

# **AIA TAP Webinar**

## **Building Programming: Ensuring Owner Requirements**

- “Physical Programming”
- Target Value Design
- Project Examples

# “Physical Programming”

121228-women services draft program.xls (Compatibility Mode) - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Developer Bluebeam

Clipboard Font Alignment Number Styles

Normal Bad Good Neutral Calculation

Check Cell Explanatory T... Followed Hyp... Hyperlink Input

AutoSum Fill Sort & Find & Filter Select

Clear Clear

Create PDF Change Settings Batch PDF Bluebeam

A31 public

SERVICE COLLECTION ROOM AREA NUMBER AREA TOTAL AIA

public D:\Profiler - Z\...Cox Bed Tower Rev 12.0.m

File Edit Costing View Windows Tools Reports Analysis Help

Start Page Spatial View Estimate View Line Items View

Representation: Normal

Project: Sites Soils Landscape Detention Parking Circulation Messings Features Slabs Cladding Rooms Mechanical Zones

Drag a column header here to group by that column

Building	Room Designation	Area	Room	Aggregate	Aggregate Cost Per Unit
<input type="checkbox"/> New Bedtower	7 Patient Support	123.96 sqft		\$18,497.73	\$148.50
<input type="checkbox"/> New Bedtower	8 Demising	29821.42 sqft		\$0.00	\$0.00
<input checked="" type="checkbox"/> New Bedtower	9 Med/Surg Room (w/ 8 x 10 Patient Bath ...	673.86 sqft		\$177,991.75	\$189.94

Contributing Line Items

Drag a column header here to group by that column

Classification	Item Num...	Name	Qty. Formula	Quantity	Cost	Unit	Aggregate
<input checked="" type="checkbox"/> C300	0044	Rubber Flooring, Isma (Epoxyresins 2mm)	Area*60	613.86	\$7.00	S.F.	\$4,296.99
<input type="checkbox"/> C300	0043	Hospital Mac General Items	Area	673.86	\$29.00	S.F.	\$19,541.83
<input type="checkbox"/> C300	0045	Gypsum Board, Type X	WallArea+18...	1680.60	\$0.85	S.F.	\$1,428.51
<input type="checkbox"/> C300	0035	Epoxy Flooring	60	60.00	\$8.50	S.F.	\$510.00
<input type="checkbox"/> C100	0031	Medical Wardrobe - 12" x 7"	1	1.00	\$400.00	All	\$400.00
<input type="checkbox"/> C100	0030	Interior Medical 4070 Door/Frame/Hardware (SD)	1	1.00	\$1,250.00	Ea.	\$1,250.00
<input type="checkbox"/> C100	0030	Interior Medical 4070 Door/Frame/Hardware (SD)	1	1.00	\$1,250.00	Ea.	\$1,250.00
<input type="checkbox"/> C100	0029	Crown Mold Type 1	Perimeter	124.00	\$8.00	L.F.	\$992.00
<input type="checkbox"/> C100	0029	Interior Medical 3070 Door/Frame/Hardware	1	1.00	\$750.00	Ea.	\$750.00
<input type="checkbox"/> C100	0028	Paint Drywall Partitions, Epoxy Paint, Interior	WallArea	1355.18	\$1.35	S.F.	\$2,099.50
<input type="checkbox"/> C100	0028	Chair Rail, 1-piece	Perimeter	124.00	\$5.00	L.F.	\$620.00
<input type="checkbox"/> C100	0026	Solid Surface Window Stools	0.25*Perime...	31.00	\$25.00	L.F.	\$775.00
<input type="checkbox"/> C100	0025	Solid Surface Vanity Bowl	1	1.00	\$110.00	Ea.	\$110.00
<input type="checkbox"/> C300	0025	Tape & Bed	WallArea+32...	1956.32	\$5.75	S.F.	\$11,673.28
<input type="checkbox"/> C100	0023	Solid Surface Backsplash - 4"	2*Perimeter	24.80	\$8.00	L.F.	\$198.40
<input type="checkbox"/> C300	0023	Solid Surface Countertops	2*Perimeter...	62.00	\$35.00	S.F.	\$2,170.00
<input type="checkbox"/> C100	0020	Cementitious Board for Wall Areas	32*Height	401.33	\$4.50	S.F.	\$1,806.00
<input type="checkbox"/> C100	0014	Headwall, Hospital, Patient Room	1	1.00	\$1,250.00	Ea.	\$1,250.00
<input type="checkbox"/> C100	0013	Light Gauge Metal Stud Framing, 3-5/8"	WallArea+28...	1906.35	\$1.85	S.F.	\$3,526.75
<input type="checkbox"/> C300	0011	2x2 Frieze Line, 9/16", sq edge tile	Area*60	613.86	\$3.25	S.F.	\$1,995.03
<input type="checkbox"/> D300	0009	HVAC System, Hospital	Area	673.86	\$65.00	S.F.	\$43,800.65
<input type="checkbox"/> C100	0009	Cabinets, Wall Cabinets	27*Perimeter	24.80	\$110.00	L.F.	\$2,728.00
<input type="checkbox"/> C300	0009	Ceramic Tile, Wall	32*8	256.00	\$15.00	S.F.	\$3,840.00
<input type="checkbox"/> C100	0008	Cabinets, Base Cabinets, Countertop Not Included	27*Perimeter	24.80	\$185.00	L.F.	\$4,512.00
<input type="checkbox"/> C300	0008	Gypsum Board Ceilings, Includes Paint	60	60.00	\$5.75	S.F.	\$345.00
<input type="checkbox"/> D300	0007	Electrical Systems, Hospital	Area	673.86	\$30.00	S.F.	\$20,215.80
<input type="checkbox"/> D010	0006	Patient Shower	1	1.00	\$1,250.00	Ea.	\$1,250.00
<input type="checkbox"/> D010	0004	Lavatory	1	1.00	\$850.00	Ea.	\$850.00
<input type="checkbox"/> C100	0004	3x-Wall Blocking, Crash Rails	Perimeter	124.00	\$2.00	L.F.	\$248.00
<input type="checkbox"/> C100	0003	3x-Wall Blocking, Shower/Entrance	Perimeter	124.00	\$2.20	L.F.	\$272.80
<input type="checkbox"/> D010	0002	Water Closet, Carrier, Wall Hung with Flush Valve and Sensor	1	1.00	\$1,000.00	Ea.	\$1,000.00
<input type="checkbox"/> C100	0002	3x-Wall Blocking, Lower Cabinets	27*Perimeter	24.80	\$1.80	L.F.	\$248.40
<input type="checkbox"/> D030	0001	Floor Drains and Traps	1	1.00	\$600.00	Ea.	\$600.00
<input type="checkbox"/> C100	0001	3x-Wall Blocking, Base Cabinets	27*Perimeter	24.80	\$3.00	L.F.	\$274.80

☐ New Bedtower 9 Med/Surg Room (w/ 8 x 8 Patient Bath w/shower) 372.51 sqft \$66,477.93 \$178.46

☐ New Bedtower 9 Med/Surg Room (w/ 8 x 8 Patient Bath w/shower) 372.51 sqft \$66,477.94 \$178.46

☐ New Bedtower 9 Patient Circulation 5972.87 sqft \$176,274.62 \$29.51

☐ New Bedtower 9 Med/Surg Room (w/ 8 x 8 Patient Bath w/shower) 322.37 sqft \$60,331.06 \$187.15

SUM=308064.07 sqft SUM=\$37,317.8... AVG=\$197.22

Record 320 of 361

Hold down the control key (Ctrl), then press and move the left mouse button (LMB) to rotate the camera.

# “Physical Programming”

- Plans/Renderings/Models – Not Spreadsheets
- Define Project data at room level
- Fully scalable for all size projects

# Target Value Design

- Largest constraints faced by the Owner?



- An Integrated approach using Target Value Design allows teams to mitigate risk factors in both and better serve the client

# Where “value engineering” occurs



- Information shared among all team members
- Shared accountability for total project



# Project Startup

2013.09.09 - Project Startup Tool V1.xlsx [Read-Only] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer Bluebeam

Font: Calibri, 9, A, Wrap Text, Merge & Center, Alignment, Number

Styles: Normal, Bad, Good, Neutral, Calculation, Check Cell, Explanatory T..., Input, Linked Cell, Note

Cells: Insert, Delete, Format, AutoSum, Fill, Clear, Sort & Filter, Find & Select, Batch PDF, Bluebeam

PROJECT ESTIMATING/MODELING ASSUMPTIONS

**A10 Foundation Systems**

Geotechnical Report Available: {Drop Down List}

Pad Preparation Type: {Drop Down List}

Foundation System Type: {Drop Down List}

Slab at Grade Type: {Drop Down List}

**A20 Basement System**

Basement Required: {Drop Down List} Basement Depth:

Retention System Required: {Drop Down List} Groundwater Presence: {Drop Down List}

Retention System Type: {Drop Down List}

**B10 Superstructure System**

Elevated Floor Construction: {Drop Down List}

Roof Construction: {Drop Down List}

Fire Protection Requirements: {Drop Down List}

Sheer Design Strategy: {Drop Down List}

**B20 Exterior Enclosures**

General Description:

Backup System Material Type 1:

Material Type 1: {Drop Down List} {Enter %} %

Material Type 2: {Drop Down List} {Enter %} %

Material Type 3: {Drop Down List} {Enter %} %

Material Type 4: {Drop Down List} {Enter %} %

Approximate Solid vs Glazing: {Enter Ratio of Solid to Glazing}

Exterior Canopy Description: {Drop Down List}

Sun Shading Devices - Horizontal: {Drop Down List} Vertical: {Drop Down List}

**B30 Roofing System**

Roofing Material Type 1: {Drop Down List}

Roofing Material Type 2: {Drop Down List}

Mechanical Screening Requirement: {Drop Down List}

Other Roofing Notes: {Enter any additional comments here}

**C10 Interior Construction**

Typ Interior Partition Type: {Drop Down List}

**D10 Conveying Systems**

Elevator Type 1: {Drop Down List} Qty: {Enter Qty} # of Stops: {#}

Elevator Type 2: {Drop Down List} Qty: {Enter Qty} # of Stops: {#}

Cab Finishes: {Drop Down List}

**D20-D60 Services Systems**

Overall MEP Services Strategy: Other

If CUP, Proximity to CUP: {Drop Down List}

Primary Electrical Service: {Drop Down List}

Approximate Electrical Service Capacity (kW): {Enter Capacity if Known}

Emergency Back-up Power Strategy: Emergency Power Only

Generator Capacity (kW or Qty): {Drop Down List}

Metering of Services: {Drop Down List}

Natural Gas Utilized: {Drop Down List}

Connection to Public Utilities: {Drop Down List}

Cooling Source Strategy: {Drop Down List}

Approximate Cooling Capacity (Tons): {Enter Capacity in Tons, if Known}

Approximate Building CFM (If known): {Enter Amount in CFM's, if Known}

Heating Source Strategy: {Drop Down List}

Approximate Heating Capacity (BoHP): {Drop Down List}

Fire Protection System: {Drop Down List} Fire Pump Required: No

**Other Systems:**

Tele/Data: {Yes/No} A/V Backbone: {Yes/No}

Security: {Yes/No} A/V Finish-out Systems: {Yes/No}

Nurse Call: {Yes/No} Lighting Controls: {Yes/No}

Medical Gases: {Yes/No} Low Flow Fixtures: {Yes/No}

HEPA Filtration Systems: {Yes/No} CCTV: {Yes/No}

Vacuum Systems: No Special Data Center Systems: {Yes/No}

Battery Back-up Systems: {Yes/No} Clean Power Requirements: {Yes/No}

**E10 Equipment**

Healthcare/Medical Equipment: None

Food Service Equipment: None

Internal Start up Doc | Project Data Sheet | Internal Close Out Doc | Drop Down Lists

160%

# Layout and define space

DProfiler - T:\HEALTHCARE\2013-05-17 THR HEB.sim

File Edit Costing View Windows Tools Reports Analysis Help

Commands Start Page Spatial View Estimate View Line Items View

Representation: Normal

Interior

- Plenum Room
- Demising Room
- Shaft Room

Edit

- Delete
- Match Properties

Tabular View

Project Sites Soils Landscape Detention Parking Circulation Massings Features Slabs Cladding Rooms Mechanical Zones

Drag a column header here to group by that column

Building	Room Designation	Area	Aggregate	Aggregate Cost Per Un...
ICU Expansion ICU	3 Alcove	31.5 sqFt	\$4,925.94	\$156.38
ICU Expansion ICU	3 Multipurpose	267.14 sqFt	\$29,515.25	\$110.45
ICU Expansion ICU	3 Elec.	42 sqFt	\$7,507.75	\$178.76
ICU Expansion ICU	3 Patient Bath	84.33 sqFt	\$12,754.72	\$151.25
ICU Expansion ICU	3 Corridor	3473.15 sqFt	\$341,864.36	\$98.43
ICU Expansion ICU	3 On Call	125 sqFt	\$16,585.12	\$132.68
ICU Expansion ICU	3 Staff Toilet	85 sqFt	\$13,259.40	\$155.99
ICU Expansion ICU	3 On Call	139.79 sqFt	\$18,419.18	\$131.76
ICU Expansion ICU	3 Office	244.11 sqFt	\$19,927.79	\$81.63
ICU Expansion ICU	3 Office	148.16 sqFt	\$14,229.70	\$96.05
ICU Expansion ICU	3 ICU	400.23 sqFt	\$70,706.91	\$176.66
ICU Expansion ICU	3 ICU	362.24 sqFt	\$67,707.25	\$186.91
ICU Expansion ICU	3 Patient Bath	88.17 sqFt	\$23,503.59	\$266.57
ICU Expansion ICU	3 Patient Bath	85.74 sqFt	\$23,310.68	\$271.87
ICU Expansion ICU	3 ICU	339.74 sqFt	\$63,160.89	\$185.91
ICU Expansion ICU	3 ICU	362.69 sqFt	\$65,259.38	\$179.93
ICU Expansion ICU	3 Alcove	28 sqFt	\$4,566.24	\$163.08
ICU Expansion ICU	3 Alcove	27.08 sqFt	\$4,442.17	\$164.02
ICU Expansion ICU	3 ICU	333.39 sqFt	\$62,654.70	\$187.93
ICU Expansion ICU	3 ICU	332.59 sqFt	\$62,564.93	\$188.12
ICU Expansion ICU	3 ICU	324.89 sqFt	\$61,837.44	\$190.33
ICU Expansion ICU	3 ICU	332.24 sqFt	\$62,511.91	\$188.15
ICU Expansion ICU	3 ICU	328.53 sqFt	\$62,164.43	\$189.22
ICU Expansion ICU	3 ICU	323.47 sqFt	\$61,871.99	\$191.22
ICU Expansion ICU	3 ICU	347.11 sqFt	\$66,460.65	\$191.47
ICU Expansion ICU	3 ICU	357.03 sqFt	\$67,551.14	\$189.20
ICU Expansion ICU	3 Patient Bath	107.47 sqFt	\$25,044.35	\$233.03
ICU Expansion ICU	3 Patient Bath	105.48 sqFt	\$24,899.31	\$236.07
ICU Expansion ICU	3 ICU	356.37 sqFt	\$67,532.06	\$189.50
ICU Expansion ICU	3 ICU	362.01 sqFt	\$67,799.08	\$187.28
ICU Expansion ICU	3 Patient Bath	108 sqFt	\$25,103.80	\$232.44
ICU Expansion ICU	3 Patient Bath	108 sqFt	\$25,103.80	\$232.44
ICU Expansion ICU	3 Staff Toilet	67.13 sqFt	\$11,792.68	\$175.66
ICU Expansion ICU	3 Dress	66.5 sqFt	\$11,028.15	\$165.84
ICU Expansion ICU	3 Break	466.52 sqFt	\$52,004.96	\$111.48
ICU Expansion ICU	3 Alcove	28 sqFt	\$4,566.24	\$163.08
ICU Expansion ICU	3 ICU	323.74 sqFt	\$61,623.91	\$190.35
ICU Expansion ICU	3 Alcove	29.75 sqFt	\$4,856.72	\$163.25
ICU Expansion ICU	3 ICU	313.84 sqFt	\$60,919.29	\$194.11
ICU Expansion ICU	3 Alcove	28 sqFt	\$4,566.24	\$163.08
ICU Expansion ICU	3 ICU	321.32 sqFt	\$61,457.29	\$191.26
ICU Expansion ICU	3 ICU	326.47 sqFt	\$61,872.79	\$189.52
ICU Expansion ICU	3 ICU	325.77 sqFt	\$61,772.65	\$189.62
ICU Expansion ICU	3 ICU	353.17 sqFt	\$64,349.51	\$182.20
ICU Expansion ICU	3 Ante	83.65 sqFt	\$0.00	\$0.00
ICU Expansion ICU	3 Patient Bath	84.4 sqFt	\$23,191.64	\$274.79
ICU Expansion ICU	3 Alcove	28 sqFt	\$4,566.24	\$163.08
ICU Expansion ICU	3 Corridor	137.26 sqFt	\$36,318.36	\$264.60
SUM=15955.43 sqFt			SUM=\$2,543,3...	AVG=\$172.22

Record 69 of 69

Hold-down the control key (Ctrl), then press and move the left mouse button (LMB) to rotate the camera.

# Define Massing

DProfiler - T:\HEALTHCARE\2013-05-17 THR HEB.sim

File Edit Costing View Windows Tools Reports Analysis Help

Commands Start Page Spatial View Estimate View Line Items View

All Systems Building Wizard Edit Move Copy Mirror Copy Rotate Delete

Earth Terrain Site Building Features Grid Line Structure Cladding Interior Mechanical

Representation: Normal

Tabular View Project Sites Soils Landscape Detention Parking Circulation Massings Features Slabs Cladding Rooms Mechanical Zones

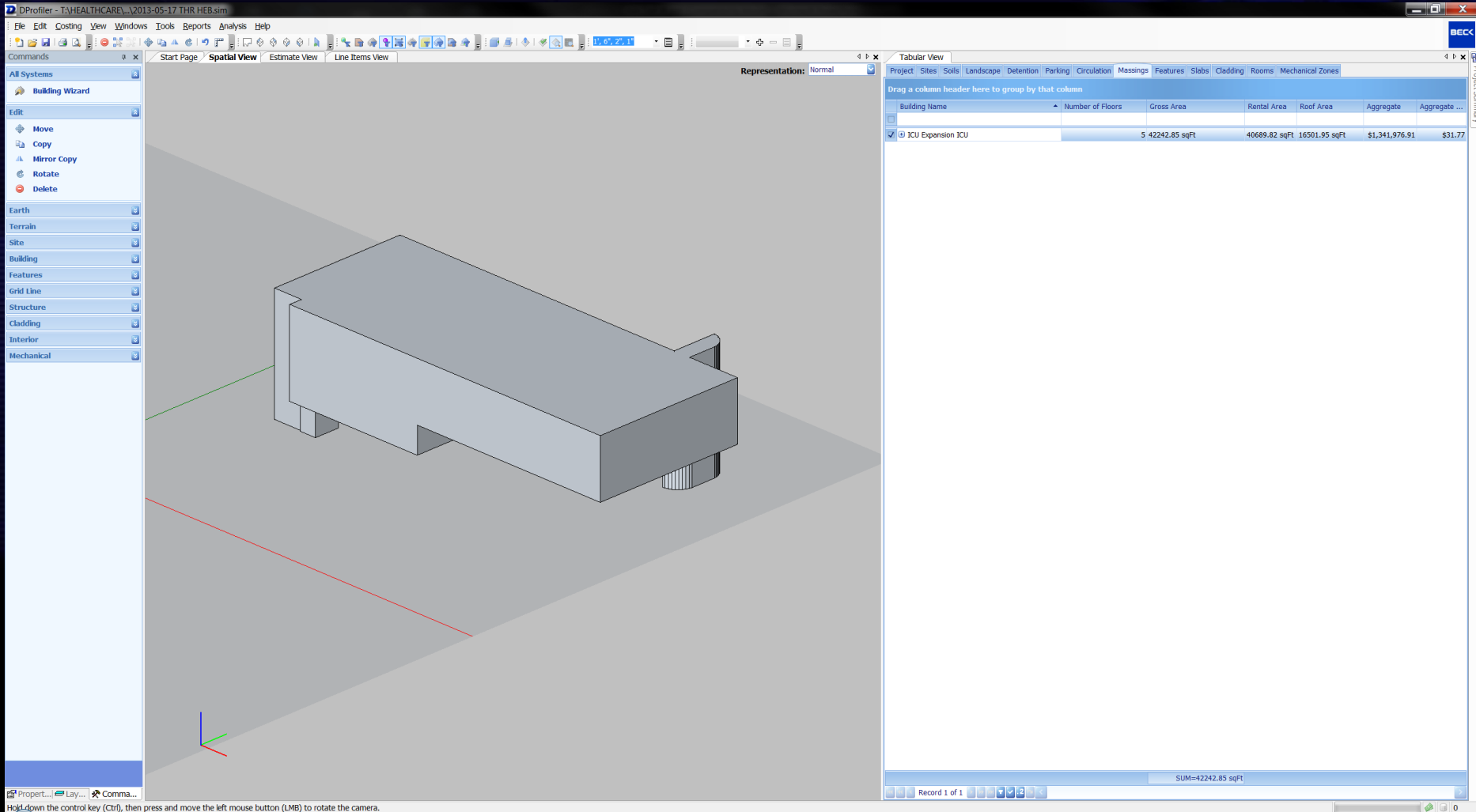
Drag a column header here to group by that column

Building Name	Number of Floors	Gross Area	Rental Area	Roof Area	Aggregate	Aggregate ...
ICU Expansion ICU	5	42242.85 sqft	40689.82 sqft	16501.95 sqft	\$1,341,976.91	\$31.77

SUM=42242.85 sqft

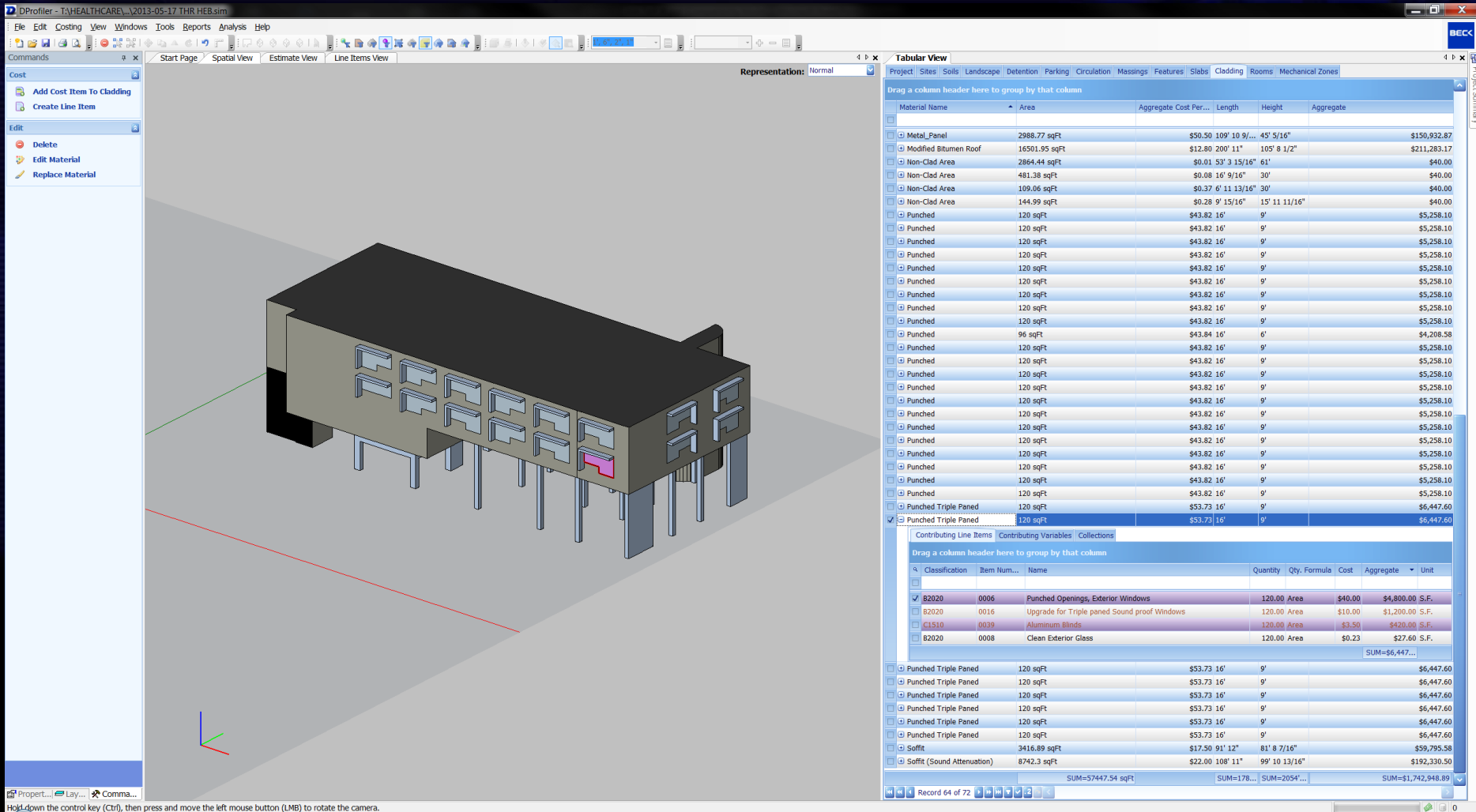
Record 1 of 1

Hold down the control key (Ctrl), then press and move the left mouse button (LMB) to rotate the camera.





## Arrive at First Conceptual Model



# Knowledge Capture

- Don't start from a blank sheet
- Share knowledge
- Define early constraints/assumptions



Description	Notes
Apartment, 1-3 Story, Steel...	
Apartment, 4-7 Story, Conc...	
Apartment, 4-7 Story, Steel...	
Apartment, 8-24 Story, Con...	
Apartment, 8-24 Story, Ste...	
Assisted - Senior Living, Ste...	
Auditorium, Steel Frame	
Bank, Concrete Frame	
Bank, Steel Frame	
BECK - CIP Garage A	(Piers, Basement Walls, Slab on Grade, CIP Superstruct.
BECK - CIP Garage B	(Mat Slab Foundation, Slab on Grade, CIP Superstructur
BECK - Core/Shell Office Bul...	(Piers, Slab on Grade, CIP Concrete Superstructure - P.
BECK - Core/Shell Office Bul...	(Piers, Slab on Grade, CIP Concrete Superstructure - P.
BECK - Core/Shell Office Bul...	(Piers, Slab on Grade, Structural Steel Superstructure ..
BECK - Core/Shell Office Bul...	(Piers, Slab on Grade, Structural Steel Superstructure ..
BECK - Core/Shell Office Bul...	(Piers, Slab on Grade, Precast Superstructure)
BECK - Custom Building Type	
BECK - Mixed Use Project	Residential, Retail, Office, Structured Parking)
Church, Steel Truss	
College, Classroom, 2-3 Sto...	
College, Dormitory, 2-3 Stor...	
College, Dormitory, 2-3 Stor...	
College, Dormitory, 4-8 Stor...	
College, Dormitory, 4-8 Stor...	
College, Laboratory, Steel F...	
College, Student Union, Co...	
College, Student Union, Ste...	
Community Center, Steel Fr...	
Computer Data Center, Ste...	
Courthouse, 1 Story, Conc...	
Courthouse, 1 Story, Steel ...	
Courthouse, 2-3 Story, Con...	
Courthouse, 2-3 Story, Ste...	
Factory, 1 Story, Steel Frame	
Factory, 3 Story, Concrete ...	
Factory, 3 Story, Steel Frame	
Garage, Parking, Concrete ...	
Garage, Parking, Steel Frame	
Garage, Underground Parki...	
Gymnasium, Steel Frame	

# Q&A

