

REHABILITATION OF BUILDINGS

ALTO has been providing pultruded profiles for the rehabilitation of buildings both nationally, as in the neighboring country, answering a market need with extremely beneficial materials to a new business area. The ancient structures of the buildings do not support large loads, and rehabilitation with metal structures feature a large disadvantage due to their weight. The sturdy and weakened walls do not support the weight of the metal and wood profiles. Wood is a product with significant dimensional distortions and short life. Despite the density of pultruded profiles is significantly higher than the wood, which is used in massive rectangular sections, pultruded profiles are applied in traditional forms of metal profiles, with the form of I, U, etc., becoming so or lighter than wood.

Given the characteristics of the pultruded profiles, lightness, approximately 1/4 of the weight of steel and 2/3 of the weight of aluminum, lack of maintenance, dimensional stability, ease of cutting and punching among others, presents itself as an alternative advantageous for wood and steel structures.

Its lightness allows you to handle the profiles without the need for lifting equipment. Enter with ease through an opening, such as a window or door and are placed in the installation site only with manual handling while the metal profiles need generally the use of heavy lifting equipment and often it is difficult to place in narrow areas without access for heavy vehicles. Metallic profiles when handled by heavy equipment, due to its mass can knock down the weakened and fragile walls.

Due to its high corrosion resistance pultruded profiles do not need maintenance. When ordered in quantities that would justify, these can be produced in any color without painting. For smaller quantities, painting is an alternative to obtain the desired color. The paint is applied directly on the profile without applying any primary.

Pultruded profiles are synthetic profiles, produced based on resins and, in most cases, with glass fiber reinforcement; are dimensionally stable and do not distort with humidity variations over time. Such as plastic that is, its lifespan is great and although it is not known the exact durability, because these are materials that have been around for only a century. However, resistance to moisture and chemicals prevent its degradation, points out that last about 400 years to decompose when exposed to the elements, intensively but given our experience in this market, and already seen a vast curriculum of works, we can prove the time resistance of materials applied; that remain unchanged, both in structural



strength, as in his general aspect.

These materials can be cut and drilled in place with traditional tools without the need for treatment of cut areas. Welding of these materials is not possible so we will have to use connecting elements. The links can be glued and/or screwed. For a longer durability of the binding elements suggest the stainless steel.

ALTO is a certified company in accordance with ISO 9001, in continuum improving quality, acquired a test equipment for verification of properties of produced materials. The testing machine allows bending, traction and compression tests. All batches of products produced in ALTO are tested to ensure the quality of all its products. This equipment also reinforces the ability of I&D of the company.



The machine is acquired by SHIMADZU brand with a 250kN load cell. This equipment allows to test all kind of materials, including polymer matrix composite materials, traditional fiber reinforced plastics, that ALTO produces. The tests are made according to the standards for composite materials, ISO 527-4: 1997 for traction and ISO 14125: 1998 for bending. For a correct characterization of the of elasticity module (Young's module), which is difficult to get properly on reinforced plastics, ALTO acquired a product, an axial extensometer, which gets this characteristic properly.



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