identity

Make collaboration in BIM
like
collaboration in Software Development

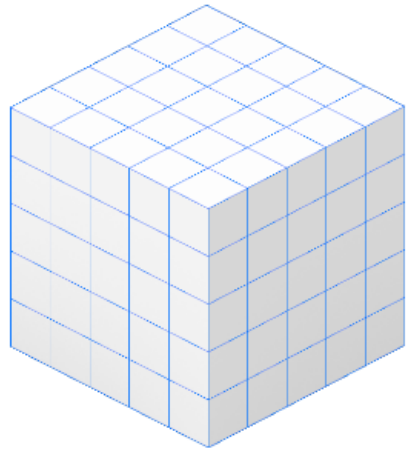
Data Set 1
Data Set 2
Data Set 3

Connection

instead of

Conversion

Technology

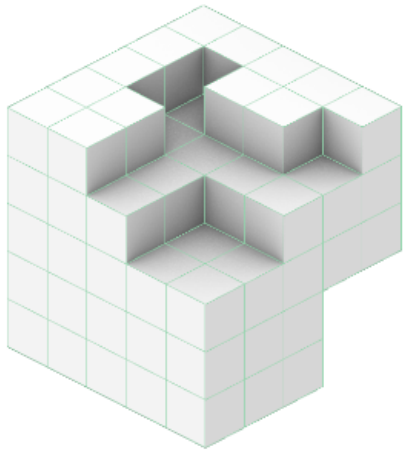


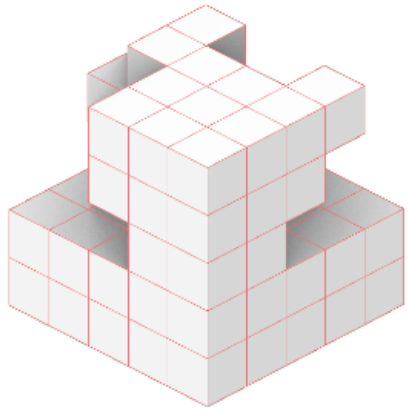
Revit

Native ID: G7..... (GUID)

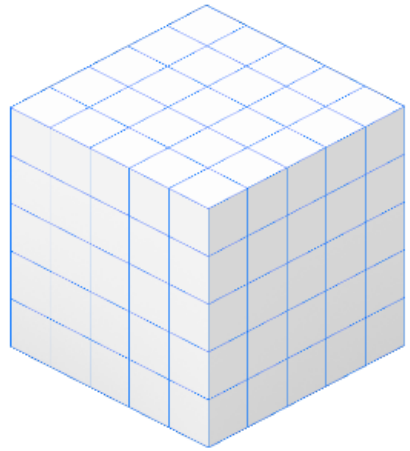
Information:
α: "yellow"
β: "90°"
γ: 47

LoadBearing: True
IsExternal: True
Type: IfcColumn





miro



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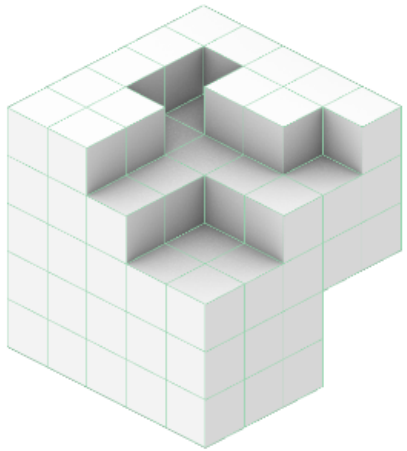
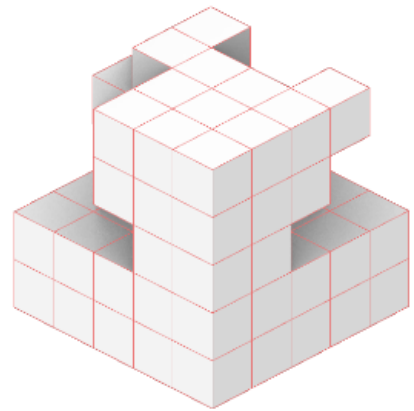




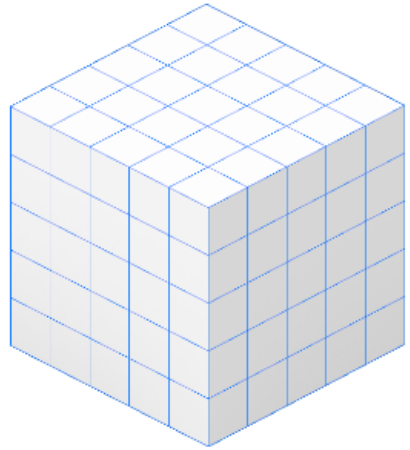
ArchiCAD

Native ID: B3..... (GUID)

information:
A: 42
B: True
C: 67

LoadBearing: True
IsExternal: True
Type: IfcColumn

miro



Revit

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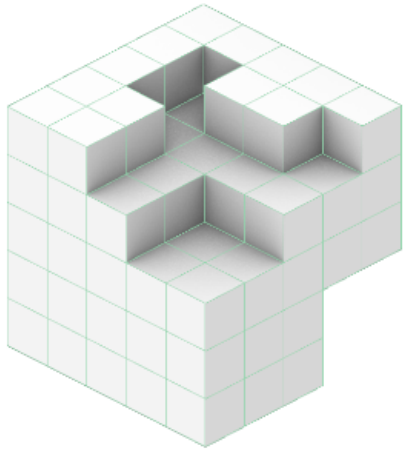

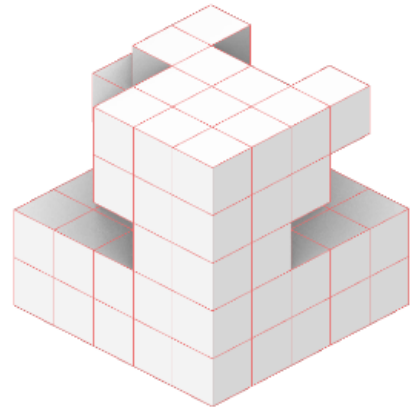

ArchiCAD

Native ID: B3..... (GUID)

information:
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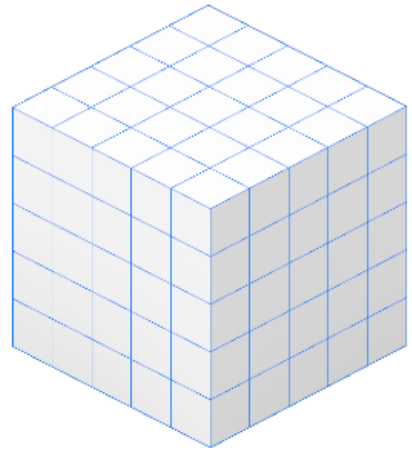
B: True
C: 67

LoadBearing: True
IsExternal: True
Type: IfcColumn

github: Master

Master-ID:	Owner:	AC:	Rvt:	BKS:	GTIN:
#1	AC	G7...	B3...	ISB-01..	100...
#2	Rvt	G8...	B4...	ISB-02..	101...
#3	Rvt	G9...	B5...	ISB-03..	103...

miro



Revit

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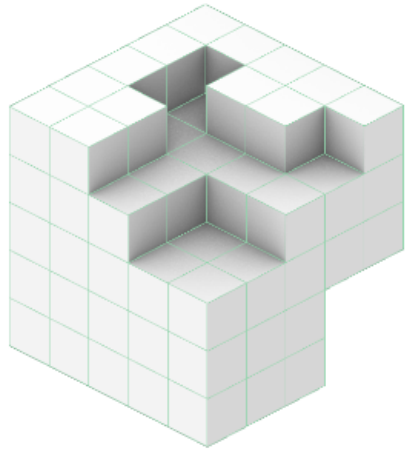

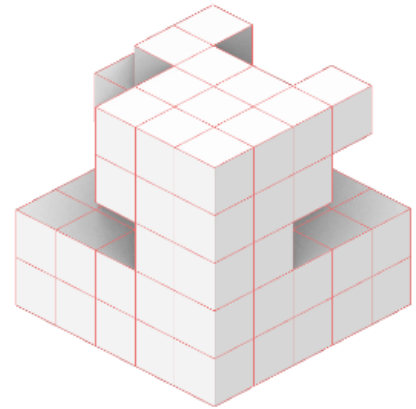

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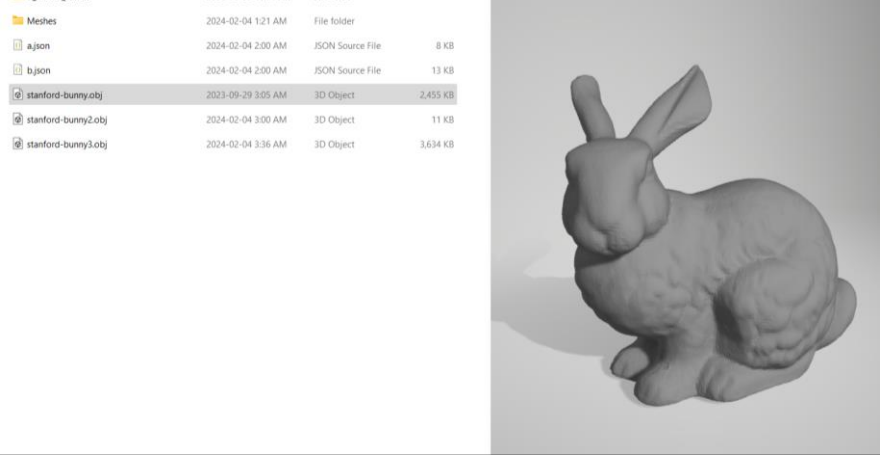
miro

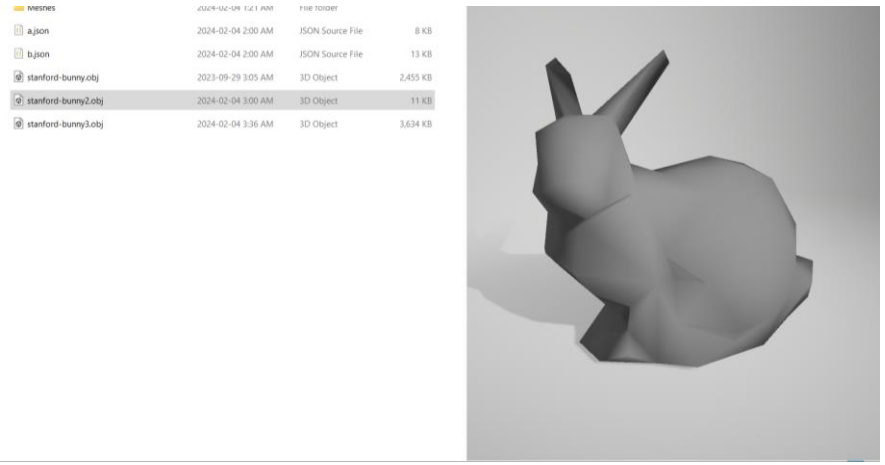
Principles

- Show information **in native software**
- BUT don’t touch the interal **workflow**
- Need to specify where **data originates**
- Need to quickly **detect changes**
- Should work with **free / existing tools**
- Should be able to be **viewed**

Challenges

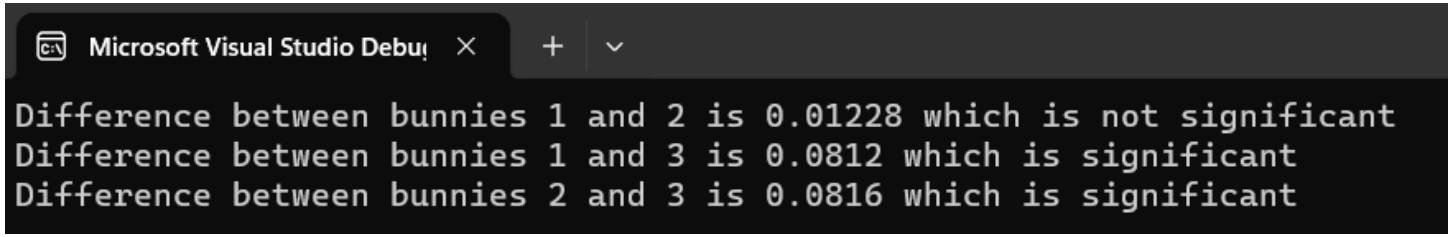
- **Two files** might talk about the same thing, but have **different IDs**
- Relevant data about entities is in different design documents
- Multiple geometry representations exist (and are valid)
  - 2D or 3D
  - Level of detail: Fine, Medium, or Coarse
  - Tessellation algorithm in geometry kernel
- Merging entities when geometric representations are similar
- Need to make data changes easily seen in “diff” tools

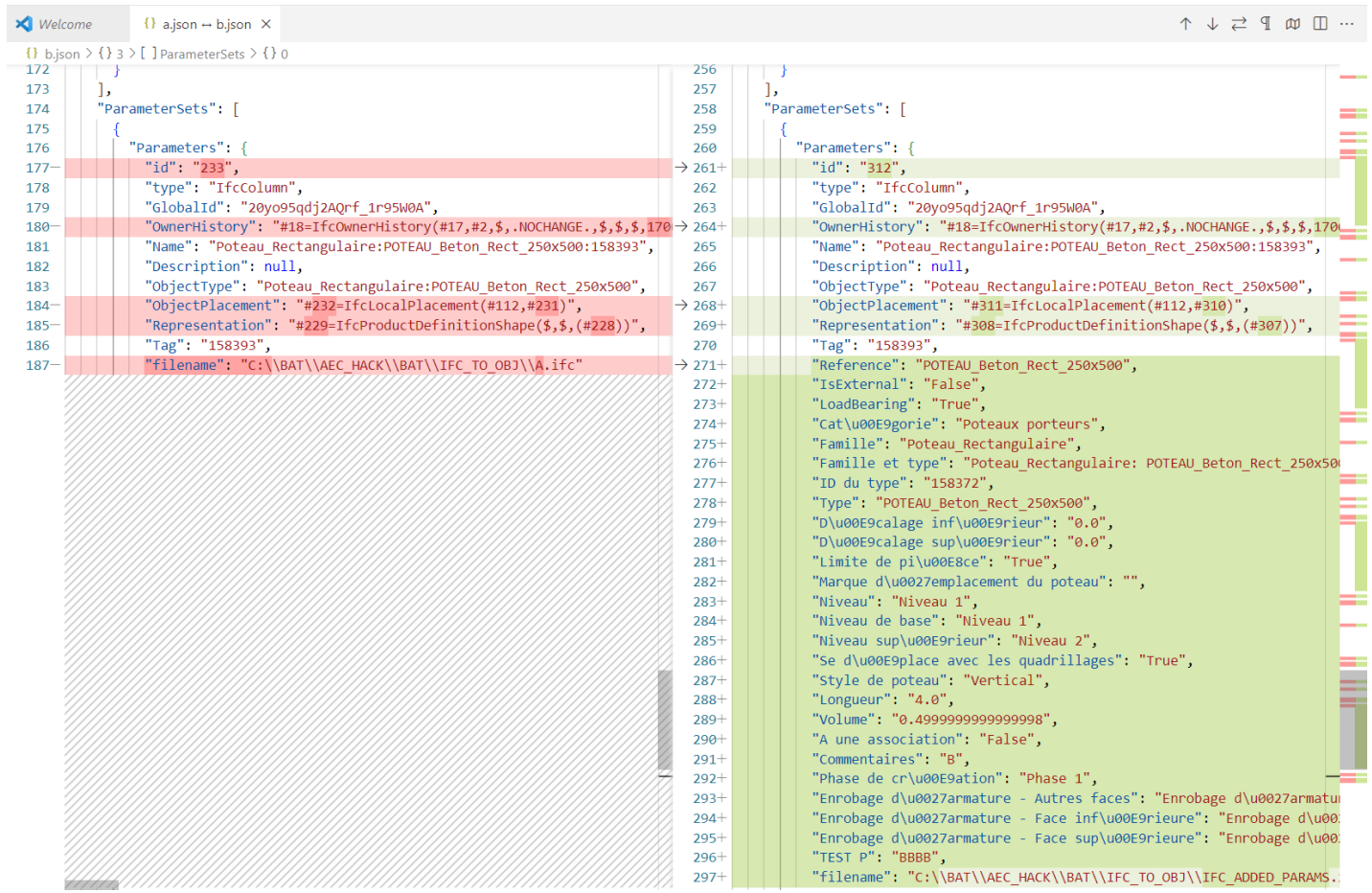




Mesh Similarity Challenge

- How do we determine if two meshes are similar?
- For each point in mesh A, find distance to B (vice versa)
- Take the maximum
- Compare to a tolerance
- Used g3Sharp by Ryan Schmidt




Welcome
a.json ↔ b.json
b.json > {} 3 > [ ] ParameterSets > {} 0
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"Representation": "#229=IfcProductDefinitionShape($,$,(#228))",
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"Enrobage d\u0027armature - Face sup\u00E9rieure": "Enrobage d\u00
"TEST P": "BBBB",
"filename": "C:\\BAT\\AEC_HACK\\BAT\\IFC_TO_OBJ\\IFC_ADDED_PARAMS.

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks. Learn more about diff comparisons here.

base: main ← compare: engineer-branch ✓ Able to merge. These branches can be automatically merged.

Add a title

Engineer making structural changes

Add a description

Write | Preview

Hi I needed to delete a wall, because I hate structural integrity!

Markdown is supported | Paste, drop, or click to add files

Create pull request

Reviewers

No reviews

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

Use Closing keywords in the description to automatically close issues

Helpful resources

Engineer making structural changes

engineer-branch (#1)

cdiggins committed 3 minutes ago

commit 853494a687664782a297cc2acf7f1a36e4e57fc0

81 MyBimProject.json

```
@@ -6,12 +6,12 @@
6         "FileName":
"C:\\Users\\cdigg\\dev\\Identity\\B_added_values\\entities_B\\0AILikM3j4yxEubPKdsqOS.obj",
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8           "Min": {
9 -           "X": -10.199999999999982,
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```
@@ -6,12 +6,12 @@
6         "FileName":
"C:\\Users\\cdigg\\dev\\Identity\\B_added_values\\entities_B\\0AILikM3j4yxEubPKdsqOS.obj",
7         "LocalBoundingBox": {
8           "Min": {
9 +           "X": 0.199999999999982,
```

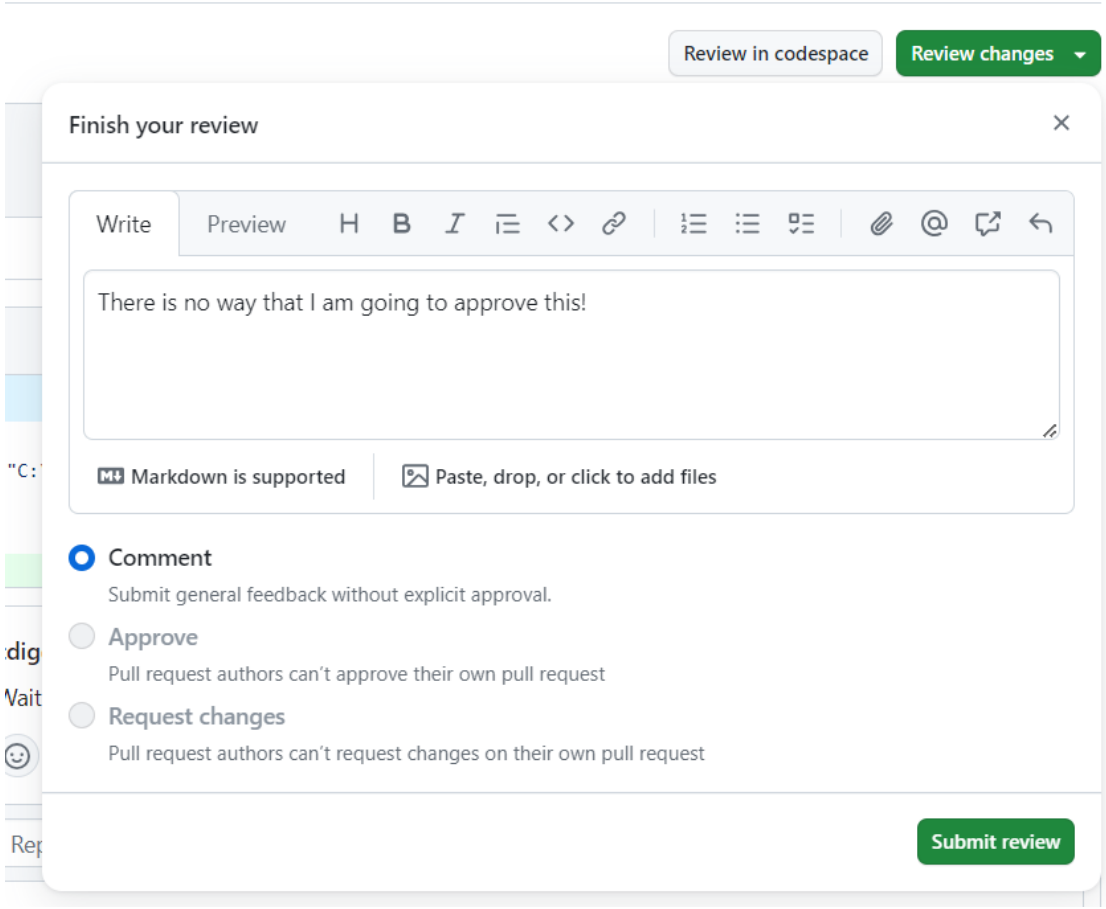
cdiggins now — Owner — Author

Wait why are you doing this?!

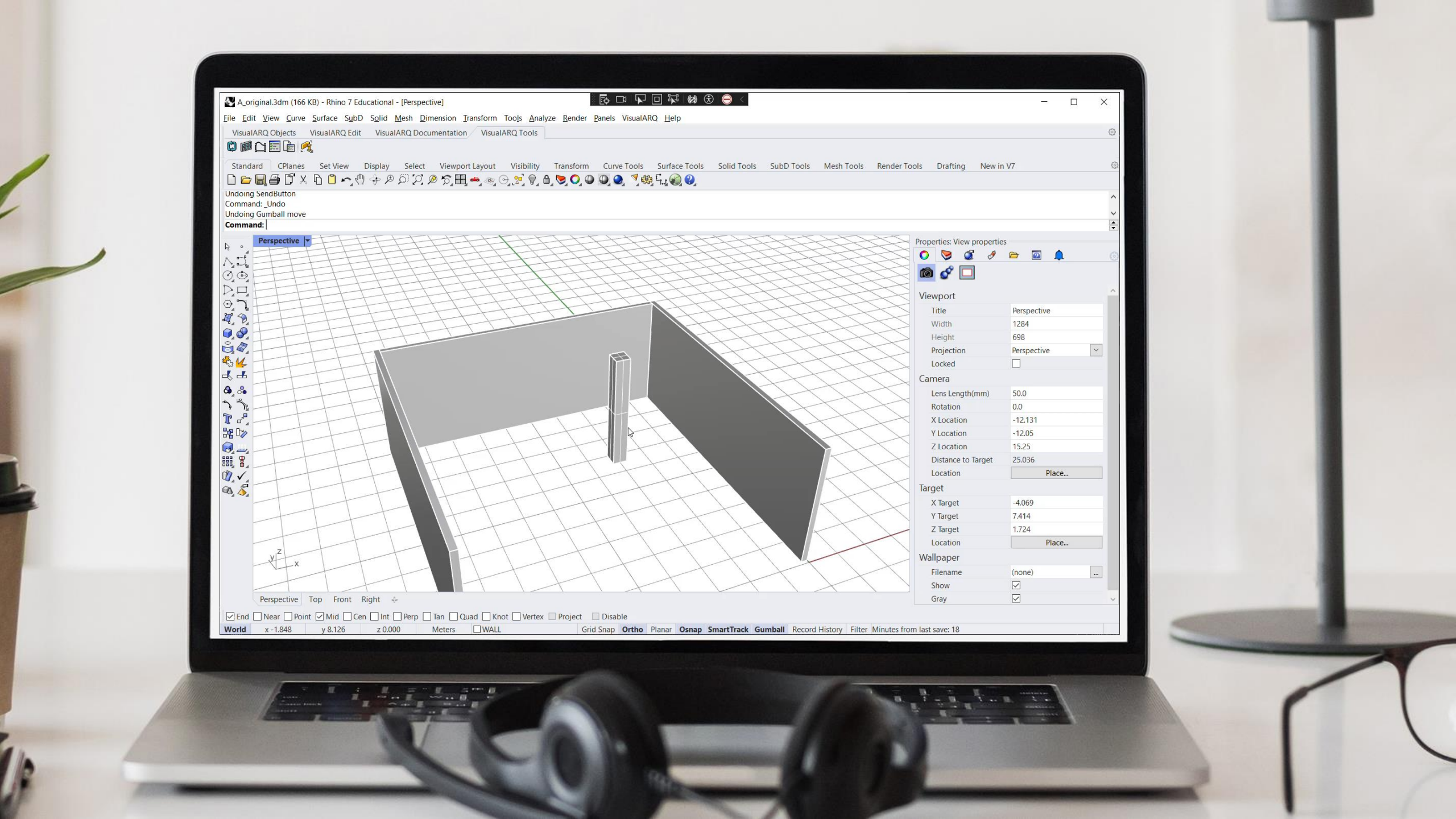
1

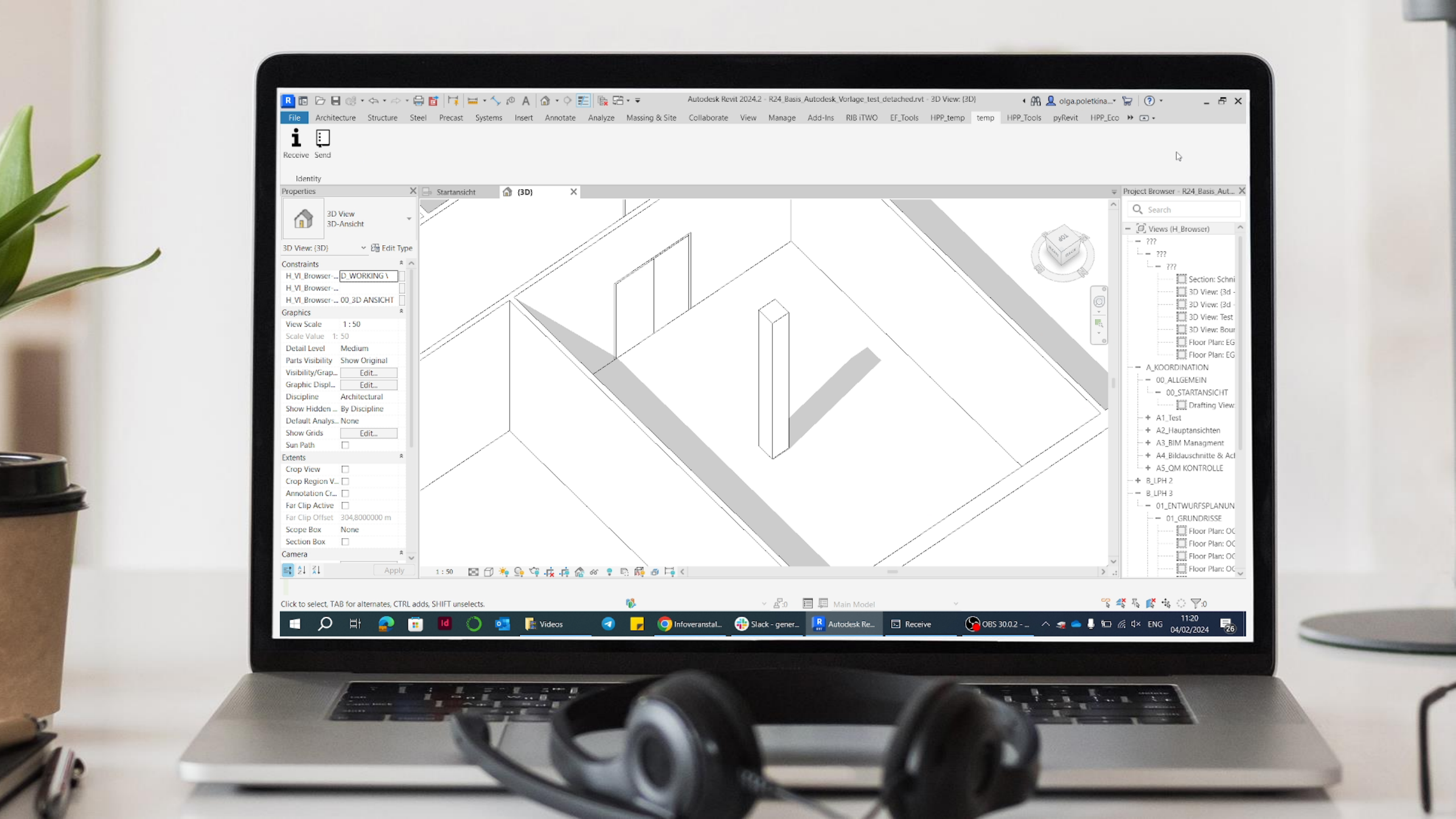
Reply...

Approve / Reject Online using Github!



Make collaboration
native and easy


A_original.3dm (166 KB) - Rhino 7 Educational - [Perspective]
File Edit View Curve Surface SubD Solid Mesh Dimension Transform Tools Analyze Render Panels VisualARQ Help
VisualARQ Objects VisualARQ Edit VisualARQ Documentation VisualARQ Tools
Standard CPlanes Set View Display Select Viewport Layout Visibility Transform Curve Tools Surface Tools Solid Tools SubD Tools Mesh Tools Render Tools Drafting New in V7
Undoing SendButton
Command: _Undo
Undoing Gumball move
Command:
Perspective
Properties: View properties
Viewport
Title Perspective
Width 1284
Height 698
Projection Perspective
Locked
Camera
Lens Length(mm) 50.0
Rotation 0.0
X Location -12.131
Y Location -12.05
Z Location 15.25
Distance to Target 25.036
Location Place...
Target
X Target -4.069
Y Target 7.414
Z Target 1.724
Location Place...
Wallpaper
Filename (none)
Show
Gray
Perspective Top Front Right
End Near Point Mid Cen Int Perp Tan Quad Knot Vertex Project Disable
World x -1.848 y 8.126 z 0.000 Meters WALL Grid Snap Ortho Planar Osnap SmartTrack Gumball Record History Filter Minutes from last save: 18


Autodesk Revit 2024.2 - R24_Basis_Autodesk_Vorlage_test_detached.rvt - 3D View: {3D}
File
Architecture
Structure
Steel
Precast
Systems
Insert
Annotate
Analyze
Massing & Site
Collaborate
View
Manage
Add-Ins
RIB iTWO
EF_Tools
HPP_temp
temp
HPP_Tools
pyRevit
HPP_Eco
Receive
Send
Identity
Properties
3D View
3D-Ansicht
Edit Type
Constraints
Graphics
View Scale 1 : 50
Detail Level Medium
Parts Visibility Show Original
Discipline Architectural
Extents
Camera
Apply
Startansicht
(3D)
Project Browser - R24_Basis_Aut...
Search
Views (H_Browser)
A_KOORDINATION
00_ALLGEMEIN
00_STARTANSICHT
A1_Test
A2_Hauptansichten
A3_BIM Managment
A5_QM KONTROLLE
B_LPH 2
B_LPH 3
01_ENTWURFSPLANUN
01_GRUNDRISSE
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.
Main Model
Videos
Slack - gener...
Autodesk Re...
Receive
ENG
11:20
04/02/2024

Thank´s for listening

We are Ahmed, Christopher, Elia, Helena, Mohamad, Olga and Otmane