Sunlight House, Quay Street, Manchester, M3 3JZ

Dome

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Brief History of Design Glass Ltd

Design Glass Ltd is probably one of the largest leaded light makers in the country and is a specialist in stained glass and leaded light services, offering restoration, conservation, and bespoke design solutions. Our expertise encompasses all aspects of Glass Ceiling Domes: designing and manufacturing custom glass domes, including notable projects like a 7.5m dome at The Savoy Hotel in London and exporting four domes 8m & 11m to Bahrain as well as restoring original domes and ceiling panels (laylights) at Leeds Town Hall and at the new Bradford Live Venue. We have skilled craftsmen at our workshop that employ traditional techniques to restore and create bespoke glass pieces. Their portfolio includes projects for historic sites such as Liverpool Library, Durham Castle, Wentworth Woodhouse – Camelia House and Ledston Hall.

Design Glass Ltd is committed to excellence, integrity, and innovation, ensuring each project meets the highest standards of quality and safety. We would consider ourselves, therefore, expert in these matters with over 35 years continuous trading in this specialist field.

Project

We have attended site twice and inspected, albeit it remotely, the ceiling above the pool area at Sunlight House and based upon this we consider the actions required to make the ceiling safe are far more extensive than would appear at first glance.

Firstly, there is no access to the upper surface of the dome for either cleaning, maintenance or inspection. The only real way to inspect the upper surfaces, metalwork and gain access to clean, is to remove the leaded light sections.







To try and clean the ceiling in situ to any meaningful degree will be the greater part of any costs incurred. This expenditure could be better used to re-lead the panels and clean them to the highest degree possible. Using our suggested method would enable working back to the access hatch and allow for both cleaning and structural integrity to be restored.

What the above effectively means is that the panels cannot be either repaired in situ or cleaned in situ. The panels will need removing no matter what and if as we strongly suspect they are nearing the end of their life in terms of leading, this process will weaken them. This is effectively a catch 22 situation. The correct and only solution is to remove the panels and rebuild as follows:

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- Each panel will be assessed, photographed and documented.
- Each panel will be stripped down, the lead removed and the glass carefully cleaned by hand using deionised water and non-abrasive cloths. Care will be taken to not mix up the glass from one panel to another. Obviously, this cleaning is a lengthy and laborious process that can take a considerable amount of time.
- Establish any glass that needs to be replaced and submit samples for approval.
- Wooden formers will be manufactured from the survey/measurements taken on site.
- Re-build the leaded light panels on the wooden formers.
- Solder on ties so the panels can be attached securely to the vertical saddle bars.

All original glass will be reused and replaced in exactly the same position as it is now (apart from approved repairs). Only the lead matrix will be renewed, and this new lead will be identical to the original.

The panels currently appear to be loosely fixed in the frames with no perimeter seal to hold them in place, a situation that would be remedied with our suggestion of re-leading and reglazing. Additionally, we would endeavour to make certain strategically placed panels removable for future inspection, maintenance and cleaning. These would have additional zinc strengthening bars around the perimeter which would be invisible but allow for safe future removal and replacement.



With reference to the above - currently the panels appear to have supporting saddle bars but are not fastened to them. This is evidenced by the fact that some whole panels have slid completely out of their rebates.

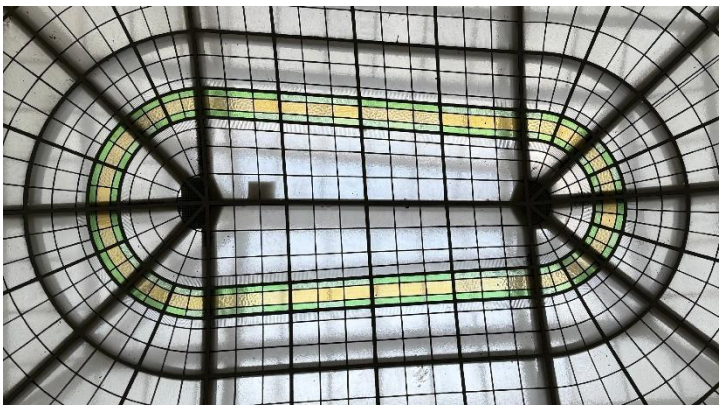
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If re-leaded we would ensure all panels were securely affixed to the saddle bars with soldered on fixings. Even if the old panels were removed and not releaded, soldering to old lead in a safety critical environment is dubious practice at best. No other method exists to affix the panels to the saddle bars that would be acceptable, for example applying silicone sealant - soldered on ties is the correct solution.



It is apparent however, that some saddle bars and other structural elements of the frame appear to be missing. Under our suggested scheme of repair and renewal these elements would be replicated and replaced as required. Any replacement pieces would be made from stainless steel or other non-ferrous metals.

Sections of the leaded glass appear to have been re-leaded. Based upon the types of glass used we estimate this to be around 20 - 30 years ago. However, on some of the original panels there are full pieces of glass missing within the leaded panels - not just breakages - we would suggest that this indicates re-leading is required to these panels at least and that the lead matrix has split apart.



Part of our reasoning for removal of the glazing is to enable a thorough inspection and repair (if needed) of the steel work. This would be absent were the panels not to be removed.

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Regarding the suggestion of application of intumescent paint - leaded lights are in **no way** fire retardant and this exercise would be futile in this situation other than to try to preserve the steel work - which we acknowledge may be the desired intent.

Conclusion

The above suggested scheme would result in the following:

- Maximum retention of original material in its original position.
- Maximum future lifespan
- The safest possible outcome and minimum risk of any falling material
- Maximum aesthetic appeal (no unsightly nets etc).
- The ability to inspect maintain and clean the whole of the dome in the future.
- The most comprehensive inspection and repair possible of all elements of the dome including all steel work.
- The least possible ongoing future maintenance required.
- The most comprehensive reinstatement of the dome to its original appearance and as Joseph Sunlight intended it to look.

At any point during works being carried out on the glass panels all elements will be available for inspection by MYCO personnel, representatives for MCC or Historic England. All of whom are welcome to see our Craftsmen working on the dome.

For further details on how we would carry out this work please see following Methodology Statement.

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Removal Methodology



Requirements

Hard scaffold, provided by others, under the full expanse of the dome to enable removal to be carried out - this will need to be at a height whereby the workers can work comfortably with the dome just above head height.

Site Work Methodology

- Survey the dome accurately in order to be able to make wooden formers for the re-leading process of the panels at a later date. To be aided by 3D scan by yourselves as discussed on site.
- Identify if the vertical saddle bars are a later addition that have been screwed/rivetted on. Take inventory of missing saddle bars. Assess fitting security and see if replacement is required. Some may need to be manufactured. May need PC sum to cover this. Some of these may need to be removed temporarily in order to lift the panels out.
- Mark up the panels so that they are identifiable during the refurbishment and refitting process. Take note of any misalignment with a view to possible correction at a later date.
- As the panels are sitting on the top side to the dome 2/3-man team will lift the panels out of the steel structure in the manner of a conventional suspended ceiling.
- Lower the panels to ground floor
- Stack/Load the panels in labelled glass crates, which we will provide and bring back to our workshop. Nearby parking would be required to transport panels to van.

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This process will leave the skeleton steel framework in place which can be fully assessed, repaired where necessary (pc sum required) and decorated by others in preparation of the panels being re-fitted.

Removal Team Skillset

Manual Handling - The team is manual handling trained.

Plant and equipment – Hand and battery tools only.

Occupational health – Noise levels will be low and dust will be minimal. However, we carry FFP3 masks with us.

Workshop Methodology

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