

	STANDARD OPERATING PROCEDURE BUILDING & SITE DEVELOPMENT	Number: 220.2
Approval: Yves Khawam 		Effective Date: November 6, 2006
Subject: Equipment installation on existing roofs		Page 1 of 2

1.0 PURPOSE:

This document delineates a prescriptive method whereby equipment may be installed on existing roofs without providing structural calculations.

2.0 REVISION HISTORY:

Revised on March 5, 2007 and November 10, 2009 to change SOP title and to adjust displacement allowance. Revised on January 8, 2010 to include manufactured homes. Revised September 16, 2010 to include point loads. Updated November 8, 2010 to create point loads clear radiuses. Renumbered SOP from 430.2 on 12/30/10.

3.0 PERSONS AFFECTED:

Stakeholders of roof-mounted equipment and plans examining staff.

4.0 ADMINISTRATIVE POLICY:

When applying for a permit to place new equipment on existing code-compliant roofs, an allowance shall be provided for equipment weighing a maximum of 4 psf.

The 4 psf allowance is applicable to conventional roofs (wood/steel deck and joist/beam or truss systems), exclusive of engineered metal buildings, constructed in the past fifty years. Installations exceeding this allowance shall require a structural load analysis. This allowance may also be applied to manufactured homes (constructed post June 15, 1976) if it is deemed by the building official that the installed system does not contribute to increasing uplift pressure on the roof.

Additional requirements include:

- Equipment shall not cover more than 50% of roof area
- Equipment shall be positively attached to the roof structure with a minimum of one connection per 10 sf of equipment (minimum of two connections per piece of equipment)
- Point loads exceeding 45 lbs shall require a structural load analysis
- Point loads not exceeding 45 lbs shall be provided a clear radius per table 4.0 within which no other point load radiuses shall impinge



Table 4.0 Point Load Minimum Clear Radius*

Point load not to exceed	Clear Radius Required
45 lbs	24 inches
40 lbs	22 inches
35 lbs	20 inches
30 lbs	19 inches
25 lbs	17 inches
20 lbs	15 inches

** i.e., two 45 lbs point loads require minimum 48 inches separation.*

Rationale for allowance:

- Equipment eliminates the probability of people walking on the roof within the equipment footprint
- Wind loading on entire roof structure will not be greatly affected by added equipment
- The fifty year age is based on the building codes assumption of loading probability to occur in a 50 year building life. Buildings older than this have a higher probability of needed maintenance and may be experiencing structural degradation

5.0 DEFINITIONS:

Not applicable.

6.0 RESPONSIBILITIES:

It is the responsibility of the person submitting for permitting in accordance with this procedure to verify that the roof on which the equipment is to be installed was legally permitted, is in good structural condition, and otherwise provides for a minimum residual dead and live-load capacity meeting or exceeding 4 psf.

7.0 PROCEDURES:

Not applicable.