



Endura 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 **1 / 2009**

Issue No. **1**

Date of Issue: **14.07.2009**



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

ENDURA DOOR

Issued to

M/s SINTEX INDUSTRIES

STATUS OF PAC 1/2009

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	----	 14/07/09

PAC No.1/2009 Issue No.1 Date of issue 14-07-2009

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 – Endura Door**
- I – 2.2 File Reference – QA/BMTPC/04**
- I – 2.3 Brief Description –** Endura doors are made of hot pressed moulded Sheet Moulding Compound (SMC) sheets on both sides. The core of door is injected with high density Polyurethane Foam (PUF). These doors are extremely strong & durable and has the highest fire rating. The shutter frame is made of PVC Extruded Profile Sections. All hardware locations and corners of the doors are reinforced with special polymeric reinforcement. The middle lock rail is also made of PVC Extruded profile section with wooden pieces in them. Suitable MS tube reinforcements are provided on vertical sides of shutter frame. 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 & external door applications in dry situations in residential, commercial and factory buildings.
- Grade: Medium duty
- Shade: Off white
- I – 3.2 Scope of Inspection –** Scope of inspection included verification of production and testing facilities at the factory & 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 door shutters.

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/04. 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 Endura door shutters.

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 of 15 years.

I – 4 Uses of the Endura 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 – Endura 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 medium 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 & kitchen 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 doors 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 Endura 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 Endura 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 manufacturer of shutters.
- II – 2** **Specifications for the product & design information**
- II – 2.1** **Specifications** – The specifications for finished shutters are as per performance criteria when tested in accordance with IS 4020 - 1998.
- II – 2.2** **Technical Specifications**
- II – 2.2.1** (i) Polyester resin

- | | |
|--|--|
| (ii) Polyurethane Foam-
Polycole | Test certificates are obtained
and maintained |
| (iii) Polyurethane foam –
Isocynate | |
| (iv) PVC Resin | |

II – 2.2.2 Construction & workmanship – Sintex Endura Door Shutter are made from specially Hot Press Moulded SMC (Sheet Moulding Compound) Sheets, Polyurethane core and PVC Frame section. SMC sheets shall be made from SMC conforming to IS: 13410. Sheet shall have an average thickness of 1.5 mm ± 0.35 mm. Core of the door shutter shall be filled with high density Polyurethane foam, injected with the help of hydraulic injection method. Shutter frame to be made of PVC extruded Section conforming to IS: 10151:1982 of size 26mm x 47mm with a wall thickness of 1.5mm ± 0.3mm corresponding to Sintex code DWUF 305. The hardware locations shall be reinforced with Special Polymeric reinforcement wooden blocks of suitable size. The Corners of the shutter frame shall be reinforced with Polymeric “L” Shaped angle of size 105mm x 230mm corresponding to sintex code PR-02. The lock rail shall be made from PVC extruded having overall dimensions of 26mm x 47mm 1.5mm ± 0.3mm, with usual process variation corresponding to sintex code DWUF 305 conforming to IS: 10151:1982 by combining two numbers. Wooden pieces are inserted on the periphery. Suitable MS Tube reinforcement shall be provided on vertical sides of shutter frame.

The Door surface shall be reasonably smooth, flat & free from visible defects like discolouration, deep scratches, air bubble, porosity, inclusion of foreign matter, wrinkles, cracks, blisters warpages, 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 Endura 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 7 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 80 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 grade of shutters is given in table below. Only one grade namely Medium is manufactured.

Duty /category	Description of duty	Example	Grade Designation
1	2	3	4

Medium duty	Medium frequency of use primarily by those with some incentive to exercise care-some chance of accident occurring or of misuse	External doors of dwellings providing primary access. Designated public areas in an office but not used by people carrying or propelling bulky objects	M
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II - 2.5 Size & thickness – Endura door shutters are made to the following sizes & thickness.

S.No.	Grade	Type	Standard size mm	Thickness mm
1.	Medium	Endura	1830 x 610 mm to 2059 x 762 mm	26 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 shall be 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 should 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 shall take the hardware like hinges & locks. The construction inside is with solid strips laid side by side so that it shall 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** Endura 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 Endura door shutters in service

III – 2 Manufacturing process – SMC Sheet and Wooden reinforcement cut into required size, Wooden reinforcement pasted along the border of SMC Sheet and make sandwich Panel

by filling PU Foam inside which is called at Main Panel and adequately reinforced Side, joint, Top and Bottom Rail to be fabricated and assembled and fabricated. All corners to be screwed adequately 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 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 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 1981x762x25 mm

S.No.	Parameters	Results Obtained
1.	Dimensions, mm (a) Height (b) Width (c) Thickness	1981 mm 762 mm 25 mm
2.	Squareness (Deviation per 500 mm)	0.2 mm
3.	General flatness (a) Twisting (b) Cupping (c) Warping	No Twist No Cupping No Warping
4.	Local Planeness (Depth of indentation)	0.2 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)	4.0 mm 0.3 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)	34 mm 2.7 mm
10.	Misuse	No deformation
11.	Screw withdrawal strength	Withdrawal force is more than 1000 N

III – 5 Inspection and Supply of Installed door shutters: -Endura 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 Building	of	When Supplied	Remarks condition of panels

1.	Directorate of Primary Education Board, Gandhi Nagar	Various Schools of Gujarat	Feb, 2006	Satisfactory
2.	Sulabh Internl Social Service Org.,Ahmedabad	Various Toilet Complexes of Gujarat.	May, 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

Dr. Shailesh 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, Lodhi Road,
New Delhi-110 003

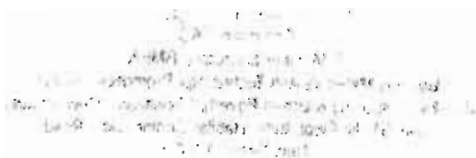
Part – V List of Standards & codes used in Assessment

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 Indian Standards

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 as specified by 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 & Technology Promotion Council's Board of Agreement (BMBA) Endura 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.1 /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. Agarwal
14/12/09

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. Shashank Kr. Agarwal
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, (Govt. of India)
Core 6A, 1st Floor, India 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
SQA	Scheme of Quality Assurance
TAC	Technical Assessment Committee (of BMBA)



www.bmtpc.gov.in
Director, TAC
Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation
1st Floor, 1st Floor, 1st Floor, 1st Floor, 1st Floor
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 ENDURA 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 7.0 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 80 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				
SMC SHEET				
1	Glass Content	Min 25%	As per IS-13411 1992	3 nos.
PU FOAM				
1	Density	40-45 Kg/m ³	ASTM D 1622	3 nos.