

RESTORATION OF DAVID SASSOON LIBRARY AND READING ROOM 2005 - 2006



1.1 Enabling Works



The enabling works include erecting scaffolding on the external of the facades and all around the clock tower for roof repair works and façade restoration works. It also includes erecting scaffolding on the interior of the staircase lobby and administration room to facilitate work for the roof repair of the respective areas.



1.2 Protection Works

Protection works for the statue of David Sassoon and one at the mid-landing level

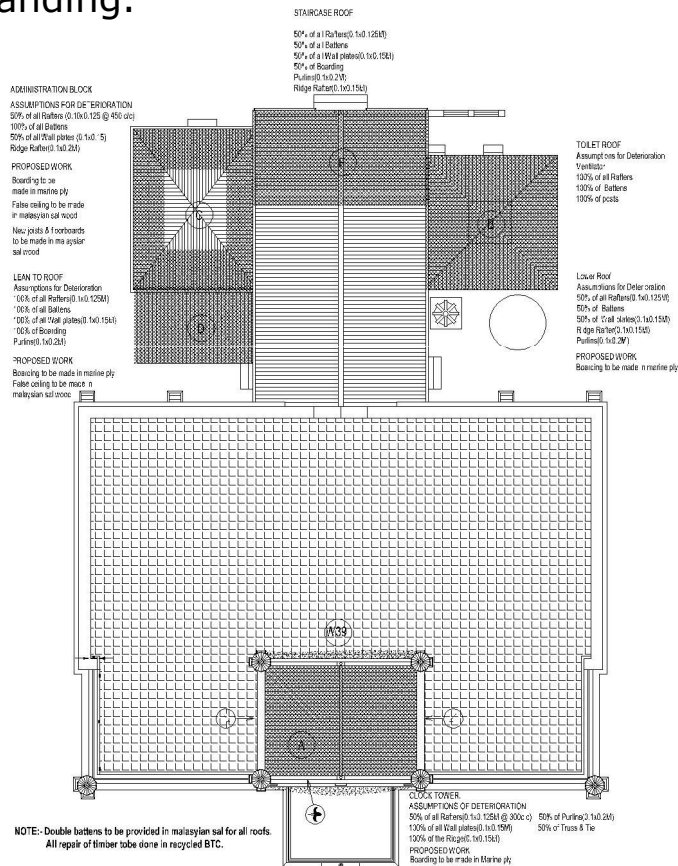


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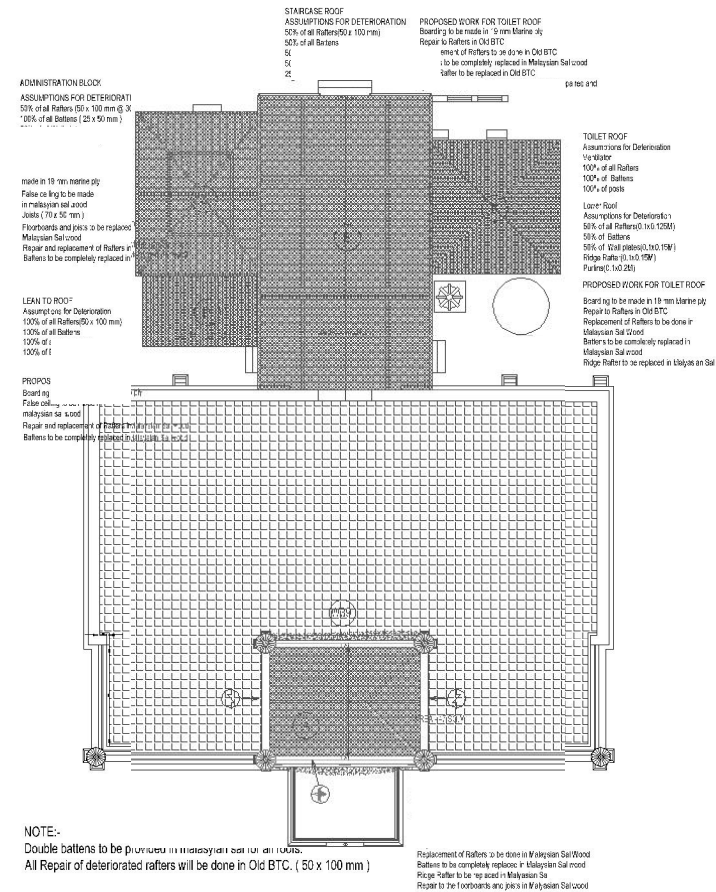
2. ROOF REPAIR AND WATERPROOFING

All the roofs have been considered for repair as shown in the drawing. Some assumptions of deterioration were made before opening up of the different roofs and the proposed works were enlisted.

All deviated and extra items in the bill have supporting pictures with captions for better understanding.



PROPOSED WORK BEFORE OPENING OF ROOF



PROPOSED WORK AFTER OPENING OF ROOF

Staircase Roof

Initially it was decided to open up only 25% of the entire roof, as the ends showed deterioration and damp condition. The assumption of deterioration before opening up the 25% was 50% of all rafters, 50% of all battens, 50% of all wall plates, 50% of boarding, purlins and ridge rafters.

After opening up, as there was extensive termite infestation and the entire roof had to be opened to check on extent of repair.

The junctions at the parapet wall were largely the source of water leakage. Additionally, the wood boarding of the angular pitch was badly warped and had resulted in a sagging of the roof. This required extensive replacement of the old wooden boarding with new wooden members.

The boarding is made in 19mm Marine Ply

Repair to Rafters in Old BTC

Replacement of Rafters done in old BTC

Battens completely replaced in Malaysian Salwood

Ridge Rafter replaced in Old BTC

False Ceiling on the underside of the roof repaired and replaced in old BTC

Staircase Roof



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Clock Tower Roof

Assumptions of deterioration – 50% of all rafters, 100% of all wall plates, 100% of the ridge, 50% of purlins and 50 % of roof and tie.

Boarding made in 19mm Marine Ply

Repair to Rafters in Old BTC

Replacement to Rafters in Malaysian Sal Wood

Battens completely replaced in Malaysian Sal Wood

Ridge Rafter replaced in Malaysian Sal Wood

Repair to floorboards and joists in Malaysian Sal Wood

STRUCTURAL REPAIRS

The truss member was in an extremely deteriorated condition. Hence it was decided to strengthen the main truss members by supporting it with U-steel plates and brackets at the ends. Also, the flat roof jack arched needed attention.



Clock Tower Roof



Deteriorated end condition of timber truss



Clock Tower Structural Repair work



Alternate ends of the timber joists were replaced and joint with 150 x 175 x 6 thick plates on both sides and at bottom.

The truss member was in an extremely deteriorated condition. Hence it was decided to strengthen the main truss members by supporting it with U-steel plates and brackets at the ends.

The tie - truss also required strengthening. New timber member and S.S. plate was introduced and firmly anchor fastened to the wall.



Repair to ends of timber joists.

Strengthening of the truss member

Clock Tower Structural Repair work



Large cracks running from the arched doors up to the ceiling were stitched in an unobtrusive manner using non - corrosive pins.



The arches were supported using M.S. plates bent to profile along the edge.



Flat Roof

The terrace surface has cracked with evidence of water seepage on the ceiling below - within the reading room and veranda. Hence it was necessary to repair the bitumen layer and re-lay a waterproofing membrane. Due to shortage of space, the terrace is used actively for the library activities and functions. Hence tiling it with appropriate tiles will help in the long run.

When the waterproofing of the flat terrace was dismantled, structural cracks were visible in the slab, which was then attended to, and measures were taken to stitch the cracks. The work is complete with laying of texa



Texsa Membrane –
Deviated Item



Making grooves



Filling grooves with polymer



M25 Grade Concrete for
terrace



Reinforcement - Structural
Steel & Applying Rusticide
on Steel reinforcement



Polymer Mortar
Double coat plaster
Lead flashing above skirting



Kottah Stone fixing

Flat Roof



Additional for tiles- As vitrified tiles were chosen instead of Nitco rough tiles .

Granite Providing and fixing – over the gutter

Flat Roof



Repair of Jack Arch below flat terrace – First Floor Verandah



Berger Paint Application



Committee Room Roof

Assumptions for Deterioration: 50% of all Rafters, 100% of all Battens, 50% of all wall plates, Ridge rafter.

The work in the committee room mainly comprised of replacing all deteriorated wooden members.

All Boarding made in 19mm Marine Ply

False Ceiling made in Malaysian Sal Wood

Floor boards and joists replaced in Malaysian Sal Wood

Repairs and Replacement of Rafters in Malaysian Sal Wood

Battens completely replaced in Malaysian Sal Wood

Committee Room Roof



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Secretary Room Roof

Assumptions for Deterioration: 100% of all Rafters, 100% of all Battens, 100% of all wall plates, 100% of boarding.

Boarding in 19mm Marine Ply

False Ceiling made in Malaysian Sal Wood

Repairs and Replacement of Rafters in Malaysian Sal Wood

Battens completely replaced in Malaysian Sal Wood



Toilet Roof

Assumptions of deterioration – 100% of all rafters, 100% of all battens, 100% of the Post.
Lower Roof: 50% of all Rafters, 50% of battens, 50% of wall plates, Ridge Rafter, Purlins.

Boarding made in 19mm Marine Ply

Repair to Rafters in old BTC

Replacement of Rafters in Malaysian Sal Wood

Battens completely replaced in Malaysian Sal Wood

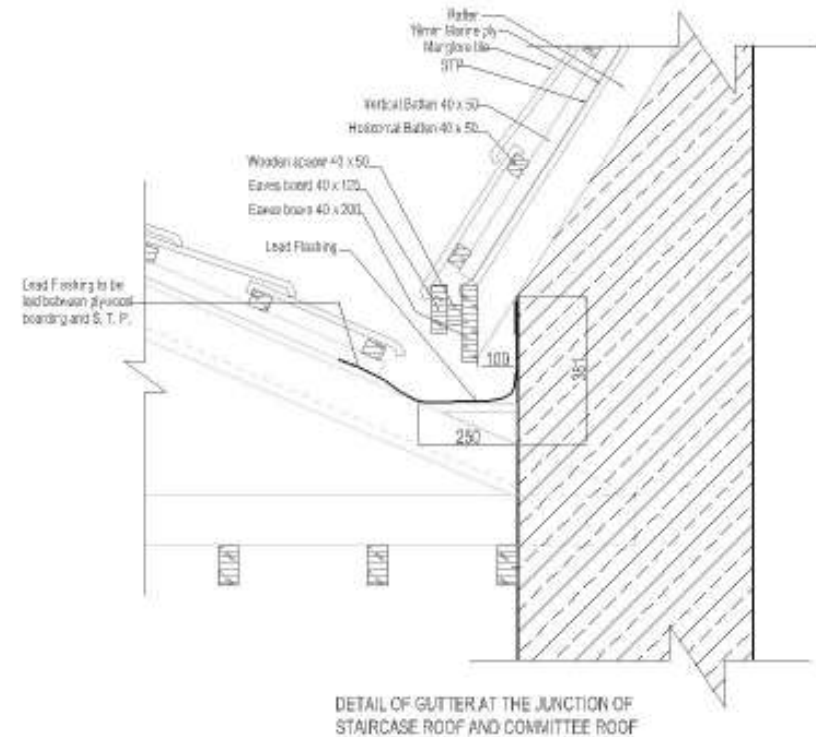
Ridge Rafter replaced in Malaysian Sal Wood



2.6 Plumbing Works

The plumbing job is to replace all corroded pipes with PVC pipes along with removal of old gutters and providing with new GI gutters.

The gutters of the pitched roof had deteriorated completely. As the roofs are high, it is difficult to access the gutter to remove the dirt and leaves lodging at their junctions that cause water penetration through the walls. Additionally poor plumbing connections had also caused water leakage. Gutters needed to be removed and retained only wherever essential and where they can be accessed easily. Instead of gutters, roof overhangs need to be extended to allow the water to flow over without splashing on the wall.



3. FAÇADE RESTORATION

3.1(a) Re-pointing in Lime

The original lime mortar has been replaced with a hard cement or epoxy mortar. The hard pointing material's composition has resulted in stress on the stone and eventual cracking and spalling has been noticed in a number of places. The existing pointing was carefully removed and replaced with softer lime mortar. This was a specialised job but extremely essential to improve the longevity of the structure.



3.2 Removal of External Paint



3.4 Cleaning of Stone



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3.6 Restoration of Extended Cornice

The corner cornice stone on the NW side of the Reading room has dislodged and broken off. Also, at most of the corners the corner stones of the external cornice band, have open mortar joints indicating eventual dislodgement. To prevent breakage these need to be refitted with stitching.



4. RESTORATION OF DOORS AND WINDOWS

4.1 Dismantling of doors

All the deteriorated doors and windows will be dismantled for repair works. The repair and restoration of the doors and windows will constitute of patch repair to the deteriorated wood in doors and windows in recycled Burma T.W. replacing missing and broken glass, mullions in T.W. and refixing it back to its correct line and alignment. the doors and windows will also be treated with termite resistant solution and/or solignum along with painting and polishing.

The toilet windows are being replaced by fixed glass louvered windows. The doors and windows that are completely deteriorated have considered as a completely new item.



4.2 Making New Doors and Windows

The doors and windows are mostly original and have weathered over the years. Most of the frames are largely intact. However the woodwork of openings facing the west and south sides have deteriorated considerably due to the direct effect of the rains and needed to be replaced. Some windows require glazing replacement and refitting of the mullions. Additionally the beading which hold the mullions need to be replaced for practically all the windows. Along with all the wooden joinery, the hardware and hinges for all the windows needed to be refixed wherever essential.



4.3 Repairs of Doors and Windows

The repair and restoration of the doors and windows will constitute of patch repair to the deteriorated wood in doors and windows in recycled Burma T.W. replacing missing and broken glass, mullions in T.W. and refixing it back to its correct line and alignment. the doors and windows will also be treated with termite resistant solution and/or solignum along with painting and polishing.



General Extra items



All timber was treated for termites



All timber New, or old was treated with solignum before polishing.
All Malaysian sal was treated with linseed oil coating.

General Extra items



All timber members when embedded in walls were covered in plastic, to prevent ends from corroding due to damp.

WORKS COMPLETED ON SITE AND WILL APPEAR IN RA Bill 4 AND RA Bill 5

Façade Restoration

Remaining Stone Cleaning and Pointing
Compound Wall Cleaning and Pointing – including plinth
Poultice Cleaning for capitals

Electrical Works

Concealed conducting and lighting on terrace
Façade Illumination

Termite Treatment

Anti termite treatment to all timber
Site Anti – Termite Treatment

Restoration of Doors and Windows

Repair of all doors and windows including polishing, painting and hardware
Complete timber Spiral Staircase

Plinth Protection

Soil removal and excavation of periphery of site, re-pointing, Anti rust and lead treatment, Removal of tree roots.

Painting and Polishing

All balusters and railings in Black and Gold
Light Fittings
Apex Paint on Terrace Parapet Wall
Painting and Polishing of all woodwork

Façade Illumination

The above mentioned works carried out amount to an approximate value of **Rs.20 Lakhs**.

Few minor works like arcade lighting, tenant signage and finishing works are underway.