

## Installing LOW EMR Surface mount IS panels in a Custom Cut Sauna TyloHelo Inc.

The Following instructions will guide you through a typical installation of Low EMR Surface-Mount IS panels in a Custom Cut sauna. The methods used here are for your reference only and other methods may be successfully used. While the “rough-in” portion of the wiring can be completed by any competent home owner, it is recommended that any final electrical connections be completed by a qualified electrician. Please refer to your local building and electrical codes prior to any construction. For detailed framing, trimming, door installation and bench installation, please reference Custom-Cut Sauna Kit manual number 710-0101.

### Overview:

In this example, we are building a typical-size 6' x 6' neo-angle room with upper and lower benches. This sauna will also be equipped with a traditional 6kw sauna heater.

We are using standard 2x4 framing. While 2x2 framing could be used, for best results, we suggest you use 2x4 framing to build your sauna. This will provide room for 2" deep junction boxes.

When framing, it is a good idea to add blocking for bench supports, traditional heater hanging (if you will be using one) and framing of the upper and lower vents. These steps will make bench and heater mounting much easier!

To maintain the patented low EMR (Electro Magnetic Radiation) properties of the Infrared panels, you must use BX or MC (armored) style cable. 12-2 stranded with ground is recommended.

Your IS kit does not include any of the MC/BX cable, single-gang metal rough-in boxes or associated cable clamps.



Photo 01.  
Notice location of bench support blocking.



Photo 02.  
Notice bench support blocking and location of upper vent.

**Laying out IS panel locations:**

Careful planning at this stage of construction will make IS panel mounting much easier. In this example, we will be mounting our IS panels so that the bottom of each panel will be 36" from the floor. Mark each stud face with a line at 36" (use a level as the floor may not be level!). At this point, it will be a visual reference only! You may also want to transfer these marks to the face of your foil vapor barrier.

Next, lean each panel against the wall that it will be mounted to. You don't have to be exact at this stage but it will give you a good reference for spacing. Note the location of the factory-installed service wire and which stud space it lines up with. You will want to mount a single-gang box (1 for each IS panel) in this stud space. Use only metal boxes with knock-outs. (photo 04 & 05)



Photo 03.

Marking the height of the IS panels.



Photo 04.

Mount just above bottom framing plate so all boxes will be below the lower bench. Make sure the box is positioned to be flush with your finished wall surface.



Photo 05.

Drill 7/8" diameter holes for your MC/BX cable.

### **Roughing-in your wires:**

*In order to maintain the patented Low EMR rating of your new IS panels, you **MUST** use MC/BX cable (12/2 stranded with ground) to connect all the panels together! If you are unfamiliar with using this type of cable, ask your qualified electrician to do it for you. If any of your existing, adjoining walls contain regular Romex cabling your low EMR/EMF ratings may be affected.*

Connect all of the single-gang metal boxes with the MC/BX cable (stranded 12/2 with ground). Make sure you leave about 6" at each box.. See photo's 06 & 07. The idea here is to "daisy-chain" all of the boxes together with the MC/BX cable. The factory installed service wire on the back of each panel will be connected into the top knock-out of each box, as shown later in Photo 12.

**Your kit includes low-voltage cables for the main control panel and temperature sensor. If you purchased the Spectra-Light lighting system, there will be low voltage cables for these as well. All of these wires should be installed in the sauna framing **BEFORE** any insulation, vapor barrier or T&G boards are installed.**

If desired, you may wish to add a pull-string at each box that will extend up the wall to the location of the IS panel that will be wired into it's respective single-gang box. This may help you to pull each service cable into the box after the T&G wall covering is installed. Photo 08.



Photo 06



Photo 07



Photo 08

Note that the cable clamp is mounted upside down so the clamp screws can be tightened after the T&G is installed.



Another method is to nail in your T&G from the ceiling down until you reach just passed the bottom height of the IS panels. Cut or leave an opening for the service cable to run into and simply “fish” it down the wall cavity and into the single gang box. Photo’s 09 & 10.

When creating your openings in the wall to pull the IS panel service wire down to the single-gang box, be very careful to make the openings ABOVE the point where the bottom of the IS panel will be! The IS panel service wire protrudes from the back of the panel, 2” from the bottom edge. Create your access hole in the wall so that it will line up with the service cable and be covered by the IS panel itself.

**Note:** Installing benches may be difficult to do if the IR panels are installed first. Depending on the design of your sauna, you may opt to install the IR panels after the benches are installed. Using the “pull-string” method will simplify the installation but it is still recommended that you leave the last two T&G boards off until you have your IR panel service wires installed in the single gang boxes.

Another tip would be to install just one bench support (left or right), rest one end of the bench on this support then lift the other end of the bench above the level height point and install the remaining bench support.



Photo 09

Method 1: Leave openings in T&G with your pull-string extending out to be attached to the IS panel service wire.



Photo 09.1

Attach the pull string to your panel service wire with electrical tape.



Photo 09.2

Pull service wire into 1-gang box as shown. (make sure you have a cable clamp mounted in the box

When “fishing” your IS panel service cable down the wall and into the single-gang box, you will probably want to have a helper with you to hold the IS panel against the wall until you have the wire “fished” down.

At this point, your electrical rough-in for the IS panels is complete. We strongly suggest that a qualified electrician makes the final electrical connections.

first)



Photo 10

Method 2: use a drill with a 2-3/4” (70mm) hole saw to create an opening to “fish” your service wire down to the single-gang box.



Photo 11

“fish” wire into single-gang box.



Photo 12

Secure the IS panel service wire via the cable clamps as shown above.

### Mounting the IS panels:

You will need a partner to help hold the panels in place. Also, a 24" and/or a 48" level and a tape measure will ensure accuracy and a clean look. A phillips screwdriver or screw gun will also be needed.

Remove the outer cover of the IS panel and set aside. (Pull on the lower portion of the panel frame to release it from the spring clips. Then, lift upwards to remove cover from element)

Mark the left edge of the first panel and the bottom edge of the IS panel. (36" in our example) With your helper holding the panel against the left edge-mark and the bottom edge-mark, position a level under the panel and adjust to reach perfect horizontal alignment of the panel. Photo 15.

Secure each panel with two screws (one left and one right side). After all panels are mounted to the walls, you may need to make minor adjustments to spacing or vertical alignment. When satisfied with IS panel alignment, go ahead and secure with the rest of the screws.

"Snap" the outer covers on when complete.

*Hint: To avoid getting sawdust or insulation fibers on the black fabric of the outer cover, you may want to wait until the sauna is complete to put the outer covers back on.*

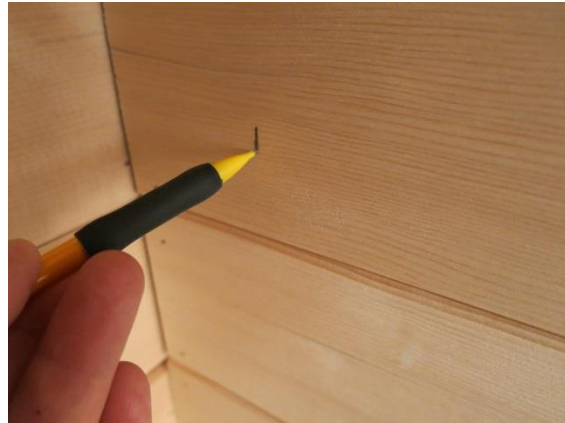


Photo 13

Mark the location of where the left edge of the first panel will be mounted. Do NOT mount a panel closer than 2-1/2" from a corner (with outer panel cover in place or 3" with cover removed)



Photo 14

Photo 14 & 15 shown with outer cover of IS panel removed.



Photo 15

**Completing T&G:**

When all of the panels are mounted to the walls, you may continue with the installation of the foil vapor barrier and T&G. Cut your T&G carefully around each single-gang box so the opening will be covered by the blank faceplate after your electrician makes the final connections.



Photo 16



Photo 17

If your IS Sauna will be equipped with a bench skirt element, you will want to install the IS panel service cable into a “seal-tight” connection as shown in photo 18. This will be mounted to the closest single-gang box. (see photo 18 B)

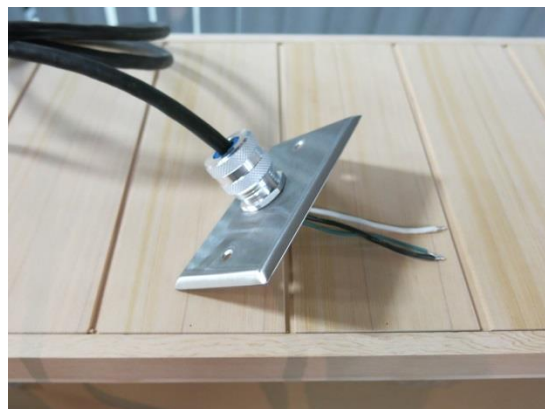


Photo 18



Using a “seal-tight” type of connection, connect your bench skirt element service wire to the nearest IR panel electrical box. Secure the extra cable to the back wall as shown to allow the lower bench to travel back and forth for cleaning.

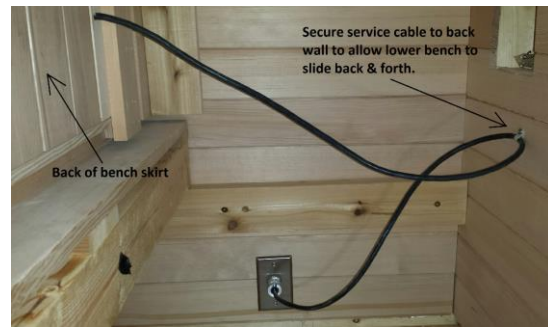


Photo 18 B

**Contactor box connection:**

Typically, the CB-PK contactor box is mounted under the bench, on a back wall about 6” from the floor. At this location, your electrician will need to install a length of MC/BX cable (12/2 with ground) out of the closest single-gang electrical box. This will become the output cable to all of the IS panels. Also, please note in photo 19, the location of the “low voltage” wires in the lower right corner. These include the blue control cable, the multi-colored temp sensor wire and the optional spectra-light wiring harnesses. Refer to the user’s manual for the correct mounting location location of the sensor and control.



Photo 19



Photo 19.1

CB-PK box mounted to wall and all of the low-voltage wires connected. The connection of the high voltage wires should be completed by a licensed electrician.



**Final electrical connections:**

To be used as a reference only to your electrician, Photo's 20 and 21 show correct wire termination and completed junction box assembly. Your electrician will need to refer to the User's Manual for the correct IS kit that you have for complete electrical connectivity, correct sized supply wire and operating instructions.



Photo 19.2

When all electrical connections are complete (see wiring diagram on inside of CB-PK cover or in the user's manual that came with your kit) fasten the cover onto the CB-PK box as shown.

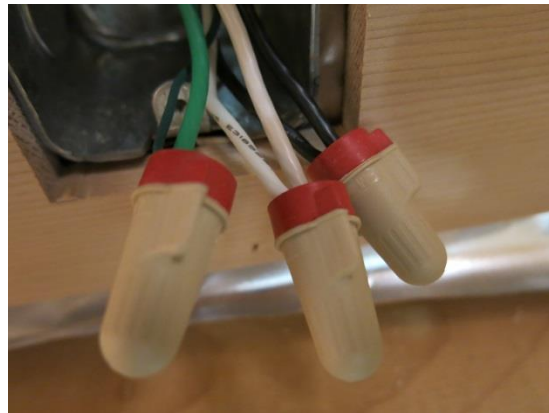


Photo 20



Photo 21

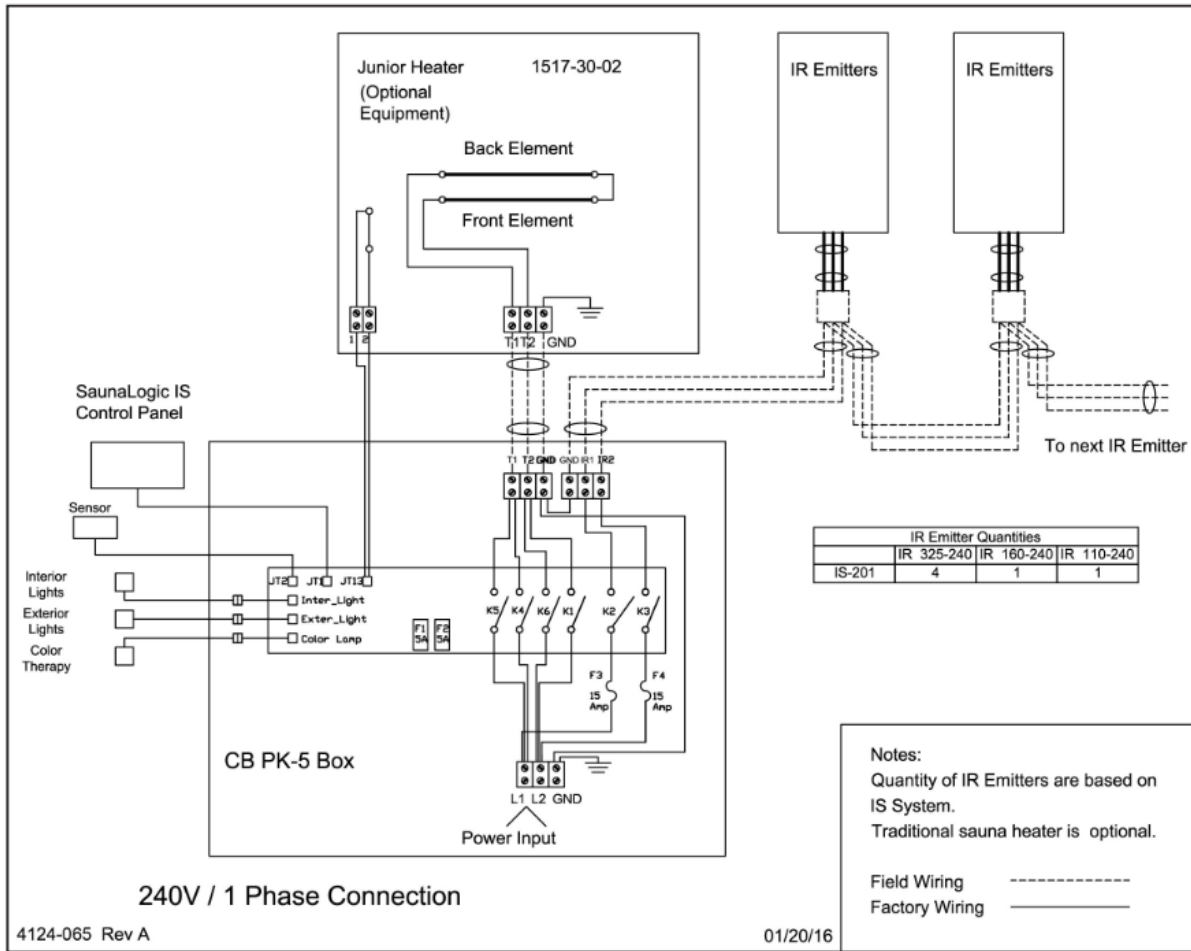
**Helpful Hints:**

- When the IS panels are mounted to the wall it will be difficult to install the upper bench. Removing the outer covers will help. If you still need room, remove one bench support and slide bench in place. Have a helper hold up the end of the bench w/o a support bracket while you screw the bracket to the wall.
- If benches are installed before the IS panels, use a level or a 2" wood spacer to set the height of the IS panels prior to securing to the wall. This will ensure that all panels are at same height.
- The higher the panels are mounted above your bench, the cooler your lower back and bench will be. 1" to 2" is best.
- To maintain the "Low EMR" qualities of this product, do not mount them to walls that have existing "Romex" (110vac or 240vac) wire directly behind the panels. Only MC/BX cable will ensure a Low EMR environment inside your sauna.
- If you get saw dust on the black cloth of your IR panels, use a vacuum cleaner or the sticky side of painters tape to lift the dust off.



Photo 22

Panels mounted to wall and ready to install benches and wall trim.



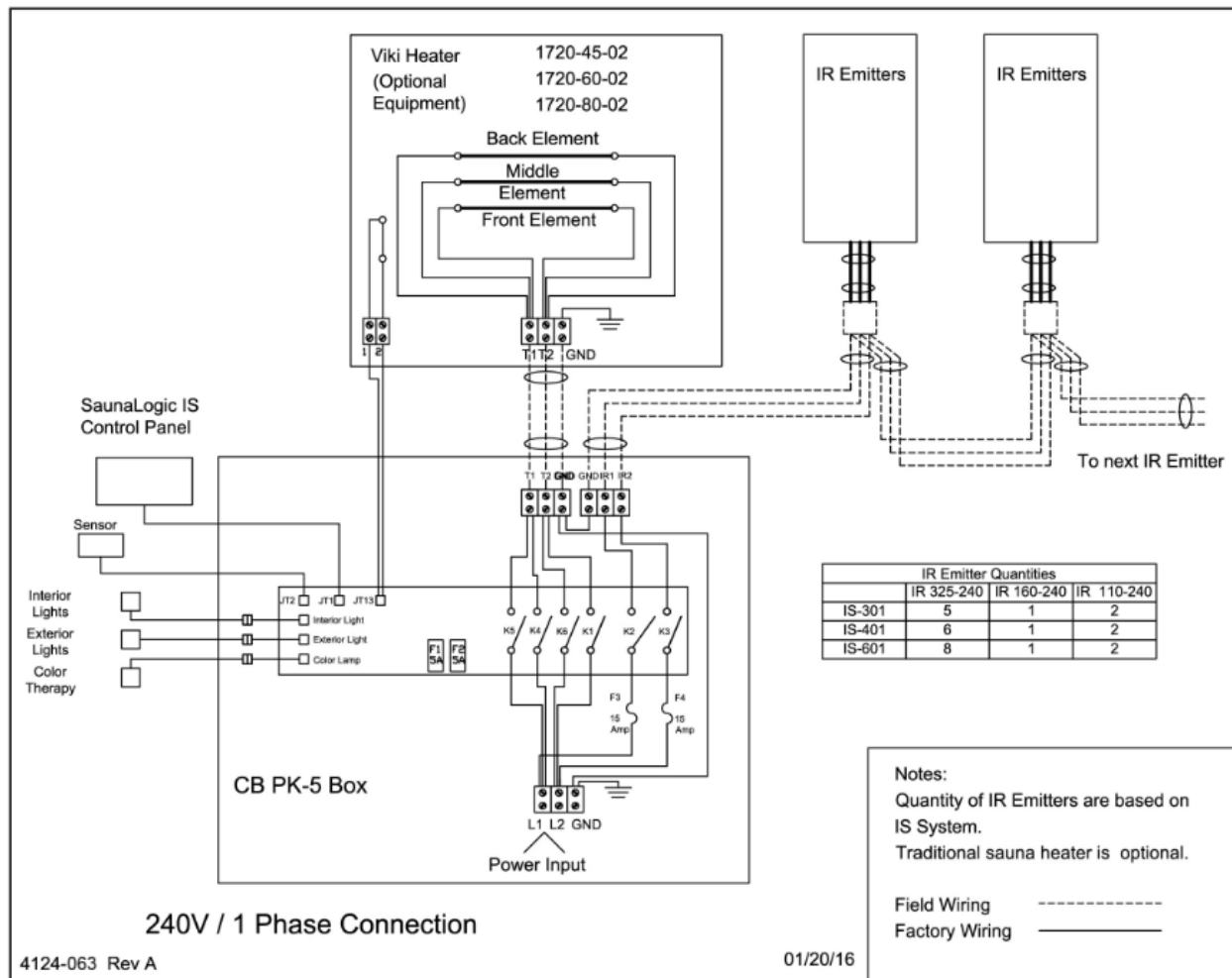
Dwg: 4124-065

Reference for kit model IS-201 only

		Minimum Room size			Maximum Room					Wire Size		
Model	KW	Floor Area	Ceiling Height	Volume Cu. Ft.	Ceiling Height	Volume Cu. Ft.	PHASE	VAC	IR Amps	Power Supply to CB PK-5	CB PK-5 to Traditional Heater	*Optional Traditional Heater
SI-201	1.6	12 sq. ft.	73 1/2"	100	96"	150	1	240	6.5	2 #12AWG + GR	2 #12AWG + GR	Junior 3.0
IS-301	2	16 sq. ft.	73 1/2"	135	96"	200	1	240	8.3	2 #10AWG + GR	2 #10AWG + GR	Viki 4.5
IS-401	2.3	21 sq. ft.	73 1/2"	175	96"	300	1	240	9.7	2 #10AWG + GR	2 #10AWG + GR	Viki 6.0
IS-601	3	31 sq. ft.	73 1/2"	250	96"	425	1	240	12.4	2 #8AWG + GR	2 #8AWG + GR	Viki 8.0

IS Kit Emitter Quantities												
										IR 325-240	IR 160-240	IR 110-240
*Denotes an optional traditional sauna heater may be added to the System. Refer to Installation and Operation manual for installation instructions.										IS-201	4	1
										IS-301	5	1
										IS-401	6	1
										IS-601	8	1

All installation and service to this equipment should be performed by qualified licensed personnel in accordance with local and national codes.



Dwg: 4124-0636

Reference for kit models IS-301, IS-401 & IS-601 only

		Minimum Room size			Maximum Room					Wire Size		
Model	KW	Floor Area	Ceiling Height	Volume Cu. Ft.	Ceiling Height	Volume Cu. Ft.	PHASE	VAC	IR Amps	Power Supply to CB PK-5	CB PK-5 to Traditional Heater	*Optional Traditional Heater
SI-201	1.6	12 sq. ft.	73 1/2"	100	96"	150	1	240	6.5	2 #12AWG + GR	2 #12AWG + GR	Junior 3.0
IS-301	2	16 sq. ft.	73 1/2"	135	96"	200	1	240	8.3	2 #10AWG + GR	2 #10AWG + GR	Viki 4.5
IS-401	2.3	21 sq. ft.	73 1/2"	175	96"	300	1	240	9.7	2 #10AWG + GR	2 #10AWG + GR	Viki 6.0
IS-601	3	31 sq. ft.	73 1/2"	250	96"	425	1	240	12.4	2 #8AWG + GR	2 #8AWG + GR	Viki 8.0

IS Kit Emitter Quantities			
	IR 325-240	IR 160-240	IR 110-240
IS-201	4	1	1
IS-301	5	1	2
IS-401	6	1	2
IS-601	8	1	2

\*Denotes an optional traditional sauna heater may be added to the System. Refer to Installation and Operation manual for installation instructions.

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Surface Mount IR panel sizes
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Surface Mount Panel	Frame Width	Frame Height
IR 325-240	26 ½"	38 ½"
IR 160-240	14 ¼"	38 ½"
IR 110-240	10 7/8"	38 ½"