

**Obsah:**

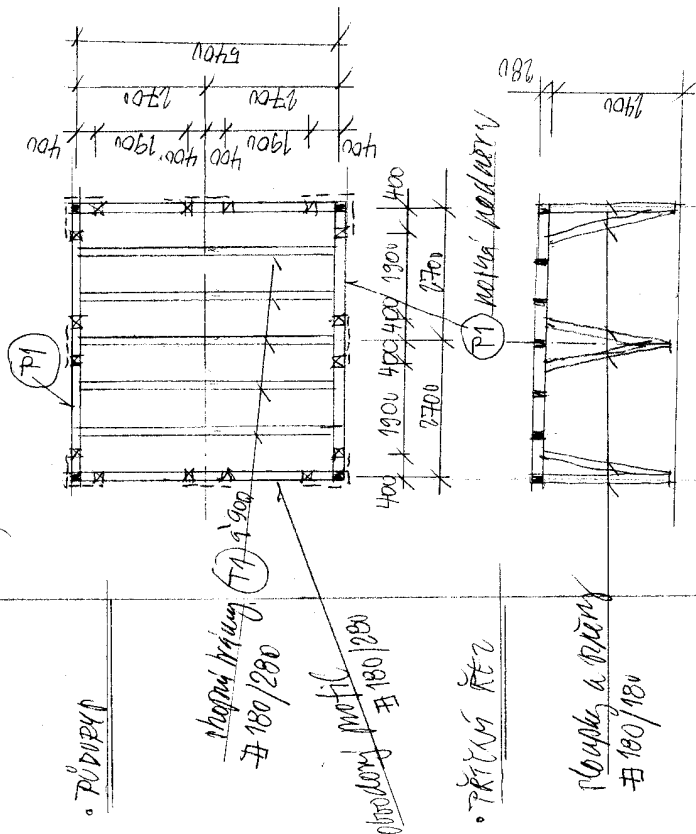
1. Náčrt konstrukce
2. Stropní konstrukce
3. Nosná podpěra P1
4. Betonová základová patka
5. Styky a spoje konstrukce



*Ing. Pavel Šale*

|   |   |   |          |
|---|---|---|----------|
| Zodp. projektant:   | Ing Pavel Šale  | <b>ING, PAVEL ŠALE</b><br>PROJEKTANT<br>637 00 Brno, Bedřichovická 1<br>IČO: 121 48 377 |          |
| Ved. projektant:  | Ing arch Tomáš Jenček   |   |          |
| Investor:   | Základní škola a Mateřská škola Brno,<br>Bosonožské nám. 44, příspěvk. organizace |   |          |
| Název akce:<br><b>ZŠ BOSONOHY – VENKOVNÍ UČEBNA</b><br><b>VENKOVNÍ UČEBNA - ALTÁN</b> |   | Datum:  | .04/2023 |
|   |   | Stupeň:   | DPS      |
|   |   | Počet stran:  | 1 +15 A4 |
|   |   | Zakázk. č.  |          |
|   |   | Č. přílohy:   |          |
| <b>STATICKÝ VÝPOČET</b>   |   |   |          |

# 1. NÁČRT KONSTRUKCE



• Půdorys

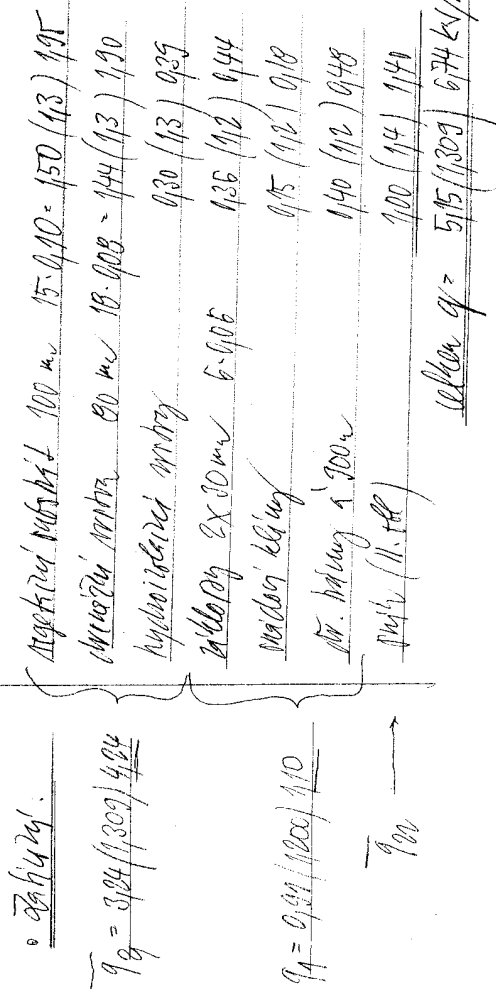
• výška stropu 2,70m

• pokojy a chodby

• příčný řez

• Nápověda a výška

## 2. STŘEŠNÍ KONSTRUKCE



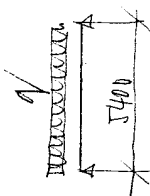
• Střecha

• výška stropu 2,70m

• pokojy a chodby

• příčný řez

• Nápověda a výška



P1 - stěna

P2 - stěna

P3 - stěna

P4 - stěna

P5 - stěna

P6 - stěna

P7 - stěna

P8 - stěna

P9 - stěna

P10 - stěna

P11 - stěna

P12 - stěna

P13 - stěna

P14 - stěna

P15 - stěna

• Stropní konstrukce (P1) (9.09.21)

$q_1 = 99 \cdot 5,15 = 404 / 1209 / 607 \text{ kN/m}^2$

$\rightarrow M_{max} = 99 \cdot 607 \cdot 5,15^2 \cdot 29,152 \text{ kN}$

Pro výpočet st. P1 - pvc:  $R_d = 12 \cdot 0,85 = 10,2 \text{ kN}$

a rovněž pvc:  $f_{pvc} = 30 \text{ kN}$

$M_{max} = 29,15 \cdot 10^3 \cdot 2170 \text{ cm}^3$

$I_{min} = 300 \cdot 5,15^4 \cdot 28540 \text{ cm}^4$

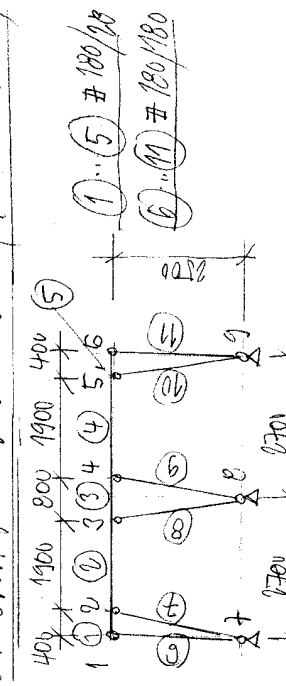
$I_{min} = 300 \cdot 294 \cdot 9,1$

• Napětí:  $\# 180 / 280 \cdot 900 \text{ mm} / W = 2352 \text{ kN}^2$

$I = 22928 \text{ cm}^4$

## 3. NOVÁ PODPĚRA (P1)

3.1. Opoření stropu a stěny (výč. výška 3m)



$q_1 = 110 \cdot 3 = 330 \text{ kN/m}^2$

$q_2 = (4,24 + 140) \cdot 3 = 16,22 \text{ kN/m}^2$

$W_1 = 0,35 \cdot 3 \cdot 0,8 \cdot 12 \cdot 0,8 = 1,19 \cdot 0,8 = 0,95 \text{ kN}$

$W_2 = 1,19 \cdot 0,6 = 0,72 \text{ kN}$

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NOSNA PODPERA

KOŘENOVANÝ OTISK VSTUPNÍCH DAT

HAZEV :  
NOSNA PODPERA

TYP KONSTRUKCE 2# rovinný ram  
POČET UZLŮ 9  
POČET PRUTŮ 11  
POČET PODPOR 3  
POČET PRUŽNÝCH VAZEB 0  
POČET ZAT. STAVŮ 3

POŽADAVKY NA TISK VÝSLEDKŮ:  
TISKY PO ZAT. STAVECH: KONCOVÉ VNITRNÍ SÍLY  
DEFORMACE  
REAKCE A UZEL. ZATÍŽ.  
TISK KONCOVÝCH VNITRNÍCH SÍL PO FRUZECH  
TISK VNITRNÍCH SÍL V N-TINÁCH PRUTŮ

POPIS SOUŘADNIC UZLŮ  
CISLO PRUTU, SOUŘADNICE  
UZLU UZEL X [m] Y [m]  
1 0 0 2.5  
2 0 0.4 2.5  
3 0 2.3 2.5  
4 0 3.1 2.5  
5 0 5.0 2.5  
6 0 5.4 2.5  
7 2 0 0  
8 1 2.7 0  
9 1 5.4 0  
END

POPIS KODOVÝCH ČÍSEL PRUTŮ  
CISLO PRUTU, CISLO  
POČAT. KONC. UZLU  
1 1 2  
2 2 3  
3 3 4  
4 4 5  
5 5 6  
6 6 7  
7 7 8  
8 8 9  
9 9 10  
10 10 11  
11 11 12  
END

POPIS FYZIKÁLNÍCH VELICIN PRUTU  
CISLO PRUTU, MODUL PRUT.  
PRUŽNOSTI VE SMYKU  
PRVNÍ POSL. E [MPa] G [MPa]  
1 1 10000. 0.  
END

Výpočet m. p. 1 - 11  
R<sub>p</sub> = 10.085 - 10.0 MPa

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KOŘENOVANÝ OTISK VSTUPNÍCH DAT

POPIS PRUŽNOSTI VELICIN PRUTU [mm]  
CISLO PRUTU PRUŽNOSTI PRUTU PRUŽNOSTI  
V SERII PLOCHA PLOCHA SETRVACNOSTI  
PRVNÍ POSL. A(1,0) A(2,0) A(3,0)  
1 5 0.004 0.00032928  
6 11 0.0324 0.00008746  
END

POPIS UVOLENÍ PODPOROVÝCH UZLŮ  
CISLO UVOLENÍ VE SMERU  
UZLU X Y MZ  
7 0 0 1  
8 0 0 1  
9 0 0 1  
END

POPIS UVOLENÍ KONCŮ PRUTU  
CISLO CÍSLA UVOLENÍ VE SMERU  
PRUTU UZLU X Y MZ  
6 1 0 0 1  
7 7 0 0 1  
8 2 0 0 1  
9 8 0 0 1  
10 3 0 0 1  
11 4 0 0 1  
12 9 0 0 1  
13 5 0 0 1  
14 10 0 0 1  
15 11 0 0 1  
END

POPIS ZATEŽOVACÍCH STAVŮ - ZS 1  
HAZEV :  
extr. statické zatížení

ZATÍŽENÍ PRUTU [KN,KNm], [mm,mm/m]  
CISLO PRUTU TYPY ZATÍŽENÍ POČATEČNÍ KONCOVÁ PLOCHA PLOCHA  
V SERII INTENZITA INTENZITA ZATÍŽENÍ KONC.  
PRVNÍ POSL. 11 12 SM 13 14 15  
1 5 0 0 2 1 0 0 -3.30  
END

ZATÍŽENÍ UZLU [KN,KNm], [mm,mm/m]  
END

POPIS ZATEŽOVACÍCH STAVŮ - ZS 2  
HAZEV :  
extr. 2 - nasypky + sněh

ZATÍŽENÍ PRUTU [KN,KNm], [mm,mm/m]  
CISLO PRUTU TYPY ZATÍŽENÍ POČATEČNÍ KONCOVÁ PLOCHA PLOCHA  
V SERII INTENZITA INTENZITA ZATÍŽENÍ KONC.  
PRVNÍ POSL. 11 12 SM 13 14 15  
1 5 0 0 2 1 0 0 -16.92  
END

• *Podpora m. p. 11 - 110/180 mm*  
*A = 504 cm<sup>2</sup>, W = 2352 cm<sup>3</sup>*  
*J = 39988 cm<sup>4</sup>*  
• *sloupky a 120/180 mm*  
*A = 384 cm<sup>2</sup>, J = 519 cm<sup>4</sup>*  
*W = 972 cm<sup>3</sup>, J = 8748 cm<sup>4</sup>*

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list

KOMENTOVANY OTISK VSTUPNICH DAT

ZATIZENI UZLU (KN,KNm), [mm,mm/m]  
END

POPIS ZATEZOVACICH STAVU - Z3 3  
NAZEV :  
extr vltir zleva

ZATIZENI PRUHU [KN,KNm], [mm,mm/m]  
END

ZATIZENI UZLU [KN,KNm], [mm,mm/m]  
CISLO UZLU TYPU ZATIZ. VELIKOST  
V SERII ZATIZENI

PRVNI POSL. 11 12 SMER  
1 1 0 0 1 0.95  
6 6 0 0 1 0.72  
END

DEFOR -- VSTUPNI DATA O.K.

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list

KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN,KNm)

N-X Q-Y M-Z Kombinace

PRUT 1, x-lok = .00

|         |      |       |         |
|---------|------|-------|---------|
| ZS. 01  | .00  | -1.45 | .00     |
| ZS. 02  | .00  | -2.31 | .00     |
| ZS. 03  | -.95 | 1.73  | .00     |
| max N-X | .00  | -1.45 | .00 1   |
| min N-X | -.95 | 1.23  | .00 1 3 |
| max Q-Y | -.95 | 1.28  | .00 1 3 |
| min Q-Y | .00  | -2.76 | .00 1 2 |
| max M-Z | .00  | -2.76 | .00 1 2 |
| min M-Z | .00  | -1.45 | .00 1   |

PRUT 1, x-lok = .40

|         |      |        |           |
|---------|------|--------|-----------|
| ZS. 01  | .00  | -1.77  | -.44      |
| ZS. 02  | .00  | -9.08  | -2.28     |
| ZS. 03  | -.95 | 1.73   | .69       |
| max N-X | .00  | -1.77  | -.44 1    |
| min N-X | -.95 | -.04   | .25 1 3   |
| max Q-Y | -.95 | -.04   | .25 1 3   |
| min Q-Y | .00  | -10.85 | -2.72 1 2 |
| max M-Z | -.95 | -.04   | .25 1 3   |
| min M-Z | .00  | -10.85 | -2.72 1 2 |

PRUT 2, x-lok = .00

|         |       |       |           |
|---------|-------|-------|-----------|
| ZS. 01  | -.75  | 2.92  | -.44      |
| ZS. 02  | -3.85 | 14.99 | -2.28     |
| ZS. 03  | -.55  | -.77  | .69       |
| max N-X | -.75  | 2.92  | -.44 1    |
| min N-X | -5.15 | 17.14 | -2.03 1 2 |
| max Q-Y | -4.60 | 17.91 | -2.72 1 2 |
| min Q-Y | -1.30 | 2.15  | .25 1 3   |

PRUT 2, x-lok = 1.90

|         |       |        |             |
|---------|-------|--------|-------------|
| ZS. 01  | -.75  | -3.35  | -.85        |
| ZS. 02  | -3.85 | -17.16 | -4.34       |
| ZS. 03  | -.55  | -.77   | -.78        |
| max N-X | -.75  | -3.35  | -.85 1      |
| min N-X | -5.15 | -21.28 | -5.96 1 2 3 |
| max Q-Y | -.75  | -3.35  | -.85 1      |
| min Q-Y | -5.15 | -21.28 | -5.96 1 2 3 |

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KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN, KNm)

|         | N-X           | Q-Y    | N-Z   | Kombinace |
|---------|---------------|--------|-------|-----------|
| max M-Z | -75           | -2.92  | -44   | 1         |
| min M-Z | -4.28         | -18.69 | -3.41 | 1 2 3     |
| PRUT    | 5, X-10k = 00 |        |       |           |
| ZS. 01  | .00           | 1.77   | -44   |           |
| ZS. 02  | .00           | 9.08   | -2.28 |           |
| ZS. 03  | .72           | 1.73   | -69   |           |
| max M-X | .72           | 3.50   | -1.14 | 3         |
| min M-X | .00           | 1.77   | -44   | 1         |
| max Q-Y | .72           | 12.59  | -3.41 | 1 2 3     |
| min Q-Y | .00           | 1.77   | -44   | 1         |
| max M-Z | .00           | .77    | -44   | 1         |
| min M-Z | .72           | 12.58  | -3.41 | 1 2 3     |

|         |                |      |     |       |
|---------|----------------|------|-----|-------|
| PRUT    | 5, X-10k = .40 |      |     |       |
| ZS. 01  | .00            | .45  | .00 |       |
| ZS. 02  | .00            | 2.31 | .00 |       |
| ZS. 03  | .72            | 1.73 | .00 |       |
| max M-X | .72            | 2.18 | .00 | 1 3   |
| min M-X | .00            | .45  | .00 | 1     |
| max Q-Y | .72            | 4.49 | .00 | 1 2   |
| min Q-Y | .00            | .45  | .00 | 1     |
| max M-Z | .72            | 4.49 | .00 | 1 2 3 |
| min M-Z | .00            | .45  | .00 | 1     |

|         |                |     |     |     |
|---------|----------------|-----|-----|-----|
| PRUT    | 6, X-10k = .00 |     |     |     |
| ZS. 01  | .45            | .00 | .00 |     |
| ZS. 02  | 2.31           | .00 | .00 |     |
| ZS. 03  | -1.73          | .00 | .00 |     |
| max M-X | 2.76           | .00 | .00 | 1 2 |
| min M-X | -1.28          | .00 | .00 | 1 3 |

|         |                 |     |     |     |
|---------|-----------------|-----|-----|-----|
| PRUT    | 6, X-10k = 2.50 |     |     |     |
| ZS. 01  | .45             | .00 | .00 |     |
| ZS. 02  | 2.31            | .00 | .00 |     |
| ZS. 03  | -1.73           | .00 | .00 |     |
| max M-X | 2.76            | .00 | .00 | 1 2 |
| min M-X | -1.28           | .00 | .00 | 1 3 |

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KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN, KNm)

|         | N-X            | Q-Y    | N-Z   | Kombinace |
|---------|----------------|--------|-------|-----------|
| min M-Z | -5.15          | -21.20 | -5.96 | 1 2 3     |
| PRUT    | 5, X-10k = .00 |        |       |           |
| ZS. 01  | .00            | 1.02   | -85   |           |
| ZS. 02  | .02            | 6.77   | -34   |           |
| ZS. 03  | .11            | 1.94   | -78   |           |
| max M-Z | .00            | 1.32   | -85   | 1         |
| min M-X | -14            | 10.03  | -5.96 | 1 2 3     |
| max Q-Y | .14            | 10.03  | 5.96  | 1 2 3     |
| min Q-Y | .00            | 1.32   | -85   | 1         |
| max M-Z | .00            | 1.32   | -85   | 1         |
| min M-Z | -14            | 10.03  | -5.96 | 1 2 3     |

|         |                |       |       |       |
|---------|----------------|-------|-------|-------|
| PRUT    | 3, X-10k = .80 |       |       |       |
| ZS. 01  | .00            | -1.32 | -85   |       |
| ZS. 02  | .02            | -6.77 | -34   |       |
| ZS. 03  | .11            | 1.94  | -78   |       |
| max M-X | .00            | -1.32 | -85   | 1     |
| min M-X | -14            | -6.14 | -4.40 | 1 2 3 |
| max Q-Y | .12            | .62   | -.07  | 1 3   |
| min Q-Y | -.03           | -3.09 | -3.18 | 1 2   |
| max M-Z | -.12           | .62   | -.07  | 1 3   |
| min M-Z | -.03           | -3.09 | -3.18 | 1 2   |

|         |                |       |       |     |
|---------|----------------|-------|-------|-----|
| PRUT    | 4, X-10k = .00 |       |       |     |
| ZS. 01  | .75            | 3.35  | -85   |     |
| ZS. 02  | -3.35          | 17.16 | -34   |     |
| ZS. 03  | .32            | -1.77 | -78   |     |
| max M-X | -.43           | 2.57  | -.07  | 1 3 |
| min M-X | -4.60          | 20.50 | -5.16 | 1 2 |
| max Q-Y | -4.60          | 20.50 | -5.16 | 1 2 |

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KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN, kNm)

|         | H-X   | Q-Y | H-Z Kombinace |
|---------|-------|-----|---------------|
| max Q-y | -4.73 | .00 | .00 1         |
| min Q-y | -4.73 | .00 | .00 1         |
| max H-z | -4.73 | .00 | .00 1         |
| min H-z | -4.73 | .00 | .00 1         |

PRUT 9, x-lok = .00

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.73  | .00 | .00     |
| ZS. 02  | -24.23 | .00 | .00     |
| ZS. 03  | 2.75   | .00 | .00     |
| max N-X | -1.97  | .00 | .00 1 3 |
| min N-X | -28.95 | .00 | .00 1 2 |
| max Q-y | -28.95 | .00 | .00 1 2 |
| min Q-y | -1.97  | .00 | .00 1 3 |
| max H-z | -1.97  | .00 | .00 1 3 |
| min H-z | -28.95 | .00 | .00 1 2 |

PRUT 9, x-lok = 2.53

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.73  | .00 | .00     |
| ZS. 02  | -24.23 | .00 | .00     |
| ZS. 03  | 2.75   | .00 | .00     |
| max N-X | -1.97  | .00 | .00 1 3 |
| min N-X | -28.95 | .00 | .00 1 2 |
| max Q-y | -28.95 | .00 | .00 1 2 |
| min Q-y | -1.97  | .00 | .00 1 3 |
| max H-z | -28.95 | .00 | .00 1 2 |
| min H-z | -1.97  | .00 | .00 1 3 |

PRUT 10, x-lok = .00

|        |        |     |     |
|--------|--------|-----|-----|
| ZS. 01 | -4.73  | .00 | .00 |
| ZS. 02 | -24.38 | .00 | .00 |
| ZS. 03 | -2.53  | .00 | .00 |

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KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN, kNm)

|         | H-X   | Q-Y | H-Z Kombinace |
|---------|-------|-----|---------------|
| max Q-y | 2.76  | .00 | .00 1 2       |
| min Q-y | -1.28 | .00 | .00 1 3       |
| max H-z | 2.76  | .00 | .00 1 2       |

PRUT 7, x-lok = .00

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.75  | .00 | .00     |
| ZS. 02  | -24.38 | .00 | .00     |
| ZS. 03  | 2.54   | .00 | .00     |
| max N-X | -2.22  | .00 | .00 1 3 |
| min N-X | -29.13 | .00 | .00 1 2 |
| max Q-y | -29.13 | .00 | .00 1 2 |
| min Q-y | -2.22  | .00 | .00 1 3 |
| max H-z | -2.22  | .00 | .00 1 3 |
| min H-z | -29.13 | .00 | .00 1 2 |

PRUT 7, x-lok = 2.53

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.75  | .00 | .00     |
| ZS. 02  | -24.38 | .00 | .00     |
| ZS. 03  | 2.54   | .00 | .00     |
| max N-X | -2.22  | .00 | .00 1 3 |
| min N-X | -29.13 | .00 | .00 1 2 |
| max Q-y | -29.13 | .00 | .00 1 2 |
| min Q-y | -2.22  | .00 | .00 1 3 |
| max H-z | -29.13 | .00 | .00 1 2 |
| min H-z | -2.22  | .00 | .00 1 3 |

PRUT 8, y-lok = .00

|         |        |     |       |
|---------|--------|-----|-------|
| ZS. 01  | -4.73  | .00 | .00   |
| ZS. 02  | -24.33 | .00 | .00   |
| ZS. 03  | -2.75  | .00 | .00   |
| max N-X | -4.73  | .00 | .00 1 |

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KOMB-kombi 1 SUPER-kombi 1

VNITRNI SILY V PRUTECH (KN, kNm)

|         | H-X   | Q-Y | H-Z Kombinace |
|---------|-------|-----|---------------|
| max Q-y | -4.73 | .00 | .00 1         |
| min Q-y | -4.73 | .00 | .00 1         |
| max H-z | -4.73 | .00 | .00 1         |
| min H-z | -4.73 | .00 | .00 1         |

PRUT 9, x-lok = .00

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.73  | .00 | .00     |
| ZS. 02  | -24.23 | .00 | .00     |
| ZS. 03  | 2.75   | .00 | .00     |
| max N-X | -1.97  | .00 | .00 1 3 |
| min N-X | -28.95 | .00 | .00 1 2 |
| max Q-y | -28.95 | .00 | .00 1 2 |
| min Q-y | -1.97  | .00 | .00 1 3 |
| max H-z | -1.97  | .00 | .00 1 3 |
| min H-z | -28.95 | .00 | .00 1 2 |

PRUT 9, x-lok = 2.53

|         |        |     |         |
|---------|--------|-----|---------|
| ZS. 01  | -4.73  | .00 | .00     |
| ZS. 02  | -24.23 | .00 | .00     |
| ZS. 03  | 2.75   | .00 | .00     |
| max N-X | -1.97  | .00 | .00 1 3 |
| min N-X | -28.95 | .00 | .00 1 2 |
| max Q-y | -28.95 | .00 | .00 1 2 |
| min Q-y | -1.97  | .00 | .00 1 3 |
| max H-z | -28.95 | .00 | .00 1 2 |
| min H-z | -1.97  | .00 | .00 1 3 |

PRUT 10, x-lok = .00

|        |        |     |     |
|--------|--------|-----|-----|
| ZS. 01 | -4.73  | .00 | .00 |
| ZS. 02 | -24.38 | .00 | .00 |
| ZS. 03 | -2.53  | .00 | .00 |

Ing. Pavel Sale, Bedrichovicka 1, BRNO  
 DEFOR plus V94 (c) FEM consulting Brno 9/12 1996  
 1. leden 1980 (05:53)  
 NOSNA PODPERA  
 KOMB-kombi 1 SUPER-kombi 1

REAKCE A ZATIZENI UZLU (KN, KNm)

P-X P-Y N-Z Kombinace

UZEL 7

ZS. 01 .75 4.24 .00  
 ZS. 02 3.85 21.76 .00  
 ZS. 03 -.40 -.77 .00

max R-X 4.60 26.00 .00 1 2  
 min R-X .35 3.47 .00 1 3

max R-Y 4.60 26.00 .00 1 2  
 min R-Y .35 3.47 .00 1 3

UZEL 8

ZS. 01 .00 9.33 .00  
 ZS. 02 .00 47.85 .00  
 ZS. 03 -.87 .00 .00

max R-X .00 57.18 .00 1 3  
 min R-X -.87 9.33 .00 1 3

max R-Y -.87 57.18 .00 1 2 3  
 min R-Y .00 9.33 .00 1

UZEL 9

ZS. 01 -.75 4.24 .00  
 ZS. 02 -3.85 21.76 .00  
 ZS. 03 -.40 -.77 .00

max R-X -.75 4.24 .00 1  
 min R-X -3.00 26.78 .00 1 2 3

max R-Y -3.00 26.78 .00 1 2 3  
 min R-Y -.75 4.24 .00 1

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 1. leden 1980 (05:52)  
 NOSNA PODPERA  
 KOMB-kombi 1 SUPER-kombi 1

VNUTRNI SILY V PRUTECH (KN, KNm)

min N-X .00 .00 1 2 3  
 max Q-Y .00 .00 1

min Q-Y .00 .00 1  
 max R-Z .00 .00 1

min M-Z .00 .00 1  
 max N-Y .00 .00 1 2 3

PRUT 12, s-tok = .00

ZS. 01 .45 .00 .00  
 ZS. 02 0.31 .00 .00  
 ZS. 03 1.73 .00 .00

max N-Y 4.49 .00 .00 1 2 3  
 min N-X .45 .00 .00 1

max Q-Y 4.49 .00 .00 1 2 3  
 min Q-Y .45 .00 .00 1

max M-Z .45 .00 .00 1  
 min M-Z 4.49 .00 .00 1 2 3

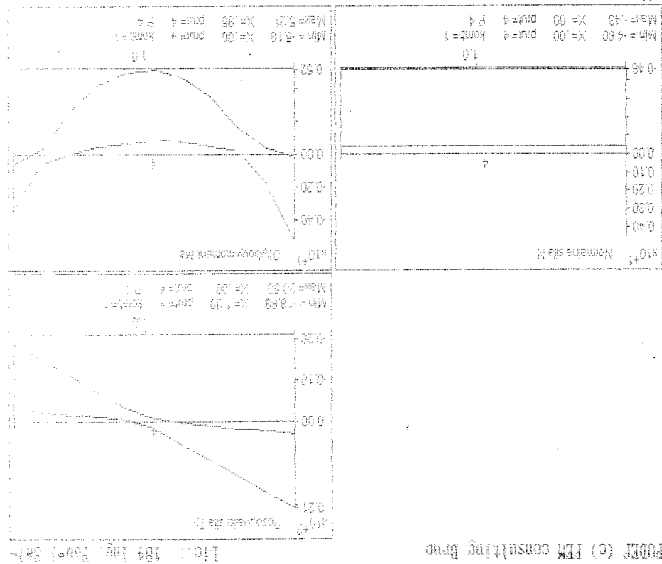
PRUT 11, s-tok = 2.50

ZS. 01 .45 .00 .00  
 ZS. 02 2.51 .00 .00  
 ZS. 03 1.73 .00 .00

max N-X 4.49 .00 .00 1 2 3  
 min N-X .45 .00 .00 1

max Q-Y 4.49 .00 .00 1 2 3  
 min Q-Y .45 .00 .00 1

max R-Z 2.76 .00 .00 1 2  
 min R-Z .45 .00 .00 1

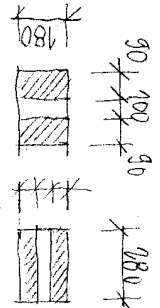


PODSTAVY VÝPOČETŮ ŽELEZIČNÝCH PRŮVLAČKOVÝCH PRŮŘEZŮ

• Vlastní návrh železničního průřezu

$$W_1 = \frac{1}{6} \cdot 16 \cdot 28^2 = 2030 \text{ cm}^3$$

$$W_2 = \frac{1}{6} \cdot 28 \cdot 28^2 = 1952 \text{ cm}^3$$



úprava železničního průřezu

$$G = 0.9 \cdot 12 \cdot 28 = 2236 \text{ kN}$$

PODSTAVY VÝPOČETŮ A VÝKRESY ŽELEZIČNÝCH PRŮVLAČKOVÝCH PRŮŘEZŮ

max. tlaková síla od svislého zatížení - max. 10 (př. 11)

$N_{max} = 21,66 \text{ kN}$  (kover. = 2,9m)

• návrh železničního průřezu

$$N = \frac{290}{5,19} \cdot 56 \rightarrow q = 0,749$$

$$\rightarrow \sqrt{\frac{2166 \cdot 10}{0,749 \cdot 204}} = 131 \text{ mm} < R_{d1} = 109$$

2400

4. BETONOVÁ ZÁKLADOVÁ PATKA

max. náklad od pracovního vozíku (př. 14.12)

$$P = \frac{57,19}{1,4} = 40,85 \text{ kN}$$

• návrh základové patky 2.18m x 200x900mm (př. 16.12)

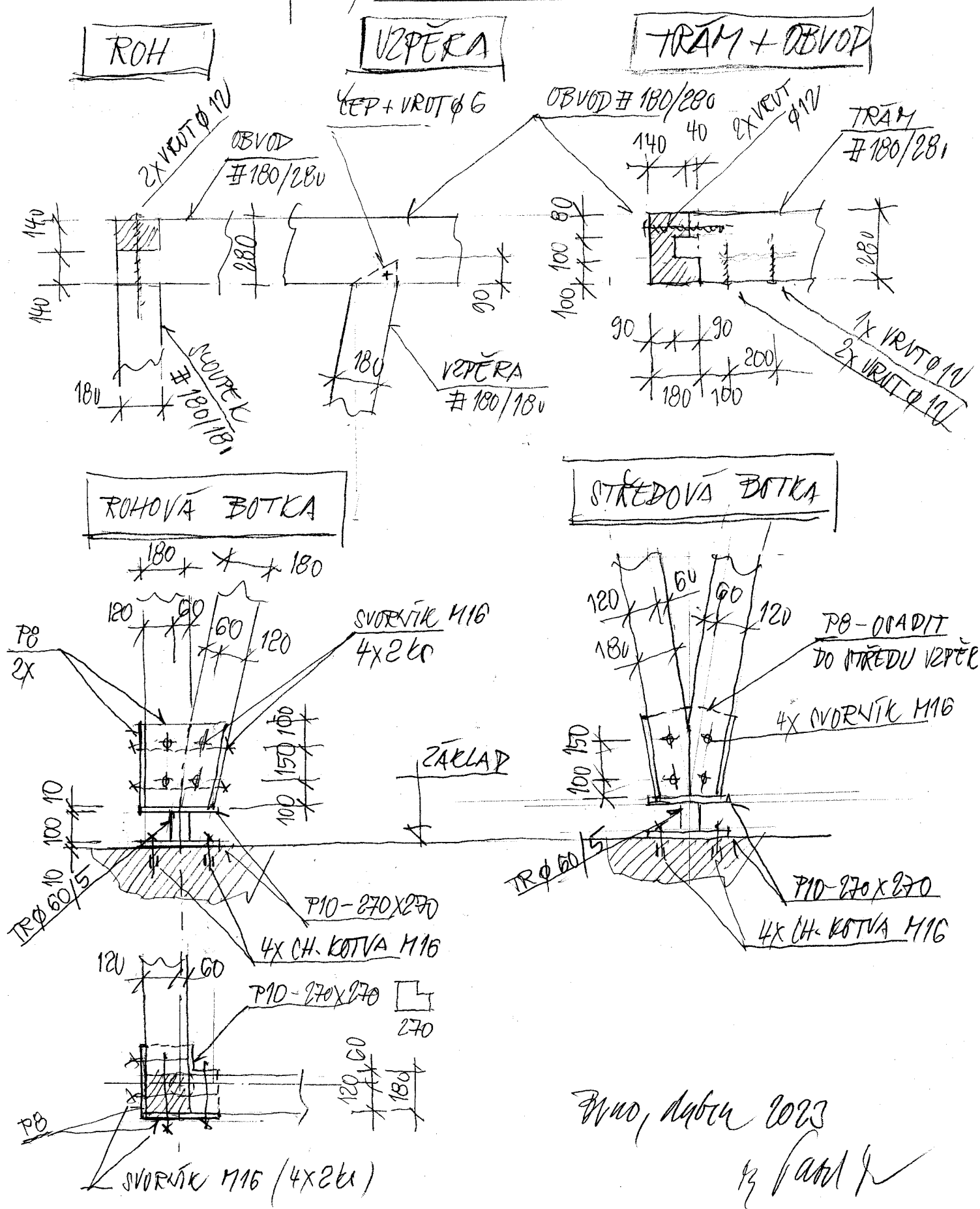
náklad + základová patka od pracovního vozíku

$$\sqrt{\frac{P + G}{0,9}} = \frac{40,85 + 2236}{0,9} = 241,69$$

→ návrh pro základovou patku od pracovního vozíku

$R_{d1} = 90 \text{ kN}$  - oříz ve směru no  
protektivní výška

# 5.) STYKY A SPOJE KONSTRUKCE



Wno, duben 2023  
K. Janda