An architectural member having a mounting bracket defining an interior cavity open to the rear and having apertured walls, a decorative body composed of rigid expanded foam and a bracket recess receiving the mounting bracket, and an expanded adhesive disposed within said interior cavity and bonding the decorative body to the mounting bracket and the mounting bracket to a building wall in addition to mechanical fasteners. The mounting bracket and decorative body are structured such that the decorative body is retained on the mounting bracket in a snap-fit manner independently of the adhesive. To mount the architectural member on a wall, the mounting bracket is fastened to the wall using mechanical fasteners, the adhesive is deposited in the bracket recess of the decorative member and/or the interior cavity of the mounting bracket and the decorative member is snapped onto the mounting bracket.
BACKGROUND OF THE INVENTION

This invention relates generally to the field of wall-mounted ornamental architectural members, and more particularly to such members that are composed of rigid polymer foam material and/or cementitious material, which members incorporate mounting means for attachment to the walls of a building structure.

Decorative or ornamental architectural pieces, often of intricate or complex design, have long been used to adorn the exterior walls or facades of building such as cathedrals and monuments, and more recently residences and commercial buildings. In early times these architectural members were typically composed of carved stone, concrete, cement, plaster or similar relatively dense and heavy materials. Mounting such heavy pieces onto the walls of buildings composed of similar material presented challenges that could be suitably met. But modern building are usually constructed of materials such as wood, plywood, stucco or the like, which presents new problems relative to architectural ornamentation since securing heavy architectural members to such walls requires new mounting means and techniques. Not only must the architectural pieces remain secure for many years in average environmental conditions, they must be mounted in such manner so as to withstand high winds form hurricanes and the like. With the development of new construction materials, and in particular with the development of rigid expanded polymer foams, the problems have been addressed by manufacturing the architectural pieces out of the rigid expanded polymer foam. These pieces are relatively lightweight, and the pieces can be easily molded and/or cut into intricate shapes and designs. Typically, the planar backs of the architectural pieces are glued directly to the wall using a suitable adhesive, such as an expanding foam adhesive, or the pieces are mounted using mechanical fasteners and mounting brackets glued or fastened to the rigid expanded foam.

It is often desirable to provide the rigid foam architectural pieces with a cementitious coating, e.g., stucco or the like, or a thick polymer coating, such that the pieces are more durable and to give the appearance of the pieces having been formed from stone or the like. This coating, which may range from ½ to ¾ inches in thickness, may be applied by brushing, spraying, dipping or similar manner, and the coating operation is performed at the manufacturing plant, on site or even after the pieces have been mounted on the building. Because several layers of cementitious material are often applied to the rigid expanded foam, the weight of the architectural members is significantly increased. Because of this added weight, mounting means comprising an adhesive and/or simple mechanical fasteners are not suitable in the long term, since the added weight will often result in separation of the pieces from the wall.

An object of this invention to provide a wall-mounted ornamental architectural member, system and mounting methodology that addresses the problems set forth above, whereby the architectural member is formed of lightweight, rigid, expanded polymer foam. It is an object to provide such a member and system where the member is mounted to the building wall in successive steps, whereby each step is easily and readily accomplished in a simple and straightforward manner. It is an object to provide such a member and system where the durability and security of the mount is improved relative to the standard mounting means and methods.

SUMMARY OF THE INVENTION

The invention is in general a wall-mounted architectural member, mounting system and mounting methodology, wherein the architectural member comprises a decorative body composed of lightweight, rigid, expanded polymer foam, such as a polystyrene foam for example, which may be externally coated with a surface cover or skin layer of polymer or cementitious material, such as stucco or cement for example. In a preferred embodiment, the architectural member is manufactured with an extrusion process, such that the decorative body is generally longitudinally extended whereby multiple members may be aligned end-to-end to define horizontal or vertical ornamental elements. However, it is also contemplated that the architectural member may comprise a discrete member formed and mounted individually on a wall surface. On the rear of the architectural body is provided a bracket recess, preferably longitudinally co-extensive with the decorative body. Alternatively, the bracket recess may be provided at spaced locations along the decorative body. The bracket recess extends into the interior of the decorative body and may be formed during the extrusion process or cut into the decorative body after the polymer foam has cured.

The invention further comprises a mounting bracket having a configuration corresponding in main part with the bracket recess formed in the decorative body, such that the decorative body mates with the mounting bracket. The mounting bracket may be formed of sheet metal, plastic or material of similar properties, and is provided with a wall flange or similar means to receive mechanical fasteners to join the mounting bracket to a building wall. The mounting bracket may be longitudinally co-extensive with the decorative body, or multiple brackets may be provided at spaced intervals. The mounting bracket comprises apertured wall members that extend outwardly from the building wall and into the bracket recess of the decorative body, the wall members defining an interior cavity to receive an expanding foam adhesive.

The mounting bracket and decorative body are further provided with mating press-fit or snap-fit mechanical interlocking or clip means to temporarily retain the decorative body on the mounting bracket. The mechanical interlocking means preferably comprises a longitudinally extensive retention recess disposed in the decorative body, the retention recess comprising shoulders that define a relatively narrow slot to receive an expanded detention member located on said mounting bracket.

To mount the architectural member to the building wall, the mounting bracket is fastened to the wall at the appropriate location utilizing mechanical fasteners. An amount of expanding adhesive foam is injected into the bracket recess and/or the interior cavity of the mounting bracket, the amount being sufficient such that upon expansion a quantity of the adhesive passes through the apertures in the walls of the mounting bracket to secure the decorative body thereto, the decorative body having been pressed onto the mounting bracket immediately subsequent to the deposit of the expanding adhesive. The mechanical interlocking
means serve to retain the decorative body in place on the mounting bracket during the adhesive curing process.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a cross-sectional exploded view of the invention showing the expanding foam adhesive prior to expansion and clipping of the decorative body onto the mounting bracket.

[0010] FIG. 2 is a cross-sectional view of the invention showing the decorative body mounted onto the mounting bracket and the expanding foam adhesive expanded to bond the decorative body to the mounting bracket and the wall.

[0011] FIG. 3 is a perspective view of a portion of the mounting bracket.

[0012] FIG. 4 is a cross-sectional view showing the expanded foam adhesive filling an anchor cavity within the decorative body.

DETAILED DESCRIPTION OF THE INVENTION

[0013] With reference to the drawings, the invention will now be described in detail with regard for the best mode and the preferred embodiment. The invention is in general a wall-mounted architectural member, mounting system and mounting methodology, wherein the architectural member 10 comprises a decorative body or core 11 composed of lightweight, rigid, expanded polymer foam, such as a poly-styrene foam for example, which may be externally coated with a surface cover or skin layer 12 of polymer or cemen-titious material, such as stucco or cement for example. The cover layer 12 may be applied by brushing, spraying, dipping or any other suitable means during manufacture, on site subsequent to manufacture or even after the decorative body 11 has been mounted onto the building wall 99.

[0014] In a preferred embodiment, the architectural member 10 is manufactured with an extrusion process, such that the decorative body 11 is generally longitudinally extended whereby multiple members 10 may be aligned end-to-end to define horizontal or vertical ornamental elements, for example. However, it is also contemplated that the architectural member 10 may comprise a discrete member 10 formed and mounted individually on a wall surface 99. On the rear of the decorative body 11 is provided a bracket recess 13, preferably longitudinally co-extensive with the decorative body 11. Alternatively, one or more individual bracket recesses 13 may be provided at spaced locations along the decorative body 11. The bracket recess 13 comprises recess walls 14 and extends into the interior of the decorative body 11, and may be formed during the extrusion process or cut into the decorative body 11 after the polymer foam has cured.

[0015] The invention further comprises a mounting bracket 20 adapted for affixation to a building wall 99. The mounting bracket 20 is configured so as to generally correspond in main part with the configuration of the bracket recess 13 formed in the decorative body 11, such that the decorative body 11 receives and mates with the mounting bracket 20. The mounting bracket 20 may be formed of sheet metal, plastic or material of similar properties, and is preferably provided with one or more wall flanges 21 or similar means to receive mechanical fasteners 22, such as nails or screws for example, to join the mounting bracket 20 to the building wall 99. The mechanical fasteners 22 may be disposed in fastener apertures 23 positioned in the wall flanges 21. The mounting bracket 20 may be longitudinally co-extensive with the decorative body 11, or multiple mounting brackets 20 may be provided at spaced intervals along the building wall 99. The mounting bracket 20 further comprises one or more wall members 24 that extend outwardly from the building wall 99 and into the bracket recess 13 of the decorative body 11, the wall members 24 defining an interior cavity 25 to receive an expanding foam adhesive 30. Preferably, the interior cavity 25 of the mounting bracket 20 is open to the rear such that the expanding adhesive 30 can contact and bond with the surface of the building wall 99 if sufficient quantity of adhesive 30 is provided. The wall members 24 of the mounting bracket are provided with apertures 26 in the form of slots, holes, etc., such that the expanding adhesive 30 may pass through the wall apertures 26 to anchor the decorative body 11 to the mounting bracket 20 in addition to forming a thin adhesive bonding layer on portions of the junction between the recess walls 14 and the exterior of the mounting bracket walls 24. As shown in the figures, a suitable cross-sectional configuration for the bracket recess 13 and mounting bracket wall members 24 is generally triangular, but it is to be understood that other configurations may be utilized to accomplish the desired purpose.

[0016] As shown in FIG. 4, the recess walls 14 may be provided with anchor cavities 15 positioned so as to correspond with the wall apertures 26 of the mounting bracket 20, the anchor cavities 15 providing additional surface area for bonding of the expanding adhesive foam 30 with the rigid cured foam of the decorative body 11. The anchor cavities 15 may be longitudinally coextensive with the decorative body 11 or positioned at spaced locations, and may be configured so as to have broader internal dimensions such that a mechanical interlock is created upon curing of the adhesive 30.

[0017] The mounting bracket 20 and decorative body 11 are further provided with mating press-fit or snap-fit mechanical interlocking or clip means 40 to temporarily retain the decorative body 11 on the mounting bracket 20 during the curing of the expanding adhesive 30. Many structure combinations can be used, but in a preferred embodiment the mechanical interlocking means 40 comprises a longitudinally extensive retention recess 41 disposed in the decorative body 11, the retention recess 41 comprising shoulders or lips 42 that define a relatively narrow slot 43 to receive an expanded head or detention member 44 located on the forward side of the mounting bracket 20. As shown in the drawings, a suitable mating configuration for the mechanical interlocking clip means 40 is to configure the retention recess 14 as a longitudinal bore having a longitudinal slot 43, the height of the slot 43 being less than the diameter of the bore, such that a pair of longitudinal shoulders 42 are defined. The detention member 44 of the mounting bracket 20 is configured as a circular in cross-section tube connected to the mounting bracket wall members 24 to define a neck 45 of reduced dimension, the outer diameter of the detention member 44 being equal to the diameter of the retention recess 41 and the mounting bracket neck 45 being equal in dimension to the slot 43. Preferably, the detention member 44 is also provided with apertures 26. In a less preferred embodiment, it is contemplated that the decorative body 11 can be provided with a male portion and
the mounting bracket 20 provided with a female counterpart to receive the male portion is a clamping manner.  

[0018] To mount the architectural member 10 to the building wall 99, the mounting bracket 20 is fastened to the wall 99 at the appropriate location utilizing mechanical fasteners 22. An amount of expanding adhesive foam 30 is deposited in the bracket recess 13 of the decorative body, and additionally or alternatively in the internal cavity 25 of the mounting bracket 20, the amount being sufficient such that upon expansion a sufficient quantity of the adhesive 30 passes through the apertures 26 in the walls 24 and retention member 44 of the mounting bracket 20 so as to bond internally with the walls 24 of the mounting bracket 20, the decorative body 11 having been pressed onto the mounting bracket 20 immediately subsequent to the deposit of the expanding adhesive 30. As the decorative body 11 is pressed onto the mounting bracket 20 prior to full expansion of the adhesive 30, the retention member 44 of the mounting bracket 20 temporarily compresses the shoulders 42 of the retention recess 41, allowing passage of the retention member 44 into the retention recess 41, after which the shoulders 42 rebound to retain or lock the retention member 44 within the retention recess 41 such that the decorative body 11 is retained on the wall 99 independently of the future adhesive bond. The mechanical interlocking means 40 have sufficient tenacity and strength to retain the decorative body 11 in place on the mounting bracket 20 during the adhesive curing process. After the expanding adhesive 30 has cured, the decorative body 11 is bonded to the mounting bracket through the wall apertures 26 and, if enough adhesive 30 has been provided, the adhesive 30 also bonds the mounting bracket 20 to the building wall 99 through the open back of the interior cavity 25. In this manner, the architectural member 10 is secured to the building wall 99 by both mechanical fasteners 23 and adhesive bonding. Alternatively, the decorative body 11 may be pressed onto the mounting bracket 20 prior to injection of the expanding adhesive 30 if access to the interior cavity 25 is possible through the ends of the mounting bracket 20.  

[0019] It is understood that equivalents and substitutions for certain elements set forth above may be obvious to those skilled in the art, and therefore the true scope and definition of the invention shall be as set forth in the following claims.  

1. A wall-mounted architectural member comprising:
   a mounting bracket comprising apertured wall members defining an interior cavity;
   a decorative body composed of rigid polymer foam and comprising a bracket recess receiving said mounting bracket;
   an expanded adhesive disposed within said interior cavity of said mounting bracket, wherein said adhesive extends through said apertured wall members to bond to said decorative body; and
   mechanical interlocking means retaining said decorative body on said mounting bracket.  

2. The architectural member of claim 1, wherein said interior cavity of said mounting bracket is open to the rear of said mounting bracket.  

3. The architectural member of claim 1, further comprising mechanical fasteners disposed in said mounting bracket.  

4. The architectural member of claim 1, wherein the configuration of said bracket recess corresponds to the configuration of said wall members of said mounting bracket.  

5. The architectural member of claim 1, further comprising at least one wall flange, said wall flange having fastener apertures disposed therein, and mechanical fasteners disposed within said fastener apertures.  

6. The architectural member of claim 1, wherein said mechanical interlocking means comprises a male portion disposed on one of either said mounting bracket or said decorative body and a female portion disposed on the other of said mounting bracket or said decorative body.  

7. The architectural member of claim 1, wherein said mechanical interlocking means is structured such that said decorative body is retained on said mounting bracket prior to the bonding of said expanded adhesive.  

8. The architectural member of claim 1, wherein said mechanical interlocking means comprises a retention recess disposed within said decorative body, said retention recess having a pair of shoulders defining a slot, and a retention member disposed on said mounting bracket and received by said retention recess, whereby said retention member is retained within said retention recess by said shoulders.  

9. The architectural member of claim 8, wherein said retention recess comprises an elongated bore and said retention member comprises an elongated tube.  

10. The architectural member of claim 9, wherein said retention member is provided with apertures receiving said adhesive.  

11. The architectural member of claim 1, wherein said bracket recess and said mounting bracket are generally triangular in cross-section.  

12. The architectural member of claim 1, wherein said decorative member is longitudinally extended and wherein said bracket recess and said mounting bracket are longitudinally co-extensive with said decorative member.  

13. The architectural member of claim 1, wherein said decorative member is provided with anchor cavities to receive said expanded adhesive.  

14. A wall-mounted architectural member comprising:
   a mounting bracket comprising apertured wall members defining an interior cavity that is open to the rear of said mounting bracket;
   a decorative body composed of rigid polymer foam and comprising a bracket recess receiving said mounting bracket, said bracket recess having a cross-sectional configuration corresponding to the cross-sectional configuration of said wall members of said mounting bracket, whereby said decorative body may be pressed onto said mounting bracket after said mounting bracket has been secured to a building wall;
   an expanded adhesive disposed within said interior cavity of said mounting bracket, wherein said adhesive extends through said apertured wall members to bond to said decorative body; and
   mechanical interlocking means retaining said decorative body on said mounting bracket in a clipped manner, said mechanical interlocking means comprising a retention recess disposed in said decorative body adjacent said bracket recess, and a retention member disposed on said mounting bracket, wherein said retention member within said retention recess to retain said
decorative body on said mounting bracket independent of said bond of said adhesive.

15. The architectural member of claim 14, further comprising mechanical fasteners disposed in said mounting bracket and adapted to secure said mounting bracket to a building wall.

16. The architectural member of claim 14, further comprising a cover layer disposed on said decorative body.

17. The architectural member of claim 14, wherein said decorative member is longitudinally extended and wherein said bracket recess and said mounting bracket are longitudinally co-extensive with said decorative member.

18. The architectural member of claim 17, wherein said retention recess and said detention member are longitudinally coextensive with said decorative member.

19. A method of mounting an architectural member comprising a decorative body composed of a rigid polymer foam and a mounting bracket having apertured walls defining an interior cavity onto a building wall, said architectural member further comprising mechanical interlocking means to retain said decorative body on said mounting bracket, said method comprising the steps of:

- providing a bracket recess in the back of said decorative body to receive said mounting bracket;
- securing said mounting bracket onto said building wall using mechanical fasteners;
- depositing an expanding adhesive into said bracket recess provided in said decorative body;
- pressing said decorative body onto said mounting bracket and engaging said mechanical interlocking means prior to full expansion and curing of said adhesive; and
- allowing said adhesive to expand through said apertured walls and cure to bond said decorative body to said mounting bracket.

20. The method of claim 19, further comprising the steps of:

- providing an open back on said interior cavity;
- securing said mounting bracket to said building wall such that said interior cavity is open to said building wall; and
- allowing said adhesive to expand through said open back and cure to bond said mounting bracket to said building wall.

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