Glass Bricks

The glass brick, a strong but shortlived architectural detail of the 1930's, has recently made its reappearance. CAROL HARDWICK has recently completed her Master of Architecture thesis on Melbourne's art-deco architecture. Here she writes on those important elements which did so much to shape and illuminate that pre-war era.


The impact of the machine in industry during the early twentieth century produced many new building materials which architects were quick to adopt. The structural glass brick, from its introduction to Victoria, was taken up with great enthusiasm by architects who most commonly used it in commercial buildings and flats. This brick achieved rapid popularity due to its acclaimed constructional versatility; being a structural brick that allowed light to penetrate buildings. The first manufacture of the bricks in Australia was reported as being in 1936, from which time it became a feature on many buildings throughout the late thirties.
Glass bricks were invented at the end of the last century and its attributes were described in the Technisches-Militar-Comite Report of 1902.

...the sides of the brick are so formed that direct sunlight is broken up and scattered, so as to give better distribution than ordinary windows. The enclosed air is an excellent non-conductor of heat, a preventive of noise, moisture and electrical discharges, and no sweating or dripping occurs even with considerable difference of temperature between the air inside and out. The bricks are laid in a similar way to ordinary bricks, with a mortar consisting of one part Portland cement, two to three parts fine sharp sand and one-fifth lime mixed not too thin with water. The bricks are specially applicable to partition walls required to transmit light and for sub-dividing large rooms which have light on one side only.

In Australia, the glass brick was originally made by the Australian Glass Manufacturing Company Limited and was sold under the product name of Agee. Its introduction did not pass unnoticed and the glass brick received considerable publicity and promotion in the architectural press. In an article called Brickwork in Architecture published in the Royal Victorian Institute of Architects Journal during 1935 the author anticipated that glass bricks would be used extensively in the future. He also correctly predicted their widespread adoption in Victoria, commenting that since they would be manufactured locally, there would be no difficulty procuring them.

The most notable publicity which the glass brick received was that given by the new Sydney monthly Decoration and Glass, published by the Australian Glass Manufacturers for the interest of home builders, decorators and architects. During the years 1936-37 it illustrated many fine examples of the use of glass bricks both in Australia and overseas. As well, it printed a large number of technical articles which provided invaluable information on the construction and laying of glass bricks.

The size of Agee glass bricks was determined after significant experimentation on the basis of producing a brick which would be logical and economical to manufacture, and whose scale would be in harmony with contemporary architecture. The hollow glass brick whose dimensions were 155 x 155 x 100 (6½" x 6½" x 4") was formed by two dishes sealed together with a special metallic alloy at a high temperature. This ensured the permanence of the brick and the partial vacuum which was created had the advantage of sound deadening and insulation. Lime mortar was unsuitable since it could not guarantee a waterproof joint. Instead, cement mortar of a mixture 2½ parts of clean sand and one part cement was recommended. The Agee solid glass brick - 200 x 200 x 35 (7-7/8" x 7-7/8" x 1-3/8") had a figured pattern on the external surface and a convex or lens effect on the inner surface which dispersed the rays of light and prevented heat concentration.

There was an immediate response to them amongst the architectural profession and the first known example of Agee glass bricks in Victoria was in 1936, in Navaretti's Restaurant which was situated in the basement of Centreway in Collins Street and designed by H.W. & F.B. Tompkins. Here glass bricks were used to form a screen wall between the entrance stair, with its satin chromium hand rails and marble kerbing, and the main foyer. More striking was the glass brick curved wall in the ballroom which was located centrally in the restaurant. This complete wall of glass had the possibilities of producing many different lighting effects, as a backdrop to the orchestra.

In late 1936 Agee glass bricks were used for the first time externally, in a central vertical panel which extended from the second to the sixth floors of Alkira House to illuminate the interior of the building. Alkira House is an office building at 18 Queen Street, Melbourne, designed by James Wardrop who was also the designer of the Shrine of Remembrance. The choice of glass bricks added interest to an innovative facade.

From its initial appearance on Alkira House, a panel of glass bricks placed centrally in the facade, became a common feature of commercial buildings in Victoria in the late thirties.

In 1937, the Australian Glass Manufacturers Company Limited required renovations to their 1930 building at 428-430 Spencer Street, Melbourne. The architects for these additions and the new facade were H.W. & F.B. Tompkins. The Australian Glass Manufacturers Ltd. took this opportunity to promote their new product and it was used as a feature in the design of the Spencer Street facade which consisted of two narrow vertical panels of glass bricks, at each end of the building, and a wide horizontal band in the centre.

In the same year, Pilkington Brothers (Australia) Ltd. constructed a new factory at Geelong to manufacture safety glass. For the factory operations and the Company's promotion, the design by Buchan, Laird and Buchan was dominated by extensive horizontal bands of glass and glass bricks were used to form an interesting panel over the entrance. A feature of the first floor, directly above the entrance, was a bold column of glass bricks which consisted of a number of projecting vertical fins.
"Agee" GLASS BRICKS

light four floors of new Melbourne building . . .

This panel of "Agee" Glass Bricks is not for lighting a lift or stairwell, but is a medium for flooding each of the four floors served with daylight.

The photograph of the interior shows the success achieved functionally. The exterior photograph tells its own story—a particularly striking effect that becomes doubly beautiful at night when the offices are lighted.

It is only a little over a year since "Agee" Glass Bricks were introduced to the Australian market, and all predictions made of them have been fulfilled. They have come to stay and are now embodied in several hundred jobs.

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Further modifications to the design of glass bricks enabled corner glass bricks and curved glass bricks to be produced. In 1937, curved-corner glass bricks were first used in the Holeproof Factory, Dods Street, Brunswick, which was designed by Sale & Keage in association with J.V.T. Ward. Glass bricks were chosen in preference to other forms of glazing for their ability to reduce noise and dust entering the factory. One of the most outstanding examples of their use was a gas station for the Direct Service Oil Company in Minneapolis, Minnesota, which was featured in *Decoration and Glass* during 1937. This service station which was constructed completely of glass bricks achieved even more brilliance at night with a lighting system which enabled the structure to radiate red light.

Complete structures of glass bricks were never built in Victoria, however, towers of glass bricks as a part of a building were. A striking example was the Miller Store at Hamilton, designed in 1937 by Norman Seabrook. A tower predominantly constructed of glass bricks, was positioned at one end of the building. At night the tower was illuminated from within, casting light over the rest of the building.

Another marvellous example of a glass brick tower was in the Sign Publishers Company building at Warburton, designed by Edward Billson. The stairwell, which formed a strong vertical element in the design, was constructed of glass bricks.
The use of glass bricks declined in the late forties. However they were manufactured after the end of World War Two, in Sydney, until 1956. The glass brick was again recently made its appearance in a number of buildings in Victoria. Manufacture of the glass brick has not recommenced in Victoria so the bricks used by a new generation of architects are imported from Belgium.

References


3. 'Laying up the Agee Glass Brick', Decoration and Glass, II, 7 (July 1936) pp. 28-29.