1. PROVIDE WOOD FOR SUPPORT OR ATTACHMENT OF OTHER

2. FRAMING MEMBERS SHALL HAVE PRIMER FINISH.

3. PROVIDE SPACERS, CHAIRS, BOLSTERS, ETC., NECESSARY TO

4. TO AVOID MARRING EXISTING FINISHED SURFACES, CUT OR

5. PRESSURE TREAT ALL WOOD MEMBERS EXPOSED TO

6. UTILIZATION OF CONSTRUCTION PANELS, SHEET ROCK, SAWN

7. PROVIDE SPACERS, CHAIRS, BOLSTERS, ETC., NECESSARY TO


9. SHEET ROCK, SAWN WOOD, MASONRY, METALS OR THEIR ESTIMATES.

10. PROVIDE LUMBER OF SIZES INDICATED, WORKED INTO

11. PROVIDE LUMBER OF SIZES INDICATED, WORKED INTO

12. PROVIDE LUMBER OF SIZES INDICATED, WORKED INTO

13. PROVIDE LUMBER OF SIZES INDICATED, WORKED INTO

14. PROVIDE WOOD FOR SUPPORT OR ATTACHMENT OF OTHER

15. PROVIDE LUMBER OF SIZES INDICATED, WORKED INTO
**CONCRETE IN GREENHOUSES, SHADES, & SIDEWALKS TO HAVE HEAVY, BRUSH FINISH**

**PLANT SCIENCE AREA TO HAVE MIN. 8" OF COMPACTED FILL OVERLAIN BY 4" OF COMPACTED ROAD BASE**

**OFCI = OWNER FURNISHED CONTRACTOR INSTALLED**
FROST-FREE HYDRANT (TYP.)
1"Ø PVC IPS SDR 21 TO EACH HYDRANT
2"Ø PVC IPS SDR 21 MAINLINE (TYP.)
4"Ø PIP FROM EXISTING SOURCE SPECIFIED BY MERCED COLLEGE (SYSTEM HAS BOOSTER PUMP THAT WILL PROVIDE MAX. 70 PSI TO SITE)

PLUMBING NOTES:
1. ALL MAINLINES ARE 2"Ø IPS SDR 21 OR EQUIV.
2. EACH HOSE BIB (HYDRANT) IS TO HAVE 1"Ø IPS SDR 21 SUPPLY LINE OR EQUIV. TO HYDRANT "T" OR ELBOW
3. HOSE BIB IS TO BE 3/4" EVERBILT MIN. 2' BURY DEPTH FROST-FREE HYDRANT OR EQUIV.
4. VALVES ARE TO BE PVC IPS 150 PSI BALL INSTALLED BELOW GRADE IN A VALVE BOX
2"Ø PVC IPS SDR 21
1"Ø PVC IPS SDR 21
3/4" HOSE BIB
PROPOSED 112.5 kVA XFMR & 300A 120/208V MAIN DISTRIBUTION PANEL

(480V SERVICE FROM AgIT BUILDING)

100A SUB-PANEL A
100A SUB-PANEL E
100A SUB-PANEL B
100A SUB-PANEL C
100A SUB-PANEL D
100A SUB-PANEL G
100A SUB-PANEL F
100A SUB-PANEL H

SHIPPING CONTAINERS TO HAVE 8' L. LED STRIP LIGHTS OVER ENTIRE LENGTH
OPERATED BY OCCUPANCY SWITCHES

(WEST SUPPLIED BY SHOP PANEL F & EAST SUPPLIED BY LOAFING BARN PANEL G)

30A 208V PUMP CONTROL PANEL

112.5 kVA XFMR
30 4W PULL SECTION FROM AgTI BUILDING
30/3 1
100/3 2
100/3 3
100/3 4
100/3 5
100/3 6
100/3 7
30/3 8

PANEL A 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL B 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL C 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL D 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL E 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL F 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL G 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND
PANEL H 2-1/2" C W/ (4) 3/0 THWN-2CU & (1) #6 THWN-2CU. GND

2" C W/ (4) #4 THWN-2CU & (1) #8 THWN-2CU. GND

NOTES:
1. PULL BOXES SHALL BE INTERMITTENT TRAFFIC RATED.
2. PULLBOXES CONSTRUCTED OF REINFORCED POLYMER WITH TRAFFIC RATING ARE ACCEPTABLE.
3. PRECAST REINFORCED CONCRETE BOX. SIZE PER PLANS.
4. REINFORCED CONCRETE COVER (TO SUIT APPLICATION) WITH HOLD DOWN BOLTS. PRE-STAMP COVER WITH CONTAINED SYSTEM.
5. FINISHED GRADE CRUSHED ROCK SUMP, 6" DEEP
6. CONDUIT AND WIRING PER PLANS.
7. 6" 24" OR 36" AS REQUIRED (TYP.)
8. 45° BEND (TYP.)
9. CRUSHED ROCK SUMP #15 ROOFING PAPER BETWEEN GROUT AND CRUSHED ROCK

MINIMUM 2" THICK GROUT

(3) 1" DIA DRAIN HOLES IN BOTTOM OF BOX
NOTE:
ALL SHUT-OFF VALVE BOXES WITHIN 10'-0" OF EACH OTHER SHALL BE LINED UP WITH EACH OTHER AND PARALLEL TO SIDE-WALK OR BUILDING WALL.

6" POLY-GAS VALVE
CONCRETE PAD IN UNPAVED AREA.
CHRISTY B03 BOX WITH B03C LID. LABEL LID W/VALVE USE (GAS OR WATER).
FROM DISTRIBUTION SYSTEM.
1/2" PEA GRAVEL.

POLY-GAS SHUTOFF VALVE IN BOX DETAIL
20' 9 13/16" T.O. RIDGE

2- 41/2 X 1" Teks
4/1" O.D. SEAL WASHER
(16" FROM EDGE OF EVERY PANEL)

10'-0" T.O. 3'4" SQ. STEEL POST

GREENHOUSE FINISHED FLOOR

1/8" X 2" FLAT STEEL VIND BRACING

6'-0" X 7'-0" STANDARD VINANDY ALUM. HALF GLASS DOUBLE DOOR

42"-1" OUT TO OUT OF ALUM. ANGLE SILL

MODINE PT300S GAS FIRED HEATER

ACME DCA24G EXHAUST FAN SLANT ALL HOUSING CTYP. 2)

Elevation A
South Endwall

1

GABLE WALL GLAZING
8MM CLEAR MULTI-WALL POLYCARBONATE
1) VARIOUS LENGTHS X 47 1/4"

SIDE GLAZING WEST
8MM CLEAR MULTI-WALL POLYCARBONATE
1) 118 1/2" X 47 1/4"

ROOF GLAZING
8MM CLEAR MULTI-WALL POLYCARBONATE
1) 236 3/8" X 47 1/4"

ROOF VENT GLAZING
8MM CLEAR MULTI-WALL POLYCARBONATE
1) 36" X 47 1/4"

GLAZING=POLYCARBONATE FINISH=MILL

ELEVATIONS
MERCED COLLEGE
MERCED, CA

1

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Elevation C  North Endwall
2. **Elevation B** West Sidewall

4. **Elevation D** East Sidewall

---

**GABLE WALL GLAZING**
- 8MM CLEAR MULTI-WALL POLYCARBONATE
  1. VARIOUS LENGTHS X 47 1/4"  

**ROOF GLAZING**
- 8MM CLEAR MULTI-WALL POLYCARBONATE
  1. 236 5/8" X 47 1/4"

**SIDE GLAZING WEST**
- 8MM CLEAR MULTI-WALL POLYCARBONATE
  1. 116 1/2" X 47 1/4"

**ROOF VENT GLAZING**
- 8MM CLEAR MULTI-WALL POLYCARBONATE
  1. 36" X 47 1/4"
ALL WINANDY GREENHOUSE EQUIPMENT TO BE INSTALLED BY LICENSED GREENHOUSE INSTALLATION COMPANY MUST HAVE DEMONSTRATED EXPERIENCE IN INSTALLING EQUIVALENT EQUIPMENT IN THE PAST 5 YEARS.
UPPER LEFT CORNER OF DOOR FRAME
VIEW FROM INSIDE
(RIGHT HAND SIDE THE SAME)
#12 x 1 1/2" TEK WITH 1" DIA. SEAL WASHER (2 EVERY ROOF PANEL) W/ SELF ADHESIVE RUBBER DIMPLE (CENTER OF EACH PANEL) (ADHESIVE DIMPLE ONLY AT ROOF PURLINS)

NOTE: RUBBER SELF ADHESIVE DIMPLES MUST BE KEPT WARM UNTIL JUST BEFORE APPLICATION (68 ° F)

#12 x 3/4" TEK (1 EACH ROOF PURLIN)

8MM POLYCARBONATE PLASTIC PANEL

SECTION "A" - "A"

2" X 2" SQ. STEEL ROOF PURLIN

2" X 2" SQ. STEEL GLAZING BAR

"PCC" ROOF BAR CAP

"PVL" ROOF GLAZING BAR

1/4" X 1/4" RUBBER SEALER w/ ADHESIVE

#12 X 5/8" CAP SCREW w/ 1/2" SEAL WASHER

#12 x 1 1/2" TEK WITH 1" DIA. SEAL WASHER (2 EVERY ROOF PANEL) W/ SELF ADHESIVE RUBBER DIMPLE (CENTER OF EACH PANEL) (ADHESIVE DIMPLE ONLY AT ROOF PURLINS)
STANDARD DETAIL # STP-0101

(PLASTIC PANEL UNITS), SIDEWALL STEEL FRAME 8MM PLASTIC PANEL CORNER CLOSURE ALUM. ANGLE SILL W/O SIDEWALL VENT, WITH GUTTER
FANS FACE OPPOSITE DIRECTION TO PROMOTE CIRCULAR AIR FLOW

REFER TO EQUIPMENT LAYOUT FOR LOCATION

TRUSS CROSS TIE

FIELD DRILL UP TO 3/8" DIA. HOLE AT DESIRED LOCATION

HAF FAN MOUNTING HANGING BRACKET (SEE MANUFACTURER'S INSTALLATION)

HAF FAN MOTOR (SEE MANUFACTURER'S INSTALLATION)
1" X 2" ALUM. ANGLE BRACE (2 PER BAY SPACED 4' O.C.)

3/4" X 1 1/4" X 2" LG. ALUM. ANGLE #12 X 3/4" TEK (EVERY 24')

1" X 2" ALUM. ANGLE CONT. #12 X 3/4" TEK (EVERY 24')

3" X 3" STEEL POST

1 3/4" X 6" ALUM. CHANNEL, CONT.

2 - #14 X 1" TEKS

1 3/4" X 6" ALUM. CHANNEL, CONT.
NOTE: ALL EXTERIOR SPlices ARE TO BE CAULKED TO ENSURE A LEAK FREE INSTALLATION

CAUTION: SPACING GAUGE MUST BE USED WITH SPlices; SEE WRITTEN INSTRUCTIONS.

IMPORTANT! ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS ARE ASSEMBLED.

STANDARD DETAIL NO. 1U-0000
INSTALATION DETAILS
UNIVERSAL SPlice DETAILS

Note: Vent rails, header, and sill only:
1) Slide all splices into first member, installed while on ground.
2) Butt & line up ends & slide splice equal distance across junction.
3) Check with spacing gauge where applicable.
4) Install pop rivets.

NOTE: INSTALL RIDGE & RIDGE CAP SPlices & TEKS WHILE PIECES ARE STILL ON GROUND. KEEP TEKS TOWARDS BOTTOM OF RIDGE CAP SPlice TO AVOID INTERFERING WITH VENTS FOR EASE OF INSTALLATION, STAGGER SPICE PLATES APPROX 1/2".

WILLIAM T. DOHERTY, RES.
PE69003412
REGISTERED PROFESSIONAL ENGINEER
NOTE: MAKE SURE THAT INSTALLATION IS CLEAR OF TOP WELDMENTS

STANDARD DETAIL #QC-0701

TGU SHADE SYSTEM
SLOPE-FLAT-SLOPE STEEL HOUSE

WINANDY GLASS CO.
3604 Boulder Blvd.
Reno, NV 89502

DRAWN BY SRP
CHECKED BY

41

NOTE: ACTUAL STRUCTURE MAY VARY
VIEW "A-A"

TUBE MOTOR #33100051

TUBE MOTOR BRACKET #25250021
M6 X 65 BOLT AND NUT

2" X 2" SQ. TUBE

TUBE MOTOR #33100052

TUBE MOTOR BRACKET #25250021
M6 X 65 BOLT AND NUT

VIEW "A-A"

TUBE MOTOR TO SHAFT TUBE

TUBE MOTOR #33100051

REDUCING SLEEVE #25250010

REDUCING SLEEVE #25250010

TUBE MOTOR BRACKET #25250021

1.315 O.D. SHAFT TUBE

RUN 1.315 SHAFT 6" INTO TUBE MOTOR AND USE 2-
#14 X 1" TEKS TO TEK INTO PLACE

1" OFFSET BEARING #21050050
(1: M6 X 70 AND M8 NUT)
(PLACE NEXT TO REDUCING SLEEVE TO SUPPORT MOTOR)
SQUARE TUBE CONNECTOR
#38020641

2" X 2" SQ. TUBE

LEAVE SMALL GAP BETWEEN SQ. TUBE TO TURN ALLEN SCREW TO EXPAND SPLICE

SQUARE TUBE ELBOW CONNECTOR
#38020642

2" X 2" SQ. TUBE

INSERT ORILL AND BOLT AS REQUIRED. PUT TWO HALVES TOGETHER AND TIGHTEN SPLICE BOLT AT REQUIRED ANGLE.

VIEW "A-A"

SQUARE TUBE ELBOW CONNECTOR
#38020642

SQUARE TUBE ELBOW CONNECTOR
#38020642

VIEW "A-A"

TO FASTEN COUPLING TO PREVENT SLIPPING, FIRST TIGHTEN ALL BOLTS & THEN TAP SHARPLY WITH A HAMMER & RE-TIGHTEN BOLTS.

L.315 SHAFT COUPLER

L.315 SHAFT TUBE

AFTER INSTALLED TRIM END OF BOLTS, AS REQUIRED, TO PREVENT FROM CATCHING. ON CLOTH, WRAP ENDS WITH ALUM TAPE.

L.315 DRIVE SHAFT SPLICE

SQUARE TUBE CONNECTOR
#38020641

SQUARE TUBE ELBOW CONNECTOR
#38020642

SQUARE TUBE ELBOW CONNECTOR
#38020642

STANDARD DETAIL #QC-0605

TGU SHADE SYSTEM
2" X 2" SQ. TUBE SPLICE
1.315 SHAFT TUBE SPLICE

WINANDY GLASS CO.
RICHMOND, INDIANA 47374

DRAWN BY
SRP

CHECKED BY

PAGES
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DATE 07/26/74

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**SHAFT TUBE ELBOW SPLICE**

- **ADAPTER TUBE #2410040B**
- **U-JOINT ASSEMBLY #24100100**
- **WIRE GUIDE CLIP #631000507**
- **POLY WIRE #40102001**
- **RUBBER SEAL #37100100**
- **SCREENPROFILE V #37003643**
- **SHADE CLOTH**
- **CLOTH CLIP #22022000**
- **2" X 2" SQ. TUBE**

**SCREEN PROFILE ATTACHMENT TO 2" X 2" SQ. TUBE**

- **U-JOINT ASSEMBLY #24100100**
- **ADAPTER TUBE #2410040B**
- **W/ MB X 70 BOLT AND MB NUT #21050050**
- **1" OFFSET BEARING #21050050**
- **(ONE EACH SIDE OF U-JOINT) (1- MB X 70 AND MB NUT)**

**STANDARD DETAIL #QC-0607**

**TGU SHADE SYSTEM**

**SCREEN PROFILE ATTACHMENT**

**U-JOINT ASSEMBLY**

<table>
<thead>
<tr>
<th>DATE: 10/08/14 REV 09/23/16</th>
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<tr>
<td>DRAWN BY SRP</td>
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<tr>
<td>GLAZING</td>
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<tr>
<td>WINANDY GLSE CO. 32000 PROEweg ROAD</td>
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<tr>
<td>BAY AREA, CA 90245</td>
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</tbody>
</table>
S-HOOK TYPE II
#2200016
(HOOKS INTO SHADE CLOTH)

POLY WIRE
#40102001 OR
BLACK WIRE
(ONLY AT LAST WIRE OF SYSTEM)
#4025025
(IF PVC CLIP TUBE IS NOT PRESENT)

CLOTH RETAINER ATTACHMENT

CLOTH RETAINER
#2100100
(Spaced 15" or as needed)

SHADE CLOTH

HOOK ATTACH TO SHADE CLOTH

SCREEN HOOK
#20200100
(HOOKS INTO SHADE CLOTH AROUND CLIP TUBE ONLY)
(Spaced 15" O.C.)

BLACK CABLE
#4025025
(ONLY AT LAST WIRE OF SYSTEM)

PVC CLIP TUBE
#41000500

PROFILE OF END CABLES

SHADE CLOTH

IF PVC SLIP TUBE IS NOT REQUIRED, SEE HOOK ATTACH TO SHADE CLOTH

BLACK CABLE
#4025025

POLY WIRE
#40102001

STANDARD DETAIL #QC-0609
TGU SHADE SYSTEM
SHADE CLOTH AND BLACK CABLE

WINANDY GIUSE CO.
2211 PEARL STREET
RICHMOND, INDIANA 47374

DATE: 10/06/14
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TO CONTROLLER

FIELD INSTALLED JUMPERS TO BYPASS LIMIT SWITCHES

OPEN SIGNAL

CLOSE SIGNAL

WIRING MUST CONFORM TO LOCAL AND NEC CODE.

GERMANY

WHT

BLK

RED

MOTOR LEADS PREWIRED AT FACTORY

NOTES:

1. FOR LOW VOLTAGE CONNECTION USE STRANDED WIRES. 
   #18AWG FOR RUNS LESS THAN 250FT. 
   #16AWG FOR RUNS LESS THAN 750FT.
2. FOR HIGH VOLTAGE, USE WIRES PER NEC REQUIREMENTS.
3. INSTALL CIRCUIT BREAKERS AND DISCONNECTING MEANS AS REQUIRED BY NEC STANDARDS.
4. DISCONNECTING MEANS AND CIRCUIT BREAKERS PROVIDED BY OTHERS.
5. REFER TO MOTOR AND GEAR BOX (IF PRESENT) FOR POWER AND LIMIT CONNECTION DIAGRAM.

STANDARD DETAIL #QC-0600

TGU CURTAIN SYSTEM MOTOR W/ LINK 4 CONTROL BOX

WINANDY GLASS CO.
2211 PRAIRIE, ROAD
22001, PRAIRIE, ROAD

DRAWN BY
CHECKED BY
DATE 11/12/74

GLAZING
FINISH

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DRAWING ASSUMES MOTOR DIRECTION IS OPEN SWAP OPEN AND CLOSE IF MOTOR TURNS IN THE WRONG DIRECTION

WIRING MUST CONFORM TO LOCAL AND NEC CODE.
1) Almost all of the information and instructions for the erection of the “Sun-Mate” tempered glass greenhouse will apply to the Winandy “Sun-Mate” structured plastic panel glazed greenhouse except for the following changes.

2) The “Sun-Mate” structured plastic panel glazed greenhouse will either have polycarbonate structured plastic panels or acrylic panels.

3) The spacing in the roof and wall rafter spacing will be the same for the structured plastic panel glazed greenhouse as the “Sun-Mate” greenhouse that receives 36” wide tempered safety glass. If your “Sun-Mate” greenhouse is to be glazed with acrylic panels, the rafter spacing on the roof and walls will be at 48” center to center.

4) The plan will show the rafter spacings in multiples of 36 3/4" or 12'-3" bays or 24'-6" manufacturing modules. You will know the plastic panel is to be General Electric Lexan or other manufacturer’s polycarbonate panels in 6'-0 3/4" widths.

5) Roof rafters on the “Sun-Mate” polycarbonate panel glazed roof are different than tempered glass. Refer to your extrusions chart. You will see PBL is designed for receiving structured plastic panels. It will be spaced at every other 36 3/4" hole or spacing lengthwise of the greenhouse to receive the outside edge bed and seal the 6'-0 3/4" wide structured plastic panel. Refer to the extrusion chart for the BD rafter. These rafters will be installed to be in the middle as the mid-panel support for the 6'-0 3/4" wide polycarbonate panels. BD rafters are the correct height to give mid-panel support as indicated on Standard Detail PR-0100.

6) Exterior side and end walls where the polycarbonate panels are to be used have a rafter spacing of 6'-1 1/2" and use the polycarbonate panel width of 6'-0 3/4". Refer to your extrusion chart for your PVB rafter and PGC plastic glass cap. These members are normally used on side and end walls. The polycarbonate panels are the normal plastic panels used on a wall. Refer to Standard Detail PC 0050, cross section of structured plastic panels when used on an end wall. This drawing illustrates how to use the PVB rafter, PG Cap, and shows how all are secured to the end frame. Side walls are installed in a similar manner.

7) All of the 6'-0 3/4" wide structured plastic panels must be secured with 1 - #12 X 1 1/2" TEK with sealer washer placed mid-way of the 6'-0 3/4" plastic panels on exterior end and side walls.
Tool List for Installation

The following list is the minimum tools that you should have on-site to facilitate rapid installation of the greenhouse:

- 2 – Socket sets with ratchet including the above sizes.
- 2 – Battery power drill drivers capable of running tek screws with tek screws bits of 5/16”, 3/8”.
- 1 or 2 – Battery powered impact wrenches or adaptors for your battery drill drivers to facilitate the rapid tightening of 3/8” bolts on the trusses.
- 1 – 4’-0” level
- 1 – Laser level or Builder’s Level
- 12 -16 – 2” x 4” x 10’-0” or 12’-0” with stakes and clamps to clamp off brace the post with padding to pad the clamps and boards to the posts w/ stakes
- Various ladders, scissor lifts, or Painter’s scaffolds high enough to reach the peak of the building and the sides
- Padded rigging to raise the frames into place
- 2 – caulking guns
- 1 – pop rivet gun
- Aluminum cutting miter box saw & hack saw
- Sheet metal shears
- Cords & GFI plug
- Corded screw gun for teks
- Circular saw w/ plywood blade battery or corded for trim in panels
- Something to raise trusses into place.
- Carpenter Square
- Small cable cutters or bolt cutters
- Guide ropes for trusses
- 19’ Scissor Lift
- Scaffolding (Recommended but not required)
- Drill bits for Steel and Aluminum: 1/8”, 9/64”, 3/16”, 1/4”, 9/32”, 5/16”, 3/8”, 13/32”, 1/2”; (1/8” pop rivets, 1/4” bolts, 5/16” bolts, 3/8” bolts, & 1/2” bolts)

This is the minimum list that you should have on the jobsite. I would recommend more lumber bracing rather than less and extra tools, so that you have plenty of tools to work rapid, especially in the battery powered drill driver etc.
TGU Curtain Installation Sequence

The curtain system has primary priority in its travel plane area above and below.

1) Determine location for 2” X 2” square tube at each end of the area to be covered. Choose a location free of obstructions for the system to travel. Be sure to take into account the system needs to be above heaters, grow lights, and overhead watering yet be out of the way of vent operators etc. Look at suggested location on enclosed drawings.

2) Install 2” X 2” square tube securely by bolting it to the structure and taking care to install bolts in alignment. QC-0608

3) Install drive shaft on to 2” X 2” square tube on end best for drive. Tube motor at one end with shaft supported by evenly spaced offset bearings. QC-0604, QC-0611

4) Install cable drums on to drive shaft tube – one close to each end at a location to allow clear transit of drive cable across the length of the system. Then install the rest of cable drum(s) locating them where the drive cable(s) will have clear transit. QC-0611, QC-0602

5) Install wire tighteners on to 2” X 2” square tube on 16”± center with wire to be on the bottom of the 2” X 2” square tube. QC-0603

6) Install a minimum of 4 wire tighteners for wires to be on top of 2” X 2” square tube to suspend cloth in alignment. One at each end plus one at each change of plane for the 2” X 2” square tube. QC-0603

7) Install wire support brackets on opposite 2” X 2” square tube aligned with wire tighteners. QC-0603

8) Install rubber seal onto screen profiles as shown. QC-0607

9) Install screen profiles on to 2” X 2” square tube installed on gables. QC-0607

10) Install screen profile(s) onto intermediate bay structure as shown take care to maintain alignment with ends. TGU TRUSS ATTACHMENT

11) Install vinyl coated cable at ends on the top of the 2” X 2” square tube and install “clip tube PVC” if required. QC-0609
Page 2 / TGU Curtain Installation Sequence

12) Install poly wires above and below screen profiles tightening only enough to remove sag. Fastening at support brackets with “lead edge tube clip “L” and/or “S”. QC-0603

13) Run drive shaft to determine open/close – sync the control box with the proper direction of rotation (exchange red & black wires to reverse directional control). [Drum(s) should turn so the bottom (closest to the 2” X 2” square tube) of the drum rotates toward the outside.]

14) Run drive until stops at the open limit.

15) As the drive shaft turns to the closed position observe how the cable would travel across the cable drum.

16) Install “cable pulleys with bolt” onto opposite 2” X 2” square tube and align with center of drive drum(s). QC-0602

17) Install upper drive cable “hanger pulley(s)”. Locate so as not to interfere with travel. QC-0602

18) Thread drive cable through the pulleys opposite of cable drums. Cable will run above the screen profiles. Wrap the cable around the cable drums 3 or 4 times towards the “open” end of the cable drum and then splice the top cable together as shown close to the cable drum end of the upper cable travel as shown using cable clamps and cable tightener. (Test with one cable installed and then return to closed position and install the rest.) QC-0602

19) Mark lower cable and test travel. The mark should travel from the closed position next to screen profile backside (non-rubber flap end) to the front side (rubber flap end). Adjust travel length with travel adjustment screws on tube motor. Leave in closed position.

20) Install wire guide clips on to intermediate screen profile for poly wire – top and bottom of screen profile. QC-0611

21) Install lead edge tube, attaching to drive cable with lead edge cable tube clip positioning the lead edge to be touching screen profile rubber seal.

22) Run drive back and forth to adjust limits. Close limit should have lead edge tube in full contact with rubber seal on screen profile.

23) Install shade clothes. Be sure to install the cloth shiny side up. Lay cloth on to bottom poly wires below upper wires. Use “S-hook Type II” to attach beginning edge of the cloth to the bottom of the screen profile. Take care to install straight and to center in the space so edge over hang is as required.

24) Use sharp scissors to cut slits in the shade cloth to fit around truss members. Clip the shade cloth on both sides of the cut to the screen profile using Cloth Clips. Pull together and neatly staple, as required, the cut around the truss members.
Page 3 / TGU Curtain Installation Sequence

25) Install “S-hook Type II” clips through cloth onto poly wires above cloth in line with wire 12” to 16” center (as needed). QC-0609

26) Install “Screen Hook” clips onto covered cable at edges 12” to 16” centers (be sure to maintain straight alignment so cloth travels square and true). QC-0609

27) Clip cloth onto lead edge tube with each lead edge tube clip at each poly wire.

28) After installation of cloth operate system carefully to check for any place where mechanism or cloth binds on anything also checking and adjusting limits as needed.

29) Edge seals can now be installed the ends may be clipped onto the screen profile then attached to the gable. The side edges may be attached to the last lower poly wire then attached to the side walls.

Created 11/14
EWA 10 // Power drive
50–90 Nm

- Extremely quiet, self-locking worm gear units with long service life, zero-maintenance.
- Universal mounting with standard mounting at back or on side left (symmetrical).
- Built-in precision END 20 gear limit switch for 580 shaft revolutions (UL+CSA).
- Quality motors with multi-range voltage (IEC 38) for 50 Hz (400 V 3~/230 V 1~/60 Hz 230 V 3~/230 V 1~/480 V 3~/230 V 1~/60 Hz), as well as 120 V 1~/230 V 1~), UL+CSA, IP55, Th.CLF, 50–60 Hz.
- A coil protection contact is integrated in all single-phase motors, so no separate motor protection switch is required. Supplied with cable.
- Round shaft We 06, 90 Nm version also available with hex shaft We 66.
- On 60 Hz versions, END 20-A1 auxiliary limit switch as standard.

Options:
- END 20-A1 auxiliary limit switch.
- PAR-00 position monitor.
- Version 400 for use in the open air.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>We 06</th>
<th>We 66</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL 280 mm</td>
<td>WL 385 mm</td>
<td></td>
</tr>
<tr>
<td>230 V 1~</td>
<td>230 V 1~</td>
<td></td>
</tr>
<tr>
<td>120 V 1~</td>
<td>120 V 1~</td>
<td></td>
</tr>
<tr>
<td>24 V DC</td>
<td>24 V DC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th>We 06</th>
<th>We 66</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL 280 mm</td>
<td>WL 385 mm</td>
<td></td>
</tr>
<tr>
<td>400 V 3~</td>
<td>400 V 3~</td>
<td></td>
</tr>
<tr>
<td>208 V 3~</td>
<td>208 V 3~</td>
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</tr>
<tr>
<td>440 V 3~</td>
<td>440 V 3~</td>
<td></td>
</tr>
<tr>
<td>EWA 10 009</td>
<td>EWA 10 009</td>
<td></td>
</tr>
<tr>
<td>EWA 10 009</td>
<td>EWA 10 009</td>
<td></td>
</tr>
<tr>
<td>EWA 10 009</td>
<td>EWA 10 009</td>
<td></td>
</tr>
</tbody>
</table>

[Diagram of EWA 10 power drive units]
Versa-Kool® Deep Guard Circulation Fans

Reduce heat stress and improve air quality with Schaefer’s deep guard circulation fans. Unrivaled in the industry, these fans are engineered to produce greater air movement and superior cooling with less noise. You don’t hear them. You don’t see them. You only feel them!

Features and Benefits
- Deep guard design for high airflow, low noise levels and safety
- Matched high quality motors and blades for maximum efficiency
- Powder coated steel guards for increased durability and corrosion resistance
- Hot dipped galvanized guards on VK12-GA and VK20-GA models for even greater rust protection
- Powder coated steel mounting bracket and power cord included
- Wide variety of mounting options available for flexible and easy installation
- Variable speed controls available
- Misting kits available for even greater cooling

<table>
<thead>
<tr>
<th>White Model</th>
<th>Diameter</th>
<th>Variable Speed</th>
<th>Phase</th>
<th>HP</th>
<th>Volts</th>
<th>Amps</th>
<th>CFM</th>
<th>Thrust (lbf)</th>
<th>RPM</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VK8</td>
<td>9&quot;</td>
<td>N</td>
<td>1</td>
<td>1/100</td>
<td>115</td>
<td>0.9</td>
<td>450</td>
<td>.13</td>
<td>1650</td>
<td>8</td>
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<tr>
<td>VK12</td>
<td>12&quot;</td>
<td>Y</td>
<td>1</td>
<td>1/10</td>
<td>115/230</td>
<td>1.3/65</td>
<td>1470</td>
<td>.85</td>
<td>1725</td>
<td>18</td>
</tr>
<tr>
<td>VK12-GA</td>
<td>12&quot;</td>
<td>Y</td>
<td>1</td>
<td>1/10</td>
<td>115/230</td>
<td>1.9/65</td>
<td>1470</td>
<td>.95</td>
<td>1725</td>
<td>18</td>
</tr>
<tr>
<td>VK12TT-CMP-W</td>
<td>12&quot;</td>
<td>Y</td>
<td>1</td>
<td>1/10</td>
<td>115/230</td>
<td>1.3/65</td>
<td>1510</td>
<td>.95</td>
<td>1725</td>
<td>18</td>
</tr>
<tr>
<td>VK20</td>
<td>20&quot;</td>
<td>Y</td>
<td>1</td>
<td>1/3</td>
<td>115/230</td>
<td>3.8/1.0</td>
<td>5470</td>
<td>4.26</td>
<td>1725</td>
<td>37</td>
</tr>
</tbody>
</table>
Super Windmaster: FANS

DCA SERIES (ALUMINUM)

- All aluminum construction
- Six-slotted powder coated fan blades with a unique \textit{checkered} tip for higher air flow capacities at less horsepower
- Wind-molding design maintains horsepower within catalog range of static pressure, resulting in lower motor load and reduced operating costs.
- Grease filled bearings higher air flow capacity.
- Available mounted in either square or square wall housing.

AWE Engineering and Manufacturing Corporation certifies that the Super Windmaster DCA series fans have been tested and comply with the requirements of the AMCA Certified Ratings Program.

SEALED BEARINGS

- Prelubricated inverted ball bearings are double sealed, require no service.
- Improved, more noise free drive assembly and higher efficiency motors add longer service life.

ENERGY EFFICIENT ENCLOSED MOTORS

- Heavy duty totally enclosed motor with sealed ball bearings are designed for continuous work load.
- Available in two speeds.
- Built-in thermal overload for low-voltage protection on all single phase motors.

MOTOR NOTES

1. All single speed single-phase motors are dual voltage (115/208) except 3/4 horsepower.
2. All 1/2 horsepower single-phase motors are single voltage (115 or 230).
3. Two-speed motors are single voltage (115 or 230) and not available in 1/2 horsepower.
4. Low speed capacity of two-speed fans is approximately one half of maximum.
5. All three phase motors are three voltage (208-230/460).

CAUTION: Guards must be installed on all fans with a height of working level of less than 7 feet of working level or when deemed advisable for safety.

All Guards for wall fan guards have 1" * 1" galvanized wire in an aluminum frame for the sides of wall housing. Outlet guards are attached to 1/2" galvanized as standard. Guards for wall fan guards are mounted with quick release clips.

PATTERN APPLIED FOR

MODEL W4 SQUARE WALL MOUNTING

- Constructed of heavy duty galvanized steel.
- For Model DC and DCA.
- Provides convenient method to install fan and shutter.
- Outside Mounting - keeps equipment from blocking aisles.
- Mounting Flanges for attaching to wall to attach to shutter.
- Assembled to fan for quick, easy field installation.

CAUTION: Guards must be installed when fan is within reach of personnel or when working level of less than 7 feet of working level or when deemed advisable for safety.
ALUMINUM WALL SHUTTERS

- Corrosion resistant heavy gauge aluminum frame.
- Precision counterbalanced aluminum blades open easier, wider to permit higher fan capacity.
- Nylon bearings throughout are corrosion proof to help prevent sticking. Suitable for dusty or humid applications.
- Stainless steel hinge pins will not rust, insure easy positive blade action.
- All shutter blades are reinforced with polished galvanized steel rods, and equipped with double tie-rods.
- Automatic - Used with exhaust fans; opens automatically when fan is on, closes automatically when fan is off.
- Keeps out wind, rain and backdrafts when fan is not in operation.
(See fan selection for shutter sizes)

MOTORIZED INLET SHUTTERS
- New cam pulley operator - Provides long life to motor - corrosion resistant.
- Motor draws only 17 watts.
- WAAC models are center pivoted to open easier against house static pressures.
- Motors are available in 24v, 115v, 230v, 460v, (Specify Voltage Required)

<table>
<thead>
<tr>
<th>SHUTTER MODEL</th>
<th>OVERALL</th>
<th>OPENING</th>
<th>Sq. Ft. OPENING</th>
<th>WT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAAC4010MT</td>
<td>40x10</td>
<td>15x10</td>
<td>1.00</td>
<td>10</td>
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<tr>
<td>WAAC6010MT</td>
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<td>0.87</td>
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<td>30x30</td>
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<td>22</td>
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<td>WAAC4020MT</td>
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<td>20x20</td>
<td>0.87</td>
<td>14</td>
</tr>
<tr>
<td>WAAC6020MT</td>
<td>60x20</td>
<td>25x25</td>
<td>0.85</td>
<td>18</td>
</tr>
<tr>
<td>WAAC9020MT</td>
<td>90x20</td>
<td>30x30</td>
<td>0.90</td>
<td>22</td>
</tr>
<tr>
<td>WAAC12020MT</td>
<td>120x20</td>
<td>35x35</td>
<td>1.42</td>
<td>30</td>
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<tr>
<td>WAAC4030MT</td>
<td>40x30</td>
<td>20x20</td>
<td>0.87</td>
<td>14</td>
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<tr>
<td>WAAC9030MT</td>
<td>90x30</td>
<td>30x30</td>
<td>0.90</td>
<td>22</td>
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<td>WAAC12030MT</td>
<td>120x30</td>
<td>35x35</td>
<td>1.42</td>
<td>30</td>
</tr>
<tr>
<td>WAAC4040MT</td>
<td>40x40</td>
<td>20x20</td>
<td>0.87</td>
<td>14</td>
</tr>
<tr>
<td>WAAC6040MT</td>
<td>60x40</td>
<td>25x25</td>
<td>0.85</td>
<td>18</td>
</tr>
<tr>
<td>WAAC9040MT</td>
<td>90x40</td>
<td>30x30</td>
<td>0.90</td>
<td>22</td>
</tr>
<tr>
<td>WAAC12040MT</td>
<td>120x40</td>
<td>35x35</td>
<td>1.42</td>
<td>30</td>
</tr>
</tbody>
</table>
**Kool Cell**

Acme's CISE 1, 2, 4, and CARA 4, evaporative cooling systems offer ease of installation and very low maintenance. The gutter's UV protection and rugged stainless steel CISE or aluminum CARA top offers years of trouble-free operation. Just glue the sections together and snap in the pad tray. The gutter is mounted lower and serves as a retention tank. The gutter may be mounted either on a wall hanger, using stainless steel brackets, or directly on a level concrete pad, to remove the roof from the wall. This unit can be supplied in a number of configurations and lengths to suit your application.

**NOTES for Installation**

1. Check the water replenishment supply to ensure that it is greater than the amount of water to be evaporated.
2. Set the flow rate as low as possible while keeping the water level above the pump impeller chamber height.
3. Before initial seasonal start up or on initial start up, pre-charge the system with water until the water level is just below the pad bottom.
4. Set the ball valve to 1/4 to 1/2 opening.
5. Run on the pump for the initial start up.
6. Adjust the ball valve until the pads are just fully wetting. If access to the distribution pipe is available, check that all hoses are operating and that the water is sprayed approximately 1 foot above the distribution pipe.

**OPTIONAL TANK PLACEMENT IN CENTER OF SYSTEM**
Introducing the new power vented, PTP unit heater line with stainless steel bent tube heat exchanger standard. The PTP was specifically designed with the customer in mind to provide high value at a reasonable cost. Backed by Modine’s nearly 100 years of pioneering HVAC innovation, the horizontal mounted PTP delivers reliable performance and longer life in a small-business-friendly package.

### Propeller Unit Model PTP General Performance Data

<table>
<thead>
<tr>
<th>Model PTP Sizes</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>300</th>
<th>500</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTU/Hr Input¹</td>
<td>150,000</td>
<td>176,000</td>
<td>200,000</td>
<td>250,000</td>
<td>300,000</td>
<td>350,000</td>
<td>400,000</td>
<td>450,000</td>
<td></td>
</tr>
<tr>
<td>BTU/Hr Output¹</td>
<td>124,000</td>
<td>140,000</td>
<td>166,000</td>
<td>206,000</td>
<td>240,000</td>
<td>280,000</td>
<td>320,000</td>
<td></td>
<td></td>
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<tr>
<td>Max. Mounting Height (FL)²</td>
<td>19</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat Throw (FL) (40’ at Max. Mtg HT)²</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

¹ Ratings shown are for elevations up to 2,000 ft. For elevations above 2,000 feet, ratings should be reduced at the rate of 4% for each 1,000 feet above sea level. In Canada see rating plates. Reduction of ratings requires use of a high altitude kit.

² Data taken at 55°F air temperature rise. At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit, and without deflector hoods.

### BENEFITS OF THE PTP LINE INCLUDE:

- Stainless steel heat exchanger comes STANDARD on all units, extending the life of your investment
- 10-year heat exchanger warranty is STANDARD, providing you peace of mind
- Totally enclosed, permanently-lubricated fan motor outside the cabinet is standard for trouble-free dependability
- Constructed with Modine’s proven tubular heat exchangers for a low-profile design on jobs with lower mounting heights
- Optional finger-proof fan guard for low mounting height applications
- Power exhauster and controls mounted inside the cabinet for protection from airborne moisture and dust
- Installs quickly and easily with knockouts and field gas and wiring connections inside a roomy controls section for quick and easy access
- Proudly Made in the USA
Aluminet® I Open Screens

<table>
<thead>
<tr>
<th>Screen</th>
<th>Ultrasound</th>
<th>Sunlight</th>
<th>Heat Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminet 40</td>
<td>45-49%</td>
<td>70%</td>
<td>16%</td>
</tr>
<tr>
<td>Aluminet 50</td>
<td>50-55%</td>
<td>45%</td>
<td>50%</td>
</tr>
<tr>
<td>Aluminet 60</td>
<td>55-64%</td>
<td>22%</td>
<td>56%</td>
</tr>
<tr>
<td>Aluminet 70</td>
<td>60-74%</td>
<td>17%</td>
<td>63%</td>
</tr>
</tbody>
</table>

Aluminet® I Open Screens provide multiple solutions where both heat-stress reduction and frost protection is necessary. The double-sided reflector screen helps to protect your crop against both midday heat stress and overnight frost.

Light-transmittance parameters were tested according to ASTM-D 1746 & ASTM-D 1494 methods.

Aluminet® IC Closed Screens for Energy-Saving

<table>
<thead>
<tr>
<th>Screen</th>
<th>Ultrasound</th>
<th>Sunlight</th>
<th>Heat Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminet IC 13</td>
<td>59%</td>
<td>31%</td>
<td>14%</td>
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<tr>
<td>Aluminet IC 50</td>
<td>59%</td>
<td>54%</td>
<td>45%</td>
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<tr>
<td>Aluminet IC 50</td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Aluminet IC 70</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Aluminet IC 100</td>
<td>70%</td>
<td>70%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Aluminet® IC is highly recommended for greenhouses where a high level of energy saving is essential. Tests show that Aluminet®’s insulation properties contribute significantly to reduced energy consumption.


Aluminet® IC Closed Screens for Energy-Saving: 80% more energy savings than a conventional greenhouse.

WHY SHOULD YOU CONSIDER INSTALLATION OF ALUMINET® SCREENS?

**Saves energy**
Aluminet® screens have been tested and proved to save over 50% of heating energy, which means direct reduction of your operational costs.

**Increases yields**
Better temperature control, together with optimized light management, ensures maximum yield from your greenhouses. Aluminet® screens raise plant temperatures, improving the day and improve photosynthesis by increasing the amount of scattered light.

**Protects against frost**
Many outdoor crops benefit from improved climate management. Aluminet® screens installed on light-frame shade houses protect crops from frost, wind and heat stress, increasing both crop quality and productivity.

**Warranty**
Aluminet® screens carry a 10-year guarantee on product quality. The company's quality assurance policy focuses on supply of quality products to its customers - for long-term use - under lush and diverse field conditions. All the company's activities are conducted under ISO 9001 and EN 959 standards.

HOW DOES IT WORK?

**Double-side reflection**
Aluminet® screens reflect sun radiation during the day, reducing overexposure to heat, and reflect IR radiation at night, increasing plant temperature and reducing risk of frost. The screens also prevent condensation on leaves.

**Light Diffusion**
Aluminet's special structure improves light management. The use of special additives and the multifaceted reflection of the metal Aluminet® strips contribute to efficient diffusion of incoming radiation, creating uniform light throughout the greenhouse.
EnviroSTEP™ Controls

Each year hundreds of growers install EnviroSTEP controls in their greenhouses. It’s the flexible, rugged choice to integrate the climate control equipment for one zone. There’s no better combination of power and value than the EnviroSTEP. Garden centers, production growers, laboratories and schools all benefit from this control. And it bears the UL mark, your assurance of regulatory approval.

Features:

- Single zone control
- 3 set point periods — day, night and DIF
- 12 relay outputs with manual override switches
- 2 analog outputs (0 to 10VDC) to control variable-speed fans and modulating valves
- 7 analog input channels for connecting light, CO2, RH and temperature sensors
- 4 digital detector channels sense precipitation, wind speed and direction
- Records the status of all inputs and outputs in 15-minute increments
- Alarm outputs: temperature, RH and power failure
- Replaceable 10-amp DPDT relays, can operate a wide variety of equipment — these relays reduce the cost of your contractor panel

- Durable corrosion-resistant cabinet with locking door protects your control
- Cabinet measures 16" x 16" x 5"
- Largest display in the industry — has menu-driven choices and graphic functions
- Keypad for easy operation
- Ramping allows for gentle transition between set point periods and saves fuel

Includes:

- Solar-guarded aspirated temperature and humidity sensor and 100’ of cable
- Solar-shielded outdoor temperature sensor with 25’ of cable

Maintaining the Climate for Growth

Our EnviroSTEP and VerisSTEP integrated controls monitor and manage all aspects of climate: temperature, humidity, light level, CO2 and watering.

Unlike staged STEP controls that group several pieces of equipment into stages, integrated controls allow each piece of equipment to have its own parameters. These advanced controls offer more precise control. Now more than ever, the Wadsworth STEP brand name is your key to a Simple Total Environmental Program.

Advantages to using integrated controls:

Easy to Use

- Your integrated control is plug-n-play; all you need to do is connect it.
- Although our settings are optimized for the typical greenhouse, customizing your control is simple.
- Your shipment includes an instructional DVD.
- Largest screen in the industry — includes graphic capabilities.
- Interface panel is easy to use — simply push the button to select the desired option from the menu and press the GO key.

Enhances Crop Quality

- Provides uniform growing conditions.
- Multiple set point capability mimics nature, improves crop quality and hardness.
- Increased precision in monitoring and equipment control, each piece of equipment has its own parameters.
- Highly accurate temperature and humidity control.

Reduces Fuel Costs

- Maximizes energy management.
- Reduce energy consumption by lowering night temperatures, this is when 80% of the heating occurs.
- Ramping allows for a gentle transition between set point periods.
- Solar-guarded, aspirated temperature and humidity sensors provide excellent accuracy. This counts in real-world terms; consider that for every degree of improved accuracy, your energy consumption is reduced by 3%.

Increases Productivity

- Automation allows you and your staff to focus on other aspects of running your business; such as growing plants and growing sales.
- The EnviroSTEP or VerisSTEP are a great addition to your team. Your control works 24/7, with no complaints, and it will do exactly what you tell it to do. Talk about good management labor relations!
- Add STEPolar software (see page 14) to save even more on labor costs.

Barlow Flower Farm

Wadsworth equipment:
- 2 EnviroSTEP Controls
- Weather Station
- STEPolar

Equipment we control:
- Hot Water Boiler & Pump
- Floor & Overhead
- Hot Water Heat
- HAT Fans
- Roof & Gable Vents
- Curtain System

"The EnviroSTEP does a great job. The customer service is outstanding. I wish more companies would follow their example."

Ask about our training sessions that can be done on-site or via the Internet (see page 21).
Optimize the power of EnviroSTEP and VersiSTEP

Wadsworth sensors increase the power of your Integrated STEP controls. By using additional sensors, your control can make anticipatory decisions for optimum control. Visit our website at www.WadsworthControls.com to learn more about how sensors add power to your integrated controls.

Computer Weather Station

Wadsworth’s Weather Station monitors the following outdoor weather conditions:
- Temperature
- Humidity
- Wind speed and direction
- Precipitation
- Light intensity
- Accumulated light

Sensors

Wadsworth’s sensors provide accurate temperature and humidity readings. Housed in a solar-guarded, appraised unit, a fan draws air across the sensors providing an accurate ambient temperature reading rather than an incorrect reading due to direct sunlight exposure.

For every 1° of improved accuracy you reduce energy consumption by 3%.

“Data from the STEPsaver logging feature helped us achieve the lowest possible night temps while running the finest amount of exhaust fans. This is critical in the Texas summer heat so we can avoid heat delay on our plants.”

—Jimmy Klopcic
Klopcic Greenhouses
Blessing, TX

STEPsaver: for Your Watchdog

- STEPsaver constantly monitors your Wadsworth STEP controls for alarm reports
- Pop-up window on your desktop PC alerts you to troubles
- With your permission, STEPsaver reports to e-mail, or it will text your cell phone or PDA
- Makes an ideal complement to your Alarm Manager or other alarm monitoring system

STEPsaver as a Management Tool

- Transfer and store data from your greenhouse control
- Use STEPsaver’s built-in reporting tools to summarize stored data
- Know how many hours your fans or heaters ran. Confirm that systems ran as you expected
- Learn the average temperature and humidity for day, night and DIF
- Manage access to settings with user names and passwords
- Access STEPsaver over the internet, with user name and password protection

STEPsaver as a Productivity Tool

- View conditions for the entire greenhouse range at a glance. For greenhouses with many zones or acres, STEPsaver is a step saver
- All features accessible with point-and-click menus and buttons
- Allows you to see and change the settings for any controller in any zone
- Not limited to a single PC. No extra charge for sites with a Local Area Network
- Oversee the greenhouse climate, no matter where you are
- STEPsaver imaging takes a snapshot of all settings so you can replicate previous success
- Instructional DVD included

STEPsaver as an Analysis Tool

- Compare data between zones
- Filter data to pinpoint every data entry, or broaden your view to a few points that represent hours or a whole day. Spot long-term trends by hiding detail
- Create custom views of your data that combine sensor readings, equipment use and weather
- Dynamic, quick, and easily done with a few mouse clicks

System Requirements
- Windows Operating System: 2000 or XP
- 500 MB available hard disk space
- STEPsaver works with: Unidata STEPSTEP, STEP XP and pre-YP microSTEP controllers
- Upgrades available for pre-YP microSTEPS
The same quality and structural integrity that is engineered into our flush door line, is carried over into our stile & rail glass door (storefront entrances). The vertical stiles of the MS-400 series are tubular extrusions that are 4 inches wide. This allows for usage of most commercial hardware. There are a wide variety of glass configurations that can be created, from full view glass to various horizontal and vertical mullion assemblies. These custom variables allow for the creation of many unique entrance designs. Entrances that are required to meet the American Disabilities Act (ADA) are easily fabricated. The base and top horizontal rails of the doors can vary from 4-1/2" to any desired height. Other structural points of emphasis are:

- Door sections are 1-3/4" x 4-1/2" tubular shapes of extruded aluminum 6063-T5 alloy.
- True Mortise and Tenon Joinery at every Stile and Rail Intersection.
- Joinery is 3/8" diameter zinc plated steel tie rods bolted through the stiles. Where applicable, a minimum of three rods will be installed in each door.
- Wall thickness of the extrusion stile face is .125" nominal. While the end wall thickness at the hinge and lock stiles are .187".
- Meeting stile of all pair of doors have wool pile weather stripping w/ fin strip.
- Glass glazing stops are extruded channels with minimum wall thickness of .125" and are removable only from the inside.
- All exterior glazing is part of the door extrusions and non-removable.
- The glazing stops will always match the finish of the door.
- The doors accept glass from 1/4" up to 1-1/4" thickness.
- Accept hardware of any type and manufacturer as required.
- Available in a variety of anodized and painted colors.

Cross Aluminum’s MS-400 series doors are fabricated with a true mortise and tenon joinery. The rails are composed of a spline composition which encompasses the entire Tie-rod through the full width of the horizontal rail. This construction process provides maximum strength without the use of a welded joint. Utilizing this method allows the owner the option to replace any piece of the door that may be damaged by abuse or accident. This can be done by disassembling the door and purchasing a replacement part, rather than having to spend hundreds of dollars to purchase a completely new door.

NOTE:

MATERIAL:
EXTRAUDED 6063-T5 ALUMINUM ALLOY WITH POLYACETAL THRUST BEARINGS

COLOR:
30 MINUTE CLEAR ANODIZED AND 2-STEP DARK BRONZE ANODIZED

CUSTOM HOLE LOCATIONS:
HOLE SIZES & LOCATIONS PER CUSTOMER SPECIFICATIONS

DOOR TYPE:
FOR 1-3/4" DOORS, STANDARD / HEAVY DUTY TO 450 LBS. LEAD-LINES TO 1000 LBS

DOOR REINFORCEMENT:
NONE REQUIRED

FRAME REINFORCEMENT:
OVER 200 LBS. REINFORCE WITH 16 GA. CHANNEL

SPECIAL FEATURES:
LEAD LINES MODEL FOR HOSPITAL X-RAY ROOM. DOUBLE ROW SCREWS TO STRADDLE LEAD.

HINGE KING:
TEMPLATED AND HOLE PATTERN IS THE SAME FROM HINGE TO HINGE

HANDING:
HINGE IS NON-HANDED UNLESS CUT IN THE FIELD

FIRE RATING:
UL LISTED FOR 90 MINUTE RATED DOORS
UL LISTED FOR UP TO 3 HOUR RATED DOORS WITH USE OF A STEEL STUD

SCREW DETAIL:
12-24 x 1/16" FH. F.H. UNDERCUT SELF DRILLING THREAD FORMING TEK SCREW
**SPECIFICATIONS**

**APPLICATIONS**
For offices, schools, hospitals, apartments, hotels, motels, residential, commercial and public buildings.

**DOOR RANGES**
1 3/8" to 1 3/4" thickness doors.

**BACKSET**

**LATCH FACEPLATE**
2 2/16" x 1 1/4", adjustable for flat or beveled doors 1 3/8" in 2", for 2 1/4" backset. Optional 2 1/4" x 1" for 2 3/4" backset.

**LATCHBOLT**
1/2" Throw solid brass, reversible for RH or LH applications. UL Listed.

**ANSI STANDARDS**
Meets or exceeds requirements of BHMA/ANSI A156.1; 2 Series 4000, Grade 2 (FF-H 108C), 400,000 cycles.

**EXPOSED TRIM**
Wrought brass, bronze or stainless steel, levers are zinc casting, plated to match trim finish.

**KEYING**
6-pin "C" keyway cylinder, 2 keys per lock. Keying per individual job requirement.

**CYLINDER & KEYWAYS**

**CLUTCH**
Clutch available on all keyed locks and privacy functions. Prefix "SC" before part number.

**INTERCHANGEABLE CORE**
Interchangeable Core locks will accept compatible 6 or 7 pin cores with BEST, FALCON and ARROW. Prefix "SC" before part number. Available combined or uncombined. Temporary construction cores available. Factory keying will control core and masterkey available.

**STRIKES**
ASM strike standard, "T" and full lip strike are available on request.

**MEETS**
The Buy American Act

**PIioneer**
SL SERIES (NON CLUTCH MECHANISM)
CSL SERIES (CLUTCH MECHANISM)

- **OPTIONAL THRU BOLT INSTALLATION**
  - Full length lever handle with 1/2" return
  - Optional removable Thru Bolt
  - Concealed screw mounting
  - Cylindrical Body

**SL/CSL SERIES**
ANSI GRADE 2
HEAVY DUTY
CYLINDRICAL LEVERSETS
Available with Interchangeable Core

**HURRICANE APPROVED HARDWARE**
暴雨抗风型装置
PL13922
HURRICANE HARDWARE
UL1003
UL134
UL1384

**UL LISTED 3 HOUR RATED 1/2" Throw deadlatch completely reversible for flat & beveled doors**

**DOOR PREPARATION**

- Drill 2 x 5/16" dia. (8mm) when optional thru bolt is applied.
NOTES:
1. VERIFY ALL DIMENSIONS PRIOR TO DISMANTLING & RELOCATING GREENHOUSE
2. CONTRACTOR IS TO ASSESS ALL EXISTING WOOD & METAL SHEETING & REPLACE MATERIALS THAT ARE NO LONGER STRUCTURALLY SOUND
3. CONCRETE FOOTING (TYP.) - 6" W. x 8" DP. @ END OF BUILDING (TOP OF CONCRETE @ GRADE)
4. 100W LED WALLPACK
5. 150W HIGH-BAY LED (TYP. OF 3)
6. 100A PANEL
7. 120V 20A GFI RECEPTACLE (TYP.)
8. GAS HEATER
9. REGULATOR & VALVE TO HAVE CONCRETE PAD & PROTECTIVE CAGE
10. 1" Ø POLY FUSE SDR11 (FOR 5 PSIG)
11. 3/4" POLY FUSE SDR11 (FOR 5 PSIG)
12. SDR11 (FOR 5 PSIG)
13. 1" Ø GALV. CHAIN
14. 3 16" x 12" L. GALV. CHAIN
15. *REGULATOR & VALVE TO HAVE CONCRETE PAD & PROTECTIVE CAGE*
16. 6" H. CMU OR DRIED CONCRETE @ BASE OF FOOTING
17. COLUMN FOOTING NOT TO SCALE
18. PURLIN OR METAL TUBE SELF-TAPPING SCREW OR A307 BOLT THROUGH METAL & EYE OF CHAIN 3" 16 " 12 " GALV. CHAIN
19. LED HIGH BAY FIXTURE
20. LIGHT FIXTURE MOUNTING NOT TO SCALE
21. EXISTING GREENHOUSE 1 FOUNDATION & ELECTRICAL-GAS
22. MERCED COLLEGE UNIVERSITY DR. MERCED, CA
23. PO BOX 187 MIDDLETON, ID 83644 (208) 870-0005
24. REV. REVISION DATE -- --- 04/27/2022
NOTES:

1. VERIFY ALL DIMENSIONS PRIOR TO DISMANTLING & RELOCATING GREENHOUSE

2. CONTRACTOR IS TO ASSESS ALL EXISTING WOOD & METAL SHEETING & REPLACE MATERIALS THAT ARE NO LONGER STRUCTURALLY SOUND

1'-0"Ø x 2'-6" DP. 2500 PSI CONCRETE FOOTING (TYP.)

GREENHOUSE TO HAVE MIN. 6" THK. COMPACTED 3 4"
" MINUS GRAVEL "FLOOR"

6" W. x 8" DP. CONCRETE @ END OF BUILDING (TOP OF CONCRETE @ GRADE)

5'-0" W. x 4" THK. CONCRETE SIDEWALK W/ HEAVY BROOM FINISH

100W LED WALLPACK

150W HIGH-BAY LED (TYP. OF 3)

100A PANEL

120V 20A GFI RECEPTACLE (TYP.)

ELECTRICAL & GAS

3/4" POLY FUSE SDR11

1"Ø POLY FUSE SDR11 (FOR 5 PSIG)

*REGULATOR & VALVE TO HAVE CONCRETE PAD & PROTECTIVE CAGE*

21'-10"

12'-1"

4" C/C POSTS & FOOTINGS

397x1334

6'-21"

3"

3" 4" C/C

6'-3" C/C

6'-21 4" C/C

3 4"

6" W. x 8" DP. CONCRETE @ END OF BUILDING (TOP OF CONCRETE @ GRADE)

6" H. CMU OR DRIED CONCRETE @ BASE OF FOOTING

COLUMN FOOTING

12345678900
25'-0" L. x 6'-0" H. CONCRETE WALL
26'-0" L. x 1'-2" THK. WALL FOOTING
30'-0" O/O OF 5" THK. SLAB
8" 1'-8" 13'-0" 8" 4'-0" 13'-0" 8" 9'-8" 4'-0"
45'-0" O/O OF 5" THK. SLAB
8" 1'-8" 13'-0" 8" 4'-0" 13'-0" 8" 9'-8" 4'-0"
**SHADE CLOTH TO BE 40% ALUMINET**

**SHADE CLOTH TO BE ATTACHED TO PURLINS USING 1/2" Ø MARINE GRADE ROPE**

**SHADE CLOTH TO ATTACHED TO PURLINS USING 1/2" Ø MARINE GRADE ROPE**

**CABLE BRACING TO BE PROVIDED @ ROOF ON TOP SIDE OF SHADE CLOTH**

**CABLE BRACING TO BE PROVIDED @ ROOF ON TOP SIDE OF SHADE CLOTH**

2'-6" Ø x 4'-6" DP. 2500 PSI CONCRETE FOOTING (TYP. COLUMN B)

2'-0" Ø x 3'-0" DP. 2500 PSI CONCRETE FOOTING (TYP. COLUMN A & C)

**NON-CONCRETED AREAS TO HAVE MIN. 6" THK. COMPACTED 3/4" MINUS GRAVEL**

**3/8" Ø CABLE @ ROOF ON TOP SIDE OF SHADE CLOTH @ EVERY BAY (SHOWN ONLY IN THIS BAY FOR CLARITY OF OTHER COMPONENTS)**

**HATCH PATTERN INDICATES 4" THK. HEAVY BROOM FINISHED CONC.**

**SHEET OF SHEETS--**

**DWG NAME:** SHADE

**SCALE:** AS NOTED

**DATE:** 02/04/22

**REVIEW:** MCM

**DRAWN:** TCK

**DESIGN:** TCK

**PROJECT #:** SHADE

**MERCED COLLEGE UNIVERSITY DR. MERCED, CA**

**PO BOX 187 MIDDLETON, ID 83644 (208) 870-0005**

**REV. REVISION DATE -- ---**

**STANDARD TITLE BLOCK**

**PLAN VIEW, ELECTRICAL, & FOUNDATION PLAN**

**21-073 TCK TCK**

**MCM 02/04/22 AS NOTED SHAD**

**SHADE SHEET SH1 OF - SHEETS**
SHADE STRUCTURE FRAME TO BE OWNER FURNISHED CONTRACTOR INSTALLED