

FORMICA PLASTICS ASSIGNMENT



**WEBER STATE
UNIVERSITY**

NAME:
MALLORY BOUCHARD

DATE:
OCTOBER 25, 2018

CLASS:
IDT 2060
SUSTAINABILITY/ HARD MATERIALS

INSTRUCTURE:
JACI JOHNSON



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DESIGN STATEMENT

INSPIRED BY BIOPHILIC DESIGNS, THE HEX CHAIR TAKES ON ONE OF NATURE'S FAVORITE SHAPES AND CREATES A BEAUTIFUL GEOMETRIC PIECE. WITH A FORMICA FINISH IN NEUTRAL CREAM, GREY, AND SAGE GREEN TO BRING THE OUTDOORS IN.

STANDING ALONE THE HEX LINK CHAIR SEATS TWO PERSONS BACK TO BACK, HOWEVER LINKED TOGETHER CAN SEAT TEN. THIS CONFIGURATION NOT ONLY IS FUNCTIONAL BUT ALSO CREATES A WORK OF ART. THE 120 DEGREE ANGLED ARRANGEMENTS FOUND THROUGHOUT THIS DESIGN ARE THE MOST MECHANICALLY STABLE ARRANGEMENTS. DISCOVERED BY MOTHER NATURE.

PERFECT FOR RESIDENTIAL OR COMMERCIAL SPACES, THE HEXAGON SHAPE CREATES A MORE COHESIVE AND FILLING SEATING AREA. USING ALL NECESSARY SPACE WHILE AT THE SAME TIME NEVER WASTING SPACE.

PULLING INSPIRATION FROM BEES AND HONEYCOMB NOT ONLY DO WE GET THE HEXAGON SHAPE, BUT WE ALSO GET OUR PATTERNED SEAT. FORMICA'S SILVER OAK HERRINGBONE WAS INSPIRED BY THE STRIPED BACKS OF THE HONEY BEE AND THE COLOR OF HONEY WHILE STILL IN THE HONEYCOMB.

THE DOVE TAIL FORMICA GIVES THE SENSE OF A PLANTER FOR A SUCCULENT. THE WHITE BRINGS A BRIGHT, CRISP ELEMENT TO THIS PIECE MAKING IT PORTRAY A SCULPTURED PIECE.

THE BACKS OF THE HEX CHAIR SYMBOLIZE WERE INSPIRED BY SUCCULENTS WE SO OFTEN BRING INTO OUR HOMES. FORMICA SAGE GREEN BRINGS NOT ONLY A CALMNESS INTO THE SPACE, BUT ALSO SUCCEEDS IN GIVING A POP OF COLOR WHILE STILL STAYING VERY NEUTRAL.

INSPIRATION



MATERIALS OVERVIEW



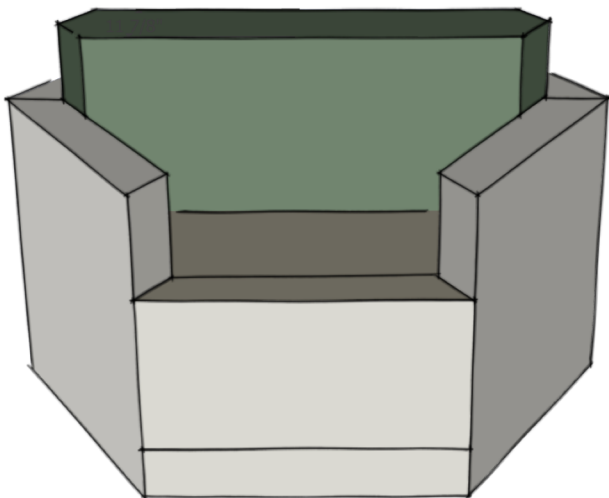
DOVE TAIL
BASE



SILVER OAK HERRINGBONE
SEAT



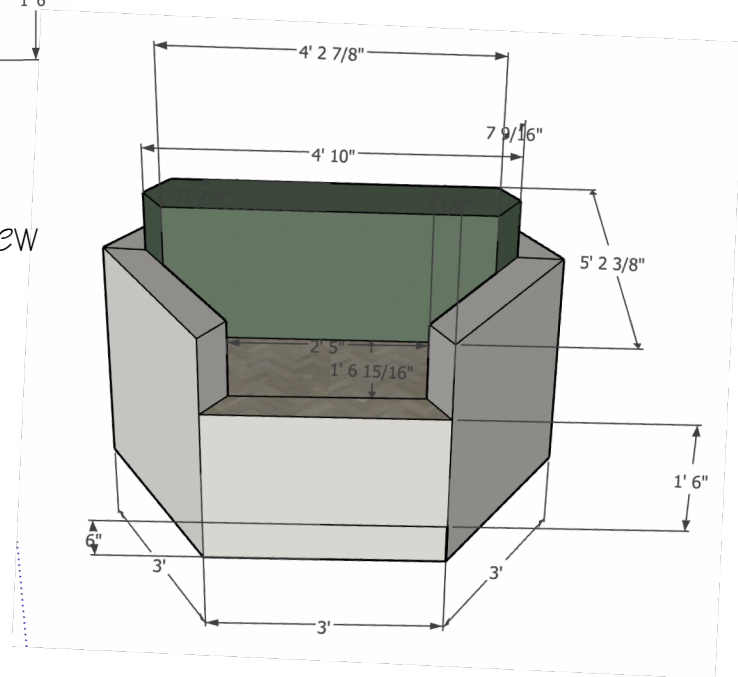
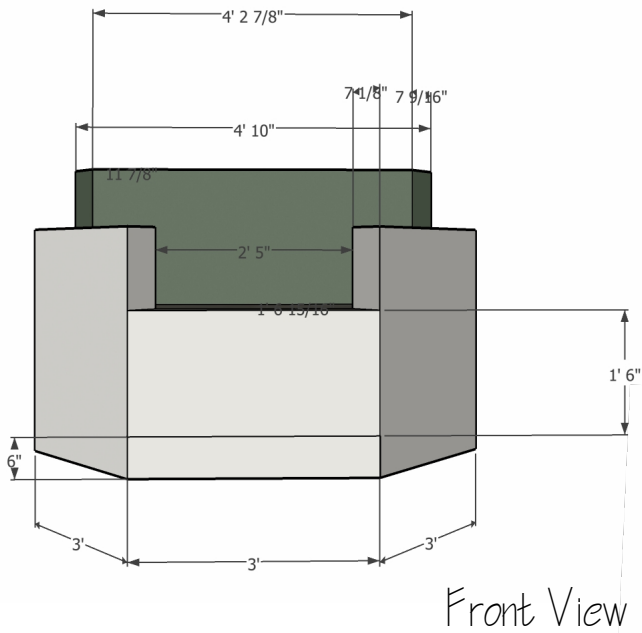
SAGE GREEN
BACK



*Formica to be placed on Formaldehyde free MDF



DIMENSIONS



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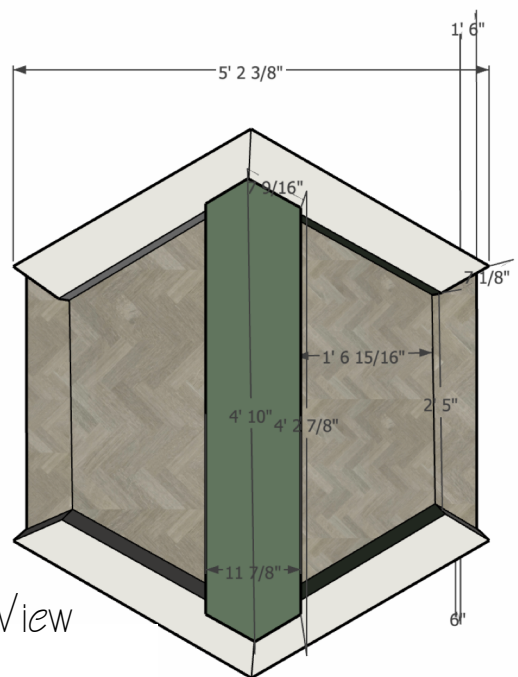
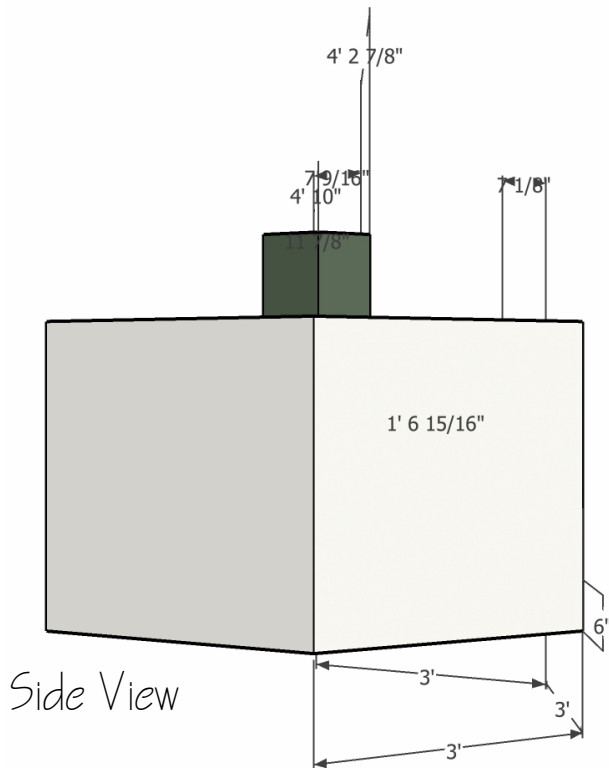
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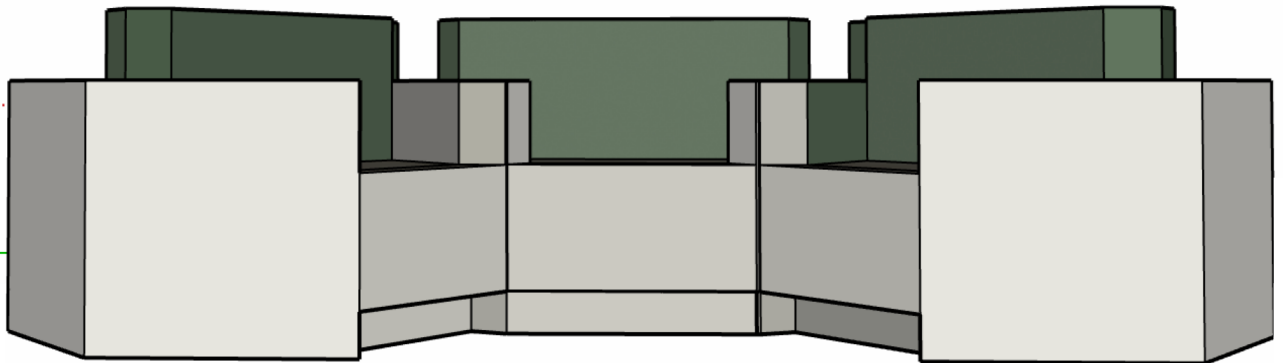
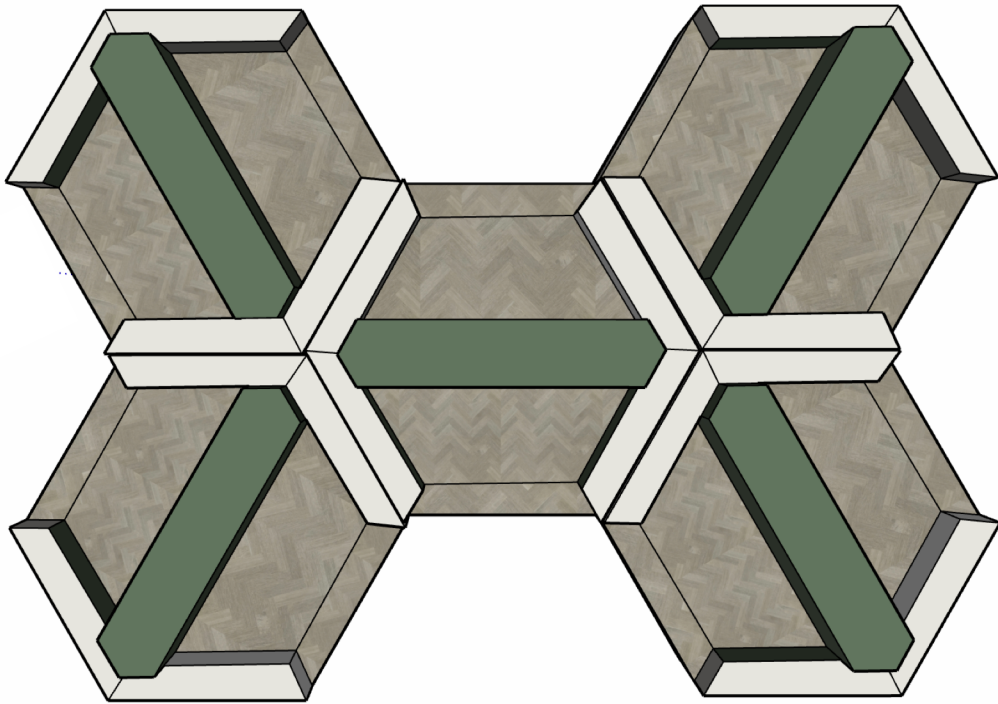


DIMENSIONS





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	DATE: OCTOBER 25, 2018	INSTRUCTURE: JACI JOHNSON	

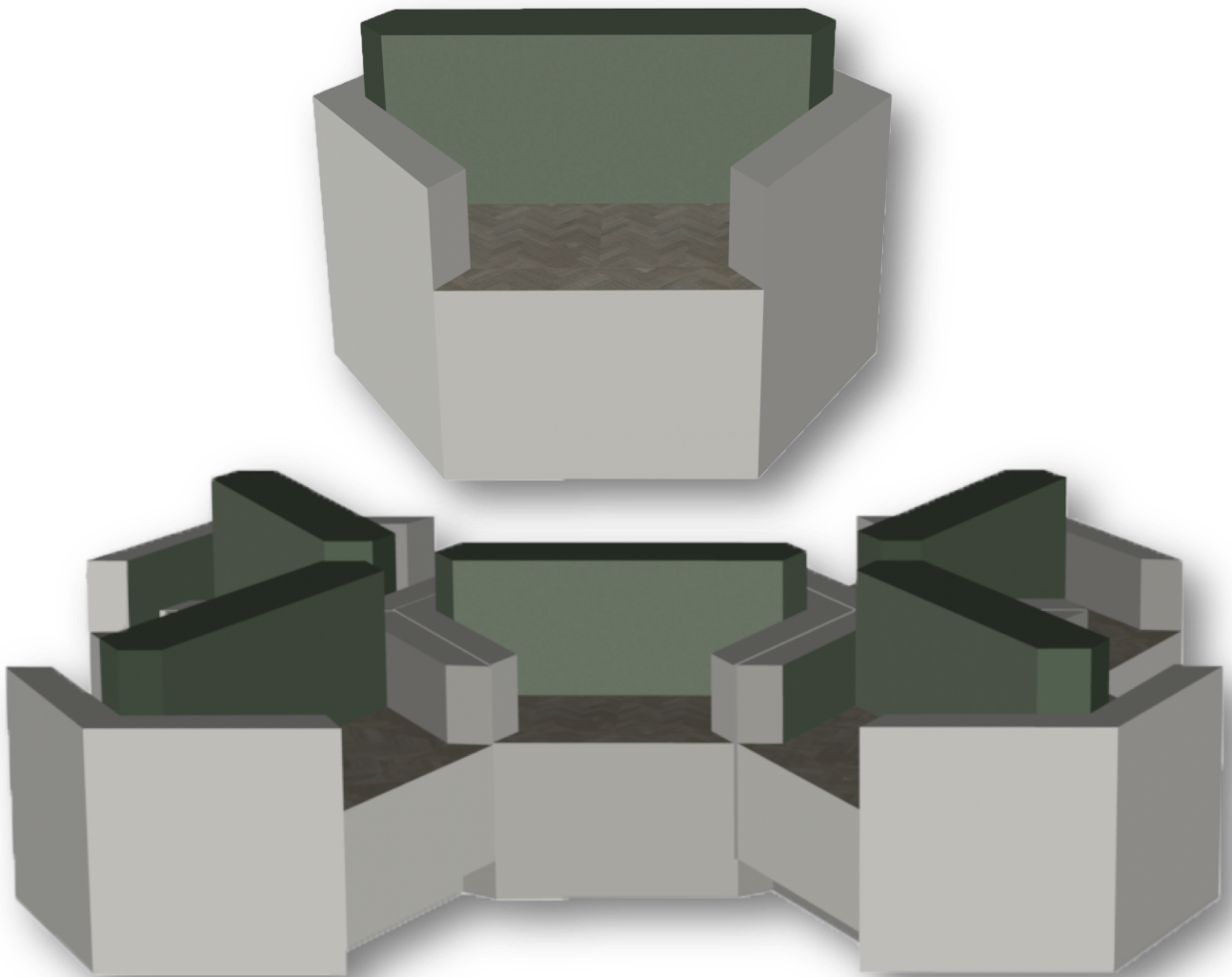
SCHEMATIC DESIGN





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3-D MODEL



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SPECIFICATIONS



FORMICA® LAMINATE BY FORMICA GROUP

TECHNICAL DATA (GENERAL PURPOSE GRADE 10 AND POST-FORMING GRADES 12 & 20)



PRODUCT DESCRIPTION

Melamine-impregnated decorative surface papers are combined with phenolic-treated kraft paper and consolidated in a press at high pressures. The sheet back is sanded to maintain a uniform thickness and facilitate bonding.

COLORS AND FINISH

Formica® Brand Laminate sheets (horizontal general purpose grade 10/HGS) are available in a broad selection of designs and colors. Standard finishes for each pattern are detailed in the *Formica Corporation - National Product Guide* (Form No. 02-034W). Not all finishes are available in all Solid Colors / Patterns / Woodgrains. All Grade 10 material is Make-to-Order, with the exception of Formica Architectural Doors.

Formica Brand Laminate sheets (horizontal post-forming grade 12/HGP and vertical post-forming grade 20/VGP) are available in a broad selection of designs and colors. Standard finishes for each pattern are detailed in the *Formica Corporation - National Product Guide* (Form No. 02-034W). Not all finishes are available in all Solid Colors / Patterns / Woodgrains.

RECOMMENDED APPLICATION

Grade 10/HGS

Formica Brand Laminate – general purpose grade 10/HGS is intended for application to interior horizontal or vertical surfaces where design, appearance, quality, durability, resistance to stain, and resistance to heat from ordinary sources are important considerations.

Grade 12/HGP

Formica Brand Laminate – post-forming laminate grade 12/HGP is intended for application to interior horizontal or vertical surfaces requiring 1/2" (12.7mm) or greater outside radiused edges, and/or 3/16" (4.8mm) cove radii, where design, appearance, quality, durability, resistance to stain, and resistance to heat from ordinary sources are important considerations.

Grade 20/VGP

Formica Brand Laminate – post-forming grade 20/VGP is intended for application to interior vertical surfaces requiring 3/8" (9.5mm) or greater outside radiused edges, where design, appearance, quality, durability, resistance to stain, and resistance to heat from ordinary sources are important considerations.

FABRICATION AND ASSEMBLY

LIMITATIONS

Formica Brand Laminate is designed for interior use only. Do not adhere directly to plaster, drywall (gypsum board), or concrete. Do not use in areas exposed to temperatures exceeding 275°F (135°C) or for exterior applications. When using Grade 20, **finished panel widths should not exceed 24" (610mm) maximum**, unless the adhesive system is a rigid set adhesive like PVA (wood glue). We do not recommend contact adhesive for Grade 20 panels wider than 24" (610mm). When using Grade 20-90 gloss finish on a panel application, there will be a degree of telegraphing on the surface. Formica recommends using Grade 10-90 or 12-90 gloss for these applications.

MACHINING LOW SHEEN LAMINATE SHEETS

Formica Brand Laminate with low sheen surfaces are subject to marring. Fabricating with peel coat on surface (if applicable) is recommended. Router base should be clean and free of burrs and debris. Table saws should be clean, flat, and free of burrs.

STORAGE

Formica Brand Laminate should be stored horizontally, with a caul board or other protective sheet placed on top to protect the material from possible damage. The material should be protected from moisture, and should never be stored in contact with the floor or an outside wall. Optimum conditions for storage are approximately 75°F (24°C), and 45% to 55% relative humidity.

PRECONDITIONING

Prior to fabrication, allow laminate sheet and substrate to acclimate for at least 48 hours at the same ambient conditions. Optimum conditions are approximately 75°F (24°C), and relative humidity of 45% to 55%. Provisions should be made for the circulation of air around the materials.

SUBSTRATES

Formica Brand Laminate sheet should be bonded to an appropriate substrate such as Medium Density Fiberboard (MDF), or #45 density particleboard (ANSI A208.1 - 1999). A marginal substrate such as plywood may be used; however it must meet APA standards and be "A" faced, hardwood veneer or multi-ply core plywood. If you choose to use plywood Formica recommends F200, F270 or PVAc adhesives to bond HPL. Refer to the Substrate Tech Guide. Substrates should be sanded smooth, and should be clean, free of oil or grease, and uniform in thickness.

Formica Brand Laminate sheet (grade 10/HGS) can be bonded to metal substrates using contact adhesive (see recommendations below, under Adhesives). Refer to Formica® Laminate Brief - Veneered to Metal Substrates for General Information, Materials, Conditions and Methods. Formica Corporation does not warrant this particular application.

FORMICA® LAMINATE BY FORMICA GROUP

TECHNICAL DATA (GENERAL PURPOSE GRADE 10 AND POST-FORMING GRADES 12 & 20) CONTINUED



ADHESIVES

Contact, semi-rigid (PVAc), or rigid (urea, resorcinol) adhesives may be used. Follow the adhesive manufacturer's recommendations. Certain combinations of finish, substrate, and adhesive can cause telegraphing.

When bonding Formica Brand Laminate sheet (grade 10/ HGS) to metal substrates using contact adhesive, use Formica brand flammable solvent-based #155 or non-flammable solvent-based #120M contact adhesives. Do not use water-based or SBR types of contact adhesive when bonding laminate sheets to metal substrates.

ASSEMBLY

Material, equipment, and workmanship should conform to the Formica Corporation recommended standard practices, conditions, procedures, and recommendations as specified by ANSI/ NEMA LD3-2005, Architectural Woodwork Quality Standards and ANSI 161.2-1998 Standards.

Formica Brand Laminate sheets (grade 10, 12, and 20) can be sawed, drilled, routed, and fabricated using standard carbide tipped cutting tools.

Holes for screws or bolts should be drilled oversized.

Panel assemblies should be laminated with the appropriate backing sheet to minimize warpage. Formica backing sheets (grade 91/BKV or 92/BKH) are recommended for less critical applications. Optimum balancing is obtained by bonding the same surface laminate on both sides of the assembly with the same adhesive. Always align sanding marks in the same direction.

All inside corners of cutouts must be radiused as large as possible, 1/8" (3.18mm) minimum, to avoid stress cracking. The edges and corners should be routed, sanded, or filed smooth and free of chips or nicks. Panels fabricated using metal substrates, which are more dimensionally stable than wood-based materials, should be installed in a framing system, which captures the perimeter of the panel yet allows for the normal dimensional movement of the laminate. This is to protect the panel edge and prevent edge lifting or separation from the substrate, which can occur under dry conditions.

TECHNICAL DATA

Performance compliance of Formica Brand Laminate General purpose grade 10 and Post-forming grades 12 and 20

ANSI / NEMA STANDARDS PUBLICATION — LD3 -2005

PHYSICAL PROPERTIES	LD3 TEST	10/HGS
Appearance	3.1	No ABC Defects
Light Resistance	3.3	Slight
Cleanability	3.4	20 (max.)
Stain	3.4	
Resistance		No Effect
Reagents 1		Moderate
- 10		
Reagents 11 - 15		
Boiling Water Resistance	3.5	No Effect
High Temperature Resistance	3.6	Slight
mm		1270 (min.)
Ball Impact Resistance - in	3.8	50 (min.)
		125 (min.)
Radiant Heat Resistance - sec	3.10	
Dimensional Change	3.11	
Machine Direction		0.50 (max.)
- % Cross		0.90 (max.)
Direction - %		
Weather Resistance Properties	LD3 TEST	12/BGV
		20/VGP

Light Resistance	3.1	No ABC	No ABC
Appearance		20 (max.)	20 (max.)
	3.3	Slight	Slight
Cleanability	3.4	Moderate	Moderate
Stain	3.4	No Effect	No Effect
Resistance			
Reagents 1			
- 10			
Reagents 11 - 15	mm		
Boiling Water Resistance	3.5	Slight	Slight
High Temperature Resistance	3.6	Slight	Slight
Ball Impact Resistance - in	3.8	30 (min.)	20 (min.)
		762 (min.)	508 (min.)
		1.4 (max.)	1.4 (max.)
Radiant Heat Resistance - sec	3.10	100 (min.)	80 (min.)
Dimensional Change	3.11	5/8	1/2
Machine Direction			
- % Cross			
Direction - %			
Wear Resistance - cycles	3.13	400 (min.)	400 (min.)
Formability - in	3.14	16	12
Blister Resistance - sec	3.15	55	40

FORMICA® LAMINATE BY FORMICA GROUP

TECHNICAL DATA (GENERAL PURPOSE GRADE 10 AND POST-FORMING GRADES 12 & 20) CONTINUED



FIRE TEST DATA – ASTM E- 84

Formica Corporation conducts and maintains an active fire test- ing program to provide code regulators, architects, and designers with current information on a variety of panel assemblies. Fire test data using Formica® Brand Laminate sheets (grades 10/HGS, 12HGP, and 20/VGP) is available upon request. Contact Formica® Technical Services at 1-800-FORMICA™ (option 2) or 513-786- 3578 for assistance.

CODES AND SPECIFICATIONS

FORMICA BRAND L AMINATE (GENERAL PURPOSE — GRADE 10/HGS / HORIZONTAL APPLICATION)

FMVSS 302
NSF Standard 35
ASTM-G22 Approved
Greenguard Certification

FORMICA BRAND L AMINATE (POST-FORMING — GRADE 12 /HGP / HORIZONTAL APPLICATION)

U.S. Federal Specification, LP-508-H, Style D, Type II, Class 1
FMVSS 302
NSF Standard 35
Greenguard Certification

FORMICA BRAND L AMINATE (POST-FORMING — GRADE 20/ VGP / VERTICAL APPLICATION)

U.S. Federal Specification, LP-508-H, Style D, Type II, Class 2
CFR Part 3280 Manufacturing Home Construction and
Safety Standards
FMVSS 302
NSF Standard 35
Greenguard Certification

SIZES

Sheet widths: 30" (762mm), 36" (914mm), 48" (1219mm),
60" (1524mm)
Sheet lengths: 96" (2438mm, 120" (3048mm), 144" (3658mm)
*Check National Product Guide for specific size options for a
décor.

THICKNESS

	TYPICAL THICKNESS	NEMA THICKNESS RANGE
Grade 10 (HGS)	.044" (1.1mm)	.043" - .053" (1.08mm - 1.32mm)
Grade 12 (HGP)	.035" (0.9mm)	.034" - .044" (0.88mm - 1.12mm)
Grade 20 (VGP)	.027" (0.7mm)	.024" - .032" (0.6mm - 0.8mm)

WEIGHT PER SQUARE FOOT

Grade 10/HGS: 0.324 pounds
Grade 12/HGP: 0.252 pounds
Grade 20/VGP: 0.180 pounds

TO ORDER FORMICA BRAND LAMINATE SAMPLES, PLEASE CALL

U.S.: 1-800-FORMICA™ (select option 1)
Canada: 1-800-363-1405 for ZIP-CHIP service

HOW TO SPECIFY

Surface (and appropriate backing sheet) shall be Formica Brand
Laminate by Formica Group, Cincinnati, Ohio.

COLOR NUMBER

COLOR NAME

GRADE

FINISH

SIZE

USE AND CARE

Refer to *Formica Brand Laminate Use and Care Guide*

Formica Brand Laminate sheet may be cleaned with a damp cloth
and mild detergent.

If in doubt about the suitability of a particular cleaner or detergent,
check with its manufacturer. Use of abrasive cleaners, powders,
scouring pads, steel wool, sandpaper, etc., can damage the finish
of the decorative surface and are not recommended.

Acid or alkaline-based cleaners, compounds, etc., will mar, etch,
corrode, and permanently discolor the decorative surface of
laminate. Never use these materials on laminate, nor allow bottles,
rags, etc., contaminated with them to contact the surface.
Accidental spills or splatters from these harsh materials should
be wiped off immediately, and the area cleaned thoroughly with a
damp cloth.

FORMICA® LAMINATE BY FORMICA GROUP

TECHNICAL DATA (GENERAL PURPOSE GRADE 10 AND POST-FORMING GRADES 12 & 20) CONTINUED



LIMITED WARRANTY

Formica Corporation expressly warrants that, for a period of one (1) year from the date of first sale, these products will be reasonably free of defects in materials and workmanship, and that when properly handled and fabricated, will conform, within accepted tolerance, to applicable manufacturing specifications. Colors subject to dye lot variations. This limited warranty only applies to Formica Brand Laminate which is stored, handled, fabricated and installed in the manner recommended by Formica Corporation. Due to the variety of uses and applications to which Formica Brand Laminate may be put, **FORMICA CORPORATION CAN MAKE NO WARRANTY THAT THIS PRODUCT IS SUITABLE FOR ANY PARTICULAR PURPOSE AND CAN MAKE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE SET FORTH ABOVE.**

DISCLAIMER OF WARRANTIES

THE WARRANTIES SET FORTH HEREIN OR IN FORMICA CORPORATION'S WARRANTY DOCUMENTS WITH RESPECT TO A PRODUCT ARE THE ONLY WARRANTIES MADE BY FORMICA CORPORATION IN CONNECTION WITH THESE PRODUCTS, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. PRODUCTS SOLD BY FORMICA CORPORATION ARE SOLD ONLY TO THE SPECIFICATIONS SPECIFICALLY SET FORTH BY FORMICA CORPORATION IN WRITING. FORMICA CORPORATION'S SOLE OBLIGATION FOR A REMEDY TO BUYER SHALL BE REPAIR OR REPLACEMENT OF NON-CONFORMING PRODUCTS, OR AT THE OPTION OF FORMICA CORPORATION, RETURN OF THE PRODUCT AND REFUND OF THE PURCHASE PRICE. BUYER ASSUMES ALL RISK WHATSOEVER AS TO THE RESULT OF THE USE OF THE PRODUCTS PURCHASED, WHETHER USED SINGLY OR IN COMBINATION WITH OTHER SUBSTANCES.

LIMITATION OF LIABILITY

No claim by buyer of any kind, including claims for indemnification, whether as to quality or amount of products delivered or for non-delivery of products, shall be greater in amount than the purchase price of the products in respect of which damages are claimed. **IN NO EVENT SHALL FORMICA CORPORATION BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, RELIANCE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OR COVER, OR LOSS OF PROFIT, REVENUE OR USE, IN CONNECTION WITH, ARISING OUT OF, OR AS A RESULT OF, THE SALE, DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS SOLD HEREUNDER, OR FOR ANY LIABILITY OF BUYER TO ANY THIRD PARTY WITH RESPECT THERETO. BUYER SHALL INSPECT FOR NONCONFORMITY PROMPTLY UPON RECEIPT.** Failure by buyer to give Formica Corporation written notice of claim within 30 days from date of delivery or, in the case of non-delivery from the date fixed for delivery, shall constitute a waiver by buyer of all claims in respect of such products.

This limited warranty gives purchaser of Formica Brand Laminate specific legal rights. Other rights may be available and vary from state to state.

Any information or suggestion concerning application, specifications or compliances with codes and standards is provided solely for your convenient reference and without any representation as to accuracy or suitability. Formica Corporation disclaims any legal responsibility. The user must verify and test the suitability of any information or products for their own particular purpose of specific application.

MANUFACTURER

Formica Brand Laminate sheets are manufactured by Formica Corporation.

Formica Corporation
10155 Reading Road
Cincinnati, Ohio 45241-5279

TECHNICAL SERVICES

Technical assistance may be obtained through your local Formica® Brand Products Distributor or from Formica Corporation trained representatives in sales offices throughout the country. To assist these representatives, Formica Corporation maintains a sales and technical services staff in Cincinnati, Ohio. For technical assistance, contact your distributor or sales representative; write the company directly at Formica Corporation Technical Services Department, 10155 Reading Road, Cincinnati, OH, 45241; call (513) 786-3578 or 1-800-FORMICA™; or fax (513) 786-3195. In Canada, call 1-800-363-1405. In Mexico, call (525) 530-3135.

Formica is a sublicensed trademark to Formica Corporation. Formica and the Formica Anvil logo are registered trademarks of The Diller Corporation. 1-800 -FORMICA is a trademark of The Diller Corporation. The products and manufacturing processes of Formica Corporation are protected under U.S. and foreign patents.

All ® brands are registered trademarks of the respective owners. All ™ brands are trademarks of the respective owners.

For warranty information, please visit www.formica.com or call 1-800 -FORMICA™.



Green Guard Environmental Institute
Formica® high-pressure laminate (HPL) is Green Guard Indoor Air Quality Certified under the Green Guard Standard for Low-Emitting Products.

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Cincinnati, Ohio 45241

CERTIFICATE OF COMPLIANCE



Formica Corporation
Formica® Brand Laminate

1769-420
Certificate Number
04/30/2007 - 10/28/2018
Certificate Period
Certified
Status

UL 2818 - 2013 Gold Standard for Chemical Emissions for Building Materials, Finishes and Furnishings

Wall finishes are determined compliant in accordance with California Department of Public Health (CDPH) Standard Method V1.2-2017 using a Classroom Environment with an air change of 0.82 hr⁻¹ and a loading of 94.60 m².
Product tested in accordance with UL 2821 test method to show compliance to emission limits on UL 2818, Section 7.1 and 7.2.



Environment

GREENGUARD Gold Certification Criteria for Building Products and Interior Finishes

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC ^(A)	-	0.22	mg/m ³
Formaldehyde	50-00-0	9 (7.3ppb)	µg/m ³
Total Aldehydes ^(B)	-	0.043	ppm
4-Phenylcyclohexene	4994-16-5	6.5	µg/m ³
Particle Matter less than 10µm ^(C)	-	20	µg/m ³
1-Methyl-2-pyrrolidinone ^(D)	872-50-4	160	µg/m ³
Individual VOCs ^(E)	-	1/2 CREL	-
<p>(A) Defined to be the total response of measured VOCs falling within the C6–C16 range, with responses calibrated to a toluene surrogate. Maximum allowable predicted TVOC concentrations for GREENGUARD Gold (0.22 mg/m³) fall in the range of 0.5 mg/m³ or less, as specified in CDPH Standard Method v1.1.</p> <p>(B) The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.</p> <p>(C) Particle emission requirement only applicable to HVAC Duct Products with exposed surface area in air streams (a forced air test with specific test method) and for wood finishing (sanding) systems.</p> <p>(D) Based on the CAProp 65 Maximum Allowable Dose Level for inhalation of 3,200 µg/day and an inhalation rate of 20 m³/day</p> <p>(E) Allowable levels for chemicals not listed are derived from the lower of 1/2 the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Level (CREL) as required per the CDPH/IEHLB/Standard Method v1.1 and BIFMA level credit 7.6.2 and 1/100th of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).</p>			



Environment

CARE AND MAINTENANCE



FORMICA® LAMINATE AND COLORCORE2™ BY FORMICA GROUP USE AND CARE GUIDE / WARRANTY

USE AND CARE GUIDELINES

Formica® Laminate and ColorCore2™ by Formica Group are designed for beauty and durability. Like any surfacing materials they can be damaged by abuse and carelessness. When used as recommended with proper use and care, the end result is years of satisfaction.

PROTECTING THE SURFACE

Before selecting the surface material, consider the type of use it will receive, as well as its texture, color, and reflective values. A rough-textured surface has different advantages, depending upon use, than a smooth-textured surface. For example, high-gloss finish laminates are not recommended for use in heavy-duty applications such as countertops. Dark colors tend to enhance scratches, marring and fingerprints.

SCRATCH AND IMPACT PROTECTION

Formica Brand Laminate and ColorCore2 surfacing material are resistant to scratches and impacts under normal use conditions.

Use cutting boards, chopping blocks, or other protective surfaces.

- Do not chop, slice, pound, or hammer on any laminate surface.
- Knives or other sharp utensils may slice or scratch the surface.
- Heavy blows from a hammer or meat tenderizer may crack or gouge the surface.

Use place mats, doilies, and trivets on laminate surfaces when necessary.

- Ceramics and abrasive objects can cause scratching and premature wear – do not slide these items across surface.

Follow recommendations for cleaning – do not use abrasive cleaners, steel wool, sandpaper, or Scotch-Brite® scouring pads (see Cleaning section inside).

HOT OBJECTS

Cookware still hot from the stove, oven or microwave, as well as electric skillets, waffle irons, curling irons and hot rollers, should not be placed directly on laminate surfaces. Prolonged exposure to temperatures of 140°F (60°C) or higher may cause the laminate to separate from the core material. Use a trivet, insulated hot pad or other protective device beneath all hot cookware, heat generating appliances, or other heated objects.

- Formica Brand Laminate and ColorCore2 surfacing material can withstand heat up to 275°F (135°C) for short periods of time.

Avoid ironing or placing a hot iron on laminate surfaces.

Do not place lighted cigarettes directly on laminate surfaces.

ORDINARY CLEANING

Formica Brand Laminate and ColorCore2 surfacing material are very easy to clean.

- In most cases, you only need to use a clean, damp, non-abrasive cotton cloth and a mild liquid detergent or household cleaner.
- Rinse with clean water, using a clean, non-abrasive cotton cloth.
- Do not flood the laminate, especially near seams, since water can penetrate and cause the substrate to swell.
- Dry the surface with a soft, clean, non-abrasive cotton cloth.

For specific types of surfaces, use the following care guidelines.

MATTE AND SPARKLE FINISH LAMINATES

Especially hard-to-clean areas may require special attention.

Use a nylon bristled hand or vegetable brush, along with a mild liquid detergent-and-water solution or household cleaner. Clean the soiled area using a rotating motion. Rinse and dry the surface as indicated above.

SCULPTURE AND DIMENSIONAL FINISH LAMINATES

These surfaces may require special attention to clean the depressed areas. Use a nylon-bristled hand or vegetable brush, along with a mild liquid detergent-and-water solution or household cleaner. Clean the soiled area, using a rotating motion. Rinse and dry the surface as indicated above.

HIGH GLOSS FINISH LAMINATES

If residual streaks and smears remain after normal cleaning, use a mild glass cleaner and then dry with a clean, non-abrasive cotton cloth. Avoid exterior glass cleaner.

ABRASIVES

Abrasive pads, scouring powders or cleaners may permanently dull and scratch the laminate surface making it susceptible to staining.

Ceramics, including unglazed materials and other abrasive objects, can cause scratching and premature wear – do not slide these items across surface.

CHEMICAL DAMAGE

Never use cleaners containing acid, alkali, or sodium hypochlorite. These cleaners will mar, etch, corrode, and permanently discolor the laminate surface. Also, make sure that bottles, rags, and other materials contaminated with these cleaners never contact the laminate surface. Accidental spills or splatters from these compounds should be wiped off immediately, and the area rinsed thoroughly with water.

FORMICA® LAMINATE AND COLORCORE2™ BY FORMICA GROUP USE AND CARE GUIDE / WARRANTY ConTInueD

Ex AMPLES OF CLEANERS CONTAINING ACID, ALK ALI, OR SODIUM HYPOCHLORITE INCLUDE, BUT ARE NOT Lim ITED TO :

ceramic cooktop cleaners	oven cleaners
chlorine bleach	rust removers
coffeepot cleaners	some countertop cleaners
drain cleaners	some disinfectants
lime scale removers	toilet bowl cleaners
metal cleaners	tub and tile cleaners

SPECIAL CLEANING RECOmmENDATIONS

RESIDUAL GLUE

Sometimes new decorative laminate has a streaky appearance caused by contact adhesive used during fabrication. Clean with a non-abrasive cotton cloth and an adhesive solvent such as Formica® Brand Non-flammable Contact Adhesive Solvent. Use solvent sparingly, as excessive amounts may delaminate edges. Read and follow all warnings and instructions on the labels of all solvent products.

PAINT AND vARNISH

Remove most oil-base paints, varnishes and lacquers from decorative laminate surfaces with a suitable solvent. Read and follow all warnings and instructions on the labels of all solvent products, and remember that most solvents are extremely flammable. Use solvent sparingly, as excessive amounts may delaminate edges. Remove most water-based paints with an ammoniated household cleaner. For stubborn paint spots, gently use a plastic, non-metallic, non-abrasive pad. Never use steel wool or other abrasive scouring pads.

STAINS

To remove or minimize stains, use full strength Fantastik® All Purpose Cleaner, Formula 409®, Pine-Sol® (original formulation) or other mild household cleaner on the affected area, and allow it to draw out the stain. Blot with a clean, damp, non-abrasive cotton cloth, and then rinse with clean water. When a recommended cleaner changes its formulation, the change may be harmful to the laminate surface. Formica Corporation cannot be held responsible for these changes. Solvents such as denatured alcohol can also be used. Follow all directions and warnings on the solvent label because many are extremely flammable.

STUBBORN OR "FUGITive" STAINS THAT mAY DISAPPEAR ON THEIR OWN, AFTER A SHORt TImE OR AFTER REPEATED CLEANINGS, INCLUDE:

coffee and tea stains	food stains
fingerprints	glass rings
food dyes	water marks

STAINS WHICH ARE STUBBORN OR EvEN PERm ANENT, AND mAY NOT DISAPPEAR, INCLUDE:

cash register inks	lemon juice
food pricing ink	marking pen inks
indelible inks	newsprint
label inks	wood stains

SOME mATERIALS AND LIQUIDS, SUCH AS DYES AND PHARMACEUTICAL PRODUCTS, WILL PERMANENTLY STAIN LAMINATE. Ex AMPLES INCLUDE:

dermatological	povidone-iodine
hair dyes and rinses	Red-2B dye
laundry bluing	silver nitrate
Mercurochrome®	tannic acid
peroxides	tar compounds

These stains may be reduced by applying a paste of baking soda and water on the area to pull out the stain. The paste will be slightly abrasive, so do not rub. wipe up the paste with a clean, damp, non-abrasive cotton cloth, and then rinse clean with water.

Periodic application of a self-cleaning wax can help minimize future staining.

Scotch-Brite® is a registered trademark of 3M Company. Fantastik® is a registered trademark of DowBrands Inc. Formula 409® and Pine Sol® are registered trademarks of The Clorox Company. Mercurochrome® is a licensed trademark of Beckton Dickson.

Lim ITED WARRANTY

Formica Corporation expressly warrants that, for a period of (1) one year from the date of first sale, these products will be reasonably free of defects in materials and workmanship, and that when properly handled and fabricated, will conform, within accepted tolerance, to applicable manufacturing specifications. Colors subject to dye lot variations. This limited warranty only applies to Formica Brand Laminate which is stored, handled, fabricated and installed in the manner recommended by Formica Corporation. Due to the variety of uses and applications to which Formica Brand Laminate may be put, **FORMICA CORPORATION CAN mAKE NO WARRANTY THAT THIS PRODUCT IS SUITABLE FOR ANY PARTICULAR PURPOSE AND CAN mAKE NO OTHER WARRANTIES, ExPRESSED OR ImPLIED, OTHER THAN THOSE SET FORTH ABOVE.**

DISCLAIm ER OF WARRANTIES

THE WARRANTIES SET FORTH HEREIN OR IN FORMICA CORPORATION'S WARRANTY DOCUMENTS WITH RESPECT TO A PRODUCT ARE THE ONLY WARRANTIES mADE BY FORMICA CORPORATION IN CONNEC-TION WITH THESE PRODUCTS, AND ARE ExPRESSLY IN LIEU OF ANY OTHER WARRANTIES, ExPRESS OR ImPLIED, INCLUDING WITHOUT LimITATION, ANY WARRANTY OF mERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. PRODUCTS SOLD BY FORMICA CORPORA-TION ARE SOLD ONLY TO THE SPECIFICATION SPECIFICALLY SET FORTH BY FORMICA CORPORATION IN WRITING. FORMICA CORPO-RATION'S SOLE OBLIGATION FOR A REmedY TO BUYER SHALL BE REPAIR OR REPLACEmENT TO NON-CONFORMING PRODUCTS, OR AT THE OPTION OF FORMICA CORPORATION , RETURN OF THE PRODUCT AND REFUND OF THE PURCHASE PRICE. BUYER ASSUmES ALL RISK WHATSOEVER AS TO THE RESULT OF THE USE OF THE PRODUCTS PURCHASED, WHETHER USED SINGLY OR IN COmBINATION WITH OTHER SUBSTANCES.

FORMICA® LAMINATE AND COLORCORE2™ BY FORMICA GROUP

USE AND CARE GUIDE / WARRANTY Continued

LIMITATION OF LIABILITY

No claim by buyer of any kind, including claims for indemnification, whether as to quality or amount of products delivered or for non-delivery of products, shall be greater in amount than the purchase price of the products in respect of which damages are claimed.

IN NO EVENT SHALL FORMICA CORPORATION BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, RELIANCE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OR COVER, OR LOSS OF PROFIT, REVENUE OR USE, IN CONNECTION WITH, ARISING OUT OF, OR AS A RESULT OF, THE SALE, DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS SOLD HEREUNDER, OR FOR ANY LIABILITY OF BUYER TO ANY THIRD PARTY WITH RESPECT THERETO. BUYER SHALL INSPECT FOR NONCONFORMITY PROMPTLY UPON RECEIPT.

Failure by buyer to give Formica Corporation written notice of claim within 30 days from date of delivery or, in the case of non-delivery from the date fixed for delivery, shall constitute a waiver by buyer of all claims in respect of such products.

MANUFACTURER

Formica Corporation
10155 Reading Road
Cincinnati, Ohio 45241-5279

TECHNICAL SERVICES

Technical assistance may be obtained through your local Formica® Brand Products Distributor or from Formica Corporation trained representatives in sales offices throughout the country.

To assist these representatives, Formica Corporation maintains a sales technical services staff in Cincinnati, Ohio. For technical assistance, contact your distributor or sales representative; write the company directly at Formica Corporation Technical Services Department, 10155 Reading Road, Cincinnati, OH, 45241; call (513) 786-3048 or 1-800-FORMICA™; or fax (513) 786-3195.

In Canada, call 1-800-363-1405. In Mexico, call (525) 530-3135.

For the most current technical information, go to www.formica.com.

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For warranty information, please visit www.formica.com or call 1-800 -FoRMICA™.



GreenGuard environmental Institute
Formica® high-pressure laminate (HPL) is GreenGuard Indoor Air Quality
Certified under the GreenGuard Standard for Low-Emitting Products.

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MATERIAL DATA SAFETY SHEET





SAFETY DATA SHEET

Product Name: Formica™ Brand Laminates
MSDS Issue Date: 11/17/12
SDS Revision Date: 3/23/17

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Formica® Brand Laminates
(All Grades and Thicknesses, including Backers, Deco Metal, Basic Metal, ColorCore2, Compact Color Thru Compact, Access Floor Tiles, Chemtop2, Fire rated & High Pressure Laminate Infiniti, Magnetic Markerboard, Chalkable)

Manufacturer: Formica Corporation
10155 Reading Road
Cincinnati OH 45241, USA
INFORMATION PHONE: 800-367-6422 (USA)

Trade Name: High-Pressure Decorative Laminate (HPDL)

Materials Uses: Decorative Laminate

Manufacturer's Emergency Phone Number
(CHEMTREC): (800)-424-9300 (USA)
(703)-527-3887 (International)

Section 2: HAZARD IDENTIFICATION

GHS Classification: Not classified. Material is non-hazardous
GHS Signal Words with Hazard and Precautionary Statements: Not Applicable
GHS Pictograms: Not applicable

Precautionary Statements:

No known hazards for material as supplied. During fabrication operations such as sawing, sanding, drilling, routing, cutting etc. dust consisting of cured resin, paper fiber and minute amounts of formaldehyde are generated at the point of operation. Formaldehyde may be released in minute but detectable amounts when material is shipped or stored in bulk quantities.

Appearance/Odor: Thin to thick, rigid laminate sheets, various thicknesses/colors. No significant odor.

WARNING:

Sanding, sawing, drilling, routing, etc. of this material may generate airborne nuisance dust. This dust may cause eye, nose, skin, and upper respiratory tract irritation. Use of appropriate personal protection and/or engineering controls (such as local exhaust ventilation) should be employed whenever sanding, sawing, drilling, routing, etc. of this material.

Potential Health effects: Dust generated during fabrication of this material may cause irritation of the eyes, nose skin and upper respiratory tract. Asthmatic conditions may be aggravated by the dust generated.

Likely Routes of Exposure: Eye contact, skin contact and inhalation
Eyes: Dust generated during installation or fabricating could cause eye irritation (tears, blurred vision and redness). In case of eye contact with dusts, rinse affected eye for at least 15 minutes with clean water. If irritation persists, seek medical attention.

Skin:	The dust generated during installation or fabrication may cause moderate skin irritation. Avoid prolonged skin exposure to dust. Rinse skin with mild soap if contact occurs. If irritation persists, seek medical attention.
Ingestion:	Not likely to occur and not expected to cause a significant toxic response. However, ingestion of dust could cause irritation of the mouth, throat and stomach. If this occurs, rinse mouth with clean water. If irritation persists, seek medical attention.
Inhalation:	Sanding, sawing, drilling, routing or cutting of this material may generate airborne dust that may cause eye, nose and upper respiratory tract irritation. Use appropriate personal protection and/or engineering controls (such as local exhaust ventilation whenever sanding, routing, sawing, drilling, and cutting, etc. on this material.
Medical Conditions Aggravated by Exposure:	Dust may cause skin irritation to people with pre-existing skin conditions. Asthmatic conditions may be aggravated by additional dust exposure.
Target Organs:	Lungs (From dust generated during fabrication only)

Section 3: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

This product does not contain regulated levels of NTP, IARC, or OSHA listed carcinogens

<u>Component</u>	<u>CAS#</u>	<u>% by Wt.</u>
Paper/Fiber	NA	40-70
Resins	NA	30-50

Section 4: FIRST AID AND MEASURES

Eye contact:	If dust gets into the eyes, immediately rinse affected eye for at least 15 minutes with clean water. If irritation persists, seek medical attention.
Skin contact:	If excess dust gets onto the skin, remove contaminated clothing and wash before reuse. Wash skin with soap and water. Seek medical attention if irritation occurs.
Ingestion:	If dust gets into mouth, rinse mouth with clean water. Seek medical attention if necessary.
Inhalation:	If excess dust is inhaled, move to fresh air. Seek medical attention if symptoms such as wheezing and/or shortness of breath occur.

Section 5: FIRE FIGHTING MEASURES

This material is a Class A combustible material. Use water spray, carbon dioxide or dry chemical foam to extinguish flames. Use water to keep cool and prevent rekindling of material.

Unusual Fire or dust.	Sanding, sawing, drilling, routing, cutting, etc. of this material may generate a Class ST-1
Explosion Hazards:	Safety precautions and proper ventilation as recommended by NFPA-68 for Class ST-1 dusts should be followed to prevent this or any Class ST-1 dust from presenting a explosion hazard.

Suitable Extinguishing Media: CO₂, water, foam.

Possible Products of Combustion Various oxides of carbon and nitrogen, ammonia and formaldehyde.

Protection of Firefighters: Combustion products may be irritating to eyes, skin and the respiratory tract. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Material is non-hazardous as supplied. Review personal protection measures in Section 8.

Methods for Clean-up: Recover undamaged materials for reuse or reclamation. Sweep or pick up scrap material and place in disposal containers.

Section 7: HANDLING AND STORAGE

Handling: Prevent dust from entering eyes. Do not breathe dust. Avoid prolong skin contact with dust and/or filings. Cut, drill, saw, sand and finish, etc. in well-ventilated areas.

Storage: Keep away from strong chemicals, solvents and excessive heat. Prolonged or extreme heat can cause damage to the surface.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:	OSHA PEL	ACGIH TLV
	15mg/m ³ Total Dust	10mg/m ³ Inhalable
	5mg/m ³ Respirable Dust	3 mg/m ³ Respirable

Engineering Controls: Provide adequate ventilation to maintain exposure levels below applicable limits. The use of local exhaust ventilation is recommended during fabrication work. Dust generated is a Class ST-1 dust and precautions recommended by NFPA-68 should be followed.

Eye/face Protection: Wear safety glasses when sawing, sanding, drilling or routing.

Skin Protection: Wear appropriate gloves when installing, transporting, sawing, cutting, drilling, routing or handling uninstalled pieces.

Foot Protection: No special protection required.

Respiratory Protection: Where airborne concentrations of dust are expected to exceed the allowable exposures, a NIOSH-approved respirator should be worn, chosen based on the form and concentration of the contaminant. Respirator usage must be in accordance with the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

General Hygiene Considerations: Wash thoroughly after sawing, cutting, drilling, or routing. Have eyewash facilities immediately available.

Additional information is available in ASTM E1132-99a

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	Various
Odor:	None
Physical State:	Solid sheet product
PH:	Not applicable
Freezing Point:	Not applicable
Boiling Point:	Not applicable
Flash Point:	Not applicable
Evaporation Rate:	Not applicable
Flammability:	Not applicable
Upper Flammability Limit:	Not applicable
Lower Flammability Limit:	Not applicable

Vapor Pressure:	Not applicable
Vapor Density:	Not applicable
Specific Gravity:	1.45
Solubility (water):	Not applicable
Auto-ignition Temperature:	Not applicable
Percent volatile, wt %:	Zero
Volatile Organic Compound (VOC) content, wt. %:	Zero. Product as supplied is fully cured and chemically inert, VOC release is extremely low.

Section 10: STABILITY AND REACTIVITY

Stability:	Stable
Conditions to Avoid:	Avoid exposing to oxidizers, strong chemicals, alkaline solutions and solvents.
Incompatible Materials:	Avoid strong acids and alkaline solutions which will damage the surface appearance of the material. If spills occur, remove immediately from the material.
Hazardous Decomposition Products:	Thermal decomposition product may include various oxides of carbon and nitrogen may be released.
Hazardous Polymerization:	Will not occur.

Section 11: TOXICOLOGY INFORMATION

ACUTE EFFECTS

Oral LD50:	Not known
Dermal LD50	Not known
Inhalation:	See Section 2
Eye Irritation:	See Section 2
Skin irritation:	See Section 2
Sensitization:	No data for product.

CHRONIC EFFECTS

Carcinogenicity:	This product may contain trace amounts of formaldehyde which is listed by IARC as carcinogenic. The ACGIH lists formaldehyde as a suspect human carcinogen. NTP lists formaldehyde as carcinogenic. WARNING-Substance contained in this product known to the State of California to cause cancer, birth defects or other reproductive harm – formaldehyde.
Mutagenicity:	No data for product.
Reproductive Effects:	No data for product.
Developmental Effects:	No data for product.

Section 12: ECOLOGICAL INFORMATION

Eco toxicity:	No data for product
Persistence/Degradability:	No data for product.
Bioaccumulation/Accumulation:	No data for product
Mobility in Environment:	No data for product

Section 13: DISPOSAL CONSIDERATIONS

Disposal:	Material is non-hazardous and no special treatment is required for disposal. Disposal in landfill must be in accordance with federal, state and local regulations.
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Section 14: TRANSPORTATION INFORMATION

DOT: Not Regulated

Section 15: REGULATORY INFORMATION

WARNING-Substance contained in this product known to the State of California to cause cancer, birth defects or other reproductive harm - Formaldehyde.

Section 16: OTHER INFORMATION

NFPA Labeling

Health – 1

Fire – 0

Reactivity – 0

0 = minimal hazard, 1= slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Section 16: OTHER INFORMATION(continued)

Acronyms:

ACGIH = American Conference of Governmental Industrial Hygienists

ASTM = American Society for Testing and Materials

DOT = Department of Transportation

DOT = Department of Transportation

IARC = International Agency for Research on Cancer

NFPA = National Fire Protection Agency

NIOSH = National Institute of Occupational Safety and Health

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

Section 16: OTHER INFORMATION (Continued)

TLV = Threshold Limit Value

TSCA = Toxic Substance Control Act

TWA = Time Weighted Average

Mg/m³ = Milligrams per Cubic Meter of Air

Prepared by: Formica Corporation,

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