

COMEP

WINDOWS STEEL DOORS





VISIONARY INNOVATORS
capturing the world's most

luxurious portrait.





03



08



13



41



09



25



45



49



05



07



12



37



51

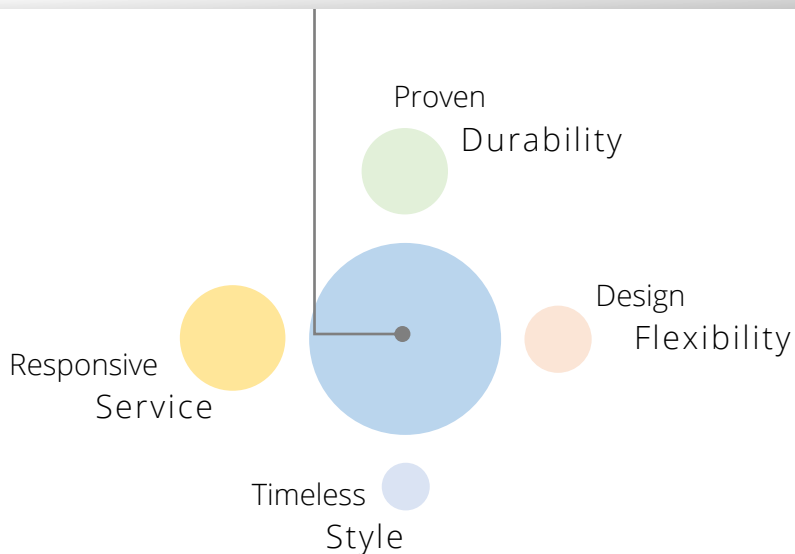
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OUR MISSION

Construction Metal Products



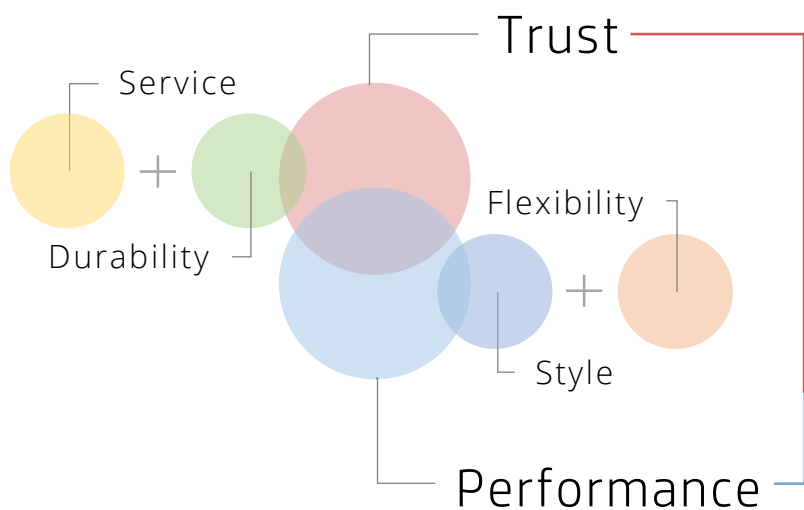
“Our success depends on the success of our clients through our products and services.”

This is the philosophy CO.ME.P was founded upon and the tradition for excellence through customer reliability has not changed.

It is on our factory floor that traditional and passed-down iron working skills combine with the precision of modern technology and advanced engineering to create iconic works that fulfill the tailored needs of the client. Right down to the last detail, it is our pursuit to create environments that seamlessly integrate technology, craftsmanship and design as well as our commitment to pioneering that continues to set CO.ME.P apart worldwide.

CO.ME.P’s dependable *service* and product *durability* instill trust in our clients, while our design *flexibility* and personalized *style* ensures the *performance* for the **results you require**.

Because..



RESULTS



THE COLD ROLLED TRUTH OF OUR STEEL WINDOWS & DOORS

As you may imagine, the journey to creating a window or a door begins with acquiring the material. To start, large steel lengths are cut from a single coil of cold-rolled steel (as seen in image 1) and then inspected for flaws or signs of corrosion prior to cutting, rolling or forming. If flaws are found, new lengths are cut and the rejected lengths are sent back to be recycled.

The steel is now cold-formed, or “roll-formed”, to obtain its final extruded profile. This not only shapes the steel, but also work-hardens the material and thus increases its strength. During this process the flat steel lengths are continuously formed as they pass through incremental rollers. Image 2 shows the steel being cut to the correct width before passing through the roller machine - as seen in image 3. The result of these processes is a frame profile as seen in image 4.

Two profile halves are then fused firmly together with a fiberglass strengthened extrusion which is then coated with a high density polyurethane resin, injected, and set under extreme pressure. This signature process forms the Thermally Broken element which significantly reduces the thermal conductivity of the frame and increases its structural durability. For these reasons, we are able to offer the most slender and efficient line of steel windows and doors.



Versatility + Reliability

....AND THEIR JOURNEY TO SHOWCASE OUR **PASSION** & YOUR **REALITY**.

Now is when the artwork begins to take its true form and beauty. To start, each frame section is inspected prior to undergoing any fabrication. Then the sections are marked for necessary cutting, drilling and tapping prior to being aligned or welded. While in straight lengths, the sections are pre-drilled and tapped and then sent to be welded. All frame sections, grills and miters are jointed by continuous welding, rather than tack-welding, to ensure the frame remains 100% square and structurally robust.

5



After all welding is completed, each weld is inspected and ground such that the final welded surface is indistinguishable from the formed surface and that all curvatures transition flawlessly. Depending on the material and selected finish, the frames are then degreased, washed and treated. For Painted Steel, the frames are hot-dipped galvanized and a high quality polyester powder coat is applied.

7



6

The frames are then inspected for flaws in the painted finish and retouched if necessary. Hardware, gaskets, operators, locks and hinges are now fitted to the frame and sash and cycle tested for proper operation. If factory glazing is included, the sash is inserted into a custom jig which aligns the frame and maintains 100% squariness during the blocking, setting and caulking processes. This ensures weather tightness and greatly reduces the chance of the sash sagging.

8





RELIABILITY THROUGH PROVEN CERTIFICATIONS

Some companies talk the talk but haven't walked the walk – *we have!* If true reliability is what you are looking for in a product, you must first do your homework to see if that product has been processed through a licensed certification facility for proper testing and approval assessments. Such certifications ensure that products and manufacturing methods comply with required manufacturing and building standards.



The “CE” stamp is a critical certification for products sold and manufactured in the European Union (EU). It is an assessment and confirmation that the manufacturer meets high safety, health, and environmental protection requirements. Although the CE mark is considered to be a self-certification method, it is an important certification because it shows proof of ownership and responsibility for a particular product by its manufacturer. It is common for those who opt not to warranty their product to withhold obtaining or carrying the CE certification.

Where quality products originate is also where quality management is required. ISO 9001:2008 and ISO 9001:2015 are important Standards for two reasons. First, it requires that the company consistently provide a product that meets the outlined needs of the client and meets all statutory and regulatory requirements. Second, it insures that all methods of complying with such requirements are conducted in a manner that is environmentally safe and promotes worker safety and health.



Occasionally, a product marketing claim is not based upon legitimate or certified information. For this reason, NFRC ratings provide a vehicle that ensures the receipt of accurate and reliable information. For this reason, NFRC ratings play a very important role in your window and door decision. The NFRC Certificate provides building inspectors and code officials the ability to endorse products that meet or exceed local energy code requirements. It also ensures that the fenestration schedule and drawings submitted for the simulation and test reports match the original specifications and drawings.



RECYCLABILITY ENCHNACES OUR SUSTAINABILITY

The preservation of our planets non-renewable resources is a very important facet to the development of our steel products. For this reason, 100% of the steel that is not used during the production process is recycled. This effort by CO.ME.P is consistent with the overall environmental mission statement. Another benefit is that because many of our products are produced from leftover steel, our environmental impact is significantly less than manufacturers utilizing only primary resources.

What many people don't realize is that 30% of the energy consumed for heating or cooling their home is lost through their windows and doors. This means that money is literally flying out the window every second of the day and night. Although a portion of energy lost is due strictly to the size and orientation of the window or door in the home, the biggest factor effecting energy losses is due to the frame, glass and glazing. With this in mind, we integrated a revolutionary *Thermally Broken* element into many of our frames which is the thermal barrier crucial for blocking energy transference through the window and door frame and sash. In addition, we offer the highest quality dual pane insulated glass in numerous E-Low and gas filled variations to meet the efficiency, climate, and budget demands of your project. Setting CO.ME.P apart from competitors, and quickly growing amongst Building Professionals, our *Factory Glazing* option is a perfect solution for ensuring that our clients receive units that are glazed with precision.



LOW E COATING AND GASSES
MANAGE VISIBLE LIGHT AND HEAT
TRANSFER

As leading producers of the world's most efficient steel window and door systems, CO.ME.P's aim is to provide flexible solutions that justify our client's initial investment with long-term performance.

100% Recyclable Process



PRODUCT FEATURE_{KEY}



Custom Sizes

Here, nothing is standard and no two are the same. Your size, your system, your way.



Thermal Break

Our Thermal Break technology truly revolutionized efficiency of steel fenestration



Extreme Durability

Our steel construction is 67% -150% tougher than an aluminum or low quality steel system



Sight-Line

Extremely narrow sight-line provides an excellent solution for historic or modern styles



Material Options

Our material options are unmatched in diversity, style, durability and quality



Certification

Products designated with specific certifications are backed by approved documentation.



Motorization

Specific systems are available with the most recent technology in concealed motorization



Numerous Finishes

Countless high quality finishes, patinas and claddings to personalize your custom system



Sound Insulated

Neoprene seals, added weep and high quality glazing yield superior sound insulation



Solar Power Option

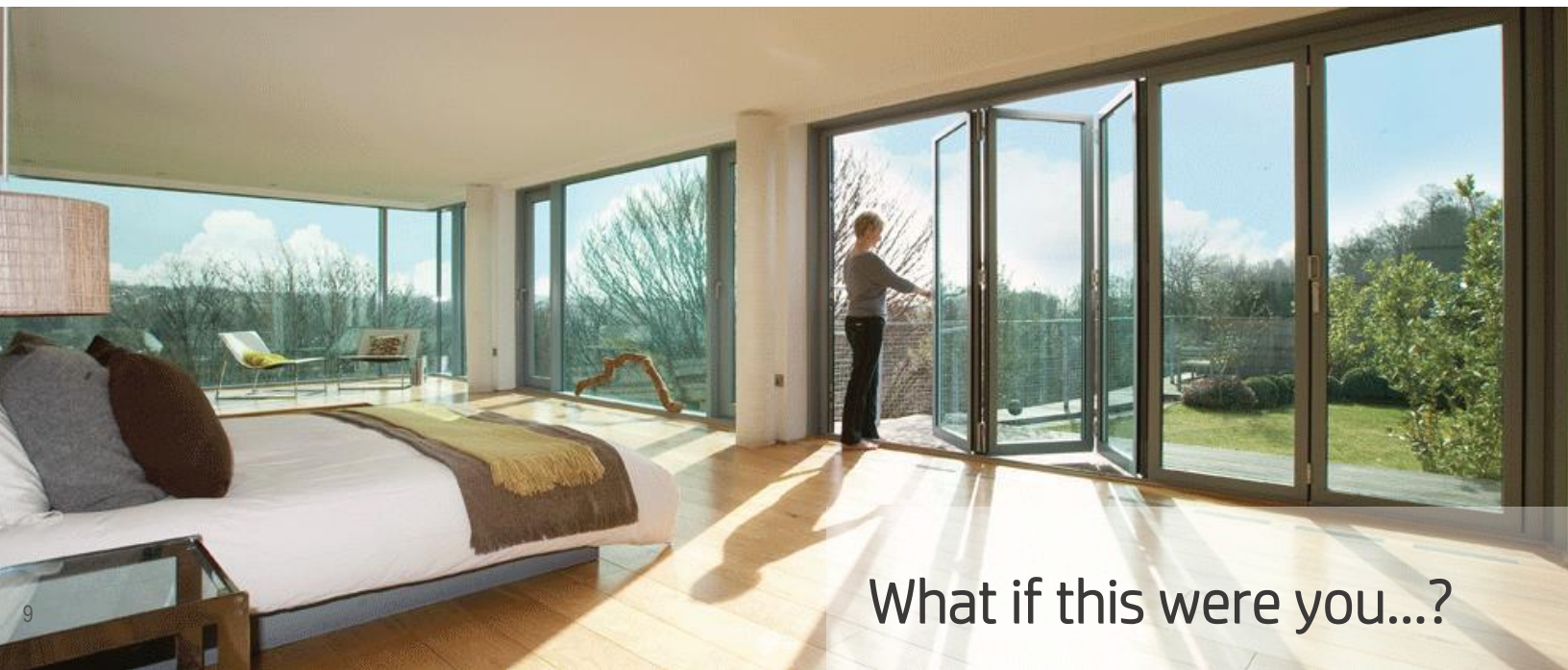
Specific systems have the ability of Solar Power integration for enhanced efficiency



Warranty

Each product series and finish comes standard with a specific warranty so you stay protected

*Look for these Feature Icons in the Window and Door Sections of the Catalog.



What if this were you...?

WELL, YOUR VIEW WOULD
LOOK LIKE THIS



MATERIALS DEFINE
DURABILITY

And

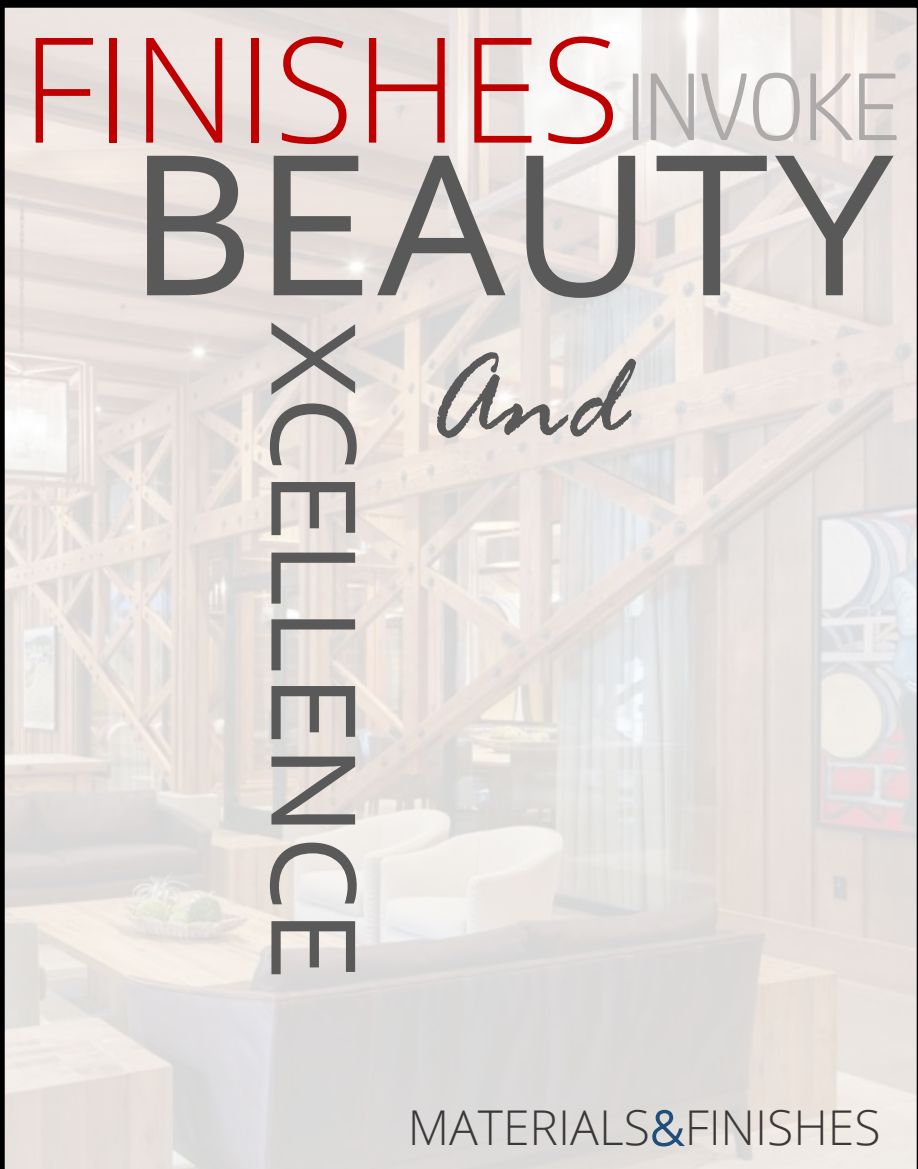
LONGEVITY



FINISHES INVOKE
BEAUTY

And

EXCELLENCE



MATERIALS

DESCRIPTION

ADVANTAGES

FINISHES

Painted Steel



Both *timely and traditional*, our high quality painted, powder coat finish meets the requirements of the most meticulous Designers and Architectural professionals in the business, and is *the number one choice for an intricate and decorative space*.

- 10 Year Warranty on finish
- 7 – 10x stronger than traditional paint
- Low coefficient of thermal expansion
- 4.8x less thermally conductive than aluminum
- High resistance to fading

Our Powder Coated (painted) finish is available in hundreds of high quality RAL colors as well as custom colors upon request. **In 2015, we became the first European company to ever receive QualiSteelCoat Approvals.**

Bronze



Iconic visual appeal revealed through *its rich color scheme* provides depth and *prestige*. Utilizing its naturally beautiful patina and custom surface finishes, *Bronze is a rustic and stylish solution* for creating traditional, historic or modern spaces.

- Very low maintenance requirements
- Ideal for historic applications
- Custom Patina variations
- 4.8x less thermally conductive than aluminum
- Natural, self healing steel
- High corrosion resistance



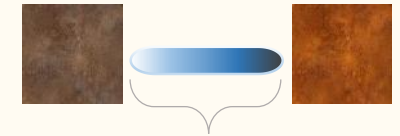
Bronze has 5 standard finishes (Modern, Medium, Dark, Polished, & Antique). We also have the ability to provide custom patinas upon request.

Cor-Ten



Cor-Ten steel is the perfect combination of *style and toughness*. With warm color tones similar to bronze and rigidity comparable to stainless steel, this alloy brings the *best of both worlds* to a rustic, traditional or contemporary space.

- Very low maintenance requirements
- Ideal for waterfront applications
- High Ultimate Tensile Strength (UTS)
- Rare, unmatched finish variations
- Natural, self healing steel
- High corrosion resistance



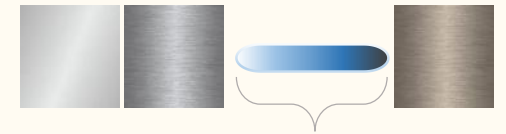
Cor-Ten, like Bronze, has the ability for customized patinas. Tones range from soft, dark brown to a vibrant, red-ish brown.

Stainless Steel



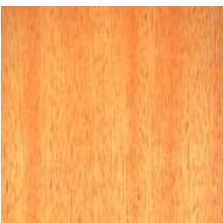
Stainless Steel is the top chosen material in *modern architecture and design*. Not only are it's looks stunning and sleek, but it is the *strongest, most wear resistant* material available for window and door construction.

- Very low maintenance requirements
- Ideal for waterfront applications
- Extreme durability and toughness
- Custom finishes available
- Highest corrosion resistance
- Available in 304 or 316 marine grade



The finish of Stainless steel varies based on the sanding/polishing method. Therefore, we offer Polished as well as a range between Satin and Scotch Brite

Wood (Clad)



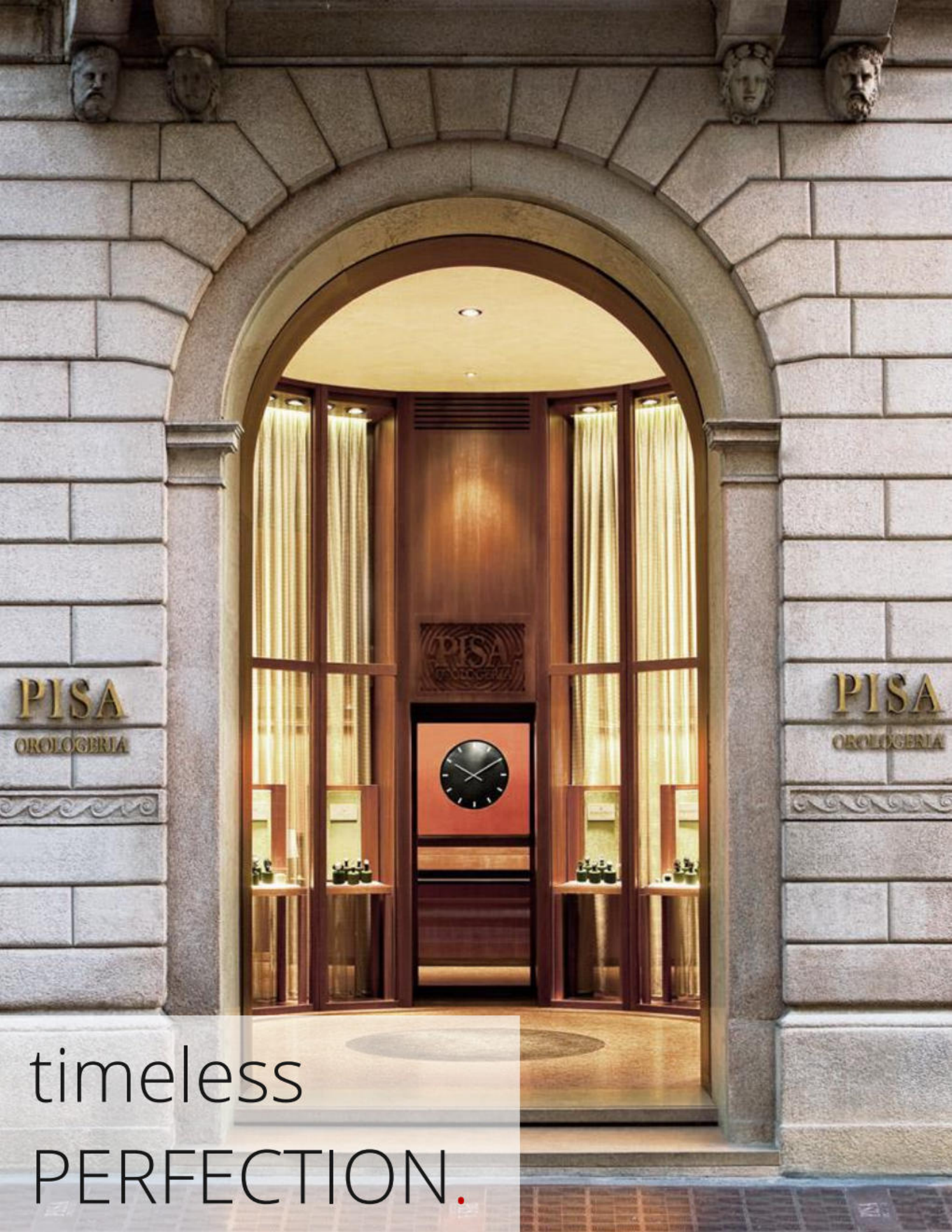
The combination of any of our high quality steel types with beautiful standard pine cladding or any specific wood species enables designers and architects to create spaces utilizing the best of both worlds simultaneously; steel and wood.

- Perfect mix of steel and wood
- Custom varnishes and stains available
- High quality pine standard
- Custom wood species available upon request



From a dark or light stain to a protective varnish, the finish and wood species is based on our client's preference.





PISA
OROLOGERIA

PISA
OROLOGERIA

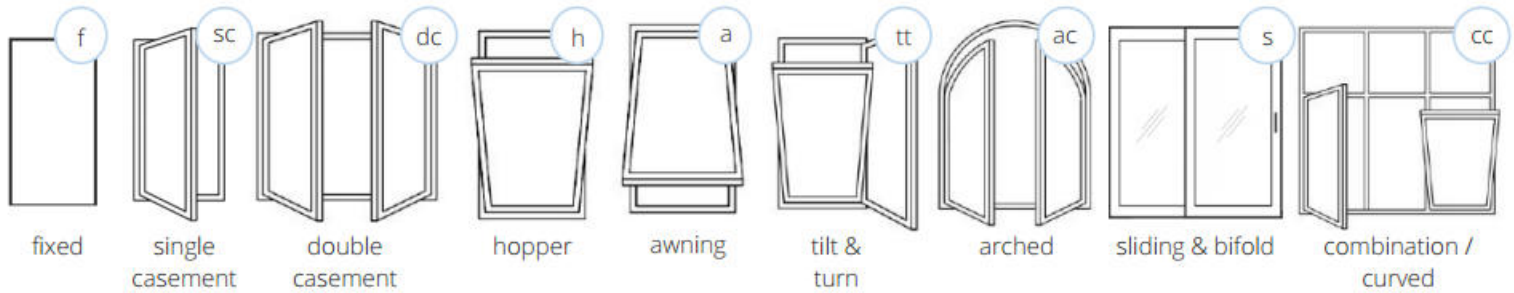
timeless
PERFECTION.

INNOVATION

doesn't age...

WINDOWS

OPERATIONAL STYLE KEY



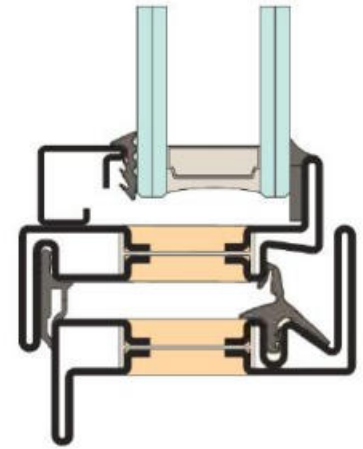
...it EVOLVES.





Rightfully part of the Hall of Fame of the Italian Design, the OS2 frame series is a revolutionary statement in the continued development of *efficient steel window and door fenestration*. Aesthetically, the OS2 window series is the *perfect choice for replacement of historical "iron windows"* from the mid 19th to mid 20th century.

OVERVIEW.



WELDED



BOLT-ON (2 WING)



BOLT-ON (3 WING)



CAM HANDLE



PLANET - Q

MANY MORE OPTIONS



FIXED PULL

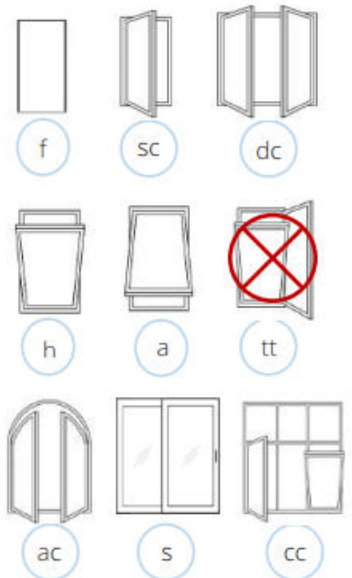


SMALL T SQUARE

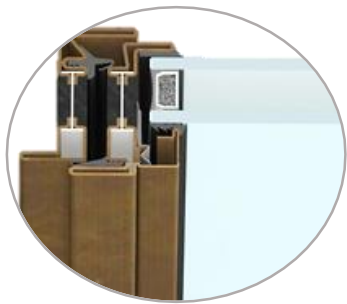


SMALL L SQUARE

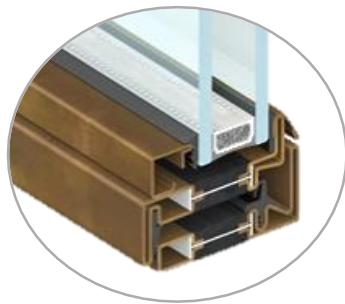
OPERATIONAL GUIDE



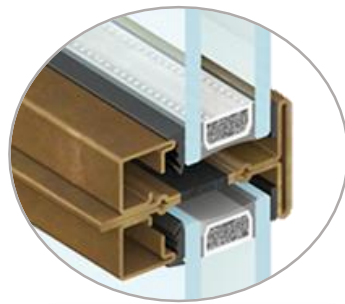
OS2 WINDOW



47mm (1.9") Lateral Frame Section



47mm (1.9") Bottom Frame Section

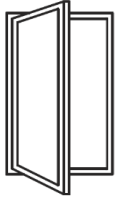
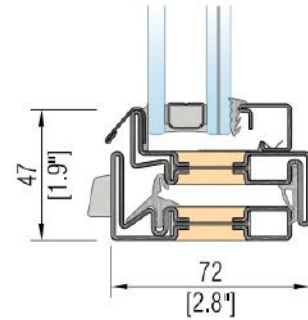
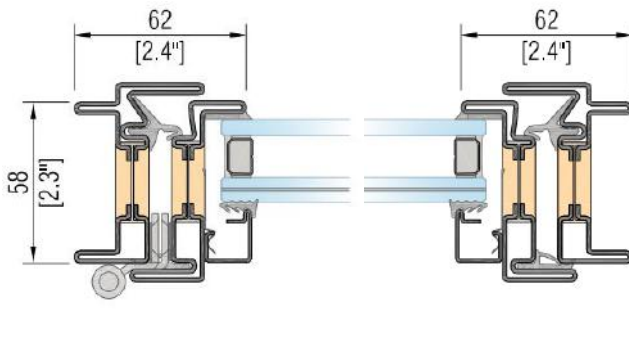


36mm (1.4") Muntin Frame Section

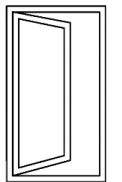
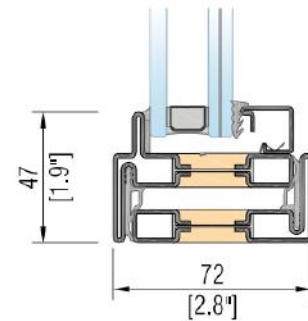
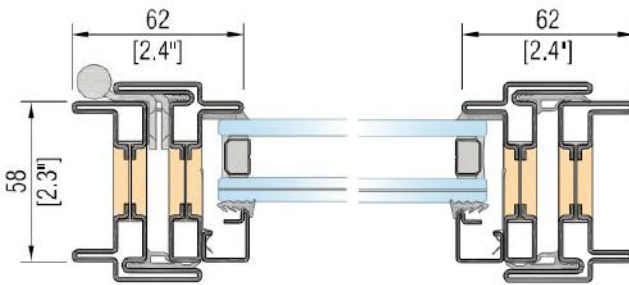


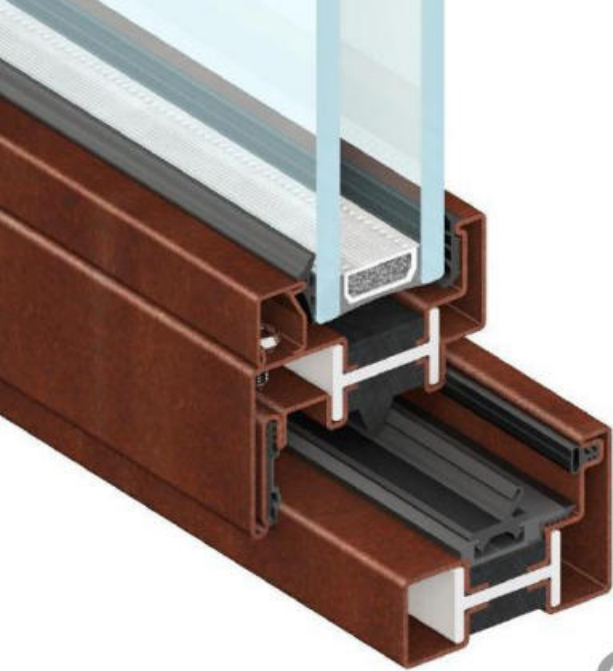
62mm (2.4") Meeting Frame Section

in swing.



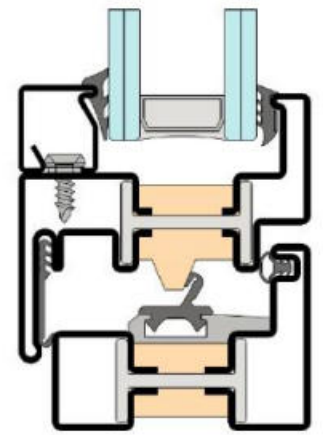
out swing.





As a counterpart to the 0S2 frame series, the EBE frame series is the **answer to the recently heightened building requirements** and technological developments. For this reason, the EBE window series *succeeds its competition structurally, acoustically, thermally and through its superior corrosion resistance.*

OVERVIEW.



EBE WINDOW



CONSEALED



BOLT-ON (3 WING)



TILT & TURN MECH.



CAM HANDLE



PLANET - Q

MANY MORE OPTIONS



MED. L CURVED

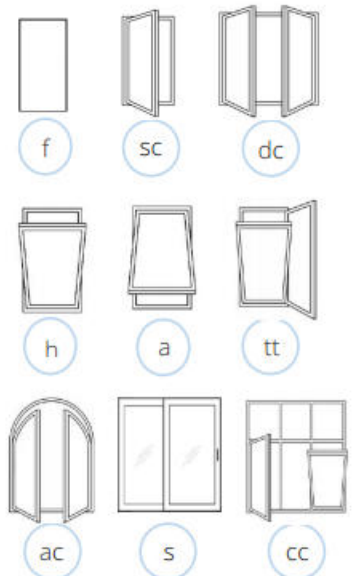


MED. L ROUND



MED. L SQUARE

OPERATIONAL GUIDE





74mm (2.9") Bottom Frame Section

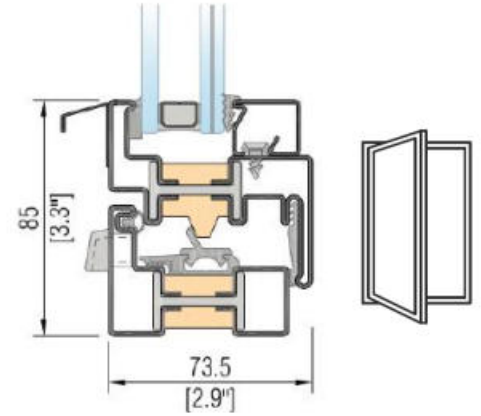
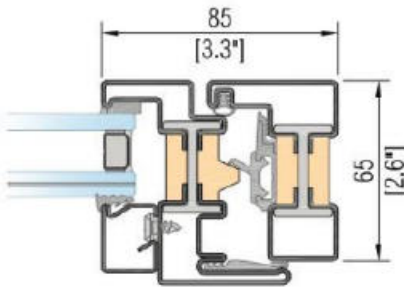
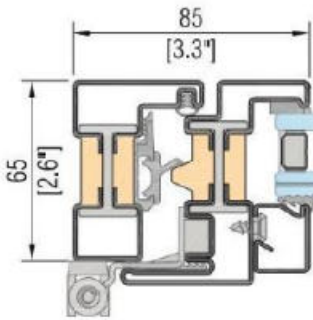


74mm (2.9") Lateral Frame Section

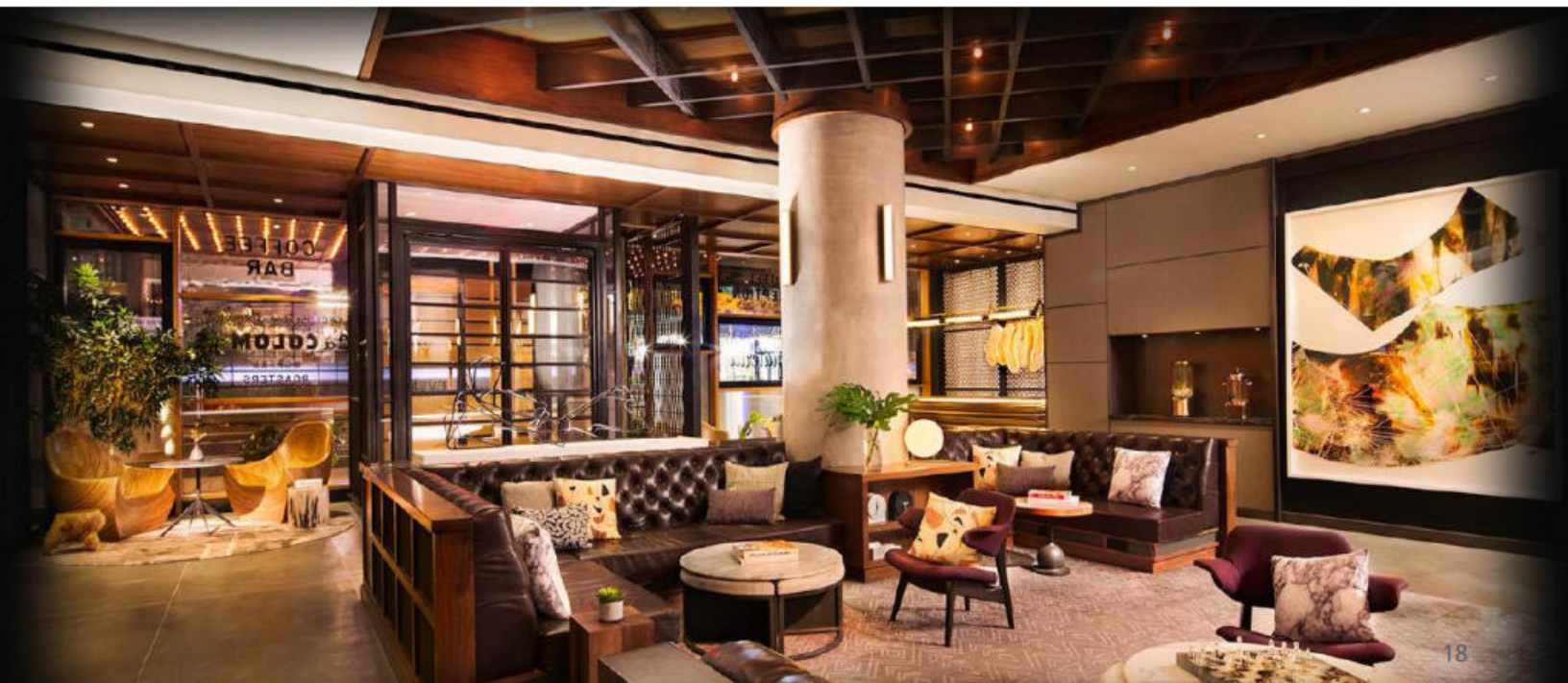
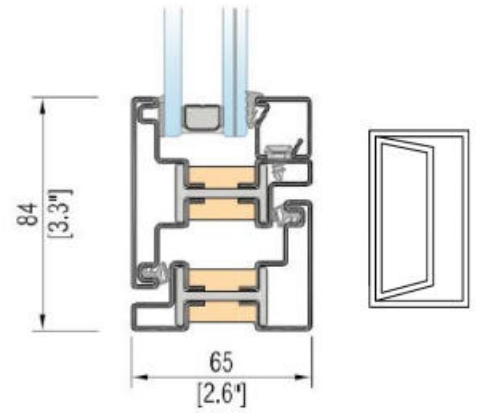
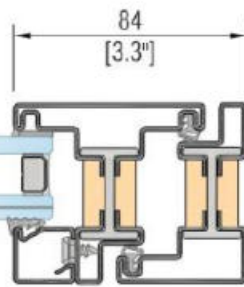
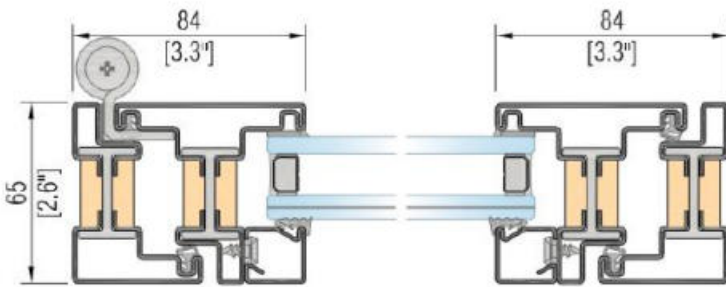


85mm (3.3") Meeting Frame Section

inswing.



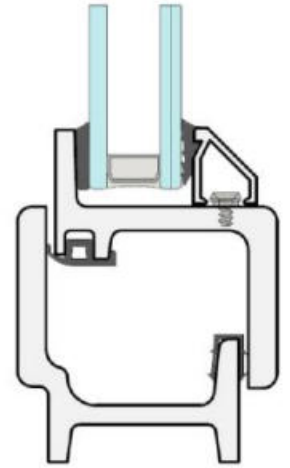
outswing.





OVERVIEW.

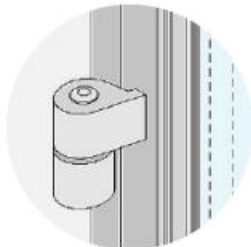
Featuring an **extremely narrow sight-line** of only 27mm (1.1") on a fixed window, the W20 window series is a *hot-rolled steel* frame system which offers a cost effective and astatically magnificent solution for any project where the *character, tradition and durability* of non-thermally broken steel frames are desired.



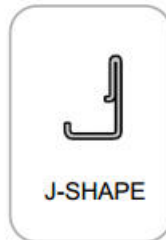
Although non-thermally broken, the W20 window series can offer much higher efficiency than older single pane steel windows when glazed with dual pane insulated glass.



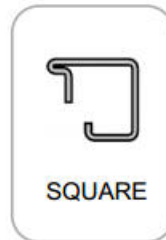
NON-PROJECTING



SELF ALIGNING



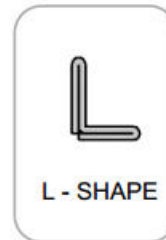
J-SHAPE



SQUARE



SLOPED



L-SHAPE



WELDED



BOLT-ON (2 WING)



BOLT-ON (3 WING)



TIME - Q



PLANET - Q

MANY MORE OPTIONS



CAM HANDLE

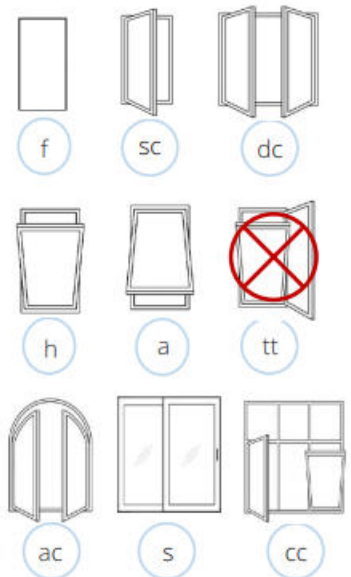


FIXED PULL



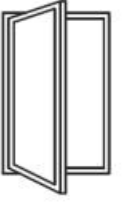
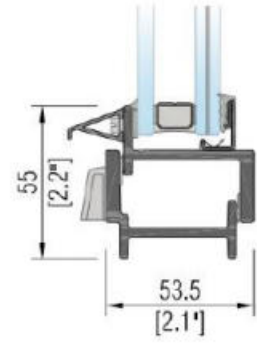
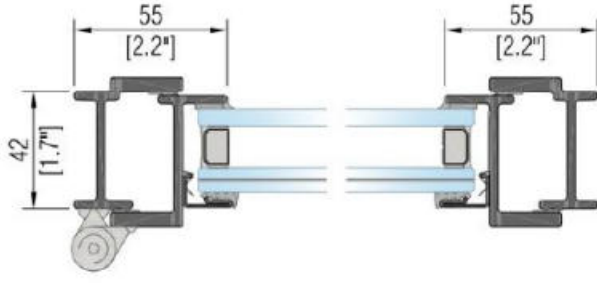
ROTO CRANK

OPERATIONAL GUIDE

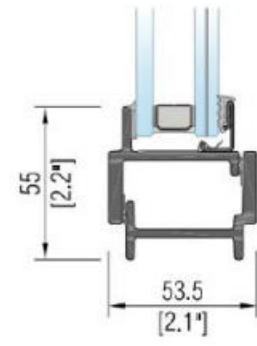
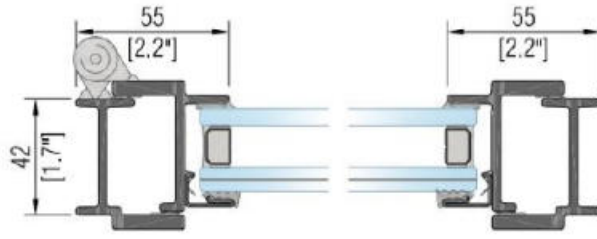


W20 WINDOW

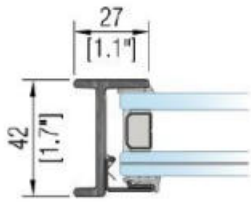
inswing.



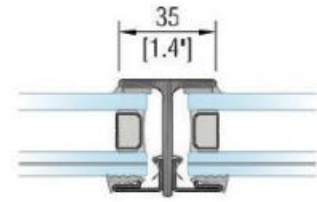
outswing.



fixed



muntin

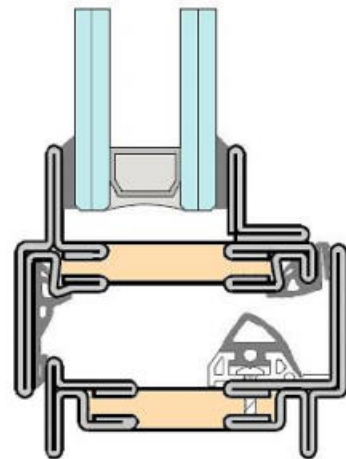


NEW!

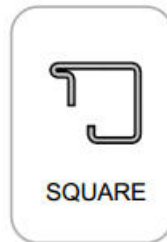
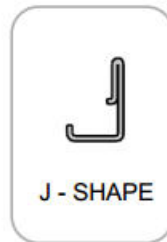
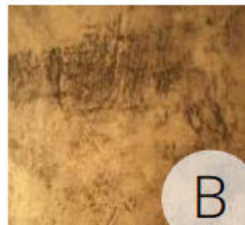


Released to the public in late 2015, the new HTS frame series is the thermally broken successor to the W20 frame series. It maintains all of the *durability* and *design flexibility* characteristics of the W20 series but with greatly *enhanced thermal performance*. The name "HTS" originates from its root meaning; "Historical Thermal Steel".

OVERVIEW.



HISTORICAL THERMAL STEEL windows.



WELDED



BOLT-ON (2 WING)



BOLT-ON (3 WING)



CAM HANDLE



FIXED PULL



PLANET - Q



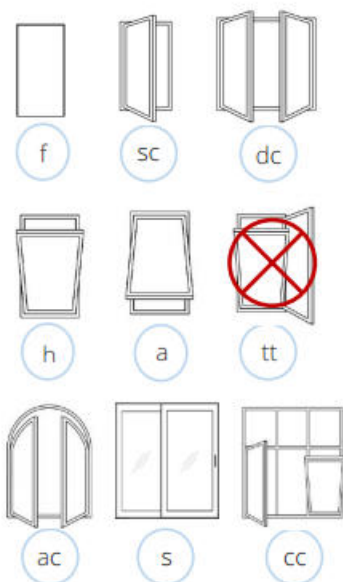
SMALL T SQUARE



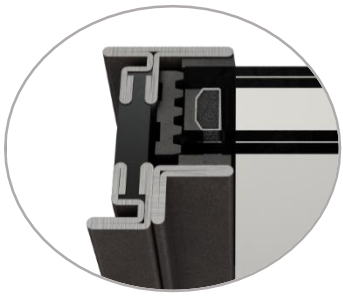
SMALL L SQUARE

MANY MORE OPTIONS

OPERATIONAL GUIDE



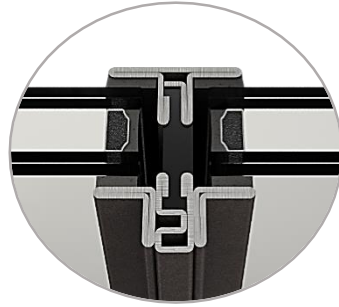
HTS WINDOW



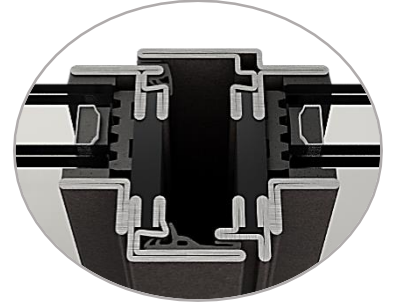
32mm (1.3") Fixed
Lateral Frame Section



32mm (1.3") Fixed
Bottom Frame Section

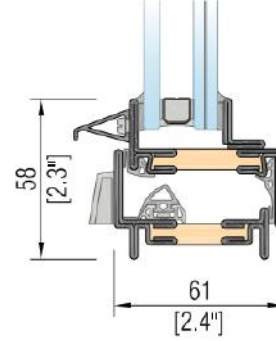
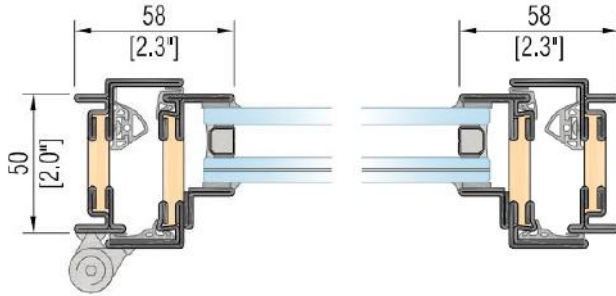


29 - 45mm (1.1" - 1.8")
Muntin Frame Section

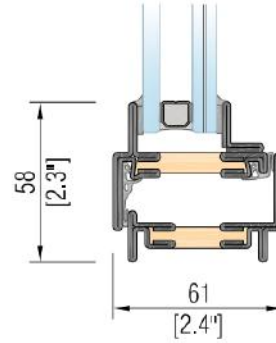
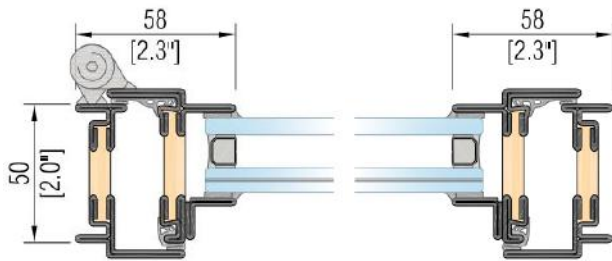


62mm (2.4") Meeting
Frame Section

inswing.



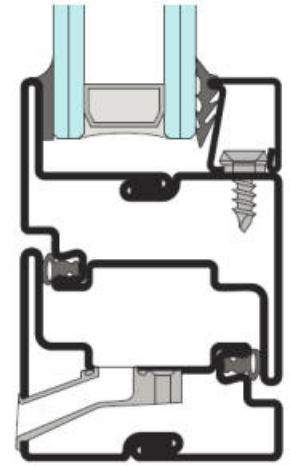
outswing.





The AMF series was designed for three key reasons; to (1) **create large glass surfaces**, to (2) *have high sturdiness and durability* and (3) *performance in line with the latest regulations*. It is ideal for recreating *industrial charm* using minimalistic transom and mullion sections or when a *very sleek, modern style* is needed.

OVERVIEW.



AMF WINDOW



CONSEALED
BOLT-ON (3 WING)
TILT & TURN MECH.



CAM HANDLE



PLANET - Q

MANY MORE OPTIONS



MED. L CURVED

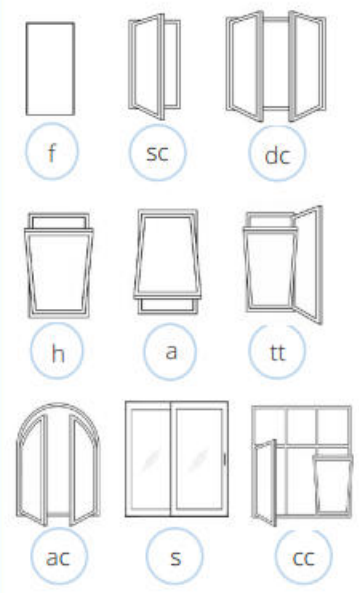


MED. L ROUND



MED. L SQUARE

OPERATIONAL GUIDE





85mm (3.3") Bottom
Frame Section

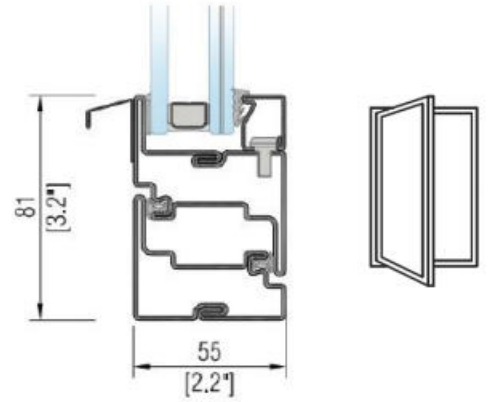
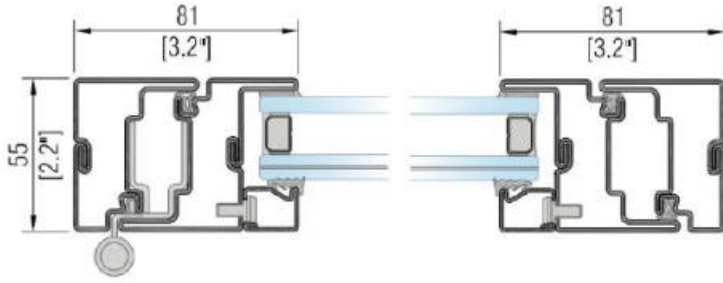


81mm (3.2") Lateral
Frame Section

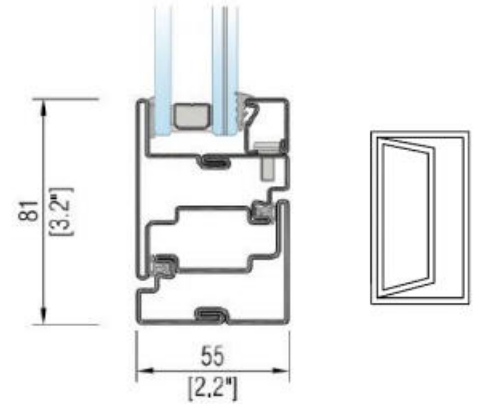
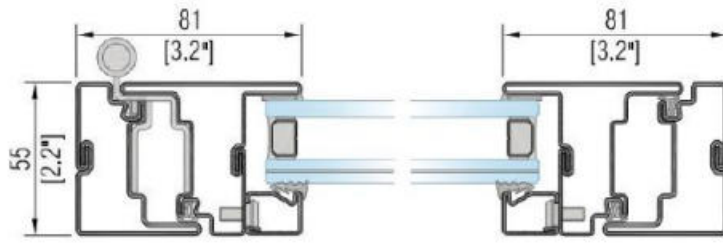


101mm (4") Meeting
Frame Section

inswing.



outswing.





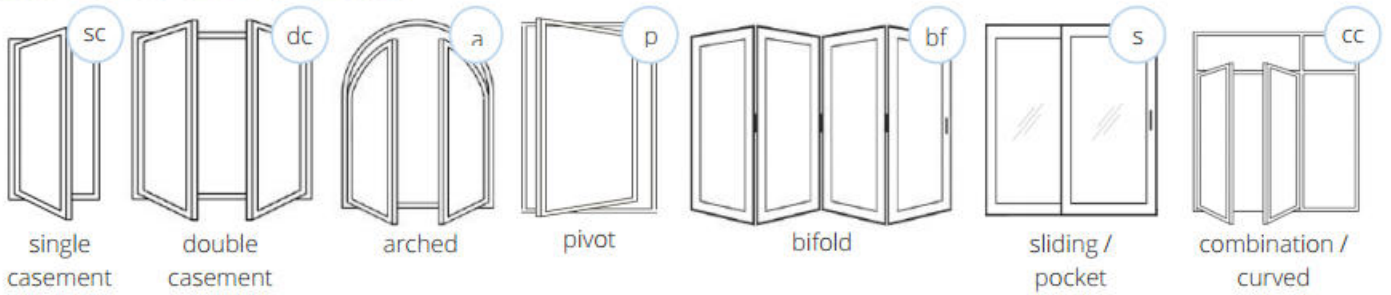
designing
LIFESTYLES.

ELEGANCE

just got real...

DOORS

OPERATIONAL STYLE KEY



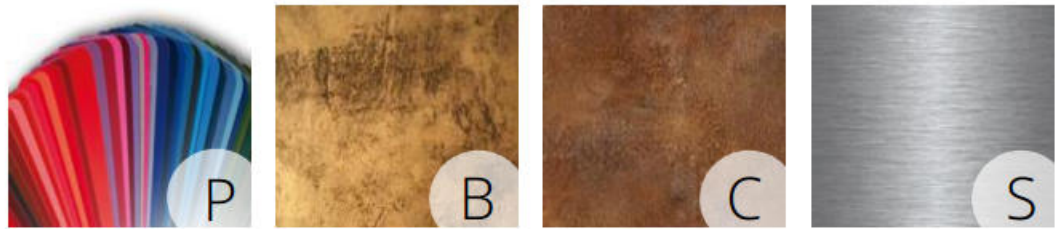
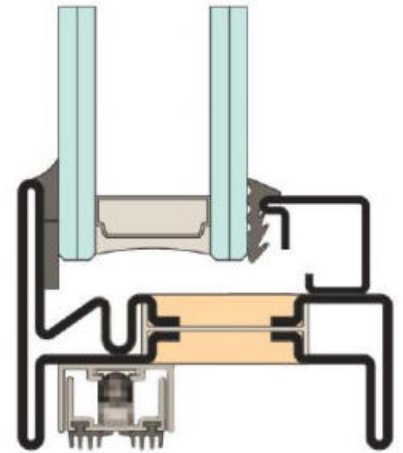
...really EFFICIENT.





Since many of the same sections can be used to produce the OS2 series windows as well as the doors, the OS2 series doors have been proven to be the most innovative and efficient steel door of its time. Available with *countless hardware and glass options*, the OS2 door series is in a *league of its own*.

OVERVIEW.



OS2 DOOR



BOLT-ON (3 WING)



WELDED (2 WING)



PLANET - Q



ADAMANT



DIANA

MANY MORE OPTIONS



VITRUVIO. L SQUARE

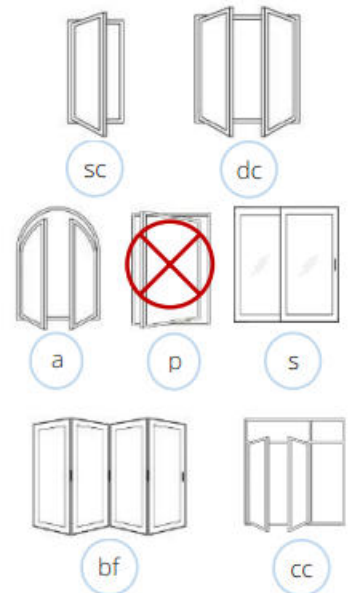


VITRUVIO. L ROUND



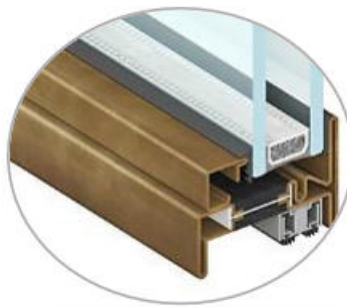
VITRUVIO. L SPHERE

OPERATIONAL GUIDE

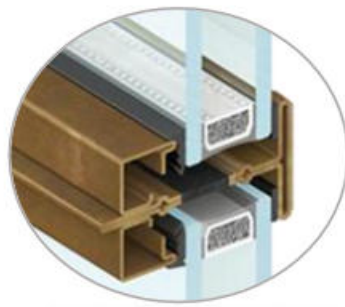




47mm (1.9") Lateral Frame Section



47mm (1.9") Bottom Frame Section

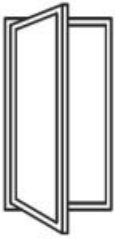
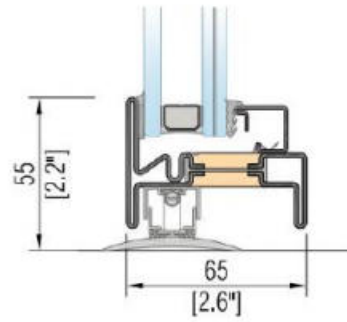
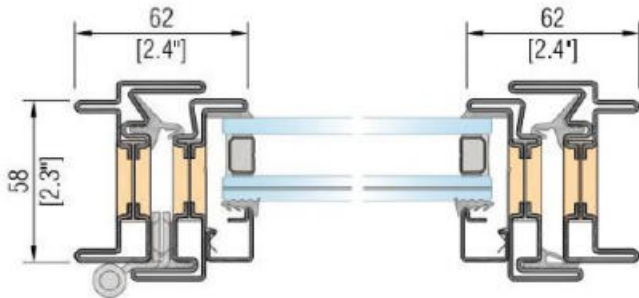


36mm (1.4") Muntin Frame Section

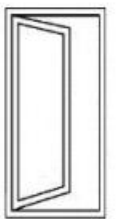
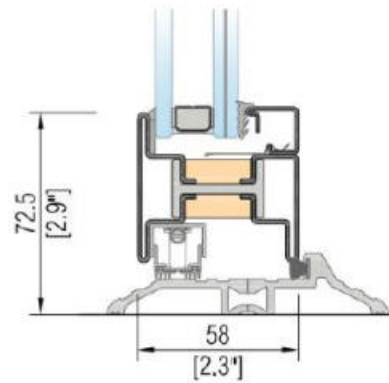
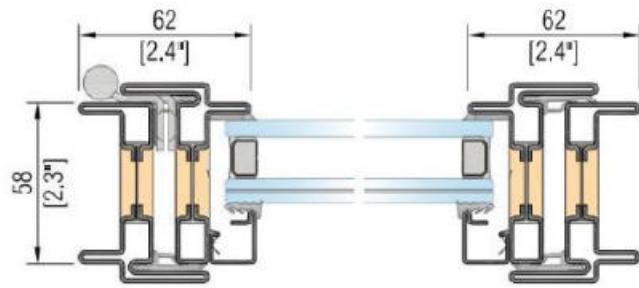


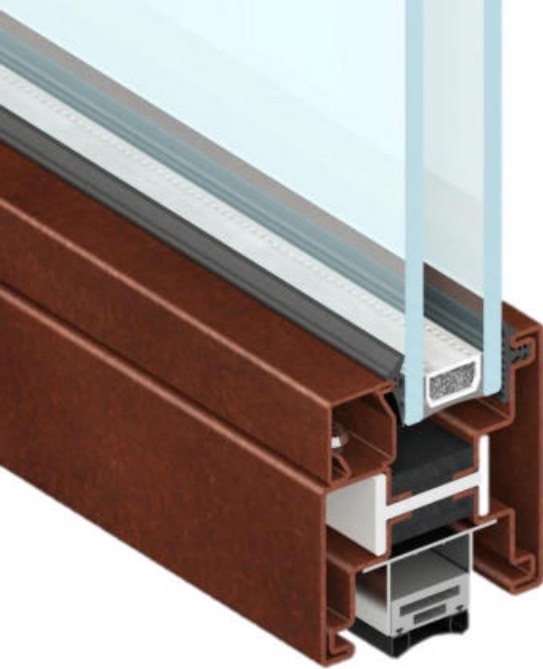
62mm (2.4") Meeting Frame Section

inswing.



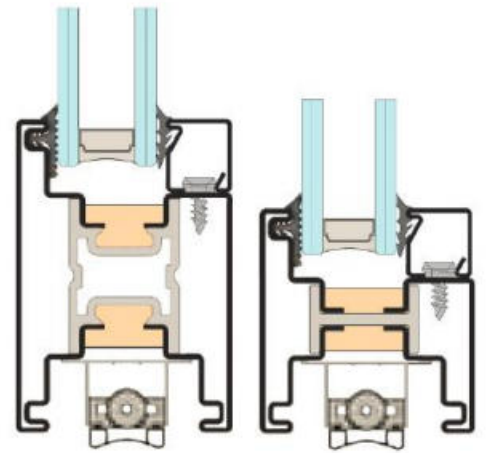
outswing.





Remember that friend that can just do it all, and is good at everything - consider that the EBE door series! Big or small, bifold or sliding, the EBE series can be utilized for **any style of opening** while continuing to **perform stronger, longer and with higher efficiency than its competition.**

OVERVIEW.



EBE DOOR



CONCEALED



FLUSH



BOLT-ON (3 WING)



WELDED (2 WING)



PLANET - Q



DIANA

MANY MORE OPTIONS



VITRUVIO. L SQUARE

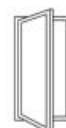


VITRUVIO. L ROUND



VITRUVIO. L SPHERE

OPERATIONAL GUIDE



sc



dc



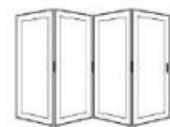
a



p



s



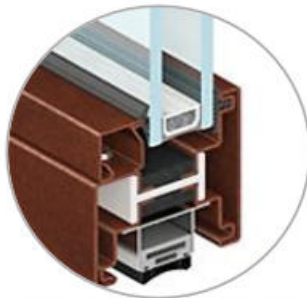
bf



cc



109mm (4.3") Lateral Frame Section

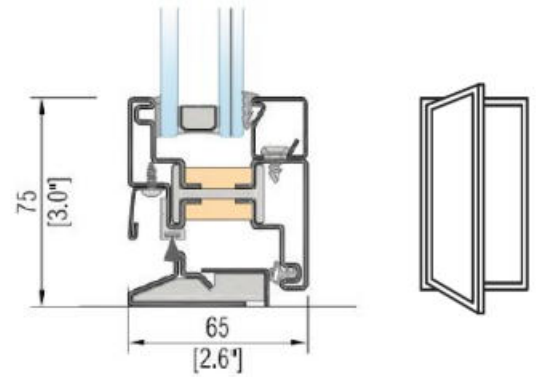
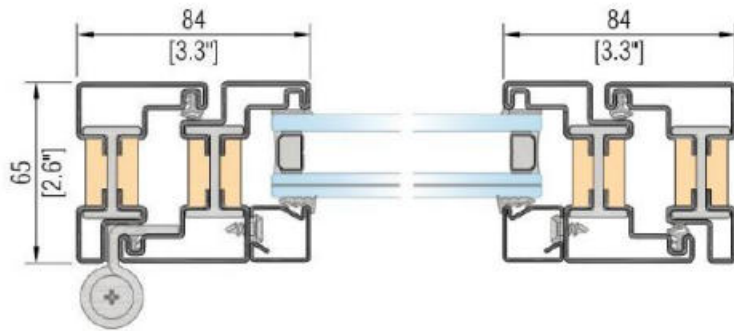


69mm (2.7") Bottom Frame Section

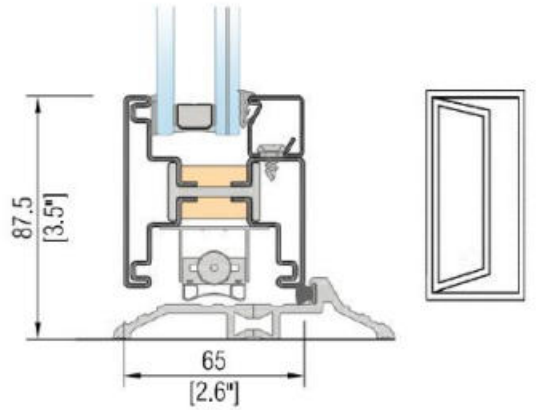
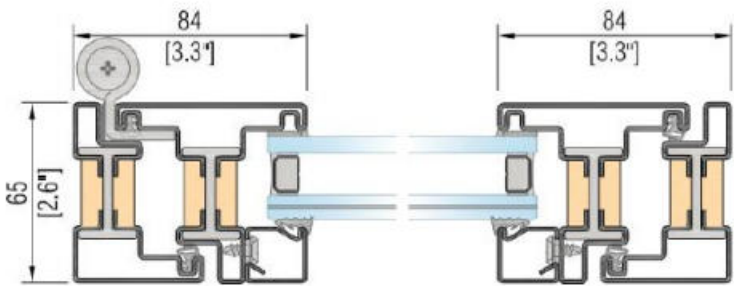


156mm (6.14") Meeting Frame Section

inswing.



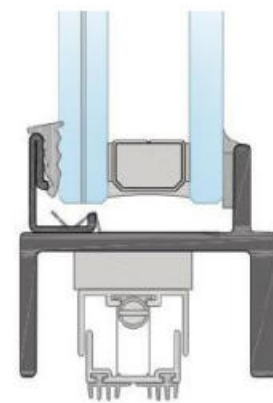
outswing.



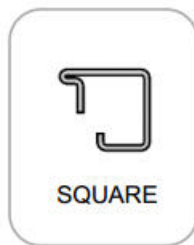
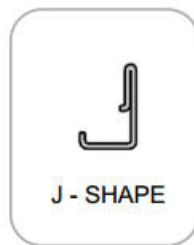
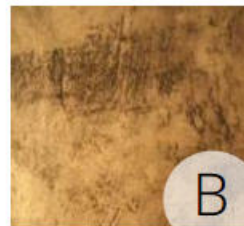


Simply put, the W20 door series has the **narrowest sightline of any steel door** and is ideal for interior or exterior use. With unmatched factory glazing and a proven gasketing system, the W20 system is **sleek, durable and cost effective**.

OVERVIEW.



As mentioned in the W20 window series section, although this system is not design with a thermal break, when glazed with dual pane insulated glass, it's thermal qualities out-preform that of many steel doors systems.



SELF ALIGNING



BOLT-ON (3 WING)



WELDED (2 WING)



PLANET - Q



ADAMANT

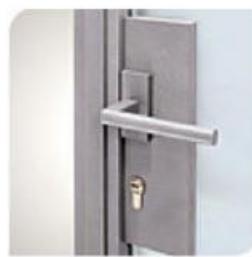


DIANA

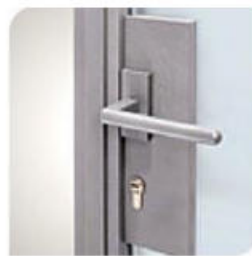
MANY MORE OPTIONS



VITRUVIO. L SQUARE

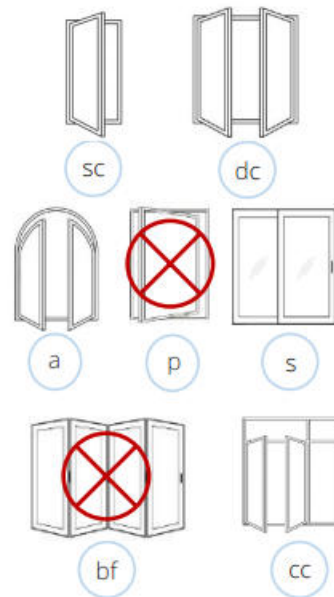


VITRUVIO. L ROUND



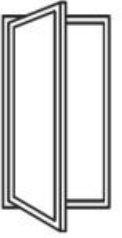
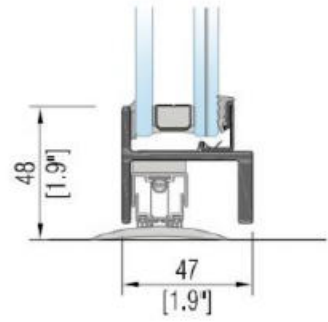
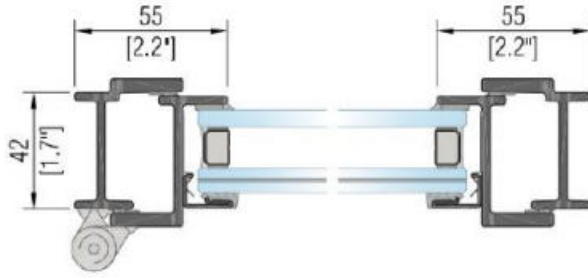
VITRUVIO. L SPHERE

OPERATIONAL GUIDE

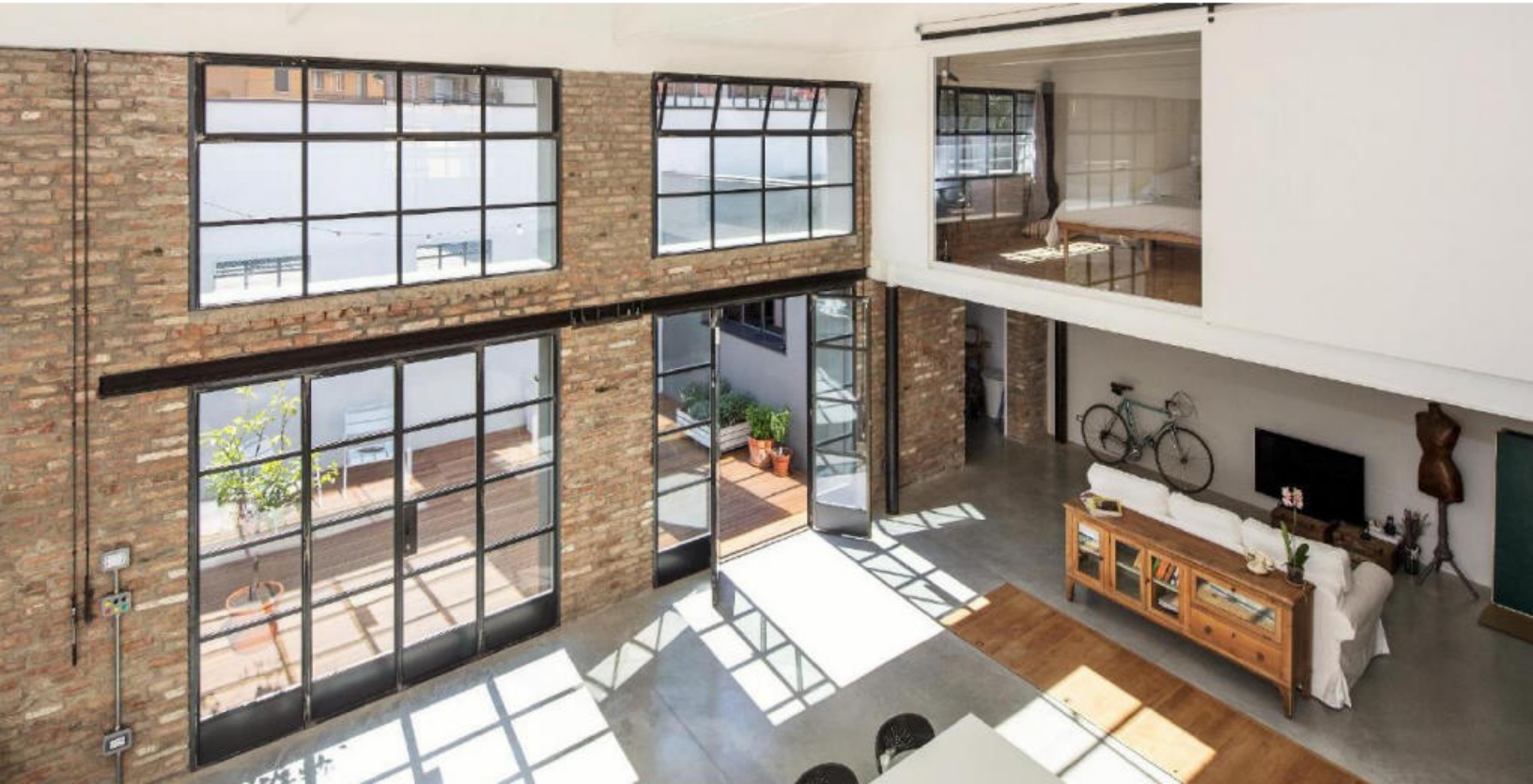
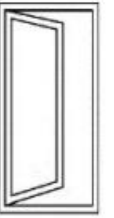
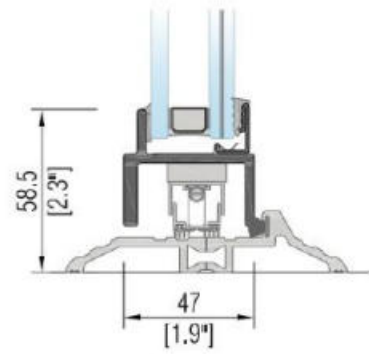
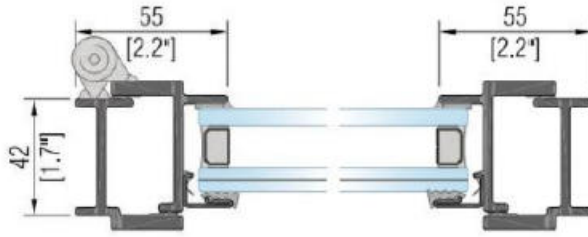


W20 DOOR

inswing.



outswing.



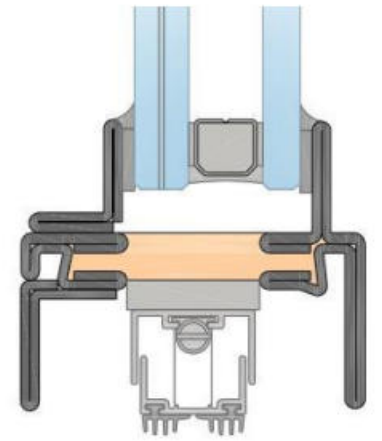
NEW!



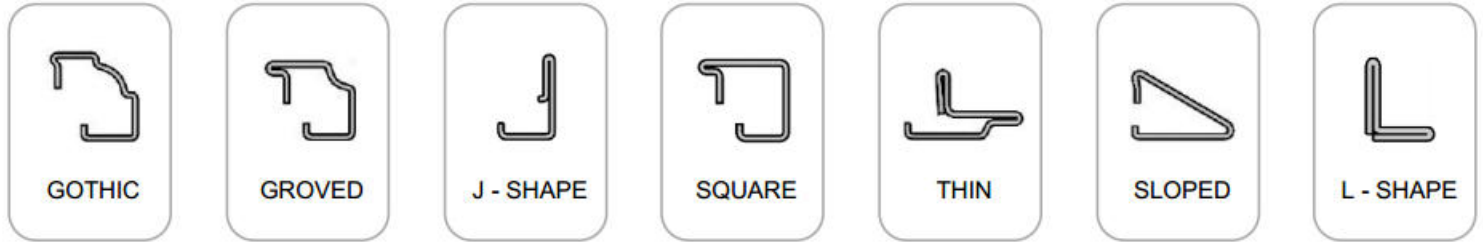
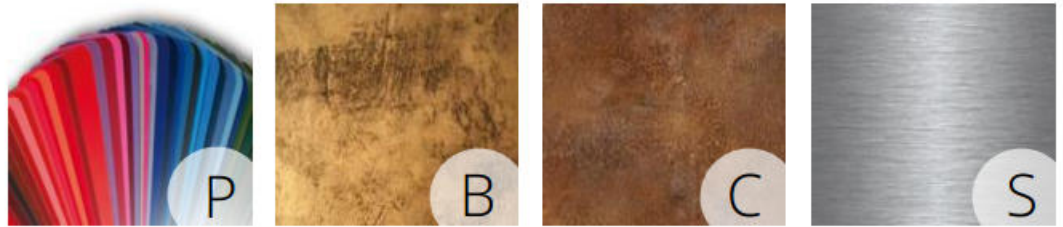
Note: Image shown is of the HTS window section

Similar to the HTS window series, the HTS door series was also recently **released to the public in late 2015!** It marks the beginning of a new era for architectural innovation using *thermally efficient and remarkably narrow steel fenestration.*

OVERVIEW.



HISTORICAL THERMAL STEEL doors.



BOLT-ON (3 WING)



WELDED (2 WING)



PLANET - Q



VITRUVIO. L SQUARE



ADAMANT



VITRUVIO. L ROUND



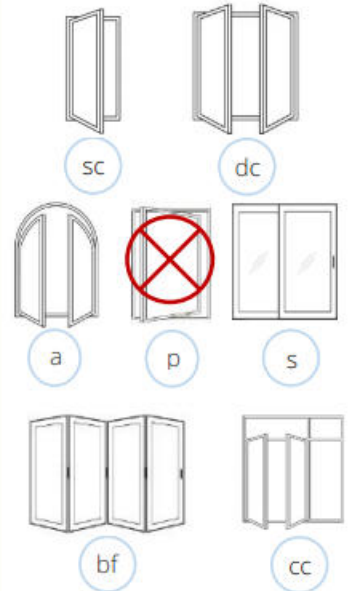
DIANA



VITRUVIO. L SPHERE

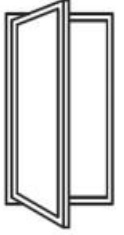
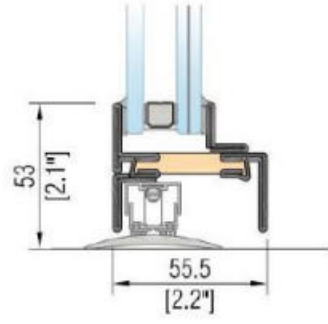
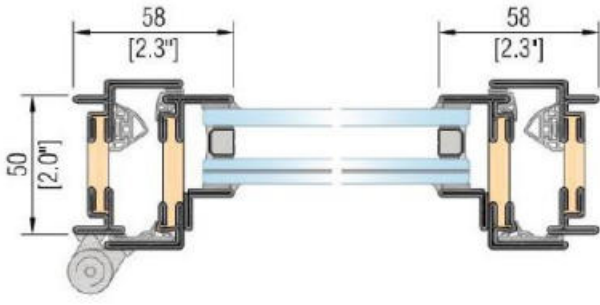
MANY MORE OPTIONS

OPERATIONAL GUIDE

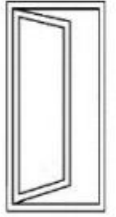
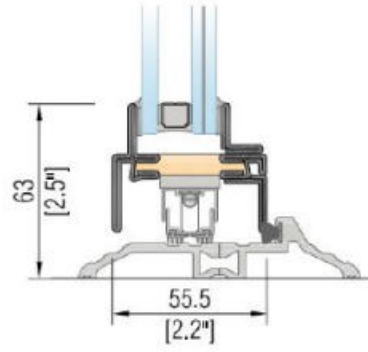
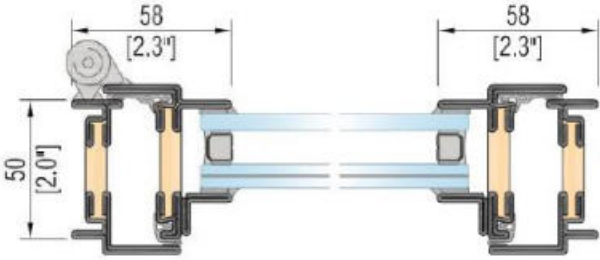


HTS DOOR

inswing.



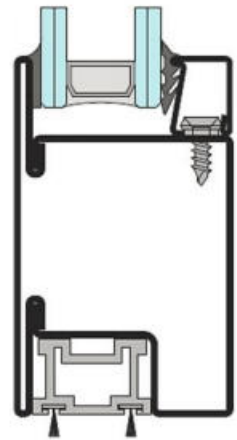
outswing.





OVERVIEW.

The AMF door series answered the call for a non-thermally broken steel door that is **bigger and better but narrower than its competition**. With the AMF series we can utilize *triple pane glass in a larger-than-life lift and slide while maintaining a slender sight-line with extreme durability and rigidity.*



CONSEALED



WELDED (2 WING)



FLUSH



BOLT-ON (2 WING)



PLANET - Q



DIANA

MANY MORE OPTIONS



VITRUVIO. L SQUARE



VITRUVIO. L ROUND



VITRUVIO. L SPHERE

OPERATIONAL GUIDE



sc



dc



a



p



s



bf



cc

AMF DOOR



106mm (4.2") Lateral Frame Section



90mm (3.5") Reduced Bottom Frame Section

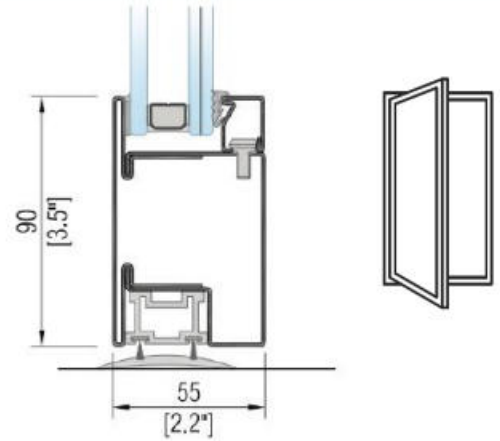
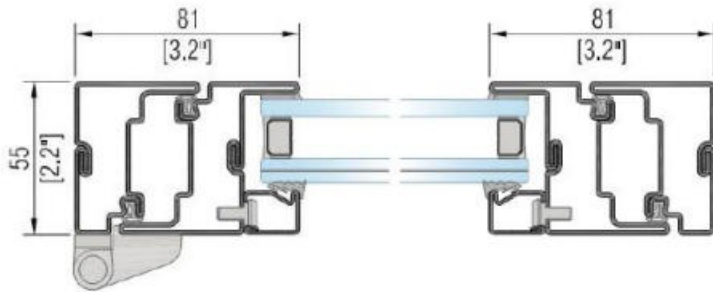


140mm (5.5") Bottom Frame Section

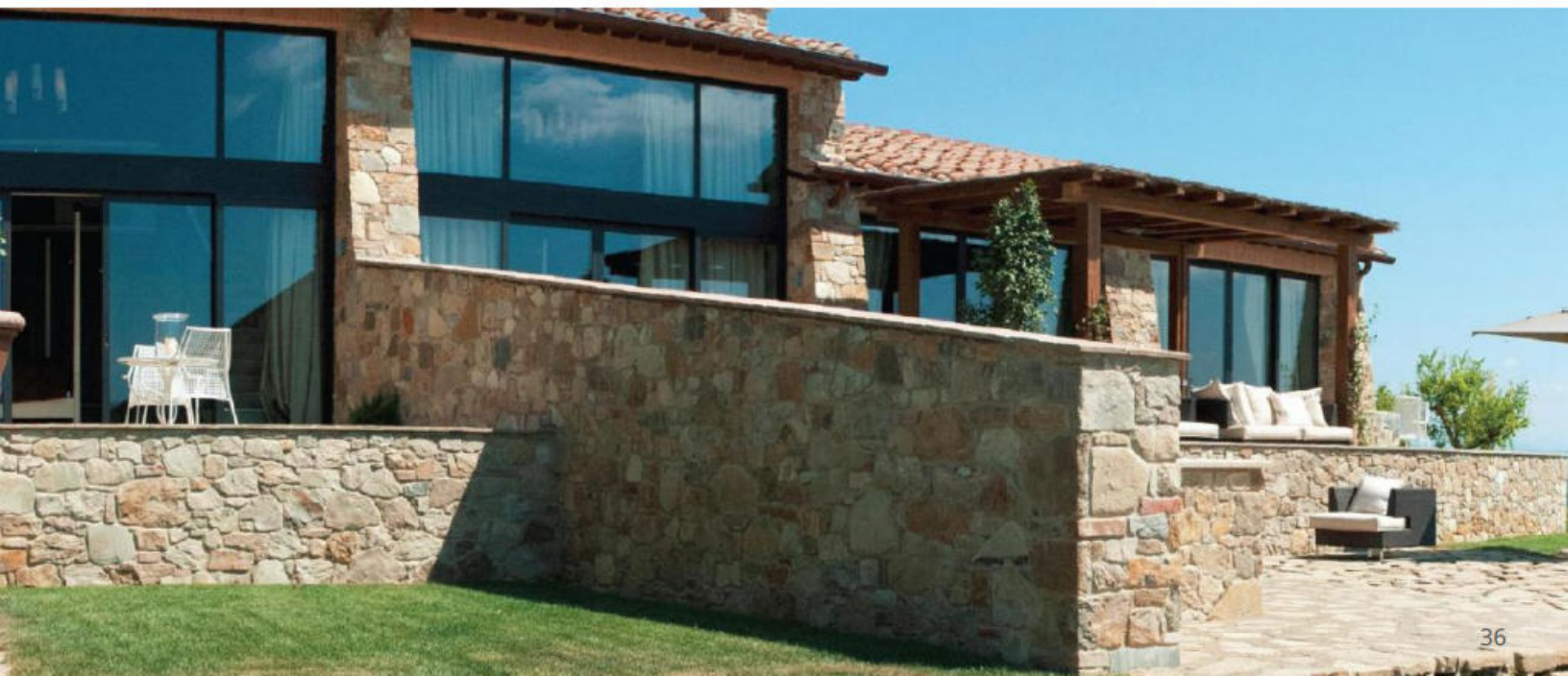
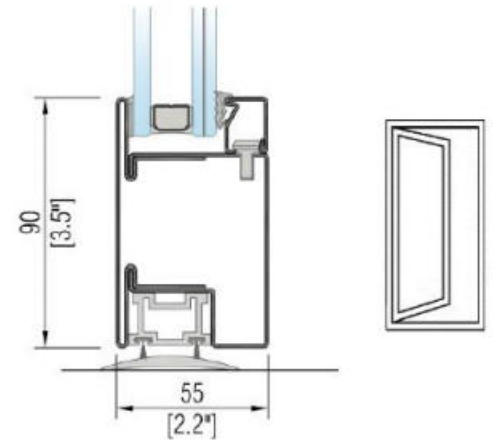
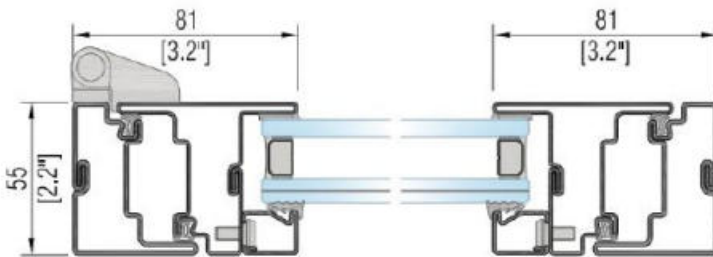


151mm (5.9") Meeting Frame Section

inswing.



outswing.



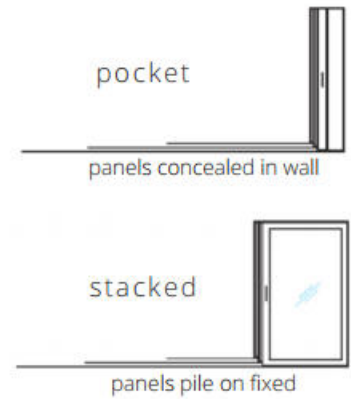
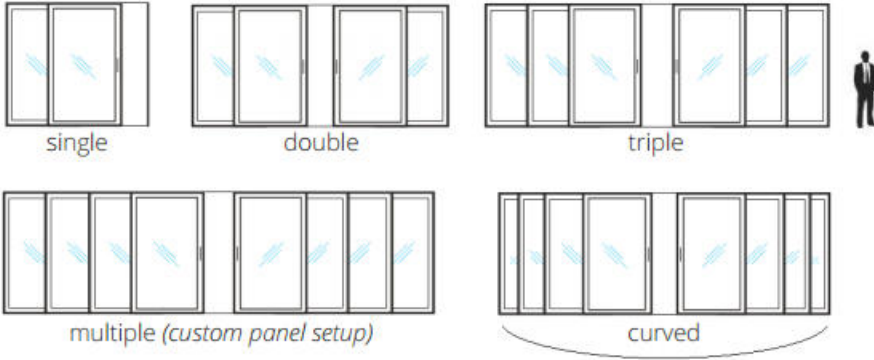
A photograph of a modern kitchen viewed through a large glass window. The kitchen features white upper cabinets, a dark countertop with a stainless steel sink and faucet, and dark lower cabinets. A white modern chair is visible in the foreground. The room is brightly lit, and the floor is made of light-colored wood. The text "realize GREATNESS." is overlaid in the bottom left corner.

realize
GREATNESS.

SLIDING

ahead of the need...

POPULAR CONFIGURATIONS



LIFT & SLIDE

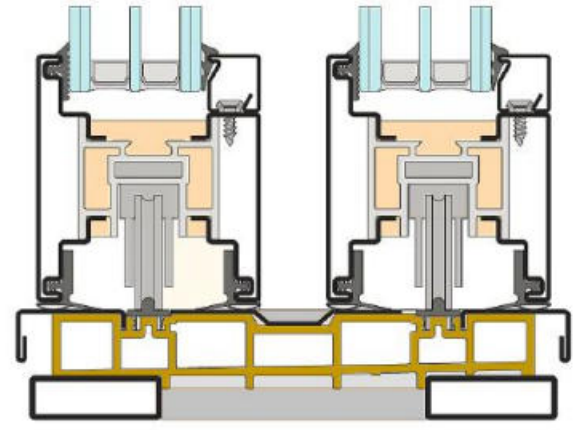


...so you stay on track.



Offered in the aggressive **EBE-85** series as well as the slimmer **EBE-65** series, our lift and slide systems *connect the interior of your home with the outdoors like never before*. Enjoy full **panoramic vistas**, and all the fresh air you can handle **without compromise**.

OVERVIEW.



Note: EBE 85 section shown above.



EBE 85 & 65 DOOR

BENEFITS.

- Thermally Broken System
- Water drainage integrated into track
- Choose between Flush Mounted Track OR Threshold
- Unlimited customization
- Glazing pocket fits up to 60mm (2.36") glass thickness
- Sightline is symmetric for entire system
- 2X the weather gasket of a standard system



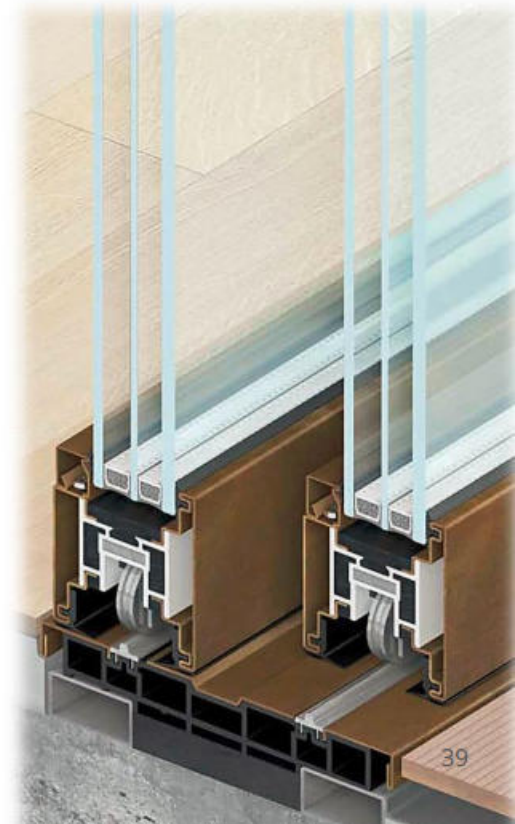
Concealed Wireless Motorization Available



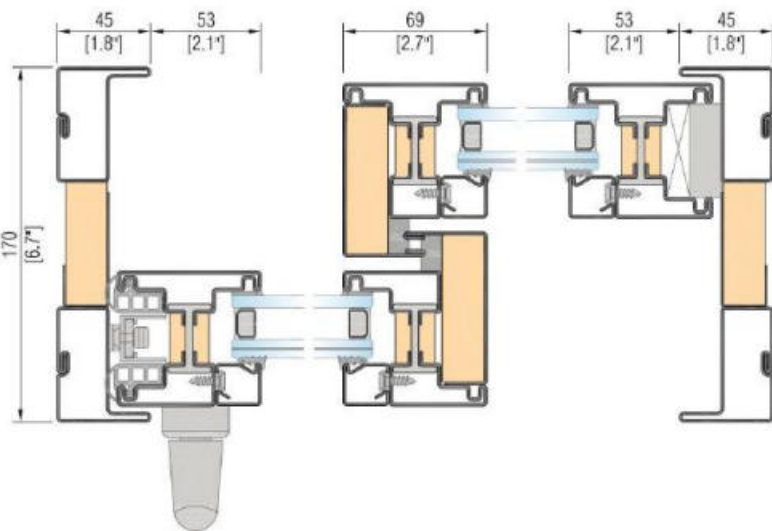
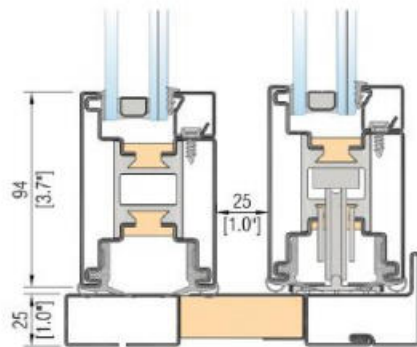
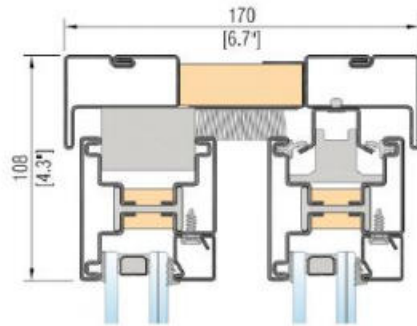
Planet Series



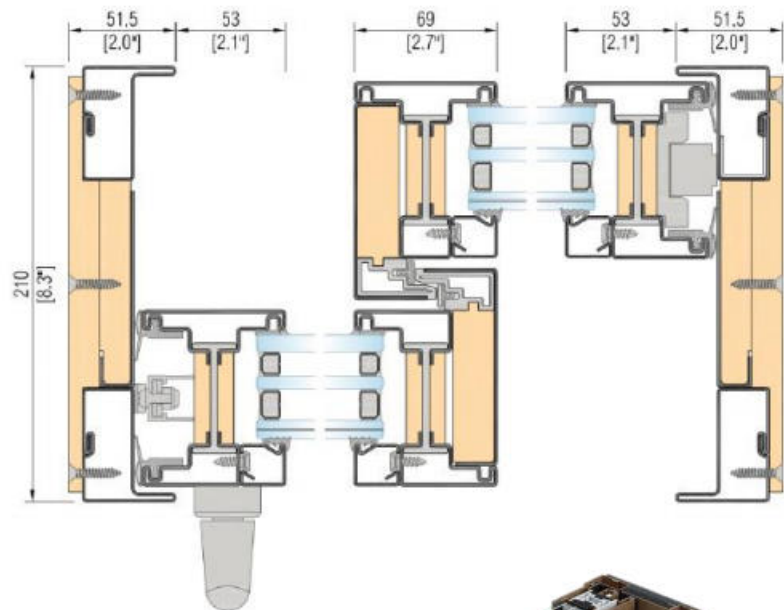
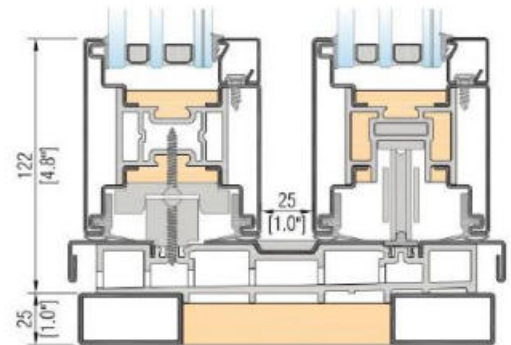
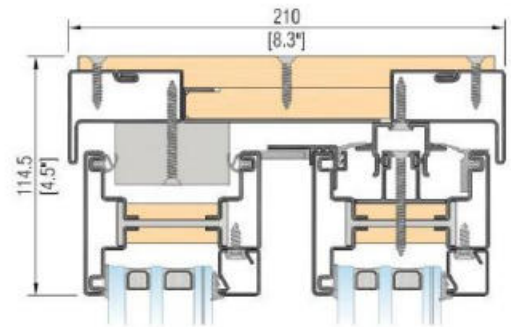
Planet Q Series



EBE65

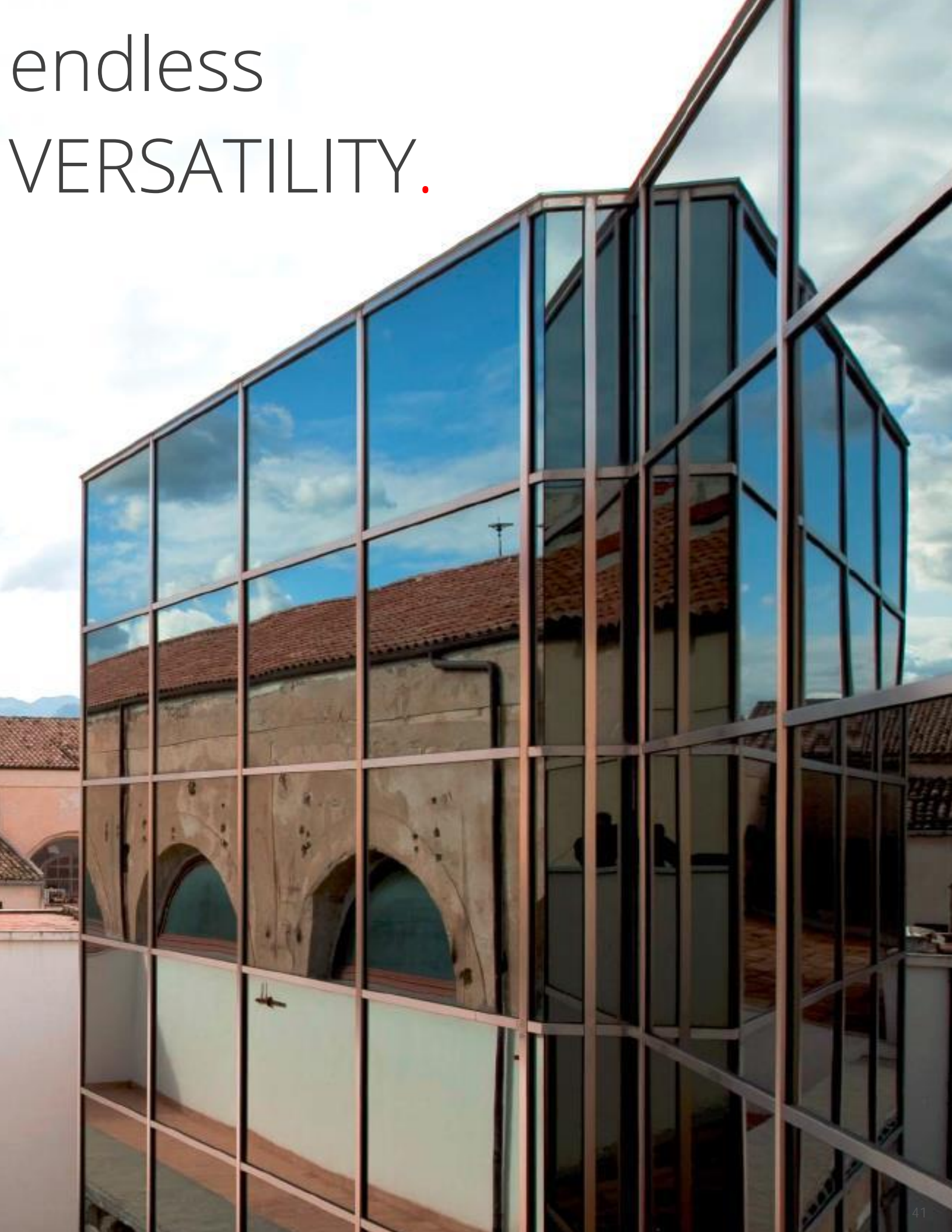


EBE85



WIDE-OPEN
CAPABILITIES

endless
VERSATILITY.



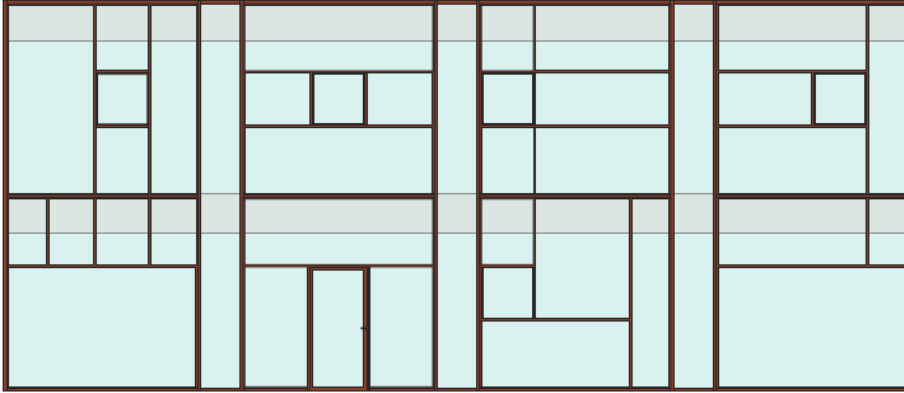
REVERENCE

for small details...



CURTAIN WALL

UNLIMITED INTERGRATION



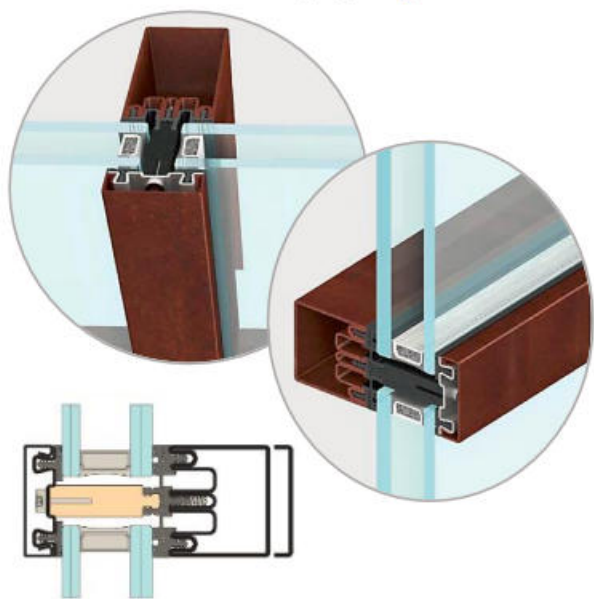
...in windows
that are

LARGER THAN
life.



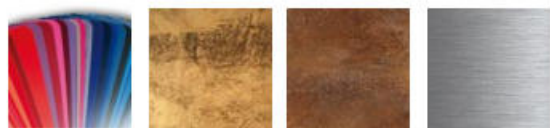
NEW

4f1



The 4f1 series is the solution for steel curtain walls with **extremely narrow sections** in line with **building regulations** and utmost **aesthetic style and innovation**.

MATERIALS.



cover options



mullion options



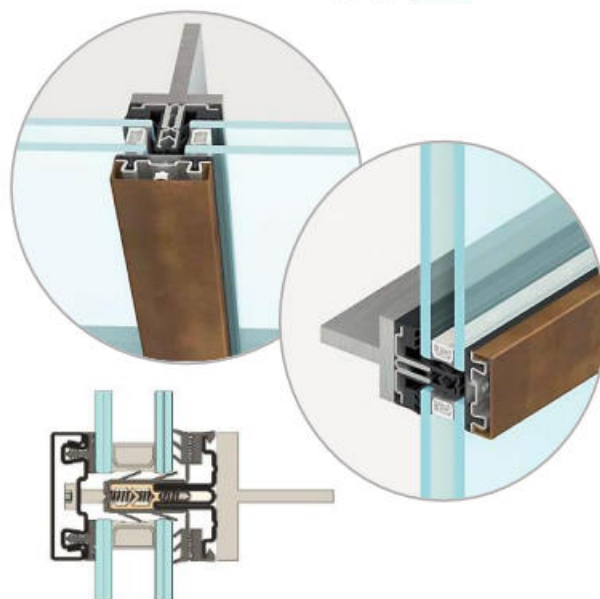
100mm (3.94")
mullion



50mm (1.97")
mullion

NEW

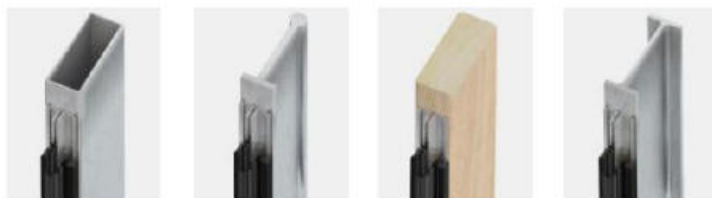
4f2



The 4f2 series is the designers dream in that it offers *endless combination and customization opportunities* when paired with the 4f1 series. The ability to **integrate numerous load bearing elements** gives way to massive amounts of creativity.



cover options



rectangular
pipe

custom
welded girder

wooden
girder

IPE welded
beam

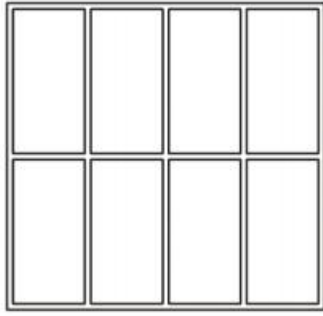
*4f2 can be fixed to any welded or custom made girder.

BENEFITS.

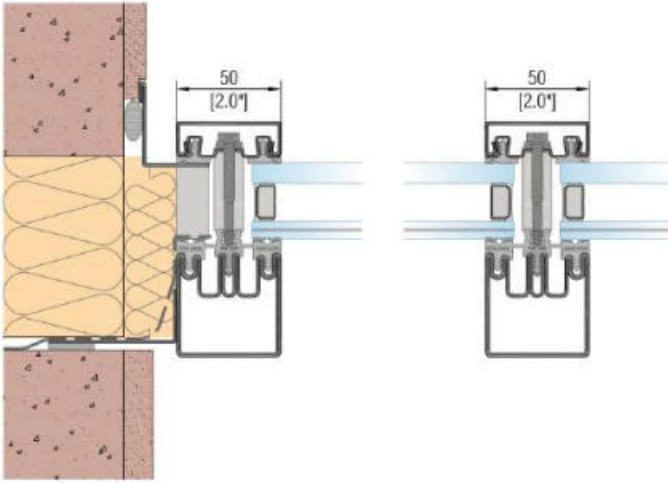
- Allows for coordinated integration between all of our window, door and systems
- Tested in the most demanding conditions
- Narrower sight-line & increased durability
- Thermally Broken system
- Superior material and finish options

4F1 & 4F2

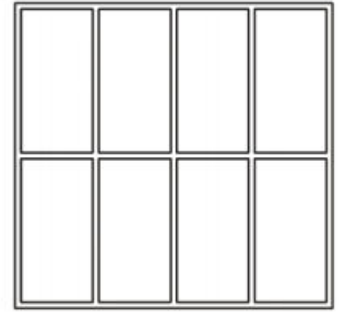
4f1



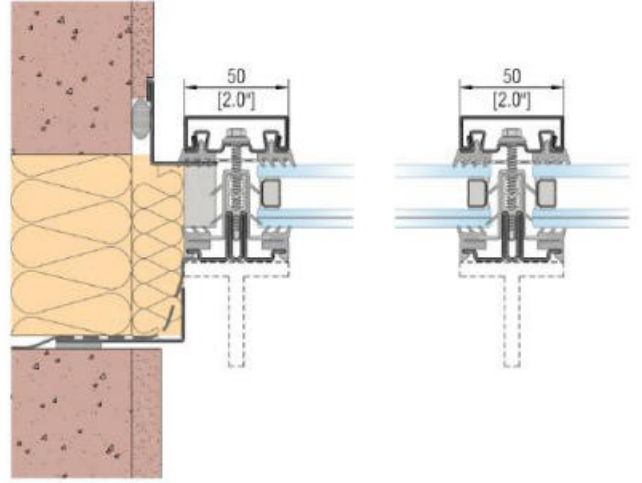
horizontal section



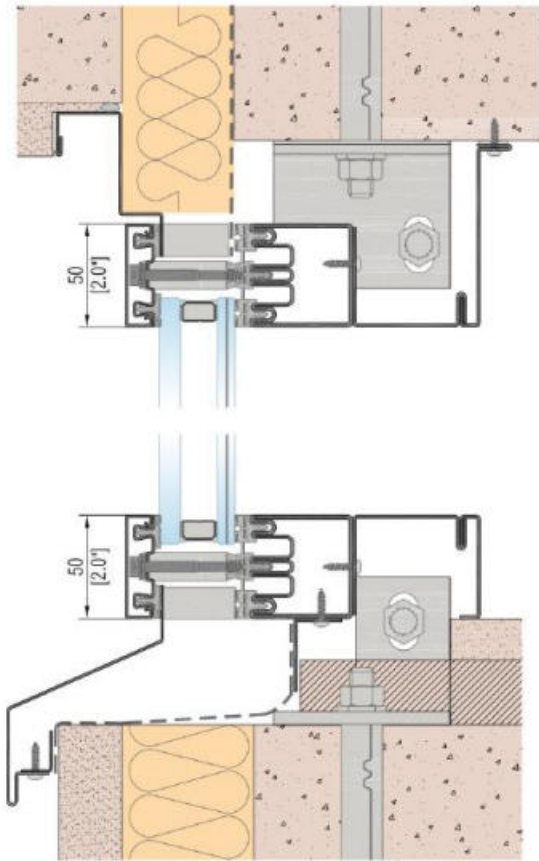
4f2



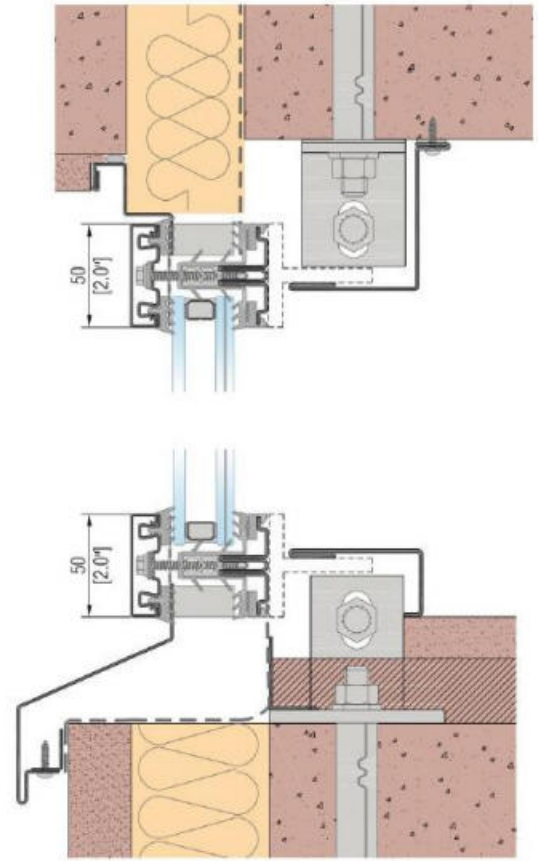
horizontal section



vertical section



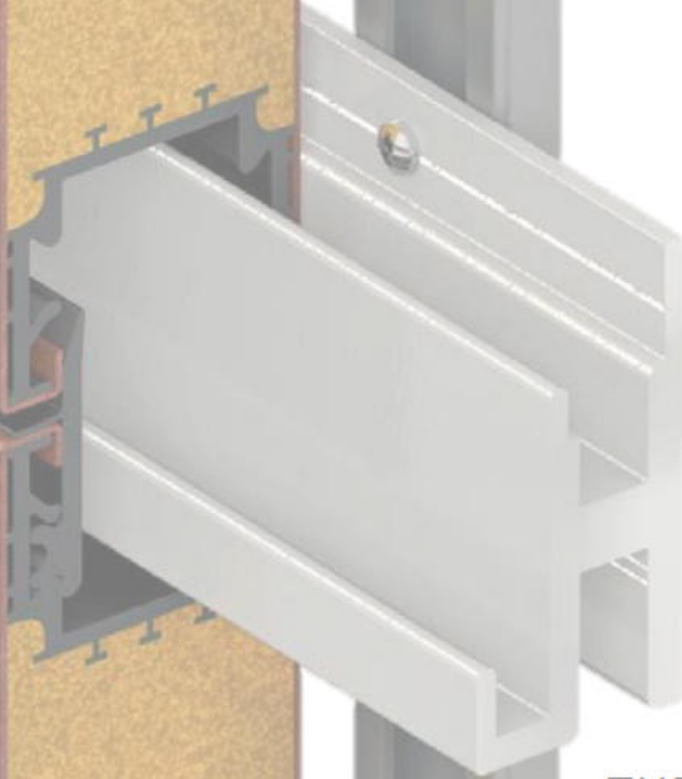
vertical section





proven
EXCELLENCE.

WALL CLADDING



THE NEW STANDARD IN

*Sustainable
& Stylish*

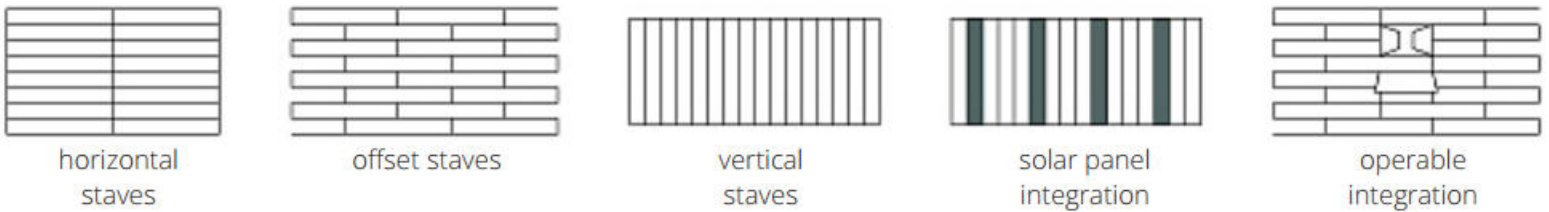
WALL CLADDING



Wall cladding is dynamic for 2 reasons; first, the added ventilation *optimizes* the **exchange of thermal fluctuation** for the entire structure and, second, the *style of steel cladding stands out drastically* compared to *traditional façades*. Additionally, the ability to *integrate solar panels* is a largely beneficial option for **renewable energy**.

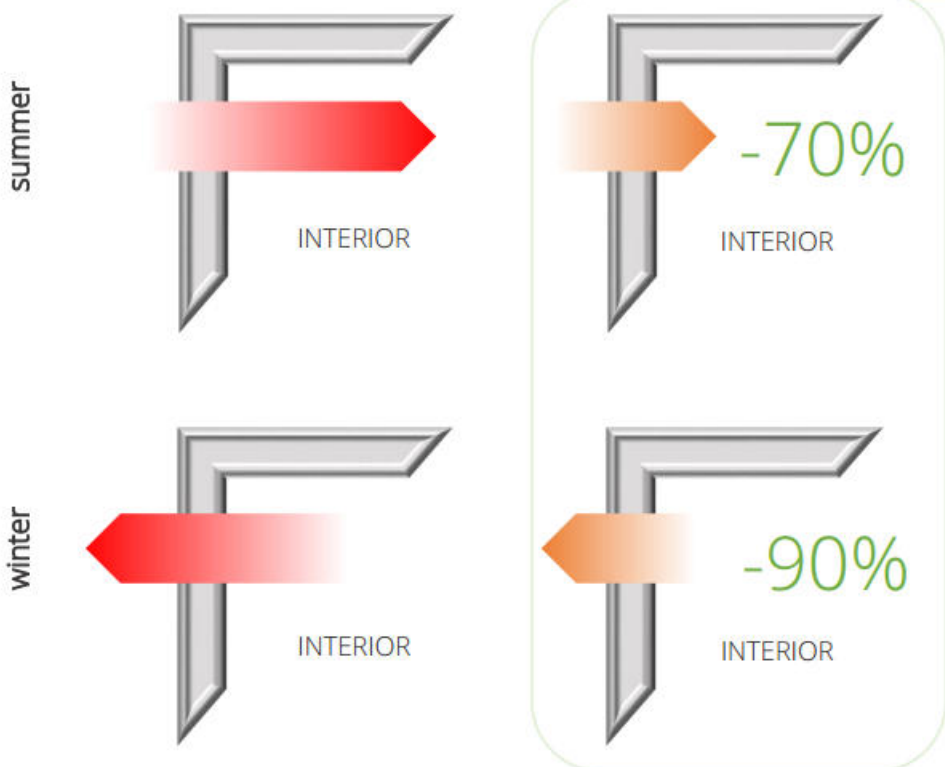


POPULAR CONFIGURATIONS.



HEAT FLOW COMPARISON.

Standard Concrete Wall Construction

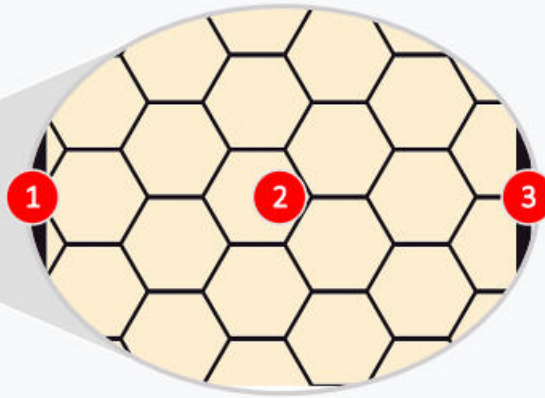
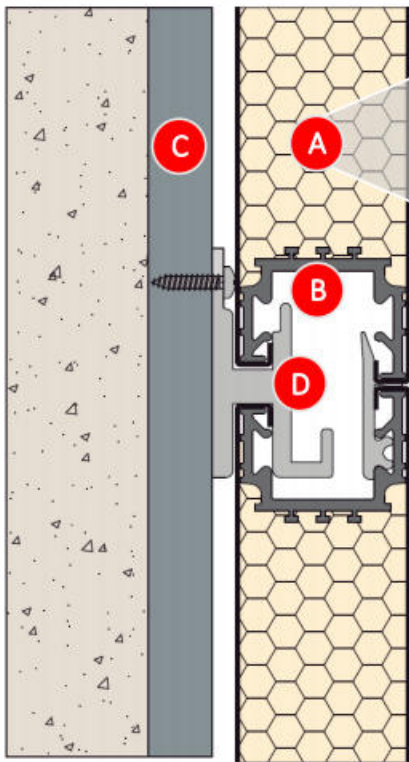


BENEFITS.

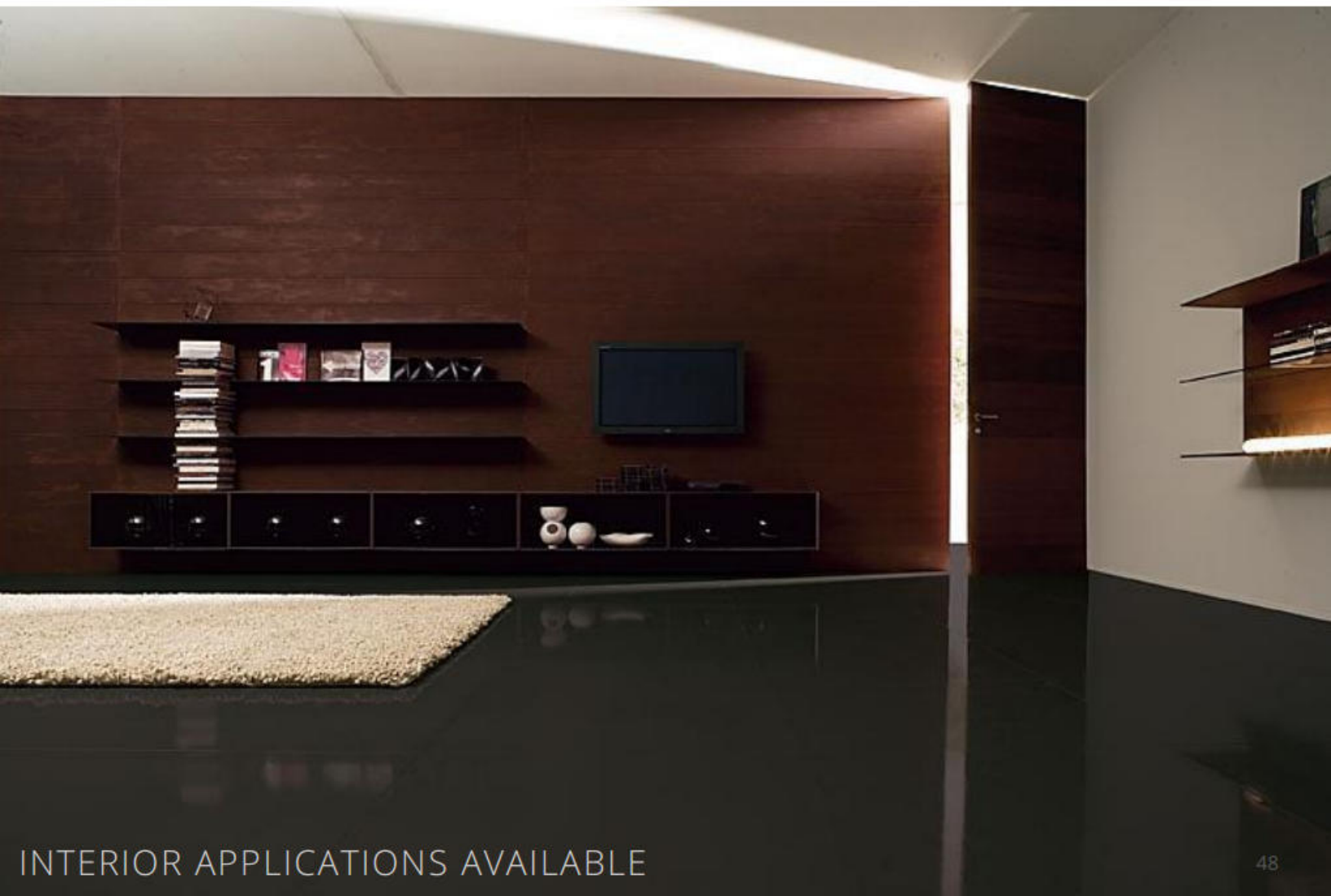
- Variable ventilation duct providing differential control of thermal flow during the winter and summer
- Aesthetically unmatched characteristics
- Possibility for solar panel integration (~45-65 kWh/m² energy produced per panel on a south facing structure)



COUPLING DETAIL.



- A** Stave consisting of three parts: (1) Galvanized steel inner panel, (2) Open-cell Polyurethane inner core and, (3) Cor-ten steel exterior panel
- B** Extruded Polyamide securement clips
- C** Durable and fully adjustable substructure
- D** Load bearing support and alignment bracket



Galvanized Steel

ALLOY	FeP02G	Fe E 250
Symbol Code	DX 51D	S 250 GD+Z
Numerical Code	1.0226	1.0242

Chemical Composition	% of Mass
Fe	99.500%
Si	0.270%
Mn	0.370%
P max	0.014%
S	0.009%
Cr	0.071%
Cu	0.250%
Mo	0.016%
Ni	0.012%
Other	0.050%

Physical Attributes

Specific Weight (kg/dm ³)	7.8700
Thermal Conductivity at 20° C (W/m ² K)	60.0000
Coefficient of Thermal Expansion (mm/m ² C)	0.0123
Modulus of Elasticity (N/mm ²)	210.0000
Electrical Conductivity (Ω/mm/m)	0.0930

Mechanical Attributes

Tensile Strength - Yield (N/mm ²)	220 - 300
Tensile Strength - Ultimate (N/mm ²)	500
Elongation at Break (A _{80mm} % min)	22
Vickers Scale	200 - 250

Reference Standards

UNI EN 10326:2004 Continuously hot-dip strip and sheet of structural Steels - Technical Delivery Conditions
UNI EN 10327:2004: 2004 Continuously hot-dip strip and sheet of low carbon steels for cold forming - Technical Delivery Conditions

Stainless Steel

ALLOY	X5CrNi	X2CrNiMo
AISI acronym	304	316L
DIN acronym	1.4301	1.4404

Chemical Composition	% of Mass	
C	≤ 0.070%	≤ 0.030%
Si	≤ 1.000%	≤ 1.000%
Mn	≤ 2.000%	≤ 2.000%
P max	≤ 0.045%	≤ 0.045%
S	≤ 0.030%	≤ 0.030%
Ni	≤ 0.110%	≤ 0.110%
Cr	17.5 - 19.5%	16.5 - 18.5%
Mo	-	2.0 - 2.50%
Ni	8.0 - 10.5%	10.0 - 13.0%
Other	-	-

Physical Attributes

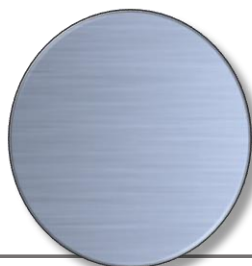
Specific Weight (kg/dm ³)	7.9100	8.0000
Thermal Conductivity at 20° C (W/m ² K)	17.0000	17.0000
Coefficient of Thermal Expansion (mm/m ² C)	0.0103	0.0103
Modulus of Elasticity (N/mm ²)	196.0000	196.0000
Electric Conductivity (Ω/mm/m)	0.7140	0.7140
Melting Point (°C)	1400 - 1420	1400 - 1420

Mechanical Attributes

Tensile Strength - Yield (N/mm ²)	290 - 310	280 - 305
Tensile Strength - Ultimate (N/mm ²)	540 - 750	530 - 680
Proportionality Stress Limit (0.2% Rp _{0.2})	230	240
(1.0% Rp _{1.0})	260	270
Elongation at Break (A _{80mm} % min)	500	500
Brinell Scale (kg / mm ²)	< 165	< 170

Reference Standards

EN 10088 - (1) Stainless Steel - List of Stainless Steels
EN 10088 - (2) Stainless Steel - Material Standard for Stainless Steel sheet, plate, and strip for general purposes
EN 10088 - (1) Stainless Steel - Material Standard for Stainless Steel semi-finished products, bars, rods, and sections for general purposes
EN 144- Determination of the resistance to corrosion for austenitic Stainless Steel



*UNI 10088-2: 1997

Cor-Ten Steel

ALLOY	Cor-Ten "A"
EN 10027 - 1 / ECISS IC10	S355J0WP

Chemical Composition	% of Mass
C max	0.120%
Si max	0.750%
Mn max	1.000%
P	0.6 - 0.15%
S max	0.040%
Ni max	0.650%
Cr	0.30 - 1.25%
Cu	0.25 - 0.55%
Other	-

Physical Attributes

Specific Weight (kg/dm ³)	7.8700
Thermal Conductivity at 20° C (W/m ² K)	60.0000
Coefficient of Thermal Expansion (mm/m ² C)	0.0108
Modulus of Elasticity (N/mm ²)	210.0000
Electrical Conductivity (Ω/mm/m)	0.0934

Mechanical Attributes

Tensile Strength - Yield (N/mm ²)	355
Tensile Strength - Ultimate (N/mm ²)	510 - 680
Elongation at Break (A _{80mm} % min)	< 1.5 ≤ 2.0 14 - 16 < 2.0 ≤ 2.1 15 - 17 < 2.5 ≤ 3.1 16 - 18

Reference Standards

UNI EN 10131 - Cold-Rolled, uncoated and zinc (or zinc-nickel electronically coated low carbon) and high yield strength steel flat products for cold forming - tolerances on dimensions and shape



Bronze

ALLOY	OT / 67 Copper
Type (Cold Rolled Laminate)	10-H10
Alloy Code	CW 506L
Designation	R350 / H095

Chemical Composition	% of Mass
Cu	66 - 68%
Pb max	0.200%
Fe max	0.150%
Al max	0.050%
Sn max	0.200%
Si max	0.150%
Mn max	0.100%
Ni max	0.300%
Impurities	0.400%
Zn	remainder

Physical Attributes

Specific Weight (kg/dm ³)	8.5000
Specific Heat Capacity at 20° C (cal/g)	0.0900
Thermal Conductivity at 20° C (W/m ² K)	0.2780
Linear Thermal Expansion Coefficient (20 to 300°C)	20.2 x 10 ⁻⁶
Electrical Resistivity at 20° C (μΩ cm)	6.6300
Modulus of Elasticity (N/mm ²)	110.0000
Melting Point (°C)	905 - 940
Structured Phase	Alpha

Mechanical Attributes*

Tensile Strength - Yield (N/mm ²)	200 - 360
Tensile Strength - Ultimate (N/mm ²)	350 - 430
Elongation (min %)	23
Brinell Scale (kg / mm ²)	95 - 125

Reference Standards

UNI EN 1652 - Copper and copper alloys - Plate, sheet, strip and circles for general purposes



*UNI 4894:1962

FRAME COMPARISON CHART

2015 Edition

HTS - NEW 2015!

OS2

W20

AMF

WDS

EBE 65

EBE 85

AF (Fire Rated)

4F1 - NEW 2015!

4F2 - NEW 2015!

CLADDING

	HTS - NEW 2015!	OS2	W20	AMF	WDS	EBE 65	EBE 85	AF (Fire Rated)	4F1 - NEW 2015!	4F2 - NEW 2015!	CLADDING
Thermally Broken	•	•			•	•	•	•	•	•	•
MATERIALS	Galvanized Steel with a Powder Coated Finish	•	•	•	•	•	•	•	•	•	•
	Stainless Steel (AISI 304 / AISI 316L)	•	•	•	•	•	•	•	•	•	•
	Cor-Ten		•	•	•	•	•	•	•	•	•
	Bronze	•	•	•	•	•	•	•	•	•	•
	Bi - Metal (Comination of any 2 Metal Types)	•	•	•	•	•	•	•	•	•	•
Wood + Metal (Painted / SS / Cor-Ten / Bronze)			•	•	•	•			•		
STYLE	Flush Window			•	•	•	•				
	Flush Door			•	•	•	•	•			
	Rebated Window	•	•	•	•	•	•	•			
	Rebated Door	•	•	•	•	•	•	•			
HARDWARE	Custom Hardware Options	•	•	•	•	•	•	•			
	Concealed Hinges			•	•	•	•				
	Concealed Closers			•	•	•	•				
	Threshold Options	•	•	•	•	•	•	•			
SEAL	Dual Neoprene Weather Seal + Weep		•	•				•			
	Triple Neoprene Weather Seal + Weep	•		•	•	•	•		•	•	
GLAZING	Single Pane / Monolithic Glass*	•	•	•	•	•	•	•	•	•	
	Dual Pane Insulated Glass*	•	•	•	•	•	•	•	•	•	
	Triple Pane Insulated Glass*	•	•	•	•	•	•	•	•	•	
	Simulated Divided Option	•	•	•	•	•	•	•	•	•	
	True Divided Option	•	•	•	•	•	•	•	•	•	
	Putty Glazing Option	•	•	•	•	•	•	•	•	•	
	Factory Glazing Option	•	•	•	•	•	•	•	•	•	
Maximum Overall Glass Thickness (mm)	40	40	24	40	60	48	68	40	56	50	
MUNTIN	Flush Exterior Joint	•	•	•	•	•	•	•	•	•	
	Fentra Exterior Joint			•							
PERFORMANCE	Narrow Sight-line	•••	••	••••	•	•	•	•	••	••	
	Thermal Efficiency**	•••	•••	•	••	••••••••••	••••••••••	••••••••••	••••••••••	••••••••••	
	Wind Resistance	•••	••	•	••	••••••••••	••••••••••	••••••••••	••••••••••	••••••••••	
	Water Tightness	••	••	••	••	••••••••••	••••••••••	••••••~•••••	••••••~•••••	••••••~•••••	
	Air Permeability	••	••	•	••	••••••~•••••	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	
	Break-in Resistance***	••	••	•	••	••••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	
Sound Insulation*	••	••	•	••••	••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	••••~••••~••••~	
WINDOW TYPES	Fixed	•	•	•	•	•	•		•	•	
	Single & Double Casement	•	•	•	•	•	•				
	Single Hung & Double Hung										
	Tilt and Turn			•	•	•	•				
	Pivot (horizontal & vertical)			•	•	•	•				
	Sliding	•	•	•	•	•	•				
	Bifold	•	•	•	•	•	•				
	Awning / Hopper	•	•	•	•	•	•				
	Arched	•	•	•	•	•	•				
	Combination / Curved / Corner	•	•	•	•	•	•				
DOOR TYPES	Single & Double Casement	•	•	•	•	•	•	•			
	Pivot (horizontal & vertical)			•	•	•	•	•			
	Sliding (top loaded)	•	•	•	•	•	•				
	Sliding (bottom loaded)			•	•	•	•				
	Bifold	•	•	•	•	•	•				
	Arched	•	•	•	•	•	•				
Combination / Curved	•	•	•	•	•	•					

NOTES

- * Depends on glass thickness
 - ** Glass type can effect these results significantly
 - *** Depends on locking mechanism/hardware
- Performance is ranked on a dot (•) scale. More dots equals better performance.

notes.

Lined area for notes.



SCAN FOR PDF

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*Elevations and section details contained in this publication are not projected to scale and should not be used in direct comparison with each other.

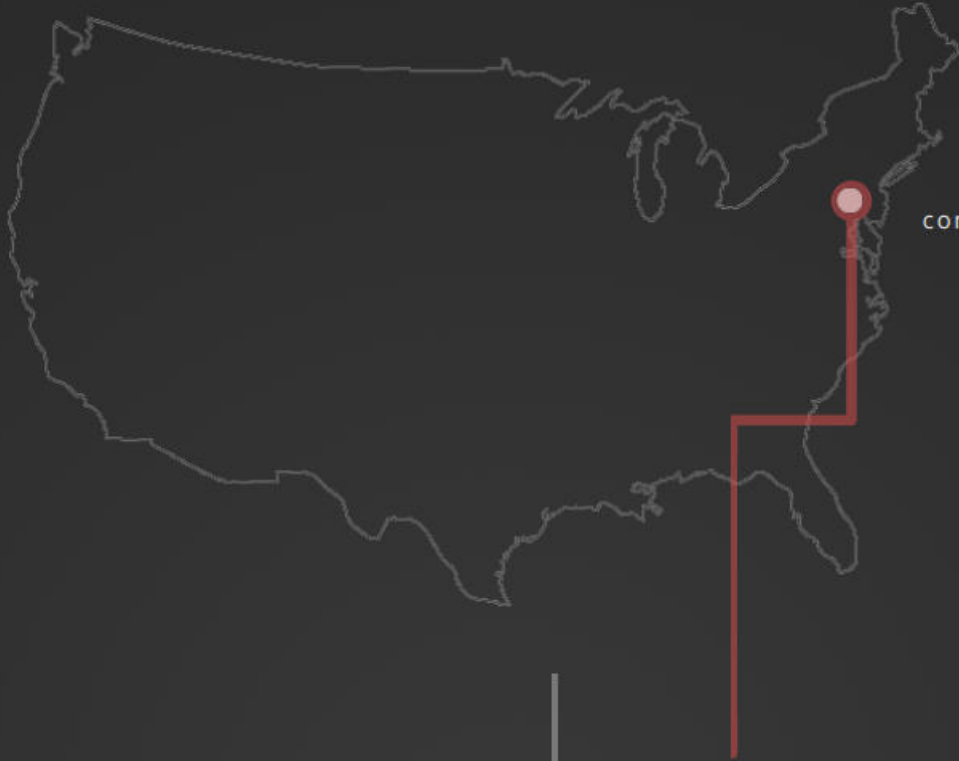
*Measurements throughout the product portfolio are nominal.

*Only basic hardware and glazing bead options are mentioned for each product. For complete hardware availability please consult with a representative.

*Due to the treatment process, bronze frames (in contrast to steel) will show visible intersections at miters. Fully welded miters are standard only for steel.

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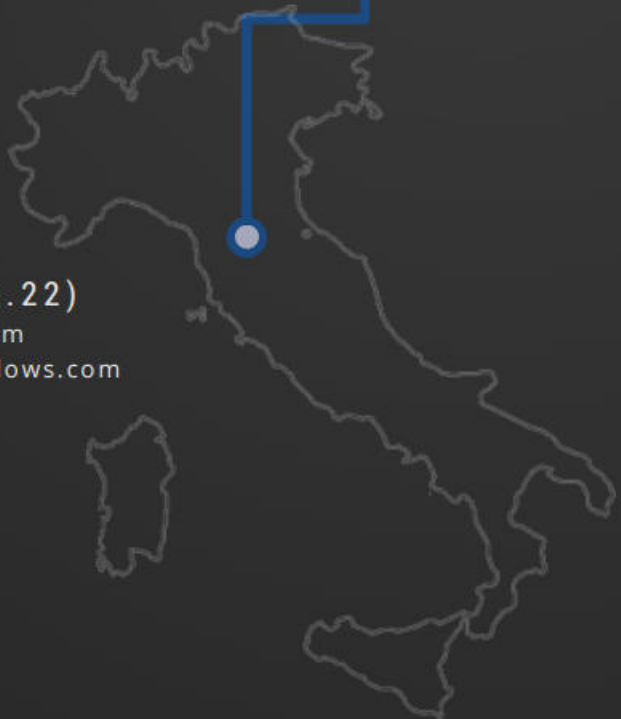




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