



## DETAILS OF RESTORATION

**Introductory Note:** It is very fortunate that before the current owners bought the Fishwick house in 1976 none of the previous residents had made irreversible structural alterations to the building. While it was in poor repair and had some inappropriate “add-ons”, it was fundamentally unaltered. This is unlike almost all the other Griffin houses in Australia. Also, most items which could have been lost or broken during that half-century survived remarkably well. The house had almost all its original solid brass hardware, ceramic tiles, coloured glass and wood or concrete detailing. In most cases the original decorative finishes were able to be determined. The house was, therefore, an excellent subject for restoration.

Owners of important heritage buildings generally are aware that any contemporary work on them must be undertaken in such a way that it can be distinguished from that of the original structure. For this reason, this room-by-room description of the restoration projects is quite detailed, being intended to record the house's physical history. It describes the work on the house in three phases: known early alterations and maintenance before being bought by the present owners in 1976, their initial work to stabilise the building and repair its services, mainly in the late 1970s and early 1980s, and its major restoration in the mid 1990s.

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### Early Alterations and Maintenance

Little is known of work done on the house before Rawson and Nancy Deans rented it from Fishwick in 1940. From a letter he wrote to Professor James Weirick in 1972 [1], clearly the fish pools in the dining room ceiling pleased Fishwick but they must have proved impractical as they were very soon turned into covered skylights.

Originally, all the external timber work was dressed with an oil-based finish so the natural grain was visible. Presumably this proved to be unable to withstand Australian conditions and had been painted white, as was almost all of the interior timberwork.

During the 1950s, most of the pigmented mortar finishes on the walls and ceilings were also painted white, presumably to “brighten the place up”. Apart from installing an outside toilet under the bathroom window the only significant structural work was in the kitchen. The original house plans include very detailed drawings of this room. It had very interesting features such as a cooling cupboard with an ingenious breezeway, crockery drying racks across the window, cupboards with simple pin hinges, a pass-through servery to the dining room and a small cupboard with both internal and external doors so the milkman could pass his bottles into the house. All of these features had been removed. In other early work the front courtyard had been extended to the street. Originally this was cut into the natural sandstone only a few metres from the kitchen wall. A number of aluminium sun awnings had been fixed over windows, various paths and garden walls had been built by a local handyman and the entire upper roof area had been bordered by a fence of galvanised water pipe and chicken wire.

When the current owners bought the house in 1976 they were attracted by its obvious architectural importance, but it also presented a formidable restoration challenge. The house leaked badly, most windows and external doors had rot problems, ceilings and wall surfaces were unstable or cracked and many service connections were old and deficient. From the many examples of the house's inferior or unacceptably conspicuous repairs it was obvious that generations of tradesmen had become frustrated by its unconventional structure which made access to concealed pipes and conduits extremely difficult.

## **Stabilisation & Repair of Services**

During the 1970s and 1980s, work on the house was concentrated on stabilising the building's fabric which, in some cases, was in a perilous state and ensuring that all services were operating effectively. Projects included:

- Replacing the bitumen and pebble roofing membrane with a modern product to stop numerous ceiling leaks.
- Repairing severe concrete spalling in most of the rooms. This was caused by the rusting of reinforcing rods due to moisture penetration, exacerbated by Griffin's use of "coke breeze" as lightweight filler.
- Rebuilding the kitchen. This is the only room in the house which was beyond restoration. Its flooring had rotted and the original cupboards had been replaced by ready-made units and fittings. The room was completely stripped to allow a new concrete slab to be poured. The supervising architect's design followed the original as closely as possible. The room's basic layout, bulkheads, original cupboard detailing and hardware were preserved.
- Underpinning the north-east corner of the house. Seeking the cause of widening wall cracks, it was discovered that this section of the foundations was not directly resting on the sandstone platform. The structure proved to have been supported by a floating rock and had begun to subside rapidly.
- Where possible, replacing water, gas, sewerage, stormwater and electrical services. For example, Griffin had embedded mild steel electrical conduits in the concrete slabs to carry the rubber-sheathed electrical cables. Inevitably the conduit rusted and the rubber perished; this combination was the source of many electrical short circuit problems.

When the current owners lived overseas from 1989 to 1996, its maintenance was supervised by an architect friend. During that period a TV inspection of the house's main sewerage and stormwater system showed its cast iron down-pipes were severely corroded and some earthenware drainage pipes were cracked. Unfortunately, Griffin had chosen to route some downpipes within the house's main fireplace structure, then led them outside the house underneath the floors of the entrance hall and lounge. Consequently, the stone fireplace began to suffer severe water damage and the sewer line under the lounge floor frequently became blocked due to penetration of tree roots. It was mainly these critical problems which led them on their return to decide that they would commence a major series of works to overcome all the structural and functional problems and to restore the character of the house as much as possible to its original state.

## **Major Restoration**

The thorough restoration project which wholly transformed the exterior, interior and landscaping of the house, began in August 1996 and lasted over two years. This took place mostly under the supervision of both a heritage architect and the architect friend who had worked on the house since the mid 1970s and was technically very familiar with it. Major projects included:

- Raising the entrance hall and lounge floorboards to install new sewerage and stormwater lines. This also allowed the installation of improved gas, electrical, security, telephone and heating services.
- Rebuilding many windows and almost all of the external doors which were unserviceable due to dry rot. The missing wooden window decorations were also restored, requiring the making, painting and installation of 168 Y-shaped cedar pieces, mostly of different dimensions.
- Restoring or closely replicating the original paint finishes in every room.

- Removing bamboo infestations on the property and the adjoining Buttress Reserve, a project which took three growing seasons and required massive amounts of physical labour by the owners. Only when the bamboo was controlled could work begin on restoring the terraced dry-stone walls and removing overgrown garden beds and deep run-off soil deposits. This revealed the sandstone platforms, drop-offs and boulders around which the house was designed.

A detailed review of each area of the house follows. All work dates from 1996 to 1998 unless otherwise noted. For a briefer, more general, overview of the restoration process see the site's Restoration section.

**House Exterior.** The house's window and doorframes were originally oiled cedar. Many had rotted, so were rebuilt or replaced. The front door, maid's terrace doors and garage doors were original, but all other exterior doors were inappropriate replacements so they were rebuilt and fitted with Griffin-inspired designs.

Almost all the garden beds which had been built for exotic flowers and shrubs were removed, uncovering many sandstone ledges and boulders which had been completely buried. Garden lighting and irrigation systems were installed, dry stone walls restored, a garden pond built to complement the natural rock formations and stone steps and paths were either rebuilt or constructed. The bamboo infestation on the lowest three terraces was so thick was that it was literally impenetrable. Its removal revealed a stone stairway, a small cave and several dry-stone retaining walls, all previously unseen.

**Entrance Way.** Presumably to make it less gloomy, the narrow entrance way tunnel had been painted white. Its prominent feature, the 25 tall vertical panels made of mirrored amber glass, was in a very poor state with most of the glass broken or missing. Found inside the meter box were the remnants of the entrance way's original mirrored glass tiles and wall finishes. These were restored. Single mirrored panels were installed rather than separate glass tiles which were unavailable. The extremely low light reflectance of the original pigmented mortar visible in the meter box was replicated using paint which contained finely ground quartz. Most of the prominent green square feature mouldings topping the glass tiles remained and were repainted; those damaged were re-rendered in-situ.

In order to route services from the garage to the southern sections of the house, tradesmen had fixed piping and conduits to the entrance way's ceiling. A false ceiling was erected to conceal these.

Rough-finished sandstone paving replaced 1970s brown quarry tiles, which had been laid on a smooth concrete path. During excavation it was revealed that the original paving was of concrete containing fine gravel and a deep green oxide stain.

Most of the entrance way light fittings had been removed and were replaced. Originally existing switches inside the front door controlled ceiling-mounted lights and the courtyard and wall-mounted lights were controlled by pull-cords near the front door,

**Entrance Hall.** Unfortunately, critical under-floor drainage problems required the floor boards in the entrance hall and part of the lounge to be raised, causing significant damage to them. Since the original floorboards in these areas were of New Zealand rimu, a threatened conifer no longer available, they were replaced with oiled Tasmanian oak. Following the original technique, the new flooring was laid onto a tamped-down cement,

sand and bitumen mix, which rested on rubble infill. This technique was intended by Griffin to both moderate the room temperature and to provide a barrier against moisture and termites. This system worked very effectively and had kept the floorboards in good condition for almost 80 years.

The entrance hall and study ceilings are now plasterboard. Both were originally constructed of lath and plaster but this had been replaced by low-quality, poorly installed fibreboard.

The pillars in the entrance hall had been repainted many times with white or pastel oil paints. Fortunately, it was possible to pick the covering layers away to reveal them. The best three were preserved and the others re-decorated using the same techniques and colours but slightly different textures, restoring a close semblance to the originals

The four sets of double amber glass doors leading to the study were original and in good condition but had been painted white. Experts advised that while the paint could be removed by immersion in a caustic bath this would harm their narrow timber frames. A specialist restorer repainted them, creating a faux timber finish complete with complex grain patterns and knots. The original plan shows alcoves with doors designed specifically to house a telephone, radio and vacuum cleaner, but these were never built.

**Lounge.** The counterbalanced picture window in the lounge was designed to rise into a concrete void, which still exists. It was inoperative by the 1940s and, being considered too difficult to repair, was sealed shut.

The main fireplace was re-pointed and its firewall rebuilt. Stonemasons repaired the water damage on the south face caused by the downpipe failure by rubbing the stones carefully with other sandstones.

There is uncertainty over some of the original wall colourings. From scrapings, some parts of the plaster picture rail might have been deep red and green. Also, in the 1970s the pointing between the sandstone blocks was a dull mid-brown, but a letter from Fishwick subsequently suggested that it was once pale green. [2]

**Dining Room.** The dining room ceiling fish pools had been removed by the mid 1930s and replaced by tent-shaped timber and glass skylights. [3] These also were replaced by fibreglass skylights in the 1970s. Finally, new skylights of metal and reinforced glass were installed, designed to resemble the skylight above the main stairs which is still in place.

A new glassware storage cupboard was built in the dining room to cover the damage to the northern wall caused by necessary repairs to a failed sewerage downpipe. American oak was especially sourced for this to match the timber of nearby original unpainted internal doors.

**Study.** This room is not shown on the original plan. Presumably it was decided to excavate deeply into the bedrock to gain another room. The unusual windows were Griffin's solution to a problem: he needed to provide the room with natural light but its walls were very thick and curved and much of the western wall was below the level of the natural stone shelf behind it. His solution was to position two windows in the northern section of the wall, embedding them in a complex window cavity designed to disperse the maximum amount of light through a narrow opening.

The original lath and plaster ceiling collapsed in the late 2000s. It was replaced by a double layered plaster ceiling, one layer containing lead sheeting to provide soundproofing for the bedroom above. This unplanned access to a large exposed void allowed security and electronics service cables to be laid in the ceiling.

The original use of the room is not clear. It has been referred to in various sources as a study, library or conservatory. However, the remains of a gas heater were found, so presumably it was where the original residents gathered in winter, given the difficulty of heating the rest of the house. Its cupboard is original, but the bookshelves were added in the late 1970s. There are no traces of the original colour schemes, so the secure, snug feeling of the room was enhanced with deep, rich colours and low, plush furnishings.

**Kitchen.** In the 1970s, because of rot in the floorboards and the corrosion of the original water and gas pipes, it was decided to re-build the kitchen entirely. The north end of the room was adapted for improved storage, to accommodate kitchen appliances and to conceal ducts and pipes from the bathroom above. A new floor slab was poured and covered with cork tiles similar to those which had been removed.

Tasmanian oak cupboards and bench tops were custom made and installed. Where possible, these adopted the design features of the originals. The brass knobs were stripped of layers of paint, polished and re-used. A “Griffinesque” grid was designed to support lighting and an extraction fan above the cook top. New wall tiles were laid as only a few of the original remained.

**Main Bedroom.** This room is the most unusual in the house and every effort was made to re-create its original atmosphere. Sandstone rocks, which were naturally differently coloured according to their mineral content, were found on the property and crushed to yield a “palette” of coloured sand with a wide variety of tonings - yellow, red, brown and violet. This was mixed with lime and colour-matched to fill the many holes which previous residents had drilled into the stone fireplace; these are now virtually invisible. This method was also used on the main fireplace. The small square glass tiles in the fireplace hearth are original.

Scrapings disclosed wall and pillar colours and finishes. These were closely matched. It is notable that the unusual colour combination on the pillars was probably chosen to echo the wide spectrum of colours on the fireplace stones.

Because of its highly unusual layout, this room was very difficult to furnish. To emphasise its semi-circular shape an “island” of Australian hardwood furniture was designed, incorporating moulding styles and hardware to match those found elsewhere in the house.

**Bathrooms.** The highly unusual layouts of both bathrooms were not changed. Both end-on baths are original. The basins and toilets in both rooms were in poor condition and were replaced. This work was carried out in the 1970s. A more authentic restoration could be undertaken in the future if suitable ceramics from the period could be obtained.

The main bathroom window has been partially rebuilt. Originally, a casement window opened behind the mirror and the side windows were fixed. Cleaning and opening were almost impossible, so their functions were reversed. The wooden mirror frame is original. The toilet cisterns for both bathrooms were mounted on the roof and each was flushed using a chain coming through the ceiling. The cistern servicing the second bathroom toilet was wholly enclosed in a large, covered rooftop cavity formed from sandstone blocks.

All the plumbing in both rooms had been renewed during the earlier stabilisation phase in the 1970s but this required the destruction of some tiles. Fortunately, sufficient matching green tiles for the main bathroom were recovered from the dining room ceiling fish pools and yellow tiles for the second bathroom were recovered from behind the kitchen cabinets. Both bathrooms had cork-tiled floors, but of a slightly smaller square dimension than their replacements. There were originally no power points in either bathroom.

**Second Bedroom.** All the fixtures, fittings and tiles in this room are original except for the wall lights. This and the main bedroom had polished timber floors, but these were in poor condition. The collapse of the entrance hall ceiling directly below and an electrical short in the power feed to the light switch required the removal and replacement of a large area of timber flooring in this room, so it was decided to carpet both bedrooms.

The wall colouring, revealed by scrapings, was closely matched. The colour of the pillars was less certain, so they and the fireplace's concrete surfaces were coloured to complement the ceramic tiles. They are highly unusual for a Griffin building, appearing to have South American Indian motif.

**Stairs and Upper Hall.** Cracked amber glass in the stairway skylight and in the three wall panels off the stairwell was replaced, as was the clear glass in the central skylight onto the upper roof. The metal counterbalanced door leading to the upper roof had been functional, but was sealed permanently because it was prone to rust and became a major source of leaks.

The stairway surfaces and upper hall floors were originally smooth-trowelled concrete, tinted a tan colour. The possibility of restoring this finish was removed when the stairs became unsafe and partially collapsed due to concrete spalling. Because of the need for sufficient clearance above the gas heater which was installed below the stairway, re-casting concrete stairs was impossible so it was necessary to rebuild some of the treads with timber.

The small cupboard under the spiral stairway to the top roof is original and has the only remaining pin hinges in the house. The highly unusual painted timber frame in the stairway skylight, with its diamond-shaped end pieces supporting the amber-coloured glass, is original.

**Maid's Lounge and Bedroom.** The unusual moulded concrete fireplace and the glass hearth tiles in the maid's lounge are original. Until very recently, indications were that this room contained the only central light fitting in the house. Unexpectedly, the Walter Burley Griffin Society acquired hundred of photographs taken in Castlecrag in the 1930s, of which 56 were of the Fishwick house. [3] These show hanging ceiling lights in the dining room and main bedroom. However, it is known that some post-Griffin alterations and additions were made in the early 1930s, so caution must be exercised in ascribing their provenance. The design of the original fitting in the maid's lounge is not known, so a copy of the Griffin-designed fitting in the GSDA No 1 house was installed.

The maid was provided with her own hand basin which was concealed in the lounge's cupboard; this had been removed but the full-length mirror inside the door still exists. The cupboard's rear wall showed a large area of the original wall finish and this dictated the colour of the walls in both rooms. The complex colouring of all the pillars is similar to their original finishes, as disclosed by scrapings.

**Garage / Laundry / Workshop.** This utility space under the maid's wing is very large. It was reported that the previous owner ran a commercial printing business from there. No original fittings or fixtures have survived. An architect-designed set of laundry, storage and workshop cupboards in a style sympathetic to the house was installed in 2000.

A square skylight on the maid's terrace which illuminated the laundry tub had been constructed from glass bricks set into a five-by-five waffle-patterned frame - effectively this was a small-scale steel reinforced concrete fixture within the garage's ceiling slab. Water seepage caused the steel to rust, shattering most of the irreplaceable glass bricks. This skylight was replaced by a toughened glass panel with 25 waffle-pattered etched squares symbolic of the original fixture.

**Flat roofs.** The house's five reinforced concrete slabs function as its only roofing. As shown in the PDF "Griffin's Plans of the House" he specified their surfaces very carefully so that water would run towards central drain holes, thus negating the use of guttering or external drainpipes. In all, the slabs are large in area but have only six drain holes and these are narrow. In Sydney's occasional torrential rain, or if the holes become blocked by leaves, drainage is inadequate. Leakage also occurred when blocked water pooled deeply and overflowed the flashings between the slabs and the sandstone block walls.

A much more serious source of leaks was the failure of the roofing membranes. Griffin's specifications stipulated that the roof slabs should have no surface protection. Presumably this proved to be a bad idea because soon afterwards a simple bitumen and pebble coating was applied. Later, this was replaced by a more modern bituminous membrane which also was clearly ineffective when the owners bought the house in 1976. Since then, they have re-sealed the entire roof and external terrace areas three times. Initially, an aluminium membrane backed with bitumen was applied, but this proved to be too soft and easily punctured. Then a thick, paint-on surface coating was applied, but this soon cracked and failed.

Roof leakage problems were satisfactorily solved in early 2004 when the house received funding from the Australian Government under its Cultural Heritage Projects Program for the application of an effective multi-layered membrane system. [4] This consisted of two membranes both of which were heat-bonded to their under-surface. Each of the two membranes was itself four-layered, comprising bituminous and nylon layers with the uppermost surface being covered by small chips of slate to ensure UV protection. This was coupled with the use of a paint-on acrylic membrane which adhered well to stone and is therefore ideal for flashings.

#### Footnotes:

1. Letter from Thomas Fishwick to James Weirick 1972. Courtesy of James Weirick. A photograph by Leonard Cunningham in 1930 clearly shows the uncovered pools. However, a photograph by Hermann Junge in January 1931 shows them covered by pyramidal glass and metal structures. See the site's Images of House section.

2. Ibid.

3. The Walter Burley Griffin Society has a collection over 50 images of the house by Hermann Junge taken over three visits. A number of these show overhead light fittings in some rooms.

4. The Federal Minister for the Environment and Heritage, The Hon Dr David Kemp, noted in his April 14, 2004 press release on the grant that "*the Fishwick house ... is an inspirational creation and one worth keeping for the generations ahead*".