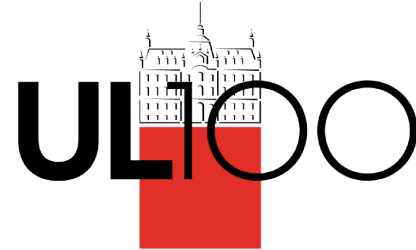


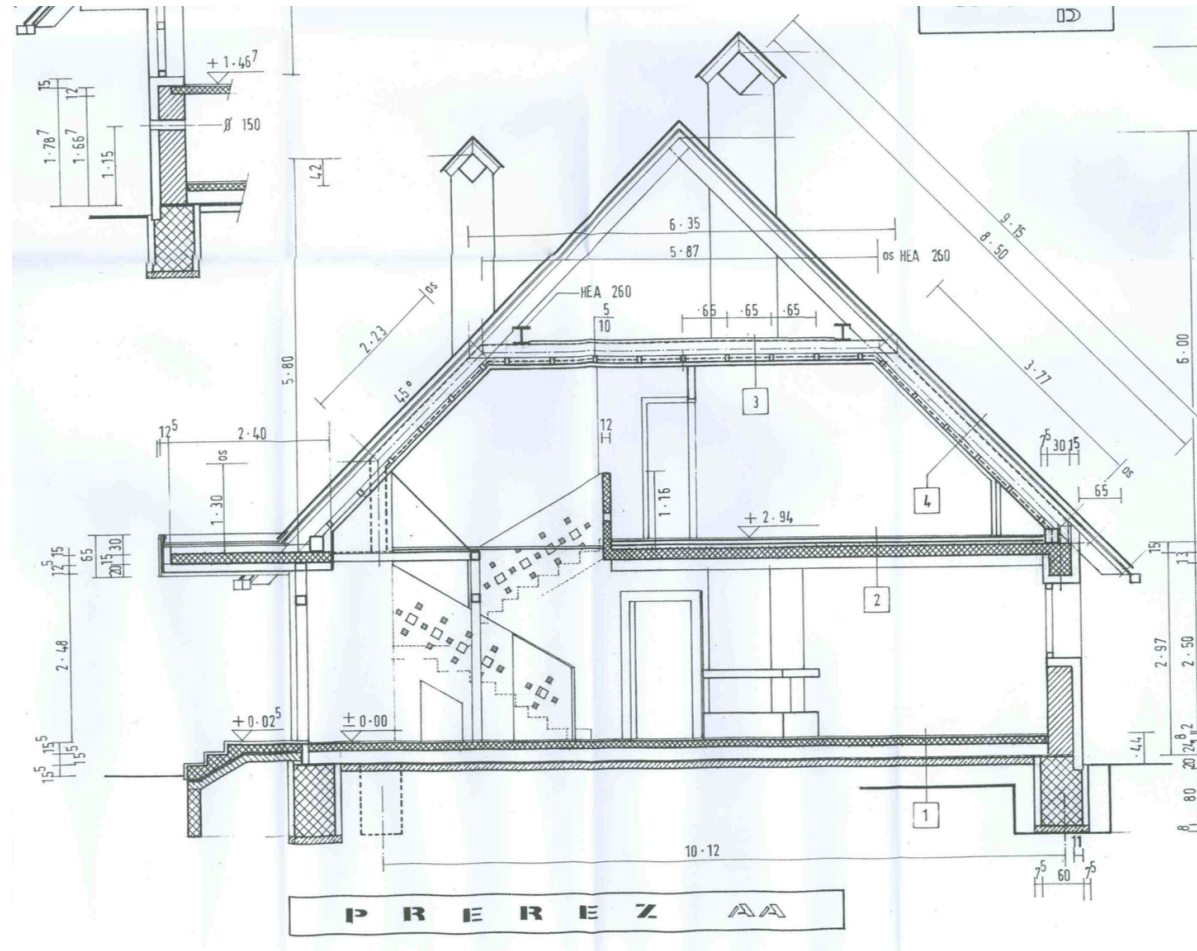
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# Digitalno modeliranje in navidezna resničnost

Katedra za gradbeno informatiko  
Fakulteta za gradbeništvo in geodezijo

# Načrti



# Iz načrta v realnost

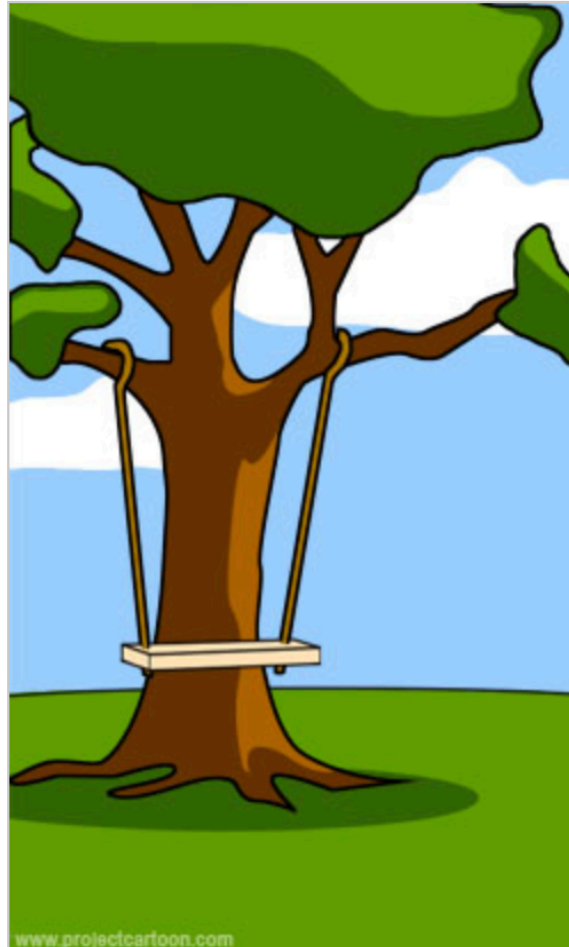


**vir slike:** <http://wytekconstruction.us/wp-content/uploads/2016/09/Wytek-Construction-House-Blue-Prints-Ideas.jpg>

# Razlike o dojemanju načrtov



Kako je investor opisal  
zahteve.



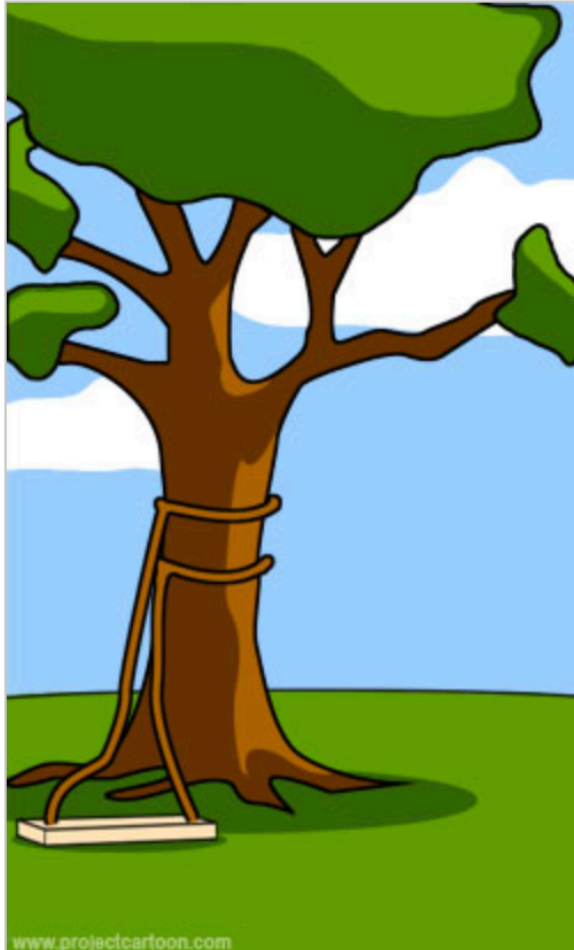
Kako je arhitekt investitorja  
razumel.



Kako je statik projekt  
zasnoval.



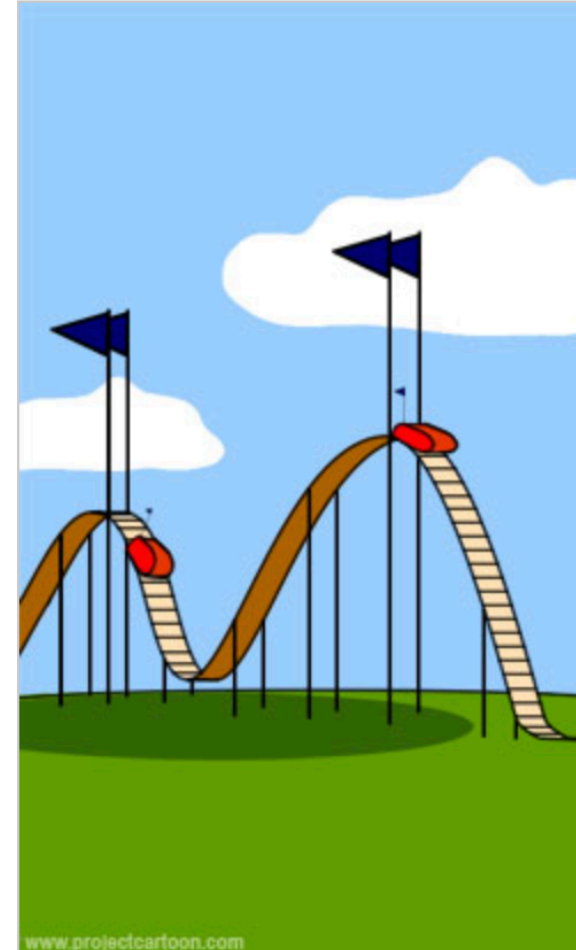
# Razlike o dojemljanju načrtov



Kako so izvajalci projekt izvedli.



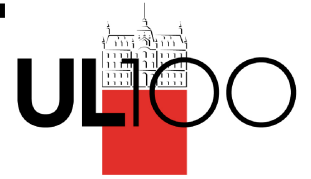
Kaj je investor v resnici želel.



Kaj so investorju zaračunali.

# Načrte moramo smiselno ovrednotiti!

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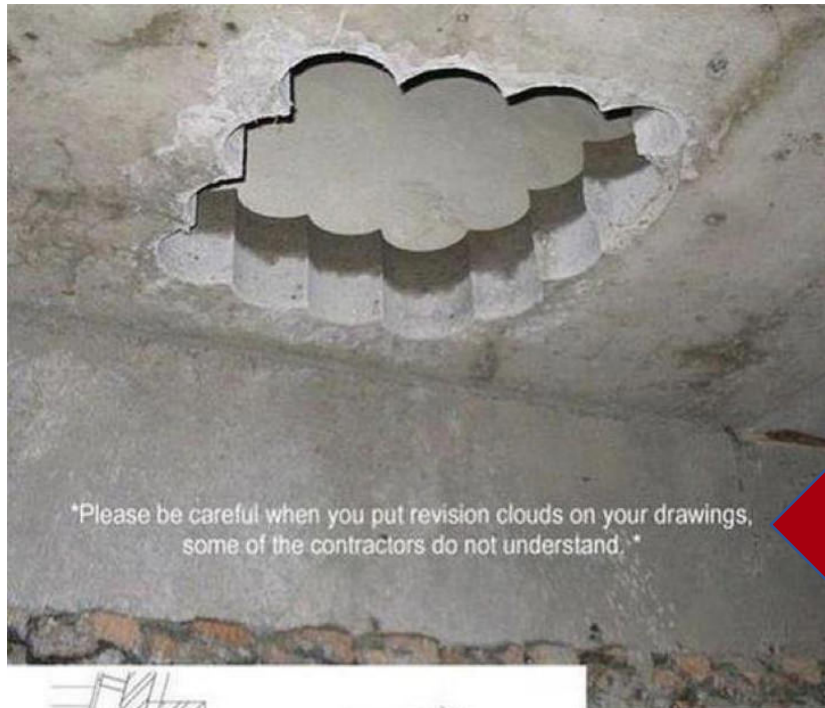


vir slike: <https://blog.miragestudio7.com/construction-mistakes/1443/>

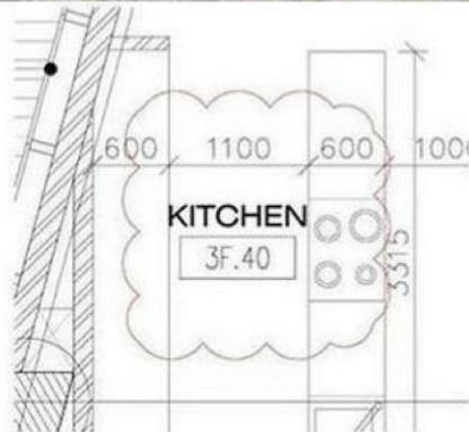


vir slike: <https://blog.miragestudio7.com/construction-mistakes/1443/>

# Načrte moramo znati brati!



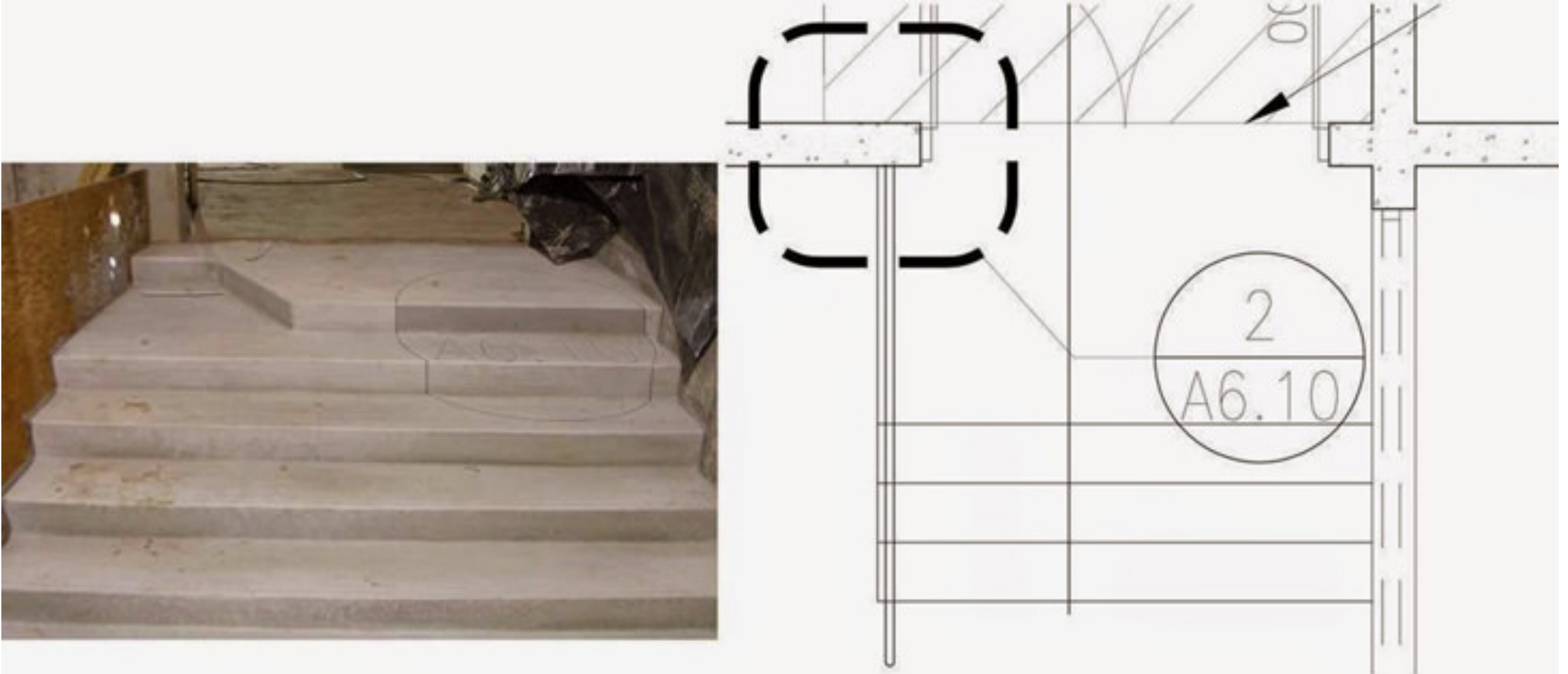
Prosim, bodite pozorni pri uporabi oznak za spremembe, saj jih nekateri podizvajalci ne razumejo.



**vir slike:** <https://blog.miragestudio7.com/construction-mistakes/1443/>



# Načrte moramo znati brati!



**vir slike:** <https://blog.miragestudio7.com/construction-mistakes/1443/>



# Načrti morajo biti smiselni!

---



# Načrti morajo biti smiselni!



# OI Sochi 2014





# OI Sochi 2014



**Tweet Boston Sports** @BostonSports\_T1 · 2h  
How is this even possible... #SochiProblems  
[pic.twitter.com/hdqTsDnFjo](https://pic.twitter.com/hdqTsDnFjo)



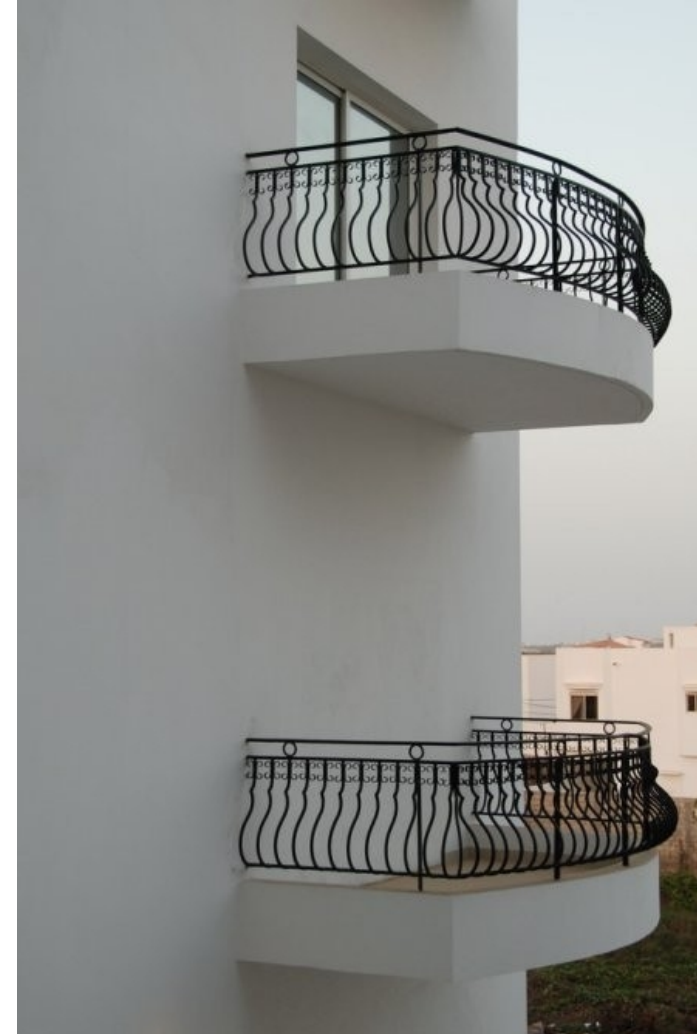
**Sochi Problems** @SochiProblems · Feb 4

Who wants front row seats? Not the gold medal but it's close enough.  
#Sochi2014 #SochiProblems [pic.twitter.com/0sqqJDFQmc](https://pic.twitter.com/0sqqJDFQmc)



# Načrti morajo biti smiselni!

---





# Načrti morajo biti smiselni!





# Načrti morajo biti smiselni!

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# Napake so lahko smešne



tipična  
inženirska  
rešitev

# Lahko so tragikomične ...

---





# Lahko so zelo zelo drage!

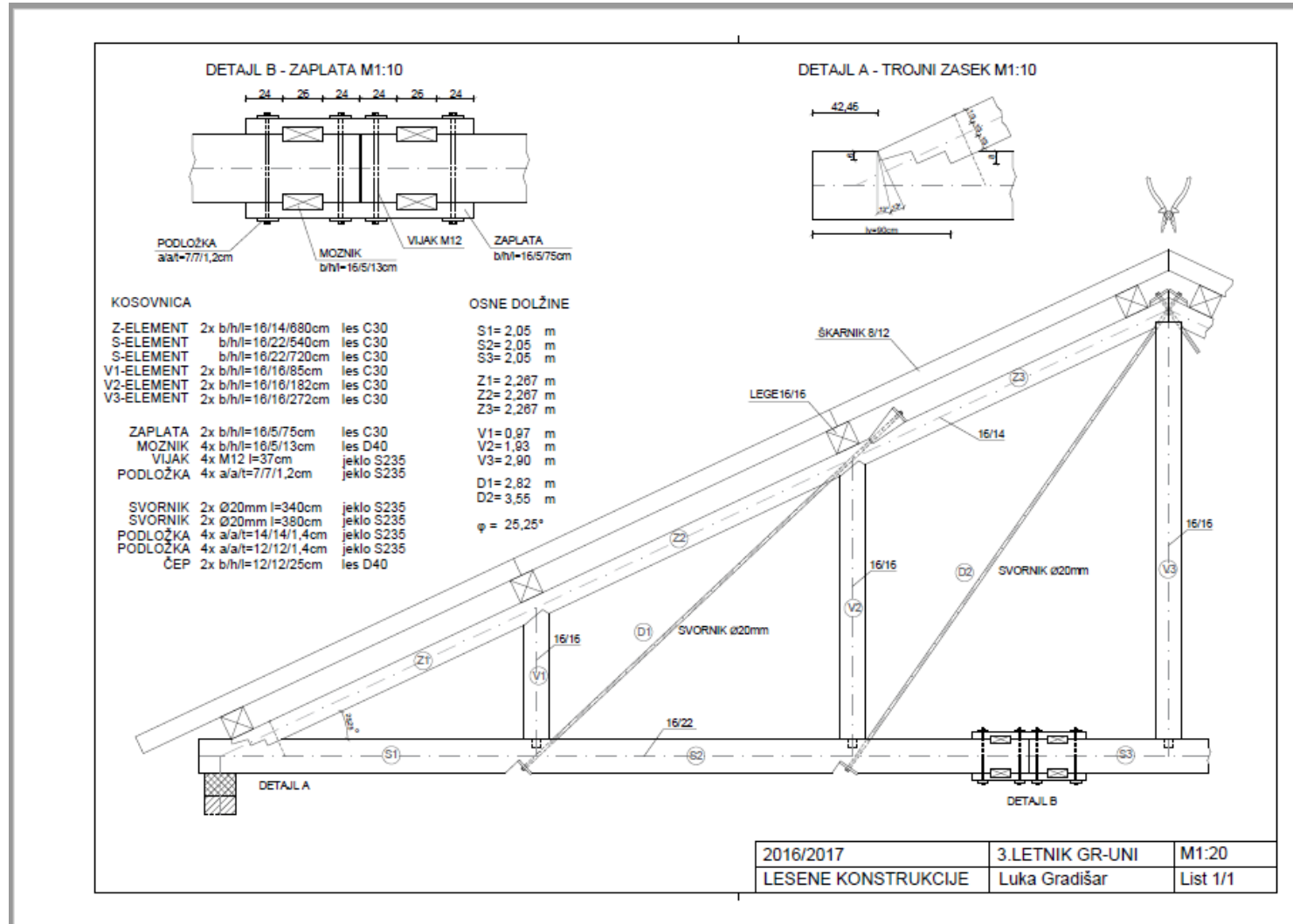
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# Lahko pa tudi zelo nevarne



# 2D načrt

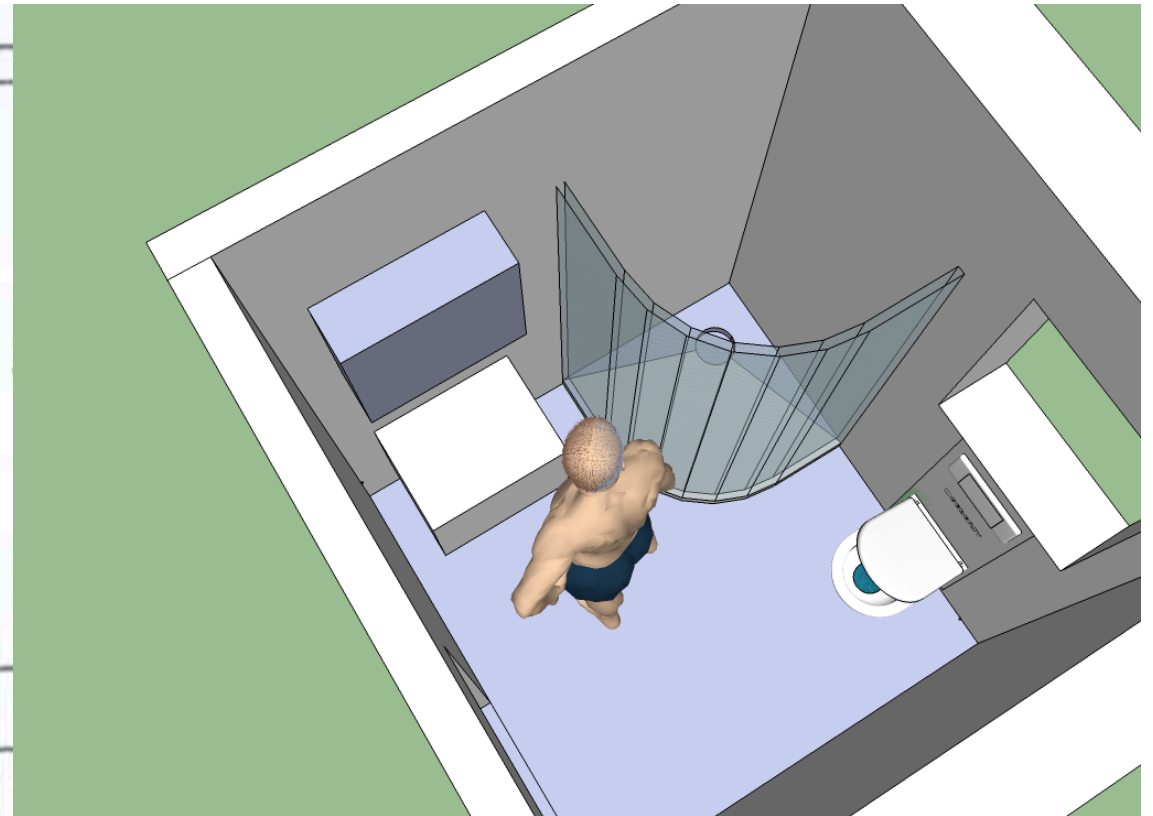
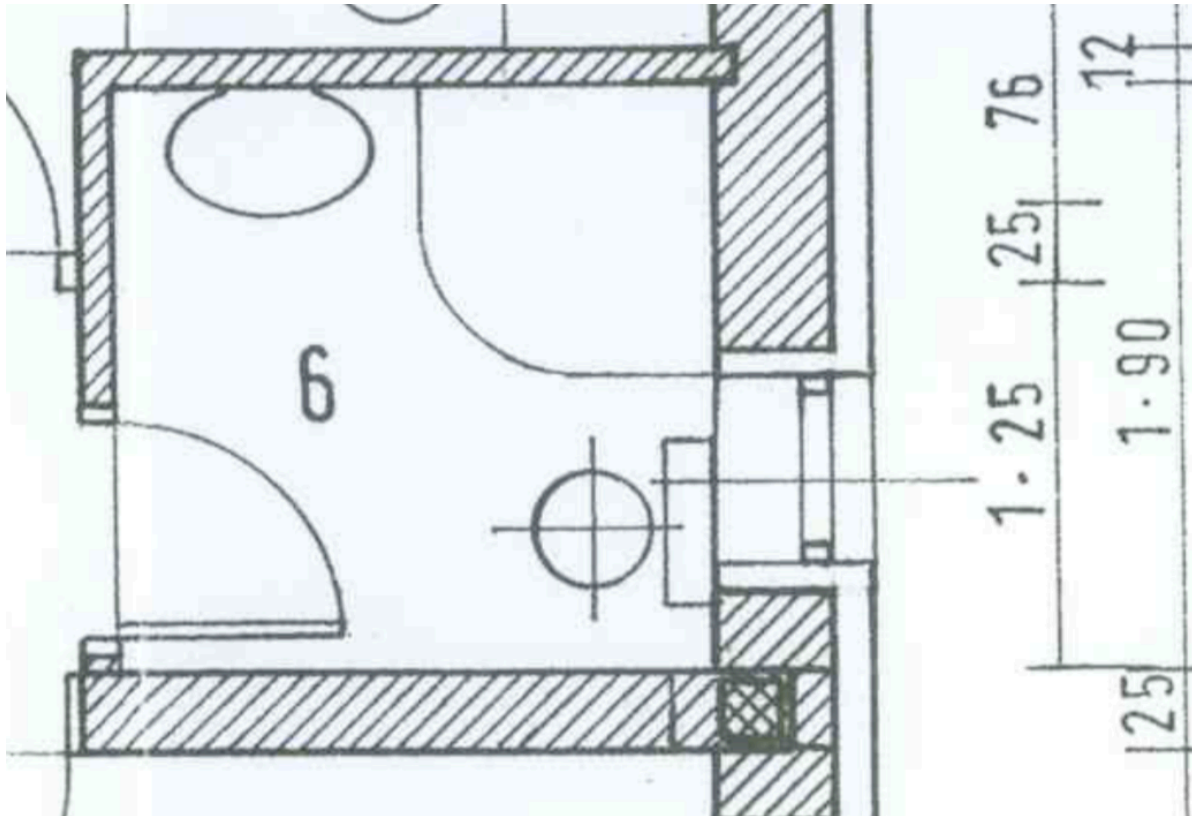




# 3D geometrijski model

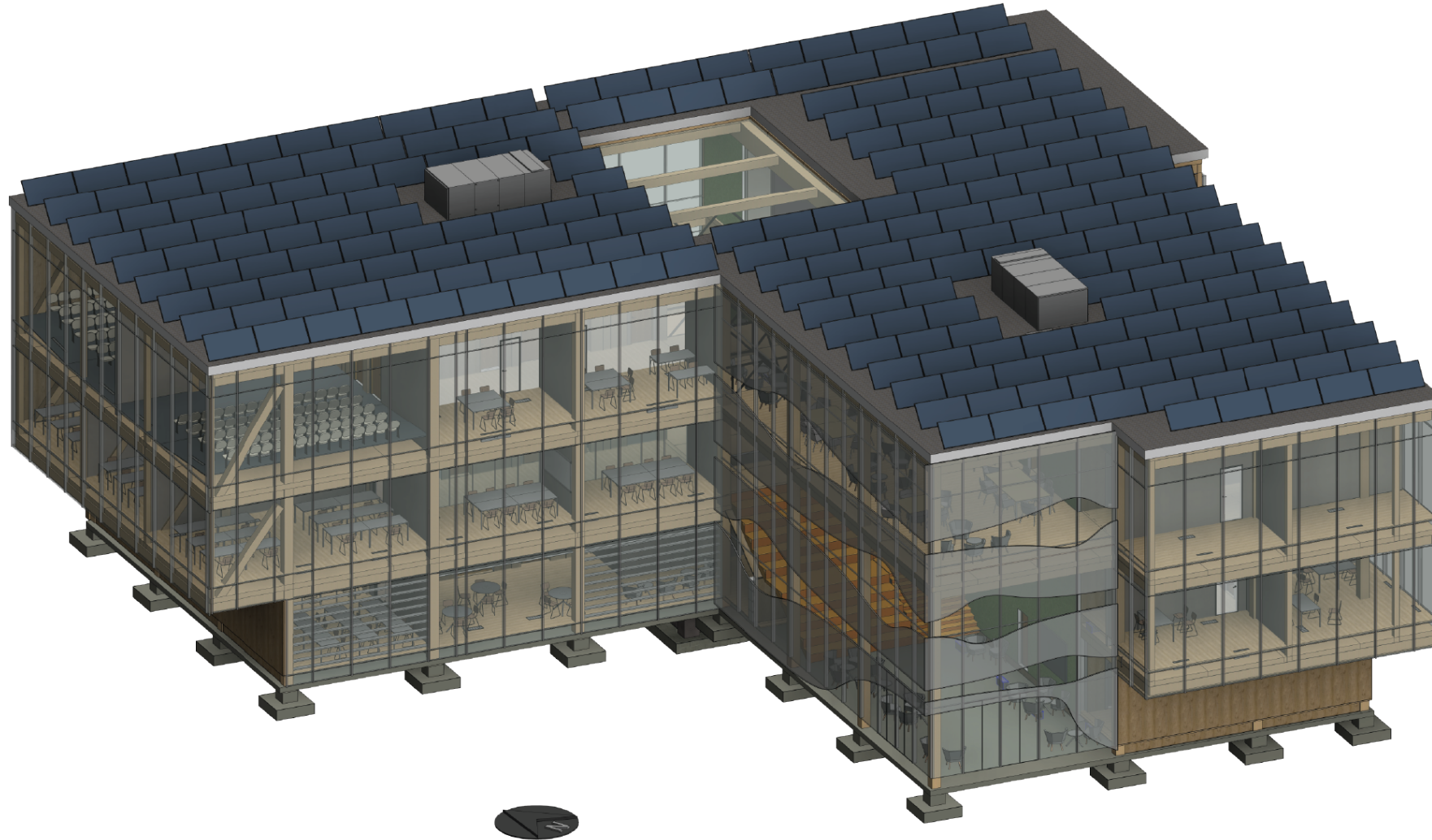


# Percepcija 2D → 3D



# 3D objektni model (BIM)

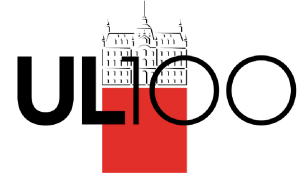
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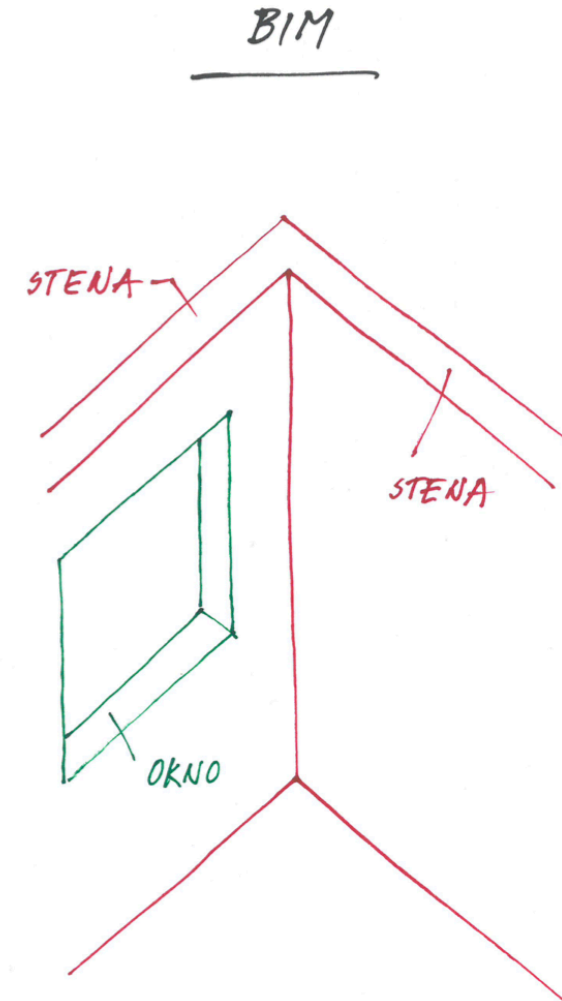
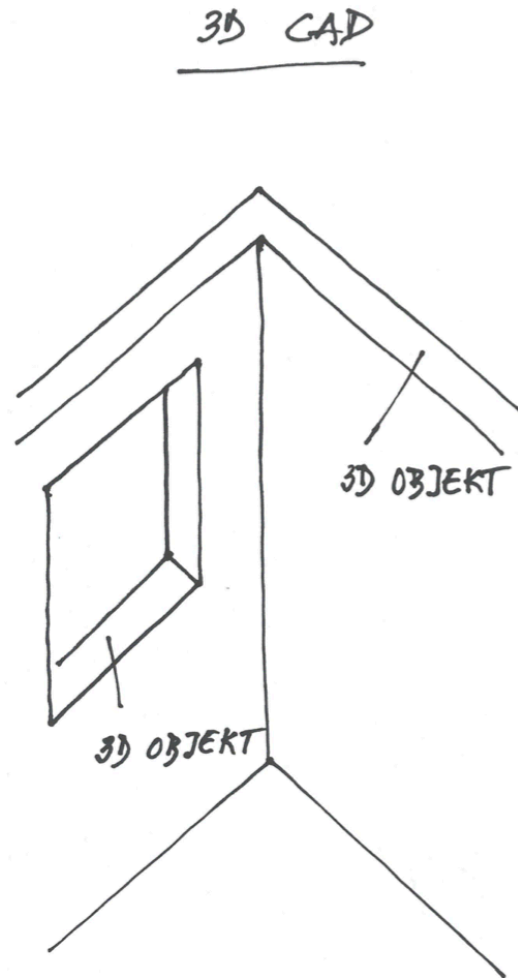
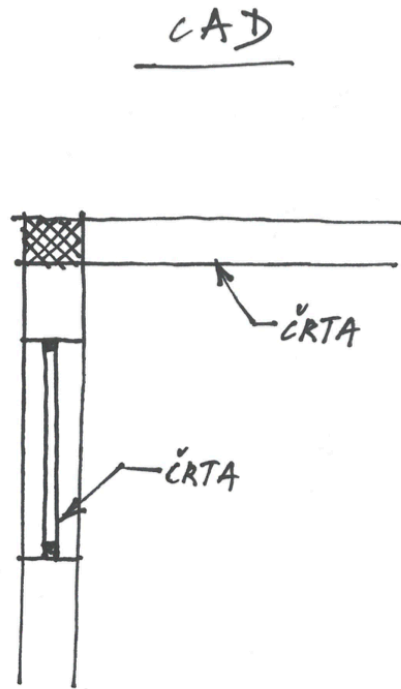
# Kaj je BIM?

---



- **Building Information Model(ling)**
  - proces, model, orodje, upravljanje, filozofija, ...
- **Informacijsko modeliranje**
  - ~~stavb~~
  - zgradb
  - gradenj

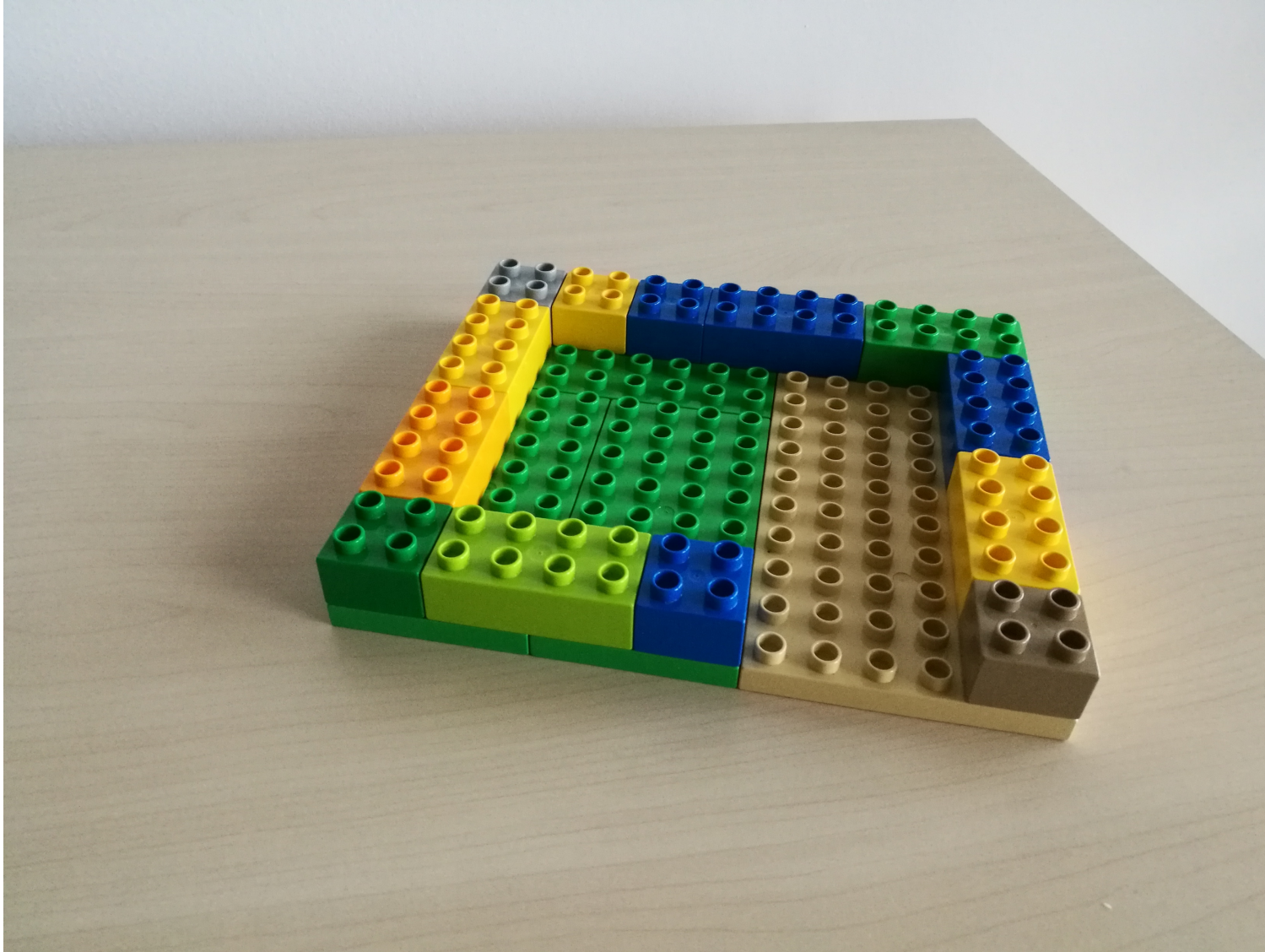
# BIM ni 3D model



vir slike: Matevž Dolenc

# Lego CAD

---



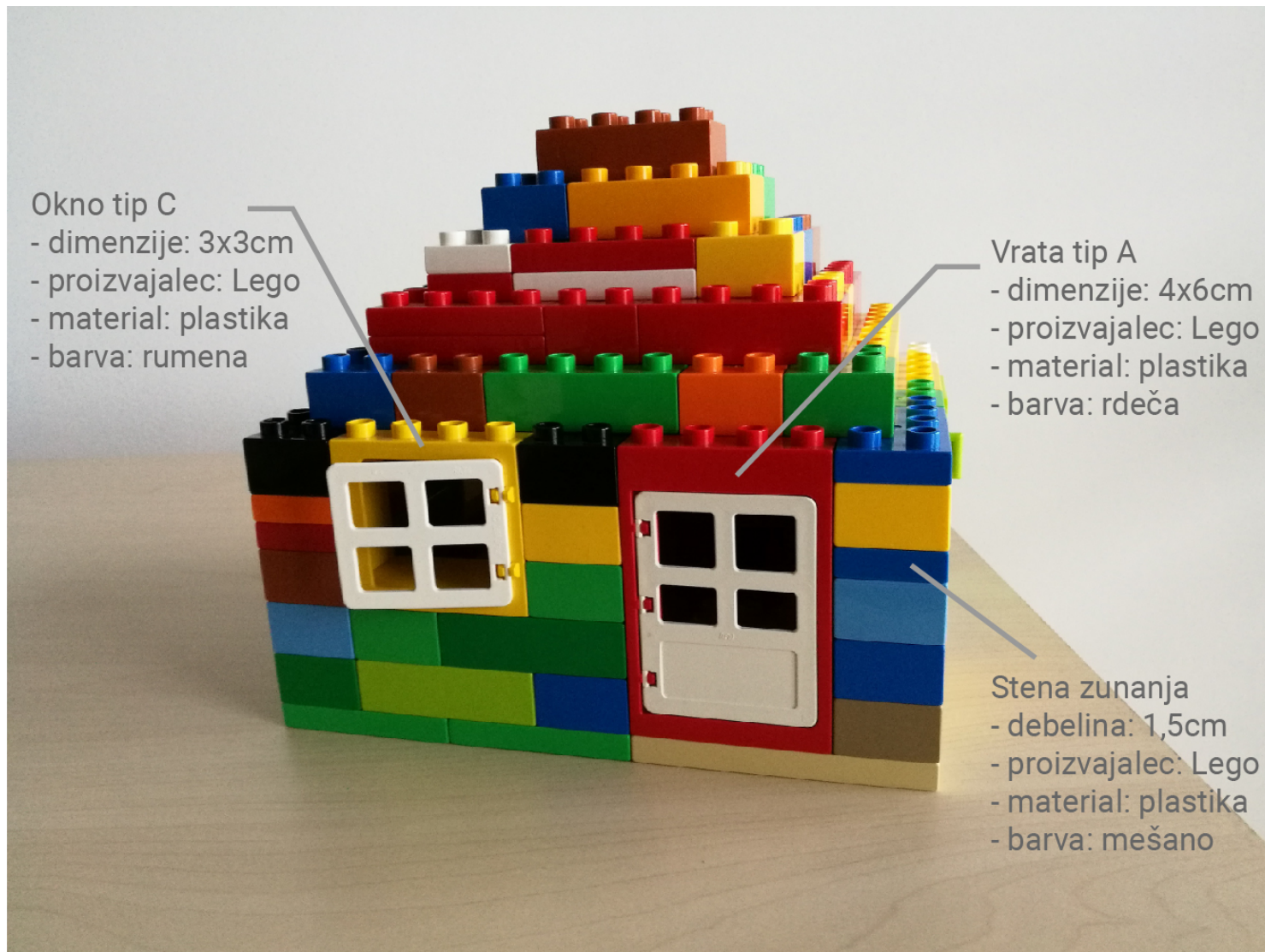


# Lego 3D

---

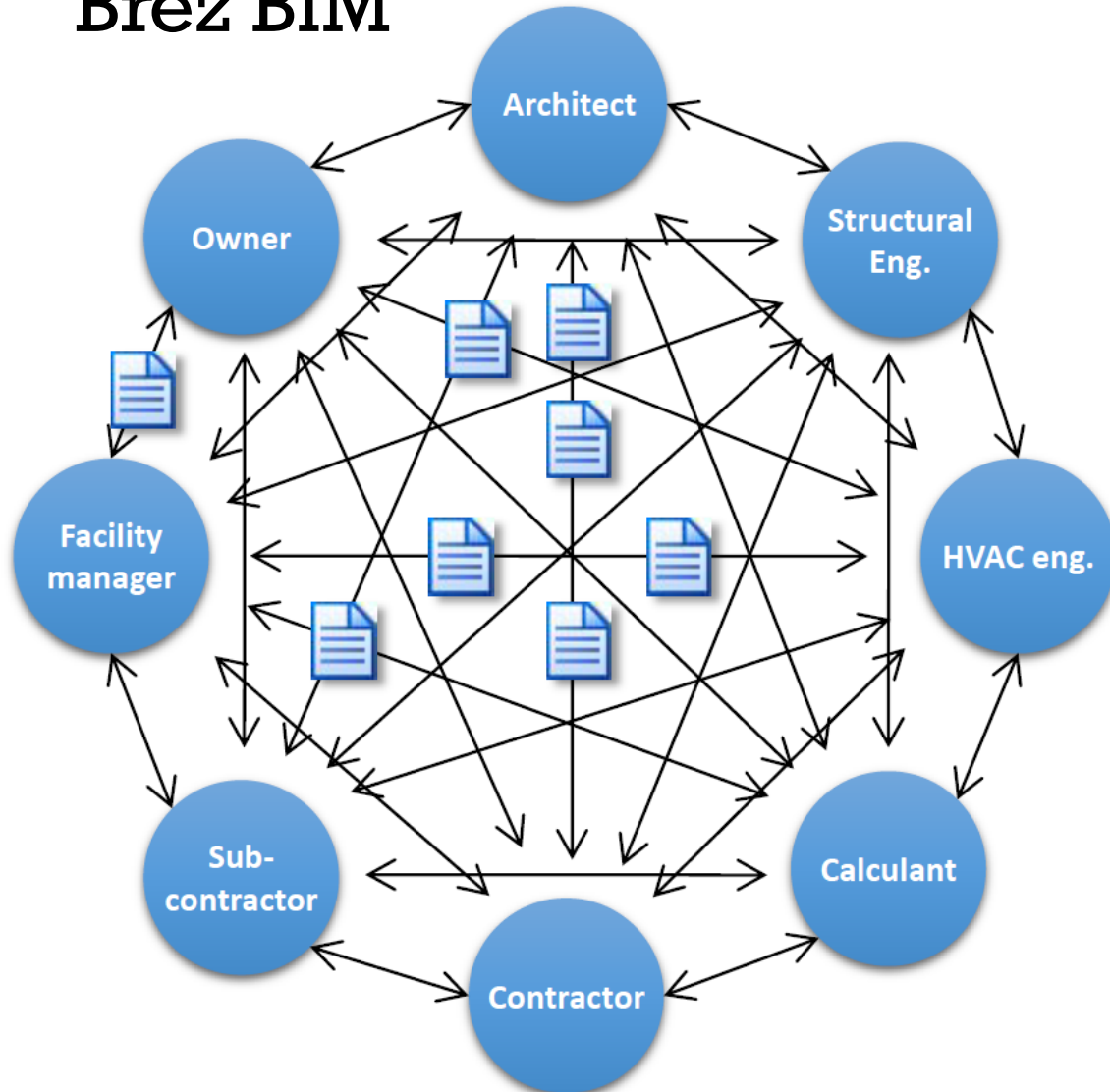


# Lego BIM

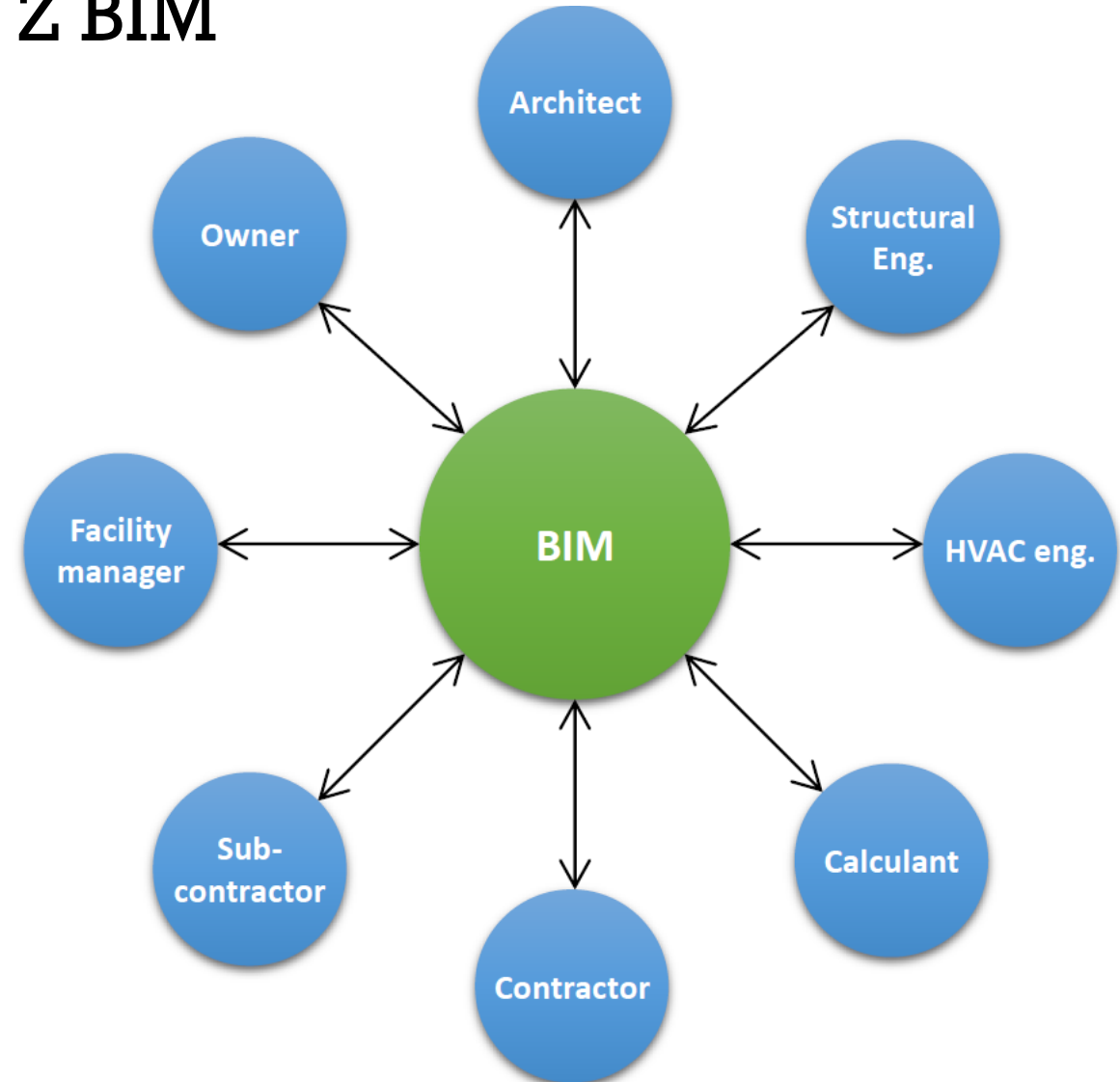


# Komunikacija zelo pomembna

## Brez BIM

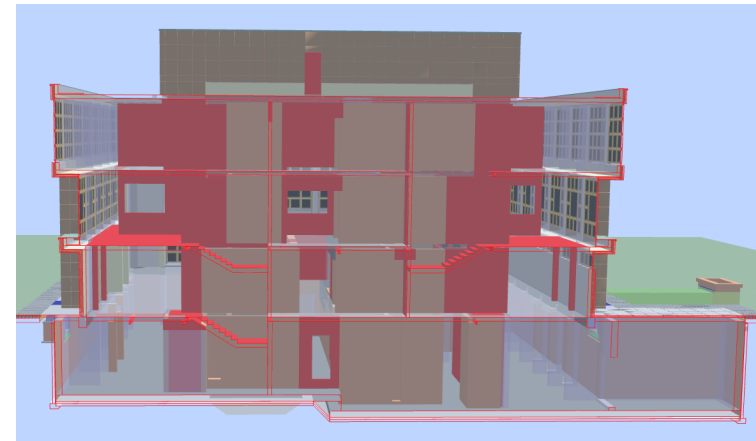
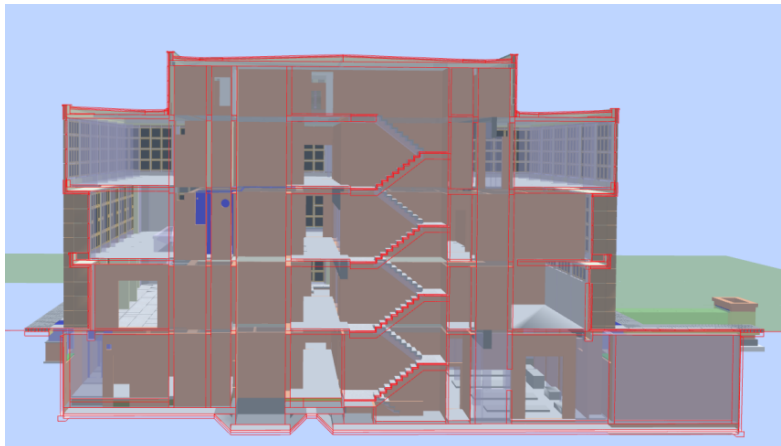
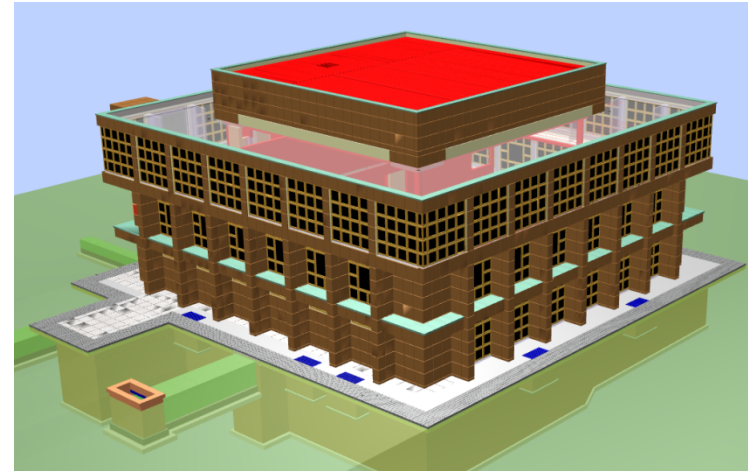
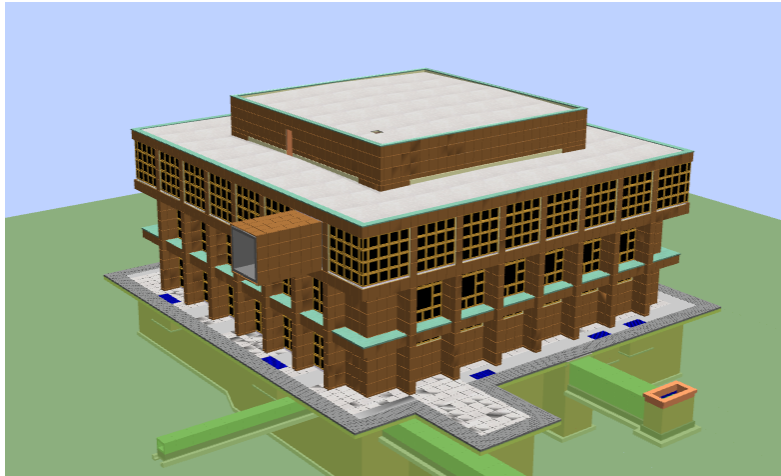


## Z BIM





# BIM: digitalna gradnja PRED gradnjo



vir slike: EU projekt ISES (2015)

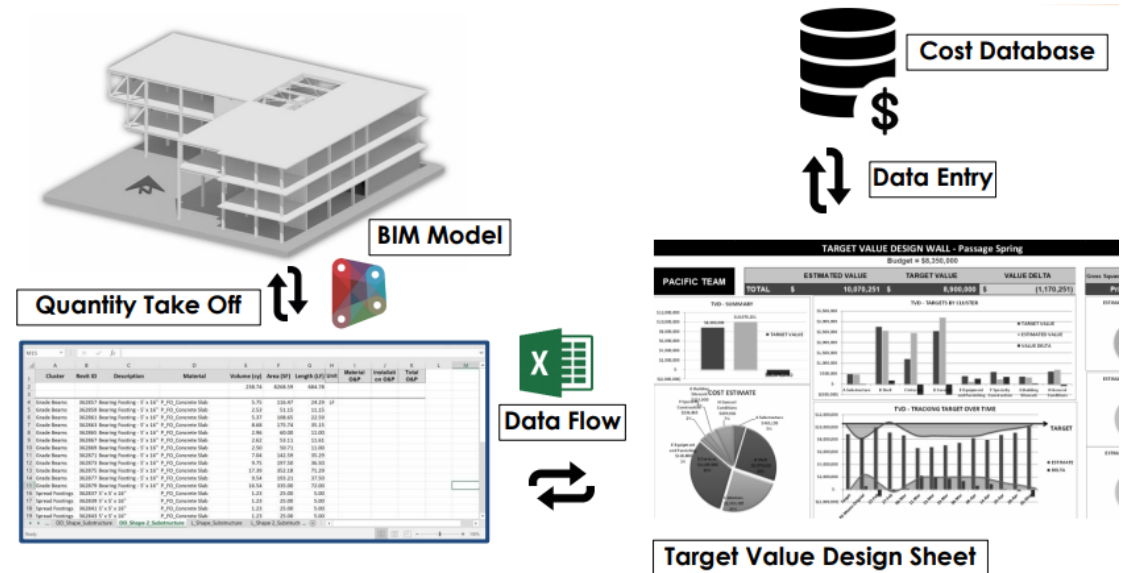
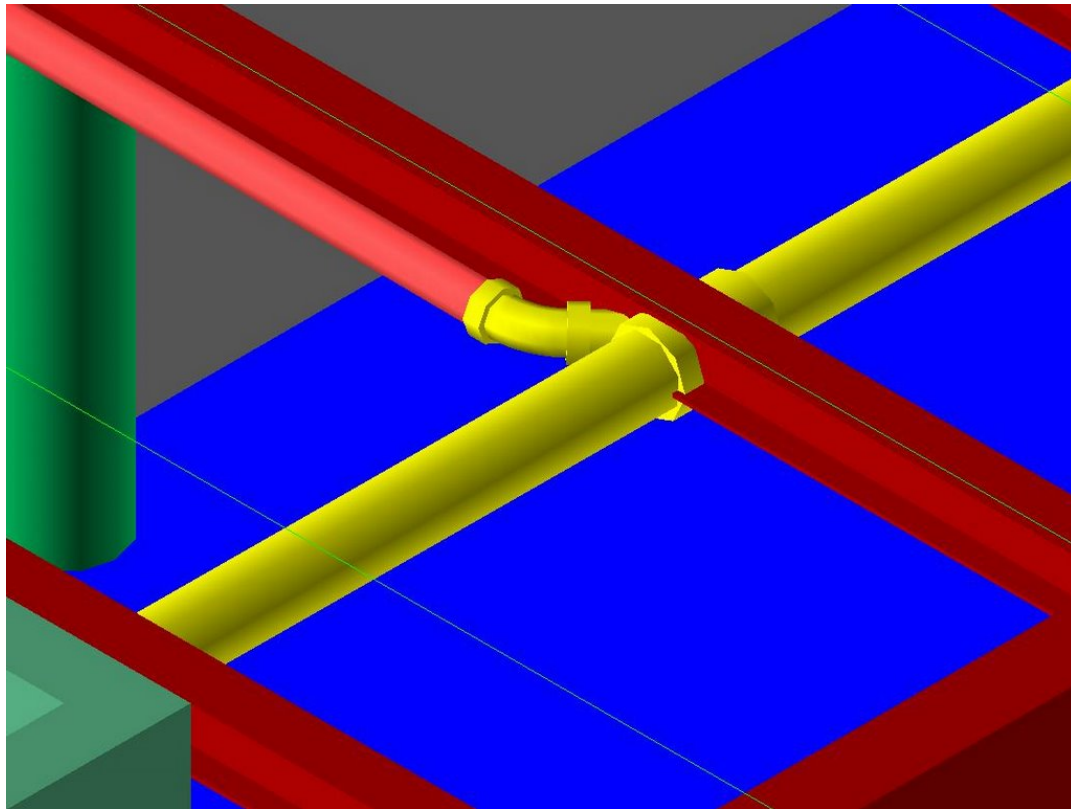
# Prednosti v praksi

---



# BIM omogoča več

## Clash detection – iskanje kolizij Obdelava informacij in podatkov



vir slike: <http://pbl.stanford.edu/AEC%20projects/Year%202018-2019/Spring/Pacific-Spring2019.pdf>

vir slike: <http://therevitkid.blogspot.si/2009/11/cost-savings-of-bim.html>



# Virtualna resničnost



Komunikacij  
a na daljavo



# Virtualna resničnost



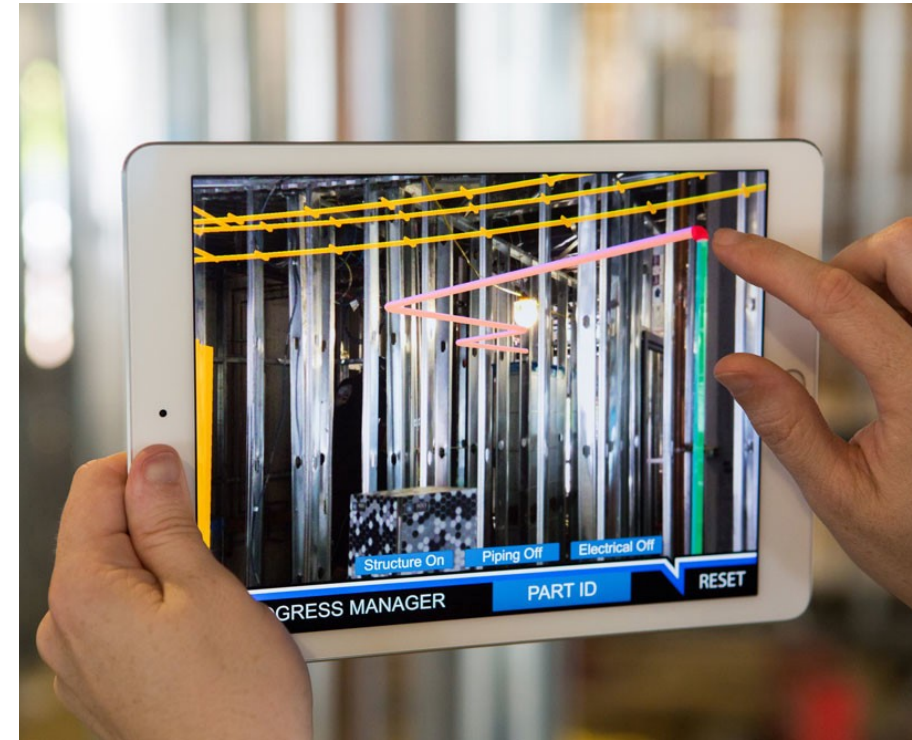
Reševanje  
problemov



# Navidezna resničnost



**vir slike:** <https://mixed.reality.news/news/trimble-brings-mixed-reality-construction-site-with-dagri-smart-helmet-0176463/>



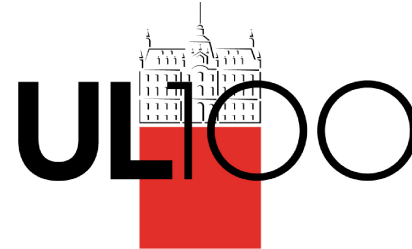
**vir slike:** <https://medium.com/@colbygee/augmented-reality-will-transform-bim-into-the-beast-it-was-always-meant-to-be-e170d7357ad9>



# Delo na daljavo

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# Študenti FGČ in BIM

# 2014 projekt - »GSM project«

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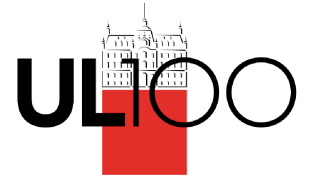


# 2014 projekt - »Elan«



# 2014 projekt - »Gradbinčki«

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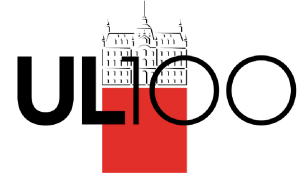
**vir slike:** seminar pri predmetu Računalniško integrirana graditev



# 2014 projekt - »OutOfTheBox«

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University of Ljubljana  
Faculty of *civil and geodetic engineering*

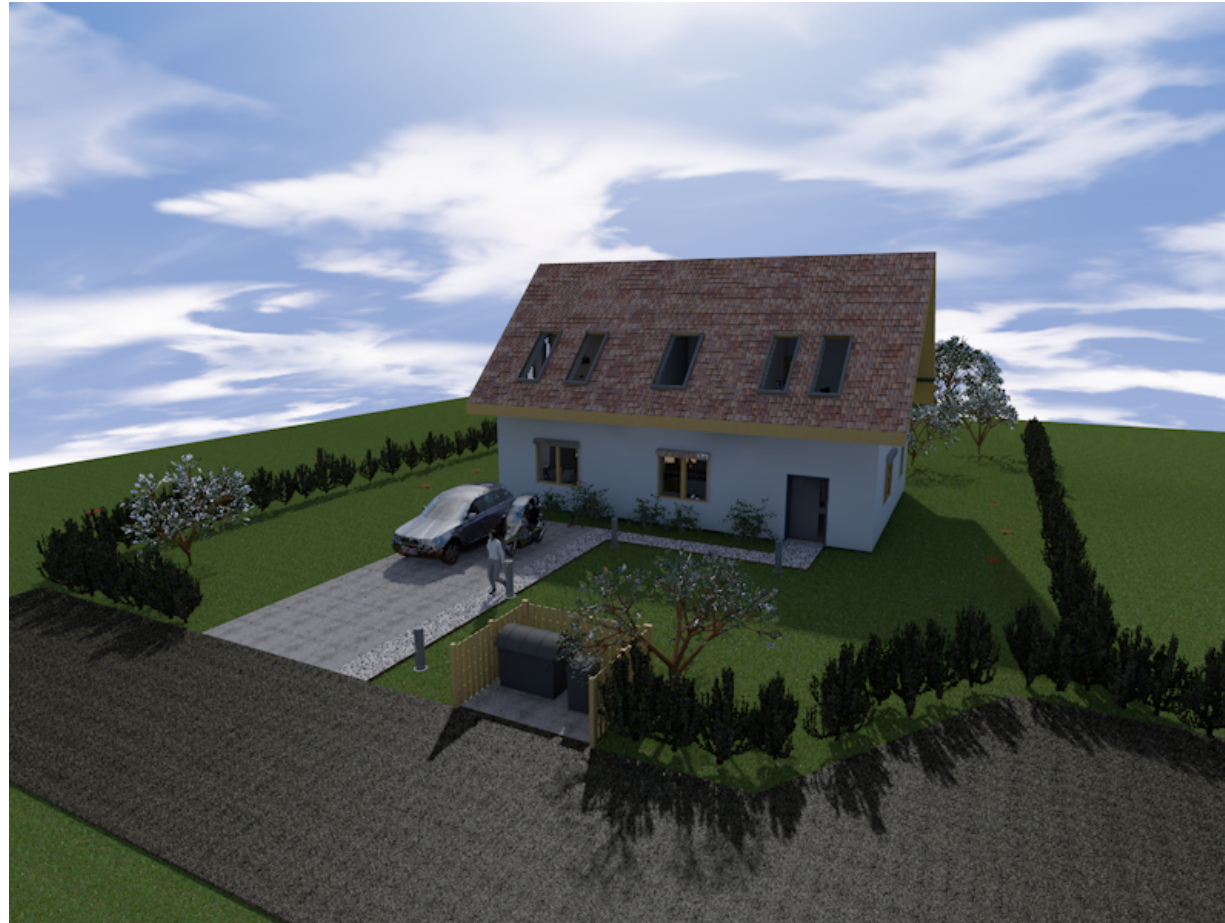


**vir slike:** seminar pri predmetu Računalniško integrirana graditev



# 2015 projekt - »DBJ«

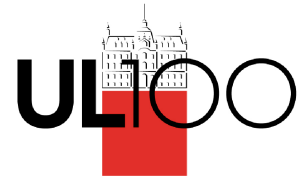
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# 2015 projekt - »PRO design d.o.o.«

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Faculty of *civil and geodetic engineering*



**vir slike:** seminar pri predmetu Računalniško integrirana graditev

# 2017 projekt - »GRAditev«





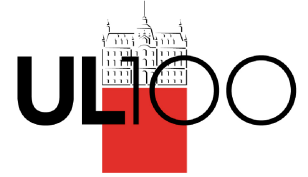
# 2017 projekt - »Temelj d.o.o.«



# 2018 projekt - »AAEngineering«

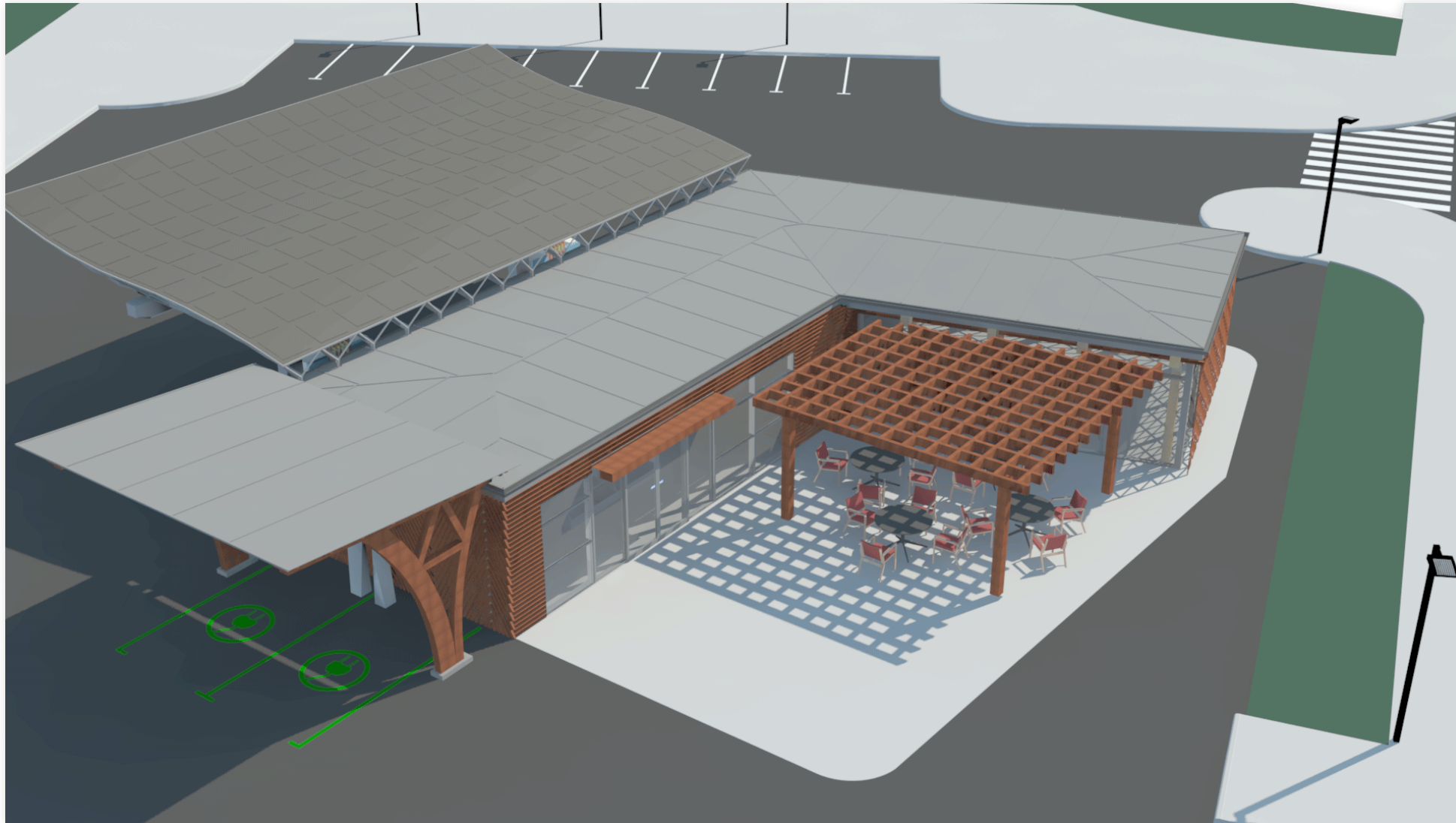
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**vir slike:** seminar pri predmetu Računalniško integrirana graditev

# 2018 projekt - »Vaš odgovor«

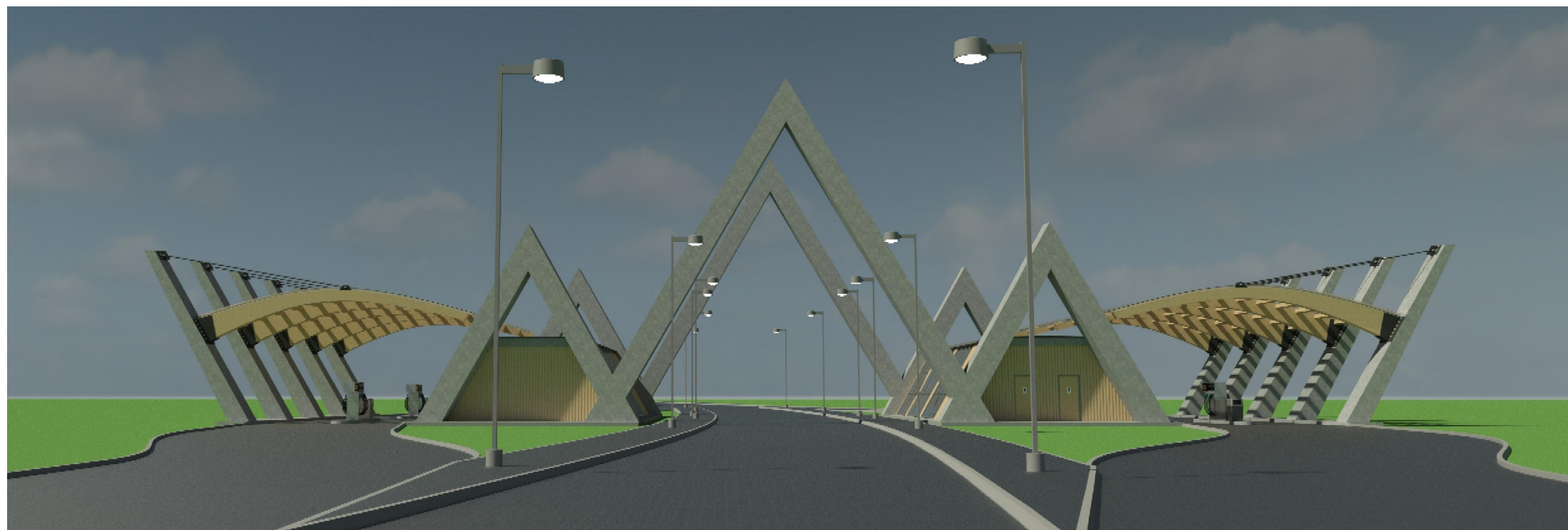
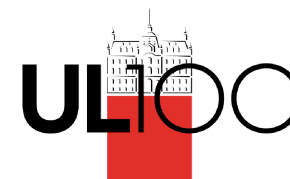




# 2018 projekt - »OFR«

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University of Ljubljana  
Faculty of *civil and geodetic engineering*



**vir slike:** seminar pri predmetu Računalniško integrirana graditev

# Računalniška oprema na FGG

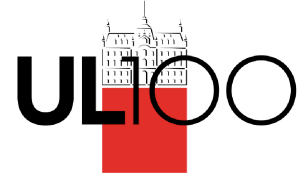


- 9 računalniških učilnic
- 159+ sodobnih računalnikov

# BIM programska oprema na FG

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# Hvala za pozornost

