UK DYNAMO USER GROUP | SOUTH

FROM HOURS TO MINUTES:

APPLY DYNAMO IN DAY-TO-DAY TROUBLESHOOTING

OR

A DYNAMO BOOTCAMP INTRODUCTION TO SURVIVE A

NON STANDARD, VERY COMPLEX RESIDENTIAL SCHEME

UK Dynamo User Group

adamson

ASSOCIATES (INTERNATIONAL) LIMITED

TODAY WE WILL TALK ABOUT:

00_INTRODUCTION ON CASE STUDY PROJECT

01_DYNAMO SCRIPT #1

02_DYNAMO SCRIPT #2

03_DYNAMO SCRIPT #3

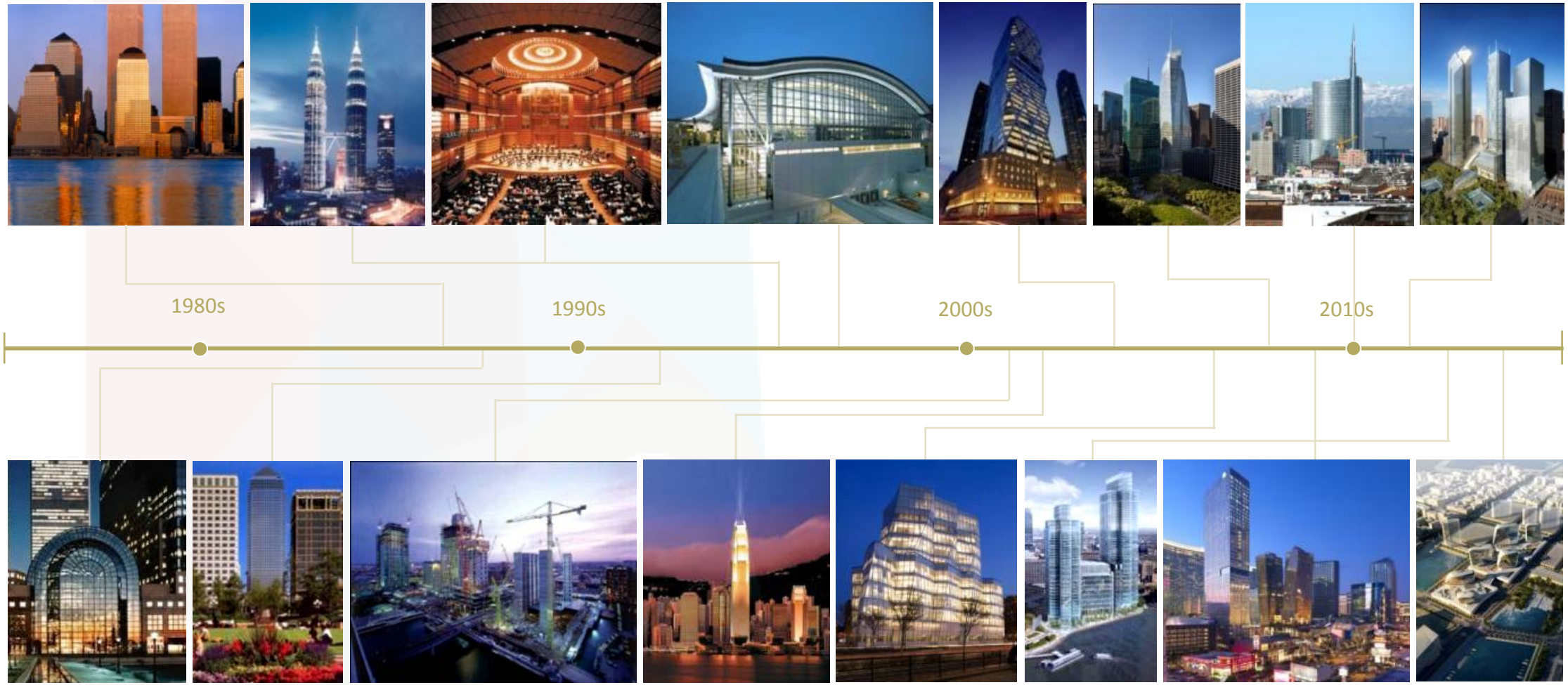
04_CONCLUSIONS

A.A.A. – ABOUT ADAMSON ASSOCIATES

- ESTABLISHED IN 1934
- OVER 30 YEARS OF EXPERIENCE AS EXECUTIVE ARCHITECT.
- HEADQUARTERED IN TORONTO WITH OFFICES IN NY, LON AND LA.
- 80+ PEOPLE IN LONDON OFFICE, APPROXIMATELY 400 STAFF WORLDWIDE.
- OVER 100 MILLION SQUARE FEET OF LARGE-SCALE PROJECTS DELIVERED.
- ARCHITECTURAL COLLABORATIONS:

  FOSTER + PARTNERS; ROGERS STIRK HARBOUR + PARTNERS; MAKI AND ASSOCIATES; GEHRY PARTNERS; PELLI CLARKE PELLI; BIG; OMA; HEATHERWICK; ADRIAN SMITH + GORDON GILL; RENZO PIANO BUILDING WORKSHOP; ATELIERS JEAN NOUVEL; DILLER SCOFIDIO + RENFRO

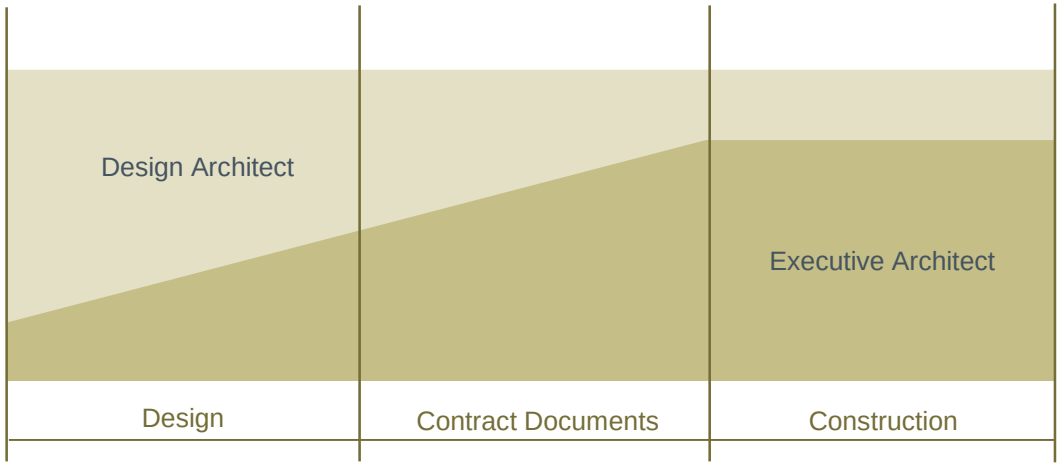
A.A.A. – ABOUT ADAMSON ASSOCIATES

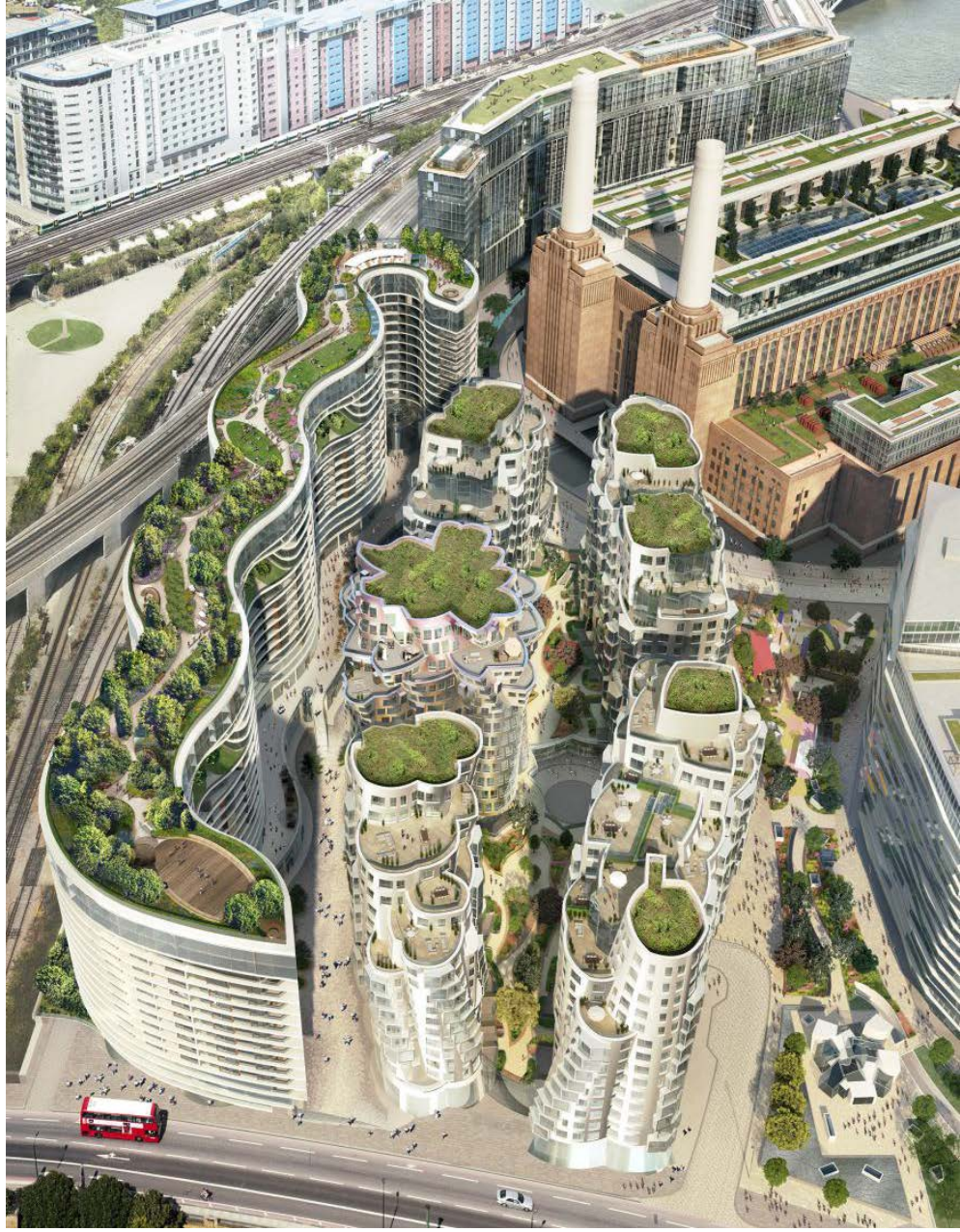


A.A.A. – ABOUT ADAMSON ASSOCIATES

EXPERIENCE WITH REVIT / BIM – UK PROJECTS

- 20 FENCHURCH TOWER **– Rafael Vinoly**
- THE SHARD **– RPBW**
- RIVERSIDE SOUTH DEVELOPMENT **– RSH+Partners**
- NEWFOUNDLAND TOWER **– Horden Cherry Lee Architects**
- WOODWHARF MASTERPLAN **– Allies and Morrison**
- ONE PARK DRIVE **– Herzog & De Meuron**
- SOUTHBANK PLACE **– Squire & Partners**
- BNP KING'S CROSS **– Wilmotte & Associes**
- BATTERSEA PHASE 3 **– Gehry Partners**





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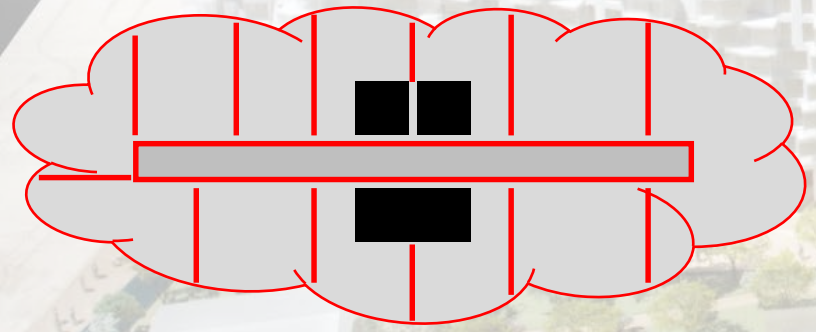
BATTERSEA PHASE 3 RS-4 PLOT

DESIGNED BY FRANK O. GEHRY

ADAMSON ASSOCIATES IS THE EXECUTIVE ARCHITECT

- 5 RESIDENTIAL BUILDINGS
- 16 STOREY HIGH
- 700 RESIDENTIAL UNITS
- ALMOST NO REPETITION IN RESIDENTIAL LAYOUTS



DYN SCRIPTS DEVELOPED ON BATTERSEA

- REMOVE ALL SHEETS AND VIEWS
- REMOVE “IMPORT” LINESTYLES
- VIEW AND SHEET GENERATION
- AUDITING PROCESS (IN CONBINATION WITH EXCEL)
- ASSIGN DOOR SWING L/R
- SHEET ISSUE SCHEDULE
- FIND AND GROUP SELECTED WALL TYPES
- SCHEDULE CUSTOM FAMILY PARAMETERS
- FIND AND REPLACE SELECTED WALL TYPES
- CREATE TOPOGRAPHY FROM FLAT CAD FILE

01_SCHEDULING CUSTOM FAMILY PARAMETERS

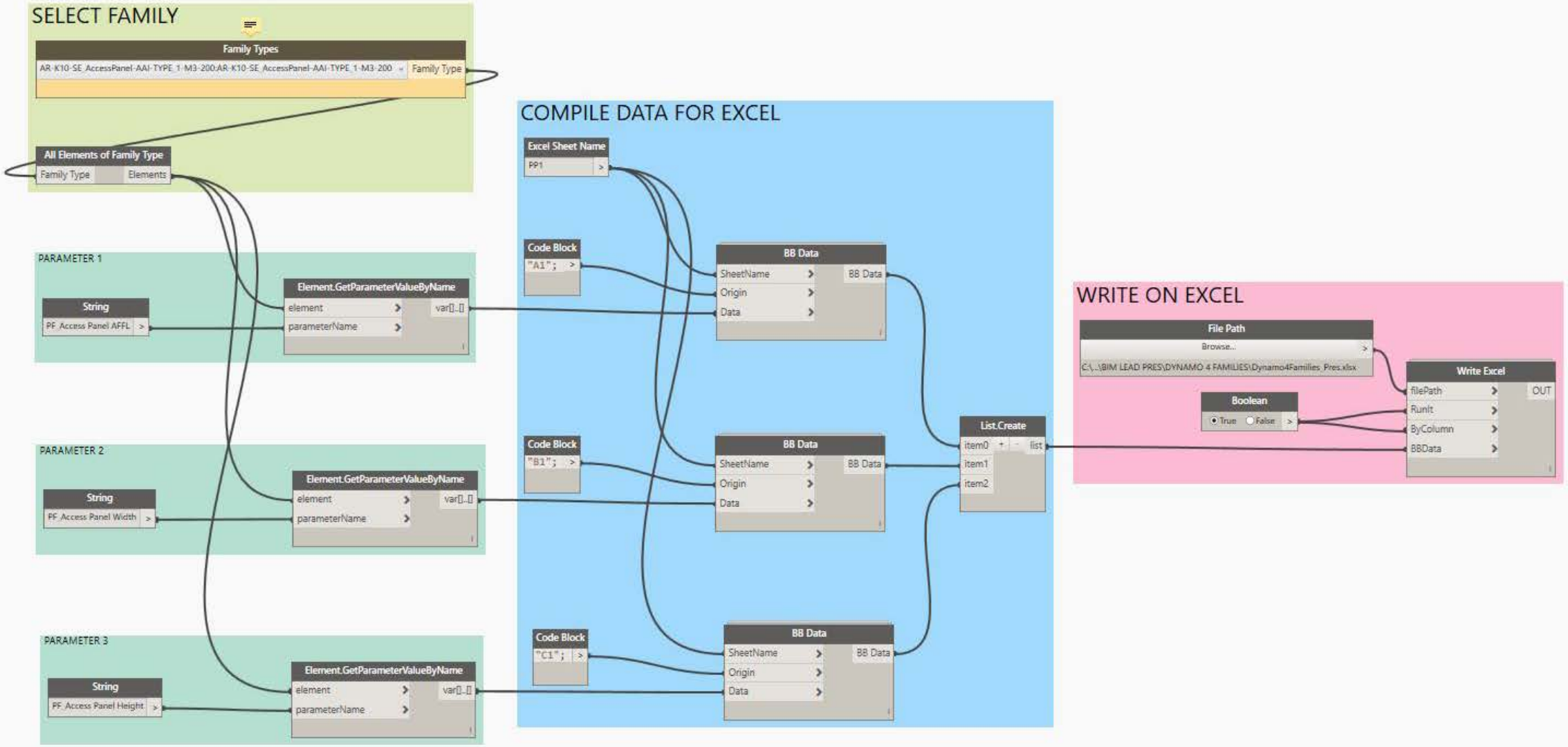
THE PROBLEM:

- ACCESS PANEL FAMILY WITH CUSTOM FAMILY PARAMETERS
- DIFFERENT SIZES THROUGHOUT THE BUILDINGS
- LATER REQUIRED TO BE TAGGED ON DRAWINGS
- FAMILIES HAD TO BE REBUILT WITH SHARED PARAMETERS

THE SOLUTION: 

ADDITIONAL PACKAGE(S):

- BUMBLEBEE



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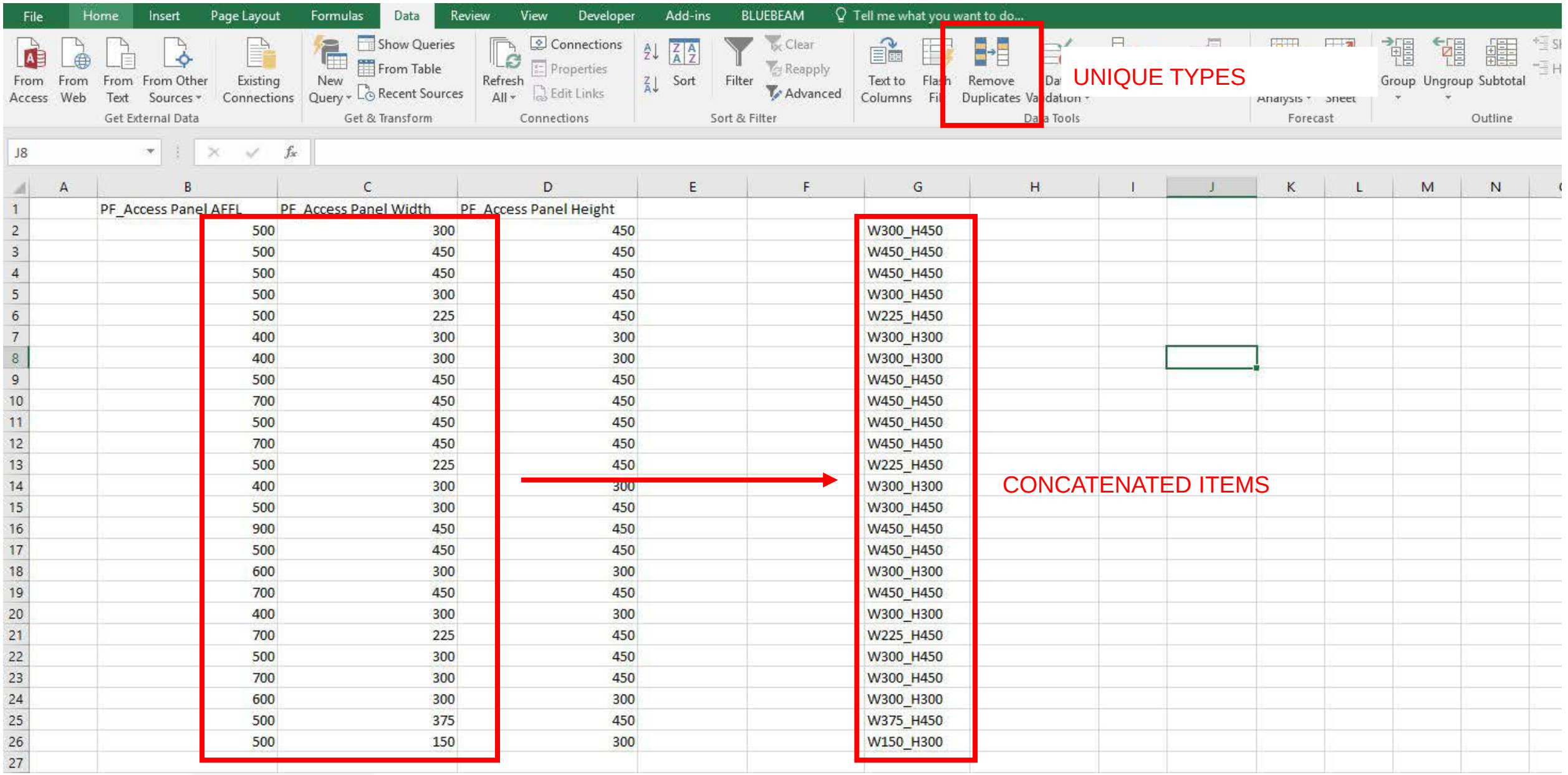
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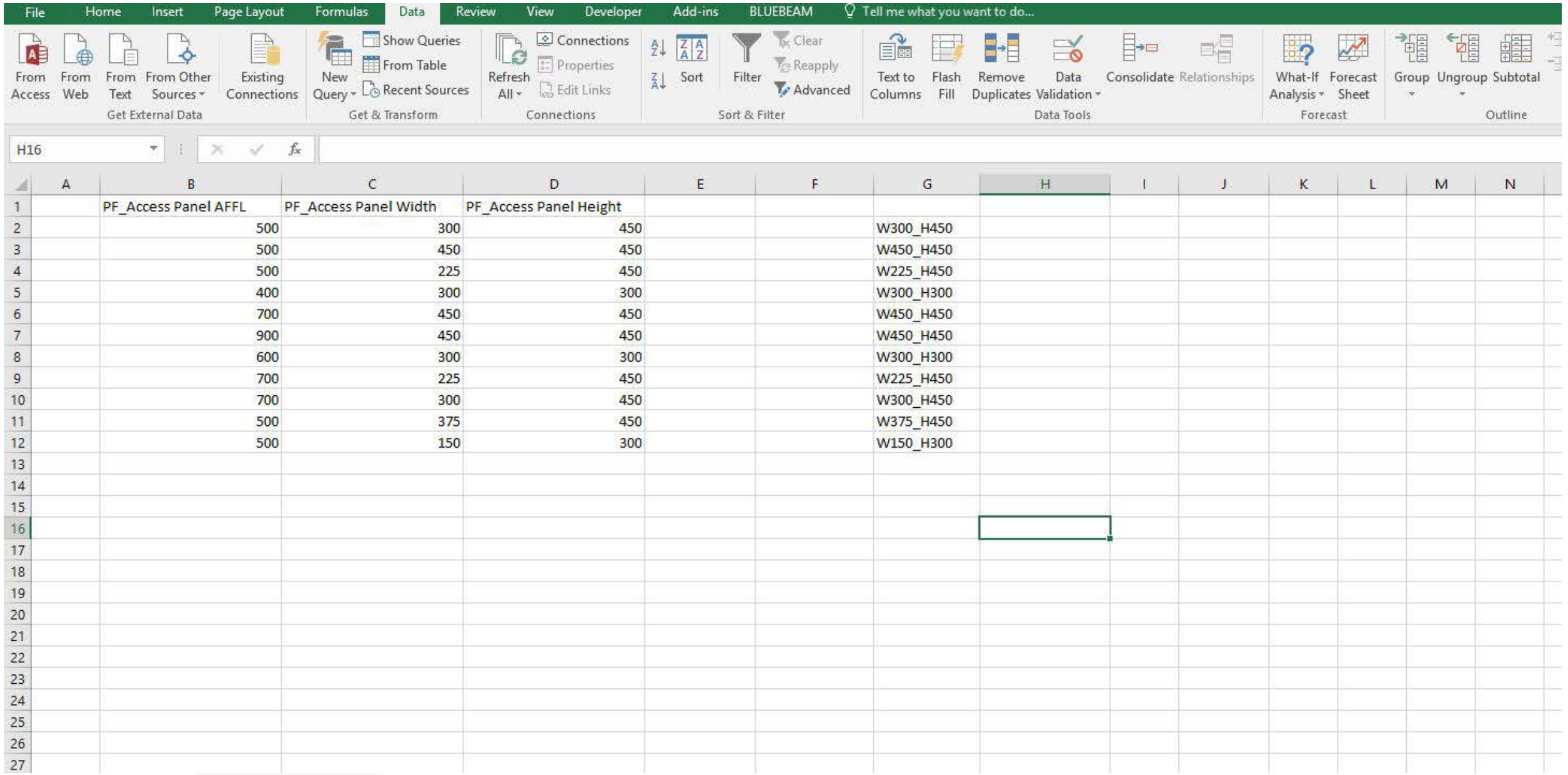
Home
Insert
Page Layout
Formulas
Data
Review
View
Developer
Add-ins
BLUEBEAM
Tell me what you want to do...
From Access
From Web
From Text
From Other Sources
Existing Connections
Get External Data
New Query
Show Queries
From Table
Recent Sources
Get & Transform
Refresh All
Connections
Properties
Edit Links
Connections
Sort
Filter
Clear
Reapply
Advanced
Sort & Filter
Text to Columns
Flash Fill
Remove Duplicates
Data Validation
Data Tools
UNIQUE TYPES
Group
Ungroup
Subtotal
Forecast
Outline
J8
PF_Access Panel AFFL
PF_Access Panel Width
PF_Access Panel Height
500 300 450 W300_H450
500 450 450 W450_H450
500 450 450 W450_H450
500 300 450 W300_H450
500 225 450 W225_H450
400 300 300 W300_H300
400 300 300 W300_H300
500 450 450 W450_H450
700 450 450 W450_H450
500 450 450 W450_H450
700 450 450 W450_H450
500 225 450 W225_H450
400 300 300 W300_H300
500 300 450 W300_H450
900 450 450 W450_H450
500 450 450 W450_H450
600 300 300 W300_H300
700 450 450 W450_H450
400 300 300 W300_H300
700 225 450 W225_H450
500 300 450 W300_H450
700 300 450 W300_H450
600 300 300 W300_H300
500 375 450 W375_H450
500 150 300 W150_H300
CONCATENATED ITEMS


File Home Insert Page Layout Formulas Data Review View Developer Add-ins BLUEBEAM Tell me what you want to do...
From Access From Web From Text From Other Sources Existing Connections
Get External Data
New Query Show Queries From Table Recent Sources
Get & Transform
Refresh All Connections Properties Edit Links
Connections
Sort Filter Clear Reapply Advanced
Sort & Filter
Text to Columns Flash Fill Remove Duplicates Data Validation Consolidate Relationships
Data Tools
What-If Analysis Forecast Sheet
Forecast
Group Ungroup Subtotal
Outline
H16
PF_Access Panel AFFL
PF_Access Panel Width
PF_Access Panel Height
500 300 450 W300_H450
500 450 450 W450_H450
500 225 450 W225_H450
400 300 300 W300_H300
700 450 450 W450_H450
900 450 450 W450_H450
600 300 300 W300_H300
700 225 450 W225_H450
700 300 450 W300_H450
500 375 450 W375_H450
500 150 300 W150_H300

HOW MUCH TIME WE SAVED?

SCRIPT #1 – SCHEDULING FAMILY PARAMETERS

- EST. **16** MAN-HOURS COMBINED TASK TIME
- 20 MINS TO BUILD THE SCRIPT
- 2 HOURS TO COMPLETE

EST. TIME SAVED –13.5 MAN-HOURS

85% OF ORIGINALLY ESTIMATED TIME

02_FIND AND REPLACE ROOM BOUNDING WALLS

THE PROBLEM:

- PARTITIONS/LININGS TYPES CREATED BASED ON SPECIFIC BUILD-UPS AND PERFORMANCES
- WALL LINING INSTANCES USED INCONSISTENTLY THROUGHOUT THE PROJECT.
- REQUIRED QUICK AND PRECISE REALIGNMENT

THE SOLUTION:

ADDITIONAL PACKAGE(S):

- SPRINGS
- CLOCKWORK

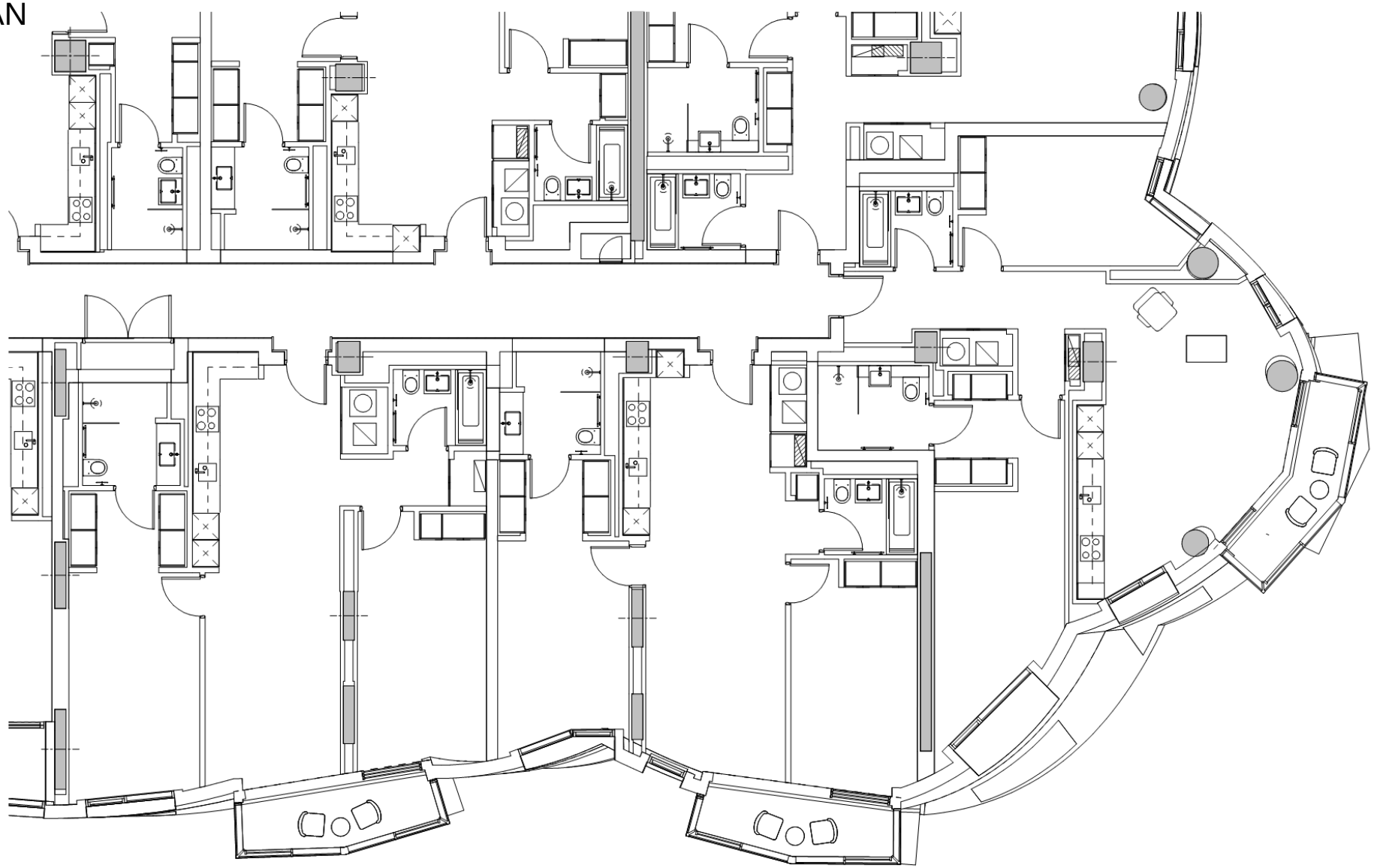
OPTION 1

FIND AND REPLACE ROOM BOUNDING WALLS

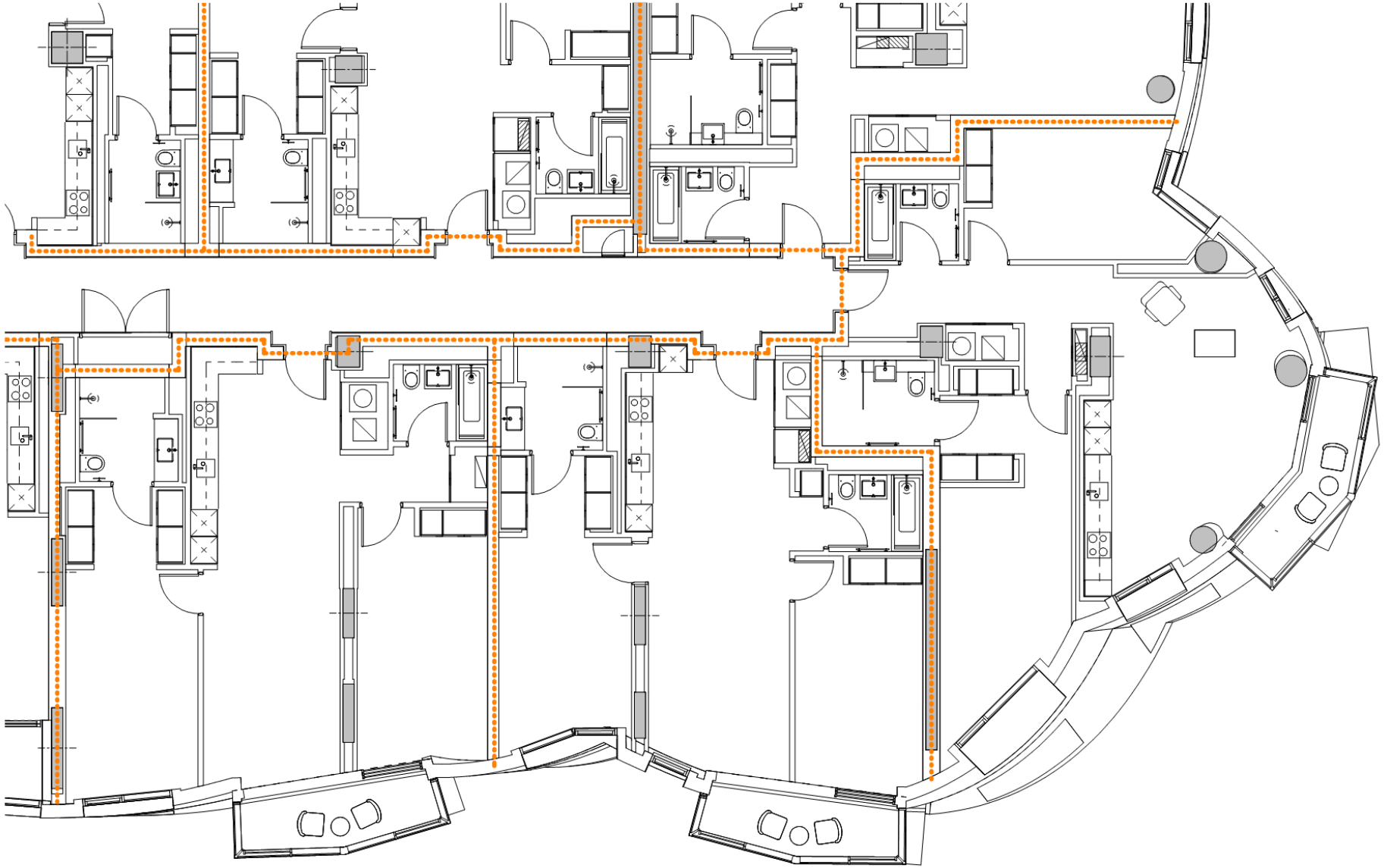
OPTION 2

FIND AND REPLACE WALLS WITHIN THE APARTMENT

TYPICAL FLOORPLAN



DEMIZE LINES



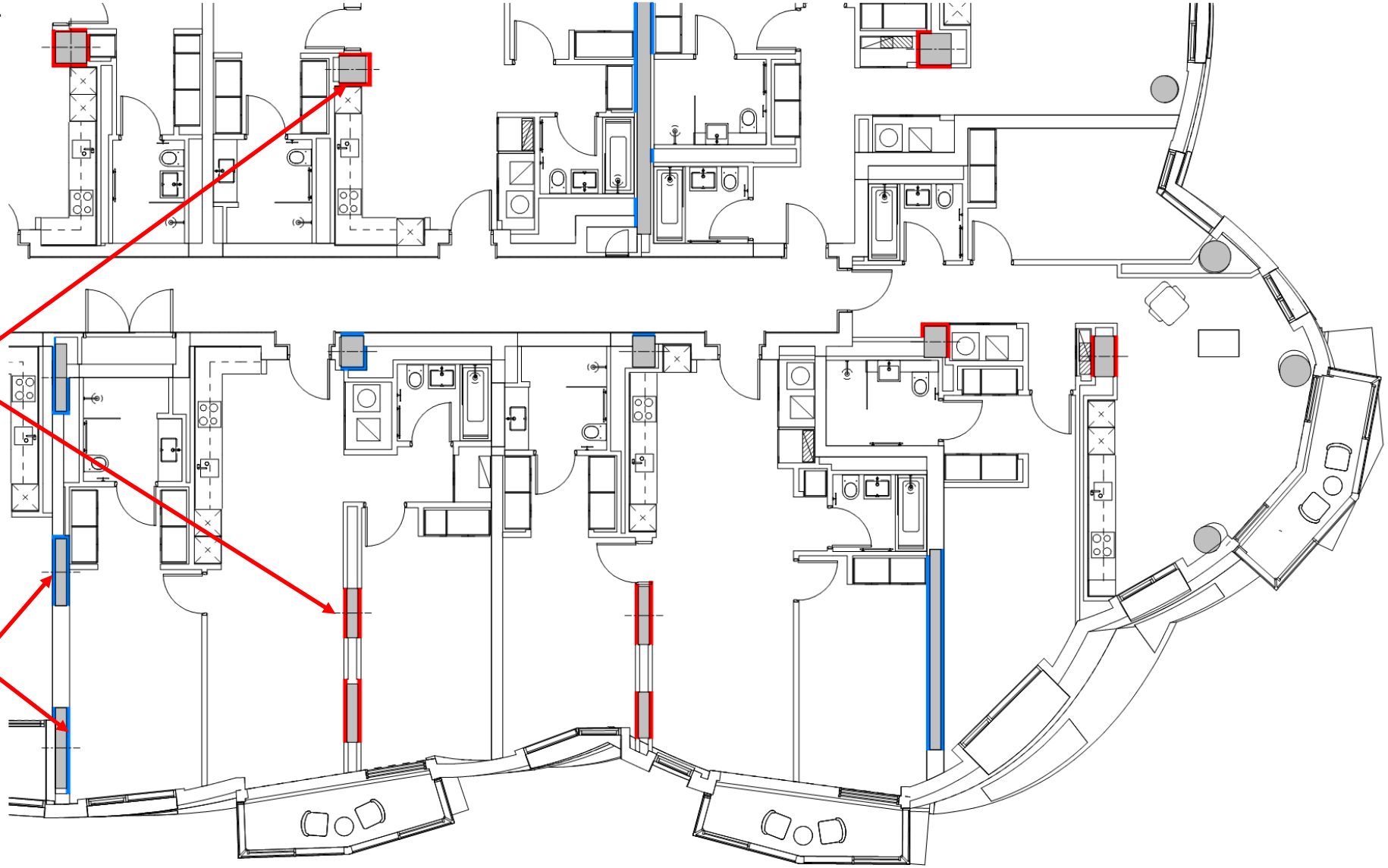
HOW IT SHOULD BE

LINING TYPE A

LININGS IN RESI UNITS

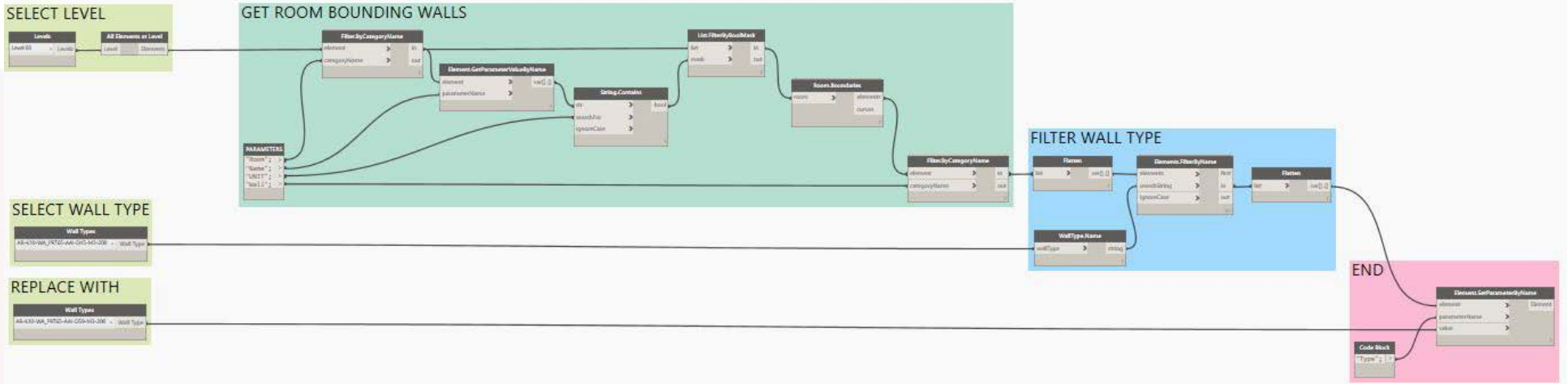
LINING TYPE B

LINING IN DEMIZE WALLS

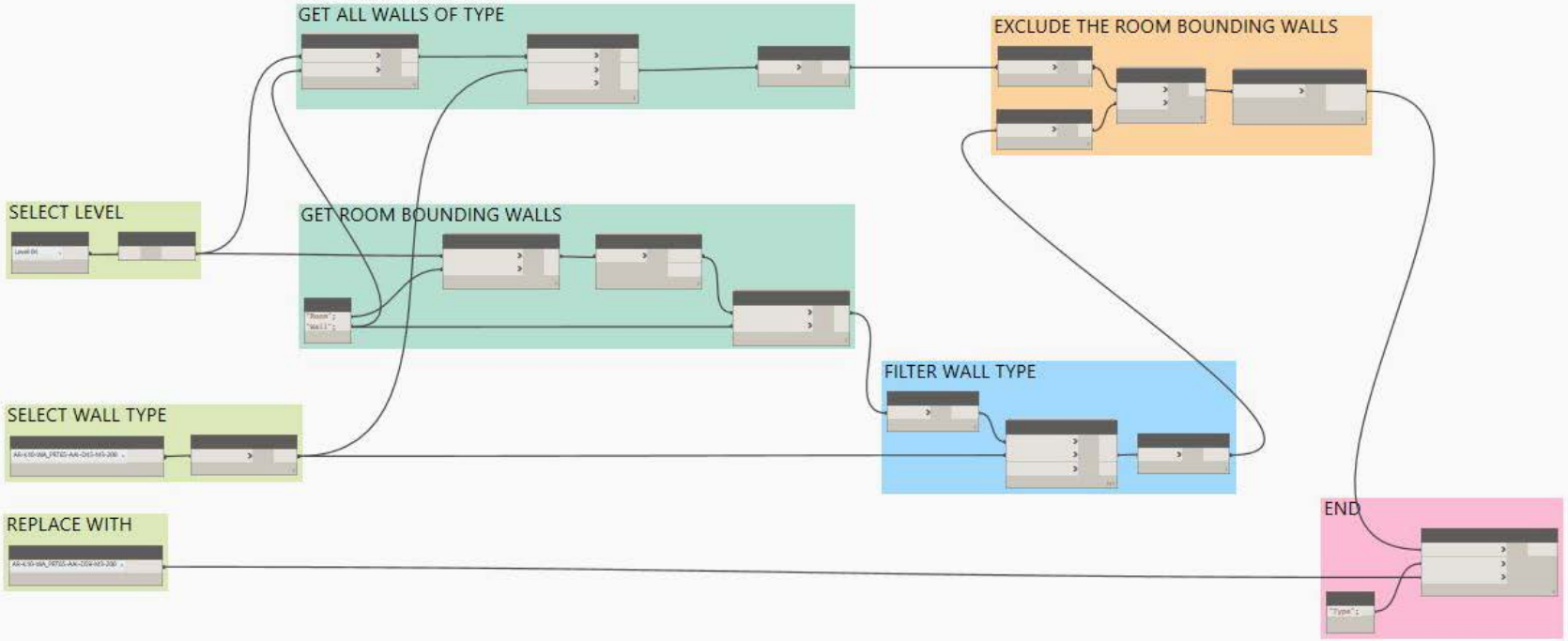


HOW IT ENDED UP

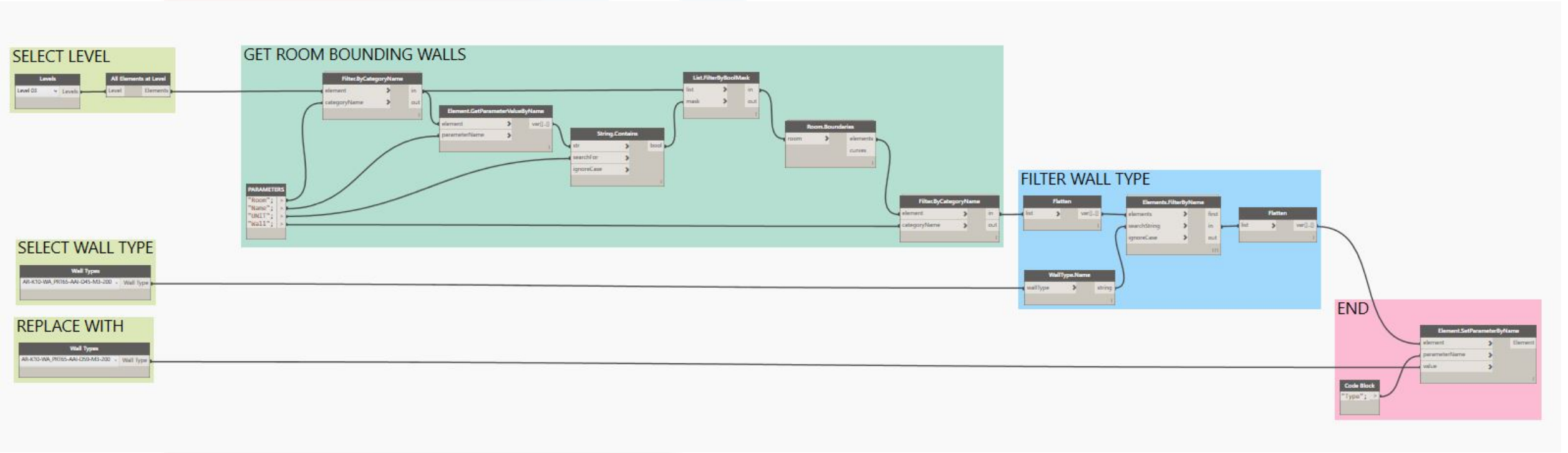
OPTION 1



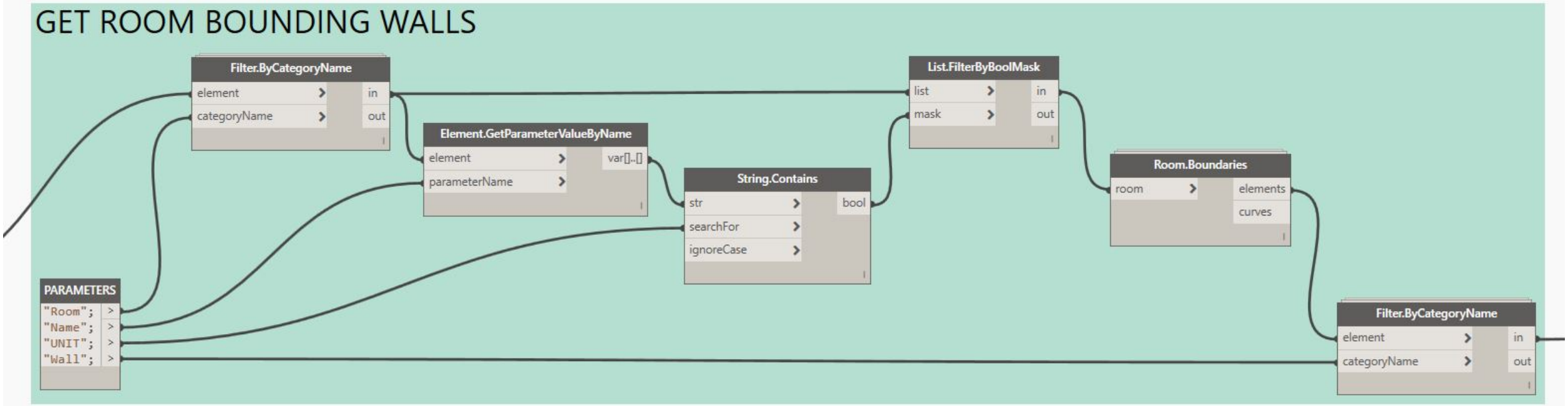
OPTION 2

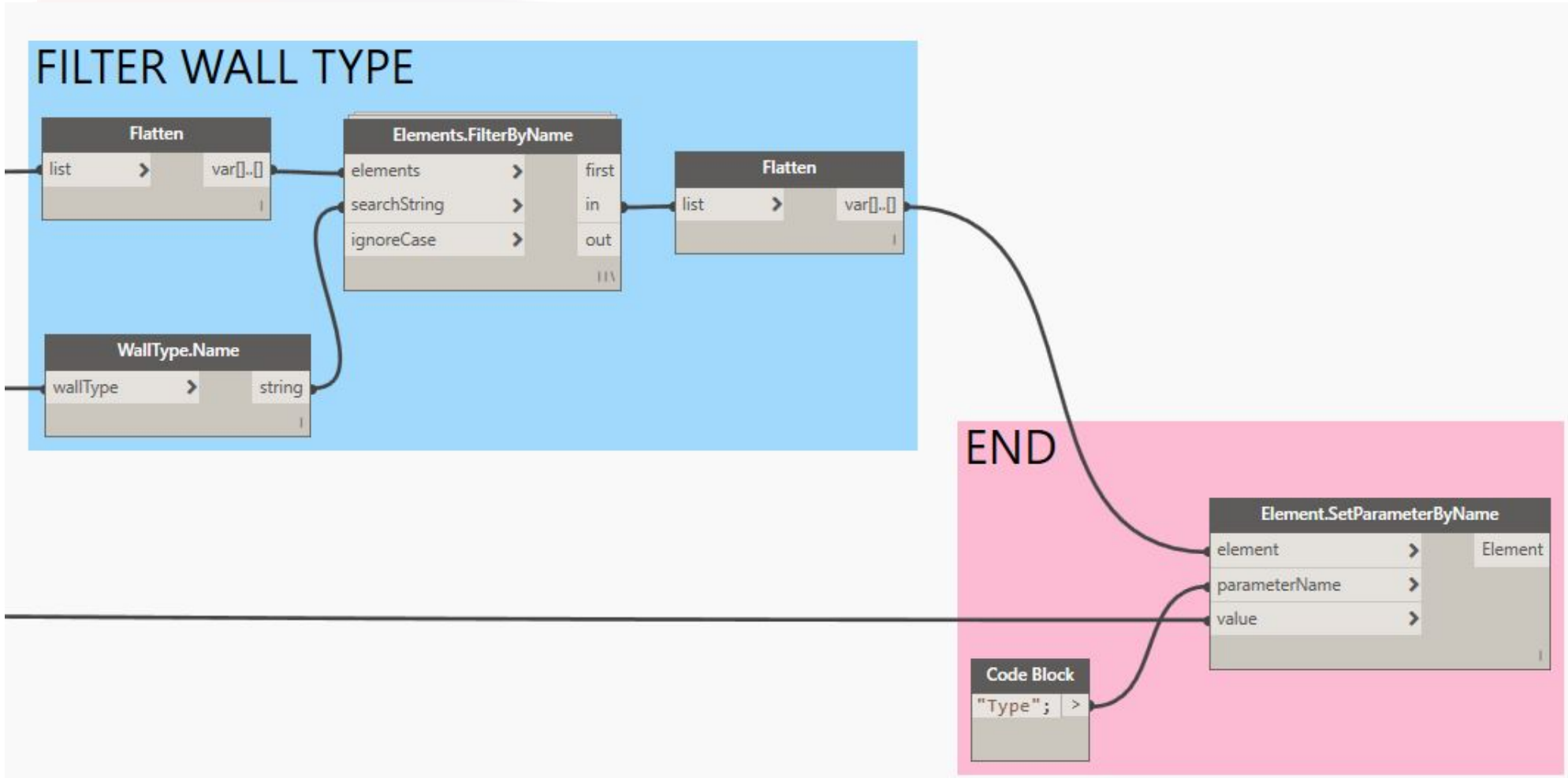


OPTION 1 - FIND AND REPLACE ROOM BOUNDING WALLS

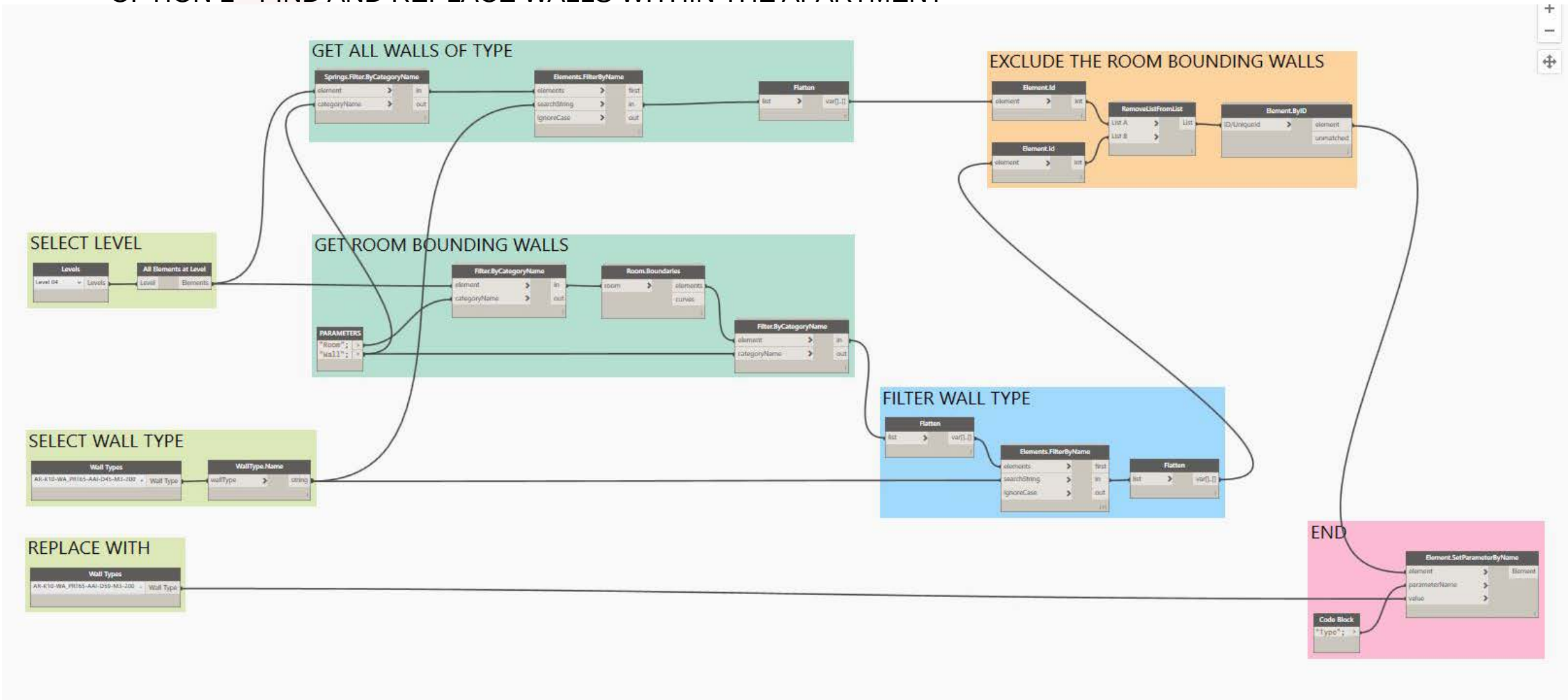


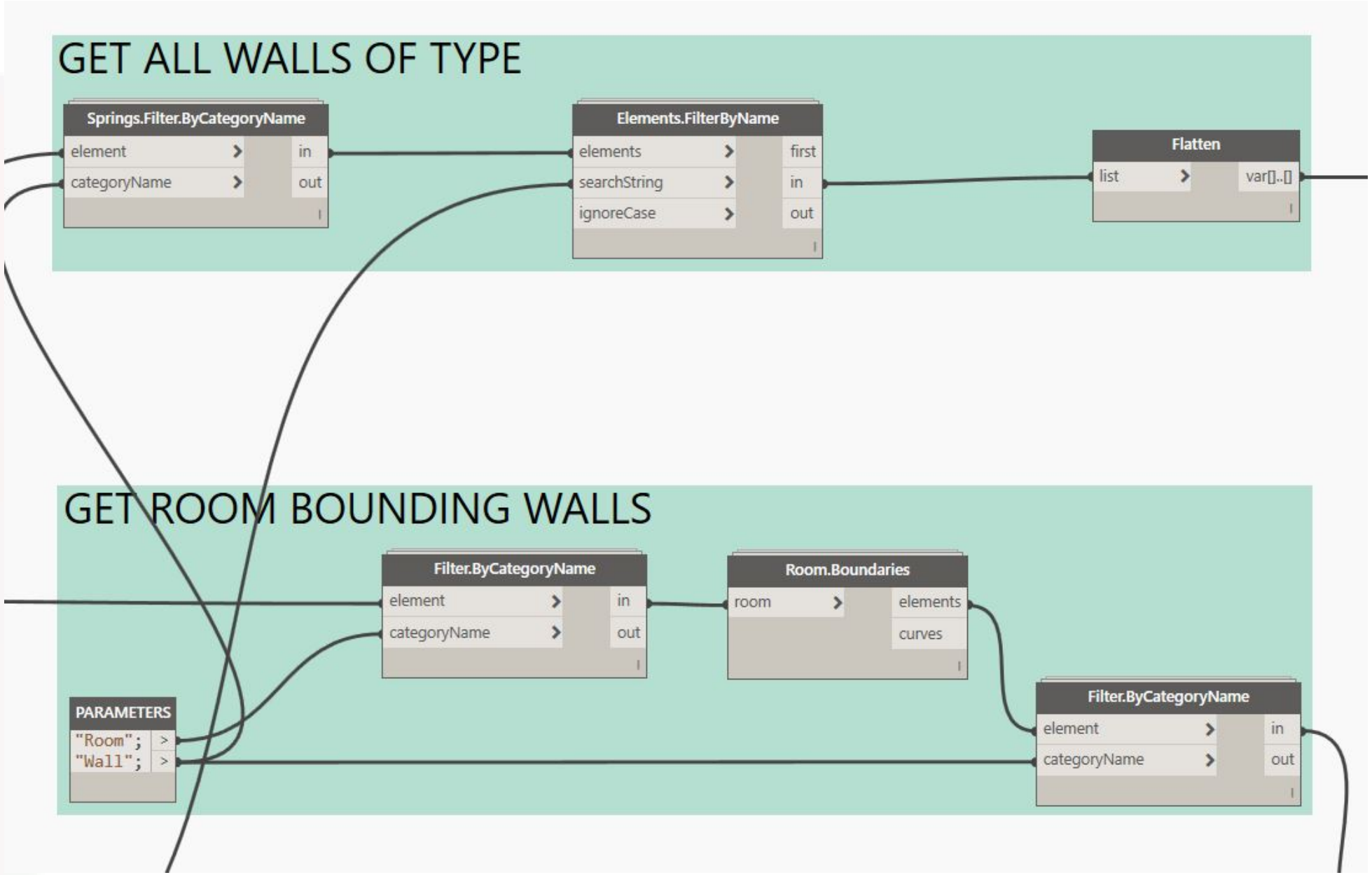
GET ROOM BOUNDING WALLS

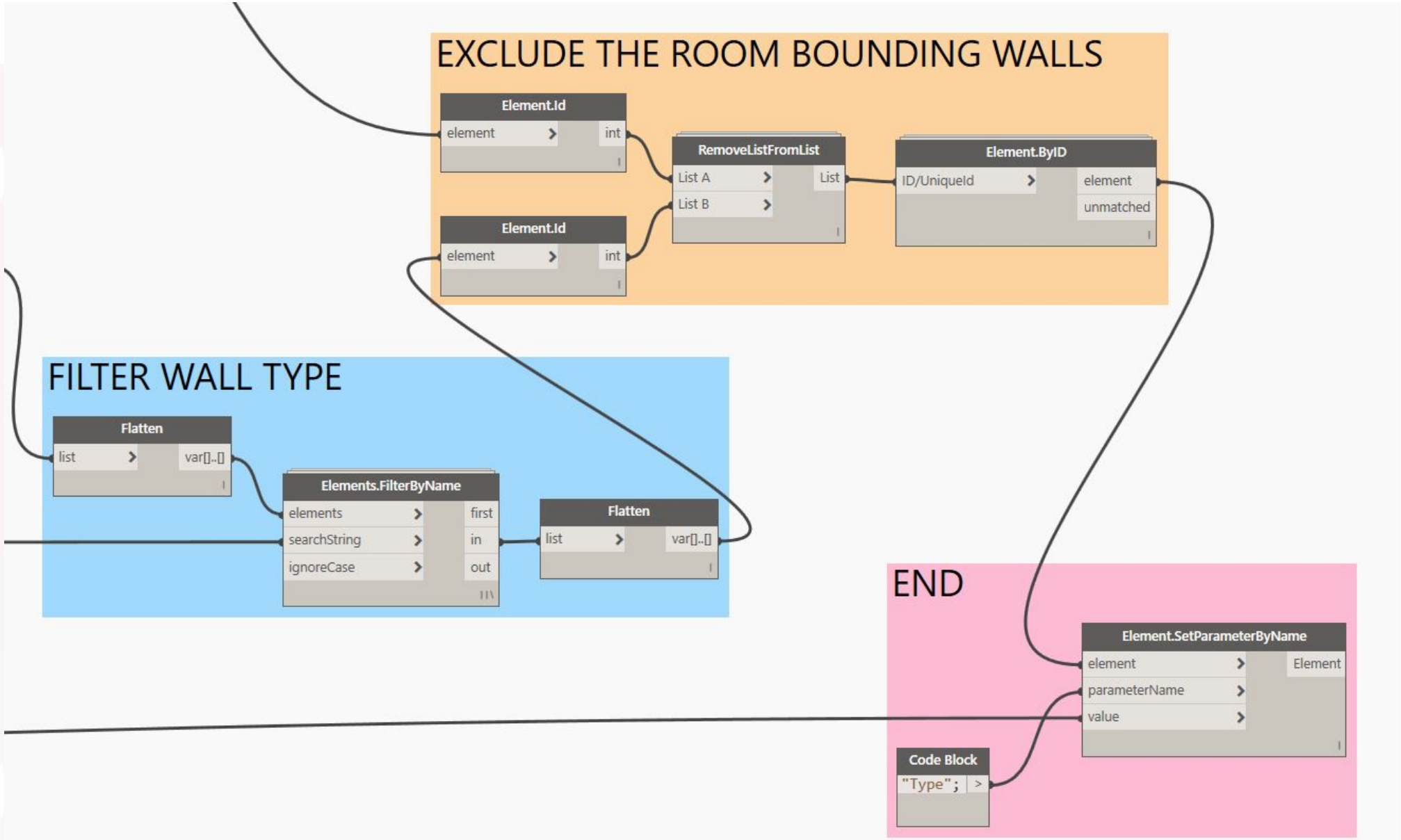



FILTER WALL TYPE
Flatten
list
var[]..[]
Elements.FilterByName
elements
searchString
ignoreCase
first
in
out
Flatten
list
var[]..[]
WallType.Name
wallType
string
END
Element.SetParameterByName
element
parameterName
value
Element
Code Block
"Type";

OPTION 2 - FIND AND REPLACE WALLS WITHIN THE APARTMENT




GET ALL WALLS OF TYPE
Springs.Filter.ByCategoryName
element
categoryName
in
out
Elements.FilterByName
elements
searchString
ignoreCase
first
in
out
Flatten
list
var[]..[]
GET ROOM BOUNDING WALLS
Filter.ByCategoryName
element
categoryName
in
out
Room.Boundaries
room
elements
curves
PARAMETERS
"Room";
"Wall";
Filter.ByCategoryName
element
categoryName
in
out


EXCLUDE THE ROOM BOUNDING WALLS
Element.Id
element
int
Element.Id
element
int
RemoveListFromList
List A
List B
List
Element.ByID
ID/UniqueId
element
unmatched
FILTER WALL TYPE
Flatten
list
var[]..[]
Elements.FilterByName
elements
searchString
ignoreCase
first
in
out
Flatten
list
var[]..[]
END
Element.SetParameterByName
element
parameterName
value
Element
Code Block
"Type";

HOW MUCH TIME WE SAVED?

SCRIPT #2 – FIND AND REPLACING ROOM BOUNDARY WALLS

- EST. **24-32** MAN-HOURS COMBINED TASK TIME
- 60 MINS TO BUILD THE SCRIPT
- 60 MINS TO COMPLETE

EST. TIME SAVED –MIN. 22 MAN-HOURS

92% OF ORIGINALLY ESTIMATED TIME

03_SITE MODELLING BASED ON FLAT CAD

THE PROBLEM:

- TO CREATE A TOPOGRAPHY IN REVIT FROM A FLAT CAD

THE SOLUTION: 

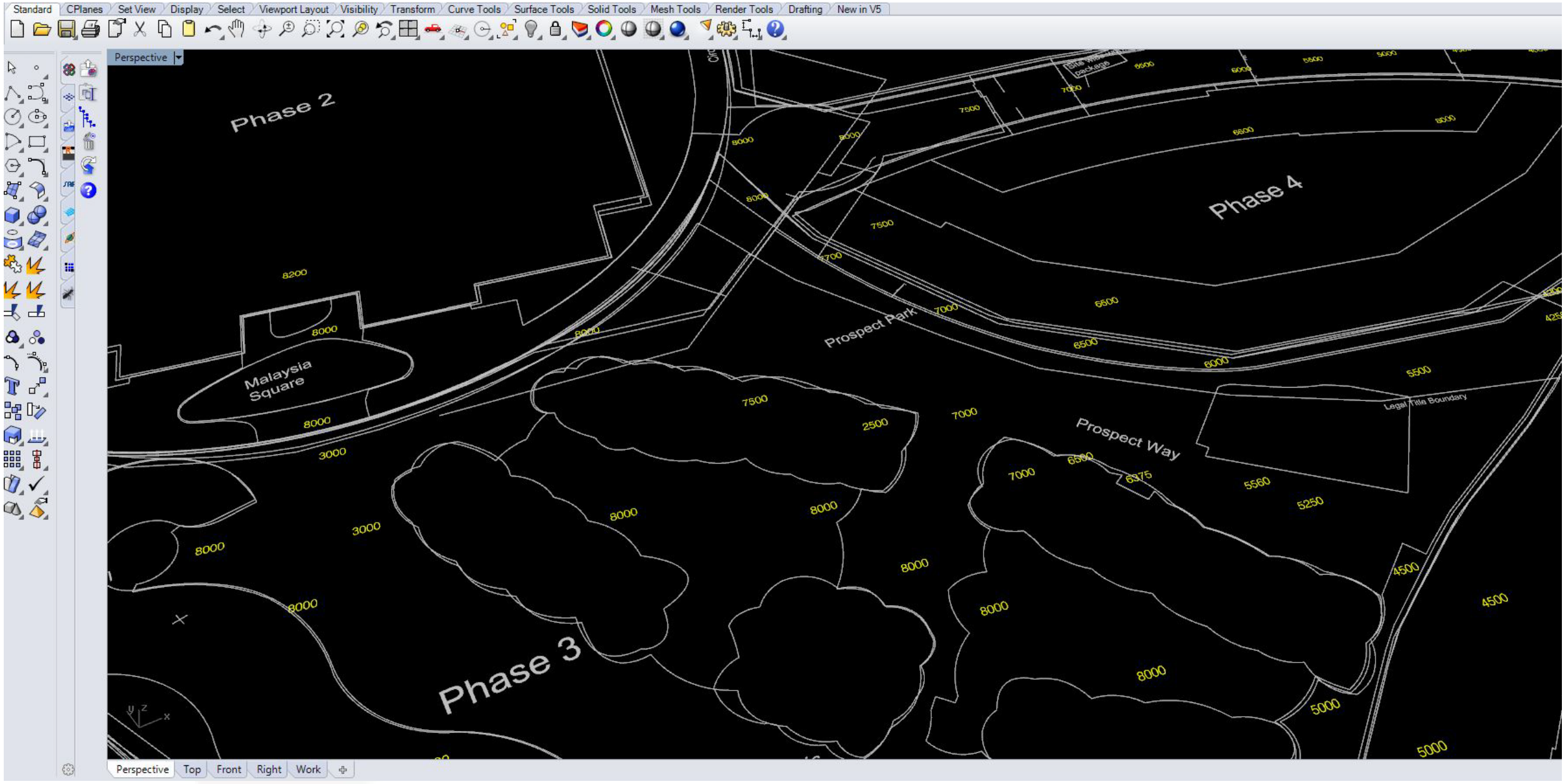
OPTION 1

RHINO/GRASSHOPPER + EXCEL + DYNAMO

OPTION 2

RHINO/GRASSHOPPER + DYNAMO

- RHYNAMO
- SPRINGS



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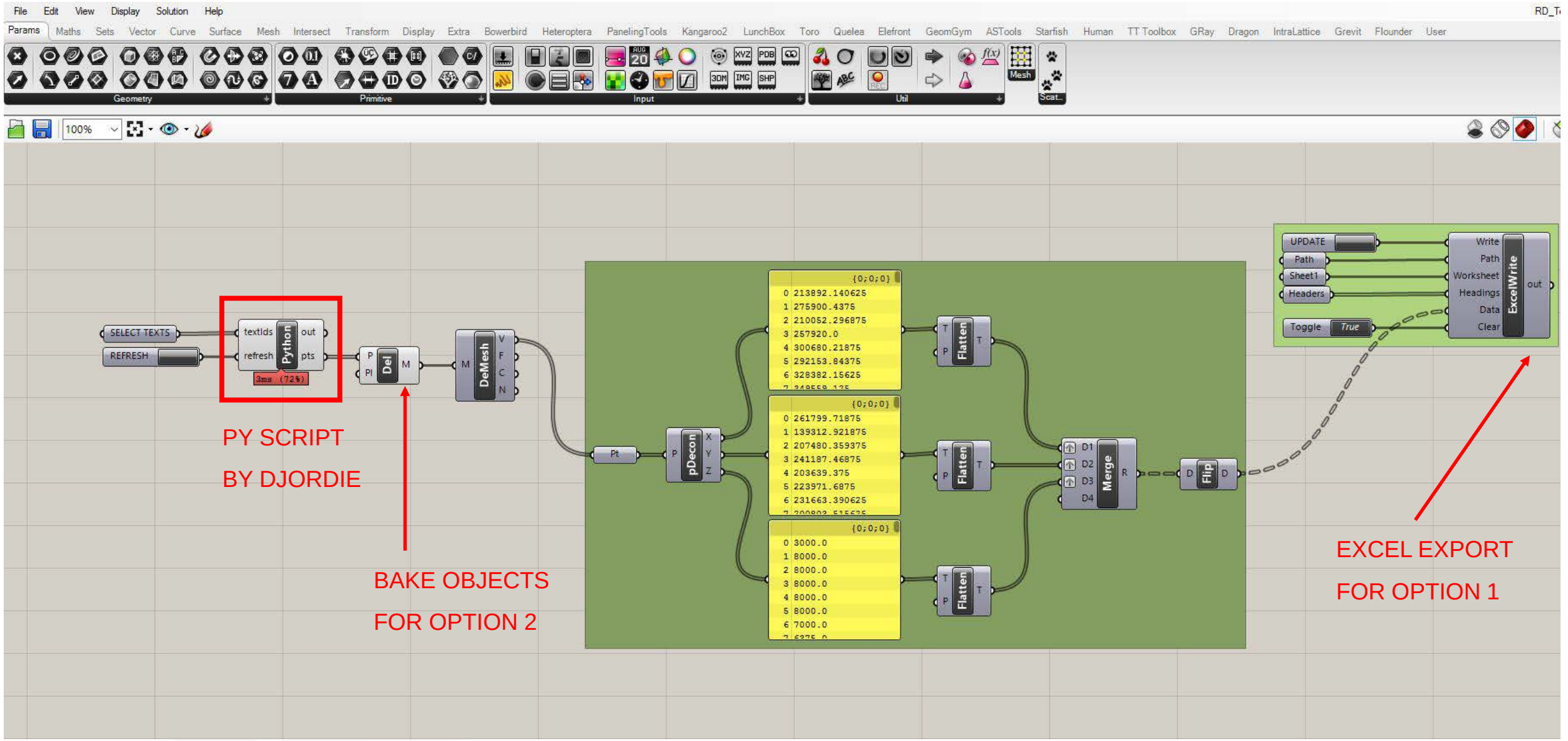
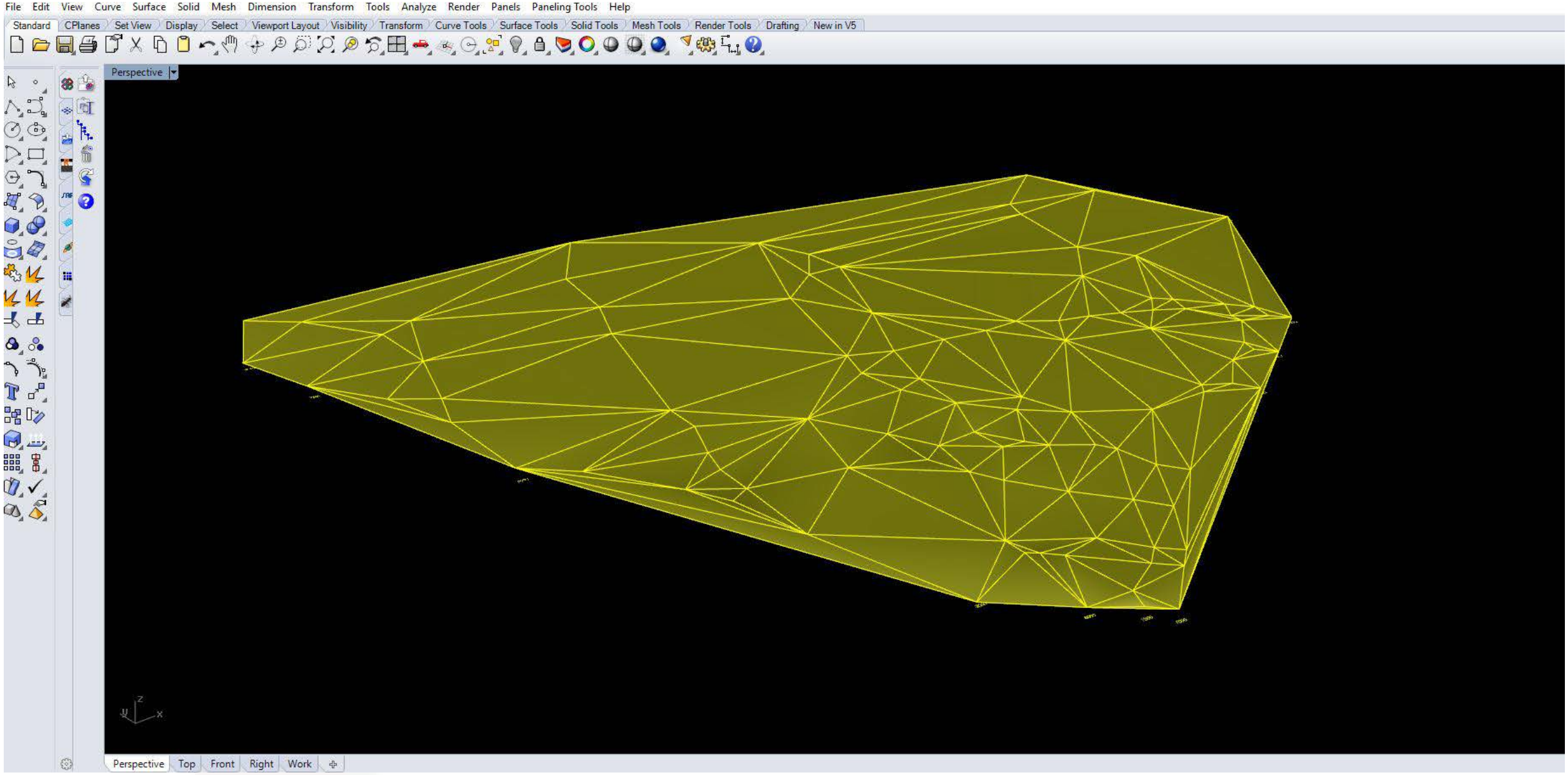
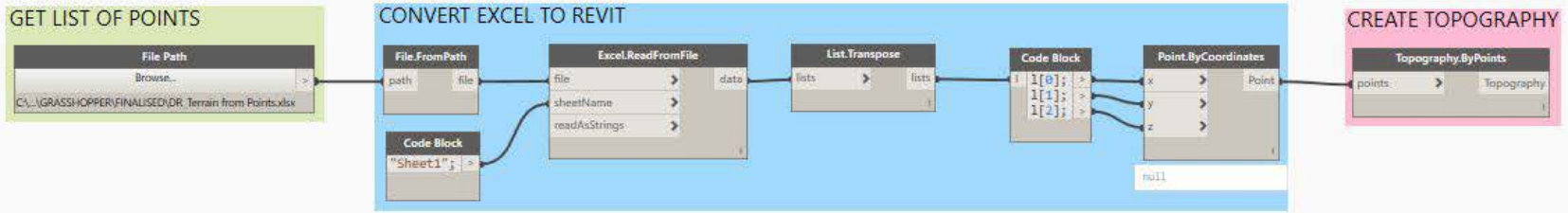
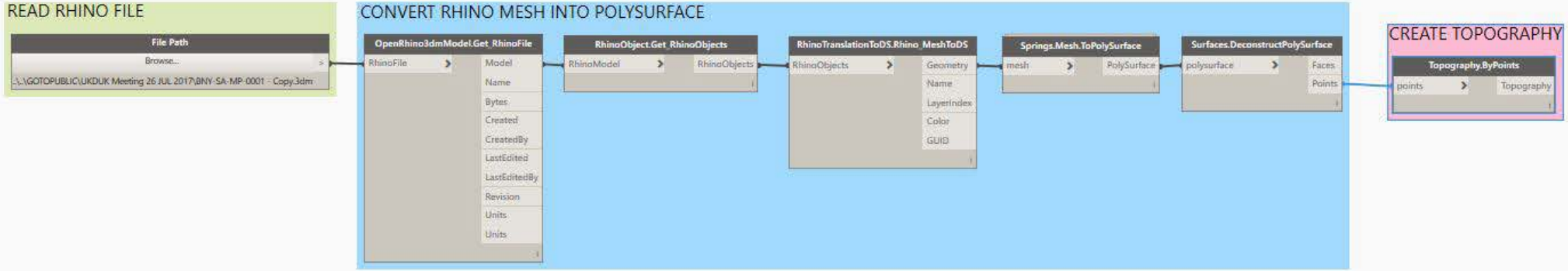

SELECT TEXTS
REFRESH
textIds
refresh
Python
out
pts
3ms (72%)
PY SCRIPT
BY DJORDIE
P
Pl
Del
M
DeMesh
V
F
C
N
BAKE OBJECTS
FOR OPTION 2
Pt
pDecon
X
Y
Z
{0;0;0}
0 213892.140625
1 275900.4375
2 210052.296875
3 257920.0
4 300680.21875
5 292153.84375
6 328382.15625
{0;0;0}
0 261799.71875
1 139312.921875
2 207480.359375
3 241187.46875
4 203639.375
5 223971.6875
6 231663.390625
{0;0;0}
0 3000.0
1 8000.0
2 8000.0
3 8000.0
4 8000.0
5 8000.0
6 7000.0
Flatten
D1
D2
D3
D4
Merge
R
Flip
UPDATE
Path
Sheet1
Headings
Toggle
True
Write
Path
Worksheet
Headings
Data
Clear
ExcelWrite
out
EXCEL EXPORT
FOR OPTION 1


File Edit View Curve Surface Solid Mesh Dimension Transform Tools Analyze Render Panels Paneling Tools Help
Standard CPlanes Set View Display Select Viewport Layout Visibility Transform Curve Tools Surface Tools Solid Tools Mesh Tools Render Tools Drafting New in V5
Perspective
Perspective Top Front Right Work

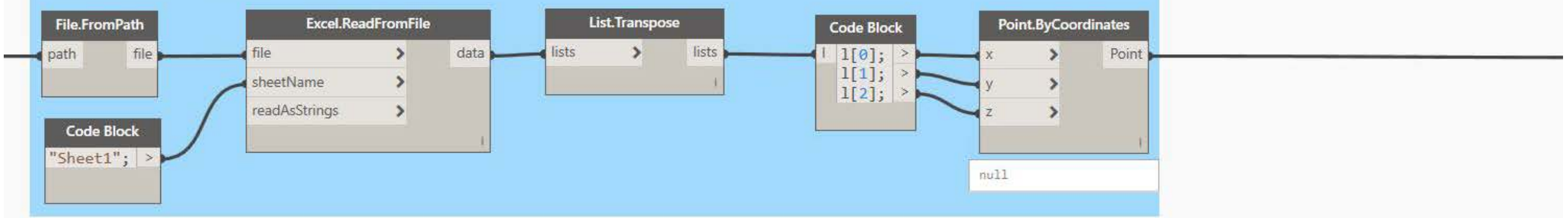
OPTION 1



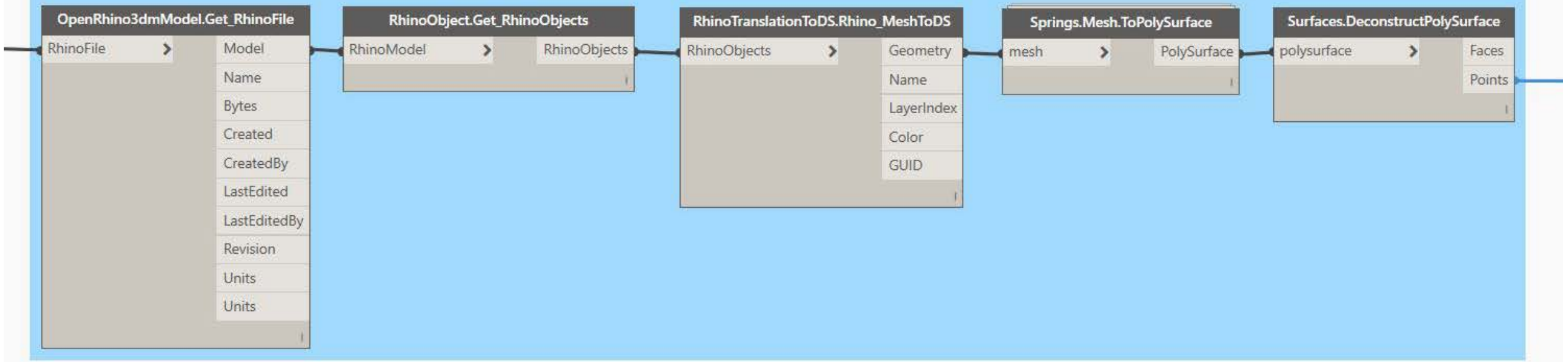
OPTION 2

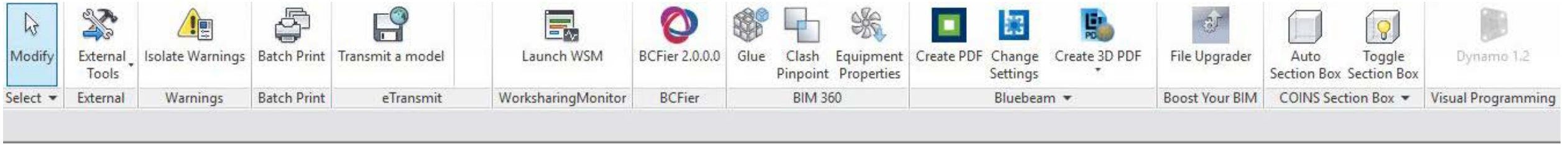


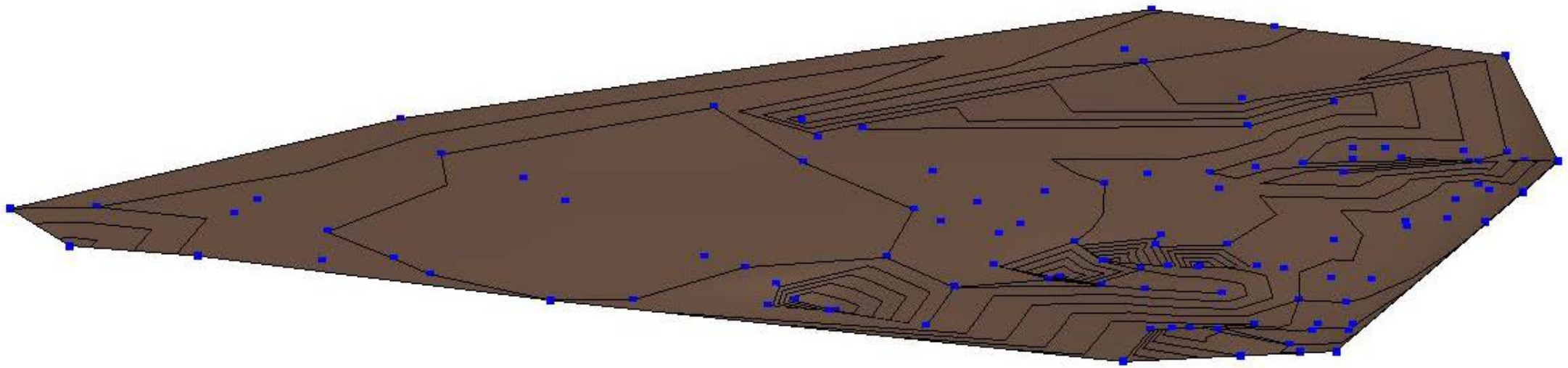
CONVERT EXCEL TO REVIT



CONVERT RHINO MESH INTO POLYSURFACE




Modify
External Tools
Isolate Warnings
Batch Print
Transmit a model
Launch WSM
BCFier 2.0.0.0
Glue
Clash Pinpoint
Equipment Properties
Create PDF
Change Settings
Create 3D PDF
File Upgrader
Auto Section Box
Toggle Section Box
Dynamo 1.2
Select
External
Warnings
Batch Print
eTransmit
WorksharingMonitor
BCFier
BIM 360
Bluebeam
Boost Your BIM
COINS Section Box
Visual Programming



HOW MUCH TIME WE SAVED?

SCRIPT #3 – SITE MODELLING FROM TEXT ON CAD FILE

- EST. **2** MAN-HOURS COMBINED TASK TIME
- 10 MINS TO BUILD THE SCRIPTS
- 5 MINS TO COMPLETE

EST. TIME SAVED –MIN. 1:45 MAN-HOURS

87% OF ORIGINALLY ESTIMATED TIME

04_CONCLUSIONS

WHAT WORKS FOR ME:

- ASSESS IN ADVANCE HOW MUCH TIME WE CAN SAVE USING DYNAMO TO JUSTIFY THE TIME INVESTMENT
- COMBINE DYNAMO WITH OTHER SOFTWARE/SOLUTIONS
- K.I.S.S. – KEEP IT a SHORT SCRIPT

THE BRIGHT SIDE:

- DYNAMO SCRIPTS ARE 10 TIMES FASTER THAN THE MANUAL INPUT

THE DOWNSIDE:

- DYNAMO SCRIPTS REQUIRE PERIODICAL CHECK WITH NEW VERSIONS OF DYNAMO AND PACKAGES

04_STAY IN TOUCH!

linkedin.com/in/davide-roth-746b51a/

@Davideroth


THANK YOU!