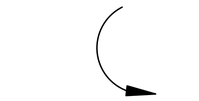
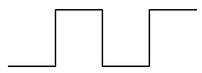
LEGEND

START	Start of LX Mat/Cable
END	End of LX Mat/Cable
	Direction of LX Mat
	Rotation of LX Mat
	Loose Cable
T	Thermostat

DRAWING LIST

LX-1	Legend/Drawing List
LX-2	LX Specification
LX-3	LX General Notes
LX-4	LX Typical Application
LX-5	LX Typical Application
LX-6	LX Typical Wiring Diagram
LX-7	LX Thermostat to Contactor Panel
LX-8	LX Mat Modification
LX-9	LX Typical Layouts
LX-10	LX Reflect Typical Installation and Layout

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
Legend/Drawing List

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Date:	Quote No:
March 2018	
Drawn By:	**Scale:**

Drawing No:
LX-1

LX Mats

LX Mat Specifications

1. General
   Supply and install a complete system comprised of heating cables, accessories, and controls.

2. Material
   2.1. Shall be Danfoss LX twin conductor heating cable.

   2.2. Mat with strong dual self-adhesive backing (flexible thermoplastic polymer coated fiberglass).

   2.3. The mat is rated to produce 12W/SF at 120V or 240V.

   2.4. Shall include 10' cold lead, single point connection.

   2.5. Conductor: Copper or copper alloy, with tin-nickel coating.

   2.6. Insulation: DuPont FEP insulation with an average thickness not less than 0.35mm.

   2.7. Shield: Tin-Coated drain wire combined with 0.050mm aluminum foil coated with 0.012mm PBT, 100% coverage.

   2.8. Jacket: PVDF with an average thickness not less than 0.25mm.

   2.9. Shall operate on line voltage of (select:120V, 208-240V).

   2.10. Shall be approved to applicable UL and CSA standards.

3. System Controls
   3.1. The system temperature shall be controlled by a Danfoss thermostat with a floor or air sensor, or a combination of both.

   3.2. The thermostat shall incorporate an integral 5mA Class A Ground Fault Circuit Interrupter (GFCI), a temperature set-back option to reduce energy consumption, and a digital readout.

   3.3. Shall be approved to applicable UL and CSA standards.

4. Execution
   4.1. Installation
      a. System must be installed per manufacture's recommendation using the method described in the installation guide.
      b. Place the heating mats and sensors in the surface material as per the installation guide.
      c. Inspect the mats and controls upon receiving the shipment. Note any damage and ensure materials received match the order and shipping documents.

   4.2. Tests
      a. Refer to the manufacturer's literature for requirements for testing and documenting cable resistance and insulation-to-ground readings.
      b. Take tests as outlined in the Installation Manual.
      c. If problems are discovered, consult the manufacturer.
      d. If unable to correct problems notify the engineer before proceeding with the installation.
      e. Keep a record of all readings for inspection by the engineer or for submittal to the manufacturer to ensure a valid warranty.

5. Warranty
   5.1. Manufacturer shall offer a 20-year, non-prorated warranty.

LX Cables

LX Cables Specifications

1. General
   Supply and install a complete system comprised of heating cables, accessories, and controls.

2. Material
   2.1. Shall be Danfoss LX twin conductor heating cable.

   2.2. Shall Include 10' factory spliced and sealed cold lead, single point connection.

   2.3. Conductor: Copper or copper alloy, with tin-nickel coating.

   2.4. The Cable is rated to produce 3 W/ft at 120 or 240V.

   2.5. Insulation: DuPont FEP insulation with an average thickness not less than 0.35mm.

   2.6. Shield: Tin-Coated drain wire combined with 0.050mm aluminum foil coated with 0.012mm PBT, 100% coverage.

   2.7. Jacket: PVC with an average thickness not less than 0.76mm.

   2.8. Shall operate on line voltage of (select:120V, 208-240V).

   2.9. Shall be approved to applicable UL and CSA standards.

3. System Controls
   3.1. The system temperature shall be controlled by a Danfoss thermostat with a floor or air sensor, or a combination of both.

   3.2. The thermostat shall incorporate an integral 5mA Class A Ground Fault Circuit Interrupter (GFCI), a temperature set-back option to reduce energy consumption, and a digital readout.

   3.3. Shall be approved to applicable UL and CSA standards.

4. Execution
   4.1. Installation
      a. System must be installed per manufacture's recommendation using the method described in the installation guide.
      b. Place the heating cable and sensors in the surface material as per the installation guide.
      c. Inspect the cable and controls upon receiving the shipment. Note any damage and ensure materials received match the order and shipping documents.

   4.2. Tests
      a. Refer to the manufacturer's literature for requirements for testing and documenting cable resistance and insulation-to-ground readings.
      b. Take tests as outlined in the Installation Manual.
      c. If problems are discovered, consult the manufacturer.
      d. If unable to correct problems notify the engineer before proceeding with the installation.
      e. Keep a record of all readings for inspection by the engineer or for submittal to the manufacturer to ensure a valid warranty.

5. Warranty
   5.1. Manufacturer shall offer a 20-year, non-prorated warranty.

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
Specification

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Drawn By:	Scale:

Drawing No:
LX-2

LX Mat General Notes

1. It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of floor warming system and the hazards involved. The heating mat is designed for under floor heating purposes only.

2. The installation shall be in accordance with the manufacturer's instructions and national and local codes. The installation shall be in accordance with Part 424-J, American National Standard Institute / National Fire Protection Association (ANSI/NFPA70), National Electrical Code (NEC) and Canadian Electrical Code (CEC), Part 1. Danfoss recommends GFCI for heating cable in normally wet areas (i.e. bathrooms, showers, kitchens).

3. The resistance should be measured between the two conductors, blue and black. Compare the measured resistance to the resistance on the product label, located 3 inches from the splice, on the cold lead. Also, measure the resistance between the blue, black and shielding/ground wire. Both should read infinity.

4. Read the instructions carefully before installing LX mat.
5. Do not install LX mat in walls or ceilings.
6. The mat must be embedded in mortar, thin set, concrete or similar material.
7. The minimum installation temperature is 40°F (5°C).
8. Never cut the red heating wire.
9. It is recommended to use AWG 16 or greater copper wire only if you need to extend the cold lead.
10. Never install the LX mat such that two red heating wires touch, cross or overlap.
11. Measure the resistance between the blue, black and shielding/ground wire. Both should read infinity.

12. Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, after installation, before thin set cement or self-leveler application and after installation of floor tiles) and compare all reading to the ratings on the product label.

13. Remember to check that the supply voltage matches the voltage of the Danfoss LX mat.

14. Remember to place the labels as written in this instruction.

15. Only for indoor installation.

16. Metal structures or materials used for the support of or on which the Danfoss LX mat is installed must be grounded in accordance with CSA Standard C22.1, section 10 and the NEC.

17. Please consult the factory for any other questions or advice.

LX Cable General Notes

1. It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of floor warming system and the hazards involved. The heating mat is designed for under floor heating purposes only.

2. The installation shall be in accordance with the manufacturer's instructions and national and local codes. The installation shall be in accordance with Part 424-J, American National Standard Institute / National Fire Protection Association (ANSI/NFPA70), National Electrical Code (NEC) and Canadian Electrical Code (CEC), Part 1. Danfoss recommends GFCI for heating cable in normally wet areas (i.e. bathrooms, showers, kitchens).

3. The resistance should be measured between the two conductors, blue and black. Compare the measured resistance to the resistance on the product label, located 3 inches from the splice, on the cold lead. Also, measure the resistance between the blue, black and shielding/ground wire. Both should read infinity.

4. Read the instructions carefully before installing LX cable
5. Do not install LX cable in walls or ceilings
6. The cable must be embedded in mortar, thinnest, concrete or similar material
7. The minimum installation temperature is 50°F (10°C)
8. Never cut the red heating wire
9. It is recommended to use AWG 16 or greater copper wire only if you need to extend the cold lead.
10. Never install the LX cable such that two red heating wires touch, cross or overlap

11. Also, measure the resistance between the blue, black and shielding/ground wire. Both should read infinity

12. Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, after installation, before thin set cement or self-leveler application and after installation of floor tiles) and compare all reading to the ratings on the product label

13. Remember to check that the supply voltage matches the voltage of the LX cable

14. Remember to place the labels as written in this instruction
15. Only for indoor installation

16. Metal structures or materials used for the support of or on which the Danfoss LX cable is installed must be grounded in accordance with CSA Standard C22.1, section 10 and the NEC

17. Please consult the factory for any other questions or advice.

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Project:

LX General Submittal

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Specification

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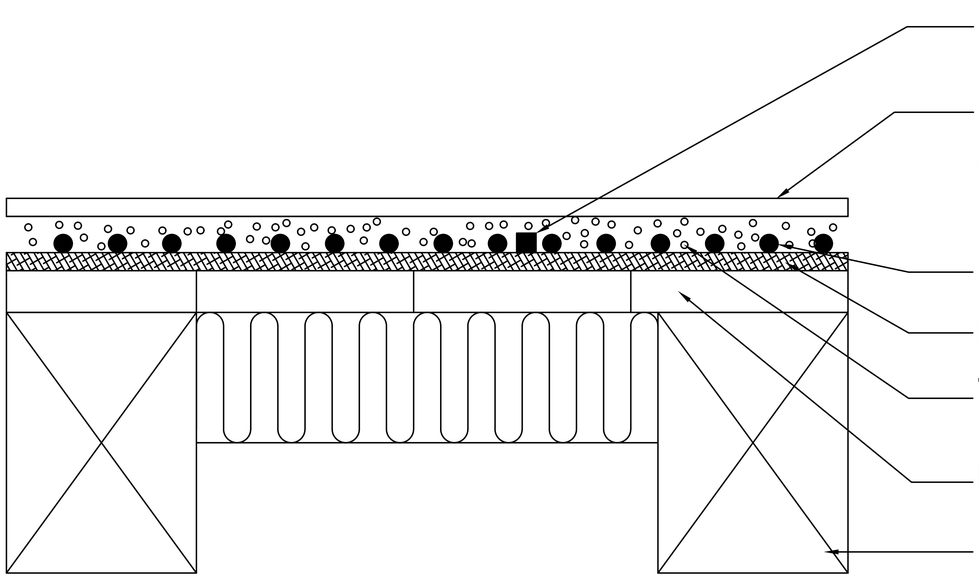
Drawn By:	**Scale:**

Drawing No:

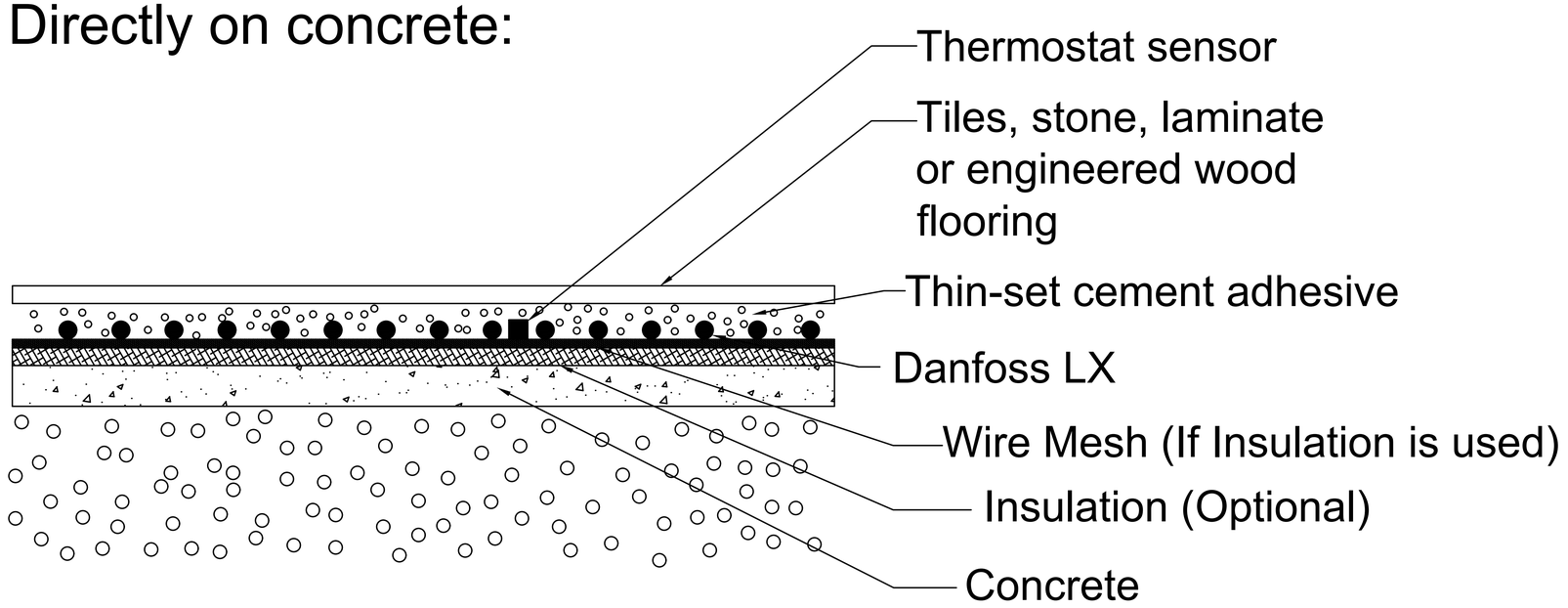
LX-2

Directly on plywood:



Detail:1 LX-4 Danfoss LX Typical Installation and Application

Directly on concrete:



Detail:2 LX-4 Danfoss LX Typical Installation and Application

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
LX Typical Installation

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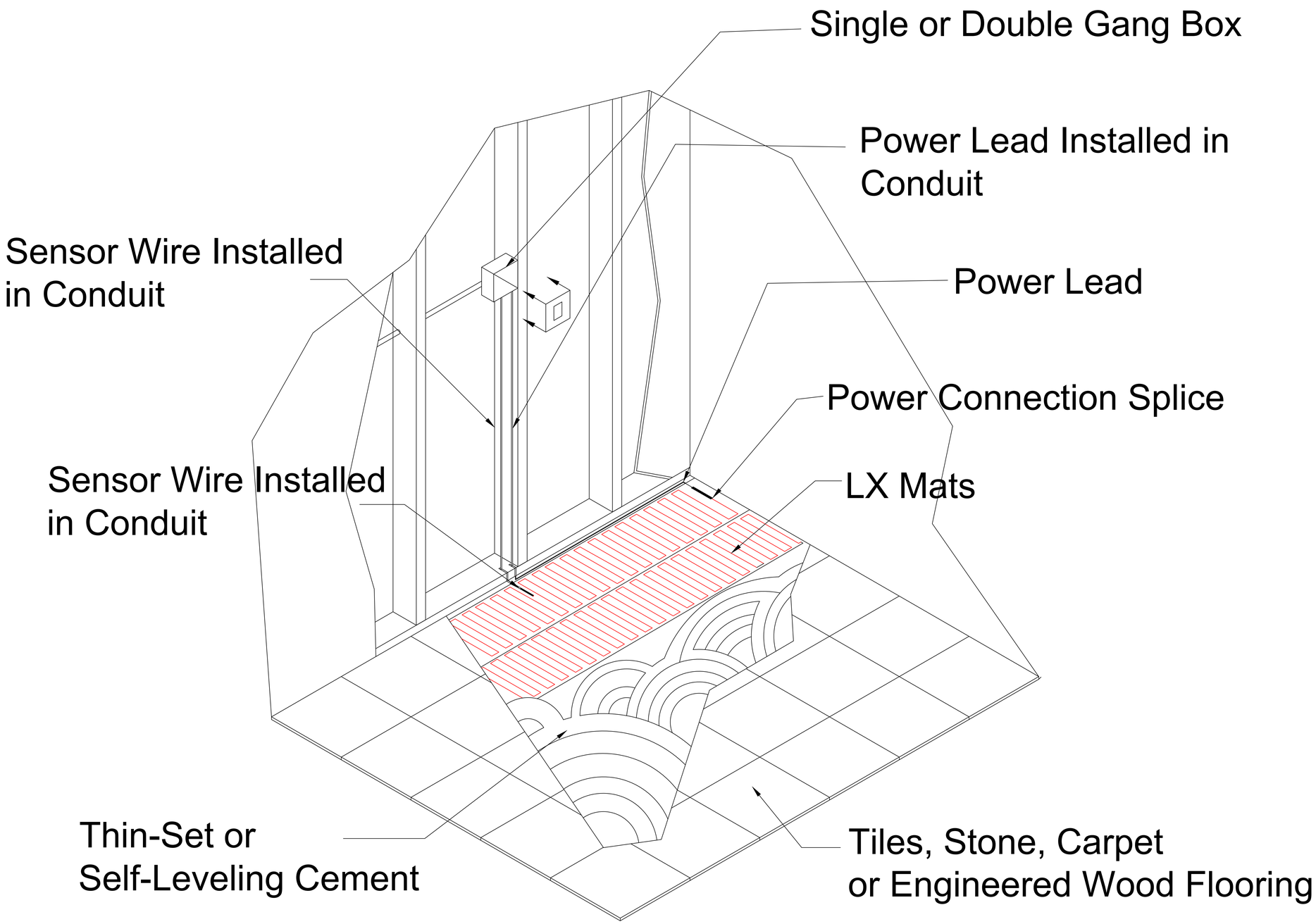
March 2018	
Drawn By:	**Scale:**

Drawing No:

LX-4



Detail:1
LX-5
Wall Wiring Diagram

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
LX Typical Installation

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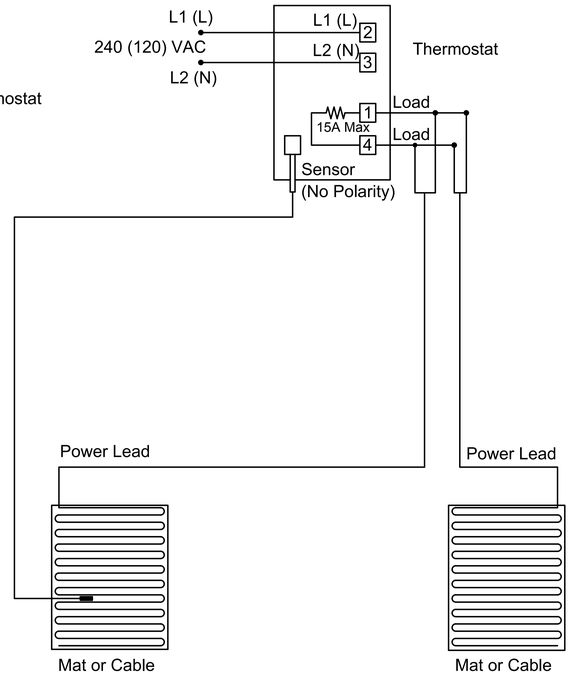
Date:	Quote No:
March 2018	
Drawn By:	**Scale:**

Drawing No:
LX-5

Typical Electrical wiring
Diagram for Danfoss Thermostat
Max. Load 15 Amps

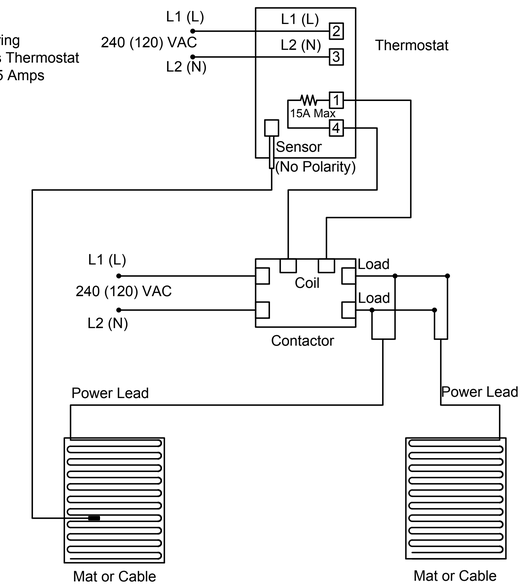


Max. Load 15 Amps

Detail:1
LX-6

Wiring Diagram for Danfoss Thermostat
Max. Load 15 Amps

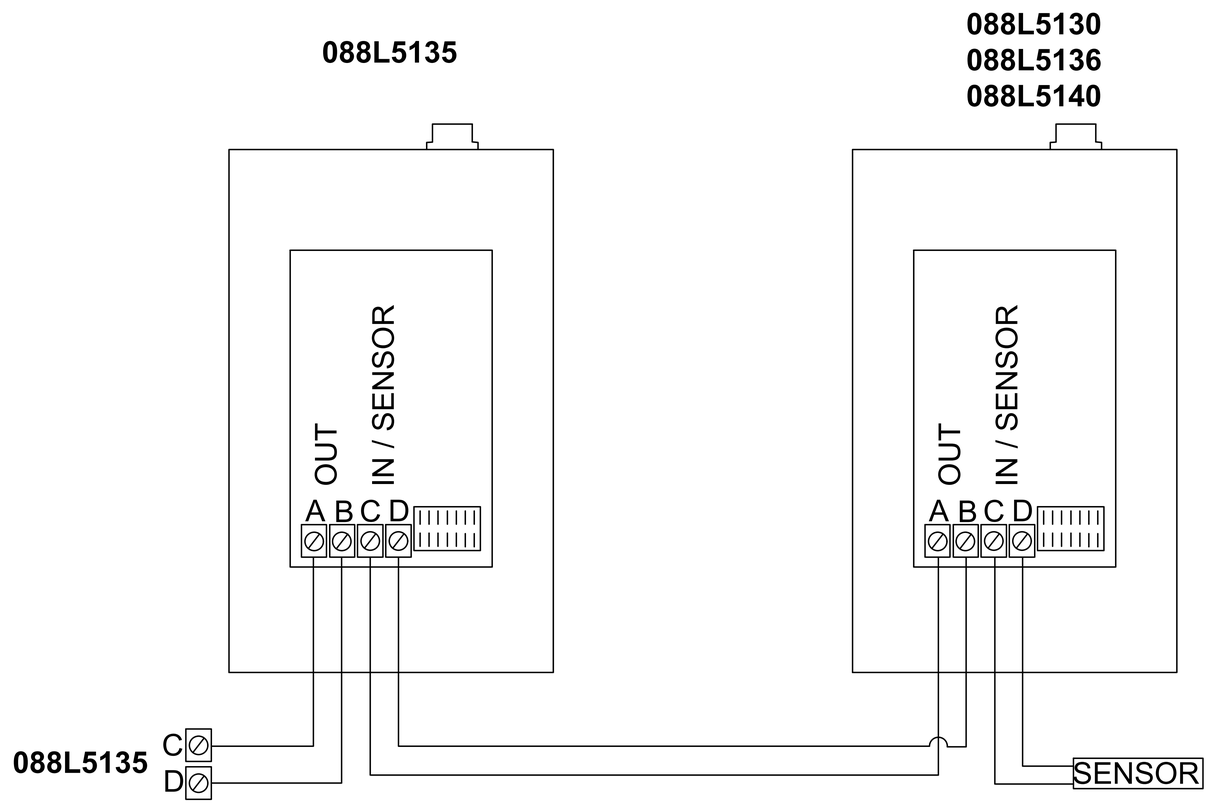
Typical Electrical wiring
Diagram for Danfoss Thermostat
Load greater than 15 Amps



Load greater than 15 Amps
(GFCI protection not provided in this wiring diagram)

Detail:2
LX-6

Wiring Diagram for Danfoss Thermostat
Load Greater Than 15 Amps



Detail:3
LX-6

Wiring Diagram for Danfoss Thermostat
Load Greater Than 15 Amps

No:	Date:	Description:

Issued:

Project:

LX General Submittal

Drawing Title:

LX Typical Wiring Diagram

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Date:
March
2018

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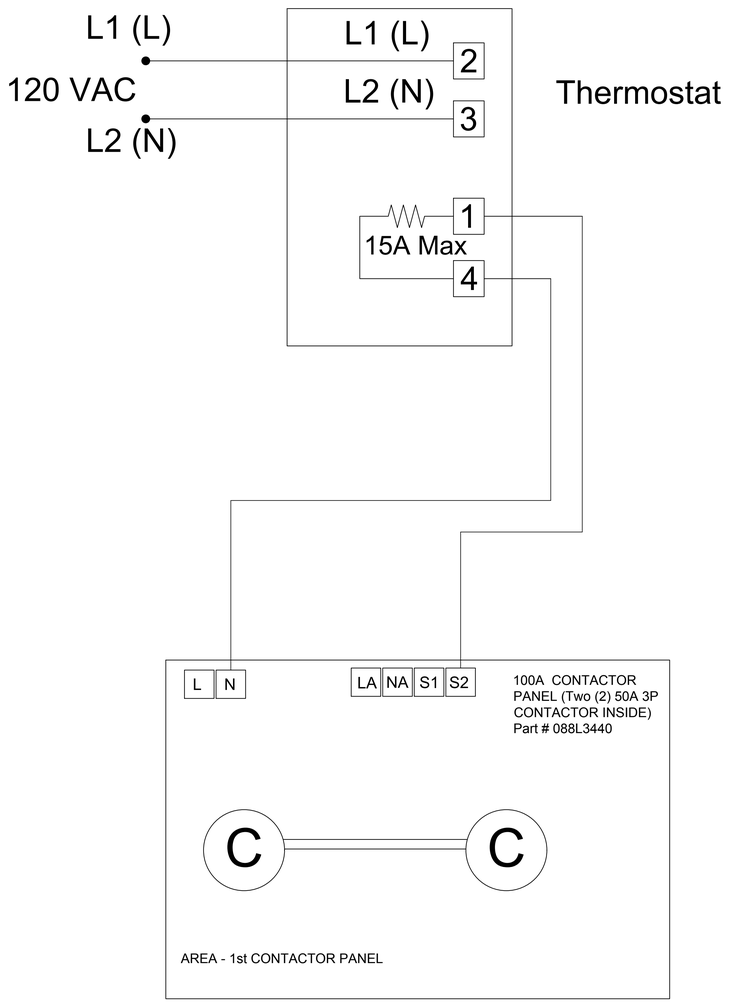
Scale:

Drawing No:

LX-6

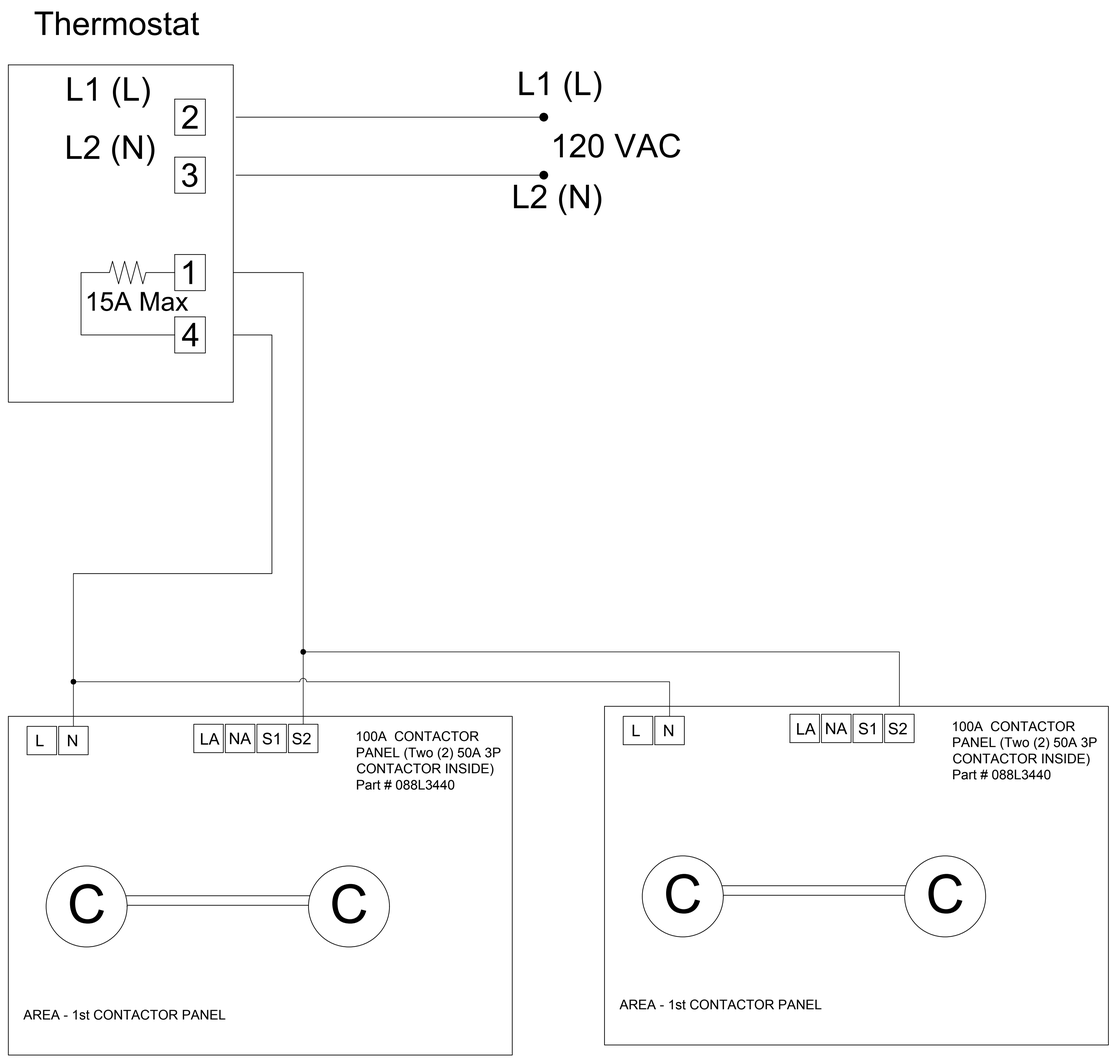
Typical Electrical wiring
Diagram for Danfoss Thermostat
Load greater than 15 Amps



Note: Contractor to provide GFEP

Detail:2
LX-7
Thermostat to Contactor Panel Wiring

Typical Electrical wiring
Diagram for Danfoss Thermostat
Load greater than 15 Amps



Note: Contractor to provide GFEP

Detail:2
LX-7
Thermostat to Contactor Panel Wiring

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
Thermostat to Contactor Panel Wiring

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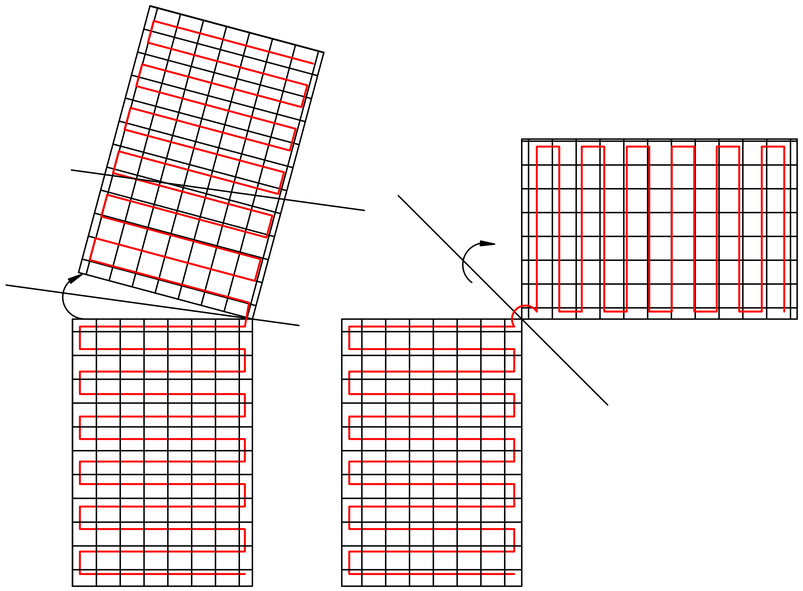
Scale:

Drawing No:

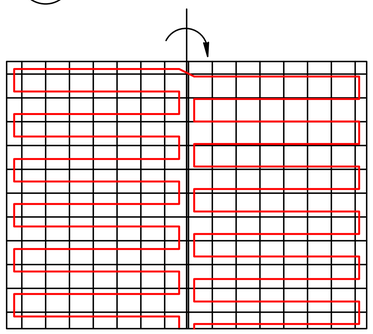
LX-7

① 30° Rotation

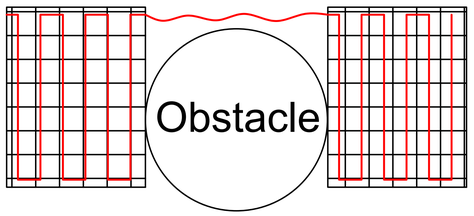
② 90° Rotation



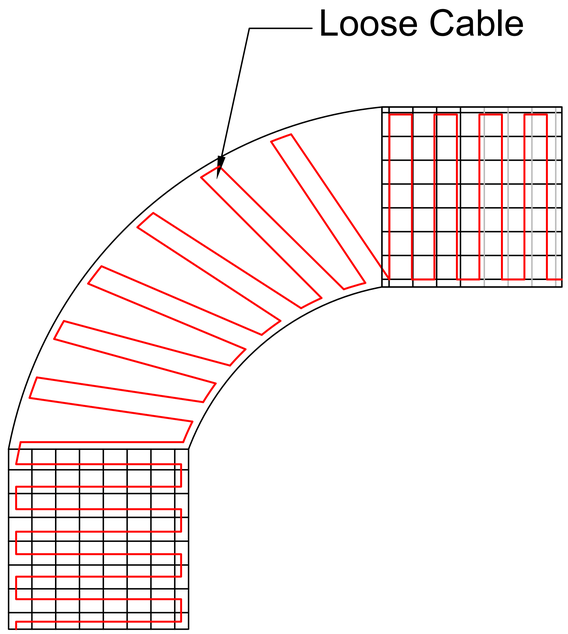
③ 180° Rotation



④ Avoiding Obstacle



⑤ Fan Rotation



NOTE:

1. To Rotate the Mat at any angle, cut the grey mesh without cutting the red cable and turn it in any direction you want.
2. For some typical shapes or approaching obstacles remove some of the red heating cables from the grey mesh and use hot melt glue or thin strip of tape to secure the loose cable to the floor.
3. Do not cut the RED cable.

Detail:1 LX Mat Modification
LX-8

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
LX Mat Modification

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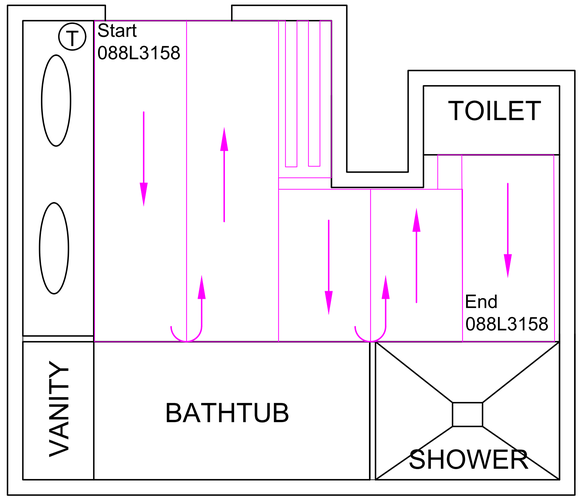
Date:	Quote No:
March 2018	
Drawn By:	**Scale:**

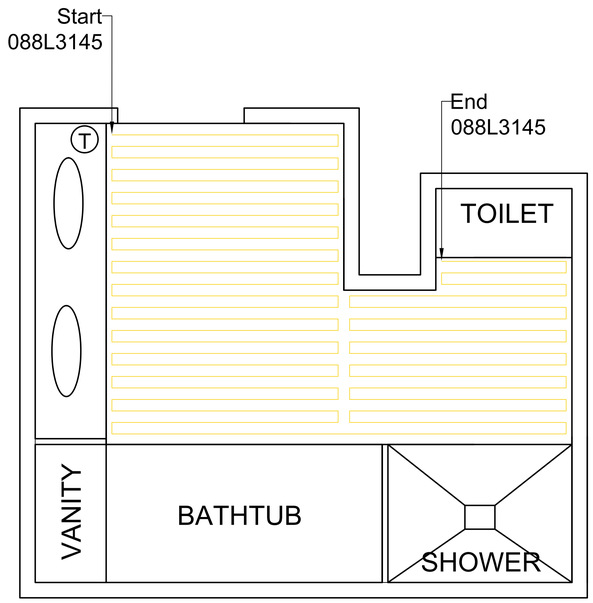
Drawing No:
LX-8

No. Mats
1. 088L3158 - 25ft
Coverage -50sf
Note:
1. 1ft Mat = 8ft Cable



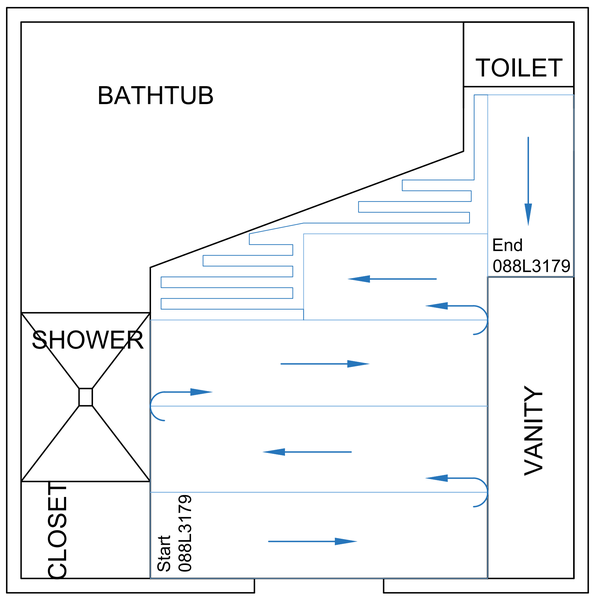
Detail:1 LX-9 Bathroom 1 Mat Layout

LX Cables
1. 088L3145 - 200ft
Coverage - 50sf
@ 3" spacing



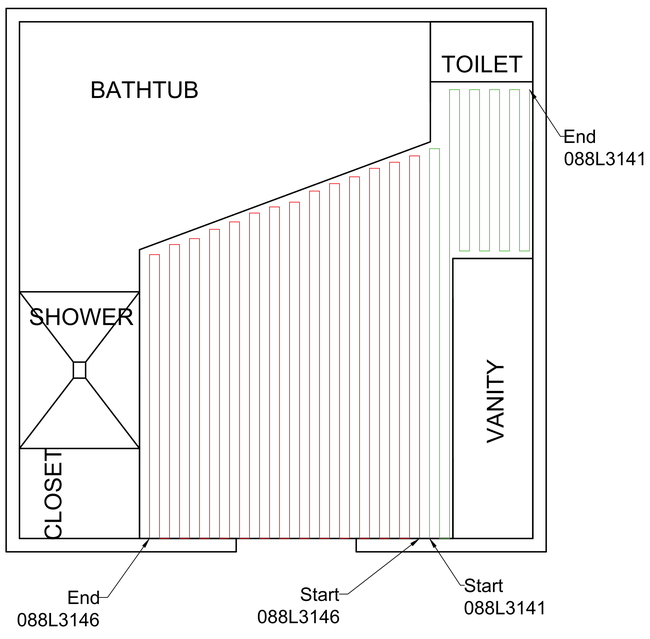
Detail:2 LX-9 Bathroom 1 Cable Layout

No. Mats
1. 088L3179 - 35ft
Coverage - 70sf
Note:
1. 1ft Mat = 8ft Cable



Detail:3 LX-9 Bathroom 2 Mat Layout

LX Cables
1. 088L3141 - 60 ft
Coverage - 15sf
@ 3" spacing
2. 088L3146 - 240ft
Coverage - 60sf
@ 3" spacing



Detail:4 LX-9 Bathroom 2 Cable Layout

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
LX Typical Layout

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2018

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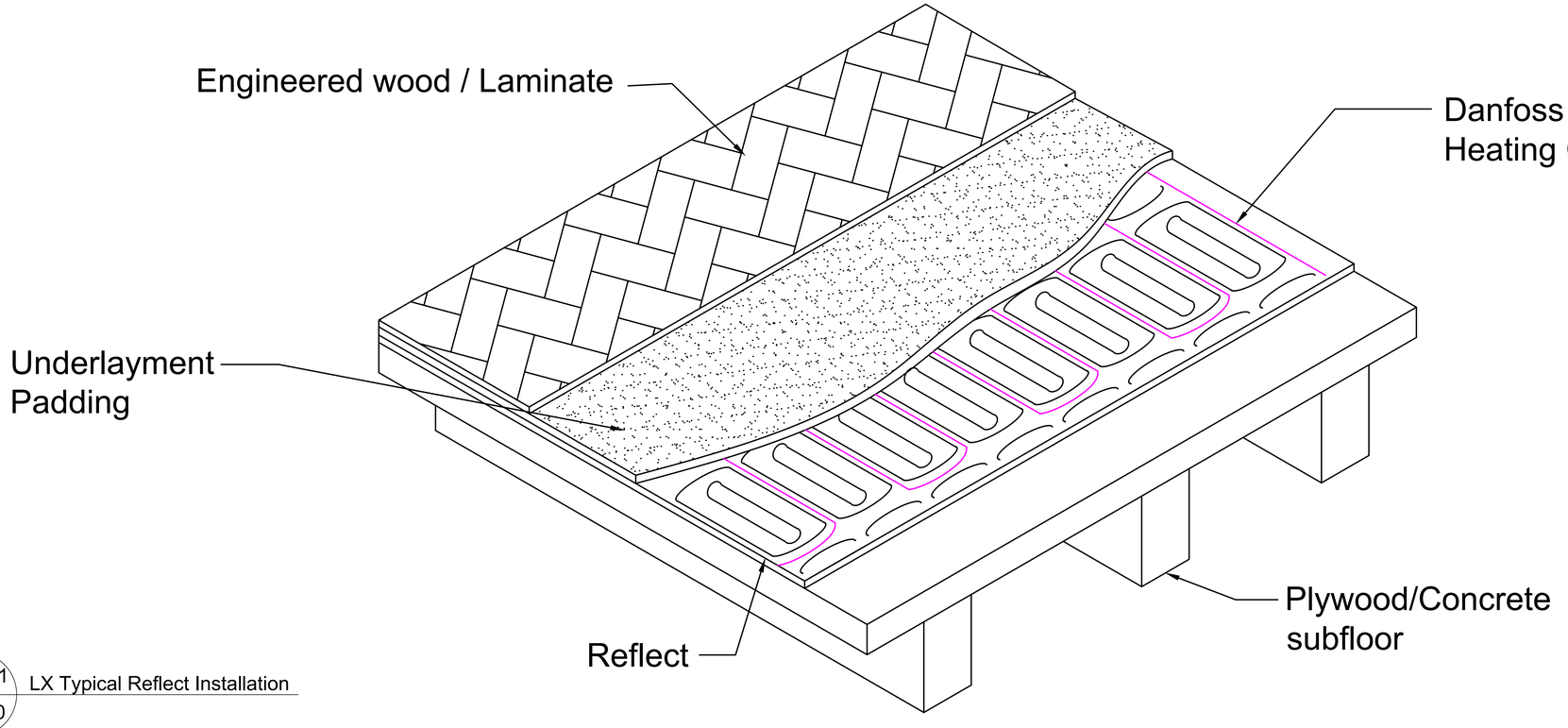
Scale:

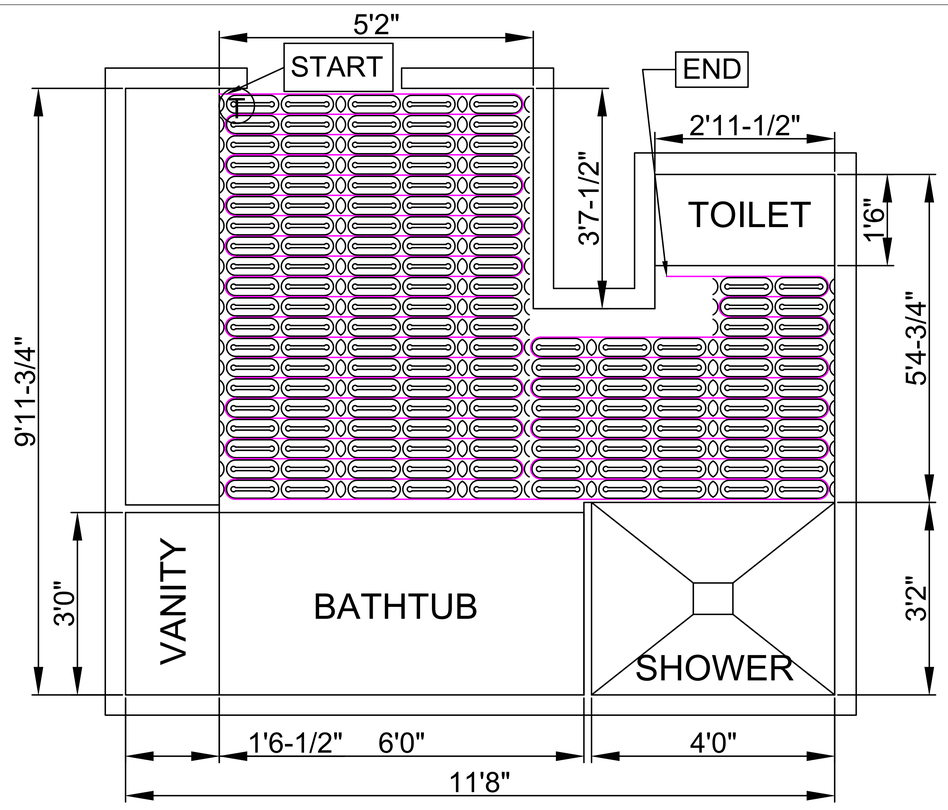
Drawing No:

LX-9



Detail:1
LX-10
LX Typical Reflect Installation

LX Cables (Reflect)
1. 088L3144 - 160 ft
Coverage 55SF
@ 4" Spacing



Detail:2
LX-10
LX Typical Reflect Layout

No:	Date:	Description:

Issued:

Project:
LX General Submittal

Drawing Title:
LX Reflect Typical Installation and Layout

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Drawing No:
LX-10