

Advanced Techniques for Managing Building Data in Autodesk® Revit®

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Class summary

The collection and management of building data, including the requirements for rooms, equipment, and other needs, as it evolves from early design through construction documentation and as a basis for facility management, can be enhanced through advanced techniques in Autodesk Revit software.

This includes linking to an external data source, automating the creation of areas and rooms, creating room data sheets, and other graphic and non-graphic processes that complement BIM. This class covers basic database theory, the structure of objects and their relation to data management, and Revit techniques for implementing this general theory in actual projects.

We also discuss third-party software and customizations, and how they are used to further advance these processes. The class goes beyond learning Revit commands and looks at the underlying information requirements of emerging integration in project delivery.

Key learning objectives

At the end of this class, you will be able to:

- Understand how building data is represented in objects and databases.
- Evaluate computer system architectures and software options.
- Use Revit to study conceptual design and building massing.
- Create room data sheets in Revit and in an external database.

The presentation also includes sections on:

- Supplemental Material.
- Example Project.

Introduction to Building Data

The Problem

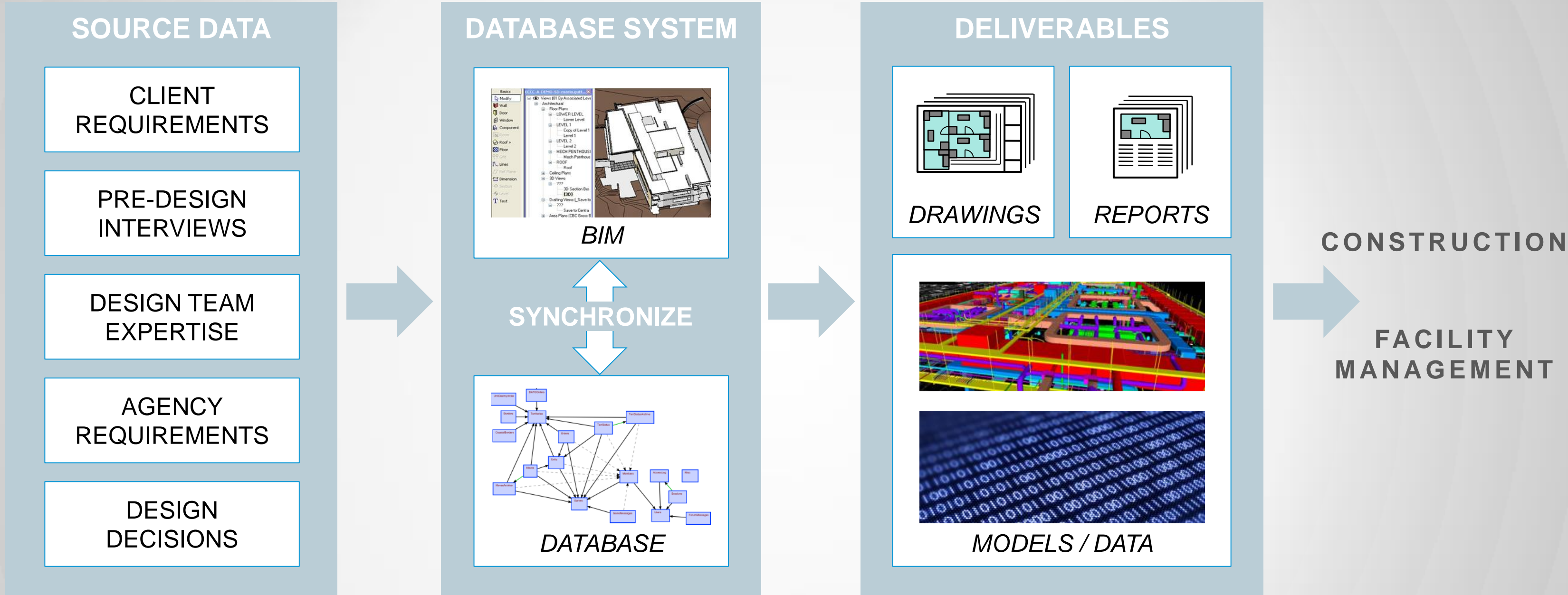
Kinds of Project Information:

- **“Building Data”**: rooms, activities, ownership, furniture, equipment, etc.
- **“Project Data”**: team makeup, project budget, schedule, etc.
(We are not going to talk about this.)

Needs for Managing Data:

- Accuracy.
- Validation.



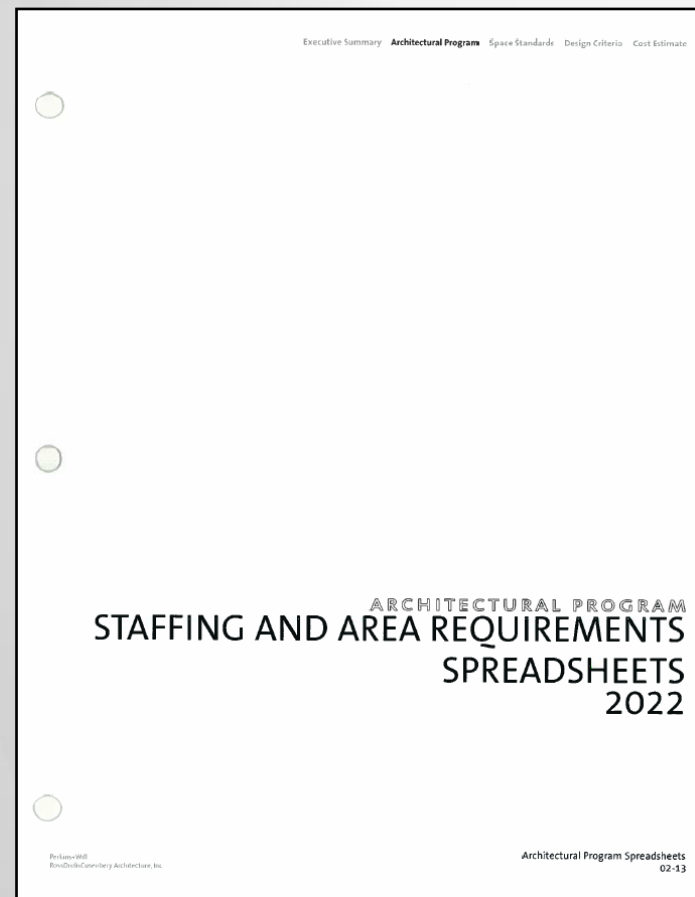


INFORMATION FLOW THROUGH A DATABASE SYSTEM

Information Flow

Owner's Requirements

- Designed for readability.
- Complex data structure
- Paper or raster mode.

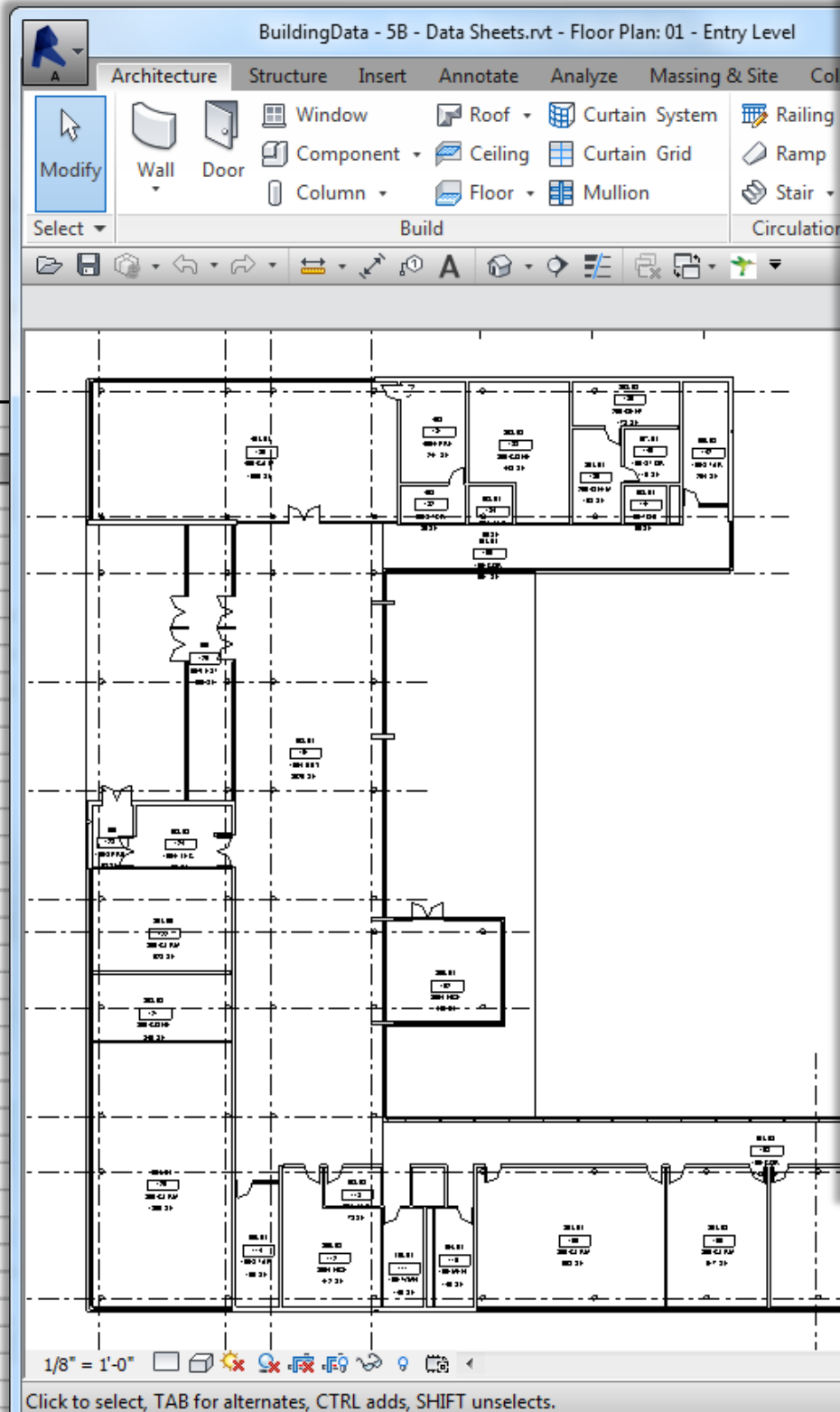


Office of the Port Director Administration/Security Operations Building						2022					
Ref. #	User Type	Design Guide Area SF	2022	Cir. %	Staff	Units/ Rms	NSF	Cir.	Total USF	Total GSF	Notes
PERSONNEL SPACES											
Administration											
1301	Port Director	PO	225	225	25%	1	1	225	56	281	352
1302	Ass't Port Director (Tactical)	PO	175	175	25%	1	1	175	44	219	273
1303	Ass't Port Director (Passenger)	PO	175	175	25%	1	1	175	44	219	273
1304	Reception/Clerk	WS	75	75	35%	1	1	75	26	101	127
Subtotal - Staff											
Subtotal-Personnel Spaces (NSF)											
Circulation											
Total Usable - Personnel Spaces											
SUPPORT SPACES											
1305	Director's Public Reception Waiting		20/Seat	20	10%		5	100	10	110	138
1306	Director's Conference Room		300	300	20%		1	300	60	360	450
1307	Coffee Service		45	45	25%		1	45	11	56	70
1308	Copier/Fax/Shredder		80	80	25%		1	80	20	100	125
1309	File Area		12/ea.	12	25%		12	144	36	180	225
1310	Closet		-	20	25%		1	20	5	25	31
1311	Shared Printers		-	20	25%		2	40	10	50	63
Subtotal-Support Spaces (NSF)											
Circulation											
Total Usable - Support Areas											

Design Team Requirements

- Relational data.
- Software use.
- Reporting.

Room Schedule							
RoomId	ProgramSpac	RoomTypeId	Organization	Area	AreaPlanned	FloorId	Name
101.01	100-COR	COR	100	591 SF	1000 SF	01	Corridor
101.02	100-COR	COR	100	1485 SF	1000 SF	01	Corridor
101.03	100-COR	COR	100	1513 SF	1000 SF	02	Corridor
101.04	100-COR	COR	100	579 SF	1000 SF	02	Corridor
101.05	100-COR	COR	100	744 SF	1000 SF	03	Corridor
101.06	100-COR	COR	100	1514 SF	1000 SF	03	Corridor
102.01	100-ELEC	ELEC	100	60 SF	100 SF	01	Electrical
102.02	100-ELEC	ELEC	100	193 SF	100 SF	01	Electrical
102.03	100-ELEC	ELEC	100	78 SF	100 SF	01	Electrical
102.04	100-ELEC	ELEC	100	76 SF	100 SF	02	Electrical
102.05	100-ELEC	ELEC	100	56 SF	100 SF	02	Electrical
102.06	100-ELEC	ELEC	100	171 SF	100 SF	02	Electrical
102.07	100-ELEC	ELEC	100	76 SF	100 SF	03	Electrical
102.08	100-ELEC	ELEC	100	171 SF	100 SF	03	Electrical
102.09	100-ELEC	ELEC	100	60 SF	100 SF	03	Electrical
103.01	100-LBBY	LBBY	100	3525 SF	500 SF	01	Lobby
103.02	100-LBBY	LBBY	100	3620 SF	500 SF	02	Lobby
103.03	100-LBBY	LBBY	100	3551 SF	500 SF	03	Lobby
104.01	100-MEN	MEN	100	140 SF	150 SF	01	Men
104.02	100-MEN	MEN	100	146 SF	150 SF	01	Men
104.03	100-MEN	MEN	100	76 SF	150 SF	02	Men
104.04	100-MEN	MEN	100	146 SF	150 SF	03	Men
105	100-SPRK	SPRK	100	92 SF	100 SF	01	Sprinkler
106.01	100-STAR	STAR	100	195 SF	400 SF	01	Stair
106.02	100-STAR	STAR	100	206 SF	400 SF	01	Stair
106.03	100-STAR	STAR	100	204 SF	400 SF	01	Stair
106.04	100-STAR	STAR	100	193 SF	400 SF	02	Stair
106.05	100-STAR	STAR	100	208 SF	400 SF	02	Stair
106.06	100-STAR	STAR	100	208 SF	400 SF	02	Stair
106.07	100-STAR	STAR	100	208 SF	400 SF	03	Stair
106.08	100-STAR	STAR	100	208 SF	400 SF	03	Stair
106.09	100-STAR	STAR	100	193 SF	400 SF	03	Stair
107.01	100-STOR	STOR	100	110 SF	150 SF	01	Storage
107.02	100-STOR	STOR	100	70 SF	150 SF	02	Storage
108.01	100-TOIL	TOIL	100	59 SF	60 SF	01	Toilet
108.02	100-TOIL	TOIL	100	60 SF	60 SF	02	Toilet



Programmed and Actual Area Comparison by Room Type

9/9/2011

CAFT - Cafeteria

Type:
400 - Food Services
Totals for 400 - Food

Type:
300 - Education
Totals for 300 - Educa

Type:
300 - Education
Totals for 300 - Educa

Type:
300 - Education
Totals for 300 - Educa

Type:
100 - Facilities
Totals for 100 - Facili

Type:
500 - Media Services
Totals for 500 - Media

Type:
500 - Media Services
Totals for 500 - Media

Programmed and Actual Area Comparison by Organization

9/9/2011

100 - Facilities

Type:	Programmed Count:	Programmed Area:	Actual Count:	Actual Area:	Difference (A - P) Count:	Difference (A - P) Area:
COR - Corridor	5	5000	6	6426	1	1426
ELEC - Electrical	9	900	9	942		42
LBBY - Lobby	3	1500	3	10688		9188
MEN - Men	4	600	4	508		-92
SPRK - Sprinkler	1	100	1	92		-8
STAR - Stair	9	3600	9	1823		-1777
STOR - Storage	2	300	2	179		-121
TOIL - Toilet	3	180	3	179		-1
VEST - Vestibule	1	200	1	465		265
WMN - Women	4	600	4	499		-101
Totals for 100:	41	12980	42	21801	1	8821

200 - Management

Type:	Programmed Count:	Programmed Area:	Actual Count:	Actual Area:	Difference (A - P) Count:	Difference (A - P) Area:
OFFM - Multi-person Office	3	1800	3	1246		-554
OFFO - Open Office	1	1500	1	1408		-92
OFFP - Private Office	4	1000	4	1167		167
Totals for 200:	8	4300	8	3821	0	-479

300 - Education

Type:	Programmed Count:	Programmed Area:	Actual Count:	Actual Area:	Difference (A - P) Count:	Difference (A - P) Area:
CLRM - Classroom	19	22800	19	13310		-9490
COML - Computer Lab	3	2400	3	1706		-694
CONF - Conference	4	1600	4	1966		366
LIB - Library	1	1500	1	1292		-208
LNGE - lounge	6	3600	7	3880	1	280
Totals for 300:	33	31900	34	22154	1	-9746

400 - Food Services

Type:	Programmed Count:	Programmed Area:	Actual Count:	Actual Area:	Difference (A - P) Count:	Difference (A - P) Area:
CAFT - Cafeteria	2	4000	2	1940		-2060
FPRE - Food Preparation	1	800	1	241		-559
STDR - Dry Storage	1	100	1	89		-11
Totals for 400:	4	4900	4	2270	0	-2630

Page: 1

First, we want to understand our data,
and define objectives for using it.

Then, we can implement software to
achieve those objectives.

General Principles of Objects and Databases

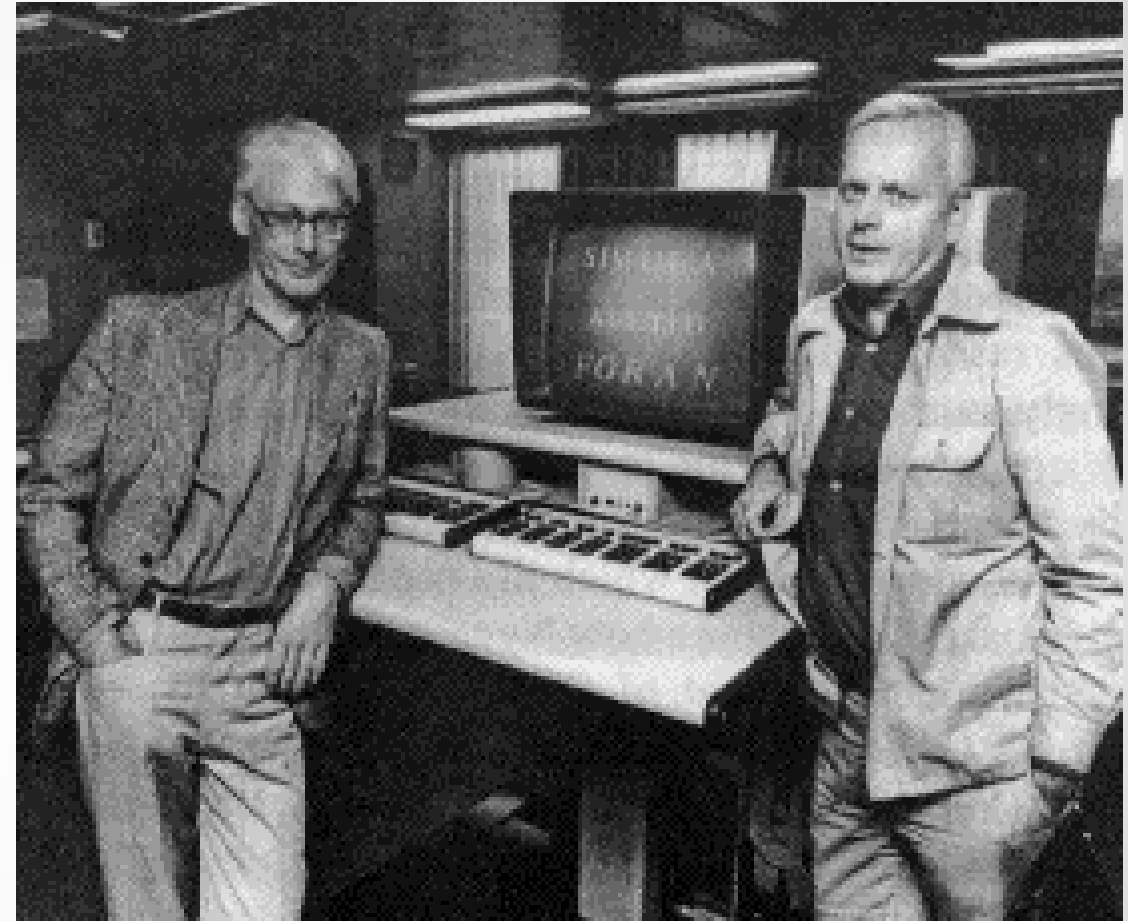
Objects and How Revit Uses Them

Object-oriented programming (OOP).

“Things” in Revit.

All objects have:

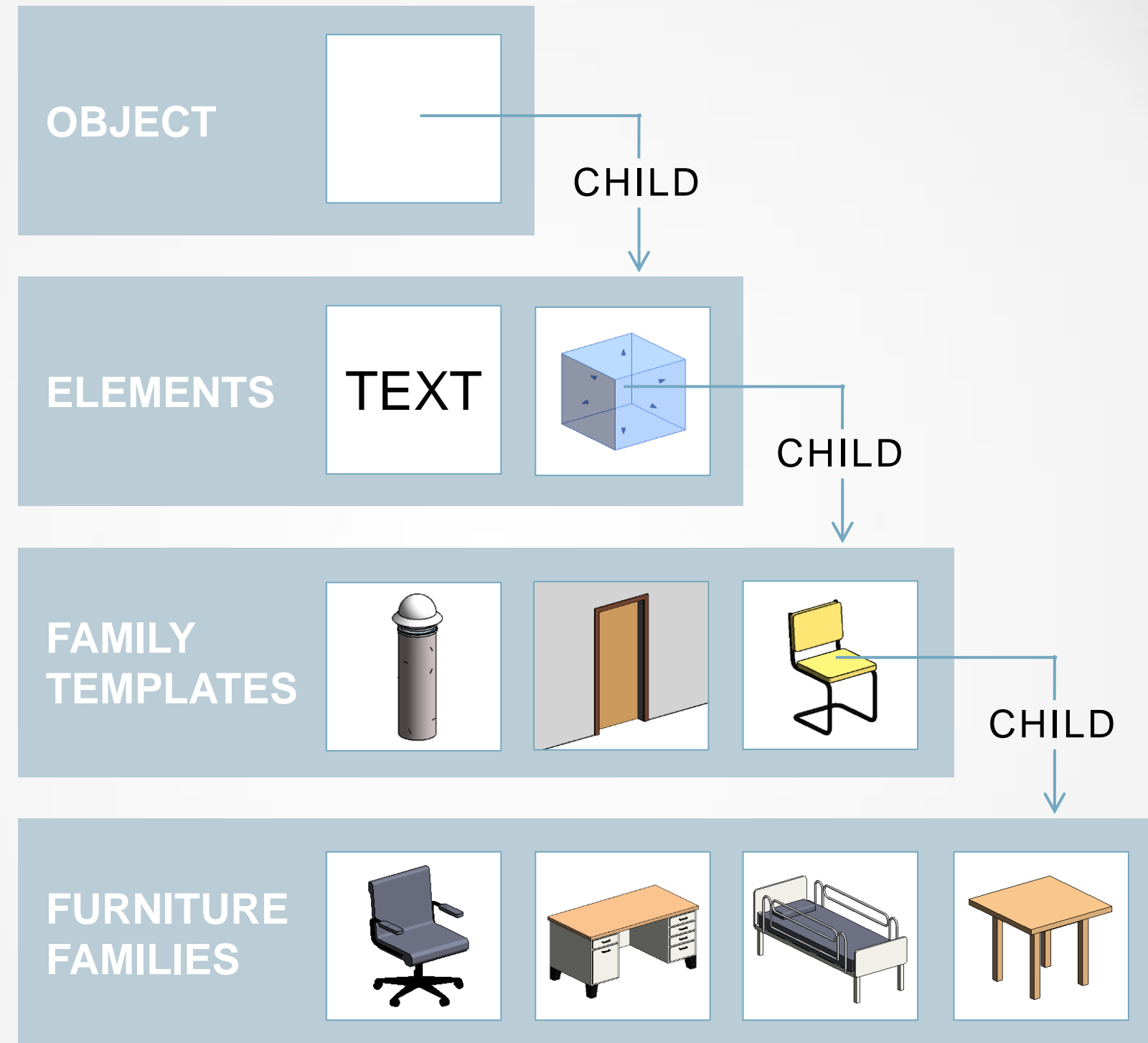
- Methods: Behavior (wall hosting.)
- Properties: Data (dimension; manufacturer.)



Ole-Johan Dahl and Kristen Nygaard developed Simula in the 1960s at the Norwegian Computing Center in Oslo. (Wikipedia)

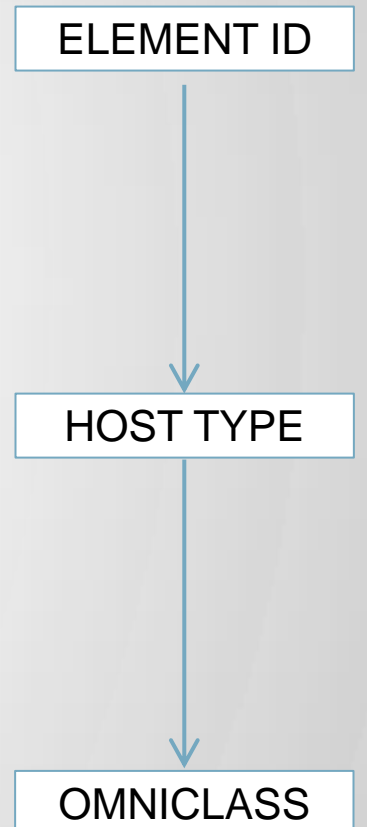
Object Inheritance

- Objects derive from parent object.
- Children inherit properties.



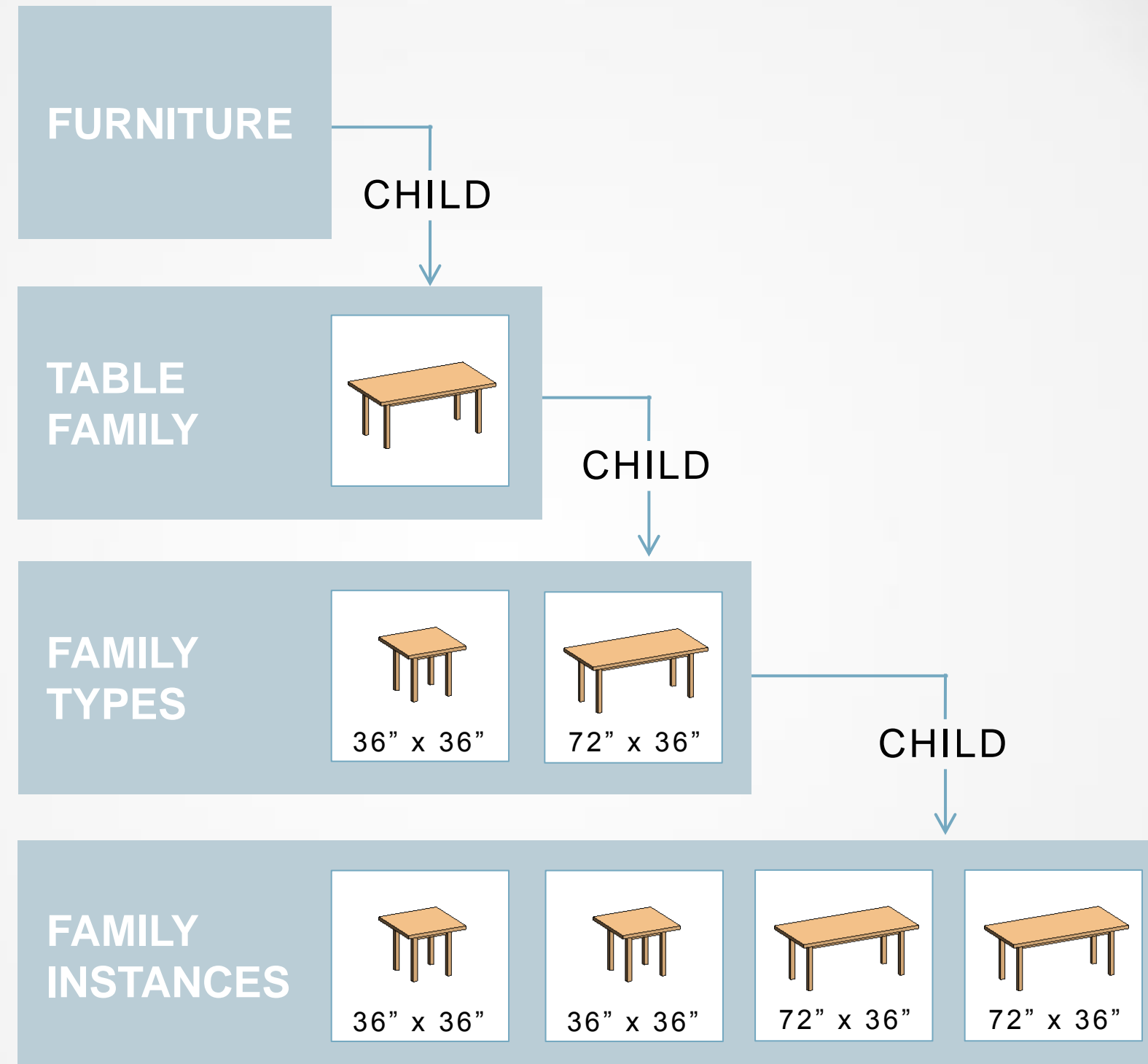
PARENT – CHILD OBJECTS

DATA
ACCUMULATES
WITH EACH
GENERATION



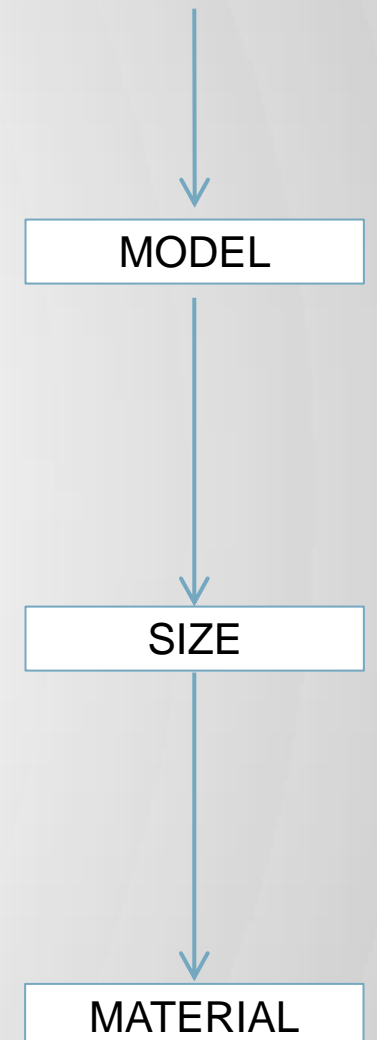
Object Types (Classes)

- Families are one kind of thing.
- Types are different kinds of the family.
- Instances are placements of a specific type.



FAMILIES – TYPES – INSTANCES

DATA
FURTHER
ACCUMULATES
TO TYPES



Revit Parameters

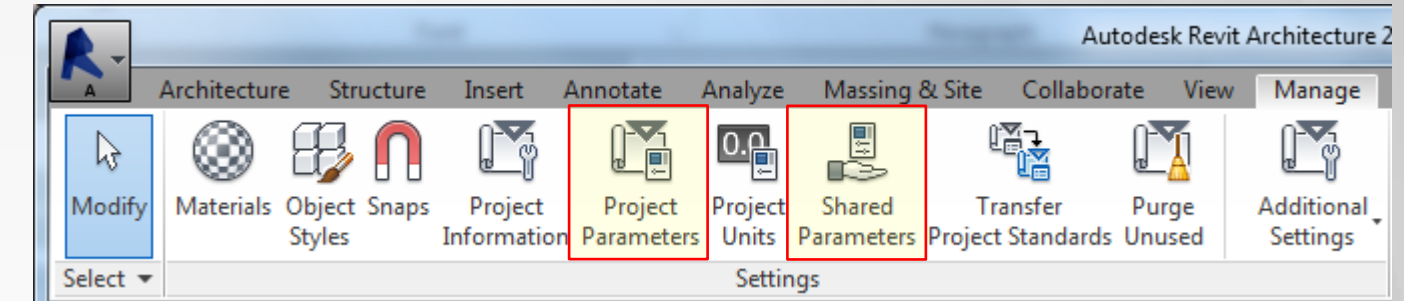
(object properties with data in them)

Shared Parameter: Same name is used in other models.
(Not-shared) Parameter: Name is used only in this model.

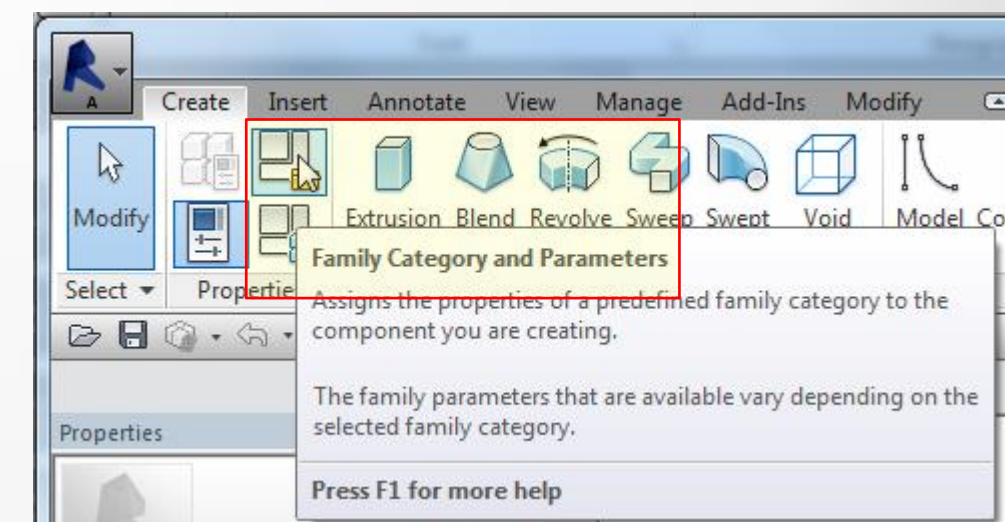
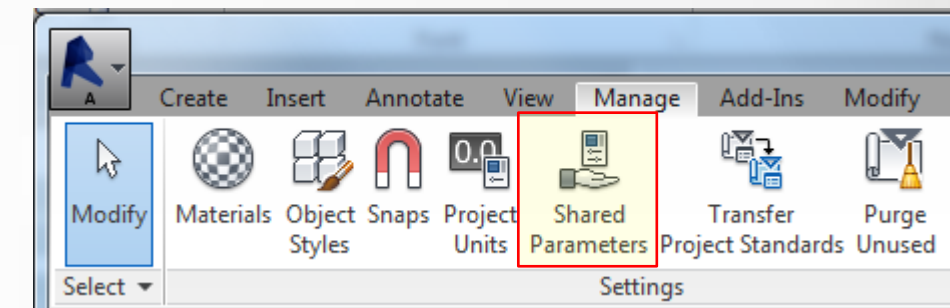
Project Parameter: Parameter applies to all families.
Family Parameter: Parameter is part of the family.

THESE ARE INDEPENDENT OF ONE ANOTHER
THEY ARE NOT RELEVANT TO BUILDING DATA

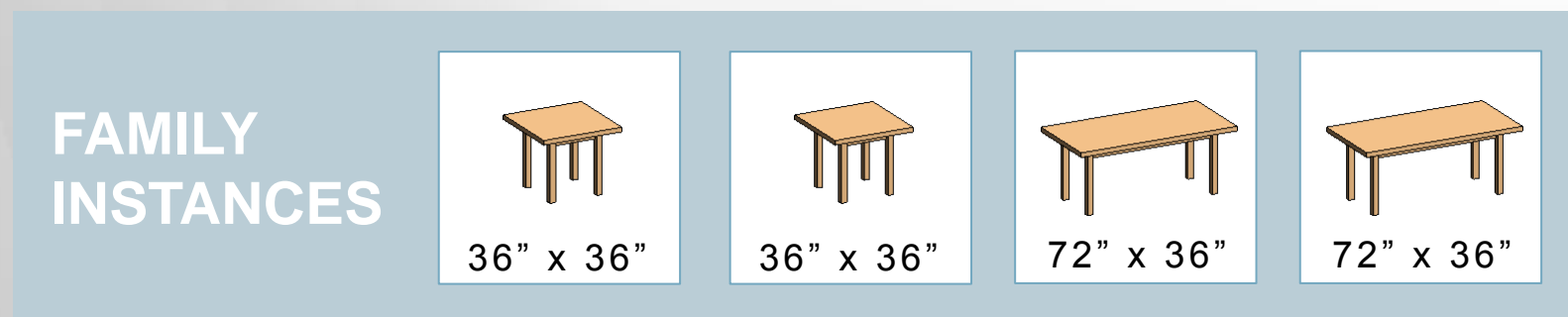
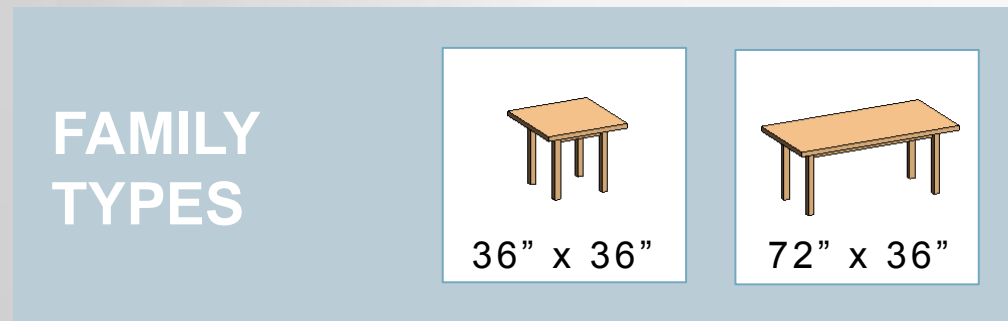
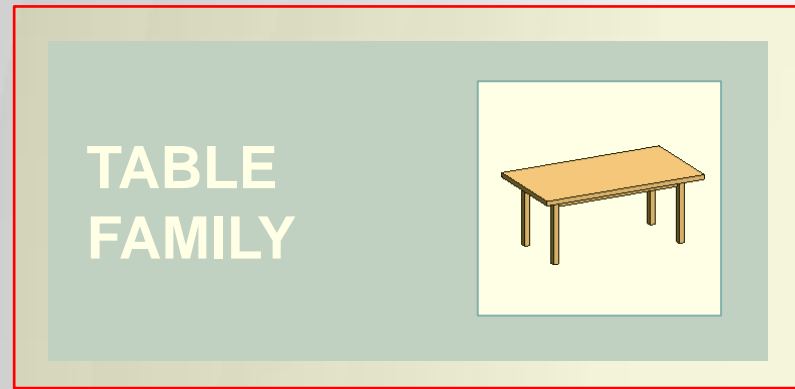
MODEL ENVIRONMENT



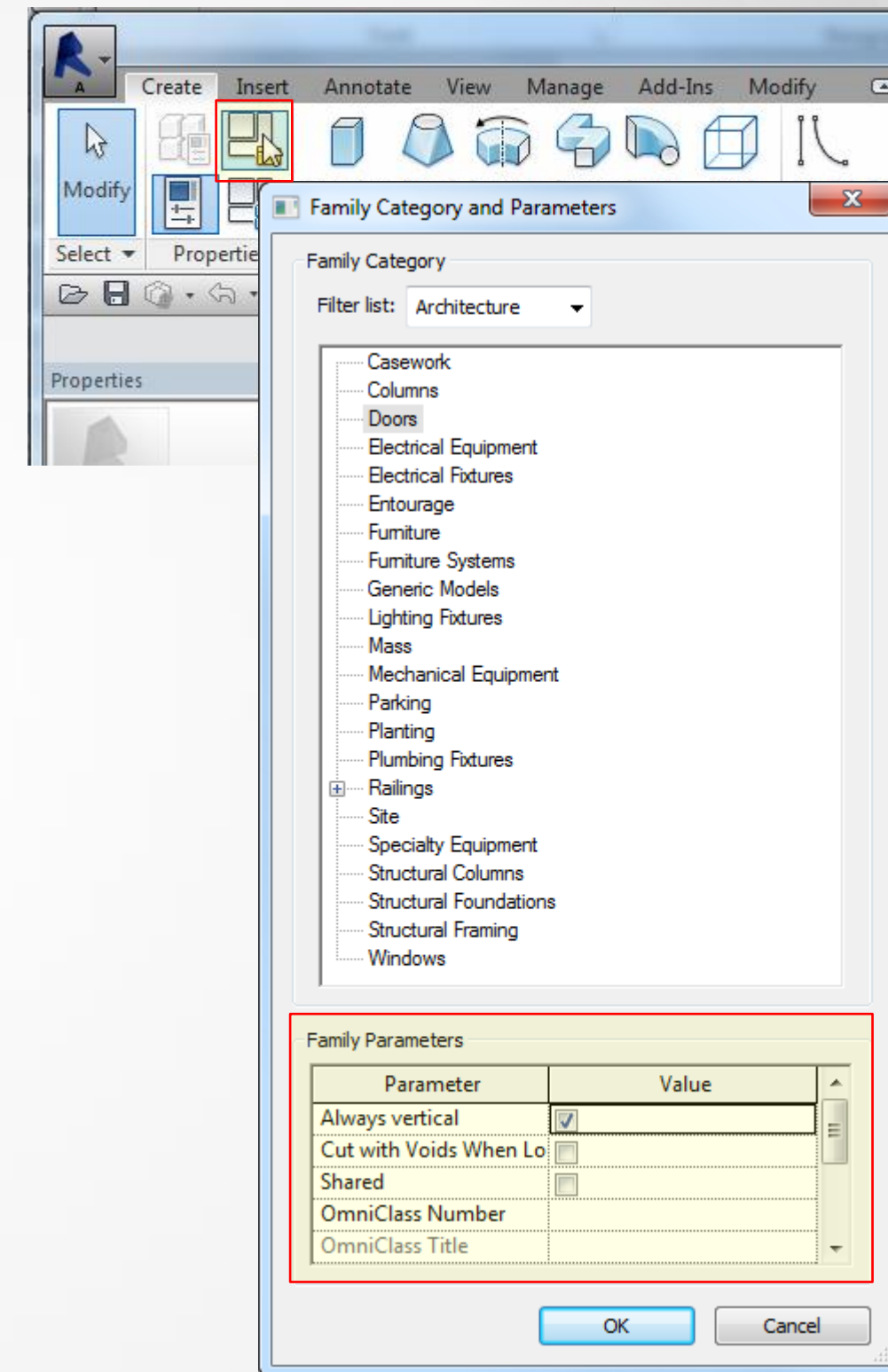
FAMILY EDITOR



Built-in Parameter (Family-level Parameter)



FAMILY EDITOR

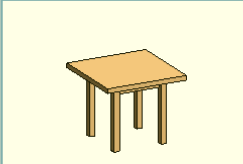


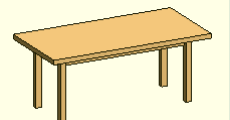
Type Parameter

TABLE FAMILY

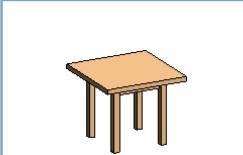


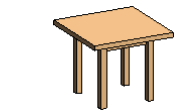
FAMILY TYPES

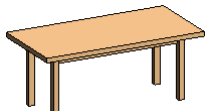

36" x 36"

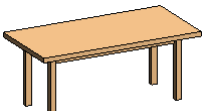

72" x 36"

FAMILY INSTANCES


36" x 36"


36" x 36"


72" x 36"

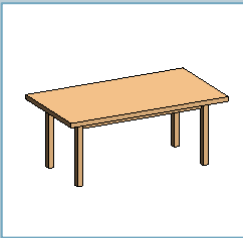

72" x 36"

FAMILY EDITOR

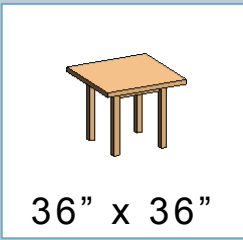
MODEL ENVIRONMENT

Instance Parameter

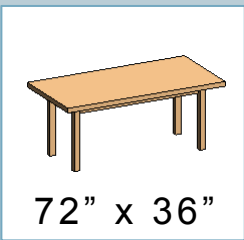
TABLE
FAMILY



FAMILY
TYPES

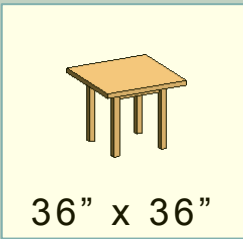


36" x 36"

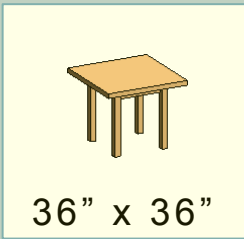


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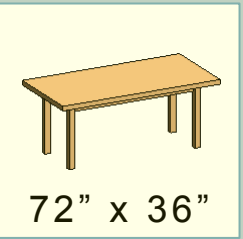
FAMILY
INSTANCES



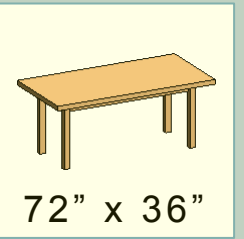
36" x 36"



36" x 36"

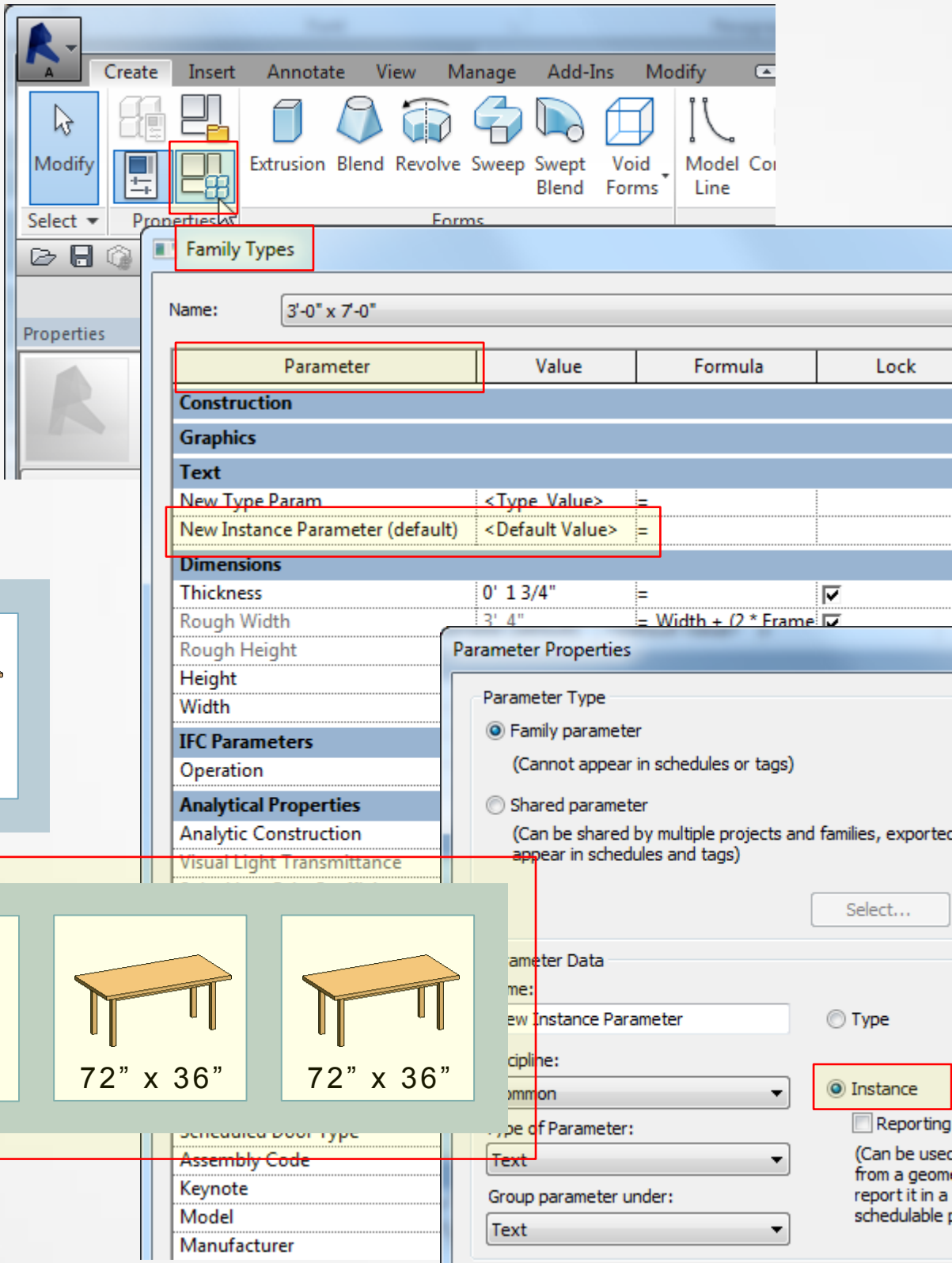


72" x 36"

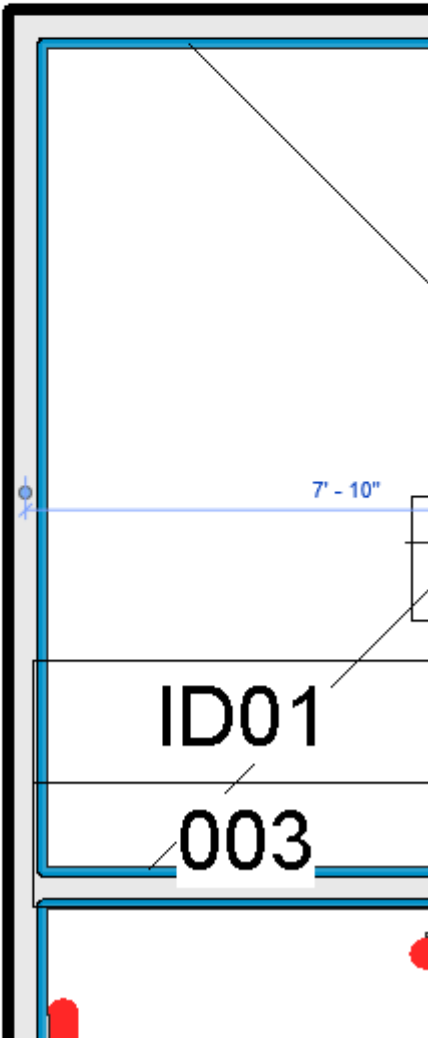
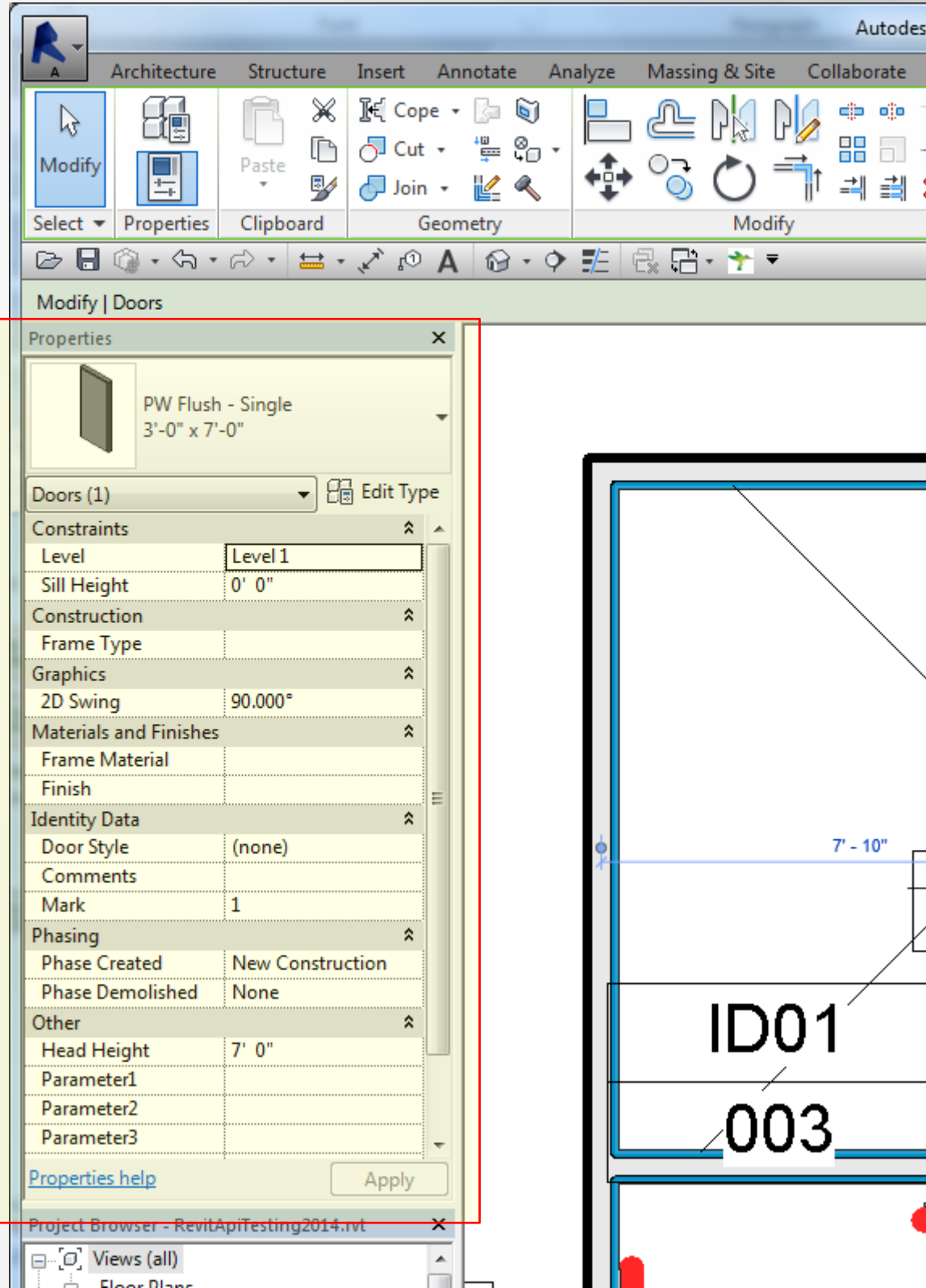


72" x 36"

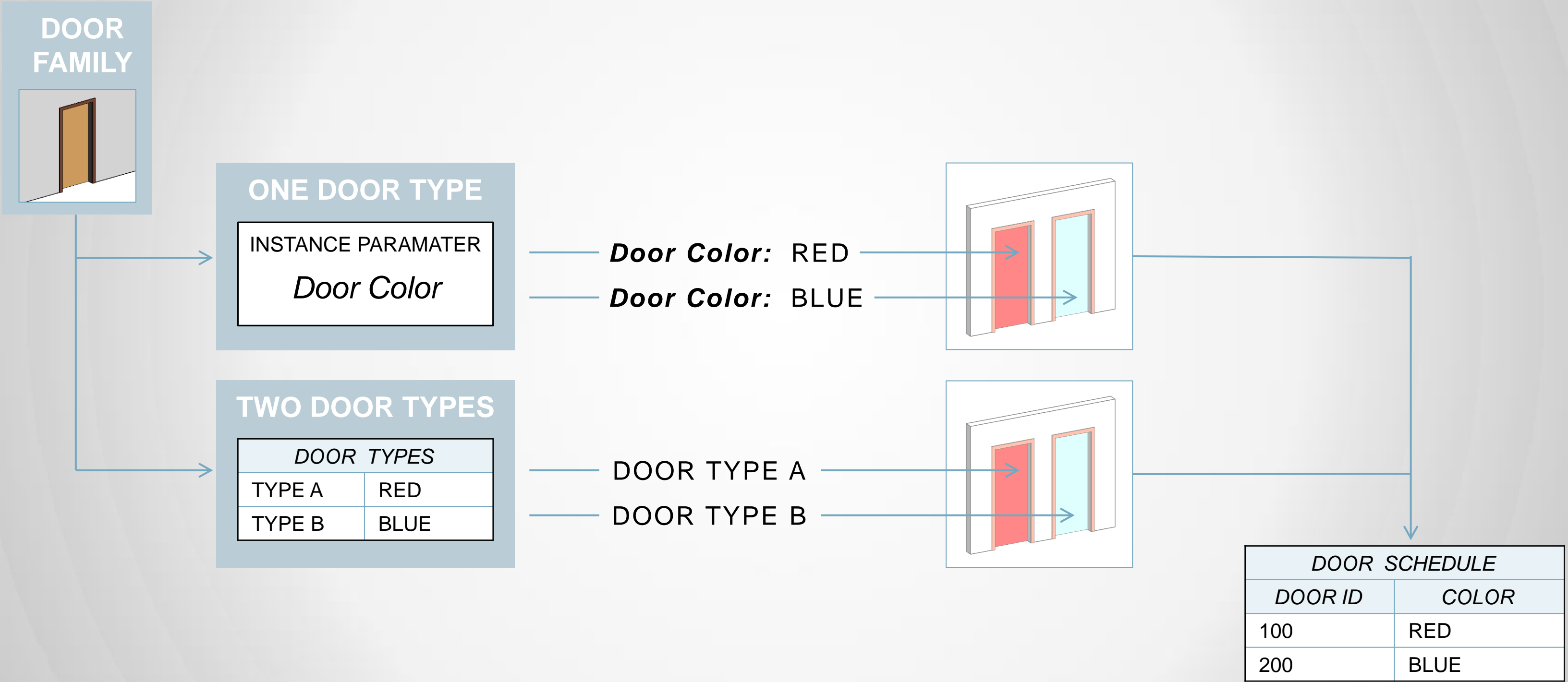
FAMILY EDITOR



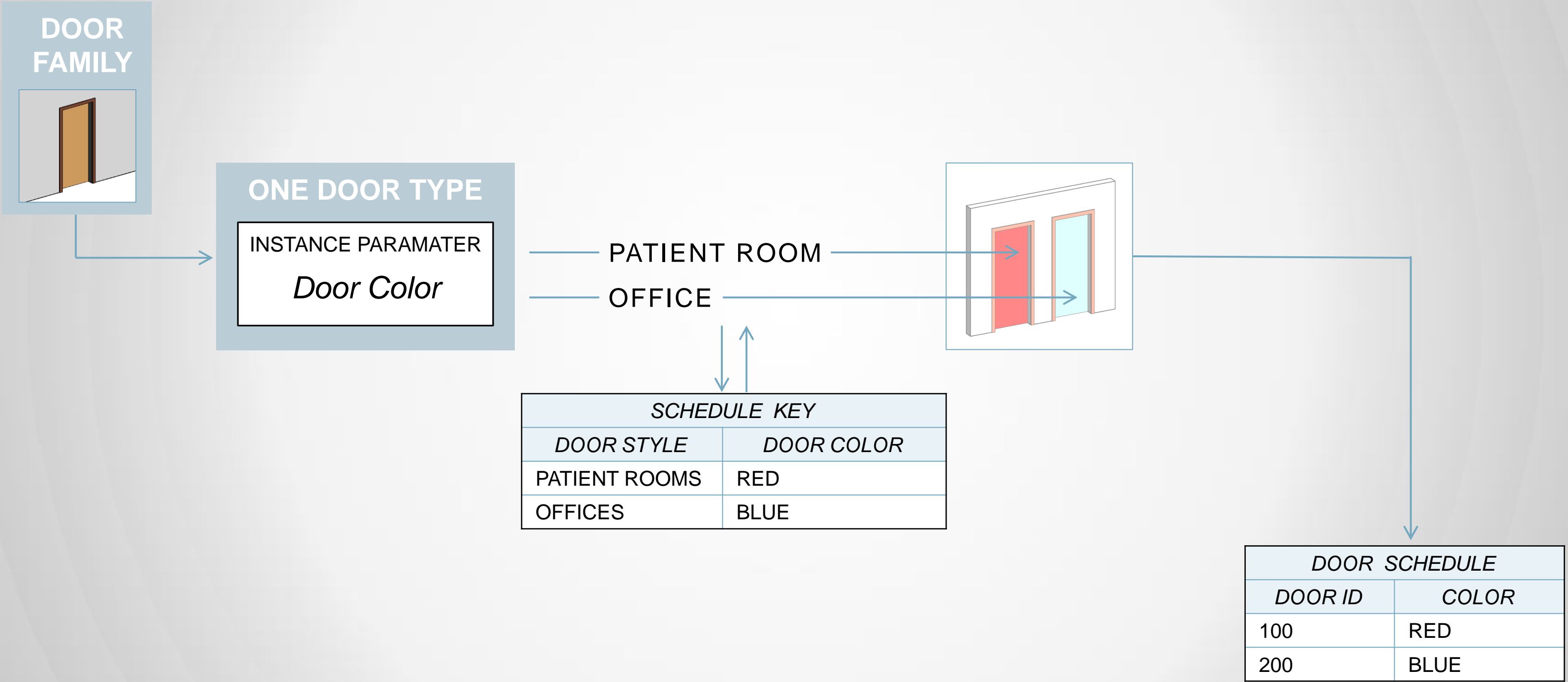
MODEL ENVIRONMENT



Data equivalence of Types and Instance Parameters

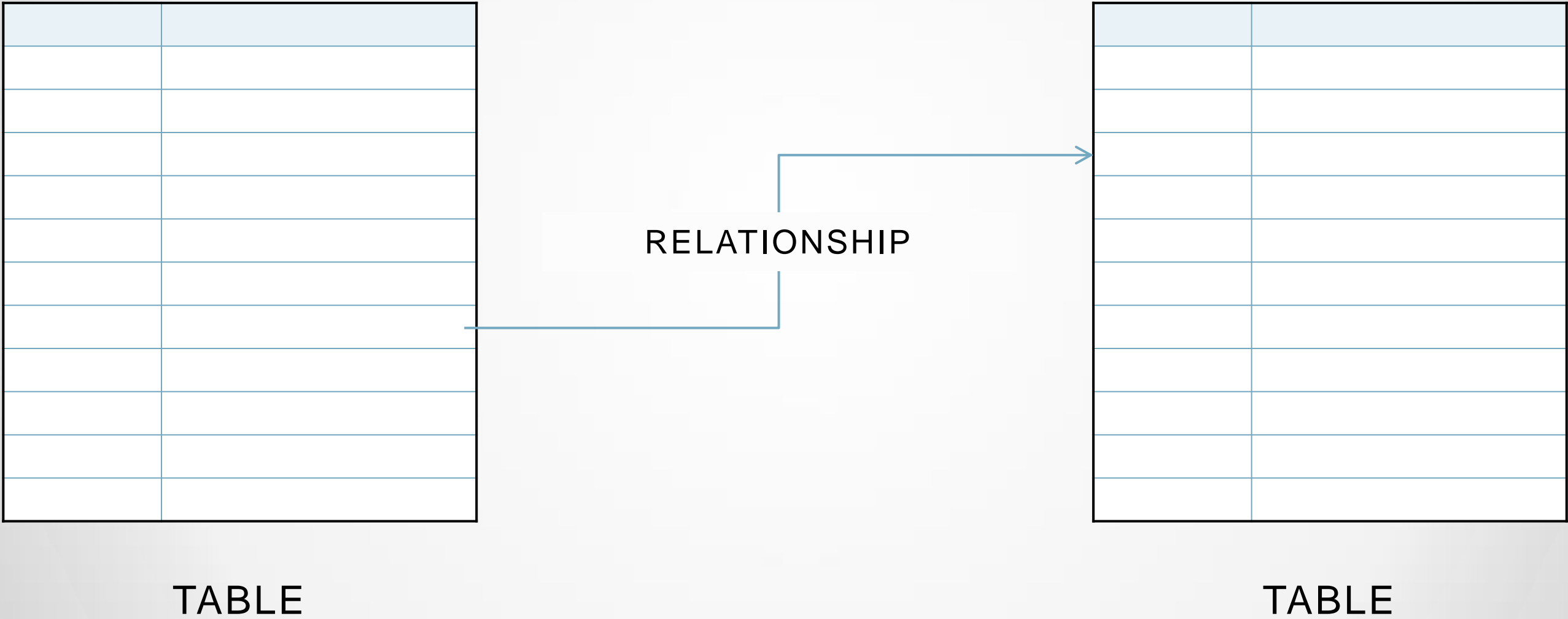


Use of Schedule Keys with Instance Parameters



Basics of Relational Databases

Tables and Relationships



Tables

- Rows
- Columns

← COLUMNS (FIELDS) →

↑
ROWS
(RECORDS)
↓

ROOM ID	TYPE	FLOOR	AREA
10101	OFFICE - LARGE	FLOOR 01	1000
10101A	OFFICE - MEDIUM	FLOOR 01	800
10102	OFFICE - SMALL	FLOOR 01	400
10103	CONFERENCE	FLOOR 01	640
20110	BREAK ROOM	FLOOR 02	820
20111	COPY AREA	FLOOR 02	220
20123	STORAGE	FLOOR 02	100
20843	CLASSROOM – 1	FLOOR 02	740
30102	CLASSROOM – 2	FLOOR 03	820
30104	CLASSROOM – 3	FLOOR 03	1020
30105	STUDY AREA	FLOOR 03	600

ROOMS TABLE

Primary Key Field

Uniquely identifies a record.

It must be:

- Not Null
- Unique

PRIMARY KEY

ROOM ID	TYPE	FLOOR	AREA
10101	OFFICE - LARGE	FLOOR 01	1000
10101A	OFFICE - MEDIUM	FLOOR 01	800
10102	OFFICE - SMALL	FLOOR 01	400
10103	CONFERENCE	FLOOR 01	640
20110	BREAK ROOM	FLOOR 02	820
20111	COPY AREA	FLOOR 02	220
20123	STORAGE	FLOOR 02	100
20843	CLASSROOM – 1	FLOOR 02	740
30102	CLASSROOM – 2	FLOOR 03	820
30104	CLASSROOM – 3	FLOOR 03	1020
30105	STUDY AREA	FLOOR 03	600

ROOMS TABLE

Foreign Key Field

Points to the Primary Key of another table.

It may be Null.

FOREIGN KEY →

FLOOR ID	AREA
FLOOR 01	23100
FLOOR 02	32800
FLOOR 03	32400

FLOORS TABLE

ROOM ID	TYPE	FLOOR	AREA
10101	OFFICE - LARGE	FLOOR 01	1000
10101A	OFFICE - MEDIUM	FLOOR 01	800
10102	OFFICE - SMALL		
10103	CONFERENCE	FLOOR 01	640
20110	BREAK ROOM		
20111	COPY AREA	FLOOR 02	220
20123	STORAGE	FLOOR 02	100
20843	CLASSROOM – 1		
30102	CLASSROOM – 2	FLOOR 03	820
30104	CLASSROOM – 3	FLOOR 03	1020
30105	STUDY AREA	FLOOR 03	600

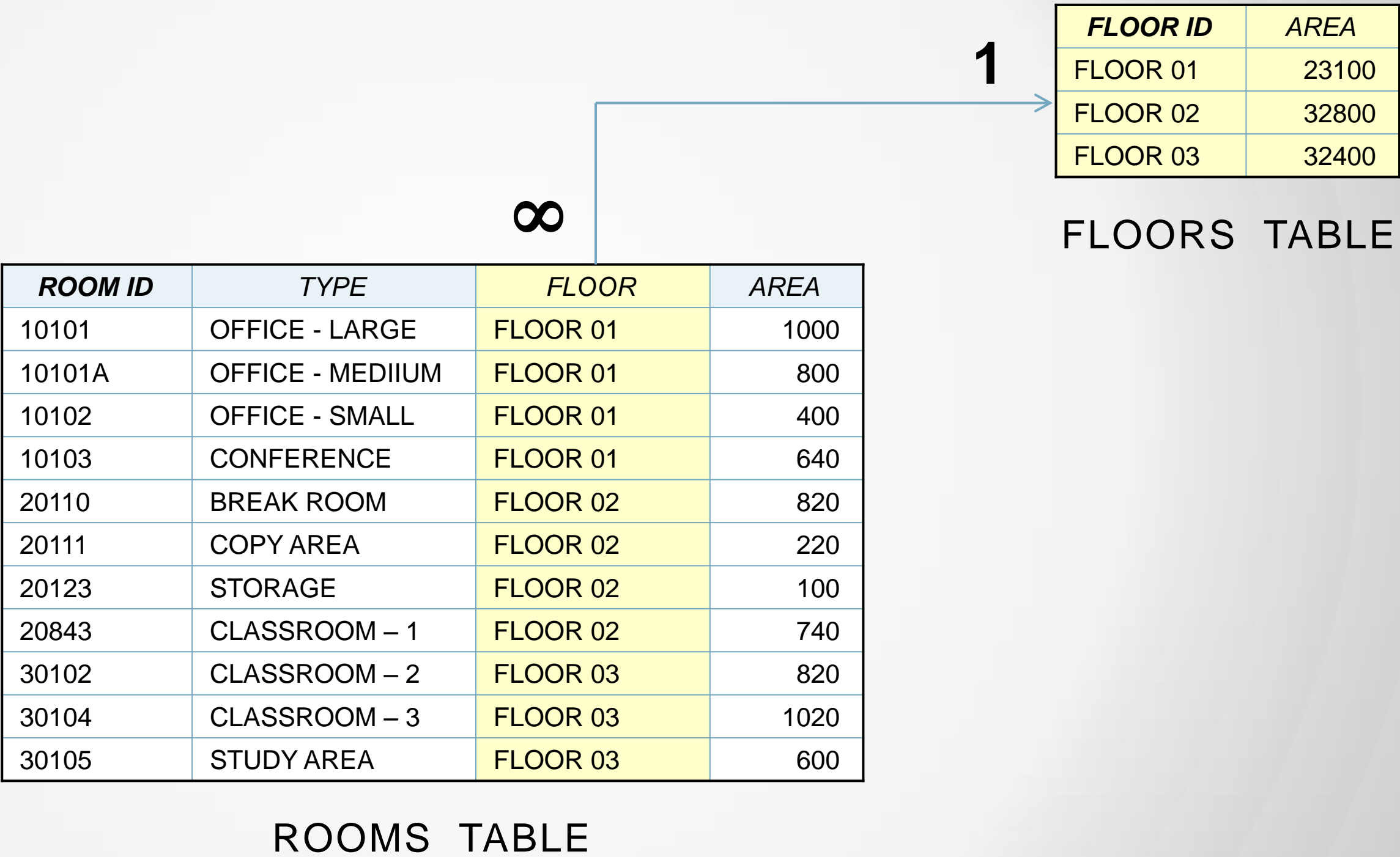
ROOMS TABLE

One to Many Relationship

Defined by a Foreign Key.

A value can occur:

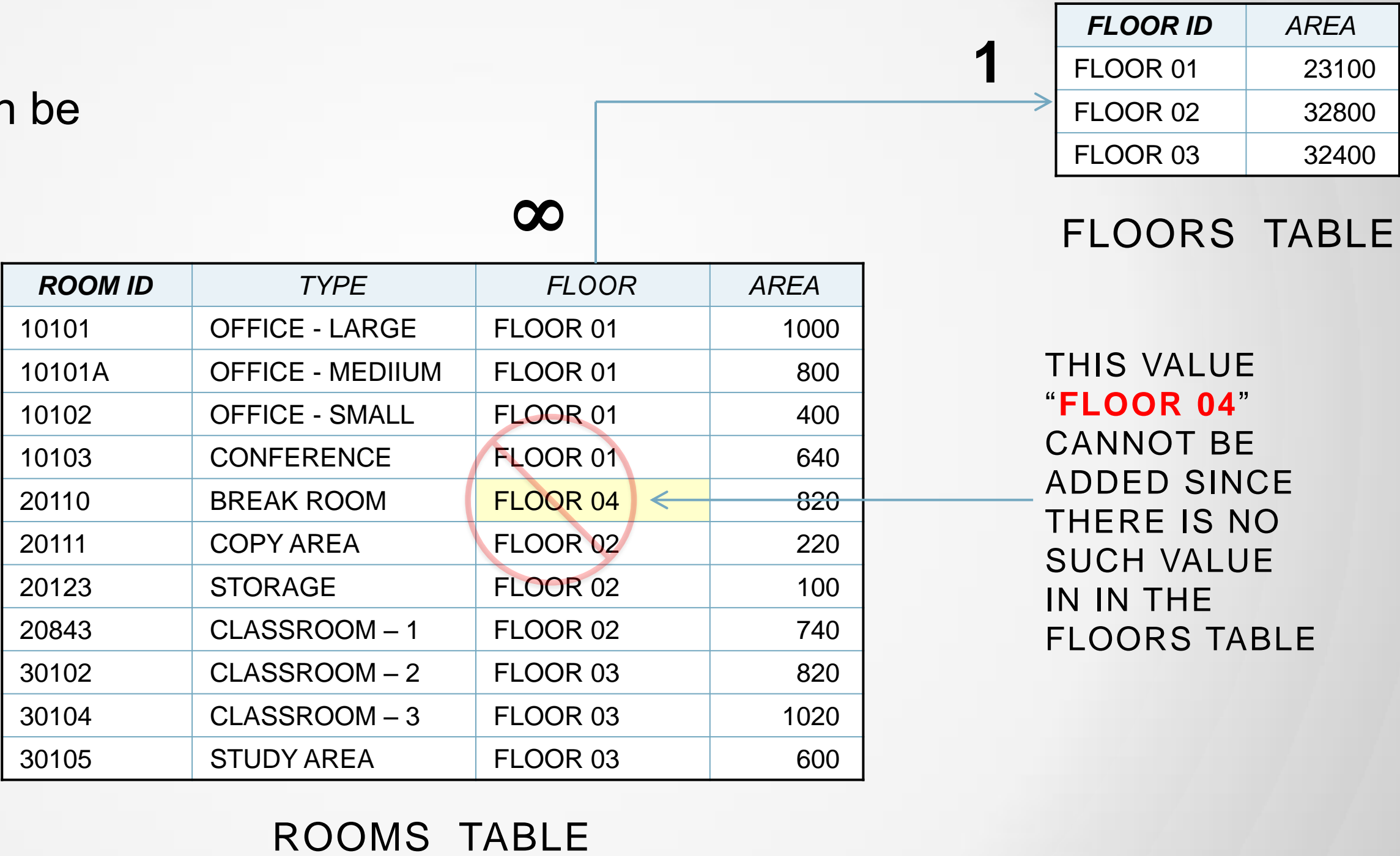
- Once on the “*one*” side.
- Many times on the “*many*” side.



Referential Integrity

The “one” side must exist before the “many” side can be used

- Changes can cascade from the one to the many.
- Deletions can cascade but may delete the whole record.



Normalizing Data

A table is **Not Normalized** if it has redundant data.

NAME	OFFICE	ADDRESS
ADAM SMITH	ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
BETTY JONES	ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
CLARK KENT	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563
STEVE WONG	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563
MARY STAFFORD	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563

THIS DATA IS
REDUNDANT

CONTACT TABLE WITH OFFICE ADDRESSES

The data can be **Normalized** by using two tables.

Name	OFFICE
ADAM SMITH	ACME CONSTRUCTION
BETTY JONES	ACME CONSTRUCTION
CLARK KENT	BEST ENGINEERING
STEVE WONG	BEST ENGINEERING
MARY STAFFORD	BEST ENGINEERING

CONTACT TABLE

∞

1

OFFICE	ADDRESS
ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563

OFFICE TABLE



Flattening Data

Normalized data can be difficult to use in Revit.

Name	OFFICE
ADAM SMITH	ACME CONSTRUCTION
BETTY JONES	ACME CONSTRUCTION
CLARK KENT	BEST ENGINEERING
STEVE WONG	BEST ENGINEERING
MARY STAFFORD	BEST ENGINEERING

CONTACT TABLE

∞

1

OFFICE	ADDRESS
ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563

OFFICE TABLE

THIS DATA IS DIFFICULT TO USE WHEN WORKING WITH THE CONTACT TABLE

The data can be **Flattened** by compressing it into a single table.

NAME	OFFICE	ADDRESS
ADAM SMITH	ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
BETTY JONES	ACME CONSTRUCTION	123 NORTH MAIN ST., CULVER CITY, CA 94306
CLARK KENT	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563
STEVE WONG	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563
MARY STAFFORD	BEST ENGINEERING	2100 FLAGSHIP WY., SACRAMENTO, CA 94563

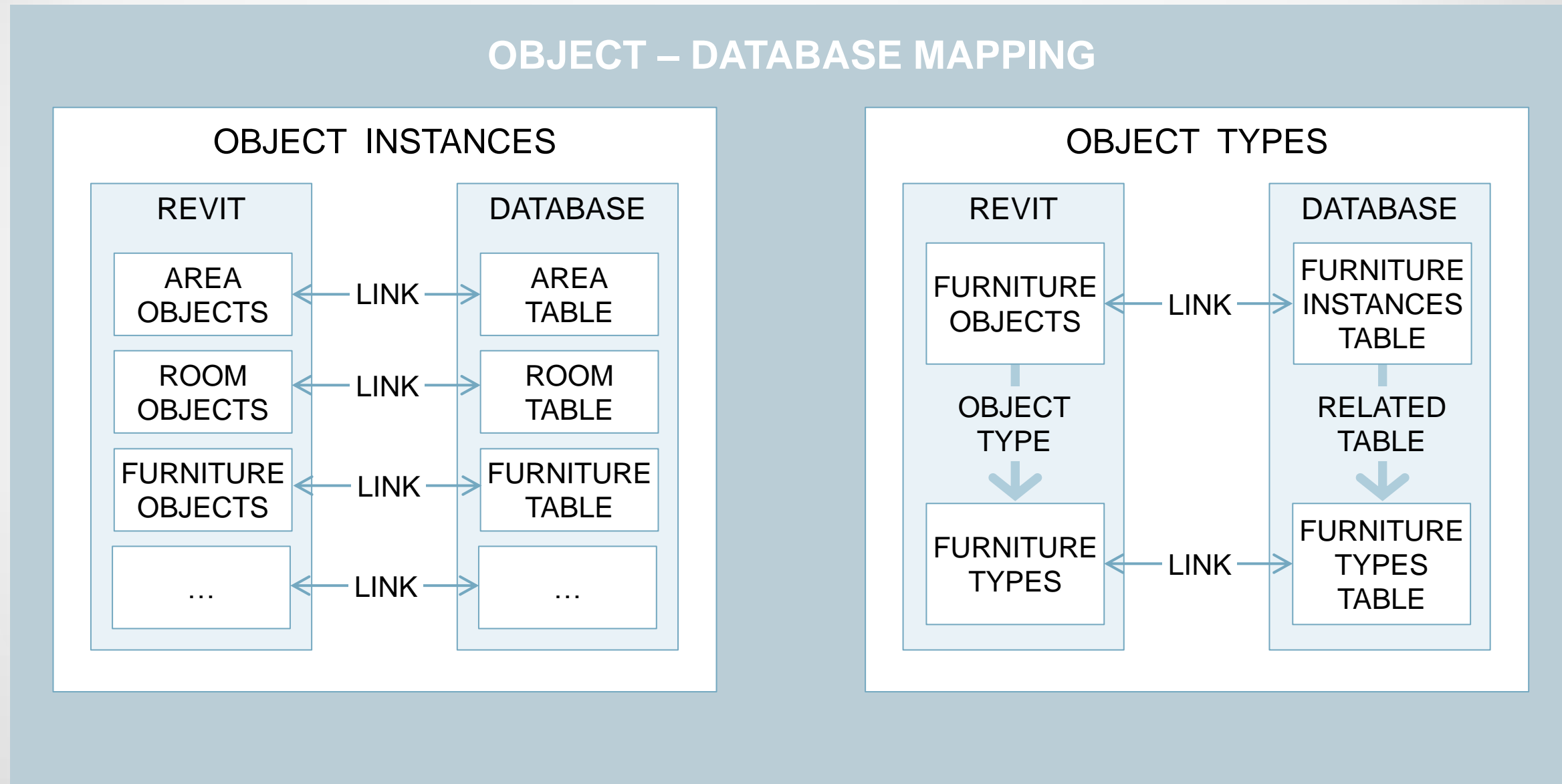
THIS DATA IS MORE EASILY ACCESSIBLE

CONTACT TABLE WITH OFFICE ADDRESSES

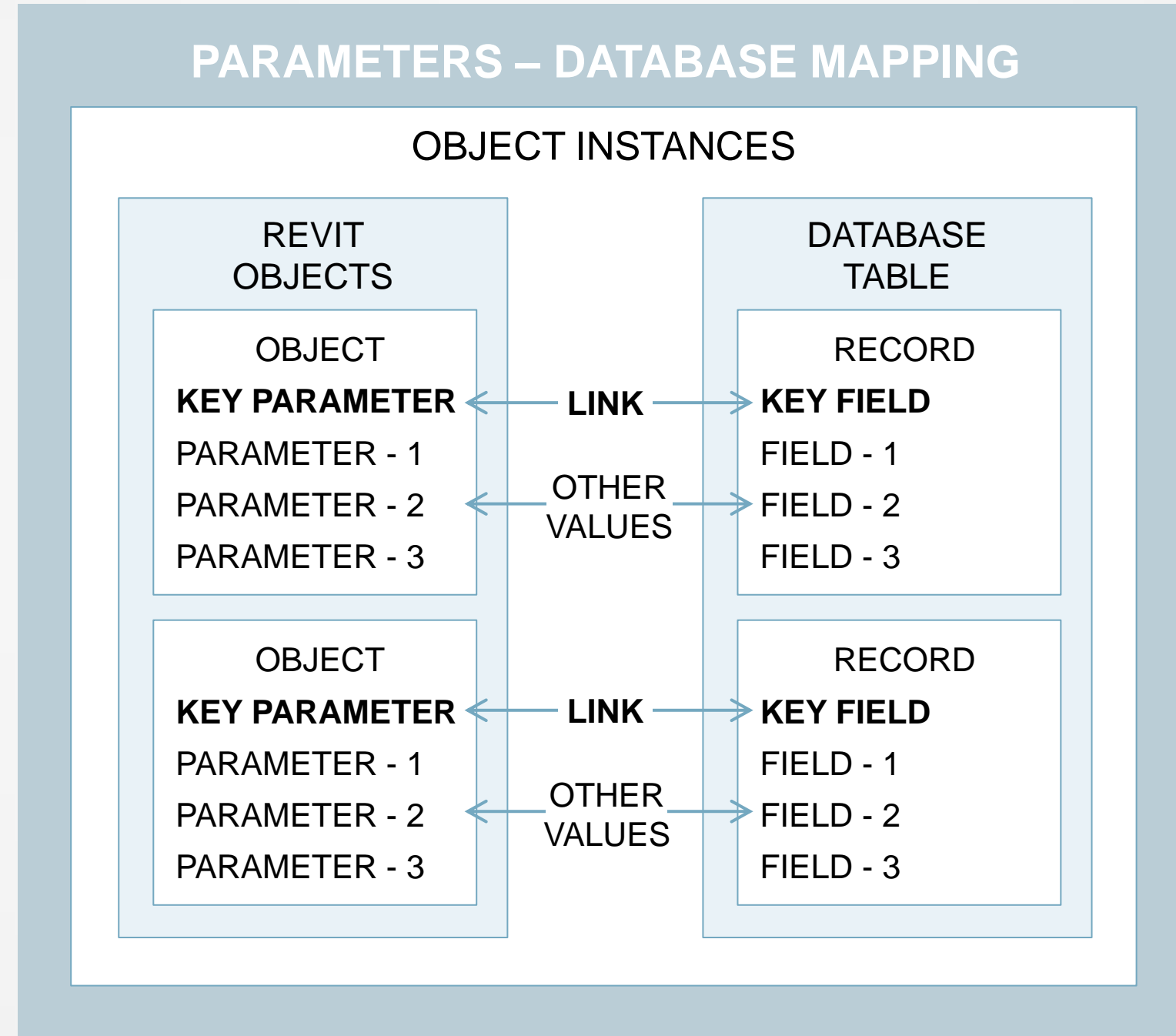


Revit Objects and Relational Data

Mapping Revit Objects to Database Tables



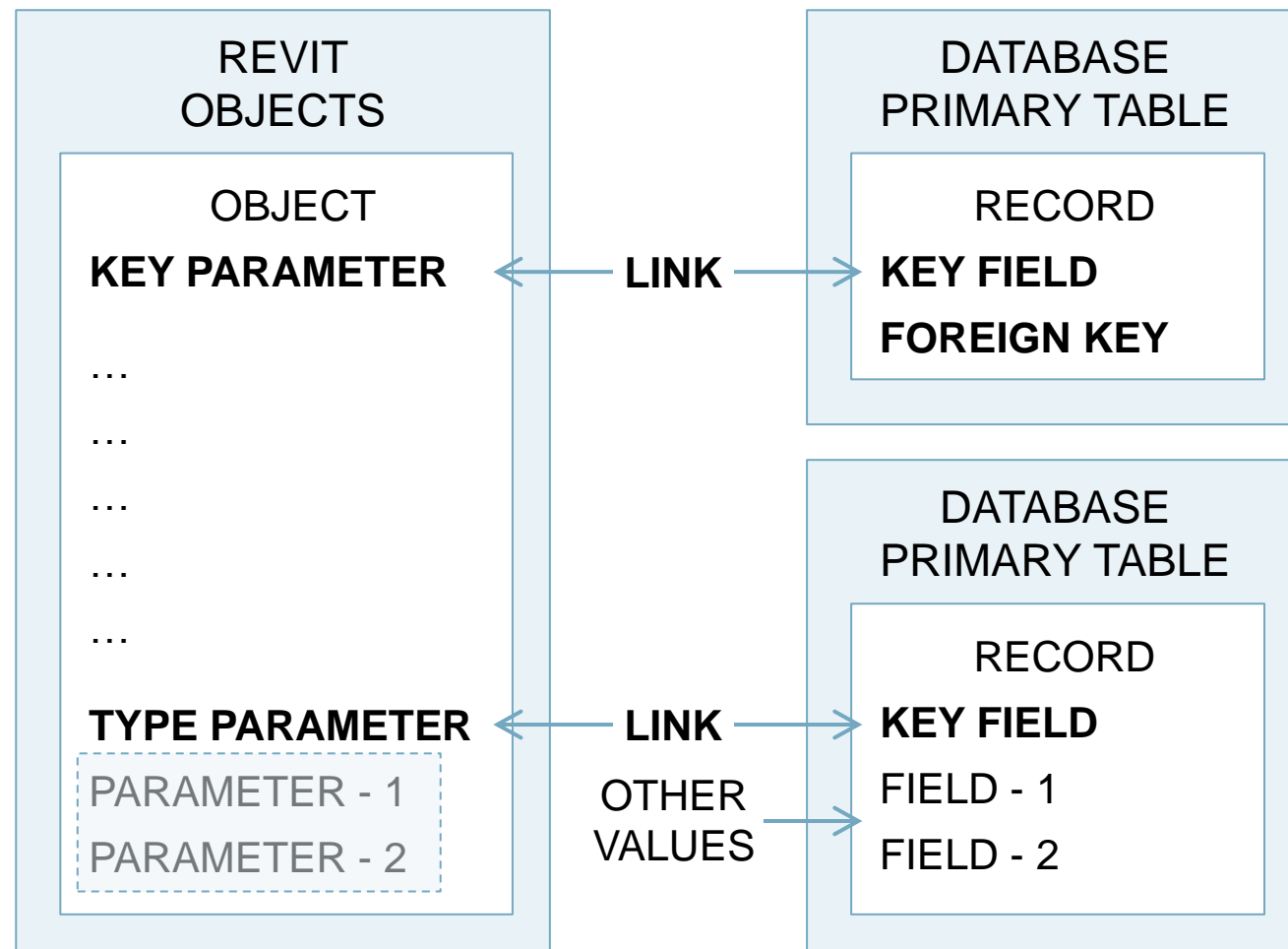
Mapping Revit Parameters to Database Fields



Mapping Revit Parameters to Database Fields

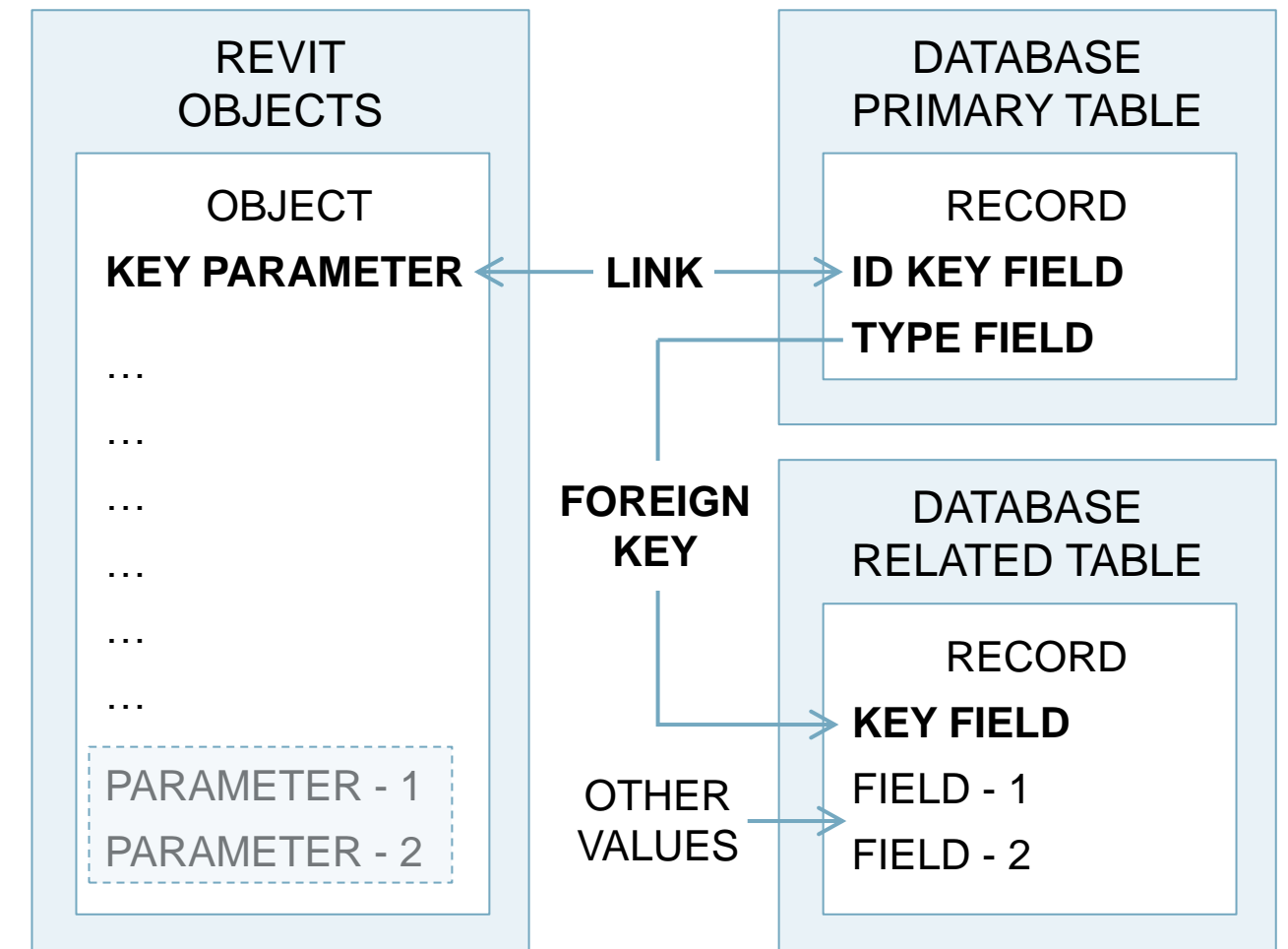
TYPE PARAMETERS – DATABASE MAPPING

OBJECT TYPES



TYPE PARAMETERS – DATABASE MAPPING

OBJECT TYPES



System Architecture and Software Options

System Architecture

Single User

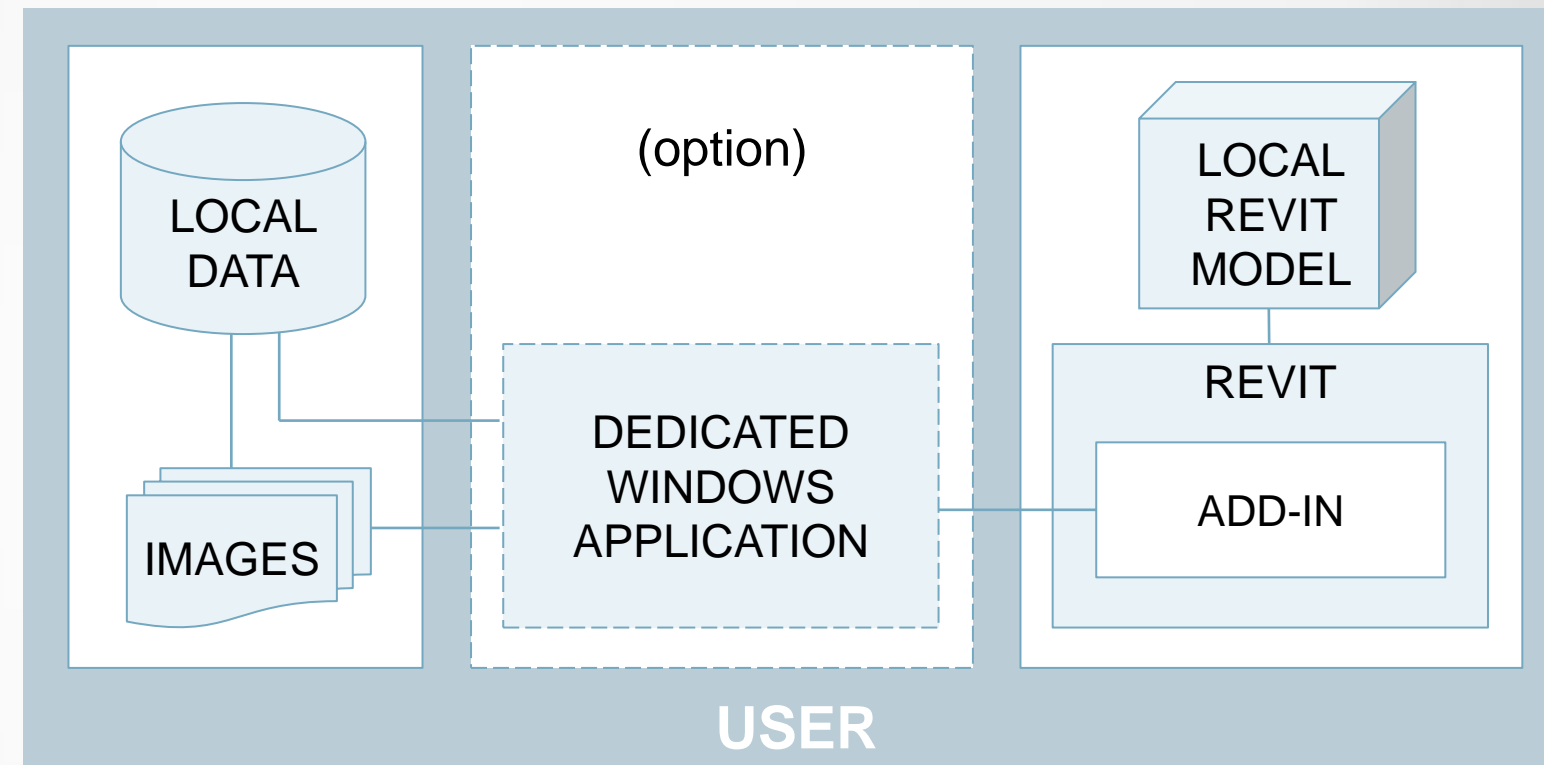
- Option 1: Revit Add-in only.
- Option 2: Windows application.

Advantages:

- Simple; easy to use.

Disadvantages:

- Single-user.



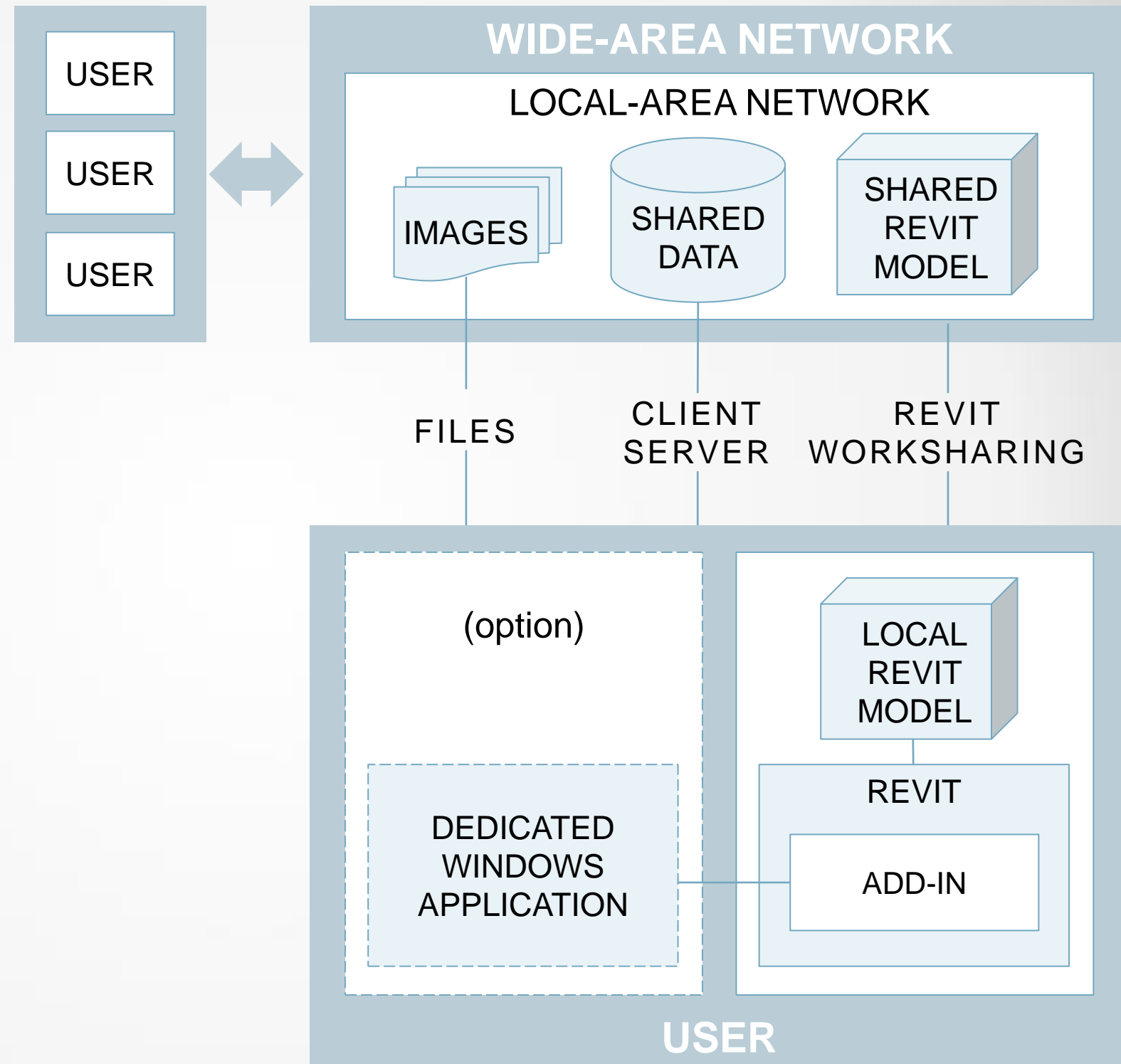
Multi-User – LAN / WAN

Advantages:

- Multi-user.
- Mature technology.

Disadvantages:

- Only inside “Firewall”



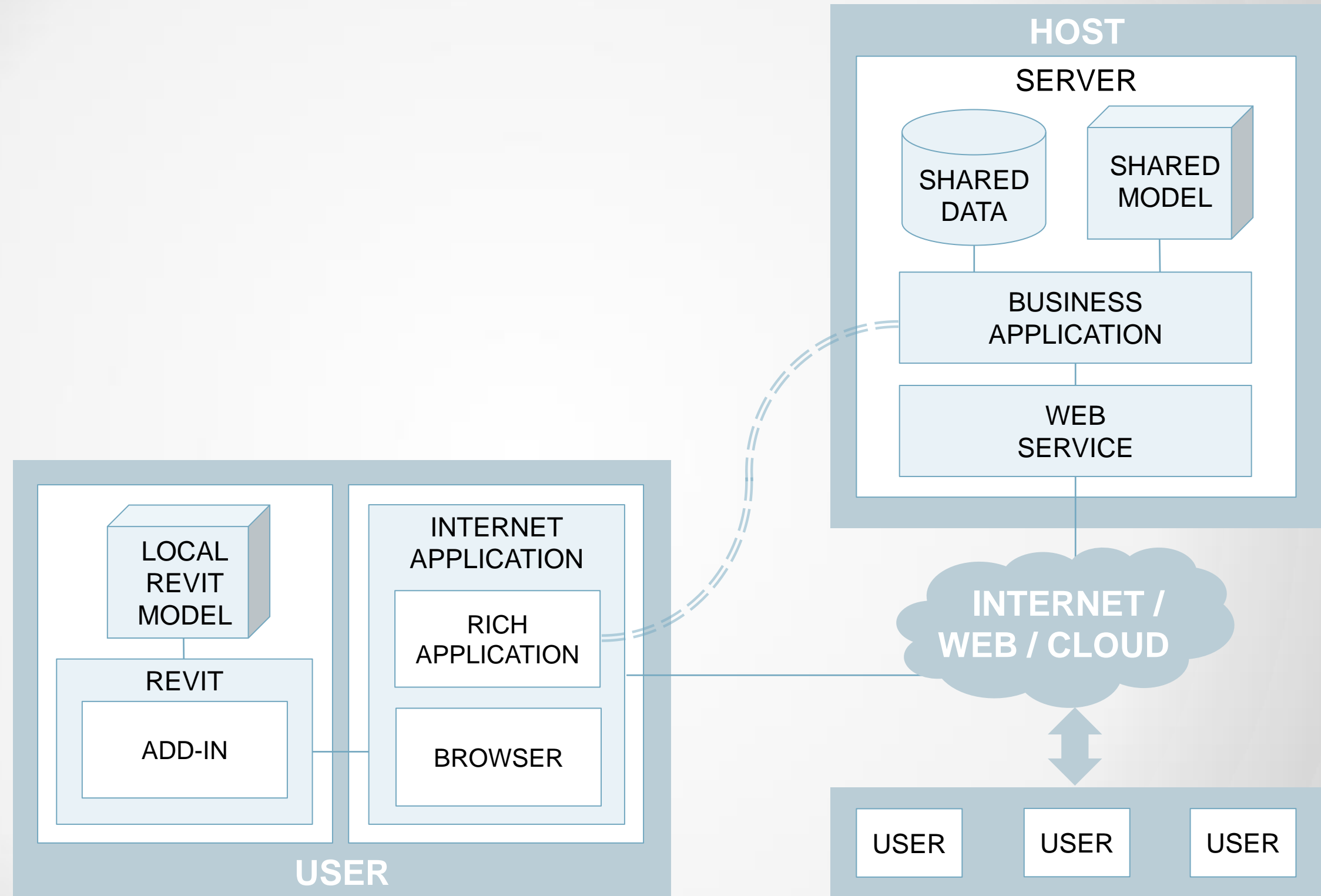
Multi-user – Internet (Web – Cloud)

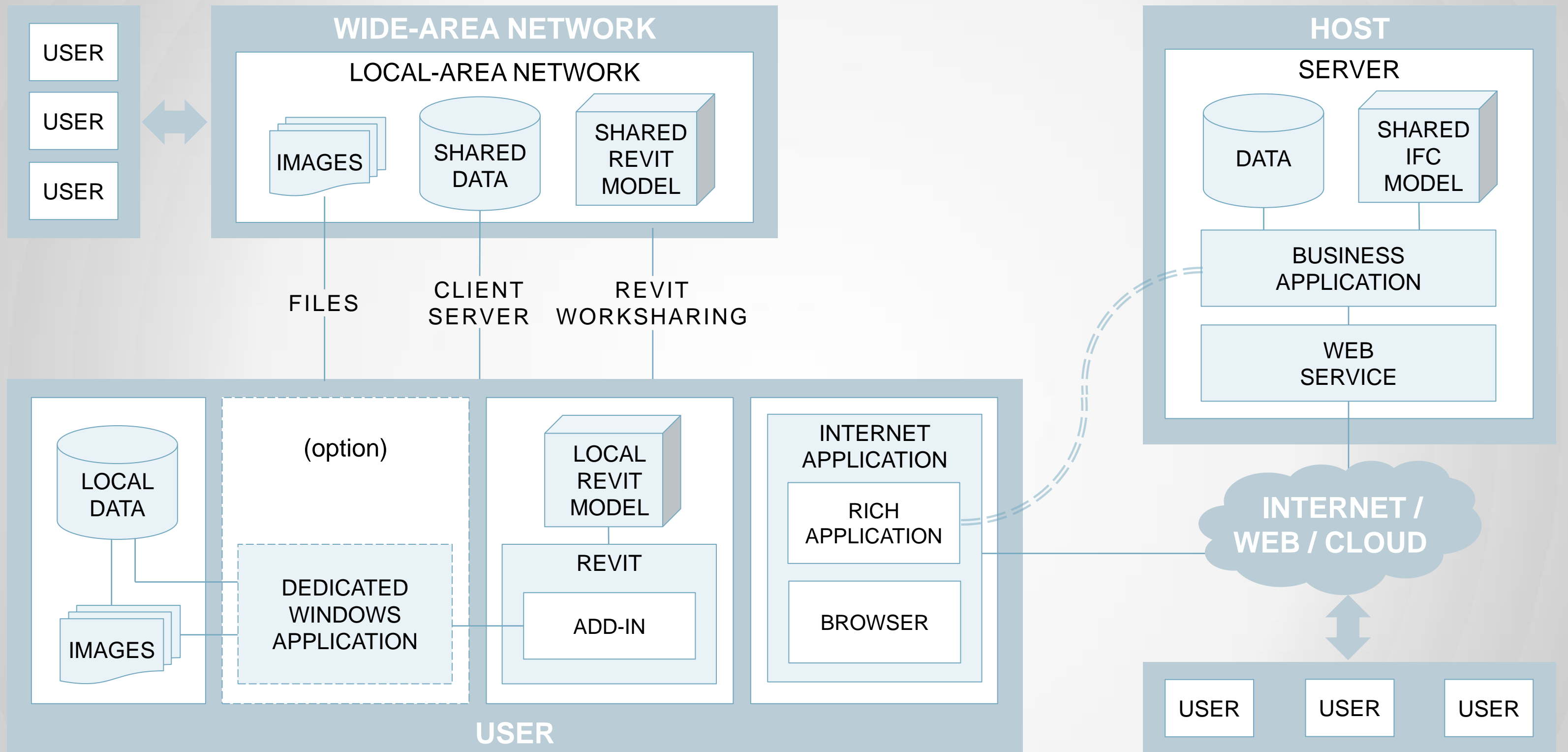
Advantages:

- Collaboration.
- Centralized administration.

Disadvantages:

- Complex.
- Less functional.





SYSTEM ARCHITECTURE – OPTIONS

Ideate - BIMLink

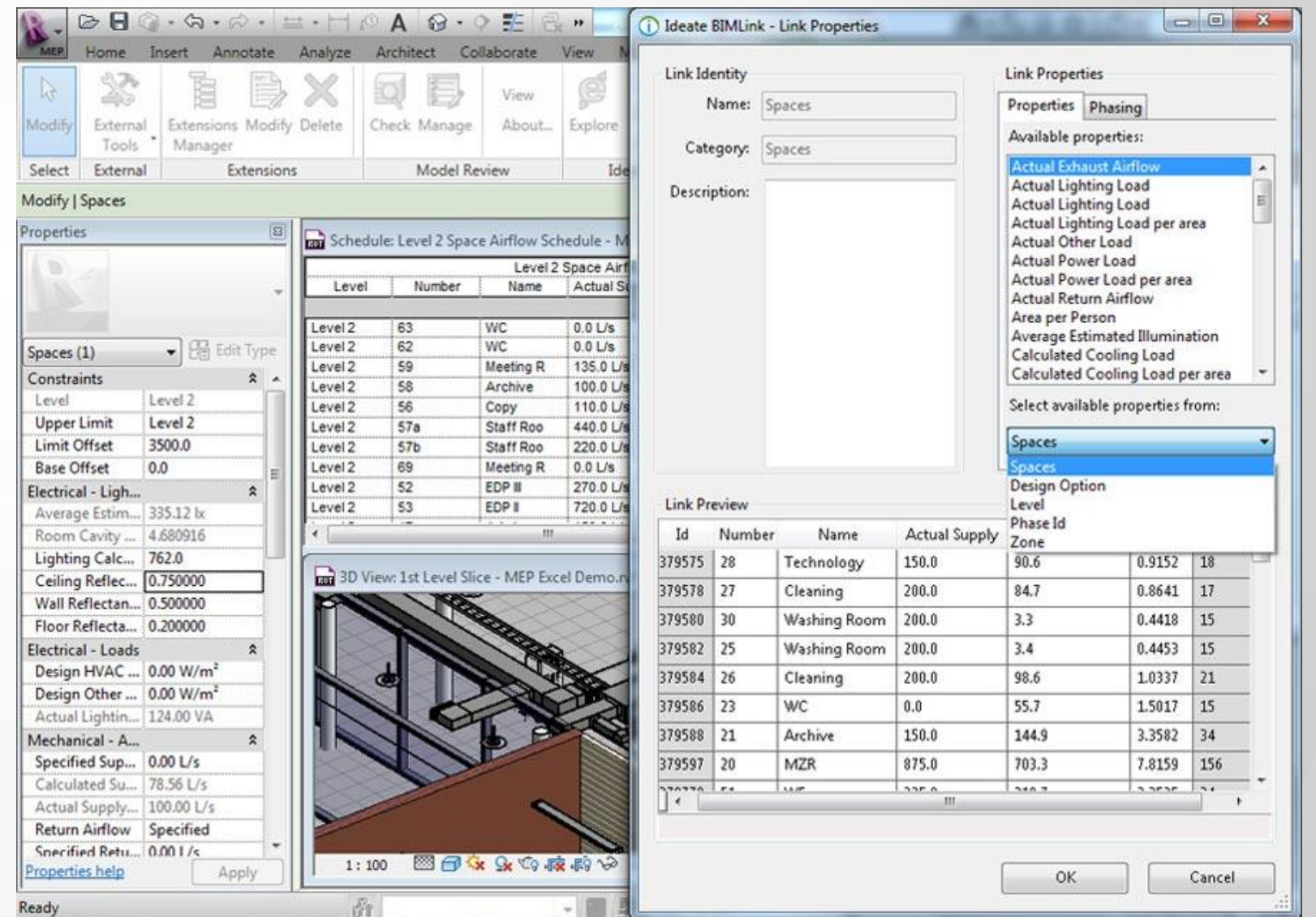
Link Microsoft Excel to Revit

Inexpensive, Wide Adoption

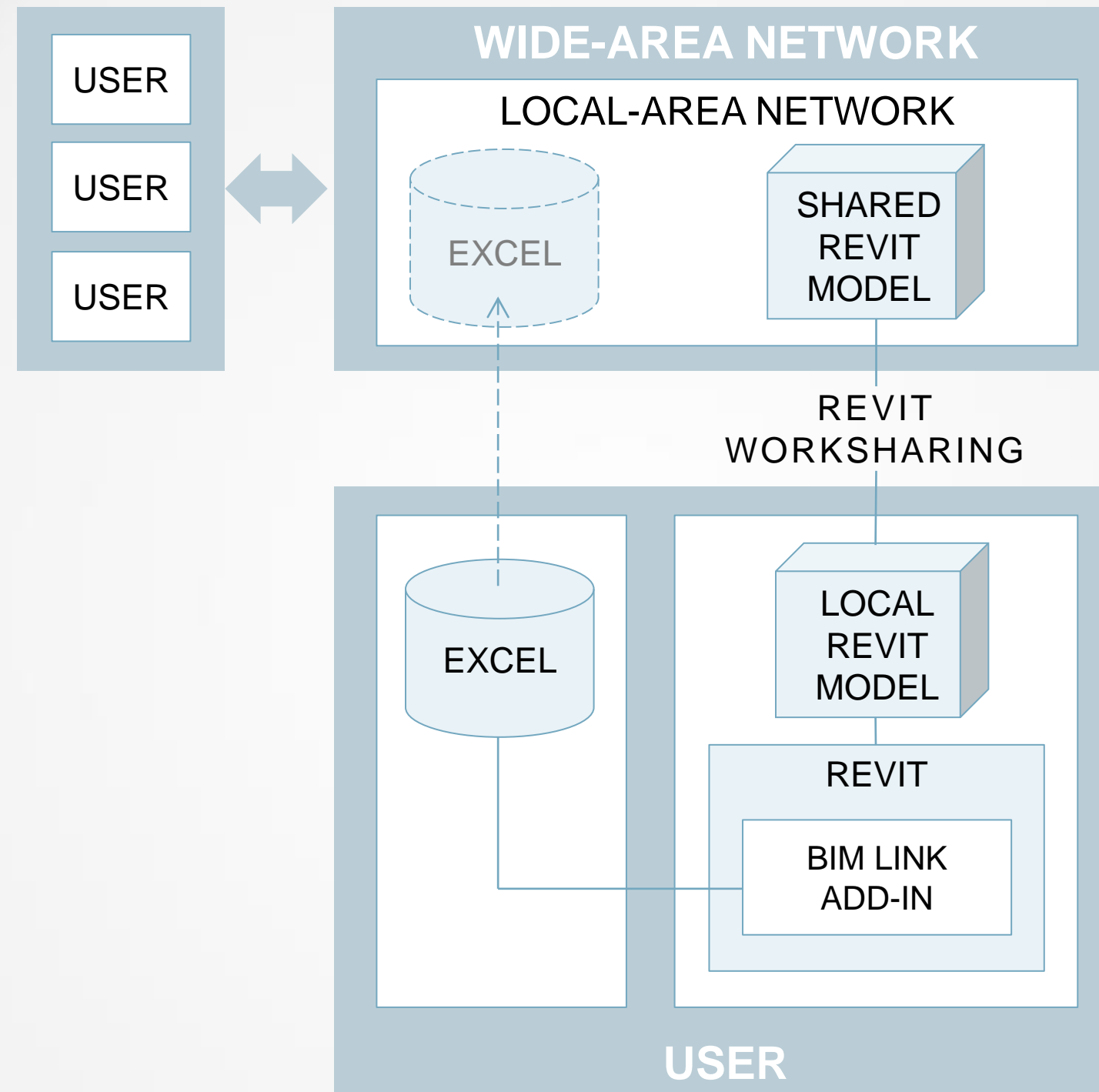
Features:

- No training required
- FlexLM licensing
- Access to Revit Data beyond Schedules
- Element Creation
- Standards Management

<http://www.ideatebimlink.com/>



Images copied from Vendor Website.



SYSTEM ARCHITECTURE – IDEATE BIM LINK

WhiteFeet – Tools for Revit

Link Database to Revit

Hobbyist – Unlimited Free Trial

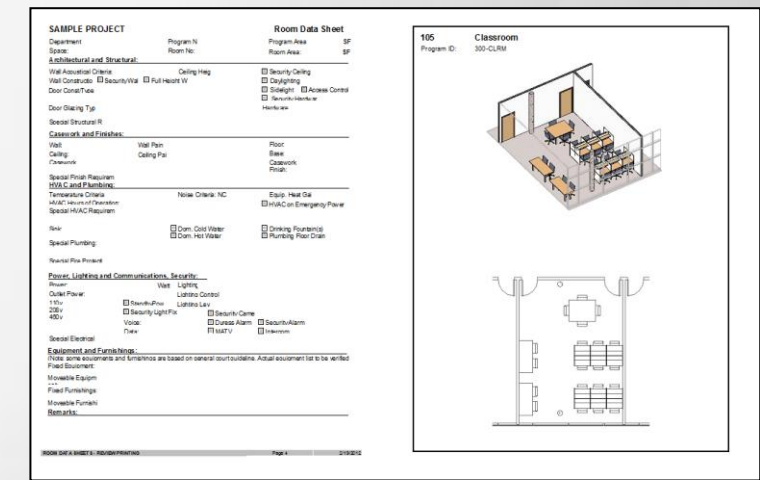
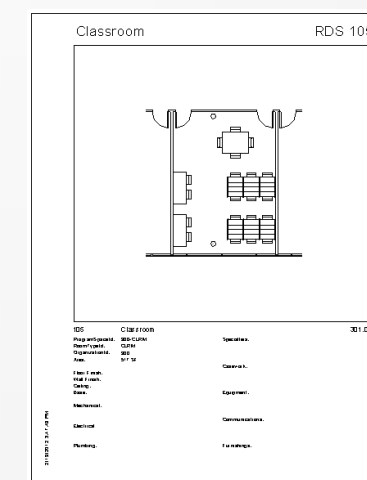
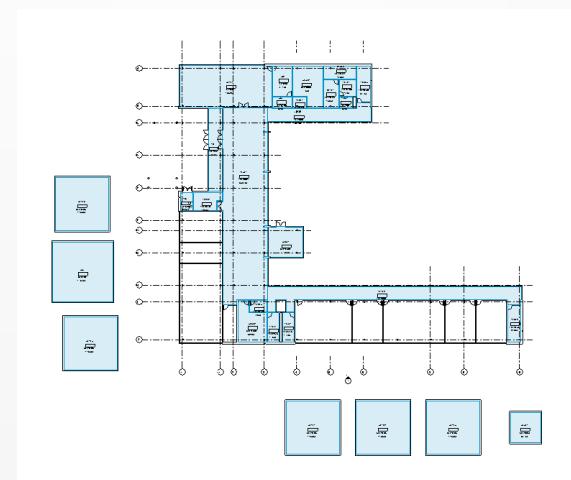
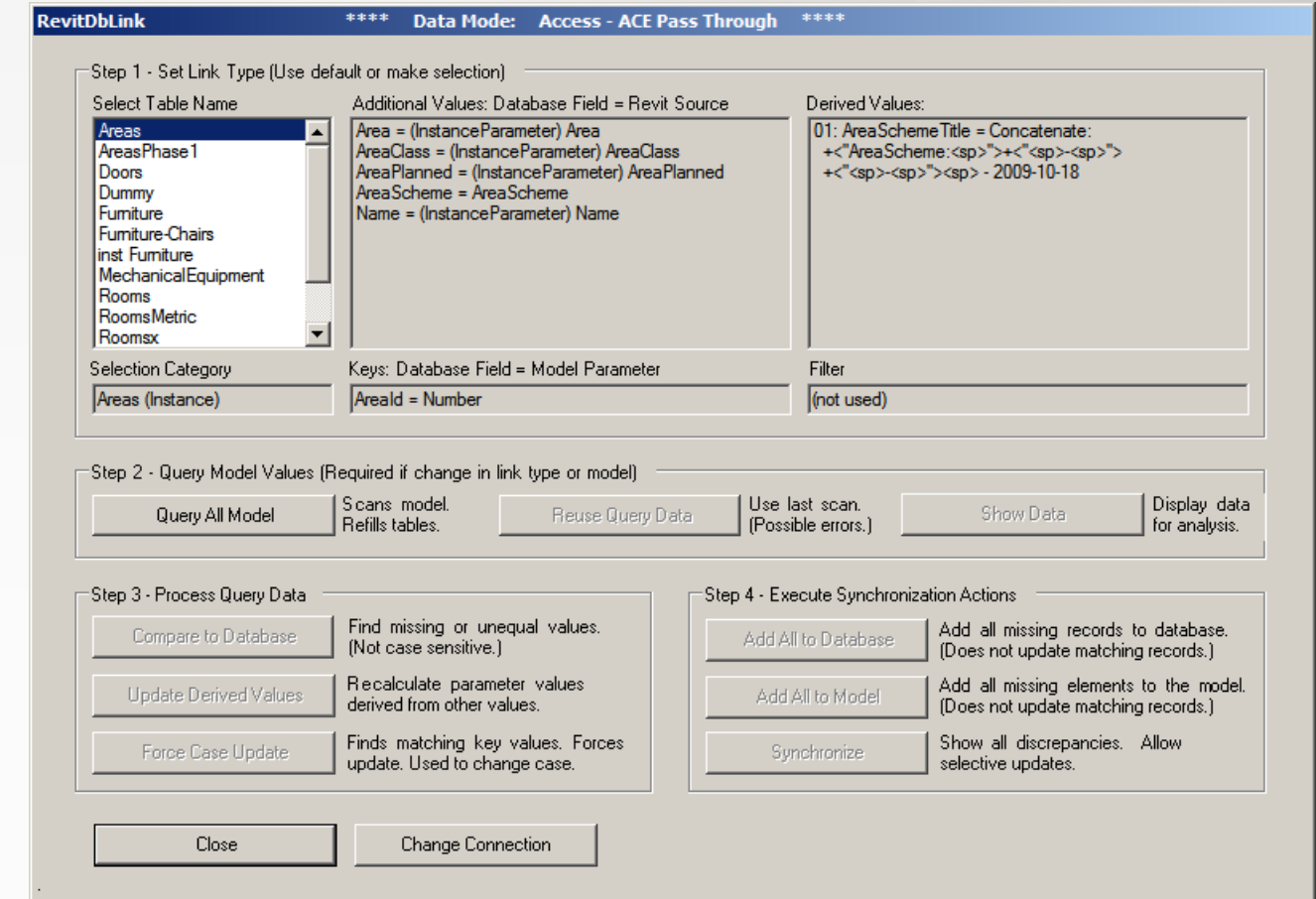
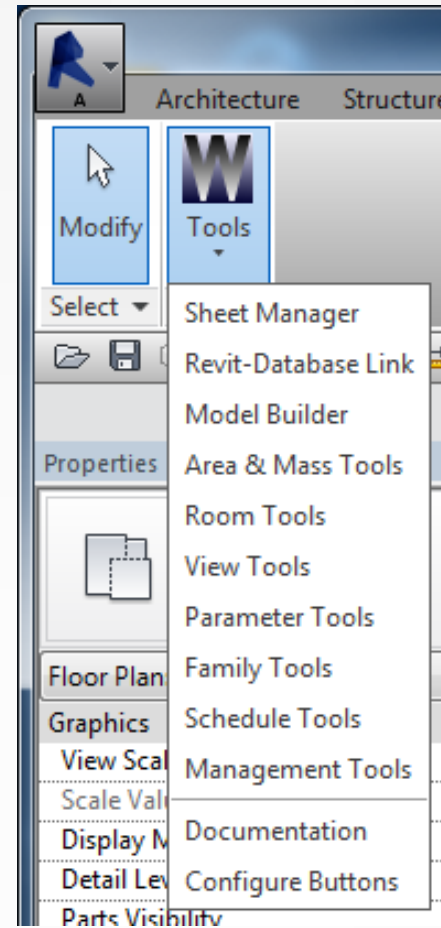
Database Options:

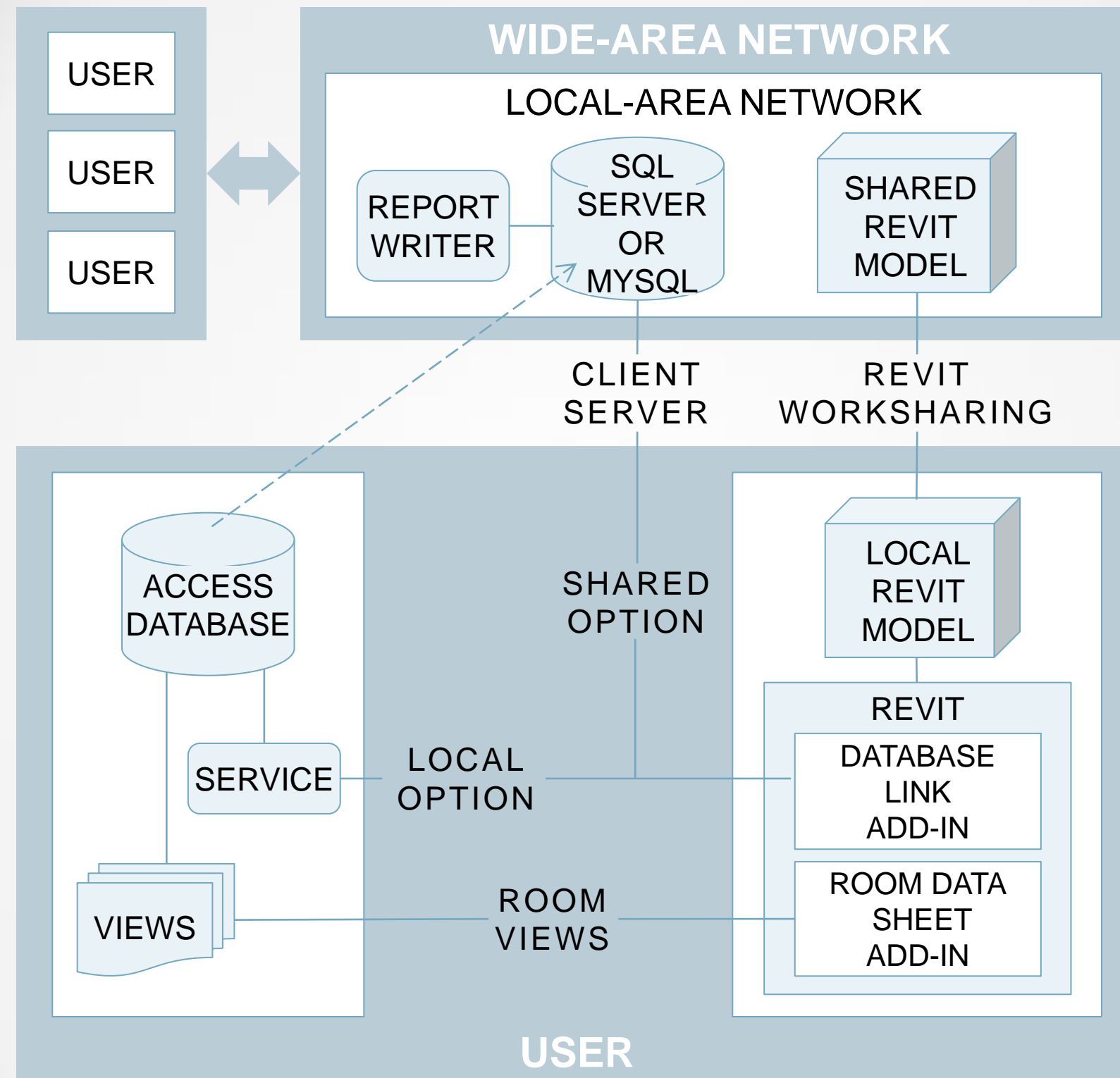
- Microsoft Access.
- SQL Server.
- MySQL.

Room Data Sheets

- In Revit.
- Database report.

www.WhiteFeetTools.com





SYSTEM ARCHITECTURE – WHITEFEET REVIT DBLINK

Trelligence – Affinity

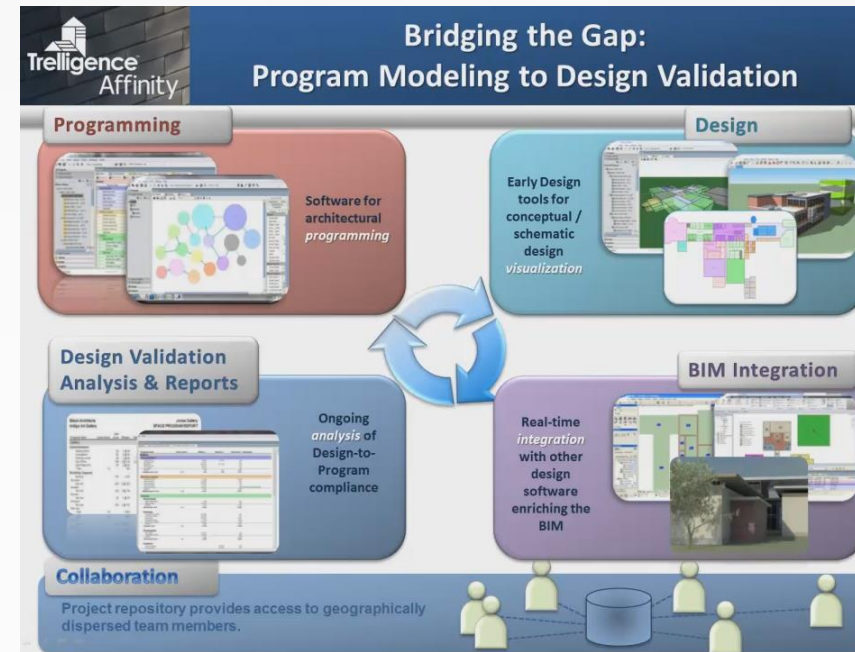
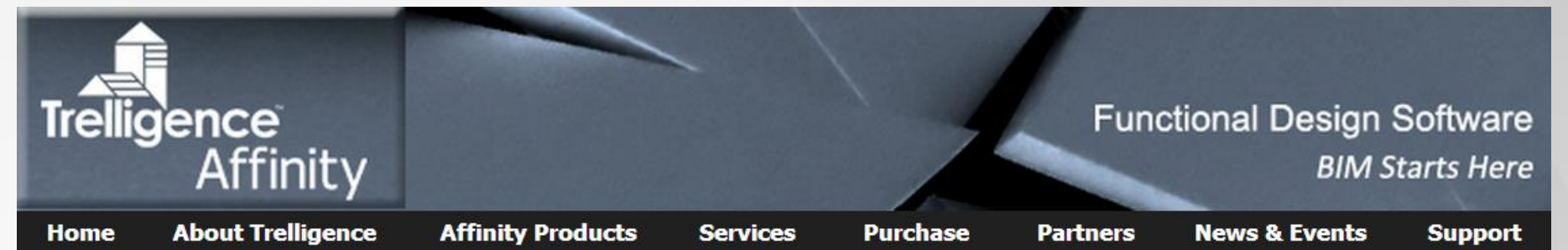
Stand-alone Application

- Proprietary Graphics
- Proprietary Data Format
- Link to Revit/Vasari, ArchiCAD, AECOsim, SketchUp, and IES

Features:

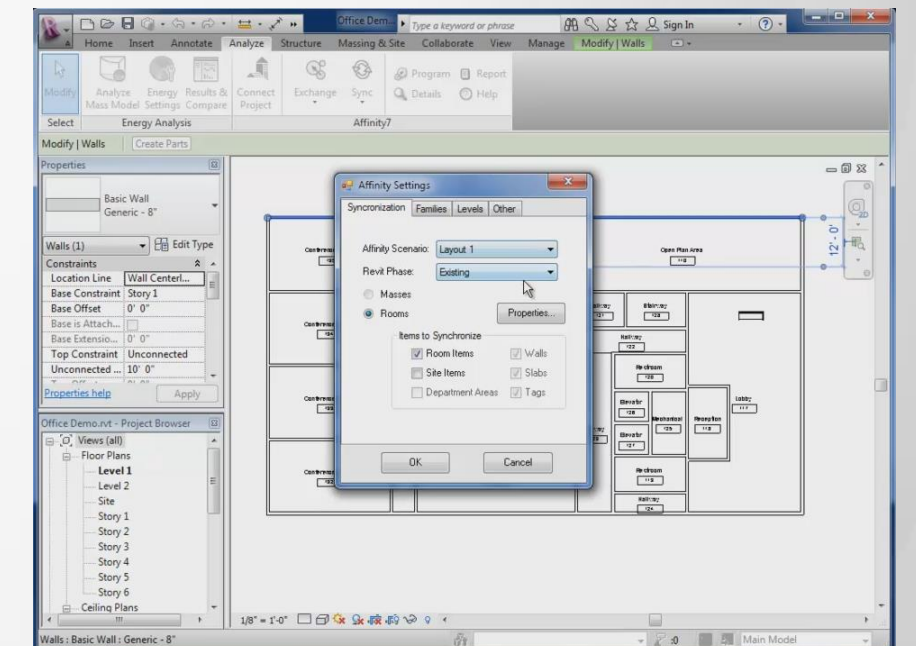
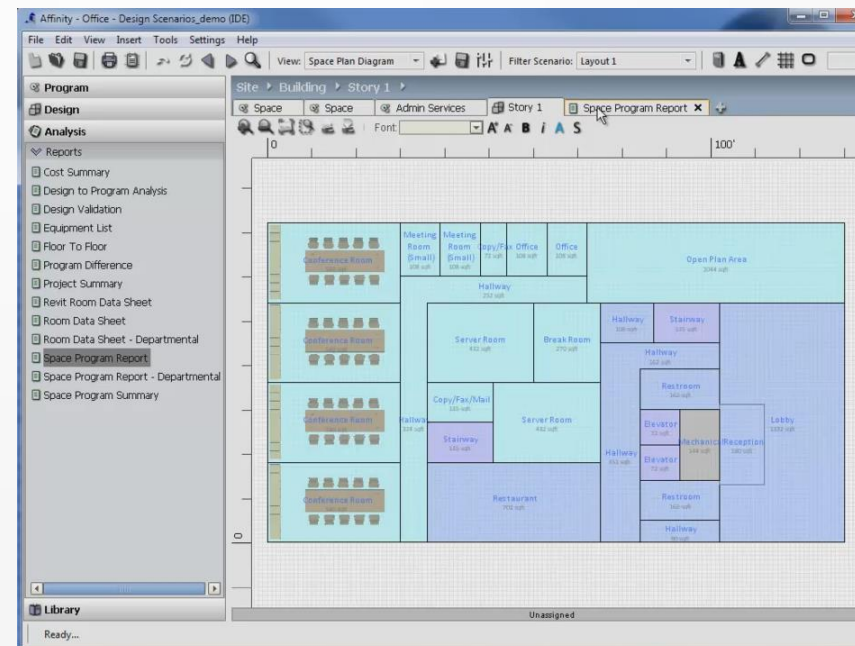
- Architectural Programming
- Early Design
- Design Validation
- BIM Integration
- Sustainability Analysis

<http://www.trelligence.com/>

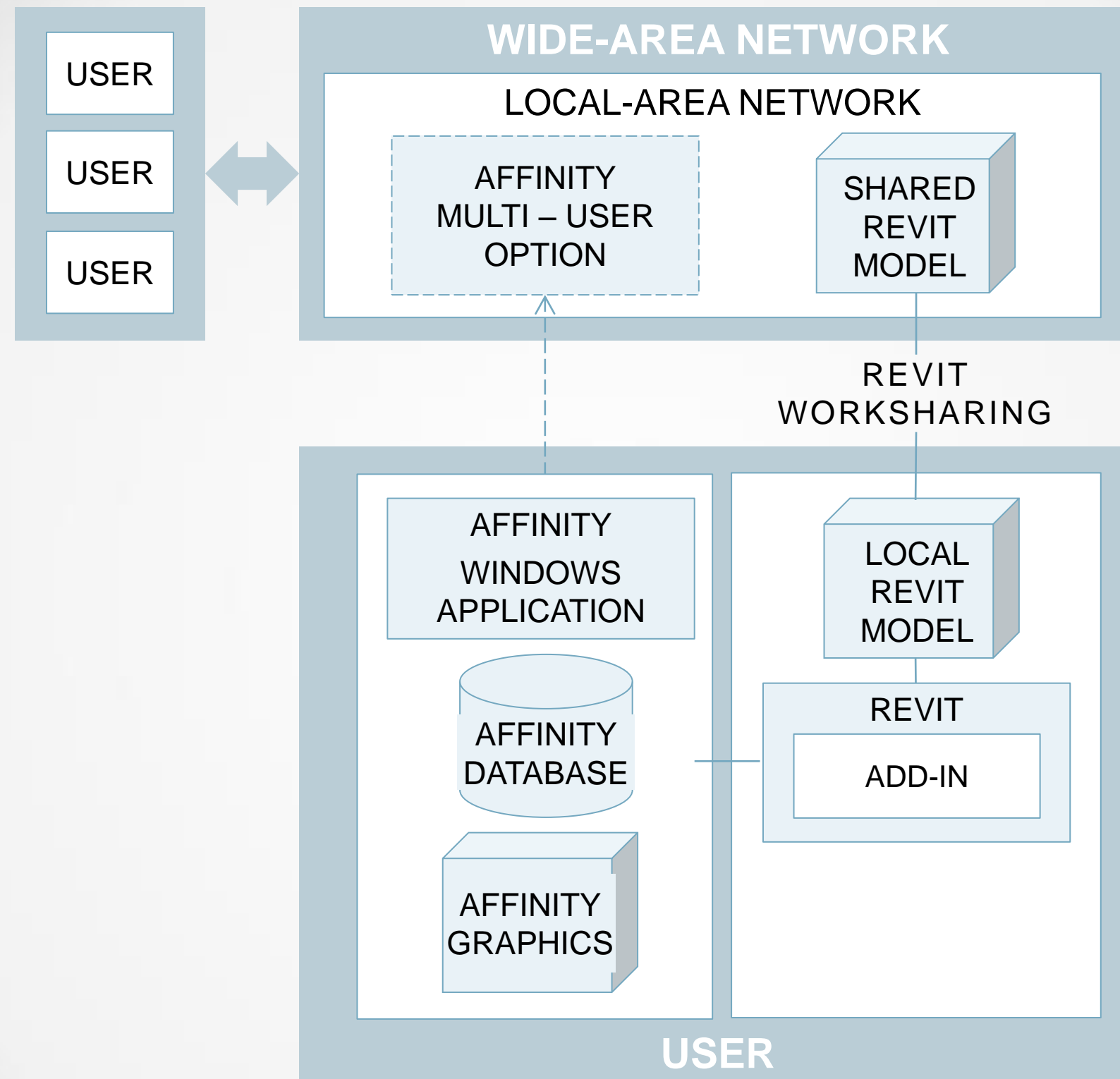


The screenshot shows the 'Space Program Report' table in the Affinity software. The table lists various spaces and their associated data.

Program Item	Area Factor	Unit Area	Target	Dimensions	Total	Total Area	Comments
Space	1.27		41034 sqft		104	42042 sqft	
Administration	1.0		14742 sqft		41	15536 sqft	
Admin Services	1.0		4712 sqft		14	5506 sqft	
Break Room		180 sqft	3 @ 180 s...	12' x 15'	3	540 sqft	
Conference Room		200 sqft	500 sqft	18' 3" x 10' 11"	1	700 sqft	All Conference ...
Copy/Fax		54 sqft	2 @ 54 sqft	6' x 9'	3	162 sqft	
Copy/Fax/Mail		108 sqft	1 @ 108 s...	9' x 12'	1	108 sqft	Mail for all Dept...
Meeting Room (Large)		540 sqft		30' x 18'	1	540 sqft	
Meeting Room (Small)		108 sqft	2 @ 108 s...	9' x 12'	2	216 sqft	
Office		108 sqft	2 @ 108 s...	9' x 12'	2	216 sqft	
Open Plan Area		1080 sqft	2160 sqft	45' x 24'	2	2160 sqft	
Server Room		432 sqft	2 @ 432 s...	18' x 24'	2	864 sqft	1 dedicated to ...
Subtotal		4712 sqft			14	5506 sqft	
HR	1.0		4752 sqft		13	4752 sqft	
Library/Reference		504 sqft	1 @ 504 s...	42' x 12'	1	504 sqft	
Meeting Room (Small)		108 sqft	4 @ 108 s...	9' x 12'	4	432 sqft	
Office		108 sqft	4 @ 108 s...	9' x 12'	4	432 sqft	
Open Plan Area		1080 sqft	1080 sqft	45' x 24'	4	1080 sqft	
Training Room		576 sqft	4 @ 576 s...	24' x 24'	4	2304 sqft	Available for all ...
Subtotal		4752 sqft			13	4752 sqft	
Legal & Accounting	1.0		2952 sqft		10	2952 sqft	
File/Storage		108 sqft	1 @ 108 s...	9' x 12'	1	108 sqft	Must be coded...
Library/Reference		504 sqft	2 @ 504 s...	42' x 12'	2	1008 sqft	
Meeting Room (Small)		108 sqft	5 @ 108 s...	9' x 12'	5	540 sqft	
Office		108 sqft	2 @ 108 s...	9' x 12'	2	216 sqft	
Open Plan Area		1080 sqft	1080 sqft	45' x 24'	2	1080 sqft	
Subtotal		2952 sqft			10	2952 sqft	



Images copied from Vendor Website.



SYSTEM ARCHITECTURE – AFFINITY

CodeBook

CAD/BIM linked to Database

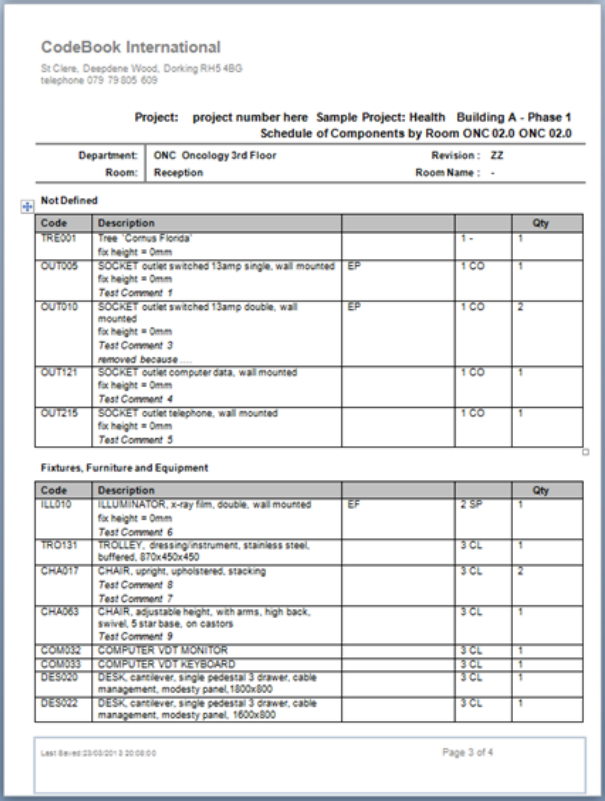
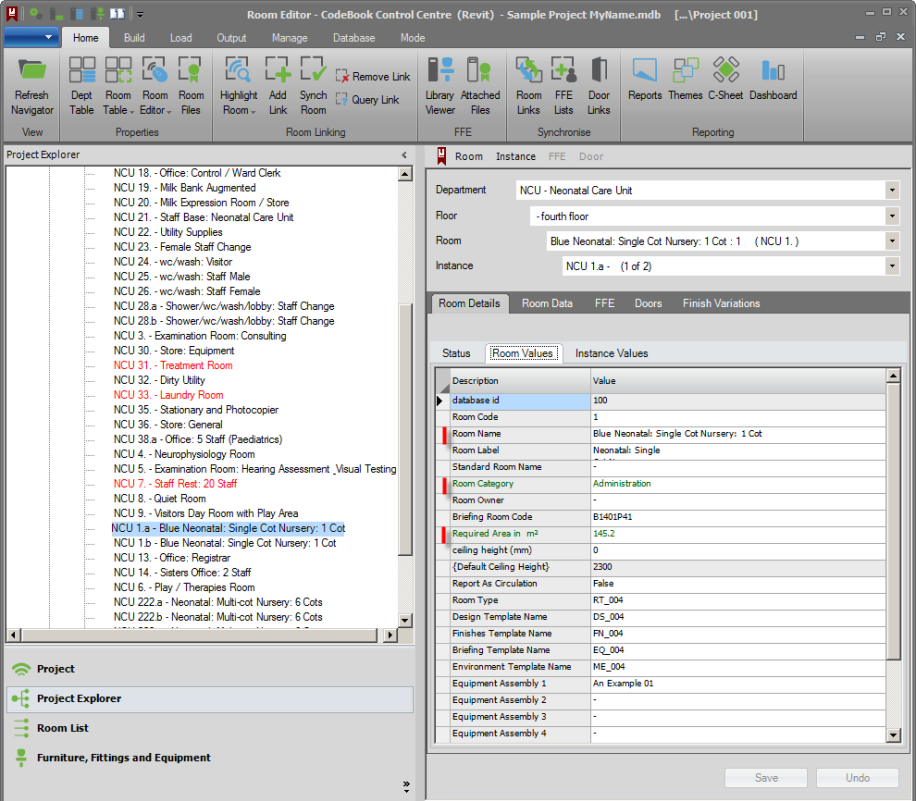
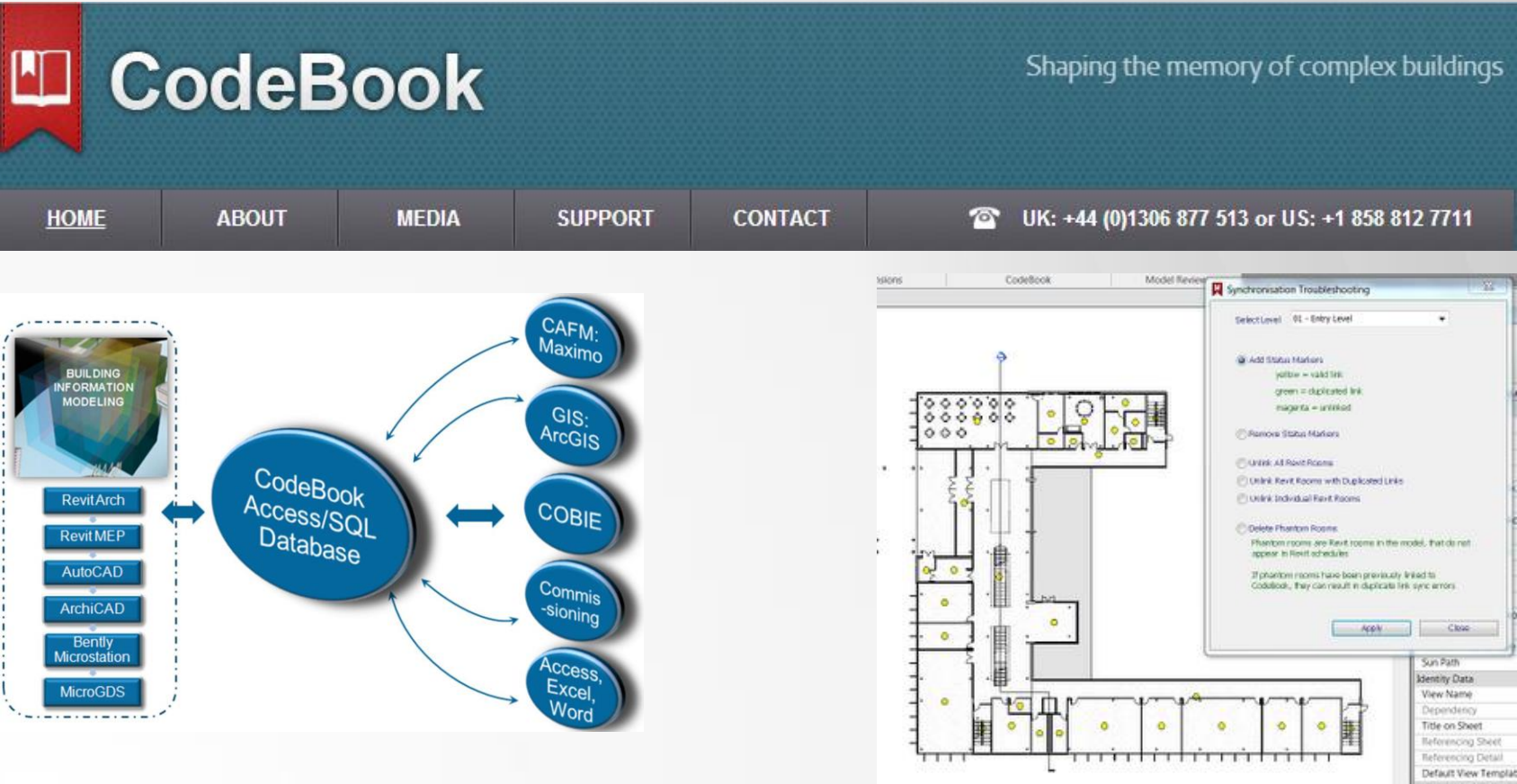
- CAD/BIM Options: Revit, AutoCAD, Navisworks, MicroStation and ArchiCAD.
- Database Options: Access, SQL Server

Strong in Healthcare market, especially in UK.

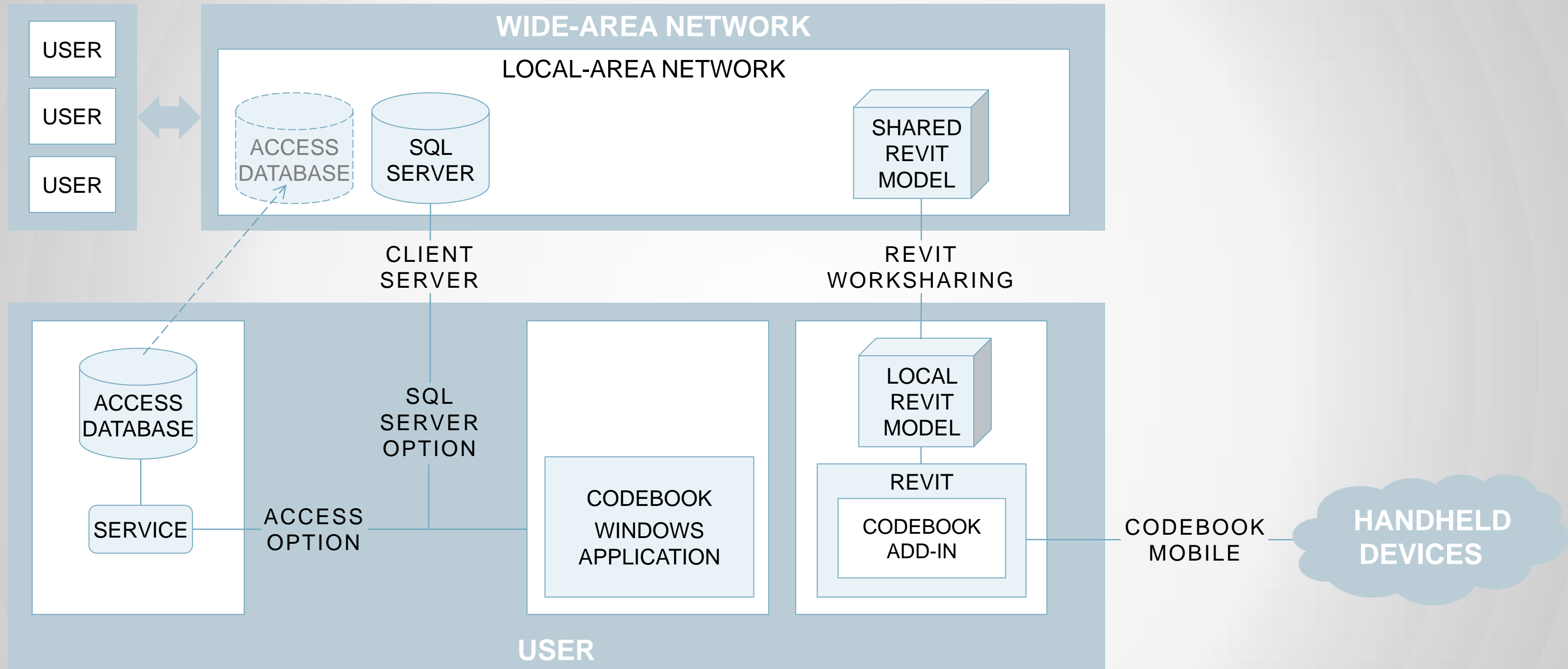
Features:

- Boosts economic viability
- Links everything to the brief
- Validates design changes
- Delivers results

<http://www.codebookinternational.com/>



Images copied from Vendor Website.



SYSTEM ARCHITECTURE – CODEBOOK

- Revit, IFC, ArchiCAD.

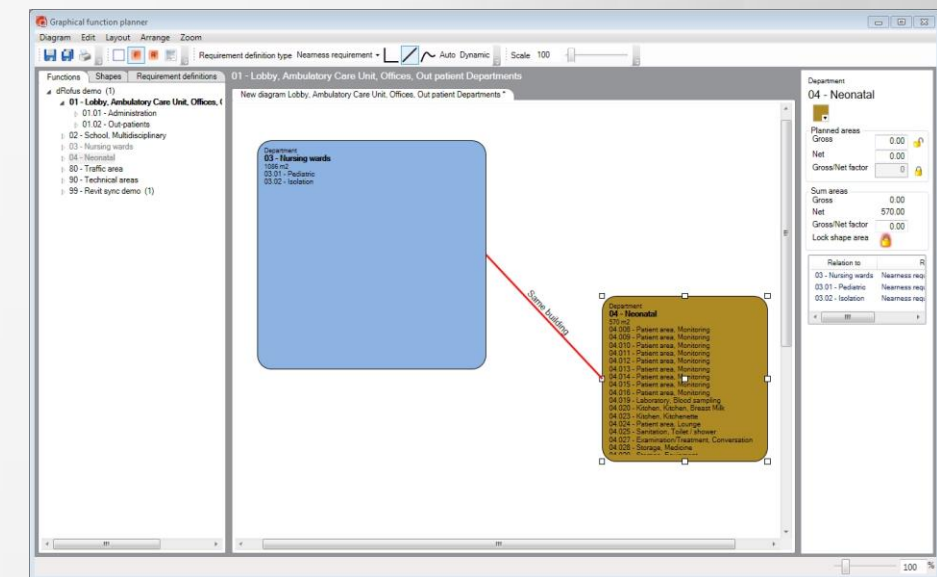
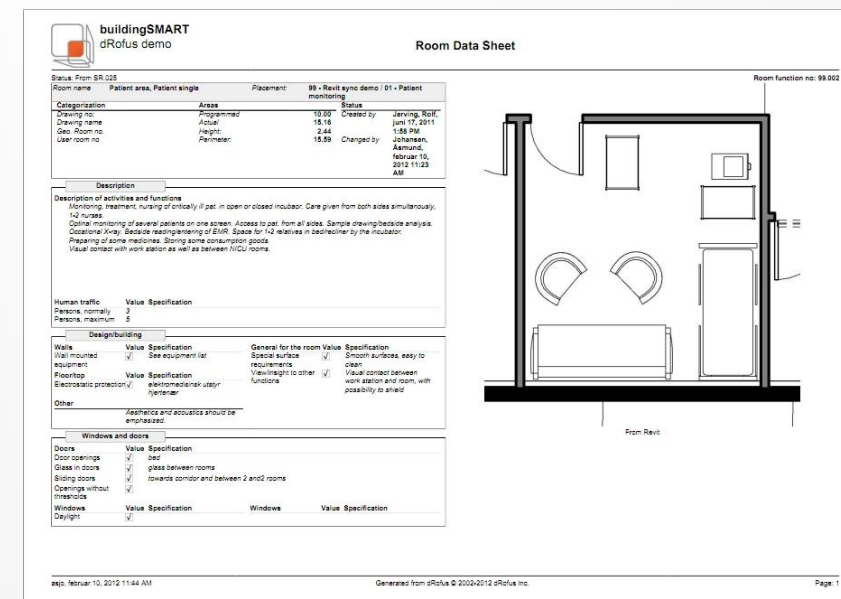
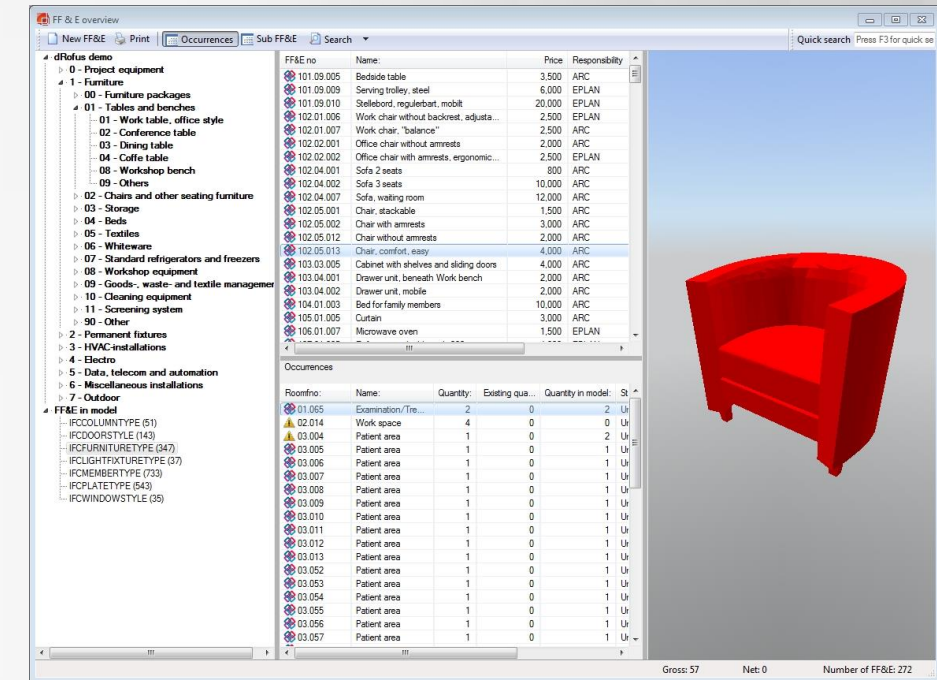
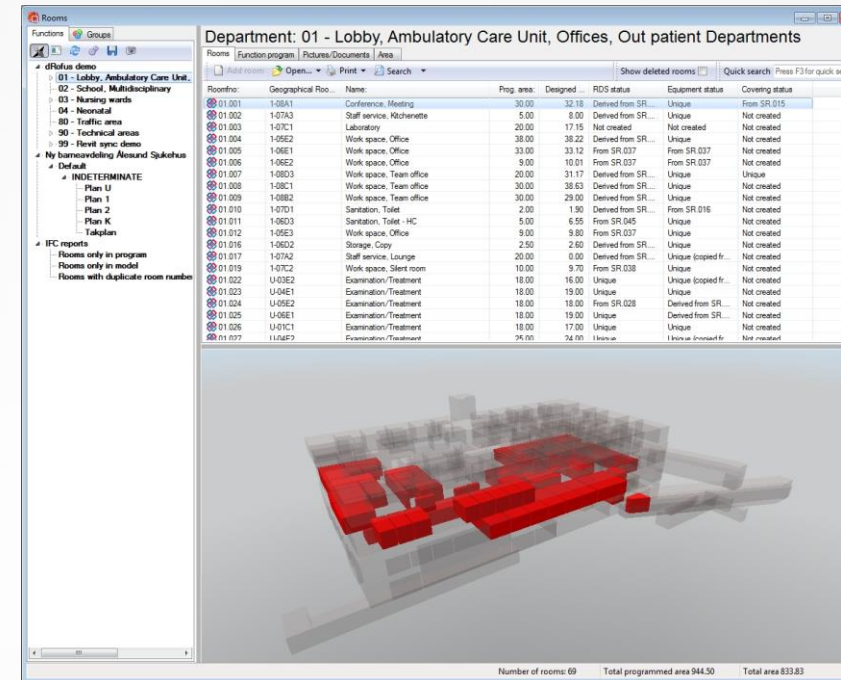
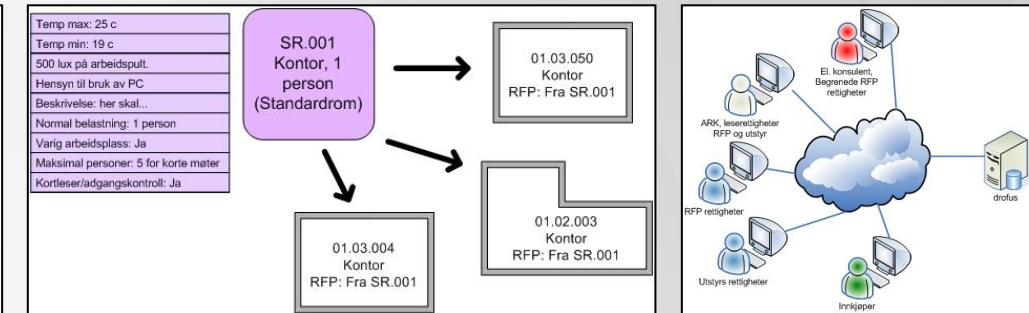
Historically strong in European Healthcare.

- Government and industry collaboration.
- Now in United States and other markets.

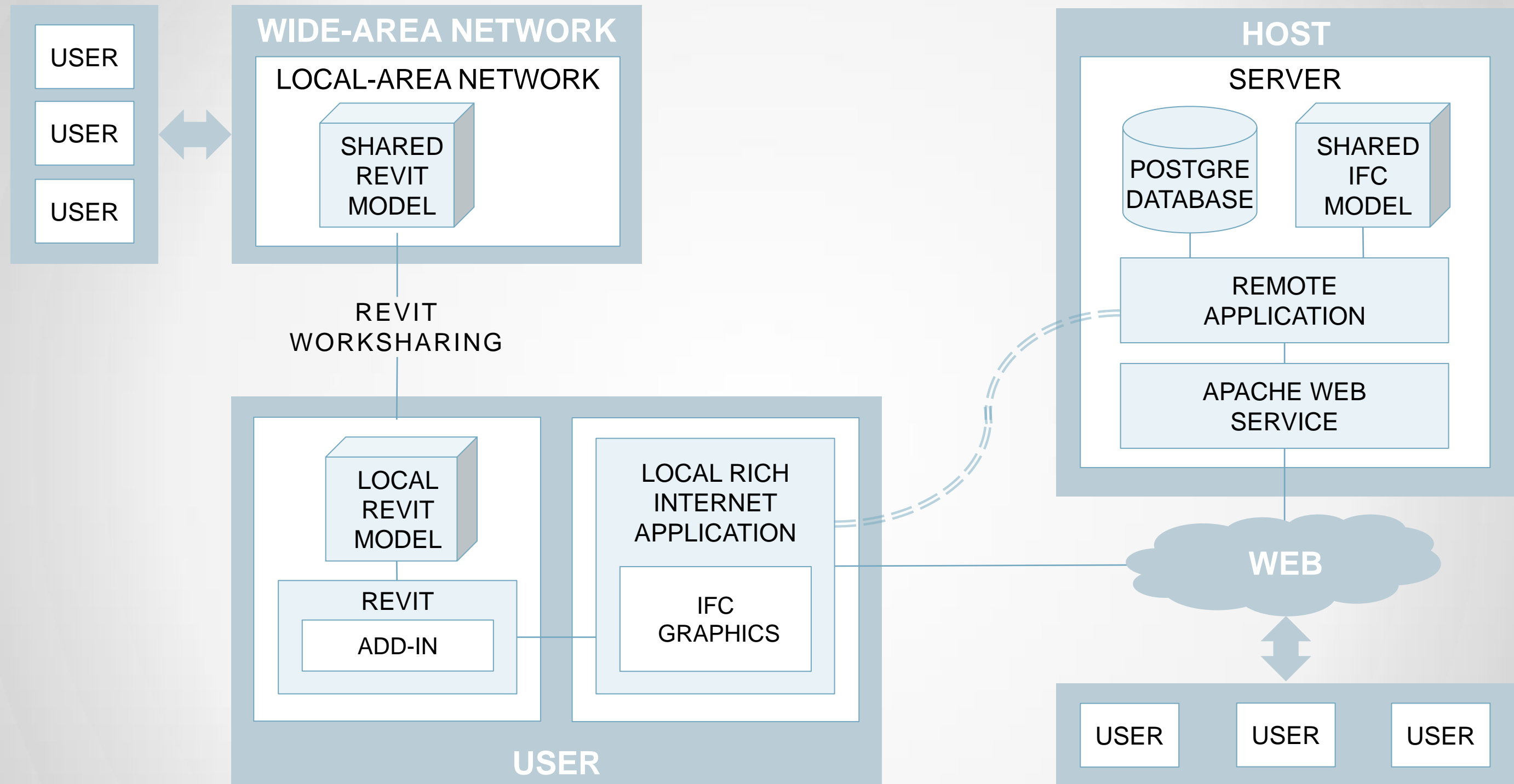
Features:

- Logs: What changes have been made.
- Report generator, Excel and Word.
- Room Data Sheets.
- Central server; work from any location.
- Just PC and internet connection.
- Standardized solutions.
- Higher quality and control of data
- Controlling programmed requirements.
- Validate designed solution.

<http://drofus.com/en/index.html>



Images copied from Vendor Website.



SYSTEM ARCHITECTURE – DROFUS

Onuma Planning System

Services and Middleware

- ArchiCAD, Revit, SketchUp, and GIS.
- Open Standards: IFC and OGC.

Strong in Government and Education

- Wide community involvement.

Features:

- Predictive planning - early project stages.
- Programming requirements for a project.
- Management of as-built data for facilities.
- Creates BIM with no BIM training required.
- Many BIMs in a relational online database.
- Multi Site, Multi Building.
- Floors, Spaces, Furniture & Equipment.
- Multi user collaboration on projects.

<http://www.onuma.com/>

Onuma System

OPEN ARCHITECTURE SERVICES | SOLUTIONS PRODUCTS

Products > Onuma System

Onuma System

Editor Studio Enterprise

BIM on Demand

OPEN ARCHITECTURE SERVICES | SOLUTIONS PRODUCTS

Products > BIM on Demand

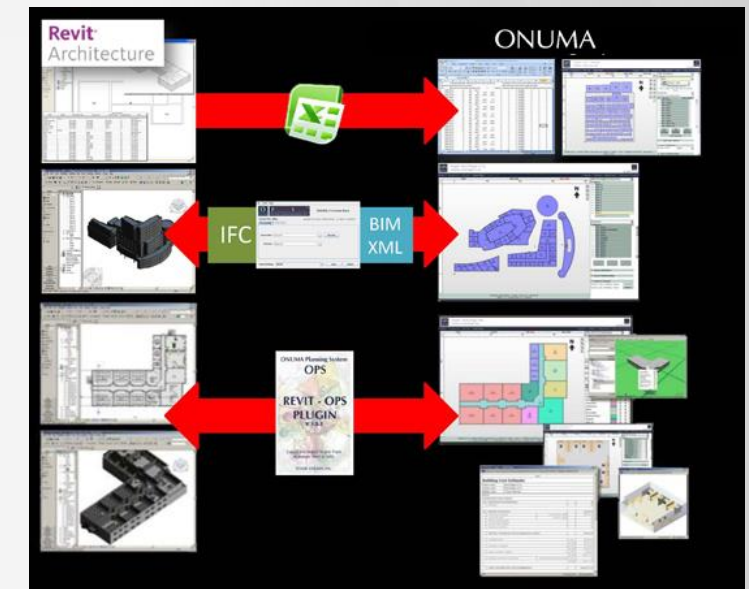
BIM on Demand

On Demand products, like Google Docs, are becoming the ubiquitous tech tools. On-Demand Building Information Modeling (BIM) can also make real-time collaboration possible.

Onuma is BIM on Demand. Enter data into a spreadsheet, and quickly get cost, location and square footage reports that aid in powerful decision-making. Use it as a way to determine programming requirements for a multi-story office building quickly. Export the same data through Onuma Editor to automatically create BIM. Imagine such a powerful tool -- at your finger tips.

Space Name	Floor Number	Space Area
Offices	40	4500
Conference	40	2300
Gym	39	13450
Training	39	2400
Storage	39	400
Retail	1	6000
Restaurant	1	12800
Lobby	1	6700
Total SF		622,173

1 Minute
Take an Excel file like this.



GIS and Google Earth

OPEN ARCHITECTURE SERVICES | SOLUTIONS PRODUCTS

Products > Onuma System > GIS and Google Earth

GIS and Google Earth

Geographic Information Systems (GIS) and Onuma

Data and graphics can be exported from Onuma to GIS and Google Earth

- Georeference your project with Google Earth and Onuma
 - Draw a Polygon in Google Earth
 - Save the Polygon as a KML
 - Import into Onuma
 - Onuma will now keep track of your project origin and compute the area of your site
- View Projects in Google Earth
 - Google Earth Plugin part of Onuma 3D View -OR-
 - Export to Google Earth directly from Onuma
- Project export with Data Rich Content associated with the Graphics for:
 - Site
 - Site Components
 - Buildings

Query Multiple Locations and Import Data Rich Content Directly into Google Earth

Google

Site

Buildings

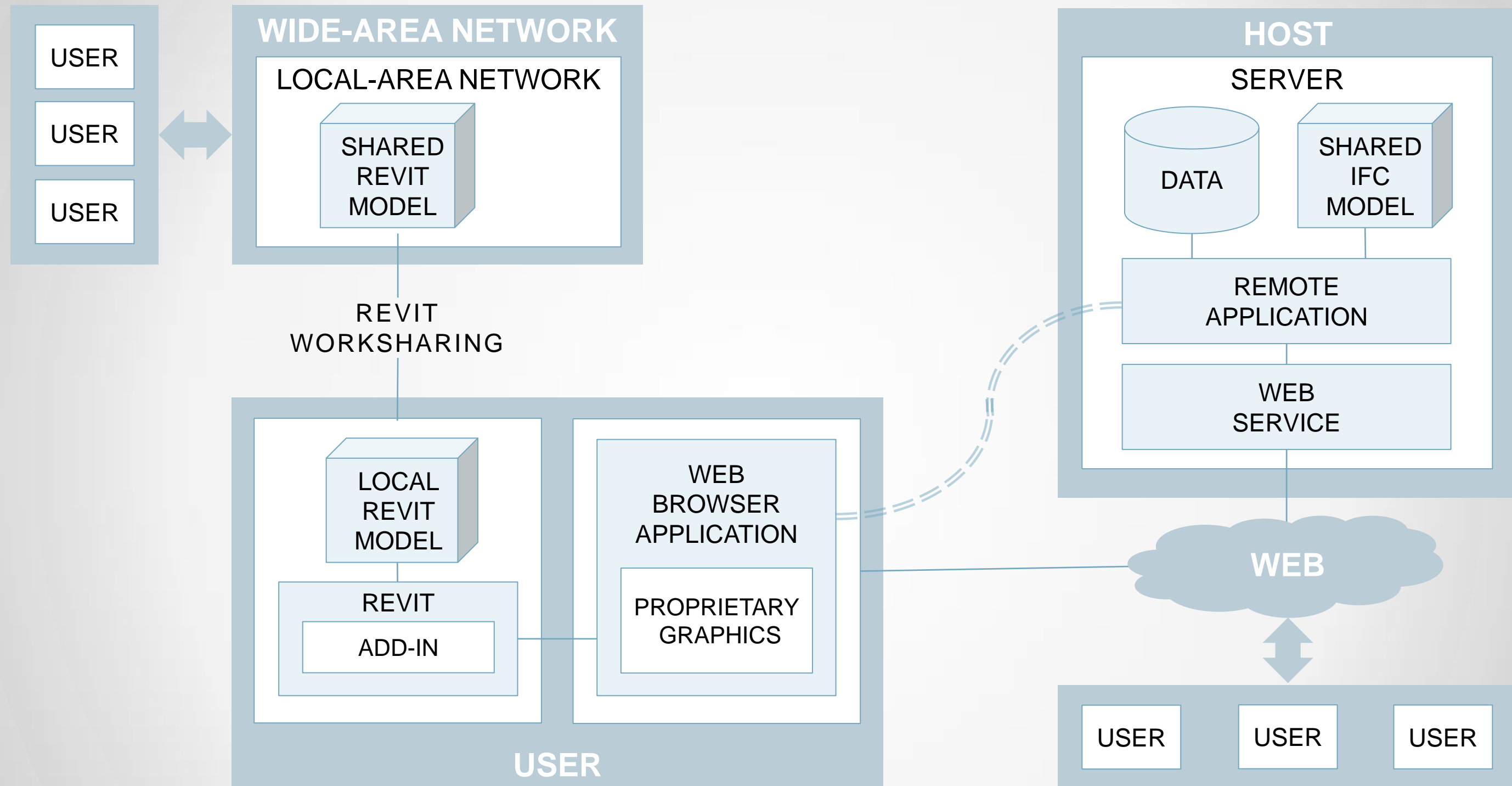
Components

FUSION

Project: 0000 - Services & Solutions - GIS and Google Earth of the Onuma

FUSION + GIS + ONUMA CLOUD COMPUTING MASH-UP

Images copied from Vendor Website.



SYSTEM ARCHITECTURE – ONUMA PLANNING SYSTEM

Conceptual Design and Building Massing

Formalizing the Space Program

Interpreting a Space Program

DOCUMENT:

- READABLE FORMAT
- UNSTRUCTURED DATA

CLIENT REQUIREMENTS
(EXCEL WORKSHEET)

DATA TABLE:

- ROOM TYPE
- ROOM USE
- HOW MANY OF EACH

SPACE PROGRAM
(ACCESS TABLE)

DATA TABLE:

- ROOM INSTANCES
- ROOM TYPE
- ROOM USE

ROOMS LIST
(ACCESS TABLE)

ROOM OBJECTS:

- GEOMETRY
- DATA ATTRIBUTES

BIM
(REVIT PROJECT)

Organizational Uses and Room Types

- Organization: activity or department.
- Type: characteristics of the room.

ORGANIZATION
PRESIDENT
ADMINISTRATION
MAINTENANCE
...
DIRECTOR
TEACHING
ASSISTANTS
...

ROOM TYPE
OFFICE - 1
OFFICE - 2
RECEPTION
...
CLASSROOM - 1
CLASSROOM - 2
LABORATORY
...

SINGLE-LEVEL ORGANIZATIONAL USES AND ROOM TYPES

Space Program

- Organization and Type.
- Quantity.
- Area Each.

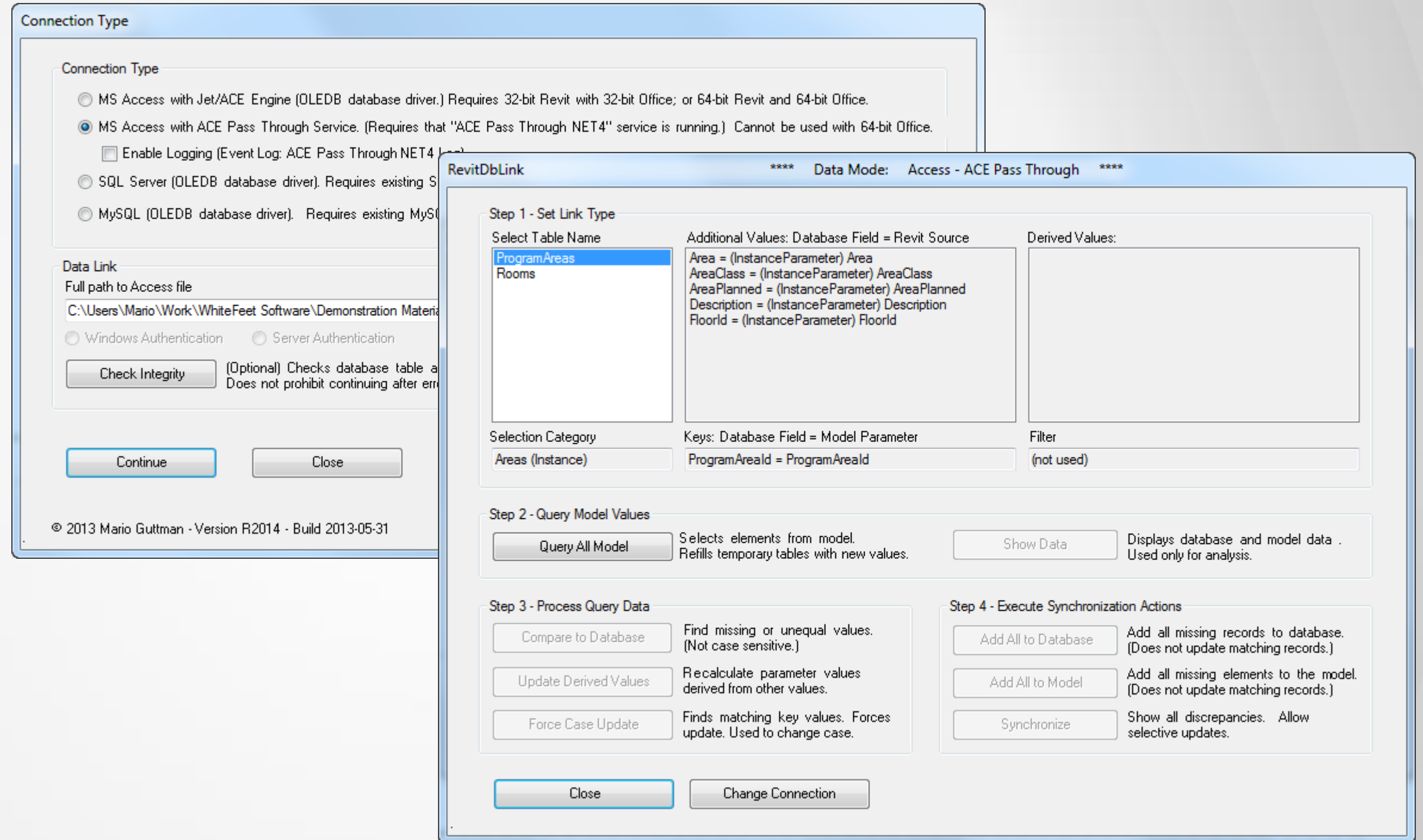
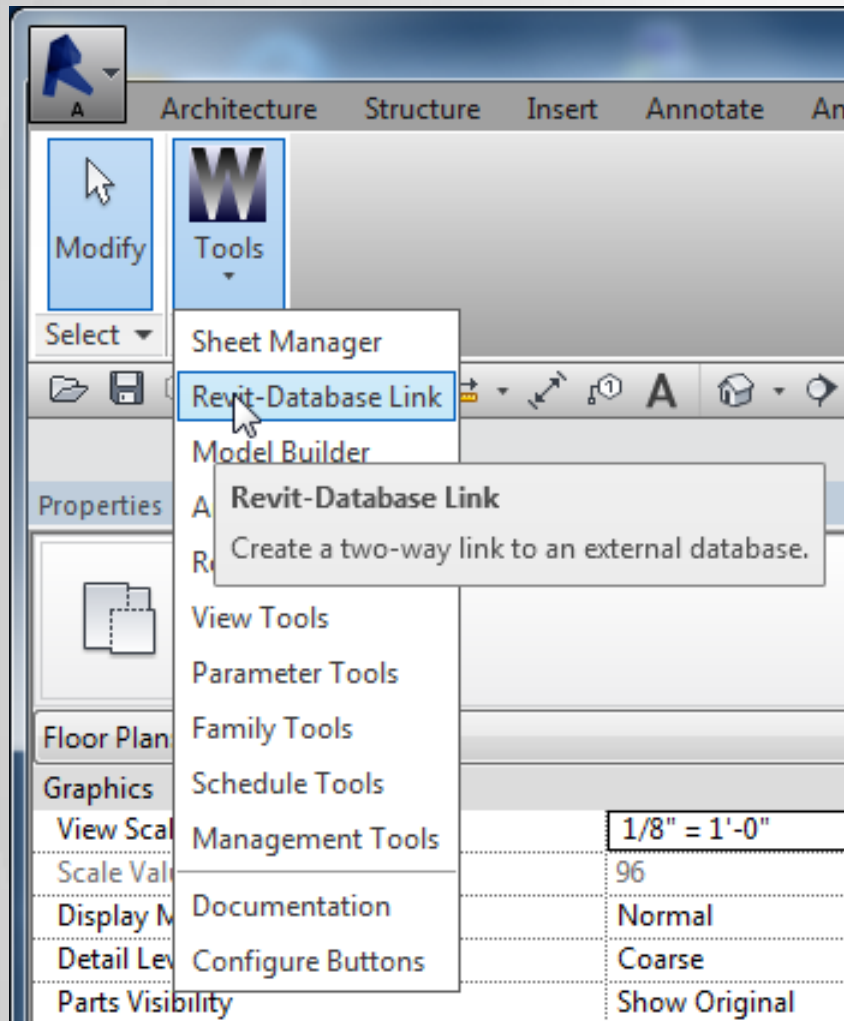
SPACE PROGRAM TABLE IN MICROSOFT ACCESS

The screenshot displays the Microsoft Access interface with the 'ProgramSpace' table selected in the 'All Access Objects' pane. The table is shown in Datasheet view, displaying columns for ProgramSpaceID, OrganizationID, RoomTypeID, Quantity, and AreaEach. The data is organized by OrganizationID (100, 200, 300, 400, 500) and RoomTypeID. The bottom status bar indicates 27 records and no filters are applied.

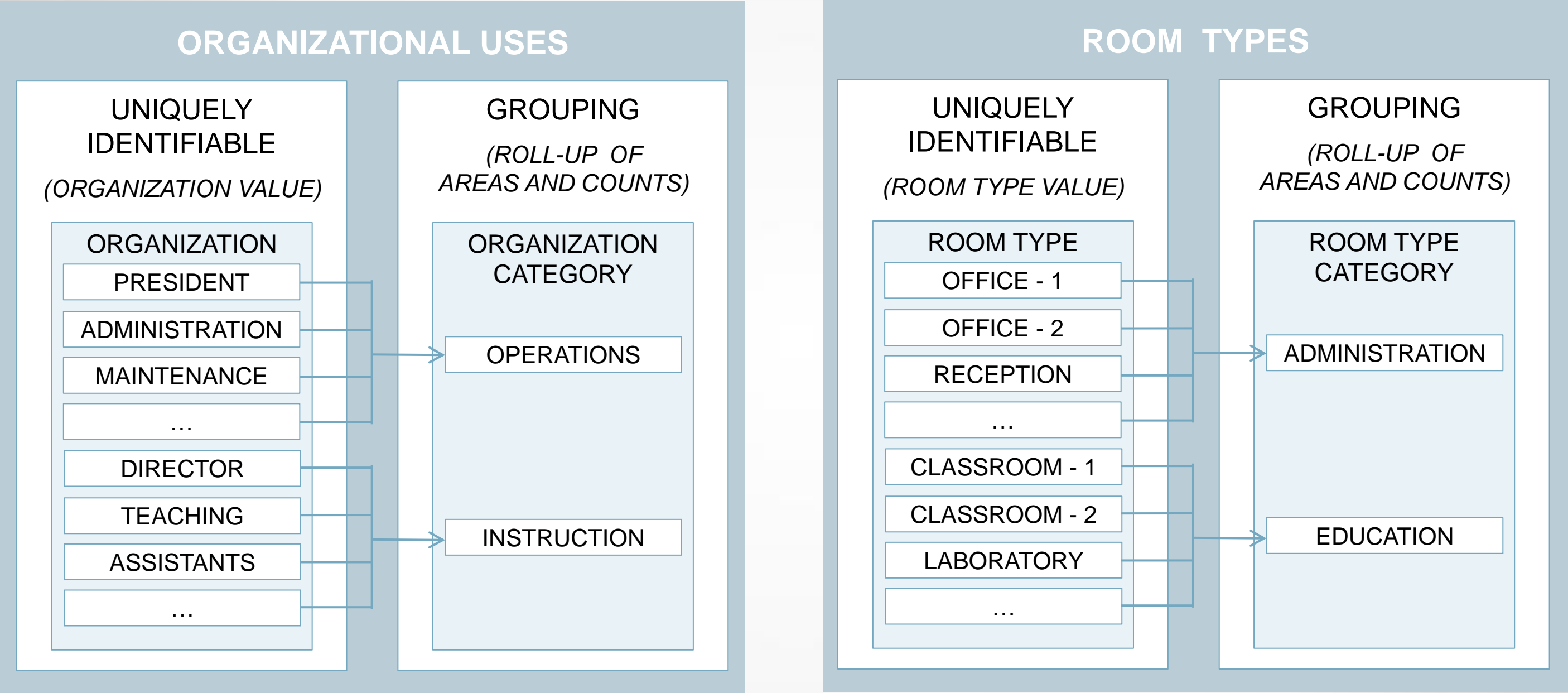
ProgramSpaceID	OrganizationID	RoomTypeID	Quantity	AreaEach
100-COR	100	COR	3	2000
100-ELEC	100	ELEC	10	100
100-LBBY	100	LBBY	3	3500
100-MEN	100	MEN	4	150
100-SPRK	100	SPRK	1	100
100-STAR	100	STAR	9	200
100-STOR	100	STOR	3	100
100-TOIL	100	TOIL	3	100
100-VEST	100	VEST	1	400
100-WMN	100	WMN	4	150
200-CONF	200	CONF	2	400
200-OFFM	200	OFFM	3	400
200-OFFO	200	OFFO	1	1500
200-OFFP	200	OFFP	3	300
300-CLRM	300	CLRM	19	700
300-COML	300	COML	3	600
300-CONF	300	CONF	3	500
300-LIB	300	LIB	1	1300
300-LNGE	300	LNGE	6	550
400-CAFT	400	CAFT	1	2000
400-FPRE	400	FPRE	1	250
400-STDR	400	STDR	1	100
500-CLRM	500	CLRM	1	700
500-CPPR	500	CPPR	2	250
500-DRFT	500	DRFT	2	500
500-MEDR	500	MEDR	1	500

Linking Revit to a Database

WhiteFeet RevitDbLink

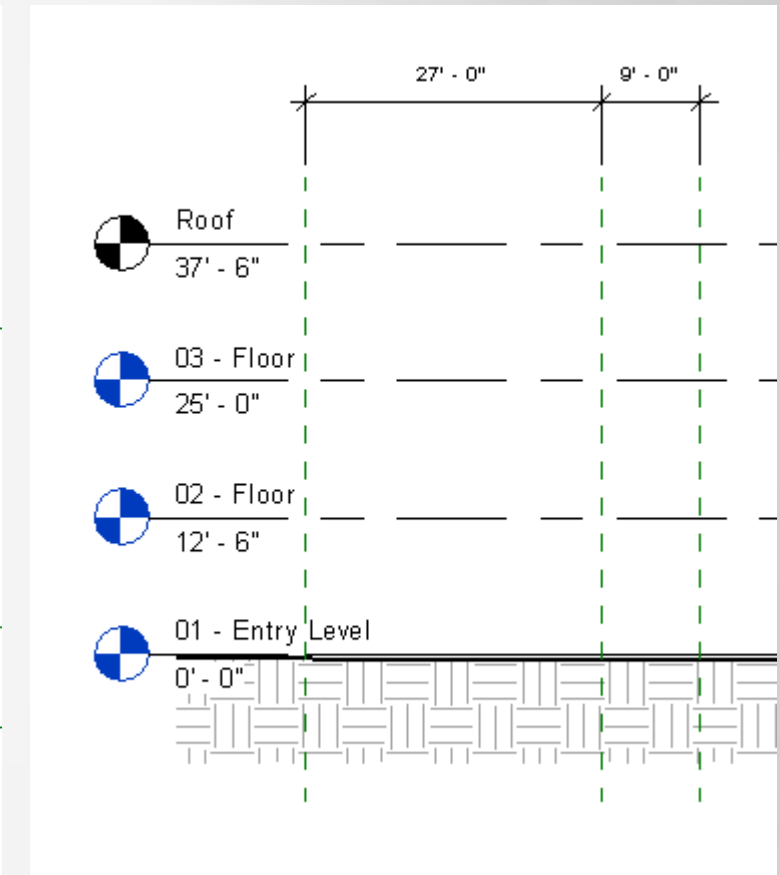
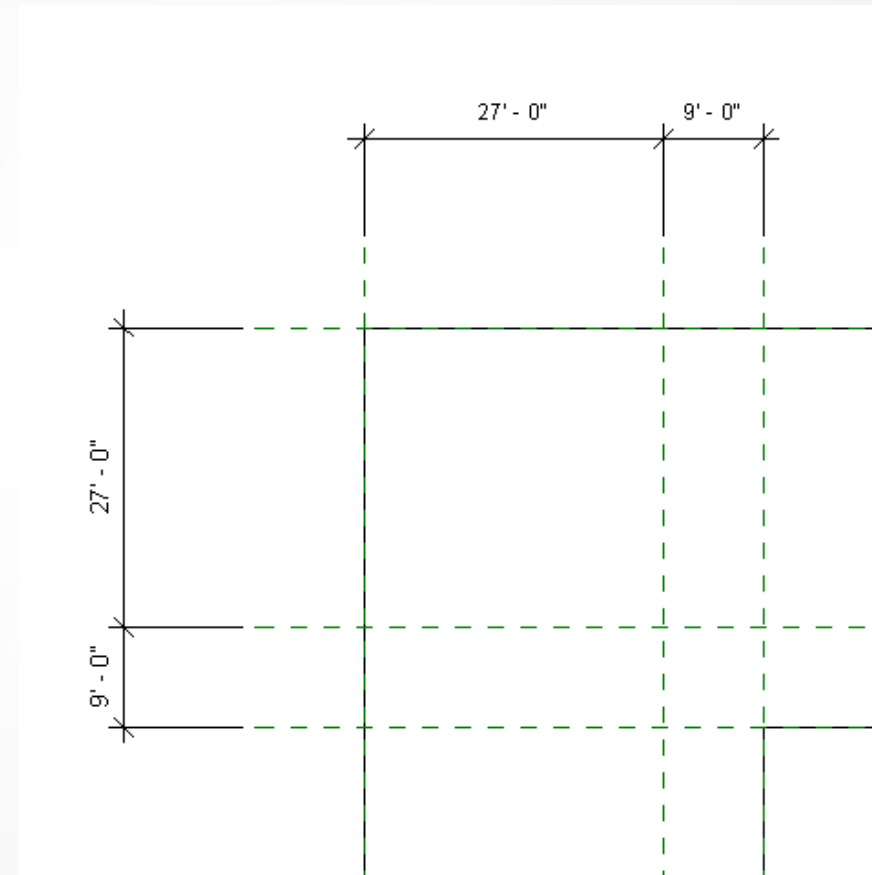
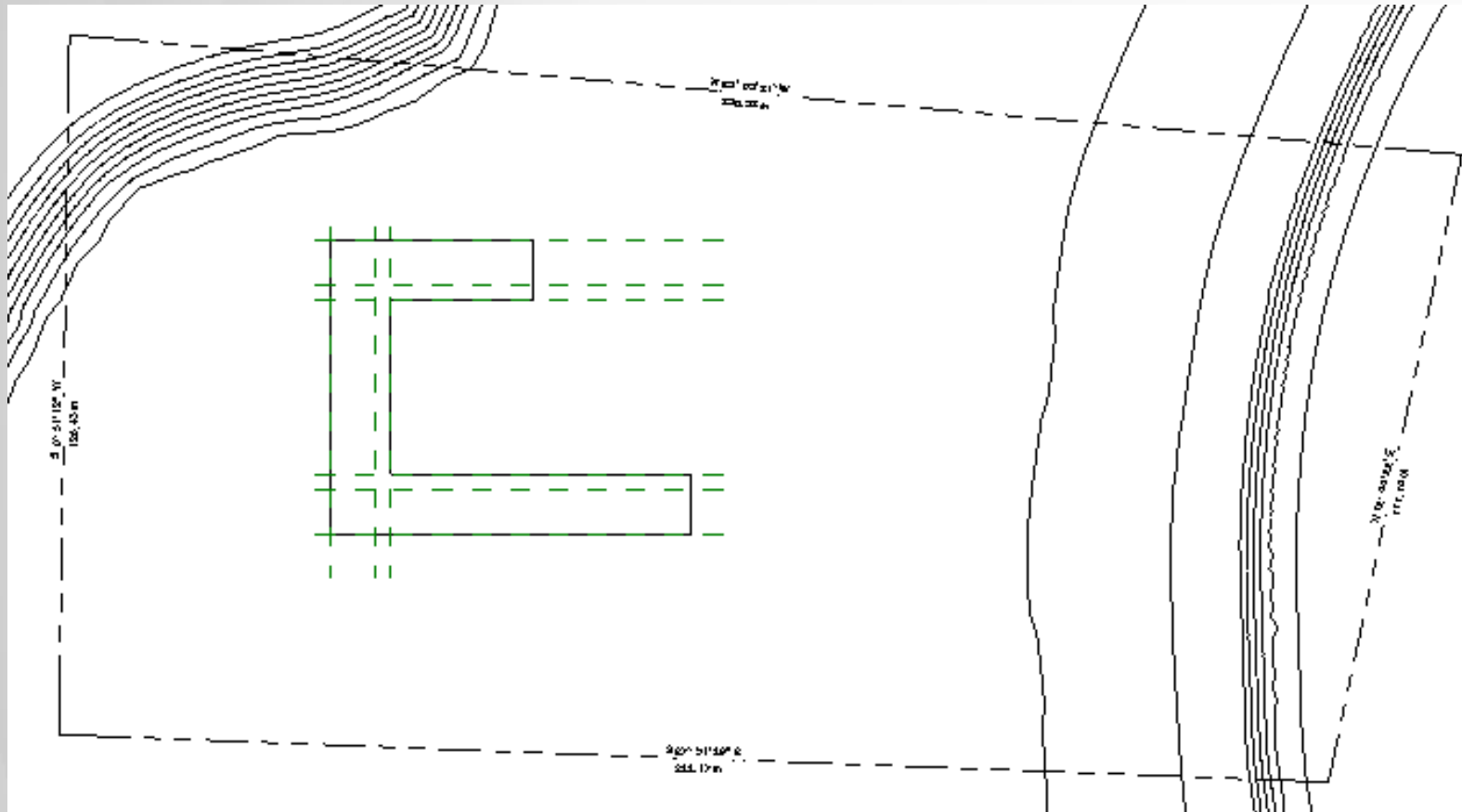


Aggregate Planning Areas



GROUPING OF ORGANIZATIONAL USES AND ROOM TYPE

■ Architectural Parti



Importing as Unplaced Areas

The screenshot shows the Microsoft Access interface with the 'ProgramAreas' table selected in the 'All Access Objects' pane. The table contains 24 rows of data, including FloorId, Description, ProgramAreaId, and AreaClass. A red box highlights the first 12 rows of the table. The 'Area & Mass Tools - Place Unplaced Areas' dialog box is open, showing a list of areas to place. The list is divided into two sections: '01 + Administration 1' through '01 + Service 5' (highlighted in blue) and '02 + Administration 2' through '03 + Service 13' (highlighted in yellow). The dialog box also includes options for List Selection Options (List Parameter 1: FloorId, List Parameter 2: Description, Pad Value w/ Zeros: 5, Reverse List Order: unchecked), Processing Options (Array of Rectangles: selected, Space: 10, No Row: 5, Fixed Height: unchecked, Height: , Linear Alignment: unselected, Width: 100, Group: , Parameter Name: , Sort Required Area: checked), Start X: 0, Start Y: 0, Required Area Parameter: AreaRequired, Default Area: 200, and Units Conversion Factor: 1. The dialog box has 'Create Areas' and 'Close' buttons.

FloorId	Description	ProgramAreaId	AreaClass
01	Administration 1	ADMN.01	Administration
01	Circulation 1	CIRC.01	Circulation
01	Instruction 1	INST.01	Instruction
01	Instruction 2	INST.02	Instruction
01	Service 1	SRV.01	Service
01	Service 2	SRV.02	Service
01	Service 3	SRV.03	Service
01	Service 4	SRV.04	Service
01	Service 5	SRV.05	Service
02	Administration 2	ADMN.02	Administration
02	Circulation 2	CIRC.02	Circulation
02	Instruction 3	INST.03	Instruction
02	Instruction 4	INST.04	Instruction
02	Instruction 5	INST.05	Instruction
02	Service 6	SRV.06	Service
02	Service 7	SRV.07	Service
02	Service 8	SRV.08	Service
02	Service 9	SRV.09	Service
03	Circulation 3	CIRC.03	Circulation
03	Instruction 6	INST.06	Instruction
03	Instruction 7	INST.07	Instruction
03	Service 10	SRV.10	Service
03	Service 11	SRV.11	Service
03	Service 12	SRV.12	Service

Area & Mass Tools - Place Unplaced Areas

Select Areas to Place:

- 01 + Administration 1
- 01 + Circulation 1 - Central
- 01 + Instruction 1
- 01 + Instruction 2
- 01 + Service 1
- 01 + Service 2
- 01 + Service 3
- 01 + Service 4
- 01 + Service 5
- 02 + Administration 2
- 02 + Circulation 2
- 02 + Instruction 3
- 02 + Instruction 4
- 02 + Instruction 5
- 02 + Service 6
- 02 + Service 7
- 02 + Service 8
- 02 + Service 9
- 03 + Circulation 3
- 03 + Instruction 6
- 03 + Instruction 7
- 03 + Service 10
- 03 + Service 11
- 03 + Service 12
- 03 + Service 13

List Selection Options

List Parameter 1: FloorId List Parameter 2: Description

☐ Pad Value w/ Zeros 5 ☐ Pad Value w/ Zeros 5

☐ Reverse List Order

Processing Options

☒ Array of Rectangles Space:* 10 No Row: 5

☐ Fixed Height: Height:*

☐ Linear Alignment Width:* 100

☐ Group: Parameter Name:

☒ Sort Required Area

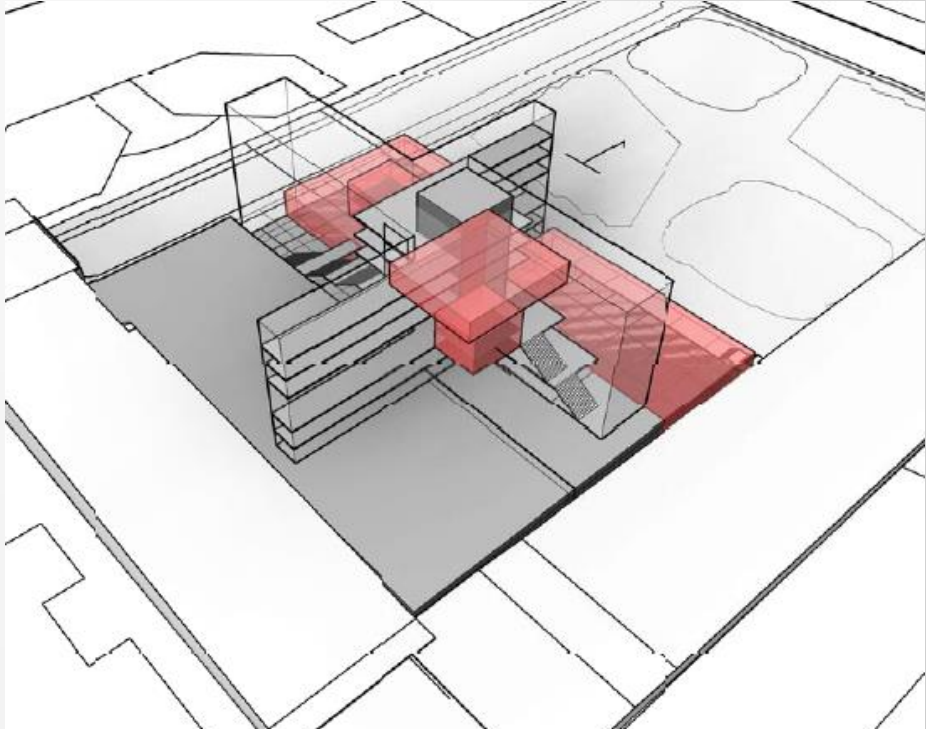
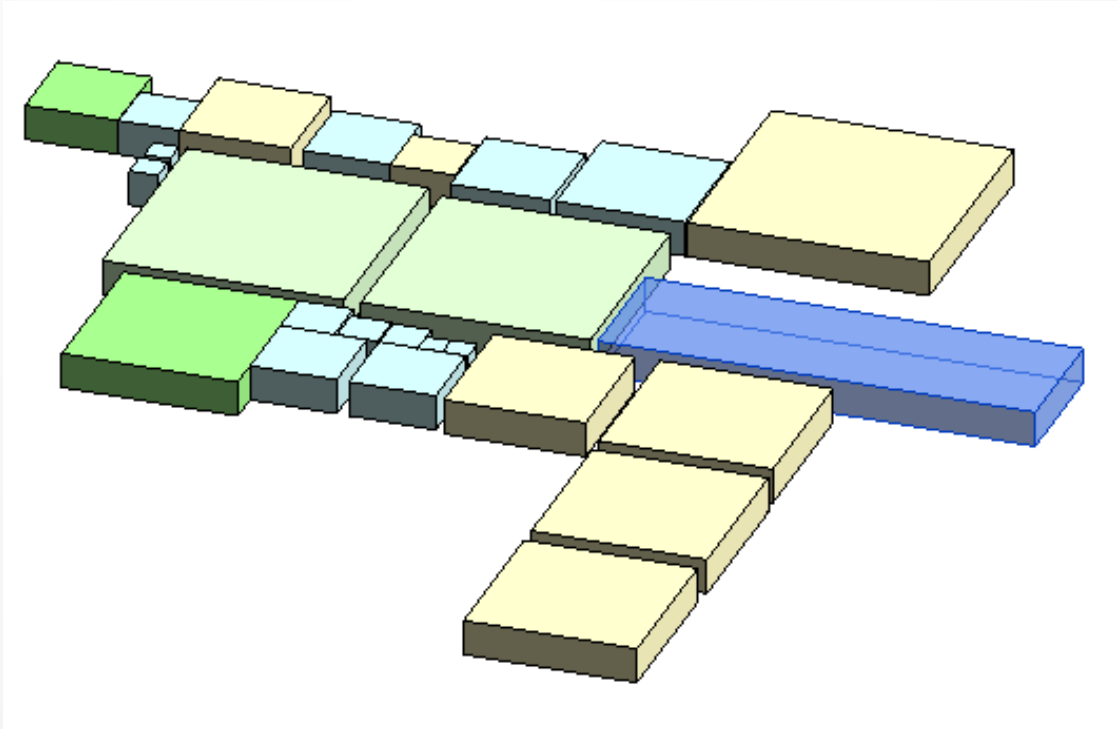
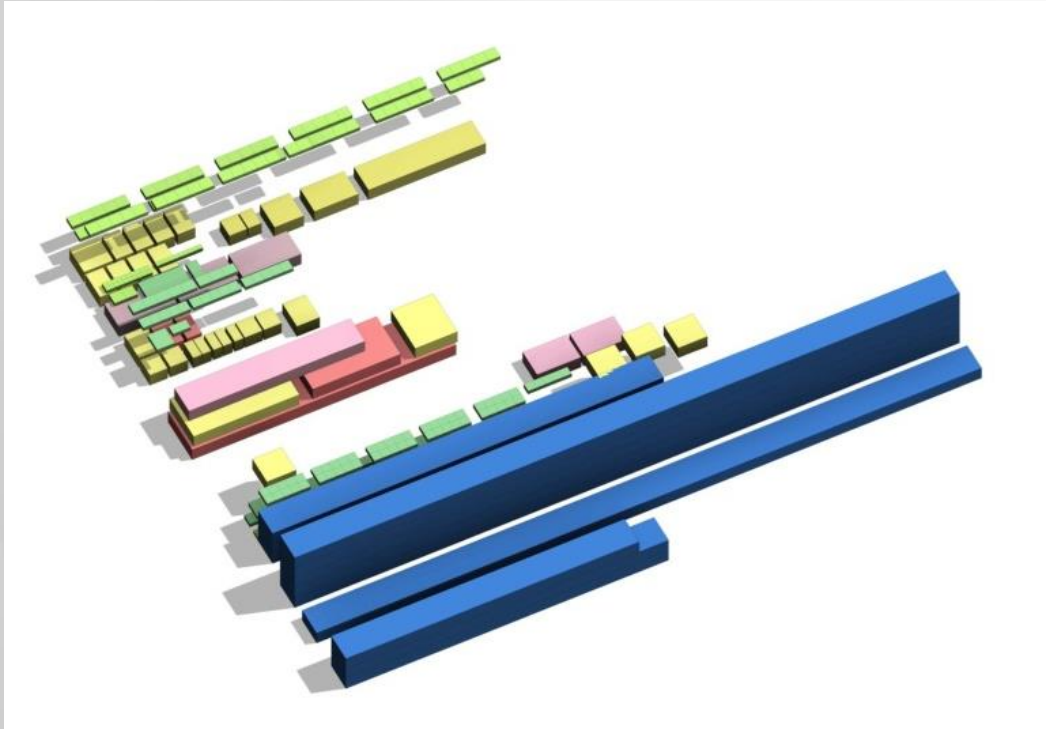
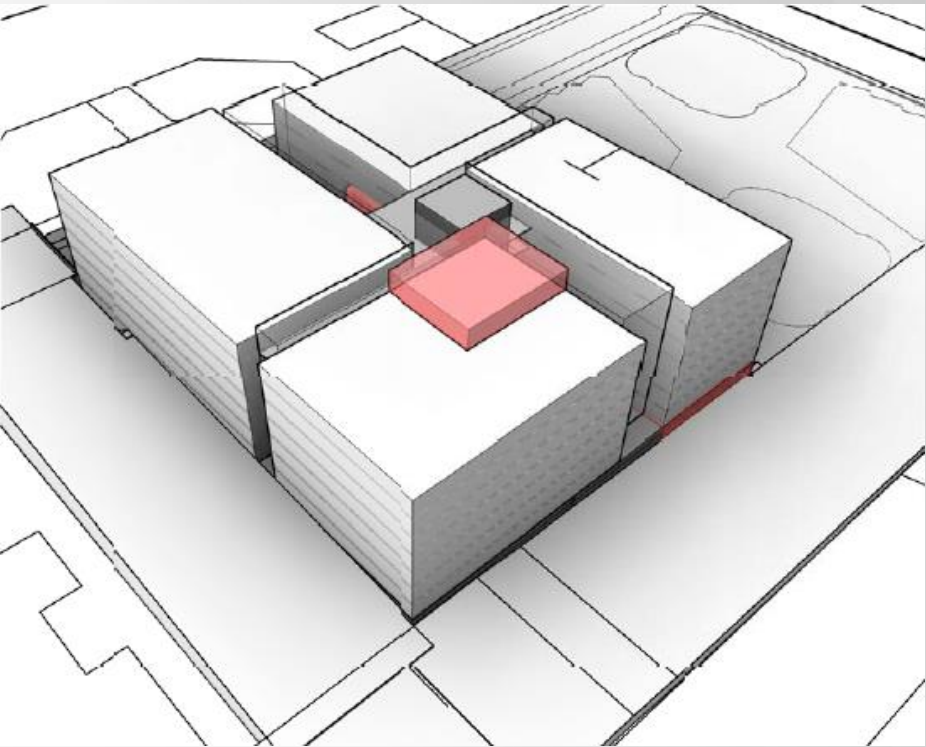
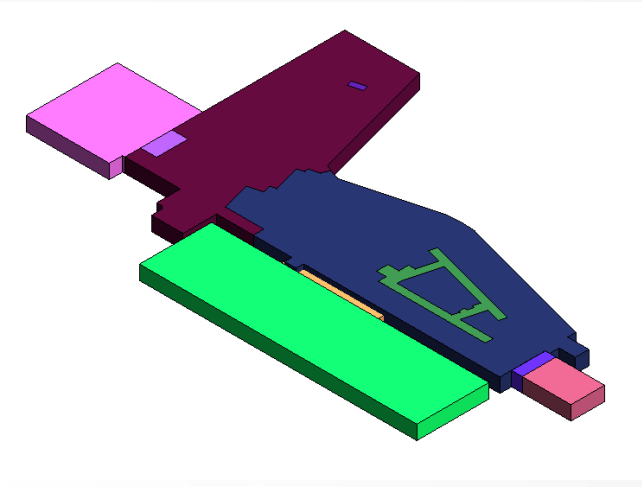
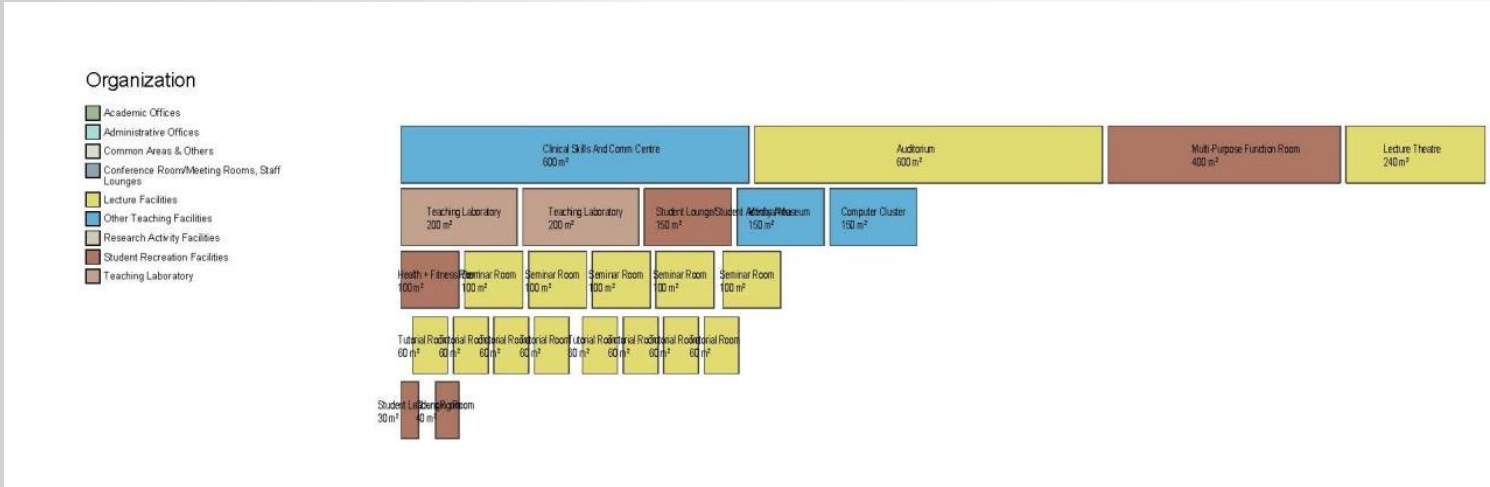
Start X:* 0 Start Y:* 0

Required Area Parameter: AreaRequired Default Area:* 200

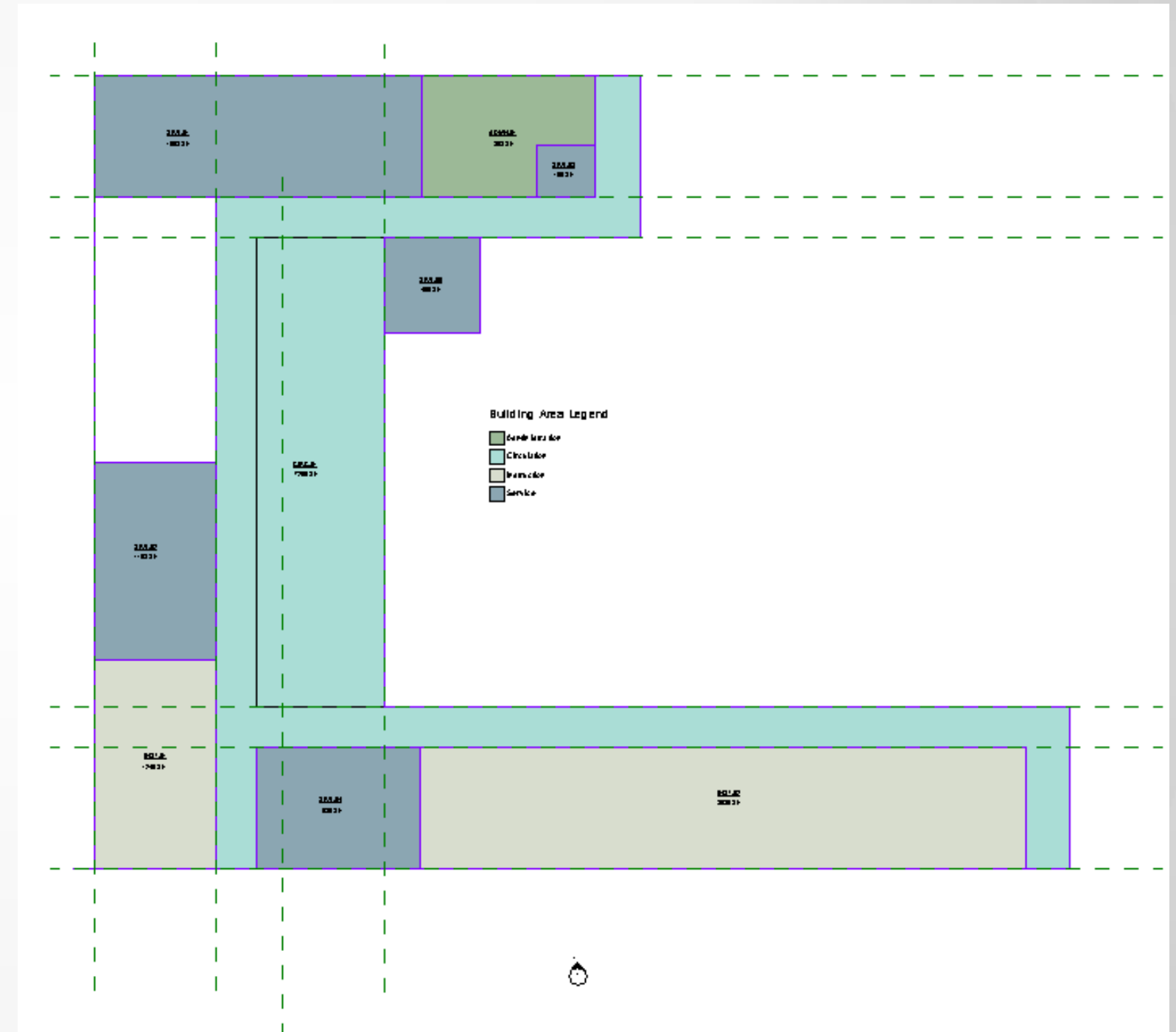
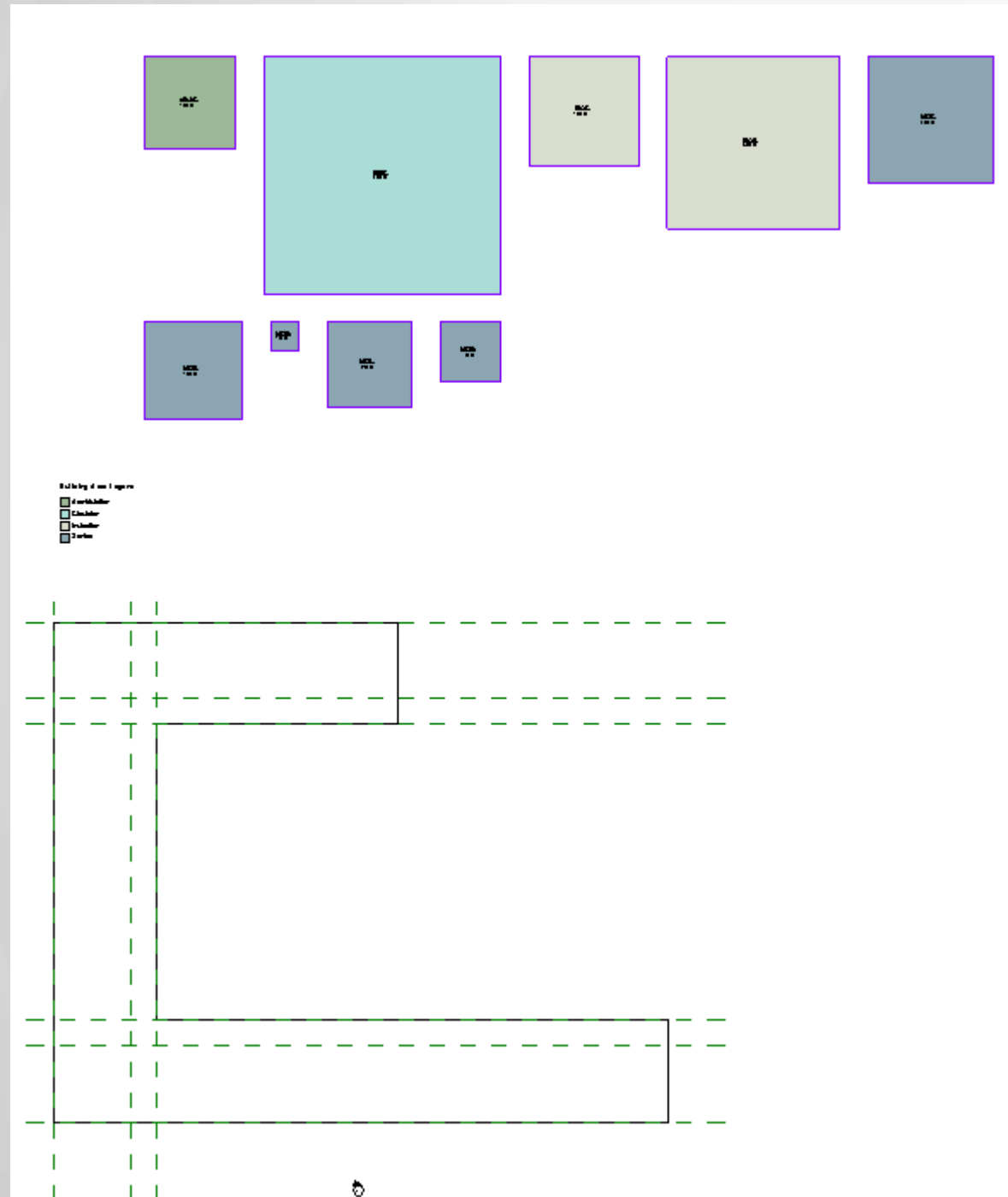
* Units Conversion Factor: 1 Units Entered to Feet. Ex: M --> FT = 3.28084

Create Areas Close

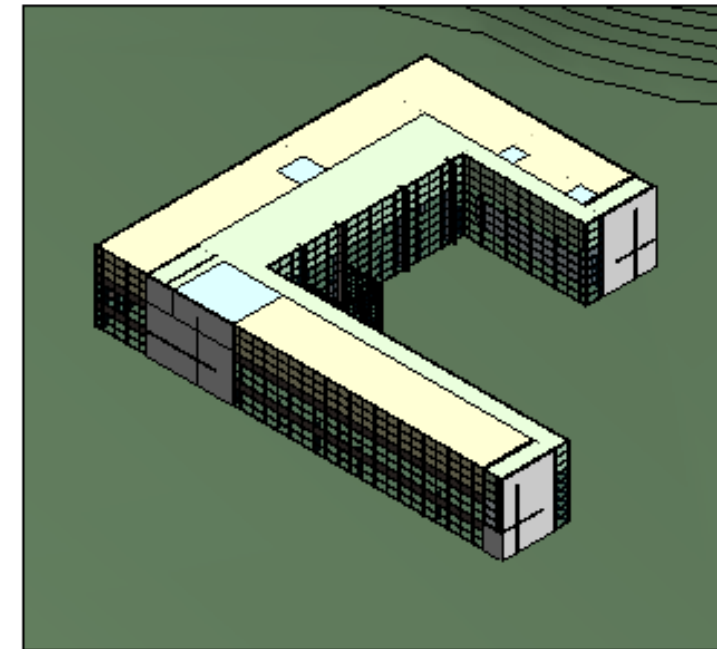
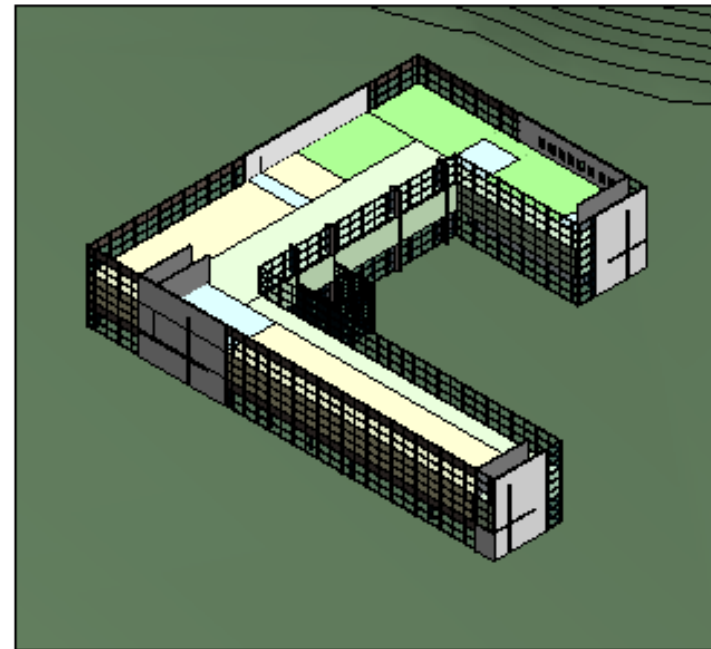
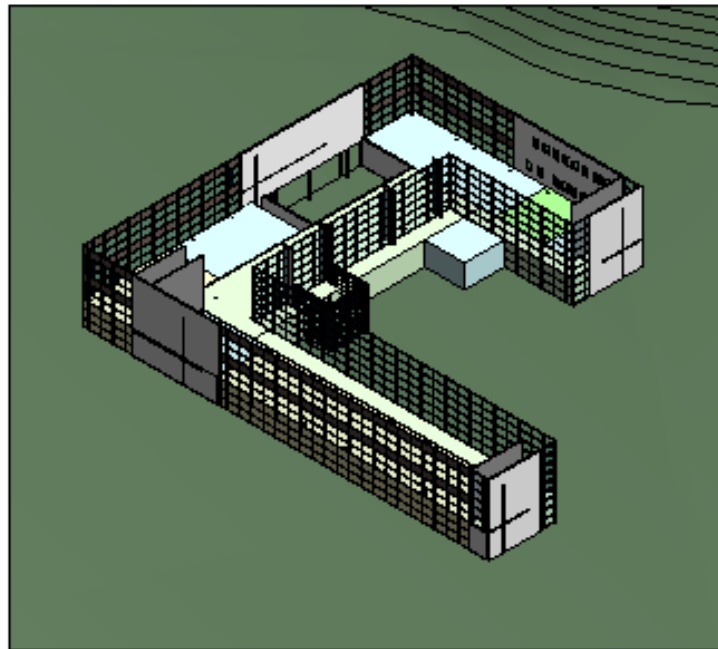
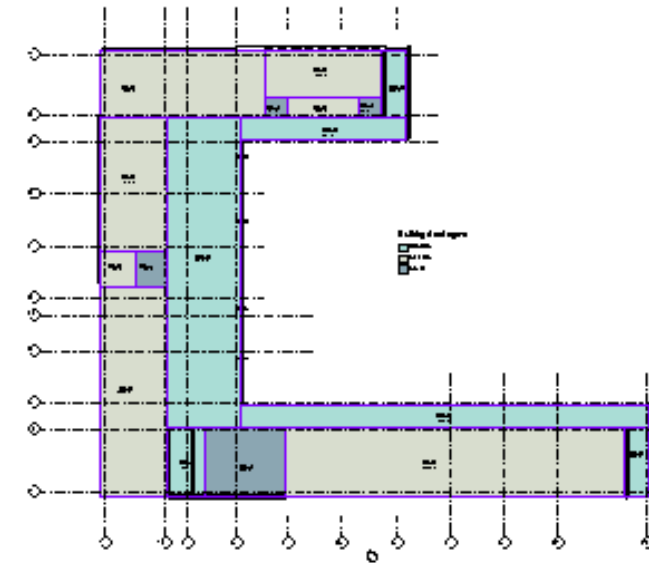
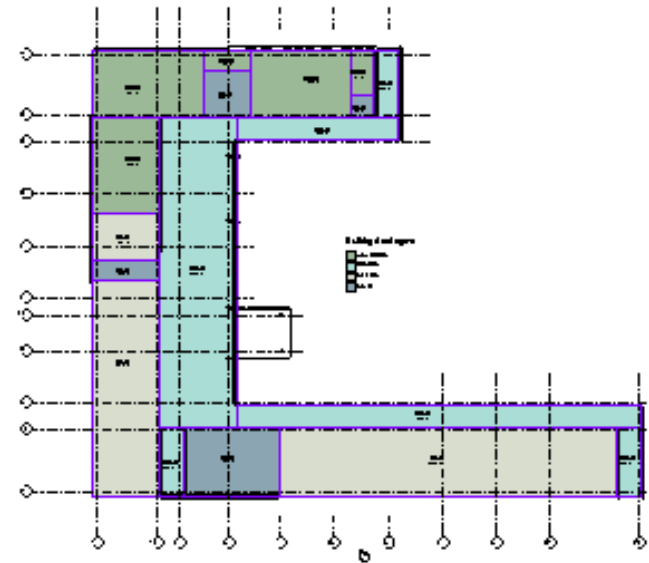
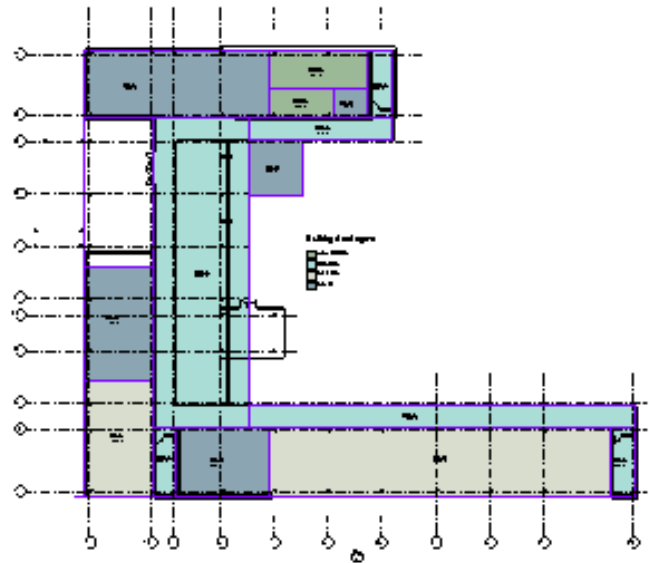
- Placing Areas
- Developing Massing



■ Manipulating Planning Areas



■ Architectural Elements



Validating Areas

<Area Schedule (Gross Building)>							
A	B	C	D	E	F	G	H
ProgramAreaId	Description	AreaPlanned	Area	AreaClass	FloorId	Level	Number
Level 01							
ADMN.01	Administration	1050 SF	898 SF	Administratio	01	Level 01	153
CIRC.01	Circulation 1 -	7000 SF	7265 SF	Circulation	01	Level 01	154
INST.01	Instruction 1	1500 SF	1249 SF	Instruction	01	Level 01	131
INST.02	Instruction 2	3700 SF	3635 SF	Instruction	01	Level 01	133
SRV.01	Service 1	2000 SF	1958 SF	Service	01	Level 01	126
SRV.02	Service 2	1200 SF	985 SF	Service	01	Level 01	129
SRV.03	Service 3	100 SF	150 SF	Service	01	Level 01	130
SRV.04	Service 4	900 SF	1193 SF	Service	01	Level 01	132
SRV.05	Service 5	450 SF	455 SF	Service	01	Level 01	134
Level 01: 9		17900 SF	17787 SF				
Level 02							
ADMN.02	Administration	3700 SF	3600 SF	Administratio	02	Level 02	137
CIRC.02	Circulation 2	6300 SF	6532 SF	Circulation	02	Level 02	135
INST.03	Instruction 3	500 SF	501 SF	Instruction	02	Level 02	139
INST.04	Instruction 4	2400 SF	2313 SF	Instruction	02	Level 02	141
INST.05	Instruction 5	3600 SF	4619 SF	Instruction	02	Level 02	142
SRV.06	Service 6	80 SF	80 SF	Service	02	Level 02	136
SRV.07	Service 7	350 SF	350 SF	Service	02	Level 02	138
SRV.08	Service 8	200 SF	203 SF	Service	02	Level 02	138
Level 02: 8		17130 SF	18199 SF				
Level 03							
CIRC.03	Circulation 3	6500 SF	6496 SF	Circulation	03		
INST.06	Instruction 6	3600 SF	3605 SF	Instruction	03		
INST.07	Instruction 7	7000 SF	6719 SF	Instruction	03		
SRV.10	Service 10	900 SF	860 SF	Service	03		
SRV.11	Service 11	180 SF	180 SF	Service	03		
SRV.12	Service 12	70 SF	71 SF	Service	03		
SRV.13	Service 13	80 SF	79 SF	Service	03		
Level 03: 7		18330 SF	18007 SF				
Grand total: 24		53360 SF	53993 SF				

Synchronize Model and Data

Select row(s), then use 'UpdateAction'

UpdateAction

NoAction

UpdateDatabase

NoAction

NoAction

NoAction

NoAction

ProgramAreas					AreaPlanned	Area
ProgramAreaId	AreaClass	Description				
ADMN.01	Administration	Administration 1			1050	898.027207447
ADMN.02	Administration	Administration 2			3700	3600.315295587
CIRC.01	Circulation	Circulation 1			7000	7265.290431439
CIRC.02	Circulation	Circulation 2			6300	6532.487963325
CIRC.03	Circulation	Circulation 3			6500	6495.808568754
INST.01	Instruction	Instruction 1			1500	1248.75
INST.02	Instruction	Instruction 2			3700	3634.571991531
INST.03	Instruction	Instruction 3			500	500.848508756
INST.04	Instruction	Instruction 4			2400	2313.477392813
INST.05	Instruction	Instruction 5			3600	3593.25
INST.06	Instruction	Instruction 6			3600	3604.504938637
INST.07	Instruction	Instruction 7			7000	6717.281975879
SRV.01	Service	Service 1			2000	1958.472792553
SRV.02	Service	Service 2			1200	1192.5
SRV.03	Service	Service 3			100	149.5
SRV.04	Service	Service 4			900	984.678008469
SRV.05	Service	Service 5			450	455.108751525
SRV.06	Service	Service 6			80	80.377891291
SRV.07	Service	Service 7			350	350.004717134
					200	202.5
					900	1026
					900	859.5
					180	179.666666667
					70	70.508891676
					80	80.066271359

Synchronize Model and Database

Select row(s), then use "Set to ..." buttons to set update action.

	UpdateAction	KeyValue	DiscrepancyType	FieldName	ModelValue	DbValue	ModelReadOnly
	NoAction	SRV.09	No model element for db record				
►	UpdateDatabase	INST.02	Model value not equal to db record	Area	3634.571991532	3634.571991531	True
	NoAction	SRV.02	Model value not equal to db record	Area	984.678008469	1192.5	True
	NoAction	SRV.04	Model value not equal to db record	Area	1192.5	984.678008469	True
	NoAction	INST.05	Model value not equal to db record	Area	4619.25	3593.25	True
	NoAction	INST.07	Model value not equal to db record	Area	6718.530608069	6717.281975879	True
	NoAction	SRV.13	Model value not equal to db record	Area	78.817639169	80.066271359	True
	NoAction	CIRC.01	Model value not equal to db record	Description	Circulation 1 - Ce...	Circulation 1	False

Creating Rooms

Room Characteristics

ORGANIZATIONAL USES

ORG ID	DEPARTMENT NAME
01	MANAGEMENT
02	INSTRUCTION
03	SALES
04	MARKETING
05	FACILITIES

ROOM TYPES

TYPE ID	TYPE NAME
OFF01	OFFICE - LARGE
OFF02	OFFICE - MEDIUM
OFF03	OFFICE - SMALL
CONF	CONFERENCE
BREAK	BREAK ROOM
COPY	COPY AREA
STOR	STORAGE
CLAS01	CLASSROOM – 1
CLAS02	CLASSROOM – 2
CLAS03	CLASSROOM – 3
STUDY	STUDY AREA

DEFINITION OF TYPE AND ORGANIZATION KEY VALUES

SPACE PROGRAM

PROG ID	ORG	TYPE	COUNT	REQ AREA
01.0	01	OFF01	1	800
01.1	01	OFF02	2	300
01.2	01	OFF03	4	200
01.3	01	CONF	4	800
01.4	01	BREAK	1	600
01.5	01	COPY	1	200
01.6	01	STOR	2	100
02.0	02	CLAS01	4	1500
02.1	02	CLAS02	6	1000
02.2	02	CLAS03	4	900
02.3	02	STUDY	2	800
02.4	02	CONF	1	200

ROOMS LIST

ROOM ID	PROG ID	ORG	TYPE	NUMBER	NAME	ACT AREA
01.0.0	01.0	01	OFF01			
01.1.0	01.1	01	OFF02			
01.1.1	01.1	01	OFF02			
01.2.0	01.3	01	OFF03			
01.2.1	01.2	01	OFF03			
01.2.2	01.2	01	OFF03			
01.2.3	01.2	01	OFF03			
01.3.0	01.3	02	CONF			
01.3.2	01.3	02	CONF			
01.3.3	01.3	02	CONF			
01.3.4	01.3	02	CONF			
01.4.1	01.4	02	CONF			

ORGANIZATIONAL USES

ORG ID	DEPARTMENT NAME
01	MANAGEMENT
02	INSTRUCTION
03	SALES
04	MARKETING
05	FACILITIES

ROOM TYPES

TYPE ID	TYPE NAME
OFF01	OFFICE - LARGE
OFF02	OFFICE - MEDIUM
OFF03	OFFICE - SMALL
CONF	CONFERENCE
BREAK	BREAK ROOM

SPACE PROGRAM
→
ROOMS LIST



Creating Room List in Database

```

Set rst1 = db.OpenRecordset( _
    "SELECT DISTINCT OrganizationID " _
    & "FROM ProgramSpace " _
    & "ORDER BY OrganizationID ")
Do While Not rst1.EOF

    strOrg = Trim(rst1!OrganizationID)

    If Len(strOrg) = 1 Then
        If IsNumeric(strOrg) Then
            strOrgRoot = ""
            strOrgNumber = strOrg
            intIncrement = Int(strOrgNumber)
            If intIncrement = 0 Then intIncrement = intIncrement + 1
        Else
            strOrgRoot = strOrg
            intIncrement = 1
        End If
    Else
        If IsNumeric(Right(strOrg, 2)) Then
            strOrgRoot = Left(strOrg, Len(strOrg) - 2)
            strOrgNumber = Right(strOrg, 2)
            intIncrement = Int(strOrgNumber)
            If intIncrement = 0 Then intIncrement = intIncrement + 1
        ElseIf IsNumeric(Right(strOrg, 1)) Then
            strOrgRoot = Left(strOrg, Len(strOrg) - 1)
            strOrgNumber = Right(strOrg, 1)
            intIncrement = Int(strOrgNumber)
            If intIncrement = 0 Then intIncrement = intIncrement + 1
        Else
            strOrgRoot = strOrg
        End If
    End If

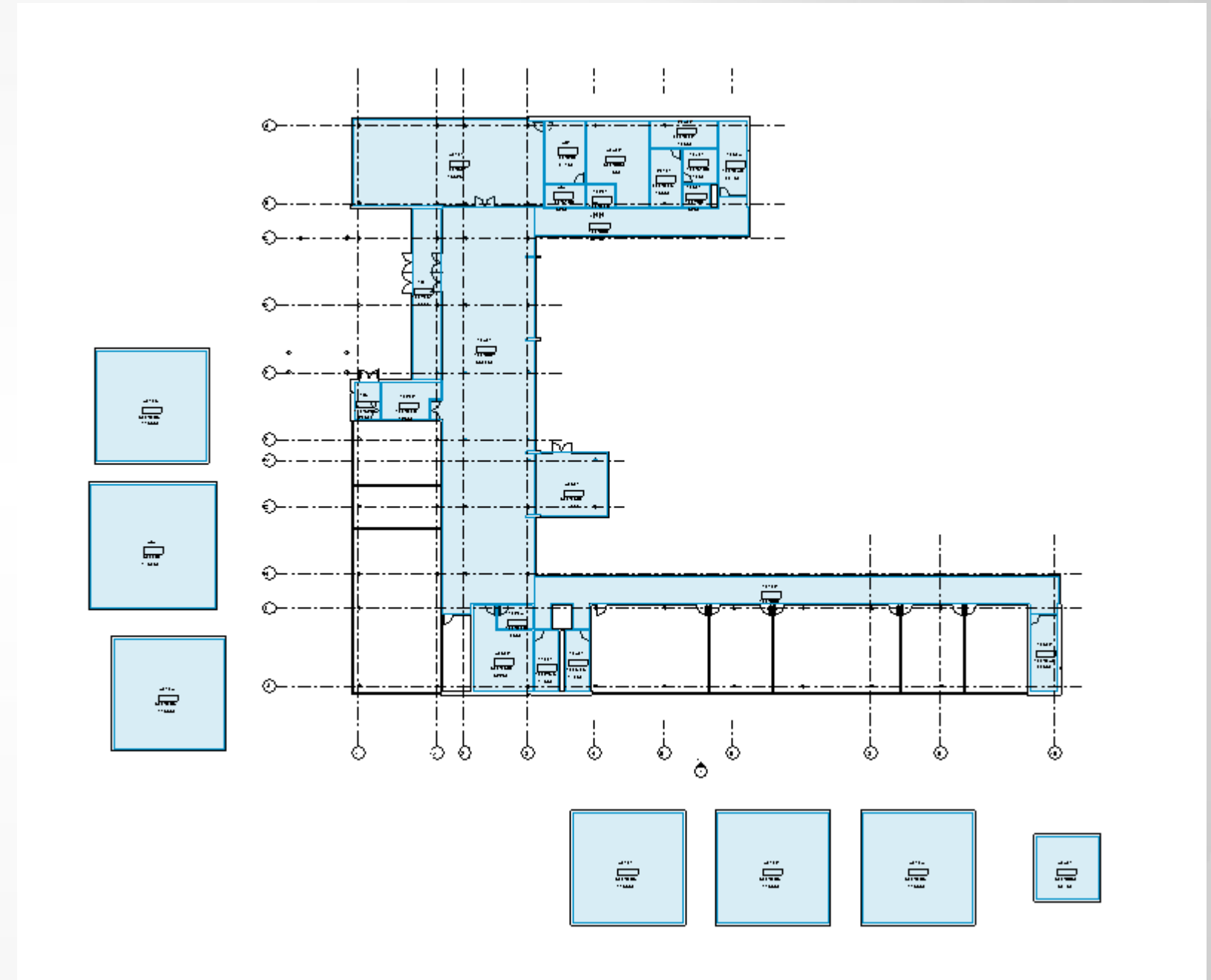
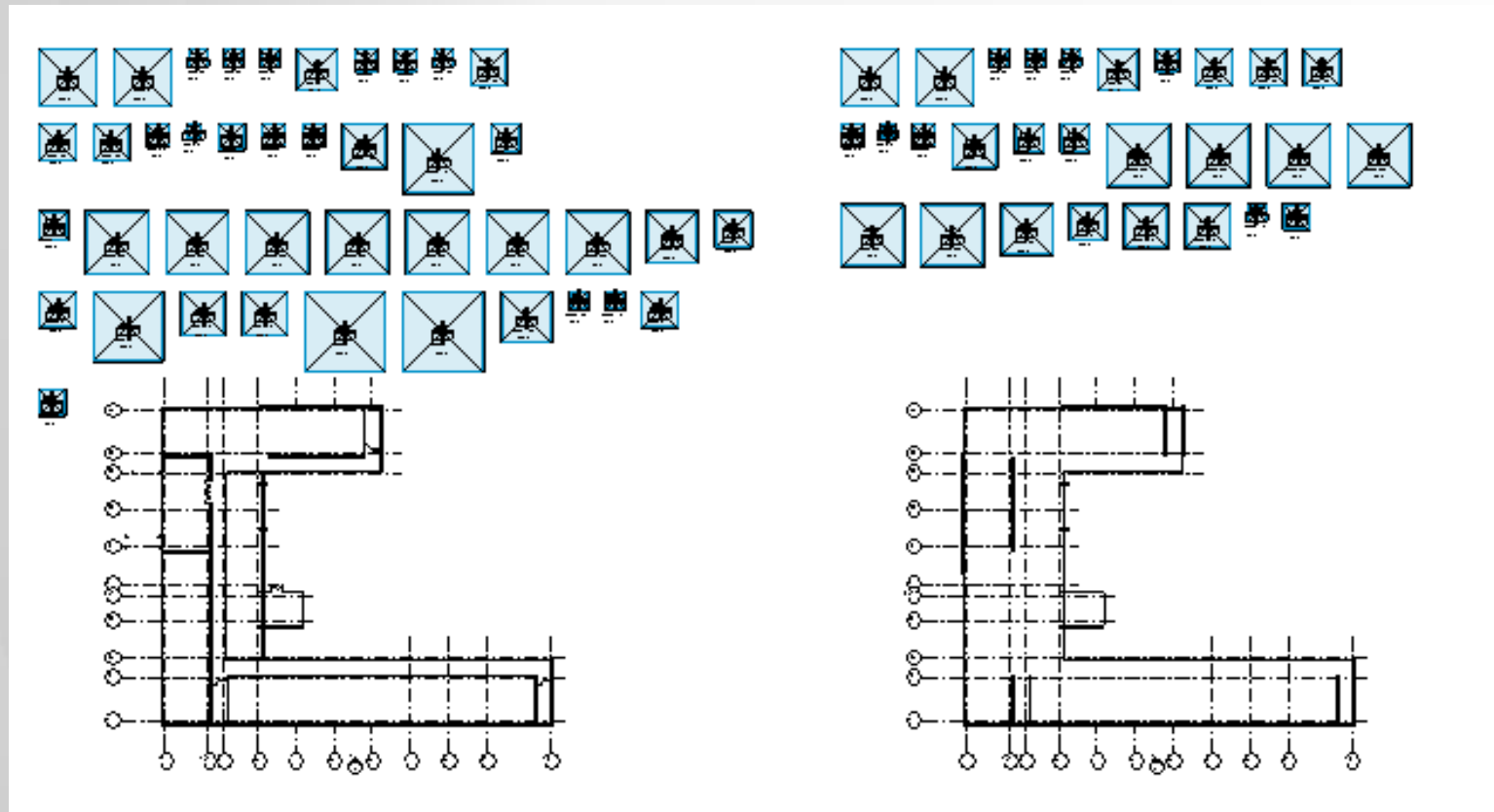
```

RoomID	ProgramSpaceID	Number	OrganizationID	RoomTypeID
101.01	100-COR		100	COR
101.02	100-COR		100	COR
101.03	100-COR		100	COR
101.04	100-COR		100	COR
101.05	100-COR		100	COR
102.01	100-ELEC		100	ELEC
102.02	100-ELEC		100	ELEC
102.03	100-ELEC		100	ELEC
102.04	100-ELEC		100	ELEC
102.05	100-ELEC		100	ELEC
102.06	100-ELEC		100	ELEC
102.07	100-ELEC		100	ELEC
102.08	100-ELEC		100	ELEC
102.09	100-ELEC		100	ELEC
103.01	100-LBBY		100	LBBY
103.02	100-LBBY		100	LBBY
103.03	100-LBBY		100	LBBY
104.01	100-MEN		100	MEN
104.02	100-MEN		100	MEN
104.03	100-MEN		100	MEN
104.04	100-MEN		100	MEN
105	100-SPRK		100	SPRK
106.01	100-STAR		100	STAR
106.02	100-STAR		100	STAR
106.03	100-STAR		100	STAR
106.04	100-STAR		100	STAR
106.05	100-STAR		100	STAR
106.06	100-STAR		100	STAR
106.07	100-STAR		100	STAR
106.08	100-STAR		100	STAR
106.09	100-STAR		100	STAR
107.01	100-STOR		100	STOR
107.02	100-STOR		100	STOR
108.01	100-TOIL		100	TOIL
108.02	100-TOIL		100	TOIL
108.03	100-TOIL		100	TOIL



Creating Rooms

- Importing Unplaced Rooms
- Placing Rooms
- Rooms in Their Actual Location



■ Validating Program with the Database

Synchronize Model and Database

Select row(s), then use "Set to ..." buttons to set update action.

	UpdateAction	KeyValue	DiscrepancyType	FieldName	ModelValue	DbValue	ModelReadOnly
	NoAction	102.02	No model element for db record				
	NoAction	201.01	No model element for db record				
▶	NoAction	101.07	No db record for model element				
	NoAction	103.03	Model value not equal to db record	AreaRoom	3550.814620892	3546.954626308	True
	NoAction	103.02	Model value not equal to db record	AreaRoom	3620.288297686	3616.428303101	True
	NoAction	301.08	Model value not equal to db record	AreaRoom	1003.640115123	1005.180239462	True
	NoAction	102.06	Model value not equal to db record	RoomName	Electrical Rm	Electrical	False
	NoAction	104.03	Model value not equal to db record	RoomName	Mens	Men	False
	NoAction	101.04	Model value not equal to db record	RoomName	Circulation	Comidor	False

Filter Discrepancy Type

☒ All

☐ No model element for db record

☐ No db record for model element

☐ Model value not equal to db record

Filter Field Name/Value

Field Name: <all>

Value (Model or Db): <all>

Set to "NoAction"

Set to "UpdateModel"

Set to "UpdateDatabase"

Process All Update Actions

Close

Programmed and Actual Area Comparison by Organization

9/9/2011

100 - Facilities

	Programmed	Actual	Difference (A - P)
Area:	Count:	Area:	Count:
6426	1	1426	
942		42	
10688		9188	
508		-92	
92		-8	
1823		-1777	
179		-121	
179		-1	
465		265	
499		-101	
21801	1	8821	
Area:	Count:	Area:	Count:
1246		-654	
1408		-92	
1167		167	
3821	0	-479	
Area:	Count:	Area:	Count:
13310		-9490	
1706		-694	
1966		366	
1292		-208	
3880	1	280	
22154	1	-9746	
Area:	Count:	Area:	Count:
1940		-2060	
241		-659	
89		-11	
2270	0	-2630	

Programmed and Actual Area Comparison by Room Type

9/9/2011

CAFT - Cafeteria

	Programmed	Actual	Difference (A - P)
Type:	Count:	Area:	Count:
400 - Food Services	2	4000	2
Totals for 400 - Food Services:	2	4000	2
CLRM - Classroom	Count:	Area:	Count:
300 - Education	19	22800	19
Totals for 300 - Education:	19	22800	19
COM L - Computer Lab	Count:	Area:	Count:
300 - Education	3	2400	3
Totals for 300 - Education:	3	2400	3
CONF - Conference	Count:	Area:	Count:
300 - Education	4	1600	4
Totals for 300 - Education:	4	1600	4
COR - Corridor	Count:	Area:	Count:
100 - Facilities	5	5000	6
Totals for 100 - Facilities:	5	5000	6
CPPR - Copy-Print	Count:	Area:	Count:
500 - Media Services	2	200	2
Totals for 500 - Media Services:	2	200	2
DRFT - Drafting	Count:	Area:	Count:
500 - Media Services	1	400	1
Totals for 500 - Media Services:	1	400	1

Page: 1

Supporting Construction Documentation

Data Not Included in the BIM

- Room Requirements
- Doors and Hardware
- Furniture and Equipment Specifications

Doors-HDW									
HDWGroupID	CloserID	CloserQuant	MonitorID	MonitorQua	GasketID	GasketQuan	HingeID	HingeQuant	
H1.11	CLR2	1	MON2	1	GSK1	1	HGE2	3	HL
H1.12	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H2.10	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H3.12	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H3.14	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H3.17	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H3.22	CLR2	1	MON1	1	GSK1	1	HGE1	3	HL
H3.23	CLR2	1	MON2	1	GSK2	1	HGE1	4	HL
H3.25	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H4.11	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL
H4.11A	CLR1	1	MON1	1	GSK1	1	HGE2	3	HL

Doors									
DoorID	DoorMaterial	DoorType	DoorGlazing	HDWGroupID	DoorWidth	DoorHeight	DoorLabel	Click to Add	
0001B		-		S2.23	3' - 0"	7' - 0"			
0001F	HM	NN	GL-18	H3.23	6' - 0"	7' - 0"			
0002A		-		U	15' - 6"	11' - 4"			
0002B		-		S2.23	3' - 0"	7' - 0"			
0002C		-		U	15' - 6"	11' - 4"			
0002D		-		S2.23	3' - 0"	7' - 0"			
0004	WD	F		H8.10	3' - 0"	8' - 0"			
0005	WD	F		H8.10	3' - 0"	8' - 0"			
0007	WD	O		H7.11	3' - 6"	8' - 0"	60		
0009	WD	TNTN	GL-18	H3.22	7' - 0"	8' - 0"			
0010A	WD	TNTN	GL-18	H3.22	6' - 0"	9' - 0"			
0010B	WD	RR		H8.17	3' - 0"	7' - 10 3/4"			
0010C	WD	OO		H3.17	3' - 0"	9' - 4 3/4"			
0011	HM	F		H8.16	3' - 0"	7' - 0"			
0012	HM	F		H8.12	3' - 0"	7' - 0"	60		
0013A	SHM	V	FRP-16	S2.22	4' - 0"	7' - 0"	90		
0013B	SHM	HG	FRP-16	S2.22	4' - 0"	7' - 0"	20		
0014A	SHM	V	FRP-16	S2.22	3' - 0"	7' - 0"	90		
0014B	SHM	HG	LP-12	S2.22	3' - 0"	7' - 0"			
0015	SHM	V	FRP-16	S4.14	3' - 0"	7' - 0"	90		
0016	HM	V	GL-9	H7.10	3' - 0"	8' - 0"	90		

R1	1	MON2	1	GSK2	1	HGE1	4	HL
R1	1	MON2	1	GSK2	1	HGE1	4	HL
R2	1	MON1	1	GSK1	1	HGE1	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R2	1	MON1	1	GSK2	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK2	1	HGE1	3	HL
R2	1	MON2	1	GSK2	1	HGE1	4	HL
R1	1	MON1	1	GSK1	1	HGE1	3	HL
R2	1	MON1	1	GSK2	1	HGE1	3	HL
R2	1	MON1	1	GSK1	1	HGE2	3	HL
R2	1	MON2	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK2	1	HGE2	3	HL
R2	1	MON2	1	GSK2	1	HGE1	4	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R2	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R1	1	MON1	1	GSK1	1	HGE2	3	HL
R2	1	MON1	1	GSK1	1	HGE2	3	HL



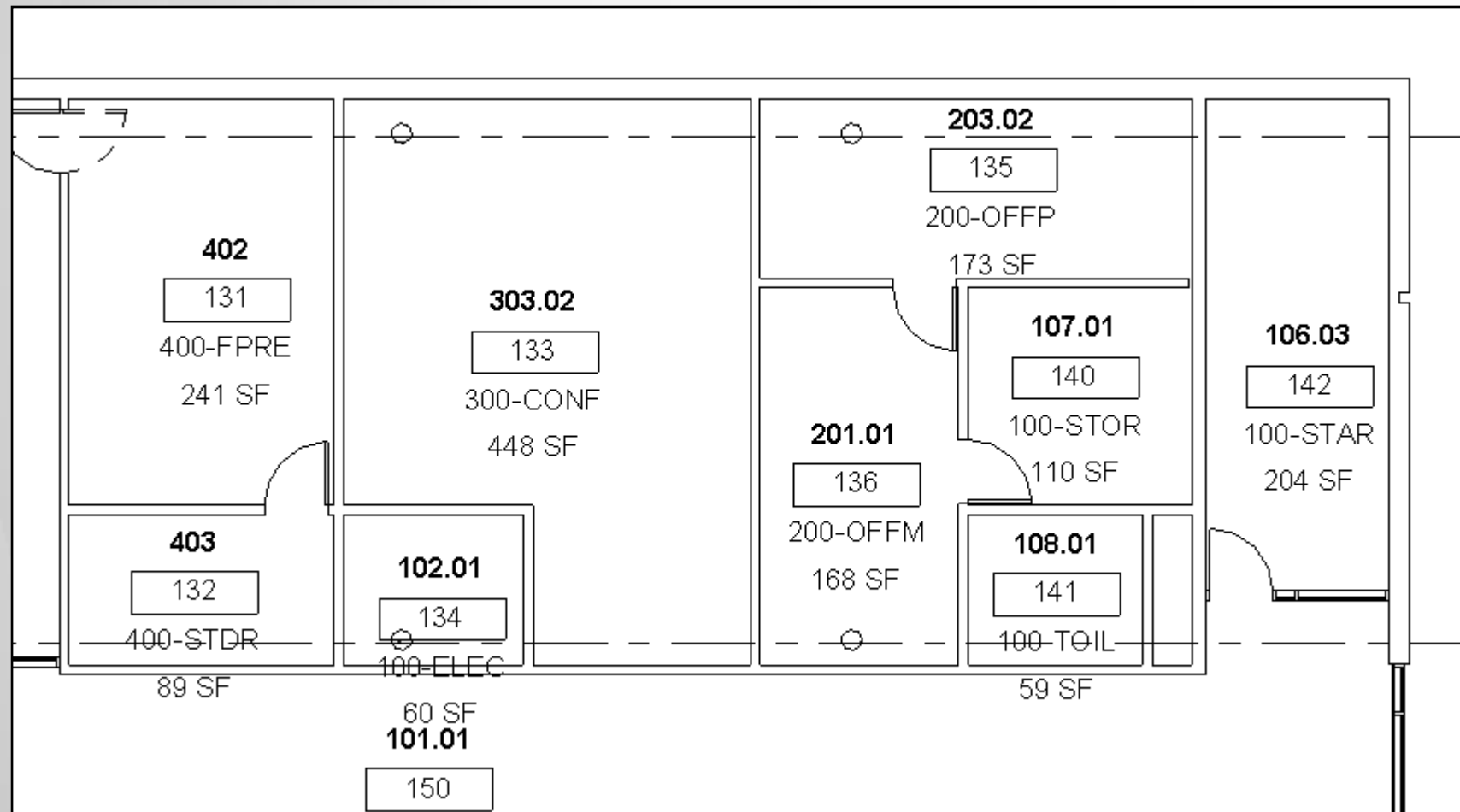
Room Data Sheets

Numbering Rooms

Construction Documentation *Room Number*

Different from:

- RoomId.
- Signage.



Room Schedule								
RoomId	ProgramSpac	RoomTypeId	OrganizationI	Area	AreaPlanned	FloorId	Name	Number
101.01	100-COR	COR	100	591 SF	1000 SF	01	Corridor	150
101.02	100-COR	COR	100	1485 SF	1000 SF	01	Corridor	153
101.03	100-COR	COR	100	1513 SF	1000 SF	02	Corridor	352
101.04	100-COR	COR	100	579 SF	1000 SF	02	Corridor	350
101.05	100-COR	COR	100	744 SF	1000 SF	03	Corridor	250
101.06	100-COR	COR	100	1514 SF	1000 SF	03	Corridor	253
102.01	100-ELEC	ELEC	100	60 SF	100 SF	01	Electrical	134
102.02	100-ELEC	ELEC	100	193 SF	100 SF	01	Electrical	124
102.03	100-ELEC	ELEC	100	78 SF	100 SF	01	Electrical	113
102.04	100-ELEC	ELEC	100	76 SF	100 SF	02	Electrical	213
102.05	100-ELEC	ELEC	100	56 SF	100 SF	02	Electrical	235
102.06	100-ELEC	ELEC	100	171 SF	100 SF	02	Electrical	222
102.07	100-ELEC	ELEC	100	76 SF	100 SF	03	Electrical	313
102.08	100-ELEC	ELEC	100	171 SF	100 SF	03	Electrical	324
102.09	100-ELEC	ELEC	100	60 SF	100 SF	03	Electrical	332
103.01	100-LBBY	LBBY	100	3525 SF	500 SF	01	Lobby	151
103.02	100-LBBY	LBBY	100	3620 SF	500 SF	02	Lobby	251
103.03	100-LBBY	LBBY	100	3551 SF	500 SF	03	Lobby	351
104.01	100-MEN	MEN	100	140 SF	150 SF	01	Men	110
104.02	100-MEN	MEN	100	146 SF	150 SF	01	Men	311
104.03	100-MEN	MEN	100	76 SF	150 SF	02	Men	234
104.04	100-MEN	MEN	100	146 SF	150 SF	03	Men	211
105	100-SPRK	SPRK	100	92 SF	100 SF	01	Sprinkler	123
106.01	100-STAR	STAR	100	195 SF	400 SF	01	Stair	114
106.02	100-STAR	STAR	100	206 SF	400 SF	01	Stair	101
106.03	100-STAR	STAR	100	204 SF	400 SF	01	Stair	142
106.04	100-STAR	STAR	100	193 SF	400 SF	02	Stair	214
106.05	100-STAR	STAR	100	208 SF	400 SF	02	Stair	201
106.06	100-STAR	STAR	100	208 SF	400 SF	02	Stair	243
106.07	100-STAR	STAR	100	208 SF	400 SF	03	Stair	342
106.08	100-STAR	STAR	100	208 SF	400 SF	03	Stair	301
106.09	100-STAR	STAR	100	193 SF	400 SF	03	Stair	314
107.01	100-STOR	STOR	100	110 SF	150 SF	01	Storage	140
107.02	100-STOR	STOR	100	70 SF	150 SF	02	Storage	323
108.01	100-TOIL	TOIL	100	59 SF	60 SF	01	Toilet	141
108.02	100-TOIL	TOIL	100	60 SF	60 SF	02	Toilet	242

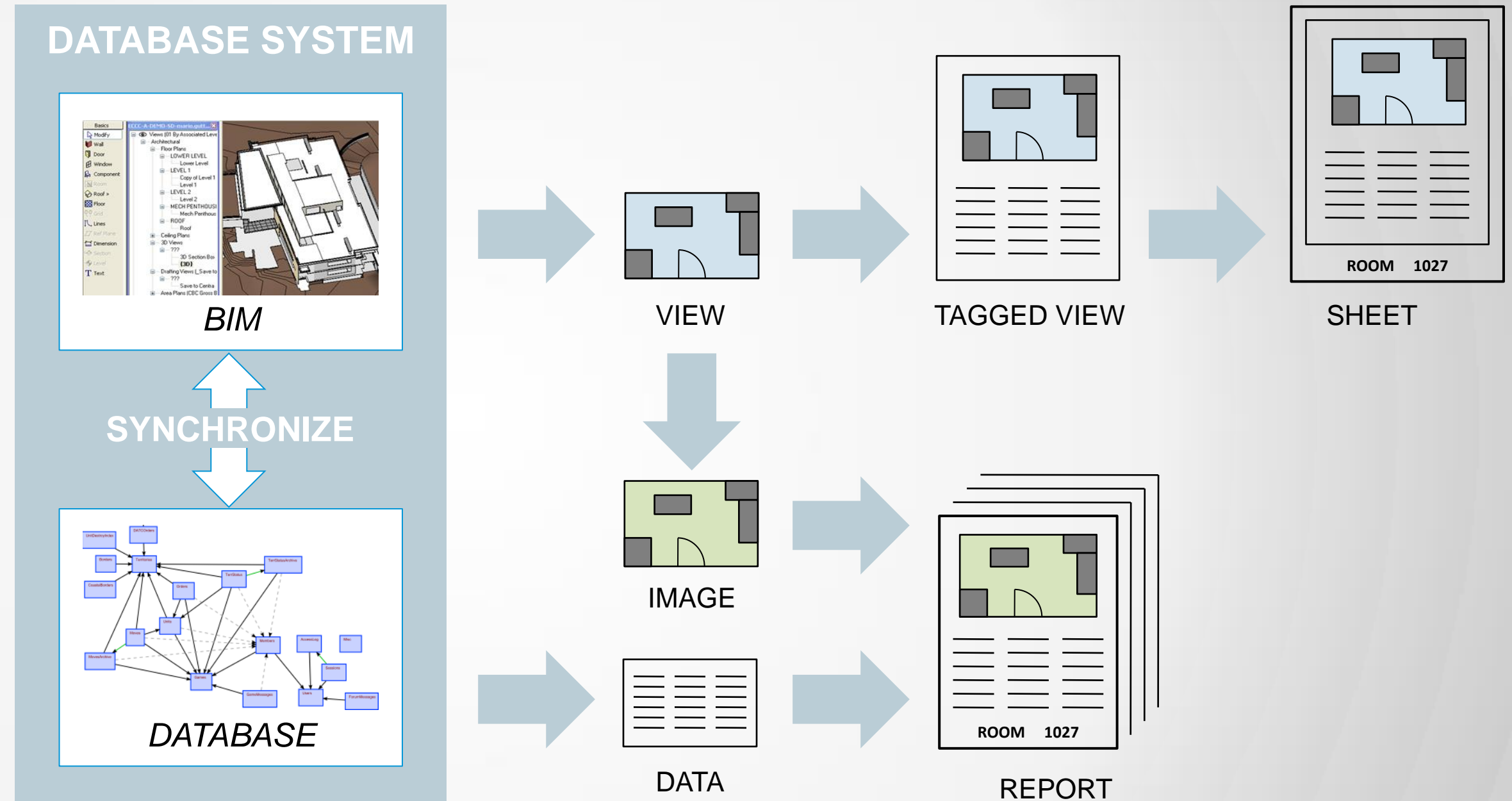
Processes

Stages

- Programming
- Design Development

Workflows

- All in Revit
- In Access

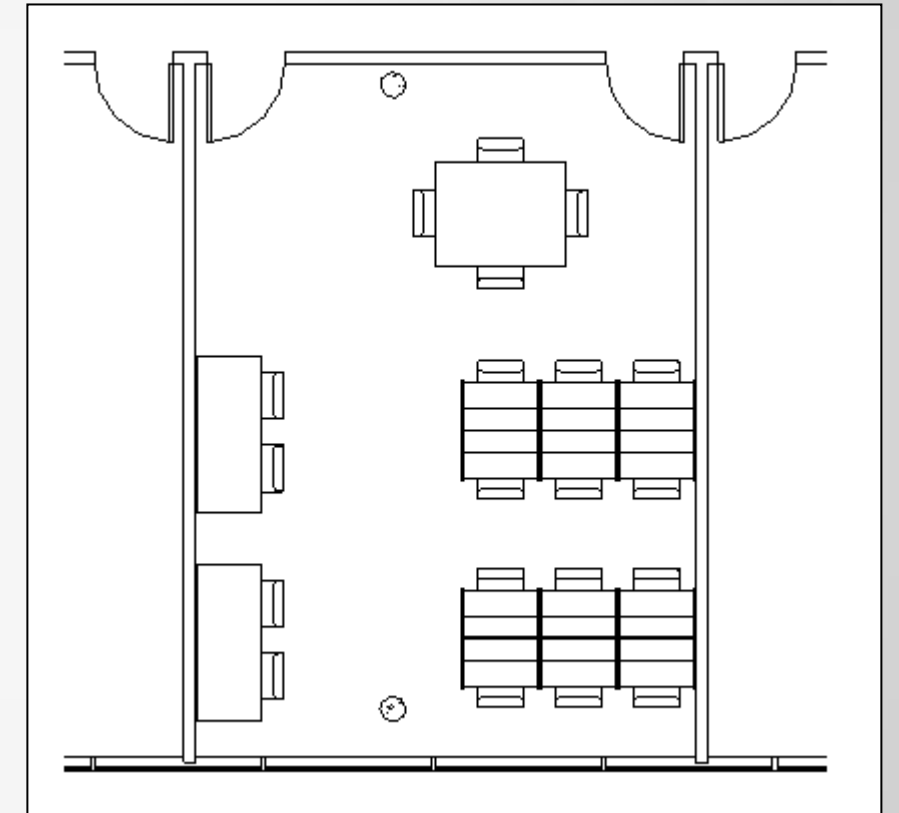
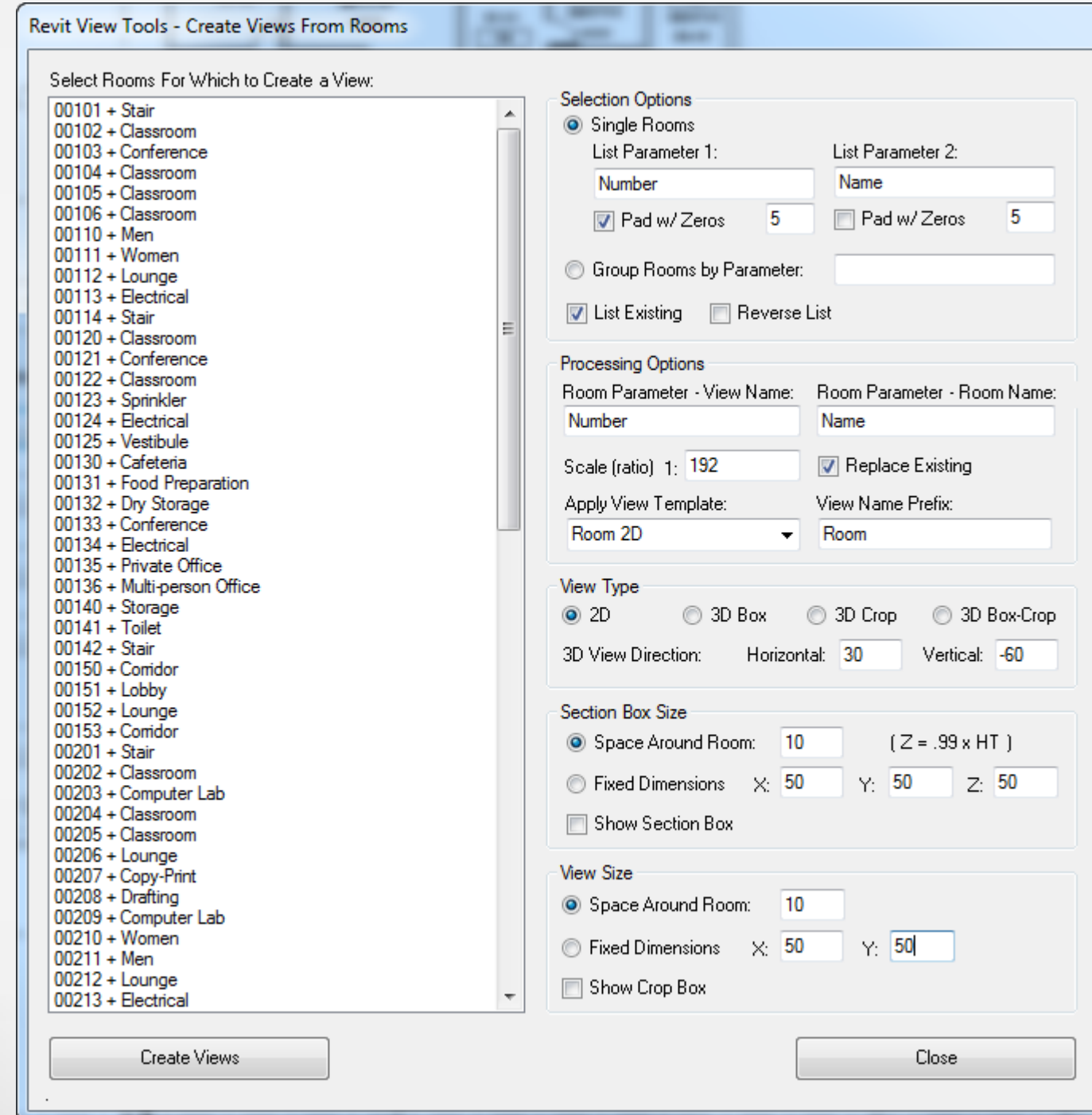


ALTERNATE ROOM DATA SHEET PROCESSES

Data Sheets in Revit

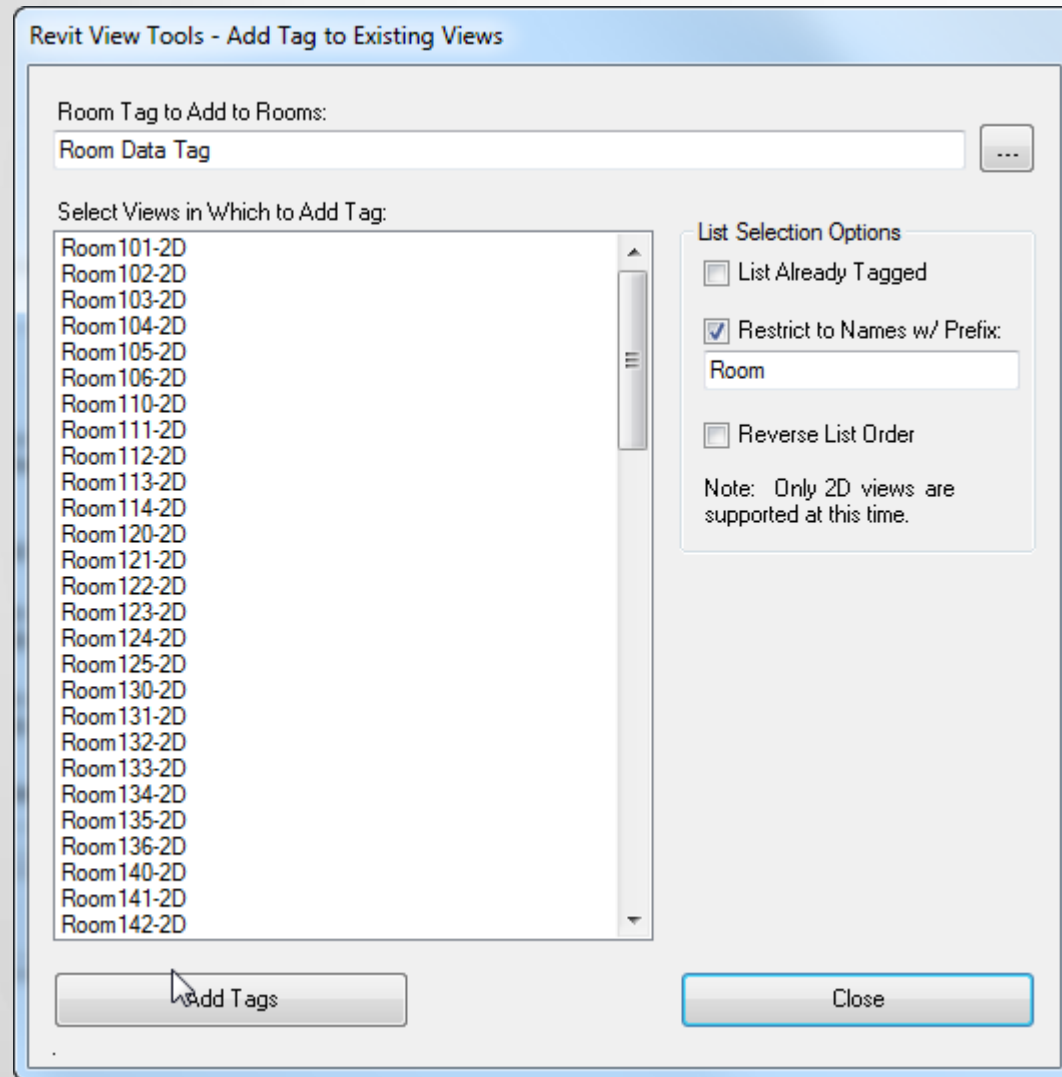
View for each room:

- 2D PLAN option.



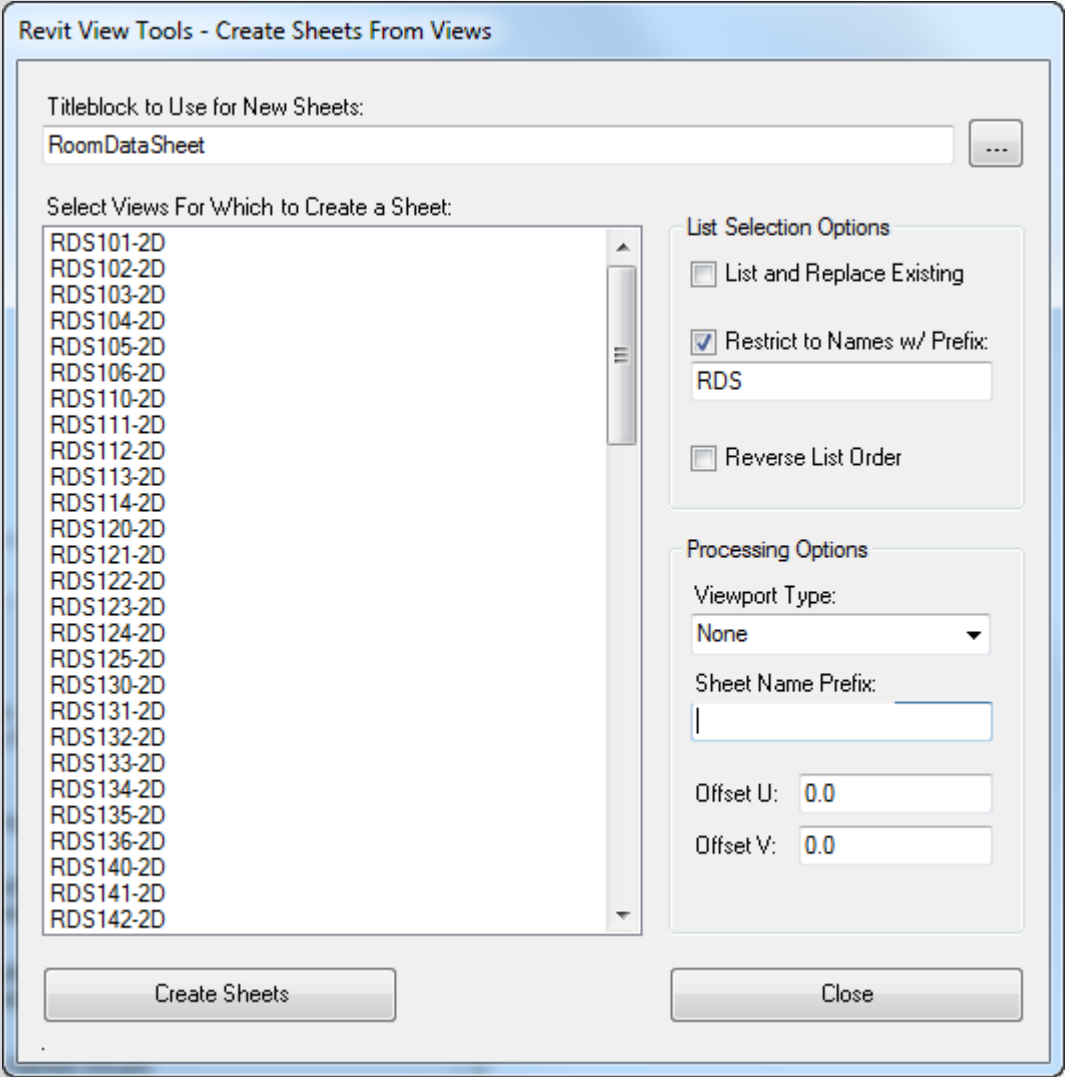
Tag all rooms:

- Special room tag.
- Room data values.



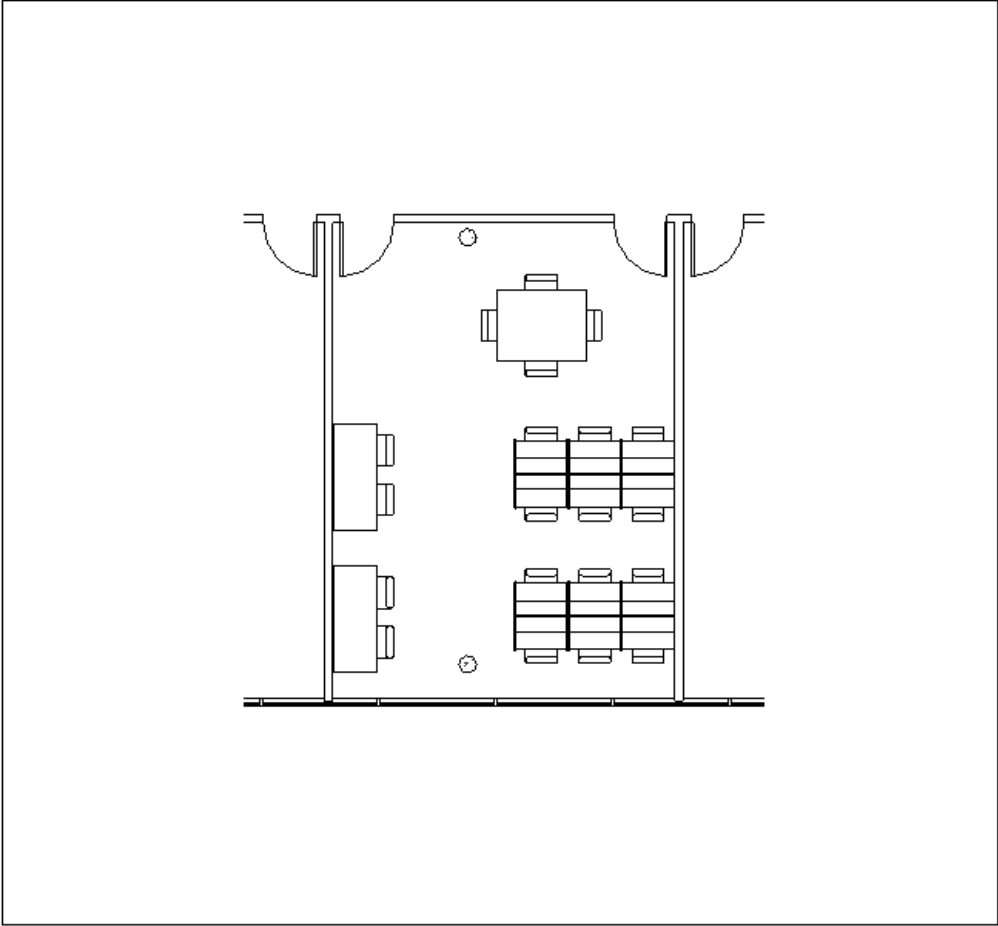
105	Classroom	301.02	
Program Space Id:	300-CLRM	Specialties:	WHITEBOARD
Room Type Id:	CLRM		COAT HANGER
Organization Id:	300		SP-1
Area:	517 SF		SP-2
Floor Finish:	FF-01	Casework:	PROJECTION CABINET
Wall Finish:	WF-05		SPECIAL FINISH
Ceiling:	CS-32		CSW-1
Base:	BS-02		CSW-2
Mechanical:	MS-02	Equipment:	CLG MTD PROJECTOR
	LOCAL CONTROL		SCREEN
	SPECIAL - AB-23		EQ-1
Electrical:	DEDICATED POWER	Communications:	CATV
	SWITCH OUTLET AT PROJECTOR		20 - CAT5
	E-3		RFID
Plumbing:	FLOOR DRAIN	Finishes:	COMM-1
	PS-2		12 - STUDY CAR
	PS-5		20 - CHAIRS
			1 - SQ TABLE
			2 - SM TABLE

Place Views on Sheets



Classroom

RDS 105



105

Classroom

301.02

ProgramSpaceId: 300-CLRM
RoomTypeId: CLRM
OrganizationId: 300
Area: 517 SF

Floor Finish: FF-01
Wall Finish: WF-05
Ceiling: CS-32
Base: BS-02

Mechanical: MS-02
LOCAL CONTROL
SPECIAL - AB-23

Electrical: DEDICATED POWER
SWITCH OUTLET AT PROJECTOR
E-3

Plumbing: FLOOR DRAIN
PS-2
PS-5

Specialties: WHITEBOARD
COAT HANGER
SP-1
SP-2

Casework: PROJECTION CABINET
SPECIAL FINISH
CSW-1
CSW-2

Equipment: CLG MTD PROJECTOR
SCREEN
EQ-1
EQ-5

Communications: CATV
20 - CAT5
RFID
COMM-1

Furnishings: 12 - STUDY CAR
20 - CHAIRS
1 - SQ TABLE
2 - SM TABLE

10/17/2013 2:12:58 PM

Data Sheets in Access

Two views for each room:

- 2D Plan option.
- 3D Options:
 - View angle.
 - Extents:
 - Section box.
 - Crop box.
 - Both.

Revit View Tools - Create Views From Rooms

Select Rooms For Which to Create a View:

- 00101 + Stair
- 00102 + Classroom
- 00103 + Conference
- 00104 + Classroom
- 00105 + Classroom
- 00106 + Classroom
- 00110 + Men
- 00111 + Women
- 00112 + Lounge
- 00113 + Electrical
- 00114 + Stair
- 00120 + Classroom
- 00121 + Conference
- 00122 + Classroom
- 00123 + Sprinkler
- 00124 + Electrical
- 00125 + Vestibule
- 00130 + Cafeteria
- 00131 + Food Preparation
- 00132 + Dry Storage
- 00133 + Conference
- 00134 + Electrical
- 00135 + Private Office
- 00136 + Multi-person Office
- 00140 + Storage
- 00141 + Toilet
- 00142 + Stair
- 00150 + Corridor
- 00151 + Lobby
- 00152 + Lounge
- 00153 + Corridor
- 00201 + Stair
- 00202 + Classroom
- 00203 + Computer Lab
- 00204 + Classroom
- 00205 + Classroom
- 00206 + Lounge
- 00207 + Copy-Print
- 00208 + Drafting
- 00209 + Computer Lab
- 00210 + Women
- 00211 + Men
- 00212 + Lounge
- 00213 + Electrical

Selection Options

☒ Single Rooms

List Parameter 1: List Parameter 2:

☒ Pad w/ Zeros ☐ Pad w/ Zeros

☐ Group Rooms by Parameter:

☒ List Existing ☐ Reverse List

Processing Options

Room Parameter - View Name: Room Parameter - Room Name:

Scale (ratio) 1: ☒ Replace Existing

Apply View Template: View Name Prefix:

View Type

☐ 2D ☐ 3D Box ☐ 3D Crop ☒ 3D Box-Crop

3D View Direction: Horizontal: Vertical:

Section Box Size

☒ Space Around Room: (Z = .99 x HT)

☐ Fixed Dimensions X: Y: Z:

☐ Show Section Box

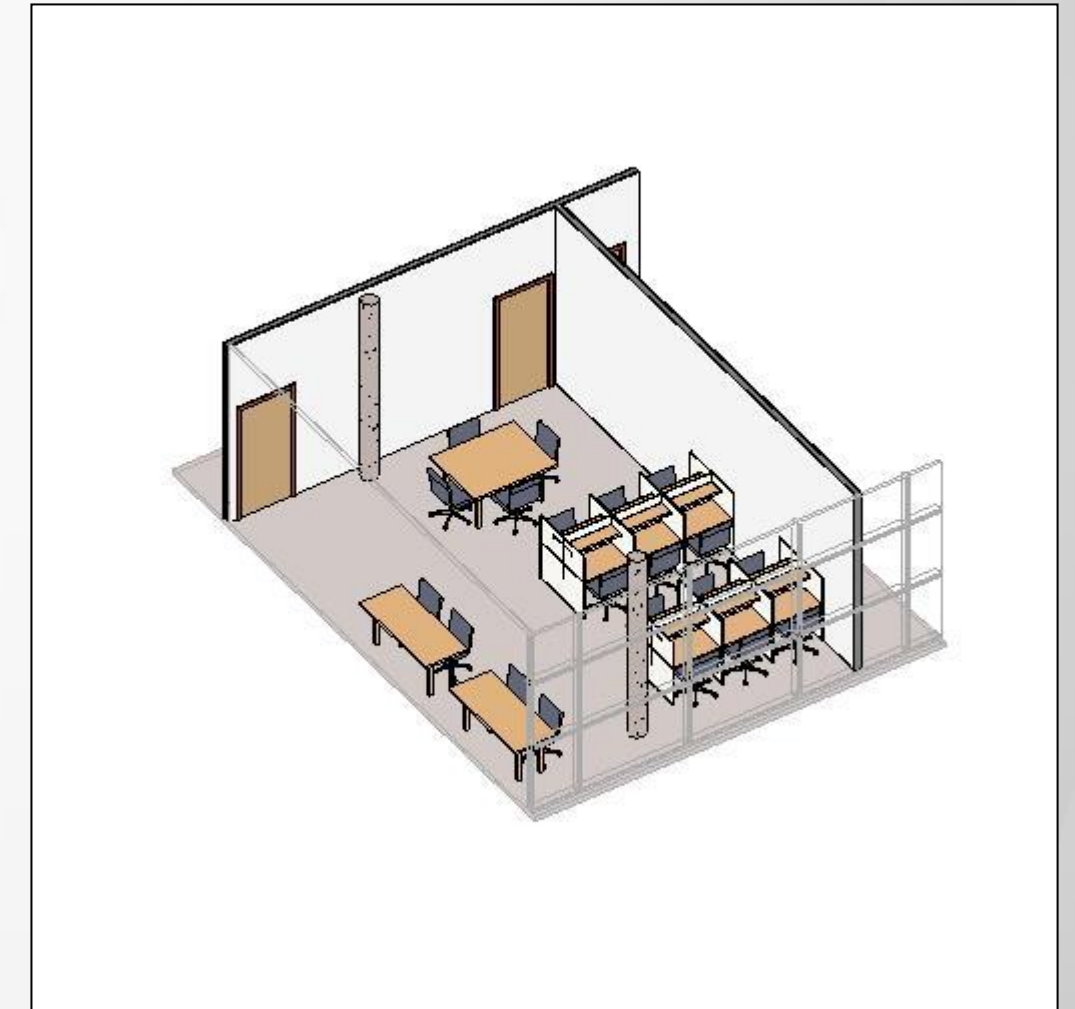
View Size

☒ Space Around Room:

☐ Fixed Dimensions X: Y:

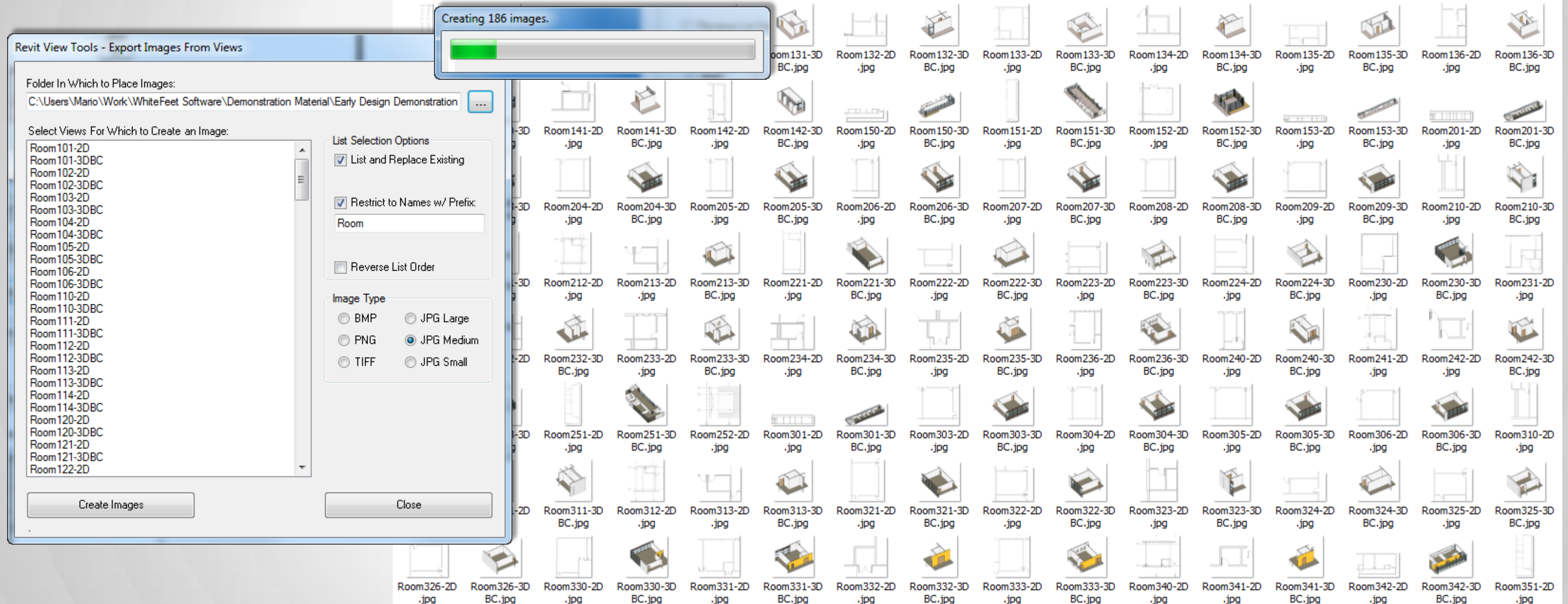
☐ Show Crop Box

Create Views Close



Export images:

- Naming.
- File type.



Input Form:

- Used in User Group meetings to record decisions.

RoomDataEdit

SAMPLE PROJECT

Department Name: 300 Education

Program No: 300-CLRM

Program Area: 1,200 SF

Space No/Name: 105 Classroom

Room ID: 301.02

Room Area: 517 SF

Room Data Input Form

Room: 105

Classroom

Architectural and Structural:

Wall Acous. Crit: FF-01

Ceiling Hgt: 10'-0"

☒ Security Ceiling

Wall Construction: ☒ Security Walls ☒ Full Height Walls

☒ Daylighting

Door Const/Type: Standard classroom type

Hardware: Standard classroom.

Door Glazing Type: Safety glass.

☐ Sidelight ☐ Access Control

Structural Req: Provide additional bracing at projector mount.

☒ Security Hardware

Casework and Finishes:

Finishes: Wall: Gyp Bd Floor: VCT Paint: Wall: Floor theme

Ceiling: 1x1 ACT Base: Vinyl Ceiling: White

Casework: Education theme Finish Rqmts: Graffiti resistant.

Casework Type: CASE

HVAC and Plumbing:

Temp. Criteria: 72 df Noise Criteria: 60 DB Equip. Heat Gain: 20 DF

HVAC Hrs of Oper: 24 ☒ HVAC on Emergency Power

HVAC Spcl. Req: Provide option to condition space during night classes without having to turn on main system.

Sink Type: Double; oversized for art projects

☒ Dom. Cold Water ☒ Dom. Hot Water ☒ Drinking Fountain(s) ☐ Plumbing Floor Drain

Plumbing Rqmts: Shut-off valve must be in accessible but secure location.

Fire Protc. Rqmts: Provide for emergency override of local alarm.

Power, Lighting and Communications, Security:

Power: Main 1 1000 Watts Lighting: Type: Troffer array

Outlet Power: Controls: At door

110v: 8 ☒ StandbyPower Level: Classroom; dimmable for computer use.

208v: 2 ☒ Security Light Comm: Voice: To Office Data: 20 CAT-5

460v: 0 ☒ Security Camera ☐ Duress Alarm ☒ Security Alarm ☐ MATV ☒ Intercom

Electrical Rqmts: Provide dedicated computer circuits to all room locations.

Equipment and Furnishings:

Equipment: Fixed: Ceiling-mounted CRT projector. Pull down screen. Wall mounted LCD screen.

Moveable: Hand-held AV control.

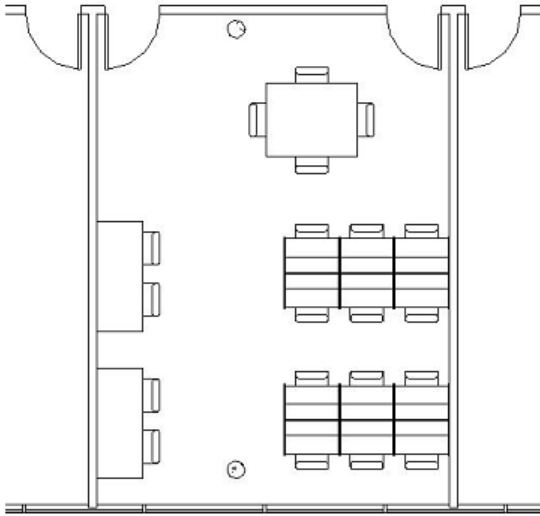
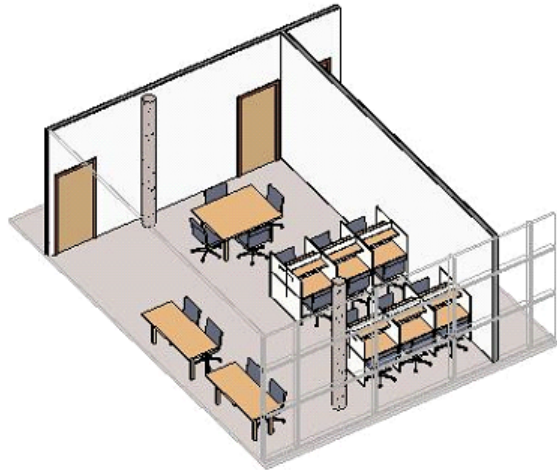
Furnishings: Fixed: Bookcase under window; full width of room.

Moveable: 12 Study carrels; 2 wall tables; 1 square table; 20 chairs

Remarks:

This room will be used for night classes when the main areas of the building are secure. Provide method of accessing the bathrooms without entering the main lobby area.

Record: 14 4 of 51 Unfiltered Search



AUTODESK UNIVERSITY 2013

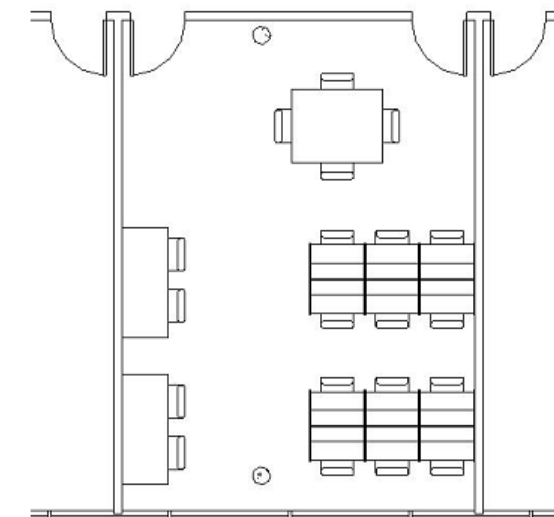
Advanced Techniques for Managing Building Data in Autodesk® Revit®

AUTODESK

- Used to validate decisions and track data.

REVIEW PRINTING Page 4 10/18/2013

Classroom

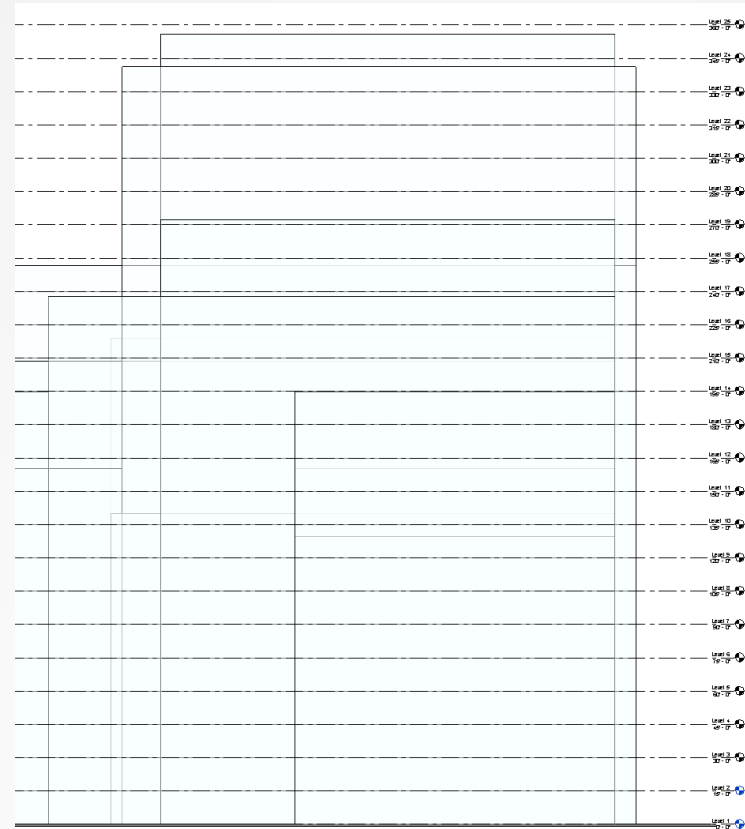


Supplemental Topics

Parent-Child Family Relationships

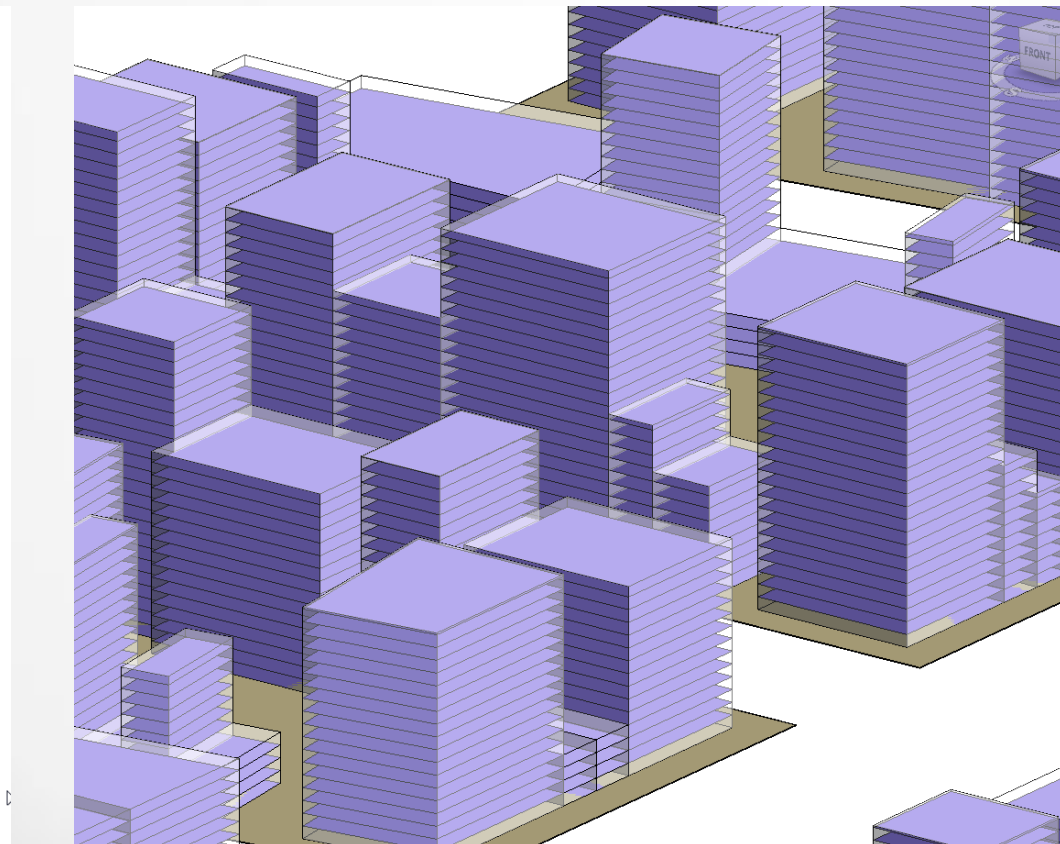
Site FAR Example:

- Parcels : Areas.
- Buildings: Masses.
- Buildings → Area.
- Roll-up floor areas.



Define Parent-Child Relationship

Parent	Child
<p>Element Category</p> <p>Areas</p>	<p>Element Category</p> <p>Mass</p>
<p>Key Parameter Name</p> <p>Areaid</p> <p>This is the parameter that is used to uniquely identify each separate parent entity. (Typically "Number", "Mark" or "ID"). It must be a text parameter.</p>	<p>Key Parameter Name</p> <p>ParentAreaid</p> <p>This is the parameter that will hold the value of the Key of the Parent that "owns" the child element. (It is not the key value of the Child element.) (Typically "ParentKeyValue"). It must be a text parameter.</p>
<p>The Parent (typically an Area or a Room) must enclose the Child (typically a room or Mass.)</p>	
<p>ProcessElements Close</p>	



Roll Up Element Values

Parent	Child
<p>Element Category</p> <p>Areas</p>	<p>Element Category</p> <p>Mass</p>
<p>Key Parameter Name</p> <p>Areaid</p> <p>This is the parameter that is used to uniquely identify each separate parent entity. (Typically "Number", "Mark" or "ID"). It must be a text parameter.</p>	<p>Key Parameter Name</p> <p>ParentAreaid</p> <p>This is the parameter that holds the value of the Key of the Parent that "owns" the child element. (It is not the key value of the Child element.) (Typically "ParentKeyValue"). It must be a text parameter.</p>
<p>Roll Up Value Parameter Name</p> <p>AreaSumChildFloorAreas</p> <p>This is the parameter that will store the "rolled-up" (summed) value from its children objects. (Typically "SumChildAreas"). It must be a number parameter.</p>	<p>Source Value Parameter Name</p> <p>Gross Floor Area</p> <p>This is the parameter that contains the value to be "rolled-up" (summed) and assigned to the parent. (Typically "Area"). It must be a numerical value.</p>
<p>The Parent values (typically the ID of an Area or a Room) must be pre-assigned to the Child elements (typically rooms or masses) before running the command.</p>	
<p>ProcessElements Close</p>	

Floor-Area-Ratio (FAR)

- $\text{Area}_{\text{BLDG}} = \text{Floor Areas.}$
- Building \rightarrow Property
- $\text{Area}_{\text{PROPERTY}} = \text{Property Area.}$
- $\text{FAR} = \text{Area}_{\text{BLDG}} / \text{Area}_{\text{PROPERTY}}$
- View Filter

Math Calculation

Element Category: **Areas**

Source: Parameter Name or Numeric Constant

A: **AreaSumOfChildFloorAreas**

B: **Area**

C:

Group by Parameter Name:

Target Parameter Name: **FloorAreaRatio**

Rounding: ☐ None ☒ Half Up ☐ Up ☐ Down Decimals: **2**

Sign Change: ☒ Not Changed ☐ Absolute Value

Formulas to Process

Order Edit Include Erase

1: ☒ Formula: A / B || Parameter A: AreaSumOfChildFloorAreas || Parameter B: Area || Target: FloorAreaRatio || Round Mid: 2 || Sign No:

Function

☐ A (Identity) ☐ (A - B) / A ☐ A + B + C ☐ (A + B) / C

☐ A + B ☐ (A - B) / B ☐ (A + B) - C ☐ (A - B) / C

☐ A - B ☐ (A - B) - C ☐ (A * B) / C

☐ A * B ☐ A * B * C ☐ (A / B) * C

☒ A / B ☐ (A / B) / C

☐ Sum (A) ☐ Sum (A) Group By Parameter ☐ Random (A)

Filters

Filters: FAR-01, FAR-02, FAR-03, FAR-04, FAR-05, FAR-06, FAR-07, FAR-09, FAR-10

Categories: Select one or more categories to be included in the filter. Parameters common to these categories will be available for defining filter rules.

Filter list: **Architecture**

☐ Hide un-checked categories

☒ Areas ☐ Assemblies ☐ Callouts

Filter Rules

Filter by: **FAR**

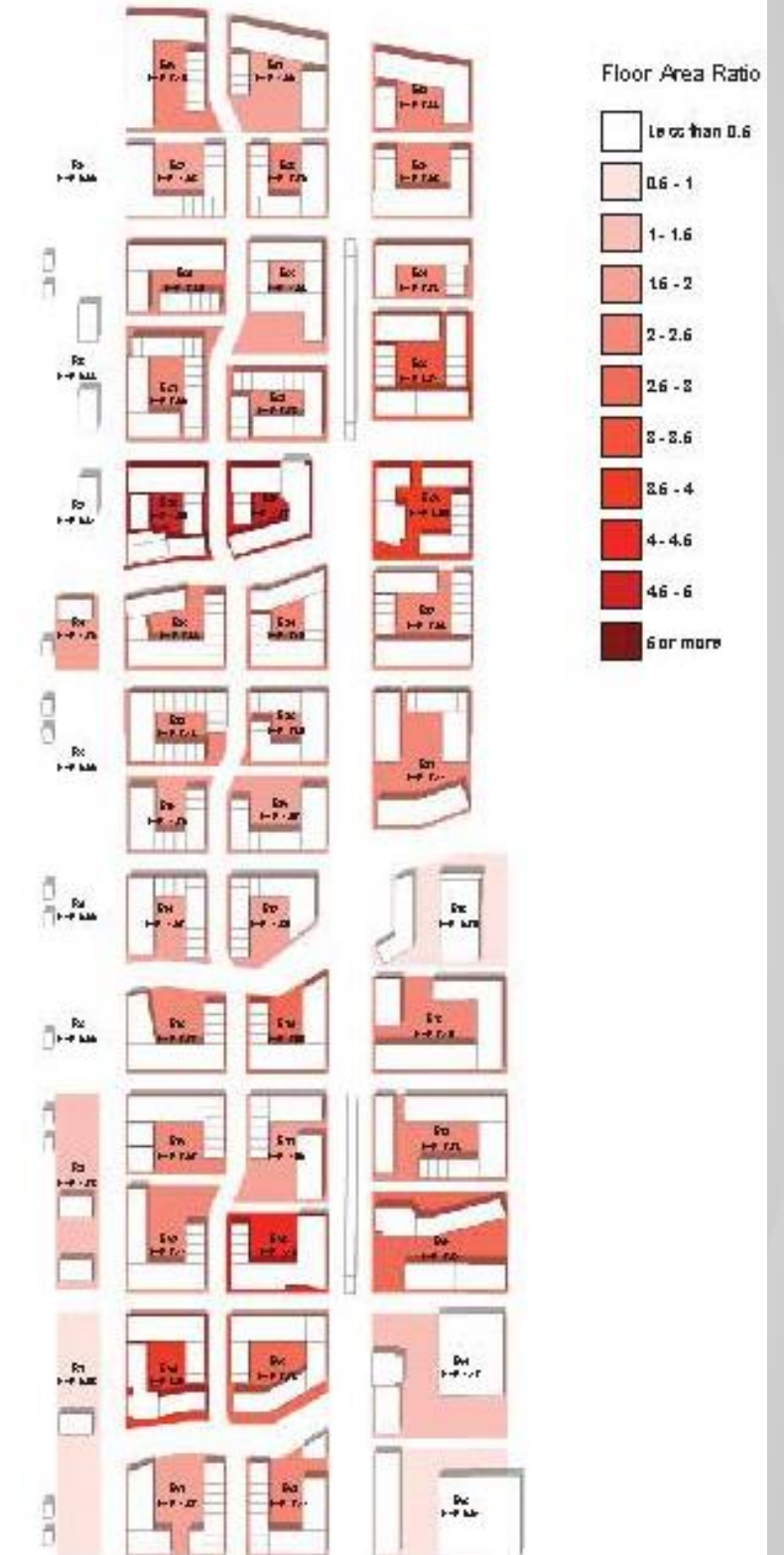
is less than or equal to

0.200000

And: (none)

Visibility/Graphic Overrides for Area Plan (Rentable): Level 1

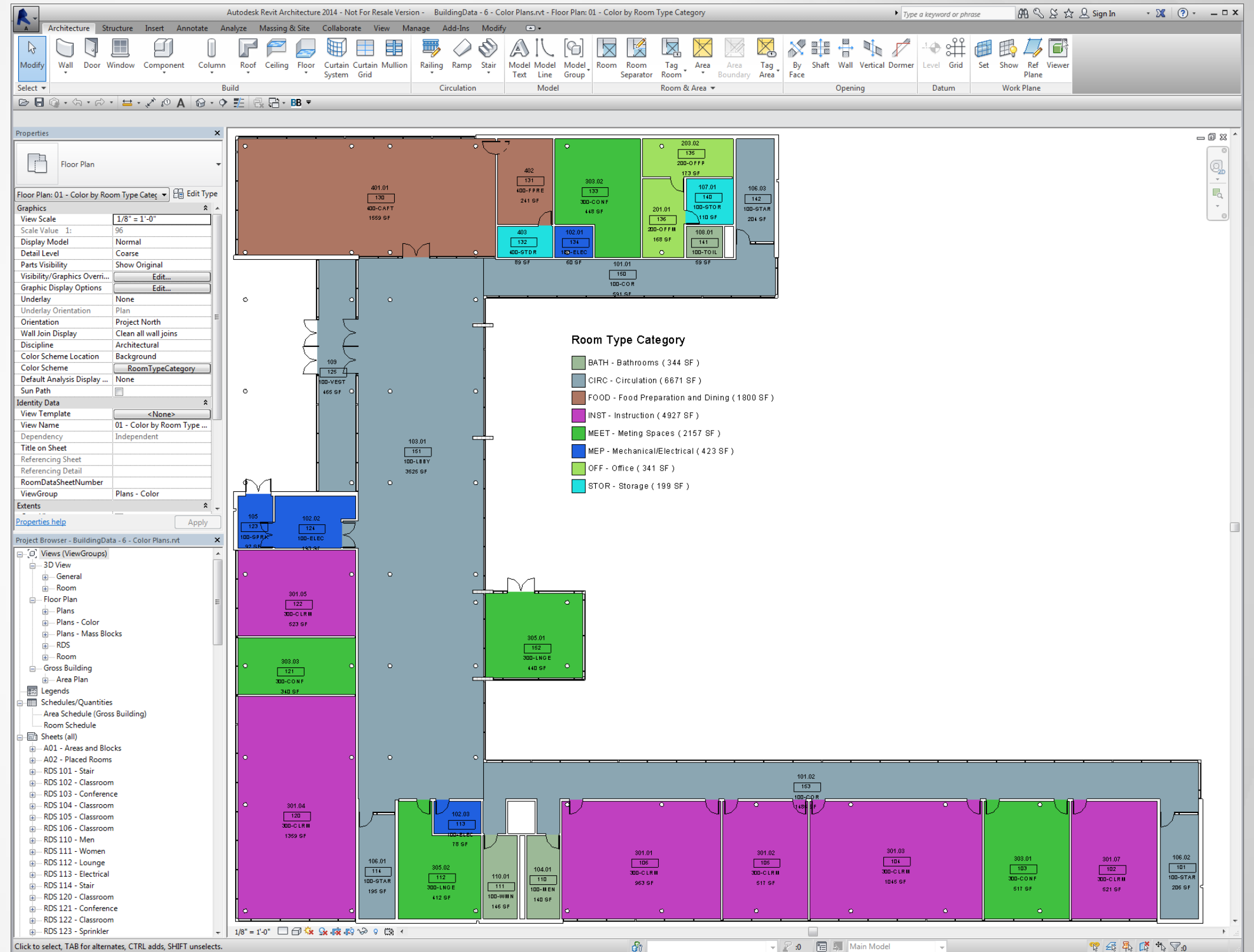
Name	Visibility	Projection/Surface			Cut		Halftone
		Lines	Patterns	Transparen...	Lines	Patterns	
FAR-01	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-02	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-03	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-04	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-05	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-06	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-07	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-09	<input checked="" type="checkbox"/>						<input type="checkbox"/>
FAR-10	<input checked="" type="checkbox"/>						<input type="checkbox"/>



Related Database Tables in Revit Color Fill Plans

Room Type Category:

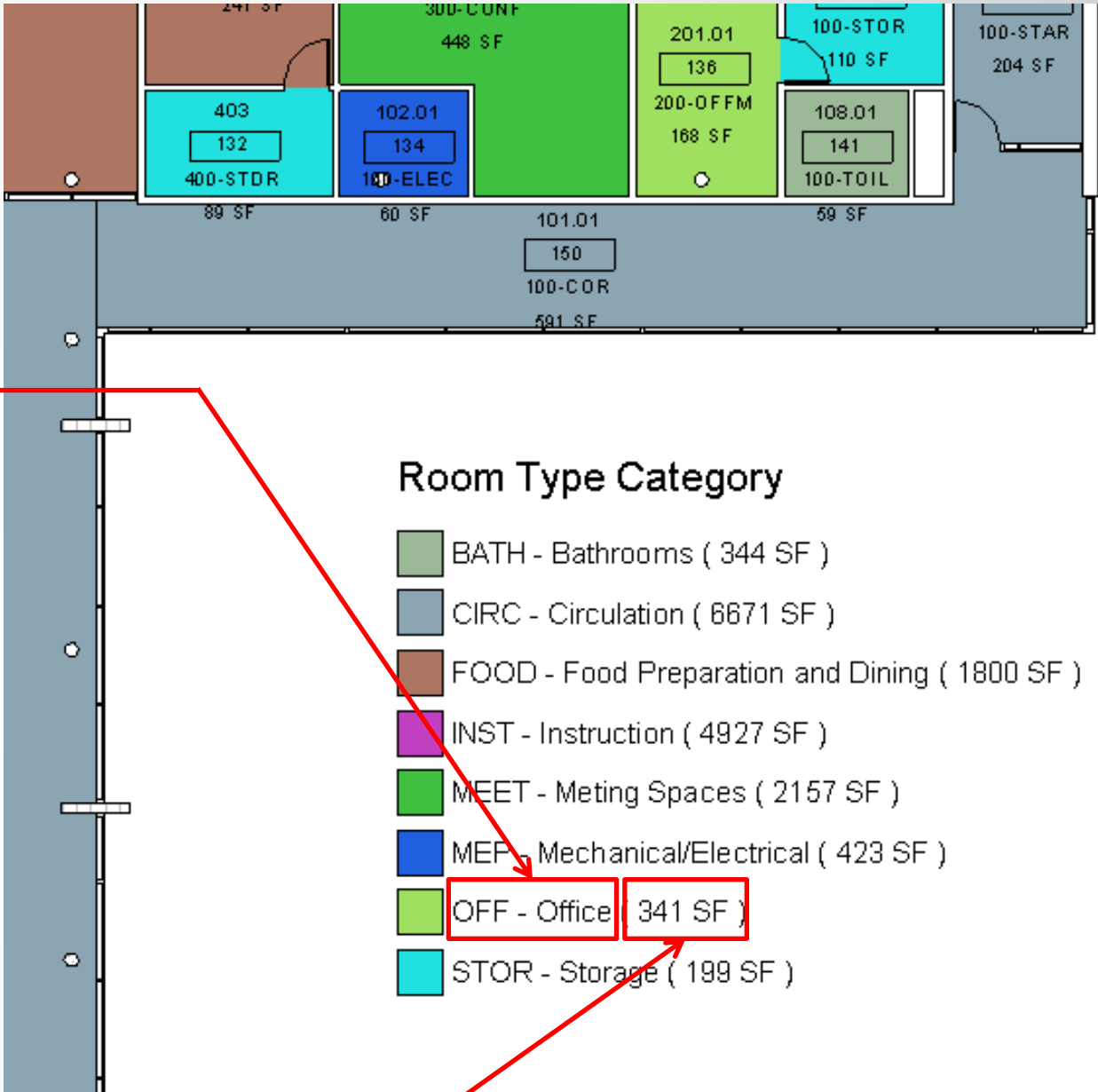
- Indirect values.
- Rolled-up values.
- Concatenation.



ROOMS	
ID	TYPE
10101	OFF-1
10101A	OFF-2
10102	OFF-3
10103	OFF-3
10104	OFF-3
10105	CONF-1
20110	BRKRM
20843	CLASS-1
30102	CLASS-1
30104	CLASS-2
30105	STDY
30201	OFF-3
30202	OFF-3
30203	OFF-3

ROOM TYPE	
ID	CATEGORY
OFF-1	OFF
OFF-2	OFF
OFF-3	OFF
CONF-1	MEET
BRKRM	MEET
CLASS-1	INST
CLASS-2	INST
STDY	INST

ROOM TYPE CATEGORY	
ID	DESCRIPTION
OFF	OFFICE
INST	INSTRUCTION
MEET	MEETING ROOM



Σ

- SUM ROOM AREA:
- BY ROOM TYPE CATEGORY
 - BY FLOOR

Derived Values:

In Access:

- Related Tables:
- Primary Key
- Foreign Key

RoomID	ProgramSpaceID	FloorID	Number	OrganizationID	RoomTypeID
101.02	100-COR	01	153	100	COR
101.03	100-COR	02	352	100	COR
101.04	100-COR	02	350	100	COR
101.05	100-COR	03	250	100	COR
101.06	100-COR	03	253	100	COR
102.01	100-ELEC	01	134	100	ELEC
102.02	100-ELEC	01	124	100	ELEC
102.03	100-ELEC	01	113	100	ELEC
102.04	100-ELEC	02	213	100	ELEC
102.05	100-ELEC	02	235	100	ELEC
102.06	100-ELEC	02	222	100	ELEC
102.07	100-ELEC	03	313	100	ELEC
102.08	100-ELEC	03	324	100	ELEC
102.09	100-ELEC	03	332	100	ELEC
103.01	100-LBBY	01	151	100	LBBY
103.02	100-LBBY	02	251	100	LBBY
103.03	100-LBBY	02	351	100	LBBY
104.01	100-MEN	01	110	100	MEN
104.02	100-MEN	01	311	100	MEN
104.03	100-MEN	02	234	100	MEN
104.04	100-MEN	03	211	100	MEN
105	100-SPRK	01	123	100	SPRK
106.01	100-STAR	01	114	100	STAR
106.02	100-STAR	01	101	100	STAR
106.03	100-STAR	01	142	100	STAR
106.04	100-STAR	02	214	100	STAR
106.05	100-STAR	02	201	100	STAR
106.06	100-STAR	02	243	100	STAR
106.07	100-STAR	03	342	100	STAR
106.08	100-STAR	03	301	100	STAR
106.09	100-STAR	03	314	100	STAR
107.01	100-STOR	01	140	100	STOR
107.02	100-STOR	02	323	100	STOR
108.01	100-TOIL	01	141	100	TOIL
108.02	100-TOIL	02	242	100	TOIL

RoomTypeID	RoomTypeCategoryID
CAFT	FOOD
CLRM	INST
COML	TECH
CONF	MEET
COR	CIRC
CPPR	TECH
DRFT	TECH
ELEC	MEP
FPRE	FOOD
LBBY	CIRC
LIB	INST
OFFP	OFF
SPRK	MEP
STAR	CIRC
STDR	STOR
STOR	STOR
TOIL	BATH
VEST	CIRC
WMN	BATH

RoomTypeCategoryID	Description
BATH	Bathrooms
CIRC	Circulation
FOOD	Food Preparation and Dining
INST	Information Systems
MEET	Meeting Rooms
MEP	Mechanical, Electrical, and Plumbing
OFF	Offices
STOR	Storage
TECH	Technical

ROOMS

ROOM
TYPES

ROOM TYPE
CATEGORIES

Revit ← Access

- Using RevitDbLink
 - Update Derived Values
 - Related Table.

Parameter ***RoomTypeCategoryId.***

- Value from:
 - Room Parameter ***RoomTypeId.***
 - Foreign Key to:
RoomTypes.RoomTypeCategory.

Parameter ***RoomTypeCategoryDescription.***

- Value from:
 - Room Parameter ***RoomTypeCategoryId.***
 - Foreign Key to:
RoomTypeCategories.Description.

The screenshot shows the RevitDbLink dialog box with the following sections:

- 1 - Establish Data Link (Required first time only)**:
 - Full path to database file: C:\Users\guttmanm\OfflineW\Projects\Early Design\2011-08-02 Demonstration Project\Revit Early Design Demo - 5.accdb
 - Authentication: Windows Authentication (selected), SQL Server Authentication
 - Login Name: , Password:
 - Check Integrity: (Optional) Checks database table and field names, and Revit parameters. Saved values are NOT secure. Does not prohibit continuing after errors reported.
- 2 - Set Link Type (Use default or make selection)**:
 - Select Table Name: Program Areas, Rooms (highlighted with a red box)
 - Additional Values: Database Field = Revit Source
 - RoomTypeId = (InstanceParameter) RoomTypeId
 - OrganizationId = (InstanceParameter) OrganizationId
 - Number = (InstanceParameter) Number
 - RoomName = (InstanceParameter) Name
 - AreaRoom = (InstanceParameter) Area
 - AreaPlanned = (InstanceParameter) AreaPlanned
 - ProgramSpaceId = (InstanceParameter) ProgramSpaceId
 - FloorId = (InstanceParameter) FloorId
 - Derived Values:
 - 01: RoomTypeCategoryId = Related: RoomTypes.RoomTypeId -> RoomTypes.RoomTypeCategory
 - 02: RoomTypeCategoryDescription = Related: RoomTypeCategories.RoomTypeCategoryId -> RoomTypeCategories.Description
 - 03: RoomTypeCategoryTitle = Concatenate: <RoomTypeCategoryId> <RoomTypeCategoryFloorString>
 - Selection Category: Rooms (Instance)
 - Keys: Database Field = Model Parameter: RoomId = RoomId
 - Filter: (not used)
- 3 - Query Model Values (Required if change in link type or model)**:
 - Query All Model: Scans model. Refills tables.
 - Reuse Query Data: Use last scan. (Possible errors.)
 - Show Data: Display data for analysis.
- 4 - Process Query Data**:
 - Compare to Database: Find missing or unequal values. (Not case sensitive.)
 - Update Derived Values: Recalculate parameter values derived from other values. (highlighted with a red box)
 - Force Case Update: Finds matching key values. Forces update. Used to change case.
- 5 - Execute Synchronization Actions**:
 - Add All to Database: Add all missing records to database. (Does not update matching records.)
 - Add All to Model: Add all missing elements to the model. (Does not update matching records.)
 - Synchronize: Show all discrepancies. Allow selective updates.

Buttons at the bottom: Close, Change Connection.

String Concatenation:

- String Values From:
 - Parameter ***RoomTypeCategoryId***.
 - Constant “ – ”
 - Level Number
- Combined To:
 - Parameter ***RoomTypeCategoryFloor***.
 - Form: “**FOOD-01**”
- Identifies Rooms:
 - Same category.
 - Same floor.

String Calculation and Concatenation

Element Category: Rooms

Elements to Process: ☐ Pre-selection in Revit ☒ All Elements in Model

Node 1

☐ Not Used
☐ Constant
☒ Parameter
☐ Level No.
☐ Element ID

Constant Value:

Source Parameter: RoomTypeCategoryId

Node 2

☐ Not Used
☒ Constant
☐ Parameter
☐ Level No.
☐ Element ID

Constant Value:

Source Parameter: Floor

Node 3

☐ Not Used
☐ Constant
☐ Parameter
☒ Level No.
☐ Element ID

Constant Value:

Source Parameter: FloorId

Node 4

☒ Not Used
☐ Constant
☐ Parameter
☐ Level No.
☐ Element ID

Constant Value:

Source Parameter:

Node 5

☒ Not Used
☐ Constant
☐ Parameter
☐ Level No.
☐ Element ID

Constant Value:

Source Parameter:

Concatenate to Parameter: RoomTypeCategoryFloor ☒ Convert lengths to decimal inches.

ProcessElements Close

Properties

Rooms (1) Edit Type

RoomTypeCategoryId	FOOD
RoomTypeCategoryFloor	FOOD-01

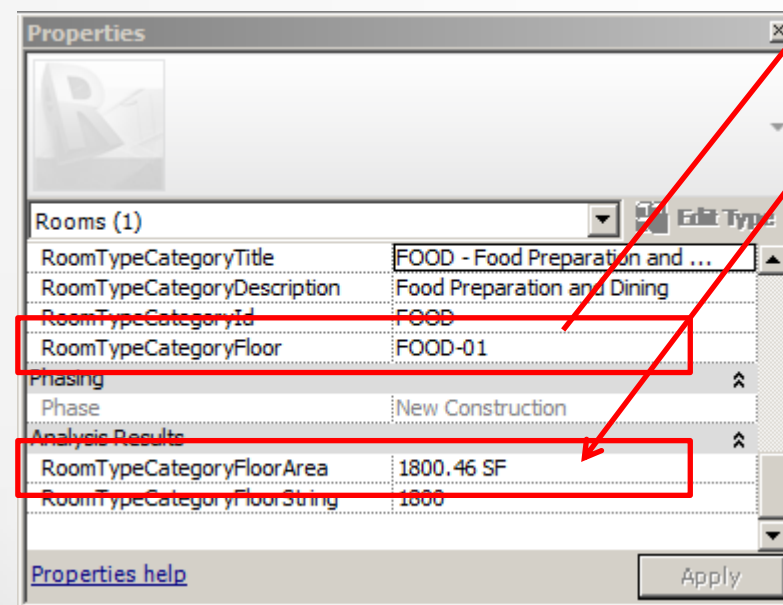
Phasing
Phase: New Construction

Analysis Results
RoomTypeCategoryFloor... 1800.46 SF
RoomTypeCategoryFloor... 1800

[Properties help](#) Apply

Math Calculation:

- Numerical Values:
 - Parameter **Area**.
- Grouped by:
 - Parameter **RoomTypeCategoryFloor**.
- Summed to:
 - Parameter **RoomTypeCategoryFloorArea**.



Math Calculation

Element Category: **Rooms**

Elements to Process: ☐ Pre-selection in Revit ☒ All Elements in Model

Formula Editor

Source: Parameter Name or Numeric Constant

A: **Area**

B:

C:

Group by Parameter Name: **RoomTypeCategoryFloor**

Target Parameter Name: **RoomTypeCategoryFloorArea**

Rounding: ☒ None ☐ Half Up ☐ Up ☐ Down Decimals: **0**

Function

☐ A (Identity) ☐ (A - B) / A ☐ A + B + C ☐ (A + B) / C

☐ A + B ☐ (A - B) / B ☐ (A + B) - C ☐ (A - B) / C

☐ A - B ☐ (A - B) - C ☐ (A * B) / C

☐ A * B ☐ A * B * C ☐ (A / B) * C

☐ A / B ☐ (A / B) / C

☐ Sum (A) ☒ Sum (A) Group By Parameter ☐ Random (A)

Formulas to Process

Order	Edit	Include	Erase	Formula
1:	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Formula: Sum(A) Group-by Parameter A: Area Group By: RoomTypeCategoryFloor Target: RoomTypeCategoryFloorArea
2:	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Formula: A Parameter A: RoomTypeCategoryFloorArea Target: RoomTypeCategoryFloorString Round Mid: 0
3:	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4:	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5:	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ProcessElements Close

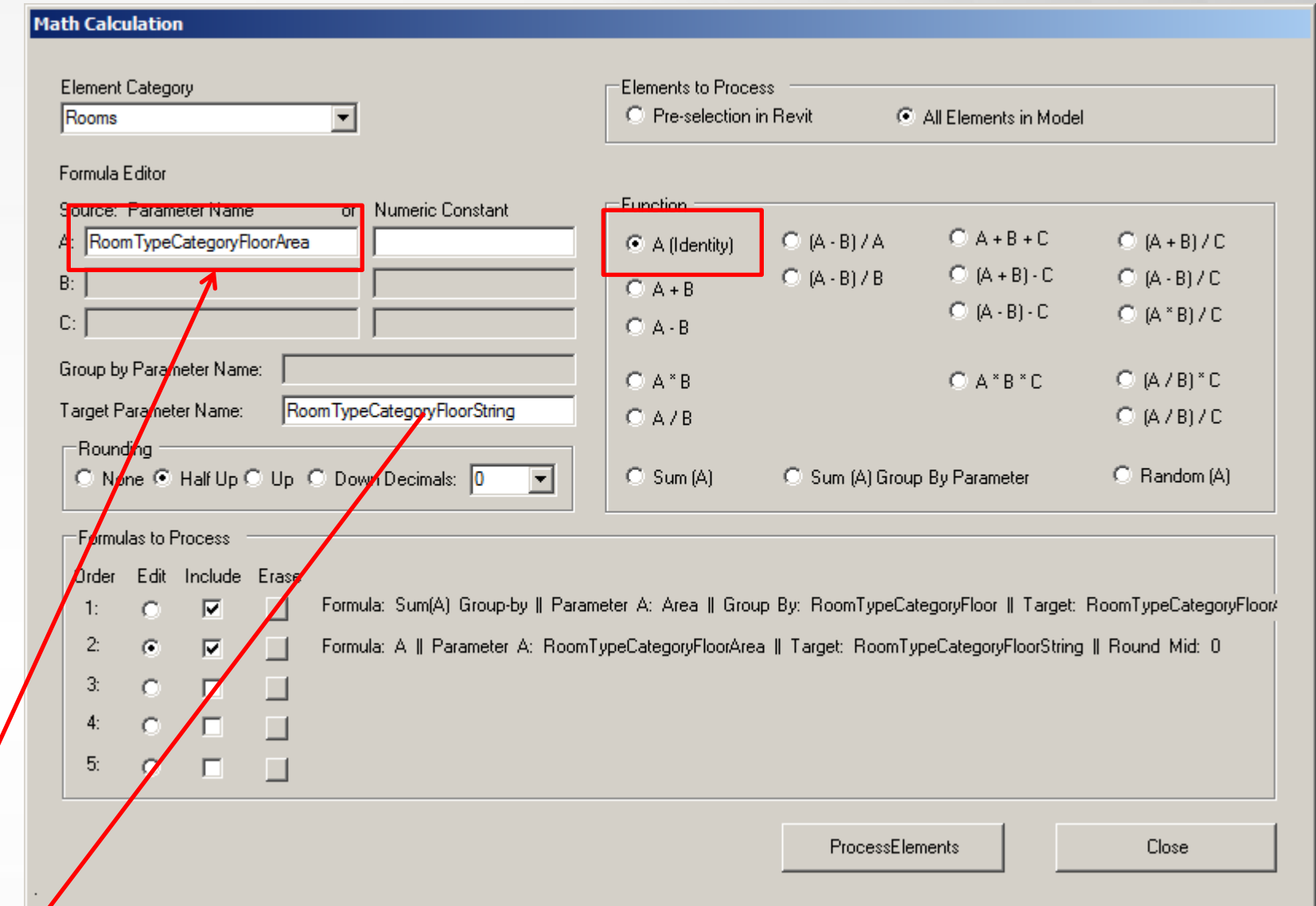
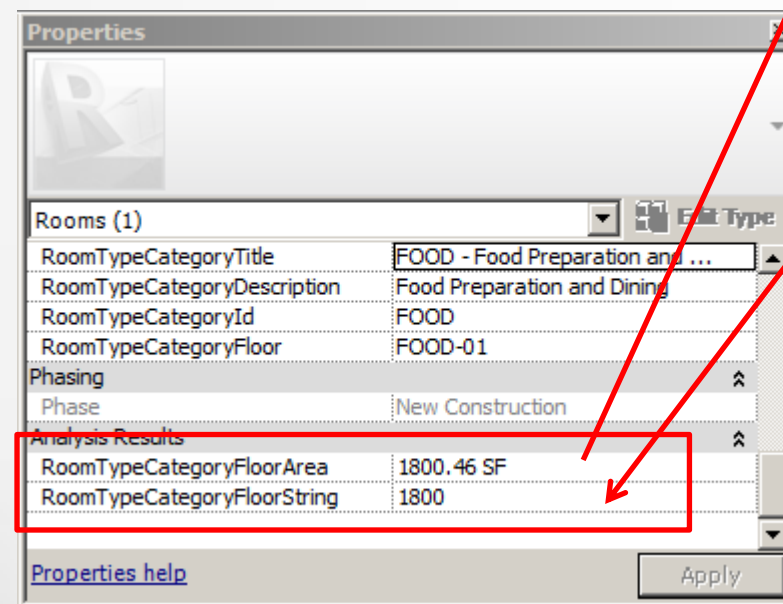
Convert Number to String:

Numerical Value:

- Parameter ***RoomTypeCategoryFloorArea***.

Converted to String:

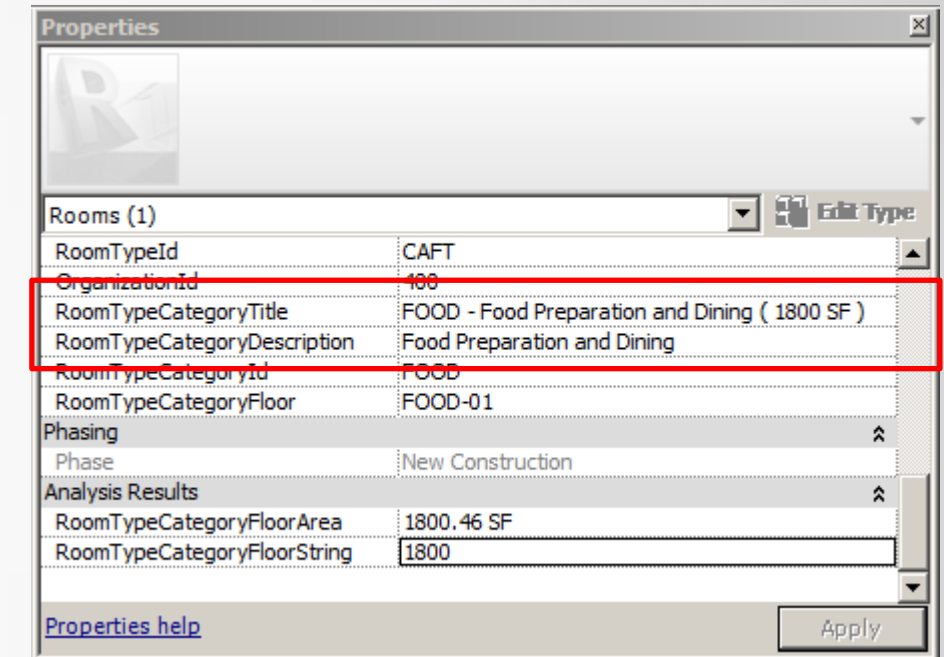
- Parameter ***RoomTypeCategoryFloorString***.



- Using RevitDbLink
 - Update Derived Values
 - Concatenation.

Parameter: ***RoomTypeCategoryTitle***.

- Value from:
 - Room Parameter: ***RoomTypeCategoryId***.
 - Constant: “ – ”.
 - Room Parameter: ***RoomTypeCategoryDescription***.
 - Constant: “ (”.
 - Room Parameter: ***RoomTypeCategoryFloorString***.
 - Constant: “ **SF**)”



BuildingData - 6 - Color Plans.rvt - Floor Plan: 01 - Color by Room Type Category

Architecture Structure Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Modify Color Fill Legends

Modify

Paste

Cut

Join

Geometry

Modify

View

Measure

Create

Edit Scheme

Modify | Color Fill Legends

Properties

Color Fill Legend 1

Color Fill Legends (1)

Edit Type

Properties help

Apply

Project Browser - BuildingData - 6 - Color Plans.rvt

Views (ViewGroups)

3D View

General

Room

Floor Plan

Plans

Plans - Color

Plans - Mass Blocks

RDS

Room

Gross Building

Area Plan

Legends

Schedules/Quantities

Area Schedule (Gross Building)

Room Schedule

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

401.01

130

400-CAPT

1559 SF

241 SF

300-CORR

448 SF

201.01

136

200-OFFM

168 SF

100-STOR

110 SF

100-STAR

204 SF

403

132

400-STOR

89 SF

102.01

134

100-ELEC

60 SF

101.01

150

100-COR

591 SF

59 SF

108.01

141

100-TOIL

Room Type Category

BATH - Bathrooms (344 SF)

CIRC - Circulation (6671 SF)

FOOD - Food Preparation and Dining (1800 SF)

INST - Instruction (4927 SF)

MEET - Meeting Spaces (2157 SF)

MEP - Mechanical/Electrical (423 SF)

OFF - Office (341 SF)

STOR - Storage (199 SF)

Edit Color Scheme

Schemes

Category:

Rooms

(none)

Name

Department

Area

RoomTypeCategory

Scheme Definition

Title:

Room Type Category

Color:

RoomTypeCategoryTitle

By value

By range

Edit Format...

	Value	Visible	Color	Fill Pattern	Preview	In Use
1	BATH - Bathro	<input checked="" type="checkbox"/>	RGB 156-18	Solid fill		Yes
2	BATH - Bathro	<input checked="" type="checkbox"/>	PANTONE	Solid fill		Yes
3	BATH - Bathro	<input checked="" type="checkbox"/>	PANTONE	Solid fill		Yes
4	CIRC - Circulat	<input checked="" type="checkbox"/>	RGB 139-16	Solid fill		Yes
5	CIRC - Circulat	<input checked="" type="checkbox"/>	PANTONE	Solid fill		Yes
6	CIRC - Circulat	<input checked="" type="checkbox"/>	RGB 096-17	Solid fill		Yes
7	FOOD - Food P	<input checked="" type="checkbox"/>	RGB 209-20	Solid fill		Yes
8	FOOD - Food P	<input checked="" type="checkbox"/>	RGB 173-11	Solid fill		Yes
9	INST - Instructi	<input checked="" type="checkbox"/>	RGB 194-16	Solid fill		Yes
10	INST - Instructi	<input checked="" type="checkbox"/>	PANTONE	Solid fill		Yes
11	INST - Instructi	<input checked="" type="checkbox"/>	RGB 192-06	Solid fill		Yes
12	MEET - Meting	<input checked="" type="checkbox"/>	RGB 064-06	Solid fill		Yes
13	MEET - Meting	<input checked="" type="checkbox"/>	RGB 064-19	Solid fill		Yes
14	MEET - Meting	<input checked="" type="checkbox"/>	RGB 064-06	Solid fill		Yes
15	MEP - Mechan	<input checked="" type="checkbox"/>	RGB 096-22	Solid fill		Yes
16	MEP - Mechan	<input checked="" type="checkbox"/>	RGB 160-09	Solid fill		Yes

Options

☒ Include elements from linked files

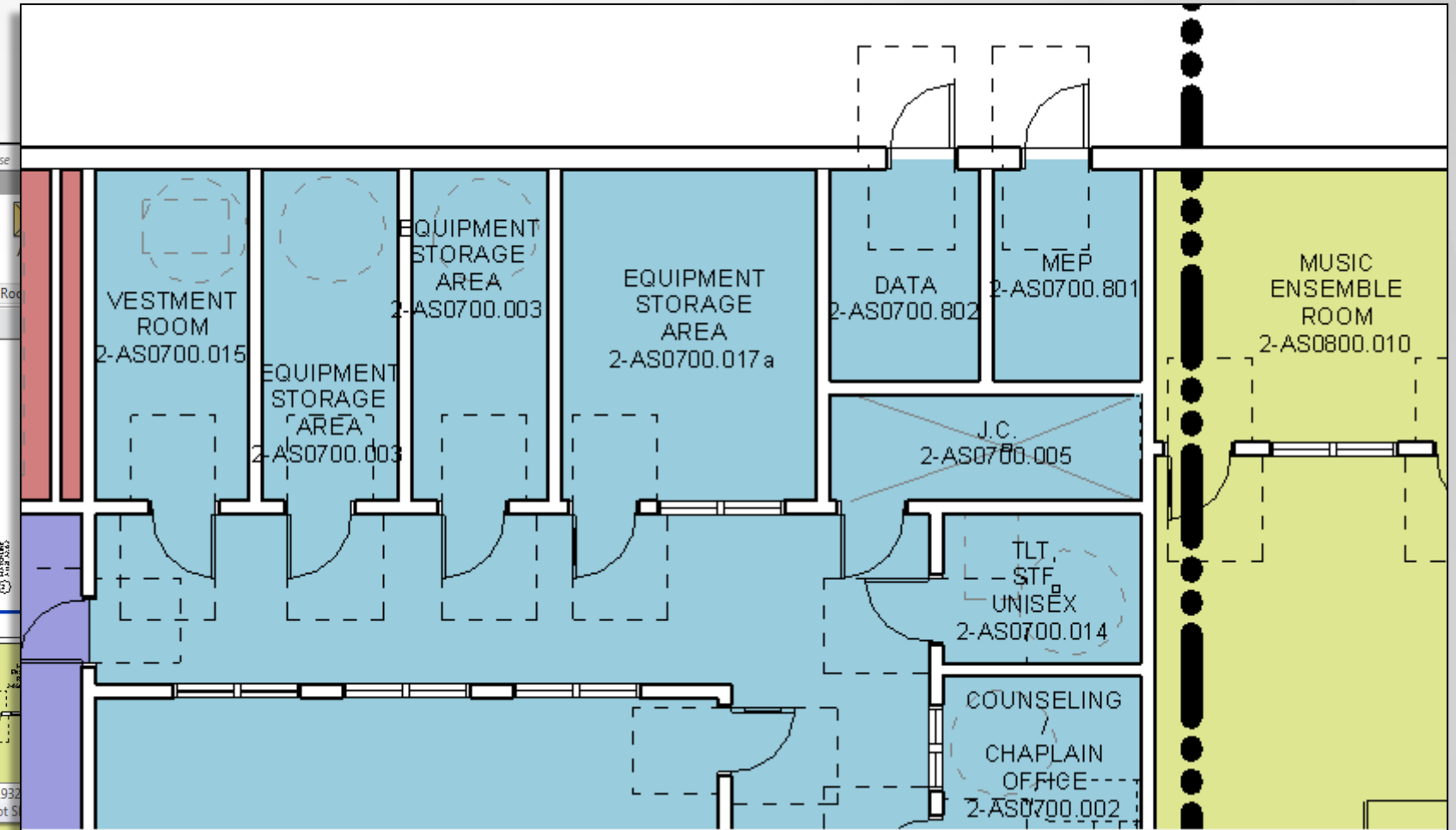
OK

Cancel

Apply

Help

Example Project



- FACILITY ADMINISTRATION
(2-AP0200)
- GENERAL VISITING
(2-AS0120)
- HOBBY/HANDICRAFT
(2-AS0600)
- INDOOR RECREATION
(2-AS0800)
- RELIGIOUS PROGRAMS
(2-AS0700)

EXAMPLE PROJECT

Autodesk Revit Architecture 2012 - Schedule: Room Schedule-Working-Catherine

Type a keyword or phrase

Sign In

Home

Insert

Annotate

Analyze

Structure

Massing & Site

Collaborate

View

Manage

Add-Ins

Online

Extensions

Case Design Inc.

dRofus

Modify

Modify Schedule/Quantities

Properties

Group

Ungroup

New

Delete

Hide

Unhide All

Highlight in Model

Show

Hide

Isolate

Explain Error

Properties

Headers

Rows

Columns

Element

Filter Not Placed & Unenclosed Items

Error

Modify Schedule/Quantities

- Project Brow...

Door S

Door S

DOOR

DOOR

EGRESS

Electric

Electric

Electric

Facility

Family

FFSS/D

Gym - I

Hobby

Laundr

Library

Maxim

Mecha

MEP-ru

nyr-do

R&R - I

Reverb

room c

ROOM

ROOM

ROOM

ROOM

Room S

Room

room s

room-c

SHEET

SHEET

Sheet L

Space S

Space S

Room Schedule-Working-Catherine

Level	Department	Sub-Departmen	Number	ProgramID	Name	room data sh	program are	Area	AreaDiff	AreaDiffPercent	AreaDiffPercent_	Qty	Temp1
LEVEL 1	Health Care S	Healthcare	2-CS0100.001.01	2-CS0100.001	ASSOC GOVTL PROG ANALYST (INMATE APPEALS)	<input checked="" type="checkbox"/>	64 SF	67 SF	3 SF	5	5	2	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.001.02	2-CS0100.001	ASSOC GOVTL PROG ANALYST (INMATE APPEALS)	<input checked="" type="checkbox"/>	64 SF	68 SF	4 SF	6	6	2	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.005.01	2-CS0100.005	CHIEF PHYSICIAN & SURGEON	<input checked="" type="checkbox"/>	64 SF	71 SF	7 SF	11	11	2	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.005.02	2-CS0100.005	CHIEF PHYSICIAN & SURGEON	<input type="checkbox"/>	64 SF	69 SF	5 SF	9	9	2	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.007	2-CS0100.007	D.F.	<input type="checkbox"/>	10 SF	9 SF	-1 SF	-5	-5	1	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.008	2-CS0100.008	CONFERENCE ROOM	<input checked="" type="checkbox"/>	325 SF	320 SF	-5 SF	-1	-1	1	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.008.02a	2-CS0100.008.02a	CONFERENCE ROOM	<input checked="" type="checkbox"/>	200 SF	190 SF	-10 SF	-5	-5	1	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.009.01	2-CS0100.009	FILES	<input checked="" type="checkbox"/>	14 SF	8 SF	-6 SF	-44	-44	4	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.009.02	2-CS0100.009	FILES	<input checked="" type="checkbox"/>	14 SF	7 SF	-7 SF	-47	-47	4	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.009.03	2-CS0100.009	FILES	<input checked="" type="checkbox"/>	14 SF	10 SF	-4 SF	-25	-25	4	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.009.04	2-CS0100.009	FILES	<input checked="" type="checkbox"/>	14 SF	14 SF	0 SF	0	0	4	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.011	2-CS0100.011	MAIL CUBBIES	<input type="checkbox"/>	60 SF	57 SF	-3 SF	-5	-5	1	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.013.01	2-CS0100.013	OFFICE TECH	<input checked="" type="checkbox"/>	55 SF	64 SF	9 SF	17	17		Linked by Program ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.013.02	2-CS0100.013	OFFICE TECH	<input checked="" type="checkbox"/>	55 SF	64 SF	9 SF	17	17		Linked by Program ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.014	2-CS0100.014	RECEPTION / WAITING AREA	<input checked="" type="checkbox"/>	30 SF	53 SF	23 SF	78	78	1	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.018.01	2-CS0100.018	OFFICE TECH	<input checked="" type="checkbox"/>	48 SF	57 SF	9 SF	19	19	3	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.018.02	2-CS0100.018	OFFICE TECH	<input checked="" type="checkbox"/>	48 SF	59 SF	11 SF	23	23	3	Linked by Room ID
LEVEL 1	Health Care S	Healthcare	2-CS0100.018.03	2-CS0100.018	OFFICE TECH	<input checked="" type="checkbox"/>	48 SF	52 SF	4 SF	7	7	3	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.032.01	2-CS0100.032	HEALTH RECORD TECH I	<input type="checkbox"/>	64 SF	53 SF	-11 SF	-17	-17	3	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.032.02	2-CS0100.032	HEALTH RECORD TECH I	<input checked="" type="checkbox"/>	64 SF	54 SF	-10 SF	-16	-16	3	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.032.03	2-CS0100.032	HEALTH RECORD TECH I	<input checked="" type="checkbox"/>	64 SF	53 SF	-11 SF	-17	-14	3	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.034	2-CS0100.034	HEALTH RECORD TECH II, SUPERVISOR	<input checked="" type="checkbox"/>	110 SF	119 SF	9 SF	8	8	1	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.035	2-CS0100.035	INMATE HEALTH RECORDS	<input checked="" type="checkbox"/>	500 SF	483 SF	-17 SF	-3	-2	1	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.038.01	2-CS0100.038	OFFICE ASSIST / OFFICE TECH	<input checked="" type="checkbox"/>	48 SF	83 SF	35 SF	74	74	2	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.038.02	2-CS0100.038	OFFICE ASSIST / OFFICE TECH	<input checked="" type="checkbox"/>	48 SF	82 SF	34 SF	71	71	2	Linked by Room ID
LEVEL 1	Health Care S	Health Infor	2-CS0100.043	2-CS0100.043	VESTIBULE / PUBLIC COUNTER	<input type="checkbox"/>	115 SF	153 SF	38 SF	33	34	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.045	2-CS0100.045	NURSING / OT WORKSTATION	<input checked="" type="checkbox"/>	172 SF	172 SF	0 SF	0	0	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.047	2-CS0100.047	INSTITUTIONAL SUPPORT	<input type="checkbox"/>	0 SF	100 SF	100 SF		0	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.053	2-CS0100.053	CUSTODY OFFICER	<input checked="" type="checkbox"/>	48 SF	31 SF	-17 SF	-35	-35	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.055	2-CS0100.055	SINGLE INMATE-PAT HOLDING / WET	<input checked="" type="checkbox"/>	55 SF	68 SF	13 SF	23	23	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.066.01	2-CS0100.066	SPECIALTY EXAM / TREATMENT ROOM	<input checked="" type="checkbox"/>	120 SF	120 SF	0 SF	0	0	2	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.066.02	2-CS0100.066	SPECIALTY EXAM / TREATMENT ROOM	<input type="checkbox"/>	120 SF	120 SF	0 SF	0	0	2	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.067	2-CS0100.067	TELEMEDICINE EXAM / TREATMENT ROOM	<input checked="" type="checkbox"/>	160 SF	163 SF	3 SF	2	2	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.070	2-CS0100.070	STOR, MEDICATION AND SECURE	<input checked="" type="checkbox"/>	120 SF	132 SF	12 SF	10	10	1	Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.072	2-CS0100.072	STOR, TELEMEDICINE EQUIP	<input checked="" type="checkbox"/>	45 SF	51 SF	6 SF	13	13		Linked by Room ID
LEVEL 1	Health Care S	Medical and	2-CS0100.074	2-CS0100.074	MINOR PROC ROOM	<input checked="" type="checkbox"/>	168 SF	172 SF	4 SF	2	2	1	Linked by Room ID
LEVEL 1	Health Care S	Medical & Cli	2-CS0100.086.01	2-CS0100.086	NURSING / OT WORKSTATION	<input checked="" type="checkbox"/>	250 SF	254 SF	4 SF	2	2	1	Linked by Program ID
LEVEL 1	Health Care S	Medical & Cli	2-CS0100.086.02	2-CS0100.086	NURSING / OT WORKSTATION	<input checked="" type="checkbox"/>	250 SF	254 SF	4 SF	2	2	1	Linked by Program ID

Image courtesy Catherine Chan - HDR.



RoomDataSheets-MEP

ROOM DATA SHEET

New Record

DELETE current record

PROGRAM

Dept: Health Care Services
Medical and Clinical Services - Specialty Clinic : Specialty Clinic Patient Care Areas
Program No: 2-CS0100.067 Space: Telemedicine Exam / Treatment Room Qty: 1 Program Area: 160 SF

FINISHES

Wall: Epoxy Paint Floor: Resinous Floor Base: Self Covered Base
Ceiling: 2' x 4' Acoustical C Clr. Ceiling Ht: 9'-0"

OPENINGS

Window Type: WinConstruction1 Glazing Type: GlazingTy ☐ Daylight ☐ Operable ☐ Pass-through
Special Requirements:

FURNITURE, EQUIPMENT AND FURNISHINGS

Furnishings: Bed: FurnBedTyp Desk: Table: Chair: Shelf: Wall Hooks ☐ Suicide-resistant
☐ Accessible Cell
Equipment: Furnished by: Contractor
Medical Equipment: Installed by: Contractor
Casework: CaseworkType1 Counter Finish: SSM ☐ Lockable ☐ See Custom Elevation Dwg
Base: ± 7 LF Upper: N/A LF Wardrobe: N/A LF
Special Requirements: N/A

ENGINEERING SYSTEMS

Electrical: Power Outlets: Duplex (Qty) 6 Quadruplex (Qty) Special: Volts Phase Amp
Power Source: ☒ Normal ☒ Emergency Special: ☐ Grounding Special:
Lighting Type: Fluorescent (Direct/Indirect) Lighting Control: On/Off, Dimming
Lighting Source: Norm/Emerg/Batt Special: Lighting Level: 50 fc
Elec Remarks: Provide (2) three-way switches. One at entrance and one by exam bed. Provide staff-call signal light.
Computer Equipment:
HVAC: Required Air Changes Per Hour: ☒ Rate: 6 aACH
Cooling: Packaged D Temperature: 68-71 F RH: 50% Secure Device Required: ☐
Heating: Hydronic Temperature: 68 F Electrical Power: ☒ Normal ☐ Emergency
Filtration Requirements (MERV rating): 8 ☐ Exhaust Rate: Ventilation Rate: 2 air change
Acoustic Room Noise: NC 25 STC: 50 ☒ Mechanical Noise ☒ Sound Isolation
Requirements: Room Finish: α Avg ☒ Reverberation/Room Absorption
Plumbing: Battery operated sensor faucet ☐ Security ☐ Lav ☐ Shower ☐ Floor Drain
Fire Protection: ☐ WC ☒ Sink ☐ Cooler ☐ Hose Bib
☐ Urinal ☐ Jan Sink ☐ Drinking Fountain
Low Voltage: ☐ Access Control ☒ Voice ☐ Duress ☐ CATV
☐ Security Controls ☒ Data ☐ Intercom ☐ CCTV

REMARKS

2-CS0100.067 Telemedicine Exam / Treatment Room

Record: 10 of 36 No Filter Search

Image courtesy Catherine Chan - HDR.

Properties

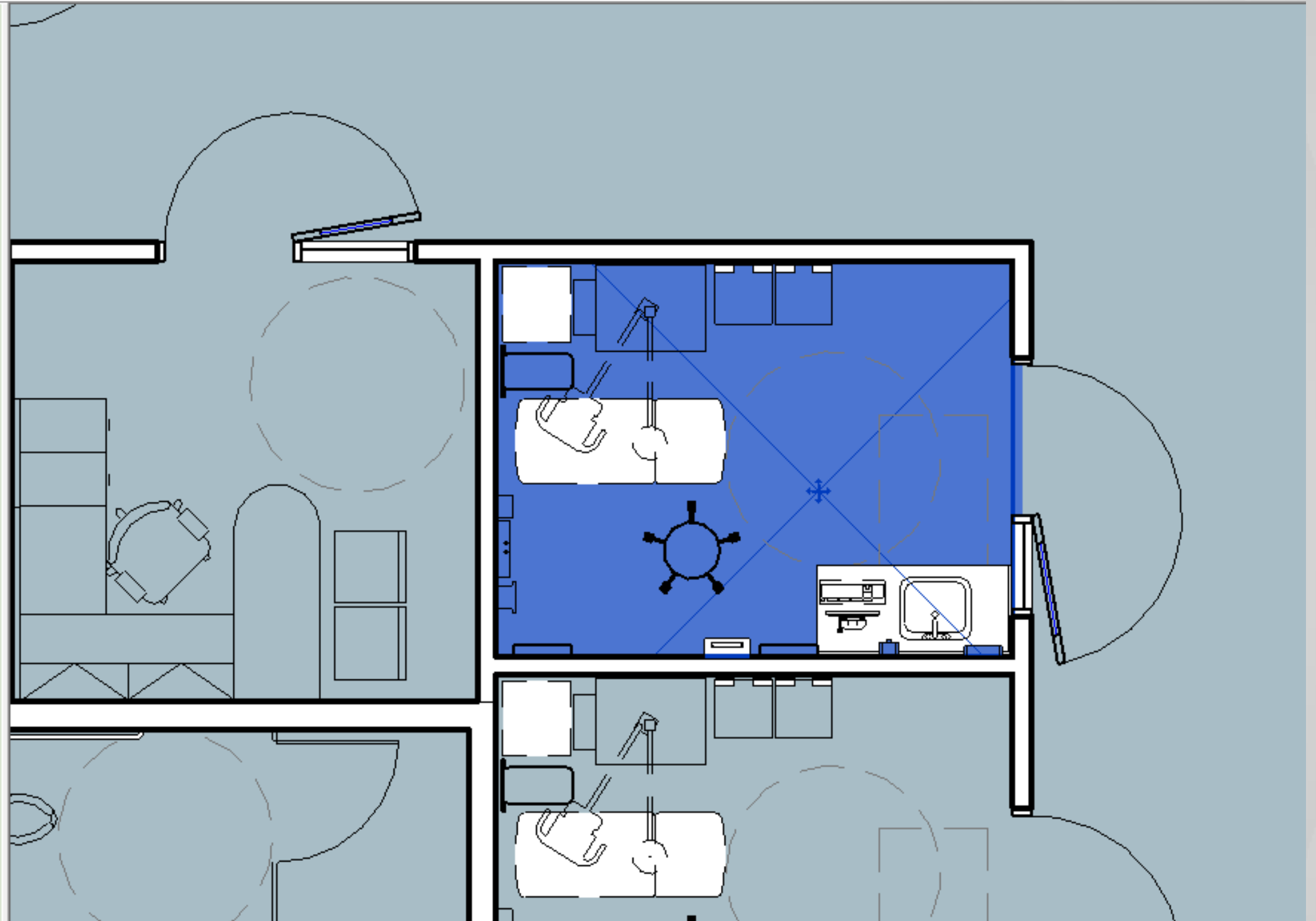
Rooms (1) Edit Type

Area	110.00 SF
Perimeter	42' 4"
Unbounded Height	10' 0"
Volume	Not Computed
Computation Height	0' 0"

Identity Data

Workset	Workset1
Number	2-CS0100.099.01
Name	EXAM / TREATMENT ROOM
Room Style	(none)
CBC 1004.1.1	(none)
Comments	
Occupancy	
Department	Health Care Services
Base Finish	Self Coved Base
Ceiling Finish	2' x 4' Acoustical Ceiling Tile Ceiling ...
Wall Finish	Epoxy Paint
Floor Finish	Resinous Flooring
room code	HEALTH CARE SERVICES (2-CS0100)
room name abbreviation	
*author	
program area	110.00 SF
AreaPlanned	
Sub-Department	Medical & Clinical Serv. - Facility "A"...
ProgramID	2-CS0100.099
Function	

[Properties help](#) Apply

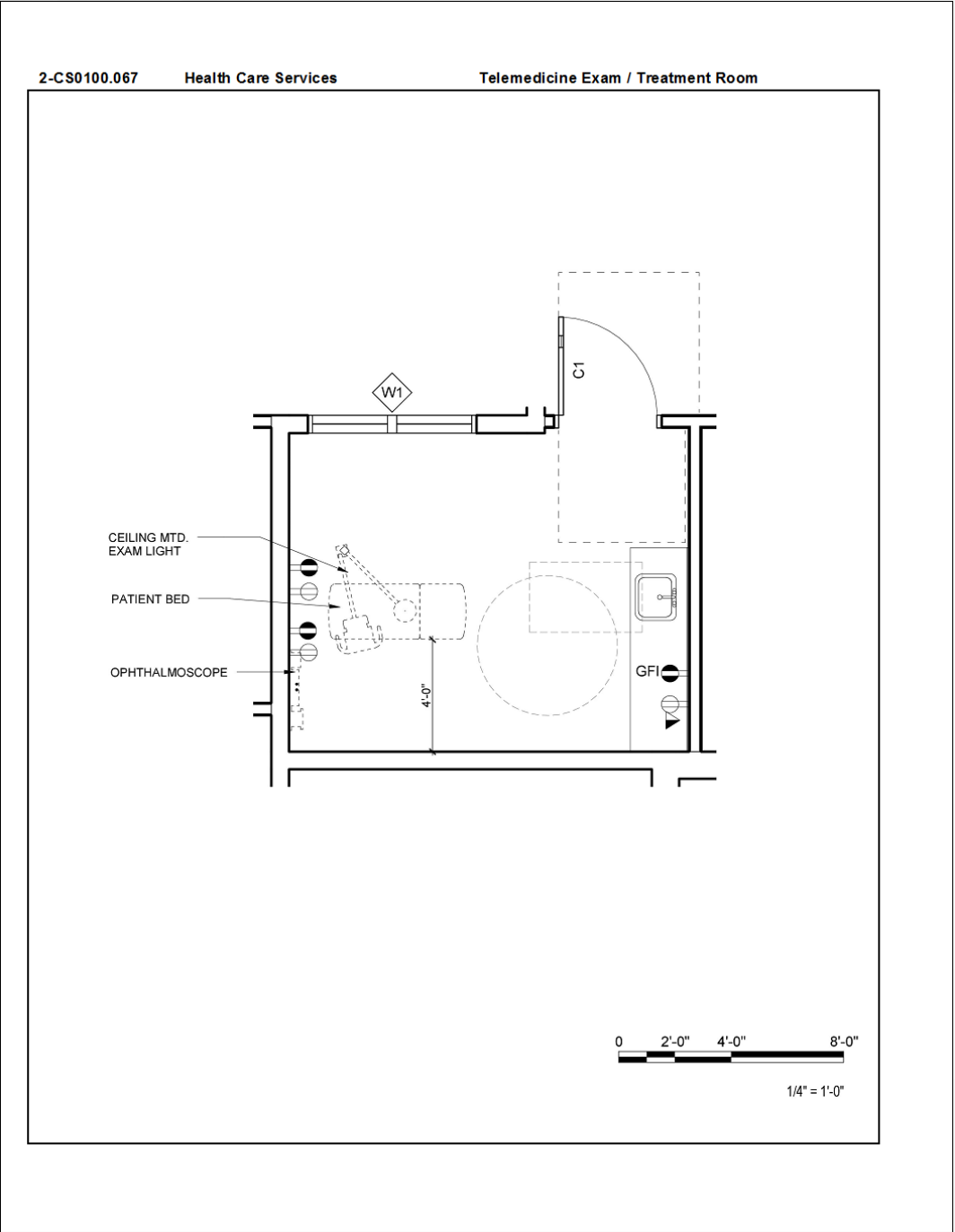


Images courtesy Catherine Chan - HDR.

ARCHITECTURAL SPACE LIST - PROGRESS DRAFT

Space No	Room Name	Program			Current Program			Current Design			Deviation from Program (>10% in Red)
		Required Area	Qty	Net Area	Required Area	Qty	Net Area	Required Area	Qty	Net Area	
2-AS0110	Facility A (Facility B Sim)	Accessible Family Visiting Unit									
2-AS0110.001	Entry	0	0	0	0	0	0	0	0	0	0
2-AS0110.002	Living & Dining Room	230	3	690	230	3	690	230	3	690	0
2-AS0110.003	Kitchenette	70	3	210	70	3	210	70	3	210	0
2-AS0110.004	Bathroom	80	3	240	80	3	240	80	3	240	0
2-AS0110.005	Bedroom 1	195	3	585	195	3	585	195	3	585	0
2-AS0110.006	Bedroom 2	130	3	390	130	3	390	130	3	390	0
Total Net Area =				2,115	2,115			2,115			
Circulation Grossing Factor @ 0.25 =				529	@ 0.07 =	148	[Placeholder]				
Building Grossing Factor @ 0.10 =				264	@ 0.29 =	656	[Placeholder]				
Total Gross Area (GSA) =				2,908	2,919						
X 2 =				5,816	5,839			4,230			
2-AS0120	Facility A (Facility B Sim)	Visitation									
2-AS0120.008	Vestibule	80	1	80	0	0	0	0	0	0	-80
Administration and Staff Processing											
2-AS0120.001	Processing	420	1	420	0	0	0	0	0	0	-420
2-AS0120.002	Vestibule	95	1	95	0	0	0	0	0	0	-95
Visitor Waiting and Processing											
2-AS0120.003	Visitor Lobby with Officer's Station	420	1	420	420	1	420	420	1	420	0
2-AS0120.004	Female Toilet	55	1	55	140	1	140	140	1	140	85
2-AS0120.005	Male Toilet	55	1	55	140	1	140	140	1	140	85
Sunday, October 06, 2013											

Image courtesy Catherine Chan - HDR.



PROGRAM

Dept: Health Care Services
Medical and Clinical Services - Specialty Clinic : Specialty Clinic Patient Care Areas

Program No: 2-CS0100.067 Space: Telemedicine Exam / Treatment Room Program Area: 160 SF

FINISHES

Wall: Epoxy Paint Floor: Resinous Flooring Base: Self Covered Base
Ceiling: 2' x 4' Acoustical Ceiling Tile Ceiling with Cleanable Tiles Clr. Ceiling Ht: 9'-0"

OPENINGS *See Physical Security Drawings SC2.12 series for door details **Clear opening dimensions

Door No.	Size**	Frame Type	Assembly Width**	Window No.	Size**	Frame Type	Glazing Type
C1	3'-6"x7'-0"	1		W1	6'-0"x4'-0"	4	C1

FURNITURE, FIXTURES & EQUIPMENT

Item	Product	Group	Name	Qty	Description
Y117200401	SW-4080-RB	G2/OFOI	STOOL, REVOLVING	4	STOOL, REVOLVING AIR LIFT PHYSICIAN STOOL W/ BACK;PNEUMATIC;LOCKING CASTERS SOFT RUBBER
U117000004	-	G2/OFOI	WASTE RECEPTACLE, STEP-ON BIOHAZARD	4	WASTE RECEPTACLE, RED BIOHAZARD STEP-ON 8 GALLON; PLASTIC
U117000023	52101	G2/CFCI	Dispenser, Specula, Ear	4	Dispenser for Disposable Ear Specula
44319	-	G2/OFOI	WASTE RECEPTACLE, STEP-ON	4	WASTE RECEPTACLE, STEP-ON 8 GALLON; PLASTIC
X117000132	GS-004	G2/CFCI	DISPENSER, GLOVE	8	GLOVE DISPENSER, SINGLE, 20 GAUGE, STAINLESS STEEL, ADJ SPRING TO FIT ANY SIZE GLOVE BOXES, KEYHOLES FOR WALL MOUNTING, 5 1/2 x 10 x 3 3/4
	TYCOS	G2/OFOI	SPHYGMOMANOMETER, ANEROID, MOBILE	0	SPHYGMOMANOMETER, ANEROID, MOBILE CHARCOAL GRAY DIAL;ADULT GRAY VELCRO CUFF;4-CASTER CHROME STEEL HEIGHT ADJ. STAND;4FT. COILED TUBING CUFF STORAGE BASKET; 360 DEG. MANOMETER SWIVEL
X117200105	GS900-44900C/W	G2/CFCI	Light, Exam/Treatment	4	Light, Exam/Treatment, Ceiling or Diagnostic Wall Mounted
1192	BENJAMIN	G2/OFOI	STAND, MAYO	8	STAND, MAYO FOOT OPERATED, SMALL TRAY, CASTERS HEIGHT ADJUSTABLE: 39-1/2 TO 62 IN.(100.3 TO 157.5 CM); TRAY SIZE: 13-3/4 X 19-1/8 IN (34.9 X 48.6 CM); STAINLESS STEEL; 2 EA 2 IN. (5.1 CM) CONDUCTIVE SWIVEL CASTERS
25859	PREMIER	G2/OFOI	HAMPER, LINEN	4	HAMPER, LINEN WITH LID;STEP-ON;CHROME PLATED STAND;NO DECAL POLYMER LID; LOCKING RING MECHANISM SECURES COLLECTION BAG IN PLACE; BOTTOM RACK SUPPORTS HEAVY LOADS;NICKEL PLATED CASTERS;FRONT BRAKES
X117200106	CVSM 6000 Series	G2/CFCI	Monitor, Vital Signs	0	Monitor, Vital, Connex
60798	INTEG. WALL SYS	G2/CFCI	OPHTHALMOSCOPE/OTOSCOPE	4	OPHTHALMOSCOPE/OTOSCOPE WALL BOARD W/ OTO/OPHTHAL/ANEROID BP/KLEEN SPEC DISPENSER. TO INCLUDE: 76710 WALL TRANSFORMER 111720 OPHTHALMASCOPE 23810 MACROVIEW OTOSCOPE 7670-01 NIBP W/ ADULT CUFF 52401 KLEENSPEC DISPENSER
U112800601	1S-05-70-01	G2/OFOI	Computer	4	Workstation
X117200107	for CVSM 6000	G2/CFCI	Stand, Monitor, Vital Signs	0	Stand, for Connex Vital Monitor
X117200108	625	G2/CFCI	TABLE, EXAM, ADULT	4	TABLE, EXAM, ADULT HIGH-LOW TABLE W/POWER BACK W/STYLED SEAMLESS TOP; 400LB WEIGHT CAPACITY;18-37 INCH HEIGHT RANGE; PELVIC TILT;DRAWER HEATER;RECEPTACLE;HIDDEN PAPER ROLL HOLDER;HIDEAWAY STIRRUPS;ELECTRICAL OUTLET; FOOT PEDAL CONTROLLED BASE

X117000120		G2/CFCI	ENCLOSURE, WALL, SHARPS	4	WALL MOUNTED CUSTOM ENCLOSURE; 12GA STAINLESS STEEL METAL BOX; HINGED LID WITH SECURITY LOCK AND SS CONT HINGE WELDED ALL AROUND; TYPE G SECURITY SEALANT ALL AROUND; TO INCLUDE: (4) EA: 1/2 IN DIA X 4 1/2 IN EXP BOLTS W/ WEDGE TYPE ANCHOR.(1) EA: KEND		
51713	124275/12945 5	G2/OFOI	THERMOMETER, ELECTRONIC	4	THERMOMETER, ELECTRONIC TEMPORAL;TEMP RANGE 60-110 DEG F;LED DISPLAY ACCURACY: +0.2 F OR 0.1C;BATTERY OPERATOR TO INCLUDE -1 129455 ROLL ABOUT W/2 BASKETS;SECURITY CABLE AND LOCK		
60798	76710	G2/CFCI	Transformer, Wall, System	4	Wall Transformer, 3.5V, 767 Diagnostic System		
Y117200405	6251	GROUP II IT	Workstation	4	Workstation, Rolling Laptop Stand		
N/A	N/A	G1/CFCI	Millwork		Millwork (Refer to Criteria Documents)		
Casework: Base:		± 7 LF	Upper:	N/A LF	Wardrobe:	N/A LF	Counter Top: Solid Surface <input type="checkbox"/> Lockable
Special Requirements:		N/A					<input type="checkbox"/> Custom
CASEWORK							
Casework: Base:		± 7 LF	Upper:	N/A LF	Wardrobe:	N/A LF	Counter Top: Solid Surface <input type="checkbox"/> Lockable
Special Requirements:		N/A					<input type="checkbox"/> Custom
ENGINEERING SYSTEMS							
Electrical:		Provide (2) three-way switches. One at entrance and one by exam bed. Provide staff-call signal light above door. Outlet for bed to be 18" AFF, all other outlets to be ADA complied.					
Power Source:		Normal/Emergency	Gen Outlets: Duplex:6	Quadplex:	Special Outlet:		
Fixture Type:		Fluorescent (Direct/Indirect)	Lighting Control: On/Off, Dimming	Light Power Source: Norm/Emerg/Batt (1fc egress)			
Fixture Security:		Security Grade	Switch Location: Switch inside room	Lighting Level: Per DCG requirements			
HVAC:		Filtration Requirements (MERV rating): 8					
System: Conditioned		Temperature: 68-78 F RH: 50%					
Supply Air: 6 air changes/hour		Exhaust Air: Ventilation: 2 air changes/hour					
Acoustic Requirements:		Room Noise: NC 25	STC: 50	<input checked="" type="checkbox"/> Confidential Speech Privacy		<input checked="" type="checkbox"/> Mechanical Noise	
		Room Finish Performance:	Avg Absorption 0.15 α	<input checked="" type="checkbox"/> Reverberation/Room Absorption		<input checked="" type="checkbox"/> Sound Isolation	
Plumbing:		Battery operated sensor faucet					
		<input type="checkbox"/> Security		<input type="checkbox"/> Lav	<input type="checkbox"/> Shower	<input type="checkbox"/> Floor Drain	
		<input type="checkbox"/> WC		<input checked="" type="checkbox"/> Sink	<input type="checkbox"/> Hose Bib	<input type="checkbox"/> Drinking Fountain	
		<input type="checkbox"/> Urinal		<input type="checkbox"/> Jan Sink			
Low Voltage:		<input checked="" type="checkbox"/> Voice/Data <input type="checkbox"/> CATV					
REMARKS							

Images courtesy Catherine Chan - HDR.

Architectural Program Statement

Prog No.	Space Name	Required Area	Qty	Net Area	Remarks	RDS Code
01 Facility Support Services Building						
2-CS0100	Health Care Services					
	Healthcare Administration : Administration - Medical				(9 spaces)	
2-CS0100.001	Associate Governmental Program Analyst (Inmate Appeals)	64	2	128		2-C S0100.001
2-CS0100.005	Chief Physician & Surgeon	64	2	128		2-C S0100.014
2-CS0100.007	Drinking Fountain	10	1	10		-
2-CS0100.008	Conference Room	325	1	325		2-C S0100.008
2-CS0100.008.02a	Conference Room	200	1	200		2-C S0100.008.02a
2-CS0100.009	Files	14	4	56		2-C S0100.001, 2-C S0100.014
2-CS0100.011	Mail Cubbies	60	1	60		1-C S0100.011
2-CS0100.013	Office Technician	55	2	110		2-C S0100.117
2-CS0100.014	Reception / Waiting Area	30	1	30		2-C S0100.014
	Healthcare Administration : Administration - Mental Health				(1 detail record)	
2-CS0100.018	Office Technician	48	3	144		2-C S0100.001, 2-C S0100.014
	Health Information Services : Medical Records				(5 spaces)	
2-CS0100.032	Health Record Technician I	64	3	192		2-C S0100.035
2-CS0100.034	Health Record Technician II, Supervisor	110	1	110		2-C S0100.034
2-CS0100.035	Inmate Health Records	500	1	500		2-C S0100.035
2-CS0100.038	Office Assistant / Office Technician	48	2	96		2-C S0200.034
2-CS0100.043	Vestibule / Public Counter	115	1	115		2-C S0100.035
	Medical and Clinical Services - Specialty Clinic : Specialty Clinic Administrative				(2 spaces)	
2-CS0100.045	Nursing / OT Workstation	172	1	172		2-C S0100.045
2-CS0100.047	Institutional Support	100	1	100		2-C S0100.034
	Medical and Clinical Services - Specialty Clinic : Specialty Clinic Inmate-Patient Area				(2 spaces)	
2-CS0100.053	Custody Officer	48	1	48		2-C S0100.045
2-CS0100.055	Single Inmate-Patient Holding / Wet	55	1	55		2-C S0100.055
	Medical and Clinical Services - Specialty Clinic : Specialty Clinic Patient Care Areas				(2 spaces)	
2-CS0100.066	Specialty Exam / Treatment Room	120	2	240		2-C S0100.066
2-CS0100.067	Telemedicine Exam / Treatment Room	160	1	160		2-C S0100.067
	Medical and Clinical Services - Specialty Clinic : Specialty Clinic Support Areas				(2 spaces)	
2-CS0100.070	Storage, Medication and Secure	120	1	120		2-C S0100.070
2-CS0100.072	Storage, Telemedicine Equipment	45	1	45		2-C S0100.072
	Medical and Clinical Services - Specialty Clinic : TTA Inmate Patient Area				(1 detail record)	
2-CS0100.074	Minor Procedures Room	168	1	168		2-C S0100.074
	Medical and Clinical Services - Administrative				(1 detail record)	
2-CS0100.086	Nursing / OT Workstation	250	2	500		2-C S0100.086
	Medical and Clinical Services - Inmate-Patient Area				(5 spaces)	
2-CS0100.092	Custody Officer	48	2	96		2-C S0100.095
2-CS0100.093	Drinking Fountain	15	2	30		2-C S0100.095
2-CS0100.095	Inmate-Patient Waiting / Holding	300	2	600		2-C S0100.095
2-CS0100.097	Single Inmate-Patient Holding / Wet	55	2	110		2-C S0100.097
2-CS0100.098	Janitor Closet	50	2	100		2-AP 0200.013

Architectural Program Statement Summary by Department

	Unit NSF	No. of Unit(s)	Total NSF	Building GSF
01 Facility Support Services Building				
2-C S0100 Health Care Services	12,304	1	12,304	
2-AP0400 Canteen	1,287	2	2,574	
2-AP0100 Laundry Distribution	2,171	2	4,342	
2-AP0500 Facility Food Services Satellite (FFSS)	9,749	2	19,498	
Building Sub-total Area =			38,718	66,080
02 Complex Services Building				
2-C S0200 Complex Control Services	6,238	1	6,238	
Building Sub-total Area =			6,238	10,360
03 Work Change Building				
2-A S0200 Work Change	861	2	1,722	
Building Sub-total Area =			1,722	2,110
04 Work Zone Building				
2-A S0400 Career Technical Education	11,376	2	22,752	
2-A S0300 Work Zone Food Service Satellite	1,631	2	3,262	
2-C S1100 Prison Industries Authority (PIA) - No Program Provided	19,347	1	19,347	
2-AP0900 Building Maintenance Satellite	4,415	2	8,830	
Building Sub-total Area =			54,191	67,716
05 Receive & Release Building				
2-C S0600 Receiving and Release	4,667	1	4,667	
Building Sub-total Area =			4,667	8,248
06 Program Support Services Building				
2-A S0120 General Visiting	7,964	2	15,928	
2-AP0200 Facility Administration	2,486	2	4,972	
2-A S0600 Hobby / Handicraft	1,863	2	3,726	
2-A S0700 Religious Programs	3,235	2	6,470	
2-A S0800 Indoor Recreation	8,946	2	17,892	
2-A S0810 Outdoor Recreation	0	2	0	
2-A S0500 Academic Instruction	6,941	2	13,882	
2-A S0900 Satellite Library	1,244	2	2,488	
Building Sub-total Area =			65,358	90,480
07 Family Visiting Building				
2-A S0110 Accessible Family Visiting Unit	2,259	2	4,518	
Building Sub-total Area =			4,518	5,880
08 Visitor / Staff Entrance Building				
2-C S0090 Visitor / Staff Entrance	1,753	1	1,753	
Building Sub-total Area =			1,753	2,000
09 Vehicle Sallyport				
2-C S0800 Vehicle Sallyport	215	1	215	
Building Sub-total Area =			215	280
10 Guard Towers (Prescriptive Element, Ref. Binder 7, Appendix VII)				
2-C S0710 Sallyport Tower	295	2	590	
Building Sub-total Area =			590	
11 Dormitory Housing				
2-AP0600 Dorm Housing Unit	36,643	6	219,858	
Building Sub-total Area =			219,858	290,730
Total Area =			397,828	543,884
Total No. of Beds =			1,584	
No. of Accessible Beds =			240	

Images courtesy Catherine Chan - HDR.



Thank You

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