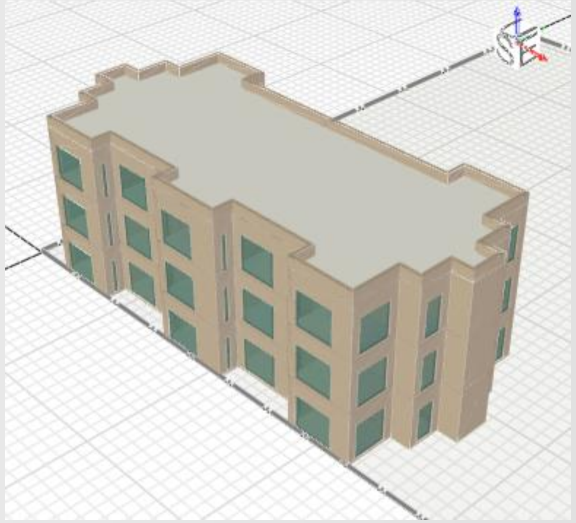
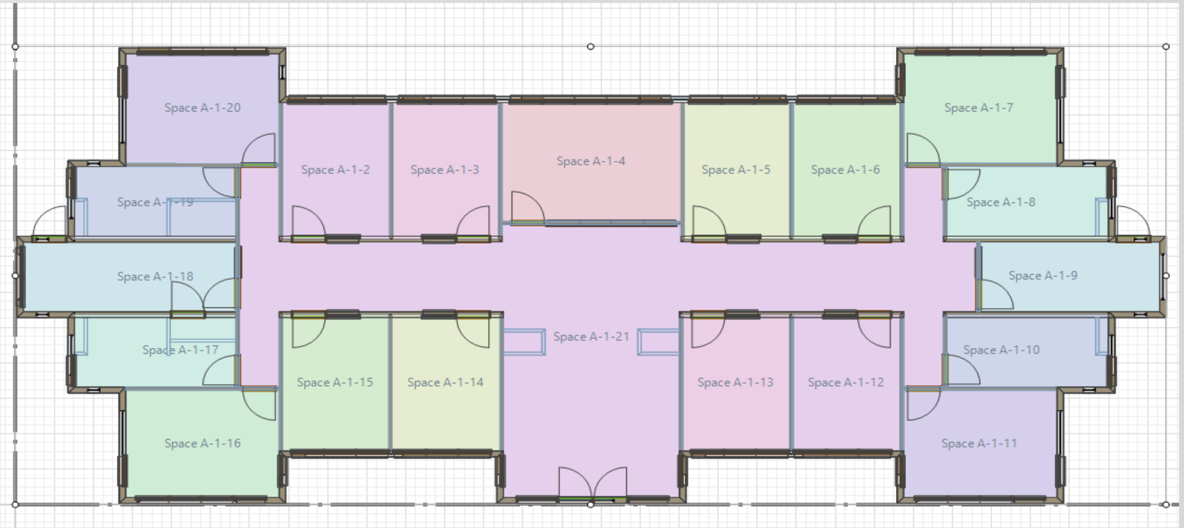
Digital Alchemy
THE BUILDING MODELING EXPERTS

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

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Space A-1-2
Space A-1-3
Space A-1-4
Space A-1-5
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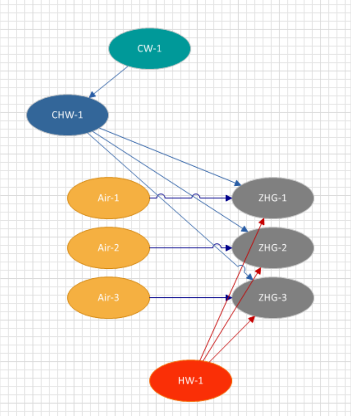
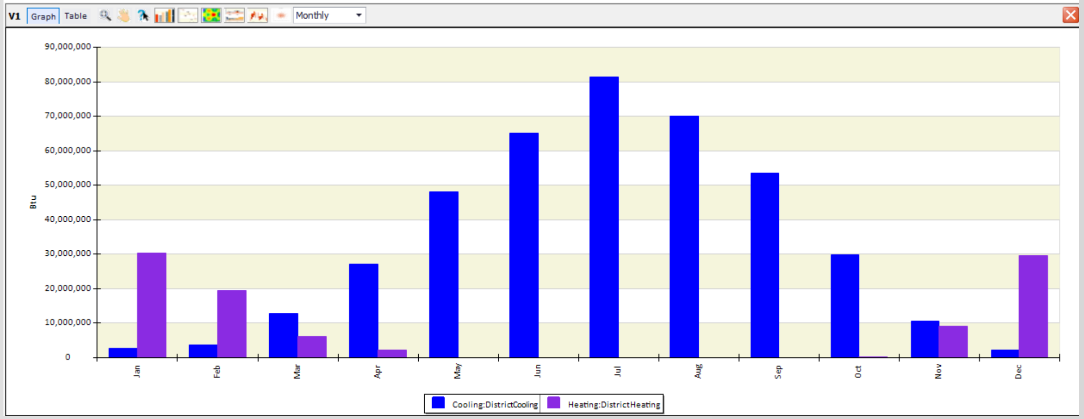
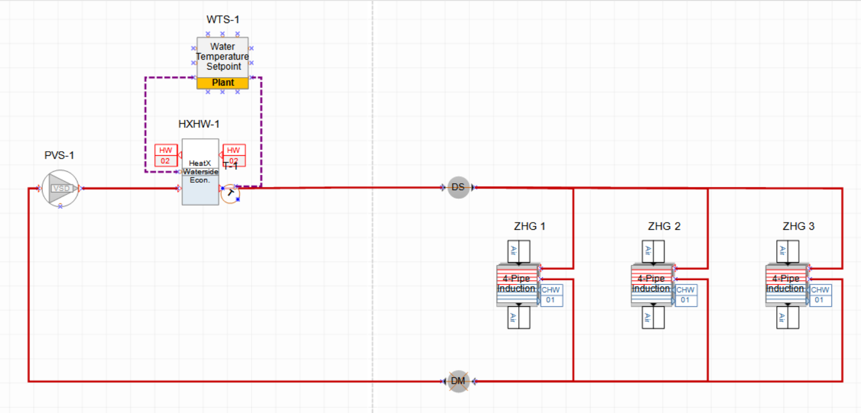
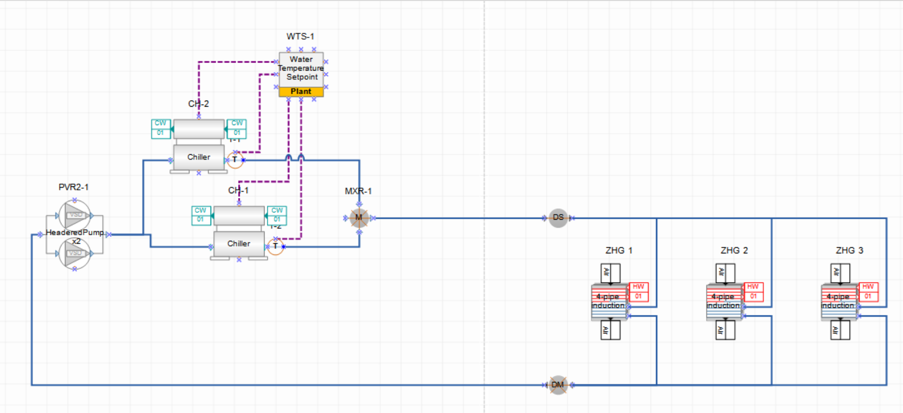
Space A-1-7
Space A-1-19
Space A-1-8
Space A-1-18
Space A-1-9
Space A-1-21
Space A-1-17
Space A-1-10
Space A-1-15
Space A-1-14
Space A-1-13
Space A-1-12
Space A-1-16
Space A-1-11


CW-1
CHW-1
Air-1
Air-2
Air-3
ZHG-1
ZHG-2
ZHG-3
HW-1




WTS-1
Water Temperature Setpoint
Plant
HXHW-1
HW 02
HeatX Waterside Econ.
HW 02
T-1
PVS-1
VSD
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-Pipe Induction
CHW 01
Air


WTS-1
Water Temperature Setpoint
Plant
CH-2
CW 01
Chiller
CH-1
Chiller
PVR2-1
HeaderedPump x2
MXR-1
M
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-pipe induction
HW 01
Air

Tobias Maile & Richard See

Agenda

- Introduction (**keep it simple**)
- Simergy concepts
- Lesson 1: DWG Model over – basic geometry
  - **External building elements**
  - **Single zone per story**
- Lesson 2: DWG Model over – simplified geometry
  - **Simple zoning (5 zones per story)**
- Lesson 3: HVAC system: Active beam with DOAS (gas heating and dx cooling)
  - **System creator**
- Lesson 4: HVAC system: Active beam with DOAS (water heating and cooling)
  - **Creation and editing of HVAC systems**
- Lesson 5: DWG Model over – detailed geometry
  - **Detailed zoning (20 zones)**
- Lesson 6: Result visualization
- Compare results

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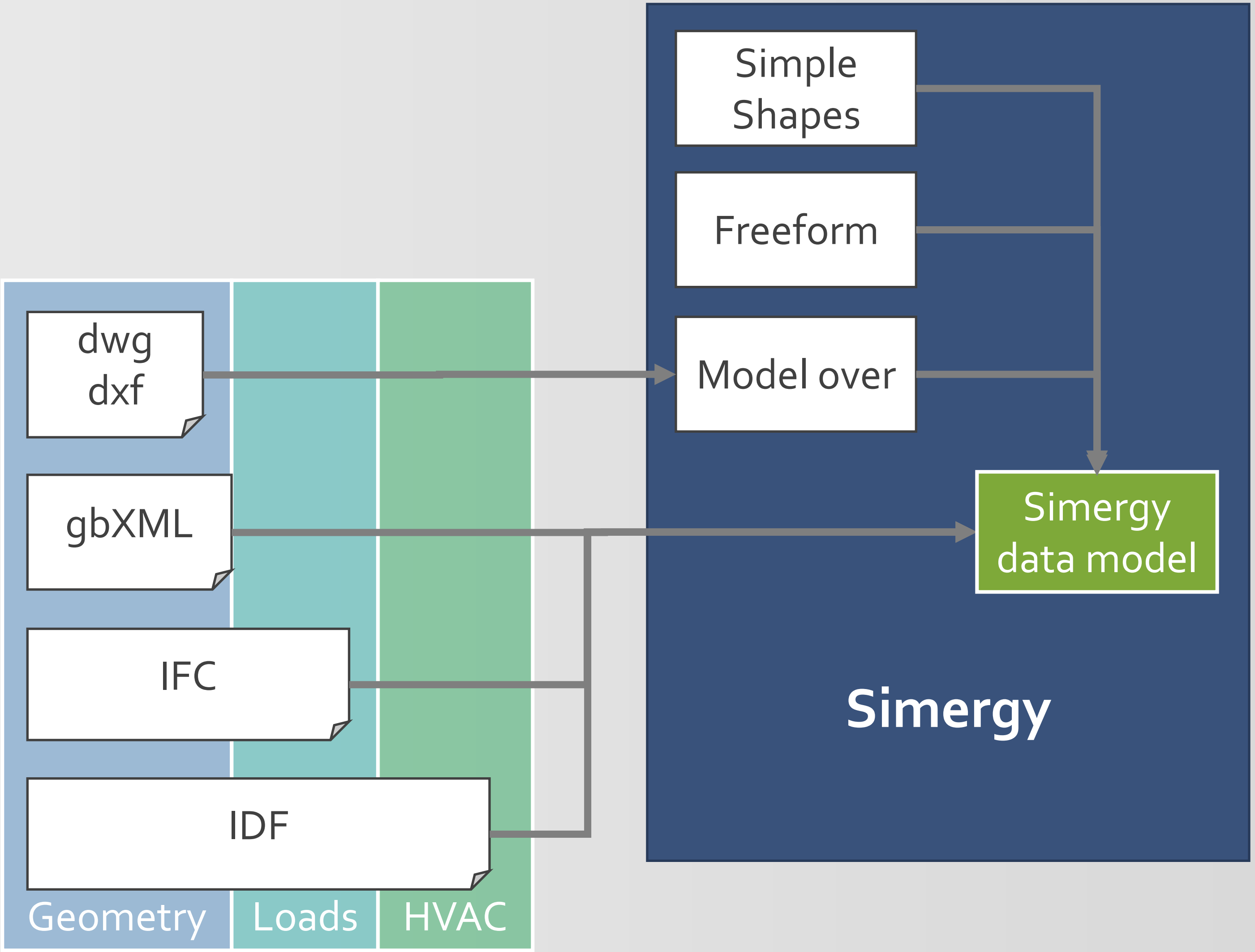
THE BUILDING MODELING EXPERTS

How this training works

<table>
<tr><th>Interactive Training</th><th>Self-Paced Training</th></tr>
<tr><td colspan="2">Step by step instructions to create this model</td></tr>
<tr><td colspan="2">• In this video
• In the related script</td></tr>
<tr><td colspan="2">Please ask questions</td></tr>
<tr><td>• In chat
• By voice</td><td></td></tr>
<tr><td colspan="2">• Via email: Support@D-Alchemy.com</td></tr>
</table>

Geometry options in Simergy


Simple Shapes
Freeform
Model over
Simergy data model
Simergy
dwg dxf
gbXML
IFC
IDF
Geometry
Loads
HVAC

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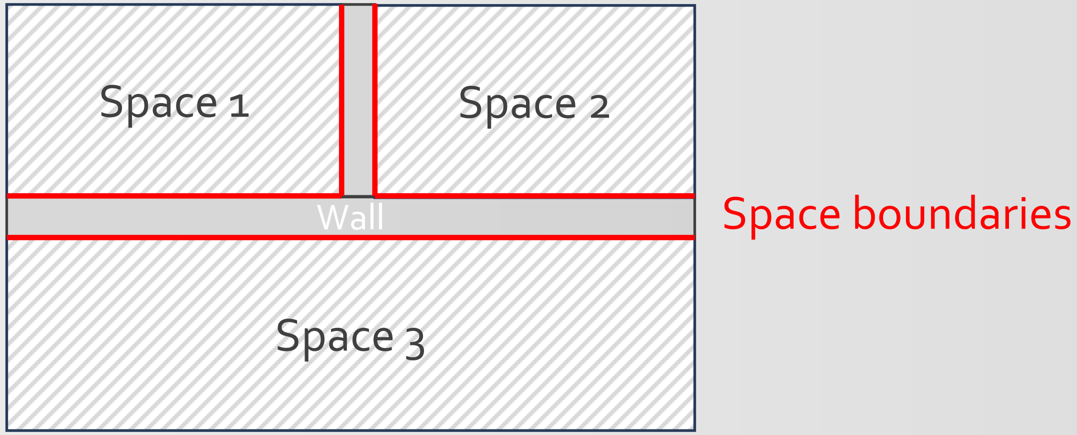
Heat transfer based on space boundaries

- What are space boundaries?
  - 2D surfaces as basis for 1D heat transfer
- Generation of space boundaries from buildings elements and spaces (just in time or via IFC import)

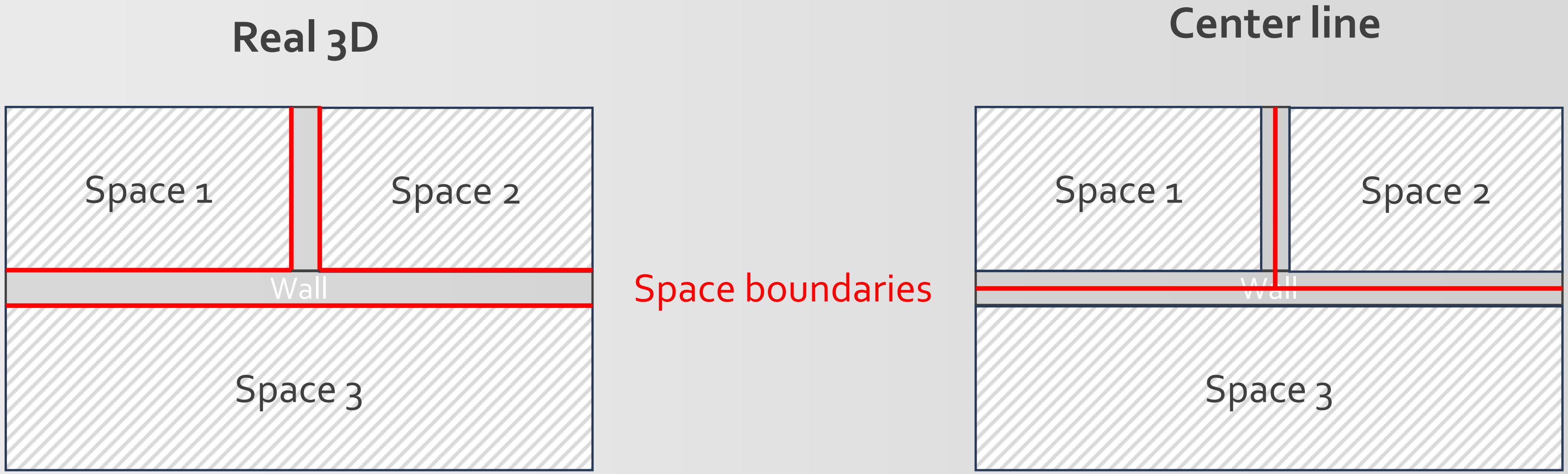
Architectural model

Thermal model


Space 1
Space 2
Wall
Space boundaries
Space 3

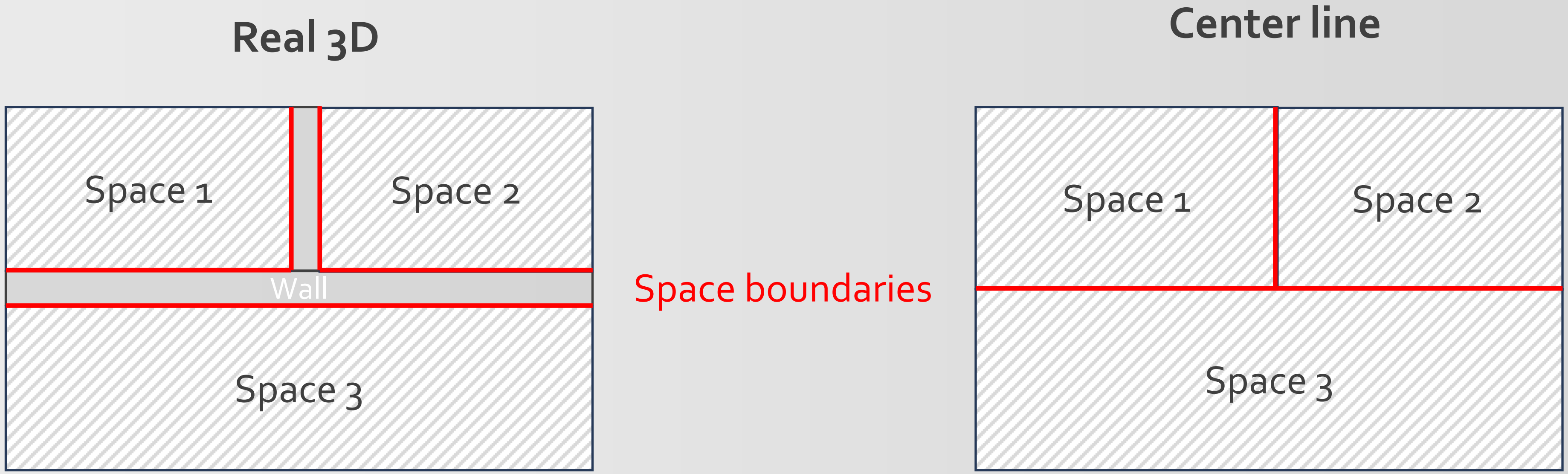
Simergy 3D geometry

- Real 3D geometry compared to traditional center line geometry


Real 3D
Center line
Space 1
Space 2
Wall
Space 3
Space boundaries
Space 1
Space 2
Wall
Space 3

Simergy 3D geometry

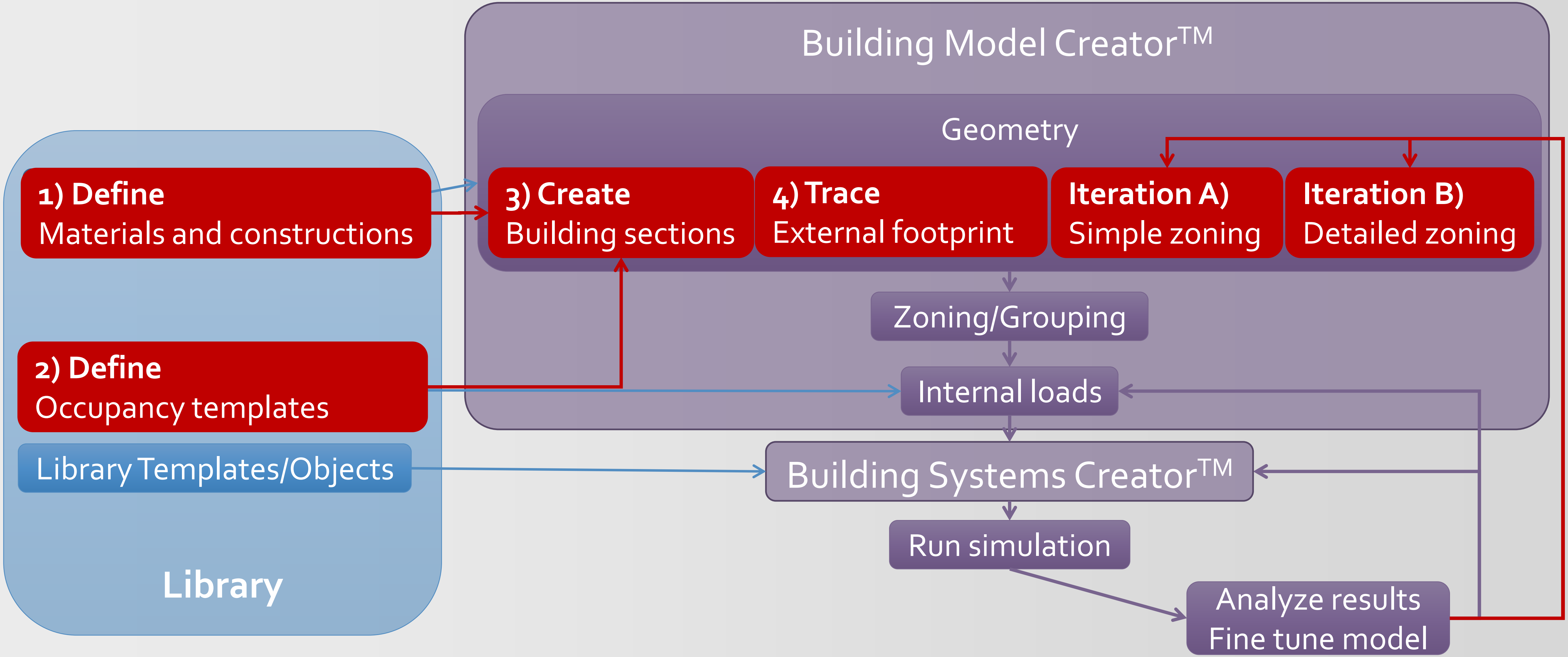
- Real 3D geometry compared to traditional center line geometry


Real 3D
Space 1
Space 2
Wall
Space 3
Space boundaries
Center line
Space 1
Space 2
Space 3

Space boundary areas increase
Space floor areas increase
=> Inaccuracies compared to real building

Bazjanac et al.: Generation of building geometry for energy performance simulation using Modelica, BauSim 2016

DWG model generation workflow – Building Model Creator



Library

1) Define
Materials and constructions

2) Define
Occupancy templates

Library Templates/Objects

Building Model Creator™

Geometry

3) Create
Building sections

4) Trace
External footprint

Iteration A)
Simple zoning

Iteration B)
Detailed zoning

Zoning/Grouping

Internal loads

Building Systems Creator™

Run simulation

Analyze results
Fine tune model

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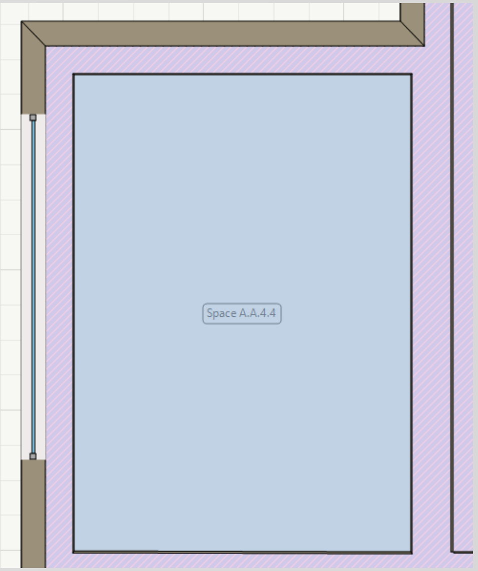
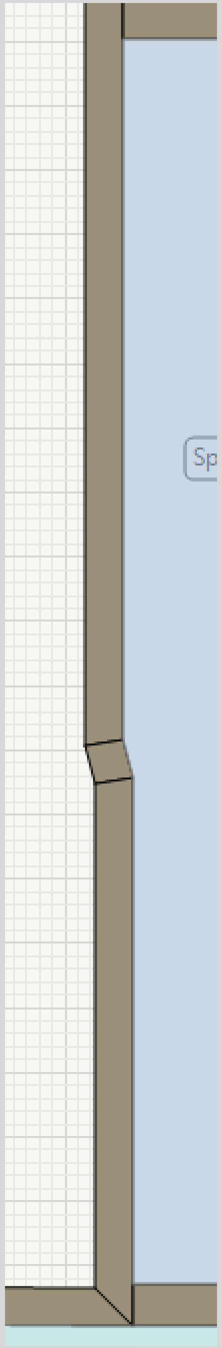
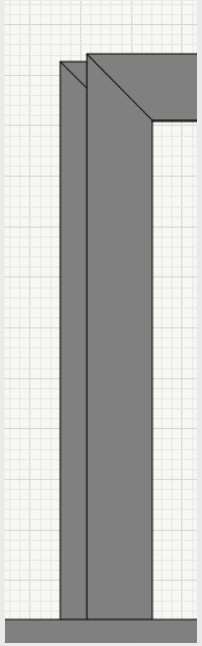
Keep it simple

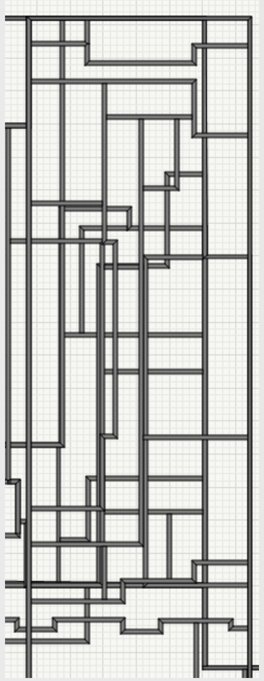
Common problems

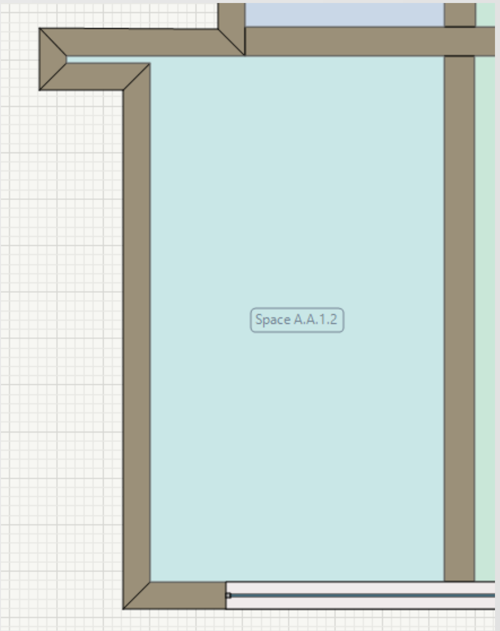
- Slight offsets between stories
- Too much detail that slows down simulation
- Too detailed geometry modeling that does not add value
- Space configurations that work against thermal simulation

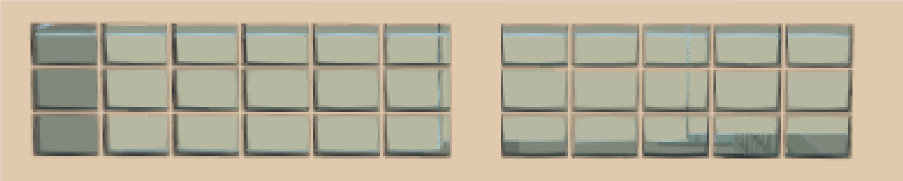


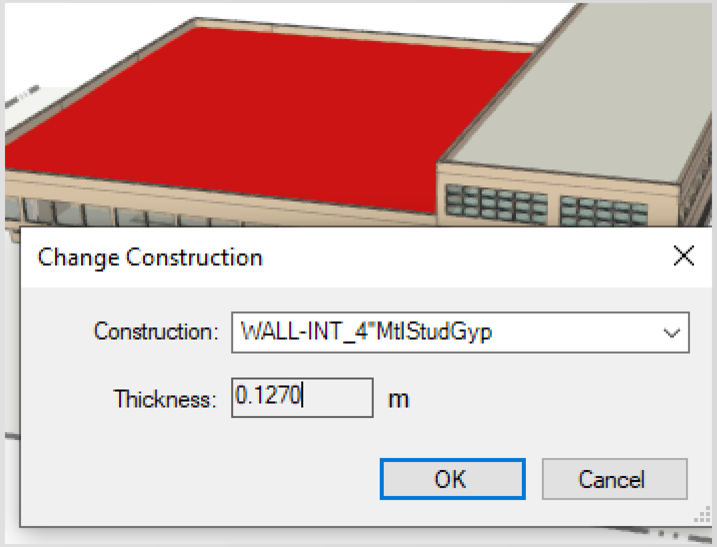












Change Construction

Construction: WALL-INT_4"MtlStudGyp

Thickness: 0.1270 m

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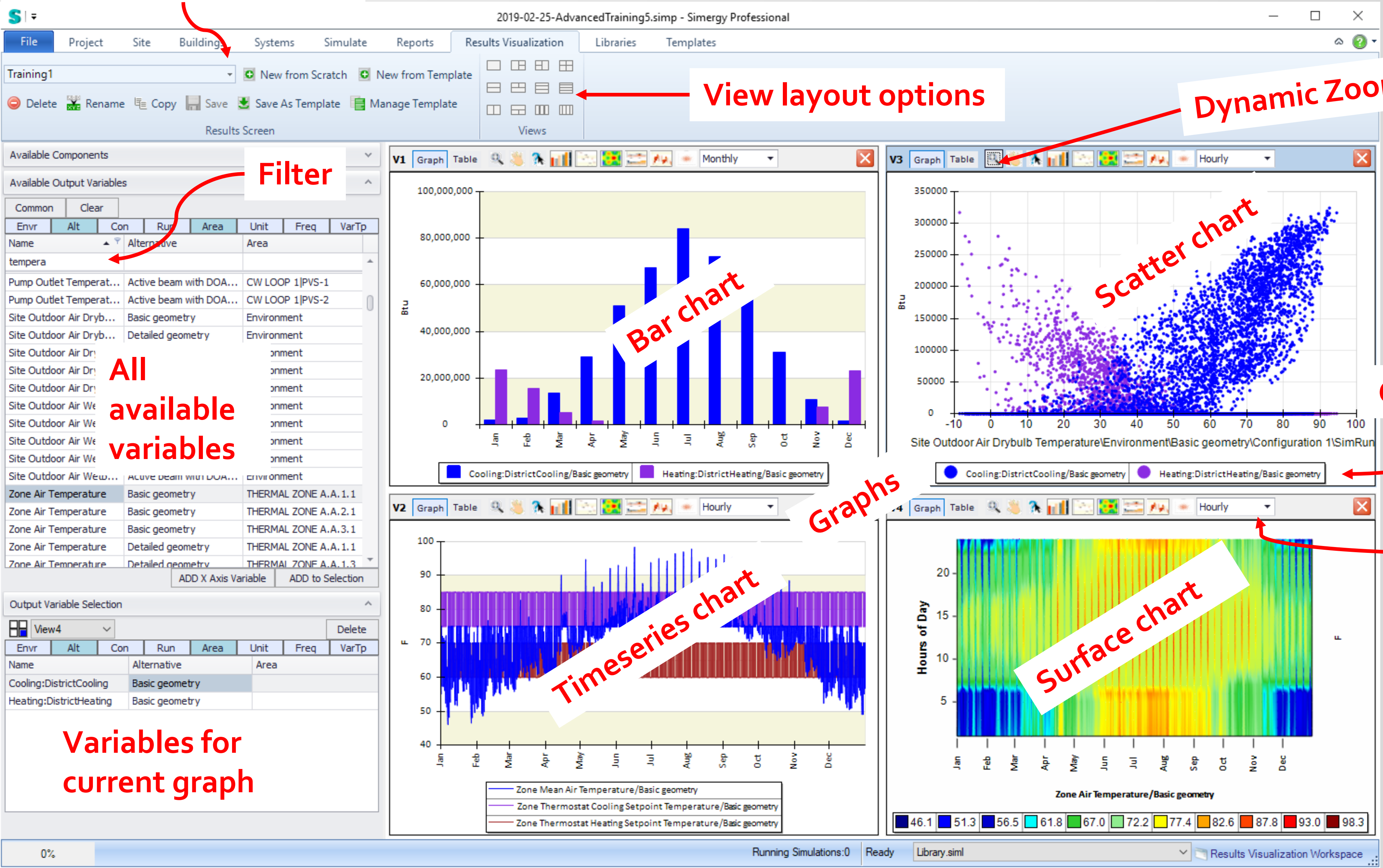
Results Visualization workspace


2019-02-25-AdvancedTraining5.simp - Simergy Professional
File
Project
Site
Buildings
Systems
Simulate
Reports
Results Visualization
Libraries
Templates
Training1
New from Scratch
New from Template
Delete
Rename
Copy
Save
Save As Template
Manage Template
Results Screen
Views
Available Components
Available Output Variables
Common
Clear
Envr
Alt
Con
Run
Area
Unit
Freq
VarTp
ADD X Axis Variable
ADD to Selection
Output Variable Selection
View4
Delete
V1
Graph
Table
Monthly
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
0
Btu
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Cooling:DistrictCooling/Basic geometry
Heating:DistrictHeating/Basic geometry
V3
Hourly
350000
300000
250000
200000
150000
100000
50000
0
-10
0
10
20
30
40
50
60
70
80
90
100
Site Outdoor Air Drybulb Temperature\Environment\Basic geometry\Configuration 1\SimRun
V2
100
90
80
70
60
50
40
F
Zone Mean Air Temperature/Basic geometry
Zone Thermostat Cooling Setpoint Temperature/Basic geometry
Zone Thermostat Heating Setpoint Temperature/Basic geometry
V4
Hours of Day
20
15
10
5
Zone Air Temperature/Basic geometry
46.1
51.3
56.5
61.8
67.0
72.2
77.4
82.6
87.8
93.0
98.3
0%
Running Simulations:0
Ready
Library.siml
Results Visualization Workspace

Name	Alternative	Area
tempera		
Pump Outlet Temperat…	Active beam with DOA…	CW LOOP 1|PVS-1
Pump Outlet Temperat…	Active beam with DOA…	CW LOOP 1|PVS-2
Site Outdoor Air Dryb…	Basic geometry	Environment
Site Outdoor Air Dryb…	Detailed geometry	Environment
Site Outdoor Air Dry		onment
Site Outdoor Air Dry		onment
Site Outdoor Air Dry		onment
Site Outdoor Air We		onment
Site Outdoor Air We		onment
Site Outdoor Air We		onment
Site Outdoor Air We		onment
Site Outdoor Air Wetb…	Active beam with DOA…	Environment
Zone Air Temperature	Basic geometry	THERMAL ZONE A.A.1.1
Zone Air Temperature	Basic geometry	THERMAL ZONE A.A.2.1
Zone Air Temperature	Basic geometry	THERMAL ZONE A.A.3.1
Zone Air Temperature	Detailed geometry	THERMAL ZONE A.A.1.1
Zone Air Temperature	Detailed geometry	THERMAL ZONE A.A.1.3

Name	Alternative	Area
Cooling:DistrictCooling	Basic geometry	
Heating:DistrictHeating	Basic geometry	

Template configuration

View layout options

Dynamic Zoom

Filter

All available variables

Variables for current graph

Bar chart

Scatter chart

Graphs

Timeseries chart

Surface chart

Customizable legends

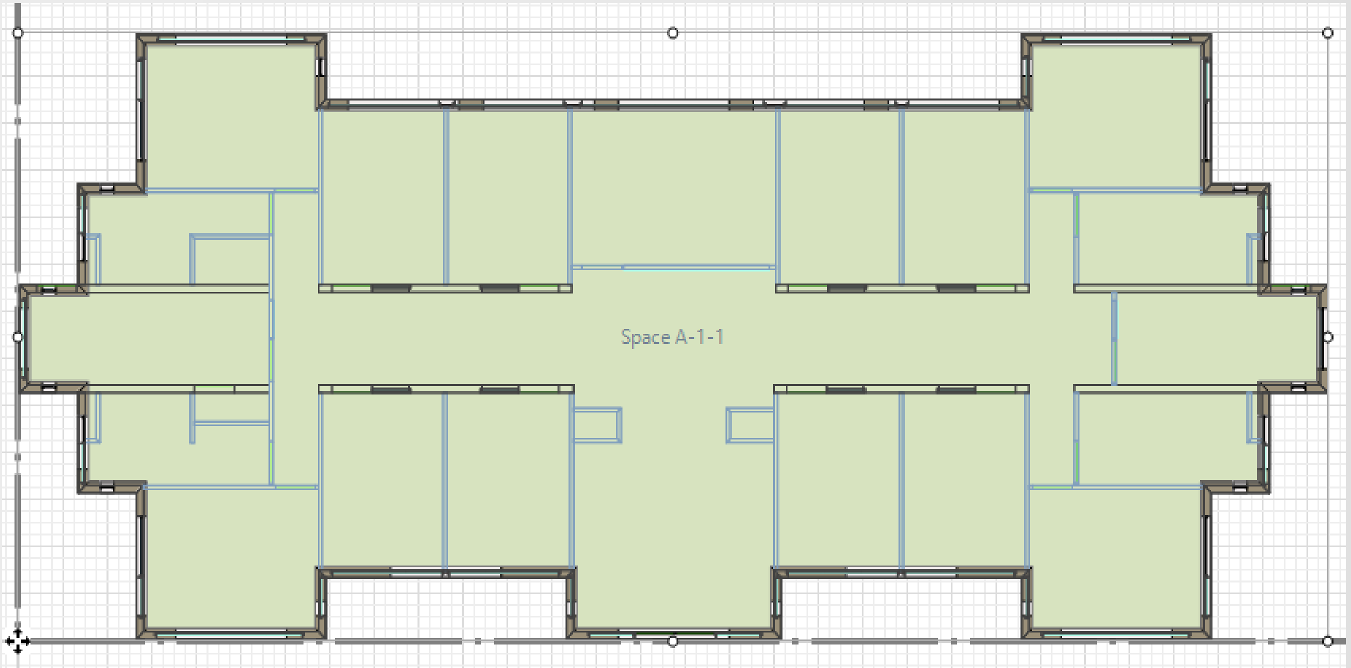
Dynamic interval

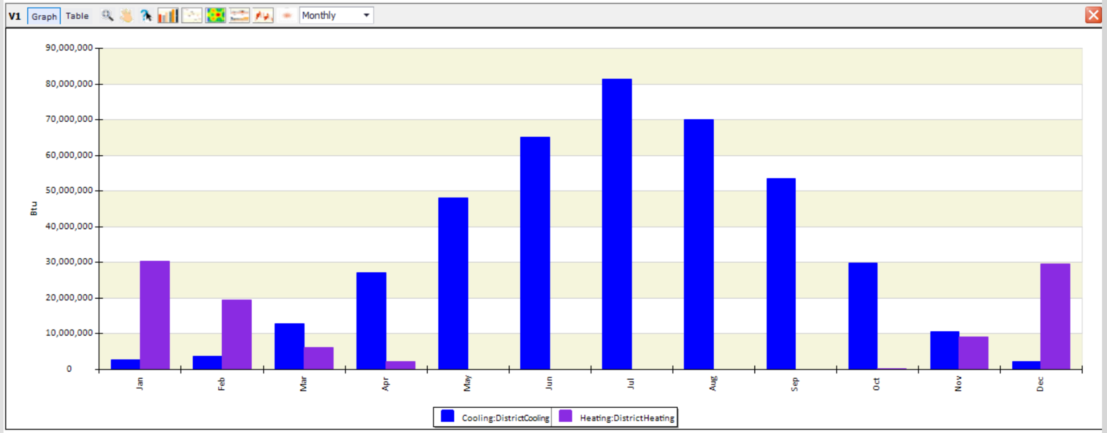
Chart types:
- Time series
- Bar
- Surface
- Area
- Scatter (xy)

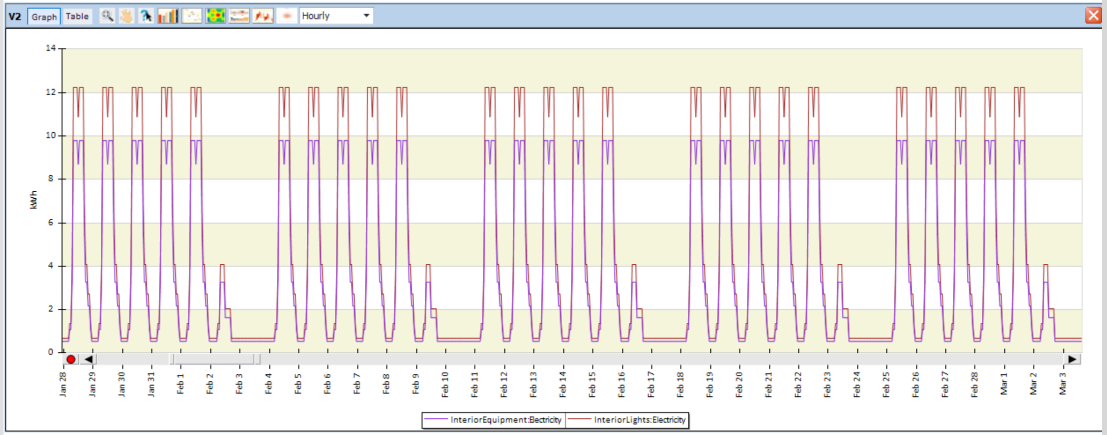
Data table

Lesson 1: DWG Model over – basic geometry

- Focus on **external envelope** (for now)
- 3 identical floors
- Load calculations
- Look at **monthly heating and cooling** as well as **hourly electricity**







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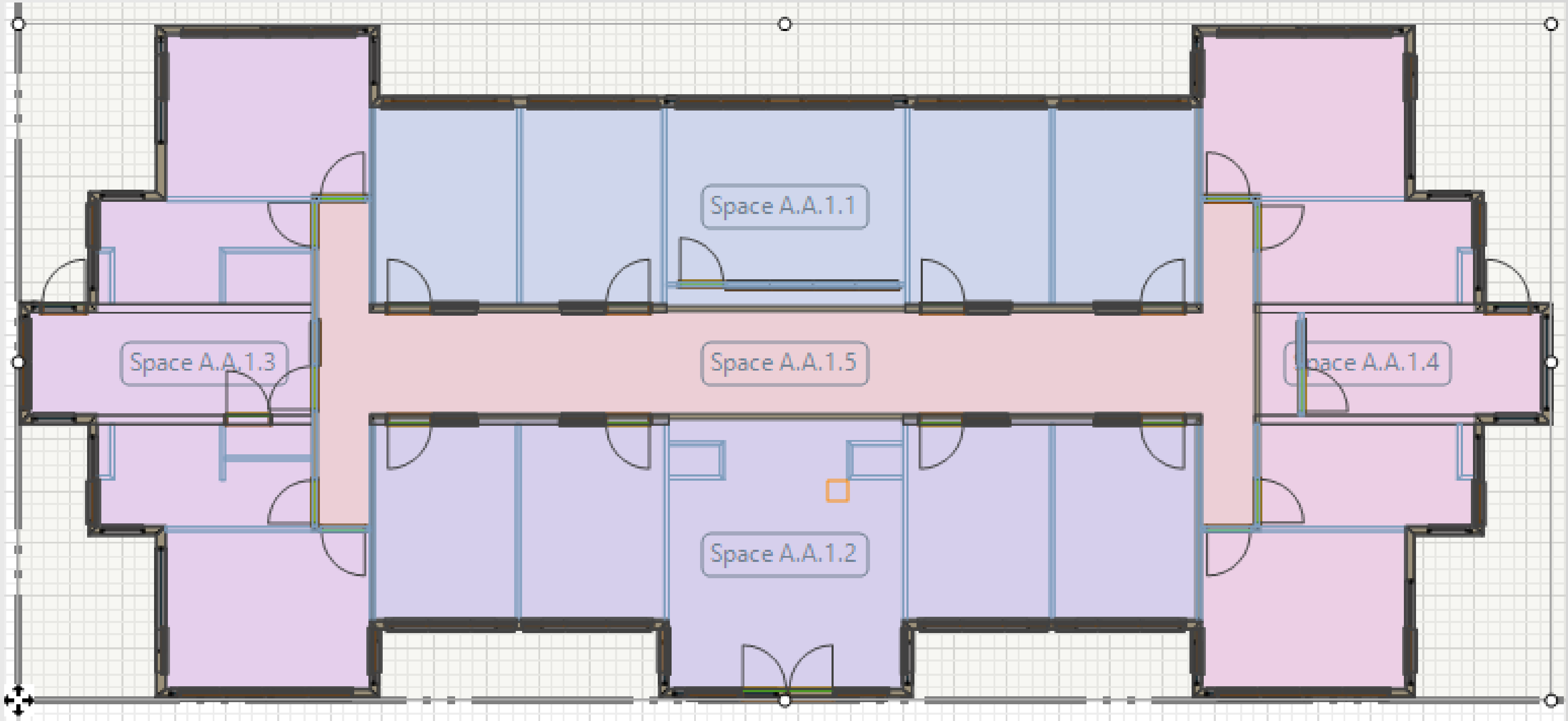
Lesson 2: DWG Model over – simple geometry

- Adding simplified zoning (internal walls and space seeding)
- **Keep it simple** yet meaningful


Space A.A.1.1
Space A.A.1.3
Space A.A.1.5
Space A.A.1.4
Space A.A.1.2

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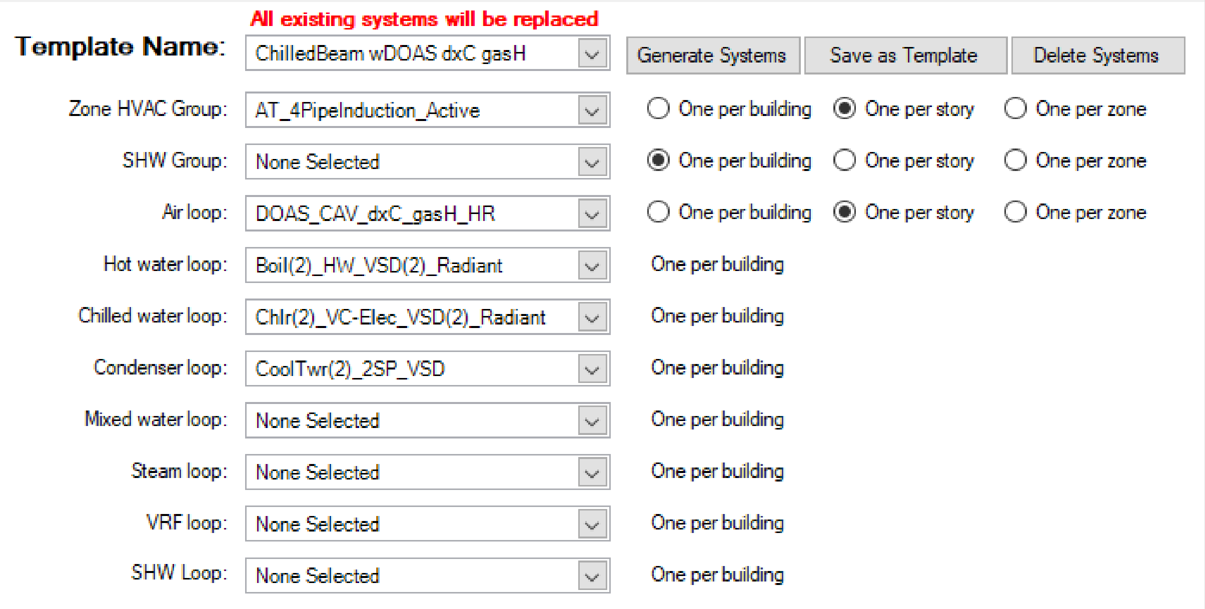
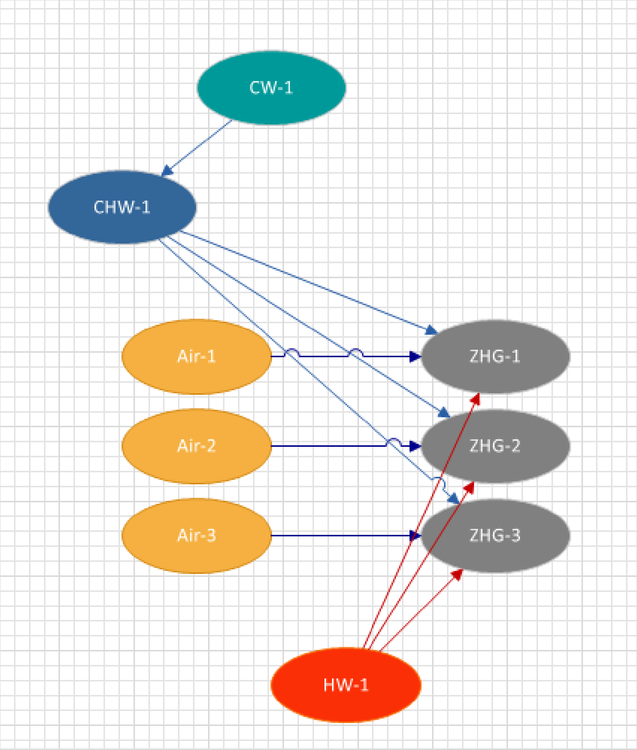
Lesson 3: HVAC system: Active beam with DOAS (gas heating and dx cooling)

- Use system creator to generate Active Beam system
- Adjust sizing parameters



All existing systems will be replaced

Template Name:	ChilledBeam wDOAS dxC gasH	Generate Systems	Save as Template	Delete Systems
Zone HVAC Group:	AT_4PipeInduction_Active	○ One per building	● One per story	○ One per zone
SHW Group:	None Selected	● One per building	○ One per story	○ One per zone
Air loop:	DOAS_CAV_dxC_gasH_HR	○ One per building	● One per story	○ One per zone
Hot water loop:	Boil(2)_HW_VSD(2)_Radiant	One per building		
Chilled water loop:	Chlr(2)_VC-Elec_VSD(2)_Radiant	One per building		
Condenser loop:	CoolTwr(2)_2SP_VSD	One per building		
Mixed water loop:	None Selected	One per building		
Steam loop:	None Selected	One per building		
VRF loop:	None Selected	One per building		
SHW Loop:	None Selected	One per building		



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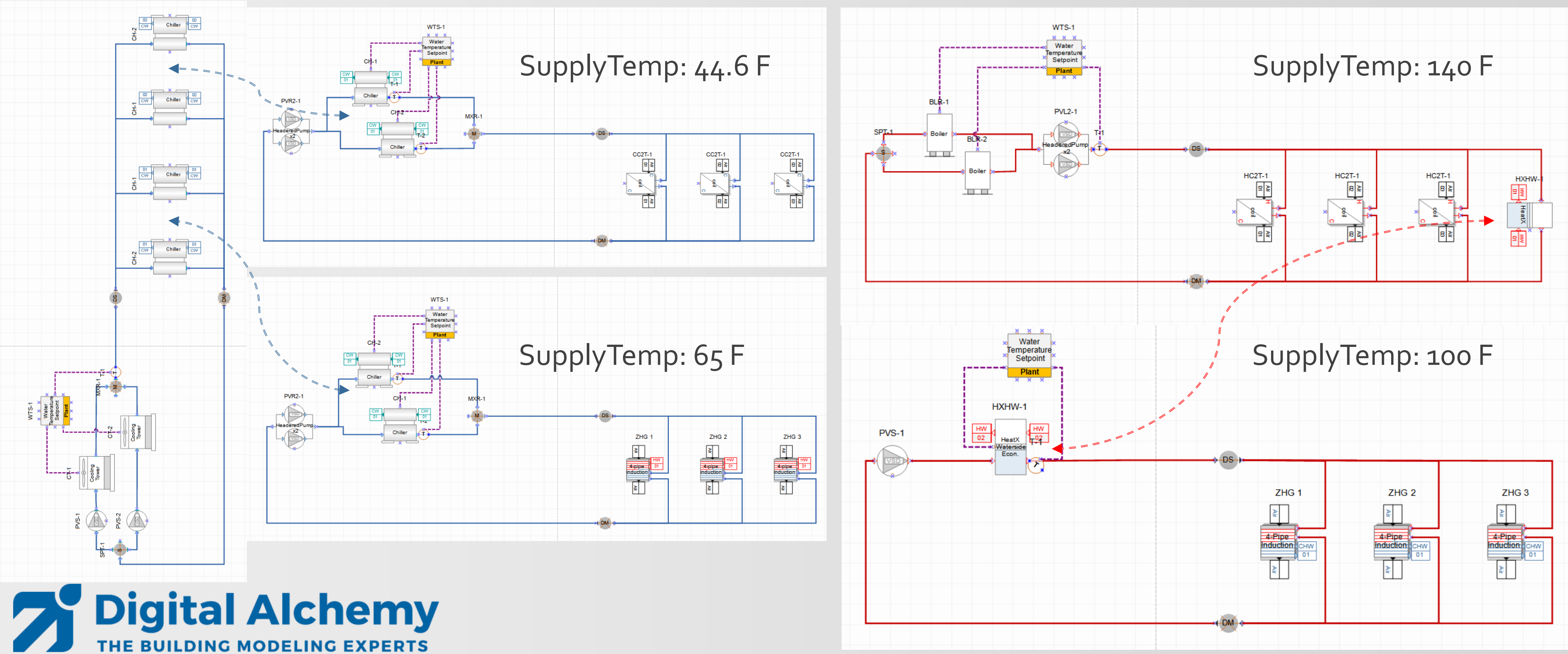
Lesson 4: HVAC system: Active beam with DOAS (water heating and cooling)

- Change DOAS from gas heating and DX cooling to water-based heating and cooling
- Add two more water loops to enable two different temperature supplies


CH-2
Chiller
CH-1
DS
DM
WTS-1
Water Temperature Setpoint
Plant
MXR-1
CT-1
CT-2
Cooling Tower
PVS-1
PVS-2
SPT-1
PVR2-1
HeadedPump x2
CC2T-1
ZHG 1
ZHG 2
ZHG 3
4-pipe induction
HW 01
BLR-1
BLR-2
Boiler
PVL2-1
T-1
HC2T-1
HXHW-1
HeatX
HW 02
HeatX Waterside Econ.
4-Pipe Induction
CHW 01
VSD

SupplyTemp: 44.6 F

SupplyTemp: 65 F

SupplyTemp: 140 F

SupplyTemp: 100 F

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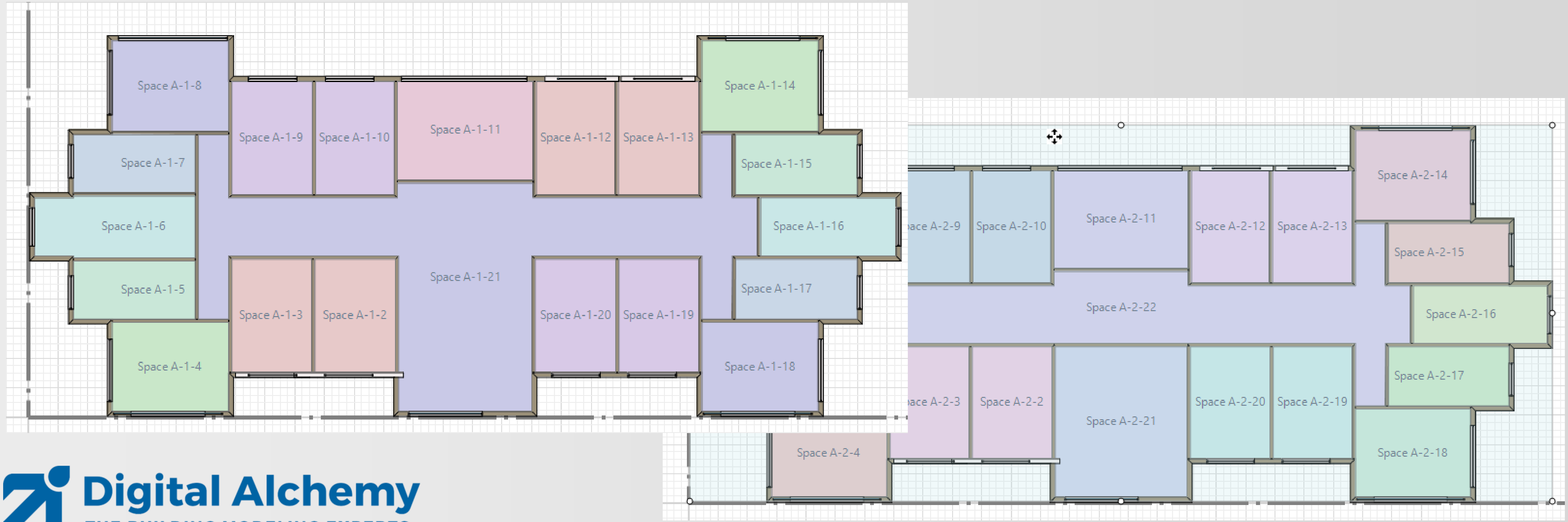
Lesson 5: DWG Model over – advanced geometry

- Adding more detail (internal walls, actual spaces, thermal zoning, windows)
- Ground floor is a little different then the other two floors
- Load calculations


Space A-1-8
Space A-1-9
Space A-1-10
Space A-1-11
Space A-1-12
Space A-1-13
Space A-1-14
Space A-1-7
Space A-1-15
Space A-1-6
Space A-1-16
Space A-1-21
Space A-1-5
Space A-1-17
Space A-1-3
Space A-1-2
Space A-1-20
Space A-1-19
Space A-1-4
Space A-1-18
Space A-2-14
ace A-2-9
Space A-2-10
Space A-2-11
Space A-2-12
Space A-2-13
Space A-2-15
Space A-2-22
Space A-2-16
Space A-2-17
ace A-2-3
Space A-2-2
Space A-2-21
Space A-2-20
Space A-2-19
Space A-2-4
Space A-2-18

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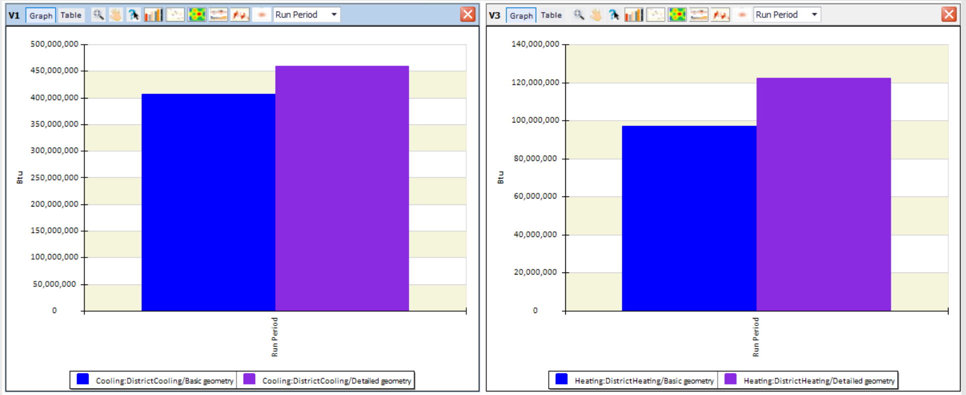
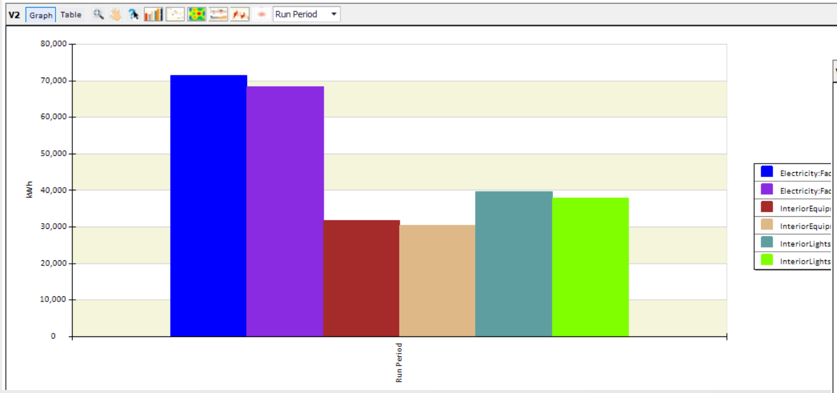
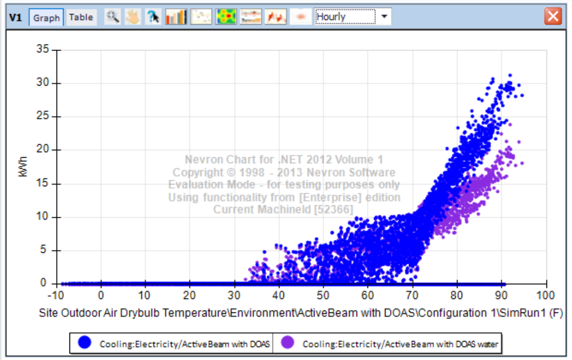
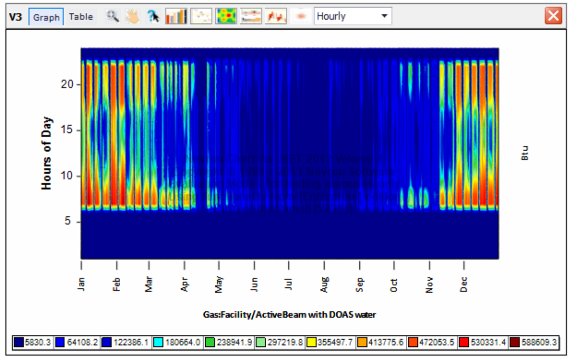
Lesson 6: Result visualization

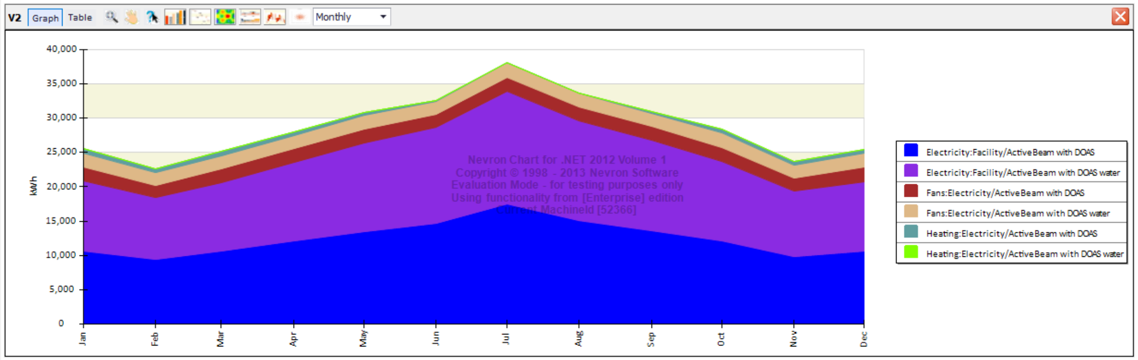


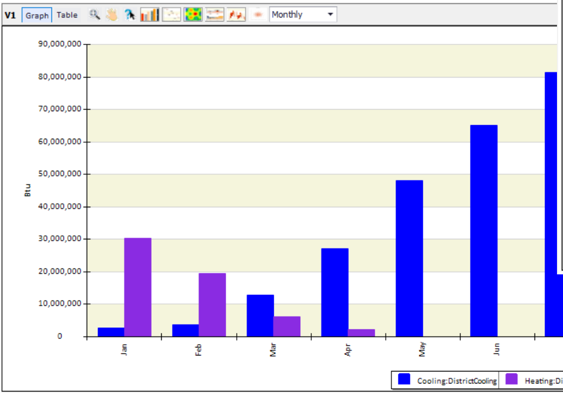


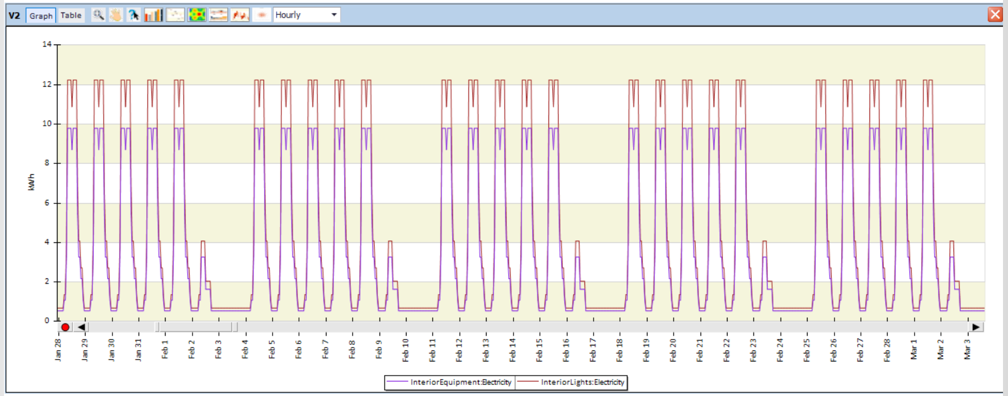
- Filtering
- Graph layout
- Legend
- Graph types
- Time interval
- Zoom











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Results Visualization

End of Intro/Concepts

Tobias Maile & Richard See

Space A-1-20
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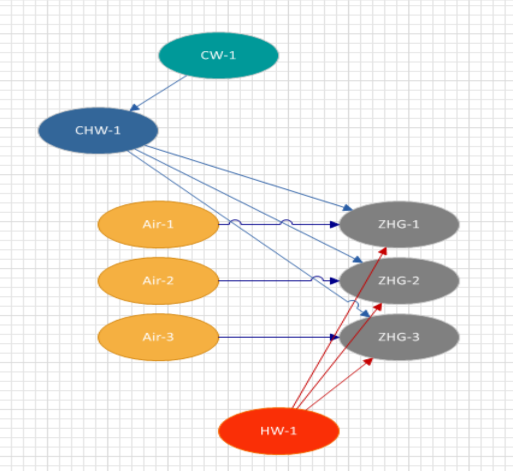
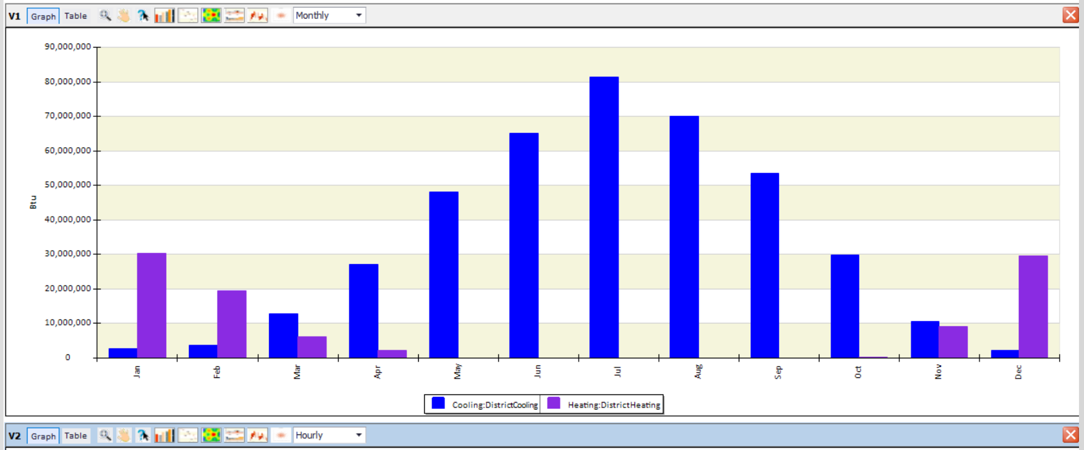
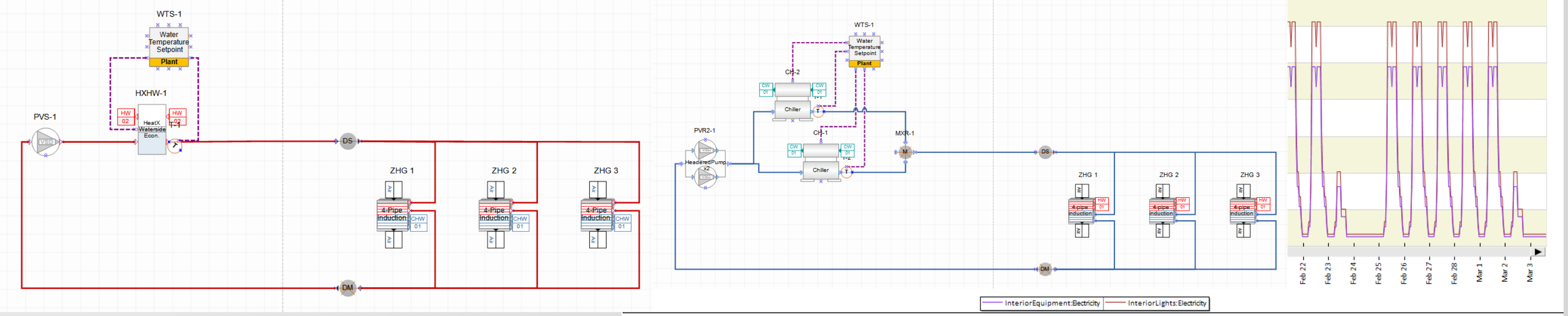
Space A-1-16
Space A-1-11


CW-1
CHW-1
Air-1
Air-2
Air-3
ZHG-1
ZHG-2
ZHG-3
HW-1




WTS-1
Water Temperature Setpoint
Plant
HXHW-1
HeatX Waterside Econ.
PVS-1
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-Pipe Induction
CH-2
Chiller
CH-1
PVR2-1
HeaderedPump
MXR-1
14
Feb 22
Feb 23
Feb 24
Feb 25
Feb 26
Feb 27
Feb 28
Mar 1
Mar 2
Mar 3
InteriorEquipment:Electricity
InteriorLights:Electricity

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Simergy 102

DWG Model-Over
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Results Visualization

Lesson 1

DWG Model over – basic geometry

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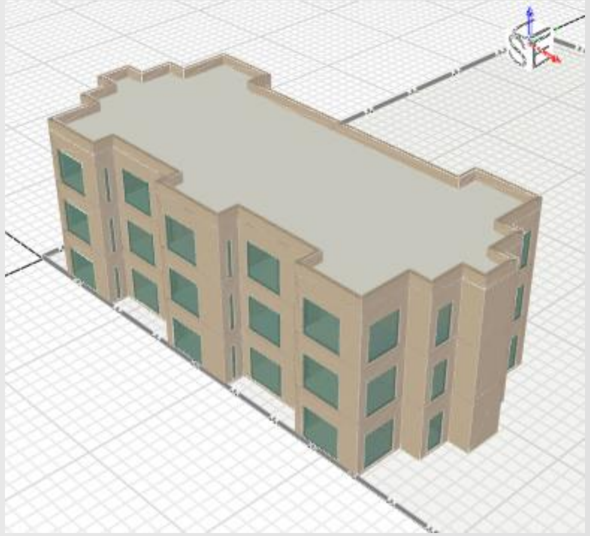
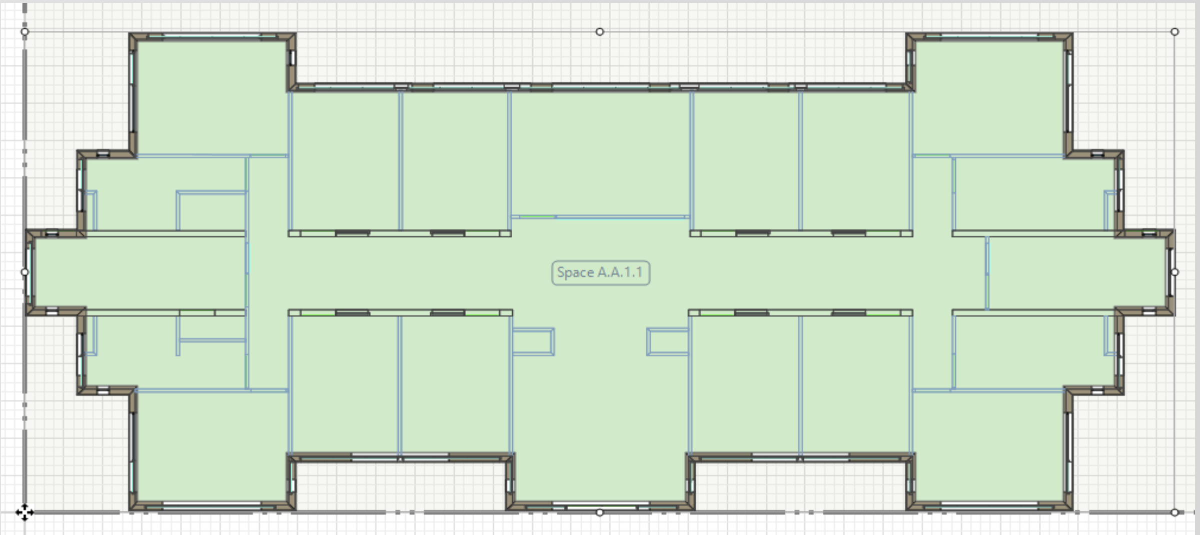
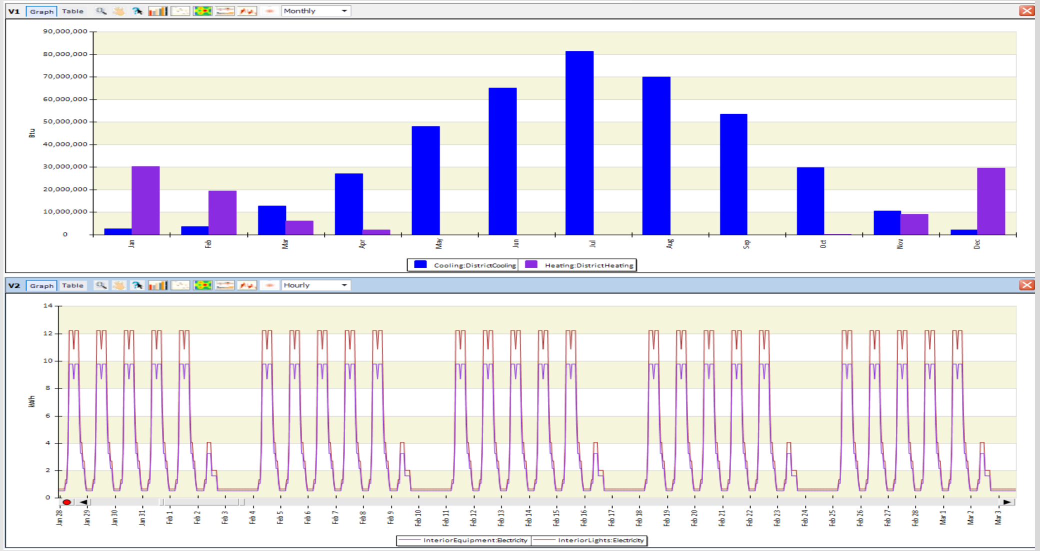




- **external envelope**
- 3 identical floors
- Load calculations
- Look at **monthly heating and cooling** as well as **hourly electricity**



Digital Alchemy
THE BUILDING MODELING EXPERTS

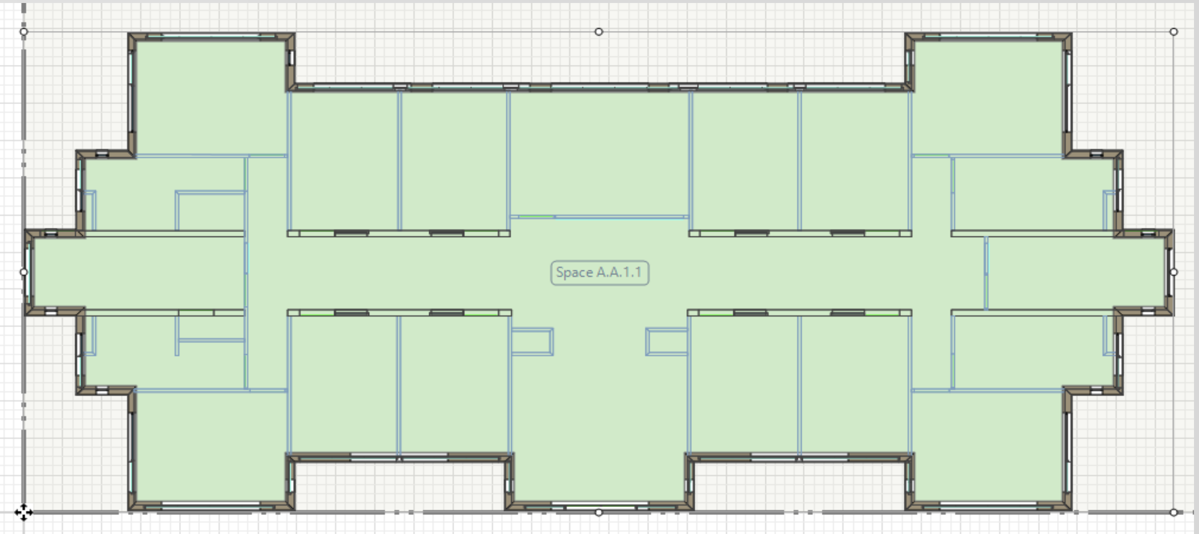
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

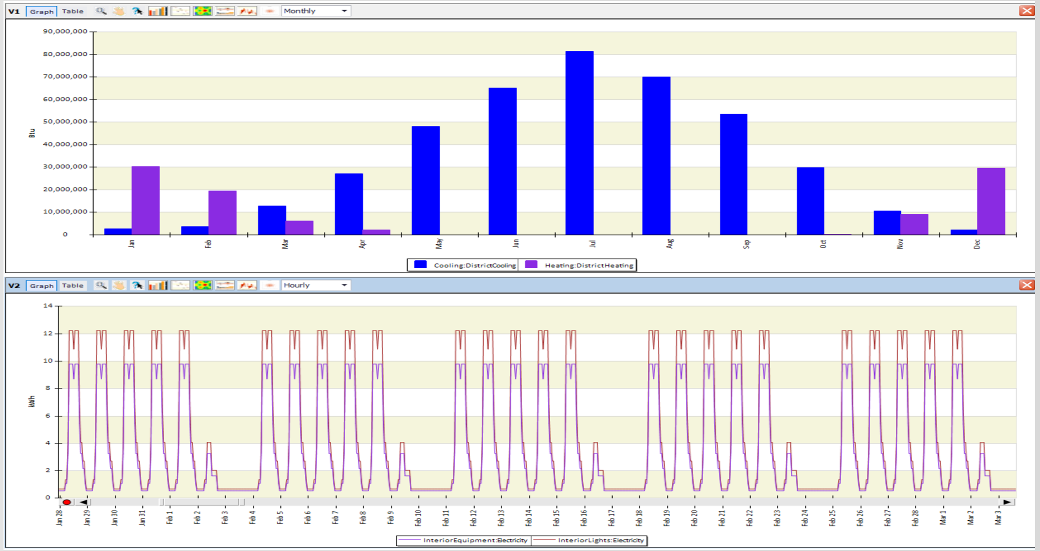
Please complete Lesson 1 now

(see student step by step instructions in handout)

Tobias Maile & Richard See



- **external envelope**
- 3 identical floors
- Load calculations
- Look at **monthly heating and cooling** as well as **hourly electricity**



Digital Alchemy
THE BUILDING MODELING EXPERTS

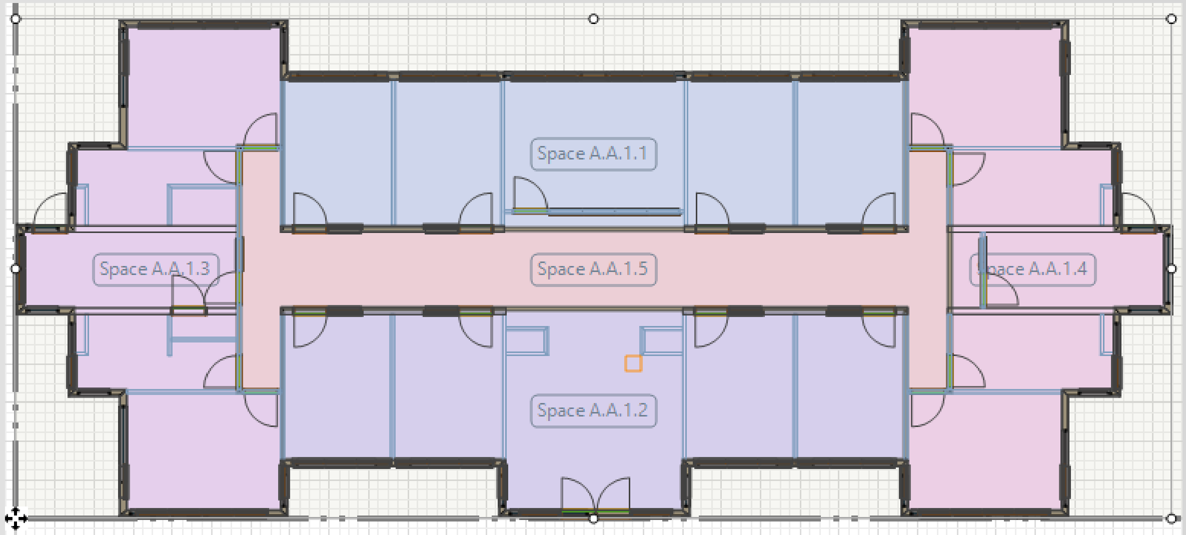
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Lesson 2

DWG Model over – simple geometry

Tobias Maile & Richard See


Space A.A.1.1
Space A.A.1.3
Space A.A.1.5
pace A.A.1.4
Space A.A.1.2

- Adding simplified zoning (internal walls and space seeding)
- Keep it simple yet meaningful

Digital Alchemy
THE BUILDING MODELING EXPERTS

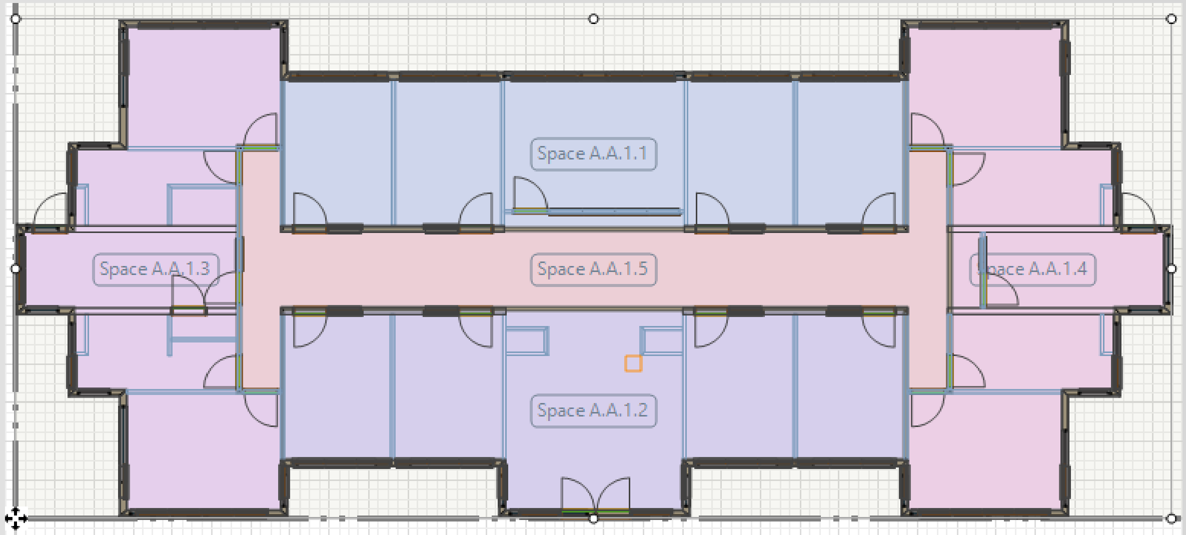
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Please complete Lesson 2 now

(see student step by step instructions in handout)

Tobias Maile & Richard See


Space A.A.1.1
Space A.A.1.3
Space A.A.1.5
pace A.A.1.4
Space A.A.1.2

- Adding simplified zoning (internal walls and space seeding)
- Keep it simple yet meaningful

Digital Alchemy
THE BUILDING MODELING EXPERTS

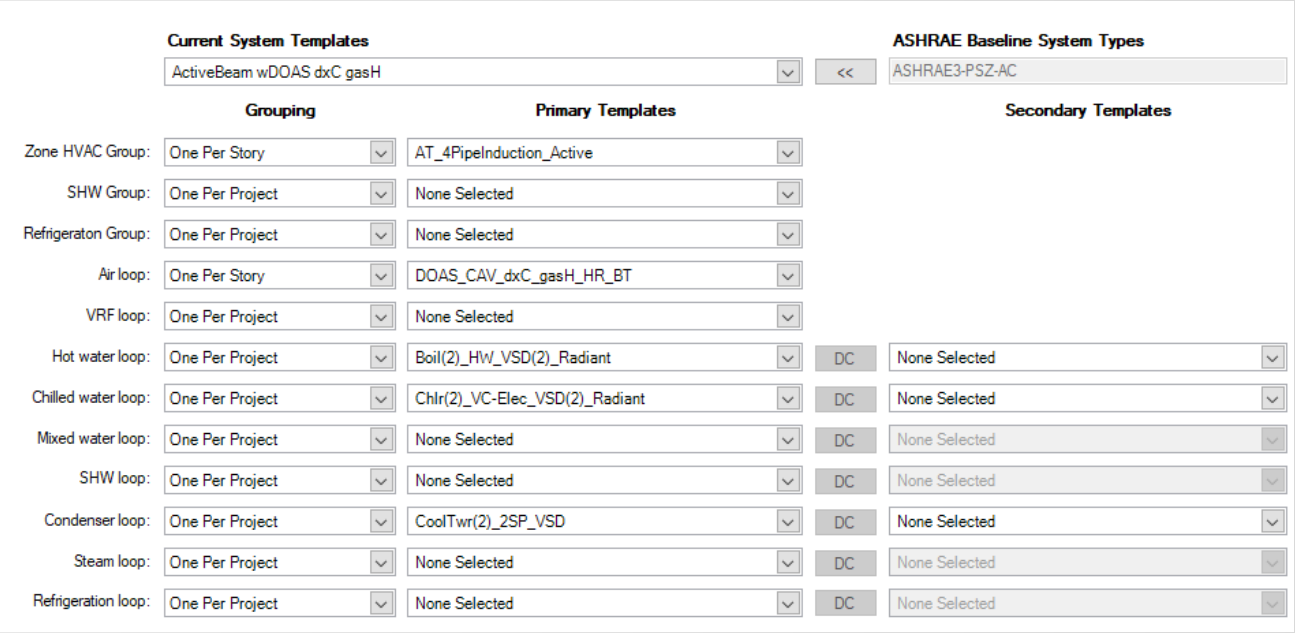
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Lesson 3

Simple HVAC:
Active beam DOAS

Tobias Maile & Richard See

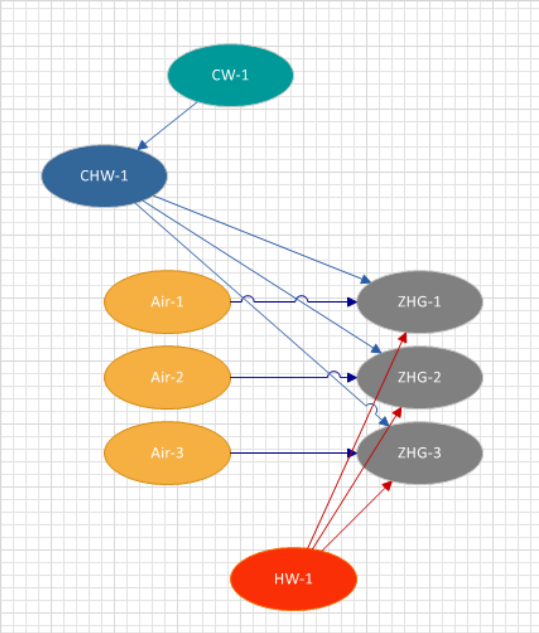


Current System Templates: ActiveBeam wDOAS dxC gasH

<<

ASHRAE Baseline System Types: ASHRAE3-PSZ-AC

	Grouping	Primary Templates		Secondary Templates
Zone HVAC Group:	One Per Story	AT_4PipeInduction_Active		
SHW Group:	One Per Project	None Selected		
Refrigeraton Group:	One Per Project	None Selected		
Air loop:	One Per Story	DOAS_CAV_dxC_gasH_HR_BT		
VRF loop:	One Per Project	None Selected		
Hot water loop:	One Per Project	Boil(2)_HW_VSD(2)_Radiant	DC	None Selected
Chilled water loop:	One Per Project	Chlr(2)_VC-Elec_VSD(2)_Radiant	DC	None Selected
Mixed water loop:	One Per Project	None Selected	DC	None Selected
SHW loop:	One Per Project	None Selected	DC	None Selected
Condenser loop:	One Per Project	CoolTwr(2)_2SP_VSD	DC	None Selected
Steam loop:	One Per Project	None Selected	DC	None Selected
Refrigeration loop:	One Per Project	None Selected	DC	None Selected



HVAC system: Active beam with DOAS (gas heating and dx cooling)

- Use system creator to generate Active Beam system

Digital Alchemy
THE BUILDING MODELING EXPERTS

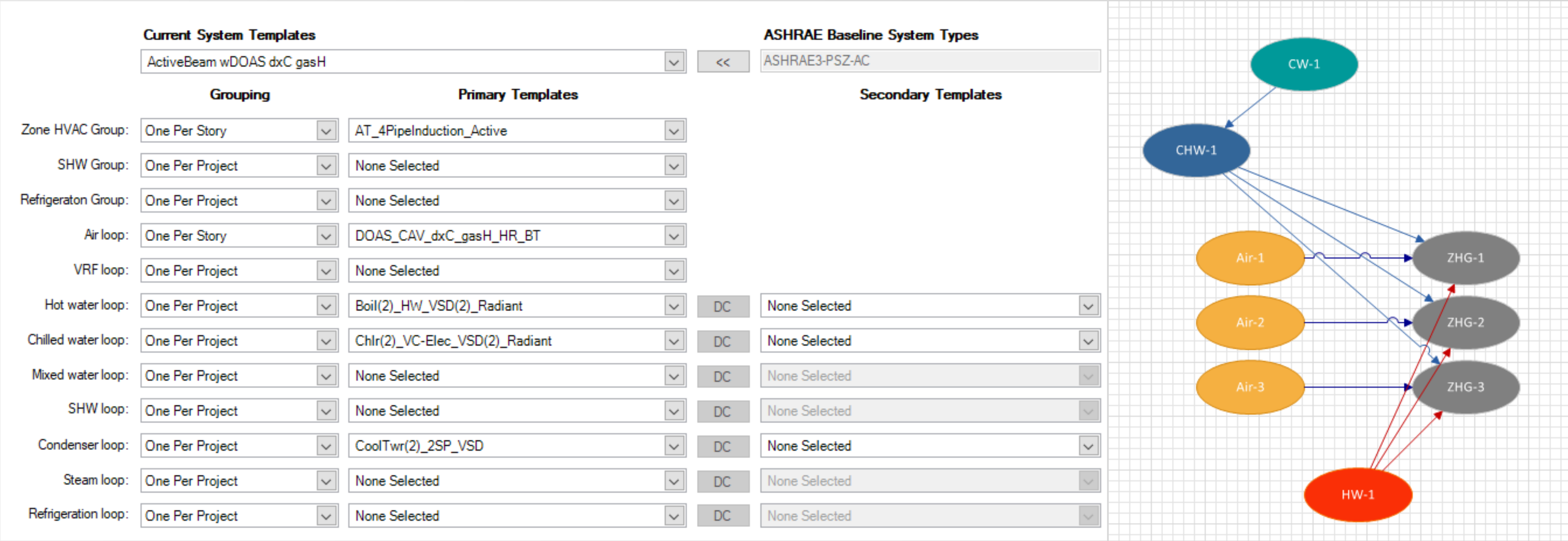
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Please complete Lesson 3 now

(see student step by step instructions in handout)

Tobias Maile & Richard See



Current System Templates: ActiveBeam wDOAS dxC gasH

ASHRAE Baseline System Types: ASHRAE3-PSZ-AC

	Grouping	Primary Templates		Secondary Templates
Zone HVAC Group:	One Per Story	AT_4PipeInduction_Active		
SHW Group:	One Per Project	None Selected		
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Air loop:	One Per Story	DOAS_CAV_dxC_gasH_HR_BT		
VRF loop:	One Per Project	None Selected		
Hot water loop:	One Per Project	Boil(2)_HW_VSD(2)_Radiant	DC	None Selected
Chilled water loop:	One Per Project	Chlr(2)_VC-Elec_VSD(2)_Radiant	DC	None Selected
Mixed water loop:	One Per Project	None Selected	DC	None Selected
SHW loop:	One Per Project	None Selected	DC	None Selected
Condenser loop:	One Per Project	CoolTwr(2)_2SP_VSD	DC	None Selected
Steam loop:	One Per Project	None Selected	DC	None Selected
Refrigeration loop:	One Per Project	None Selected	DC	None Selected

HVAC system: Active beam with DOAS (gas heating and dx cooling)

- Use system creator to generate Active Beam system

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

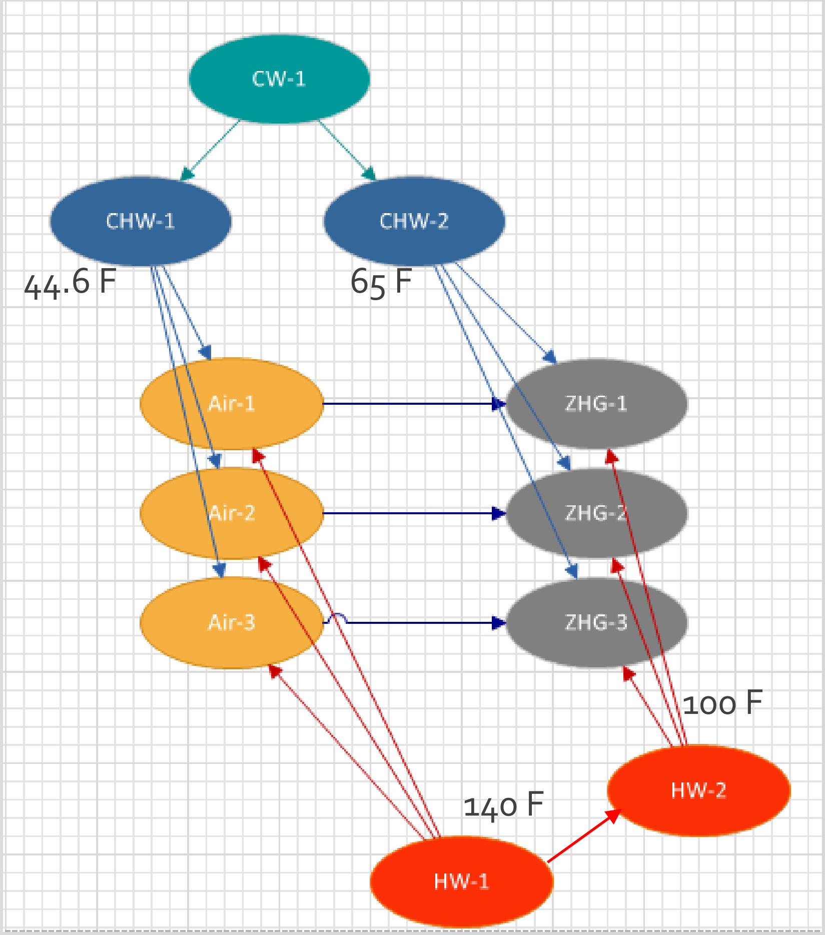
Lesson 4

Detailed HVAC:
Active beam DOAS

Tobias Maile & Richard See

HVAC system: Active beam with DOAS (water heating and cooling)

- Change DOAS from
  - gas to water heating
  - DX to water cooling
- Add two more water loops


CW-1
CHW-1
CHW-2
44.6 F
65 F
Air-1
ZHG-1
Air-2
ZHG-2
Air-3
ZHG-3
100 F
140 F
HW-2
HW-1

Digital Alchemy
THE BUILDING MODELING EXPERTS

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

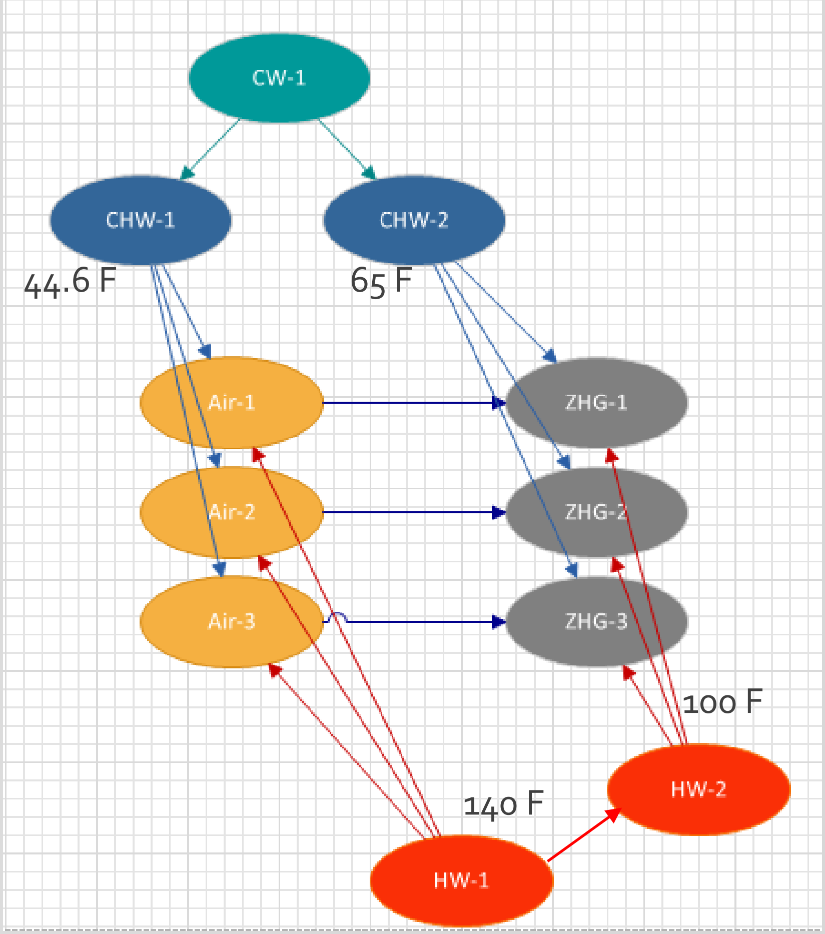
Please complete Lesson 4 now

(see student step by step instructions in handout)

Tobias Maile & Richard See

HVAC system: Active beam with DOAS (water heating and cooling)

- Change DOAS from
  - gas to water heating
  - DX to water cooling
- Add two more water loops


CW-1
CHW-1
CHW-2
44.6 F
65 F
Air-1
Air-2
Air-3
ZHG-1
ZHG-2
ZHG-3
100 F
140 F
HW-1
HW-2

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THE BUILDING MODELING EXPERTS

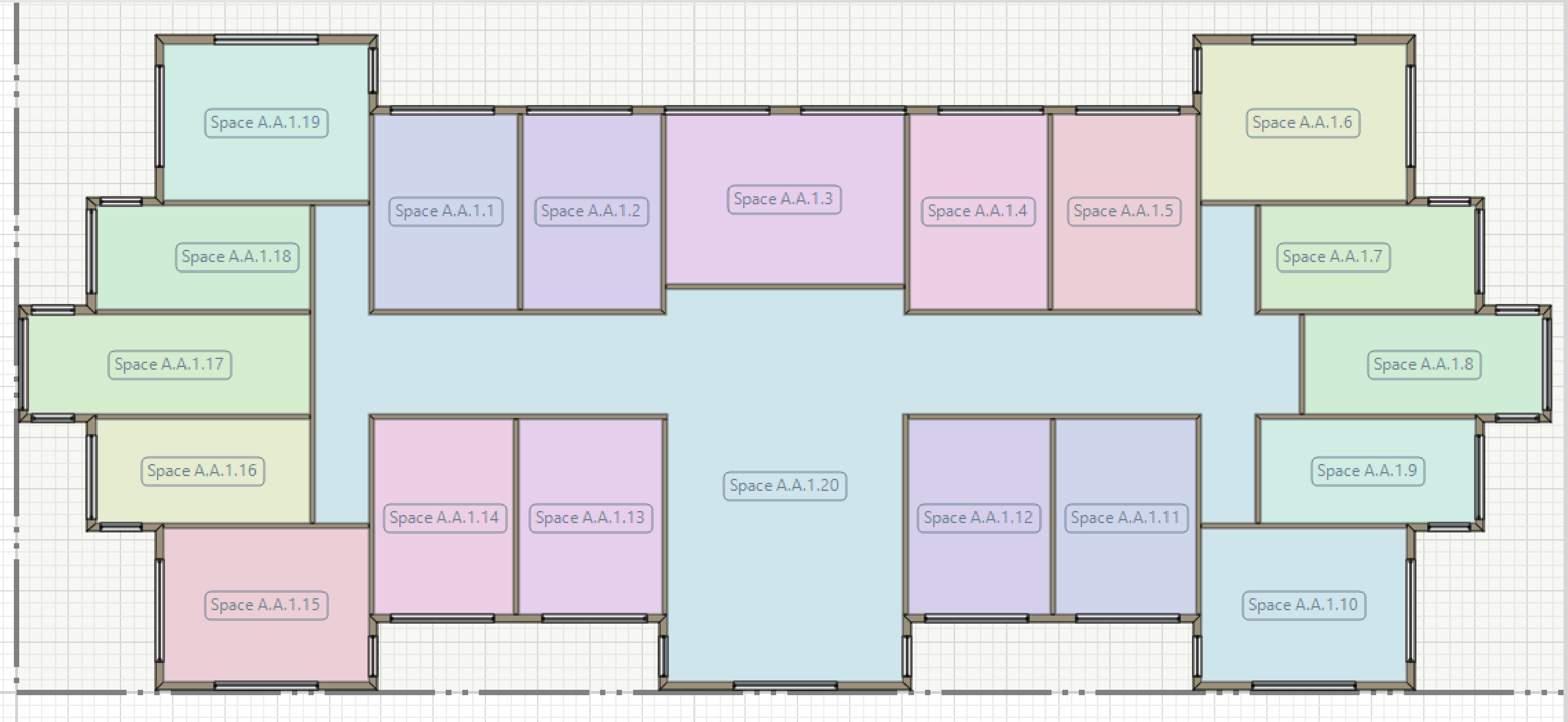
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

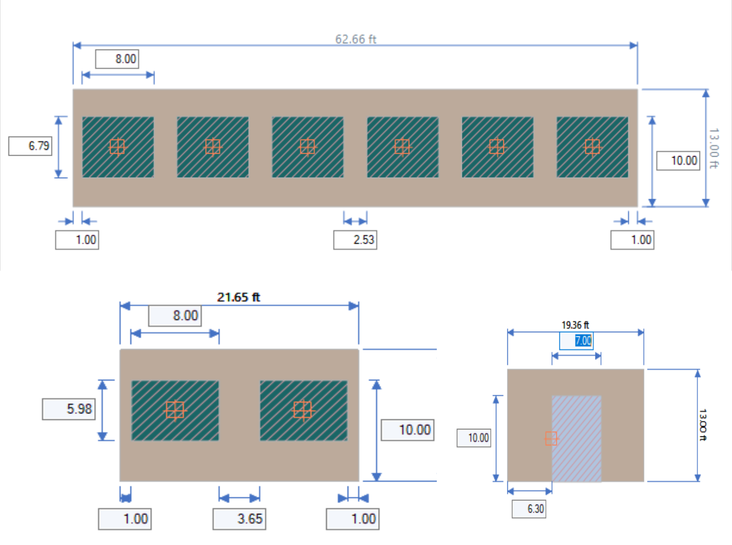
Lesson 5

DWG Model over – advanced geometry

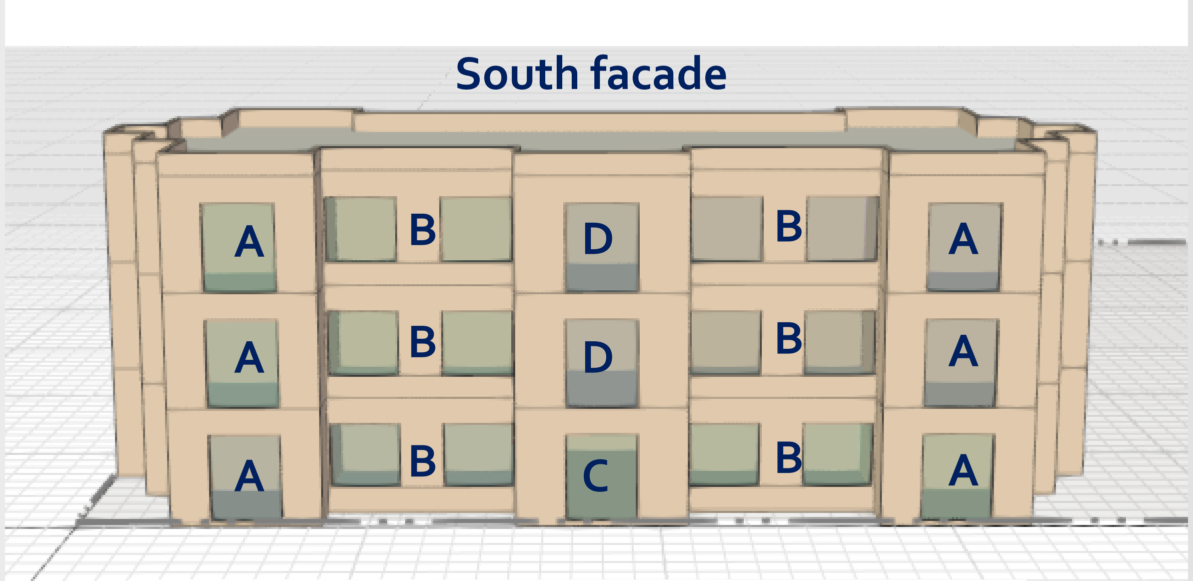
Tobias Maile & Richard See

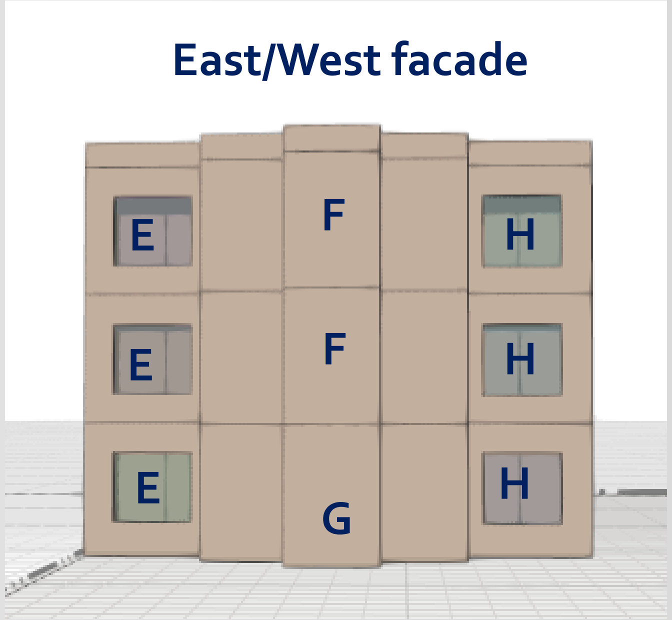

Space A.A.1.19
Space A.A.1.1
Space A.A.1.2
Space A.A.1.3
Space A.A.1.4
Space A.A.1.5
Space A.A.1.6
Space A.A.1.18
Space A.A.1.7
Space A.A.1.17
Space A.A.1.8
Space A.A.1.16
Space A.A.1.20
Space A.A.1.9
Space A.A.1.14
Space A.A.1.13
Space A.A.1.12
Space A.A.1.11
Space A.A.1.15
Space A.A.1.10

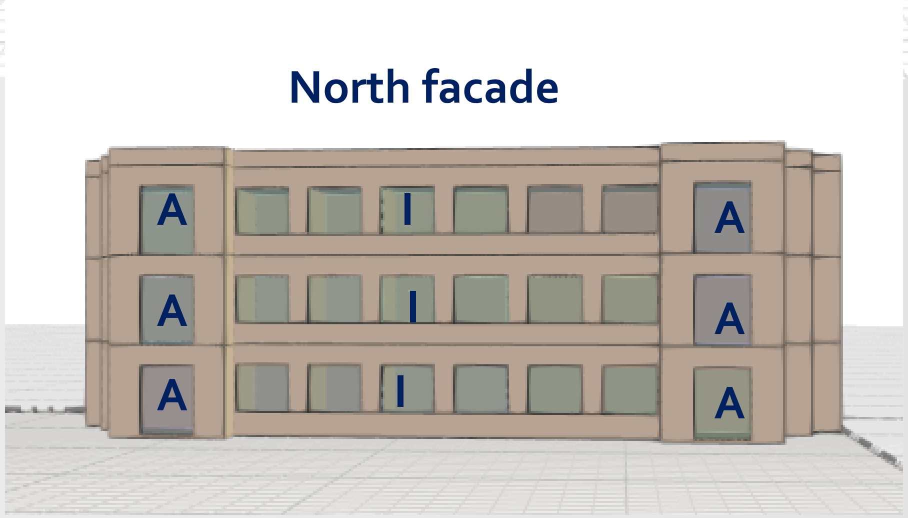
1. **Adding more detail**
   - internal walls
   - actual spaces
   - zoning
   - two different floor layouts
2. **Detailed openings**
   - windows and doors


62.66 ft
8.00
6.79
10.00
13.00 ft
1.00
2.53
1.00
21.65 ft
8.00
5.98
10.00
1.00
3.65
1.00
19.36 ft
7.00
10.00
13.00 ft
6.30

Facades


South facade
A
B
D
B
A
A
B
D
B
A
A
B
C
B
A


East/West facade


North facade

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THE BUILDING MODELING EXPERTS

Digital Alchemy
THE BUILDING MODELING EXPERTS

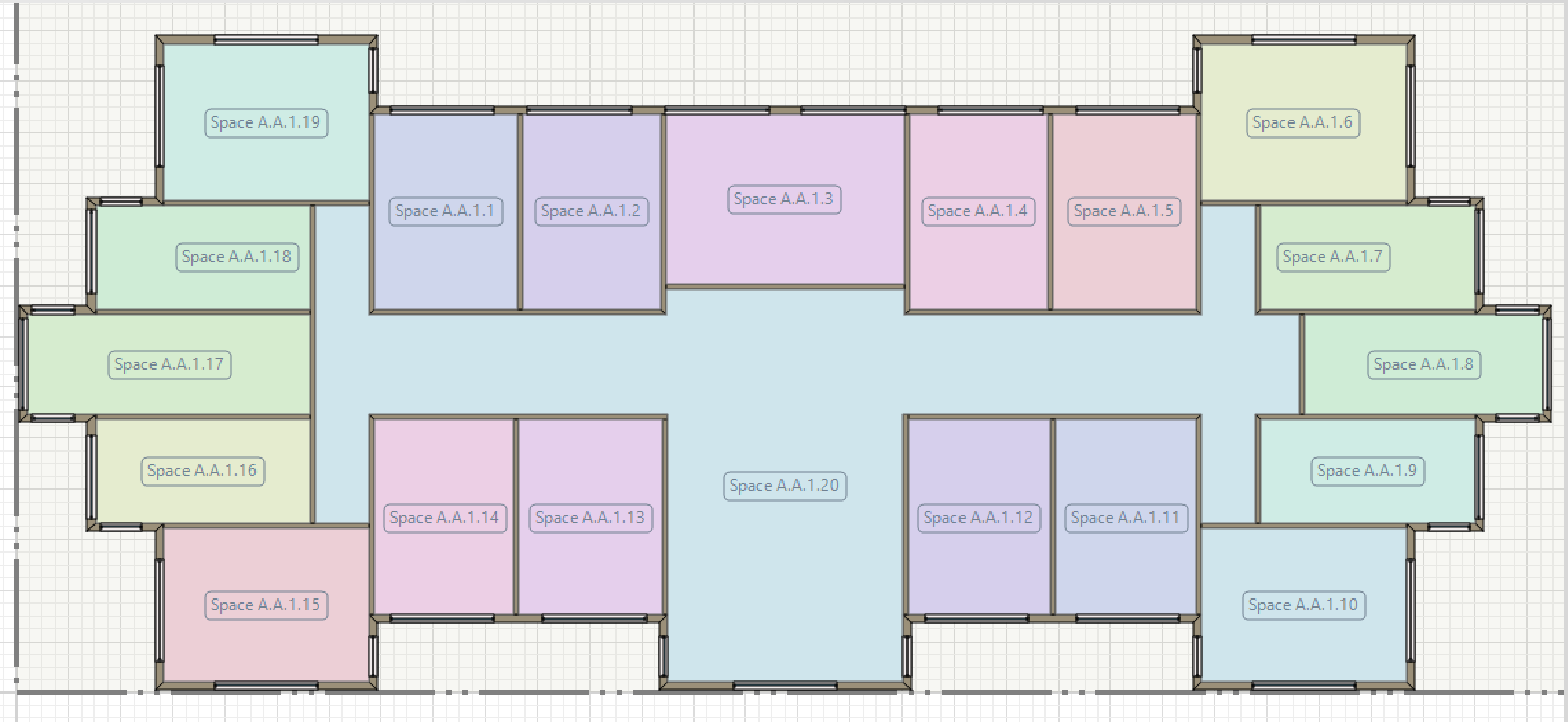
Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

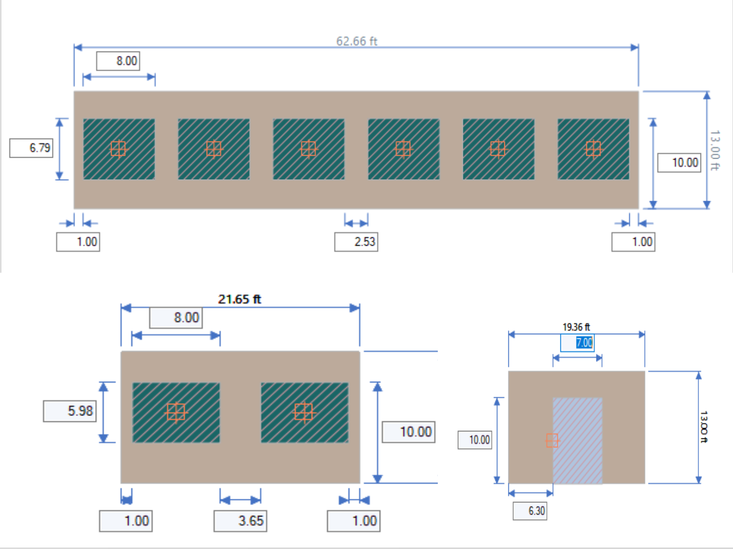
Please complete Lesson 5 now

(see student step by step instructions in handout)

Tobias Maile & Richard See


Space A.A.1.19
Space A.A.1.1
Space A.A.1.2
Space A.A.1.3
Space A.A.1.4
Space A.A.1.5
Space A.A.1.6
Space A.A.1.18
Space A.A.1.7
Space A.A.1.17
Space A.A.1.8
Space A.A.1.16
Space A.A.1.9
Space A.A.1.14
Space A.A.1.13
Space A.A.1.20
Space A.A.1.12
Space A.A.1.11
Space A.A.1.15
Space A.A.1.10

1. **Adding more detail**
   - internal walls
   - actual spaces
   - zoning
   - two different floor layouts
2. **Detailed openings**
   - windows and doors


62.66 ft
8.00
6.79
10.00
13.00 ft
1.00
2.53
1.00
21.65 ft
8.00
5.98
10.00
1.00
3.65
1.00
19.36 ft
7.00
10.00
13.00 ft
6.30

Digital Alchemy
THE BUILDING MODELING EXPERTS

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

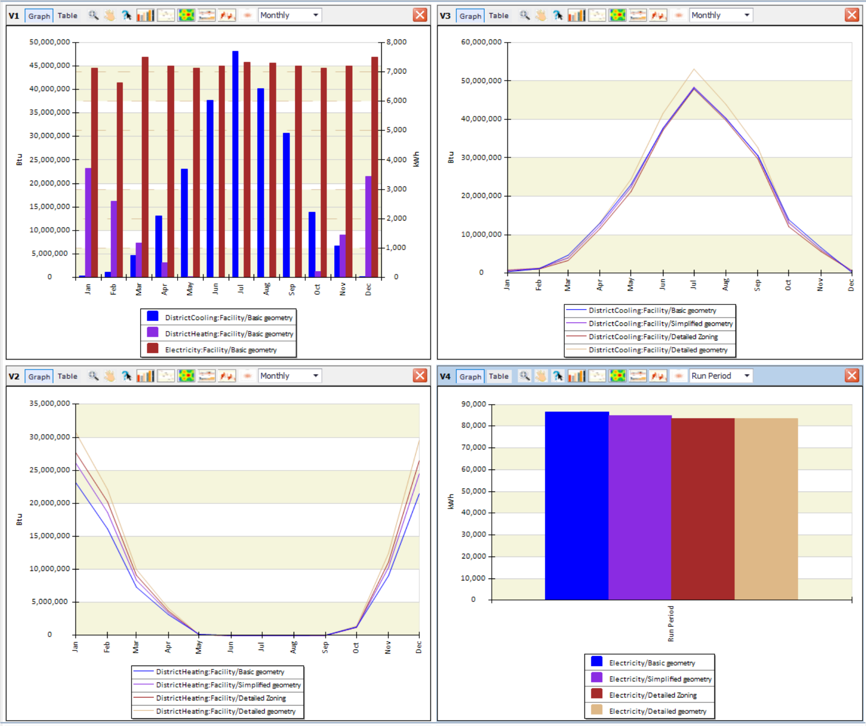
Lesson 6

Results visualization

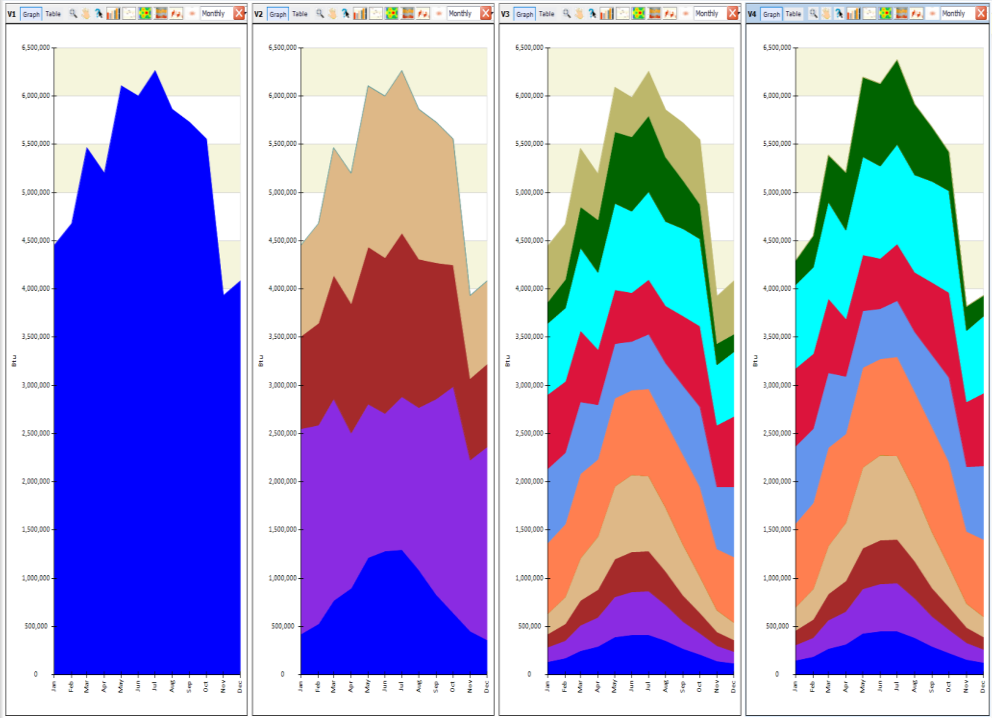
Tobias Maile & Richard See

Result visualization

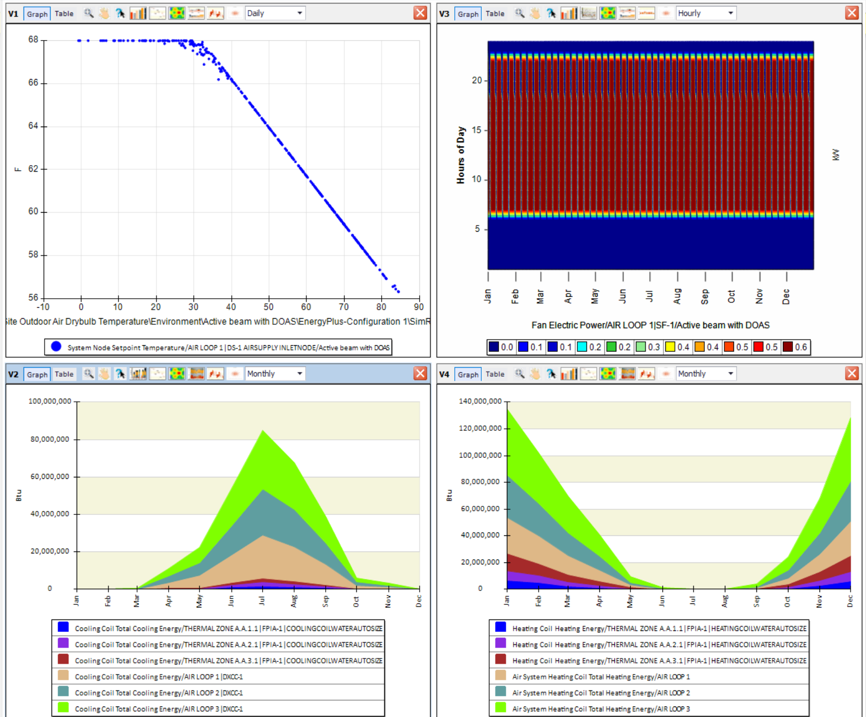
1. How do the different geometry models compare?
2. Is there a difference in solar radiation between the 4 geometric alternatives?
3. Are the air loops working as expected in the active beam system?
4. Are the water loops behaving as anticipated in the water-based system?



V1 Graph Table Monthly
Btu
kWh
DistrictCooling:Facility/Basic geometry
DistrictHeating:Facility/Basic geometry
Electricity:Facility/Basic geometry
V3 Graph Table Monthly
DistrictCooling:Facility/Basic geometry
DistrictCooling:Facility/Simplified geometry
DistrictCooling:Facility/Detailed Zoning
DistrictCooling:Facility/Detailed geometry
V2 Graph Table Monthly
DistrictHeating:Facility/Basic geometry
DistrictHeating:Facility/Simplified geometry
DistrictHeating:Facility/Detailed Zoning
DistrictHeating:Facility/Detailed geometry
V4 Graph Table Run Period
Run Period
Electricity/Basic geometry
Electricity/Simplified geometry
Electricity/Detailed Zoning
Electricity/Detailed geometry
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



V1 Graph Table Monthly
V2 Graph Table Monthly
V3 Graph Table Monthly
V4 Graph Table Monthly
Btu
6,500,000
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



V1 Graph Table Daily
F
68
66
64
62
60
58
56
-10 0 10 20 30 40 50 60 70 80 90
Site Outdoor Air Drybulb Temperature\Environment\Active beam with DOAS\EnergyPlus-Configuration 1\SimR
System Node Setpoint Temperature/AIR LOOP 1|DS-1 AIRSUPPLY INLETNODE/Active beam with DOAS
V3 Graph Table Hourly
Hours of Day
kW
Fan Electric Power/AIR LOOP 1|SF-1/Active beam with DOAS
0.0 0.1 0.1 0.2 0.2 0.3 0.4 0.4 0.5 0.5 0.6
V2 Graph Table Monthly
Btu
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.1.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.2.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.3.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/AIR LOOP 1|DXCC-1
Cooling Coil Total Cooling Energy/AIR LOOP 2|DXCC-1
Cooling Coil Total Cooling Energy/AIR LOOP 3|DXCC-1
V4 Graph Table Monthly
Heating Coil Heating Energy/THERMAL ZONE A.A.1.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Heating Coil Heating Energy/THERMAL ZONE A.A.2.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Heating Coil Heating Energy/THERMAL ZONE A.A.3.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Air System Heating Coil Total Heating Energy/AIR LOOP 1
Air System Heating Coil Total Heating Energy/AIR LOOP 2
Air System Heating Coil Total Heating Energy/AIR LOOP 3
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Digital Alchemy
THE BUILDING MODELING EXPERTS

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Please complete Lesson 6 now

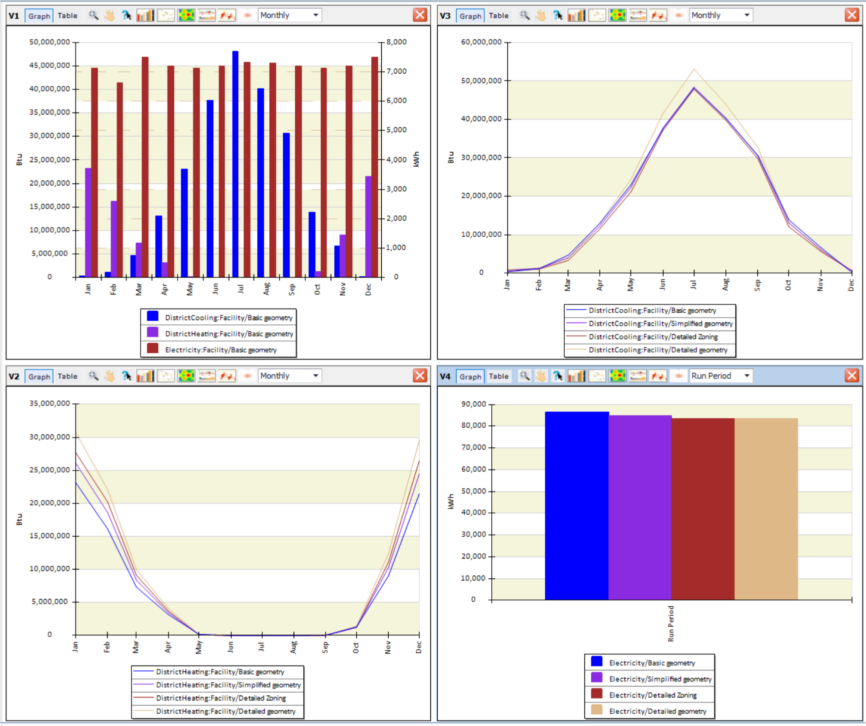
(see student step by step instructions in handout)

Tobias Maile & Richard See

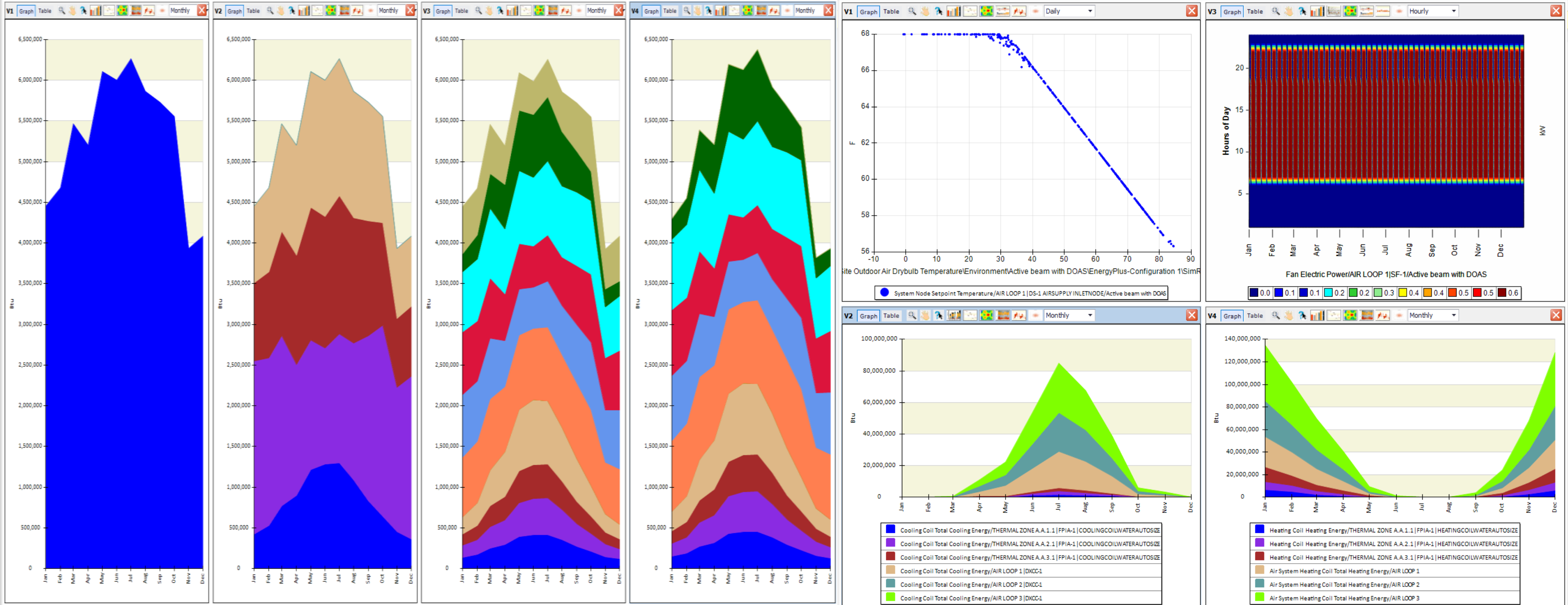
Result visualization

Create

- Bar charts
- Surface plots
- Area plots
- Line plots
- Carpet plots
- Etc.



V1 Graph Table Monthly
DistrictCooling:Facility/Basic geometry
DistrictHeating:Facility/Basic geometry
Electricity:Facility/Basic geometry
V3 Graph Table Monthly
DistrictCooling:Facility/Basic geometry
DistrictCooling:Facility/Simplified geometry
DistrictCooling:Facility/Detailed Zoning
DistrictCooling:Facility/Detailed geometry
V2 Graph Table Monthly
DistrictHeating:Facility/Basic geometry
DistrictHeating:Facility/Simplified geometry
DistrictHeating:Facility/Detailed Zoning
DistrictHeating:Facility/Detailed geometry
V4 Graph Table Run Period
Electricity/Basic geometry
Electricity/Simplified geometry
Electricity/Detailed Zoning
Electricity/Detailed geometry



V1 Graph Table Daily
Site Outdoor Air Drybulb Temperature\Environment\Active beam with DOAS\EnergyPlus-Configuration 1\SimR
System Node Setpoint Temperature/AIR LOOP 1|DS-1 AIRSUPPLY INLETNODE/Active beam with DOAS
V3 Graph Table Hourly
Hours of Day
Fan Electric Power/AIR LOOP 1|SF-1/Active beam with DOAS
V2 Graph Table Monthly
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.1.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.2.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/THERMAL ZONE A.A.3.1|FPIA-1|COOLINGCOILWATERAUTOSIZE
Cooling Coil Total Cooling Energy/AIR LOOP 1|DXCC-1
Cooling Coil Total Cooling Energy/AIR LOOP 2|DXCC-1
Cooling Coil Total Cooling Energy/AIR LOOP 3|DXCC-1
V4 Graph Table Monthly
Heating Coil Heating Energy/THERMAL ZONE A.A.1.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Heating Coil Heating Energy/THERMAL ZONE A.A.2.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Heating Coil Heating Energy/THERMAL ZONE A.A.3.1|FPIA-1|HEATINGCOILWATERAUTOSIZE
Air System Heating Coil Total Heating Energy/AIR LOOP 1
Air System Heating Coil Total Heating Energy/AIR LOOP 2
Air System Heating Coil Total Heating Energy/AIR LOOP 3

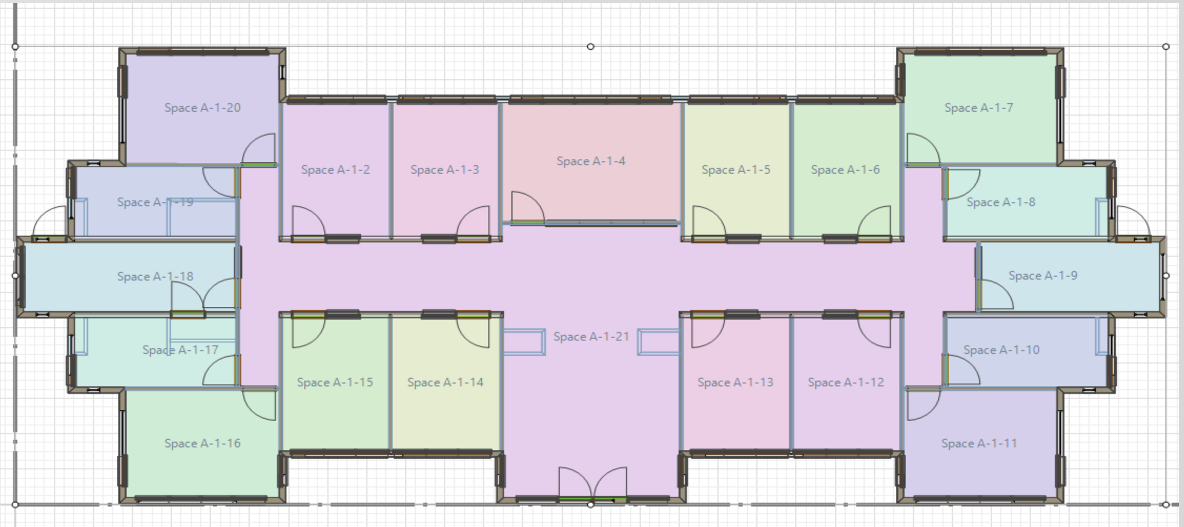
Digital Alchemy
THE BUILDING MODELING EXPERTS

Simergy 102

DWG Model-Over
Editing HVAC Loops
Results Visualization

Looking Ahead

Tobias Maile & Richard See


Space A-1-20
Space A-1-2
Space A-1-3
Space A-1-4
Space A-1-5
Space A-1-6
Space A-1-7
Space A-1-19
Space A-1-8
Space A-1-18
Space A-1-9
Space A-1-17
Space A-1-21
Space A-1-10
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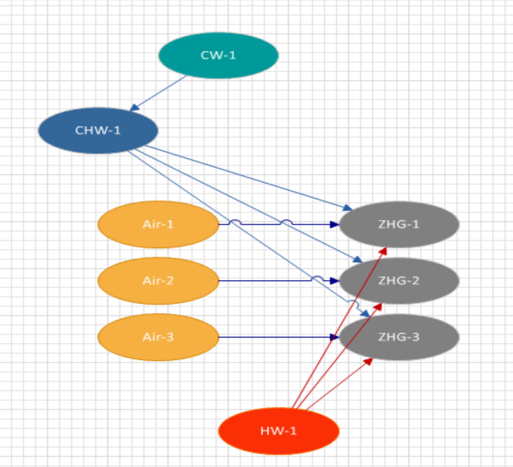
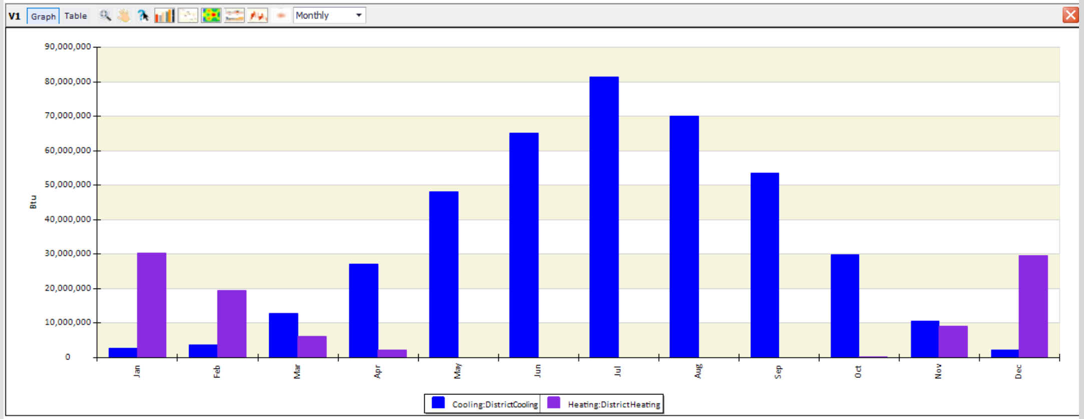
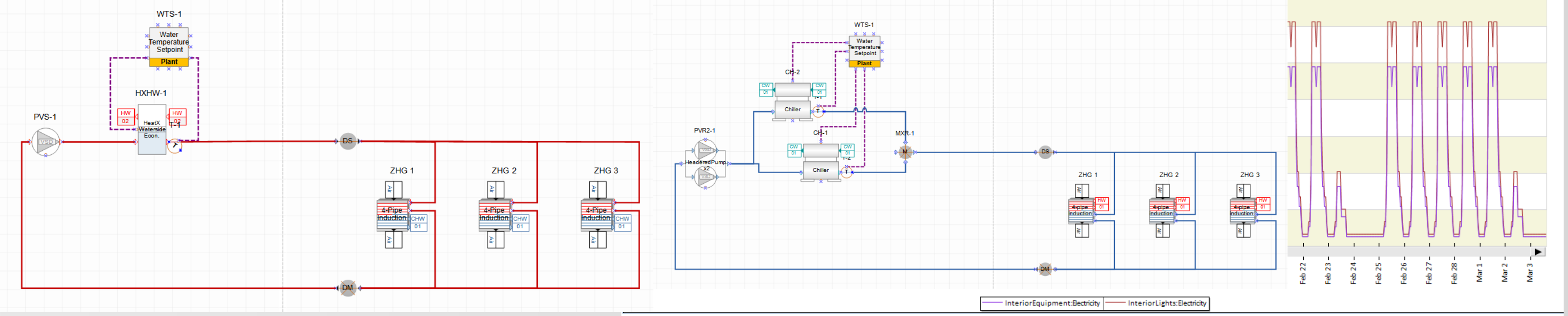
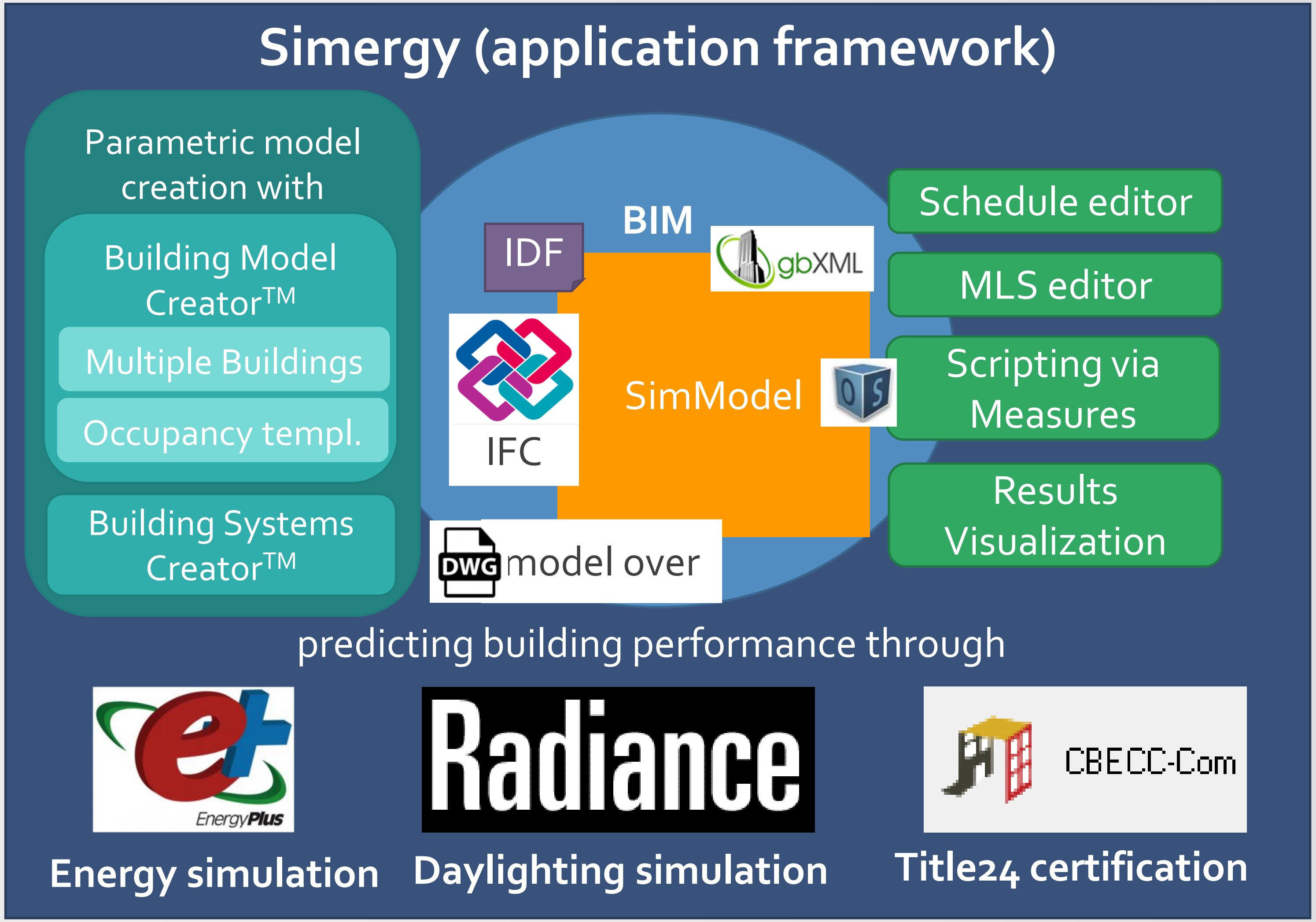
Space A-1-14
Space A-1-13
Space A-1-12
Space A-1-16
Space A-1-11


CW-1
CHW-1
Air-1
Air-2
Air-3
ZHG-1
ZHG-2
ZHG-3
HW-1




V2
Graph
Table
Hourly
14
WTS-1
Water Temperature Setpoint
Plant
HXHW-1
HeatX Waterside Econ
PVS-1
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-Pipe Induction
CH-2
CH-1
Chiller
PVR2-1
HeaderedPump
MXR-1
M
Feb 22
Feb 23
Feb 24
Feb 25
Feb 26
Feb 27
Feb 28
Mar 1
Mar 2
Mar 3
InteriorEquipment:Electricity
InteriorLights:Electricity

New features in Simergy 4.0



Simergy (application framework)

Parametric model creation with

Building Model Creator™

Multiple Buildings

Occupancy templ.

Building Systems Creator™

BIM

IDF

gbXML

IFC

SimModel

DWG model over

Schedule editor

MLS editor

Scripting via Measures

Results Visualization

predicting building performance through

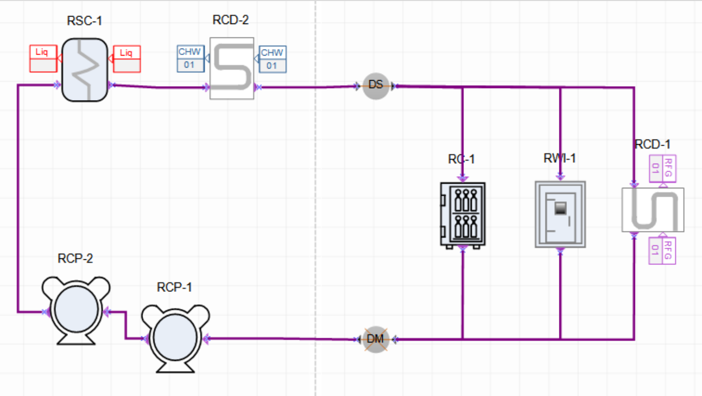
EnergyPlus
Radiance
CBECC-Com

Energy simulation

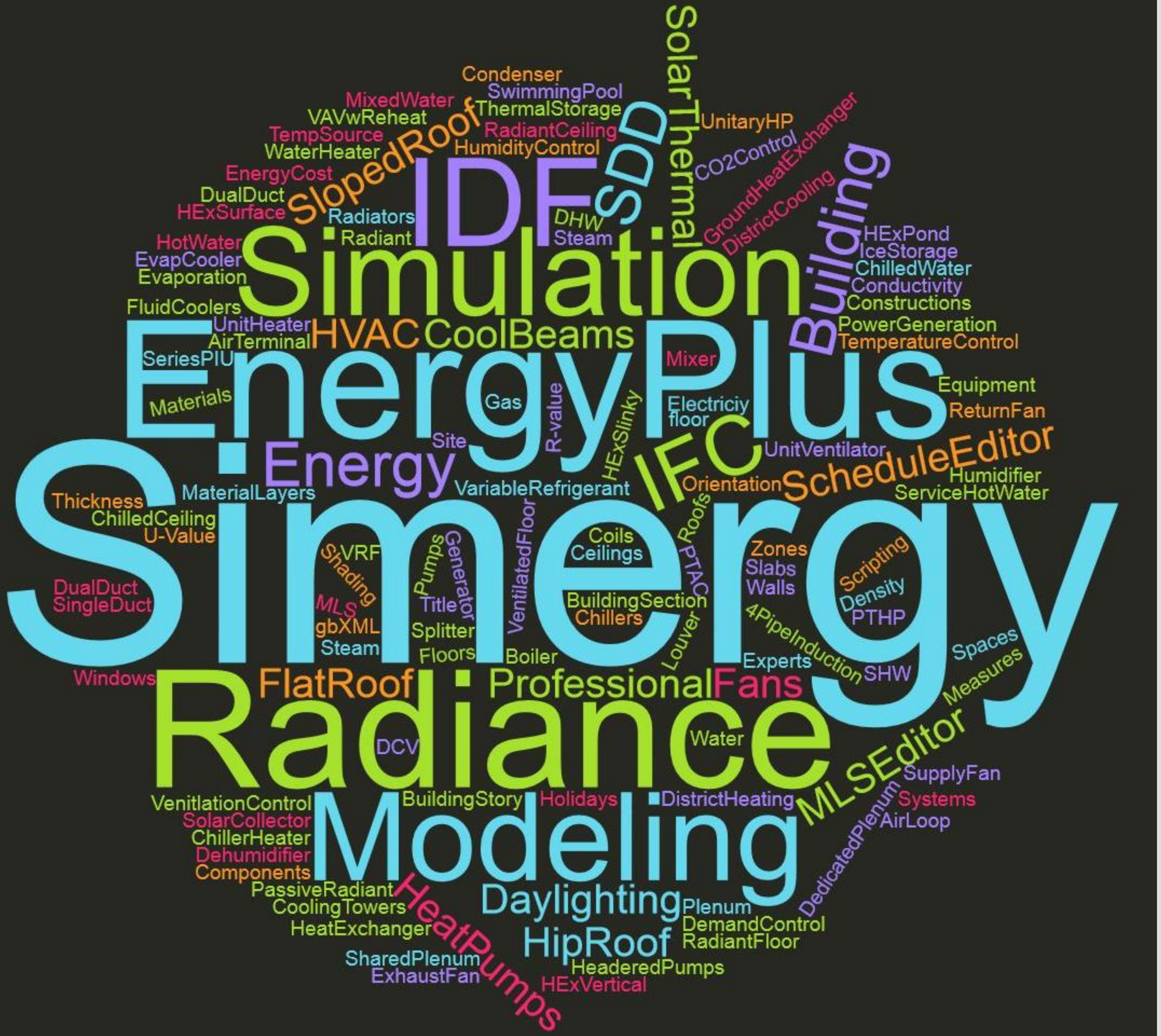
Daylighting simulation

Title24 certification

1. Support for EnergyPlus V9.2
2. Support for additional HVAC components (e.g., more heat exchanger)
3. Support for refrigeration loops

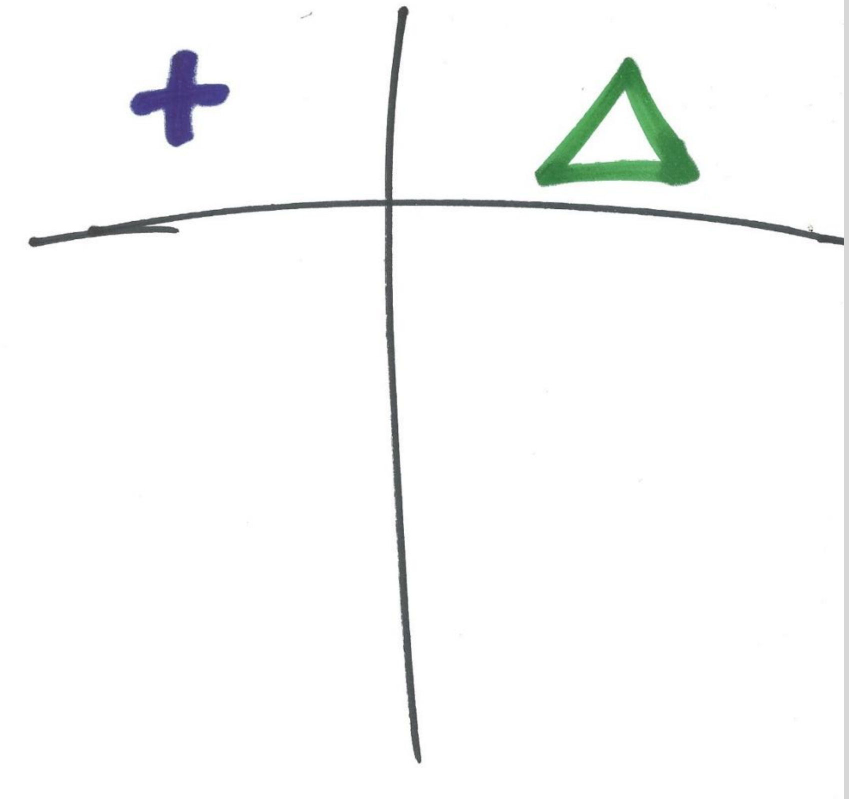

RSC-1
RCD-2
Liq
Liq
CHW 01
CHW 01
DS
RC-1
RWI-1
RCD-1
RFG 01
RFG 01
RCP-2
RCP-1
DM

4. Improved and faster IDF import
5. Improved Building Creator (e.g., zone ceiling/floor configurations)
6. Improved startup time/dashboard
7. Improved unit testing
8. Enhanced System Creator (sec. loops)
9. Location driven construction (based on climate zone)
10. More online content (e.g., FAQs)


Condenser
SwimmingPool
MixedWater
ThermalStorage
VAVwReheat
RadiantCeiling
TempSource
HumidityControl
WaterHeater
SolarThermal
SDD
UnitaryHP
CO2Control
GroundHeatExchanger
DistrictCooling
SlopedRoof
EnergyCost
DualDuct
HExSurface
IDF
Radiators
DHW
Steam
Radiant
HotWater
EvapCooler
Evaporation
Building
HExPond
IceStorage
ChilledWater
Conductivity
Constructions
Simulation
FluidCoolers
UnitHeater
AirTerminal
HVAC
CoolBeams
PowerGeneration
TemperatureControl
SeriesPIU
EnergyPlus
Mixer
Materials
Gas
R-value
HExSlinky
Electriciy
floor
Equipment
ReturnFan
Site
Energy
IFC
UnitVentilator
ScheduleEditor
Humidifier
MaterialLayers
VariableRefrigerant
Orientation
ServiceHotWater
Thickness
ChilledCeiling
U-Value
Simergy
VRF
Shading
Pumps
Generator
VentilatedFloor
Coils
Ceilings
Roofs
PTAC
Zones
Slabs
Walls
Scripting
Density
PTHP
DualDuct
SingleDuct
MLS
Title
gbXML
BuildingSection
Chillers
Splitter
4PipeInduction
Steam
Floors
Boiler
Louver
Experts
SHW
Spaces
Measures
Windows
FlatRoof
Professional
Fans
Radiance
Water
DCV
MLSEditor
SupplyFan
VenitlationControl
BuildingStory
Holidays
DistrictHeating
Systems
SolarCollector
DedicatedPlenum
AirLoop
ChillerHeater
Dehumidifier
Components
Modeling
PassiveRadiant
CoolingTowers
Daylighting
Plenum
HeatExchanger
HeatPumps
DemandControl
SharedPlenum
HipRoof
RadiantFloor
ExhaustFan
HeaderedPumps
HExVertical

Feedback and/or Questions?

- New website: d-alchemy.com
- Email support: Support@D-Alchemy.com
- Topics you would need help with?



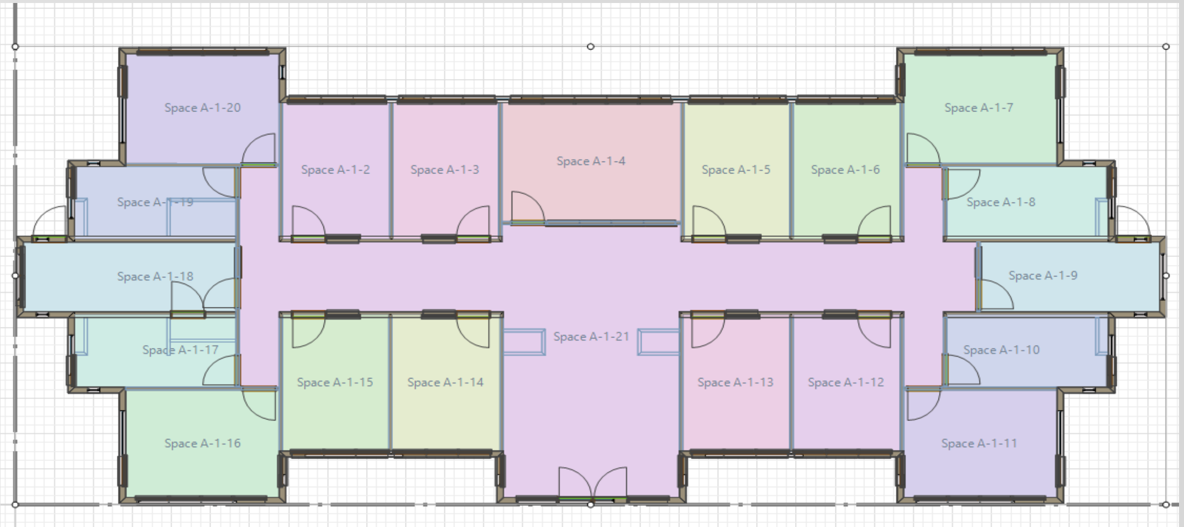
Digital Alchemy
THE BUILDING MODELING EXPERTS

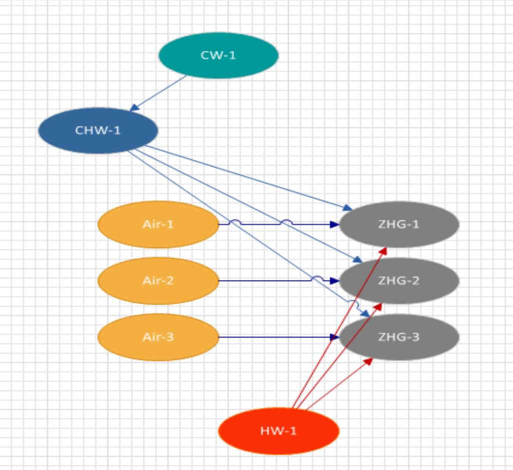
Simergy 102

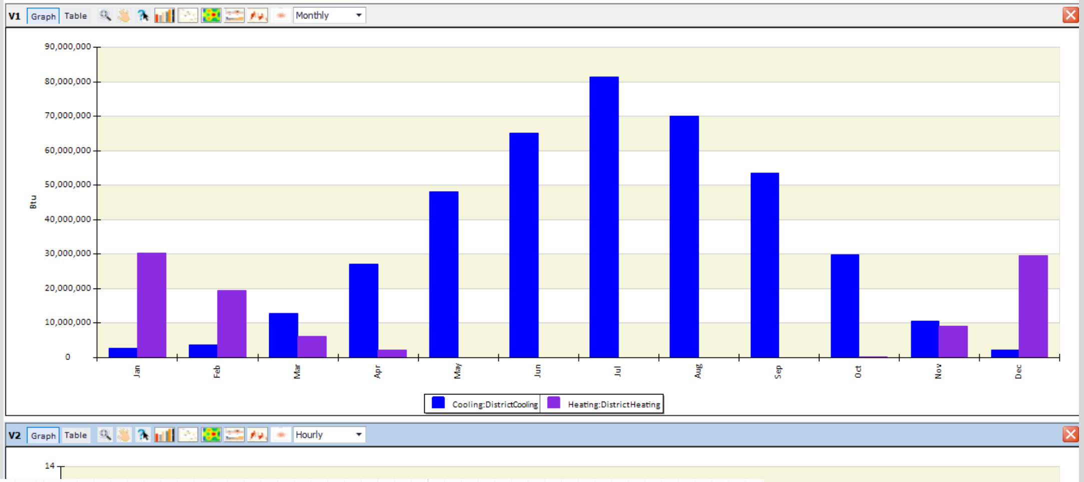
DWG Model-Over
Editing HVAC Loops
Results Visualization

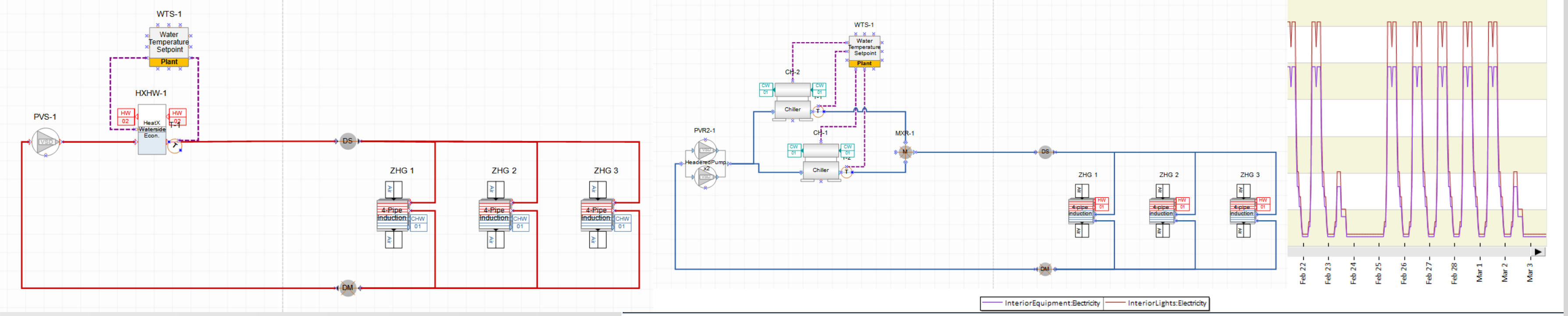
You have completed the class. Congratulations.

Tobias Maile & Richard See


Space A-1-20
Space A-1-2
Space A-1-3
Space A-1-4
Space A-1-5
Space A-1-6
Space A-1-7
Space A-1-19
Space A-1-8
Space A-1-18
Space A-1-9
Space A-1-17
Space A-1-21
Space A-1-10
Space A-1-15
Space A-1-14
Space A-1-13
Space A-1-12
Space A-1-16
Space A-1-11


CW-1
CHW-1
Air-1
Air-2
Air-3
ZHG-1
ZHG-2
ZHG-3
HW-1




WTS-1
Water Temperature Setpoint
Plant
HXHW-1
HW 02
HeatX Waterside Econ.
PVS-1
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-Pipe Induction
CHW 01
WTS-1
Water Temperature Setpoint
Plant
CH-2
Chiller
CH-1
Chiller
PVR2-1
HeaderedPumps
MXR-1
DS
DM
ZHG 1
ZHG 2
ZHG 3
4-pipe Induction
HW 01
Feb 22
Feb 23
Feb 24
Feb 25
Feb 26
Feb 27
Feb 28
Mar 1
Mar 2
Mar 3
InteriorEquipment:Electricity
InteriorLights:Electricity