



Πανεπιστήμιο Πατρών

Τμήμα Πολιτικών Μηχανικών

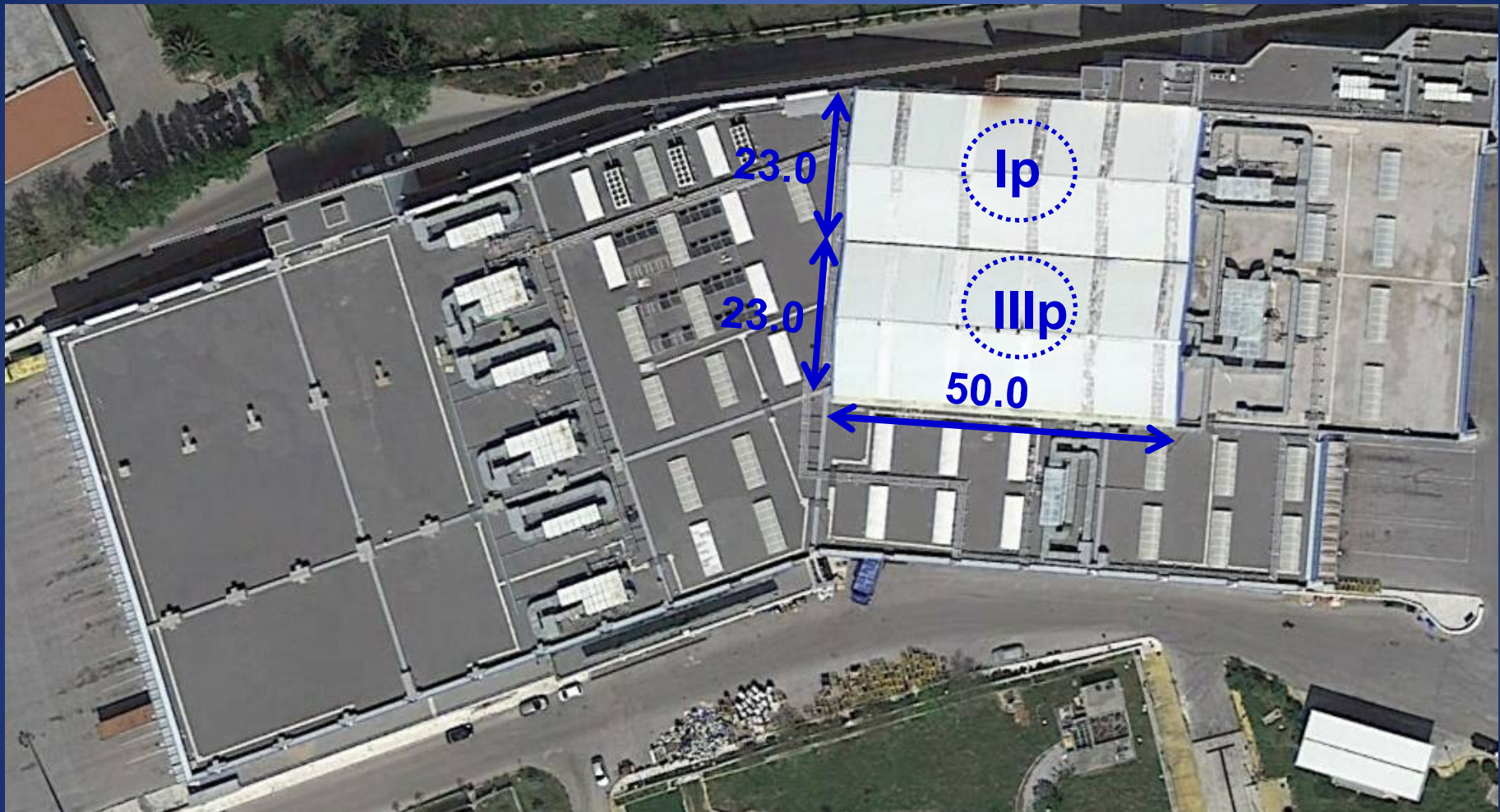
23^ο Φοιτητικό Συνέδριο Επισκευές και Ενισχύσεις Κατασκευών 2017



Ενίσχυση υφισταμένου “υπογείου” επιφάνειας 2.500m^2 λόγω αύξησης σεισμικού συντελεστή και ωφέλιμων φορτίων στις νέες κτηριακές εγκαταστάσεις του νέου αυτοματοποιημένου κέντρου διαλογής Αττικής, συν. επιφάνειας 35.000m^2



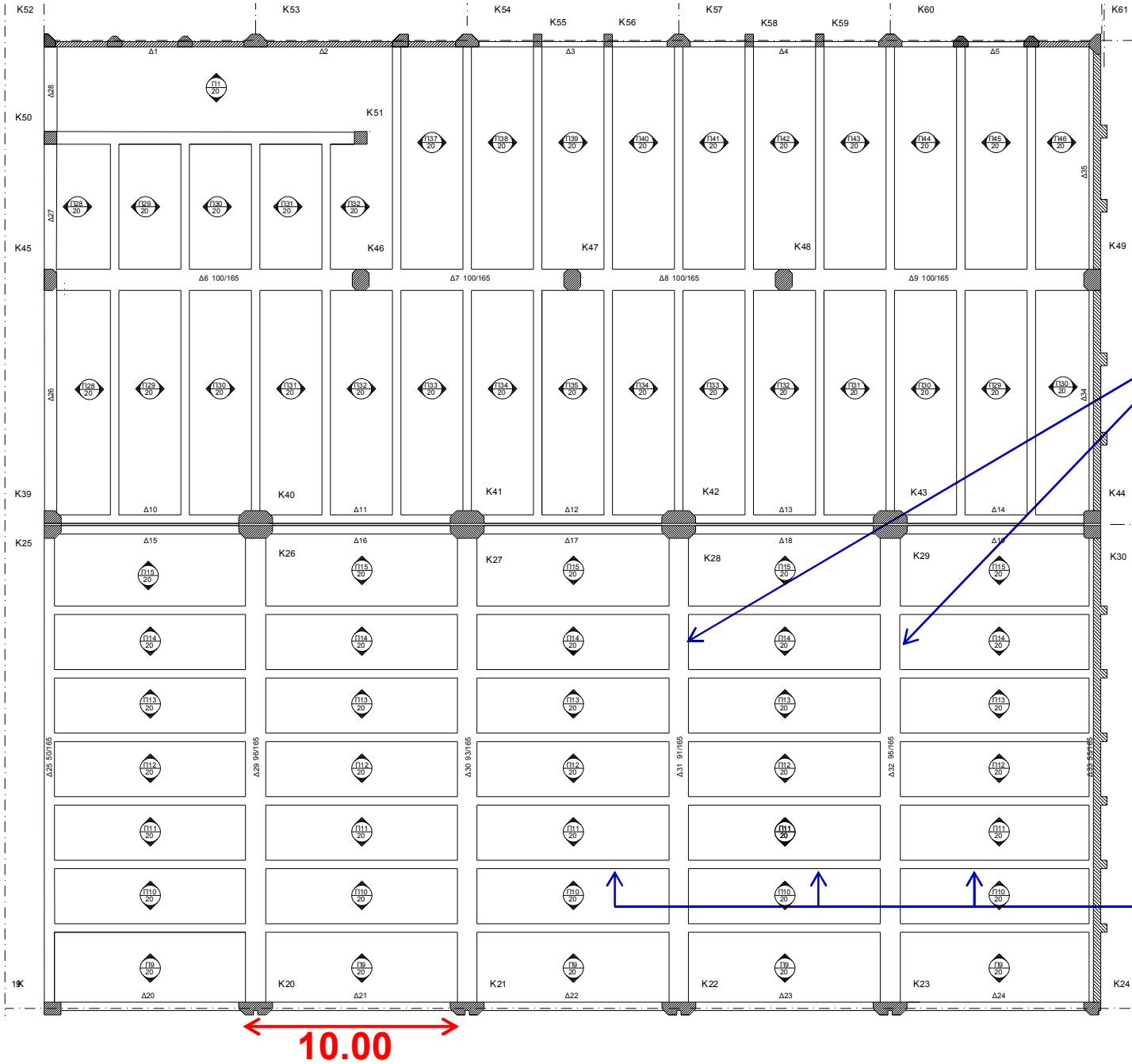
Τάκης Κούμouλος
Πάτρα, Φεβρουάριος 2017





Υπερυψωμένο υπόγειο

ΞΥΛΟΥΤΥΠΟΣ ΟΡΟΦΗΣ «ΥΠΟΓΕΙΟΥ»



22.85

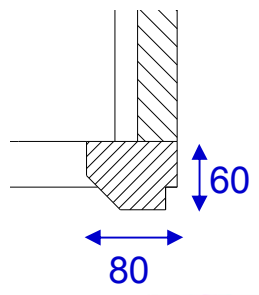
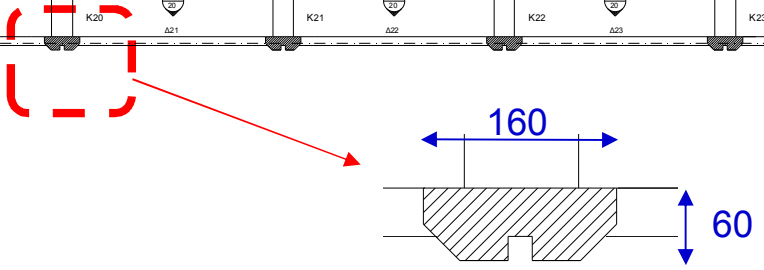
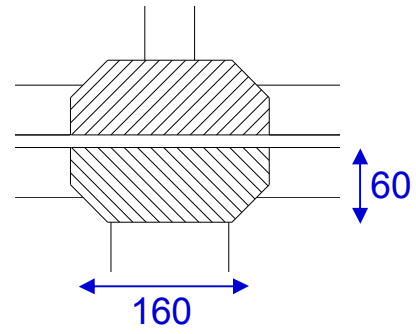
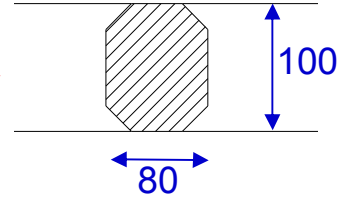
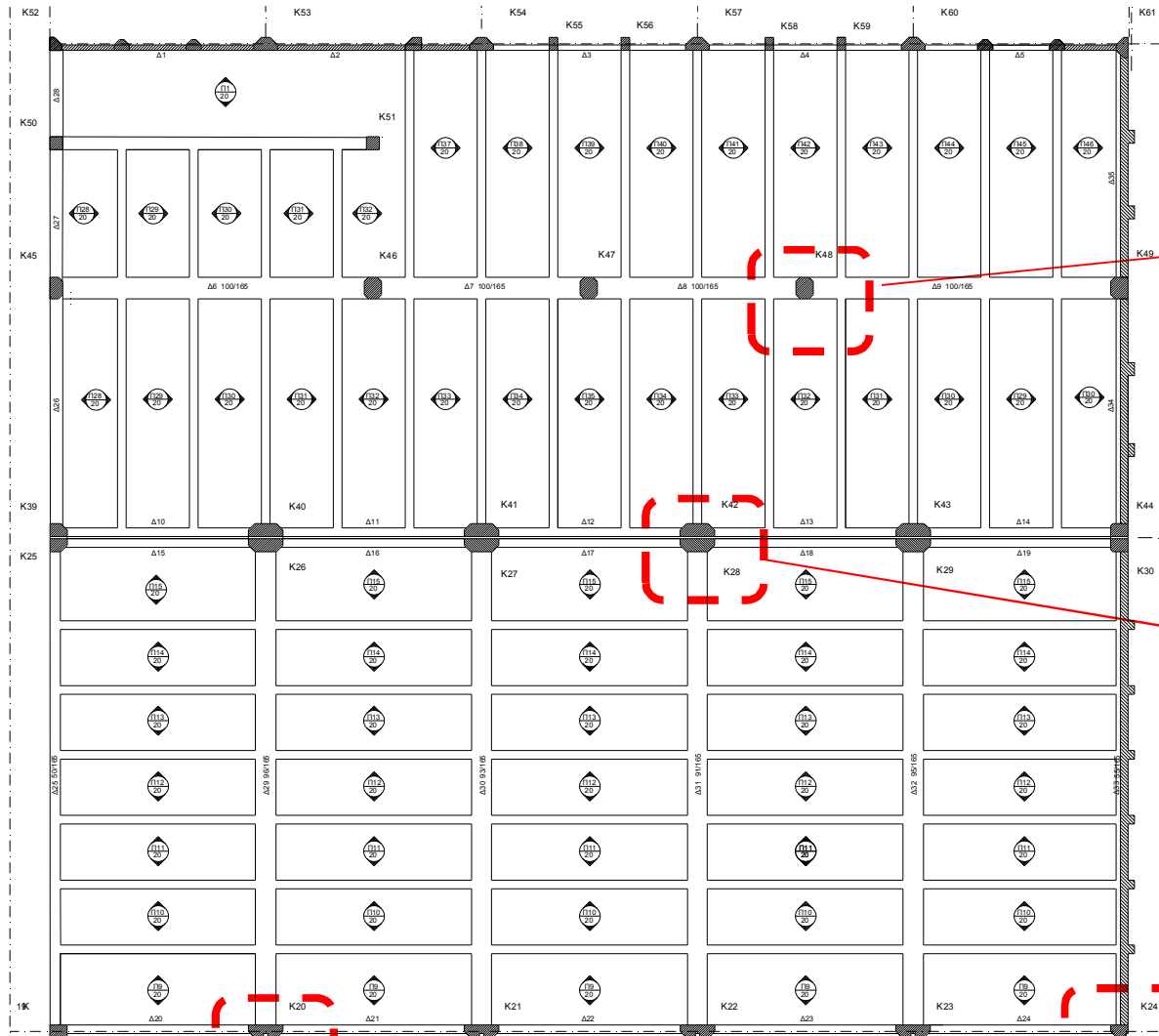
Προεντ. Δοκοί

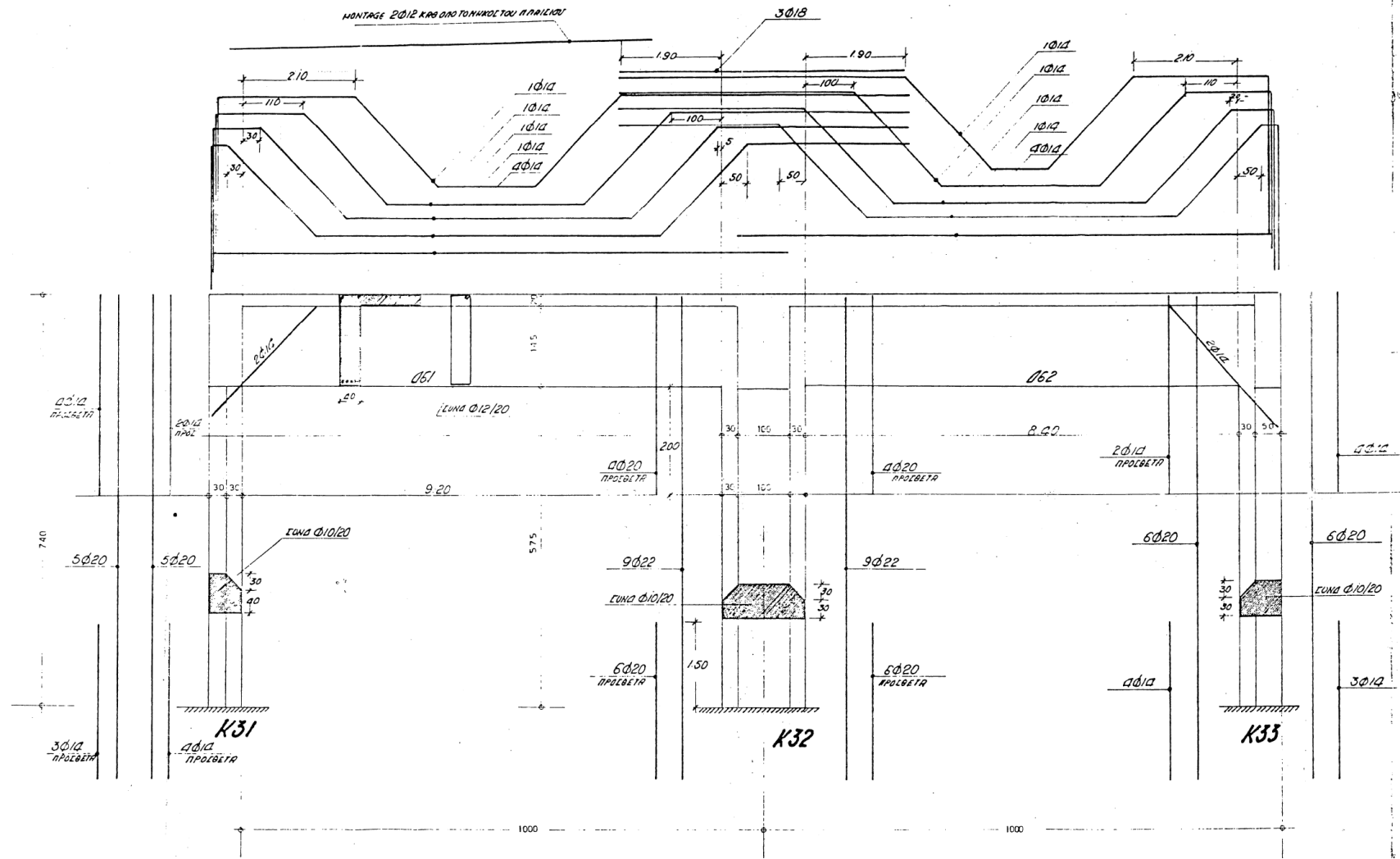
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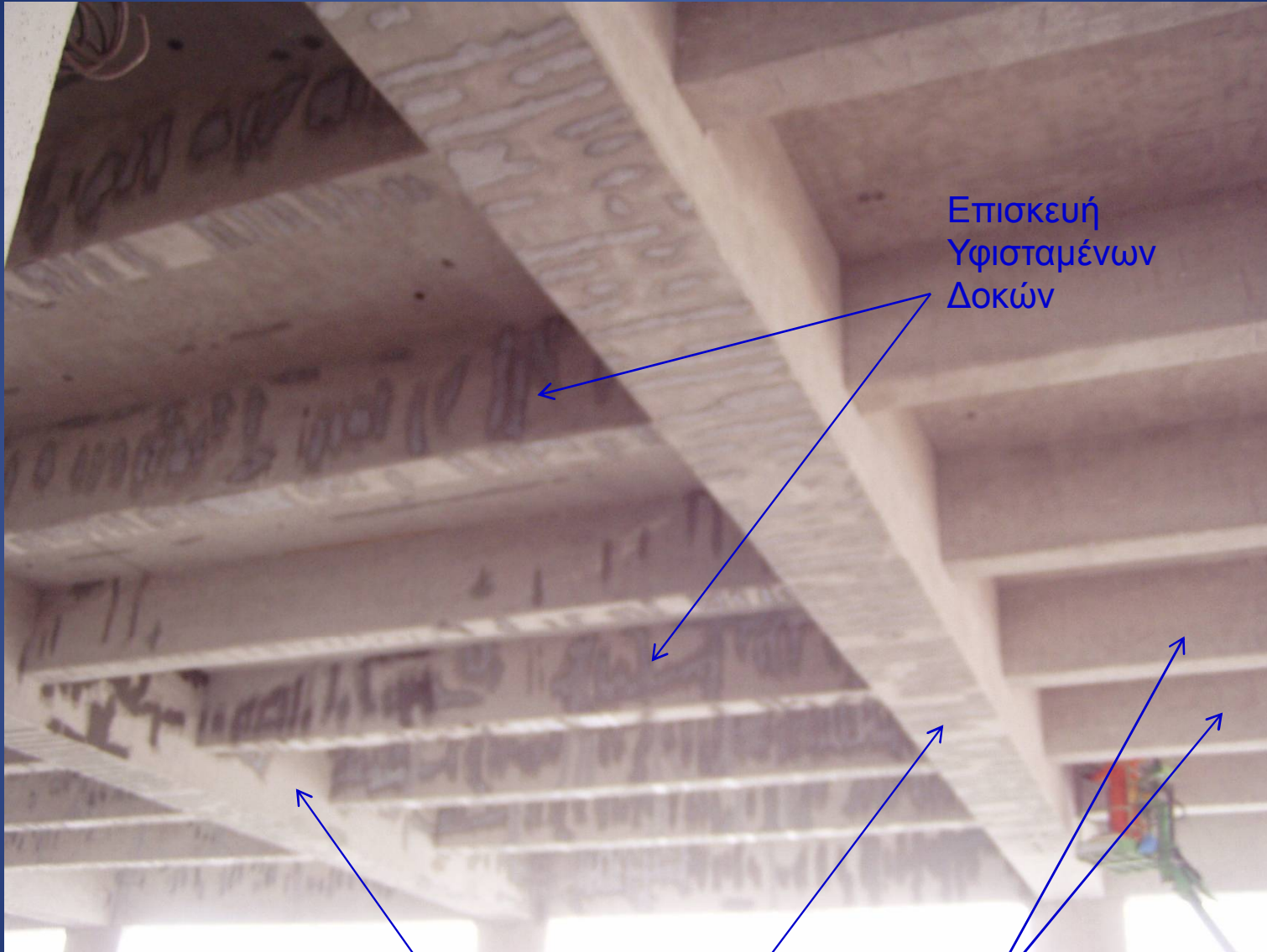
Διαδοκίδες

10.00









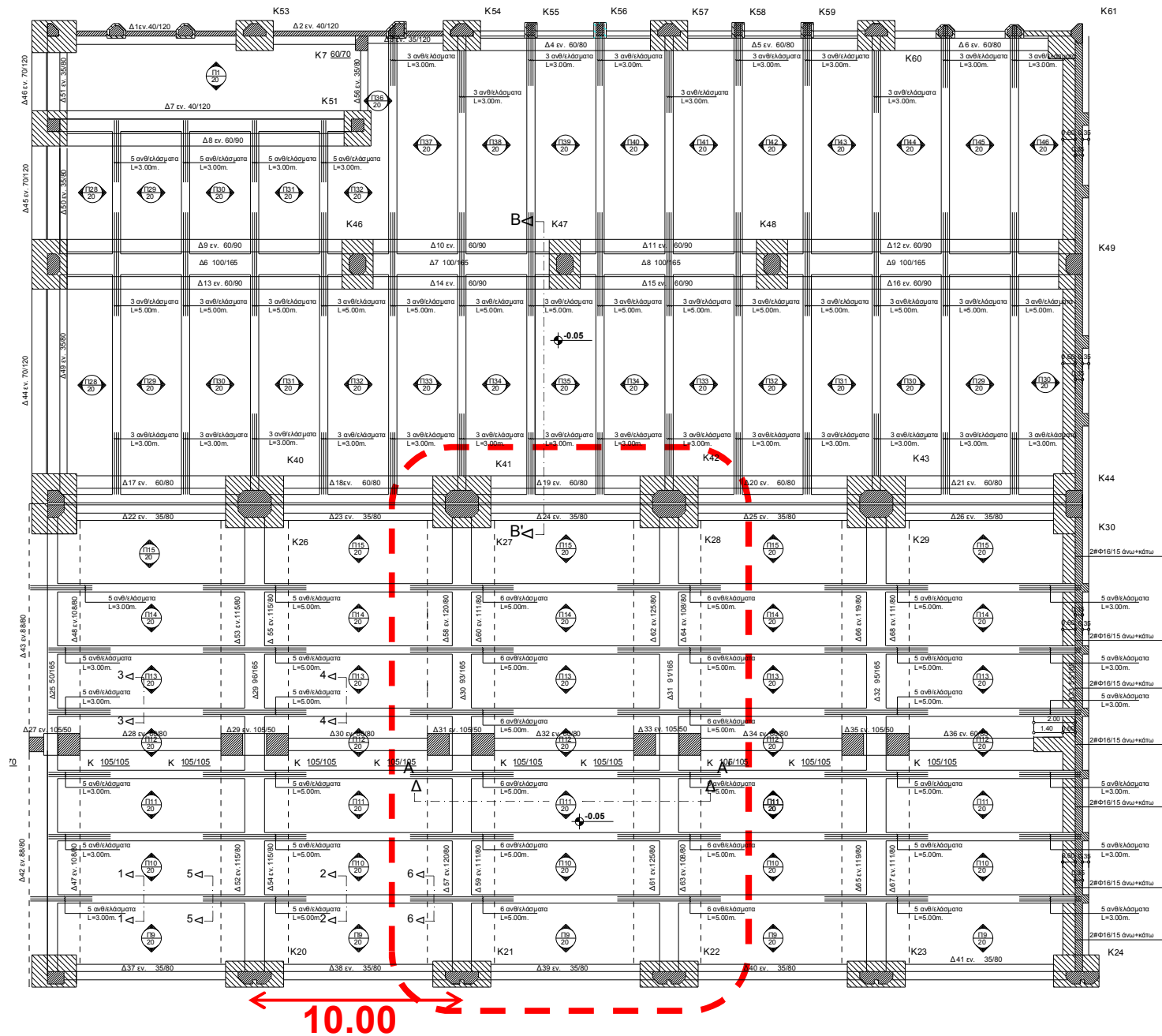
Επισκευή
Υφισταμένων
Δοκών

Προεντ. Δοκοί

Διαδοκίδες



ΕΝΙΣΧΥΜΕΝΟΣ ΞΥΛΟΤΥΠΟΣ ΟΡΟΦΗΣ «ΥΠΟΓΕΙΟΥ»

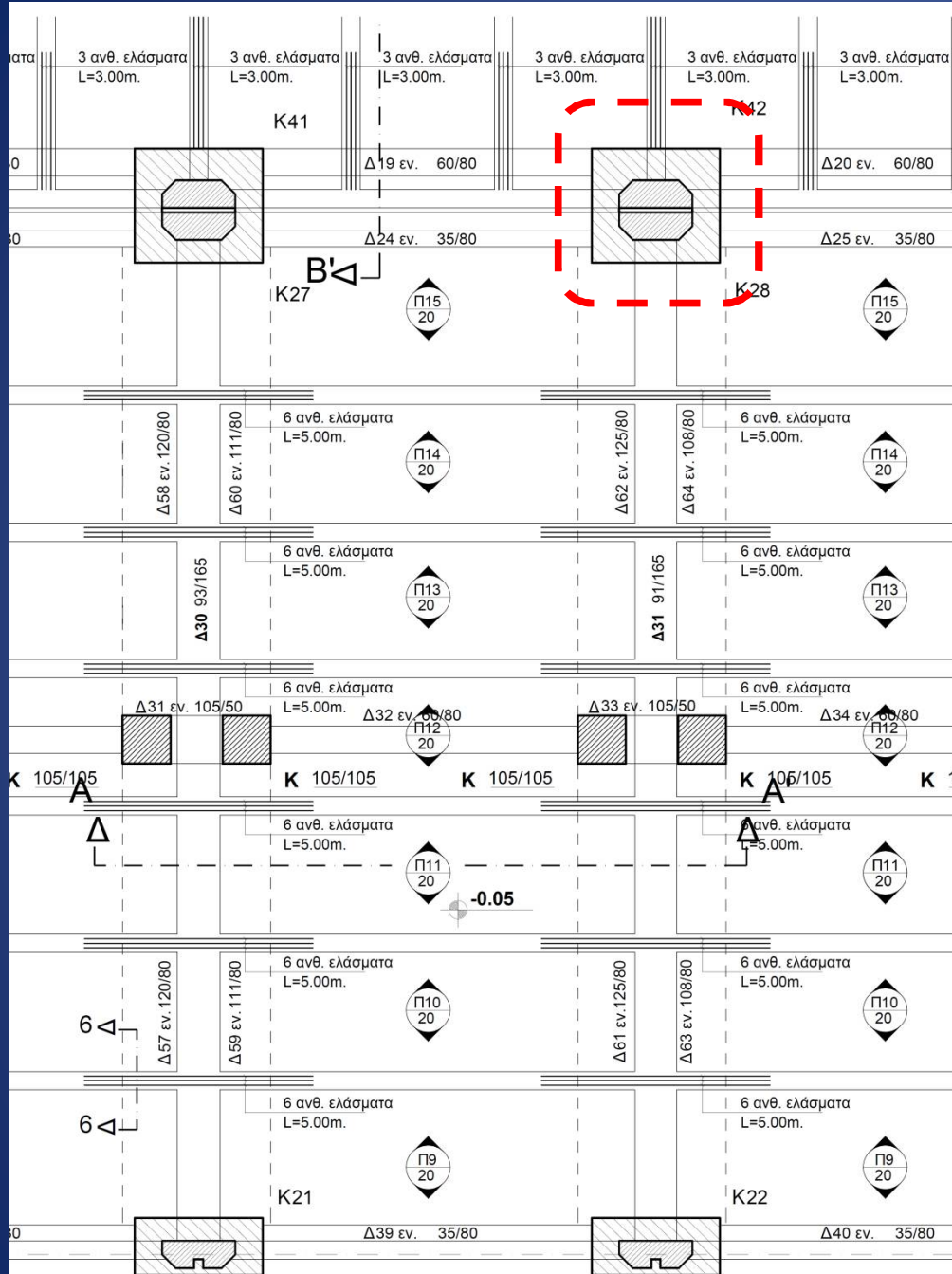


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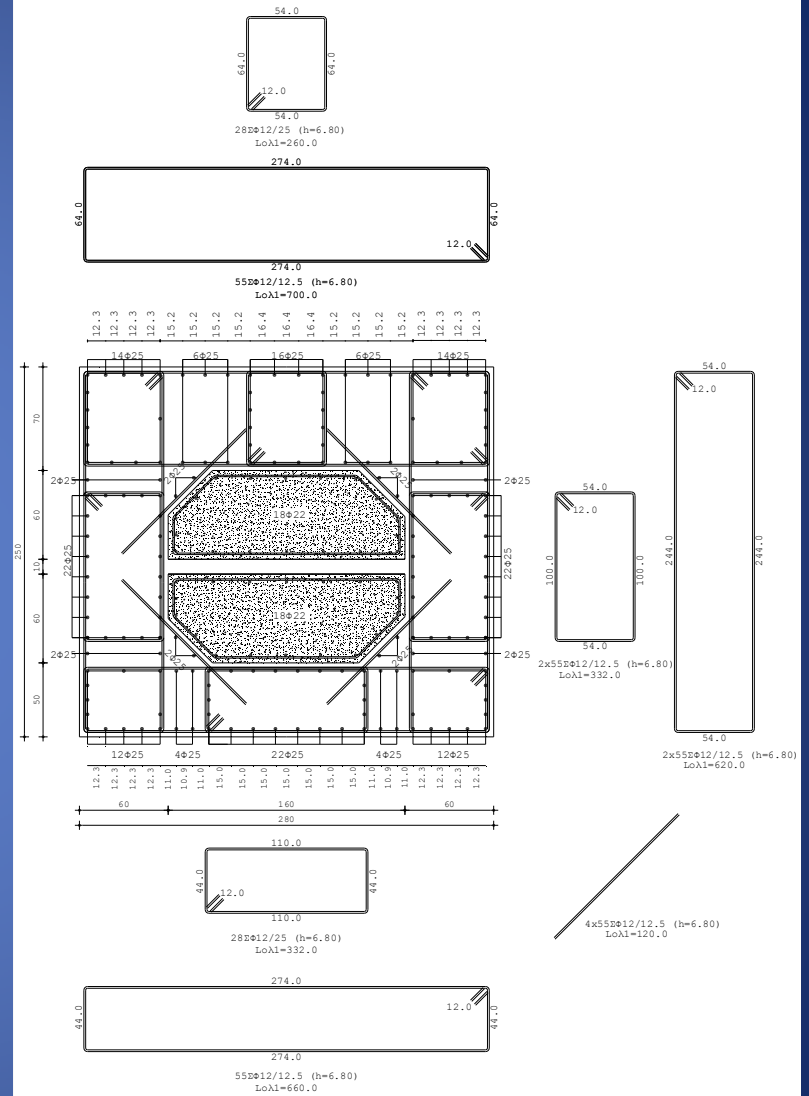
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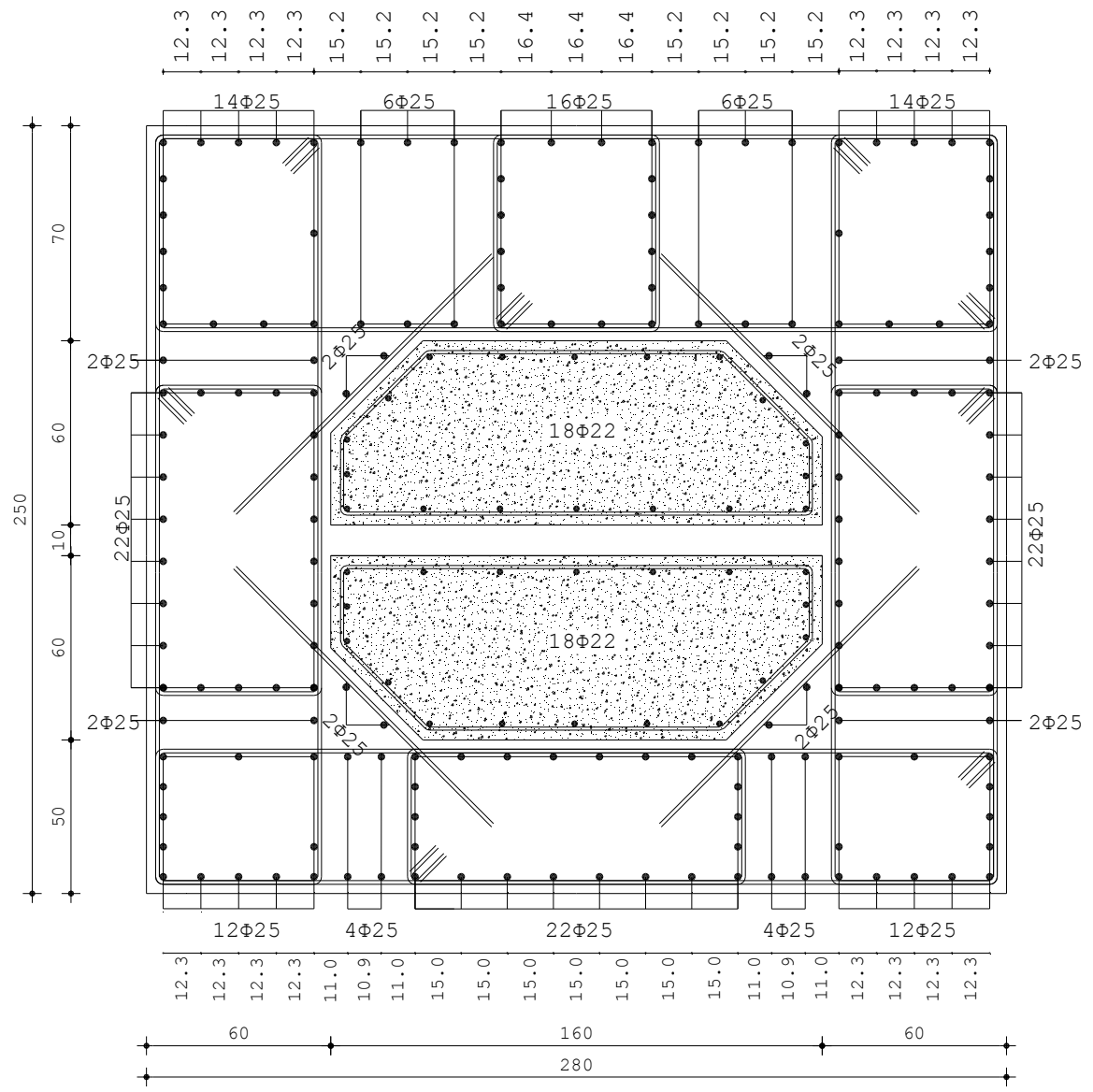
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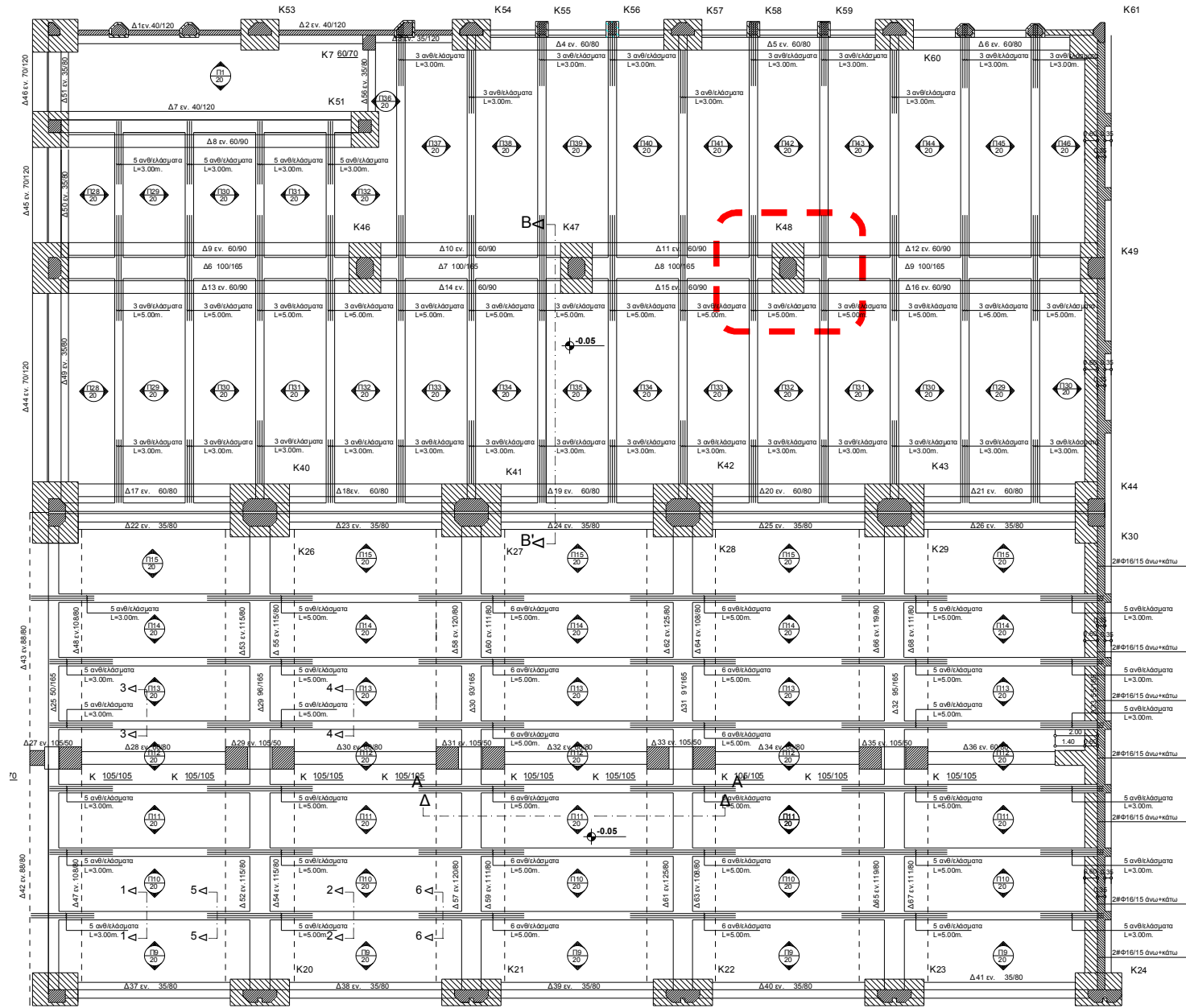
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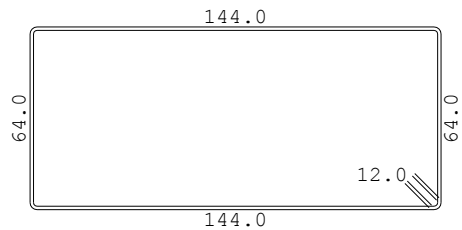
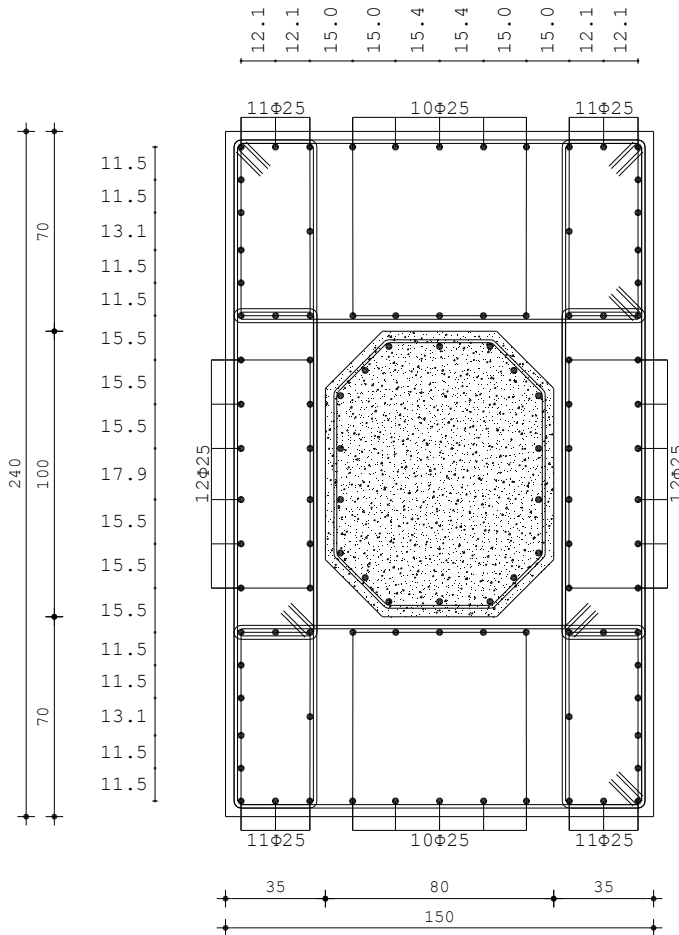


Ενίσχυση Υποστυλωμάτων





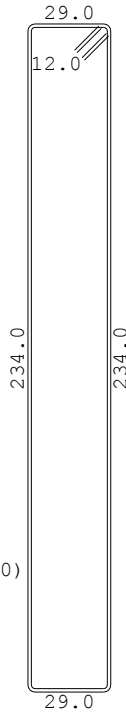




55Φ12/12.5 (h=6.80)
Loλ1=440.0

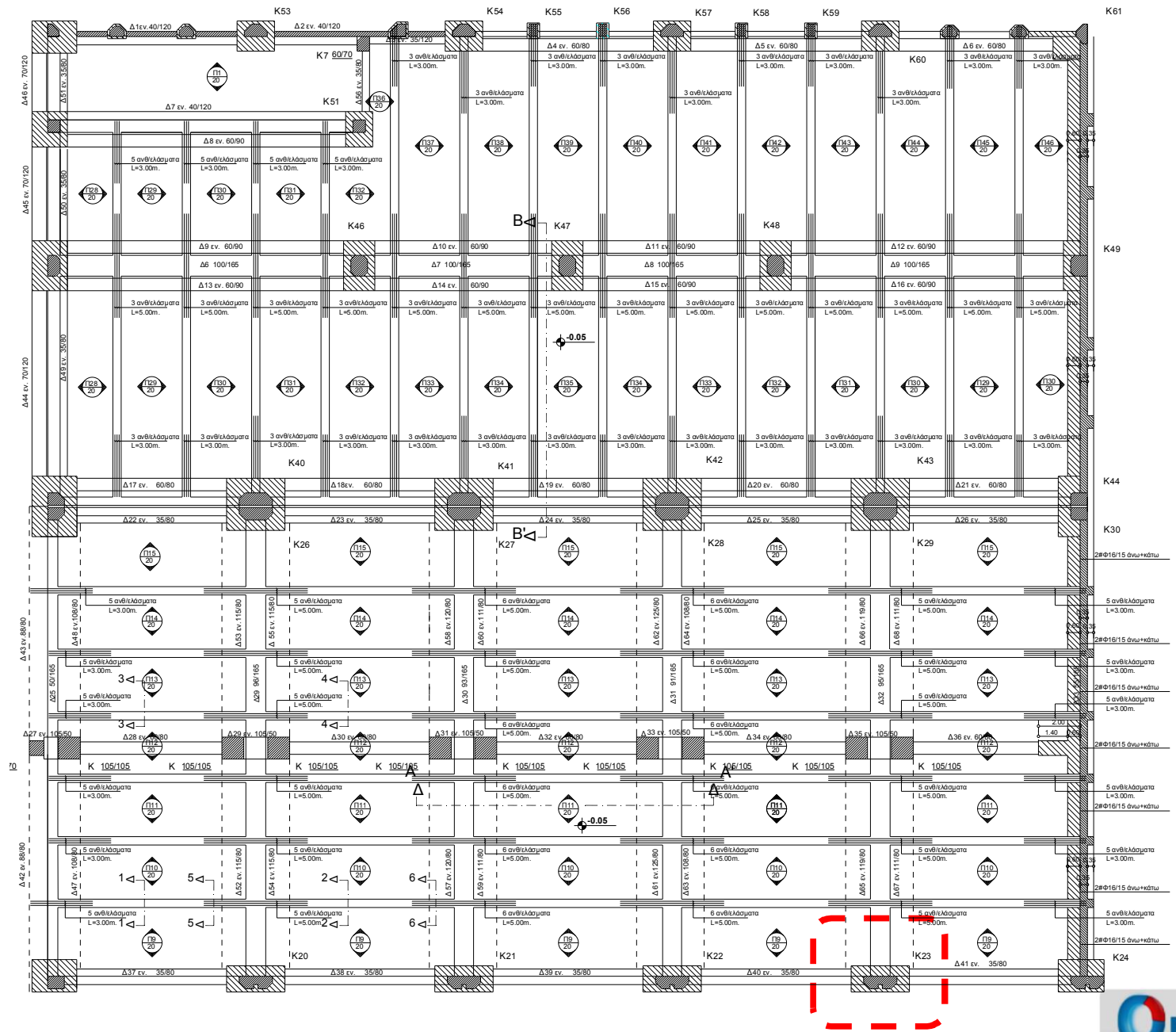


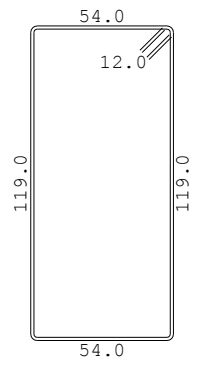
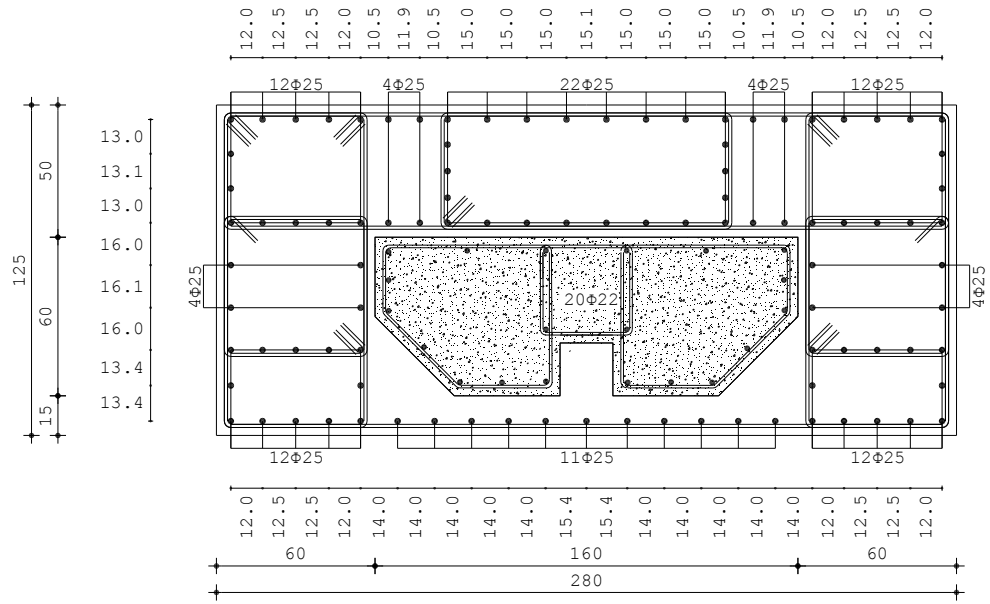
2x28ΣΦ12/25 (h=6.80)
Loλ1=313.8



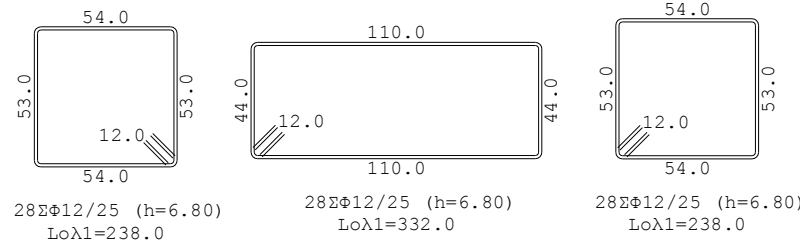
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Loλ1=550.0







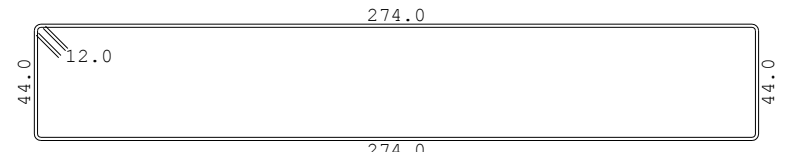
2x55ΣΦ12/12.5 (h=6.80)
Loλ1=370.0



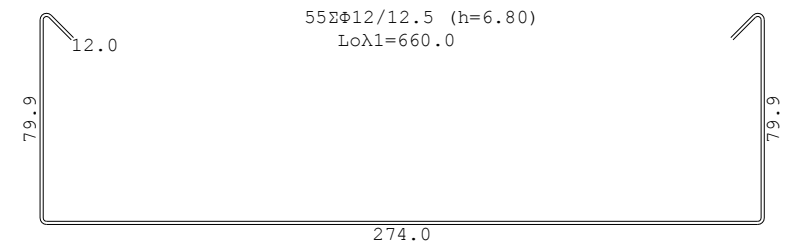
28ΣΦ12/25 (h=6.80)
Loλ1=238.0

28ΣΦ12/25 (h=6.80)
Loλ1=332.0

28ΣΦ12/25 (h=6.80)
Loλ1=238.0



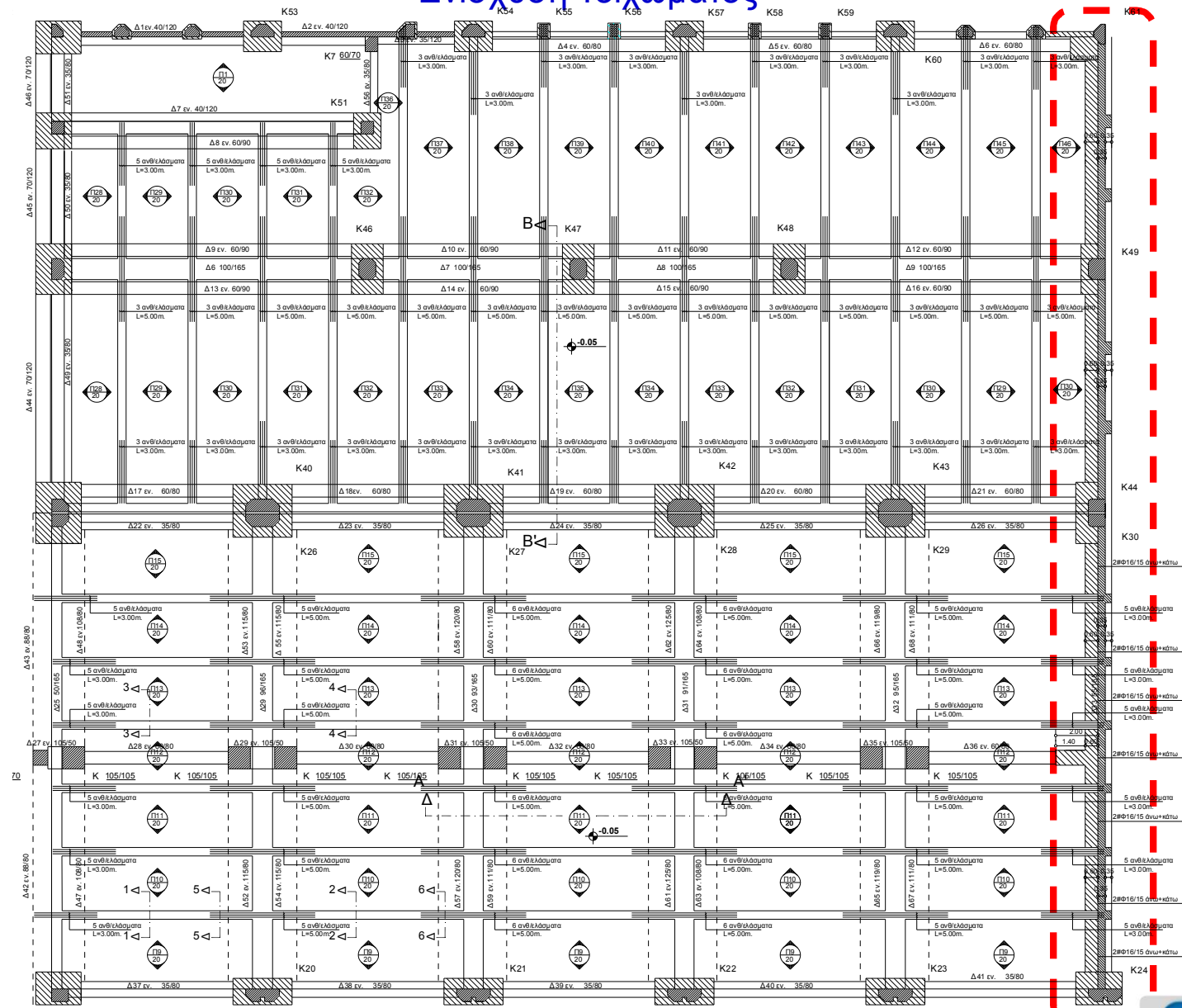
55ΣΦ12/12.5 (h=6.80)
Loλ1=660.0



55ΣΦ12/12.5 (h=6.80)
Loλ1=457.8

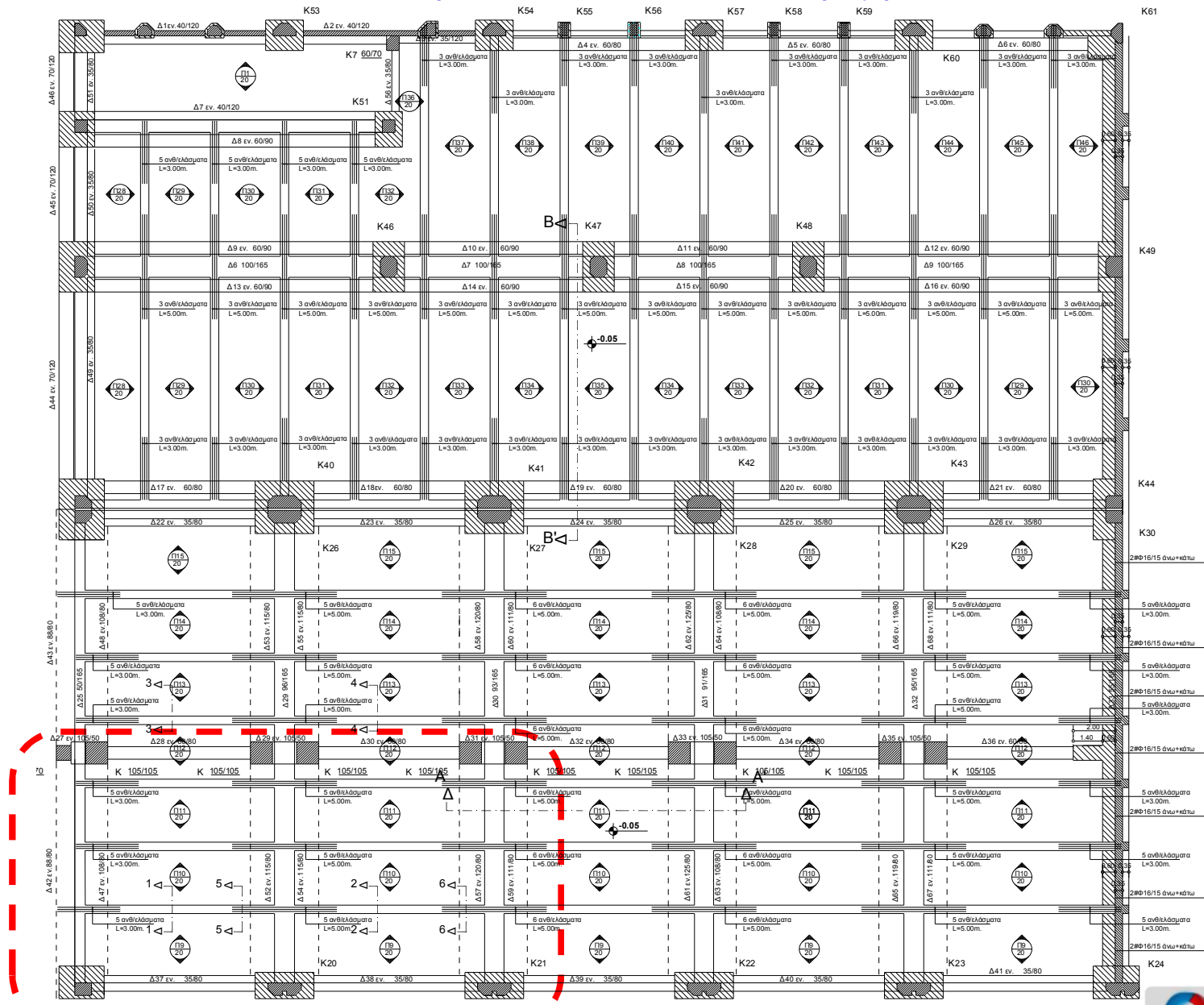


Ενίσχυση Τοιχώματος

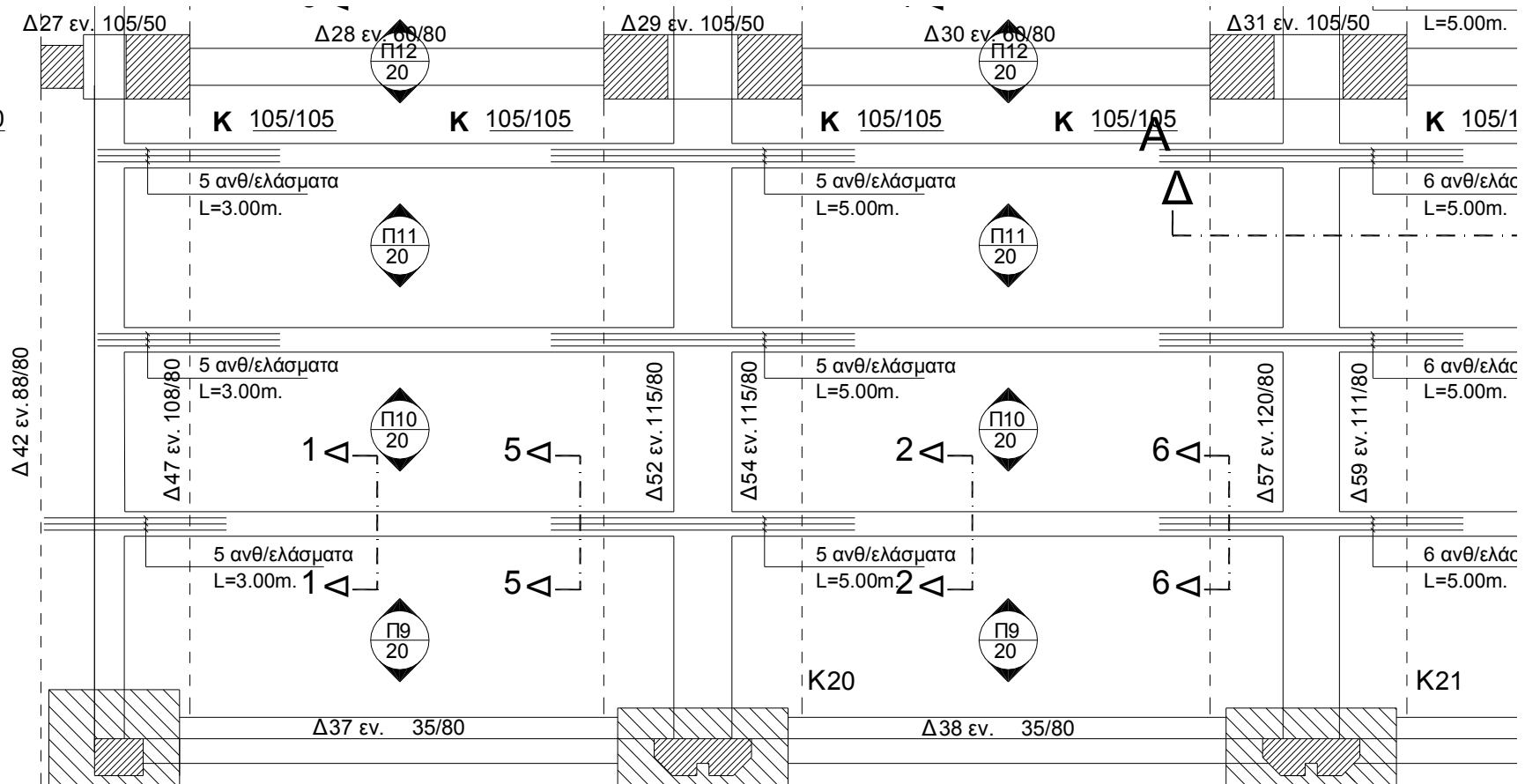




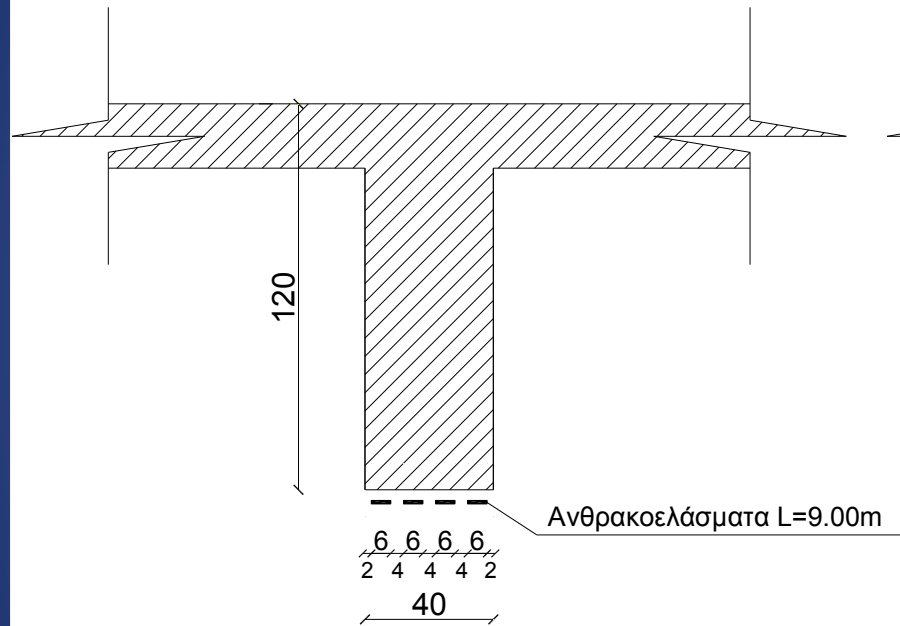
Ενίσχυση δοκών σε Άνοιγμα – Στήριξη με FRP



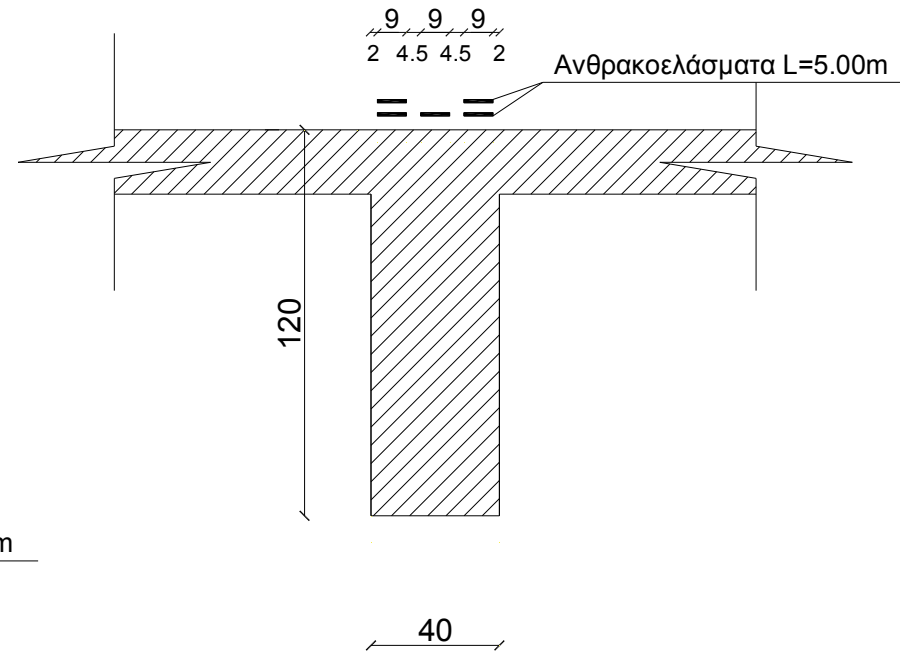
Ενίσχυση δοκών σε Άνοιγμα – Στήριξη με FRP



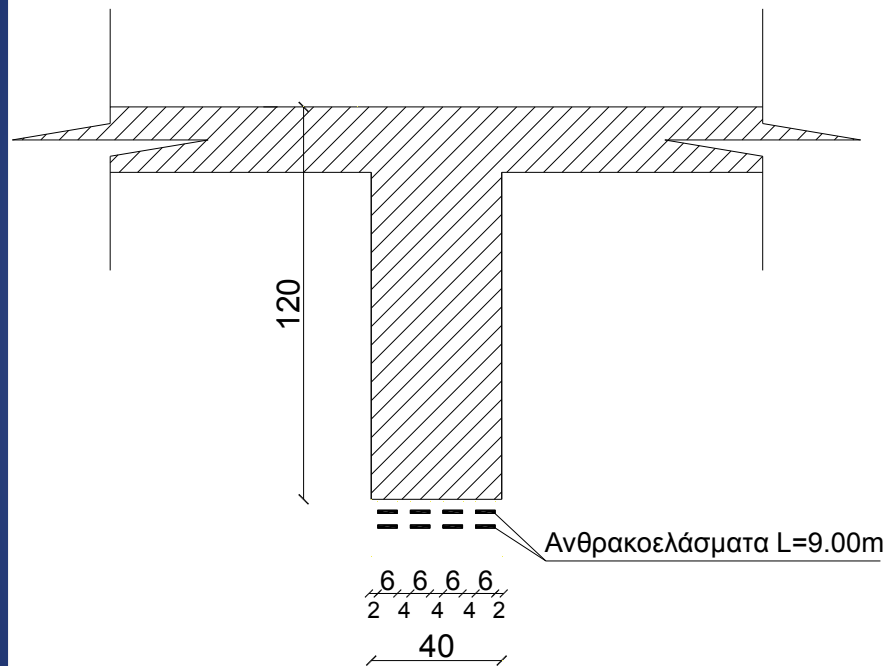
Τομή 1-1 Άνοιγμα



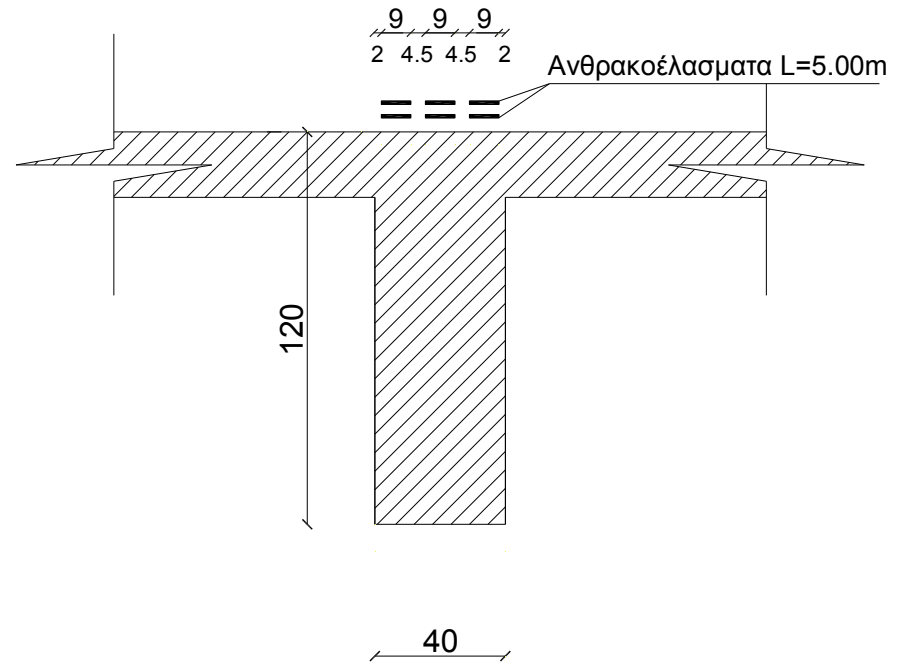
Τομή 5-5 Στήριξη

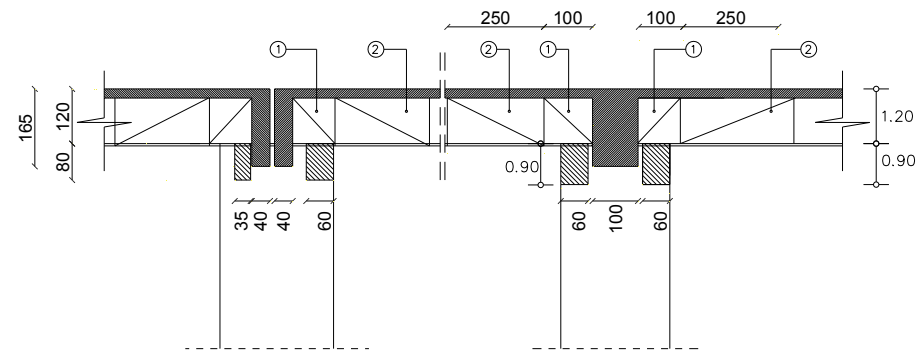
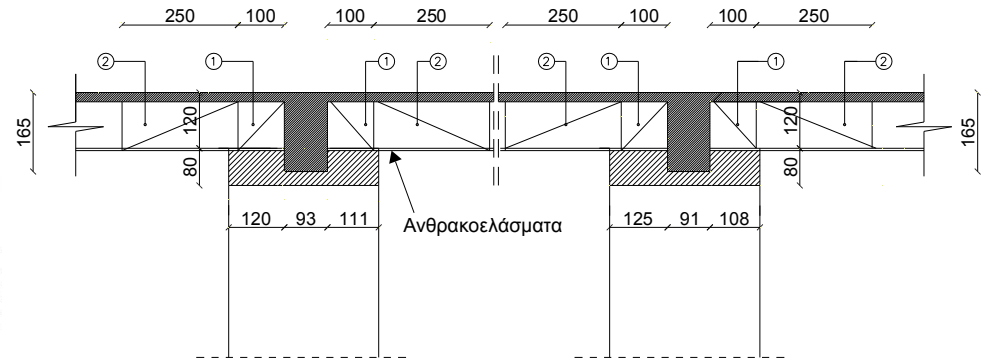
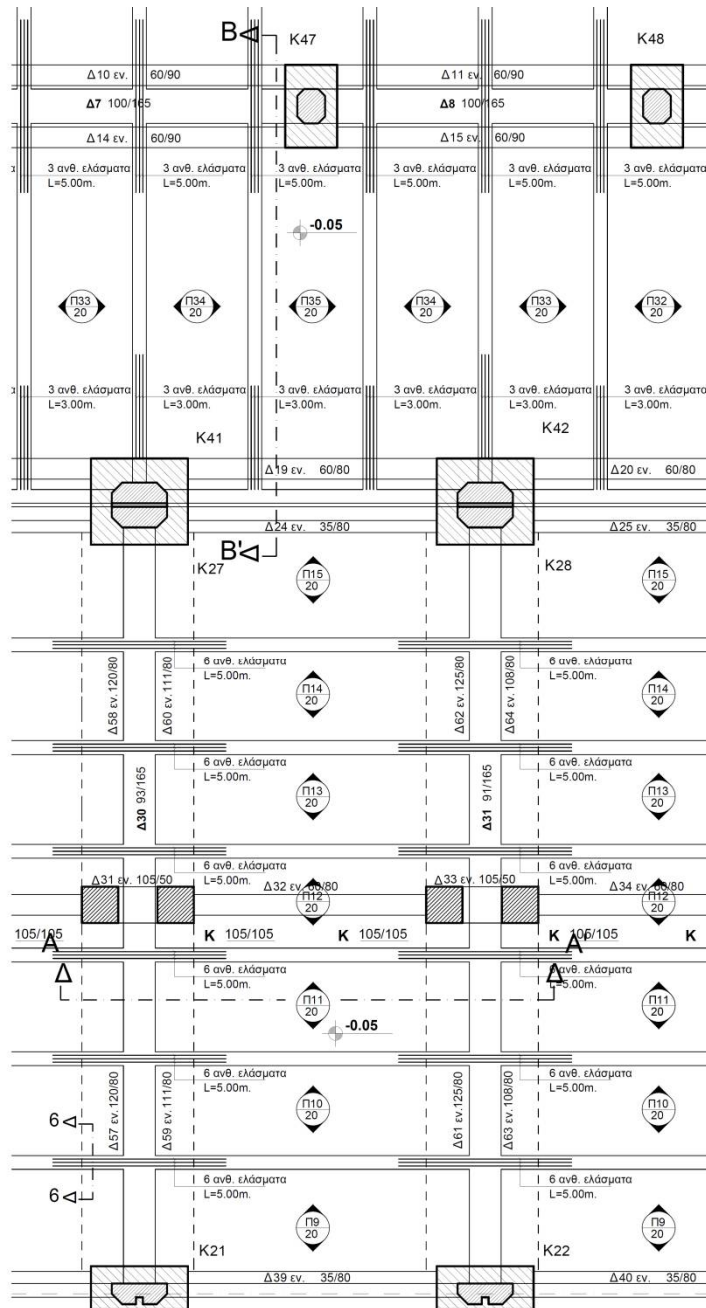


Τομή 2-2 Άνοιγμα

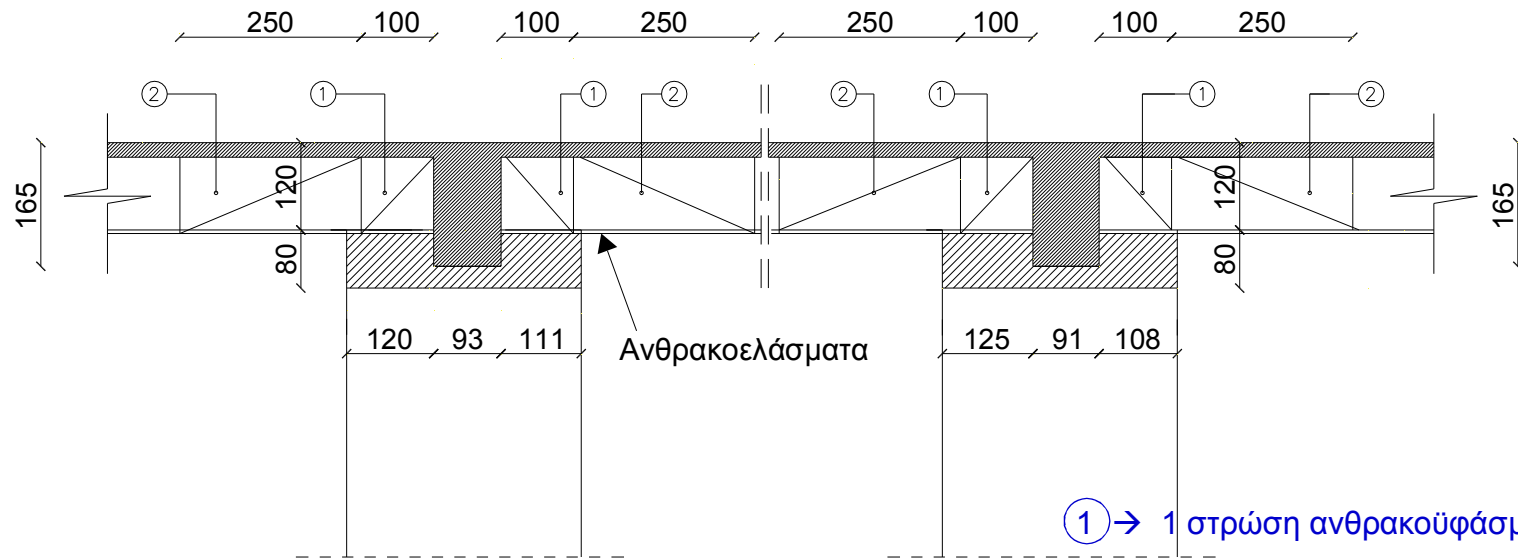


Τομή 6-6 Στήριξη





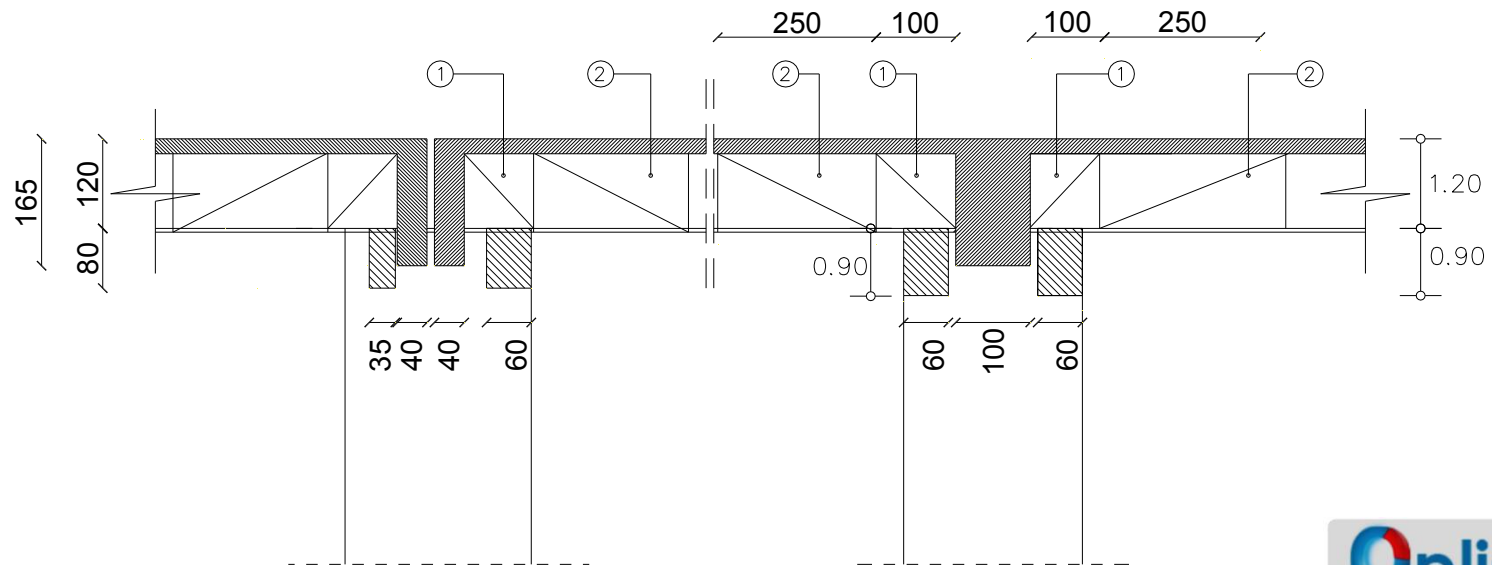
TOMH A-A



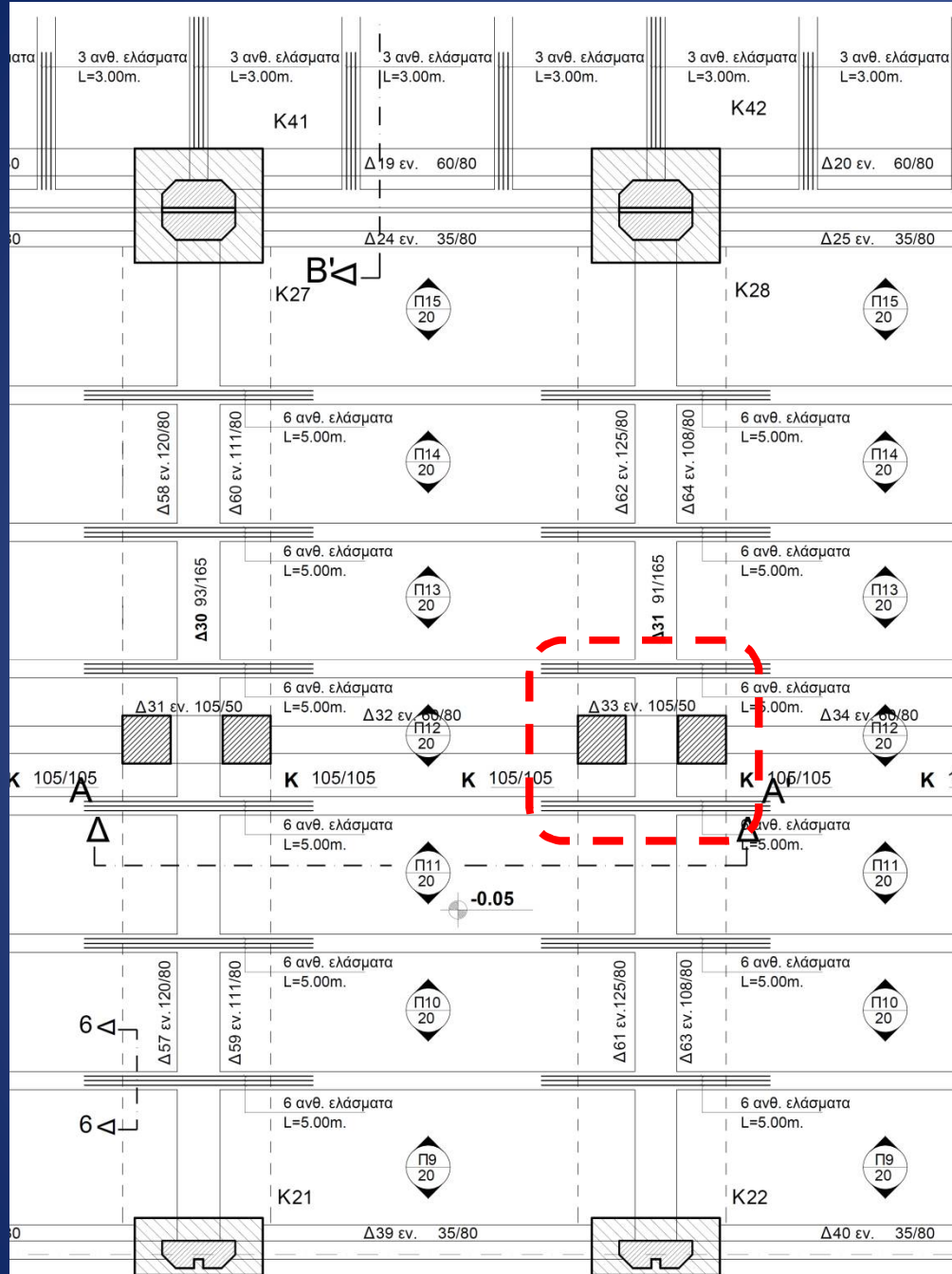
① → 1 στρώση ανθρακοϋφάσματος

② → 2 στρώσεις ανθρακοϋφάσματος

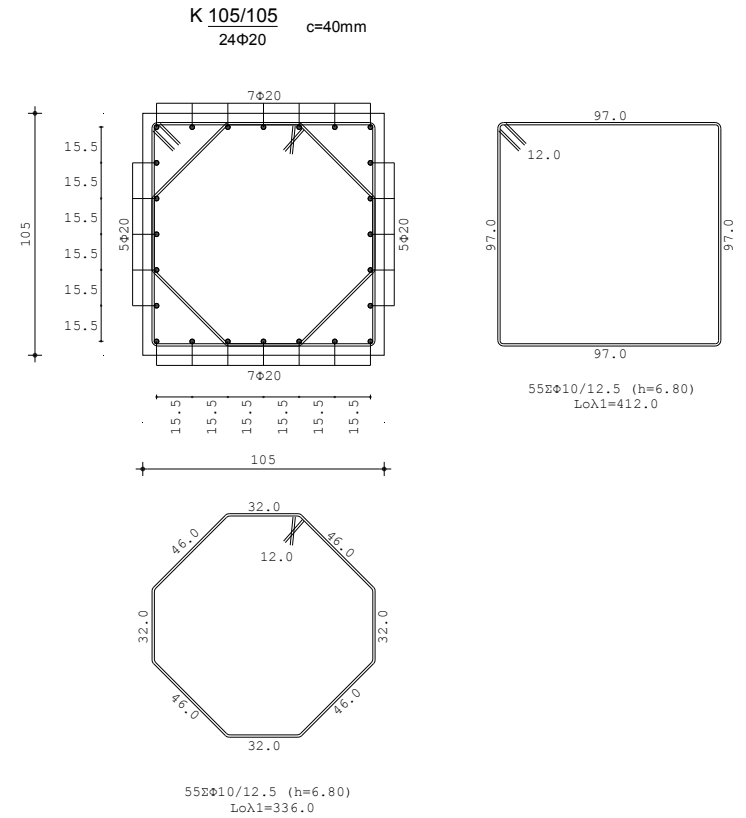
TOMH B-B



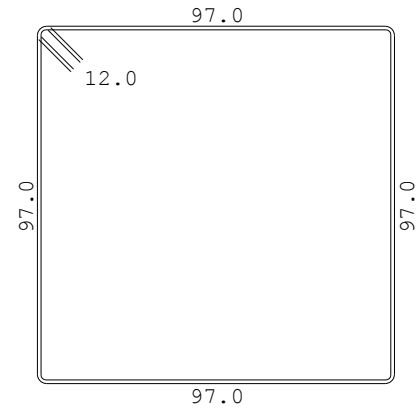
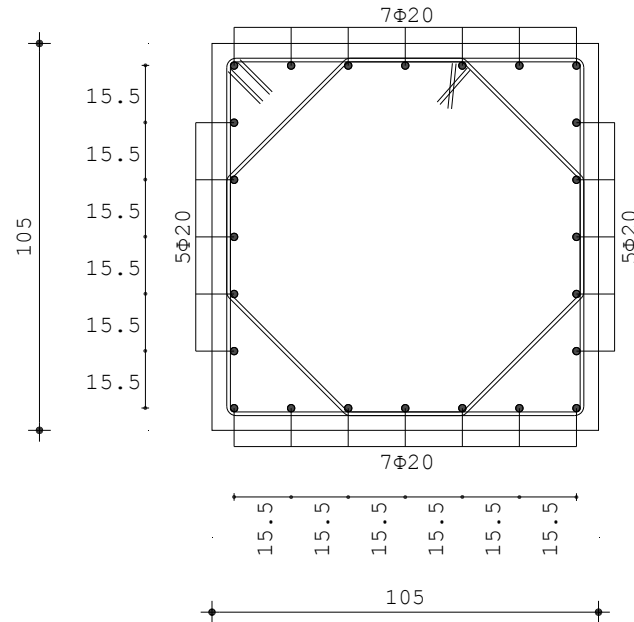




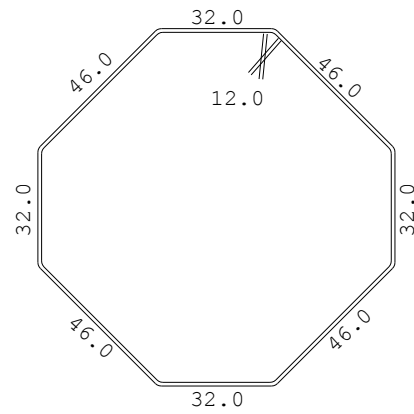
Προσθήκη νέων υποστυλωμάτων



K 105/105
24Φ20 c=40mm

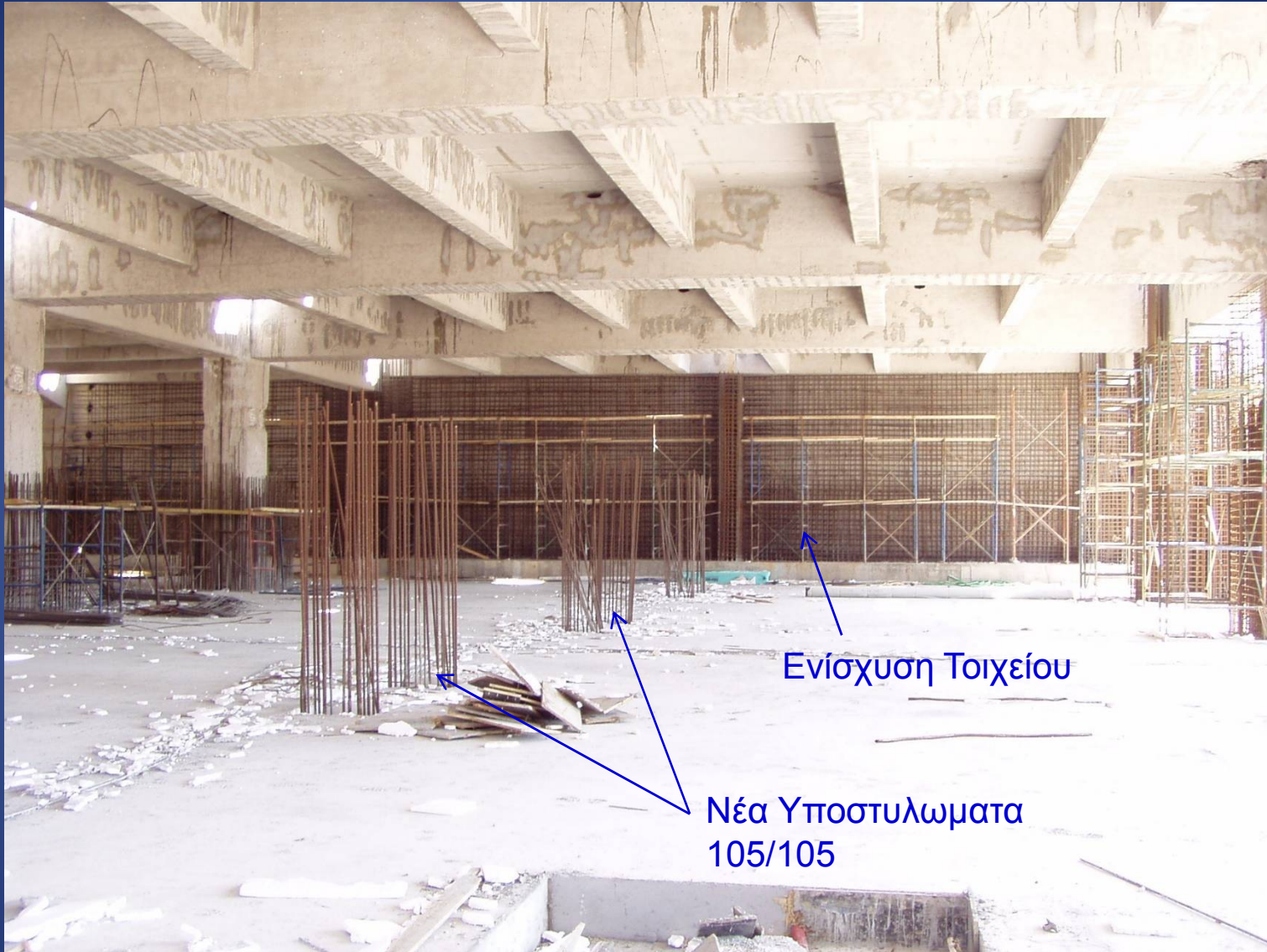


55ΣΦ10/12.5 (h=6.80)
L_{oλ}1=412.0



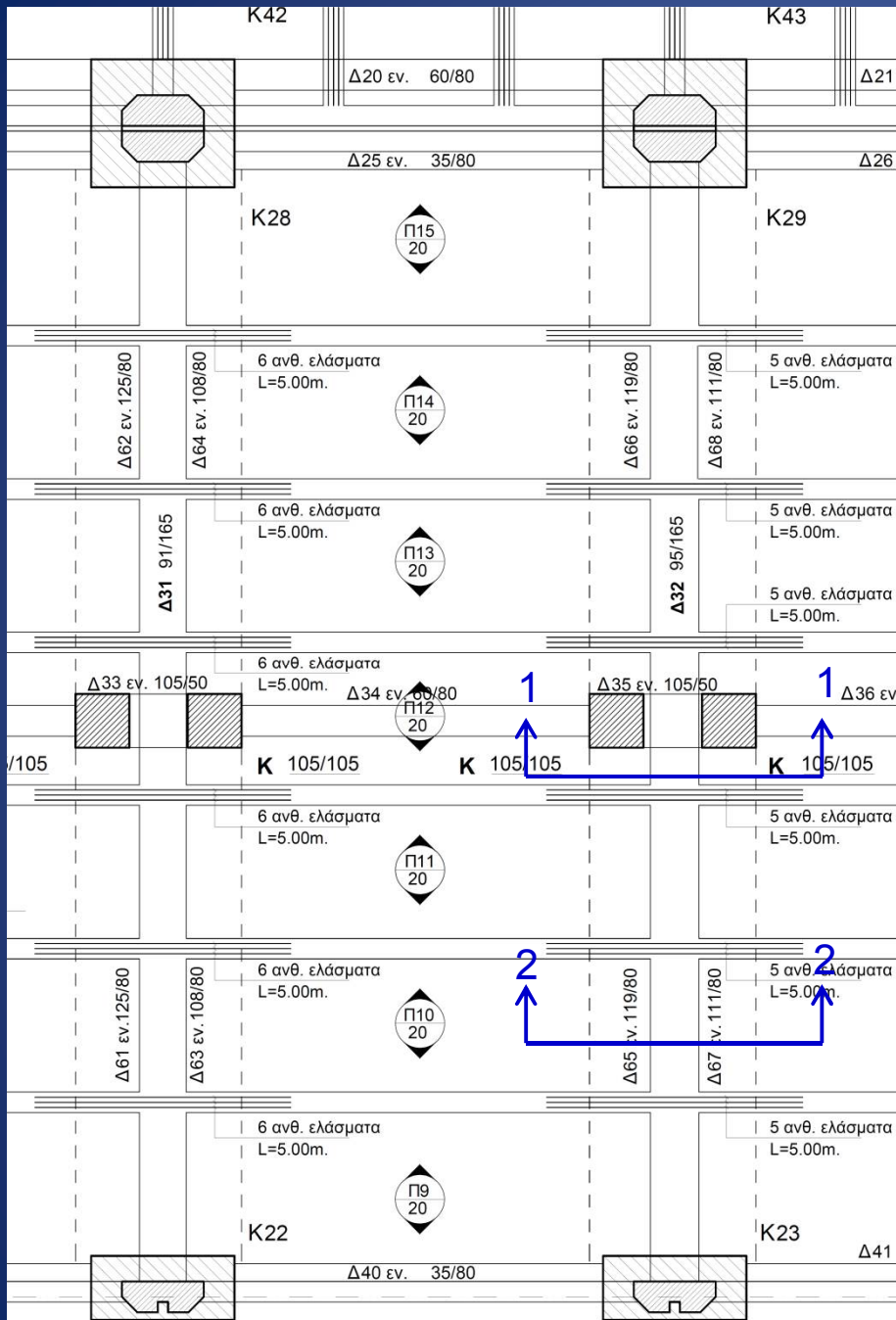
55ΣΦ10/12.5 (h=6.80)
L_{oλ}1=336.0





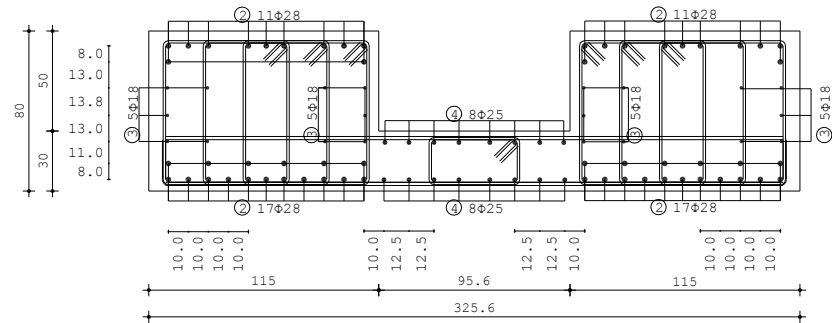
Ενίσχυση Τοιχείου

Νέα Υποστυλωματα
105/105

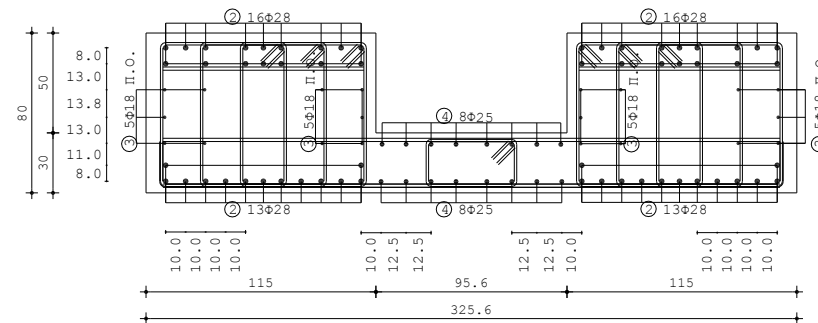


Ενίσχυση Προεντεταμένων Δοκών

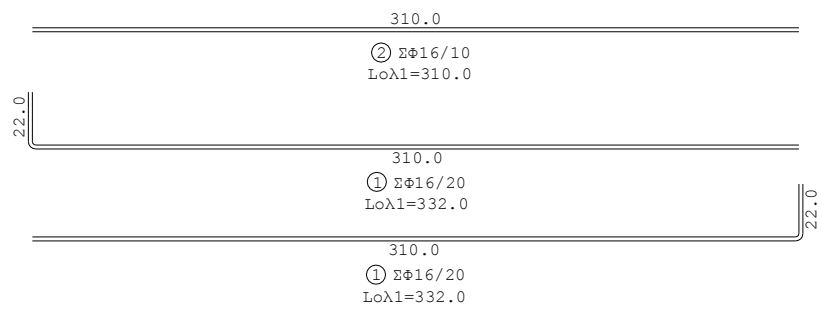
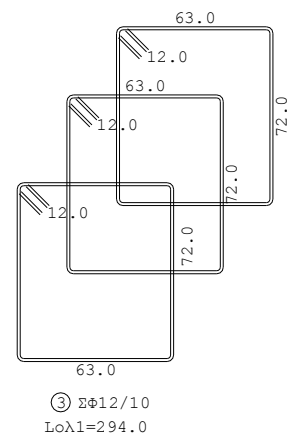
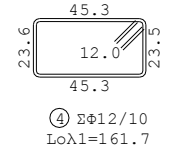
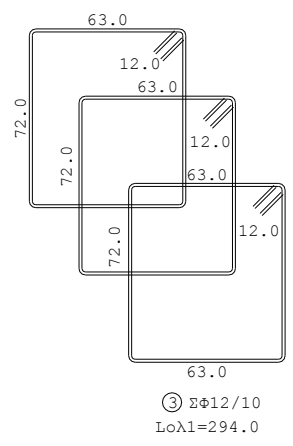
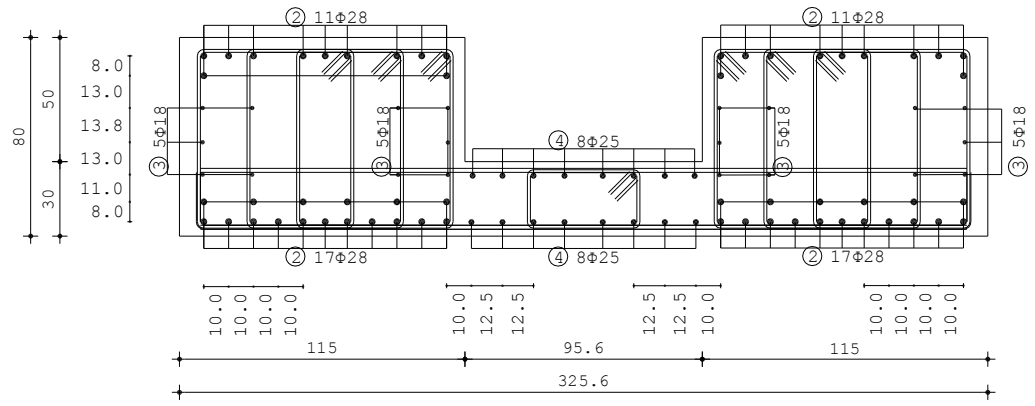
Τομή 1-1 Στήριξη



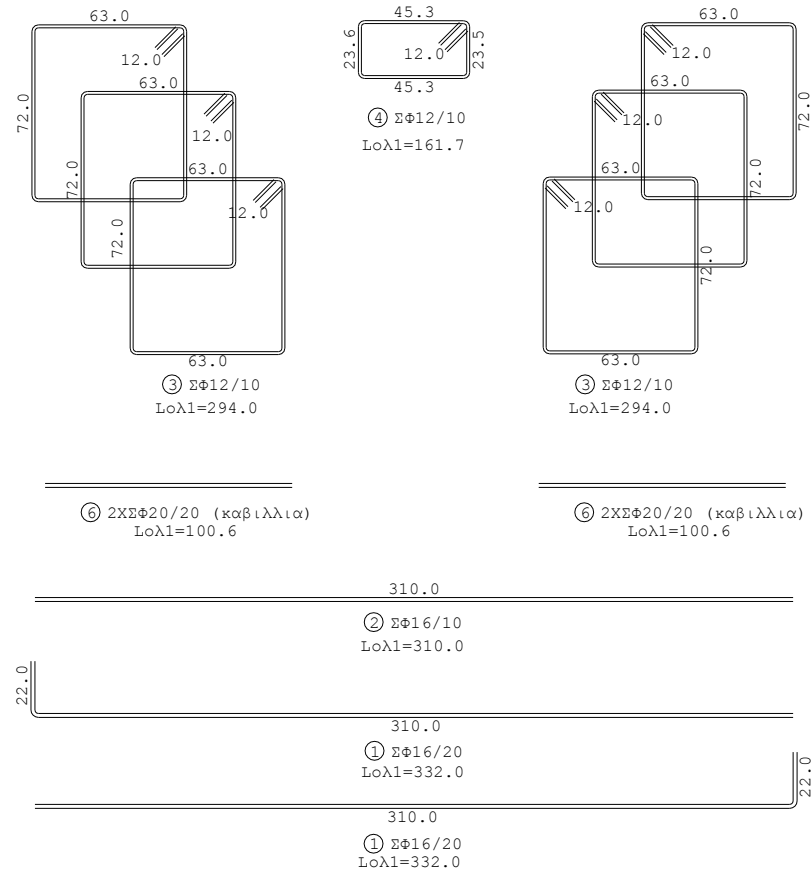
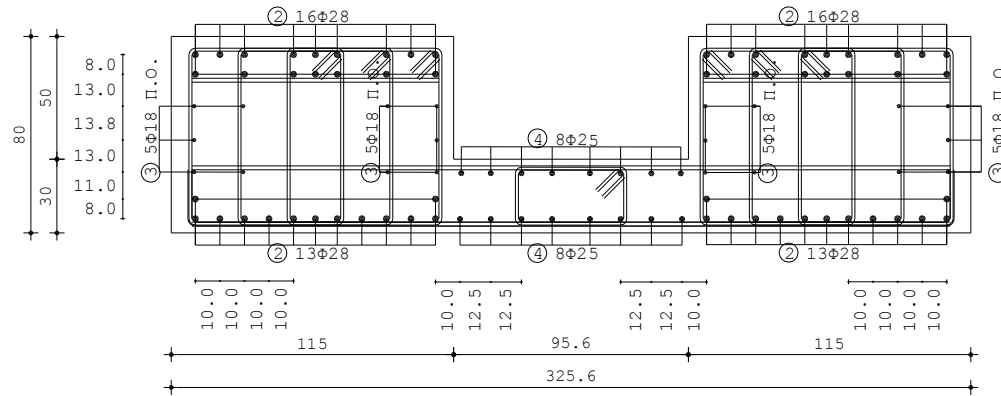
Τομή 2-2 Άνοιγμα



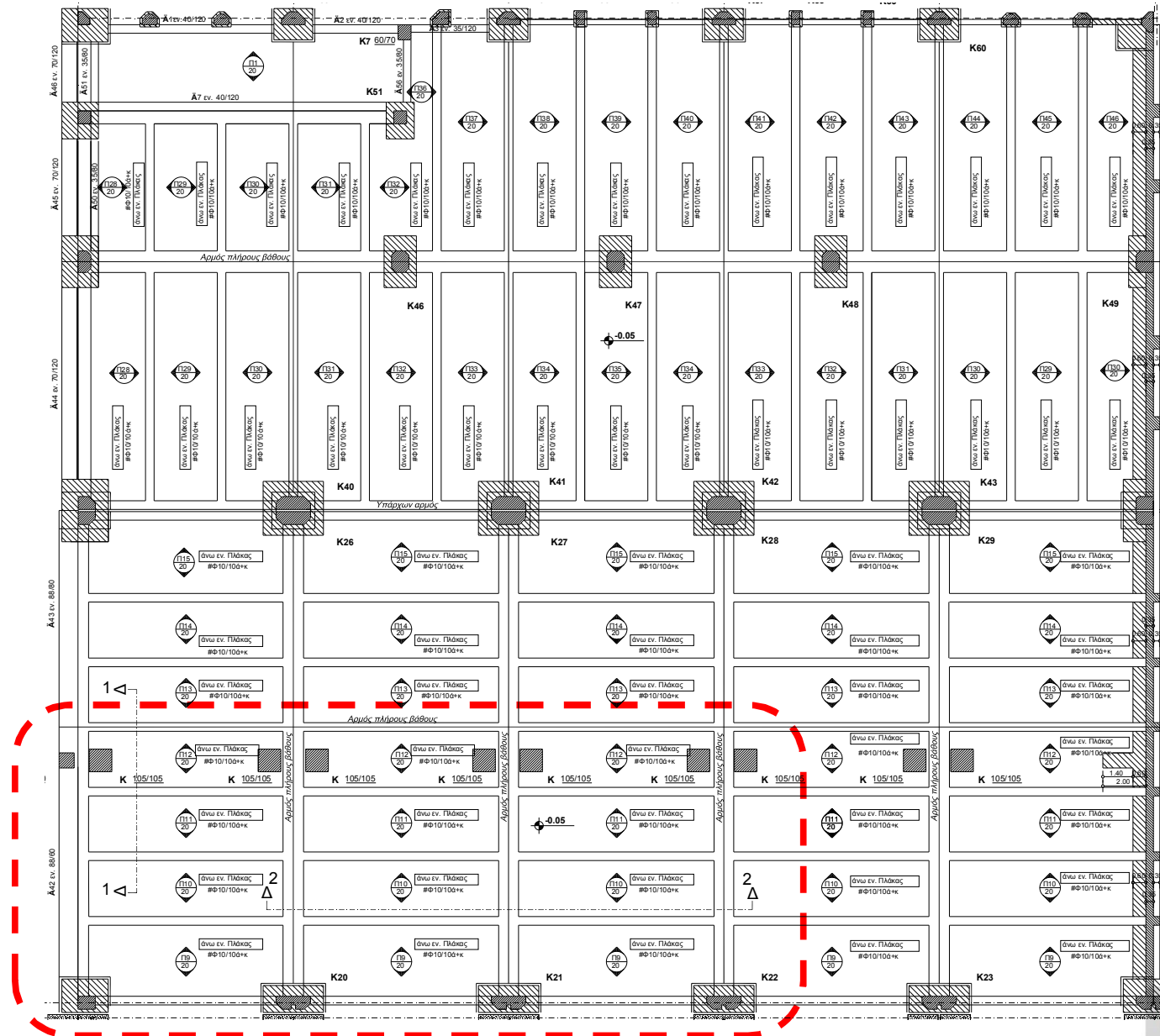
Άνοιγμα

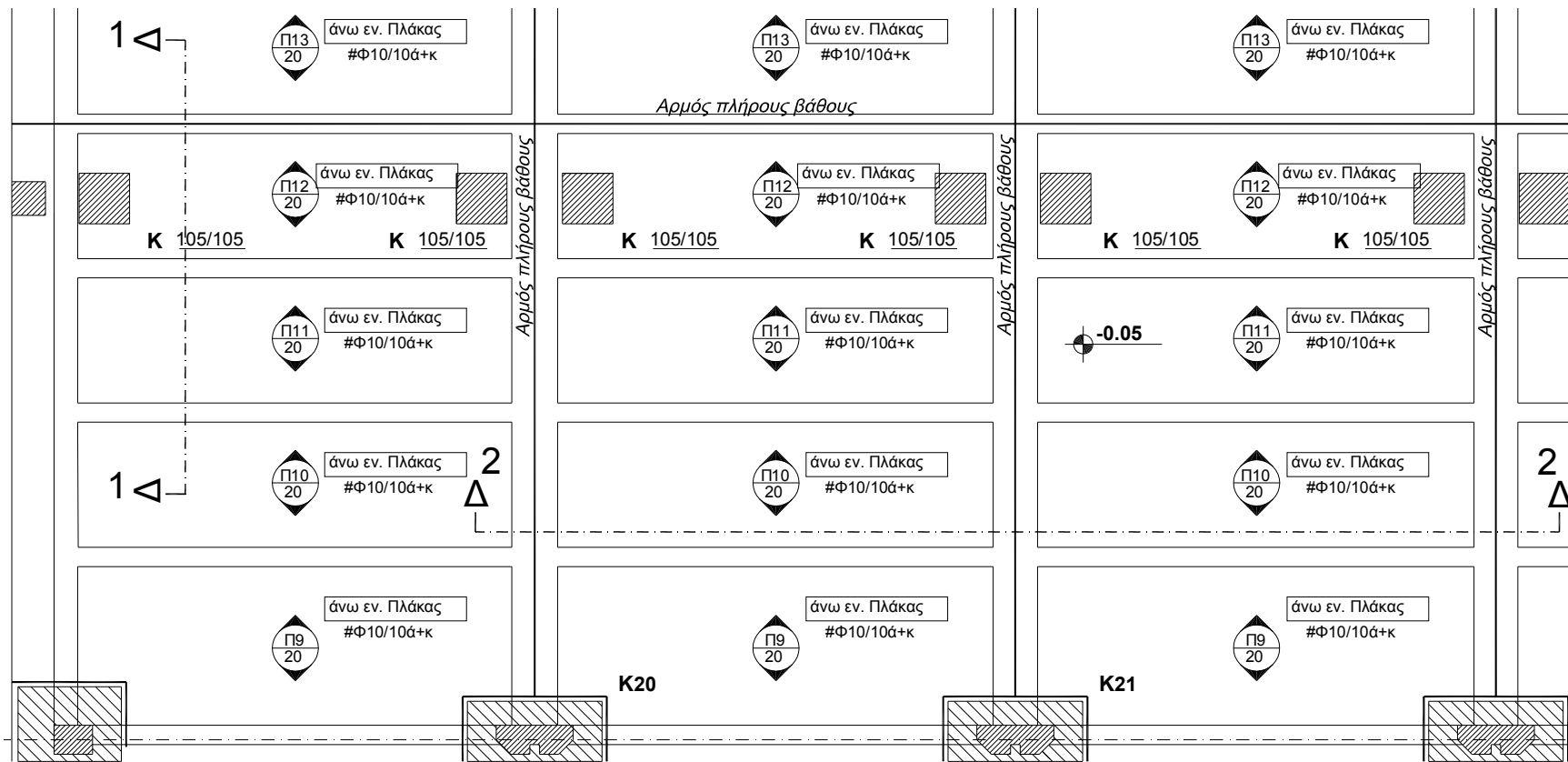


Στήριξη

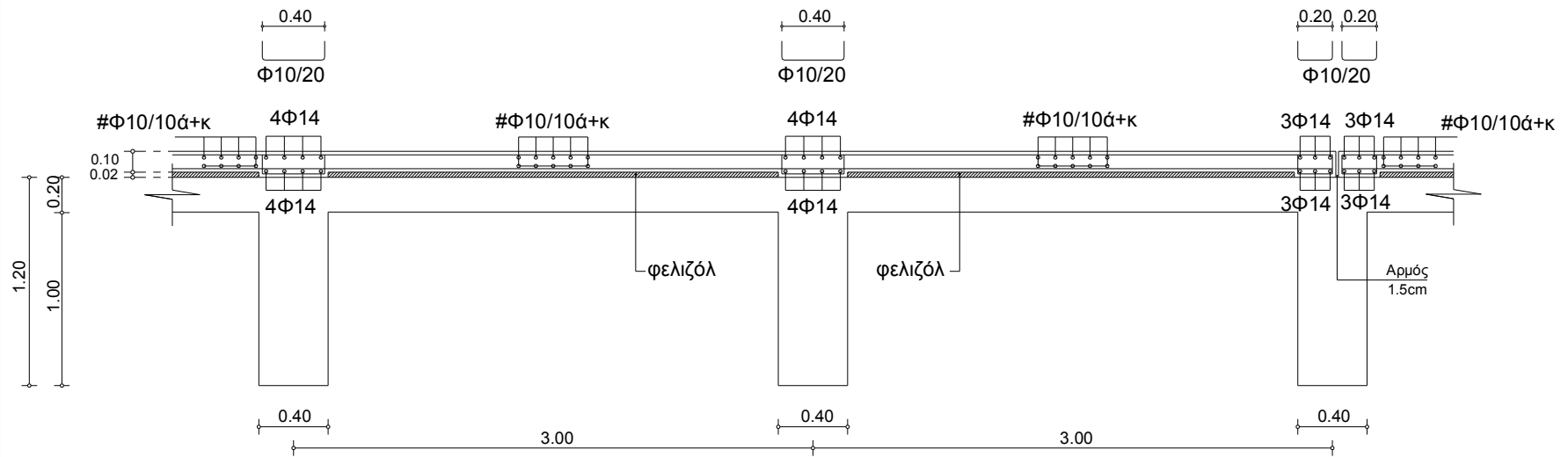


ΕΝΙΣΧΥΣΕΙΣ ΠΛΑΚΩΝ

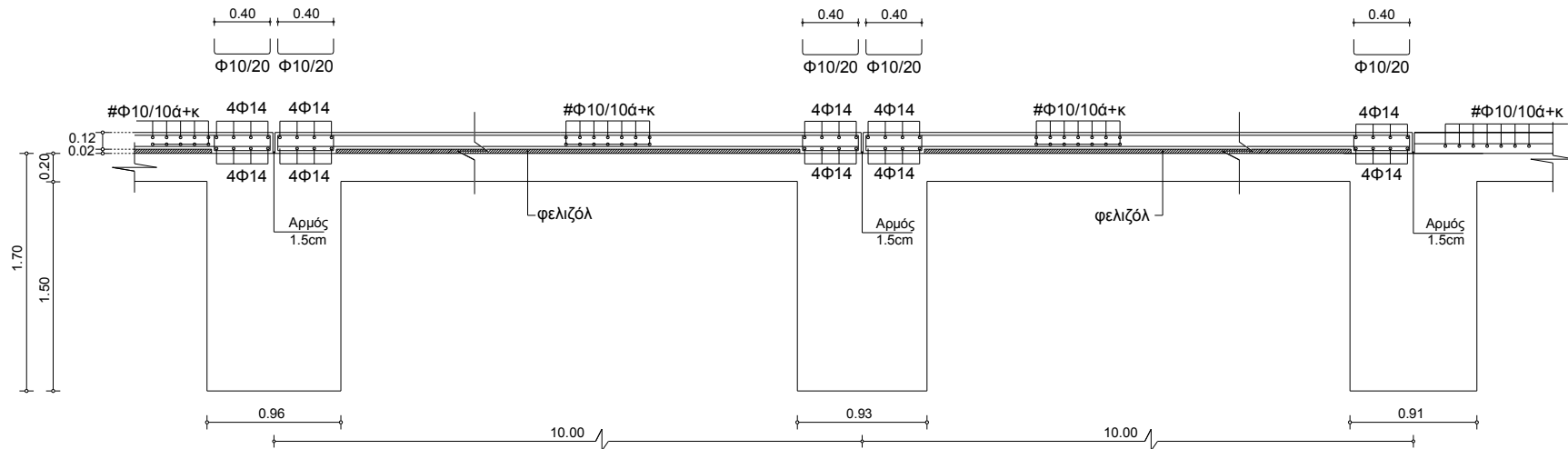




TOMH 1-1



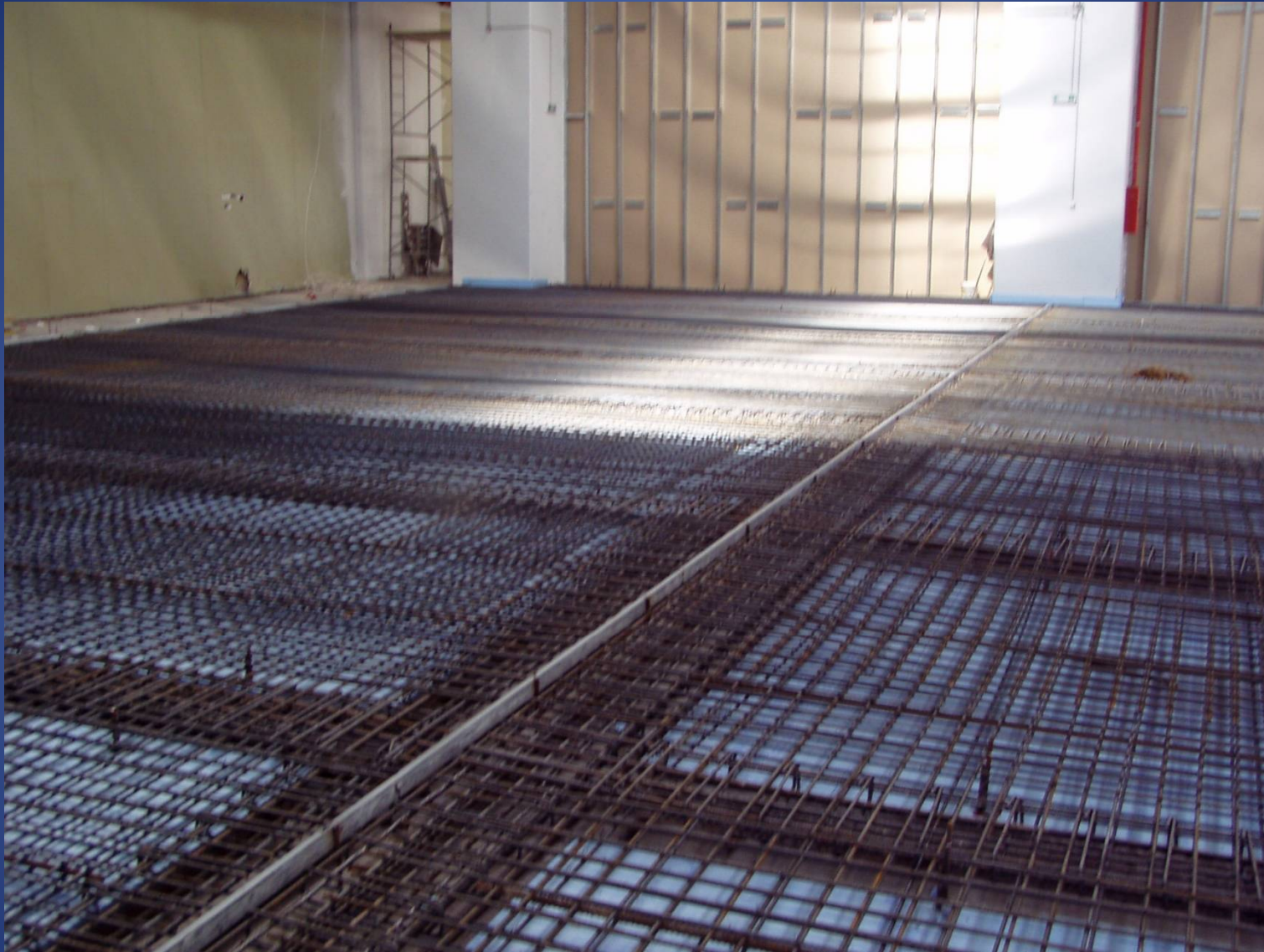
TOMH 2-2

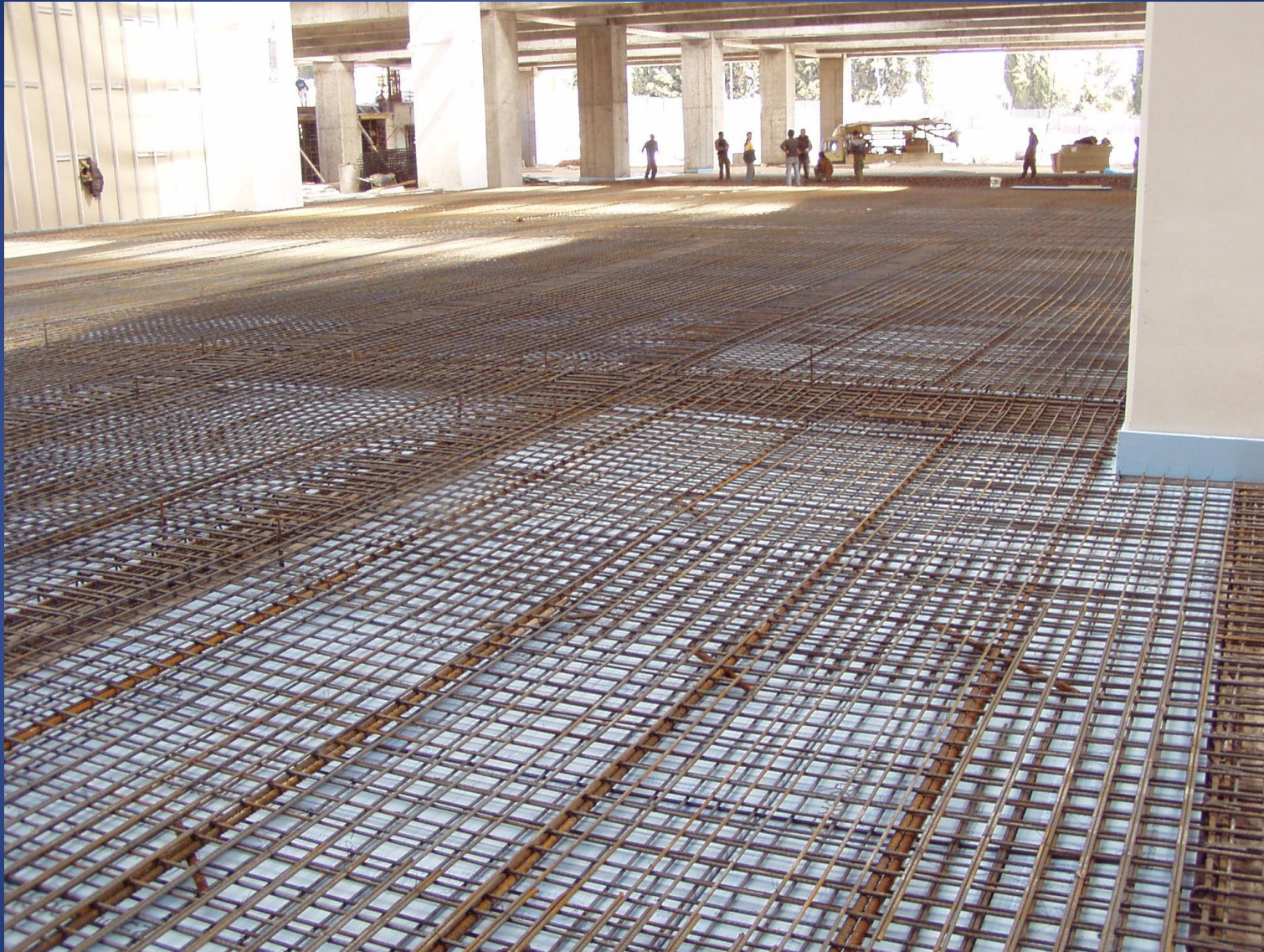


Τυπική λεπτομέρεια κάτω ενίσχυσης πλάκας

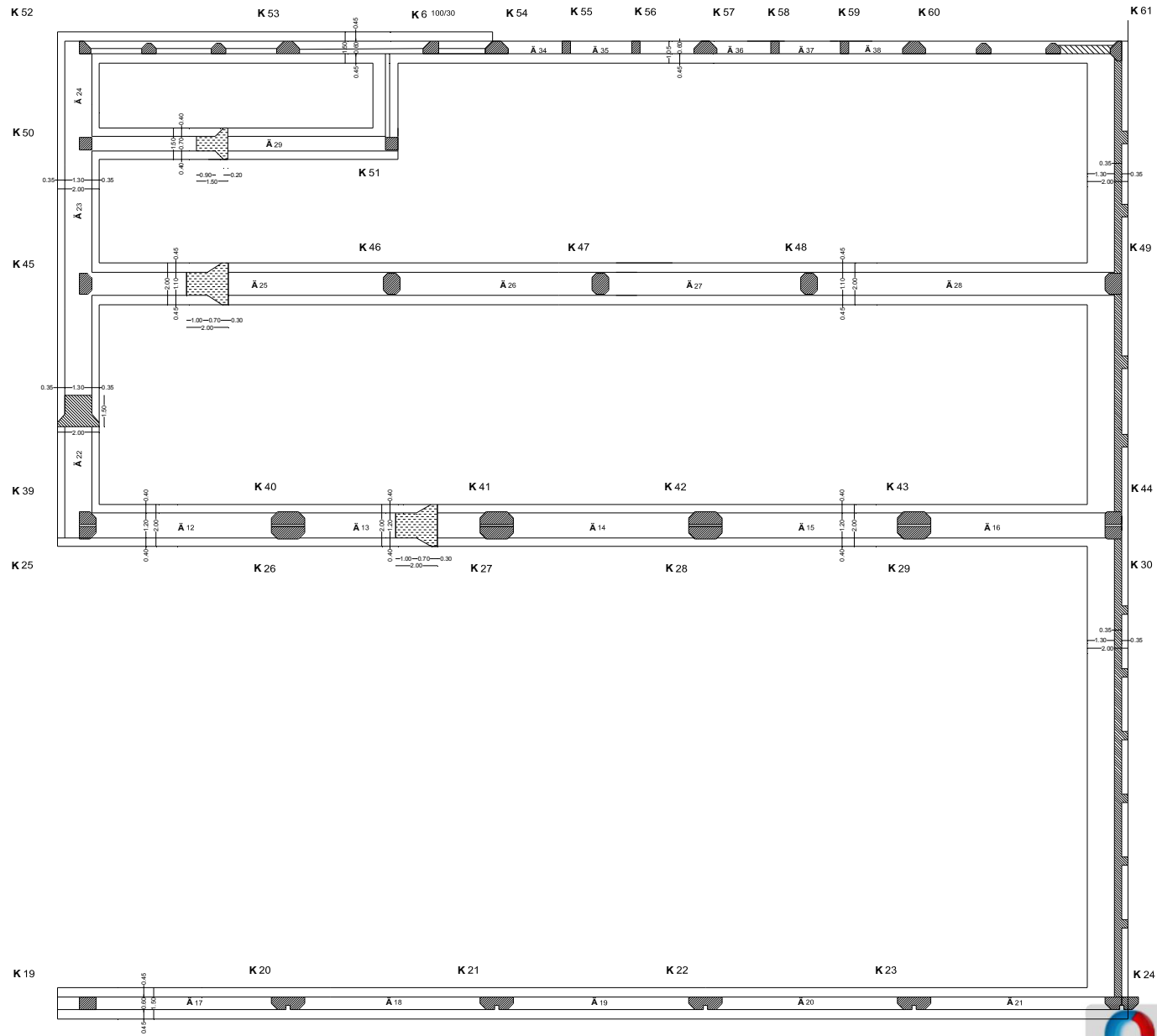




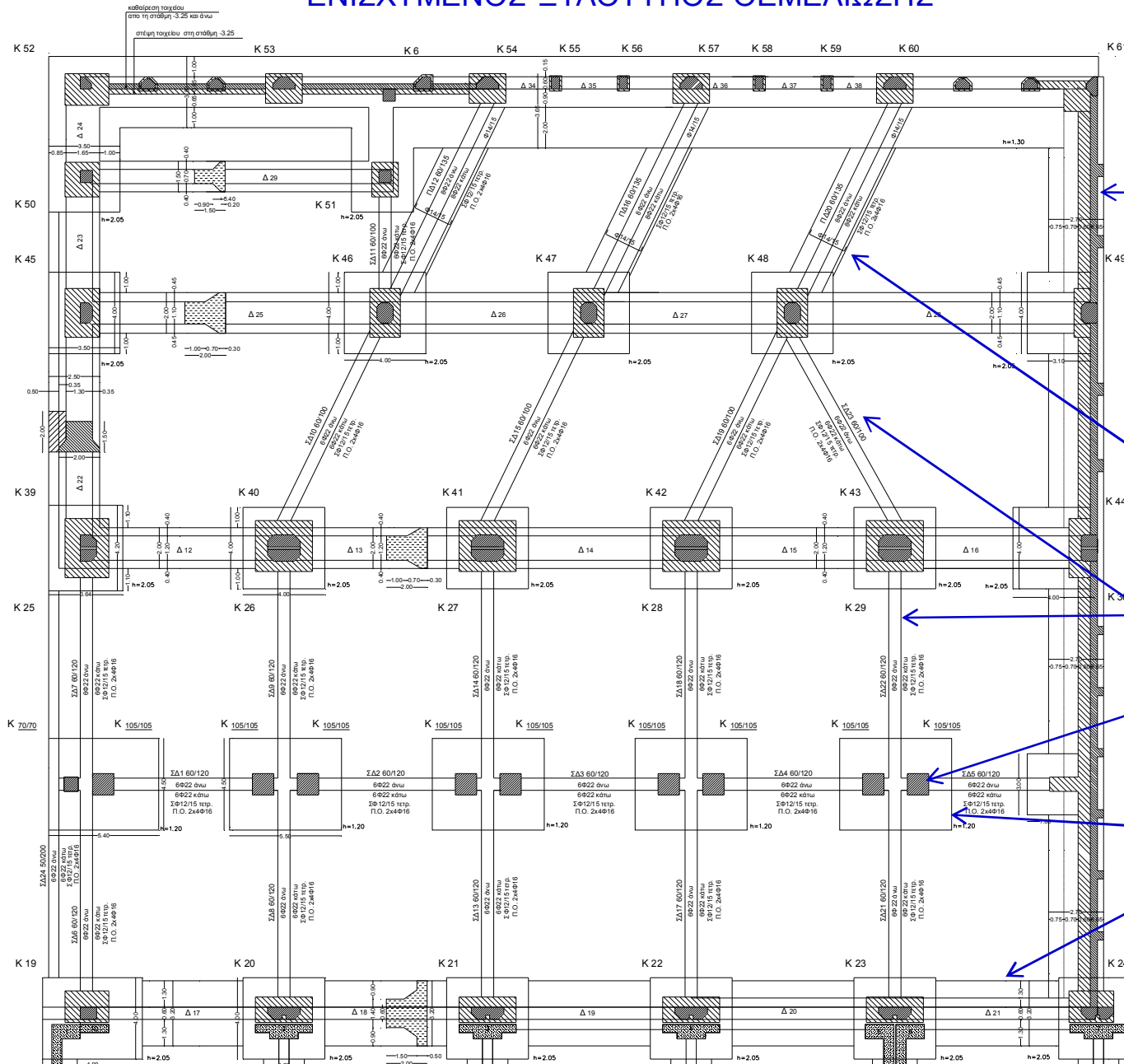




ΕΥΛΟΤΥΠΟΣ ΘΕΜΕΛΙΩΣΗΣ



ΕΝΙΣΧΥΜΕΝΟΣ ΞΥΛΟΤΥΠΟΣ ΘΕΜΕΛΙΩΣΗΣ



Ενίσχυση Υφιστ. Τοιχείου

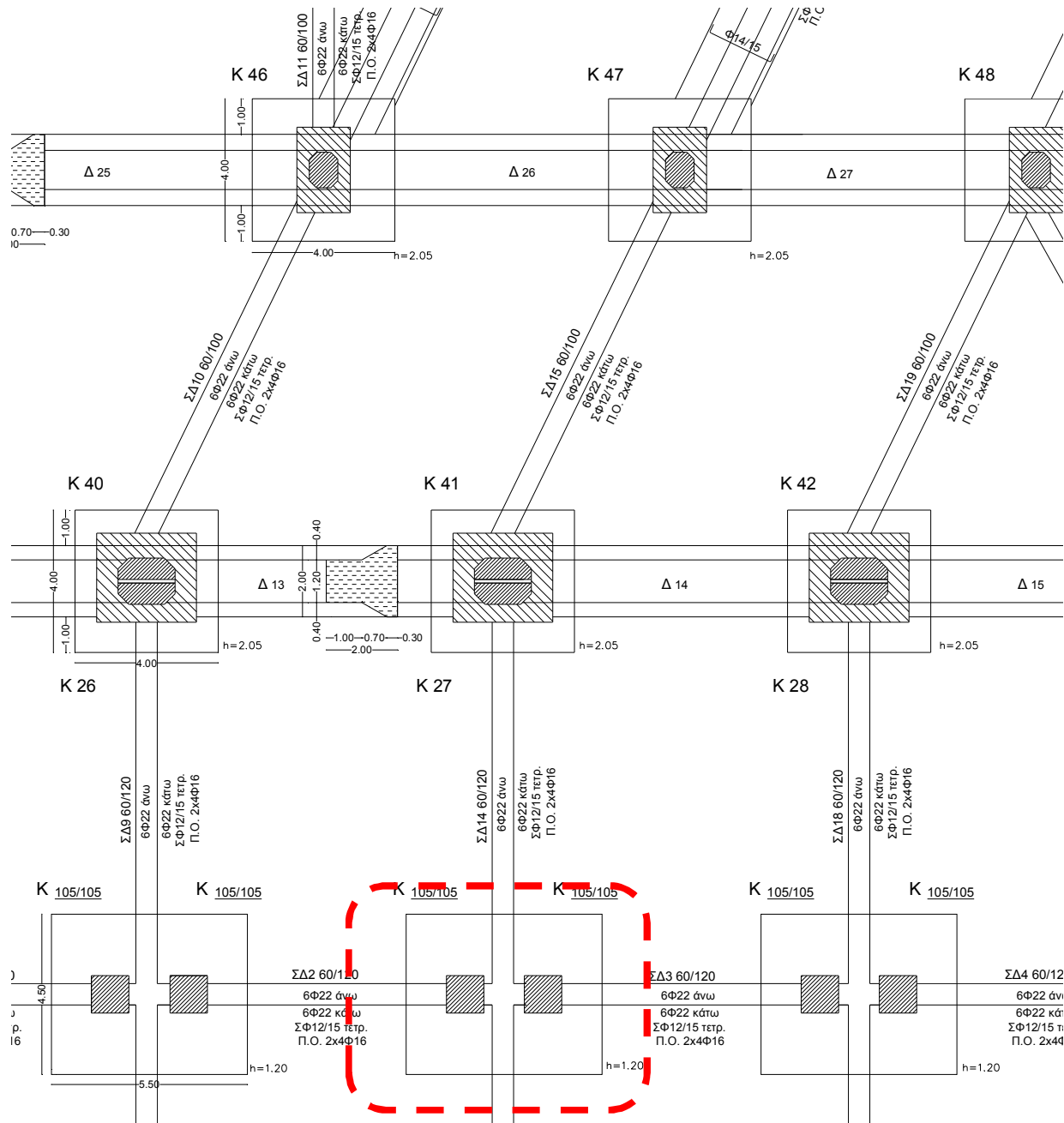
Νέες Πεδιλοδοκοί

Νέες Συνδ. Δοκοί

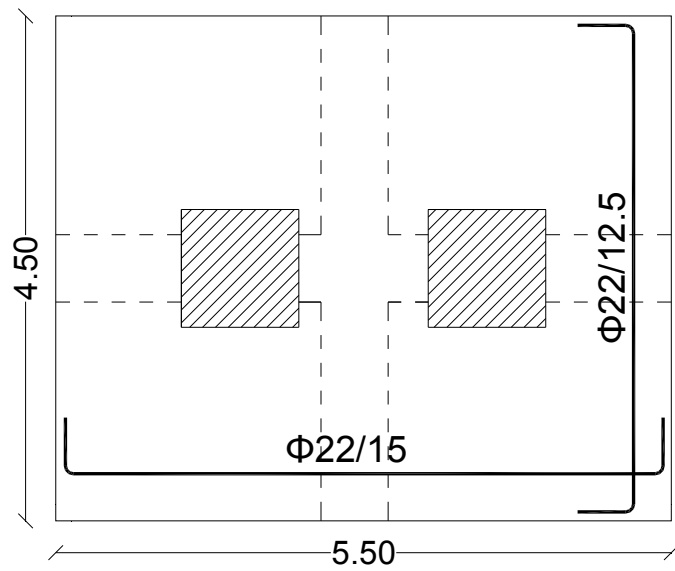
Νέα Υποστυλώματα

Νέα Πέδιλα

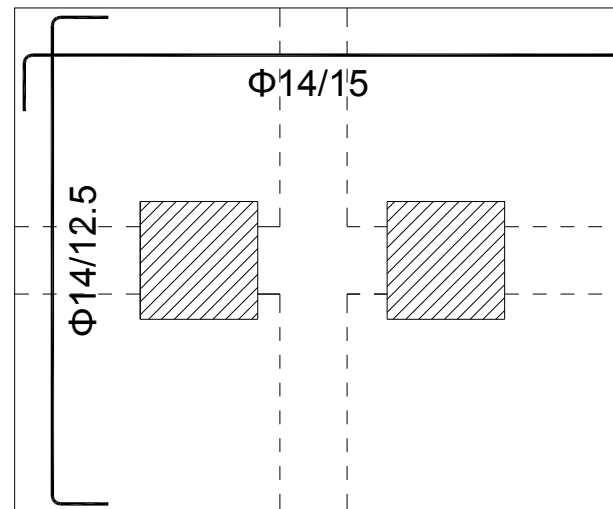
Ενίσχυση Υφιστ. Πεδιλοδοκού

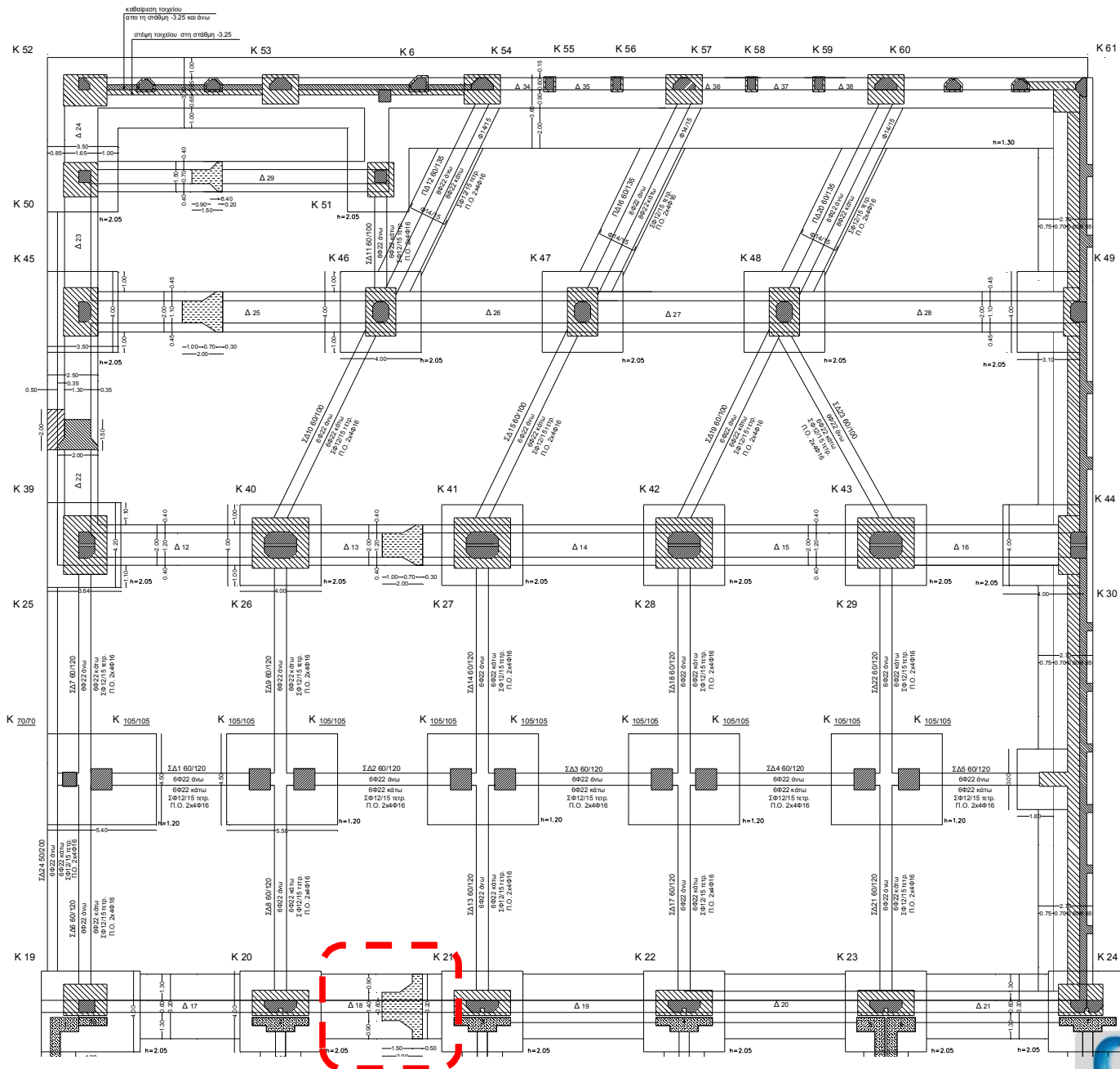


Κάτω Οπλισμός Πεδίου

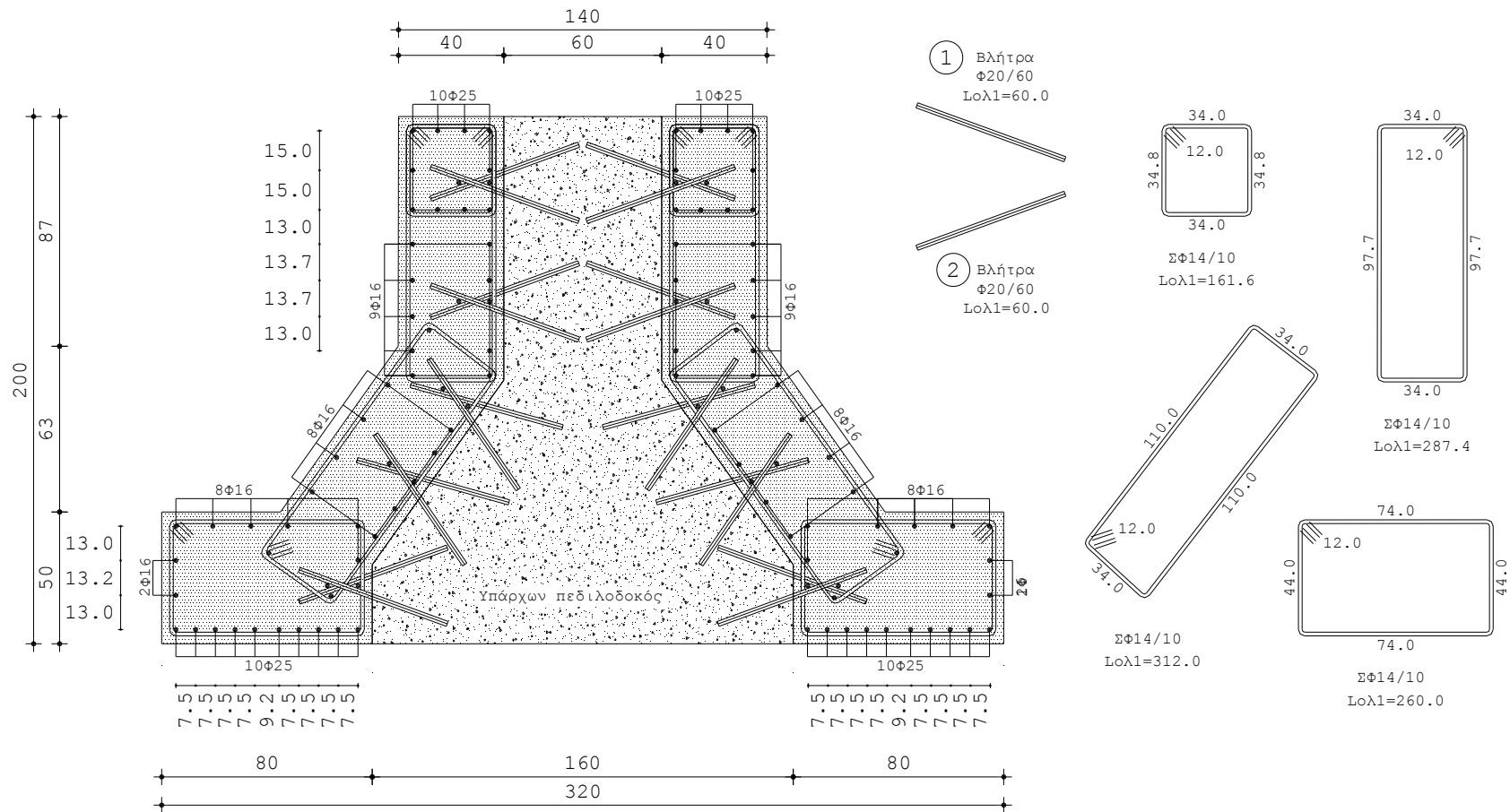


Άνω Οπλισμός Πεδίου

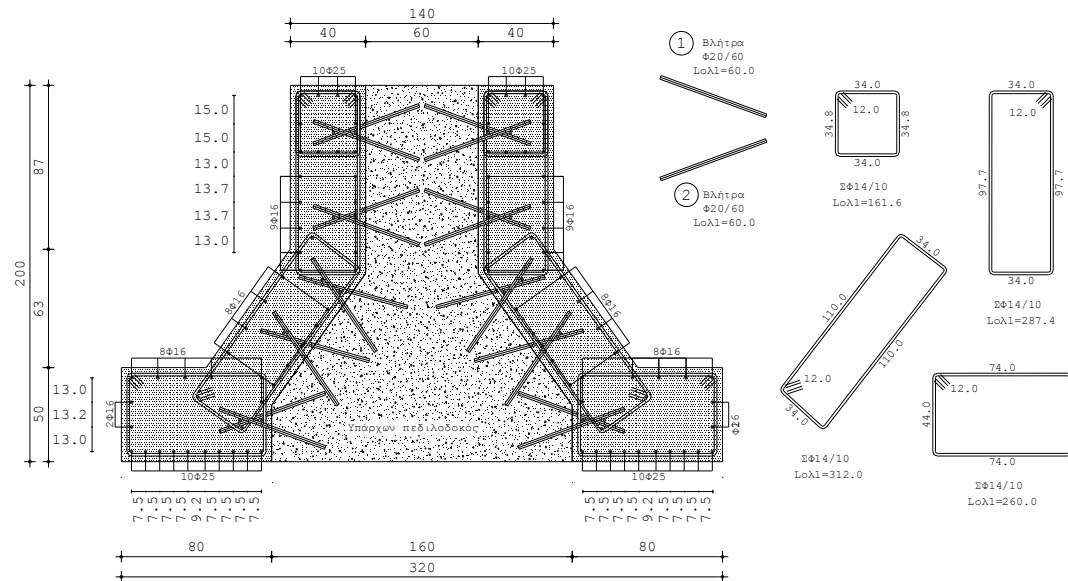




Ενίσχυση υφισταμένου πεδילוδοκού



Ενίσχυση υφισταμένης πεδילוδοκού



ΔΙΑΤΑΞΗ ΟΠΛΙΣΜΩΝ ΜΑΝΔΥΑ ΠΕΔΙΛΟΔΟΚΩΝ

ΟΠΛΙΣΜΟΙ ΜΑΝΔΥΑ ΔΟΚΩΝ: 10Φ25 ανω - 10Φ25 κατω

: 28Φ16 στις παρειες - συνδετηρες ΣΦ14/10

ΣΥΡΡΑΦΗ ΜΑΝΔΥΑ με την

ΥΠΑΡΧΟΥΣΑ ΠΕΔΙΛΟΔΟΚΟ: ΒΛΗΤΡΑ : 2 σειρες Φ20/30 στον ΚΟΡΜΟ (Τύπος 1 Φ20/60 και Τύπος 2 Φ20/60)

: 2 σειρες Φ20/30 στο 'ΛΟΞΟ' - // -

: 1 σειρα Φ20/30 στο ΠΕΛΜΑ - // -

Καθε σειρα ΒΛΗΤΡΩΝ 'κλειδωνεται' με 2Φ20 ηλεκτροσυγκολλημενα.

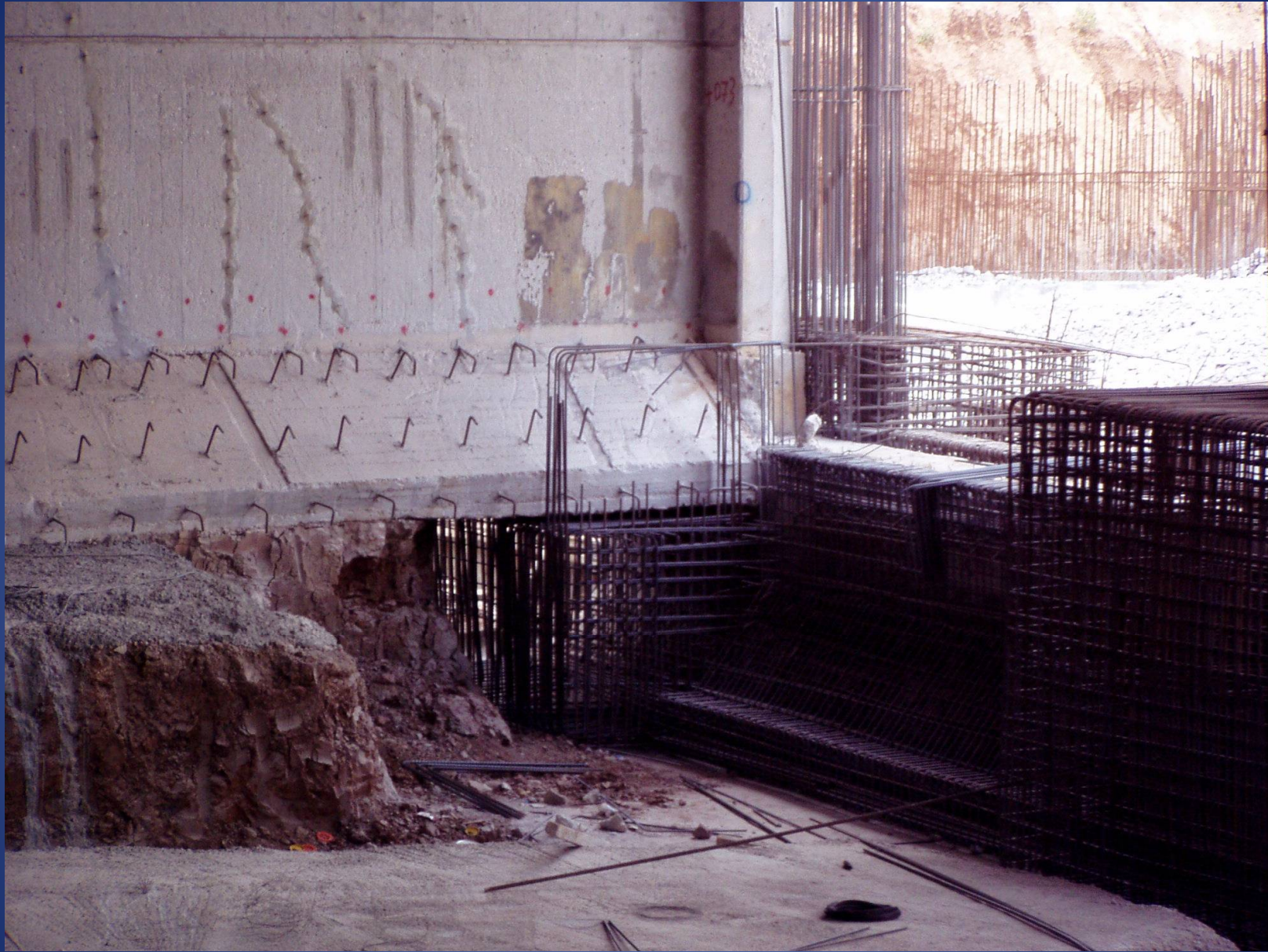
Οι οπές βάθους 30cm στην υπάρχουσα πεδילוδοκό, για την τοποθέτηση των βλήτρων Φ2, ανοίγονται με τρυπάνι Φ25 και γίνεται χρήση εποξειδικης ρητίνης για την πλήρωση των οπών.





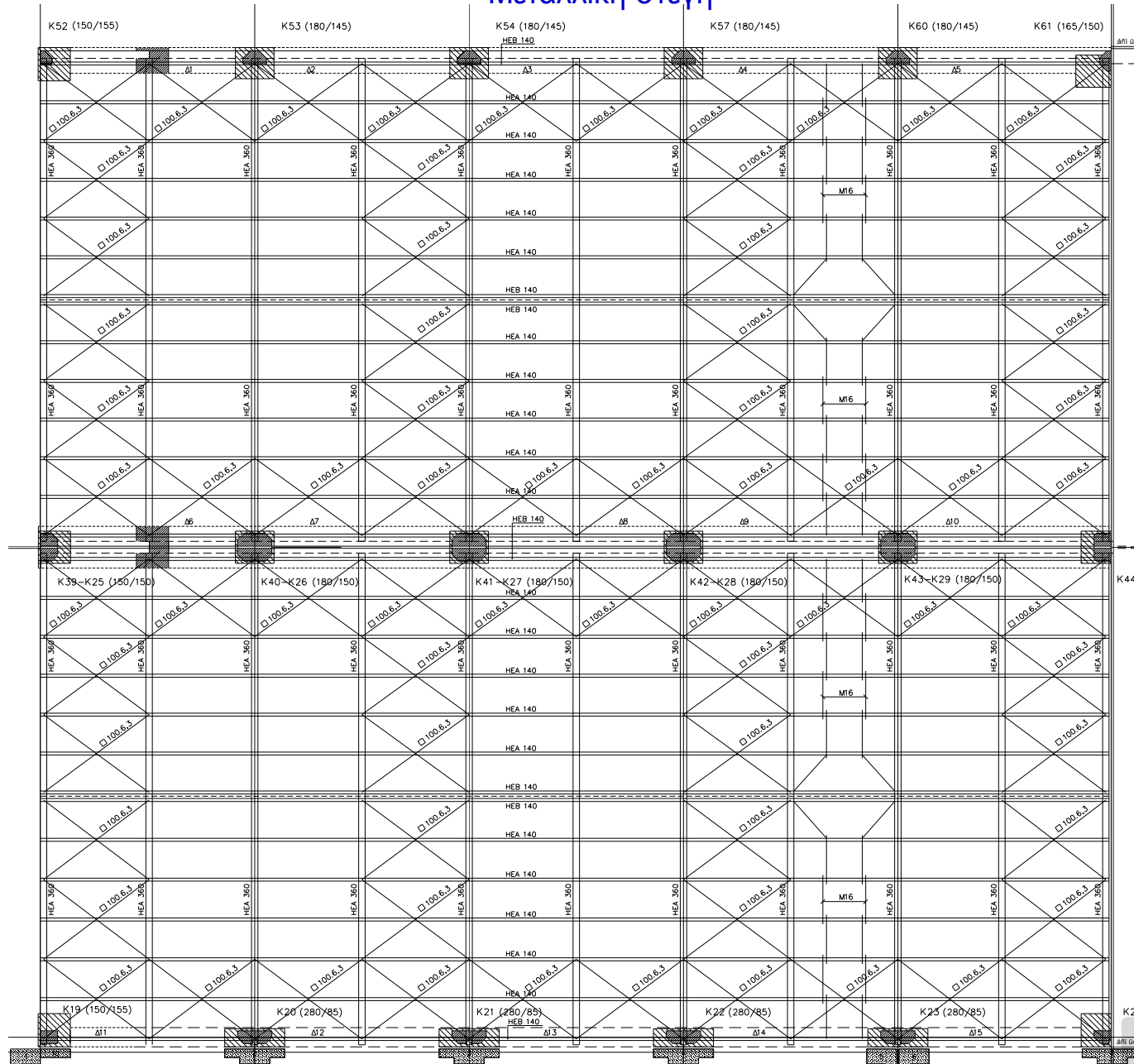






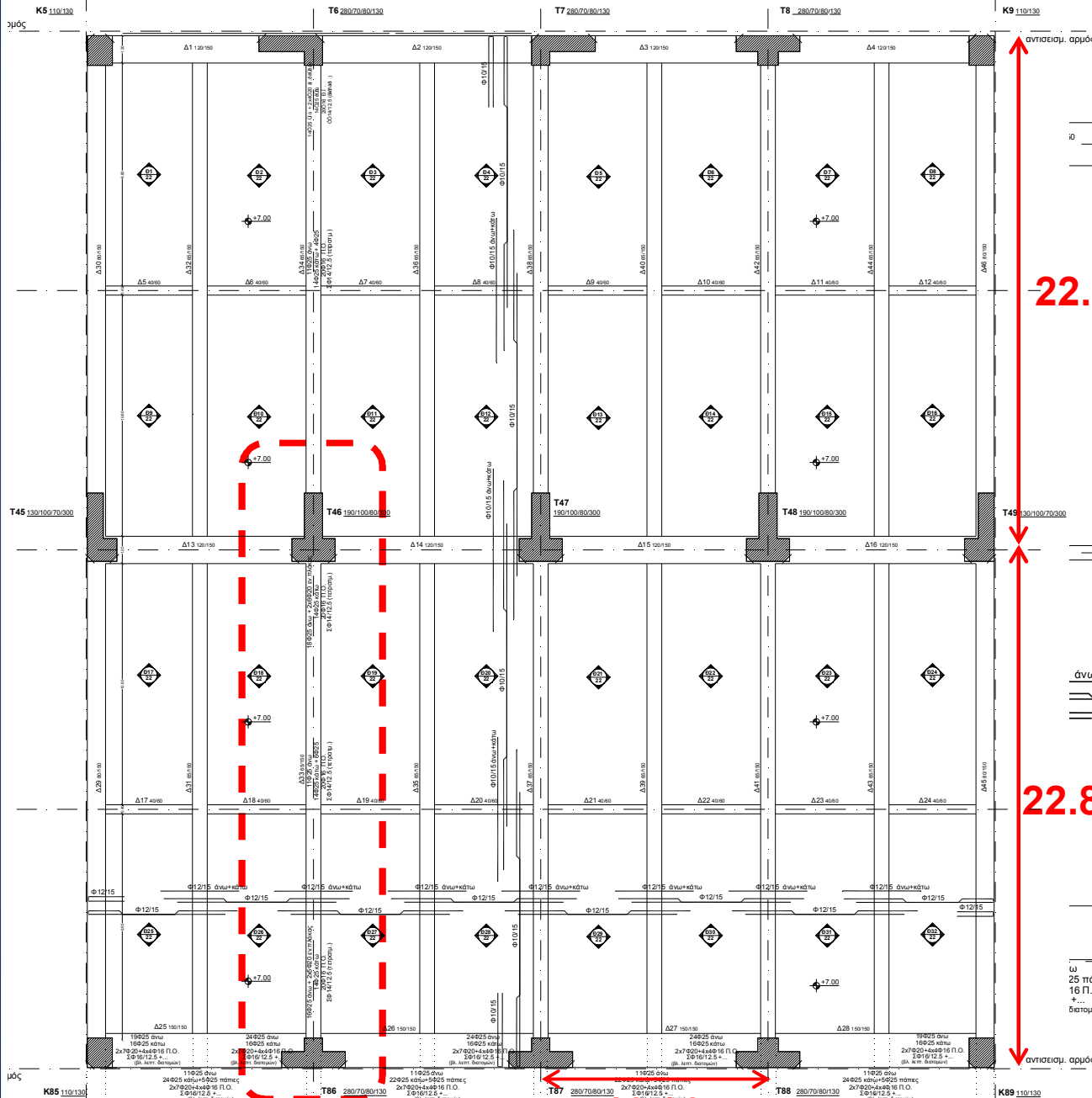


Μεταλλική στέγη









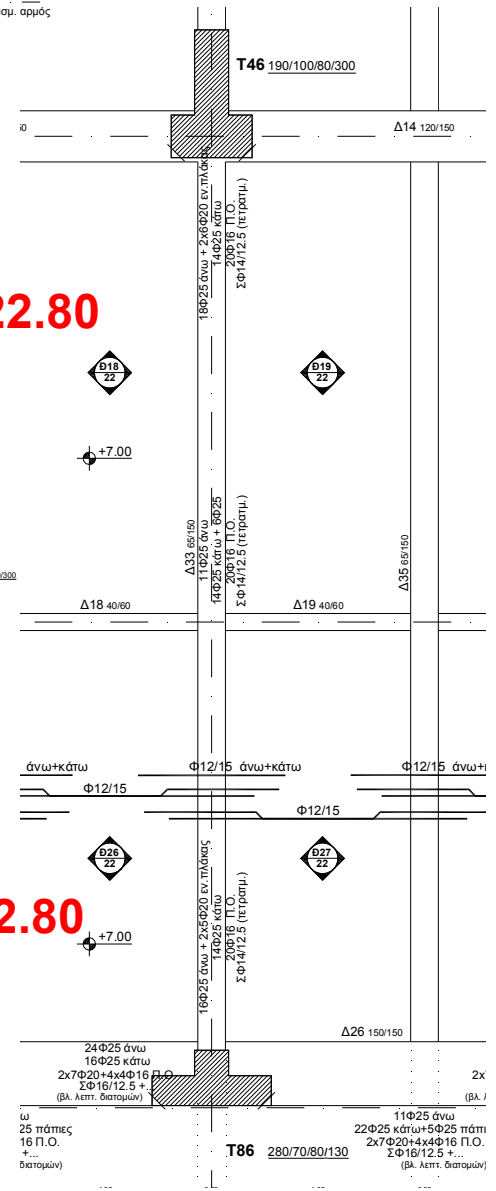
22.80

22.80

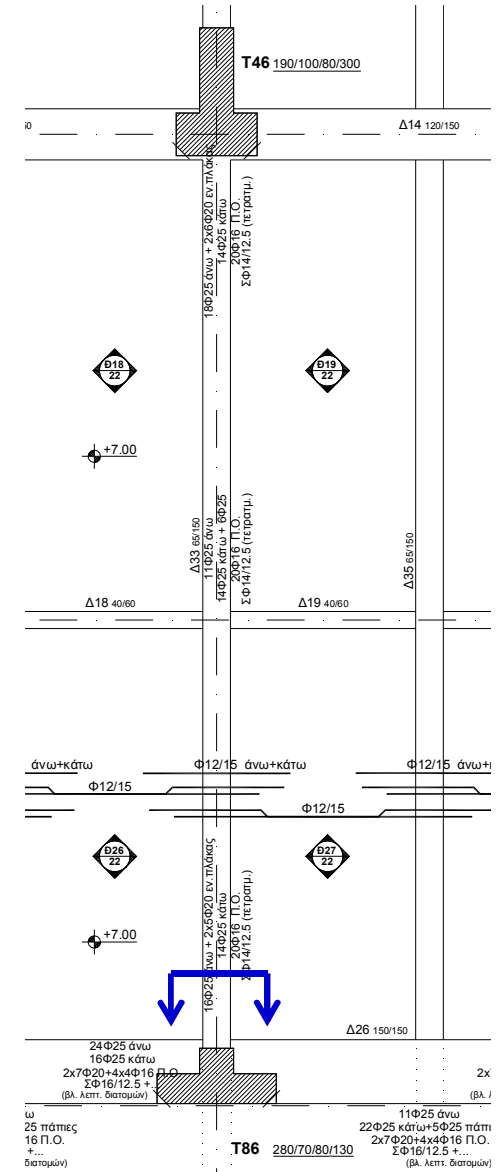
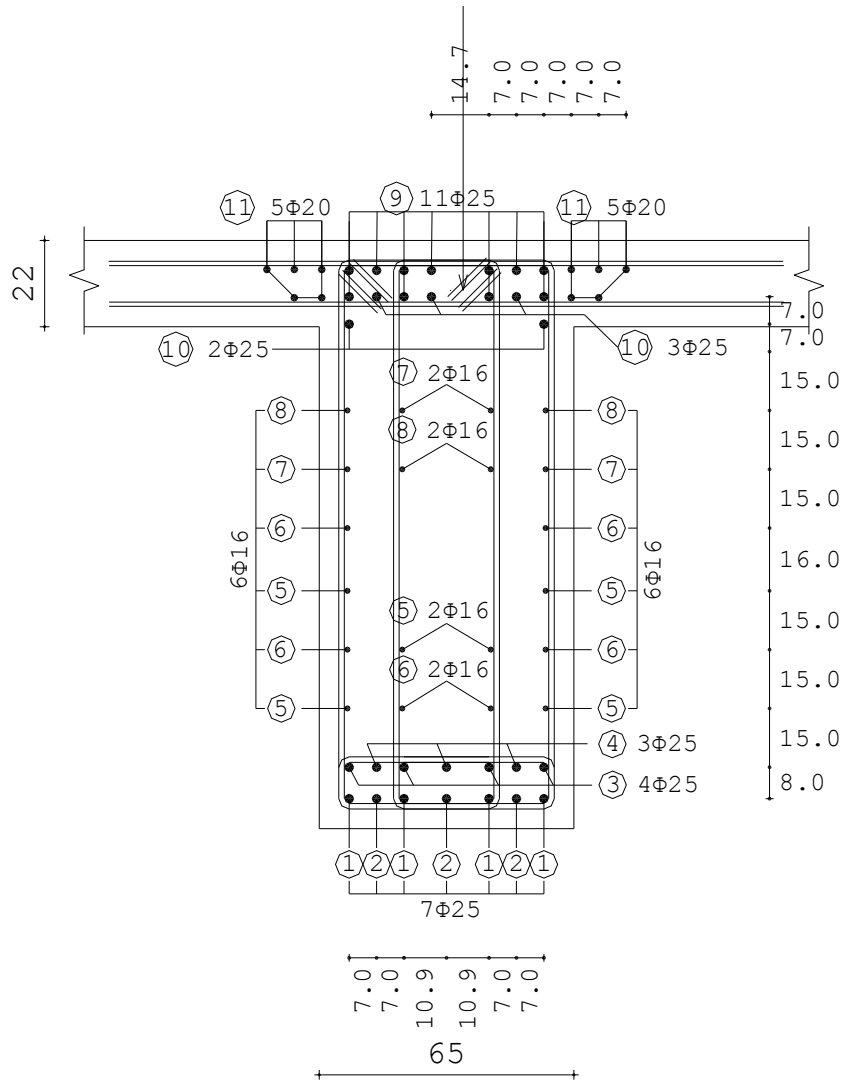
10.00

αντισεισμ. αρμός

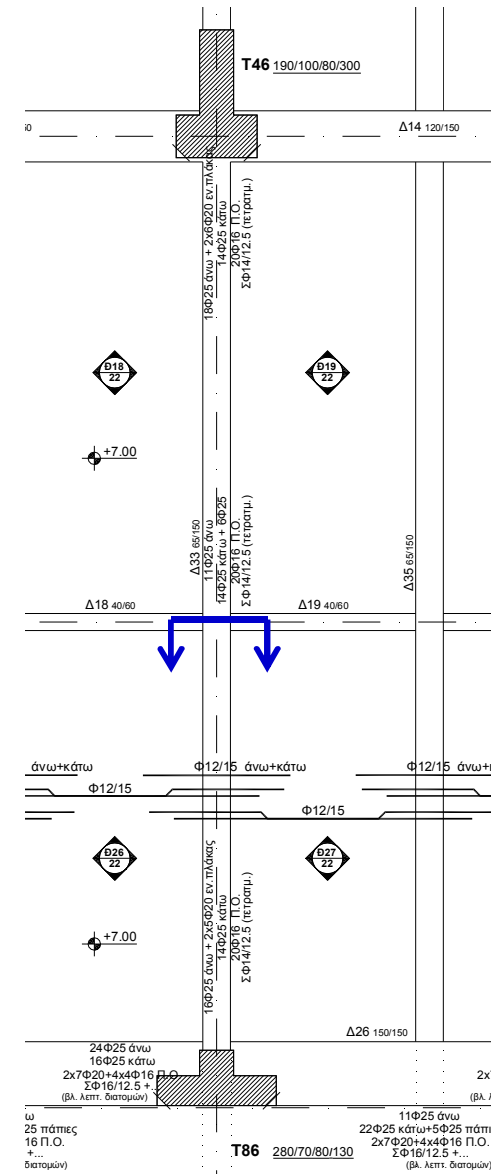
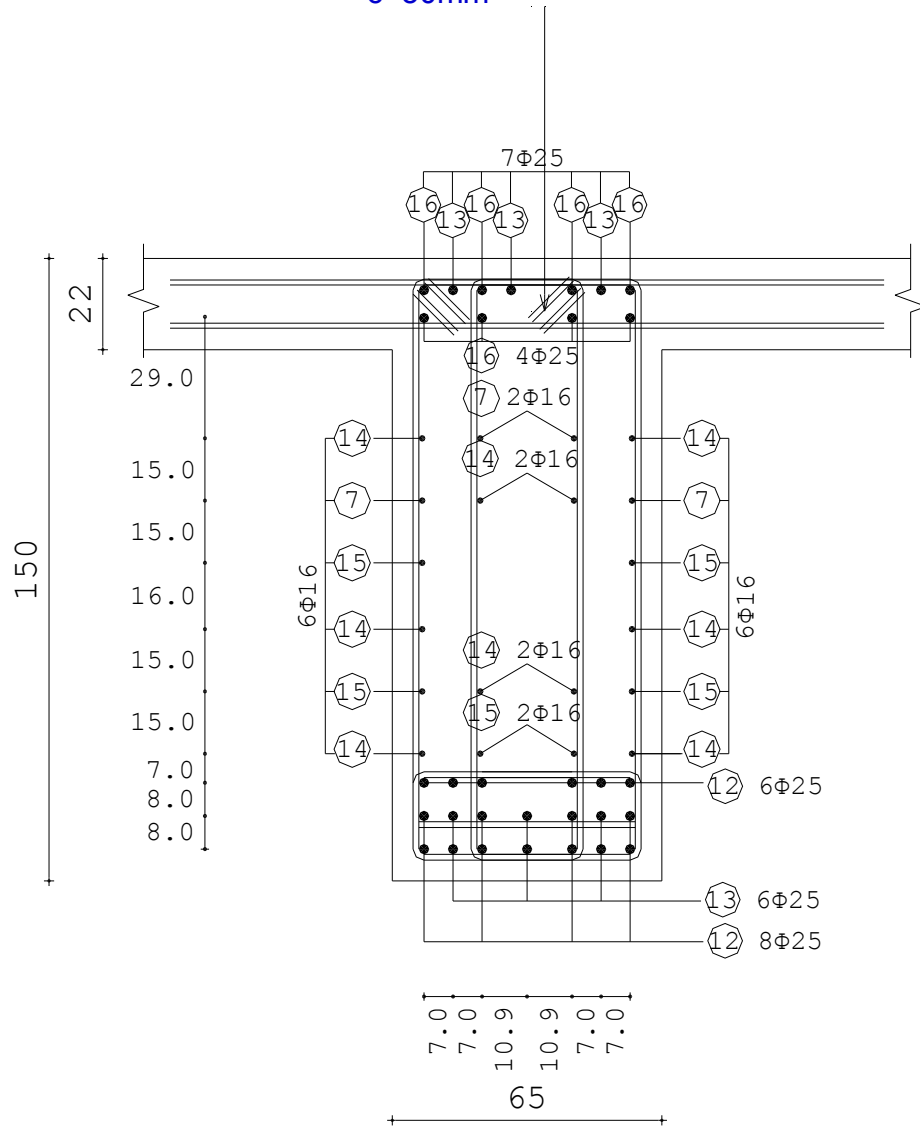
αντισεισμ. αρμός



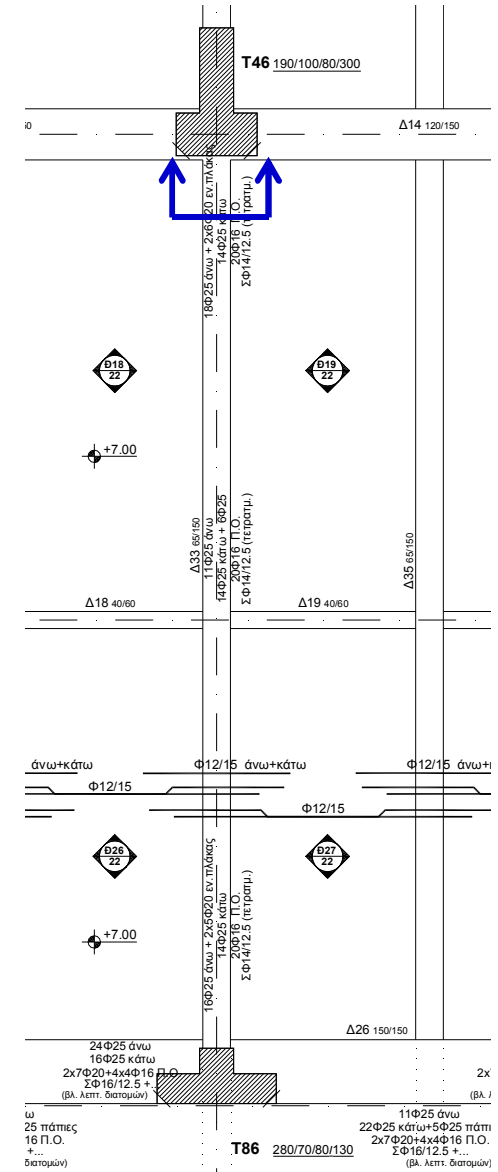
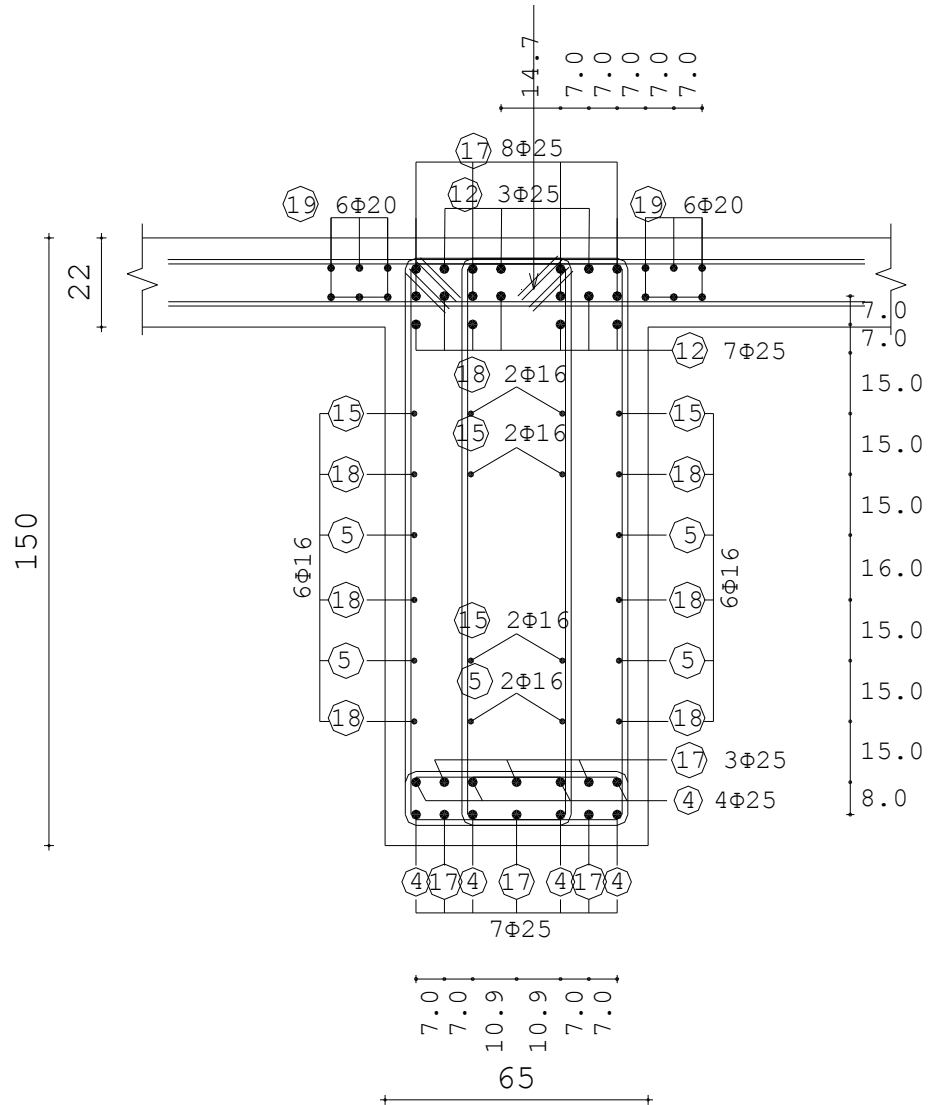
Δ33 65/150 – Στήριξη Αριστερά c=50mm



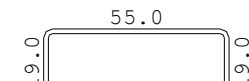
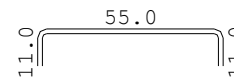
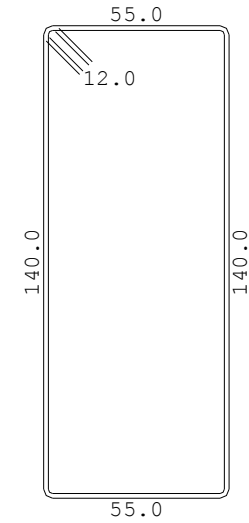
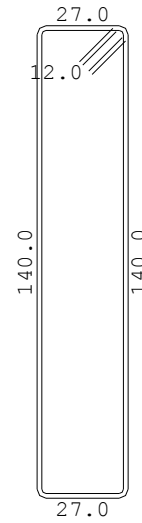
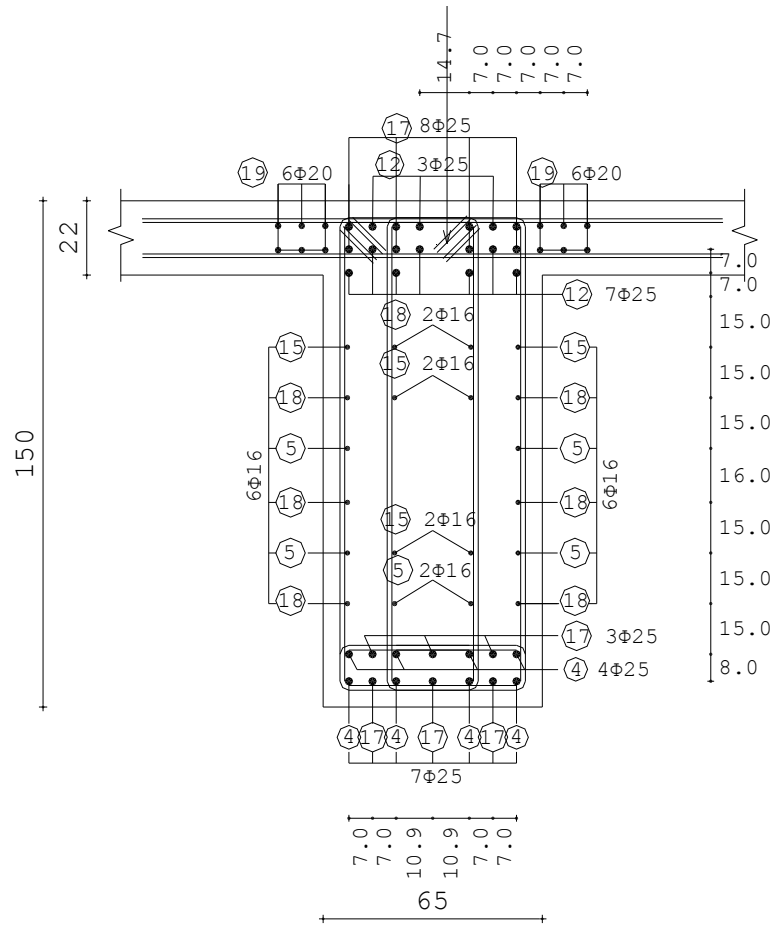
Δ33 65/150 – Άνοιγμα
c=50mm

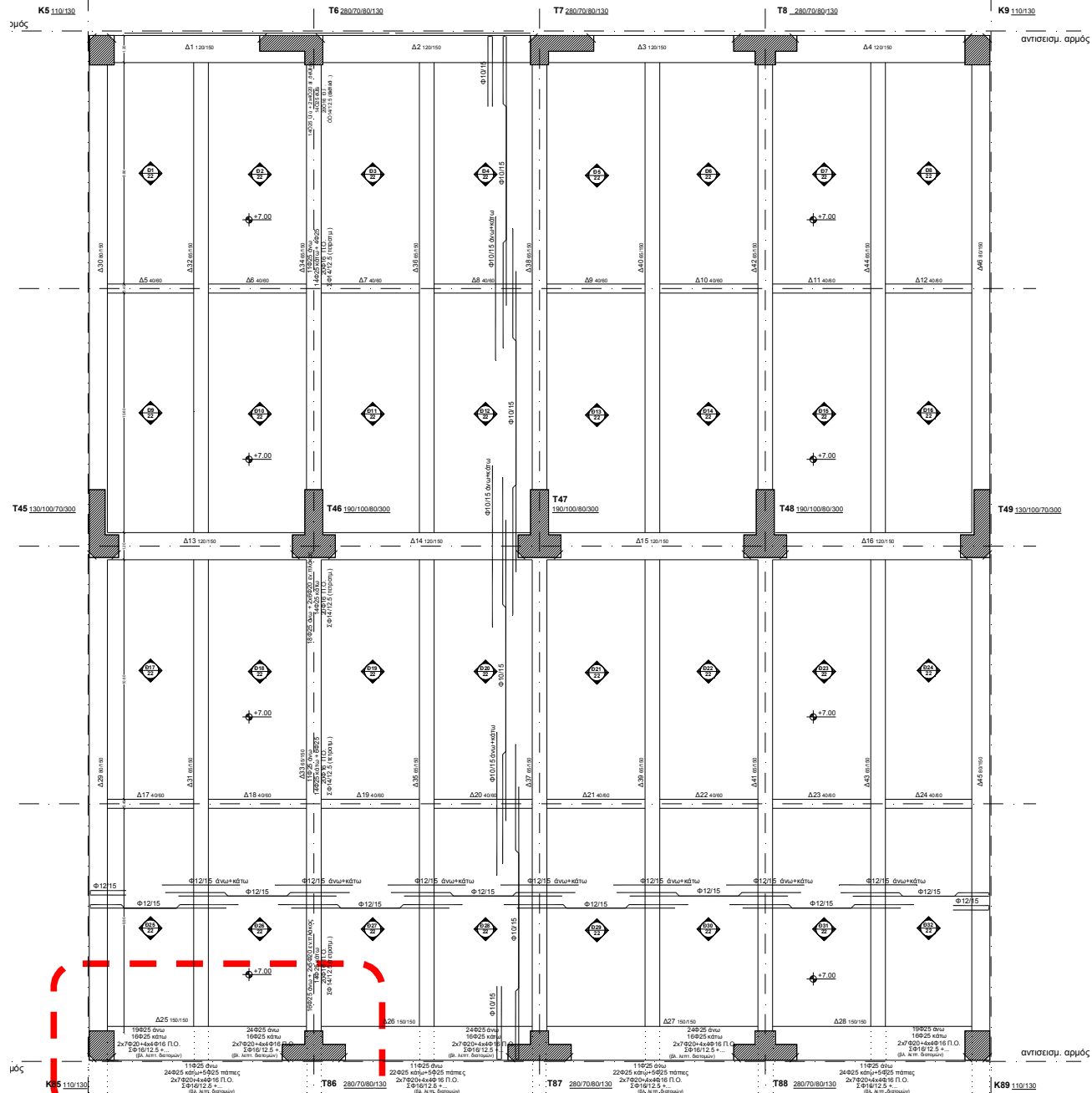


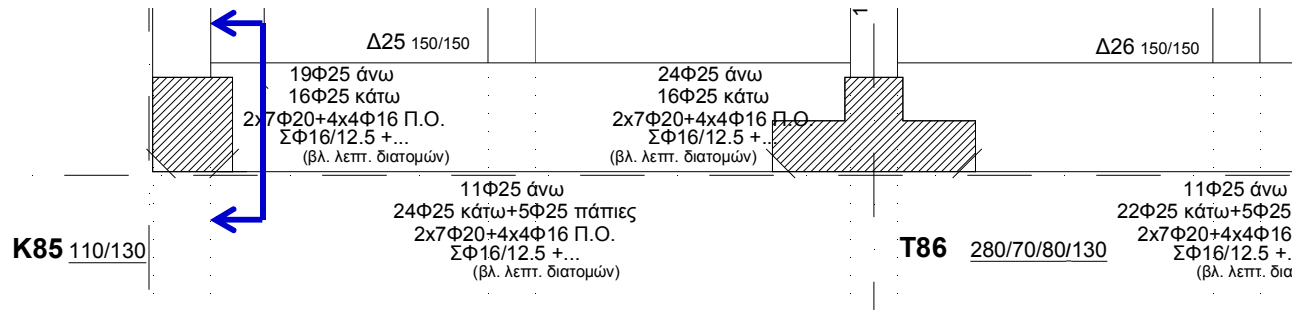
Δ33 65/150 – Στήριξη Δεξιά
c=50mm



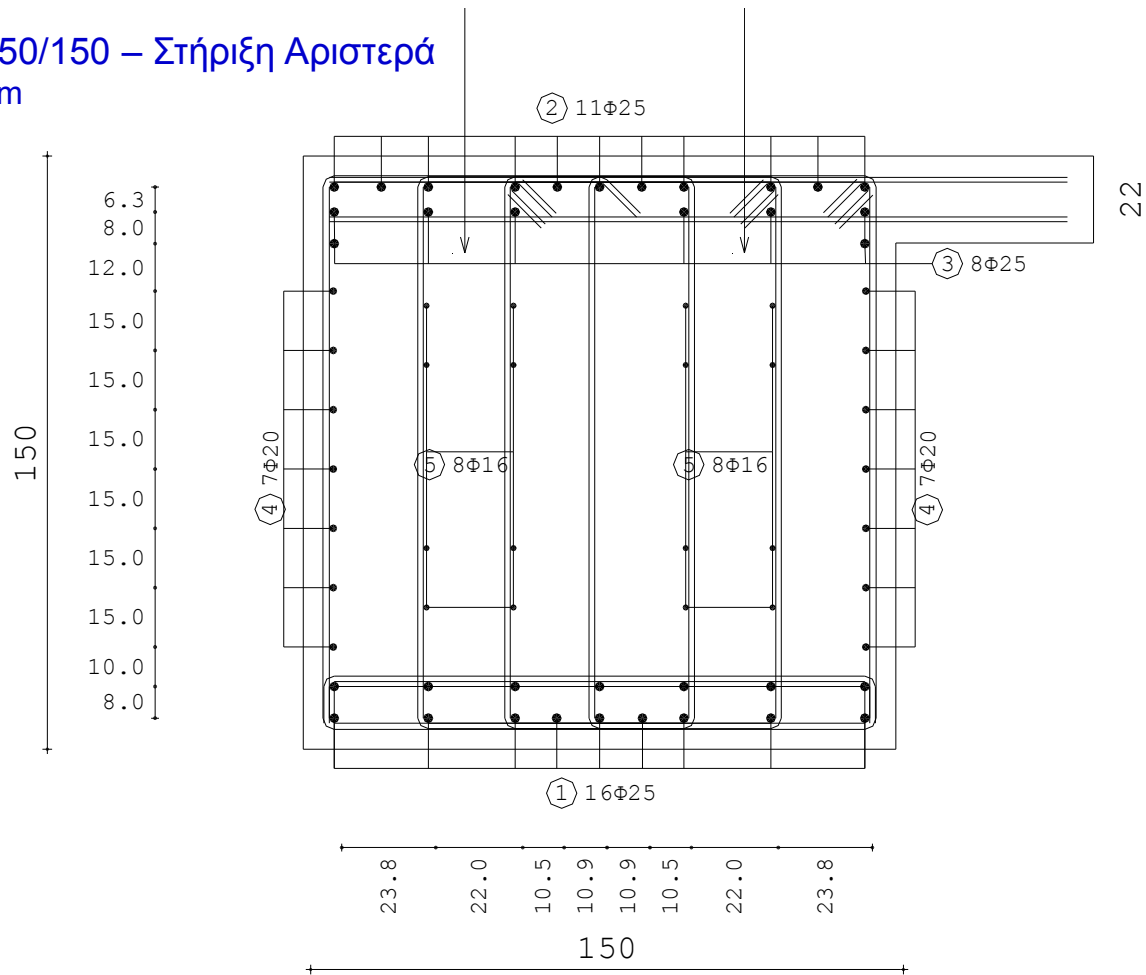
Δ33 65/150 – Στήριξη Δεξιά
c=50mm

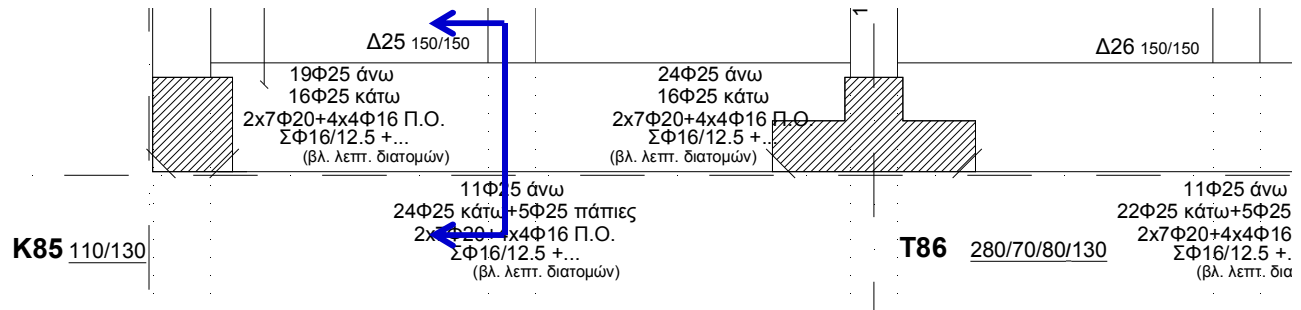




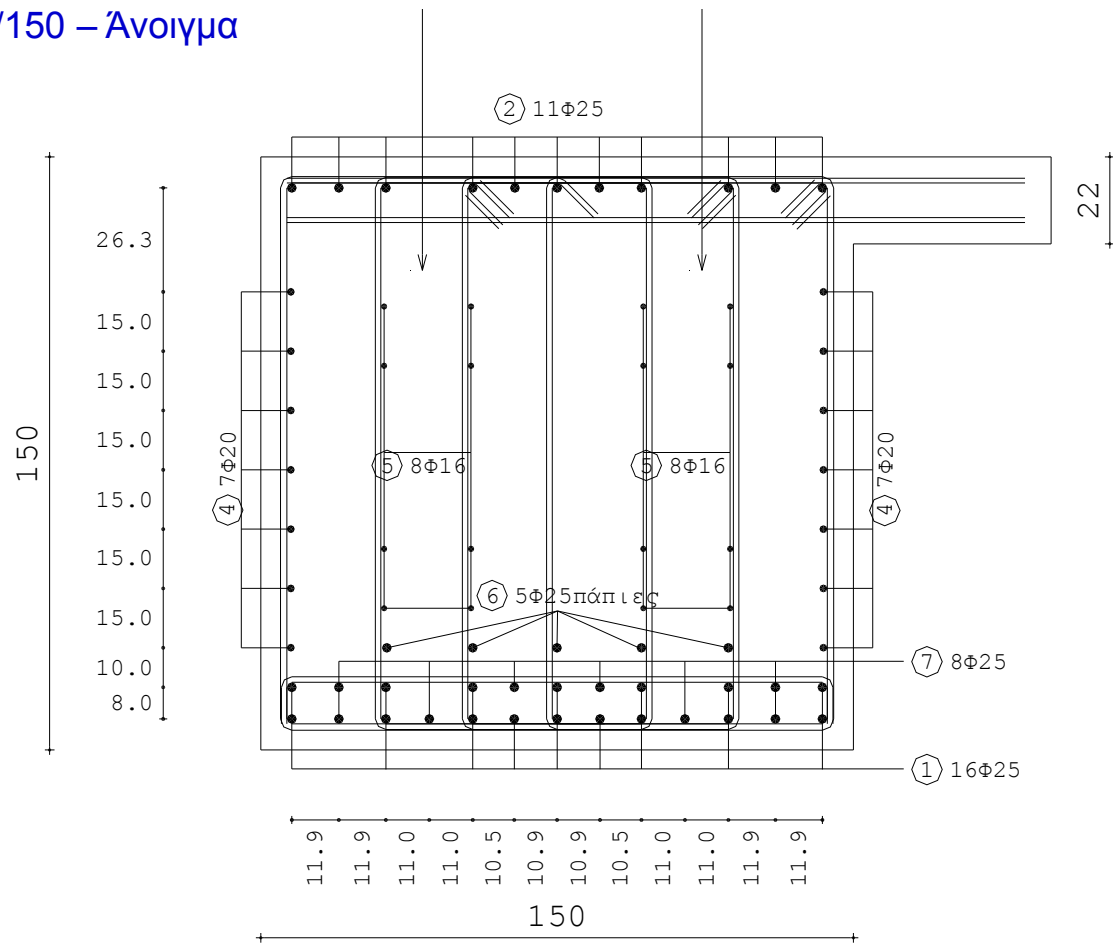


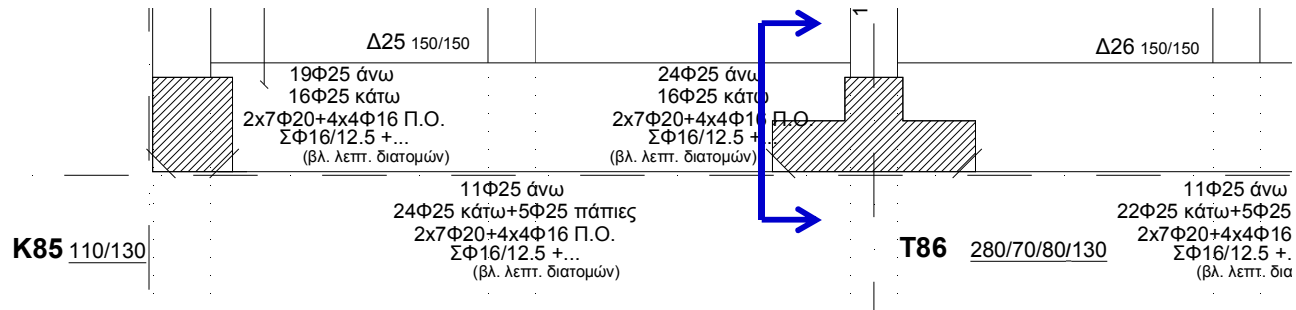
Δ25 150/150 – Στήριξη Αριστερά
c=50mm



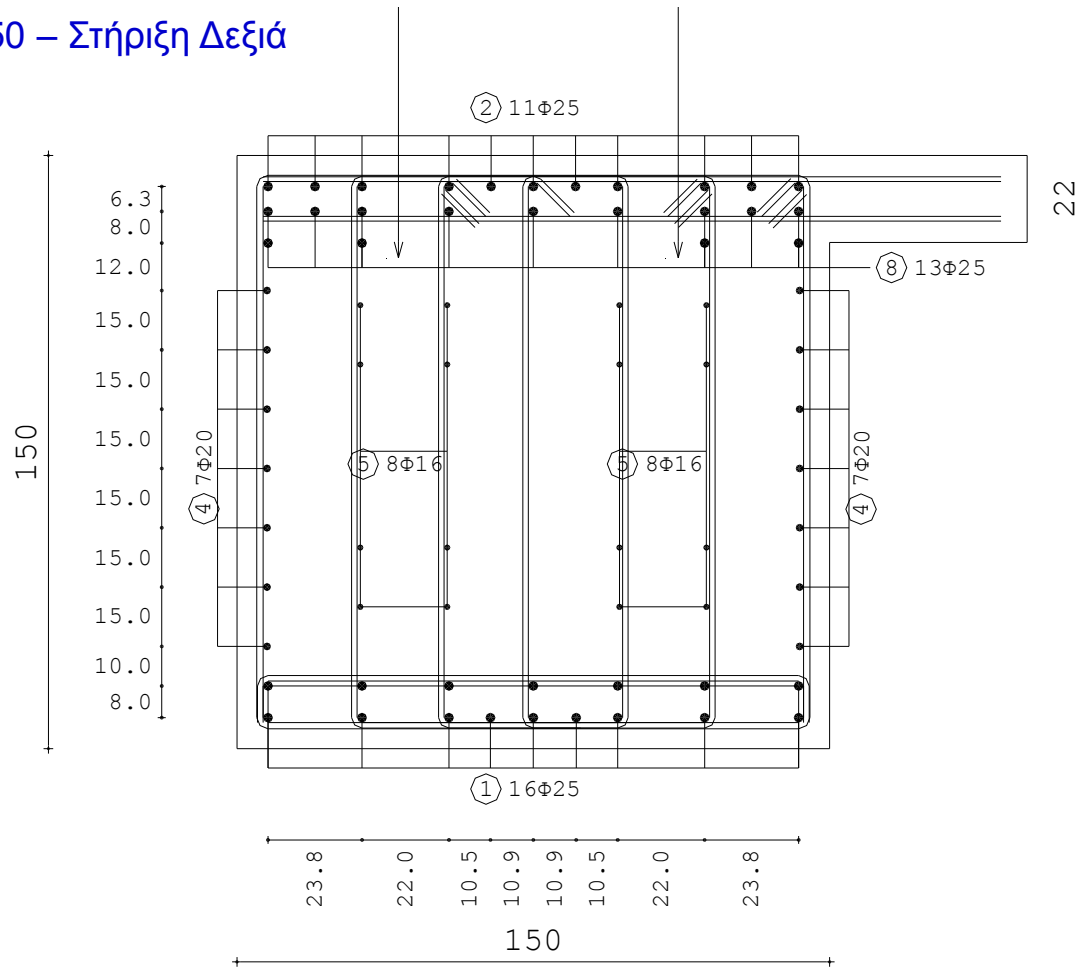


$\Delta 25$ 150/150 – Άνοιγμα
 c=50mm

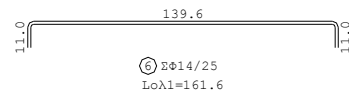
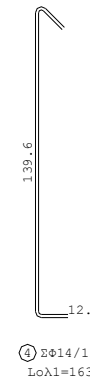
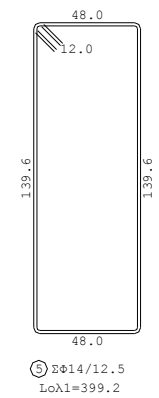
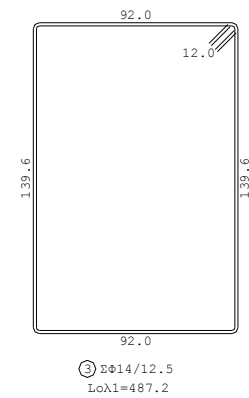
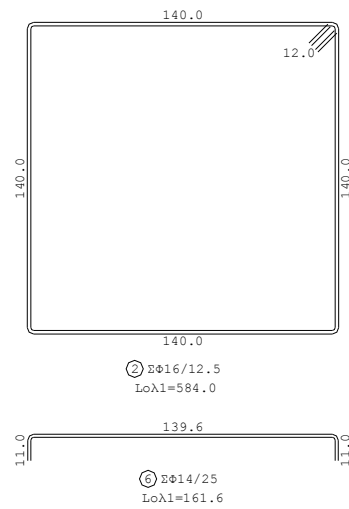
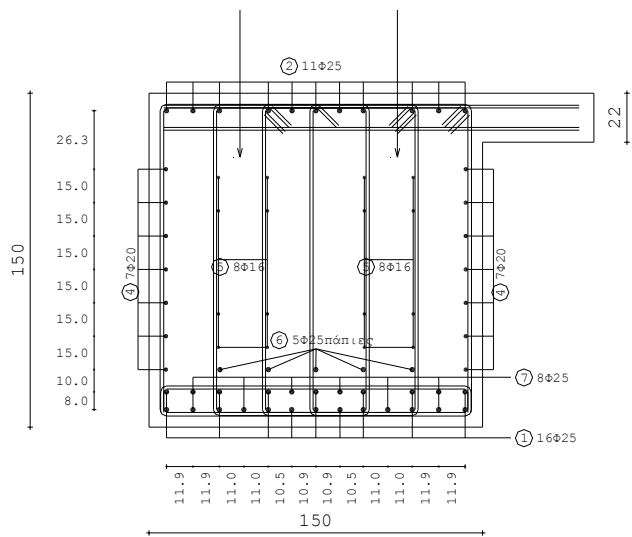


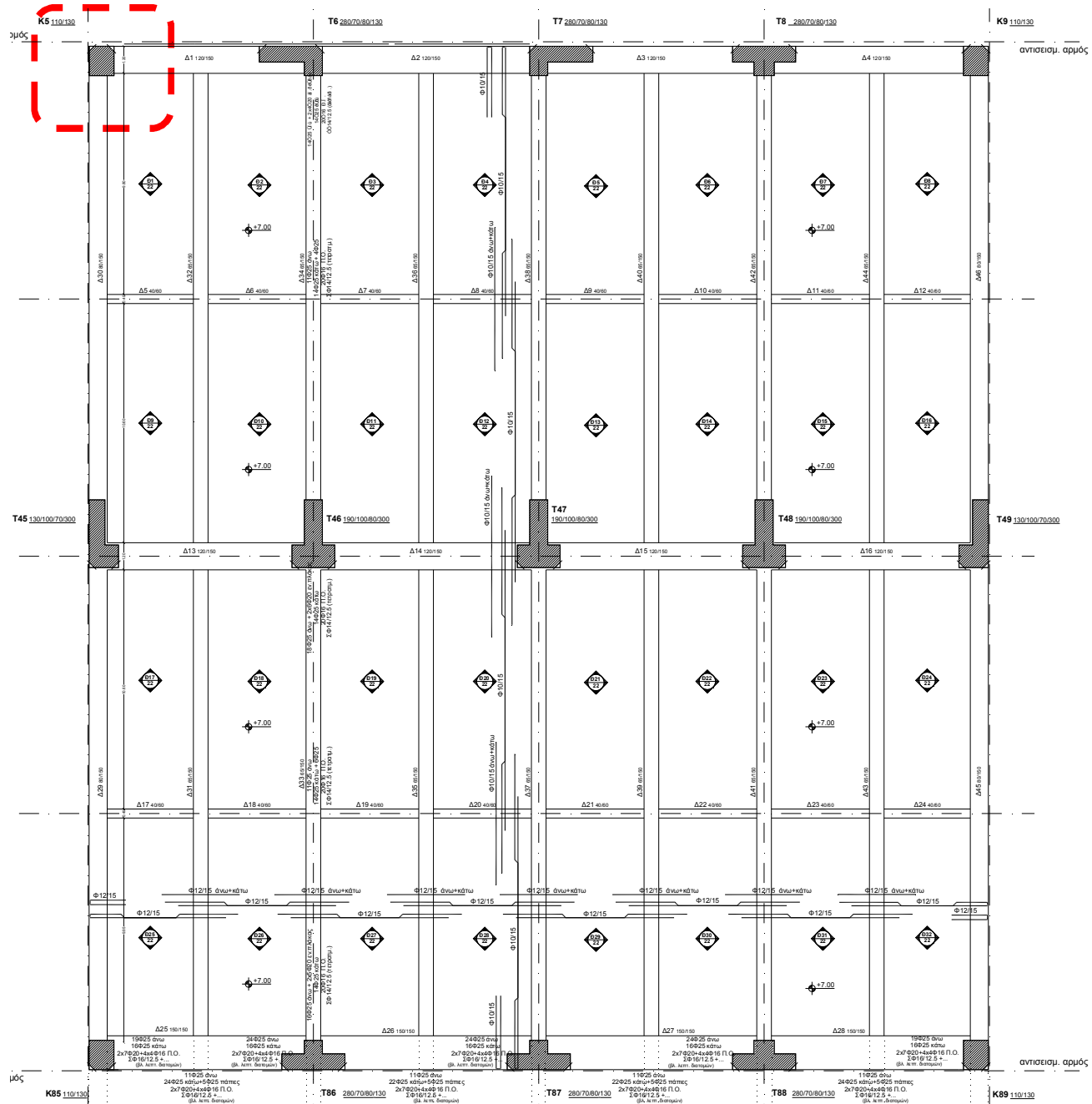


Δ25 150/150 – Στήριξη Δεξιά
 c=50mm

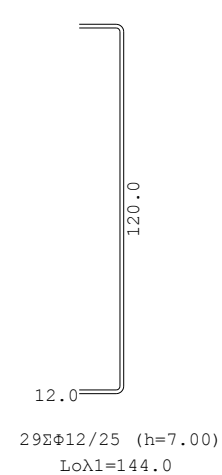
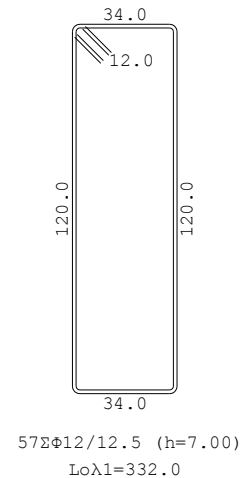
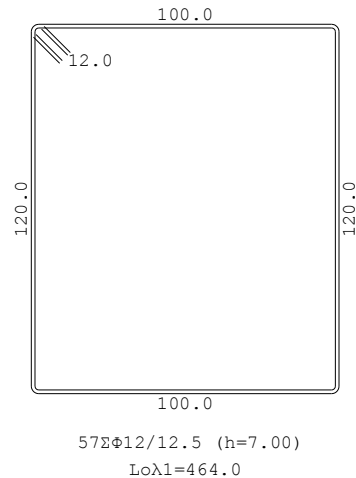
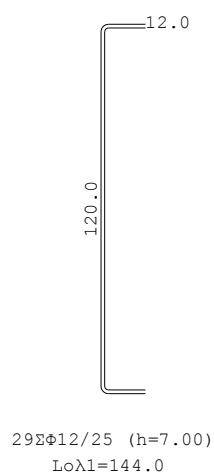
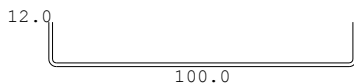
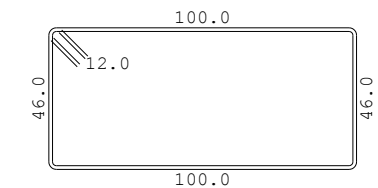
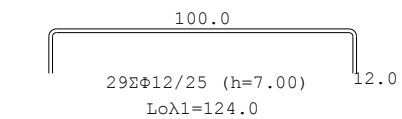
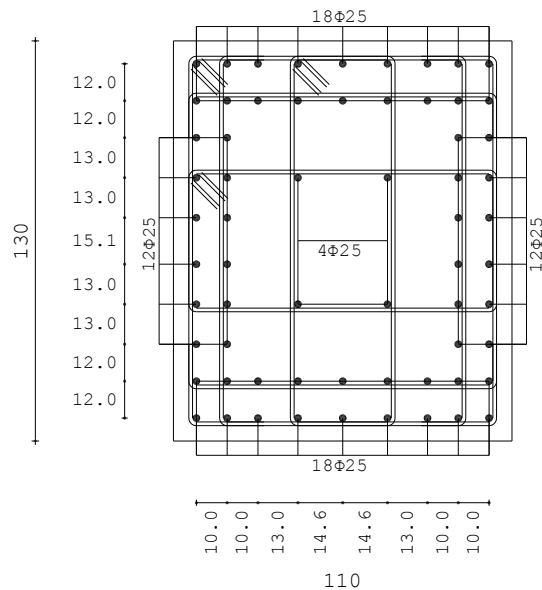


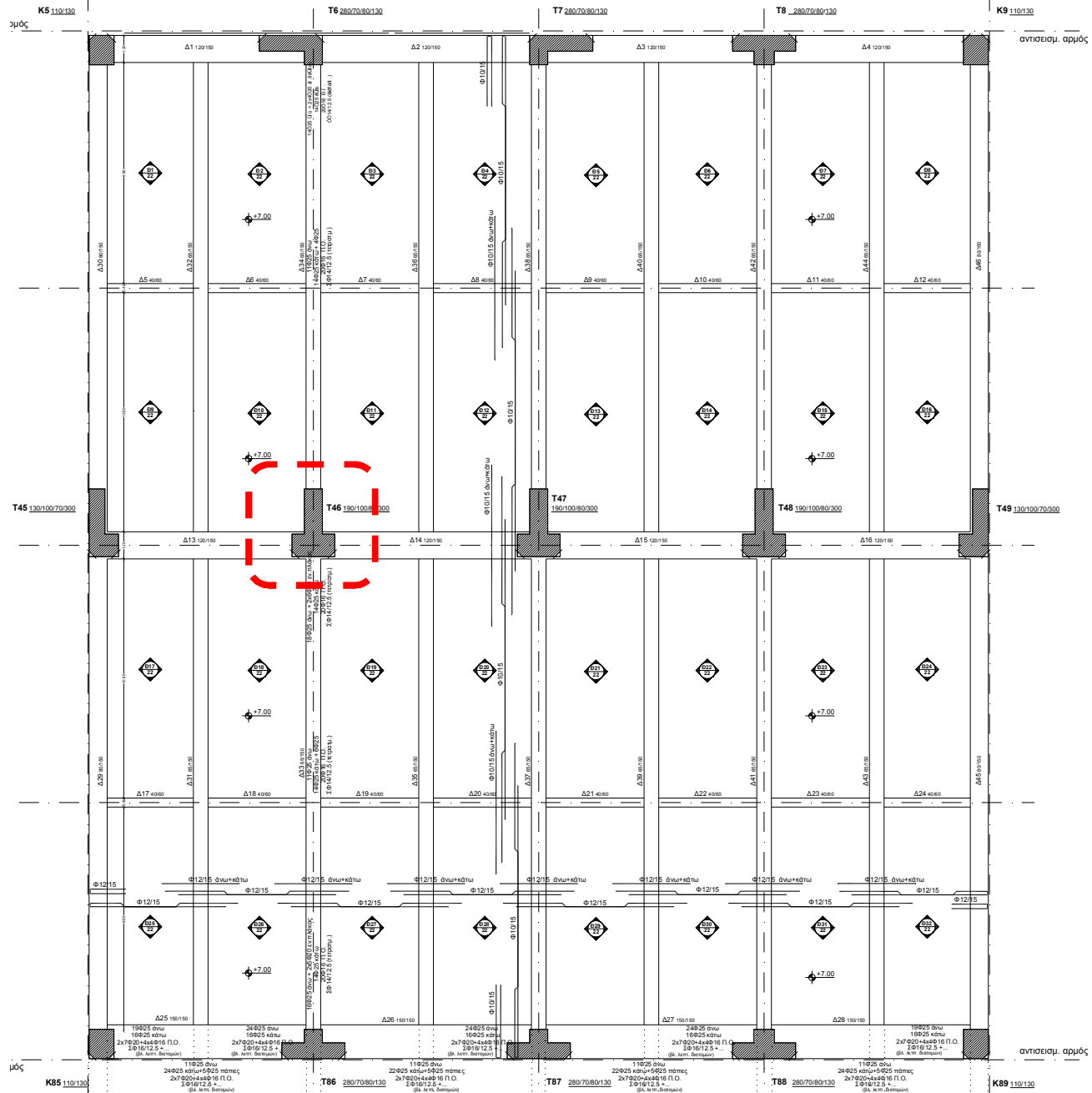
Δ25 150/150 – Άνοιγμα
c=50mm



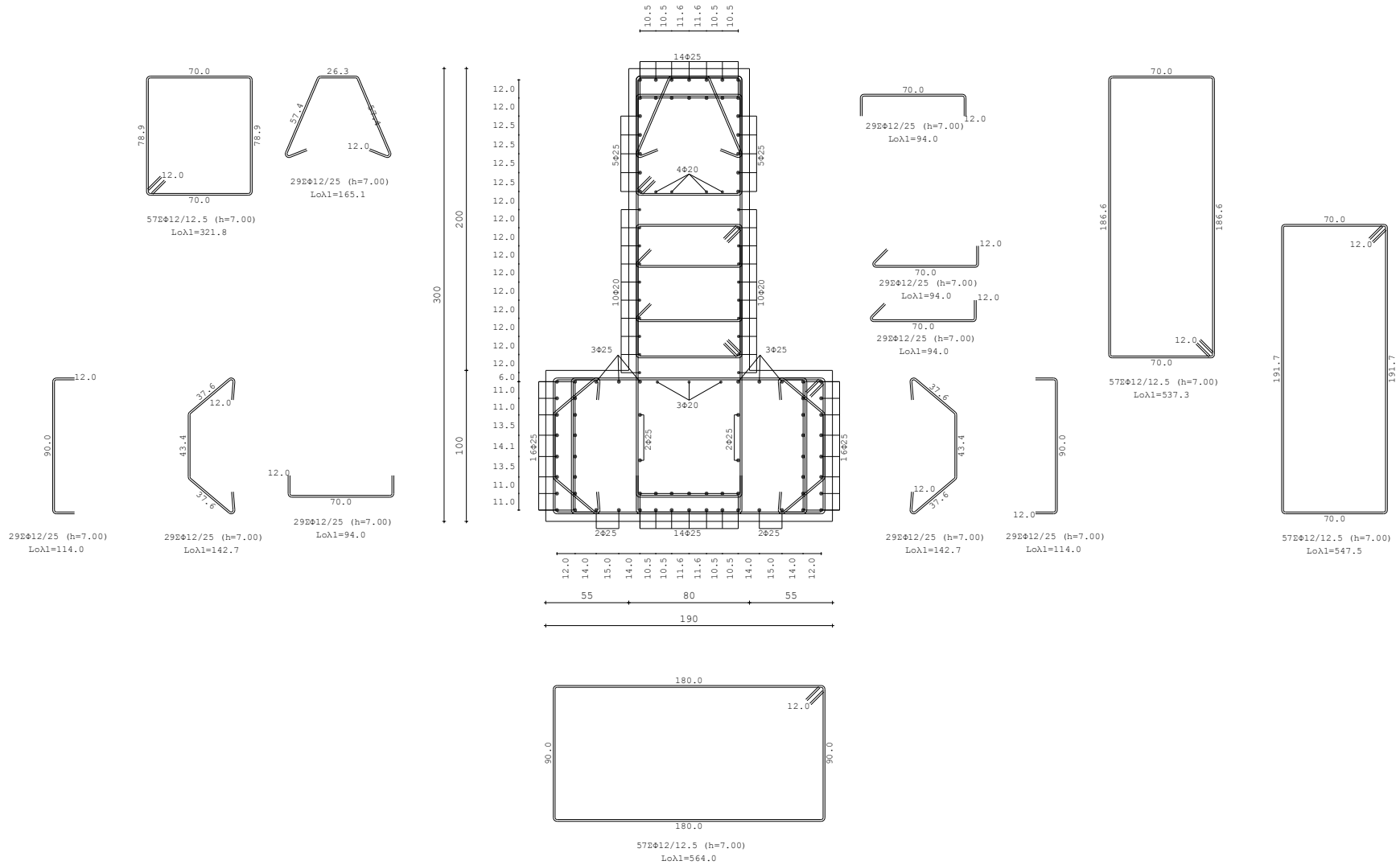


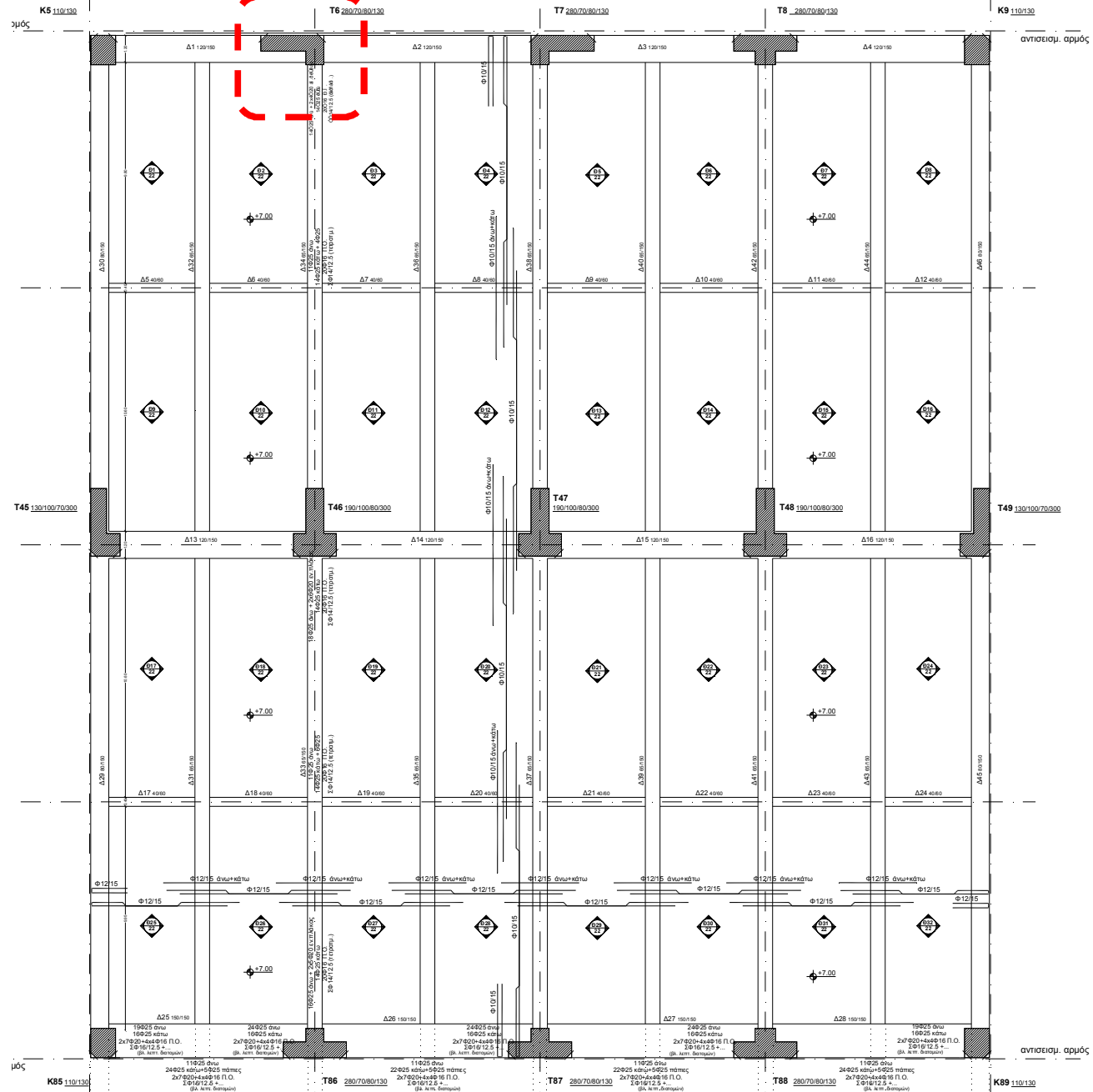
K5-K9-K85-K89 $\frac{110/130}{64\Phi 25}$ c=50



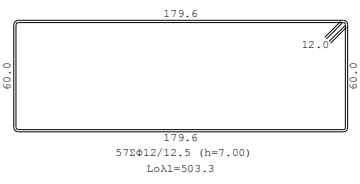
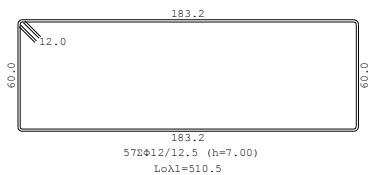
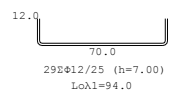
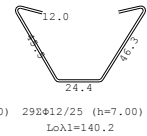
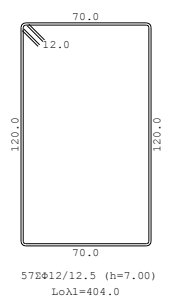
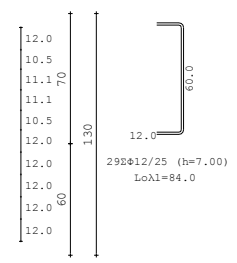
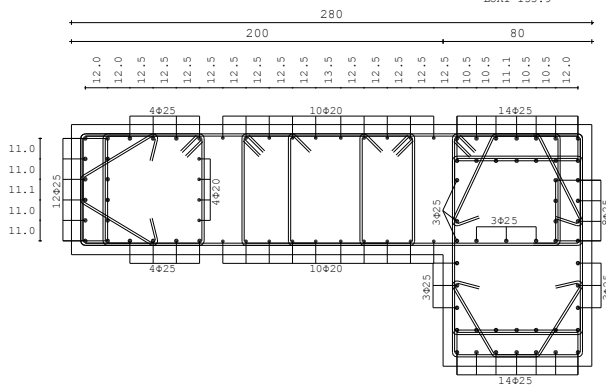
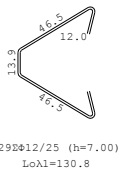
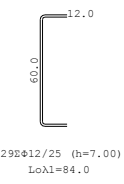
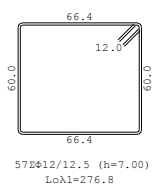
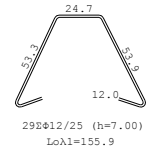
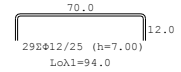


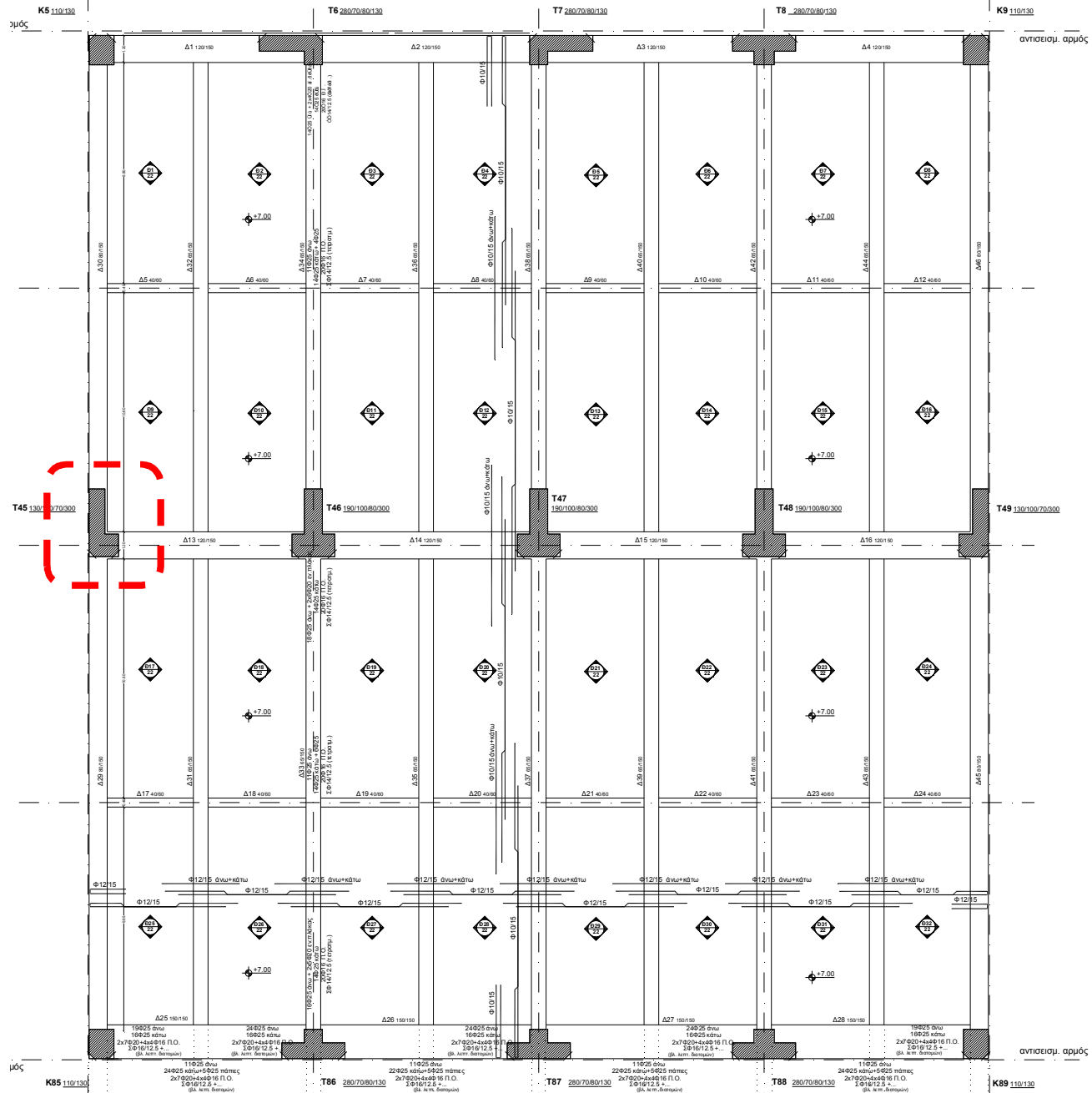
T46-T47-T48 $\frac{190/100/80/300}{84\phi 25+27\phi 20} c=50$



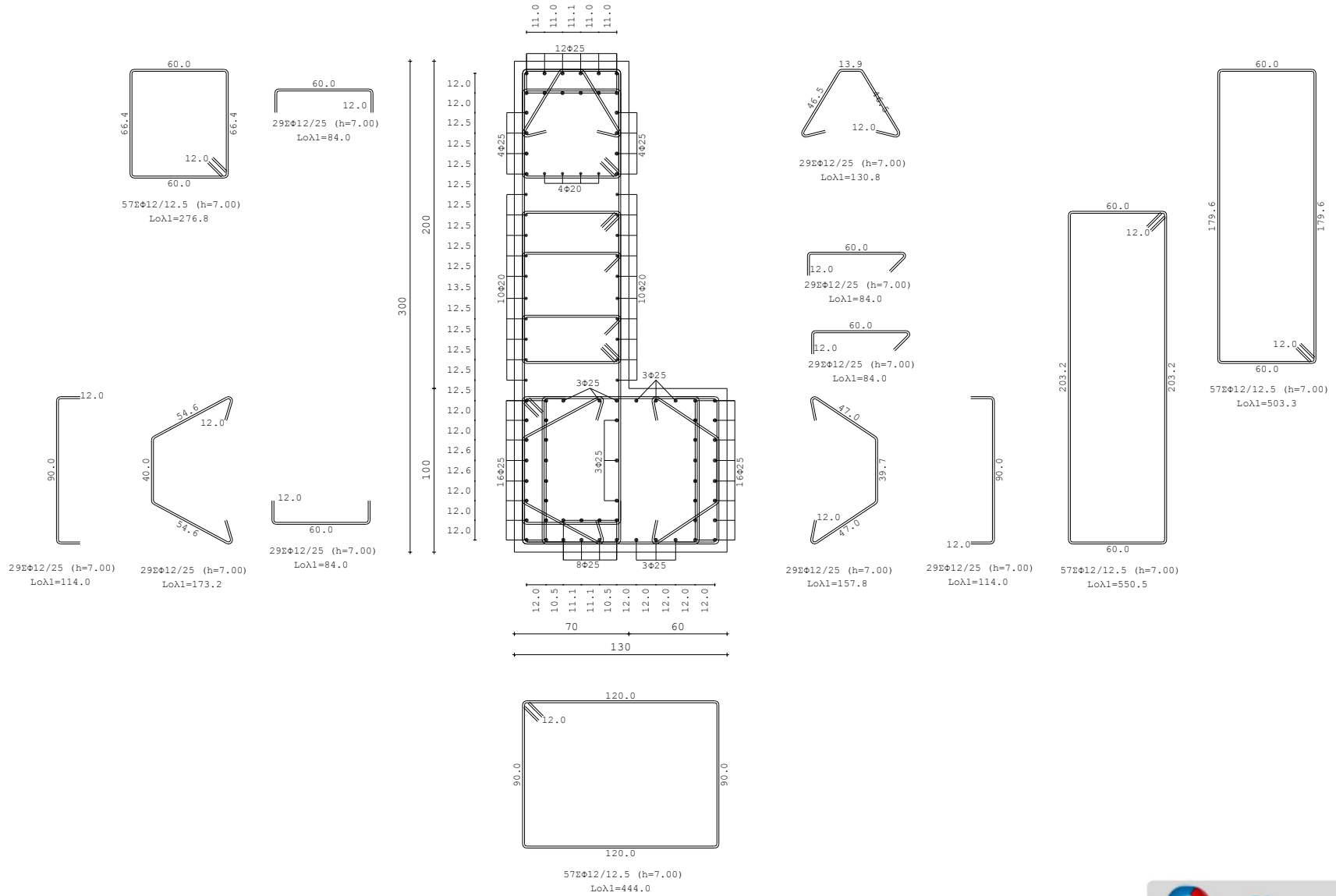


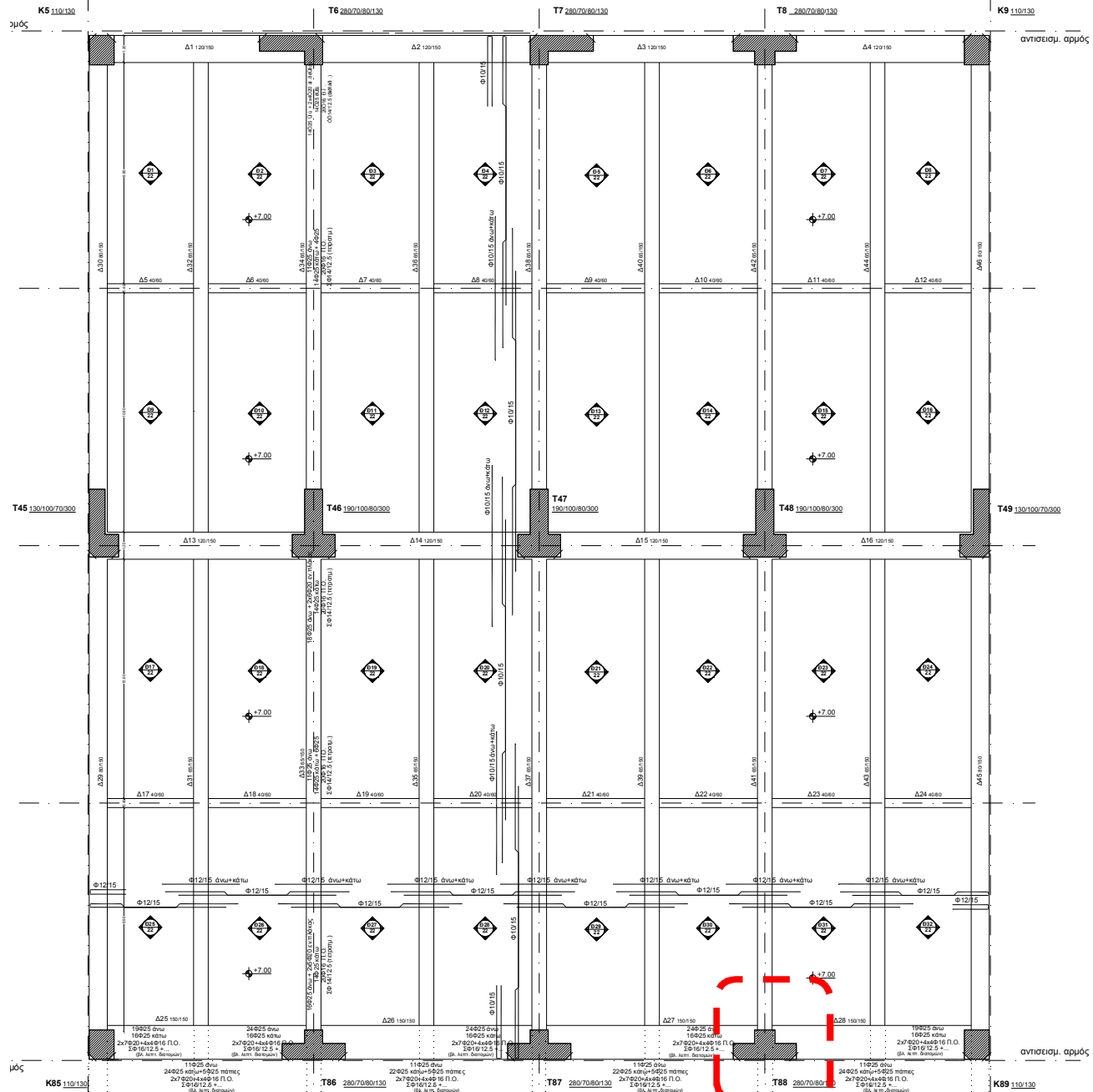
T6-T7 280/70/80/130
68Φ25+24Φ20 c=50





T45-T49 $\frac{130/100/70/300}{7\Phi 25+24\Phi 20}$ $c=50$





T8-T86-T87-T88 $\frac{280/70/80/130}{84\Phi 25+15\Phi 20}$ $c=50$

