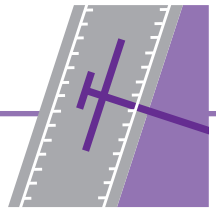


A reliable,  
powerful tool,  
according  
to Eurocodes

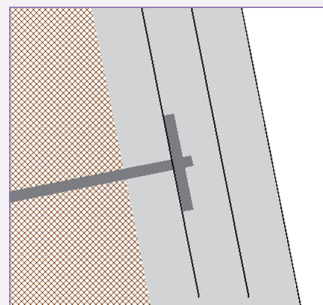
# GEOSPAR

Design of nailed and anchored walls facings



## AN EASY FACING ANALYSIS

- Sprayed concrete thickness
- Position and section of steel reinforcement layers
- Bearing plates dimensions



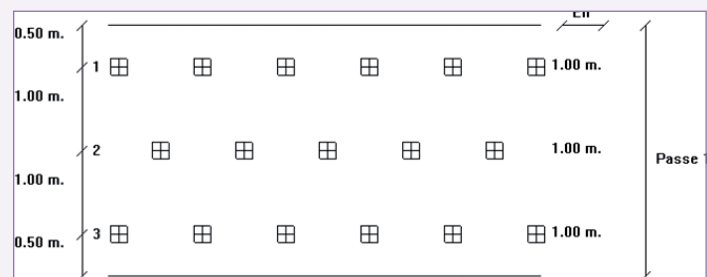
Plaque d'appui	
Dimension (cm)	20
Limite élastique (MPa)	500
Armatures	
Nombre de treillis	2
Nombre de barres pour les paniers éventuels	<input type="radio"/> 4 barres <input checked="" type="radio"/> 8 barres
Nappe face intérieure [1]	
Limite d'élasticité (MPa)	500
Adhérence	Haute adhérence
Nappe face extérieure [2]	
Limite d'élasticité (MPa)	500
Adhérence	Haute adhérence
Panier de renforcement éventuel	
Limite d'élasticité (MPa)	500
Adhérence	Haute adhérence

## A FAST AND INTERACTIVE MODELLING

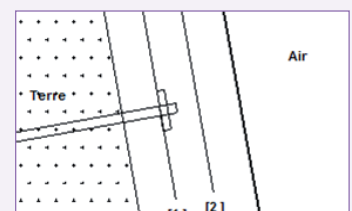
- Definition of **simple and complex meshes**
- Definition of facing's **mechanical characteristics**
- **Importation of the efforts in the facing** from **GEOSTAB**

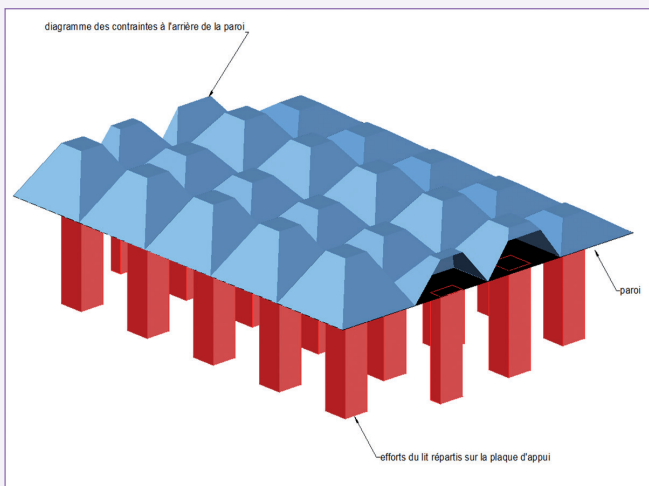
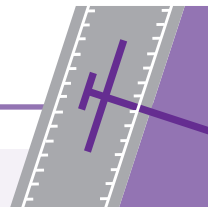
## SUMMARY REPORTS

- Systematic recall of **all the data input**
- Synthesis equivalent to a **calculation note**



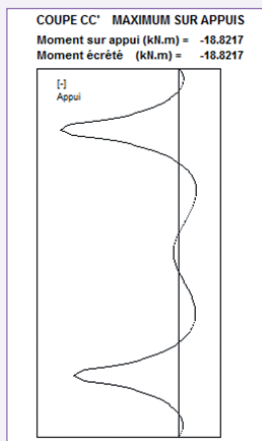
Force dans les clous	(1)	(2)	(3)
ELU fondamental	108.75	101.25	148.50
ELS	125.00	75.00	110.00
Rapport entre contrainte min et contrainte max : 0.700			
Plaque d'appui			
Dimensions	20.00 * 20.00		cm
PI (sol derrière béton)	1.00		MPa
Béton			
Épaisseur	30.		cm
Épaisseur sous plaque	10.		cm
Enrobage terre [1]	10.		cm
Enrobage air [2]	10.		cm
Fo 28	30.00		MPa
Fissuration tres prejudiciable			
Armatures			
	[1]	[2]	
Fa	500.00	500.00	MPa
Adhérence	HA	HA	





## A DESIGN ACCORDING TO THE CURRENT STANDARDS (EUROCODE 2)

- Steel reinforcement sections are calculated according to **BAEL 91 and NF EN 1992-1-1 (concrete structures calculation)**
- **GEOSPAR** integrates the loads applied on the facing, whether by **stripes**, or by **trapezoidal repartition** with zero stress or not in midspan
- **GEOSPAR** models the facing as a **rigid plate on punctual supports**



## A COMPLETE DESIGN

- **Steel sections** supporting bending moments
- **Non – fragility condition** of the wall, according to **cracking criteria**
- **Punching of the bearing plate** on the facing

PASSE 1						
FLEXION		Appui [1] Horizontal	Appui [1] Vertical	Travée [2] Horizontal	Travée [2] Vertical	
ELU	moment	-19.3	-25.4	9.29	3.68	kN.m/m
fondamental	section d'acier	2.25	2.98	1.80	1.80	cm <sup>2</sup> /m
ELS	moment	-14.3	-18.8	6.88	2.73	kN.m/m
	section d'acier	4.38	5.83	2.06	1.80	cm <sup>2</sup> /m
	Section d'acier retenue	4.38	5.83	2.06	1.80	cm <sup>2</sup> /m
	Sections d'acier suivant le BAEL					

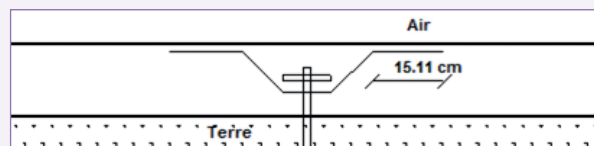
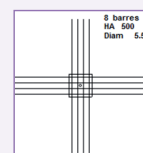
### POINÇONNEMENT

$$Q_u : \quad Q_u \text{ réduit} = Q_u - 0.5 P_l (b+e)^2$$

$$168.75 \quad 123.75 \quad >$$

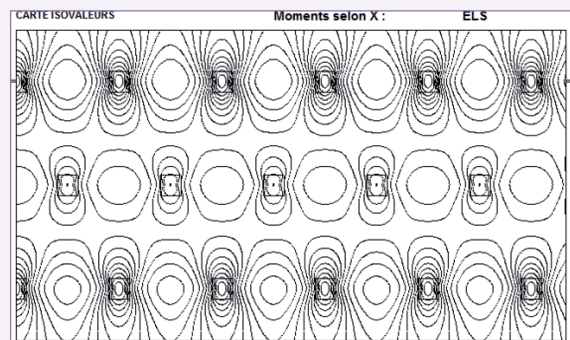
Solutions pour reprendre le poinçonnement

1. Epaisseur béton sous la plaque
2. Dimensions de la plaque



## A RESULT EXTRACTION FUNCTION

- Report of the steel sections design
- **Moment isovalues map**



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