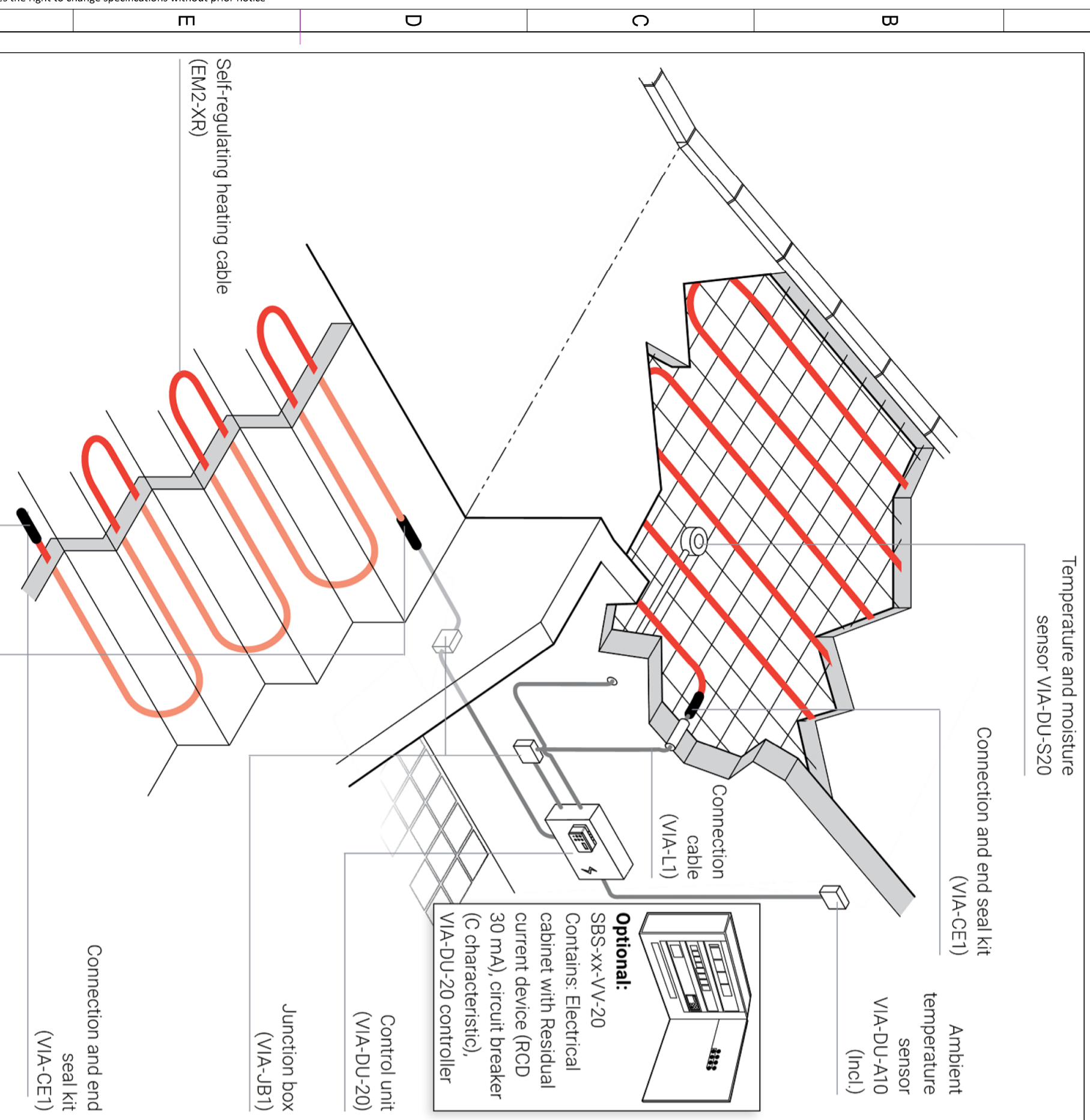
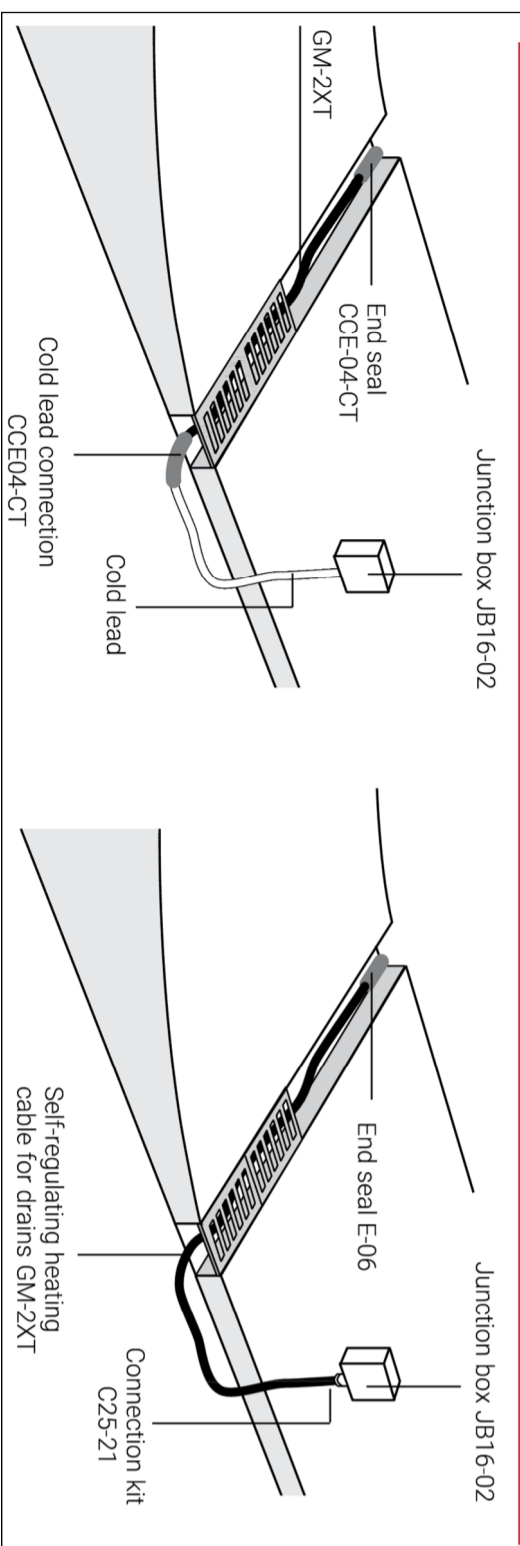


## EM2-XR Surface Snow Melting System



### DRAIN TRACING



Circuit breaker sizing (MCBS to BS EN 60898, Type C)		Max. circuit length: EM2-XR (for start-up at -10°C)	
10 A		17 m	
16 A		28 m	
20 A		35 m	
25 A		45 m	
32 A		55 m	
40 A	Contact your nVent representative for the most economical solution		

**GENERAL**  
All exposed ramps, walkways and fire escape stairways shall be fitted with an energy efficient, self-regulating ramp heating system to prevent impeded access in snow and icy conditions, known as nVent RAYCHEM EM2-XR, manufactured by nVent.  
The system shall be capable of producing 300 W/m<sup>2</sup> (installation at 300 mm spacing in concrete), complete with rugged and robust self-regulating heating cables, specifically designed for this application, advanced energy efficient controller and monitoring device and dedicated components.  
The manufacturer shall offer a product warranty of 10 years for heating cables/components and 2 years for controllers, subject to the system being designed, installed, tested and commissioned strictly to their requirements; extended to 12 years on heating cables/components and 6 years on controls, when installed by the manufacturer or by a trained installer recognised by them. All subject to the completion of the online warranty registration.  
Document submittal shall include all of the following: data sheets (for heating cables, interconnection & termination components and controller), system design guide, typical schematic drawings, controller wiring diagrams and system installation/operation manual, along with approval certificates on request.

#### SELF-REGULATING RAMP HEATING CABLES

The self-regulating heating cable shall be specifically designed and qualified for ramp heating applications, with a heavy braid and thick, pressure extruded, modified polyolefin jacket to provide maximum resistance to installation damage. It shall be capable of withstanding a crushing force of 8900N and a cut through force of 100N/0.25 mm blade, compliant with the tests for cold bend and deformation (IEE-515), crush and tension (V-493), dynamic cut through and insulation resistance (CSA-22.2-130). It shall also be available as a configured heating unit, with pre-installed terminations and variable length power cable. The manufacturer shall demonstrate minimum 40 year experience in producing self-regulating heating cables and be ISO-9001 registered.

#### ENERGY EFFICIENT, CONTROL SYSTEM

[Select One Option]

[Option 1]

#### Single Circuit, Single Application Controller

All ramp and access way heating systems shall be controlled by a programmable, energy efficient control and monitoring system (to provide three way sensor control logic - ground temperature, ground moisture and ambient temperature; freezing rain precipitation function to switch heating circuits on when there is a risk of freezing rain or sleet; digital display; monitoring of sensor defects; alarm relay for remote monitoring at the BMS). The system shall be nVent RAYCHEM VIA-DU-20, manufactured by nVent.

[Option 2]

#### Multi Circuit, Panel Mounted, Single Application Controller

All ramp heating and walkway heating circuits shall be controlled and monitored using an energy saving, programmable, electrically protected, multi-circuit control panel system complete with integrated energy saving programmable controller (to provide three way sensor control logic - ground temperature, ground moisture and ambient temperature; freezing rain precipitation function to switch heating circuits on when there is a risk of freezing rain or sleet; digital display; monitoring of sensor defects; alarm relay for remote monitoring at the BMS). The panel shall have a separate circuit connection for a drainage channel heater, switched by the controller and volt free alarm contact (to indicate RCD or circuit breaker failure mode, loss of power to the unit and controller or sensor error mode). The system shall be nVent RAYCHEM SBS-xx-VV-20, manufactured by nVent.

[Option 3]

#### Multi-Circuit, Distributed Digital Control System, Single or Multi-Application

All ramp heating and walkway heating circuits shall be controlled and monitored using a centralised control system complete with touch screen user interface terminal (for central programming); power connection modules (to provide distributed power, circuit protection, control & monitoring); remote monitoring modules (for additional temperature measurement); integrated energy saving programmable controller (to provide three way sensor control logic - ground temperature, ground moisture and ambient temperature; freezing rain precipitation function (to switch heating circuits on when there is a risk of freezing rain or sleet); digital display; monitoring of sensor defects; alarm relay (for remote monitoring at the BMS). The system shall be nVent RAYCHEM ACS-30, manufactured by nVent.

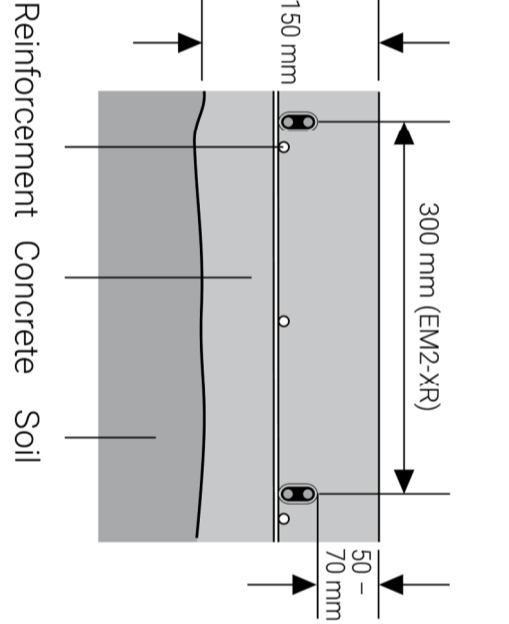
#### INSTALLATION AND ELECTRICAL CONNECTION

The system shall be installed in accordance with the design plans, within the defined maximum circuit lengths, strictly in accordance with the manufacturer's installation manual, tested and commissioned using a 2500Vdc megger. Installation of thermal insulation shall be closely coordinated with the responsible sub-contractors.  
Connections between the electrical supply, control panel and pipe freeze protection circuits shall be installed by an approved electrical contractor and protected by MCB (BS EN 60898 type C or D) and RCD (30 mA sensitivity, tripping within 100ms).

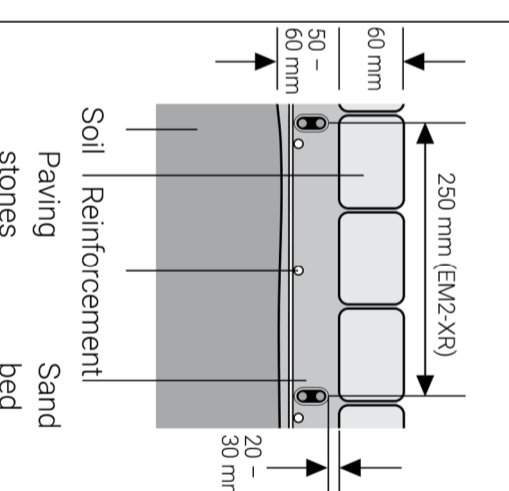
#### RAYCHEM Heat Tracing Solutions for BIM

nVent Thermal Management is the first heat tracing manufacturer to provide BIM solutions to help engineers design and model heat tracing projects.  
We provide a comprehensive suite of tools including BIM families and dynamic RAYCHEM Trace-It add-in tool for the Autodesk Revit platform. Architects, engineers, contractors and building owners can easily incorporate heat tracing content into their building models to optimize efficiencies and performance.  
<http://ip.nventthermal.com/bim>

#### Concrete



#### Sand bed



#### NOTES

1. Data sheet for EM2-XR, please refer to DS-CDE1227-EM2XR-EN-1805
2. Data sheet SBS-xx-VV-20 panel, please refer to DS-CDE1629-SBSVV20-EN-2018
3. Installation instructions for EM2-XR, please refer to IM-INS178

#### REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	CAD	DES	CHK	APP
00	18/03/2019	ISSUED FOR SAMPLE PURPOSES ONLY	MG	MG	HK	NW

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Typical Schematic Layout  
Surface Snow Melting with EM2-XR

LANGUAGE	DRAWING TITLE
en	Surface Snow Melting System Layout

SCALE	CLIENT DOCUMENT CODE	CLIENT DRAWING NO.
NTS	-	-

SIZE	NIN PROJECT NO.	NIN DRAWING NO.	SHEET NO.	REV.
A2	P.XX.19xxxx	DD01_1001	1 of 1	00