

A photograph of a modern glass elevator in a hallway. The elevator is made of clear glass panels and has a stainless steel frame. It is positioned in a well-lit hallway with light-colored walls and a polished floor. The elevator is currently stationary, and its reflection is visible on the floor.

# Elevator System Added to War-Damaged Residence

by Karim Abillamaa

Mitsulift and Equipment S.A.L. was faced with several challenges in adding an elevator system to a residence in Dbayeh, Lebanon. Mortar damage during the civil war had badly damaged the existing house. Seeing the site for the first time, some said that the construction is 200 years old, but the experts give the exact age of 192 years. To begin with a good plan, the architect first carved away the ruined part, leaving anything that was structurally sound as a basis from which to create a

new three-story, five-bedroom house to accommodate its occupants, a family with three children.

The original stone building, constructed in the old Lebanese style, consisted of four rooms and a main hall. It is located on bedrock at the rear, and on a barrel vault used for storage on the front. A new section with a similar footprint was added and treated as a new building with its own dynamics, but was designed not to overpower the image of the old. In the first phase of reconstruction, a

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reinforced concrete jacketing was applied to the interior, and a vertical circulation core was added. The master and guest bedrooms were both placed in the old block, while the new block contains the children's rooms. A living room, which expands outward in both directions to create an interior courtyard and a front porch accessed through two circulation galleries, was created where the old and new sections join.

## Elevator System

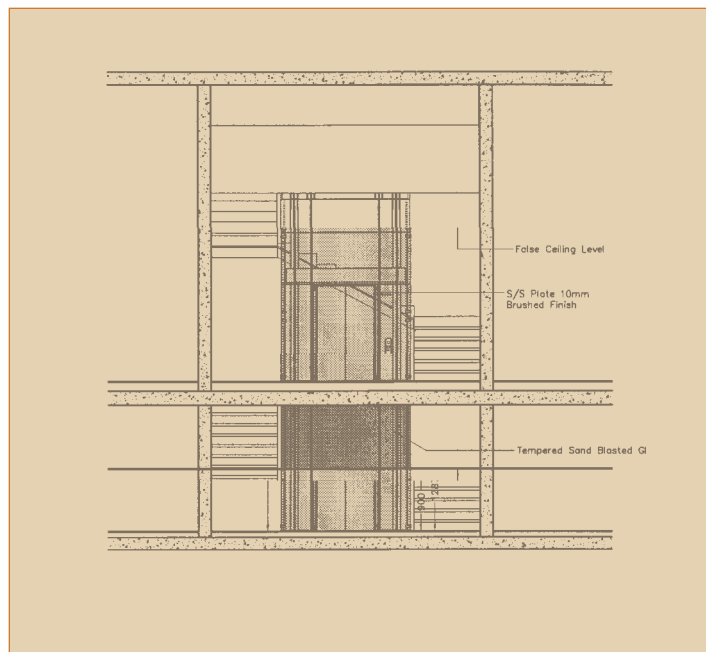
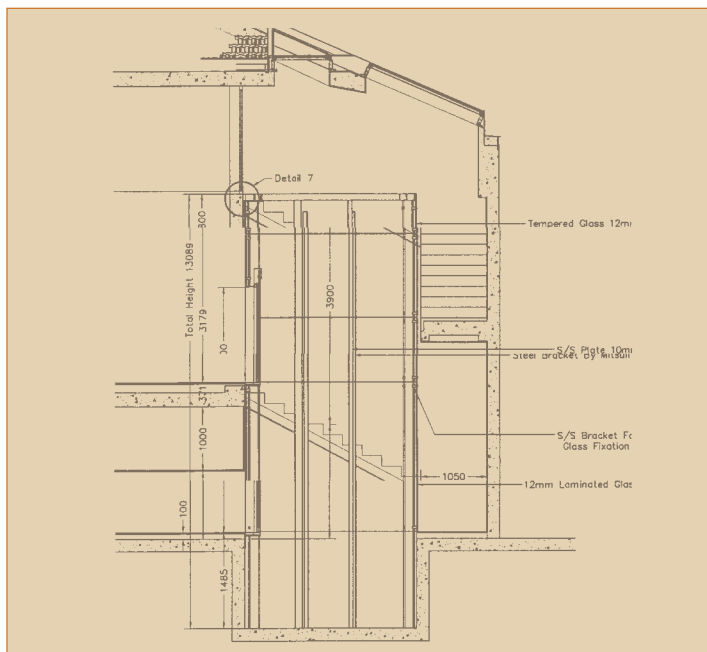
The owner and the architect insisted on having the lift system meld into the overall aspect of the house. However, no bulky structure nor continuous attachment points were allowed by the architect, so as not to disrupt the spirit of the project.

To resolve this dilemma, a self-standing, pit-load-bearing, machine-room-less system from Mitsubishi Corp. was selected by the elevator consultant. Nevertheless, Mitsulift needed to establish a safe and sound means to attach the guide rails as per the manufacturer's allowed maximum fixing bracket span. Further-

more, the architect and the owner insisted on having the lightest and most transparent shaft structure, which created the need for revolutionary door and hall-call fixtures.

The first issue of attaching the brackets was resolved by using what are called "flying I-beams" (three units for the overall shaft) continuously running from pit level to 14.82 meters along the shaft with only two attachments on the staircase slabs. Thus, no horizontally interconnecting beams were used, thereby enhancing the aesthetic aspect of the shaft and making the system able to withstand all lateral forces and absorb moving vibrations as per current norms.

The second issue concerned the "fragile" element of iron fibers, which were made of thin, hollow stainless-steel tubes (10 millimeters in diameter). These tubes (which were connected via a spider system of the hoistway in a creative way) were in fact



used not only to support the laminated, tempered glass, but were also used to hold up the surroundings of the cabin, starting with the landing door and hall call buttons. All electrical wiring was commuted inside the tube, which increased the “free view” aspect of the whole system.

Instead of fixing the panel board to the guide rails as per the manufacturer’s standard, Mitsulift had a hideout gateway for the rest of the equipment. The architect reserved a small technical shaft with enough space so that the Mitsulift technicians could install their panel board, but they had to modify the wiring accordingly.

A closer look at the whole elevator reveals a see-through system standing on its own, with all commands sent to the hidden panel board control as if they were wireless. In this way, the elevator system complements the aesthetics of this building’s combination of the old and new.

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