

SECTION 066030

EXTERIOR PVC PERGOLAS (IBC Compliant)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and other Contract Documents, listed in the agreement between the Owner and Contractor, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior PVC pergolas.

1.3 SUBMITTALS

- A. Product Data: For each type of product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of product involving selection of colors, profiles, or textures.
- D. Delegated-Design Submittal: For railing and pergola systems, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Evaluation Reports: For the following, from ICC-ES:
 - 1. Cellular PVC components.
- F. Sample Warranties: For manufacturer's warranties.

1.4 QUALITY ASSURANCE

- A. Engineer pergola system to meet the requirements of the 2012 International Building Code for 1 inch ice load, 120 mph Wind Up-lift, and applicable snow loads.
- B. Engineer pergola system to withstand design loads indicated on Drawings.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials flat with spacers between bundles to provide air circulation. Protect materials with waterproof covering.
- B. Do not store packaging materials in direct sunlight to prevent heat build up.

1.6 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed.
- B. Do not install PVC materials that are damaged.

1.7 WARRANTY

- A. Manufacturer's Warranty for Cellular PVC Pergola Systems: Manufacturer agrees to replace components that fails due to defects in manufacturing within specified warranty period.
 - 1. Warranty Period: Limited Lifetime Warranty. Refer to manufacturer's website for details.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. INTEX Millwork Solutions, LLC; 20 Bogden Blvd., Millville, NJ 08332; Tel: (856) 293-4100, Fax: (856) 293-4102.

2.2 EXTERIOR PVC PERGOLA

- A. Cellular PVC: Extruded, expanded PVC with a small-cell microstructure, recommended by manufacturer for exterior use, made from UV- and heat-stabilized, rigid material.
 - 1. Basis of Design Product: Subject to compliance with requirements, provide the following: Intex Millwork Solutions; Pergola System – Custom.
- B. Rafters: Sizes as indicated on Drawings.
- C. Carrying Beams: Sizes as indicated on Drawings.
- D. Tail Designs: Style as indicated on Drawings.
- E. Purlins: Profiles and dimensions as indicated on Drawings.
- F. Column Wraps: Manufacturer's "Flat Panel" in height and width as indicated on Drawings.
- G. Hardware and Accessories: As recommended by the Manufacturer.

2.3 MISCELLANEOUS MATERIALS

- A. Fasteners for PVC Components: Provide manufacturer's recommended fasteners.
- B. Adhesive for Cellular PVC: Product recommended by manufacturer.
- C. Sealants: Type as recommended by manufacturer and complying with ASTM C 834 and with applicable requirements in Division 07 Section "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine PVC materials before installation. Reject materials that are damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound or warped.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install PVC components level, plumb, true, and aligned with adjacent materials.
 - 1. Scribe and cut PVC components to fit adjoining work.
 - 2. Coordinate PVC components with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate PVC components.

3.4 PERGOLA INSTALLATION

- A. Install PVC pergola systems in strict accordance with manufacturer's written installation instructions, and detailed shop drawings.
- B. Refer to manufacturer's website for the latest information and installation videos.
- C. Pergola Installation, Freestanding:
 - 1. Carrying Beam Installation, 6 X 6 or 8 x 8 Timber Post.

- a. Measure the center to center distance of the timber posts which will support the Carrying Beams. Mark this distance on the bottom of the Carrying Beam so the ends of the beam will extend an equal distance beyond the supporting posts.
 - b. Center a Perpost Cap and a Beam-to-Post Bracket at the locations determined in Step 1a.
 - c. Drill 1/8 inch pilot holes at the locations shown in Figure 1a. The quantity and location of the holes is determined by the width of the Carrying Beam.
 - d. Mount the Perpost Caps and Beam to Post Brackets to the Carrying Beam with the prescribed number of 1/4 by 2-1/2 inch long hex head self-tapping stainless steel screws.
 - e. On the centerline of the bottom of the beam, measure 2 inches from the inside of the edges of the Perpost Caps and mark the locations.
 - f. Drill a 1.00 inch Diameter hole through the PVC at the two locations created in Step 1e. Be careful not to drill through the aluminum reinforcement. Insert Drain Plugs provided at these locations.
 - g. Repeat with the other Carrying Beam(s).
 - h. Place the completed Carrying Beam assembly on top of the corresponding timber posts.
 - i. Drill 1/8 inch pilot holes through the five holes on each side of the Beam to Post Bracket.
 - j. Mount the Carrying Beam assembly to the timber post with the 1/4 by 2-1/2 inch long hex head stainless steel screws as shown.
 - k. Repeat these steps and mount the other end of the Carrying Beam(s).
2. Rafter Installation:
- a. Once both Carrying Beams are installed, set one Rafter in place and center it so that each tail end extends equally past the Carrying Beams.
 - b. Mark the underside of the Rafter at the inside and outside of the Carrying Beam at each end. These marks may be visible after Rafters are installed, so use light pencil or other removable marking.
 - c. Remove Rafter and turn upside down.
 - d. Align all remaining Rafters next to the marked Rafter, and transfer lines across to all. This step assumes the Carrying Beams are parallel. If this is not the case, please modify accordingly.
 - e. Center a Rafter bracket between the marked lines with the center holes countersink up and the bracket extending out past the sides of the Rafter. The bracket used as well as the location and quantity of mounting holes is determined by the width of the Rafter. See Figure 2a. Note that the scribed lines on the opposite side of the bracket are used to center the bracket across the Rafter.
 - f. With the brackets centered between the marked lines and across the Rafter, drill 1/8" pilot holes through the mounting holes into the Rafter.
 - g. Attach the bracket to the Rafter using the 1/4 by 2 inch long flat head self-tapping stainless steel screws.
 - h. Repeat steps e-g for all Rafter brackets.
 - i. On the bottom of each Rafter, approximately 1/2 inch from the inside edge of the each bracket, drill a 1/8 inch drain hole through the PVC. Be careful not to drill through the aluminum reinforcement.
 - j. Measure center to center of the timber posts and divide this measurement by the number of rafter spaces (you should have one more Rafter than the number of spaces). This is the center line spacing to set each Rafter.

- k. Mark both Carrying Beams with center line measurements for all the Rafters to confirm spacing before installation.
 - l. Place Rafters on Carrying Beams and center on marks.
 - m. Drill 1/8 inch pilot holes and attach Rafter brackets to Carrying Beams using 1/4 by 2 inch long flat head self-tapping stainless steel screws.
3. Purlin or Lath Installation:
- a. Once all Rafters are installed, measure the distance between the outside edges of the outer two Rafters.
 - b. Determine the amount of overhang desired for your application. Typical Purlin overhang would be 8 to 12 inches on each end, and Lath overhang would be 6 to 8 inches. Add twice the overhang desired to the measured distance. This is the overall Purlin or Lath length.
 - c. Once all Purlin or Lath is sized, set one in place and center across Rafters with equal overhang at each end. Mark the under the side of the Purlin or Lath at the outside of the outer Rafter each end.
 - d. Remove Purlin or Lath and turn upside down.
 - e. Align all remaining Purlin or Lath next to the marked one, and transfer lines across to all. These marks may be visible after Purlin or Lath is installed, so use light pencil or other removable marking. This step assumes the Carrying Beams are parallel. If this is not the case, please modify accordingly.
 - f. Measure center to center of the Carrying Beams and divide this measurement by the number of Purlin or Lath spaces (you should have one more Purlin or Lath than the number of spaces). This is the center line spacing to set each Purlin or Lath.
 - g. Mark both end rafters with center line measurements for all the Purlin or Lath to confirm spacing before installation.
 - h. Place Purlin or Lath across Rafters and center to marks.
 - i. Purlin or Lath should be secured with a screw in o the Rafter at each intersection along the two outside Rafters, and then every other Rafter for the remainder of the intersections. Insure that Purlin or Lath are straight along their entire length before securing with screws:
 - 1) If using Purlin, drill 1/8 inch pilot holes through the top and bottom of the Purlin into the Rafter and secure with 4-1/2 inch stainless or coated screws.
 - 2) If using Lath, secure with stainless #10-32 x 1-1/2 inch screws

D. Pergola Installation, Attached-to-Structure:

1. Carrying Beam Installation
 - a. Reference step 1a to 1k under “Pergola Installation, Freestanding”. Follow these steps to install the single Carrying Beam used for this application.
2. Ledger Board/Cover Installation where Rafter ends rest on top of Ledger Board Cover (Intex recommends that a pressure treated double 2 x 10 be used as the structural ledger board).
 - a. Transfer height from top of Carrying Beam to wall, measure down 5/8 inch and snap line.

- b. Align the top of the structural ledger board with the snap line and attach using appropriate fastening methods. Counter sink screws or bolts to preclude interference with Ledger Board Cover.
 - c. Fit Ledger Board Cover over structural ledger board and attach using stainless steel finish nails.
 3. Ledger Board/Cover Installation where Rafter ends mount to face of Ledger Board Cover (Intex recommends that a pressure treated double 2 x 10 be used as the structural ledger board).
 - a. Follow these steps if you want the bottom of the Rafters to be flush with the bottom of the Ledger Board Cover. Adjust the snap line up or down to achieve your desired result.
 - b. Transfer height from top of Carrying Beam to wall, measure up 5/8 inch and snap line.
 - c. Align the bottom of the structural ledger board with the snap line and attach using appropriate fastening methods. Counter sink screws or bolts to preclude interference with Ledger Board Cover.
 - d. Fit Ledger Board Cover over structural ledger board and attach using stainless steel finish nails. The inside bottom edge of the Ledger Board Cover should fit tight to the bottom of the structural ledger board.
 4. Rafter Installation where Rafter ends rest on top of Ledger Board Cover
 - a. Once the Carrying Beam and the Ledger Board Cover are installed, place one Rafter with the flat butt end on top of the Ledger Board Cover, tight against the wall.
 - b. Mark the underside of the Rafter at the inside and outside of the Carrying Beam and at the outside of the Ledger Board Cover. These marks may be visible after Rafters are installed, so use light pencil or other removable marking.
 - c. Remove Rafter and turn upside down.
 - d. Align all remaining Rafters next to the marked Rafter, and transfer lines across to all.
 - e. Center a Rafter bracket between the marked lines with the center holes countersink up and the bracket extending out past the sides of the Rafter. For the butt end, center the bracket between the marked line and the end of the Rafter. The bracket used as well as the location and quantity of mounting holes is determined by the width of the Rafter. See Figure 2a. . Note that the scribed lines on the opposite side of the bracket are used to center the bracket across the Rafter.
 - f. With the brackets centered between the marked lines and across the Rafter, drill 1/8" pilot holes through the mounting holes into the Rafter.
 - g. Attach the bracket to the Rafter using the 1/4 by 2 inch long flat head self-tapping stainless steel screws.
 - h. On the bottom of each Rafter, approximately 1/2 inch from the inside edge of each bracket, drill a 3/8 inch drain hole through the PVC. Be careful not to drill through the aluminum reinforcement Repeat steps e-h for all Rafter brackets.
 - i. Measure center to center of the timber posts and divide this measurement by the number of rafter spaces (you should have one more Rafter than the number of spaces). This is the center line spacing to set each Rafter.
 - j. Mark the Carrying Beam with center line measurements for all the Rafters to confirm spacing before installation. Transfer these spacing marks to the top of the

- Ledger Board Cover, insuring that alignment of rafters will be perpendicular to wall.
- k. Place Rafters across Ledger Board Cover and Carrying Beam and center to marks
 - l. Drill 1/8 inch pilot holes and attach Rafter brackets to Carrying Beam and Ledger Board Cover using 1/4 by 2 inch long flat head self-tapping stainless steel screws.
5. Rafter Installation where Rafter ends mount to face of Ledger Board Cover
- a. Once the Carrying Beam and the Ledger Board Cover are installed, place one Rafter with the flat butt end tight against the face of the Ledger Board Cover.
 - b. Mark the underside of the Rafter at the inside and outside of the Carrying Beam. These marks may be visible after Rafters are installed, so use light pencil or other removable marking.
 - c. Remove Rafter and turn upside down.
 - d. Align all remaining Rafters next to the marked Rafter, and transfer lines across to all.
 - e. Center a Rafter bracket between the marked lines with the center holes countersink up and the bracket extending out past the sides of the Rafter. The bracket used as well as the location and quantity of mounting holes is determined by the width of the Rafter. See Figure 2a. . Note that the scribed lines on the opposite side of the bracket are used to center the bracket across the Rafter.
 - f. With brackets centered between the marked lines and across the Rafter, drill 1/8 inch pilot holes through the mounting holes into Rafter.
 - g. Attach the bracket to the Rafter using the 1/4 by 2 inch long flat head self-tapping stainless steel screws
 - h. On the bottom of each Rafter, approximately 1/2 inch from the inside edge of the bracket, drill a 3/8 inch drain hole through the PVC. Be careful not to drill through the aluminum reinforcement.
 - i. Repeat steps e-h for each Rafter.
 - j. Measure center to center of the timber posts and divide this measurement by the number of rafter spaces (you should have one more Rafter than the number of spaces). This is the center line spacing to set each Rafter.
 - k. Mark the Carrying Beam with center line measurements for all the Rafters to confirm spacing before installation. Transfer these spacing marks to the vertical face of the Ledger Board Cover, insuring that alignment of rafters will be perpendicular to wall.
 - l. Determine the location of the top of the Rafters and measure down 3/4 inch. Mark this horizontal position across the face of the Ledger Board Cover. Attach a ledger board bracket centered on each mark on the Ledger Board Cover, with the top of the bracket aligned with the 3/4 inch position.
 - m. Drill 1/8 inch pilot holes and secure the ledger board bracket to the Ledger Board Cover with (2) 1/4 by 3 inch long hex head stainless steel screws.
 - n. Place the Rafter on top of the Carrying Beam and over the ledger board bracket so the aluminum reinforcement rests on top of the bracket and Rafter is centered on each mark.
 - o. Drill three 1/8 inch pilot holes down through the Rafter above the ledger board bracket. Drill through the PVC, aluminum reinforcement and the bracket. Attach the end of the Rafter to the ledger board bracket with three 1/4 by 2 inch long flat head self-tapping stainless steel screws.
 - p. Insure alignment/spacing of Rafter, across Carrying Beam and center to marks

- q. Drill 1/8 inch pilot holes and attach Rafter brackets to the Carrying Beam using 1/4 by 2 inch long flat head self-tapping stainless steel screws
 - r. Repeat step m thru q until all of the Rafters are installed.
6. Purlin or Lath Installation:
- a. Once all Rafters are installed, measure the distance between the outside edges of the outer two Rafters.
 - b. Determine the amount of overhang desired for your application. Typical Purlin overhang would be 8 to 12 inches on each end, and Lath overhang would be 6 to 8 inches. Add twice the overhang desired to the measured distance. This is the overall Purlin or Lath length.
 - c. The overall length of the supplied Purlin or Lath material may be less than the distance between the outside edges of the two Rafters. If so, splice two pieces together accordingly to achieve the desired overall length. The location of the splice is critical and should be located above Rafter for support.
 - d. Once all Purlin or Lath is sized, set one in place and center across rafters with equal overhang at each end. Mark the under the side of the Purlin or Lath at the outside of the outer Rafter each end.
 - e. Remove Purlin or Lath and turn upside down.
 - f. Align all remaining Purlin or Lath next to the marked one, and transfer lines across to all. These marks may be visible after Purlin or Lath is installed, so use light pencil or other removable marking.
 - g. Measure from the butt end of the Rafter to the center of the Carrying Beam and divide this measurement by the number of Purlin or Lath spaces (you should have one more Purlin or Lath than the number of spaces). This is the center line spacing to set each Purlin or Lath.
 - h. Mark both end rafters with center line measurements for all the Purlin or Lath to confirm spacing before installation.
 - i. Place Purlin or Lath across Rafters and center on marks.
 - j. Purlin or Lath should be secured with a screw into the Rafter at each intersection along the two outside Rafters, and then every other Rafter for the remainder of the intersections. Insure that Purlin or Lath are straight along their entire length before securing with screws:
 - 1) If using Purlin, drill 1/8 inch pilot holes through the top and bottom of the Purlin into the Rafter and secure with 4-1/2 inch stainless or coated screws.
 - 2) If using Lath, secure with stainless #10-32 x 1-1/2 inch screws

NOTE: For any application in these instructions that call for /epoxy INTEX recommends TRIMBONDER 2 part epoxy or BOND AND FILL 2 part epoxy.

3.5 ADJUSTING

- A. Replace PVC components that are damaged or do not comply with requirements. Adjust joinery for uniform appearance.

3.6 CLEANING

- A. Clean exposed and semiexposed PVC surfaces.

3.7 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace PVC materials that are damaged.

END OF SECTION