

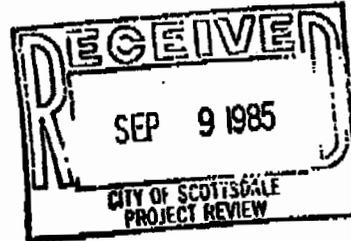
HASTAIN & DEATHERAGE, INC.
CONSULTING CIVIL AND
STRUCTURAL ENGINEERS



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JAMES H. DEATHERAGE, P. E.
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September 6, 1985

Mr. Brian O'Donnel, Chairman
MAG Building Code Committee
Building Official
City of Scottsdale
3939 Civic Center Plaza
Scottsdale, Arizona 85251

Subject: Roof Drainage Criteria
Per Uniform Plumbing Code

Dear Mr. O'Donnel:

During 1981-82 I was a member of the Roof Drainage Committee of the City of Phoenix Building Safety Department. The committee was organized in response to numerous roof failures resulting from excessive ponding.

Our committee determined that the 3"/hr. UPC rainfall criteria then required for roof design of City of Phoenix buildings was representative of a 1-2 year storm, because the UPC roof drainage tables were based upon a 5 min. intensity rainfall ---- not the total 1 hr. rainfall. As a consequence, we revised the code to require a 6"/hr. intensity ---- about a 15 year storm for the Phoenix area.

I urge your MAG committee to consider revising the roof drainage requirements throughout the valley. To assist you, I have included the City of Phoenix Roof Drainage criteria before and after our committee's work.

I would be happy to provide further assistance or answer any questions you may have.

Very truly yours,

HASTAIN & DEATHERAGE, INC.
Consulting Engineers

Fred M. Nelson, P.E.

FMN:pc
Enclosure



MARICOPA ASSOCIATION OF GOVERNMENTS

1820 WEST WASHINGTON PHOENIX, ARIZONA 85007 (602) 254-6308

September 18, 1985

TO: ALL MARICOPA ASSOCIATION OF GOVERNMENTS BUILDING DEPARTMENTS

FROM: MAG BUILDING CODES COMMITTEE

SUBJECT: POLICY STATEMENT-UPC REQUIREMENT-ROOF DRAINAGE

WATER ACCUMULATION

All roofs shall be designed with a primary slope of not less than $\frac{1}{8}$ " per foot. Secondary slopes, such as valleys, crickets or sloping ledgers, shall be not less than $\frac{1}{8}$ " per foot to point of drainage off the roof. Such slope shall be in addition to designed camber to assure adequate drainage after long-time deflection from dead load.

EXCEPTION: Roofs may have less slope than required above when a rational structural analysis is performed by a structural engineer to assure stability and strength under ponding conditions and the stiffness of the structural members are at least that given by: $EI \geq 225TL^3$ where T is the tributary area supported by the member in square feet and L is span length in feet.

Design rate of rainfall shall be a minimum of 6"/hr., based upon a 5 minute duration. Ponding loads need not be considered as occurring simultaneously with other live load.