LA CASA DEI LIMONI
CONSERVATORIES

How to design and build a conservatory

Objective and result

To give you all the information you need to include
this type of structure in your projects and be able to offer them
to clients as an alternative to traditional structures

What will we talk about?

- Dimensional possibilities offered
- Technical characteristics of the materials used
- Design and implementation process (phases and time)
- Type of systems that can be integrated into the structure
- Advantages of a Conservatory compared to traditional constructions

Who is speaking?

Gianluca Ruggeri

- He trained in the traditional construction sector
- He has followed numerous real estate projects
- He knows all the construction problems
- He specializes in making lightweight steel and glass structures
- He is constantly updated on most efficient materials and technologies in this sector
- He has followed the construction of complex conservatories all over the world

1

Dimensional possibilities offered by a conservatory

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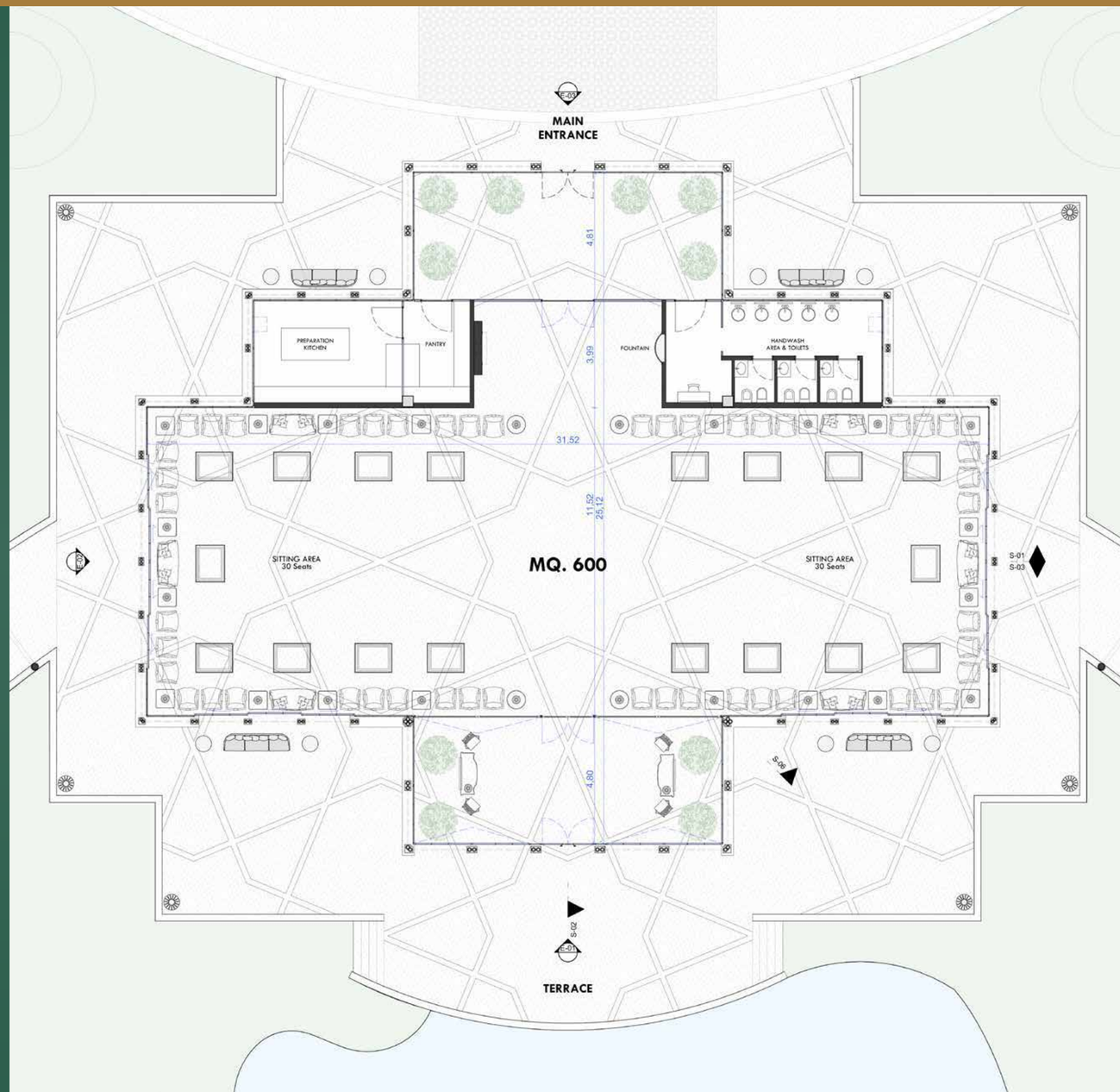
1. Dimensional possibilities offered by a conservatory

1. Dimensional possibilities offered by a conservatory

In terms of size, there are no particular restrictions.

The project is designed based on the client's specific needs. From time to time, our professional team is confronted with the most diverse requests concerning both the size and type of the structure as well as its installations in terms of systems. These must be devised and designed
hand in hand with the structure.



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1. Dimensional possibilities offered by a conservatory

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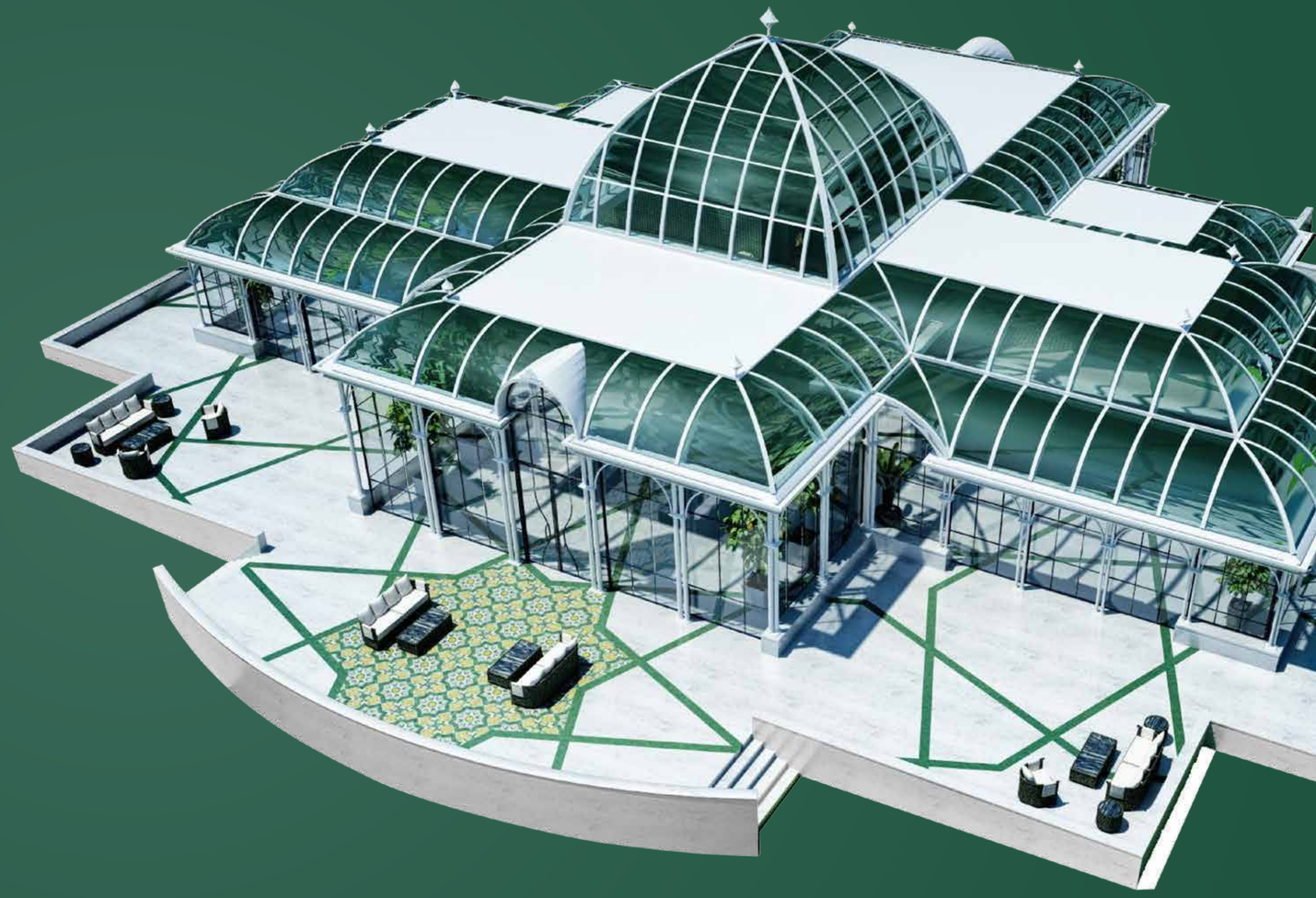
1. Dimensional possibilities offered by a conservatory

Naturally, the only limit is represented by the zoning and building regulations that establish the construction rules for the health and safety of buildings and its users.

These rules and regulations vary from country to country.



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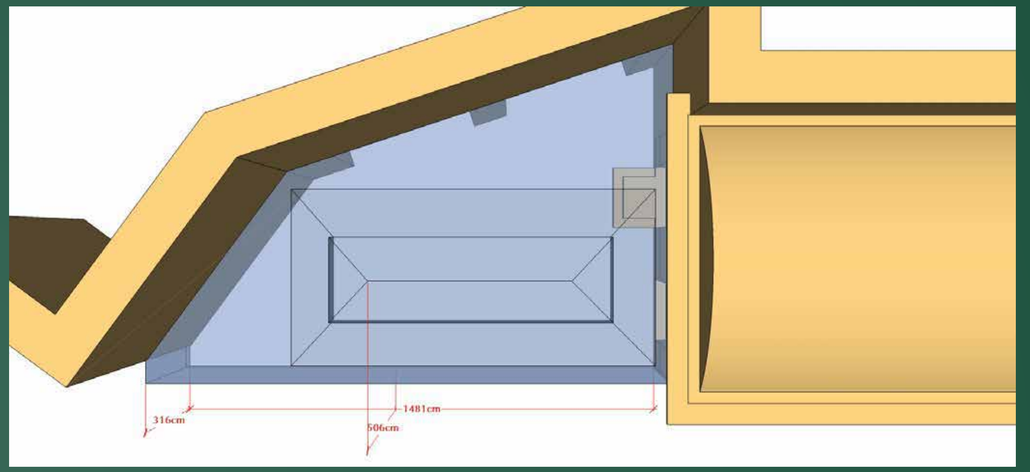
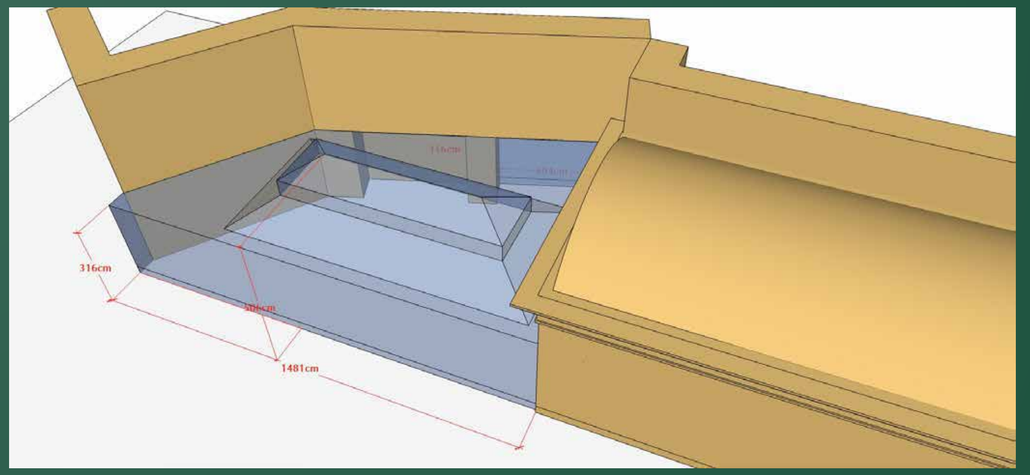
1.1. Dimensional possibilities offered by a conservatory

At Katara village,

DOHA, the client requested a structure that borders existing structures.

They wanted to use the structure to enlarge the space of the Chac'Late restaurant, which had to be connected to the structure. Therefore, it was designed to be accessed both from the outside and from within the existing masonry structure.





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1.1. Dimensional possibilities offered by a conservatory

Rendering

Rendering

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1.1. Dimensional possibilities offered by a conservatory

Realization

2

Technical characteristics of the materials used

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2. Technical characteristics of the materials used

Historically, conservatories were entirely made of steel and glass.

Our work methodology is faithful to this tradition, bringing back the same forms, proportions and effects of the original 19th Century steel window profiles, but adds the performances made available by modern technologies that today allow us to use thermal cutting for both steel profiles and glass.

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2. Technical characteristics of the materials used

Having chosen steel windows as a technical solution for the frames allows us to obtain thin profiles with ample freedom in the design of the facades and, at the same time, guarantees adequate thermal insulation.

Steel frame windows have a reduced thickness and a thermal transmittance 7 times lower than aluminum.

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2. Technical characteristics of the materials used in the - STEEL WINDOW FRAME

The innovative high-density polyurethane used for the realization of thermal cutting, together with the possibility of installing an insulating high-performance glass, allows us to fully respond to the current regulations on the energy containment of buildings and the contemporary needs of comfort, even where a high level of insulation is required.

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2. Technical characteristics of the materials used in the - STEEL WINDOW FRAME

1 Fully welded frames, guaranteeing excellent strength.

2 Maximum stability and precision of the profile shapes, allowing the creation of perfect windows and doors.

3 High density cast in polyurethane isolator, guaranteeing extraordinary thermal insulation also in extreme weather conditions.

4 Extra depth of the profiles, to allow the housing of high performance glazing, like double pane glass, from 18 to 42 mm thick.

5 Double gaskets.

6 Finishes in every mat or bright RAL colours, cor-ten effect, and also customized colours.

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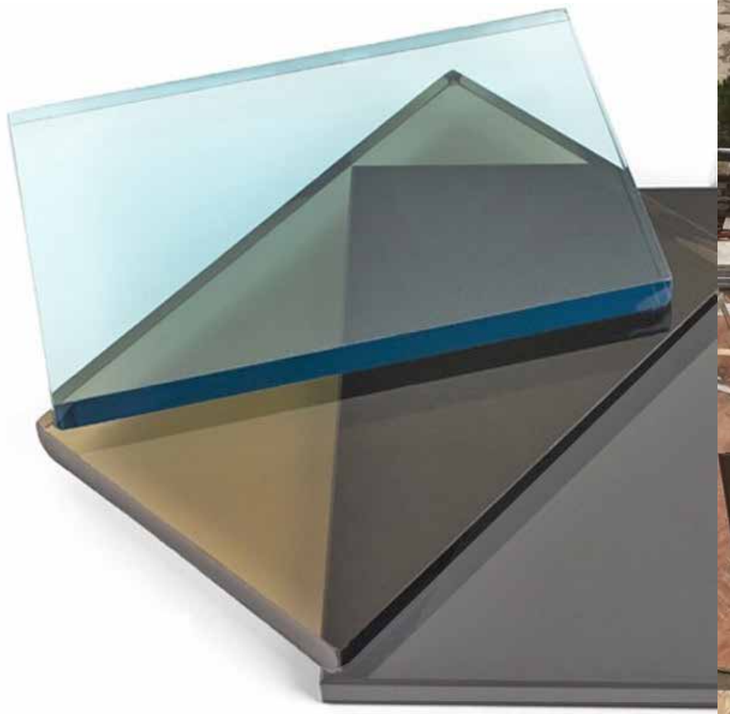
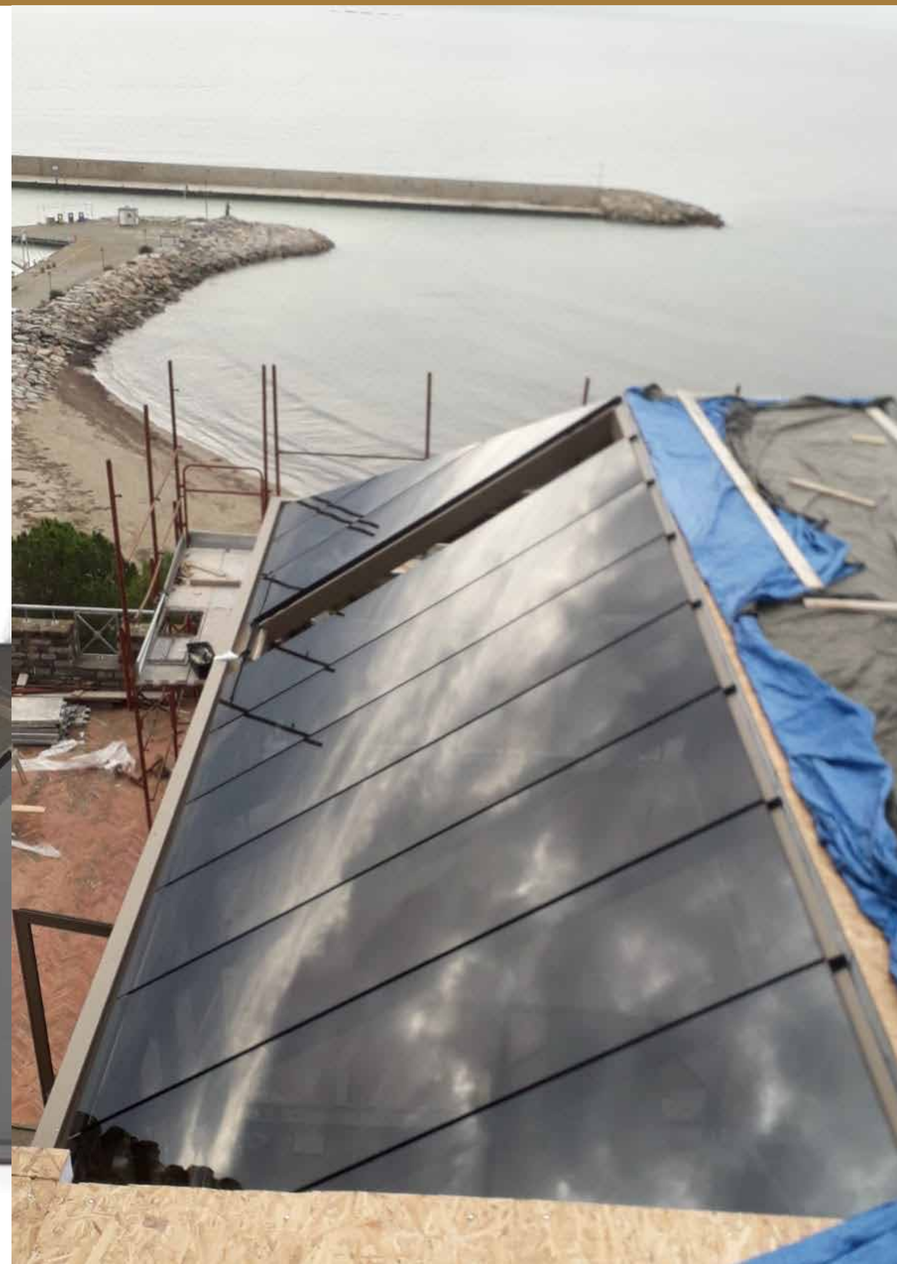
2. Technical characteristics of the materials used - GLASSES

Solar control-Stopsol:

reduces the contribution of solar energy and offers high levels of natural light to ensure comfortable living.

Stopsol is a brand recognised for its stunning aesthetics due to its combination of brilliant coatings and extended range of coloured glass.





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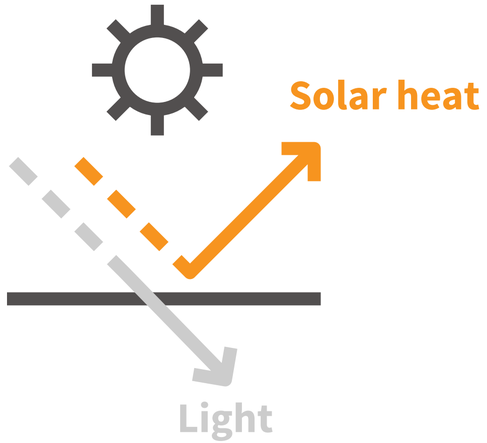
2. Technical characteristics of the materials used - GLASSES

This range of solar control hard-coated glass delivers good light and energy performances, ensuring the privacy and comfort of people inside the building and reducing air-conditioning costs due to its low solar factor.

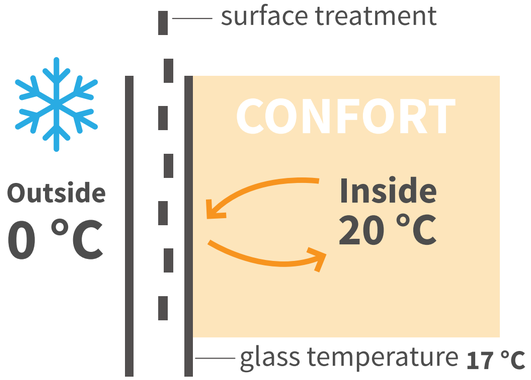


For its solar control features, **Stopsol glass** is used for roofs where sunlight is strong and direct.

2. Technical characteristics of the materials used - GLASSES

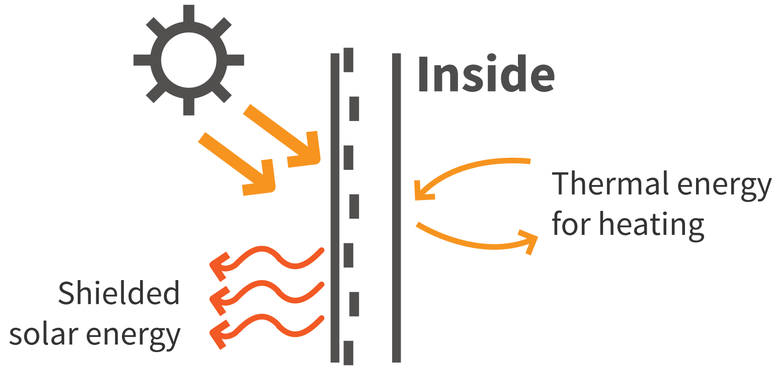
Low emissivity

When the interior heat energy tries to escape to the colder outside during the winter, the low-e coating reflects the heat back to the inside, reducing the radiant heat loss through the glass. The same happens when outside is hot and inside there is the air conditioning on.



Selective glass

Provide exceptional levels of natural light transmission while reducing the amount of heat moving through the glass. With high selectivity glass, we achieves excellent solar control without compromising the neutral appearance of your building's glass.



2. Technical characteristics of the materials used - ALLUMINIUM FRAME

As an alternative to steel windows frames, aluminum frames can be used.

Aluminum can be a viable alternative when French doors are required for **large openings**.
This is because it is a lighter material than the steel window, therefore, more manageable and because it has more numerous and more fluid sliding mechanisms for openings.

2. Technical characteristics of the materials used - ALLUMINIUM FRAME

Aluminum in fact can be used for sliding doors, folding doors, flap doors with much lower costs than steel windows.

The lower cost is a second reason that can lead to the choice of aluminum with respect to steel window frames, especially in commercial buildings.

2. Technical characteristics of the materials used - STEEL

Reference to a real case

The structure built in Katara Village is entirely made of steel and thermal break glass.

No matter if the fixtures are made in aluminum or steel windows the main structure of our winter garden are enterely made of steel.

3

The design and implementation process

(phases and times)

3. The design and implementation process (phases and times)

Survey and meeting with the client

to verify the conditions of the location, any obstacles and criticalities, even of a logistical nature, and collect information from the client about the project, its intended use and their aesthetic preferences.

3. The design and implementation process (phases and times)

Preliminary design phase:

Finding the optimal position and work volumes.
In the case in question, various possible positions were evaluated, which led to the decision to insert the structure laterally with respect to the existing building.

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3. The design and implementation process (phases and times)

Preliminary architectural phase

Identification of the desired style and all the aesthetic elements that combine to create the general appearance of the work.

3. The design and implementation process (phases and times)

Collection of client requirements in terms of internal technical equipment and interior design

-Electrical system
-Heating
-Cooling
-Audio
-Fire protection system
-Flooring
-Walls
-Furnishings
-Lighting
-Drapery

Executive design phase

-Check local laws

-Verification of climatic elements that condition the project. In the case of Doha, wind

-Structural calculations

-Static calculations

-Energy requirement calculations

-Thermal project

-Designer tables (structure, windows, architectural details, external stairs, etc.)

-System boards (electric, mechanical, etc.)

-Internal partition boards

-Interior furniture distribution boards

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3. The design and implementation process (phases and times)

Production phase

We produce the complete structure of glass, decorations and fixtures in Italy and prepare everything necessary for the realization of the requested systems.
We also create designer flooring as per the client's request.

Installation phase

We take care of the installation including the foundations.
The structure of the case under consideration, for example, was installed in 40 days.

Post sales phase

We proceed with the testing of the structure and assistance for the first year

General times

For the realization of a structure like the one we have seen.
From the inspection to the executive project: **2 months**
Production and packaging: **3 months**
Installation and testing: **1 month**

4

Integrated systems

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4. Integrated systems

As with any construction project, the client can specify everything they need in terms of systems.

Along with the architectural project are: the electrical system, hydraulic system, heating or cooling system, sound system, etc ...
All these systems are monitored in a coordinated manner by DFN.
In the case examined, DFN followed these elements.

-Electrical system

-Heating

-Cooling

-Fire protection system

-Flooring

-External stairs and access ramps

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4. Integrated systems

A conservatory can be enjoyed all year round. The use of space is the same as any other interior room in the house.

In fact, thanks to the use of modern technologies, you can install heating, air conditioning, lighting and sound systems inside of it.

Is our conservatory suitable for installation in countries with high temperatures?

Winter gardens can be installed in very hot countries.
Their large glass windows make you feel like you are outdoors, without giving up the comfort of closed spaces.

This happens thanks to the use of high performance materials and **MODERN TECHNOLOGIES**.

Cooling systems

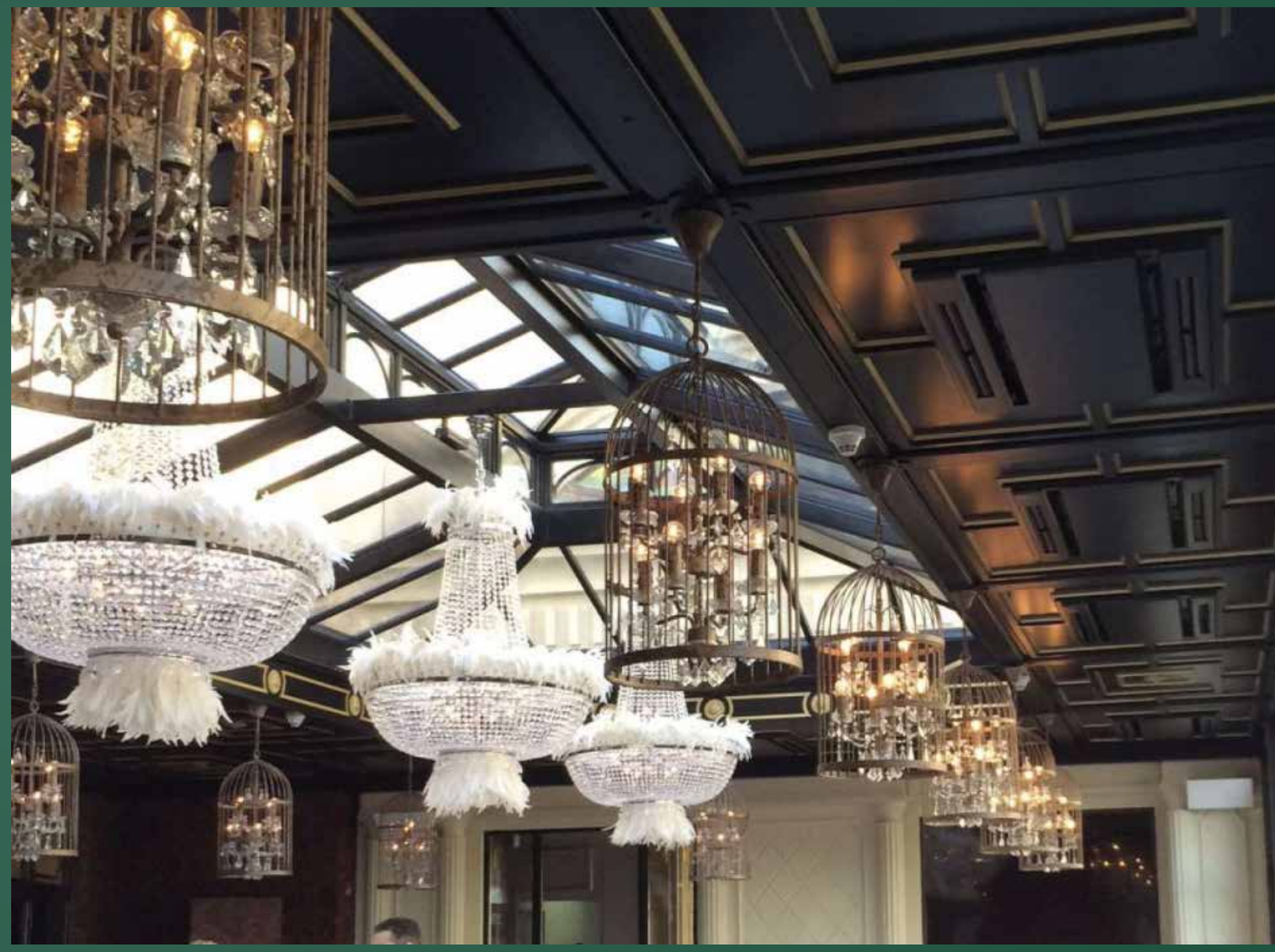
In fact, modern air conditioning systems are installed inside the structures, adequately set to the desired temperature.

Thermal cut profiles and insulated glazing allow you to maintain the internal temperature.

Cooling system

Type of systems that can be integrated into the structure

A system completely integrated into the structure was chosen with indoor units inserted into the false ceiling, aesthetically coordinated with the rest of the decorations present in the false ceiling.



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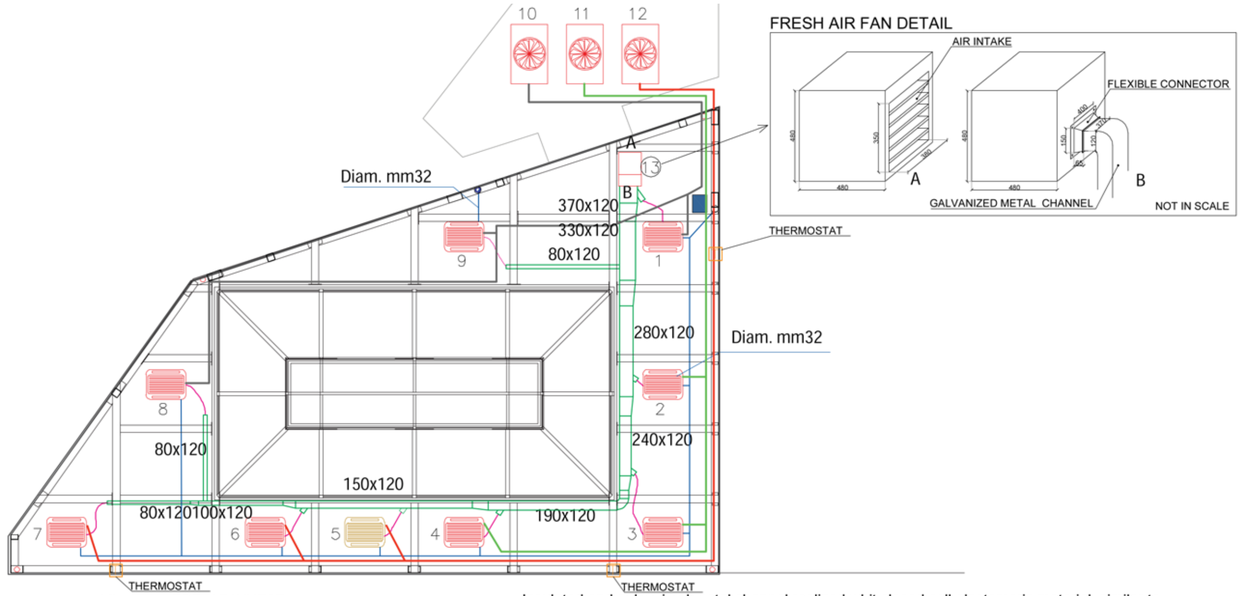
4. Integrated systems - COOLING SYSTEMS

The structure of about 100 square meters is air conditioned with 9 indoor units that guarantee a constant temperature of 18 degrees even in the absence of curtains on the walls and roof all year long.



SI	Description	Manufacture	Model	Serial nr	cooling capacity (kW)	CFM	Power supply (kW)
1	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04600017XK	7,1	600 m3/h	0,14
2	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04600012XK	7,1	600 m3/h	0,14
3	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04600011XK	7,1	600 m3/h	0,14
4	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04700038XK	7,1	600 m3/h	0,14
5	Internal unit	Mitsubishi	FDTW 56KXE6F 2 ways, Pf 4.48 kW	A04600043WK	5,6	600 m3/h	0,10
6	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04700042XK	7,1	600 m3/h	0,14
7	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04600009XK	7,1	600 m3/h	0,14
8	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04700037XK	7,1	600 m3/h	0,14
9	Internal unit	Mitsubishi	FDTW 71KXE6F 2 ways, Pf 5.52 kW	A04600010XK	7,1	600 m3/h	0,14
10	External unit	Mitsubishi	FDC280KXZPE1	A85700440AF	28,00	8100 m3/h	7,87
11	External unit	Mitsubishi	FDC280KXZPE1	A85700452AF	28,00	8100 m3/h	7,87
12	External unit	Mitsubishi	FDC280KXZPE1	A85700451AF	28,00	8100 m3/h	7,87
13	fan for immission external air	SAGICCFIM	VLIDD_7/7-4			1230 m3/h (100 pa)	0,147

MECHANICAL PLAN
PROJECT
not in scale - MEASURE IN mm.

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4. Integrated systems - COOLING SYSTEMS

4. Integrated systems - HEATING SYSTEMS

Is our conservatory suitable for installation in countries with cold and low temperatures?

Our conservatories are erected worldwide and consequently are subject to a wide variety of weather conditions and dramatic temperature changes. It is therefore essential that only the very best materials are selected and utilized within the conservatory.

In countries with cold winters and very low temperatures there are some special precautions to be taken when designing the conservatory.

Heating system

First of all, our technical department has to consider how the structure can cope with unusually severe snow loadings. During this analysis phase, our technicians define the necessary structural requirements and select the appropriate type of functional glass depending on conservatory dimensions and roof shape.

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4. Integrated systems

Our customers expect their winter gardens to be solid, energy efficient and to ensure comfort inside.

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4. Integrated systems - CURTAINS

Curtains to block direct sunlight and provide privacy

We also dedicate a passage to the topic of sun protection as this is one of our clients' major concerns.
The cooling systems are more than enough to have the desired temperature inside but in some cases you don't want direct sunlight or the client desire privacy.

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4. Integrated systems - CURTAINS

In this case, we intervene with the insertion of curtains that can be decorative, shading or darkening, which precisely fit the forms of the structure, are automatic and can be activated remotely.

What are the advantages of a Conservatory compared to traditional extensions?

A Conservatory is a light, bright and airy structure that creates a connection with the environment outside, while ensuring the comfort of a room inside the house. The only works in masonry requested to install a Conservatory are those needed to fix the structure to the ground (anchoring or foundation) with consequent time saving compared to a masonry structure.

Conservatory Benefits

1. It creates space
2. It gives the structure natural light and creates an airy atmosphere
3. It joins indoor with outdoor
4. It increase the value of the property
5. It has several roofing options
6. It will be a focal point in the property that stands out from everything else
7. Desired and natural temperature
8. It is a versatile and elegant entertainment space
9. It requires low maintenance
10. It can be used all year round

In summary

- We have seen the potential of a steel and glass structure.
- We have seen how the internal comfort that can be achieved, with modern technologies in terms of materials and systems, is the same as that of an interior room within a traditional home.
- We have looked at the steps to follow for a correct design and the time required.

Now you are able to offer this solution to your clients and present La Casa dei Limoni Conservatories Collection by DFN Srl.

LA CASA DEI LIMONI
CONSERVATORIES COLLECTION

How can DFN help you?

- DFN designs and installs winter gardens, under the brand La casa dei Limoni, meeting the specific needs of its clients, and is able to provide the best suggestions during all the various stages of the design process.

- Our team of architects and engineers is always available to provide advice on the design, style, and shape of the luxury winter garden to be built, ensuring the highest quality.

- We take care of the entire project from the design up to the installation.

- No matter how ambitious your project is, we can deal with it

Our Projects

Our realizations interpret the styles and desires of the clients for a customized product.

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Milano Fair 2017

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Milano Fair 2018

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Milano Fair 2019

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Geneve- Switzerland

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Geneve- Switzerland

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Šamorín - Slovacchia

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Tirana - Albania

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Abu Faas Palace - Doha

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Saint Petersburg - Russia

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