



Frontura 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 **5 / 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**

FRONTURA DOOR

Issued to

M/s SINTEX INDUSTRIES

STATUS OF PAC 5/2009

S. No.	Issue No.	Date of Issue	Date of renewal	Amendment		Valid upto (Date)	Remarks	Signature of authorized signatory
				No.	Date			
1.	2.	3.	4.	5.	6.	7.	8.	9.
1	1	14-07-09	14-07-11	--	--	13-07-11	--	<i>[Signature]</i> 14/07/09

PAC No. 5/2009

Issue No.1

Date of issue 14-07-09

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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 – Frontura Door**
- I – 2.2 File Reference – QA/BMTPC/01**
- I – 2.3 Brief Description –** Frontura door shutters are manufactured with Fiberglass Reinforced Plastic (FRP) on either side and the core of door is injected with polyurethane foam (PUF). The shutter frame is made of wooden section. Necessary wooden blocks are provided on the shutter for fixing of various hardwares & accessories. Stickers indicating the locations for fixing of hardwares & accessories shall be pasted on the door at various places. Frontura doors are extremely strong & durable.
- I – 3 Assessment**
- I – 3.1 Scope of Assessment –**Suitable for internal and external door applications in dry situations in residential, commercial and factory buildings.
- Grade : Heavy
- Shade : Golden Brown
- 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 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/01. 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 Frontura 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 manufacture 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 15 years.
- I – 4 **Uses of the Frontura 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 the 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** -- Frontura door shutters shall be handled carefully 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 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 heavy 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 external & internal locations of houses, hospitals, offices 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 Frontura 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, the Frontura door shutters 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 shall follow his company standards specifying requirements of various materials used in the manufacture of these shutters.

II - 2 Specifications for the product & design information

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

II - 2.2 Technical Specifications

II - 2.2.1 Raw Materials

(i) Polyester resin -

These are purchased from the

- (ii) Glass fibre – respective suppliers. Their
- (iii) Polyurethane foam – test certificates are verified by the manufacturer.

II – 2.2.2 Construction & workmanship –Frontura door shutters consist of Sintex make or equivalent Fibre Reinforced Plastic (FRP) panels on either side with depressed paneled design for door having overall wall thickness of $1.5 \text{ mm} \pm 0.35 \text{ mm}$ with usual process variation. The core of the door shutter shall be filled with polyurethane foam (PUF) injected with the help of Hydraulic injection method. Wooden block of 35 mm x 21 mm shall be provided on all four sides of the door shutter. Necessary wooden block shall be provided to take up necessary hardwares & fixtures. In case of Frontura Double leaf door shutter, suitable T – PVC section should be applied on one side of the leaf.

The surface of Frontura doors shall be free from visible defects such as small pores, crazing, blistering, wrinkling, foreign particles and colour blots. The wooden shutter frame shall be properly finished on its surface & edges.

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 Frontura 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 $\pm 5 \text{ mm}$ whereas the thickness has a limit of $\pm 0.5 \text{ mm}$

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 – 2.3.9 Slamming** – There is no visible damage in any part of the door shutter.
- II – 2.3.10 Misuse** – There is no permanent deformation of the fixing or other part of the door set so as to hinder its normal working.
- II – 2.3.11 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 grades of shutter is given in Table below. Only one grade namely Heavy is manufactured.

Duty /category	Description of duty	Example	Grade
1	2	3	4
Heavy duty	High frequency of use by public and others with little incentive to exercise care-high chance of accident occurring and of misuse	Doors of shops, schools, hospitals, and other buildings, which provide access to designated public areas and which are used by public and others frequently carrying or propelling bulky objects	H

II – 2.5 **Size & thickness** – Frontura door shutters are made to the following sizes & thickness

S.No.	Grade	Type	Standard size mm	Thickness mm
1.	Heavy	Frontura	1830 x 610 mm to 2082 x 762 mm	25 mm & 35 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 Sintex door shutters are 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 This type of shutter shall be used for external doors protected by min. 0.75 m wide sunshade canopy, chhaja or yawning.

- II - 4.2 This door shutter is not recommended for terraces, back yard etc though this may offer good performance in protected balconies.
- II - 4.3 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 - 4.4 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 these door 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 as 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 Frontura door shutters in service

III – 2 Manufacturing process

III – 2.1 First gel coat is applied on mould.

III - 2.2 It is dried for some time and then resin and glass fibre applied.

III - 2.3 The above application is repeated and then cured properly.

III - 2.4 Flashings are removed and male-female cavities with wooden reinforcement fixed. PU foam injected.

III - 2.5 The sides are finished with resin.

III - 2.6 Finished properly and marked with stickers placing hardware on each location.

III - 2.7 Door shutters are then inspected and sent for packing & forwarding.

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

Tests done in an independent laboratory

Size 2082x685x25 mm

S.No.	Parameters	Results Obtained
1.	Dimensions, mm (a) Height (b) Width (c) Thickness	2082 mm 685 mm 25 mm
2.	Squareness (Deviation per 500 mm)	0.2 mm
3.	General flatness (a) Twisting (b) Cupping (c) Warping	1.2 mm 1.1 mm 1.2 mm
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)	3 mm 0.3mm
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)	40 mm 2.5 mm

10.	Misuse	No deformation
11.	Screw withdrawal strength	Withdrawl force more than 1000 N

III - 5 Inspection and Supply of Installed door shutters: -
 Frontura 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.	KMS Traders, Methodist Eng. Co. Ltd.	No. 80 - 2 nd Street, Seetharaman Nagar, Opp. Nest School, Cuddalore - Tamil Nadu	April 2006	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.

Shailosh Kr. Agarwal
Dr. Shailosh Kr. Agarwal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, (Govt. of India)
Core 17 1st Floor, India Habitat Centre, Lodhi 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 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 product are as 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) Frontura 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. 5 /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 23.



On behalf of BMTPC Board of Agreement

New Delhi, India
Place
Date

Shalish Kr. Agarwal
14/3/09
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. Shalish Kr. Agarwal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, (Govt. of India)
Core 5A, 1st Floor, India Habitat Centre, Lodi 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
SQAAS	Scheme of Quality Assurance
TACMB	Technical Assessment Committee (of BMBA)



Mr. Shrihari K. Agarwal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, Govt. of India
One 5th Floor, 10th Mile, Outer Ring Road,
New Delhi-110 002

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 FRONTURA DOORS

S.N O.	PARAMETER TO BE INSPECTED	REQUIREMENT SPECIFIED	TEST METHOD	FREQUENCY OF TESTING
I. VISUAL				
1	Visual Inspection	The surface should be free from any visible defect such as small pores, crazing, blistering, wrinkling, impurities, colour blots and aggregate defects	-----	5% in every lot
2	Dimensions & size	Stile top & bottom rail width 90±3 mm Lock rail 120 ±3mm Bottom rail 150±3mm Thickness 30, 35mm±1mm	As per IS-14856 2000	- do -
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 0.5 mm 2) Residual deflection shall not exceed 0.5 mm	As per IS-4020(Part-7) 1998	-do-
6	Shock Resistance Test	Should 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 50 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				
1	Fibre Glass Content	Min 25%	As per Annex. B of IS 14856 : 2000	3 nos.
2	Barcol Hardness	Min 30 BHU	As per Annex. C of IS 14856 : 2000	3 nos.
3	Tensile Strength	Min 100 MPa	As per Annex. D of IS 14856 : 2000	3 nos.
4	Bending Strength	Min 120 MPa	As per Annex. E of IS 14856 : 2000	3 nos.

5	Elastic Modulus	Min 1500 MPa	As per Annex. F of IS 14856 : 2000	3 nos.
6	Water absorption	0.5%	As per Annex. G of IS 14856 : 2000	3 nos.
7	Fire Retardancy	100 mm length of specimen shall not burn within 60 seconds	As per Annex. H of IS 14856 : 2000	3 nos.
IV	PU FOAM - Density	40-45 Kg/m ³	ASTM D 1622	3 nos.