Evaluation Service

PER-11053

Pei **Evaluation Service** is an accredited **ISO Standard 17065** Product Certifier, accredited by the IAS. This **Product Evaluation Report** represents a product that *Pei* **ES** has Evaluated and this product has a Follow-up Service / Inspection Agreement. This **Product Evaluation Report** in no way implies warranty for this product or relieves **NICHIHA USA INC** of their liabilities for this product. This **PER** is an official document if it is within one year of the initial or re-approval date.

Initial Approval
October, 2012

Re-Approved
August, 2018

See all Pei **ES** *Listings at: www.p-e-i.com*

Report Owner

Nichiha USA Inc.
6465 E. Johns Crossing, Suite 250
Johns Creek, GA 30097

Product

KuraStone™ StackedStone
KuraStone™ LedgeStone

Approved Manufacturing Locations

Nichiha Decoration BM Co. Ltd.
No. 321 Wa Shan Road
Jiaxing, China 314201

Evaluation Report Information

http://www.nichiha.com/
Nichiha USA Inc. contact:
David Hohenstern - dhohenstern@nichiha.com

General Details

Nichiha KuraStone fiber cement stone products are manufactured at the plant location listed above. This plant location has an approved Q.C. Manual to manufacture these products and is audited periodically by ***Progressive Engineering Inc***. **Nichiha Fiber-Cement Stone Products** are fiber cement stone based cladding products used for both exterior cladding and main wind force resisting systems. **KuraStone** products have a flame spread index rating of 0 and a smoke developed index rating of 0.

Nichiha KuraStone fiber cement stone products have been tested and evaluated for structural strength, non-combustibility, water penetration and surface burning characteristics to meet design loads and requirements of the codes listed under the Code Compliance section of this Listing Sheet.

Product Description

KuraStone, a fiber cement stone product that is 1-3/8" thick, 6" high and is available in three (3) different lengths of 10-1/4, 15-3/8", and 25-5/8". **KuraStone** is used as an exterior cladding product and can be installed over braced wood or steel stud applications. **KuraStone** StackedStone is available in two (2) color options; Desert and Mountain. **KuraStone** LedgeStone is available in one (1) color option, Buff. Both StackedStone and LedgeStone have outside corner pieces with a 6-1/2" leg and 13" leg. Packaging comes in bundles consisting of three (3) large, two (2) **medium** and two (2) small pieces. **KuraStone** Sill-Chiseled is available in Gray or Tan and is packaged with six (6) 23-5/8" pieces per pack.

KuraStone pieces are designed with no dedicated top or bottom so that the pieces can be flipped for random patterns. The **KuraStone** wall pieces feature grooves on four (4) sides so that the clips and starter track can be inserted to any side. **KuraStone** Sill-Chiseled is grooved top and bottom.

KuraStone clips, starter track and spacers can be used with all **KuraStone** pieces. The **KuraStone** clips can be used horizontally or vertically. **KuraStone** Sill-Chiseled is pieces have dedicated clips included in packaging.

Building Code & Standard Compliance

2012 & 2015 International Residential Code® (IRC)		2012 & 2015 International Building Code® (IBC)	
Section R104.11	Section R104.11.1	Section 1403.2	Section 1404.10
Table R301.2(2)	Table R301.2(3)	Section 1405.2	Section 1405.16
Section R703.2	Section R703.10.1	Section 1405.17	

- Non-combustible core when tested in accordance with ASTM E136-12 and CAN4-S114-05.
- Surface Burning Characteristics - Flame Spread 0 / Smoke Development 0 when tested in accordance with ASTM E 84.
- Meets or exceeds the requirements of ASTM C 1186 Standard Test Method for Flat Non-Asbestos Fiber Cement Sheets for Type A Grade I products as tested in accordance with Test Method ASTM C1185.

General Product Usage and Limitations

1. These products shall be installed in accordance with the requirements of **Nichiha's** Installation Instructructions.
2. KuraStone must be installed over minimum 7/16 Performance Category APA Rated OSB or Plywood with #8x3/4" pan head screws. Wood structural panel sheathing shall be installed over wood or steel wall studs spaced at 16-inches on center or less, but connection of the wood structural panel to the wall studs and overall framing/bracing design is outside the scope of this **PER**.
4. Weather resistive exterior wall envelopes shall be used in accordance with IBC Section 1403.2.
5. Water resistant barriers (WRB) are required when installing **KuraStone**. The WRB should be a code approved barrier covered with a 15-lb. black felt or a code approved dark fluid applied WRB as defined by the Section 1404.2 of the 2015 IBC and Section 703.2 of the 2015 IRC.
6. All openings must have appropriate flashing to prevent moisture penetration.
7. These products may only be installed on vertical walls and are not intended for use on roofing applications.
8. KuraStone must be stored in a covered area and kept dry. It must be stored flat and off the ground prior to installation.
9. Corrosion resistant screws such as stainless steel or hot-dipped galvanized wood screws must be used to fasten clips to the sheathing. Do not use **NAILS** for fastening **KuraStone** pieces.
10. For any gaps that require filling with a sealant follow manufacturer's installation instructions.

Tested to

ASTM E 84-03 - Standard Test Method for Surface Burning Characteristics of Building Materials.
ASTM E 330-02 - Standard Test Methods for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
ASTM C1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles and Clapboards.
ICC-ES AC90 (2004) - Acceptance Criteria for Fiber Cement Siding Used as Exterior Wall Siding
ASTM G155 - Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
CAN4-S114-05 - Standard Method of Test for Determination of Non-Combustibility in Building Materials
ASTM E136-12 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C

Product Labeling

All **Nichiha KuraStone Fiber Cement Stone Products** that are covered by this **PER** must have at least the following information:
1. Brand name and type
2. **Nichiha' s** name and address
3. Date code stamp
4. OSHA compliance ink stamp
5. This **PER** number & *Pei* **ES** Name or logo

Acceptable Evaluation Marks

This information can be provided in one or both of the following ways;
1. Each Board can have this information applied to the back side.
2. A separate skid card with this information applied to each bundle or unit of boards.

Table 1. Physical Properties per ASTM C1186 (Type A, Grade I)

Property	Test Result	Requirement	Pass / Fail
Density lb/ft^3	119.6 lb/ft^3	Report Value	Report Value
Flexural Strength (machine direction)	1370 psi	580 psi (wet/dry)	Pass
Linear Variation w/ Change in Moisture	0.015%	Report Value	Report Value
Water Absoption	9.80%	Report Value	Report Value
Moisture Content	3.86%	Report Value	Report Value
Water Tightness	No drop formation observed	No drop formation	Pass
Surface Burning Characteristics	Flame Spread = 0 / Smoke Developed = 0	Flame Spread = 0 / Smoke Developed ≤ 5	Pass
Freeze/Thaw Resistance Strength Retention Observation	 99% No Visible Cracks or Structural Alteration	 ≥ 80% No Visible Cracks or Structural Alteration	 Pass Pass
Warm Water Resistance	No signs of cracks, delamination & no loss of flexural strength	No visible cracks or structural alteration	Pass
Heat / Rain Resistance	No signs of cracks, damage or structural failure after 25 cycles	No visible cracks or structural alteration	Pass

Table 2. Design Loads for Negative Transverse Wind Load

Fiber Cement Siding	Siding Clip/Fastener	Design Load (psf)
Kurastone™ StackedStone	JE720CA Clip System / #8 x 3/4" Pan Head Screws	**45.2**
Kurastone™ LedgeStone	JE720CA Clip System / #8 x 3/4" Pan Head Screws	**39.2**

Notes:

1. When installing the fiber cement stone panels a minimum 7/16 Performance Category APA Rated OSB or Plywood Sheathing must be installed over walls framing spaced at maximum 16-inches on center.
2. The perimeter of the sheathing must be supported by framing members .
3. **KuraStone** panels may only be installed on vertical walls.
4. Allowable values are for short term wind loads.
5. The values in this table are based on testing per ASTM E330 and represent the ultimate capacity of the sheathing to resist fastener pull-through and/or flexural failure using a 2.5 Safety Factor. The withdrawal resistance of fasteners from framing is different on several factors including but not limited to fastener type, fastener length, and framing properties. The specification of fasteners is the responsibility of the designer of record.
6. Framing and bracing are beyond the scope of this **PER**.
7. The rule used for clip placement is one (1) at each joint, center of the bottom edge of each piece in the next course, and a clip must be located within 3" of the end of a course.

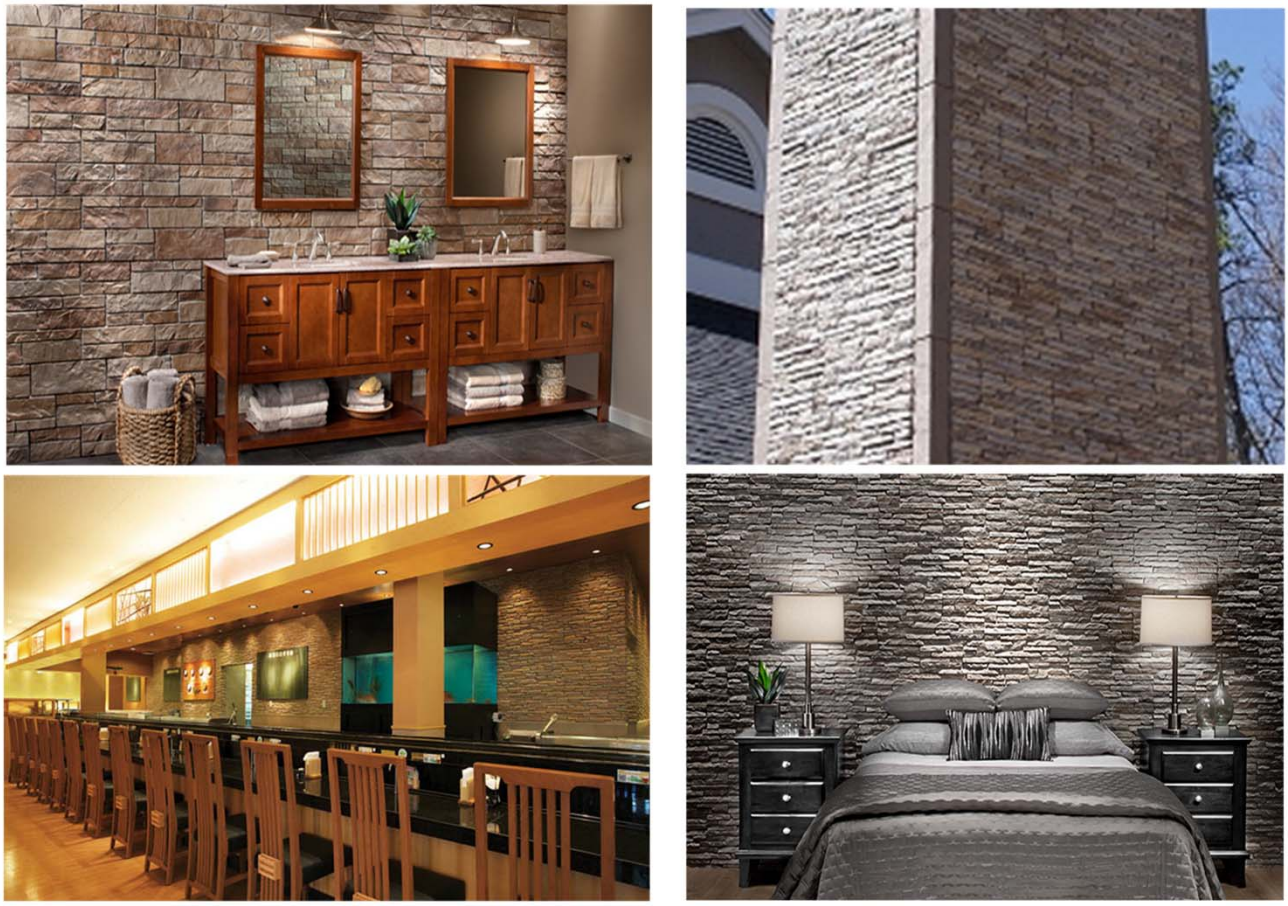

Figure 1 - Typical KuraStone Application

Figure 2 - KuraStone StackedStone

Figure 3 - KuraStone LedgeStone

Figure 4 - KuraStone Outside Corners

Figure 5 - KuraStone Sill Chiseled

Figure 6 - Starter Track / FA700US

Figure 7 - KuraStone Clip / JE720CA

Product Documentation

A Product Evaluation Service Agreement between *Pei* **Evaluation Service** and **Nichiha USA.**
A Follow-up Inspection Service Agreement between *Progressive Engineering Inc.* and **Nichiha USA.**
A Quality System Manual - Dated: 8/2013
Kurastone Installation Instructions - Dated: 6/2017
A SDS sheet for **KuraStone** Series - Dated: 5/15/2017
A report Reference # 8939-122206, Surface Burning Characteristics on **Nichiha KuraStone Fiber Cement Panels** - Dated: November 18, 2004.
A Product Specification Sheet for **KuraStone FlagStone, LedgeStone, Sill-Chiseled & StackedStone**.
A test report No. PEI-022017-1 - ASTM E136-12 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C testing of KuraStone Siding Samples
A *Pei* test report No. 2013-1454 - Evaluation of KuraStone to the Canadian Construction Materials Centre (CCMC) Technical Guide 07 46 46.02 - Dated: 7/14/2016
A *Pei* test report No. 2017-6032 (A) - ASTM E330 Windload Report - Ledgestone - Dated: 7/10/2017
A *Pei* test report No. 2017-6032 (B) - ASTM E330 Windload Report - Stacked Stone - Dated: 7/10/2017