



## Jordan Greenhouses Manufacturing Co. Ltd

- Since the incorporation of Munir Sukhtian Group in 1933, the protected farming dreams tempts us; and in 1980, the dream became true by incorporating the Jordan Greenhouses Manufacturing Co. that commenced the manufacturing of its high quality products and hiring the most skilled hands.
- More than 30 years of experience and creativity using the latest technologies and ongoing research and development processes; the Jordan Greenhouses Manufacturing Co. had provided its customers with greenhouses and poultry houses that they need.
- Jordan Greenhouses Manufacturing Co. combines engineering and technical expertise along with the up-to-date machines to manufacture greenhouses and poultry houses that are easy to dismantle, transport and install.
- Since the first year of incorporation, the Jordan Greenhouses Manufacturing Co. (Rayyan) has met the needs of its customers in Jordan and worldwide and had exported its greenhouses products to Saudi Arabia, Kuwait, Qatar, United Arab Emirates, Iraq, Sultanate of Oman, Yemen, Lebanon, Egypt, Sudan, North Africa, Angola, Romania, Greece, Cyprus, Australia and many other countries.
- Due to the company's management adherence to provide highest levels of quality with respect to the products and services, it has been awarded the ISO9001 by SGS International and quality mark from JISM Jordan.





## Introduction:

Rayyan greenhouses are locally and internationally distinguished by their quality and durability since that they are made of galvanized pipes from both inner and exterior sides which are conforming to the world greenhouses specifications; through ongoing research and development processes, the company had designed its greenhouses do to be appropriate to all different climate conditions, especially those prevailing in the Middle East Region which is distinguished by its big daily and annual temperature difference. Thanks to the technical staffs of the company, delivery deadlines are met, in addition to the consultations and post sales services to its customers.

## General Technical Specifications:

### Metal Structure (Steel):

- Made of G90 galvanized steel.
- The galvanization weight is 250 - 275 mg zinc/ m<sup>2</sup>.
- Conforming to the European specifications for greenhouses.
- Galvanized pre-fabrication rolls from both inner and outer sides.
- Pipes welding line is covered with stainless zinc material.

### Design:

Rayyan greenhouses are designed according to several grounds, such as:

- Durable to wind speed up to 110 km/ hour or more according to the design.
- Appropriate to several types of agricultural covers.
- Proper distances for farming inside the house had been observed in the design with respect to the arching degree and the height of crops holder.



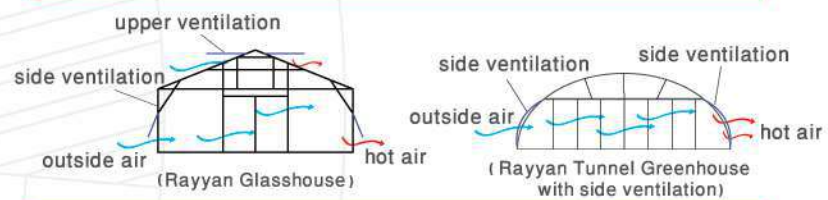
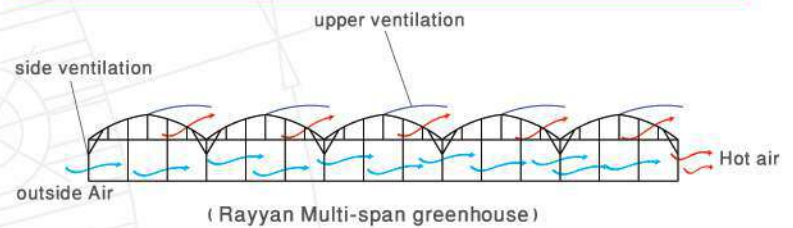
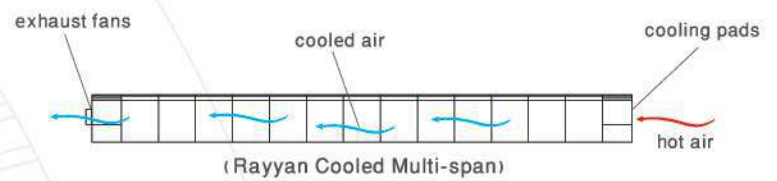
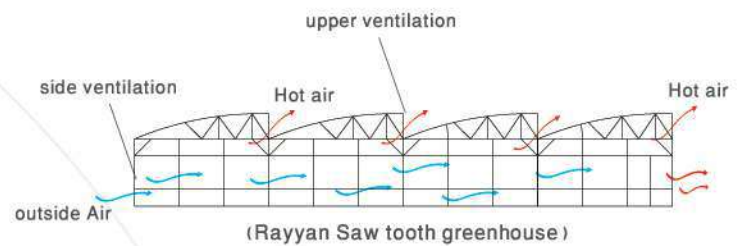


**RAYYAN**  
**Technical Information**  
**(Greenhouses)**



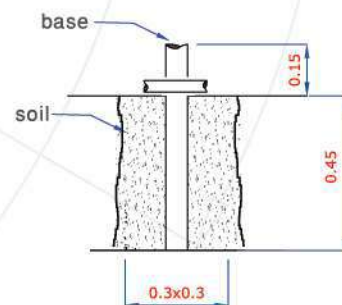
## Technical Information

### Greenhouses Ventilation and Air Conditioning Mechanism

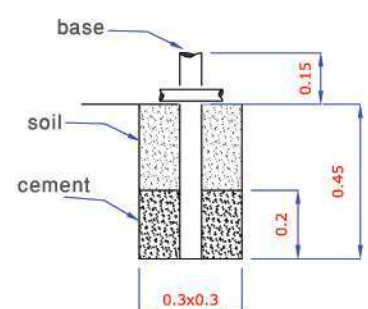


### Ground bases of the greenhouses

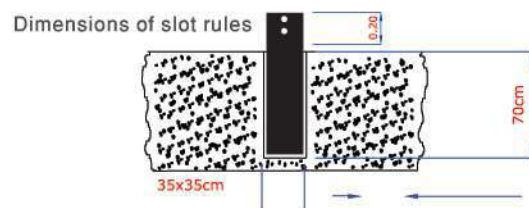
#### – Ground bases of the single tunnels



#### – Ground bases of the cooled tunnels



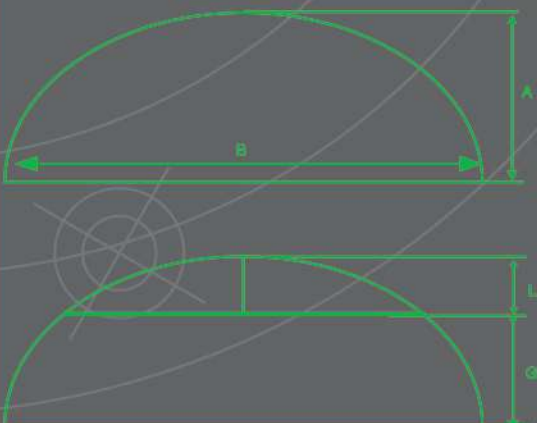
#### – Ground bases of multi-spans



## Rayyan Single Greenhouse



A	B	L	G
3.2	9	1.1	2.1
3.0	9	1.1	2.1



### Structure:

- Arches are made of galvanized pipes with a diameter of 60 mm and thickness of 1.5 mm.
- Longitudinal pipe are made of galvanized pipes with a diameter of 32 mm and thickness of 1.5 mm.
- Crop holders are made of galvanized pipes with a diameter of 26.7 mm and thickness of 1.5 mm.
- Doors are made of galvanized pipes with a diameter of 32 mm.
- Doors windbreaks are made of galvanized pipes with a diameter of 26.7 mm.
- Arches are connected using cross joints of 2 mm thickness.
- Joints: made of galvanized pipes of 2 mm and 1.5 mm thickness.
- Screws: galvanized and of good quality with different thicknesses and lengths.
- Wires: galvanized and of good quality where the thickness is 2.4 mm.
- Each greenhouse is equipped with four single doors that can be open to above with an angle of 90 for ventilation process.
- Possibility to add small doors an the front and the rear sides(optional).

### Cover:

- The greenhouse is covered with agricultural plastic that is treated by ultraviolet ray with a thickness of 180 - 200 microns.
  - Doors are covered by a double plastic layer.
- Special plastic clips of various sizes are used for fixing the cover.

### Side Ventilation System:

A side ventilation system can be added to the greenhouse which can be manually or automatically controlled (optional).

### Design Advantages:

1. High ability to endure difficult weather conditions.
2. Easy transport and installation.
3. Best utilization of the inner space.
4. Suitable for several types of farming.

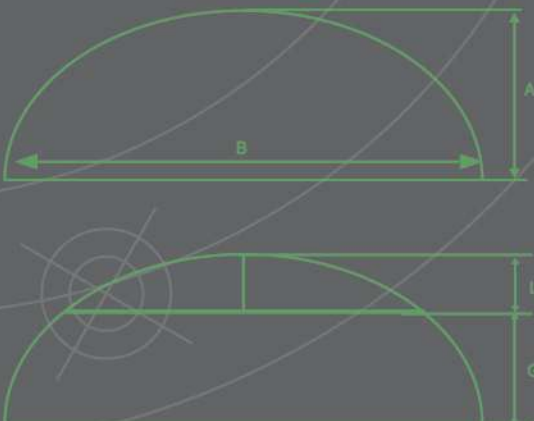
Type	Wigth (m)	Height (m)	Length (m)	Distance between the first and second arches (m)	Distance between other arches (m)	Total Area (m <sup>2</sup> )
Rayyan 9m	9.0	3.2	56.5	2.0	2.5	508.5
Rayyan 8m	8.0	3.0	61.5	2.0	2.5	492.0

# Rayyan Single Cooled Greenhouse



A B L G

3.2 9 1.1 2.1



## Structure:

- Made of galvanized pipes with a diameter of 60 mm and thickness of 1.5.
- Longitudinal pipes are made of galvanized pipes with a diameter of 32 mm and thickness of 1.5 mm.
- Arches are connected using cross joints of 2 mm thickness.
- Crop holders are made of galvanized pipes with a diameter of 26.7 mm and thickness of 1.5 mm.
- Windbreaks are made galvanized pipes with a diameter of 32 mm.
- Front and rear facades are made of galvanized tubes in measurement of 40 x 40 mm and with a thickness of 1.5mm.

## Cover:

The greenhouse is covered with agricultural plastic of European origin with a thickness of 200 micron that is treated by ultraviolet rays and is fixed using aluminum profile and coated wires; front and rear facades are covered with fiberglass; the greenhouse can completely be covered by using fiberglass or polycarbonate; design possibility for use more than one type of covers.

## Doors:

Made of aluminum and composed of two pieces that are easily movable; this house can be supplied with a sterilization and a service room.

## Cooling System:

### Rayyan Cooling System:

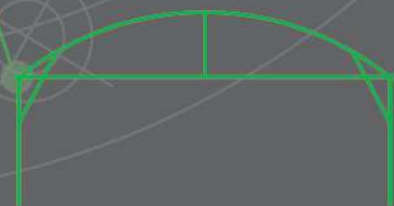
1. Two 50 inches exhaust fans.
2. Cooling pads (2 m x 0.6 m x 0.1 m) to be mounted at the rear side of the house.
3. Cooling gutters made of aluminum with 1.5 mm thickness.
4. Circulation fans that help in improving the temperatures both in summer and winter.
5. The system will be supplied with suitable water pumps.

## Power control Panel:

The greenhouse is equipped with a power control panel and thermostats (thermal regulators) to control the cooling system and any other systems.

Type	Wigth (m)	Height (m)	Length (m)	Distance between the first and second arches (m)	Distance between other arches (m)	Total Area (m <sup>2</sup> )
Rayyan 9m	9.0	3.2	39	2.0	2.5	351.0

# Rayyan Multi-span Greenhouse



## Structure:

- Columns are made of galvanized tubes of 80 mm x 80 measurement and 2 mm thickness.
- Arches are galvanized pipes of 60 mm diameter and 1.5 mm thickness.
- Crop holder is a galvanized pipe of 32 diameters with supports with 32 mm diameter to ensure high degree of durability and strength.
- Longitudinal pipes are made of pipes made of galvanized steel with 32 mm diameter
- The gutter is made of galvanized steel with 2 mm thickness.

## Plastic Cover:

The house is covered with agricultural plastic of European origin with a thickness of 200 micron that is treated by ultraviolet rays and is fixed using aluminum profile and plastic clips; with insect nets to cover the ventilation openings.

## Ventilation System:

Ventilation windows at the house sides that can be manually or automatically controlled.

## Side and Front corridors:

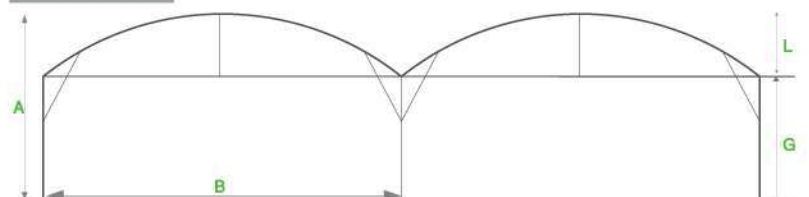
Side and front corridors can be added to the greenhouse for service, easy movement and increase the stability of the greenhouse.

## Multi-span Greenhouse Advantages:

1. Best utilization of land.
2. Better ventilation.
3. Saving in workforce.
4. Increase the productivity in terms of quantity and quality.

No. of Green houses	Green houses use Width (m)	Green houses Length (m)	Distance between arches (m)	Drain Height (m)	Top Height (m)	Corridor (m)	Side & Rear Corridor Width(m)	Total Area (m <sup>2</sup> )
10	8.0	40.0	4.0	2.6	4.5	3.0	2.0	3784.0

A	B	L	G
4.5	9	1.9	2.6



# Rayyan cooled Multi-span Greenhouse

## Structure:

- Arches are galvanized pipes of 60 mm diameter and 1.5 mm thickness.
- Columns are made of galvanized tubes of 80 mm x 80 measurement and 2 mm thickness.
- Crop holder is a galvanized pipe of 32 diameters with supports with 32 mm diameter to ensure high degree of durability and strength.
- Longitudinal pipes are made of galvanized steel with 32 mm diameter that are connecting between arches to support them and increase their strength.
- The gutter is made of galvanized steel with 2 mm thickness.

## Roof and Sides Cover:

The house is covered with agricultural plastic with a thickness of 200 micron that is treated by ultraviolet rays except for the front, rear and side facades which are covered by fiberglass, the house can completely be cover using fiberglass or polycarbonate.

## Doors:

Made of aluminum and composed of two pieces that are easily movable; this house can be supplied with a sterilization chamber.

## Heating and Cooling System:

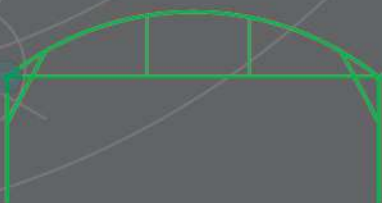
Cooling system is composed of:

- Exhaust fans.
- Cooling pads alongside the rear side.
- Cooling gutters made of aluminum with 1.5 mm thickness.
- Circulation or stirring fans.

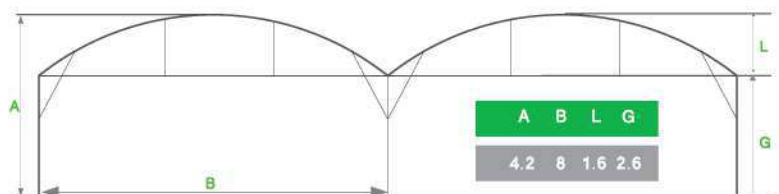
The greenhouse can be equipped with high efficiency heaters specialized for greenhouses.

## Power control Panel:

The greenhouse is equipped with a power control panel and thermostats (thermal regulators) to control the cooling system and any other systems (irrigation, shading, heating).

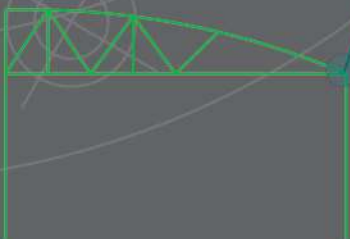


No. of Green houses	Green houses Width (m)	Green houses Length (m)	Drain Height (m)	Top Height (m)	Distance between the 1 <sup>st</sup> and last (m)	Distance between other arches (m)	Total Area (m <sup>2</sup> )
10	8.0	40.0	2.6	4.2	2.0	4.0	3200.0





# Rayyan saw-Tooth Greenhouse



## Structure:

- Columns are made of galvanized tubes of 80 mm x 80 mm measurement and 2 mm thickness.
- Arches are galvanized pipes of 60 mm diameter and 1.5 mm thickness.
- Crop holder is a galvanized tube with the measurement of 40 x 80 mm and 1.5 mm.
- Longitudinal pipes are made of pipes with dimensions of 32 mm diameter and 1.5 mm thickness that are connecting between arches and supports.
- The gutter is made of galvanized steel with 2 mm thickness.

## Doors:

Made of aluminum and composed of two pieces that can be dismantled to facilitate the movement of agricultural machinery; this house can be supplied with sterilization and a service room.

## Roof and Sides Cover:

The greenhouse is covered using European plastic that is treated by ultraviolet rays with a thickness of 200 micron. Insect nets are used to cover the side and front ventilation windows.

## Power control Panel:

The greenhouse is equipped with a power control panel and thermostats (thermal regulators) to control the upper and side ventilation with a meteorological station and wind speed measuring unit.

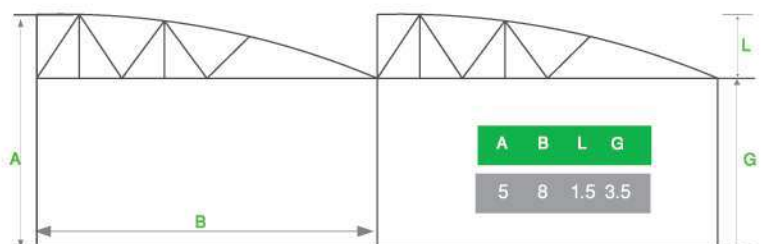
## Upper Ventilation:

The house is equipped with holes for upper ventilation openings from the gutter to the house top which is automatically controlled.

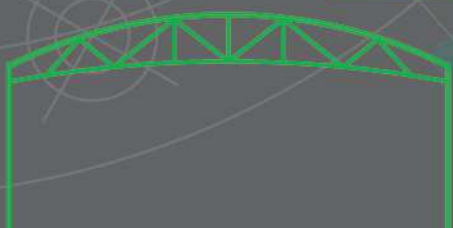
## Side Ventilation:

The house is equipped with side ventilation that can be manually or automatically controlled.

No. of Green houses	Green houses Width (m)	Green houses Length (m)	Drain Height (m)	Top Height (m)	Distance between arches (m)	Front and rear corridors width (m)	Total Area (m <sup>2</sup> )
10	8.0	40.0	3.5	5.0	4.0	2.0	3520.0



## Rayyan Greenhouse 12



### Structure:

- Columns are made of galvanized tubes with the measurement of (80 x 80) and 2 mm thickness.
- Arches are tubes made of galvanized steel in the measurement of (40 x 80 x 1.5) mm; these are three parts assembled using joints mad of galvanized sheets with 3 mm thickness for supporting and stability.
- Inner holders which are arches made of galvanized steel of 40 x 40 x 1.5 mm that horizontally connects between the columns to assemble and affix the structure.
- Bases are made of galvanized tubes of 80 x 80 mm and 2mm in thickness in addition to enforcement twist of 8 mm thickness.
- The gutter is made of galvanized steel with 2 mm thickness.

### Roof and Sides Cover:

The greenhouse is covered with plastic with the house can completely be cover using fiberglass or polycarbonate treated against ultraviolet rays.

### Heating and Cooling System:

Cooling system is composed of:

Exhaust fans, cooling pads alongside the rear side, cooling sinks made of aluminum with 1.5 mm thickness and circulation fans. The greenhouse can be equipped with greenhouse-special heaters.

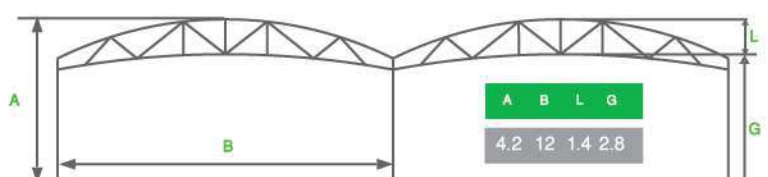
### Doors:

2 doors made of aluminum; this house can be supplied with a sterilization and service.

### Power control Panel:

The house is equipped with a power control panel and thermostats (thermal regulators) to control the cooling system and any other systems.

No. of Green houses	Green houses Width (m)	Green houses Length (m)	Drain Height (m)	Top Height (m)	Distance between arches (m)	Distance between other arches (m)	Distance between 1 <sup>st</sup> and last (m)	Total Area (m <sup>2</sup> )
4	12.0	36.0	2.8	4.2	3.0	3.0	3.0	1728.0



## Rayyan Glass house



### Structure:

- Made of galvanized pipes from inner and outer sides with 60 mm diameter and 2 mm thickness (made of double pipes)
- The roof and sides are equipped with longitudinal tube lines (30 x 30) mm with 1.5 mm thickness made of galvanized steel.
- The house flat area is vertically sectioned with (T) angles to fix glass sheets.
- Ground bases and cross sections are made of galvanized pipes with 2 mm thickness.
- Crop holders are made of galvanized pipes with the measurement of 60 x 1.5 mm across the house and are connected to the arches with vertical holders made of galvanized pipes with 60 mm diameter and 1.5 mm thickness.

### Doors:

The house is equipped with a door at the front façade.

### Ceiling and Sides Cover:

The cover is special glass of 5 mm thickness in the form of sheet to be fixed by overlapping.



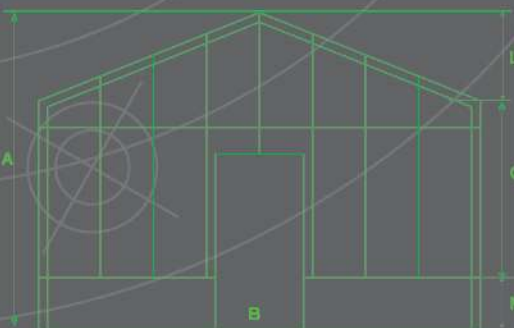
### Additions:

- Cooling system.
- Heaters.
- Transplant tables.
- Several other systems.

### Ventilation:

- Upper windows with 2 m length and 60 cm width.
- Side windows with 6 m length and 70 cm width.
- Ventilation windows are made of galvanized tubes that can manually or automatically controlled; the side windows are also manually or automatically controlled.

A	B	L	G	M
3	6	1	2	0.60



### Rayyan Glass Greenhouse Advantages:

- Used for the purposes of scientific research and micro experiments at universities and agricultural research and engineering centers.
- Can be manufactured either as single or multi greenhouse.
- Can be equipped with heating and cooling systems with full control of climate and inner temperature.

Width (m)	Length (m)	Side Height (m)	Total Height (m)	Distance between Posts (m)	Total Area (m <sup>2</sup> )
6.0	10.0	2.0	3.0	2.0	60.0

# Rayyan Research and Gardens Greenhouse



## Structure:

- Made of galvanized tubes from inner and outer sides.
- The roof and sides are equipped with longitudinal tube lines (30 x 30) mm with 1.5 mm thickness made of galvanized steel.
- ground bases and sections are made of galvanized pipes with 2 mm thickness.
- Crop holders are made of galvanized pipes with the measurement of 32 x 1.5 mm across the house and are connected to the arches with vertical holders made of galvanized pipes with 32 mm diameter and 1.5 mm thickness.
- Easy use of joints, screws and special clamps.

## Doors:

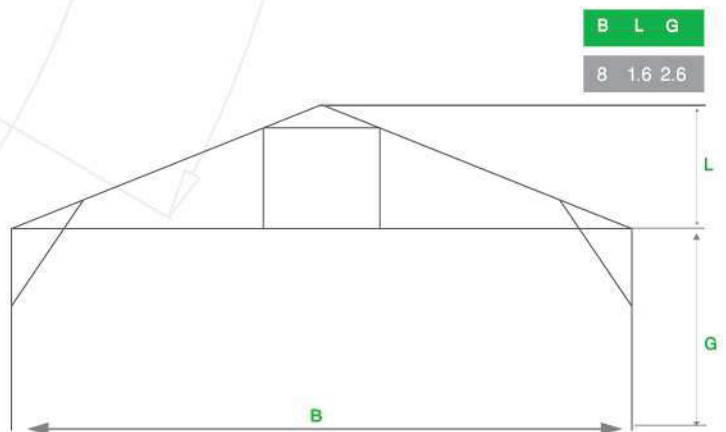
The house is equipped with a door at the front façade and can be equipped with a service room.



## Rayyan Research and Gardens Greenhouse

### Advantages:

- Used for the purposes of scientific research and micro experiments at universities and agricultural research and engineering centers.
- Can be manufactured either as single or multi greenhouse.
- Can be equipped with heating and cooling systems with full control of climate and inner temperature.
- Easy disassembly, transport and installation.



## Multi-span purpose Structures

The company also manufactures service rooms and sunshades for warehouses and parking.

### ■ Service Room (Wazoo)

#### Structure:

The structure is composed of galvanized pipes and tubes and is of octagonal or hexagonal dimensions.

#### Roof and Sides:

The outer roof is covered with insulating ondoline panels and with wood sheets inside to give an aesthetic appearance.

#### Doors and Widows:

The structure is equipped with one door and windows, it can also be equipped with any other additions as requested.

### ■ Sunshades and Warehouses

#### Arches:

Made of galvanized pipes of 60 mm diameter.

#### Posts:

Made of tubes of 80 x 40 mm.

#### Cover:

Sunshades and storage rooms are covered by curruogatal steel sheets or with insulating ondoline panels.









**Rayyan Accessories**

## Covers and Specifications



Rayyan Co. is distinguished with using the top quality covers. Cover selection is an important thing for the greenhouse so to suit various weather conditions especially in the Middle East that is characterized by big daily and annual temperature difference; therefore, it must be:

1. of long useful age.
2. suitable to surrounding circumstances.
3. treated for ultraviolet rays.

### Cover Specifications:

Type	Single layer Polycarbonate	Double layer Polycarbonate	Fiberglass	Plastic
				
Shape	Crimpy 76/16 mm, 76/18 mm	Flat	Crimpy 76/18 mm	Rolls
Dimensions	1870mm or 1260mm	2100 to 1200	Multi	Multi
Thickness	0.8mm 1.0mm	4/6/8/10mm 16mm	0.8mm	200μ
Weight	1.2kg/m <sup>2</sup> 1.1kg/m <sup>2</sup> 1.35kg/m <sup>2</sup> 1.45kg/m <sup>2</sup>	0.777/1.3/1.5 1.7kg/m <sup>2</sup>	1.2kg/m <sup>2</sup>	Multi
Light coefficient	90%	82/80/80/79%	89%	85%


### Fly Net/ Shading Net:

Shape	Description	Shading percentage	Dimensions
	Shading net	50-70%	Multi
	Fly Net	30%	Multi


## Additional Accessories

Jordan Greenhouse Co. (Rayyan) provides the best maintenance and optimized solutions for projects maintenance, whereas the company had maintained greenhouses projects in several countries under distinguished engineering and technical supervision.

### Profile

Section	Description	Weight	Length	Use
	Aluminum profile and plastic coated wires	380 gr/m	4000 mm	Plastic and net fixing

### Clips

Shape	Description	Pipe Size	Use
	30n Clips	30n	Plastic and net fixing
	60n Clips	60n	Plastic and net fixing

### Exhaust Fans

Shape	Type	Capacity	Dimensions
	24 inch	13000 m3/hr	760mmx760mm
	50 inch	44500 m3/hr	1378mmx1378mm

### Heater

Shape	Dimensions	Weight	Efficiency	Power	
	1.5mx0.67m x 1.02	180kg	90%	85000kcal/hr	
	1.62m x 0.77m x 1.15	209kg	90%	120000kcal/hr	
	<b>Consumption</b>		<b>Potential</b>	<b>Fan Power</b>	
	8.4L/hr 12.2L/hr	230 / 400 v 230 / 400 v	1.1kw 1.5kw		



## Additional Accessories

### Profile

Shape	Capacity	Dimensions	Use
	2880 m <sup>3</sup> /hr	d40cm	Increase the efficiency of air distribution

### Cooling pads gutters

Shape	Description	Thickness	Length
	Aluminum sinks	1.5mm	6 m

### Ventilation Motors

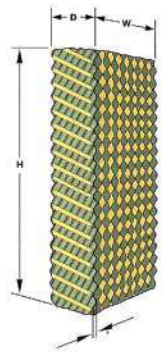
Type	Manual na 105	Manual nsa 105	Manual na 105
Momentum			
Speed rate	5:1	5:1	5:1
Maximum length	[120m	[100m	[120m
Maximum height	[5m	[3m	[5m
	50N.m	40N.m	50N.m
Use	Side ventilation	Side ventilation	Upper ventilation

## Additional Accessories

Type	Electricity PR1-1435	Electricity IP55	Electricity eru-a
			
Voltage	AC400V	AC400V	DC24V
Speed	5-8rpm	3.5-5rpm	3.6rpm
Maximum momentum	120-190N•m	320-410N•m	60N•m
Use	Side ventilation	Upper ventilation	Side and upper ventilation

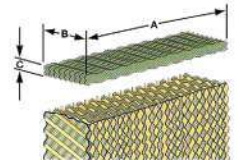
### Cooling pads

Width Size:	W= 600 mm
Depth Size:	D= 100, 150, 200, 300 mm
Length Size:	H= 1000, 1500, 1800, 2000 mm



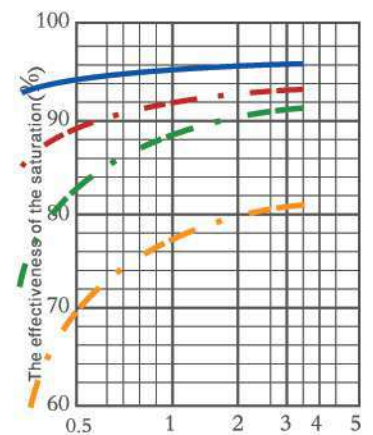
### Cooling pads Splits:

Length Size:	C= 30.50 mm
Depth Size:	B= 100, 150, 200, 300 mm
Width Size:	A= 600 mm



### Efficiency curves

The graph shows the decline in saturation efficacy rate in case of moistening.



pads are mounted on the metal structure composed of lower and upper sinks and cells combiner.

## Automatic Shading System:

Shading net is made of polyester and aluminum sheets overlapped and joint with polyester of reinforced composition between aluminum and polyester that grants high quality results for thermal conduction, works on maintaining the lost energy, and keeps the crops temperature constant day and night.

Shading net works on decreasing the dew quantity, subsequently protects plants from diseases resulting from humidity and dew.

This system automatically works using motors and control panels.

Shading system is of European origin

Shading percentage: 50- 75%

Shading efficiency: 96%



## Control Panel:

The greenhouse is equipped with a main control panel that is automatically or manually operated with a thermostat and humidity regulator in order to run the cooling system automatically, provided to connect the power panel, thermostat, fans, irrigation and fertilizing pumps to main electronic control unit for the whole project.





# **Projects' Photos (Greenhouses)**





## Projects' Photos





## Projects' Photos





## Projects' Photos





## Projects' Photos





