

Commercial and Residential

HPS ComfortSafe

Radiant Warmth and Moisture Reduction Layer

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1. GENERAL INFORMATION

The **Schönox HPS ComfortSafe** system is designed for residential and commercial installations and ideally any floor where warmth and surface moisture reduction is desired. When installed with Schönox self-leveling compounds, the **HPS ComfortSafe** system offers a clear, efficient, continuous, and easy-to-use heat source for moisture evaporation.

2. FUNCTION/USE

The basic requirements and features for the **HPS ComfortSafe commercial** heater system are:

- Power supply 120VAC single phase 3KW
- Installation area of 100ft²
- **Schönox HPS ComfortSafe** film supplied in roll form 35" wide
- **PowerTrack** 3.15" wide in roll form
- Electronic Timer Switch *Tork® SA300 40A* for controlling heaters ON/OFF
- Power cables and T5 crimp connectors

The basic requirements and features for the **HPS ComfortSafe residential** heater system are:

- Power supply 120VAC single phase 3KW
- Installation area of 100ft²
- **Schönox HPS ComfortSafe** film supplied in roll form 30" wide
- **PowerTrack** 3.15" wide in roll form
- OJ Electronics UDG-499 Thermostat with floor sensor
- Power cables and T5 crimp connectors

2.1 HPS ComfortSafe Commercial Technical Information

Width	35.4 inches	Fuse protection	30A flush mounted
Heated width	34 inches	Protection measure	F1 circuit breaker 30 mA
Material	Poly Vinyl Chloride/PETV perforated film matrix with carbon/glass conducting reinforcing fibers.	Minimum bending radius	0.16 inches
Supply voltage	120VAC	Minimum processing temperature	Above freezing
Supply current	0.75A/ft length at 120VAC	Power cable supply	10AWG
Output power	32.5 W/ft ² maximum at 120 VAC	Heating film maximum length	ca. 21ft
Output power/ft	90.7 W/ft	Copper conducting strip	0.78 X 0.002" (x2)

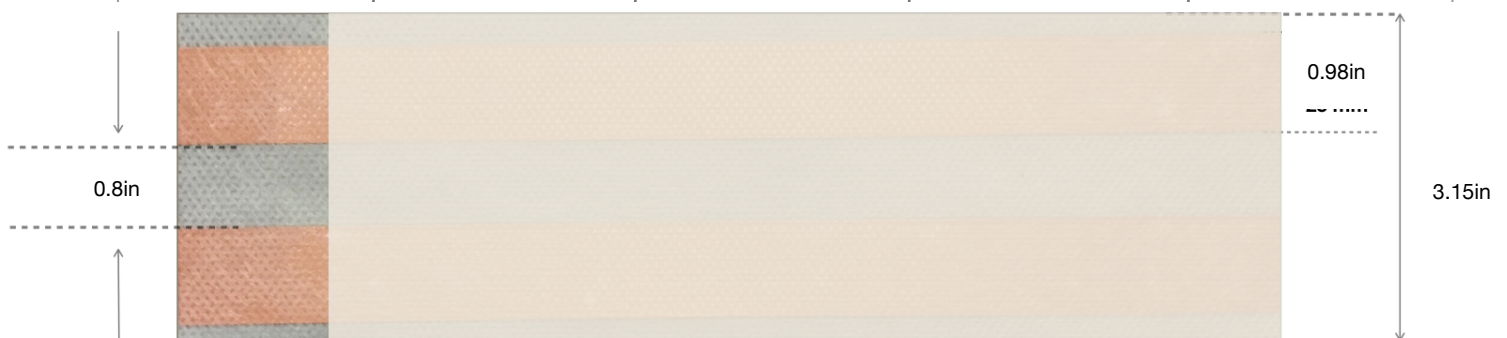
Reference Product ID: PVC08-F1-0569-900-C02

2.1 HPS ComfortSafe Residential Technical Information

Width	30 inches	Fuse protection	16A flush mounted
Heated width	28 inches	Protection measure	F1 circuit breaker 30 mA
Material	Poly Vinyl Chloride/PETV perforated film matrix with carbon/glass conducting reinforcing fibers.	Minimum bending radius	0.16 inches
Supply voltage	120VAC	Minimum processing temperature	Above freezing
Supply current	0.41A/ft length at 120VAC	Power cable supply	12AWG
Output power	21 W/ft ² maximum at 120 VAC	Heating film maximum length	ca. 39ft
Output power/ft	49 W/ft	Copper conducting strip	0.78 X 0.002" (x2)

Reference Product ID: PVC08-F1-1286-750-C02

Busbar (b) width (in.)	Busbar (b) thickness (μm)	Width (in.)	Thickness (μm)	Max. Amps
1.18	100	3.15	350	45



2.2 PowerTrack Dimensions

3. ELECTRICAL REQUIREMENTS

- All electrical projects must be carried out by a certified electrician.
- All work must conform to the current IEE wiring regulations.
- The **HPS ComfortSafe** system must be protected by a dedicated 30 mA RCD at all times.
- For systems larger than 13 Amps, a suitable protective device that meets the current wiring regulations must be used.

4. PREPARATION

- Evaluate and document the planned heating area with an installation drawing. **Schönox** technical department will advise the required heater configuration/layout (see *Appendix 2*).
- Check that the material is rolled up on its packaging until required for installation to avoid any possible damage, kinks, tears, etc.
- Make sure the surface to which the **HPS ComfortSafe** system is to be applied is dry, clean, and relatively flat. Irregular surfaces should be avoided.
- Particular care must be taken to make sure no pointed objects, such as stones, screw heads, nails, etc., are protruding from the substructure. The subfloor/flooring installation company should approve the substrate preparation before application.

5. INSTALLATION

5.1 Application of Schönox TS Impact Sound Insulating Sheet

Before coatings are applied, **Schönox TS** should be applied to the floor (see *Fig. 1*).

- Lay the **Schönox TS** per instructions on technical data sheet, available at hpsubfloors.com
- Substrates must be smooth, sound, clean, dry, and free of any contaminants.
- **Schönox TS** should be laid out edge-to-edge, perpendicular to the proposed direction of top surface flooring.
- Depending on the substrate, staple or tape down the TS (see *Fig. 2*). Refer to technical data sheet for further installation instructions.



Fig. 3 Roll out material to required length and cut with scissors or utility knife.



Fig. 4 Locate the heaters and secure in position.

5.2 Application of HPS ComfortSafe

- Check that the material is rolled up in its packaging until required for installation to avoid any possible damage, kinks, tears, etc.
- Roll out material to required length and cut with scissors or utility knife. Cut at right angles to the copper busbars (see *Fig. 3*).
- Prepare four lengths of **HPS ComfortSafe** according to the *Example of Connection of the Heaters* (see *Appendix 2*).
- Lay out the heaters adjacent to each other on the **Schönox TS** with the copper strip facing upwards.

- Locate the heaters on the underlay and tack in position with glass fiber mesh tape to hold in place (*see Fig. 4*). Go along the length, and apply the tape at discrete locations until the film lays relatively flat on the **Schönox TS**.
- Where cutouts are required, allow 0.40" gap all around for heater cutout.
- For cutouts greater than 2.95" of diameter or squares, contact your **HPS Schönox** representative.
- Check electrical resistance of each heater element and record results (*see Fig. 8*).



Fig. 3 Roll out material to required length and cut with scissors or utility knife.



Fig. 4 Locate the heaters and secure in position.

6. CONNECTION OF THE HEATERS

- Cut a length of 150" **PowerTrack** with scissors from the roll (*see Fig. 4*).
- Position the **PowerTrack** at one end of the assembled heater area (*see Appendix 2*) Mark on the heaters where the **PowerTrack** will be positioned so that it can be placed in a straight and parallel line to the heaters.
- If desired, apply double face tape to back of **PowerTrack**. This can be done on the total length or at desired intervals to help hold the **PowerTrack** in place while connections are made. Place the **PowerTrack** in position on top of the heaters. This can be done anywhere on the heaters that is most convenient for connection to the power source. Start at one end of the heater area so that all heaters are covered with the **PowerTrack** (*see Fig 4*). Extend the **PowerTrack** past the last heater to enable for power supply connection.
- Take T5 connector and connect to point C1. Slide connector over the copper busbar on the **PowerTrack** at approximately a 45-degree angle to get good contact with the heater copper busbar. Using the crimping plier or mole grip, crimp the connector together ensuring flat and closed connection (*see Fig. 5a*). Trim an area from the edge of the heater at the **PowerTrack** so that the Type 5 connector will fully engage with the PowerTrack and Heater (*see Fig 5a C1*). Be careful not to cut the copper on the Heaters.
- Repeat the process for the other **PowerTrack** connection points C2 - C (*see Fig 5b and Fig. 5c*).
- For point C4, slide the connector over the copper busbar on the **PowerTrack** at 90° (*see Fig. 5c*).
- Check electrical resistance of the system by measuring the resistance across the **PowerTrack** copper busbars.

- Remove the scrim from the copper at the end of the **PowerTrack**. Use a utility knife and score the scrim approximately 0.5 x 0.8 inches in area, then remove it to leave the copper strip exposed. Be careful not to cut the copper strip during this process. Take two T5 connectors and connect power cables to the **PowerTrack** (see Fig. 6).
- Use 10SWG PVC coated cable.

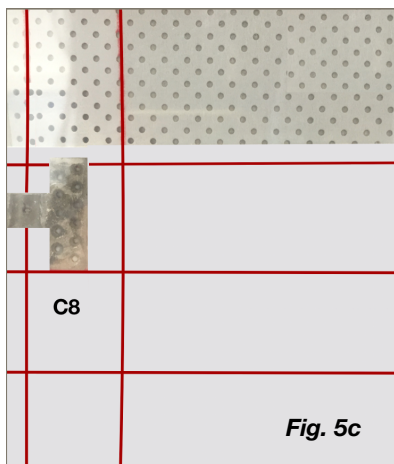
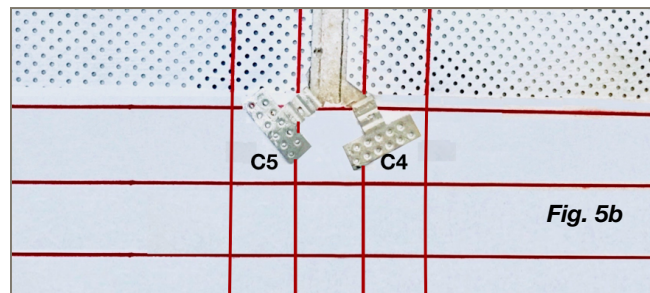
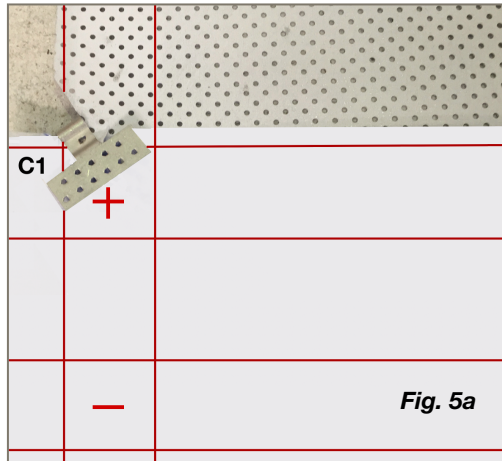
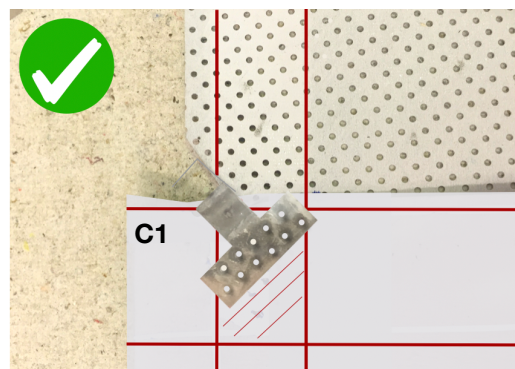
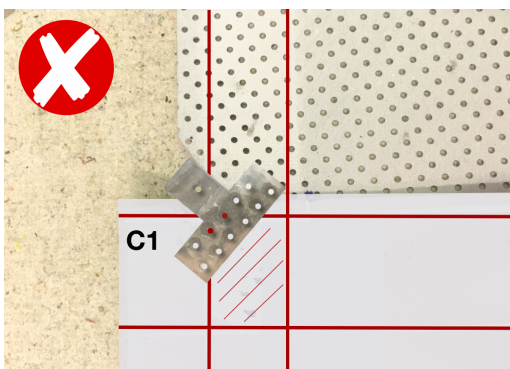


Fig. 5a and 5b Slide connector over the copper busbar on the **PowerTrack** at approximately 45-degree angle to get good contact with the heater copper busbar. Same process for C3 and C4.

Fig. 5c Slide connector over the copper busbar on the **PowerTrack** at a 90° angle.



NOTE: It is critical to have a good connection of the **PowerTrack** and **ComfortFilm** copper busbars; the teeth or holes of the connector have to be inside the interconnecting box demarcation lines.

7. ELECTRICAL RESISTANCE CONTROL

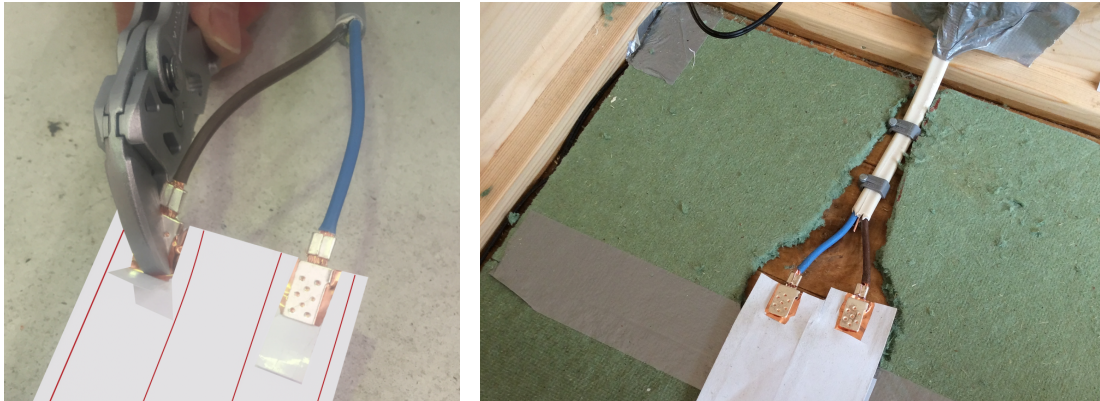


Fig. 6 and Fig. 7 Take two T5 connectors and connect power cables to **PowerTrack**, remove the scrim to leave the copper strip exposed.

7.1 Heater Measurement

- Measure the resistance of all heater sections using a multi-meter before application of the covering layer of polymer.
- Remove the insulation at the edge of the heater copper busbar strip and check with multimeter probes (see Fig. 8)
- Take readings across the copper busbars.

Note this reading from each section of heating material in the layout *Appendix 1. Resistance Control Card*.



Fig. 8 Measure the electrical resistance of the heaters before application of the covering layer.

7.2 PowerTrack Measurement

After connection of the **PowerTrack** to the heaters, check electrical resistance of the heating system:

- Using the multi-meter, check the electrical resistance across the **PowerTrack** copper busbars (see Fig. 9a).
- Take readings across copper busbars and record results on the Resistance Control Card (*Appendix 1*).

Note the second readings of the **PowerTrack resistance. Measure across the connected power cables after the floor covering installation and record on the Resistance Control Card.**

7.3 OJ Electronics Floor Sensor Installation - Residential System

Two **OJ Electronics** floor sensors are included with each Residential System.

- Install sensors before Schönox coating is applied.
- Sensors should be placed on the heater surface and taped or affixed in position. Take care not to damage the sensors. Do not place the sensors near the **PowerTrack** or the copper bus bars on the heaters. Do not hold sensors in place with metallic fasteners. A location in the center of the heater surface is best.
- Sensor wire should not enter through the wall socket mounting box.
- Cable should be separate from line and load cables using conduit, inside or outside wall.
- Complete instructions available in provided OJ Electronics instruction manual.

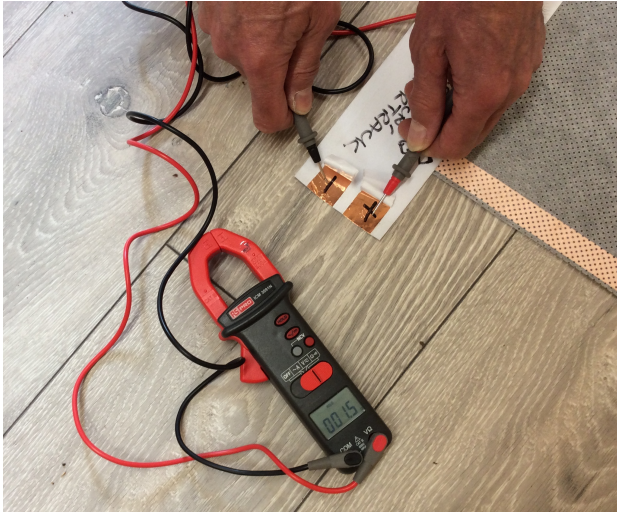


Fig. 9a Check electrical resistance of the **PowerTrack** after connecting it to the heaters.



Fig. 9b Measure resistance across the connected power cables after floor covering installation.

8. COATING

8.1 Covering Layer of Schönox SHP

The heaters are now ready for the covering layer of the **Schönox** self-leveling compound.

- Prime heaters with **Schönox SHP** primer, and ensure that wiring and electrical connections are embedded in the self-leveler.
- After sufficient drying time, the self-leveling compound is now able to receive floor covering.
- Please follow manufacturer recommendations and Technical Data Sheets.

8.2 Electrical Resistance After Coating

- After coating is applied, allow the heating film to dry 3-4 days at room temperature, depending on coverage size and thickness.
- After sufficient drying time, check the electrical resistance of the system by measuring the resistance across the **PowerTrack** power cables (see Fig 9b).



Fig. 10 and Fig. 11 Resin covering coatings.

NOTE: If the resistance reading of the heating system differs by more than 20%, operation damage to the heating elements could occur. In this case, do not operate the heating system until you contact your Schönox distributor for advice.

9. ELECTRICAL INSTALLATION - COMMERCIAL

- Install the Tork® Timer SA300 according to the provided Installation Manual.
- Locate the Timer on the wall in close proximity to the power cables for the heated floor.
- Make electrical connections from the **PowerTrack** to the Tork® timer in accordance with the Tork® Installation and Programming Instructions provide with the Tork® timer
- Electrical wiring installation to be according to Electrical Standards and an approved electrician should be employed to install the electrical components.
- All power cables to the heaters should be housed in trunking/conduit tubing from the Switch Timer enclosure box.
- Circuit breakers (F1 with 30 mA) and installation of a GFCI are required for all heater circuits.

10. ELECTRICAL INSTALLATION - RESIDENTIAL

- Install the OJ Electronics UDG-4999 Thermostat according to the provided Installation Manual.
- Make electrical connections from the **PowerTrack** to the OJ Thermostat in accordance with the OJ Quick Start Guide Instructions provide with the OJ thermostat.
- Make floor sensor connections to the OJ Thermostat in accordance with the Quick Start Guide. Note that you should only connect the OJ floor sensor. The second sensor is a backup sensor and only needs to be connected if the original sensor fails.
- Electrical wiring installation to be according to Electrical Standards and an approved electrician should be employed to install the electrical components.
- All power cables to the heaters should be housed in trunking/conduit tubing from the Switch Timer enclosure box.
- Circuit breakers are needed for all heater circuits.

11. CONNECTION TO THE POWER SUPPLY

Once the power supply has been connected, the **Schönox HPS ComfortSafe** heating system can be powered up after the self-leveling underlayment has cured/dried. (Consult with your **HPS Schönox** representative for recommended cure times.) Switch on the heating system and monitor the temperature of the floor surface; program the timer to control the heating cycle.

APPENDICES

Appendix 1. Resistance Control Card

RESISTANCE CONTROL CARD

Name _____

Address: _____

Telephone number: _____

Contact name: _____

Electrician _____

Fitting date: _____

Installation date: _____

Customer: _____

Room: _____

Ceiling ☐

Wall ☐

Floor ☐

Company stamp and/or Electrician's signature

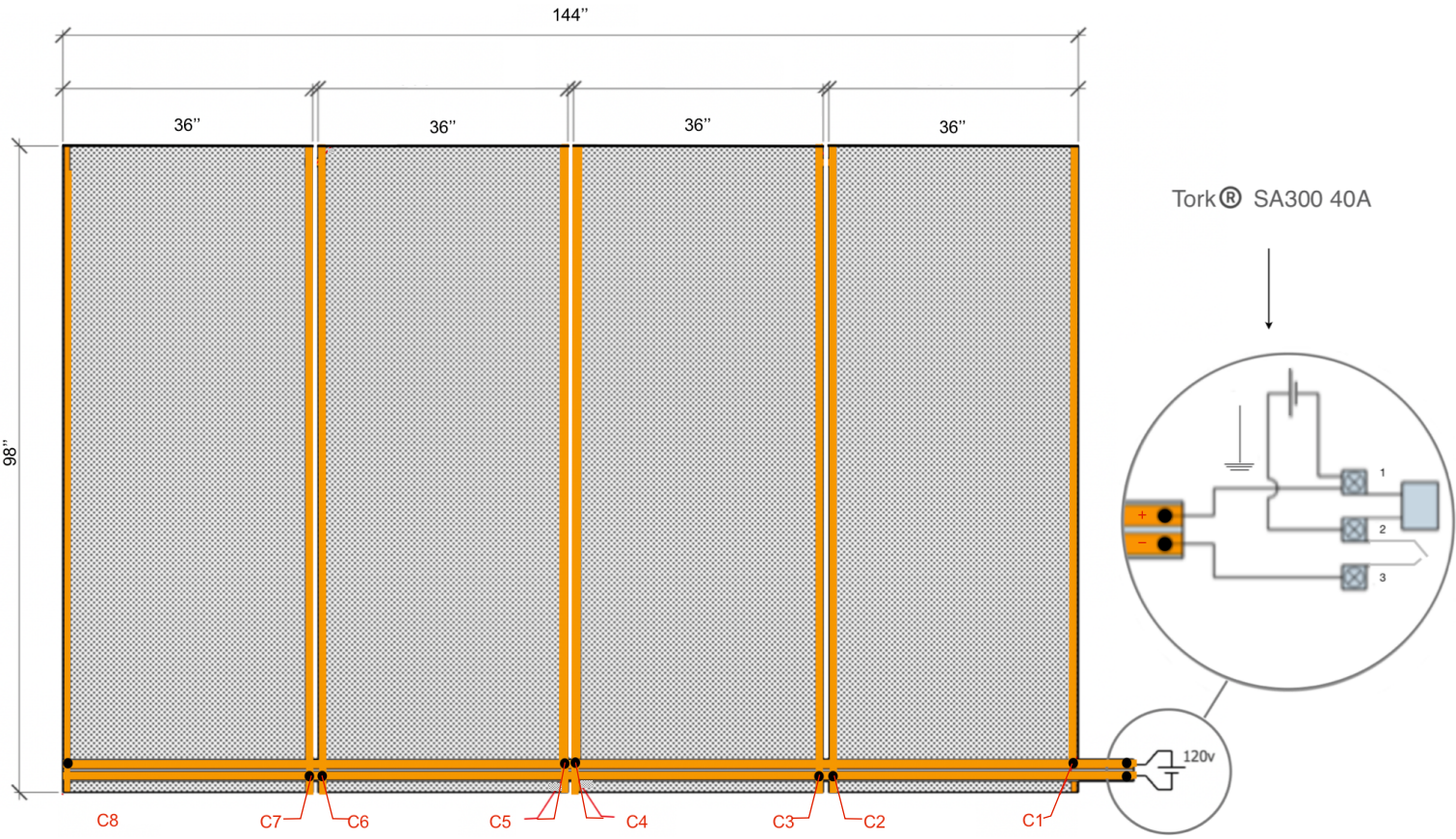
Test Report: *Warranty only applies if control card has been filled out completely.*

1. Measure the resistance of all heater sections **before installation** and compare with readings on manufacturer's COC (Certificate of Conformance). Note readings on Control Card.
2. Measure the resistance of all heater sections **after installation** and compare with readings on manufacturer's COC(Certificate of Conformance). Note readings on Control Card.

Date and signature: _____

Section	Length (in)	Power density W/ft²	Resistance <i>before</i> Ω	Resistance <i>after</i> Ω	Section	Length (in)	Power density W/ft²	Resistance <i>before</i> Ω	Resistance <i>after</i> Ω
1					1				
2					2				
3					3				
4					4				
5					5				
6					PowerTrack				
7					PowerTrack				

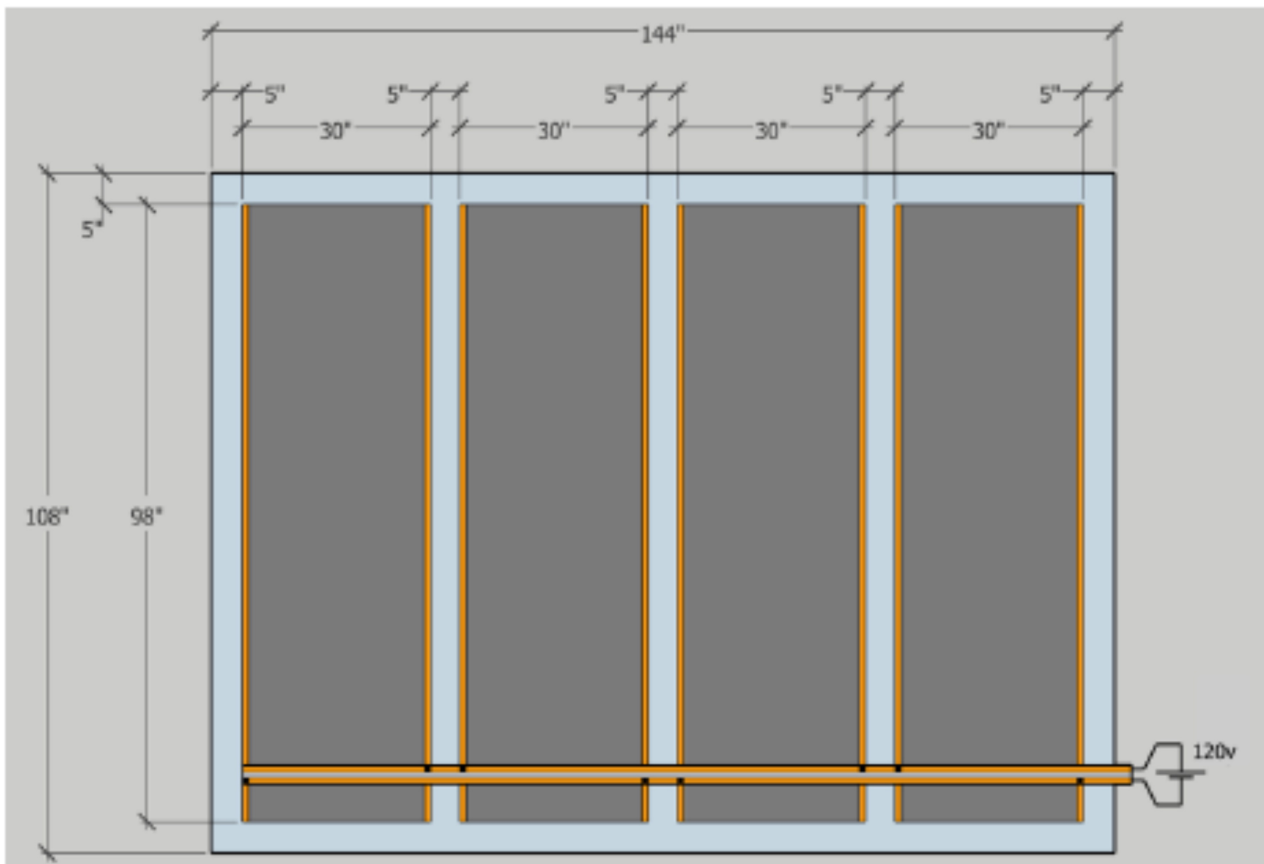
Appendix 2. Sample Layout for Commercial Application



Reference Product ID: PVC08-F1-0569-900-C02

Performance of Heating Element		Nominal	
Number of heaters	4 heaters	Total Power:	2.9 kW
Total heating length	98"		32.5 W/ft ² 90.7 W/ft
Total heating width	133.6"	TotalAmps:	24 A
Total heating surface	89.06 ft ²		

Appendix 3. Sample Layout for Residential Application



Reference Product ID: PVC08-F1-1286-750-C02

Performance of Heating Element		Nominal	
Number of heaters	4 heaters	Total Power:	1.6 kW
Total heating length	98"		21 Wft ² 49 W/ft
Total heating width	112"	TotalAmps:	13.3 A
Total heating surface	76.3 ft ²		