Guidelines For Roof Mounted Outdoor Air-Conditioner Installations

AHRI

Air-Conditioning, Heating,
and Refrigeration Institute

Sheet Metal and
Air-Conditioning Contractors
National Association

SMACNA

GUIDELINE B-1997

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ACKNOWLEDGEMENT

These guidelines for Roof Mounted Outdoor Air-Conditioner Installations were prepared by the of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and the Sheet Metal and Air-Conditioning Contractors National Association (SMACNA).

Therefore, thanks are in order for efforts by the technical staffs of each organization and the committees within each organization for their review and comments to finalize this document.

Note:

This guideline supersedes ARI Guideline B-1986.

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GUIDELINES FOR ROOF MOUNTED OUTDOOR AIR-CONDITIONER INSTALLATIONS

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PREFACE

This document contains guidelines for the installation of roof mounted outdoor air-conditioner equipment as developed and agreed upon by the Air-Conditioning, Heating, & Refrigeration Institute (AHRI) and Air-Conditioning Contractor's National Association, Inc. (SMACNA). The purpose of these Guidelines which cover curb and roof penetrations and sealings is to set forth good construction practices. The Guidelines are just that—guidelines—and are not standards, warranties or certifications.

The information contained in these Guidelines should serve as a supplement to the unit manufacturer's specific installation instructions. The precise steps to be taken with respect to a specific curb, roof penetration or sealing may vary according to particular circumstances, job conditions and manufacturer's specifications. In all cases, the necessary installation work should be done by and under the supervision of skilled and qualified personnel.

These Guidelines cover instructions on the interface between the roof and the location at which the unit, piping, electrical wiring or sheet metal ductwork pass through the roof. For more detailed design information, see the SMACNA Architectural Sheet Metal Manual, HVAC Duct Construction Standards, and the National Electrical Code. These documents were the source for many of the recommendations made in these Guidelines. No changes in these AHRI - SMACNA Guidelines shall be made without the approval of AHRI and SMACNA.

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Curb Criteria for Roof Mounted Equipment

1. The top of the curb should be level after installation.

2. The curb and the equipment should be structurally capable of supporting intended loads and should be so designed that no penetration for drains, power lines, etc., will occur through the roof flashing.

3. The curb should be furnished with a wood nailer which provides a minimum of 3-½ inches of nailing surface, mounted at the top of the curb, to permit mechanical attachment of the flashing material.

4. Caution should be used when considering the use of wood that has been treated with an oil borne preservative for wood nailers. The oil that is used in many lumber treatments can act as a solvent on roofing materials and can cause bitumen drippage. When wood nailers constructed of wood that has been treated with an oil borne preservative are used, a barrier of rosin-sized sheathing paper or similar material should be placed between the built-up roof membrane and the nailer.

5. The curb should provide a minimum clearance of 10 inches between the top of the finished roof surface and the top of the wood nailer, continuous around the curb perimeter. In no case should the curb be less than 14 inches in height. *(See Figure 6.)*

6. If the curb does not include a counterflashing receiver, a separate counterflashing receiver should be installed prior to the installation of the equipment. All receivers should be of watertight construction.

7. The metal counterflashing may extend down over the base flashing so that no composition material is exposed, thereby reducing the danger to foot abuse. *(See Figure 6.)*

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Section B

Stand Mounting Criteria

Some mechanical equipment installations require that roofing materials be installed or maintained beneath them. Table 1 presents guidelines for the clearances necessary to accomplish this purpose. Units which allow access from the sides may permit reduction of these values.

Typical methods for flashing of unit supports are shown in Figures 1 through 5.

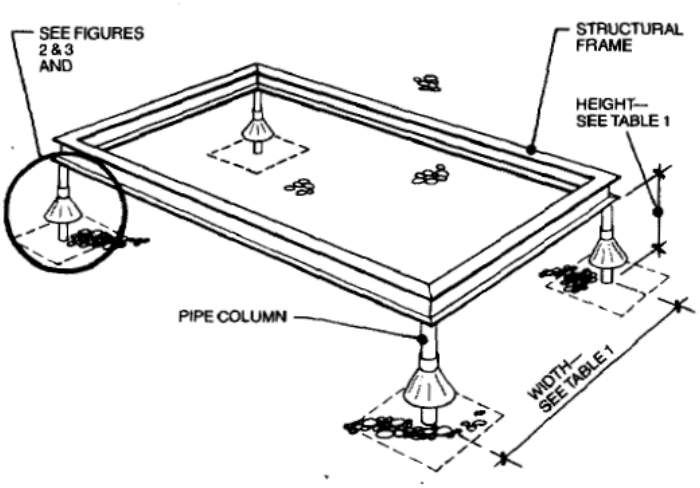
Table 1
WORKING CLEARANCES

Width of Equipment	Height Above Roof Surface
Up To 24"	14"
25" To 36"	18"
37" To 48"	24"
49" To 60"	30'
61" And Wider	48"

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Figure 1

Mechanical Equipment Stand



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