Glass, Concrete and Steel
Luma Light Bulb Factories, Daily Express Printing Works and their Adaptation in the United Kingdom

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As the cultural value of 20th century architecture is increasingly recognised- and now the UK has listed buildings dating from the 1970s- the significance of the external skin has become a point in question[1].

Scottish people usually think of historic buildings as ones that have exposed stone walls, something that only became common in the 19th century. Many people were surprised when a few older buildings, like the Great Hall at Stirling Castle and the Palace in Culross, were recently "harled" (rendered) with a coloured lime coating that protects the stone and is not permanent. The same situation can apply to Modern Movement buildings. Where conservation is aimed at the primacy of original fabric, as it is where most protected buildings are of solid masonry construction, it can be alarming to find that some more modern claddings have finite lives. Yet where a building can retain integrity through its internal structural system, whether a medieval timber frame or a modern steel or reinforced concrete-frame, re-cladding becomes less of a dilemma.

Conversion of two factories built in Glasgow, Scotland, in 1938-9, saw total renovation of the external shells. The results capture the streamlined spirit of that age and may even be said to have improved upon the original architecture.

The Glasgow Herald, 1938, was one of three newspaper publishing houses built for the *Daily Express* by the engineer Sir E. Owen Williams in which glass curtain walls hang from mushroom-slab reinforced concrete-framed floors. The entire front facades are glass and black "vitralite" in Crittall frames. After sixty years the claddings were coming to the end of their lives: they leaked and suffered from excessive solar gain. To prevent upgrading would be to force abandonment.

In 1996 permission was given by the City Council and Historic Scotland to the Glasgow Herald to fit a new glazing system[2]. But then

1. Macdonald, S., *Modern Matters: Principles and practice in Conserving Recent Architecture (Donhead, Shaftesbury (1986)* contains articles that discuss this further. See also While, A., The State and the Controversial demands of cultural built heritage: modernism, dirty concrete and postwar listing in England [in:] *Environment and Planning B: Planning and Design 2007*, vol 34, pp 645-663

2. Watson, M., *Change for the Better: Luma Lamp Factories, Glass-clad Modernism and Reworked Textile Mills* [in:] Mays, D,

1. *Herald Building, Glasgow, by E. Owen Williams, 1938, before conversion 1996*

2. *Herald Building, Glasgow after conversion to flats, 2006*

newspaper production moved out. While the building was empty it was used as a TV set.

In 2000 the City Council drafted a planning brief, with Historic Scotland's backing, that indicated scope for change. In 2001 a developer put forward a proposal to convert it to housing, keeping existing curtain walling. The City Council was concerned that the development could result in apartments with low amenity for residents, and together with Historic Scotland, insisted that the exterior be upgraded. So the opposite of facadism took place; the internal structure now supports a new external shell (figures 1 and 2: before and after).

On top of the roof there was an opportunity for change where an inferior form of construction had later been used. By setting back a narrower block, and continuing the cladding system upwards it was possible to add three more storeys of flats, and to cut lightwells through to the deeper flats in the 1938 building. A square tower on a 1955 extension had been a store for printing ink with few windows. Re-cladding there would mean more window glass. Developers FM Group also wanted another storey there, as is the habit in Glasgow. All the flats sold well, and now another tower is being added on the site of a later printing hall. A masterplan for a proposed science park has been laid out in front of it, and the Herald building sets the architectural standard for this.

In accepting a decision to completely re-clad the exterior, something that was difficult to a conservationist, I could take comfort from the fact that radical things had happened to the other major buildings by Owen Williams.

The first of his buildings was completed for the *Daily Express* in 1932. Reinforced concrete absorbed the vibration of the printing presses and allowed London's first curtain wall to be suspended from it. In the late 1990s the exterior was removed and then put back again around its famous art deco lobby and some of its reinforced concrete frame, with rivets to its

Moss, M, Oglethorpe M (eds) *Visions of Scotland's Past: Looking to the Future* (2000)

***3.** Boots D10 Factory, Nottingham, England, by E Owen Williams, 1933, showing parts not yet refurbished behind an upgraded front, 1996*

***4.** Boots D10 Factory, Nottingham, England, the new cladding system in 1996*

chrome trim (more than in Glasgow). So less of the printing hall exists in London than in Glasgow, but the exterior cladding appears to be a closer rendition of the original.

The other Daily Express building is in Manchester, built in 1939. It was re-clad in 1994-5 by Michael Hyde and Associates[3]. The high ground floor has a set back mezzanine installed, and an extra bay was added to the north. It still publishes newspapers, besides other office functions.

Owen Williams also produced an extraordinary factory for pharmaceutical company Boots. Their wet goods factory D10 is so big that it only part of it is inside Nottingham City. Two local authorities and English Heritage had to be consulted on permissions for changes. The factory was opened in 1933 and after 60 years had lost something of its original style. Lighter coloured windows were obscured by external blinds trying to resist solar gain. New quality-control laboratories were needed at one end of the building and these had to be sealed against the weather and changes of air. The resulting new screen that clads one end of the building achieves a much more streamlined moderne effect. Inside, slabs on mushroom columns are arranged around a series of 4-storey lightwells lit by glass discs in a concrete honeycomb. In the words of the company, "D10 is no living museum. This magnificent building is still central to the company's manufacturing interests."[4] (figures 3 and 4)

But is it possible to keep and upgrade steel windows in a modernist building to meet modern business and high tech needs? Yes: this has been done for Graham Technology, makers of computer software. The India of Inchinnan Tyre Factory in Scotland, built in 1929 by Thomas Wallis (famous for the Firestone and Hoover factories in London)[5], closed in 1982 and became vandalised. A new extension by Gordon Gibb in 2002 echoes the underside of an airship (they had been made at this site before the tyre factory was built). It opens out from the original

3. The Architects' Journal, 1996, January, (of 18 January, 1996).

4. *The Boots Company, Celebrating the Renovation of D10 (1994)*

5. Skinner, J., *Form and Fancy: Factories and Factory Buildings by Wallis, Gilbert and Partners, 1916-1939,* Liverpool, (1997)

***5.** India of Inchinnan tyre factory by Wallis, Gilbert and Partners, 1929, in 1992*

6. *India of Inchinnan tyre factory 2007, by Wallis, Gilbert and Partners, 1929, after development by Graham Technology: windows adapted to carry extra panes of glass.*

building. The client required a uniformly heated environment and so has fitted specially-made double glazing to the outside of each pane. This preserves the fabric of the original steel window frames, but does make them look rather thick, minimised as far as possible by the choice of colour.[6] (Figures 5 and 6)

On the other hand some other curtain walls have been replaced on listed buildings: The Co-op Department Store in Bread Street, Edinburgh, now the Point Hotel; Lanark County Buildings, Hamilton, 1959-64, and the CIS building Manchester in 1959-62 are each listed commercial buildings that have been re-clad. In the Manchester example the chance was taken to fit photo-voltaic panels to a service tower whose mosaic failed. These will generate 10% of the energy needs of the building. It was argued that "its primary importance is in its massing and elemental form rather than its materials."[7]

6. *see http://www.nps.gov/history/hps/tps/briefs/brief.htm for advice on repair and upgrading of steel windows.*
7. Hudson, J *Conservation Values, Climate Change and Modern Architecture. The Case of the CIS Tower (2007)*

Even more radically altered is the The Swedish Luma Lamp Factory, the only reminder of the extensive Shieldhall industrial estate in Glasgow established by Scottish Co-operative Wholesale Society. The Society's architect, Cornelius Armour, created in 1939 a curved 26-metre high light bulb testing tower, redolent of the spirit of the age. It was modelled on one in Stockholm, Sweden, begun in 1929, where the tower is rectangular.

It closed and fell into severe dereliction. The building was listed in 1988, but various hotel and office schemes came to nothing. Yet the determination of the Linthouse Housing Association overcame funding obstacles. The original factory was adapted to provide 43 homes for sale, a two-storey office in the lamp-testing tower, and 12 new social housing units for rent in three new blocks at the rear.

The main assembly area had been on two floors. The upper one, where filaments were wound, had no windows at eye level: all natural light came from above to reduce glare. So the brick was removed from the existing steel frame and architects created within it four-storey tenement blocks with long horizontal window bands, and some new round windows. The factory now is more 'moderne' than it was in 1939. The lamp testing tower shines out as it did before the war. Its past function is not

7. *Luma Lamp Factory, Glasgow, 1996, at the start of the conversion.*

8. *Luma Lamp Factory, Glasgow, during conversion, 1997*

9. *Luma Lamp Factory, Glasgow, after conversion by Linhouse Housing Association, 2000*

forgotten and the project may be counted a success thanks to radical alteration. (Figures 7, 8 and 9)

So my message is to work in the spirit of modernism when dealing with modern buildings. They respond well.

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