

Repair of Cracks in EIFS Technical Bulletin

TB024

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General:

This bulletin supplements the *Parex Commercial Maintenance and Repair Guide*, which contains the specific step by step procedures for making the repairs outlined below. In all cases of removal and replacement of existing material, the *Repair Guide* step by step instructions are to be followed. Before making any repairs, review the entire repair section of the *Guide* in detail.

Although Parex USA EIF systems resist ordinary stresses, they can suffer damage in the form of cracking. Possible causes of cracking are varied and the treatment to repair cracks depends, in part, on the cause. Crack treatment also depends on which components of the EIFS have been damaged. This bulletin addresses some of the causes of cracking, types of crack damage, and their treatment.

Repair finish color should be matched to a physical sample of the existing finish taken from the repair area, however, exact matches may not be achievable.

Causes of Cracks:

Causes of cracking include structural movement, stress at points requiring extra reinforcement, stresses requiring relief by expansion joints, base coat in between insulation board edges, and excessive thickness of base coat.

Extent of Damage:

A crack may or may not include broken EPS, or broken mesh. It may be a crack of the coatings only without broken mesh or insulation. Repair procedures therefore include repair of insulation if it is broken, repair of mesh if it is broken, or just reinforcement and repair of coating if the crack does not extend to broken mesh or insulation. Cracks that result from conditions requiring expansion joints to accommodate movement are replaced by expansion joints.

Examination:

Before beginning a repair, determine the cause of the crack and which components of the system have been damaged.

For hairline cracks in which the mesh cannot be seen, repair is generally by an overlay of basecoat, mesh and finish after grinding the existing finish in accordance with the *Repair Guide*.

Longer, straight cracks may indicate base coat in EPS board joints or mesh laps that are less than 2 1/2". Examine a crack for base coat in a joint by cutting out and removing a 1" square of lamina centered on the crack. For mesh laps, cut and remove a 2" wide strip of lamina extending about 3" on each side of the crack. Examine the removed lamina for mesh layers and overlap and dimension. For cracks that are open, with broken mesh and/or broken EPS visible, examine the substrate by removing a 3" x 3" square of EIFS centered on the crack. Follow the *Repair Guide* for the cutting and patching.

If the substrate is damaged, the cause of the substrate damage must be determined and remedied before EIFS repair. Sometimes a joint must be created in the substrate to accommodate substrate movement. In that case, the EIFS will require an expansion joint at the substrate joint.

Determining the cause of the substrate damage and its repair are not EIFS repair work and should be addressed by others.

Precaution:

When cutting or routing existing EIFS with drainage, take care not to cut the water-resistive barrier behind the insulation board. Set saw blade and router blade depths 1/4" to 3/8" less than the EPS thickness. Carefully break the remaining EPS free to remove it and sand the EPS edge smooth without damaging the water-resistive barrier.

If the water resistive barrier is damaged during repair work, or has been damaged by substrate movement, it must be repaired before replacing the EIFS. Because of the variety of barrier types, contact Parex Technical Services for further information if it is necessary to repair them.

Mesh Laps:

Everywhere that new mesh is installed, it must lap over the adjoining existing mesh a minimum of 2 1/2".

Expansion Joints:

If the crack resulted from structural movement that will be ongoing, a new expansion joint in the EIFS is required. The designer should determine the dimension and location of the expansion joint in accordance with the Parex System Specification. A similar condition is cracking or bulging at floor lines from loss of framing dimension. Where loss of framing dimension will be ongoing, a new expansion joint in the EIFS is required. Determinations of framing and other substrate movement are not EIFS repair work and should be addressed by others.

The location of the new expansion joint may not be right at the location of the crack. In that case, the crack repair is made in addition to the installation of the new expansion joint.

New Expansion Joint Installation:

To install a new expansion joint, remove a strip of the existing system centered on the new joint location. Follow the *Repair Guide* cutting instructions. The strip width is 6" plus the dimension of the new joint. Join new back-wrapped EIFS to the existing EIFS following the *Repair Guide*. Form the specified gap for the new backer rod and sealant. Do not apply finish in the gap that is to receive the new sealant.

Cracks and similar damage can also result from expansion joints that do not provide sufficient movement because they are too narrow or because the sealant in them has too high a modulus or is of excessive depth. For joints that are wide enough to function if the sealant is replaced with lower modulus, correctly proportioned sealant beads, careful removal and replacement of sealant, accompanied by repair of any cracks is sufficient. For joints that are too narrow, the EIFS termination on one side of the joint must be relocated to provide the specified joint dimension. Proceed as for installation of a new expansion joint described above, except only on one side of the joint. Terminate the new system edge the same way as the existing edge that is left in place.

EPS Replacement:

Where EPS is damaged at a crack, cut away the damaged material to provide smooth straight edges. Install new EPS, mesh and coatings in accordance with the *Repair Guide*. Gaps in the existing EPS up to 1/2" wide may be filled with spray polyurethane foam (NOT latex foam) as an alternative to EPS.

Base Coat in EPS Joints:

Cracks caused by base coat in between EPS board joints require routing out the joint, filling with new EPS or spray polyurethane foam, and repairing the base, mesh and finish in accordance with the *Repair Guide*. If the condition is extensive, it may be necessary to apply new base mesh and finish to the entire affected area. Routers should be guided by temporarily placed straight edges.

Stress Points:

Cracks can form at stress points such as at corners of window and door openings or at unusual wall geometry. For cracks that do not have broken mesh or broken EPS, and are not a result of ongoing substrate movement, apply new base coat, mesh, and finish. The existing surface is prepared and the new materials applied in accordance with the *Repair Guide*.

Excessive Base Coat Thickness:

Cracks can result from excessively thick application of base coat. The affected EIFS must be removed and replaced with new EIFS having coatings of the proper thickness.



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