

LEGACY BLOCK INC. BUILDING SYSTEM

QUALITY CONTROL MANUAL

Evaluation Report-ONNCCE

EMA C-142-015/11

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INTRODUCTION

The Legacy Block, Inc building system is produced under the quality control management of Legacy Block, Inc. using machinery designed for this specific purpose. Even though Legacy Blocks are not a structural material, certain quality standards must be adhered to in order to insure consistent physical properties of the Legacy Blocks produced in any plant around the world.

Quality control therefore is not only an issue for the single production plant but for all the future locations as a unity.

Legacy Blocks can be seen as a form for the structural concrete poured in situ. The Legacy Block, Inc. building unit itself is not considered structural in as of itself, although it certainly adds to the integrity of the building structure.

THIS MANUAL CONTAINS INFORMATION WHICH IS CONSIDERED A TRADE SECRET AND KNOW HOW OF THE "LEGACY BLOCK, INC COMPANIES". THE CONTENT IS PROTECTED BY INTELLECTUAL PROPERTY RIGHTS. IT HAS BEEN PREPARED FOR THE USE OF ENTITIES AND PERSONS LICENSED BY LEGACY BLOCK, INC AND BY AUTHORITIES AND AGENCIES BOUND TO CONFIDENTIALITY BY THEIR PROFESSIONAL OBLIGATIONS ONLY.

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ACCEPTANCE CRITERIA STATEMENTS

In signing this statement all three parties, the Manufacturer under OEM Agreements, Super Muros, S.A. Juarez, Chihuahua, Mexico OEM Manufacturing Facilities and Legacy Block, Inc., herein referred to as "Company ", The Quality Control Agency, ONNCCE, hereinafter referred to as "Agency" agree to the following:

1. That Company will notify in writing prior to cancellation of the inspection agreement now held between both parties.
2. When an inspection by Agency identifies quality control violations or grounds for removal of the Legacy Block label, or major quality control deficiencies, the entity ultimately responsible for quality control shall receive copies of the inspection report within 10 days of such violation being discovered.
3. Notification shall include an estimate of when production will resume so that Agency may re-authorize the labeling of products in a timely manner. Products shall not be labeled until so authorized.
4. The Agency name or evaluation report number shall not be used in connection with any product, which was not produced in compliance with the published report.
5. Company shall notify Agency in writing, if unannounced follow-up inspections are not conducted in accordance with the approved program as described in the accompanying manual.
6. Company shall promptly investigate and respond when they receive field complaints regarding product performance; Agency shall be notified of all such complaints.
7. Company will notify Agency in writing if the product has changed from what was originally recognized.
8. The inspection agreement between Company allows Agency to examine any product labeled in accordance with the respective evaluation report. Such inspection may occur in the manufacturing facility or at a distribution point and shall be conducted by individuals who have been employed or retained by Agency.

By: _____
Eduardo Esperon
as Quality Control for
Super Muros S. OEM Manufacturing Facility
for Legacy Block, Inc.

Date: _____

By: _____
Susan A, Siegel
as Chief QC Administrator
for Legacy Block, Inc.

Date: _____

TABLE OF CONTENTS

Introduction.....	i.
Acceptance Criteria Statement.....	ii.
Table of Contents.....	iii.
Abbreviations.....	iv.
Glossary.....	vi.
Cross Reference Matrix.....	vii.
 I Administrative Section	
1. Organization.....	1
2. Quality Control Program.....	3
3. Control of Material Equipment and Services.....	5
4. Inspection.....	6
5. Identification of Product.....	7
6. Corrective Action.....	8
7. Complaints Procedure.....	9
7. Internal Audit.....	10
 II Technical Section	
1. Production Flow and Equipment.....	12
2. Product Specification.....	16
3. Testing Standards.....	20
4. Calibration of Equipment.....	23
 III Annexes	
Annex 1: Organizational Chart.....	26
Annex 2: Production Flow Charts	28
Annex 3: Test Protocol	35
Annex 4: Raw Material Receiving Report	37
Annex 5: Non-Conformance Report	38
Annex 6: Production Report Form	39
Annex 7: Product Identification Label.....	40
Annex 8: List of Raw Material Suppliers.....	41
Annex 9: List of Key Quality Control Personnel.....	42
Annex 10: ONNCCE Certificate.....	43
Annex 11: Internal Audit Report.....	44
Annex 12: Revision Review Control	46
Annex 13: Accreditation of Auditor	47

ABBREVIATIONS

A	Authorized Inspector
AC	Acceptance Criteria for QC Manuals
AIA	Authorized Inspection Agency
ASTM	American Society of Testing and Materials
CofC	Certification of Compliance
CMTR	Certified Material Test Report
NCR	Non-Conformance Report
NDE	Non-destructive Examination
PQR	Procedure Qualification Record
QA	Quality Assurance
QC	Quality Control
QCL	Quality Control Check Location
UBC	Uniform Building Code
ONNCCE	Organization of National Norms

GLOSSARY

Audit Finding: Ascertain compliance of code requirements which reveals deficiencies, if any, which have or may have an effect on quality and require corrective action.

Quality Control Authority: The entity or person who has final responsibility and authority in all in house and inter factory quality control issues. Licensor shall have sole QC authority.

Authorized Inspection Agency (Quality Control Agency): An agency accredited by International Accreditation Service as complying with ISO/IEC Standard 17020 criteria for performing inspections.

Authorized Inspector (Third-party Quality Control): Activities by an employee of an accredited inspection agency involving periodic unannounced inspections required by code.

Authorized Inspector (Manufacturing Facility): An employee or agent of the plant facility, authorized by the manufacturing facility and the agency to perform in-house plant/production inspections.

Code Inspection: Inspection by an Authorized Inspector of activities performed under the rules of the Code.

Company: Super Muros SA OEM Manufacturing Facilities for Legacy Block, Inc. Juarez Chihuahua Mexico.

Design Documents: Specifications, drawings, procedures, purchase orders and instructions, including approved revisions thereto, which prescribe activities affecting construction and quality.

Material Supplier: An organization which supplies material produced and certified by a material manufacturer but does not perform any operations, which affect the material properties required by the material specifications cautions.

Nondestructive Examination: Examination methods to detect surface or internal discontinuities of material.

Quality Assurance: Comprises all those planned and systematic actions necessary to provide adequate confidence that all items manufactured/fabricated are in accordance with the rules of the Code.

Quality Control: Those Quality Assurance actions which provide a means to control and measure the characteristics of an item, process or facility to established requirements.

Quality Control Examiner: An employee of the company authorized by the manager of Quality Assurance who performs examinations/inspections as required by this manual.

Receiving Inspection: Receiving of material, supplier fabricated items or parts and verifying by inspection and document reviews, that the products conform to the purchase order and Code requirements.

Supplier: This term, as used in the Manual, refers to any Vendor furnishing material.

DOCUMENTO FALSO

CROSS REFERENCE MATRIX

AC10 SECTION NUMBER	CORRESPONDING MANUAL SECTION/PAGE #	COMMENTS (if needed)
General:		
2.1.1 (Signature)	Acceptance criteria ii	
2.1.2 (Contact info)	Cover sheet	
2.1.3 (Manual revisions)	Page 4 sec. I.2.7.3, Annex 12	
2.1.4 (Product identification)	Page 7 & 8, sec.I.5	
2.1.5 (Traceability)	Page 7, sec. I.5.1.1	
2.1.6 (Work flow)	Page 12, 13, 14, & Annex 2	
2.1.7 (Product description)	Page 16, 17, 18, sec II. 2	
2.1.8 (Agency agreement)	Page 7, sec. I.4.3.3, Annex 13	
2.1.9 (organizational info)	Annex 1 & 9	
2.1.10 (Packaging)	Page 14, sec II, 1.6	
2.1.11 (Complaints Procedure)	Page 9	
Incoming Materials:		
2.2.1 (Incoming materials specification)	Page 16, 17, sec. II. 2.2	
2.2.2 (Incoming materials compliance)	Page 5, sec. II. 3.2 & page 19, sec. II. 3.11	
In-process Quality Control:		
2.3 (In-process QC)	Page 3 to 6, sec. I.2 to I.4	
Final Inspection:		
2.4 (Final inspection)	Page 6 & 7, sec. I.4, I.5, page 19 sec.II.3.1.4, Annex 3	
Nonconforming Material:		
2.5 (Non-conforming mat.)	Page 9, sec, I.6.3, Annex 5 & 7	
Measuring and Test Equipment:		
2.6.1 (Test equipment)	Page 23, sec. II.4.2	
2.6.2 (Calibrations)	Page 23, sec. II.4.2	
Inspection and Test Records:		
2.7.1 (Sample documents)	Annex 1 to 11	
2.7.2 (Document approval)	Page 4, sec. I.2.5.2	
2.7.3 (Records retention)	Page 4, sec. I.2.6.1	
Statements Required of All Manufacturers:		
2.8.1 (Use of IAOMO-ES name)	Page ii, statement 4	
2.8.2 (Complaints)	Page ii, statement 6	
2.8.3 (Prod. examinations)	Page ii, statement 8	
2.8.4 (Changes in product)	Page ii, statement 7	
Statements for Manufacturers of Products that Require 3rd -party Follow-up Inspections:		
2.9.1 (Inspection agreement)	Page ii, statement 1	
2.9.2 (Deficiency reports)	Page ii, statement 2	
2.9.3 (Missed inspections)	Page ii, statement 5	

I. ADMINISTRATIVE SECTION

SECTION I ORGANIZATION

1.1 ORGANIZATION

- 1.1.1 Licensor has the Quality Control Authority over all manufacturing facilities and observes all duties of a Quality Control Manager assisted by the Production Manger who also resembles duties of a Quality Control Supervisor and oversees all company operations.

1.2 SUPERVISORY RESPONSIBILITIES

- 1.2.1 The Quality Control Manager supervises all personnel in all aspects of the company administration, including purchasing of materials and plant supplies, inventory control, material certification records, cost accounting, personnel and safety coordination.

- 1.2.2 The Quality Control Supervisor controls personnel in all areas of his department. He also supervises all material receiving, shipping (excluding inspections), storage, building and equipment maintenance, plant safety, training of production and maintenance personnel, review and approval of purchase orders and review and approval of procedures and is also in charge of:

- a. Identification of quality problems and verification of implementation of problem solutions.
- b. Survey and approval of materials and outside processing sources.
- c. Review and approve inspection reports on material and procedures.
- d. Supervision of Inspection Department including inspectors training and performance.
- e. Quality Control system and manual review and recommendations to the Quality Control Manager.
- f. Review internal audits and recommend improvements to the Licensor as the Quality Control Authority.

- 1.2.3 Inspectors or other qualified persons responsible for the inspection and /or auditing of procedures of shop operation shall not be directly linked to the department performing the operation.

1.3 IN HOUSE QUALITY CONTROL TRAINING

- 1.3.1 The Quality Control Supervisor shall ensure that a program is implemented, maintained and documented for the education and training of personnel performing activities affecting quality to assure that required proficiency is achieved and maintained. A record of employee's education and experience shall be documented and kept on file. Results and / or certificates of completed training courses shall be included.

DOCUMENTO FALSO

SECTION 2 QUALITY CONTROL PROGRAM

2.1 POLICY

- 2.1.1 The contractual obligations and the technical nature of the inspection and testing industries require that Quality Control assume a most vital role.
- 2.1.2 In order to assure product quality, personnel who perform operations affecting quality shall be educated and trained to suitable proficiency. Inspections shall be made and data gathered for each phase of inspection, product and material testing.

2.2 PURPOSE AND SCOPE

- 2.2.1 This manual establishes a quality control system to assure that inspections and testing are performed in compliance with applicable specifications and procedures.

2.3 DEFINITION OF QUALITY

- 2.3.1 Quality Assurance is defined as those planned or systematic actions necessary to provide adequate confidence that the product will perform satisfactorily in service.
- 2.3.2 Quality Control is defined as those quality assurance actions, which provide a means to control and measure the characteristics of an item, process or facility to meet established requirements.

2.4 REFERENCES AND STANDARDS

- 2.4.1 The specifications and standards for quality control are laid out in the Test Standards issued and revised by Licensor in accordance with valid building standards and testing methods. An outline is included in this Quality Assurance Manual.

2.5 RESPONSIBILITY

- 2.5.1 The Quality Control Manager shall provide for the establishment and execution of a Quality Control program consistent with the standards of paragraph 2.3.
- 2.5.2 The Quality Control Supervisor is responsible for and shall direct and implement the quality control system. The Quality Control Supervisor shall be responsible to review and approve all quality control documents and records. He reports directly to the Quality Control Manager.
- 2.5.3 The primary responsibility of the Quality Control System is to comply with the procedures set forth in this manual, to provide a liaison between the company, clients, subcontractors and sub consultants, giving guidance, interpretation and application of quality control, standards, inspection and other contractual prerequisites.

2.6 DOCUMENTATION

- 2.6.1 All quality control forms, test reports, and documentation of in house control and shipping must be kept for a minimum of two years. Inspection reports issued by the Quality Control Agency must be kept for at least two years.
- 2.6.2 The Quality Control Supervisor is responsible for filing and storing all documentation regarding quality control and to make them accessible.

2.7 REVIEW

- 2.7.1 The Quality Control Manual will be reviewed by the Quality Control Manager and the Quality Control Supervisor. These individuals will suggest changes and improvements to establish procedures based upon their review and input by others. No changes to the Quality Control Manual will be made without the approval by Licensor, and the Quality Listing Agency.
- 2.7.2 The Licensor is responsible for implanting approved changes and additions in the Quality Control Manual.
- 2.7.3 Licensor will review and update the Quality Control Manual as necessary, however, at least once per year.

SECTION 3

CONTROL OF MATERIAL EQUIPMENT AND SERVICES

3.1 RESPONSIBILITY

- 3.1.1 The Quality Control Manager shall survey and approve sources for materials, components, and outside processing where applicable, using the proper Checklist. A supplier shall be approved on the basis of holding a quality system certificate.
- 3.1.2 A list of approved sources for materials, outside processing and components shall be maintained. All surveyed suppliers shall be resurveyed every 24 months by the Quality Control Manager to assure adherence to specification requirements and quality standards. A list of current suppliers will be attached as Annex 8.
- 3.1.3 In lieu of a physical survey, a vendor may be qualified based on the vendor history and material certifications. Back up data for such vendors will be kept on file by Company.
- 3.1.4 The Receiving Inspector will verify incoming shipments of materials, components and outside processing for conformance to the specifications and quality requirements of the purchase order.

3.2 PROCEDURE - RAW MATERIAL RECEIVING AND STORAGE

- 3.2.1 Material Test Reports Certificates of Compliance and/or notice of shipment documents will be verified to the applicable specifications or codes and approved by the Receiving Inspector.
- 3.2.2 After material has been received, the purchase order and shipping notice shall be checked against the shipping document.
- 3.2.3 Non-Conforming and unacceptable material shall not be accepted.
- 3.2.4 Items with a limited shelf-life shall be segregated as the expiration date expires. Shelf-life expiration dates shall be verified prior to use of the material and should be denoted on the Raw Material Receiving Report.
- 3.2.5 Approval or disapproval of materials received will be entered in the Inspection Report Form, Annex 4 to this manual.

SECTION 4 INSPECTION

4.1 RESPONSIBILITY

- 4.1.1 It is the responsibility of the Quality Control Manager to insure that all inspection and testing is performed in accordance with the specifications.
- 4.1.2 It is the responsibility of the inspector, under direction of the Quality Control Manager to supervise visual, dimensional, and mechanical inspections as required, make entries in the Quality Control Report Form, Annex 6, and secure proper filing of these forms.

4.2 POLICY

- 4.2.1 By definition, the word "inspection", as it relates to this Quality Control Program, indicates an action to be performed by or under the directions of the Quality Control Manager.

4.3 SCHEDULE

Quality Control consists of 3 parts:

- 4.3.1 Record keeping by the manufacturer: Records will be taken continuously of all incoming and outgoing materials as set forth in the Technical Section of this manual under Article 3.1.1. The manufacturer will name a person of his staff, responsible for the correct and complete recording, verification and filing. All records will be kept on file for a period of 2 years from the date of production of respective material.
- 4.3.2 Material tests conducted in-house by the manufacturer: The in-house testing will be carried out by the manufacturer. The Quality Control Manager will designate a person responsible for the in-house testing. The results will be entered in a form as shown in Annex 3 of this manual. Scope and frequency of these tests are laid out in the Technical Section of this manual, Article 3.1. The forms with the test results will be filed together with all records mentioned under subparagraph 1 of this Article and kept for 2 years.
- 4.3.3 Inspection and material testing by the Quality Control Agency appointed: The Quality Control Agency will inspect the manufacturer's production and records and may decide to make tests on its own. The inspection may be made without notice anytime during the normal working time of the plant. A

minimum of four inspections per each year shall be made, unless otherwise directed by the Quality Control Agency in agreement with IAPMO –ES.

SECTION 5 IDENTIFICATION OF PRODUCT

5.1 IN HOUSE

5.1.1 Each day's production is stored in a distinctive area and immediately labeled with a Product Identification Label as shown in Annex 7. Final classification is made in the outside storage area. Materials out of a batch, which failed any of the tests described in the Technical Section, Section 3, shall be segregated for re-inspection, to determine, if they can be classified as "B" or have to be rejected. The identification label shows at least the following information:

- * Date of production;
- * Date of classification;
- * Classification ident;

"A" for product exactly to specification, weights and dimensions within tolerances as per specifications in Technical Section, Section 2, para 1;

"B" for product usable in **non-code** applications, showing acceptable variations in dimension, weight, and/or strength;

"R" for rejected product, no rejected product shall be sold or deemed repairable. Rejected product shall be segregated and stored for grinding and recycling in another batch. Rejected product is any product that cannot be classified as "A" or "B". ;

- * Signature of in-house inspector.
- * Inventory number

5.1.2 A copy of the Product Identification Label will be filed together with the other quality control documentation. Invoices for product sold will bear the inventory number shown on the label. This number will allow to trace the product to the production and quality control record.

5.2 FOR SHIPPING

5.2.1 Each shipment has a label attached displaying:

- * Licensors name as the QC authority
- * Manufacturers name and address;
- * The trade name "Legacy Block, Inc";
- * The name and logo of the quality control agency;
- * The Agency report number.

A facsimile of an identification label is shown below.

LEGACY BLOCKS, INC.
ICF
BUILDING BLOCKS
Legacy Block, Inc. Administration Offices, 5401 S. Kirkman Road, Suite 310, Orlando, Florida 32819
Manufactured for Legacy Block, Inc. by: Super Muros SA., OEM Manufacturing Facilities Juarez Chihuahua Mexico.
Precast Concrete Units
IN ACCORDANCE WITH EVALUATION REPORT
for the USA and Canada by Legacy Block, Inc Inc.

Shipping Identification Label (If not affixed to product a Certificate can be supplied as per Annex 10)

SECTION 6 CORRECTIVE ACTION

6.1 SCOPE

- 6.1.1 This section addresses the handling of material testing which may have been reported prior to knowledge of non-conforming equipment or procedures.

6.2 RESPONSIBILITY

- 6.2.1 It is the responsibility of the Quality Control Manager to address non-conformance that does not comply with duality standards and specifications, and to initiate corrective action.

6.3 PROCEDURE

Legacy Block, Inc.
Administration Offices
5401 S Kirkman Road, Suite 310
Orlando, Fl. 32819

- 6.3.1 The Quality Control Supervisor will confer with the Quality Control Manager to determine the cause of the discrepancy and what corrective action should be taken.
- 6.3.2 The Quality Control Manager will consult with and forward generated Non Conformance Reports (Annex 5) to the Licensor and Quality Control Agency for review, comment and approval.
- 6.3.3 Nonconforming product will be stored in a separated area, tagged as “R” (Annex 7) until it can be processed. Nonconforming product will be ground and the polystyrene content can be reused for production of new product.

SECTION 7 COMPLAINTS PROCEDURE

7.1 DEFINITION

Complaints or any comments by customers, contractors involved in a project, architects or engineers of record, or building officials about observation of significant and repeated deviations of the properties of the product from its specification, which can influence its performance, strength of the structure, or usability.

7.2 ACCEPTANCE OF COMPLAINT

Complaints shall not be accepted without proper documentation in writing or by photographs or other appropriate means of describing and verifying the problem. Only such orderly documented complaints will be investigated by the Quality Control Manager. When found justified the QC Manager will open a file about this incident.

7.3 FOLLOW UP

The QC Manager will immediately investigate the reason for the deviation of quality. The investigation shall include products manufactured within the same time frame in order to assess, if other products could be affected. Depending on the content of complaint, the QC Manager in cooperation with the technical staff and the Quality Control Authority will decide on the appropriate action to be taken.

7.4 DOCUMENTATION

For each complaint, a file will be opened which shall contain the full history of the complaint and appropriate action taken including technical and/or administrative proposals to avoid such problems in the future. Any incoming complaint will be reported to the Quality Control Authority without delay.

SECTION 8 INTERNAL AUDIT

8.1 POLICY

- 8.1.1 An internal audit of duality control procedures, as outlined in the Quality Control Manual, will be made by a qualified representative of Licensor. Such representative shall be sufficiently trained and/or experienced to conduct such an audit, and shall not have a direct responsibility for the area being audited.

8.2 PURPOSE AND SCOPE

- 8.2.1 Audit shall be performed:

- a. To provide an objective evaluation of compliance with established requirements, methods and procedures.
- b. To assess progress on assigned tasks.
- c. To determine adequacy of quality control program performance.
- d. To verify implementation of recommended corrective action.

8.3 AUDIT PROCEDURE

- 8.3.1 The entire Quality Control Manual will be audited within a twelve-month period. The auditor(s) will annually prepare an audit schedule covering all areas to be audited.

- 8.3.2 The audits shall be performed on a quarterly basis, or whenever deemed necessary and will include all steps and procedures described in the particular sections of this manual.

- 8.3.3 Audits shall be performed on written checklists prepared by the auditor.

- 8.3.4 The audit report shall be documented, signed by the auditor, reviewed and signed by the Plant Manager, or by management having responsibility for the facilities which are audited.

- 8.3.5 Audit reports shall be distributed to:
- Office quality control file

- Quality Control Manager
- Auditor
- Supervisor of area audited
- Quality Control Authority
- Quality Control Agency

8.3.6 Deficient areas shall be documented and immediately reported to the Quality Control Authority, which shall initiate corrective action. Deficient areas shall be re-audited to insure that corrections have been completed.

8.4 AUDITOR TRAINING

8.4.1 A program shall be established to train additional personnel to perform internal audits. Training shall include:

- a. Familiarization with Quality Control Standards
- b. Methods of examining, questioning, evaluation and documenting audit areas.
- c. Corrective action procedure and follow-up
- d. On-the-job training

8.4.2 A record of individual training shall be kept on file.

II TECHNICAL SECTION

SECTION 1. PRODUCTION FLOW AND EQUIPMENT

The semi-automatic equipment for the production of the Legacy Blocks has specifically been designed for this process. The machine type numbers in the following paragraphs relate to the design group numbers of the Legacy Block, Inc. plant machinery. Standard units used in the design, essential for product quality are listed with their respective model numbers. Steps where quality control checks are administered during the production process are marked with "Q #". A list of such checks is added below.

1.1 Raw Materials and Mixing:

Design Group 10.000:

Executing the following production steps:

- Grinding of EPS-scrap -**Q1**;
- Automatic conveying of the following mixing components to the dosing silos in the Mixing Plant:
 - Ground EPS-beads,
 - Cement,
 - Lime (optional)
 - Thastyron chips (from tooling and milled residues if applicable),
 - Additives (if applicable),
 - Water (recycled and fresh);
- Dosing of all components:
 - EPS is dosed by volume through its level in the dosing container. The container has two shutter doors; the EPS is added to a level above the top door. Then the top door is shut, leaving the volume of EPS between the two doors. Accuracy of the metering system is within 10 liters;
 - Water is measured by volume with a container with an overflow. Accuracy is 0.5 liter.
 - All other components are measured by weight by means of a load cell, type Hottinger Baldwin Messtechnik Model U2A (0-1000kg). Processing is done by a New Port model INF 7 processor and digital meter display, accuracy of the system is 1kg. A calibration check will be performed weekly, or more frequently if needed due to rapidly changing temperatures. Combining all components in a forced mixer, type Elba EMS750B using high/low speed during preset times for a two-step mixing process, i.e. slurry mixing first, than adding of EPS; Discharging of the mix into the pre-dosing hopper -**Q2**.

1.2 MOLDING OF THE BLOCKS

Design Group 20.000

- Filling of the dosing container;
- Filling of the mould with Legacy Block Mix (LBM);
- Coating of the pallet with parting agent;
- Placing and clamping of the pallet onto the mold;
- Rotating the mold down and moving it into the press;
- Compressing of LBM and demolding onto the storage-pallet – **Q3**;
- Placing the pallet into the curing rack.

1.3 CURING

Design Group 30.000

- Curing; the curing time is monitored by the line operators and limited by the flow of pallets through the production line -**Q4**;
- Regulating humidity is necessary during hot and dry season by fogging nozzles arranged in the curing section;
- Pallet moves into the bonding and tooling unit.

1.4 BONDING AND TOOLING

Design Group 60.000 & 50.000

- Unloading of pallets from the unloading platform to the conveyor;
- Adjustment of the bonding and tooling unit for type and size of blocks (when type/size is changed);
- Surface-milling of the blocks-halves or end-blocks (thickness);
- Applying of PU-binder by means of high-pressure airless spray pump or manual;
- De-palletising of the blocks and pushing them to the feeder line (end-blocks) or bonding manipulator (standard blocks);

Standard blocks only:

- Turning of the first blocks-half for 180 degrees;
- Vacuum-bonding of the two blocks halves;
- Placing of the blocks on the trimming-line;

All blocks:

- Tooling of length-sides and dividing of the blocks in the center, if not twin blocks;
- Length-cut on both ends;
- Transport to piling-unit;
- Transporting of pallets back to molding machine and cleaning of pallets

1.5 POSTCURING OF BLOCKS

Design Group 70.000

- Stacking of blocks (approx. 5-8 pieces) -**Q5**;
- Storing of blocks to allow drying of the bonding gap and post curing;
Outside:
- Transporting of blocks piles to the outside intermediate store by means of fork-lift trucks;
- Curing for minimum 24 hours on flat hard surface and classification of blocks - **Q6**;
- Transport to storage area for labeling and eventual shipping.

Production flow charts are shown in Annex 2.

The following tasks are carried out at the listed quality control check points:

- Q1 check of post-consumer polystyrene for foreign materials and proper type;
- Q2 visual control of raw mix for lumps, water content by flow characteristic and color;
- Q3 weight control of molded panels on pallet for early recognition of major deviations in density and visual check for form stability and consistency;
- Q4 environmental conditions (humidity) check, strength check by "thumb" test, if ready for tooling;
- Q5 initial dimension check;
- Q6 classification of product by checking tolerances and appearance, random weight check.

Production details and results of "in production" checks will be recorded in the Production Acceptance Report (Annex 6).

1.6 SHIPPING

Blocks are shipped without packaging and without pallets. Standard blocks are bundled by wrapping plastic tapes through the cavities and by using edge protectors (cardboard type). 2x4 wood studs laid into the half-cavity can be used when the bundles are strapped down on the truck to avoid damage. End blocks preferably are bundled together with one standard blocks on the bottom to serve as pallet. ("B" classified material can be used, but has to be marked as such). Materials have to be a minimum of 7 days of age before shipping.

SECTION 2 PRODUCT SPECIFICATIONS

2.1 DIMENSIONS:

The standard designs and dimensions of Legacy Block, Inc. blocks are shown on page 17 of this manual. The following table shows the permissible tolerances of the cured blocks after being stored for at least 1 week and dried to constant weight condition. It has to be noted that Legacy Block Mix (LBM) blocks shrink and expand with varying humidity. A change in relative humidity between 50% and 100% may cause variations of 0.042 inch/ft (3.5 mm/m).

TOLERANCE*	D	K	F	L-long	L-short	E	S	T	J****
8.5"BLOCKS	±1/8"	+3/4"***	±3/8"						
10"BLOCKS	±1/8"	+1/2"**** -0"	+1/2,-3/8"	+1/2"	+1/2"	+1/2" -5/8"	±3/32"	±3/32"	1/2"
12"BLOCKS	±01/8"		±1/2"	-3/8"	-3/8"				
14"BLOCKS	±3/16"		±5/8"						

Straightness: Max. Camber out of plane over L ≤ 1/2"
Max. Camber or wave in plane over L ≤ 1/8"

* Due to the nature of the product [1/8"] has to be considered the minimum reliably measurable dimension, thus a generally allowable tolerance.

** Openings may be oblong instead of round, created by reducing the thickness of 10" blocks in the center. Tolerance is valid in longitudinal direction of blocks. In perpendicular direction tolerance results from flange thickness.

*** Cavity openings may be produced oblong to meet structural requirements. Blocks 12" and 14" thick with an alternative K of 8" are available.

**** J represents the offset of centers of the openings of the two blocks halves in either direction.

2.2 RAW MATERIAL SPECIFICATIONS:

2.2.1 Cement: Portland cement according to ASTM C150 type III (type I may be used but less efficiency and lower bonding strength may be achieved. With virgin polystyrene it is not recommended). Admixtures of slag and/or hydrated lime are permissible, putzolanes shall be limited to 25%.

2.2.2 Hydrated lime: powdorous, lump free material.

2.2.3 Polystyrene: All expanded bead material. If new polystyrene is used mixed size beads are preferable, bead size of virgin polystyrene shall be 3/32" to 1/4". If

beads from recycled polystyrene parts are used the bead size after processing in the plant will be 0 to 1/4", fines shall not exceed approx. 15%. Extruded materials (not originally in bead form) cannot be processed. Incoming materials shall be visually checked for excessive contamination and foreign objects when unpacked and fed into the EPS-grinders.

Although, almost all polystyrene products are made of modified resins, this type of resin is not necessary to meet the criteria for ASTM E 136, as the beads are fully covered and embedded in a concrete matrix. Unmodified material has been used for this test

2.2.4 Additives: As necessary and defined by licensor. Chlorine containing accelerators are permissible.

2.2.5 Water: Fresh water shall be free from organic substances, injurious amounts of oils, acids, alkalis, and salts. Water, which is collected from washing the molds or mixer, is recycled and can be added to the batch instead of fresh water. There is no limitation as to what ratio fresh water can be replaced by recycled water. The water/cement factor is kept between 0.37 and 0.65. Water content should be at least as high as to prevent burning of the concrete on the surface.

2.2.6 Binder: Single component polyurethane glue, based on ICEMA R145/5 formulation. For hand application low expanding single component PU in spray cans may be used, but special inspection for correct application is required. Single component polyurethane glue has a shelf life of 6 months or more, if barrels stay sealed.

2.3 LEGACY BLOCK MIX (LBM) SPECIFICATIONS:

2.3.1 Density:

Density tested on a test cube dried until constant weight is obtained shall be:

Minimum 320 kg/m³ = 20 lbs/cuft

Maximum 380 kg/m³ = 24 lbs/cuft;

The upper limit is not binding for end blocks.

In order to obtain reference values test samples taken from blocks less than one week of age, 3.5% shall be deducted from the weight recorded.

2.3.2 Compressive Strength:

Compressive strength of a test cube cut out of a block randomly shall be

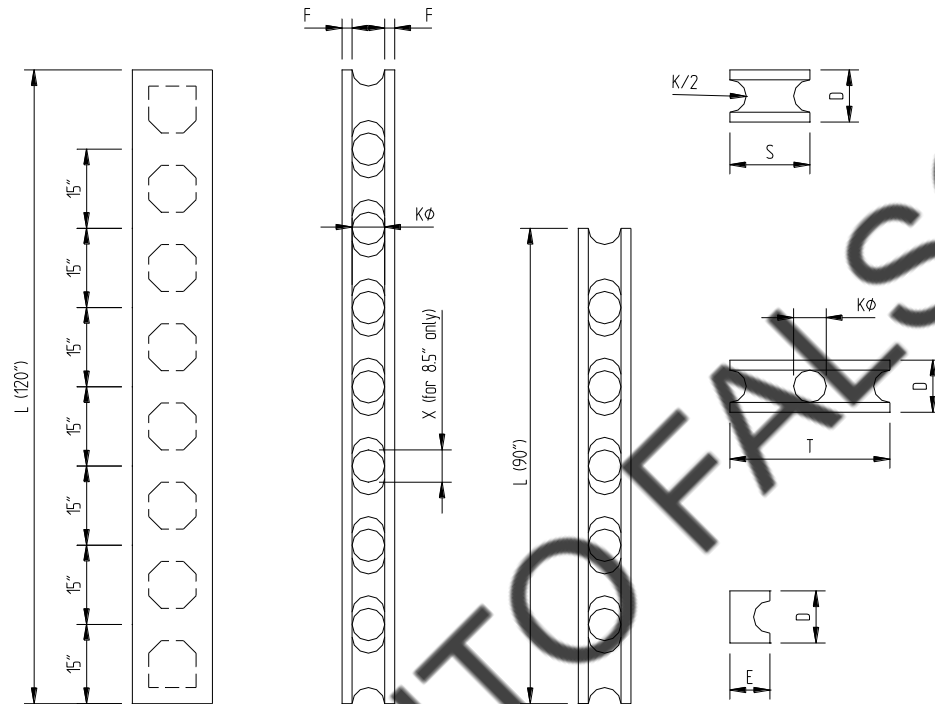
≥ 0.4 N/mm² = 56 psi. A margin of -10% is permissible for 300mm=12" thick Legacy Block, Inc. blocks with a 152mm = 6" core diameter; and a margin of 15% for 355mm = 14" thick Legacy Block, Inc. blocks with a 152mm = 6" core diameter is acceptable. These tolerances are permitted to allow the use of lower density materials for optimum insulation. Tested materials shall be at least 28 days of age.

2.3.3 Tensile/Bending Strength:

Combined tensile bending strength of a test piece cut out of a block randomly shall be:

$\geq 0.3 \text{ N/mm}^2 = 43 \text{ psi}$. This minimum strength is applicable for 250mm = 10" thick blocks. In order to allow the use of lower density materials, a strength of $0.25 \text{ N/mm}^2 = 36 \text{ psi}$ for 12" thick Legacy Block, Inc. blocks with 152mm = 6" core dia., and $0.22 \text{ n/mm}^2 = 32 \text{ psi}$ for 355mm = 14" thick blocks with 152mm = 6" core dia. is permissible. Tested materials shall be at least 28 days of age.

ELEMENT DIMENSIONS



DIMENSIONS - ins (mm)

D	K	F	L	S	T	E	X*
8.5" (215)	5" (127)	1.75" (45)	120" (3050)	15" (380)	30" (760)	7.2" (190)	5.25" (135)
10" (250)	6" (152)	2" (50)					N.A.
12" (305)	6" (152)	3" (76)					
14" (355)	6" (152)	4" (100)					

VOLUMES and WEIGHTS

Thickness ins(cm)	Length ins(cm)	Standard Blocks cuft(dm ³)			End Elem.	Weight Std.E. lbs(kg)±10%
		outside	cavity	net	net	
8.5"(21.5)		6.64 (188)	1.97 (56)	4.67 (132)	-	112 (51)
10"(25)	120'(305)	10.42 (294)	3.67 (104)	6.75 (190)	4.22 (119)	158 (72)
		7.81 (221)	2.73 (77)	5.08 (144)	3.17 (90)	119 (54)
12"(30.5)	120"(305)	12.5 (354)	3.67 (104)	8.83 (250)	5.26 (149)	197 (90)
		9.37 (265)	2.73 (77)	6.64 (188)	3.95 (112)	148 (68)
14"(35.5)	120"(305)	14.58 (412)	3.67 (104)	10.91 (308)	6.31 (178)	243 (110)
		10.94 (310)	2.73 (77)	8.21 (233)	4.73 (134)	183 (83)

SECTION 3 TESTING STANDARDS

3.1 SCOPE AND FREQUENCY OF TESTING:

3.1.1 Raw Materials:

Each delivery of polystyrene shall be inspected visually and separated into extruded and expanded product. No records are needed.

Each delivery of additives shall be checked, whether in accordance with specifications. A copy of the invoice or delivery notice showing type and specification shall be kept with the records (Annex 4).

Each delivery of cement shall be checked if it meets specifications and shall be so certified by the supplier in a specification or quality report. These reports will be filed as set forth in Sec. I Art. 3.2. A notice shall be accompanied with these reports showing the time the cement has been loaded into the silo of the plant and the estimated amount of cement in this silo at the time the new batch has been deposited.

3.1.2 In-Process Documentation:

After each shift a summary has to be prepared (unless, as in automatic plants, batch print outs are available) showing the total amount of each component mixed during this shift along with the number of mixing cycles. The summaries have to be dated, continuously numbered and filed.

3.1.3 Observation of Curing Process:

During the curing of the molded units the visual checks are made in order to monitor the progress of curing and surface humidity of the blocks.

3.1.4 Periodical In-House Testing:

Each tenth full shift or whenever the batch composition is changed the following tests have to be conducted in accordance with Art. 3.2:

- a) combined tensile-bending strength;
- b) compressive strength;
- c) density.

Each number of mixes with the same ratio and type of ingredients or mixes with minor changes in the ratio of components, which are made to adapt the mixture to environmental factors, consistency, or different molds are considered the same batch composition. The above is a minimum requirement, additional testing may be necessary at the discretion of the QC manager.

Each tenth full shift or whenever a different type or brand of bonder for bonding the

standard blocks is used a "relative" tensile-bending strength test has to be performed.

The results have to be filed using the sample forms, Annex 3.

3.2 TEST METHODS:

3.2.1 Tensile -Bending Strength Test:

The tests may be performed on any test bench suitable for bending tests.

Alternatively, a test set up may be used where one or both supports on which the specimen rest are mounted on a scale and the load is applied with a spindle or similar device from the top. The scale accuracy shall be within 2% of the load applied.

Alternatively, a test unit may be used, employing a pneumatic cylinder for applying the load. A check valve shall be installed to control the rate of increase of the load. The ultimate load can be read on a gauge in psi. Provided a 2" diameter cylinder is used, tensile strength can be obtained by multiplying the value in psi with 0.741 (standard specimen assumed, as defined below). The air pressure gauge shall be checked for accuracy once a month. Deviation of the indicated value shall be max. 2%. A gauge with dragged max. pointer is recommended.

The minimum cross section of the specimen shall be 4" x 4". The specimen will be supported on preferably round supports of a diameter not less than 3/4" arranged parallel to each other in a distance of 10" $\pm 1/8$ ". The load has to be applied in the center between the supports. A round bar will be used to introduce the load to the sample with a diameter not less than 3/4". Preferably the bar will be articulated linked to the unit used to apply the load in order to avoid edge pressure.

The samples are to be taken randomly out of the production. 3 specimen have to be tested. These 3 samples shall be cut out of the two ends and one of the center of a blocks. The test results shall not spread by more than 15%. Once approximately 50% of the expected failure load has been applied, the load shall be increased continuously and at a rate of approximately +0.5 lbf/sec until failure under load occurs. Minimum values of strength are set forth in Art. 2.3.3 assuming a dry sample with an age of min. 28 days. If tests for orientation have to be conducted at an earlier age of the material, the following correction factors may be used for estimating the final 28-days strength (these factors are for estimations only and based on the use of type II Portland cement) :

After 3 days strength x 1.25

After 7 days strength x 1.15

After 14 days strength x 1.08
After 21 days strength x 1.04.

A visual investigation of the broken surface shall show at least 50% of the polystyrene broken rather than separated from their cementitious skins.

This is only applicable for tests done at least 28 days age of the specimen.



Perfect breakage, most beads adhered



Bad breakage, most beads separated from cement

3.2.2 Compressive Strength:

This test is not necessary, if the tensile-bending strength exceeds the values for tensile strength under 2.3.3 5% or more. 3 specimen are taken randomly from production material. The test cubes may either be 4" x 4" x 4" or 6" x 6" x 6". The surfaces perpendicular to the load have to be parallel in order to avoid edge pressure, which will lead to lower failure loads. Preferably the two surfaces where the load will be applied shall be coated with a layer of gypsum approximately 1/4" thick.

The test can be conducted on each suitable testing machine with an accuracy of better 2% of the load applied. The load shall be applied steady and at a rate of +1 lbf/sec after more than 1/2 of the expected failure load has been reached. At an age of 28 days the specimen must show the minimum strength set forth in Art. 2.3.2.

3.2.3 Density:

The density of the Legacy Block, Inc. blocks is a main measure for the insulation of the finished wall. The density must be checked for Legacy Block, Inc. standard blocks. Legacy Block, Inc. end blocks may be manufactured with a higher density to improve rigidity for transportation and handling. Specimen for determination of density will be taken randomly from standard blocks out of production. 3 samples from each standard blocks shall be tested taken from either end and from the center. Samples size shall be 4" x 4" x 4". Samples must be dried to weight

constancy before tested. Scale accuracy shall be better than 1% of the expected weight of the sample.

3.2.4 Bonder Strength:

This test is to ensure proper bonding between the two halves of a Legacy Block, Inc. standard blocks in order to withstand fluid pressure of the concrete poured into the cells. No absolute figure is required but strength "relative" to the surrounding material shall be established. Samples may be taken from any blocks or be particularly prepared using production materials. Samples are cut across the bonding area. The specimen is exposed to bending force with the bonding gap in the area of the maximum bending moment and the bonded surface parallel to the load. The test is positive, if breaking occurs at least 70% outside the bonded area in the Thastyron. The samples shall be taken out of an blocks which met the criteria under 3.2.1.

3.2.5 State of Curing

During the curing of the molded units, the relative humidity of the environment in the curing racks shall be monitored. Additional humidification may be necessary, if the relative humidity falls below 30%. Visual and physical checks shall be made during the curing period, determining the state of curing and humidity on the surface of the molded blocks. Towards the end of the curing time one blocks in each rack shall be checked to determine, if the strength will be sufficient for further processing.

SECTION 4 CALIBRATION OF EQUIPMENT

4.1 PRODUCTION MACHINERY

4.1.1 Scale Systems:

The electronic weighing system interpolates linear when calibration is done. Therefore it is necessary to load the scale container to as close as possible to its max anticipated weight. The test weight should be, however, a minimum of 50% of the weight of linearity to be achieved. The test weights shall be evenly distributed on the scale and the procedure followed as lined out in the scale manufacturer's operator's manual. Test weights shall bear the seal of an official institution authorized to certify and check weights and measures. Scale calibration shall be conducted together with a maintenance cycle of the production machinery once each 25 days of production.

4.1.2 Gauges and Other Devices:

None of the gauges used in production machinery (pneumatic, hydraulic) have a direct influence on the quality of the product, rather on the smooth operation of the

equipment. Therefore, no specific calibration is necessary.

For adjusting the volume of the polystyrene dosing process, a simple box or bucket of known volume will be sufficient. The volume of polystyrene loosely poured into a container varies with humidity and other factors, therefore, there is an error margin which must be accounted for in the mixing design at a given time.

4.2 TEST EQUIPMENT

4.2.1 Scales:

For testing of density done on small samples (4"x4"x4") an adequate accuracy is mandatory. This will be obtained by using (electronic) scales with an overall accuracy of better than 1% and a resolution of 1g (0.022 lbs). The scale shall be reset and tested by loading it with a certified test weight before density testing is performed. Scales used for compression and tensile bending strength shall be tested by loading with a certified test weight of 50% or more of the scale's maximum capacity and accuracy should be within 2%.

4.2.2 Gauges for Compression and Tensile/Bending Test Equipment:

Test benches shall be calibrated in accordance with the manufacturer's recommendations. If an alternative test unit as described in Art. 3.2.1 is used, by which method the force is applied by means of a pneumatic cylinder the gauge has to be calibrated. For calibration, another test gauge may be used, which has been sealed and calibrated by an authorized institution engaged in the calibration of weights and measures. Alternatively, a calibrated load cell can be used and a predetermined pressure be applied in order to check and calibrate the test unit.

4.2.3 Calibration:

Calibration of scales shall take place before each test is conducted. Test weights and pressure gages are to be calibrated and tagged by an authorized calibration body, which is accredited under ISO/IEC 17025. Test weights must be retested before the expiration date of the certificate issued by such body. The execution of a calibration check will be confirmed by the person conducting material testing by signing the appropriate field on the "In House Test Protocol" (Annex 3). The Quality Control Manager is responsible for filing calibration certificates and a list of test equipment used.

ANNEX 1 ORGANIZATIONAL CHARTS

CONTENTS:

Job description of Quality Control Personnel
Organizational Chart Super Muros SA OEM Legacy Block, Inc. Manufacturing Facilities
Juarez Chihuahua Mexico

RESPONSIBILITIES FOR DESIGNATED QUALITY CONTROL PERSONNEL

QUALITY CONTROL AUTHORITY (Company):

Administration and coordination of information between various licensees on national and international level. Setting product standards for raw materials, production, application, and marketing. Administer testing and evaluation of product and communicate with testing and approval agencies. Control quality standards of plants and licensed product in accordance with license contracts. Consulting to managers of Legacy Block, Inc. Plants. Licensor appoints a Chief Quality Control Administrator to fulfill these duties.

PLANT MANAGER:

Also observes the duties of a Quality Control Manager. He administers coordination of all operative areas of the plant and is the ultimate responsible for quality and reporting issues to Licensor, auditors, and code agencies.

CONTROL AND SYSTEMS MANAGER:

Also observes duties of Quality Control Supervisor. Supervision of control and automation systems of the production line. Provide field data for program maintenance in such systems including calibration of systems. Provide and supervise maintenance schedule. Maintenance of software. Supervise plant operation as assistant to the Regional Manager for specific plant.

PRODUCTION OPERATION MANAGER:

Organize operation of production line in compliance with standards of efficiency and product quality. Optimize performance of machinery regarding cost and profitability. Assist in maintenance. Responsible for in-house quality control of the plant. Management of related areas such as warehouse, maintenance production. Provide reports of production, quality control and inventory. Reception of raw materials. Inspection of product during manufacturing process.

WAREHOUSE SUPERVISOR:

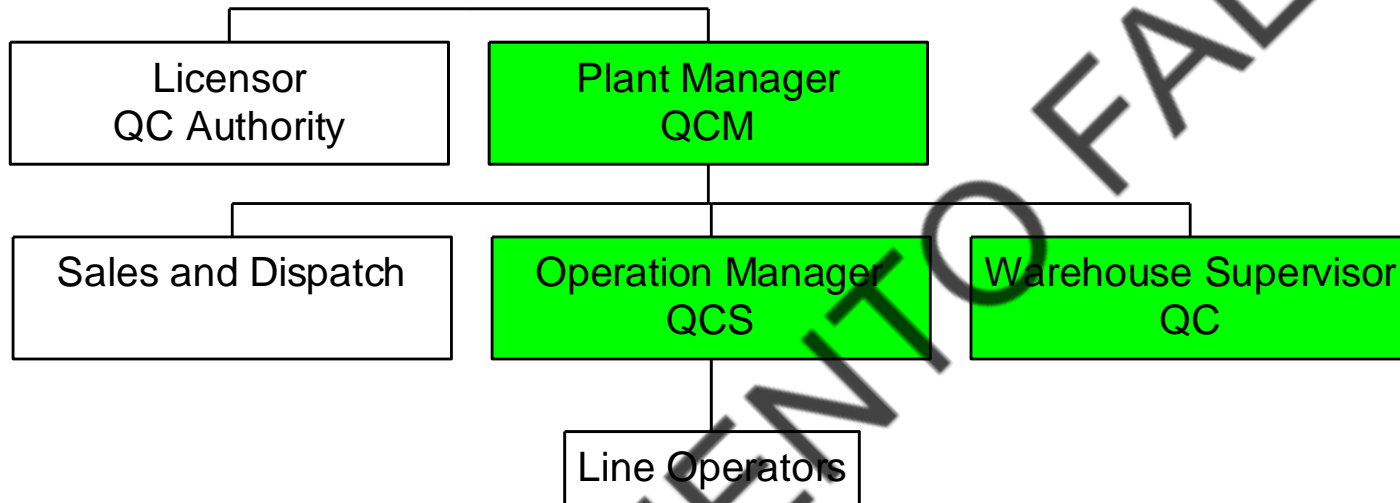
Maintain orderly storage of raw materials and finished product. Manage shipment and loading of finished product. Keep inventory reports current. Supervises pre-shipment quality control.

QUALITY CONTROL INSPECTOR:

Continuous quality control checks throughout manufacturing and in the warehouse. Conducting material testing. Administer all records related to quality control.

ORGANIZATIONAL CHART

Super Muros SA OEM Legacy Block, Inc. Manufacturing Facilities Juarez Mexico



QCM = Quality Control Manager

QCS = Quality Control Supervisor

QC = Quality Control Inspector and other personnel performing quality control tasks

ANNEX 2 PRODUCTION FLOW CHARTS

CONTENTS:

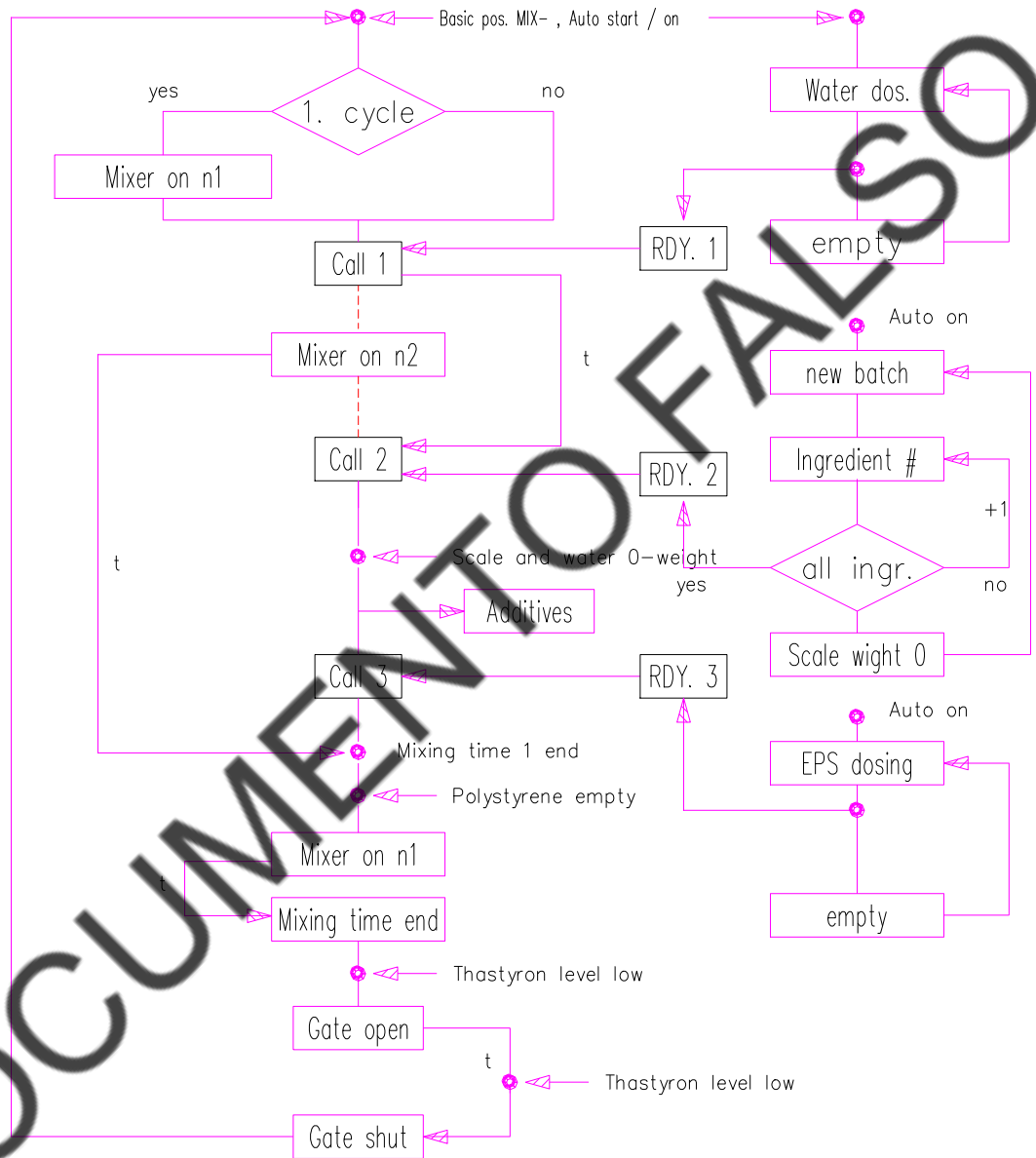
7 Pages:

Mixing Unit

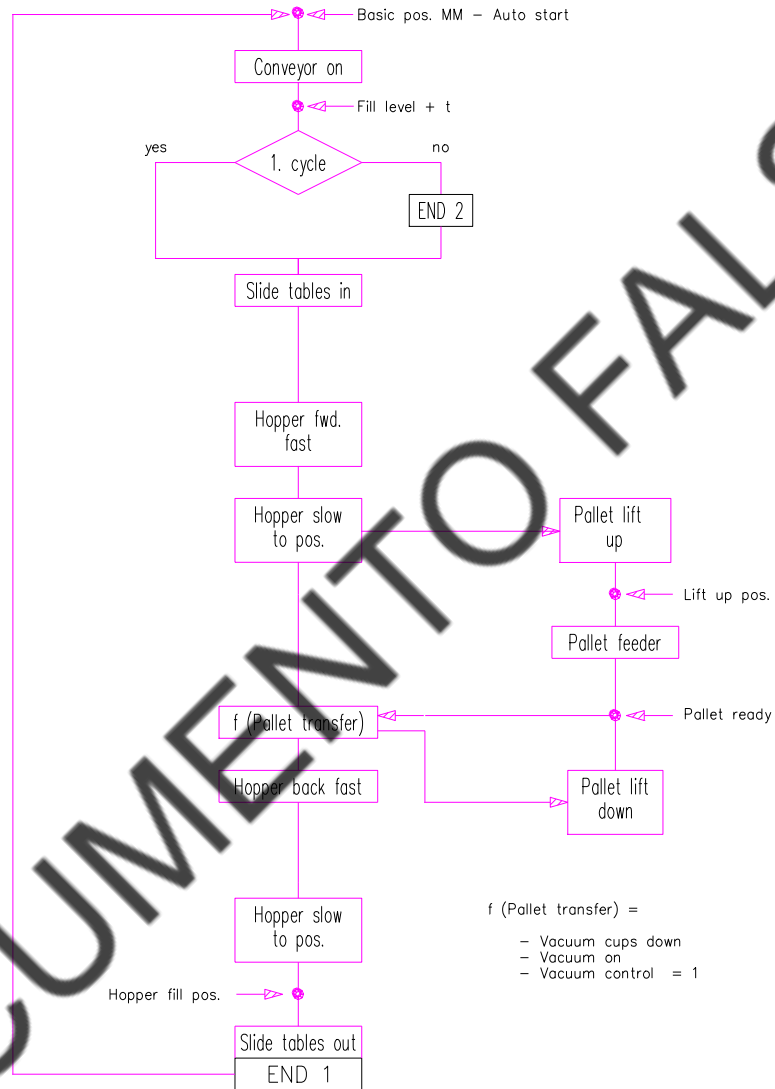
Molding Machine Dosing Hopper
Molding Machine Press Cycle

Tooling Center Cross Transport and Top Cut
Tooling Center Bonding Cycle and Side Cut
Tooling Center Length Cut and Piling Unit

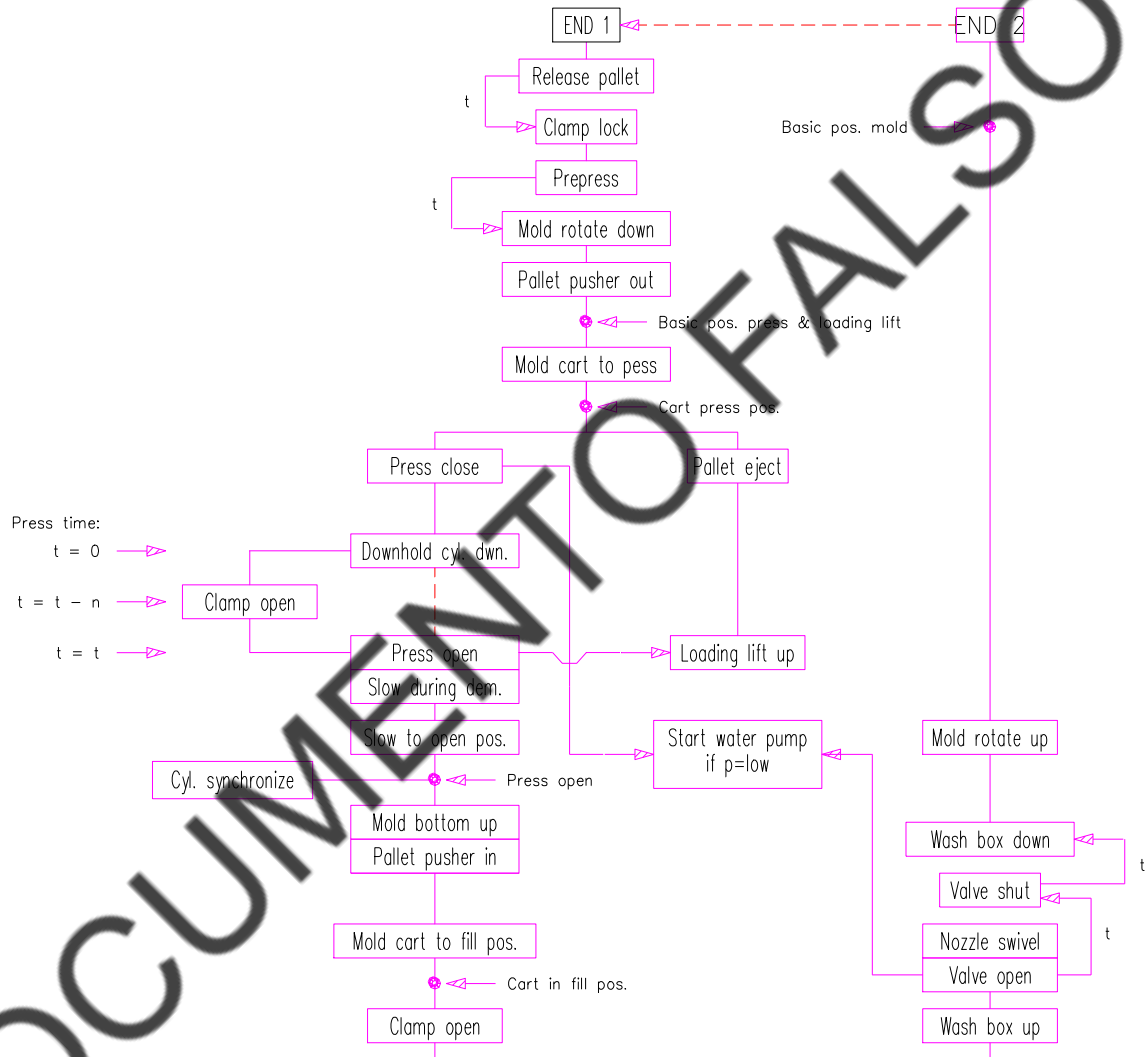
FLOW DIAGRAM MIXING UNIT



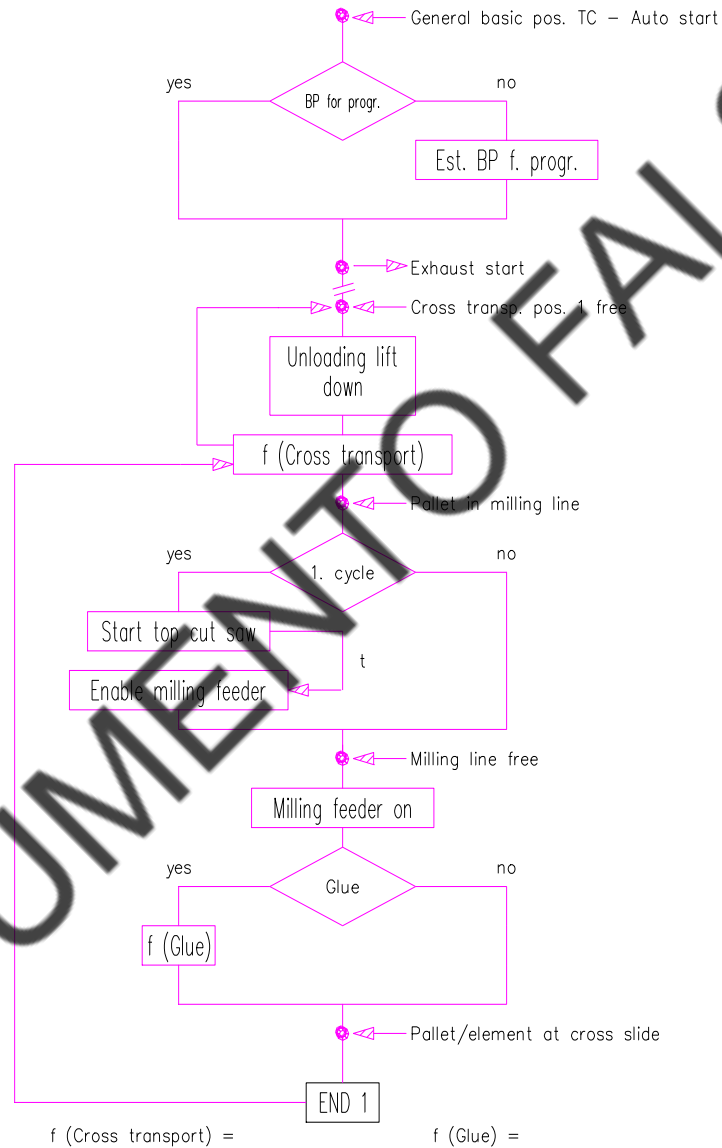
FLOW DIAGRAM
MOLDING MACHINE: Loop 1 – Dosing Hopper



FLOW DIAGRAM
MOLDING MACHINE: Loop 2 – Press Cycle



FLOW DIAGRAM TOOLING CENTER: Loop 1 – Cross Transport – Milling Line

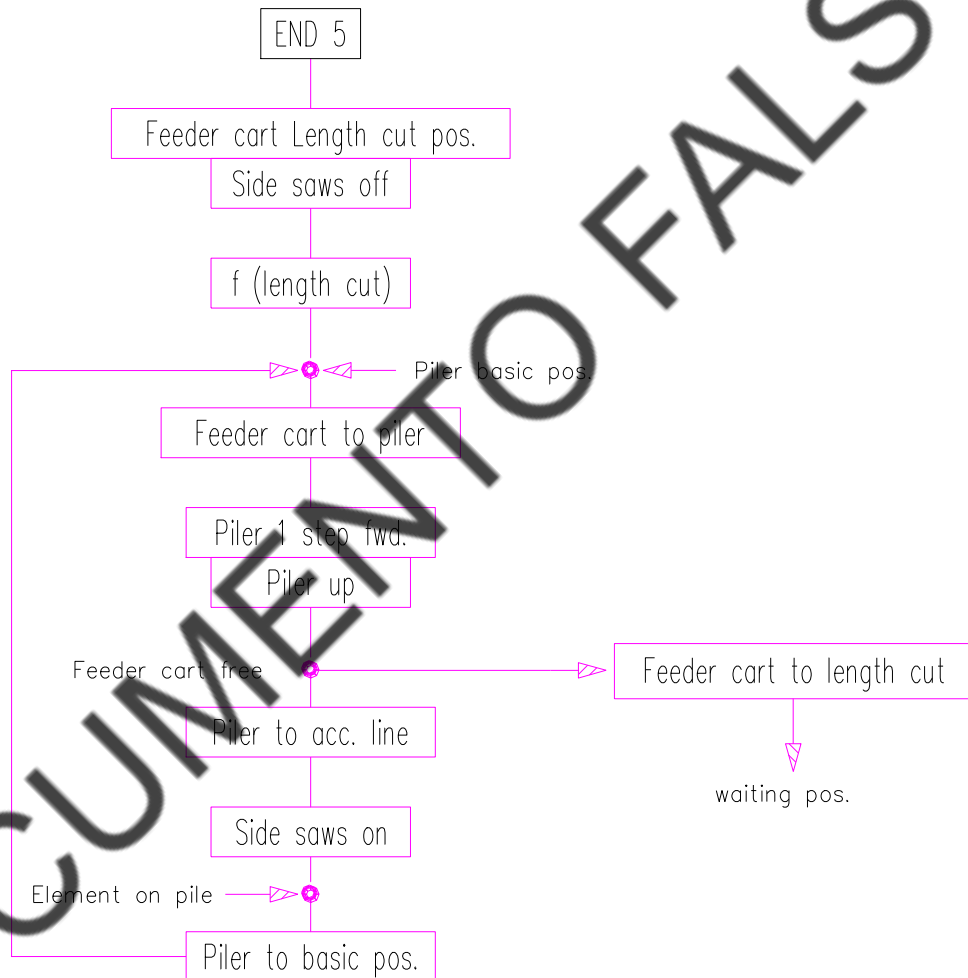


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    END1[END 1] --> D1{Elem. on pallet}
    D1 -- yes --> D2{Type}
    D1 -- no --> END2[END 2]
    D2 -- Standard --> S1[Cross slide fwd.  
Cross slide back]
    S1 --> D3{n-half}
    D2 -- n-half --> D3
    D2 -- even --> S2[Manip. dwn. 2  
Vacuum off  
Elem. in piling unit  
Manip. up  
Saws on  
Feeder card fwd.]
    D3 -- odd --> D4{1. cycle}
    D3 -- even --> S2
    D4 -- yes --> S3[Vac-ventil. on]
    D4 -- no --> S4[Vacuum on  
Manipulator up  
Manip. rot. dwn.  
Feeder cart to manip..]
    S3 --> S4
    S4 --> END3[END 3]
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    S2 --> S5[Feeder cart to manip.  
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    S5 --> END5_188[END 5]
    S5 --> END5_189[END 5]
    S5 --> END5_190[END 5]
    S5 --> END5_191[END 5]
    S5 --> END5_192[END 5]
    S5 --> END5_193[END 5]
    S5 --> END5_19
```


FLOW DIAGRAM

TOOLING CENTER: Loop 3 – Length Cut – Piling Unit



ANNEX 3
INHOUSE QUALITY CONTROL; TEST PROTOCOL
PLANT IDENT _____

1. SAMPLE

DATE		TYPE				#	POS. of SAMPLE		
manuf.		std.	end	flat	other	1	left*	center	right
Tested		81/2"	10"	12"	14"	2	left	center	right
Age		other				3	left	center	right

*left position is start of filling hopper of molding machine

2. BONDING

Break %	
glue	Thast

3. TENSILE BENDING STRENGTH

TEST SAMPLES 4"x4", supported at 10" DISTANCE, LOAD IN CENTER

#	FAILURE LOAD	AGE FACTOR	STRENGTH**	APPEARANCE of BROKEN SURFACE	OK y/n
1	lbs x 0.236	x 1.	psi		
	psi* x 0.713				
2	lbs x 0.236	x 1.	psi		
	psi x 0.713				
3	lbs x 0.236	x 1.	psi		
	psi x 0.713				

*load can be measured in psi by using a 50 mm DIA pneumatic cylinder to apply the load;

** calculated strength shall be ≥ 43 psi for 10" thick blockss, ≥ 36 psi for 12", and ≥ 32 psi for 14" thick blockss respectively.

4. COMPRESSIVE STRENGTH (not necessary if tensile-bending strength is >5% above minimum)

TEST SAMPLES 4"x4"x4"

#1		#2		#3		OK y/n
FAILURE LOAD	STRENGTH*	FAILURE LOAD	STRENGTH	FAILURE LOAD	STRENGTH	
lbs/17	psi	lbs/17	psi	lbs/17	psi	

*calculated strength shall be ≥ 56 psi, for thickness >10" -10%, for >12" -15% is permissible

5. DENSITY

TEST SAMPLES 4"x4"x4"

#1		#2		#3		OK y/n
WEIGHT	DENSITY*	WEIGHT	DENSITY	WEIGHT	DENSITY	
lbs x 27	lbs/cuft	lbs x 27	lbs/cuft	lbs x 27	lbs/cuft	

* density 20 to 24

(on backside of document)

CALIBRATION OF EQUIPMENT CONDUCTED AND FOUND WITHIN TOLERANCE

BY _____ SIGNATURE _____

DATE _____

TEST CONDUCTED

BY _____ SIGNATURE _____

DATE _____

REVIEWED BY MANGEMENT

BY _____ SIGNATURE _____

DATE _____

DOCUMENTO FALSO

RAW MATERIAL RECEIVING REPORT

MATERIAL RECEIVED

DATE: _____ BY: _____ SIGNATURE: _____

MATERIAL CHECKED

DATE: _____ BY: _____ SIGNATURE: _____

TYPE OF MATERIAL

DESIGNATION: _____

SUPPLIER: _____

AMOUNT: _____

PRODUCTION DATE: _____ USE BEFORE: _____

TYPE NUMBER PER SHIPPING PAPERS: _____

TYPE NUMBER PER LABELS: _____

IS SUPPLIER APPROVED: YES ☐ NO ☐ DATE OF LAST RESURVEY: _____

CERTIFICATES ENCLOSED (list all or N.A.): _____

MATERIALS REJECTED: YES ☐ NO ☐

REASON FOR REJECTION: _____

REVIEWED

BY: _____ DATE: _____ TITLE: _____

ANNEX 5

Legacy Block, Inc.
Administration Offices
5401 S Kirkman Road, Suite 310
Orlando, FL 32819

NON CONFORMANCE REPORT

THIS REPORT HAS BEEN FILED BECAUSE:

MORE THAN 30 BLOCKS HAVE BEEN REJECTED IN ONE SHIFT ☐

PROBLEMS HAVE BEEN MONITORED IN PRODUCTION ☐

DATE REJECTED: _____ BY: _____

DATE PRODUCED: _____ SIGNATURE: _____

TYPE OF BLOCKSS: _____

NUMBER REJECTED: _____

REASON FOR REJECTION (CHECK AS MANY AS APPLICABLE AND EXPLAIN UNDER REMARK):

Strength ☐ Dimension ☐ Shape ☐ Molding ☐ Glue ☐ Weight ☐ Other ☐

FURTHER EXPLANATION:

SUGGESTED MEASURE, IF ANY:

REVIEWED BY: _____ DATE: _____ TITLE: _____

ACCEPTED BY.: _____ DATE: _____ TITLE: _____

PRODUCTION ACCEPTANCE REPORT

Date: _____

Element Size: _____

Element Size: _____

HOUR	MIXING WEIGHT AVERAGE	PRODUCTION QUANTITY MOLDING PROCESS	REJECT QUANTITY MOLDING PROCESS		PRODUCTION QUANTITY TOOLING PROCESS	REJECT QUANTITY TOOLING PROCESS	
			SECOND Q.	SCRAP		SECOND Q.	SCRAP
6:00							
8:00							
10:00							
12:00							
14:00							
16:00							
18:00							
20:00							
22:00							
0:00							
TOTAL							

Date of last calibration: Scale Water Polystyrene

	CEMENT	LIME	POLYURETHANE	FORM OIL	BINDER	No. LABELED ELEMENTS	
INITIAL						GREEN LABEL	
INV.							
FINAL						RED LABEL	
INV.							
TOTAL						CROSS LABEL	
						TOTAL	

- Rem.: 1. If more than 30 elements rejected per shift file Non Conformance Report
2. Label designations: green hold for second inspection
 red out of tolerance
 cross glue, geometric, density, or strength problem

REPORT ISSUED: _____
 Signature

INSPECTION: _____
 Signature

ANNEX 6

LEGACY BLOCK, INC.

DATE of PRODUCTION
INVENTORY NUMBER

DATE of CLASSIFICATOIN

PRODUCT

“A” (“B” or “R”)

INSPECTED BY:

QUANTITY & TYPE:

ANNEX 7

ANNEX 8**LIST OF RAW MATERIAL SUPPLIERS**

MATERIAL	SUPPLIER
Cement	Cemex SA
Lime	N.A.
Polystyrene	Various suppliers
Release agent	Burke, 8521 FM Road 1976, Converse, TX 78109
Additives	Hill Brothers 1675 N. Main St. Orange, CA. 92867
Binder (manual application)	Convenience Products, Touch and Seal, Todol, Legacy Block, Inc R -Foam
Binder (automatic application)	H. B. Fuller Company, 1200 Willow Lake Blvd., St. Paul, MN 55110

ANNEX 9

LIST OF KEY QUALITY CONTROL PERSONNEL

Quality Control Manager

Rev. Date	Name	Start Date	End Date
Init. issue	Eduardo Esperon	July 2017	Current
Review	Susan Seigel	July 2017	Current

Quality Control Supervisor

Rev. Date	Name	Start Date	End Date
Init. issue		since	

Quality Control Inspector

Rev. Date	Name	Start Date	End Date
Init. issue		since	

ANNEX 10

CERTIFICATE

Legacy Block, Inc., of Orlando, Florida is qualified under the Classification and Follow-Up Service of ONNCCE Precast Concrete Units Classified to Fire Resistance Only. Legacy Block, Inc. is therefore authorized to issue this Certificate for shipments of the Precast Concrete Units described below as its representation that the material is manufactured in compliance with the requirements established by Underwriters Laboratories Inc. for this class of product. This Certificate does not indicate proper application or installation of the units and does not apply to other material which may be used at the location specified.

Organismo Nacional de Normalización y
Certificación de la Construcción y Edificación, S.C.

ORGANISMO DE CERTIFICACIÓN
ACREDITADO 09/10
Aprobación de la CONUEE: DG.E00.0532.2015

Otorga el presente

CERTIFICADO
No. NDQ-017-001/17

Con vigencia del 11 de julio de 2017 al 11 de julio de 2018

A LA EMPRESA:
SUPER MUROS, S. A. DE C. V

Producto	<i>Panel de concreto ligero marca Thermo Wall</i>
Densidad aparente:	341,72 kg/m ³ (21,33 lb/ft ³)
Conductividad térmica:	0,077518 W/m·K (0,5374 BTU·in/h·ft ² ·°F)
Permeabilidad al vapor de agua:	0,0116 ng/Pa·s·m
Adsorción de humedad:	% masa 7,85 % volumen 2,75
Norma de referencia:	NOM-018-ENER-2011

El valor de resistencia térmica debe ser calculado por el proyectista.

La cobertura de esta certificación comprende al producto especificado, de cumplimiento con lo establecido en el Anexo Técnico de Certificación AC-07, aprobado por la Comisión Nacional para el Uso Eficiente de la Energía.

El presente certificado es otorgado bajo la clase B y aplica para los productos fabricados en la planta con domicilio en Prolongación Oliver Cromwell No. 2780, Col. Parque Industrial Fernández, C. P. 32270, Cd. Juárez, Chihuahua, evidenciando el cumplimiento de la Norma Oficial Mexicana **NOM-018-ENER-2011 "Aislantes Térmicos para Edificaciones - Características y Métodos de Prueba"**, con base en el informe No. MT-170302 emitido por Polioles, S. A. de C. V., laboratorio de prueba acreditado conforme a la Ley Federal sobre Metrología y Normalización, con No. de acreditación EMA C-142-015/11.





Arq. Evangelina Hirata Nagasako
Directora Ejecutiva

Ciudad de México, a 11 de julio de 2017.

Organismo Nacional de Normalización y Certificación de la Construcción y Edificación, S.C.
Ceres No. 7, Col. Crédito Constructor, Del. Benito Juárez, C.P. 03940 Ciudad de México www.onncce.org.mx

Legacy Block, Inc.
Administration Offices
5401 S Kirkman Road, Suite 310
Orlando, FL 32819

ANNEX 11

INTERNAL FACILITY AUDIT REPORT

FACILITY:		QC REPRESENTATIVE of FACILITY:	
DATE		NAME OF AUDITOR:	
START TIME			
END TIME		AUDIT TYPE:	

AUDIT SUBJECTS

	Audited /OK	Not Audited	See Notes
1. QUALITY PROGRAM:			
a. Are production personnel trained in the requirements of the QA program?			
b. Are quality concerns and suggestions for improvements from production personnel accepted and reviewed by management?			
c. Do production personnel or internal quality control inspectors have the authority to halt the manufacturing process or withhold products when necessary?			
d. Are the QC data reviewed to identify any problems or potential improvements to the product design or manufacturing process?			
e. Are in the experience of the QC personnel any procedures in the QC manual inadequate or are any changes of the procedures or the scope or lay out of the tables being proposed?			
f. Are the lists for certified suppliers and names of QC personnel in the QC manual complete and up to date?			
2. DOCUMENT CONTROL:			
a. Do production personnel ensure that they are working to the correct specification(s) and drawing(s) for each batch of product?			
b. For each batch (or series of) of product, are records kept so that there is a full traceability to: 1. All raw materials used in production? 2. All inspection results?			
c. Are manufacturing procedures reviewed periodically to ensure that they accurately reflect accepted industrial practices and the fabrication process as it occurs in the shop, including necessary safety precautions?			
d. Are all production personnel informed of revisions to specifications, drawings, and procedures in a timely fashion?			
3. MANUFACTURING PROCESS:			
a. Are all production personnel adequately trained and qualified for the tasks they are required to perform?			

b. Do production personnel adhere to fabrication procedures for all tasks?			
c. Are the tools and equipment used in production appropriate for their use?			
d. Are all tools and equipment maintained on a regular basis, and are required calibrations performed according to the supplier's recommendations?			
e. Is the production machinery full functioning and in a condition to guarantee safety of operation and operators?			
4. MATERIAL HANDLING:			
a. Have suppliers been reviewed to ensure that they maintain an adequate quality control program and that their product is consistently appropriate for use in the manufacturing process?			
b. Are incoming shipments of raw materials or components examined for compliance with the purchase order?			
c. Are raw materials inspected upon receipt and stored according to the supplier's recommendations?			
d. Is there a mechanism in place to prevent material that has not been inspected from being used in production?			
e. Do material inspection records clearly indicate the reason for failures and the disposition and are rejected materials stored separated from the rest of the lot?			
f. Is access to stock rooms and storage areas restricted to authorized personnel?			
5. HANDLING NON-CONFORMANCES:			
a. Are non-conforming materials or products segregated from similar items and clearly marked to prevent their accidental improper use or shipment?			
b. Are non-conforming items thoroughly inspected to determine if they are to be sold as "B" quality or discarded?			
c. In case of shipment of non-conforming materials for non-code applications, is there a clear remark on delivery documents that the material does not conform to ICC/UL standards?			
6. PERSONNEL TRAINING:			
a. Does the basic training program cover all necessary topics including safety precautions?			
b. Is a mechanism to test production staff's technical competence in place?			
7. FACILITY INSPECTION:			
a. Is the production area clean and appears the equipment well maintained?			
b. Are areas where there is a potential of accidents secured?			
c. Is access to storage area for spare parts limited to certain personnel and are parts clearly marked with their specification?			
d. Are all QA tasks required in the QC manual and to be executed during the production process followed by the personnel?			
e. Are the dimensions taken of minimum 10 randomly chosen products in the storage yard all within tolerance?			
f. Are products stored to reach at least 85% strength before they are shipped (about 7 days or more after production)?			
g. Is access for general public restricted to insure all non-disclosure requirements and to avoid any liability problems?			

Add Notes on separate pages as required.

This report and all notes to be signed by representative of facility and auditor.

ANNEX 12

LIST OF REVISIONS

[illegible]

ANNEX 11

ACCREDITATION OF AUDITOR

The undersigned representative of ONNCCE confirms that they accept to serve as a third party auditor for the manufacturing facility covered by this Quality Control Manual under File number MT 170302.

ONNCCE has received and reviewed a copy of this manual and found that it complies with acceptance criteria for quality control manuals.

By: _____

July 11, 2017

Date _____