SECTION 08 90 00

LOUVERS

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\*\* NOTE TO SPECIFIER \*\* Industrial Louvers; louvers, sun control devices, grilles, screens and column covers.  
This section is based on the products of Industrial Louvers, which is located at:  
511 S. 7th St. Box M  
Delano, MN 55328  
Tel: 763-972-2981  
Fax: 763-972-2911  
Email: [request info (ilinfo@industriallouvers.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Industrial+Louvers&coid=33253&rep=&fax=763-972-2911&message=RE:%20Spec%20Question%20(10210ili):%20%20&mf=)  
Web: [www.industriallouvers.com](http://www.industriallouvers.com)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos33/arc33253.html) ] for additional information..  
ILI offers a wide variety of louver models and finishes within each category of louver types. From our Storm Performance series to acoustical, ILI louvers serve a certain need and requirement within the air movement and control industry. ILI has been an active member for many years of AMCA (Air Movement and Control Association International) to assure our customers the reliability and accuracy of test methods and data concerning louver performance.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Fixed extruded aluminum non-drainable louvers.
    2. Fixed extruded aluminum drainable louvers.
    3. Extruded aluminum thinline louvers.
    4. Extruded aluminum sightproof louvers.
    5. Storm performance louvers.
    6. Hurricane / Florida approved louvers.
    7. Adjustable and combination louvers.
    8. Acoustical louvers.
    9. Penthouse / brick vents.
    10. Louver and vent accessories.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 04 20 00 - Unit Masonry.
    3. Section 05 10 00 - Structural Metal Framing.
    4. Section 06 10 00 - Rough Carpentry.
    5. Section 07 42 33 - Plastic Wall Panels.
    6. Section 07 60 00 - Flashing and Sheet Metal.
    7. Section 07 91 26 - Joint Fillers.
    8. Section 09 91 00 - Painting.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. AAMA 2604 - High Performance Organic Coatings on Architectural Extrusions and Panels.
    2. AAMA 2605 - High Performance Organic Coatings on Architectural Extrusions and Panels.
    3. AMCA 500-L - Test Methods for Louvers.
    4. AMCA 511 - Certified Ratings Program for Air Control Devices.
    5. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
    6. ASTM International (ASTM):
       1. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
       2. ASTM B221 - Standard Specifications for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
       3. ASTM D822 - Standard Practice for Filtered Open-Flame Carbon-Arc Exposure of Paint and Related Coatings.
       4. ASTM D4214 - Standard Test Method for Evaluating the Degree of Chalking of Exterior Paint Films.
       5. ASTM D2244 - Standard Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
       6. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.
       7. ASTM E90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
    7. Miami-Dade County Building Code Compliance Office (BCCO).
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings:
        1. Submit shop drawings indicating materials, construction, dimensions, accessories, and installation details.
     4. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.

\*\* NOTE TO SPECIFIER \*\* Not all louvers require AMCA Certified Ratings Seal. Delete if not required

* + 1. Production Qualifications: Louvers shall be licensed to bear AMCA Certified Ratings Seal. Ratings based on tests and procedures performed in accordance with AMCA 511 and comply with AMCA Certified Ratings Program. AMCA Certified Ratings Seal applies to air performance and water penetration ratings.

\*\* NOTE TO SPECIFIER \*\* Miami Dade approved louvers. Delete if not required.

* + - 1. Louvers approved by the Miami-Dade County Office for use in open structures that have the ability to drain water that may penetrate. Approval based on tests and procedures performed in accordance with BCCO test protocols.
    1. Installer Qualifications: Minimum 2 year experience installing similar products.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Finish areas designated by Architect.
       2. Do not proceed with remaining work until workmanship is approved by Architect.
       3. Rework mock-up area as required to produce acceptable work.
  1. PRE-INSTALLATION MEETINGS
     1. Convene minimum two weeks prior to starting work of this section.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
     2. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.
     3. Handling: Protect materials and finishes during handling and installation to prevent damage.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
     2. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
  4. SEQUENCING
     1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
  5. WARRANTY
     1. Manufacturer shall provide a standard limited warranty for louver systems for a period of 1 year from date of installation, no more than 18 months after shipment from manufacturing plant. When notified in writing from the Owner of a manufacturing defect, manufacturer shall promptly correct deficiencies without cost to the owner.

\*NOTE TO SPECIFIER\* If fluoropolymer finish is not required delete below paragraph.

* + 1. Manufacturer shall provide 20 year limited warranty for fluoropolymer-based finish on aluminum substrates.
       1. Finish Coating shall not peel, blister, chip, crack, or check.
       2. Chalking, fading, or erosion of finish when measured by the following tests:
          1. Finish coating shall not chalk in excess of 8 numerical ratings when measured in accordance with ASTM D4214.
          2. Finish coating shall not change color or fade in excess of 5 NBS units as determined by ASTM D2244 and ASTM D822.
          3. Finish coating shall not erode at a rate in excess of .01 mils/year confirmed by Florida test samples.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Industrial Louvers, which is located at: 511 S. 7th St. Box M; Delano, MN 55328; Tel: 763-972-2981; Fax: 763-972-2911; Email: [request info (ilinfo@industriallouvers.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Industrial+Louvers&coid=33253&rep=&fax=763-972-2911&message=RE:%20Spec%20Question%20(10210ili):%20%20&mf=); Web: [www.industriallouvers.com](http://www.industriallouvers.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* ILI's Fixed Extruded Aluminum Non-Drainable louvers offer superior performance and design. These louvers can be fabricated in any size or shape to meet your specific architectural design requirements while allowing maximum airflow.

* 1. FIXED EXTRUDED ALUMINUM NON-DRAINABLE LOUVERS
     1. Model: 450XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 40 degrees.
           5. Centers: 5 inches (127 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 50.9% (8.15 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 818 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 870 FPM free area velocity.
     2. Model: 455XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), .nominal.
           4. Angle: 37.5 degrees.
           5. Centers: 5 inches (127 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 50.8% (8.12 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 678 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 905.4 FPM free area velocity.
     3. Model: 456XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 30/45 degrees.
           5. Centers: 4.25 inches (108 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 52.8% (8.45 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 903.7 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 976.4 FPM free area velocity.
     4. Model: 650XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 6.875 inches (174.6 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 51% (8.15 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 1076 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 884.5 FPM free area velocity.
     5. Model: 655XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 40 degrees.
           5. Centers: 6.875 inches (174.6 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 50.4% (8.07 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 1028.1 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 883.1 FPM free area velocity.

\*\* NOTE TO SPECIFIER \*\* ILI's Fixed Extruded Aluminum Drainable louvers are a perfect choice for buildings that require superb ventilation while keeping the elements out. Drainable louvers typically have a gutter in the front of the blade that directs water out towards the jambs and away from the building opening. These louvers can be fabricated in virtually any size or shape to meet the building's architectural design requirements.

* 1. FIXED EXTRUDED ALUMINUM DRAINABLE LOUVERS
     1. Model: 458XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 35/45 degrees.
           5. Centers: 3.875 inches (98.4 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 51.3% (8.21 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 1116.2 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 893.7 FPM free area velocity.
     2. Model: 458DD as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Dual Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 3.875 inches (98.4 mm), nominal.
        3. Performance Data:
           1. Free Area: 57.4% (9.19 sf).
           2. Water Penetration: Maximum of .01 ounces at an air flow of 786 FPM.
           3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 975.7 FPM free area velocity.
     3. Model: 652DD as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Dual Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 42/45 degrees.
           5. Centers: 6 inches (152.4 mm), nominal.
        3. Performance Data:
           1. Free Area: 51.5% (8.31 sf).
           2. Water Penetration: Maximum of .01 ounces at an air flow of 932.6 FPM.
           3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1039.1 FPM free area velocity.
     4. Model: 653XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 37.5 degrees.
           5. Centers: 4.25 inches (108 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 54.8% (8.77 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1250 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 994.5 FPM free area velocity.
     5. Model: 658XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 6 inches (152.4 mm), nominal.
        3. Performance Data:
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 51.9% (8.31 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 1109.3 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 976.1 FPM free area velocity.

\*\* NOTE TO SPECIFIER \*\* ILI's Fixed Extruded Aluminum Thinline louvers are light weight and have a nice sleek appearance. The Thinline louvers are an optimum choice for curtainwall and/or storefront applications. These louvers can be fabricated in virtually any size or shape to meet the building's architectural design requirements.

* 1. EXTRUDED ALUMINUM THINLINE LOUVERS
     1. Model: 150 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.125 inch (3.2 mm), nominal.
           4. Angle: 30 degrees.
           5. Centers: 1 inches (25.4 mm), nominal.
        3. Performance Data:
           1. Free Area: 70% (11.14 sf).
     2. Model: 1516 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 1.375 inches (34.9 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 1 inches (25.4 mm), nominal.
        3. Performance Data:
           1. Free Area: 60% (9.67 sf).
     3. Model: 155-45 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 1.5 inches (38.1 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 30 degrees.
           5. Centers: 1.813 inches (46 mm), nominal.
        3. Performance Data:
           1. Free Area: 46% (7.29 sf).
     4. Model: 236 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (51 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.0 mm), nominal.
        2. Blades:
           1. Style: Horizontal. Sight proof.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.0 mm), nominal.
           4. Centers:
        3. Performance Data:
           1. Free Area: 29% (4.59 sf).
     5. Model: 250 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (50.8 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 3.125 inches (79.4 mm), nominal.
        3. Performance Data:
           1. Free Area: 39% (6.28 sf).
     6. Model: 252LW as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (50.8 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 30 degrees.
           5. Centers: 1.75 inches (44.5 mm), nominal.
        3. Performance Data:
           1. Free Area: 39% (6.29 sf).
     7. Model: 254 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (50.8 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Horizontal.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 2.625 inches (66.7 mm), nominal.
        3. Performance Data:
           1. Free Area: 44% (7.03 sf).
     8. Model: 258 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 2 inches (50.8 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
        2. Blades:
           1. Style: Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 2 inches (50.8 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 56.5% (9.04 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 736.2 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1029.5 FPM free area velocity.

\*\* NOTE TO SPECIFIER \*\* ILI's Fixed Extruded Aluminum Sightproof louvers are offer excellent ventilation and weather protection while disguising unsightly equipment. These louvers are perfect for parking garages or mechanical penthouses. ILI extruded sightproof louvers can be fabricated in virtually any size or shape to meet the building's architectural design requirements.

* 1. EXTRUDED ALUMINUM SIGHTPROOF LOUVERS
     1. Model: 435 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Sight-proof.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 4.125 inches (104.8 mm), nominal.
        3. Performance Data:
           1. Free Area: 30% (4.79 sf).
     2. Model: 436 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Sight-proof.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 3.25 inches (82.6 mm), nominal.
        3. Performance Data:
           1. Free Area: 38% (6.12 sf).
     3. Model: 537XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 5 inches (127 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Sight-proof, drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 2.25 inches (57 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 52.2% (8.35 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow of 1131.9 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 635.9 FPM free area velocity.
     4. Model: 837XP as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 8 inches (203.2 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Sight-proof, drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 2.25 inches (57 mm), nominal.
        3. Performance Data:
           1. Free Area: 52% (8.30 sf).
           2. Water Penetration: Maximum of .01 ounces at an air flow of 1076 FPM.
           3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 600.8 FPM free area velocity.

\*\* NOTE TO SPECIFIER \*\* ILI's Storm Performance louvers provide optimum performance against the elements. The Storm Performance louvers have been specifically designed and tested to prevent infiltration of wind driven rain while allowing maximum airflow through the unit. ILI Storm Performance louvers can be fabricated in virtually and size or shape to meet the building's architectural design requirements.

* 1. STORM PERFORMANCE ALUMINUM LOUVERS
     1. Model: SP437V as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Vertical, sight-proof.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 2 inches (50.8 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 44.8% (7.17 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1250 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 595.4 FPM free area velocity.
        4. Wind Driven Rain Performance: Based on testing 39 inches x 39 inches (1 m x 1 m) core area, 41 inches x 44 inches (1.04 m x 1.1 2m) nominal size unit in accordance with AMCA 500-L.
           1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 604 FPM.

* + - * 1. Wind Velocity: 50 mph

Rainfall Rate: 8 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A rating at a maximum core velocity of 588 FPM.

* + 1. Model: SP437 as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 4 inches (101.6 mm).
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Horizontal, drainable, sight-proof.
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
          4. Angle: 90 degrees.
          5. Centers: 1.75 inches (44.5 mm), nominal.
       3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
          1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
          2. Free Area: 50% (8.02 sf).
          3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1250 FPM.
          4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 718.4 FPM free area velocity.
       4. Wind Driven Rain Performance: Based on testing 39 inches x 39 inches (1m x 1m) core area, 41 inches x 44 inches (1.04 m x 1.12 m) nominal size unit in accordance with AMCA 500-L
          1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 469 FPM.

* + - * 1. Wind Velocity: 50 mph

Rainfall Rate: 50 mph

The test data shall indicate a 0.95 effectivenss Class B Rating at a maximum core velocity of 404 FPM.

* + 1. Model: SP537 as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 5 inches (127 mm).
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Horizontal, drainable, sight-proof.
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
          4. Angle: 90 degrees.
          5. Centers: 1.8 inches (45.7 mm), nominal.
       3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
          1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
          2. Free Area: 50.9% (8.15 sf).
          3. Water Penetration: Maximum of .01 ounces at an air flow of 1160.6
          4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 737.9 FPM free area velocity.
       4. Wind Driven Rain Performance: Based on testing 39 inches x 39 inches (1 m x 1 m) core area, 41 inches x 44 inches (1.04 m x 1.1 2m) nominal size unit in accordance with AMCA 500-L.
          1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 673 FPM.

* + - * 1. Wind Velocity: 50 mph.

Rainfall Rate: 8 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 691 FPM.

* + 1. Model: SP737 as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 7 inches (177.8 mm).
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Horizontal, drainable, sight-proof.
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: Rear Blade 0.063 inch (1.6 mm), nominal; Front Blade 0.081 inch (2.1 mm) nominal.
          4. Angle: 45 degrees.
          5. Centers: Front Blade 5.5 inches (139.7 mm), nominal; Rear Blade 2.75 inches (69.9mm), nominal.
       3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
          1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
          2. Free Area: 44.3% (7.09 sf).
          3. Water Penetration: Maximum of .01 ounces at an air flow of 813.2 FPM.
          4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 629 FPM free area velocity.
       4. Wind Driven Rain Performance: Based on testing 39 inch x 39 inch (1m x 1m) core area, 41 inches x 44 inches (1.04 m x 1.12 m) nominal size unit in accordance with AMCA 500-L
          1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 188 FPM.

* + - * 1. Wind Velocity: 50 mph

Rainfall Rate: 8 inches/hour

The test data shall indicate a 0.95 effectiveness Class B Rating at a maximum core velocity of 297 FPM.

* + 1. Model: SP837 as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 8 inches (203.2 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Horizontal, drainable, sight-proof.
          2. Material: Extruded aluminum, 6063-T6.
          3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
          4. Angle: 90 degrees.
          5. Centers: 1.8 inches (45.7 mm), nominal.
       3. B.Performance Data:
          1. Free Area: 50.5% (8.08 sf).
          2. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 678.7 FPM free area velocity.
       4. Wind Driven Rain Performance: Based on testing 39 inch x 39 inch (1m x 1m) core area, 41 inches x 44 inches (1.04 m x 1.12 m) nominal size unit in accordance with AMCA 500-L.
          1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 584 FPM.

\*\* NOTE TO SPECIFIER \*\* ILI's Hurricane louvers have been tested and are Dade County approved. The Hurricane louvers have all been pre-engineered which makes selection and installation simple. Even though these louvers are Dade County approved they make a good selection for any area where extreme weather is a concern.

* 1. HURRICANE / FLORIDA APPROVED LOUVERS
     1. Model: 653XPDC as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Drainable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 37.5 degrees.
           5. Centers: 4.25 inches (108 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 54.8% (8.77 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1250 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 994.5 FPM free area velocity.
        4. Miami-Dade County Test Protocols: Miami-Dade County Notice of Acceptance #13-0909.09.
           1. Complies with TAS-201.
           2. Complies with TAS-202.
           3. Complies with TAS-203.
     2. Model: SP537DC as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 5 inches (127 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Horizontal, drainable, sight-proof.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.063 inch (1.6 mm), nominal.
           4. Angle: 90 degrees.
           5. Centers: 2 inches (50.8 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 50.9% (8.15 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1160.6 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 737.9 FPM free area velocity.
        4. Wind Driven Rain Performance: Based on testing 39 inch x 39 inch (1m x 1m) core area, 41 inch x 44 inch (1.04m x 1.12m) nominal size unit in accordance with AMCA 500-L.
           1. Wind Velocity: 29 mph.

Rainfall Rate: 3 inches/hour.

The test data shall indicate a 0.99 effectiveness Class A Rating at a maximum core velocity of 673 FPM.

* + - * 1. Wind Velocity: 50 mph.

Rainfall Rate: 8 inches/hour.

The test data shall indicated a 0.99 effectiveness Class A Rating at a maximum core velocity of 691 FPM.

* + - 1. Miami-Dade County Test Protocols: Miami-Dade County Notice of Acceptance #13-0717.12.
         1. Complies with TAS-201.
         2. Complies with TAS-202.
         3. Complies with TAS-203.

\*\* NOTE TO SPECIFIER \*\* ILI's Adjustable and Combination Adjustable louvers can be fabricated from either extruded aluminum or formed metal. The adjustable louvers can be fitted with a multitude of operators. These louvers will give the owner ultimate control and protection against the elements.

* 1. ADJUSTABLE AND COMBINATION LOUVERS
     1. Model: 470 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Adjustable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 5.375 inches (136.5 mm), nominal.
        3. Performance Data:
           1. Free Area: 43% (6.80 sf).
     2. Model: 471 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 4 inches (101.6 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Adjustable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 5.375 inches (136.5 mm), nominal.
        3. Performance Data:
           1. Free Area: 43% (6.80 sf).
     3. Model: 670 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Adjustable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 5.375 inches (136.5 mm), nominal.
        3. Performance Data:
           1. Free Area: 61% (9.81 sf).
     4. Model: 671 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Adjustable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Angle: 45 degrees.
           5. Centers: 5.375 inches (136.5 mm), nominal.
        3. Performance Data:
           1. Free Area: 61% (9.81 sf).
     5. Model: 667/71 as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.125 inch (3.2 mm), nominal.
        2. Blades:
           1. Style: Combination, adjustable.
           2. Material: Extruded aluminum, 6063-T6.
           3. Wall Thickness: 0.081 inch (2.1 mm) / 0.125 inch (3.2 mm), nominal.
           4. Angle: 40 degrees.
           5. Centers: 5.662 inches (143.8 mm), nominal.
        3. Performance Ratings: Product shall be licensed to bear the AMCA Certified Ratings Seal for water and Air Performance.
           1. Based on testing 48 inches by 48 inches (1219 mm by 1219 mm) size unit in accordance with AMCA 500-L.
           2. Free Area: 45% (7.27 sf).
           3. Water Penetration: Maximum of .01 ounces at an air flow in excess of 1250 FPM.
           4. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1001.9 FPM free area velocity.

\*\* NOTE TO SPECIFIER \*\* ILI's Acoustical louvers can be fabricated from either aluminum or steel. These louvers have been tested for water and air performance as well as sound performance. These louvers are a perfect selection for those hot and noisy generator rooms. ILI Acoustical louvers can be fabricated in virtually any size to meet the building's architectural design requirements.

* 1. ACOUSTICAL LOUVERS
     1. Model: 680A as manufactured by Industrial Louvers.
        1. Frame:
           1. Frame Depth: 6 inches (152.4 mm).
           2. Material: Formed aluminum, 5005.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
        2. Blades:
           1. Style: Acoustical.
           2. Material: Formed aluminum, 5005.
           3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
           4. Insulation: 6-lb density rockwool.
           5. Angle: 45 degrees.
           6. Centers: 6.213 inches (157.8 mm), nominal.
        3. Performance Data:
           1. Free Area: 27.8% (4.45 sf).
           2. Water Penetration: Maximum of .01 ounces at an air flow of 967 FPM.
           3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1471.2 FPM free area velocity.
           4. Sound Data: Tested in accordance with ASTM E90.

Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000; 5000.

Transmission Loss in Decibels: 6; 4; 7; 13; 16; 14; 13.

Free Field Noise: 12; 10; 13; 19; 22; 20; 19.

* + 1. Model: 880A as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 8 inches (203.2 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Acoustical.
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
          4. Insulation: 6-lb density rockwool.
          5. Angle: 45 degrees.
          6. Centers: 8.5 inches (215.9 mm), nominal.
       3. Performance Data:
          1. Free Area: 28% (4.43 sf).
          2. Water Penetration: Maximum of .01 ounces at an air flow of 949.4 FPM.
          3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1252.8 FPM free area velocity.
       4. Sound Data: Tested in accordance with ASTM E90.
          1. Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000.
          2. Transmission Loss in Decibels: 6; 6; 10; 14; 17; 12.
          3. Free Field Noise: 12; 12; 16; 20; 23; 18.
    2. Model: 880AA as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 8 inches (203.2 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Acoustical.
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
          4. Insulation: 6-lb density rockwool.
          5. Angle: 45 degrees.
          6. Centers: 8.3125 inches (211.1 mm), nominal.
       3. Performance Data:
          1. Free Area: 31.7% (5.07 sf).
          2. Water Penetration: Maximum of .01 ounces at an air flow of 855 FPM.
          3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 971.9 FPM free area velocity.
       4. Sound Data: Tested in accordance with ASTM E90.
          1. Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000; 5000.
          2. Transmission Loss in Decibels: 4; 4; 6; 12; 11; 10; 10.
          3. Free Field Noise: 10; 10; 12; 18; 17; 16; 16.
    3. Model: 1280A as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 12 inches (304.8 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Acoustical.
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
          4. Insulation: 6-lb density rockwool.
          5. Angle: 45 degrees.
          6. Centers: 12.469 inches (316.7 mm), nominal.
       3. Performance Data:
          1. Free Area: 26.8% (4.29 sf).
          2. Water Penetration: Maximum of .01 ounces at an air flow of 949.6 FPM.
          3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1259.2 FPM free area velocity.
       4. Sound Data: Tested in accordance with ASTM E90.
          1. Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000.
          2. Transmission Loss in Decibels: 5; 8; 11; 15; 15; 12.
          3. Free Field Noise: 11; 14; 17; 21; 21; 18.
    4. Model: 1280AA as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 12 inches (304.8 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Acoustical.
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
          4. Insulation: 6-lb density rockwool.
          5. Angle: 45 degrees.
          6. Centers: 14.06 inches (357.1 mm), nominal.
       3. Performance Data:
          1. Free Area: 28% (4.64 sf).
          2. Water Penetration: Maximum of .01 ounces at an air flow of 945.5 FPM.
          3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1759.3 FPM free area velocity.
       4. Sound Data: Tested in accordance with ASTM E90.
          1. Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000; 5000.
          2. Transmission Loss in Decibels: 8; 7; 12; 15; 13; 12; 12.
          3. Free Field Noise: 14; 13; 18; 21; 19; 18; 18.
    5. Model: 1280AAXP as manufactured by Industrial Louvers.
       1. Frame:
          1. Frame Depth: 12 inches (304.8 mm).
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
       2. Blades:
          1. Style: Acoustical.
          2. Material: Formed aluminum, 5005.
          3. Wall Thickness: 0.081 inch (2.1 mm), nominal.
          4. Insulation: 6-lb density rockwool.
          5. Angle: 45 degrees.
          6. Centers: 14.06 inches (357.1 mm), nominal.
       3. Performance Data:
          1. Free Area: 36.9% (5.91 sf).
          2. Water Penetration: Maximum of .01 ounces at an air flow of 615 FPM.
          3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 1228.9 FPM free area velocity.
       4. Sound Data: Tested in accordance with ASTM E90.
          1. Selected 1/3 Octave Bands Center Frequency HZ: 125; 250; 500; 1000; 2000; 4000; 5000.
          2. Transmission Loss in Decibels: 6; 6; 8; 11; 9; 8; 8.
          3. Free Field Noise: 12; 12; 14; 17; 15; 14; 14.

\*\* NOTE TO SPECIFIER \*\* ILI's Louvered Penthouses can be fabricated from any of our louver systems. Penthouses can be fabricated in virtually any size and include mitered corners and an insulated roof.  
ILI Brickvents are stocked in a multitude of standard sizes and colors. Custom sizes and colors are available upon request.

* 1. PENTHOUSE / BRICK VENTS
     1. Model: 480XP as manufactured by Industrial Louvers.
        1. Frames and blades shall be ILI Model 455XP storm-resistant design .081 inch (2 mm) extruded aluminum 6063 alloy. Corners shall be mitered and welded on all four sides. The roof shall be .080 inch (2 mm) aluminum sheet and be mounted on rafters made of 2 inches x 2 inches x 1/4 inch (51 mm x 51 mm x 6 mm) aluminum angles spaced 24 inches (610 mm) o.c. The roof shall be mechanically fastened for easy access to the interior. The underside of the roof shall be covered with a sound-absorbing material. The louvers shall have a minimum of 8.12 sq. ft. (51%) free area on a 48 inches x 48 inches (1219 mm x 1219 mm) louver.

\*\* NOTE TO SPECIFIER \*\* Delete finish not required.

* + - 1. Finish: Mill.
      2. Finish: Anodized.
      3. Finish: Baked Enamel.
      4. Finish: Kynar.
      5. Performance Data:
         1. Free Area: 51% (8.12 sf).
         2. Water Penetration: Maximum of .01 ounces at an air flow of 678 FPM.
         3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 905.4 FPM free area velocity.
    1. Model: 482XP as manufactured by Industrial Louvers.
       1. Frames and blades shall be ILI Model 455XP storm-resistant design .081 inch (2 mm) extruded aluminum 6063 alloy. Box corners shall be covered with .081inch (2 mm) formed aluminum. The roof shall be .080 inch (2 mm) aluminum sheet and be mounted on rafters made of 2 inches x 2 inches x 1/4 inch (51 mm x 51 mm x 6 mm) aluminum angles spaced 24 inches (610 mm) o.c. The roof shall be mechanically fastened for easy access to the interior. The underside of the roof shall be covered with a sound-absorbing material. The louvers shall have a minimum of 8.12 sq. ft. (51%) free area on a 48 inches x 48 inches (1219 mm x 1219 mm) louver.

\*\* NOTE TO SPECIFIER \*\* Delete finish not required.

* + - 1. Finish: Mill.
      2. Finish: Anodized.
      3. Finish: Baked Enamel.
      4. Finish: Kynar.
      5. Performance Data:
         1. Free Area: 51% (8.12 sf).
         2. Water Penetration: Maximum of .01 ounces at an air flow of 678 FPM.
         3. Static Pressure Loss: Not more than .15 inch of water gauge at an air flow of 905.4 FPM free area velocity.
    1. Model: BV as manufactured by Industrial Louvers.
       1. Frame and blades shall be 4 inches (102 mm) deep and thickness shall be .125 inch (3 mm) extruded aluminum 6063 alloy. Sill and jamb frames shall be continuously welded to help prevent water penetration to interior wall construction. Blades are attached by means of all-welded construction. 18 x 14 mesh aluminum wire insect screens shall be mounted on the interior.

\*\* NOTE TO SPECIFIER \*\* Delete model not required.

* + - 1. Model 115: 11-5/8 inches by 5 inches (295 mm by 127 mm) high.
      2. Model 77: 7-5/8 inches by 7-5/8 inches (194 mm by 194 mm) high.
      3. Model 157: 15-5/8 inches by 7-5/8 inches (397 mm by 194 mm) high.
      4. Model 237: 23-5/8 inches by 7-5/8 inches (600 mm by 194 mm) high.

\*\* NOTE TO SPECIFIER \*\* Delete finish not required.

* + - 1. Finish: Mill.
      2. Finish: Anodized.
      3. Finish: Baked Enamel.
      4. Finish: Kynar.

\*\* NOTE TO SPECIFIER \*\* All of ILI's louvers can be fabricated with an assortment of accessories. All of our accessories are customizable to meet the building's requirements.

* 1. LOUVER AND VENT ACCESSORlES

\*NOTE TO SPECIFIER\* Please delete accessories not required.

* + 1. Exterior Sill: Provide extended sill and sill flashing of same material and finish as louvers where indicated on the drawings.
    2. Louver Screens: Provide framed removable, re-wire-able screens for exterior louvers.

\*NOTE TO SPECIFIER\* Please delete screens not required.

* + - 1. Bird Screen:
         1. Aluminum: Aluminum, 1/2 inch by 0.063 inch (12.7 mm by 1.6 mm), expanded, flattened.
         2. Galvanized Steel: Galvanized Steel, 1/2 inch by 16 ga. (12.7 mm x 1.6 mm), welded.
         3. Galvanized Steel: Galvanized Steel, 1/2 inch by 19 ga. (12.7 mm x 1.1 mm), welded.
         4. Stainless Steel: Stainless Steel, 1/2 inch by 16 ga. (12.7 mm x 1.6 mm), welded.
         5. Stainless Steel: Stainless Steel, 1/2 inch by 19 ga. (12.7 mm x 1.1 mm), welded.
      2. Insect Screen:
         1. 18 x 14 aluminum charcoal mesh 0.011 inch (0.28 mm) diameter wire.
         2. 18 x 18 mesh stainless steel 0.009 inch (0.23 mm) diameter wire.
    1. Blank Off Panels:

\*NOTE TO SPECIFIER\* Please delete blank off panels not required.

* + - 1. Non-Insulated Blank Off Panels factory installed with removable screws and foam tape gaskets:

\*NOTE TO SPECIFIER\* Please select one of the choices below if required.

* + - * 1. 0.040 inch (1 mm) aluminum sheet.
        2. 0.050 inch (1.3 mm) aluminum sheet.
        3. 0.060 inch (1.5 mm) aluminum sheet.
        4. 0.080 inch (2 mm) aluminum sheet.
        5. 0.125 inch (3.2 mm) aluminum sheet.
      1. Insulated Blank Off Panels factory installed with removable screws and foam tape gaskets:

\*NOTE TO SPECIFIER\* Please select one of the choices below if required.

* + - * 1. 1 inch (25 mm) thick and to be faced on both sides with 0.032 inch (0.81 mm) thick aluminum sheet. Panels to be fabricated with rigid fiberboard core having an R-Value of 4. Panel perimeter frame to be a 0.063 inch (1.6 mm) thick extruded aluminum Z shape. Panels to be finished to match louvers on one side only.
        2. 1 inch (25 mm) thick and to be faced on both sides with 0.032 inch (0.81 mm) thick aluminum sheet. Panels to be fabricated with expanded polystyrene core having an R-Value of 4.35. Panel perimeter frame to be a 0.063 inch (1.6 mm) thick extruded aluminum Z shape. Panels to be finished to match louvers on one side only.
        3. 2 inches (51 mm) thick and to be faced on both sides with 0.032 inch (0.81 mm) thick aluminum sheet. Panels to be fabricated with rigid fiberboard core having an R-Value of 8. Panel perimeter frame to be a 0.063 inch (1.6 mm) thick extruded aluminum Z shape. Panels to be finished to match louvers on one side only.
        4. 2 inches (51 mm) thick and to be faced on both sides with 0.032 inch (0.81 mm) thick aluminum sheet. Panels to be fabricated with expanded polystyrene core having an R-Value of 8.6. Panel perimeter frame to be a 0.063 inch (1.6 mm) thick extruded aluminum Z shape. Panels to be finished to match louvers on one side only.
    1. Boxed Corner: Manufacturer's standard configuration, matching adjacent louver.
    2. Mitered Corner: Manufacturer's standard configuration, matching adjacent louver.
    3. Hinged Door: Manufacturer's standard configuration, matching adjacent louver, with locking device.
    4. Flange Frame: Manufacturer's standard configuration, matching adjacent louver.
    5. Glazing Frame: Manufacturer's standard configuration, matching adjacent louver.

\*\* NOTE TO SPECIFIER \*\*Our in-house painting facility, Industrial Finishing, Inc., is solely dedicated to serving Industrial Louvers finishing needs. This arrangement allows for less material handling, thus minimizing the chance for damaging product during the finishing process. ILI offers a wide variety of standard, exotic and custom mixed colors for you to choose from.

* 1. FINISHES
     1. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated. Apply finishes in factory. Protect finishes on exposed surfaces prior to shipment. Remove scratches and blemishes from exposed surfaces that will be visible after completing finishing process. Provide color as indicated or, if not otherwise indicated, as selected by architect.

\*NOTE TO SPECIFIER\* Please delete finishes not required.

* + 1. Finish: Standard: Mill finish.

\*NOTE TO SPECIFIER\* Please delete if not required.

* + 1. Prime Coat for Field Painting:
       1. Apply alkyd prime coat following chemical cleaning and pretreatment.
       2. Primer preparation for field painting.

\*NOTE TO SPECIFIER\* 50% Acroflur and Acrodize.

* + 1. Fluorocarbon Two Coat Coating:
       1. Coating shall conform to AAMA 2604.
       2. Louvers to be finished with a minimum 1.0 mil (0.025 mm) thick 50% resin, 2 coat Fluoropolymer system.
       3. All aluminum shall be thoroughly cleaned, etched, and given a chromatic conversion pretreatment before application of coating.

\*NOTE TO SPECIFIER\* Fluropon and Fluropon Classic® II.

* + 1. Fluorocarbon Two Coat Coating:
       1. Coating shall conform to AAMA 2605.
       2. Louvers to be finished with a minimum 1.0 mil (0.025 mm) thick full strength 70% resin, 2 coat Fluoropolymer system.
       3. All aluminum shall be thoroughly cleaned, etched, and given a chromatic conversion pretreatment before application of coating.
    2. Fluorocarbon Three Coat Coating:
       1. Coating shall conform to AAMA 2605.
       2. Louvers to be finished with a minimum 1.4 mil (0.035 mm) thick full strength 70% resin, 3 coat Fluoropolymer system.
       3. All aluminum shall be thoroughly cleaned, etched, and given a chromatic conversion pretreatment before application of coating.

\*\* NOTE TO SPECIFIER \*\* Fluropon,® Acroflur® and Acrodize®. These 18 standard "stock" colors represent the most popular trends in today's architectural structures. By utilizing ILI's standard colors, you are assured consistent value as well as an industry leading service commitment. Each standard color is available in a 70% PVDF (Kynar 500® or Hylar 5000®) formula and a 50% PVDF (Kynar® or Hylar®) formula. Both the 70% and 50% formulations are enhanced by the use of durable ceramic pigmentations. ILI also offers in-plant formulations for custom matched Kynar 500 or Hylar 5000 colors. When ordering, simply submit a color chip for analysis (or a Valspar color code) and ILI will formulate a match. In addition, premium coatings consisting of a primer, a color coat and a clear topcoat are available. Certain exotic colors may even require a fourth coat. Premium coatings are available for an extra cost. Contact your local ILI representative for details.  
\*\* NOTE TO SPECIFIER \*\* 70% Fluropon Color Codes / 50% Acroflur Acrodize Color Codes. Delete colors and codes not required.

* + 1. Colors: .
       1. Bone White, 391A580 / 731A582.
       2. Stone White, 391A454 / 731A539.
       3. Seawolf, 397F199 / 737A359.
       4. Classic II/Champagne Pearl, 399C245 / 379A917.
       5. Oriental Ivory, 393A361 / 733A487.
       6. Beige, 393F061 / 733A327.
       7. Classic II/Silver, 399B697 / 379A892.
       8. Rawhide, 397A538 / 733A477.
       9. Sandstone, 33A321.
       10. Statuary Bronze, 397F262 / 737A610.
       11. Fashion Grey, 392A849 / 732A577.
       12. Brick Red, 394F146 / 734A201.
       13. Sierra Tan, 397A537 / 737A606.
       14. Dark Brown, 397A536 / 737A604.
       15. Charcoal, 392A848 / 732A575.
       16. Black, 398F019 / 738A044.
       17. Military Blue, 396A933 / 736A647.
       18. Interstate Green, 395F081 / 735A355.

\*\* NOTE TO SPECIFIER \*\* Anodic Finishes: Anodic finishes are also available from ILI in Class I (minimum of .7 mil thickness) and Class II (minimum of .4 mil thickness) finishes. Contact your local ILI representative for details. 204: When maximum protection is not required. 215: This clear, anodized finish is recommended for use where maximum protection from corrosive and abrasive atmospheric conditions is required. Delete if not required.

* + 1. Clear Anodized Finish:

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Class I Clear Anodized.
         1. Comply with Aluminum Association AA-C22A41. Clear anodized finish 215-R1.
         2. Apply finish following chemical etching and pretreatment.
         3. Minimum thickness: 0.7 mils (0.018 mm).

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Class II Clear Anodized.
         1. Comply with Aluminum Association AA-C22A31. Clear anodized finish 204-R1.
         2. Apply finish following chemical etching and pretreatment.
         3. Minimum thickness: 0.4 mils (0.01 mm).

\*\* NOTE TO SPECIFIER \*\* Color: When maximum protection is required and a large color selection is not, this hard-coat finish is the best of the anodic finishes. The color selection includes several shades of gold, burgundy, bronze and black. The minimum coating is 0.7 mil. Delete if not required.

* + 1. Color Anodized Finish:

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Class I Bronze Anodized:

\*\* NOTE TO SPECIFIER \*\* Delete color not required.

* + - * 1. Color: Light.
        2. Color: Medium.
        3. Color: Dark.
        4. Color: Champagne.
        5. Comply with Aluminum Association AA-C2242 or AA-C2244.
        6. Apply finish following chemical etching and pretreatment.
        7. Minimum thickness: 0.7 mils (0.018 mm).

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Class I Black Anodized:
         1. Comply with Aluminum Association AA-C2242 or AA-C2244.
         2. Apply finish following chemical etching and pretreatment.
         3. Minimum thickness: 0.7 mils (0.018 mm).
  1. FABRICATI0N
     1. Fabrication Requirements:
        1. Performance: Fabricate as required for optimum performance with respect to water penetration, strength, durability, and appearance.
        2. Size: Fabricate louvers in walls to meet dimensions indicated on Contract Documents.
        3. Field Measurement: Verify size, location, and placement of louvers before fabrication.
        4. Shop Assembly:
           1. Fabricate to minimize field adjustments, splicing, mechanical joints and field assembly of units.
           2. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling.
           3. Clearly mark units for reassemble and coordinated installation.
        5. Accessories: Include supports, anchorages and accessories required for complete assembly.
        6. Vertical Mullions: Provide vertical mullions of type and spacing indicated but not further apart than recommended by the manufacturer.
        7. Horizontal Mullions: Provide horizontal mullions at horizontal joints between louver units except where continuous vertical assemblies are indicated.

\*\* NOTE TO SPECIFIER \*\* Aluminum frame construction. Delete if not required.

* + - 1. Connections: Join frame and blade members to one another by mechanical fastener, except where field bolted connections between frame members are made necessary by size of louvers.

\*\* NOTE TO SPECIFIER \*\* Steel frame construction. Delete if not required.

* + - 1. Spacing: Maintain equal blade spacing to produce uniform appearance.

1. EXECUTION
   1. EXAMINATION
      1. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance.
      2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
      3. Proceed with installation only after unsatisfactory conditions have been corrected.
   2. PREPARATION
      1. Clean openings thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install louvers at locations as indicated on the Drawings and in accordance with the manufacturer's instructions.
      2. Install louvers plumb, level, in plane of wall, and in alignment with adjacent work.
   4. PROTECTION
      1. Clean louver surfaces in accordance with manufacturer's instructions.
      2. Touch-up paint, repair or replace damaged products before Substantial Completion.

END OF SECTION