ADA COUNTY PROCUREMENT

200 West Front Street
Boise, Idaho 83702-7300

DATE: August 16, 2018
TO: All Plan Holders
FROM: Ada County Procurement
NO. OF PAGES: 7

Bid 18083 Expo Idaho Large Animal Barn Roof Replacement and Structural Repairs Project

BIDS DUE: August 20, 2018 by 4:00 p.m. local time
Ada County Procurement, 200 W. Front St., Rm. 2210, Boise, ID 83702

ADDENDUM NO. 4

NOTICE TO BIDDERS:

1. This addendum shall be considered part of the documents for the above-mentioned project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original documents, this addendum shall govern and take precedence.

2. Bidders are hereby notified that they shall make any necessary adjustment in their estimates on account of this addendum. It will be construed that each bid is submitted with full knowledge of all modifications and supplemental data specified herein.

3. **Bidders must acknowledge in their bids that all addenda have been received or the bid may be deemed non-responsive.**

Please See Attached:

- Clarifications:
  - Electrical Addendum Items - See electrical engineer's clarifications attached

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electricalengineeringcompany
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August 16, 2018

Matt Huffield
Cole Architects
1008 W Main
Boise, Idaho, 83702

Subject: Expo Buildings Roofing Repair – Large Animal Barn
Addendum #1 - Electrical Addendum items

Dear Matt:

Please include the following in your next addendum.

Changes/Clarifications for Heat Trace at Large Animal Barn:

Sheet E2.0 R

The locations of the roof drains is accurate as indicated.
The circuiting to the heat trace junction boxes shall change to utilize a 30A/1P GFEP breaker in panel D at the existing blank spaces D-27, 28, 29, 30, 31, 32. #10 conductors shall be routed from the panel to the junction boxes located on the roof. Roof penetrations at each roof drain has been approved.

The roof drains heat trace shall be circuited as follows:
(6) drains on the upper roof north side (west half) shall be circuited together at D-27 (as noted above)
(6) drains on the upper roof north side (east half) shall be circuited together at D-29 (as noted above)
(4) drains on the lower south side shall be circuited together at D-31 (as noted above)
(6) drains on the upper roof west side and south shall be circuited together at D-28 (as noted above)
(6) drains on the upper roof east side and south shall be circuited together at D-30 (as noted above)
(6) drains on the upper roof south side (middle section) shall be circuited together at D-32 (as noted above)

The Controller is no longer to be furnished and installed. Self-regulating heat trace – Raychem ice stop is to be furnished and installed with 30A GFEP breakers.

Sheet E3.0

The heat trace detail on sheet E3.0 is to be replaced with the new detail – see attached following addendum information. This detail was previously submitted.

The new detail notes that there is an estimated 11 ft of heat trace (that is based on 10' in a star shaped pattern and 1' of leader). The new detail also notes that the heat trace is to be routed down drain to grade, the estimated distance is 20' down the drain pipe. This equates to a total distance of 30' per drain. 30' per drain with 6 drains per circuit that is 180' per circuit, at 12W/ft equates to 360 Watts per drain. A 12W/ft heat trace at 30A is listed as 200' per the manufacturer – see the attached cut sheet.

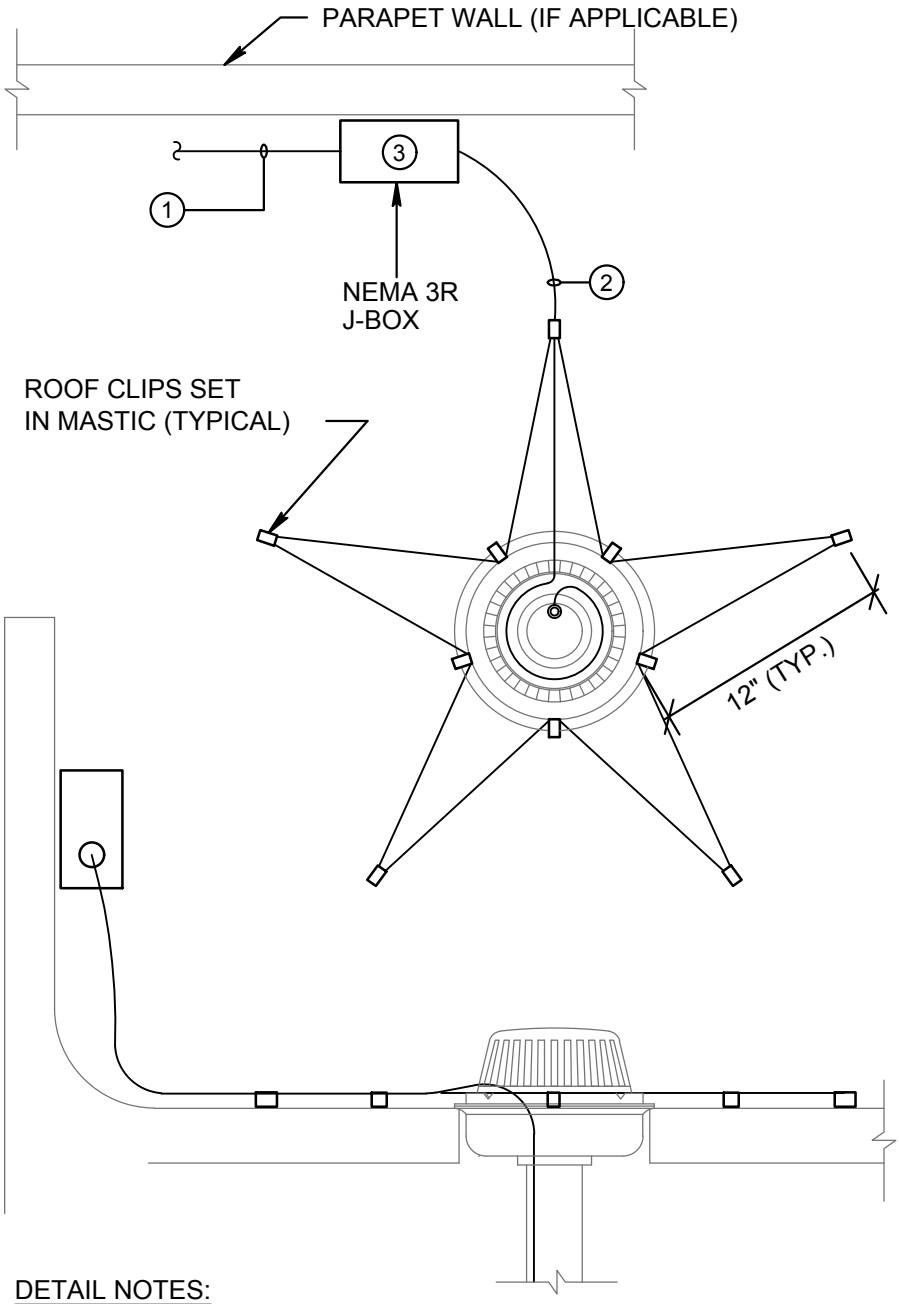
Load calculation question

Response to load calculcation question:
Utilizing 30A GFEP breakers with #10 conductors from breaker to junction boxes at roof drain for 6 drains per circuit equates to 2,160 Watts per circuit. A total of 6 circuits will be utilized. (6) new 30A GFEP breakers installed in panel D at the locations of the existing blank spaces equates to 12,960 watts total added load. This equates to a total ampacity of 54 Amps being added to a 200A panel at 240V. Panel MDP is rated at 800A at 240/1 single phase The existing loads on the panel D are fans and exterior lighting. Other than the exterior lighting the loads will not be utilized at the same time as the heat trace (the building does not have heating installed and the electrical demand in the winter, when the heat trace is energized, is very low) – therefore the panel will not be overloaded.

Please call my office if you have any questions.

Sincerely,

Jon Van Stone, PE, LC, Leed AP
Principal
Electrical Engineering Company



DETAIL NOTES:

1 HEAT TRACE BRANCH CIRCUIT; BREAKER SHALL BE GFCI TYPE SET TO 30mA AT CIRCUIT DESIGNATION AS INDICATED ON DRAWING.

2 PROVIDE 12W/FT, SELF REGULATING HEAT TAPE, RAYCHEM GM SERIES OR EQUAL. PROVIDE APPROX. 11'-0" IN A STAR PATTERN (PLUS LENGTH FROM J-BOX TO START OF STAR PATTERN AS REQUIRED) AROUND ROOF DRAIN AND EXTEND INSIDE ROOF DRAIN TO 4'-0" BEYOND ROOF DRAIN. PROVIDE ALL COMPONENTS NECESSARY FOR A COMPLETE INSTALLATION. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

3 MOUNT J-BOX AT +18" ABOVE ROOF ON PARAPET WALL OR STEM MOUNT AT +18" ABOVE ROOF IF NO PARAPET WALL IS AVAILABLE.

ROOF DRAIN HEAT TRACE DETAIL

P211

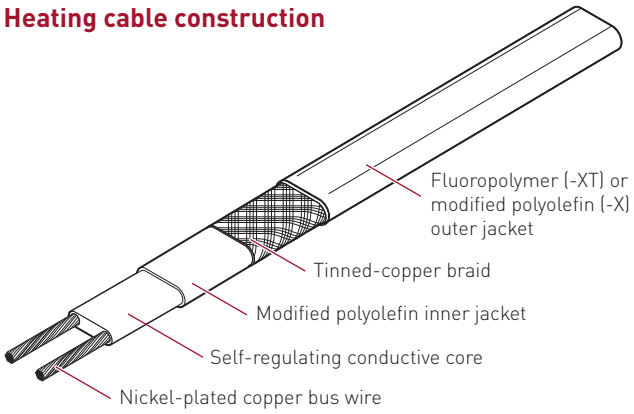
Raychem

ICESTOP

SELF-REGULATING ROOF AND GUTTER DE-ICING HEATING CABLE

10 YEAR Product warranty

Heating cable construction



PRODUCT OVERVIEW

Raychem IceStop is a roof and gutter de-icing system that provides drain paths for the following applications:

- Roofs made from standard roofing materials, including shake, shingle, rubber, tar, wood, metal, and plastic.
- Gutters made from standard materials, including metal, plastic, and wood.
- Downspouts made from standard materials, including metal and plastic.

The heating element in the IceStop heating cable consists of a continuous core of conductive polymer extruded between two copper bus wires. As current flows through the core, the IceStop heating cable regulates its own heat output in response to ambient conditions.

This self-regulating feature eliminates hot spots and results in better temperature control to protect roof and gutter materials.

The IceStop heating cable is available with a fluoropolymer outer jacket (-XT) that provides maximum abrasion, chemical, and mechanical resistance; or a polyolefin outer jacket (-X) that is more economical for less demanding applications.

Low installed cost
The IceStop heating cable's parallel circuitry allows it to be cut to the exact length required, with no wasted cable.

All of these characteristics simplify and streamline the design of a roof and gutter de-icing system. Installation is quick and simple. The same features that make an IceStop system easy to install the first time also simplify additions or changes to the system during building renovations.

CATALOG NUMBER	GM-1XT and GM-1X	GM-2XT and GM-2X
POWER OUTPUT (NOMINAL)	12 W/ft (39 W/m) in ice or snow	12 W/ft (39 W/m) in ice or snow
VOLTAGE	120 Vac	208–277 Vac
MINIMUM INSTALLATION TEMPERATURE	0°F (–18°C)	0°F (–18°C)

MINIMUM BEND RADIUS

	5/8 in (16 mm)
	5/8 in (16 mm)

MAXIMUM CIRCUIT LENGTH IN FEET (METERS)

	Start-up temperature	Circuit breaker size			
		15 A	20 A	30 A	40 A*
GM-1XT and GM-1X at 120 volts	32°F (0°C)	100 (30)	135 (41)	200 (61)	—
	20°F (–7°C)	95 (29)	125 (38)	185 (56)	200 (61)*
	0°F (–18°C)	80 (24)	100 (30)	155 (47)	200 (61)*
GM-2XT and GM-2X at 208 volts	32°F (0°C)	190 (58)	250 (76)	380 (116)	—
	20°F (–7°C)	180 (55)	235 (72)	355 (108)	380 (116)*
	0°F (–18°C)	145 (44)	195 (59)	290 (88)	380 (116)*
GM-2XT and GM-2X at 240 volts	32°F (0°C)	200 (61)	265 (81)	400 (122)	—
	20°F (–7°C)	190 (58)	250 (76)	370 (113)	400 (122)*
	0°F (–18°C)	155 (47)	205 (62)	305 (93)	400 (122)*
GM-2XT and GM-2X at 277 volts	32°F (0°C)	215 (66)	290 (88)	415 (126)	—
	20°F (–7°C)	200 (61)	265 (81)	400 (122)	415 (126)*
	0°F (–18°C)	165 (50)	225 (69)	330 (101)	415 (126)*

* Only FTC-P power connection kits may be used with 40-A circuits.

BUS WIRES

16 AWG nickel-plated copper

BRAID / OUTER JACKET

Tinned-copper braid with fluoropolymer (-XT) or modified polyolefin (-X) outer jacket

DIMENSIONS

Maximum width	0.54 in (14 mm)
Maximum thickness	0.24 in (6 mm)

NOMINAL WEIGHT

92 lb/1000 ft (137 kg/1000 m)

CONNECTION KITS

Raychem RayClic or FTC connection kits must be used with IceStop heating cables. Refer to the Roof and Gutter De-Icing Design Guide (H56070) for proper connection kit selection.

APPROVALS

877Z De-icing and Snow-Melting Equipment

-WS

Nonhazardous and Hazardous Locations Class 1, Div. 2, Groups A, B, C, D*
* For GM-1XT and GM-2XT

The IceStop heating cables are UL Listed, CSA Certified, and FM Approved only when used with the appropriate agency-approved Thermal Management connection kits and accessories.

GROUND-FAULT PROTECTION

To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Thermal Management, agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. Many Raychem control and monitoring systems meet the ground-fault protection requirement.

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