REVIEW NOTES
MIDDLEBURY RS 0174(8) – BRIDGE NO. 13
ARCH LIGHTING SUBMITTAL
July 1, 2014

RE: Arch Lighting Submittal for Bridge 13 – Middlebury, VT received from T Buck Construction on 7/01/2014.

VHB Project No.: 57438.00

General Notes: The attached submittal shall be revised and resubmitted with consideration to the following comments:

1. As required by the project Special Provision, please indicate in the submittal that the design and installation will be all requirements of the latest National Electrical Code (NEC).

2. Testing and demonstration of the system functionality is required by the Special Provision. Please outline procedures for testing and verifying the operation of the system with a generator power source for VTrans immediately following completion of the installation. The Contractor shall coordinate with the Resident Engineer in advance such that VTrans maintenance personnel may be present as well.

3. Please provide minimum required generator power size and hookup hardware.

SUBMITTAL REVIEW

☐ Reviewed and approved but only for conformance to the Construction Contract Documents.

☒ Revise and Resubmit

Corrections or comments made during this review do not relieve the Contractor or his Designer from compliance with professional requirements or for responsibility for the adequacy of the submittal information. This check is only for review of general conformance with industry standards and general compliance with the information given in the Contract Documents. VHB has not conducted a detailed review of the submittal and has not performed calculations or assessed the adequacy of loads, design criteria, quantities, dimensions, etc. Approval of the submittal does not constitute VHB's approval of any construction means, methods or techniques. These remain the responsibility of the Contractor.

Vanasse Hangen Brustlin, Inc.
7056 US Route 7 • Post Office Box 120
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57438
Reviewed By: G.S. Goodrich
Date: July 1, 2014

This submittal is for sheets 1-12, inclusive, of the "arch lighting plan (submitted 7-1-14)" submittal received on 7/01/2014.

Vermont Agency of Transportation
Middlebury RS 0174(8) Arch Lighting (R and R).pdf
RECEIVED
ON: July 1, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/01/2014

T. Buck Construction, Inc.

249 Merrow Road, Auburn, Maine 04210-8319
*(207) 783-6223 * (FAX) 783-3970*

ARCH LIGHTING

BRIDGE PROJECT

Middlebury, VT
VERMONT AGENCY OF TRANSPORTATION

RS 0174(8)

Submitted 7/1/14

Introduction

The purpose of this plan is to outline our intensions with regards to the arch lighting system in accordance with the special provisions.

In general, the project calls for lighting to be installed inside the new arch for future inspection purposes. The lighting spec calls for luminaries to be installed on the face of each abutment along with receptacles to allow for additional equipment.

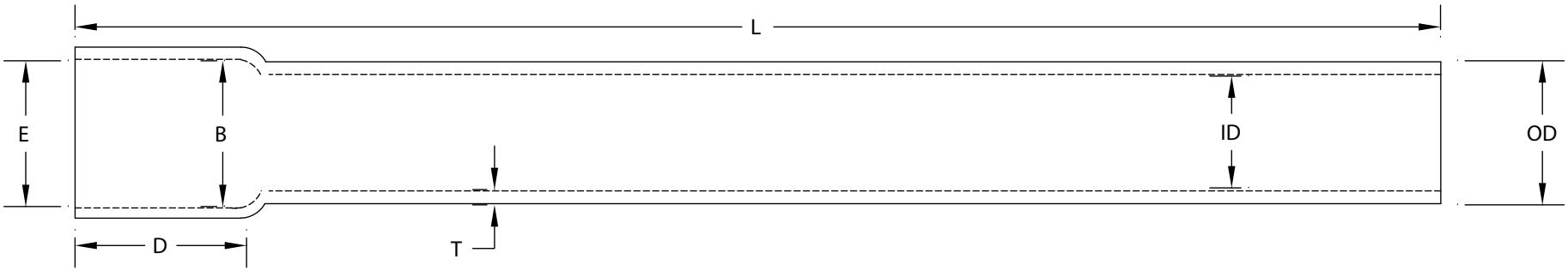
The system will be grounded and be powered by a portable generator hook up which will be located just inside the arch to ensure no vandalism or tampering takes place.

The specific location of the luminaries on each abutment can be determined in the field with input from the resident engineer.

Materials

Cut sheets for the proposed material can be seen at the end of this plan.

1. Gen-tron PB-20 power inlet installed inside bridge at North hatch to allow generator connection to system.
2. One 2-circuit NEM 3R load center, one breaker for lights and one breaker for receptacles.
3. Four Lithonia #TWR1150MTBLP1 light fixture. Fixture is installed on abutments.
4. Two duplex GFI receptacles, one at each hatch location, in PVC weather proof boxes and covers.
5. All wiring to be installed with PVC, schedule 40 conduit and copper THHN conductors.



Part Number	Size	T Min.	OD	ID Min.	E	B	D Min.	L Min.
A52AE12	½ "	0.109"	0.840"	0.578"	0.852"	0.836"	1.500"	120"
A52AG12	3/4"	0.113"	1.050"	0.780"	1.064"	1.046"	1.750"	120"
A52BA12	1"	0.133"	1.315"	1.004"	1.330"	1.310"	2.000"	120"
A52BC12	1 1/4"	0.140"	1.660"	1.335"	1.677"	1.655"	2.250"	120"
A52BE12	1 ½ "	0.145"	1.900"	1.564"	1.918"	1.894"	2.500"	120"
A52CA12	2"	0.154"	2.375"	2.021"	2.393"	2.369"	3.000"	120"
A52CE12	2 ½ "	0.203"	2.875"	2.414"	2.890"	2.868"	3.250"	120"
A52DA12	3"	0.216"	3.500"	3.008"	3.515"	3.492"	3.750"	120"
A52DE12	3 ½ "	0.226"	4.000"	3.486"	4.015"	3.992"	4.000"	120"
A52EA12	4"	0.237"	4.500"	3.961"	4.515"	4.491"	4.500"	120"
A52FA12	5"	0.258"	5.563"	4.975"	5.593"	5.553"	5.500"	120"
A52GA12	6"	0.280"	6.625"	5.986"	6.658"	6.614"	6.125"	120"
A52JA12 *	8"	0.322"	8.625"	7.853"	8.670"	8.610"	6.375"	120"

Dimensions are Nominal
* Not ETL Listed

ETL Listed
Conforms to UL-651
NEMA TC2 Compliant
See NEC Article 352 for use
Sunlight Resistant
Max 90° C Wire

Intertek
4001553

Complies with Federal Specification WC-1094

CANTEX INC.
Fort Worth, TEXAS

Schedule 40 Rigid PVC Conduit

Drawn By: D.S. Frank | Date: 7-13-2010

POWER INLET BOX
CAT. NO. PB20
20 Amps., 120/240 VAC

INSTALLATION INSTRUCTIONS

IMPORTANT: Installation of this power inlet box and related wiring must be done by a qualified electrician in compliance with all applicable electrical codes.

INSTALLING A REMOTELY LOCATED POWER INLET BOX FOR SUPPLYING POWER TO THE POWER INLET OF A TRANSFER SWITCH

Installing the Power Inlet Box

Mount the power inlet box on the outside of the building in a convenient location, using the three holes provided in the back of the cabinet. Using ***copper wire only*** and approved wiring methods, run the wiring through one of the knockouts in the cabinet to a junction box located near the transfer switch. If using conduit, pull at least three color-coded wires (AWG #12 minimum, AWG #8 maximum) -- use white for neutral, and two other distinguishing colors (typically black and red) for the 240V line. If not using conduit or if otherwise required, include a green wire as a separate ground wire.

Strip the wire insulation 5/8" and connect the wires in the power inlet box as follows making sure there is no wire insulation in any terminal and the inlet terminal screws are tightened to 20 inch-pounds torque:

240 Volt line wires to the brass terminals marked "X" and "Y".
White wire to the nickel-plated neutral terminal marked "W".
Green power inlet wire to green ground screw terminal on inside of cabinet.
If required, green wire to green ground screw terminal on inside of cabinet.

Installing a junction box and cord connector

The cord assembly from the junction box to the transfer switch power inlet is to be made of four-conductor cord suitable for a 20 Amp. load (AWG #12 minimum). The insulation on each of the wires is colored to identify with the standardized coding in plugs and receptacles. Wire colors are usually white, green, black, and red. One end of the cord will be connected to the wires in the junction box, and the opposite end will be connected to a NEMA Type **L14-20C** connector which will mate with the power inlet on the face of the transfer switch. Remove one junction box knockout and insert a cord grip and the cord.

Connect the wires in the junction box as follows:

Red and black cord wires to 240V line wires from the power inlet box.
White cord wire to the white neutral wire from the power inlet box.
Green cord wire to junction box ground screw.
Green wire from power inlet box, if required, to junction box ground screw.

Following the wiring device manufacturer's instructions, wire the **L14-20C connector** as follows:

Red and black wires to the brass terminals marked "X" and "Y".
White wire to the nickel-plated neutral terminal marked "W".
Green wire to the green ground terminal marked "G".

A diagram of the above arrangement is shown below. It is not necessary to detach the connector from the transfer switch when generator is not in use, and for convenience may be left in place at all times.

INSTALLING A REMOTELY LOCATED POWER INLET BOX FOR CONNECTION DIRECTLY TO A HARD-WIRE TRANSFER SWITCH OR PANEL:

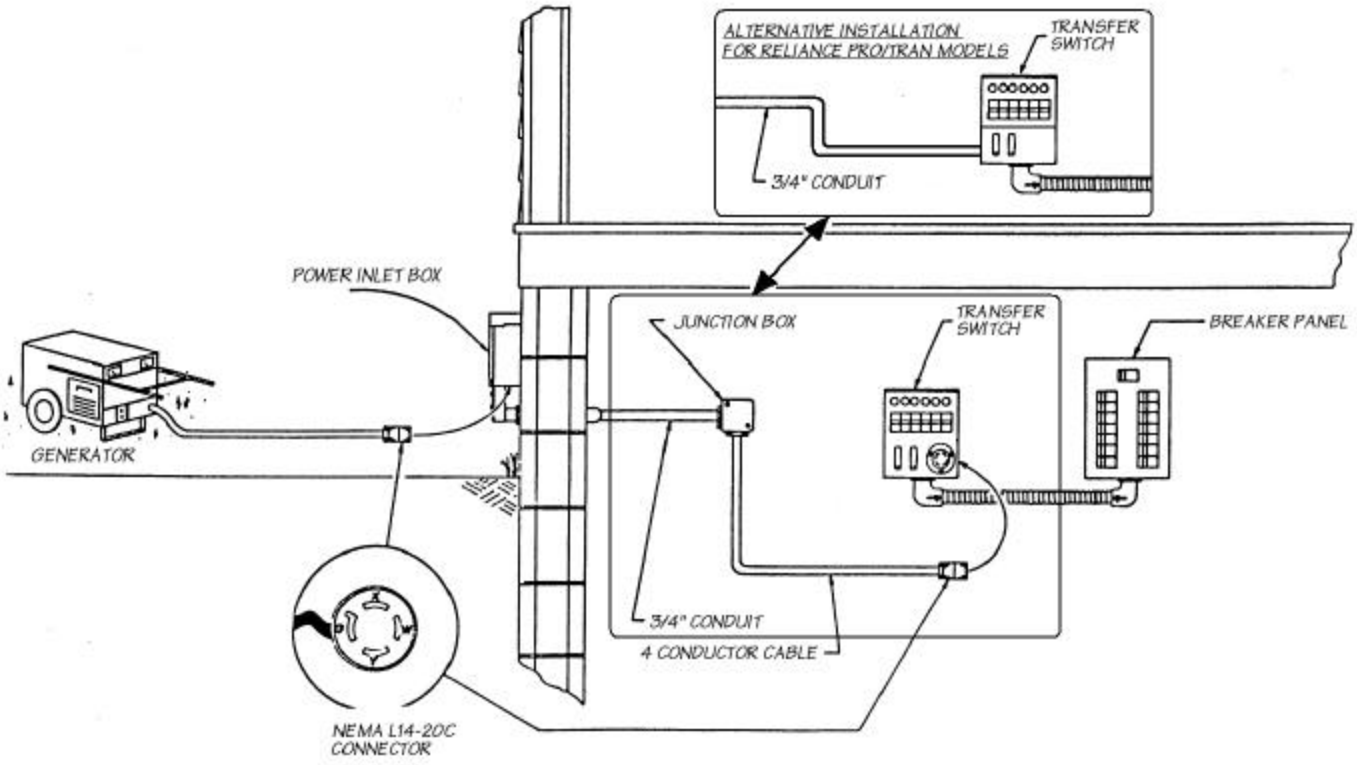
Installation will generally be as described above, except that the wiring can be run directly to the transfer switch or panel. Wire connections are to be made at the transfer switch or panel according to manufacturer's instructions.

PREPARING A CORD FROM THE GENERAT OR TO THE POWER INLET BOX:

Using a 4-conductor 20 Amp. portable cord suitable for the purpose, attach a male plug matching the configuration of the generator outlet (typically a NEMA Type L14-20P) to one end, and a NEMA Type **L14-20C connector** (which will mate with the power inlet in the power inlet box) to the opposite end.

Following the wiring device manufacturer's instructions, wire the generator plug and the **L14-20C connector** as follows:

Red and black wires to the brass terminals marked "X" and "Y".
White wire to the nickel-plated neutral terminal marked "W".
Green wire to the green ground terminal marked "G".



Type BR Loadcenters and Circuit Breakers

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Overview

Product Selection Guide

BR Loadcenters

Description

Service	
Single-phase, three-wire, 120/240 Vac	Three-phase, four-wire, 208Y/120 Vac Three-phase, three-wire, 240 Vac delta
Short-Circuit Current Rating	
10 kAIC: All single- and three-phase loadcenters 70–225A, 8 to 42 circuits 22 kAIC: All convertible loadcenters using 125A rated Type BRH main breakers or selected factory installed 125A rated Type BRH main breaker	25 kAIC: All convertible and factory-installed single-phase loadcenters rated 150 and 200A using Type BWH main breakers
Main Breaker/Main Lug Loadcenters	
Single-phase Main breaker: 100, 125, 150, 200, 225, 400, 600A Main lugs: 70, 125, 150, 200, 225, 400, 600A	Three-phase Main breaker: 100, 125, 150, 200, 225, 400, 600A Main lugs: 100, 125, 150, 200, 225, 400, 600A
Convertible Loadcenters	
Main breaker: single-phase up to 200A and three-phase up to 225A	Main lugs: single-phase up to 200A and three-phase up to 150A
Branch Breakers	
Types BR, BRH and BRHH: 10–150A. single-, two- and three-pole; selected amperage available in switching duty, HACR, shunt trip and high magnetic setting Type GFCB: 15–60A Types BJ and BJH: 125–225A; two- and three-pole Type BD Twin: 10–50A; two of one-pole; take one 1-inch (25.4 mm) space	Type BQ and BQC Multibreaker: 15–30A. Two of two-pole or one two-pole and two one-pole; takes two 1-inch (25.4 mm) spaces Type BRW: 15–30A; two-pole water heater breakers Type BRSN: 15–30A; two-pole switching neutral breakers Type BR 15–100A; two-pole, 240 Vac delta breakers BR-AFCI arc fault circuit interrupter
Enclosures	
NEMA Type 1 indoor NEMA Type 3R outdoor	NEMA 4X Meets or exceeds UL requirements for indoor or outdoor applications
Loadcenter and Breaker Accessories	
Branch circuit breaker: Auxiliary components, Hold-down kits, Handle ties, Lockoffs, Lockdogs Complete line of ground bar kits 5, 10, 14 and 21 circuit, some with additional #2/0 lugs; each terminal will accommodate: (3) #14–#10 Cu/Al or (1) #14–#4 Cu/Al Main and sub-feed lugs 125, 150, 225A—two- and three-pole Shunt trips	Surge protection: Single-phase plug-on surge protector, Single-phase bottle type surge protector, Three-phase bottle type surge protector, Single-phase whole home surge protector Universal rainproof conduit hubs Group One: 3/4, 1, 1-1/4, 1-1/2, 2 inches (19.1, 25.4, 31.8, 38.1, 50.8 mm) Group Two: 2, 2-1/2, 3 inches (50.8, 63.5, 76.2 mm) Adapter plate
Bussing	
Tin-plated aluminum as standard	Limited copper bus panels available

Product Description

Loadcenters are enclosures specifically designed to house the branch circuit breakers and wiring required to distribute power to individual circuits. They contain either a main breaker when used at the service entrance point or a main lug when used as a sub-panel to add circuits to existing service. The main breaker protects the main entire panel and can be used as a service disconnect. The branch breakers protect the wires leading to individual electrical loads such as fixtures and outlets.

Features, Benefits and Functions

Loadcenter Construction

Eaton's Type BR loadcenters have standard tin-plated aluminum bus with a limited availability of copper bus. The sum of the handle ratings connected to any stab is limited to 150A maximum on the 100 and 125A loadcenters, and 200A on loadcenters with 150A or higher main bus. NEMA Type 1 boxes or enclosures are manufactured from galvanized steel. Raintight boxes are manufactured from galvanized steel, then finished using an electrostatic powder coat, baked urethane paint process.

Neutrals

Eaton Type CH loadcenters feature two types of neutrals:

Insulated/Bondable Split Neutral

Panels are supplied with split insulated neutrals with an insulated cross strap. For service entrance applications, the neutral must be bonded by using the bonding strap supplied with the panel. For non-service entrance (sub-panel) applications, the panel may be installed with the bonding strap not connected to the neutral. Separate ground bars must be used on non-service entrance panels.

Insulated/Bondable Single Neutral

Panels are supplied with a single insulated neutral. For service entrance applications, all that is required to bond the neutral is to loosen the bonding screw and the neutral screw directly beside it, insert the bonding strap into the neutral bar, and re-tighten both connections. The single neutral can be moved by the contractor to the other side of the panel, if desired. When used as a service entrance panel, unused neutral connections may be used for the termination of equipment grounds. For non-service entrance (sub-panel) applications, the panel may be installed with the bonding strap not connected to the neutral. Separate ground bars must be used on non-service entrance panels.

Grounds

In service entrance applications where the neutral is bonded, unused neutral holes may be used for terminating ground conductors. In sub-feed panels, the neutral must be isolated (non-bonded), and ground wires must be terminated on a separate ground bar.

The insulated/bondable single/split neutral panels have sufficient terminations for both ground and neutral conductors. The insulated/bondable single split neutral panels are supplied with a separate factory-installed ground bar if the catalog number contains a "G." If not, a separate ground bar should be installed. Insulated/Bondable Single Neutral panels are supplied without a ground bar (unless otherwise noted), and ground bar kits if needed must be purchased separately.

Neutral and Ground Terminals

The standard terminals on grounds and neutrals are rated to accept (3) #14–#10 Cu/Al or (1) #14–4, provided the cables terminated are of the same material. For larger cables, add-on neutral lugs may be ordered from the accessories on **Page V1-T1-60**.

Note: NEC allows only one current-carrying conductor per hole on neutrals unless otherwise noted.

Bottom Fed Loadcenters

For single-phase 225A and below loadcenters that are bottom fed, a standard panel can be rotated 180 degrees to allow straight-in wiring of power cables to the main terminals. Because the main circuit breaker handle operates horizontally, the orientation of the main circuit breaker handle is consistent with the requirements of NEC 2008 Article 240.81.

Gutter Splicing

Loadcenters are not UL listed as wiring troughs. Therefore, gutter splicing of riser cables to tap off to the main device is not permitted. Refer to NEC 2008 Article 312.8.

Fire Rating

Due to the numerous openings in both loadcenter boxes and trims, they should not be mounted in firewalls. There is no approved method for sealing the enclosures for this application.

Date Code

The date of manufacture of each loadcenter is printed on the outside of the carton as well as inside the loadcenter. On the carton, the date code is printed on the end carton label. In the loadcenter, the date code is located on the small white label located on the right side wall (with the main device on top).

The date code is in the following format: F # # # &. The "F" is the numeric code for the Lincoln, IL plant, and the three numbers are the year and week of manufacturing, e.g., 023. The "!" sign at the end signifies the decade of the 2010. Therefore, the date code F023& would indicate that the product was manufactured in the 23rd week of 2010. The 1980s are represented by the "+" sign and the 1990s are represented by a "=" at the end of the code.

Surge Protectors

Complete home surge protection is available in multiple options, including a factory-installed option that provides the highest level of surge protection in a residential design. See Tab 3 for more details.

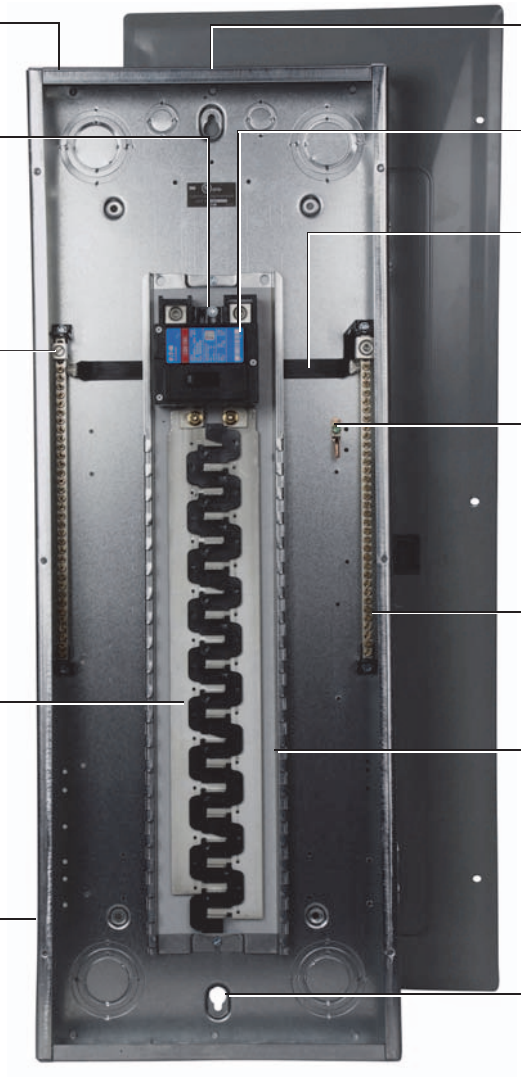
Circuit Breaker Case Interrupting Capacity

- 10 kAIC
- 22 kAIC
- 25 kAIC

Warranty Information

- 10-year limited loadcenter warranty
- 10-year limited branch breaker warranty

Type BR Loadcenter—BR4040B200



Extra 1.5-Inch (38.1 mm) Knockout
- Larger knockout provides easier installation and time savings

Top or Bottom Feed
- Straight-in wiring saves labor and material
- One panel for either top or bottom applications

2/0 Lug
- Easily removable and can be installed in any location on the neutral bar

Standard Tin-Plated Aluminum Bus
- Excellent conductivity and corrosion resistance
- Copper bus options are available for select catalog numbers

Drywall Marking on Enclosure
- Indicates proper mounting depth for flush applications

"Tangential" Center Knockout
- Easier installation for conduit applications

Commercial Grade Main Breaker
- 25 kAIC series rated main breaker for superior protection

Neutral Bus (Strap)
- Is easily removable for sub-panel applications

Bonding Z-strap
- Provides easy field conversion for service entrance applications

Split Neutral Bars
- A minimum of 150% neutral capacity

Steel Backpan
- Provides solid and reliable breaker mounting—single piece design for stability and durability

Single Keyhole Mounting
- One keyhole at the top and bottom provides easier mounting and leveling

Warranty

10-year warranty on all Type BR loadcenters and circuit breakers.

1

Standards and Certifications

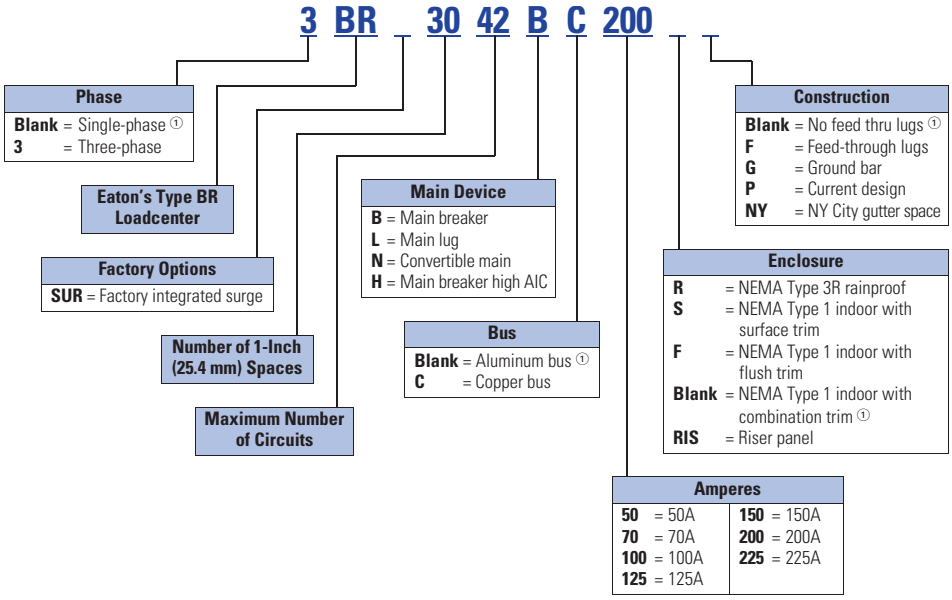
UL Listings

All Eaton Type BR loadcenters are listed under UL File E52977 except the 2–8 circuit loadcenters, up through and including 125A, which are listed under UL File E8741.

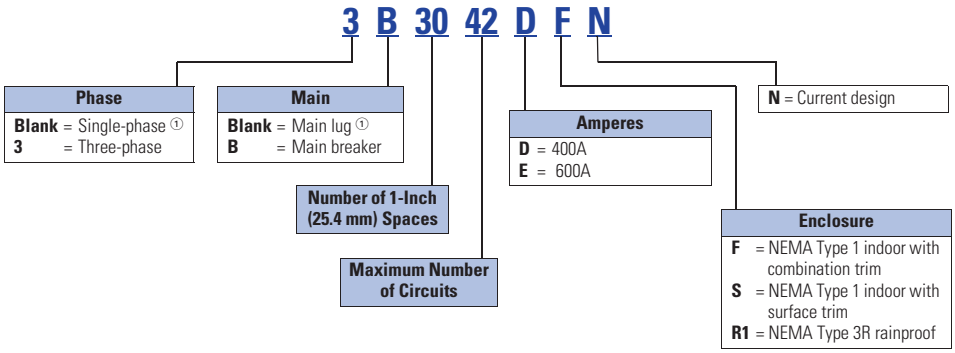
Listed

Catalog Number Selection

Single- and Three-Phase Through 225A



Single- and Three-Phase 400–600A



Example No. 1: BR1224L125G

Single-phase Type BR loadcenter rated at 125A with main lugs, 12 spaces allowing 24 poles, indoor combination enclosure, aluminum bus and ground bar.

Example No. 2: BR24L70RP

Single-phase Type BR loadcenter rated at 70A with main lugs, two spaces allowing four poles, rainproof enclosure with aluminum bus.

Example No. 3: 3B4242EFN

Three-phase Type BR loadcenter rated at 600A with main breaker, 42 spaces allowing 42 poles, indoor combination enclosure.

Note

① No character space used.

Single-Phase—Main Lug Loadcenters

Surface **Outdoor**

Flush **Outdoor**

Surface (No Door)

Flush (No Door)

Outdoor

Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Circuits	Enclosure Type	Trim Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number
70	2	4	Indoor	Surface (no door)	5	#8–#2	**BR24L70SP** ①②
	2	4	Indoor	Surface (no door)	5		**BR24L70SGP** ②③
	2	4	Outdoor	—	5R		**BR24L70RP** ①②④
	2	4	Indoor	Flush (no door)	5		**BR24L70FP** ①②
	2	4	Indoor	Flush (no door)	5		**BR24L70FGP** ②⑤
125	2	4	Indoor	Surface (no door)	6	#14–1/0	**BR24L125SP** ①②
	2	4	Outdoor	—	6R		**BR24L125RP** ①②④
	2	4	Outdoor	—	6R		**BR24L125RSEP** ②⑦⑧
	2	4	Outdoor	—	6R		**BR24L125RSE2P** ②⑥⑦
	2	4	Indoor	Flush (no door)	6		**BR24L125FP** ①②
	4	8	Indoor	Surface (no door)	7	#14–1/0	**BR48L125SP** ①⑨
	4	8	Indoor	Surface (no door)	7		**BR48L125SGP** ③⑨
	4	8	Outdoor	—	7R		**BR48L125RP** ①④⑨
	4	8	Indoor	Flush (no door)	7		**BR48L125FP** ①⑨
	4	8	Indoor	Flush (with door)	7		**BR48L125FDP** ①⑨
	4	8	Indoor	Flush (no door)	7		**BR48L125FGP** ③⑨
	6	12	Indoor	Surface (no door)	7	#14–#1	**BR612L125SP** ①⑩
	6	12	Indoor	Surface (no door)	7		**BR612L125SGP** ⑩⑪
	6	12	Indoor	Surface (with door)	7		**BR612L125SDP** ①⑩
	6	12	Indoor	Surface (with door)	7		**BR612L125SDGP** ⑩⑪
	6	12	Outdoor	—	7R		**BR612L125RP** ①④⑩
	6	12	Indoor	Flush (no door)	7		**BR612L125FP** ①⑩
	6	12	Indoor	Flush (no door)	7		**BR612L125FGP** ⑤⑩⑪
	6	12	Indoor	Flush (with door)	7		**BR612L125FDP** ⑩
	6	12	Indoor	Flush (with door)	7		**BR612L125FDGP** ⑤⑩⑪
	8	16	Indoor	Surface (no door)	7	#14–#1	**BR816L125SP** ①⑩
	8	16	Indoor	Surface (no door)	7		**BR816L125SGP** ⑩⑫
	8	16	Indoor	Surface (with door)	7		**BR816L125SDP** ①⑩
	8	16	Indoor	Surface (with door)	7		**BR816L125SDGP** ⑩⑫
	8	16	Outdoor	—	7R		**BR816L125RP** ①④⑩
	8	16	Indoor	Flush (no door)	7		**BR816L125FP** ①⑩
	8	16	Indoor	Flush (no door)	7		**BR816L125FGP** ⑤⑩⑫
	8	16	Indoor	Flush (with door)	7		**BR816L125FDP** ①⑩
	8	16	Indoor	Flush (with door)	7		**BR816L125FDGP** ⑤⑩⑫

Notes

① Ground bar kits priced separately. See **Page V1-T1-60**.
– For 2/4 circuit loadcenters, use GBK5 or GBK520 ground bar.
– For 4/8, 6/12 and 8/16 circuit loadcenters, use GBK10 ground bar.
– Ground bars mount to the left side wall of the enclosure for the 4/8, 6/12 and 8/16 circuit loadcenters.

② Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

③ Ground bar GBK5 is installed.

④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-60**.

⑤ CSA and UL approved.

⑥ Neutral/ground holes (6) #14–6 and (3) #14–2/0 AWG Cu/Al.

⑦ For use as service entrance applications only.

⑧ Neutral/ground holes (6) #14–6 and (3) #14–1/0 AWG Cu/Al.

⑨ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

⑩ Suitable for use as service equipment when a main breaker is used or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

⑪ Ground bar GBK10 is installed.

⑫ Ground bar GBK14 is installed.

Box sizes **Pages V1-T1-61** through **V1-T1-64**.

LITHONIA LIGHTING

Catalog Number	TWR1 150M TB LPI
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE

Ideal for mounting above entryways and loading docks.

CONSTRUCTION

Rugged, corrosion-resistant die-cast aluminum back housing and hinged door frame. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Finish is bronze polyester powder paint for lasting durability.

OPTICS

Refractor is prismatic borosilicate glass. Reflector is die-formed anodized stippled aluminum.

Medium-base lamp included in carton.

ELECTRICAL

HID: Ballast is high-reactance, high-power-factor for 70-150W. Ballast is 100% factory-tested.

Compact fluorescent: Electronic, high-frequency, multi-volt ballast.

Socket: Medium base socket, nickel-plated screw shell and center contact.

INSTALLATION

Housing is configured for mounting directly over a standard 4" outlet box or for surface wiring via any of three convenient 1/2" threaded conduit entry hubs.

LISTING

UL Listed to US and Canadian safety standards (see Options). Suitable for wet locations (25°C maximum ambient temperature).

Specifications subject to change without notice.

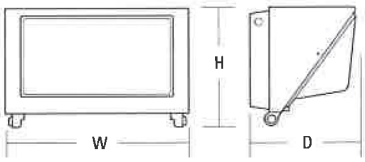
Wall Packs

TWR1

METAL HALIDE: 70-175W

HIGH PRESSURE SODIUM: 70-150W

COMPACT FLUORESCENT: 2/42W



Specifications

Height: 9 (22.9)

Width: 13 (33.0)

Depth: 7-3/8 (18.8)

*Weight: 16.45 lbs/7.46kg

All dimensions shown in inches (centimeters) unless otherwise noted.
*Weight as configured in example below.

ORDERINGINFORMATION

Example: TWR1 70M 120/347 LPI CSA

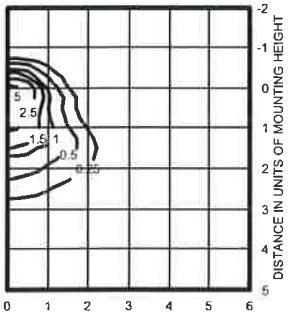
Catalog Number	Wattage	Voltage	Photocell included	Lamp included	Available in Canada
Metal halide					
TWR1 70M 120/347 LPI CSA	70	120/347	N	Y	Y
TWR1 70M TB LPI	70	120/208/240/277	N	Y	N
TWR1 100M 120/347 LPI CSA	100	120/347	N	Y	Y
TWR1 100M TB LPI	100	120/208/240/277	N	Y	N
TWR1 150M 120 PE LPI	150	120	Y	Y	Y
TWR1 150M 277 PE LPI	150	277	Y	Y	Y
TWR1 150M TB LPI	150	120/208/240/277	N	Y	N
TWR1 175M 120/347 LPI CSA	175	120/347	N	Y	Y
High pressure sodium					
TWR1 70S 120/347 LPI CSA	70	120/347	N	Y	Y
TWR1 70S TB LPI	70	120/208/240/277	N	Y	N
TWR1 100S 120/347 LPI CSA	100	120/347	N	Y	Y
TWR1 100S TB LPI	100	120/208/240/277	N	Y	N
TWR1 150S 120/347 LPI CSA	150	120/347	N	Y	Y
TWR1 150S TB LPI	150	120/208/240/277	N	Y	N
Compact fluorescent					
TWR1 2/42TRT 120 PE LPI	2/42	120/208/240/277	Y	Y	Y
TWR1 2/42TRT MVOLT LPI	2/42	120/208/240/277	N	Y	Y

Accessories: *Order as separate catalog number.* Shipped separately	
TWR1WG U	Wireguard

TWR1 High Pressure Sodium/Metal Halide/Compact Fluorescent Wall Pack

TWR1 70S TEST NO: LTL10409

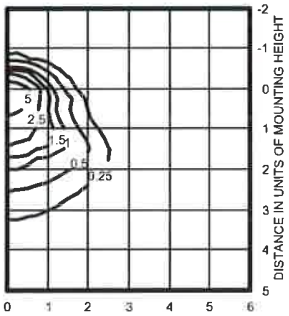
ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Footcandle values based on 12'
mounting height, 6300 rated lumens.
Luminaire Efficiency: 54.6%

TWR1 100S TEST NO: LTL10410

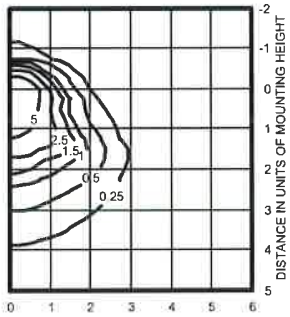
ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Footcandle values based on 12'
mounting height, 9500 rated lumens.
Luminaire Efficiency: 54.6%

TWR1 150S TEST NO: LTL10373

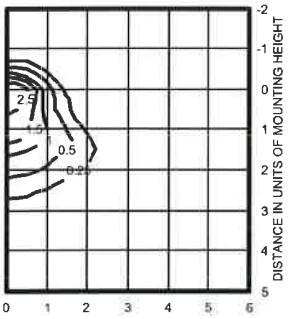
ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Foolcandle values based on 12'
mounting height, 15800 rated lumens.
Luminaire Efficiency: 54.6%

TWR1 70M TEST NO: LTL10412

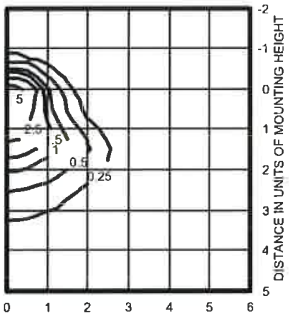
ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Footcandle values based on 12'
mounting height, 5200 rated lumens.
Luminaire Efficiency: 55.0%

TWR1 100M TEST NO: LTL10413

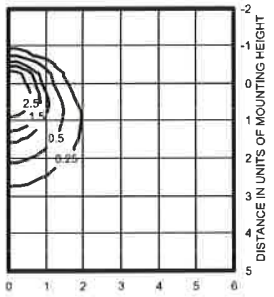
ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Footcandle values based on 12'
mounting height, 8500 rated lumens.
Luminaire Efficiency: 55.0%

TWR1 2/42TRT MVOLT TEST NO: LTL13636

ISOILLUMINANCE PLOT (Footcandle)



W lamp, horizontal lamp orientation
Footcandle values based on 12'
mounting height, 3200 rated lumens.
Luminaire Efficiency: 48.3%

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