

Collaborating With



Rapid Product Development

Making the Impossible Possible
When Generating Sales is Your Goal

Who Are We & What Can We Do?

- We are a code defined “Approved Source.”
- 4 Professional Engineers
- 7 Degreed Engineers
- 3 Building Code Experts
- Over 70 years of combined experience.
- **Serving your code compliance needs** through the local Building Official as the legal “Approval Authority.”



Why Can We Help You Gain Code Compliance Approval?

- The local Building Official is the code defined “Approval Authority”
- IBC Section 104 & IRC Section R104 supports the concept of using innovative concepts through its alternative materials , design and methods of construction section.
- Code compliance testing is conducted to support Building Official approval.
 - New product approval approach is defined in Chapters 16 & 17 of the IBC.
- Qualtim/SBCRI performs “Approved Source” testing and generates the necessary engineering evaluation.
- SBCRI is an “Approved Agency.”



Some Say Only ICC-ES can Help?



- ICC-ES states clearly in its “Rules of Procedure for Evaluation Reports”
- **1.0 PURPOSE** (quoted as follows)
 - “These rules set forth procedures governing ICC Evaluation Service, LLC (ICC-ES), issuance and maintenance of evaluation reports.....
 - ICC-ES evaluation reports **assist those enforcing model codes** in determining whether a given subject complies with those codes. An evaluation report is **not to be construed as representing a judgment about aesthetics or any other attributes not specifically addressed in the report, nor as an endorsement or recommendation for use of the subject of the report.**
 - Approval for use is the prerogative and responsibility of the Code Official; ICC-ES does not intend to assume, nor can ICC-ES assume, that prerogative and responsibility.”**
- Qualtim/SBCRI is code defined “Approved Source” and SBCRI is a code defined “Approved Agency.”
 - Our desire is to assist in the same manner as the ICC-ES is assisting.



Some Say You Need An ICC AC (Acceptance Criteria) to Comply?



- ICC Evaluation Service, Rules of Procedure for the Evaluation Committee:
- 4.0 ACCEPTANCE CRITERIA (quoted as follows)
 - “4.1. Acceptance criteria are established by the committee to provide a basis for issuing ICC-ES evaluation reports on products and systems under codes referenced in Section 2.0 of the Rules of Procedure for Evaluation Reports. They also clarify conditions of acceptance for products and systems specifically regulated by the codes. Acceptance criteria may involve a product, material, method of construction, or service. Consideration of any acceptance criteria must be in conjunction with a current and valid application for an ICC-ES evaluation report, an existing ICC-ES evaluation report, or as otherwise determined by the Evaluation Committee.”



Some Say You Need An ICC AC (Acceptance Criteria) to Comply?



- Acceptance Criteria are developed by an ICC-ES committee for ICC-ES staff use only.
- They are an aid to ICC-ES staff in the creation of an ICC-ES evaluation report.
- Acceptance Criteria are, in all cases, administrative guidelines.
 - They are not consensus-based standards or specifications.
- An identical approach and concept is used by the evaluation services of IAPMO, ATI, UL and so forth
- Acceptance Criteria are not intended for use by others
 - They are specifically for use by the staff of the organizations that have created them.



ICC-ES Was Created to Assist Market Innovation



- The Qualtim/SBCRI goal is assist market innovation as well.
- Qualtim/SBCRI is code defined “Approved Source” for testing and engineering evaluation.
- SBCRI is a code defined “Approved Agency.”
- **Why should we not be allowed to help an industry innovate where we have solid technical expertise?**



Do We Have the Needed Structural Building Component Expertise?

- We believe we fully understand full scale building testing.
- Maximum Full Scale Testing Area: 30 feet wide x 32 feet high x 90 feet long
- Maximum Single Element Component Test Length: 48 to 50 feet.
- Single Element Compression/Tension Testing Station: 20 feet long, 5 feet wide
- Single Element Lateral Load Station: 4 feet to 20 feet long
- We do it every day.



Do We Have the Needed Expertise?

CERTIFICATE OF ACCREDITATION

ACLASS Accreditation Services

An ANSI-ASQ National Accreditation Board Company

2009 N. 14th Street, Suite 502, Arlington, VA 22201, 877.344.3044

This is to certify that

Structural Building Components Research Institute (SBCRI)
6300 Enterprise Lane
Madison, WI 53719

has been assessed by ACLASS®
and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the field(s) of

TESTING

Refer to the accompanying Scope(s) of Accreditation for
information regarding the types of calibrations and/or
tests/types to which this accreditation applies.

AT-1373

CERTIFICATE NUMBER



ACLASS APPROVAL



Certificate Valid: 02/05/2009-02/05/2011



Do We Have the Needed Expertise?

- Accreditation allows standard testing techniques to be used to assess:
 - Bending
 - Compression
 - Tension
 - Deflection
 - Full-scale systems



AClass Accreditation Services
An ANSI-ASQ National Accreditation Board Company

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Structural Building Components Research Institute (SBCRI)

6300 Enterprise Lane, Madison, WI 53719

Dan Hawk Phone: 608-274-4849

TESTING

Valid to: February 5, 2011

Certificate Number: AT - 1373

I. Construction Materials / Mechanical

ITEMS, MATERIALS OR PRODUCTS TESTED	SPECIFIC TESTS OR PROPERTIES MEASURED	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED	*DETECTION LIMIT/ RANGE/ EQUIPMENT
Building Systems	Compression, Deflections, Tension, & Flexure	ASTM E72, E73, E455, E564, E2127	Load Cells, Actuators, String Potentiometers
Building Elements	Compression, Deflections, Tension, & Flexure	ASTM D4761, ASTM E8	Load Cells, Actuators, String Potentiometers

Notes:

1. * = As Applicable
2. This scope is part of and must be included with the Certificate of Accreditation No. AT-1373

Vice President



Do We Have the Needed Expertise?



- We are involved in code development process since 2000.
- We understand code compliance.
- We've been on the IBC Structural Committee involvement since 2005
- We developed CodeCycle Plus™.



How Do We Accomplish our Work?



- First: Evaluate product concepts.
- Second: Develop test protocols specific to the product application.
- Third: Conduct in situ like testing.
- Fourth: Collect data and undertake an engineering evaluation.
- Fifth: Publish a Technical Evaluation Report (TER) creating design values and assessing code compliance.
- Sixth: Generate sales through the building code approval process.

A Real Life Case Study on How it Works?

- DOW Building Solutions approached us in late September 2010.
- Collectively undertook prototype development.
- Finished prototype and final testing in Mid October 2010.
- A TER was published on October 15, 2010
- Specified by a national homebuilder's engineer in December 2010
- Approved and installed on a project on January 13, 2011
- **Rapid Product Development in only three months!**



October 2010: DOW SIS™ PFH Testing



- DOW SIS used as exterior sheathing.
- Test protocols developed in collaboration with DOW engineers.
- Series of tests run to determine correct hold down and connector combination for code-compliant shear wall strength.

October 2010: DOW PFH Testing



- Each set up was then tested using monotonic loading.
- Pushing system up to six inches, from original position to failure.

October 2010: DOW PFH TER



Technical Evaluation Report

Dow Continuously Insulated Sheathing Series "Portal Frame with Hold-Down" Evaluation (DOW 12.5" CI I-Joist PFH & DOW 15" CI I-Joist PFH)

TER No. 1010-01

The Dow Chemical Company

200 Larkin Center
1605 Joseph Drive
Midland, MI 48674
989/638-8655
www.dow.com

Issue Date: October 15, 2010

Updated: March 29, 2011

Division: 06 – WOOD AND PLASTICS
Section: 06120 – Structural Panels
Section: 06121 – Shear Wall Panels
Section: 06160 – Sheathing

Division: 07 – THERMAL AND MOISTURE PROTECTION
Section: 07210 – Building Insulation
Section: 07270 – Air Barriers
Section: 07280 – Water Resistive Barriers



1. Products Evaluated:

- 1.1. **DOW 12.5" CI I-Joist PFH:** A 12-¹/₂" pier width DOW Continuously Insulated (CI) Portal Frame with Hold-Down (PFH) Double Portal Frame constructed with a 9-¹/₂" wood I-Joist.
- 1.2. **DOW 15" CI I-Joist PFH:** A 14-⁷/₈" pier width DOW Continuously Insulated (CI) Portal Frame with Hold-Down (PFH) Double Portal Frame constructed with a 11-⁷/₈" wood I-Joist.



October 2010 : DOW PFH TER

- The Technical Evaluation Report referenced the applicable code requirements.

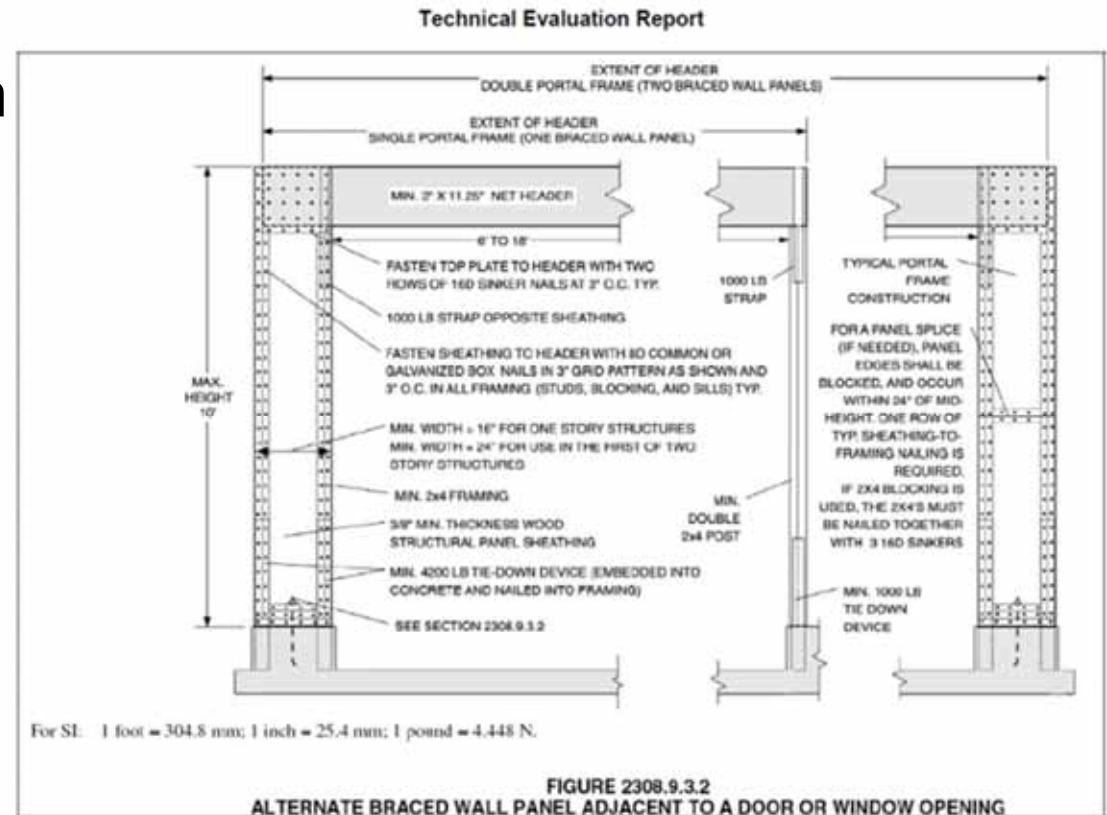


Figure 1: IBC / IRC detail of Method PFH

October 2010: DOW PFH TER

The TER then established how the code-compliance equivalency testing was undertaken.

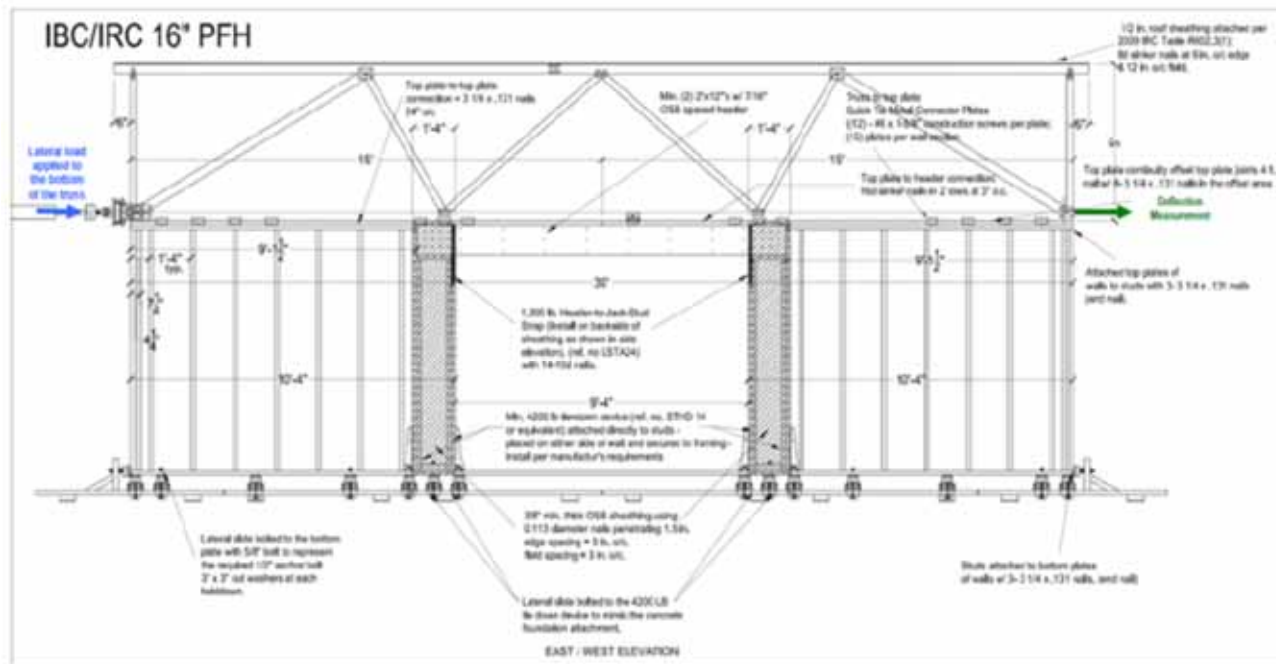


Figure 5: Test Assembly's 30' Braced Wall Line Illustrating Locations of Lateral Load Application & Deflection Measurements

October 2010: DOW PFH TER

- The TER data established the DOW PFH product performed equivalent to the applicable building code requirements.

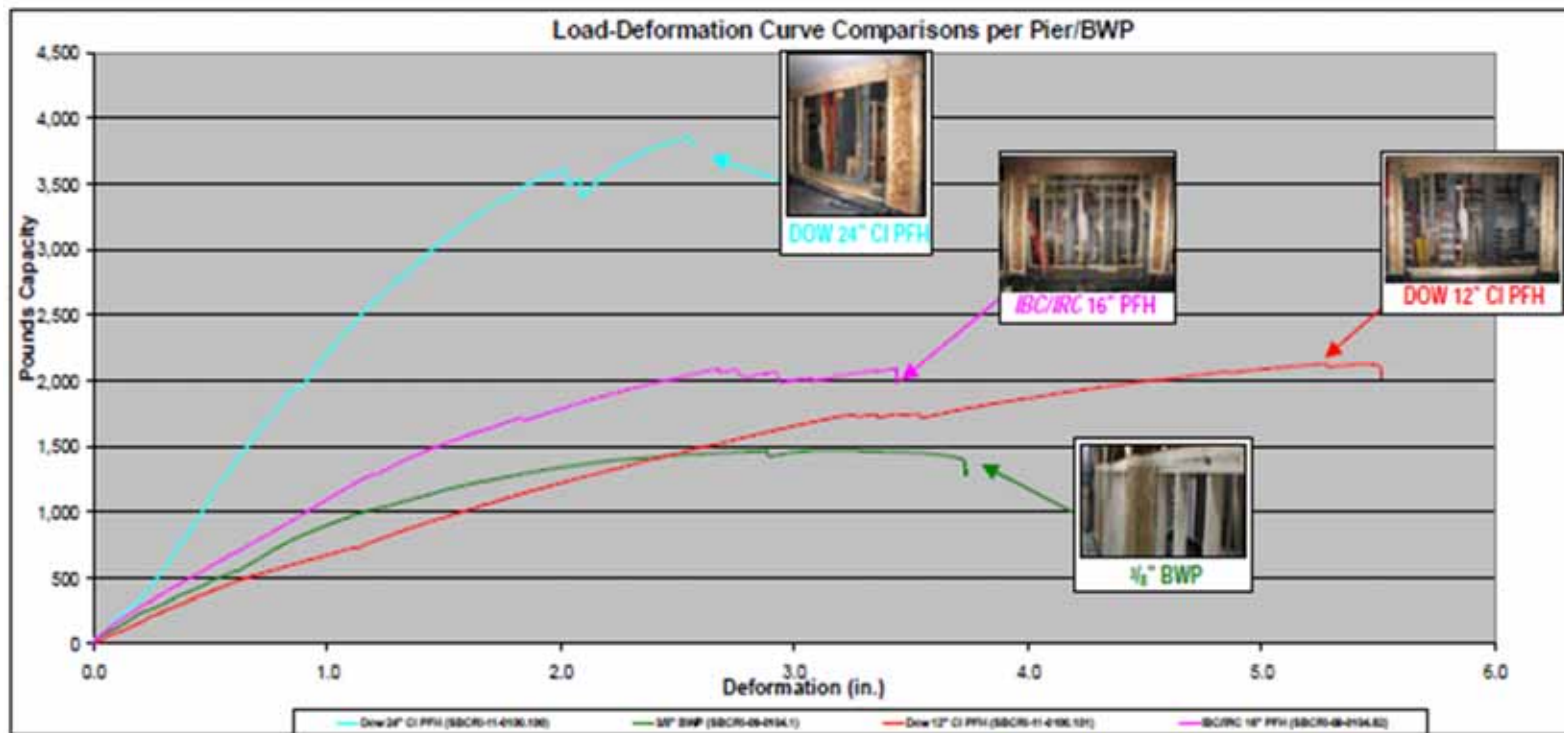
Test Name	Sheathing Material	Fastener Size & Spacing	Total Bracing Width (in)	Tested Ultimate Capacity (lbs)
$\frac{3}{8}$ " BWP ¹²	$\frac{3}{8}$ " OSB	0.113ø nails penetrating 1- $\frac{1}{2}$ "; 6:12	48"	1,468
IBC/IRC 16" PFH ¹³	$\frac{3}{8}$ " OSB	0.113ø nails penetrating 1- $\frac{1}{2}$ "; 3:3	16"	2,093
DOW 12" CI PFH ¹⁴	$\frac{7}{16}$ " OSB & $\frac{1}{2}$ " STYROFOAM™ RS or Dow Sheathing Equivalent	see Figure 2	12"	2,124
DOW 24" CI PFH ¹⁵	$\frac{7}{16}$ " OSB & $\frac{1}{2}$ " STYROFOAM™ RS or Dow Sheathing Equivalent	see Figure 2	24"	3,851

Table 1: SBCRI Test Results Based on SPF Framing



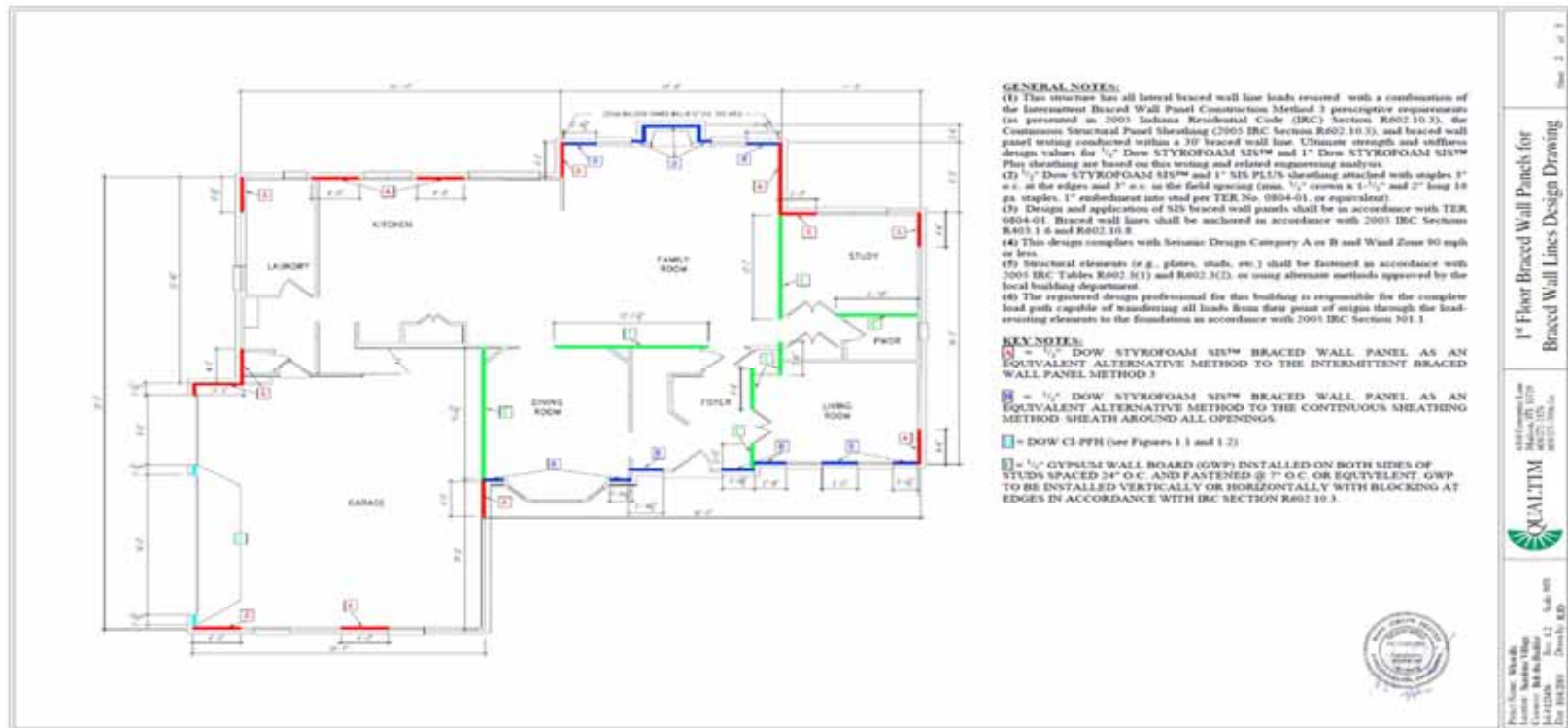
October 2010: DOW PFH TER

Technical Evaluation Report



November/December 2010: DOW PFH and SIS Specification Worked On

- Using the TER, D.R. Horton specified DOW PFH in December



January 2010: DOW PFH and SIS Installed

- The first DOW PFH w/SIS product was installed in January.
- Rapid product development in only three months!

