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FBR DRY-STACK CONCRETE MASONRY SYSTEM
PRECISION GROUND CONCRETE MASONRY UNITS WITH POLYURETHANE ADHESIVE
NOT RATED FOR IMPACT RESISTANCE
VALID FOR USE INSIDE AND OUTSIDE THE HVHZ (SEE LIMITATIONS HEREIN)

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

DECEMBER 21, 2023

FRANK L. BENNARDO LICENSE No 0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER SIGNED: &[Date]

Digitally signed by Frank Bennardo
Date: 2023.12.22 15:22:42 -05'00'

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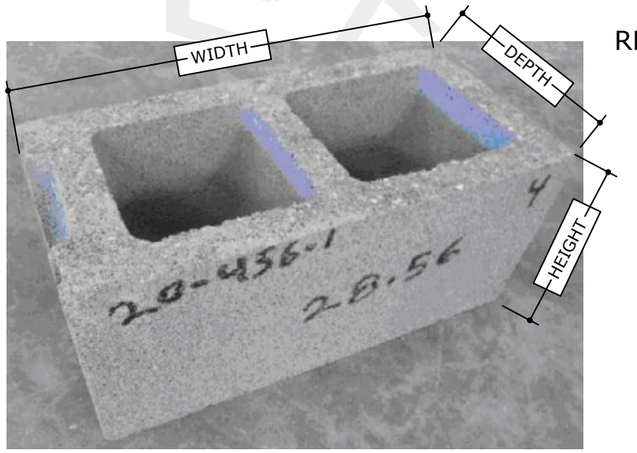
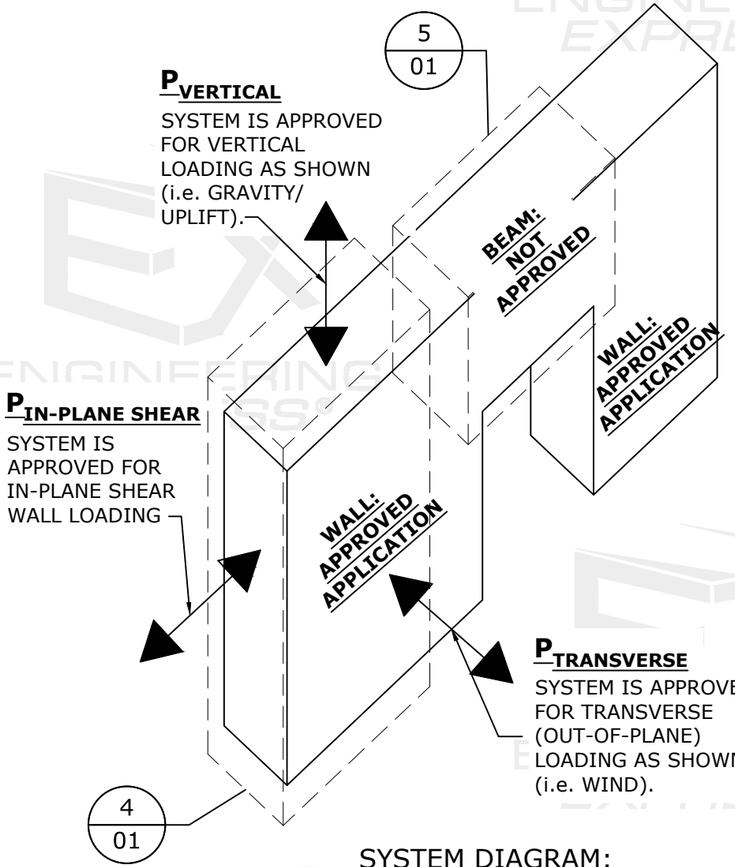
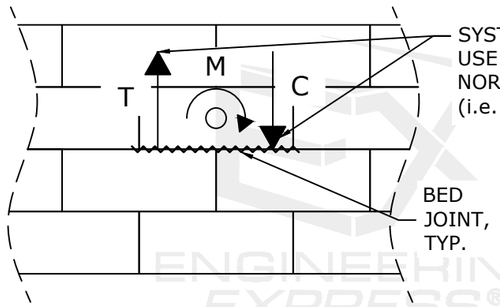


1/01 SAMPLE CELL: CONCRETE MASONRY UNIT (CMU), TYP.
NOT TO SCALE — ISOMETRIC VIEW

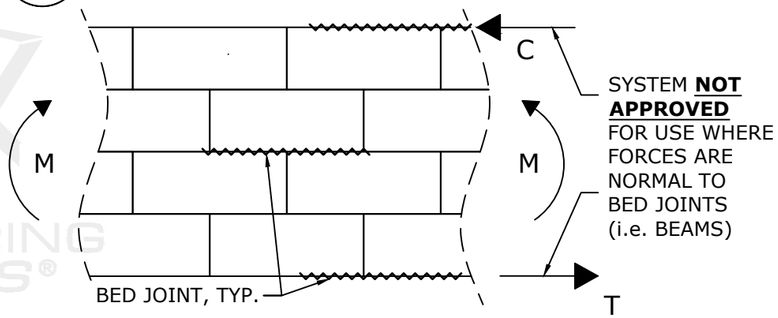
2/01 SAMPLE SYSTEM: CMU WALL WITH FBR ADHESIVE
NOT TO SCALE — ISOMETRIC VIEW



3/01 SYSTEM DIAGRAM: APPROVED LOADING
NOT TO SCALE — ISOMETRIC VIEW



4/01 LOADING NORMAL TO BED JOINTS (WALL APPLICATION): APPROVED
NOT TO SCALE — DETAIL VIEW



5/01 LOADING PARALLEL TO BED JOINTS (BEAM APPLICATION): NOT APPROVED
NOT TO SCALE — DETAIL VIEW

SITE-SPECIFIC DESIGN AND CERTIFICATION SHALL BE BY OTHERS. THIS IS A GENERAL PERFORMANCE EVALUATION ONLY. SEE LIMITATIONS & CONDITIONS HEREIN.

PAGE INDEX

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FOR SITE-SPECIFIC DEVIATIONS & MORE INFORMATION ABOUT THIS DOCUMENT OR SCAN THIS QR CODE:
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FBR DRY-STACK CONCRETE MASONRY SYSTEM
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
FLORIDA STATEWIDE APPROVAL (FSA)

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GENERAL NOTES

1. THE FBR SYSTEM (REFERRED TO HEREIN AS "SYSTEM") IS INCLUSIVE OF THE FBR POLYURETHANE ADHESIVE (REFERRED TO HEREIN AS "ADHESIVE") AND PRECISION GROUND CONCRETE MASONRY UNITS (CMU). ADHESIVE SHALL BE USED ONLY IN CONJUNCTION WITH THE FBR SYSTEM SHOWN HEREIN.

2. THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023). THIS SYSTEM MAY BE USED WITHIN AND OUTSIDE THE HIGH-VELOCITY HURRICANE ZONE (HVHZ)

3. TESTING PERFORMED AND SUMMARIZED HEREIN DEMONSTRATES SYSTEM/ADHESIVE PERFORMANCE PER THE ESTABLISHED CONCRETE MASONRY TEST STANDARDS REFERENCED HEREIN. THE SYSTEM HAS ALSO BEEN DEMONSTRATED TO SATISFY THE REQUIREMENTS OF ICC EVALUATION SERVICE (ICC-ES) AC362 (JULY 2019 ED.) *ACCEPTANCE CRITERIA FOR ADHESIVES FOR MASONRY CONSTRUCTION,* FOR QUALIFICATION AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE M, N, OR S PORTLAND CEMENT/LIME MORTAR, PER THE LIMITATIONS AND CONDITIONS HEREIN.

4. THE SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODES AS IF THE ADHESIVE WERE TYPE M PORTLAND CEMENT/LIME MORTAR, AND SUBJECT TO THE LIMITATIONS AND CONDITIONS HEREIN. THE FBR SYSTEM ADHESIVE CAN BE USED IN LIEU OF TYPE M, N, OR S MASONRY MORTAR. ANY SPECIFIC USE OF THE SYSTEM AS A BUILDING COMPONENT SHALL REQUIRE A SPECIFIC APPROVAL DESIGNATING THE APPLICABLE USE. ALL APPROPRIATE SAFETY FACTORS AND LIMITATIONS SHALL BE CONSIDERED AS APPLICABLE. ESTABLISHED TYPE M PORTLAND CEMENT/LIME MORTAR DESIGN VALUES SHALL BE USED FOR SYSTEM DESIGN/INSTALLATION.

5. THE SYSTEM HAS NOT BEEN TESTED OR RATED FOR FLEXURAL BOND STRENGTH PARALLEL TO THE BED JOINTS (BEAMS). THEREFORE, THE SYSTEM SHALL NOT USE ADHESIVE IN THE HEAD JOINTS OF THE WALL ASSEMBLY AND ARE NOT PERMITTED FOR USE IN BEAM APPLICATIONS. VALID FOR WALL APPLICATIONS ONLY (NORMAL TO BED JOINTS).

6. THE SYSTEM IS NOT APPLICABLE FOR USE AS A SLENDER WALL ASSEMBLY.

7. THE FIRST COURSE OF MASONRY SHALL BE SET INTO A SETTING BED OF CODE-COMPLYING MORTAR APPLIED TO THE CONCRETE FOUNDATION. **USE OF THE FBR ADHESIVE IS NOT PERMITTED BETWEEN THE FIRST COURSE OF MASONRY AND THE CONCRETE FOUNDATION.**

8. DESIGN OF SHEAR WALLS (BY OTHERS) WITH THE SYSTEM SHALL BE IN COMPLIANCE WITH SECTION 2.2 OF THE ACI 530-05/ASCE 5-05/TMS 402-05 EDITIONS (AND EQUIVALENT STANDARDS PER THE APPLICABLE CODES), FOR MASONRY LAID WITH TYPE M, N, OR S PORTLAND CEMENT/LIME MORTAR.

9. THE SYSTEM IS LIMITED TO MASONRY WALL CONSTRUCTION IN SEISMIC DESIGN CATEGORIES A AND B ONLY.

10. THE SYSTEM IS LIMITED TO MASONRY WALL CONSTRUCTION FOR NON-FIRE-RESISTANCE-RATED CONSTRUCTION.

11. USE OF JOINT REINFORCEMENT AND ANCHORS FOR ANCHORED VENEER INSTALLED IN THE BED JOINT IS OUTSIDE THE SCOPE OF THIS CERTIFICATION.

12. USE OF THE SYSTEM ADHESIVE IN PRESTRESSED MASONRY CONSTRUCTION AND IN UNREINFORCED LINTELS IS OUTSIDE THE SCOPE OF THIS CERTIFICATION.

13. DESIGN APPLICATIONS USING THE SYSTEM ADHESIVE IN WALLS SHALL BE CONSTRUCTED WITH VERTICAL CONTROL JOINTS IN ACCORDANCE WITH TEK DOCUMENT 10-2B.

14. SPECIAL INSPECTION SHALL BE PROVIDED FOR INSTALLATIONS UNDER THE CURRENT EDITIONS OF THE INTERNATIONAL BUILDING CODE (IBC) AND INTERNATIONAL RESIDENTIAL CODE (IRC) CONFORMING TO IBC SECTION 1704.

15. FOR USE UNDER THE IRC, THE SYSTEM IS LIMITED TO STRUCTURES ENGINEERED UNDER IRC SECTION R301.1.3.

16. SYSTEM CURING TEMPERATURES SHALL BE ABOVE 40° F (4° C) AND BELOW 100° F (38° C) FOR THE FIRST 24 HOURS FOLLOWING CONSTRUCTION. SYSTEM ADHERED SERVICES SHALL BE FREE OF DUST, GREASE, OTHER CONTAMINANTS, AND STANDING WATER AT THE TIME OF APPLICATION.

17. SYSTEM/ADHESIVE ASPECTS NOT ADDRESSED HEREIN, INCLUDING BUT NOT LIMITED TO: STORAGE LIFE, CURING TIME, BEAD SIZE, ADHESIVE APPLICATION, ETC., SHALL FOLLOW MANUFACTURER-PROVIDED SPECIFICATIONS AND SHALL COMPLY WITH THE MINIMUM REQUIREMENTS STATED IN THE GOVERNING CODES AND STANDARDS.

18. THE SYSTEM DESCRIBED HEREIN SHALL NOT BE USED IN APPLICATIONS WHERE LONG-TERM EFFECTS FROM CREEP (I.E. FLEXURAL TENSILE STRESS) IS A DESIGN CONSIDERATION.

19. THIS SYSTEM IS NOT RATED OR CERTIFIED FOR WATER INFILTRATION RESISTANCE. THE SYSTEM SHALL HAVE AN APPROVED EXTERIOR COVERING (DESIGNED AND CERTIFIED BY OTHERS) TO SHIELD AGAINST WATER INFILTRATION.

20. THIS SYSTEM HAS NOT BEEN DESIGNED FOR MISSILE IMPACT LOADS UNDER ANY CIRCUMSTANCE.

21. UNLESS NOTED OTHERWISE, TEST VALUES LISTED HEREIN ARE AVERAGE VALUES BASED ON ALL SAMPLES TESTED.

22. THE ADEQUACY OF ANY EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS SHALL BE VERIFIED BY THE ONSITE DESIGN PROFESSIONAL AND IS NOT INCLUDED IN THIS CERTIFICATION. THE PERMITTING CONTRACTOR/BUILDING OFFICIAL SHALL VERIFY THAT THE SUBSTRATE IS SOUND FOR INSTALLATION OF THIS SYSTEM.

23. THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.

24. ENGINEER SEAL AFFIXED HERETO VALIDATES MATERIAL COMPLIANCE ONLY. USE OF THIS SPECIFICATION BY MANUFACTURER, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.

25. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.

26. ALTERATIONS OR ADDITIONS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

27. UNITS SHALL BE LABELED IN ACCORDANCE WITH THE FLORIDA BUILDING COMMISSION AND THE FLORIDA DEPARTMENT OF BUSINESS & PROFESSIONAL REGULATION SPECIFICATION AS IS APPLICABLE. (SEE FBC SECTION 1709 FOR REQUIREMENTS).

TERMINOLOGY:

THE FOLLOWING ABBREVIATIONS MAY APPEAR IN THIS APPROVAL:

"ACI" FOR "AMERICAN CONCRETE INSTITUTE", "ASTM" FOR "AMERICAN SOCIETY FOR TESTING AND MATERIALS", "C" FOR "COMPRESSION" OR "CELSIUS" WHERE APPLICABLE, "CMU" FOR "CONCRETE MASONRY UNIT", "ED." FOR "EDITION", "F" FOR "FAHRENHEIT", "FBC" FOR "FLORIDA BUILDING CODE", "FL #" FOR "FLORIDA STATEWIDE PRODUCT APPROVAL #", "FSA" FOR "FLORIDA STATEWIDE APPROVAL", "FT" FOR "FOOT", "HVHZ" FOR "HIGH-VELOCITY HURRICANE ZONE", "IBC" FOR "INTERNATIONAL BUILDING CODE", "ICC-ES" FOR "INTERNATIONAL CODE COUNCIL EVALUATION SERVICE", "IN" FOR "INCHES", "IRC" FOR "INTERNATIONAL RESIDENTIAL CODE", "LB" FOR "POUND", "M" FOR "MOMENT", "N.T.S." FOR "NOT TO SCALE", "PCF" FOR "POUNDS PER CUBIC FOOT (lb/ft^3)", "P.E." FOR "PROFESSIONAL ENGINEER", "PSI" FOR "POUNDS PER SQUARE INCH (lb/in^2)", "T" FOR "TENSION", "TMS" FOR "THE MASONRY SOCIETY", "TYP." FOR "TYPICAL"

VISIT **ECALC.IO/GLOSSARY** OR CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

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TESTING SUMMARIES FOR SYSTEM PERFORMANCE
(CONTINUED ON NEXT PAGE)

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DECEMBER 21, 2023

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TABLE 1: FBR CONCRETE MASONRY UNITS: TESTED PERFORMANCE SUMMARY
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
CMU CELL DIMENSONS (WIDTH x DEPTH x HEIGHT) [in]	NOMINAL: 16 x 8 x 8 TESTED: 15.61 x 7.65 x 7.45	ASTM C140/C140M-17b
DIMENSIONAL VARIATION	0.06 in	ASTM C140/C140M-17b
FACE SHELL THICKNESS	1.28 in	ASTM C140/C140M-17b
WEB THICKNESS	1.23 in	ASTM C140/C140M-17b
NORMALIZED WEB AREA	30.8 in^2/ft^2	ASTM C140/C140M-17b
PERCENT SOLID	53.2%	ASTM C140/C140M-17b
DENSITY	100.6 pcf	ASTM C140/C140M-17b
ABSORPTION	11.5 pcf	ASTM C140/C140M-17b
NET AREA COMPRESSIVE STRENGTH	2970 psi	ASTM C140/C140M-17b
LINEAR DRYING SHRINKAGE	0.038%	ASTM C426-16

NOTE: VALUES ABOVE COMPLY WITH ASTM C90-14 REQUIREMENTS.

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

TABLE 2: FBR CONCRETE BRICK: TESTED PERFORMANCE SUMMARY
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
BRICK DIMENSONS (WIDTH x DEPTH x HEIGHT) [in]	7.63 x 3.58 x 2.25	ASTM C140/C140M-17b
DIMENSIONAL VARIATION	0.05 in	ASTM C140/C140M-17b
PERCENT SOLID	100%	ASTM C140/C140M-17b
DENSITY	131.8 pcf	ASTM C140/C140M-17b
ABSORPTION	9.5 pcf	ASTM C140/C140M-17b
NET AREA COMPRESSIVE STRENGTH	6570 psi	ASTM C140/C140M-17b
LINEAR DRYING SHRINKAGE	0.049%	ASTM C426-16

NOTE: VALUES ABOVE COMPLY WITH ASTM C55-14a REQUIREMENTS.

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

TABLE 3: FBR CMU PRISM COMPRESSIVE STRENGTH
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
PRISM DIMENSONS (WIDTH x DEPTH x HEIGHT) [in]	NOMINAL: 16 x 8 x 16 TESTED: 15.58 x 7.60 x 14.86	ASTM C140/C140M-17b
NET AREA COMPRESSIVE STRENGTH	3160 psi	ASTM C140/C140M-17b
HEIGHT/THICKNESS RATIO	1.95	ASTM C1314-07a
HEIGHT/THICKNESS CORRECTION FACTOR	0.99	ASTM C1314-07a
CORRECTED NET COMPRESSIVE STRENGTH	3130 psi	ASTM C1314-07a

NOTE: VALUES ABOVE COMPLY WITH ASTM C1314-7a REQUIREMENTS. FBR ADHESIVE USED AT INTERFACE JOINT INSTEAD OF MORTAR. PRISM CONSTRUCTED IN STACK BOND.

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

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TESTING SUMMARIES FOR SYSTEM PERFORMANCE (CONTINUED FROM PREVIOUS PAGE)

TABLE 4: FBR ADHESIVE FLEXURAL BOND STRENGTH NORMAL TO BED JOINTS (WALLS): (VARIOUS CONDITIONS)
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
FLEXURAL BOND STRENGTH: MINIMUM JOINT THICKNESS	447 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: MAXIMUM JOINT THICKNESS	182 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: POST-FREEZE/THAW	259 psi	ASTM C1262/ 1262M-98, ASTM C1072-00a
FLEXURAL BOND STRENGTH: POST-HEATING/COOLING	561 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: POST-WETTING/DRYING	452 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: MIN. SERVICE TEMP. (-20°F)	632 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: MAX. SERVICE TEMP. (130°F)	392 psi	ASTM C1072-00a
FLEXURAL BOND STRENGTH: UV EXPOSURE	511 psi	ASTM G151-00 & ASTM C1072-00a

NOTE: MINIMUM JOINT THICKNESS EFFECTIVELY PLACES CONCRETE BRICKS IN CONTACT WITH EACH OTHER. MAXIMUM JOINT THICKNESS FOR FBR SYSTEM IS 0.03".

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

TABLE 5: FBR SYSTEM OUT-OF-PLANE TRANSVERSE LOAD TESTING PERFORMANCE:
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
MAXIMUM LOAD	9140 lb	ASTM E72-02
MAXIMUM BENDING MOMENT	123360 lb-in	ASTM E72-02
MAXIMUM SHEAR	4570 lb	ASTM E72-02
MID-SPAN DEFLECTION AT FAILURE	0.227 in	ASTM E72-02
OUT-OF-PLANE FLEXURAL STRENGTH	382 psi	ASTM E72-02

NOTE: TEST SAMPLE PANELS EACH HAD NOMINAL DIMENSIONS OF 48" WIDE x 104" TALL. PANEL FAILURE MODE DUE TO FLEXURAL TENSION WITHIN THE CONSTANT MOMENT REGION DOMINATED BY UNIT FRACTURE.

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

TABLE 6: FBR SYSTEM DIAGONAL TENSION (SHEAR) TESTING PERFORMANCE:
SEE TABLE FOR RELATED TEST STANDARDS

TEST DESCRIPTION	*TEST VALUE (NOT FOR DESIGN; SEE DIRECTIVE)	TEST STANDARD
MAXIMUM LOAD	22940 lb	ASTM E519/519M-02
NET AREA	190.9 in^2	ASTM E519/519M-02
MAXIMUM SHEAR STRESS	85.0 psi	ASTM E519/519M-02
SHEAR STRAIN	4.15×10^{-4} in/in	ASTM E519/519M-02
MODULUS OF RIGIDITY	203360 psi	ASTM E519/519M-02

NOTE: TEST SAMPLE PANELS EACH HAD NOMINAL DIMENSIONS OF 48" WIDE x 48" TALL. PANEL FAILURE MODE DUE TO STAIR-STEP CRACKING FOLLOWING THE HEAD AND BED JOINTS BETWEEN THE LOADED CORNERS OF THE PANEL (CONSISTENT WITH TYPE M MORTAR PANEL TEST SAMPLE FAILURE).

***DIRECTIVE:** THE TESTING SUMMARIES PROVIDED HEREIN ARE INTENDED ONLY TO DEMONSTRATE THAT THE SYSTEM MEETS THE MINIMUM MATERIAL AND PERFORMANCE REQUIREMENTS FOR USE AS AN ALTERNATIVE TO ASTM C90 CMU WITH TYPE 'M', 'N', OR 'S' PORTLAND CEMENT/LIME MORTAR. **TEST VALUES SHOWN SHALL NOT BE USED FOR SYSTEM DESIGN BY OTHERS.** SYSTEM DESIGN APPLICATIONS SHALL UTILIZE THE ESTABLISHED DESIGN VALUES FOR ASTM C90 CMU AND TYPE 'M' PORTLAND CEMENT/LIME MORTAR PER THE APPLICABLE CODES AND STANDARDS, AND SHALL CONSIDER THE APPROPRIATE SAFETY FACTORS PER THE APPLICABLE CODES AND STANDARDS. SEE HEREIN FOR LIMITATIONS & CONDITIONS.

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