Name and Address of Certificate Holder:	Performance Appraisal Certificate
M/s Bekaert Eco-Solution Private Limited MIDC Lonand Industrial Area, Satara, Maharashtra-415521 Website- www.bekaert.com	PAC No.**1076-P/2026** Issue No.**01** Date of Issue: **02/11/2026**

Bed Joint Reinforcement (BJR)







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

Building Materials & Technology Promotion Council
Ministry of Housing & Urban Affairs,
Govt. of India
Core 5 A, First Floor, India Habitat Centre
Lodhi Road, New Delhi -110003

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E-mail: info@bmtpc.org Website: www.bmtpc.org

PERFORMANCE APPRAISAL CERTIFICATE
FOR
Bed Joint Reinforcement (BJR)
ISSUED TO

M/s Bekaert Eco-Solutions Private Limited

STATUS OF PAC No. 1076-P/2026

S. No.	Issue No.	Date of Issue	Date of Renewal	Amendment		Valid upto (Date)	Remarks	Signature of Authorized Signatory
				No.	Date			
1	01	02.11.2026	01.11.2027			01.11.2027		

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Part 1: CERTIFICATION

1.1 Certificate Holder: **M/s Bekaert Eco-Solutions Private Limited**
MIDC Lonand Industrial Area, Satara,
Maharashtra-415521

Marketing, Technical & Trading Partner in India
M/s Biltech Building Elements Limited, New Delhi
Website: www.biltechindia.com
Email: rajdeep.chowdhury@biltechindia.com
Mobile: 9811076657/8882213821

1.2 Description of the Product

1.2.1 Name of the Product – Bed Joint Reinforcement (BJR)

1.2.2 Brand Name – Murfor Compact

1.2.3 Brief Description

The Bed Joint Reinforcement (BJR) is a system used in Autoclaved Aerated Concrete (AAC) masonry walls. It is placed horizontally within the masonry mortar joints, as per the structural design requirements of the wall. The reinforcement is installed directly in these horizontal bed joints between successive AAC block courses; it is referred to as bed joint reinforcement. The reinforcement enhances the tensile strength of masonry and prevents in controlling diagonal and shrinkage cracks in AAC walls.

The bed joint reinforcement is a ladder-type wire mesh. It consists of multiple longitudinal high-carbon steel wire cords connected by transverse interwoven glass roving. Around each longitudinal wire cord, a pure Polypropylene (PP) yarn is woven to connect the steel cords with the glass roving and to enhance bonding with mortar. The steel cords are protected against corrosion.

The number of longitudinal cords is selected based on the AAC block width. The bed joint reinforcement is provided at specified intervals and at critical locations such as above and below masonry openings, etc, in accordance with design requirements.

1.2.4 Size & Profile of the Bed joint reinforcement

1.2.4.1 Sizes of the bed joint reinforcement

The steel meshes shall be available in the following dimension;

Table 1: Sizes of Bed Joint Reinforcement (Murfor Compact)

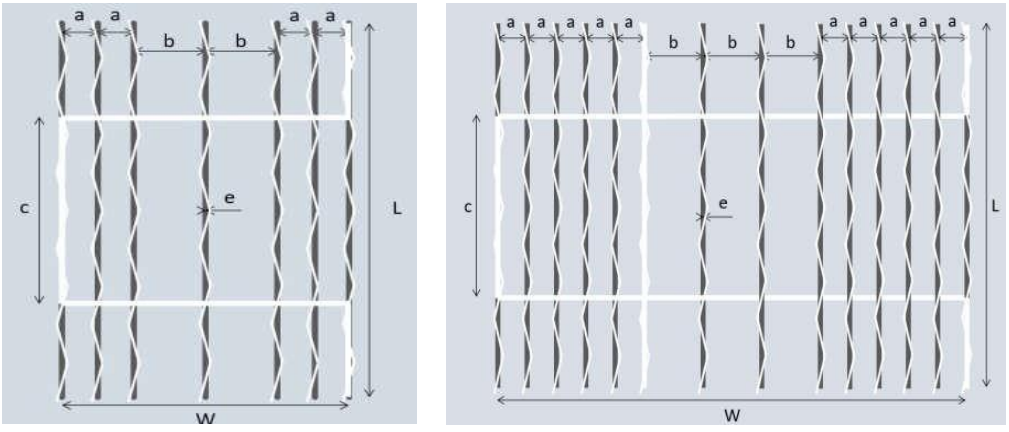
S.No.	Parameter	A-40	A-80	I-50	I-80	I-100
1)	Nom. Width 'W' (mm)	40	80	50	80	100
2)	No. of Steel Cords, N	7	14	7	14	14
3)	Total Steel Section (mm^2)	4.83	9.66	4.83	9.66	9.66
4)	a (mm)	5	5	7.5	5	7.5
5)	No. of Cords at Spacing 'a', n	4	10	4	12	12
6)	b (mm)	10	10	10	20	10
7)	No. of Cords at Spacing 'b', n	2	3	2	1	1

1.2.4.2 Profile of the bed joint reinforcement

The Murfor Compact bed joint reinforcement system is intended for placement within horizontal masonry bed joints to enhance the structural performance and crack resistance of masonry walls. The reinforcement may be used with either normal purpose mortar or thin layer mortar, depending upon the type of masonry units and application conditions.

The following type of Murfor Compact bed joint reinforcement shall be used;

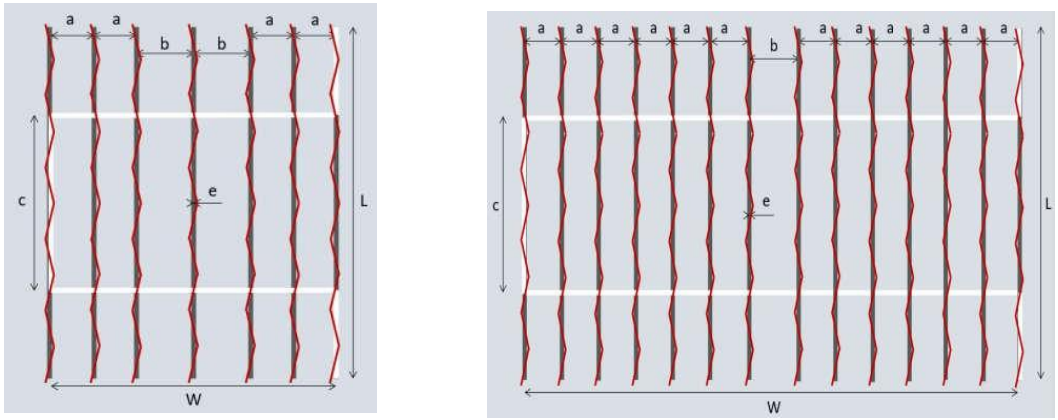
a) *Murfor Compact A*: It is intended for use with AAC (Autoclaved Aerated Concrete) masonry units in internal conditions. The reinforcement may be used with either thin layer mortar/normal purpose mortar.



A-40 A-80

Fig. 1: Murfor Compact A – Product Profiles (A-40, A-80)

b) *Murfor Compact I*: It is intended for use in masonry constructed using clay masonry units, concrete masonry units, or calcium silicate masonry units under internal conditions. The reinforcement is suitable for use with both thin layer mortar and normal purpose mortar.



I-50 I-80/I-100

Fig. 2: Murfor Compact I – Product Profiles (I-50, I-80/I-100)

c) *Dimensional Parameters*
The dimensional parameters shown in the above Figures are defined as follows:

i) a = Distance between longitudinal steel cords (mm)
ii) b = Distance between longitudinal steel cords (mm)
iii) c = Pitch of the interwoven glass roving (cross wire) (mm)
iv) w = Overall mesh width (mm)
v) e = Equivalent diameter of steel cord (mm)
vi) L = Total roll length (m)

1.2.4.3 Materials Used

a) *Steel chords*: The steel wires shall be of high carbon steel or corrosion resistant steel.
b) *Glass roving:* The glass roving shall be single end roving and shall have silane-based sizing. The product shall be made using glass fiber, combining the electrical and mechanical properties of traditional E glasses with the acid corrosion resistance of E-CR glass.
c) *Polypropylene yarn:* The material shall be pure polypropylene high tenacity. The yarn shall be woven around each chord.

1.2.5 Salient features

a) *Strength and Stability*- Steel mesh masonry reinforcement is used to enhance the structural integrity of AAC block masonry, making it more resistant to tension and compression stresses. This is useful in earthquake-prone areas and for structures that need stability.
b) *Crack Control*- Steel mesh masonry reinforcement helps in minimizing cracks (including above and below windows in a AAC block wall) that may

occur due to various factors like thermal expansion, settlement, external forces etc. It ensures better distribution of loads, reducing the possibility of cracks.

c) Ease of Construction- The Bed Joint Reinforcement (BJR) shall be properly placed and fully embedded in the mortar bed joints. The Bed Joint Reinforcement (BJR) enables faster and simpler construction than conventional RCC bands, resulting in reduced construction time and labor

1.3 Assessment

1.3.1 Scope of assessment

The scope of assessment includes the evaluation of the conformity and performance of the manufactured Bed Joint Reinforcement (BJR) for use as horizontal bed-joint reinforcement in AAC block masonry walls. The assessment covers the behaviour of reinforced masonry under direct compression and out-of-plane loading, with emphasis on crack control, structural integrity, and evaluation of its suitability as an alternative to RCC bands under specified design conditions.

1.3.2 Basis of assessment

Assessment of the suitability of bed joint reinforcement is based on;

a) Structural assessment and evaluation report of Murfor Compact (A) under out-of-plane loading and diagonal shear strength with & without bed joint reinforcement, carried out by CSIR – Central Building Research Institute, Roorkee.
b) The Reaction to fire test conducted for Murfor Compact masonry reinforcement by Construction Products Testing Laboratory, Ctec Ltd., Stara Zagora, Bulgaria.
c) European Technical Assessment (ETA) Certificate No. ETA 18/0316, issued for the structural use of Murfor Compact in accordance with the European Assessment procedure.
d) An Environmental Product Declaration (EPD) for Murfor Compact manufactured at Bekaert Hlohovec, Slovakia, produced by N.V. Bekaert S.A., Belgium, and issued by Instytut Techniki Budowlanej (ITB), Warsaw, Poland.
e) Site visit through video conferencing & assessment of the Adarsh Stratuss (Phase 2) G+30 multi-storey residential project in Bengaluru, where Murfor Compact Bed Joint Reinforcement (BJR) were being used in AAC block masonry.

1.4 Uses and limitation of system

1.4.1 Uses

a) Structural reinforcement of AAC masonry walls.
b) Crack control in masonry, including reinforcement above and below window openings and within wall panels.

c) Increasing the spacing between movement joints.
d) Enhancing the overall durability, stability, and structural performance of masonry systems.

1.4.2 Special Aspects of Use/Limitations

a) The product has an assumed intended working life of 50 years, subject to proper installation, use, and maintenance in accordance with the manufacturer's instructions.
b) The product shall be used only as bed joint reinforcement in horizontal masonry joints in accordance with the manufacturer's instructions.
c) The product should be used with masonry units having a minimum compressive strength of 4 N/mm^2 and mortar having a minimum compressive strength of 6 N/mm^2.

1.5 Conditions of Certification

1.5.1 General

The Bed Joint Reinforcement (BJR) covered under this PACS is currently imported from NV Bekaert SA, Bekaertstraat 2, 8550 Zwevegem, Belgium. The production of BJR has not yet commenced in India.

Prior to the commencement of production in India, the Certificate Holder shall establish and document the company standards for the Bed Joint Reinforcement (BJR) and the raw materials to be used in its manufacture. The manufacturing process, quality control procedures, and conformity of the product with the approved specifications shall be verified by BMTPC upon commencement of production in India. Based on the outcome of such verification, this PACS shall be reviewed and updated, if considered necessary.

1.5.2 Technical Conditions

a) The Agency shall furnish all necessary technical literature, design details, specifications, and installation methodology required for the assessment and implementation of the system.
b) Installation/execution of the system shall be carried out by adequately trained and skilled personnel under proper technical supervision to ensure conformity with the recommended practices.
c) Structural design and detailing, wherever applicable, shall be carried out by a qualified structural engineer and shall conform to the provisions of relevant Standards.
d) The spacing, detailing, anchorage, and placement of bed-joint reinforcement shall be determined based on project-specific structural design considerations and the recommendations of the manufacturer.
e) The product shall be used strictly in accordance with the recommendations, specifications, and limitations stipulated by the manufacturer/PAC holder.

f) Adequate quality control measures shall be maintained during installation to ensure proper positioning of reinforcement and conformity with the approved design and construction practices.

1.5.3 Specification

Raw materials and the finished product shall conform to the requirements of the prescribed specifications.

1.5.4 Quality Assurance

The Certificate Holder shall implement & maintain a quality assurance system in accordance with Quality Assurance Plan (QAP) as per **Annex-1**

1.5.5 Handling of User Complaints

1.5.5.1 The Certificate holder shall provide quick redressal to Consumer/user complaints which proved reasonable & genuine and within the conditions of warranty provided by it to customer/purchaser.

1.5.5.2 As part of PACS Certification, it shall maintain data on such complaints with a view to assess the complaint satisfaction and suitable preventive measures taken.

1.6 Certification

On the basis of assessment given in Part 3 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 1 & Part 2 of this Certificate, the Bed Joint Reinforcement(BJR) is fit for use set out in the Scope of Assessment.

PART 2: CERTIFICATE HOLDER'S TECHNICAL SPECIFICATIONS

2.1 General

The PAC holder shall manufacture the Murfor compacts in accordance with the requirements specified in the relevant Standards (See Part 5). In addition it shall follow the Company standards specifying requirements for various materials used in the manufacturing of the product.

2.2 Technical specifications

2.2.1 Raw materials

The manufacturer shall only use the raw materials supplied with the relevant documents/ prescribed Quality Assurance Plan. The raw materials shall be subject to agreed controls and tests by the manufacturer before acceptance. The raw materials/component & its specifications used to manufacture Bed Joint Reinforcement (BJR) shall be as follows;

Table 2: Specification of Raw Materials / Components

S. No.	Raw materials/Component	Specification
1)	High tensile Steel wire	EN ISO 15630-3
2)	Glass Fiber	EN ISO 1889
3)	Polypropylene yarn	EN ISO 1889

2.2.2 Performance Requirements of Murfor Compact

Table 3: Performance Requirements of Murfor Compact

S. No.	Performance Characteristics	Reference	Unit	Value
1)	Yield Strength ,Min	EN ISO 15630-3/EAD170008-00-604	MPa	1770
2)	Elongation at maximum force, Min		(%)	2.2
3)	Coating Weight, Min	-	g/m^2	40

2.3 Specification of the wires, steel cord, roving and yarn;

2.3.1 *Specification of Steel Wire*

a) Chemical composition –High carbon steel (Galvanized)

Table 4: Chemical Composition of Steel Wire

S. No.	Murfor compact	Composition					
		% C	% Mn	% Si	%P	%S	Zn coating(g/m^2)
1)	A-80 & A-40	≤ 0.90	≤ 0.70	≤ 0.30	≤ 0,035	≤ 0.020	Min. 30

b) Diameter & Zinc Coating

Table 5: Steel Wire Diameter and Zinc Coating

S. No.	Murfor compact	Steel Wire Coating	Wire diameter + tol. (mm)	Min. Zinc (g/m²)
1)	A, I	Galvanized	0.54 ± 0.02	30

c) Steel Wire Cord properties

Table 6: Steel Wire Cord Properties

S. No.	Parameter	Properties
1)	Murfor Compact	A, I
2)	Number of steel wires	3 x 0.54
3)	Nom. Equivalent diameter ‘e’ (mm)	0.94
4)	Nominal Steel section +tol. (mm^2)	0.685 ± 0.02
5)	Min. Tensile strength (MPa)	2100
6)	Charcteristic Yield strength (MPa)	1770
7)	Min. Agt. (%)	2.2
8)	Nominal Modulus of Elasticity, E (GPa)	180

2.3.2 Specification of Glass roving - Cross wire

The cross wire shall consist of fiberglass roving exhibiting enhanced corrosion resistance under aggressive environmental conditions. The glass fiber shall have nominal linear density of 2,620 kg/m³.

Table 7: Specification of Glass Roving (Cross Wire)

S. No.	Murfor Compact	Total linear density tex*	Min. Tensile strength N/mm2	Colour	Nominal linear density (g/cm^3)
1)	All	1200 +/- 90	2500	white	2620

tex -gm/1000m*

2.3.3 Specification of Polypropylene - stitching yarn

The stitching yarn shall be manufactured from pure high-tenacity polypropylene having a nominal density of 905 kg/m^3.

Table 8: Specification of Polypropylene Stitching Yarn

S. No.	Murfor compact	Total linear density dtex*	Nom. Equivalent diameter (mm)	Nom. Tensile strength N/mm^2	Colour	Nominal density (kg/m^3)
1)	A	600±10	0.305	580	White	905
2)	I				Red	

dtex*- gm/10000m

2.3.4 Specification of Coating on mesh

a) *Coating type*: Styrene – acrylic co-polymer – biodegradable
b) *Coating weight*: Indicative weight on the mesh – 40 g/m^2.

2.4 Specification of Mesh

2.4.1 General mesh Properties & Tolerances

Table 9: General Mesh Properties and Tolerances

S. No.	Property	Nominal Value	Tolerance
1)	Roll Length	30 m	±1.5%
2)	Mesh Width (W)	Nominal width	±5 mm
3)	Mesh Thickness	1.75 mm	−0.2 / +0.3 mm
4)	Pitch (c)	33 mm	±3 mm
5)	Pitch (a & b)	5mm-7.5 mm	Average ±1.0 mm
6)	Pitch (b)	10mm-20 mm	Average ±2.0 mm

2.4.2 Specific Properties -Dimensions

Table 10: Specific Properties – Dimensions of Mesh

S. No.	Murfor Compact type	Nom. Width 'W' (mm)	No. of Steel Cords, N	Total steel section (mm^2)	a (mm)	No. of Cords at Spacing 'a'	b (mm)	No. of Cords at Spacing 'b'
1)	A - 40	40	7	4.83	5	4	10	2
2)	A - 80	80	14	9.66	5	10	10	3
3)	I - 50	50	7	4.83	7.5	4	10	2
4)	I - 80	80	14	9.66	5	12	20	1
5)	I - 100	100	14	9.66	7.5	12	10	1

2.4.3 Properties on Straightness and planeness of the Mesh:

a) *Deviation on straightness*: max. 10 mm per 5 m
b) *Deviation on planeness at ends (after cutting from roll*): max. 25 mm

2.5 Manufacturing Process (Production Line) & Machinery

2.5.1 The manufacturing process comprises of the following steps;

The manufacturing process of the steel cord mesh begins with wire rod, which undergoes dry wire drawing, patenting and zinc coating, followed by wet wire drawing to achieve the required wire dimensions. The wires are cabled and bunched to form steel cords. During the knitting process, the steel cords are interwoven with glass roving and yarn to produce the required mesh configuration. The knitted mesh is subsequently subjected to a gluing process to hold the components together, followed by drying. The finished mesh is then packed using cardboard tubes and plastic foil before being stored and dispatched as finished goods. The pictorial representation of manufacturing process is provided in **Fig.-3**.

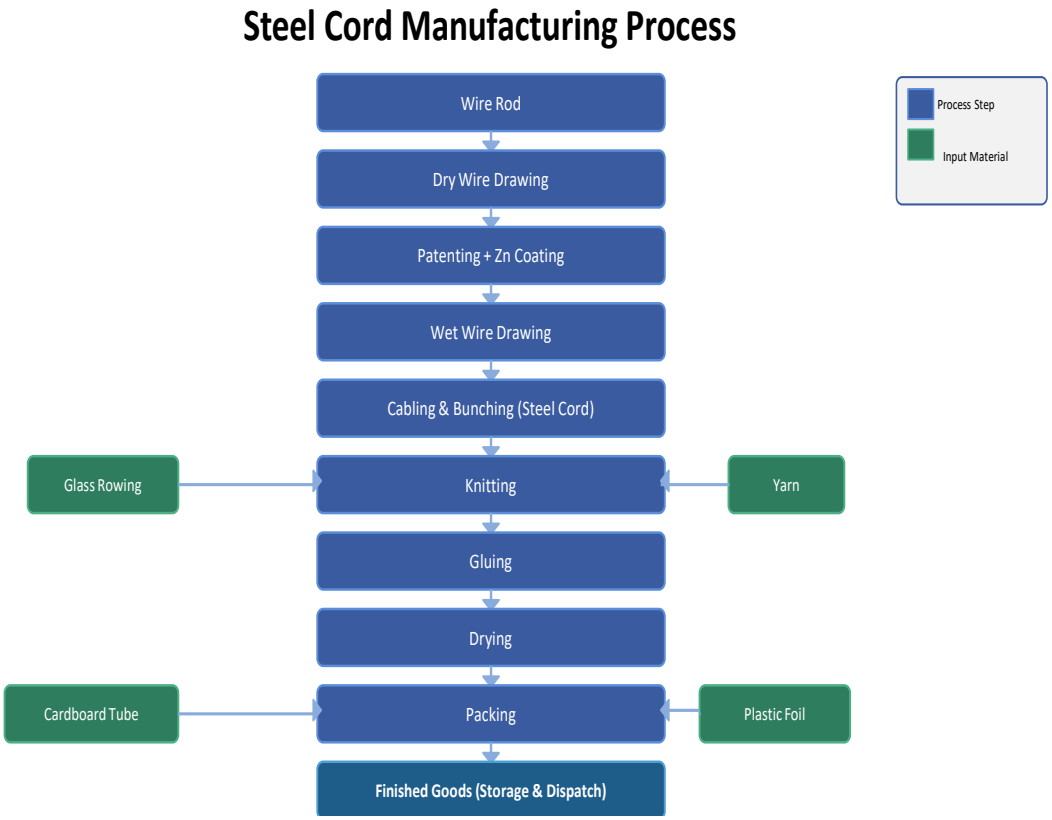


Fig. 3: Schematic Diagram of the Manufacturing Process

2.6 Design & Installation Procedure

a) Providing and laying of Bed Joint Reinforcement (BJR) on Autoclaved Aerated Concrete (AAC) blocks. The Bed Joint Reinforcement (BJR) shall be embedded in premix AAC Block Joining mortar (BJM) in 3mm - 4mm thickness. In case of conventional Cement sand Mortar, the joint thickness of 10mm -12 mm may be adopted.

b) For AAC Block wall of 100mm / 125 mm, A-40 mm width Bed Joint Reinforcement (BJR) shall be placed at the centre of the Block. For AAC Block of 150mm, 200 mm and above thickness, A-80 mm width Bed Joint Reinforcement (BJR) shall be used. The recommended installation of Bed Joint Reinforcement (BJR) at the centre of the wall, at corners, and at T-junctions for various AAC block wall thicknesses is shown in the **Fig-4 to Fig-8**. The reinforcement shall be positioned such that a minimum cover of 15 mm is maintained from the exposed face(s) of the masonry wall during installation

i) Installation of Bed Joint Reinforcement (BJR) at the Centre/corner of the wall for thickness less than or equal to 150mm.

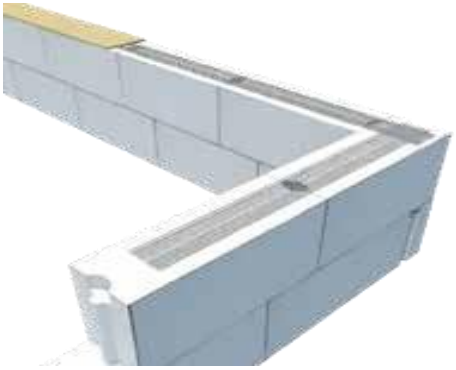
S. No.	Wall Thickness (t), mm	Mesh Configuration	Jointing Layout Type
1)	(t ≤150) mm	1 × Murfor Compact A-40	Single Centred Run
			

Fig. 4: Schematic Diagram of placement of A-40 mesh at center/corner

ii) Installation of Bed Joint Reinforcement (BJR) at the centre of the wall for thickness greater than 150mm and less than or equal to 200mm

S. No.	Wall Thickness (t), mm	Mesh Configuration	Jointing Layout Type
2)	(150 < t ≤ 200) mm	1 × Murfor Compact A-80	Single Centred Run (Wide)
			

Fig. 5: Schematic Diagram of placement of A-80 mesh at center/corner

iii) Installation of Bed Joint Reinforcement (BJR) at the centre of the wall for thickness greater than 200 mm and less than or equal to 350 mm. The minimum cover of 15mm shall be maintained from the face of the wall.

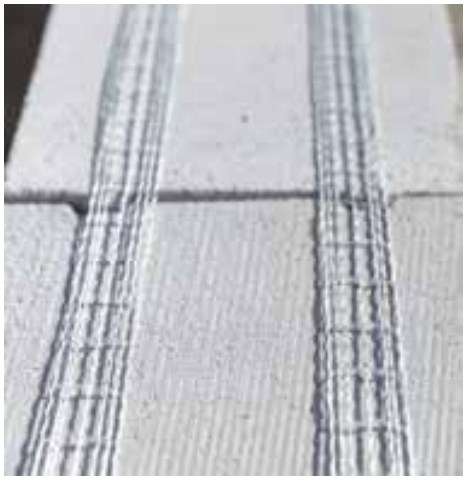
3)	(200 < t ≤350) mm & t > 350	2 × Murfor Compact A-40 & 2 × Murfor Compact A-80	Parallel Double Run
			

Fig. 6: Schematic Diagram of placement of 2×A-40 & 2×A-80 mesh at center

iv) Installation of Bed Joint Reinforcement (BJR) at the corner of the wall for thickness greater than 200 mm and less than or equal to 350 mm or greater than 350mm. The minimum cover of 15mm shall be maintained from the face of the wall

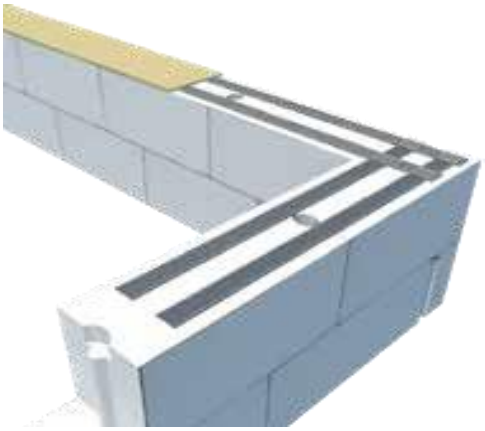
4)	200 < t ≤ 350 or t > 350	2 x Murfor® Compact A-40 or 2x Murfor® Compact A-80	Parallel Double Run
			

Fig. 7: Schematic Diagram of placement of 2×A-40 & 2×A-80 mesh at corner

v) At corners and T-junctions, the Bed Joint Reinforcement (BJR) shall be properly connected using the manufacturer's recommended corner/angle connector elements to ensure continuity and effective anchorage of the reinforcement

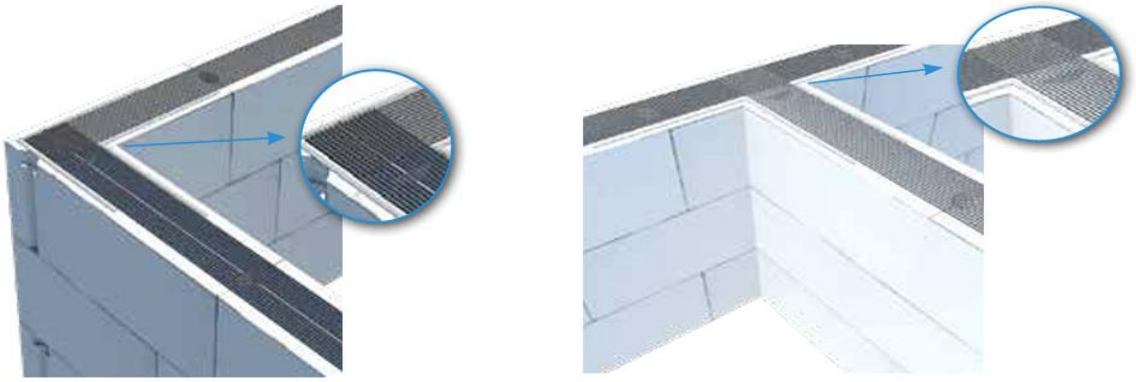


Fig. 8: Schematic Diagram of installation of BJR at Corners and T-Junctions

c) The bed joint reinforcement shall be fixed using nails at intervals of approximately 300 mm to maintain proper alignment during installation.

d) In 4 m x 3 m AAC block wall (non-load bearing) having thickness 100/125 mm, minimum 6 layers of BJR in 40 mm width shall be placed on AAC block .For AAC Block thickness of 150 mm, minimum 4 layers of 80 mm width shall be provided, while for 200 mm AAC Block, minimum 5 layers of BJR in 80 mm shall be placed on AAC Blocks.

e) For both A-40 mm and A-80 mm wide BJR ,the first layer shall be on the First course of AAC Block, second layer on the third course of the block and the last layer shall be below the last AAC block course. Remaining layers shall be equally distributed in the courses above third courses of AAC Block work. At the edges the BJR shall be anchored properly using steel cleat angle of minim size 75mm x50mm x 50mm x1mm made of stainless steel (SS) with the RCC Column / RCC Mullion, as given in **Fig.-9** The minimum anchorage length shall be 75 mm



Fig. 9: Schematic diagram of anchorage of BJR with Steel Cleat Angle at RCC Column / Mullion

f) A minimum overlap length of 500 mm shall be provided. Overlaps shall be staggered and shall not occur at the same vertical location.

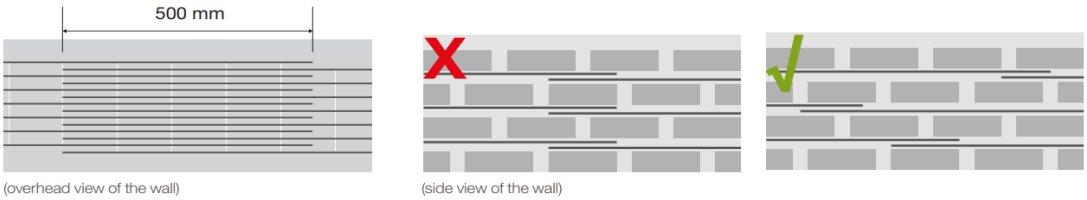


Fig. 10: Schematic diagram overlap detailing of Steel Mesh Masonry Reinforcement

g) Depending on specific requirements like wind load, Wall Dimension, thickness etc. the number of BJR layer shall vary as per Structural requirement laid down in BS EN 1996-1-1:2005+A1:2012 design guidelines.
h) The applications, design and distribution and number of layers of BJR depending on wall sizes etc. shall be carried out as per Manufacturer's guideline and instruction of Client's Engineering in Charge.

2.7 Inspections & Testing

Inspections & testing shall be done at appropriate stages of manufacturing process. The inspected products shall be stored & packed to ensure that no damage occurs during transportation, as per the industrial norms. As part of quality assurance, regular in-process inspections shall be carried out by the trained personnel of the PAC holder.

2.7.1 Storage & Handling at the factory end before dispatch

The product is supplied in rolls individually packed under PE foil. The rolls are stacked in pre-printed cardboard boxes and packed on wooden pallets with wrapping foil and a cover sheet. The product shall be handled and stored with care and protected from accidental damage before dispatch.

2.7.2 Guarantee/Warrantee provided by the PAC Holder

The PAC holder assumes responsibility for the product up to its delivery at the project site. Any product found unfit for use at site shall be replaced by the PAC holder. The specific terms and conditions related to warranty, replacement, and liability are decided on a case-by-case basis and are finalized prior to dispatch of the product.

2.7.3 Services provided by the PAC holder to the Customer

The PAC holder provides pre-sale advisory services regarding the product, its application, and its intended use. Customers and users may obtain technical guidance and relevant product information from the PAC holder before procurement.

In addition, after-sales services are provided on a customer-to-customer basis. The nature, extent, and conditions of such services are determined mutually between the PAC holder and the customer.

2.8 Responsibility

The specific design and construction incorporating Bed Joint Reinforcement (BJR) are the responsibility of the client. The PAC holder provides instructions, technical guidance, supervision, and support regarding the proper use and installation of the product. However, the overall design, detailing, and execution of the construction work remain the responsibility of the client.

PART 3: BASIS OF ASSESSMENT AND BRIEF DESCRIPTION OF ASSESSMENT PROCEDURE

3.1 Assessment

3.1.1 The assessment has been done as per the provisions of the standards listed in Part-5 of this Certificate.

3.2 Tests Performed

The assessment of the suitability of the product is based on experimental investigations carried out by the Structural Engineering Group, CSIR – Central Building Research Institute, Roorkee & fire performance by Construction Products Testing Laboratory, Ctec Ltd., Bulgaria

3.2.1 Diagonal Shear Strength of AAC Wallet Specimens

i. Test results: Diagonal shear strength of AAC Wall with and without bed-joint reinforcement

Table 11: Diagonal Shear Strength Test Results of AAC Wall with and Without Bed-Joint Reinforcement

S. No.	Specimen Group	Wallet Size (mm)	Specimen Details	Avg. Cracking Load (kN)	Avg. Cracking Stress (MPa)	Avg. Peak Load (kN)	Avg. Shear Strength (MPa)
1)	WT_100_M0	608 × 604 × 100	AAC wallets (100 mm thick) without bed-joint reinforcement at horizontal joints	23.87	0.28	30.55	0.36
2)	WT_100_M2	608 × 604 × 100	AAC wallets (100 mm thick) with two layers of bed-joint reinforcement at horizontal joints	29.89	0.35	32.43	0.38
3)	WT_200_M0	608 × 604 × 200	AAC wallets (200 mm thick) without bed-joint reinforcement at horizontal joints	30.77	0.18	50.16	0.29
4)	WT_200_M2	608 × 604 × 200	AAC wallets (200 mm thick) with two layers of bed-joint reinforcement at horizontal joints	35.42	0.21	73.43	0.43

3.2.2 Evaluation of Out-of-Plane (OOP) Behaviour of AAC Infill Walls

ii. Test results: Out-of-plane loading on AAC walls

Table 12: Out-of-Plane Loading Test Results on AAC Walls

Sr. No.	Test Specimen	Wall Dimensions (mm)	Specimen Details	Ultimate Strength (kN)	Displacement at Ultimate Strength (mm)	Energy Dissipation Capacity (kN-mm)	Strength Enhancement (%)	Ultimate Displacement Enhancement (%)	Energy Dissipation Capacity Enhancement (%)
1)	AAC_100_0_1	3000 × 3000 × 100	Control specimen of 100 mm thick wall	150.76	11.39	1671.88	–	–	–
2)	AAC_100_5_WOEA_1	3000 × 3000 × 100	With 5 single layers of bed-joint reinforcement A40 without edge anchoring	173.64	14.76	1856.06	15.18	29.59	11.02
3)	AAC_100_5_EA_1	3000 × 3000 × 100	With 5 single layers of bed-joint reinforcement A40 with edge anchoring	158.49	15.59	2100.59	5.13	36.87	25.64
4)	AAC_100_2_RCCB_1	3000 × 3000 × 100	With two RCC bands at lintel and sill level	167.53	16.02	2787.87	11.12	40.65	66.75
5)	AAC_200_0_1	3000 × 3000 × 200	Control specimen of 200 mm thick wall	361.04	14.50	3445.10	–	–	–
6)	AAC_200_5_WOEA_1	3000 × 3000 × 200	With 5 single layers of bed-joint reinforcement A80 without edge anchoring	388.29	17.74	5430.37	7.55	22.34	57.63
7)	AAC_200_5_EA_1	3000 × 3000 × 200	With 5 single layers of bed-joint reinforcement A80 with edge anchoring	392.13	16.47	5648.78	8.61	13.59	63.97
8)	AAC_200_2_RCCB_1	3000 × 3000 × 200	With two RCC bands at lintel and sill level	411.72	12.68	6772.54	14.04	-12.55	96.58

3.2.3 The recommendations issued by CSIR-CBRI, Roorkee, along with the Recommended design approach, are attached as **Annex-2**

3.2.4 Evaluation of Reaction-to-Fire Properties of Murfor Compact Reinforcement Embedded in Mortar by Construction Products Testing Laboratory, CTEC Ltd., Stara Zagora, Bulgaria

Sample description	
Styrene-acrylic coating	70.00(g/m^2)
Polypropylene (PP) yarn (Blue)	46.20 (g/m^2)
Interwoven fibreglass roving	53.14(g/m^2)
Steel cord	1070(g/m^2)
Date of Test	Dec 11, 2025

Table 13: Test Details of Reaction-to-Fire Properties of Murfor Compact

S.No.	Nature of tests	Test Method	Result Observed
1)	Reaction To Fire	EN 13501-1:2018	A1

Note: This classification is valid when Murfor Compact is embedded in a mortar with Heat of Combustion (PCS) ≤ 2 MJ/kg*

3.3 Environmental Product Declaration (EPD)

a) Environmental Product Declaration (EPD) for Murfor® Compact, manufactured at Bekaert Hlohovec, Slovakia, and Produced by N.V. Bekaert S.A., Belgium, and issued by Instytut Techniki Budowlanej (ITB), Warsaw, Poland, indicates a Global Warming Potential (GWP) of 1 kg of Murfor Compact is approximately 2.03 kg CO_2eq per kg of product.

b) When Bed Joint Reinforcement (BJR) produced in the country, the fresh Environmental Product Declaration (EPD) shall be obtained.

3.4 Project list for supply/usage of Murfor Compact Products

As reported by the agency, some important projects, where the Bed Joint Reinforcement (BJR) has been used are listed in **Table-14**

Table 14: Reference Projects Using Steel Mesh Masonry Reinforcement

S. No.	Project Name	Location	Type of Project / Position of Wall
1	Adarsh Premia (Phase 2)	Padmanabha Nagar, Bengaluru, Karnataka	G+23 Residential Apartment – Internal & External Walls
2	Amity University	Ranchi, Jharkhand	G+5 Educational Institution – Classroom & Partition Walls
3	Adarsh Tropica (Phase 1)	Varthur, Bengaluru, Karnataka	G+20 Residential Apartment – Internal Partition Walls
4	Malpani – Aryabhatta Project	Mahalunge, Pune, Maharashtra	G+26 Commercial/Residential Project – Internal Walls
5	D-Cure International Hospital	Gurugram, Haryana	G+2 Hospital – Internal & External Walls
6	Omaxe Residency	Sultanpur Road, Lucknow, Uttar Pradesh	G+15 Residential Township – Internal & External Walls
7	National Institute of Technology (NIT)	Srinagar Garhwal, Uttarakhand	G+4 Educational Institute – Hostel & Academic Block Walls
8	Synergy Technologies	Kolkata, West Bengal	G+6 Commercial Office – Internal Partition Walls
9	New Vista Academy	Kolkata, West Bengal	G+3 School Building – Classroom & Corridor Walls
10	BEUMER India Pvt. Ltd.	Reliance MET Industrial Area, Gurugram, Haryana	G+2 Industrial Building – Office & Utility Area Walls
11	Wabi Sabi Surfaces Pvt. Ltd.	Udaipur, Rajasthan	G+1 Industrial/Factory Building – Internal Walls

S. No.	Project Name	Location	Type of Project / Position of Wall
12	Green Industrial Park	Yadadri District, Telangana	G+2 – Boundary & Internal Partition Walls
13	Aditya Infotech Ltd. (CP Plus)	Sector 135, Noida, Uttar Pradesh	G+4 Commercial Office Building – Internal Partition Walls
14	Rainbow Fabart Pvt. Ltd.	Noida, Uttar Pradesh	G+3 Industrial Building – Production Area Walls
15	TIF MSME Green Industrial Park	Yadadri District, Telangana	G+1 Industrial Project – Internal & External Walls
16	Shiva Construction Project	Opposite Vidhan Sabha, Dehradun, Uttarakhand	G+3 Hospital Project – Internal & External Walls
17	Malpani – Kautyalla Project	Mahalunge, Pune, Maharashtra	G+23 Residential/Commercial Project – Internal Partition Walls
18	Adarsh Stratuss (Phase 2)	JP Nagar Phase-II, Bengaluru, Karnataka	G+30 Residential Apartment – Internal & External Walls
19	Bhakti Vedant University	Vrindavan	G+4 Educational/Institutional Building
20	Crown Projects	Gurugram, Haryana	G+1 Industrial Project – Internal & External Walls

3.5 Site Inspection (Virtual)

i) The G+30 multi-storey residential building in Bengaluru was reviewed, where 200 mm thick AAC blocks were used for external walls and 150 mm thick AAC blocks for internal partition walls. Murfor Compact A-80 was used as bed joint reinforcement in both wall thicknesses.

ii) The masonry was constructed using a polymer-modified adhesive with a 3 mm thick bed joint. Murfor Compact was installed at every third block course (approximately 600 mm vertical spacing) and secured by nailing at about 300 mm intervals to maintain alignment during construction.

iii) The product was observed to be installed in accordance with the prescribed construction methodology, and the project team reported satisfactory ease of installation and performance in AAC block masonry.

PART 4: STANDARD CONDITIONS

This certificate holder shall satisfy the following conditions:

1. The certificate holder shall continue to have the product reviewed by BMBA.
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.
3. The quality of the product shall be maintained by the certificate holder.
4. The product user should install, use and maintain the product in accordance with the provisions in this Certificate.
5. This certificate does not cover uses of the product outside the scope of this appraisal.
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.
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)
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 thereof.
9. The certificate holder agrees to provide to BMBA feedback 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 feedback received by it, if any.
10. If at any time during the validity period, PACH is unable to fulfil 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.
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.

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



Place: New Delhi
Date of issue: 02/11/2026

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

PART 5: LIST OF STANDARDS & CODES USED IN ASSESSMENT

Table 15: List of Standards and Codes Used in Assessment

IS. 456 : 2000 (Reaff.2005)	Plain And Reinforced Concrete - Code Of Practice
IS 1893 : Part 1 : 2016	Criteria For Earthquake Resistant Design Of Structures - Part 1 : General Provisions And Buildings
IS: 6441 (Part V) - 1972 (Reaff.2001)	Methods Off Test For Autoclaved Cellular Concrete Products
IS 13828 : 1993 (Reaff. 2008)	Improving Earthquake Resistance Of Low Strength Masonry Buildings — Guidelines
IS 13920 : 2016(Reaff.2021)	Ductile Design And Detailing Of Reinforced Concrete Structures Subjected To Seismic Forces — Code Of Practice
EN ISO 1889:2009	Reinforcement yarns — Determination of linear density
EN 13501-1:2018	EN 13501-1 standard for fire classification of construction materials: Overview of performance classes & criteria
ASTM C1693-11 (2017)	Standard Specification For Autoclaved Aerated Concrete (AAC)
ASTM E519/E519M-22	Standard Test Method For Diagonal Tension (Shear) In Masonry Assemblages
ISO15630-3	Steel for the reinforcement and prestressing of concrete- Test Methods - Part 3

CERTIFICATION

In the opinion of Building Materials & Technology Promotion Council's Board of Agreement (BMBA), **Bed Joint Reinforcement (BJR)** is satisfactory if used as set out above in the text of the Certificate. This Certificate **PAC No. 1076-P/2026** is awarded to **M/s Bekaert Eco-Solution Private Limited, Satara, Maharashtra.**

The period of validity of this Certificate is for a period of one year i.e. from **02/11/2026** to **01/11/2027** as shown on Page 1 of this PAC. This Certificate consists of pages 1 to 35..

Chairman, TAC
& Member Secretary, BMBA
Building Materials and Technology Promotion Council
Ministry of Housing and Urban Affairs, Govt. of India
Core 5A, 1st Floor, India Habitat Centre
Lodhi Road, New Delhi-110003

Embossing Seal Of BMBA

On behalf of BMTPC Board of Agreement Chairman, Technical Assessment Committee (TAC) of BMBA & Member Secretary, BMTPC Board of Agreement (BMBA) Under Ministry of Housing and Urban Affairs, Government of India

Place: New Delhi, India

Date: 02/11/2026

PART 6: 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 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 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 year's government, public and private sector organizations 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 (TAC) and the BMTPC Board of Agreement (BMBA) in which scientific, technological, academic, professional organizations 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

Annex-1
(*Refer cl.1.5.4*)

Quality Assurance/Quality Control Plan

A-1 Quality Control Plan

A-1.1.1Incoming Materials –Wire Parameter Measurement

Table 16: Quality Assurance Plan – Incoming Materials: Wire Parameter Measurement

S. No.	Activity	Frequency	Test/Specification	Method
1)	Steel chemical composition	Once per year from each supplier	EN 10204	Verify composition against supplier certificate
2)	Zinc quality	Once per year	EN 10204	Verify composition against supplier certificate
3)	Wire diameter	Once per year from each WWD machine	SI-T-00172-BKSK-SK	Measurement according to test instruction
4)	Tensile strength	Once per year from each WWD machine	DS-09-7000-BCQA	Measurement according to test instruction

A-1.1.2 Cord Parameter Measurement

Table 17: Quality Assurance Plan – Cord Parameter Measurement

S. No.	Activity	Frequency	Method
1)	Construction type check 3x0.54	Once per day	Visual inspection
2)	Demeter, linear mass and zinc coating measurement	Every 10th Coil	According to AS-00034-BCQA
3)	Cord straightness	Every Coil	Reading deviation on measuring device or visual inspection of 6 m sample
4)	Straightness and twisting inspection of stainless steel cords	Every stainless steel coil	Counting/visual inspection

5)	Zn and stainless steel cord parameter verification	Continuous	Check laboratory excel file
6)	Loading pay-offs with cords, threads and adhesive bath preparation + recording batch numbers	Before starting new production batch	Loading an recording batch numbers into production excel

A-1.1.3 Glass Fiber Parameters

Table 18: Quality Assurance Plan – Glass Fiber Parameters

S. No.	Activity	Frequency	Method
1)	Verification of elongation compliance stated in COA with specification	Once per year	Evaluation against supplier certificate

A-1.1.4 Polypropylene Thread Parameter Measurement

Table 19: Quality Assurance Plan – Polypropylene Thread Parameter Measurement

S. No.	Activity	Frequency	Method
1)	Calculated tenacity value	Once per year, 3 samples	Strength (N)/linear mass (G/10,000m) [cN/dtex]
2)	Classification of linear density parameters stated in certificate against specification	Every delivered batch and minimum once per ton	Evaluation against supplier certificate
3)	Elongation at break measurement	Once per year, 3 samples	According to HS-70-1011-BCQA
4)	Verification of elongation stated in COA against specification	Every delivered batch and minimum once per ton	Evaluation against supplier certificate
5)	Linear mass measurement	Once per year, 3 samples	According to HS-70-1011-BCQA
6)	Verification linear mass parameter in certificate against specification	Every delivered batch and minimum once per ton	Compare supplier certificate with specification

A-1.2 Quality Parameter checks Before Production release

A-1.2.1 Changeover

Table20: Quality Assurance Plan – Changeover

S. No.	Activity	Frequency	Method
1)	Check correct loading of steel cords threads, Zn/stainless, product arrangement and winding units	Before start after layout change	Visual inspection

A-1.2.2 Creel Change

Table 21: Quality Assurance Plan – Creel Change

S. No.	Activity	Frequency	Method
1)	Check and record batch number into production card	During creel replacement	Visual inspection/transcription

A-1.3 Quality Control during Production

A-1.3.1 Incoming Material Identification Check

Table 22: Quality Assurance Plan – Incoming Material Identification Check

S. No.	Activity	Frequency	Method
1)	Check and record adhesive and cord batch numbers into production card	Every discard/start-up	Measurement/visual inspection

A-1.3.2 Product Parameter Control

Table 23: Quality Assurance Plan – Product Parameter Control

S. No.	Activity	Frequency	Method
1)	Product quality parameter control	Frequency specified in excel	Measurement

A-1.4 Nonconforming Production

A-1.4.1 Nonconformity Management

Table 24: Quality Assurance Plan – Nonconformity Management

S. No.	Activity	Frequency	Method
1)	Identification of nonconforming production , flow and further processing	Every NCR	Visual Inspection/ Measurement

A-1.5 Technical Specification of Production Lines

A-1.5.1 Inspection and Repair of Machine Parts

Table 25: Quality Assurance Plan – Inspection and Repair of Machine Parts

S. No.	Activity	Frequency	Method
1)	Inspection and repair of production line machine component	In case of breakdown or planned maintenance	Replacement/repair

A-1.6 Packaging

A-1.6.1 Finished Product Identification

Table 26: Quality Assurance Plan – Finished Product Identification

S. No.	Activity	Frequency	Method
1)	Label products with corresponding labels	Every production discharge	Scan and label coils

A-1.7 Warehousing

A-1.7.1 Storage of Finished Pallets

Table 27: Quality Assurance Plan – Storage of Finished Pallets

S. No.	Activity	Frequency	Method
1)	Store finished pallets in designated warehouse area	Every finished pallet	Labeling and warehousing

Annex-2
(Refer cl.3.2.3)

Recommendation

A.2 Following are the conclusions and recommendations drawn based on the performed study on out plane behavior of different configurations of Infill AAC walls:

A-2.1 Increasing the wall thickness from 100 mm to 200 mm significantly enhances the out-of-plane strength and stiffness of AAC infill walls, making thicker panels more suitable for higher wind or seismic pressure zones.

A-2.2 The inclusion of bed-joint reinforcement enhances the overall structural performance by improving crack distribution and controlling crack propagation across the wall surface. It contributes to better post-cracking behavior, greater energy dissipation, and an increased ultimate out-of-plane load-carrying capacity compared to unreinforced control specimens. However, walls incorporating RCC bands exhibited the highest overall load-bearing capacity and energy absorption.

A-2.3 Edge anchoring of bed-joint reinforcement provides better load transfer between the AAC wall, delayed stiffness degradation, improved energy dissipation, improving both strength and post-peak ductility in comparison to unreinforced control specimens.

A-2.4 Proper anchorage of bed-joint reinforcement into the surrounding frame members (columns) is critical. Insufficient anchorage can lead to premature bond failure and reduced load capacity.

A-2.5 Reinforced AAC walls with bed-joint reinforcement and RCC bands exhibit distributed cracking instead of brittle failure, allowing easier inspection and repair after overloading events.

A-2.6 Structurally designed reinforced AAC walls with bed-joint reinforcement and RCC bands show better resistance to out-of-plane bending and potential collapse during wind or seismic actions than control specimens, improving the overall safety of infilled frame systems.

A-2.7 The attainment of the intended out-of-plane structural performance is highly dependent on the quality of workmanship, particularly the precise positioning of bed-joint reinforcement and the maintenance of accurate alignment during wall construction. Any deviation in reinforcement placement or block alignment can significantly influence crack propagation patterns and reduce the effectiveness of the reinforcement in enhancing wall structural performance.

A-2.8 In non-seismic or low-seismic regions, for stockier/thicker walls (of 200 mm), bed-joint reinforcement could be considered as a lightweight alternative when RCC bands are not feasible.

A-2.9 Bed-joint reinforcement can be used as an alternative to RCC bands only in low-to-moderate seismic zones or for thicker AAC infill walls where crack control is more critical than peak strength.

A-2.10 The design of bed-joint reinforcement for the above mentioned cases shall be undertaken by a structural consultant to ensure accurate determination of the required number of reinforced layers and their spacing, duly considering the wall dimensions, boundary conditions, material properties, and loading conditions. The design approach should comply with relevant standards and ensure adequate strength, ductility, and serviceability under out-of-plane actions.

A-2.11 In high seismic regions, a hybrid approach (bed-joint reinforcement for distributed ductility+ RCC bands for confinement) could provide an optimal solution for AAC infill walls, combining strength, stability, and ductility. However, in such cases also proper design must be carried out by a structural consultant as mentioned above so as to optimize the number of layer/spacing of bed-joint reinforcement and numbers of RCC bands.

A-2.12 The observed out-of-plane behavior confirms that design compliance is governed primarily by minimum reinforcement detailing requirements, while experimental results demonstrate substantial reserve strength capacity even for the most critical reinforcement configuration.

A-2.13 The combined design-test assessment supports the applicability of the adopted design provisions for AAC infill walls under the investigated loading and boundary conditions.

Recommended Design approach

Table 28: Recommended Design Approach

S. No.	Condition	Bed Joint Reinforcement (Murfor Compact A)	Recommended Approach
1.	Wall Thickness	Effective in crack control, energy dissipation and ductility	Use RCC bands in external walls; Bed-joint reinforcement can supplement in internal walls after designing from structural Consultant/expert.
2.	Seismic Zone (Low to Moderate)	May be used as an alternative	As per structural design from structural consultant/expert.
3.	Seismic Zone (High)	Improves ductility, but not sufficient as standalone reinforcement.	Hybrid Approach (Bed-joint reinforcement in addition to RCC bands) - As per structural design from structural consultant/expert to optimize the number of layers of bed-joint reinforcement and RCC bands.

4.	Load Capacity Requirement	May perform as equivalent (±15% to ±20%) to RCC band	Choose RCC bands where strength and integrity dominate.
5.	Ease of Construction	Easy, installed within mortar joints, no extra shuttering or concreting required	Bed-joint reinforcement is faster and cheaper; RCC bands require more effort but add safety.
6.	Failure Mode Control	Prevents sudden cracking, delays collapse, enhances displacement capacity (if anchored).	For safety of critical structures, RCC bands may be adopted; for secondary walls, Bed-joint reinforcement may suffice.
7.	Best Use Case	Ductility enhancement, distributed reinforcement, non-seismic or moderate seismic zones, thicker AAC walls.	Hybrid approach often optimal.