

Wilsonart ® Fire-Rated Laminate Technical Data

1. Manufacturer

Wilsonart International
2400 Wilson Place
P.O. Box 6110
Temple, Texas 76503-6110
Phone: (254) 207-7000; (800) 433-3222
Fax: (254) 207-2384
Web Site: www.wilsonartlaminare.com

2. Product Description

Recommended Uses: Fire-Rated Laminate is recommended for interior application where fire codes specify or the environment suggests a fire-resistant and smoke-resistant surface.

It may be applied as decorative surfacing for casework and cabinets, wainscoting, interior doors, and wall panel and divider systems. This laminate is particularly appropriate for surfacing furniture in public places such as airports, hotels, office buildings and institutions such as hospitals and schools. Fire-Rated Laminate can offer a Class I or A fire rating, provided fire-retardant adhesives and substrates are used.

- Vertical Surface (VGF) Type 604: Intended to surface walls in public spaces and corridors, front panels on commercial casework and other applications where a functional, durable, decorative surface must absorb somewhat less impact than a comparable horizontal surface.
- General Purpose (HGF) Types 605 and (SGF) 607: Produced for both horizontal and vertical applications where the surface must perform under constant use.
- Fire-Rated Backer Type 264: A stabilizing backer sheet for applications where the decorative surface is Vertical Surface Type 604.
- Fire-Rated Backer Type 266: A stabilizing backer sheet for applications where the decorative surface is General Purpose Type 605 or 607.

Product Composition: The decorative surface is composed of melamine resin-treated decorative surface papers. Special kraft core sheets, used to obtain the desired thickness, are impregnated with phenolic resin.

Basic Limitations: Wilsonart Laminate is intended for interior use only, and should be protected from continuous exposure to direct sunlight, extremes in humidity and temperatures greater than 275°F (135°C). It is not structural material and must be bonded to a suitable substrate.

Wilsonart Laminate should not be used as direct covering for plaster or concrete walls, or for gypsum wallboard. It should not be exposed to flame, molten metal, metallic sparks or intense, direct sunlight. Nor should it be used as cutting surfaces.

Pattern and Color Availability:

Wilsonart Fire-Rated Laminate is available in most **Standard Line (DG1)** patterns. Please note the patterns that are **NOT** available in Fire-Rated Laminate.

Patterns NOT available in Fire-Rated Laminate Types 604, 605 and 607 are:

1811 Deepstar Flint	1831 Raven Gemstone	1852 Luna Crest
1812 Deepstar Fossil	1832 River Gemstone	1853 Luna Shadow
1813 Deepstar Glaze	1834 Crystalline Shell	1854 Luna Night
1814 Deepstar Bronze	1835 Crystalline Onyx	4571 Mesa Sunrise
1815 Deepstar Agate	1836 Crystalline Ice	4573 Mesa Verte
1816 Deepstar Jade	1837 Crystalline Pearl	4574 Mesa Twilight
1817 Deepstar Mineral	1838 Crystalline Dune	4579 Mesa Sand
1818 Deepstar Slate	1839 Crystalline Braun	4580 Mesa Gold
1819 Bella Venito	1840 Crystalline Iris	4584 Brazilian Topaz
1820 Bella Noche	1841 Desert Passage	4588 Kalahari Topaz
1821 Bella Reale	1842 Canyon Passage	4589 Smoky Topaz
1822 Bella Capri	1843 Mountain Passage	4862 Sandy Topaz
1823 Sedona Spirit	1844 Alpine Passage	4863 Antique Topaz
1824 Sedona Bluff	1845 Night Passage	4864 Jeweled Sapphire
1825 Sedona Spa	1846 Medallion	4865 Jeweled Opal
1826 Sedona Trail	1847 Bronze Eclipse	4866 Jeweled Coral
1827 Metallic Bronze	1848 Ebony Eclipse	4867 Jeweled Mica
1828 Metallic Steel	1849 Luna Frost	4868 Jeweled Ivory
1829 Metallic Silver	1850 Luna Winter	
1830 Mystic Gemstone	1851 Luna Glow	
Custom Laminate: Silk Screen & Digital Image are NOT available		
Non-Standard Line (DG-2) patterns are NOT available.		

Please verify pattern availability by type, size and finish by checking the Laminate Pattern Availability Search @ www.wilsonart.com/design/patternavail

Finishes:

- 60 Matte
A textured finish with a moderate reflective quality. *Glossometer reading: MD and CD 10 ± 2.*
- #1 High Gloss
A mirror sheen finish which gives a smooth, brilliant appearance. Excellent for any vertical application. Laminates with a high gloss finish can be used for horizontal application only in light use areas. We recommend that it not be used on horizontal work surfaces such as countertops. *Glossometer reading: MD and CD 100 ± 10.*

NOTE: Glossometer readings are made at a 60° angle of incidence. MD means the machine direction of a laminate sheet and CD refers to the cross direction.

Sheet Sizes

48" x 96"	(1219mm x 2438mm)
48" x 120"	(1219mm x 3048mm)

Sheet Thicknesses

Type	Typical Wilsonart Thickness	NEMA Thickness	Weight PSF
Vertical Surface Type 604 (VGF)	0.032" ± 0.005" (0.81mm ± 0.13mm)	0.032" ± 0.005" (0.8mm ± 0.12mm)	0.274#
General Purpose Type 605 (HGF)	0.048" ± 0.005" (1.22mm ± 0.13mm)	0.048" ± 0.005" (1.2mm ± 0.12mm)	0.438#
Specific Purpose Type 607 (SGF)	0.059" ± 0.005" (1.5mm ± 0.13mm)	0.059" ± 0.005" (1.5mm ± 0.12mm)	0.480#
Backer Type 264	0.030" ± 0.004" (0.76mm ± 0.10mm)	0.028" ± 0.004" (0.7mm ± 0.10mm)	0.223#
Backer Type 266	0.050" ± 0.005" (1.27mm ± 0.13mm)	0.048" ± 0.005" (1.2mm ± 0.12mm)	0.359#

Note: Minimum sheet order requirements: 2 sheets by size, finish and product type

3. Technical Data

Physical Properties of Fire-Rated Laminate

NEMA Test	Typical Wilsonart Type 604 (VGF)	NEMA Standard VGF	Typical Wilsonart Type 605 (HGF)	NEMA Standard HGF	Typical Wilsonart Type 607 (SGF)	NEMA Standard SGF
Thickness	0.032" (0.81mm)	0.032" ± 0.005" (0.8mm ± 0.12mm)	0.048" (1.22mm)	0.048" ± 0.005" (1.2mm ± 0.12mm)	0.059" (1.5mm)	0.059" ± 0.005" (1.5mm ± 0.12mm)
Surface Wear Resistance (cycles)	400	400 (min.)	400	400 (min.)	400	400 (min.)
Boiling Water Resistance	No effect	No effect	No effect	No effect	No effect	No effect
High Temperature Resistance	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect
Radiant Heat Resistance	100 seconds	50 sec. (min.)	150 seconds	75 sec. (min.)	200 seconds	125 sec. (min.)
Stain Resistance Reagents 1- 10 Reagents 11-15	No effect Slight effect	No effect Moderate effect	No effect Slight effect	No effect Moderate effect	No effect Slight effect	No effect Moderate effect
Light Resistance	Slight effect	Slight effect (min.)	Slight effect	Slight effect (min.)	Slight effect	Slight effect (min.)
Dimensional Stability Machine Direction	0.40%	0.70% (max.)	0.30%	0.50% (max.)	0.30%	0.50% (max.)
Cross Direction	1.00%	1.20% (max.)	0.80%	0.90% (max.)	0.80%	0.90% (max.)
Impact Resistance	35" (889mm)	20" (508mm)	65" (1651mm)	45" (1143mm)	75" (1905mm)	55" (1397mm)
Cleanability (cycles)	10	20 (max.)	10	20 (max.)	10	20 (max.)
Appearance	No ABC defects	No ABC defects	No ABC defects	No ABC defects	No ABC Defects	No ABC defects

Note: Since Fire-Rated backer sheets are not intended to be exposed to light, wear or everyday use, no physical property tests are in current use.

Typical Fire Test Data

Test data for Wilsonart Fire-Rated Laminate is obtained by the Steiner Tunnel Test method of the American Society for Testing Materials (ASTM E 84, Standard Test Method For Surface Burning Characteristics of Building Materials). This procedure is cataloged by Underwriters Laboratories, Inc. as UL 723.

Typical Flame Spread and Smoke Developed Properties

NEMA Type	Wilsonart Product	Unbonded	Bonded to Incombustible Cement Board	Bonded to Fire-Rated Particleboard
VGF	604	15/15	15/0	15/20
HGF	605	15/15	15/0	15/25
SGF	607	15/25	15/0	15/35
BKV	264	15/0	15/0	20/10
BKH	266	20/0	15/0	10/15

Note: Adhesive to attain Flame Spread and Smoke Developed figures for bonded laminates (above) is resorcinol. Fire-rated particleboard is Duraflake, with a UL rating of 25/25, or comparable material. The above values are CUL (Canadian Underwriters Lab) approved.

Model Code Designations used to determine flame spread classification

Flame Spread Classification (Maximum Rating)	International (IBC)	Life Safety (NFPA 101)
25	A	A
75	B	B
200	C	C

(Reference: Architectural Woodwork Quality Standard, 8th Edition, Version 1.0 – 2003)

All Model Codes regulate the generation of smoke by interior finish material. In all cases they specify a maximum smoke development rating of 450.

Codes and Certifications:

General Fire Code Compliance

Test data for code compliance is from the UL 723 Tunnel Test method. This procedure has been cataloged under the following designations:

- American Society for Testing Materials ASTM E 84
- American Society for Testing Materials ASTM E 162
- American Society for Testing Materials ASTM E 662
- American National Standards Institute ANSI No. 2.5
- National Fire Protection Agency NFPA No. 255
- Underwriters Laboratories, Inc. UL No. 723

This test data is the basis for fire codes written by various responsible groups, including:

- BBC Basic Building Code (Building Officials Conference of America. Used in Midwest and Northeast.)
- NFPA National Fire Protection Agency (Building Exits Code, Section #101.)
- SSBC Southern Standards Building Code (Southern Building Codes Congress. Used primarily in the South.)

Many local codes, especially in densely populated areas, have been patterned after these. Examples include the cities of Los Angeles and San Francisco and the Port Authority of New York. Approvals include:

- New York City, Department of Buildings, Materials and Equipment Acceptance (Types 264, 266, 604, 605 & 607) MEA 167-87M

General Standards

Fire-Rated Laminate conforms to ANSI/NEMA LD3-2005 for VGF, HGF and SGF (Types 604, 605 and 607, respectively).

The GREENGUARD Environmental Institute™ has awarded its GREENGUARD® Indoor Air Quality Certification to Wilsonart Laminate. All Wilsonart Laminate product types were tested under the stringent GREENGUARD Standards for low-emitting products. All GREENGUARD Indoor Air Quality Certified products ensure minimal impact on the indoor environment. For a copy of the certificate, visit www.greenguard.org.

Specific Product Standards

Fire-Rated Laminate meets the following federal codes:

Aircraft Interiors. U.S. Federal Test Method, Federal Aviation Administration, DOT, Part 25.853, Airworthiness Standards: Transport Category Airplane (Interior Finish). Fire-Rated Laminate Types 604, 605 and 607 comply with parts A and C.

Military/Ships. U.S. Military Standard MIL-P-17171E (SHIPS) Plastic Laminate and U.S. Military Standard 1623D (SHIPS), "Fire Performance Requirements and Approval Specifications for Interior Finished Materials and Furnishings - Naval Shipboard Use." Fire-Rated Laminate Types 605 and 607 comply with both of these standards.

Military/Ships

Fire-Rated Product Type	U.S.C.G. (46 CFR 164.012)	U.S.C.G. (IMO FTP Code)	Canadian Board of Steamship Inspection
Type 604	164.012/29/0	164.112/8/0	G1-162
Type 605	164.012/105/0	164.112/9/0	G1-166
Type 607	164.012/30/0	164.112/10/0	G1-163
Type 264	164.012/46/0	164.112/11/0	G1-161
Type 266	164.012/106/0	164.112/12/0	G1-165

Types 605 and 607 also appear on the U.S. Department of the Navy "Approved Habitability Materials List 9640, SER 05M1.11/1148," (Revision K, May 1996), Pages 3 and 4, paragraphs 1.5 and 2(b), for use on bulkhead sheathing, and on NAVSEA Drawing #804-5000991.

Mobile Homes

U.S. Federal Register August 9, 1984, Housing and Urban Development Mobile Home Construction and Safety Standard (24CFR), 3280.203. Fire-Rated Laminate Types 604, 605, 607, 264 and 266 comply.

Motor Vehicles/Interiors

U.S. Federal Motor Vehicle Safety Standard (FMVSS) 302, "Flammability of Interior Materials." Fire-Rated Laminate Types 604, 605 and 607 comply.

4. Installation: Fabrication and Assembly Recommendations

Wilsonart Laminate must be bonded to a substrate of reliable quality and appropriate fire rating, such as particleboard, incombustible cement board or plywood with one A face. Bond with adhesives, and follow the techniques recommended by the adhesive manufacturer. Permanent adhesives are recommended such as specialized PVAs, phenol/resorcinol, resorcinol, and epoxy. Contact cement, such as Wilsonart Adhesives, also may be used.

Take care to ensure an appropriate moisture balance between the laminate and the substrate prior to fabrication. The face and backing laminates and the substrate should be conditioned in the same environment for 48 hours before fabrication.

Recommended conditioning temperature is about 75°F (24° C). Laminates should be conditioned at 45% to 55% relative humidity.

To avoid stress cracking, do not use square-cut inside corners. All inside corners should have a minimum of 1/8" (3.18mm) radius, and all edges should be routed smooth.

Fabricating for Fire Rating Concerns

Flame Spread and Smoke Developed data for products fabricated with Wilsonart Fire-Rated Laminate vary with the choice of substrate and adhesive, as well as with pressing conditions. In general, these factors range from most to least fire-retardant, as shown below:

Substrate	Adhesive	Pressing Conditions
Incombustible	Resorcinol	Hot pressed/cold
Fire-Rated Particleboard	Phenol/Resorcinol	Cold pressed/long
Conventional Particleboard*	Casein	Cold pressed/short
Conventional Plywood	Contact	Nip rolled

**45 lb. cu. ft. density, industrial grade*

Methods

Assembled pieces should meet the specification of KCMA (Kitchen Cabinetmakers Manufacturers Association) ANSI-161.2-1998 (revised) and "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program" guidelines of the Architectural Woodwork Institute where applicable. Drill oversized holes for screws or bolts. Screws or bolts should be slightly countersunk into the face side of a laminate-clad substrate.

5. Warranty

Wilsonart International warrants that, under normal use and service, the material and workmanship of its laminate shall conform to the standards set forth on the applicable technical data sheets for a period of one (1) year from the date of sale to the first consumer purchaser. Dealers and distributors are provided with the technical data sheets which contain specific standards of performance for the products.

In the event that a laminate product does not perform as warranted, the first consumer purchaser's sole remedy shall be limited to repair or replacement of all or any part of the product which is defective, at the manufacturer's sole discretion.

This warranty applies only to product:

1. In its original installation; and
2. Purchased by the first consumer purchaser.

This warranty is not transferable, and expires upon resale or transfer by the first consumer purchaser. This warranty shall not apply to defects or damage arising for any of the following:

1. Accidents, abuse or misuse;
2. Exposure to extreme temperature;
3. Improper fabrication or installation; or
4. Improper maintenance.

NO OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE MADE, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES SHALL WILSONART INTERNATIONAL, INC. BE LIABLE FOR ANY LOSS OR DAMAGE ARISING FROM THE PURCHASE, USE OR INABILITY TO USE THIS PRODUCT, OR FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES. NO FABRICATOR, INSTALLER, DEALER, AGENT OR EMPLOYEE OF WILSONART INTERNATIONAL, INC. HAS THE AUTHORITY TO MODIFY THE OBLIGATIONS OR LIMITATIONS OF THIS WARRANTY.

This warranty gives you specific legal rights, and you also may have other rights that vary from state to state; therefore, some of the limitations stated above may not apply to you. It is to your benefit to save your documentation upon purchase of a product.

Maintenance*

The decorative surface may be cleaned with warm water and mild soaps, such as those used for hands or dishes. Do not use cleansers that contain abrasives, acids or alkalis; they will damage the decorative surface. Remove stubborn stains with a 1 1/2-minute exposure to hypochlorite bleach such as Clorox®, followed by a clean water rinse.

We recommend that you **not** allow any of the following reagents to **remain** in contact with the decorative surface:

1. Hypochlorite bleach, except as described above
2. Hydrogen peroxide solution
3. Mineral acids, hydrochloric acid such as Lime-A-Way™, sulfuric or nitric acid
4. Caustic solutions containing greater than 2% lye, such as Drano®
5. Sodium bisulfate, such as Sani-Flush®
6. Potassium permanganate
7. Berry juices
8. Silver nitrate, in 1% concentration
9. Gentian violet
10. Mild silver protein, such as 20% argyrol
11. Bluing
12. Fabric dye, such as Tintex® or Rit®
13. Alcohol containing 1% iodine in solution

If you require a laminate that can withstand these and other chemicals, please refer to the tech data for Wilsonart® Chemsurf® Chemical-Resistant Laminates.

*Not applicable for Phenolic Laminate Backing Sheets.

Free copies of the “Care and Maintenance Guide,” which covers all Wilsonart products, are available. The guide can be accessed at <http://www.wilsonartlaminates.com> or by calling our hotline at: 800-433-3222. It can be used for your own information, for project manuals, and for provision to clients and contractors involved with interior construction and finishing.

6. Technical Services

For samples, literature, questions or technical assistance, please contact our toll-free Hotline at (800) 433-3222, Monday through Friday, 7 am –7 pm, CST.

Specification Form:

Surface shall be Wilsonart Laminate,
produced by Wilsonart International,
Temple, Texas 76503-6110.

Type: See Fire-Rated specific types under Product
Description/Product Definition

Surface

Color Number: _____
Color Name: _____

Finish

Number: _____
Name: _____

Edge Trim

Color Number: _____
Color Name: _____

Adhesive

Name: _____
Grade/Type: _____
Brand: Wilsonart Adhesive

*Material shall equal or exceed performance standards
set by the American National Standards
Institute/National Electrical Manufacturers Association
(ANSI/NEMA) LD3-2005 for high-pressure laminate.
Fabrication shall comply with "Architectural Woodwork
Quality Standards, Guide Specifications and Quality
Certification Program" guidelines of the Architectural
Woodwork Institute.*

Fire Rated TD (TD0611)

Revised June 26, 2009

©1998- 2009, Wilsonart International, Inc.