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Texas Lathing & Plastering Contractors Association
1615 W. Abram, Suite 101
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Re: ASTM 1063 - Control Joints

Gentlemen:

I have reviewed ASTM 1063 in its entirety. I specifically concentrated on Section 7.10.1.4 concerning the requirement for the metal lath to be cut beneath control joints and how this requirement affects the structural performance of the cladding system.

ASTM 1063 does not specifically address the difference between expansion joints and control joints. Expansion joints affect the entire structure and all elements of the building are separated along these lines. Expansion joints also require that additional framing members be placed on each side of the joint for proper attachment of the cladding materials.

However, control joints in plaster cladding systems are to provide artificial planes of weakness in the plaster cladding. These planes of weakness allow stresses generated in the building or due to thermal changes to dissipate without forming cracks in the plaster cladding. Control joints do not totally eliminate cracks in the plaster cladding, but does minimize them in most cases. The thermal movement in the plaster is greatest at the face of the cladding. As most stucco systems are 3/4" to 1" thick, the movement at the plane of the metal lath is less significant. Therefore, the thermal movement of the stucco is primarily at the face of the cladding. Therefore to require the lath to be cut to alleviate thermal stress does not appear to be valid.

There is no requirement for additional framing at control joints as for expansion joints. In commercial applications, the metal lath is screw attached through the sheathing into the framing members behind for attachment to resist both positive and negative wind loads. Negative wind loads control the structural design of curtainwall framing systems as well as the attached cladding of these systems. When the metal lath substrate is cut along control joints, there are no framing members along those areas for positive attachment of the metal lath. This lack of attachment leaves the plaster cladding vulnerable to negative wind loads as the lath can be attached to the sheathing only and/or wire tied through the control joint itself. Structurally, this is a very weak attachment and could lead to failure and peeling of the plaster veneer under high negative wind loads.

In recent studies in California concerning the performance of buildings with various claddings during seismic events, it has been noted that stucco clad structures perform well. This is due in part to the fact that stucco is an attached cladding and provides some additional diaphragm stiffness to the structure. However, it is the metal lath directly attached to the framing that provides most of this stiffness in tension-field action. To arbitrarily cut this membrane (lath) at control joints without positive attachment to the underlying structure considerably weakens the shear flow capacity of this attached cladding system. Therefore, the diaphragm capacity of the attached stucco cladding is greater for both wind and seismic loading without cutting the metal lath at the control joints.

Therefore it is my opinion as a structural engineer, that the requirement of ASTM 1063 (Section 7.10.4.1) to cut the metal lath base behind control joints is incorrect. The metal lath base should be continuous behind all control joints for structural integrity under negative wind load conditions as well as diaphragm stiffness. If you have any further questions, please contact me.

Sincerely,

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