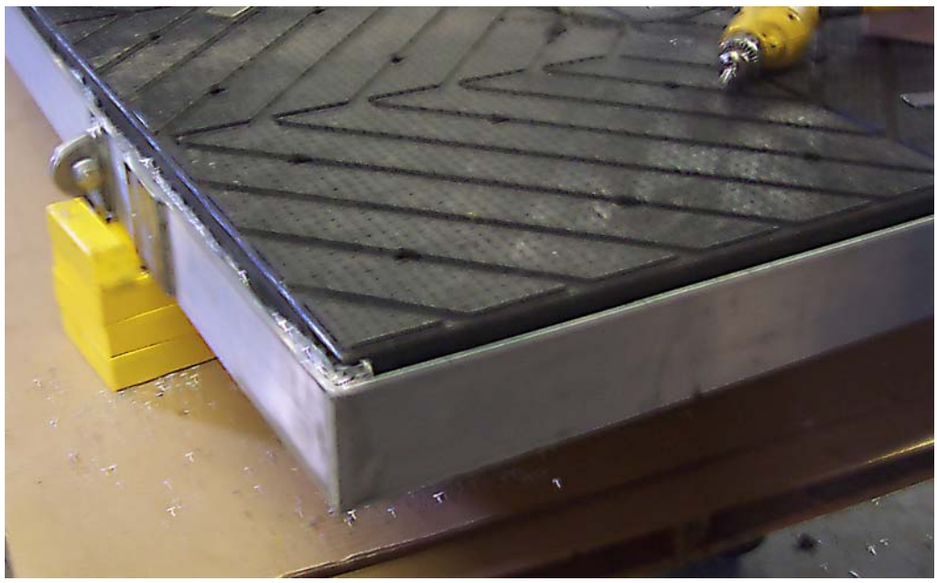
# ENDURA-FORM

MULTI PURPOSE CONSTRUCTION PANELS

## *Endura-Form Walkway with Radiant Heat Ideal for Walkways, Sidewalks, Driveways, Decks and Lots More!*



This document demonstrates Endura-Form all purpose construction panels heated walkway. Endura-Form panels are designed with channels to allow piping for radiant heating (and cables and wiring). This allows for constant heating of the surface, automatically keeping them clear of snow and ice for maximum safety in public areas and work places. Sections can be used individually or in groups as is required.

The walkways can be custom designed and built to your particular requirements. The walkway shown is 20' x 4' x 4.25" . Food grade glycol is heated and travels through the pipe layout - the pipes are spaced at 8" intervals. The pipes are specialized 3/4" Oxypex radiant heat lines joined by crimped brass fittings. The Endura-Form panels are placed inside an aluminum framework (plastic, steel or other materials can also be used). The frame is equipped with lifting shackles and has receiving sockets for fitting railings. The 20' walkway shown here weighs less than 1000 lbs. The walkways can also be ordered without radiant heat fittings.

Endura-Form panels interconnect to make continuous surface installations that feature high strength, durability, easy installation and removal. They can take up to 803 PSI. The final assembly is secured with bolts. All Endura-Form panels are reusable and 100% recyclable.

# *Endura-Form Walkway with Radiant Heat*

**Figure 01**: This shows the assembled aluminum tray that with hold the Endura-Form panel assembly. This framework gives the assembly great rigidity and strength allowing it to be easily handled and it can be placed on blocks or stands if needed. The has 4" x 4" x 1/4" aluminum angle with a 1/4" aluminum sheet is welded to the bottom. Drain holes are fitted at regular intervals to allow melt water to drain away. The solid bottom also gives protection from any surface the walkway may rest on.

**Figure 03**: This view shows the 1/4" aluminum reinforcing at each corner for maximum strength. A drain hole is also visible - the drain holes are 1 3/8" diameter.

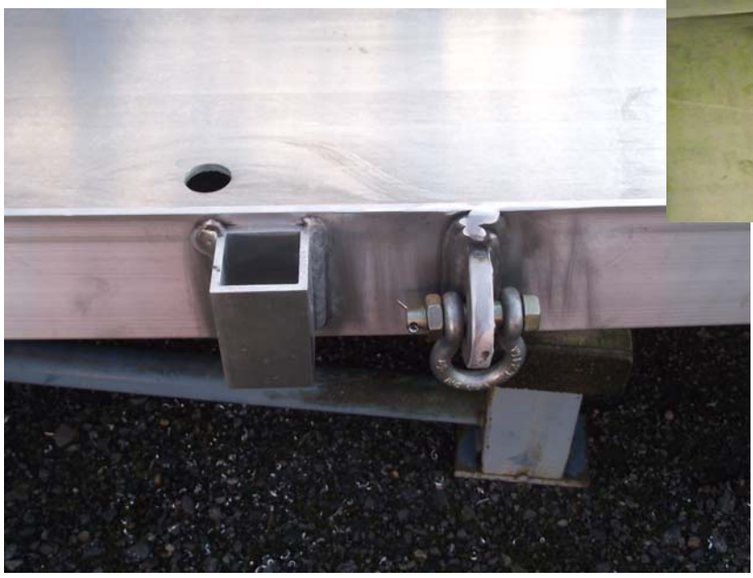


**Figure 02**: A closer view of the railing post socket, the lifting lug and shackle and one of the drain holes. The side is 4" high. There are four lifting lugs and shackles are 2.5 ton capacity and has a cotter pinned nut and bolt. Total weight of the completed 20' walkway is less than 1000 lbs.

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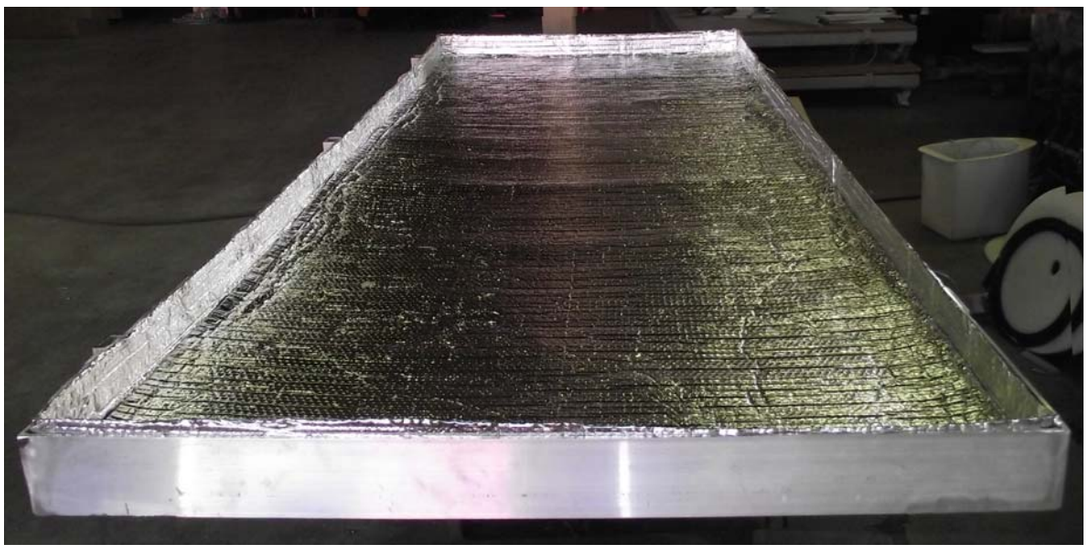

**Figure 04**: The assembled aluminum tray is lined with insulating material to minimize heat loss through the aluminum and maximize the heat traveling to the surface. The insulation is cut to allow for the drain holes.

**Figure 05**: The bottom layer of Endura-Form panels are laid in the tray and the task of fitting the heating lines starts. The lower layer of panels are fitted with fixed receiving nuts for secure fastening of the top panel layer. The bottom panels are also fitted with drain holes (100 per panel) to allow proper drainage of the interior of the panel assembly.

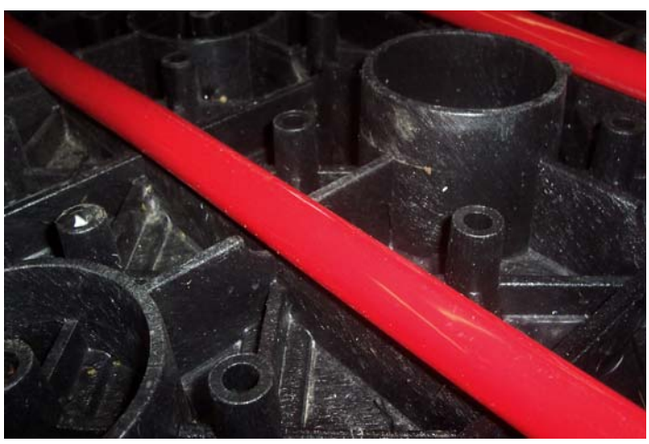

**Figure 06**: This close up shows how the 3/4" Oxypex heating lines travel through channels in the Endura-Form panels. The lines will be securely sandwiched in place when the top panels are put in place.

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**Figure 07**: This image shows the heating lines laid in place at 8" intervals. Five lines are fitted, the sixth is not yet in place.

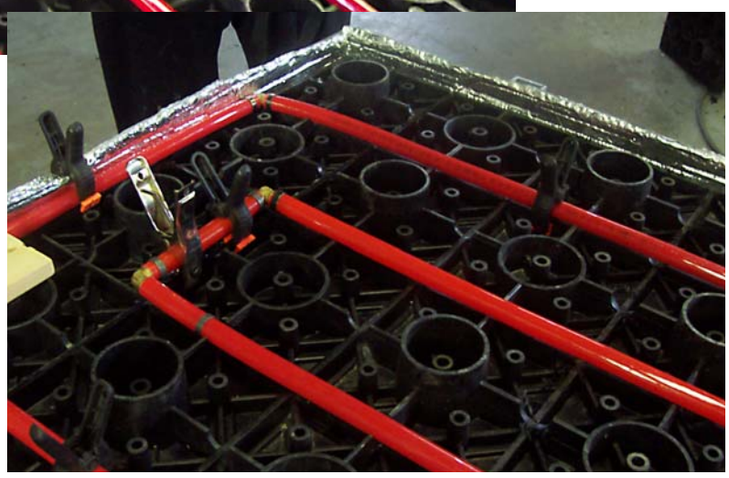

**Figure 08**: A closer look at the crimped brass fittings that connect the various lengths of heating line. The crimping rings are specially designed to work with the Oxypex heating lines.

**Figure 09**: This shows the heating lines being crimped to the fittings with a special crimping tool. At the upper left can be seen the ports for the inflow and outflow lines. The inflow and outflow lines can be put in different places.

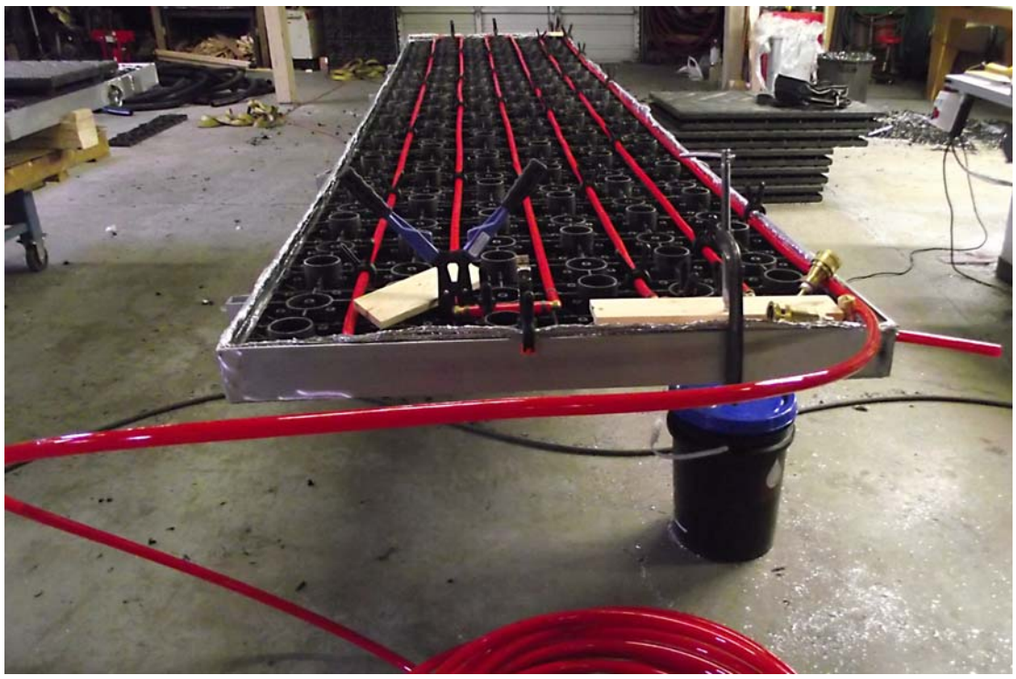

**Figure 10**: This shows all six heating lines in place. The near right corner has the inflow and outflow lines which are not yet completed.

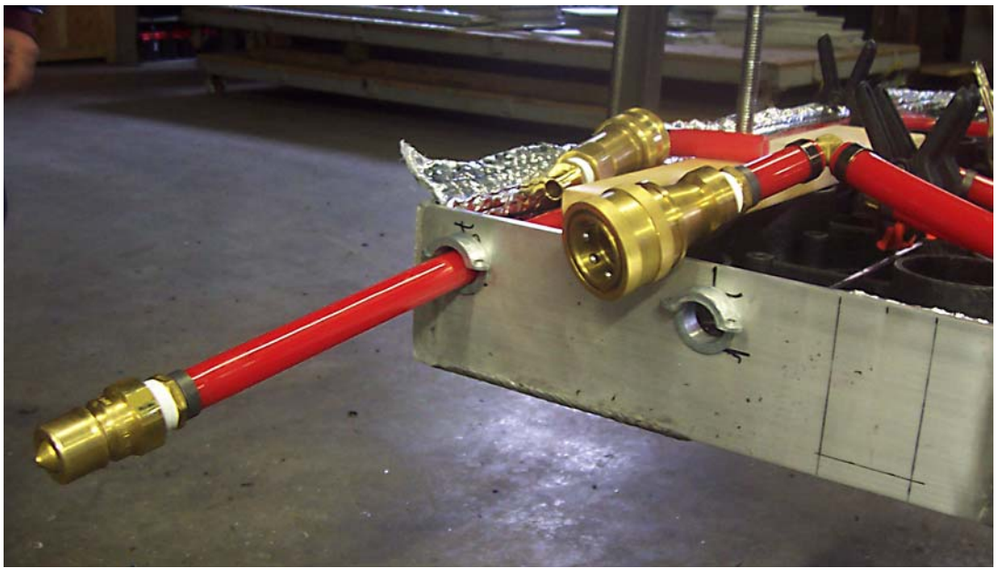

**Figure 11**: This shows the male and female quick connectors. The right hand line has not yet been run through it's port. The quick connectors would attach to the external heat lines which would carry the glycol heating fluid to and from the heating source. The heating source will vary from application to application.

**Figure 12**: This shows one of the lifting lugs and shackle with a hook and strap ready to be lifted.

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**Figure 13**: This shows the upper Endura-Form panels being fitted. The panels are fitted in an offset pattern to allow for interlocking thus making them a virtual continuous assembly. In this example the heating lines are not fitted. The top layer is fastened with bolts that thread into fixed receiving nuts in the bottom layer making for a very strong panel group. The modular nature of the panels makes it easy to replace damaged panels or to provide access to the heating lines.

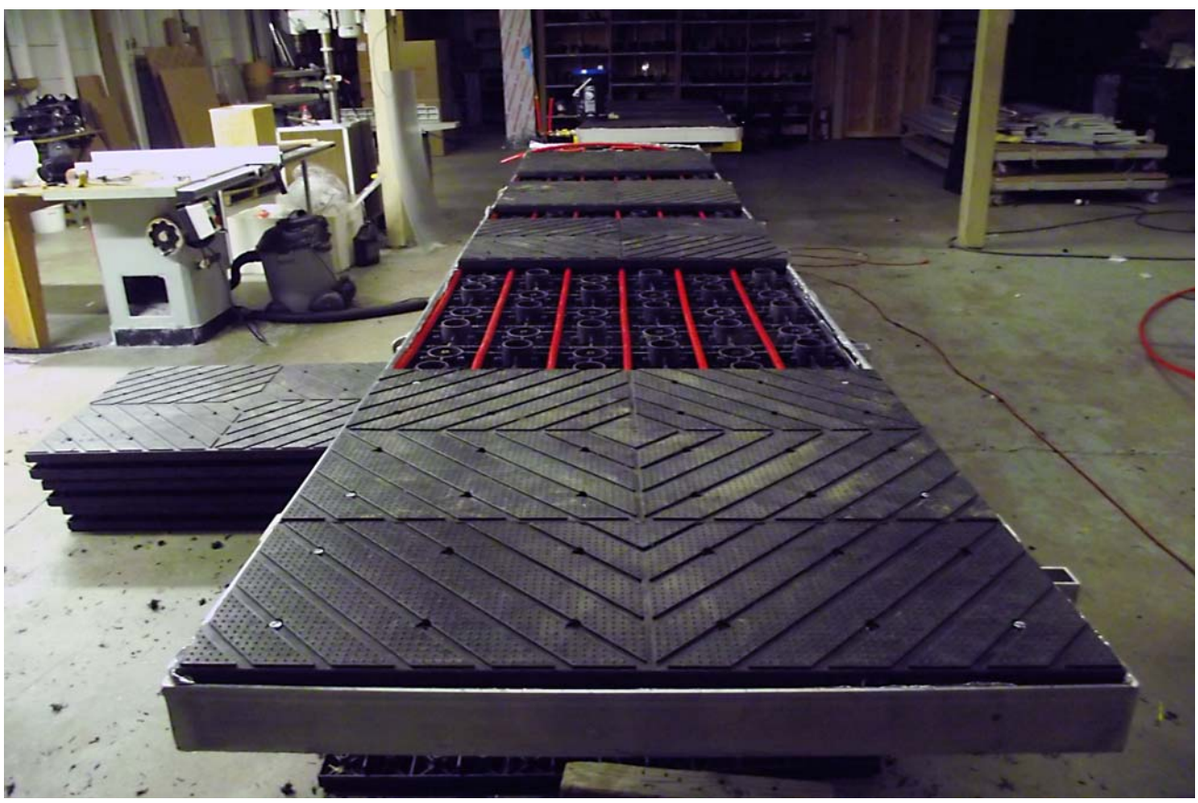

**Figure 14**: This shows the top layer partially assembled - you can see the half panel at the near end that gives the panels their interlocking offset. A few bolts are alsi in place.

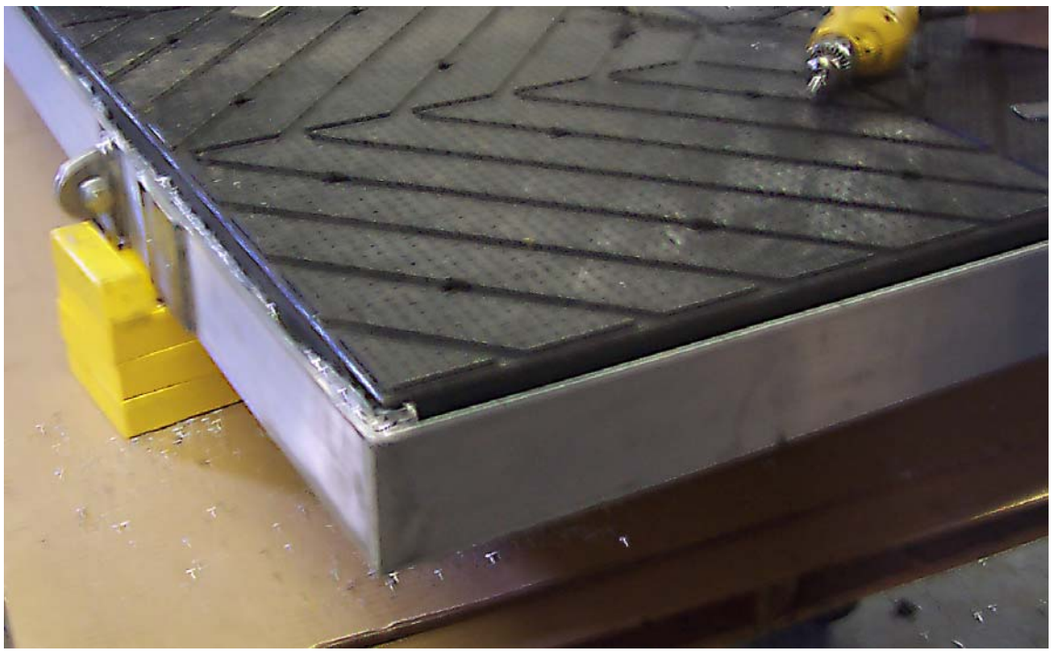

**Figure 15**: A closer look at a corner of the walkway with the upper Endura-Form panels in place but not yet bolted. The Endura-Form panel surface is grooved for maximum drainage and has a dimpled surface to allow for good traction. The Endura-Form panel assembly is held in place in the aluminum tray with tabs placed at appropriate intervals. A yellow walkway stand is visible on the left.

**Figure 16**: When it is desirable, the walkways can be placed on stands such as the three shown here.

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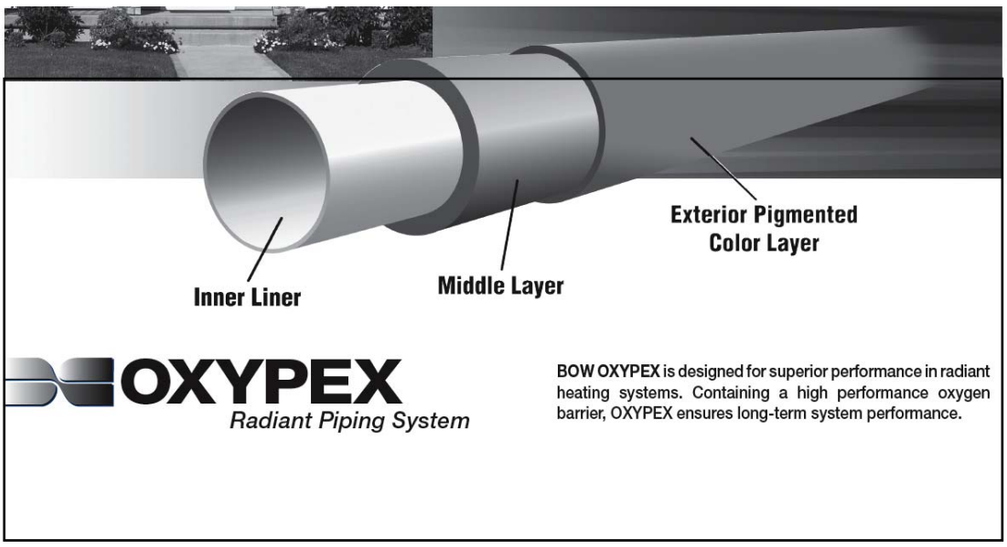


**Figure 17**: This illustration gives some information on the special Oxypex radiant heat lines used in this walkway assembly.


**Figure 18**: The heating liquid is food grade propylene glycol. The walk shown would take approximately 3 gallons, not including the outboard connecting lines. Over 4 hours the glycol should reach a temperature of 170° F. Over six hours a temperature of 185° to 190° F.

*Please contact us if you have any questions about Endura-Form panels, their use and installation.*

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