

**Saint Anne and Joachim Catholic Church in Fargo, North Dakota**

**Displacement Ventilation with Underground Duct**

**Energy Efficient — Quiet — Comfortable**

St. Anne and Joachim is a traditional style Catholic Church Sanctuary built to match the beauty of traditional Architecture from hundred's of years ago, with all the comforts and technology of the 21st Century.

The mechanical system design by ONE of Fargo, ND was truly innovative, energy efficient, and forward thinking. A church presents a unique situation for heating and cooling with a large mass of people in a short window of time. The mechanical system needs to react fast to maintain comfort, while responding in a manner that keeps the space peaceful and quiet.

The mechanical engineer selected displacement ventilation to achieve maximum comfort, and energy efficiency while maintaining stringent acoustical requirements.

Displacement ventilation incorporates a floor mounted low



velocity supply system to use the natural effects of heat rising to provide efficient comfort.

The velocity from the displacement ventilation system has such a low velocity, that airflow cannot be felt even when sitting within one foot of the air outlets! The return air system is located in the attic, pulling the return air from the top of the 45

foot tall room.

The challenges were placing the displacement diffusers close to the occupants and spacing them throughout the room. The only way to achieve the air distribution was to use underground duct. With the significant investment in the building, the engineer selected [The BlueDuct](#) for it's inherent features of being air tight, water tight, insulated and able to last as long as the building itself.

The displacement diffusers were all uniquely incorporated into the rock pilasters, prayer kneelers and pews (every third row), so the mechanical system is virtually hidden from the human eye.

[The BlueDuct](#) underground air duct supplies air to the hidden displacement diffusers as indicated by the white arrows.

