



**HRVATSKA KOMORA INŽENJERA GRAĐEVINARSTVA**

**Dani Hrvatske komore inženjera građevinarstva**

**Opatija, 2019.**

# KONSTRUKCIJA STUDENTSKI DOM VARAŽDIN

**Boris Baljkas**

Prof. Boris Baljkas, dipl.ing.građ.

Tehničko Veleučilište u Zagrebu

Graditeljski odjel



## **konstrukcija**

projektant Boris Baljkas

revident Ivan Radman

planovi armature Alan Težak

prednapregnute ploče Predrag Presečki



## **arhitektura**

projektanti

Vedran Pedišić

Erik Velasco Ferrera

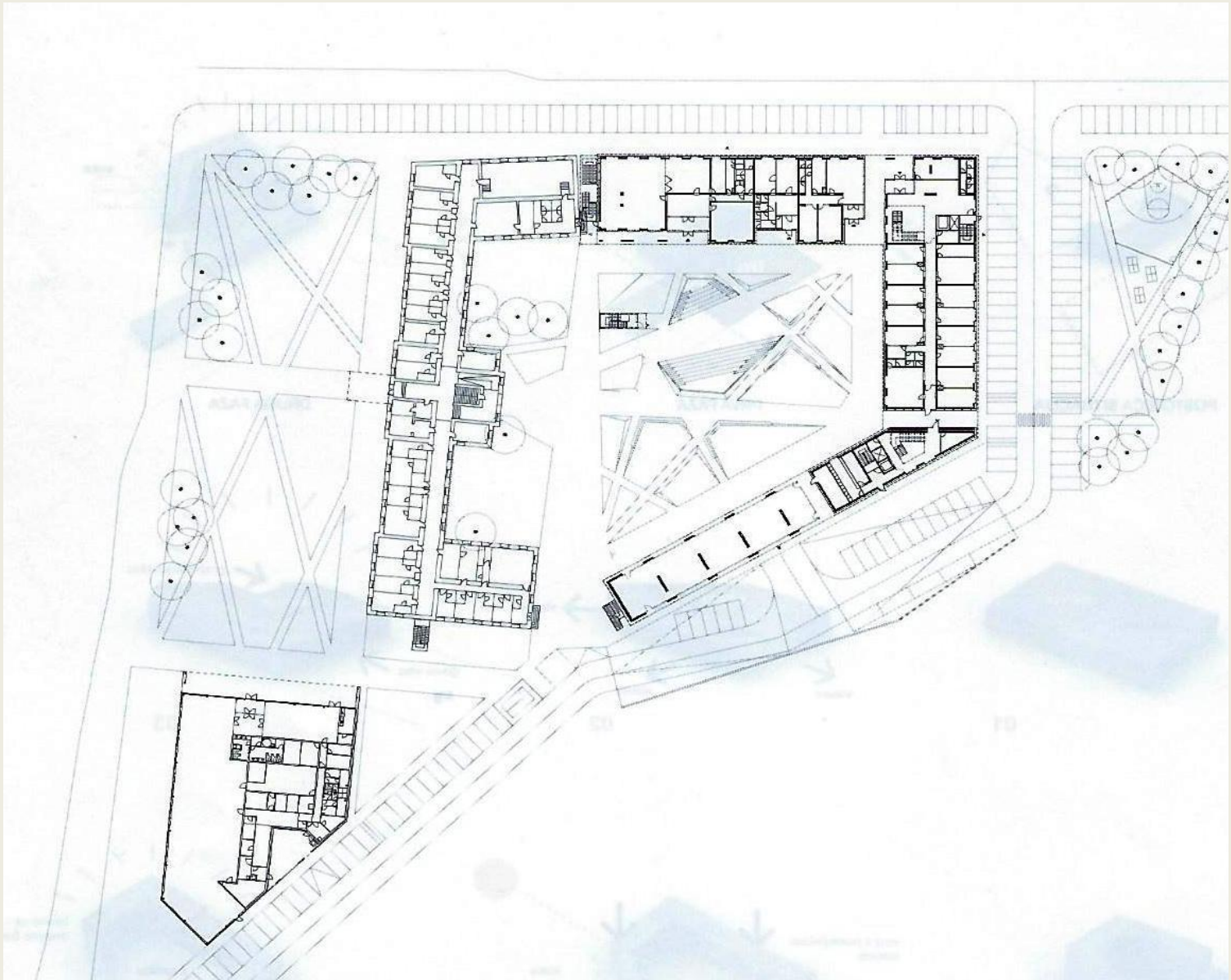
suradnice i suradnici



na dan svečanog otvorenja

**nadzor** Mladen Vidaček

**voditelj projekta** Sanjana Buć















(EF)

presjek B - B  
section B - B



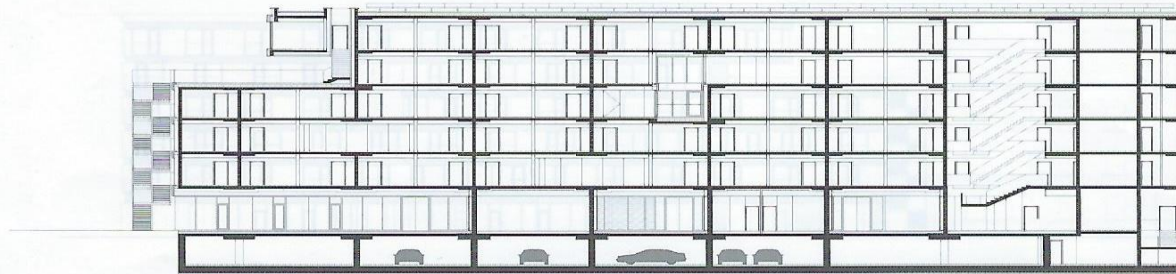


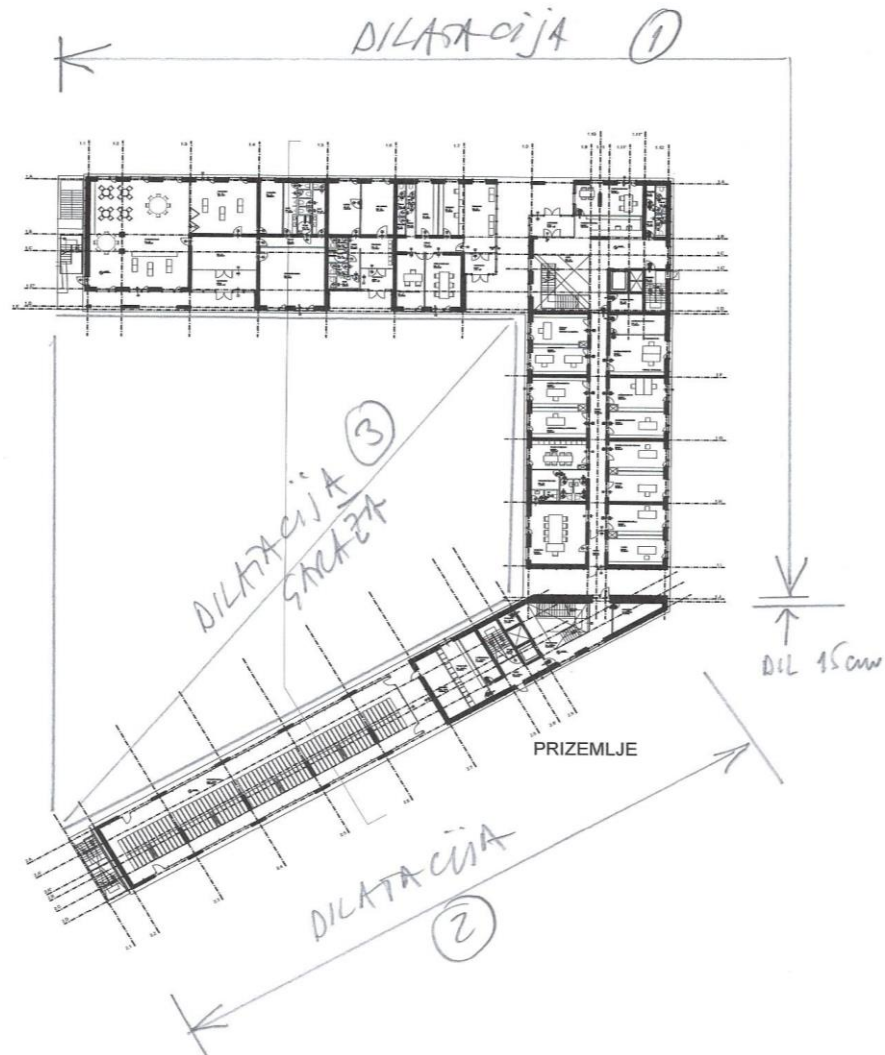




presjek A - A  
section A - A  
▼

[TB]

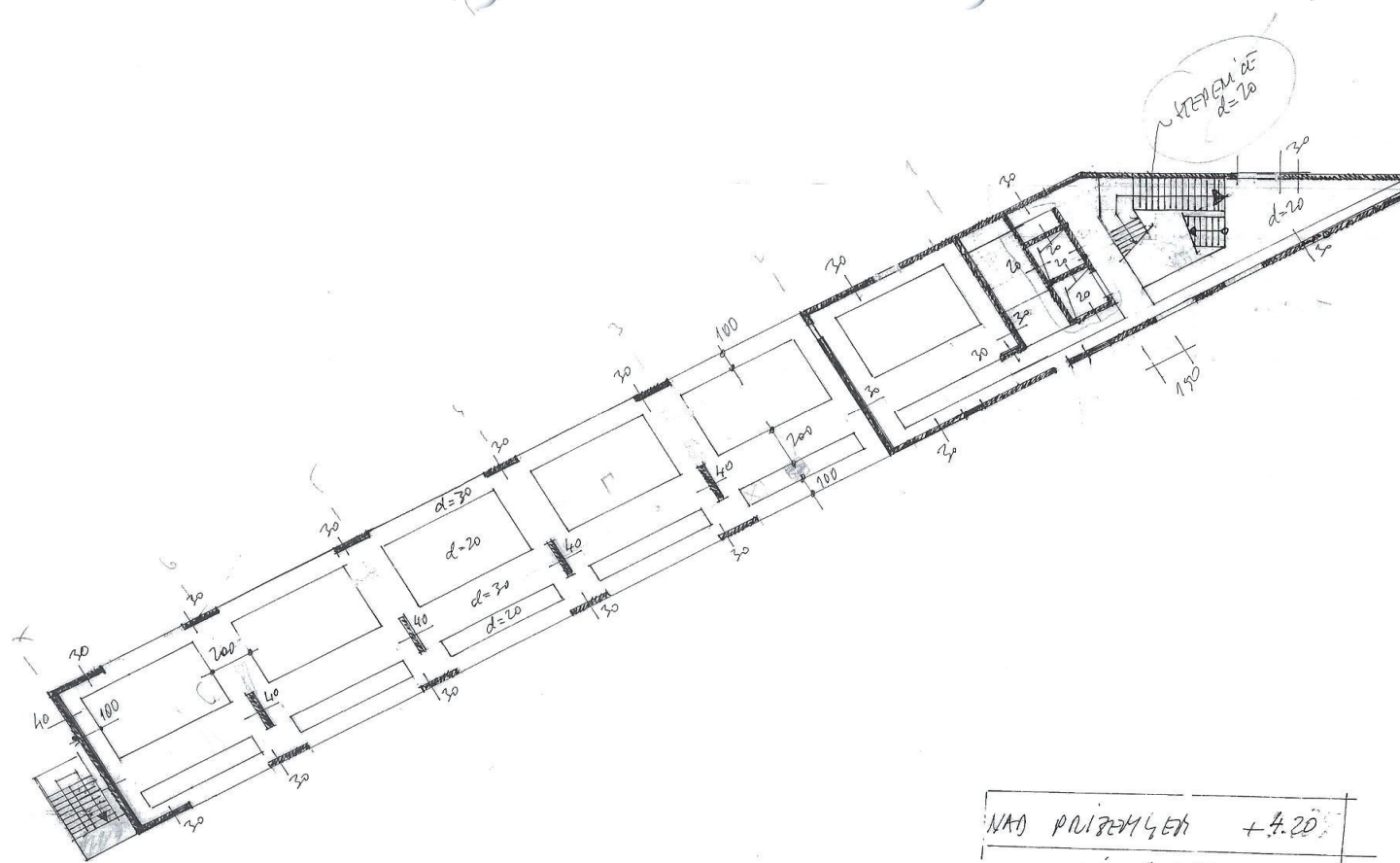


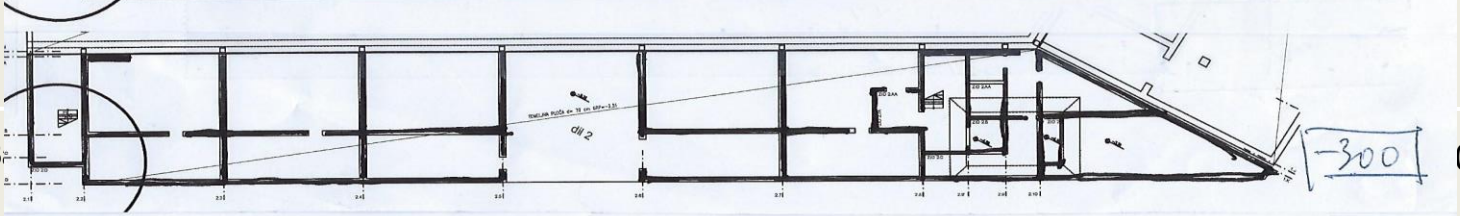
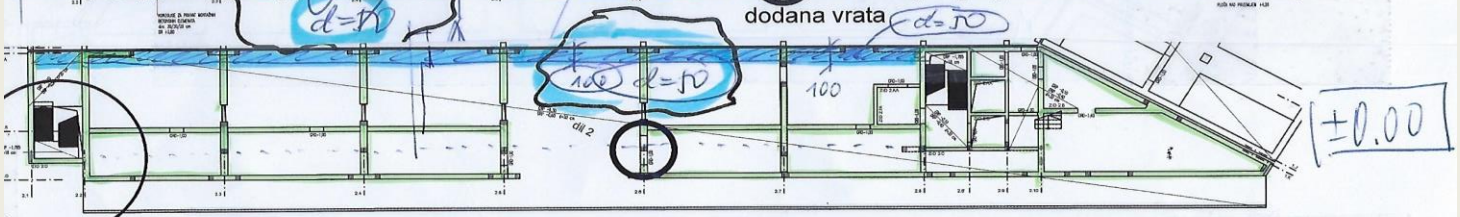
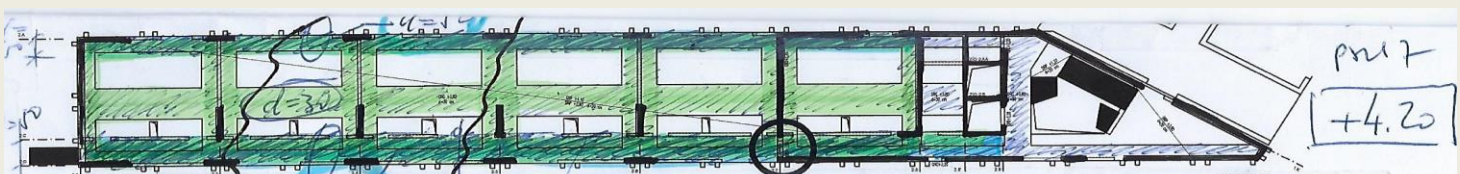
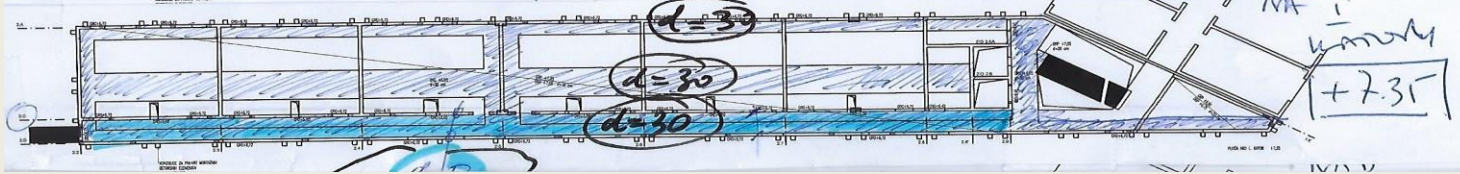
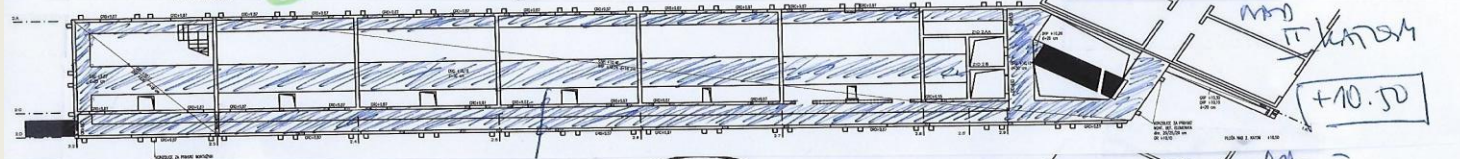
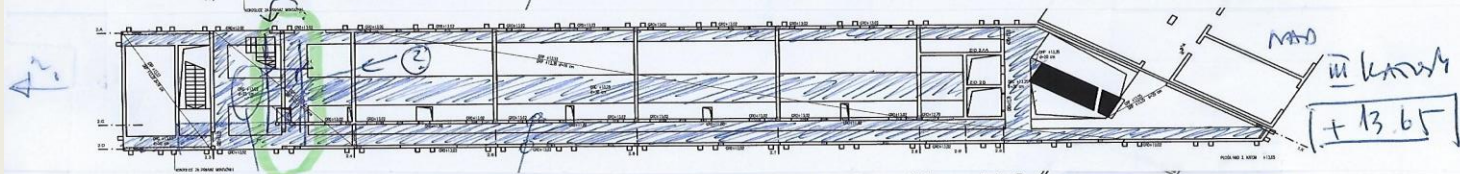
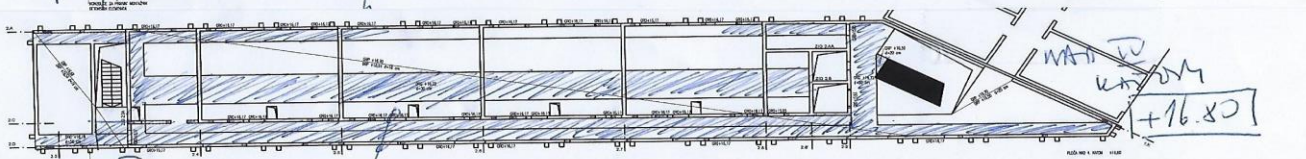
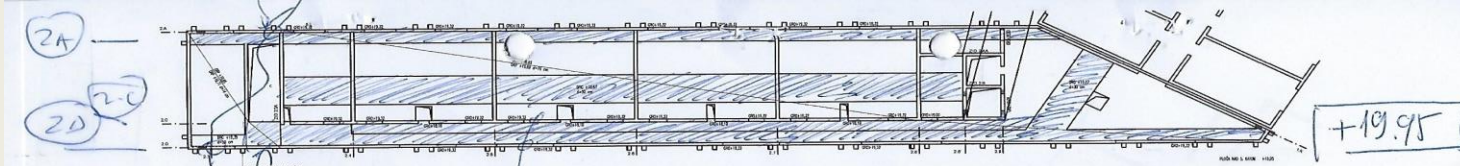


- Dilema



DILATACIJA 2

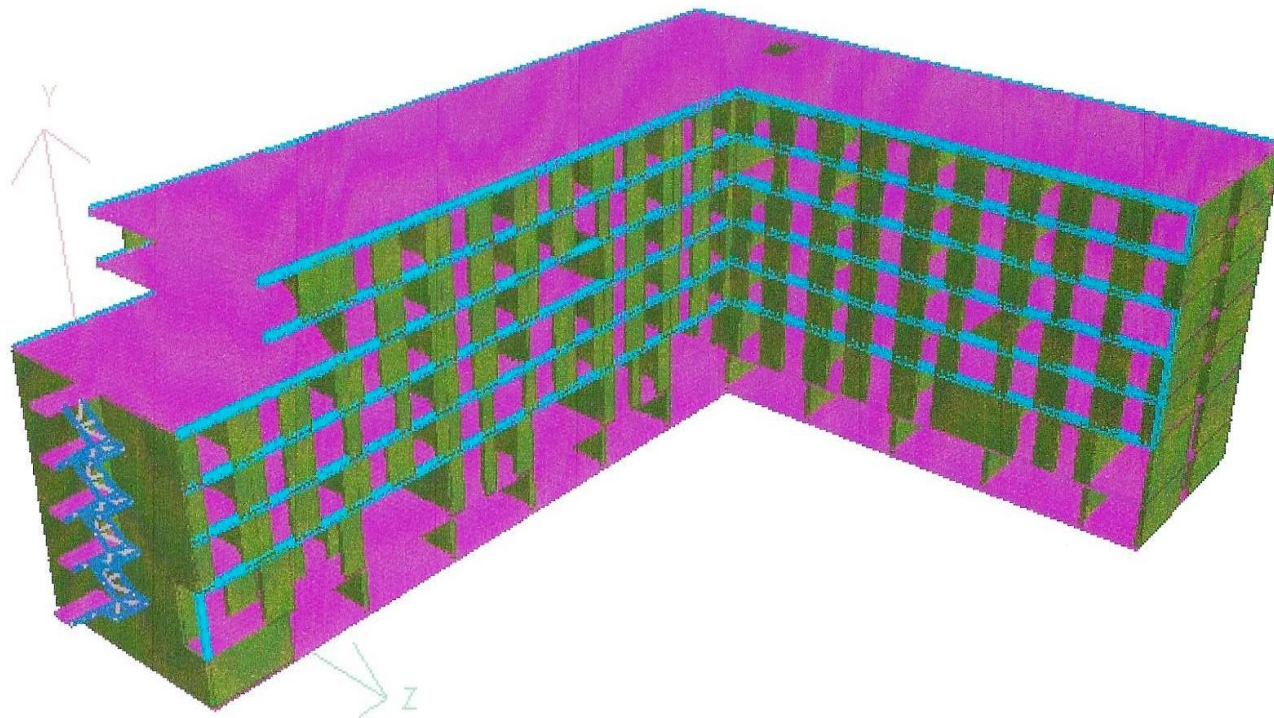






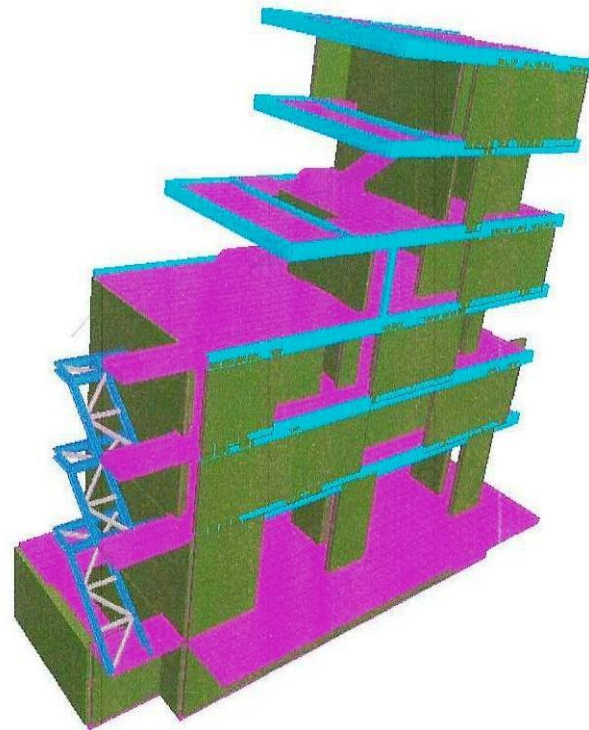


# numerički modeli



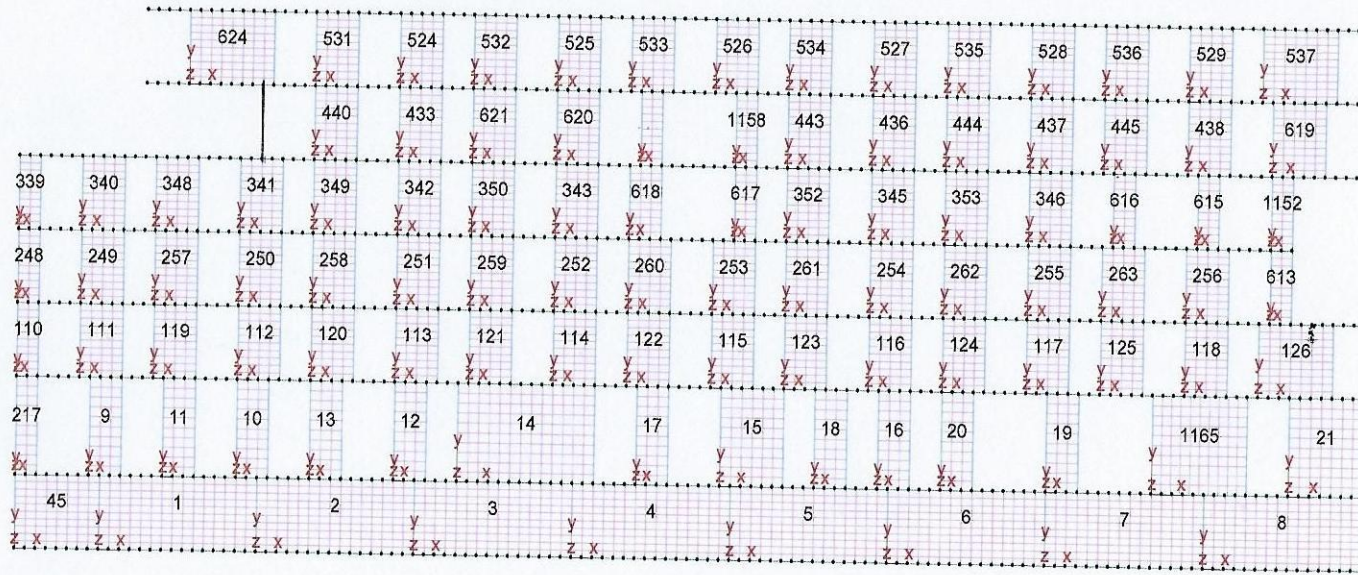
3D model





dio gdje su konzole i požarno stubište

ZID 1.A.



7.25

4.20

0.00

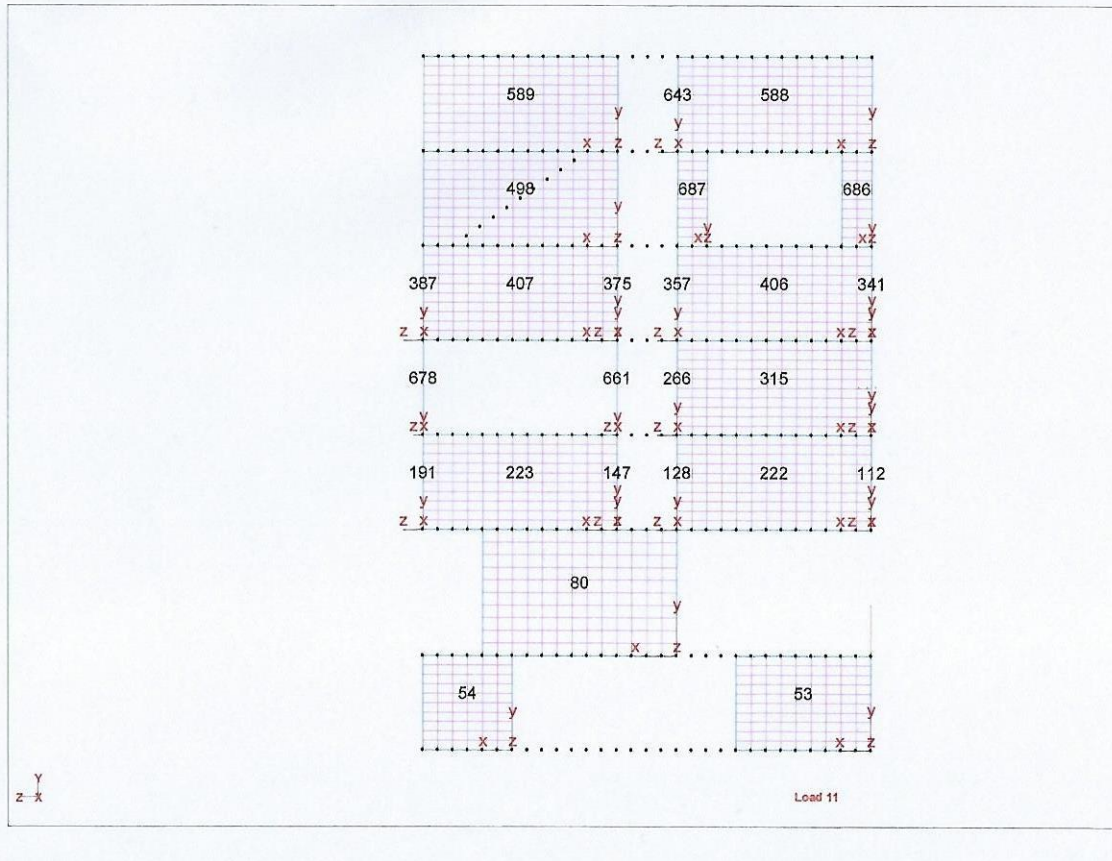
-3.50

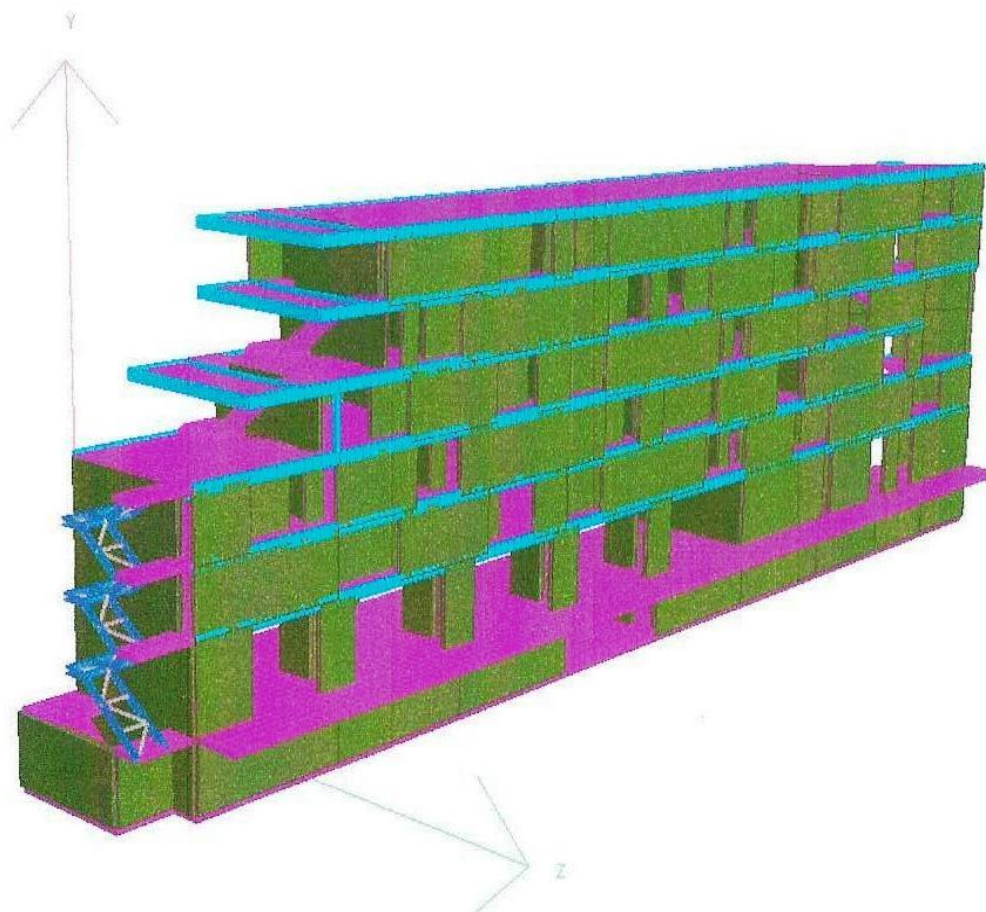
Y  
Z X

Load 11



ZID 1.3.



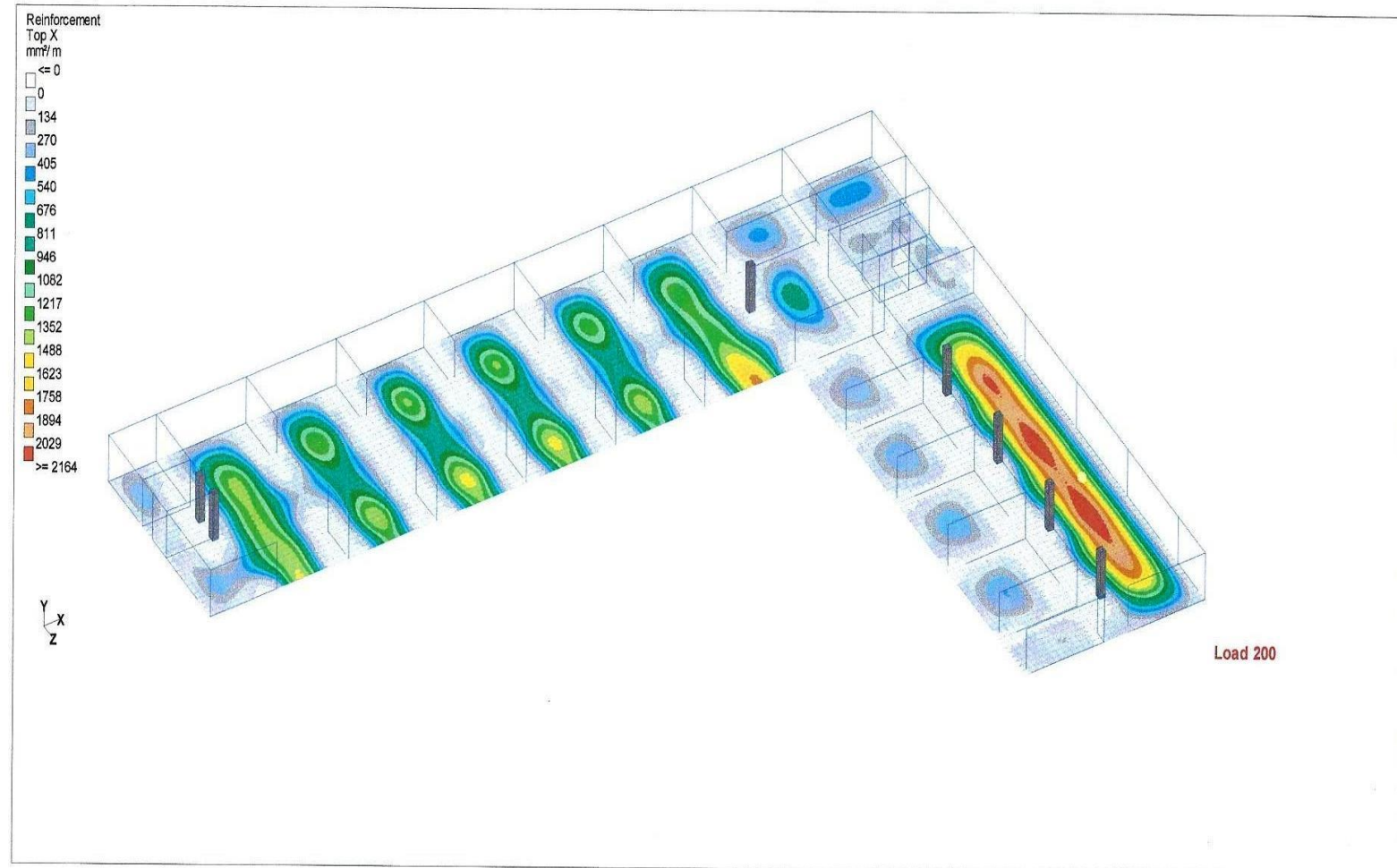


3D MODEL

DILATACIJA 2

# Armatura ploča

## -3.00 temeljnja ploča



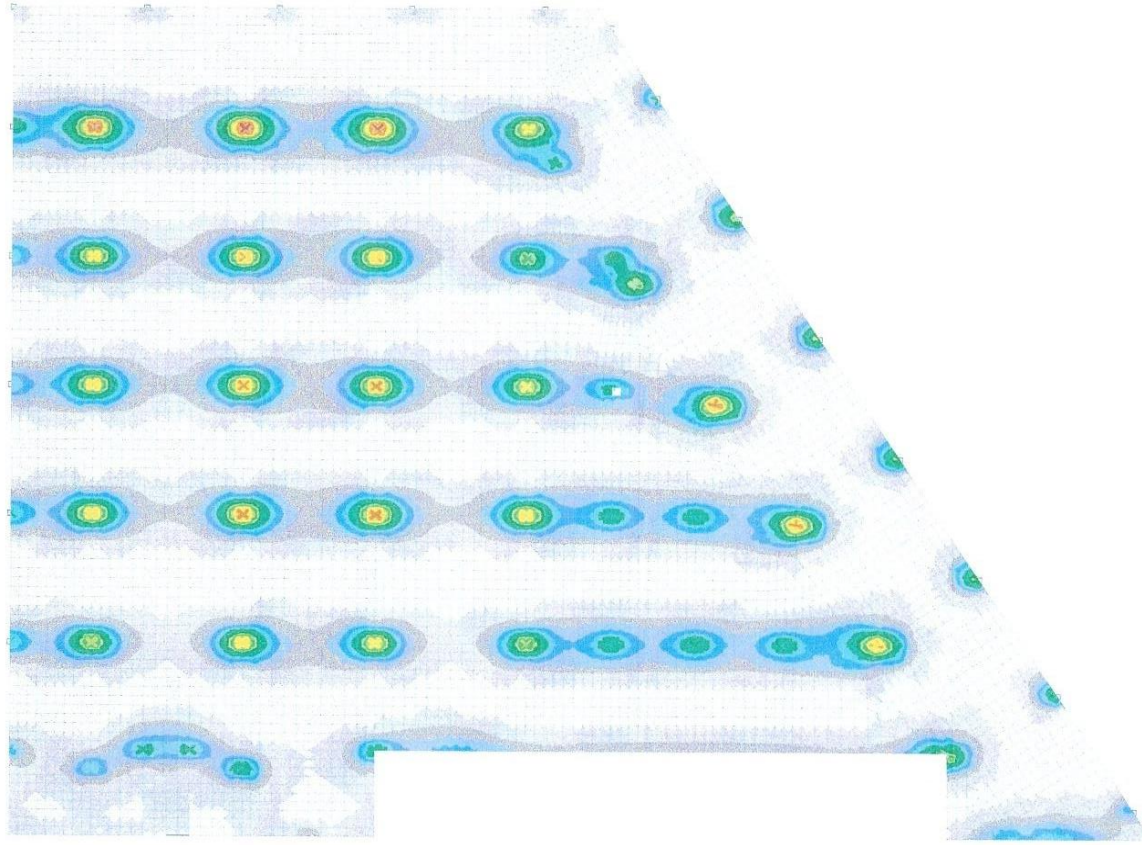
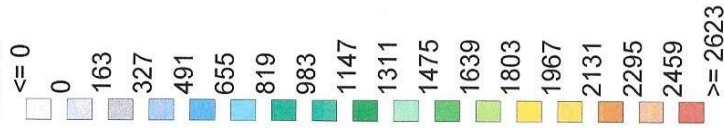
MB 50

DIL ①



**ARMATURA PLOČE +0.00**  
gornja zona xx

Reinforcement  
mm<sup>2</sup>/m

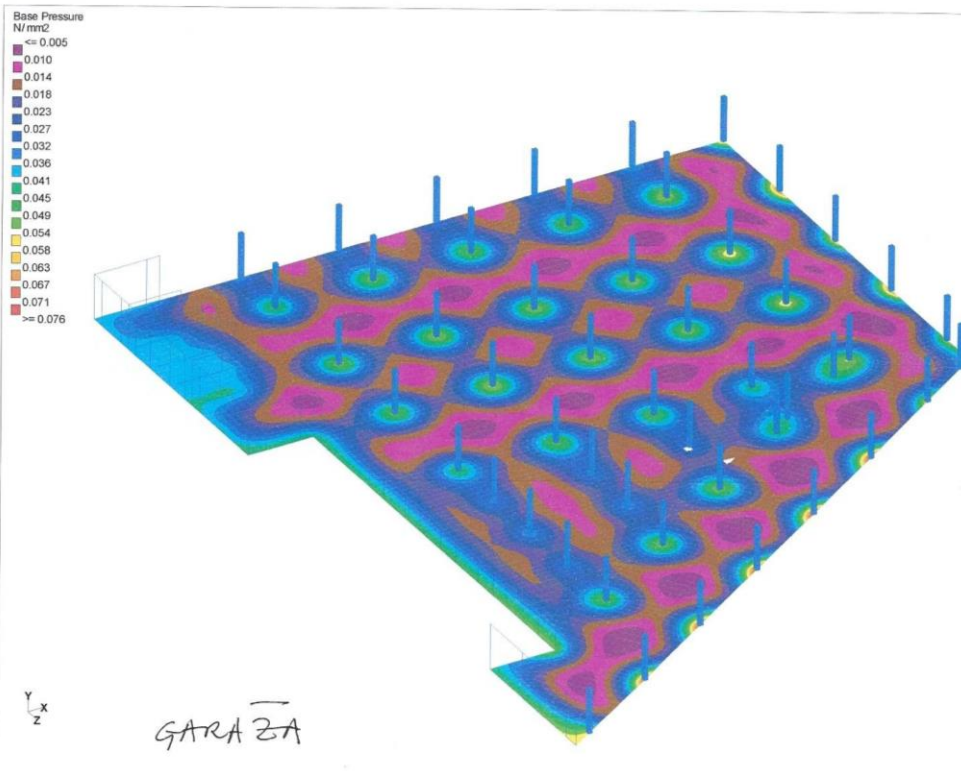


Y-X  
Z

GHRAFA



NAPONI U TLU kc 10000 kN/m<sup>2</sup>/m



GARA ZA

$\leftarrow \sigma_{dnp} = 200 \text{ kN/m}^2$

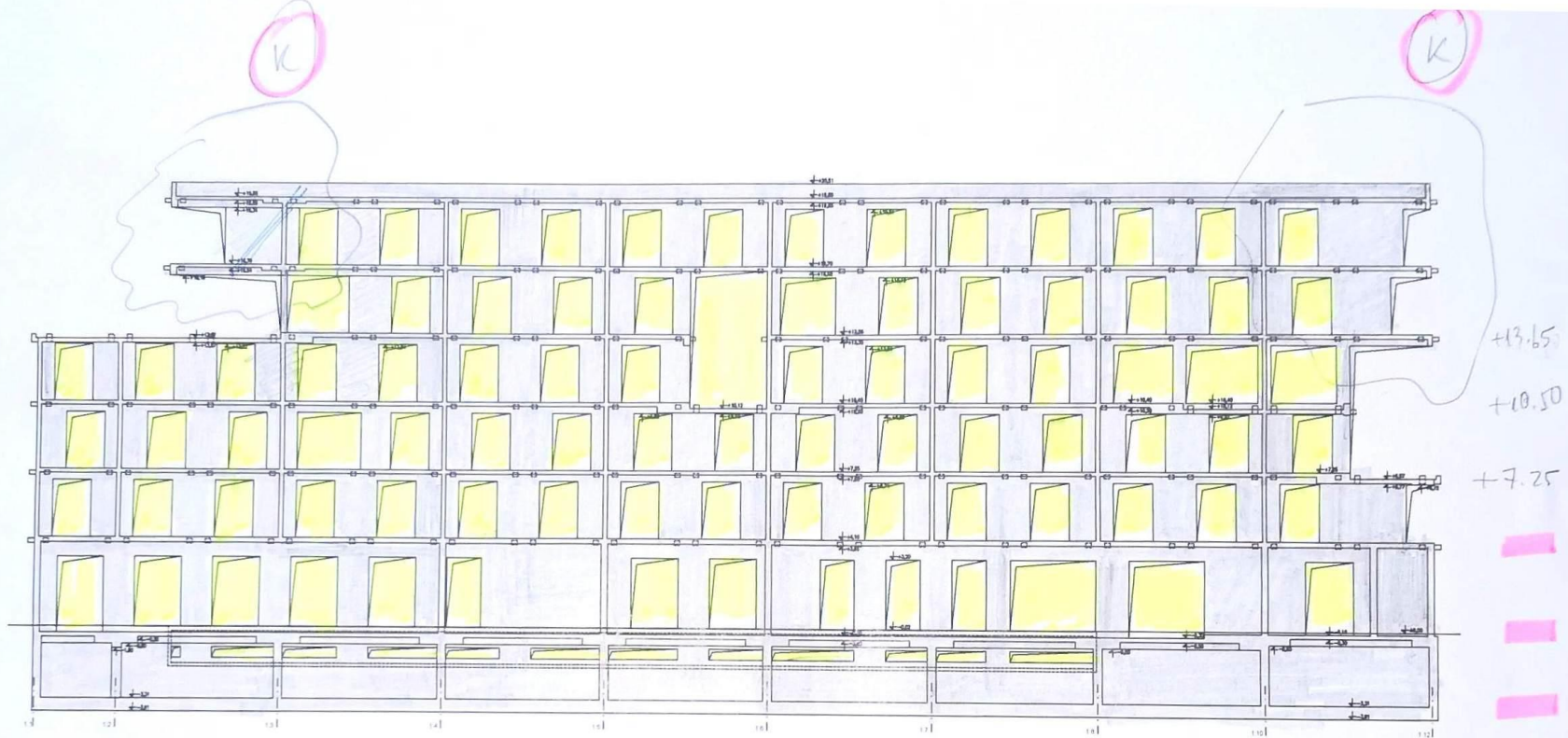
ZASNOVA XII/2014

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Boris Baljkas  
dipl. ing. građ.  
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G 216

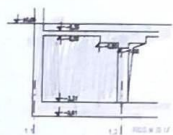


- ZIDOVI

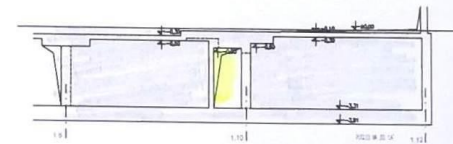




Z10 1.A



Z10 1.A'



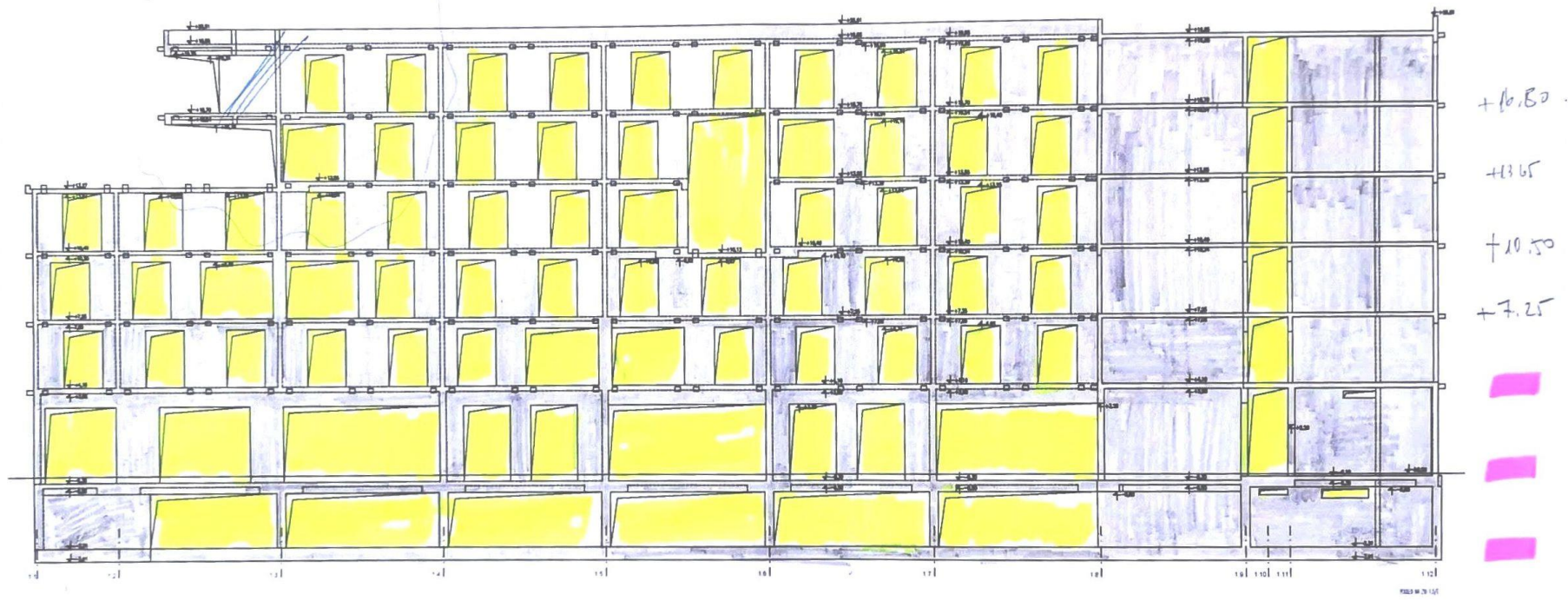
Z10 1.A'

finl opkara

2007 SDV-0111 - Krt02.DWG

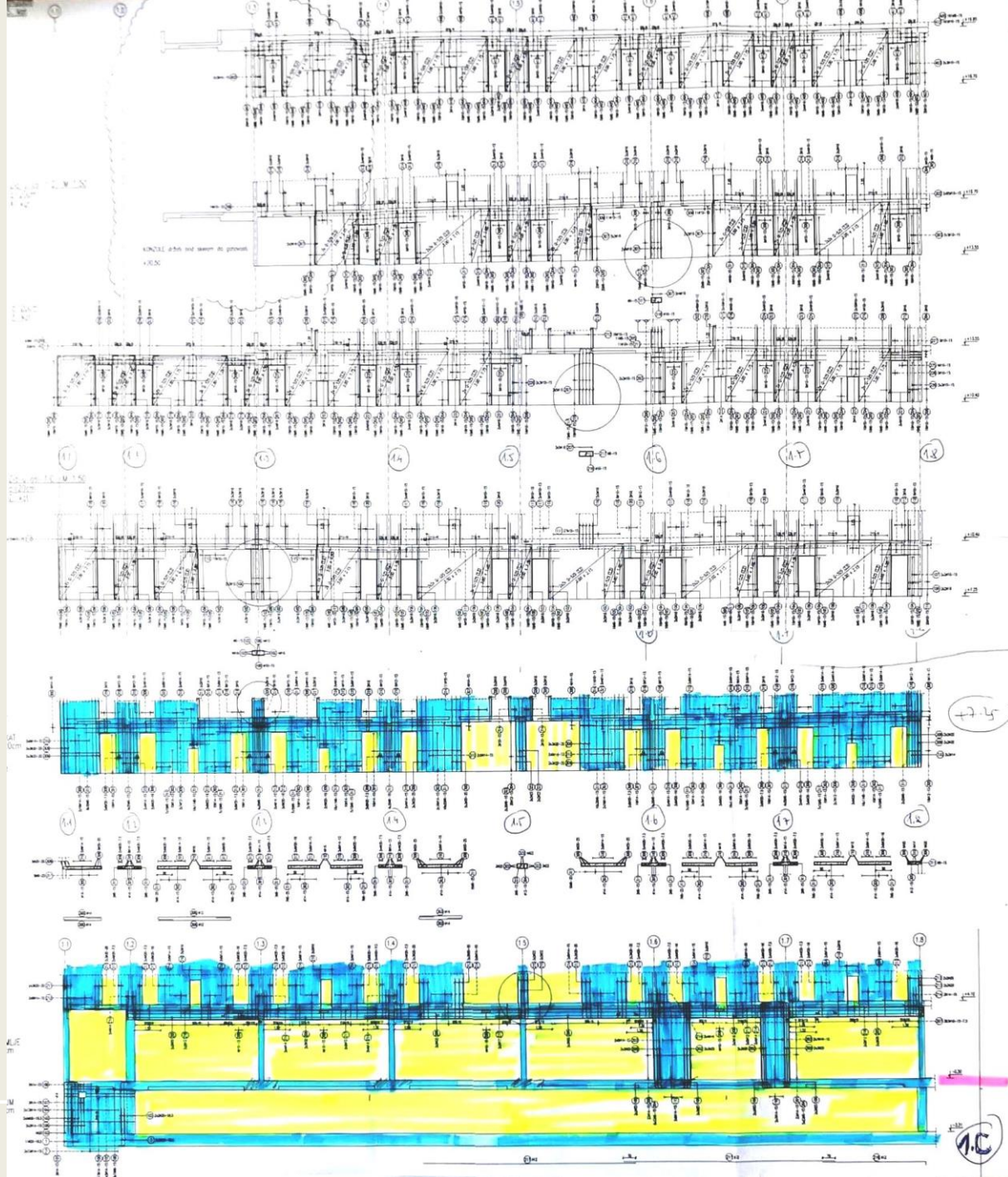
13.07.2015



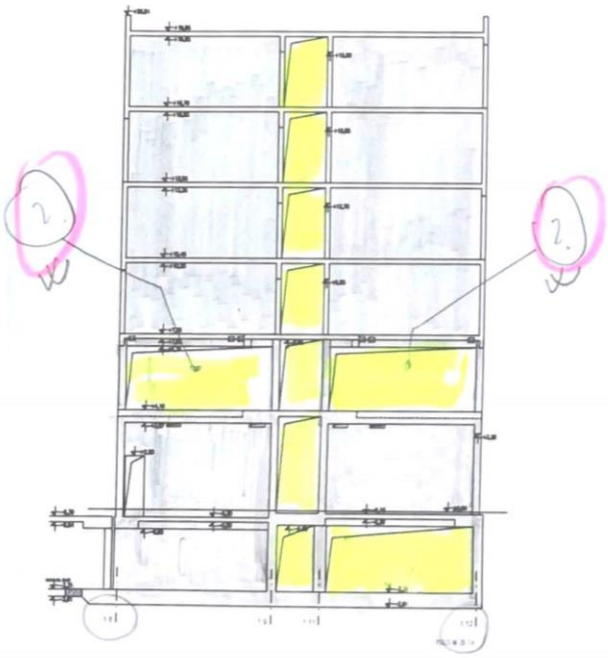


ZID 1-D/E

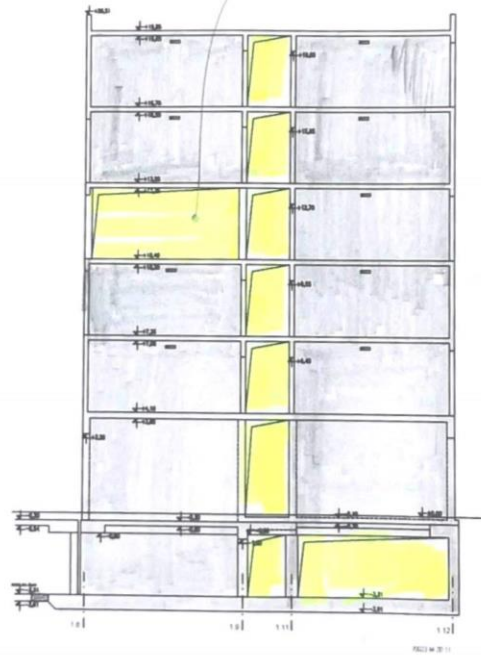




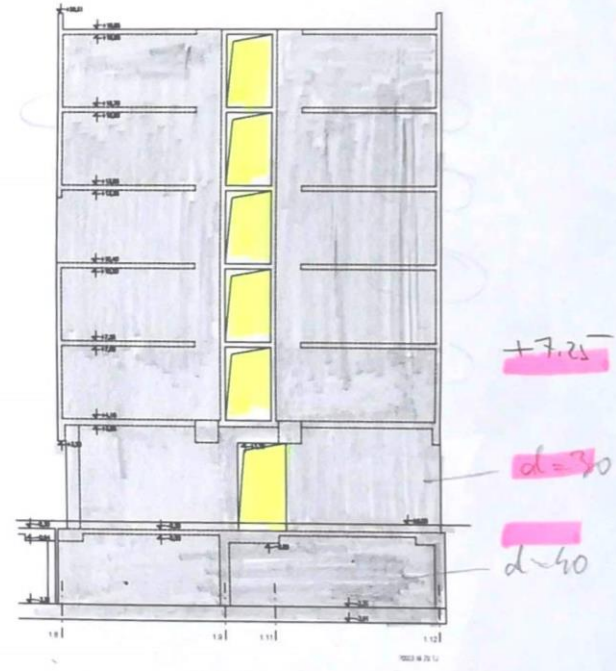
1.20



ZID 1.H



ZID 1.I

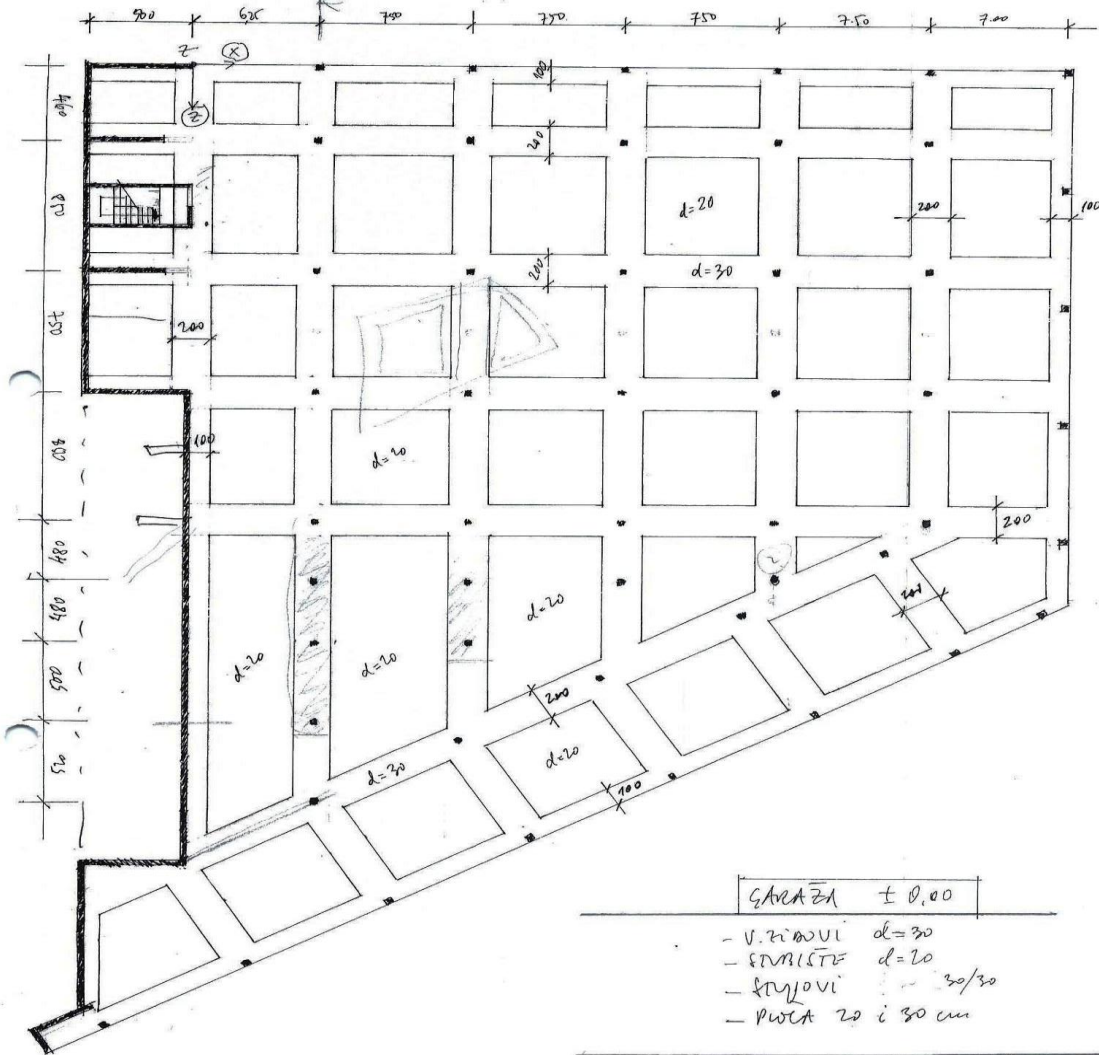


ZID 1.J



- prednapregnute ploče





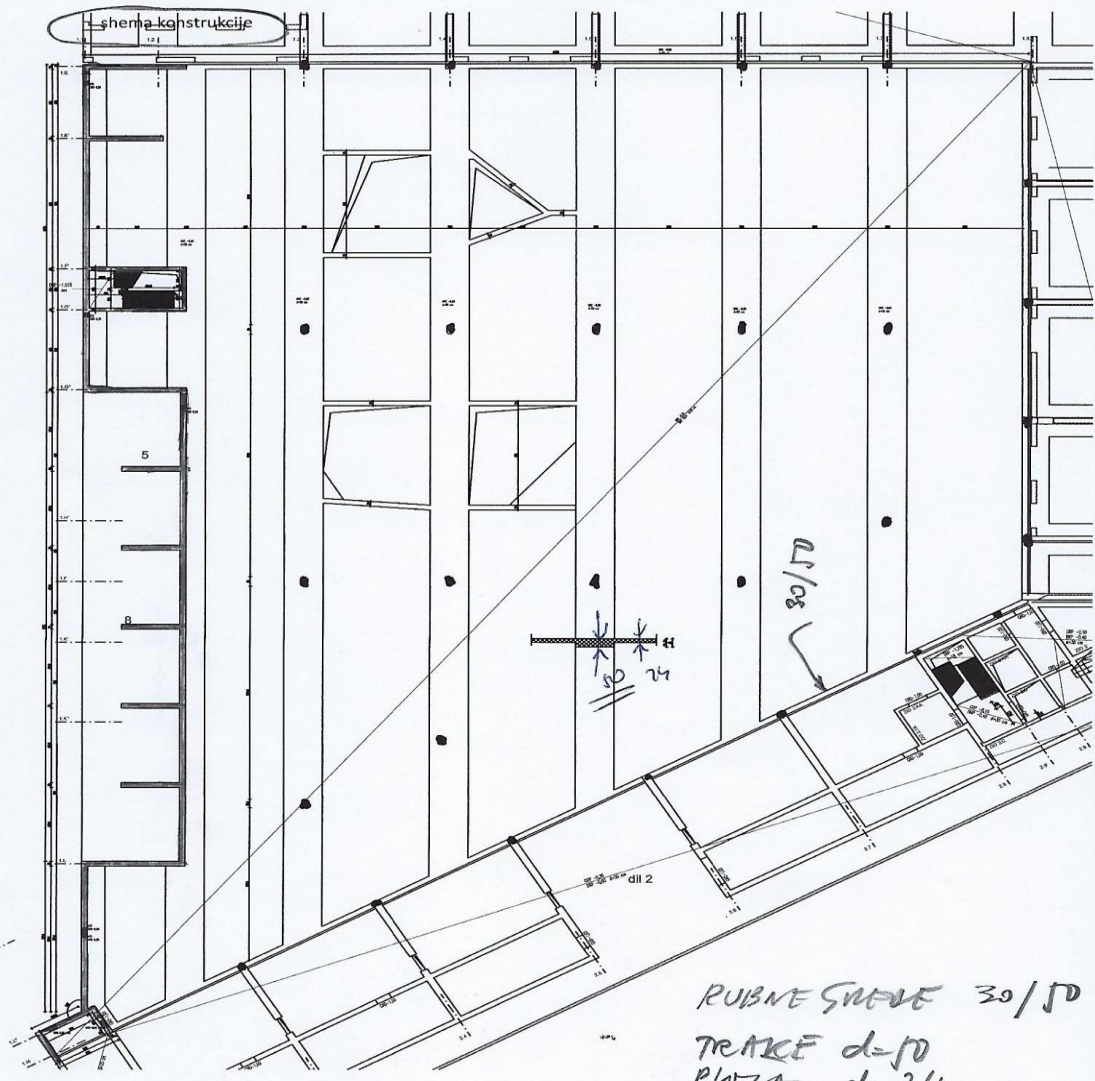
prije javne nabave

GARAZA	± 0.00
- V. RASPOVI	d=30
- STUBOVI	d=20
- STUPOVI	30/30
- POKR	20 i 30 cm
TOMEJATA PLOŠTA	
- 3.40	
d=30 cm	





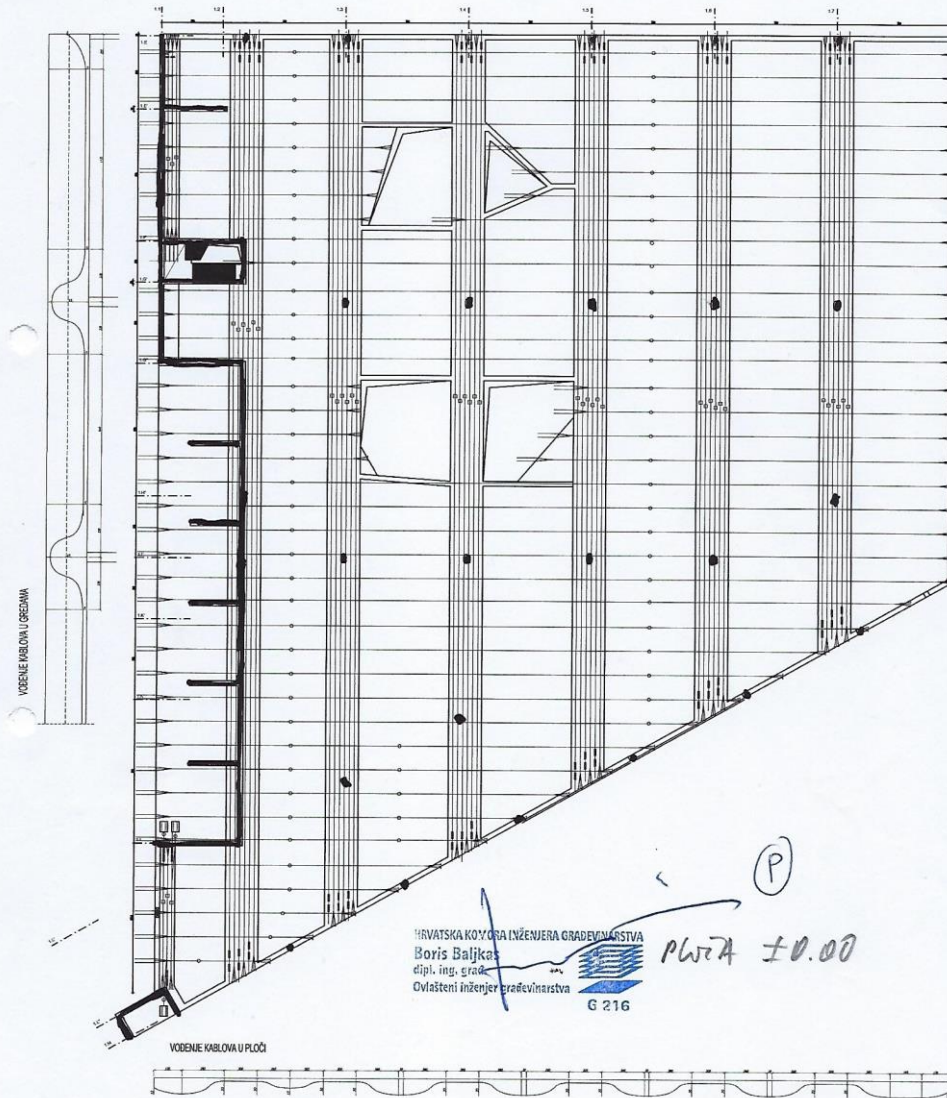
shema konstrukcije



RUBNE STREPE 30/50  
TRAKE d=50  
PLATA d=24  
STUPOVI 30/80  
STUPOVI 30/30  
± 0.00



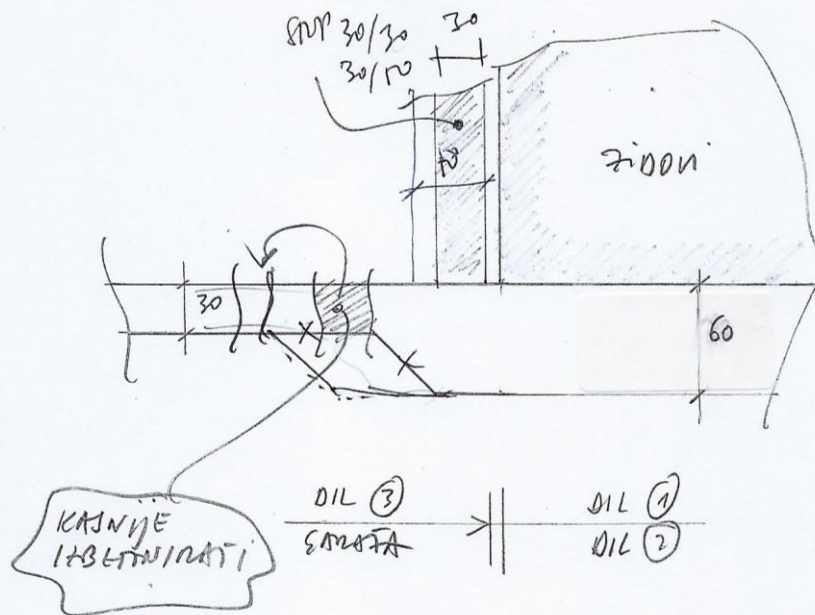
DILATACIJA 3 - PLOČA NAD GARAŽOM - POZ ±0,00



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G 216

PLWA ±0.00

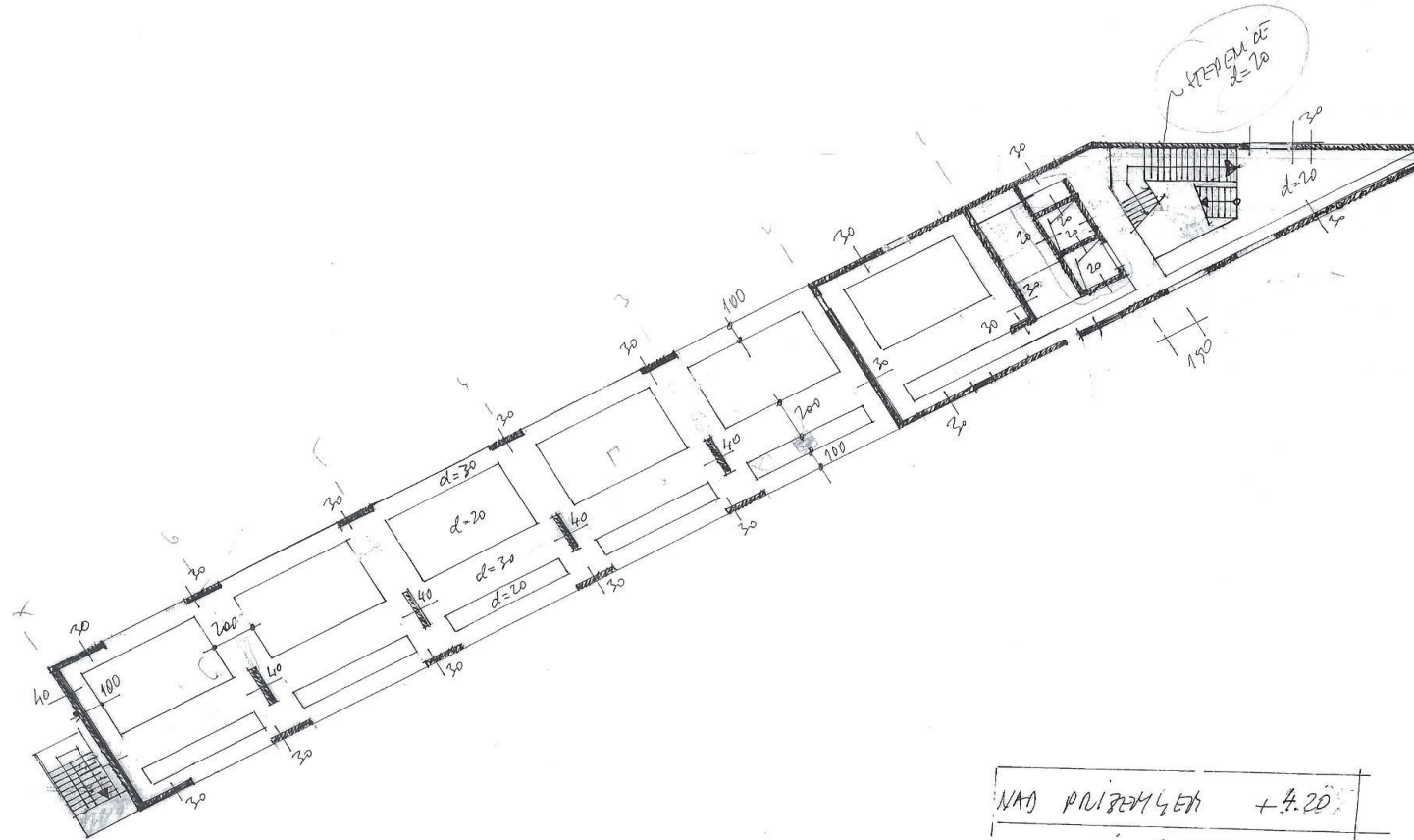




DETALI TEMELJNA PLOHA  
 VETA DIL (3) - DIL (1), (2)

PRESJEK a-a

DILATACIJA 2

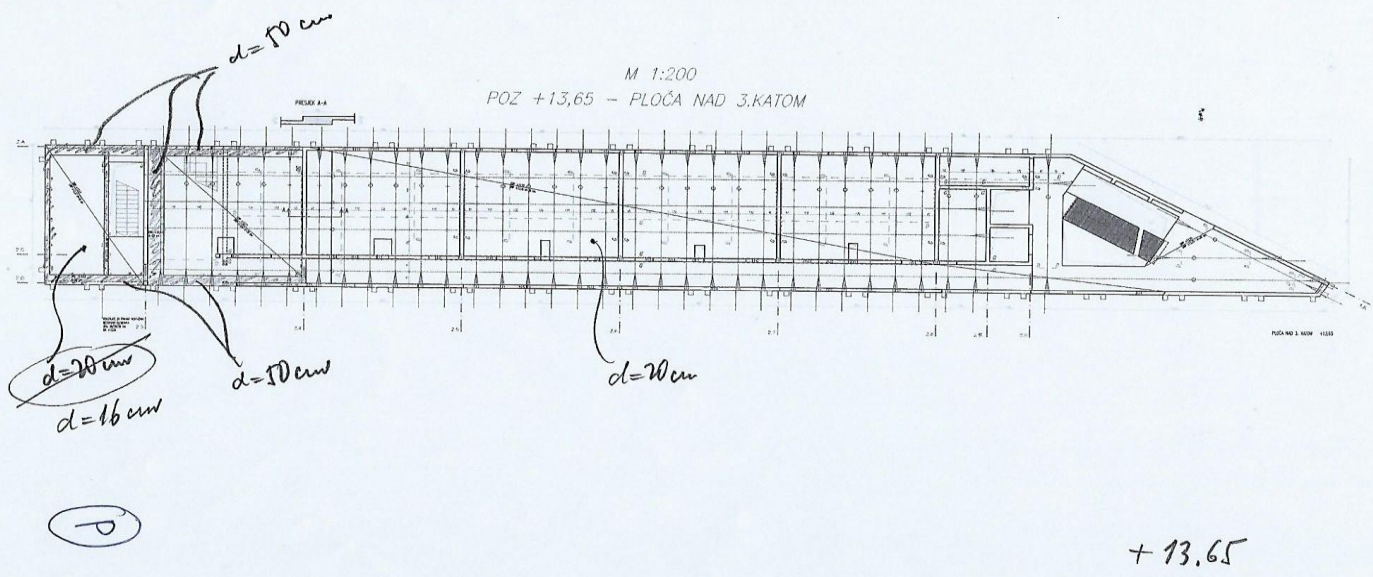


BALJKAS - PROJEKT IđOO  
Medulićeva 38, Zagreb

broj projekta: 02 2014  
STR: 2.8







## PREDNAPREGNUTE PLOČE

### prednosti

manji volumen betona  
glatka oplata

### nedostaci

osjetljiva tehnologija izvođenja  
velika količina rubne armature (klasične rebraste)

cijena upitno ???



## ZAKLJUČAK

146,000.000	HRK	procjena	-	odgovornost projektanata
138,000.000	HRK	EU 80%		javna nabava - realizirano

Varijantana rješenja

A) Klasično

B) Spregnuto čelik-beton gornji katovi





A) RACIONALNO ?!

+19.55	↑ KRAV	
+16.70	↓	
+13.35	↓	P. PLOŠE
+10.40	↓	
+7.25	↓	
+4.10	↓	
-0.30		PR
<u>-3.31</u>		PO

A) ARM. BET.  $\sim 15.000 \text{ m}^3 \times 2.00 \text{ t} = 30.000 \text{ t}$

$30.000 / \text{VAGON } 10 \text{ t} = 3000 \text{ VAGONA}$

B)  $3000 \times 10 \text{ m} = 30.000 \text{ m} = 30 \text{ km}$

B) SPREGNUTO 5 KATOLA



HVALA

