WISCONSIN CONSTRUCTION SPECIFICATION

23. ALUMINUM OR STEEL ROOF GUTTERS

1. SCOPE

The work consists of furnishing and installing roof gutters and downspouts.

2. MATERIALS

Gutters, downspouts, and associated hardware shall be aluminum, galvanized steel, painted steel, or coated galvanized steel. Dissimilar metals shall not be in contact with each other.

Accessories for gutters or downspouts shall be of like materials. Hardware and accessories shall be of sufficient strength to secure the gutters and downspouts.

Plastic downspouts may be used for metal or aluminum gutters. They shall meet requirements of ASTM D-1785 schedule 40.

Aluminum, galvanized steel, painted steel, and coated galvanized steel shall have the following minimum thickness.

	Thickness	
	Galvanized Steel, Painted Steel, and Coated Galvanized Steel	**Aluminum Materials**
Gutters	28 gauge	0.027 inches
Downspouts	28 gauge	0.020 inches
Hangers	16 gauge	0.075 inches
Roof Straps	19 gauge	0.060 inches
Wind and Snow Straps	28 gauge	0.027 inches

New fascia board (treated/untreated) shall be straight and graded lumber #2 or better. Treated lumber used as fascia or as wedges for gutters shall have a treatment retention of 0.25 pounds per cubic foot and be non-corrosive to aluminum and steel. Lumber treated with ACQ, AC2, or other corrosive preservatives are not acceptable unless a waterproof coating is applied between the lumber and the gutter.

3. INSTALLATION

a. Gutters

i. Position the gutter so the outer edge of the highest point of the gutter is below the roof line projection. The slope of the gutter shall be as specified in the construction plans.

ii. Hangers and straps shall be securely anchored in a manner which will not prevent the entry of water into the gutter.

b. Supports

i. Vertical support

Roof straps shall be securely fastened to each gutter hanger and the roof.

Figure 1: Typical Roof Strap and Gutter Hanger

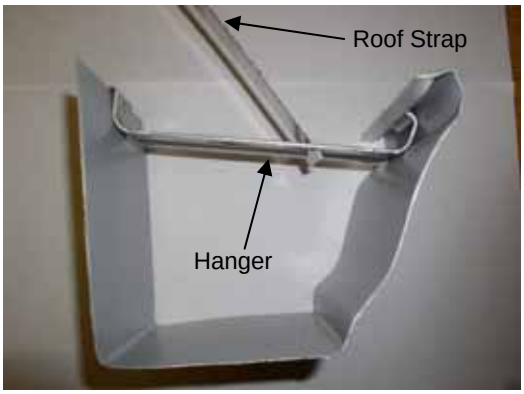

Figure 2: Typical Gutter Hanger and Roof Strap Attachment

Maximum hanger and strap spacing is 18 inches for aluminum gutters and 24 inches for steel gutters.

ii. Lateral Support

Gutters mounted on non-plumb fascia board shall have wood or manufactured wedges fastened to the fascia board for inward lateral support and wind straps fastened to the building and roof for outward lateral support. They shall be at a gutter hanger location and have a maximum spacing of 8 feet. The wind strap shall be a minimum of 1 inch wide and shall have full contact with the bottom and outside face of the gutter and extend a minimum of 6 inches onto the roof.

Snow straps preclude the use of wind straps.

iii. Snow Support

Snow straps, if required in the construction plans, shall be a minimum of 1 inch wide and be securely fastened to the fascia board or building and roof. The snow strap shall be in full contact with the bottom and outside face of the gutter, and extend a minimum of 6 inches onto the roof. Straps shall be located at every other hanger and immediately adjacent to a hanger.

Steel or aluminum rigid supports with a minimum 1/8” thickness or materials with equivalent strength and durability may be used in lieu of snow straps. The support shall be securely attached to the fascia board or building and shall contact the entire gutter bottom width.

If supports are screwed into the bottom of the gutter, the screw holes shall be sealed to prevent leakage.

Alternative snow support systems shall be approved by the Technician prior to installation.

Figure 3: Typical Snow Strap and Gutter Hanger Attachment

Figure 4: Typical Snow Strap Attachment to Fascia Board

c. Downspouts

   i. Supports for vertical downspouts shall be securely fastened at the top and bottom with intermediate supports placed such that the maximum spacing between supports is 10 feet.

   ii. Supports for lateral downspouts and cross pipes shall be placed at a maximum spacing of 5 feet.

d. Underground Outlet Conduits

   i. Underground conduits shall be installed according to the construction plans and Wisconsin Construction Specifications 15, Plastic Pipe Conduits; and 44, Corrugated Polyethylene Tubing, as applicable.

   ii. Install appurtenances according to the recommendations of the manufacturer and as noted in the construction plans.