

A Sterling Work
Restauring of The Rudolph Tegner Museum
By Anders Hegelund

The Rudolph Tegner Museum in Villingørød, Denmark was erected in 1937-38 and inaugurated the 19. of june 1938. For Rudolph Tegner a long time nourished dream of having a permanent location for his works had come through.

Since the 20's he and his wife had purchased the land and created a sculpture park of a new vision, much different from the wellknown parks of cities and castels. A landscape of sculpture.

Through the 30's Tegner had sketched a house, a museum, where he could store and exhibit his works together and protected. Hes first idea should have been a wooden building, but his fear of fire and preminition of risking to loose his lifes work to the flames, was unbeareable.. The museum ended being constructed of reinforced concrete.

The Danish concrete pioneer, the engineer Ernst Ishøj, carried out the project designs after an extensive correspondance of letters and drawings between Meudon and Copenhagen. In early spring 1937 the contract was signed with the building constructor Lauritz Andersen from the nearby town of Gilleleje to build the front hall and the main hall within the available budget.

The side hall, the gallery, was added to the north side of the building in 1944.

The idea was originally, that lower galleries by time should surround the main hall of the museum. Fortunately it has never come to that, as it would evidently have made the museum more heavy and undifferentiated with the main hall burried to its waist in lower buildings.

The 9,6 m tall concrete facades of the rectangular front hall are only 12 cm thick with two layers of iron reinforcement situated 2-2,5 cm behind the surfaces. The walls of the octangular main hall are of 15 cm thicknes and rise 12,6 m above the ground. The east facade of the front hall is supported by the walls of the office next to - and library above the main entrance. The west facade by the main hall F, which is self stabilizing.

The cross section of the main halls spars are appr. 40x60 cm, where they are moulded into the outer walls. From there their dimension

increase towards the top of the pyramid roof, where the 8 main spars meet in a moulded, crown shaped assemblation. To keep them from spreading, a circumferring reinforced concrete beam creates a tension ring carrying also the load from the secondary spars thus creating the basis for the large pyramidal rooflight.

The roof slaps are 8 cm thick reinforced concrete moulded together with the spars and outer walls and covered by bitumen roofing material.

The ceilings of the halls are executed as reinforced concrete grills suspended from the roof by iron reinforcement bars. The tartan grill is closed either with 3 cm moulded reinforced concrete for a ceiling or glass plates under the roof lights. The floors are 3x3 m and 4x4 m square reinforced concrete slabs.

All of the construction components, except for the floor and ceiling, are moulded together into a monolithic totality. There are no dilatation joints to allow the structure to move.

The walls are moulded between sets of scaffolding, 1,2x3,0 m, made out of rough wooden planks. The two layers of iron reinforcement tied up inside the scaffolding and close to it. The requirement of today is a minimum layer of concrete of 5 cm to cover the iron.

The sets were removed as the concrete had hardened up and reassembled on top of the newly moulded wall. The concrete fillament was moraine sand materials and beach materials mixed.

This method creates the subtle relief print of the wooden scaffolding planks within the precise horizontal lines of their joints, and in a larger rhythm the more forceful horizontal lines, where the joints between the scaffolding sections show. The vertical joints between the sections are totally dominated by the horizontal lines and only noticed at close range. To fill out minor holes and moulding errors, the surface was finished and washed over with a fine cementmortar allowing for the structure of the concrete surface to express itself.

It is the engineering as well as the architectural boldness of using a selfsupporting geometry of construction, simplified details, minimized dimensions and thus the use of materials, a total homogeneity and an organic, monolithic coherence in the erection technic, which makes this house something very special. Also the fact that exteriors as well as interiors appear without applied or expressively constructive details, adds to its architectural strength.

By its simple pragmatism it melts into the landscape surrounding it in an comprehensively manner as a, though manmade even archaic element, making it a nearly perfect background for the sculptures and the nature's own living objects.

The daylight and its ever changing effects in the open is preserved inside in the tall rooms in a consciously tamed way by the means of the big skylights. The house as a daylight lighting fixture. The light of the sky sifts through the ceiling panes of raw glass.

Thus is avoided the often vulgar dramatization of only sidelit sculptures in exhibition rooms. There are no electric lights in the halls of the museum. Only the daylight conveys the interpretation of the sculptures. Neither is there any heating installation. The house and its content follow the temperature of the outside

Nothing in this house is random. Everything seems to have been designed

based upon the artistic, practical, technical and economical criteria set up by Rudolph Tegner. Its character is pragmatic. A house to exhibit in. Nothing indicates, that his primary wish was the museum to be an architectural monument in itself. In his memoirs he speaks about it in a summaric fashion,

as a necessity to store, preserve and show his work of life in Denmark.

But as everything he worked with was dominated by his powerful will, he has not seen the house as only a depot. He has given the house his full attention like he did to all his work, and it falls in line with his art. Rudolph Tegner wanted even after his death to be in the midst of his life.

The Rudolph Tegner Museum is contemporary as a work of architecture and an achievement of engineering and within its complete integration with Tegnens sculptural works a cultural expression of one of the most vivid periods of the 20th century danish and european artistic and spiritual life.

The museum is now being restaured as destruction of the exteriors resulting from climatic and environmental influences have prevailed through decades.

Damages are being repaired, the corrosion protection of the concrete revitalized and the building is being protected against continued influence from an aggressive H_2O environment by surfacetreatment with a transparent coating.

The CO_2 in the air migrates by time into the concrete where it alters the basic corrosion protective environment in it to an acidic one.

When the iron rusts it expands and breaks off bites of the above concrete. Thus 15-20% of the buildings surface is damaged.

Many restauration methods have been proposed and investigated. even to clad the building with metal, tiles and new concrete. None of these methods were acceptable from a preservation point of view, as the result would end as quite another house than the original.

It was decided to restaure the original work by means of the newest concrete technique offered

in such a way that the authenticity and architectural expression of the building was preserved.

A thorough cleaning of the facades with water under pressure not to damage the surface is done. Next the damages are registered, framed and cut in angular lines following the lines of the original scaffolding planks. The damaged concrete is then removed by water under high pressure which at the same time removes rust from the iron laid open.

The concrete wound then appears with a straight outline following the lines of the surface around and framing the ruggedged inside of the wall.

The irons are then treated with corrosion protection and controlled before the new scaffolding, exactly like the old one, is mounted and concrete is poured down behind it.

A repair concrete with structure and colour close to the original is used.

When the repairs are done all the surface is washed over with an acrylic based cement mortar and finally the facades are treated with a transparent, mat, invisible, acrylic based coating which protect against future carbonization.

New roof lights are made equal to the originals.

The interiors are to be restaured as well, as walls and ceilings are soiled by incoming water from the walls and roof.

Hereafter The Rudolph Tegner Museum will be secured many years forward as a sterling work from a progressive periode.

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