UMD is replacing the Olympic-sized (100’x200’) ice rink floor and the cooling system underneath which keeps the ice frozen. The old rink floor was made of steel pipe embedded in concrete and coils filled with hydrochlorofluorocarbons, a refrigerant otherwise known as R-22. The new system will have fusion-welded poly pipe in a new concrete slab. Waste heat from chiller compressors heat glycol that circulates in the floor heating system, which helps to prevent permafrost. This will stop future cracking and breaking of the concrete slab due to permafrost heaving in subsurface soils.

The new system will eliminate use of R-22 in the rink floor. While R-22 is still needed in some parts of operation, the total amount used is reduced by 89%. The in floor system will run glycol instead of R-22, which is a powerful greenhouse gas that is accounted for in UMD’s carbon footprint calculation.

By the numbers...

$1.2 million – project cost
1.5’ – optimal ice depth
1948 – lbs of R-22 added in 2008 to maintain old system of 6000 lbs
700 – lbs of R-22 in new system
89% – reduction in R-22 used
1988 – year old system installed

Project Benefits:
• Prevents future permafrost damage to concrete slab
• Improves rink operating efficiency
• Reduces greenhouse gas emissions
What’s under the ice?

- Ice
- Concrete slab with pipes
- Sand
- Under Floor Heating System
- Insulation Board
- Soils
Ice slab
Finish slab
Suitable depth of compacted free-draining fill
Subgrade