



SAINT MARK'S EPISCOPAL CHURCH

August 17, 1999
The Rev'd Mark A. Weitzel, Rector
The Rev'd John W. Conrad, Curate

The Rev'd Charles Rwakatare, Assisting
The Rev'd Sara Burch, Deacon

Mr. Richard L. Gilbert, P. E.
President
CALIFORNIA ENERGY DESIGNS, INC.
4517 Angeles Crest Highway
La Canada, CA 91011

RE: Air Conditioning Retrofit
St. Mark's Episcopal Church
Glendale, California

Dear Mr. Gilbert:

Let us congratulate you on the unique air conditioning system designed by California Energy Designs, Inc. and successfully installed by Air-Tro, Inc. at St. Mark's Episcopal Church. Our budget would not allow the addition of any ductwork or architectural changes of any kind to the church interior.

The church building is reinforced concrete construction with Gothic style architecture. The original gas furnace was installed in 1949 when the church was built. It consisted of a forced air unit having 100% outside air supplied to the building through a concrete plenum system below the floor with mushroom supply outlets under the pews.

The furnace was located in a sub-basement with limited space, which was insufficient for a new gas furnace and air conditioner. To provide a return air system appeared to require major construction and architectural problems due to the nature of the church construction and location of the unit in the sub-basement. The return air system was solved by using the upper level of the existing plenums with return air grills located at the front to the pews and over the sub-basement.

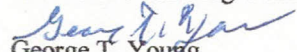
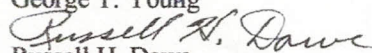
You explained that the secret of success, which has been applied in Europe but seldom here, lies in the introduction of cool air, double the normal amount, at a temperature of 65 degrees F to 68 degrees F at the floor level. The cool air displaces the heat given off by the occupants and is then recirculated back again using a low return. This stratifies the cool air down at the occupied level; and the upper portions of the church are undisturbed by air currents and, therefore, are essentially disregarded in your calculations.

An additional feature of this type of system is that the floor is either heated or cooled, depending on the season, which partially satisfies the occupants by radiation effect. The system is turned on several hours before a service; and, with the addition of sensors which sense peoples' presence, the church can be made comfortable with equipment whose capacity approaches two-thirds that of a traditional system.

Again, hats off to the team of California Energy Designs, Inc. and Air-Tro, Inc.

Sincerely,

St. Mark's Building Committee Cochairmen,


George T. Young

Russell H. Dawe