

SECTION 26 09 00 – INSTRUMENTATION AND CONTROL FOR ELECTRICAL SYSTEM

PART 1 – GENERAL

1.0 SUMMARY

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section

B. Section includes:

1. Control system for use with View Dynamic Glass® system

The Electrical Contractor shall provide the installation of the wiring and controls of the View Dynamic Glass system. Electrical contractor responsibility ends after successful installation of wiring and controls outside of the framing system. The installation responsibility of the wiring and controls outside of the framing system must be determined and assigned by the general contractor.

C. Related sections:

1. Division 26 00 00 - Electrical
2. Section 08 80 00 - Special function glazing
3. Section 25 13 00 - Integrated automation control and monitoring network

1.1 DEFINITIONS

A. IGU: Insulating Glass Unit

B. IGU pigtail: 12 inch wire extruding from each View Dynamic Glass Insulating Glass Unit

C. Window controller: Control module for View Dynamic Glass system

D. IGU cable: Wire that connects one IGU pigtail to one Window controller

E. IGU splitter: Connects two IGU pigtails together

F. Control sensor: Photo sensor that detects light levels of surrounding space

G. Wall Interface: Manual override switch. This can either be placed on the window frame or wall mounted.

H. Window controller: Controller that sends voltage signal to one or multiple IGUs

I. Controls integrated in-shop: For in-shop glazed units, in addition to dynamic glass, control components including the window controller and cables can be integrated into the framing system by the glazier. This is the recommended method to ensure higher quality product and lower install cost and complexity.

- J. Controls integrated in-field: For in-field glazed units, control components including the window controller and cables need to be integrated into the framing system or building envelope by the electrical contractor
- K. BACnet: ASHRAE, ANSI and ISO standard communications protocol for building automation and control networks

1.2 SYSTEM DESCRIPTION

- A. Basic controls:
 - 1. View Dynamic Glass insulating glass units shall be operated by a View Dynamic Glass control system
 - 2. Provide designated 110v – 240v circuit feed to View Glass Control Panel

1.3 SUBMITTALS

- A. Product data: View Dynamic Glass product datasheets including installation instructions when applicable
- B. Shop drawings:
 - 1. Shop drawings provided by the glazier, not by View Inc.
 - 2. Interconnect wiring diagrams specify framing system and accommodations for cables, cable routing, components, location of connectors and exit from framing system. Provided by View Inc.

1.4 QUALITY ASSURANCE

- A. Installer qualifications: Acceptable to View Inc. based on testing and engineering analysis of View Inc. standard units in assemblies similar to those indicated for this project
- B. Pre-installation meetings: Conduct pre-installation meeting to review procedures, schedules, safety and coordination with other elements of project, with the following parties in attendance: Architect, contractor, glazing contractor, framing manufacturer, electrical contractor, automation engineer, View Inc. and any parties related to Work of this Section

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in View Inc.'s original, unopened, undamaged containers with identification labels intact
- B. Store materials in original packaging, protected from exposure to harmful environmental conditions including static electricity, and at temperature and humidity conditions recommended by manufacturer

- C. All cables supplied by View Inc. should be conditioned for 24 hours at room temperature prior to installation and never installed below 32 degrees F (0 degrees C) ambient temperature

1.6 PROJECT / SITE CONDITIONS

- A. Verify frame channel dimensions are adequate for wire runs as designed
- B. Verify penetration locations of frame/sensor cables into building
- C. The View Dynamic Glass control system must be installed in an indoor, climate-controlled environment

1.7 WARRANTY

- A. Balance of System (BoS) Components

All components necessary for the operation and control of the Insulating Glass Units which are purchased from View Inc. by the Customer (collectively, "Balance of System" or "BoS" and individually, "BoS Components") will be free of defects in material and workmanship for a limited warranty period of five (5) years from the date of delivery by View Inc.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. View Dynamic Glass Control Panel
 - 1. Wall mounted enclosure that houses the power supplies and controllers that operate the View Dynamic Glass control system. The unit typically has up to six class 2 power outputs.
 - 2. Power specification:
 - Input power: 100-240 VAC (single-phase), 50/60 Hz
 - Output power (@ each power output): 24VDC, 4.0A
 - 3. Components in the Control Panel include but not limited to:
 - Master controller
 - Network controller
 - Class 2 power supplies

4. For certain installations of the View Dynamic Glass system, it may be necessary to utilize a Control Panel with Class 1 power outputs. In those cases:
 - Class 1 power supplies are used in the control panel; all other components are the same as section 2.1 (A) (3)
 - Input power: 100–240 VAC (single-phase), 50/60 Hz
 - Output power (@each power output): 30VDC, 4.0A
- B. View Dynamic Glass cabling system:
1. Cables and wiring for the View Dynamic Glass control system
 2. All parts must come from the approved manufacturer's parts list, including but not limited to:
 - Trunk line cable
 - Trunk tee connector
 - Drop line cable
 - Trunk power cable
 - Trunk power connector
 - IGU cable
 - IGU splitter
- C. Window controller:
1. A device that is connected to the trunk line via a drop cable and is responsible for facilitating power delivery to the connected IGU(s) and wall interface
 2. All window controllers must be connected to at least one IGU
- D. IGU pigtail:
1. Custom manufacturer cable attached to an IGU:
 - Length: 12 inches (300mm)
 - Termination: IP67 rated, environmentally sealed, 5/16 inches (8mm) circular connector
 2. Requires minimum 7/16 inch (11mm) hole through the framing system

- E. Control sensor:
 - 1. Outdoor photo sensor: up to 100,000 Lux
 - 2. To be determined by View Inc. engineering
- F. Optional accessories:
 - 1. Power Injection Panel
 - Used in installations requiring additional power
 - To be determined by View Inc. engineering
 - 2. Pull Box
 - Used to conceal and protect cable connections to the control panel
 - 3. Wall Interface
 - A wall-mounted hardware or software-based switch for overriding the tinting of a zone or a group of zones
 - Hardware-based version requires connection to a window controller
- G. AC wiring (supplied by electrical contractor)
- H. Ethernet wiring (supplied by facility IT)

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Ensure controls network is comprised of a single linear trunk line from the Control Panel to the end of the facade. Each window controller will branch off the trunk line.
- B. Ensure that equipment, conduit, gang boxes and other related materials are installed and ready to receive Work of this Section
- C. Ensure conduit and boxes are concealed
- D. Correct any such condition deemed unsatisfactory by electrical contractor or View Inc.

3.2 CONTROLS INSTALLATION

- A. Install products per View Inc. instructions
- B. Options for control integration:
 - 1. In-shop:
 - Install window controller, cables and other control components per framing manufacturer's wiring diagram

2. In-field:
 - Install window controller, cables and other control components per interconnect wiring diagrams
- C. Install the BoS components in an indoor, climate-controlled environment
- D. Install trunk line cables according to the instructions to form a linear network
 1. Utilize trunk tees and IGU splitters as required to connect window controllers
 2. Ensure trunk line cable is connected with trunk tees as required for its entire length
 4. Ensure trunk line cable has trunk terminators installed at each end of line
- E. Ensure trunk line wire run lengths comply with View Dynamic Glass control system design rules
 1. Refer to final interconnect drawings for details
- F. Install bus drop cables from trunk tees to window controllers
- G. Install window controllers using provided mounting holes
 1. Window controllers must be accessible for service after installation
- H. Ensure wire run between window controller and the IGU pigtail is 15 feet or less
- I. When multiple IGUs are connecting to a single window controller, utilize an IGU splitter and IGU cable
- J. IGU pigtails must not be modified, especially the pre-terminated connector. Contact View Inc. product support if a connector is damaged
- K. All electrical schematics and shop drawings pertaining to the View Dynamic Glass control system must be reviewed and approved by View Inc. before being submitted to architect/building owner
- L. Shop drawings pertaining to the View Dynamic Glass control system must include identification, lengths, quantities and locations of cabling and components

3.3 VIEW GLASS® SYSTEM PROGRAMMING

- A. Programming confirmation:
 1. At initial kick-off session, View Inc. will engage architectural design team to confirm and define specific programming requirements for the View Dynamic Glass system controls
- B. Pre-programming of controls will be performed by View Inc. at factory to match expectations of initial design kick-off session

- C. Final programming will be accomplished once system is in place by View Inc. at the end of the commissioning period

END OF SECTION 26 09 00

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