

# Plant Factory

(Indoor Farming Equipment)



**ESPEC MIC Corp. is a leading company in the manufacture and installation of indoor farm and growth chamber for scientific field and commercial scale agriculture.**

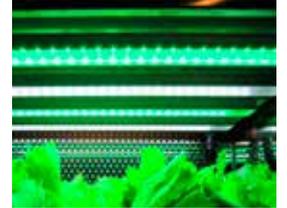
## Feature

- Food Safety: Pesticide and Herbicide Free Vegetables
- Flexible: Customizable Design according to Customer's Request
- Scalable: From Experimental size to Commercial size
- Training: Cultivation and Management Training



## Light Source

- We have many light source line-up. We could meet customer's request.



## Cultivation System

- Hydroponic System: DFT, NFT, Aeroponics, Culture medium
- Cultivation Cabinet: Flat Stage Type, Multistage Type, Automatic System

## Vegetable Lineup



Frill Lettuce



Green Leaf Lettuce



Red Leaf Lettuce



Half Head Lettuce



Ice Plant



Basil



Arugula



Italian Parsley



Mint



Tomato



Coriander



Cress



Cress



Mustard Leaf



Strawberry



Spinach



Mitsuba



Radish



Shiso



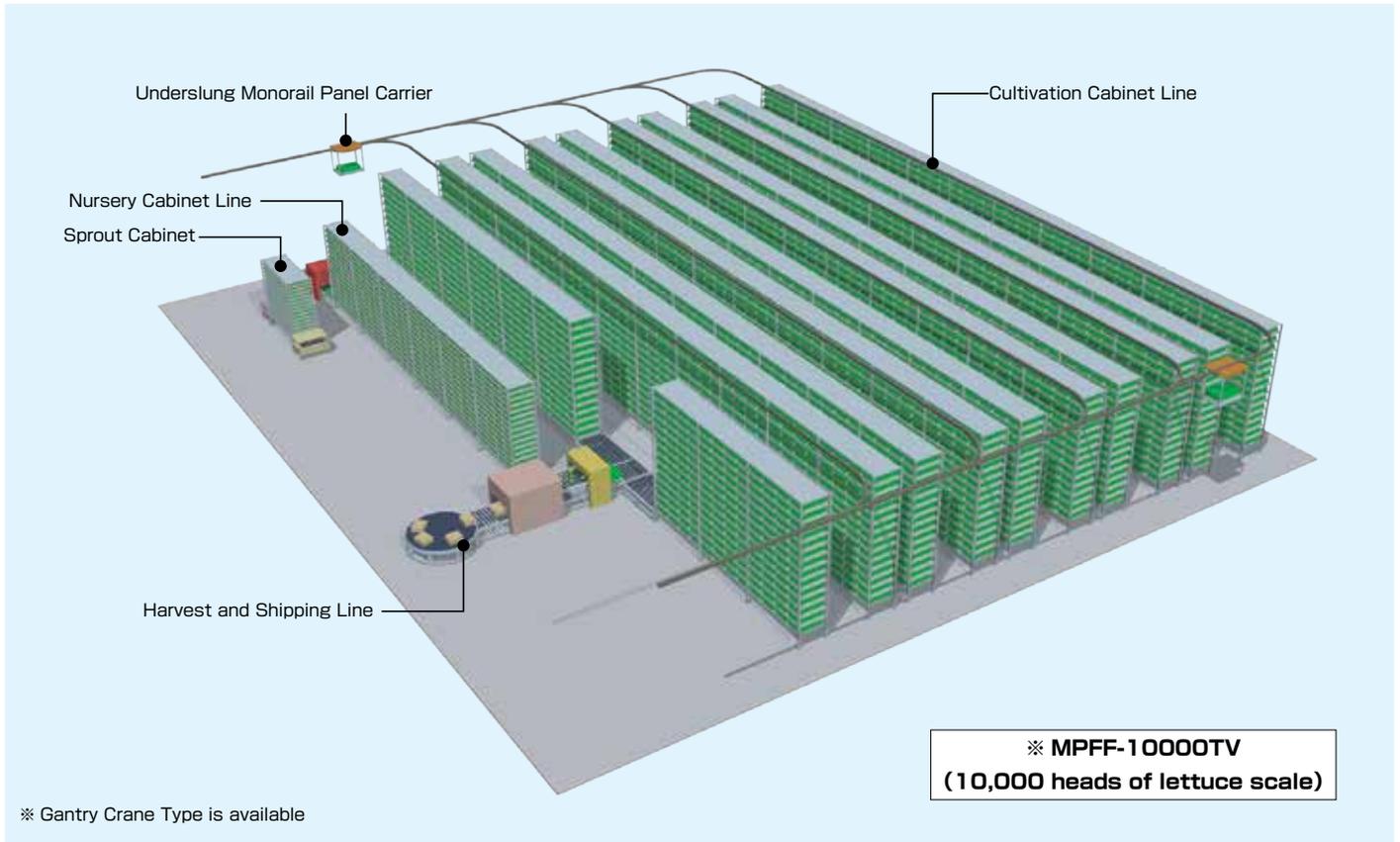
chrysanthemum greens

# Plant Factory

## Automatic Plant Factory

### MPFF-TV: Monorail Carrier Type

- Multistage Type: 4 to 20 stages
- Cultivation Panel: Plastic (PP) Panel and Tray
- Panel Carrier: Underslung Monorail Panel Carrier
- Cultivation: Available to grow some different cultivation period vegetables



○ Multistage bench(15stage)



○ Underslung Monorail Panel Carrier



○ Multistage bench(8stage)



### Specifications

Model		MPFF-TV
Performance	Temp. range	+18 ~ +25 °C
	RH range	60 ~ 90% RH (Option)
	PPFD	150 ~ 300 $\mu\text{mol m}^{-2}\text{s}^{-1}$
	CO <sub>2</sub>	~2000 ppm (Option)
Light source		LED (W, R, G, B)
Air conditioning		Available any model
Control	Instrumentation	Control system for plant cultivation (PC control)
	Sensor	Temperature, Humidity, CO <sub>2</sub> , EC, pH, etc
Cultivation system		Independent cultivation tray type

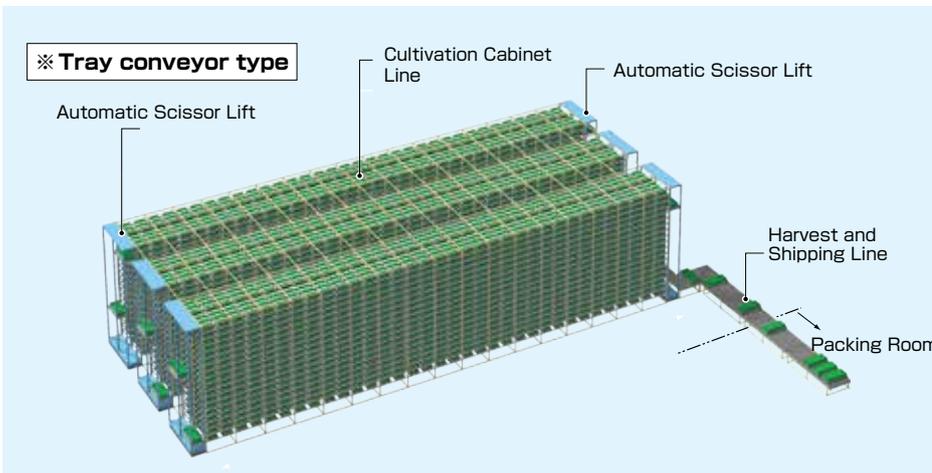
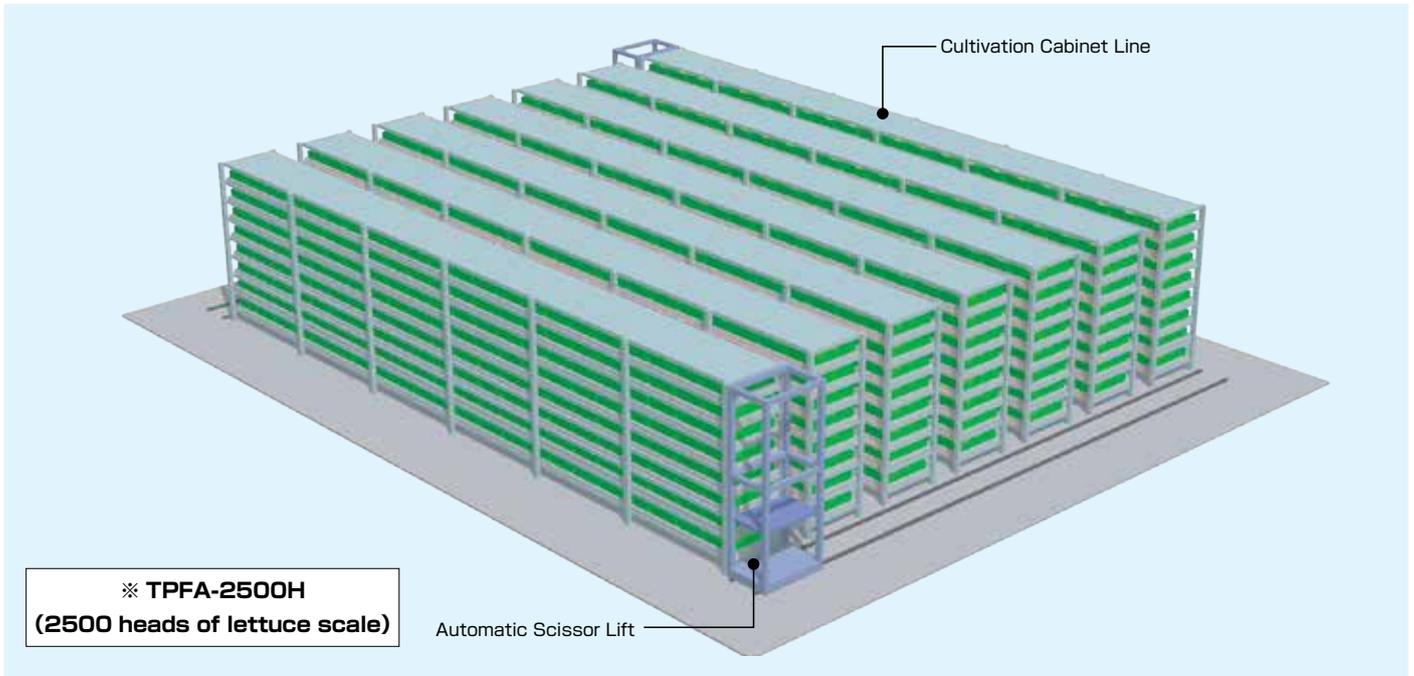
※ PPFD: Photosynthetic Photon Flux Density

# Plant Factory

## High Multistage Plant Factory

### TPFA-H

- Multistage Type: 7 to 12 stages (DFT method)
- Cultivation Panel: Plastic panel (High durability) or Formed panel (Low cost)
- Float Panel: Float cultivation panel on the nutrient solution achieves easy panel moving work.
- Option: Electric scissor lift



### Specifications

Model		TPFA-H
Performance	Temp. range	+18 ~ +25 °C
	RH range	60 ~ 90% RH (Option)
	PPFD	150 ~ 300 $\mu\text{mol m}^{-2} \text{s}^{-1}$
	CO <sub>2</sub>	~ 2000 ppm (Option)
Light source		LED (W, R, G, B)
Air conditioning		Packaged Air Conditioner
Control	Instrumentation	Control system for plant cultivation (PC control)
	Sensor	Temperature, Humidity, CO <sub>2</sub> , EC, pH, etc
	Cultivation system	Hydroponic System (Available any type)

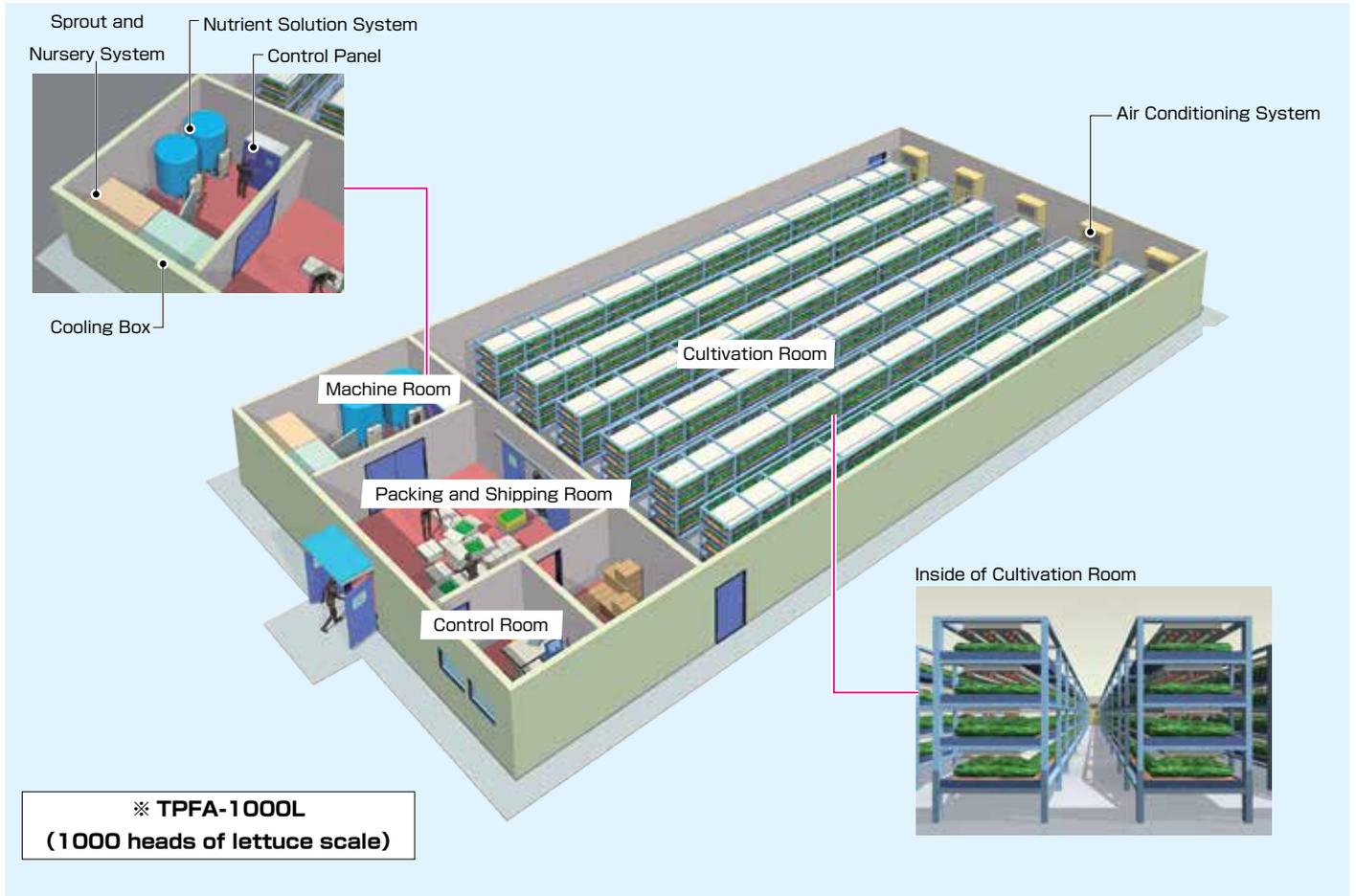
※ PPFD: Photosynthetic Photon Flux Density

# Plant Factory

## Middle Scale Plant Factory (Multistage Type)

### TPFA-L

- Multistage Type: 3 to 6 stages (DFT or NFT)
- Light Source: LED or FL (Fluorescent light)



### ○ Multistage



### Specifications

Model		TPFA-L
Performance	Temp. range	+18 ~ +25 °C
	RH range	60 ~ 90% RH (Option)
	PPFD	150 ~ 300 $\mu\text{mol m}^{-2}\text{s}^{-1}$
	CO <sub>2</sub>	~ 2000 ppm (Option)
Light source		LED (W, R, G, B)
Air conditioning		Packaged Air Conditioner
Control	Instrumentation	Control system for plant cultivation (PC control)
	Sensor	Temperature, Humidity, CO <sub>2</sub> , pH, etc
Cultivation system		Hydroponic System (Available any type)

※ PPFD: Photosynthetic Photon Flux Density



# Plant Factory

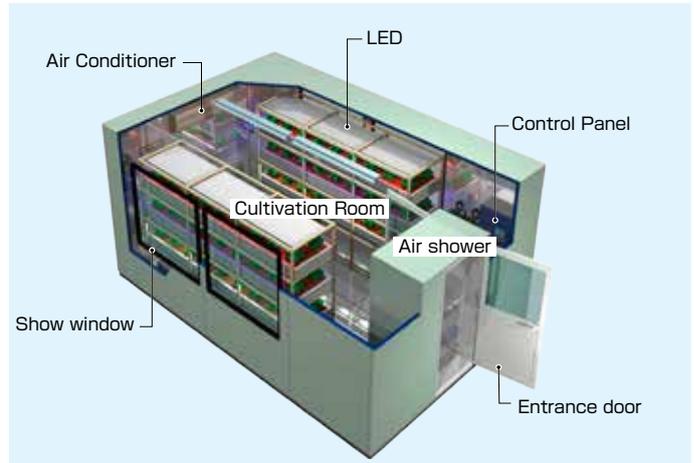
## Unit house type

### TAPSH-1 (Insulation Panel Type)

- Multistage Type: 3 to 4 stages (DFT or NFT)
- Plant: Leaf vegetable and Fruits vegetable (i.e. Tomato)
- Option: Air shower

### Specifications

Model	TAPSH-1
Size	W3000 × D4000 × H2500 mm
Cultivation cabinet No.	3stages × 2lines
Temp. range	18 ~ 25 °C
RH range	50~90% RT( オプション)
CO <sub>2</sub>	~ 3000 ppm
Light source	LED ( W, R, G, B)
Instrumentation	Simple Instrumentation ・ Touch Panel
Hydroponics	Standard Equipment
Electric Power	AC 100 V or 200 V



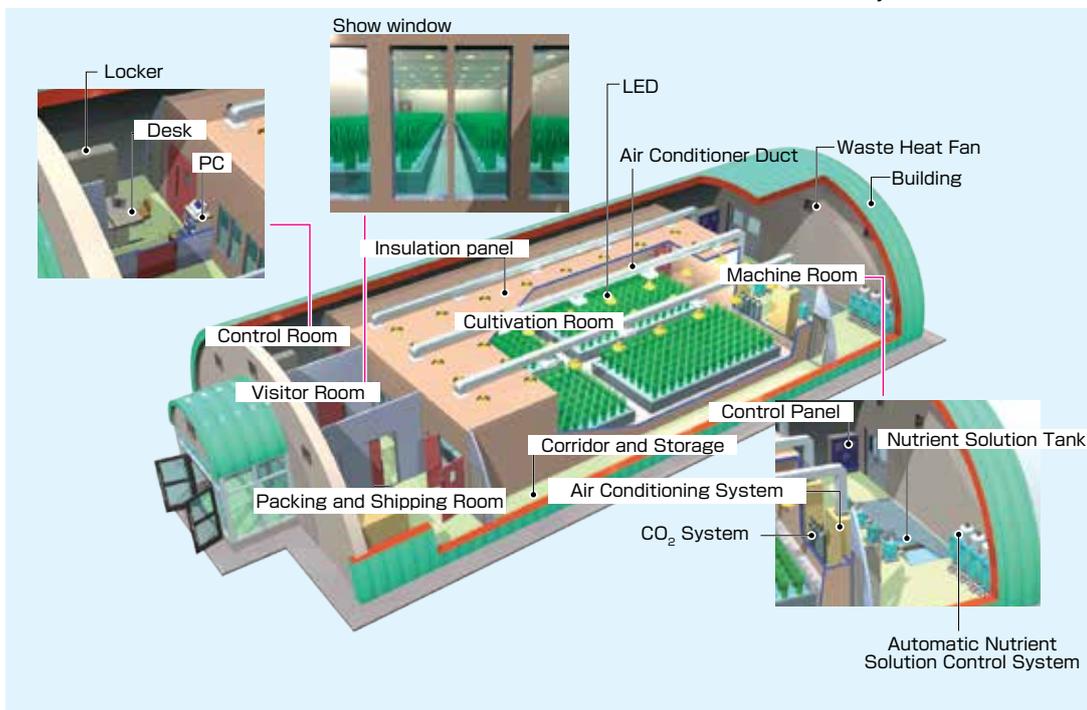
### TPFA (Flat Type Plant Factory)

- Cultivation Bed: Flat type (DFT or NFT)
- Light Source: High illumination HID lamp (over 50,000 lux)
- Plant: Leaf vegetable, Fruits vegetable, and Crop (i.e. Rice and Wheat)
- Special: Waste heat system, and Moving cultivation bench system

### Specifications

	Model	TPFA
Performance	Temp. range	+18 ~ +25 °C
	RH range	60 ~ 90% RH (Option)
	PPFD	150 ~ 300 μmol m <sup>-2</sup> s <sup>-1</sup>
	CO <sub>2</sub>	~ 2000 ppm (Option)
	Light source	LED ( W, R, G, B)
	Air conditioning	Packaged Air Conditioner
Control	Instrumentation	Control system for plant cultivation (PC control)
	Sensor	Temperature, Humidity, CO <sub>2</sub> , pH, etc
	Cultivation system	Hydroponic System (Available any type)

※ PPFD: Photosynthetic Photon Flux Density



# Plant Factory

## Container Type Plant Factory

### TAF (20ft and 40ft Container Type)

- Container: Refrigerating transportation container (20ft and 40ft)
- Cultivation System: Hydroponic system, LED light, and air conditioner etc. are all packaged.
- Low Cost: Low installation and shipping costs
- Installation Site: Everywhere if you can get electricity and water
- Customizable: Each container can be connected.



### Specifications

Model		TAF-12A	TAF-24A
Performance	Temp. range	+18 ~ +25 °C (通常使用時)	
	RH range	~ 2000 ppm	
	PPFD	150 ~ 300 $\mu\text{mol m}^{-2}\text{s}^{-1}$	
	Wind Speed	under 0.5m/s	
Light Source		LED	
Control	Cooling	Air cooling	
	Heating	Heater	
	Humidification	Humidifier (Option)	
Cultivation system		DFT, NFT, Airoponics, Culture medium	
Size (mm)		W2400 × D6100 × H2600	W2400 × D12200 × H2600
Flower space (m <sup>2</sup> )		11.6	25.2
Electric Power		AC200V 3 $\phi$ 50/60 Hz	

※ PPFD: Photosynthetic Photon Flux Density



○ 40ft Type



○ 20ft Type



○ Inside (Strawberry)



○ Transportation



○ Connected 40ft type



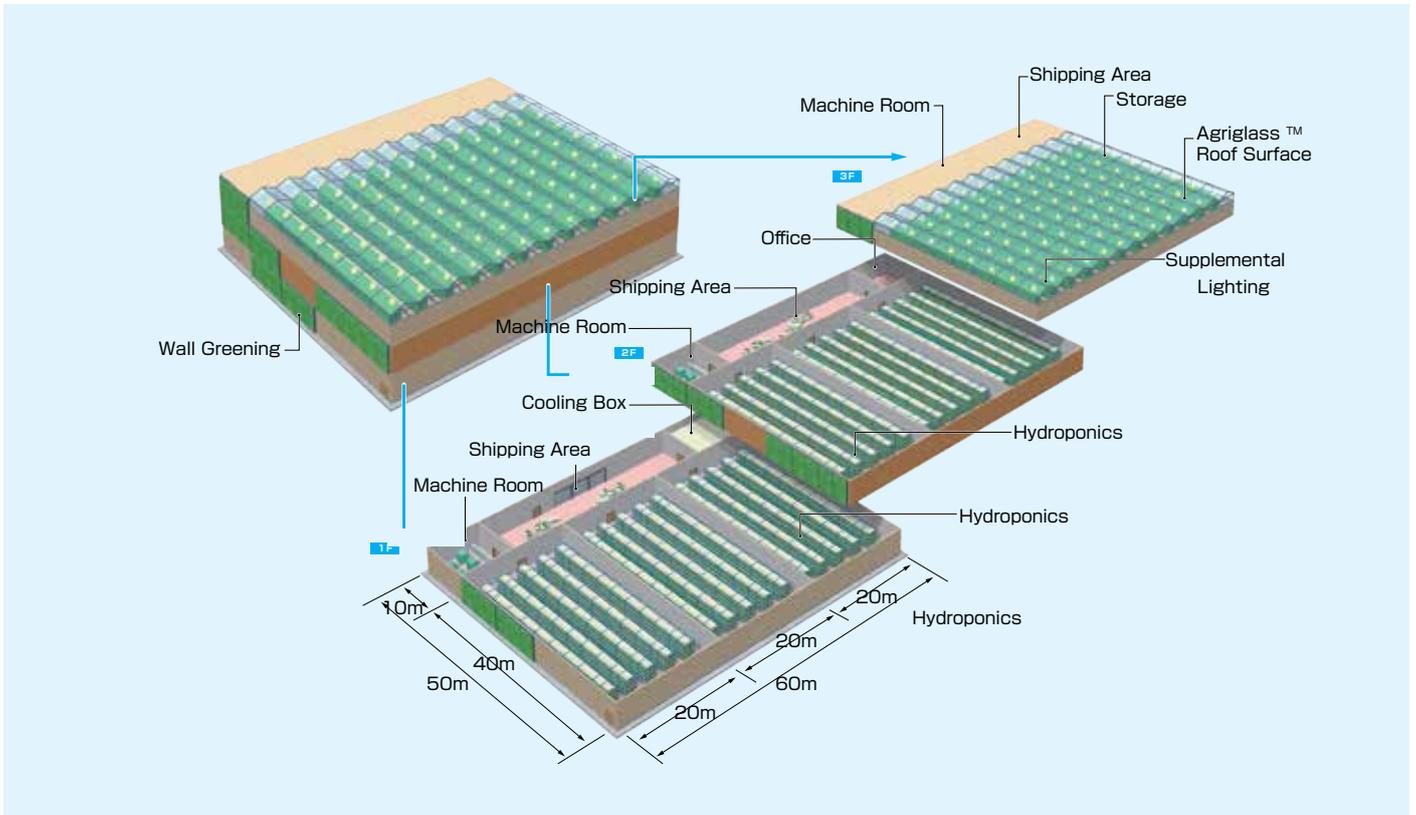
○ Inside (Ice plant)



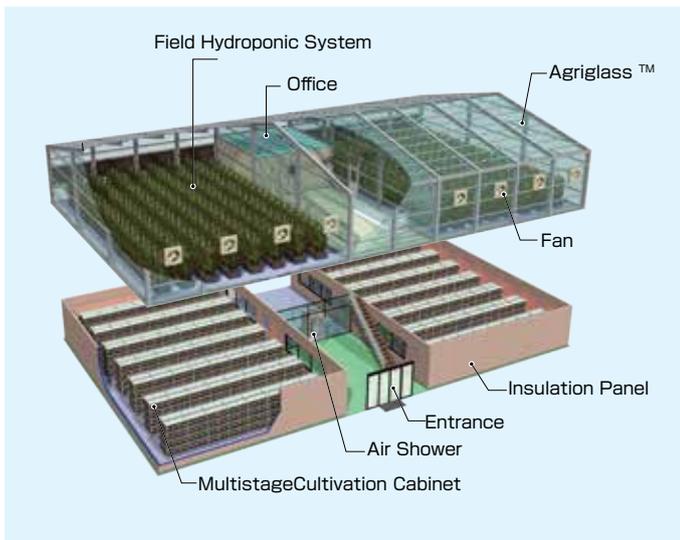
# Plant Factory

## Artificial Light and Solar Light Combination Type

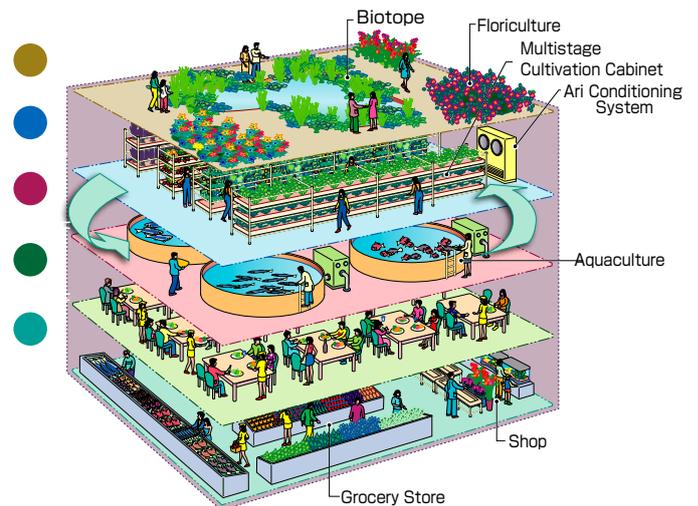
- Light Source: Artificial light (LED, FL, and HID etc.) and Solar light
- Vegetables: Leaf vegetables (i.e. lettuce and herbs) using artificial light and fruits vegetables (i.e. tomato and paprika) using solar light
- Hydroponics: DFT, NFT, Airoponics, Culture medium, and Aquaponics
- It can establish together with a restaurant or grocery store.



### ○ complex type



### ○ urban farm



**ESPEC MIC CORP.** <http://www.especmic.co.jp>

AGRI-BIO Dept.

3-5-6, Tenjinbashi, Kita-Ku, Osaka 530-8550 Japan

Tel : +81-6-6358-4855 Fax : +81-6-6358-4856

● Please note that specifications and designs may change without prior notice for improvement of products.

● The specification and designs of the products in this catalog are true as of July 2018.