

# PHIUS Solar DHW fraction – BeOpt simulation protocol

New construction, Design mode.

Geometry:

- Draw building as close as possible in BEopt (length width #stories, foundation type and roof pitch). Keep in mind North is down by default (Facade north, back South). Can be changed on Options screen.
- Set # bedrooms and # baths correctly.

Site:

- Set climate file, leave other site parameters on default.

Options:

- Heating setpoint 68 F, Cooling setpoint 77 F, dehum setpoint 60% RH.
- Create custom water heater option to match tank size, if necessary.
- Create custom collector options to match array area and tilt, if necessary.
- Select appropriate distribution pipe option (e.g. R-2 trunk&branch, Pex, etc.)
- Create custom option under Appliances and Fixtures > Hot water fixtures, with a multiplier of 0.6. This will adjust the hot water usage approximately to match PHPP default.
- Check that dishwasher and clothes washer technology is about right, or just assume Energy Star.
- Air tightness 1 ACH50.
- Ducts in finished space.
- Probably ok to leave everything else on benchmark defaults.

Switch to Parametric mode with Reference = 1st selected option.

Under Solar hot water, pick both None and whatever the actual array size is.

Run with 60 min time steps and Dview option checked.

Change units in end use graph in lower left of output screen to site energy and check that DHW usage in the reference case about matches PHPP/WP model (+/- 10%). If not, adjust Hot water Fixtures multiplier and retry. If so, note DHW energy with and without solar array and compute solar fraction (without-with)/without.

Save detailed report and screenshot from Dview of site Hot water usage (daily) without and without solar.

\*[Should work ok as long as there is nothing else fancy going on, like a solar fraction of space heat, or solar+HPWH.]