



CONVIRON
GROWTH HOUSE™

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The Conviron Growth House™ offers the large growth capacity of a research greenhouse with the tight temperature, light and humidity controls of a reach-in chamber.

Ideal for large scale plant propagation studies requiring a growth area anywhere from 300 ft² to 2000 ft² or above, the Conviron Growth House™ can be configured to fit a designated area inside your existing facility or installed outdoors as an adjacent or stand-alone structure.

Lighting

Various lighting configurations are available. For example, units can be designed with a High Intensity Discharge (HID) lighting and support system similar to that used in a high-performance research greenhouse. This enables units to achieve light level intensities similar to those of Conviron's standard walk-in rooms. Other lighting systems, features and options can be designed to your specifications.



“The Conviron Growth House™ offers the exceptional growth capacity of a greenhouse with precise environmental controls you find in a reach-in growth chamber.”

Airflow

Using an innovative design, a top-down airflow pattern uniformly disperses conditioned air from the top of each plenum and returns the air through conditioning coils located at the bottom of the chamber area. Filtered and adjustable fresh air intake and exhaust openings enable researchers to manage exchange air to the chamber.

Refrigeration

Cooling for the Conviron Growth House™ is provided by a self-contained water-cooled condensing unit with hot gas bypass for continuous compressor operation. An electronic modulating valve provides tight temperature control while ensuring quiet operation. Pressure transducers monitor the status of the refrigeration system. Alternative refrigeration methods are available depending on site-specific and/or user defined requirements. Information on heat rejection and other refrigeration options are available upon request.

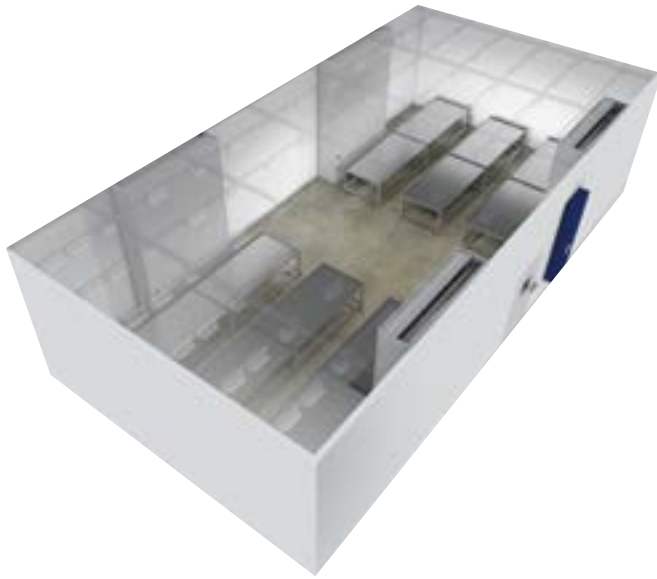
Experiment Protection

User programmable alarms track the unit’s operation versus user-defined set points. This allows for exceptionally accurate monitoring without the need for adjustment every time the set point is redefined. Backup “high/low” alarms provide a further level of protection while visual and audible notification is provided when any alarm is activated. Contacts for connection to a building management system are also included.



Irrigation, Fertigation and Phenotyping

To maximize floor space and reduce plant handling and maintenance associated with large scale plant growth experiments, units can be equipped with a plant conveyor system and outfitted with automated irrigation and fertigation capability. For highly specialized phenotyping applications, imaging and high throughput screening systems can also be integrated.



Interior Installation

The Conviron Growth House™ offers a compelling alternative for scaling up research experiments compared to what has historically required a greenhouse or multiple controlled environment rooms. Installed indoors, the Conviron Growth House™ can make use of available space and integrate seamlessly into the research facility. Available in many size configurations, the Conviron Growth House™ ensures available space within your facility is fully utilized - maximizing your growth area.

Overhead view of Conviron Growth House™
(ceiling not shown)



View from inside



Exterior Installation

Should space be a limitation at your facility, the Conviron Growth House™ can be constructed at a suitable location outdoors - adjacent, near your lab or on a rooftop.

Constructed with bonded paneling, the interior of the growth house is not visually exposed as it is with a greenhouse and therefore light pollution is eliminated and the security of the facility and the experiment is enhanced.

Aerial view of Conviron Growth House™ installed adjacent to existing lab.



Cross section view

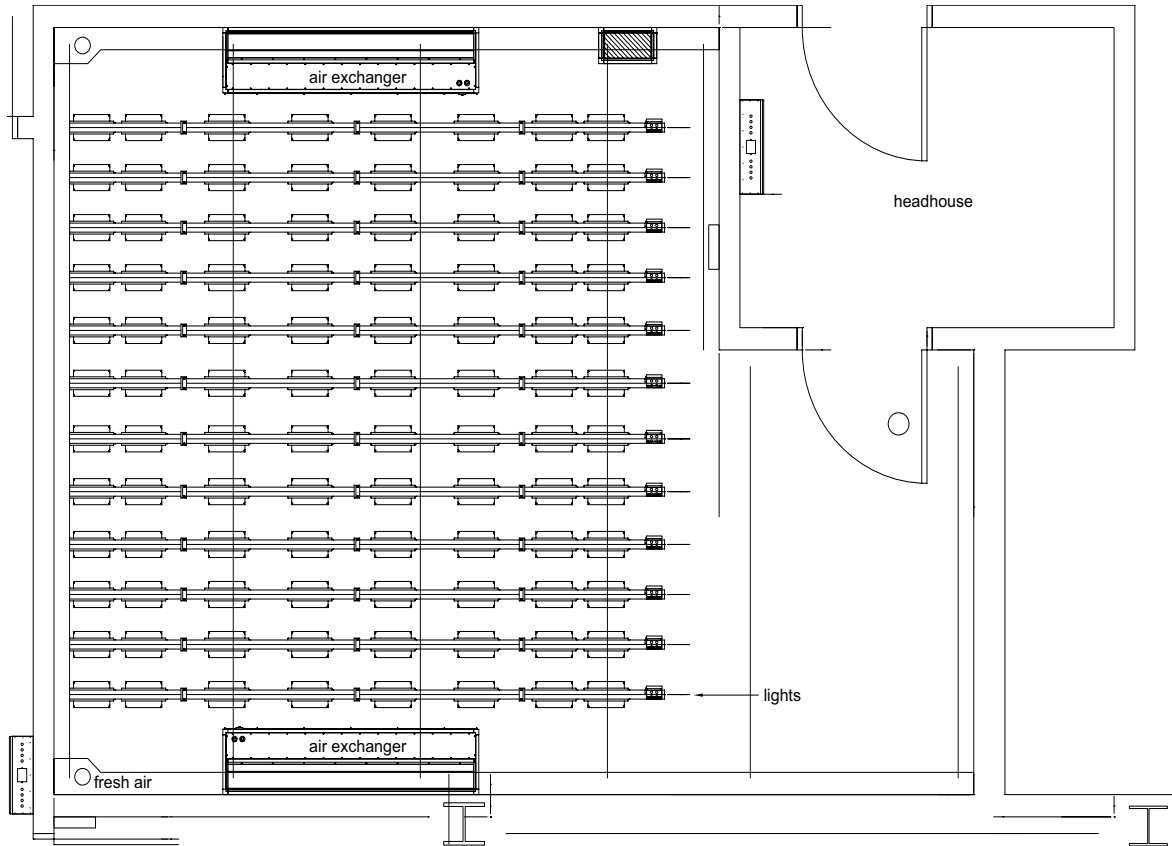
Key Product Attributes

- Exceptionally large growth area
- Precise and repeatable environmental control including Temperature, Light and Humidity
- Customizable options include lighting, refrigeration, additive CO₂, irrigation, fertigation, and construction method
- Optional construction for outdoor use
- Integration with plant conveyor and high throughput plant phenotyping systems



Customizable Dimensions

The length, width and height of a Conviron Growth House™ are fully customizable. A typical plan view is shown below.



Performance Data

Sample Sizes (ft ²)	Temperature Range (°C)	Light Intensity (~1m from lamp)	Relative Humidity (%)
300	15 – 35 lights on 12 – 35 lights off	up to 1100 $\mu\text{moles}/\text{m}^2/\text{s}$ @ 25°C	≤ 75
600			
1200			
2000			

*Designs in excess of 2000 ft² also available.

Conviron - Head Office

Winnipeg, Manitoba, Canada
Toll Free: 1-800-363-6451

Conviron - US

Pembina, North Dakota, USA
Toll Free: 1-800-363-6451

Conviron Europe Ltd.

Isleham, Cambridgeshire, UK
Toll Free: +44 (0)800 0326422

Conviron Germany GmbH

Berlin, Germany
Tel: +49 (0) 30 - 367 00660

Conviron Science and Techonology (Shanghai) Co. Ltd.

Shanghai, China
Tel: +86 21 62147582

Conviron Asia Pacific Pty Ltd.

Melbourne, Australia
Toll Free: 1300 438 912

www.conviron.com

info@conviron.com



Management System Certified to ISO 9001

Rev.:1, Jun4, 2017

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