**This Specifications Sheet utilizes the Construction Specifications Institute (CSI) MasterFormat™. The 1995 edition numbers are listed first; numbers in italics are from the 2004 edition. Options and dimensions are indicated by brackets [ ]. Specifier Notes precede specification text; edit for project requirements or delete in final copy. Metric conversion is calculated by multiplying: Number of Inches x 25.4 = Millimeters, rounded off. Manufactured by Kolbe & Kolbe Millwork Co., Inc., Wausau, Wisconsin.**

**SECTION 08212A *or 08 14 23.02***

**HERITAGE SERIES FOLDING WINDOWS**

##### PART 1 GENERAL

**1.01 SECTION INCLUDES**

1. Outswing Folding Windows with [3 inch (76mm) stiles] [4-5/8 inch (117mm) stiles] [6 inch (152mm) stiles] complete with [hardware], [glazing], weatherstripping, [jamb extensions] [removable grilles] [grilles-in-the-airspace] [performance divided lites] and standard or specified anchorages, trim, attachments, and accessories.

**1.02 RELATED SECTIONS**

SPECIFIER NOTE: Revise sections below to suit project requirements and to include desired options.

Consult state and local building codes for specific requirements.

**The MasterFormat 1995 edition numbers are listed first; *numbers in italics are from the 2004 edition.***

* Section 01330 *or 01 33 00* – Submittal Procedures.
* Section 01620 *or 01 62 00* – Product Options.
* Section 01630 *or 01 25 00* – Product Substitution Procedures.

*(2004 title: Substitution Procedures.)*

* Section 01650 *or 01 65 00* – Product Delivery Requirements.
* Section 01660 *or 01 66 00* – Product Storage and Handling Requirements.
* Section 01730 *or 01 73 00* – Execution.
* Section 01740 *or 01 74 00* – Cleaning.

*(2004 title: Cleaning and Waste Management.)*

* Section 01760 *or 01 76 00* – Protecting Installed Construction.
* Section 06100 *or 06 10 00* – Rough Carpentry.
* Section 06200 *or 06 20 00* – Finish Carpentry.
* Section 07210 *or 07 21 00* – Building Insulation.

*(2004 title: Thermal Insulation.)*

* Section 07900 *or 07 92 00* – Joint Sealants.
* Section 08800 *or 08 80 00* – Glazing.
* Section 09900 *or 09 90 00* – Paints and Coatings.

*(2004 title: Painting and Coating.)*

**1.03 REFERENCES**

1. American Society for Testing and Materials (ASTM):
2. ASTM E283-04’ - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
3. ASTM E330-02’ - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
4. ASTM E547-00’ - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
5. ASTM E1425-07’ or AAMA 1801-97 - Certification of Acoustical Performance.
6. ASTM F588-07’ (Windows).
7. ASTM E 1996-04’ - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes.
8. ASTM E 1886-04’ - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
9. ASTM E2190-08’ - Standard Specification for Insulating Glass Unit Performance and Evaluation.
10. American Architectural Manufacturers Association/Window and Door Manufacturers Association (AAMA/WDMA), American National Standards Institute/Window and Door Manufacturers Association (ANSI/WDMA), Canadian Standards Association (CSA).
11. AAMA/WDMA/CSA 101/I.S.2/A440-05’, 101/I.S.2/A440-08’ - Standard / Specification for Windows, Doors and Skylights.
12. WDMA I.S. 4-07’A Water Repellant Preservative Treatment for Millwork.
13. National Fenestration Rating Council (NFRC)
14. NFRC 100-2004’ & 2010’ - Determining Fenestration U-Factor.
15. NFRC 100-2004’ & 2010’ - Test Procedure for Thermal Transmittance of Fenestration.
16. NFRC 200-2004’ & 2010’ Determining Fenestration SHGC & Tv.
17. ASTM E1423-06’ - Determining Thermal Transmittance of Fenestration Systems.
18. NFRC 500-2010’ - Determining Fenestration Product Condensation Resistance.
19. WDMA Hallmark Program
20. WDMA Hallmark Program Procedural Guide C.S.-1.

E. Consumer Product Safety Commission (CPSC)

1. CPSC 16 CFR 1201 - Safety Glazing Standards.
2. ANSI Z-97.1 - Safety Glazing Standards for Tempered Glass.

**1.04 SYSTEM DESCRIPTION**

See the Technical Information section at the beginning of this manual for Air, Water, Structural Test Reports and Energy Rating Reports. For updated reports, please visit our website at http://www.kolbewindows.com.

A. Design and Performance Requirements

1. Applications of windows include:
   1. Residential application (design pressure required \_\_\_\_\_\_ psf).
   2. Light commercial application (design pressure required \_\_\_\_\_\_ psf).
2. Air, water, structural, and forced entry resistance shall be at levels which meet the specified design pressure as per AAMA/WDMA/CSA 101/I.S.2/A440-05’, 101/I.S.2/A440-08’.
3. Unique, non-listed unit’s performance, when not tested, may be addressed by a manufacturer’s Statement of Qualification.
4. Mullion design can be adequate for specified design pressure.

B. Energy Ratings

All units tested are one-lite, residential, LoE2-270, argon filled, with Kolbe ID No. as listed on the NFRC label adhered to each unit. Values are certified per NFRC and units are labeled per state requirements.

1. Unique, non-listed units may have U & SHGC determined by NFRC procedures and listed on a manufacturer’s Statement of Qualification.

**1.05 SUBMITTALS**

A. Shop Drawings: Submit shop drawings in accordance with Section 01330 Submittal Procedures *or Section 01 33 23 – Shop Drawings, Product Data, and Samples.*

B. Product Data: Submit catalog data in accordance with Section 01330 Submittal Procedures *or Section 01 33 23 – Shop Drawings, Product Data, and Samples.*

C. Samples: Submit corner section in accordance with Section 01330 Submittal Procedures *or Section 01 33 23 – Shop Drawings, Product Data, and Samples.*

Include glazing system, quality of construction, specified finish, and color.

D. Installation Instructions.

E. Quality Control Submittals: Certificates: Submit performance test results reported by independent laboratory or manufacturer’s Statement of Qualification indicating compliance with specified performance and design requirements.

**1.06 QUALITY ASSURANCE**

A. Insulating Glass – two certification programs: IGCC and IGMAC. Possible IGMA Certification (harmonized IGMAC & SIGMA).

B. NFRC Certification Program for Energy Rating of Fenestration.

C. WDMA Hallmark Program. Be sure to check the Air-Water-Structural Test Reports Manual on our website at http://www.kolbewindows.com.

D. IGMAC-Insulating Glass Manufacturer’s Association Canada.

E. [If required: Mock Up: Provide sample installation for field testing unit performance requirements for approval - Contractor to perform tests in accordance with AAMA 502-02 using Method A and/or Method B.]

**1.07 DELIVERY, STORAGE AND HANDLING**

1. Proceed in accordance with Section 01650 *or 01 65 00* – Product Delivery Requirements, Section 01660 *or 01 66 00* – Product Storage and Handling Requirements, and Installation Instructions.
2. Deliver in original packaging, store in an upright position off the ground in a clean, dry area. Protect from weather and construction activities.
3. Prime or seal wood surfaces, including surfaces to be concealed by wall construction if more than 30 days will expire between delivery and installation.

**1.08 WARRANTY**

A. Glass: See Kolbe & Kolbe Glass Warranty for details and exclusions.

B. Pre-finishing: See Kolbe & Kolbe Finish Warranty for details and exclusions.

C. Product Defects: See Kolbe & Kolbe Product Warranty for details and exclusions.

D. International: See Kolbe & Kolbe International Warranty for details and exclusions.

These warranties are available on our website at http://www.kolbewindows.com.

**PART 2 PRODUCTS**

**2.01 MANUFACTURED UNITS**

1. Description: Outswing folding windows are factory assembled, as manufactured by Kolbe & Kolbe Millwork Co., Inc., Wausau, Wisconsin.
2. Units available: [Standard Performance] [High Performance].

**2.02 MATERIALS**

*Edit for Project Requirements*.

1. Frame: Constructed of kiln-dried pine, with pine interior stops, water repellent, and preservative treated in accordance with WDMA I.S. 4-07’A. As standard, wood units have 1-15/16 inch (51mm) brickmould applied.
2. Frames ship setup, or assembled, as standard. Frames in excess of 177 inches (4496mm) by 106 inches (2692mm) will ship knocked down.
3. Jamb Thickness: Two piece assembled frame is 1-1/16 inch (27mm) thick at side jambs with a 1/2 inch (13mm) rabbeted-in interior stop for a total of 1-9/16 inch (40mm). Frame at head jamb is 3-25/32 inch (96mm).
4. Basic jamb width: Standard is 6-9/16 inch (167mm).
5. Standard overall jamb with sill extensions applied: 7-7/8 inch (200mm).
6. Sill thickness: 2-7/16 inch (62mm).
7. Sill: Standard weep sill with bumper is made of Bronze anodized 1/8 inch (3.2mm) thick 6063 extruded aluminum alloy with a thick oak interior threshold. [Recessed weep sill made of Bronze anodized finish] [Recessed floor track sill, weep or non-weep, for interior applications]
8. Corner Construction: Head and sill are dadoed with side jambs fastened by staples and screws.
9. Other wood species available: [Pine (standard)] [Alder] [Fir] [Maple] [Oak] [Cherry] [Mahogany] [Walnut] [Bamboo] [other] on exposed wood frame components.
10. [FSC Certified wood requiring Chain of Custody (COC) label].
11. Panels: Window panels are constructed of kiln dried pine, water repellent, preservative treated in accordance with WDMA I.S. 4-07’A.
12. Thickness: 1-3/4 inch (44mm). [2-1/4 inch (57mm)] Note: Folding windows with triple pane option require a 2-1/4 inch (57mm) thick panel.
13. Top Rails: Standard is 3 inch (76mm). [4-5/8 inch (117mm) top rail] [6 inch (152mm) top rail]
14. Stiles: All locking stiles are constructed of laminated veneer lumber (LVL) with solid wood edge banding. Standard stile dimension is 3 inch (76mm). [4-5/8 inch (117mm) stiles] [6 inch (152mm) stiles]
15. Bottom Rail: Standard is 3 inch (76mm). [4-5/8 inch (117mm) bottom rail] [6 inch (152mm) bottom rail] [7-9/16 inch (192mm) bottom rail] [12-5/8 inch (321mm) bottom rail]
16. Corner Construction: Joined by wood dowels and glue.
17. Other wood species available: [Pine (standard)] [Alder] [Fir] [Maple] [Oak] [Cherry] [Mahogany] [Walnut] [Bamboo] [other] on exposed wood sash components.
18. [FSC Certified wood requiring Chain of Custody (COC) label].
19. Interior glazed.
20. Surface Finish:
21. Exterior Finish – Wood:
22. Standard: Exterior frame is to be treated bare wood with a primer coat applied. Exterior panel is to be treated bare wood with no primer coat applied.
23. [Exterior frame and panel is to be treated bare wood with no primer coat applied.]
24. [Exterior frame and panel is to be treated bare wood with primer coat applied.]
25. [Optional Exterior Paint Colors: Exterior wood is to have K-Kron II three-step coating process.] Color is to be [Abalone] [Alabaster] [Anchor Gray] [Basil] [Beige] [Camel] [Castlerock] [Chutney] [Cider] [Cloud] [Coastal Storm] [Copper Canyon] [Emerald Isle] [Gingersnap] [Green Tea Leaf] [Hartford Green] [Khaki] [Lunar] [Maize] [Mediterranean] [Mudpie] [Mystic Ivy] [Natural Cotton] [Nutmeg] [Papaya] [Roma] [Rustic] [Sahara] [Sapphire] [Shadow] [Shale] [Slate] [Smokestack] [Spiced Vinegar] [Steel Gray] [Timberwolf] [Truffle] [Ultra Pure White] [White].
26. [Specify a custom paint color.]
27. Interior Finish - Wood:
28. [Interior wood is to be treated bare wood without stain or top coat.]
29. [Interior wood is to be treated bare wood with an acrylic based double clear coat.]
30. [Interior wood is to have a water based stain with a clear water based top coat. Stain color is to be [Cherry] [Chestnut] [Coffee Bean] [Ebony] [Library Red] [Light Oak 998] [Red Wheat] [Spiced Walnut] [Sunset Oak] [Wheat].
31. [Specify a custom stain color]
32. [Interior wood is to have a primer coat only] [High-performance urethane primer]
33. [Interior wood is to have acrylic type paint applied. The interior paint color is to be [Abalone] [Bright White] [Coal Black] [Graystone] [Ivory Tusk] [Misty Gray] [Natural Cotton] [Silk] [Ultra Pure White].]
34. [Specify a custom paint color.]
35. Hardware:
36. Access Panel Lock Options: Active handle along with interior and exterior escutcheon plates for access panel, or access door, are made of solid brass. Gasket is made of Black Neoprene. All handles are shipped loose for field installation.
    1. [Single Point Lock] – Made of stainless steel.
    2. [3-Point Multi-Point Lock] – Center gear is made of solid Brass. Color Options: [Solid Brass] [Stainless Steel] [Oil-Rubbed]
       1. Toronto handle set - standard. Optional handle sets: [München] [Verona] Color options: standard is Bright Brass PVD [Antique Brass] [Oil Rubbed Finish] [Satin Nickel PVD] [Antique Nickel PVD] [Rustic Umber] [Matte Black] [Smoky Gray PVD]. [Optional keyed cylinder.]
       2. Optional Dallas handle set is available in [Bright Brass PVD] [Satin Nickel PVD] [Smoky Gray PVD] [Matte Black]. [Optional keyed cylinder.]
       3. Optional Baldwin handle set styles [Boulder] [Bristol] [Cody] [Concord] [Kensington] [Lakeshore] [Richland] [Santa Monica] available in [Antique Brass] [Antique Nickel] [Bright Brass PVD] [Brushed Chrome] [Distressed Smoky Gray] [Matte Black] [Oil-Rubbed Bronze] [Rustic Umber] [Satin Brass] [Satin Nickel PVD].
    3. Locking hardware has a 1 inch (25mm) throw deadbolt with key lock cylinder. Color options: [Bright Brass] [Antique Brass] [Oil Rubbed Finish] [Satin Nickel] [Antique Nickel] [Rustic Umber] [Matte Black]. [Double keyed cylinder is available in Bright Brass.]
37. Folding Panel Lock Options:
    1. Standard: Surface-Mounted Flush Bolts on folding panels. Made of stainless steel. Finishes: [Bright Brass] [Chrome] [Matte Black] [Satin Nickel]
    2. [Optional Concealed Shoot Bolts on folding panels.]
       1. [Uno handle] Finishes: [Dull Chrome] [Matte Black]
       2. [Aria handle] Finishes: [Bright Brass] [Chrome] [Dull Chrome] [Matte Black]
38. [Optional Finger Pulls for folding panels.] Made of stainless steel. Finishes: [Bright Brass] [Chrome] [Satin Nickel] [Matte Black]
39. Hinges: Availabe in [Bright Brass] [Chrome] [Satin Nickel] [Matte Black]
    * 1. Top & Bottom Pivot Sets: Aluminum top pivot block; Stainless steel bolts, hinge flaps, and bottom pivot block. Mortised.
      2. End Hanger Sets: Stainless steel components; nylon wheels. 2 wheels; right hand and left hand. Mortised. Grooved guide rollers with adjustable, ball-bearing wheels carry the folding panels.
      3. Intermediate Hanger Sets: Stainless steel components; nylon wheels. 4 wheels; non-handed. Mortised. Grooved guide rollers with adjustable, ball-bearing wheels carry the folding panels.
      4. Hinge Sets: Stainless steel. Mortised. Outward opening, inward opening, offset-inward opening, & offset-outward opening. Pull handles are included on the center hinge of outward opening panels.

E. Weatherstripping: Frame and panels are fully weatherstripped for a tight seal.

1. Frame head and side jambs: Beige [Brown] vistaflex skin/ santoprene foam/ polypropylene rigid and flex kerf-mounted weatherstrip.
2. Sill: Beige [Brown] vistaflex skin/ santoprene foam/ polypropylene rigid and flex kerf-mounted weatherstrip.
3. Panels: Beige [Brown] polyethylene skin with open cell urethane foam.
4. Panel at side jambs: Beige [Brown] polyethylene skin with open cell urethane foam.

*The following are optional materials and accessories. Edit for project requirements*.

F. Screens: Interior Black pleated sliding screens available up to 177 inches (4496mm) wide by 102 inches (2591mm) tall. (screen opening size; screen only available on units with the frame set up). Frame color: standard - Dark Brown [White]

G. Jamb Extensions: Provide factory installed jamb extensions up to 12 inches (305mm) for wall thickness indicated or required. Jamb extensions over 12 inches (305mm) are shipped loose to be field installed.

1. Finish: match interior frame finish.
2. Other wood species available: [Pine (standard)] [Alder] [Fir] [Maple] [Oak] [Cherry] [Mahogany] [Walnut] [Bamboo] [other]
3. Removable Grilles:
4. Surround: full, constructed of kiln-dried pine [7/8 inch (22mm)] [1-1/8 inch (29mm)].
5. Pattern: [rectangular] [custom lite layout].
6. Finish: bare wood.
7. Profile: [beveled-standard] [ovolo].
8. Other wood species available: [Pine (standard)] [Alder] [Fir] [Maple] [Oak] [Cherry] [Mahogany] [Walnut] Bamboo] [other]
9. Grilles-in-the-Airspace: Installed inside the hermetically sealed glass unit.
10. Material: [standard: aluminum profiled bars, 3/4 inch (19mm) wide, available for units with 7/8 inch (22mm) or 9/16 inch (14mm) insulating glass] [aluminum flat bars, 5/8 inch (16mm) wide] [Brass pencil bars, 5/16 inch (8mm) wide, available for units with 7/8 inch (22mm) insulating glass] [Pewter pencil bars, 5/16” (8mm) wide, available for units with 7/8 inch (22mm) insulating glass].
11. Color options: [3/4 inch Profiled bars: White, Beige, Sand, Rustic, Hartford Green, Chutney, Light Wood & Dark Wood faux finishes] [5/8” Flat bars: White, Beige, Sand, Rustic, Hartford Green, Chutney, Light Wood & Dark Wood faux finishes, Brass] [Two-tone contour or flat grilles available with light or dark wood faux finishes to the interior and White to the exterior.

J. Performance Divided Lites (PDL): PDL system utilizes a permanently adhered wood grille bar to the interior and a permanently adhered aluminum grille bar to the exterior glass.

1. Material: Muntin is constructed of .050 inch (1mm) thick 6063 extruded aluminum alloy on exterior, pine on interior [5/8 inch (16mm) wide] [7/8 inch (22mm) wide] [1-1/8 inch (29mm) wide] [1-3/8 inch (35mm) wide] [1-3/4 inch (44mm) wide] [2-1/4 inch (57mm) wide] [4-1/2 inch (114 mm)]. On some radius units and units with special grid patterns, muntin is made of composite material; this is optional on other units.

2. Pattern: [rectangular] [custom lite cuts-subject to approval of Kolbe & Kolbe Millwork Co., Inc.].

3. Spacer bar between the glass. Finish: Standard [Champagne]. Optional [Aluminum mill-finish] [Black finish].

4. Exterior surface finish: To match frame and sash exterior. (Some limitations apply for PDL bars on radius and special grid patterns.)

K. True Divided Lites (TDL): Utilizes 5/8” insulating glass.

1. Material: Muntin is constructed of kiln-dried pine 1-1/8 inch (29mm) wide.
2. Pattern: [rectangular] [custom lite cuts-subject to approval of Kolbe & Kolbe Millwork Co., Inc.].
3. Exterior surface finish: To match exterior finish of unit.

L. Accessories & Trim

1. Casings
   1. [1-15/16 inch (49mm) profiled brickmould] [1-15/16 inch (49mm) flat casing] [2 inch (51mm) beaded casing] [3-1/2 inch (89mm) profiled brickmould] [3-1/2 inch (89mm) flat casing] [3-1/2 inch (89mm) beaded casing] [3-1/2 inch (89mm) profiled brickmould with backband; overall face dimension 4-1/4 inch (108mm)] [3-1/2 inch (89mm) flat casing with backband; overall face dimension 4-1/4 inch (108mm)] [4 inch (102mm) flat casing] [5-1/2 inch (140mm) flat casing] [Prospect Casing; overall face dimension 2 inch (51mm)] [no casing]

**2.03 GLAZING**

1. Glass:
2. Standard Double Pane one lite IG is 7/8 inch (23mm) with LoE2-270, argon filled. [Triple Pane (on 2-1/4 inch (57mm) thick panel only) one lite IG is 1-3/8 inch (35mm) with LoE2-270 on surface #2 and LoE-180 on surface #5, argon filled.]
3. Standard double pane IG or single glazed has standard design pressure of 30 psf (DP 30). See Website www.kolbewindows.com for high performance ratings.
4. High altitude IG has open breather tube.
5. All glass is select quality complying with FS-DD-G-451D.
6. IG complies with IGCC and ASTM E2190-08’.
7. Glazing Methods:
8. Single glazed units are all silicone-glazed.
9. Operating units and fixed units have K-Glaze with 3/16 inch (5mm) wide glazing tape and primary silicone on #1 surface along sight line paired with latex sealant on #4 surface at bottom wood glazing bead.

C. Glass Options:

1. [LoE3 340 - Glare Control] [LoE3-366]. [ThermaPlus LoE glass has a [LoE²-270] [LoE³-366] option on surface 2 and a LoE hard coat on surface 4 plus permanent coating (interior pane)].
2. Patterned, bronze, or gray-lite.
3. Tempered or Laminated glass.
4. Protective film.
5. Other options: Standard to the industry. [With] [Without] argon gas. (Argon gas may not be included in units to be installed in or shipping through high altitude areas.

D. Glazing Bead Options:

1. Beveled profile is standard. Options: [ovolo] [square]

**2.04 ACCESSORIES AND TRIM**

*Edit for project requirements.*

1. Installation Accessories:

**For Individual, Mulled Units, and Transoms:**

1. Galvanized steel installation clips (number required to meet DP20 may be factory applied to unit). Kolbe & Kolbe recommends that all units with exterior casing be installed using installation clips.
2. Mull anchors.
3. Strip mull anchors.

##### PART 3 EXECUTION

**3.01 EXAMINATION**

1. Verification of conditions: Before installation, verify that openings are plumb and square and of proper dimension. Report frame defects or unsuitable conditions to the General Contractor before proceeding.
2. Acceptance: Beginning of installation means acceptance of existing conditions.

**3.02 INSTALLATION**

A. Install windows according to manufacturer’s installation instructions, reviewed shop drawings and in accordance with Section 01730 – Execution *or Section 01 73 19 – Installation.*   
Note: Certain codes require the use of pressure-treated lumber to line rough openings. Corrosion-resistant materials, such as stainless steel or hot-dip galvanized steel, must be used for fasteners and anchors having direct contact with pressure-treated lumber.

B. Install sealant and related flashing materials at perimeter of assembly in accordance with Section 07900 Joint Sealers *or 07 92 00 – Joint Sealants.*

C. Install accessory items as required.

**3.03 ADJUSTING AND CLEANING**

A. Adjust operable sash to work freely with hardware functioning properly. Re-adjust at completion of the project if directed.

B. Remove visible labels.

C. Leave windows in a job clean condition. Final cleaning of glass will be done in accordance with Section 01740 – Cleaning *or Section 01 74 00 - Cleaning and Waste Management.*

**3.04 PROTECTION**

1. Cover windows, in accordance with Section 01760 *or 01 76 00* – Protecting Installed Construction, during spray painting or other construction operations (such as muratic acid washing after completion of masonry) that might cause damage

**END OF SECTION**