SECTION 08 75 13

WINDOW HARDWARE - MOTORIZED ACTUATORS AND CONTROLS

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\*\* NOTE TO SPECIFIER \*\* WindowMaster Clearline Inc.; window automation.
This section is based on the products of WindowMaster Clearline Inc., which is located at:
810-D Dickerson Rd. ^P. O. Box 1368
North Wales, PA 19454-0368
Tel: 215-699-9292
Fax: 215-699-7112
Email: [request info (info.us@windowmaster.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=WindowMaster+Clearline+Inc.&coid=31475&rep=&fax=215-699-7112&message=RE:%20Spec%20Question%20(08750wmc):%20%20&mf=)
Web: <https://www.windowmaster.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos31/arc31475.html) ] for additional information.
Indoor climate solutions, engineered with nature.
We help the construction industry meet their sustainability goals through natural ventilation and facade automation.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Motorized window actuator control system for windows.
		2. Hardware and accessories.
	1. RELATED SECTIONS

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

* + 1. Division 08 for windows and doors for actuators.
		2. Division 16 for electrical requirements.
		3. Division 15 for HVAC system.
		4. Division 13 for Integrated Automation System
	1. REFERENCES

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

* + 1. Underwriters Laboratories (UL).
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: For each window actuator and controls type required. Include manufacturer's standard details, fabrication methods, mounting, and installation recommendations for each component of the window operating system required, and the following:
			1. Detailed project specific shop and wiring drawings and product sheets.
			2. Parts included.
		3. Maintenance Data: include in the maintenance and installation manual.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Standard color samples can be sent upon request to the customer.
		2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Engage an experienced electrical installer who is an authorized representative for both installation and maintenance of units required for this Project.
		3. Configuration Qualifications: Engage with an experienced representative to configure the control panel, per project specific motor line, motor group, input and output requirements to ensure full setup and operation of system.
		4. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
		5. UL Standard: Provide actuators and controls that are UL 325 certified.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. 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.
	4. WARRANTY
		1. General Warranty: WindowMaster window actuators must only be connected to genuine WindowMaster WCC 310/320 UL power supplies. If power supplies other than WindowMaster are used for connection to WindowMaster 24v window actuators, then this will invalidate in full any warranty or guarantee for WindowMaster window actuators. WindowMaster take no responsibility for the performance of WindowMaster products or third-party products in this instance.
		2. Warranty Period: WindowMaster will be liable for latent defects for 5 years from handover or for a maximum of 6 years from the time that risk of the Products passes to the Customer. Window Master may choose to repair a Product or supply a replacement Product with similar function and use. The option between repair and replacement will be at WindowMAster's discretion and subject to terms agreed with the Customer at the relevant time.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: WindowMaster Clearline Inc., which is located at: 810-D Dickerson Rd. ^P. O. Box 1368; North Wales, PA 19454-0368; Tel: 215-699-9292; Fax: 215-699-7112; Email: [request info (info.us@windowmaster.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=WindowMaster+Clearline+Inc.&coid=31475&rep=&fax=215-699-7112&message=RE:%20Spec%20Question%20(08750wmc):%20%20&mf=); Web: <https://www.windowmaster.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. PERFORMANCE AND DESIGN REQUIREMENTS FOR WINDOW ACTUATORS
		1. Capacity: Provide window actuators recommended by manufacturer for window dimensions, weight, glass thickness, opening direction and movement; for long-term maintenance-free operation.
		2. Products Provided By: WindowMaster Clearline Inc., which is located at: 810-D Dickerson Rd. P. O. Box 1368, North Wales, PA 19454-0368; Phone: 215-699-9292; Email: info.us@windowmaster.com.
		3. Motorized 24 vDC Window Actuators by WindowMaster Clearline Inc.
			1. Models WMX, WMU, or WMB Series Actuators.
				1. Delivered in WindowMaster's standard color, unless otherwise specified.
			2. Power Supplies: 120 V Motor Controller WCC 310/320 UL.
			3. Occupant Override: Key or Rocker Switch.
			4. All brackets and mounting parts.
			5. Building Management and Automation System integration if required by Project: Via field bus communication (BACnet-IP / MSTP / KNX / Modbus / Lon).
			6. One unit of field bus communication card per WCC Motor Controller.
			7. Set-up switch.
			8. WLA rain or wind and rain sensor.

\*\* NOTE TO SPECIFIER \*\* Delete article not required.

* 1. MOTORIZED WINDOW ACTUATORS AND CONFIGURATION
		1. Motorized Window Actuators: To be WMX, WMU, or WMB actuators by WindowMaster Clearline Inc. and mounted with WindowMaster brackets.
			1. Minimum one motorized actuator is required per operable window. The number of actuators will be based on the window size, weight, glass thickness and window movement.
			2. Only 24 vDC window actuators are to be used. Motors and low voltage system components to be Underwriter Laboratory (UL) recognized or listed.
			3. Electrical Installer:
			4. Provide voltage drop calculation for wire runs to actuators to insure adequate power for synchronized operation of motors in each room.
			5. Supply and install wiring (sized correctly for voltage drop), conduit, connectors, junction boxes, electrical enclosures, and required fuses.
			6. Controls Contractor: Configure WCC Motor Control panel per project specific motor lines, motor groups, BMS/BAS integration inputs and outputs required.
		2. Technical Specifications
			1. Voltage Supply: 24 vDC (Max. 10 percent ripple).
			2. Open Circuit Voltage: Max. 36 vDC.
			3. Actuator Stroke: From 0.40 to 39.37 inches (10 to 1000 mm).
			4. Pressure Force: 22.5 to 337.2 lbsf (100 to 1500 N).
			5. Locking Force: 449.6 to 674.4 lbsf (2000-3000 N).
			6. Power: 12 to 125 W.
			7. Current consumption: 0.5 to 5 Amp per actuator.
	2. MOTORLINK ACTUATORS
		1. Programmable 24 vDC window actuators with MotorLink technology must be used throughout the project.
			1. MotorLink actuator range: Must be suitable for surface and/or for concealed installation in comfort ventilation applications.
			2. The actuator must have a reverse function to prolong the life of the weather seal.
			3. Must be programmable for modification of tractive force and pressure for closing forces; subject to factors such as hinges, window type, application etc.
		2. The MotorLink actuators must be used in conjunction with an intelligent MotorLink control panel. Actuator must have two-way communication with control panel to utilize the following functions.
			1. Actuator Position Feedback:
			2. To control software on exact position, for millimeter precision opening and control, as well as a security indicator for open windows.
			3. Three Speed Operation:
			4. Two-way communication with control panel to enable it to operate at a very slow speed when in automatic mode, which can reduce any potential impact or disturbance to occupants.
			5. Enable motors to operate at a faster speed when activated by manual keypads, for example, to provide an immediate visual response to the user, and at full speed in the event of an alarm signal for rain, snow or/and wind situations.
			6. Pressure Safety Function:
			7. Must have ability to monitor for entrapment on specified windows by communication via microprocessors installed within the actuator and by monitoring in real-time the amount of electrical current being drawn and the precise position of the window to a millimeter accuracy.
			8. Detect if an object becomes trapped in leading edge of window and prevent it from closing by monitoring the amount of current being drawn and then reversing actuator to release obstruction.
				1. Depending on the window type and size, the sensitivity of the pressure safety might be adjustable, as the pressure safety function is a factor of the closing force of the actuator combined with the size and weight of the window, as well as the configuration of the window, its hinges, and the rigidity of the profile itself.
				2. The overall performance and sensitivity of system is dependent upon all these factors combined and needs to be monitored and adjusted as the required forces can change during the life of the building.
			9. Fault Indication:
			10. Provide two-way communication with the control panel to enable feedback to the control software on window status and an early indication of any errors with the actuator operation or the wiring.
			11. Synchronization Function:
			12. MotorLink actuators must run fully synchronized without an external synchronization module.
				1. Up to four actuators can work together on one window with a tolerance of less than 0.08 inches (2 mm).
				2. The actuators communicate with each other directly and adjust their speed so that they are always operating fully synchronized.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates into which the windows or vents will be installed have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrates and the windows or vents under the project conditions.
		3. Templates and Diagrams: Completed diagrams, and other data to fabricators and installers of related work as necessary for coordinating window actuator and controls installation.
	3. INSTALLATION
		1. General: Install complete motorized window operating system according to manufacturer's written installation manuals, including controls, control wiring units and cables.
		2. Location: Refer to Electrical Project Drawings for location of hardware and installation manuals.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. ADJUSTING, CLEANING AND PROTECTION
		1. Adjust, clean, and maintain actuators in accordance with the manufacturer's recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION