BMTPC
PACS
PERFORMANCE APPRAISAL CERTIFICATION

HDF Board Empanelled Eco-friendly Solid Core Door Shutter

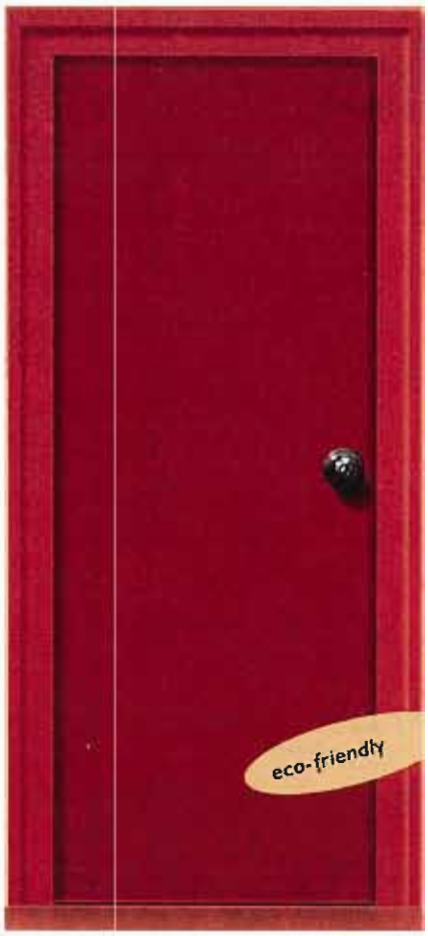
User should check the currency of the Certificate by contacting Member Secretary, BMBA at BMTPC or the Holder of this Certificate.

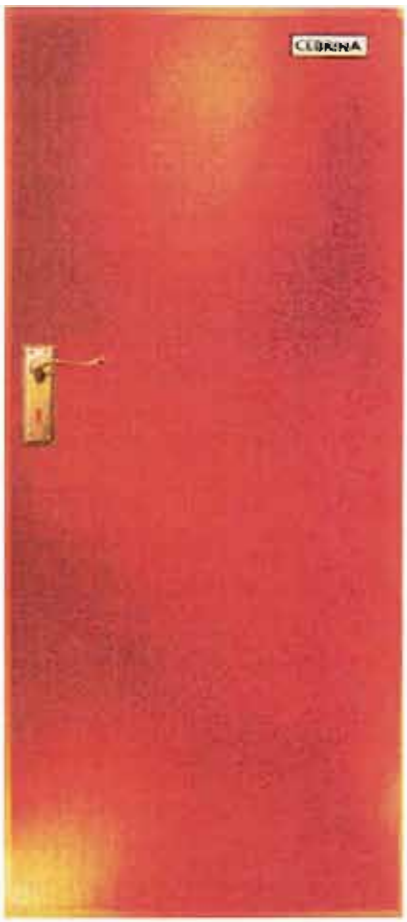
Name and Address of Certificate Holder:

Kutty Flush Doors and Furniture Co Private Ltd., 1167, Poonamallee High Road, Koyambedu, Chennai, 600 107, INDIA

Performance Appraisal Certificate No.

PAC No **1 / 2003**
Issue No. **1**
Date of Issue: **04.07.2003**





bmtpc

Building Materials & Technology Promotion Council
Ministry of Urban Development & Poverty Alleviation
Government of India
Core 5A, India Habitat Centre, Lodhi Road, New Delhi – 110 003

Tel: +91-11-2301 9367, 2463 8096, 2463 8097 Fax: +91-11-2301 0145
E-mail: bmtpc@del2.vsnl.net.in Web Site: http://www.bmtpc.org

Performance Appraisal Certificate
for
HDF Board Empanelled Eco-friendly Solid Core Door Shutter
issued to

Kutty Flush doors and Furniture Co Private Ltd.,
1167, Poonamallee High Road,
Koyambedu, Chennai 600 107, INDIA

STATUS OF PAC 1 / 2003

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	4.7.03	-	-	-	3.7.06	-	
2								
3								
4								
5								
6								
7								
8								
9								
10								

BUILDING MATERIALS AND TECHNOLOGY PROMOTION COUNCIL, NEW DELHI
BMTPC
PACS
B M I B A
BMTPC BOARD OF AGREEMENT

CONTENTS

Page No.

Status of PAC (second cover page).....1
CONTENTS.....2

PART-I CERTIFICATION.....4
I-1 Certificate holder.....4
I-2 Description of product.....4
I-3 Assessment.....5

I-3.1 Scope of assessment.....5
I-3.2 Assessment summary.....5
I-3.3 Durability.....5
I-3.4 Comments on claims made by certificate holder.....6

I-4 Uses of the door shutters and limitations.....6

I-4.1 Design Data.....6
I-4.2 Storage and handling at the user end before installation.....6
I-4.3 Use of the shutter.....7
I-4.4 Limitations of Use.....7

I-5 Conditions of Certification.....7

I-5.1 Technical conditions.....7
I-5.2 Quality Assurance.....7
I-5.3 Handling of user complaint.....7

I-6 Certification.....8

PART-II CERTIFICATE HOLDER'S TECHNICAL SPECIFICATION.....8
II-1 General.....8
II-2 Specifications for the product and Design information.....8
II-3 Selection and Installation.....10
II-4 Critical details pertaining to the use of the shutter in a door.....12
II-5 Special installation requirements in toilet and similar wet locations.....12
II-6 Maintenance Requirements.....13
II-7 Skill/training needed for installation.....13
II-8 Warranties provided by the PAC holder.....13
II-9 Service provided by the PAC holder to the customer.....13

PART-III BASIS OF ASSESSMENT AND BRIEF DESCRIPTION OF ASSESSMENT PROCEDURE.....14
III-1 Basis of Assessment.....14
III-2 Manufacturing process.....14
III-3 Factory inspection.....14
III-4 Laboratory tests done for assessment.....15
III-5 Inspection of installed door shutters.....16

PART -IV STANDARD CONDITIONS.....18

PART-V LIST OF DOCUMENTS USED IN ASSESSMENT 21

V-1 Indian Standards 21
V-2 Criteria developed by BMBA.....21
V-3 Standards specifically developed by BMBA for this assessment.....21
V-4 Company standards of the PAC holder.....21

CERTIFICATION.....22

PART-VI ANNEXES.....23

Annex VI-1 Abbreviations 23

Performance Appraisal Certification Scheme – A Brief (3rd Cover Page) 24
4th Cover Page 25

PART-I CERTIFICATION

I-1 Certificate holder

Kutty Flush doors and Furniture Co Private Ltd.,
1167, Poonamallee High Road,
Koyambedu,
Chennai 600 107
INDIA
E-mail: kutys@vsnl.com

I-2 Description of product

I-2.1 Name of the product- HDF Board (High density firbe board) empanelled eco-friendly solid core door shutter

I-2.1.1 Brand name- CEBRINA™ SUPER

I-2.2 Brief description - Solid core (block board type internal structure) flush door shutters with pre-treated, compressed, oil tempered and hardened high density fibre board faces bonded with PF resin. Rails, stiles and strips used in the construction of the door are eco-friendly non-forest wood, seasoned and treated.

I-2.3 Grades - The shutters are made to one grade namely Heavy duty designated on the basis of impact indentation test (hard body impact) and soft and heavy body impact test. The grade is marked on each shutter. (see II-2.2 of PART II).

I-2.4 Types – Type is on the basis of finish of the face. The types are BD, BN & BN-PC (see II – 2.3 of Part II). The customer may choose the type depending upon the situation of the use and specify it in the purchase order. The type is marked on each shutter.

I-2.4.1 Decorative Type - BD

i. This is pre-finished simulated or wood grain empanelment. This is done by lacquering or painting with u-v cured acrylic and urethane co-polymer or a plain ivory colour.

ii. Alternatively, it may have a low-pressure laminate melamine overlay (overlay portion will have appearance similar to laminated particle board).

I-2.4.2 Non-decorative type for painting – BN

i. This will have no pre-finishing and have the appearance of the basic empanelment, namely, HDF. This can be primed and painted at site with enamel paint or acrylic paint, the same way as any other wooden door or wood work.

I-2.4.3 Non-decorative, plastic coated type – BN-PC

i. This is factory pre-coated by the manufacturer with suitable heat-cured phenol formaldehyde resin and is brown in colour. The surface has a high barrier proper to water/moisture penetration and is suitable for toilets. These shutters

can be used for external doors protected by minimum 0.9 metre wide sunshade canopy.

Non-decorative BN-PC is lightly sanded and then painted the same way as Type – BN.

I-3 Assessment

I-3.1 Scope of assessment

Use in dry situations and moderate wet situations (with coating, special provisions) in residential, commercial and factory buildings of CEBRINA™ SUPER eco-friendly, fully phenolic bonded, formaldehyde resin bonded , solid core flush doors incorporating phenolic bonded , oil tempered HDF panels with rails, stiles and core strips of eco-friendly non-forest timber.

Grade : Heavy duty

Types : Plain, one side lacquer finish, both sides lacquer finish, thermoset heat-cured plastic based coating, decorative finish.

I-3.2 Assessment summary

I-3.2.1 The assessment was done through:

i) Inspection of the factory.
ii) Inspection of the laboratory and test equipment at the factory.
iii) Study of the quality assurance procedures followed and records maintained and the use made of them for ensuring assurance of quality.
iv) Conducting some tests in the factory to assess the equipment used and the testing personnel
v) Getting all the tests done from an independent laboratory on random samples taken by the inspecting officer.
vi) Inspection of door shutters already installed.

I-3.2.2 Manufacturing and test facilities -Manufacturing and test facilities available in the factory were found to be suitable and adequate to produce the shutters as per specifications listed in V-2.1 and V-3.1 of PART- V.

I-3.2.3 Experience in actual use – A few installed shutters were inspected. They showed no distress and were found to be functioning satisfactorily. No complaints were reported.

I-3.2.4 Quality Assurance Procedure - The Quality Assurance System followed by the factory was found adequate to assure quality consistently.

I-3.3 Durability

I-3.3.1 The shutters in service which were inspected were those installed during the period Feb to April 2001. None of them showed any distress and they were fully

functional. The persons at the inspected locations expressed satisfaction on the performance of the doors. The level of maintenance of these doors was satisfactory.

I-3.3.2 Based on his experience with other types of flush door shutters, the manufacturer is of the view that the useful life of the shutters will be 25 to 30 years provided they are installed and maintained as per good practice (see I-4.2, I-4.3 of PART-I; II-3.1, II-5.1, II-6.1 and II-6.2 of PART-II). This could not be verified from actual field observations as oldest shutters in use were those installed in 1996-97, as reported by the applicant. However the assessors are of the view that the shutters are likely to be as durable as the wood based flush door shutters being used currently, if installed and maintained as per good practice in accordance with relevant Indian standards, the brochures and other literature that can be obtained from the PAC holder and provisions of this PAC.

I-3.4 Comments on claims made by certificate holder

I-3.4.1 Useful life – See I-3.3.2

I-3.4.2 Eco-friendliness of the shutter

I-3.4.2.1 The manufacturer claims that the shutters from a demolished building can be reused. The assessors are of the view that the shutters are likely to meet the claim, if the shutters were installed and maintained as per good practice in their earlier location(s) and were taken out carefully.

I-3.4.2.2 Eco-friendly timbers as defined in Gazette of India Extraordinary No 170 (Reg. No DL –33004 / 96) dated May 18, 1995 are used in the manufacture of the shutters (except for lipping in cases ordered by the customer). This has been verified and the claim of the manufacturer that the shutters are eco-friendly stands verified.

I-3.4.2.3 The manufacturer claims that the material of the shutters is bio-degradable. From a study of the materials used in the manufacture of the shutters, the assessors are of the view that these claims are acceptable.

I-4 Use of the door shutter & limitations

I-4.1 Design data- The data and information provided in Part II of this Certificate should be used for selection of the type, size, thickness etc. (see also II-2)

I-4.2 Storage and 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 should be stacked flat on bearer strips properly covered to exclude moisture and inside a shed / building.

I-4.2.2 Handling- HDF board empanelled door shutters should be carefully handled during storage or installation in order to prevent occurrences of damage to the faces and edges. The shutters should not be dragged along a stack or any surface, but should be lifted clear of a stack or any surface on which they are stored.

I-4.3 Use of the shutter

I-4.3.1 The samples of shutters tested have met with the requirements of heavy duty shutter in all tests which characterize the duty of shutters, namely, impact indentation test (hard body impact) and soft and heavy body impact test in accordance with BMPA / PC –1 : 2000 and BMPA / SP –1 : 2001 which lead to the conclusion that they can be used as shutters in locations indicated in the examples given in the table in II-2.2 of PART- II provided they are installed with appropriate frame and hardware in accordance with good engineering practice.

I-4.3.2 In view of I-3.2.3 of PART-I & III-5 of Part-III, the specification of the shutters and their manufacture, the assessors are of the view, that the shutters can be used in all geoclimatic zones namely, hot and arid, hot and humid, warm and humid and cold.

I-4.4 Limitations of use

I-4.4.1 Limitations in use are the same as of the conventional wood or wood-based panels. Installation, maintenance and finishing practices in terms of IS 4913: 1968 Code of Practice for installation and maintenance of timber doors shall be followed.

I-4.4.2 Not recommended for use where radiation hazards are there or where rated fire-resisting doors are indicated.

I-4.4.3 The surfaces of shutters for use for toilets should be appropriately coated (see also II-3.1, II-4.4 and II-5.1).

I-5 Conditions of Certification

I-5.1 Technical conditions

I-5.1.1 Eco-friendly timbers as defined in Gazette of India extraordinary No 170 (Reg. No DL –33004 / 96) dated May 18, 1995 only should be used for the cores and frames.

I-5.2 Quality Assurance

I-5.2.1 The Certificate Holder implements and maintains a quality assurance system in accordance with Scheme of Quality Assurance (SQA).

I-5.3 Handling of user complaint

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

I-5.3.2 The Certificate Holder implements the procedure included in the SQA approved by BMBA for management of user complaints. As part of PACS Certification he shall maintain data on such complaints with a view to assess the complainant's satisfaction and the suitable preventive measures taken.

I-6 Certification

I-6.1 On the basis of assessment given in Part III of this certificate and subject to the conditions of Certification, use and limitations set out in this Certificate and if selected, installed and maintained as set out in Part I and Part II of this Certificate, in the opinion of BMBA the door shutters covered by this Certificate are fit for use set out in the Scope of Assessment.

PART-II CERTIFICATE HOLDER'S TECHNICAL SPECIFICATION

II-1 General

II-1.1 The PAC holder manufactures the shutters in accordance with requirements specified in BMBA/SP – 1 : 2001. In addition he follows his company standard specifying requirements of timber used in the manufacture of shutters (seeV-4.1 of Part V).

II-2 Specifications for the product and Design information

II-2.1 Specification -The specifications for raw materials and finished shutters are as per BMPA / SP – 1:2001 Specification for HDF empanelled eco-friendly solid core flush door shutters.

II-2.2Grades – The grades of shutters are as in Table below. Only one grade namely heavy duty is manufactured.

S. No.	Duty category	Description of duty	Example	Grade Desig-nation
1	2	3	4	5
1	**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
2	**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

S. No.	Duty category	Description of duty	Example	Grade Desig-nation
1	2	3	4	5
3	**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-2.3 Types - The types of shutters are as in Table below:

S. No.	Core	Type	Abbreviated designation
1	2	3	4
1	Block Board	Decorative type	BD
2	Block Board	Non-decorative faces for painting	BN
3	Block Board	Non-decorative type faces with plastic coating	BN-PC

II-2.4 Sizes and thickness -Shutters are made to the following sizes and thicknesses:

S. No.	Grade	Type	Standard sizes mm	Thickness mm
1	2	3	4	5
1	H	BD, BN, BN-PC	2030 × 810	35
2			2030 × 910	
3			2030 × 1020	

Sizes of shutters can be up to a maximum of 2420 mm × 1220 mm. as may be specified by the purchaser in specific contracts.

Thickness: 25, 30, 35, 38 and 40 mm

II-2.5 Requirements of lipping, and provision for glazed peep hole and venetians will be provided if specified in the order of the customer.

II-2.6 Weights of shutters- The shutter weights will be provided by the manufacturer on request. Based on 25mm thickness of door the weight per sq m of doors is 20 kg. As any plantation timber can be used to make the door, the weight varies as per species and thickness of the door. Typical weights are as follows:

Typical weights of shutters

S. No.	Grade	Size of shutter mm	Thickness mm	Typical Weight kg	Weight per sq m kg
1	2	3	4	5	8
1	H	810 x 2025	25	32.8	20
2			30	39.4	24
3			35	45.9	28
4			38	50.8	31
5			40	53.5	32.6

II-2.7 Marking - Besides the identification mark of the PAC holder as manufacturer and any other markings he may use, the grade, type and the batch number are marked suitably on each shutter in the following format:

G/T / BB / Size / Thickness

where

G is grade (as per II-2.2)

T is type (as per II-2.3)

BB is batch number from which the date of manufacture and test reports (if any) can be traced back from the records of the manufacturer

II-2.7.1 The location of lock block is also marked

II- 2.8 Packing – HDF board empanelled shutters are packed when required, in lots of two or three numbers packed in wooden crate with matting or with poly ethylene foam or corrugated craft paper (as agreed between buyer and seller) or depending on size. Otherwise each lot is suitably packed in situ in trucks, containers or wagons, minimizing lateral movement without individual wrapping.

II-3 Selection and installation

II-3.1 The user / installer is responsible for the workmanship at site and finishes at site.

II-3.2 Choosing grade- The grade of shutter should be chosen according to place of use as indicated in II-2.2. The higher grade shutter can be used in situations described for the lower grade(s). They should be installed with appropriate frame and hardware in accordance with good engineering practice.

II-3.3 Choosing type - Appropriate type (see II-2.3) of shutter should be chosen depending upon the requirements of the user.

II-3.4 Choosing size and thickness - Appropriate size of the shutter should be chosen to suit the wall opening or conversely the door opening should be sized to the standard shutter sizes.

II-3.5 Handling – HDF board empanelled doors should be carefully handled during storage or installation in order to prevent occurrences of damage to the faces and edges. The shutters should not be dragged along a stack or any surface, but should be lifted clear of a stack or any surface on which they are stored.

II-3.6 Good practice for installation and maintenance -Good practice should be followed for installing the shutters. Following the Indian Standards listed below would satisfy the requirements of good practice.

IS 4913: 1968	Code of practice for selection, installation and maintenance of timber doors and windows.
IS 2328 (Part 1 & 2): 1967	Code of practice for Finishing of wood and wood-based materials.

II-3.7 Hinges -It is recommended that a minimum of three hinges equally spaced, with top of the top hinge 100 mm from the top edge of the shutter, should be used (for each shutter in a double leaf door).

II-3.7.1 It is recommended that the hinges and hardware chosen should satisfy the requirements of relevant Indian Standards.

II-3.8 Other hardware -The shutter stiles can take the hardware like hinges and locks. The construction inside is with solid wood strips laid side by side. So, it can also take hardware like hasps and staples (aldrops), sliding bolts (tower bolts) and nameplate screwed on to the face of the shutter.

II-3.9 Paintability: The surface of the tempered HDF empanelment is very smooth and takes paint.

Type of paint: Aluminium primer, aluminium paint or painting system as specified in IS 4913: 1991 may be used.

Procedure for painting: The following may be followed:

i IS 2328 parts 1 & 2; 1967 – Code of practice for finishing wood and wood based materials.
ii The PAC Holders Technical Service Bulletin No. 12 on Painting of HDF empanelled door shutters.
iii The PAC holders KF(PACS)2-2001 Code of practice for installation and maintenance of HDF board empanelled eco-friendly flush door shutters and moulded raised HDF panel door shutter

II- 3.9.1 BN type door shutters should be finished on installation by painting using a three coat paint system and regularly maintained when paint deterioration is noticed. The edges of all types of shutters shall also be finished as recommended by the manufacturer in

i Technical Service Bulletin No 12 Painting of HDF board empanelled door shutters and wood work.

ii KF (PACS) 2-2001 Code of practice for installation and maintenance of HDF board empanelled eco-friendly flush door shutters and moulded raised HDF panel door shutter

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 manufacturer listed above.

II – 3.10 When used for doors in external walls they shall be sheltered from exposure to direct sun light and driving rain; in exposed locations protection shall be provided by chajjas, hoods, canopies or awnings, wide enough to prevent the tops of shutters being wetted.

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 due to rain, washing of floor or otherwise.

Any penetrations made in the door such as peep holes for glazing, provision of venetians shall be fully sealed. Such penetrations should be got made from the manufacturer by suitably specifying them in the order for shutters.

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

II-4.1 These shutters can be used for external doors protected by minimum 0.9 metre wide sunshade, canopy, chajja, or awning and suitably coated (see also I-4.4.3, II-3.10 and II-4.4 and II-5.1).

II-4.2 These door shutters are not recommended for terraces, back yard etc., though these may offer good performance in protected balconies (see II-3.10).

II-4.3 For high – hazard areas susceptible to fungal attacks and attacks by biological agents, where notified by the user the manufacturer provides an additional coat of Trichloro phenate.

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 (normally taps and showers of continuous usage within 1.2 metres of horizontal distance from the shutter) are considered as being of extra hazard. For use of these shutters in such locations, extra protections and preservatives and finishes will be provided as agreed between the buyer and the manufacturer (also see II-4.3).

II-5 Special installation requirements in toilet and similar wet locations

II-5.1 For use in toilets and similar wet areas, it is recommended only with application of 30 microns thick PU coating on the surfaces and the edges. Also the recommendations of the manufacturer contained in his technical literature listed in II-3.9 should be followed (also see II-4.4).

II-6 Maintenance requirements

II-6.1 The maintenance requirements for door with HDF board empanelled solid core shutters are the same as for normal timber doors and windows. It will be good practice to follow IS 4913:1968 Code of practice for selection installation and maintenance of timber doors and windows.

II-6.2 Door shutters, especially those in exposed locations and wet locations, should be repainted or refinished, in accordance with the recommendations contained in technical literature of the PAC holder and listed in II-3.9 and the literature of the manufacturer of the coating/paint used. If necessary, the shutters should be removed from the frame so that the painting and finishing of the edges can be carried out properly.

II-7 Skills / training needed for installation

II-7.1 No special skills other than the normal skills of a good carpenter are needed for installing the shutters. The shutters are capable being worked with conventional carpentry tools like saws and chisels. These can be pre-drilled for screw fixing with hand or power drill and planned on the edges with hand or power planer the same way as done on flush doors.

II-8 Warranties provided by the PAC holder

II-8.1 The PAC holder provides warranty, subject to certain conditions, against defect in materials and workmanship for a period of 3 years from the date of delivery Users/customers should obtain, from the PAC holder the list of conditions and details of warranty.

II-9 Service provided by the PAC holder to the customer

II-9.1 The PAC holder provides 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-9.2 The PAC holder also provides 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 should 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 the standards listed in PART V.

III-1.2 The assessment is based on results and reports of

i. Inspection of the factory
ii. Inspection of the test equipment used and the test procedures followed in the laboratory at the factory
iii. Assessment of the 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 raw materials and the finished shutter taken by IO during inspection
vi. Inspection of shutters in service

III-2 Manufacturing process

III-2.1 Timber is cut from non forest trees considered to be eco-friendly. The timber is inspected, treated with appropriate preservatives. The timber is then air seasoned, sterilized and kiln seasoned to the required moisture content. The timber planks are ripped into components for stiles, rails and internal core. Stiles and rails are joined to form a frame. The core is assembled tight within the frame. Resin is applied to HDF face panels. The core and face panels are assembled, hot pressed and trimmed. Lipping of suitable timber is provided when specified by the customer. The faces are given finishes as specified by the purchaser. Inspection, moisture determination and measurements of the components and assemblies, are done at appropriate stages. The inspected shutters are stored and packed to ensure that no damage occurs during transport.

III-2.1 As a part of quality assurance regular in-process inspections are carried out by the trained personnel of the PAC holder at the following points in the process:

i Inspection of timber
ii Inspection for penetration of preservatives
iii Inspection of moisture content of seasoned timber
iv Inspection of ripped components for dimensions
v Inspection of cross cut components of frame for dimensions
vi Inspection of frames for dimensions and squareness
vii Inspection of assembled core
viii Inspection of finished shutters

III-3 Factory inspection

III-3.1 The factory was inspected by experts. During inspection the entire manufacturing process along with the equipment and machinery were inspected. The

manufacturing process was found to conform to the process description given in III-2.1. 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 in BMPA / PC - 1: 2000 Performance requirements for doors and door sets and the requirements specified in BMPA /SP - 1: 2001 Specification for HDF empanelled eco-friendly solid core flush door shutters

III-4 Laboratory tests done for assessment

III-4.1 Testing of samples

III-4.1.1 In the factory – Some of the tests listed in III-4.1.2 were done by the IO in the factory on random samples of shutters, stile, rail, core and lipping pieces 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 V-1, V-2 and V-3 of PART – V, as applicable. The samples passed in all the tests conducted.

III-4.1.2 In independent laboratory –. The performance tests for door shutters specified in IS 4020 (Parts 1 to 16): 1998 Door shutters – Methods of tests, BMPA / PC - 1: 2000 Performance requirements for doors and door sets, BMPA /SP - 1: 2001 Specification for HDF empanelled eco-friendly solid core flush door shutters (see V-1 and V-3 of PART – V), and listed below were got done in an independent laboratory on random samples of shutters taken by the IO. The samples passed in all the tests. The shutters conformed to the requirements of heavy duty shutter in all tests which characterize the duty of shutters, namely, impact indentation test (hard body impact) and soft and heavy body impact test. Tests on HDF facing sheet were got done in an independent laboratory.

Tests done in independent laboratory on Finished shutter

S. No.	Performance characteristics	
1	2	
1	Workmanship and finish	Dimensions and squareness (declare the dimensions of the shutters manufactured)
		General flatness
		Local planeness
2	Impact indentation test (Hard body impact)	
3	Flexure test	
4	Edge loading test	
5	Shock resistance tests	Soft and light body impact
		Soft and heavy body impact
6	Buckling test	
7	Slamming test	
8	Misuse test	

S. No.	Performance characteristics
1	2
9	Varying humidity test
10	End Immersion Test
11	Glue adhesion test
12	Screw withdrawal resistance
13	Weight

III-5 Inspection of installed door shutters

Doors installed in hot humid sea coast area (Chennai) and in an area hot and arid in summer with cold dry winters (Delhi) were inspected. The doors were installed in buildings of occupancies listed below. The inspected doors were installed in 2001. None of them showed any distress and were fully functional. The users had no complaints

S. No.	Occupancy	Duty and type of door shutter	Location of door	When installed	Remarks on maintenance	Remarks on condition of shutter	Other remarks
1	2	3	4	5	6	7	8
1	Residential	Heavy, BN	Chennai	Feb to April 2001	There was no occupancy till the date of inspection. It was reported by the supervisor at site that no special maintenance was required since installation.	Shutters were in satisfactory condition	Shutters were properly hinged & there was no apparent defect.

S. No.	Occupancy	Duty and type of door shutter	Location of door	When installed	Remarks on maintenance	Remarks on condition of shutter	Other remarks
1	2	3	4	5	6	7	8
2	Residential	Heavy, BN	New Delhi	1998 to 2002	As reported by persons on site, no maintenance was required since installation.	Shutters were in satisfactory condition.	Shutters were properly installed with 4 hinges and aluminium towerbolt and aldrops. Painting was done at site. Apparently there was no defect in the shutter

PART –IV STANDARD CONDITIONS

This certificate is issued subject to 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 Standardisation (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.

For KUTTY FLUSH DOORS & FURNITURE CO. PRIVATE LTD

Chairman TAC &
Member Secretary, BMBA

T. N. GUPTA
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Urban Development & Poverty Alleviation
(Govt. of India)
G.Wing, Nirman Bhawan, New Delhi

for and on behalf of
Kutty Flush doors and
Furniture Co Private Ltd.,

Director.

BUILDING MATERIALS AND TECHNOLOGY PROMOTION COUNCIL, NEW DELHI
BMTPC PACS BMBA BMTPC BOARD OF AGREEMENT

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 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.

Chairman TAC &
Member Secretary, BMBA

Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Urban Development & Poverty Alleviation
(Govt. of India)
G.Wing, Nirman Bhawan, New Delhi

for Kutty Flush Doors
FURNITURE CO. PRIVATE LTD

Director
for and on behalf of
Kutty Flush doors and
Furniture Co Private Ltd.,

BMTPC PACS BMBA BMTPC BOARD OF AGREEMENT

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.

For KUTTY FLUSH DOORS & FURNITURE CO. PRIVATE LTD

Director.

Chairman TAC &
Member Secretary, BMBA

T. N. GUPTA
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Urban Development & Poverty Alleviation
(Govt. of India)
G.Wing,Nirman Bhawan, New Delhi

for and on behalf of
Kutty Flush doors and
Furniture Co Private Ltd.,

BUILDING MATERIALS AND TECHNOLOGY PROMOTION COUNCIL, NEW DELHI
BMTPC
PACS
BMBA
BMTPC BOARD OF AGREEMENT

PART-V LIST OF DOCUMENTS USED IN ASSESSMENT

V-1 Indian Standards

V-1.1 IS 848: 1974	Specification for synthetic resin adhesive for plywood (Phenolic and Aminoplastic).
V-1.2 IS 2380: 1977	Methods of test for wood particle boards and boards from other lignocellulosic materials
V-1.3 IS 4020: 1998	Door shutters – Methods of tests.

V-2 Criteria developed by BMBA*

V-2.1 BMPA / PC -1:2000	Performance requirements for doors and door sets

V-3 Standards specifically developed by BMBA for this assessment*

V-3.1 BMPA/SP-1:2001	Specification for HDF empanelled eco-friendly solid core flush door shutters (technically equivalent to TADS-18 : 1998 issued by CPWD)

V-4 Company standards of the PAC holder

V-4.1 KF (PACS) 1: 2001	Specification for timber for HDF board empanelled flush doors and moulded raised HDF panel door shutter
V-4.2 KF (PACS) 2: 2002	Code of practice for installation and maintenance of HDF board empanelled eco-friendly solid core flush door shutters and moulded raised HDF panel door shutter

* Copies can be had on payment from Appraisal Unit of BMBA
Standards of other bodies can be obtained from the respective bodies.

CERTIFICATION

In the opinion of BMTPC Board of Agreement (BMBA), HDF Empanelled Solid Core Flush Door Shutters bearing the mark 'CEBRINA SUPER' manufactured by Kutty Flush Doors and Furniture Co Private Ltd. are satisfactory if used as set out above in the text of the Certificate. This Certificate PAC No. 1 / 2003 is awarded to Kutty Flush Doors and Furniture Co. Private Ltd., 1167, Poonamallee High Road, Koyambedu, Chennai 600107, INDIA

The period of validity of this Certificate is as shown on Page 1 of this PAC.
This Certificate consists of a cover page (not numbered) and pages 1 to 25.

On behalf of BMTPC Board of Agreement

BUILDING MATERIALS AND TECHNOLOGY PROMOTION COUNCIL, NEW DELHI
BMTPC
PACS
B M B A
BMTPC BOARD OF AGREEMENT

New Delhi, India
Place
Date 14th July 2003

Chairman, Technical Assessment Committee (TAC) of BMBA
& Member Secretary, BMTPC Board of Agreement (BMBA)
Under Ministry of Urban Development and Poverty Alleviation,
Government of India

P.K. GUPTA
Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Urban Development & Poverty Alleviation
(Govt. of India)
G.Wing, Nirman Bhawan, New Delhi

PART – VI ANNEXES

Annex VI-1

Abbreviations

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

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 Urban Development and 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 realised 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 Urban Development and 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 (TAC) 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

In case you have any suggestions/complaints write to;

Executive Director, BMTPC
and Member Secretary, BMTPC Board of Agreement,
(under the Ministry of Urban Development & Poverty Alleviation,
Government of India)
Core 5A,India Habitat Centre,
Lodhi Road,
New Delhi 110003

E Mail : bmtpc@del2.vsnl.net.in

quoting the PAC No and Issue number shown on the cover page