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Dar Al Tifil Al Arabi Institute

Jerusalem

ITB: PAL10/ITB/56906/ Palestinian Heritage Museum

Section 7: Technical Specification

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SECTION   A

GENERAL

A 1  SCOPE OF WORK

These Specifications cover all the works necessary for the Rehabilitation works of the Palestinian Heritage Museum includes testing and commissioning of all equipment and maintaining the whole works.

A 2  DRAWINGS

A list of Contract Drawing available at the date of tender is included on the front page of the Drawing Book and at the end of these Specifications

A 3  CONTRACTOR'S PRICE

The Contractor's price shall include for all materials labour and plant requirements necessary for the completion of the Contract in accordance with the Contract Drawing and specifications with exception only of items supplied by e Employer.

A 4  USE AND PROTECTION OF SITE

The Contractor shall take such measures and exercise such are to protect the Site as shown on the Site Plan during the course of the Works as directed by and to the entire satisfaction of the Engineer.

All temporary buildings and work areas such as Site Offices, Workshops Store Buildings and Yards, Living Accommodation, Messrooms, etc. shall be constructed in position approved by the Engineer.

The contractor shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the Engineer. The Contractor, shall erect suitable temporary fences as required by the Engineer.

The Contractor shall not load or permit any part of the structures to be loaded with a weight that will endanger its safety.

On commencement of the Contract, the Contractor shall clear the Site and adjacent area of all rubbish and debris to the satisfaction of the Engineer.
USE AND PROTECTION OF SITE (Cont'd)

Upon completion of the Contract, the Site and any adjacent areas affected by the building operation shall be properly cleared of all temporary works, debris and other rubbish and all disturbed works and ground made good to the entire satisfaction of the Engineer.

A 5 MATERIALS FOUND ON SITE

Any sand, gravel or other building material found on the Site shall not be used in the execution of the Works without the prior written consent of the Engineer, which shall not be unreasonably withheld.

A 6 TEMPORARY STORMWATER DRAINAGE

The Contractor shall ensure that the whole of the Site, is kept free from the risk of stormwater flooding and shall provide such temporary ditches, gullies and the like as may be necessary and shall at completion of the Works backfill such excavation and make good all works disturbed.

A 7 SHOP DRAWINGS

If at any time before the commencement or during the progress of the work it appears to the Contractor that for the proper execution of specific part of the works, shop drawings are necessary, these drawings shall be prepared by the Contractor and submitted to the Engineer for approval. On the other hand, the Engineer shall have authority to order at any time and the Contractor agrees to provide any number of shop drawings which in the opinion of the Engineer are necessary for the proper execution of a specified work, the Contractor shall not proceed with the above mentioned work unless these shop drawings are approved by the Engineer.

Shop drawings shall be fully detailed and drawn to proper scale.

Unless otherwise specifically required in the drawings or Specifications, shop drawings shall be supplied in four copies with dark lines on a white background.

Shop drawings shall be approved or returned to the Contractor for alteration or amendment within four (4) weeks of their receipt by the Engineer. Shop Drawings returned for alteration or amendment shall be resubmitted for approval. Altered or amended shop drawings shall show the nature of the alteration or amendment in a revision block on the drawings with a revision number or letter and the date of the revision.

A 8 " AS BUILT " DRAWINGS

All prints of the Drawings, where required, shall be corrected by the Contractor and submitted to the Engineer for approval as the works proceed. Upon the completion of the Works, the Contractor shall prepare a completely new set of drawings for the project as executed and submit same in duplicate to the Engineer for approval.

When approved by the Engineer, the Contractor shall submit one transparency and six copies of all drawings duly marked "As-Built". The final payment shall not be made except for the actual works that have been completed in accordance with the Specifications and have been duly presented on the "As-Built Drawings".
The Contractor shall not be entitled to any extra payment or extension of time for the correction, preparation and supplying of the above mentioned drawings and transparencies.

A 9 SCAFFOLDING

The Contractor shall provide, erect, maintain, and dismantle any clear away at completion proper and adequate scaffolding including that required for Sub-Contractors and Specialists. Put long holes shall be made good to match the adjacent surface as the scaffolding is dismantle. The Contractor shall be entirely responsible for all safety precautions in connection with the scaffolding and for its entire sufficiency for the work.

A 10 PROTECTION

In the pursuance of his obligations under the Conditions of Contract, the Contractor shall wherever required or directed by the Engineer cover up and protect the Works from the weather and from damage by him or other workmen performing subsequent operations. He shall provide all necessary dustsheets, barriers and guard rails and clear away same at completion.

The Contractor shall take all reasonable and proper steps for the protection of all places on or about the Works, which may be dangerous to his workmen or any other persons or to traffic. The Contractor shall provide and maintain warning signs, red warning lamps and barricades as necessary in all such places.

A 11 SEPARATE CONTRACTS

The Employer reserves the right to let other separate contracts in connection with the work under similar conditions. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and co-ordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer and defects in such work shall render it unsuitable for such proper execution and results.

His failure so to inspect and report shall constitute an acceptance of the other Contractor's Works as fit and proper for the reception of this work, except as to defects which may develop in the other Contractor's work after the execution of his work.

To ensure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between executed work and the Drawings.

A 12 DEFINITIONS

"Approved "directed "selected" means the approval, direction or selection by the Engineer.

"Instructions means the instructions in writing of the Engineer or Engineer's Representative unless specified otherwise.

"Manufacturer's Recommendation" means the Manufacturer's recommendations or instructions, printed or in writing and current at the date of tender.
“Or approved equal” means that materials of different manufacturer may be substituted if proper approval has been obtained. The rates or prices will be held to be based on the materials specified.

Where an item is denoted as N.I.C. on the Drawings it shall mean that item indicated is not included in the Contract.

Where the terms Architect or Engineer is used in this Contract they shall have the same meaning.

Where the terms Architect's Representative or Engineer's Representative are used they shall have the same meaning.

A 13 STANDARDS

In the Contract reference is made to the Standards, Codes of practice and Specifications issued by the following organizations, hereinafter referred to by the following abbreviations:

AASHO Means the American Association of State Highway Officials.

ACI Means the American Concrete Institute.

AFNOR Means the Association Francaise de Normalisation.

AISC Means the American Institute of Steel Structure.

ASA Means the American Standards Association.

ASHRAE Means the American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASTM Means the American Society for Testing and materials.

AWWA Means the American Water Works Association.

B S Means the British Standards Institution.

CMA Means the Cable Manufacturers Association.

DIN Means the Deutscher Normannuasschuss.

NEM* Means the National Electrical Manufacturers' Association.

NFPA Means the National Fire Protection Association.

VDE Means the Verban Deutscher Electrotechniker

These references shall in every case be deemed to include the latest edition or issue of such standards.

The Contractor upon receiving instructions shall supply the Engineer’s Representative with single copies of all standards referred to on the Drawings or Specification and shall arrange for further copies for his own use.
A 14 MATERIALS GENERALLY

All materials and manufactured goods are to be the best of their respective kinds and as described in the Specifications and the Contractor shall submit for the approval of the Engineer a list of names and addresses of the manufacturers, the trade marks and types of all materials and articles he proposes to employ together with all specifications and descriptions that may be required in this connection before any orders are placed. Samples are to be provided if requested by the Engineer. Where a particular proprietary product, supplier's catalogue is referred to in the Specifications or shown on the drawings the material specified may be obtained from another source provided it is similar, equal and approved by the Engineer.

If during the course of the Contract certain materials required for use in the Works should be unobtainable despite the best efforts of the Contractor, then the Contractor may offer for the approval of the Engineer substitute materials.

The use of these substitute materials shall be at the sole discretion of the Engineer.

In the event of the acceptance of the substitute materials a suitable price reduction shall be made in the respect of decrease in quality or value but no price addition shall be made in respect of increase in quality or value.

In the event of refusal of the substitute materials the Contractor shall not be relieved of any of his obligations under the Contract and shall be solely liable for any delay or loss occasioned by his failure to provide materials as specified.

Where manufacturers recommendations have been entered into the contract documents, it is for the purpose of giving an indications to the contractor of the Engineer’s intentions on the application and use of the material.

It is deemed that the successful Contractor will make direct contact with the manufacturer to ensure that he is carrying out the works in accordance with their recommendations.

A 15 CONTRACTOR TO VERIFY SITE MEASUREMENTS

The Contractor shall check and verify all site measurements wherever requested by other specialist contractors or by nominated or other sub-contractors to enable the to prepare their own shop drawings, and pass on the information with sufficient promptness as will not in any way delay the Works. A copy of all such information passed or shall be given to the Engineer.

A 16 SAMPLES

The Contractor shall furnish for approval, with reasonable promptness all samples of materials and workmanship required by the Engineer. The Engineer shall check and approve such samples with reasonable promptness for conformance with the design concept of the works and for compliance with the information given in the Contract Documents. The Work shall be in accordance with approved samples.

a) All material samples shall be delivered to the Engineer’s office with all charges in connection with therewith paid by the Contractor.

b) Duplicate final approval samples, in addition to any required for the Contractor’s use, shall be furnished to the Engineer.
c) Samples shall be furnished so as to delay fabrication allowing the Engineer reasonable time for consideration of the sample submitted.

d) Each sample shall be properly labelled with the name and quality of the material, manufacturer’s name, name of project, the Contractor’s name and the date of submission and the Specification number to which the sample refers.

A 17 CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, patching and making good in all trades for all work and his prices will be deemed to include for all such cutting and patching and making good.

A 18 SITE OFFICES, LATRINES, ETC.

The Contractor shall provide and maintain on the Site for the duration of the Contract the following:

a) A temporary office for the accommodation of his Agent/Engineer and Staff, including all necessary sanitary facilities, such offices shall be open at all reasonable hours to receive instructions, notices or other communications. Telephone and Electric installations shall also be provided.

b) A suitable and adequate temporary office shall be provided and furnished by the Contractor for the sole use of the Engineer and his staff. Such office shall be to the approval of the Engineer.

c) Adequate fire fighting equipment to the approval of the Local Fire Authority and the Engineer.

d) An approved sign board, written in Arabic and English. The size of signboard and lettering including to wordings shall be as directed by the Engineer.

A 19 ATTENDANCE ON THE ENGINEER

The Contractor shall for the duration of the Contract supply sufficient attendance for the Engineer’s supervisory staff and shall maintain and pay all water, electricity, and telephone charges shall keep the Site Office and supervision cabins in a clean and sound condition at all times.

The Contractor shall be responsible for the security of the Site Office and its contents at all times and shall employ watchman for this purpose

A 20 TESTING

The Contractor shall allow in his rates and prices for the cost of carrying our tests necessary for compliance with the Specification in independent laboratories outside the Site.

A 21 TEMPORARY BUILDINGS

The Contractor shall provide and maintain on the Site sheds, offices, messrooms, sanitary accommodation and other temporary works of any kind whatsoever for the Contractor’s supervisory
staff and work people and for Sub-Contractor’s staff employed upon the works.

The Contractor’s site office shall be open during working hours to receive instructions notices or other communications.

Sheds shall be suitable to store all materials equipment and furniture which in the opinion of the Engineer needs protecting from the weather.

The Contractor shall provide and maintain in approved positions on the Site Adequate sanitary accommodation for his staff workmen and sub-Contractors. This sanitary accommodation shall be kept in a clean and orderly condition to the approval of the Public Health Authority and the Engineer to ensure that no nuisance is caused.

A 22 TEMPORARY WORKS AND REINSTALLATION

The Contractor shall provide and maintain all temporary roads and tracks necessary for movement of plant and materials, and clear same away at completion and make good all works damaged or disturbed.

The Contractor shall submit drawings and full particulars of all Temporary Works to the Engineer before commencing same. The Engineer may required modifications to be made if he considers them to be insufficient and the Contractor shall give effect to such modifications but shall not be relieved of his responsibilities for the sufficiency thereof.

The Contractor shall divert as required, at his cost and to the approval of the Engineer, all public utilities encountered during the progress of the Works, except those specially indicated on the drawings as being included in the Contract.

Where diversions of services are not required in connection with the permanent Works, the Contractor shall uphold, maintain and keep the same in working order in existing locations.

The Contractor shall make good, at his own expense, all damage to telephone, telegraph and electric cable or wires, sewers, water, or other pipes except where the Public Authority or Private Party Owing or responsible for the same elects to make good the damage. The cost incurred in so doing shall be paid by the Contractor to the Public Authority or Private Party in demand.

All injury to the surface of the land, to the beds if water courses, projecting banks, etc. where disturbed by the Works (other than where specifically ordered by the Engineer) shall be repaired by the Contractor or the authorities concerned, at the Contractor’s expense. All such making good shall be to the approval of the Engineer.

All requirements detailed above shall be provided and maintained at the expense of the Contractor.

The Employer shall not be liable for loss or injury to and Temporary Works.

A 23 WATER FOR THE WORKS

The Contractor shall make all necessary arrangements and provide all water for the proper execution of the Works, together with all transport temporary plumbing, storage and
distribution, pay all charges and alter adapt and maintain temporary work as necessary remove and make good at completion.

A 24 ELECTRICITY FOR THE WORKS

The Contractor shall make all necessary arrangements and provide all artificial lighting and power for the proper execution and security if the Works and its protection.

With all meters temporary wiring and fittings, pay all charges and alter, adapt and maintain the temporary works as necessary and remove and make good at completion

A 25 PROVISION OF PLANT AND TOOLS

The Contractor shall provide and install all necessary hoists, ladders, scaffolding. Staging, tackles, tarpaulins, tools, vehicles, and other plant (mechanical and otherwise) and allow for altering adapting and maintaining them in good condition as necessary and eventually removing from site and making good.

A 26 TEMPORARY BARRIERS, FENCING ETC...

The Contractor is to provide all temporary barriers, fencing, hoarding, guard rails, gates, and the like as may be necessary to protect the public and others, for proper execution of the Works and shall remove and clear away at completion of the Works and make good all work disturbed.

A 27 INCONSISTENCY IN CONTRACT DOCUMENTS

The Contractor shall execute the Works according to the provisions of the Contract Documents. Any work indicated in one of the documents but omitted and/or stated in one or more of the other documents shall be treated as though it were included in all of them.

If any two documents of the Contract conflict as to the quality of the work to be carried out, the discrepancy shall be brought to the notice of the Engineer, who shall instruct the Contractor which of the two conflicting documents to regard as correct.

If the Contractor should discover that any work has been omitted and/or not indicated entirely or partially from all the documents, but that such work is essential to the safety or proper functioning of the works, he shall report the facts immediately to the Engineer. If the work is something which in the opinion of the Engineer could not have been foreseen by an experienced Contractor, the Engineer should issue to the Contractor a variation order stipulating the details of the work to be done.

Save as aforesaid in the above paragraph, no additional payment shall be made in respect of work carried out in connection with discrepancies between the various Contract Documents.

A 28 ERRORS IN COMPUTING CONTRACT DOCUMENTS

The Contractor shall be responsible for any error which he makes in computing any quantities of material and labour required or costs involved or through any lack of knowledge of
the Site or misunderstanding of anything shown or implied on
the Drawings or in the Specifications and/or the Bills of
Quantities.
The Contractor must refer any discrepancy in the Drawings or
the Specifications to the Engineer before proceeding in any of
the Works otherwise the decision of the Engineer as to the
interpretation of the discrepancy will be final. Any item or
items of work not specifically shown on the Drawings or
referred to in the Specifications but which would be necessary
for the proper construction of the works in accordance with the
best practice is implied and must be included for as
incidental to the Contract Sum. Any item for which the
Contractor has not inserted a price in the Bills of Quantities
shall be deemed to be covered by other prices or rates therein.

A 29 SITE MEETINGS

During the course of the Works, site progress meetings shall be
held at regular intervals at least once every two weeks in the
presence of the Engineer for the purpose of co-ordinating the
Contractor’s work and to insure that full compliance with the
various sequences of the contract are maintained. Minutes of
such Site meetings will be recorded, copies will be distributed
to all persons concerned and full effect shall be given to all
instructions contained therein.

Prior to such meetings the Contractor shall give to the
Engineer’s representative details in writing of that portion of
the Works he proposes to construct during the coming two weeks
with details of the plant and methods he proposes to employ.
These proposals shall be discussed at the meeting and no work
based on such proposals shall proceed without the approval of
the Engineer’s Representative.

The Contractor shall have no claim against the Employer for
costs incurred by him in changing the method of working or in
the provision and use of other additional plant.

A 30 DAILY REPORTS

The Contractor shall deliver daily to the Engineer’s
Representative a report as to the number of workpeople employed
on the Works in each Trade and copies of delivery notes of all
materials and goods to the Site during the day.

A 31 ACCESS FOR THE ENGINEER

The Contractor shall provide at all times during the execution
of the Works and the Maintenance Period proper means of access
with ladders, gangways etc., and the necessary attendance to
move and adapt same as directed for the inspection or
measurement of the Works by the Engineer or the Engineer’s
Representative.

A 32 SETTING OUT AND LEVELLING

Prior to commencement of any site work the Contractor shall
arrange to record on an approved grid existing site ground
levels and agree with the Engineer’s Representative the
accuracy thereof by preparing a record drawing signed by the
Contractor’s Agent and the Engineer’s Representative. The
Contractor shall set out and level the Works and obtain the
approval of the Engineer’s Representative before commencing
construction.
A 33 PROGRAMME TO BE FURNISHED

The Contractor shall prepare a programme for the Works, including the work of subcontractors and other work concurrent with the Contract, using the critical path network method. The Contractor shall submit three (3) copies of programme to the Engineer with his tender. Submission of programme will not relieve the Contractor of his obligations to apply in writing for instructions as required by the Conditions of Contract. Receipt of programmes by the Engineer shall neither affect the Contract completion date nor relieve the Contractor of his responsibility to complete the Works by this date. The Contractor shall review the programme once each month to take account of any circumstances which arise affecting the progress of the Works, and shall produce a revised programme and submit copies to the Engineer.

A 34 CANCELLATION DUE TO SLOW PROGRESS

If the Engineer shall be of the opinion that having regard to the state of the Works at any time, the Contractor will be unable to complete any section of the Works by the time specified or by such extension thereof as he may be entitled to under the Contract and the Contractor has failed to carry out steps and to expedite the work in accordance with the Conditions of Contract or, if the Engineer is of the opinion that such steps are inadequate, the Engineer may, by written order omit the whole or any part of the uncompleted work included in that section and the Employer shall be at liberty to execute such omitted work by his own workman or by other Contractors. If the cost of such omitted or uncompleted work shall exceed the sum which would have been payable to the Contractor on the completion of the said work, then the Contractor shall, upon demand, pay to the Employer the amount of such excess and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly.

A 35 DELAYS

The Contractor will be deemed to have allowed for all delay caused by difficulty in obtaining labour and materials or by suspension of part or the whole of the Works due to adverse and inclement weather conditions.

A 36 NON-PRODUCTIVE TIME

The Contractor shall allow for all costs incurred by non-productive time and all other expenses in connection with overtime.

A 37 SAFETY, HEALTH AND WELFARE

The Contractor shall comply with enactments regulations and working rules relating to safety health and welfare of workpeople.

A 38 CONTRACTOR'S SITE REPRESENTATIVE

The Contractor’s Representative in charge of the Works shall be a duly graduated Engineer having at least Three (3) years experience in the superintendence of similar works and shall be required to have a proper command of the Arabic and English languages.
A 39  ATTENDANCE

The Contractor shall allow for and be responsible for the general attendance of one trade upon another.

A 40  OFFICIAL VISITORS

The Contractor shall at all times when authorized by the Engineer give free undisputed access and all facilities to any authorized employee of the Employer, any representative of the U.N.D.P. or any person authorized by the U.N.D.P. wishing to view or inspect any part of the Works or the materials to be incorporated therein.

A 41  CARE OF THE WORKS, ETC.

The Contractor shall keep all persons (including those employed by Sub-Contractors) under control and within the boundaries of the Site. He will be held responsible for the care of the existing premises and of the works generally until their completion, including all work executed and materials, good and plant (including those Sub-Contractors and Suppliers) deposited on the Site; together with all risks arising from the weather, carelessness of work people, damage or loss by theft or any other cause; and he shall make good at his own expense or such damage and lose.

A 42  WORK AT COMPLETION

The Contractor shall clean the Works thoroughly inside and out removing all splashes, deposits, rubbish and surplus material. The Contractor shall remove all temporary markings, coverings and protective rappings unless otherwise instructed.

The Contractor shall touch up minor faults in painted surfaces carefully matching colour and brushing out edges. He shall repaint badly marked areas back to suitable breaks and junctions.

The Contractor shall adjust, ease and lubricate all doors, windows, drawers hardware, equipment, appliances, controls and other moving parts as necessary to ensure easy and efficient operations.

The Contractor shall leave the Works secure with all access locked. He shall account for all keys and shall hand over to the Employer with itemized schedule signed by the Employer as receipt.
## INDEX

**SECTION F** - ROOFING AND WATERPROOFING

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SECTION F

ROOFING, WATERPROOFING AND THERMAL INSULATION

F 1 SCOPE

These specifications cover, waterproofing, roofing and thermal insulation, to be used for underground structures, floors and roof decks required for the Works in accordance with the Drawings, Bills of Quantities and as directed in writing by the Engineer.

F 2 MATERIALS

F 2.01 Dampproofing

All substructures, floors of ground floor of kitchens + bathrooms have to be painted with a liquid waterproofing.

F 2.02 Waterproofing of exterior walls

This will be added to the exterior plastering of walls. An integral concrete waterproofing compound that will reduce moisture absorption in the plastering mixture.

F 2.03 Waterproofing of the roof

A sloping screed consisting of lightweight concrete screed shall conform to B.S.3797: lightweight aggregate for concrete. The lightweight aggregate shall be such a Vermiculite, Alveolite, etc..., aggregate of an exfoliated micaceous mineral aggregate incombustible and chemically inert, obtained from an approved manufacturer, graded and mixed in accordance with the manufacturer’s instructions.

The lightweight aggregate shall be delivered to the Site in the manufacturer’s sealed and branded containers which shall be clearly marked to show the grade of lightweight aggregate contained therein. They shall be stored in a covered shed with floor raised off the ground and bags stacked not more than 3.00 meters high.

Mixing Proportions

The lightweight concrete screeds shall be measured, mixed applied and cured in accordance with the manufacturer’s instructions and to the satisfaction of the Engineer.

Gauges boxes shall be used for the measurement of lightweight aggregate and the following mixing table shall be strictly observed.
F 2.04  
**Waterproofing**

An application of a bituminous waterproofing consisting of an unknown polyester reinforcement (250 grm/m² minimum) incorporated in thermosusible elastomeric bitumen.

F 2.05  
**Workmanship**

Prior to the beginning of the roofing works, the Engineer and the roofing superintendent shall proceed to the inspection and approval of the receiving surfaces, the upstands at roof edges, the drains, vent pipes and other venting devices, the construction joints etc.

The general contractor will be notified in written of all defects of the flat surfaces or details and work shall not proceed until such defects have been corrected.

One coat of primer is painted over all the surface.

Installation of the bituminous layers shall be carried out in conformity with the manufacturer’s specifications and using propane torch welding only.

Asphalt coatings shall be softened but not melted as to avoid superheating using a single-nozzle torch of adequate size. Rolls shall overlap 75mm on sides and 150mm at ends. All inadequately welded seams will be refused. All superheated areas or parts will be refused and will require adequate repair in accordance with the degree of deterioration of the membrane.

Air blisters, wrinkles impact and tearing marks and protective granules pounding marks are not admissible. Should these defects occur roofing works shall be carried out again.

F 2.06  
**Bituminous Flashings**

A plain underlay bonded to the support with previously applied primer coating or welded to it with propane torch. This underlay shall be unrolled parallel to the upstanding element in one meter width extending 150mm onto the current surface underlay.

Apply the current surface-finishing layer onto the flashing underlay and then recover with the flashing-finishing layer extending 200mm onto the current finished surface.
This layer shall be welded with propane torch in full adherence that no air is entrapped between layers. Side and end laps shall be staggered over underlay seams and 75mm wide.
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H - 2 Materials
H - 3 Manufacture
H - 4 Workmanship
H - 5 Balustrades and Railing
SECTION H

METALWORK

H -1  SCOPE

These Specifications cover ferrous and non-ferrous works intended to be used in the Project all in accordance with the Drawings and as directed by the Engineer.

H -2  MATERIALS

H -2.01  Steel

Steel plates, and structural steel shaped sections shall conform to the requirements of B.S. 4 latest edition for structural sections, Part 1 Hot rolled sections and Part 2 Hot-rolled hollow sections (Metric Series).

H -2.02  Bolts and Nuts

Bolts and nuts shall conform to the requirements of B.S. 4190: I.S.O. metric black hexagon bolts, screws and nuts.

H -2.03  Washers

Plain washers shall be made of steel. Taper or other specially shaped washers shall be made of steel or malleable cast iron and shall conform to the requirements of B.S. 4230 Metal washers for general engineering purposes.

H -2.04  Galvanized Steel Pipes

Galvanized steel pipes shall conform to the requirements of B.S. 1387 - I.S.O. “Medium Series”.

H -2.05  Paint

Paint for Metalworker shall comply with the applicable requirements as specified under “PAINTING”.

H -2.06  Aluminium

All aluminium elements shall be manufactured of extruded sections of aluminium alloy, mechanically jointed. Fittings shall be aluminium alloy in accordance with B.S. 1331 the latest edition.

All parts and members shall be of aluminium commercial quality like (Al - Mg - Si) heat treated, free from defects impairing its strength and durability and containing not more than 0.4% copper. All exposed surfaces shall be polished to a mirror-like surface, free from defects, and shall be light etched and anodized in a dark brown finish as shown on Drawings and as directed in writing by the Engineer.
Aluminium shall be treated to comply with B.S. 1615 and B.S. 2987 to provide an anodization not less than 25 microns thickness.

All aluminium sections shall present clear straight and sharply define lines and shall be free from defects and imperfections that may impair their strength.

All screws, bolts and other necessary accessories shall be of aluminium or other non-corrodable material and shall match in colour and consistency the finish of the anodized aluminium.

Aluminium elastic glazing beads shall be provided to all windows and doors which are assembled by pressure to fit with the relevant groove in the profile.

The glazing bars shall be treated or interlaced at points of intersections and machine tenonned to frame.

**MANUFACTURE**

**H 3.01 General**

The Contractor shall be responsible for the correctness and accuracy of the dimensions of the finished articles.

He shall therefore carefully check the dimensions indicated on the Drawings, verify any change ascertain the sizes at Site which will enable him to prepare Final working Drawings for fabrication and erection purposes. Such drawings shall be submitted to the Engineer for his verification and approval.

Fabrication Orders can only be placed after Contractor has obtained in writing the approval of the Engineer on the above Drawings.

The steel sections where specified to be factory rustproof shall be rustproofed by hot dip galvanized, metalizing or sheradizing process. The rustproofing shall be sufficient to withstand the 72 hours salt-spray test as provided for in B.S. 1391. If the rustproof coating shall be damaged during the progress of work, the damaged part shall be recoated to minimum the original thickness to the satisfaction of the Engineer.

**H -3.02 Flush Steel Door and Frame**

Flush steel door shall be fabricated of hot rolled steel sections for framed skeleton with diagonal bracings and lined both faces with sheet steel of thickness as shown on Drawings or stated in the Bills of Quantities, riveted to framed skeleton as shown on the Drawings. The Frame shall be made of hot-rolled steel sections and shall be provided with No. 8 anchors, one end welded to frame and other end dovetailed.

**H -3.03 Hollow Metal Door Frames**

Hollow metal door frames shall be purpose made to the profiles and sizes shown on the drawings and obtained from an approved manufacturer. The doorframes shall be from 1,5mm thick twice laminated steel
The frames shall be stored in a clean, dry place, off the ground and protected from the weather.

The frames shall be free of all dents, bumps, slits, and cracks and any defective frames shall be made good or replaced at the Contractor’s own expense.

H -3.04 Aluminium Windows, Doors

The anodized aluminium windows and doors etc... with all necessary accessories and fittings shall be of the pattern, design, dimensions and thickness shown on the Drawings and obtained from an approved manufacturer.

Prints of shop Drawings for aluminium Windows, doors, frames, etc.. showing the dimensions, sizes, thickness, materials, finishes, joinings, attachments, fasteners and the relation of this section to adjoining work, shall be submitted to the Engineer for approval before ordering any material. All work shall be fabricated and erected in accordance with the approved Drawings.

All aluminium windows, doors, frames, etc... shall be factory assembled and reinforced according to the Drawings, complete with hinges, glazing gaskets and anchors. The only Site work allowed on aluminium units is fixing in position and glazing. The finished surfaces shall present a clear surface free from alloy defects, scratches, or other surface blemishes.

H -4 WORKMANSHIP

H -4.01 Steel Elements

All steel parts shall be accurately set out, cut, framed, assembled and executed using proper bolts or welding electrodes. All cut parts shall be sawn cut, no oxygen burning shall be permitted except for pipe supports. All welding shall be electrical welding, clean and of proper workmanship. All cut parts and welded sections shall be ground, even and filed smooth with rounded edges.

All steel members in contact with the soil shall be painted with two (2) coats of protective asphalt paint. All doors, frames, staircases, etc... shall be given at least one (1) coat of approved rust inhibiting primer before delivery to Site.

Frames for doors and windows shall be provided with not less than (3) adjustable type anchors on each jamb, maximum distance between anchors shall be eight hundred (800mm).

All joints shall be machined to a close fit and all pins and screws shall be countersunk and dressed flush after assembly.

Forging shall be sharp and true curbs and intersections, members of the same size shall be halved together.

The plain surfaces shall be smooth, free from warp or buckle. Moulded members and mitres shall be clean, cut, straight and ture. Construction joints shall be welded
their full length and cleaned off flush on exposed surfaces.

All work shall be erected plumb and true to lines and rigidly secured to wall, floors or ceilings as shown on Drawings and to the satisfaction of the Engineer.

Hardware for steel doors, etc. shall be as specified under JOINERY & IRONMONGERY.

H 4.02 Aluminium Windows and Doors

The Contractor shall furnish and install all aluminium units as indicated on the Drawings. Workmanship and installation shall be in accordance with recommended standard of First Class Aluminium Manufacturers.

All aluminium work shall be performed in a shop where grade of metalwork is of recognized quality acceptance to the Engineer. All items shall be installed plumb, straight, square level and in proper elevation, plane location and

level and in proper elevation, plane and alignment with other work. All work shall be designed for adjustment to field variations, fitted with proper joints and intersections, adequately anchored in place, strictly in accordance with best practice.

Where aluminium surfaces come in contact with metals other than stainless steel, zinc, white bronze or small areas of other metals compatible with aluminium surfaces they shall be kept from direct contact with such parts by painting the dissimilar metal with a prime coat of zinc-chromate primer or other suitable primer, followed by one or two coats of aluminium metal-masonry paint or other suitable protective coating, excluding those containing lead pigments or a non-absorptive tape or gasket shall be placed between aluminium and dissimilar metals. Steel anchors and connecting members shall be hot dip galvanized or zinc plated after fabrication.

Aluminium surfaces in contact with lime mortar, concrete, plaster or other masonry materials, shall be painted with alkaline-resistant coatings such as heavy-bodied bituminous paint or waterwhite methacrylate lacquer.

Aluminium in contact with wood or absorptive materials which may become repeatedly wet shall be painted with two coats of aluminium metal-and-masonry paint or a coat of heavy-bodies bituminous paint. Alternately paint the wood or other absorptive material with two coats of aluminium house paint and seal joints with a good quality of caulking compound.

Where aluminium is in contact with treated, wood shall be treated with pentachlorophenol, 5% minimum concentration or approved equal, followed with the protective measures described for aluminium in contact with wood or other absorptive materials.

The aluminium work shall be designed and anchored to that the work will not be distorted nor the fasteners overstressed from the expansion and contraction of the metal.
Before shipment from the factory, aluminium surfaces requiring protection shall be given a coating which will protect the metal during construction in areas where appearance of the finish on aluminium items is important, a coating of methacrylate type lacquer shall be applied as specified hereinafter.

Apply two sprayed coats of water-white methacrylate lacquer having a total minimum thickness of 0.015mm, which when applied to the aluminium surface shall be capable of withstanding the action of lime mortar for a period of at least one week in an atmosphere of 100% relative humidity at 40 °C, the action of 10% (by weight) muriatic acid for a period of six hours at 20 °C, and the action of atmospheric weathering for a period of 12 months. The coating shall be applied in the manufacturer’s plant to the exposed surfaces of all aluminium components subject to staining from alkaline mortar and plaster, abrasion and other construction abuses. Before application of lacquer, the manufacturers shall remove all fabrication compounds, moisture, dirt accumulations and other foreign materials to ensure proper lacquer adhesion.

Upon completion, the Contractor shall clean all aluminium work as required by removing protective tape or other coating, using mild soap or detergents and clear petroleum spirits.

Acids, caustics and abrasives not be used. Where cleaners are used to remove excess sealings compounds care shall be exercised to prevent damage to seals or staining or damage to adjacent work.

The Contractor shall be responsible for the protection of all aluminium work until the completion of the works, and only units in perfect working order and in perfect condition shall be accepted.

**H -4.03 Hollow Metal Door Frames**

Hollow metal door frames shall be fixed and shown on the drawings all in accordance with the manufacturer’s printed instructions and flushed up solid with plain concrete or cement mortar.

The rates for hollow metal door frames are to include for the supply and assembly of the complete unit including all necessary holes for hinges and lock, cutting off torsion threshold bar if necessary and fixing in walls in accordance with the manufacturer’s printed instructions and plain concrete or mortar filling as shown on the drawings.

**H 5 BALUSTRADES AND RAILING**

Balustrades and railings shall be of the materials and made to the sizes, dimensions and designs shown on the drawings.
## SECTION J  
### FLOOR WALL AND CEILING FINISHES

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SECTION J

FLOOR, WALL AND CEILING FINISHING

J 1 GENERAL

This section of the specifications covers plasterwork and other floor, wall and ceiling finishes intended for the works all in accordance with the Drawings, Bills of Quantities and as directed by the Engineer.

The Contractor shall attend upon other trades and protect all work specified under this section from damage during subsequent operations. Make good any defects, clear away debris upon completion clean throughout and leave all work in perfect condition to the satisfaction of the Engineer’s representative.

The Contractor shall be responsible for the design and stability of the scaffolding and for all safety precautions in connection with works specified under this Section.

Damaged or defective materials shall not be used in the works. Any defective materials or materials damaged during or after installation shall be removed and replaced at the Contractor’s expense.

J 2 MATERIALS GENERALLY

The cement and water used for plastering shall be as before described in Section C - Concrete Work and the sand shall be as before describe in Section D - Blockwork.

White (Nonstain) cement for tinted plaster shall conform to the requirements of the Standard Specification for Masonry Cement of the ASTM Designation (C-91) latest edition.

Lime shall be imported and of the hydrate type complying with Class B of B.S. 890.

Marble chippings shall be irregular in size and roughly cubical in shape. Samples shall be submitted to the Engineer for approval. Sizes shall be as required by the Engineer and as selected from the following table next page:

Marble Chippings shall be submitted to the Engineer for approval. Sizes shall be as required by the Engineer and as selected from the following table next page:

<table>
<thead>
<tr>
<th>B.S. Sieve mm</th>
<th>Approximate Inches</th>
<th>Percentage Passing By weight</th>
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<tr>
<td>-</td>
<td>13.00 1/2</td>
<td>95 - 100</td>
</tr>
<tr>
<td>-</td>
<td>10.00 3/8</td>
<td>25 - 60</td>
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<tr>
<td>-</td>
<td>5.00 3/16</td>
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<tr>
<td>7</td>
<td>2.40 0.095</td>
<td>0 - 10</td>
</tr>
<tr>
<td>14</td>
<td>1.20 0.047</td>
<td></td>
</tr>
</tbody>
</table>
Any pigments or colouring materials incorporated in mortar shall comply with B.S. 1014:1961.

Waterproofer additives shall be to the approval of the Engineer. The materials shall be delivered in containers bearing the name of the manufacturer and the instructions for use.

Angle beads, casing beads and shop beads where shown on the drawings shall be galvanized steel 26 gauge or pressed steel 24 gauge complying with B.S. 1246.

Metal lath for use in plaster shall be plain expanded metal type complying to B.S. 1369, weighing not less than 1 kg/sq.m. All metal lathing shall be zinc coated.

Metal lath shall be secured to the carcass and blockwork by means of galvanized steel nails. If the wire for securing metal lath is to be used it shall be of zinc coated wire not less than 1.2mm in diameter.

Plaster expansion joint strips, where shown on the Drawings or indicated in the Bills of Quantities, shall be of aluminium channels maximum size 20x20mm and 1mm. Thick and shall be perforated at side to form a suitable bond to plaster.

### J 3 PLASTERWORK

#### J 3.01 Mixing of Ingredients

Except where hand mixing of small batches is approved by the Engineer, mechanical mixers of an approved type shall be used for the mixing of plaster.

Frozen, caked or lumped materials shall not be used.

Mechanical mixers, mixing boxes and tools shall be cleaned after the mixing of each batch and kept free of plaster from previous mixes. Plaster shall be thoroughly mixed with the proper amount of water until uniform in colour and consistency. Retempering will not be permitted and all plaster which has begun to stiffen shall be discharged.

All plastering shall be executed in a neat workmanlike manner and internal and external angles shall be true, straight and plumb. Plaster shall be made good adjacent to wood or metal frames, skirting and around pipes or other fittings.

All tools, implements, vessels and surfaces shall at all times be kept scrupulously clean and strict precautions shall be taken to avoid the plaster or other materials becoming contaminated by pieces of partially set...
material which would tend to retard or accelerate the setting time.

J 3.02 Preparation of Surfaces

All surfaces to be plastered shall be clean and free from dust, grease, loose or projecting mortar and all traces of salts are to be thoroughly sprayed with water, but all free water shall be allowed to dry and disappear from the surface before the plaster is applied.

Plastering shall not be commenced until the background has been suitably prepared. Blockwork joints shall be deeply raked out, efflorescence brushed off and all dust and foreign matter removed.

Before plastering is commenced all junctions between differing materials shall be reinforced. This shall apply where wall join columns and beams, particularly where flush, and similar situations where cracks are likely to develop and as directed by the Engineer. The reinforcement shall consist of strip of galvanized wire mesh (10 to 15mm hexagonal mesh) 15cm wide which shall be plugged, nailed or stapled as required at intervals of not exceeding 45cm at both edges.

On all external surfaces and on all smooth internal surfaces spatter dash of cement and sand which shall contain 500 kgs of cement per one meter cube of sand shall be applied and allowed to dry before rendering is commenced. All surfaces of walls shall be wetted immediately prior to applying the first coat of rendering and this shall be allowed to thoroughly dry out before the next coat is applied.

The Contractor shall from vertical guide screeds 5cm wide. The spacing shall not exceed 1.50 meters.

The screeds shall be plumb and in the same plane with each other. The sides of the screed shall be kept rough to bond with plaster, the surface shall be smooth.

The finished surface shall be true to shape and angle oven in all directions, with straight arises free of cracks and trowel marks and to the entire satisfaction of the Engineer.

J 3.03 Application of Coats

a) Base-Coat (Rendering)

After the application of the spatterdash “rasheh” the base coat shall be applied after the spatterdash coat has set but in no case earlier than 24 hours after the application of the spatterdash coat.

When applied to masonry or to concrete surfaces the base coat shall be applied with sufficient force to prevent air pockets and to secure a good bond.

The base coat shall be lightly scratched in both directions to provide a key for the finishing coat.
and shall be kept moist with a fog spray for 2 days and then allowed to dry out.

b) **Finishing Coat**

Shall not be applied until the rendering or base coat has seasoned for seven days; just before the application of the finish coat, the rendering or base coat shall be wetted evenly with a fog spray. Where cement plaster with a smooth trowelled finish is specified or indicated on the drawings, the finish coat shall be first floated to a true even surface, then trowelled in a manner that will force the sand particles down into the plaster and with the final trowelling, leave the surface finished smooth and free from rough areas, trowel marks, checks or other blemishes.

**J 3.04 Proportions for Internal and External Plaster**

Internal and external plaster shall be composed of 400kg of cement per one cubic meter of salt free sand.

Plastering shall be applied in two (2) coats unless otherwise specified or indicated on the drawings.

Finishing coat shall have a reasonably uniform thickness of approximately 5mm.

Screed shall be laid and ruled as necessary to allow for a total thickness of 15mm for external and internal plaster and the rendering shall be applied to the required thickness.

The metal grid system shall be a patent system suitable for use with in-situ plaster and expanded metal lathing and shall have, flat metal hangers to suit suspended ceilings depths as shown on the drawings and described in the Bills of Quantities. The system shall include all main and cross runners, necessary splicers, hangers, clips and wall mounting next to walls. The system shall be installed complete in accordance with the manufacturer’s instructions.

The metal grid suspension system shall be concealed and shall allow for the whole of the ceiling to be demountable.

All concealed ferrous metal members such as channel runners, z-bars, clips and splines shall have an approved corrosive-resistant finish.

**J 3.05 Metal Lath**

At all junctions of dissimilar materials (i.e. concrete and blockwork or steel elements) the joint shall be covered by metal lath strips not less than 200mm in width securely fixed to the surface.

**J 4 WATERPROOFING PLASTER TO ALL EXTERNAL WALLS**

Mixing of plaster ingredients and preparation of surfaces to be plastered with waterproofing plaster shall be as specified above.
Rendering coat shall contain 450kg. Of Ordinary Portland Cement per cubic meter of clean coarse salt free sand and with admixture of waterproofing compound as specified added in accordance with the printed instructions of the manufacturer, shall be applied and the surfaces shall be trowelled hard smooth and allowed to dry. All surfaces of plastered areas shall be cured for a minimum of 7 days.

J 5

TYROLEAN PLASTER (FINE GRAIN)

J 5.01 General
The tyrolean plaster shall be executed to the extent shown on the Drawings and as directed by the Engineer.

The contractor shall provide sample (s) of Tyrolean plaster for the approval of the Engineer prior to commencement of Tyrolean work.

J 5.02 Mixing
Cement and aggregate for each batch shall be accurately measured and mixed dry until evenly distributed and the mass is uniform in colour. All batches shall be of such size that they can be entirely used within half an hour. Mechanical mixers of an approved type shall be used for mixing tyrolean plaster, except when hand mixing of small batches is specifically approved by the Engineer. Mechanical mixers, mixing boxes and tools shall be cleaned after mixing each batch and kept free of tyrolean mortar from previous mixes. Water content shall be maintained at a minimum. Mixing shall be continued until plasticity is obtained.

J 5.03 Proportions
Proportions of materials for tyrolean, by volume shall be as follows:

a) Scratch Coat
1 part Ordinary Portland Cement
3 parts fine aggregate

b) Finish Coat
1 part of white Portland cement
3 parts fine selected aggregate

No lime shall be allowed in either scratch or finishing coat, scratch coat shall be set on spatterdash.

J 5.04 Application of Tyrolean
a) Workmanship
Surfaces to receive tyrolean shall be clean, free from dust, dirt, oil, or other particles that might interfere with a satisfactory bond. Surfaces to receive tyrolean shall be evenly dampened (not soaked) with a fog spray before tyrolean is applied. If surfaces become dry in spots, the dry areas shall be dampened again to restore uniform suction. Tyrolean coats shall be applied continuously in one general direction without allowing mortar to dry at edges. Edges to be jointed shall be dampened slightly to produce a smooth confluence. Tyrolean unless otherwise shown or specified shall be two coats work not less than 20mm. thick (i.e. spatterdash, crotch coat and one tyrolean coat).
All exterior corners of tyrolean shall be slightly rounded. Tyrolean on soffit surfaces shall be pitched forward to form a drip.

b) **Scratch Coat**

Shall be approximately 14mm. thick and shall be applied under sufficient pressure to form good keys and shall be brought to a plumb true even surface. The scratch coat shall be damp-cured 48 hours before the finish coat is applied under sufficient pressure to form good keys and shall be brought to a plumb, true even surface. The scratch coat shall be damp-cured 48 hours before the finish coat is applied.

c) **Finish Coat**

Shall be approximately 6mm, thick. Surfaces of the scratch coat shall be dampened several hours before the finish coat is to be applied. Additional dampening at time of application shall be by fog spraying. Dampening by brush will not be permitted. When measure with a 2 meter long, straight-edge applied in all directions the finish surface shall not vary from a true plane by more than 1.5mm. The finishing coat shall be applied by means of a proper spraying machine and the degree of the finishing coat shall be determined by the Engineer.

### BEDS AND BACKINGS

Cement and sand beds and bedding under floor finishings and backing behind wall and column finishings shall be cement and sand (1:3) mix by volume unless otherwise specified.

### CEMENT SCREED TO CHANNELS

Cement screed shall, unless otherwise ordered by the Engineer, consist of one part of Ordinary Portland Cement to four parts of sand by volume. Ingredients shall be proportioned and mixed specified under concrete work and laid to falls with smooth trowelled finish as shown on the Drawings.

### PRECAST TERRAZZO TILING

Precast terrazzo units shall be firmed with a (1:2 ½) mix of white or tinted Portland cement and granular marble chippings for the topping (wearing layer) it on cement and sand backing (1:5) mix shall be obtained from an approved manufacturer. These units shall be cast in heavy steel mould under pressure to the proportions and sieve sizes approved by the Engineer. The thickness of wearing layer shall not be less than 10mm and the pattern and dimensions shall be as shown on the drawings and/or stated in the Bills of quantities.

Grinding shall be done wet by means of a No. 50 carborundum stone. Filling shall be carried out with a neat cement grout of the same colour as the facing mix and this shall be worked into the surface with a wooden scraper to fill all voids and air holes. Surplus grout
shall be removed with a dry cloth. After a minimum period of 24 hours, polishing shall be carried out wet by means of a No. 140 Carborundum stone.

Terrazzo units shall be cured by totally immersing them after the initial set has been taken place in a tank of clean water for at least 24 hours.

The precast terrazzo units shall be laid on a bed of sand with a (1:3) mix of cement and sand mortar with admixture of lime.

The grout shall consist of neat cement of a colour to match the tiling. Any surplus grout shall be cleaned off the face of the tiling and surrounding surfaces immediately and all tiling shall be carefully cleaned off.

All terrazzo surfaces shall be polished on completion. Large areas such as floors shall be wet polished by means of approved machine using a No. 140 Carborundum wheel. Any surfaces too small for convenient machine polishing may be polished by hand using a No. 140 Carborundum stone and water. Care must be taken during any polishing operation not to damage any angles or arises.

All units shall be well shaped with straight edges perfectly flat and free from defects which affect appearance or serviceability.

Chipped units or units with cracks or other defects will not be accepted and if laid in place the Contractor shall replace the defective units at his own expense to the satisfaction of the Engineer.

CERAMIC FLOOR TILING

Ceramic floor tiles shall be first quality vitreous clay non-slip tiles with keyed backs and a minimum 8mm thick of the sizes indicated on the drawings to comply with B.S.1286 type B and shall be obtained from an approved manufacturer. The colour and pattern of the ceramic tiles shall be selected by the Engineer. Samples shall be submitted to the Engineer for his approval prior to order.

Ceramic Floor tiles shall be laid on top of cement sand screed (1.3) mix of predetermined level such that total thickness of screed bonding layer and tiles shall be as shown on the drawings or mentioned in the Bills of Quantities with a minimum of cutting. The tiles shall be thoroughly soaked in water for a minimum of twenty-four (24) hours before laying. Tiles and skirtings shall be bedded in cement and sand (1:3) mix with addition of approved plasticisers.

All joints shall be as close as possible and shall in no case exceed half (0.5) mm in width on face. Tiles shall be neatly cut and fitted around pipes and other obstructions.
A thick creamy slurry of neat white or tinted cement mixed with sufficient water shall be brushed over the floor until all joints are thoroughly filled.

The surface of the floor shall be very gently rubbed with a wood block to bring tile surface to true planes, excess slurry shall be removed, and the floor shall be rubbed with burlap to clean the tiles and finish the joints to the satisfaction of the Engineer.

**GLAZED WALL TILES**

Glazed tiles shall be best quality white or coloured glazed ceramic tiles to the sizes approved by the Engineer conforming to B.S. 1281 and shall be obtained from an approved manufacturer. Coloured or patterned tiles shall be as selected by the engineer.

Cement and sand (1:4 nominal mix) plaster ten (10) mm thick shall be laid as base for wall tiling. The surface of plaster shall be scratched in an approved manner, when be well wetted before the tiling is applied. Plaster shall be cured for five (5) days before starting application of tiling.

All tiles shall be immersed in clean demineralized water for twenty-four (24) hours and all surplus water drained off before bedding.

Tiles shall be set in cement and sand mortar (1:4) mix, to a true vertical face with continuous horizontal and vertical joints. Joints shall be straight, level, perpendicular and of even width not exceeding 1.5mm. The vertical joints shall be maintained plumb for the entire true level and plant by uniformly applied pressure under a straight edged or rubber-faced block, misfits as well as damaged or defective tiles shall be removed and replaced by and at the Contractor’s expense.

The external, internal angles, top edges and side edges of glazed wall tiling shall be formed with rounded edges tiles.

Joints in glazed wall tiles, after the edges of tiles have been thoroughly wet, shall be grouted with a plastic mix of neat white or coloured cement immediately after a suitable area of tile has been set.

The joints shall be tooled slightly concave and the excess mortar shall be cut off and wiped off with a damp cloth from the face of tile, before it sets hard.

Interstices or depressions in the mortar joints after the grout has been cleaned from the surface shall be roughened at once and filled to the spring line of the cushion edge before the mortar begins to harden.

Where tiling abuts against wood or metal frames or other tiling at angles and around pipes, etc. it shall be carefully cut and fitted to form a close neat joint. Open irregular joints filled with cement and sand or plaster will not be permitted.
Immediately after the grout has had its initial set, glazed wall tile surfaces shall be given a protective coat of a non-corrosive soap or other approved method of protection and joints cured for 71 hours.

**POLYVINYL CHLORIDE FLOOR TILING**

Polyvinyl chloride (PVC) tiles shall be flexible homogeneous vinyl tiles manufactured according to B.S. 3261-60, the tiles shall be 300x300x3mm thick of matt finish and of colour as approved by the Engineer, unless otherwise directed. Edges shall be factory prepared to receive hot welding during laying.

Skirting shall be coved type and of height as shown on the Drawings and/or stated in the Bills of Quantities.

PVC tiles shall be bedded in polyvinyl chloride binder on dry surfaces of concrete tiles according to the manufacturer’s instructions at the recommended rate. Hot welding of tiles joints shall be carried out according to recommendations of tile manufacturers.

Dampness of surface in contact must be prevented during tiling.

**MARBLE FLOOR TILING**

Marble slabs for flooring, skirtings and the like shall be first quality Bethlehem Marble obtained from an approved supplier.

The marble slabs shall be of the dimensions and thickness shown on the drawings and in the Bills of Quantities and shall be uniform in colour and texture, smooth and free from voids, earth veins, lamination and the like, and shall be of an approved colour and to the pattern and sizes shown on the drawings.

Samples of marble slabs shall be submitted to the Engineer for approval prior to order.

Marble slabs shall be cut square, true and shall be uniform in shape and thickness. Mortices shall be carefully cut without causing any damage to marble, and rebates shall be carefully formed by special machines to the width and depth required to the satisfaction of the Engineer.

Marble slabs for floor finish and marble treads shall be laid on a bed of sand with cement and sand mortar (1:3) mix.

All marble slabs shall be backed with stain proofing in accordance with the manufacturer’s instructions.

Marble skirtings and risers shall be bedded with same mix as for floor marble but without the bed of sand.

All joints shall be thoroughly grouted with unstained cement and cleaned well before it sets hard.
All exposed faces and edges of marble shall be polished smooth, free from scratches or other defects and properly protected from damage by means of timber casings.

All workmanship shall be of the best of its kind and shall be carried out in a manner satisfactory to the Engineer.

**MARBLE THRESHOLDS**

Unless otherwise shown on the drawings or stated in the Bills of Quantities, marble thresholds shall be first quality carrarra marble obtained from an approved manufacturer. Thresholds shall be of the thickness and widths shown, of one piece and full length if the opening, levelled on both sides with hone finish on all exposed surfaces. Ends of thresholds shall be fitted accurately to jambs.

**PROTECTION AND CLEANING MARBLE**

Great care shall be taken to protect delivered and erected marble from chipping and staining during the course of the work. Delivered marble shall be stored in a water from area on raised platforms and shall be covered with tarpaulins or similar material until required for use.

Erected work shall be protected at corners, etc., with non-staining wood formwork, boards, etc. Floors shall be protected with suitable boarding, etc, after laying. Any work damaged or stained at the time of handing over shall be replaced or cleaned as required by the Engineer.

After completion of setting, all marble work shall be thoroughly cleaned by scrubbing with fibre brushes and mild alkaline solution that contains no caustic or harsh fillers. The use of wire brush or acid solution will not be permitted. Cleaning shall begin at the top of the building and proceed downwards. Upon completion all marble shall be left clean and free from stains or traces of cleaning fluid and with all joints pointed and to the entire satisfaction of the Engineer.

**FLOOR DRESSING**

The granular abrasive powder shall be trowelled into the finishing surfaces of the screed applied as desired hereinabove, working out of the dressing shall strictly conform to the method of application recommended by the manufacturer of material.

**FLOOR SEALING**

The floor seal shall be applied on the surface of screed which has been prepared and applied as described hereinabove. Screed shall be cured for a minimum of five (5) days before application of floor seal.

The priming and the working out of the floor seal shall be strictly conform to the method of application recommended by the manufacturer of the material.

**SUSPENDED CEILINGS**
J 17.01 General

The Contractor shall provide shop drawings to show the final layout and sizes of members of all suspension systems and to coordinate the design and work of suspended ceilings with other trades to provide for the reception and installation of outlets, fixtures, diffusers, etc, pertaining to mechanical or electrical work, all to the Engineer’s approval before any work is commenced.

J 17.02 Materials

a) Acoustical Materials

Acoustical materials shall be non-combustible conforming with the requirements of the American Federal Specifications SS-A=118b and shall be described in the current Acoustical Materials Association Bulletin, Sound-Absorption Coefficients of Architectural Acoustical Materials.

Acoustical ceiling tiles or panels shall be manufactured by “ROCKWOOL CO.”, OR “ARSTRONG CORK COMPANY Ltd.” Or Johns Manville” and/or approved equivalent.

Acoustical ceiling tiles or panels shall be of the size, thickness, whether perforated or non-perforated, design and finishes shown on the Drawings and/or stated in the Bills of Quantities.

Samples of acoustical ceiling tiles or panels in suspension system members, with catalog data, shall be submitted to the Engineer for approval.

b) Aluminium Ceiling Panels

Aluminium ceiling panels shall be similar to “luxalon Aluminium Panel Ceiling, the product of “Hunter Douglass” or “MIRAWAL DAMPA Aluminium Acoustical Ceiling Systems, the product of MIRAWAL COMPANY” and or approved equivalent.

Aluminium ceiling panels shall be of the size, thickness whether perforated or non-perforated, design or type and finishes shown on the drawings and/or stated in the Bills of Quantities.

Samples of aluminium ceiling panels with carriers shall be submitted to the Engineer for approval prior to order.

c) Plain Asbestos Cement Panels

Plain asbestos cement panels, shall be minimum 8mm, thick of an approved manufacturer. Asbestos cement sheets shall meet the requirements of B.S. 4036 “Asbestos cement fully compressed flat sheets”. Panels shall be of the non-perforated type.

d) Metallic Grid, Hangers and Fixing Accessories

All suspension members, hangers, wires, strips, clips, clamps, etc., shall be of the sizes and
types recommended by the manufacturer of the suspended ceiling systems.

The metal grid for suspended ceilings shall be either concealed or exposed system as indicated on the Drawings and/or stated in the Bills of Quantities.

The exposed metal grid system for suspended ceilings shall be made of aluminium sections or factory hot dipped galvanized steel sections and the concealed system shall be made of steel sections painted with approved rust inhibitive primer as recommended by the manufacturer of suspended ceilings and approved by the Engineer.

J 17.03 Workmanship

Acoustical materials shall be installed under temperature and humidity conditions similar to those which will exist when the building is occupied. They should not be installed when buildings are damp and cold or dry and hot. Plastering floor and wall cladding shall be completed and allowed to dry before the installation of acoustical materials commences. All windows and doors shall be in place and glazed. Poured or precast concrete or similar roof decks shall be thoroughly dry.

Buildings shall be examined before beginning work to determine that it is properly enclosed and the structure is in proper condition to receive acoustical material and/or suspension system. Areas shall be from cleaned and uninterrupted for free movement or rolling scaffold.

All products covered by these specifications shall be installed in accordance with the latest edition of the approved manufacturer’s specifications.

All acoustical materials and suspension systems shall be installed by skilled labour, thoroughly experienced with this type of installation and in strict conformity with the manufacturer’s specifications and to the approval of the Engineer.

Suspended ceilings shall be constructed in accordance with the details and instructions supplied by the manufacturer and approved by the Engineer. The grid shall be constructed to true level and to produce a perfect alignment of the joints truly parallel to the buildings lines, and completely free from waviness.

Special access hatches as required shall be provided next to air conditioning and ventilation units and wherever required by the Engineer. Mounting details shall be applied for the surrounding edge of lighting fixtures and air inlets and outlets and edge of ceiling.

After the installation of the panel carriers for the aluminium ceiling panels, the panels shall be clipped onto the carriers without the use of any tools.

Plain asbestos cement panels for closing and gaps of suspended ceilings and access panels to gear boxes or ducts shall be cut to true sizes and screwed to galvanized steel angle framing in accordance with the
manufacturer’s directions and to the satisfaction of the Engineer.

Following installation, the Contractor shall clean soiled or discoloured surfaces of units, remove and replace any unit which is damaged or improperly installed to the satisfaction of the Engineer.

**PROTECTION AND CLEANING**

All wall, floor and ceiling finishes shall be protected from damage until the completion of the Works. Should any damage be caused it shall be made good to the satisfaction of the Engineer at the Contractor’s expense.

All floors, skirtings and unpainted wall finishing shall be cleaned and left perfect on completion.
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SECTION K

GLAZING

K 1

SCOPE

These specifications cover Glazier work intended for the glazing of doors, windows, etc. for the project in accordance with the schedule of Doors and Windows Drawings, Bills of Quantities and as instructed in writing by the Engineer.

K 2

MATERIALS

K 2.01

General

All glazing shall conform to the requirements of B.S. 952 and shall be of uniform thickness free from waviness, air bubbles and all other defects; they shall be of first quality such as manufactured by “PILKINGTON”, SAINT GOBAIN” or approved equivalent.

All glass shall be delivered to Site in proper containers with maker’s name, guarantee, type of glass and thickness or weight of glass attached to the outside of the containers.

K 2.02

Clear Sheet Glass

Clear sheet glass shall be transparent, flat, relatively thin glass having a glossy, fire-finished, plain and smooth surface. The defects permitted in the central area of the type of glass are a few seeds, an occasional large seed not more than 6mm. long, faint strings or lines, and very light scratches and other surfaces defects detected only by close scrutiny. No pane (separate piece of glass) shall contain all of these defects and those present may not be clustered when in the central area. In general, the central area of light shall be as free from defects as possible and the appearance of the light as a whole shall be such that there is no perceptible interference with sight through the glass.

The clear sheet glass shall not weigh less than 10 kg/m2 when 4mm thick and not less than 15 kg/m2 when 6mm thick.

K 2.03

Polished Plate Glass

Polished plate glass shall be of light and/or medium bronze colour and shall have its two surfaces perfectly flat and parallel so that they provide undistored vision and reflection. Polished plate or float glass shall not weigh less than 10 kgs/m2 when 4mm thick and not less than 15 kgs/m2 when 6mm thick. The respective weights of the 8, 10 and 12mm, thick polished plate glass shall be as manufactured by “PILKINGTON”, “SAINT GOBAIN” or approved equivalent.

Mirror glass shall be 6mm. thick or as shown on the Drawings or stated in the Bills of Quantities. It shall be of selected quality plate glass silvered on one side, electro- copper-backed followed by a coating of shellac varnish and painted to the satisfaction of the Engineer.
Tempered float glass shall have been subjected to a special tempering process. Security glass shall be used in places and thickness as shown on the Drawings it shall impact mechanical strength comparatively light weight and impact resistance characteristics. When under terrific impact, it shall disintegrate into innumerable small, blunt-edged fragments and not into sharp-like ordinary glass.

K 2.04 Putty

Putty for glazing to wood other than non-absorbent hardwood shall be tropical grade wood glazing. Putty for glazing to metal and non-absorbent hardwood shall be tropical grade metallic glazing.

K 2.05 Neoprene

Neoprene strips for aluminium elements shall be supplied by the manufacturer of aluminium elements. Neoprene strips shall be stored in a safe location and shall be protected from the sun and excessive heat.

K 2.06 Bead Glazing in Aluminium Frames

The bead glazing in aluminium frames doors and windows shall be special P.V.C. sections that fit into the aluminium frame and hold it firmly in position. Approved special mastic possessing the required adhesion and elasticity shall be used. In the case of heads where one end is free, mastic alone shall not be allowed, additional cleats of timber or metal shall be used to secure the proper fixing of the glass.

K 3 WORKMANSHIP

K 3.01 General

Prior to proceeding with any work, the Contractor must take all necessary measurements on Site to verify and supplement dimensions and conditions shown on the Drawings and the Schedule of Finishes.

The Contractor shall protect all glazing work from damage during subsequent operations, made good any defects, clear away upon completion, clean thoroughly and leave all work in perfect condition to the satisfaction of the Engineer.

All accessories and other items essential for the proper execution of the glazing work, though not specifically shown on the Drawings or specified, shall also be provided under this chapter.

The Contractor shall fix all glass frames with all the required gaskets, clips, points, etc. all glass panes shall have rounded edges to prevent any damage to the gasket. All glass shall be cleaned by the Contractor before completion of the works.
K 3.02 Glazing to Metal

Only glazing to metal with beads shall be permitted. The rebates shall be previously treated as specified under “PAINTING” and the bedding putty inserted. The glass shall be embedded in the putty and secured by the beads. The bedding out shall be trimmed off level with the sight line to form a neat putty and painting shall be carried out.

K 3.03 Glazing without Putty

Where specified, flannel, felt, asbestos, rubber, Neoprene or similar materials shall be used in place of putty for internal glazing in conjunction with beads. The material should be so fitted as to cover all parts of the glass which will be covered by the rebate and beads.

K 3.04 Fixing of Mirrors

Mirrors shall be fixed to walls with rubber sleeves and chromium plated dome-headed screws driven into rawl plugs set into walls.

K 4 PROTECTION AND CLEANING

The Contractor shall protect all glazing work until completion, replace all cracked or broken glass and clean all glazing on both sides and all mirrors before handing over.

K 5 METHOD OF MEASUREMENT

Glass panes shall be measured net as executed.
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SECTION PAINTING

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PAINTING

L 1

SCOPE

The Specifications cover paint work to exposed concrete and plastered surfaces, wood work, ferrous and non-ferrous surfaces in accordance with the Schedule of Finishes, Drawings, Bills of Quantities and as directed in writing by the Engineer.

The term “Paint” as used herein includes emulsions, enamels, lacquers sealers and other coatings, organic or inorganic, whether used as prime intermediate or finish coats.

All painting works shall be applied by skilled workmen experienced in this work.

L 2

MATERIALS

L 2.01 Materials in General

The materials to be used shall be of the best quality and of approved types, obtained from an approved manufacturer (s).

All paints shall comply with the following requirements:

a) The product shall be thoroughly mixed and ground.

b) The colour of the paint shall match the approved sample.

c) Paint shall show no evidence of cracking, chipping or flaking.

d) Paint in the containers during and after application shall not be abnormally pungent, offensive or dis-agreeable.

e) Paint shall show easy brushing, good flowing and spreading and levelling properties. These properties shall be demonstrated on test specimens at the request of the Engineer. Coats that have any noticeable pull under a large brush and that show poor spreading and flowing properties will not be acceptable.

f) Paint shall dry to a uniform, smooth, flat or semigloss finish under ordinary conditions or illumination and wearing. There shall be no laps, skips, high-lighted spot or brush marks. Tinted paints shall dry to a uniform colour.

g) Recoating of a previous painted surface shall produce no lighting softening or other film irregularities.
L 2.02 Flintcoat Protective Coating

Flintcoat protective coating on fire escape staircase floors shall be coloured, “Decoralt” the product of “Flintcoat” or approved equivalent. It shall be especially compound acrylic resin latex colour coating, heavy bodied, flexible and abrasive resistant.

L 2.03 Knotting

Shall be composed of dissolving shellac or other resin remains unaffected by the resinous materials in the timber leaching into the paint film and causing discoloration or defective drying.

L 2.04 Mordant Solution

Shall be composed of a solution slightly acidic in nature and containing solvents, for applying to new smooth metallic surface to remove grease, organic soaps and provide a physical key and shall be obtained from an approved supplier.

L 2.05 Fillers

Shall be "Polyfilla", Alabastine" or approved equal.

L 2.06 Stopping

Shall be hard stopping composed of white load paste, gold size (oleo resinous medium) and other fillers obtained from an approved supplier.

L 2.07 Putty Filler

Shall be composed of white lead and dry filler mixed with pure linseed oil, the content of the white lead shall be not less than ten percent (10%) of the mixture by volume and shall be obtained from an approved supplier.

L 2.08 Thinners

Shall be approved turpentine or white spirit, except where the paints are specified to be water thinnered, fresh water shall be used.

L 2.09 Stain for woodwork shall be of an approved branch of oil stain complying with B.S. 1215.

L 2.10 Shall be pure tinty colour that will easily dessilve and mix with the various coatings and shall conform to the requirements of B.S. 1014: 1961 “Pigmen6s for cement, magnesium oxychloride and concrete”.

L 2.11 Rust Inhibitor

Shall be “galvanized” primer, manufactured by “Seconrastic ltd. Brackwell Berks, England” or Crown Chorinated Rubber Zinc Rick Primer-Product Data Sheet No. 56, manufactured by the Walpamur Co. Ltd., Darwen Lance” and/or approved equivalent.

L 2.12 Primers
Primers applied to surfaces of different materials shall be as follows:

a) Interior or exterior
- Alkali resistant primer as recommended by the manufacture.

b) Ferrous Surfaces
- Lead based or zinc Chromate and Calcium Plumbate as recommended by the Manufacturer.

c) Non-ferrous surfaces
- Mordant solution of an approved brand and rust inhibiting primer.

d) Woodwork Surfaces
- Leadless grey primer in accordance with B.S. 2524 latest edition.

L 2.13 Undercoating Paints

For exterior or interior shall be as follows:

a) 2 coats of whitewash or colorwash as shown on the Schedule of Finishes and the Drawings.

b) White lead bases undercoating in accordance with B.S. 2525:Colours shall be similar to the finishing paint.

c) Other undercoating paints to be applied as recommended by the manufacturers of the finishing paint.

L 2.14 Finishing Paints

Shall be as follows unless otherwise indicated on the Drawings:

a) Interior plastered surfaces
- Float enamel paint or approved emulsion paint for interior use of an approved colour and supplier.

b) Exterior exposed and plastered surfaces as shown on the Drawings.
- Approved emulsion paint for exterior use of the colour indicated on the Drawings.

c) Plastered surfaces of toilet, kitchen etc.. ditto
- Float enamel paint for interior use of an approved colour and supplier.

d) Interior or exterior ferrous and non-ferrous surfaces. ditto
- R.I.W.No.424 Chlorinated rubber paint interior or exterior grade, manufactured by "R.I.W. protective Product Co. Ltd. 25 Whitehouse Rd.Croydon"or "Detel Products td., South Ruuslip, iddlesex, England" or Crown chlorinated finish-Product ata Sheet 7 as manufactured
e) Interior woodwork surfaces other than hardwood

- Oil paint
- Semi-gloss finish of an approved manufacturer.

f) Hardwood surfaces

- Approved oil stain and ducco spray, or flat enamel paint.

L 3

WORKMANSHIP

L 3.01 General

The Contractor shall submit to the Engineer for approval the brand and quality of the paints he proposes to use.

If approval is given to a brand of paint the Contractor shall use the primers, undercoats etc... manufactured or recommended by the manufacturers of that brand.

All paints to be used under this contract shall be delivered and stored on the Site in sealed, labelled containers, a minimum of 30 days prior to application by the Contractor that the material is at the Site, samples of each material shall be obtained at random from sealed container by the Engineer in the presence of an authorised representative of the Contractor.

Samples shall be clearly identified by commercial name, type of paint and intended use. If judged necessary by the Engineer the paint samples may be tested in a laboratory designated by the Engineer at the Contractor’s expense,

Complete colour charts for the paints to be used shall be submitted to the Engineer for approval.

Pigmented paints shall be furnished in containers not larger than 25 kgs. All paints shall be produced that have a minimum of 2 years satisfactory field services.

Mixing and application of paint shall be in accordance with the Specifications of the manufacturers concerned and to the approval of the Engineer.

The mixing of paints etc... of different brands before or during application will not be permitted. No dilution of painting materials shall be allowed except strictly as detailed by the manufacturers and as approved by the Engineer.

Hardware, hardware accessories, machine surfaces, plates, lighting fixtures and similar items in place prior to cleaning and painting, which are not intended to be painted, shall be removed or protected prior to painting operations and repositioned upon completion of painting work as directed by the Engineer.

Equipment adjacent or against walls shall be disconnected by workmen skilled in these trades and moved to permit the wall surfaces to be painted, and following completion of painting shall be replaced and reconnected.
Cleaning solvents shall be of low toxicity. Cleaning and painting shall be so programmed that dust and other contaminants from the cleaning process will not fall on wet or newly painted surfaces.

Brushes, pails, kettles, etc. used in carrying out the work shall be clean and free from foreign matter. They shall be thoroughly cleaned before being used for different types or classes of material.

No exterior or exposed painting shall be carried out under adverse weather conditions such as rain, extreme humidity, dust storms, etc.

Painting shall preferably be shaded from direct sun light to avoid blistering and wrinkling. Wherever possible, painting of exterior surfaces shall “follow” the sun such that it is carried out in shadow.

Edges, corners, crevices, welds and rivets shall receive special attention to insure that they receive an adequate thickness of paint.

All cracks and holes shall be cut out properly square and made good with suitable hard plaster or cement sand mix as appropriate such repaired portions being allowed to dry out and sandpapered smooth.

L 3.02 Plastered Surfaces with Emulsion or Enamel Paint

Such works shall be allowed to dry out completely before carrying out the painting operation. Plaster applied in the winter season shall be at least five weeks old and that applied in the summer shall be at least two weeks old before commencing painting operations.

Preparation of surfaces shall consist of vigorous brushing and rubbing down to remove loose surface material and dust.

Surfaces shall then be left for a week to determine whether efflorescence reappears in which case it shall be brushed dry and a further waiting period of one week allowed.

Alternatively, the surfaces may be neutralized by brushing on a solution of 3 percent phosphoric acid and 2 percent zinc chloride and removing all loose particles after drying. No painting shall be carried out until the Engineer is satisfied that no efflorescence is occurring.

Where required by the Engineer one or two coats of “Alkali resistant” primer shall be applied, sufficiently thinned to penetrate the surface.

All plastered and concrete surfaces shall be twice stopped with approved putty filler. The first coat of stopping shall be applied after the primer coat dried out completely and the second coat after the first undercoat application. Each coat of stopping shall be allowed to dry and harden thoroughly and shall then be rubbed by sandpaper until smooth surface is achieved.
A minimum of two (2) approved undercoats recommended by the manufacturers of finishing coat shall be applied by brushing well into the surface. Each coat shall be allowed to dry and harden thoroughly before the next coat is applied.

The finishing coat of paint shall be applied after the completion and testing of the mechanical and electrical works.

L 3.03  **Ferrous Surfaces**

Surfaces shall be thoroughly cleaned to remove and dirt, wire brushed and scraped to remove scale and rust. One coat of approval putty shall be applied on the surfaces and left to dry for at least twenty four (24) hours, surfaces shall then be rubbed by sandpaper or other approved means before primer is applied.

One coat of rust inhibiting “Galvanized” primer or other approved equal shall be approved equal shall be applied by brushing well into the surface and shall be allowed to dry and harden thoroughly before the application of subsequent coats.

If ferrous works delivered primed, the surfaces shall be examined to ascertain that the primer coat is hard. If not satisfactory the primer coat shall be removed and the surfaces cleaned to remove grease and dirt and reprimed as described above for ferrous. Abraded spots on shop-coated surfaces shall be wire-coated surfaces, shall be wire-brushed and touched up with same materials as the shopcoat.

The under-coat and finishing coat shall be chlorinated rubber paint interior or exterior grades and used all in accordance with the directions of the approved manufacturer.

Chlorinated rubber paint, interior or exterior grades, shall not be applied in damp, foggy or freezing weather or to any surface which is not perfectly dry. Ferrous surfaces shall be thoroughly cleaned free of all rust, scale, dirt, oil and grease, etc…

Brush application is recommended although this material may be sprayed if desired, only special thinners produced by the approved manufacturer may be added to achieve the spraying consistency required.

Special approved thinners may be used for cleaning brushes after use.

Ferrous works such as frames, covers to expansion joints, etc… which are to be built into walls shall be primed before installation.

L 3.04  **Non-Ferrous Surfaces**

Galvanized steel surfaces to be painted shall be solvent-cleaned or painted with mordant solution before the
application of paints as described above for ferrous surfaces.

L 3.05 Wood Surfaces

Wood surfaces except surfaces to be given natural finish or other finish specified shall be primed, undercoated twice with undercoating paint as recommended by the manufacturer of finishing coat and final coat with semi-gloss enamel paint of approved manufacturer.

Wood surfaces shall be scrubbed with abrasive paper to obtain a smooth surface. Surface mould where present shall be removed by washing, rubbing down and burning off as necessary. Oil wood shall be swabbed with white spirit. Resinous exudation and large knots shall be removed and replaced by approved filler or knot sealer and the surface shall be primed.

Parts of wood to be enclosed in walls shall be primed unless already impregnated with creosote or other preservative. Priming shall be brushed on and a minimum of two coats applied to end grain. After the primer coat is hard, all cracks, holes, open joints, etc... shall be made good with hard stopping and rubbed with fine abrasive paper. If the first process of stopping found to be unsatisfactory it shall be repeated after the first undercoating is applied and well it shall be repeated after the first undercoating is applied and well dried.

Priming of joinery shall be applied only on the site after the Engineer has approved such joinery and before it is fixed. The two undercoat paints shall be applied on wood doors, panels, etc. before they are fixed, to ensure that the bottom and top edge and sides are thoroughly painted. The finishing coat of paint to such wood doors, panels etc... shall be applied after fixing in position and as directed by the Engineer.

Wood surfaces specified as stained shall only be rubbed down with fine abrasive paper and two coats of oil stain ducco sprayed to the satisfaction of the Engineer.

Wood surfaces specified as varnished shall be thoroughly cleaned down of all dirt, oil, grease, etc... and rubbed to a smooth finish, knots shall be treated with knotting and 2 coats of approved oil varnish applied.

L 3.06 Flintcoat Protective Coating

Two coats of flintcoat Decoralt coloured coatings should be applied at normal dilution i.e.: two (2) columns Decoralt and one (1) volume water, using no primer. The first coat should be allowed to dry before applying the second one.

L 3.07 Oil Stain Finish to Woodwork

The stain finish to woodwork shall be an approved manufacturer’s oil stain system applied strictly in accordance with the manufacturer’s instructions.
All surfaces are to be thoroughly dry and cleaned and sanded down and all nail holes or similar defects shall be filled and levelled up with approved hard stopping.

The finish shall be applied in two coats. The first coat shall be pigmented stain wax brush applied. The surface shall be allowed to dry for 2-10 minutes and then rubbed with a cloth in rotary motion to remove excess stain and produce an even surface.

The first coat shall be allowed to dry completely before application of the second coat.

The second coat shall be natural (clear) stain wax, buffered.

The Engineer shall select the stain colour and the Contractor shall allow for preparing sample panels for the Engineer’s approval and these sample panels will provide the standard for the work.