Typical combined system
Mechanical Systems
Domestic hot water heater w/hx
finish flooring
adhesive or thin-set mortar
1/4" cover sheet
plywood subfloor
aluminum heat transfer plate
plywood sleepers
tubing
foil-faced batt
underside insulation
plywood end plate
leave min. 4" between wall and tube to prevent damage
tubing snaps down into groove in plate
aluminum heat transfer plate
plan view
1/4" cover sheet
finish flooring
routed retur bends
wood sleepers glued and mechanically fastened to subfloor. (gap between sleepers provides space for tubing and groove in plate
Manifold detail
finish flooring
adhesive or thin-set mortar
plywood subfloor
aluminum heat transfer plate
tubing
underside insulation
tubing must exit plates straight to avoid expansion noise
floor joist @ 16" o.c.
expansion gap between plates
looking up at underside of floor
aluminum heat transfer plates
tubing routed through oversized holes in joists
Geothermal heat pump