

Plant Growth Room MGR Walk In Room



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Product Overview/Applications

The MGR series of walk-in rooms, available in six standard sizes, is a highly economical platform for providing a controlled environment in a walk-in configuration. This series of chamber offers low to moderate level light intensities using multiple light canopies. The temperature range is narrower than on other Meditech walk-in chambers which affords greater energy efficiency and economy. The multi-lamp-canopy configuration enables researchers to have several experiments running simultaneously with plants at varying levels of maturity.

Lighting

The standard lighting package for the MGR series is a low to moderate level light intensity design that incorporates both fluorescent and incandescent lamps. This ensures a broad based light spectrum that is ideally suited for plant growth. Multiple lighting levels are provided with the ability to program lamp groups separately while the adjustable Light right canopy enables the researcher to easily raise and lower the lamps to the desired height. Higher light intensities area available on this model.

Airflow

The airflow design directs air downward along the center aisle way. Air is then redirected returning upward between the plants and through the lamp canopies. Filtered and adjustable fresh air intake enables researchers to exchange air to the chamber in a controlled manner.

Refrigeration

Cooling for the GR series 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 are included for monitoring the status of the refrigeration system. Alternative refrigeration methods are available depending on site-specific and/or user defined requirements. Consult the factory for heat rejection information and other refrigeration options.

Experiment Protection

User programmable “set and forget” alarms track the chamber’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.

Key Product Attributes

- Multiple lamp canopies for varying plant maturity levels
- Efficient growth area-to-footprint ratio
- Economical platform
- Light right for enhanced flexibility of light intensity
- Product certifications/markings; CE



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Performance Data

	Temperature Range (°C)	Interior Capacity	Growth Area	Growth Height	Exterior Dimensions (WxDxH)	Light Intensities (6in. from lamp)	Electrical Service	Weight
MGR48	15°C to +35°C Lights On	320 ft ³	48 ft ²	80"	116" x 116" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	4200lb.
	5°C to +25°C Lights Off	9130 L	4.5 m ²	2030 mm	2950 x 2950 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(1905kg)
MGR64	15°C to +35°C Lights On	420 ft ³	64 ft ²	80"	139" x 116" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	5340lb.
	5°C to +25°C Lights Off	11900 L	5.9 m ²	2030 mm	3530 x 2950 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(2422kg)
MGR96	15°C to +35°C Lights On	640ft ³	96ft ²	80"	116" x 208" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	6800lb.
	5°C to +25°C Lights Off	(17900l)	(8.9m ²)	2030 mm	2950 x 5285 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(2768kg)
MGR128	15°C to +35°C Lights On	850ft ³	128ft ²	80"	139" x 208" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	6800lb.
	5°C to +25°C Lights Off	(23960l)	(11.9m ²)	2030 mm	3530 x 5285 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(3084kg)
MGR144	15°C to +35°C Lights On	960ft ³	144ft ²	80"	116" x 300" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	6800lb.
	5°C to +25°C Lights Off	(26800l)	(13.4m ²)	2030 mm	3530 x 5285 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(3084kg)
MGR192	15°C to +35°C Lights On	1280ft ³	192ft ²	80"	139" x 300" x 102.25"	500 μmoles/m ² /s	120-1Ø-60Hz	6800lb.
	5°C to +25°C Lights Off	(36000l)	(17.9m ²)	2030 mm	3530 x 5285 x 2600 (mm)	@ 25°C	220-1Ø-50Hz	(3084kg)

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1.0 Control System: 7" Meditech touch screen controller

GR48

2.0 Construction: (Note: All dimensions are nominal.)

- 2.1 Exterior Dimensions: 9'8"W x 9'8"D x 8'6.25"H (2950mmW x 2950mmD x 2600mmH)
(Note: Allow minimum 36" (915mm) above room for condensing unit.)
- 2.2 Interior Dimensions: 8'9.5"W x 9'0"D x 6'6.5"H (2680mmW x 2745mmD x 1995mmH)
- 2.3 Growth Area: 48 ft² (4.5m²).
- 2.4 Growth Capacity: 320ft³ (9,130 liters).
- 2.5 Growth Height: 80" (2030mm) from floor to Light right in the UP position.
- 2.6 Cabinet Construction: Wall panels of woodless construction with 4" (100mm) of foamed-in-place CFC-free polyurethane insulation.
- 2.7 Exterior Finish: White enamel baked on stucco 26ga. galvanized steel.
- 2.8 Interior Finish: White enamel baked on smooth 24ga. galvanized steel.
- 2.9 All panels assembled from interior with camlock fasteners.
- 2.10 Door: One (1) in-fitting 34" x 78" (865mm x 1980mm) door with inside safety release latch and cam-type self-closing hinges. Door has positive closer device, thermal plastic gasket with magnetic core, and door stop.
- 2.11 Observation Window: Dual pane with light tight cover 14"x 14" (355mm x 355mm).
- 2.12 Control Panel: Left hand, located on latch side of entrance door.

3.0 Lighting:

- 3.1 Intensity¹: Approximately 450 micromoles/m²/s using two (2) 35" x 96" (890mm x 2440mm) fluorescent/ incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor. (Higher light intensities are optional)
- 3.2 Programming and Control: Independent, 3 level programming of each lamp type.
- 3.3 Lamps: Balanced spectrum for plant growth using T8 fluorescent (T5 - Export) and tungsten incandescent lamps.
- 3.4 Lamp Heat: Removed by the refrigeration system.
- 3.5 Ballasts: High efficiency electronic and easily accessible.
- 3.6 Light Meter: Quantum light meter for display and recording of light output.

4.0 Temperature Control: (Maximum design ambient temperature is +35°C)

- 4.1 Range: +5°C to +25°C lights OFF; +15°C to +35°C lights ON.
- 4.2 Control²: ±0.5°C, at control point.
- 4.3 Temperature Safety Limits:
Primary: A programmable min and max temperature limit alarm or a limit tracking alarm that automatically follows the programmed set point.
Secondary: An independent factory-set high and low temperature limit is also provided for increased assurance. An audible alarm is standard for both limits. Activation of temperature safety limit set points turns off power to the chamber.
- 4.4 All components utilized for temperature control such as electric heaters energized and de-energized by solid state devices. No electro-mechanical relays or contactors.
- 4.5 Aspirator: Sensors are located in a self-contained, portable aspirator. This allows accurate measuring and recording by sensing at plant location.

¹ Average light measurement at 39" (1000mm) from lamp barrier on a 6-inch grid, ambient temperature of 25°C. Light intensities are nominal values measured at the rated chamber supply voltage.



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5.0 Refrigeration:

- 5.1 Condensing Unit: Cabinet is supplied with a water-cooled hermetically sealed condensing unit with hot gas bypass system for continuous compressor operation, extended compressor life and close temperature control. Condensing unit is located in the machine compartment, and includes a 3-way water modulating valve and hand operated shut off bypass valve. Maximum pressure drop across the condenser and water valve not to exceed 10psi (0.7 bar).
- 5.2 Valve: Electronic modulating valve that smoothly regulates the heating and cooling functions of the chamber.
- 5.3 Heat Exchanger Coil(s): Copper-tubed construction/aluminum fin.
- 5.4 Refrigerant: Refrigeration system is charged with CFC-free refrigerant.
- 5.5 Monitoring: a) Refrigeration system operation is monitored by the control system, including visual and audible alarm.
b) Pressure transducers allow for real-time diagnostics for preventative maintenance & repair.

6.0 Interior Conditioning Compartment:

- 6.1 Air in the room is re-circulated continuously by a conditioning unit suspended from the ceiling.
- 6.2 The conditioning unit contains all fans, heaters and valves necessary to meet the specified parameters
- 6.3 Fresh Air: Manually adjustable fresh air supply up to 100ft³/min (2.83m³/min) is filtered and conditioned prior to entering the growth area.

7.0 Humidity Control:(Optional)

- 7.1 Range: No control on basic unit. (Refer to Humidity under Optional Accessories)

8.0 Carbon Dioxide Additive Control: (Optional)

- 8.1 Range: No control on basic unit. (Refer to Carbon Dioxide Additive Control under Optional Accessories)

9.0 Utility Requirements³: (Rating increases with some options.)

- 9.1 Electrical Service: : 60Hz: 50Hz

(Alternative services available, consult factory)

1. Control Panel: 120/208-3Ø-60Hz-4 wire, plus ground
2. Condensing Unit: 208-230-3Ø-60Hz-3 wire, plus ground separate service
1. Control Panel: & Condensing Unit: 220/380-3Ø-50Hz-4 wire, plus ground

- 9.2 Drain: Floor drain must be provided within footprint of room.

10.0 Installation: (Optional)

- 10.1 Not Included, to be performed by customer. Installation is available upon request, please consult factory.
- 10.2 Should installation or technical support be required thorough Meditech Technical Service group, additional charges may apply.

² Measured by Precision Thermistors, measured without test materials or optional accessories.

³ This unit will tolerate ±10% voltage fluctuation from the rated voltage on the serial plate. A voltage stabilizer must be used if the fluctuation is greater than ±10%. Failure to do so can result in serious damage to the compressor and electronic components and will void warranty. Disconnect switch must be sized by a local qualified electrician.



PROGRAMMING Can be modified according to customers requirements

UPS Uninterrupted Power Supply
Surge protection and uninterrupted power supply, on controller only, for continuous operation of the controller during power interruptions, duration of the UPS is approx. 15 minutes. (Consult factory for increased duration, if required.)

LIGHTING

HID High Intensity Discharge Lighting
High intensity discharge lighting using metal halide and high pressure sodium lamps in two independent canopies with a light intensity of 650 micromoles/m²/s at a distance of 1 meter from the lamps. Canopies are fixed to the ceiling. Upon start-up, lamps experience a 5 to 10 minute warm up period before full light intensity is achieved.
Note: HID canopy reduces growth height by 9.5” (240mm). Amp draw changes, please consult factory. Please contact the factory for other lighting possibilities.

HUMIDITY (Based on +21°C and 50% RH ambient condition)

DHS Dry Humidity Sensor
Dry Electronic Sensor that directly measures and displays relative humidity in %RH by means of constant display on the Screen. (Not required if ordering additive humidity control option.)

CAH Additive Humidity
Range: Up to 90% RH lights OFF and 85% RH lights ON limited by a +25°C maximum dew point. Additive humidity, using centrifugal atomizing humidifiers. Range given in an empty chamber. Chamber may achieve higher levels with plant loading.
Programming: See Control System documentation.
Control ±3% RH. System includes the dry humidity sensor mounted in the portable aspirator. System must be supplied with clean water to the following specification; pH = 7.0 ± 0.5, filtration <2 microns (0.00008 in) and resistivity between 0.5 and 1.0 Meg Ohms. Maximum water usage to maintain specified levels is 1 liter/hour per humidifier.



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CONSTRUCTION

GH92	Growth Height Extension	Extended growth height by an additional 12" (300mm). Exterior height becomes 9'6.25" (2900mm). (Not including condensing unit.)
RHC	Right-Hand Control Panel	Right-hand control compartment gives you the convenience and flexibility to arrange your chambers in a compact orderly fashion, back to back and end to end, or to facilitate its location in any appropriate space.
CBS	Bench Shelving	Free-standing, adjustable corrosion resistant wire benching.
CART	Mobile Plant Carts	Eight heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber
GA	Additional Cabinet Sealing	Construction for gas injection experiments. Consists of silicone sealed joints, laboratory type inlet, exhaust valve, and oil-filled manometer. (Does not provide a "gas tight" environment.)
HB	Hose Bib	Interior hose connection for watering within growth area.
RECP	Receptacle	Wall mounted 2 amp convenience electrical receptacle within growth area (consult factory for additional amperage, if required).
RBC	Roller Blind Curtain	Ceiling mounted roller blind curtains to separate growth area from center aisle area. Increases uniformity of lighting and temperature control.
MAN	Manual	Additional Operator's Manual. (One supplied with basic unit.)



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Carbon Dioxide Additive Control

RAC	Remote Outdoor Air-Cooled Condenser	Remote outdoor air-cooled condenser complete with all weather housing, low ambient operation controls and low noise level operation. Remote location (up to 50' [15m] combined horizontal and vertical distance) of condenser only - compressor, receiver and other refrigeration components remain in cabinet machine compartment. Order "RACH" for climates with ambient temperatures from +35°C to +45°C for extended periods. Electrical: 60Hz - 208-230-1Ø-60Hz-3 wire plus ground, 50Hz - 220-1Ø-50Hz-2 wire plus ground. Consult factory for either amperages or other voltages available. Notes: 1. Inter-connecting refrigeration and electrical lines are not included and must be provided by others. 2. RAC and RACH require a separate electrical service. 3. For remote location distances over 50' (15m) please consult factory.
OACU	Outdoor Air-Cooled Condensing Unit	Outdoor air-cooled condensing unit containing condenser, compressor, receiver, suction accumulator, control and pressure regulating valves and electrical disconnect. The OACU comes complete with weatherized hood and crankcase heater for low ambient conditions. Inter-connecting refrigeration and electrical lines are not included and must be provided by others. OACU requires a separate electrical service. Electrical: 60Hz - 208-3Ø 60Hz-3wire plus ground, 50Hz - 400-3Ø-50Hz-3wire plus ground. Consult factory for either amperages or other voltages available.
GLY	Glycol	Glycol heating/cooling designed to work with a central chiller refrigeration system. Includes proportional valve control.
FMU	Floor Mounted Condensing Unit	Where ceiling space above cabinet does not allow roof top location, unit is placed on floor adjacent to cabinet. All refrigeration and electrical interconnecting piping and wiring is supplied, providing condensing unit is no more than 5'(1525mm) from cabinet.
ESSENTIAL SPARE PARTS		
ESP	Essential Spare Parts	Consult factory.
SLS	Spare Lighting Set	Consult factory.



Plant Growth Room MGR Walk In Room

FOLLOWING ARE THE DIFFERENCES BETWEEN “MGR SERIES” ROOMS

MGR64

- 2.1 Exterior Dimensions: 11'7"W x 9'8"D x 8'6.25"H (3530mmW x 2950mmD x 2600mmH)
(Note: Allow a minimum 36" (915mm) above cabinet for condensing unit)
- 2.2 Interior Dimensions: 10'8.5"W x 9'0"D x 6'6.5"H (3265mmW x 2745mmD x 1995mmH)
- 2.3 Growth Area: 64ft² (5.9m²).
- 2.4 Growth Capacity: 420ft³ (11,980 liters).
- 3.1 Intensity: Approximately 450 micromoles/m²/s using two (2) 47" x 96" (1195mm x 2440mm) fluorescent/incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor.
- 3.2 Mobile Plant Carts: Eight heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber.

MGR96

- 2.1 Exterior Dimensions: 9'8"W x 17'4"D x 8'6.25"H (2950mmW x 5285mmD x 2600mmH)
(Note: Allow a minimum 36" (915mm) above cabinet for condensing unit)
- 2.2 Interior Dimensions: 8'9.5"W x 16'8"D x 6'6.5"H (2680mmW x 5080mmD x 1995mmH)
- 2.3 Growth Area: 96ft² (8.9m²).
- 2.4 Growth Capacity: 640ft³ (17,900 liters).
- 3.1 Intensity: Approximately 450 micromoles/m²/s using four (4) 35" x 96" (890mm x 2440mm) fluorescent/ incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor.
- 3.2 Mobile Plant Carts: Sixteen heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber.

MGR128

- 2.1 Exterior Dimensions 11'7"W x 17'4"D x 8'6.25"H (3530mmW x 5285mmD x 2600mmH)
(Note: Allow a minimum 36" (915mm) above cabinet for condensing unit)
- 2.2 Interior Dimensions: 10'8.5"W x 16'8"D x 6'6.5"H (3265mmW x 5080mmD x 1995mm)
- 2.3 Growth Area: 128ft² (11.9m²).
- 2.4 Growth Capacity: 850ft³ (23,960 liters).
- 3.1 Intensity: Approximately 450 micromoles/m²/s using four (4) 47" x 96" (1195mm x 2440mm) fluorescent/ incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor.
- 3.2 Mobile Plant Carts: Sixteen heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber.



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FOLLOWING ARE THE DIFFERENCES BETWEEN “MGR SERIES” ROOMS

MGR144

- 2.1 Exterior Dimensions: 9'8"W x 25'0"D x 8'6.25"H (2950mmW x 7620mmD x 2600mmH)
(Note: Allow a minimum 36" (915mm) above cabinet for condensing unit)
- 2.2 Interior Dimensions: 8'9.5"W x 24'4"D x 6'6.5"H (2680mmW x 7420mmD x 1995mm)
- 2.3 Growth Area: 144ft² (13.4m²).
- 2.4 Growth Capacity: 960ft³ (26,800 liters).
- 3.1 Intensity: Approximately 450 micromoles/m²/s using six (6) 35" x 96" (890mm x 2440mm) fluorescent/incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor.
- 3.2 Mobile Plant Carts: Twenty four heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber.

MGR192

- 2.1 Exterior Dimensions: 11'7"W x 25'0"D x 8'6.25"H (3530mmW x 7620mmD x 2600mmH)
(Note: Allow a minimum 36" (915mm) above cabinet for condensing unit)
- 2.2 Interior Dimensions: 10'8.5"W x 24'4"D x 6'6.5"H (3265mmW x 7420mmD x 1995mmH)
- 2.3 Growth Area: 192ft² (17.8m²).
- 2.4 Growth Capacity: 1280ft³ (36,000 liters).
- 3.1 Intensity: Approximately 450 micromoles/m²/s using six (6) 47" x 96" (1195mm x 2440mm) Fluorescent/incandescent lamp banks. Each lamp bank is independently counterbalanced and adjustable, Light right from 18" (460mm) to 80" (2030mm) from the floor.
- 3.2 Mobile Plant Carts: Twenty four heavy duty 24" x 36" (610mm x 915mm) two tier, corrosion resistant wire plant carts for transport of plant material to and from chamber.

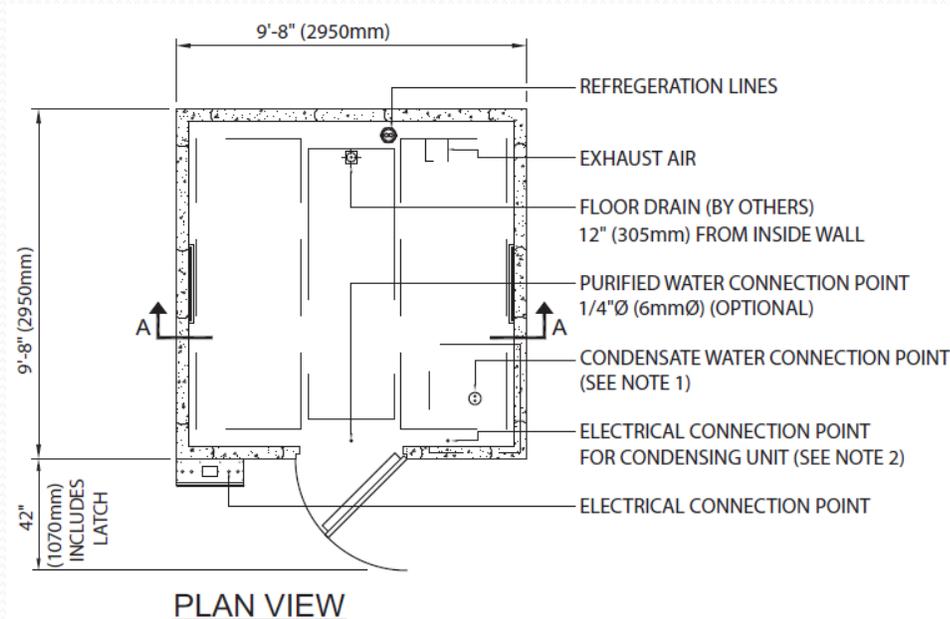
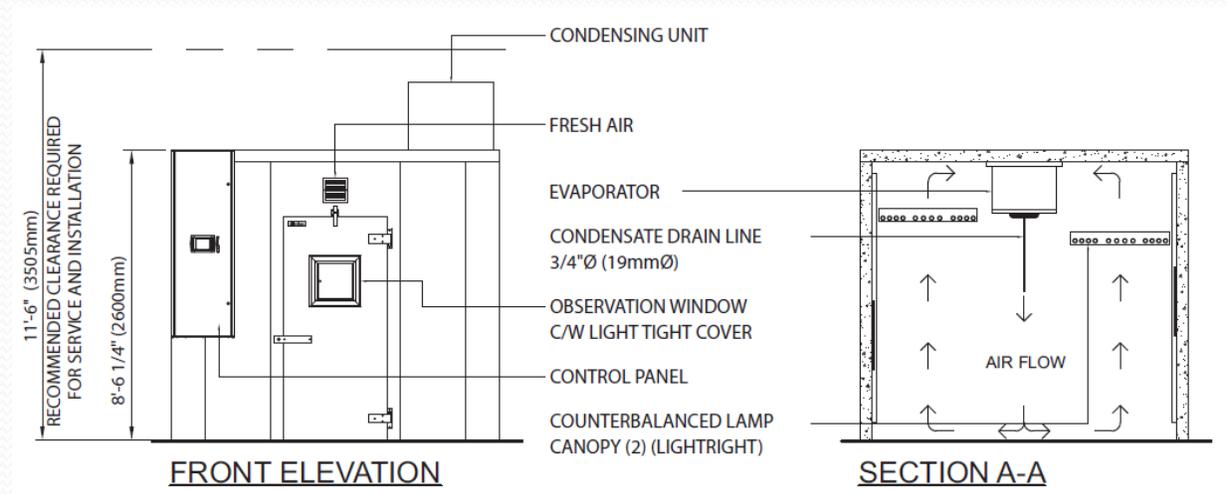


Plant Growth Room MGR Walk In Room

MGR48 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).

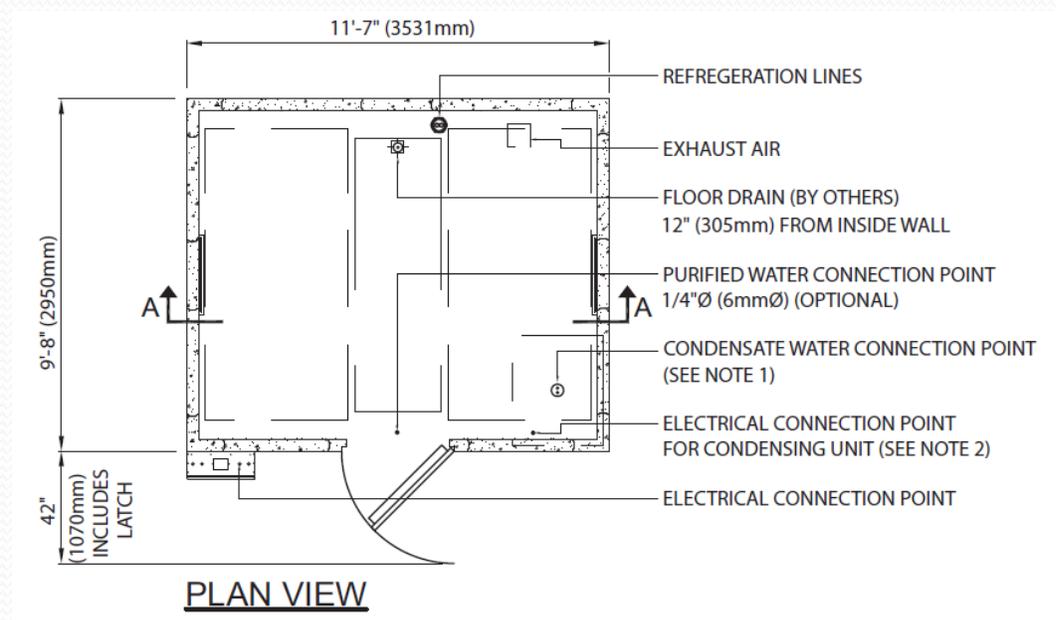
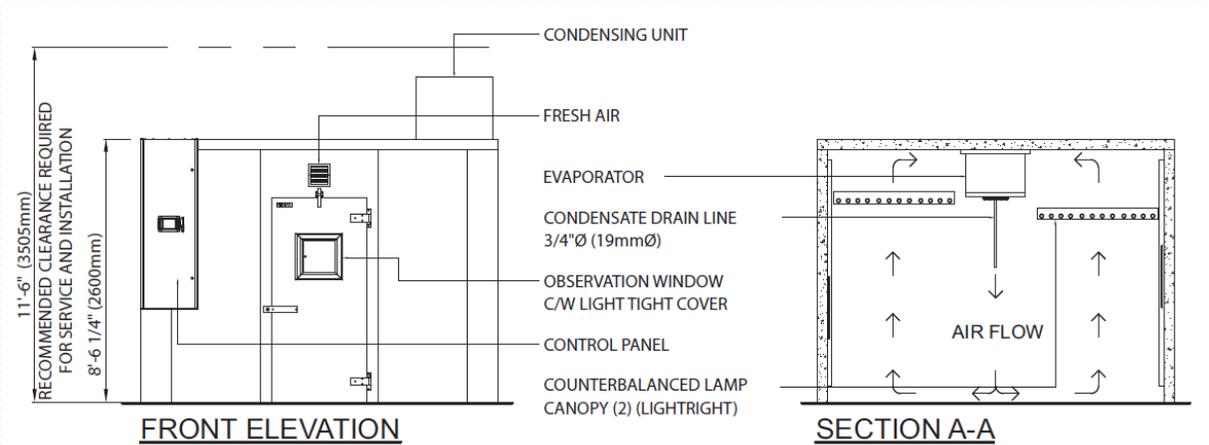


Plant Growth Room MGR Walk In Room

MGR64 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).

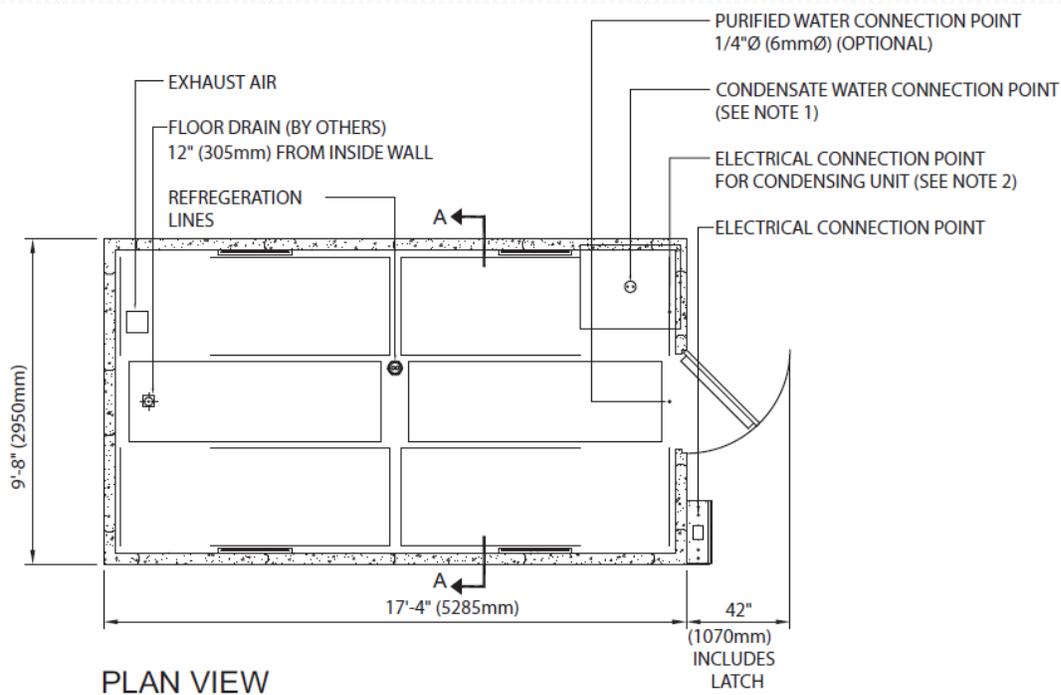
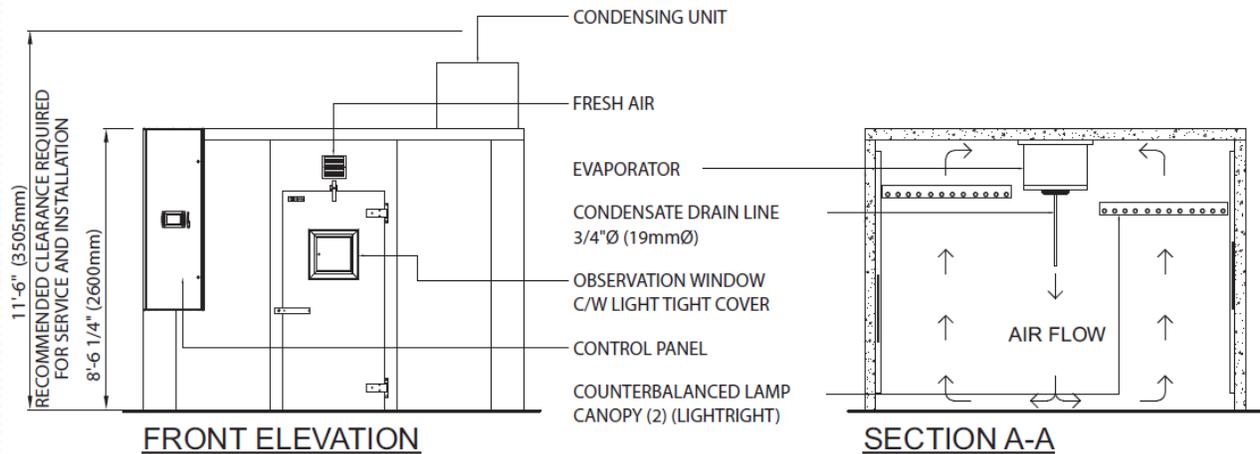


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MGR96 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).

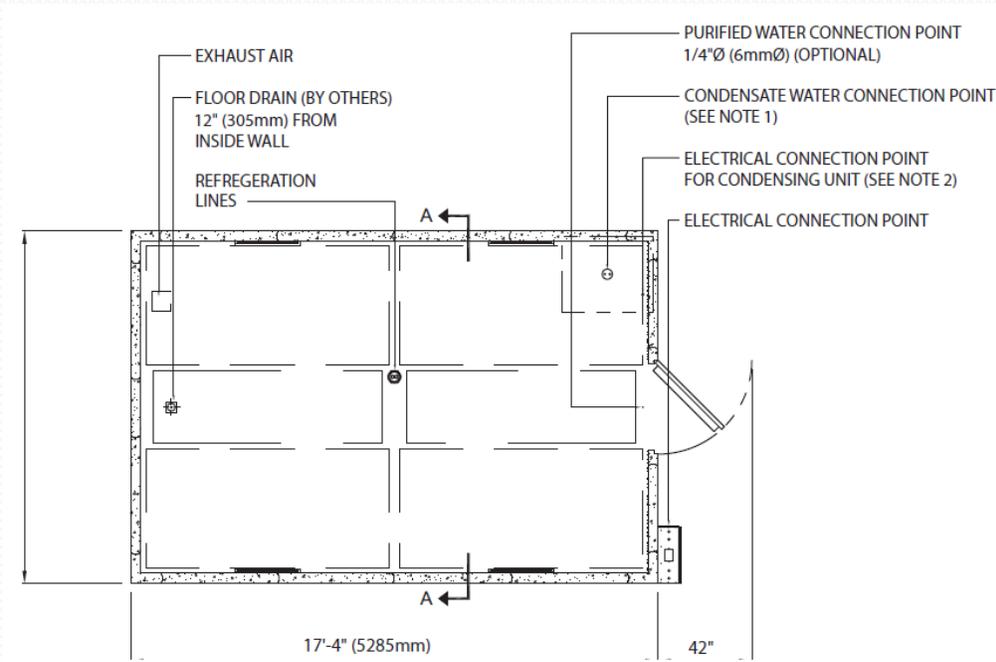
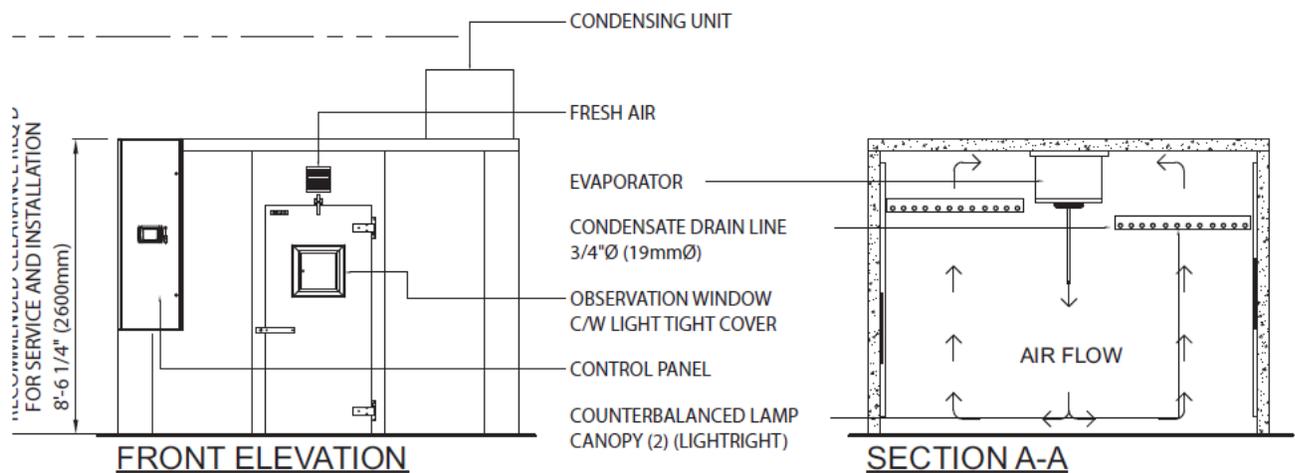


Plant Growth Room MGR Walk In Room

MGR128 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).

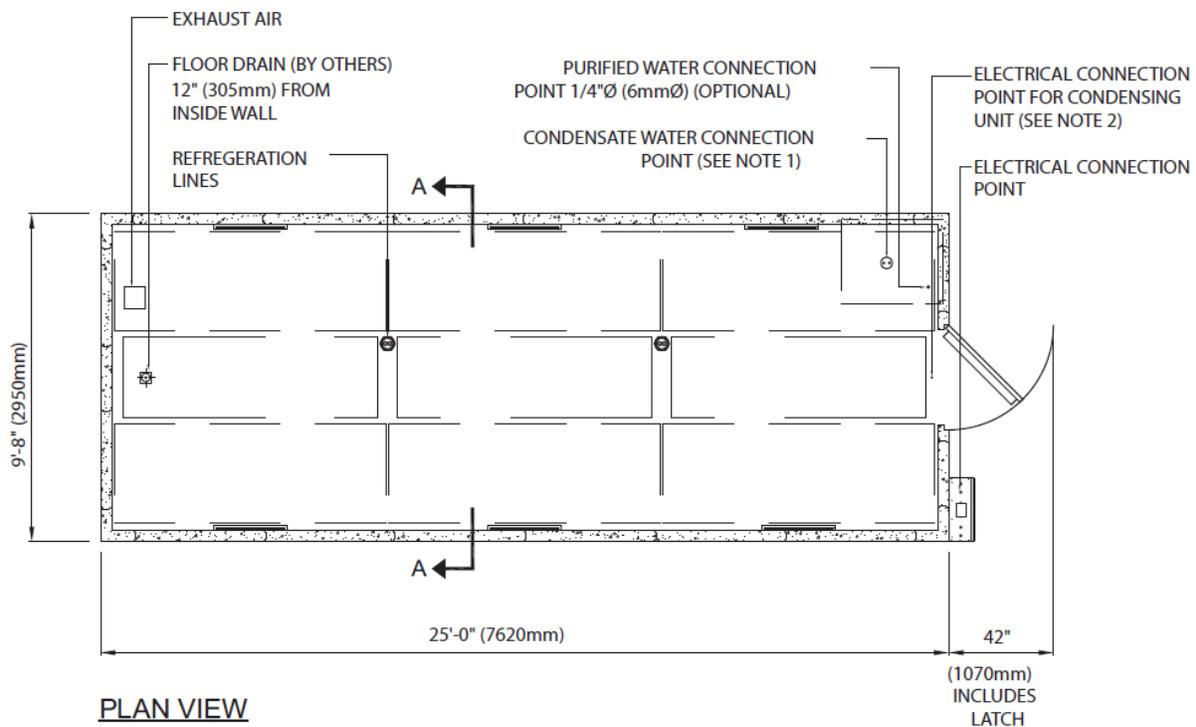
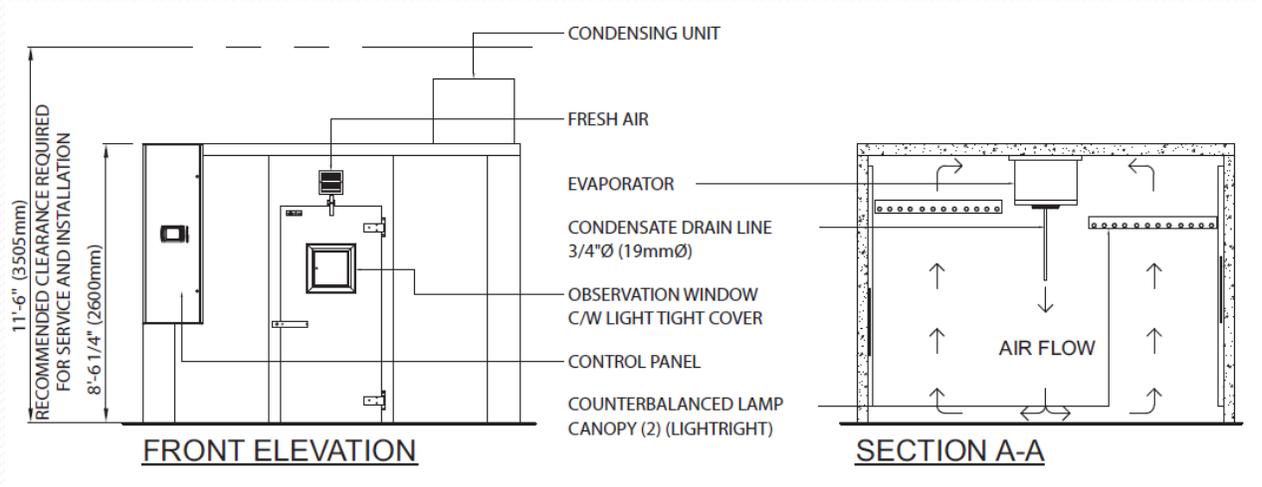


Plant Growth Room MGR Walk In Room

MGR144 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).



Plant Growth Room MGR Walk In Room

MGR192 PLANT GROWTH CHAMBER

NOTES:

1. STANDARD REFRIGERATION SYSTEM IS WATER COOLED (3/4"Ø (19mmØ) CONNECTION).
2. CONDENSING UNIT REQUIRES SEPERATE ELECTRICAL SERVICE (60HZ APPLICATION ONLY).
3. DEPTH DIMENSION IS CHAMBER SIZE ONLY. DIMENSION DOES NOT INCLUDE DOOR LATCH.
4. LENGTH AND WIDTH DIMENSIONS ±1/4 (6mm). HEIGHT DIMENSION ±1" (25mm).

