

Budućnost A(I)rhitektonskog projektiranja

Vedran Orešić dipl.ing.arh.

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vedran.oresic@tdsynnex.com | [linkedin/vedranoresic](https://www.linkedin.com/in/vedranoresic) | #bim4me

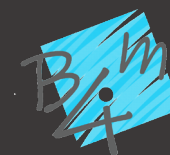
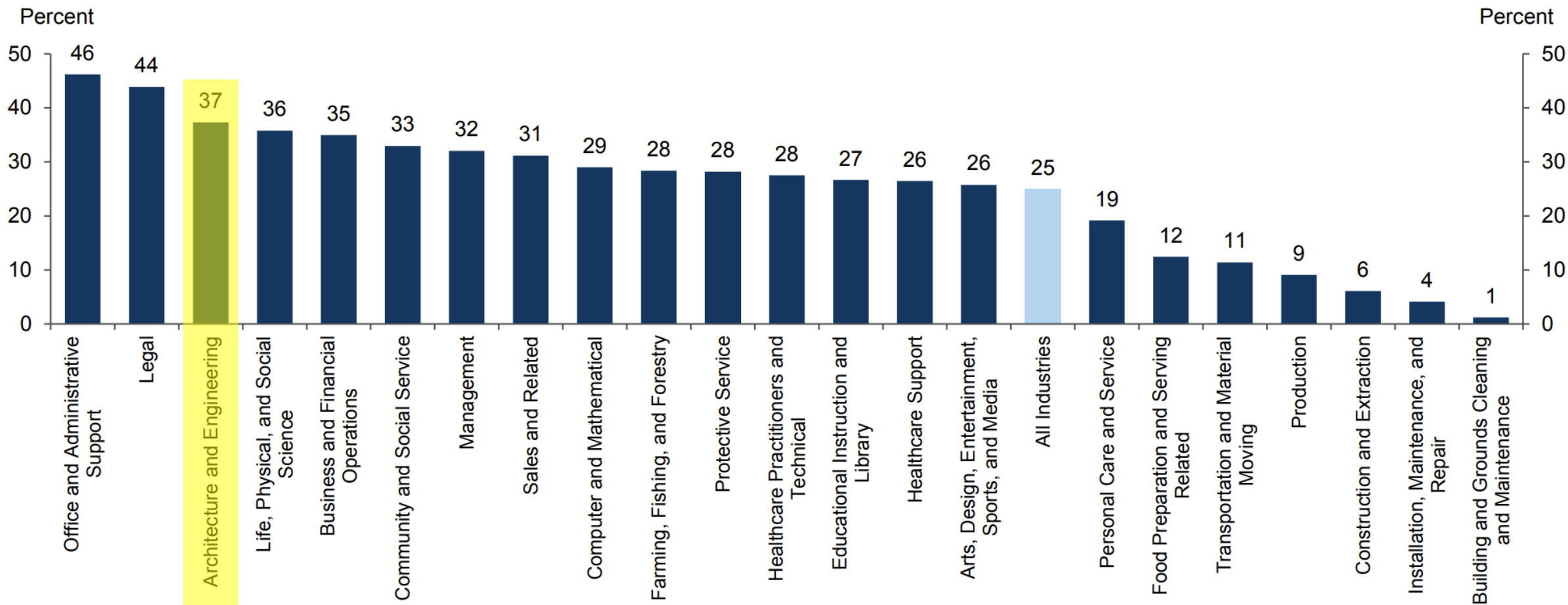
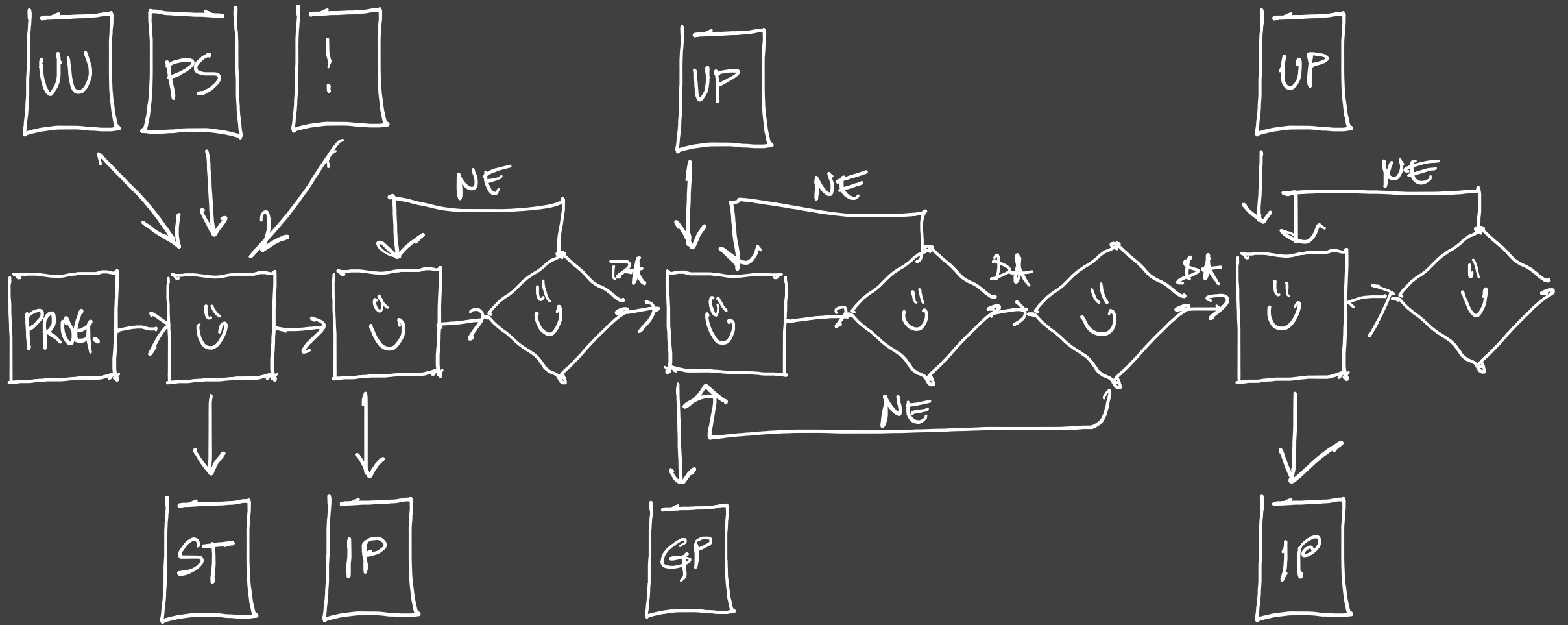


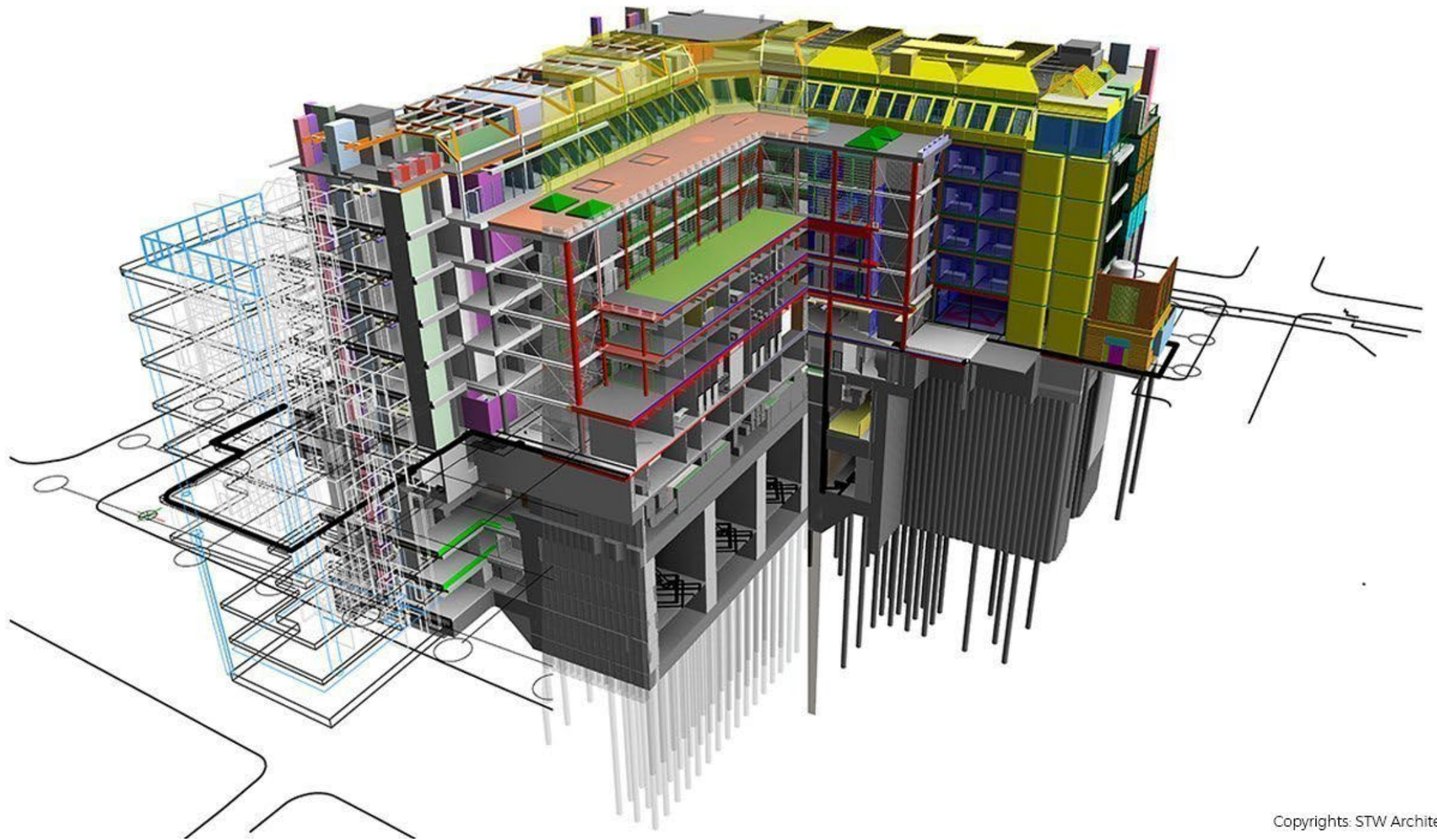
Exhibit 5: One-Fourth of Current Work Tasks Could Be Automated by AI in the US and Europe

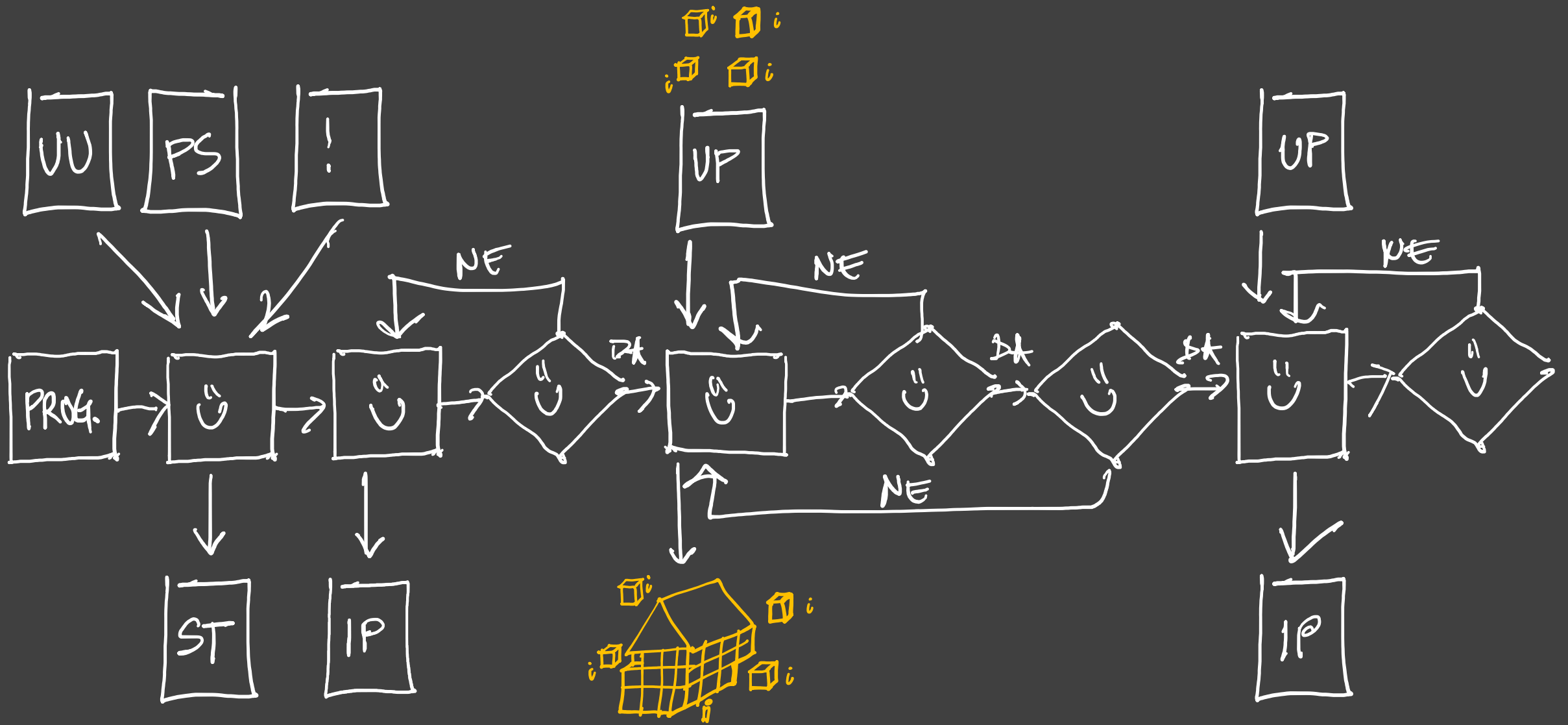
Share of Industry Employment Exposed to Automation by AI: US



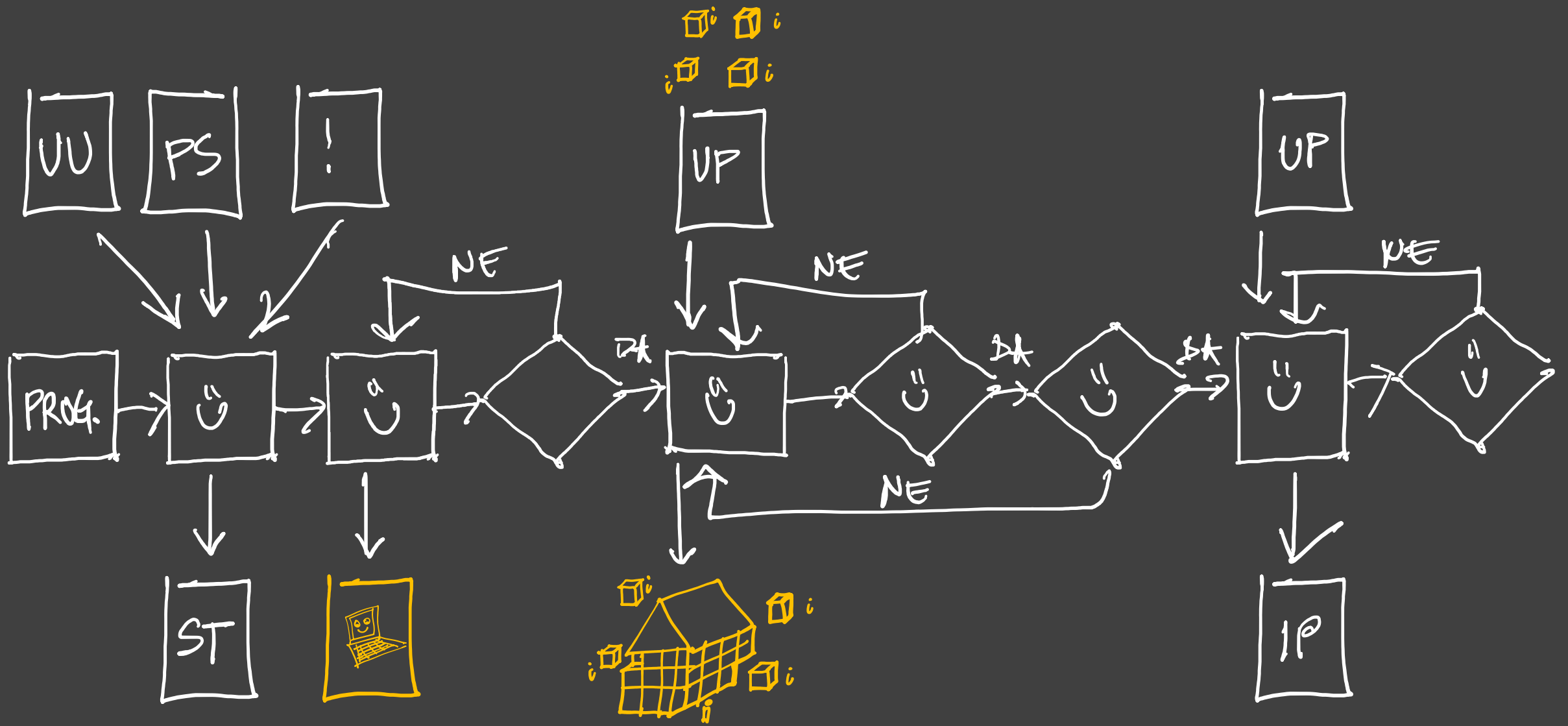
Zašto smo zamjenjivi?

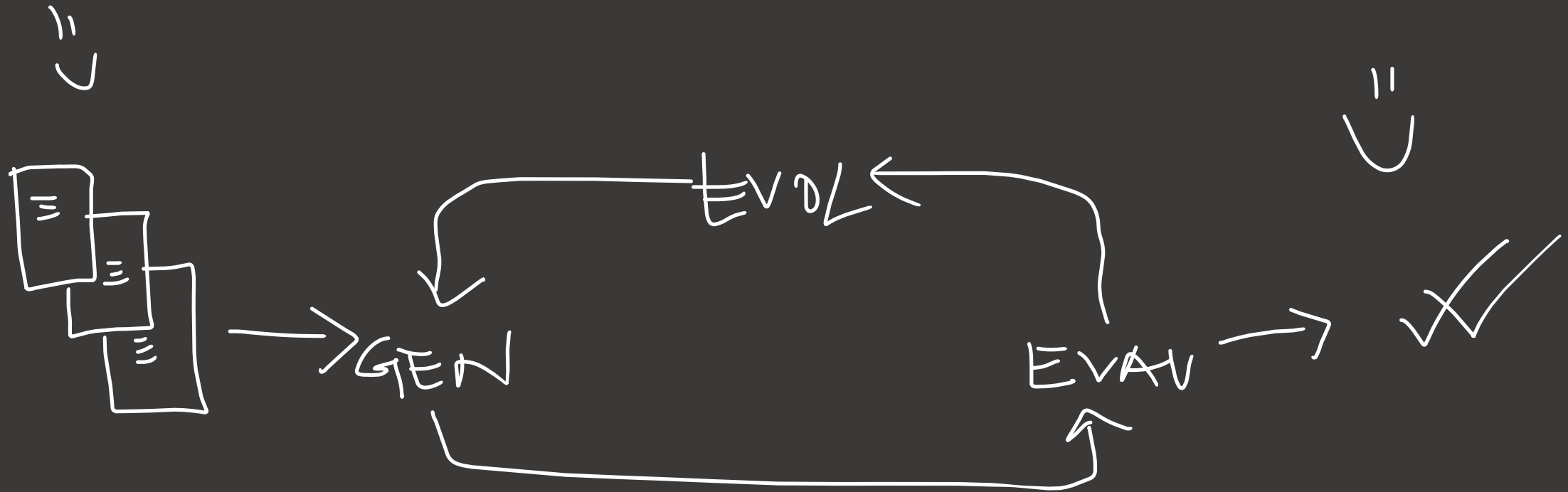




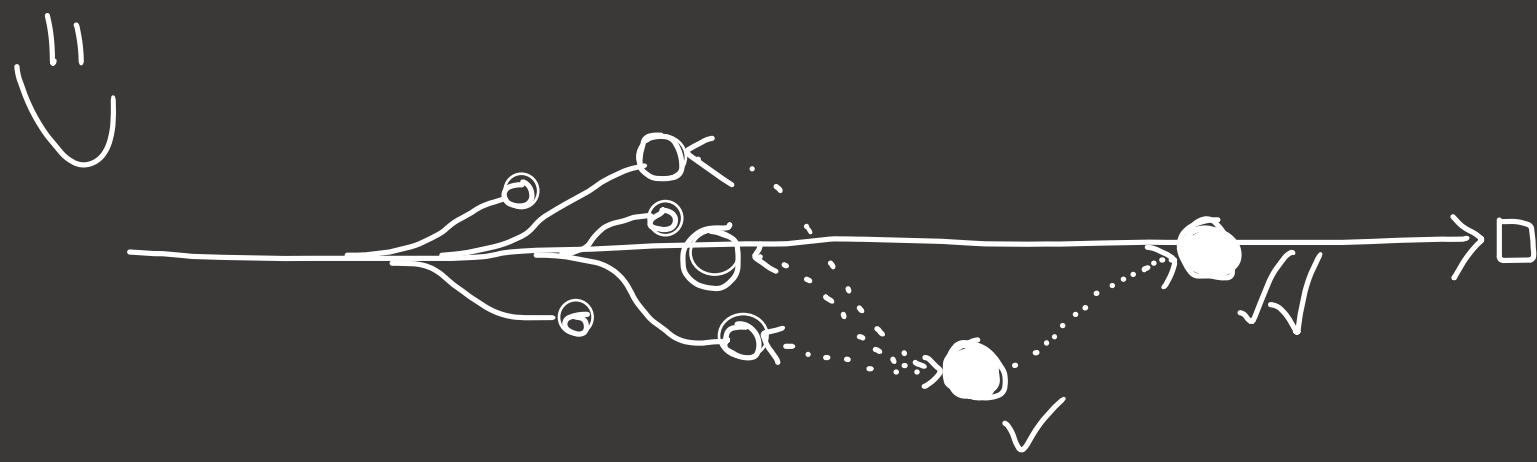


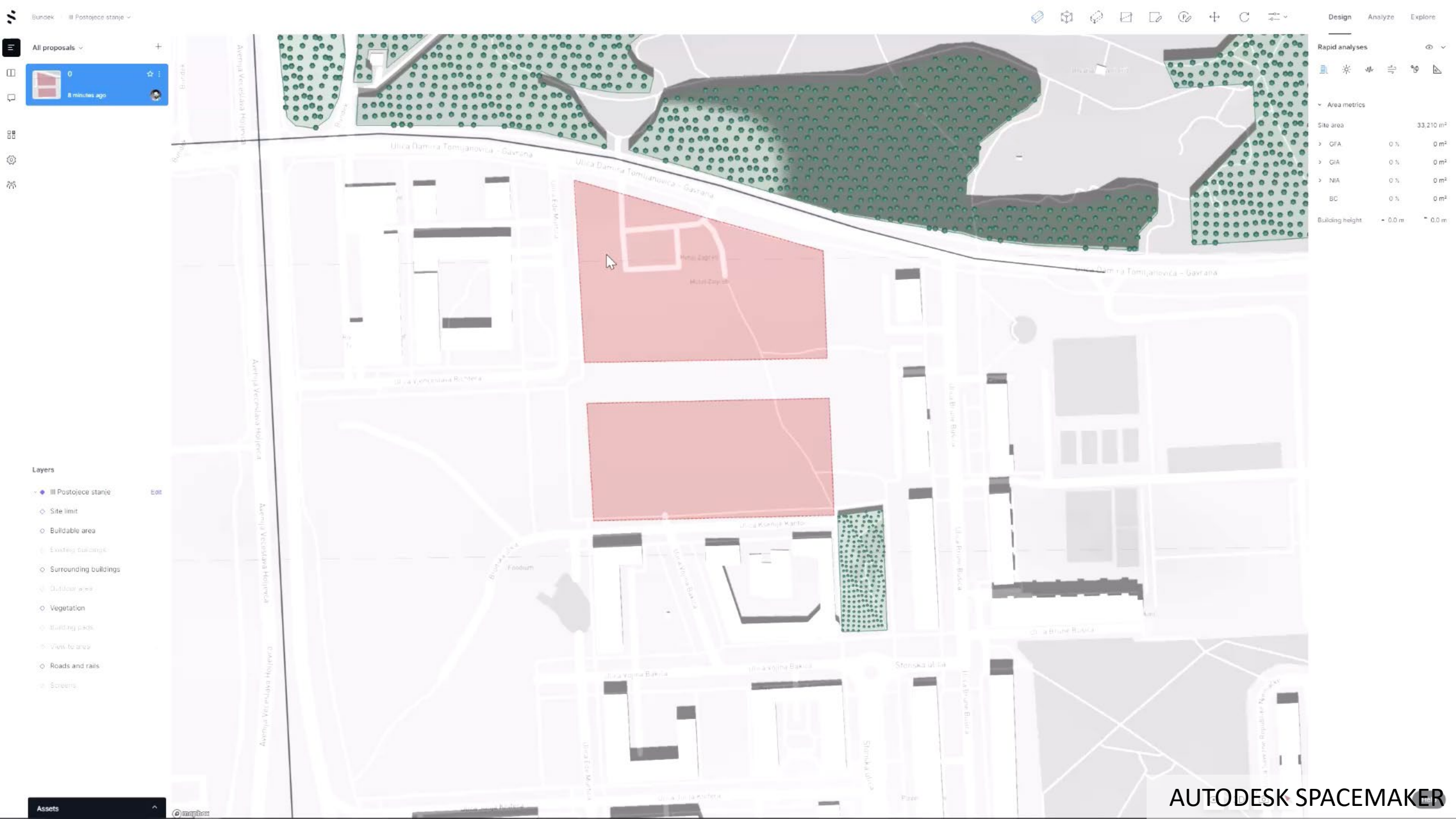






GA ALGORITMA





All proposals +

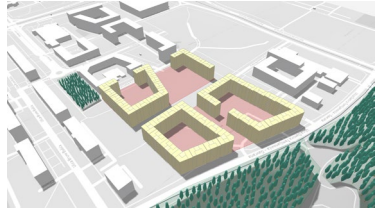
0 8 minutes ago

- Layers
- III Postojeće stanje Edit
 - Site limit
 - Buildable area
 - Existing buildings
 - Surrounding buildings
 - Outdoor area
 - Vegetation
 - Building pads
 - View frames
 - Roads and rails
 - Screens

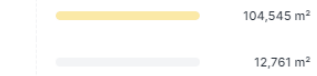
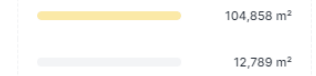
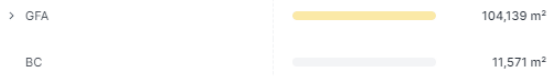
Rapid analyses

Area metrics

| | |
|-----------------|-----------------------|
| Site area | 33,210 m ² |
| > GFA | 0% 0 m ² |
| > GIA | 0% 0 m ² |
| > NIA | 0% 0 m ² |
| BC | 0% 0 m ² |
| Building height | - 0.0 m 0.0 m |



Area



Buildings

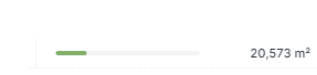


Outdoor area

Ground Roof All June 21 00:00 - 24:00

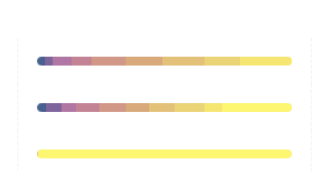
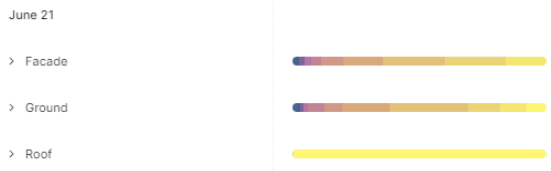


10 Filters



Sun

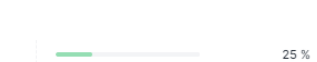
00:00 - 24:00

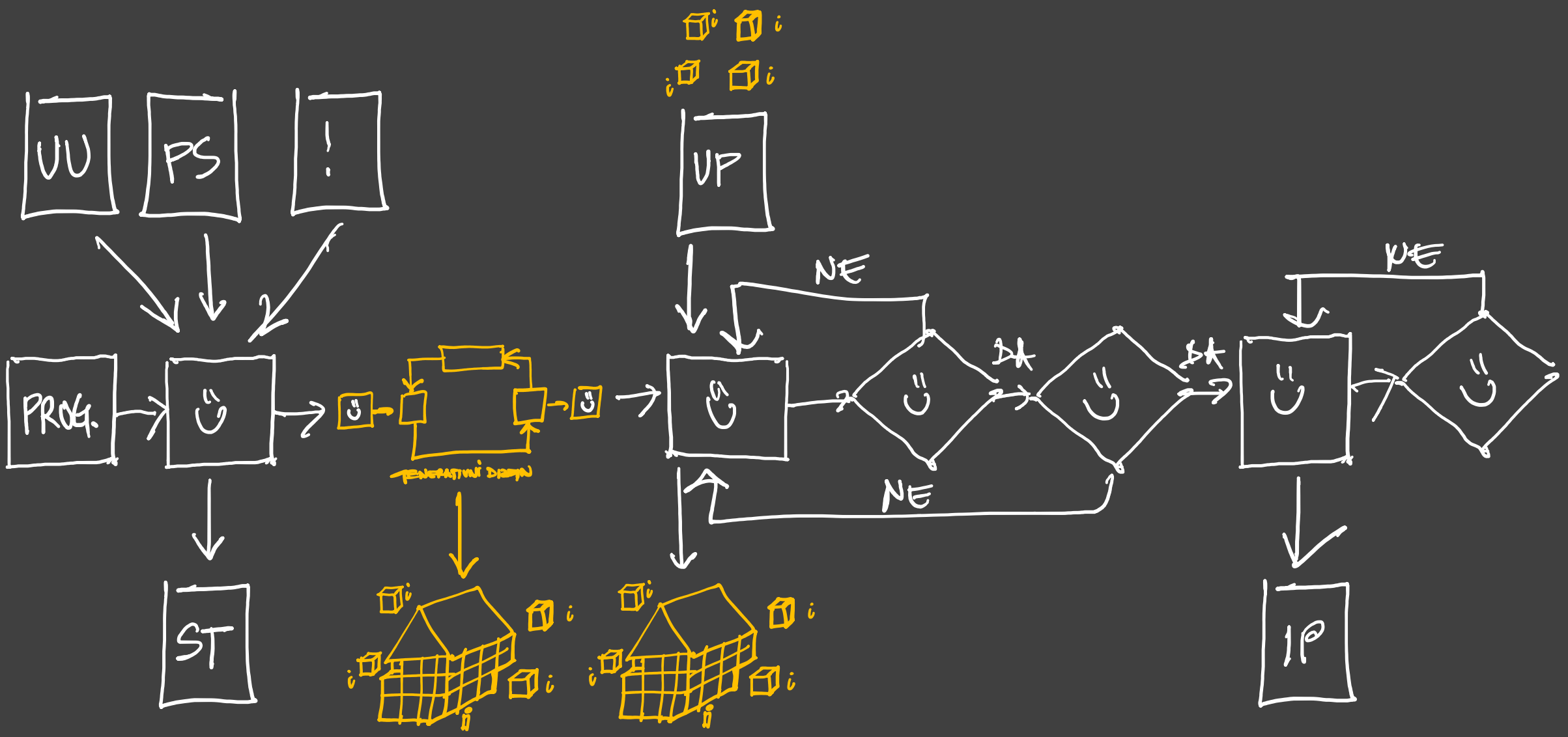


View - Distance



View to area







All proposals

- V4 4 seconds ago
- V5 2 hours ago
- V3 2 hours ago
- V2 2 hours ago
- V1 2 hours ago
- V0 3 hours ago
- V2 3 hours ago

Layers

- Buildings
- Division lines
- III Postoljevo stanje
- Site limit
- Buildable area
- Existing buildings
- Surrounding buildings
- Outdoor area
- Vegetation
- Building pads
- View to area
- Roads and rails
- Screens

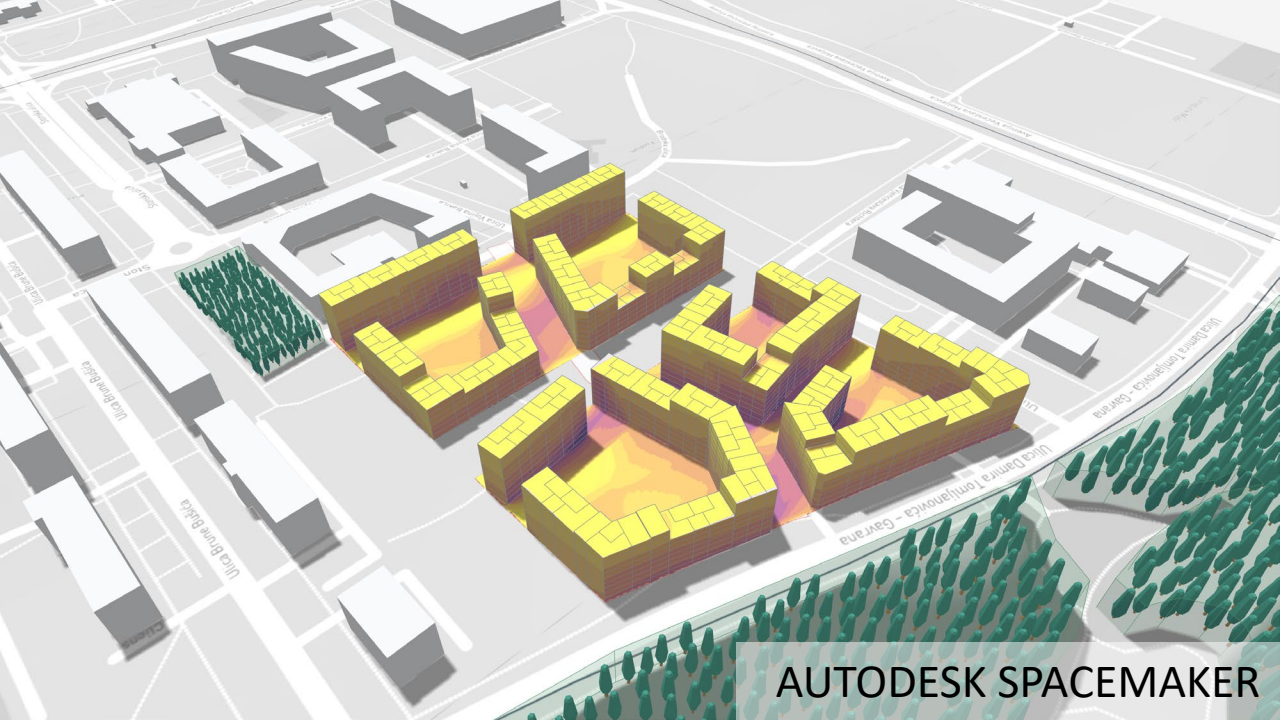
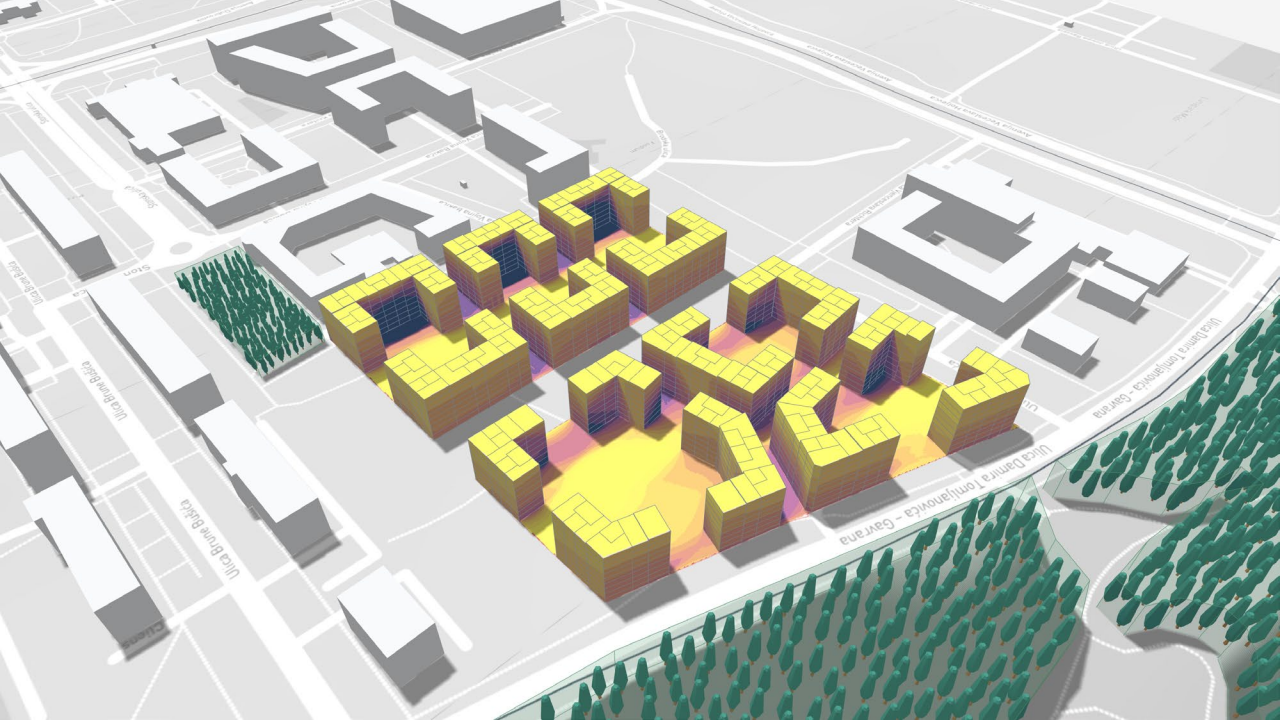
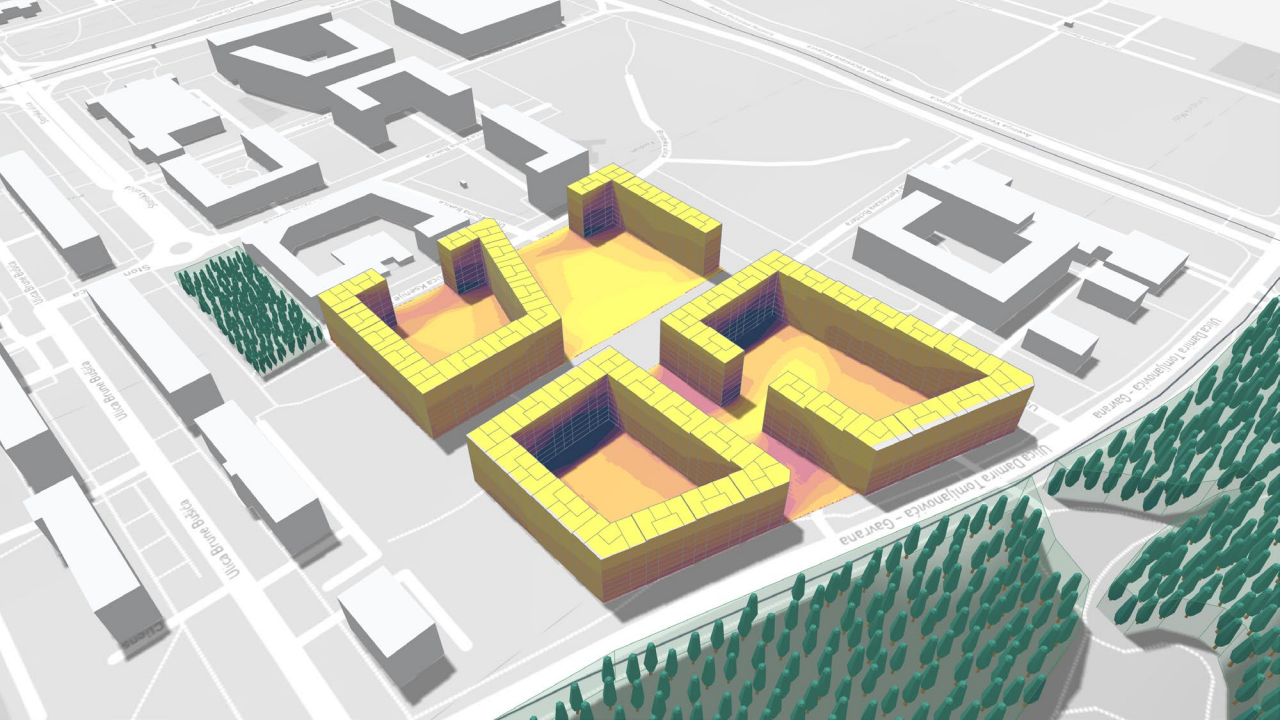
Rapid analyses

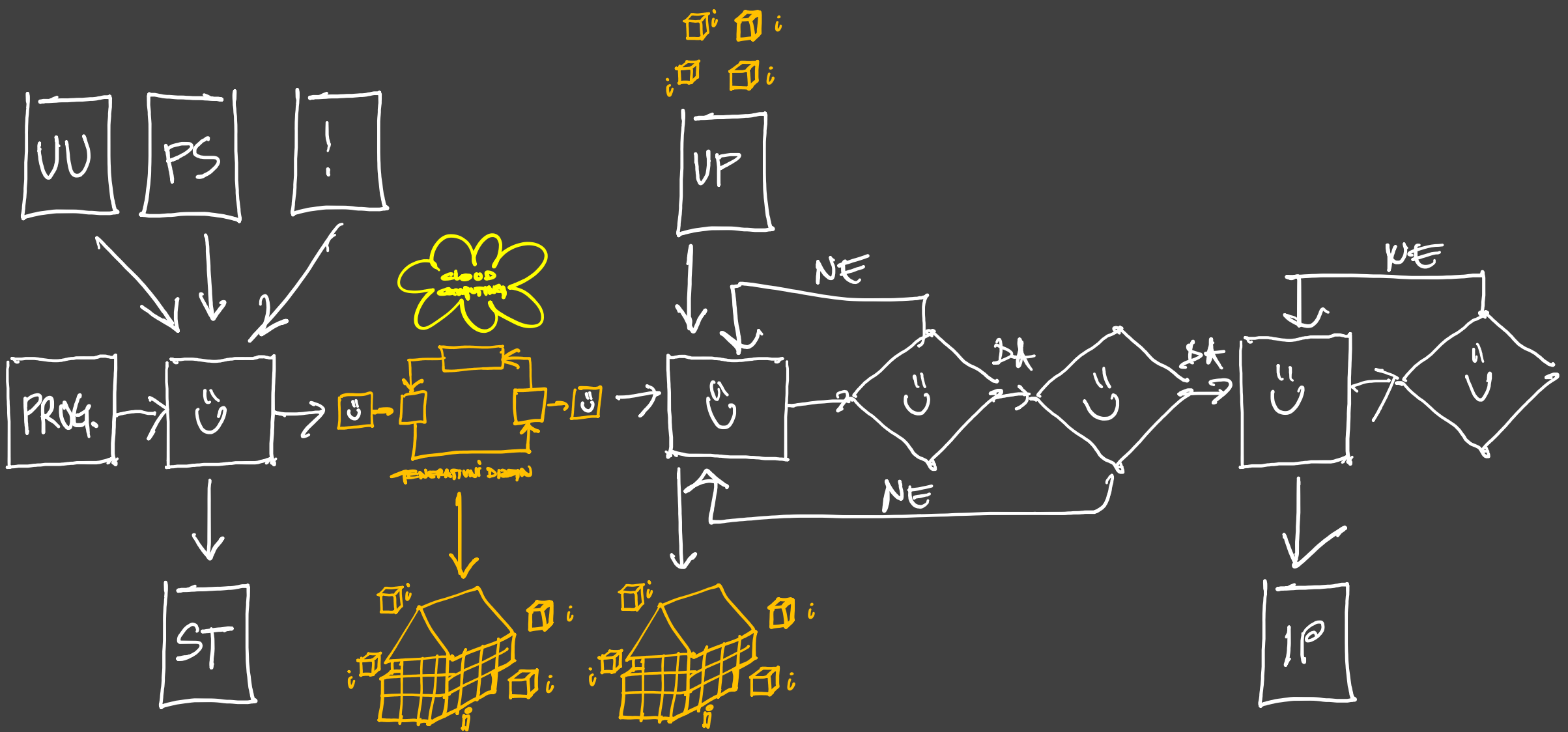
Sun June 21 01:00-22:00

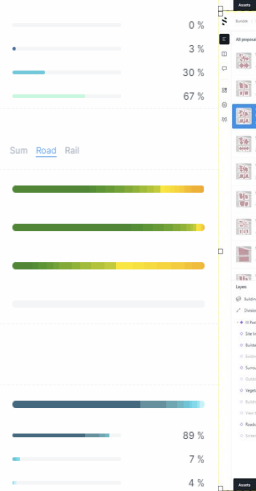
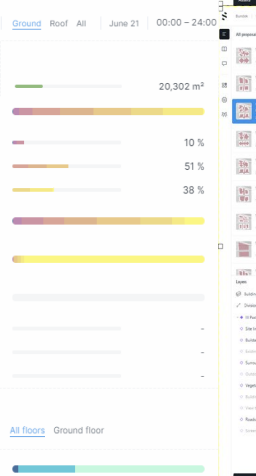
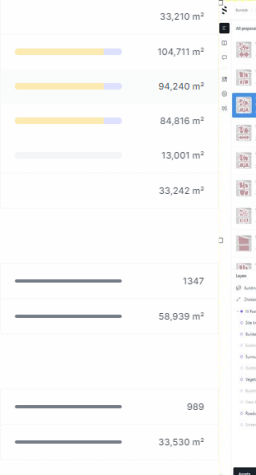
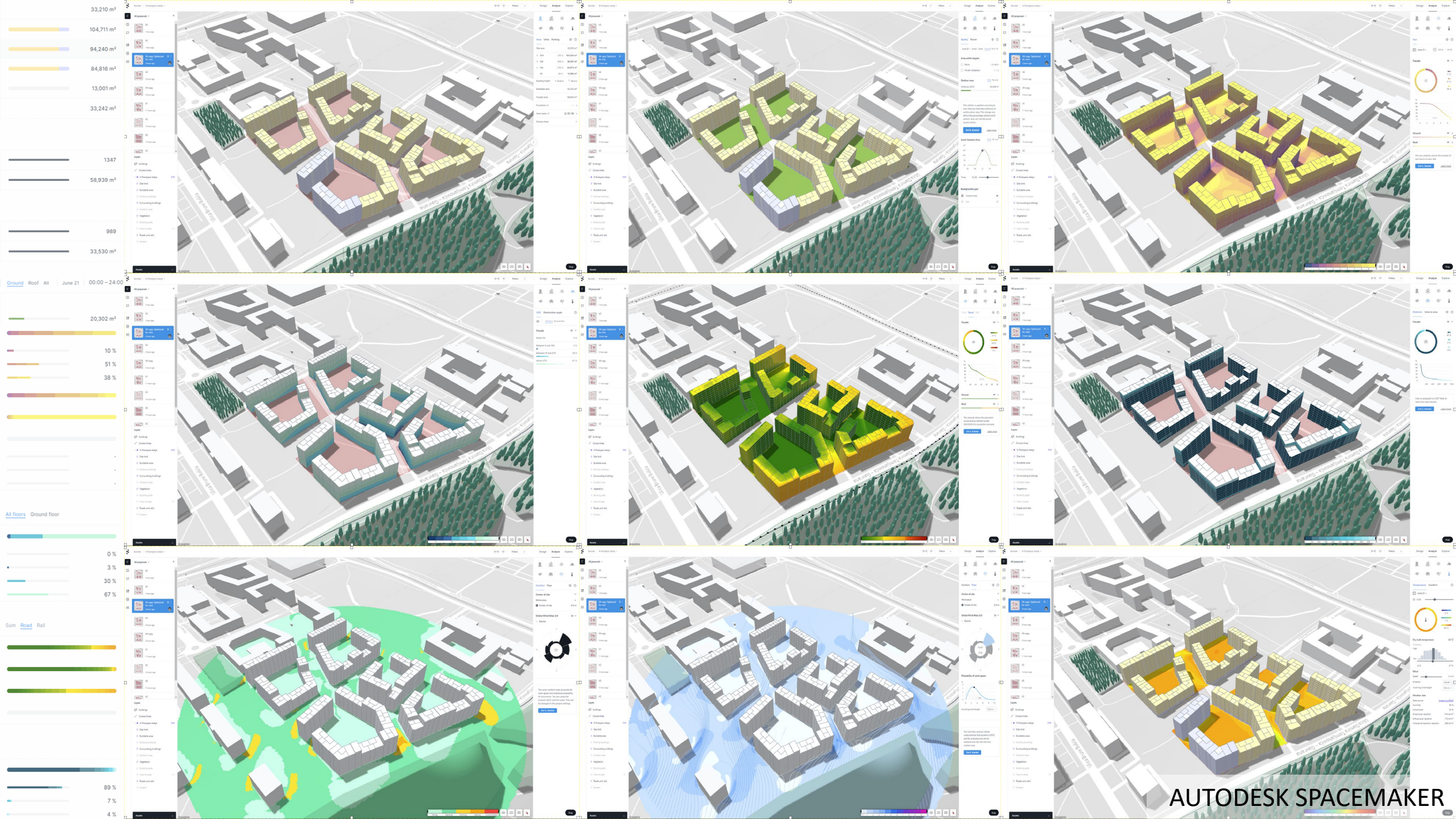
Date: June 21

Time of day: 01:00 - 22:00

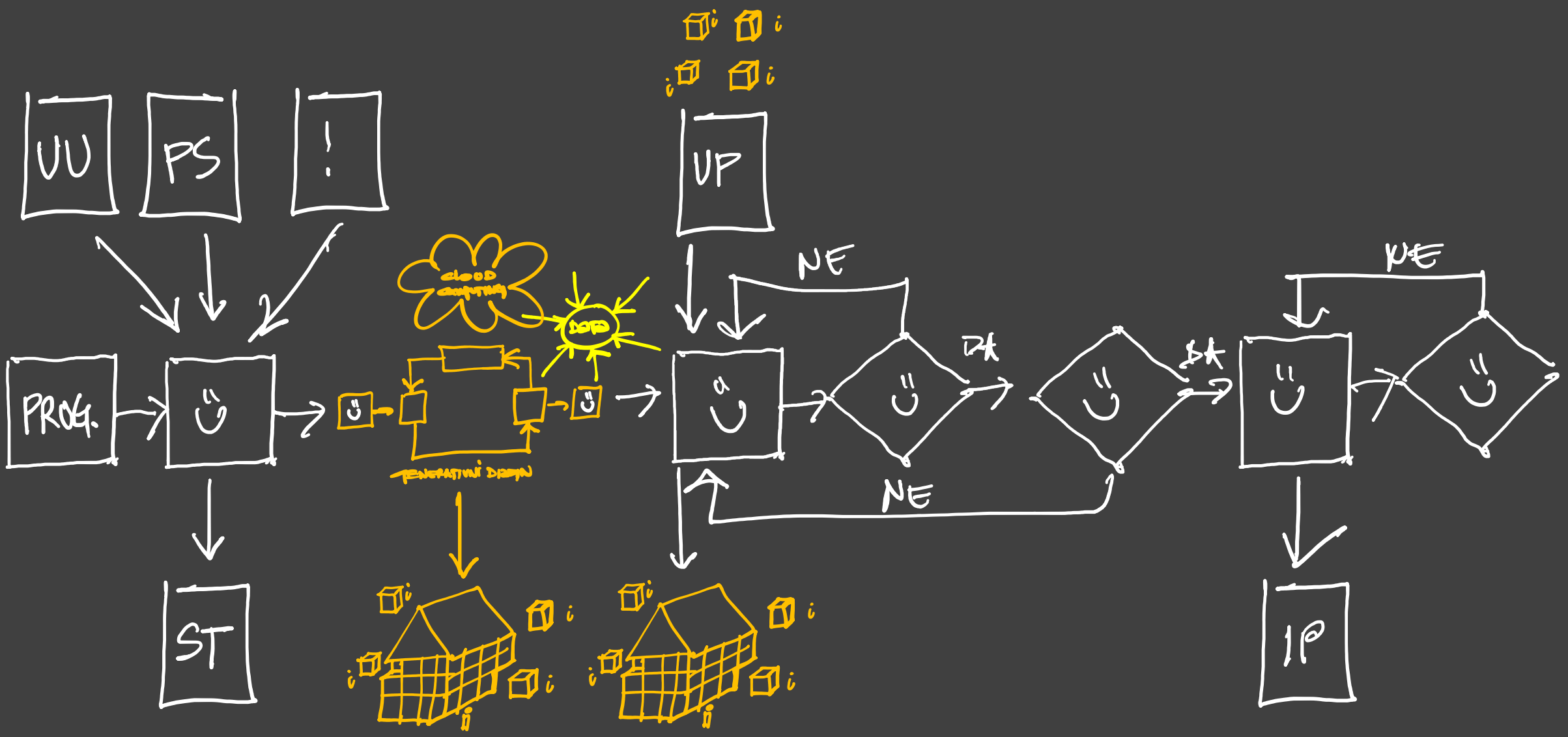
Precision: Normal







AUTODESK SPACEMAKER



CREATE LIBRARIES FILL

TOOLS



UNITS

| | |
|------------------|----------------------|
| Inner wall width | 120 |
| Count | 7 |
| Area Total | 232 m ² |
| Area Range | 56-73 m ² |

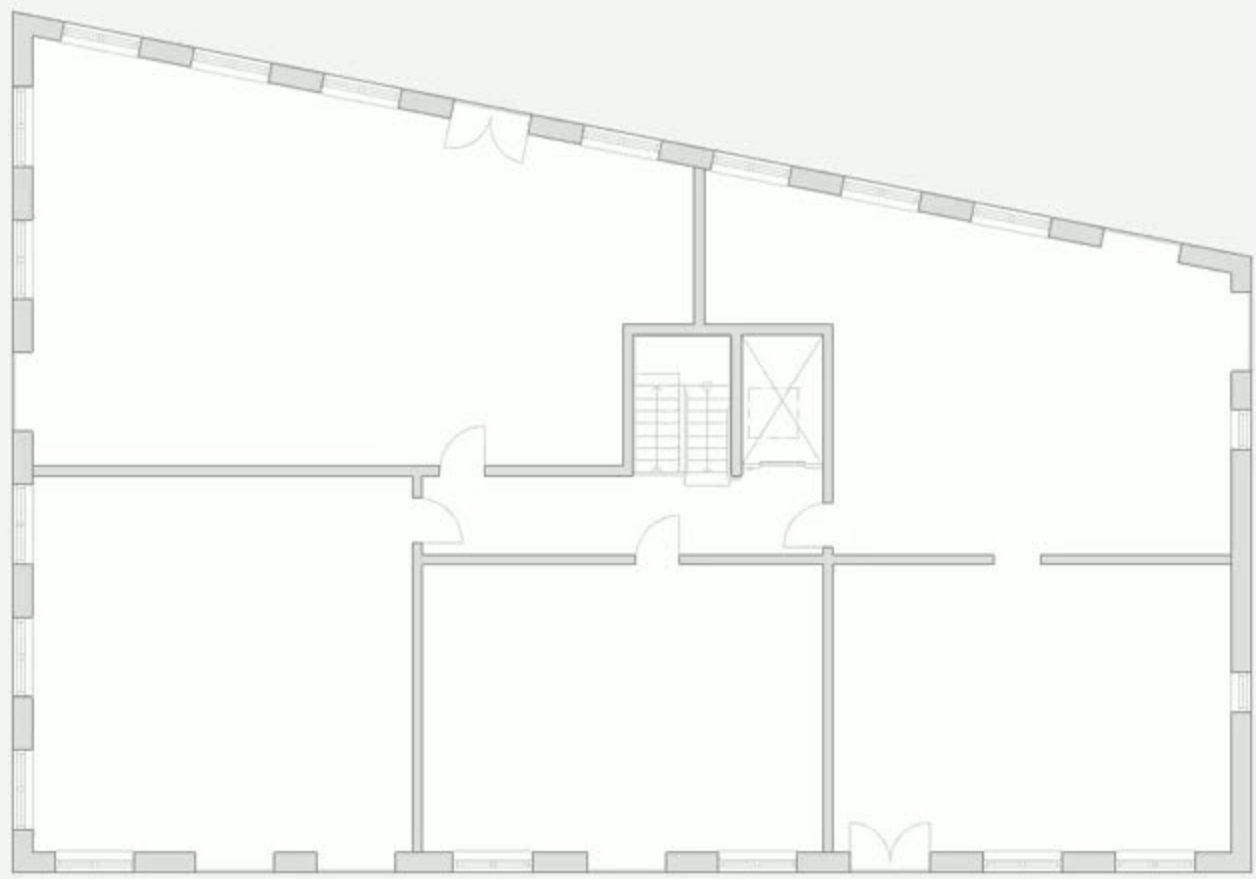
SELECTION TAGS

| | |
|-------------|--------------------|
| Residential | 895 m ² |
|-------------|--------------------|

SELECTION SPACES

| | |
|------------|-------------------|
| Livingroom | 68 m ² |
| Bedroom | 65 m ² |
| Hall | 36 m ² |

Save to library



PARALLEL AXIS DIAGRAM

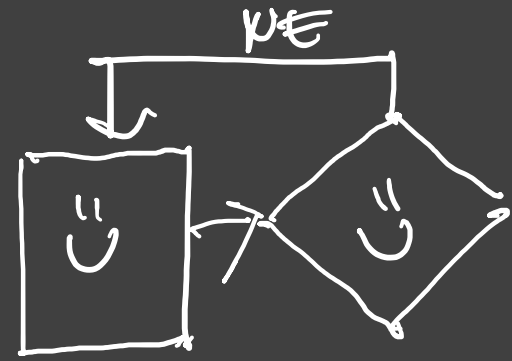
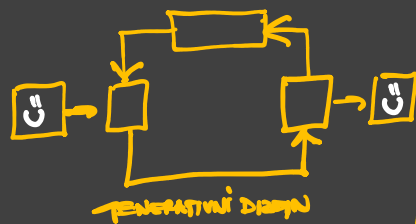
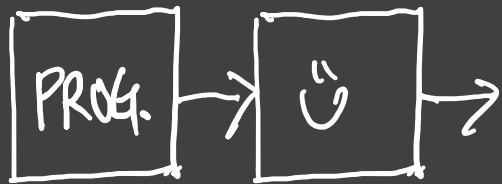
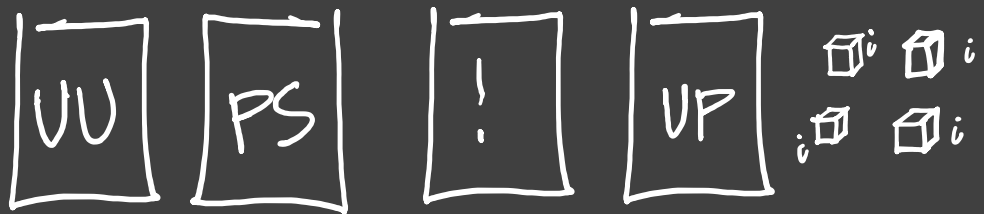


PLANS GENERATED: 0

Select Property

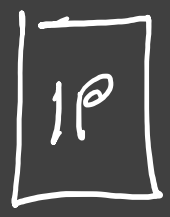
Run Optimization

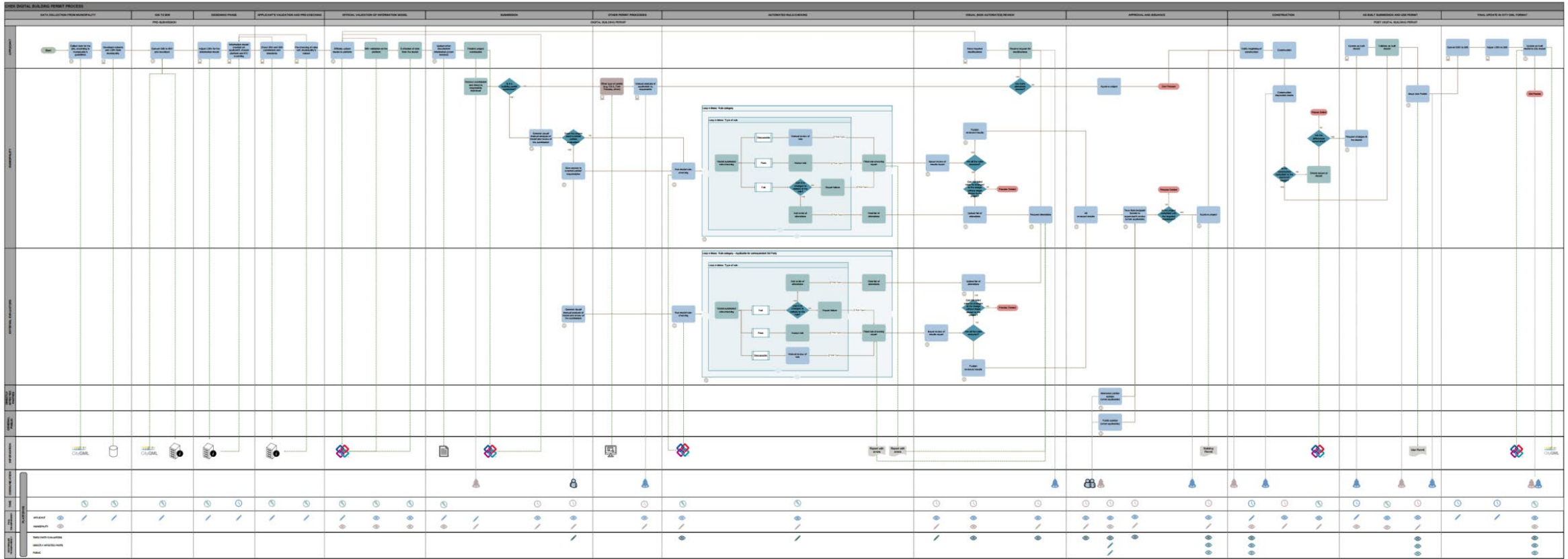
Select Property

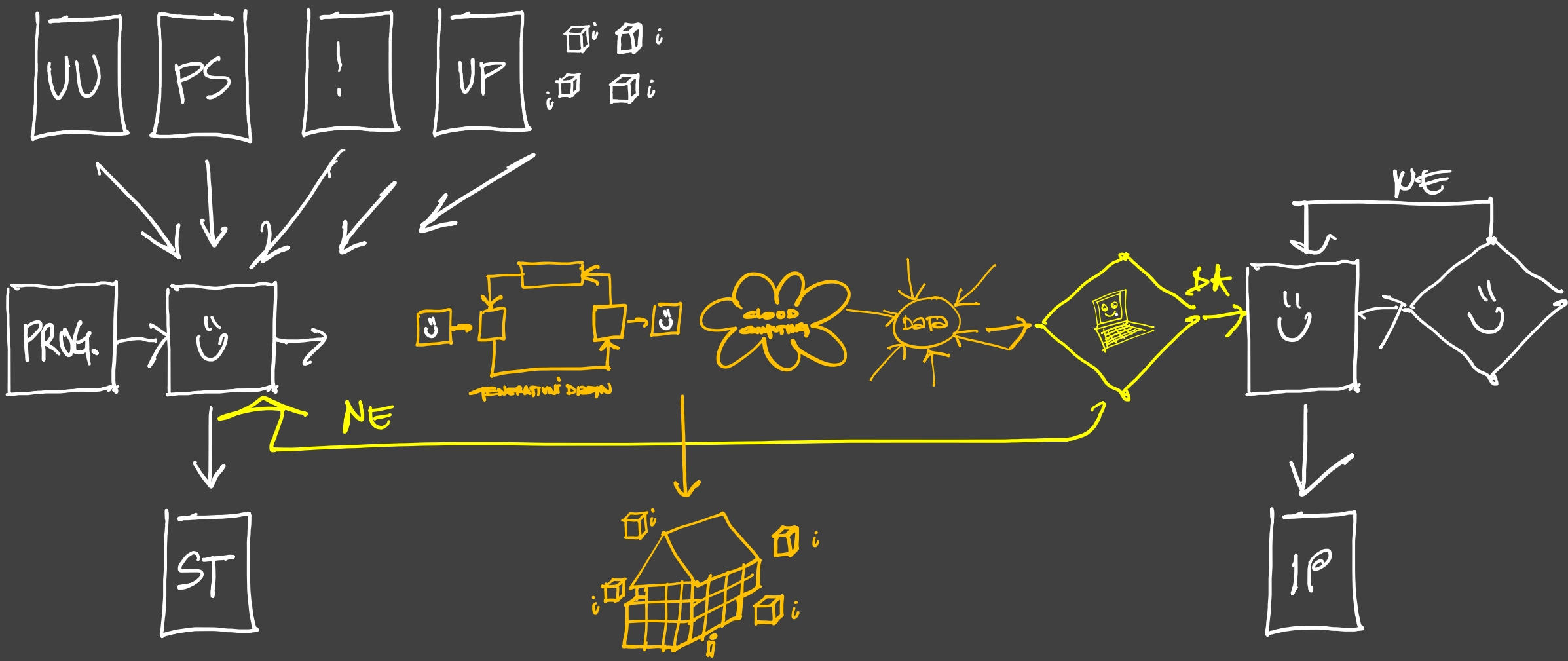


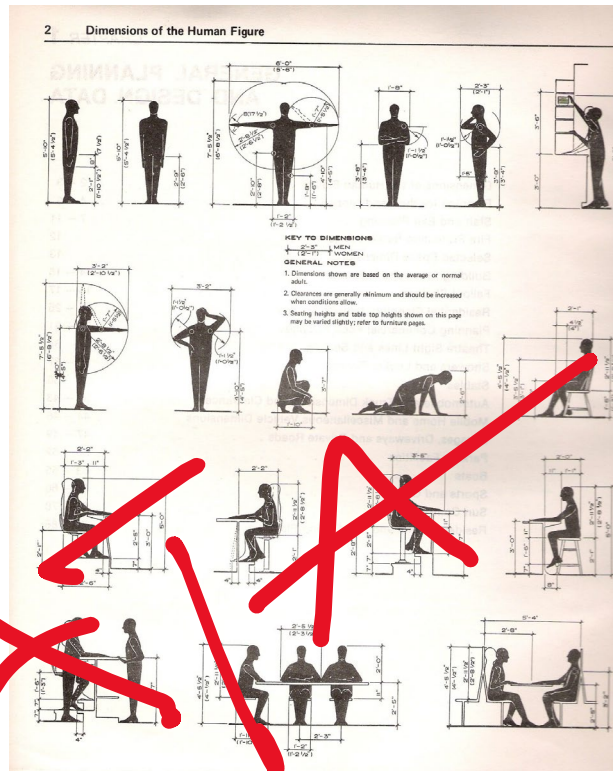
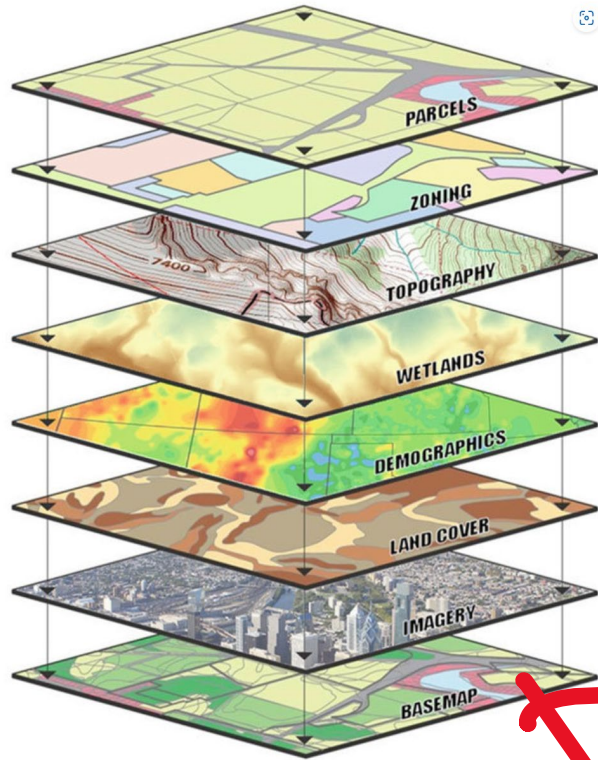
NE

UE









Na temelju članka 14. stavka 3. i članka 144. Zakona o gradnji (»Narodne novine« broj 175/03 i 100/04), ministrica zaštite okoliša, prostornog uređenja i graditeljstva, uz suglasnost ministra unutarnjih poslova, donosi

PRAVILNIK

O OSIGURANJU PRISTUPAČNOSTI GRAĐEVINA OSOBAMA S INVALIDITETOM I SJANJENE POKRETLJIVOSTI

1. OPĆE ODREDBE

Članak 1.

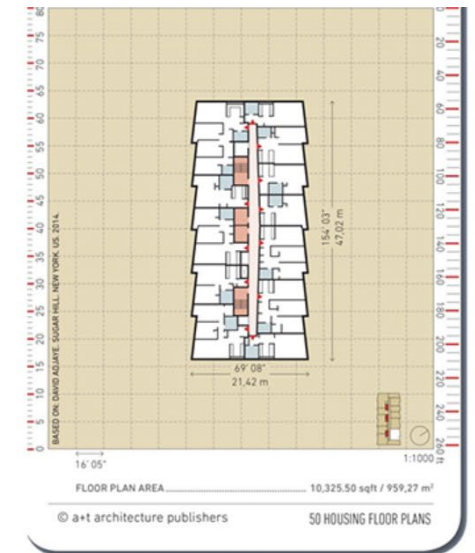
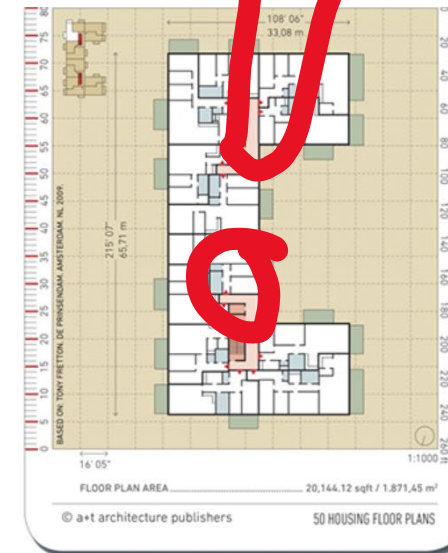
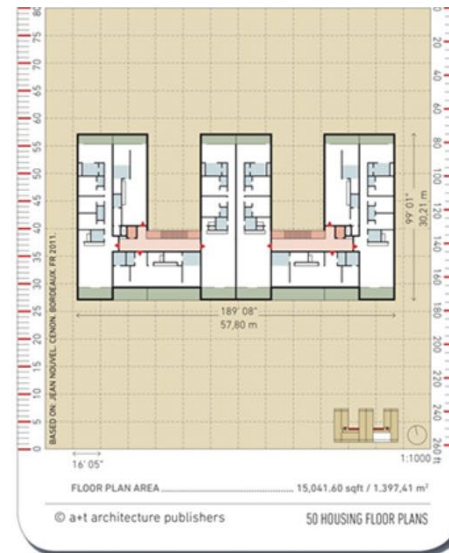
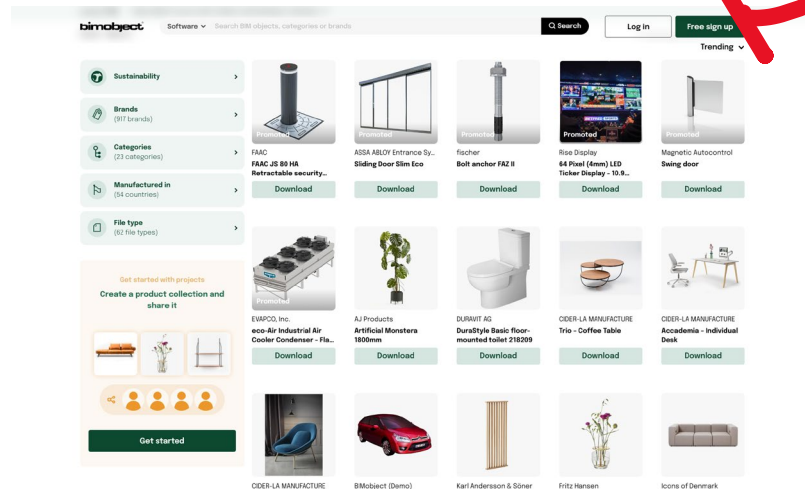
Ovim se Pravilnikom propisuju uvjeti i način osiguranja nesmetanog pristupa, kretanja, boravka i rada osobama s invaliditetom i smanjene pokretljivosti (u daljnjem tekstu: pristupačnost) i unapređivanja pristupačnosti građevinama javne, poslovne, stambene i stambeno-poslovne namjene, te uvjeti i način jednostavne prilagodbe pristupačnosti građevina stambene i stambeno-poslovne namjene.



Članak 2.

Pristupačnost i unapređivanje pristupačnosti i jednostavna prilagodba pristupačnosti građevina iz članka 1. ovoga Pravilnika osigurava se obveznim projektiranjem i izvođenjem tih građevina na način da sadrže obvezne elemente pristupačnosti i/ili da uovoljavaju uvjetima uporabe pomagala osoba s invaliditetom na način i u slučajevima propisanim ovim Pravilnikom. Kada su elementi pristupačnosti zajedno i dio puta za izlaženje u slučaju opasnosti, tada moraju ispuniti i zahtjeve posebnom propisu. Vlasnik građevine dužan je osiguravati elemente pristupačnosti i ne smije smanjivati uvjete uporabe pomagala osoba s invaliditetom.

Članak 3.

Slikovni prikaz oznaka pristupačnosti, uvjeta uporabe pomagala i obveznih elemenata pristupačnosti, dat je u prilogu sastavni je dio ovoga Pravilnika. Oznake pristupačnosti moraju biti primjerene veličine i postavljene na lako uočljivom mjestu.



 Load point cloud Toggle object transparency

aurivus scan to bim

Properties

3D View

3D View: {3D} Edit Type

Graphics

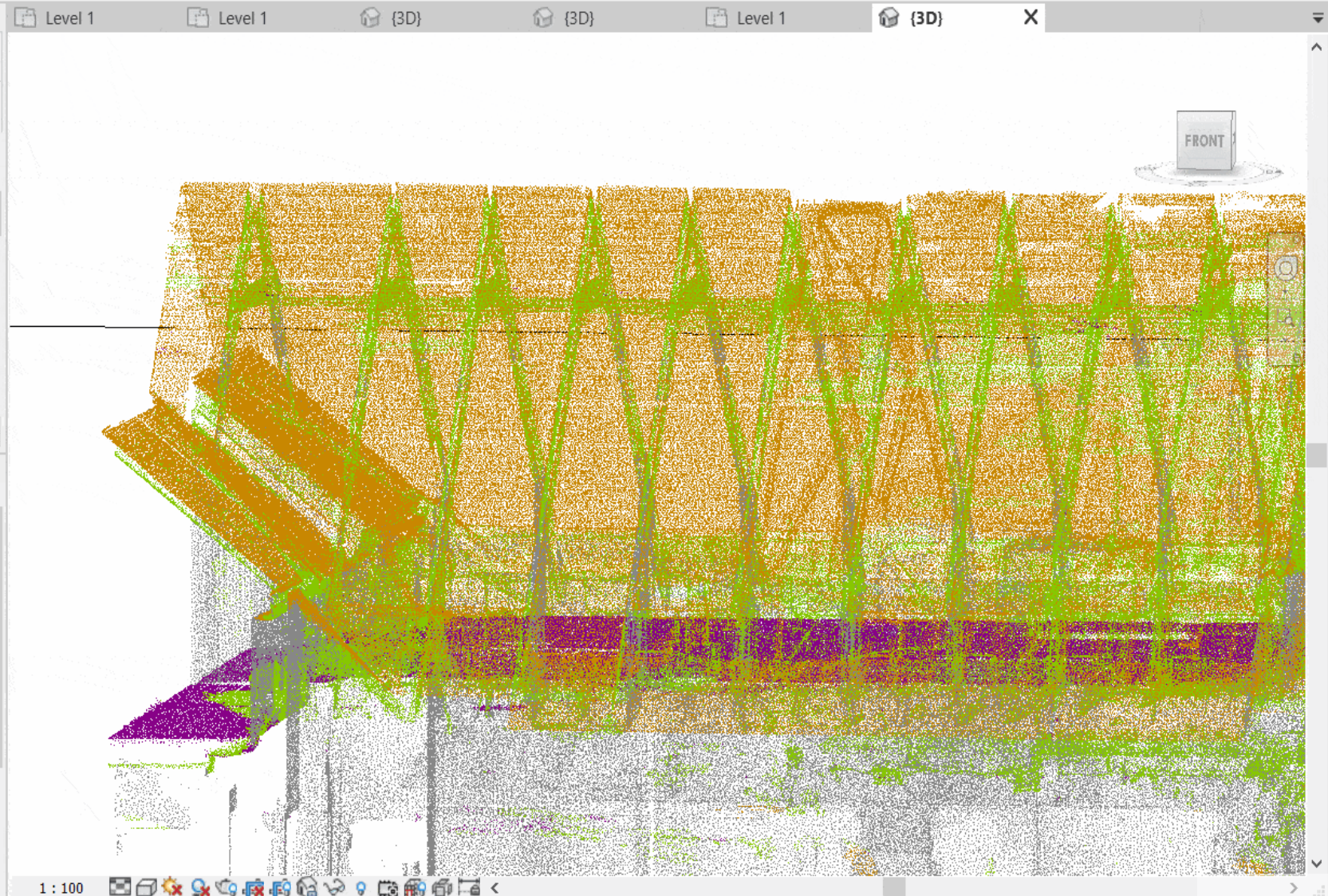
| | |
|--------------------|---------------|
| View Scale | 1 : 100 |
| Scale Value | 1: 100 |
| Detail Level | Medium |
| Parts Visibility | Show Original |
| Visibility/Grap... | Edit... |
| Graphic Displa... | Edit... |
| Discipline | Coordination |
| Show Hidden L... | By Discipline |

[Properties help](#) Apply

Project Browser - Project3

Views (all)

- Floor Plans
 - Level 1
 - Level 2
 - Site
- Ceiling Plans
 - Level 1
 - Level 2
- 3D Views
- Elevations (Building Elevation)
 - East
 - North
 - South
 - West
- Legends
- Schedules/Quantities (all)



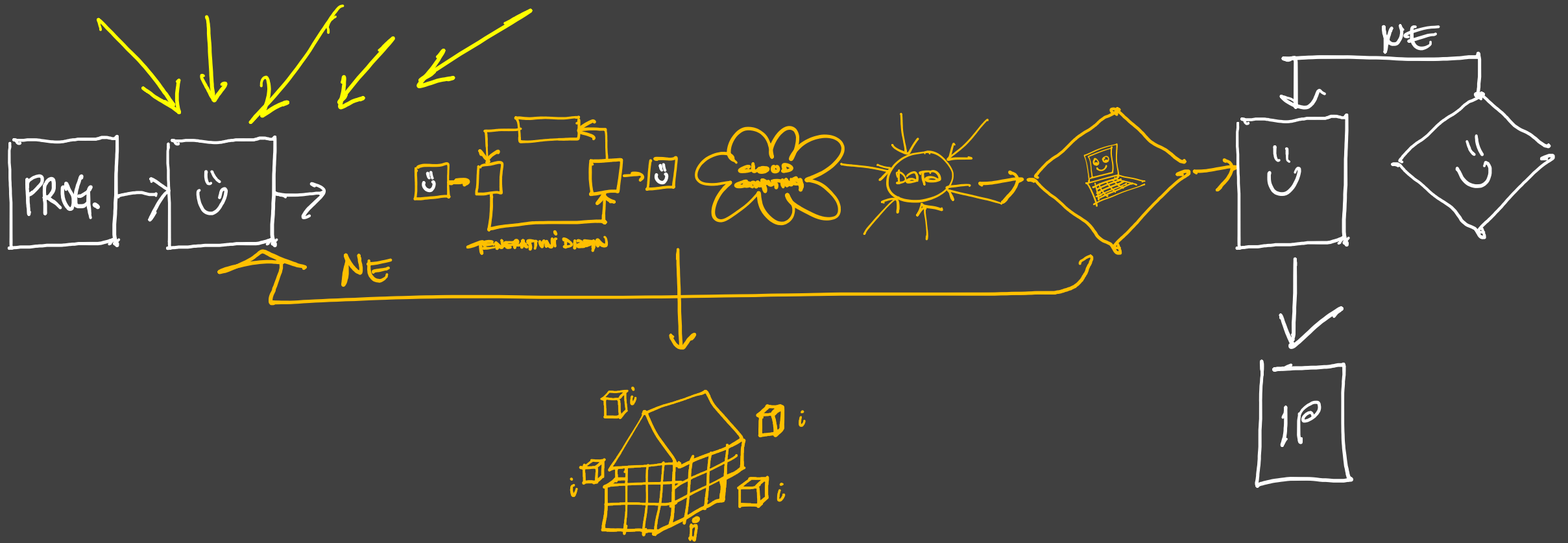
aurivus

Classes

| | | |
|--------------------------|-------------------------------------|----------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Walls |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Floors |
| <input type="checkbox"/> | <input type="checkbox"/> | Windows |
| <input type="checkbox"/> | <input type="checkbox"/> | Doors |
| <input type="checkbox"/> | <input type="checkbox"/> | Plumbing Fixtures |
| <input type="checkbox"/> | <input type="checkbox"/> | Speciality Equipment |
| <input type="checkbox"/> | <input type="checkbox"/> | Casework |
| <input type="checkbox"/> | <input type="checkbox"/> | Lighting Fixtures |
| <input type="checkbox"/> | <input type="checkbox"/> | Furniture |
| <input type="checkbox"/> | <input type="checkbox"/> | Mechanical Equipment |
| <input type="checkbox"/> | <input type="checkbox"/> | Site |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Structural Framing |
| <input type="checkbox"/> | <input type="checkbox"/> | Structural Columns |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Roofs |




 AURIVUS AI



To exit full screen, swipe down from top of screen or press **F11**

- Home
- Sheets

Files

- Files

Folders Holding area

Deleted items Settings

- Issues
- Forms
- Photos
- RFIs
- Submittals
- Meetings
- Schedule
- Assets
- Reports
- Members
- Bridge
- Settings

- Project Files
 - 00_Opce
 - 01_Radno
 - 02_Dijeljeno
 - 00_Skupni modeli
 - 01_Arhitektura
 - 01_3D model
 - 02_2D nacrti
 - 03_Tekst
 - 02_Konstrukcija
 - 03_ViO
 - 04_Elektro
 - 05_GHiV
 - 06_Krajobraz
 - 20_Investitor
 - 21_Nadzor
 - 22_Voditelj projekta
 - 23_Konzultant EU
 - 24_Glavni izvodjac
 - 03_Predano
 - 04_Arhiva
 - 05_Dokumenti gradiliste

Upload files

Export Search and filter

| Name | Description | Version | Synced with Bridge |
|---|-------------|---------|--------------------|
| Snowdon Towers Sample Architectural.rvt | | V3 | |

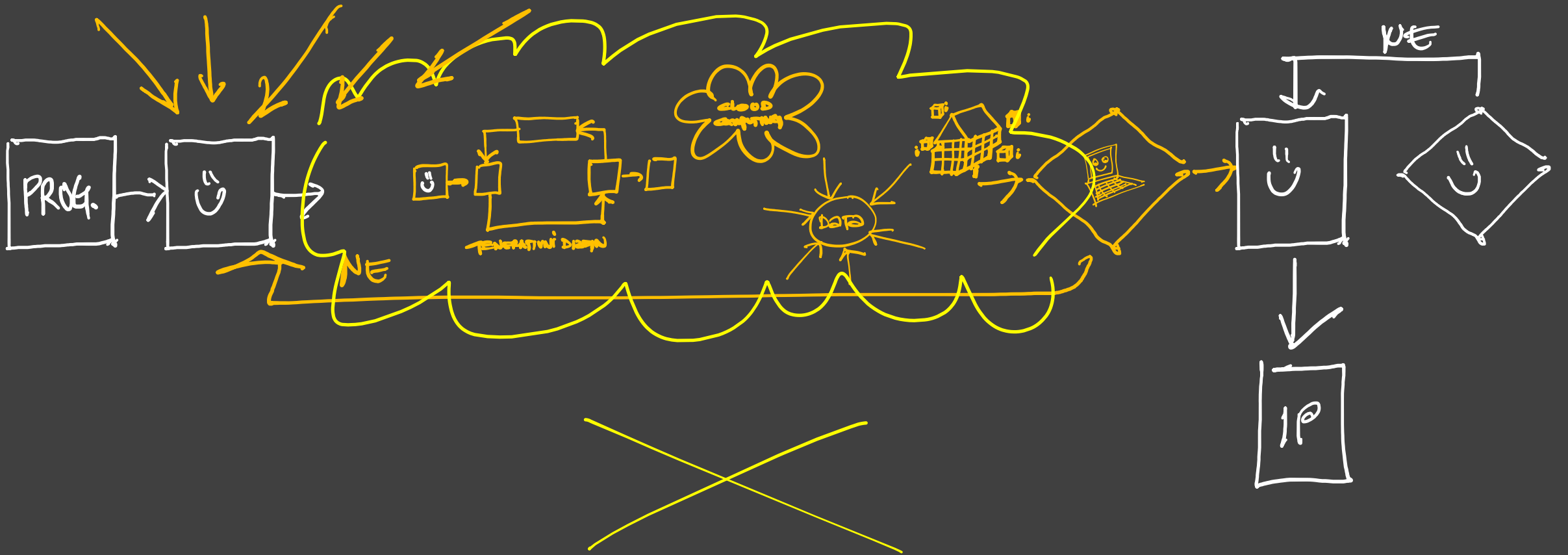
- Build
- Home
- Sheets
- Files
- Issues
- Forms
- Photos
- RFIs
- Submittals
- Meetings
- Schedule
- Assets
- Reports
- Members
- Bridge
- Settings

Sheets

Add sheets

Deleted sheets Publish log Settings

| Number | Version set | Discipline | Tag | Updated by | |
|---------------------------------|-------------|----------------------|-----------------|---------------------|---------------|
| A100 Tlocrt Garaže | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A101 Tlocrt Prizemlje | 2 | R1 | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A102 Tlocrt 1. Kata | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A103 Tlocrt 2. Kata | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A104 Tlocrt 3. Kata | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A105 Tlocrt 4. Kata | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A106 Tlocrt Zelenog Krova | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A107 Tlocrt Krova | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A108 Tlocrt Stropa Prizemlja | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A109 Tlocrt Stropa 1. Kat | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A110 Tlocrt Stropa 2. Kat | 1 | Inicijalna dokume... | A (Arhitektura) | arhitektura, mapa 1 | Vedran Oresic |
| A111 | | | | | |



- Modèles
- Conflits
- Vues

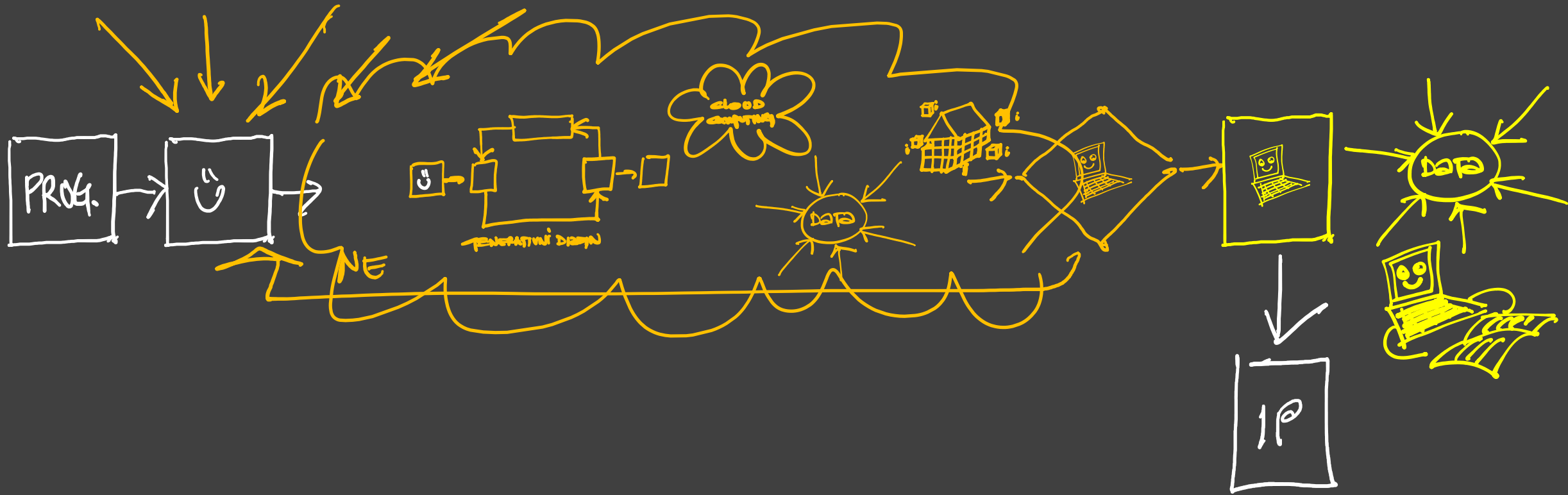
Actif Affecté Ignoré

Coordination - Synthèse Projet ...
 Dernière vérification des conflits Aujourd'hui à 09:29

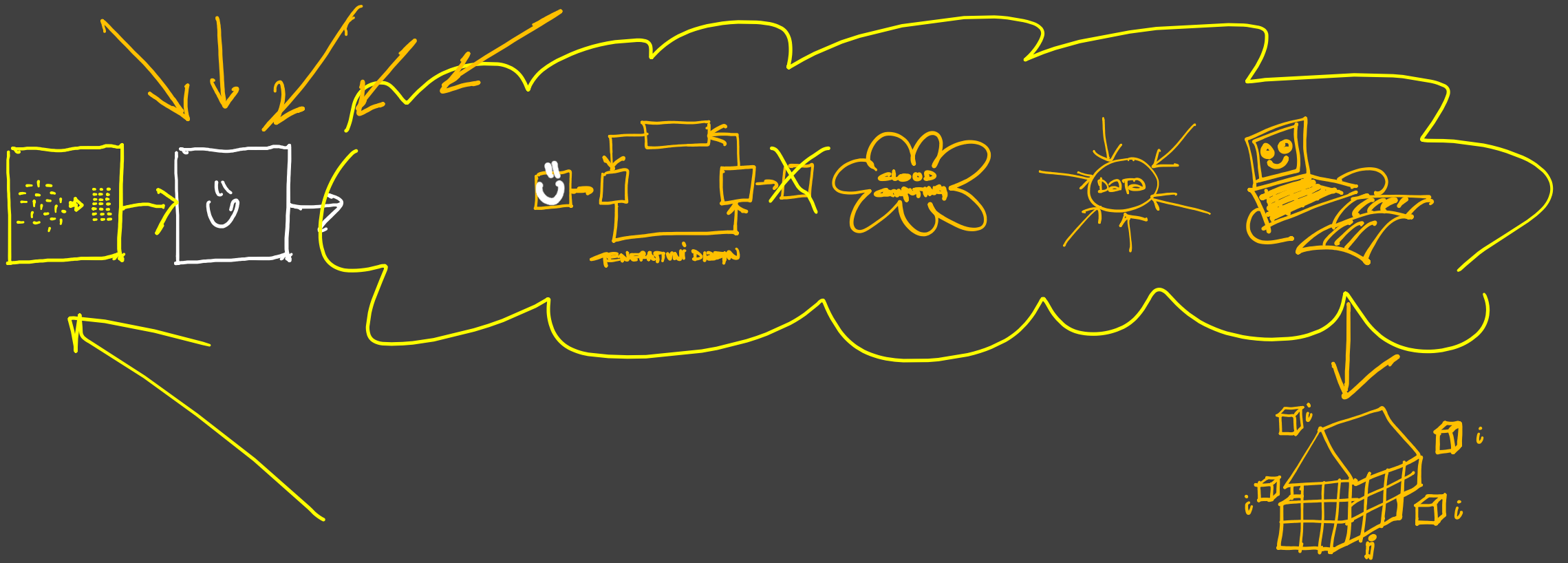
Rechercher des modèles Sélectionner une vue Totalité des 13 modèles

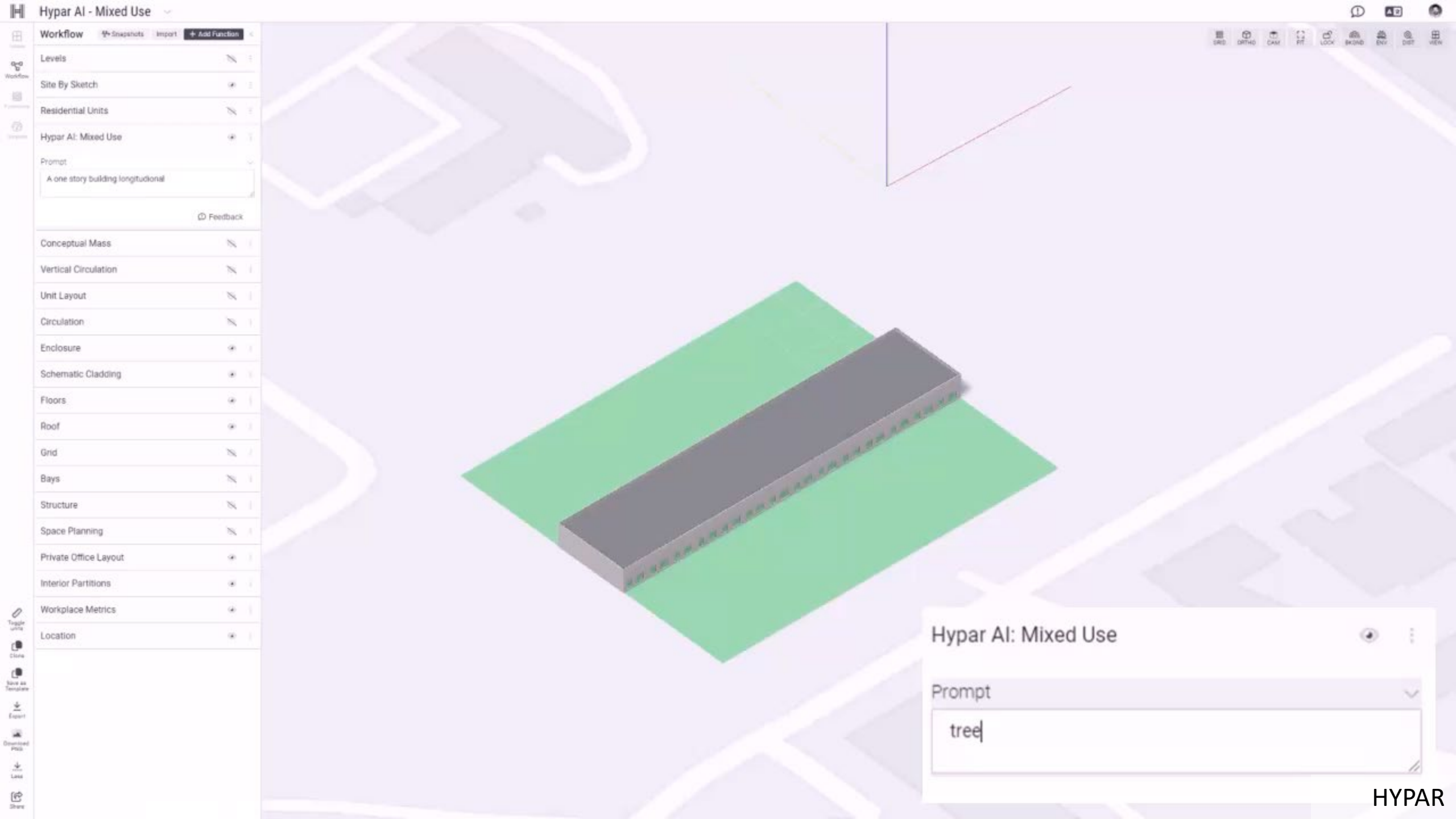
| | Architectural File_R01.ifc.rvt - 3D-ARC | Architectural File_R01.ifc.rvt - 3D-ARC | Architectural File_R01.ifc.rvt - 3D-ARC-NO | Architectural File_R01.ifc.rvt - 3D-ARC-N1 | CVC.rvt - 3D-CVC | CVC.rvt - 3D-CVC-NO | CVC.rvt - 3D-CVC-N1 | ELE.rvt - 3D-ELE | ELE.rvt - 3D-ELE-NO | ELE-N1 | STR | STR-NO | Structural File_R01.ifc.rvt - 3D-STR-N1 |
|--|---|---|--|--|------------------|---------------------|---------------------|------------------|---------------------|--------|-----|--------|---|
| Architectural File_R01.ifc.rvt - 3D-ARC 195 groupes de conflits | | 31 | 72 | 49 | 9 | 3 | 2 | 4 | 2 | 2 | 152 | 97 | 48 |
| Architectural File_R... - 3D-ARC -Travail JC 50 groupes de conflits | 32 | | 18 | 4 | 3 | 1 | | | | | 35 | 24 | 3 |
| Architectural File_R01.ifc.rvt - 3D-ARC-NO 103 groupes de conflits | 77 | 24 | | | 5 | 3 | | 2 | 2 | | 71 | 71 | |
| Architectural File_R01.ifc.rvt - 3D-ARC-N1 78 groupes de conflits | 69 | 5 | | | 2 | | 2 | 2 | | 2 | 39 | 35 | 39 |
| CVC.rvt - 3D-CVC 13 groupes de conflits | 8 | 3 | 4 | 2 | | | | 8 | 3 | 5 | 4 | 4 | |
| CVC.rvt - 3D-CVC-NO 5 groupes de conflits | 3 | 1 | 3 | | | | | 3 | 3 | | 3 | 3 | |
| CVC.rvt - 3D-CVC-N1 6 groupes de conflits | 2 | | | 2 | | | | 5 | | 5 | | | |
| ELE.rvt - 3D-ELE 6 groupes de conflits | 3 | | 2 | 1 | 5 | 2 | 3 | | | | 3 | 3 | |
| ELE.rvt - 3D-ELE-NO 3 groupes de conflits | 2 | | 2 | | 2 | 2 | | | | | 3 | 3 | |
| ELE.rvt - 3D-ELE-N1 3 groupes de conflits | 1 | | | 1 | 3 | | 3 | | | | | | |
| Structural File_R01.ifc.rvt - 3D-STR 104 groupes de conflits | 100 | 24 | 48 | 25 | 7 | 3 | | 3 | 3 | | | 37 | 20 |
| Structural File_R01.ifc.rvt - 3D-STR-NO 61 groupes de conflits | 61 | 14 | 48 | 19 | 7 | 3 | | 3 | 3 | | 36 | | 9 |
| Structural File_R01.ifc.rvt - 3D-STR-N1 35 groupes de conflits | 33 | 2 | | 25 | | | | | | | | | |

Vérifier les groupes de conflits 152 entre Architectural File_R01.ifc.rvt - 3D-ARC et Structural File_R01.ifc.rvt - 3D-STR









Workflow Snapshots Import Add Function

- Levels
- Site By Sketch
- Residential Units
- Hypar AI: Mixed Use
- Prompt
- Conceptual Mass
- Vertical Circulation
- Unit Layout
- Circulation
- Enclosure
- Schematic Cladding
- Floors
- Roof
- Grid
- Bays
- Structure
- Space Planning
- Private Office Layout
- Interior Partitions
- Workplace Metrics
- Location

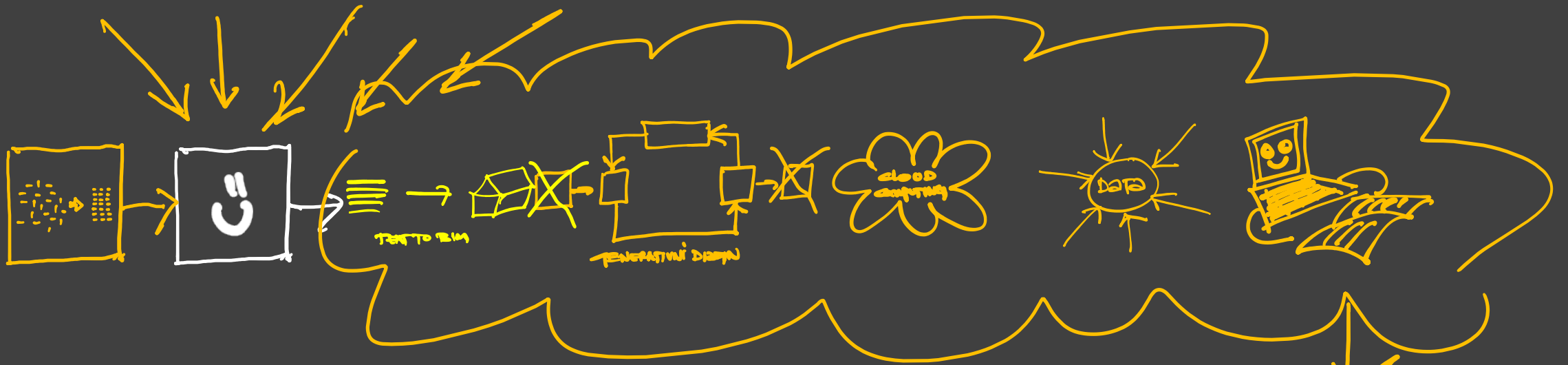
A one story building longitudinal

Feedback

Hypar AI: Mixed Use

Prompt

tree





Koje pravilnike i zakone je potrebno poštovati pri izradi takvog projekta?

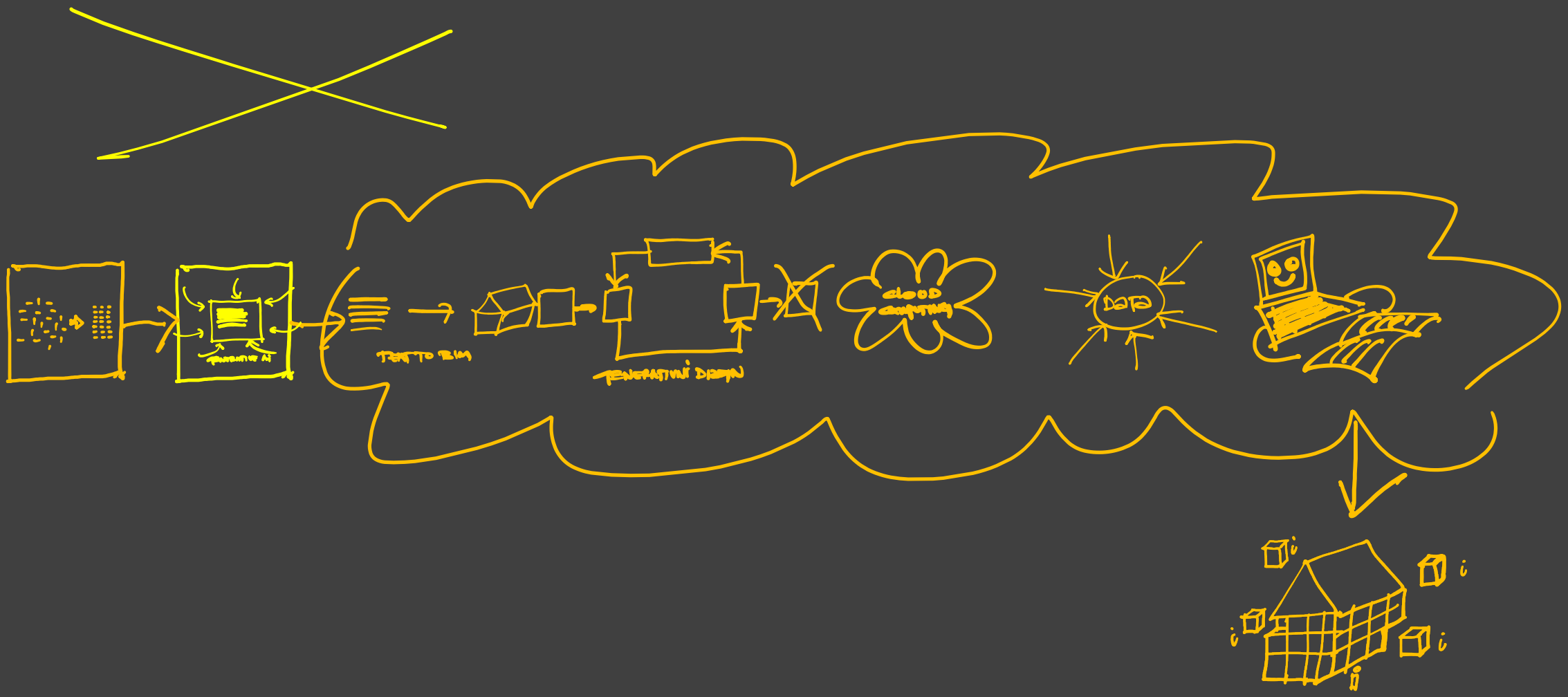


Pri izradi projekta stambene zgrade potrebno je poštovati niz zakona i propisa koji ovise o specifičnostima projekta i lokalnim propisima. Neki od najvažnijih zakona i propisa koji se moraju poštovati uključuju:

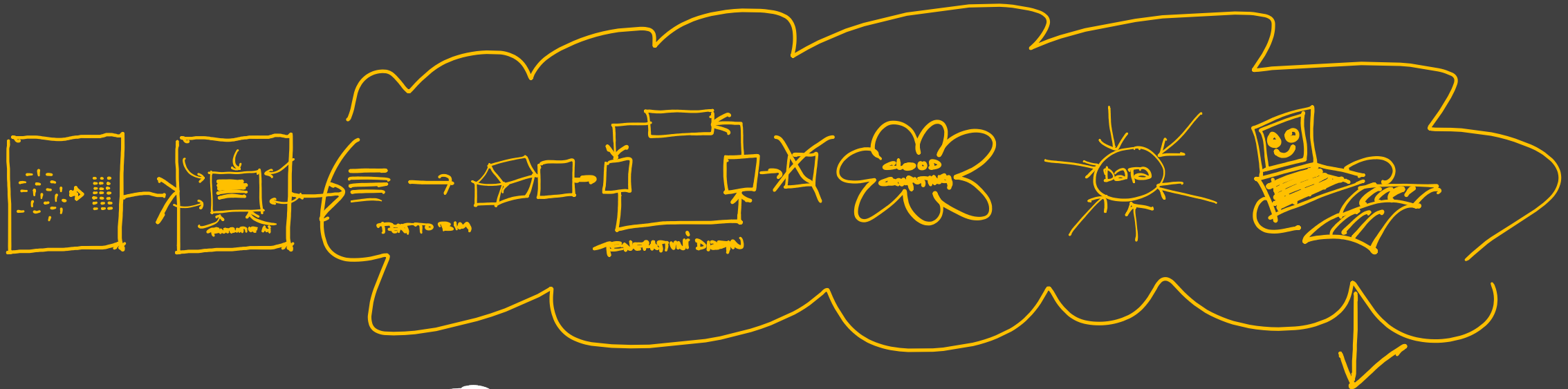


1. Zakon o prostornom uređenju i gradnji - ovaj zakon uređuje postupak izdavanja dozvola za gradnju, uvjete gradnje, nadzor nad gradnjom i druge aspekte gradnje.
2. Zakon o zaštiti prirode - ovaj zakon propisuje mjere zaštite prirodnog okoliša, a obuhvaća područja kao što su zaštita voda, zraka, tla, biljnog i životinjskog svijeta te prostorni planovi.
3. Zakon o zaštiti od požara - ovaj zakon propisuje uvjete zaštite od požara, kao što su izbor materijala za gradnju, instalacije za gašenje požara i druge mjere zaštite.
4. Zakon o energiji - ovaj zakon propisuje uvjete učinkovitosti energetske potrošnje u zgradama te uvjete za korištenje obnovljivih izvora energije.
5. Zakon o vodama - ovaj zakon uređuje upravljanje vodama, mjere zaštite voda te uvjete za priključenje na vodovodnu mrežu i kanalizaciju.
6. Zakon o javnoj nabavi - ovaj zakon propisuje postupke javne nabave materijala i radova potrebnih za izgradnju stambene zgrade.
7. Lokalni prostorni planovi - ovi planovi propisuju uvjete gradnje na određenom području, a uključuju dimenzije zgrada, visine, udaljenosti od susjednih zgrada te zahtjeve za parkirališta i zelene površine.

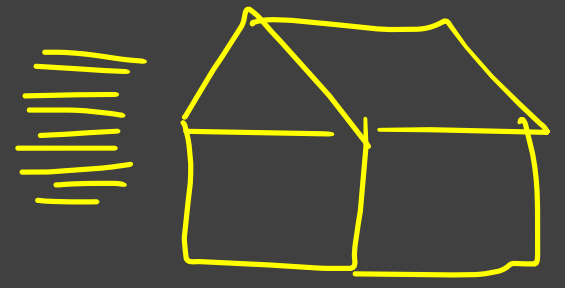
Ovo su samo neki od zakona i propisa koji se moraju poštovati pri izradi projekta stambene zgrade, a detalji ovise o specifičnostima projekta i lokalnim propisima.





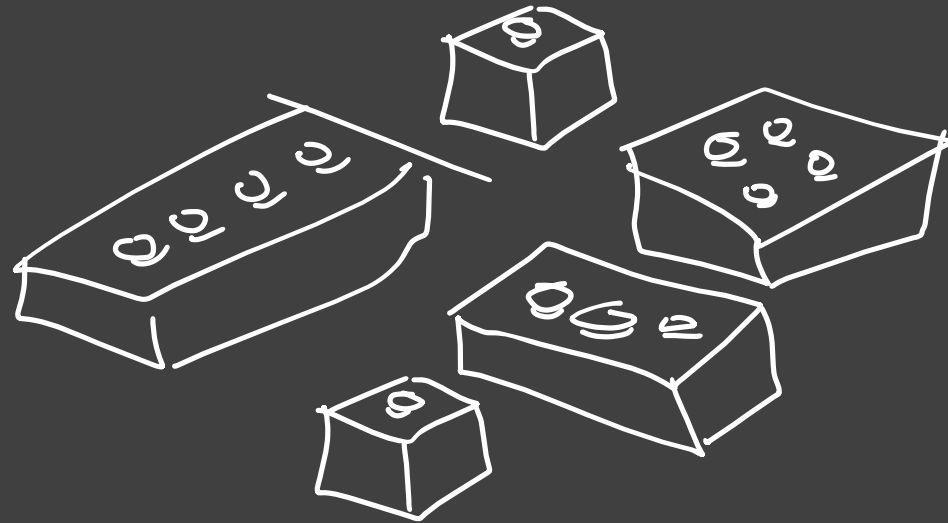


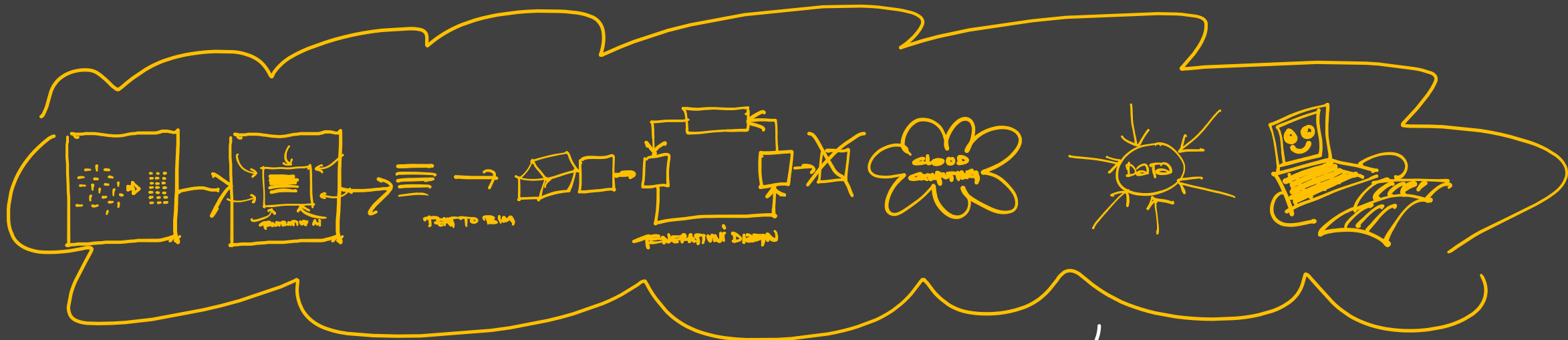
CSV
IFC
G-CODE
?





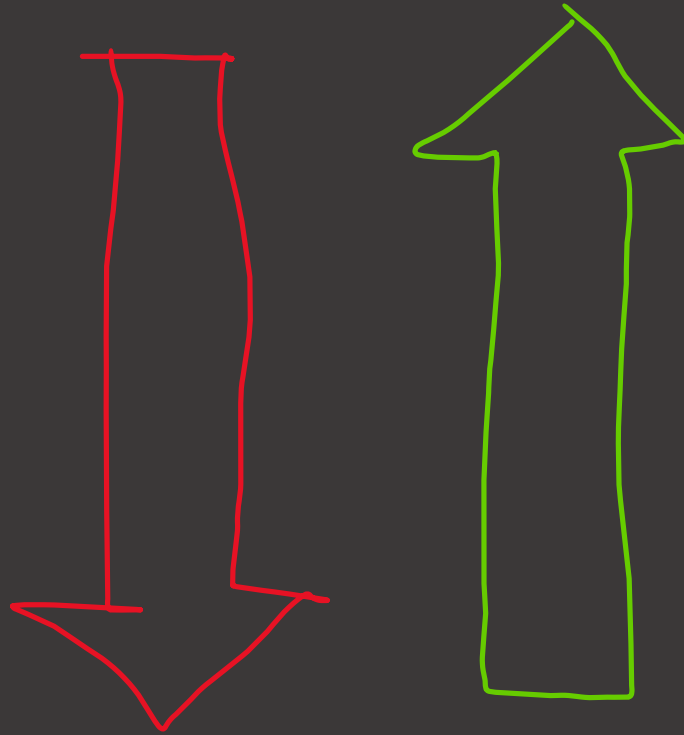
Zašto smo zamjenljivi?





Arhitektura sutra

Manje arhitekata



Više projekata sa manje ljudi
Više kreativaca
Više tech zanimanja
Više efikasnosti i točnosti



Koja je uloga arhitekta sutrašnjice?



Kako će izgledati posao arhitekta u budućnosti?



Posao arhitekta će se u budućnosti vjerojatno temeljiti na korištenju digitalnih tehnologija kako bi se brže i učinkovitije projektirale i gradile građevine. Osim toga, arhitekti će morati biti vrlo usredotočeni na održivost i prilagođavanje klimatskim promjenama, što će zahtijevati promjenu u načinu razmišljanja o građevinskom dizajnu i izgradnji.



Budući arhitekti će možda raditi i u virtualnoj stvarnosti, koristeći tehnologiju koja omogućuje klijentima da "prošetaju" virtualnim modelima njihovih budućih građevina. Također, možda će se sve više koristiti 3D ispisivanje u građevinarstvu, što bi moglo dovesti do novih načina razmišljanja o konstrukciji i dizajnu.

Uz to, arhitekti će morati biti sposobni prilagoditi se novim društvenim trendovima i zahtjevima, poput sve veće potrebe za prilagođenim i personaliziranim stambenim prostorima te za urbanih prostora koji su prilagođeni potrebama zajednice. Konačno, budući arhitekti će se morati prilagoditi i novim ekonomskim uvjetima i poslovnim modelima koji će se razvijati u građevinskoj industriji.

Ukratko, arhitekti će u budućnosti morati biti vrlo fleksibilni i prilagodljivi te će morati koristiti najnovije tehnologije kako bi bili učinkovitiji i učinkovitiji u svojim poslovima.

Također, morat će biti usredotočeni na održivost i prilagođavanje klimatskim promjenama te prilagođeni novim društvenim i ekonomskim trendovima i zahtjevima.



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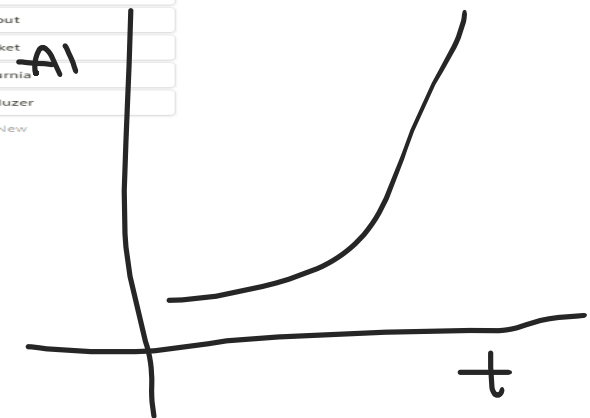
MADE BY: STJEPAN MIKULIC, PROJECT BIM LEAD AT BJARKE INGELS GROUP


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AEC AI Hub

This hub is a collection of AI tools within the AEC industry.

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|---------|--------------|------------------------------|-------------------------|----------------|---------------------------|---------------------------------------|----------------------|---------------------------|------------|-------------|
| inCitu | Disperse | Inakkam | Mappr (by Stykka) | Preplan | Alice Technologies | Point-E | Archilyse | HighArc | AirWorks | Elise AI |
| + New | Sparkel | Material Mapper | PDF++ | TANGObuilder | tallyCAT | Adobe Firefly | Cetopo | digipara (multiple tools) | Lepei.ai | LoanSnap |
| | L2-Labs | Futurepedia | OpenMaterialData | DAISY AI | briq | Interior AI | Planfinder | Snaptrude | REVEAL | Proper.ai |
| | Imerso | Parametric Architecture | ChooseWise | Structure Plus | Otter | DreamStudio (Stable Diffusion) | Binary Habitats | ArkoAI | Cyvi | Local Logic |
| | + New | Open IFC Viewer | Speckle LCA | Pathw.ai | Clockwork Analytics | Magic3D | Digital Blue Foam | Finch | SR Measure | + New |
| | | Durable (AI Website Builder) | AI.sthetic | + New | Spatio Metrics | DreamFusion | TestFit | Plans2BIM | + New | |
| | | IFC.js | Masstimmer Configurator | | Aurivus | Make-A-Video | Forsight digital | Styllib | | |
| | | Jasper | + New | | Humata | NVIDIA Canvas | Pebble | PassiveLogic | | |
| | | VIKTOR | | | Ark - Integrator | Super Resolution API | Arqgen | designtoproduction | | |
| | | CalcTree | | | Seve-Up | Topaz Labs (multiple apps) | Modelur | ZipGEN | | |
| | | There's an AI for That | | | Measurable Energy | Bing Image Creator | Qbiq | Schnackel | | |
| | | ChatGPT | | | Archilyse Auto-Annotation | Magician (for Figma) | Parametric Solutions | Arcoi | | |
| | | byword | | | Modulize | Stable Diffusion (Online) | Skema | WiseBIM | | |
| | | Powerbim | | | Workorder AI | Stable Diffusion Reimagine (Clipdrop) | The Brief. Space | Laiout | | |
| | | snaploader | | | Clappfrom | Spaces | 3dGURU | Maket | | |
| | | Topologic | | | Microsoft Copilot | DALL-E 2 | Archistar | Infurnia | | |
| | | SildesAI | | | cove.tool | Clipdrop | Giraffe | Reduzer | | |
| | | dotBIM (.bim) | | | Archipelago | BlueWillow | Hypar | + New | | |
| | | Magicflow | | | Neuron | InvokeAI | Spacemaker AI | | | |
| | | Hugging Face | | | SoleSensor | Scribble Diffusion | Omrt | | | |
| | | Speckle | | | Landing AI | Filki | Preoptima | | | |
| | | AEC+ Tech | | | Kreo | runway | Shapemaker | | | |
| | | Future Tools | | | Togal | REimagine | Aquicore | | | |
| | | Scribe | | | Neuron (by Arup) | Veras by EvolveLab | ARK | | | |
| | | Miro AI | | | + New | Midjourney | Architext | | | |
| | | Slate AI | | | | Whimsical | Build Flow AI | | | |
| | | + New | | | | AutoDraw | Plooto | | | |
| | | | | | | Mokker | CITYPLAIN | | | |
| | | | | | | | Parafin3D | | | |



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