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|  | FDOT Traffic Engineering Research Laboratory (TERL)  NEMA Controller Cabinet Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Sections 676 and 995 of the FDOT *Standard Specifications for Road and Bridge Construction* and all implemented modifications. The requirements listed on this matrix are derived from Sections 676 and 995, and are the basis for determining a product’s compliance and its acceptability for use on Florida’s roads. |

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| --- | --- | --- | --- |
| Date: | Click here to enter a date. | Applicant’s  Name (print): |  |
| Manufacturer: |  |  |  |
| Item, Model No.: |  | Signature: |  |

| **ID No** | **Section** | **Requirement** | **Item Comply? (Yes/No/NA)** | **Comments (Applicant must provide information as indicated)** | **TERL Evaluation Method** |
| --- | --- | --- | --- | --- | --- |
| The following compliance matrix criteria are for all NEMA controller cabinets. | | | | | |
| 1 | 995-1.1 | All equipment is permanently marked with manufacturer name or trademark, part number, and date of manufacture or serial number. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 2 | 995-11.1 | Cabinet is permanently marked with a water resistant label that is visible after installation on the inside of the main door including the manufacturer's name or trademark, model/part number, and the year and month of manufacture. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 3 |  | Painted and unpainted cabinets meet the applicable requirements in Aluminum Cabinets, NEMA-TS-2-2021, 7.7.2. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 4 | 995-11.2 | Controller cabinet is supplied with all terminals and facilities necessary for traffic signal control meeting the requirements of NEMA TS-1-1989 for NEMA TS1 Controller Cabinet or NEMA TS 2 2021 for NEMA TS2 Controller Cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and  Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 5 | 995-11.2.1 | Four copies of the cabinet wiring diagram are provided with each cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and  Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 6 |  | The nomenclature of signal heads, vehicular movements and pedestrian movements on the wiring diagram are in accordance with the signal operating plan. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and  Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 7 |  | Documentation includes a list identifying the termination points of cables used for vehicular and pedestrian signal heads, detector loop lead-ins, and pedestrian pushbutton wires. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and  Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 8 |  | A heavy duty, resealable plastic opaque bag is mounted on the backside of main cabinet door for storing cabinet prints and other documentation. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  | | | | | |
| 9 | 995-11.2.2 | Police switches are provided with Type 3 and larger controller cabinets. The switches are mounted on the police panel and identified as to their function. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 10 |  | When the auto-flash switch is in the FLASH position, all signal indications immediately transfer to the flashing mode. AC power is removed from the load switches and stop timing applied to the controller unit. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 11 |  | When this switch is placed in the AUTO position the controller unit operates in accordance with the appropriate specification. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 12 |  | When the manual on-off switch is in the on position, a logic ground is applied to the manual control enable input of the controller unit. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 13 |  | A manual jack is installed on the police panel. The jack mates with a three circuit, 1/4 inch diameter phone plug. The tip and ring (middle) circuits of the jack are connected to the logic ground and the interval advance inputs of controller unit. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 14 |  | When the manual hand cord is plugged into the jack and the pushbutton is pressed, logic ground is connected to the interval advance input of the controller unit. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 15 |  | A manual pushbutton is provided with Type 3 and larger cabinets. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 16 |  | The pushbutton cord has a minimum length of six feet with a 1/4 inch diameter three circuit plug connected to one end and a hand-held manual pushbutton at the other end. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 17 |  | With the exception of the vehicular yellow and all red clearance intervals, a complete cycle (push-release) of the manual pushbutton terminates the controller unit interval that is active. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 18 |  | Cycling the push-button during the vehicular yellow or all red clearance intervals does not terminate the timing of those intervals. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| The following compliance matrix criteria are for all cabinets. | | | | | |
| 19 | 995-11.2.3 | Service switches are mounted on the service panel or other locations approved by the Department and identified as to their functions. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 20 |  | When the signals on-off switch is in the off position, AC power is removed from all signal heads. The SIGNALS ON-OFF switch is connected to the control input of a contactor (displacement relay). |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 21 |  | Current supplied to the switch does not exceed five amperes (amps) total. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 22 |  | The main signal head power buss and cabinet power is not directly routed through the service or police switches. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 23 |  | When the auto-flash switch is in the FLASH position, all signal indications are transferred to the flashing mode in accordance with the Uniform Code Flash (UCF) requirements. AC power is removed from the load switches when the signal indications transfer to the flashing mode. The controller unit operates in accordance with appropriate specifications during the flashing mode. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 24 |  | When the switch is placed in the AUTO position, transfer from the flash mode to normal operation is made in accordance with UCF requirements. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 25 |  | When the controller on-off switch is in the off position, AC power is removed from the controller. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 26 |  | When the aux power on-off switch is in the off position, AC power is removed from all circuits of the cabinet except for the duplex receptacle, cabinet light and ventilation fan. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 27 |  | A detector test switch is provided for each phase of the controller unit. Detector test switches include a position for normal operation (phase receives calls from detectors), a position that provides a constant call, and a position that provides a momentary call. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 28 | 995-11.2.4 | Type 3 and larger cabinets have a hinged, rain tight and dust tight police door which allows access to the police switches and manual jack. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Types 3 and 4 pole mount cabinets. | | | | | |
| 29 |  | Type 3 and 4 pole mount cabinets have the police door located in the bottom half of the main door. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 4 and larger base mount cabinets. | | | | | |
| 30 |  | Type 4 and larger base mount cabinets have the police door in the upper half of the main door. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 31 |  | Hinges and hinge pins are constructed of stainless steel and prevent the door (main or police) from sagging. Hinges for the main and police doors are 14 gauge and are located on the right side (viewed from the front). |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 32 |  | Type 3 and larger cabinets are furnished with a three point draw roller latching system consisting of the following latching points:  (a) Center of the cabinet (lock)  (b) Top of the cabinet--controlled by the door handle  (c) Bottom of the cabinet--controlled by the door handle |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 33 |  | The latching points on the top and bottom of the cabinet remain in the locked position until the main cabinet door lock is unlocked. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 34 |  | The locking mechanism has nylon rollers to secure the top and bottom of the door. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 35 |  | Type 3 and larger cabinets have a door stop which retains the main door open in a 90 degree and 120-degree position. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 36 | 995-11.2.5 | A police service panel is provided with Type 3 and larger cabinets. The panels are constructed of either sheet aluminum or cast aluminum. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 37 |  | The service panel is mounted on the back side of the police panel and the police panel has the following minimum dimensions:  (a) Height – 4 inches  (b) Width – 8 inches  (c) Depth – 2-1/2 inches |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Types 1 and 2 cabinets. | | | | | |
| 38 | 995-11.2.6 | Type 1 and 2 cabinets are vented to allow dissipation of the heat generated by the equipment housed inside the cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 39 |  | Type 3 and larger cabinets have dual, UL listed, thermostatically controlled fans, rated for continuous duty with a service life of at least three years. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 40 |  | The thermostat is user adjustable to allow temperature settings ranging from a minimum of 70°F to a maximum of 140°F and is able to activate the fans within plus or minus 5 degrees of the set temperature. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 41 |  | The intake vent is rain tight, located on the bottom half of the cabinet, and covered with a removable filter. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 2 cabinets. | | | | | |
| 42 | 995-11.2.7 | Type 2 cabinets are furnished with one shelf. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 43 |  | Type 3 and larger cabinets are furnished with two adjustable shelves. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 44 |  | Shelves are adjustable in a maximum of 2 inch increments from the top of the load panel to 12 inches from the top of the controller cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Types 1, 2 and 3 cabinets. | | | | | |
| 45 | 995-11.2.8 | Type 1, 2, and 3 cabinets have hardware for attaching the top and bottom half of the cabinet onto a flat or round surface. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Type 4 cabinets. | | | | | |
| 46 |  | Optional wall or pole mount hardware is provided for mounting Type 4 cabinets in specific installations. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 47 |  | Type 4 cabinets have rigid tabs attached to the bottom of the cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for Type 5 cabinets. | | | | | |
| 48 |  | Type 5 cabinets have rigid brackets attached to the bottom of the cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 49 |  | Rigid brackets and tabs are constructed of the same material used for the cabinet. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Type 4 and larger cabinets. | | | | | |
| 50 |  | Type 4 and larger cabinets have one of the following alternatives for fastening to a concrete base:  (a) Galvanized anchor bolts, nuts, lock washers, and flat washers in accordance with ASTM A153. The anchor bolts are at least 1/2 inch in diameter, seven inches in vertical length with at least three inch horizontal, or  (b) Heavy duty machine bolt anchors, flat washers, lock washers and machine screws with at least 1/2 inch thread diameter. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for all cabinets. | | | | | |
| 51 | 995-11.2.9 | Ground busbars are fabricated of copper or aluminum alloy material and are compatible with copper wire and provide at least two positions where No. 2 AWG stranded copper wire can be attached. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 52 |  | A ground busbar is mounted on the side of the cabinet wall adjacent to the power panel for the connection of AC neutral wires and chassis ground wires. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 53 |  | If more than one ground busbar is used in a cabinet, a minimum of a No. 10 AWG copper wire is used to interconnect them. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 54 | 995-11.2.9.1 | All wiring is laced. All conductors in the cabinet are stranded copper. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 55 |  | All inputs and outputs are terminated on terminal strips. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 56 |  | A connector harnesses for the controller, conflict monitor, vehicle detectors, and other controller accessory equipment is furnished and wired into the cabinet circuitry. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 57 |  | A vehicle detector harness or rack is furnished with the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 58 |  | Terminal strip circuits are provided for connection of the loop lead-in cable. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 59 | 995-11.2.9.2 | The voltage and current rating of terminal strips are greater than the voltage and current rating of the wire which is terminated on the terminal strip. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 60 |  | Conductors are terminated on terminal strips with insulated terminal lugs. A calibrated ratchet crimping tool was used to terminate the conductor in the terminal lug. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 61 |  | Where two or more conductors are terminated on field wiring terminal strip screws, a terminal ring lug is used for termination of those conductors. All terminal strip circuits are numbered. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 62 | 995-11.2.9.3 | For Type 3 and larger cabinets, provide one or more light fixtures that illuminate the entire interior of the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 63 |  | All lighting fixtures must automatically turn on when the cabinet doors are opened and off when the doors are closed. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| The following compliance matrix criteria are for all cabinets. | | | | | |
| 64 |  | A three-wire 115 VAC duplex receptacle is mounted and wired in all cabinets. The receptacle is protected by a 15A circuit breaker. The receptacle is not mounted on the main cabinet door or police and service switch panels. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Types 1 and 2 cabinets. | | | | | |
| 65 | 995-11.2.9.4 | A 15A circuit breaker is provided with Type 1 and 2 cabinets. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Type 3 and larger cabinets. | | | | | |
| 66 |  | A 30A circuit breaker is provided with Type 3 and larger cabinets. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Types 1, 2, 3 and larger cabinets. | | | | | |
| 67 |  | The main circuit breaker turns off all power to the cabinet and is not used for the power switch located in the service panel. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for all cabinets. | | | | | |
| 68 | 995-11.2.9.5 | A radio interference suppressor is provided in series with the AC power before it is distributed to any equipment inside the cabinet. The suppressor provides a minimum attenuation of 50 decibels over a frequency range of 200 kHz to 75 MHz when used with normal installations and is hermetically sealed in a metal case. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 69 |  | The radio interference suppressor has the same minimum current rating as the main circuit breaker. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 70 |  | The ground connection of the radio interference suppressor is connected only to AC neutral and is not connected to earth ground directly. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 71 | 995-11.2.9.6 | Opto inputs provide optical isolation for pedestrian detector and remote interconnect inputs. Opto inputs connect through external 27 K ohm, 1 W resistors for 120 VAC operation and are intended for direct connection to 12 VAC from the cabinet power supply for pedestrian detector applications. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 72 |  | When used for low-true DC applications the Opto Common pin is connected to the 24 V supply. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 73 |  | The Opto inputs provide electrical isolation of 10 megaohms minimum resistance and 1000 VAC RMS minimum breakdown to all connector pins except the Opto Common pin. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 74 |  | Opto inputs exhibit nominal impedance to the Opto Common pin of 5 K ohm, plus or minus 10 percent, and require 2.4 mA, plus or minus 10 percent, from a nominal 12 VAC supply. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 75 |  | Opto inputs do not recognize 3 VAC RMS or less relative to the common input and recognize 6 VAC RMS or more relative to the common input. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 76 |  | Any steady state voltage applied between an Opto input and the Opto Common does not exceed 35 VAC RMS. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 77 |  | Opto inputs are not acknowledged when active for 25 ms or less and are acknowledged when active for 50 ms or more. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 78 | 995-11.2.9.7 | A load resistor or capacitor is installed between the AC (common) and each signal field wiring terminal for the yellow, green and walk indication. All load resistors and capacitors are on the front side of any panel used in the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 79 | 995-11.2.9.8 | Surge protective devices (SPDs) are furnished for the main AC power input, all signal head field wiring terminals, interconnect cable terminals and loop lead-in cable terminals which are located in the cabinet. SPDs are unobstructed and accessible from the front side of any panel used in the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. Alternately, provide the Approved Product List (APL) number if the device name is APL listed* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 80 |  | Cabinets utilizing Din rail mounted SPDs are grounded with a conductor to the cabinet busbar. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 81 |  | The SPD for the main AC power input of the cabinet is connected on the load side of the cabinet circuit breaker. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 82 |  | SPDs for signal and interconnect cable field wiring terminals meet the following:  (a) Clamp the surge voltage to a level no greater than twice the peak operating voltage of the circuit being protected.  (b) Withstand a surge current of 1000A with an 8 by 20 µs waveform six times (at 1 second intervals between surges) without damage to the suppressor. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. Alternately, provide the Approved Product List (APL) number if the device name is APL listed* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 83 |  | SPDs for loop lead-in cables are designed in accordance with the following requirements:  (a) Protect the detector unit loop inputs against differential (between the loop lead) surges, and against common mode (between loop leads and ground) surges.  (b) Clamp the surge voltage to 25 V or less when subjected to repetitive 300A surges.  (c) Withstand repetitive 400A surges with an 8 by 20 µs waveform without damage. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. Alternately, provide the Approved Product List (APL) number if the device name is APL listed* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 84 |  | SPDs are installed according to the SPD manufacturer’s instructions and do not affect the operation of detectors. SPD leads are kept as short as possible. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. Alternately, provide the Approved Product List (APL) number if the device name is APL listed* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 85 | 995-11.6 | Traffic signal controller cabinets include a generator and auxiliary power connection. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 86 |  | Cabinets with generator and auxiliary power connection include provisions for the connection of an external power source, such as a portable generator, through a weatherproof, secure interface. This feature allows authorized personnel to access, connect, and secure an external power source to the cabinet in order to restore power within five minutes of arrival time at the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 87 |  | A 10 AWG, 600V UL rated cable, fabricated with an L5-30R on one end and standard 120 duplex plug on the other, a minimum of 12 feet in length or as shown in the Plans, must be supplied with cabinet assemblies for field connection between generator and cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 88 | 995-11.6.1 | The cabinet is provided with an automatic transfer switch that meets UL 1008. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 89 |  | The transfer switch is rated equal to or higher than the design load of the cabinet’s main breaker and the generator input twist-lock connector rating. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 90 |  | The transfer switch provides a means of switching between normal utility power and auxiliary backup generator power. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* |  |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 91 |  | Switching time does not exceed 250 milliseconds. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* |  |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 92 |  | The transfer switch does not allow simultaneous active power from more than one source and does not allow generator backflow into normal utility AC circuits. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 93 | 995-11.6.2 | A generator connection panel is included and consists of, at a minimum, the automatic transfer switch with a three-prong, 30 amp L5-30P twist-lock connector with recessed male contacts for generator hookup. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 94 |  | The access panel is located as close as possible to the main AC circuit breaker with the bottom of the access panel no less than 24 inches above the bottom of the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 95 |  | The generator access panel is not placed on the main cabinet door or back door. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 96 |  | The transfer switch and twist lock connector are labeled on a panel easily accessible behind a weatherproof lockable exterior access door equipped with a tamper-resistant hinge. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 97 |  | This access door is labeled “Generator Access Door” and is provided with a No. 2 lock. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 98 |  | The access door and generator cable entrance must include means to prevent access to insects when cable is not present. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 99 |  | The generator hookup compartment is recessed no more than six inches into the cabinet but is deep enough to allow closing and locking of the access door when the generator cable is connected Access is not blocked to any other equipment in the cabinet. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 100 | 676-4 | Traffic cabinets, enclosures and risers have a manufacturer’s warranty covering defects for a minimum of 2 years from the date of final acceptance. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 101 |  | The warranty includes providing replacements, within 10 calendar days of notification, for defective parts and equipment during the warranty period at no cost to the Department or  maintaining agency. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |

**Document History for:**

**NEMA Controller Cabinet Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Moving matrix to SSRBC from MSTCSD | D. Bremer  J. McGinnis | J. Morgan  M. DeWitt  C. Morse | J. Morgan | 09/08/2015 | No |
| 2.0 | Updated CM to reflect spec changes for FA 8-1-17 | R. Brooks | M. DeWitt  J. Morgan  M. Tomatani | J. Morgan | 11/13/2017 | No |
| 3.0 | Updated CM to reflect spec changes for FA 8-6-18 | J. Morgan | M. DeWitt | M. DeWitt | 11/25/2019 | Yes |
| 4.0 | Updated CM to reflect spec changes for FA 7-2-20 | W. Geitz | C. Raimer  M. DeWitt | D. Vollmer | 09/30/2020 | No |
| 5.0 | Added warranty information. | A. Burleson | W. Geitz | M. DeWitt | 02/01/2022 | No |
| 6.0 | Updated CM to reflect change to 995 and changes for FA 10-24-22. | R. Lytle | W. Geitz D. Christian | D. Vollmer | 03/30/2023 | No |
| 7.0 | Updated to latest FA dates of 9-14-23 and 10-6-23 for specs 676 and 995 respectively. | W. Geitz | D. Christian | D. Vollmer | 11/28/2023 | No |