

Do-Over

PART II

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part 2 of 2

Editor's Note: This is Part II of a two-part series about sand floors. Part I appeared in the July/August issue.

Removing and Re-Installing Ice over a Sand Floor.

OK, now that the old ice is out, it is time to move on to the next step, which, of course, is installing the new ice. As exciting and exhausting as this process is, you must take your time and make sure to build a good base (sand floor) on which to build your ice sheet. By taking your time and following the steps below, you will be rewarded with a great sheet of ice that is level, flat and will require less maintenance throughout the skating season.

If you rush through this process or skip a step or two, you will be fighting to keep your ice surface level and flat all season long, which ultimately will cost you more time and money to maintain the sheet throughout the season.

The most important starting step is to get the sand as level and flat as possible. The following steps will help you with that process:

- Rake the sand with a landscapers' rake and get it as level as you can by eyeballing it. A landscaper's rake — which is available at most hardware stores — is much wider than a normal rake and has more teeth. These rakes are the same as



Secondary refrigeration cooling piping, as seen prior to leveling.

you would see in the hands of a groundskeeper who uses them to level a baseball infield. Having the proper tools will save you time and money.

- You should have all of the pipes covered by approximately one inch of sand, and none of them should be visible.
- Once the floor is close to level, we strongly suggest renting a laser level

system. (The price of these laser tools has come way down, and it might be better to purchase this tool rather than continually rent it, especially if you are working with multiple sand floors.) First, set up the laser on the side of the rink. Then set up the receiver using a two-foot square piece of plywood under the staff with the laser sensor on it. Using the landscaper's rake,

level the sand as best as you can. Start at one end of the floor and work your way to the other end, taking your time. You will need to move the sand around and may need to add sand. In most cases you will need to add some sand as the old sand will compact and settle over time. Only use clean, washed sand when adding sand to your floor. If you are adding a lot of sand, you can use sheets of plywood under the wheelbarrow to avoid getting tire tracks all over your sand.

- After you have the sand leveled with the laser, roll the entire floor with a sod roller, which can also be rented. Fill the roller about 1/4" to 1/2" full with water to get the correct weight in the roller. You will know it is filled properly when the roller flattens the sand without sinking into it. Make sure to properly execute this important step. It will save you time and money in the long run because you will not need to build up as much ice before you start painting since the sand will be level, flat and smooth. This step should only take about one hour and is really worth the time and effort.

You are now ready to start making ice on your sand floor. The following steps are critical to ensure that you have a great sheet of ice for the next season. Make sure you follow these steps in the proper order or you will have issues with your sand floor. By not following these procedures, you will have a "live animal for a floor" that will be constantly moving and creating major headaches.

- 1) The first step is to saturate your sand floor with water. This could be the most critical step in creating a great sheet of ice for the entire season. Use a hose with a misting nozzle on it so you don't move the sand with the water. The floor needs to be completely saturated with standing water on it. Try not to walk on the sand floor while doing this, and spray from the sides and benches if possible. You may be able to use lawn sprinklers for this, but make sure they are misting the floor. If you do use them, move them periodically around

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the floor. This will take some time, especially if your ice has been out for a while and the sand has dried out, or if you are putting in a new floor for the first time. Work from one end to the other. You will need to put down several coats or layers of water before the entire floor is totally saturated. When you think the sand is saturated, put down one more coat of water just to make sure.

2) The next step is to turn on the refrigeration system and bring your floor down to painting and ice installation temperatures. A temperature of 16 to 18 degrees Fahrenheit will work well. It will take a while for the refrigeration system to freeze the floor, and you may have to continue to add water to keep the floor completely saturated. Measure the temperature on the surface with an infra-



Rigid styrofoam insulation is installed below the secondary cooling piping.

red heat-sensing gun and check it often. There is no reason to go below the manufacturer's recommendations on painting or logo installation temperatures. Keep an eye on the floor surface temperature and make sure you don't get the floor too cold since this will promote cracking and poor ice conditions.

NOTE: Making sure your sand is completely saturated is critical. If you turn

on the refrigeration system and freeze the floor without it being completely saturated, you will create a major problem because the ice won't have anything solid to bond to. If there are dry spots in the sand, you will never be able to freeze this area and it will be a weaker area of the ice surface. Dry sand will not freeze. These areas or pockets will promote cracking, chipping and all-around poor ice. Worse yet, the IR could break through the floor.

3) Once the floor is frozen and has reached proper temperatures, you must have the sand completely covered by ice. There can be no sand coming through the ice surface before you start to paint. Build this ice in thin layers to prevent air from entering into the ice. This is your base that you will be skating on all season, so take the time to do it right. Once you have the sand completely covered, put one to three more thin coats on top, which will give you a smooth, level surface.

4) Next, take your IR out onto the

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surface and drive at least one or two full patterns. Make sure the conditioner is up and that you are not adding any water. If your IR is not available, any regular pick-up truck will work. The purpose of this step is to crack the floor before you paint the ice. Sand floors are prone to cracking, and this will allow you to pre-crack the floor and give you a much more solid base.

5) Now, put one or two more thin layers of water to smooth out the cracks and provide a smooth surface to paint.

6) You are now ready to follow your ice painting procedures and your written plan to paint your surface white and then add the lines and logos onto the surface.

One of the most common and frequently asked questions about this procedure is, "How long does it take?"

This question is impossible to answer

because all facilities will have different variables such as weather and time of year, size and capacity of refrigeration system, skill and experience of staff, number of staff available and any other building issues to contend with. There are estimated timelines at right, but you must adjust to the conditions in your facility.

- On average, an IR can remove 1/32 inch per cut or full dump tank. Removing 1.5 inches of ice equates to 48 full buckets of snow. At an average rate of 10 to 15 minutes per cut, it would take 8 to 12 hours of nonstop driving.

As you can see from recommendations in the sidebar, it will take at least five to seven days to take out a sand floor and have it back to skating conditions. This is just an average, and it could take longer in your facility. If your floor has been in for more than two to three years, it may take some extra time to straighten and level out the pipes and sand. It is always recommended to allow extra time just in case you do run

Bide Your Time

Follow these time guidelines for each step:

- 24 hours to remove ice
- 24-48 hours for sand to melt
- 12 hours to prepare and level sand
- 12 hours to saturate sand completely
- 12-24 hours for floor to freeze
- 12 hours to paint and logo ice surface
- 24 hours to build up one inch of ice before skating on surface

into problems during the process, and it is always better to finish up early than to run late and have to cancel scheduled ice time on the end of the project.

Remember, the ice in our facilities is what we sell. It is worth taking some extra time during the install to do it correctly and efficiently, so that you can build on a solid base and reduce the maintenance during the season. Our goal, as always, should be to provide a flat, level and safe ice surface for our customers and patrons. ★