48-749 Parametric Modeling Lecture 7

Carnegie Mellon University School of Architecture

Lecture 7

- Summary of course
- Exporting Revit Database
- Curtain Wall System Rectangular
 - Customizing panels for doors and windows
- Curtain Wall System Pattern based

Summary BIM in general

- Big BIM process
 - What BIM is
 - What BIM is not
- Little bims
 - Various tools (Revit, ArchiCAD, Bentley, Digital Project)
 - Capabilities
 - Limitations
- Interoperability
 - File formats (Proprietary, XML, IFC)

Summary – Revit as a bim software

- Revit vs CAD
- Fundamental modeling in RevitQuantifying and calculating from materials/objects and families by adding parameters and using schedules
- Explored lighting and design options
- Explored energy analysis with Green Building Studio
- Customizing Families by adding parameters
- Nesting Families and sharing parameters
- Customizing Curtain wall families

Revit extensions-Dot Net Application (Automating LEED Evaluations)



Revit database export

- Revit can export to an Open Database Connectivity(ODBC)
- It creates tables for the following:
 - Model Objects: Types and Instances
 - Levels and Rooms: Instances only
 - Key Schedules
 - Assembly Codes: A single table containing assembly code data for the entire project

- ODBC is a general export tool that works in conjunction with many software drivers. Revit Architecture has been tested with the following ODBC drivers:
- Microsoft® Access
- Microsoft® Excel
 - An ODBC export to Excel creates one table per worksheet.
 - You can export to an Excel file only once. Multiple exports to Excel are not supported.
- Microsoft® SQL Server

- In Revit Architecture, open the project to export.
- Click Export ODBC Database.



Click New to create a new Data Source Name (DSN).

	Manage Add-Ins	0		
ile Data Source Machine Data Source	Y Project Information	Shared Parameters	E Location	
Look in: Data Sources 🗸 💽	Project Parameters	Transfer Project Standards	Coordinates •	Macro Mac
	Project Units	Purge Unused	Position •	Manager Secur
	Project Settings		Project Location	Macros
DSN Name: New		Select a driver for whic	ch you want to set up a	a data source.

- In the Create New Data Source dialog, do the following:
 - Enter a DSN name, or navigate to the target folder and specify a file name. Click Next.



Create the database file. Depending on the driver selected, a dialog displays. Use the dialog to specify the database to use or to create a new one. For example:

Create New Data Source		ODBC Microsoft Access Setup	? 🗙
	When you click Finish, you will create the data source which you have just configured. The driver may prompt you for more information. File Data Source Filename: C:\Documents and Settings\tbiswas\Deskto Driver: Microsoft Access Driver (*.mdb, *.accdb)	Data Source Name: Description: Database Database: Select Create Repair Compact System Database	OK Cancel Help Advanced
		None Database: Sustem Database	
	< Back Finish Cancel		Options>>

New Database		(×		
Database Name	Directories: c:\\bim\excercise C:\\bim\excercise C:\\ Documents and Settings biswas Desktop BIM Excercise AngleSunShade Panel SunShade Week_6	OK Cancel Help Format Version 12.x Version 4.x Options System Database	lccess Setup	? 🗙	Manane Add-Ins
	Drives:	Data Source Name			Model Text
General	🖃 c: Preload 🔍	Description:			Model Line Ra
		Description.		Cancel	Model Group + S
		ODBC Microsoft A	ccess Setup		
		Database	C:\Documents and Settings\tbiswas\Desktop\BIM\Ex OK	cercise\Room_1.mdb v	vas successfully created
		● None ○ Database:	System Database	Options>>	

Revit database export



Curtain wall door/window

- Option 1
 - Create curtain wall system
 - Select the panel and change with regular wall
 - Can insert door and window



- Option 2
 - Use Storefront curtain wall system
 - Select Panel and unpin it



Download the curtain wall Store Front door family

Loc	ok in:	Doors				~	(+ 🗈 🗙 🖆	⊻iews
	^	Name 🔺	Size	Туре	Date Modified	~	Preview	
3		Bifold-2 Panel.rfa	220 KB	Revit Family	3/16/2009 10:37 PM			
Computer		Bifold-4 Panel.rfa	244 KB	Revit Family	3/16/2009 10:37 PM			
		🔊 Curtain Wall Dbl Glass.rfa	212 KB	Revit Family	3/16/2009 10:37 PM			
		Curtain Wall Sol Glassurfa	196 KB	Revit Family	3/16/2009 10:37 PM			
		🔄 Curtain Wall-Store Front-Dbl.rfa	224 KB	Revit Family	3/16/2009 10:37 PM			
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		🔊 Double-Flush-Dbl Acting.rfa	204 KB	Revit Family	3/16/2009 10:37 PM			
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		🔊 Double-Glass 2.rfa	252 KB	Revit Family	3/16/2009 10:37 PM			
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Change Panel from glazing to type of door

Family: System Fam	ily: Curtain Wall 🔽 Load
Type: Storefront	✓ Duplicate
	Rename
Type Parameters	
Parameter	Value
Construction	*
Function	Exterior
Automatically Embed	
Curtain Panel	Curtain Wall-Store Front-Dbl : Store
Join Condition	vertical Grid Continuous
Vertical Grid Pattern	*
Layout	Maximum Spacing
Spacing	5' 0"
Adjust for Mullion Size	
Horizontal Grid Pattern	n 🕆
Layout	Fixed Distance
Spacing	8' 0"
Adjust for Mullion Size	
Vertical Mullions	\$
Interior Type	Rectangular Mullion : 2.5" x 5" rect
Border 1 Type	Rectangular Mullion : 2.5" × 5" rect
Border 2 Type	Rectangular Mullion : 2.5" x 5" rect
Horizontal Mullions	\$
Interior Type	Rectangular Mullion : 2.5" × 5" rect
Border 1 Type	Rectangular Mullion : 2.5" × 5" rect
Border 2 Type	Rectangular Mullion : 2,5" x 5" rect
Identity Data	* *
,	

Click Apply and door is loaded



Select and unpin the bottom mullion and delete

The door will adjust to it



- Option 3
- Customizing your own curtain door panel
- Parameters are limited



- Option 3
- Customizing your own curtain window panel



Pattern-Based Curtain Panel



Pattern-Based Curtain Panel



Pattern-Based Curtain Panel (01)

Step 1. Start from a hexagon pattern grid.

Step 2. Set up proper reference points and lines.

Step 3. Create the the geometry by "Create Form". In Revit, "Create Form" try to search the best match function for the currently selected elements, lines.



Pattern-Based Curtain Panel (02)

Step 1. Start from a hexagon pattern grid.

Step 2. Set up proper reference points and lines.

Step 3. Create the the geometry by "Create Form". In Revit, "Create Form" try to search the best match function for the currently selected elements, lines.

