# Architectural Louvers

**Models: DC-4174**
Suggested Specifications | Section 08 90 00

## Part 1 – General

### 1.01 Summary

A. Furnish and install louvers, bird screens, blank-off panels, structural supports, and attachment brackets as shown on the drawings, as specified, and as needed for a complete and proper installation.
B. The louvers to be furnished include the following:
    1. Dade County hurricane impact resistant, mullion louver.
C. Related sections include:
    1. Division 7 Section "Joint Sealants" for sealants installed in perimeter joints between louver frames and adjoining construction.
    2. Division 15 Section "Compressed Air Piping" for connecting pneumatic operated adjustable metal louvers.
    3. Division 15 Section "Control Systems Equipment" for electric, electronic, and pneumatic control of adjustable metal louvers.

### 1.02 References

A. Air Movement and Control Association International, Inc.
    1. AMCA Standard 500-L Laboratory Methods of Testing Louvers for Rating
    2. AMCA Publication 501 Application Manual for Louvers
    3. AMCA 540 listed. Tested in accordance with AMCA 540, Test Method for Louvers Impacted by Wind Borne Debris (Basic Protection, Missile Level D).
B. The Aluminum Association Incorporated
    1. Aluminum Standards and Data
    2. Specifications and Guidelines for Aluminum Structures
C. American Society of Civil Engineers
    1. Minimum Design Loads for Buildings and Other Structures
D. American Society for Testing and Materials
    1. ASTM B209
    2. ASTM B211
    3. ASTM B221
    4. ASTM E90-90
E. Architectural Aluminum Manufacturers Association
    1. AAMA 800 Voluntary Specifications and Test Methods for Sealants
    2. AAMA 605.2 Voluntary Specification for High Performance Organic Coatings on Aluminum Extrusions and Panels.
    3. AAMA TIR Metal Curtain Wall Fasteners
    4. AAMA 2605-98 Superior Performing Organic Coatings on Aluminum Extrusions and Panels
F. Canadian Standards Association
    1. CAN3-S157-M83 Strength Design in Aluminum
    2. S136 94 Cold Formed Steel Structural Members


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## 1.03 Submittals

A. Product Data
   1. Air flow and water entrainment performance test results.
   2. Material types and thickness.

B. Shop Drawings – Full Shop Drawings
   1. Include elevations, plan views, section views, and specific details for each louver.
   2. Include building elevations, key plan, and all relevant datum dimensions on to allow for ease of locating louvers relative to the overall building and relative to adjacent construction elements.
   3. Show anchorage details and connections for all component parts.
   4. Include signed and sealed structural calculations.
   5. The louver manufacturer shall incorporate a reasonable degree of coordination with adjacent trades, review of supplemental instructions, and new document issuances in their shop drawing issuances and revisions.

OR

B. Shop Drawings – Unit Drawings
   1. Include elevations, sections, and specific details for each louver.
   2. Show anchorage details and connections for all component parts.
   3. Include signed and sealed structural calculations.

C. Samples

   1. Metal Chips standard size 3” x 5” choose from 16 colors.
   2. Wood Grain Color Chips standard size 3” x 5” choose from 11 colors.
   3. Wood Grain Color Chain standard size 3” x 5” chain of all 11 wood grains.
   4. Wood Grain Color Chart standard size 81/2” x 11” print on demand.
   5. Standard KYNAR Color Card standard size 81/2” x 11” shows all 20 colors.
   6. Metallic KYNAR Color Card standard size 81/2” x 11” shows all 20 colors.

D. Submit color chips for approval.

## 1.04 Quality Assurance

A. Single subcontract responsibility: Subcontract the work to a single firm that has had not less than six years’ experience in the design and manufacturing of work similar to that shown and required.
B. Performance Requirements: Provide AMCA test data as required to confirm that the louvers have the specified air and water performance characteristics.
C. Acoustical Performance: Where applicable, submit test reports to confirm that the louvers meet the specified STC and Noise Reduction requirements.
D. Structural Requirements: Design all materials to withstand wind and snow loads as required by the applicable building code. Maximum allowable deflection for the louver structural members to be l/180 or 0.75 inch, whichever is less. Maximum


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allowable deflection for the louver blades to be l/120 or 0.50 inch across the weak axis, whichever is less.

E. Professional Engineer Requirements: Drawings and structural calculations to be signed and sealed by a professional engineer licensed to practice in the project state.
F. Warranty: Provide written warranty to the owner that all products will be free of defective materials or workmanship for a period of one year from date of installation.

**1.05 Delivery, Storage and Handling**

A. Delivery: At the time of delivery all materials shall be visually inspected for damage. Any damaged boxes, crates, louver sections, etc. shall be noted on the receiving ticket and immediately reported to the shipping company and the material manufacturer.
B. Storage:
    1. Material may be stored flat on end or on its side.
    2. Material may be stored either indoors or outdoors.
    3. If stored outdoors the material must be raised sufficiently off the ground to prevent it being flooded.
    4. If stored outdoors the material must be covered with a weatherproof flame-resistant sheeting or tarpaulin.
C. Handling:
    1. Material shall be handled in accordance with sound material handling practices and in such a way as to minimize racking.
    2. Louver sections may be hoisted by attaching straps to the jambs and lifting the section while it is in a vertical position.
    3. Louver sections should only be lifted and carried by the jambs. Heads, sills, and blades are not to be used for lifting or hoisting louver sections.

**PART 2 PRODUCTS**

**2.01 Manufacturers**

A. Basis of Design – manufactured by Construction Specialties subject to compliance with requirements listed. The louvers and related materials herein specified and indicated on the drawings shall be manufactured by: Construction Specialties, 3 Werner Way, Lebanon, NJ 08833. Tel: 800.233.8493. Email: cet@c-sgroup.com. No substitutions.

B**.** Drawings and specifications are based on manufacturer’s literature from Construction Specialties, Inc. drawings and specifications unless otherwise indicated. Other manufacturers must be approved equal by Architect/Owner.

**2.02 Materials**

A. Aluminum Extrusions: ASTM B211, Alloy 6063-T5, 6063-T6 or 6061-T6.
B. Aluminum Sheet: ASTM B3209, Alloy 1100, 3003 or 5005.

**2.03 Fabrication, General**


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A. Provide CS louver models, bird screens, blank-off panels, structural supports, and accessories as specified and/or shown on the drawings. Materials, sizes, depths, arrangements, and material thickness to be as indicated or as required for optimal performance with respect to strength; durability; and uniform appearance.
B. Louvers to be mechanically assembled using stainless steel or aluminum fasteners.
C. Include supports, anchorage, and accessories required for complete assembly.

## 2.04 Louver Models

A. CS 4" (102mm) Deep Dade County Approved Fixed Horizontal Hurricane Louver Model DC-4174

1. Material: Heads, sills, jambs, and mullions to be one-piece structural aluminum members with integral caulking slot and retaining beads. Blades to be one-piece aluminum extrusions with front lip gutter designed to catch and direct water to sill. Louvers to be supplied with 4" (101.6mm) high by full depth sill flashings formed from minimum 0.050" (1.27mm) thick aluminum. Sill flashings to have welded side panels. Louvers and sill flashings to be installed in accordance with the manufacturer's recommended procedures to ensure complete water integrity performance of the louver system. Nominal minimum material thickness to be as follows: Heads: 0.070" (1.52mm), Sills: 0.080" (2.03mm), jambs and mullions: 0.125" (3.18mm), fixed blades: 0.070" (1.78mm).
2. Structural Performance: Louvers shall have been tested in accordance with Dade County Protocols TAS 201-94, TAS 202-94 and TAS 203-94; and shall be Dade County Approved for open structure building envelope protection (including missile) for allowable design wind loading up to 170 psf.
3. AMCA Performance: A 4' x 4' unit shall conform to the following:

| | |
|---|---|
| Free Area | 8.80 sq. ft. (0.82 sq. m.) |
| Free area velocity at the point of beginning water penetration | 1087 FPM (5.52 m/s) |
| Intake Pressure drop at the point of beginning water penetration | 0.18 in. $H_2O$ (44.7 Pa) |
| Exhaust Pressure drop at 1000 FPM (5.08 m/s) free area velocity | 0.13 n. $H_2O$ (32.3 Pa) |

4. Louver shall be approved to bear the AMCA Listing Label. The AMCA Listing Label applies to Wind Borne Debris Impact Louvers for Basic Protection (AMCA 540) and High Velocity Wind Driven Rain Resistant Louvers tested in the fully open position that permits airflow through the louver (AMCA 550). Louvers shall comply with wind-driven rain intrusion requirements without the use of a damper.

## 2.05 Finishes


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A. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated. Factory assembled prior to factory applied finish. 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.

B. 100% Fluoropolymer Resin Powder Coat System complying with AAMA-2605-5 standards for gloss and color retention. Finish thickness to be 1.5 to 3.0 mils.

1. Finish to allow zero VOCs to be emitted into facility of application or at job site.
2. Finish to adhere to a 4H Hardness rating.
3. Furnish manufacturer's twenty (20) year warranty for finish for gloss and color retention.

OR

B. Wood Grain Powder Coat Finish is durable, with superior scratch and fade resistance. Available in 11 standard wood grain patterns with textured finish.

1. Pretreatment: E-CLPS Chrome Free five stage aluminum pretreatment system. Complies with AAMA 2603 AAMA 2604 and AAMA 2605 Superior Performance Standard and meets EPA, OSHA, State and Local environmental requirements and contains no chromates, cyanides, or other heavy metals. Waste treatment is usually a simple pH neutralization and disposal to the sanitary sewer.

2. Bonded Sublimated Film Finishes: Wood finish use a polyurethane powder coat with ink-based wood grain patterns sublimated into the base powder effectively tattooing the powder. The combined effect creates all the aesthetic aspects of real wood while offering the same environmental advantages of powder coated finishes.

3. Furnish manufacturers ten (10) year warranty for finish for gloss and color retention.

OR

B. Three Coat Fluorocarbon Coating

1. Louvers to be finished with a minimum 1.4 mil (0.035mm) thick full strength 70% resin, 3 coat Fluoropolymer system.
2. All aluminum shall be thoroughly cleaned, etched, and given a chromated conversion pre-treatment before application of the Kynar/Hylar coating. The coating shall consist of a primer, a high metallic color coat and a clear PVF2 topcoat. It shall receive a bake cycle of 17 minutes at 450°F. All finishing procedures shall be one continuous operation in the plant of the manufacturer.
3. Manufacturer to furnish an extended 20 limited warranty for the Kynar/Hylar coating. This limited warranty shall begin on the date of material shipment.


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OR

B. Two Coat Fluorocarbon Coating
   1. Louvers to be finished with a minimum 1.0 mil (0.025mm) thick full strength 70% resin, 2 coat Fluoropolymer system.
   2. All aluminum shall be thoroughly cleaned, etched, and given a chromated conversion pre-treatment before application of the MICA II coating. The coating shall consist of a primer and a pearlescent pigmented PFV2 topcoat. It shall receive a bake cycle of 17 minutes at 450°F. All finishing procedures shall be one continuous operation in the plant of the manufacturer.
   3. Manufacturer to furnish an extended 20 limited warranty for the Kynar/Hylar coating. This limited warranty shall begin on the date of material shipment.

OR

B. Clear Anodize
   1. Louvers to be given a one-hour 215R1 Architectural Class I anodic coating of 0.7 mil (0.018mm) thickness (Aluminum Association designation AA-C22A41).
   2. The thickness of the coating shall be tested in accordance with ASTM B244-68.
   3. The coating shall be sealed to pass the ASTM B136-77 Modified Dye Stain Test.

OR

B. Bronze Anodic
   1. Louvers to be given a Bronze Anodic Architectural Class 1 coating of 0.7 mil (0.018mm) minimum thickness; and a minimum weight of 27 mg. per sq. in.
   2. The thickness of the coating shall be tested in accordance with ASTM B244-68.
   3. The coating shall be sealed to pass the ASTM B136-77 Modified Dye Stain Test.

## 2.06 Bird Screens

A. Unless otherwise indicated, all louvers to be furnished with mill finish bird or insect screens.

B. Screens to be 5/8” (15.9mm) mesh, 0.050” (1.27mm) thick expanded and flattened aluminum bird screen secured within 0.055” (1.40mm) thick extruded aluminum frames. Frames to have mitered corners and corner locks.

OR

B. Screens to be 18 x 16 aluminum mesh 0.011” (0.279mm) diameter wire insect screens secured within 0.055” (1.40mm) thick extruded aluminum frames. Frames to have mitered corners and corner locks.


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## 2.07 Blank Offs

A. Furnish as specified and where indicated on the drawings. Blank- off panel systems to be fabricated and installed on the louver by the louver manufacturer.

B. Custom fabricated Blank- off panels' factory sealed and quality tested. Includes independent 0.50" aluminum sheet forming the primary air and water seal, which is adhered with butyl tape and whose perimeter is fully sealed and tooled with weather silicone. Any insulated blank-off panels are to be fastened independently to the rear side of the louver, through dry zones of the framing and NOT penetrating any part of the primary sealing sheet.

Bird/insect screen shall be installed directly the back of the louver frame in between the louver and Blank- off system.

Includes in-house quality control testing.

C. 0.050" (1.27mm) thick aluminum sheet blank-off (uninsulated) panels, model SO. Panels to be finished with standard black Kynar 500 minimum 1 mil (0.025mm) thick full strength 70% resin Fluoropolymer coating unless otherwise specified.

D. 1" (25.4mm) thick insulated blank-off panels model IBO-1S, fabricated with hydrophobic fire rated mineral wool core having an R-value of 4 per inch ($^{0}F*ft^{2}*h/Btu$), faced on both sides with 0.032" (0.81 mm) thick aluminum sheet. Panel perimeter frame to be 0.080" (2.03 mm) thick-formed aluminum channels. Panel frame to be mitered at the corners. Panels to be finished with standard black Kynar 500 minimum 1 mil (0.025mm) thick full strength 70% resin Fluoropolymer coating unless otherwise specified.

OR

2" (50.8mm) thick insulated blank-off panels model IBO-2S, fabricated with hydrophobic fire rated mineral wool core having an R-value of 4 per inch ($^{0}F*ft^{2}*h/Btu$), faced on both sides with 0.032" (0.81 mm) thick aluminum sheet. Panel perimeter frame to be 0.080" (2.03mm) thick-formed aluminum channels. Panel frame to be mitered at the corners. Panels to be finished with standard black Kynar 500 minimum 1 mil (0.025mm) thick full strength 70% resin Fluoropolymer coating unless otherwise specified.

OR

3" (76.2mm) thick insulated blank-off panels model IBO-3S, fabricated with hydrophobic fire rated mineral wool core having an R-value of 4 per inch ($^{0}F*ft^{2}*h/Btu$), faced on both sides with 0.032" (0.81 mm) thick aluminum sheet.


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Panel perimeter frame to be 0.080” (2.03mm) thick-formed aluminum channels. Panel frame to be mitered at the corners. Panels to be finished with standard black Kynar 500 minimum 1 mil (0.025mm) thick full strength 70% resin Fluoropolymer coating unless otherwise specified.

## PART 3 EXECUTION

**3.01 Examination:** Examine openings to receive the work. Do not proceed until any unsatisfactory conditions have been corrected.

### 3.02 Installation

A. Comply with manufacturer's instructions and recommendations for installation of the work.
B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designed, fabricated, and fitted to the structure.
C. Anchor louvers to the building substructure as indicated on architectural drawings.
D. Erection Tolerances:
    1. Maximum variation from plane or location shown on the approved shop drawings: 1/8" per 12 feet of length, but not exceeding 1/2" in any total building length or portion thereof (non-cumulative).
    2. Maximum offset from true alignment between two members abutting end to end, edge-to-edge in line or separated by less than 3": 1/16" (shop or field joints). This limiting condition shall prevail under both load and no-load conditions.
E. Cut and trim component parts during erection only with the approval of the manufacturer or fabricator, and in accordance with his recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly.
F. Do not erect warped, bowed, deformed, or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.
G. Set units level, plumb and true to line, with uniform joints.

### 3.03 Protection

A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

### 3.04 Adjusting and Cleaning

A. Immediately clean exposed surfaces of the louvers to remove fingerprints and dirt accumulation during the installation process. Do not let soiling remain until the final cleaning.
B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to the material finishes. Thoroughly rinse surfaces and dry.
C. Restore louvers and accessory components damaged during installation and construction so no evidence remains of corrective work. If results of restoration


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are unsuccessful, as determined by the Architect, remove damaged materials, and replace with new materials.

1. Touch up minor abrasions in finishes with a compatible air-dried coating that matches the color and gloss of the factory applied coating.

End of Section


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