



Listing

A Duly Authenticated Report from an Approved Agency

Report No: 2302-45



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HWS Composite Sheathing Panel For Use without a Thermal Barrier

Trade Secret Report Holder:

HWS Global

Phone: 844-497-0866

Website: www.hwsglobal.com

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 16 00 - Sheathing

Section: 06 16 13 - Insulated Sheathing

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 21 00 - Thermal Insulation

Section: 07 21 13 - Foam Board Insulation

Section: 07 42 43 - Composite Wall Panels

Section: 07 44 63 - Fabricated Faced Panel Assemblies

Section: 07 48 00 - Exterior Wall Assemblies

1 Innovative Product Evaluated¹

1.1 HWS Composite Sheathing Panel (H-SP) for use without a thermal barrier.

1.1.1 This product has been evaluated and is an alternative material, design procedure and method of construction that is equivalent to all regulations evaluated.

1.1.2 Quality control, third party inspection and installation shall be in accordance with this duly authenticated report and the manufacturer documentation.

1.1.3 The installation instructions shall be made available to the building official to meet the requirement that the building official shall make inspections as set forth in specific regulations the building official is authorized and directed to enforce.

1.1.4 Where this product or its application is not approved the building official shall respond in writing, stating the reasons, and specific regulations, for which the alternative was not approved.

2 Product Description and Materials

2.1 The innovative product evaluated in this report is shown in **Figure 1**.



Figure 1. HWS Composite Sheathing Panels

2.2 H-SP is described in **Table 1** and the UL 1715 tested assembly in **Table 2**.

Table 1. H-SP Description

Composite Assembly	Components	Description	Detail
HWS-Composite Sheathing Panel (H-SP)	HWS Proprietary Laminate	Proprietary carbon-based laminate	$\frac{1}{16}$ " thick laminate with a minimum tensile strength of 12,000 psi ¹
	Foam	Proprietary extruded polystyrene (XPS) foam sheathing	Minimum properties: 1.5 pcf density, 20 psi compressive strength, F_c 50 psi tensile strength, F_t 25 psi shear strength, F_v 50 psi flexural strength, F_b 1,600 psi flexural modulus, MOE Thickness ranges from 1 inch to 8 inches.
	HWS Proprietary Laminate	Proprietary carbon-based laminate	$\frac{1}{16}$ " thick laminate with a minimum tensile strength of 12,000 psi ¹
SI: 1 in = 25.4 mm 1. Per ASTM D638			



Table 2. UL 1715 Tested Wall Assembly Details for use of H-SP without a Prescriptive Thermal Barrier

Composite Assembly	Components	Description of Test Assembly	Test
HWS Composite Sheathing Panel (H-SP)	1. HWS Proprietary Laminate 2. Proprietary XPS foam sheathing 3. HWS Proprietary Laminate	H-SP panels, 8 inches thick, using polycarbonate panel-to-panel connectors and adhesive, were installed on the walls and ceiling in accordance with UL 1715 requirements and the manufacturer installation instructions.	1. A residential pendant sprinkler was installed per NFPA 13 flowing at 13 gallons per minute once activated by the fire. 2. The testing followed the procedures outlined in UL 1715. 3. Testing and test data acquisition performed by an ISO/IEC 17025 accredited laboratory.

2.3 As needed, review material properties for design in **Section 6**.

2.3.1 **Section 6** provides tabulated properties to create end use application solutions, which are to be used in the design of a building structural system that provides a complete load path to meet the requirements for the transfer of loads from their point of origin through all load-resisting elements and connections to the foundation

3 Definitions

3.1 New Materials² are defined as building materials, equipment, appliances, systems, or methods of construction not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.³ The design strengths and permissible stresses shall be established by tests⁴ and/or engineering analysis.⁵

3.2 Duly authenticated reports⁶ and research reports⁷ are test reports and related engineering evaluations that are written by an approved agency⁸ and/or an approved source.⁹

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.U.S.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).¹⁰

3.3 An approved agency is “approved” when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is “approved” when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.¹¹

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB¹² ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce¹³ the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing¹⁴ stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source, with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.¹⁵



- 3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.¹⁶ Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,¹⁷ and can be used in any country that is an MLA signatory found at this link: <https://iaf.nu/en/recognised-abs/>
- 3.9 Approval equity is a fundamental commercial and legal principle.¹⁸

4 Applicable Regulations and Standards for the Listing¹⁹

4.1 Local, State, and Federal

- 4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which include the following featured local jurisdictions and are not limited to: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, Texas Department of Insurance, and Wichita.
- 4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which include the following featured states and are not limited to: California, Florida, New Jersey, New York, Oregon, Texas, Washington, and Wisconsin.
- 4.1.3 *IBC – 18, 21, 24: International Building Code®*
- 4.1.4 *IRC – 18, 21, 24: International Residential Code®*
- 4.1.5 *IECC – 18, 21, 24: International Energy Conservation Code®*
- 4.1.6 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14²⁰ and Part 3280²¹ pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.2 Standards

- 4.2.1 *ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*
- 4.2.2 *ASTM D882: Standard Test Method for Tensile Properties of Thin Plastic Sheeting*
- 4.2.3 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 4.2.4 *NFPA 13: Standard for the Installation of Sprinkler Systems*
- 4.2.5 *NFPA 13D: Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*
- 4.2.6 *NFPA 13R: Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*
- 4.2.7 *UL 1715: Fire Test of Interior Finish Material*

5 Listed²²

- 5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or an approved source (i.e., DrJ), or other organization(s) concerned with product evaluation (i.e., DrJ), that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.



6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 Fire Performance

6.1.1 Surface Burning Characteristics:

- 6.1.1.1 The flame spread and smoke developed index performance of the proprietary H-SP Laminate and proprietary XPS core material is shown in **Table 3**.

Table 3. Flame Spread and Smoke Developed Index¹

Product Description	Flame Spread	Smoke Developed Index	Classification
H-SP Proprietary Laminate	≤25	≤450	Class A
XPS Foam Sheathing	≤25	≤450	Class A
1. Laminate and XPS tested in accordance with ASTM E84/ UL723.			

- 6.1.1.2 H-SP up to 8" thick may be used without a prescriptive thermal barrier, pursuant to the tested performance found in **Table 4**, when sprinklers are installed according to the requirements of the following sprinkler standards:
- 6.1.1.2.1 NFPA 13 Standard for the Installation of Sprinkler Systems
 - 6.1.1.2.2 NFPA 13D Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes
 - 6.1.1.2.3 NFPA 13R Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies
- 6.1.1.3 Testing of H-SP generated the UL1715 test results found in **Table 4**.
- 6.1.1.3.1 UL 1715 is one of three tests permitted by building codes to show that their fire performance is sufficient for use without a prescriptive thermal barrier. These tests are NFPA 286, UL 1715 and FM 4880.
 - 6.1.1.3.2 Use without a prescriptive thermal barrier requires installation of an NFPA 13, 13D or 13R sprinkler system with a minimum flow rate of 13 gallons per minute.

Table 4. UL 1715 Tested Performance of H-SP for Use as Interior Wall and Ceiling Finish Materials without a Thermal Barrier

Component	Maximum Thickness (in.)	Spread of Flames to Ceiling	Spread of Flames to Outer Extremity of H-SP Sheathing	Passes Requirements of UL 1715
H-SP Sheathing	8	No	No	Yes
SI: 1 in = 25.4 mm				

- 6.2 Where the application falls outside of the performance evaluation, conditions of use, and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.



7 Certified Performance²³

- 7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.²⁴
- 7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.²⁵

8 Installation

8.1 *Installation Procedure to Product a Complete H-SP Component*

- 8.1.1 The HWS Global internal quality control, installation manual, installation quality control, and third-party quality assurance oversight is currently being performed on a project by project basis.
- 8.1.2 HWS Global shall provide DrJ the project's quality control, installation manual, installation quality control, and third-party quality assurance oversight for each construction application.

8.2 *Field Installation of Completed H-SP Component*

- 8.2.1 The HWS Global internal quality control, installation manual, installation quality control, and third-party quality assurance oversight is currently being performed on a project by project basis.
- 8.2.2 HWS Global shall provide DrJ the project's quality control, installation manual, installation quality control, and third-party quality assurance oversight for each construction application.
- 8.3 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.
- 8.4 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9 Substantiating Data

- 9.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 9.1.1 Flame spread index in accordance with ASTM E84.
 - 9.1.2 Smoke developed index in accordance with ASTM E84.
 - 9.1.3 Flammability testing in accordance with UL 1715.
- 9.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.
- 9.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.
- 9.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.



9.5 Testing and Engineering Analysis

- 9.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.²⁶

- 9.6 Where additional condition of use and/or regulatory compliance information is required, please search for H-SP on the [DrJ Certification website](#).

10 Findings

- 10.1 As outlined in **Section 6**, H-SP has performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.
- 10.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, H-SP shall be approved for the following applications:
- 10.2.1 Use as an interior finish material
- 10.2.2 Use without a prescriptive thermal barrier up to eight inches thick
- 10.3 Unless exempt by state statute, when H-SP is to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.
- 10.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from HWS Global.
- 10.5 IBC Section 104.2.3 (IRC Section R104.2.2 and IFC Section 104.2.3²⁷ are similar) in pertinent part state:

104.2.3 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

- 10.6 **Approved:**²⁸ Building regulations require that the building official shall accept duly authenticated reports.²⁹
- 10.6.1 An approved agency is “approved” when it is ANAB ISO/IEC 17065 accredited.
- 10.6.2 An approved source is “approved” when an RDP is properly licensed to transact engineering commerce.
- 10.6.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.
- 10.7 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.
- 10.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.³⁰

11 Conditions of Use

- 11.1 Material properties shall not fall outside the boundaries defined in **Section 6**.
- 11.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.



11.3 As listed herein, H-SP shall not be used:

- 11.3.1 As a nail base for claddings, trim, windows, and doors
- 11.3.2 To resist horizontal loads from concrete and masonry walls

11.4 When required by adopted legislation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:

- 11.4.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.
- 11.4.2 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.
 - 11.4.2.1 The HWS Global internal quality control, installation manual, installation quality control, and third-party quality assurance oversight is currently being performed on a project by project basis.
 - 11.4.2.2 HWS Global shall provide DrJ the project's quality control, installation manual, installation quality control, and third-party quality assurance oversight for each construction application.
- 11.4.3 This report and the manufacturer installation instructions shall be submitted at the time of permit application.
- 11.4.4 At a minimum, this innovative product shall be installed per **Section 8**.
- 11.4.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.
- 11.4.6 The application of this innovative product in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.
- 11.5 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3",* all of IBC Section 104, and IBC Section 105.3.
- 11.6 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).
- 11.7 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

12 Identification

- 12.1 The innovative product listed in **Section 1.1** is identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.
- 12.2 Additional technical information can be found at www.hwsglobal.com.

13 Review Schedule

- 13.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.
- 13.2 For information on the status of this report, please contact DrJ Certification.



Notes

For more information, visit drjcertification.org or call us at 608-310-6748.

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702>

Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review <https://www.justice.gov/atr/mission> and <https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706>:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as

The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice.

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706>:~:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2>

https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency

https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source

<https://www.law.cornell.edu/uscode/text/18/1832> (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of \$5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: [Intellectual Property and Trade Secrets](#).

<https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional> AND <https://apassociation.org/list-of-engineering-boards-in-each-state-archive/>

<https://www.cbiteest.com/accreditation/>

<https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104>:~:text=to%20enforce%20the%20provisions%20of%20this%20code

<https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND

<https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#105.3.1>:~:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore

<https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11

<https://iaf.nu/en/about-iaf-mila/#>:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

<https://www.justice.gov/crt/deprivation-rights-under-color-law> AND <https://www.justice.gov/atr/mission>

Unless otherwise noted, all references in this Listing are from the 2024 version of the codes and the standards referenced therein. This material, product, design, service, and/or method of construction also complies with the 2000-2024 versions of the referenced codes and the standards referenced therein.

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14>

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2>(Listed%20or%20certified); <https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed> AND <https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled>

<https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4>

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#>:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20liv

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#>:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#>:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition.

2018 IFC Section 104.9

Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>

Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.