



BEML LIMITED

(A Govt. of India Mini Ratna Company under Ministry Of Defence)
BANGALORE COMPLEX, POST BOX: 7501, NEW THIPPASANDRA POST,
BANGALORE-560075

NOTICE INVITING TENDER

Bid Invitation No : 6300040345

Subject: Supply of Auto internal sliding doors , VBS Project

Quotations are invited from Original Equipment Manufacturer (OEM) for Railway Rolling stock having experience in design, manufacturing, testing and commissioning in accordance with the enclosed terms and conditions by the due date mentioned below”

Quotations should be submitted online (E-mode) in BEML SRM portal in Two-Bid system as below:

- 1) Technical Bid**
- 2) Commercial Bid**

Enclosure : As above.

Note: - The tender consists of 26 no. of pages including this page.

Please note that bidder should be having a **valid Class-III Digital Signature Certificate** issued by authorized Certifying Authority to submit bid in our SRM e-Procurement system. Interested bidders can contact BEML through e-mail: admin.srm@beml.co.in to obtain the username & password for submitting the quotations In case of any queries, you may contact BEML SRM Team on phone no. **080-22963269**.

Dy General Manager
Materials Management

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DETAILS OF THE TENDER

1. This "Notice Inviting Tender" hereinafter referred to as the 'NIT' is designated as the tender for **Supply of Auto internal sliding doors** for VBS project.
2. The Bidders are advised to carefully go through the General Terms and Conditions that has been enclosed along with this NIT.
 - a. All entries in the NIT shall be in English either typed or written legibly. Erasing, over-writings and use of correction fluids are not permitted. All cancellations and insertions if any should be duly signed / attested by bidder concerned.
 - b. All the documents shall be uploaded in SRM Platform.
 - c. In case, it comes to the knowledge of BEML that the bidder has submitted false information before awarding of contract then the offer would be rejected.
 - d. In the event, it comes to the knowledge of BEML that the successful bidder has submitted false information, subsequent to the award of contract, the contract shall be cancelled/short closed by the company and shall invoke Risk purchase clause with liabilities on such bidder for the entire contract quantity.
3. In case any person/persons, Company, firm, Associations having any litigation, arbitration cases between themselves and BEML Ltd, pending before any court of law/ Arbitrator shall not be eligible to participate in this tender.
4. Non-compliance with any of the tender conditions, incomplete offers, conditional and ambiguous offers are not acceptable and liable for rejection.
5. BEML reserves the right to accept or reject all tenders or any tender in part or full without assigning any reasons thereto, which is final & binding on the Bidder.

6. **The tender consists of two parts as indicated below:**

Sl. No.	Nature of Bid	Mode of Submission	Details
1	Technical Bid	SRM platform	1. Compliance to BEML Drawings [Appendix – B] 2. Clause by Clause compliance to General terms & conditions [Appendix – C]
2	Commercial Bid	SRM platform	Price details in specified field on SRM platform. Evaluation based on Total value

7. Details of Items & Services:

Sl. No	Part no	Description	Qty (sets)
1	5231400001	Auto Int sliding door open width920mm RH	9
2	5231400002	Auto Int sliding door open width600mm LH	4
3	5231400003	Auto Int sliding door open width600mm RH	4
4	5231400004	Auto Int sliding door open width740mm LH	9
5	5231400005	Auto Int sliding door open width740mm RH	9

8. Required Delivery Schedule: 45 days from placing PO.

SUBMISSIONS OF TECHNICAL BID

<p align="center">Technical Bid submission Conditions</p>	<p><u>TECHNICAL BID (Without Price/Price Details)</u> shall be uploaded and submitted in the GEM platform, wherein only technical Bid /technical information in SRM platform shall be uploaded as indicated below:</p> <p>(1) Bidders to refer “BEML Drawings enclosed along with this tender document. Bidders should upload the following documents duly filled, signature & stamped under technical bid.</p> <ul style="list-style-type: none"> a) Compliance to BEML Drawings [Appendix – B] b) Bidder to upload enclosures related to technical & other information deemed appropriate in respect of this tender on the letter head of the company, if any. c) Photographs / Drawings if any, may be uploaded. <p>(2) Bidders to refer “GENERAL TERMS AND CONDITIONS (GTC)” (Annexure-II) enclosed along with this tender document and upload following documents duly filled, signature & stamped under technical bid.</p> <ul style="list-style-type: none"> a. Clause by clause compliance of GTC duly filled, signature & stamped along with the supporting documents as specified therein. [Appendix – C] <p>- BEML at its sole discretion reserves the right to seek the hard copies of the documents which are already been uploaded in GEM, through Courier / post pertaining to technical bid of this tender enquiry at a later date, if required.</p> <p>- In such cases, only the documents uploaded in GEM platform in original has to be couriered at the request of BEML. Any irrelevant documents furnished through courier will not be considered.</p>
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Following are the submittals along with the Technical Offer to be incorporated.

- Technical data sheet of the Auto internal sliding doors.
- Drawing compliance.
- Supply credentials.

SUBMISSION OF COMMERCIAL BID**COMMERCIAL BID**

The price bid to be submitted through SRM Portal. The following details are to be entered in the SRM Portal.

Table (1)

Sl	Part No	DESCRIPTION	Qty in Nos	Unit Price	Extended Value
01		Auto internal sliding doors		<p>This is Format for reference only.</p> <p>Commercial bid document should not be enclosed during Technical Bid Submission.</p> <p>If uploaded the Quotation submitted by bidder will be liable for rejection without any discretion.</p>	

Note:

1. Evaluation based on Total bid value.
2. The bidder whose offer is lowest will be considered as L1.
3. The commercial bids of the vendors will be opened subject to technical acceptance based on Technical bid evaluation.

Qualification criteria

- The firm shall be an Original Equipment Manufacturer (OEM) of Auto internal sliding doors. Supporting documents for the same shall be submitted along with technical offer.
- If distributor, the firm shall submit the authorization letter from the OEM.
- Firm shall undertake to provide the support during testing & commissioning, service trails and revenue service.

[ANNEXURE-I]

GENERAL TERMS & CONDITIONS (GTC) FOR PROCUREMENT OF MATERIALS:

1. DEFINITIONS & INTERPRETATIONS

- 1.1 The Purchaser' means "(include company name and address)" (A Government of India Undertaking) incorporated under the Companies Act having its registered office at "BEML Soudha, No 23/1, 4th main, S.R. Nagar, Bengaluru – 560027" and shall be deemed to include its successors and assignee.
- 1.2 Supplier' means a person having been included in a contract as a Contractor and also means a firm or company with whom the order for supply/execution of work is placed and shall be deemed to include the supplier's successors, (approved by BEML Ltd.,) representatives, heirs, executors and administrators. The supplier may also be referred to as the supplier, Contractor or vendor.
- 1.3 Parties to the Contract' shall mean the Supplier and the Purchaser as named in the main body of the Purchase Order.
- 1.4 Tender' means and includes quotation, invitation to tender and all other documents like drawings, specifications, quality plan, etc that form part of the tender document.
- 1.5 Acceptance of Tender' Means the letter of memorandum communicating supplier, the acceptance of the Tender and includes advance acceptance of this tender.
- 1.6 Purchase Orders / Contract' means and includes the invitation to tender, instruction to Tenderers, acceptance of tender, Letter of intent / letter of award, the general terms and conditions of Purchase Order / contract, special conditions of Purchase Order /contract, particulars, descriptions, specifications, schedule of prices, quantities, quality plan, drawings enclosed and other condition specified in the acceptance of tenders and includes the repeat order which has been accepted or acted upon by / for the supplier for the supply of stores and includes an order for performance of service and includes amendments, if any, that may take place subsequent to the discussions, negotiations, mutual agreement if any.
- 1.7 Stores / Materials / Services' means the goods or services as described in Procurement Technical Specification (P.T.S.) and in the Purchase Order which the supplier has agreed to supply under the Purchase Order.
- 1.8 Specification means technical specifications of the Equipment / Material as set forth in Procurement technical specification (PTS) / technical drawings, which is part of tender
- 1.9 End-Customer / End-user means: ICF / Indian Railways / Rolling Stock Corporations.
- 1.10 Words in singular include the plural & vice-versa.
- 1.11 Words imparting the masculine gender shall be taken to include the feminine gender and words imparting persons shall include any firm, company or associations or body of individuals whether incorporated or not.
- 1.12 The heading of these conditions shall not affect the interpretations or construction thereof of the contract.

2. SUBMISSION OF THE TENDER:

Tender is in TWO-BID system (Technical & Commercial Bid)

Bids should be submitted online mode only as follows:

a) Submission of Technical bid (without price):

- i. The Bidder should upload all the requisite technical documents along with respective supporting documents and other information deemed appropriate in respect of the Tender.
- ii. The price details/commercial bid details should not be given in the Technical bid. If any of the bidder have given any price/commercial details in the Technical bid, their offer is liable for rejection and will not be considered.
- iii. Technical Bid will be opened on (date and time of bid opening) and the commercial Bids of those bidders whose technical bid is accepted only will be opened later.

b) Submission of Commercial bid:

- i. The commercial bids of the vendors will be opened subjected to technical acceptance of offers only.
- ii. Price details in specified field on SRM platform to be submitted.
- iii. If dealers are submitting the bids in place of OEM, Dealer should submit Authority letter from manufacturer.
- iv. BEML reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at any of BEML projects / units.
- v. Bidders participating in the tender should declare in their offer that whether they have been black-listed / kept on hold for a specified period / given Business holiday for a specified period by any Public sector undertaking or Government departments. The reasons for such action with details and the current status of such hold shall be furnished to BEML.
- vi. In case any person/persons, Company, firm, Associations having any litigations, arbitration cases between themselves and BEML Ltd, pending before the Court / Arbitrator or initiated litigations/arbitrations in connection with any contract / tender issued by BEML Ltd and any contractor has defaulted against the BEML's orders are not eligible to participate in this tender.
- vii. BEML may decide to scrap the tender/refloat the tender without assigning any reasons thereof before LOI/PO is committed. BEML reserves the right to accept, split, divide, negotiate, cancel or reject any tender or reject all tenders at any time prior to the award of the contract without incurring any liability to the affected tenderers or any obligation to inform affected tenderer, the grounds of such action.
- viii. BEML reserves the right to verify, in its sole discretion, any information given by the bidders independently through any third party agencies. During this process, if it is found that any of the information given by the bidder is false / misleading, offers of such bidders would be out rightly rejected.
- ix. BEML also reserves the right to independently assess the capability and capacity of the bidder for execution of the order/contract. BEML's decision on any matter regarding short listing of bidders shall be final.
- x. The RFx / Notice Inviting Tender is not an offer or a contract.

- xi. Bidders will not be compensated or reimbursed for the costs incurred in preparing Proposals. Proposals shall become BEML property.
- xii. BEML's decision is final for Evaluation of the offers.

3. PURCHASE PREFERENCES:

Preference to Make in India products: Preference shall be given to Class-I local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products.

The 'Class-I local supplier (Local content more than 50%) / Class-II local supplier (Local content more than 20% less than 50%) at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class-II local supplier, as the case may be. They shall also give the details of the location(s) at which the local value addition is made.

In cases of procurement for a value in excess of Rs.10 crores, Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving percentage of local content. Bidders to upload signed & sealed [Appendix - F]

Preference to Micro and small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) & as per SRM guide lines is applicable.

- 4. **SUPPLIERS SHARING LAND BORDER WITH INDIA:** Public Procurement Division order vide F.No. 6/18/2019-PPD dated 23.07.2020 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products, shall be applicable for bidders / suppliers sharing land border with India. Bidders to upload signed & sealed [Appendix - G], in compliance to Annex- III of the said Order.

- 5. **DELIVERY TERMS:** F.O.R (Free on Road), BEML Bangalore complex. Freight & transit insurance to supplier's account.

6. PAYMENT:

Terms of payment are 100% on 60th day from the date of receipt of material at BEML stores subject to inspection acceptance & for MSEs 45th day from the date of receipt of material subject to inspection acceptance as per MSE act.

Bidders to indicate the category of their firm under Micro/Small/Medium/Major industries with necessary documentary proof of evidence for purpose of evaluation and our data updation.

The payment is further subject to the following:

- a) The Invoice shall be compliant with GST laws.
- b) GST liability is to be discharged and ensure filing of outward supply details on GSTN portal within timeline prescribed.

- c) Any debit note/supplementary invoice if any, is to be raised within September month following the respective financial year of filing of annual return by BEML, whichever is earlier.
- d) Any loss of tax credit due to the reason attributable to supplier shall be recovered from supplier along with applicable interest and penalty.
- e) Bidders to indicate the GST and other levies applicable. GST shall be paid only after confirmation of payment of GST by vendors on GST Website.
- f) Relevant TDS / TCS as applicable shall be deducted as per prevailing Income Tax / GST / GOI notifications.

7. PRICE BID VALIDITY: The Bid should be valid for 180 days from the date of tender opening. BEML's acceptance of the tender at the quoted / negotiated rates will be binding on the tenderer during the tenure of contract.

8. FIRM PRICE

The prices remain firm for the entire supplies of the purchase order and no escalation shall be entertained under any circumstances. The prices are to be firm & no increase in finalized price will be entertained after awarding contract during the period of Contract for any reasons whatsoever.

9. INSPECTION: Inspection by BEML at BEML. The firm should submit internal test reports & Certificate of Conformance along with the supply.

10. WARRANTY:

- a) The supplied goods/stores to the purchaser under the contract shall be of the highest grade, free of all the defects & faults in material and of the best quality, manufacture and workmanship and consistent with the established and generally accepted standards for materials of the type ordered and in full conformity with the contract specification, drawing or sample, if any and shall, if operable, operate properly throughout warranty period.

Any defect/fault & non-conformance to standards & descriptions as aforesaid, found during warranty period shall be rectified /repaired/replaced free of cost & at supplier's risk to the complete satisfaction of BEML / End user, within reasonable time at the ultimate destination.

The said goods/stores shall be warrantied /guaranteed for a period of **36 months from the date of receipt of material in BEML store or 24 months from the date of placement of VBS cars into service, whichever shall be earlier** .

In case of any contradiction in the terms and condition with respect to warranty appearing in Indian Railway standard (IRS) condition of contract and specifications, the later will prevail

- b) **Guarantee / Warranty replacement:**

Guarantee / Warranty replacement shall be dispatched on "F.O.R – BEML Stores / designated destination" basis for replaceable items during warranty period.

- c) The provisions of this Warranty shall be without prejudice to and shall not be deemed or construed so as to limit or exclude any rights or remedies which the BEML may have against the supplier, whether in tort or otherwise.

- d) If any defect or damage is one requiring immediate attention from safety / environmental view point / operational viewpoint, the BEML has the authority to proceed with rectification in any manner suitable and deduct such sums from the suppliers Bill or purchase order whichever is active.

11. PERFORMANCE BANK GUARANTEE (PBG):

Firm shall submit Single Performance Bank Guarantee in the prescribed format for an amount equal to 10% of Contract value and shall be valid for 6 years plus 3 months claim period in order to cover minimum service life of 6 years. PBG to be executed digitally through NeSL platform. UIN No. NCTGC2534P for Bengaluru Complex for Vendor eBGs in NeSL Platform.

- a) PBG shall be returned back only after completion of warranty period from date of last supply and if there is no defect /failure/negligence on part of contractor, complaints and / or any claims notified to the contractor within expiry of such date.
- b) The performance bank guarantee has to be furnished by the supplier as per prescribed format covering the entire supplies to be made against this order within 60 days from the date of receipt of purchase order from BEML but not later than 30 days before commencement of supplies pertaining to first delivery schedule indicated in the purchase order.
- c) In the absence of performance bank guarantee to be submitted by the supplier as per contract terms, BEML will not open Letter of Credit (LC) in the cases of LC in favor of supplier pertaining to the shipment / stores to be supplied as per first delivery schedule indicated in the purchase order. Any delay in submission of performance bank guarantee by the supplier, the subsequent delay in opening in Letter of Credit by BEML and supplies to be effected by the supplier are to the account of the supplier, which attracts liquidated damage charges as per contract terms.
- d) No claim shall lie against BEML Ltd., in respect of interest on cash deposits or Govt. Securities depreciation thereof.
- e) BEML shall be entitled to and it shall be lawful on its part to encash the Bank Guarantee in whole or in part in the event of any default, failure or neglect on the part of the supplier in the fulfillment or performance in all respect of the Purchase Order.
- f) The Bank Guarantee validity shall be extended as required till the completion of all contractual and warranty obligations in Full.
- g) In case BEML is constrained to extend the Performance Bank Guarantee beyond the warranty period submitted to its customer due to the failure of aggregates attributable to the supplies made by the bidder then the costs involved to BEML for such PBG extensions shall be borne by the supplier.

12. RIGHT TO VARY QUANTITIES &-QUANTITY OPTION CLAUSE:

- a) *Purchaser shall be entitled to increase the order quantity by 50 percent anytime during the currency of the contract, such that the contractor has reasonable time/notice for executing such increase.*
- b) BEML reserves the right to increase or decrease the quantity specified in the schedule of requirements without any change in the unit price or other terms and conditions within the agreed delivery schedule.

13. LIQUIDATED DAMAGES CLAUSE: If the contractor fails to deliver the stores or any consignment thereof within the period prescribed for such delivery, BEML shall be entitled at their option to accept the delayed supply and to recover from the supplier as agreed liquidated damages, and not by way of penalty, a sum of 0.5% of the price of any stores per week subject to a maximum of 10% of the value of the purchase order which the supplier has failed to deliver as aforesaid for each week or part thereof during which the delivery of such stores may be in arrears.

The LD will be charged on the value of the affected delivery schedule excluding statutory levies, freight and insurance wherever not included in the price.

14. RISK PURCHASE CLAUSE:

The time and the date of delivery of the stores stipulated in the PO shall be deemed to be the essence of PO and delivery must be completed not later than the date specified therein. Shall the supplier fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, BEML shall be entitled at their option either;

- a. To purchase elsewhere, without notice to the supplier on the account and at the risk and cost of the supplier the stores not delivered or other of a similar description (where stores exactly complying with the description and readily procurable) without cancelling the PO in respect of consignment not due for delivery

or

- b. To cancel the purchase order.

In the event of action being taken under clause (a) or (b) above, the supplier shall be liable for any loss, which BEML may sustain on that account but the supplier shall not be entitled to any gain or purchases made against default. As soon as it is apparent that the scheduled dates cannot be adhered to, an application shall be sent by the supplier to BEML, well before the expiry of the delivery period specified in the purchase order. Without prejudice to the foregoing rights, if such failure to deliver in proper time as aforesaid shall have arisen from any cause which BEML may admit as a reasonable ground for an extension of the time (and their decision shall be final) they may allow such additional time as they may consider justified by circumstances of the case. Delivery required to be made in lots shall be made in lots only and any extra deliveries involved either on account of repeated rejections or variance in supply of lots shall be liable for service charges of 5% of the purchase order value for each extra delivery.

15. SECRECY AND CONFIDENTIALITY:

- a) All the information, know-how, technical data, specification and drawing models or specimens furnished by BEML for the purpose of or in connection with the manufacture and supply of the stores hereby tendered constitute the property of BEML and the supplier shall keep them in strict confidence and he shall not divulge the same to anyone else except under the authority and for the purpose of BEML. All such documents, data, drawing, models and specimens are the property of BEML and shall be returned when done with or when demanded by BEML.
- b) The supplier shall not supply the components / spares exclusively manufactured for BEML with the Technical Data / Specifications / assistance furnished by BEML and shall not disclose my initiations, development of adaptations thereof to anyone else except with the written consent of BEML.

- c) BEML shall be entitled to prevent breach of the above and to claim damages in case of any breach. It is hereby mutually agreed that for breach of this agreement the Vendor shall pay, without actual proof of damages, a liquidated amount of Rs. 1.00 Crore (Rupees One Crore only).

Confidentiality agreement is attached as Appendix E.

16. AUTHORITY OF PERSONS SIGNING DOCUMENT

A person signing the tender or any other document in respect of the Purchase Order shall be deemed to have power to do so on behalf of the Supplier.

17. ACCEPTANCE OF ORDER

The supplier shall send Order Acceptance within two weeks from the date of LOI / LOA / Purchase Order or such other period as specified / agreed by the Purchaser. Purchaser reserves the right to revoke the order placed if the order confirmation differs from original Purchase Order placed and the Purchaser shall only be legally bound after it has agreed explicitly in writing to be in agreement with the deviation. The acceptance of deliveries or supplies by Purchaser as well as payments made in this regard shall not imply acceptance of any deviations. The Purchase Order in whole shall be deemed to have been accepted if supplier failing to communicate is received within two weeks.

18. OTHER CONDITIONS

- a) Refer BEML Purchase Manual (can be accessed in BEML website www.bemlindia.in) for Important terms and conditions of tender and General Terms & conditions applicable to contracts & purchase orders refer General Terms & Conditions
- b) The firm shall take necessary permission for their employees to enter the factory premises and the firm shall arrange ESI & PF coverage to their employees/labourers if any from their end. The firm shall indicate ESI NUMBERS for the labourers hired or employed in advance in order to prepare work permit inside the factory.
- c) BEML will not have any kind of binding towards the compensation on case of injury / death to the firms employees while working in BEML premises or other wises.
- d) BEML will not have any kind of binding on damages or loss to the tools/instruments etc. brought by the firm for commissioning purpose.

19. PRICE, INVOICING AND PAYMENT: The agreed prices are fixed prices in the currency as specified in the Purchase Order. They shall include packing, forwarding, loading and carriage to the place specified by the Purchaser and are inclusive of all applicable taxes, duties etc. except for those specifically agreed between the supplier and purchaser. The method of invoicing shall be without prejudice to the parties; agreement as to the place of performance. Invoices shall be submitted bearing the Purchase Order number & date, item number / s and supporting documents as called for in the Purchase Order.

As soon as each shipment is made in line with the delivery schedule specified in the purchase order, the supplier shall send **one set of Original documents and three (3) sets of photocopies** each of the following documents to the address indicated below by courier service.

- i. Commercial Invoice
- ii. Delivery Challan
- iii. Packing List

- iv. BEML's Inspection clearance document(s), material test certificates and other applicable quality documents pertaining to the supplies.

Postal Address

The Deputy General Manager,
BEML, Bangalore Complex,
PB No.7501, New Thippasandra post,
Bangalore, Karnataka, India,
Postal Code - 560 075

20. PROGRESS REPORT:

The supplier shall regularly inform the progress of work and in such form as may be called for by the Purchaser from time to time. The submission and acceptance of such reports shall not prejudice the rights of the Purchaser in any manner.

21. QUALITY & WORKMANSHIP

The stores supplied shall be of the best quality and Workmanship shall be in strict conformity with all the drawings and specifications furnished with the Purchase Orders and shall answer to the description in all respects. All supplies shall be accompanied by supplier's works inspections / test certificates duly certifying, the Stores are in strict conformity with the drawings / specifications. However, final acceptance will be subject to inspection and approval at BEML works. Once the materials are rejected and communicated to the supplier, no request shall be entertained for re-inspection or acceptance of the stores. However, BEML reserves the right to re-inspect the stores and consider acceptance at its discretion.

- 22. QUALITY, CONDITION OF DELIVERY:** The Supplier shall guarantee that the delivery is of good quality and free from all defects and in the case of services rendered that they are performed by skilled personnel and that new materials are used. The Supplier shall guarantee that the delivery corresponds exactly with the provisions of the agreement, the reasonable expectations of Purchaser regarding the characteristics, quality and reliability of delivery. The Supplier guarantees that the delivery is suitable for the purpose for which it is intended by its very nature or which is evident from the specifications listed and from the order.

The Supplier shall guarantee that the delivery complies with legal requirements applicable in India and other (international) Government regulations, as applicable. The Supplier guarantees that the delivery complies with legal requirements applicable in India and other (international) Government regulations, as applicable. The supplier shall guarantee that the delivery complies with the customary norms and standards in the relevant branch of trade or industry. The supplier shall be responsible for compliance with applicable technical, safety, quality, environmental requirements and other regulations in relation to his product, packaging, and raw and ancillary materials.

- 23. SUPPLY OF SAMPLE: (if applicable)** The Contractor shall produce samples of all materials and shall obtain approval before he places bulk order for the material for incorporation in the works. In respect of materials for which samples are not kept or detailed specifications is not given hereinafter, such materials shall comply with the latest relevant Indian Standard

Specifications a published up to the date of issue of this tender. The Contractor shall on demand produce original receipts vouchers/invoices in respects of materials supplied by him.

24. INSPECTION, TESTING & CONSEQUENCE OF REJECTION:

The goods and stores shall be of approved design and each part /component may be inspected and tested by the Purchaser prior to shipment and shall fully comply with relevant requirements of purchaser.

Purchaser has the right to inspect the delivery. In the event of rejection, Purchaser shall inform the Supplier accordingly and Purchaser shall be entitled to replacement or repair at its discretion or may proceed to terminate or annul the agreement. All this does not affect Purchaser's right to compensation.

In case the goods / stores are rejected at the time of inspection at BEML or the rejections are notices at the time of further processing the supplier will be informed of these rejections. On receipt of this information the supplier shall immediately arrange to collect the rejected items at his cost and risk and arrange for the replacement of goods within the shortest possible time. Under no circumstances the supplier shall compel the Purchaser to rework the rejected goods.

Wherever the supplier has not collected the rejected items within 60 days from the date of intimation, BEML shall have the right to dispose the goods and all cost related to the cost of material, statutory levies incurred both in procurement and disposal shall be recovered from the supplier from any of the bills that are due. The supplier shall have no claims whatsoever against the Purchaser for such disposal.

Purchaser or his authorized representative shall be entitled at all reasonable times during execution to inspect, examine and test at the Supplier's premises the material and workmanship of all stores to be supplied under the Contract, and if the part of the stores are being manufactured at other premises the Supplier shall obtain Purchaser's or his authorized representative's permission to inspect, examine and test as if the said stores are being manufactured at the Supplier's premises. Such inspection, examination and testing, if made shall not release the Supplier from any obligation under the Contract.

All costs related to inspections and re-inspections shall be borne by the Supplier. The cost of inspection staff / third party specified by the Purchaser shall be borne by Purchaser, unless otherwise specifically agreed. Whether the Contract provides for tests on the premises of the Supplier or any of his Sub-contractor/s, Supplier shall be responsible to provide assistance such as, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by the Purchaser only if specifically agreed.

The supplier shall give the authorized representative of the Purchaser reasonable prior notice in writing of the date on and the place at which any stores will be ready for inspection / testing as provided in the Contract.

25. LAWS APPLICABLE

Domestic laws both substantive and procedure, for the time being in force including modification thereto shall govern contract. The competent Domestic courts shall have sole jurisdiction over the

disputes between the BEML and the supplier. The making of all stores supplied must comply with the requirements of Domestic Acts relating to trade and merchandise marks and all the rules made under such acts.

26. RAW MATERIALS ARRANSRMENT

The supplier shall make his own arrangement to procure all raw materials required and BEML shall not be responsible for any assistance in such procurement or whatsoever.

27. IDENTIFICATION OF ITEMS / PIECES

The supplier shall indicate / emboss / engrave, suitable identification marks (Viz. BEML stock number, supplier code number, batch no. etc.,) on each item/piece (or) on all components at convenient non-machinable place as per drawing, wherever applicable.

Also, shall indicate BEML part number, PO No. and date in all delivery documents, invoices and correspondence, wherever applicable.

28. PACKING AND MARKING

- a) Packing to be in such a way that it should avoid transit/storage/handling damage.
- b) The supplier shall package the deliveries safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling by mechanical means.
- c) The packing, shipping, storage and processing of the delivery must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. Items packed with raw / solid wood packing material shall be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary / Fumigation certificate. If safety information sheets exist for a delivery or the packaging, the Supplier must always supply these sheets direct (at the same time).
- d) Supplier shall indicate approximate net weight, gross weight and dimension of the package to enable BEML to determine the mode of dispatch. The packing should with stand the weather conditions during transit. The packing should not damage the contents in the package while transporting and handling. The safety and handling precautions should be clearly marked on the packages. The packing should be easily transportable without any damage. Each consignment should have individual packing list.
- e) Marking shall include the following information in sequence on the frame commensurate with the size of package.

**To: M/s. BEML Limited, Bangalore Complex,
New Thippasandra,
Bangalore – 560075,
Karnataka State, India.**

Purchase order number:

Shipper's mark:

Package number:

Identification number:

Caution marks, if applicable:

Net weight, gross weight and cubic measurement, whichever is appropriate for the shipment.

29. APPLICABLE LAWS AND JURISDICTION OF COURTS: Indian laws both substantive and procedure, for the time being in force including modifications thereto, shall govern Contract. The competent Indian courts of shall have sole jurisdiction over disputes between purchaser and the Supplier.

30. JURISDICTION: Courts of Bangalore alone shall have jurisdiction to decide any issue / dispute arising out of the Arbitration or this Purchase Order in exclusion of all other Courts. However, jurisdiction of any other court may be accepted by mutual discussion and agreement by and between BEML and the Supplier.

31. ARBITRATION: Disputes if any, arising between BEML and the supplier in connection with this Purchase Order or any other matters connected herewith, the same will be mutually discussed and settled, failing which, the disputes shall be referred to a sole arbitrator to be appointed by BEML. The arbitration / proceedings shall be in accordance with the provisions of Arbitration and Conciliation Act 1996 and Rules framed there under. The place of arbitration shall be at Bangalore or any other place mutually decided by and between BEML and the supplier and all arbitration proceedings shall be conducted in English language. The award of the sole arbitrator shall be final and binding on all the parties.

DURING ARBITRATION: “Supplies under this Purchase Order, if reasonably possible, may continue by mutual agreement during the dispute / Arbitration proceedings”

32. INTELLECTUAL PROPERTY RIGHTS; LICENSES: If any Patent design, trademark or any other intellectual property rights apply to the delivery or accompanying documentation, Purchaser shall be entitled to the legal use thereof free of charge by means of anon-exclusive, worldwide, perpetual license. All intellectual property rights that arise due to the execution of the delivery by the Supplier and by its employees or third parties involved by the Supplier for performance of the agreement belong to Purchaser. The Supplier shall be obligated to do everything necessary to obtain or establish the above mentioned rights. The Supplier guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Supplier shall also be obligated to do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties.

The Supplier shall defend and indemnify the BEML against any claims, costs or expenses incurred by reason of any infringement of alleged infringement of any letters, patent, registered design, trademarks or trade name by the use of sale of the stores / goods /material and against all costs or damages which the BEML may undergo in legal action for such infringement or for which the BEML may become liable in any such action.

The supplier shall at all times indemnify BEML and shall take all risk of accidents or damage which causes a failure of the supply. The supplier shall comply with the provisions of Contract Labour (Regulation and Abolition) Act, 1970 and the Contract Labour (Regulation and Abolition)

Central Rules 1971-as modified from time to time wherever applicable and shall also indemnify the Company from and against any claims under the aforesaid Act and the Rules.

33. BRIBES AND GIFTS:

Any bribe, commission, gift or advantage given, promised or offered by or on behalf of the supplier or his partner, agent or servant or anyone on his or their behalf to any officer, servant, representative or agent of BEML or any person on his or their behalf in relation to the obtaining or to the execution of or any other contract with BEML shall in addition to any criminal liability which the supplier may incur, subject the supplier to the cancellation of the PO and all other contracts with BEML and also to payment of any loss or damage resulting from any such cancellation to like extent as is provided in case of cancellation under **Clause-15** hereof. Any question or dispute as to the commission of any offence under the present clause shall be settled by BEML in such manner and on such evidence of information as they may think fit and sufficient and their decision shall be final and conclusive.

34. FORCE MAJEURE CLAUSE:

- a) Notwithstanding anything contained in the Contract, neither the Supplier nor the Purchaser shall be held responsible for total or partial non-execution of any of the contractual obligations, shall the obligation become unreasonably onerous or impossible due to occurrence of a 'Force Majeure' conditions which directly affect the obligations to be performed by the Purchaser or the Supplier. Such events include war, military operations of any nature, blockages, revolutions, insurrections, riots, civil commotions, insurgency, sabotage, acts of public enemy, fires, explosion, epidemics, quarantine restrictions, floods, earthquake, or acts of God, restrictions by Govt. authorities over which the Supplier or the acts on which the Purchaser has no control.
- b) The party claiming to be affected by Force Majeure shall notify the other party in writing without delay, within two weeks on the intervention and on the cessation of such circumstance. Extension of time sought by the Supplier along with supporting evidence and so granted by the Purchaser for the supply / work affected, if any, shall not be construed as waiver in respect of remaining deliveries.
- c) Notwithstanding above provisions, Purchaser shall reserve the right to cancel the order/ Contract, wholly or partly, in order to meet the overall delivery schedule and make alternative arrangements including arrangements with third party for completion of deliveries and other schedules. Purchase may takeover partly processed material at a mutually agreed price.

35. FALL CLAUSE

- a) The prices charged for the stores supplied under this P.O by the supplier shall in no event exceed the lowest price at which the supplier sells the stores of identical description to any other BEML Office / Division during the pendency of this PO.
- b) If at any time, during the said period, the supplier reduces the sale price of such stores or sells such stores to any other BEML Office / Division at a price lower than the price chargeable under this P.O and the price payable under this PO for the stores supplied after the date of coming into force of such reduction shall stand correspondingly reduced.

36. NON DISCLOSURE AND INFORMATION OBLIGATIONS:

The supplier shall provide Purchaser with all information pertaining to the delivery in so far as it could be of importance to Purchaser. The Supplier shall not reveal confidential information to its own employees not involved with the tender / Contract & its execution and delivery or to third parties. The supplier shall not be entitled to use the Purchaser's name in advertisements and other commercial publications without prior written permission from Purchaser.

37. ASSIGNMENT OF RIGHTS AND OBLIGATIONS; SUBCONTRACTING: The supplier is not permitted to sub-contract the delivery or any part thereof to third parties or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from Purchaser. Any permission or approval given by the Purchaser shall, however, not absolve the supplier of the responsibility of his obligations under the contract.

38. DIVISION OF PATRONAGE: BEML at its discretion reserves to issued orders on 60:40 ratio basis or 50:30:20 basis, if required. BEML reserves the right to avail the price offered for full quantity of the tender or part thereof or ignore the offer completely without assigning any reason whatsoever.

39. INTEGRITY PACT:

The bidder / contractor should upload duly signed & stamped **Integrity Pact** (if the tender value is more than or equal to Rs.1.00 crore) as per prescribed format (**APPENDIX- A**) on plain paper as part of technical bid.

The bidder should put their authorized signature in the Integrity pact as a Contractor / bidder with their company seal along with witness's signature, name & address. **The agreement shall be in full as per format enclosed on a plain A4 size paper duly signed & stamped on all pages.**

The Integrity Pact envisages an agreement between the prospective tenderer and the buyer committing the persons/officials of both the parties not to exercise any corrupt influence on any aspect of the contract.

For the successful bidder, the integrity pact will remain valid up to 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

The Central Vigilance Commission (CVC) has appointed Shri Kasividyasagar & Shri Lt. Gen. Abhay Krishna as Independent External Monitor (IEM) to oversee the implementation of the Integrity Pact.

Address of IEM is as below:-

Shri Kasividyasagar, IAS (Retd.)

House no. 55,

Dream valley gated community,

Manikonda, Hyderabad – 500089.

Mobile no. +91 9771407778

Email : kasividyasagar@gmail.com

Shri Lt. Gen. Abhay Krishna , (Retd.)

4A-902, Gurjinder Vihar,

AWHO Township, Sector CHI-1

Greater Noida, UP - 201310

Mobile no: +91 9871234353

Email: abhayabk@gmail.com

40. GST TERMS & CONDITIONS:

1. The Supplier is required to comply with all the applicable provisions of the GST Laws/Rules/Notifications/Circulars and to furnish required documents/details within the prescribed time limit to enable BEML to claim the benefits of GST Input Tax Credit or any other benefit.
2. The Supplier is required to furnish proper Invoice/Supplementary Invoice/Debit Note/Credit Note in the form and manner prescribed under GST Laws/Rules/Notifications/Circulars containing all the particulars mentioned therein and within the prescribed time limit as per prevailing GST Laws/Rules/Notifications/Circulars. In case of non-compliance by the Supplier, BEML shall not make any payment towards GST against such invoice until it is complied with within the timeline prescribed under GST Laws/Rules/Notifications/Circulars, and also subject to BEML being in a position to avail GST Input Tax Credit as per applicable GST Laws/Rules/Notifications/Circulars.
3. In case of discrepancy in the data uploaded by the Supplier in the GSTN portal or in case of any shortages or rejection in the supply, BEML will notify the Supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue Credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the supplies, within the prescribed time limit to enable BEML to avail GST Input Tax Credit.
4. In case, the availment of GST Input Tax Credit by BEML is delayed for any reason other than those attributable to BEML, interest at applicable rate as prescribed under GST Laws/Rules/Notifications/Circulars for such delays shall be recovered from the Supplier.
5. In case Supplier delays declaring such invoice in his GST Return and GST Input Tax Credit availed by BEML is denied or reversed subsequently as per GST Laws/Rules/Notifications/Circulars, GST amount paid by BEML towards such reversal as per GST Laws/Rules/Notifications/Circulars shall be recoverable from Supplier along with applicable interest

If BEML has not paid/short paid to the Supplier for any invoices within the time limit prescribed under GST Laws/Rules/Notifications/Circulars due to non-compliance of GST Laws/Rules/Notifications/Circulars by Supplier or any other reason attributable to Supplier and leads to any GST Input Tax Credit reversal by BEML, any losses/expenses/cost/penalty, etc incurred by BEML shall be recoverable from the Supplier.

6. Wherever applicable, BEML will have the right to deduct "Tax Deducted at Source" at the rate prescribed under the GST Laws/Rules/Notifications/Circulars and to remit the same to the Government
7. In case of supplies made under Reverse Charge Mechanism, the Supplier needs to comply with the provisions under the GST Laws/Rules/Notifications/Circulars in terms of supply of Goods/Services and raising of invoice, so as to enable BEML to remit applicable GST to Govt., within the prescribed time limit and avail GST Input Tax Credit on the same. If the Supplier fails to comply with the above and as a result if BEML incurs any losses/expenses/cost/penalty, BEML shall be entitled to recover the same from the Supplier. Further the Supplier has to mention that "the liability of payment of GST amounting to Rs is on the Recipient of Service" in the invoice raised on BEML.
8. The Supplier is required to comply with the E-Way Bill Provisions under GST Laws/Rules/Notifications/Circulars. If the Supplier fails to comply with the said provisions and as a result if BEML incurs any losses/expenses/cost/penalty, BEML shall be entitled to recover the same from the Supplier.

9. In case of materials/goods issued to Supplier for Job Work, the Job Work Supplier is required to return the goods within the time limit prescribed in the Purchase Order. If the Job Work Supplier fails to return the goods as above, BEML will be entitled to raise a GST Supply Invoice on the Job Worker Supplier with applicable interest as per the provisions of GST Laws/Rules/Notifications/Circulars. In such cases, BEML will be entitled to recover all such GST/interest on GST /losses/expenses/cost/penalty, etc. incurred by BEML along with interest from the Job Work Supplier. Further in such cases where the GST invoice has been raised by BEML, on return of such goods after the prescribed time limit, the Job Work Supplier needs to return the same under GST invoice.

10. The Supplier have the option to give one Bank Guarantee of appropriate value after considering his estimated value of GST involved in invoices raised on BEML instead of Bank Guarantee for each Contract/Invoice. In case of payment through LC, suitable provisions/clause will be inserted while opening LC to ensure compliances of above conditions. However, if at any point of time value of such Bank Guarantee falls short of GST plus interest thereof, Supplier will have to either furnish Bank Guarantee for Differential value or such shortfall value of Bank Guarantee vis-à-vis GST plus interest thereof shall be withheld till Suppliers fulfils its obligations specified under above clauses.

BEML will be entitled to recover all losses/expenses/cost/penalty, etc. incurred by BEML along with applicable interest from the Supplier due to reasons other than those attributable to BEML.

11. If the Supplier is a Composition/Unregistered Dealer, the Supplier needs to comply with the provisions under the GST Laws/Rules/Notifications/Circulars in terms of supply of Goods/Service and raising of invoice. In case, the Supplier fails to comply with the above and as a result if BEML incurs any losses/expenses/cost/penalty, BEML shall be entitled to recover the same from the Supplier along with applicable interest.

COMPLIANCE REPORT FOR BEML DRAWINGS

The Bidder has to upload this compliance report with sign & seal with relevant documents.

Bid Invitation No :

Firm :

Item details :

1	2	3
S.No	Details	Confirmation
1	The technical requirement as per BEML drawings is fully understood by the bidding firm and the firm is bidding for the same	YES/NO
2	Firm shall upload signed drawings as part of Technical bid	YES/NO

Important note to the Technical Bid:

1.1) The Bidder should submit all the relevant documents mentioned in drawings.

1.2) If the bidder has not provided the required document specified in drawings, their offer is liable for rejection.

1.3) The price details/commercial bid details should not be given in Technical bid. If any of the Bidder/Contractor have given any price/commercial details in the Technical bid, their offer is liable for rejection and will not be considered.

I / We certify that to the best of my / our knowledge the particulars furnished above is true. If any of the above information furnished is found to be false or wrong, we understand and agree that our bids are liable for rejection.

Authorized signatory with company seal / stamp

APPENDIX – C

COMPLIANCE REPORT OF GENERAL TERMS & CONDITIONS

(To be submitted along with Technical Bid)

Bid Invitation No :

Firm :

Item details :

Sl. No.	Terms / Clause	Complied	Not Complied	Remarks
(1)	DEFINITIONS & INTERPRETATIONS			
(2)	SUBMISSION OF THE TENDER			
(3)	PURCHASE PREFERENCES			
(4)	SUPPLIERS SHARING LAND BORDER WITH INDIA			
(5)	DELIVERY TERMS			
(6)	PAYMENT			
(7)	PRICE BID VALIDITY			
(8)	FIRM PRICE			
(9)	INSPECTION			
(10)	WARRANTY			
(11)	PERFORMANCE BANK GUARANTEE (PBG)			
(12)	RIGHT TO VARY QUANTITIES & QUANTITY OPTION CLAUSE			
(13)	LIQUIDATED DAMAGES CLAUSE			
(14)	RISK PURCHASE CLAUSE			
(15)	SECRECY AND CONFIDENTIALITY			
(16)	AUTHORITY OF PERSONS SIGNING DOCUMENT			
(17)	ACCEPTANCE OF ORDER			
(18)	OTHER CONDITIONS			
(19)	PRICE, INVOICING AND PAYMENT			
(20)	PROGRESS REPORT			

Authorized signatory with company seal / stamp

APPENDIX – C

COMPLIANCE REPORT OF GENERAL TERMS & CONDITIONS

(To be submitted along with Technical Bid)

Bid Invitation No :

Firm :

Item details :

(21)	QUALITY & WORKMANSHIP			
(22)	QUALITY, CONDITION OF DELIVERY			
(23)	SUPPLY OF SAMPLE (If Applicable)			
(24)	INSPECTION, TESTING & CONSEQUENCE OF REJECTION			
(25)	LAWS APPLICABLE			
(26)	RAWMATERIALS ARRANGEMENT			
(27)	IDENTIFICATION OF ITEMS / PIECES			
(28)	PACKING AND MARKING			
(29)	APPLICABLE LAWS AND JURISDICTION OF COURTS			
(30)	JURISDICTION			
(31)	ARBITRATION			
(32)	INTELLECTUAL PROPERTY RIGHTS; LICENSES			
(33)	BRIBES AND GIFTS			
(34)	FORCE MAJEURE CLAUSE			
(35)	FALL CLAUSE			
(36)	NON DISCLOSURE AND INFORMATION OBLIGATIONS			
(37)	ASSIGNMENT OF RIGHTS AND OBLIGATIONS; SUBCONTRACTING			
(38)	DIVISION OF PATRONAGE			
(39)	INTEGRITY PACT			
(40)	GST TERMS & CONDITIONS			

Authorized signatory with company seal / stamp

CONTACT DETAILS OF THE SUPPLIER

(To be filled and submitted by supplier along with the technical bid)

1) Contact Person details :

(a) Name :

(b) Designation :

(c) Telephone :

(d) Fax :

(e) Mobile :

(f) Email :

2) Head Office :

3) Complete address including the website :

4) Details of the proposed plant from where item is to be supplied :

5) Complete address of the Plant including Website :

Authorized signatory with company seal / stamp

LIST OF DOCUMENTS ATTACHED WITH THIS TENDER:

1. NIT

2. DRAWINGS

BENL LIMITED



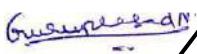



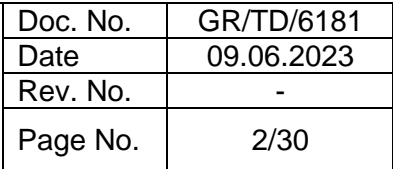
BEML LIMITED
BENGALURU
R & D CENTER

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**Vande Bharat 16 car Sleeper Trainset
Project**

**Procurement Technical Specification for
Automatic Internal Sliding Door**

Approved	09.06.2023	Gayathri P V	
Reviewed	09.06.2023	Dinesh K	
Prepared	09.06.2023	Guruprasad N C/ Saranya V	 / 
	Date	Name	Signature

[illegible]

	Procurement Technical Specification of Automatic Internal Sliding Doors for Vande Bharat 16 car Sleeper Trainset	Doc. No.	GR/TD/6181
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1. Introduction

1.1. General

This document specifies the technical requirements of Automatic Internal Sliding Door to be supplied for Semi-High speed (160 kmph) 16 car Trainset (Sleeper) on Vande Bharat platform. The Automatic Internal Sliding Door shall comply in all respects with ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023 and ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022.

BEML will carry out all required works and activities as Contractor to the Employer for this project, while the subcontractor shall be responsible for all works required in this PTS with regard to Automatic Internal Sliding Door and shall be responsible for supporting the BEML activities as contractor for ICF project.

Automatic internal sliding door is provided duly segregating the saloon (passenger) area and the doorway vestibule area at either end of the saloon in all the cars except DTC where the requirement is only one Automatic sliding door.

The scope of work covers design, development, testing, manufacture, supply, installation, commissioning and integrated testing of the Automatic Internal Sliding Door System and the training of Operation and Maintenance personnel of the owner on the Automatic Internal Sliding Door System.

The scope of work includes all items of work which will be required to meet the performance requirements, reliable and efficient operation of trains and meeting the best international practices even if not specifically mentioned in this PTS.

1.2. Trainset Configuration

1.2.1. Train Composition

Coach configuration: 16 coaches – 4 basic units, each unit consisting of 4 coaches.

For 16 car formation -

DTC + MC + TC + MC2 + MC + TC + MC + NDTC +
NDTC2 + MC + TC + MC + MC2 + TC + MC2 + DTC2

DTC	–	Driving Trailer Coach,
MC	–	Motor Coach,
TC	–	Trailer Coach,
NDTC	–	Non-Driving Trailer Coach

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1.3. Car Weights

	DTC-Car	MC-Car	TC-Car	NDTC-Car
Tare weight	< 55,000 kg	< 55,000 kg	< 55,000 kg	< 55,000 kg
Fully loaded	68,000 kg	68,000 kg	68,000 kg	68,000 kg
Passenger Load	Max.5000 kg	Max.5000 kg	Max.5000 kg	Max.5000 kg
Max. Axle load	Max.17,000 kg	Max. 17,000 kg	Max. 17,000kg	Max. 17,000 kg

1.4. Climatic & Environmental Conditions

The car shall operate reliably and safely under the climatic and environmental conditions specified at ICF MD Spec-398 clause 1.6. Accordingly, the Automatic Internal Sliding Door System shall be designed to operate with satisfactory performance under the following conditions as per at ICF MD Spec-398 clause 1.6.

Description	Limiting Values
Atmospheric temperature	Maximum temperature: 50° Celsius Maximum touch temperature of metallic surface under the Sun: 75° Celsius and in shade: 55° Celsius Minimum temperature: -10° Celsius
Humidity	100% saturation during rainy season
Solar radiation	1 kW/m ²
Altitude	1000 meter above mean sea level
Rainfall	Very heavy and continuous rainfall in certain areas (up to 2500mm during rainy season)
Atmospheric conditions	Extremely dusty and desert terrain in certain areas. The dust concentration in air may reach a high value of 1.6 mg/m ³ . In many iron ore and coal mine areas, the dust concentration is very high affecting the filter and air ventilation system
Coastal area	Humid and salt laden atmosphere. The equipment shall function in accordance with this Specification when subjected continuously to a humid and salt laden atmosphere with maximum pH value of 8.5, sulphate content of 7 mg per litre, maximum concentration of chlorine 6 mg per litres and maximum conductivity of 130 micro-Siemens / cm.
Vibration	The vibration and shock levels recorded on various Sub-systems in existing Trains of IR are generally more than the limits given in IEC 61373 particularly at axle box, and traction motor. Accelerations over 50g have been recorded at axle box levels during run. Vibrations during wheel slips are of even higher magnitude. High level of vibrations above 30g have been measured at traction motor on IR's Trains, which increase up to 50g with worn gear pinion.

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Wind speed	High wind speed in certain areas, with wind pressure reaching 216 kg/m ² as per IS:875-Part 3(2015)
Flood level	<p>The Train shall function in accordance with these Specifications and Standards in the event of flooding up to 203 mm above Rail Level as follows:</p> <ul style="list-style-type: none"> • In the event of flooding at any level below Rail Level, the Train shall operate in full compliance with these Specifications and Standards. • In the event of flooding at a height between Rail Level and 203 mm above Rail Level, the Train shall operate in full compliance with these Specifications and Standards with the exception that it is permissible to restrict the operation of the Train to a maximum of 8 km/h. <p>Allowance is to be made in addition for increase in the height of water level due to the “bow wave” effect of the Train passing through the water.</p>
Flood Proofing of the under slung Equipment	Waterproofing test will be conducted on Traction and Auxiliary Converter by dipping them up to a height equivalent to 650 mm from rail level (under fully wheel worn condition) in stationary water for 12 hours. There should be no water ingress and Converters shall function normal after the test. Traction Motor with gearbox shall be tested for waterproofing as defined in ICF MD Spec-398 clause 3.4.6.10.1 Other underslung equipment shall have IP protection as mentioned in ICF MD Spec-398 clause 3.1.9. However, even in case of flood levels more than the mentioned above, the equipment shall not get damaged and it should be possible to rejuvenate the equipment with minor attention without any adverse effect on their performance. Axle box shall be adequately flood proof.

In developing the detailed design, the supplier shall acquaint himself and take note of the environmental operating conditions prevailing on IR specially during heavy monsoon, track flooding conditions, saline, humid and dusty atmosphere etc.

1.5. Performance Requirements of Train (ICF MD Spec -398, Chap. 2)

The performance requirements of the train shall be governed according to following table.

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Item	Values
Maximum operational speed during service	160 kmph
Maximum operational speed during testing	180 kmph
Minimum deceleration during full service braking following jerk limit	0.8 m/s ²
Maximum deceleration at any speed	1 m/s ²
Jerk rate (Maximum)	0.7 m/s ³
Average running distance of one train (for design purpose)	2,000 km / day

Vibration and Shocks:

The equipment, system and their and their mounting arrangement shall be designed to withstand satisfactorily the vibration and shocks encountered in service as specified below:

- Maximum longitudinal Acceleration: 5 g
- Maximum vertical Acceleration: 3 g
- Maximum lateral Acceleration: 2 g
("g" being the value of acceleration due to gravity)

Frequency and amplitude: Sinusoidal form of vibration, the frequency lies between 1 Hz and 100 Hz and their amplitude 'a' expressed in mm is given as function of 'f' by the equation: “

- $a = 25/f$ for values of 'f' between 1 and 10Hz.
- $a = 25/f^2$, for values of 'f' between 10 and 100Hz.

For reference IEC: 61373 / IEC 60077-1, sub clause - 8.2.9 (latest), to be followed.

1.6. Power Supply System (ICF MD Spec-398 Clause 1.4)

The power supply system adopted by the Government for operation of the trains is 25kV, 50Hz single phase AC with following features.

Nominal Supply Voltage	25 kV (RMS), 50 Hz, single phase, AC
Normal variation in supply voltage	19 kV to 27.5 kV (RMS)

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Voltage range for Train to operate in full compliance with these Specifications and Standards	22.5 kV to 27.5 kV
Occasional maximum voltage	30 kV (RMS)
Occasional minimum voltage	17 kV (RMS)
Normal variation in frequency	± 3% (48.5 Hz to 51.5 Hz)
Stagger of the contact wire	± 200mm on straight track Up to ±300mm on curves
Normal contact wire height in mid span	5.5 m from Rail Level
Max. contact wire height	5.8 m from Rail Level
Min. contact wire height	4.54 m from Rail Level
Neutral sections	After around every 25 to 50kms <u>Note:</u> (i) Three types of Short Neutral Section of Length 5.48m, 9.5m & 14m are being used on IR. (ii) Overlap Type Neutral Section of 41m Length as per RDSO Drawing No. ETI/OHE/G/02161-Rev C is being used on IR.
Feeding zone for traction substation	There may be 3 - 4 block sections on each side fed by the traction substation.
Max. continuous OHE current rating	600 Amps.

1.7. Track Parameters (ICF MD Spec-398 clause 1.5)

The Vande Bharat Trains sleeper variant will operate with the track parameters of the Government as specified in the following table:

Gauge	Broad Gauge 1676 mm
Schedule of dimension	Indian Railways Schedule of Dimensions for Broad Gauge (1676 mm) Revised, 2004 with latest addendum and corrigendum slips
Sharpest curve to be negotiated	145.83 meter radius (horizontal); 2500 meter radius (vertical)
Sharpest reverse curve to be negotiated	145.83 meter radius (horizontal) back to back with or without any straight portion in between
Sharpest turnout to be negotiated	6400 mm overriding switch (curved) BG (1673 mm) for 60 kg (UIC) or 52 kg rail for 1 in 8½ (crossing angle, tanθ) turnouts on pre stressed concrete sleepers
Maximum super elevation	185 mm for design 165 mm for operation

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Maximum cant deficiency	100 mm
Maximum gradient	1:37
Permitted track tolerances	The track shall be maintained to as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522.

Indian Railway Permanent Way Manual June – 2020 specifies the maximum cant deficiency as 100mm. Speed on curve shall be decided on the basis of Indian Railways Permanent Way Manual, June – 2020. In case of cant deficiency of more than 100 mm, if the rolling stock is able to negotiate on curves within parameters of safety and also the forces assessed on track are within limit, the Rolling Stock would be acceptable. However, such a case would require sanction of Railway Board.

2. Definitions

The following definitions and abbreviations are applicable to the PTS.

- **“Employer”** means ICF -Chennai, its legal successors and assignees.
- **“BEML”** means the Contractor to procure the Automatic Internal Sliding Door for Vande Bharat project.
- **“Subcontractor”** means the Supplier who supplies the required Automatic Internal Sliding Door to BEML for Vande Bharat project. Subcontractor shall carry out the works in accordance with ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023 and ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022) with regard to Automatic Internal Sliding Door.
- **“Contract”** means the contract between Subcontractor and BEML in relation to the supply of Automatic Internal Sliding Door for Vande Bharat project.
- **“Engineer”** means any person nominated or appointed from time to time by the Employer to act as the Engineer for the purposes of the Contract and notified as such in writing to the Contractor.

3. Precedence of Documents

This PTS shall be read in conjunction with ICF/MD/SPEC-411 & ICF MD SPEC-398. It is the intent that all subcontractors providing equipment or services to BEML shall comply with the Employer's requirements. When the Employer does not have any specific requirements, the subcontractor shall comply with the requirements of this PTS as appropriate. Subcontractors must comply with the requirements stated herein unless otherwise agreed to in writing by BEML. Any conflict between the Employer's requirements and this specification shall be brought to BEML's immediate notice for resolution prior to making a contract. After making a contract, the subcontractor shall comply with BEML's Interpretation for any discrepancies This PTS shall in no way relieve the subcontractor from any requirements specified in the ICF/MD/SPEC-411 & ICF MD SPEC-398.

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In case of conflict among contract documents, the following order of priority shall govern:

Order of Precedence	Document Title
1	ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023
2	ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022)
3	General Terms and Condition (GTC)
4	PTS

4. Qualification Criteria

Subcontractor shall be an Original Equipment Manufacturer (OEM) of Automatic Internal Sliding Door System for Semi-High-speed trains (operating speed – 160 kmph and above) having experience in **Design, manufacturing, testing and commissioning**.

The Proposed type of Automatic Internal Sliding Door System shall be of proven design i.e., the design of equipment components etc., shall be based on sound, proven and reliable engineering practices. The proposed type of Automatic Internal Sliding Door System should have been in revenue service with satisfactory performance on Semi-High-speed trains (operating speed – 160 kmph and above), against regular order (not development order).

The proposed type of IC doors should not have any quality issues in the on-going/completed supplies. The proposed design should incorporate measures to overcome all prevailing failures of the existing supply IC doors in Vande Bharat.

Supporting documents for proving the satisfactory performance shall be submitted along with technical offer for technical evaluation. The subcontractor meeting this requirement only will be considered for technical evaluation.

The subcontractor shall hold ISO 9001/ IRIS certification and shall manufacture the products accordingly.

The subcontractor shall submit QAP, ITP, company profile with infrastructure facilities, product range etc., along with technical offer.

The firm should undertake to provide the support during Testing & Commissioning, service trials and revenue service either by themselves or through sister company or a partner in India. The firm shall submit detailed proposal in this regard.

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5. Design Interface Responsibilities

5.1. Design Interface

At design stage, BEML shall be responsible for defining the technical requirements and the design constraints. The location of mounting points and the design of equipment installation comprising of Automatic Internal Sliding Doors shall be defined by the subcontractor and approved by BEML/ICF in order to avoid any mechanical interference with other equipment for the vehicle. The subcontractor shall be responsible for mounting methods and providing all requisite materials for mounting of the Automatic Internal Sliding Door System on the carbody.

Any changes of the components comprising of Automatic Internal Sliding Doors shall be defined by the subcontractor and approved by BEML/ICF in order to avoid the mechanical interference with other equipment for the vehicle.

In order to implement interface requirements, the subcontractor shall provide the information required by BEML / ICF and shall provide the interface data voluntarily for ensuring the performance of the Automatic Internal Sliding Door system which need to be used for the mechanical and functional interface. The subcontractor shall have whole responsibility for problems which will happen without any information and notification used for engineering interface with other equipment or car body structure.

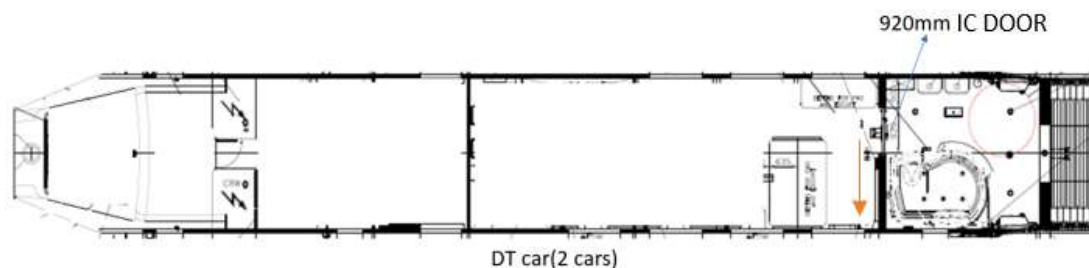
Even if technical information or drawings are approved by BEML/ICF, the subcontractor shall have responsibility to change/ solve/ modify design failure of production, quality problems and safety issues on its own cost.

The subcontractor shall keep in mind that any Automatic Internal Sliding Door System initially proposed by him should be customized to meet a situation of this project or the need of ICF. So, the subcontractor shall implement it to Automatic Internal Sliding Door System without additional cost. Subcontractor shall solve all issues for proper operation of Automatic Internal Sliding Door System at subcontractor's own cost.

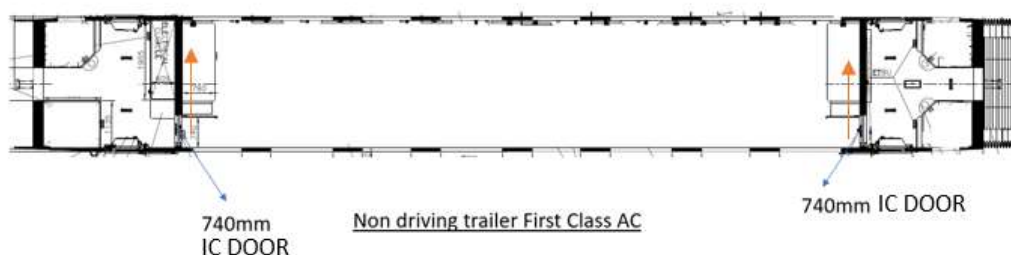
5.2. Overall Carbody & Automatic Internal Sliding Door System Interface Dimensions

Automatic Internal Sliding Door Interface dimension, please refer to sketch GR-5357 enclosed at appendix. The tentative layouts are as below.

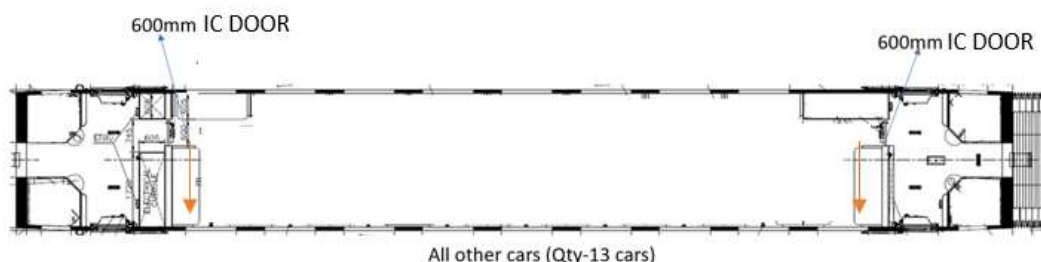
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Automatic sliding door with 920mm opening width (DTC & DTC2)



Automatic sliding door with 740mm opening width (NDTC)



Automatic sliding door with 600mm opening width (Remaining 13 Cars: MC, TC, MC2, MC, TC, MC, NDTC2, MC, TC, MC, MC2, TC, MC2)

Note: The above dimensions may be subject to minor change during the detail design phase. The subcontractor shall accommodate the same without any cost implication.

6. Technical Requirements

6.1. General

The subcontractor shall meet the Automatic Internal Sliding Door requirements of ICF MD Spec - 398 for the design, development, manufacture, supply, installation, testing, delivery, commissioning and integrated testing, including the training of operation and maintenance staff of the ICF.

The subcontractor shall support in all aspects in obtaining customer clearance of the proto type Automatic Internal Sliding Doors after successful completion of tests. The subcontractor shall carry out any modification/alteration based on

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results of the tests on the prototype if required. The subcontractor shall carry out necessary modifications at no additional charge on all trains and shall support in delivering the prototype train.

6.2. Proven Design (Clause 3.1.8, of ICF MD -398)

The proposed Automatic Internal Sliding Door System by the sub-contractor against this PTS shall satisfy the “Proven Design” clause 3.1.8 of ICF MD Spec-398.

The proposed type of Automatic Internal Sliding Door System should have been proven design i.e., the design of equipment components etc., shall be based on sound, proven and reliable engineering practices. The proposed type of Automatic Internal Sliding Door System shall have proven credentials in trainsets of 160 kmph and above operational speed in at least one project. The sub-contractor may conduct such tests and trials as may be necessary to establish the reliability and efficiency of such technology and designs in accordance with the good industry practice.

The subcontractor shall manufacture and supply the Automatic Internal Sliding Door System only from such manufacturing units that have supplied the Automatic Internal Sliding Door System that fulfill the proven design requirements as above.

Other design and performance requirements of chapter-3 of ICF MD-398, relevant to Automatic Internal Sliding Doors shall be complied with.

The subcontractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the proposed Automatic Internal Sliding Door system. The subcontractor shall warrant that the subcontractor’s proposals meet the ICF MD spec-398 requirements and is fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the specification requirements or any part thereof, the subcontractor’s proposal shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at subcontractor’s own cost.

The subcontractor shall warrant that the works have been or will be designed, manufactured, installed and otherwise constructed and to the highest standards available using proven up-to-date good practice.

6.3. Technical information of Automatic Internal Sliding Door System

6.3.1. General

- i. All coaches shall be provided with Automatic internal doors duly segregating saloon (passenger) area and doorway vestibule area.
- ii. Automatic sliding door shall be of single panel sliding type. The door shall be electrically driven. The power supply available for door operation is 110 V DC -30% to +30%.

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- iii. Door panel shall be fitted with two operating handles one on inside and one on outside which is suitable for safety glass.
- iv. Door panel shall maintain their original shape without distortion under the specified climatic & environmental condition throughout their service life.
- v. Door leaves shall withstand the cleaning of graffiti, rub marks and scuffing by cleaning agents without causing any damage or discoloration.
- vi. Exterior and interior surfaces of the door panel shall be finished to match the adjacent surfaces of car.
- vii. The edges of the Automatic sliding door shall be fitted with flexible joints with a contact strip to prevent hands being trapped.
- viii. The closing pressure, measured at the edge of the door, must be less than 50N.
- ix. The door leaf edge shall be such that when the door is closed it form a weather tight seal extending the full height of the door.
- x. Any seal shall not require regular cleaning. Seals and contact strip shall be effective under all operating conditions and particularly shall be resistant to atmospheric and chemical deterioration and to vandalism.
- xi. The guides must be designed in such a way that partially or fully open loading doors cannot be torn away by the air current produced by train running. The Automatic sliding door shall be designed to withstand the differences in dynamic pressure acting on either side, when the coach is moving at maximum speed.
- xii. Drive and carrier mechanism shall be housed within the passenger area above the doorway lintels. The design shall provide ease of access for maintenance. The complete mechanism shall be modular and mounted on a rigid frame so that it can be adjusted in situ for alignment and be removed as an integral unit from the car. The entire door mounting hardware and door actuation hardware must be readily accessible for adjustment and removal.
- xiii. No single defect or failure of any part of any door system shall produce a situation capable of causing injury to any door user.
- xiv. The Door shall have aesthetic design, highly reliable and easy to maintain. It shall be capable to interface easily with car body interior structure of the coach.
- xv. The Automatic Sliding Doors shall have smooth running, without jerks and low noise operation. The Noise level during the door operation shall not exceed 70 dBA.
- xvi. Sealing shall be provided to stop ingress of dust/dirt/moisture in all gaps (both in closed and open position).

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6.3.2. Functional Requirements

6.3.2.1. Door Control

The interior doors shall be controlled either by a radar (Motion Detection) signal when the passenger approaches or by pressing a button on the door. Both control modes shall be equivalent. The system shall not distinguish difference between the button & the radar and between the outer and inner side of the door. In case of power failure, manual operation (both open/close) of the door shall be possible.

6.3.2.2. Drive and Carrier mechanism

The drive mechanism shall be designed to drive and carry the door leaf. During the operation cycle, the door moves between the end positions. The mechanism shall be driven by an electric motor that moves the door leaf through proven mechanism. The firm should submit the details of drive mechanism. Provenness shall include endurance test reports and proven performance in service. End position of the mechanism are equipped with stops. Closing the door and retaining in the closed position shall be ensured through software. If the door detects an undesirable shift from the closed position (loss of a signal on the sensor), the motor shall close the door again.

6.3.2.3. Closing/ Opening

Door shall be opened through push button/ human sensors / proximity sensors / handle. After pressing the button or receiving the radar input, the door shall fully open and stays open for the set time interval of 5-7 seconds (time shall be adjustable), then shall closed automatically. When the door leaf meets an obstruction in the passage, the door should open fully immediately and pause for 5-7 seconds (time shall be adjustable) and then start its closing operation as done normally. The number of attempts is not limited. No matter a person enters the radar area or the push button is pressed, the door shall behave identically. If a person is in the radar space, the door stays opened.

Once closing starts, it should complete its closing stroke in normal operation. After the closing stroke is completed, door should remain in the closed position, unless opening action is initiated. Opening and closing of door shall be automatic and time for each opening and closing stroke should be between 3 to 4 sec (time shall be adjustable) or as approved by BEML/ICF. Door Should remain in the closed condition during normal train running and should not move / open up owing to centrifugal force experience on the curvature or under normal vibrations.

6.3.2.4. Emergency Door Lay – Up

The Following provision shall be kept for the emergency purpose.

- After pressing the emergency control (a red push button near the door) the door is disconnected from the power supply and is freely movable. In order to return the door back to the initial state, the emergency switch

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has to be unlocked by turning. The door is then fully closed and operates normally.

- If the door is required to remain open for a longer duration, especially at en-route stations where large number of passengers need to board or get down, it should be possible to keep the door open by pressing push button.
- In case of failure of electrical supply, the door should work as manual opening & manual closing door. This means that in such case if the door is opened manually with 5 kg force (max.) and closed by applying 5kg force (max.).

6.3.3. Electrical system

The door shall be electrically driven. The power supply available for door operation is 110 V DC -30% to +30%.

The electrical system shall consist of a control unit, terminal block with switches, transducers and cable harness. The Pushbutton shall either disconnect the entire system or partial (the radar System/Push button).

Two emergency push buttons located near the door are a part of the system. When pressed, the door is disconnected from the power supply and the door leaf can be moved freely.

The electrical Push buttons shall have aesthetic design, highly reliable.

6.3.3.1. Electrical system of doors

The sliding doors are driven by an electric motor. The corresponding functional states (positions) of the mechanism are sensed by end-position sensors. Approximately 150 mm before the end position of the door, there shall be decrease in the door speed during the final phase of the run.

In order to protect transported persons against shutting to the door, an obstacle detection system must be integrated in the system to detect the obstacle. The whole system shall be controlled by a programmable control unit.

- Control system: Programmable control unit TIO02/AA or Equivalent
- Power elements: Driving electrical motor 24 V DC/110 VDC
- Wattage: 450 Watts (max)

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6.4. Interface Requirements

Actuation (Move Mechanism)	: Electrical
Internal Passing (width)	: i) 600 mm, ii) 740mm iii) 920mm
Internal Passing (height)	: 1960 +0/-5 mm
Distance between door posts	: i) 600 mm, ii) 740mm iii) 920mm
Opening time of the door leaf	: 3-5 sec (time shall be adjustable)
Weight of the door leaf	: 30 kg +/- 10 kg
Weight of the carrier mechanism	: 20 kg +/- 5 kg
Door Thickness	: 40 mm (max)
Nominal Voltage	: 110 V DC -30% to +30%
Nominal current	: 0.5A, max.2A
Lifetime	: 30 years/20,00,000 cycles(min)

6.5. Bill of Material (BOM)

All components and sub-components used in Automatic Internal Sliding Door assembly shall be highly reliable and should have established its satisfactory performance in any of similar Rolling stock /other Railways.

The Supplier shall submit the complete Bill of Material (BOM) for Automatic Internal Sliding Door System along with the list of Models /make and list of projects in which these items are used, during Preliminary design phase.

The Supplier shall submit the complete Bill of Material (BOM) for Automatic Internal Sliding Door System to BEML/ ICF design for approval before supply. Bill of materials of all bought out items shall be submitted with make and part number.

6.6. Weight

To minimize energy costs, great importance will be placed on achieving practical designs of minimum car weight whilst meeting specified structural and performance requirements. **Accordingly, the weight of the Automatic Internal Sliding Doors shall be kept to a minimum. The total weight of Automatic Internal Sliding Doors shall not exceed by more than +4% of the estimate weights /as per relevant drawings.**

The subcontractor shall submit details of estimated weights and center of gravity for Automatic Internal Sliding Door along with the technical offer.

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6.7. RAMS requirements

The Subcontractor shall design the Automatic Internal Sliding Door to ensure Guaranteed Reliability, Guaranteed Punctuality and high degree of safety in order to provide a dependable service. The optimization of the system with respect to reliability, availability, maintainability and safety (RAMS) shall form an integral element of these Procurement Technical Specifications. The plan for reliability, availability, maintainability and safety shall conform to EN 50126/ IEC 61709/ IEC 62278. Reliability of electronic components shall conform to IEC 61709.

Subcontractor shall ensure to identify the components critical for safety that shall fall into safe operating mode in case of malfunctioning. The system safety plan shall identify and list safety critical components and this list shall be updated periodically.

Safety Assessment shall be carried out and shall include the following principles:

- (i) Degraded modes and emergency operations shall be considered as well as normal operations;
- (ii) Safety risk assessment shall utilize more than one methodology to assess risks; and
- (iii) Safety risk assessment shall include the consideration of dependent failures, in particular the traction power, braking and control systems.

6.7.1. Maintenance Schedule (Clause 2.20 of ICF MD Spec-398)

Subcontractor shall submit the basic maintenance schedules of the proposed Automatic Internal Sliding Door. Minimum interval between two maintenance schedules in the depot for the proposed systems should be based on international standards/norms. Average running distance of a rake may be considered as 2000 kilometer per day.

The maintenance program prepared by Subcontractor shall have the following objectives:

- Enhancement of availability
- Minimization of maintenance costs
- Minimization of coach downtime/MTTS (meantime to restore serviceability)

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6.8. Fire Safety

6.8.1. General

The subcontractor shall submit a Fire-safety Plan providing the list of Non-metallic material items, wires & cables that are proposed to be used in the Automatic Internal Sliding Door System with details of material, applied mass, fire safety compliance (Flammability, smoke, toxicity) and fire load calculations, during the preliminary design phase.

6.8.2. Material Properties

All non-metallic Materials used in the construction of Automatic Internal Sliding Door assembly shall be selected to reduce to the maximum extent practical the heat load, rate of heat release, propensity to ignite, rate of flame spread, smoke, emission and toxicity of combustion gases

All non-metallic materials used in the Automatic Internal Sliding Door assembly shall comply with fire safety requirements of EN45545 Part 1 to 7 (Category 3-S, Hazard level HL3) latest editions.

Fire survival cables according to EN 50200 shall be used for Automatic sliding Door system for their continued functioning to the extent possible in the event of fire. Survivable duration classification of PH30 (30 minutes) or higher shall be suitable.

6.8.3. Fire Load Calculation

The maximum heat release rate per car shall be restricted to low levels.

Fire load calculation for all non-metallic materials have to be calculated with heat release rate data tested in accordance with EN 45545 HL3. The calculations shall be included in the Fire safety plan submitted as the source of heat value.

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6.8.4. Fire Performance Deliverables

The subcontractor shall submit the fire performance deliverables in accordance with following table, before the production of proto–Automatic Internal Sliding Doors.

Sl. No.	Deliverables
1	Fire safety plan as per EN 45545 HL3
2	Fire safety Test Reports of all non-metallic items including heat release rate, as per EN 45545 HL3

6.9. Quality Assurance Program

6.9.1. General

The subcontractor shall hold ISO 9001/ IRIS certification and shall manufacture the product accordingly. The subcontractor shall submit a copy of ISO 9001 / IRIS certification along with the offer. The subcontractor shall monitor and control the Quality systems as per ISO 9001/IRIS guidelines. BEML and/or ICF's representative may periodically conduct compliance audits of the Subcontractor's Quality management system.

6.9.2. Quality assurance plan

The subcontractor shall submit Quality Assurance Plan (QAP) based on ISO 9001 / IRIS guidelines during the preliminary design phase for manufacture and inspection of the Automatic Internal Sliding Door system and to be submitted for BEML/ICF for approval.

7. Scope of Supply

7.1. General

The subcontractor shall be responsible for the scope of supply of the Automatic Internal Sliding Doors, which shall comprise, unless specifically excluded, the design, manufacture, testing, delivery, installation, commissioning, integrated testing and rectification of defects. Further the vendor shall supply the necessary associated equipment to facilitate operation and maintenance of Automatic Internal Sliding Doors which includes special tools and testing equipment, spare parts, O&M manual and training.

Note: If any special tools/equipment are required for installation of Automatic Internal Sliding Door onto carbody, the subcontractor shall supply 2 sets of such equipment at his own cost.

The Subcontractor shall meet the system technical requirements for Automatic Internal Sliding Door in accordance with ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023 and ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022), as a minimum.

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7.2. Hardware

Subcontractor shall provide all components related to Automatic Internal Sliding Door, but not limited to, the following:

i. Door leaf

The door leaf shall be designed with Aluminum Profile frame. The frame is then sealed with 4 mm thick safety glass and toughened glass with printing. Opening direction label shall be provided on glass. The aluminum frame shall be painted/Powder coated and the paint shade of the passenger side shall match saloon Interior panel colour and vestibule side shall match the vestibule panel colour shade. A pocket handle having part of the frame shall be provided for manual door control on both side of door leaf. The front edge of the door shall be covered with a rubber profile with a contact strip. The contact strip should not be damaged in case of hitting against obstacle. Adjustment in the door leaf alignment should be possible. The door should properly be guided and it should slide smoothly. It should not come out from the designated path during sliding. The door shall be controlled by push buttons or radars which shall be the part of the door leaf/ installed on nearby the door. The Design of door push buttons shall be as per EN 14752.

ii. Drive and Carrier mechanism

The drive mechanism shall be designed to drive and carry the door leaf. During the operation cycle, the door moves between the end positions. The mechanism shall be driven by an electric motor that moves the door leaf through proven mechanism. The firm should submit the details of drive mechanism. Provenness shall include endurance test reports and proven performance in service. End position of the mechanism are equipped with stops. Closing the door in the closed position shall be secure by software. If the door detects and undesirable shift from the closed position (loss of a signal on the sensor), the motor shall close the door again.

- iii. Door electronic controller shall be proven and the firm should submit the details of the same.
- iv. Floor/bottom guide for door movement
- v. Radar sensor 2 nos. per door
- vi. Pushbuttons – 2nos. per door
- vii. Emergency push buttons – 2nos. per door
- viii. Door stopper and sealing guide bracket
- ix. Wiring and flexible conduits
- x. Shims for Automatic sliding door installation.
- xi. Grease for Automatic Internal Sliding Door lubrication.
- xii. Tools and jigs required for IC door setting.
- xiii. Stainless steel fasteners such as bolts, nuts, washers and other items required for installation of Automatic sliding door and its accessories to the car body.

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Quantity Details:

Sl. No.	Kit. No.	Description	QTY/Car in SET																
			DTC	MC	TC	MC2	MC	TC	MC	NDTC	NDTC2	MC	TC	MC	MC2	TC	MC2	DTC2	Qty/TS
1	5231400001	Automatic Internal sliding door opening width 920 mm RH	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
2	5231400002	Automatic Internal sliding door opening width 600 mm LH	-	1	1	1	1	1	1	-	1	1	1	1	1	1	1	-	13
3	5231400003	Automatic Internal sliding door opening width 600mm RH	-	1	1	1	1	1	1	-	1	1	1	1	1	1	1	-	13
4	5231400004	Automatic Internal sliding door opening width 740 mm LH	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
5	5231400005	Automatic Internal sliding door opening width 740 mm RH	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
																			30 set

Note: LH/RH are defined based on view from passenger area facing door.

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7.3. Supply of Spares

The subcontractor shall supply Automatic sliding doors as Unit Exchange spares complying with this PTS, as indicated below.

Sl. No	Kit. No.	Description	Spares Qty for 10TS	UoM
1	5231400001	Automatic Internal sliding door opening width 920 mm RH	1	Set
2	5231400002	Automatic Internal sliding door opening width 600 mm LH	6	Set
3	5231400003	Automatic Internal sliding door opening width 600mm RH	6	Set
4	5231400004	Automatic Internal sliding door opening width 740 mm LH	1	Set
5	5231400005	Automatic Internal sliding door opening width 740 mm RH	1	Set

7.4. Design Submission and Deliverables

7.4.1. General

The objective of the design submission process is to ensure that the proposed resulting works comply with the specifications, are capable of being produced consistently to exacting quality standards, achieve low life cycle costs and can be operated safely to the satisfaction of the Engineer.

The subcontractor shall submit all necessary documents viz., documents and drawings describing function description, product description, design calculations, interface requirement description, RAM requirement description, Life cycle calculations, Fire safety, Type & routine test specifications, list and details of spares, related calculations etc.

These drawings and documents shall be delivered in English with the data format of, respectively, latest AutoCAD (2015) release. (Document - MS Word, spread sheet - MS excel, data base files - MS Access, Presentation file - MS Power Point).

For regular exchange of data, Solid works for CAD platform shall be used.

The subcontractor shall provide 3D model of all Automatic Internal Sliding Door assemblies and its components & 2D drawings to BEML for preparing engineering mockup.

In the event that a statutory body (e.g. Government of India Ministry of Railways, RDSO, etc.) requires design information in a particular format, it shall be incumbent upon the subcontractor to provide the same, as directed by BEML/ ICF.

Confidentiality – The design, documentation, reports and drawings created by the subcontractor as per the scope of work shall be submitted to ICF and shall

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be intellectual property of ICF and shall not be shared, used or saved in any form except for fulfilling the requirement of manufacture of the coaches as per this scope.

7.4.2. Design Deliverables

The following design documents/drawings shall be delivered as a minimum to BEML according to the time schedule defined by BEML.

Stage	Document/Deliverable	Submission and approval
Tender offer	Supporting documents for Qualification criteria as per Cl. 4 of this PTS.	Along with tender technical offer
	Vendor documents including QAP, ITP, company profile with infrastructure facilities, product range etc., as per Cl. 4 of this PTS.	
	General Technical Description of proposed Automatic Internal Sliding Door and concept drawings.	
	General arrangement drawings of proposed Automatic Internal Sliding Door system.	
	Provenness Certificate in design of Drive mechanism and Door Controller in other projects.	
	Estimated weights of Automatic sliding door(refer Cl.6.4)	
	Tender & PTS clause by Clause compliance	
Design Review Stage	General System Technical Description of proposed Automatic Internal Sliding Door System, with complete technical specification details of sub components and its functionality etc.,	Within 2 months of LOI/ contract award, submission and further updates including BEML/ ICF approval
	Automatic Internal Sliding Door design Drawings (Dimensional Installation Drawings: Autocad or CATIA/solidworks file)	
	3D model of Automatic Internal Sliding Door assembly in CATIA/Solidworks file	
	Material specification of all components	
	Weight details	
	Interfacing with carbody and other systems	
	List of standards and codes	
	Quality Assurance Plan	
	Bill of Materials(BOM) of complete Automatic Internal Sliding Door assembly	
	Fire safety Test Reports of the items including heat release rate for standard items common with other projects of the subcontractor	
	RAMS Deliverables as per Cl. 6.7	
	Type test plan for Automatic Internal Sliding Door System & its sub-systems	

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Final Design Review stage	Final Design Drawings of complete Automatic Internal Sliding Door assembly and its components in Autocad or CATIA/Solidworks file)	Within 4 months of LOI/ contract award, submission and further updates including BEML/ ICF approval.
	Final 3D model of Automatic Internal Sliding Door assembly and its components in CATIA/Solidworks file.	
	Type Test & Routine test Procedure (incl. record sheet) & test Reports	
	FAI Procedure & Report	
	Fire Safety Test Reports including heat release rates	
	Operation and maintenance manuals & Electronic manual	
	RAMS Deliverables (final)	
	Detailed Training proposal	
	All As-Built Drawings (Final drawings) of each part of Automatic Internal Sliding Door system in Autocad, CATIA & Solid works.	
Note: Over and above mentioned documents, subcontractor shall submit any additional documents required by BEML/ICF.		

7.4.3. Engineering Support

The subcontractor shall provide technical assistance by attending the design review meeting with ICF, along with BEML team, until design is approved by ICF.

7.5. ICF's Spec. & PTS Compliance

The subcontractor shall offer a valid and fully compliant proposal for the Automatic Internal Sliding Door system as detailed in ICF's Spec. and PTS.

The subcontractor shall submit, along with the technical offer, the Clause-by-Clause Compliance for ICF's Spec. and PTS:

The offers with Non-compliance and deviations to any of the in ICF's Spec. and PTS clauses with regard to Automatic Internal Sliding Door system, are liable for rejection.

The sub-contractor shall clearly mention COMPLIED/NOT COMPLIED as applicable against each clause. Any other comments such as 'NOTED', etc. will treated as COMPLIED.

7.6. Operation and Maintenance Manuals (O&M Manual)

Operation and Maintenance manuals/instructions with trouble shooting guides, shall be supplied for all the items under the scope of the subcontractor. Maintenance manuals /instructions shall be supplied in the form of A4 size book, giving exploded views of assemblies, 3D snap shots, part numbers, drawings & dimensions. Photos shall be incorporated to the manual for easy

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identification of the process. The manuals shall be submitted both in hard and soft copies and in a presentable manner. 20 hard copies of each manual shall be supplied. This is prerequisite for claiming 100% payment.

7.7. Spare parts catalogue

The Subcontractor shall submit 8 copies of spare parts catalogue for all the items under their scope of supply. The spare parts catalogue shall be standard, well organized and complete, with part numbers and drawing references. Photos shall be incorporated for easy identification of the process. Spare parts catalogue shall be submitted both in hard and soft copies in a presentable manner.

7.8. Training

The Subcontractor shall provide comprehensive training to ICF/IR staff (maintenance, operating, training instructor and engineering). The aim of training is to enable the ICF personnel to effectively carry all aspects of the operation (normal, failure, recovery and emergency), maintenance and training requirements for item under the scope of work.

Trainsets will be commissioned at various maintenance depots over Indian Railways. Subcontractor shall depute personnel to impart training to operation and maintenance staff of the various maintenance depots. Firm shall impart training regarding all sub systems within their scope of work. A minimum of 7 days Training shall be provided in each maintenance depot.

8. Testing and commissioning

8.1. General

- a) The subcontractor shall submit Inspection, Testing and Commissioning Plan according to the technical requirements during the design stage.
- b) The Automatic Internal Sliding Door System and it's sub-systems shall be type and routine-tested in accordance with detailed respective test procedures to be drawn up by subcontractor and agreed by BEML/ICF which shall take into account the requirements of respective IEC standards, other international standards and this PTS and test program drawn up by the subcontractor to demonstrate that the individual equipment, sub-systems and systems meet the specified technical requirements. The test plan shall be approved by BEML/ICF.
- c) Wherever any equipment, system or sub-system is not specifically covered by an internationally recognized specification or test procedure, or where the type and routine tests prescribed by IEC or other international standard do not adequately cover the requirement, tests which are acceptable both to the subcontractor and to BEML/ICF, shall be devised.
- d) Type tests for certain equipment may be waived if these were carried out earlier on equipment of identical design, witnessed by a reputed organisation and the service performance of such equipment was found to be reliable. The

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subcontractor shall submit a proposal in this regard to BEML/ICF for review. The waiver of Type Test is entirely at the discretion of BEML/ICF.

- e) Change of manufacturing place may require re-type test.
- f) BEML /ICF reserves the right to witness any or all of the tests, and to require submission of any or all test specifications and reports. BEML/ICF reserves the right to reasonably call for additional tests as are considered necessary, including the quality of welds particularly in highly stressed areas, by nondestructive testing methods. BEML/ICF may, if considered necessary, call for conducting optional tests as per relevant standards without any additional cost to BEML/ICF. In case of repetition of tests, as decided by BEML/ICF, entire cost including that of BEML/ICF representative(s) shall be borne by the subcontractor.
- g) The results of all tests shall be submitted to the BEML/ICF, who will record his conclusions as to whether or not the equipment being tested has passed satisfactorily.
- h) The Subcontractor shall be responsible for undertaking and passing all necessary testing activities for Automatic Internal Sliding Door System.
- i) Prior to the start of testing, BEML & ICF shall have all approved test plans and procedures for the test and all relevant prerequisite testing shall have been completed by subcontractor.
- j) Type test of Automatic Internal Sliding Door System at train level will be responsibility of subcontractor. Subcontractor shall depute their engineers to conduct the vehicle level type test at BEML factory and Depot at Mumbai/Mainline for testing as per schedule prepared by BEML's project management team.
- k) Subcontractor shall arrange all necessary tools & instruments for relevant Vehicle/ train level type tests.
- l) If there is a problem during testing & commissioning, the subcontractor should depute his engineer to solve the problem within 24 hours of BEML's request to do so.
- m) All test & inspection specifications and reports including all repair activities and check-lists shall be submitted to and approved by BEML/ICF.

8.2. Equipment Type Test & Routine Test

The Automatic Internal Sliding Doors shall be type and routine tested in accordance with technical requirements and to relevant standard at subcontractor's works, at his own cost.

All such tests shall be carried out at the subcontractor's cost, wherever performed, in the presence of and to the satisfaction of BEML/ICF, who reserves the right to witness any or all of the tests and to require submission of any or all test specifications and reports.

BEML/ICF reserves the right to reasonable call for additional test, if necessary.

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The subcontractor shall carryout the following type tests and routine tests as a minimum for Automatic Internal Sliding Door and shall submit the reports.

Sl. No.	Kind of Test	Standard	Type Test	Routine Test
1	Strength Test	UIC 566	√	
2	Fire Safety Test: All non-metallic components in the Automatic internal sliding door shall meet fire safety requirements	EN5545-2, HL3	√	
3	Electronic equipment used in rolling stock	EN 50155, IEC 60571	√	
4	Electromagnetic compatibility	EN50121-3-2	√	
5	Vibration and shock	IEC 61373	√	
6	Endurance	20,00,000 cycle	√	
7	Noise test	As per PTS	√	
8	Obstacle detection test	As per PTS	√	√
9	Functional test	As per PTS	√	√

8.3. First Article Inspection (FAI)

The subcontractor shall offer the first set of Automatic Internal Sliding Door assembly for First Article Inspection by BEML/ ICF in accordance with the Engineer approved FAI plan prior to serial production, in order to confirm that the item produced fully complies with the technical specifications, System design and manufacturing process. After clearance from BEML/ICF, mass production shall be taken up.

FAI shall be carried out by the ICF/ICF nominated agency as per relevant standard/International practices/specifications. If ICF desires, in process inspection can be carried out at manufacturing stage also.

At the FAI, the subcontractor shall make available all pertinent design and manufacturing process documentation, test records, material certifications, gauges calibration/certificate etc.

If FAI has to be repeated due to non-compliances/ deficiencies noticed, the cost towards the same and the cost towards BEML/ICF's visit to subcontractor's place for witness of re-FAI shall be to subcontractor's responsibility.

Subcontractor shall note that the Engineer FAI clearance will not relieve the subcontractor's responsibility towards design, production, quality, reliability, availability, maintainability and safety of the systems and sub-systems during the revenue service.

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8.4. Installation and Commissioning

After the Automatic Internal Sliding Doors are delivered, the subcontractor shall depute his Engineer for the installation and commissioning of the Automatic Internal Sliding Doors on all the Train set.

Modifications/ corrections, if any, shall be carried out by the subcontractor at his own cost.

8.5. Vehicle Level type test on Completed car/ Train set

On the completed car/ Train set, the subcontractor shall demonstrate Automatic Internal Sliding Door.

9. Warranty (clause 16 of ICF/MD/SPEC-411)

Please refer to GTC.

10. Appendices

- ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023.
- ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022).
- GR-5357 -Automatic internal sliding door Interface drawing.

11. Submittals with Technical Offer

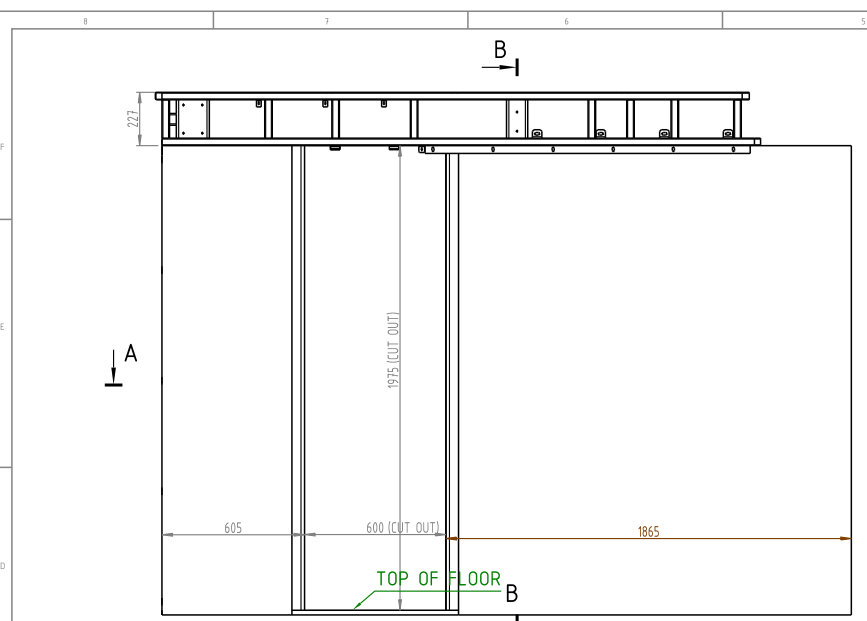
The Subcontractor shall provide as a minimum, the following along with the technical offer.

1. Complete Technical Offer for Automatic Internal Sliding Door assembly including Technical description document of Automatic Internal Sliding Door, Electrical schematics, General arrangement Drawings of each type of Automatic Internal Sliding Door, estimated weights & estimated door operation noise details.
2. Supporting documents for Qualification Criteria compliance including QAP, ITP, company profile with infrastructure facilities, product range etc., (Clause 4)
3. Clause-by- Clause compliance for
 - 1) PTS
 - 2) ICF Spec. No. ICF/MD/SPEC-411, Issue Status: 01, Rev.03 dt. 24.03.2023.
 - 3) ICF MD SPEC-398, ISSUE status-01, Rev.00 dt. 04.04.2022.

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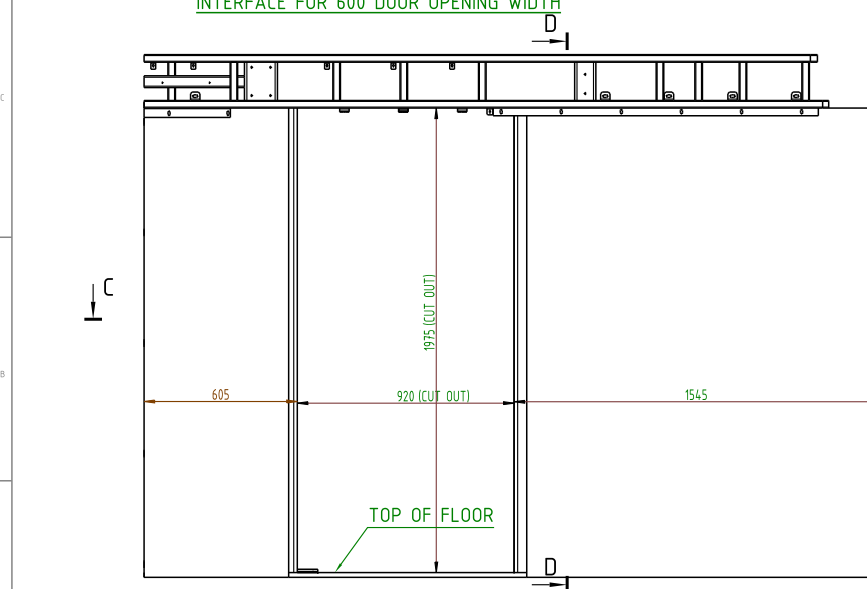
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2	1		REF. DRG.			
3	1		MATERIAL			
4	1		HEAT TREAT.			
5	1		SURFACE TREAT.			
6	1		NOTES			
7	1		APPROVED			
8	1		CHKD			
9	1		DRWN			
10	1		SCALE			
11	1		DRG No.			
12	1		ALT. No.			
13	1		EEN NO/CHANGES			
14	1		DATE			
15	1		BY			
16	1		ENGR			
17	1		APPRO			

SURFACE
ROUGHNESS



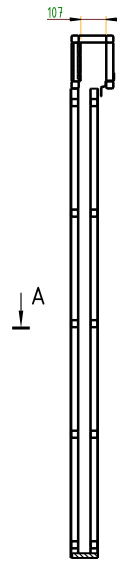
Section view A-A

INTERFACE FOR 600 DOOR OPENING WIDTH

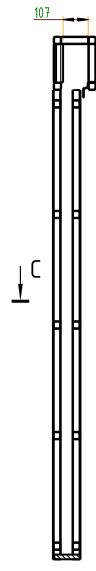


Section view C-C

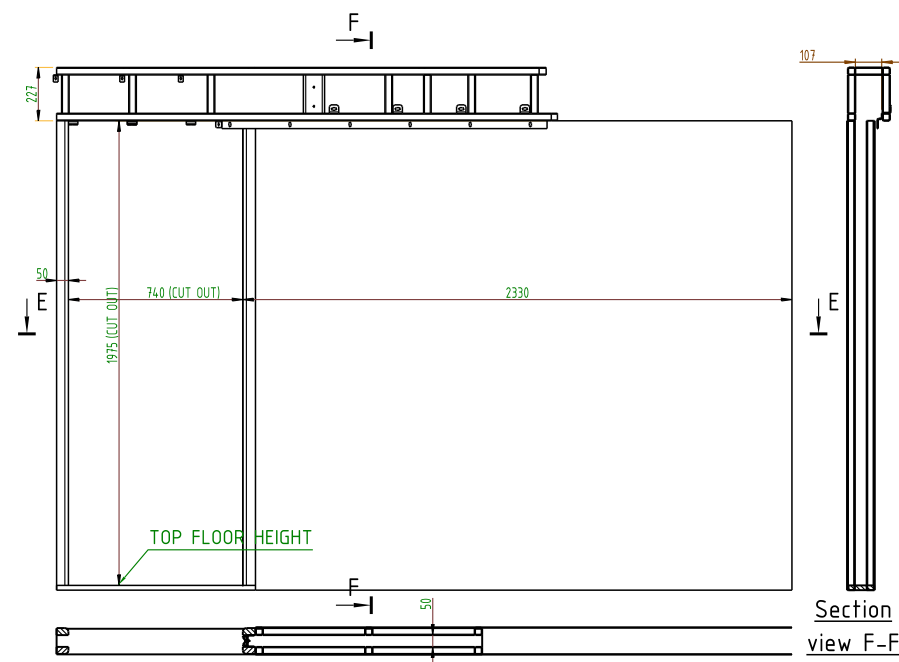
INTERFACE FOR 920 DOOR OPENING WIDTH



Section view B-B



Section view D-D



Section view E-E

INTERFACE FOR 740 DOOR OPENING WIDTH

Note:

- i). The dimensions may be subject to changes during the detail design phase.
- ii). Required opening width Automatic sliding door- i)600mm, ii) 920mm and iii) 740mm
- iii). Distance between door posts i)600mm, ii) 920mm and iii) 740mm which is same as required opening door width.

FOR REFERENCE ONLY

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
TOLERANCE		±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-II) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS 1012.C							STATUS			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./S	Wt. (Kg)
1	1		PRODUCT			
2	1		REF. DRG.			
3	1		MATERIAL			
4	1		HEAT TREAT.			
5	1		SURFACE TREAT.			
6	1		NOTES			
7	1		APPROVED			
8	1		CHKD			
9	1		DRWN			
10	1		SCALE			
11	1		DRG No.			
12	1		ALT. No.			
13	1		EEN NO/CHANGES			
14	1		DATE			
15	1		BY			
16	1		ENGR			
17	1		APPRO			

AUTOMATIC SLIDING
DOOR INTERFACE

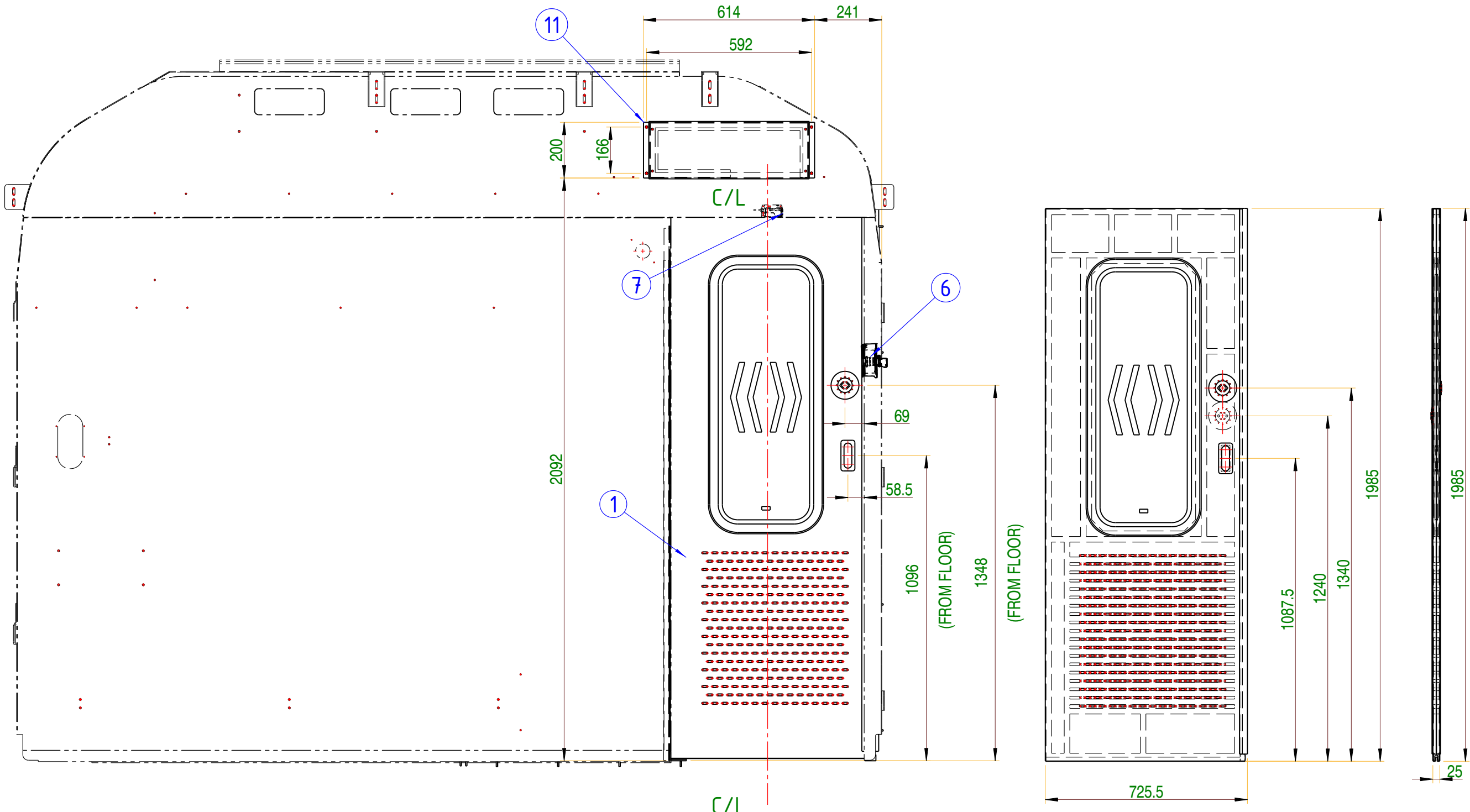
GR-5357

APPD	09.06.2023
REV'D	09.06.2023
CHKD	09.06.2023
DRWN	09.06.2023
SCALE	1 OF 1
DRG No.	
ALT	

BEML LIMITED

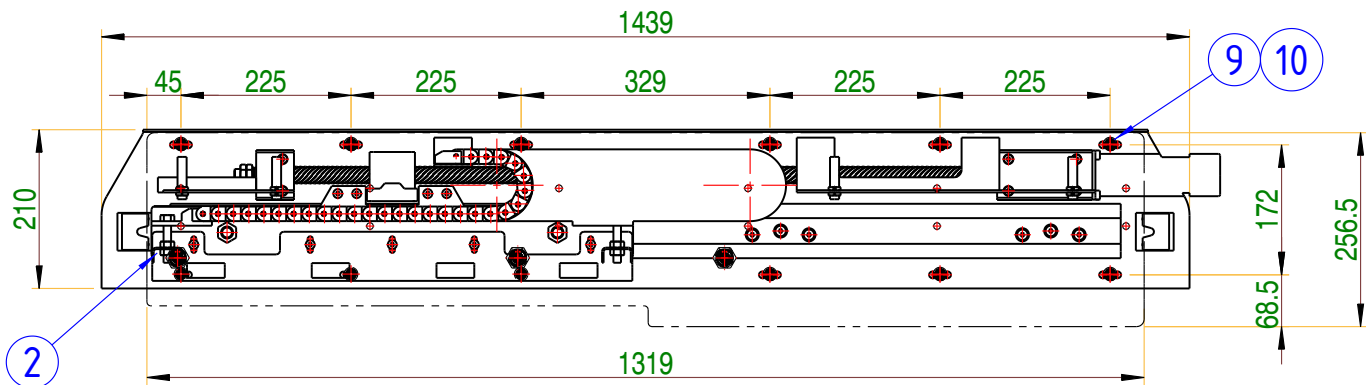
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GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
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SYMBOL												
SURFACE												
ROUGHNESS												



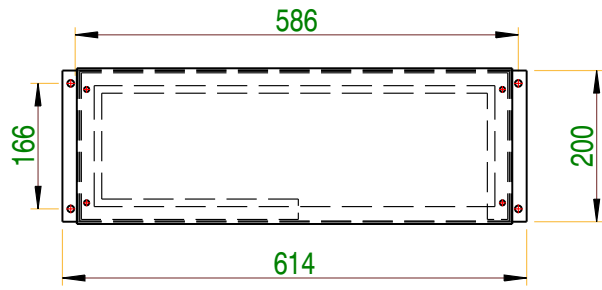
VIEW FROM
VESTIBULE AREA

ITEM NO:1



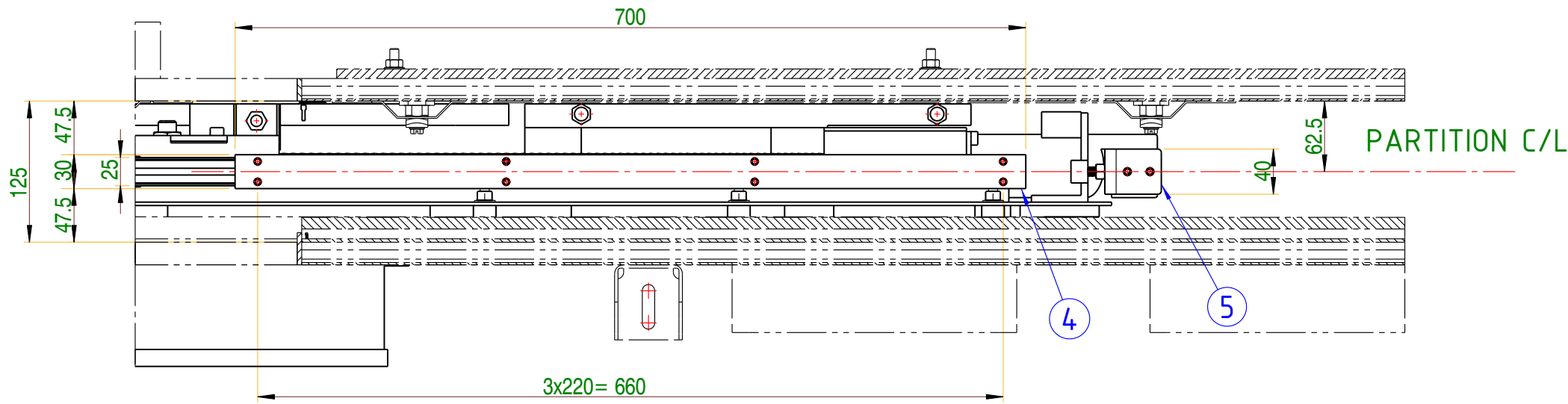
SECTION G-G

SCALE: 1:10



ITEM NO:11

SCALE: 1:10



SECTION H-H

SCALE: 1:5

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						STATUS:	PROTO/PRODUCTION			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

- NOTE:
1. ALL DIMENSIONS ARE IN mm.
 2. AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 694mm RH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400005.
 3. ALL FASTENERS TO BE PROVIDED LOCTITE 243
 4. SALOON/PASSENGER AREA & VESTIBULE AREA SHOULD CONFIRM TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	2	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	14	-	STAINLESS STEEL PLAIN WASHER	8.4	IS:2016-67
9	14	-	STAINLESS STEEL HEXAGONAL SOCKET ALLEN SCREW	M8x35	IS:2269-95
8	15	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		LEUZE MAKE 50127061, HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		SCHNEIDER MAKE XB5AS54N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSEMBLY		ALUMINIUM SANDWICH

SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
						MATERIAL
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)		
			REF DRG			
			MATERIAL			
			HEAT TREAT.			
			SURFACE TREAT.			
			TITLE			
			INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 650mm RH (IC DOOR)			
			DATE	09/10/2024	BY	NSD
			CHKD	GP	APPD	RNN
			REVISD & REDRAWN	ECN NO:52310208		
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			DRG No.			
			ALT			

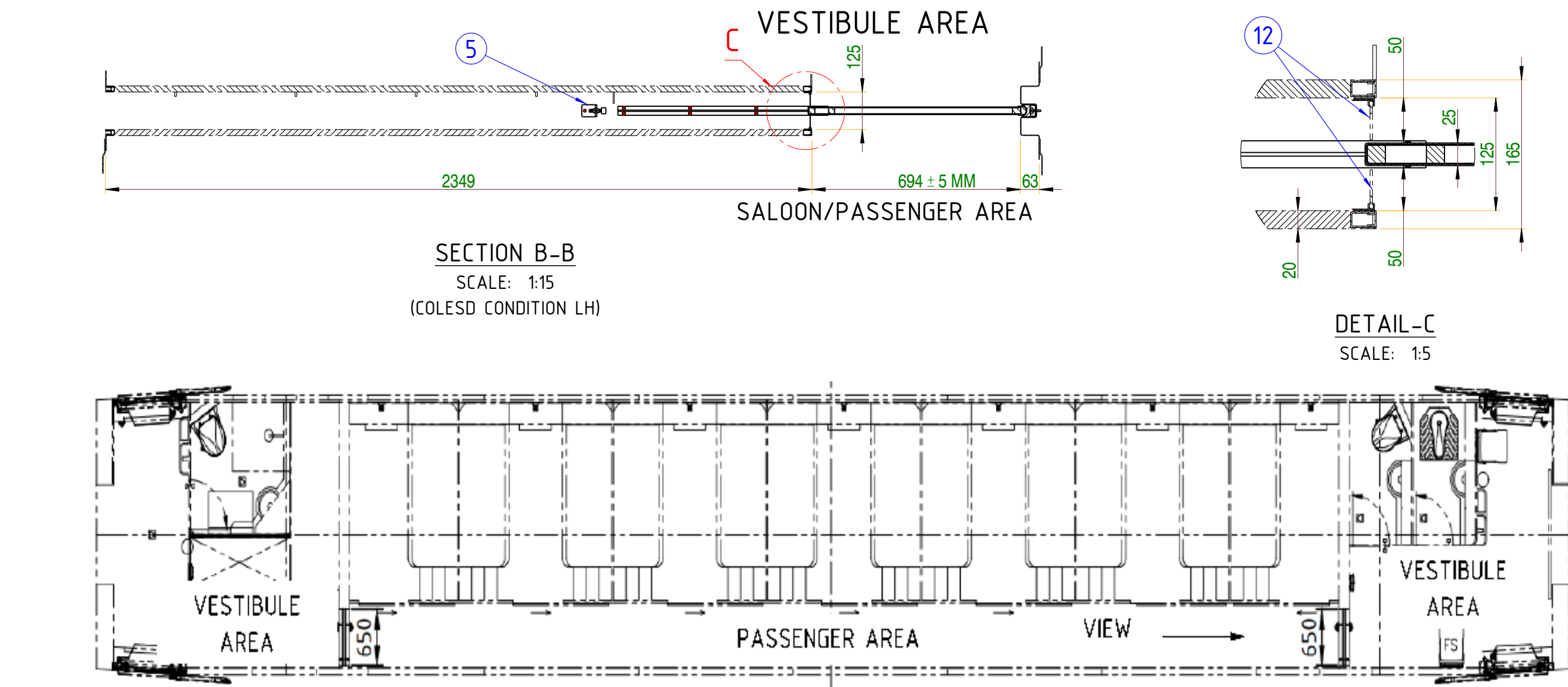
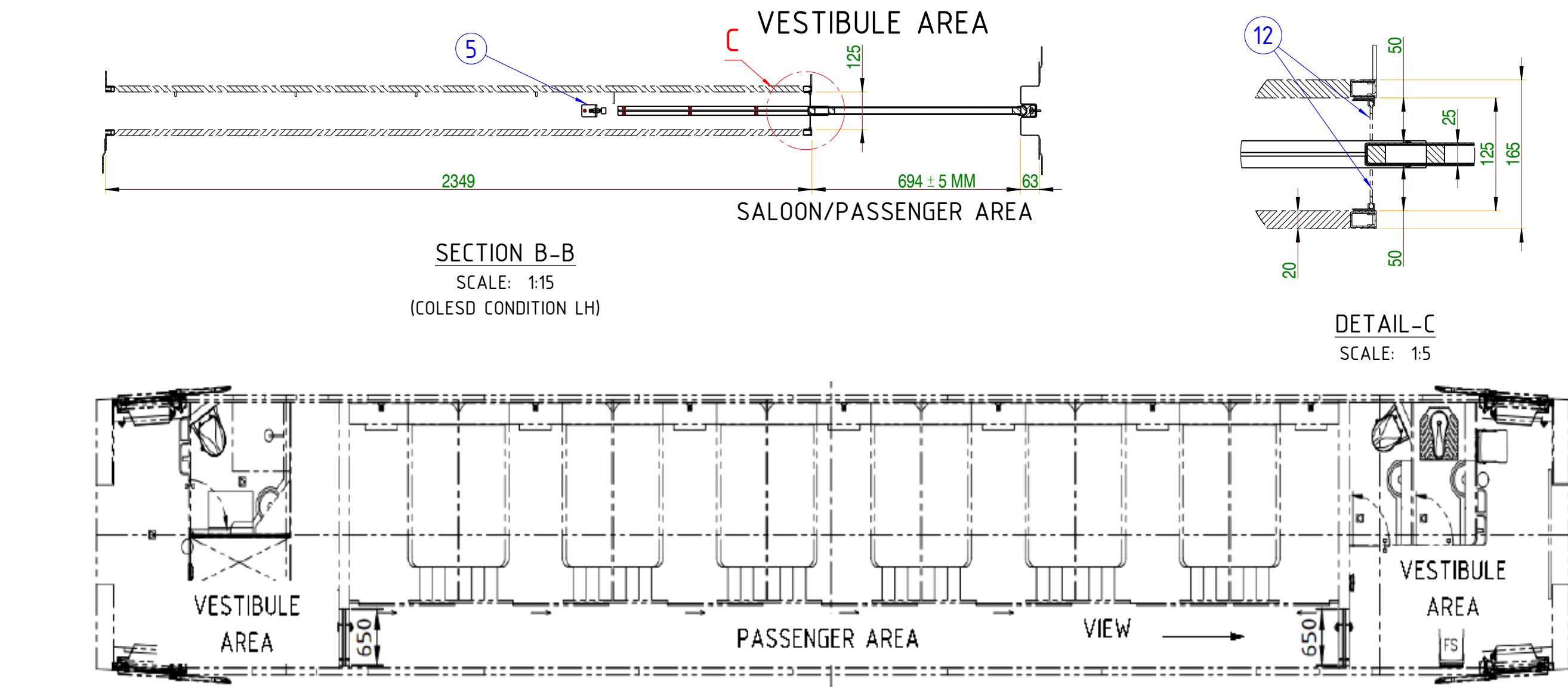
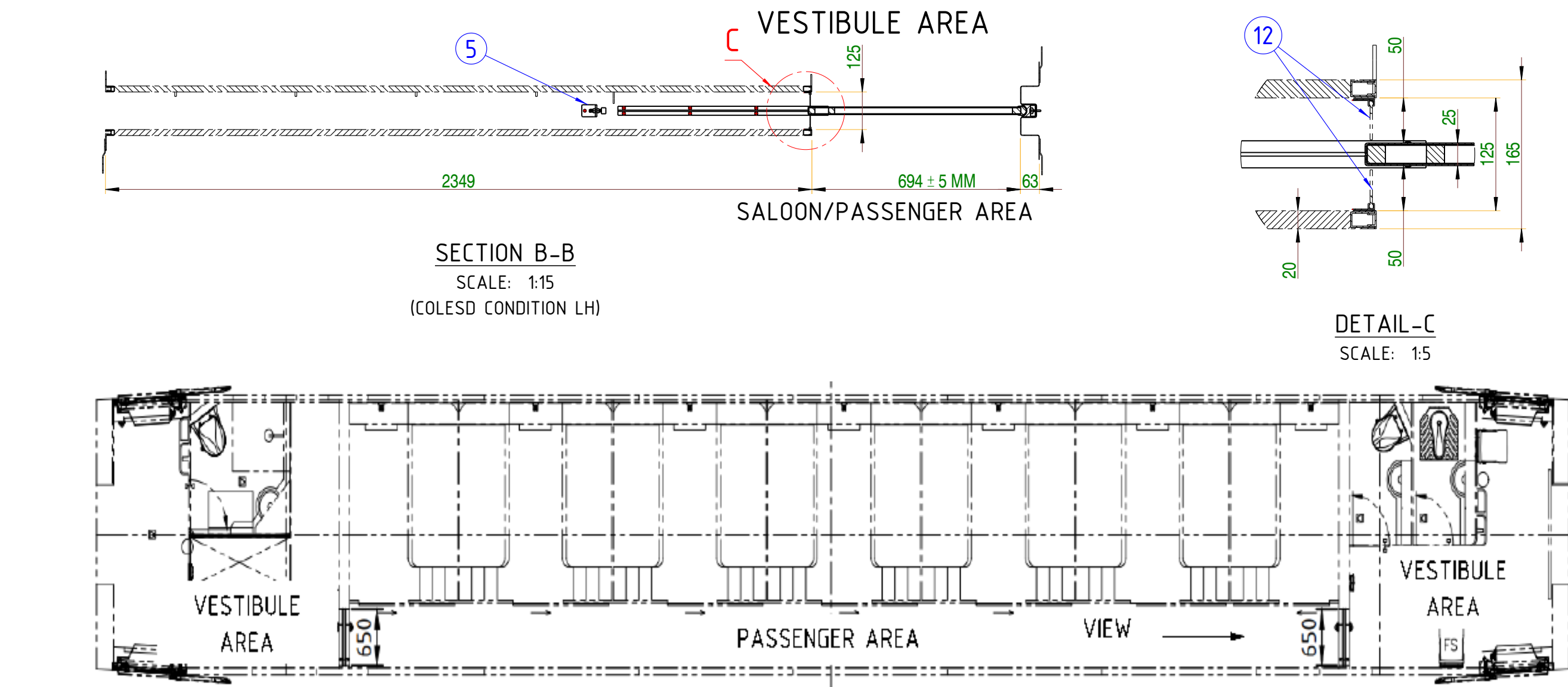
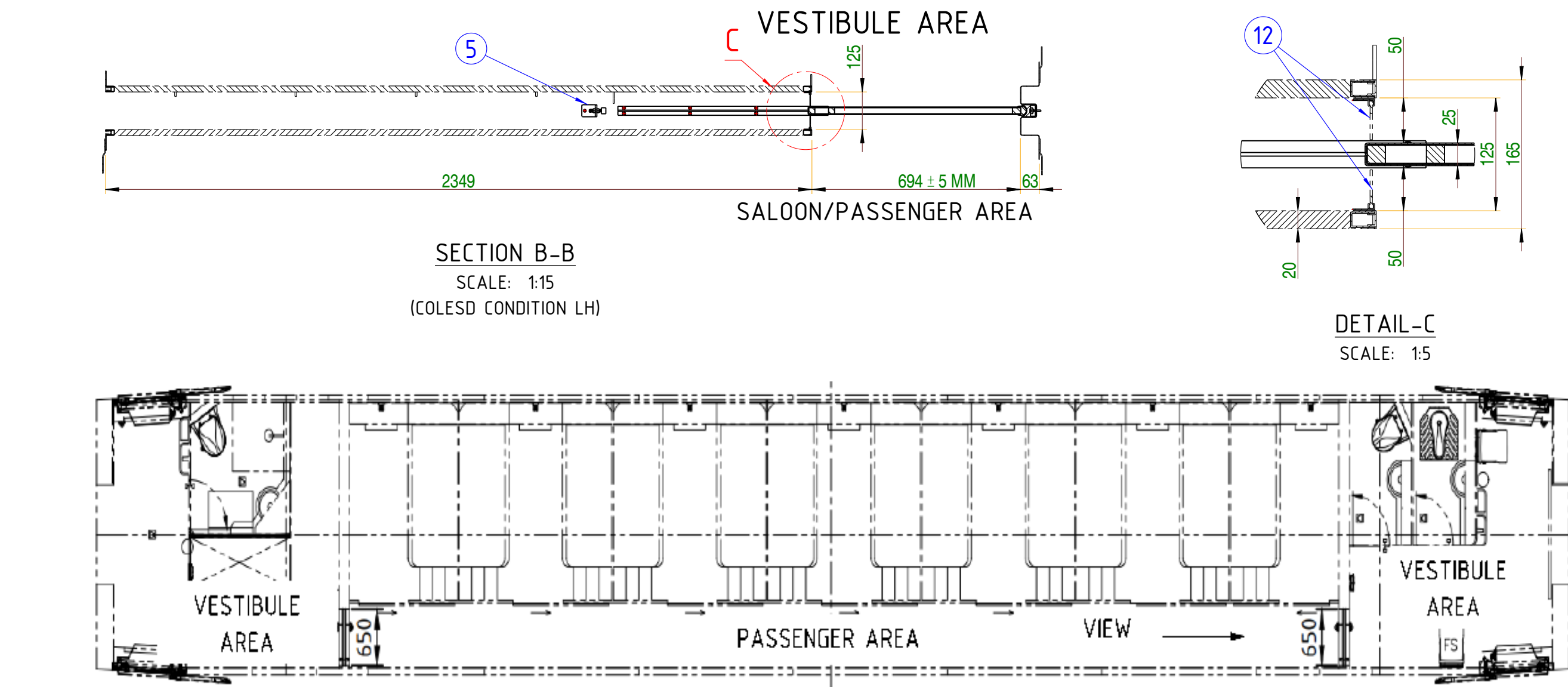
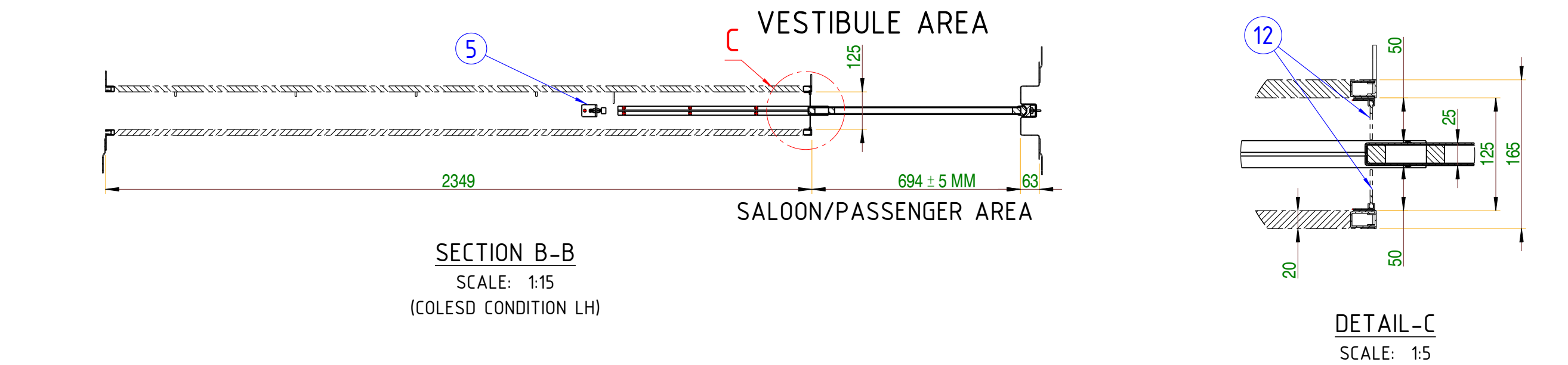
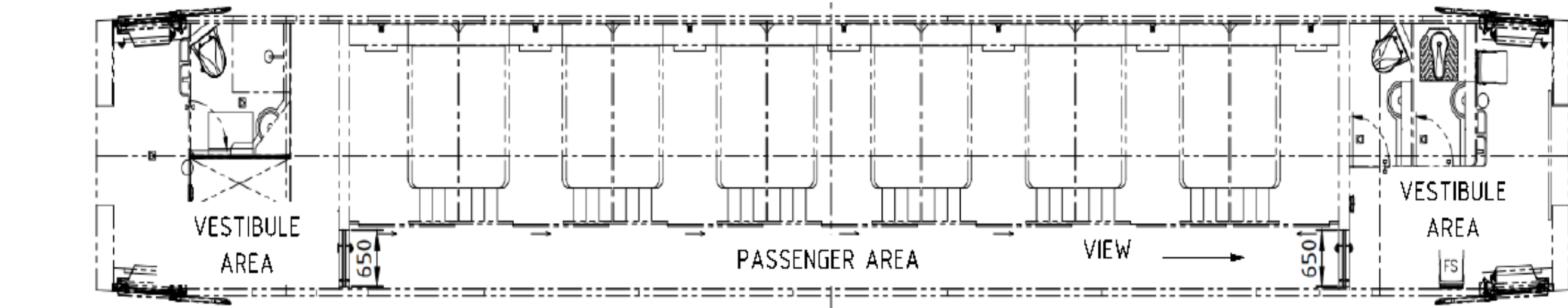
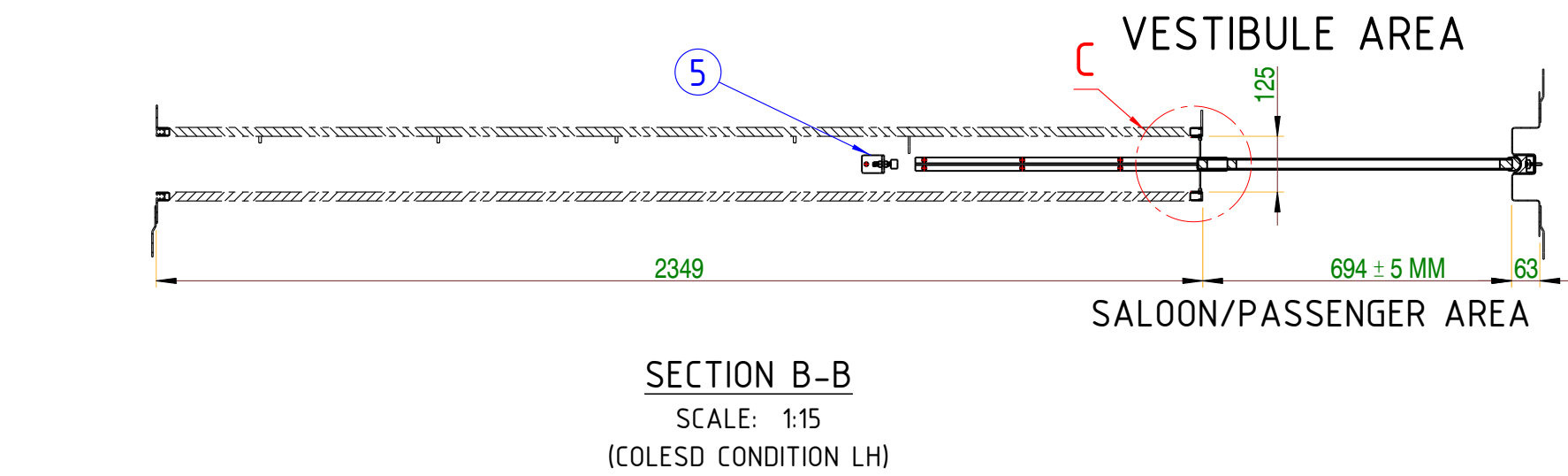
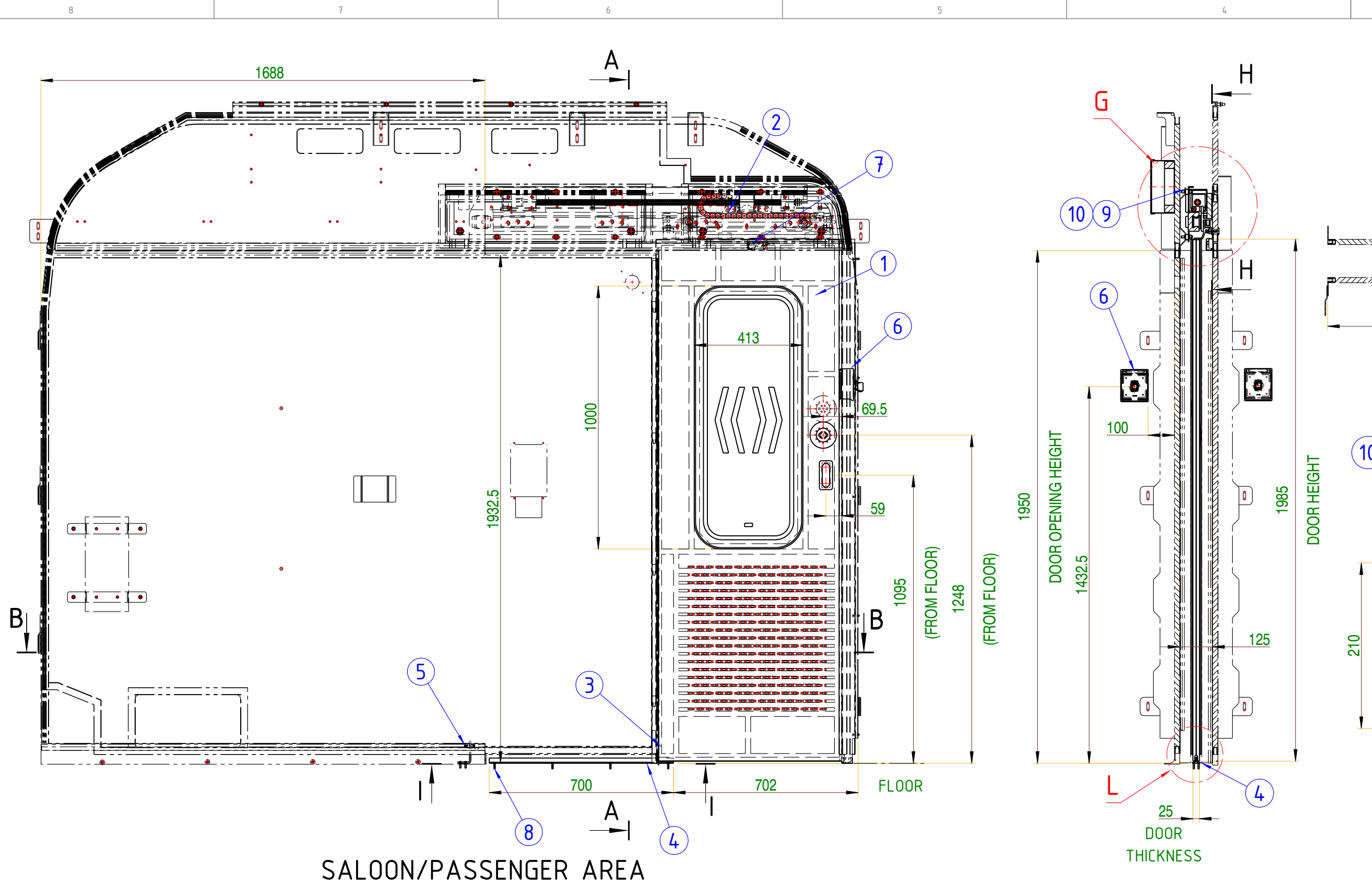
BEML LIMITED

533-14002

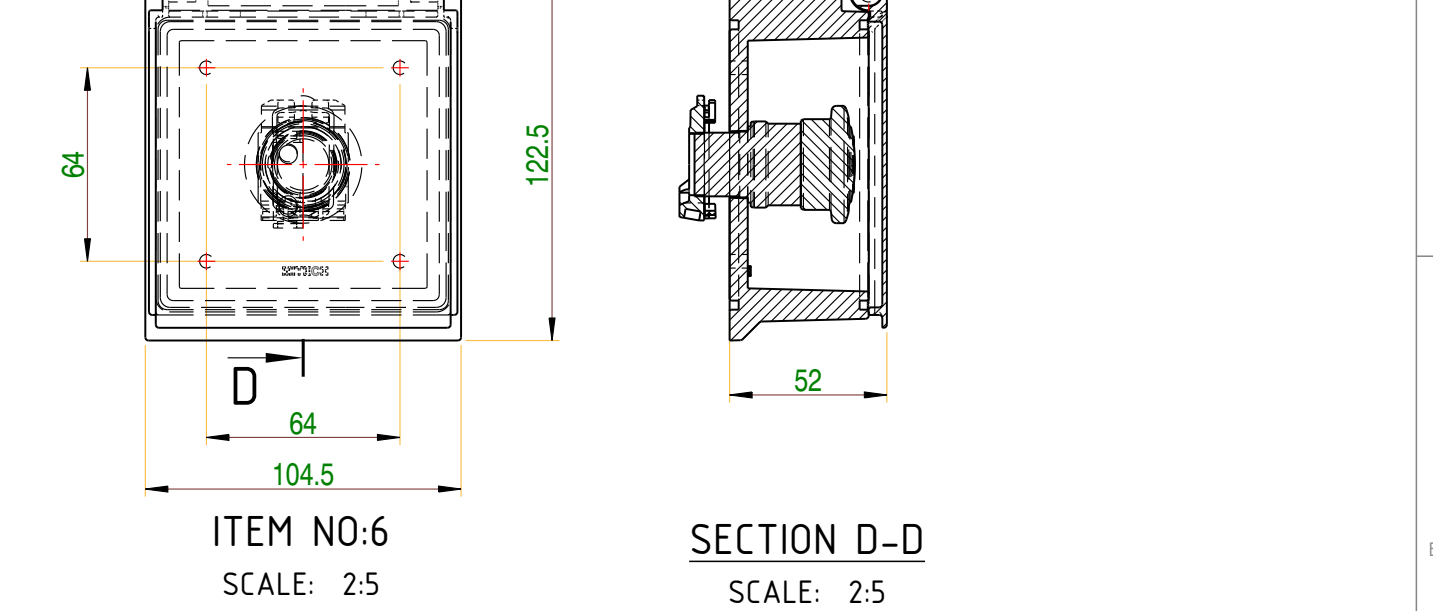
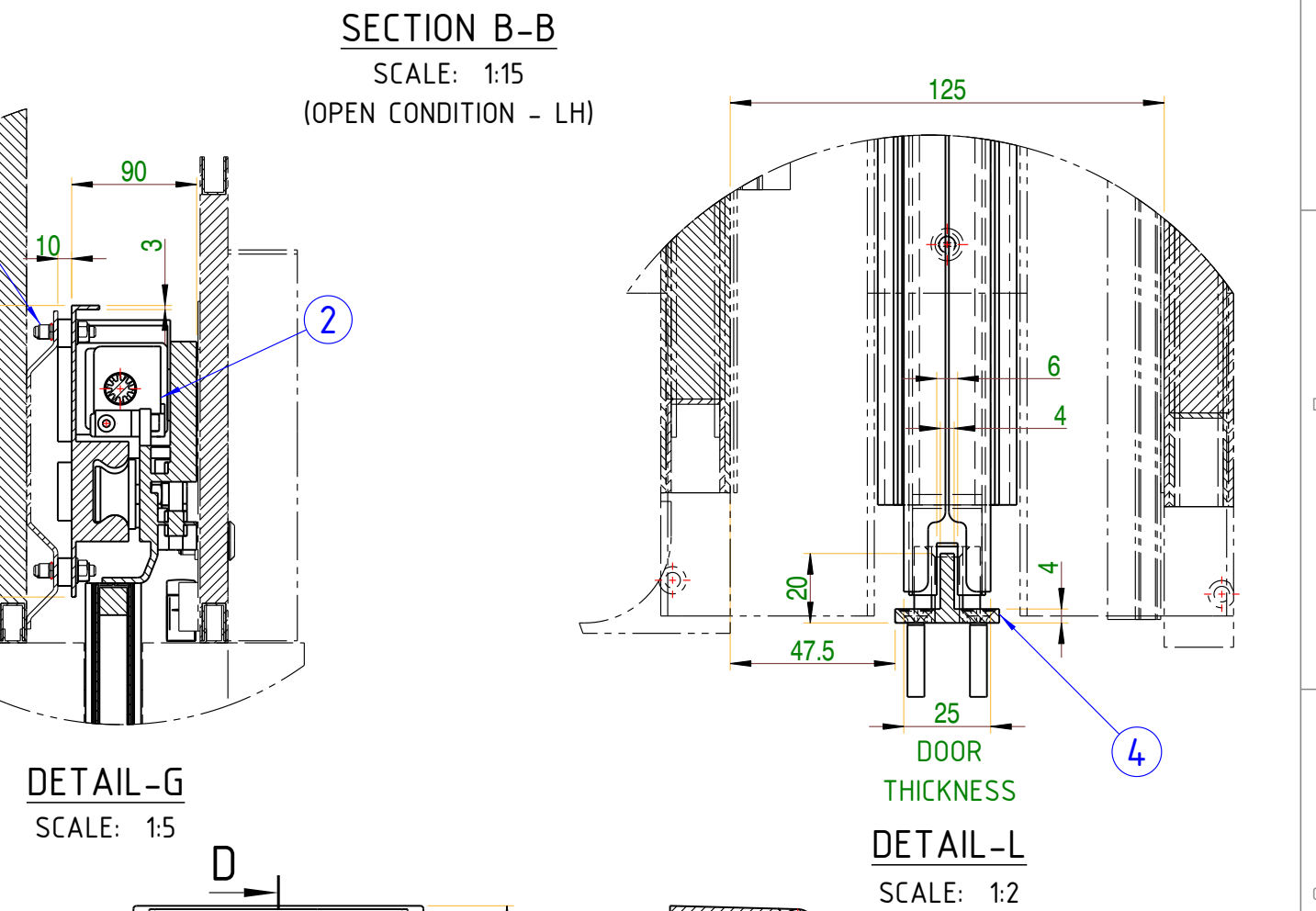
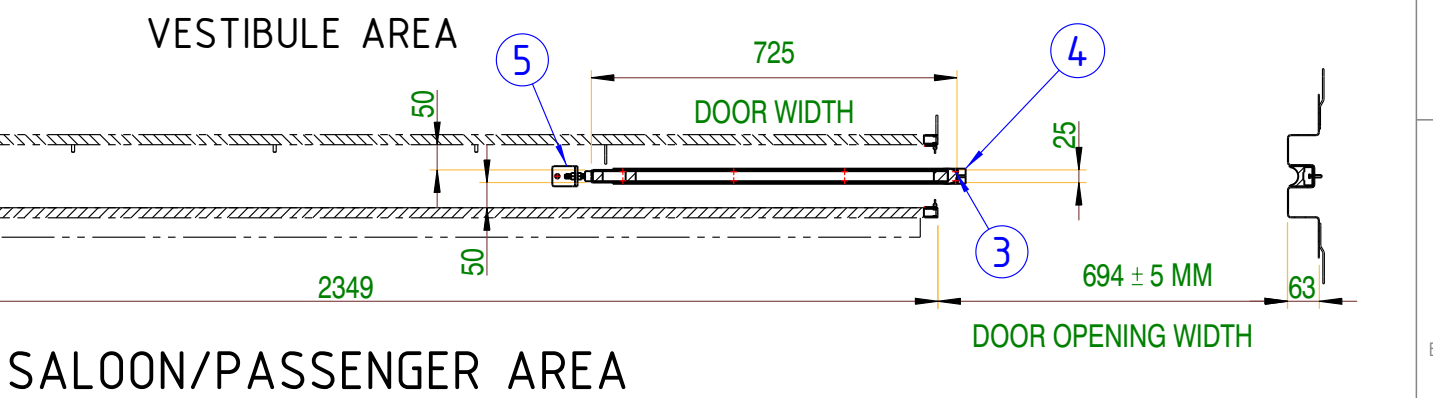
A2

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GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
ROUGHNESS												



MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)								QUALITY OF WELD JOINTS REF. RD 230 MEDIUM		
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.								STATUS: PROTO/PRODUCTION		
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S.	Wt. (Kg)
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)		
			REF DRG			
			MATERIAL			
			HEAT TREAT.			
			SURFACE TREAT.			
			TITLE			
			INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 650mm LH (IC DOOR)			
			SCALE	1:15	SHEET	1 OF 2
			DRWN	NSD	APPD	RNN
			DATE	09/10/2024	BY	NSD
			CIRD	GP	APPD	RNN
			ALT.NO.	ECN NO/CHANGES	DATE	09/10/2024
			Wt. (Kg)	1	ALT	1



533-14001

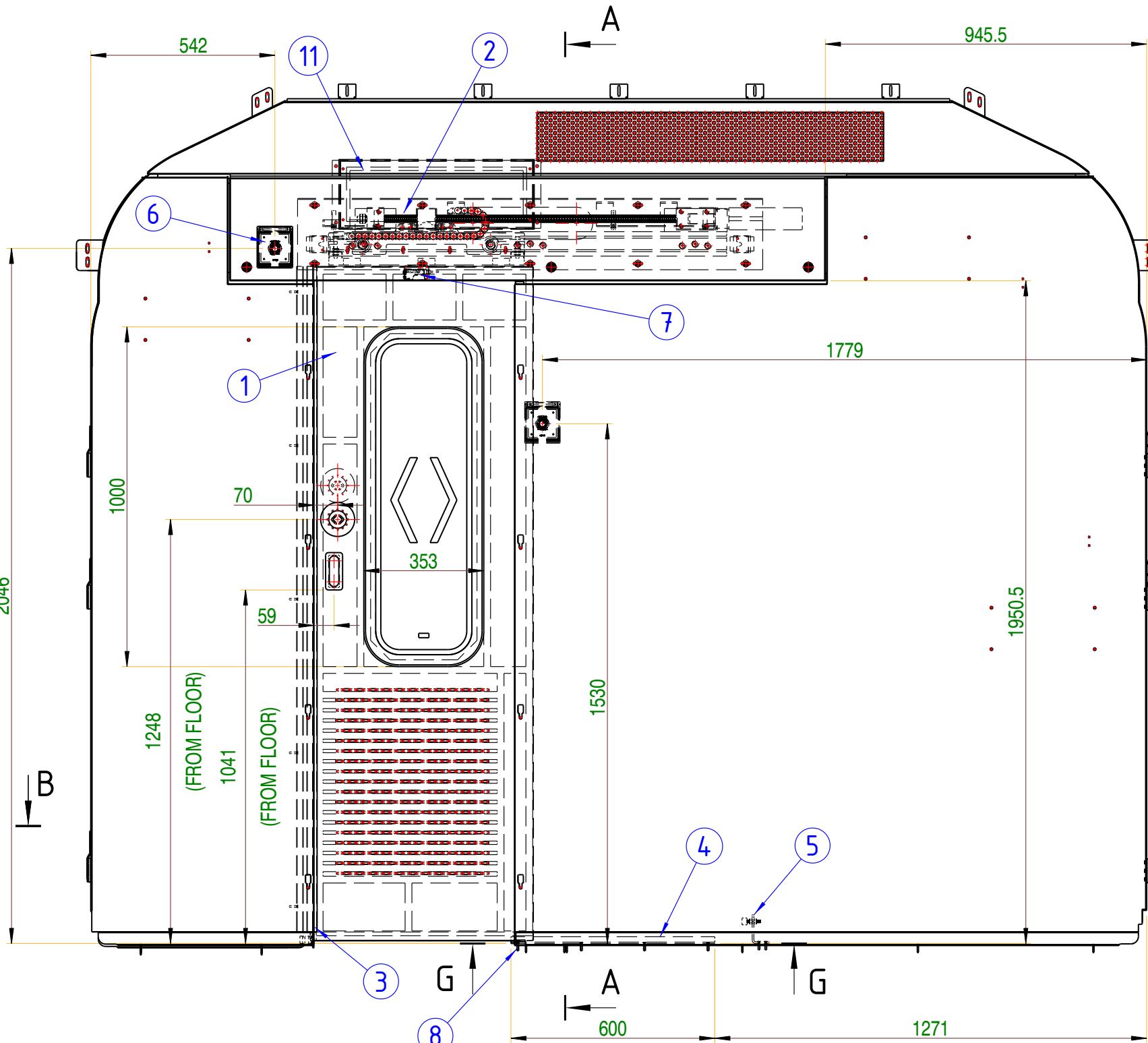
A2

SL.No.	QTY	PART / STOCK No.				DESCRIPTION	SIZE	COMPANY STD./I.S		Wt. (Kg)	
								MATERIAL			
						PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)				
						REF DRG					
						MATERIAL					
						HEAT TREAT.	APPD	RNN	09/10/2024		
						SURFACE TREAT.	REVD	DK	08/10/2024		
						TITLE	CHKD	GP	07/10/2024		
	REVISED & REDRAWN ECN NO:52310208	DATE 09/10/2024	BY NSD	CHKD GP	APPD RNN	INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 650mm LH (IC DOOR)	DRWN	NSD	05/10/2024		
							SCALE 1:15		SHEET 2 OF 2	Wt.	
							DRG No.				
ALT.NO.	ECN NO/CHANGES		DATE	BY	CHKD	APPD	 BEM LTD LIMITED <small>NEW FRONTIERS, NEW URBANS</small>				
							533-14001				
											

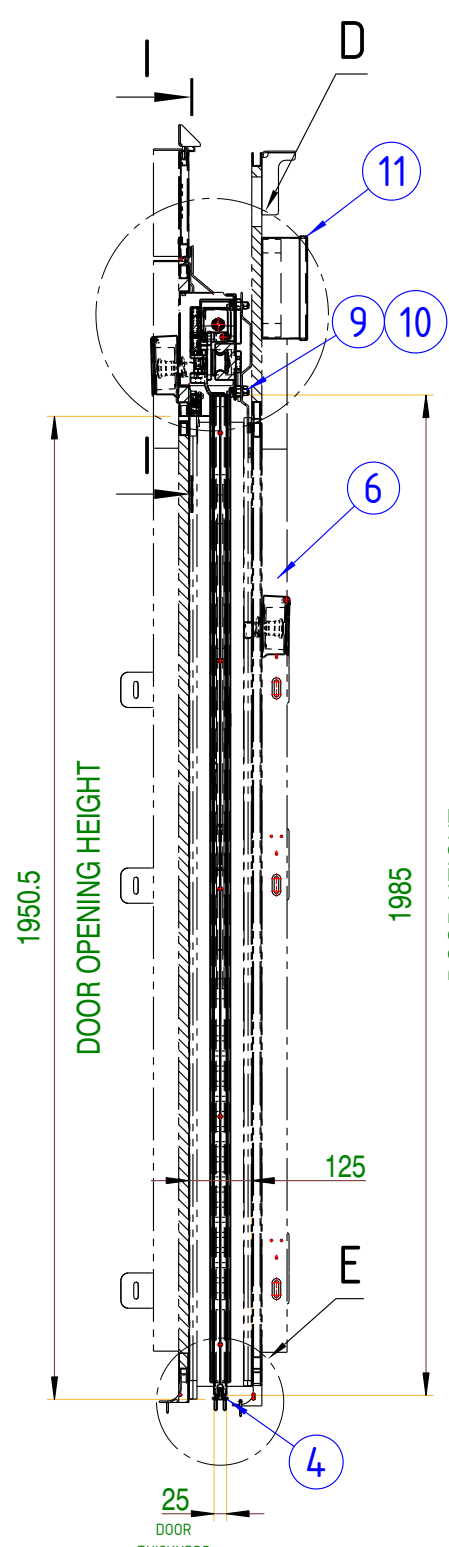


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DRAWING RELEASED FROM PLM, PHYSICAL SIGNATURE NOT REQUIRED

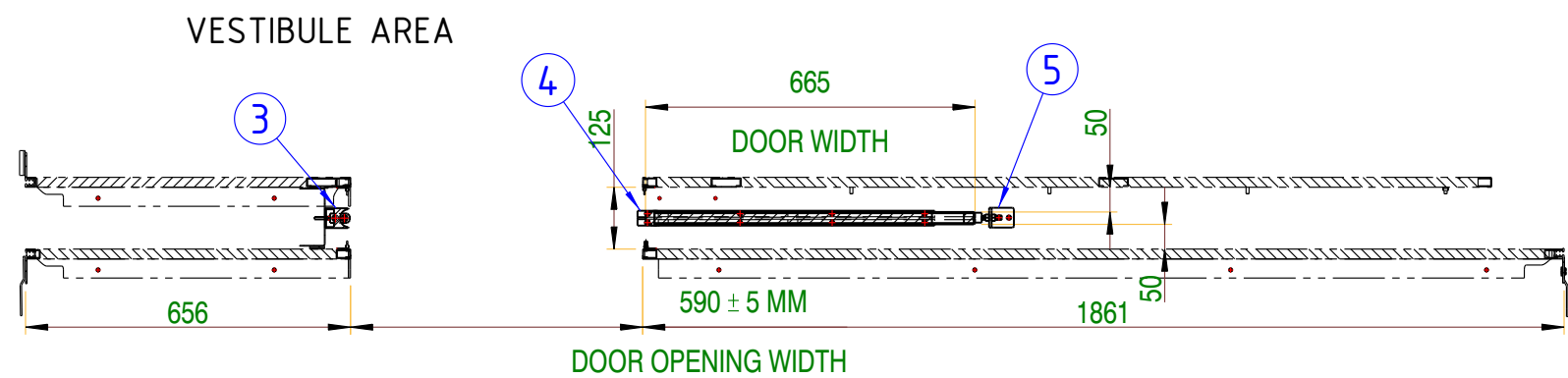
GRADE No.	VALUE	SYMBOL	ROUGHNESS
N1	0.025	▽	
N2	0.05	▽	
N3	0.1	▽	
N4	0.2	▽	
N5	0.4	▽	
N6	0.8	▽	
N7	1.6	▽	
N8	3.2	▽	
N9	6.3	▽	
N10	12.5	▽	
N11	25	▽	
N12	50	▽	



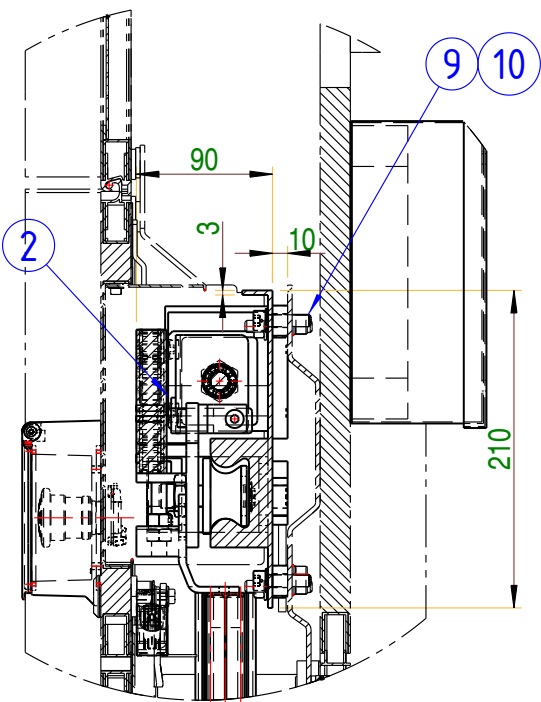
VIEW FROM
SALOON/PASSENGER AREA



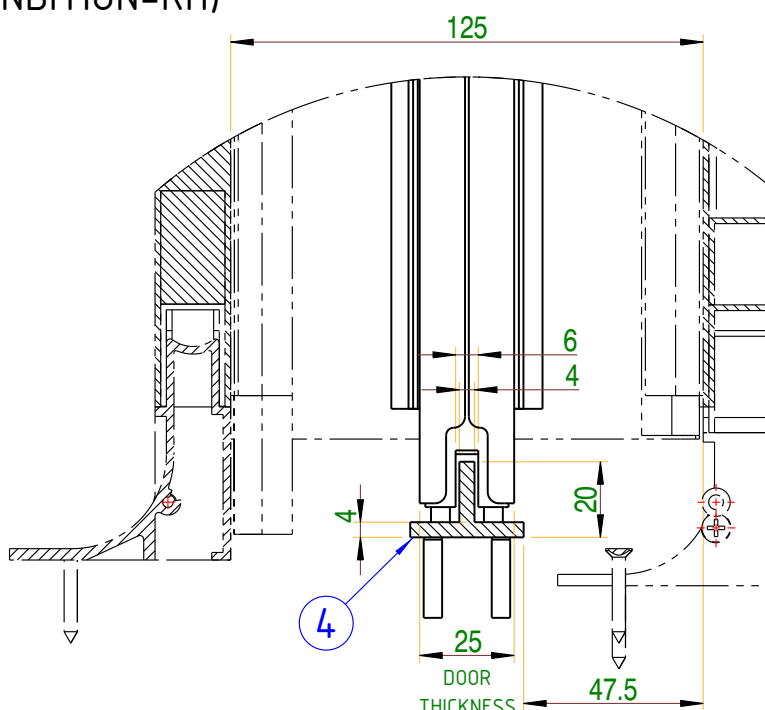
SECTION A-A
SCALE: 1:15



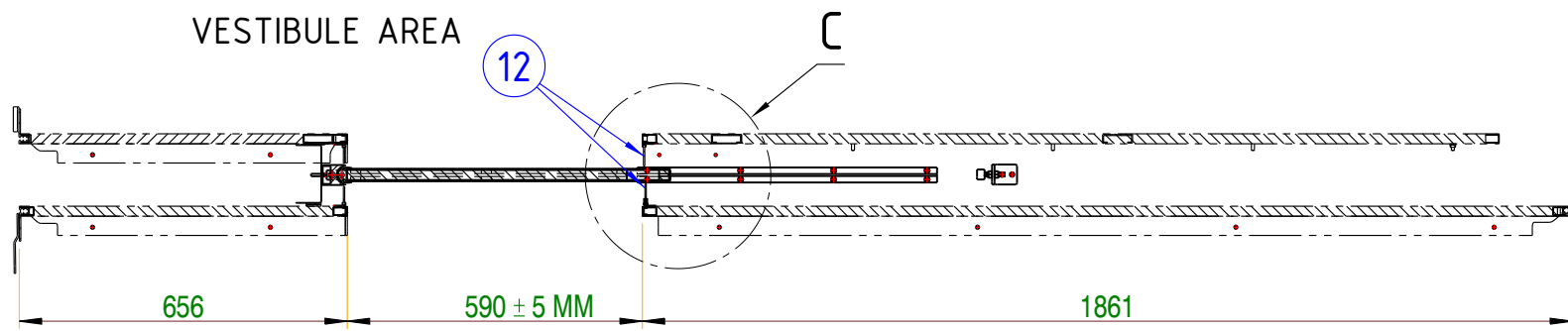
SALOON/PASSENGER AREA
SECTION B-B
SCALE: 1:15
(OPEN CONDITION-RH)



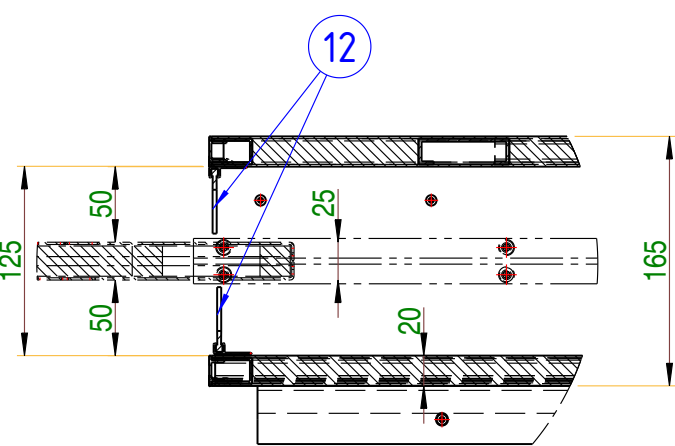
DETAIL-D
SCALE: 1:5



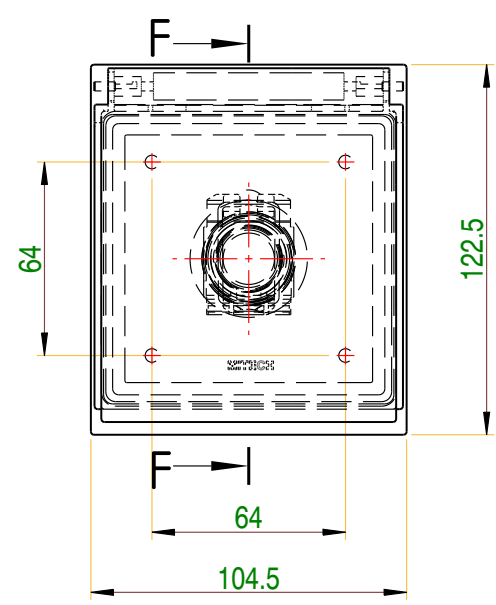
DETAIL-E
SCALE: 1:2



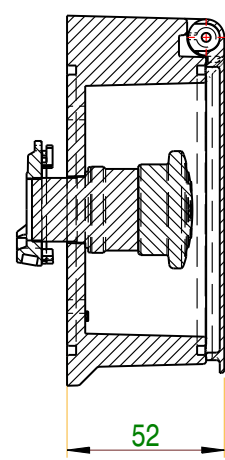
SALOON/PASSENGER AREA
SECTION B-B
SCALE: 1:15
(CLOSED CONDITION-RH)



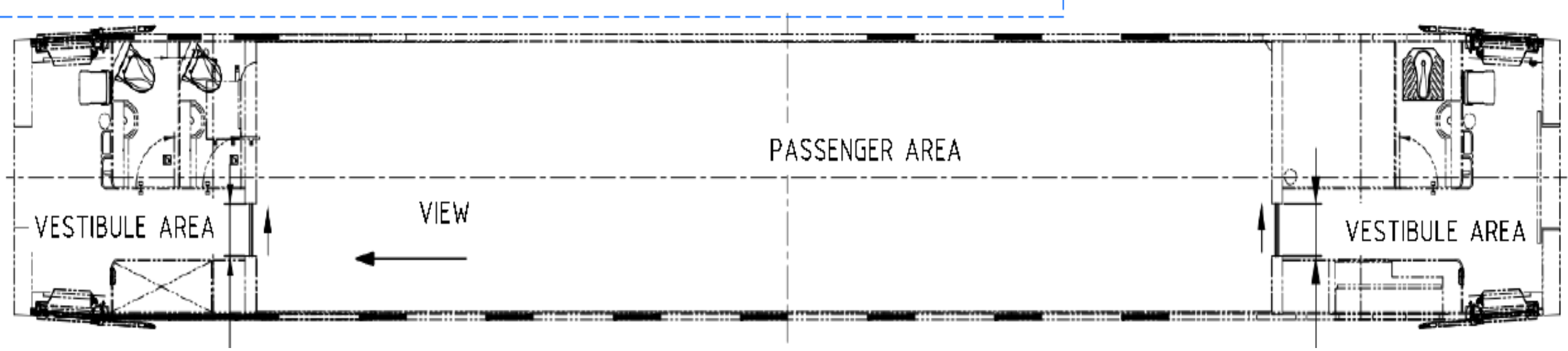
DETAIL-C
SCALE: 1:5



ITEM NO:6
SCALE: 2:5



SECTION F-F
SCALE: 2:5

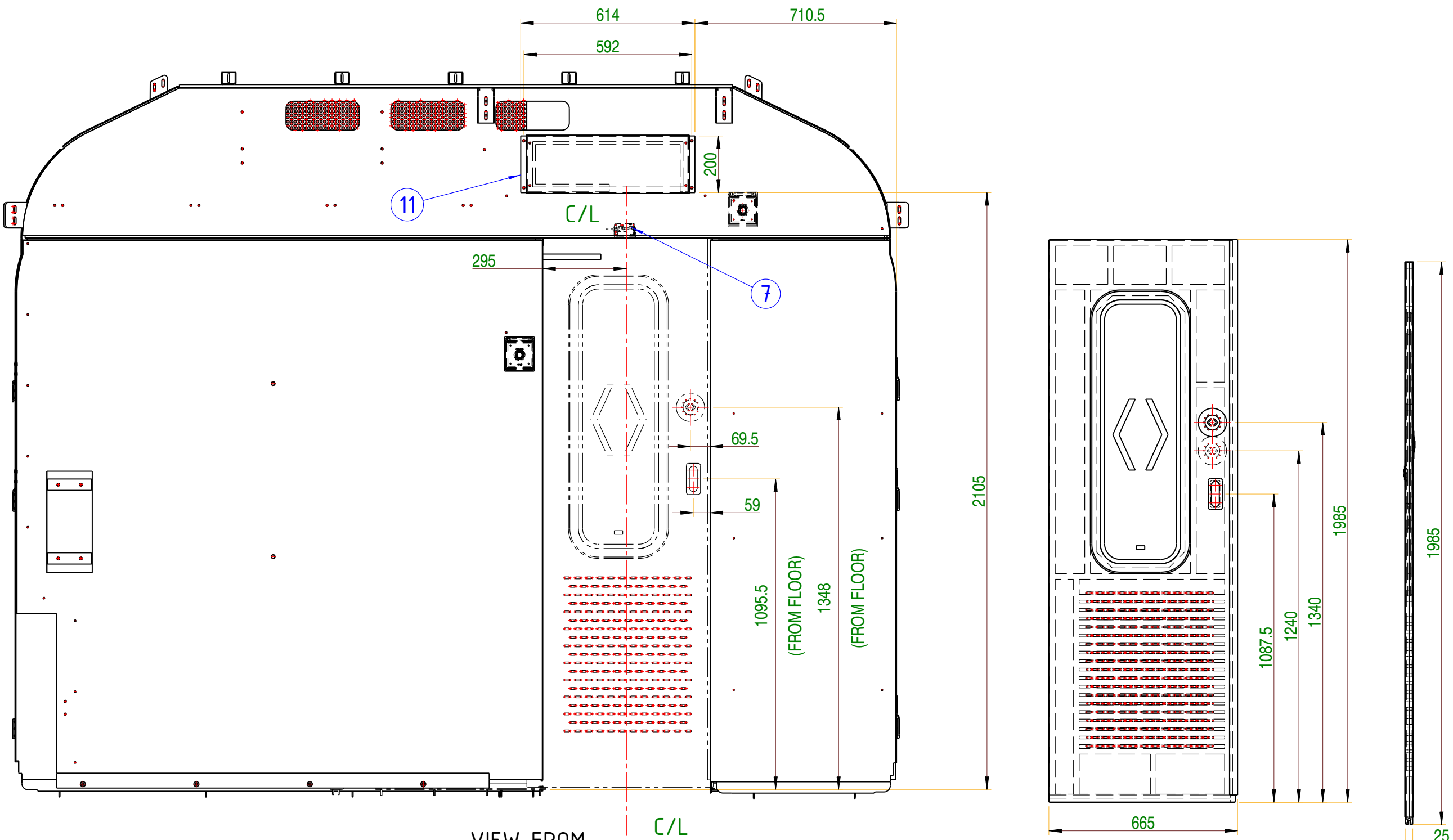


VIEW

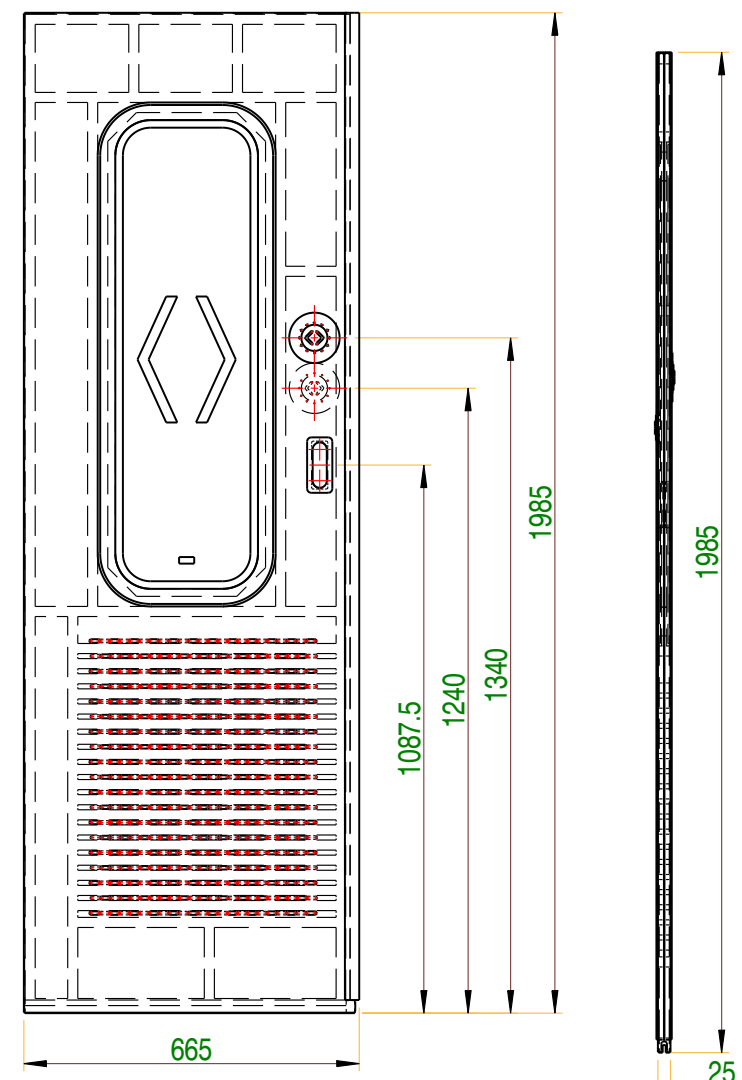
SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S.	Wt. (Kg)
			PRODUCT			
			REF DRG			
			MATERIAL			
			HEAT TREAT.			
			SURFACE TREAT.			
			TITLE			
			INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 590mm RH (IC DOOR)			
			SCALE			
			1:15			
			DRG No.			
			1			
			ALT			
			1			

BEML LIMITED

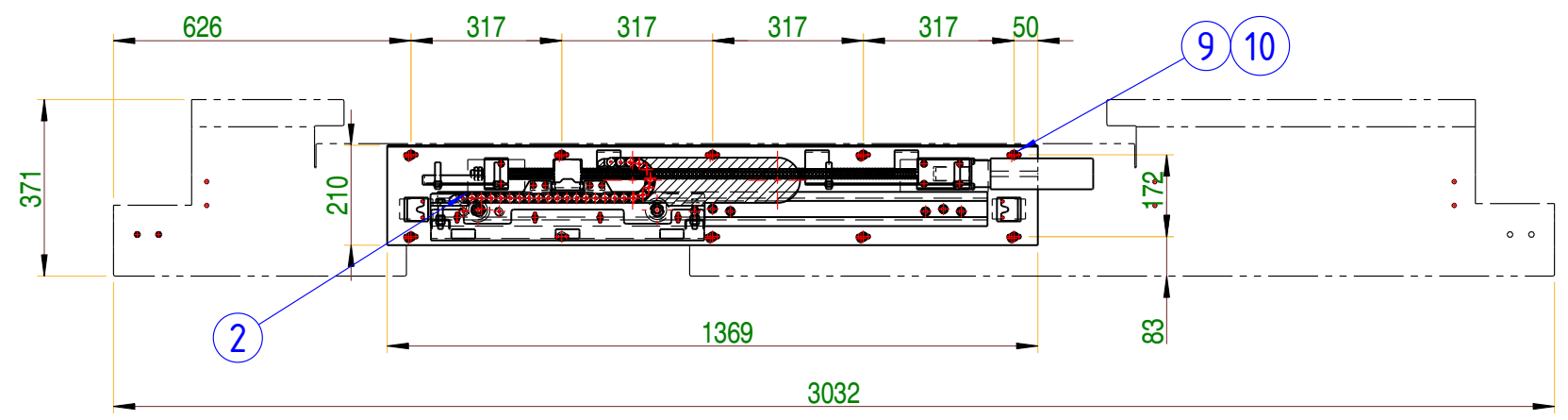
529-14002



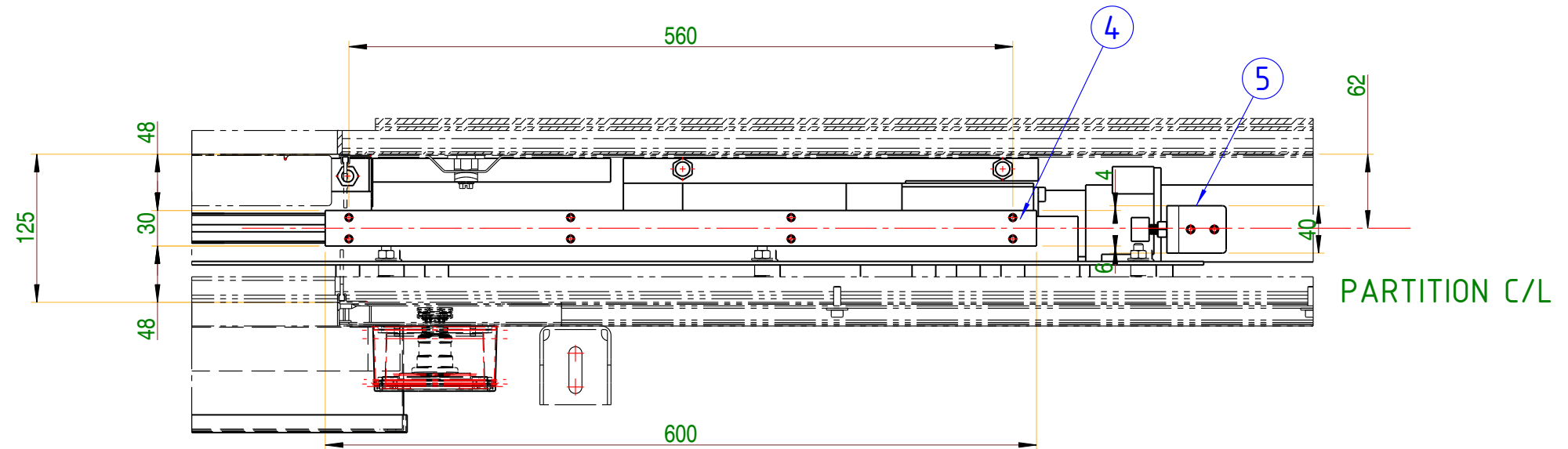
VIEW FROM
VESTIBULE AREA



ITEM NO:1

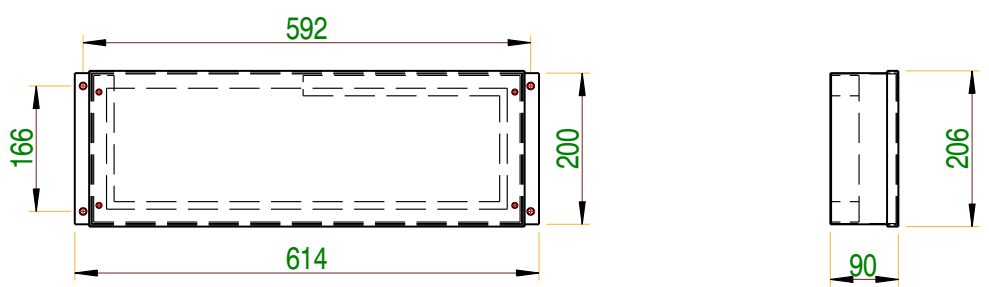


SECTION I-I
SCALE: 1:15



SECTION G-G
SCALE: 1:5

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS:	PROTO/PRODUCTION		
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



ITEM NO:11
SCALE: 1:10

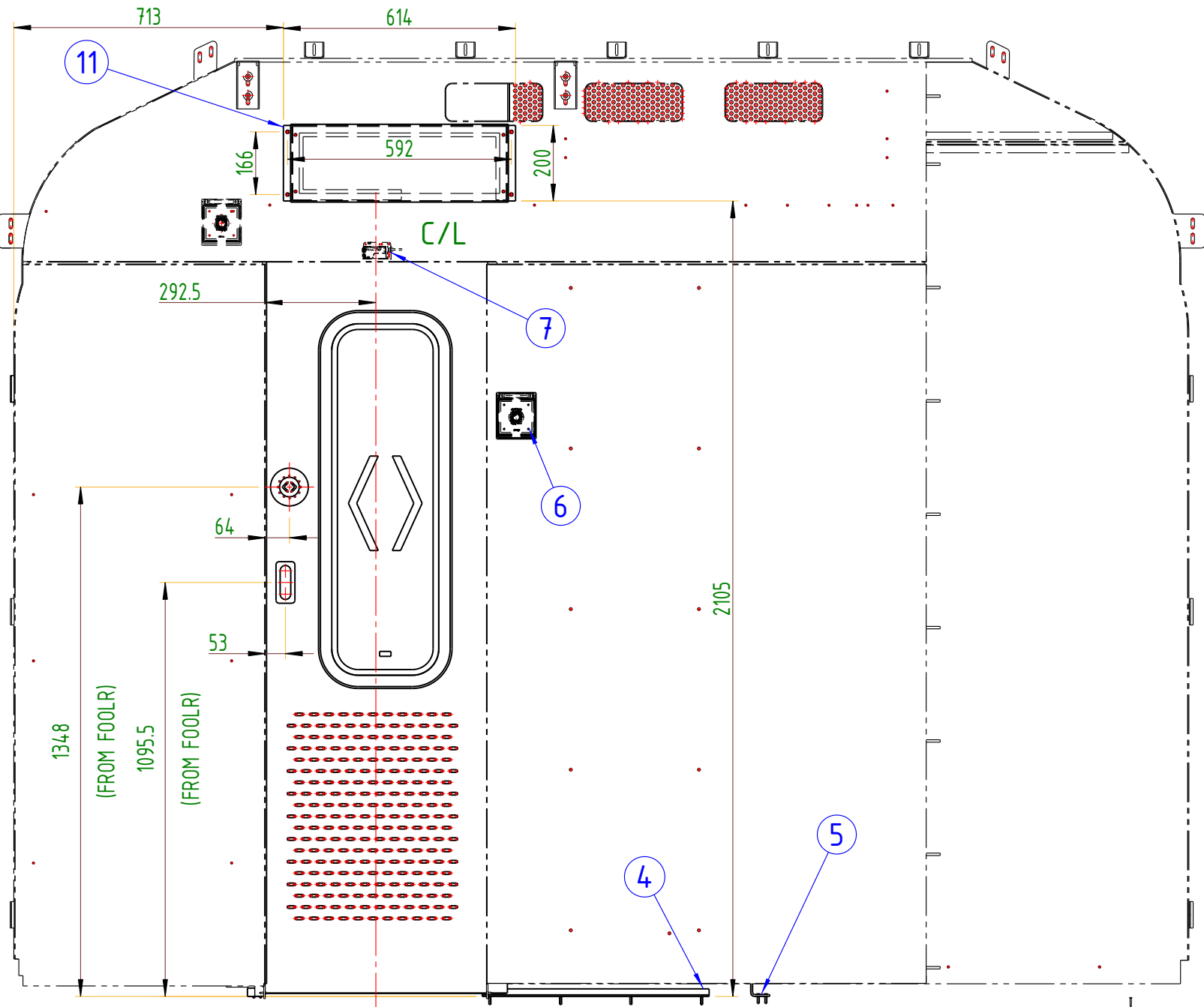
- NOTE:
1. ALL DIMENSIONS ARE IN mm.
 2. AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 590mm RH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400003.
 3. ALL FASTENERS TO BE PROVIDED LOCTITE 243.
 4. SALOON/PASSENGER AREA & VESTIBULE AREA SHOULD CONFIRM TO TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	4	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	10	-	STAINLESS STEEL PLAIN WASHER 8.4	8.4	IS:2016-67
9	10	-	STAINLESS STEEL HEXAGONAL SOCKET M8*35 ALLEN SCREW	M8x35	IS:2269-95
8	17	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST4.2*25C	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		50127061,HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		XB5AS54N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSEMBLY		ALUMINIUM SANDWICH

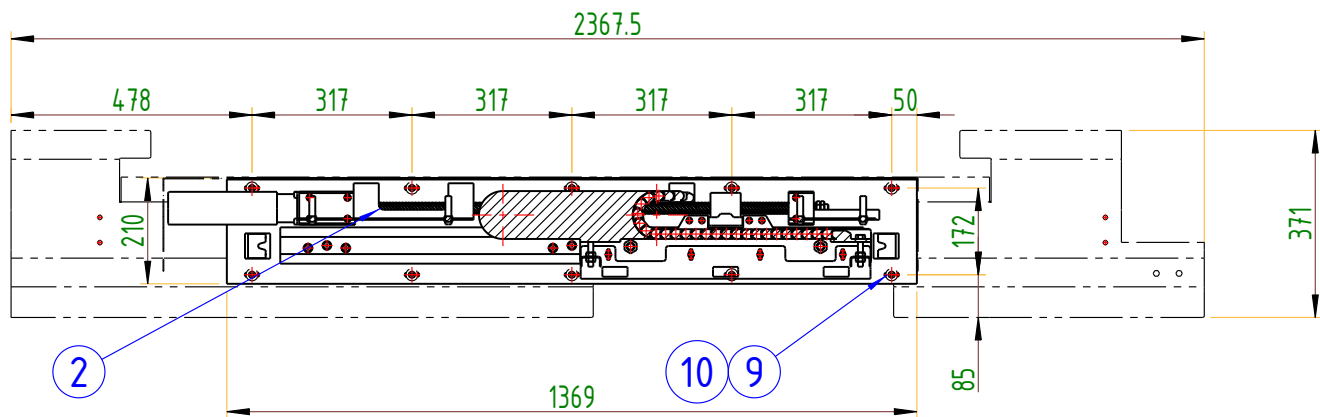
SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
MATERIAL						
PRODUCT VANDE BHARAT SLEEPER VERSION (10TS)						
REF DRG						
MATERIAL						
HEAT TREAT.						
SURFACE TREAT.						
TITLE						
INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 590mm RH (IC DOOR)						
SCALE 1:15						
DRG No.						
SHEET 2 OF 2						
Wt.						
ALT						

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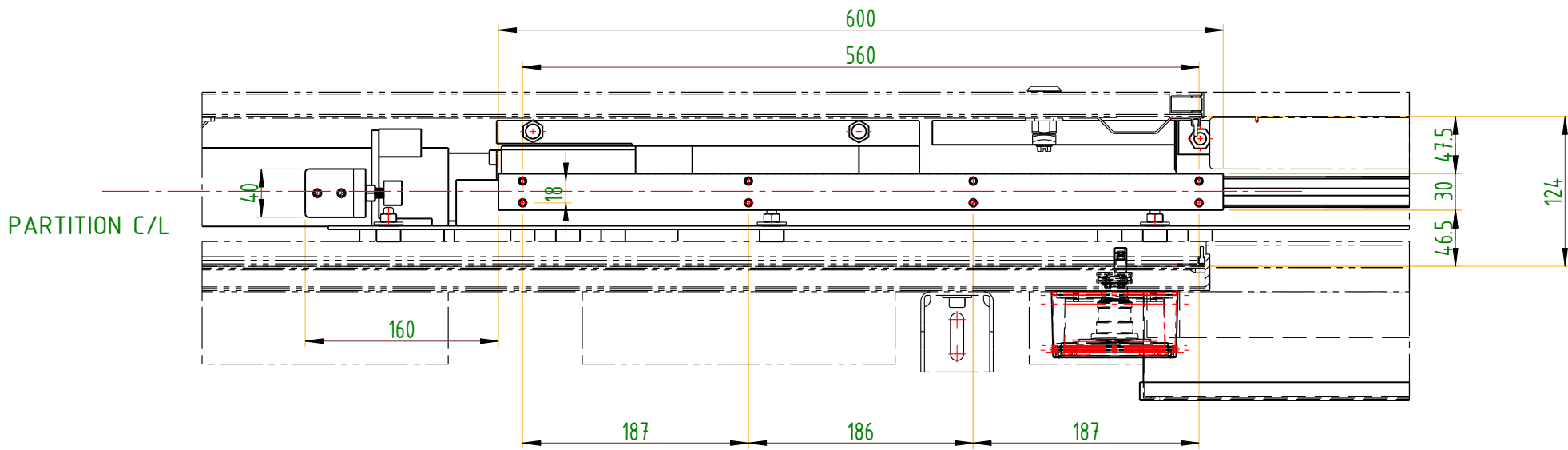
GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
SURFACE												
ROUGHNESS												



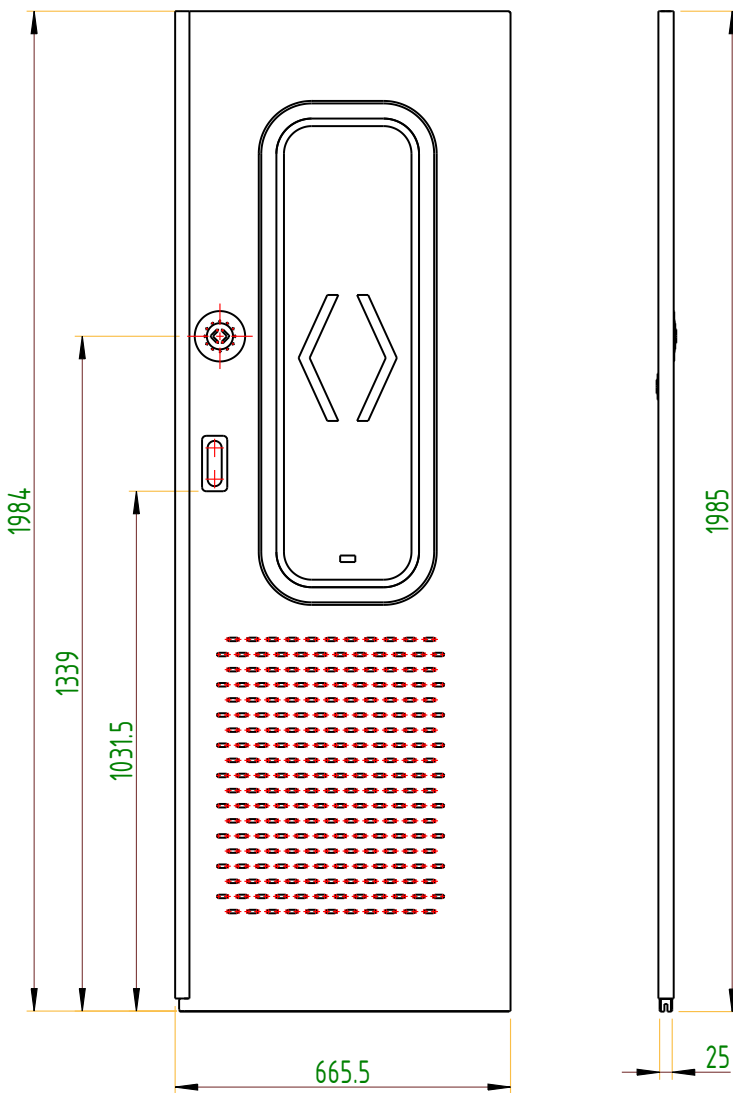
VIEW FROM
VESTIBULE AREA



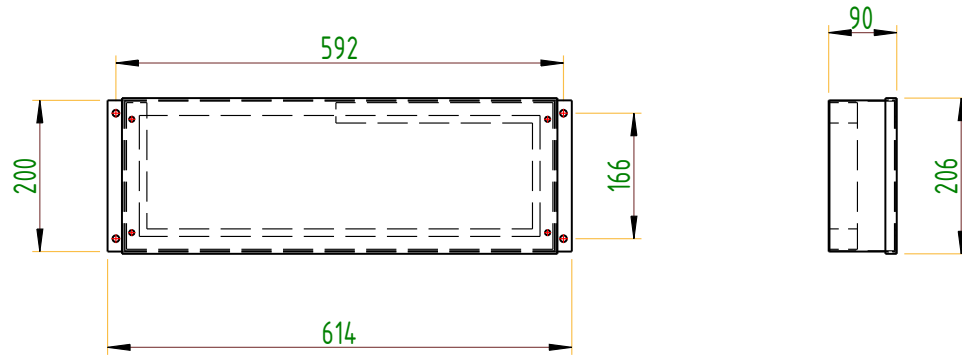
SECTION H-H
SCALE: 1:15



SECTION I-I
SCALE: 1:5



ITEM NO:1










ITEM NO:11
SCALE: 1:10


NOTE:

1. ALL DIMENSIONS ARE IN mm.
2. AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 590mm LH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400002.
3. ALL FASTENERS TO BE PROVIDED LOCTITE 243.
4. SALOON/PASSENGER AREA & VESTIBULE AREA SHOULD CONFIRM TO TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	4	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	10	-	STAINLESS STEEL PLAIN WASHER	8.4	IS:2016-67
9	10	-	STAINLESS STEEL HEX SOCKET ALLEN SCREW	M8x35	IS:2269-95
8	17	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		Leuze make50127061, HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		SCHNEIDER MAKE XB5ASS4N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSY		ALUMINIUM SANDWICH

SL.No.	QTY	PART / STOCK No.			DESCRIPTION	SIZE	COMPANY STD./I.S		Wt. (Kg)		
							MATERIAL				
					PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)					
					REF DRG						
					MATERIAL						
					HEAT TREAT.			APPD	RNN	09/10/2024	
					SURFACE TREAT.			REVD	DK	08/10/2024	
					TITLE			CHKD	GP	07/10/2024	
					INSTALLATION, AUTOMATIC INTERNAL SLIDING DOOR 590mm LH (IC DOOR)			DRWN	NSD	05/10/2024	
								SCALE			SHEET
								1:15		2 OF 2	
								DRG No.		ALT	
											

1	REVISED & REDRAWN ECN NO:52310208	09/10/2024	BY	NSD	APPD	RNN
			CHKD	GP		
ALT.NO.	ECN NO/CHANGES	DATE	BY	CHKD	APPD	RNN

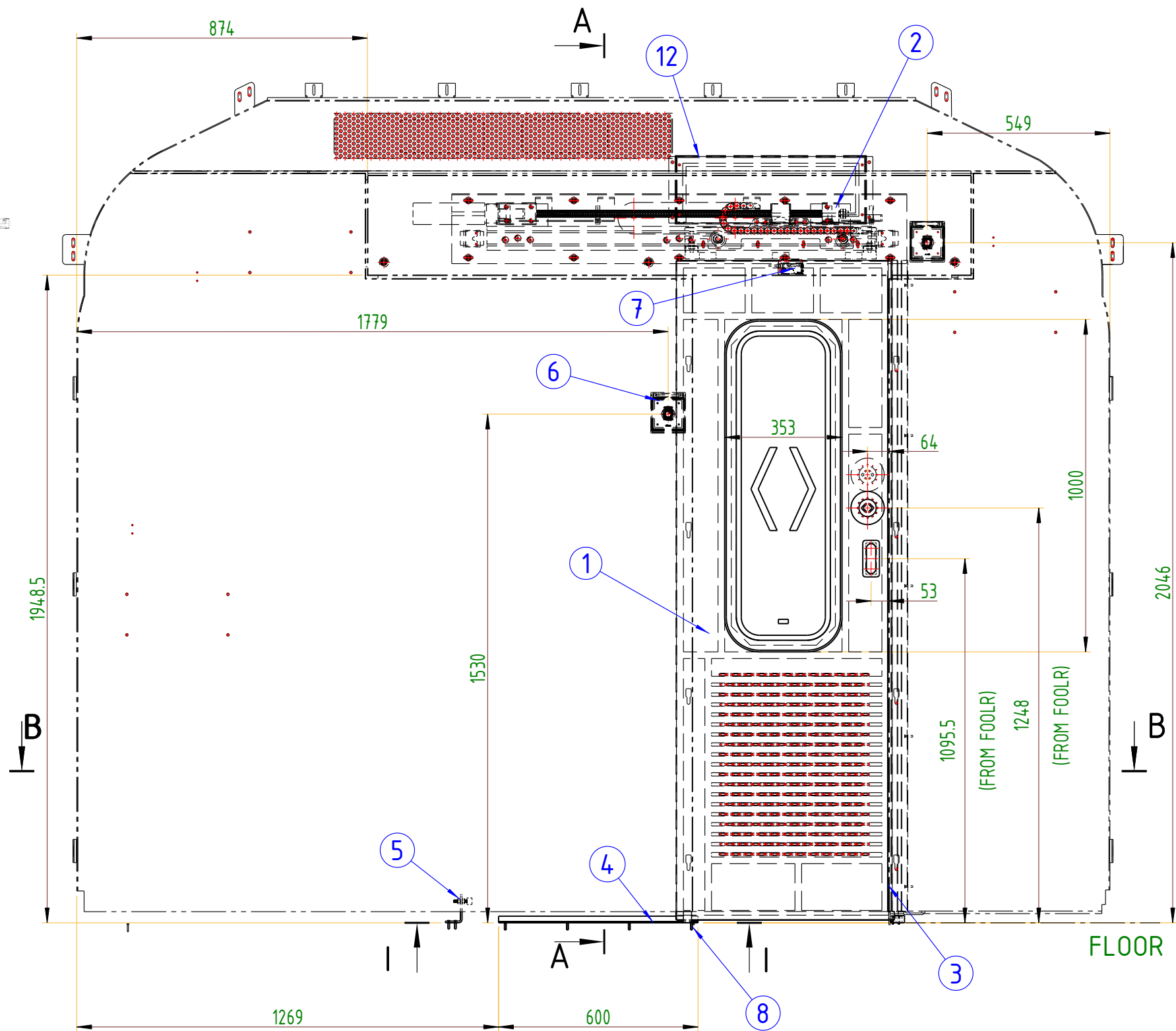


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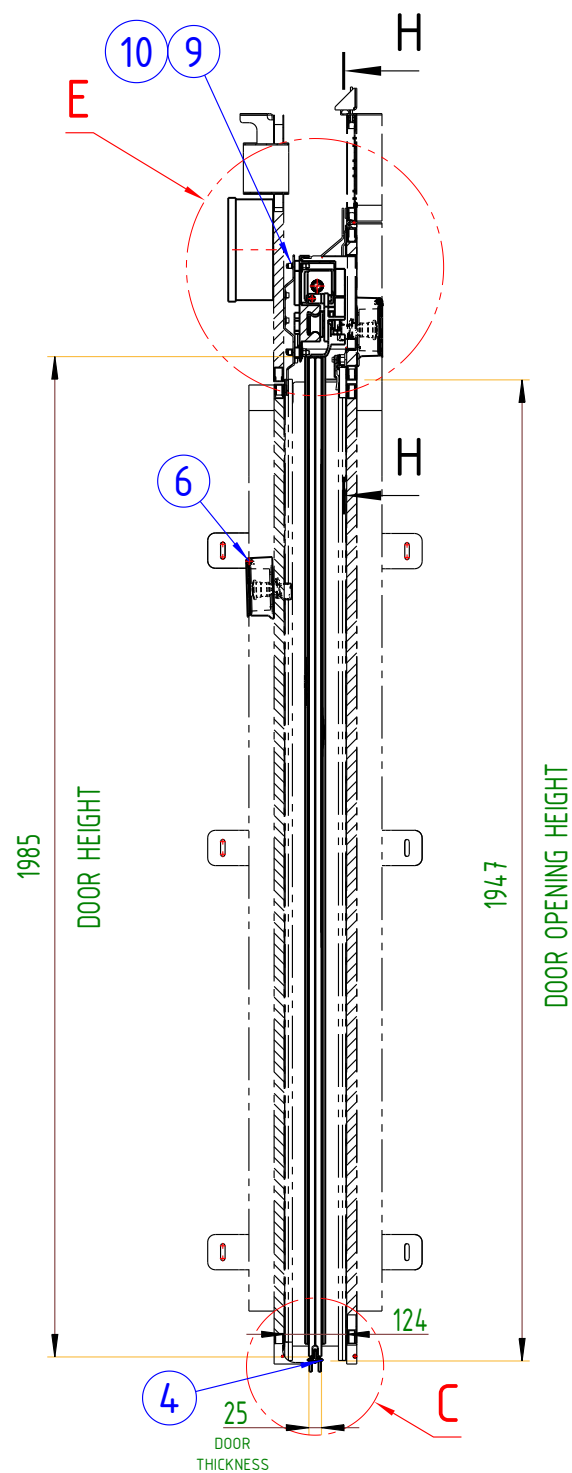
529-14001

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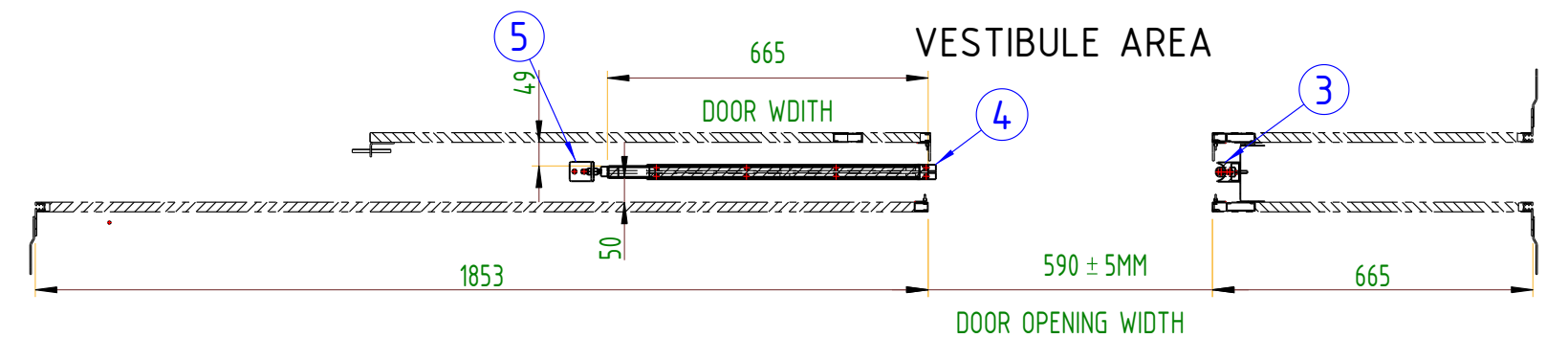
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VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
SURFACE												
ROUGHNESS												



VIEW FROM
SALOON/PASSENGER AREA

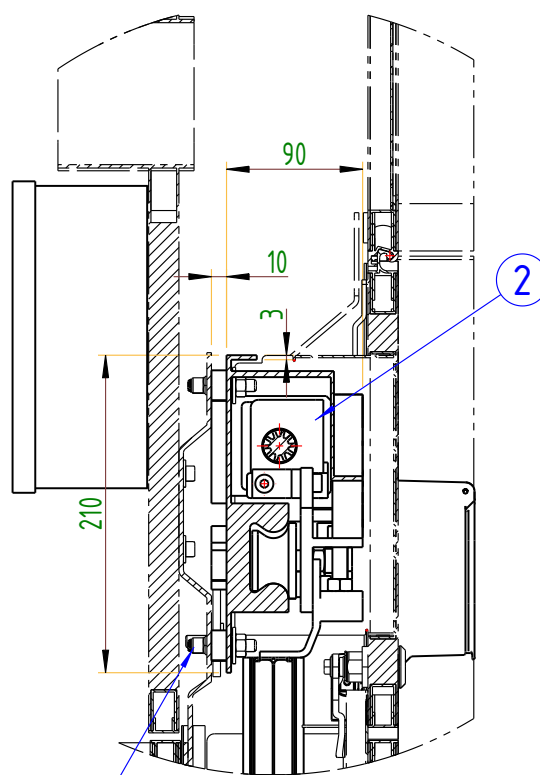


SECTION A-A
SCALE: 1:15

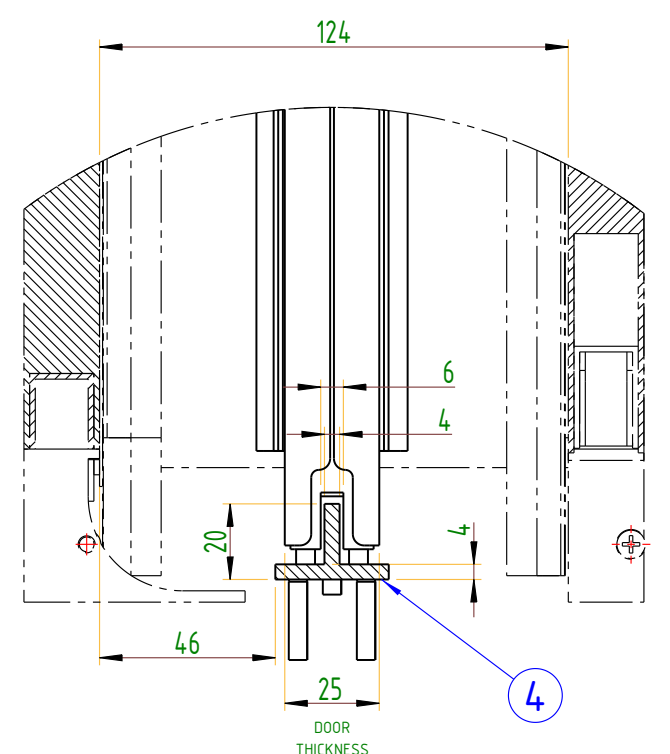


SALOON/PASSENGER AREA

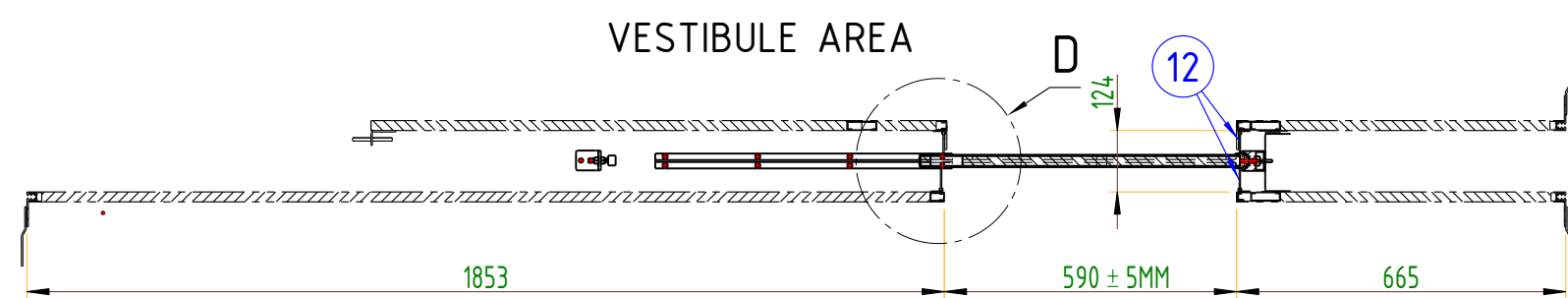
SECTION B-B
SCALE: 1:15
(OPEN CONDITION -LH)



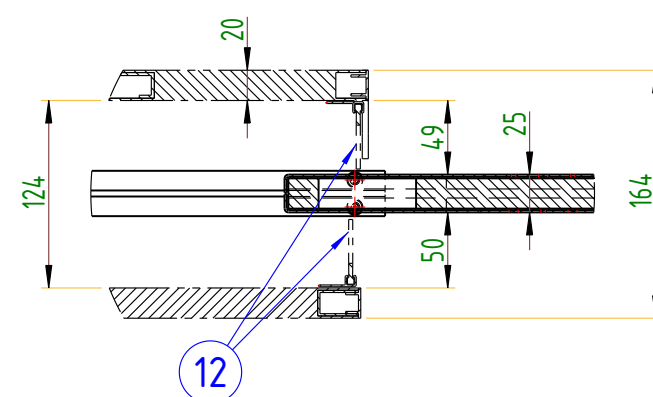
DETAIL-E
SCALE: 1:5



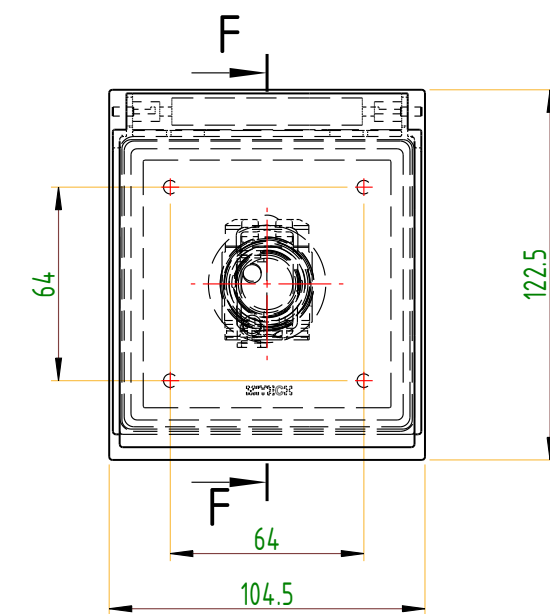
DETAIL-C
SCALE: 1:2



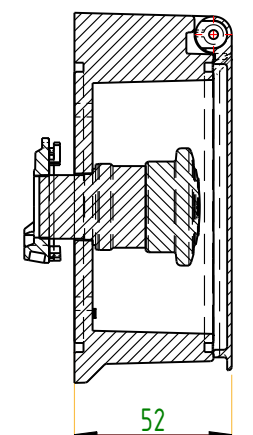
SECTION B-B
SCALE: 1:15
(CLOSED CONDITION -LH)



DETAIL-D
SCALE: 1:5



ITEM NO:6
SCALE: 2:5



SECTION F-F
SCALE: 2:5



PASSENGER AREA

VIEW

VESTIBULE AREA

SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
					MATERIAL	
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)		
			REF DRG			
			MATERIAL			
			HEAT TREAT.	APPD	RNN	09/10/2024
			SURFACE TREAT.	REVD	DK	08/10/2024
			TITLE	CHKD	GP	07/10/2024
				DRWN	NSD	05/10/2024
				SCALE	1:15	Wt.
				DRG No.	1 OF 2	
						ALT
						1

1	REVISED & REDRAWN ECN NO:52310208	DATE 09/10/2024	BY NSD	CHKD GP	APPD RNN
ALT.NO.	ECN NO/CHANGES	DATE	BY	CHKD	APPD

3	2	1	A2
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INSTALLATION, AUTOMATIC
INTERNAL SLIDING DOOR
590mm LH (IC DOOR)

SCALE: 1:15

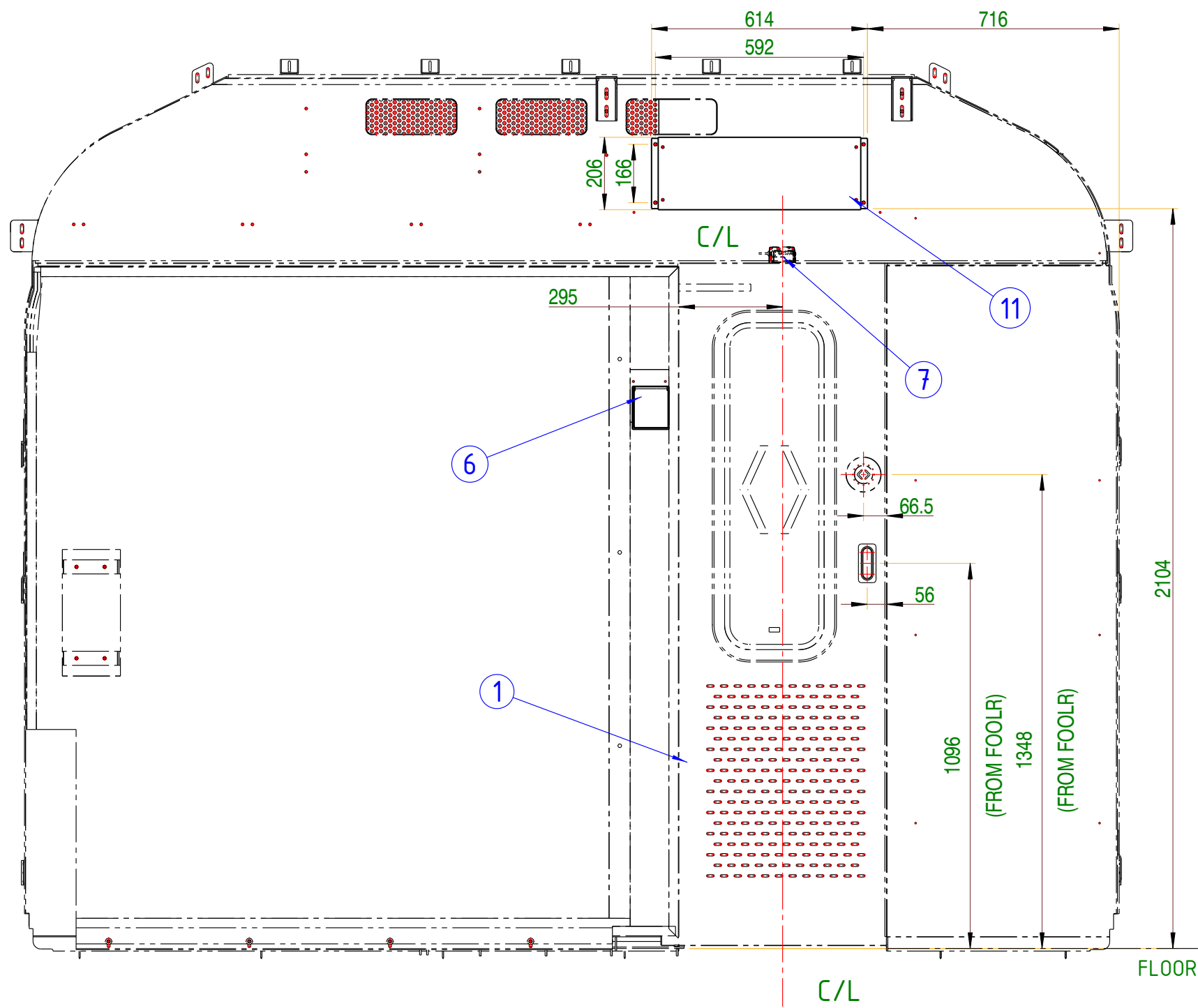
DRG No. 529-14001

ALT 1

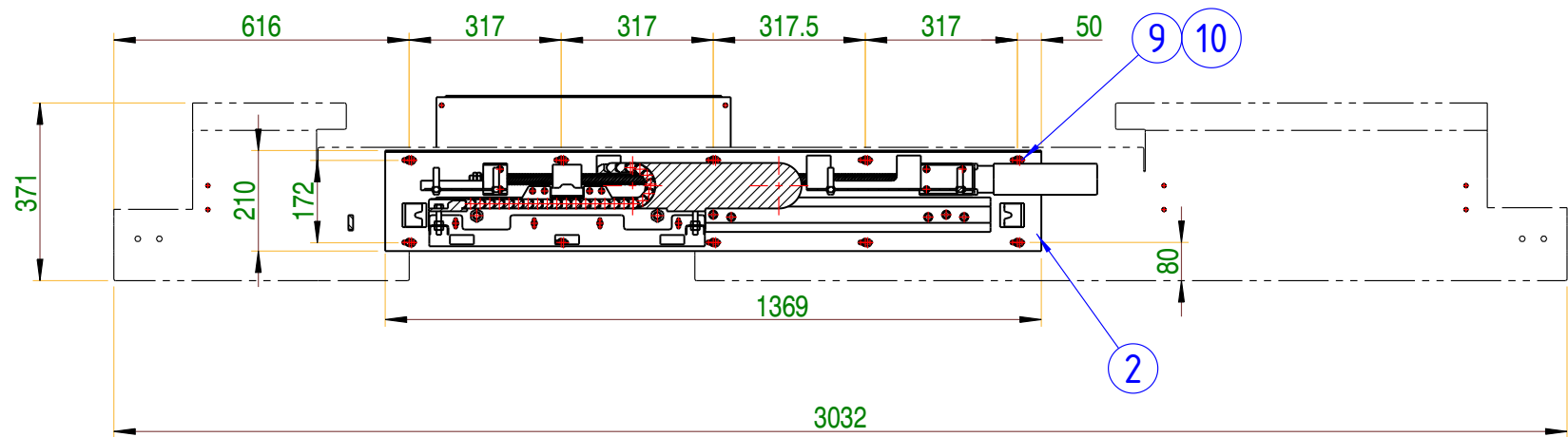
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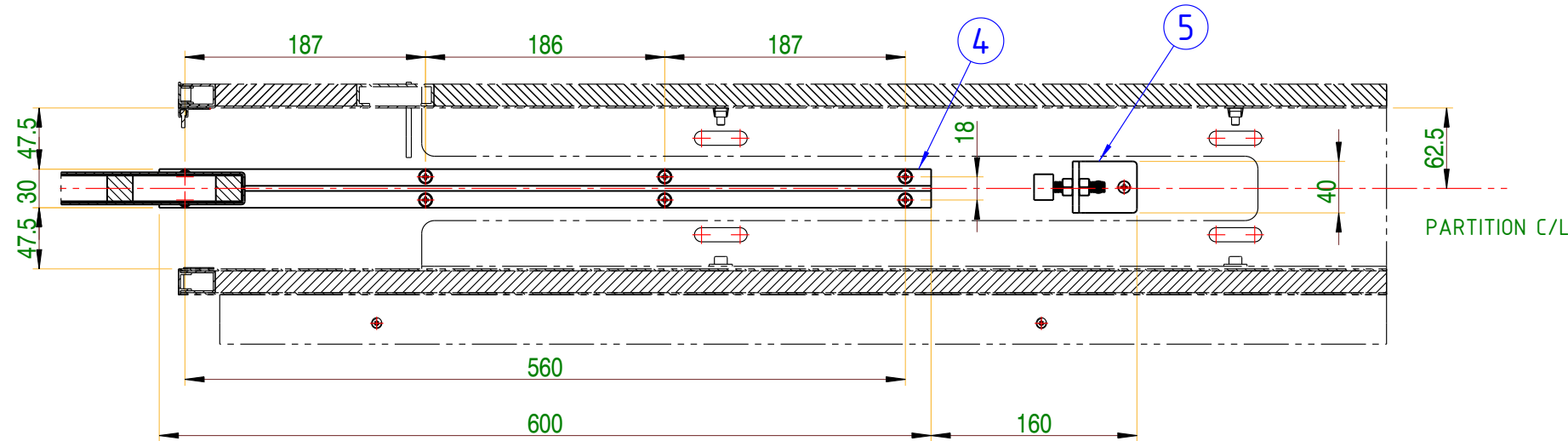
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VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
ROUGHNESS												



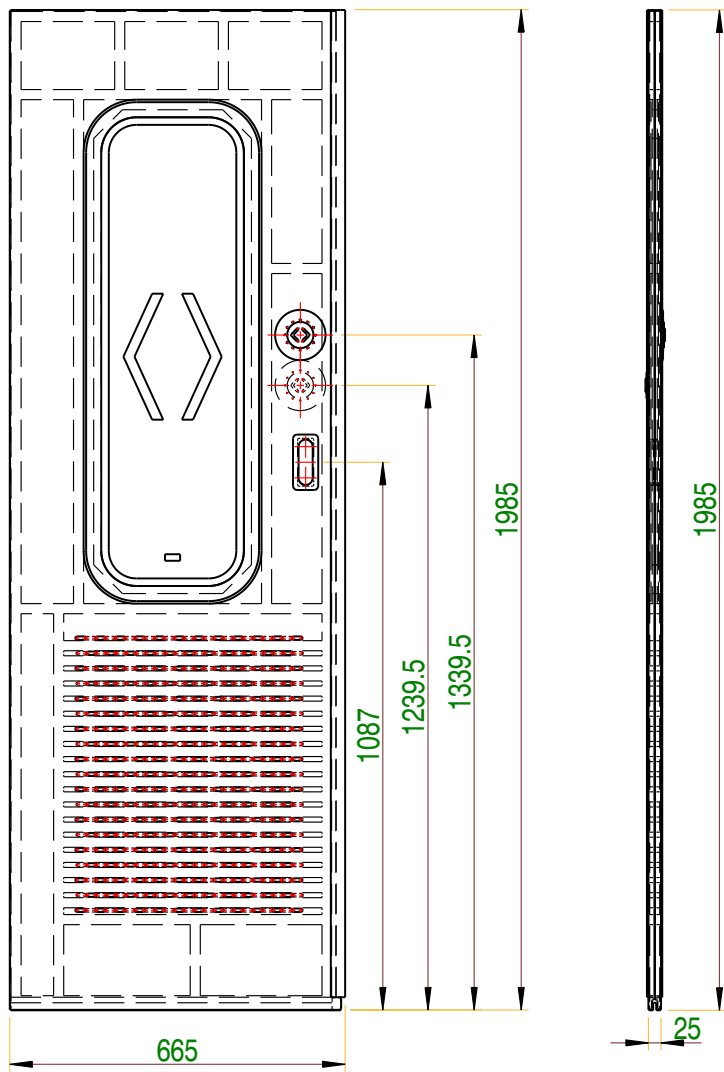
VIEW FROM
VESTIBULE AREA



SECTION G-G
SCALE: 1:15

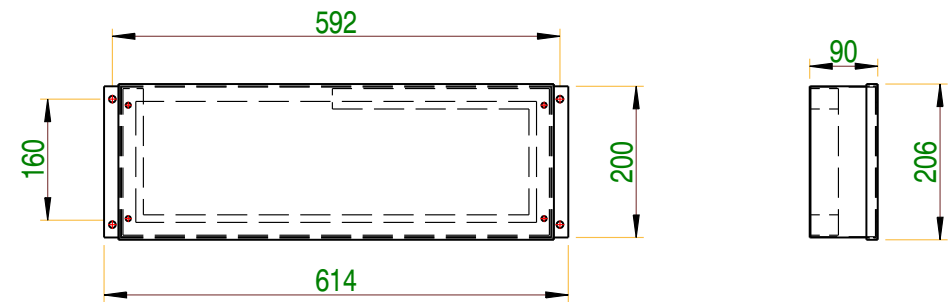


SECTION H-H
SCALE: 1:5



ITEM NO:1

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						STATUS:	PROTO/PRODUCTION			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



ITEM NO:11
SCALE: 1:10

- NOTE:
- ALL DIMENSIONS ARE IN mm.
 - AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 590mm RH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400003.
 - ALL FASTENERS TO BE PROVIDED LOCTITE 243.
 - SALOON/PASSENGER AREA SHOULD CONFIRM TO FABRIC PEARL MOUSE GREY COLOR TO RAL 7048 GLOSS LEVEL 60 & VESTIBULE AREA SHOULD CONFIRM TO TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	4	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	10	-	STAINLESS STEEL PLAIN WASHER	8.4	IS:2016-67
9	10	-	STAINLESS STEEL HEXAGONAL SOCKET ALLEN SCREW	M8x35	IS:2269-95
8	17	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		LEUZE MAKE 50127061, HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		SCHNEIDER MAKE XB5AS54N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSEMBLY		ALUMINIUM SANDWICH

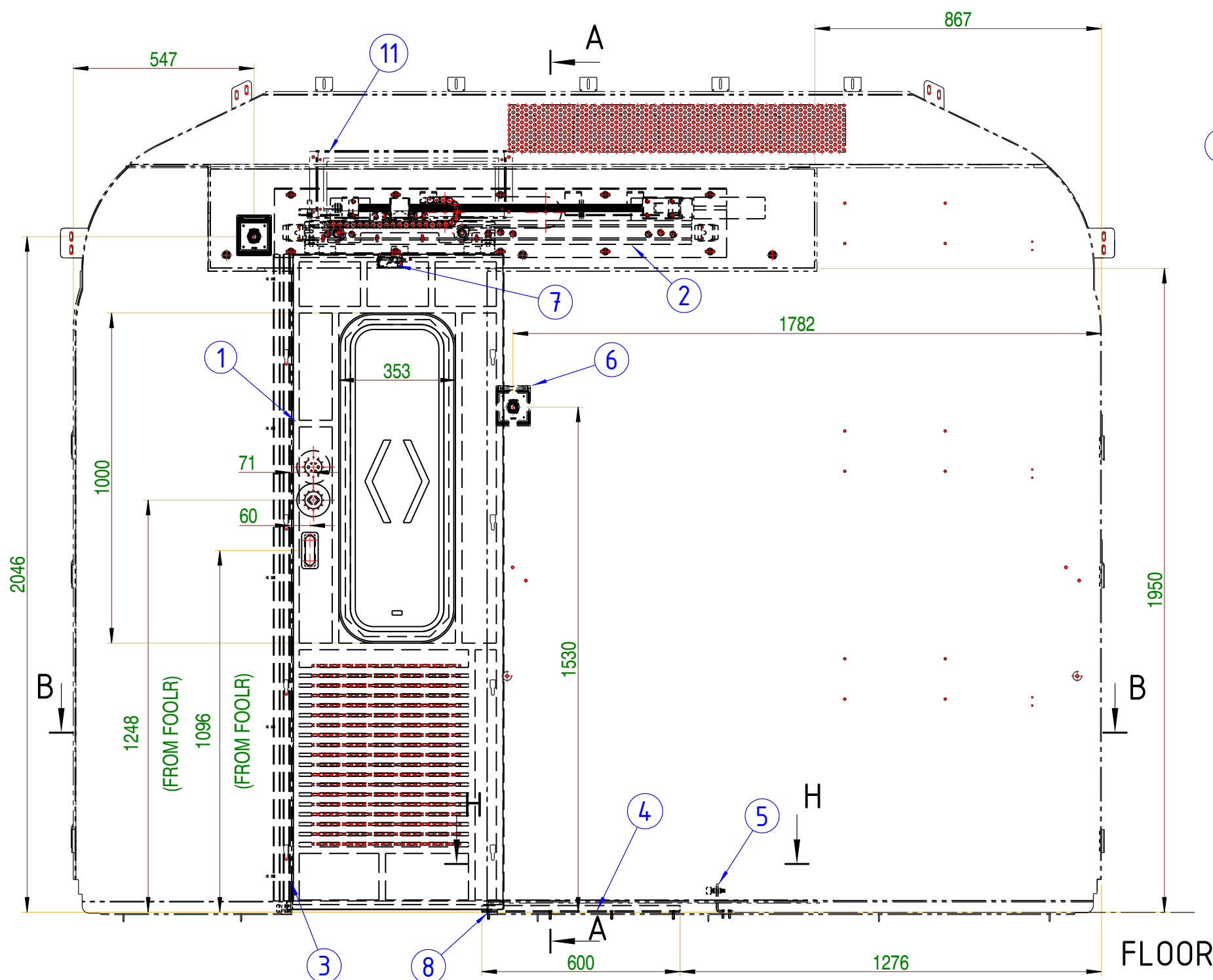
SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
MATERIAL						
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)		
			REF DRG			
			MATERIAL			
			HEAT TREAT.	APPD	RNN	09/10/2024
			SURFACE TREAT.	REVD	DK	08/10/2024
			TITLE	CHKD	GP	07/10/2024
				DRWN	NSD	05/10/2024
				SCALE	1:15	Wt. -
				DRG No.	2 OF 2	ALT
						1

BEML LIMITED

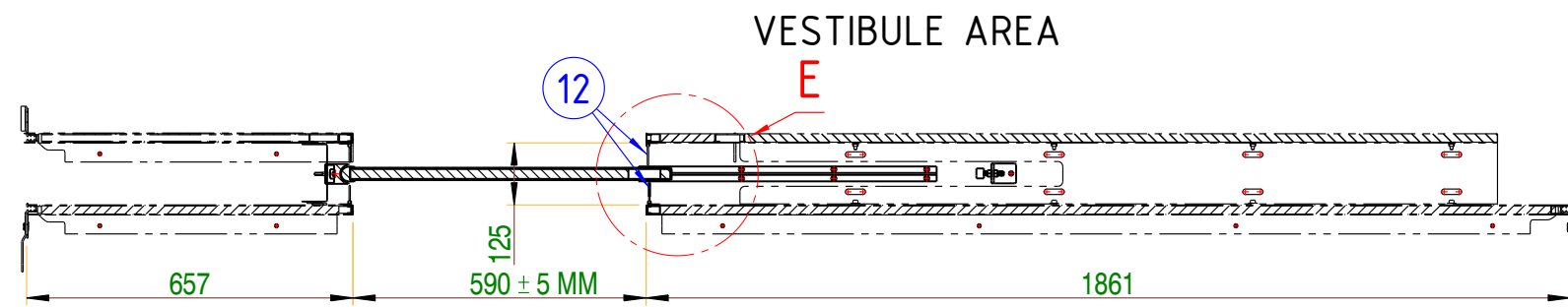
527-14002

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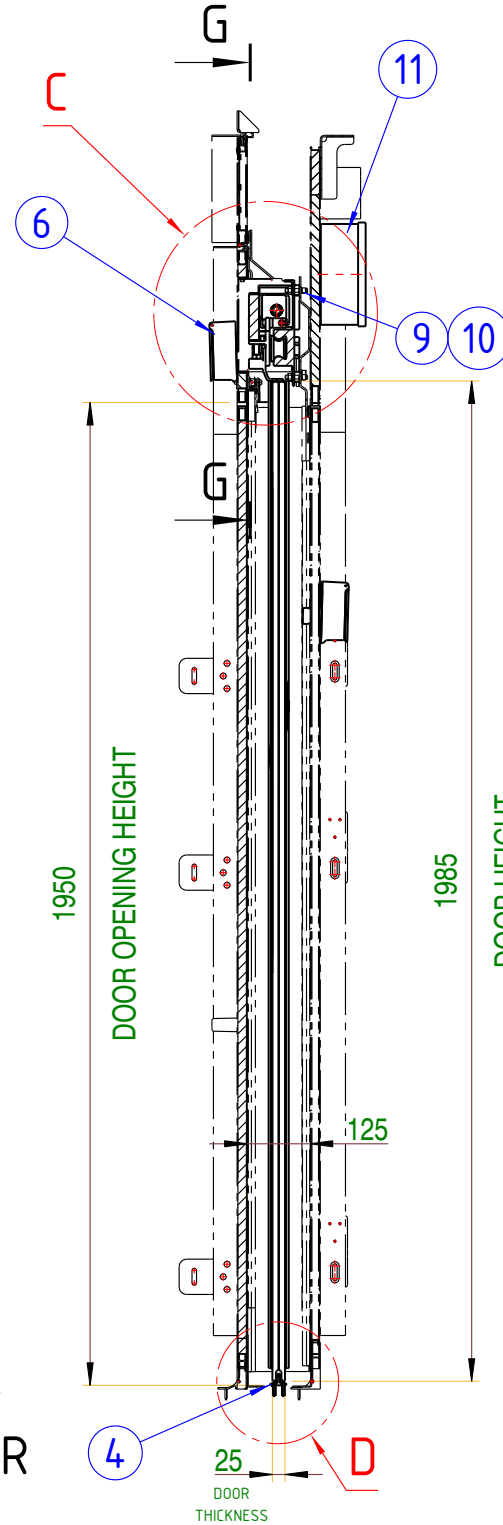
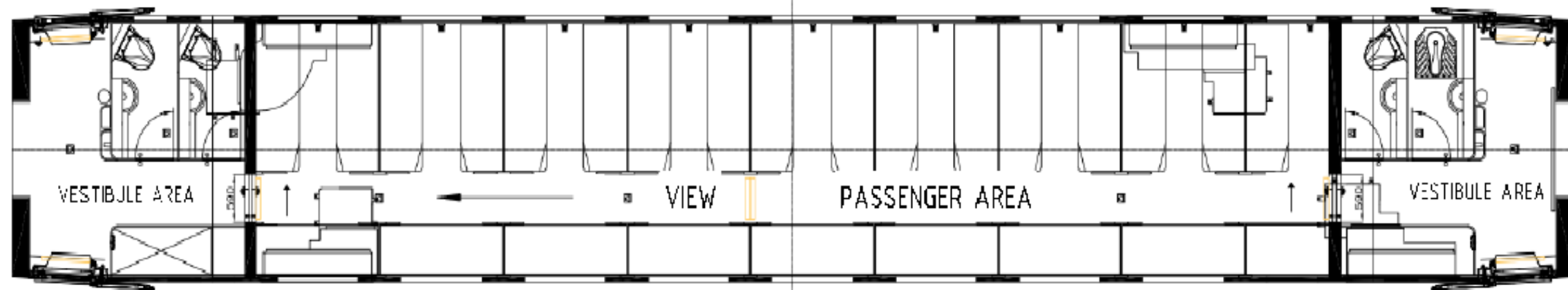
GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
ROUGHNESS												



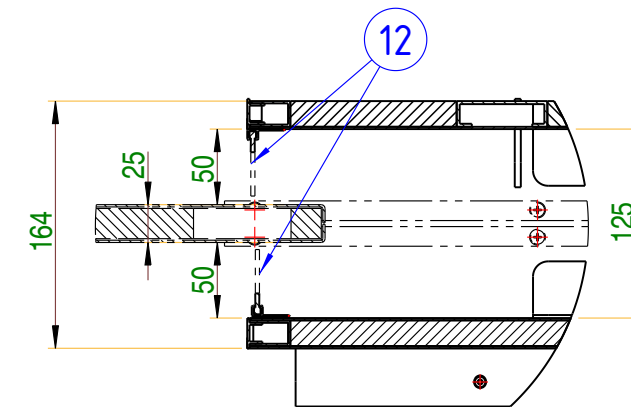
VIEW FORM
SALOON/PASSENGER AREA



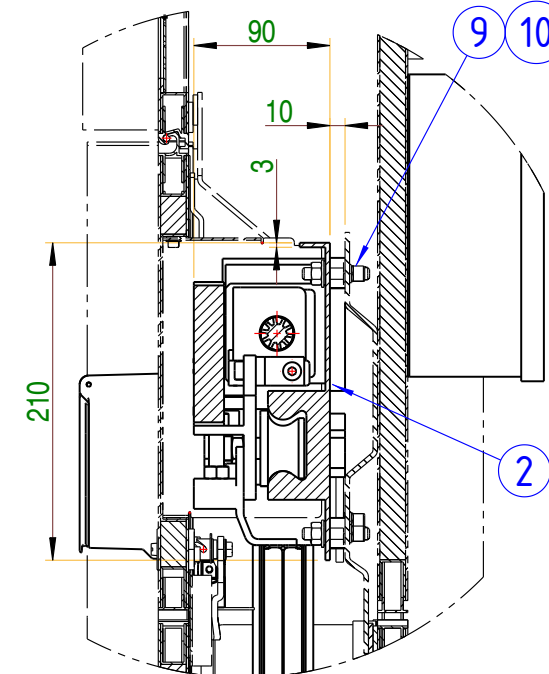
SECTION B-B
SCALE: 1:15
(CLOSED CONDITION-RH)



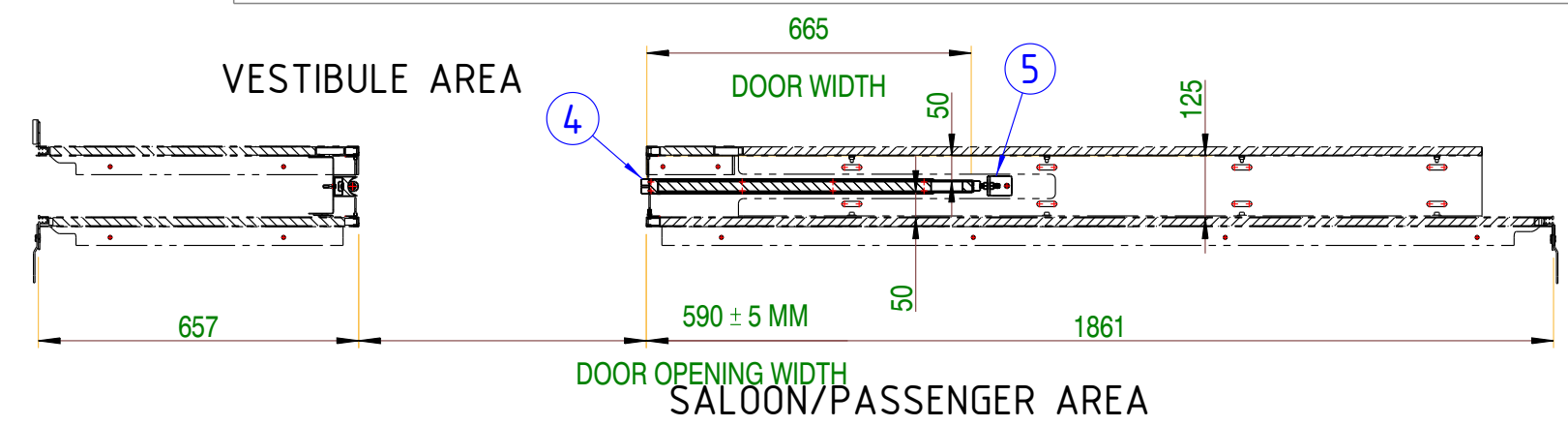
SECTION A-A
SCALE: 1:15



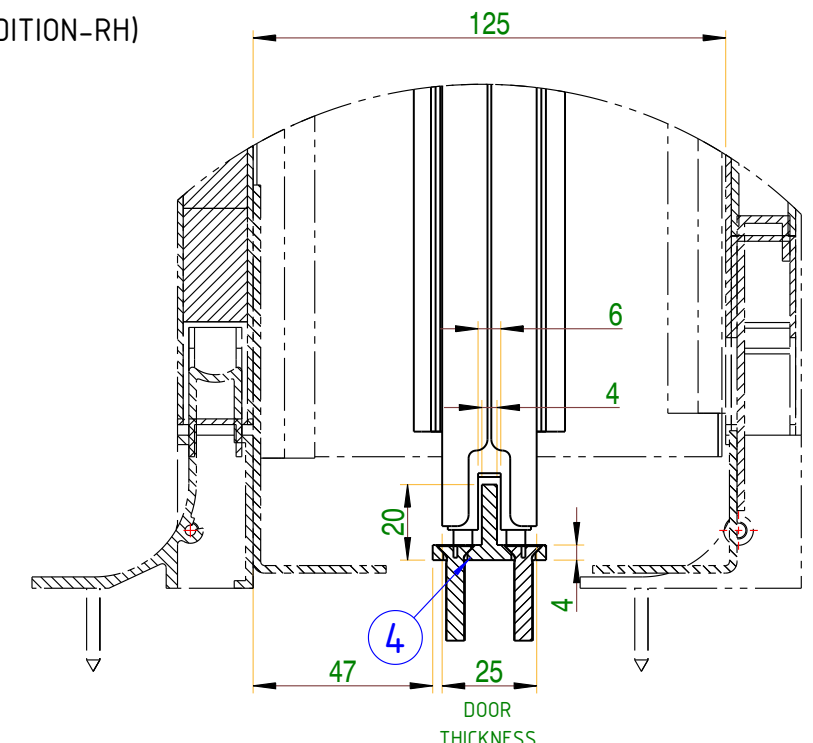
DETAIL-E
SCALE: 1:5



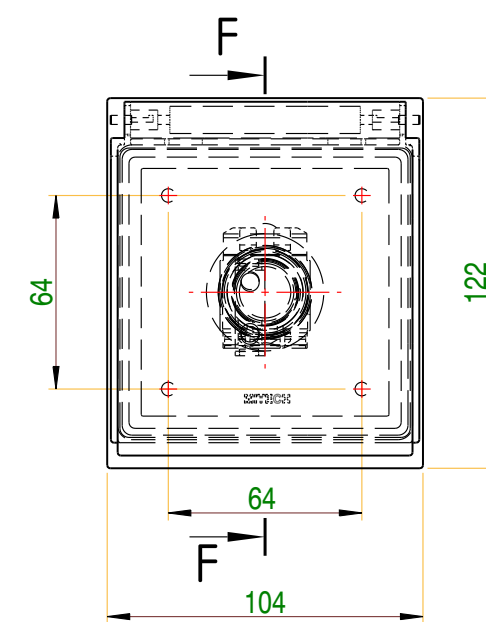
DETAIL-C
SCALE: 1:5



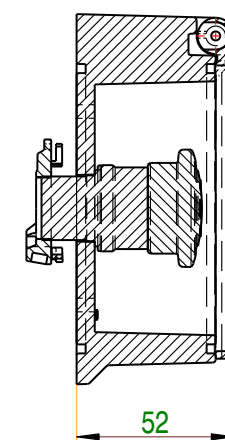
SECTION B-B
SCALE: 1:15
(OPEN CONDITION-RH)



DETAIL-D
SCALE: 1:2










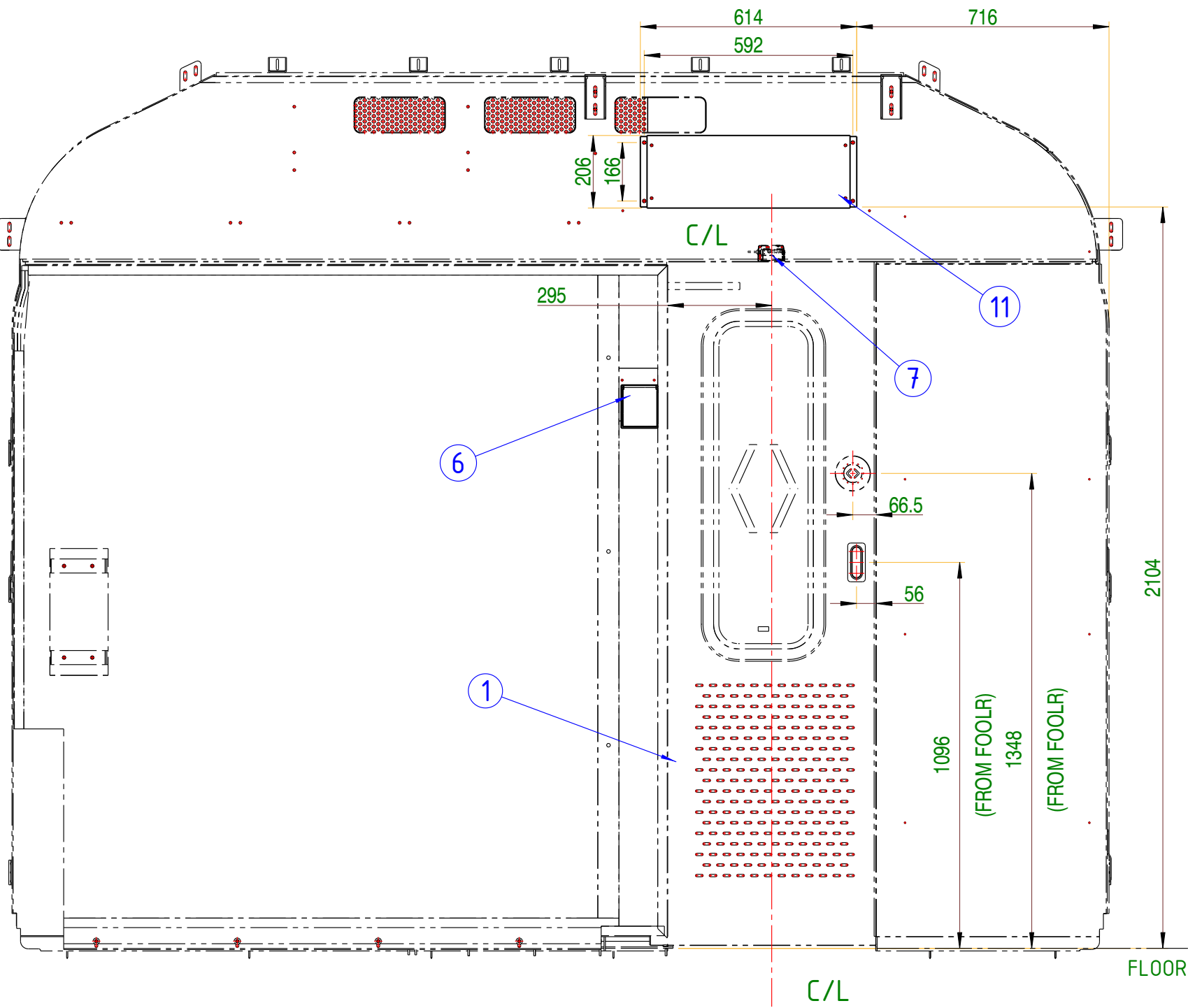
ITEM NO:6
SCALE: 2:5



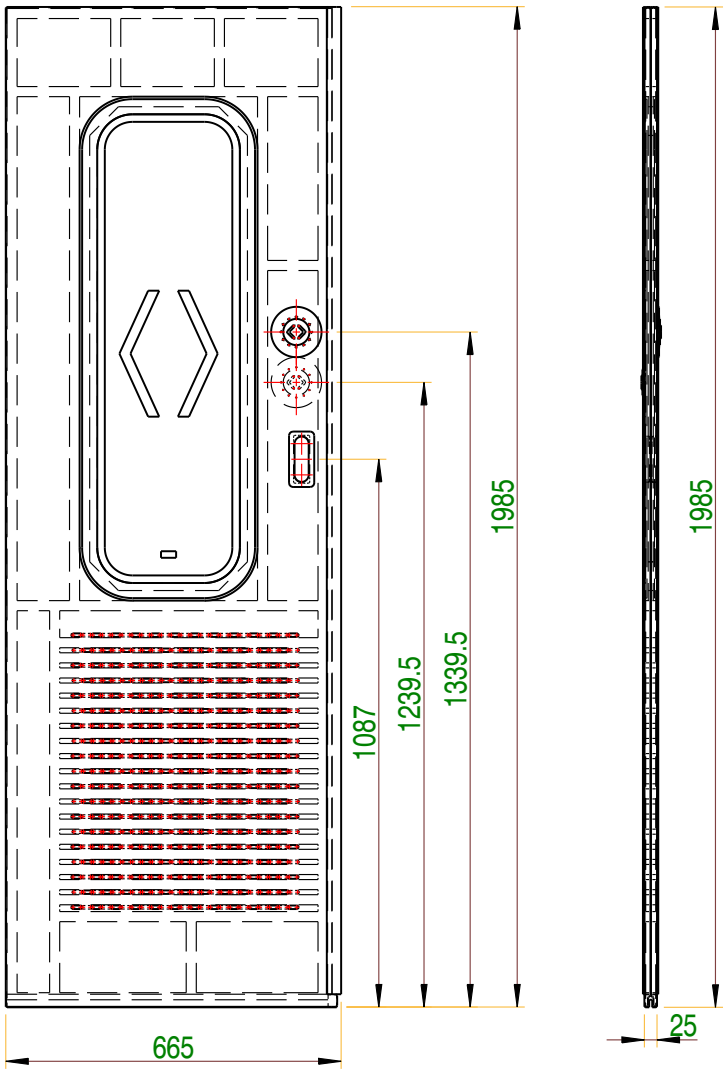
SECTION F-F
SCALE: 2:5

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS		RANGE					1			
TOLERANCE		0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
		±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS: PROTO/PRODUCTION			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

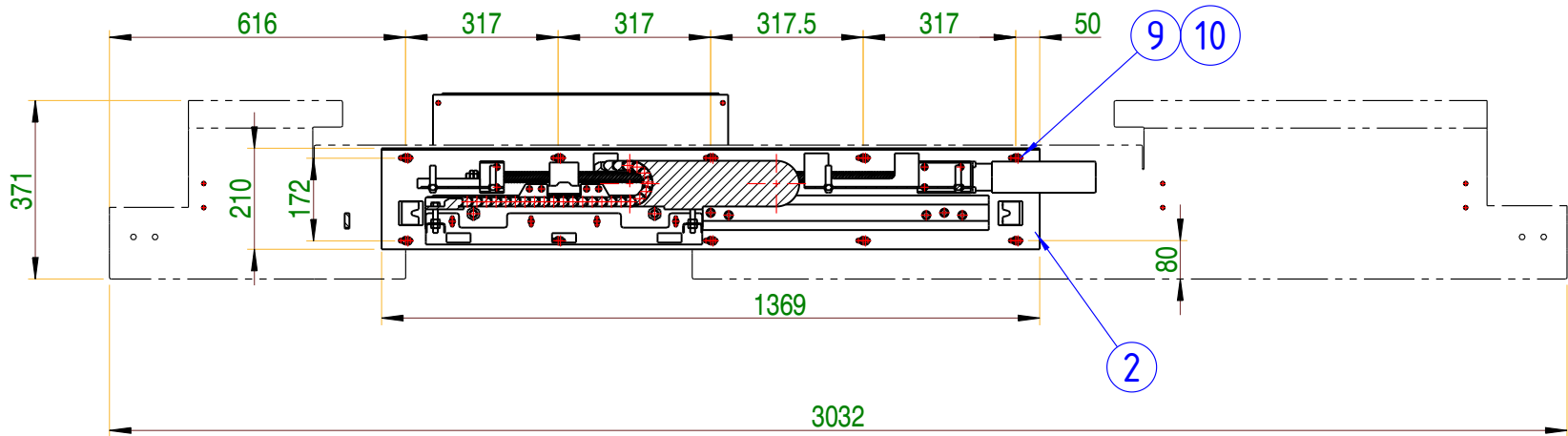
SL.No.	QTY	PART / STOCK No.		DESCRIPTION	SIZE	COMPANY STD./I.S		Wt. (Kg)		
						MATERIAL				
				PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)					
				REF DRG						
				MATERIAL						
				HEAT TREAT.	APPD	RNN	09/10/2024			
				SURFACE TREAT.	REVD	DK	08/10/2024			
				TITLE	CHKD	GP	07/10/2024			
				INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 590mm RH (IC DOOR)	DRWN	NSD	05/10/2024			
	REVISED & REDRAWN ECN NO:52310208	DATE 09/10/2024	BY NSD		CHKD GP	APPD RNN	SCALE		SHEET	Wt.
							1:15		1 OF 2	
ALT.NO.	ECN NO/CHANGES						DRG No.		ALT	
							527-14002			



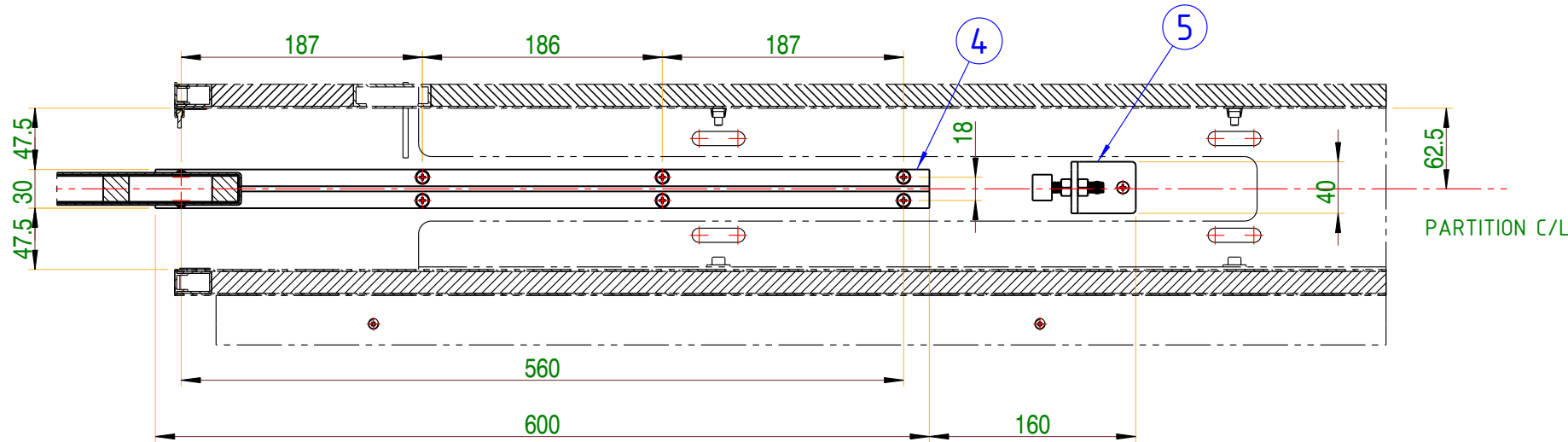
VIEW FROM VESTIBULE AREA



ITEM NO:1

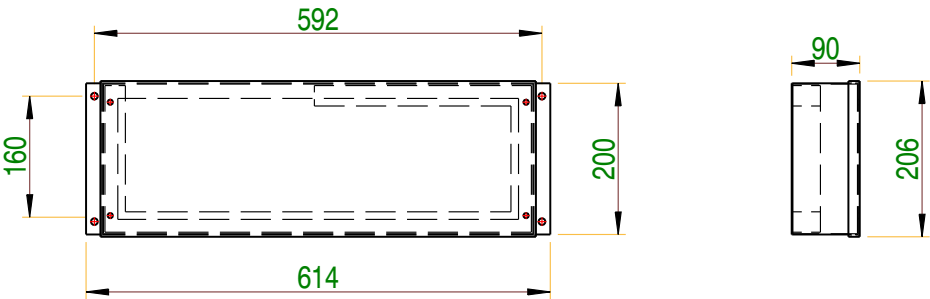


SECTION G-G
SCALE: 1:15



SECTION H-H
SCALE: 1:5

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C							STATUS:	PROTO/PRODUCTION		
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



ITEM NO:11
SCALE: 1:10

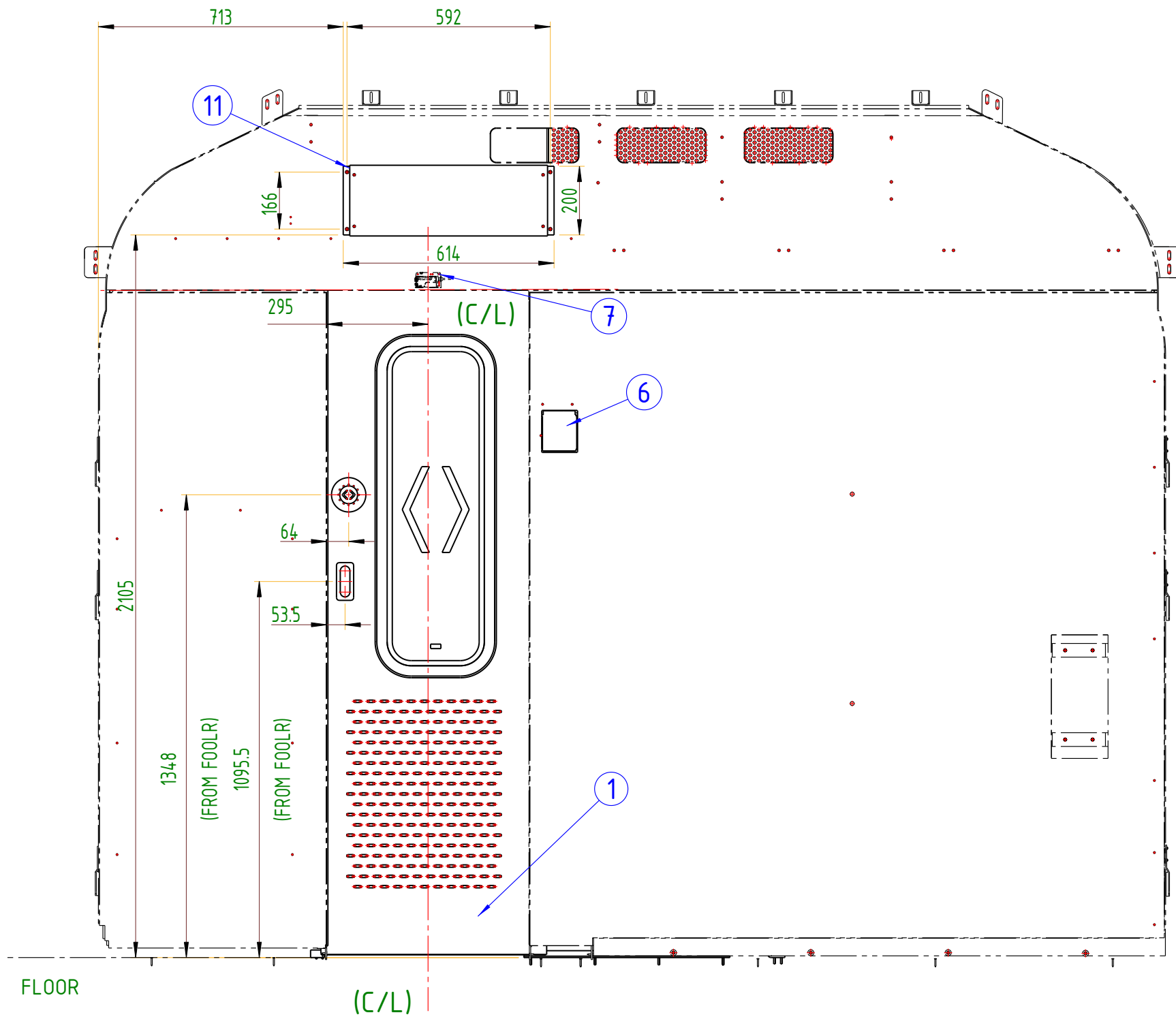
- NOTE:
- ALL DIMENSIONS ARE IN mm.
 - AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 590mm RH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400003.
 - ALL FASTENERS TO BE PROVIDED LOCTITE 243.
 - SALOON/PASSENGER AREA SHOULD CONFIRM TO FABRIC PEARL MOUSE GREY COLOR TO RAL 7048 GLOSS LEVEL 60 & VESTIBULE AREA SHOULD CONFIRM TO TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	4	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	10	-	STAINLESS STEEL PLAIN WASHER	8.4	IS:2016-67
9	10	-	STAINLESS STEEL HEXAGONAL SOCKET ALLEN SCREW	M8x35	IS:2269-95
8	17	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		LEUZE MAKE 50127061, HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		SCHNEIDER MAKE XB5AS54N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSEMBLY		ALUMINIUM SANDWICH

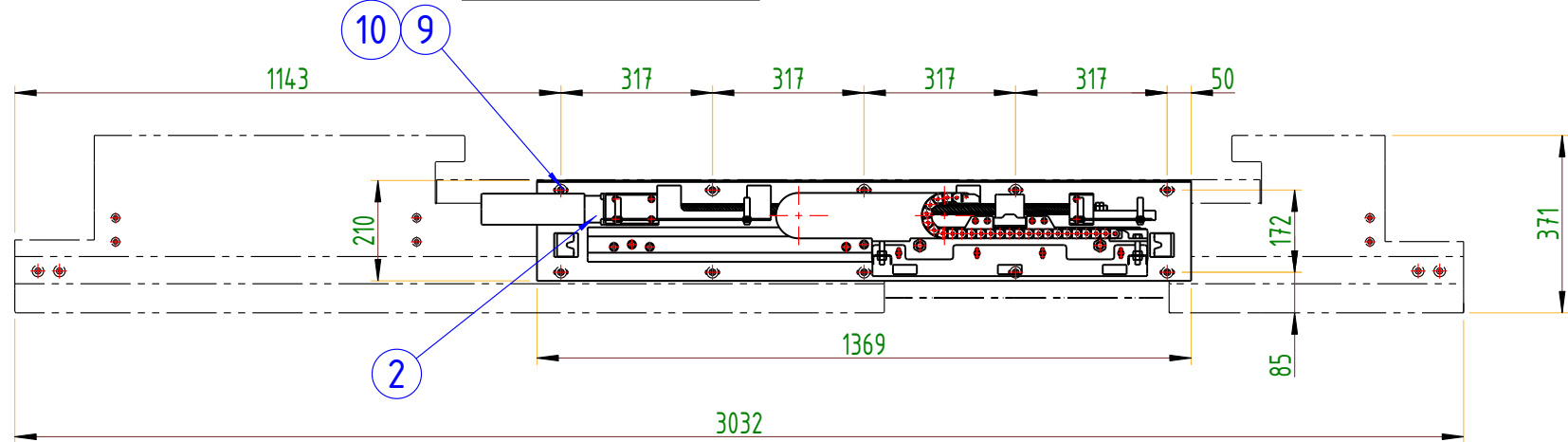
SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
MATERIAL						
PRODUCT VANDE BHARAT SLEEPER VERSION (10TS)						
REF DRG						
MATERIAL						
HEAT TREAT.						
SURFACE TREAT.						
TITLE						
INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 590mm RH (IC DOOR)						
APPD RNN 09/10/2024						
REVD DK 08/10/2024						
CHKD GP 07/10/2024						
DRWN NSD 05/10/2024						
SCALE 1:15						
SHEET 2 OF 2						
DRG No.						
ALT						
1						

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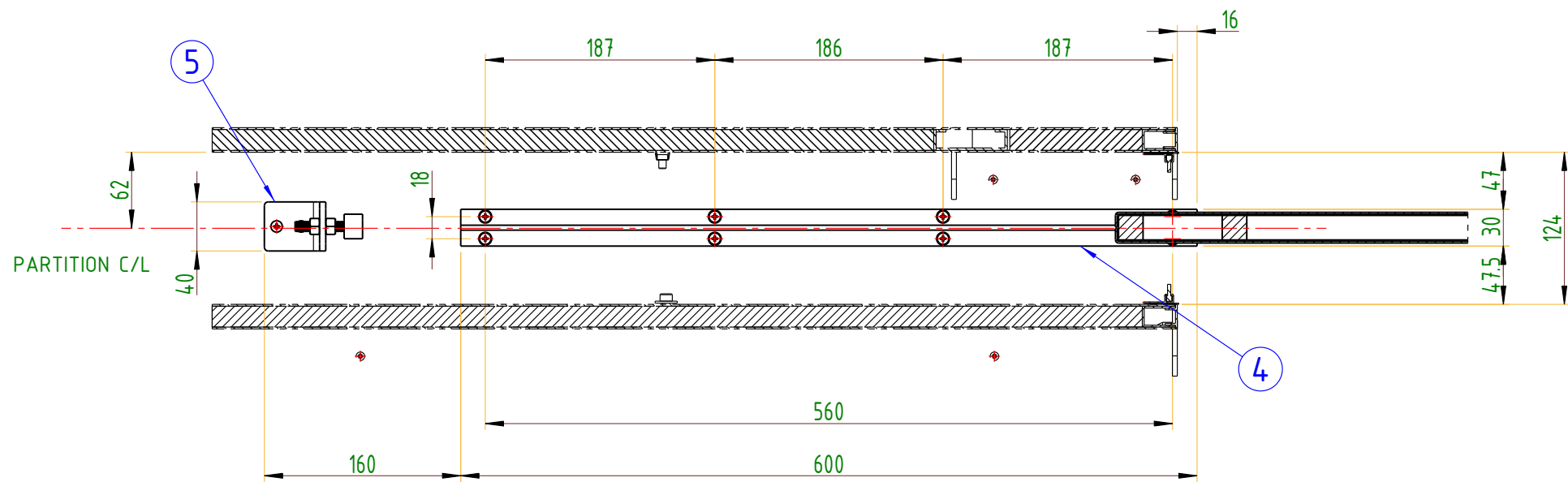
GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
SURFACE												
ROUGHNESS												



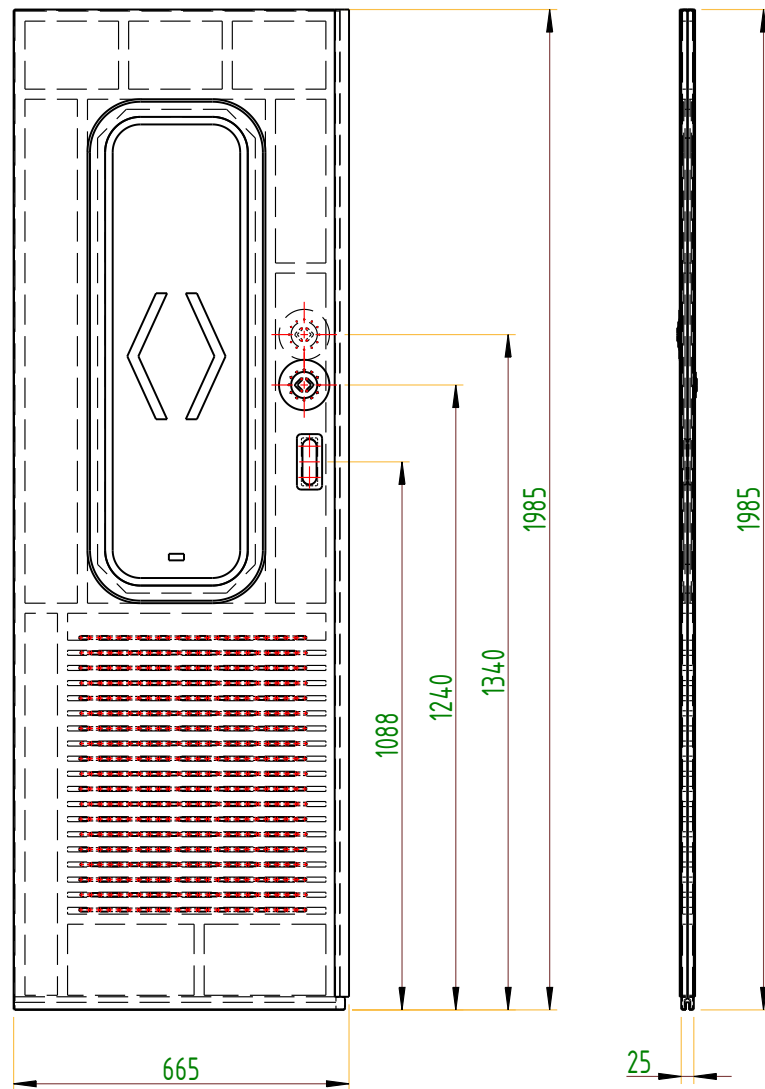
VIEW FROM
VESTIBULE AREA



SECTION G-G
SCALE: 1:15

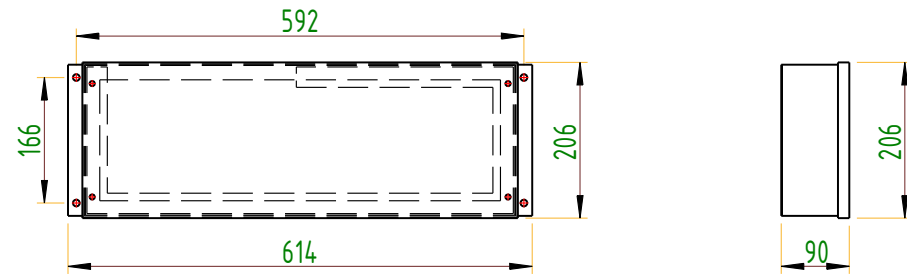


SECTION H-H
SCALE: 1:5



ITEM NO:1








MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 – 6	6 – 30	30 – 120	120 – 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS:	PROTO/PRODUCTION		
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



ITEM NO:11
SCALE: 1:10

- NOTE:
- ALL DIMENSIONS ARE IN mm.
 - AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 590mm LH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400002.
 - ALL FASTENERS TO BE PROVIDED LOCTITE 243.
 - SALOON/PASSENGER AREA SHOULD CONFIRM TO FABRIC PEARL MOUSE GREY COLOR TO RAL 7048 GLOSS LEVEL 60 & VESTIBULE AREA SHOULD CONFIRM TO TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

12	4	-	WIRE BRUSH		
11	1	-	DOOR CONTROLLER		
10	10	-	STAINLESS STEEL PLAIN WASHER	8.4	IS:2016-67
9	10	-	STAINLESS STEEL HEXAGONAL SOCKET ALLEN SCREW	M8x35	IS:2269-95
8	17	-	STAINLESS STEEL SLTD CSK HD TAPP SCREW ST	4.2x25C	IS:7170-89
7	1	-	I R SENSORS		Leuze make50127061, HT46CI/4P-M12
6	2	-	EMERGENCY PUSH BUTTON		SCHNEIDER MAKE XB5AS54N,ZBE102N
5	2	-	STOPPER		ASSY
4	1	-	BOTTOM GUIDE RAIL		AISI 304
3	1	-	APERTURE RUBBER		EPDM
2	1	-	AUTOMATIC MOVE MECHANISM		ASSY
1	1	-	DOOR PANEL ASSEMBLY		ALUMINIUM SANDWICH

SL.No.		QTY	PART / STOCK No.				DESCRIPTION		SIZE	COMPANY STD./I.S		Wt. (Kg)
										MATERIAL		
							PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)				
							REF DRG					
							MATERIAL					
							HEAT TREAT.					
							SURFACE TREAT.					
							TITLE					
							INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 590mm LH (IC DOOR)		APPD	RNN	09/10/2024	
									REVD	DK	08/10/2024	
									CHKD	GP	07/10/2024	
									DRWN	NSD	05/10/2024	
									SCALE		SHEET	Wt.
									1:15		2 OF 2	
	REVISED & REDRAWN ECN NO:52310208	DATE	09/10/2024	BY	NSD	CHKD	GP	APPRO	RNN			
ALT.NO.	ECN NO/CHANGES	DATE		BY		CHKD		APPRO		DRG No.		ALT
 BEM LIMITED <small>BELT CONVEYORS & MATERIAL HANDLING SYSTEMS</small>										527-14001		







BEML LIMITED

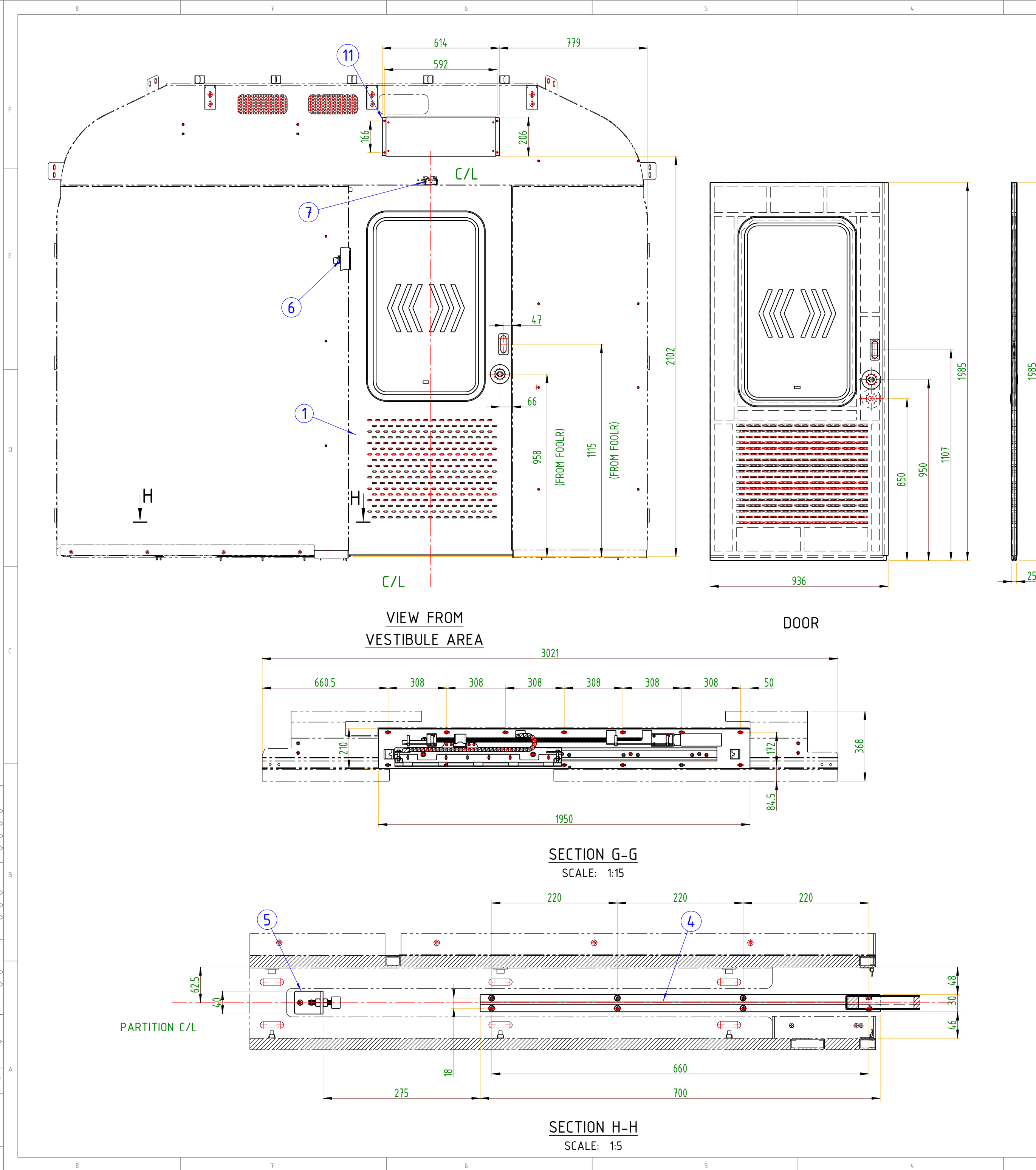
527-14001

A2

SCALE: 1:10

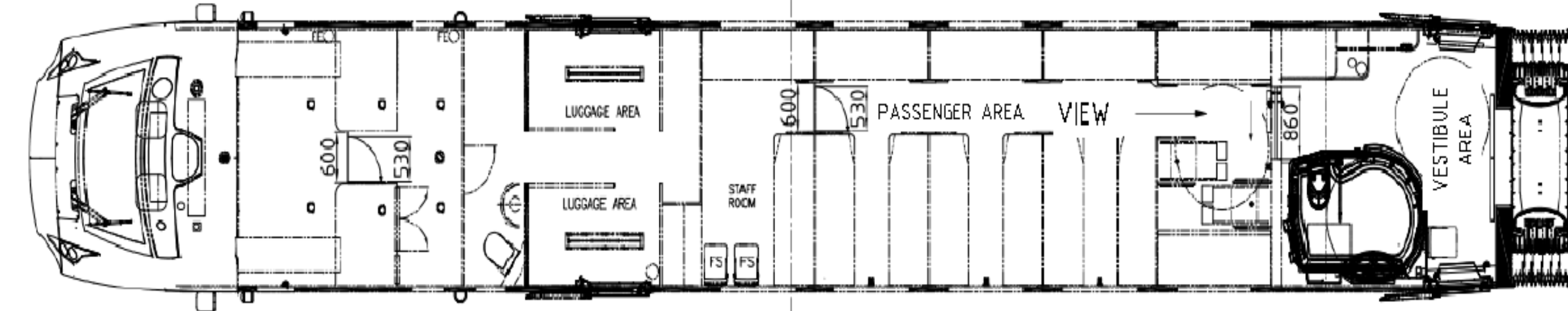
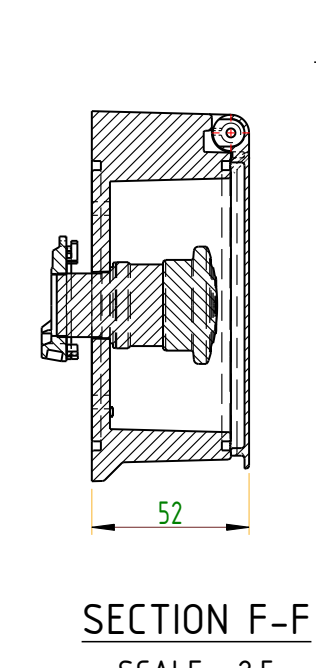
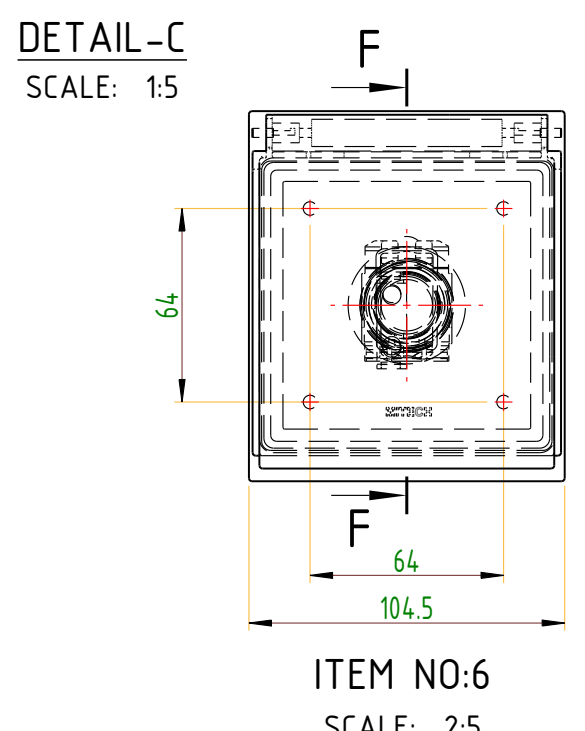
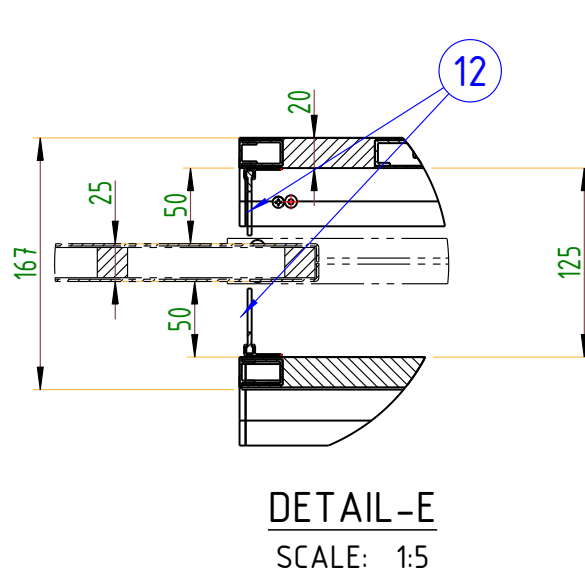
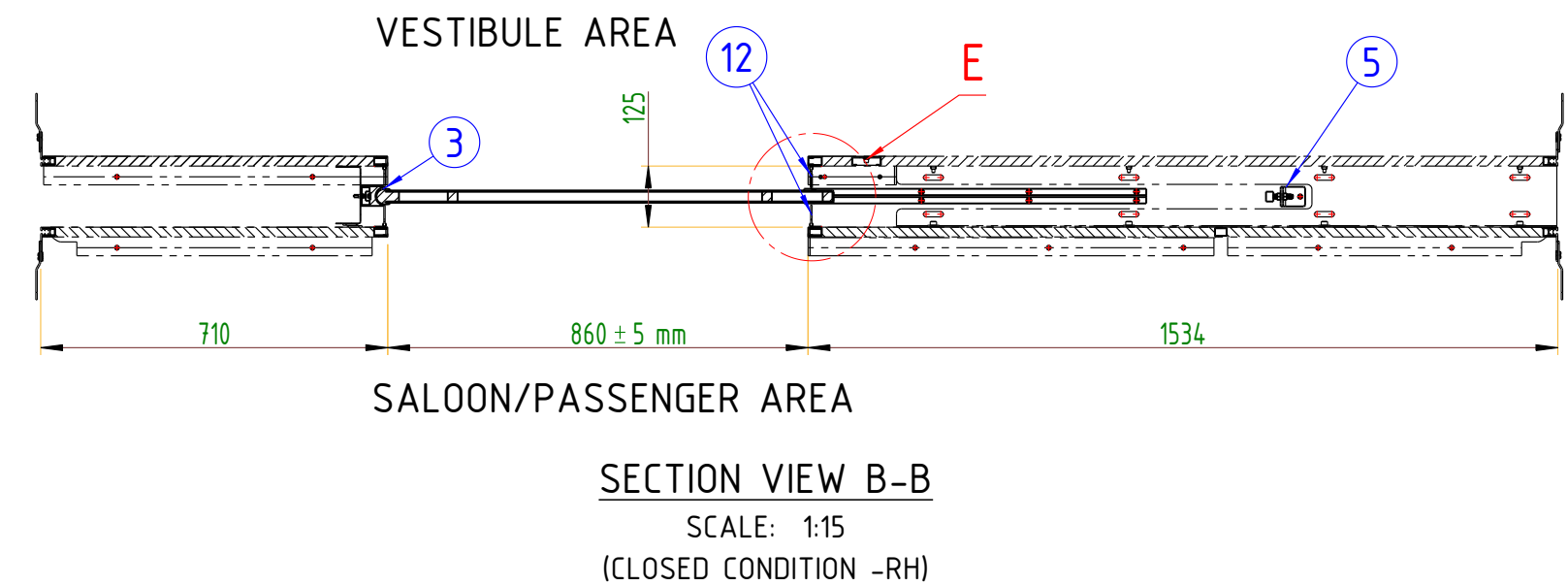
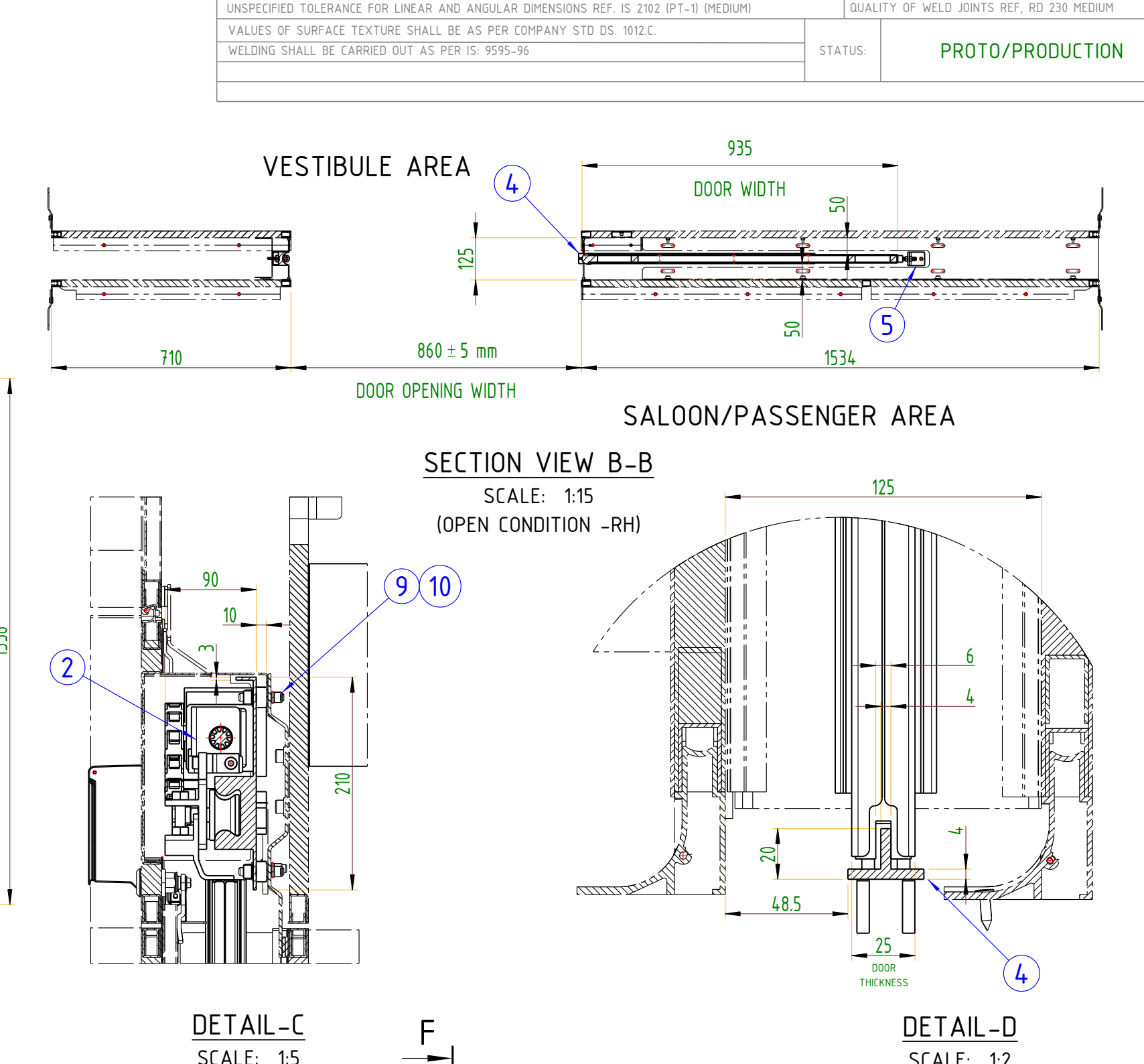
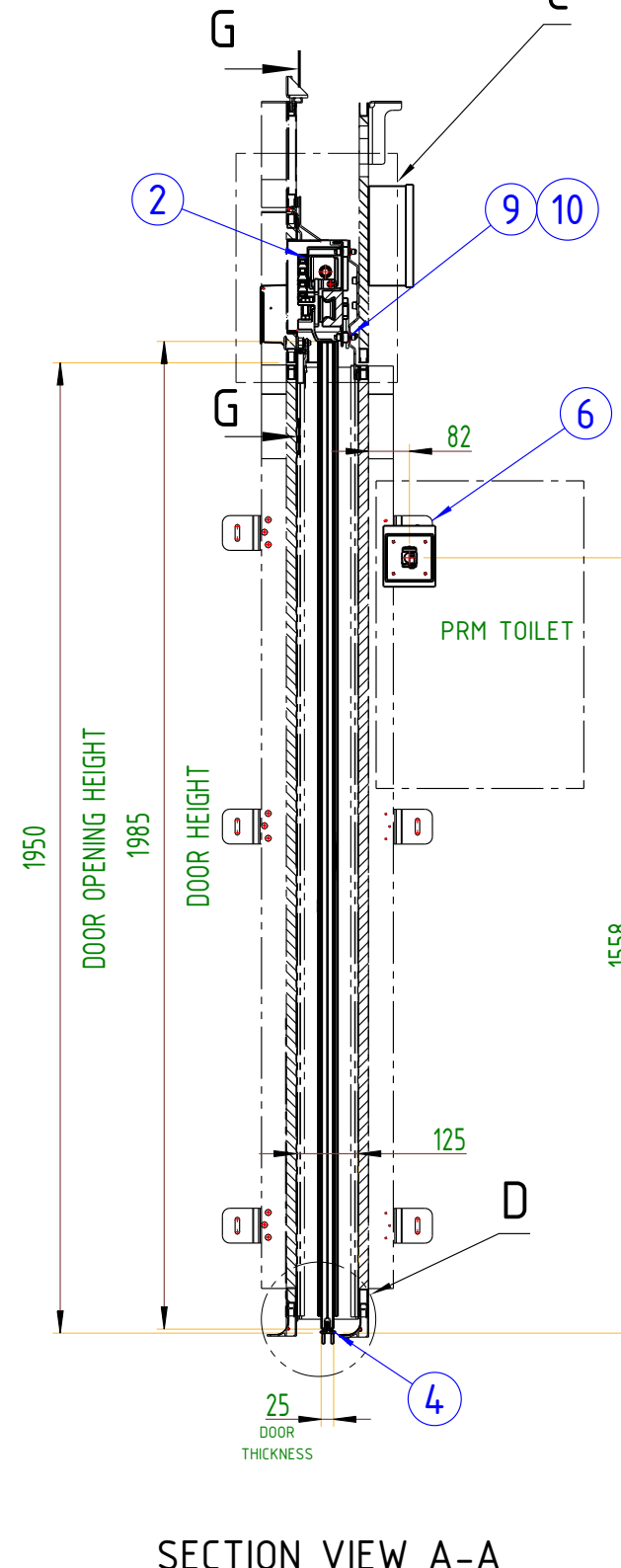
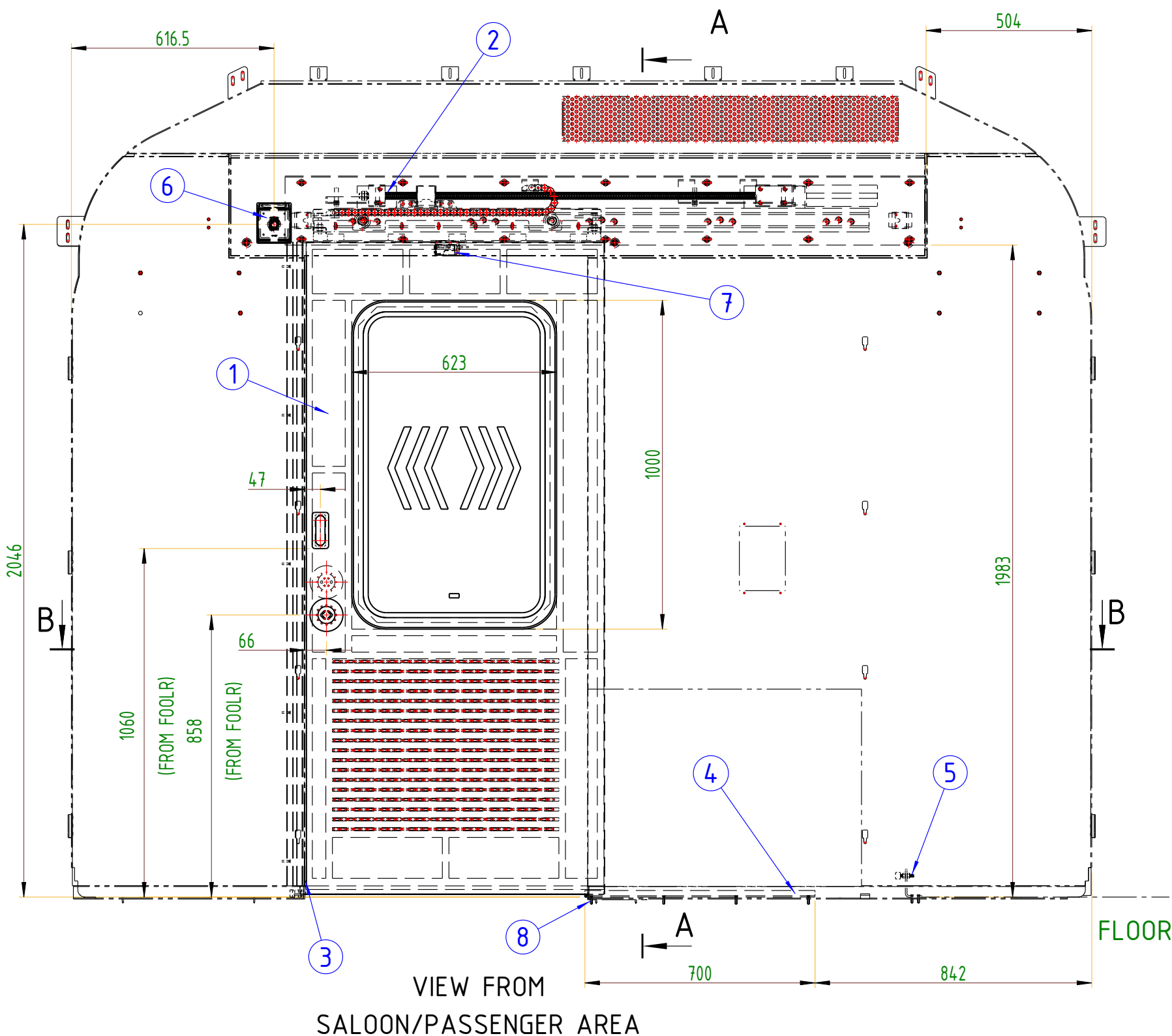
1. ALL DIMENSIONS ARE IN mm.
2. AUTOMATIC INTERNAL SLIDING DOOR OPENING WIDTH 860mm RH CONFORMING TO PTS DOC.NO. GR/TD/6181 LATEST REVISION AND TO KIT 5231400001.
3. ALL FASTENERS TO BE PROVIDED LOCTITE 243
- 4.SALOON/PASSENGER AREA SHOULD CONFIRM TO FABRIC PEARL MOUSE GREY COLOR TO RAL 7048 GLOSS LEVEL 60 & VESTIBULE AREA SHOULD CONFIRM TRAFFIC GREY TO RAL 7042 GLOSS LEVEL 60

SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S		Wt. (Kg)		
					MATERIAL				
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)					
			REF DRG						
			MATERIAL						
	REVISED & REDRAWN ECN NO:52310208	DATE: 09/10/2024	BY NSD	CHKD GP	APPD RNN	HEAT TREAT.	APPD RNN	09/10/2024	
						SURFACE TREAT.	REVD DK	08/10/2024	
						TITLE	CHKD GP	07/10/2024	
						INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 860mm RH (IC DOOR)	DRWN NSD	05/10/2024	
						SCALE 1:15		SHEET 2 OF 2	Wt.
ALT.No.	ECN NO/CHANGES					DRG No.	 BEM LIMITED NEW PROVIDERS - NEW IDEAS		ALT 1
						523-14011			






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GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
ROUGHNESS												

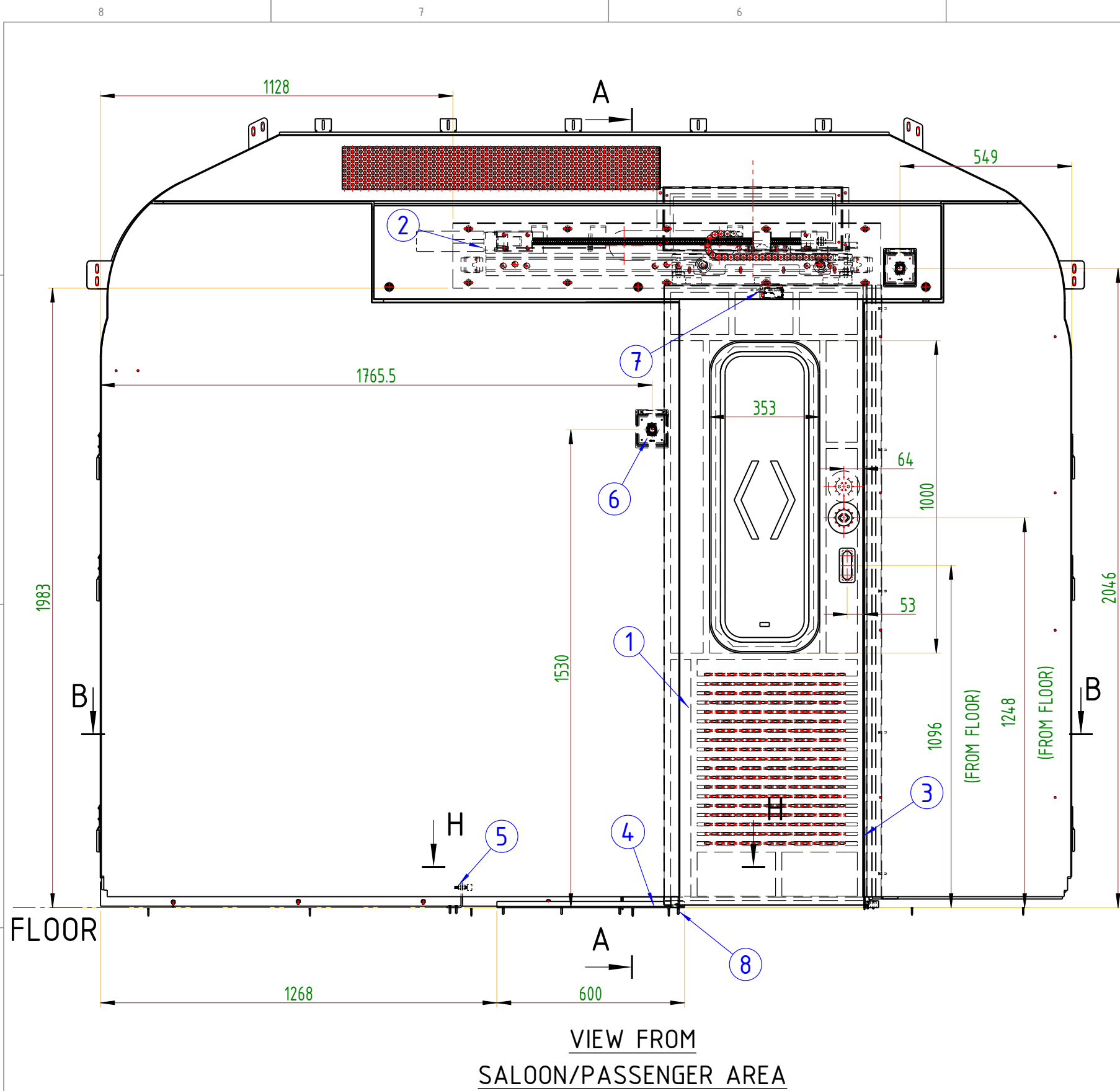


3		2					1			
MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF. RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS:	PROTO/PRODUCTION		
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

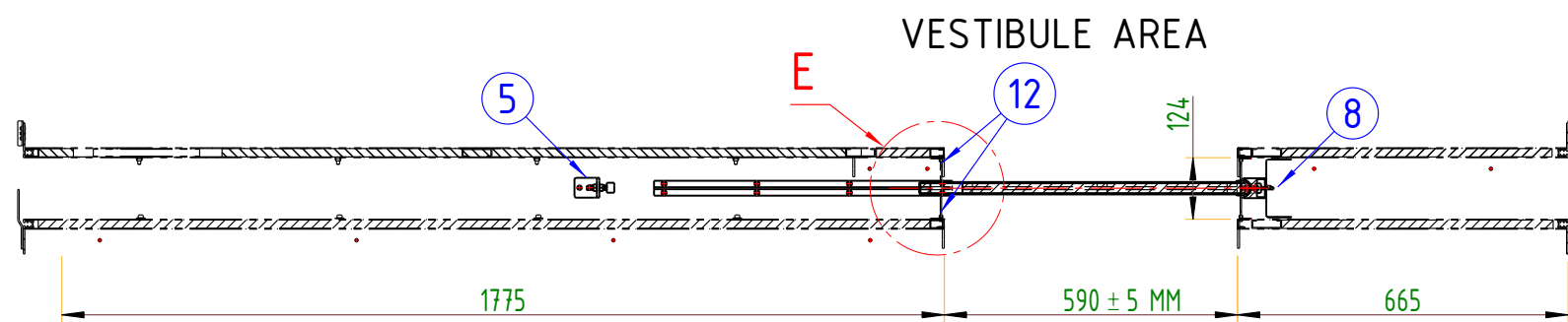
SL.No.		QTY	PART / STOCK No.				DESCRIPTION		SIZE		COMPANY STD./I.S		Wt. (Kg)	
											MATERIAL			
△							PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)						
							REF DRG							
△							MATERIAL							
							HEAT TREAT.			APPD	RNN	09/10/2024		
							SURFACE TREAT.			REVD	DK	08/10/2024		
△							TITLE			CHKO	GP	07/10/2024		
							INSTALLATION,AUTOMATIC INTERNAL SLIDING DOOR 860mm RH (IC DOOR)			DRWN	NSD	05/10/2024		
								SCALE	1:15				SHEET	1 OF 2
1		REVISED & REDRAWN ECN NO:52310208			DATE	09/10/2024	BY	NSD						
							CHKD	GP						
							APPD	RNN						
ALT.NO.		ECN NO/CHANGES					 BEM LIMITED <small>NEW PROJECTS - NEW DESIGN</small>		DRG No.		523-14011		ALT	1
													A2	

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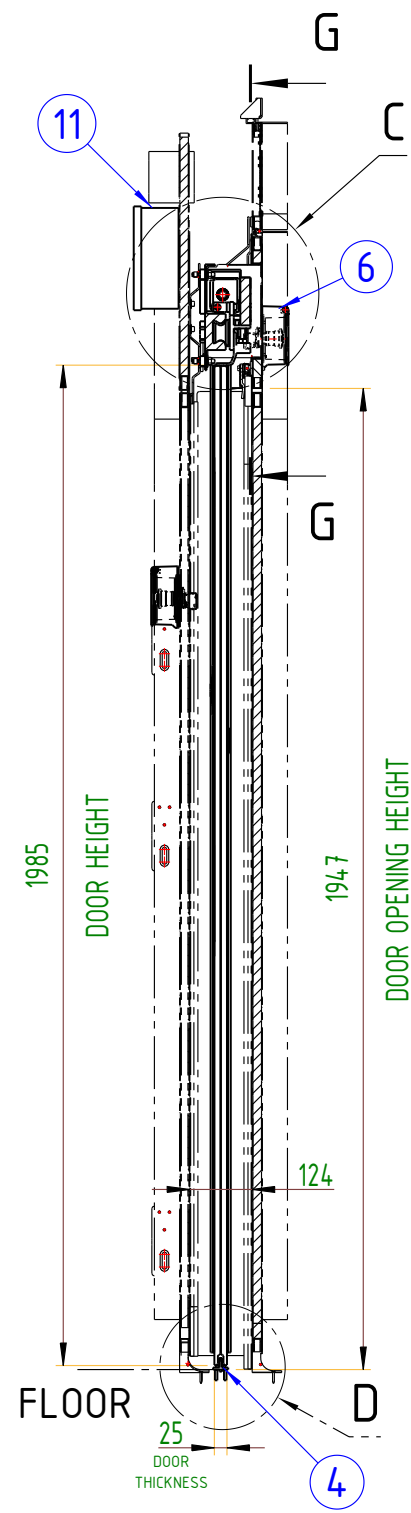
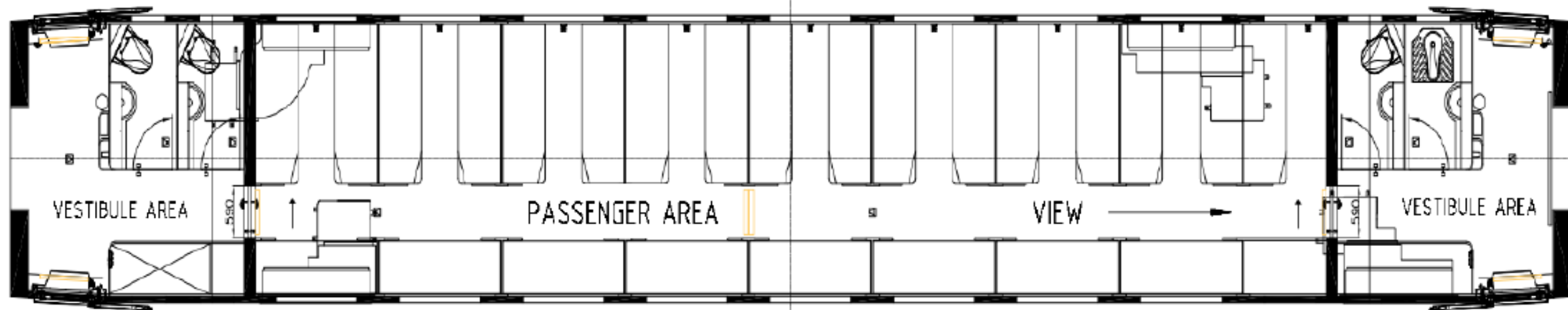
GRADE No.	VALUE	SYMBOL	ROUGHNESS
N1	0.025	▽	
N2	0.05	▽	
N3	0.1	▽	
N4	0.2	▽	
N5	0.4	▽	
N6	0.8	▽	
N7	1.6	▽	
N8	3.2	▽	
N9	6.3	▽	
N10	12.5	▽	
N11	25	▽	
N12	50	▽	



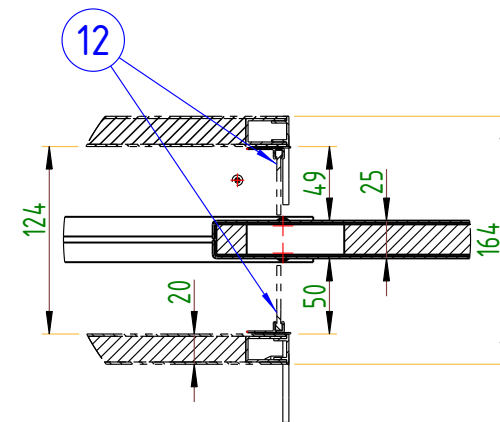
VIEW FROM
SALOON/PASSENGER AREA



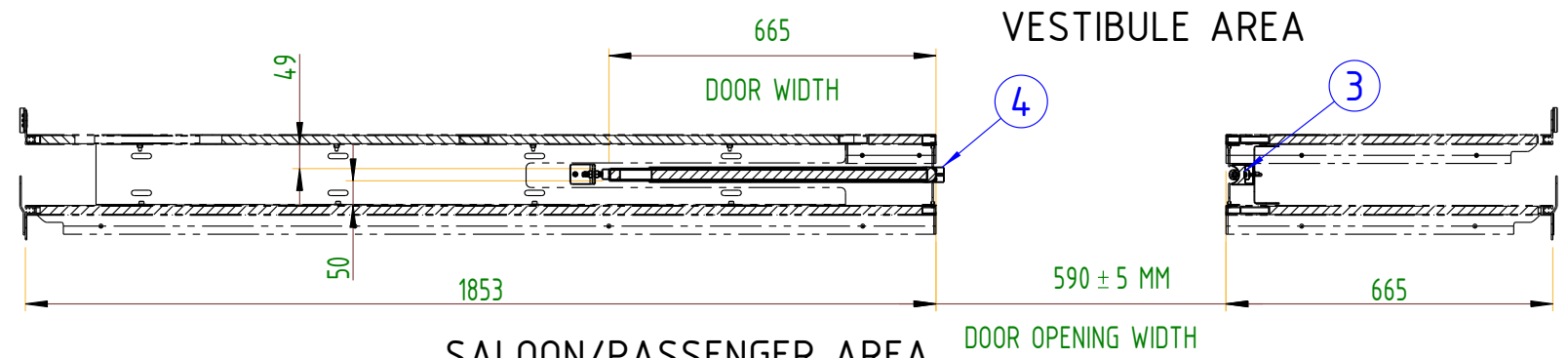
SECTION B-B
SCALE 1:15
(CLOSED CONDITION-LH)



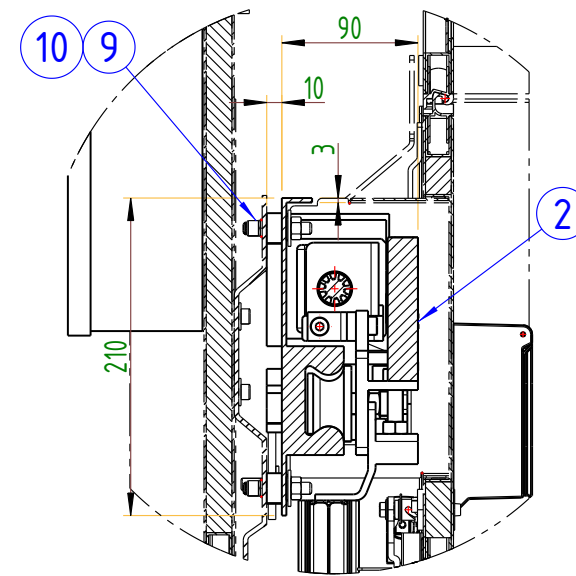
SECTION A-A
SCALE 1:15



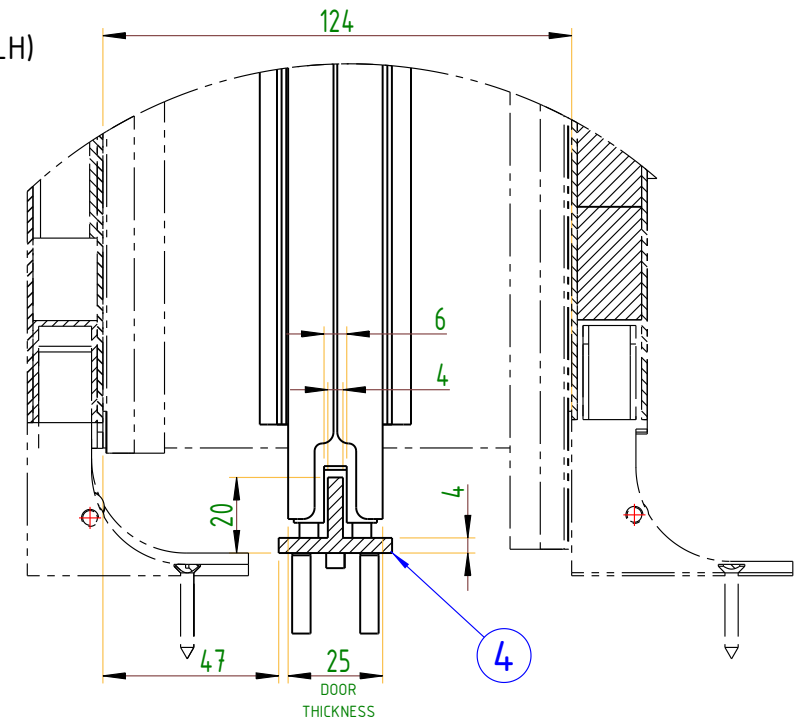
DETAIL-E
SCALE 1:5



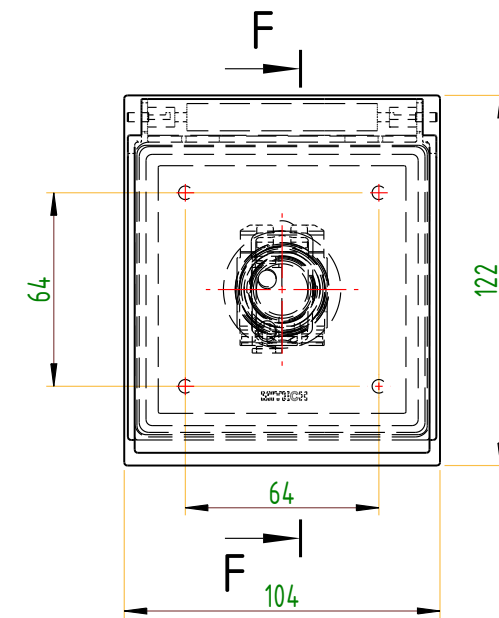
SECTION B-B
SCALE 1:15
(OPEN CONDITION-LH)



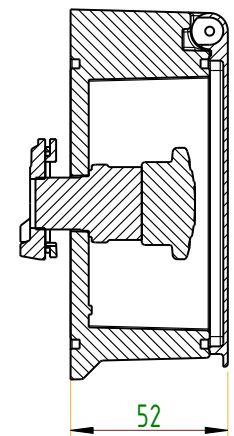
DETAIL-C
SCALE: 1:5



DETAIL-D
SCALE 1:2



ITEM NO:6
SCALE: 2:5



SECTION F-F
SCALE: 2:5

SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S	Wt. (Kg)
					MATERIAL	
			PRODUCT	VANDE BHARAT SLEEPER VERSION (10TS)		
			REF DRG			
			MATERIAL			
			HEAT TREAT.	APPD	RNN	09/10/2024
			SURFACE TREAT.	REVD	DK	08/10/2024
			TITLE	CHKD	GP	07/10/2024
				DRWN	NSD	05/10/2024
				SCALE	1:15	Wt.
				DRG No.	1 OF 2	
						ALT
						1

ALT.NO.	ECN NO/CHANGES	DATE	BY	NSD	GP	RNN	APPD
		09/10/2024					

1	REVISED & REDRAWN ECN NO:52310208						
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BEML LIMITED	527-14001	ALT	1
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