Fallingwater—transcending architecture

The house on Bear Run belongs to the ages. Conceived in concrete and bedrock, it assumes the role of a large sculpture, with the stream and falls seeming to spring forth from its very being.

Fallingwater, designed by Frank Lloyd Wright, was built in 1936 for Pittsburgh department store owner Edgar J. Kaufmann. The house was the weekend home of the Kaufmann family until 1963 when Edgar J. Kaufmann, Jr. presented the house and grounds to the Western Pennsylvania Conservancy as a memorial to his parents.

The key to the setting is the waterfall over which the house is built. The Kaufmanns were unprepared for Wright’s suggestion that the house rise over the waterfall, rather than face it. But his original design was constructed almost without change.

Horizontal concrete, vertical stone

Wright envisioned the house as a series of horizontal concrete “trays,” extending as terraces from the living levels. The horizontal reinforced concrete members were spaced one above the other, separated by vertical masses of local sandstone. A great central fireplace is anchored atop a huge boulder which actually juts through the floor in front of the hearth. Around this focal point Wright developed his cantilevers. The living room thrusts southward with its terrace directly over the falls. A sliding glass hatch within this room exposes a stairwell that descends to the stream below. To the east are the entrance areas and to the west, the kitchen. The dining alcove and stairs to the upper levels are on the north. Above are several even narrower cantilevers, running east and west piled up to counterbalance the larger living and dining level on the south. These areas contain bedrooms, bathrooms and a study, each level with its own terrace that seems to float in the tree tops.

The concrete trays are structural on their lower surfaces. Above the structural surface in many areas is an air space, divided by small concrete ribs that support wood floors covered with waxed flagstone from nearby quarries. The feeling is of wet rock in keeping with the ambience of rushing water and projecting boulders. The captive airspace allows the stone floor to be well insulated and comfortable even to bare feet. In many rooms ceiling levels change where Wright folded the concrete for stiffening, much the same as the upturned parapets stiffen the outside terraces.
Though the main themes are a strong combination of horizontal concrete trays and vertically piled sandstone, there are cast concrete cylinders everywhere both in and outside the house. These provide wells for plants, fountains, and sculpture such as an ancient Buddha meditating at the end of a lighted passageway.

Architect's philosophy of concrete

Wright had a deep appreciation of the plasticity and structural integrity of concrete. He used parapets and reinforced concrete beams to stiffen and support his cantilevers. Concrete was the ideal medium to execute his design, although the house has a strong element of stone to be in accord with the site. For the first time in his experience, Wright said, reinforced concrete was absolutely necessary to building a residence. Concrete could be cast into any form; it was completely plastic; and it had the exceptional property of growing ever stronger with age. When reinforced with steel its tensile strength was suitably enhanced. Concrete made Wright's cantilevers possible. He saw the cantilever as a profoundly natural principle, as in the outstretched arm, or a tree branch growing from the trunk.

The controversial cantilever

Although the Kaufmanns had full confidence in the designer's aesthetic judgments, the structural engineers who consulted on the job had misgivings about architecture that made structural use of parapets at the edges of concrete slabs. The spans proposed were unprecedented, and the engineers told Kaufmann that the western terrace as designed must fall. Disaster could be avoided by extending an inconspicuous base wall support only 4 feet. Kaufmann ordered the wall extended in Wright's absence. In due course of inspections, the architect came and saw the wall, but made no comment. A month passed, another inspection, but no comment from the reputedly irascible Wright.

Mr. Kaufmann finally confessed to Wright, saying, “If you've not noticed it in these last two tours of inspection, there can't be anything very bad about it architecturally.” "E.J.,” said Wright, “come with me.” They went out to the spot in question, and behold, the top 4 inches of the added wall were gone. “When I was here last month,” Wright continued, “I ordered the top layers of stone re-

Horizontals of concrete cantilever beyond vertical stone supports in the famed Fallingwater house at Mill Run, Pennsylvania. Stairway from living room descends to waterfall on right.

Fallingwater today

The final impression of the visitor to Fallingwater, as he walks down the hill and away from the house, is the sound of the rushing waterfall and the sight of the bubbling cascade. From the boulders below the falls, one can turn and look back at the water tumbling over the ledge and see the world-famous structure in a view that makes the trip worthwhile. In the words of Edgar Kaufmann, Jr., this is a lasting testimonial to architectural genius, a “work by man for man, not by a man for a man.” This perfect blending of nature with the universal building materials, stone and concrete, is a great performance indeed.

Selecting reading:

4. "Frank Lloyd Wright's Fallingwater," brochure published by Western Pennsylvania Conservancy, 316 Fourth Avenue, Pittsburgh, Pennsylvania 15222. Contact the Conservancy for information on how to see the house in Mill Run, Pennsylvania.