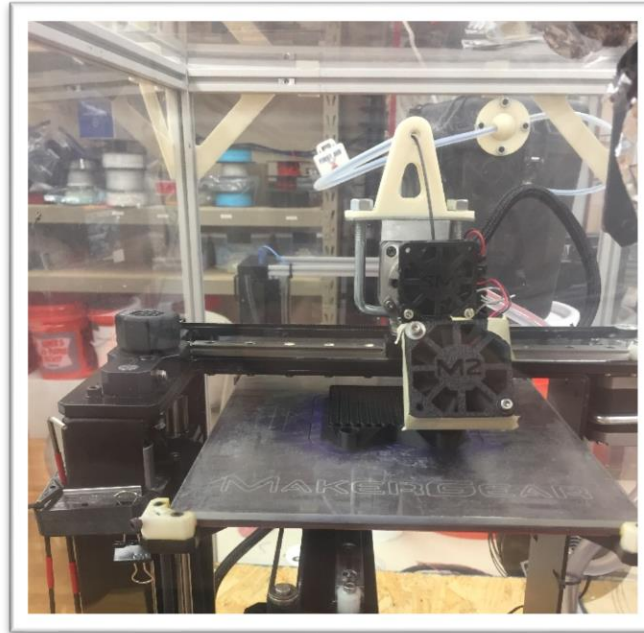




Jake Boxleitner

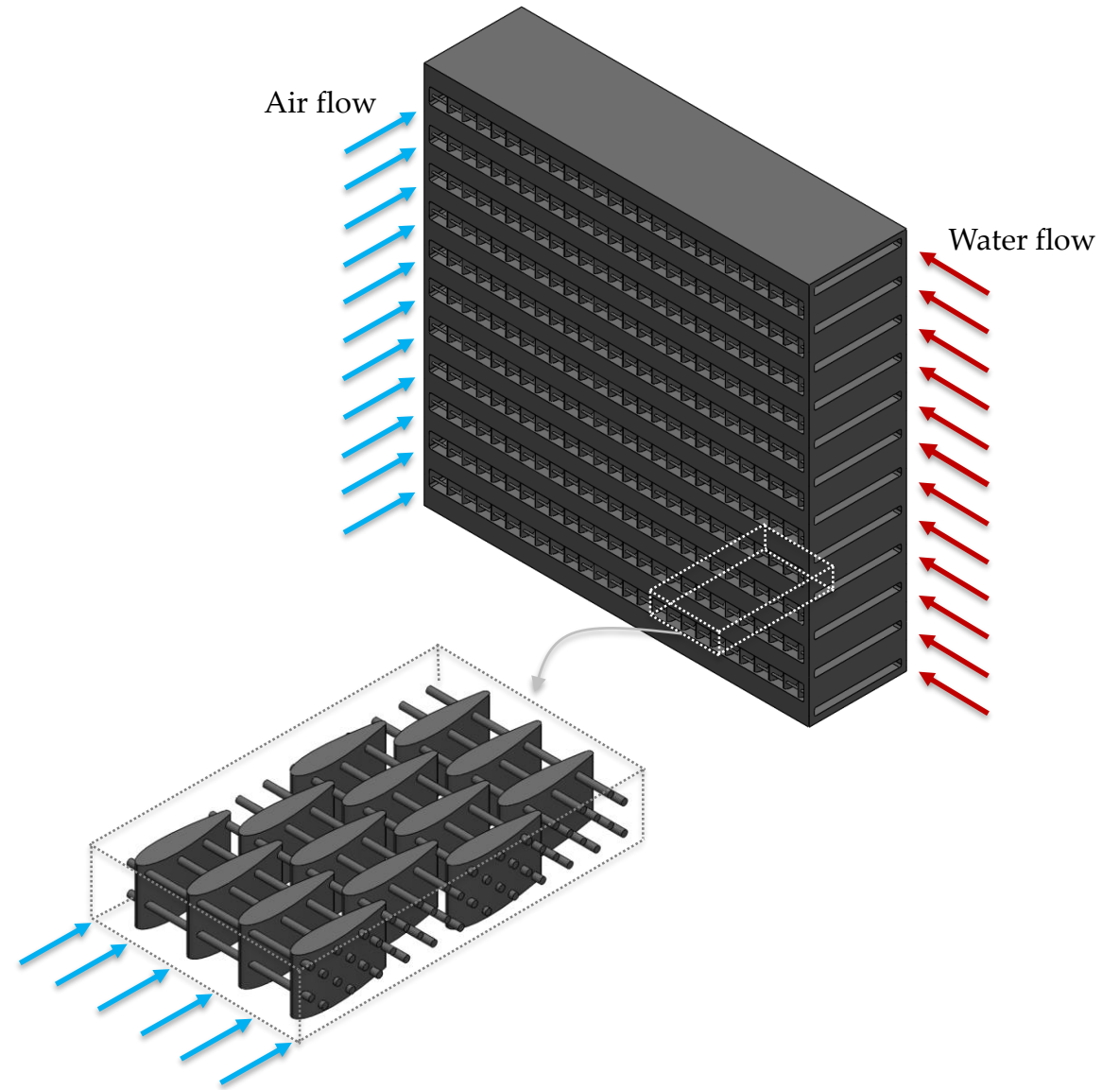
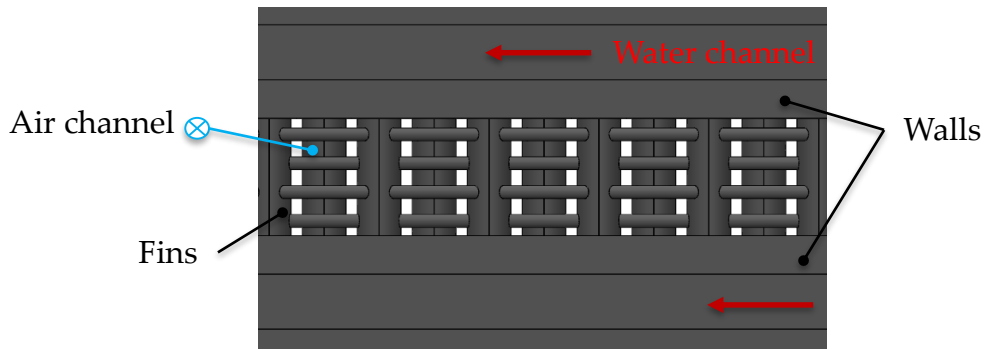
M.S. Mechanical Engineering

Additive Manufacturing of Heat Exchangers



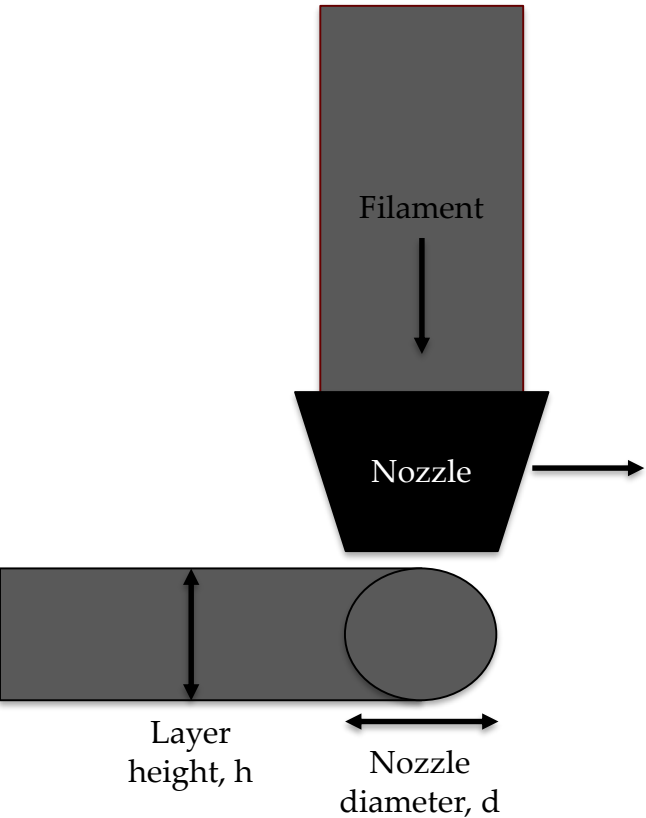
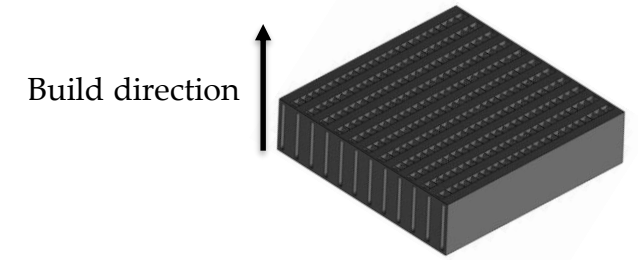
Additive Manufacturing of Heat Exchangers

Goal: Utilize Fused Filament Fabrication (FFF) to manufacture heat exchangers while optimizing air side heat transfer in an effort to develop dry cooling technology that is cost and performance competitive with current methods of dry and wet cooling

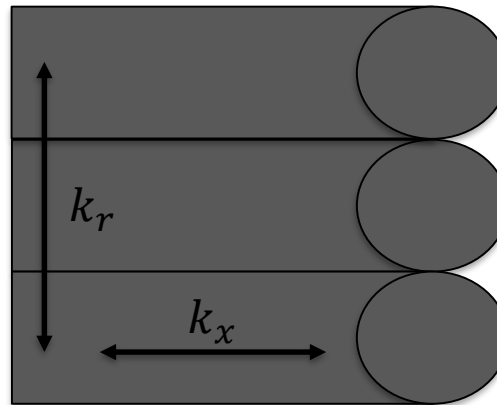


Additive Manufacturing of Heat Exchangers

Fused Filament Fabrication (FFF) with carbon fiber filled nylon



Material conductivity:
anisotropic behavior



$$k_r = 0.32 \text{ (W/m-K)}$$

$$k_x = 0.90 \text{ (W/m-K)}$$

Feature creation and tool pathing
(build direction out of plane)

