

## PROJECT PROFILE: SANCTUARY AND PARISH HALL



**PROJECT:** HOLY SPIRIT CATHOLIC CHURCH  
Great Falls, Montana

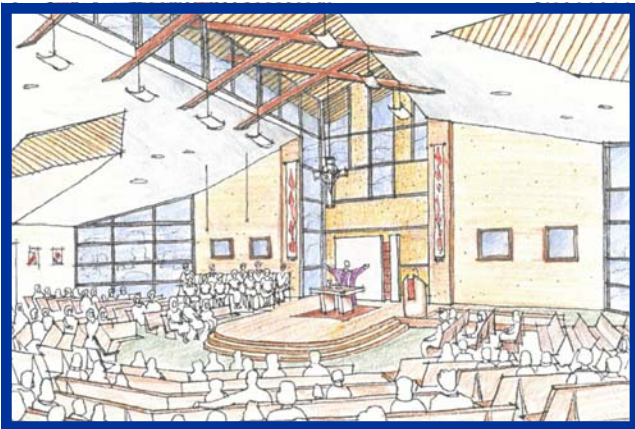
During the design of this new church, the architect recognized the need for appropriate acoustical design to enhance the functionality of the Sanctuary and Parish Hall.

### **BSA's SERVICES AND SOLUTIONS:**

#### Room Acoustics

- Developed computer models to predict the reverberation times.
- Analyzed how sounds would reflect within each space.
- Used the models to evaluate the effectiveness of various acoustical treatments, including ceiling treatments, wall panels and seating materials.
- Worked closely with architect to ensure the treatments matched the aesthetics of the spaces.

BSA's room acoustics design recommendations, balanced the spoken word and musical portions of Mass, prevented echoes, ensured speech intelligibility, and controlled overall noise levels.



#### Mechanical System Noise and Vibration Control

- Developed computer models to predict noise levels of the proposed HVAC systems.
- Used the models to evaluate the effectiveness of various noise control measures, including specific lengths of duct liner, acoustical plenums, duct attenuators, and modifications to the air-handling units.
- Worked closely with mechanical engineer to ensure that noise control measures were reasonable and feasible.

BSA's mechanical system recommendations ensured low background noise levels in each space, limited distractions and disturbances during quiet periods, and prevented sounds from being masked.

