innovative Plastics' Lexan Thermoclear Easy Clean sheet glazes the rooftop of Chongqing Stadium, the first stadium in west China

The patented technology of Lexan Thermoclear Easy Clean sheet was chosen by Chongqing Urban Development Co. Ltd. for the roof glazing of the first Olympic stadium in Chongqing, west China. With over 60,000 people to please over an area of around 36,000 square meters, this comes as no surprise. Lexan Thermoclear Easy Clean sheet needs minimal cleaning, provides excellent light transmission, delivers a high stiffness performance and helps protect spectators from changing weather conditions.

SABIC Innovative Plastics and Chongqing Urban Development Co. Ltd.
"The additional benefit from choosing this novel grade of Lexan Thermoclear sheet was particularly attractive to us as we could visualize its long-term cost and maintenance benefits", says Mr. Zhang Feng, General Manager, Chongqing Urban Development Co. Ltd.

Most spectators at global sporting events demand a comfortable viewing experience in all types of weather. One way of achieving this is by offering state-of-the-art facilities, which feature glazing on stadium roofs.

Lexan Thermoclear Easy Clean sheet is an excellent candidate for stadium roof glazing due to its light weight, multi-wall X-structure configuration, providing superb stiffness, improved load stiffness and high impact strength compared to conventional twin-wall products.

It may also provide customers with significant cost savings.

The sheet incorporates SABIC Innovative Plastics' patented coating technology on its exterior surface, to create self-cleaning properties when the sheet comes into contact with water. Patented hydrophobic coating applied to Lexan Thermoclear sheet demonstrates reduced sheet surface tension. This in turn increases the contact angle of water to the sheet, which typically ranges from 66 degrees for standard polycarbonate to 100 degrees for Easy Clean. The water that forms large droplets wash away dirt and leave the sheet virtually spotless.

Lexan Thermoclear Easy Clean sheet's metallic grey color was created on special request of Chongqing Urban Development Co. Ltd. It was installed at the Chongqing stadium in 2004, a project managed by the Chongqing Urban Development Co. Ltd.

Furthermore, high-level light transmission and weatherability enable the stadium roof to withstand long-term exposure to sunlight and harsh weather conditions.

The new stadium hosted a number of the soccer matches for the Asia Cup 2004 tournament, which was held in China for the first time.

"Chongqing stadium is a showcase of SABIC Innovative Plastics' commitment to supplying quality that meets customer expectations in the building and construction industry in Asia," said Sanjiv Vasudeva, Pacific Pole Leader of Specialty Film & Sheet for SABIC Innovative Plastics. "We're proud that this may set an example for the future of Asia's glazing industry."

SABIC Innovative Plastics supports projects in China with the latest technology and materials, aiming to support the Olympic spirit of being swifter, higher and stronger.

Case Study

Sharing our futures

OpenAire

POLYCARBONATE PROJECTS IN CHINA

CHONGQING STADIUM

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POLYCARBONATE PROJECTS IN CHINA

CHONGQING STADIUM

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POLYCARBONATE PROJECTS IN CHINA

SHANGHAI SOUTH TRAIN STATION

POLYCARBONATE PROJECTS IN CHINA

SHANGHAI SOUTH TRAIN STATION

Q&A

OpenAire

Past Projects

厂家中大型项目业绩情况(案例数量及匹配度情况) Performance of Large and Medium-sized Projects of Openaire (Water Park Cases and matching degree)					
项目名称 Projects	**Deira Mall**	**Aqua Sferra**	**Luzhiniki**	**Royal Glenora**	**Epic Waters**
所在位置 Location	Dubai, UAE	Donestk, Ukraine	Moscow, Russia	Edmonton, Alberta, Canada	Grand Prairie, Texas, USA
冬季室外最低温度 Minimum Outdoor Temperaturein Winter(°C)	13	-9	-12	-19	1
室内运营温度 Indoor Operating Temperature(°C)	20-24*	28**	28**	28**	28**
建成时间 Completion time	in progress	2 yrs	in progress	1 yr	2 yrs
功能用途 Function	shopping mall	waterpark	waterpark + fitness center	aquatic center private	waterpark
建筑面积 building area(m^2) for OpenAire Building or skylight only	36,352 m2	6503 m2	6975 m2	133 m2	5760 m2
建筑高度 building height(m)for OpenAire Building or skylight only	20.16m	20.14m	6.18m	11.5m	25.3m
开启形式 Open form	telescope	rotating circular panels - dome	Top down on curved frame	Top Down on straight frame	Top down on curved frame
开启尺寸 Open Size(m*m) for OpenAire Building or skylight only	71m x 338m	4.2m x 24.2m x 26m approx per panel x 4	30m x 27m - only over waterpark	12.5m x 45m	24m X 87 + 9m x 7.6m
开启面积 Open area(m^2)	23,998 m2	1705 m2	810 m2	562 m2	2156 m2
屋盖材质 Roof material	Polycarbonate 25mm	Polycarbonate 25mm	Polycarbonate 32mm	Polycarbonate 25mm	Polycarbonate 25mm
结构体系 structural system	Aluminum truss	Aluminum truss	Aluminum truss	Aluminum truss	Aluminum truss

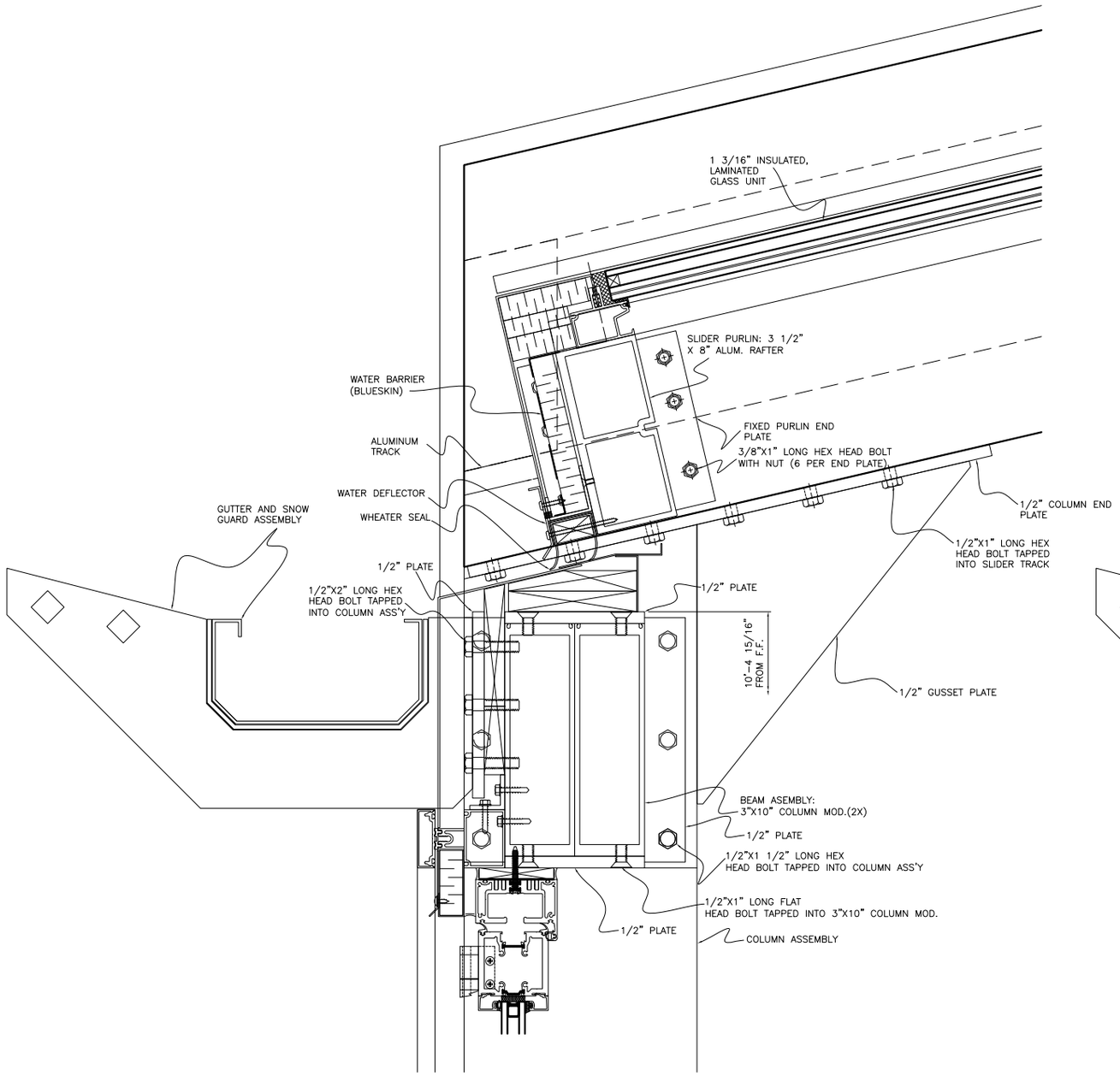
* standard Indoor temperature for a shopping mall

** Standard indoor temperature for a waterpark

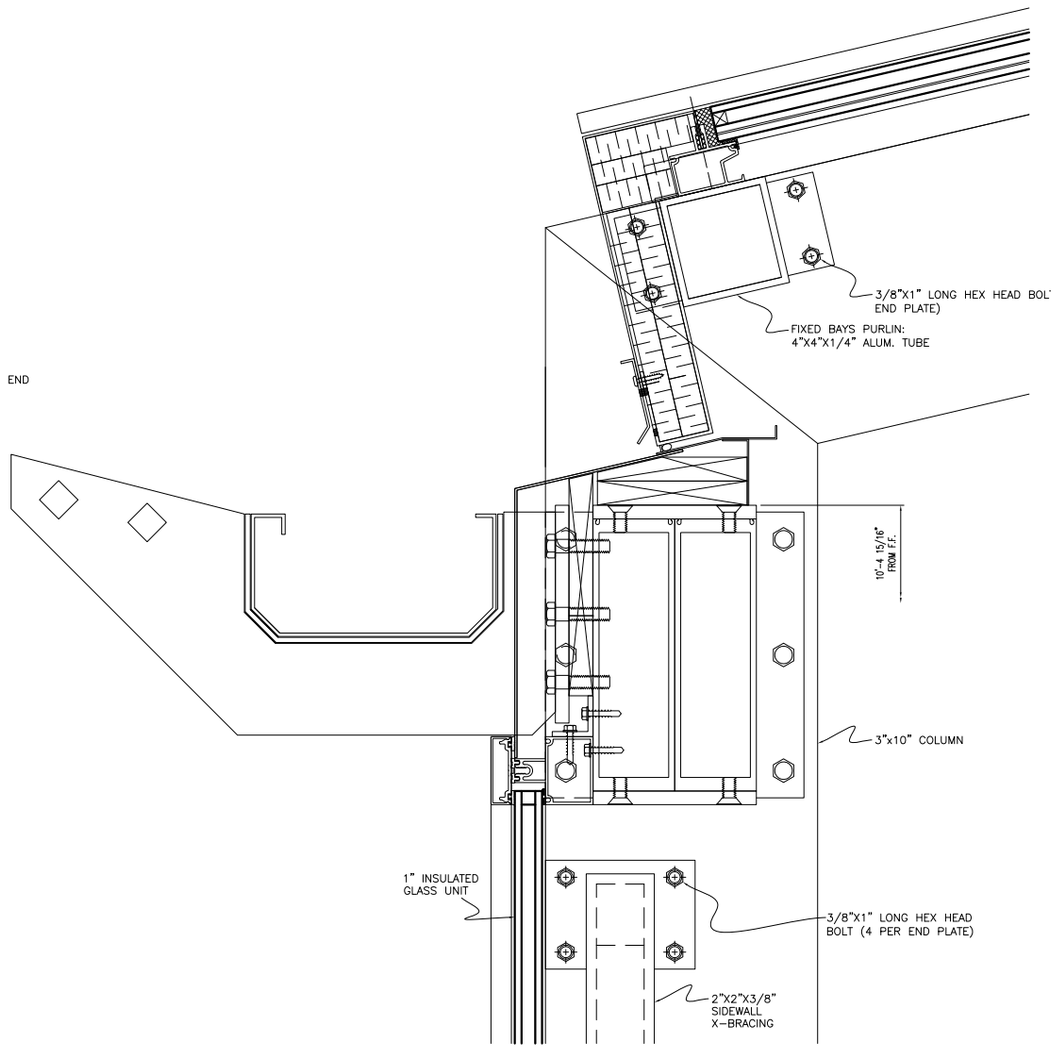
All dimensions are approximate

1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

TYPICAL EAVE DETAILS FOR ALL OPENAIRE PROJECTS



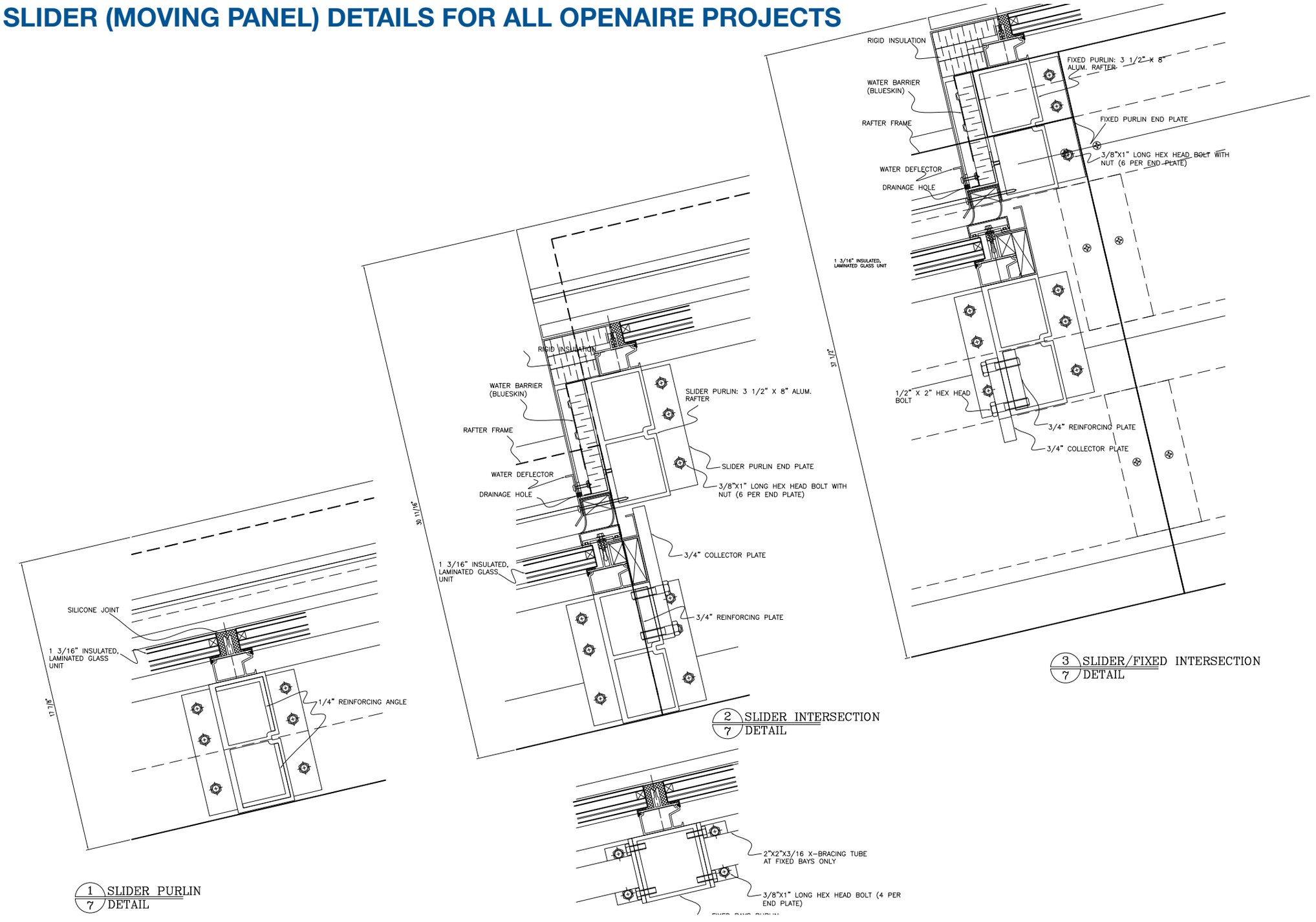
1/6 EAVE DETAIL–OPERABLE BAY



2/6 EAVE DETAIL–FIXED BAY

1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

TYPICAL SLIDER (MOVING PANEL) DETAILS FOR ALL OPENAIRE PROJECTS



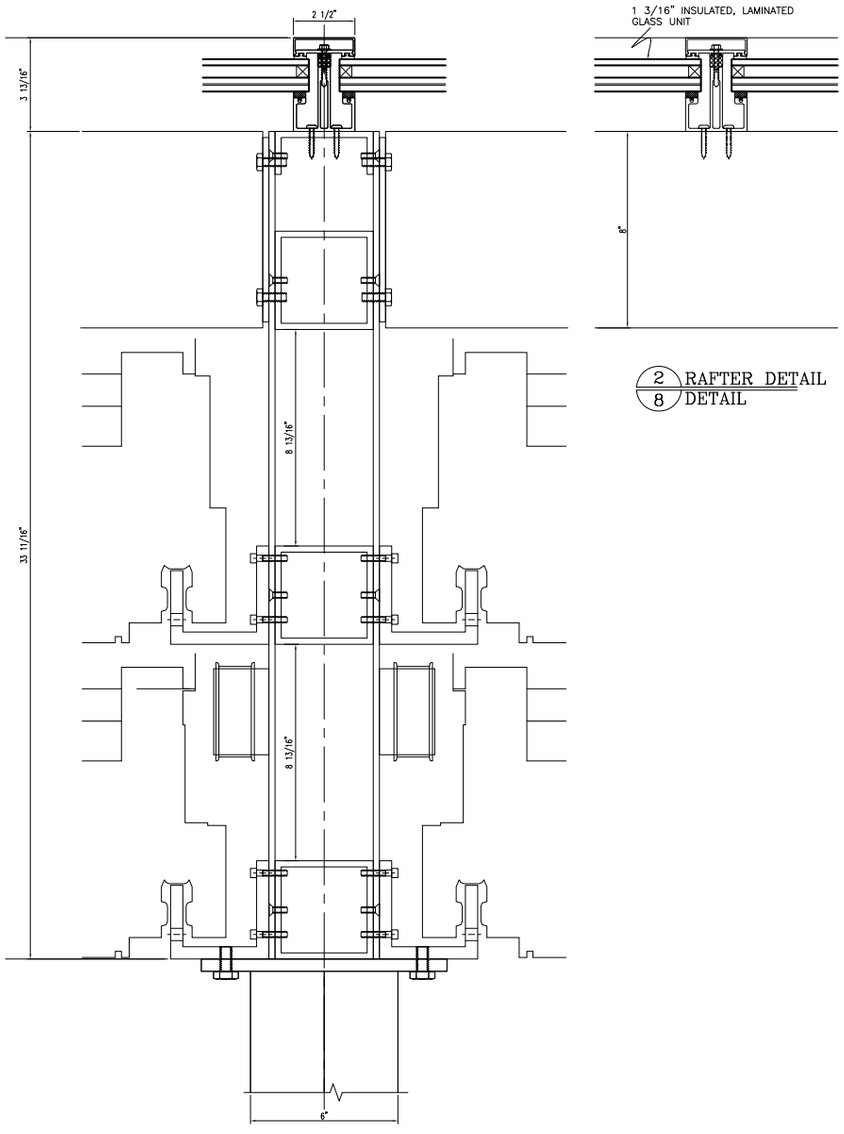
1/7 SLIDER PURLIN DETAIL

2/7 SLIDER INTERSECTION DETAIL

3/7 SLIDER/FIXED INTERSECTION DETAIL

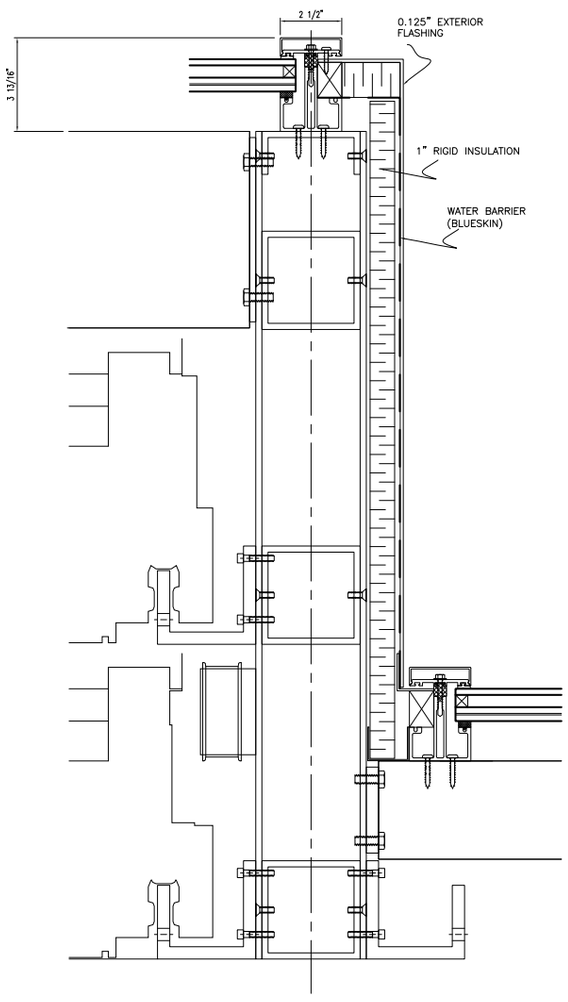
1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

TYPICAL RAFTER DETAILS FOR ALL OPENAIRE PROJECTS

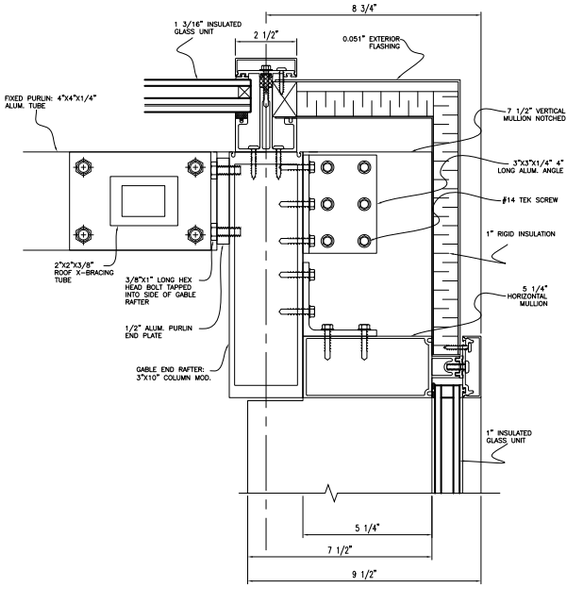


1 RAFTER DETAIL 8 CLOSED POSITION

2 RAFTER DETAIL 8 DETAIL



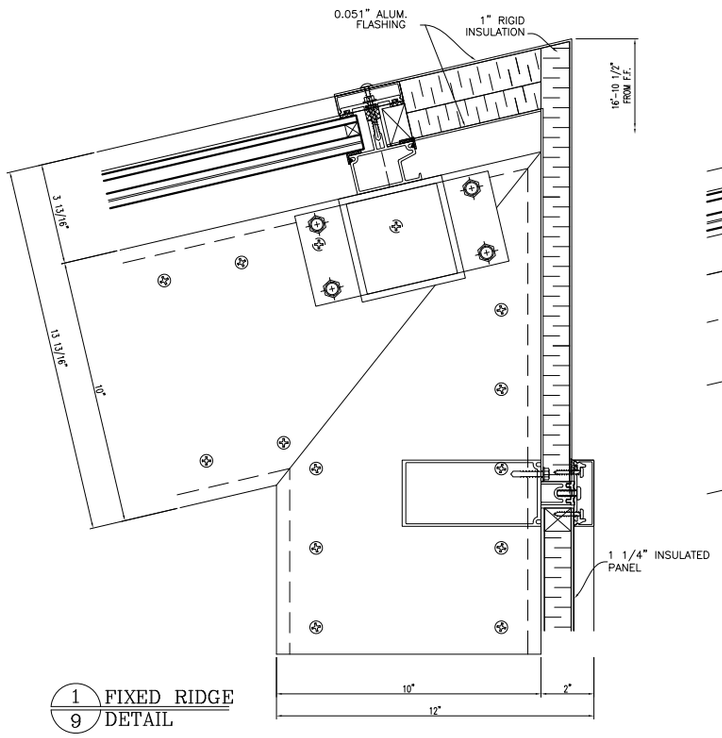
3 RAFTER DETAIL 8 CLOSED POSITION



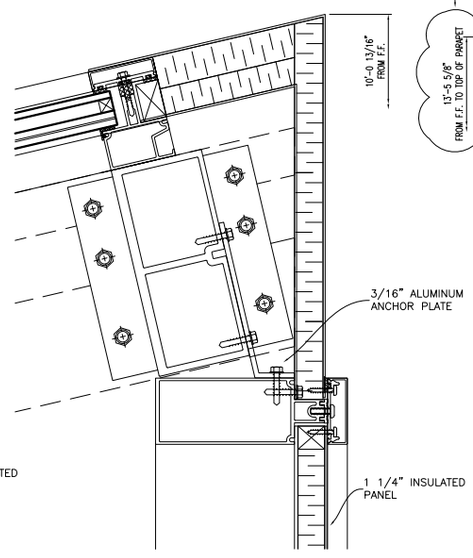
4 RAFTER DETAIL 8 DETAIL

1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

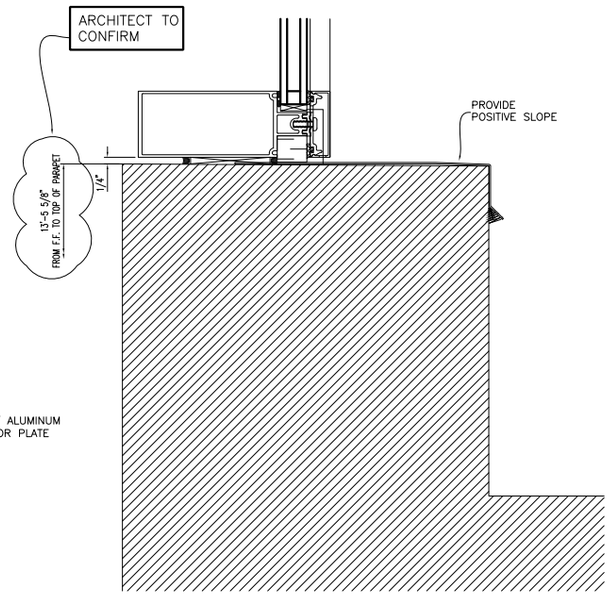
TYPICAL RIDGE, PARAPET, CURTAIN WALL DETAILS FOR ALL OPENAIRE PROJECTS



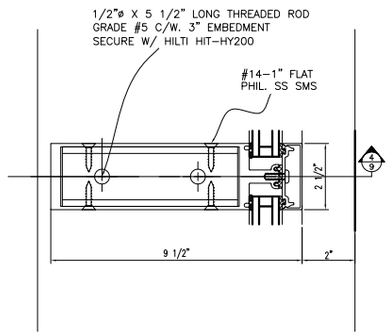
1/9 FIXED RIDGE DETAIL

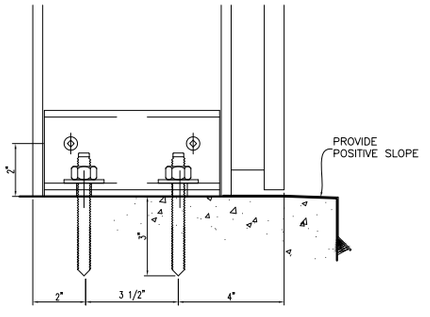


2/9 FIXED RIDGE DETAIL

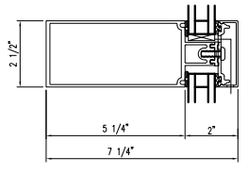


3/9 PARAPET DETAIL

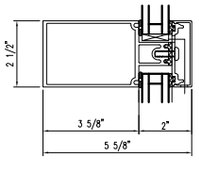




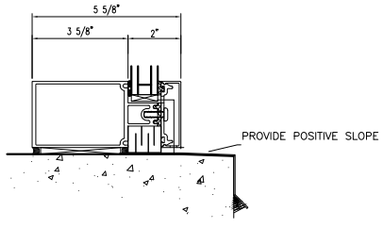
4/9 CURTAINWALL ANCHOR DETAIL



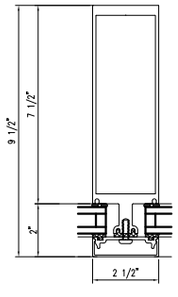
5/9 CURTAINWALL DETAIL



6/9 CURTAINWALL DETAIL



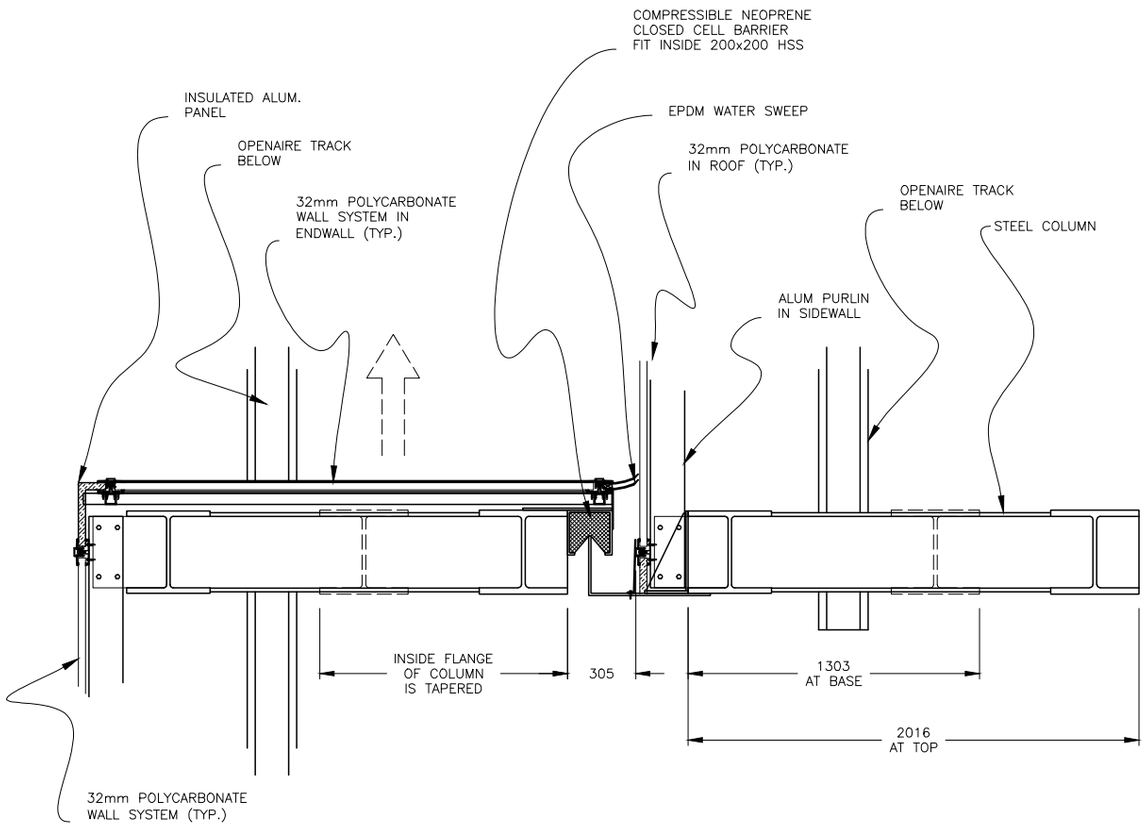
7/9 CURTAINWALL DETAIL



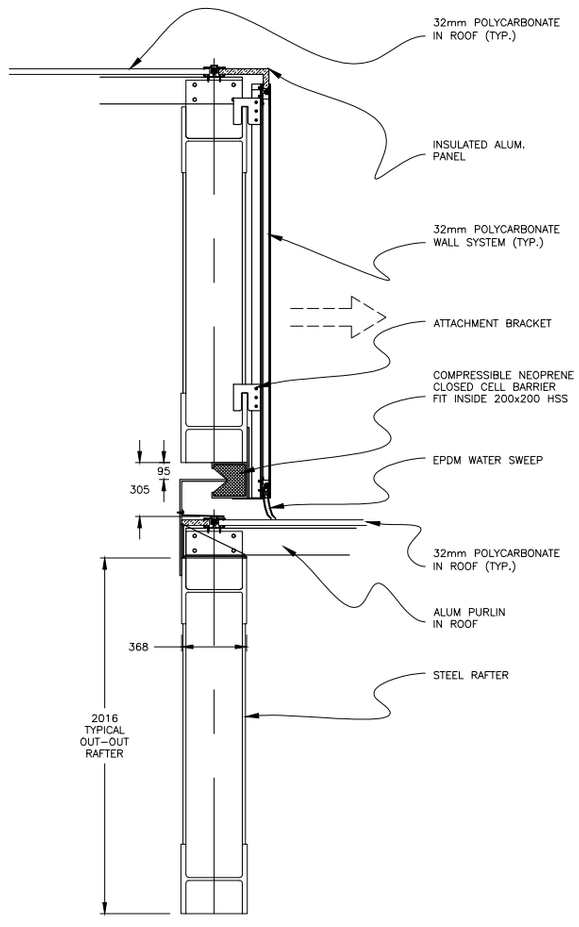
8/9 CURTAINWALL DETAIL

1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

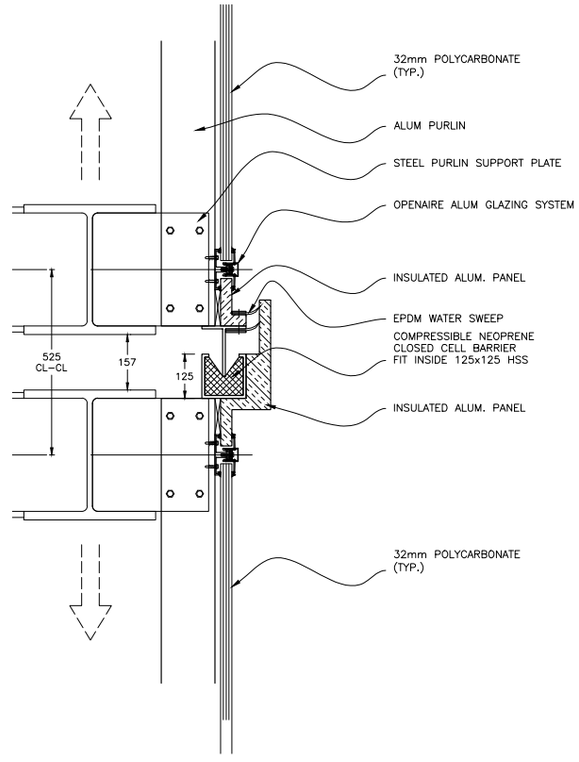
TYPICAL INTERLOCK DETAILS FOR ALL OPENAIRE PROJECTS



A 1.1 SECTION - COL. INTERLOCK
1:20



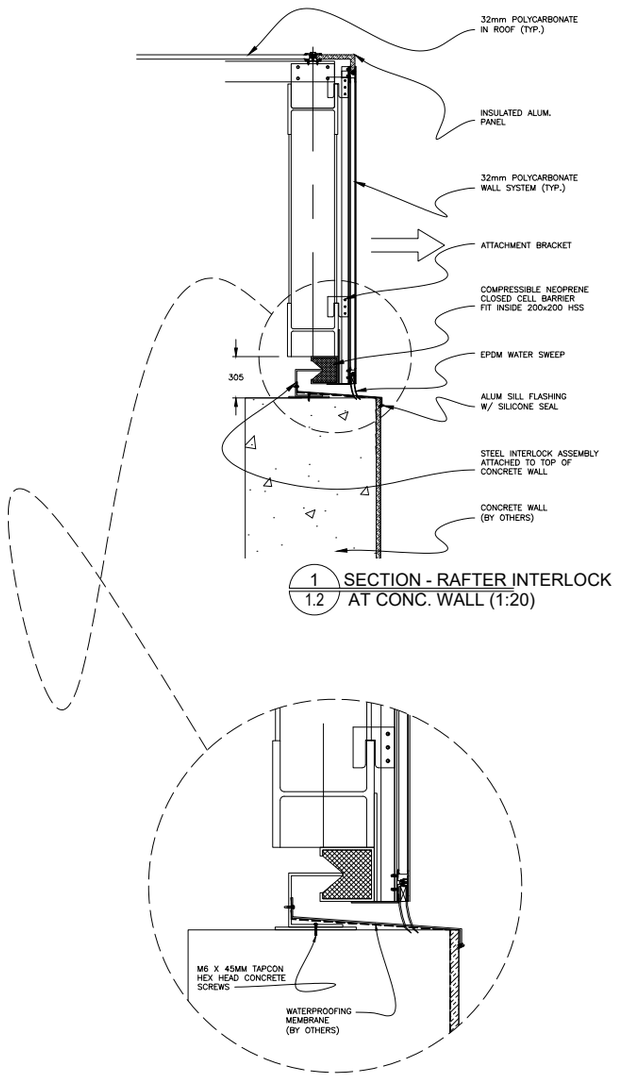
B 1.1 SECTION - RAFTER INTERLOCK
1:20



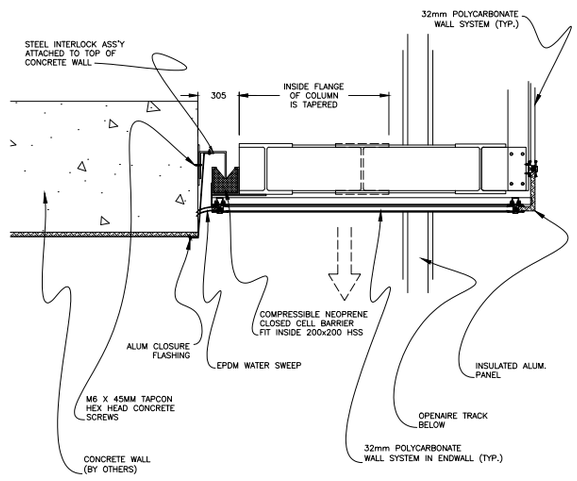
C 1.1 SECTION - BUTT JOINT
1:10

1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

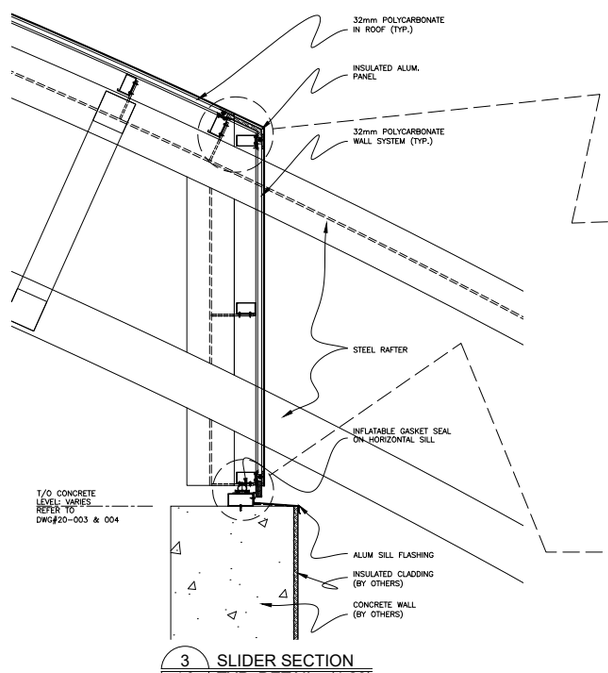
TYPICAL PNEUMATIC SEAL DETAILS FOR ALL OPENAIRE PROJECTS



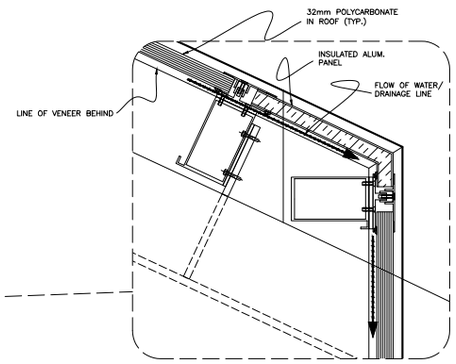
1 / 1.2 SECTION - RAFTER INTERLOCK AT CONC. WALL (1:20)

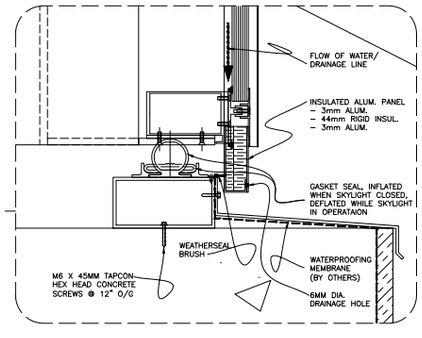


2 / 1.2 SECTION - COL. INTERLOCK AT CONC. WALL (1:20)



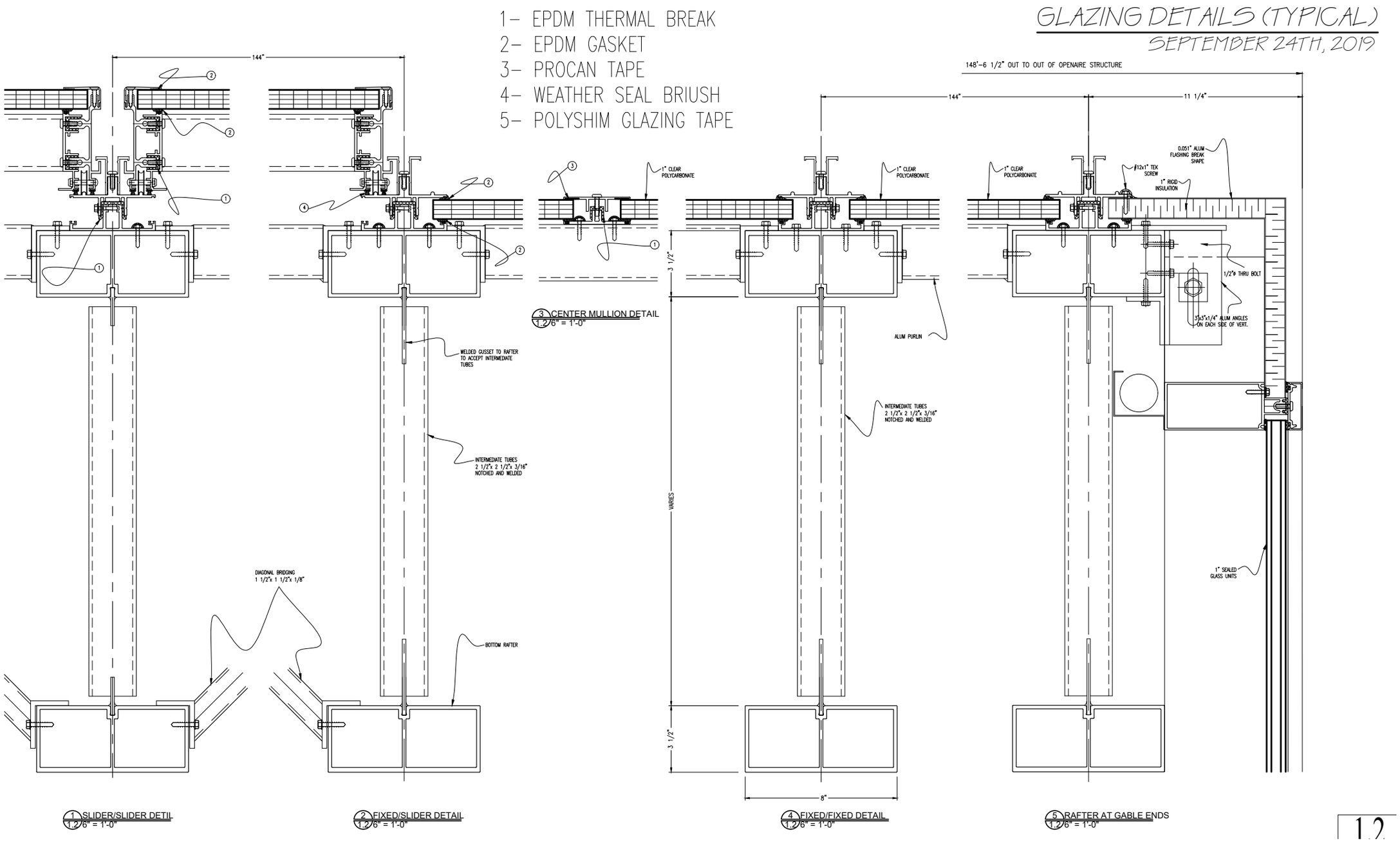
3 / 1.2 SLIDER SECTION TYP. DETAIL (1:20)





1. Please provide the method of opening all joints of the roof, including track position, opening position, panel to panel position, panel to frame position.
2. Are parallel slip and sector rotation different in airtightness treatment? What are the differences?
Same

TYPICAL GLAZING DETAILS FOR ALL OPENAIRE PROJECTS



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3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

EDPM

TREMCO®
Commercial Sealants & Waterproofing

EPDM
Dense Rubber Extrusions

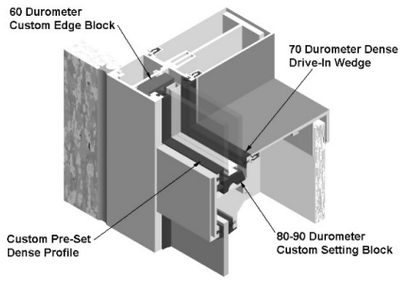
Product Description
Tremco EPDM Dense Rubber Extrusions are extruded and fabricated into gaskets and accessories (such as setting blocks, spacers and shims) for use in sealing and glazing applications in building construction.

Basic Uses
Tremco EPDM Dense Rubber Extrusions are manufactured to work with existing metal designs or custom developed with custom metal systems at the design development stage. Many profiles are available depending upon existing metal requirements.

Availability
Tremco EPDM Dense Rubber Extrusions are generally custom manufactured but many standard designs are available. Their availability and cost may be obtained from your local Tremco Sales Representative, or by contacting Tremco's Customer Service Department in Ashland, Ohio, at 800-321-6357 or in Canada at 800-363-3213.

Packaging
Tremco EPDM Dense Rubber Extrusions are packaged based on customer requirements, profile size, configuration and other needs as specified by the customer.

Warranty
Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.



Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	COMMERCIAL GRADE (COMP #512)	WEDGE GASKET (COMP #569)	ACCESSORY GASKET (# 3162)	SETTING BLOCKS
Shore "A" Hardness	ASTM D2240	72	72	62	82 to 85
Compression Set, 22 hr @ 212 °F (100 °C), Ozone Resistance, 100 mPa	ASTM D395	22.5%	22.5%	18 to 29%	26 to 30%
Ozone Resistance, 100 mPa 100 hr @ 104 °F (40 °C) 20% Elongation	ASTM D1149	No Cracks	No Cracks	No Cracks	No Cracks
Tensile Strength	ASTM D412	1505 psi (10.4 MPa)	1505 psi (10.4 MPa)	1675 to 1750 psi	1800 to 1900 psi (12.4 to 13.1 MPa)
Elongation @ Rupture	ASTM D412	434%	434%	375 to 550%	175 to 280%
Heat Aging, 70 hr, 100 °C	ASTM D573				
	Hardness increase, max points	+3	+3		
	Change in tensile strength, max %	+12.2	+12.2		
	Change in elongation, max %	-23	-23		
Tear Strength	ASTM D624	214 lb/in	214 lb/in	160 to 182 lb/in	125 to 158 lb/in
Brittleness Temperature @ -40°F (-40°C)	ASTM D746	Pass	Pass	Pass	Pass
Nonstaining	ASTM D925				
Flame Propagation, Option II	ASTM C1166	No Limit	No Limit	No Limit	No Limit

3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

GASKET EXTRUSIONS

TREMCO

MATERIAL SAFETY DATA SHEET
TELEPHONE (216) 292-5000

3735 GREEN ROAD
BEACHWOOD, OH 44122

EMERGENCIES: (216) 765-6727 8:00-4:30 EST
AFTER HOURS: CHEMTREC (800) 424-9300

SECTION I

TRADE NAME: CURED RUBBER GASKETS AND BLOCKS
CODE NUMBER: 002 – LINE 018 – LINE
080 – LINE 081 – LINE
082 – LINE 083 – LINE
084 – LINE 085 – LINE
089 – LINE 109 – LINE
175 – LINE 176 – LINE

PREPARED BY: J. H.WEGMAN
DATE: 27 - May - 2008
REPLACES: 7 – JUNE - 2000

PRODUCT CLASS

A Material Safety Data Sheet is not required on Cured Rubber Gaskets and Blocks due to the fact that this product is an Article (as defined in 29CFR 1910.1200) and is therefore exempt from OSHA Labeling/MSDS requirements.

Please do not hesitate to call (216) 765-6727 for further health and safety information about any Tremco product.

File: HSE

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3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

GASKET EXTRUSIONS

GM009

TREMCO

Neoprene

Flame Retardant Dense Rubber Extrusion

Product Description

Tremco Flame Retardant Dense Neoprene Rubber Extrusions are fabricated into gaskets and accessories (such as setting blocks, spacers and shims) for use in sealing and glazing applications in building construction.

Metal Requirements

Tremco Flame Retardant Dense Neoprene Rubber Extrusions are manufactured to meet existing metal designs or developed with custom metal systems at the design development stage. Many profiles are available depending upon existing metal requirements.

Packaging

Tremco Flame Retardant Dense Neoprene Rubber Extrusions are packaged base on customer requirements, profile size, configuration and the need for molded picture frame gaskets.

Availability/Cost

Tremco Flame Retardant Dense Neoprene Rubber Extrusions are generally custom manufactured but many standard designs are available. Their availability and cost may be obtained from your local Tremco Sales Representative, or by contacting Tremco's Customer Service Department in Ashland, Ohio, at 800-321-6357 or in Canada at 800-363-3213.

Warranty

Tremco warrants its Products to be free of defects in material. But makes no warranty as to appearance or color. Since method of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be at, its option, to replace, or to refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

TYPICAL PHYSICAL PROPERTIES

Property	ASTM Test Method	Wedge Gaskets	Accessory Gaskets	Setting Blocks
Shore "A" Hardness	D 2240	68-72	58-60	82-86
Compression Set, 22h @ 212°F (100°C)	D 395	22-26%	20-28%	26-30%
Ozone Resistance, 100 mPa, 100h @ 104°F (40°C) 20% Elongation	D 1149	No Cracks	No Cracks	No Cracks
Tensile Strength	D 412	1850-2050 psi (12.7-14.1 MPa)	1645-1725 psi (11.3-11.9 MPa)	1700-2065 psi (11.7-14.2 MPa)
Elongation @ Rupture	D 421	235-350%	350-478%	200-320%
Tear Strength	D 624	163-190 lb/in (28.5-33.3 kN/m)	159-172 lb/in (27.8-30.1 kN/m)	100-137 lb/in (17.5-24.0 kN/m)
Brittleness Temperature @ -40°F (-40°C)	D 746	Pass	Pass	Pass
Flame Propagation, Option I	C 1166	Pass	Pass	Pass

GREENGUARD Children & Schools Indoor Air Quality Certified

Tremco Commercial Sealants & Waterproofing
3735 Green Road, Beachwood, OH 44122 // Phone: 216.292.5000 // 800.321.7906
220 Wicksteed Avenue, Toronto, ON M4H 1G7 // Phone: 416.421.3300 // 800.363.3213
1451 Jacobson Avenue, Ashland OH 44805 // Phone: 419.289.2050 // 800.321.6357

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3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

PVC EXTRUSION

GM001, GM003, GM005, GM008

Georgia Gulf Compound Concord

MATERIAL SAFETY DATA SHEET

SECTION 1 – Product Information

RECEIVED
AUG 17 2011

Product Name/Number:	**Rigid Pellet Compound**
Manufacturer:	Georgia Gulf Compound Concord 121 Pippin Road Concord, Ontario, Canada L4K 4J9
Telephone #:	(905) 761-8529
Emergency Telephone #:	(905) 761-8529
Chemical Name/Synonyms:	Rigid Poly(vinyl chloride) Compound, PVC, Vinyl
Uses:	Extrusion compound for the manufacture of finished goods.

SECTION 2 – Hazardous Ingredients

Material	CAS #	LD_{50} (Species & Route)	LC_{50} (Species & Route)	Conc.

N/A – This is Not a WHMIS Controlled Product

SECTION 3 – Physical Data

Physical State	Solid	**Specific Gravity:**	0.75 to 0.85 as pellets.
Freezing Point	N/A	**Boiling Point:**	N/A
Vapour Pressure:	N/A	**% Volatiles:**	N/A
Vapour Density:	N/A	**Evaporation Rate:**	N/A
Solubility in Water:	Negligible	**pH:**	N/A
Coefficient of Water/Oil Distribution:			N/A
Appearance & Odor:	Solid white or coloured pellets at STP (23°C & 1 atm). Slight odor		

SECTION 4 – Fire & Explosion Data

Conditions of Flammability:	Difficult to burn because a substantial amount of energy is required to breakdown the polymer into smaller fragments that may sustain combustion in the gas phase.
Flash Point:	Not established for the product; PVC resin portion of product has a Flash Point of 391°C per ASTM D 1929.
Auto Ignition Temperature:	N/A.
Flammable Limits in Air:	N/A
Extinguishing Media:	Water, ABC dry chemical, protein type air foams
Special Fire Fighting Procedures:	Wear self-contained breathing apparatus positive pressure mode. Contain runoff water.
Combustion Products:	Fumes/smoke of burning material may contain Hydrogen Chloride, Carbon Monoxide, Carbon Dioxide and aromatic &/or aliphatic hydrocarbons.
Sensitivity to Mechanical Impact:	None
Sensitivity to Static Discharge:	N/A

Georgia Gulf Compound Concord

MATERIAL SAFETY DATA SHEET

SECTION 5 – Reactivity Data

Stability:	Stable. **Conditions to Avoid:** N/A
Hazardous Polymerization:	Will not occur. **Conditions to Avoid:** N/A
Hazardous Decomposition Products:	Hydrogen Chloride, Carbon Monoxide Carbon Dioxide and short chain chlorinated hydrocarbons.
Incompatibility:	Avoid contact with strong oxidizers and alkali metals.

SECTION 6 – Health Hazard Data

Threshold Limit Value:	N/A
Primary Routes of Entry:	Eye contact, ingestion & inhalation.
Effects of Overexposure:	At processing temperatures, fumes & vapors can cause irritation of eyes & respiratory tract.

SECTION 7 – Preventative Measures

Respiratory Protection:	Selection of respirator must be based on the contamination level found in workplace.
Ventilation:	Provide exhaust ventilation to draw dust & fumes away from workers.
Protective Equipment:	Wear protective gloves when handling hot material.
Material Handling & Storage:	Store away from fire, heat or ignition sources. Sprinklered warehouse areas are recommended.
Steps to be taken in case material is released or spilled:	Vacuum or sweep material into a clean container for reuse or disposal.
Waste Disposal Method:	Dispose in accordance with all federal, provincial/state & local regulations.

SECTION 8 – First Aid Measures

Inhalation (of process emissions):	Remove affected individual to fresh air. Contact a physician.
Eye Contact:	Flush eyes with water for at least 15 minutes. Seek medical attention if irritation persists.
Skin Contact:	N/A
Ingestion:	N/A

SECTION 9 – Preparation Information

Date Prepared:	**August 1, 2011**	**Supersedes:**	**March 1, 2010**
Prepared By:	Georgia Gulf Compound Concord	**Phone Number:**	(905) 761-8529

OpenAire

3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

PVC EXTRUSION

GM002. GM004. GM013. GM019& GM024

Georgia Gulf Compound Concord

MATERIAL SAFETY DATA SHEET

RECEIVED
AUG 17 2011

SECTION 1 – Product Information

Product Name/Number: Flexible Pellet Compound
Manufacturer: Georgia Gulf Compound Concord
121 Pippin Road
Concord, Ontario, Canada L4K 4J9
Telephone #: (905) 761-8529
Emergency Telephone #: (905) 761-8529
Chemical Name/Synonyms: Flexible Poly (vinyl chloride) Compound, PVC or Vinyl
Uses: Extrusion compound for the manufacture of finished goods.

SECTION 2 – Hazardous Ingredients

Material	CAS #	LD_{50} (Species & Route)	LC_{50} (Species & Route)	Conc.
Calcium Carbonate	1317-68-3	NA	NA	<40 % wt
Carbon Black (Black Compounds Only)	1333-86-4	NA	NA	< 1% wt

N/A – This is Not a WHMIS Controlled Product

SECTION 3 – Physical Data

Physical State	Solid	**Specific Gravity:**	1.2 – 1.4
Freezing Point	N/A	**Boiling Point:**	N/A
Vapour Pressure:	N/A	**% Volatiles:**	N/A
Vapour Density:	N/A	**Evaporation Rate:**	N/A
Solubility in Water:	Negligible	**pH:**	N/A
Coefficient of Water/Oil Distribution:			N/A

Appearance & Odor: Solid white or coloured pellets at STP (23°C & 1 atm). Slight odor

SECTION 4 – Fire & Explosion Data

Conditions of Flammability: Difficult to burn because a substantial amount of energy is required to breakdown the polymer into smaller fragments that may sustain combustion in the gas phase.
Flash Point: Not established for the product; PVC resin portion of product has a Flash Point of 391°C per ASTM D 1929.
Auto-Ignition Temperature: Not established for the product; PVC resin portion of product has a Self-Ignition Temperature of 454°C per ASTM D 1929.
Flammable Limits in Air: N/A
Extinguishing Media: Water, ABC dry chemical, protein type air foams
Special Fire Fighting Procedures: Wear self-contained breathing apparatus positive pressure mode. Contain runoff water.
Combustion Products: Fumes/smoke of burning material may contain Hydrogen Chloride, Carbon Monoxide and Carbon Dioxide.
Sensitivity to Mechanical Impact: None
Sensitivity to Static Discharge: N/A

Georgia Gulf Compound Concord

MATERIAL SAFETY DATA SHEET

SECTION 5 – Reactivity Data

Stability: Stable. **Conditions to Avoid:** N/A
Hazardous Polymerization: Will not occur. **Conditions to Avoid:** N/A
Hazardous Decomposition Products: Hydrogen Chloride, Carbon Monoxide Carbon Dioxide and Aliphatic olefins.
Incompatibility: Avoid contact with strong oxidizers and alkali metals. Also avoid contact with acetyl or amine containing compounds. At processing temperatures can cause rapid decomposition.

SECTION 6 – Health Hazard Data

Threshold Limit Value: N/A
Primary Routes of Entry: Eye contact, ingestion & inhalation.
Effects of Overexposure: At processing temperatures, fumes & vapors can cause irritation of eyes & respiratory tract. Calcium Carbonate contains crystalline silica (<0.3%). Respirable crystalline silica is classified as an IARC Class I carcinogen. Carbon Black has been classified as an IARC Group 2B carcinogen based on inhalation studies in rats exposed to respirable particles. Respiable particles of silica & carbon black are tightly bound within the polymer matrix of the pellet. It is believed that foreseeable use or misuse of such pelletized compounds will not release silica or carbon black in respirable particle sizes (< 10 micrometers).

SECTION 7 – Preventative Measures

Respiratory Protection: Selection of respirator must be based on the contamination level found in workplace.
Ventilation: Provide exhaust ventilation to draw dust & fumes
Protective Equipment:
Material Handling & Storag
Steps to be taken in case mat
Waste Disposal Method:

Georgia Gulf Compound Concord

MATERIAL SAFETY DATA SHEET

SECTION 8 – First Aid Measures

Inhalation (of process emissions): Remove affected individual to fresh air. Contact a physician.
Eye Contact: Flush eyes with water for at least 15 minutes. Seek medical attention if irritation persists.
Skin Contact: N/A **Ingestion:** N/A

SECTION 9 – Preparation Information

Date Prepared: August 1, 2011 **Supersedes:** March 1, 2010
Prepared By: Georgia Gulf Compound Concord **Phone Number:** (905) 761-8529

3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

CURTAIN WALL THERMAL BREAK

Received Fax : 07 Dec 2011 4:00PM Fax Station : Superior Extrusions Ltd. P . 4

11-04-2003 20:45 Plastiques Reinier 4504602666 P.04

PLASTIQUE REINIER Inc. PLASTIC

TECHNICAL DATA

Compound	RE 14075
Grade	Extrusion
Specific gravity	1,39
Elongation	450%
Tensile strength	1700 psi
Brittleness point	-33°C
Hardness (15 sec.)	75 shore A
Application	General purpose

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3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

COLUMN THERMAL BREAK

Received Fax : 07 Dec 2011 4:00PM Fax Station : Superior Extrusions Ltd. p . 3

11-04-2003 20:44 Plastiques Reinier 4504602666 P.03

PLASTIQUE REINIER PLASTIC inc.

TECHNICAL DATA

Compound	RE 15085 B
Grade	Extrusion
Densité spécifique Specific gravity	1,5
Elongation	230%
Tensile strength	1750 psi
Brittleness point	-20°C
Hardness (15 sec.)	85 shore A
Application	General purpose

3. Please provide air tightness materials for opening roof, such as EPDM or diaphragm, etc. Is there any parameter requirement?

PRESSURE PLATE THERMAL BREAK

ExxonMobil Chemical

Santoprene™ 121-67W175

Thermoplastic Vulcanizate

Product Description	Key Features
A soft, black, UV resistant thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. This material combines good physical properties and chemical resistance, and is designed for thin wall or complex profile extrusion applications. This grade of Santoprene TPV is shear-dependent and can be processed on conventional thermoplastics equipment for extrusion, thermoforming or vacuum forming. It is polyolefin based and completely recyclable.	• Recommended for applications requiring excellent flex fatigue resistance. • Excellent ozone resistance. • Designed for improved UV resistance. • Designed for extruding thin sections with excellent definition (down to 0.33 mm [0.013"] radius). Long runs with minimal build-up of material on screen packs or narrow die sections. • RoHS compliant.

General			
Availability [1]	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America • South America
Applications	• Automotive - Interior Mat	• Automotive - Seals and Gaskets	• Automotive - Weather Seals
Uses	• Automotive Applications	• Automotive Exterior Trim	
Agency Ratings	• EU Annex XVII of Regulation (EC) No 1907/2006		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• CHRYSLER MS-AR100 BGV • FORD WSS-M2D379-B1	• GM GMP.E/P.029 • GM GMW15812, Type 5	
Color	• Black		
Form(s)	• Pellets		
Processing Method	• Coextrusion • Extrusion	• Profile Extrusion • Sheet Extrusion	• Thermoforming • Vacuum Forming
Revision Date	• 11/11/2011		

Physical	Typical Value (English)	Typical Value (SI)	Test Based On
Specific Gravity	0.970	0.970	ASTM D792
Density	0.970 g/cm³	0.970 g/cm³	ISO 1183

Hardness	Typical Value (English)	Typical Value (SI)	Test Based On
Shore Hardness			ISO 868
Shore A, 15 sec, 73°F (23°C), 0.0787 in (2.00 mm)	72	72	

Elastomers	Typical Value (English)	Typical Value (SI)	Test Based On
Tensile Stress at 100% - Across Flow (73°F (23°C))	435 psi	3.00 MPa	ASTM D412
Tensile Stress at 100% - Across Flow (73°F (23°C))	435 psi	3.00 MPa	ISO 37
Tensile Strength at Break - Across Flow (73°F (23°C))	1070 psi	7.40 MPa	ASTM D412
Tensile Stress at Break - Across Flow (73°F (23°C))	1070 psi	7.40 MPa	ISO 37
Elongation at Break - Across Flow (73°F (23°C))	450 %	450 %	ASTM D412

Typical properties: these are not to be construed as specifications.

4. Provide air tightness proof material or actual project test report

We do not individually test each project - we meet acceptable standards

5. Air tightness index is introduced in company information, but it can not meet the requirements of Chinese standards, whether the air tightness performance can be further improved.

Yes - we will require the Chinese standards provided by the client.

2. By analogy, if we use your technology to transform it into aluminium alloy + glass to meet the requirement of seeing blue sky and white clouds indoors, can this mode realize the opening of our typical cases, including the opening mode, span, area and aluminium alloy keel with the heel panel, and the visual field is not blocked?

Many OpenAire projects use Glass instead of polycarbonate. All details remain the same. Note the weight and cost of glass are typically the reason that polycarbonate is used.

3. Similarly, we use your core technology to transform it into steel structure + aluminium alloy + glass. Can this mode realize the opening of our typical cases, including the opening mode, span, area and aluminium alloy keel with the panel, and the visual field is not blocked?

Many OpenAire projects use Steel and Aluminum . This is not an issue - Steel has strength opportunities compared to aluminum - however it corrodes, so waterpark clients prefer aluminum.

4. In your existing cases, the roof design is concise, while in our typical cases, the roof design is more complex and detailed. Can your technology be realized?

All of our designs are custom engineered to suit the design and Client requirements.

Client cases x2

Concept 1 Round 100m dia.

The first kind of sector rotation has a diameter of 100m, and we hope the field of vision is as large as possible. We don't want the field of vision to be divided into many separate parts after opening. We think that Ukraine project 4/8 has poor field of vision. We hope to achieve at least 50% of the opening ratio, and the opening position is unobstructed keel. Please see our project introduction.

We don’t see any issue with this. The structure holding the skylight will move with the panel so the opening is as unobstructed as possible.

Concept 2 Square - 53m x 67m

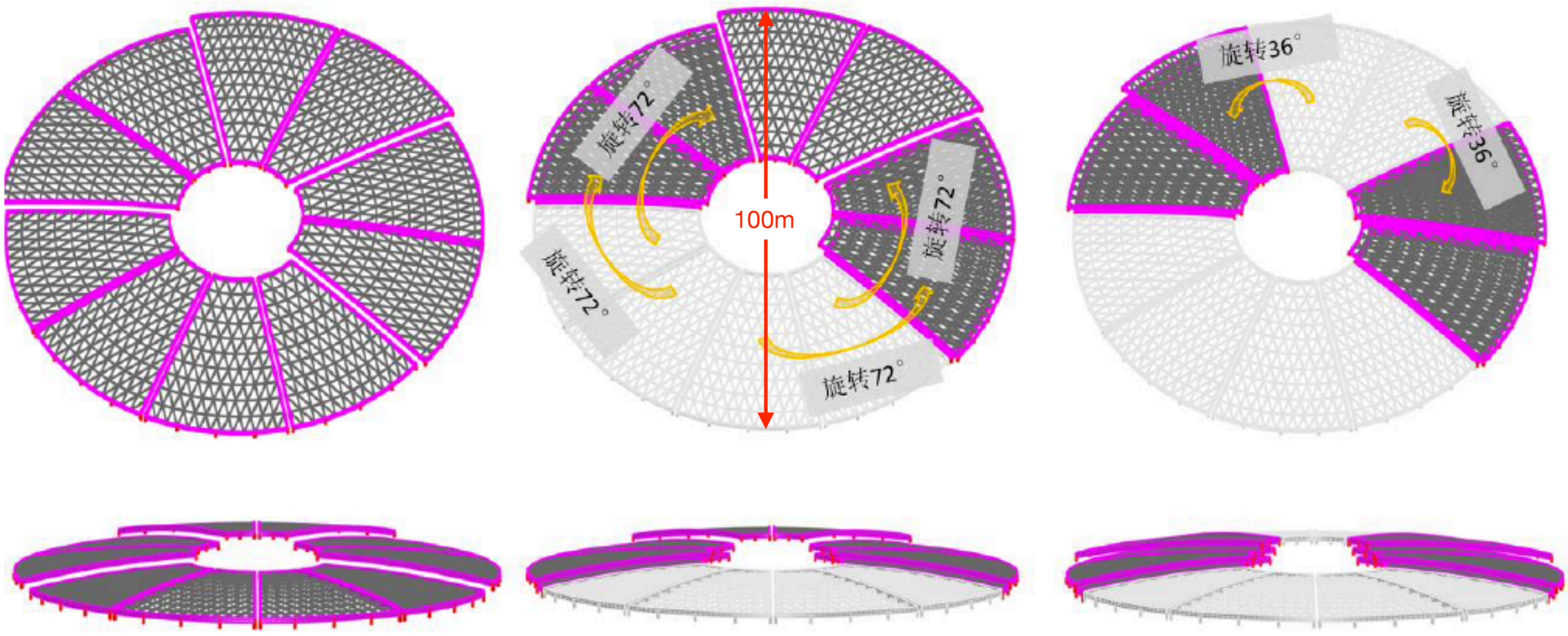
The second kind of parallel sliding, with a span of 60 m, achieves opening of more than 65%, and the opening position is unshielded keel. Please see our project introduction.

This is a smaller span then our Deira Mall project - this is no issue.

1. Your standardized product is aluminium alloy + polycarbonate plate. Can this mode realize the opening of two typical cases, including the opening mode, span, area and aluminium alloy keel with the panel, and the visual field is not blocked?

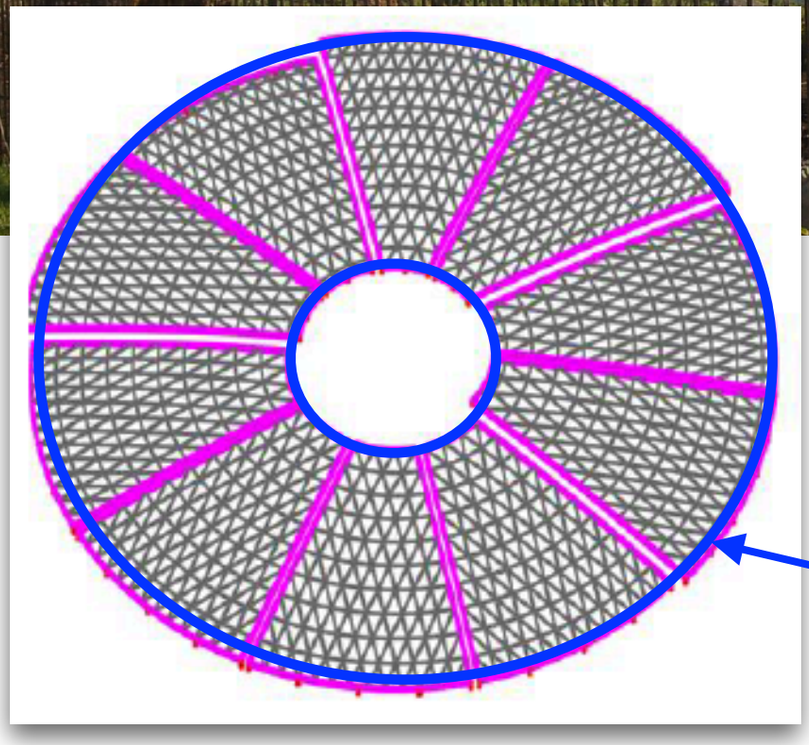
YES

Concept 1 Round 100m dia.



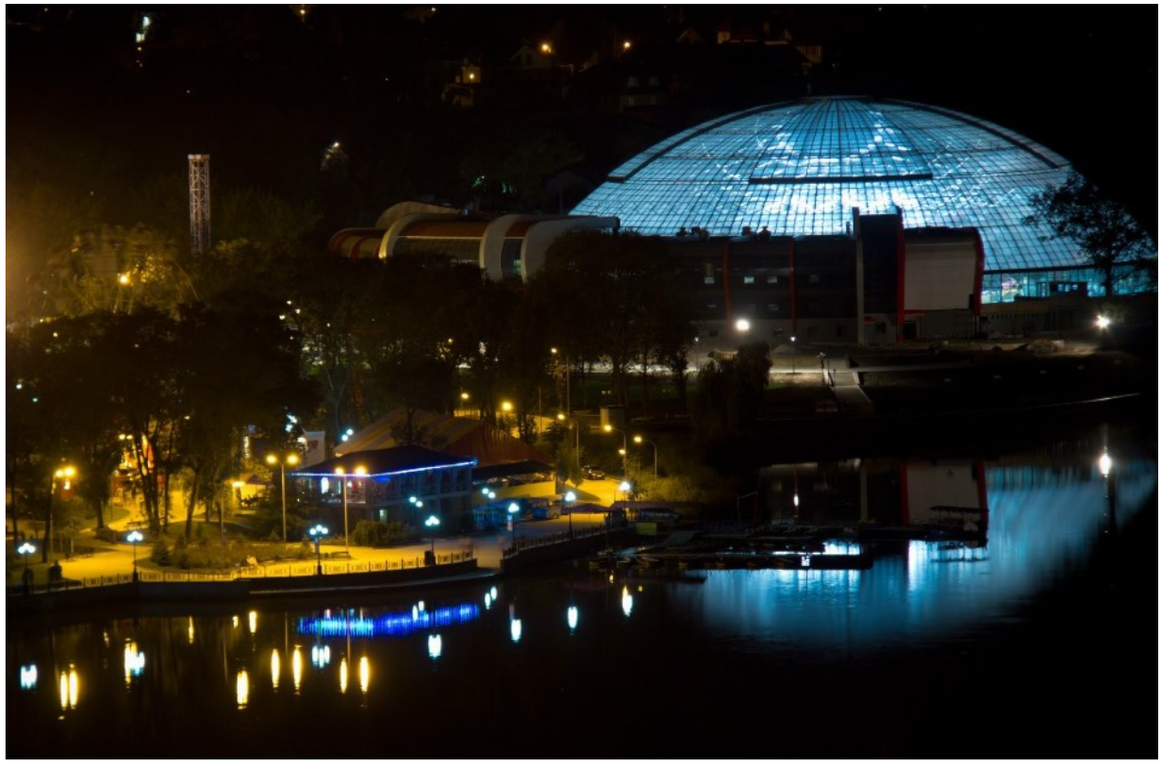
Concept 1 Round

MOST SIMILAR TO AQUA SFERRA UKRAINE



Due to large span involved, it would be necessary to drive both the top and bottom, using curved rack-and-pinion to ensure a no-slip drive.

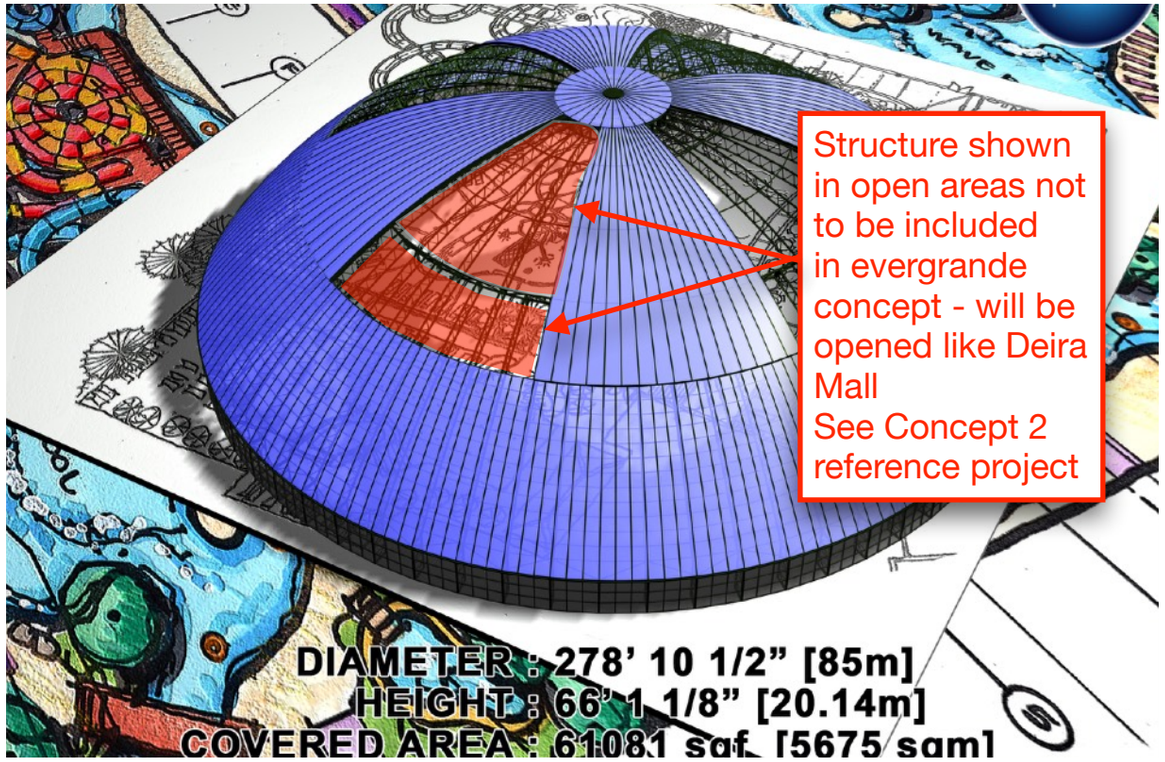
Tracks/Motors at blue lines

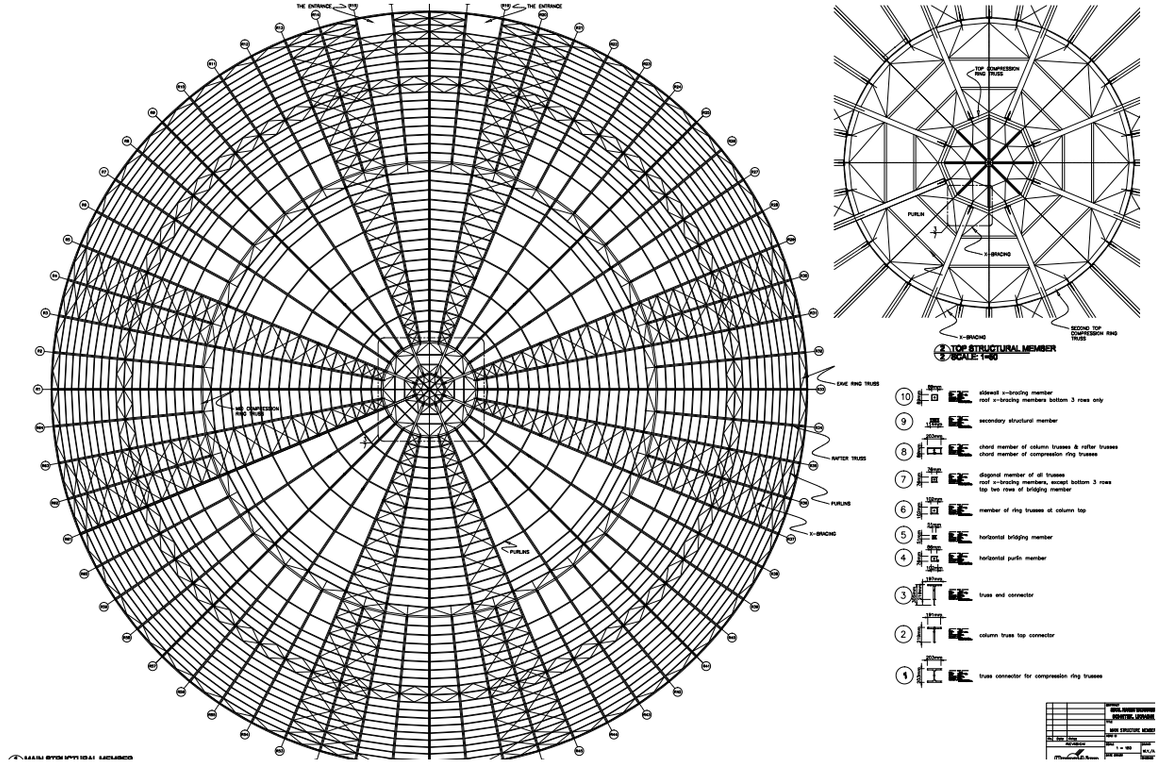


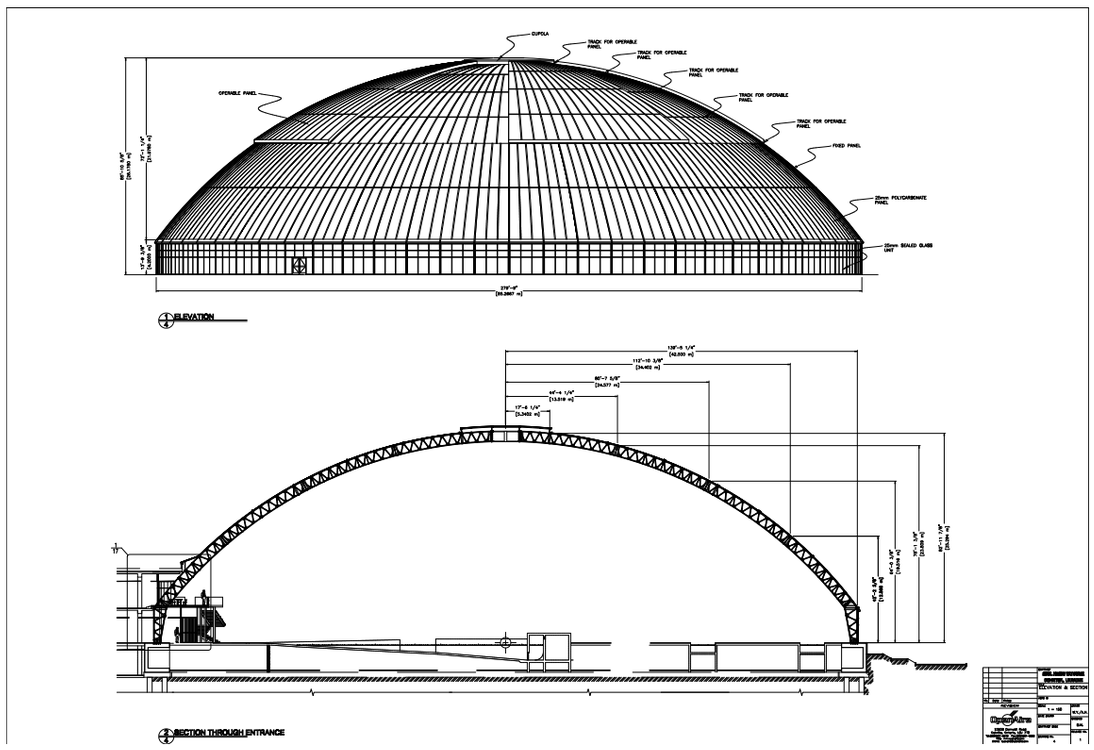
Aquapark - Aqua Sferra

Donetsk, Ukraine, World’s Largest retractable aluminum dome

OpenAire







Aquapark - Aqua Sferra

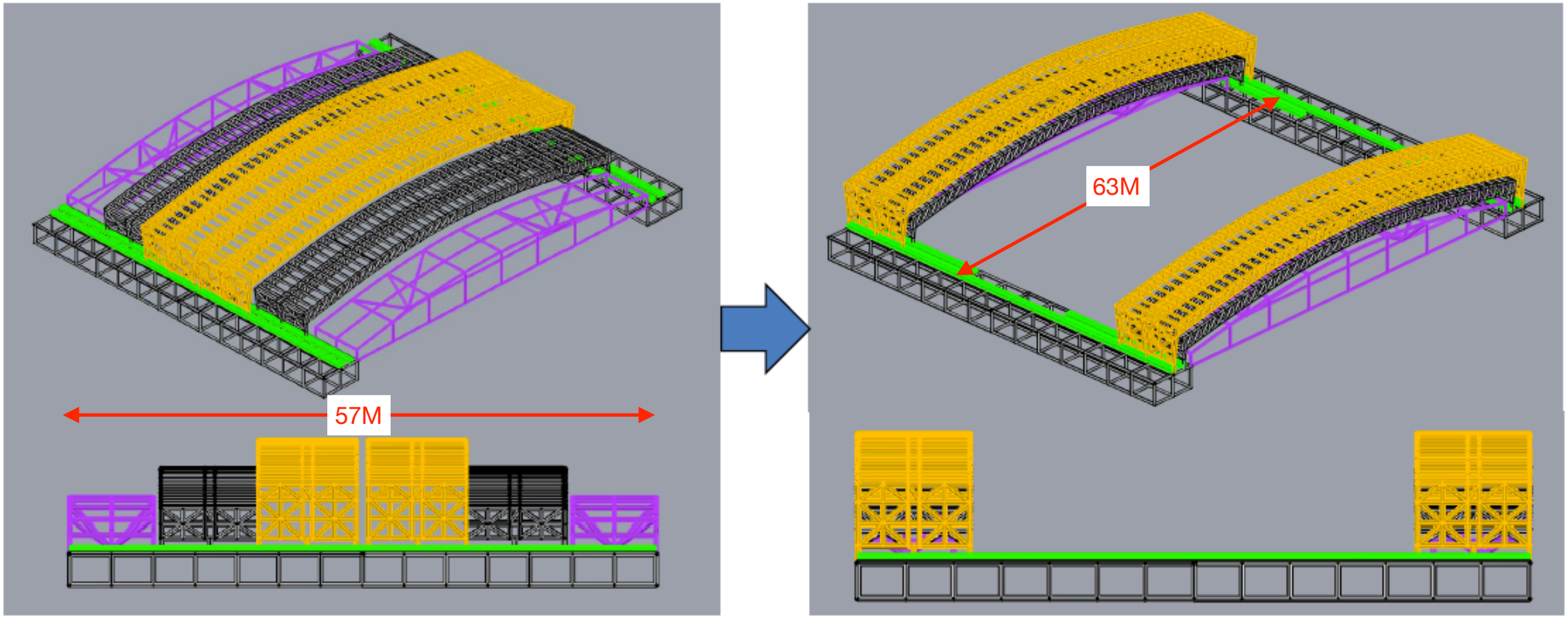
Donetsk, Ukraine, World's Largest retractable aluminum dome

OpenAire

1. Your standardized product is aluminium alloy + polycarbonate plate. Can this mode realize the opening of two typical cases, including the opening mode, span, area and aluminium alloy keel with the panel, and the visual field is not blocked?

YES

Concept 2 Square - 53m x 67m

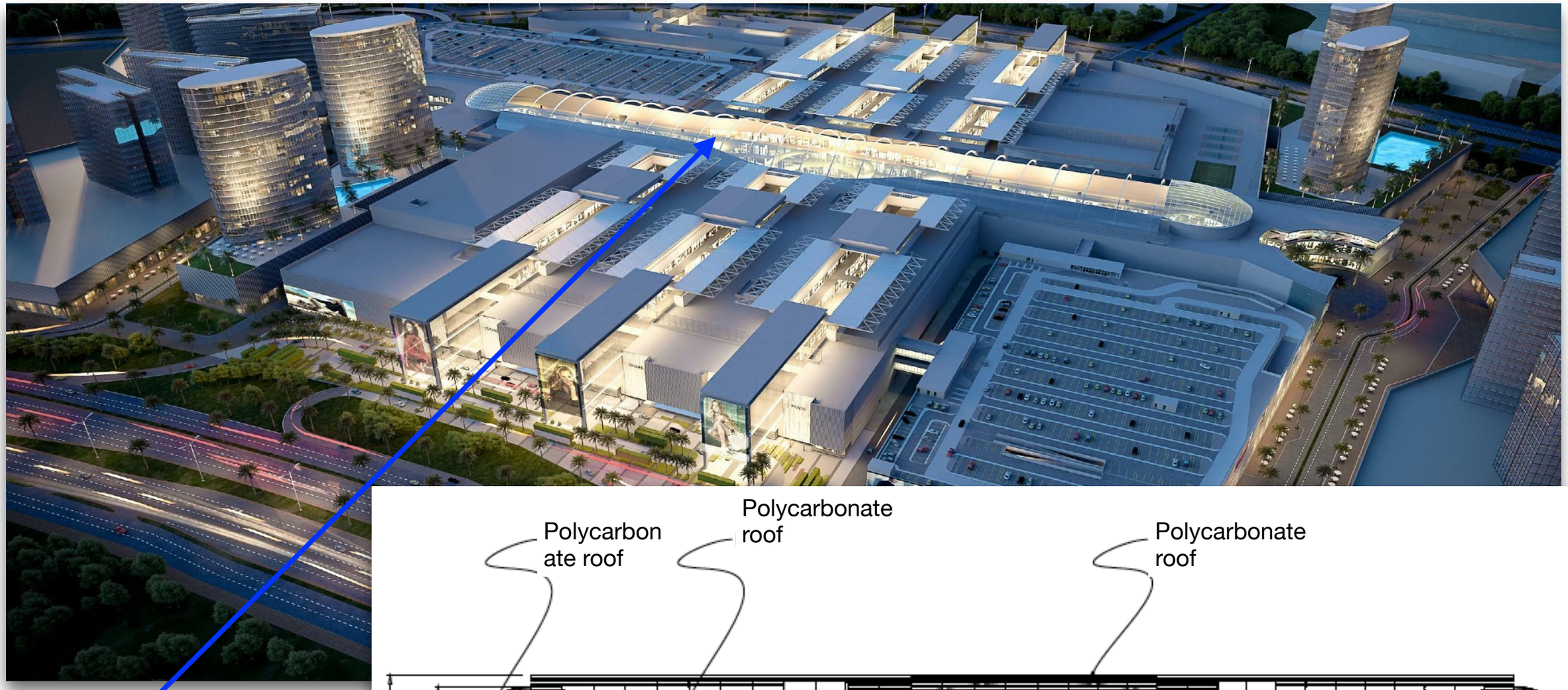


Close

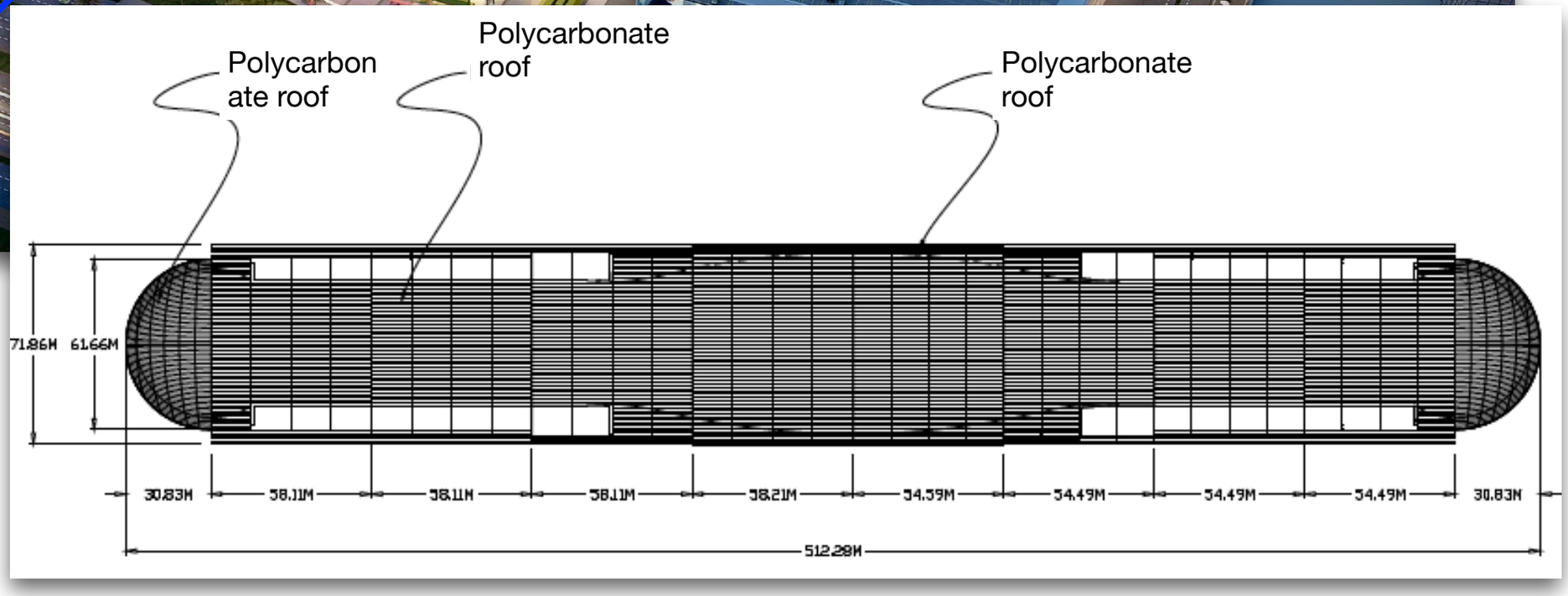
open

Concept 2 Square

MOST SIMILAR TO DEIRA MALL UAE (UNDER CONSTRUCTION)



SKYLIGHT IS 71m X 512m

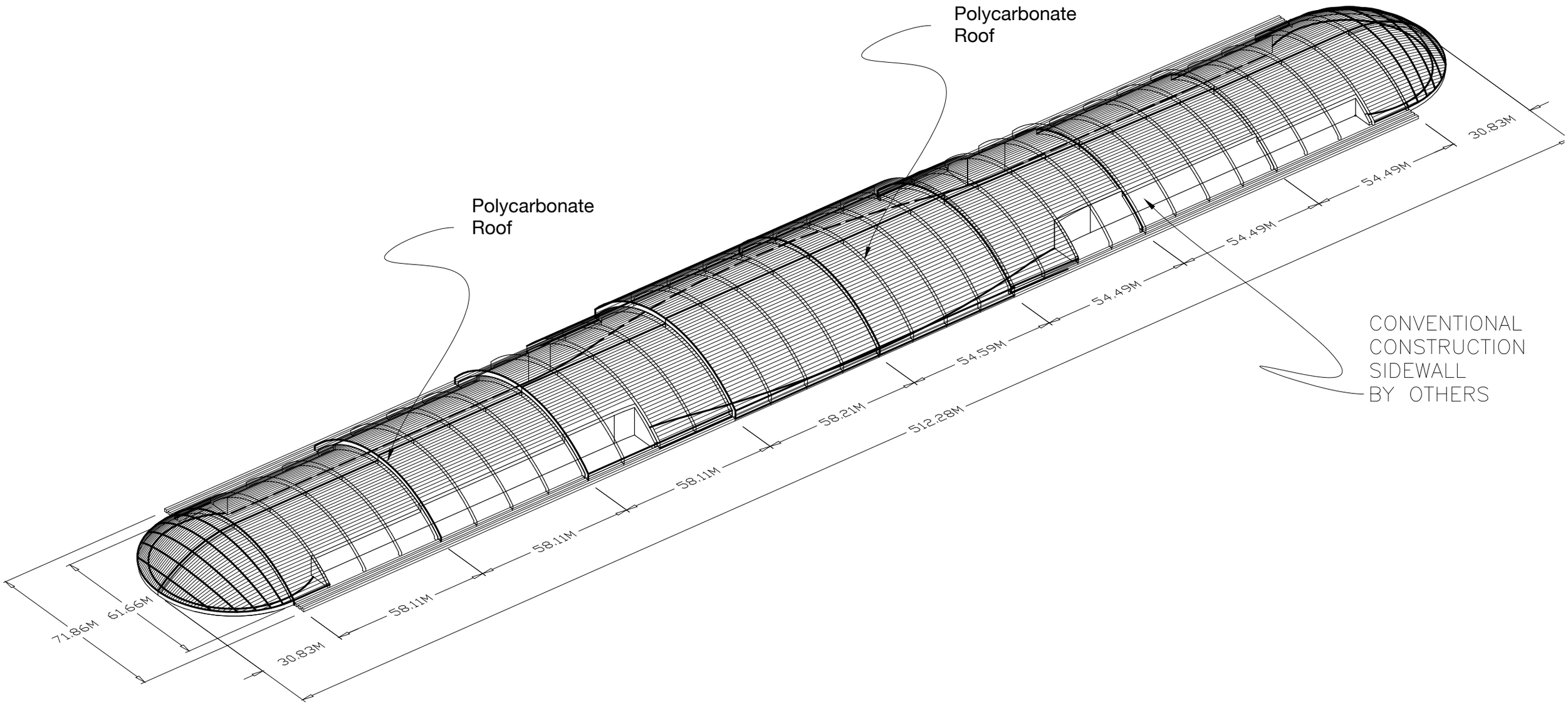


Concept 2 Square

MOST SIMILAR TO DEIRA MALL UAE (UNDER CONSTRUCTION)

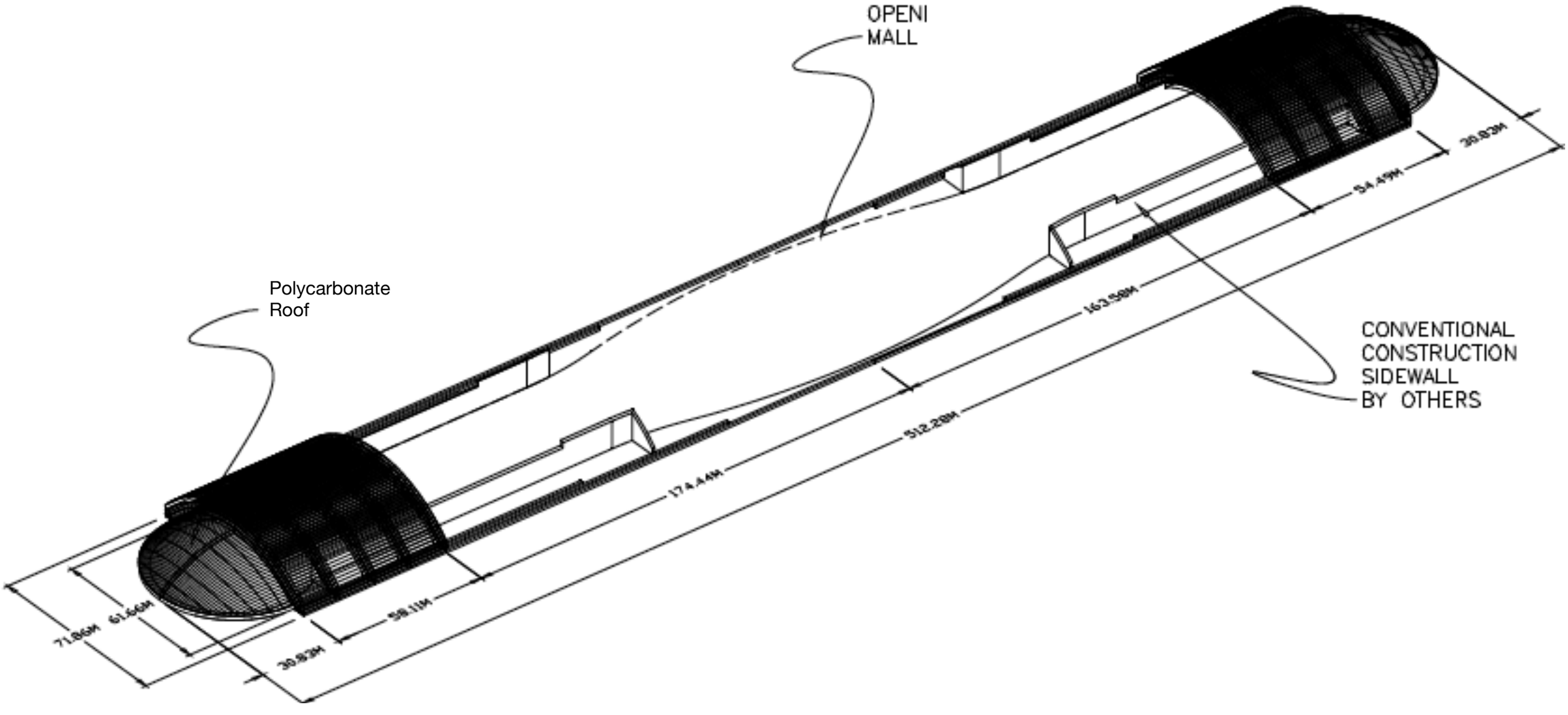
Concept 2 Square

MOST SIMILAR TO DEIRA MALL UAE (UNDER CONSTRUCTION)



Concept 2 Square

MOST SIMILAR TO DEIRA MALL UAE (UNDER CONSTRUCTION)



Thank you

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