

Masonry Information Technologists, Inc.

304 Kachuba Court - Altamonte Springs, FL 32701

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1. Has the extent of the problem been determined and mapped?

Elevations should be used to show in detail the delaminated and/or cracked areas. All delaminated areas shall be plotted on the elevations in enough detail as to accurately illustrate to a 3rd party the area of delamination and extent thereof. Cracks should be detailed as to the size of the crack using a crack gauge to a scale of 0.001 inch. Gage is illustrated on page 4.

Example of Mapping Delaminated Area:

Red depicts delaminated areas. The mapping should not be squared off as illustrated here, but actually plot areas as they are found (i.e. irregular shaped) for accuracy. Cracks shall be shown in a contrasting color.

B. Define and detail the Problem (In addition to above mapping, the following items should be addressed)

1. Detail information on cracks.
 - a. Depth of crack, into stucco? , into (concrete repair material such as polymod, or euclid verticoat VO?) , all the way to the substrate?
 - b. Into finish?, into Brown, Into scratch.
 - c. Size of crack- in 0.001 inch measurements.
 - c. Cause of crack?

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2. Delamination Details:
 - a. Delamination location: At the substrate- Are there multiple layers of polymod?
 - b. Delam within layers of poly mod? Detail
 - c. Delam between polymod and stucco
 - d. Delam between layers of stucco? Detail.
 - e. Cause, if known.

3. Bonding Agent Details:
 - a. Was a bonding agent used?
 - b. Detail the bonding agent – Meeting ASTM C 631, ASTM C 932?
 - c. Could it be recognized at which locations?

4. Detail of the Substrate?
 - a. Roughness of the substrate?
 - b. Cleanliness of substrate?
 - c. Any oils or chemicals found?
 - d. Adequate bond to substrate? Why not?

5. Accessories. (Any problems with accessories)
 - a. Describe type of accessory – corner bead? Control joint type M?, etc.

6. Testing conducted to date?
 - a. Cores?
 - b. Petrographic Exams?
 - c. Chemical Analysis?
 - d. Bonding Agents.?
 - a. Detail type of bonding agent and extent of use.

7. Samples from the jobsite harvested to date. –Detail where and dates of harvest.
 - a. Description each sample
 - b. Tests conducted on samples?
 - c. Duration of existing sample testing?

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Delamination Evaluation

Here is the question: How much delamination is acceptable ? .

Answer:

If the delaminated were the size of a quarter – this would be of little concern.

If it were the size of a half dollar, this would be of little concern.

If it is 4 feet wide and 4 feet round, then it is a big concern. So what is the practical measurement for repairing the stucco where it is “sounded” to be delaminated.

Based on interpretation of Mr. John E. Bucholtz PE. of the West Coast, Here is a standard that MIT would recommend be applied:

1. Small areas of delamination:

Where there are areas that are 12 inch to 14 inch in diameter and they are discontinuous from one another and there is no crack in the stucco and the stucco is well adhered on all surrounding sides, these areas need not be removed.

2. Medium areas of delamination:

Where an area is up to 14 to 18 inches in diameter and the area is well bonded around all sides and there is no cracks – these areas need not be removed.

3. Hurricane Wind Force: Take into account the suction force of hurricane winds: MIT requested of a prominent Wind Engineer in Florida to calculate the forces that could cause stucco troubles using the wind forces found in Hurricane Andrew.

Here is his summary:

“The perimeter shear stress on a 4 ft diameter blister would be 34psi which is less than the allowable stress (F_v) of 40 psi, while the stress on a 5 ft diameter blister would be $40 \text{ psi} > F_v = 40 \text{ psi}$. Therefore, a 4 ft diameter blister would be structurally sound unless it was partially cracked. Then with enough cracks even a small blister cannot resist its own weight as evidence by the spalled off stucco which is found on some buildings from time to time”.

4. Larger areas of delamination or long continuous areas of delamination:

Due to the Wind Force Calculations, MIT recommends the following:

a. Any area of delamination that is larger than 3 ft. in diameter or equivalent of 7 ft in perimeter length shall be removed and replaced.

5. Delaminated areas in conjunction with cracks:

12 to 14 inch diameter with one crack up to 0.010 inch and not a “working” crack need not be removed and replaced.

14 to 18 inch diameter with a small crack up to 0.007 and not a “working” crack need not be removed and replaced.

24 inch diameter delamination with any crack shall be removed.

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Sample of Crack Gage



The above crack gage is printed approximately to scale