

Air Exchange at the Meeting House

12/31/21 Revised 02/08/22

Now that we've lifted the mask requirement, some are wondering, and asking, about the efficacy of ventilation in the sanctuary and Fellowship Hall. This is a reasonable concern; we learned early in the pandemic the relative vulnerability of being downwind from those infected with Covid (or, for that matter, any airborne virus). Indeed, some recent variants appear to have been even more infectious than their precedents.

To address questions about air circulation in our public spaces, we thought a brief tour of our ventilation systems might be in order. About a year ago, Building and Grounds Chair Stu Spence walked a group through the furnace room and around the building, pointing out various entry/exit air ducts which facilitate air circulation at the Meeting House. Our conclusion was that we have a simultaneously simple and sophisticated system: one which capitalizes on basic principles of physics while adapting methods of operation to the particular spaces involved.

Basically, we have two sorts of heating arrangements: there are areas served by circulating hot or cold air, and spaces heated by radiators fed by hot water.

In Fellowship Hall, the air handlers send air from the furnace room to (1) a series of vents located in the perimeter of the space and (2) a single elevated register in the adjacent kitchen. As temperature-controlled air enters this space from registers along the wall, it circulates more or less west-to-east toward the large intake register located under the thermostat. Before this air is recirculated, a significant portion is diverted outside by vents under the chapel

overhang. Simultaneously, “makeup air” from outside is drawn in through a large duct on the north side of the boiler room.

In the sanctuary, the same principle is employed, with the aim of moving air from the rear (and perimeter) so it flows toward, and over, the chancel. Picture yourself in the pews: you might notice hot air vents under some of the banners. Given the volume of air in the sanctuary, substantial dilution of your breath (and any viral particles within) results. The air currents ultimately exit through ductwork under and behind the chancel. Then, back in the boiler room, air handlers vent a portion of the air, and any virus within, out of the building, and “make-up air” drawn in from outside is heated along with remaining recirculated air and the warming cycle is repeated. As in Fellowship Hall, a significant portion is vented outside under the chapel overhang.

In both situations, fresh air from outside is exchanged regularly with air inside the building, reducing heating and cooling efficiency but pulling contaminants away reasonably promptly.

All the rooms surrounding the sanctuary are individual heating by radiators or supplemental air conditioners. The air in these spaces is not recirculated, or at least not in any predictable way. The chapel is an exception, as it is served both by hot air and radiator heating.
