



**CERES**  
GREENHOUSE SOLUTIONS®



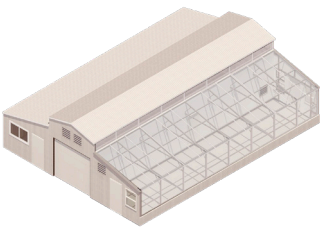
# GREENHOUSE CATALOG

# PART I: STANDARD GREENHOUSES



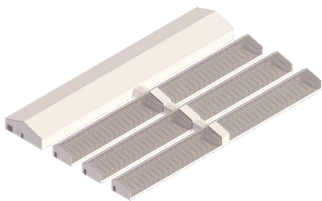
HighYield™ Kits

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Attached Headhouses

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Commercial Facility Layouts

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# PART II: SYSTEMS & ADD-ONS



Vented & Sealed Systems

**p. 9**

List of Systems and Upgrades

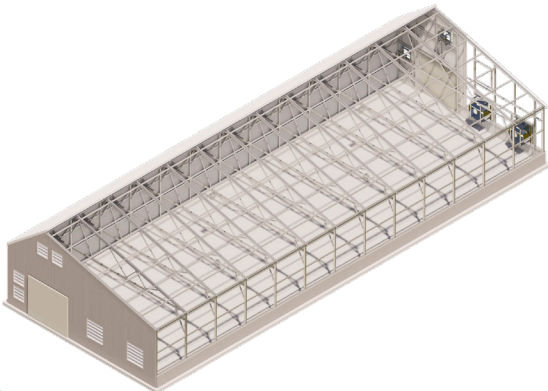
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# HIGHYIELD™ KITS

Our best selling commercial greenhouses (though not limited to commercial uses). HighYield™ Kits can be arranged in various layouts, connected with corridors and headhouse(s). For more information about head-houses and modular layouts see page 5.



**6,4x** **Width:** 6,40m  
**Length:** Starting at 8m  
**Peak height:** 6m  
**South Wall height:** 4m



**9,6x** **Width:** 9,6m  
**Length:** Starting at 12m  
**Peak height:** 6m  
**South Wall height:** 4m

*\*Wind, snow, and equipment loads will determine the truss spacing and final length of the HighYield™ Kit.  
\*\*Please consult with a Ceres representative for exact frame to frame dimensions*



## CASE STUDY

*Greenshaus, Inc. is a commercial hydroponic lettuce growing operation in Ontario using Ceres' HighYield™ Kit and a GAHT® system for heating. Supplemental LED lighting and climate conditions are controlled by the SunSense™ automated controller.*



# ATTACHED HEADHOUSES

Each one of these facility layouts includes a greenhouse attached directly to a headhouse, allowing for convenient access to storage and processing areas

## SOL

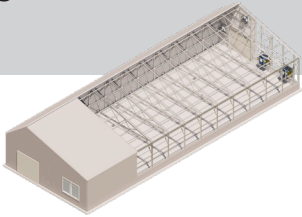
### Dimensions:

**Width:** 9,6m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** 5,2m, 5,6m, 6,0m



## VENUS

### Dimensions:

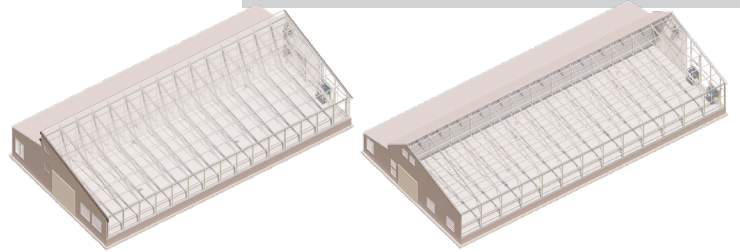
**Width:** 6,4m, 9,6m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** Depends on width

**Headhouse width:** 3,2m, 3,6m



## HIGHYIELD BARN™ KIT

### Dimensions:

**Width:** 11m

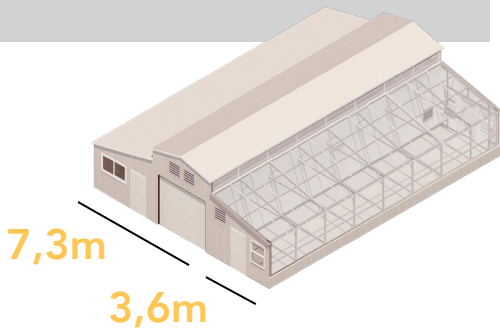
**Lengths:** 11m, 14,6m, 18,3m, 22m

**Peak height:** 4,4m

**Low eave height:** 2,4m

**High eave height:** 4m

**GH partition wall height:** 3,4m



*\*Wind, snow, and equipment loads will determine the truss spacing and final length of the Attached Headhouse HighYield™ Kits*

*\*\*Please consult with a Ceres representative for actual frame to frame dimensions*

# HEADHOUSES & MODULARITY

## STANDALONE HEADHOUSES

Headhouses are non-glazed attached structures used for purposes such as processing, storage, cleaning, etc. Custom sizing is available.

## HEADHOUSE WIDTH OPTIONS



## MODULAR DESIGN

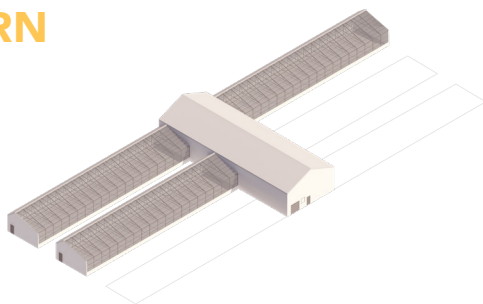
Modularity implies that greenhouses can continuously be built over time and in phases. The facility layout is tailored to client needs and site conditions.

Benefits include:

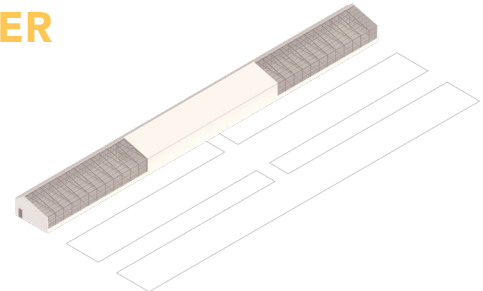
- Biosecurity
- Ability to stagger harvest schedule
- Precision control of individual grow environments
- Ease of expansion

*\*Facilities can expand in a variety of ways. See below for common approaches to phasing the build.*

## SATURN



## JUPITER



# FACILITY LAYOUT

## COMMERCIAL

### INLINE COMMERCIAL: NEPTUNE

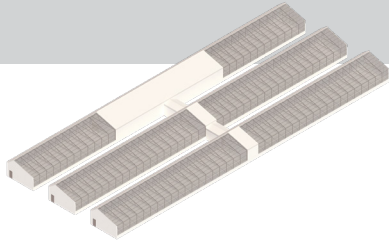
#### Headhouse Dimensions:

**Width:** 9,6m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** 5,2m, 5,6m, 6,0m



### CORRIDOR CONNECTED: JUPITER

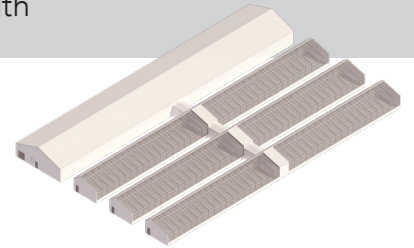
#### Headhouse Dimensions:

**Width:** 9,6m, 12,8m, 18,0m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** Depends on width



### HEADHOUSE CONNECTED: SATURN

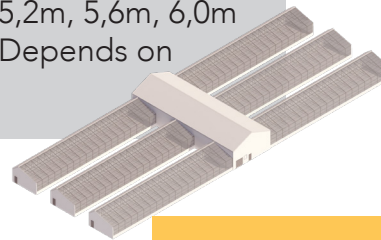
#### Headhouse Dimensions:

**Width:** 9,6m, 12,8m, 18,0m

**Length:** Any

**Eave height:** 5,2m, 5,6m, 6,0m

**Peak height:** Depends on width



### PROCESS FLOW: APOLLO

#### Headhouse Dimensions:

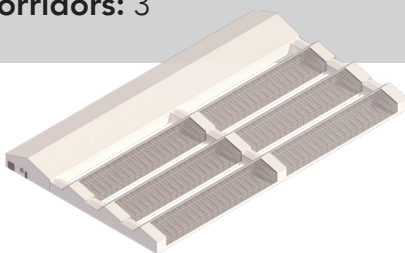
**Width:** 9,6m, 12,8m, 18,0m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** Depends on width

**Corridors:** 3



### PROCESS FLOW: ZEUS

#### Headhouses (2) Dimensions:

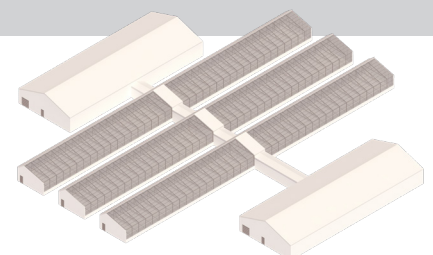
**Width:** 9,6m, 12,8m, 18,0m

**Length:** Any

**Eave height:** 3,2m, 3,6m, 4,0m

**Peak height:** Depends on width

**Corridors:** 1





## CASE STUDY:

Green Lynx farm is comprised of 1,125 m<sup>2</sup> of greenhouse, with a central 250 m<sup>2</sup> insulated head house. The first three hybrid grow houses were constructed in the Spring of 2018 and are each 9m x 23m. The final hybrid grow house was finished in 2019, and is the biggest structure at 9m x 46m. This greenhouse complex is used as a clone production facility in the early Spring to provide clones for outdoor hemp farms. It is also used as a breeding facility, where the individual greenhouse environments allow the growers to test out different growing climates and production methods. Green Lynx is a vented facility and uses wet walls for evaporative cooling to keep temperatures down in the summer.



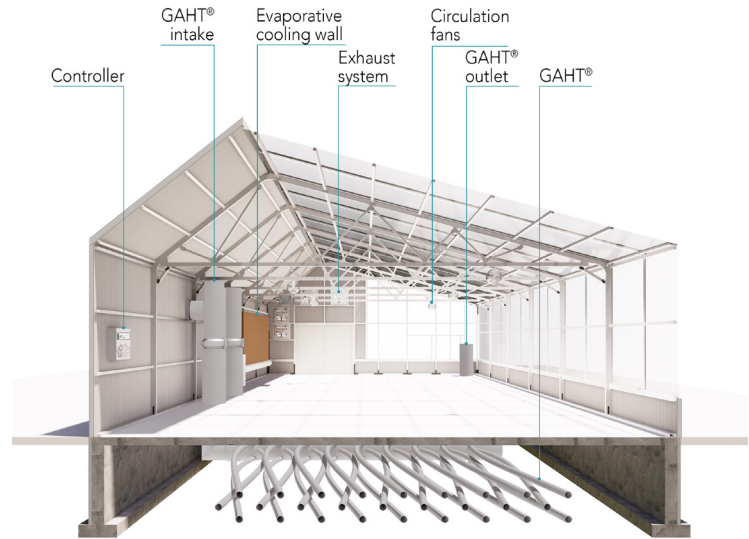
## ALL GREENHOUSES INCLUDE:



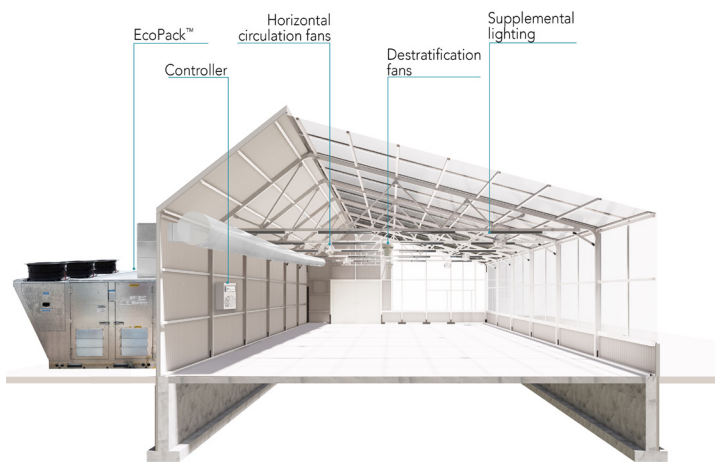
- Steel Framing
- Glazing
- Insulated Panels
- Trim
- Exhaust System (optional)
- Doors
- Windows (optional)
- Stamped MEP plans (optional)
- Construction Support

# VENTED SYSTEM

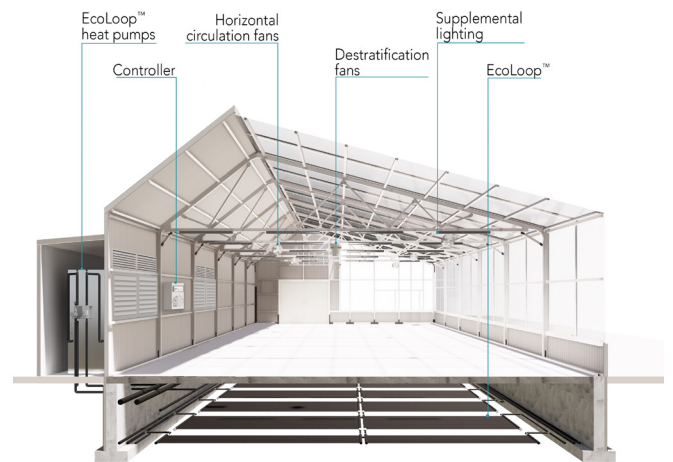
A vented greenhouse is a good option when precision control over temperature and humidity is not necessary.



# SUNCHAMBER™ SYSTEM



ECOPACK™



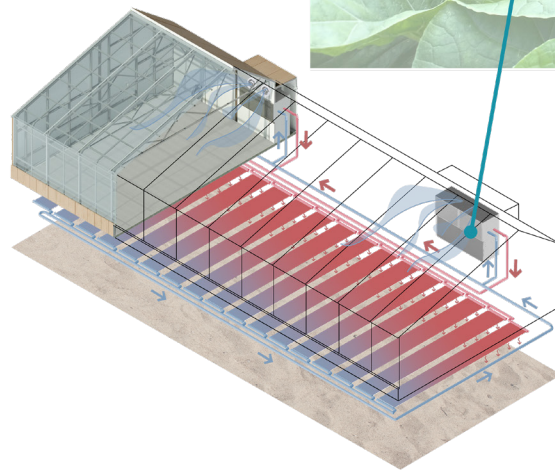
ECOLOOP™

A sealed greenhouse offers precise and independent climate control of both temperature and humidity. Optimize, increase and predict yields, as well as increased biosecurity.



# COMPREHENSIVE LIST OF SYSTEMS & UPGRADES

- SunSense™ controller
- Shade/energy curtain
- Light deprivation systems
- Heating & cooling systems
  - EcoLoop™/EcoPack™
  - GAHT®
  - Evaporative cooling
- Dehumidification
- High pressure fogging
- Supplemental lighting
- Water treatment
- Fertigation
- Grow systems
- Biosecurity
- Benches
- Air circulation
- Odor control



# COLOR AVAILABILITY CHART

Sandstone



Light French Gray

Royal Blue



Tundra

Regal White



Medium Bronze

Pearl Gray



Reddened Earth

Surrey Beige



Warm White

# QUALITY BY DESIGN

## WHAT IS QbD?

A systematic approach to product and process development in order to deliver safe, consistent products while emphasizing manufacturing efficiency.

Ceres applies QbD principles to building materials, workflow, data analysis and systems selection and integration.

## DESIGN CONSIDERATIONS:

- Biosecurity
- Employee workflow
- Environmental consistency
- Measurability
- Manufacturing efficiency

## ADVANTAGES:

- Product consistency
- Risk management / minimal crop failure
- Effective control of change
- Return on investment / cost savings
- Supports GMP principles



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