

**SECTION 14 21 00**  
**ELECTRIC TRACTION ELEVATORS**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the engineering, furnishing and installation of complete and ready for operation electric traction elevator systems described herein and as indicated on the contract drawings.

**1.2 QUALITY CONTROL**

A. Qualifications:

1. Approval by the Contracting Officer is required of products or services of proposed manufacturer, suppliers, and installers and will be contingent upon submission by Contractor of a certificate stating the following:
  - a. Manufacturer is currently and regularly engaged in manufacturing of elevator equipment as one of his principal products.
  - b. Installer has technical qualifications of at least three years of successful experience, trained supervisory and installation personnel, and facilities to install elevator equipment specified herein.
  - c. Contractor shall submit a list of two or more prior hospital installations where all the elevator equipment the contractor proposes to furnish on this project has performed satisfactorily together under conditions of normal use. The list shall include projects that have been in operation for a period of not less than two years preceding the date of these specifications; include the name and addresses of the Medical Center and the Medical Center Administrators.
2. Approval will not be given to any Elevator Contractor and/or manufacturer who has established on prior projects, either Government, municipal, or commercial, a record for unsatisfactory elevator installations, or has repeatedly failed to complete contracts awarded to him within the contract time, or has not the requisite record of satisfactorily performing elevator installations of similar type and magnitude.

**1.3 APPLICABLE PUBLICATION**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
- B. Federal Specifications (Fed. Spec.):

- J-C-30B(1).....Cable And Wire, Electrical (Power, Fixed Installation)
- W-C-596F.....Connector, Plug, Electrical; Connector, Receptacle, Electrical
- W-F-406E.....Fittings for Cable, Power, Electrical and Conduit, Metal, Flexible May-95
- HH-I-558C.....Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type)
- W-F-408E.....Fittings for Conduit, Metal, Rigid (Thick- Wall and Thin-wall (EMT) Type)
- RR-W-410D.....Wire Rope And Strand April 84
- TT-E-489J.....Enamel, Alkyd, Gloss, Low Voc Content
- QQ-S-766 .....Steel, Stainless and Heat Resisting, Alloys, Plate, Sheet and Strip
- C. American Society of Mechanical Engineers (ASME):
- A17.1-2000 w/02 Addenda.Safety Code for Elevators and Escalators
- A17.2-2001.....Inspectors Manual for Electric Elevators and Escalators
- D. National Fire Protection Association (NFPA):
- 70-2002 or current code.National Electrical Code (NEC)
- 252-2003.....Fire Test of Door Assemblies
- E. American Society for Testing and Materials (ASTM):
- A1008/A1008M-02.....Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High Strength Low-Alloy with Improved Farability
- E1042-92 (1997) e1.....Acoustically Absorptive Materials Applied by Trowel or Spray
- F. Gauges:
- For Sheet and Plate: U.S. Standard (USS)
- For Wire: American Wire Gauge (AWG)
- G. American Welding Society (AWS):
- D1.1-2002.....Structured Welding Code Steel
- H. National Electrical Manufacturers Association (NEMA):
- LD 3-2000.....High-Pressure Decorative Laminates
- I. Underwriter's Laboratories (UL):
- 486A-97 Ninth Edition...Safety Wire Connectors and Soldering Lugs for with Copper Conductors
- 797-2000.....Seventh Edition Safety Electrical Metallic Tubing
- J. Institute of Electrical and Electronic Engineers (IEEE)
- K. Regulatory Standards:

VA Specification 16721 Fire Alarm - Local Building System

VA Barrier Free Design Handbook (H-18-13)

Uniform Federal Accessibility Standards - 1988

Americans with Disabilities Act - 1991

#### **1.4 SUBMITTALS**

- A. Before executing any work, furnish information sufficient to evidence full compliance with contract requirements on proposed items. Such information shall include, as required:  
Manufacturer's Name, Trade Names, Model or Catalog Number, Nameplate Data (size, capacity, rating) and corresponding specification reference (Federal or project specification number and paragraph).
- B. Shop Drawings:
  - 1. Complete scaled and dimensioned layout in plan and section showing the arrangement of equipment and all pertinent details of each elevator unit specified.
- C. Samples:
  - 1. One each of stainless steel, 75 mm by 125 mm (3 inches by 5 inches).
  - 2. One each of protection pads, 75 mm by 125 mm (3 inches by 5 inches) (if used).
  - 3. One each wall and ceiling material finish sample.
  - 4. One each car lighting sample.
- D. Complete construction drawings of elevator car enclosure, showing dimensioned details of construction, fastenings to platform, car lighting, ventilation, ceiling framing, top exits, and location of car equipment.

#### **1.5 ADDITIONAL EQUIPMENT**

Additional equipment required to operate specified equipment manufactured and contemplated for this installation shall be furnished. The cost of such equipment shall be included in the base bid.

#### **1.6 WARRANTY**

- A. Submit all labor and materials furnished in connection with elevator system and installation to terms of "Warranty of Construction" articles of FAR clause 52.246-21. Warranty shall commence upon final inspection and completion of performance test and upon full acceptance of the installation and shall concur with the length of the maintenance contract.
- B. If it becomes evident during warranty period that any device is not functioning properly or in accordance with specification requirements, or if in the opinion of the Contracting Officer, excessive maintenance and attention must be employed to keep device operational, device shall be removed and a new device meeting all requirements shall be installed

as part of work until satisfactory operation for installation is obtained. Period of warranty shall start anew for such parts from date of completion of each new installation performed, in accordance with foregoing requirements.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Where stainless steel is specified, it shall be corrosion resisting steel complying with Fed. Spec. QQ-S-766, Class 304 or 316, Condition A with Number 4 finish (150 grit) on exposed surfaces. Stainless steel shall have the grain of belting in the direction of the longest dimension and all surfaces shall be perfectly smooth and without waves. During erection, all stainless steel surfaces shall be protected by suitable material.
- B. Where cold rolled steel is specified, it shall be low-carbon steel rolled to stretcher leveled standard flatness, complying with ASTM A109.

### **2.2 MANUFACTURED PRODUCTS**

- A. Materials, devices, and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items.
- B. When two or more units of same class of materials, devices or equipment are required, these units shall be products of one manufacturer.
- C. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit.
  - 1. All components of an assembled unit shall be products of the same manufacturer.
  - 2. Parts which are alike shall be the product of a single manufacturer.
  - 3. Components shall be compatible with each other and with the total assembly for the intended service.
- D. If the elevator equipment to be installed is not known to the Contracting Officer, the Contractor shall submit drawings in triplicate for approval, showing all details or demonstrate to the satisfaction of the Contracting Officer that the equipment to be installed is in strict accordance to the specifications.
- E. Welding at the project site shall be made by welders and welding operators who have previously qualified by test as prescribed in American Welding Society Publication AWS D1.1 to perform type of work required.

### 2.3 CAR ENCLOSURE FOR PASSENGER AND SERVICE ELEVATORS

- A. Car enclosure shall have a dome height inside the cab of 2440 mm (8 feet).
- B. Securely fasten car enclosure to platform by through bolts located at intervals of not more than 450 mm (18 inches) running through an angle at the base of panels to underside of platform. Provide 6.3 mm (1/4 inch) bolts with nuts and lock washers.
- C. Front return wall panel, entrance columns, rear corner columns, entrance head, jamb and transom shall be 14-gauge stainless steel full height of car. Side and rear wall panels 1220 mm (48 inches) from finished floor to top of panel shall be 14 gauge stainless steel. Side and rear panels from 1200 mm (48 inches) above finished floor up to and including the canopy shall be 14-gauge cold rolled steel covered with high pressure plastic laminate above the handrail and impact panels below the handrails. Apply to a minimum thickness of 13 mm (1/2 inch) particle board that meets requirements of ASTM E 84, UL 723, NFPA 252 or CAN/ULC-S102.2, whichever is applicable. Submit a method of fastening particle board to steel. This particle board shall be one piece on back and sides. It shall be flush with the face of the bottom section of the stainless steel. Plastic laminate shall comply with Federal Spec. L-P-508, Style Type 1, Class 1. Color is specified in Section 09 06 00, SCHEDULE FOR FINISHES, Interior shall be flush panel construction with angles welded on exterior to insure adequate rigidity. Coat exterior of panels with mastic sound insulation material approximately 2.5 mm (3/32 inch) thick followed by a prime coat. Mastic material shall conform to ASTM E1042. Stainless steel wainscot and wall panels above shall be radius vee joint with ends of panels turned to exterior and bolted together.
  - 1. Smooth and flush all joints with no ragged or broken edges. Plastic laminate shall comply with NEMA LD3, textured finish, general purpose type, grade designation GP 50, 0.050-inch thickness, except with a minimum wear resistance of 1200 cycles, and backer sheet, grade designation BK 20, 0.020-inch thickness.
- D. Provide duplex, GFCI protected type receptacle in car. Locate flush-mounted receptacle on the centerline of the main car operating panel, 150 mm (6 inches) above the car floor.
- E. Construct canopy of not less than 12-gauge steel.
- F. Provide car lighting with LED lamps mounted within a paneled stainless ceiling. Maintain light level at a minimum 40-foot candles. Enclose the entire vertical space between the light trough outer edge and the cab

canopy. Install the panels so that they are removable for cleaning and relamping.

- G. Provide a blower unit arranged to exhaust through an opening in the canopy if replacing an existing. Provide a stainless or chrome plated fan grill around the opening. Provide 2-speed type unit, capable of rated free delivery air displacement of approximately 380 and 700 cfm at respective speeds. Mount unit on top of car with rubber isolation to prevent transmission of vibration to car structure. Provide screening over exhaust end of blower. Provide a 3-position switch to control the unit in main car operating panel.
- H. Car enclosure base shall be of 14-gauge stainless steel, 150 mm (6 inches) high. Provide straight type base at front return sides, and rear of car. Vertical face of base at sides and rear shall be flush with, or recessed behind the wainscot directly above the base, Base shall be not less than 14-gauge. There shall be no exposed fastenings in base. Provide natural ventilation openings divided equally between the bottom and top of the car enclosure which shall provide a minimum 3.5% of the inside car floor area.
- I. Provide car enclosure with two sets of stainless steel handrails.
  - 1. 75 mm (3 inches) wide by 9 mm (.35 inches) thick flatstock located with centerlines 750 mm and 1050 mm (30 inches and 42 inches) above the car floor.
  - 2. Locate handrails approximately 38 mm (1 ½ inch) from cab wall. Install handrails on two side and rear walls. Curve ends of handrails to walls. Conceal all handrail fastenings. Handrails shall be removable from inside the car enclosure.
- J. Provide an emergency car lighting system on each car, consisting of a rechargeable battery, charger, controls. Include required transformer. The system shall automatically provide emergency light in the car upon failure or abnormal interruption of the normal car lighting service, and function irrespective of the position of the light control switch in the car. Provide lighting integral with portion of normal car lighting system. The system shall be capable of maintaining a minimum illumination of 1.0 foot-candle when measured 1200 mm (4 feet) above the car floor, and approximately 300 mm (one foot) in front of the car operating panel, for a period of not less than four hours.
  - 1. Emergency light shall be located in the main car operating panel.
  - 2. A constant pressure switch that automatically returns to the "OFF" position when released, and a pilot light, for the periodic testing of battery and lamps, shall be provided.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Before fabrication, take necessary job site measurements, and verify where work is governed by other trades. Check measurement of space for equipment, and means of access for installation and operation. Obtain dimensions from site for preparation of shop drawings.
- B. Ensure the following existing conditions are proper for the installation of the materials. If the Contractor requires changes in size or location of trolley beams, or their supports, trap doors, etc., to accomplish the above, he must make such arrangements, subject to approval of the Contracting officer and include cost, thereof, in his bid.
  - 1. Supply of power for emergency cab lighting and ventilation from a power panel fed by building emergency circuits.

**3.2 CLEANING**

Prior to final acceptance, remove protection from finished or ornamental surfaces, and clean and polish surfaces with regard to type of material.

**3.3 WORKMANSHIP AND PROTECTION**

- A. All installations shall be made in a first class, neat and skillful manner by mechanics experienced in the trade involved. All details of the installation shall be mechanically and electrically correct. All materials and equipment shall be new and without imperfections.
- B. Recesses, cutouts, slots, holes, patching, grouting, refinishing to accommodate installation of equipment shall be included in the Contractor's work.
- C. No structural members shall be cut or altered. Work in place which is damaged or defaced shall be restored equal to original condition.
- D. Finished work shall be straight, level and plumb, with true, smooth surfaces and lines. All machinery and equipment shall be protected against dirt, water, or mechanical injury. At final completion, all work shall be thoroughly cleaned and delivered in perfect unblemished condition.

**3.7 INSPECTIONS**

- A. Inspection shall be made of workmanship and equipment furnished and installed for compliance with specification.

**3.8 PAINTING AND FINISHING**

- A. Elevator cabs for passenger and service elevators:
  - 1. Interior steel surfaces shall be parkerized or given equivalent rust resistant treatment before finish is applied.

2. Factory finish interior steel surfaces with one coat of baked on enamel or proxylin lacquer. For color, see Section 09 06 00, SCHEDULE FOR FINISHES.

### **3.10 INSPECTIONS AND MAINTENANCE**

- A. Furnish complete maintenance and inspection service on entire elevator installation for a period of (1) one year after completion and acceptance of the elevator installation by the Interior Designer. This maintenance service shall begin concurrently with the warranty. Maintenance work shall be performed by skilled elevator personnel directly employed and supervised by the same company that furnished and installed the elevator finishes.

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## **SECTION 09 06 00**

### **SCHEDULE FOR FINISHES:**

#### **PART 1 - GENERAL**

SECTION 09 06 00, SCHEDULE FOR FINISHES: As a master format for construction projects, to identify interior and exterior material finishes for type, texture, patterns, color and placement.

#### **1.1 QUALIFICATIONS**

- A. Approval by the Contracting Officer is required for products or services of proposed manufacturers, suppliers and installers and shall be contingent upon submission by Contractor of a certificate stating the following:
  1. Elevator contractor is currently and regularly engaged in the installation of elevator equipment as one of his principal products.
  2. Elevator contractor shall have three years of successful experience, trained supervisory personnel, and facilities to install elevator equipment specified herein.
  3. The installers shall be Certified Elevator Mechanics with technical qualifications of at least five years of successful experience and Apprentices actively pursuing certified mechanic status.
 

Certificates are required for all workers employed in this capacity.
  4. Elevator contractor shall submit a list of two or more prior hospital installations where all the elevator equipment he proposes to furnish for this project functioned satisfactorily to serve varying hospital traffic and material handling demands. Provide a list of hospitals that have the equipment in operation for two years preceding the date of this specification. Provide the names and

addresses of the Medical Centers and the names and telephone numbers of the Medical Center Administrators.

- B. Approval will not be given to elevator contractors and manufacturers who have established on prior projects, either government, municipal, or commercial, a record for unsatisfactory elevator installations, have failed to complete awarded contracts within the contract period, and does not have the requisite record of satisfactorily performing elevator installations of similar type and magnitude.

## 1.2 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification. Elevator installation shall meet the requirements of the latest editions published and adopted by the United States Department of Veterans Affairs on the date contract is signed.
- B. Federal Specifications (Fed. Spec.):
- J-C-30B.....Cable and Wire, Electrical (Power, Fixed Installation)
  - W-C-596F.....Connector, Plug, Electrical; Connector, Receptacle, Electrical
  - W-F-406E.....Fittings for Cable, Power, Electrical and Conduit, Metal, Flexible
  - HH-I-558C.....Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type)
  - W-F-408E.....Fittings for Conduit, Metal, Rigid (Thick- Wall and Thin-wall (EMT) Type)
  - RR-W-410.....Wire Rope and Strand
  - TT-E-489J.....Enamel, Alkyd, Gloss, Low VOC Content
  - QQ-S-766 .....Steel, Stainless and Heat Resisting, Alloys, Plate, Sheet and Strip
- C. International Building Code (IBC)
- D. American Society of Mechanical Engineers (ASME):
- A17.1.....Safety Code for Elevators and Escalators
  - A17.2.....Inspectors Manual for Electric Elevators and Escalators
- E. National Fire Protection Association:
- NFPA 13.....Standard for the Installation of Sprinkler Systems
  - NFPA 70.....National Electrical Code (NEC)
  - NFPA 72.....National Fire Alarm and Signaling Code
  - NFPA 101.....Life Safety Code
  - NFPA 252.....Fire Test of Door Assemblies

- F. American Society for Testing and Materials (ASTM):
- A1008/A1008M-09.....Steel, Sheet, Cold Rolled, Carbon, Structural,  
High-Strength Low-Alloy and High Strength Low-  
Alloy with Improved Farability
  - E1042-02.....Acoustically Absorptive Materials Applied by  
Trowel or Spray
- G. Manufacturer's Standardization Society of the Valve and Fittings  
Industry (MSS):
- SP-58.....Pipe Hangers and Supports
- H. Society of Automotive Engineers, Inc. (SAE)
- J517-91.....Hydraulic Hose, Standard
- I. Gages:
- For Sheet and Plate: U.S. Standard (USS)
  - For Wires: American Wire Gauge (AWG)
- J. American Welding Society (AWS):
- D1.1.....Structured Welding Code - Steel
- K. National Electrical Manufacturers Association (NEMA):
- LD-3.....High-Pressure Decorative Laminates
- L. Underwriter's Laboratories (UL):
- 486A.....Safety Wire Connectors for Copper Conductors
  - 797.....Safety Electrical Metallic Tubing
- M. Institute of Electrical and Electronic Engineers (IEEE)
- N. Regulatory Standards:
- Uniform Federal Accessibility Standards
  - Americans with Disabilities Act

### 1.3 SUBMITTALS

- A. Before execution of work, furnish information to evidence full compliance with contract requirements for proposed items. Such information shall include, as required: Manufacturer's Name, Trade Names, Model or Catalog Number, Nameplate Data (size, capacity, and rating) and corresponding specification reference (Federal or project specification number and paragraph). All submitted drawings and related elevator material shall be forwarded to the Contracting Officer.
- B. Shop Drawings:
1. Complete scaled and dimensioned layout in plan and section view showing the arrangement of equipment and all details of each and every elevator unit specified including:
    - e. Weights of principal parts.
- C. Samples:
1. One each of stainless steel, 75 mm x 125 mm (3 in. x 5 in.).
  8. One each wall and ceiling material finish sample.

9. One each car lighting sample.

- D. Complete construction drawings of elevator car enclosure, showing dimensioned details of construction, fastenings to platform, car lighting, ventilation, ceiling framing, top exits, and location of car equipment.

#### 1.4 WARRANTY

- A. Submit all labor and materials furnished in connection with elevator system and installation to terms of "Warranty of Construction" articles of FAR clause 52.246-21. The Warranty period shall commence after final inspection, completion of performance test, and upon full acceptance of the installation and shall concur with the guarantee period of service.
- B. During warranty period if a device/finish is not functioning properly or in accordance with specification requirements, or if in the opinion of the Contracting Officer's Technical Representative, excessive maintenance and attention must be employed to keep device/finish operational, device/finish shall be removed and a new device/finish meeting all requirements shall be installed as part of work until satisfactory operation of installation is obtained. Period of warranty shall start anew for such parts from date of completion of each new installation performed, in accordance with foregoing requirements.

#### 2.1 CAR ENCLOSURE: PASSENGER/SERVICE ELEVATORS

- A. Lighting for passenger elevators:
1. Provide hanging ceiling frame with six lay-in panels with stainless satin finish. Construct frame of 1/8 in. x 1 1/2 in. x 1 1/2 in. "T" and "L" sections, divide ceiling into six panels.

**2. Provide LED down light fixtures above the ceiling panels. Maintain a minimum light level of 50-foot candles at 914 mm (36 in.) above the finished floor. PERFORMANCE**

- LED module efficacy: 18 lm/W at 15.4 W
- Reflector efficiency: 75 percent
- Luminaire light output: 210 lumens
- Luminaire power (including driver): 21 W
- Luminaire efficacy: 10 lm/W (210 lm at 21 W)
- Less than 6500 K desired
- 40-degree beam angle

- B. Provide car enclosure with two sets of stainless steel handrails.
1. 75 mm (3 in.) wide x 9 mm (3/8 in.) thick flatstock located with centerlines 750 mm and 1050 mm (30 in. and 42 in.) above the car floor.
  2. Locate handrails approximately 38 mm (1 1/2 in.) from cab wall. Install handrails on two side and rear walls. Curve ends of handrails to walls. Conceal all handrail fastenings. Handrails shall be removable from inside the car enclosure.

## 2.2 WORKMANSHIP AND PROTECTION

- A. Finished work shall be straight, plumb, level, and square with smooth surfaces and lines. All machinery and equipment shall be protected against dirt, water, or mechanical injury. At final completion, all work shall be thoroughly cleaned and delivered in perfect unblemished condition.

## 3.1 CLEANING

- A. Prior to final acceptance, remove protective covering from finished or ornamental surfaces. Clean and polish surfaces with regard to type of material.

## 3.2 PAINTING AND FINISHING

- A. Elevator Cabs for Passenger and Service Elevators:
1. Interior and exterior steel surfaces shall be parkerized or given equivalent rust resistant treatment before finish is applied.
  2. Interior steel surfaces shall be factory finished with one coat of baked on enamel or proxylin lacquer.

## 4.1 INTERIOR FINISHES

Room Code	Room or Space	Floor	Base	Walls	Wain	Ceiling	Door Symbol	HW number
N/A	Elevator Cab	By VA	Brushed Stainless Steel	High Pressure Laminate	MDC Impact Walls	Stainless Steel Panel	Existing	N/A

- A. Elevator Cabs for Passenger Elevators:
- Panels** 3/4-inch thick
- Toe Kick** 4 inches tall (other heights available)
- Reveals** Fills the space between the panels at the cab corners and above the panels
- Handrails** Pre-installed on rear wall and/or side wall panels.
- Pad Hooks** Pre-installed
- Pads** Set of three vinyl pads

1. Interior shall include a stainless steel top cap and bottom kick plate. Lower section below the handrail to be a texturized metallic decorative impact panel to aid in impact resistance. Upper section above handrail to be a standard laminate finish. Stripe behind handrail to be stainless steel. Ceiling to be modular panels with LED recessed/puck lighting
2. Interior shall include double handrails on a brushed stainless strip.
  1. 75 mm (3 in.) wide x 9 mm (3/8 in.) thick flatstock located with centerlines 750 mm and 1050 mm (30 in. and 42 in.) above the car floor.
    - A. Locate handrails approximately 38 mm (1 1/2 in.) from cab wall. Install handrails on two side and rear walls. Curve ends of handrails to walls. Conceal all handrail fastenings. Handrails shall be removable from inside the car enclosure.

### 3.Laminate:

#### **Wilsonart® Custom Laminate or similar/Equal 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.wilsonartlaminate.com](http://www.wilsonartlaminate.com)

##### **2. Product Description**

##### **Recommended Uses**

Custom Laminate is suitable for use on fine quality residential and contract furniture and casework and for architectural application on columns, wainscoting, valances, cornices, interior doors and divider systems.

Most applications of Custom Laminate are made with one of these basic laminate types:

- **General Purpose (HGS) 173, 174** are most frequently used for work surfaces on counters, islands, vanities, desks and tables. Typical vertical uses include surfacing for wall panels, teller cages and the front panels of workstations, such as those in hospitals, airports and restaurants.
- **Vertical Surface (VGP) 363, 364** are intended for vertical applications where a functional, durable, decorative surface must absorb somewhat less impact than a comparable horizontal surface. They often appear on the vertical surfaces of cabinet walls, doors and drawer panels, desks, restaurant booths and maitre d' stations and as architectural cladding.
- Silk-Screen Process uses types 173 and 363.
- Graphic Image Process uses Types 174 and 364.

##### **Product Composition**

Wilsonart Custom Laminate decorative surface papers impregnated with melamine resins are pressed over kraft paper core sheets impregnated with phenolic resin. These sheets are then bonded at pressures greater than 1000 pounds per square inch and temperatures approaching 300°F (149°C). Finished sheets are trimmed and the backs sanded to facilitate bonding. Wilsonart Custom Laminate creates a unique sheet of laminate from two processes:

- **Silk-Screen:** A multi-colored detailed image is screen-printed onto a sheet of decorative paper, which is then formed into a laminate sheet.
- **Graphic Image:** Paintings, digital images and/or photography are printed onto special decorative paper to be used for lamination.

#### **Basic Limitations**

Wilsonart Laminate is intended for interior use only and is not recommended for application to plaster or concrete walls or gypsum wallboard. It is not structural material and must be bonded to a suitable substrate.

Do not subject Wilsonart Laminate to extremes in humidity, temperatures over 275° F (135°C) for sustained periods of time, or intense, continuous, direct sunlight.

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#### **Finishes**

- #60 Matte

Textured finish with a moderate reflective quality. Recommended for horizontal and vertical application. Glossometer reading: MD and CD 10 ± 2.

- #90 Crystal

A very finely beaded texture that minimizes smudges and finger marks and improves scratch resistance. Recommended for horizontal and vertical application. Glossometer reading: MD and CD 13 ± 3.

*NOTE: Glossometer readings are made at a 60° angle of incidence. MD refers to the machine direction of a laminate sheet, and CD refers to the cross direction. Wilsonart® Custom Laminate may be specified in other optional designer finishes. Contact your local representative for availability.*

#### **\*Patterns & Colors**

Solid Colors Yes

Woodgrains and Patterns Yes

\*Some limitations apply by process.

#### **\*Sheet Widths**

36" 48"

(914mm) (1219mm)

\*For wider images, contact the Custom Laminate Department.

#### **Sheet Lengths**

96" 120" \*144"

(2438mm) (3048mm) (3658mm)

#### **Sheet Thicknesses**

**Typical Wilsonart Thickness** NEMA Thickness Weight PSF

#### **General Purpose**

(HGS) 173, 174

0.048" ± 0.005"

(1.22mm ± 0.13mm)

0.048" ± 0.005"  
 (1.2mm ± 0.12mm) 0.322#

**Vertical Surface**

**Type (VGS) 363, 364**

0.028" + 0.001" - 0.004"

(0.71mm + 0.03 - 0.1mm)

0.028" ± 0.004"

(0.7mm ± 0.10mm) 0.196#

**3. Technical Data**

*NOTE: Each Typical Wilsonart Value should be compared to the NEMA Standard next to it. For physical properties of Wilsonart Laminate Types 107 and 335, please refer to the Basic Types Tech Data.*

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**Physical Properties of Custom Laminate**

**NEMA Test**

**Typical Wilsonart**

**Type 107**

**Value**

**NEMA Standard**

**HGS**

**Typical Wilsonart**

**Type 335**

**Value**

**NEMA Standard**

**VGP**

Thickness **0.048" ± 0.005"**

**(1.2mm ± 0.13mm)**

0.048" ± 0.005

(1.2mm ± 0.12mm)

**0.028" ± 0.004"**

**(0.71mm ± 0.1mm)**

0.028" ± 0.004"

(0.7mm ± 0.1mm)

Appearance **No ABC defects** No ABC defects **No ABC defects** No ABC defects

Light Resistance **Slight effect** Slight effect **Slight effect** Slight effect

Cleanability (cycles) **10** 20 (max.) **10** 20 (max.)

Stain Resistance

Reagents 1-10

Reagents 11-15

**No effect**

**Slight effect**

No effect

Moderate effect

**No effect**

**Slight effect**

No effect

Moderate effect

Boiling Water

Resistance **No effect** No effect **No effect** Slight effect

High Temperature

Resistance **Slight effect** Slight effect **Slight effect** Slight effect

Impact Resistance **65" (1651mm)** 50" (1270mm) **45" (1143mm)** 20" (508mm)

Radiant Heat

Resistance **160 seconds** 125 sec. (min.) **120 seconds** 80 sec. (min.)

Dimensional Stability

Machine Direction

Cross Direction

**0.3%**

**0.7%**

0.5% (max.)

0.9% (max.)

**0.5%**

**0.8%**

1.1% (max.)

1.4% (max.)

Surface Wear

Resistance (cycles) **700** 400 (min.) **700** 400 (min.)

**Typical Fire Test Data**

High-pressure laminates are subject to Flame Spread and Smoke Developed standards in structures where codes establish such conditions.

Test data to determine compliance with these codes are 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). Tests were conducted in accordance with test method and mounting procedure as described in Paragraph X1.7.2 of the test method. This procedure is cataloged by Underwriters Laboratories, Inc. as UL 723.

**Typical Frame Spread and Smoke Developed Properties**

**Silk-Screen Process**

Product Type Test Condition Flame Spread Smoke Developed  
Vertical Surface Type 363 Unbonded 30 15

Specific Flame Spread and Smoke Developed properties for Silk-Screen and Graphic Image types will depend on the specific design selected. Testing on individual designs will be required to verify these values.

**Model Code Designations used to determine flame spread classification**

Flame Spread  
Classification

(Max. Rating)

International

(IBC)

Life Safety

(NFPA 101)

25 A A

75 B B

200 C C

(RE: Architectural Woodwork Quality Standard, 8th Edition, Version 1.0, - 2003)

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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 Standards**

Wilsonart Custom Laminate conforms to the relevant standards of the American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA) LD 3-2005, for thickness, performance properties and appearance. Various grades of Wilsonart Custom Laminate meet or exceed

the International Standards Organization specifications as found in ISO 4586, titled, "High-Pressure Decorative Laminate (HPDL) - Sheets Based on Thermosetting Resins - Part 1: Specifications."

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](http://www.greenguard.org).

#### **4. Installation: Fabrication and Assembly Recommendations**

Wilsonart Specialty Laminate tends to be more brittle than conventional laminate, so it must be handled more carefully.

Both the laminate sheet and the substrate material should be ordered sufficiently in advance of fabrication to allow time to reduce internal moisture. During cold months, store laminate sheets and substrate material in a heated room with moving air. During periods of warm weather with high humidity, still air is preferable.

For best results, the room where fabrication takes place, as well as all materials, should be preconditioned to 65°F (18°C) or above. The ideal climate is 75°F (24°C) at 45% relative humidity.

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

#### **Materials**

Desirable substrate materials include particleboard, fiberboard and plywood with one A face. Any substrate material should have a density of at least 45 pounds per cubic foot.

Proper adhesive selection is critical to achieving a correct bond for all Wilsonart Laminates since glue lines must not show color. Rigid-set, permanent-type adhesives, such as white glue (PVAc), and uncolored contact adhesives are recommended. Wilsonart® Adhesives, available from your Wilsonart product distributor, meet the majority of bonding conditions. Permanent PVAc types include Wilsonart WA10 and WA20. Contact adhesives include WA950.

#### **Methods**

Fabrication of components should be done using approved methods. Assembled pieces should meet specifications of DLPA (Decorative Laminate Products Association), ANSI-A-161.2-1979, and "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program" guidelines of the Architectural Woodwork Institute where applicable.

Give special attention to edges and seams. To prevent stress cracking, do not use square-cut inside corners. All inside corners should have a minimum of one-eighth inch (3.18mm) radius, and all edges

should be routed smooth. Drill oversized holes for screws or bolts. Screws or bolts should be slightly countersunk into the face side of a laminate-clad substrate. Use permanent adhesive to reinforce contact adhesive at corners, along all edges, and at seams.

#### **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.

#### **6. 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 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
6. Potassium permanganate
7. Berry juices
8. Silver nitrate, in 1% concentration or greater
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 decorative laminate that can withstand these and other chemicals, please refer to the Tech Data for Wilsonart® Chemsurf® Chemical-Resistant Laminates.**

Free copies of the "Care and Maintenance Guide," which covers all Wilsonart products, are available. The guide can be accessed at <http://www.wilsonartlaminate.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.

\*Not applicable for Phenolic Laminate Backing Sheet.

#### **7. 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® Custom Laminate, produced by Wilsonart International, Inc., Temple, Texas 76503-6110

Type: Specify

Silk-Screen (Types 173 and 363)

Graphic Image (Types 174 and 364)

Surface (Silk-Screen only)

Color Number: \_\_\_\_\_

Color Name: \_\_\_\_\_

Edge Trim

Color Number: \_\_\_\_\_

Color Name: \_\_\_\_\_

Adhesive

Name: \_\_\_\_\_

Grade/Type: \_\_\_\_\_

Brand: Wilsonart Adhesive

Note: Please consult with the Custom Laminate Department (800-433-3222) for instructions to complete this document.

CustomLam (

#### **4. MDC Impact Walls**

##### **Product Specifications**

**Content:** High Impact Thermoplastic

**Panel Size:** 4' x 8'

**Thickness:** 1/32" prior to forming.

**Weight:** 8 lbs per sheet

**Abrasion Resistance:** Hoffman Scratch Test 700 grams

**Solvent Resistance:** 50 MEK  
**Heat Resistance:** Up to 120 degrees  
**UV Stability:** > 200 hours  
**Fire Rating:** Class A  
**Flame Spread:** 25  
**Smoke Developed:** 125  
**Specific Gravity:** 1.35 (ASTM D-792)  
**Tensile Strength:** 5,000 psi (ASTM D-638)  
**Notched Izod Impact Resistance:** 3 ft-lbs/in (ASTM D-256)  
**Rockwell Hardness (R Scale):** 88 (ASTM D-785)  
**MEK Double Rubs:** 70 cycles  
**Taber Abrasion:** CS-10 Wheel 1,000g 400 Cycles (ASTM D-1044)