SECTION 08 90 00
LOUVERS AND VENTS

SPEC WRITER NOTE: Delete between //----// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies fixed and operable wall louvers, door louvers and wall vents.

1.2 RELATED WORK

A. Louvers in steel doors: Section 08 11 13, HOLLOW METAL DOORS AND FRAMES.
B. Color of finish: Section 09 06 00, SCHEDULE FOR FINISHES.
C. Louvers in lead lined wood doors: Section 13 49 00, RADIATION PROTECTION.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Shop Drawings:
   Each type, showing material, finish, size of members, // operating devices, // method of assembly, and installation and anchorage details.
C. Manufacturer's Literature and Data:
   Each type of louver and vent.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
B. The Master Painters Institute (MPI):
   Approved Product List - September 2011
C. American Society for Testing and Materials (ASTM):
   A167-99(R2009) .......... Stainless and Heat-Resisting Chromium - Nickel Steel Plate, Sheet, and Strip
   A1008/A1008M-10 ........ Steel, Sheet, Carbon, Cold Rolled, Structural, and High Strength Low-Alloy with Improved Formability
   B209/B209M-03(R2007) ... Aluminum and Aluminum Alloy, Sheet and Plate
   B221-08 ................. Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
   B221M-07 ............... Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire Shapes, and Tubes
PART 2 - PRODUCTS

SPEC WRITER NOTE: Make material requirements agree with applicable requirements specified in the referenced Applicable Publications. Update and specify in both only that, which applies to the project.

2.1 MATERIALS

A. Aluminum, Extruded: ASTM B221/B221M.
B. Stainless Steel: ASTM A167, Type 302B.
C. Carbon Steel: ASTM A1008/A1008M.
D. Aluminum, Plate and Sheet: ASTM B209/B209M.
E. Fasteners: Fasteners for securing louvers and wall vents to adjoining construction, except as otherwise specified or shown, shall be toggle or expansion bolts, of size and type as required for each specific type of installation and service condition.
   1. Where type, size, or spacing of fasteners is not shown or specified, submit shop drawings showing proposed fasteners, and method of installation.
   2. Fasteners for louvers, louver frames, and wire guards shall be of stainless steel or aluminum.
F. Inorganic Zinc Primer: MPI No. 19.
   SPEC WRITER NOTE: Louvers in acid fume areas such as battery rooms, and chlorinate rooms shall be of stainless steel. Verify existence of such spaces with Mechanical and Electrical Engineers. Specify all louvers required or shown, including those shown in connection with mechanical work.

2.2 EXTERIOR WALL LOUVERS

A. General:
   1. Provide // fixed // and operable // type louvers of size and design shown.
2. Heads, sills and jamb sections shall have formed caulking slots or be
designed to retain caulking. Head sections shall have exterior drip
lip, and sill sections an integral water stop.
3. Furnish louvers with sill extension or separate sill as shown.
4. Frame shall be mechanically fastened or welded construction with
welds dressed smooth and flush.

SPEC WRITER NOTE: Percent free area, free
area velocity, pressure drop and amount of
water passage for insertion in following
paragraph shall be obtained from
Mechanical Engineer.

B. Performance Characteristics:
1. Weather louvers shall have a minimum of _____ percent free area and
shall pass ____ mm/s (fpm) free area velocity at a pressure drop not
exceeding ____ mm (inch) water gage and carry not more than ____ g
(ounces) of water per m² (square foot) of free area for 15 minutes
when tested per AMCA Standard 500-L.
2. Louvers shall bear AMCA certified rating seals for air performance
and water penetration ratings.

C. Aluminum Louvers:

SPEC WRITER NOTE: Consult Mechanical
Engineer to determine if standard or
drainable type blades are required.

1. General: Frames, blades, // sills // and mullions (sliding
interlocking type); 2 mm (0.081-inch) thick extruded aluminum. Blades
shall be // standard // or // drainable // type and have reinforcing
bosses.
2. Louvers, fixed: Make frame sizes 13 mm (1/2-inch) smaller than
openings. Single louvers frames shall not exceed 1700 mm (66 inches)
wide. When openings exceed 1700 mm (66 inches), provide twin louvers
separated by mullion members.
3. Louvers, operable: Louver frame opening sizes, single louver sizes
and mullion requirements shall be as specified for fixed louvers.
a. Blades: Attach blades to frame with aluminum pivot pins through
nylon bearings. Fasten each blade to stainless steel operation
arms that are connected to minimum 3 mm (1/8-inch) thick stainless
steel operating // bar // handle // arranged for simultaneous
operation of blades.
//b. Spring/chain operation: Exposed operator activated by spring
attached to operating // bar // handle // and mounted on frame.
//Control of louver shall be by pull chain of required length to be
operable from floor. Provide pulleys and brackets as required.//


c. Hand crank operation: Hand crank operator activated by case hardened gears concealed in aluminum housing. Operators shall be removable and located at jambs. Provide one right-handed operator for each louver. //

d. Motor operation: Motor operated by approved electric motor. Motors shall be removable and located at jambs of louver. Connect motor operator lever arm to operating bar by means of stainless steel connecting rod. //

e. Automatic operation: Louvers shall be complete with weights, pull chain, chain holder and brackets, cables, sheaves, spring, 70°C (160°F) fusible link, and other related items meeting requirements of NFPA 90A. Provide non-ferrous bearings and spindles of replaceable type. Control of louver shall be by pull chain of required length to be operable from floor. Louvers shall close automatically in case of fire. //

D. Stainless Steel Louvers: From stainless steel louvers using 1.6 mm (0.063-inch) thick sheet for frames, blades, sills and mullions.

1. Louver shall have fixed 45 degree standard drainable blades with water baffle. Make overall frame size 13 mm (1/2-inch) less than opening, unless otherwise shown.

2. Single louver sections shall not exceed 1700 mm (66 inches) in width. For openings larger than 1700 mm (66 inches) wide, provide multiple sections not larger than 1700 mm (66 inches) wide separated by mullions.

2.3 CLOSURE ANGLES AND CLOSURE PLATES

A. Fabricate from 2 mm (0.074-inch) thick stainless steel or aluminum.

B. Provide continuous closure angles and closure plates on inside head, jambs and sill of exterior wall louvers.

C. Secure angles and plates to louver frames with screws, and to masonry or concrete with fasteners as specified.

2.4 WIRE GUARDS

A. Provide wire guards on outside of all exterior louvers, except on exhaust air louvers.

B. Fabricate frames from 2 mm (0.081-inch) thick extruded or sheet aluminum, 1.5 mm (0.059-inch) thick stainless steel designed to retain wire mesh.

C. Wire mesh shall be woven from not less than 1.6 mm (0.063-inch) diameter aluminum wire, 1.3 mm (0.05-inch) diameter stainless steel wire in 13 mm (1/2-inch) square mesh.
D. Miter corners and join by concealed corner clips or locks extending about 57 mm (2-1/4 inches) into rails and stiles. Equip wire guards over four feet in height with a mid-rail constructed as specified for frame components.

E. Fasten frames to outside of louvers with aluminum or stainless steel devices designed to allow removal and replacement without damage to the wire guard or the louver.

2.5 EXTERIOR DOOR LOUVERS

A. Fabricate of 1.6 mm (0.063-inch) thick extruded aluminum. Miter frames at corners and join by concealed corner brackets.

B. Equip louvers on outside with wire guards, except omit wire guards for louvers in doors located completely below enclosed areaways.

2.6 INTERIOR DOOR LOUVERS

A. Fabricate louvers for interior doors and partitions of 1.2 mm (0.0478-inch) thick steel. 1.6 mm (0.063-inch) thick extruded aluminum.

B. Make louvers sight-proof type with stationary blades, except where light-proof louvers are required.

C. Lightproof louvers shall have stationary blades and be designed to exclude passage of light but permit free ventilation.

2.7 WALL VENTS

A. Fabricate exterior wall vents from either 4.7 mm (0.187-inch) thick aluminum plate of 6 mm (1/4-inch) thick cast iron, perforated in diamond lattice pattern, with not over 19 mm (3/4-inch) openings.

B. Vents shall have aluminum screen frame with aluminum alloy insect screening mounted on back of vent by means of 19 mm x 5 mm (3/4-inch by 3/16-inch) top and bottom bars screwed to grille.

C. Vent Frames In Masonry: Fabricate of 45 mm x 30 mm x 5 mm (1-3/4 inch by 1-1/4 inch by 3/16-inch) steel angles bolted with 6 mm (1/4-inch) diameter expansion bolts at jambs.

2.8 AIR INTAKE VENTS

A. Fabricate exterior louvered wall ventilators for fresh air intake for air conditioning units from extruded aluminum, ASTM B221. Form with integral horizontal louvers and frame, with drip extending beyond face of wall and integral water stops.

B. Provide aluminum closures where shown for inside face of dummy vents.

C. Provide 0.8 m (0.032-inch) thick aluminum sleeves in cavity walls where shown.
2.9 BRICK VENTS

A. Vents shall be of size shown formed of approximately 3 mm (0.125 inch) thick cast aluminum, or 3 mm (0.125) inch extruded aluminum.

B. Provide vents complete with aluminum screen frame with corrosion resistant insect screening mounted on back of vent.

C. Provide vents with required anchors.

SPEC WRITE NOTE: On most projects, specify finish of aluminum by using description, do not use Aluminum Association's designation. If more than one finish is used on project, precede finish spec with "Finish for (list items):"

2.10 FINISH

A. In accordance with NAAMM Metal Finishes Manual: AMP 500-505

B. Aluminum Louvers // Air Intake Vents // Wire Guards //:
   1. Anodized finish
      a. //AA-M1X// Mill finish, as fabricated.
      b. //AA-C22A41// Chemically etched medium matte, with clear anodic coating, Class I Architectural, 0.7 mils thick.//
      c. //AA-C22A42 // Chemically etched medium matte, with integrally colored anodic coating, Class I Architectural, 0.7 mils thick.//
      NOTE: //AA-C22A44 // Chemically etched medium matte, with electronically deposited metallic compound, Class I Architectural, 0.7 mils thick may be provided as an option for //AA-C22A42 // color anodic coating. Dyes will not be accepted.//
   2. Organic Finish: AAMA 2605 (Fluorocarbon coating).

C. Aluminum // Wall Vents // and Brick Vents //: Sand blasted satin finish.

D. Stainless Steel: Mechanical finish No. 4 in accordance with NAAMM Metal Finishes Manual.

E. Sheet Steel: Baked-on or oven dried shop prime coat.
   1. Paint interior surfaces of lightproof louvers with two additional finish shop coats of baked-on flat black enamel.
   2. Finish painting of exposed surfaces of shop primed louvers is specified in Section 09 91 00, PAINTING.

F. Steel: Surfaces of steel work, for which no other finish is specified, shall be cleaned free from scale, rust, oil and grease, and then given a light colored prime paint after fabrication, except ferrous metals concealed in finished work. Paint all contact surfaces of assembled work (except welded contact surfaces) with an additional shop coat of similar paint.
2.11 PROTECTION

A. Provide protection for aluminum against galvanic action wherever dissimilar materials are in contact, by painting the contact surfaces of the dissimilar material with a heavy coat of bituminous paint (complete coverage), or by separating the contact surfaces with a performed synthetic rubber tape having pressure sensitive adhesive coating on one side.

B. Isolate the aluminum from plaster, concrete and masonry by coating aluminum with zinc-chromate primer.

C. Protect finished surfaces from damage during fabrication, erection, and after completion of the work. // Strippable plastic coating on // colored anodized // organic // finish is not approved. //

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set work accurately, in alignment and where shown. Items shall be plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.

B. Furnish setting drawings and instructions for installation of anchors and for the positioning of items having anchors to be built into masonry construction. Provide temporary bracing for such items until masonry is set.

C. Provide anchoring devices and fasteners as shown and as necessary for securing louvers // and vents // to building construction as specified. Power actuated drive pins may be used, except for removal items and where members would be deformed or substrate damaged by their use.

D. Generally, set wall louvers // and vents // in masonry walls during progress of the work. If wall louvers // and vents // are not delivered to job in time for installation in prepared openings, make provision for later installation. Set in cast-in-place concrete in prepared openings.

3.2 CLEANING AND ADJUSTING

A. After installation, all exposed prefinished and plated items and all items fabricated from stainless steel and aluminum shall be cleaned as recommended by the manufacturer and protected from damage until completion of the project.

B. All movable parts, including hardware, shall be cleaned and adjusted to operate as designed without binding or deformation of the members, so as to be centered in the opening of frame, and where applicable, to have all contact surfaces fit tight and even without forcing or warping the components.

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