

Ref.No. NWSDB/ SBD/Shopping/Ver 1

Revised on 17-03-2015

Government of the Democratic Socialist

Republic of Sri Lanka

**Ministry of Urban Development, Water Supply &
Drainage**

National Water Supply & Drainage Board

Procurement of Goods

Under

National Shopping Procedures

Invitation of Quotations

For

Procurement of

**Raising the Existing Aluminium Partition at DGM Costing Office
–Mt.Lavinia**

Quotation No:DGM(costing)/Partition/Supply &Erection/2015/01

Revised on 17-03-2015

**National Water Supply & Drainage Board
Galle Road, Ratmalana,**

Sri Lanka.

AUGUST 2015

Contents

No.	Description	Page No.
	Table of Contents	i
1.	Section I. Instructions To Bidders (ITB)	1-1 1-4
2.	Section II: Data Sheet	2-1 2-2
3.	Section III: Schedule of Requirements/Delivery	3-1
4.	Section IV: Appendices	4-1 4-10
	Appendix 1: Technical Specification & Compliance	4 - 1
	Appendix 2: Quotation Submission Form	4 - 3
	Appendix 3: Price Schedule	4 - 6
	Appendix 4: Manufacturer's Authorization	4 - 7
	Appendix 5: Sample Purchase Order	4 - 8
	Appendix 6: Sample form for Bid Security	4 - 9
	Appendix 7: Affidavit by the Bidder	4 - 10
5.	Section V: Specifications	5 -1 5 - 6

Section I. Instructions To Bidders (ITB)

Section I. Instructions To Bidders (ITB)

A : General	
1. Scope of Bid	<p>1.1 The Purchaser named in the Data Sheet invites you to submit a quotation for the supply & Installation of Partition Works as specified in Section III Schedule of Requirements. Upon receipt of this invitation you are requested to acknowledge the receipt of this invitation and your intention to submit a quotation. The Purchaser may not consider you for inviting quotations in the future, if you failed to acknowledge the receipt of this invitation or not submitting a quotation after expressing the intention as above.</p>
B: Contents of Documents	
2.Contents of Documents	<p>2.1 The documents consist of the Sections indicated below.</p> <ul style="list-style-type: none"> • Section I. Instructions to Bidders (ITB) • Section II. Data Sheet • Section III. Schedule of Requirements / Delivery • Section IV. Appendices • Section V. Technical Specifications & Compliance with Specifications
C: Preparation of Quotation	
3. Documents Comprising Quotation	<p>3.1 The Quotation shall comprise the following:</p> <ul style="list-style-type: none"> (a) Quotation Submission Form (Appendix 2) and the Price Schedules(Appendix 3) (b) Technical Specifications & Compliance with Specifications (c) ISO 9001:2008 Quality Management System certificate for manufacturing factory for the goods supplied for this work.
4. Quotation Submission Form and Price Schedules	<p>4.1 The Bidder shall submit the Quotation Submission Form using the form furnished in Appendix 2. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.</p> <p>4.2 Alternative offers shall not be considered. The Bidders are advised not to quote different options for the same item but furnish the most competitive among the options available to the bidder.</p>

5. Prices and Discounts	<p>5.1 Unless specifically stated in Data Sheet, all items must be priced separately in the Price Schedules.</p> <p>5.2 The price to be quoted in the Quotation Submission Form shall be the total price of the Quotation, including any discounts offered. Transpiration up to the final destination customs duty and any other duties, taxes etc.</p> <p>5.3 The applicable VAT shall be indicated separately.</p> <p>5.4 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A Quotation submitted with an adjustable price shall be treated as non responsive and may be rejected.</p>
6. Currency	6.1 The Bidder shall quote only in Sri Lanka Rupees.
7. Documents to Establish the Conformity of the Goods	<p>7.1 The Bidder shall furnish as part of its quotation the documentary evidence that the Goods conform to the technical specifications and standards specified in Section V, "Technical Specifications & Compliance with Specifications".</p> <p>7.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods, demonstrating substantial responsiveness of the Goods to the technical specifications, and if applicable, a statement of deviations and exceptions to the Provisions of the Technical Specifications given.</p> <p>7.3 If stated in the Data Sheet the Bidder shall submit a certificate from the manufacturer to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in Sri Lanka.</p>
8. Period of Validity of quotation	8.1 Quotations shall remain valid for the period of sixty (60) days after the quotation submission deadline date.
9. Format and Signing of Quotation	9.1 The quotation shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder.
D: Submission and Opening of Quotation	
10. Submission of Quotation	10.1 Bidder may submit their quotations by mail or by hand in sealed envelopes addressed to the Employer bear the specific identification of the contract number.
11. Deadline for Submission of Quotation	11.1 Quotation must be received by the Employer at the address set out in Section II, "Data Sheet", and no later than the date and time as specified in the Data Sheet.

12. Late Quotation	12. The Employer shall reject any quotation that arrives after the deadline for submission of quotations, in accordance with ITB Clause 11.1 above
13. Opening of Quotations	13.1 The Employer shall conduct the opening of quotation in public at the address, date and time specified in the Data Sheet. 13.2 A representative of the bidders may be present and mark its attendance.
E: Evaluation and Comparison of Quotation	
14. Clarifications	14.1 To assist in the examination, evaluation and comparison of the quotations, the Employer may, at its discretion, ask any Bidder for a clarification of its quotation. Any clarification submitted by a Bidder in respect to its quotation which is not in response to a request by the Employer shall not be considered. 14.2 The Employer's request for clarification and the response shall be in writing.
15. Responsiveness of Quotations	15.1 The Employer will determine the responsiveness of the quotation to the documents based on the contents of the quotation received. 15.2 If a quotation is evaluated as not substantially responsive to the documents issued, it may be rejected by the Employer.
16. Evaluation of quotation	16.1 The Employer shall evaluate each quotation that has been determined, to be substantially responsive. 16.2 To evaluate a quotation, the Employer may consider the following: (a) the Price as quoted; (b) price adjustment for correction of arithmetical errors; (c) price adjustment due to discounts offered. (d) Quality of materials to the conformity to the specifications 16.3 The Employer's evaluation of a quotation may require the consideration of other factors, in addition to the Price quoted if stated in Section II, Data Sheet. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods. 16.4 Evaluation shall be done item wise.
17. Purchaser's Right to Accept any Quotation, and to Reject any or all Quotations	17.1 The Employer reserves the right to accept or reject any quotation, and to annul the process and reject all quotations at any time prior to acceptance, without thereby incurring any liability to bidders.

F: Award of Contract

18. Acceptance of the Quotation	18.1 The Employer will accept the quotation of the Bidder whose offer has been determined to be the substantially responsive, lowest evaluated bid and is substantially responsive to the documents issued.
19. Notification of acceptance	19.1 Prior to the expiration of the period of validity of quotation, the Employer will notify the successful Bidder, in writing, that its quotation has been accepted.

Section II: Data Sheet

Section II: Data Sheet

ITV Clause Reference	
1.1	The Employer is :National Water Supply & Drainage Board Address: Galle Road, Ratmalana, Sri Lanka.
3.1(d)	<p>Add sub clause</p> <p>The Bidder shall furnish a Bid Security to the format attached in Appendix 6 for the quotations, if the bid price is more than Rs. 100, 000.00 from one of the following forms.</p> <p>(a) A Bank Guarantee issued by a Bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka.</p> <p>(b) A fixed deposit or a pass book of a Bank operating in Sri Lanka, deposits made in the name of the National Water Supply and Drainage Board, Sri Lanka.</p> <p>(c) A Sri Lanka Rupee cash deposit to the National Water Supply and Drainage Board, Sri Lanka (The original receipt for such deposit shall be attached to the original bidding document).</p> <p>(d) A certified cheque issued by a Bank operating in Sri Lanka in favour of the National Water Supply and Drainage Board, Sri Lanka.</p> <ul style="list-style-type: none"> - The amount of Bid Security is Rs. 1,500/= - The Bid Security shall be valid up to 91 DAYS
5.1	If the bidder is allowed to quote for less than all the items specified, indicate the details.
7.3	Manufacture's Authorization is required.
11.1	Address for submission of Quotations is Deputy General Manager (Costing), No.101A 1/1, Galle Road, Mt.Lavinia
13	Deadline for submission of Quotations is on at 10.00AM

15.1	<p>The quotation will be non responsive if each quotation;</p> <ul style="list-style-type: none"> a) Has been signed by a person duly authorized to sign on behalf of the Bidder. b) is accompanied with the required Bid Security as defined in Clause 3.1 (d) hereof . c) Has sufficient bid validity period as per Clause3.1 (b) hereof, and d) is substantially responsive to the requirements of the Shopping Document, <p>A substantially responsive quotation is one which conforms to all the terms above without material deviation or reservation.</p>
16 ¹	<p>The quotations shall be opened at the following address:</p> <p>Deputy General Manager (Costing), No.101A 1/1, Galle Road , Mt.Lavinia</p>
	<p>Other factors that will be considered for evaluation are (List and describe the methodology):</p> <p>N/A</p>
16.4	<p>The evaluation of the quotations shall be based on item wise.</p>
18.2	<p>The Employer will accept the quotation based on each item (item wise).</p>
20	<p>Add sub clause The Bidder shall give a comprehensive warranty for the goods for a period of one year.</p>

Section III: Schedule of Requirements/Delivery

Section III: Schedule of Requirements / Delivery

Line Item N°	Description of Goods	Quantity	Unit	Final Destination	Transportation and any other services	Completion Date
01	76mmx23mm white powder coated Aluminium frames & 5mm glass. (Height of raising work is 0.8m)	8	m ²	DGM (Costing) Office- Mt-Lavinia	By the Contractor	Within 14 days from date of purchase order
02	0.8m x 2.1m Sliding Door with white powder coated Aluminum frames including door closer, locks & other fittings	01	nos.	DGM (Costing) Office- Mt-Lavinia	By the Contractor	Within 14 days from date of purchase order

- NOTE :- All material used should be same quality as existing partition work

Section IV: Appendices

Appendix 1: Technical Specification & Compliance

Item No.	Name	Component Description	Minimum Specifications
01	Raising of existing partition work with 76mmx23mm white powder coated Aluminium frames & 5mm glass. (Height of raising work is 0.8m)	8m ²	Refer specifications
02	0.8mx2.1m sliding door with white powder coated Aluminium frames including door closer, cocks & other fittings	01 nos	Refer specifications

DEVIATIONS FROM SPECIFICATIONS

Preamble

The Bidder is required to list any deviations of Equipments, Accessories and workmanship etc. from the Specifications including such information as has already been given elsewhere in the quotation. The information shall be in sufficient detail to enable the Engineer to make a realistic assessment of the effect of such deviations on the performance and also such deviation if any shall be subject to clause 16 of Instructions to Bidders.

Deviations

Appendix 2: Quotation Submission Form

[The Bidder shall fill in this Form in accordance with the instructions indicated No alterations to its format shall be permitted and no substitutions will accepted.]

Date:

To: Deputy General Manager(Costing)

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the document issued;
- (b) We offer to supply in conformity with the documents issued and in accordance with the Price Schedules specified in the Schedule of Requirements and the Specification Notes on Pricing and other details included in this quotation for the works described as followings *[insert a brief description of the Goods]*;
.....
.....
- (c) The total price of our quotation including any discounts offered is rupees
.....(in words), Rs.....
- (d) Our quotation shall be valid for the period of time specified in ITV Sub-Clause 8.1,from the date fixed for the quotation submission deadline in accordance with ITB Sub-Clause 11.1, and it shall remain binding upon us and may be accepted at anytime before the expiration of that period;
- (e) We understand that this quotation, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us.
- (f) We understand that you are not bound to accept the lowest evaluated quotation or any other quotation that you may receive.

Signed:
[insert signature of person whose name and capacity are shown]

Name:.....
[insert complete name of person signing the Bid Submission Form]

Capacity(Position):
.....
.....
.....

Name of the Company

Dated:.....

SCHEDULES OF DAYWORKS

PREAMBLE NOTES ON DAYWORK SCHEDULES

GENERAL

Reference should be made to Clause 9.6 of the Schedule. Work shall not be executed on a day work basis except by written order of the Engineer. The rates specified shall apply to any quantities of daywork ordered by the Engineer. Basic rates are exclusive of VAT.

The day work Rates for labour and Constructional Plant and materials do not include percentages to cover contractor's over heads and profits. Contractor may add maximum of 27% over and above the basic rates to cover over heads and profits.

DAYWORK LABOUR

Only the time of different classes of labour directly doing work ordered by the Engineer and for which they are competent to perform will be measured. The time of gangers (charge hands) actually doing the work with the gangs will also be measured but not the time of foremen or other supervisory personnel.

The rates for labour shall cover all direct costs to the Contractor, including the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to or in on behalf of such labour for social benefits in accordance with Sri Lankan Law.

The over head and profit component covers the contractor's profit, overhead, superintendence, liabilities and insurance and allowances to labour, time keeping, clerical and office work, the use of consumable stores, utilities, the cost of using, repairing and maintaining the tools necessary to each class of workman.

Daywork Materials

The Contractor shall be entitled to payment in respect of materials used for daywork (except for materials for which the cost is included in addition to labour costs as detailed heretofore), at the maximum of 27% rates in the SCHEDULE OF DAYWORK RATES for MATERIALS together with an additional percentage payment on the rates to cover overhead charges and profit, as follows:

- (a) the basic rates for materials is based the invoiced price, freight, insurance, handling, expenses, damages, losses, wastages, etc., and shall provide and delivery to store for stockpiling at the Site as directed by the Engineer.

The cost of any materials supplied by NWSDB for use on Dayworks shall not be taken into account when calculating the amount of the materials on cost as described above.

The Contractor must submit his receipted bills to the Engineer in support of all claims with respect to Dayworks materials.

Daywork constructional Plant

The Contractor shall be entitled to payments in respect of Constructional Plant already on Site and employed on daywork at the rental rates in the SCHEDULE OF DAYWORK RATES for CONSTRUCTIONAL PLANT, the rates include due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables. Contractor may add a maximum of 27% overhead and profit component to the basic rates to cover his profit, overhead, superintendence, administrative costs related to use such equipment, liabilities, time keeping and any other allied works. The cost of drivers, operators and assistants will be paid for separately as described under the section on Daywork Labour.

In calculating the payment due to the Contractor for Constructional Plant employed on daywork, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the traveling time from the part of the Site where the construction Plant was located when ordered by the Engineer to be employed on daywork and the time for return journey thereto shall be included for payment.

Appendix 3: Price Schedule

1	2	3	4	5	6	7	8
Line Item No	Description of Goods	Quantity	Unit	Unit price	Total Price for Item	VAT	Country of Origin
					<i>[(6) = (3) x(5)]</i>		<i>[insert country of origin of the Good]</i>
01	Raising of existing partition work with 76mmx23mm white powder coated Aluminium frames & 5mm glass. (Height of raising work is 0.8m)	8	m ²				
02	0.8m x 2.1m Sliding Door with white powder coated Aluminum frames including door closer, locks & other fittings	01	Nos.				

NOTE :- All material used should be same quality as existing partition work

Name of Bidder *[insert complete name of Bidder]*

Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

Appendix 4: Manufacturer's Authorization

[If requested under ITV clause 7.3, the Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated & shall be on a Manufacture's Letter Head]

Date:

WHEREAS

We*[insert complete name of Manufacturer]*, who are official manufacturers of*[insert type of goods manufactured]*, having factories at*[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a quotation the purpose of which is to provide the following Goods, manufactured by us*[insert name and or brief description of the Goods]*, and to subsequently negotiate and supply the goods.

We hereby extend our full guarantee and warranty, with respect to the Goods offered by the above firm.

Signed:
[insert signature(s) of authorized representative(s) of the Manufacturer]

Name:
[insert complete name(s) of authorized representative(s) of the Manufacturer]

Title:
[insert title]

Duly authorized to sign this Authorization on behalf of:
.....*[insert complete name of Bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

Appendix 5: Sample Purchase Order

(Employer may modify this form to suit the requirements)

Title of Procurement: <i>Raising of Aluminium Partition</i>			Date: (Date of this purchase Order)						
Our Reference: DGM(costing)/Partition/Supply & Erection/2015/01			Your Reference: (Quotation submitted by you with your cover letter dated)						
Item	Description	Model Number & Specification reference ²	Unit	Qty	Unit Price	Amount	Delivery Date	Delivery Location	Remarks
01	Raising of existing partition work with 76mmx23mm white powder coated Aluminium frames & 5mm glass. (Height of raising work is 0.8m)		Sq.ft	85			Within 7 days of the date of letter of acceptances	Deputy General Manager (Costing), No.101A 1/1, Galle Road ,Mt.Lavinia	
	0.8m x 2.1m Sliding Door with white powder coated Aluminum frames including door closer, locks & other fittings		nos	01			Within 7 days of the date of letter of acceptances	Deputy General Manager (Costing), No.101A 1/1, Galle Road, Mt.Lavinia	
1.	The Goods supplied under this Contract shall conform to the technical specifications and standards mentioned above;								
2.	The Contractor warrants that all the Goods are new, unused, and of the most recent or current models, free from defects and that they incorporate all recent improvements in design and materials;								
3.	The warranty shall remain valid for the period given above, after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated;								
4.	If the Contractor fails to deliver any or all of the Goods by the Date(s) specified above, the Purchaser may without prejudice to all its other remedies, deduct from the payments due to the Supplier, as liquidated damages, a sum equivalent to the Rs. 2750/= per each day, of the delivered price of the delayed Goods;								
5.	Upon the Contractor's fulfillment of all the obligations stipulated above and making a request for payment to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered payments shall be made by the Purchaser.								
	Signature Name and Address of Employer:								

² Attach specifications

Appendix 6: Sample form for Bid Security

..... [issuing agency's name, and address of issuing branch or office]
.....
.....

Beneficiary : Chairman
National Water Supply and Drainage Board
Galle Road, Ratmalana

Date..... BID GUARANTEE No :

We have been informed that.....
..... [name of the Bidder ; if joint venture, list complete legal names of partners] (hereinafter called "the Bidder") has submitted to you its bid dated [insert date] (hereinafter called " the Quotation") for the execution / supply of
[name of contract] under Quotation No.....

Furthermore, we understand that, according to your conditions, Quotations must be supported by a Bid Guarantee.

At the request of the Bidder, we.....
..... [name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in figures] [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation (s) under the bid conditions, because of the Bidder:

- (a). has withdrawn its Quotation during the period of validity of Quotations specified ; or
- (b). does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITV") or
- (c). having been notified of the acceptance of its Quotation by the Purchaser during the period of validity of Quotation, (i) fails or refuses to execute the Contract Form, if required.

This Guarantee shall expire: (a) if the Bidder is the successful Bidder, upon our issuance of purchase order by the Purchaser. (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to [insert date].

Consequently, any demand of payment under this Guarantee must be received by us the office on or before that date.....

.....
[Signature (s) of authorized representative (s)]

Appendix 7 – Affidavit by the Bidder

I of being a (Buddhist or any other religionist), do hereby solemnly sincerely and truly declare and affirm as follows.

- 01. I am the Affirmant above named.

- 02. I hereby declare that I have applied for the contract of National Water Supply and Drainage Board bearing No: and my spouse or dependent does not work in National Water Supply and Drainage Board on permanent, casual or contract basis.

The foregoing affidavit having been read over and explained to the affirmant above named who having understood its nature content and context affirmed hereto and set his usual signature hereto in on this day of 20.....

Before me
Declarant

.....

Justice of the peace /
Commissioner for Oaths

Section V: Specifications

GENERAL SPECIFICATIONS FOR CIVIL ENGINEERING CONSTRUCTIONS

The following specifications published by the Institute for Construction, Training and Development (ICTAD) shall be used in respect of this contract.

- a). Specifications for Building Works (volume I & II)
- b) Specifications included in the Contract Document superseded the ICTAD specification.

Specifications in addition to the above specifications are included in the contract document. Any specifications which are not covered by the above specifications will be issued by the employer on the request.

Specification for Aluminium Doors and Partitions

1.1 Aluminum Doors and Frames

This section on aluminum alloy doors and partitions covers the construction, finishes and iron-mongery. These aluminum alloy doors are single glazed.

1.1.1 List of References

BSEN 755 /1- 9	Aluminium & Aluminium alloys. Extruded rod/bar, tube& profiles.
BSEN 573 / 1-4	Aluminium & Aluminium alloys .Chemical composition &form of wrought products.
BSEN 515	Aluminium & Aluminium alloys wrought products
BSEN 485/1-4	Aluminum & Aluminum alloys, Sheets, Strips & plate.
BS EN 12020/1-2	Aluminium & Aluminium alloys, Extruded Precision profiles in alloys
BSEN ISO 7599:2010	Anodizing of Aluminium & its alloys. General specifications for anodic oxidation coating on Aluminium
BS 3987	Anodic oxidation coating on wrought Aluminium for external architectural applications.
BSEN ISO 11600:2003 + A1:2011	Building Construction Jointing Products, Classifications,& requirements for sealants.
BS 5251	One part sun guard Polysulphide based sealants
BS 6100	Glossary of building and civil engineering terms
BS EN ISO 3506/1-2	Mechanical properties of Corrosion resistant stainless steel fasteners., Bolts, screws & Studs
BS 6262	Code of practice for glazing for buildings
BS CP3 Chapter V	code of basic data for the design of building loading. Part 2 wind loads.

1.1.2 Definitions

Glass adapter : A supplementary frame or section inserted into the normal glazing rebate to provide a deeper and./or wide rebate for double glazing units or infill panels.

Glazing Gasket : Plastics or synthetic rubber members used between the glass and the frame and/or the glass and the beading.

Hardware : Fittings attached to the door window which are used to operate and/or secure it.

Partition Type

Aluminium framed partitions of Bronze-Anodized Aluminium with thick shop front sections according to the attached drawings with 5mm thick glass fitted and paneled with 3mm thick luxury type PVC laminated plywood board from both sides as per details.

1.1.3 Shop Drawing and Installation Details

Drawings showing elevations, large scale sections and proposed method of fixing shall be submitted for approval prior to fabrication.

1.2 Materials and product Requirements

1.2.1 Aluminium

Extruded Aluminium members : They shall comply with BS EN 755, BSEN 12020.(Former BS 1470, BS 1474)

Aluminium Sheet Materials: They shall comply with BSEN 485 (Former BS 1470) and BS EN ISO 11600:2003 + A1:2011.

Finish of Aluminium Extrusions: The anodizing shall comply with BS 3987.

1.2.2 Thickness of Aluminium Members

Nominal wall thickness shall be 1.575 +/- 0.15 mm from a solid extruded shape and 1.515.

Nominal wall thickness shall be 1.575 +/- 0.15 mm for solid extruded shapes and 1.515 +/- 0.25 mm for hollow extruded shapes.

Surface Finish: Exposed surface of Aluminium shall be anodized to BS 3987.

1.2.3 Anodic Coating Thickness

The anodic coating thickness shall comply with the following minimum thickness grade of BSEN ISO 7599:2010 (Former BS 1615).

AA 25 or above Conditions where sea influence industrial pollution etc. are expected.
AA 15 or above For internal use such as partitions and doors.

1.2.4 Colour Matching and Texture

The completed work shall be uniform appearance in regard to colour and texture and shall be satisfactorily match with identical samples or colour matches held by the Engineer and the Contractor/Supplier.

Any material finish or workmanship which would not comply with this specification will be rejected by the Engineer. Any such rejected items will be removed immediately and replaced to the entire satisfaction of the Engineer entirely at the Contractor's expense.

1.2.5 Fasteners

The straps clips brackets, hinges, screws bolts, rivets and other miscellaneous fixing devices shall be manufactured from one of the following.

Stainless steel complying with BSEN ISO 3506 (BS 6105).

Aluminium alloy having mechanical strength properties least equal to that of the frame and anodized to grade AA 15 of BSEN ISO 7599:2010 (BS 1615).

Anchors : All anchoring devices used in the erecting of the windows shall be of aluminium non magnetic stainless steel or other non corrosive materials compatible with aluminium steel anchors may be used provided that they be properly insulated from the aluminium.

1.2.6 Bearing Devices and Hardware

Bearing Devices and Hardware : Hardware including its fixings shall be of suitable materials resistant to and suitably protected against atmospheric corrosion. Plated or coated materials not compatible with aluminium are not permitted unless properly insulated from aluminium. Hardware shall be able to retain the casement rigidly in both open and closed positions.

Weather Stripping : Weather stripping shall be of materials compatible with aluminium which will not promote corrosion and shall be resistant to deterioration by all forms of weathering. Wool pile weather strip where used shall be treated with silicone and free of residential wetting agents.

Sealants and Caulkings : Sealants and caulking shall be of durable material that can stand all forms of weathering and shall be compatible with BS EN ISO 11600:2003 + A1:2011 (BS 4254 , BS 5889)

Delivery and Packing : The contractor shall ensure that all components suitably packed to ensure protection against handling and other damages during delivery to the other site. All aluminium components shall be covered by special protective coatings comprising of “Fablon” “Cellotape” 2 14” or other equal table material fixed with non-damaging and non-reactive adhesive. The contractor shall state in his tender, the type of protection proposed complete with samples and references to previous uses.

1.3 Construction

Assembling : The assembling of fittings shall be done by his duly authorized representative.

Joints : Joint in frames shall be either by mechanical means (examples are cleating & screwing). Where necessary joints shall be sealed.

Keys shall be permanently inscribed with a number that identifies the Cylinder or provided as follows :

All locks – 03 keys for lock.

Keys of any one set shall not operate locks of any other set.

Locks

Locks shall be Mortice Lock sets manufactured by Newmon Tonk or any other manufacturer whose locks are considered equivalent to the above and approved by the Engineer.

Control Sample : Sample window and door units as required shall be lodged with the Engineer as control standards within six weeks of the acceptance of a tender.

Samples showing the surface finish which is to be applied to the Aluminium component offered, shall in all circumstances, be submitted to the Engineer for examination with the tender. This surface finish will be used as a reference standard. A sample from a typical mullion section and pivoted sash section which the tenderer proposes to use in the windows shall be submitted with the tender. Similar samples shall also be submitted in the case of doors.

1.3.1 Work Sizes and Manufacturing Tolerances

Work Sizes : The manufacturer shall state the work sizes for the overall length and height.

Manufacturing Tolerances : The permissible deviation of the size of an assembled frame shall be within the limits of +1.5 mm from the work sizes and the maximum difference between the diagonals of the assembled frame shall be 4 mm.

Tolerances in Structural Opening : The structural shall allow a 5 mm clearance all round to facilitate easy installation have flush or stepped or lapped surfaces. Flush joints formed by mechanical means may deviate from the same plane only within the limits set by the use of extrusion tolerances given in BS 1474.

Welded Joints : They shall be clean and smooth on the surface which are exposed when the window or door is in the closed position where they come into contact with the glazing.

Sliding Action : In horizontally and vertically sliding windows or horizontally sliding doors, adjacent Aluminium members shall not slide upon each other but shall be separated by a material that does not react with Aluminium and does not interfere unduly with the sliding.

Bearing Devices : In horizontally sliding windows or doors the sashes shall be supported on bearing devices that facilitate the movement and prevent direct contact between the sashes and the aluminium track.

Hardware : Hardware shall be possible to renew the weather stripping without removing the outer frame from the structure.

Weather Stripping : It shall be possible to renew the weather stripping without removing the outer frame from the structure.

Caulking and Sealing : All the mechanical joints shall be sealed with silicon or Polysulphide sealants (according to the standard or equivalent & acceptable to the Engineer) in matching colour . The gap between the windows or doors and the opening right round shall be sealed with silicon sealer applied with pressure to achieve a water-tight joint.

1.3.2 Keys Locks – Hardware

Before locks are delivered to work site complete keying system shall be submitted for approval by the Engineer.

1.3.3 Precautions

1.3.4 Priming/Sealing

Aluminium surfaces in contact with lime or mortar or concrete or other masonry materials shall be painted with alkali resistant coatings.

1.3.5 Corrosion Protection

Where Aluminium is in contact with wood or steel (even galvanized) shall be treated with a chemical that will not promote corrosion of Aluminium.

1.3.6 Expansion Joints

Where aluminium windows are to be constructed over a considerable length due consideration must be given to the possibility of thermal expansion through the provision of expansion joints or other suitable means.

1.3.7 Fixing

Components shall be positioned accurately plumb, level and aligned as necessary. Fixing shall be done to manufacturer's recommendations to prevent pulling away and other movements during use. The installation shall be according to the specifications of the manufacturers proprietary assembly details and components.

1.3.8 Distortion

Adequate care shall be taken not to distort components when driving sedges or other packing or when tightening/fixing.

1.3.9 Dissimilar Materials

Where aluminium surfaces may come in contact with other metals, water absorbent or porous materials or incompatible materials, such surfaces shall be kept away from direct contact with these materials.

1.3.10 Testing

The following tests may be required at the discretion of the Engineer.

1.3.11 Coating Thickness

The coating thickness shall be measured using an eddy current instruments as specified in BS 3978 1966 or ASTM B244 of the Aluminium Association of America's method for measuring thickness of Anodic Coating of Aluminium.

1.3.12 Coating Weight

The coating weight shall be measured as specified in ASTM B15.

1.3.13 Staining

The Aluminium Association of America's Stain Test for Anodic Coatings of Aluminium" shall be carried out to assess resistance to staining.

1.3.14 Hardness

Hardness tests shall comply to testing with an "Eagle Turquoise" pencil grade 2H, pushing forward about 6mm at one angle of 45 degrees using pressure without breaking lead : if the hardness of the film is satisfactory the film will not rupture.

1.3.15 Resistance to Sulphur Dioxide

The film shall comply to BS EN ISO 7599:2010 (BS 1615 : 1961) the finish shall show no blistering, softening or lack of adhesion and there shall be no corrosion/creep under the coating.

1.3.16 Air Infiltration

Air infiltration shall be measured as specified in BS 4315.

The window including all glazing shall be capable of withstanding conditions of test pressure 300 N/m².

Under these conditions when the outside surface of the window is completely covered with a film of water, there shall be no leakage of water through the window and the whole shall be waterproof.

Details on how to provide such tests as to prove that the fixed and pivoted windows are water tight shall be as specified by the Engineer.

1.3.17 Structural Gasket

Ensure that fixing in faces are smooth undistorted and free from burrs/wood protections. Any specified painting to be carried out before glazing.

Lay gaskets in a flat warm area for 24 hours before glazing.

Ensure that edges of panels are *arised* or covered with self adhesive tape.

Fit the gasket to the frame butt jointing any end in the center of the lap of the opening of tape.

Lubricate gasket and zipper strips with water or liquid paraffin.

Inset panel carefully using hardwood or plaster spatulas.

Equalize edge clearance with setting blocks.

Insert zipper strips and allow to retract for at least 4 hours before corners and passing into position leaving no gaps.