

SECTION 05 73 00

PRE-ASSEMBLED ALUMINUM RAILING SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Ultralox; pre-assembled aluminum railing systems.  
This section is based on the products of Ultralox, which is located at:  
2955 Lone Oak Dr. Suite 180  
Eagan, MN 55121  
Toll Free Tel: 888-685-4005  
Tel: 612-999-1115  
Fax: 855-742-7245  
Email:[request info (info@ultralox.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Ultralox&coid=50080&rep=&fax=855-742-7245&message=RE:%20Spec%20Question%20(05721ult):%20%20&mf=)  
Web:[ultralox.com](http://ultralox.com)  
[[Click Here](http://www.arcat.com/arcatcos/cos50/arc50080.html)] for additional information.  
Headquartered in Eagan, MN, UltraLox is expanding its customer base of large-volume deck builders, building product distributors, and fence companies throughout the United States and Canada.  
Our patented UltraLox Interlocking machine assembles aluminum railings and fence systems for use in multi-family, single family residential decks, balconies, patios and pool surrounds. Our LOX8 Model can produce up to 48 inch tall fencing, up to 8' deck panels, 9' x 4' footprint up to 11' tall. Our LOX 12 Model can produce up to 72 inch tall fencing, up to two 6' deck panels at once, 8' stair panels, 13'x 4' footprint, up to 13'6" tall.  
The UltraLox combination offering unparalleled efficiency and quality has proved to be a winning formula for UltraLox partners. As more builders as well as suppliers become aware of the UltraLox potential and witness the success of our current UltraLox partners, demand for this innovative technology is increasing rapidly throughout North America.  
The long-term success of each of its customers is of primary importance to UltraLox. Builders and suppliers who work with UltraLox experience an exceptional level of support. This goes beyond traditional customer service; essentially, companies who work with UltraLox become part of a strong and supportive network focused on helping them to achieve maximum profitability and business growth.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Pre-assembled aluminum railings.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 06 10 00 - Rough Carpentry.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Architectural Manufacturers Association (AAMA):
       1. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
       2. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
    2. American National Standards Institute (ANSI):
       1. ANSI Z 97.1 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
    3. ASTM International (ASTM):
       1. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
       2. ASTM E 894 - Anchorage of Permanent Metal Railing Systems and Rails for buildings.
       3. ASTM E 935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings.
       4. ASTM E 985 - Specification for Permanent Metal Railing and Rails for Buildings.
    4. British Columbia Building Code, 2012.
    5. Canadian National Building Code, 2010 (CBC).
    6. Council of American Building Officials (CABO): CABO A117.1 - Accessible and Usable buildings and Facilities.
    7. Florida Building Code, 2010 Including High Velocity (FBC).

\*\* NOTE TO SPECIFIER \*\* Dele subparagraph below if specifying the Mission series top rail profile.

* + - 1. High Velocity Hurricane Zone (HVHZ).
    1. International Building Code, 2006, 2009, 2012 (IBC): Section 1607.7.7.1, Handrails and Guards.
    2. International Code Council (ICC): ICC-ES AC273 - Acceptance criteria for handrails and guards.
    3. International Organization for Standardization (ISO): ISO 17025 - General requirements for the competence of testing and calibration laboratories.
    4. International Residential Code, 2009, 2012 (IRC).
    5. Ontario Building Code, 2012 (OBC).
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Manufacturer's printed installation instructions, showing required preparation and installation procedures.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
        4. Cleaning and maintenance instructions.
     3. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Provide templates for anchors and bolts specified for installation under other Sections.
     4. Closeout Submittals: Documentation of manufacturer's warranty.
  2. QUALITY ASSURANCE
     1. Installer: Minimum 2 years experience with similar railing products.
     2. Pre-Installation Meetings: Conduct pre-installation meetings to verify project requirements, substrate conditions, construction documents, details and manufacturer's warranty requirements.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Delivery: Deliver materials in manufacturer's original, unopened, undamaged rolls/pallets with identification labels intact.
     2. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
  4. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  5. WARRANTY
     1. Manufacturer's Warranty: Manufacturer's standard 15 year limited warranty.
        1. PRODUCTS
  6. MANUFACTURERS
     1. Acceptable Manufacturer: Ultralox, which is located at: 2955 Lone Oak Dr. Suite 180; Eagan, MN 55121; Toll Free Tel: 888-685-4005; Tel: 612-999-1115; Fax: 855-742-7245; Email:[request info (info@ultralox.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Ultralox&coid=50080&rep=&fax=855-742-7245&message=RE:%20Spec%20Question%20(05721ult):%20%20&mf=); Web:[ultralox.com](http://ultralox.com)
     2. Acceptable Dealers:
        1. Colorado: Rolling Ridge Deck Co Inc., 1232 Bergen Parkway Suite 101, Evergreen, CO 80439, [rollingridgedeck.com](http://rollingridgedeck.com/)
        2. Colorado: Moore Lumber and Hardware, 1335 Park Street Castle Rock, CO 80109, [moorelbr.com](http://moorelbr.com/)
        3. Georgia: Tek-Rail, 320 Temple Ave, Newnan, GA 30263, [tek-rail.com](http://tek-rail.com/)
        4. Iowa: Lovewell Fence & Deck, 21060 Holden Drive, Davenport, IA 52806, [lovewellfence.com](http://lovewellfence.com/)
        5. Idaho: Idaho Custom Iron Works, 10 South Mason Creek Road, Nampa, ID 83687, icironworks.com
        6. Illinois: InnoTech Manufacturing, 901-1005 South 13th Street, Mount Vernon, IL 62864, innotechmfg.com
        7. Illinois: Lumberock, 885 Church Road, Elgin, IL 60123, lumberock.com
        8. Indiana: Raber Patio, 655 S Van Buren St., Shipshewana, IN 46565, raberpatios.com
        9. Indiana: Tri-Corp 4515 O’Hara Drive, Evansville, IN 47711, [tricorpcoating.com](http://tricorpcoating.com/)
        10. Kansas: Kansas City Building Supply, 7600 Wedd St., Overland Park, KS 66024, [kcbuilding.com](http://kcbuilding.com/)
        11. Kentucky: Summit Homes, 7960 Kentucky Dr., Florence, KY 41042
        12. Maryland: Capital Railing, 1954 Halethorpe Farms Road, Halethorpe, MD 21227, [capitalrailing.com](http://capitalrailing.com/)
        13. Maryland: Fence & Deck Connection, 8057 Veterans Hwy, Millersville, MD 21108, [fenceanddeckconnection.com](http://fenceanddeckconnection.com/)
        14. Michigan: Eclipse Distributing, 702 Hall St SW, Grand Rapids, MI 49503, [eclipsedistributing.com](http://eclipsedistributing.com/)
        15. Minnesota: DG Welding, 3265 Sun Drive, Eagan, MN 55212
        16. Minnesota: ProDeck Supply, 2123 Broadway Street NE, Minneapolis, MN 55423, [prodecksupply.com](http://prodecksupply.com/)
        17. Minnesota: Twin Cities Railing, 6220 178 Lane NW, Ramsey, MN 55303, [twincitiesrailing.com](http://twincitiesrailing.com/)
        18. Minnesota: Ultralox, 2955 Lone Oak Drive, Suite 180, Eagan, Minnesota 55121, [ultralox.com](http://ultralox.com/)
        19. North Carolina: Royal Oak Stairs, 3201 Wellington Court, Unit 104 Raleigh, NC 27615, [royaloakstairs.net](http://royaloakstairs.net/)
        20. Nebraska: Mead Lumber Company, 916 North Shady Bend Rd., Grand Island, NE 68801, meadcompanies.com
        21. Nebraska: Millard Lumber, Inc., 12900 I Street, Omaha, NE 68137, [millardlumber.com](http://millardlumber.com/)
        22. New Jersey: Great Railing, 1085 North Black Horse Pike, Williamstown, NJ 08094, [greatrailing.com](http://greatrailing.com/)
        23. New Jersey: Phoenix Manufacturing, Ocean Township, NJ 07712, [phoenixpvcrails.com](http://phoenixpvcrails.com/)
        24. New York: Old Dutchman Wrought Iron, Inc., 2800 Miller Sport Highway, Getzville, NY 14068, [olddutchman.com](http://olddutchman.com/)
        25. Oregon: Adrian's Quality Fence & Deck, 3115 SW Avenue, Beaverton, OR 97003, [adrians.com](http://adrians.com/)
        26. Pennsylvania: Division 5 Specialties, 1217 Third Ave, Corapolis, PA 15107
        27. Rhode Island: Railing Pro, 135 Teft Hill Trial, Exeter, RI 02822, [railingpro.com](http://railingpro.com/)
        28. South Carolina: Southeast Rails & Screen, 305A Low Country Dr., Ridgeland, SC 29936, southeastrails.com
        29. South Dakota: Forest Products Distributors, 5400 Old Folsom Rd., Rapid City, SD 57703, forpd.com
        30. Texas: PJ Metals, 8601 Avenue, Lubbock, TX 79423
        31. Virginia: LIW Fence and Rail, 7942 C Cluny Court, Springfield, VA 22153, liwrailandfence.com
        32. Washington: Volkan Railing, 20215 Cedar Velley Rd, Lynwood, WA 98036, [volkanrailings.com](http://volkanrailings.com/)
        33. Wisconsin: Cardinal Fabricating Corporation, 2021 S. Lenox Street, Milwaukee, WI 53207, [cardinalfab.com](http://cardinalfab.com/)
        34. Wisconsin: Green Bay Deck, 1518 South Broadway, Green Bay, WI 54304, greenbaydecking.com
        35. Wisconsin: Primrose Custom Design, 22429 Wisconsin 78 South, Mount Horeb, WI 53572, [primrosedesigns.com](http://primrosedesigns.com/)
        36. Wisconsin: Western Building Products, 1300 Glenview Place, Wauwatosa, WI 53213, western1.com
        37. Canada, Ontario: Vision Outdoor products, 625 Zenway Boulevard Unit 2, Woodbridge, Ontario L4H 4J8, [visionoutdoorproducts.com](http://visionoutdoorproducts.com/)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. PRE-ASSEMBLED ALUMINUM RAILINGS
     1. Materials:
        1. Configuration and Profiles: Refer to the Drawings.
        2. Aluminum: ASTM B 221, alloy and temper as recommended by manufacturer.

\*\* NOTE TO SPECIFIER \*\* Delete finish option not required.

* + - 1. Finish: Textured powder coating complying with AAMA 2604.
      2. Finish: Textured powder coating complying with AAMA 2605.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - 1. Color: Black.
      2. Color: White.
      3. Color: Bronze.
      4. Color: As selected by Architect.
  1. PERFORMANCE REQUIREMENTS
     1. Structural Performance: Design, fabricate and install handrail and railing systems in accordance with ASTM E 985 for structural performance based on testing performed in accordance with ASTM E 894 and E 935.
     2. Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of material for the handrails, railings, anchors and connections.
        1. Top Rail:
           1. Concentrated applied load of 200 lbs (90.7 kg). at any point in any direction in accordance with 1607.7.1.1 of IBC. Concentrated load need not be assumed to act concurrently with uniform loads.
           2. The top rail and the structural supported post subjected to a concentrated load of 500 lbs (226.8 kg) applied at the following locations:

Horizontal at the center of the guardrail.

Horizontal at the top of support post; 42 in (1067 mm) above surface of deck.

* + - * 1. Uniform Load Test: The top rail of the system subjected to a single test where a maximum uniform load of 125 lbs per ft (186 g per m) applied vertical and in an outward direction at a 45 degree angle from the horizontal plane.
      1. Handrails not serving as top rails:
         1. Concentrated applied load of 200 lbs (90.7 kg) at any point in any direction in accordance with 1607.7.1.1 of IBC. Concentrated load need not be assumed to act concurrently with uniform loads.
         2. Uniform load of 50 lbs per linear foot (74.4 kg per linear m) applied in any direction in accordance with 1607.7.1.1 of IBC.
      2. Infill area of rail systems:
         1. Capable of withstanding a horizontal load of 50 lbs. applied to one square foot (22.68 kg per 0.093 sq m) at any point in the system in accordance with 1607.7.1.2 of IBC. Load is not to be assumed to act concurrently with loads on top rails of railing systems in determining stress on guards.
         2. The required safety factor for glass used in handrails and guards is 4 in accordance with 2407.11 of IBC.
         3. The required safety factor for assemblies is 2.5 in accordance with 1714.3.1 of IBC.
         4. In-fill Load Test: A load consisting of 200 lbs over a 1 sq. ft. (90.7 kg per 0.093 sq m) normal to the infill in a worst-case scenario.
    1. Aluminum railing systems are to have been successfully tested by third-party ISO 17025 testing laboratories in accordance with the following:
       1. British Columbia Building Code, 2012.
       2. Canadian National Building Code, 2010.
       3. Florida Building Code, 2010 Including High Velocity (FBC).
       4. Hurricane Zone for Colonial and Victorian Series(HVHZ).
       5. ICC-ES AC273 - Acceptance criteria for handrails and guards.
       6. International Building Code, 2012 (IBC):
          1. Section 1607.7.7.1, Handrails and Guards.
       7. International Residential Code, 2012 (IRC).
       8. International Building Code, 2009 (IBC).
       9. International Residential Code, 2009 (IRC).
       10. Ontario Building Code, 2012.
       11. EXECUTION
  1. EXAMINATION AND PREPARATION
     1. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
     2. Do not proceed with installation until substrates have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
  2. INSTALLATION
     1. Install railings in accordance with manufacturer's written instructions and recommendations as applicable to specified application.
     2. Install products in strict accordance with manufacturer's instructions, approved submittals.
  3. CLEANING AND PROTECTION
     1. Protect installed railings from damage during application and remainder of construction period, per manufacturer's written instructions.

END OF SECTION