



IBPSA Project 1

Modelica Buildings library

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Current activities



Spawn of EnergyPlus

- Released as part of Modelica Buildings Library 8.0.0
- Full installation package expected for fall 2021



District heating and cooling

- Template models for URBANopt (Modelica edition)



OpenBuildingControl

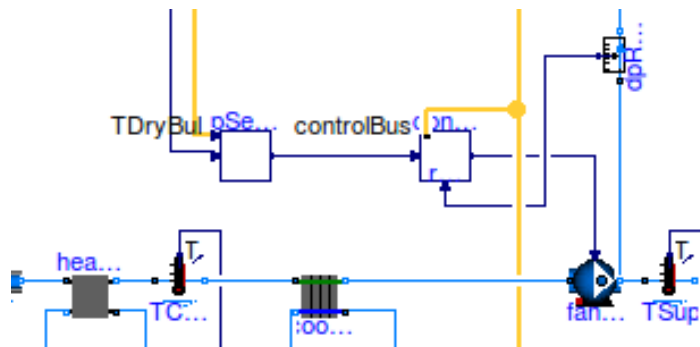
- Control description language CDL
 - Reviewed through ASHRAE Standard 231P (CDL)
- Ongoing
 - Update ASHRAE Guideline 36 to official guideline
 - Implement boiler and chiller plant sequences from ASHRAE RP 1711



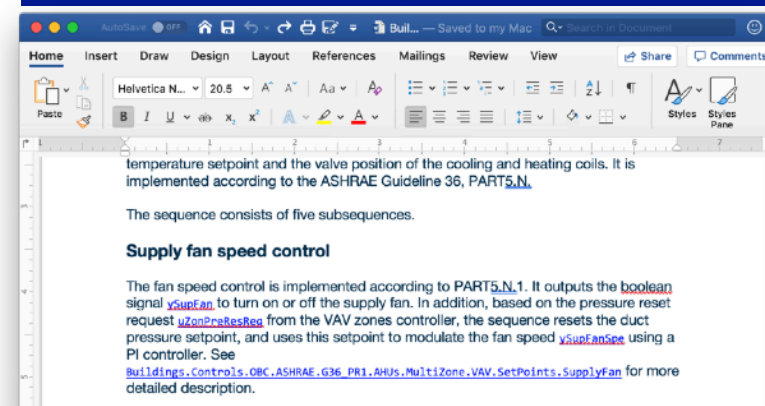
Export to BRICK prototyped through modelica-json

CDL control sequence

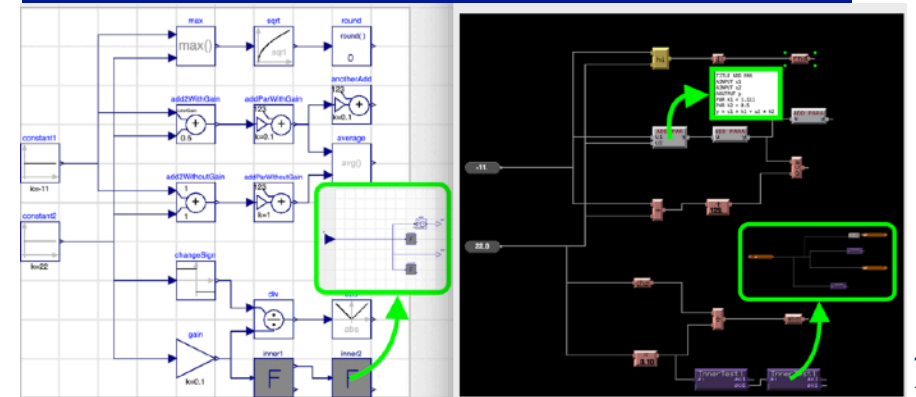
Energy simulation



Documentation



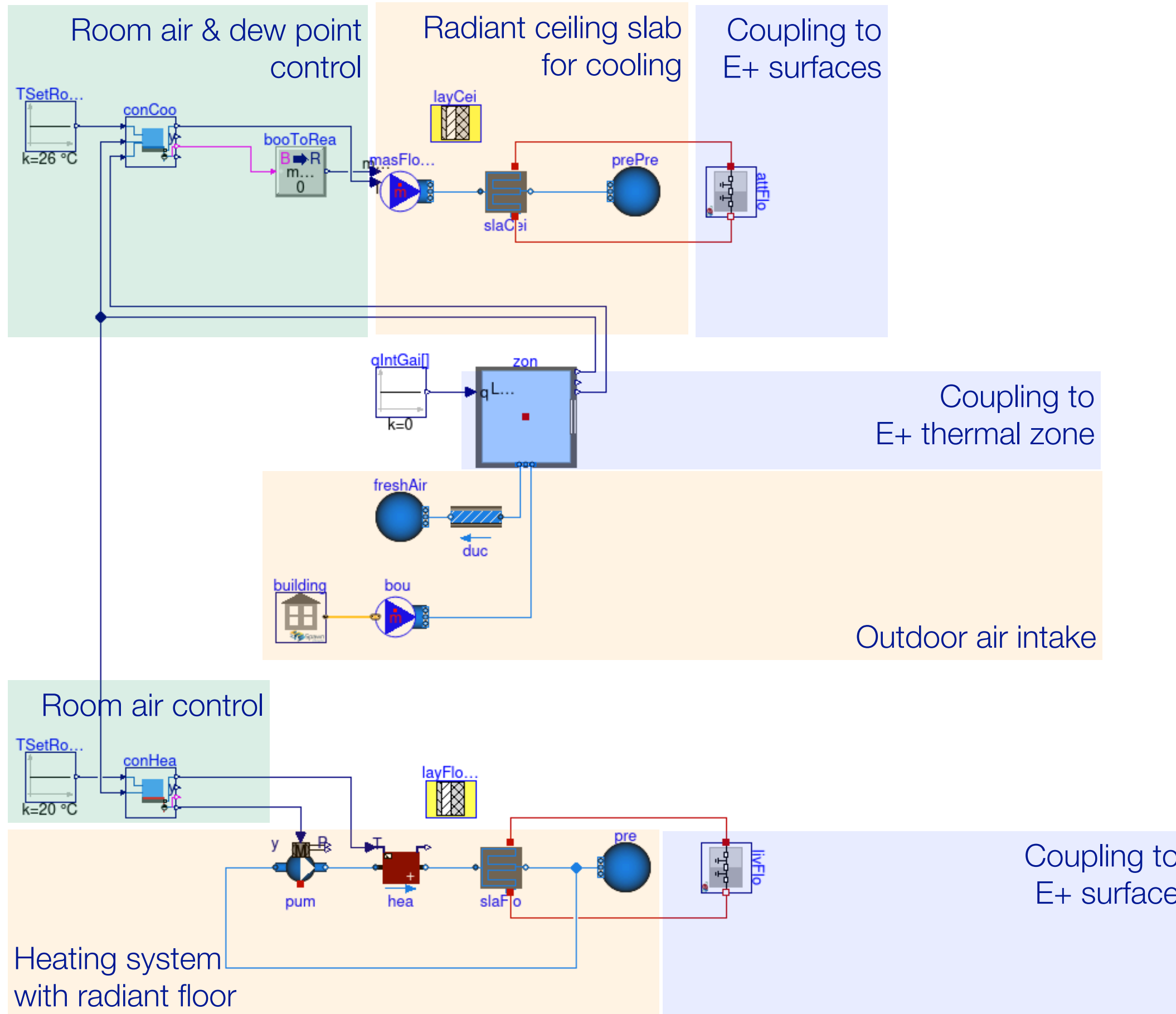
Physical execution



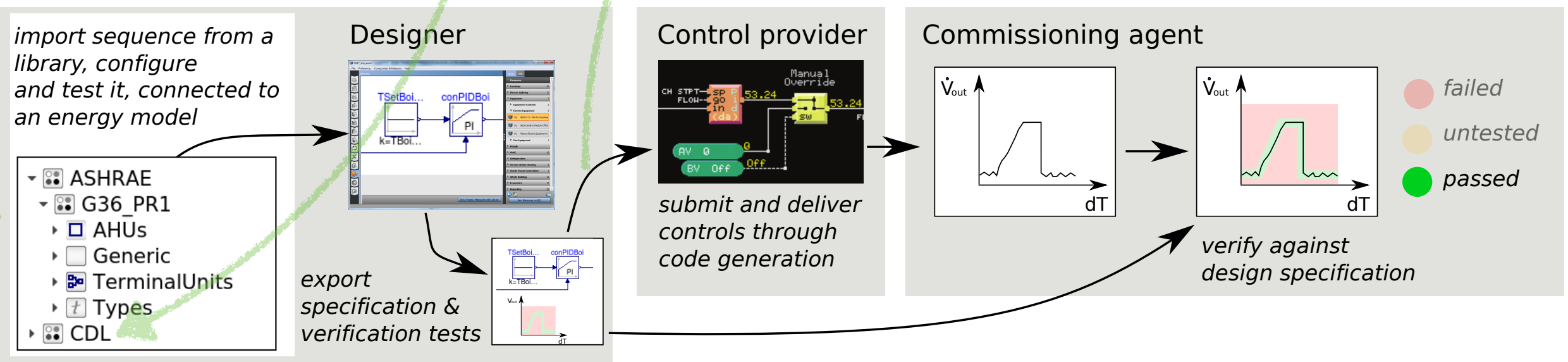
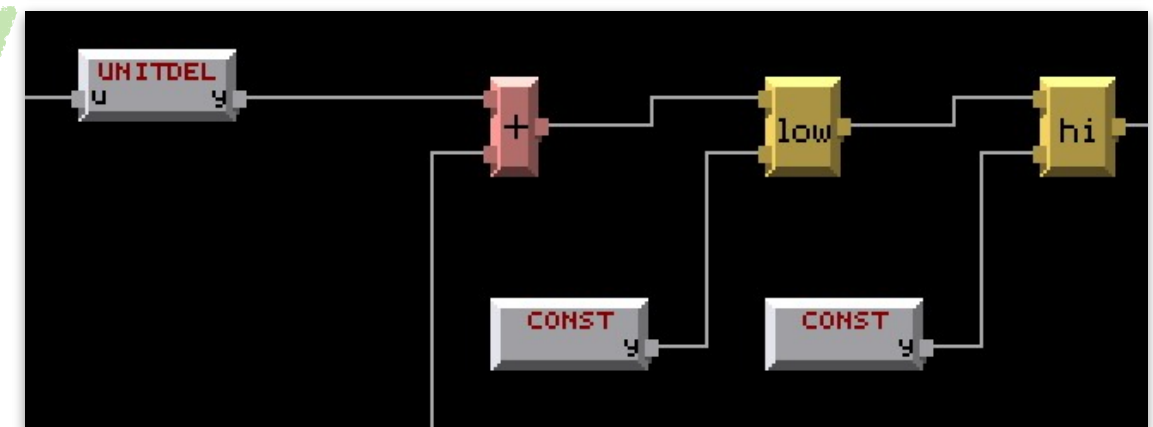
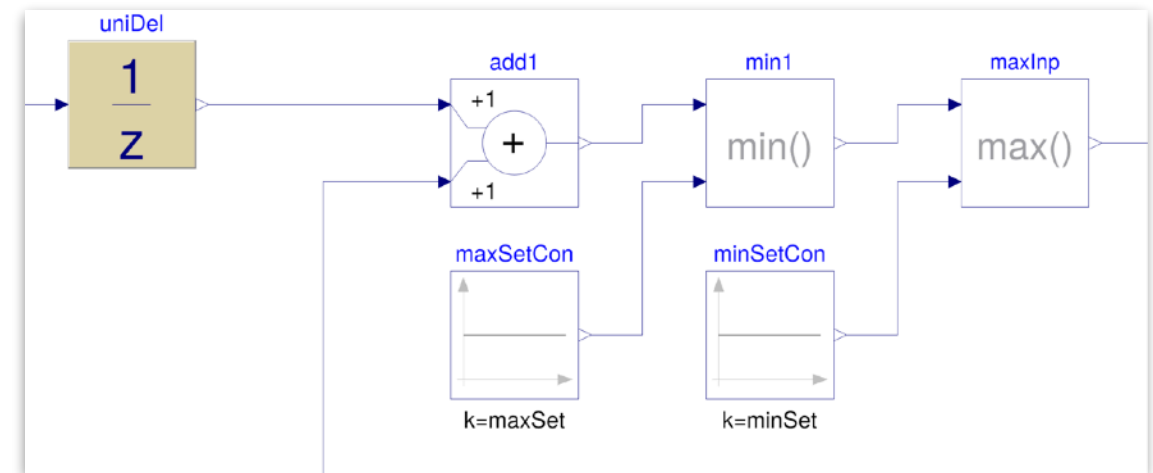
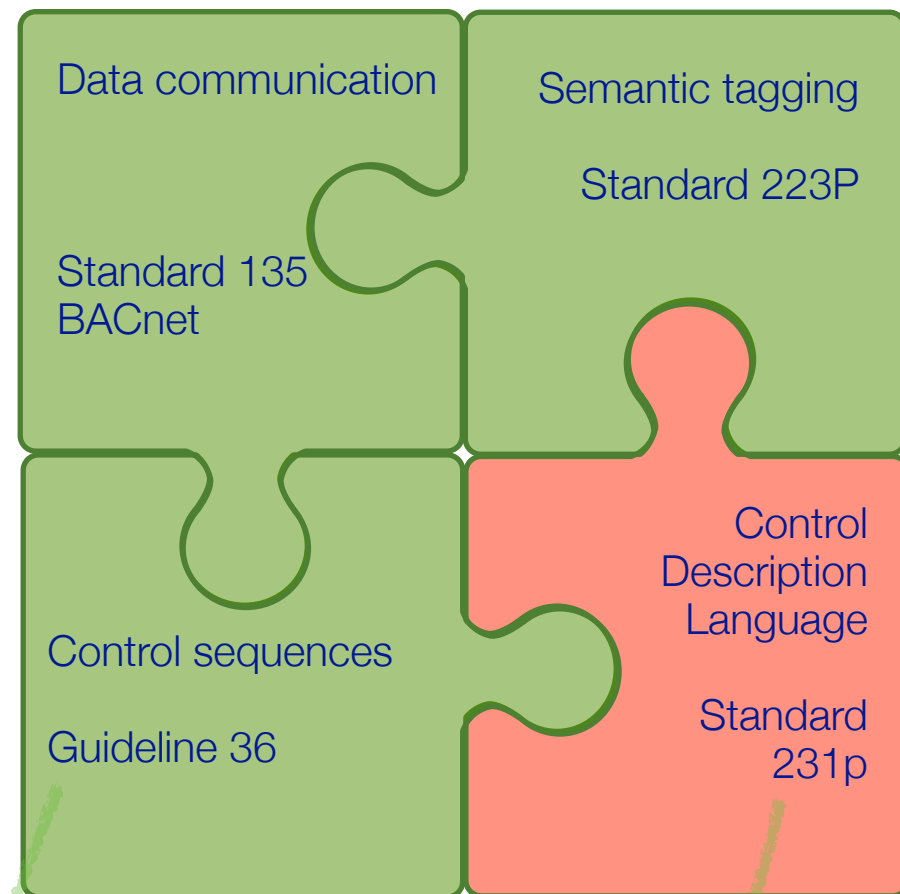
Major new models (other than those that were added in IBPSA)

- Cooling coil (Buildings.Fluid.HeatExchangers.WetCoilEffectivenessNTU)
- Buildings.Experimental.DHC
- Buildings.ThermalZones.EnergyPlus
- Buildings.Fluid.Geothermal.BuriedPipes
- Buildings.Fluid.FixedResistances.PlugFlowDiscretized

Simple Spawn example: Radiant system



OpenBuildingControl: Digitize the control delivery process and bridging BEM and controls



Current activities

Modeling

- Templates for HVAC systems (buildings and districts, including controls)
- Steam heating systems

Solver

- QSS

Tools

- Linkage - control sequence selection and configuration tool
- Work on coverage with OpenModelica

<https://github.com/lbl-srg/modelica-json>