10 Years of Dynamo and Revit Classes from One Speaker
Volume 3

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Description

Welcome to the Dynamo and Grasshopper for Revit Cheat Sheet Reference Manual. This book is a collection of side by side Dynamo and Grasshopper examples in a one-page summary format also referred to as "Cheat Sheets".

Dynamo and Grasshopper for Revit®
Cheat Sheet Reference Manual
by Marcello Sgambelluri

NEW BOOK!

https://www.aeccheatsheets.com/
Past Families
8 Years' Worth of Dynamo and Revit Classes from 1 Speaker in 60 Minutes

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Taught 25 AU classes since 2012

THANK YOU !!!!!!!!!!!!!!!!!!

HIT THAT "RECOMMEND" BUTTON

17 - 1ST Place Awards
**NEXT HOUR IS HARDCORE SO HOLD ON!**

A WILD RIDE HOLD HOLD ON

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Marcello’s 2012 thru 2021 (10 Years) of Conference Presentation Statistics

- 1000’s
  # Helped Learn Dynamo and Complex Revit

- 25+ UNIQUE CLASSES
- 200+ EXAMPLES
- 1000 PAGES OF HANDOUTS
- 15+ GB OF DATASETS

https://a360.co/361XgcN
Customizing the Graphical Column Schedule (GCS) 2012

Ride the Rails: New Ways to build Rotation Parameters 2012

Create a Rotation Rig in Revit AC or Massing Family

Steps:
1. Create a Reference Circle.
2. Place two Points Anywhere on the Circle.
3. Change the Measurement Type to "Angle" in the Properties for both Points.
4. Create Parameter to the First Point.
5. Create Parameters for the Second Point.
6. Select Both Points and Click "Spline thru Points".
7. Change New Line to "Reference Line." (This is the New Hosting Reference Line.)
8. Host whatever you want to the Reference Line.
9. When the Angle Parameter is Changed it is Stable at any Practical Angle Including 90 and 180.

Create Revit Pumpkin

Steps:
1. Open up a new adaptive component family. Sketch in profiles as shown.
2. Create reference lines in a radial pattern and place the profiles with the dimensions shown. The profiles will be located at 5 degree increments.
3. Select the 13 splines shown in the image below that were selected and click "create form" bottom.
4. Repeat these 13 profiles around the entire pumpkin. Should look as shown.

Revit Family Modeling Secrets Revealed! 2012

NOTE: This method uses the Massing or Adaptive Components to create a stable family rotation rig. This is a general use rig and could be linked together to form multiple rotation rigs.

NOTE: The method above could be used on other families that have repeating profile around a circle.
**CREATE A DROPPED CEILING USING A DIVIDED PATH+AC**

**STEPS**

1. OPEN POWER_POINT_POWERPLAYS_2012_START.rfa
2. SELECT ON BOTH LINES AND DIVIDE PATH
3. CHANGE THE PATH SETTINGS AS SHOWN
4. PLACE THE 2 PT ADAPTIVE COMPONENT "SINGLE COMPONENT" SUCH THAT PT 1 AND PT 2 ARE AT THE ENDS OF THE DIVIDED PATH AS SHOWN
5. CLICK ON ADAPTIVE COMPONENT AND CLICK THE REPEATER COMMAND.
6. RESULTS ARE SHOWN BELOW
7. CHANGE THE PATH SETTINGS OR LINE GEOMETRY AND WATCH DYNAMIC CHANGES

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**CREATE BEAMS THAT FOLLOW CURVES**

**REVIT SPINRAL**

**NOTE:** THE METHOD ABOVE COULD BE USED TO CREATE SPIRALS AND THE EDGE COULD HOST LINES OR DIVIDED PATHS AS WELL

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**REVIT BEAMS THE PROJECT**

**NOTE:** THE METHOD ABOVE COULD BE USED TO HAVE FLOORS FOLLOW ALL TYPES OF WALL SHAPES. ROOF ELEMENTS ALSO WORK. THE IMPORTANT STEP IF TO JOIN THE FLOOR WITH THE WALL SO THE RESULTING JOINED SOLID HAS A "PICKABLE" EDGE
Learn to Scale and Morph Families in Autodesk Revit 2013

Making a Great Set of Examples to Present

Creating a great set list

Every good technical presentation has a set of concrete examples to help illustrate the topics. I refer to them as a set list because the list of examples that you choose is like a list of songs that a band would choose before they go on stage and perform. If you're a presenter, you are an entertainer and is important to choose the right set list.

I like to put the most interesting and complex set list item at the end of my presentation for two reasons. The first is a like everyone to walk away with what could be possible if you took this method and push it to its extreme limit. Also, you'll want to save your best material for fast similar to how a band plays their hit song at the end of their concert.

How to Prepare and Deliver an Engaging Presentation 2013

Make Hardscape Follow Site Topography 2013

Scale and Morph in Revit

Steps

Add lines between the start and end shapes, it also helps to have the same number of points, and host points onto that line and make a parameter that drive that location of the points. Place a line thru those points shown in red, flex, and morph.

It is possible to make scale and morph together. To do this simply make the profile on the left scalable by connecting lines from the origin to all the points that make up the profile, do the same for the line profile in the right.

Notes: The Method Above Could Be Used to Scale and Morph Families

Hardscape Follow Topo Straight Road

Steps

1. Open Topo and “split surface” element, which is now a separate topography element.

2. Isolate and export that new topography element as a .dwg.

3. Insert the newly exported .dwg as origin to origin level origin to view in the project.

4. First add beams to the .dwg.

5. Add the roof boundary by clicking on the "roof by footprint".

6. Now, the "pick supports" command, then picking the (beam) supports. Select each boundary beam individually and as you do, the roof element will automatically begin to snap to the same location of its generative topography.

Notes: The Building Pad Is Sacrificial Geometry to Create the Straight Wall and You Will Be Using Its Upper Edge to Locate the Wall. If a .dwg Is Not Preferred to Be Left in Revit Then Delete It. Not Using This Method Is Also an Option
CREATE A ROTATION RIG IN REVIT USING A REVOLVE

REVOLVE ELEMENT (WITH CONSTANT LENGTH)

END ANGLE

HOST CONTENT ON THIS REFERENCE LINE

CONTROL ROTATION VIA START AND END ANGLES OF REVOLVE EXTRUSION

REVOLVE METHOD

REVIT ADAPTIVE COMPONENT OR MASSING ENVIRONMENT

3D VIEW

DYNAMO FOR REVIT

SURFACE AREA OF RAMPS

1. Select Model Element
   · Change Element Info
   · Add Element, Surface

2. Element, Faces
   · List [X] Surface

3. Code Block
   · Surface, double
   · Surface, 107.933

4. Surface Area
   · Surface AREA ELEMENT

NOTE: IF THE RAMP IS STRAIGHT USE 2

NOTE: USE THE METHOD ABOVE TO EXTRACT OTHER AREAS FROM REVIT BODIES SUCH AS ROOF, FLOORS, FOUNDATION SLABS, ETC.

RAMP GEOMETRY

DYNAMO FOR REVIT

TEXT TO UPPERCASE ROOM NAMES

1. This node selects the ramp
2. This node extracts all the surfaces of the ramp
3. This node extracts the surface area of the top surface of the ramp

STEP 1: OPEN FILE "RAMP_AREA_START.RVT"
STEP 2: OPEN A NEW DYNAMO FILE, PLACE NODES AS SHOWN AND RUN SCRIPT
STEP 3: OPEN FILE "RAMP_AREA_END.RVT"

STEP 6: OPEN FILE "RAMP_AREA_END.RVT"
STEP 7: OPEN FILE "RAMP_AREA_END.RVT"

MORE PRACTICAL DYNAMO 2015

FAMILIES IN MOTION 2015

DYNAMO FOR CONTRACTORS 2015
Who Should Model the Structural Analysis Model? 2017

The image below shows what should not happen within an office if everyone is to work together.
CREATING THE QUEEN MARY STRUCTURAL MODEL

STRUCTURAL REVIT MODEL

ORIGINAL DRAWINGS

DYNAMO

QUEEN MARY DYNAMO SUMMARY

NOTE: DYNAMO IS A VERY POWERFUL TOOL AND COULD BE USED TO HELP YOUR PROJECTS. ONE CASE IS SHOWN ABOVE WHERE DYNAMO WAS USED TO CREATE THE ENTIRE STRUCTURAL MODEL OF THE QUEEN MARY CRUSIPLANNER.

More Dynamo for Structure 2018

REVIT WALL BY COMPLEX FACE

DESIGNATES WALL LOCATION
THIS NODE MUST BE USED TO SELECT THE WALL LOCATION

SELECTS WALL TYPE

SELECTS THE SURFACE FACES IN REVIT

Diesel

STEPS
1. OPEN REVIT FILE "REVIT_WALL_BY_FACE_COMPLEX_START.RVT"
2. OPEN A REVIT FILE AND ADD THE NOS AS SHOWN. SELECT THE COW MASS FACES
3. RUN GRAPH. ADD DOORS AND WINDOWS AS DESIRED.

SAP GET LENGTHS OF ALL FRAMES

These nodes get all the frames and names of points

Steps
1. Open any ETABS model "GM_FINAL.wsp" and open Dynamo
2. Add the nodes above
3. Do not forget to use all those other DOTE DYNAMO NODES TO HELP YOU

2018
Connecting Dynamo with RAM via API

Game Engines for Engineers- Ball Rolling - Part 2 2019

INTERACTIVE: BALL ROLLING PHYSICS

STEP 1
OPEN AN INTERACTIVE PROJECT WITH TOPO, BEST TO CREATE WITH LIVE SERVICE FROM REVIT

STEP 2
CREATE A SPHERE IN MAX AND IMPORT INTO INTERACTIVE USING FBX, OPEN THE SPHERE ASSET IN THE UNIT EDITOR AND ADD A DYNAMIC PHYSICS ACTOR WITH A SPHERE SHAPE AS SHOWN

STEP 3
PLACE THE SPHERES IN SCENE ABOVE THE GROUND PLANE AND TEST THE LEVEL IN GAME MODE. THE PHYSICS WILL AUTOMATICALLY ACTIVATE AND SIMULATE FALLING SPHERES

NOTE
INTERACTIVE HAS A PHYSICS ENGINE AND SHOULD BE USED! THIS MEANS ADDING SPHERES TO SCENES TO SEE HOW RAIN WILL RUN OFF AND HOW SITES ARE GRADED TO 'CATCH' WATER. ALSO, THIS COULD BE DEPLOYED AS A STAND ALONE GAME TO BE SHARED TO TEAM

8 Yrs' Worth of Dynamo and Revit Classes Volume 1 2019
THE FUTURE

SOFTWARE WORK TOGETHER

RHINO
GRASSHOPPER

REVIT

DYNAMO

REVIT FAMILY PLACED IN REVIT VIA GH

SELECTS WALL TYPE

SELECTIONS WALL LOCATION

WALL LOCATION

DESIGNATES WALL LOCATION

THIS NODE MUST BE USED TO SELECT THE WALL LOCATION

SELECTS THE SURFACE FACE IN REVIT

REVIT WALL BY HOST

CREATES A REVIT WALL BY FACE
AUTODESK UNIVERSITY