The modern greenhouse's structural design and its application example
Definition
Development

- Improved solar greenhouse
- Large glass greenhouse
- Modern greenhouse
Development

Gutter connected greenhouse

Single shed
Planting greenhouse  
Aquaculture greenhouse 
Scientific research & teaching greenhouse 
Plant ornamental greenhouse 
Ecological restaurant greenhouse 
Inspection & quarantine greenhouse
Thin Film Greenhouse

Characteristic

- Low cost
- Easy to build
- Easy to pollute and aging
- Poor transmittance
Characteristic

- High lighting performance
- Strong climate control
- Long service life
- Easy damageable
- High cost
- Inconvenient maintenance

Glass Greenhouse
PC board Greenhouse

Characteristic

- Strong
- Durable
- Hard to pollute

<table>
<thead>
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<th>Thickness (mm)</th>
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<th>3.0</th>
<th>6.0</th>
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<td>80</td>
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<td>Transparent plate</td>
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Type

- Single-span greenhouse
- Multi-span greenhouse

Size
Single Shed

Characteristic

A. lowest cost
B. simplest construction
C. used in the southern region
D. resist snow
E. mechanization
F. scale
G. used for some regions with rich labor
Single-sided Slope Sunlight Greenhouse

Characteristic

A  simple facility
B  solar energy
C  covered with quilt
D  good heat preservation
E  low investment
F  energy saving
G  underdeveloped rural areas
Multi-span greenhouse

One span

Gutter
Type

Fastigium greenhouse → Arched greenhouse → Sawtooth greenhouse → Venlo greenhouse

Roof Shape
Arched greenhouse

Roof: Round arch
Sawtooth greenhouse

Curved

Sloping
Standard in shanghai: GP-C832Z

**Structural parameters** —— Span: 8m, arch spacing: 0.8m, height: 3.3m, length: ≤ 40m.

**Performance parameter** —— wind load: ≥ 0.45 Kn/㎡, snow load: ≥ 0.15 Kn/㎡, service life: ≥ 10 yrs.

**Ventilation mode** —— two sides manual Coiling mechanism.

**Main material** —— Galvanized steel pipe.
GP-C832Z: parts

circlip

card slot
Structural parameters — Span: 8000, arch spacing: 4000, top height: 4000.

Performance parameter — wind load: \( \geq 0.55\text{Kn/m}^2 \), snow load: \( \geq 0.25\text{Kn/m}^2 \), service life: \( \geq 15 \text{ yrs} \).

Ventilation mode — Electric skylight, manual Coiling mechanism.

Main material — main arch: Rectangular, Vice arch: Galvanized steel pipe.

Rising and cooling methods — internal heat preservation system, outside shade system.

Standard in Shanghai: GSW8430
Civil engineering part

Independent foundation

Delve foundation

ROAD
GSW8430 multi span plastic greenhouse
Key point of design

1. the orientation
2. the length
3. the width
4. the high span ratio
5. the vent ventilation
Example: A single shed suitable for mechanization

Purpose
Example: A single shed suitable for mechanization

**Structural parameters** — Span: 8m, arch spacing: 0.6m, shoulderheight: 2.5m, height: 4.1m, length: 32m.

**Performance parameter** — wind load: $\geq 0.45$ Kn/㎡, snow load: $\geq 0.15$ Kn/㎡, service life: $\geq 10$ yrs.

**Ventilation mode** — Electric skylight, two sides manual Coiling mechanism.

**Main material** — Galvanized steel pipe.
Example: A single shed suitable for mechanization
Thanks For Listening