



Fomura Door

User should check the validity of the Certificate by contacting Member Secretary, BMBA at BMTPC or the Holder of this Certificate.

Name and Address of Certificate Holder:

**M/s Sintex Industries Ltd.
Kalol (N. Gujarat) – 382721
Gandhinagar, India**

Performance Appraisal Certificate No.

PAC No **2 / 2009**

Issue No. **1**

Date of Issue: **14.07.2009**



bmtpc

**Building Materials & Technology Promotion Council
Ministry of Urban Employment & Poverty Alleviation
Government of India
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**Performance Appraisal Certificate
for**

FOMURA DOOR

Issued to

M/s SINTEX INDUSTRIES

STATUS OF PAC 2/2009

| S. No. | Issue No. | Date of Issue | Date of renewal | Amendment | | Valid upto (Date) | Remarks | Signature of authorized signatory |
|--------|-----------|---------------|-----------------|-----------|------|-------------------|---------|-----------------------------------|
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PAC No.2/2009

Issue No.1

Date of issue 14-07-2009

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PART – I CERTIFICATION

- I – 1 Certificate Holder: M/s Sintex Industries Ltd.**
Kalol (N. Gujarat) – 382721
Gandhinagar, India
Phone No. 95-2764-253500
Fax No. 91-2764-253800
- I – 2 Description of Product**
- I – 2.1 Name of the Product – Fomura Door**
- I – 2.2 File Reference – QA/BMTPC/02**
- I – 2.3 Brief Description –** Fomura door shutters consist of Tubular MS frame covered with heat moulded 'c' channel sections and 5mm thick PVC foam sheet for its infill panel. The top, lock & bottom rails are also provided with 5mm thick PVC sheet of adequate width and with suitable PVC Foam sheet beading. Stickers indicating the locations for fixing of hardwares & accessories shall be pasted on the door at appropriate places.
- I – 3 Assessment**
- I – 3.1 Scope of Assessment –** Suitable for internal locations in dry situations in residential, commercial and factory buildings.
- Grade : Light
- Shade : Grey, Ivory & White
- I – 3.2 Scope of Inspection –** Scope of inspection included verification of production and testing facilities at the factory and competence of technical personnel and status of quality assurance in the factory.
- I – 3.3 Assessment Summary**
- I – 3.3.1** The assessment was done through inspection, laboratory testing and field observations of the Fomura doors.

- I – 3.3.2 Manufacturing & test facilities** – Manufacturing and test facilities available in the factory were found to be suitable & adequate to produce door shutters as per details listed in Annexures 10 & 14 of DAF No. QA/BMTPC/02. Testing equipments listed in DAF No. 10 were verified and found to be in working condition.
- I – 3.3.3 Competence of Technical Personnel** – Persons involved in testing were found to be well conversant with testing procedures required for the quality control of the product.
- I – 3.3.4 Experience in Actual use** – A few door shutters were inspected at nearby locality. They showed no distress & were found to be functioning satisfactorily. No complaints were reported.
- I – 3.3.5 Quality Assurance Procedure** – The firm follows a Quality Assurance System for production of Fomura doors.
- I – 3.4 Durability**
- I – 3.4.1** The shutters that were inspected were those installed during the period February 2007. None of them showed any distress and they were fully functional. The persons contacted at the inspected locations expressed satisfaction on the performance of these shutters. The level of maintenance of these shutters was satisfactory. As prescribed by the manufacturer 3 No. hinges for doors having height upto 7' and 4 No. hinges for doors having height more than 7' shall be provided.
- I – 3.4.2** These door shutters are designed for a life span of 15years.
- I – 4 Uses of the Fomura Doors & their Limitations**
- I - 4.1 Design Data** – The data & information provided in Part II of this Certificate shall be used for selection of the type, size, thickness etc.
- I – 4.2 Storage & handling at the user end before installation**

- I - 4.2.1 **Storage** -- At the user's end the shutters shall be stored/stacked one over the other to a maximum height of 1200 mm in order of the sizes with largest at the bottom. They shall be stacked flat on bearer strips properly covered to exclude moisture and inside a shed / building.
- I - 4.2.2 **Handling** – Fomura door shutters shall be handled carefully during storage or installation in order to prevent occurrence of damages to the faces & edges. The shutters shall not be dragged along a stack or any surface but shall be lifted clear of a stack or any surface on which they are stored.
- I - 4.3 **Uses of the shutter**
- I - 4.3.1 The samples of door shutters tested as per IS 4020 – 1998 have met the requirements of Light duty shutter in all tests which characterize the duty of shutters namely Shock resistance ,Impact indentation test, Edge loading test, Buckling test in accordance with results given in test report of M/s Gujarat Test House which led to the conclusion that they can be used as shutters in bathrooms & toilets of houses, offices, hospitals and factories etc provided they are installed with appropriate frame and hardware in accordance with good engineering practice.
- I - 4.3.2 In view of the specifications of the shutters and their manufacture, the manufacturer has claimed that these can be used in different geoclimatic conditions.
- I - 4.4 **Limitations of use**
- I - 4.4.1 Not recommended for use where radiation hazards are there or where rated fire-resisting doors are indicated.
- I - 5 **Conditions of Certification**
- I - 5.1 **Technical conditions** –Eco-friendly materials shall be used for the manufacture of Fomura door shutters.
- I - 5.2 **Quality Assurance** – The Certificate Holder shall implement & maintain a quality assurance system in accordance with Scheme of Quality Assurance (SQA) given in Annexure.

I – 5.3 Handling of User Complaints

I – 5.3.1 The Certificate holder shall provide quick redressal to consumer/user complaints proved reasonable & genuine and within the conditions of warranty provided by him to customer/purchaser.

I – 5.3.2 The Certificate holder shall implement the procedure included in the SQA. As part of PACS Certification he shall maintain data on such complaints with a view to assess the complaint satisfaction and suitable preventive measures taken.

I – 6 Certification

I – 6.1 On the basis of assessment given in Part III of this Certificate & subject to the conditions of Certification, use & limitations set out in this Certificate and if selected, installed & maintained as set out in Part I & II of this Certificate, Fomura doors covered by this Certificate are fit for use set out in the Scope of Assessment.

Part – II Certificate holder's Technical Specifications

II – 1 General

II – 1.1 The PAC holder shall manufacturer the door shutters in accordance with requirements specified. In addition he follows his company standards specifying requirements of various materials used in the manufacturer of shutters.

II – 2 Specifications for the product & design information

II – 2.1 Specifications – The specifications for raw materials & finished shutters shall be as per performance criteria when tested in accordance with IS 4020 - 1998.

II – 2.2 Technical Specifications

I – 2.2.1 Raw Materials – PVC foam sheet is procured from the market. Its test certificate is verified by the manufacturer/PAC holder.

II – 2.2.2 Construction & workmanship – Sintex brand Fomura Door Shutter conforming to IS:4020, consisting of frame made out of MS tube of 19 gauge thickness and of size 19mm x 19mm (Styles) and 15mm x 15mm (Top and Bottom Rail). MS frame shall have a coat of steel primers of approved make. MS frame to be covered with 5mm thick heat moulded PVC 'C' channel of size 30 x 50mm for stiles with 5mm thick PVC foam sheet (50mm wide PVC foam sheet for top rail, 75mm wide for lock rail & bottom rail on either side) and 10mm (5mm x 2) thick, 20mm wide cross PVC strip as gap insert for top rail & bottom rail. Paneling of 5mm thick PVC foam sheet to be fitted in MS frame sealed to the styles and rails with 25 x 5mm PVC foam sheet beading on either side and joined together with solvent cement adhesive. A suitable wooden batten may be inserted in the vertical MS tube to further enhance screw holding capacity.

The door surface shall be smooth, cleaned & free from defects like peeling, cheeping, burning marks, crazing, colour patches, shade variation, contamination etc.

II -2.2.3 Design & Dimensions – The normal design & dimensions of door shutter are given in the brochure of the manufacturer.

II – 2.3 Performance criteria of Fomura Door Shutter – The door shutter shall meet the following performance criteria when tested in accordance with IS 4020 (Parts 2,3,4,5,7,8,9,10,11&16)– 1998.

II – 2.3.1 Dimensions – The normal width & height are within a limit of ± 5 mm whereas the thickness has a limit of ± 0.5 mm.

II – 2.3.2 Squareness – Squareness shall not exceed 1 mm in 500 mm.

II – 2.3.3 General Flatness – The twist, cupping & warping does not exceed 1.5 mm.

II – 2.3.4 Local Planners – The depth of deviation measured at any point does not exceed 0.5 mm.

- II – 2.3.5 Impact indentation** – The depth of indentation does not exceed 0.5 mm and defects like cracking, tearing or delaminating are not present.
- II – 2.3.6 Edge loading** – The deflection of the edge at a load of 100 kg does not exceed 9 mm after 15 min. and residual deflection after removal of load does not exceed 0.5 mm after 3 min.
- II – 2.3.7 Shock resistance** –
- a) Soft & light body impact – There is no visible damage in any part of the shutter.
 - b) Soft & hard body impact - There is no visible damage in any part of the shutter.
- II – 2.3.8 Buckling** – The initial deflection does not exceed 90 mm after 5 min. of 40 kg loading and residual deflection does not exceed 5 mm after 5 min. of unloading.
- II – 2.3.10 Slamming** – There is no visible damage in any part of the door shutter.
- II – 2.3.11 Misuse** – There is no permanent deformation of the fixing or other part of the door set so as to hinder its normal working.
- II – 2.3.12 Screw withdrawal strength** – The min. load to withdraw the screw completely is 1000 N so that there is no visible damage to the surface.
- II – 2.4 Grades** – The grade of shutters is given in Table below. Only one grade namely Light is manufactured.

| Duty category | Description of duty | Example | Grade/ Designation |
|---------------|--|--|--------------------|
| 1 | 2 | 3 | 4 |
| Light duty | Low frequency of use by those with a high incentive to exercise care, eg by private house owners-small chance of accident occurring or of misuse | Internal doors in dwellings. External doors in dwellings providing secondary access to private areas | L |

II – 2.5 Size & thickness – Fomura door shutters are made to the following sizes & thickness.

| S.No. | Grade | Type | Standard size mm | Thickness mm |
|-------|-------|--------|--------------------------------------|--------------|
| 1. | Light | Fomura | 1830 x 610 mm to 2059 x 762 mm | 30 mm |

II – 2.6 Marking – Besides the identification mark of the PAC holder as manufacturer and any other marking he may use, the grade, type & batch number are marked suitably on each shutter.

II – 2.6.1 The location of lock block is also marked.

II – 2.7 Packing details of packing of finished door for delivery

II – 2.7.1 Each door shall be packed in multilayer packing material to ensure safe & defect free delivery to customers.

II – 3 Selection & installation

II – 3.1 The user/installer is responsible for the workmanship & finishing at site.

II -- 3.2 Choosing grade – The grade of shutter shall be chosen according to place of use as indicated by the user. The higher grade shutter can be used in situations described for the

lower grade. They shall be installed with appropriated frame and hardware in accordance with good engineering practice.

- II – 3.3 **Choosing type** – Appropriate type of shutter shall be chosen depending upon the requirement of the user.
- II – 3.4 **Choosing size & thickness** – Appropriate size of the shutter shall be chosen to suit the wall opening or conversely the door opening should be sized to the shutter size.
- II – 3.5 **Handling** – Doors shall be carefully handled during storage or installation in order to prevent occurrences of damage to the faces & edges. The shutters shall not be dragged along a stack or any surface, but shall be lifted clear of a stock or any surface on which they are stored.
- II – 3.6 **Good practice for installation & maintenance.** Good practice as per requirement of the manufacturer shall be followed for installing the shutters.
- II – 3.7 **Hinges** – It is recommended that a minimum of three hinges equally spaced with top of the top hinge 100mm. from the top edge of the shutter shall be used (for each shutter in a double leaf door).
 - II – 3.7.1 It is recommended that the hinges & hardware chosen shall satisfy the requirements of relevant Indian Standards.
- II – 3.8 **Other Hardware** – The shutter stiles can take the hardware like hinges & locks. The construction inside is with solid strips laid side by side so it can also take hardware like hasp & staples (aldrop), sliding bolts (tower bolts) and nameplate screwed on to the face of the shutter.
- II – 3.9 **Paint ability** -- The surface of the doors shall be smooth & self designed.
 - II – 3.9.1 Fomura door shutters shall be finished on installation by self colour system and regularly maintained when colour deterioration is noticed. The edges of all type of shutters shall also be finished as recommended by the manufacturer. At first installation, immediately after the shutter has been hung, it shall be removed from the door frame and after

removing all the hardware the surfaces and the four edges, as applicable, shall be finished as recommended in the literature of the manufacture.

II - 3.9.2 A 5 mm gap shall be left between the bottom edge of the door shutter and the finished floor in locations where water can reach the door ductorain, washing of floor or otherwise.

II - 4 Critical details pertaining to use of the shutter in a door

II - 4.1 For high-hazard areas susceptible to fungal attacks and attacks by biological agent, the manufacturer shall provide an additional thickness when notified by the user.

II - 4.2 Continuously, wet locations like small toilets, latrines or small wash area where water falls directly or indirectly from showers, bib cocks etc, on the door shutters or the area regularly water logged are considered as being of extra hazard. For use of these shutters in such locations, extra protections and preservatives & finishes shall be provided as agreed between the buyer and the manufacturer. Also the recommendations of the manufacturer contained in its technical literature shall be followed.

II - 5 Maintenance requirements

II - 5.1 No maintenance is practically required for those shutters. However, these shutters shall be installed strictly as per the instructions contained in the technical literature of the PAC holder.

II - 5.2 These type of door shutters especially those in exposed & wet locations i.e. bathroom & toilet, terrace etc shall be refinished in accordance with the recommendations contained in technical literature of the PAC holder and the material manufacturer.

II - 6 Skills /Training needed for installation

II - 6.1 No special skills other than the normal skills of a good carpenter are needed for installing the shutters.

II - 7 Guarantees/Warranties provided by the PAC Holder-
This product is guaranteed for a period of one year from the

date of supply against any genuine manufacturing defect provided the products are not subject to any damage whatsoever and are not abused/misused or wrongly installed. During the period of Warranty the products shall be serviced free of cost for any defect observed and subsequent to Warranty period services shall be done at a nominal service charge together with other incidental costs mutually agreed by the PAC holder and the purchaser.

II – 8 Services provided by the PAC holder to the customer

II – 8.1 The PAC holder shall provide pre-sale advisory regarding the product. Customer/user may obtain from the PAC holder details of the advice that may be provided to him.

II – 8.2 The PAC holder shall also provide after sales service on customer to customer basis. These include items like pre-finishing, trouble shooting in fixing and useage of the shutters. Users / Customers shall ascertain from the PAC holder the type of service and the conditions, the PAC holder is prepared to provide.

Part III Basis of Assessment and Brief description of Assessment Procedure

III – 1 Basis of Assessment

III – 1.1 The technical basis for assessment is as per the standards listed in Part V.

III – 1.2 The assessment is based on the results & reports of

- (i) Inspection of the factory
- (ii) Inspection of the test equipment used and the test procedures followed in the laboratory of the factory
- (iii) Assessment of quality assurance procedures implemented in the factory
- (iv) Tests done in the factory during inspection
- (v) Tests done in an independent laboratory on random samples of the finished shutters taken by the IO during inspection
- (vi) Inspection of Fomura door shutters in service

III – 2 Manufacturing process – Cut the PVC Foam Sheet in to required size as Main Panel, Top Rail, Bottom Rail, Middle Rail and Stiles, adequate reinforcement structure to be provided and sheets to be pasted with adhesive and finish properly then marked with stickers for placing hardware on each location.

III – 3 Factory inspection

III – 3.1 The factory was inspected by technical representatives of the Council. During inspection the entire manufacturing process along with the equipment and machinery were inspected. The manufacturing process was found to confirm to the process description given in Annexure. The in-process inspection and the inspection of the finished shutters were in accordance with the SQA approved as a part of the requirements for grant of this PAC. These were found suitable to produce door shutters satisfying the criteria specified.

III – 4 Laboratory Tests done for assessment

III – 4.1 Testing of samples

III – 4.1.1 In the factory – The tests listed in the report i.e. Measurement for dimensions & squareness, General flatness, Local planeness, Impact indentation, Edge loading, Shock resistance (soft & light body impact as well as soft & hard body impact), Slamming, Misuse & Screw withdrawal strength were done by the IO in the factory on random samples of shutters, style, rail & core taken by him for checking the product as well as the related test equipment. The tests were conducted using standard test methods covered by standards listed in clauses 11.1, 11.2, 11.11 of IS 1003 (Part I) – 2003. The samples passed in all the tests conducted.

III – 4.1.2 In independent laboratory – The performance test for door shutters specified in IS 4020 (Parts I to 16): 1998 Wooden door shutters – method of tests listed below were got done in an independent laboratory on random samples of door shutters taken by the IO. The samples conform to the tests as per the performance requirements and the specifications

given by the manufacturer with respect to all tests which characterize the duty of shutters.

Tests done in an independent laboratory

Size 1981x762x30 mm

| S.No. | Parameters | Results Obtained |
|-------|---|--------------------------------------|
| 1. | Dimensions, mm (a) Height (b) Width (c) Thickness | 1981 mm 761 mm 30 mm |
| 2. | Squareness (Deviation per 500 mm) | 0.3 mm |
| 3. | General flatness (a) Twisting (b) Cupping (c) Warping | No Twist No Cupping No Warping |
| 4. | Local Planeness (Depth of indentation) | 0.1 mm |
| 5. | Impact indentation (Depth of indentation) | No damage |
| 6. | Slamming Test | No damage |
| 7. | Edge loading Test (a) 15 min after loading 50 Kg (b) 3 min after load removal (residual) | 4 mm 0.4 mm |
| 8. | Shock resistance (a) Soft & light body impact (b) Soft & hard body impact | No damage |
| 9. | Buckling resistance (a) 5 min after loading 40 kg (b) 15 min after loading removal (residual) | 39 mm 3 mm |
| 10. | Misuse | No deformation |
| 11. | Screw withdrawal strength | Withdrawal force is more than 1000 N |

III – 5 Inspection & Supply of Installed door shutters: - Fomura door shutters installed in the factory were inspected. Details of the door shutters supplied by the manufacturer are given below:-

| S.No. | Supplied to | Location of Building | When Supplied | Remarks condition of panels |
|-------|--------------------------------|--|---------------|-----------------------------|
| 1. | Jyoti Swarup Mittal, Delhi | E-in-C branch, Army HQ, Kashmir House, New Delhi | December 2006 | Satisfactory |
| 2. | Sterling Agencies, Jamnagar | GE, MES, INF Lines, Jamnagar | April 2006 | Satisfactory |
| 3. | Project Manager, CPWD, Bikaner | Nirman Bhawan, Sagar Road, Bikaner | April 2006 | Satisfactory |
| 4. | Singhal & Sons, Jhansi | MAP, Station HQ, Jhansi, M.P. | January 2007 | Satisfactory |

PART-IV STANDARD CONDITIONS

This certificate holder shall satisfy the following conditions:

- IV-1** The certificate holder shall continue to have the product reviewed by BMBA.
- IV-2** The product shall be continued to be manufactured according to and in compliance with the manufacturing specifications and quality assurance measures which applied at the time of issue or revalidation of this certificate. The Scheme of Quality Assurance separately approved shall be followed.
- IV-3** The quality of the product shall be maintained by the certificate holder.
- IV-4** The product user should install, use and maintain the product in accordance with the provisions in this Certificate.
- IV-5** This certificate does not cover uses of the product outside the scope of this appraisal.
- IV-6** The product is appraised against performance provisions contained in the standards listed in Part-V. Provisions of any subsequent revisions or provisions introduced after the date of the certificate do not apply.
- IV-7** Where reference is made in this Certificate to any Act of Parliament of India, Rules and Regulations made there under, statutes, specifications, codes of practice, standards etc. of the Bureau of Indian Standards or any other national standards body and the International Organization for Standardization (ISO), manufacturer's company standards, instruction/manual etc., it shall be construed as reference to such publications in the form in which they were in force on the date of grant of this Certificate (and indicated in Part V to this Certificate)
- IV-8** The certificate holder agrees to inform BMBA of their distributors / licensees whenever appointed by him and agrees to provide to BMBA a six monthly updated list there of.
- IV-9** The certificate holder agrees to provide to BMBA feed back on the complaints received, the redressal provided, and the time taken to provide redressal on complaint to complaint basis as soon as redressal is provided. BMBA agrees to provide the certificate holder the user feed back received by it, if any.
- IV-10** If at any time during the validity period, PACH is unable to fulfill the conditions in his PAC, he should on his own initiative suspend using the PAC and notify Chairman, TAC the date from which he has suspended its use, the reason for suspension and the period by which he will be able to resume. He shall not resume without the prior permission of BMBA. He shall also inform, simultaneously, his agents, licensees, distributors, institutional, government, public sector buyers, other buyers and all those whom he has informed about his holding the PAC. He shall also inform all those who buy his product(s) during the period of suspension. He shall provide to BMBA at the earliest the list of who have been so informed by him.

IV-11 In granting this Certificate, BMBA takes no position as to:

- (a) The presence or absence of patent or similar rights relating to the product;
- (b) The legal right of the Certificate holder to market, install or maintain the product;
- (c) The nature of individual installations of the product, including methods of workmanship.

IV-12 BMTPC and the Board of Agreement of BMTPC (BMBA) take no position relating to the holder of the Performance Appraisal Certificate (PACH) and the users of the Performance Appraisal Certificate (PAC) respecting the patent rights / copy rights asserted relating to the product / system / design / method of installation etc. covered by this PAC. Considerations relating to patent / copy rights are beyond the scope of the Performance Appraisal Certification Scheme (PACS) under which this PAC has been issued. PACH and users of this PAC are expressly advised that determination of the Claim / validity of any such patent rights / copy rights and the risk of infringement of such rights are entirely the responsibility of PACH on the one hand and that of the users on the other.

IV-13 It should be noted that any recommendations relating to the safe use of the product which are contained or referred to in this Certificate are the minimum standards required to be met with when the product is installed, used and maintained. They do not purport in any way to restate or cover all the requirements of related Acts such as the Factory Act, or of any other statutory or Common Law duties of care, or of any duty of care which exist at the date of this Certificate or in the future, nor is conformity with the provisions of this Certificate to be taken as satisfying the requirements of related Acts.

IV-14 In granting this Certificate, BMTPC and BMBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the use of this product.

IV-15 The certificate holder indemnifies BMBA, its officers and officials involved in this assessment against any consequences of actions taken in good faith including contents of this certificate. The responsibility fully rests with the certificate holder and user of the product.

IV-16 The responsibility for conformity to conditions specified in this PAC lies with the manufacturer who is granted this PAC. The Board (BMBA) will only consider requests for modification or withdrawal of the PAC.

IV-17 The PAC holder shall not use this certificate for legal defense in cases against him or for legal claims he may make from others.

Place: New Delhi
Date of issue _____


Chairman TAC & _____ for and on behalf of
Member Secretary, BMBA

Dr. Shailash Kr. Agarwal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
17 Ministry of Housing & Urban Poverty Alleviation, (Govt. of India)
Core 5A, 1st Floor, Indira Habitat Centre, Lodi Road,
New Delhi-110 003

Part – V List of Standards & codes used in Assessment

- Part – V.1 Indian Standards** - These Standards are referred for carrying out a particular test only and do not specify the requirement for the whole product as such.
- Part –V.1.1 IS 4020: 1998(Part 1 to 16)** – Door shutters -Method of tests.
- Part – V.2 Company Standards of the PAC holder** – The branded design and specifications of the raw materials and finished products are specified by the manufacturer. The PAC holder has to make available the company standards to the consumers according to which testing has been done.

CERTIFICATION

In the opinion of Building Materials and Technology Promotion Council's Board of Agreement (BMBA) Formura Door bearing the mark Manufactured by M/s Sintex Industries is satisfactory if used as set out above in the text of the Certificate. This Certificate PAC No. 2 /2009 is awarded to M/s Sintex Industries.

The period of validity of this Certificate is as shown on Page 1 of this PAC. This Certificate consists of a cover page and pages 1 to 22.



On behalf of BMTPC Board of Agreement

New Delhi, India
Place
Date

U. S. Agrawal 14/7/09
Chairman, Technical Assessment Committee (TAC) of
BMBA & Member Secretary, BMTPC Board of
Agreement (BMBA) Under Ministry of Housing and
Urban Poverty Alleviation, Government of India

Dr. Ghanshyam K. Agrawal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, (Govt. of India)
Core 5A, 1st Floor, Indira Habitat Centre, Lodhi Road,
New Delhi-110 003

PART VI ANNEXURE

Annex VI-I

Abbreviations

| | |
|-------|---|
| BMBA | Board of Agreement of BMTPC |
| BMTPC | Building Materials and Technology Promotion Council |
| CPWD | Central Public Works Department |
| ED | Executive Director of BMTPC |
| IO | Inspecting Officer |
| MS | Member Secretary of BBA |
| PAC | Performance Appraisal Certificate |
| PACH | PAC Holder |
| PACS | Performance Appraisal Certification Scheme |
| SOA | Scheme of Quality Assurance |
| TAC | Technical Assessment Committee (of BMBA) |



Dr. Shantosh K. Agarwal
General, TAC
Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, Govt. of India
Govt. DA, 1st Floor, Janta Hostel Centre, Lodhi Road
New Delhi-110 003

Performance Appraisal Certification Scheme - A Brief

Building Materials & Technology Promotion Council (BMTPC) was set up by the Government of India as a body under the Ministry of Housing & Urban Poverty Alleviation to serve as an apex body to provide inter-disciplinary platform to promote development and use of innovative building materials and technologies laying special emphasis on sustainable growth, environmental friendliness and protection, use of industrial, agricultural, mining and mineral wastes, cost saving, energy saving etc. without diminishing needs of safety, durability and comfort to the occupants of buildings using newly developed materials and technologies.

During the years government, public and private sector organisations independently or under the aegis of BMTPC have developed several new materials and technologies. With liberalization of the economy several such materials and technologies are being imported.

However, benefits of such developments have not been realized in full measure as understandably the ultimate users are reluctant to put them to full use for want of information and data to enable them to make informed choice.

In order to help the user in this regard and derive the envisaged social and economic benefits the Ministry of Housing & Urban Poverty Alleviation has instituted a scheme called Performance Appraisal Certification Scheme (PACS) under which a Performance Appraisal Certificate (PAC) is issued covering new materials and technologies. PAC provides after due investigation, tests and assessments, amongst other things information to the user to make informed choice.

To make the PACS transparent and authentic it is administered through a Technical Assessment Committee (T AC) and the BMTPC Board of Agreement (BMBA) in which scientific, technological, academic, professional organisations and industry interests are represented.

The Government of India has vested the authority for the operation of the Scheme with BMTPC through Gazette Notification No. 1-16011/5/99 H-II in the Gazette of India No. 49 dated 4th December, 1999.

Builders and construction agencies in the Government, public and private sectors can help serve the economic, development and environmental causes for which the people and Government stand committed by giving preference to materials and technologies which have earned Performance Appraisal Certificates.

Further information on PACS can be obtained from the website: www.bmtpc.org

ANNEXURE-

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL

QUALITY ASSURANCE PLAN FOR FOMURA DOORS

| S.N O. | PARAMETER TO BE INSPECTED | REQUIREMENT SPECIFIED | TEST METHOD | FREQUENCY OF TESTING |
|---------------------------------------|----------------------------------|--|------------------------------|--|
| I. VISUAL | | | | |
| 1 | Visual Inspection | Should be free from any defect like improper finishing, all type of surface defects, mismatching colour of panels, screw fixing etc. | As per IS-2202 1986 | 5% in every lot |
| II. PERFORMANCE TEST: | | | | |
| 1 | Dimensional and Squareness Test | ± 5 mm in dimensions and ± 0.5 mm in thickness. Squareness shall not exceed 1mm in 500 mm | As per IS-4020(Part-2) 1998 | 3 nos. at the time of initial validation |
| 2 | General Flatness Test | No warping, cupping | As per IS-4020(Part-3) 1998 | -do- |
| 3 | Local Planeness test | Shall be less than 0.5 mm | As per IS-4020(Part-4) 1998 | -do- |
| 4 | Impact Indentation Test | Shall not cause any visible damage and depth of depression shall not exceed 0.5 mm | As per IS-4020(Part-5) 1998 | -do- |
| 5 | Edge Loading Test | 1) @ 100 kg. full test load deflection not to exceed 9.0 mm 2) Residual deflection shall not exceed 0.5 mm | As per IS-4020(Part-7) 1998 | -do- |
| 6 | Shock Resistance Test | Shall not cause any visible damages or deteriorations | As per IS-4020(Part-8) 1998 | -do- |
| 7 | Buckling Resistance Test | @ 40 kg. full test load deflection not to exceed 90 mm Residual deflection after removal of load shall be less than 5 mm | As per IS-4020(Part-9) 1998 | -do- |
| 8 | Slamming Test | No permanent deformation allowed | As per IS-4020(Part-10) 1998 | -do- |
| 9 | Misuse Test | No permanent formation with wooden slip at 20 kgf. Force | As per IS-4020(Part-11) 1998 | -do- |
| 10 | Screw withdrawal Resistance Test | Withdrawal force shall not be less than 100 kgf. | As per IS-4020(Part-16) 1998 | -do- |
| III. MATERIAL TEST REQUIREMENT | | | | |
| FOAM SHEET | | | | |
| 1 | Density | 45-50 Kg/m ³ | ASTM D 1622 | 3 nos. |
| 2 | Hardness (Shore 'D') | 50-55 | As per ASTM D 2240 | 3 nos. |