

**ΕΡΓΟ: ΜΕΛΕΤΗ ΑΠΟΤΙΜΗΣΗΣ ΚΑΙ ΕΝΙΣΧΥΣΗΣ ΤΟΥ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟΥ
ΤΟΥ ΚΤΙΡΙΟΥ ΠΕ ΘΕΣΠΡΩΤΙΑΣ**

ΘΕΣΗ: Ο.Τ 11-ΗΓΟΥΜΕΝΙΤΣΑ ΝΟΜΟΥ ΘΕΣΠΡΩΤΙΑΣ

ΕΡΓΟΔΟΤΗΣ: ΠΕΡΙΦΕΡΕΙΑΚΗ ΕΝΟΤΗΤΑ ΘΕΣΠΡΩΤΙΑΣ-Δ/ΝΣΗ ΤΕΧΝΙΚΩΝ ΕΡΓΩΝ

ΣΥΝΤΑΞΑΣ: ΧΡΙΣΤΟΠΟΥΛΟΣ ΠΑΝΑΓΙΩΤΗΣ & ΣΙΑ-ΣΥΜΒΟΥΛΟΙ ΜΗΧΑΝΙΚΟΙ ΕΕ

ΑΡ.ΠΡΩΤ. ΣΥΜΒΑΣΗΣ: 81339/1011/12-05-2025

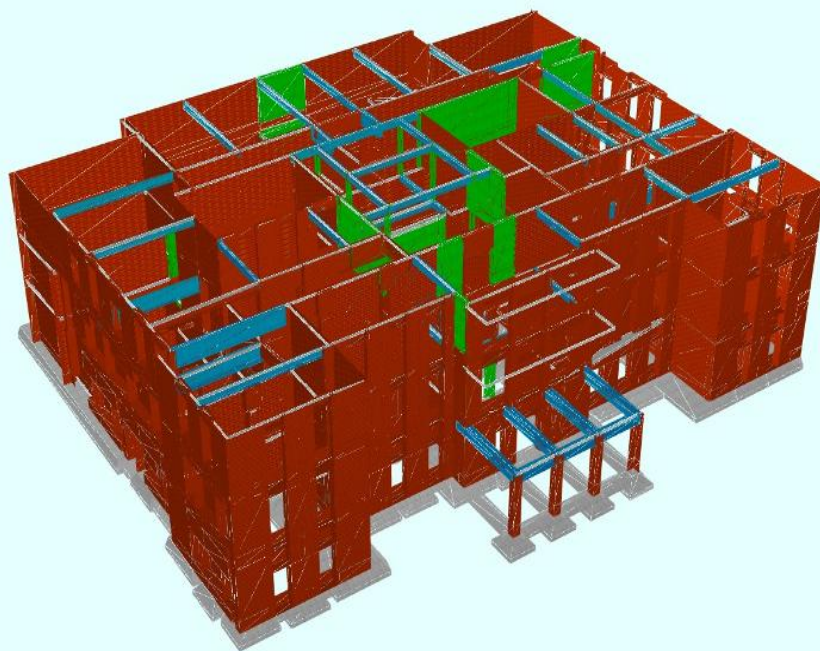
**ΘΕΜΑ: ΜΕΛΕΤΗ ΑΠΟΤΙΜΗΣΗΣ ΚΑΙ ΕΝΙΣΧΥΣΗΣ ΤΟΥ ΦΕΡΟΝΤΑ
ΟΡΓΑΝΙΣΜΟΥ ΤΟΥ ΚΤΙΡΙΟΥ ΠΕ ΘΕΣΠΡΩΤΙΑΣ**

ΤΕΥΧΟΣ ΣΤΑΤΙΚΗΣ ΜΕΛΕΤΗΣ ΑΠΟΤΙΜΗΣΗΣ ΦΕΡΟΥΣΑΣ ΙΚΑΝΟΤΗΤΑΣ ΚΑΙ ΕΝΙΣΧΥΣΗΣ ΤΟΥ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟΥ

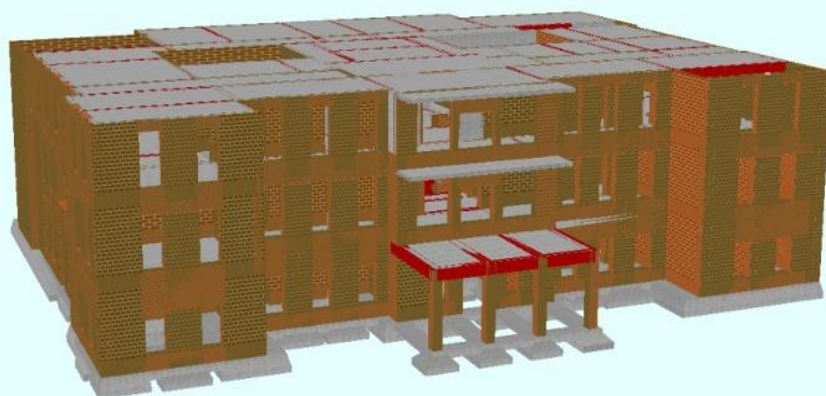


ΜΕΛΕΤΗΤΗΣ : ΧΡΙΣΤΟΠΟΥΛΟΣ ΠΑΝΑΓΙΩΤΗΣ & ΣΙΑ-ΣΥΜΒΟΥΛΟΙ ΜΗΧΑΝΙΚΟΙ Ε.Ε

ΕΡΓΟΔΟΤΗΣ : ΠΕΡΙΦΕΡΕΙΑ ΗΠΕΙΡΟΥ-ΠΕΡΙΦΕΡΕΙΑΚΗ ΕΝΟΤΗΤΑ ΘΕΣΠΡΩΤΙΑΣ



ΦΩΤΟ ΧΩΡΙΚΟΥ ΠΡΟΣΟΜΟΙΩΜΑΤΟΣ (ΘΕΣΕΙΣ ΟΡΙΖΟΝΤΙΩΝ ΔΙΑΦΡΓΜΑΤΩΝ-ΔΟΚΟΙ)



ΦΩΤΟ ΧΩΡΙΚΟΥ ΠΡΟΣΟΜΟΙΩΜΑΤΟΣ ΜΕ ΠΛΑΚΕΣ

ΜΕΛΕΤΗ ΑΠΟΤΙΜΗΣΗΣ ΤΟΥ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟΥ (ΕΠΙΛΥΣΗ Α)

ΕΡΓΟ: ΜΕΛΕΤΗ ΑΠΟΤΙΜΗΣΗΣ ΚΑΙ ΕΝΙΣΧΥΣΗΣ ΤΟΥ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟΥ ΤΟΥ ΚΤΙΡΙΟΥ ΠΕ ΘΕΣΠΡΩΤΙΑΣ (ΚΑΔΕΤ-ΕΥΡΩΚΩΔΙΚΕΣ)
ΕΡΓΟΔΟΤΗΣ: ΠΕΡΙΦΕΡΕΙΑ ΗΠΕΙΡΟΥ-ΠΕΡΙΦΕΡΕΙΑΚΗ ΕΝΟΤΗΤΑ ΘΕΣΠΡΩΤΙΑΣ
ΘΕΣΗ: ΗΓΟΥΜΕΝΙΤΣΑ ΝΟΜΟΥ ΘΕΣΠΡΩΤΙΑΣ
ΜΕΛΕΤΗΤΗΣ: ΧΡΙΣΤΟΠΟΥΛΟΣ ΠΑΝΑΓΙΩΤΗΣ & ΣΙΑ-ΣΥΜΒΟΥΛΟΙ ΜΗΧΑΝΙΚΟΙ Ε.Ε (MELSTAT ΕΕ)
ΧΡΗΣΗ: ΚΤΙΡΙΟ ΔΗΜΟΣΙΩΝ ΕΠΙΤΕΛΙΚΩΝ ΥΠΗΡΕΣΙΩΝ
ΠΡΟΒΛΕΨΗ ΜΕΛΛ. ΟΡΟΦΩΝ: 0
ΕΙΔΟΣ ΚΑΤΑΣΚΕΥΗΣ: ΚΟΙΝΗ ΜΕ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟ ΑΠΟ ΦΕΡΟΥΣΑ ΤΟΙΧΟΠΟΙΙΑ

ΤΕΧΝΙΚΗ ΕΚΘΕΣΗ ΣΤΑΤΙΚΟΥ ΚΑΙ ΑΝΤΙΣΕΙΣΜΙΚΟΥ ΥΠΟΛΟΓΙΣΜΟΥ
ΣΥΜΦΩΝΑ ΜΕ ΤΟΝ ΚΑΔΕΤ ΚΑΙ ΤΟΥΣ ΕΥΡΩΚΩΔΙΚΕΣ EC1-EC6-EC8

ΠΑΡΑΔΟΧΕΣ

I ΥΛΙΚΑ

Υφιστάμενων στοιχείων

Στάθμη αξιοπιστίας δεδομένων τοιχοποιίας: ΣΑΔ Ανεκτή
Χαρακτηριστική αντοχή τοιχοποιίας β ορόφου (πλινθοδομή): $f_k = 2.80 \text{ MPa}$, $\gamma_m = 1.50$
Χαρακτηριστική αντοχή τοιχοποιίας ισογείου -α ορόφου (λιθοδομή): $f_k = 3.60 \text{ MPa}$, $\gamma_m = 1.50$
Στάθμη αξιοπιστίας δεδομένων σκυροδέματος: ΣΑΔ Ικανοποιητική
Σκυρόδεμα: $f_{ck} = 20.00 \text{ MPa}$ $\gamma_c = 1.30$, $f_{cd} = 20/1.30 = 15.40 \text{ MPa}$
Στάθμη αξιοπιστίας δεδομένων χάλυβα: ΣΑΔ ΑΝΕΚΤΗ
Χάλυβας: $f_{yk} = 220.00 \text{ MPa}$, $\gamma_s = 1.20 \text{ MPa}$, $f_{yd} = 220/1.20 = 183.30 \text{ MPa}$
Χάλυβας συνδετήρων: $f_{yk} = 220.00 \text{ MPa}$, $\gamma_s = 1.20$
Μέτρο Ελαστικότητας Σκυροδέματος: $E_c = 25.0 \text{ GPa}$
Μέτρο Ελαστικότητας Χάλυβα: $E_s = 200 \text{ GPa}$
Μέτρο Ελαστικότητας Τοιχοποιίας: $E_m = 3.60 \text{ GPa} / 2.60 \text{ MPa}$

II ΦΟΡΤΙΑ

α. Μόνιμα

Ειδικό βάρος Ο. Σ. 25.00 KN/m³
Ειδικό βάρος Λιθοδομής..... 25.00 KN/m³
Επικάλυψη δαπέδων (πλάκων οροφής ισογείου-α ορόφου.. 1.50 KN/m²
Επικάλυψη δώματος (πλάκες β ορόφου).. 1.00 KN/m²
Οπτοπλινθοδομές Μπατικές 3.60 KN/m²
Οπτοπλινθοδομές Δρομικές 2.10 KN/m²

β. Κινητά

Πλακών (ισογείου-α ορόφου)..... 5.00 KN/m²
Εξωστών 5.00 KN/m²
Δώματος 1.00 KN/m²
Κλιμακοστάσιων 5.00 KN/m²

III ΣΕΙΣΜΟΣ

Κατηγορία Σεισμικής Επικινδυνότητας. II
Συντελεστής Σπουδαιότητας $\Sigma 4$, $\gamma_1 = 1.30$
Συντελεστής Σεισμικής Συμπεριφοράς $q_{hx} = 1.20$, $q_{hy} = 1.20$
Max Επιτάχυνση Εδάφους $A = \alpha \cdot g$ $0.24 \cdot g$
Συντελεστής ψ_2 0.60
Κατηγορία εδάφους B
 $S = 1.20$, $T_b = 0.15 \text{ sec}$, $T_c = 0.50 \text{ sec}$, $T_d = 2.50 \text{ sec}$.
Ιδιοπερίοδοι κατασκευής $T_x = 0.21 \text{ sec}$ $T_y = 0.24 \text{ sec}$
Τεταγμένες φάσματος σχεδιασμού $R_{dx}(T_x) = 0.29g$, $R_{dy}(T_y) = 0.29g$
Μέθοδος Ανάλυσης:

Ανάλυση οριζόντιας φόρτισης (Δυναμική φασματική)

- Μέθοδος καθολικού δείκτη συμπεριφοράς q
- Μέθοδος τοπικού δείκτη συμπεριφοράς m

Επίπεδο Επιτελεστικότητας:

A1. ΠΕΡΙΟΡΙΣΜΕΝΕΣ Βλάβες

Μέση περίοδος επαναφοράς 475 έτη. (Υπέρβαση 10% για 50 χρόνια)

IV. ΕΔΑΦΟΣ

Τύπος εδάφους κοκκώδες συνεκτικό $\phi = 30^\circ$, $c = 50 \text{ kN/m}^2$
Επιτρ. τάση εδάφους 250 KN/m²
Μέτρο Ελαστικότητας Εδάφους..... 14000 KN/m²

ΧΑΡΑΚΤΗΡΙΣΤΙΚΕΣ ΤΙΜΕΣ ΑΝΤΟΧΗΣ ΤΟΙΧΟΠΟΙΙΑΣ (ΦΕΡΟΥΣΑ ΛΙΘΟΔΟΜΗΣ)
ΚΑΤΑ EN 1996-1-1 (EC6)

ΤΥΠΟΣ ΚΑΤΑΣΚΕΥΗΣ: Αοπλη Τοιχοποιία-Λιθοδομή

Κατηγορία 2. (Πολύ Καλή)

Επίπεδο αξιοπιστίας υλικών C:

Λιθοσώματα κατηγορίας 2, οποιαδήποτε λάσπη

Συντελεστής ασφάλειας υλικού $\gamma_M = 1.50$ [EN 1996-1, &2.4.3]

Για συνδυασμούς με σεισμό [EN 1996-1, &9.6(3)]:

$$\gamma_M = \max(2/3 \cdot 1.50, 1.50) = 1.50$$

Διαμήκης αρμός: ΟΧΙ

Ειδικό βάρος 25.0 kN/m³

Χαρακτηριστικά λιθοσσωμάτων

Υλικό: Φυσικές πέτρες διαμορφωμένες

Ομάδα: 1

Αντοχή: $f_b = 35.00$ MPa (ερήμην τιμές ΚΑΔΕΤ, ΠΙΝΑΚΑΣ Π3.1)

Συντελεστής $\delta = 0.98$ MPa

Χαρακτηριστικά λάσπης (ασβεστοκονιάματα)

Τύπος: Λάσπη γενικής εφαρμογής

Αντοχή: $f_m = 0.40$ MPa (ερήμην τιμές ΚΑΔΕΤ, ΠΙΝΑΚΑΣ Π3.2)

Εφελκυστική Αντοχή: $f_{mt} = 1/4 \cdot \sqrt{f_m} = 0.35$ MPa

Θλιπτική αντοχή [3.6.1.2.(2)]

$$f_k = K \cdot f_b^{0.7} \cdot f_m^{0.3} \quad (3.2)$$

όπου:

$$K = 0.45 \quad [\text{tab.3.3}]$$

Λαμβάνοντας υπ όψιν τους περιορισμούς:

$$f_b = 0.98 \cdot 35.00 = 34.30 \text{ MPa}, \quad f_m = 2.00 \text{ MPa}$$

οπότε:

$$f_k = 0.45 \cdot 34.30^{0.7} \cdot 2.00^{0.3} = \mathbf{3.60 \text{ MPa}} \text{ (ΣΧΕΣΗ Σ6.3 ΚΑΔΕΤ, } f_k = 3.55 \text{ MPa)}$$

Εφελκυστική αντοχή πεσσού

$$f_{kt} = \lambda \cdot f_{mt} = 0.70 \cdot 0.35 = 0.25 \text{ MPa}$$

Μέτρο Ελαστικότητας [3.7.2]

$$E = K_e \cdot f_k = 1000.0 \cdot 3.60 = \mathbf{3600 \text{ MPa}}$$

Μέτρο Διάτμησης [3.7.3]

$$G = 0.40 \cdot E = 0.40 \cdot 3600 = \mathbf{1440 \text{ MPa}}$$

Διατμητική αντοχή στο επίπεδο της τοιχοποιίας

Με την παραδοχή ότι δεν υπάρχει διαμήκης αρμός:

$$f_{vk} = f_{vk0} + 0.4 \cdot \sigma_d, \leq 0.065 \cdot f_b \quad (3.5)$$

όπου:

$$f_{vk0} = 0.10 \text{ MPa} \quad [\text{tab.3.4}]$$

σ_d = η κατακόρυφη τάση στο επίπεδο διάτμησης σε MPa.

η f_{vk} κειμένεται μεταξύ των τιμών: **0.10 - 0.96 MPa**

Διατμητική αντοχή κάθετα στο επίπεδο της τοιχοποιίας

1. Με επίπεδο αστοχίας οριζόντιο: [Fig. 3.1a]

$$f_{xk1} = \mathbf{0.05 \text{ MPa}}$$

2. Με επίπεδο αστοχίας κατακόρυφο: [Fig. 3.1b]

$$f_{xk2} = \mathbf{0.20 \text{ MPa}}$$

ΧΑΡΑΚΤΗΡΙΣΤΙΚΕΣ ΤΙΜΕΣ ΑΝΤΟΧΗΣ ΤΟΙΧΟΠΟΙΙΑΣ (ΟΠΤΟΠΛΙΝΘΟΔΟΜΗΣ)

ΚΑΤΑ EN 1996-1-1 (EC6)

ΤΥΠΟΣ ΚΑΤΑΣΚΕΥΗΣ: Αοπλη Τοιχοποιία (Οπτοπλινθοδομη-τσιμεντολιθοδή)

Κατηγορία 2. (Πολύ Καλή)

Επίπεδο αξιοπιστίας υλικών C:

Λιθοσώματα κατηγορίας 2, οποιαδήποτε λάσπη

Συντελεστής ασφάλειας υλικού $\gamma_M = 1.50$ [EN 1996-1, &2.4.3]

Για συνδυασμούς με σεισμό [EN 1996-1, &9.6(3)]:

$$\gamma_M = \max(2/3 \cdot 1.50, 1.50) = 1.50$$

Διαμήκης αρμός: ΝΑΙ

Ειδικό βάρος 17.0 kN/m³

Χαρακτηριστικά τοιχοποιίας

Υλικό: Τσιμεντόλιθοι με $\rho \geq 400$ kg/m³

Ομάδα: 1

Αντοχή: $f_b = 8.00$ MPa (ερήμην τιμές ΚΑΔΕΤ, ΠΙΝΑΚΑΣ Π3.1)

Συντελεστής $\delta = 0.98$ MPa

Χαρακτηριστικά λάσπης (ασβεστοκονιάματα)

Τύπος: Λάσπη γενικής εφαρμογής

Αντοχή: $f_m = 0.40$ MPa (ερήμην τιμές ΚΑΔΕΤ, ΠΙΝΑΚΑΣ Π3.2)

Εφελκυστική Αντοχή: $f_{mt} = 1/4 \cdot \sqrt{f_m} = 0.35$ MPa

Θλιπτική αντοχή [3.6.1.2.(2)]

$$f_k = K \cdot f_b^{0.7} \cdot f_m^{0.3} \quad (3.2)$$

όπου:

$$K = 0.55 \quad [\text{tab.3.3}]$$

Λαμβάνοντας υπ όψιν τους περιορισμούς:

$$f_b = 0.98 \cdot 8.00 = 7.84 \text{ MPa}, \quad f_m = 2.00 \text{ MPa}$$

οπότε:

$$f_k = 0.55 \cdot 7.84^{0.7} \cdot 2.00^{0.3} = \mathbf{2.80 \text{ MPa}} \text{ (ΣΧΕΣΗ Σ6.1 ΚΑΔΕΤ για } f_{bc} > f_{mc}, f_k = 2.20 \text{ MPa)}$$

Εφελκυστική αντοχή πεσσού

$$f_{kt} = \lambda \cdot f_{mt} = 0.70 \cdot 0.35 = 0.18 \text{ MPa}$$

Μέτρο Ελαστικότητας [3.7.2]

$$E = K_e \cdot f_k = 1000.0 \cdot 2.86 = \mathbf{2800 \text{ MPa}}$$

Μέτρο Διάτμησης [3.7.3]

$$G = 0.40 \cdot E = 0.40 \cdot 2800 = 1120 \text{ MPa}$$

Διατμητική αντοχή στο επίπεδο της τοιχοποιίας

Με την παραδοχή ότι υπάρχει διαμήκης αρμός:

$$f_{vk} = 0.50 \cdot f_{vk0} + 0.4 \cdot \sigma_d, \leq 0.045 \cdot f_b \quad (3.6)$$

όπου:

$$f_{vk0} = 0.10 \text{ MPa} \quad [\text{tab.3.4}]$$

σ_d = η κατακόρυφη τάση στο επίπεδο διάτμησης σε MPa.

η f_{vk} κειμένεται μεταξύ των τιμών: **0.05 - 0.35 MPa**

Διατμητική αντοχή κάθετα στο επίπεδο της τοιχοποιίας

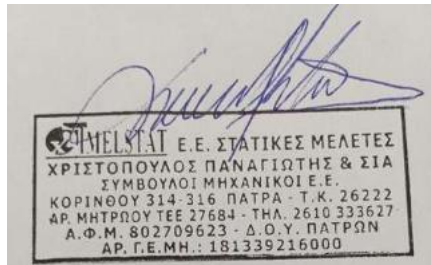
1. Με επίπεδο αστοχίας οριζόντιο: [Fig. 3.1a]

$$f_{xk1} = 0.05 \text{ MPa}$$

2. Με επίπεδο αστοχίας κατακόρυφο: [Fig. 3.1b]

$$f_{xk2} = 0.20 \text{ MPa}$$

Ο Μ Η Χ Α Ν Ι Κ Ο Σ



1. ΠΕΡΙΓΡΑΦΗ

Ο βασικός φέρων Οργανισμός του έργου είναι από άοπλη φέρουσα τοιχοποιία και πλάκες οροφής με ενδιάμεσα υποστυλώματα που συμβάλλουν στη στήριξη του κεντρικού κλιμακοστασίου

2. ΜΕΘΟΔΟΙ ΥΠΟΛΟΓΙΣΜΟΥ

ΠΛΑΚΕΣ

Οι Πλάκες από σκυρόδεμα επιλύονται κατά Czerny. Στη στήριξη προβόλου γίνεται διαστασιολόγηση με τη μέγιστη αρνητική ροπή. Η κατανομή του φορτίου γίνεται κατά DIN 1045.

ΔΙΑΤΜΗΤΙΚΟΙ ΤΟΙΧΟΙ

Ο Φορέας επιλύεται σαν πλαίσιο στο χώρο, μέθοδος χωρικού πλαισίου, η ανάλυση του οποίου γίνεται με τη μέθοδο των ραβδωτών Πεπερασμένων Στοιχείων.

Χρησιμοποιείται η δυναμική φασματική μέθοδος και για την επαλληλία των ιδιομορφικών αποκρίσεων χρησιμοποιείται η μέθοδος CQC.

Η ανάλυση βασίζεται στις παρακάτω παραδοχές:

1. Ο φορέας αποτελείται από γραμμικά μέλη
2. Το υλικό κατασκευής είναι ελαστικό με E και G σύμφωνα με τον EC6 παρ.3.8.2, 3.8.3 και το Εθνικό Κείμενο Εφαρμογής.
3. Η ανάλυση ισχύει μόνο για μικρές μετακινήσεις - στροφές ώστε να μην εμφανίζονται φαινόμενα 2ας τάξεως.
4. Οι συντελεστές ακαμψίας υπολογίζονται στην απαραμόρφωτη κατασκευή ενώ οι εξισώσεις ισορροπίας ισχύουν για την παραμορφωμένη κατασκευή.
5. Οι διατμητικοί τοίχοι προσομοιώνονται ως κατακόρυφα στοιχεία ακαμψίας.
6. Τα πρέκια των πορτών και των παραθύρων προσομοιώνονται σαν οριζόντια στοιχεία ακαμψίας.

2. ΕΛΕΓΧΟΙ

ΕΛΕΓΧΟΣ ΘΕΜΕΛΙΩΝ

Η θεμελίωση θεωρήθηκε ως επαρκής διότι δεν αλλάζουν τα υφιστάμενα φορτία λειτουργίας και δεν παρουσιάζει φαινόμενα που υποδεικνύουν ανεπάρκεια

ΕΛΕΓΧΟΣ ΠΕΣΣΩΝ

Ο έλεγχος γίνεται πρώτα για τους συνδυασμούς δράσεων χωρίς σεισμό όπου ελέγχεται η επάρκεια του πεσσοῦ σύμφωνα με τον EC6.

Μετά για όλους τους συνδυασμούς δράσεων με σεισμό ελέγχεται:

1. Η ικανότητα παραλαβής τέμνουσας εντός του επιπέδου τους, λόγω καμπτικής λειτουργίας (EK8.3 § C.4.2.1(3), ΚΑΔΕΤ §7.2.1),
2. Η ικανότητα παραλαβής τέμνουσας εντός του επιπέδου τους, λόγω διατμητικής ολίσθησης κατά μήκος των αρμών (EK8.3 § C.4.3.1(3) και ΚΑΔΕΤ §7.2.2).
3. Η ικανότητα παραλαβής τέμνουσας εντός του επιπέδου τους, λόγω διαγώνιας ρηγμάτωσης (ΚΑΔΕΤ §7.2.2).
4. Έλεγχος πεσσών σε εκτός επιπέδου κάμψη (EN1996-1-1 § 6.3.1, ΚΑΔΕΤ §7.3)

ΕΚΘΕΣΗ ΣΥΛΛΟΓΗΣ ΣΤΟΙΧΕΙΩΝ

Το κτίριο έχει κατασκευασθεί , χωρίς μελέτη
Δεν παρουσιάζει χωρίς ουσιώδεις βλάβες σε πρωτεύοντα στοιχεία.

ΕΚΘΕΣΗ ΑΠΟΤΥΠΩΣΗΣ-ΤΕΚΜΗΡΙΩΣΗΣ

Ο φέρων οργανισμός του κτιρίου είναι από φέρουσα τοιχοποιία και οι ιδιότητες των πεσσών υπολογίζονται με βάση τον EC6. Η αποτίμηση της φέρουσας ικανότητας του κτιρίου γίνεται με βάση τον EC8-3 σύμφωνα με τον οποίο χρησιμοποιούνται οι μέσες τιμές των υλικών (πίνακας 4.3). Η αναγωγή των χαρακτηριστικών τιμών σε μέσες γίνεται σύμφωνα με το παράρτημα 4.1 του ΚΑΝΕΠΕ με απόκλιση $s=0.20-0.40$.

Ως στάθμη αξιοπιστίας δεδομένων (ΣΑΔ) επελέγη η "Ανεκτη" (KL1) καθώς οι αντοχές υλικών εκτιμήθηκαν από βιβλιογραφίαεργαστηριακά σύμφωνα με τον ΚΑΔΕΤ παρ.3.10.5.2.

Ως μέθοδος ανάλυσης επελέγη η ελαστική δυναμική με καθολικό δείκτη συμπεριφοράς q . Η μέθοδος αυτή είναι έλεγχος με όρους δυνάμεων, και σε συνδυασμό ότι έχουμε ΣΑΔ KL1 προκύπτει συντελεστής ασφάλειας υλικού $\gamma_M = 1.50$

Ως αποδεκτή στάθμη επιτελεστικότητας λαμβάνεται η B1 δηλ. "Σημαντικές Βλάβες" (SD κατά EC8-3) με μέση περίοδος επαναφοράς 475 έτη.

Από τον πίνακα 9.1 του EC8-1 για άοπλη τοιχοποιία έχουμε $q^* = 1.50$

Από τον πίνακα 4.1 του ΚΑΔΕΤ για επιτελεστικότητα B έχουμε $q^*/q = 1.00$

Οπότε τελικά $q = 1.50 \cdot 1.00 = 1.50$

Ως ανεκτή στάθμη επιτελεστικότητας λαμβάνεται η B1 δηλ. "Σημαντικές Βλάβες" (SD κατά EC8-3) με μέση περίοδος επαναφοράς 475 έτη.

Κατά συνέπεια έχουμε $q^*=1.50$. Για επιτελεστικότητα B1 $q^*/q' = 1.00$ οπότε τελικά $q = 1.50$

Εφαρμοζόμενοι Κανονισμοί

α. Ευρωκώδικας 1: Βάσεις σχεδιασμού και δράσεων στις κατασκευές EN 1991-1-1

β. Ευρωκώδικας 6: Υπολογισμός Κατασκευών από Τοιχοποιία EN 1996-1-1

γ. Ευρωκώδικας 8: Αντισεισμικός σχεδιασμός των κατασκευών EN 1998-1

- Μέρος 1: Γενικοί κανόνες, σεισμικές δράσεις και κανόνες για κτίρια

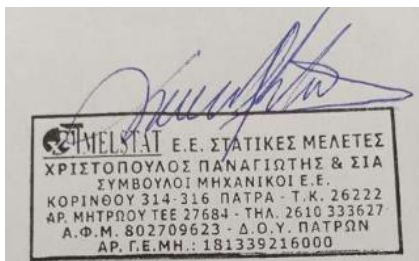
δ. Ευρωκώδικας 8: Αντισεισμικός σχεδιασμός των κατασκευών EN 1998-3

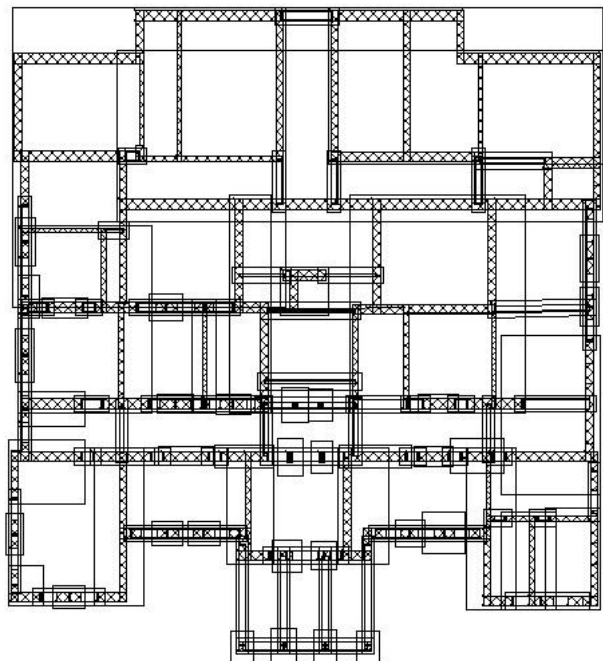
- Μέρος 3: Αποτίμηση της φέρουσας ικανότητας κτιρίων και επεμβάσεις

ε. ΚΑΔΕΤ: Κανονισμός για αποτίμηση και δομητικές επεμβάσεις τοιχοποιίας

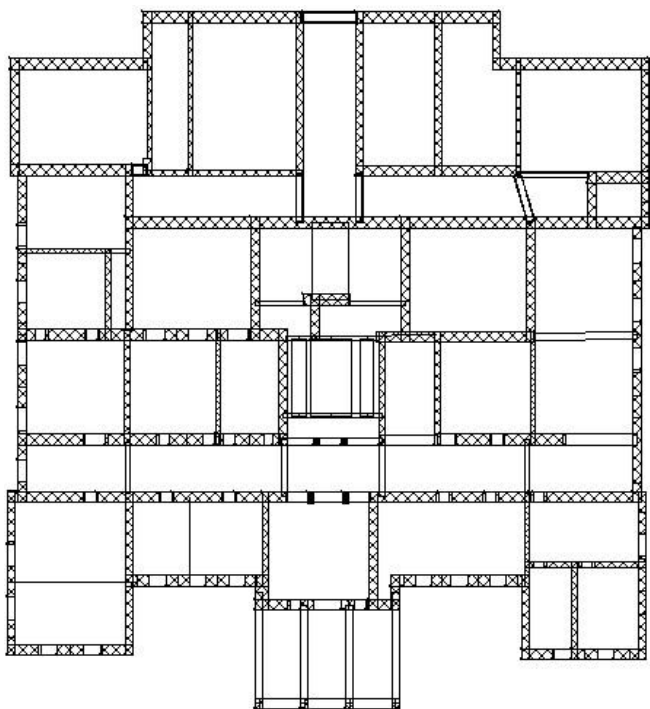
ΦΕΚ 2493/Β/18-4-2023

Ο Μ Η Χ Α Ν Ι Κ Ο Σ

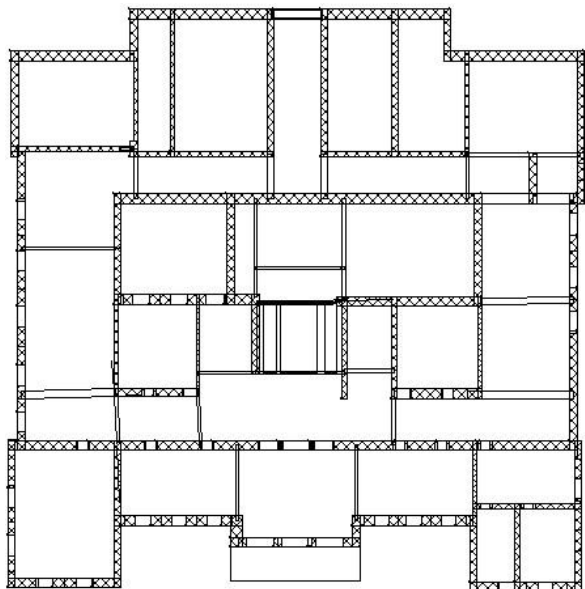




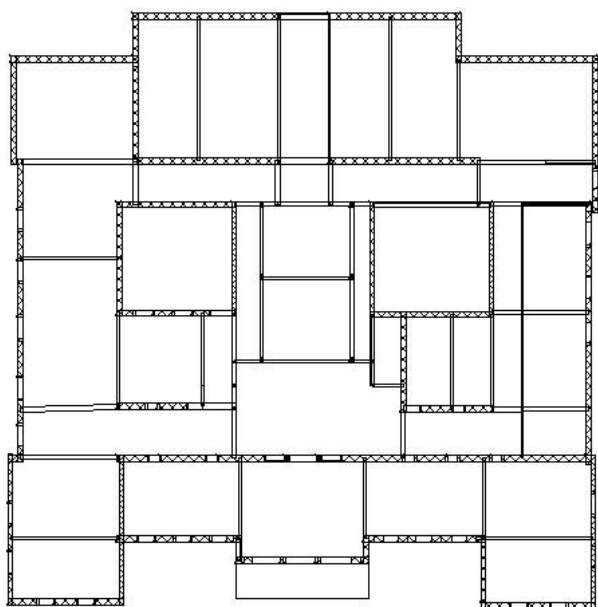
Στάθμη 1 $z=0.00\text{m}$



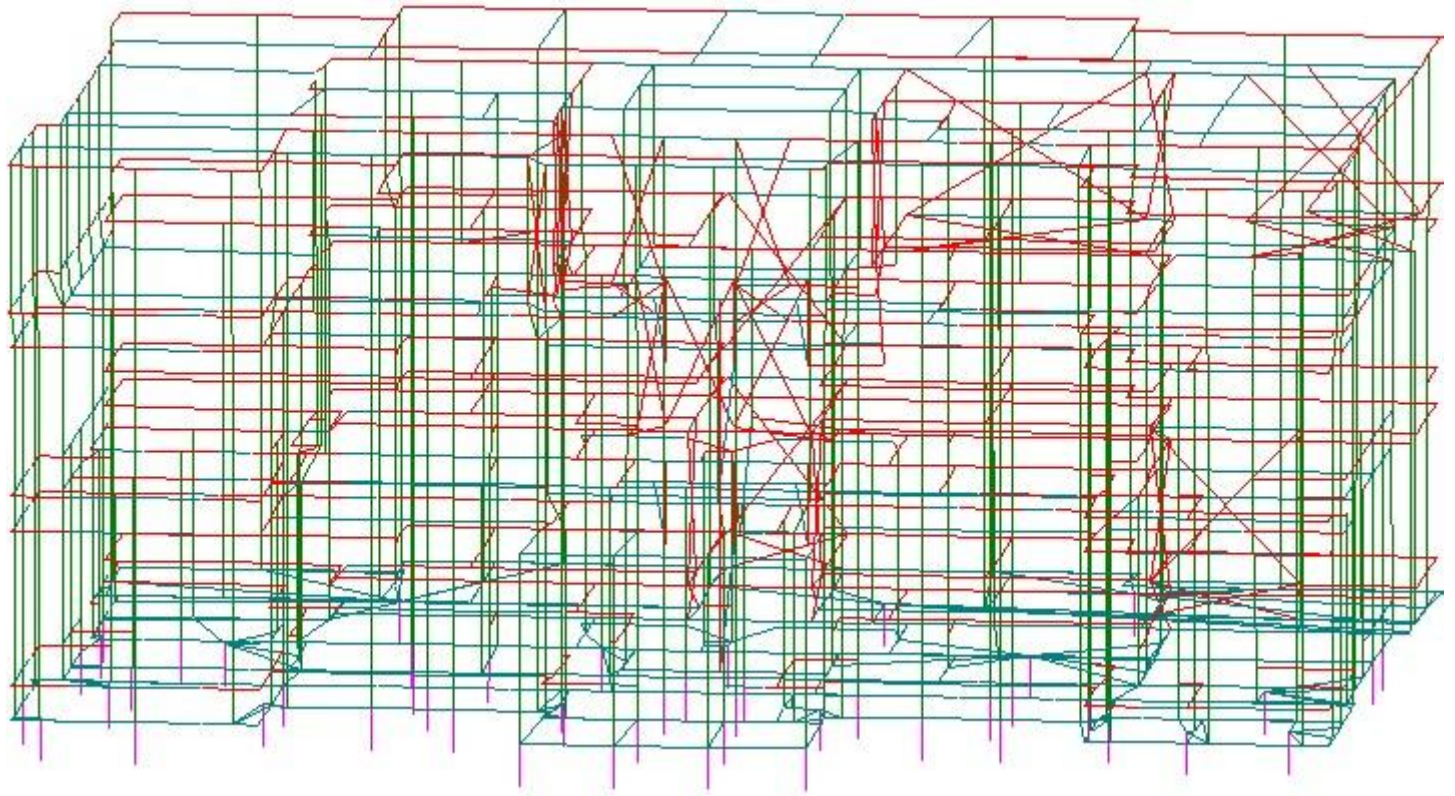
Στάθμη 2 $z=4.32\text{m}$



Στάθμη 3 z=8.52m



Στάθμη 4 z=12.67m



ΑΝΤΙΣΕΙΣΜΙΚΑ ΣΤΟΙΧΕΙΑ ΣΤΑΘΜΩΝ

ΤΥΠΟΣ ΦΟΡΕΑ:

ΚΤΙΡΙΟ ΑΠΟ ΤΟΙΧΟΠΟΙΙΑ

ΤΥΠΟΣ ΣΤΑΤΙΚΟΥ ΣΥΣΤΗΜΑΤΟΣ:

κατασκευή από άοπλη τοιχοποιία σύμφωνα με το EN 1998-1

ΚΑΝΟΝΙΚΟΤΗΤΑ ΣΕ ΟΨΗ: Κανονικό και προς τις δυο διευθύνσεις

ΚΑΝΟΝΙΚΟΤΗΤΑ ΣΕ ΚΑΤΩΨΗ: Μή Κανονικό και προς τις δυο διευθύνσεις

Χαρακτηριστικά φάσματος σχεδιασμού:

Χώρα: ΕΛΛΑΔΑ

Ζώνη: II

$a_{Rg} = 0.24g$

$\Gamma_i(\Sigma) = 1.30$

Κατηγορία εδάφους: B $\Rightarrow S = 1.20$, $T_b = 0.15\text{sec}$, $T_c = 0.50\text{sec}$, $T_d = 2.50\text{sec}$.

Κατηγορία Πλαστιμότητα Χαμηλή (ΚΠΧ)

Συντελεστές συμπεριφοράς: $q_{hx} = 1.20$ $q_{hy} = 1.20$

Μέγιστες τιμές φάσματος: $S_{dx_max} = 2.94 \text{ m/sec}$, $S_{dy_max} = 2.94 \text{ m/sec}$

Περίοδος 1ης ιδιομορφής: $T_{1x} = 0.31 \text{ sec}$, $T_{1y} = 0.72 \text{ sec}$

Σεισμική επιτάχυνση σχεδιασμού: $S_{dx}(T_{1x}) = 2.94 \text{ m/sec}^2$, $S_{dy}(T_{1y}) = 2.94 \text{ m/sec}^2$

Μέθοδος ανάλυσης: Ιδιομορφική ανάλυση φάσματος απόκριση [ΕΚ8 4.3.3.3] (Δυναμική)

Στάθμη 2-ΣΤΑΘΜΗ ΠΟΔΙΑΣ ΑΝΟΙΓΜΑΤΩΝ ΙΣΟΓΕΙΟΥ

$h=0.80\text{m}$ $L_x=46.20\text{m}$ $L_y=37.70\text{m}$

Φορτίο: $W_{\text{μον}} = 15162.39 \text{ KN}$, $W_{\text{κιν}} = 249.71 \text{ KN}$

Μάζα: $M = 1712.4 \text{ Mg}$, $J_m = 520257.1 \text{ Mg.m}^2$, $I_s = 17.43 \text{ m}$

Στάθμη 3-ΟΡΟΦΗ ΙΣΟΓΕΙΟΥ

$h=4.32\text{m}$ $L_x=46.20\text{m}$ $L_y=37.70\text{m}$

Φορτίο: $W_{\text{μον}} = 21789.71 \text{ KN}$, $W_{\text{κιν}} = 4945.16 \text{ KN}$

Μάζα: $M = 2685.3 \text{ Mg}$, $J_m = 717646.5 \text{ Mg.m}^2$, $I_s = 16.35 \text{ m}$

Έλεγχος Δυστηρότητας Κτιρίου

Διαστάσεις: $L_{\text{max}} = 46.20 \text{ m}$, $L_{\text{min}} = 37.70 \text{ m}$

$\lambda = L_{\text{max}}/L_{\text{min}} = 1.23 \leq 4.20 \text{ OK}$

Απόσταση Κέντρου Μάζας (ΚΜ) από Κέντρο Δυσκαμψίας (ΚΔ)

$KM = (23.14, 16.65)$ $KD = (24.69, 26.90)$

$e_{ox} = 1.56 \text{ m}$, $e_{oy} = 10.25 \text{ m}$

$r_x = 18.50 \text{ m}$, $r_y = 6.35 \text{ m}$

Έλεγχοι κατά X-X:

$- r^2 > I_s^2 + e_o^2 \Rightarrow 18.50^2 > 16.35^2 + 1.56^2 \Rightarrow 342.30 \geq 269.68 \text{ OK}$

$- (4.1a): e_o \leq 0.30 \cdot r \Rightarrow 1.56 \leq 0.30 \cdot 18.50 \text{ OK}$

$- (4.1b): r \geq I_s \Rightarrow 18.50 \geq 16.35 \text{ OK}$

Έλεγχοι κατά Y-Y:

$- r^2 > I_s^2 + e_o^2 \Rightarrow 6.35^2 > 16.35^2 + 10.25^2 \Rightarrow 40.31 < 372.29 \text{ ****}$

$- (4.1a): e_o \leq 0.30 \cdot r \Rightarrow 10.25 > 0.30 \cdot 6.35 \text{ ****}$

$- (4.1b): r \geq I_s \Rightarrow 6.35 < 16.35 \text{ ****}$

Εύρεση συντελεστών (5.2) και (5.3):

X-X: $a_{ox} = 0.549 \Rightarrow k_{wx} = 0.516$

Y-Y: $a_{oy} = 0.609 \Rightarrow k_{wy} = 0.536$

Στάθμη 4-ΣΤΑΘΜΗ ΠΟΔΙΑΣ ΑΝΟΙΓΜΑΤΩΝ Α ΟΡΟΦΟΥ

h=5.12m Lx=46.20m Ly=35.08m
Φορτίο: $W_{\mu\omicron\nu} = 13326.50 \text{ KN}$, $W_{\kappa\iota\nu} = 1228.72 \text{ KN}$
Μάζα: $M = 1554.4 \text{ Mg}$, $J_m = 478469.2 \text{ Mg.m}^2$, $I_s = 17.54 \text{ m}$
Έλεγχος Ανυψηρότητας Κτιρίου
Διαστάσεις: $L_{\max} = 46.20 \text{ m}$, $L_{\min} = 35.08 \text{ m}$
 $\lambda = L_{\max}/L_{\min} = 1.32 \leq 4.20 \text{ OK}$
Απόσταση Κέντρου Μάζας (KM) από Κέντρο Δυσκαμψίας (ΚΔ)
 $KM = (21.92, 20.97)$ $K\Delta = (7.37, 26.69)$
 $e_{ox} = 14.55 \text{ m}$, $e_{oy} = 5.72 \text{ m}$
 $r_x = 25.24 \text{ m}$, $r_y = 10.55 \text{ m}$
Έλεγχοι κατά X-X:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 25.24^2 > 17.54^2 + 14.55^2 \Rightarrow 636.98 \geq 519.44 \text{ OK}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 14.55 > 0.30 \cdot 25.24 \text{ ****}$
- (4.1b): $r \geq l_s \Rightarrow 25.24 \geq 17.54 \text{ OK}$
Έλεγχοι κατά Y-Y:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 10.55^2 > 17.54^2 + 5.72^2 \Rightarrow 111.34 < 340.48 \text{ ****}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 5.72 > 0.30 \cdot 10.55 \text{ ****}$
- (4.1b): $r \geq l_s \Rightarrow 10.55 < 17.54 \text{ ****}$
Εύρεση συντελεστών (5.2) και (5.3):
X-X: $a_{ox} = 0.118 \Rightarrow k_{wx} = 0.500$
Y-Y: $a_{ox} = 0.142 \Rightarrow k_{wx} = 0.500$

Στάθμη 5-ΟΡΟΦΗ Α ΟΡΟΦΟΥ

h=8.52m Lx=46.20m Ly=35.08m
Φορτίο: $W_{\mu\omicron\nu} = 18533.18 \text{ KN}$, $W_{\kappa\iota\nu} = 6409.15 \text{ KN}$
Μάζα: $M = 2391.7 \text{ Mg}$, $J_m = 672059.4 \text{ Mg.m}^2$, $I_s = 16.76 \text{ m}$
Έλεγχος Ανυψηρότητας Κτιρίου
Διαστάσεις: $L_{\max} = 46.20 \text{ m}$, $L_{\min} = 35.08 \text{ m}$
 $\lambda = L_{\max}/L_{\min} = 1.32 \leq 4.20 \text{ OK}$
Απόσταση Κέντρου Μάζας (KM) από Κέντρο Δυσκαμψίας (ΚΔ)
 $KM = (23.72, 18.11)$ $K\Delta = (9.26, 21.74)$
 $e_{ox} = 14.46 \text{ m}$, $e_{oy} = 3.64 \text{ m}$
 $r_x = 24.32 \text{ m}$, $r_y = 10.17 \text{ m}$
Έλεγχοι κατά X-X:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 24.32^2 > 16.76^2 + 14.46^2 \Rightarrow 591.29 \geq 490.05 \text{ OK}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 14.46 > 0.30 \cdot 24.32 \text{ ****}$
- (4.1b): $r \geq l_s \Rightarrow 24.32 \geq 16.76 \text{ OK}$
Έλεγχοι κατά Y-Y:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 10.17^2 > 16.76^2 + 3.64^2 \Rightarrow 103.35 < 294.23 \text{ ****}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 3.64 > 0.30 \cdot 10.17 \text{ ****}$
- (4.1b): $r \geq l_s \Rightarrow 10.17 < 16.76 \text{ ****}$
Εύρεση συντελεστών (5.2) και (5.3):
X-X: $a_{ox} = 0.503 \Rightarrow k_{wx} = 0.501$
Y-Y: $a_{ox} = 0.603 \Rightarrow k_{wx} = 0.534$

Στάθμη 6-ΣΤΑΘΜΗ ΠΟΔΙΑΣ ΑΝΟΙΓΜΑΤΩΝ Β ΟΡΟΦΟΥ

h=9.32m Lx=46.20m Ly=35.08m
Φορτίο: $W_{\mu\omicron\nu} = 6622.56 \text{ KN}$, $W_{\kappa\iota\nu} = -0.00 \text{ KN}$
Μάζα: $M = 742.6 \text{ Mg}$, $J_m = 260608.0 \text{ Mg.m}^2$, $I_s = 18.73 \text{ m}$
Έλεγχος Ανυψηρότητας Κτιρίου
Διαστάσεις: $L_{\max} = 46.20 \text{ m}$, $L_{\min} = 35.08 \text{ m}$
 $\lambda = L_{\max}/L_{\min} = 1.32 \leq 4.20 \text{ OK}$
Απόσταση Κέντρου Μάζας (KM) από Κέντρο Δυσκαμψίας (ΚΔ)
 $KM = (23.74, 16.92)$ $K\Delta = (23.83, 27.81)$
 $e_{ox} = 0.09 \text{ m}$, $e_{oy} = 10.90 \text{ m}$
 $r_x = 20.92 \text{ m}$, $r_y = 11.91 \text{ m}$
Έλεγχοι κατά X-X:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 20.92^2 > 18.73^2 + 0.09^2 \Rightarrow 437.49 \geq 350.95 \text{ OK}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 0.09 \leq 0.30 \cdot 20.92 \text{ OK}$
- (4.1b): $r \geq l_s \Rightarrow 20.92 \geq 18.73 \text{ OK}$
Έλεγχοι κατά Y-Y:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 11.91^2 > 18.73^2 + 10.90^2 \Rightarrow 141.75 < 469.73 \text{ ****}$
- (4.1a): $e_o \leq 0.30 \cdot r \Rightarrow 10.90 > 0.30 \cdot 11.91 \text{ ****}$
- (4.1b): $r \geq l_s \Rightarrow 11.91 < 18.73 \text{ ****}$
Εύρεση συντελεστών (5.2) και (5.3):
X-X: Δεν υπάρχουν τοιχώματα. $\Rightarrow k_w = 1.00$
Y-Y: Δεν υπάρχουν τοιχώματα. $\Rightarrow k_w = 1.00$

Στάθμη 7-ΟΡΟΦΗ Β ΟΡΟΦΟΥ

h=12.67m Lx=46.20m Ly=35.08m
Φορτίο: $W_{\mu\omicron\nu} = 12518.94 \text{ KN}$, $W_{\kappa\iota\nu} = 1764.43 \text{ KN}$
Μάζα: $M = 1490.1 \text{ Mg}$, $J_m = 420619.6 \text{ Mg.m}^2$, $I_s = 16.80 \text{ m}$
Έλεγχος Ανυψηρότητας Κτιρίου
Διαστάσεις: $L_{\max} = 46.20 \text{ m}$, $L_{\min} = 35.08 \text{ m}$
 $\lambda = L_{\max}/L_{\min} = 1.32 \leq 4.20 \text{ OK}$
Απόσταση Κέντρου Μάζας (KM) από Κέντρο Δυσκαμψίας (ΚΔ)
 $KM = (23.63, 18.12)$ $K\Delta = (37.40, 32.97)$
 $e_{ox} = 13.77 \text{ m}$, $e_{oy} = 14.85 \text{ m}$
 $r_x = 26.70 \text{ m}$, $r_y = 15.16 \text{ m}$
Έλεγχοι κατά X-X:
- $r^2 > l_s^2 + e_o^2 \Rightarrow 26.70^2 > 16.80^2 + 13.77^2 \Rightarrow 712.93 \geq 471.84 \text{ OK}$

```

- (4.1a): eo <= 0.30*r => 13.77 > 0.30*26.70      ****
- (4.1b): r >= 1s => 26.70 >= 16.80   OK
Ελεγχοι κατά Y-Y:
- r2 > 1s2 + eo2 => 15.162 > 16.802 + 14.852 => 229.79 < 502.80      ****
- (4.1a): eo <= 0.30*r => 14.85 > 0.30*15.16      ****

- (4.1b): r >= 1s => 15.16 < 16.80      ****
Εύρεση συντελεστών (5.2) και (5.3):
X-X: aox = 0.713 => kwx = 0.571
Y-Y: aox = 0.830 => kwx = 0.610

```

Ελεγχος Κανονικότητας σε Όψη								
ΣΤ		h	L	Δ1	Δ2	Δ/L	Δ/Lb	OK
3	X-X	3.52	46.20					
	Y-Y		37.70					
4	X-X	4.32	46.20	0.00	0.00	0.00	0.00	!
	Y-Y		35.08	2.62	0.00	0.07	0.07	!
5	X-X	7.72	46.20	0.00	0.00	0.00	0.00	!
	Y-Y		35.08	0.00	0.00	0.00	0.00	!
6	X-X	8.52	46.20	0.00	0.00	0.00	0.00	!
	Y-Y		35.08	0.00	0.00	0.00	0.00	!
7	X-X	11.87	46.20	0.00	0.00	0.00	0.00	!
	Y-Y		35.08	0.00	0.00	0.00	0.00	!

Επεξηγήσεις:

h ύψος στάθμης από δάπεδο στάθμης βάσης
Δ1-Δ2 πλάτος εσοχών αριστερά-δεξιά
Δ συνολικό πλάτος εσοχών στάθμης Δ=Δ1+Δ2
Δ/L ποσοστό εσοχών ως προς το πλάτος L της από κάτω στάθμης
Δ/Lb ποσοστό εσοχών ως προς το πλάτος Lb της βάσης του κτιρίου

ΔΙΕΥΘΥΝΣΗ X-X: ΤΟ ΚΤΙΡΙΟ ΔΕΝ ΠΛΗΡΕΙ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΝΟΝΙΚΟΤΗΤΑΣ ΣΕ ΚΑΤΩΨΗ
ΔΙΕΥΘΥΝΣΗ Y-Y: ΤΟ ΚΤΙΡΙΟ ΔΕΝ ΠΛΗΡΕΙ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΝΟΝΙΚΟΤΗΤΑΣ ΣΕ ΚΑΤΩΨΗ

ΔΙΕΥΘΥΝΣΗ X-X: ΤΟ ΚΤΙΡΙΟ ΕΙΝΑΙ ΚΑΝΟΝΙΚΟ ΣΕ ΟΨΗ
ΔΙΕΥΘΥΝΣΗ Y-Y: ΤΟ ΚΤΙΡΙΟ ΕΙΝΑΙ ΚΑΝΟΝΙΚΟ ΣΕ ΟΨΗ

Το κτίριο είναι: ΣΤΡΕΠΤΙΚΑ ΕΥΚΑΜΠΤΟ ***

ΥΠΟΛΟΓΙΣΜΟΣ ΣΥΝΤΕΛΕΣΤΩΝ ΣΥΜΠΕΡΙΦΟΡΑΣ qhx, qhy

Διεύθυνση X-X:

ΚΤΙΡΙΟ ΑΠΟ ΤΟΙΧΟΠΟΙΙΑ, κατασκευή από άοπλη τοιχοποιία σύμφωνα με το EN 1998-1
Κατηγορία Πλαστιμότητας Χαμηλή (ΚΠΧ)
Πολύωροφο πολύστυλο πλαίσιο κτίριο, μη κανονικό σε κάτοψη => α1/αυ = 1.00
Μέγιστη επιτρεπόμενη τιμή qo = 1.00*1.20 = 1.20
Επιλέγεται qo = 1.20
q = kw*qo = 1.00*1.20 = 1.20
T1=0.3 μφ = 1+2*(qo-1)*Tc/T1 = 1+2*(1.20-1)*0.50/0.32 = 1.62
T1=0.3 μφ* = 1+2*(2/3*qo-1)*Tc/T1 = 1+2*(0.80-1)*0.50/0.32 = 0.37

Διεύθυνση Y-Y:

ΚΤΙΡΙΟ ΑΠΟ ΤΟΙΧΟΠΟΙΙΑ, κατασκευή από άοπλη τοιχοποιία σύμφωνα με το EN 1998-1
Κατηγορία Πλαστιμότητας Χαμηλή (ΚΠΧ)
Πολύωροφο πολύστυλο πλαίσιο κτίριο, μη κανονικό σε κάτοψη => α1/αυ = 1.00
Μέγιστη επιτρεπόμενη τιμή qo = 1.20*1.00 = 1.20
Επιλέγεται qo = 1.20
q = kw*qo = 1.00*1.20 = 1.20
T1=0.5>=Tc=0.50 => μφ = 2*qo - 1 = 2*1.20 - 1 = 1.40
T1=0.5>=Tc=0.50 => μφ* = 2*2/3*qo - 1 = 2*1.00 - 1 = 1.00

ΔΥΝΑΜΙΚΗ ΑΝΑΛΥΣΗ

ΦΑΣΜΑ ΑΠΟΚΡΙΣΗΣ ΜΕΓΙΣΤΩΝ ΕΠΙΤΑΧΥΝΣΕΩΝ (ΕΥΡΩΚΩΔΙΚΑΣ 8)

ΖΩΝΗ ΣΕΙΣΜΙΚΗΣ ΕΠΙΚΙΝΔΥΝΟΤΗΤΑΣ II
ΚΑΤΗΓΟΡΙΑ ΕΔΑΦΟΥΣ B => S = 1.20, Tb = 0.15sec, Tc = 0.50sec, Td = 2.50sec.
ΚΑΤΗΓΟΡΙΑ ΠΛΑΣΤΙΜΟΤΗΤΑΣ Χαμηλή (ΚΠΧ)
ΣΕΙΣΜΙΚΗ ΕΠΙΤΑΧΥΝΣΗ ΕΔΑΦΟΥΣ agR = 0.24*g
ΣΥΝΤΕΛΕΣΤΗΣ ΣΠΟΥΔΑΙΟΤΗΤΑΣ γI = 1.30
ΣΥΝΤΕΛΕΣΤΗΣ ΣΕΙΣΜΙΚΗΣ ΣΥΜΠΕΡΙΦΟΡΑΣ ... qhx = 1.20, qhy = 1.20
ΜΕΘΟΔΟΣ ΕΠΑΛΛΗΛΙΑΣ ΙΔΙΟΜΟΡΦΙΚΩΝ ΑΠΟΚΡΙΣΕΩΝ : CQC
ΑΡΙΘΜΟΣ ΙΔΙΟΜΟΡΦΩΝ 3375



ΜΕΤΑΚΙΝΗΣΕΙΣ (σε mm) ΚΑΙ ΕΛΕΓΧΟΙ ΑΠΟ ΕΠΙΛΥΣΗ ΜΕ ΔΥΝΑΜΙΚΗ ΑΝΑΛΥΣΗ

ΣΤ	h	L	M	Jm	min	max	eo	r	Is	n	V	Ptot	Θ	γ
	m	m	Mg	Mg.m²	mm	mm	m	m	m		KN	KN		
2 x	0.80	46.20	1712	520257	0.03	0.18	0.20	16.52	17.43	1.00	311711	103755	0.001	0.08
y		37.70			0.03	0.12	6.42	5.67		1.00	31160		0.000	0.06
3 x	3.52	46.20	2685	717647	-2.98	3.37	1.93	18.68	16.35	1.00	30526	86957	0.000	0.01
y		37.70			0.70	1.04	10.32	6.41		1.00	30479		0.001	0.13
4 x	0.80	46.20	1554	478469	-3.78	1.56	14.37	25.12	17.54	1.00	22486	60614	0.005	0.98
y		35.08			0.93	1.30	5.72	10.50		1.00	22784		0.001	0.18
5 x	3.40	46.20	2392	672059	-10.16	2.77	13.85	23.71	16.76	1.00	18749	45365	0.002	0.46
y		35.08			1.12	2.37	4.21	9.91		1.00	19081		0.001	0.11
6 x	0.80	46.20	743	260608	-11.42	4.72	0.09	20.92	18.73	1.00	11968	21903	0.001	0.26
y		35.08			0.87	2.62	10.90	11.91		1.00	11956		0.000	0.00
7 x	3.35	46.20	1490	420620	-8.86	4.23	14.87	27.46	16.80	1.00	8750	14618	0.001	0.19
y		35.08			3.05	4.46	15.14	15.59		1.00	8756		0.001	0.36

Αντισεισμικός Αρμός: x=0.6cm y=0.5cm

Επεξήγηση συμβόλων:

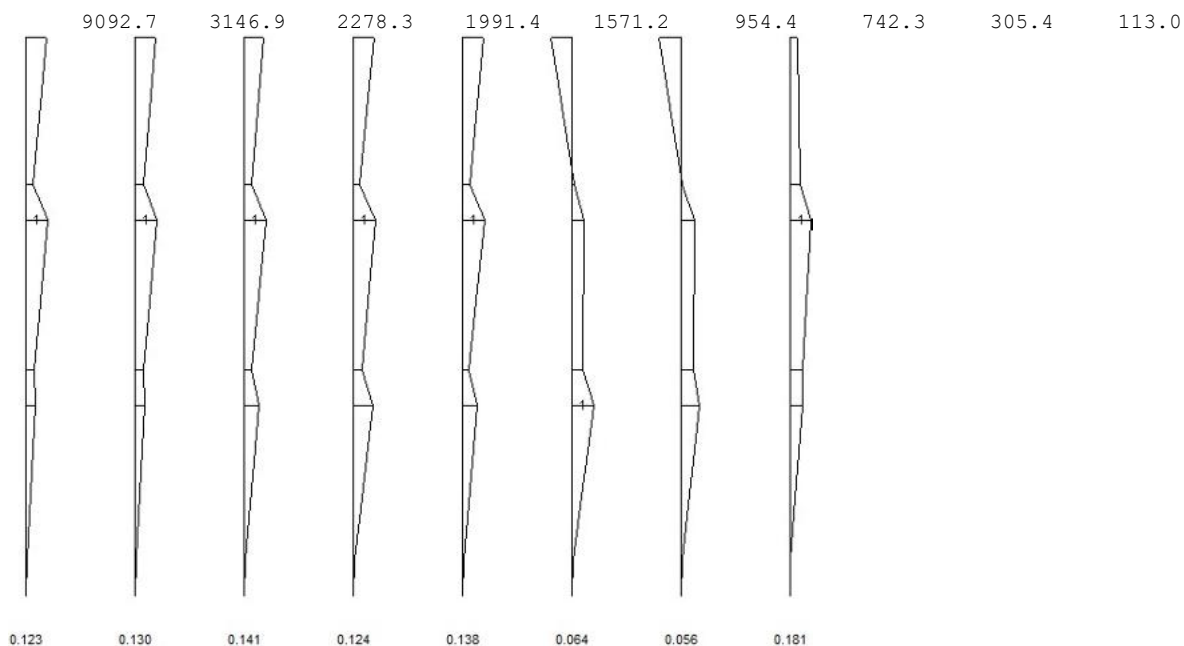
- h = Σχετικό ύψος της άνω παριάς του διαφράγματος ως προς την άνω παριά του διαφράγματος του υποκείμενου ορόφου.
- L = Διαστάσεις ορόφου κατά τη X και τη Y διεύθυνση
- M = Μάζα ορόφου $(G+\psi_2*Q)/9.81$ στο τμήμα της κατασκευής που ορίζεται από το μέσο των υπερκείμενων ως το μέσο των υποκείμενων υποστυλωμάτων.
- Jm = Περιστροφική αδράνεια διαφράγματος
- min = ελάχιστη μετατόπιση ακραίου σημείου διαφράγματος από σεισμική φόρτιση διεύθυνσης X και Y σε mm
- max = μέγιστη μετατόπιση ακραίου σημείου διαφράγματος από σεισμική φόρτιση διεύθυνσης X και Y σε mm
- eo = Στατική εκκεντρότητα (απόσταση μεταξύ του κέντρου δυσκαμψίας και του κέντρου μάζας του ορόφου).
- r = ακτίνα δυστρεψίας (η τετραγωνική ρίζα του λόγου της δυστρεψίας προς την μεταφορική δυσκαμψία στην διεύθυνση y)
- Is = ακτίνα αδρανείας της μάζας της πλάκας ορόφου σε κάτοψη (η τετραγωνική ρίζα του λόγου (α) της πολικής ροπής αδρανείας της μάζας της πλάκας του ορόφου σε κάτοψη, ως προς το κέντρο μάζας της πλάκας του ορόφου προς (β) την μάζα της πλάκας του ορόφου).
- n = Συντελεστής μεγέθυνσης της σεισμικής έντασης των κατακόρυφων στοιχείων σε όροφο με διακοπή τοιχοπληρώσεων (για ΚΠΥ)
- V = Τέμνουσα δύναμη ορόφου από σεισμική φόρτιση διεύθυνσης X και Y σε kN
- Ptot = Συνολικό φορτίο βαρύτητας στη σεισμική κατάσταση σχεδιασμού του ορόφου και των υπερκείμενων ορόφων σε KN
- Θ = Δείκτης σχετικής μεταθετότητας = $P_{tot} \cdot dr / V_{tot} \cdot h \Rightarrow$ Έλεγχος: $\Theta < 0.10$
- γ = Παραμόρφωση ορόφου = $dr \cdot v/h$ όπου $dr = \Rightarrow$ Έλεγχος: $\gamma < 5$
- ΔM = Ποσοστό μεταβολής μάζας ορόφου σε σχέση με τον υπερκείμενο όροφο.
- K = Συνολική διατμητική ακαμψία ορόφου κατά τις διευθύνσεις X και Y σε MN/m
- ΔK = Ποσοστό μεταβολής ακαμψίας ορόφου σε σχέση με τον υπερκείμενο όροφο.

* dr = η τιμή σχεδιασμού της σχετικής μετακίνησης του ορόφου και λαμβάνεται ως η διαφορά των μέσων οριζόντιων μετακινήσεων $ds \cdot q$

ΙΔΙΟΜΟΡΦΙΚΑ ΦΟΡΤΙΑ ΣΕ ΔΙΕΥΘΥΝΣΗ x1

Ni	-8.72	10.06	0.78	9.02	1.70	-0.68	-0.70	2.09	1.44
α/α	10	8	6	9	7	19	24	5	261
T sec	0.123	0.130	0.141	0.124	0.138	0.064	0.056	0.181	0.016
M* %	36.4	12.1	8.3	7.9	5.8	5.5	4.5	1.1	1.0

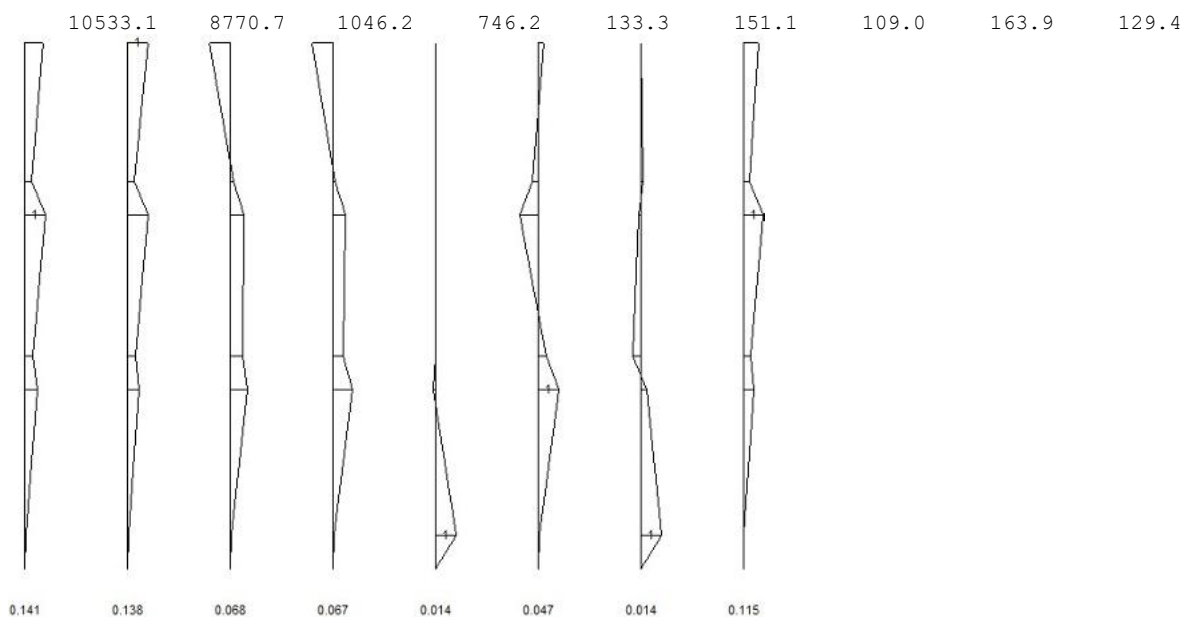
ΣΤ=	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ΣΤ=	2	109.9	37.2	24.6	34.9	14.8	47.2	44.9	121.5
ΣΤ=	3	1293.3	452.1	467.8	495.4	324.7	745.6	513.7	56.9
ΣΤ=	4	1137.7	352.0	216.1	229.2	138.4	365.8	341.2	61.4
ΣΤ=	5	2899.2	992.3	707.5	553.0	474.3	426.6	379.7	101.3
ΣΤ=	6	897.6	392.0	235.8	164.7	165.8	68.9	57.3	50.2
ΣΤ=	7	2755.0	921.2	626.5	514.3	453.3	-699.7	-594.4	33.5



ΙΔΙΟΜΟΡΦΙΚΑ ΦΟΡΤΙΑ ΣΕ ΔΙΕΥΘΥΝΣΗ y1

Ni	-1.67	4.01	-0.96	-0.76	1.14	-0.55	0.77	-2.48	1.10
α/α	3	5	58	80	48	29	25	14	78
T sec	0.141	0.138	0.068	0.067	0.014	0.047	0.014	0.115	0.101
M* %	38.5	32.4	5.8	4.2	1.2	1.0	1.0	0.7	0.6

ΣΤ=	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ΣΤ=	2	125.0	92.5	48.4	37.1	152.3	15.4	117.7	2.2
ΣΤ=	3	1873.6	1448.2	662.3	604.0	-19.9	261.6	31.6	29.3
ΣΤ=	4	1248.0	963.7	473.5	294.7	-0.4	110.8	-42.6	18.9
ΣΤ=	5	3291.4	2657.4	527.5	375.5	1.2	-229.0	-9.4	55.5
ΣΤ=	6	1067.9	914.8	121.6	58.6	0.8	-78.7	12.5	15.9
ΣΤ=	7	2927.2	2694.1	-787.1	-623.6	-0.7	71.0	-0.8	42.2



ΕΛΕΓΧΟΣ ΑΝΑΤΡΟΠΗΣ

Έλεγχος : $\Sigma M_e / (\Sigma M_a \cdot q) > 1$ όπου
 ΣM_e είναι η συνολική ροπή επαναφοράς
 ΣM_a είναι η συνολική ροπή ανατροπής
 q είναι ο συντελεστής συμπεριφοράς
 $\Delta x = 46.40 - -0.48 = 46.88$
 $\Delta y = 35.28 - -3.37 = 38.65$

ΣΤ	Hx Hy	h	Max May	W	KM	Lx1 Ly1	Lx2 Ly2	Mex1 Mey1	Mex2 Mey2
1	0.0	0.00	0.0	51743.8	0.00	0.48	46.40	24578.32400912.0	
	0.0		0.0		0.00	3.37	35.28	174376.61825521.0	
2	645.0	0.80	516.0	6607.2	22.41	22.89	23.99	151227.2	158484.7
	680.7		544.5		17.71	21.08	17.57	139277.0	116090.8
3	8040.4	4.32	34734.6	33806.1	23.17	23.65	23.23	799379.9	785279.5
	7695.2		33243.4		16.68	20.05	18.60	677706.4	628898.0
4	3736.9	5.12	19133.2	7253.5	21.92	22.40	24.48	162467.7	177541.5
	3703.0		18959.6		20.99	24.36	14.29	176692.2	103656.8
5	6780.5	8.52	57769.9	30163.2	23.58	24.05	22.82	725553.2	688346.4
	7124.3		60699.1		18.07	21.44	17.21	646815.5	518991.8
6	3218.1	9.32	29992.2	2783.4	23.74	24.22	22.66	67408.0	63063.4
	3200.7		29830.8		16.92	20.29	18.36	56486.1	51091.9
7	8750.4	12.67	110867.5	18001.1	23.63	24.11	22.77	433966.9	409836.5
	8755.6		110933.7		18.12	21.49	17.16	386784.3	308959.8
	31171.4		253013.6	150358.3				2364581.14683464.0	
	31159.6		254211.2					2258138.03553210.1	

Έλεγχος: $M_e / (M_a \cdot q) > 1$
 $\Sigma A-X: 2364581.1 / (253013.6 \cdot 1.20) = 7.79$
 $\Sigma A-Y: 2258138.0 / (254211.2 \cdot 1.20) = 7.40$

Επεξήγηση συμβόλων

ΣΤ Στάθμη
Hx, Hy Οριζόντιες σεισμικές δυνάμεις σε διεύθυνση σεισμού X και Y αντίστοιχα
h Ύψος στάθμης από επίπεδο θεμελίωσης
Max, May Ροπές ανατροπής ($M_a = H \cdot h$) σε διεύθυνση σεισμού X και Y αντίστοιχα
W Βάρος στάθμης ($G + \phi \cdot \psi_2 \cdot Q$)
KM Κέντρο Μάζας στάθμης (Κέντρο Βάρους)
Lx, Ly Μοχλοβραχίονες ροπών επαναφοράς (απόσταση Κέντρου Βάρους στάθμης από άκρο θεμελίωσης)
Mex, Mey Ροπές επαναφοράς ($M = W \cdot L$)

ΕΙΔΙΚΟΙ ΕΛΕΓΧΟΙ ΓΙΑ ΤΟΙΧΟΠΟΙΙΑ [EN 1991-1, 9.7.2]

ΕΛΕΓΧΟΣ ΜΕΓΙΣΤΟΥ ΑΡΙΘΜΟΥ ΟΡΟΦΩΝ ΕΚΣ ΓΙΑ ΤΟΙΧΟΠΟΙΙΑ

Γεωμετρικές απαιτήσεις (Πιν.9.2):

$t_{ef} \geq 0.24m$
 $h_{ef}/t_{ef} \leq 12.00$
 $L/h \geq 0.40$

ΠΕΣ		L m	t _{ef} m	h _{ef} m	A m ²	A _x m ²	A _y m ²	h _{ef} /t _{ef}	L/h	L>2 m
1	1	2.40	0.60	3.52	1.44	1.44	0.00	5.87	0.68	2.40
2	1	1.90	0.60	3.52	1.14	1.14	0.00	5.87	0.54	-
3	1	2.40	0.60	3.52	1.44	1.44	0.00	5.87	0.68	2.40
4	1	1.75	0.60	3.52	1.05	1.05	0.00	5.87	0.50	-
5	1	1.65	0.60	3.52	0.99	0.99	0.00	5.87	0.47	-
6	1	1.65	0.60	3.52	0.99	0.99	0.00	5.87	0.47	-
7	1	1.65	0.60	3.52	0.99	0.99	0.00	5.87	0.47	-
8	1	2.50	0.60	3.52	1.50	1.50	0.00	5.87	0.71	2.50
9	1	0.95	0.60	3.52	-	-	-	5.87	0.27	-
10	1	0.90	0.60	3.52	-	-	-	5.87	0.26	-
11	1	2.45	0.60	3.52	1.47	1.47	0.00	5.87	0.70	2.45
12	1	1.75	0.60	3.52	1.05	1.05	0.00	5.87	0.50	-
13	1	1.35	0.60	3.52	-	-	-	5.87	0.38	-
14	1	1.55	0.60	3.52	0.93	0.93	0.00	5.87	0.44	-
15	1	1.70	0.60	3.52	1.02	1.02	0.00	5.87	0.48	-
16	1	2.40	0.60	3.52	1.44	1.44	0.00	5.87	0.68	2.40
17	1	1.90	0.60	3.52	1.14	1.14	0.00	5.87	0.54	-
18	1	2.30	0.60	3.52	1.38	1.38	0.00	5.87	0.65	2.30
19	1	5.60	0.60	3.52	3.36	3.36	0.00	5.87	1.59	5.60
20	1	4.65	0.60	3.52	2.79	2.79	0.00	5.87	1.32	4.65
21	1	3.75	0.60	3.52	2.25	2.25	0.00	5.87	1.07	3.75
22	1	3.80	0.60	3.52	2.28	2.28	0.00	5.87	1.08	3.80
23	1	7.00	0.60	3.52	4.20	4.20	0.00	5.87	1.99	7.00
24	1	2.65	0.60	3.52	1.59	1.59	0.00	5.87	0.75	2.65
25	1	2.55	0.60	3.52	1.53	1.53	0.00	5.87	0.72	2.55

26	1	5.00	0.60	3.52	3.00	3.00	0.00	5.87	1.42	5.00
27	1	4.80	0.65	3.52	3.12	3.12	0.00	5.42	1.36	4.80
28	1	3.80	0.65	3.52	2.47	2.47	0.00	5.42	1.08	3.80
29	1	2.40	0.65	3.52	1.56	1.56	0.00	5.42	0.68	2.40
30	1	0.65	0.65	3.52	-	-	-	5.42	0.18	-
31	1	2.15	0.65	3.52	1.40	1.40	0.00	5.42	0.61	2.15
32	1	1.10	0.65	3.52	-	-	-	5.42	0.31	-
33	1	4.50	0.65	3.52	2.93	2.93	0.00	5.42	1.28	4.50
34	1	2.65	0.65	3.52	1.72	1.72	0.00	5.42	0.75	2.65
35	1	1.20	0.60	3.52	-	-	-	5.87	0.34	-
36	1	2.90	0.60	3.52	1.74	1.74	0.00	5.87	0.82	2.90
37	1	3.45	0.60	3.52	2.07	2.07	0.00	5.87	0.98	3.45
38	1	1.65	0.60	3.52	0.99	0.99	0.00	5.87	0.47	-
39	1	1.50	0.60	3.52	0.90	0.90	0.00	5.87	0.43	-
40	1	2.90	0.60	3.52	1.74	1.74	0.00	5.87	0.82	2.90
41	1	11.40	0.60	3.52	6.84	6.84	0.00	5.87	3.24	11.40
42	1	8.80	0.60	3.52	5.28	5.28	0.00	5.87	2.50	8.80
43	1	37.69	0.60	3.52	22.61	22.61	0.00	5.87	10.71	37.69
44	1	4.45	0.60	3.52	2.67	2.67	0.00	5.87	1.26	4.45
45	1	1.95	0.60	3.52	1.17	0.00	1.17	5.87	0.56	-
46	1	1.64	0.60	3.52	0.99	0.00	0.99	5.87	0.47	-
47	1	2.90	0.60	3.52	1.74	0.00	1.74	5.87	0.82	2.90
48	1	1.10	0.60	3.52	-	-	-	5.87	0.31	-
49	1	1.60	0.60	3.52	0.96	0.00	0.96	5.87	0.46	-
50	1	2.29	0.60	3.52	1.38	0.00	1.38	5.87	0.65	2.29
51	1	2.09	0.60	3.52	1.26	0.00	1.26	5.87	0.59	2.09
52	1	1.90	0.60	3.52	1.14	0.00	1.14	5.87	0.54	-
53	1	2.73	0.60	3.52	1.64	0.00	1.64	5.87	0.77	2.73
54	1	8.88	0.60	3.52	5.33	0.00	5.33	5.87	2.52	8.88
55	1	6.30	0.45	3.52	2.83	0.00	2.83	7.82	1.79	6.30
56	1	9.00	0.60	3.52	5.40	0.00	5.40	5.87	2.56	9.00
57	1	1.92	0.95	3.52	1.82	0.00	1.82	3.71	0.55	-
58	1	5.13	0.40	3.52	2.05	0.00	2.05	8.80	1.46	5.13
59	1	6.30	0.65	3.52	4.09	0.00	4.09	5.42	1.79	6.30
60	1	6.70	0.60	3.52	4.02	0.00	4.02	5.87	1.90	6.70
61	1	6.45	0.60	3.52	3.87	0.00	3.87	5.87	1.83	6.45
62	1	1.92	0.60	3.52	1.15	0.00	1.15	5.87	0.55	-
63	1	6.20	0.40	3.52	2.48	0.00	2.48	8.80	1.76	6.20
64	1	6.80	0.60	3.52	4.08	0.00	4.08	5.87	1.93	6.80
65	1	6.20	0.40	3.52	2.48	0.00	2.48	8.80	1.76	6.20
66	1	4.60	0.60	3.52	2.76	0.00	2.76	5.87	1.31	4.60
67	1	5.13	0.35	3.52	1.80	0.00	1.80	10.06	1.46	5.13
68	1	6.80	0.60	3.52	4.08	0.00	4.08	5.87	1.93	6.80
69	1	6.20	0.35	3.52	2.17	0.00	2.17	10.06	1.76	6.20
70	1	3.00	0.60	3.52	1.80	0.00	1.80	5.87	0.85	3.00
71	1	5.33	0.40	3.52	2.13	0.00	2.13	8.80	1.51	5.33
72	1	3.90	0.30	3.52	1.17	1.17	0.00	11.73	1.11	3.90
73	1	2.65	0.30	3.52	0.79	0.79	0.00	11.73	0.75	2.65
74	1	0.60	0.30	3.52	-	-	-	11.73	0.17	-
75	1	3.70	0.60	3.52	2.22	0.00	2.22	5.87	1.05	3.70
76	1	3.10	0.60	3.52	1.86	0.00	1.86	5.87	0.88	3.10
77	1	2.33	0.60	3.52	1.40	0.00	1.40	5.87	0.66	2.33
78	1	0.60	0.57	3.52	-	-	-	6.22	0.17	-
79	1	1.87	0.60	3.52	1.12	0.00	1.12	5.87	0.53	-
80	1	1.43	0.60	3.52	0.86	0.00	0.86	5.87	0.41	-
81	1	2.64	0.60	3.52	1.58	0.00	1.58	5.87	0.75	2.64
82	1	4.68	0.60	3.52	2.81	0.00	2.81	5.87	1.33	4.68
83	1	1.07	0.60	3.52	-	-	-	5.87	0.30	-
84	1	1.60	0.60	3.52	0.96	0.00	0.96	5.87	0.45	-
85	1	1.40	0.60	3.52	-	-	-	5.87	0.40	-
86	1	6.30	0.35	3.52	2.20	0.00	2.20	10.06	1.79	6.30
87	1	4.95	0.40	3.52	1.98	0.00	1.98	8.80	1.41	4.95
88	1	6.70	0.25	3.52	-	-	-	14.08	1.90	-
89	1	2.50	0.65	3.52	1.62	0.00	1.62	5.42	0.71	2.50
90	1	3.40	0.60	3.52	2.04	2.04	0.00	5.87	0.97	3.40
91	1	0.56	0.56	3.52	-	-	-	6.29	0.16	-
92	1	0.56	0.56	3.52	-	-	-	6.29	0.16	-
93	1	0.56	0.56	3.52	-	-	-	6.29	0.16	-
94	1	0.56	0.56	3.52	-	-	-	6.29	0.16	-
97	1	6.35	0.60	3.52	3.81	0.00	3.81	5.87	1.80	6.35
98	1	10.10	0.60	3.52	6.06	6.06	0.00	5.87	2.87	10.10
99	1	3.10	0.60	3.52	1.86	0.00	1.86	5.87	0.88	3.10
100	1	11.50	0.60	3.52	6.90	6.90	0.00	5.87	3.27	11.50
101	1	8.85	0.55	3.52	4.87	0.00	4.87	6.40	2.51	8.85
102	1	8.85	0.55	3.52	4.87	0.00	4.87	6.40	2.51	8.85
103	1	10.45	0.60	3.52	6.27	6.27	0.00	5.87	2.97	10.45
104	1	3.10	0.60	3.52	1.86	0.00	1.86	5.87	0.88	3.10
105	1	11.30	0.60	3.52	6.78	6.78	0.00	5.87	3.21	11.30
106	1	6.78	0.60	3.52	4.07	0.00	4.07	5.87	1.93	6.78
107	1	8.85	0.50	3.52	4.42	0.00	4.42	7.04	2.51	8.85
108	1	5.45	0.30	3.52	1.64	0.00	1.64	11.73	1.55	5.45
109	1	11.85	0.50	3.52	5.92	5.92	0.00	7.04	3.37	11.85
110	1	6.35	0.25	3.52	-	-	-	14.08	1.80	-

111	1	11.50	0.25	3.52	-	-	-	14.08	3.27	-
112	1	0.90	0.60	3.52	-	-	-	5.87	0.26	-
113	1	8.85	0.30	3.52	2.66	0.00	2.66	11.73	2.51	8.85
		440.40			246.24	132.95	113.30			
		405.91								

Ποσοστό τοίχων με μήκος L>2m: pL2 = 405.91/440.40 = 92.2 % > 70%
lan = L_tot/N = 440.40/92 = 4.79m
k = min(2, 1+(lan-2)/4) = min(2, 1+(4.79-2)/4) = min(2, 1.70) = 1.70
ag*S = 0.12*1.20 = 0.14g < 0.10*1.70g = 0.17g
Για Αοπλη τοιχοποιία και αριθμό ορόφων 5, από τη στήλη 2 του Πίν.9.3 έχουμε:
-> Ελάχιστο ποσοστό επιφάνειας τοίχων ανά διεύθυνση: p_min = 8.00 %
Εμβαδόν ορόφου A = Lx*Ly = 46.20*37.70 = 1741.74 m²
Ποσοστό τοίχων με διεύθυνση X: px = 100*132.95/1741.74 = 7.63% < 8.00%
Θα πρέπει να αυξηθεί η επιφάνεια των τοίχων
Ποσοστό τοίχων με διεύθυνση Y: py = 100*113.30/1741.74 = 6.50% < 8.00%
Θα πρέπει να αυξηθεί η επιφάνεια των τοίχων

ΕΛΕΓΧΟΣ ΔΙΑΣΤΑΣΕΩΝ ΚΤΙΡΙΟΥ

Διαστάσεις κτιρίου Lx = 46.20m, Ly = 37.70m
λ = 37.70/46.20 = 0.82 >= 0.25 => OK

ΕΛΕΓΧΟΣ ΛΕΙΤΟΥΡΓΙΚΟΤΗΤΑΣ ΔΟΚΩΝ

ΣΤΑΘΜΗ 3

Δ	L m	qD KN/m	qL KN/m	ΣΦ	w1 mm	w2 mm	wmax mm	w mm	L/250 mm	k
1-2	2.13	2.14	4.00	1	0.52	0.34	0.53	0.10	8.50	0.012
				2	0.45	0.26	0.46	0.10		
3-4	3.77	11.94	17.39	1	0.34	0.53	0.84	0.40	15.10	0.026
				2	0.26	0.41	0.57	0.23		
5	0.84	15.63	17.39	1	0.53	0.56	0.56	0.01	3.36	0.005
				2	0.41	0.45	0.45	0.02		
8	5.98	6.32	4.00	1	0.30	0.42	0.86	0.50	23.92	0.021
				2	0.24	0.36	0.68	0.37		
9	3.25	5.86	4.00	1	0.29	0.57	0.57	0.14	13.00	0.011
				2	0.24	0.41	0.41	0.09		
10	3.25	3.47	4.00	1	0.57	0.58	0.62	0.05	13.00	0.003
				2	0.41	0.41	0.44	0.03		
11	3.34	5.86	4.00	1	0.58	0.30	0.58	0.14	13.36	0.010
				2	0.41	0.24	0.41	0.09		
12	1.82	6.87	12.02	1	0.48	0.15	0.48	0.16	7.26	0.023
				2	0.38	0.11	0.38	0.13		
13	2.50	6.87	12.02	1	0.15	0.14	0.15	0.01	10.00	0.001
				2	0.11	0.10	0.11	0.00		
14	1.82	11.59	12.02	1	0.14	0.41	0.41	0.14	7.26	0.019
				2	0.10	0.32	0.32	0.11		
15	2.60	4.73	7.88	1	0.37	0.35	0.41	0.05	10.40	0.005
				2	0.30	0.28	0.32	0.03		
16	2.00	4.73	7.88	1	0.35	0.39	0.39	0.02	8.00	0.002
				2	0.28	0.31	0.31	0.01		
17	2.75	7.99	7.88	1	0.39	0.75	0.75	0.18	11.00	0.017
				2	0.31	0.58	0.58	0.14		
18-21	7.13	7.20	4.00	1	0.40	0.66	0.72	0.19	28.50	0.007
				2	0.34	0.52	0.57	0.14		
26	4.17	14.50	4.00	1	0.54	0.44	0.77	0.28	16.70	0.017
				2	0.43	0.33	0.66	0.28		
27	3.59	5.66	4.24	1	0.53	0.40	0.54	0.07	14.36	0.005
				2	0.45	0.31	0.45	0.07		
28	4.09	14.33	21.77	1	0.35	0.34	0.37	0.03	16.36	0.002
				2	0.26	0.26	0.27	0.01		
29	4.20	6.76	14.86	1	0.35	0.37	2.11	1.75	16.80	0.104
				2	0.26	0.26	1.18	0.92		
30	4.17	5.00	4.00	1	0.50	0.53	1.05	0.53	16.70	0.032
				2	0.42	0.45	0.96	0.53		
31	4.17	5.00	4.00	1	0.72	0.53	1.14	0.51	16.70	0.031
				2	0.57	0.41	0.99	0.50		
32	5.98	6.29	4.00	1	0.29	0.39	0.80	0.46	23.92	0.019
				2	0.24	0.33	0.63	0.34		
33	5.32	11.43	10.66	1	0.57	0.95	1.76	1.00	21.28	0.047
				2	0.41	0.73	1.18	0.61		
34	5.32	11.49	10.75	1	0.58	0.93	1.77	1.01	21.28	0.048
				2	0.41	0.71	1.18	0.62		

ΣΤΑΘΜΗ 5

Δ	L m	qD KN/m	qL KN/m	ΣΦ	w1 mm	w2 mm	wmax mm	w mm	L/250 mm	k
5	7.49	7.41	7.02	1	0.93	1.30	29.20	28.08	29.96	0.937
				2	0.69	1.06	15.22	14.34		
9	4.63	5.86	2.06	1	0.87	0.67	0.98	0.21	18.50	0.011

				2	0.70	0.57	0.80	0.16		
10	1.13	52.57	15.44	1	0.67	0.61	0.67	0.03	4.50	0.006
				2	0.57	0.52	0.57	0.03		
11	2.33	0.00	3.28	1	0.61	0.57	0.61	0.02	9.32	0.004
				2	0.52	0.45	0.52	0.03		
12	2.57	9.58	1.16	1	0.57	0.80	0.80	0.11	10.28	0.011
				2	0.45	0.66	0.66	0.11		
13	1.10	75.55	38.33	1	0.80	0.85	0.85	0.03	4.40	0.006
				2	0.66	0.70	0.70	0.02		
17	4.20	5.02	0.00	1	0.56	0.85	1.01	0.30	16.80	0.018
				2	0.45	0.70	0.88	0.30		
18	4.20	2.44	0.00	1	0.61	0.77	1.14	0.45	16.80	0.028
				2	0.52	0.64	1.05	0.47		
19	4.20	2.47	0.00	1	0.80	0.97	1.35	0.46	16.80	0.029
				2	0.66	0.80	1.21	0.48		
20	4.53	4.94	5.03	1	0.63	0.88	1.12	0.37	18.12	0.020
				2	0.53	0.70	0.78	0.16		
21	4.53	6.10	5.16	1	0.71	0.88	1.26	0.47	18.12	0.026
				2	0.61	0.71	0.91	0.25		
23-24	5.94	3.03	2.20	1	0.75	1.31	1.47	0.44	23.76	0.019
				2	0.63	1.08	1.14	0.28		
25-26	6.04	3.04	2.07	1	0.98	1.41	1.66	0.46	24.16	0.019
				2	0.80	1.19	1.29	0.30		
30	8.52	10.28	6.37	1	0.83	0.82	1.53	0.70	34.10	0.021
				2	0.67	0.73	1.13	0.43		
34	4.00	4.10	2.33	1	0.85	0.88	0.95	0.08	16.00	0.005
				2	0.70	0.72	0.77	0.05		
36	7.10	6.24	5.95	1	1.11	1.41	5.77	4.51	28.40	0.159
				2	0.87	1.10	3.17	2.19		
37	7.55	10.69	9.57	1	4.52	1.22	4.52	1.65	30.19	0.055
				2	3.69	0.93	3.69	1.38		
38	7.55	6.60	3.49	1	0.90	0.80	1.22	0.37	30.20	0.012
				2	0.81	0.69	1.00	0.25		

ΣΤΑΘΜΗ 7

Δ	L m	qD KN/m	qL KN/m	ΣΦ	w1 mm	w2 mm	wmax mm	w mm	L/250 mm	k
6	4.73	6.09	1.26	1	0.83	1.07	1.25	0.30	18.92	0.016
				2	0.72	0.88	1.04	0.24		
7	4.73	6.33	1.12	1	0.87	1.06	1.47	0.51	18.92	0.027
				2	0.76	0.87	1.25	0.43		
9	4.90	6.85	1.29	1	0.91	1.32	1.81	0.69	19.60	0.035
				2	0.78	1.05	1.49	0.57		
10	4.25	5.81	1.02	1	1.32	1.49	1.70	0.30	17.00	0.018
				2	1.05	1.23	1.40	0.26		
11	4.90	6.26	1.23	1	1.13	1.60	2.01	0.64	19.60	0.033
				2	0.94	1.26	1.63	0.53		
12	4.25	5.25	1.00	1	1.60	1.61	1.87	0.27	17.00	0.016
				2	1.26	1.42	1.58	0.24		
15	2.55	0.00	0.00	1	1.54	3.04	3.04	0.00	10.22	0.000
				2	1.41	2.21	2.21	0.00		
17	5.20	20.13	3.69	1	8.51	0.94	8.51	7.56	20.80	0.364
				2	7.19	0.84	7.19	6.35		
19	5.29	7.74	0.91	1	1.57	1.84	2.29	0.58	21.16	0.028
				2	1.25	1.66	2.00	0.55		
22	2.55	46.89	37.36	1	2.16	2.62	2.62	0.00	10.22	0.000
				2	1.78	2.01	2.01	0.00		
23	7.10	10.17	1.69	1	1.32	1.60	7.02	5.56	28.40	0.196
				2	1.05	1.26	5.97	4.81		
25	7.55	14.83	2.38	1	1.15	1.23	5.86	4.67	30.20	0.155
				2	1.03	1.07	5.06	4.01		
26	8.45	7.40	4.41	1	2.62	1.85	6.54	4.31	33.80	0.127
				2	2.01	1.45	4.43	2.70		
27	8.45	7.19	4.35	1	3.04	1.77	7.06	4.66	33.80	0.138
				2	2.21	1.38	4.67	2.88		
28	5.89	12.78	6.16	1	1.48	1.08	3.41	2.13	23.56	0.090
				2	1.16	0.85	2.41	1.41		
30	8.44	9.25	1.83	1	1.12	0.87	6.15	5.16	33.76	0.153
				2	0.97	0.76	5.16	4.30		
31	4.73	8.38	1.49	1	0.80	1.02	1.36	0.44	18.92	0.023
				2	0.72	0.85	1.16	0.38		
32	9.15	3.69	0.53	1	0.80	0.60	3.35	2.65	36.60	0.072
				2	0.72	0.56	2.97	2.33		
33	5.54	6.00	1.11	1	1.24	1.13	1.77	0.59	22.16	0.027
				2	1.03	0.92	1.47	0.49		
34	3.02	0.00	0.00	1	0.95	8.51	8.51	3.78	12.08	0.313
				2	0.80	7.19	7.19	3.19		
35	5.55	20.66	3.91	1	8.51	29.52	29.52	10.51	22.20	0.473
				2	7.19	25.03	25.03	8.92		
36	6.40	25.56	4.70	1	29.52	4.29	30.09	13.19	25.60	0.515
				2	25.03	3.90	25.53	11.07		
41	9.00	5.59	0.70	1	0.80	1.08	3.54	2.60	36.00	0.072
				2	0.76	0.93	3.01	2.16		

42	7.64	15.68	2.27	1	1.20	1.13	1.70	0.53	30.56	0.017
				2	1.03	0.96	1.46	0.46		
43	5.44	11.49	1.87	1	1.71	1.06	2.41	1.03	21.76	0.047
				2	1.39	0.88	2.02	0.88		
44-45	5.45	13.66	2.47	1	1.64	0.99	2.93	1.62	21.80	0.074
				2	1.41	0.83	2.49	1.37		
46	5.55	6.43	1.23	1	0.99	0.93	1.46	0.50	22.20	0.023
				2	0.82	0.78	1.21	0.42		
52	2.13	1.19	0.09	1	1.21	0.91	1.21	0.30	8.50	0.035
				2	1.08	0.78	1.08	0.30		
53	7.10	7.28	1.60	1	0.91	1.13	3.46	2.44	28.40	0.086
				2	0.78	0.94	2.84	1.98		
54	1.57	2.72	0.00	1	1.13	1.46	1.46	0.33	6.30	0.059
				2	0.94	1.31	1.31	0.37		
57	2.09	0.00	0.00	1	1.16	1.49	1.49	0.16	8.36	0.020
				2	0.99	1.23	1.23	0.12		
58	1.25	151.10	66.21	1	1.49	2.16	2.16	0.34	5.00	0.067
				2	1.23	1.78	1.78	0.28		
59	4.15	16.62	6.08	1	2.16	1.54	2.45	0.60	16.60	0.036
				2	1.78	1.41	2.08	0.48		
60	1.70	0.00	13.08	1	1.54	1.61	1.61	0.04	6.80	0.005
				2	1.41	1.42	1.42	0.00		
61	1.57	253.41	19.54	1	1.61	2.10	2.11	0.25	6.30	0.041
				2	1.42	1.93	1.93	0.26		
62	8.45	8.99	4.58	1	1.39	0.87	6.02	4.89	33.80	0.145
				2	1.12	0.73	4.16	3.23		
63	8.45	8.10	7.15	1	1.49	0.86	7.12	5.95	33.80	0.176
				2	1.12	0.70	4.09	3.19		

ΕΠΕΞΗΓΗΣΗ ΣΥΜΒΟΛΩΝ

w1, w2 : οι κατακόρυφες μετακινήσεις των δύο άκρων της δοκού

wMax : η μέγιστη κατακόρυφη μετακίνηση στο άνοιγμα

w = wMax - (w1+w2)/2 : Βέλος κάμψης

k = w/(L/250) < 1: Έλεγχος Οριακής Κατάστασης Λειτουργικότητας (ΟΚΛ)

Συνδυασμός φόρτισης 1: G + Q + Χιόνι

Συνδυασμός φόρτισης 2: G + Άνεμος

ΕΛΕΓΧΟΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ

Συνδυασμοί φορτίσεων

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1  1.35*G + 1.50*Q
2  1.35*G + 1.50*Q + 0.75*Sn + 0.90*W1
3  1.35*G + 1.50*Q + 0.75*Sn + 0.90*W2
4  1.35*G + 1.50*Q + 0.75*Sn + 0.90*W3
5  1.35*G + 1.50*Q + 0.75*Sn + 0.90*W4
6  1.35*G + 1.05*Q + 0.75*Sn + 1.50*W1
7  1.35*G + 1.05*Q + 0.75*Sn + 1.50*W2
8  1.35*G + 1.05*Q + 0.75*Sn + 1.50*W3
9  1.35*G + 1.05*Q + 0.75*Sn + 1.50*W4
10 1.35*G + 1.05*Q + 1.50*Sn + 0.90*W1
11 1.35*G + 1.05*Q + 1.50*Sn + 0.90*W2
12 1.35*G + 1.05*Q + 1.50*Sn + 0.90*W3
13 1.35*G + 1.05*Q + 1.50*Sn + 0.90*W4
14 1.35*G + 1.50*W1
15 1.35*G + 1.50*W2
16 1.35*G + 1.50*W3
17 1.35*G + 1.50*W4
18 G + 1.50*W1
19 G + 1.50*W2
20 G + 1.50*W3
21 G + 1.50*W4
22 1.35*G + 1.50*Q + 0.75*Sn
23 1.35*G + 1.05*Q + 1.50*Sn
24 1.10*G + ψ2*Q + ny*( + 1.10*Σx1 + 0.33*Σy1)
25 1.10*G + ψ2*Q + ny*( + 1.10*Σx1 - 0.33*Σy1)
26 1.10*G + ψ2*Q + ny*( - 1.10*Σx1 - 0.33*Σy1)
27 1.10*G + ψ2*Q + ny*( - 1.10*Σx1 + 0.33*Σy1)
28 1.10*G + ψ2*Q + ny*( + 0.33*Σx1 + 1.10*Σy1)
29 1.10*G + ψ2*Q + ny*( - 0.33*Σx1 + 1.10*Σy1)
30 1.10*G + ψ2*Q + ny*( - 0.33*Σx1 - 1.10*Σy1)
31 1.10*G + ψ2*Q + ny*( + 0.33*Σx1 - 1.10*Σy1)
32 1.10*G + ψ2*Q + ny*( + 1.10*Σx2 + 0.33*Σy2)

33 1.10*G + ψ2*Q + ny*( + 1.10*Σx2 - 0.33*Σy2)
34 1.10*G + ψ2*Q + ny*( - 1.10*Σx2 - 0.33*Σy2)
35 1.10*G + ψ2*Q + ny*( - 1.10*Σx2 + 0.33*Σy2)
36 1.10*G + ψ2*Q + ny*( + 0.33*Σx2 + 1.10*Σy2)
37 1.10*G + ψ2*Q + ny*( - 0.33*Σx2 + 1.10*Σy2)
38 1.10*G + ψ2*Q + ny*( - 0.33*Σx2 - 1.10*Σy2)
39 1.10*G + ψ2*Q + ny*( + 0.33*Σx2 - 1.10*Σy2)
40 G + Q
41 1.10*G + 0.60*Q

```

όπου ψ_2 , n_x , n_y ορίζονται ανά σιάθμη, καθώς
κι ο συντελεστής μάζας μεταβλητών δράσεων ϕ :

$\Sigma\tau$	ϕ	ψ_2	n_x	n_y
1	0.800	1.000	1.00	1.000
2	0.800	0.600	1.00	1.000
3	0.800	0.600	1.00	1.000
4	0.800	0.600	1.00	1.000
5	0.800	0.600	1.00	1.000
6	0.800	0.600	1.00	1.000
7	0.800	0.600	1.00	1.000

Διάτμηση

Η τέμνουσα σχεδιασμού υπολογίζεται ανά διεύθυνση ως εξής:

V_{max} = μέγιστη τέμνουσα από όλους τους συνδυασμούς

$V_k = (M1d + M2d) / l_{cl}$

$V_s = V_g + \psi_2 \cdot V_q$

l_{cl} = το καθαρό ύψος του υποστυλώματος

$M1d = \gamma_{RD} \cdot k_1 \cdot M_{rc}$

$M2d = \gamma_{RD} \cdot k_2 \cdot M_{rc}$

$k_1 = \min(1, \Sigma M_{rb} / \Sigma M_{rc})$ στην κεφαλή

$k_2 = \min(1, \Sigma M_{rb} / \Sigma M_{rc})$ στον πόδα

$V_{ed} = V_s + V_k$

$V_{sd} = \max(V_{max}, V_k)$

ΕΛΕΓΧΟΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ ΣΤΑΘΜΗΣ 2 (ΣΤΑΘΜΗ ΠΟΔΙΑΣ ΑΝΟΙΓΜΑΤΩΝ ΙΣΟΓΕΙΟΥ z=0.80m)

ΥΛΙΚΑ ΥΠΟ/ΤΩΝ: C20/1.30=15.40MPa S220/1.20=183MPa συνδ. S220/1.20=MPa

ΕΠΙΚΑΛΥΨΗ ΟΠΛΙΣΜΩΝ: $c = 25\text{mm}$

ΥΠΟΕΤΥΛΩΜΑ 95

Tφ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-256	-262	0.1	0.1	2.8	6.2	-0.0	4.3	-0.0
Q	-77	-77	0.1	0.2	0.7	1.6	0.0	1.1	-0.0
$\Sigma x1$	-64	-64	0.6	0.7	21.6	34.8	0.1	16.5	-0.0
$\Sigma y1$	119	119	-36.4	-45.3	-7.8	-12.6	-11.1	-6.0	0.1
$\Sigma x2$	-31	-31	-1.7	-2.1	12.5	20.1	-0.5	9.5	0.1
$\Sigma y2$	78	78	-34.1	-42.5	3.0	4.9	-10.5	2.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-1	-1	0.0	-0.0	0.6	0.9	-0.0	0.4	-0.0
W2	1	1	0.0	0.0	-0.6	-0.9	0.0	-0.4	0.0
W3	3	3	-1.2	-1.5	-0.0	-0.0	-0.4	-0.0	0.0
W4	-3	-3	1.1	1.4	0.0	0.0	0.3	0.0	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.31 \cdot 15385 = 4119.2 \text{ KN}$, $N_{sd_min}(31) = -482.7 \text{ KN}$

=> $N_{sd}/N_{rd} = 0.117$

$N_s = -469.5$ $v_{ds} = 0.097 < 1.00$

x-x: $N_s = -334.5$ $N_{ex} = 0.0$ $N_{ox} = -334.5$ $v_{d_ex} = 0.069 < 0.65$

y-y: $N_s = -334.5$ $N_{ey} = 151.7$ $N_{oy} = -486.2$ $v_{d_ey} = 0.100 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78 / \sqrt{v_{d}} = 34.6$

άξονας	$\beta \cdot l_{col} = l_0$	I_c	A_c	i	λ
x-x	$0.00 \cdot 0.00 = 0.00$	0.01029	0.315	0.181	0.0 OK
y-y	$0.00 \cdot 0.00 = 0.00$	0.00425	0.315	0.116	0.0 OK

Ελεγχος σε κάμψη

	$\Sigma\phi$	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -31:	-486.2		50.3	33.2	213.0	140.5	0.24
Pmax 29:	-175.9		-40.1	-12.2	-192.9	-58.7	0.21
Mxmin -29:	-182.8		-49.8	-17.5	-190.8	-67.1	0.26
Mxmax -31:	-486.2		50.3	33.2	213.0	140.5	0.24
Mymin -27:	-224.7		-15.5	-34.6	-67.2	-149.7	0.23
Mymax -25:	-444.3		15.9	50.2	57.0	179.5	0.28

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 25.5 \text{ KN}$, $V_{maxY} = 12.3 \text{ KN}$

Y95 O95 45/70 H=0.80m

x-x: σκέλη συνδ.=5 $\rho_w=1.80\%$ $V_{rdc}=79$ $V_{rdMax}=1204$ $V_{rds}=93$ $V_{sd}=26$

y-y: σκέλη συνδ.=3 $\rho_w=1.68\%$ $V_{rdc}=44$ $V_{rdMax}=1204$ $V_{rds}=87$ $V_{sd}=12$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=20.0\text{MPa}$, $f_{yk}=220.0\text{MPa}$, συνδετ. $f_{yk}=220.0\text{MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4x 1\phi 18 + 6\phi 18 = 25.45\text{cm}^2 \geq A_{s_απαιτ.} = 7.12\text{cm}^2$ $\lambda = 0.28$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2x \phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(25.5\text{KN}, \cot\theta=2.50) = 1.08\text{cm}^2 \text{ OK}$

y-y: $A_{w_υπαρχ.} = 2x \phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(12.3\text{KN}, \cot\theta=2.50) = 0.33\text{cm}^2 \text{ OK}$

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.069 \cdot 0.001100)$$

$$= 19.33$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [19.329 + 2] / 3 = 7.11$$

y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.100 \cdot 0.001100)$$

$$= 13.30$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [13.298 + 2] / 3 = 5.10$$

ΥΠΟΣΤΥΛΩΜΑ 96

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-237	-244	0.1	0.1	-1.9	-4.4	0.0	-3.2	-0.0
Q	-74	-74	0.1	0.2	-0.5	-1.1	0.1	-0.8	-0.0
Σx1	49	49	-0.2	-0.3	21.4	34.3	-0.1	16.1	-0.0
Σy1	59	59	-34.6	-43.2	-7.9	-12.8	-10.8	-6.3	0.1
Σx2	27	27	0.7	0.9	12.3	19.7	0.2	9.2	0.1
Σy2	88	88	-35.3	-44.2	2.7	4.0	-11.1	1.7	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	1	1	-0.0	-0.0	0.6	0.9	-0.0	0.4	-0.0
W2	-1	-1	0.0	0.0	-0.6	-0.9	0.0	-0.4	0.0
W3	2	2	-1.2	-1.5	-0.1	-0.1	-0.4	-0.1	0.0
W4	-2	-2	1.1	1.4	0.1	0.1	0.3	0.1	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.31 \cdot 15385 = 4119.2 \text{ KN}$, $N_{sd_min}(5) = -436.8 \text{ KN}$

$\Rightarrow N_{sd}/N_{rd} = 0.106$

$N_s = -439.5$ $v_{ds} = 0.091 < 1.00$

x-x: $N_s = -312.2$ $N_{ex} = 0.0$ $Nox = -312.2$ $vd_ex = 0.064 < 0.65$

y-y: $N_s = -312.2$ $N_{ey} = 105.4$ $Noy = -417.6$ $vd_ey = 0.086 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78 / \sqrt{v_d} = 35.8$

άξονας	$\beta \cdot I_{col} = I_o$	I_c	A_c	i	λ
x-x	$0.00 \cdot 0.00 = 0.00$	0.01029	0.315	0.181	0.0 OK
y-y	$0.00 \cdot 0.00 = 0.00$	0.00425	0.315	0.116	0.0 OK

Ελεγχος σε κάμψη

ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -5:	-441.1	1.7	-7.6	40.5	-179.2	0.04
Pmax 36:	-199.8	-38.5	4.6	-211.1	25.5	0.18
Mxmin -37:	-224.5	-48.6	-7.6	-216.0	-33.7	0.23
Mxmax -39:	-399.9	49.2	-3.5	264.7	-18.8	0.19
Mymin -27:	-347.1	-13.7	-47.5	-47.9	-166.3	0.29
Mymax -25:	-277.3	14.2	36.4	61.4	157.4	0.23

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 23.7 \text{ KN}$, $V_{maxY} = 12.3 \text{ KN}$

Y96 O96 45/70 H=0.80m

x-x: σκέλη συνδ.=5 $\rho_w=1.80\%$ $V_{rdc}=75$ $V_{rdMax}=1204$ $V_{rds}=93$ $V_{sd}=24$

y-y: σκέλη συνδ.=3 $\rho_w=1.68\%$ $V_{rdc}=47$ $V_{rdMax}=1204$ $V_{rds}=87$ $V_{sd}=12$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=20.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, $\sigma_{yk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4x 1\Phi 18 + 6\Phi 18 = 25.45 \text{ cm}^2 \geq A_{s_απαιτ.} = 7.27 \text{ cm}^2$ $\lambda = 0.29$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2x \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(23.7 \text{ KN}, \cot\theta=2.50) = 1.00 \text{ cm}^2$ OK

y-y: $A_{w_υπαρχ.} = 2x \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(12.3 \text{ KN}, \cot\theta=2.50) = 0.33 \text{ cm}^2$ OK

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.064 \cdot 0.001100)$$

$$= 20.71$$

$\mu_d = [\mu(1/r) + 2] / 3 = [20.710 + 2] / 3 = 7.57$

y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.086 \cdot 0.001100)$$

$$= 15.48$$

$\mu_d = [\mu(1/r) + 2] / 3 = [15.481 + 2] / 3 = 5.83$

ΥΠΟΣΤΥΛΩΜΑ 114

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-345	-348	-0.0	-0.1	-0.8	-1.9	-0.0	-1.4	0.0
Q	-91	-91	0.0	-0.0	-0.3	-0.7	-0.0	-0.5	-0.0
Σx1	-78	-78	0.0	0.0	7.9	12.3	0.0	5.5	-0.0
Σy1	-29	-29	-5.9	-7.4	-0.5	-0.1	-1.9	0.5	0.0
Σx2	-57	-57	0.0	0.1	5.1	8.0	0.0	3.5	0.0

Σy2	-59	-59	-6.1	-7.6	2.8	5.0	-1.9	2.8	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-2	-2	-0.0	-0.0	0.2	0.3	-0.0	0.1	-0.0
W2	2	2	0.0	0.0	-0.2	-0.3	0.0	-0.1	0.0
W3	-1	-1	-0.2	-0.2	0.0	0.0	-0.1	0.0	0.0
W4	1	1	0.2	0.2	-0.0	-0.0	0.1	-0.0	-0.0

Ελεγχος σε θλίψη

Nrd = $0.85 \cdot A_c \cdot f_{cd}$ = $0.85 \cdot 0.16 \cdot 15385$ = 2092.3 KN, Nsd_min(2) = -606.3 KN
=> Nsd/Nrd = 0.290
Ns = -606.7 vds = $0.246 < 1.00$
x-x: Ns = -437.6 Nex = 0.0 Nox = -437.6 vd_ex = $0.178 < 0.65$
y-y: Ns = -437.6 Ney = -46.1 Noy = -483.7 vd_ey = $0.197 < 0.65$

Ελεγχος σε λυγισμό

λmax = $10.78 / \sqrt{v_d}$ = 21.7
άξονας β*lcol = lo Ic Ac i λ
x-x 0.00*0.00 = 0.00 0.00171 0.160 0.103 0.0 OK
y-y 0.00*0.00 = 0.00 0.00171 0.160 0.103 0.0 OK

Ελεγχος σε κάμψη

ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -2:	-608.5	-0.1	-3.4	-4.8	-162.3	0.02
Pmax 26:	-338.8	1.9	-9.6	27.6	-138.6	0.07
Mxmin -37:	-483.7	-8.4	0.3	-153.7	5.8	0.05
Mxmax -39:	-391.5	8.3	-5.5	117.2	-77.1	0.07
Mymin -27:	-361.7	-2.5	-16.1	-22.3	-142.2	0.11
Mymax -25:	-513.5	2.4	11.0	32.9	151.9	0.07
-26:	-342.3	2.4	-16.1	20.8	-140.6	0.11

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 8.0 KN, VmaxY = 2.2 KN

Y114 O114 40/40 H=0.80m

x-x: σκέλη συνδ.=3 ρw=1.88% Vrdc=-3 VrdMax=611 Vrds=50 Vsd=8
y-y: σκέλη συνδ.=3 ρw=1.88% Vrdc=-10 VrdMax=611 Vrds=50 Vsd=2

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa

- Κάμψη:

As_υπαρχ.= 4x 1Φ18 + 8Φ18 = 30.54cm² >= As_απαιτ. = 3.49cm² λ = 0.11

- Διάτμηση:

x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(8.0KN, cotθ=2.50) = 0.38cm² OK

y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(2.2KN, cotθ=2.50) = 0.10cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:

μ(1/r) = $(0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
= $(0.1 \cdot 0.153 \cdot 0.018 + 0.0035) / (2.5 \cdot 0.178 \cdot 0.001100)$
= 7.72

μd = $[\mu(1/r) + 2] / 3$ = $[7.716 + 2] / 3$ = 3.24

y-y:

μ(1/r) = $(0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
= $(0.1 \cdot 0.153 \cdot 0.018 + 0.0035) / (2.5 \cdot 0.197 \cdot 0.001100)$
= 6.98

μd = $[\mu(1/r) + 2] / 3$ = $[6.980 + 2] / 3$ = 2.99

ΥΠΟΣΤΥΛΩΜΑ 115

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-314	-317	-0.0	-0.0	0.3	0.7	0.0	0.5	-0.0
Q	-80	-80	0.0	0.0	0.1	0.2	0.0	0.2	-0.0
Σx1	2	2	0.2	0.3	7.8	12.2	0.1	5.4	-0.0
Σy1	-60	-60	-6.3	-8.0	-2.5	-4.1	-2.1	-2.1	0.0
Σx2	5	5	-0.1	-0.1	5.2	8.0	-0.0	3.6	0.0
Σy2	-66	-66	-6.0	-7.5	0.6	0.7	-1.9	0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-0	-0	0.0	0.0	0.2	0.3	0.0	0.1	-0.0
W2	-0	-0	-0.0	-0.0	-0.2	-0.3	-0.0	-0.1	0.0
W3	-2	-2	-0.2	-0.4	-0.0	-0.0	-0.3	-0.0	0.0
W4	2	2	0.2	0.3	0.0	0.1	0.2	0.0	-0.0

Ελεγχος σε θλίψη

Nrd = $0.85 \cdot A_c \cdot f_{cd}$ = $0.85 \cdot 0.16 \cdot 15385$ = 2092.3 KN, Nsd_min(4) = -548.1 KN
=> Nsd/Nrd = 0.262
Ns = -548.7 vds = $0.223 < 1.00$
x-x: Ns = -397.0 Nex = 0.0 Nox = -397.0 vd_ex = $0.161 < 0.65$
y-y: Ns = -397.0 Ney = -74.6 Noy = -471.6 vd_ey = $0.192 < 0.65$

Ελεγχος σε λυγισμό

λmax = $10.78 / \sqrt{v_d}$ = 22.8
άξονας β*lcol = lo Ic Ac i λ
x-x 0.00*0.00 = 0.00 0.00171 0.160 0.103 0.0 OK

y-y 0.00*0.00 = 0.00 0.00171 0.160 0.103 0.0 OK

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-4:	-550.3	-0.4	1.3	-42.1	150.6	0.01
Pmax	21:	-311.3	0.2	0.4	71.7	113.6	0.00
Mxmin	-29:	-464.0	-8.9	-7.6	-109.4	-93.7	0.08
Mxmax	-31:	-330.0	8.9	9.5	92.6	99.2	0.10
Mymin	-27:	-419.0	-3.0	-13.8	-31.2	-145.2	0.10
Mymax	-25:	-375.1	3.0	15.7	26.9	142.5	0.11

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 7.3 KN, VmaxY = 2.3 KN

Y115 O115 40/40 H=0.80m

x-x: σκέλη συνδ.=3 ρw=1.88% Vrdc=8 VrdMax=611 VrdS=50 Vsd=7

y-y: σκέλη συνδ.=3 ρw=1.88% Vrdc=-4 VrdMax=611 VrdS=50 Vsd=2

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa

- Κάμψη:

As_υπαρχ.= 4x 1Φ18 + 8Φ18 = 30.54cm² >= As_απαιτ.= 3.36cm² λ = 0.11

- Διάτμηση:

x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(7.3KN, cotθ=2.50) = 0.35cm² OK

y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(2.3KN, cotθ=2.50) = 0.11cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:

μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)

= (0.1*0.153*0.018+0.0035) / (2.5*0.161*0.001100)

= 8.50

μd = [μ(1/r)+2]/3 = [8.505+2]/3 = 3.50

y-y:

μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)

= (0.1*0.153*0.018+0.0035) / (2.5*0.192*0.001100)

= 7.16

μd = [μ(1/r)+2]/3 = [7.160+2]/3 = 3.05

ΕΛΕΓΧΟΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ ΣΤΑΘΜΗΣ 3 (ΟΡΟΦΗ ΙΣΟΓΕΙΟΥ z=4.32m)

ΥΛΙΚΑ ΠΕΣΣΩΝ: fk=3.5 fv0=0.1 fwt=0.1

ΥΛΙΚΑ ΥΠΟ/ΤΩΝ: C20 S220 συνδ. S220

ΕΠΙΚΑΛΥΨΗ ΟΠΛΙΣΜΩΝ: c = 25mm

ΥΠΟΕΤΥΛΩΜΑ 95

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-228	-256	0.1	0.1	-12.4	2.8	-0.0	4.3	-0.0
Q	-77	-77	-0.0	0.1	-3.1	0.7	0.0	1.1	-0.0
Σx1	-64	-64	0.3	0.6	-36.0	21.6	0.1	16.4	-0.0
Σy1	119	119	2.3	-36.4	13.4	-7.8	-11.0	-6.0	0.1
Σx2	-31	-31	0.3	-1.7	-20.7	12.5	-0.5	9.4	0.1
Σy2	78	78	2.5	-34.1	-5.2	3.0	-10.4	2.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-1	-1	0.0	0.0	-0.9	0.6	-0.0	0.4	-0.0
W2	1	1	-0.0	0.0	0.9	-0.6	0.0	-0.4	0.0
W3	3	3	0.1	-1.2	0.0	-0.0	-0.4	-0.0	0.0
W4	-3	-3	-0.1	1.1	-0.0	0.0	0.3	0.0	-0.0

Ελεγχος σε θλίψη

Nrd = 0.85*Ac*fcd = 0.85*0.31*15385 = 4119.2 KN, Nsd_min(31) = -464.0 KN

=> Nsd/Nrd = 0.113

Ns = -461.0 vds = 0.095 < 1.00

x-x: Ns = -327.6 Nex = 0.0 Nox = -327.6 vd_ex = 0.068 < 0.65

y-y: Ns = -327.6 Ney = 151.7 Noy = -479.3 vd_ey = 0.099 < 0.65

Ελεγχος σε λυγισμό

λmax = 10.78/√vd = 35.0

άξονας β*1col = lo Ic Ac i λ

x-x 1.00*3.52 = 3.52 0.01029 0.315 0.181 19.5 OK

y-y 0.83*3.07 = 2.55 0.00425 0.315 0.116 21.9 OK

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-31:	-479.3	40.4	19.2	237.5	112.7	0.17
Pmax	29:	-145.4	2.5	11.1	30.2	133.3	0.08
Mxmin	-29:	-175.9	-40.1	-12.2	-192.9	-58.7	0.21
Mxmax	-31:	-479.3	40.4	19.2	237.5	112.7	0.17
Mymin	25:	-406.8	-0.3	-59.5	-0.9	-174.3	0.34
Mymax	-25:	-437.3	12.9	29.8	77.9	180.5	0.17

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 25.4 \text{ KN}$, $V_{maxY} = 12.1 \text{ KN}$

Y95 O95 45/70 H=3.52m

x-x: σκέλη συνδ.=5 $\rho_w=1.80\%$ $V_{rdc}=80$ $V_{rdMax}=1204$ $V_{rds}=93$ $V_{sd}=25$
y-y: σκέλη συνδ.=3 $\rho_w=1.68\%$ $V_{rdc}=45$ $V_{rdMax}=1204$ $V_{rds}=87$ $V_{sd}=12$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=20.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, συνδετ. $f_{yk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\phi 18 + 6\phi 18 = 25.45 \text{ cm}^2 \geq A_{s_απαιτ.} = 8.69 \text{ cm}^2$ $\lambda = 0.34$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.} (25.4 \text{ KN}, \cot\theta=2.50) = 1.07 \text{ cm}^2$ OK

y-y: $A_{w_υπαρχ.} = 2 \times \phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.} (12.1 \text{ KN}, \cot\theta=2.50) = 0.32 \text{ cm}^2$ OK

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$

$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.068 \cdot 0.001100)$

$= 19.74$

$\mu_d = [\mu(1/r) + 2] / 3 = [19.738 + 2] / 3 = 7.25$

y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$

$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.099 \cdot 0.001100)$

$= 13.49$

$\mu_d = [\mu(1/r) + 2] / 3 = [13.491 + 2] / 3 = 5.16$

ΥΠΟΣΤΥΛΩΜΑ 96

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-210	-237	-0.1	0.1	9.3	-1.9	0.0	-3.2	-0.0
Q	-74	-74	-0.1	0.1	2.4	-0.5	0.1	-0.8	-0.0
Σx1	49	49	0.1	-0.2	-34.7	21.4	-0.1	16.0	-0.0
Σy1	59	59	3.1	-34.6	14.3	-7.9	-10.7	-6.3	0.1
Σx2	27	27	-0.2	0.7	-19.7	12.3	0.2	9.1	0.1
Σy2	88	88	3.2	-35.3	-3.0	2.7	-10.9	1.7	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	1	1	0.0	-0.0	-0.9	0.6	-0.0	0.4	-0.0
W2	-1	-1	-0.0	0.0	0.9	-0.6	0.0	-0.4	0.0
W3	2	2	0.1	-1.2	0.2	-0.1	-0.4	-0.1	0.0
W4	-2	-2	-0.1	1.1	-0.2	0.1	0.3	0.1	-0.0

Έλεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.31 \cdot 15385 = 4119.2 \text{ KN}$, $N_{sd_min}(5) = -413.9 \text{ KN}$

$\Rightarrow N_{sd}/N_{rd} = 0.100$

$N_s = -431.0$ $v_{ds} = 0.089 < 1.00$

x-x: $N_s = -305.3$ $N_{ex} = 0.0$ $N_{ox} = -305.3$ $v_{d_ex} = 0.063 < 0.65$

y-y: $N_s = -305.3$ $N_{ey} = 105.4$ $N_{oy} = -410.7$ $v_{d_ey} = 0.085 < 0.65$

Έλεγχος σε λυγισμό

$\lambda_{max} = 10.78 / \sqrt{v_d} = 36.1$

άξονας $\beta \cdot l_{col} = l_0$

x-x $1.00 \cdot 3.52 = 3.52$ 0.01029 0.315 0.181 19.5 OK

y-y $0.83 \cdot 3.07 = 2.55$ 0.00425 0.315 0.116 21.9 OK

Έλεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-5:	-432.6	1.3	-3.2	75.6	-179.7	0.02
Pmax	36:	-169.3	3.3	1.8	168.9	92.7	0.02
Mxmin	-37:	-217.6	-38.9	-3.5	-217.2	-19.3	0.18
Mxmax	-39:	-393.0	39.3	-1.3	264.1	-8.4	0.15
Mymin	25:	-239.9	-1.0	-31.3	-4.5	-144.7	0.22
Mymax	27:	-309.6	0.8	54.6	2.3	157.5	0.35

Έλεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 23.6 \text{ KN}$, $V_{maxY} = 12.2 \text{ KN}$

Y96 O96 45/70 H=3.52m

x-x: σκέλη συνδ.=5 $\rho_w=1.80\%$ $V_{rdc}=76$ $V_{rdMax}=1204$ $V_{rds}=93$ $V_{sd}=24$
y-y: σκέλη συνδ.=3 $\rho_w=1.68\%$ $V_{rdc}=48$ $V_{rdMax}=1204$ $V_{rds}=87$ $V_{sd}=12$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=20.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, συνδετ. $f_{yk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\phi 18 + 6\phi 18 = 25.45 \text{ cm}^2 \geq A_{s_απαιτ.} = 8.81 \text{ cm}^2$ $\lambda = 0.35$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.} (23.6 \text{ KN}, \cot\theta=2.50) = 1.00 \text{ cm}^2$ OK

y-y: $A_{w_υπαρχ.} = 2 \times \phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.} (12.2 \text{ KN}, \cot\theta=2.50) = 0.33 \text{ cm}^2$ OK

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.063 \cdot 0.001100)$$

$$= 21.18$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [21.180 + 2] / 3 = 7.73$$
y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.151 \cdot 0.011 + 0.0035) / (2.5 \cdot 0.085 \cdot 0.001100)$$

$$= 15.74$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [15.742 + 2] / 3 = 5.91$$

ΥΠΟΣΤΥΛΩΜΑ 114

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-331	-345	0.1	-0.0	3.9	-0.8	-0.0	-1.4	0.0
Q	-91	-91	0.0	0.0	1.5	-0.3	-0.0	-0.5	-0.0
Σx1	-78	-78	0.0	0.0	-11.3	7.9	0.0	5.5	-0.0
Σy1	-29	-29	0.4	-5.9	-2.2	-0.5	-1.8	0.5	0.0
Σx2	-57	-57	-0.0	0.0	-7.1	5.1	0.0	3.5	0.0
Σy2	-59	-59	0.5	-6.1	-7.3	2.8	-1.9	2.8	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-2	-2	0.0	-0.0	-0.3	0.2	-0.0	0.1	-0.0
W2	2	2	-0.0	0.0	0.3	-0.2	0.0	-0.1	0.0
W3	-1	-1	0.0	-0.2	-0.1	0.0	-0.1	0.0	0.0
W4	1	1	-0.0	0.2	0.1	-0.0	0.1	-0.0	-0.0

Ελεγχος σε θλίψη

$$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.16 \cdot 15385 = 2092.3 \text{ KN}, \quad N_{sd_min}(2) = -594.7 \text{ KN}$$

$$\Rightarrow N_{sd}/N_{rd} = 0.284$$

$$N_s = -602.4 \quad v_{ds} = 0.245 < 1.00$$
x-x: $N_s = -434.1 \quad N_{ex} = 0.0 \quad N_{ox} = -434.1 \quad v_{d_ex} = 0.176 < 0.65$
y-y: $N_s = -434.1 \quad N_{ey} = -46.1 \quad N_{oy} = -480.2 \quad v_{d_ey} = 0.195 < 0.65$

Ελεγχος σε λυγισμό

$$\lambda_{max} = 10.78 / \sqrt{v_d} = 21.8$$

άξονας	$\beta \cdot l_{col} = l_0$	I_c	A_c	i	λ	e_a	e_2
x-x	$1.00 \cdot 3.52 = 3.52$	0.00171	0.160	0.103	34.1 $\Rightarrow$	0.009	0.006
y-y	$0.83 \cdot 3.07 = 2.55$	0.00171	0.160	0.103	24.7 $\Rightarrow$	0.0068	0.0000

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-2:	-604.2	-0.0	-1.4	120.9	91.0	0.01
Pmax	26:	-323.3	-0.0	18.4	42.2	132.1	0.13
Mxmin	-37:	-480.2	-6.7	0.2	144.4	47.0	0.04
Mxmax	-39:	-388.0	6.6	-2.5	109.5	86.7	0.05
Mymin	-27:	-358.2	-2.0	-9.9	74.3	-116.2	0.07
Mymax	26:	-323.3	-0.0	18.4	42.2	132.1	0.13

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 8.0 \text{ KN}, \quad V_{maxY} = 2.1 \text{ KN}$

Y114 O114 40/40 H=3.52m

x-x: σκέλη συνδ.=3 $\rho_w=1.88\% \quad V_{rdc}=-2 \quad V_{rdMax}=611 \quad V_{rds}=50 \quad V_{sd}=8$
y-y: σκέλη συνδ.=3 $\rho_w=1.88\% \quad V_{rdc}=-9 \quad V_{rdMax}=611 \quad V_{rds}=50 \quad V_{sd}=2$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=16.0 \text{ MPa}, \quad f_{yk}=220.0 \text{ MPa}, \quad \text{συνδ.ετ.} f_{yk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\Phi 18 + 8\Phi 18 = 30.54 \text{ cm}^2 \geq A_{s_απαιτ.} = 4.26 \text{ cm}^2 \quad \lambda = 0.14$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(8.0 \text{ KN}, \cot\theta=2.50) = 0.38 \text{ cm}^2 \text{ OK}$

y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(2.1 \text{ KN}, \cot\theta=2.50) = 0.10 \text{ cm}^2 \text{ OK}$

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.153 \cdot 0.018 + 0.0035) / (2.5 \cdot 0.176 \cdot 0.001100)$$

$$= 7.78$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [7.778 + 2] / 3 = 3.26$$

y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.153 \cdot 0.018 + 0.0035) / (2.5 \cdot 0.195 \cdot 0.001100)$$

$$= 7.03$$

$$\mu_d = [\mu(1/r) + 2] / 3 = [7.031 + 2] / 3 = 3.01$$

ΥΠΟΣΤΥΛΩΜΑ 115

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-300	-314	-0.0	-0.0	-1.4	0.3	0.0	0.5	-0.0
Q	-80	-80	0.0	0.0	-0.4	0.1	0.0	0.2	-0.0
Σx1	2	2	-0.0	0.2	-11.1	7.8	0.1	5.4	-0.0
Σy1	-60	-60	0.7	-6.3	5.0	-2.5	-2.0	-2.1	0.0
Σx2	5	5	0.1	-0.1	-7.3	5.2	-0.0	3.5	0.0
Σy2	-66	-66	0.6	-6.0	0.5	0.6	-1.9	0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-0	-0	-0.0	0.0	-0.3	0.2	0.0	0.1	-0.0

W2	-0	-0	0.0	-0.0	0.3	-0.2	-0.0	-0.1	0.0
W3	-2	-2	0.0	-0.2	0.1	-0.0	-0.0	-0.0	0.0
W4	2	2	-0.0	0.2	-0.1	0.0	0.1	0.0	-0.0

Ελεγχος σε θλίψη
Nrd = 0.85*Ac*fcd = 0.85*0.16*15385 = 2092.3 KN, Nsd_min(4) = -536.5 KN
=> Nsd/Nrd = 0.256
Ns = -544.3 vds = 0.221 < 1.00
x-x: Ns = -393.5 Nex = 0.0 Nox = -393.5 vd_ex = 0.160 < 0.65
y-y: Ns = -393.5 Ney = -74.6 Noy = -468.1 vd_ey = 0.190 < 0.65

Ελεγχος σε λυγισμό
λmax = 10.78/(√vd) = 22.9
άξονας β*1col = lo Ic Ac i λ ea e2
x-x 1.00*3.52 = 3.52 0.00171 0.160 0.103 34.1 => 0.009 0.006
y-y 0.83*3.07 = 2.55 0.00171 0.160 0.103 24.7 => 0.0068 0.0000

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-4:	-546.0	-0.1	0.6	132.1	73.4	0.00
Pmax	21:	-297.2	-0.1	-1.5	116.9	65.0	0.01
Mxmin	-29:	-460.5	-7.0	-4.8	125.7	73.7	0.06
Mxmax	-31:	-326.5	7.0	5.7	105.7	84.1	0.07
Mymin	25:	-356.1	-0.3	-15.7	55.4	-129.3	0.11
Mymax	27:	-399.9	0.2	12.1	73.6	120.5	0.09

Ελεγχος σε διάτμηση
από συνδυασμούς: VmaxX = 7.2 KN, VmaxY = 2.2 KN

Y115 O115 40/40 H=3.52m

x-x: σκέλη συνδ.=3 ρw=1.88% Vrdc=8 VrdMax=611 Vrds=50 Vsd=7
y-y: σκέλη συνδ.=3 ρw=1.88% Vrdc=-3 VrdMax=611 Vrds=50 Vsd=2

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa
- Κάμψη:
As_υπαρχ.= 4x 1Φ18 + 8Φ18 = 30.54cm² >= As_απαιτ.= 3.70cm² λ = 0.12
- Διάτμηση:
x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(7.2KN, cotθ=2.50) = 0.35cm² OK
y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(2.2KN, cotθ=2.50) = 0.11cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:
μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
= (0.1*0.153*0.018+0.0035) / (2.5*0.160*0.001100)
= 8.58
μd = [μ(1/r)+2]/3 = [8.581+2]/3 = 3.53

y-y:
μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
= (0.1*0.153*0.018+0.0035) / (2.5*0.190*0.001100)
= 7.21
μd = [μ(1/r)+2]/3 = [7.214+2]/3 = 3.07

ΕΛΕΓΧΟΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ ΣΤΑΘΜΗΣ 6 (ΣΤΑΘΜΗ ΠΟΔΙΑΣ ΑΝΟΙΓΜΑΤΩΝ Β ΟΡΟΦΟΥ z=9.32m)

ΥΛΙΚΑ ΠΕΣΣΩΝ: fk=3.5 fv0=0.1 fwt=0.1
ΥΛΙΚΑ ΥΠΟ/ΤΩΝ: C20 S220 συνδ. S220
ΕΠΙΚΑΛΥΨΗ ΟΠΛΙΣΜΩΝ: c = 25mm

ΥΠΟΕΤΥΛΩΜΑ 75

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-153	-155	2.2	5.1	-1.1	-2.6	3.6	-2.0	-0.0
Q	-28	-28	0.6	1.3	-0.4	-0.9	0.9	-0.6	-0.0
Σx1	-3	-3	-0.5	-0.8	2.7	5.2	-0.4	3.1	-0.0
Σy1	5	5	-4.1	-7.3	-2.6	-4.5	-4.0	-2.5	0.0
Σx2	-2	-2	-0.0	-0.1	1.6	3.5	-0.0	2.4	0.0
Σy2	3	3	-4.0	-7.2	-1.2	-2.2	-4.0	-1.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-0	-0	-0.0	-0.0	0.0	0.1	-0.0	0.0	-0.0
W2	0	0	0.0	0.0	-0.0	-0.1	0.0	-0.0	0.0
W3	0	0	-0.1	-0.1	-0.0	-0.1	-0.0	-0.0	-0.0
W4	-0	-0	0.1	0.1	0.0	0.1	0.0	0.0	0.0

Ελεγχος σε θλίψη
Nrd = 0.85*Ac*fcd = 0.85*0.11*15385 = 1373.1 KN, Nsd_min(5) = -250.7 KN
=> Nsd/Nrd = 0.183
Ns = -252.0 vds = 0.156 < 1.00
x-x: Ns = -187.6 Nex = 0.0 Nox = -187.6 vd_ex = 0.116 < 0.65
y-y: Ns = -187.6 Ney = 6.1 Noy = -193.7 vd_ey = 0.120 < 0.65

Ελεγχος σε λυγισμό

$\lambda_{\max} = 10.78/\sqrt{vd} = 27.3$
 άξονας $\beta \cdot l_{col} = l_0$ I_c A_c i λ
 x-x $0.00 \cdot 0.00 = 0.00$ 0.00086 0.105 0.090 0.0 OK
 y-y $0.00 \cdot 0.00 = 0.00$ 0.00063 0.105 0.077 0.0 OK

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-5:	-252.1	8.9	-4.8	59.0	-31.9	0.15
Pmax	20:	-152.8	2.1	-1.1	53.0	-28.2	0.04
Mxmin	-28:	-183.4	-1.9	-6.7	-16.7	-59.0	0.11
Mxmax	-30:	-191.9	14.7	-0.2	65.8	-0.7	0.22
Mymin	-27:	-183.1	4.9	-10.6	25.9	-55.8	0.19
Mymax	-25:	-192.2	7.9	3.7	57.4	27.3	0.14
	-31:	-193.7	14.1	3.3	63.2	14.6	0.22

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{\max X} = 6.8$ KN, $V_{\max Y} = 9.1$ KN

Y75 O75 30/35 H=0.80m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\%$ $V_{rdc}=13$ $V_{rdMax}=401$ $V_{rds}=37$ $V_{sd}=7$
 y-y: σκέλη συνδ.=3 $\rho_w=2.51\%$ $V_{rdc}=10$ $V_{rdMax}=401$ $V_{rds}=44$ $V_{sd}=9$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=16.0$ MPa, $f_{yk}=220.0$ MPa, συνδετ. $f_{yk}=220.0$ MPa

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22\text{cm}^2 \geq A_{s_απαιτ.} = 3.60\text{cm}^2$ $\lambda = 0.20$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(6.8\text{KN}, \cot\theta=2.50) = 0.44\text{cm}^2$ OK

y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(9.1\text{KN}, \cot\theta=2.50) = 0.50\text{cm}^2$ OK

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.116 \cdot 0.001100)$
 $= 11.57$

$\mu_d = [\mu(1/r) + 2] / 3 = [11.566 + 2] / 3 = 4.52$

y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.120 \cdot 0.001100)$
 $= 11.20$

$\mu_d = [\mu(1/r) + 2] / 3 = [11.204 + 2] / 3 = 4.40$

ΥΠΟΕΤΥΛΩΜΑ 76

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-165	-167	2.1	4.8	0.4	1.1	3.4	0.9	-0.0
Q	-28	-28	0.6	1.3	0.4	0.8	0.9	0.6	-0.0
Σx1	8	8	-0.2	-0.3	4.2	7.8	-0.1	4.5	-0.0
Σy1	8	8	-3.9	-7.0	0.2	0.8	-3.9	0.8	0.0
Σx2	4	4	0.8	1.2	2.8	5.3	0.5	3.2	0.0
Σy2	11	11	-4.2	-7.4	1.7	3.3	-4.0	2.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	0.0	0.0	0.1	0.1	0.0	0.1	-0.0
W2	-0	-0	-0.0	-0.0	-0.1	-0.1	-0.0	-0.1	0.0
W3	0	0	-0.1	-0.1	0.0	0.0	-0.0	0.0	0.0
W4	-0	-0	0.1	0.1	-0.0	-0.0	0.0	-0.0	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1$ KN, $N_{sd_min}(5) = -265.6$ KN

$\Rightarrow N_{sd}/N_{rd} = 0.193$

$N_s = -266.9$ $v_{ds} = 0.165 < 1.00$

x-x: $N_s = -200.1$ $N_{ex} = 0.0$ $Nox = -200.1$ $vd_ex = 0.124 < 0.65$

y-y: $N_s = -200.1$ $N_{ey} = 13.3$ $Noy = -213.4$ $vd_ey = 0.132 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{\max} = 10.78/\sqrt{vd} = 26.5$

άξονας $\beta \cdot l_{col} = l_0$ I_c A_c i λ
 x-x $0.00 \cdot 0.00 = 0.00$ 0.00086 0.105 0.090 0.0 OK
 y-y $0.00 \cdot 0.00 = 0.00$ 0.00063 0.105 0.077 0.0 OK

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-5:	-267.0	8.4	2.7	67.2	21.1	0.13
Pmax	20:	-164.4	2.0	0.4	61.4	11.8	0.03
Mxmin	-37:	-189.5	-2.5	3.6	-35.9	51.1	0.07
Mxmax	-39:	-210.7	14.5	-0.2	67.0	-1.1	0.22
Mymin	-26:	-211.4	8.7	-7.2	48.7	-40.3	0.18
Mymax	-24:	-188.9	3.4	10.5	18.9	58.8	0.18

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{\max X} = 6.6$ KN, $V_{\max Y} = 8.8$ KN

Y76 O76 30/35 H=0.80m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=12 VrdMax=401 VrdS=37 Vsd=7
y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=8 VrdMax=401 VrdS=44 Vsd=9

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa
- Κάμψη:
As_υπαρχ.= 4x 1Φ16 + 4Φ18 = 18.22cm² >= As_απαιτ. = 3.49cm² λ = 0.19
- Διάτμηση:
x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(6.6kN, cotθ=2.50) = 0.43cm² OK
y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(8.8kN, cotθ=2.50) = 0.49cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd
x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.124 \cdot 0.001100)$
 $= 10.84$
 $\mu_d = [\mu(1/r) + 2] / 3 = [10.845 + 2] / 3 = 4.28$
y-y:
 $\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.132 \cdot 0.001100)$
 $= 10.17$
 $\mu_d = [\mu(1/r) + 2] / 3 = [10.170 + 2] / 3 = 4.06$

ΥΠΟΤΥΛΩΜΑ 77

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-137	-139	3.1	4.1	-17.2	-30.5	1.3	-16.7	-0.0
Q	-24	-24	1.5	2.1	-13.0	-19.0	0.7	-7.5	-0.0
Σx1	1	1	-0.7	-1.1	-0.3	1.4	-0.5	1.8	-0.0
Σy1	4	4	-4.0	-8.3	-0.6	-0.9	-5.4	-0.4	0.0
Σx2	1	1	-0.4	-0.6	-0.4	1.4	-0.2	1.8	0.0
Σy2	4	4	-4.0	-8.2	-0.3	-0.3	-5.3	-0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	-0.0
W2	-0	-0	0.0	0.0	0.0	-0.0	0.0	-0.0	0.0
W3	0	0	-0.1	-0.1	-0.0	-0.0	-0.1	-0.0	-0.0
W4	-0	-0	0.1	0.1	0.0	0.0	0.1	0.0	0.0

Έλεγχος σε θλίψη

Nrd = 0.85*Ac*fcd = 0.85*0.11*15385 = 1373.1 kN, Nsd_min(5) = -222.2 kN
=> Nsd/Nrd = 0.162
Ns = -223.5 vds = 0.138 < 1.00
x-x: Ns = -167.3 Nex = 0.0 Nox = -167.3 vd_ex = 0.104 < 0.65
y-y: Ns = -167.3 Ney = 5.0 Noy = -172.3 vd_ey = 0.107 < 0.65

Έλεγχος σε λυγισμό

λmax = 10.78/√v_d) = 29.0
άξονας β*1col = lo Ic Ac i λ
x-x 0.00*0.00 = 0.00 0.00086 0.105 0.090 0.0 OK
y-y 0.00*0.00 = 0.00 0.00063 0.105 0.077 0.0 OK

Έλεγχος σε κάμψη

ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -5:	-223.6	8.9	-69.7	8.3	-65.1	1.07
Pmax 20:	-136.8	2.9	-17.2	9.5	-55.7	0.31
Mxmin -28:	-162.3	-3.7	-45.5	-4.8	-59.2	0.77
Mxmax -30:	-172.3	15.3	-44.4	19.6	-57.1	0.78
Mymin -4:	-223.4	8.6	-69.7	8.0	-65.1	1.07
Mymax 21:	-137.1	3.2	-17.2	10.2	-55.7	0.31

Έλεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 33.7 kN, VmaxY = 7.9 kN

Y77 O77 30/35 H=0.80m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=16 VrdMax=401 VrdS=37 Vsd=34
y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=13 VrdMax=401 VrdS=44 Vsd=8

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa
- Κάμψη:
As_υπαρχ.= 4x 1Φ16 + 4Φ18 = 18.22cm² >= As_απαιτ. = 17.24cm² λ = 0.95
- Διάτμηση:
x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(33.7kN, cotθ=2.50) = 2.19cm² OK
y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(7.9kN, cotθ=2.50) = 0.44cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd
x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.104 \cdot 0.001100)$
 $= 12.97$
 $\mu_d = [\mu(1/r) + 2] / 3 = [12.973 + 2] / 3 = 4.99$
y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.107 \cdot 0.001100)$
 $= 12.60$
 $\mu_d = [\mu(1/r) + 2] / 3 = [12.600 + 2] / 3 = 4.87$

ΥΠΟΣΤΥΛΩΜΑ 78

Tφ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-128	-130	1.7	2.2	3.0	10.8	0.6	9.8	-0.0
Q	-20	-20	0.1	0.1	2.5	4.5	-0.0	2.5	-0.0
Σx1	0	0	-0.5	-0.9	4.2	6.9	-0.5	3.4	-0.0
Σy1	4	4	-3.4	-7.4	-0.2	-1.4	-5.0	-0.5	0.0
Σx2	-1	-1	0.1	0.3	4.3	7.0	0.2	3.4	0.0
Σy2	5	5	-3.7	-7.9	1.0	0.3	-5.4	0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	-0.0	-0.0	0.1	0.1	-0.0	0.1	-0.0
W2	-0	-0	0.0	0.0	-0.1	-0.1	0.0	-0.1	0.0
W3	0	0	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0
W4	-0	-0	0.1	0.1	-0.0	-0.0	0.1	-0.0	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(5) = -204.1 \text{ KN}$
 $\Rightarrow N_{sd}/N_{rd} = 0.149$
 $N_s = -205.4$ $v_{ds} = 0.127 < 1.00$
x-x: $N_s = -154.9$ $N_{ex} = 0.0$ $Nox = -154.9$ $v_{d_ex} = 0.096 < 0.65$
y-y: $N_s = -154.9$ $N_{ey} = 5.9$ $Noy = -160.8$ $v_{d_ey} = 0.100 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78 / \sqrt{v_d} = 30.2$
άξονας $\beta \cdot l_{col} = l_o$ I_c A_c i λ
x-x $0.00 \cdot 0.00 = 0.00$ 0.00086 0.105 0.090 0.0 OK
y-y $0.00 \cdot 0.00 = 0.00$ 0.00063 0.105 0.077 0.0 OK

Ελεγχος σε κάμψη

Σφ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -5:	-205.5	3.2	21.4	9.4	63.0	0.34
Pmax 20:	-127.7	1.6	3.0	26.3	50.9	0.06
Mxmin -37:	-149.0	-6.4	12.6	-26.6	52.6	0.24
Mxmax -39:	-160.8	11.3	16.6	34.0	50.1	0.33
Mymin 34:	-153.8	3.0	-0.2	62.3	-4.6	0.05
Mymax -25:	-156.4	3.9	22.6	9.9	57.7	0.39

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 17.0 \text{ KN}$, $V_{maxY} = 6.7 \text{ KN}$

Y78 O78 30/35 H=0.80m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\%$ $V_{rdc}=18$ $V_{rdMax}=401$ $V_{rds}=37$ $V_{sd}=17$
y-y: σκέλη συνδ.=3 $\rho_w=2.51\%$ $V_{rdc}=15$ $V_{rdMax}=401$ $V_{rds}=44$ $V_{sd}=7$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=16.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, $\sigma_{sdeT.fyk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22 \text{ cm}^2 \geq A_{s_απαιτ.} = 6.30 \text{ cm}^2$ $\lambda = 0.35$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(17.0 \text{ KN}, \cot\theta=2.50) = 1.10 \text{ cm}^2 \text{ OK}$

y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαιτ.}(6.7 \text{ KN}, \cot\theta=2.50) = 0.37 \text{ cm}^2 \text{ OK}$

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.096 \cdot 0.001100)$
 $= 14.01$

$\mu_d = [\mu(1/r) + 2] / 3 = [14.008 + 2] / 3 = 5.34$

y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.100 \cdot 0.001100)$
 $= 13.49$

$\mu_d = [\mu(1/r) + 2] / 3 = [13.493 + 2] / 3 = 5.16$

ΥΠΟΣΤΥΛΩΜΑ 79

Tφ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-113	-116	0.3	-0.3	-1.8	-3.9	-0.7	-2.6	-0.0
Q	-24	-24	0.1	-0.1	-0.4	-0.9	-0.2	-0.6	-0.0
Σx1	-32	-32	-0.5	-0.7	1.3	3.1	-0.3	2.3	-0.0
Σy1	8	8	-5.2	-10.1	1.8	3.6	-6.1	2.3	0.0
Σx2	-37	-37	-0.0	-0.0	1.9	4.1	0.0	2.8	0.0
Σy2	12	12	-4.8	-9.4	2.0	3.8	-5.8	2.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-1	-1	-0.0	-0.0	0.0	0.1	-0.0	0.0	-0.0
W2	1	1	0.0	0.0	-0.0	-0.1	0.0	-0.0	0.0
W3	0	0	-0.1	-0.2	0.0	0.1	-0.1	0.1	-0.0
W4	-0	-0	0.1	0.2	-0.0	-0.1	0.1	-0.1	0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(2) = -191.8 \text{ KN}$
=> $N_{sd}/N_{rd} = 0.140$
 $N_s = -192.5$ $v_{ds} = 0.119 < 1.00$
x-x: $N_s = -141.7$ $N_{ex} = 0.0$ $N_{ox} = -141.7$ $vd_{ex} = 0.088 < 0.65$
y-y: $N_s = -141.7$ $N_{ey} = 45.2$ $N_{oy} = -186.9$ $vd_{ey} = 0.116 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78/\sqrt{v_{nd}} = 31.2$
άξονας $\beta \cdot l_{col} = l_0$ I_c A_c i λ
x-x $0.00 \cdot 0.00 = 0.00$ 0.00086 0.105 0.090 0.0 OK
y-y $0.00 \cdot 0.00 = 0.00$ 0.00063 0.105 0.077 0.0 OK

Ελεγχος σε κάμψη

	Σφ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-2:	-193.2	-0.5	-6.5	-5.0	-62.6	0.10
Pmax	35:	-94.2	-1.2	-3.7	-16.2	-50.4	0.07
Mxmin	-28:	-143.2	-11.7	0.2	-62.1	1.2	0.19
Mxmax	-30:	-140.1	10.9	-9.8	43.7	-39.2	0.25
Mymin	-34:	-104.6	2.8	-10.6	13.5	-51.8	0.20
Mymax	-32:	-178.8	-3.5	1.0	-60.6	17.9	0.06

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 7.1 \text{ KN}$, $V_{maxY} = 7.7 \text{ KN}$

Y79 O79 30/35 H=0.80m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\%$ $V_{rdc}=26$ $V_{rdMax}=401$ $V_{rds}=37$ $V_{sd}=7$
y-y: σκέλη συνδ.=3 $\rho_w=2.51\%$ $V_{rdc}=17$ $V_{rdMax}=401$ $V_{rds}=44$ $V_{sd}=8$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=16.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, $\sigma_{sdeT.fyk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22 \text{ cm}^2$ $\geq A_{s_απαιτ.} = 4.02 \text{ cm}^2$ $\lambda = 0.22$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2$ $\geq A_{w_απαιτ.}(7.1 \text{ KN}, \cot\theta=2.50) = 0.46 \text{ cm}^2 \text{ OK}$

y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2$ $\geq A_{w_απαιτ.}(7.7 \text{ KN}, \cot\theta=2.50) = 0.43 \text{ cm}^2 \text{ OK}$

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.088 \cdot 0.001100)$
 $= 15.32$

$\mu_d = [\mu(1/r) + 2] / 3 = [15.319 + 2] / 3 = 5.77$

y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.116 \cdot 0.001100)$
 $= 11.61$

$\mu_d = [\mu(1/r) + 2] / 3 = [11.614 + 2] / 3 = 4.54$

ΥΠΟΣΤΥΛΩΜΑ 80

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-177	-179	0.0	-0.7	-2.1	-4.3	-0.9	-2.7	-0.0
Q	20	20	-0.1	-0.4	-0.1	-0.2	-0.4	-0.1	-0.0
Σx1	44	44	-1.1	-1.8	1.5	3.7	-0.8	2.8	-0.0
Σy1	-113	-113	-4.6	-9.1	-3.5	-7.7	-5.6	-5.2	0.0
Σx2	78	78	0.1	0.1	2.6	5.9	0.1	4.2	0.0
Σy2	-133	-133	-5.9	-11.1	-3.3	-7.7	-6.6	-5.5	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	1	1	-0.0	-0.0	0.0	0.1	-0.0	0.0	-0.0
W2	-1	-1	0.0	0.0	-0.0	-0.1	0.0	-0.0	0.0
W3	-3	-3	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	0.0
W4	3	3	0.1	0.2	0.1	0.2	0.1	0.1	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(37) = -355.8 \text{ KN}$
=> $N_{sd}/N_{rd} = 0.259$
 $N_s = -210.8$ $v_{ds} = 0.130 < 1.00$
x-x: $N_s = -184.4$ $N_{ex} = 0.0$ $N_{ox} = -184.4$ $vd_{ex} = 0.114 < 0.65$
y-y: $N_s = -184.4$ $N_{ey} = -172.5$ $N_{oy} = -357.0$ $vd_{ey} = 0.221 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78/\sqrt{v_{nd}} = 29.8$
άξονας $\beta \cdot l_{col} = l_0$ I_c A_c i λ
x-x $0.00 \cdot 0.00 = 0.00$ 0.00086 0.105 0.090 0.0 OK
y-y $0.00 \cdot 0.00 = 0.00$ 0.00063 0.105 0.077 0.0 OK

Ελεγχος σε κάμψη

	Σφ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-37:	-357.0	-13.3	-15.2	-45.8	-52.5	0.29
Pmax	39:	-9.6	6.4	2.1	43.4	14.1	0.15
Mxmin	-37:	-357.0	-13.3	-15.2	-45.8	-52.5	0.29

Mxmax -39: -11.9 11.3 5.5 41.5 20.4 0.27
 Mymin -37: -357.0 -13.3 -15.2 -45.8 -52.5 0.29
 Mymax -39: -11.9 11.3 5.5 41.5 20.4 0.27

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 10.4 KN, VmaxY = 8.5 KN

Y80 O80 30/35 H=0.80m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=38 VrdMax=401 Vrds=37 Vsd=10
 y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=11 VrdMax=401 Vrds=44 Vsd=8

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
 υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa
 - Κάμψη:
 As_υπαρχ.= 4x 1Φ16 + 4Φ18 = 18.22cm² >= As_απαιτ.= 4.66cm² λ = 0.26
 - Διάτμηση:
 x-x: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(10.4KN, cotθ=2.50) = 0.68cm² OK
 y-y: Aw_υπαρχ.= 2x Φ6/20 = 2.83cm² >= Aw_απαιτ.(8.5KN, cotθ=2.50) = 0.47cm² OK

 - Υπολογισμός τοπικής πλαστιμότητας μd
 x-x:
 μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
 = (0.1*0.094*0.021+0.0035) / (2.5*0.114*0.001100)
 = 11.77
 μd = [μ(1/r)+2]/3 = [11.767+2]/3 = 4.59
 y-y:
 μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
 = (0.1*0.094*0.021+0.0035) / (2.5*0.221*0.001100)
 = 6.08
 μd = [μ(1/r)+2]/3 = [6.080+2]/3 = 2.69

ΕΛΕΓΧΟΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ ΣΤΑΘΜΗΣ 7 (ΟΡΟΦΗ Β' ΟΡΟΦΟΥ z=12.67m)

ΥΛΙΚΑ ΠΕΣΣΩΝ: fk=3.5 fv0=0.1 fwt=0.1
 ΥΛΙΚΑ ΥΠΟ/ΤΩΝ: C20 S220 συνδ. S220
 ΕΠΙΚΑΛΥΨΗ ΟΠΛΙΣΜΩΝ: c = 25mm

ΥΠΟΕΤΥΛΩΜΑ 75

ΤΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-144	-153	-10.0	2.2	5.6	-1.1	3.6	-2.0	-0.0
Q	-28	-28	-2.3	0.6	1.6	-0.4	0.9	-0.6	-0.0
Σx1	-3	-3	0.8	-0.5	-4.4	2.7	-0.4	2.1	-0.0
Σy1	5	5	4.6	-4.1	5.6	-2.6	-2.6	-2.5	0.0
Σx2	-2	-2	0.1	-0.0	-2.8	1.6	-0.0	1.3	0.0
Σy2	3	3	4.7	-4.0	3.2	-1.2	-2.6	-1.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-0	-0	0.0	-0.0	-0.1	0.0	-0.0	0.0	-0.0
W2	0	0	-0.0	0.0	0.1	-0.0	0.0	-0.0	0.0
W3	0	0	0.1	-0.1	0.1	-0.0	-0.0	-0.0	-0.0
W4	-0	-0	-0.1	0.1	-0.1	0.0	0.0	0.0	0.0

Ελεγχος σε θλίψη

Nrd = 0.85*Ac*fcd = 0.85*0.11*15385 = 1373.1 KN, Nsd_min(5) = -243.3 KN
 => Nsd/Nrd = 0.177
 Ns = -249.2 vds = 0.154 < 1.00
 x-x: Ns = -185.3 Nex = 0.0 Nox = -185.3 vd_ex = 0.115 < 0.65
 y-y: Ns = -185.3 Ney = 6.1 Noy = -191.4 vd_ey = 0.118 < 0.65

Ελεγχος σε λυγισμό

λmax = 10.78/(√vd) = 27.4
 άξονας β*lcol = lo Ic Ac i λ ea e2
 x-x 0.83*2.85 = 2.37 0.00086 0.105 0.090 26.2 OK
 y-y 0.83*2.80 = 2.32 0.00063 0.105 0.077 30.0 => 0.0063 0.0031

Ελεγχος σε κάμψη

	ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-5:	-249.2	3.9	-2.0	35.3	55.9	0.07
Pmax	20:	-144.1	-9.9	5.7	-51.3	29.9	0.19
Mxmin	30:	-179.9	-17.7	2.4	-63.4	9.5	0.28
Mxmax	-30:	-189.6	7.5	0.6	60.1	21.4	0.12
Mymin	-27:	-180.7	2.0	-5.2	16.6	58.8	0.09
Mymax	29:	-169.6	-7.5	14.8	-27.4	54.0	0.27
	3:	-237.3	-16.9	10.1	-56.3	33.5	0.30

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 5.9 KN, VmaxY = 7.5 KN

Y75 O75 30/35 H=3.35m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=13 VrdMax=401 Vrds=37 Vsd=6
 y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=10 VrdMax=401 Vrds=44 Vsd=8

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
υλικά: $f_{ck}=16.0\text{MPa}$, $f_{yk}=220.0\text{MPa}$, συνδετ. $f_{yk}=220.0\text{MPa}$
- Κάμψη:
 $A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22\text{cm}^2 \geq A_{s_απαιτ.} = 4.83\text{cm}^2 \quad \lambda = 0.27$
- Διάτμηση:
x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(5.9\text{KN}, \cot\theta=2.50) = 0.39\text{cm}^2 \text{ OK}$
y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(7.5\text{KN}, \cot\theta=2.50) = 0.41\text{cm}^2 \text{ OK}$
- Υπολογισμός τοπικής πλαστιμότητας μ_d
x-x:
 $\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.115 \cdot 0.001100)$
 $= 11.71$
 $\mu_d = [\mu(1/r) + 2] / 3 = [11.71 + 2] / 3 = 4.57$
y-y:
 $\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.118 \cdot 0.001100)$
 $= 11.34$
 $\mu_d = [\mu(1/r) + 2] / 3 = [11.34 + 2] / 3 = 4.45$

ΥΠΟΕΤΥΛΩΜΑ 76

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-156	-165	-9.1	2.1	-2.6	0.4	3.4	0.9	-0.0
Q	-28	-28	-2.3	0.6	-1.6	0.4	0.9	0.6	-0.0
Σx1	8	8	0.1	-0.2	-7.5	4.2	-0.1	3.5	-0.0
Σy1	8	8	4.4	-3.9	-2.5	0.2	-2.5	0.8	0.0
Σx2	4	4	-1.1	0.8	-4.5	2.8	0.5	2.2	0.0
Σy2	11	11	4.6	-4.2	-5.3	1.7	-2.6	2.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	-0.0	0.0	-0.1	0.1	0.0	0.1	-0.0
W2	-0	-0	0.0	-0.0	0.1	-0.1	-0.0	-0.1	0.0
W3	0	0	0.1	-0.1	-0.1	0.0	-0.0	0.0	0.0
W4	-0	-0	-0.1	0.1	0.1	-0.0	0.0	-0.0	-0.0

Έλεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(5) = -258.2 \text{ KN}$
 $\Rightarrow N_{sd}/N_{rd} = 0.188$
 $N_s = -264.0 \quad v_{ds} = 0.163 < 1.00$
x-x: $N_s = -197.8 \quad N_{ex} = 0.0 \quad N_{ox} = -197.8 \quad v_{d_ex} = 0.122 < 0.65$
y-y: $N_s = -197.8 \quad N_{ey} = 13.3 \quad N_{oy} = -211.1 \quad v_{d_ey} = 0.131 < 0.65$

Έλεγχος σε λυγισμό

$\lambda_{max} = 10.78 / \sqrt{v_d} = 26.7$
άξονας $\beta \cdot l_{col} = l_0$ I_c A_c i λ ea $e2$
x-x $0.83 \cdot 2.85 = 2.37$ 0.00086 0.105 0.090 26.2 OK
y-y $0.83 \cdot 2.80 = 2.32$ 0.00063 0.105 0.077 $30.0 \Rightarrow 0.0063 \quad 0.0031$

Έλεγχος σε κάμψη

ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -5:	-264.2	3.8	1.0	41.3	51.9	0.06
Pmax 20:	-155.6	-9.0	-2.7	-58.4	-17.4	0.15
Mxmin 39:	-198.7	-16.8	0.5	-65.4	8.1	0.26
Mxmax -39:	-208.4	7.5	-0.3	63.5	17.6	0.11
Mymin 24:	-176.9	-9.9	-12.8	-37.8	-48.9	0.26
Mymax -24:	-186.6	1.1	5.3	10.0	60.9	0.09
25:	-181.8	-12.8	-11.2	-46.2	-40.4	0.28

Έλεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 5.4 \text{ KN}$, $V_{maxY} = 7.3 \text{ KN}$

Y76 O76 30/35 H=3.35m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\%$ $V_{rdc}=13$ $V_{rdMax}=401$ $V_{rds}=37$ $V_{sd}=5$
y-y: σκέλη συνδ.=3 $\rho_w=2.51\%$ $V_{rdc}=9$ $V_{rdMax}=401$ $V_{rds}=44$ $V_{sd}=7$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:
υλικά: $f_{ck}=16.0\text{MPa}$, $f_{yk}=220.0\text{MPa}$, συνδετ. $f_{yk}=220.0\text{MPa}$
- Κάμψη:
 $A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22\text{cm}^2 \geq A_{s_απαιτ.} = 4.47\text{cm}^2 \quad \lambda = 0.25$
- Διάτμηση:
x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(5.4\text{KN}, \cot\theta=2.50) = 0.35\text{cm}^2 \text{ OK}$
y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83\text{cm}^2 \geq A_{w_απαιτ.}(7.3\text{KN}, \cot\theta=2.50) = 0.40\text{cm}^2 \text{ OK}$
- Υπολογισμός τοπικής πλαστιμότητας μ_d
x-x:
 $\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.122 \cdot 0.001100)$
 $= 10.97$
 $\mu_d = [\mu(1/r) + 2] / 3 = [10.97 + 2] / 3 = 4.32$
y-y:
 $\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.131 \cdot 0.001100)$

$$= 10.28$$

$$\mu d = [\mu(1/r)+2]/3 = [10.281+2]/3 = 4.09$$

ΥΠΟΕΤΥΛΩΜΑ 77

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-128	-137	-1.4	3.1	38.6	-17.2	1.3	-16.7	-0.0
Q	-24	-24	-0.9	1.5	11.9	-13.0	0.7	-7.5	-0.0
Σx1	1	1	0.9	-0.7	-1.9	-0.3	-0.5	0.6	-0.0
Σy1	4	4	9.1	-4.0	0.8	-0.6	-3.9	-0.4	0.0
Σx2	1	1	0.3	-0.4	-1.8	-0.4	-0.2	0.6	0.0
Σy2	4	4	8.8	-4.0	0.0	-0.3	-3.8	-0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0
W2	-0	-0	-0.0	0.0	0.0	0.0	0.0	-0.0	0.0
W3	0	0	0.2	-0.1	0.0	-0.0	-0.1	-0.0	-0.0
W4	-0	-0	-0.2	0.1	-0.0	0.0	0.1	0.0	0.0

Ελεγχος σε θλίψη

$$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}, \quad N_{sd_min}(5) = -214.9 \text{ KN}$$

$$\Rightarrow N_{sd}/N_{rd} = 0.156$$

$$N_s = -220.7 \quad v_{ds} = 0.137 < 1.00$$

x-x: $N_s = -165.0 \quad N_{ex} = 0.0 \quad N_{ox} = -165.0 \quad v_{d_ex} = 0.102 < 0.65$

y-y: $N_s = -165.0 \quad N_{ey} = 5.0 \quad N_{oy} = -169.9 \quad v_{d_ey} = 0.105 < 0.65$

Ελεγχος σε λυγισμό

$$\lambda_{max} = 10.78/\sqrt{v_{nd}} = 29.2$$

άξονας	$\beta \cdot l_{col} = l_0$	I_c	A_c	i	λ	ea	e2
x-x	$0.83 \cdot 2.85 = 2.37$	0.00086	0.105	0.090	26.2 OK		
y-y	$0.83 \cdot 2.85 = 2.37$	0.00063	0.105	0.077	30.5 =>	0.0065	0.0036

Ελεγχος σε κάμψη

ΣΦ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin	-5: -220.8	6.5	-42.8	9.8	-64.5	0.66
Pmax	20: -128.0	-1.1	38.6	-1.6	55.6	0.70
Mxmin	30: -160.3	-12.3	49.3	-14.3	57.3	0.86
Mxmax	-30: -169.9	8.9	-26.0	19.5	-56.9	0.46
Mymin	-4: -220.6	6.4	-42.8	9.6	-64.5	0.66
Mymax	3: -208.8	-3.2	70.0	-3.0	64.4	1.09

Ελεγχος σε διάτμηση

$$\text{από συνδυασμούς: } V_{maxX} = 33.7 \text{ KN}, \quad V_{maxY} = 6.3 \text{ KN}$$

Y77 O77 30/35 H=3.35m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\% \quad V_{rdc}=16 \quad V_{rdMax}=401 \quad V_{rds}=37 \quad V_{sd}=34$

y-y: σκέλη συνδ.=3 $\rho_w=2.51\% \quad V_{rdc}=13 \quad V_{rdMax}=401 \quad V_{rds}=44 \quad V_{sd}=6$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

$$\text{υλικά: } f_{ck}=16.0 \text{ MPa}, \quad f_{yk}=220.0 \text{ MPa}, \quad \text{συνδετ. } f_{yk}=220.0 \text{ MPa}$$

- Κάμψη:

$$A_{s_υπαρχ.} = 4x 1\Phi 16 + 4\Phi 18 = 18.22 \text{ cm}^2 \geq A_{s_απαίτ.} = 17.50 \text{ cm}^2 \quad \lambda = 0.96$$

- Διάτμηση:

$$x-x: A_{w_υπαρχ.} = 2x \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαίτ.}(33.7 \text{ KN}, \cot\theta=2.50) = 2.19 \text{ cm}^2 \text{ OK}$$

$$y-y: A_{w_υπαρχ.} = 2x \Phi 6/20 = 2.83 \text{ cm}^2 \geq A_{w_απαίτ.}(6.3 \text{ KN}, \cot\theta=2.50) = 0.35 \text{ cm}^2 \text{ OK}$$

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.102 \cdot 0.001100)$$

$$= 13.15$$

$$\mu d = [\mu(1/r)+2]/3 = [13.155+2]/3 = 5.05$$

y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$$

$$= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.105 \cdot 0.001100)$$

$$= 12.77$$

$$\mu d = [\mu(1/r)+2]/3 = [12.771+2]/3 = 4.92$$

ΥΠΟΕΤΥΛΩΜΑ 78

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-119	-128	-0.4	1.7	-29.7	3.0	0.6	9.8	-0.0
Q	-20	-20	0.2	0.1	-5.9	2.5	-0.0	2.5	-0.0
Σx1	0	0	1.1	-0.5	-3.4	4.2	-0.5	2.3	-0.0
Σy1	4	4	8.3	-3.4	1.0	-0.2	-3.5	-0.5	0.0
Σx2	-1	-1	-0.6	0.1	-3.5	4.3	0.2	2.3	0.0
Σy2	5	5	9.3	-3.7	-0.1	1.0	-3.9	0.1	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0	0	0.0	-0.0	-0.1	0.1	-0.0	0.1	-0.0
W2	-0	-0	-0.0	0.0	0.1	-0.1	0.0	-0.1	0.0
W3	0	0	0.2	-0.1	0.0	0.0	-0.1	0.0	0.0
W4	-0	-0	-0.2	0.1	0.0	-0.0	0.1	-0.0	-0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(5) = -196.8 \text{ KN}$
 $\Rightarrow N_{sd}/N_{rd} = 0.143$
 $N_s = -202.6$ $v_{ds} = 0.125 < 1.00$
 x-x: $N_s = -152.6$ $N_{ex} = 0.0$ $N_{ox} = -152.6$ $v_{d_ex} = 0.094 < 0.65$
 y-y: $N_s = -152.6$ $N_{ey} = 5.9$ $N_{oy} = -158.5$ $v_{d_ey} = 0.098 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78/\sqrt{v_d} = 30.4$

άξονας	$\beta \cdot l_{col} = l_0$	I_c	A_c	i	λ	ea	e2
x-x	$0.83 \cdot 2.85 = 2.37$	0.00086	0.105	0.090	26.2 OK		
y-y	$0.83 \cdot 2.85 = 2.37$	0.00063	0.105	0.077	30.5 $\Rightarrow$	0.0065	0.0036

Ελεγχος σε κάμψη

	$\Sigma \Phi$	N_d	M_{dx}	M_{dy}	M_{rdx}	M_{rdy}	M_{sd}/M_{rd}
Pmin	-5:	-202.7	2.5	7.8	7.3	63.2	0.13
Pmax	20:	-118.9	-0.2	-29.7	-0.3	-54.5	0.54
Mxmin	39:	-148.9	-10.8	-37.2	-16.2	-55.8	0.67
Mxmax	37:	-137.0	10.1	-35.1	15.7	-54.7	0.64
Mymin	2:	-190.7	-0.2	-49.0	-0.3	-62.7	0.78
Mymin	-32:	-151.5	0.8	9.9	2.7	58.2	0.17
Mymin	4:	-190.6	-0.1	-48.9	-0.1	-62.6	0.78

Ελεγχος σε διάτμηση

από συνδυασμούς: $V_{maxX} = 17.0 \text{ KN}$, $V_{maxY} = 5.0 \text{ KN}$

Y78 O78 30/35 H=3.35m

x-x: σκέλη συνδ.=3 $\rho_w=2.15\%$ $V_{rdc}=18$ $V_{rdMax}=401$ $V_{rds}=37$ $V_{sd}=17$
 y-y: σκέλη συνδ.=3 $\rho_w=2.51\%$ $V_{rdc}=15$ $V_{rdMax}=401$ $V_{rds}=44$ $V_{sd}=5$

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: $f_{ck}=16.0 \text{ MPa}$, $f_{yk}=220.0 \text{ MPa}$, $\sigma_{yk}=220.0 \text{ MPa}$

- Κάμψη:

$A_{s_υπαρχ.} = 4 \times 1\Phi 16 + 4\Phi 18 = 18.22 \text{ cm}^2$ $\geq A_{s_απαιτ.} = 12.57 \text{ cm}^2$ $\lambda = 0.69$

- Διάτμηση:

x-x: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2$ $\geq A_{w_απαιτ.}(17.0 \text{ KN}, \cot\theta=2.50) = 1.10 \text{ cm}^2$ OK

y-y: $A_{w_υπαρχ.} = 2 \times \Phi 6/20 = 2.83 \text{ cm}^2$ $\geq A_{w_απαιτ.}(5.0 \text{ KN}, \cot\theta=2.50) = 0.28 \text{ cm}^2$ OK

- Υπολογισμός τοπικής πλαστιμότητας μ_d

x-x:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.094 \cdot 0.001100)$
 $= 14.22$

$\mu_d = [\mu(1/r) + 2] / 3 = [14.220 + 2] / 3 = 5.41$

y-y:

$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega_d + 0.0035) / (2.5 \cdot v_d \cdot \epsilon_{syd})$
 $= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.098 \cdot 0.001100)$
 $= 13.69$

$\mu_d = [\mu(1/r) + 2] / 3 = [13.690 + 2] / 3 = 5.23$

ΥΠΟΕΤΥΛΩΜΑ 79

TΦ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-105	-113	2.7	0.3	6.9	-1.8	-0.7	-2.6	-0.0
Q	-24	-24	0.6	0.1	1.7	-0.4	-0.2	-0.6	-0.0
Σx1	-32	-32	0.5	-0.5	-2.3	1.3	-0.3	1.1	-0.0
Σy1	8	8	10.3	-5.2	-6.0	1.8	-4.6	2.3	0.0
Σx2	-37	-37	-0.1	-0.0	-3.4	1.9	0.0	1.6	0.0
Σy2	12	12	9.5	-4.8	-5.9	2.0	-4.3	2.3	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	-1	-1	0.0	-0.0	-0.1	0.0	-0.0	0.0	-0.0
W2	1	1	-0.0	0.0	0.1	-0.0	0.0	-0.0	0.0
W3	0	0	0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.0
W4	-0	-0	-0.2	0.1	0.1	-0.0	0.1	-0.1	0.0

Ελεγχος σε θλίψη

$N_{rd} = 0.85 \cdot A_c \cdot f_{cd} = 0.85 \cdot 0.11 \cdot 15385 = 1373.1 \text{ KN}$, $N_{sd_min}(2) = -184.4 \text{ KN}$
 $\Rightarrow N_{sd}/N_{rd} = 0.134$

$N_s = -189.6$ $v_{ds} = 0.117 < 1.00$

x-x: $N_s = -139.4$ $N_{ex} = 0.0$ $N_{ox} = -139.4$ $v_{d_ex} = 0.086 < 0.65$

y-y: $N_s = -139.4$ $N_{ey} = 45.2$ $N_{oy} = -184.6$ $v_{d_ey} = 0.114 < 0.65$

Ελεγχος σε λυγισμό

$\lambda_{max} = 10.78/\sqrt{v_d} = 31.5$

άξονας	$\beta \cdot l_{col} = l_0$	I_c	A_c	i	λ
x-x	$0.83 \cdot 2.85 = 2.37$	0.00086	0.105	0.090	26.2 OK
y-y	$0.83 \cdot 2.80 = 2.32$	0.00063	0.105	0.077	30.0 OK

Ελεγχος σε κάμψη

	$\Sigma \Phi$	N_d	M_{dx}	M_{dy}	M_{rdx}	M_{rdy}	M_{sd}/M_{rd}
Pmin	-2:	-190.4	0.5	-3.0	9.7	-61.4	0.05
Pmax	35:	-84.5	6.6	10.4	29.0	45.7	0.23
Mxmin	30:	-128.1	-8.1	16.0	-25.9	51.0	0.31
Mxmax	28:	-131.3	14.9	1.2	60.3	4.9	0.25

Mymin -38: -140.5 5.7 -5.0 44.0 -38.8 0.13
 Mymax 38: -130.8 -7.0 16.2 -22.8 52.3 0.31

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 6.3 KN, VmaxY = 6.1 KN

Y79 O79 30/35 H=3.35m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=26 VrdMax=401 Vrms=37 Vsd=6

y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=17 VrdMax=401 Vrms=44 Vsd=6

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa

- Κάμψη:

As_υπαρχ.= 4x 1φ16 + 4φ18 = 18.22cm² >= As_απαιτ. = 5.03cm² λ = 0.28

- Διάτμηση:

x-x: Aw_υπαρχ.= 2x φ6/20 = 2.83cm² >= Aw_απαιτ.(6.3KN, cotθ=2.50) = 0.41cm² OK

y-y: Aw_υπαρχ.= 2x φ6/20 = 2.83cm² >= Aw_απαιτ.(6.1KN, cotθ=2.50) = 0.34cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:

μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
 = (0.1*0.094*0.021+0.0035) / (2.5*0.086*0.001100)
 = 15.57

μd = [μ(1/r)+2]/3 = [15.573+2]/3 = 5.86

y-y:

μ(1/r) = (0.1*α*ωd+0.0035) / (2.5*vd*εsyd)
 = (0.1*0.094*0.021+0.0035) / (2.5*0.114*0.001100)
 = 11.76

μd = [μ(1/r)+2]/3 = [11.759+2]/3 = 4.59

ΥΠΟΕΤΥΛΩΜΑ 80

Tφ	N1	N2	Mx1	Mx2	My1	My2	Vx	Vy	Στρέψη
G	-168	-177	2.9	0.0	7.0	-2.1	-0.9	-2.7	-0.0
Q	20	20	1.3	-0.1	0.4	-0.1	-0.4	-0.1	-0.0
Σx1	44	44	1.6	-1.1	-3.7	1.5	-0.8	1.6	-0.0
Σy1	-113	-113	9.4	-4.6	13.8	-3.5	-4.2	-5.2	0.0
Σx2	78	78	-0.1	0.1	-7.3	2.6	0.1	3.0	0.0
Σy2	-133	-133	11.3	-5.9	15.0	-3.3	-5.1	-5.5	-0.0
Sn	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	1	1	0.0	-0.0	-0.1	0.0	-0.0	0.0	-0.0
W2	-1	-1	-0.0	0.0	0.1	-0.0	0.0	-0.0	0.0
W3	-3	-3	0.2	-0.1	0.3	-0.1	-0.1	-0.1	0.0
W4	3	3	-0.2	0.1	-0.3	0.1	0.1	0.1	-0.0

Ελεγχος σε θλίψη

Nrd = 0.85*Ac*fcd = 0.85*0.11*15385 = 1373.1 KN, Nsd_min(37) = -349.8 KN

=> Nsd/Nrd = 0.255

Ns = -207.9 vds = 0.129 < 1.00

x-x: Ns = -182.1 Nex = 0.0 Nox = -182.1 vd_ex = 0.113 < 0.65

y-y: Ns = -182.1 Ney = -172.5 Noy = -354.6 vd_ey = 0.220 < 0.65

Ελεγχος σε λυγισμό

λmax = 10.78/√vd = 30.0

άξονας β*1col = lo Ic Ac i λ

x-x 0.83*2.85 = 2.37 0.00086 0.105 0.090 26.2 OK

y-y 0.83*2.80 = 2.32 0.00063 0.105 0.077 30.0 OK

Ελεγχος σε κάμψη

Σφ	Nd	Mdx	Mdy	Mrdx	Mrdy	Msd/Mrd
Pmin -37:	-354.6	-6.5	-6.9	-47.9	-50.5	0.14
Pmax 39:	0.1	-8.5	-11.0	-28.5	-36.8	0.30
Mxmin 39:	0.1	-8.5	-11.0	-28.5	-36.8	0.30
Mxmax 37:	-345.0	16.5	26.8	37.3	60.6	0.44
Mymin 39:	0.1	-8.5	-11.0	-28.5	-36.8	0.30
Mymax 37:	-345.0	16.5	26.8	37.3	60.6	0.44

Ελεγχος σε διάτμηση

από συνδυασμούς: VmaxX = 10.0 KN, VmaxY = 6.9 KN

Y80 O80 30/35 H=3.35m

x-x: σκέλη συνδ.=3 ρw=2.15% Vrdc=39 VrdMax=401 Vrms=37 Vsd=10

y-y: σκέλη συνδ.=3 ρw=2.51% Vrdc=11 VrdMax=401 Vrms=44 Vsd=7

**** Έλεγχος επάρκειας υπάρχοντος οπλισμού:

υλικά: fck=16.0MPa, fyk=220.0MPa, συνδετ.fyk=220.0MPa

- Κάμψη:

As_υπαρχ.= 4x 1φ16 + 4φ18 = 18.22cm² >= As_απαιτ. = 7.11cm² λ = 0.39

- Διάτμηση:

x-x: Aw_υπαρχ.= 2x φ6/20 = 2.83cm² >= Aw_απαιτ.(10.0KN, cotθ=2.50) = 0.65cm² OK

y-y: Aw_υπαρχ.= 2x φ6/20 = 2.83cm² >= Aw_απαιτ.(6.9KN, cotθ=2.50) = 0.38cm² OK

- Υπολογισμός τοπικής πλαστιμότητας μd

x-x:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega d + 0.0035) / (2.5 \cdot v d \cdot \epsilon s y d)$$

$$= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.113 \cdot 0.001100)$$

$$= 11.92$$

$$\mu d = [\mu(1/r) + 2] / 3 = [11.916 + 2] / 3 = 4.64$$

y-y:

$$\mu(1/r) = (0.1 \cdot \alpha \cdot \omega d + 0.0035) / (2.5 \cdot v d \cdot \epsilon s y d)$$

$$= (0.1 \cdot 0.094 \cdot 0.021 + 0.0035) / (2.5 \cdot 0.220 \cdot 0.001100)$$

$$= 6.12$$

$$\mu d = [\mu(1/r) + 2] / 3 = [6.120 + 2] / 3 = 2.71$$

ΕΛΕΓΧΟΣ ΠΕΣΣΩΝ

ΓΙΝΟΝΤΑΙ ΟΙ ΕΠΟΜΕΝΟΙ ΕΛΕΓΧΟΙ ΣΕ ΚΑΘΕ ΠΕΣΣΟ

Έλεγχος αντοχής τοίχου σε κατακόρυφα φορτία (ΣΦ 1)

Στη κορυφή

$e1d = M1d / N1d =$

$einit = hef / 450 =$

$e1 = e1d + ehe + einit =$

$e1 = \max(e1, 0.05 \cdot t) =$

$\Phi 1 = 1 - 2 \cdot e1 / t =$

$Nrd1 = \Phi 1 \cdot f_k / \gamma M \cdot A_w$

Στο μέσο

$Nm = N1d + 1.35 \cdot W_{ib} / 2 =$

$Mm = (M1d - M2d) / 2 =$

$em d = Mm / Nm =$

$em = em d + ehe + einit =$

$\phi_inf = 1.00$

$ek = 0.002 \cdot \phi_inf \cdot hef / tef \cdot (t \cdot em)^2$

$=$

$emk = em + ek =$

$A = 1 - 2 \cdot em / t =$

$u = (hef / tef - 2) / (23 - 37 \cdot emk / t) =$

$\Phi m = A \cdot \exp(-u^2 / 2) = 0.99 \cdot \exp(-0.03^2 / 2) =$

$Nrdm = \Phi m \cdot f_k / \gamma M \cdot A_w =$

Στη βάση

$N2d = N1d + 1.35 \cdot W_{ib} + 1.35 \cdot W_{pros} =$

$e2d = M2d / N2d =$

$e2 = e2d + ehe + einit =$

$e2 = \max(e2, 0.05 \cdot t) =$

$\Phi 2 = 1 - 2 \cdot e2 / t =$

$Nrd2 = \Phi 2 \cdot f_k / \gamma M \cdot A_w =$

Έλεγχος επάρκειας

$k = \max[Nd1 / Nrd1, Nm / Nrdm, Nd2 / Nrd2]$

$=$

Δ.Σ. για δράση εντός επιπέδου ,συνδυασμος φόρτισης

$Ned = Med = Ved =$

$Ho = Med / Ved =$

$fd = f_k / \gamma M =$

$vsd = Ned / (L \cdot t \cdot fd \cdot 1000) =$

$Vf = L \cdot Ned / (2 \cdot Ho) \cdot (1 - 1.15 \cdot vsd) =$

$e = Med / Ned = 0.931m \Rightarrow L' =$

$ftd = ft / \gamma M = 0.25 / 1.50 =$

$fvd t = \sqrt{ftd \cdot (ftd + vsd \cdot fd)} =$

$Vvt = fvd t \cdot 1000 \cdot L \cdot t =$

$\sigma d = (Ned / 1000) / (Lp \cdot t) =$

$fvd = fv / \gamma M =$

$fvds = fvd + 0.40 \cdot \sigma d =$

$Vvs = fvds \cdot Lp \cdot t =$

$Vv = \min(Vvt, Vvs) =$

$Vrd = \min(Vv, Vf) =$

$\lambda V = Ved / Vrd =$

Δ.Σ. για δράση εκτός επιπέδου .., συνδυασμός φόρτισης:

$Ned =, Med = Ved =$

$Ho = Med / Ved =$

$\sigma 0 = (Ned / 1000) / (L \cdot t) =$

$Mrd = 1 / 2 \cdot L \cdot \sqrt{t} \cdot 1000 \cdot \sigma i 0 \cdot (1 - \sigma i 0 / fd) =$

$Vrd = Mrd / Ho =$

$\lambda V = Ved / Vrd =$

$\lambda V < 1.00$ ή $\lambda V \geq 1.00$

(ΕΠΙΛΥΣΗ Α) ΜΕΘΟΔΟΣ ΚΑΘΟΛΙΚΩΝ ΔΕΙΚΤΩΝ ΣΥΜΠΕΡΙΦΟΡΑΣ α

ΥΠΟΛΟΓΙΣΜΟΣ ΣΥΝΟΛΙΚΗΣ ΑΝΤΟΧΗΣ ΑΝΑ ΣΕΙΣΜΙΚΟ ΣΥΝΔΥΑΣΜΟ

Σεισμικός συνδυασμός 24: $1.10 \cdot G + 0.60 \cdot Q + 1.21 \cdot \Sigma x1 + 0.36 \cdot \Sigma y1$

Στάθμη 3

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-529.56	253.28	100.20	195.69	298.43		195.69
2	190/60	-520.53	146.29	73.92	181.11	284.21		181.11
3	240/60	-572.35	273.63	130.32	248.76	315.57		248.76

4	175/60	-473.79	136.06	67.39	149.51	259.52	149.51
5	165/60	-493.15	100.76	52.34	147.89	263.26	147.89
6	165/60	-479.21	105.46	58.33	154.88	257.68	154.88
7	165/60	-299.99	131.62	68.38	105.10	166.34	105.10
8	250/60	-577.92	318.69	149.90	260.88	314.99	260.88
9	95/60	-486.71	28.28	13.90	55.15	232.69	55.15
10	90/60	-382.61	46.23	32.97	70.36	189.05	70.36
11	245/60	-467.07	335.69	154.96	213.54	247.58	213.54
12	175/60	-495.84	153.80	72.05	145.40	266.11	145.40
13	135/60	-433.38	71.11	40.13	111.84	227.35	111.84
14	155/60	-451.72	98.05	55.23	139.46	242.69	139.46
15	170/60	-319.41	136.53	70.57	113.84	178.47	113.84
16	240/60	-264.19	308.73	144.93	132.37	29.37	29.37
17	190/60	-299.83	183.56	94.54	123.45	160.46	123.45
18	230/60	-418.80	247.41	68.31	108.65	234.63	108.65
19	560/60	-1359.67	1290.95	477.35	1064.40	765.93	765.93
20	465/60	-1185.91	852.74	352.48	847.75	660.36	660.36
21	375/60	-917.53	518.10	300.86	753.49	517.01	517.01
22	380/60	-917.37	580.97	261.18	593.56	518.95	518.95
23	700/60	-1628.93	2050.42	760.31	1619.90	920.52	920.52
24	265/60	-816.06	287.17	154.00	400.48	432.43	400.48
25	255/60	-826.68	249.35	165.71	472.36	432.67	432.67
26	500/60	-1503.04	1174.53	384.14	857.88	801.22	801.22
27	480/65	-531.90	903.30	393.91	499.49	303.99	303.99
28	380/65	-1028.03	649.46	233.68	526.50	575.88	526.50
29	240/65	-813.36	215.46	115.06	357.42	429.34	357.42
30	65/65	-157.85	8.82	7.23		41.26	33.79
31	215/65	-272.77	173.23	111.28	166.21	166.30	166.21
32	110/65	-192.70	51.23	27.46	47.57	114.02	47.57
33	450/65	-1079.95	773.12	414.76	1013.52	626.98	626.98
34	265/65	-625.74	276.96	158.10	369.67	365.01	365.01
35	120/60	-293.64	41.41	31.29	100.42	165.45	100.42
36	290/60	-407.28	236.93	160.98	344.65	267.11	267.11
37	345/60	-905.99	451.99	131.80	335.51	500.40	335.51
38	165/60	-530.28	71.71	22.65	93.57	278.11	93.57
39	150/60	-386.06	56.37	17.43	66.39	214.42	66.39
40	290/60	-619.28	316.93	141.74	315.45	360.30	315.45
41	1140/60	-3347.98	4551.92	1076.49	3181.72	1795.19	1795.19
42	880/60	-1271.74	2095.32	556.17	1269.66	838.98	838.98
43	3769/60	-5476.43	6065.47	3094.99	44974.82	3698.17	3698.17
44	445/60	-743.01	489.62	284.36	799.12	475.20	475.20
45	60/195	-343.56	25.98	12.52		87.24	42.02
46	60/164	-492.93	12.15	3.67		109.13	32.96
47	60/290	-566.01	54.56	29.43		140.86	75.96
48	60/110	-202.38	20.06	10.79		50.94	27.41
49	60/160	-106.73	26.92	14.82		30.16	16.61
50	60/229	-289.22	13.59	4.00		77.21	22.74
51	60/209	-642.89	24.64	17.36		141.10	99.41
52	60/190	-456.26	35.67	21.64		108.11	65.58
53	60/273	-663.10	-167.06	-57.74		156.68	54.15
54	60/888	-2223.21	132.06	69.39		521.11	273.80
55	45/630	-1141.04	31.34	15.43		202.58	99.74
56	60/900	-1443.21	119.92	66.83		372.32	207.49
57	95/192	-612.54	113.05	60.07		239.75	127.38
58	40/513	-690.43	24.51	13.21		113.74	61.31
59	65/630	-1380.91	108.34	57.56		369.48	196.28
60	60/670	-1734.12	80.33	43.65		402.62	218.80
61	60/645	-786.69	106.03	60.88		210.86	121.07
62	60/192	-468.35	32.95	16.80		110.57	56.36
63	40/620	-1376.33	44.35	25.84		195.21	113.72
64	60/680	-1143.79	106.39	61.83		292.72	170.11
65	40/620	-1004.30	36.17	20.13		158.23	88.06
66	60/460	-648.04	77.21	41.28		170.49	91.14
67	35/513	-820.63	16.30	8.94		109.21	59.92
68	60/680	-2601.76	87.45	47.97		519.68	285.07
69	35/620	-1049.98	20.59	11.52		137.15	76.73
70	60/300	-499.71	39.00	21.68		128.10	71.23
71	40/533	-679.24	26.16	14.29		113.17	61.80
72	390/30	-489.97	359.98	179.15	355.47	268.90	268.90
73	265/30	-317.23	147.98	76.21	164.42	178.40	164.42
74	60/30	-69.31	4.78	2.63	8.78	39.72	8.78
75	60/370	-867.20	142.62	72.65		206.90	105.39
76	60/310	-652.69	58.13	31.36		159.80	86.21
77	60/233	-631.98	29.19	9.88		144.68	48.98
78	60/57	-272.65	4.64	1.79	16.34	131.71	16.34
79	60/187	-712.97	10.63	3.15		142.83	42.37
80	60/143	-643.25	11.98	6.86		117.41	67.22
81	60/264	-198.68	87.10	26.02		55.69	16.64
82	60/468	-2070.51	43.90	24.44		381.30	212.25
83	60/107	-260.76	23.17	13.48		61.58	35.84
84	60/160	-278.82	18.40	10.14		70.91	39.06
85	60/140	-380.65	12.85	6.65		87.08	45.04
86	35/630	-760.20	13.51	5.85		109.00	47.15

87	40/495	-683.16	17.47	8.93			111.93	57.24
88	670/25	-382.08	368.96	240.50	719.63	264.50		264.50
89	65/250	-481.57	46.43	26.89			132.20	76.58
90	340/60	-632.56	351.81	224.36	557.61	389.02		389.02
91	56/56	-80.47	5.94	3.56			19.50	11.67
92	56/56	-151.13	6.36	4.48			31.63	22.29
93	56/56	-149.37	6.55	4.93			31.38	23.62
94	56/56	-90.89	6.87	5.51			21.58	17.31
95	45/70	-362.54	26.83	23.02	119.43	273.85	210.19	119.43
96	45/70	-224.06	20.76	13.07	115.90	262.94	203.99	115.90
97	60/635	-871.16	72.93	40.14			230.03	126.61
98	1010/60	-2034.55	2618.20	527.28	1650.49	1217.82		1217.82
99	60/310	-756.49	33.11	18.60			178.57	100.29
100	1150/60	-3105.30	3071.53	579.75	2456.09	1702.12		1702.12
101	55/885	-2099.80	59.54	36.32			446.89	272.62
102	55/885	-1677.86	97.56	54.08			378.06	209.58
103	1045/60	-2787.60	2553.77	579.38	2419.00	1533.04		1533.04
104	60/310	-835.44	31.45	18.09			191.63	110.24
105	1130/60	-2806.84	3392.60	664.11	2329.81	1574.74		1574.74
106	60/678	-1721.45	71.07	38.73			401.90	219.02
107	50/885	-1760.70	55.97	30.61			348.38	190.54
108	30/545	-763.30	8.93	5.02			86.48	48.60
109	1185/50	-2203.76	2885.57	668.56	2347.08	1276.50		1276.50
110	25/635	-571.72	5.93	3.43			57.98	33.59
111	1150/25	-1684.65	1587.11	319.41	1260.99	865.53		865.53
112	60/90	-243.41	11.24	6.20			55.77	30.77
113	30/885	-1207.39	14.11	7.84			137.94	76.62
114	40/40	-538.88	8.26	4.97	81.81	174.15	143.99	81.81
115	40/40	-413.00	9.01	6.39	79.12	165.00	139.24	79.12
				16631.99				32853.67
$\lambda = \Sigma_Ved/\Sigma_Vrd = 16631.99/32853.67 = 0.51 \quad OK$								

Στάθμη 4

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-366.99	50.60	36.16	266.39	242.80		242.80
2	190/60	-343.56	64.54	59.13	244.68	213.43		213.43
3	240/60	-295.33	90.33	91.29	313.89	214.13		214.13
4	175/60	-348.82	34.94	39.15	273.52	209.53		209.53
5	165/60	-304.88	30.65	28.80	192.53	187.95		187.95
6	165/60	-315.78	41.81	41.05	206.65	192.31		192.31
7	165/60	-383.02	65.74	13.16	48.51	219.21		48.51
8	125/60	19.36	17.91	9.28	0.00	0.00		0.00
9	55/60	-331.55	-3.28	-2.61			43.17	34.40
10	55/60	-366.06	26.43	52.71			42.14	84.05
11	135/60	-286.17	28.83	19.00	100.18	168.47		100.18
12	175/60	-431.15	36.02	23.72	186.92	242.46		186.92
13	135/60	-285.08	32.65	39.44	183.12	168.03		168.03
14	155/60	-305.94	48.27	56.07	220.84	184.37		184.37
15	170/60	-134.31	75.43	63.81	88.90	88.33		88.33
16	240/60	-231.09	156.56	117.01	187.21	155.13		155.13
17	190/60	-181.74	137.70	101.35	114.86	95.78		95.78
18	230/60	-282.95	57.98	39.44	193.99	205.18		193.99
19	560/60	-1008.28	445.66	342.52	1777.36	627.31		627.31
20	465/60	-747.50	677.01	209.60	451.18	469.31		451.18
21	375/60	-538.86	507.43	250.01	425.96	327.55		327.55
22	380/60	-523.18	360.97	184.26	437.24	354.48		354.48
23	700/60	-952.54	1010.58	621.20	1769.20	661.02		661.02
24	265/60	-478.32	291.27	64.73	115.30	277.26		115.30
25	255/60	-539.96	336.68	170.64	274.71	294.16		274.71
26	500/60	-1224.24	482.53	267.30	1278.45	689.69		689.69
27	240/45	-598.25	111.59	71.92	308.24	311.30		308.24
28	240/45	-481.31	132.06	69.91	223.62	264.52		223.62
29	235/65	-508.15	203.04	196.29	461.49	304.07		304.07
30	265/65	-445.31	256.43	106.75	207.36	275.51		207.36
31	145/60	-281.17	19.00	27.19	234.81	170.47		170.47
32	165/60	-320.99	2.35	10.28	930.03	194.40		194.40
33	150/60	-246.33	25.71	29.51	177.11	158.53		158.53
34	290/60	-387.32	122.15	119.48	475.66	270.93		270.93
35	1160/60	-2435.17	1311.04	917.23	7797.70	1438.07		1438.07
36	880/30	-810.07	469.28	212.83	1317.56	500.03		500.03
37	2949/60	-3100.86	4752.51	1324.32	11395.08	2419.94		2419.94
38	60/195	-207.20	5.67	10.50			56.40	104.43
39	60/164	-283.88	-0.75	8.10			72.31	776.13
40	60/290	-372.38	43.08	105.37			99.18	242.58
41	60/110	-167.22	21.71	53.24			43.49	106.68
42	60/160	-68.95	10.40	12.78			19.91	24.48
43	60/229	-76.67	3.87	5.21			22.33	30.07
44	60/209	-766.31	31.19	21.38			156.35	107.17
45	60/190	-510.67	36.84	27.40			117.16	87.15
46	60/303	-490.46	35.55	-44.56			126.31	158.31

47	60/888	-1492.21	74.74	153.65			381.96	785.29
48	35/610	-705.58	19.11	40.60			102.09	216.84
49	60/332	-760.58	51.03	131.12			182.52	469.01
50	60/338	-469.66	17.07	39.90			123.78	289.40
51	95/192	-665.76	41.58	25.84			255.74	158.90
52	65/480	-879.02	39.86	68.15			243.50	416.28
53	60/670	-1367.20	99.02	198.45			337.05	675.49
54	60/192	-226.36	10.70	15.64			60.91	89.07
55	40/620	-911.76	60.57	173.06			147.22	420.64
56	40/620	-506.49	57.04	152.68			90.46	242.13
57	60/460	-437.03	74.39	143.33			120.23	231.64
58	35/513	-597.10	20.38	37.80			86.28	160.03
59	60/680	-2249.23	110.55	322.78			479.82	1400.94
60	35/620	-691.61	43.85	113.80			100.82	261.60
61	60/300	-517.92	55.03	35.99			131.95	86.29
62	40/533	-403.57	39.55	74.67			72.71	137.25
63	390/30	-202.90	249.47	122.80	174.40	124.38		124.38
64	265/30	-154.43	172.38	42.27	44.30	74.30		44.30
65	60/30	-58.19	4.91	8.34	23.90	35.28		23.90
66	60/370	-566.81	44.55	99.31			147.29	328.29
67	60/310	-444.40	40.03	83.76			116.63	244.01
68	60/233	-378.98	-5.20	8.92			97.54	167.50
69	60/117	-573.99	-0.57	4.77			98.17	825.27
70	60/187	-469.15	1.45	12.59			109.98	953.22
71	60/143	-525.11	44.59	37.05			107.17	89.04
72	60/719	-1749.07	-6.67	119.28			413.30	7389.95
73	60/160	-161.00	30.29	20.44			44.05	29.72
74	60/140	-156.92	-229.32	-82.22			42.47	15.23
75	20/610	-474.75	5.08	12.12			37.79	90.13
76	45/60	-145.50	8.36	4.97			23.49	13.97
77	45/60	-128.95	3.94	3.29			21.75	18.16
78	60/635	-620.94	76.73	187.93			170.37	417.30
79	1010/60	-1453.60	1151.23	359.24	1959.51	985.44		985.44
80	60/310	-561.68	46.86	115.59			141.84	349.89
81	1150/60	-2319.91	1309.90	539.86	4383.67	1387.96		1387.96
82	55/885	-1480.33	126.72	325.25			342.21	878.34
83	55/885	-1121.97	127.43	297.95			271.27	634.28
84	1045/60	-1959.25	1013.17	515.38	4226.66	1201.70		1201.70
85	60/310	-607.41	51.88	130.66			151.04	380.39
86	1130/60	-2000.08	1608.88	491.53	2838.63	1252.03		1252.03
87	60/678	-1261.47	85.38	176.22			316.94	654.15
88	50/885	-1400.11	89.12	203.02			291.98	665.14
89	30/545	-658.10	20.37	50.55			77.89	193.30
90	1185/25	-1530.74	952.79	329.52	2159.88	809.80		809.80
91	25/635	-472.28	22.23	56.19			49.83	125.95
92	1150/25	-1405.82	929.08	167.27	1026.42	754.00		754.00
93	60/90	-173.45	10.71	25.87			43.28	104.47
94	30/885	-1009.26	29.55	72.82			121.23	298.80
				12493.35				41424.55

λ = Σ_Ved/Σ_Vrd = 12493.35/41424.55 = 0.30 OK

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-339.72	87.71	22.34	89.09	231.89		89.09
2	190/60	-291.11	88.92	38.49	101.29	192.44		101.29
3	240/60	-335.70	168.86	92.13	188.90	217.92		188.90
4	175/60	-272.87	80.05	45.93	115.54	178.95		115.54
5	165/60	-246.65	46.05	15.21	57.12	164.66		57.12
6	165/60	-264.43	57.92	20.60	65.09	171.77		65.09
7	165/60	-288.94	42.92	14.07	64.41	181.58		64.41
8	125/60	-136.15	21.65	7.83	27.42	104.46		27.42
9	55/60	-302.15	7.65	5.00			43.22	28.27
10	55/60	-329.30	15.09	8.77			43.20	25.10
11	135/60	-170.94	33.93	21.00	62.34	122.38		62.34
12	175/60	-350.85	53.04	30.61	141.49	210.34		141.49
13	135/60	-234.33	41.19	17.50	55.47	147.73		55.47
14	155/60	-256.99	59.46	24.85	69.37	164.80		69.37
15	170/60	-233.63	88.41	59.44	115.08	150.04		115.08
16	240/60	-137.37	275.05	174.14	98.37	0.00		0.00
17	190/60	-133.66	150.28	100.98	79.29	0.00		0.00
18	230/60	-281.35	80.01	43.80	155.36	204.54		155.36
19	560/60	-730.03	468.69	418.18	1584.96	516.01		516.01
20	465/60	-681.31	338.37	218.74	873.27	458.53		458.53
21	375/60	-489.36	322.97	235.02	580.17	341.55		341.55
22	380/60	-473.02	211.66	169.31	629.03	341.21		341.21
23	700/60	-1105.93	947.40	590.50	2029.73	722.37		722.37
24	265/60	-446.06	105.83	102.41	475.24	284.42		284.42
25	255/60	-506.30	200.27	160.21	413.41	304.52		304.52
26	500/60	-1158.24	262.97	246.82	2085.38	663.29		663.29
27	240/45	-503.25	56.74	75.02	574.19	273.30		273.30
28	240/45	-457.55	75.64	62.05	335.39	255.02		255.02

29	235/65	-551.67	265.48	136.94	261.59	310.86		261.59
30	265/65	-407.41	171.35	94.57	255.47	277.80		255.47
31	145/60	-185.90	33.82	33.33	115.73	132.36		115.73
32	165/60	-299.21	-10.29	2.39	46.87	185.68		46.87
33	150/60	-241.52	-5.47	22.29	619.35	156.61		156.61
34	290/60	-386.20	89.36	97.80	530.93	270.48		270.48
35	1160/60	-2156.80	1505.19	848.37	5733.90	1326.72		1326.72
36	880/30	-452.25	509.64	221.90	776.96	356.90		356.90
37	2949/60	-2771.79	4023.50	1288.16	11849.52	2288.32		2288.32
38	60/195	-183.04	6.98	2.63		50.42		18.95
39	60/164	-243.65	-5.03	-0.08		63.63		0.95
40	60/290	-433.98	48.18	29.71		113.18		69.79
41	60/110	-203.14	17.34	10.73		51.10		31.62
44	60/209	-706.48	15.88	0.32		149.43		3.03
45	60/190	-444.79	22.85	12.50		106.10		58.04
46	60/303	-436.75	67.96	8.17		114.51		13.77
47	60/888	-1400.03	84.37	49.35		362.17		211.86
48	35/610	-728.19	11.08	8.63		104.65		81.47
49	60/332	-759.03	53.53	32.66		182.24		111.19
50	60/338	-493.33	23.98	19.64		129.11		105.75
51	95/192	-457.97	32.44	12.22		188.91		71.13
52	65/480	-573.25	30.27	24.27		168.37		134.97
53	60/670	-1242.26	55.31	35.80		312.32		202.15
54	60/192	-309.45	12.02	7.56		79.77		50.19
55	40/620	-643.31	54.17	31.32		111.17		64.28
56	40/620	-567.15	39.76	24.16		99.84		60.66
57	60/460	-449.64	70.28	43.83		123.38		76.95
58	35/513	-384.86	9.59	6.38		59.78		39.77
59	60/680	-1954.85	104.98	60.82		439.20		254.46
60	35/620	-629.56	20.80	11.86		93.42		53.28
61	60/300	-478.32	26.49	22.43		123.51		104.60
62	40/533	-300.85	20.26	13.25		55.72		36.42
63	390/30	-266.67	220.53	150.31	305.74	174.05		174.05
64	265/30	-154.02	54.47	55.63	184.09	114.61		114.61
65	60/30	-34.74	3.16	2.08	6.06	25.89		6.06
66	60/370	-449.62	95.48	57.13		120.57		72.14
67	60/310	-330.14	54.80	32.70		89.83		53.61
68	60/233	-303.56	-11.17	-5.89		80.71		42.53
69	60/117	-536.13	-4.63	-6.21		96.25		129.19
70	60/187	-394.25	-9.55	-5.69		96.55		57.53
71	60/143	-442.87	18.92	30.75		97.04		157.75
72	60/719	-1463.98	126.46	78.41		361.13		223.92
73	60/160	-139.88	14.19	13.31		38.76		36.35
74	60/140	-138.44	-163.51	-74.18		37.94		17.21
75	20/610	-433.61	-0.17	0.89		35.28		183.98
76	45/60	-139.56	4.18	3.15		22.89		17.26
77	45/60	-123.01	1.38	1.40		21.07		21.33
78	60/635	-577.67	64.23	37.51		159.53		93.17
79	1010/60	-1161.97	1117.14	370.38	1720.65	868.79		868.79
80	60/310	-453.03	30.76	17.86		118.56		68.84
81	1150/60	-1899.76	1383.17	407.09	2681.53	1219.90		1219.90
82	55/885	-1059.19	90.63	55.96		258.06		159.34
83	55/885	-888.48	94.46	55.99		220.96		130.96
84	1045/60	-1631.64	1101.82	478.37	3120.83	1070.65		1070.65
85	60/310	-453.62	39.52	23.28		118.69		69.93
86	1130/60	-1715.14	1690.45	573.07	2784.27	1138.06		1138.06
87	60/678	-1142.19	65.96	38.90		292.23		172.32
88	50/885	-884.85	59.44	34.78		198.03		115.89
89	30/545	-491.04	8.86	5.14		62.06		35.99
90	1185/25	-1548.52	954.01	383.84	2528.57	816.91		816.91
91	25/635	-425.84	8.89	5.23		45.75		26.89
92	1150/25	-1343.99	1376.42	255.55	1030.57	729.26		729.26
93	60/90	-137.54	9.73	5.37		35.75		19.72
94	30/885	-584.28	12.19	6.93		77.53		44.05
				9323.91				20543.72
$\lambda = \Sigma_Ved/\Sigma_Vrd = 9323.91/20543.72 = 0.45 \quad OK$								

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-134.97	20.00	66.79	495.13	117.99		117.99
2	190/40	-130.09	-11.32	77.23	756.44	102.70		102.70
3	240/40	-168.79	67.16	104.30	281.25	131.51		131.51
4	175/40	-161.28	35.66	55.13	187.89	111.18		111.18
5	165/40	-105.49	6.72	34.71	406.02	86.20		86.20
6	165/40	-124.82	3.70	36.58	900.95	93.93		93.93
7	110/40	-233.67	-11.89	4.20	30.84	122.80		30.84
8	125/40	-135.92	6.04	0.73	8.59	87.70		8.59
9	35/40	-125.94	2.78	2.29			11.65	9.60
10	35/40	-131.75	6.77	21.08			11.68	36.40
11	135/40	-75.71	3.17	20.76	306.10	66.28		66.28
12	155/40	-136.48	4.16	29.57	651.31	95.92		95.92

13	135/40	-113.70	-2.89	30.45	705.66	81.48	81.48
14	155/40	-122.94	-8.39	33.70	336.87	90.51	90.51
15	150/40	-271.33	18.67	3.22	25.50	148.53	25.50
16	240/40	-29.78	-24.18	-3.65	5.29	42.95	5.29
17	190/40	-97.52	-13.58	75.30	474.01	89.67	89.67
18	230/40	-179.37	-108.35	-38.80	65.19	115.42	65.19
19	120/40	-169.62	43.26	2.20	4.06	95.44	4.06
20	255/40	-202.46	179.76	101.66	128.52	111.95	111.95
21	375/40	-280.14	476.21	254.72	249.34	109.28	109.28
22	380/40	-239.83	223.68	121.63	224.22	173.32	173.32
23	700/40	-392.98	396.02	405.96	1290.71	343.86	343.86
24	265/40	-206.65	186.54	122.39	158.54	116.45	116.45
25	255/40	-237.71	241.09	130.19	140.68	115.95	115.95
26	500/40	-596.88	90.72	213.88	2885.14	372.09	372.09
27	240/40	-303.22	255.33	151.53	174.83	149.92	149.92
28	240/40	-299.11	163.80	67.59	120.30	171.84	120.30
29	235/40	-342.23	110.88	31.15	88.18	199.56	88.18
30	265/40	-120.02	108.13	64.09	87.82	81.94	81.94
31	145/30	-145.19	35.37	21.44	50.97	86.96	50.97
32	165/30	-86.47	-9.48	0.92	6.17	67.59	6.17
33	150/30	-154.23	41.54	33.77	74.60	90.53	74.60
34	965/30	-800.77	-601.46	350.50	1876.23	513.31	513.31
35	939/35	-39.02	-28.63	232.09	1474.62	234.71	234.71
36	40/195	-36.91	3.67	9.55		7.20	18.73
37	40/164	-101.81	-4.29	6.23		18.71	27.19
38	40/290	-205.59	21.22	25.58		37.30	44.96
39	40/90	-264.45	2.62	-2.28		32.53	28.33
40	40/160	117.59	-16.33	1.30		0.00	0.00
41	40/229	15.63	0.14	3.03		0.00	0.00
42	40/209	-390.87	9.02	23.52		59.04	153.95
43	40/190	-225.12	-13.06	11.54		38.02	33.60
44	40/303	-238.95	70.72	10.04		42.85	6.09
45	40/888	-586.62	74.27	152.70		107.17	220.35
46	40/332	-442.01	21.48	34.53		72.98	117.32
47	40/338	-202.47	14.53	19.90		37.31	51.09
48	35/670	-873.55	34.49	112.69		123.03	402.00
49	40/172	-162.52	5.79	15.02		28.48	73.82
50	35/680	-25.71	64.99	203.51		4.47	14.01
51	40/590	-366.90	65.34	185.63		67.40	191.50
52	40/440	-206.52	9.00	16.52		38.76	71.15
53	35/680	-1065.30	66.04	185.75		142.70	401.33
54	40/370	-164.07	13.08	44.17		30.91	104.40
55	40/310	-147.27	38.86	35.31		27.62	25.10
56	40/233	-146.57	9.51	15.01		26.90	42.45
57	40/117	-377.89	22.90	80.63		43.49	153.16
58	40/187	-218.96	10.07	19.00		37.09	69.95
59	40/143	-183.26	77.93	53.70		30.52	21.03
60	40/719	-722.85	50.94	111.02		125.54	273.58
61	40/140	-59.90	89.09	51.83		11.31	6.58
62	40/40	-282.97	5.44	9.64		4.14	7.34
63	40/40	0.90	4.83	9.77		0.00	0.00
64	40/635	-258.58	26.40	58.74		48.96	108.94
65	990/40	-451.30	152.30	120.89	1651.39	444.52	444.52
66	40/310	-212.64	16.98	41.36		38.71	94.28
67	1150/40	-1066.75	671.51	232.16	1824.22	733.37	733.37
68	1045/40	-902.38	-102.07	385.58	15493.84	639.62	639.62
69	40/290	-173.61	25.27	61.18		32.00	77.46
70	1110/40	-842.82	221.47	273.36	5113.08	633.13	633.13
71	40/678	-678.07	34.63	88.12		117.84	299.88
72	40/635	-328.42	43.96	105.68		61.23	147.19
73	1185/40	-1336.50	161.10	323.47	13198.15	850.60	850.60
74	1150/40	-1013.22	1361.56	96.38	357.67	711.95	357.67
75	30/35	-189.29	1.19	0.38	145.25	132.12	132.12
76	30/35	-187.76	11.39	7.09	148.90	134.77	134.77
77	30/35	-165.03	-43.58	-20.79	139.03	127.68	127.68
78	30/35	-153.31	22.44	16.15	135.08	124.93	124.93
79	30/35	-177.42	0.32	0.39	130.93	122.06	122.06
80	30/35	-171.52	-3.13	-1.59	143.43	130.81	130.81
				6092.71			11633.88

λ = Σ_Ved/Σ_Vrd = 6092.71/11633.88 = 0.52 OK

Στάθμη 7

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-125.48	116.95	63.62	75.46	71.63		71.63
2	190/40	-109.56	148.86	72.50	46.29	0.00		0.00
3	240/40	-139.73	158.51	110.93	107.05	40.91		40.91
4	175/40	-35.14	57.73	41.64	21.51	0.00		0.00
5	165/40	-78.62	38.85	16.13	24.99	57.92		24.99
6	165/40	-93.80	39.19	16.97	30.64	70.10		30.64
7	110/40	-92.79	19.58	9.93	22.60	64.24		22.60
8	125/40	-43.51	-9.71	-13.61	36.12	49.54		36.12

9	35/40	-111.06	0.35	0.44			11.36	14.22
10	35/40	-118.75	4.70	2.60			11.54	6.39
11	135/40	-79.77	32.36	21.06	31.92	53.45		31.92
12	155/40	-113.89	33.93	22.83	52.81	83.72		52.81
13	135/40	-80.52	15.43	8.19	26.25	68.21		26.25
14	155/40	-88.74	17.99	9.53	33.28	76.83		33.28
15	150/40	-148.32	20.69	7.60	34.76	99.33		34.76
16	240/40	-52.09	5.99	-13.32	134.47	84.84		84.84
17	190/40	-80.09	49.76	28.43	40.71	58.34		40.71
18	230/40	-107.20	-19.20	-3.32	19.80	104.21		19.80
19	120/40	-92.13	27.11	12.26	22.10	61.31		22.10
20	255/40	-152.60	87.17	126.19	256.27	117.34		117.34
21	375/40	-247.14	272.84	236.87	362.35	160.54		160.54
22	380/40	-333.37	319.37	222.56	383.05	208.71		208.71
23	735/40	-473.59	464.52	414.96	1403.82	385.44		385.44
24	265/40	-183.33	88.86	109.41	267.90	140.56		140.56
25	255/40	-215.27	137.02	117.57	205.56	137.19		137.19
26	500/40	-325.64	354.07	234.30	485.85	243.27		243.27
27	240/40	-282.10	134.62	139.93	289.55	170.66		170.66
28	240/40	-277.99	109.94	55.70	139.52	175.20		139.52
29	235/40	-321.55	83.45	19.46	69.96	191.29		69.96
30	265/40	-96.70	57.36	51.00	107.64	97.22		97.22
31	145/30	-130.97	21.99	7.05	24.93	81.39		24.93
32	165/30	-72.08	21.48	10.31	26.04	60.45		26.04
33	150/30	-116.69	32.81	12.97	29.19	74.81		29.19
34	965/30	-513.36	568.49	473.41	1842.24	398.35		398.35
35	939/35	-164.28	296.52	231.83	584.87	268.02		268.02
36	40/195	-46.01	11.98	6.69			8.92	4.98
37	40/164	-133.16	-6.64	-14.79			23.80	53.05
38	40/290	-176.67	9.99	4.89			32.51	15.90
39	40/90	-85.27	2.88	1.41			14.94	7.31
40	40/160	-100.28	-17.77	-37.41			18.41	38.76
41	40/229	-16.39	-1.54	-0.63			3.25	1.34
42	40/209	-259.62	-9.17	-2.95			43.48	13.97
43	40/190	-200.94	-8.10	-20.63			34.61	88.10
44	40/303	-203.49	64.75	28.93			37.11	16.58
45	40/888	-598.04	63.02	44.14			109.05	76.39
46	40/332	-382.37	8.69	6.12			64.93	45.77
47	40/338	-180.87	5.15	1.64			33.64	10.68
48	35/670	-479.07	30.03	17.79			74.86	44.35
49	40/172	-115.18	4.98	3.17			21.02	13.38
50	35/680	-96.57	39.68	23.18			16.54	9.66
51	40/590	-368.66	61.45	36.37			67.70	40.06
52	40/440	-216.78	1.92	0.22			40.56	4.61
53	35/680	-651.90	24.97	14.11			97.71	55.23
54	40/370	-138.96	38.55	23.61			26.43	16.19
55	40/310	-151.66	11.76	18.04			28.39	43.53
56	40/233	-64.26	-2.77	1.40			12.39	6.26
57	40/117	-145.51	2.13	2.67			24.34	30.45
58	40/187	-144.73	-5.39	-1.35			26.02	6.50
59	40/143	-159.32	35.61	43.18			27.23	33.02
60	40/719	-536.37	47.73	29.52			96.80	59.86
61	40/140	-54.24	46.97	14.57			10.30	3.19
62	40/40	-33.03	1.93	1.25			5.89	3.80
63	40/40	-35.44	2.02	1.35			6.27	4.20
64	40/635	-226.29	11.78	6.88			43.14	25.20
65	990/40	-361.27	222.07	84.85	645.72	408.51		408.51
66	40/310	-145.54	2.93	1.52			27.32	14.22
67	1150/40	-872.54	707.72	-1.15	7.24	655.68		7.24
68	1045/40	-802.47	-283.91	319.13	4167.80	599.65		599.65
69	40/290	-209.66	9.95	6.47			37.96	24.69
70	1110/40	-667.86	186.22	218.81	3960.60	563.15		563.15
71	40/678	-441.13	6.69	5.15			80.70	62.14
72	40/635	-376.19	12.07	6.84			69.40	39.34
73	1185/40	-1232.22	-97.01	247.21	15690.29	808.89		808.89
74	1150/40	-908.19	1370.95	152.62	512.18	669.94		512.18
75	30/35	-186.98	0.91	-0.87	34.26	76.79	57.39	34.26
76	30/35	-185.45	5.73	5.81	35.14	79.44	58.86	35.14
77	30/35	-162.72	-27.36	-22.24	32.75	72.32	54.86	32.75
78	30/35	-151.00	9.81	14.79	31.80	69.55	53.27	31.80
79	30/35	-175.11	0.04	-1.06	30.80	66.67	51.59	30.80
80	30/35	-169.21	-1.83	-3.04	33.82	75.46	56.65	33.82
				4166.16				
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4	175/60	-564.03	185.66	91.34	164.20	291.11		164.20
5	165/60	-517.71	137.15	71.81	153.16	273.08		153.16
6	165/60	-483.73	139.01	75.55	153.02	258.01		153.02
7	165/60	-311.62	171.88	88.48	107.23	157.46		107.23
8	250/60	-706.05	425.52	201.61	299.52	360.10		299.52
9	95/60	-517.28	40.23	21.75	60.18	239.78		60.18
10	90/60	-395.85	49.57	35.01	70.23	194.34		70.23
11	245/60	-565.75	442.74	208.57	250.76	279.39		250.76
12	175/60	-505.25	201.32	96.22	150.02	259.29		150.02
13	135/60	-432.99	92.57	52.56	112.49	227.20		112.49
14	155/60	-450.99	126.94	71.01	138.37	239.62		138.37
15	170/60	-298.17	178.51	93.10	108.90	149.43		108.90
16	240/60	-460.36	420.04	201.90	214.38	218.66		214.38
17	190/60	-423.90	250.52	132.01	164.64	212.64		164.64
18	230/60	-554.90	336.75	107.18	153.89	287.14		153.89
19	560/60	-1072.40	1626.53	581.90	867.61	582.96		582.96
20	465/60	-753.49	1081.17	374.58	508.15	408.21		408.21
21	375/60	-864.63	650.12	323.05	619.00	480.62		480.62
22	380/60	-968.91	725.77	316.07	596.38	525.68		525.68
23	700/60	-1712.60	2629.09	802.32	1379.68	920.82		920.82
24	265/60	-680.38	347.65	189.81	365.27	369.84		365.27
25	255/60	-813.17	305.23	205.53	474.50	427.27		427.27
26	500/60	-1603.73	1439.39	476.39	899.43	833.79		833.79
27	480/65	-556.50	1105.49	400.35	431.69	276.36		276.36
28	380/65	-1343.42	682.48	308.71	776.10	702.04		702.04
29	240/65	-920.70	251.92	133.73	377.89	472.28		377.89
30	65/65	-169.25	10.24	8.32			43.46	35.29
31	215/65	-298.29	202.96	117.26	161.43	170.61		161.43
32	110/65	-224.95	62.56	34.05	54.57	125.33		54.57
33	450/65	-1335.21	918.49	483.02	1145.22	729.08		729.08
34	265/65	-810.59	325.30	187.92	444.48	439.07		439.07
35	120/60	-325.12	49.92	36.79	104.66	178.05		104.66
36	290/60	-441.14	235.04	170.57	393.28	286.52		286.52
37	345/60	-697.37	452.00	196.27	416.30	408.17		408.17
38	165/60	-502.83	71.09	21.21	85.86	267.13		85.86
39	150/60	-268.63	55.95	19.18	56.63	167.45		56.63
40	290/60	-657.05	339.64	165.79	359.23	374.79		359.23
41	1140/60	-3174.66	5031.58	1098.73	2846.14	1725.87		1725.87
42	880/60	-1630.67	1198.70	540.63	2633.69	1004.27		1004.27
43	3769/60	-5128.14	5315.16	2827.46	44382.48	3558.86		3558.86
44	445/60	-759.70	453.58	231.61	715.11	481.88		481.88
45	60/195	-284.80	41.90	20.49			74.57	36.47
46	60/164	-558.59	17.17	5.63			117.82	38.61
47	60/290	-618.19	57.29	30.69			150.93	80.85
48	60/110	-108.04	20.94	11.19			29.63	15.84
49	60/160	-70.57	27.17	14.67			20.36	10.99
50	60/229	-305.09	15.27	4.17			80.90	22.09
51	60/209	-620.68	29.27	20.28			137.96	95.59
52	60/190	-550.53	35.83	22.49			123.28	77.37
53	60/273	-414.15	-171.36	-58.95			107.76	37.07
54	60/888	-2425.19	177.48	92.82			554.00	289.74
55	45/630	-1234.11	39.67	21.09			214.33	113.94
56	60/900	-1651.35	125.07	71.57			416.01	238.07
57	95/192	-696.60	149.11	78.93			264.66	140.09
58	40/513	-703.03	31.10	16.67			115.36	61.82
59	65/630	-1624.60	127.63	69.40			418.22	227.39
60	60/670	-1550.39	75.16	41.77			371.11	206.24
61	60/645	-769.80	137.42	67.07			206.86	100.97
62	60/192	-517.38	43.72	22.57			118.68	61.27
63	40/620	-1509.43	45.73	26.51			205.59	119.19
64	60/680	-1103.62	108.02	62.74			284.15	165.05
65	40/620	-1178.27	41.29	23.13			176.98	99.15
66	60/460	-787.14	104.21	56.15			200.85	108.23
67	35/513	-722.56	20.71	11.42			99.78	55.00
68	60/680	-2341.81	84.75	46.64			491.21	270.33
69	35/620	-1172.35	23.04	12.87			147.07	82.18
70	60/300	-523.84	34.29	18.96			133.18	73.63
71	40/533	-700.47	35.38	19.55			115.97	64.07
72	390/30	-454.91	466.36	200.98	292.70	237.45		237.45
73	265/30	-248.06	190.10	100.94	141.71	132.75		132.75
74	60/30	-63.42	6.24	3.45	8.28	37.37		8.28
75	60/370	-752.52	139.08	69.86			185.65	93.25
76	60/310	-797.90	77.82	42.27			185.56	100.78
77	60/233	-637.08	35.56	12.03			145.48	49.23
78	60/57	-268.29	4.36	1.60	15.44	129.96		15.44
79	60/187	-721.55	10.53	3.08			143.69	42.04
80	60/143	-605.21	12.22	6.93			114.67	65.01
81	60/264	-216.87	88.42	26.41			60.39	18.04
82	60/468	-1907.44	45.67	24.45			368.67	197.41
83	60/107	-298.50	27.18	15.68			67.73	39.07
84	60/160	-308.72	15.79	8.58			77.01	41.83
85	60/140	-389.30	13.11	6.91			88.42	46.65

86	35/630	-922.10	15.67	7.14			126.00	57.38
87	40/495	-423.45	22.47	12.56			75.20	42.02
88	670/25	-266.15	168.62	256.47	1226.23	218.13		218.13
89	65/250	-493.34	43.76	25.54			134.83	78.67
90	340/60	-613.57	335.70	218.62	556.13	381.43		381.43
91	56/56	-82.15	8.07	5.06			19.84	12.44
92	56/56	-155.01	8.55	6.08			32.16	22.86
93	56/56	-152.35	8.75	6.53			31.80	23.75
94	56/56	-94.86	9.00	7.02			22.35	17.41
95	45/70	-447.96	32.44	27.35	119.43	273.85	210.19	119.43
96	45/70	-266.74	26.42	17.58	115.90	262.94	203.99	115.90
97	60/635	-1007.82	51.16	28.61			260.43	145.64
98	1010/60	-1534.81	2487.26	298.49	788.18	1017.93		788.18
99	60/310	-530.88	15.86	8.33			135.44	71.14
100	1150/60	-2280.08	1796.81	278.72	1628.69	1372.03		1372.03
101	55/885	-2062.90	59.59	36.70			441.29	271.79
102	55/885	-1609.55	62.21	33.76			365.92	198.57
103	1045/60	-2271.62	1358.79	301.67	2059.74	1326.65		1326.65
104	60/310	-719.51	24.91	14.32			172.09	98.91
105	1130/60	-2559.69	2178.27	399.47	2048.73	1475.87		1475.87
106	60/678	-1628.57	51.82	27.98			386.06	208.48
107	50/885	-1800.47	38.29	20.82			354.13	192.57
108	30/545	-1014.90	6.02	3.27			102.71	55.73
109	1185/50	-2484.97	2421.49	559.27	2541.00	1388.99		1388.99
110	25/635	-616.22	5.18	3.01			61.36	35.57
111	1150/25	-1901.45	1295.74	300.11	1522.92	952.25		952.25
112	60/90	-257.52	8.50	4.52			57.95	30.78
113	30/885	-1265.64	8.54	4.55			142.42	75.93
114	40/40	-517.69	8.59	4.64	81.81	174.15	143.99	81.81
115	40/40	-369.55	10.78	7.90	79.12	165.00	139.24	79.12
				16547.49				32375.71
$\lambda = \Sigma_Ved/\Sigma_Vrd = 16547.49/32375.71 = 0.51 \quad OK$								

Στάθμη 4

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-489.93	114.77	76.17	310.16	291.97		291.97
2	190/60	-410.24	100.17	69.67	212.25	240.10		212.25
3	240/60	-580.43	133.23	110.52	437.44	328.17		328.17
4	175/60	-422.53	54.59	62.09	318.52	239.01		239.01
5	165/60	-321.92	51.72	44.24	182.69	194.77		182.69
6	165/60	-316.51	59.37	52.27	185.61	192.60		185.61
7	165/60	-236.86	76.82	25.90	56.38	154.82		56.38
8	125/60	-71.18	30.54	15.04	20.66	51.99		20.66
9	55/60	-334.85	0.98	6.44			43.12	283.79
10	55/60	-371.17	27.11	54.36			41.90	84.03
11	135/60	-359.31	47.61	21.62	80.70	197.73		80.70
12	175/60	-383.87	72.58	27.10	97.76	223.55		97.76
13	135/60	-285.13	44.33	50.17	171.62	168.05		168.05
14	155/60	-304.61	60.54	60.55	189.51	183.84		183.84
15	170/60	-101.85	90.10	73.99	66.82	0.00		0.00
16	240/60	-388.56	185.47	144.02	303.18	242.14		242.14
17	190/60	-265.06	162.75	125.54	167.01	146.34		146.34
18	230/60	-383.77	74.39	69.56	343.50	245.51		245.51
19	560/60	-840.91	693.30	403.92	1164.88	560.37		560.37
20	465/60	-371.76	891.38	219.67	195.90	0.00		0.00
21	375/60	-543.61	645.36	266.62	359.78	299.99		299.99
22	380/60	-776.07	475.67	235.71	580.79	462.43		462.43
23	700/60	-1084.99	1424.38	642.46	1446.15	696.46		696.46
24	265/60	-351.59	369.58	102.25	111.71	173.50		111.71
25	255/60	-541.16	441.51	223.78	275.17	271.56		271.56
26	500/60	-1501.93	479.12	347.78	1903.11	800.77		800.77
27	240/45	-783.98	131.92	117.69	472.11	385.59		385.59
28	240/45	-595.91	166.87	83.45	238.67	310.36		238.67
29	235/65	-653.00	265.57	210.55	451.57	361.08		361.08
30	265/65	-574.30	334.77	148.06	268.91	326.19		268.91
31	145/60	-224.14	39.92	28.48	97.94	147.66		97.94
32	165/60	-298.33	5.10	11.42	450.97	185.33		185.33
33	150/60	-186.47	14.31	12.24	104.72	134.59		104.72
34	290/60	-422.98	97.42	194.95	1047.51	285.19		285.19
35	1160/60	-2167.23	1810.62	937.28	5285.79	1330.89		1330.89
36	880/30	-1133.27	181.89	261.52	5314.70	629.31		629.31
37	2949/60	-2673.53	4320.11	1081.69	8971.58	2249.01		2249.01
38	60/195	-162.17	17.51	34.01			45.12	87.62
39	60/164	-309.24	-1.45	7.74			77.52	413.96
40	60/290	-446.02	54.67	130.47			115.83	276.43
41	60/110	-74.85	21.15	50.51			21.12	50.44
42	60/160	-53.15	9.32	11.44			15.48	19.02
43	60/229	-76.95	3.96	5.34			22.41	30.18
44	60/209	-790.55	34.35	22.21			158.89	102.71
45	60/190	-575.90	38.90	27.36			126.94	89.27
46	60/303	-312.99	35.46	-45.22			85.42	108.93

47	60/888	-1647.35	111.19	229.69			414.12	855.45
48	35/610	-795.44	29.42	62.58			112.02	238.32
49	60/332	-796.25	62.64	160.68			188.83	484.35
50	60/338	-164.23	29.96	33.88			47.18	53.36
51	95/192	-744.86	61.70	42.59			278.09	191.95
52	65/480	-1215.87	58.63	135.39			314.45	726.12
53	60/670	-1217.26	112.36	232.21			307.23	634.94
54	60/192	-213.83	17.75	22.08			57.91	72.03
55	40/620	-1045.44	68.59	196.90			162.89	467.59
56	40/620	-715.29	73.29	184.31			121.43	305.39
57	60/460	-535.63	88.61	170.91			144.34	278.40
58	35/513	-538.13	25.21	48.04			79.38	151.24
59	60/680	-1876.48	111.94	320.37			427.25	1222.80
60	35/620	-838.13	47.03	120.11			116.98	298.78
61	60/300	-501.94	47.90	32.15			128.58	86.29
62	40/533	-418.92	47.90	92.38			75.16	144.95
63	390/30	-171.37	244.18	131.22	163.73	100.06		100.06
64	265/30	-93.28	211.44	58.91	32.00	0.00		0.00
65	60/30	-57.19	5.78	9.85	23.63	34.81		23.63
66	60/370	-478.83	41.21	90.23			127.41	278.98
67	60/310	-551.65	38.54	82.33			139.77	298.57
68	60/233	-419.78	-6.37	8.11			106.12	135.22
69	60/117	-523.38	0.18	5.53			95.46	2878.26
70	60/187	-486.78	1.58	12.83			112.91	916.50
71	60/143	-483.97	44.64	37.13			102.41	85.18
72	60/719	-1585.70	-3.69	99.87			384.13	10385.78
73	60/160	-163.19	27.66	19.61			44.60	31.62
74	60/140	-177.65	-228.34	-82.26			47.39	17.07
75	20/610	-574.35	4.70	11.43			43.26	105.29
76	45/60	-217.60	8.93	5.21			28.28	16.52
77	45/60	-194.16	5.80	4.23			27.22	19.87
78	60/635	-745.79	69.76	171.98			200.78	494.97
79	1010/60	-1095.34	1240.19	153.58	610.39	842.14		610.39
80	60/310	-411.39	19.80	46.92			109.11	258.57
81	1150/60	-1685.21	1218.08	307.20	2084.12	1134.09		1134.09
82	55/885	-1551.07	131.41	312.08			355.31	843.78
83	55/885	-1152.63	84.92	204.18			277.64	667.55
84	1045/60	-1588.63	450.39	275.19	4297.17	1053.45		1053.45
85	60/310	-521.56	40.87	102.67			133.47	335.31
86	1130/60	-1845.03	962.16	400.58	3628.22	1190.01		1190.01
87	60/678	-1282.69	65.12	144.57			321.22	713.15
88	50/885	-1399.90	65.46	176.12			291.95	785.47
89	30/545	-789.15	9.97	24.32			88.43	215.75
90	1185/25	-1804.52	808.73	333.32	2788.92	919.31		919.31
91	25/635	-594.08	20.57	51.59			59.70	149.68
92	1150/25	-1606.01	790.82	171.38	1327.45	834.07		834.07
93	60/90	-221.91	6.30	14.05			52.24	116.47
94	30/885	-1033.85	16.64	40.96			123.43	303.86
				12371.82				
								45697.80

$\lambda = \Sigma_Ved/\Sigma_Vrd = 12371.82/45697.80 = 0.27 \quad OK$

Στάθμη 5

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-412.46	202.07	81.39	164.95	250.19		164.95
2	190/60	-342.57	139.17	63.66	121.91	202.28		121.91
3	240/60	-530.25	281.93	158.08	277.59	292.29		277.59
4	175/60	-305.75	116.77	67.84	128.15	181.47		128.15
5	165/60	-261.51	74.14	28.11	68.77	169.58		68.77
6	165/60	-265.16	83.71	32.70	71.66	167.18		71.66
7	165/60	-221.69	67.00	24.50	57.86	151.41		57.86
8	125/60	-199.33	38.59	16.16	43.82	129.73		43.82
9	55/60	-304.22	12.68	8.03			43.24	27.37
10	55/60	-332.68	19.75	11.61			43.15	25.35
11	135/60	-209.05	52.72	24.32	54.96	134.36		54.96
12	175/60	-318.86	79.63	33.94	97.15	197.54		97.15
13	135/60	-234.09	58.36	25.46	56.92	144.72		56.92
14	155/60	-255.66	78.39	33.38	70.38	158.47		70.38
15	170/60	-204.33	119.86	77.63	98.91	113.34		98.91
16	240/60	-252.95	348.52	216.28	168.43	0.00		0.00
17	190/60	-172.00	202.72	132.91	97.39	0.00		0.00
18	230/60	-352.21	116.38	65.74	193.59	232.88		193.59
19	560/60	-579.78	511.30	501.36	1426.29	455.91		455.91
20	465/60	-486.07	330.93	260.64	796.62	380.43		380.43
21	375/60	-494.11	418.12	251.62	483.75	321.10		321.10
22	380/60	-725.91	293.63	220.77	838.00	442.36		442.36
23	700/60	-1170.07	1232.26	602.19	1665.28	748.03		748.03
24	265/60	-423.70	164.19	141.59	406.37	275.48		275.48
25	255/60	-507.50	262.68	213.35	420.48	293.89		293.89
26	500/60	-1435.93	213.49	327.29	3915.70	774.37		774.37
27	240/45	-560.48	140.26	118.17	389.41	296.19		296.19
28	240/45	-572.15	101.94	75.59	346.53	300.86		300.86

29	235/65	-625.61	289.56	150.53	287.82	342.82		287.82
30	265/65	-536.40	217.05	135.87	361.42	329.39		329.39
31	145/60	-167.65	57.68	44.49	82.85	112.77		82.85
32	165/60	-276.55	-8.44	3.53	79.32	176.62		79.32
33	150/60	-235.60	-2.66	4.91	275.20	154.24		154.24
34	290/60	-420.84	151.09	146.68	506.05	284.34		284.34
35	1160/60	-1984.74	1834.24	851.96	4427.88	1257.89		1257.89
36	880/30	-617.83	410.53	249.85	1421.11	423.13		423.13
37	2949/60	-2487.65	3475.79	1027.05	9920.21	2174.66		2174.66
38	60/195	-188.40	18.66	9.10		51.76		25.23
39	60/164	-246.02	-5.56	-0.91		64.15		10.45
40	60/290	-457.19	49.92	30.61		118.27		72.53
41	60/110	-165.55	17.28	10.66		43.13		26.61
44	60/209	-723.24	18.38	0.85		151.46		7.03
45	60/190	-496.39	24.85	12.12		114.87		56.01
46	60/303	-291.76	68.46	8.05		80.16		9.42
47	60/888	-1511.20	121.17	71.37		385.97		227.35
48	35/610	-775.13	17.87	12.26		109.84		75.34
49	60/332	-808.84	59.59	36.05		191.02		115.57
50	60/338	-320.83	35.39	25.24		88.26		62.94
51	95/192	-480.43	55.44	23.47		196.70		83.28
52	65/480	-775.56	58.34	42.67		219.22		160.35
53	60/670	-1176.84	54.83	35.59		298.89		193.98
54	60/192	-314.10	18.20	8.58		80.77		38.09
55	40/620	-722.66	56.12	32.38		122.46		70.66
56	40/620	-687.33	40.36	24.56		117.50		71.50
57	60/460	-498.01	90.97	55.98		135.27		83.24
58	35/513	-328.31	13.50	8.71		51.95		33.50
59	60/680	-1709.20	98.80	56.86		400.18		230.30
60	35/620	-717.25	22.05	12.55		103.78		59.08
61	60/300	-462.34	22.43	18.59		120.03		99.48
62	40/533	-311.29	28.23	18.06		57.49		36.78
63	390/30	-253.65	229.46	156.39	293.06	164.18		164.18
64	265/30	-140.83	89.50	78.82	146.79	97.70		97.70
65	60/30	-27.83	4.38	2.81	4.85	19.68		4.85
66	60/370	-389.94	84.86	51.00		106.21		63.83
67	60/310	-406.15	55.90	33.34		107.90		64.34
68	60/233	-356.47	-11.69	-6.23		92.65		49.35
69	60/117	-489.53	-4.44	-5.19		93.01		108.90
70	60/187	-415.05	-9.60	-5.74		100.43		60.04
71	60/143	-422.69	18.83	30.63		94.18		153.18
72	60/719	-1341.05	111.88	70.29		336.81		211.62
73	60/160	-142.07	12.21	12.48		39.32		40.18
74	60/140	-159.17	-162.64	-74.22		43.01		19.63
75	20/610	-480.18	-0.36	0.32		38.11		33.12
76	45/60	-211.66	5.11	3.39		28.06		18.65
77	45/60	-188.22	2.49	2.34		26.88		25.28
78	60/635	-694.98	48.12	28.19		188.56		110.45
79	1010/60	-952.38	985.10	150.28	664.21	784.95		664.21
80	60/310	-350.33	9.48	5.24		94.72		52.41
81	1150/60	-1480.22	1236.28	135.07	809.64	1052.09		809.64
82	55/885	-1093.99	82.36	51.40		265.41		165.64
83	55/885	-900.10	59.85	35.32		223.54		131.92
84	1045/60	-1442.58	327.55	349.57	6928.76	995.03		995.03
85	60/310	-414.39	30.05	17.69		109.80		64.65
86	1130/60	-1612.84	1004.96	455.36	3537.05	1097.14		1097.14
87	60/678	-1157.12	63.22	37.19		295.39		173.76
88	50/885	-888.51	40.81	23.87		198.75		116.26
89	30/545	-525.16	5.14	2.93		65.51		37.39
90	1185/25	-1677.16	983.07	327.97	2184.07	868.36		868.36
91	25/635	-482.48	6.62	3.88		50.70		29.71
92	1150/25	-1390.79	1088.39	257.39	1339.82	747.98		747.98
93	60/90	-154.12	5.74	3.07		39.32		21.04
94	30/885	-635.29	5.87	3.16		83.34		44.93
				9220.59				

13	135/40	-113.44	-3.32	36.29	730.98	81.38	81.38
14	155/40	-121.42	-9.74	36.41	310.35	89.90	89.90
15	150/40	-146.75	16.83	13.69	76.35	98.70	76.35
16	240/40	-113.63	-30.99	25.39	103.75	109.45	103.75
17	190/40	-107.76	-2.53	100.17	3706.61	93.77	93.77
18	230/40	-238.26	-109.45	-18.50	39.08	150.55	39.08
19	120/40	-229.37	47.27	-8.95	18.55	123.26	18.55
20	255/40	-26.57	248.25	52.26	7.02	0.00	0.00
21	375/40	-263.90	452.80	240.19	234.64	99.35	99.35
22	380/40	-277.98	245.82	122.47	234.13	192.45	192.45
23	700/40	-404.89	396.25	397.97	1299.21	348.62	348.62
24	265/40	-230.80	236.53	148.83	167.17	116.33	116.33
25	255/40	-248.36	322.34	172.26	144.39	0.00	0.00
26	500/40	-684.37	94.38	257.68	3707.76	407.08	407.08
27	240/40	-286.44	292.81	168.08	161.83	110.92	110.92
28	240/40	-330.72	154.44	63.50	129.29	190.93	129.29

29	235/40	-356.31	121.23	44.12	117.56	205.19	117.56
30	265/40	-167.96	173.42	101.33	117.61	90.59	90.59
31	145/30	-253.73	32.96	35.85	129.76	130.49	129.76
32	165/30	-68.18	-8.94	4.40	25.38	60.27	25.38
33	150/30	-186.71	1.21	5.57	484.56	104.68	104.68
34	965/30	-702.37	-337.70	311.56	2669.45	473.95	473.95
35	939/35	251.18	-475.81	157.47	0.00	0.00	0.00
36	40/195	-100.00	4.59	15.86		18.66	64.42
37	40/164	-88.00	-1.93	10.82		16.36	91.95
38	40/290	-116.88	33.87	52.75		22.14	34.49
39	40/90	-246.91	-1.27	-13.65		31.63	341.04
40	40/160	112.35	-18.63	-2.17		0.00	0.00
41	40/229	35.52	0.13	3.15		0.00	0.00
42	40/209	-426.10	9.73	24.69		62.48	158.53
43	40/190	-204.06	-14.75	9.55		35.06	22.68
44	40/303	-168.49	71.37	9.79		31.24	4.28
45	40/888	-587.10	79.53	155.34		107.25	209.48
46	40/332	-516.72	48.69	92.40		82.27	156.14
47	40/338	-94.29	13.65	22.92		18.17	30.50
48	35/670	-856.73	58.74	194.77		121.22	401.95
49	40/172	-173.39	4.39	11.89		30.10	81.60
50	35/680	-28.94	60.24	186.23		5.03	15.56
51	40/590	-533.31	79.50	217.14		94.03	256.83
52	40/440	-236.27	16.32	36.56		43.93	98.39
53	35/680	-969.38	56.85	150.75		133.43	353.81
54	40/370	-117.46	8.58	34.41		22.51	90.34
55	40/310	-205.63	39.88	35.75		37.55	33.66
56	40/233	-205.64	10.16	15.38		36.37	55.04
57	40/117	-348.40	24.50	80.00		42.41	138.47
58	40/187	-223.02	10.27	18.80		37.65	68.94
59	40/143	-172.34	78.53	54.43		29.04	20.13
60	40/719	-631.79	58.40	126.53		111.82	242.25
61	40/140	-80.63	89.63	51.79		14.91	8.61
62	40/40	-261.59	6.58	11.68		7.49	13.28
63	40/40	83.68	6.33	12.28		0.00	0.00
64	40/635	-371.00	18.06	18.70		68.52	70.97
65	990/40	-401.43	227.97	-34.14	279.41	424.57	279.41
66	40/310	-121.79	4.62	13.09		23.10	65.53
67	1150/40	-828.82	1062.87	90.90	363.30	638.19	363.30
68	1045/40	-889.57	-643.55	249.68	1571.99	634.49	634.49
69	40/290	-189.61	17.61	43.28		34.67	85.23
70	1110/40	-788.10	-98.85	212.63	8401.58	611.24	611.24
71	40/678	-689.17	45.74	116.37		119.48	304.00
72	40/635	-265.96	29.71	86.71		50.27	146.73
73	1185/40	-1331.05	400.23	372.63	6099.90	848.42	848.42
74	1150/40	-1328.39	596.71	218.87	2314.06	838.02	838.02
75	30/35	-192.67	4.45	2.15	145.25	132.12	132.12
76	30/35	-193.17	10.83	6.53	148.90	134.77	134.77
77	30/35	-168.15	-42.90	-20.48	139.03	127.68	127.68
78	30/35	-156.49	23.43	16.54	135.08	124.93	124.93
79	30/35	-183.31	-2.29	-1.28	130.93	122.06	122.06
80	30/35	-90.02	2.39	2.14	143.43	130.81	130.81
				5989.70	12030.57		

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 5989.70/12030.57 = 0.50 \quad \text{OK}$$

Στάθμη 7

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-144.37	158.21	88.86	88.48	64.97		64.97
2	190/40	-121.04	162.44	79.78	51.05	0.00		0.00
3	240/40	-189.31	169.33	116.07	137.22	100.17		100.17
4	175/40	-48.00	55.90	39.93	28.76	0.00		0.00
5	165/40	-83.28	41.17	20.95	32.30	59.76		32.30
6	165/40	-94.31	40.22	20.69	36.58	69.61		36.58
7	110/40	-102.33	22.07	11.58	25.38	67.67		25.38
8	125/40	-45.90	-7.76	-12.47	43.55	51.69		43.55

9	35/40	-111.83	1.23	0.96			11.38	8.88
10	35/40	-119.17	4.95	2.76			11.55	6.45
11	135/40	-87.20	27.90	19.31	36.78	63.29		36.78
12	155/40	-108.58	26.65	19.85	56.08	84.77		56.08
13	135/40	-80.21	21.00	11.13	26.12	65.14		26.12
14	155/40	-88.12	25.73	13.30	32.28	73.89		32.28
15	150/40	-109.13	42.93	21.01	35.66	72.18		35.66
16	240/40	-97.15	68.24	24.70	39.63	78.67		39.63
17	190/40	-83.83	86.69	47.05	40.35	0.00		0.00
18	230/40	-125.77	2.37	9.85	552.34	111.64		111.64
19	120/40	-80.31	26.19	14.18	23.46	54.04		23.46
20	255/40	-96.92	64.11	104.49	189.85	87.85		87.85
21	375/40	-230.90	261.06	222.34	334.52	151.91		151.91
22	380/40	-368.36	310.65	221.21	425.59	231.88		231.88
23	735/40	-448.68	362.27	417.23	1724.38	375.47		375.47
24	265/40	-207.48	118.74	135.85	277.42	143.21		143.21
25	255/40	-225.92	184.62	159.64	215.83	126.99		126.99
26	500/40	-342.20	493.87	325.98	506.44	221.42		221.42
27	240/40	-265.32	158.86	156.48	261.39	154.23		154.23
28	240/40	-309.60	103.84	51.61	148.76	187.84		148.76
29	235/40	-335.63	88.71	32.43	113.16	196.92		113.16
30	265/40	-144.64	92.88	88.24	167.09	112.48		112.48
31	145/30	-158.87	34.54	14.27	37.10	92.55		37.10
32	165/30	-69.52	22.73	11.11	25.67	57.69		25.67
33	150/30	-124.62	14.98	6.46	33.57	79.85		33.57
34	965/30	-468.16	626.12	441.43	1437.35	380.26		380.26
35	939/35	-35.86	190.89	280.38	245.67	0.00		0.00
36	40/195	-51.34	15.80	9.01			9.91	5.65
37	40/164	-127.84	-7.92	-14.80			22.96	42.90
38	40/290	-187.12	9.00	4.99			34.26	19.00
39	40/90	-63.53	3.00	1.67			11.53	6.43
40	40/160	-102.31	-17.38	-37.30			18.75	40.23
41	40/229	-28.45	-1.63	-0.66			5.60	2.28
42	40/209	-248.21	-9.39	-3.01			41.93	13.45
43	40/190	-216.62	-8.19	-20.77			36.84	93.39
44	40/303	-167.15	65.54	27.88			31.01	13.19
45	40/888	-610.58	59.60	41.58			111.12	77.53
46	40/332	-417.49	6.35	4.96			69.74	54.51
47	40/338	-148.19	10.39	4.70			27.93	12.63
48	35/670	-474.37	44.58	26.46			74.21	44.05
49	40/172	-117.77	4.25	2.84			21.44	14.31
50	35/680	-159.86	40.91	24.22			26.99	15.98
51	40/590	-403.83	60.93	36.31			73.52	43.81
52	40/440	-208.63	10.23	5.21			39.13	19.96
53	35/680	-619.33	19.48	10.68			93.60	51.31
54	40/370	-123.71	20.09	12.63			23.66	14.87
55	40/310	-167.75	12.42	18.36			31.17	46.07
56	40/233	-165.48	-2.40	1.99			30.02	24.89
57	40/117	-127.74	2.38	2.81			21.88	25.82
58	40/187	-156.85	-5.01	-1.23			27.93	6.85
59	40/143	-156.49	35.61	43.23			26.83	32.57
60	40/719	-454.17	42.94	27.73			83.32	53.80
61	40/140	-65.34	47.51	14.75			12.27	3.81
62	40/40	-25.14	1.90	1.28			4.61	3.10
63	40/40	-28.94	2.81	1.83			5.24	3.41
64	40/635	-276.52	-8.80	-5.43			52.15	32.18
65	990/40	-330.99	22.50	-45.67	3158.50	396.39		396.39
66	40/310	-122.04	1.27	0.52			23.15	9.59
67	1150/40	-766.43	785.43	-71.66	361.73	613.24		361.73
68	1045/40	-791.42	-723.29	131.11	664.04	595.24		595.24
69	40/290	-209.67	6.89	4.68			37.96	25.80
70	1110/40	-648.39	-80.88	153.25	6218.10	555.36		555.36
71	40/678	-442.27	11.93	8.37			80.89	56.76
72	40/635	-341.67	13.08	7.33			63.52	35.61
73	1185/40	-1226.77	103.45	296.37	17574.69	806.71		806.71
74	1150/40	-1040.31	1067.58	199.79	966.88	722.79		722.79
75	30/35	-190.36	2.76	0.90	34.26	76.79	57.39	34.26
76	30/35	-190.86	5.61	5.25	35.14	79.44	58.86	35.14
77	30/35	-165.84	-26.93	-21.93	32.75	72.32	54.86	32.75
78	30/35	-154.18	9.93	15.18	31.80	69.55	53.27	31.80
79	30/35	-181.00	-1.23	-2.73	30.80	66.67	51.59	30.80
80	30/35	-87.71	0.71	0.69	33.82	75.46	56.65	33.82
				4142.01				7606.37
$\lambda = \Sigma_Ved/\Sigma_Vrd = 4142.01/7606.37 = 0.54 \quad OK$								

Σεισμικός συνδυασμός 26: 1.10*G + 0.60*Q - 1.21*Σx1 - 0.36*Σy1

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-663.75	-255.61	-112.77	253.77	361.50		253.77
2	190/60	-499.07	-142.23	-71.53	175.52	275.63		175.52

3	240/60	-635.16	-261.86	-122.56	261.90	348.59	261.90
4	175/60	-411.35	-135.70	-68.44	138.66	229.95	138.66
5	165/60	-481.02	-99.51	-53.21	150.05	258.41	150.05
6	165/60	-478.47	-98.37	-49.93	141.99	257.39	141.99
7	165/60	-389.30	-127.14	-65.42	126.09	215.53	126.09
8	250/60	-564.91	-321.24	-168.72	286.69	307.72	286.69
9	95/60	-421.31	-45.59	-32.95	80.21	206.52	80.21
10	90/60	-462.24	-25.93	-12.81	49.77	220.90	49.77
11	245/60	-650.33	-343.45	-186.48	317.21	343.76	317.21
12	175/60	-319.06	-168.01	-91.73	124.52	169.44	124.52
13	135/60	-404.75	-71.91	-43.12	114.48	215.90	114.48
14	155/60	-478.70	-92.59	-49.11	135.74	253.48	135.74
15	170/60	-461.47	-128.64	-65.19	144.57	252.59	144.57
16	240/60	-705.44	-301.14	-142.42	282.15	374.95	282.15
17	190/60	-462.15	-179.25	-90.91	168.26	252.32	168.26
18	230/60	-482.29	-229.25	-55.20	105.43	273.88	105.43
19	560/60	-1515.08	-1324.71	-439.17	1024.17	830.03	830.03
20	465/60	-1259.64	-818.52	-354.11	922.25	689.86	689.86
21	375/60	-1172.72	-509.12	-296.19	877.39	619.09	619.09
22	380/60	-1073.11	-591.29	-241.85	597.40	581.24	581.24
23	700/60	-1903.47	-2275.78	-681.95	1451.05	1037.92	1037.92
24	265/60	-688.43	-276.02	-142.07	346.99	381.37	346.99
25	255/60	-714.20	-242.78	-158.39	426.95	387.68	387.68
26	500/60	-1211.77	-1014.05	-440.68	996.02	684.29	684.29
27	480/65	-639.44	-801.24	-406.86	683.01	404.88	404.88
28	380/65	-1082.89	-528.97	-314.16	899.08	597.82	597.82
29	240/65	-663.31	-214.45	-100.92	278.60	369.33	278.60
30	65/65	-141.21	-7.50	-5.05		37.85	25.49
31	215/65	-358.12	-171.03	-107.73	205.03	220.91	205.03
32	110/65	-288.14	-55.94	-32.70	70.14	161.52	70.14
33	450/65	-1078.59	-890.71	-339.24	718.87	616.58	616.58
34	265/65	-1095.19	-276.27	-133.57	432.75	552.91	432.75
35	120/60	-361.98	-26.94	-11.11	62.40	192.79	62.40
36	290/60	-487.55	-248.75	-137.49	324.76	307.80	307.80
37	345/60	-729.78	-368.53	-258.34	694.97	429.91	429.91
38	165/60	-497.28	-75.98	-27.59	103.86	264.91	103.86
39	150/60	-340.43	-49.43	-7.02	28.01	196.17	28.01
40	290/60	-931.66	-334.69	-191.91	524.65	488.66	488.66
41	1140/60	-2956.78	-4587.70	-1062.69	2886.87	1638.71	1638.71
42	880/60	-1485.97	-2080.43	-584.85	1526.27	946.39	946.39
43	3769/60	-4426.00	-14260.16	-3050.44	15737.48	3278.00	3278.00
44	445/60	-764.87	-498.88	-276.10	779.26	483.95	483.95
45	60/195	-622.32	-27.41	-13.89		134.77	68.31
46	60/164	-613.45	-12.72	-5.06		124.03	49.39
47	60/290	-1096.26	-50.12	-26.57		220.29	116.78
48	60/110	-364.11	-18.52	-9.79		77.60	41.01
49	60/160	-266.30	-24.72	-13.53		68.29	37.37
50	60/229	-320.48	-13.08	-3.42		84.41	22.07
51	60/209	-730.89	-13.54	-5.83		152.36	65.65
52	60/190	-584.59	-19.82	-9.28		128.15	60.03
53	60/273	-731.60	157.64	57.23		168.05	61.01
54	60/888	-2248.24	-130.94	-69.28		525.32	277.96
55	45/630	-1239.12	-42.25	-25.02		214.94	127.28
56	60/900	-1833.60	-143.35	-84.14		452.19	265.41
57	95/192	-700.35	-111.88	-59.91		265.72	142.29
58	40/513	-686.61	-23.74	-12.67		113.24	60.47
59	65/630	-1877.84	-125.20	-72.06		463.63	266.85
60	60/670	-2414.39	-109.43	-63.20		496.33	286.63
61	60/645	-1233.30	-120.77	-73.61		308.20	187.85
62	60/192	-427.48	-37.92	-21.11		103.30	57.51
63	40/620	-1244.48	-42.56	-24.61		183.44	106.07
64	60/680	-1052.49	-110.57	-64.05		273.06	158.19
65	40/620	-1466.15	-37.46	-21.16		202.38	114.31
66	60/460	-1307.14	-73.69	-39.20		294.81	156.83
67	35/513	-689.92	-15.44	-8.40		96.42	52.49
68	60/680	-1259.59	-92.75	-50.51		316.74	172.48
69	35/620	-827.44	-19.07	-10.27		115.87	62.38
70	60/300	-690.50	-40.71	-23.26		165.50	94.58
71	40/533	-748.20	-25.16	-13.54		122.12	65.74
72	390/30	-299.18	-352.73	-175.48	245.50	165.93	165.93
73	265/30	-248.41	-145.86	-70.29	128.74	143.63	128.74
74	60/30	-73.09	-4.53	-2.47	9.03	41.24	9.03
75	60/370	-479.95	-133.19	-66.99		127.67	64.22
76	60/310	-537.60	-56.69	-30.61		136.85	73.89
77	60/233	-347.96	-27.16	-9.12		90.77	30.48
78	60/57	-253.63	-4.27	-0.92	9.06	124.10	9.06
79	60/187	-712.87	-10.81	-3.31		142.82	43.79
80	60/143	-502.50	-6.83	0.94		104.63	14.32
81	60/264	-282.24	-86.92	-25.73		76.77	22.72
82	60/468	-872.86	-38.87	-18.16		219.23	102.41
83	60/107	-102.36	-17.65	-9.07		28.14	14.46
84	60/160	-296.94	-19.96	-11.43		74.64	42.73
85	60/140	-490.67	-20.35	-12.17		102.14	61.12

86	35/630	-818.78	-11.13	-3.63			115.40	37.64
87	40/495	-466.21	-22.80	-13.42			81.74	48.09
88	670/25	-369.47	-642.71	-173.19	289.19	228.31		228.31
89	65/250	-540.35	-44.26	-24.93			145.01	81.68
90	340/60	-657.30	-369.06	-198.18	483.52	398.92		398.92
91	56/56	-92.68	-7.12	-5.67			21.93	17.47
92	56/56	-150.74	-6.56	-4.96			31.57	23.86
93	56/56	-155.55	-6.10	-4.32			32.23	22.81
94	56/56	-85.13	-5.37	-3.14			20.45	11.97
95	45/70	-292.59	-19.83	-12.23	119.43	273.85	210.19	119.43
96	45/70	-386.47	-25.47	-21.02	115.90	262.94	203.99	115.90
97	60/635	-1581.10	-75.53	-41.37			371.17	203.31
98	1010/60	-2242.90	-2262.23	-658.87	2563.02	1301.16		1301.16
99	60/310	-716.44	-41.08	-23.91			171.54	99.83
100	1150/60	-2412.90	-3126.00	-678.23	2375.76	1425.16		1425.16
101	55/885	-1824.68	-79.96	-42.86			403.20	216.11
102	55/885	-1926.03	-76.57	-45.39			419.82	248.87
103	1045/60	-1993.49	-3132.61	-533.97	1435.25	1215.40		1215.40
104	60/310	-549.70	-31.45	-17.85			139.37	79.13
105	1130/60	-1936.81	-4058.00	-618.19	1380.03	1201.30		1201.30
106	60/678	-1013.30	-76.10	-42.81			264.31	148.69
107	50/885	-1808.71	-54.54	-29.48			355.31	192.05
108	30/545	-796.70	-10.88	-6.31			88.99	51.60
109	1185/50	-2682.96	-3132.04	-646.11	2384.36	1468.18		1468.18
110	25/635	-670.71	-6.08	-3.45			65.27	37.04
111	1150/25	-1730.10	-1513.91	-362.55	1518.31	883.71		883.71
112	60/90	-298.30	-14.70	-8.60			63.58	37.20
113	30/885	-1346.14	-16.37	-9.35			148.27	84.67
114	40/40	-329.33	-10.49	-8.58	81.81	174.15	143.99	81.81
115	40/40	-373.99	-8.13	-5.12	79.12	165.00	139.24	79.12
				-16733.37				32753.40
$\lambda = \Sigma_Ved/\Sigma_Vrd = 16733.37/32753.40 = 0.51 \quad OK$								

Στάθμη 4

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-430.78	-82.05	-55.00	284.03	268.31		268.31
2	190/60	-325.31	-61.16	-54.51	228.08	206.12		206.12
3	240/60	-521.42	-74.77	-83.60	546.89	304.57		304.57
4	175/60	-260.66	-41.63	-48.70	226.90	174.27		174.27
5	165/60	-299.86	-39.10	-38.30	198.06	185.94		185.94
6	165/60	-296.10	-27.90	-25.79	185.11	184.44		184.44
7	165/60	-178.72	-50.89	-12.48	32.21	136.32		32.21
8	125/60	-377.43	-33.72	-15.68	76.41	200.97		76.41
9	55/60	-355.84	-21.32	-42.68			42.56	85.17
10	55/60	-351.74	5.02	4.74			42.70	40.34
11	135/60	-307.94	-45.64	-23.82	83.61	177.18		83.61
12	175/60	-231.38	-82.84	-37.81	80.13	154.59		80.13
13	135/60	-268.70	-35.06	-40.45	167.45	161.48		161.48
14	155/60	-308.62	-28.71	-34.77	231.69	185.45		185.45
15	170/60	-360.30	-65.36	-49.35	182.00	212.12		182.00
16	240/60	-386.39	-159.40	-114.53	279.27	249.05		249.05
17	190/60	-274.70	-122.53	-97.44	177.39	170.35		170.35
18	230/60	-297.52	-44.36	-27.13	182.05	211.01		182.05
19	560/60	-927.28	-739.63	-254.42	744.57	594.91		594.91
20	465/60	-824.04	-672.83	-256.63	600.67	510.63		510.63
21	375/60	-850.41	-497.59	-264.69	654.99	490.16		490.16
22	380/60	-1208.97	-286.73	-180.30	982.79	635.59		635.59
23	700/60	-1591.14	-622.98	-507.13	3498.32	916.46		916.46
24	265/60	-409.69	-265.83	-38.46	66.35	245.01		66.35
25	255/60	-451.62	-311.55	-154.81	235.22	250.87		235.22
26	500/60	-965.25	-814.34	-312.15	745.62	584.86		584.86
27	240/45	-606.37	-159.70	-47.56	143.36	314.55		143.36
28	240/45	-402.52	-100.31	-59.53	222.26	233.01		222.26
29	235/65	-613.77	-21.44	-165.40	4216.27	347.34		347.34
30	265/65	-601.36	-171.88	-77.61	284.07	355.38		284.07
31	145/60	-203.63	-74.92	-18.67	31.60	124.30		31.60
32	165/60	-292.40	-6.57	-9.67	292.02	182.96		182.96
33	150/60	-227.71	-21.84	-45.49	301.49	151.08		151.08
34	290/60	-739.43	134.77	-235.96	1396.38	411.77		411.77
35	1160/60	-2013.39	-1941.21	-998.85	4961.15	1269.36		1269.36
36	880/30	-762.02	-339.88	-282.40	2301.29	480.81		480.81
37	2949/60	-2313.98	575.07	-884.73	48354.99	2105.19		2105.19
38	60/195	-434.39	-11.18	-21.20			105.02	199.08
39	60/164	-362.69	5.32	-4.50			87.83	74.28
40	60/290	-724.63	-33.04	-75.29			169.94	387.21
41	60/110	-271.43	-17.03	-39.33			63.85	147.48
42	60/160	-71.84	-9.95	-12.18			20.71	25.37
43	60/229	-82.37	-4.98	-6.51			23.94	31.28
44	60/209	-797.21	-6.29	-13.20			159.57	334.75
45	60/190	-486.81	-23.74	-25.15			113.29	120.02
46	60/303	-551.41	-43.12	42.18			139.10	136.07

47	60/888	-1622.98	-85.77	-180.73			409.17	862.23
48	35/610	-974.26	-19.41	-27.92			129.72	186.61
49	60/332	-1163.92	-70.37	-170.56			242.25	587.19
50	60/338	-560.21	-39.70	-26.49			143.70	95.89
51	95/192	-393.64	-37.49	-23.54			165.83	104.13
52	65/480	-1512.14	-65.30	-254.95			366.62	1431.42
53	60/670	-1700.62	-151.81	-426.46			397.07	1115.48
54	60/192	-478.41	-20.43	-25.77			112.29	141.66
55	40/620	-819.27	-57.87	-138.34			135.49	323.87
56	40/620	-942.76	-67.21	-164.93			150.99	370.54
57	60/460	-864.49	-67.05	-125.97			216.77	407.27
58	35/513	-329.69	-16.48	-28.28			52.14	89.48
59	60/680	-774.27	-122.71	-300.04			209.18	511.44
60	35/620	-642.02	-43.90	-113.11			94.93	244.60
61	60/300	-517.76	-39.13	-24.24			131.91	81.70
62	40/533	-435.49	-34.12	-64.71			77.77	147.48
63	390/30	-248.62	-200.52	-122.61	258.47	168.05		168.05
64	265/30	-106.35	-134.76	-27.99	26.90	27.07		26.90
65	60/30	-29.02	-4.20	-6.67	12.48	20.92		12.48
66	60/370	-331.21	-40.14	-90.58			91.59	206.69
67	60/310	-338.41	-40.33	-88.51			91.84	201.54
68	60/233	-258.52	4.55	-9.56			70.04	147.06
69	60/117	-398.91	-4.75	-11.52			83.92	203.62
70	60/187	-491.56	-0.37	-11.16			113.69	3444.50
71	60/143	-381.39	52.89	22.61			87.85	37.56
72	60/719	-552.59	57.13	-82.98			154.65	224.63
73	60/160	-177.75	-3.79	-0.53			48.15	6.76
74	60/140	-273.78	226.41	82.03			68.10	24.68
75	20/610	-496.76	-5.24	-13.13			39.08	97.84
76	45/60	-188.10	-4.15	-3.37			26.87	21.83
77	45/60	-206.91	-7.04	-4.43			27.86	17.55
78	60/635	-1139.69	-84.18	-215.68			288.31	738.67
79	1010/60	-1643.86	-660.72	-491.87	5169.64	1061.54		1061.54
80	60/310	-526.92	-64.21	-162.47			134.61	340.58
81	1150/60	-1787.23	-907.36	-633.58	6055.53	1174.89		1174.89
82	55/885	-1342.01	-117.91	-287.64			315.73	770.20
83	55/885	-1449.85	-128.31	-300.57			336.47	788.19
84	1045/60	-1570.48	-1842.26	-432.47	1635.53	1046.19		1046.19
85	60/310	-401.84	-50.13	-125.07			106.90	266.71
86	1130/60	-1411.77	-2336.94	-414.43	1237.03	1016.71		1016.71
87	60/678	-1040.34	-88.68	-155.01			270.27	472.40
88	50/885	-1385.77	-80.34	-178.14			289.58	642.11
89	30/545	-703.96	-27.15	-68.33			81.77	205.77
90	1185/25	-1985.07	-1441.01	-283.10	1377.53	991.53		991.53
91	25/635	-616.05	-20.04	-50.36			61.35	154.14
92	1150/25	-1395.16	-625.51	-272.98	2477.04	749.73		749.73
93	60/90	-186.00	-23.36	-60.28			45.73	117.99
94	30/885	-1103.93	-43.15	-108.58			129.51	325.91
				-12451.94				
								36377.41

$\lambda = \Sigma_Ved/\Sigma_Vrd = 12451.94/36377.41 = 0.34 \quad OK$

Στάθμη 5

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-344.38	-125.27	-45.77	129.23	233.75		129.23
2	190/60	-272.67	-86.67	-36.58	93.56	184.93		93.56
3	240/60	-382.88	-163.01	-96.61	228.68	246.06		228.68
4	175/60	-293.51	-88.39	-54.60	131.90	186.26		131.90
5	165/60	-243.54	-52.48	-18.79	61.27	163.42		61.27
6	165/60	-239.14	-42.88	-14.84	58.32	161.66		58.32
7	165/60	-203.63	-48.22	-17.24	52.62	147.45		52.62
8	125/60	-209.69	-26.66	-10.90	44.55	133.88		44.55
9	55/60	-318.94	-14.98	-8.81			43.28	25.47
10	55/60	-319.11	-8.18	-5.38			43.28	28.45
11	135/60	-289.08	-41.00	-16.81	62.80	169.63		62.80
12	175/60	-243.48	-78.07	-27.99	65.71	163.92		65.71
13	135/60	-223.24	-47.75	-19.72	51.90	143.30		51.90
14	155/60	-251.61	-42.16	-16.15	62.53	162.64		62.53
15	170/60	-208.68	-69.71	-45.00	100.38	145.38		100.38
16	240/60	-394.05	-257.04	-156.73	240.78	223.34		223.34
17	190/60	-247.78	-137.94	-89.78	133.15	146.31		133.15
18	230/60	-213.27	-49.35	-30.52	137.54	177.31		137.54
19	560/60	-973.31	-720.75	-305.40	953.16	613.32		613.32
20	465/60	-793.81	-261.99	-276.52	1613.93	503.53		503.53
21	375/60	-800.91	-301.39	-249.70	977.26	470.36		470.36
22	380/60	-1158.81	-140.59	-165.35	1796.27	615.52		615.52
23	700/60	-1180.35	-883.21	-468.02	1818.37	752.14		752.14
24	265/60	-453.15	-81.24	-69.97	428.32	287.26		287.26
25	255/60	-417.96	-187.80	-144.38	342.23	266.26		266.26
26	500/60	-899.25	-558.90	-291.67	961.26	559.70		559.70
27	240/45	-629.96	-157.24	-46.63	145.37	323.98		145.37
28	240/45	-378.76	-52.19	-51.67	354.84	223.50		223.50

29	235/65	-511.86	-178.34	-123.03	331.11	306.58		306.58
30	265/65	-563.47	-110.11	-65.42	356.12	340.22		340.22
31	145/60	-200.38	-55.28	-17.49	39.57	134.05		39.57
32	165/60	-270.62	5.59	-1.78	59.41	174.25		59.41
33	150/60	-249.16	22.94	-38.50	261.26	159.67		159.67
34	290/60	-441.35	-351.01	-160.79	248.34	255.10		248.34
35	1160/60	-1840.90	-1993.89	-740.52	3333.34	1200.36		1200.36
36	880/30	-558.64	-429.44	-280.69	1401.71	399.46		399.46
37	2949/60	-2296.91	-348.58	-883.78	79150.46	2098.36		2098.36
38	60/195	-375.83	-11.72	-5.47			93.81	43.77
39	60/164	-306.01	6.93	7.26			76.87	80.57
40	60/290	-567.36	-32.59	-17.08			141.12	73.99
41	60/110	-264.76	-11.52	-5.99			62.70	32.58
44	60/209	-735.24	2.42	6.60			152.87	416.38
45	60/190	-424.30	-11.46	-12.54			102.41	112.04
46	60/303	-494.70	-73.75	-8.13			127.22	14.03
47	60/888	-1408.54	-95.47	-58.41			364.02	222.70
48	35/610	-878.98	-10.71	-4.06			120.63	45.78
49	60/332	-1107.22	-63.09	-35.88			235.41	133.89
50	60/338	-510.28	-26.43	-9.47			132.87	47.59
51	95/192	-411.44	-39.47	-16.47			172.33	71.92
52	65/480	-816.09	-87.02	-43.55			228.87	114.53
53	60/670	-1250.94	-135.03	-77.17			314.08	179.49
54	60/192	-353.85	-13.95	-6.39			89.07	40.83
55	40/620	-677.69	-40.19	-24.90			116.13	71.94
56	40/620	-912.08	-31.74	-18.36			147.26	85.17
57	60/460	-679.68	-59.41	-36.34			177.59	108.61
58	35/513	-394.26	-6.97	-4.55			61.06	39.87
59	60/680	-907.25	-85.42	-52.50			240.46	147.78
60	35/620	-609.90	-17.76	-10.97			91.01	56.20
61	60/300	-478.16	-19.99	-10.68			123.48	65.98
62	40/533	-353.94	-17.07	-10.93			64.63	41.38
63	390/30	-122.09	-187.01	-153.73	183.40	73.93		73.93
64	265/30	-111.77	-43.39	-39.47	123.31	97.71		97.71
65	60/30	-37.40	-2.37	-1.53	6.34	26.96		6.34
66	60/370	-331.72	-84.22	-51.02			91.72	55.56
67	60/310	-351.13	-54.62	-33.89			94.92	58.89
68	60/233	-237.27	11.04	5.29			64.85	31.10
69	60/117	-379.88	4.58	-1.44			81.54	25.57
70	60/187	-422.27	9.21	5.43			101.75	59.94
71	60/143	-371.77	31.81	37.41			86.29	101.47
72	60/719	-688.35	-105.76	-56.43			189.25	100.98
73	60/160	-156.63	-3.61	6.60			42.97	78.57
74	60/140	-255.30	160.75	73.99			64.39	29.64
75	20/610	-427.97	-0.01	-1.66			34.93	3920.74
76	45/60	-182.16	-1.25	-1.55			26.49	32.86
77	45/60	-200.97	-3.56	-2.54			27.58	19.68
78	60/635	-886.33	-73.76	-43.58			233.48	137.94
79	1010/60	-1323.24	-907.74	-569.19	3638.67	933.30		933.30
80	60/310	-412.04	-46.64	-27.63			109.26	64.73
81	1150/60	-1528.91	-742.90	-541.17	5548.77	1071.56		1071.56
82	55/885	-951.64	-60.80	-35.60			234.89	137.53
83	55/885	-1024.15	-110.91	-67.83			250.59	153.26
84	1045/60	-1410.82	-2096.02	-392.29	1192.57	982.33		982.33
85	60/310	-371.66	-40.48	-23.78			99.82	58.63
86	1130/60	-1297.38	-2410.50	-503.41	1354.29	970.95		970.95
87	60/678	-978.73	-60.53	-34.88			256.60	147.85
88	50/885	-905.84	-56.41	-31.86			202.16	114.17
89	30/545	-578.71	-13.14	-7.77			70.70	41.77
90	1185/25	-1708.22	-1722.26	-350.08	1342.35	880.79		880.79
91	25/635	-492.94	-8.85	-5.23			51.59	30.50
92	1150/25	-1261.33	-817.24	-361.36	2358.93	696.20		696.20
93	60/90	-124.41	-20.82	-12.82			32.82	20.21
94	30/885	-631.92	-19.08	-11.49			82.96	49.99
				-8784.01				24412.07

$\lambda = \Sigma_Ved/\Sigma_Vrd = 8784.01/24412.07 = 0.36 \quad OK$

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-146.20	-27.50	-78.75	456.26	122.48		122.48
2	190/40	-115.00	8.19	-69.78	845.53	96.67		96.67
3	240/40	-162.26	-60.16	-98.44	286.15	128.91		128.91
4	175/40	-83.46	-32.00	-46.14	97.74	72.71		72.71
5	165/40	-100.74	-1.23	-27.00	1655.30	84.30		84.30
6	165/40	-98.15	-2.94	-24.94	625.22	83.26		83.26
7	110/40	-86.09	3.11	-3.58	48.06	63.77		48.06
8	125/40	-231.84	5.09	-26.53	544.46	126.07		126.07
9	35/40	-122.57	-7.16	-21.97			11.61	35.64
10	35/40	-139.14	-3.83	-5.59			11.67	17.03
11	135/40	-173.91	13.50	-4.57	32.00	105.56		32.00
12	155/40	-117.09	18.20	-5.96	26.33	88.17		26.33

13	135/40	-104.29	1.45	-39.20	1684.69	77.71	77.71
14	155/40	-120.18	0.58	-35.94	5124.43	89.41	89.41
15	150/40	4.22	-10.64	-5.49	0.00	0.00	0.00
16	240/40	-184.37	43.51	5.31	23.89	137.75	23.89
17	190/40	-123.95	28.19	-70.51	265.53	100.25	100.25
18	230/40	-48.89	114.42	47.53	22.61	0.00	0.00
19	120/40	-299.21	-26.82	-45.73	191.12	151.69	151.69
20	255/40	-269.81	-230.13	-72.75	91.41	141.69	91.41
21	375/40	-242.22	-517.84	-295.04	233.58	0.00	0.00
22	380/40	-579.30	-147.26	-213.74	1230.56	333.05	333.05
23	700/40	-634.13	-595.10	-348.84	1123.44	440.32	440.32
24	265/40	-296.30	-162.09	-118.29	238.23	180.76	180.76
25	255/40	-169.74	-239.22	-128.21	104.35	0.00	0.00
26	500/40	-388.66	-324.98	-170.50	450.06	288.57	288.57
27	240/40	-406.70	0.57	21.86	13908.99	226.68	226.68
28	240/40	-228.97	-187.78	-112.59	141.05	121.97	121.97
29	235/40	-234.32	-217.02	-115.28	124.28	113.64	113.64
30	265/40	-232.27	-130.76	-79.95	163.33	153.87	153.87
31	145/30	-151.71	16.51	3.13	16.48	89.68	16.48
32	165/30	-65.31	1.40	-7.30	257.66	59.12	59.12
33	150/30	-154.78	-107.97	-78.50	66.90	24.52	24.52
34	965/30	-726.74	-806.61	-258.68	954.38	483.70	483.70
35	939/35	97.63	-229.56	-262.26	0.00	0.00	0.00
36	40/195	-246.20	-12.81	-32.01		41.11	102.71
37	40/164	-155.92	-18.34	-8.57		27.31	12.76
38	40/290	-242.46	-20.13	-44.79		43.18	96.07
39	40/90	-149.45	-7.78	-17.72		23.39	53.29
40	40/160	142.00	-52.14	-38.05		0.00	0.00
41	40/229	10.07	-0.65	-18.79		0.00	0.00
42	40/209	-422.65	-13.69	-24.98		62.16	113.43
43	40/190	-195.87	-57.50	-61.83		33.87	36.42
44	40/303	-283.61	-78.24	-25.71		49.76	16.35
45	40/888	-739.08	-63.14	-124.32		131.70	259.31
46	40/332	-783.93	-39.99	-127.43		108.28	345.03
47	40/338	-248.00	-2.25	-15.47		44.83	308.65
48	35/670	-415.95	-57.09	-114.95		66.03	132.95
49	40/172	-130.52	0.08	-3.02		23.51	912.58
50	35/680	-204.97	-187.08	-304.77		34.25	55.80
51	40/590	-713.88	-44.05	-63.08		120.14	172.06
52	40/440	-364.88	-7.19	-16.23		65.05	146.86
53	35/680	-407.35	-64.26	-158.47		64.89	160.02
54	40/370	-182.14	-10.56	-38.17		34.08	123.14
55	40/310	-222.63	-2.10	-8.07		40.34	154.91
56	40/233	-97.61	-7.63	-12.52		18.45	30.28
57	40/117	-283.06	10.66	59.54		38.61	215.64
58	40/187	-212.78	-9.99	-13.99		36.23	50.74
59	40/143	-143.11	64.33	33.29		24.88	12.88
60	40/719	-262.59	-25.71	-80.44		50.01	156.45
61	40/140	-176.76	-91.23	-52.02		29.50	16.82
62	40/40	53.31	-4.50	-8.70		0.00	0.00
63	40/40	-229.71	-6.01	-11.62		11.37	22.00
64	40/635	-399.49	-39.80	-107.04		73.31	197.17
65	990/40	-571.92	115.33	-260.60	5840.19	492.77	492.77
66	40/310	-157.62	-30.37	-76.82		29.42	74.42
67	1150/40	-837.67	698.27	-390.36	2397.15	641.74	641.74
68	1045/40	-943.68	-1459.32	-273.77	799.16	656.14	656.14
69	40/290	-287.11	-27.18	-64.80		49.97	119.14
70	1110/40	-600.32	-1173.89	-262.11	683.30	527.69	527.69
71	40/678	-563.33	-6.89	-8.41		100.40	122.61
72	40/635	-422.33	-67.20	-166.87		77.11	191.46
73	1185/40	-1299.11	-1671.05	-385.59	1482.74	835.65	835.65
74	1150/40	-1022.74	-284.57	-435.05	7785.66	715.76	715.76
75	30/35	-185.99	-8.05	-5.47	145.25	132.12	132.12
76	30/35	-212.49	-8.05	-4.44	148.90	134.77	134.77
77	30/35	-169.56	-46.40	-24.80	139.03	127.68	127.68
78	30/35	-156.56	6.78	8.32	135.08	124.93	124.93
79	30/35	-105.93	-9.89	-6.84	130.93	122.06	122.06
80	30/35	-197.36	-6.56	-4.54	143.43	130.81	130.81
			-6596.30				12904.56
$\lambda = \Sigma_Ved/\Sigma_Vrd = 6596.30/12904.56 = 0.51 \quad OK$							

Στάθμη 7

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-98.88	-139.79	-77.35	61.58	0.00		0.00
2	190/40	-94.09	-155.99	-80.77	42.83	0.00		0.00
3	240/40	-141.16	-147.94	-82.19	85.77	68.62		68.62
4	175/40	-88.45	-50.02	-27.54	39.37	60.14		39.37
5	165/40	-83.81	-47.27	-21.13	28.53	54.40		28.53
6	165/40	-83.80	-36.25	-16.06	28.29	64.92		28.29
7	110/40	-67.41	-11.31	-4.95	14.73	56.30		14.73

8	125/40	-75.79	-29.18	-20.86	30.78	49.52		30.78
9	35/40	-112.50	-4.63	-2.62			11.40	6.45
10	35/40	-120.06	-1.12	-0.92			11.57	9.47
11	135/40	-112.29	-5.48	0.97	11.69	80.92		11.69
12	155/40	-83.64	-6.73	2.42	21.38	74.79		21.38
13	135/40	-77.99	-17.88	-9.81	26.37	66.85		26.37
14	155/40	-87.42	-9.53	-5.65	36.77	76.30		36.77
15	150/40	-92.77	-19.44	-15.35	49.82	77.11		49.82
16	240/40	-122.87	39.74	11.96	40.94	113.15		40.94
17	190/40	-81.50	-30.17	-18.32	43.98	78.99		43.98
18	230/40	-68.65	37.84	13.84	27.57	75.37		27.57
19	120/40	-116.98	-44.44	-38.84	52.34	64.40		52.34
20	255/40	-304.48	-156.46	-81.80	166.46	182.68		166.46
21	375/40	-209.22	-282.22	-277.19	352.91	125.77		125.77
22	380/40	-274.43	-378.91	-242.68	297.61	151.31		151.31
23	735/40	-441.78	-678.60	-334.27	727.31	347.83		347.83
24	265/40	-272.98	-67.69	-105.31	475.36	179.86		179.86
25	255/40	-147.30	-136.73	-115.59	144.95	86.66		86.66
26	500/40	-443.95	-355.34	-271.93	735.74	310.91		310.91
27	240/40	-385.58	-17.43	33.46	673.28	218.23		218.23
28	240/40	-207.85	-97.94	-100.70	222.98	141.44		141.44
29	235/40	-213.64	-122.28	-103.59	183.53	133.67		133.67
30	265/40	-208.95	-67.30	-66.86	242.36	154.25		154.25
31	145/30	-130.61	-10.05	-7.90	60.99	81.24		60.99
32	165/30	-69.91	-25.57	-11.37	23.46	55.52		23.46
33	150/30	-114.15	-62.27	-23.73	27.63	57.93		27.63
34	965/30	-500.54	-912.96	-409.64	970.71	380.28		380.28
35	939/35	-99.25	-788.49	-364.80	211.66	0.00		0.00
36	40/195	-141.71	-13.64	-7.69			25.65	14.46
37	40/164	-151.30	-15.45	-21.49			26.61	37.03
38	40/290	-147.25	-20.87	-15.75			27.49	20.74
39	40/90	-135.49	-5.66	-4.42			21.75	17.00
40	40/160	-95.80	-24.07	-40.64			17.66	29.81
41	40/229	-7.86	14.85	4.28			1.56	0.45
42	40/209	-274.39	6.61	1.83			45.45	12.56
43	40/190	-182.61	-23.47	-28.12			31.91	38.24
44	40/303	-238.73	-59.23	-48.24			42.81	34.87
45	40/888	-592.78	-51.21	-28.55			108.19	60.32
46	40/332	-520.17	-28.09	-15.52			82.68	45.69
47	40/338	-197.67	-2.32	-1.83			36.50	28.88
48	35/670	-308.00	-16.63	-10.11			50.19	30.52
49	40/172	-121.03	-0.40	0.23			21.97	12.84
50	35/680	-174.48	-4.94	-3.50			29.36	20.77
51	40/590	-503.01	-19.42	-11.64			89.36	53.58
52	40/440	-230.25	-1.44	-1.56			42.89	46.63
53	35/680	-399.61	-35.44	-22.20			63.78	39.96
54	40/370	-138.37	-35.65	-21.91			26.32	16.17
55	40/310	-169.20	3.49	10.59			31.42	95.41
56	40/233	-107.35	2.37	-0.30			20.17	2.55
57	40/117	-124.95	1.07	1.74			21.48	34.83
58	40/187	-159.59	0.97	0.57			28.36	16.71
59	40/143	-147.90	38.40	43.80			25.59	29.18
60	40/719	-277.97	-40.53	-22.53			52.78	29.34
61	40/140	-120.84	-48.97	-15.17			21.44	6.64
62	40/40	-30.15	-2.44	-1.58			5.43	3.53
63	40/40	-29.15	-1.72	-1.13			5.27	3.45
64	40/635	-283.09	-26.95	-16.40			53.31	32.44
65	990/40	-415.76	-315.08	-275.89	1688.01	430.31		430.31
66	40/310	-128.50	-11.87	-7.29			24.30	14.94
67	1150/40	-786.58	632.96	-243.91	1563.27	621.30		621.30
68	1045/40	-798.68	-1409.50	-225.28	590.18	596.29		590.18
69	40/290	-238.11	-8.91	-4.55			42.50	21.71
70	1110/40	-565.04	-1206.20	-266.76	640.35	499.23		499.23
71	40/678	-405.65	-10.52	-4.79			74.77	34.04
72	40/635	-411.66	-31.06	-18.94			75.34	45.93
73	1185/40	-1194.83	-1363.25	-309.33	1362.32	793.93		793.93
74	1150/40	-947.60	-127.79	-485.29	18123.31	685.71		685.71
75	30/35	-183.68	-3.69	-4.22	34.26	76.79	57.39	34.26
76	30/35	-210.18	-4.51	-3.15	35.14	79.44	58.86	35.14
77	30/35	-167.25	-26.14	-23.36	32.75	72.32	54.86	32.75
78	30/35	-154.25	-0.18	9.68	31.80	69.55	53.27	31.80
79	30/35	-103.62	-4.46	-5.38	30.80	66.67	51.59	30.80
80	30/35	-195.05	-2.96	-3.09	33.82	75.46	56.65	33.82
				-5025.92				7796.32

$\lambda = \Sigma_Ved/\Sigma_Vrd = 5025.92/7796.32 = 0.64 \quad OK$

Σεισμικός συνδυασμός 27: 1.10*G + 0.60*Q - 1.21*Σx1 + 0.36*Σy1

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-505.79	-409.63	-180.10	210.37	249.13		210.37
2	190/60	-394.68	-212.42	-104.98	146.64	207.28		146.64

3	240/60	-258.34	-396.03	-185.66	129.62	0.00	0.00
4	175/60	-321.11	-185.30	-92.38	114.26	164.20	114.26
5	165/60	-456.46	-135.90	-72.68	145.43	245.86	145.43
6	165/60	-473.95	-131.92	-67.15	141.59	255.18	141.59
7	165/60	-377.67	-167.40	-85.51	122.57	196.88	122.57
8	250/60	-436.78	-428.07	-220.43	231.80	207.10	207.10
9	95/60	-390.74	-57.54	-40.80	77.24	194.29	77.24
10	90/60	-449.00	-29.27	-14.85	51.16	215.60	51.16
11	245/60	-551.65	-450.50	-240.09	278.69	269.66	269.66
12	175/60	-309.65	-215.52	-115.90	119.81	145.34	119.81
13	135/60	-405.13	-93.37	-55.55	113.66	215.40	113.66
14	155/60	-479.42	-121.47	-64.89	136.81	253.77	136.81
15	170/60	-482.71	-170.62	-87.72	150.79	252.67	150.79
16	240/60	-509.26	-412.44	-199.39	232.47	250.52	232.47
17	190/60	-338.07	-246.21	-128.38	137.53	161.83	137.53
18	230/60	-346.18	-318.59	-94.08	99.79	166.04	99.79
19	560/60	-1802.35	-1660.29	-543.72	1118.38	944.94	944.94
20	465/60	-1692.06	-1046.95	-376.20	896.92	862.82	862.82
21	375/60	-1225.62	-641.14	-318.38	766.53	640.25	640.25
22	380/60	-1021.57	-736.09	-296.74	571.18	550.16	550.16
23	700/60	-1819.81	-2854.45	-723.96	1193.58	959.70	959.70
24	265/60	-824.12	-336.49	-177.89	396.94	435.65	396.94
25	255/60	-727.70	-298.66	-198.21	439.25	393.08	393.08
26	500/60	-1111.08	-1278.91	-532.93	899.11	606.31	606.31
27	480/65	-614.84	-1003.44	-413.29	535.59	345.77	345.77
28	380/65	-767.50	-561.99	-389.19	820.75	458.81	458.81
29	240/65	-555.96	-250.91	-119.60	249.71	319.72	249.71
30	65/65	-129.81	-8.91	-6.14		35.40	24.37
31	215/65	-332.60	-200.76	-113.70	173.45	194.32	173.45
32	110/65	-255.89	-67.27	-39.29	64.48	139.68	64.48
33	450/65	-823.34	-1036.09	-407.50	604.99	458.24	458.24
34	265/65	-910.33	-324.61	-163.39	413.75	478.97	413.75
35	120/60	-330.49	-35.46	-16.61	67.19	180.20	67.19
36	290/60	-453.69	-246.86	-147.08	330.36	290.18	290.18
37	345/60	-938.40	-368.54	-322.81	1030.50	513.36	513.36
38	165/60	-524.74	-75.36	-26.14	102.21	275.89	102.21
39	150/60	-457.86	-49.00	-8.77	42.60	243.15	42.60
40	290/60	-893.89	-357.40	-215.97	540.73	473.56	473.56
41	1140/60	-3130.10	-5067.35	-1084.93	2766.39	1708.04	1708.04
42	880/60	-1127.05	-1183.80	-569.31	2078.08	802.82	802.82
43	3769/60	-4774.29	-13509.84	-2782.91	16175.14	3417.32	3417.32
44	445/60	-748.19	-462.84	-223.35	667.66	477.28	477.28
45	60/195	-681.08	-43.33	-21.87		142.13	71.74
46	60/164	-547.79	-17.74	-7.02		116.49	46.11
47	60/290	-1044.08	-52.85	-27.84		214.72	113.10
48	60/110	-458.45	-19.40	-10.19		87.39	45.89
49	60/160	-302.47	-24.97	-13.37		75.77	40.59
50	60/229	-304.61	-14.75	-3.59		80.79	19.64
51	60/209	-753.09	-18.17	-8.76		154.90	74.65
52	60/190	-490.33	-19.99	-10.14		113.87	57.77
53	60/273	-980.55	161.94	58.44		201.78	72.82
54	60/888	-2046.26	-176.36	-92.72		490.32	257.79
55	45/630	-1146.05	-50.59	-30.68		203.23	123.26
56	60/900	-1625.46	-148.50	-88.88		410.71	245.82
57	95/192	-616.29	-147.94	-78.77		240.90	128.27
58	40/513	-674.01	-30.32	-16.13		111.60	59.35
59	65/630	-1634.15	-144.49	-83.90		420.02	243.90
60	60/670	-2598.12	-104.27	-61.32		515.43	303.10
61	60/645	-1250.19	-152.16	-79.81		311.56	163.42
62	60/192	-378.45	-48.68	-26.88		93.99	51.90
63	40/620	-1111.39	-43.94	-25.28		170.07	97.86
64	60/680	-1092.66	-112.20	-64.97		281.79	163.18
65	40/620	-1292.18	-42.58	-24.16		187.87	106.60
66	60/460	-1168.04	-100.68	-54.08		272.69	146.46
67	35/513	-787.99	-19.84	-10.87		106.18	58.18
68	60/680	-1519.53	-90.05	-49.18		366.88	200.36
69	35/620	-705.08	-21.52	-11.62		102.38	55.29
70	60/300	-666.37	-36.00	-20.53		161.12	91.91
71	40/533	-726.97	-34.38	-18.80		119.41	65.31
72	390/30	-334.24	-459.12	-197.31	231.87	168.28	168.28
73	265/30	-317.58	-187.98	-95.02	161.50	171.02	161.50
74	60/30	-78.98	-5.99	-3.29	9.57	43.59	9.57
75	60/370	-594.62	-129.66	-64.20		153.35	75.93
76	60/310	-392.38	-76.38	-41.51		104.70	56.90
77	60/233	-342.86	-33.53	-11.27		89.64	30.14
78	60/57	-257.99	-3.99	-0.73	7.63	125.84	7.63
79	60/187	-704.29	-10.71	-3.24		141.95	42.96
80	60/143	-540.54	-7.07	0.87		108.80	13.35
81	60/264	-264.06	-88.25	-26.11		72.30	21.39
82	60/468	-1035.93	-40.63	-18.17		250.74	112.13
83	60/107	-64.62	-21.66	-11.26		18.36	9.55
84	60/160	-267.04	-17.35	-9.87		68.43	38.92
85	60/140	-482.02	-20.60	-12.44		101.12	61.07

86	35/630	-656.88	-13.29	-4.92			97.01	35.92
87	40/495	-725.92	-27.81	-17.04			117.29	71.88
88	670/25	-485.41	-442.38	-189.16	573.87	305.83		305.83
89	65/250	-528.58	-41.59	-23.57			142.50	80.77
90	340/60	-676.29	-352.96	-192.44	501.60	406.51		406.51
91	56/56	-91.00	-9.25	-7.17			21.60	16.75
92	56/56	-146.86	-8.75	-6.56			31.03	23.25
93	56/56	-152.57	-8.30	-5.92			31.83	22.71
94	56/56	-81.17	-7.51	-4.65			19.64	12.17
95	45/70	-207.16	-25.44	-16.56	119.43	273.85	210.19	119.43
96	45/70	-343.79	-31.13	-25.54	115.90	262.94	203.99	115.90
97	60/635	-1444.45	-53.76	-29.84			347.24	192.73
98	1010/60	-2742.65	-2131.30	-430.09	2032.58	1501.06		1501.06
99	60/310	-942.06	-23.83	-13.64			207.60	118.84
100	1150/60	-3238.13	-1851.28	-377.20	2720.70	1755.25		1755.25
101	55/885	-1861.57	-80.01	-43.24			409.32	221.20
102	55/885	-1994.34	-41.22	-25.07			430.68	261.89
103	1045/60	-2509.46	-1937.64	-256.27	1315.84	1421.79		1315.84
104	60/310	-665.63	-24.91	-14.08			162.24	91.71
105	1130/60	-2183.96	-2843.67	-353.55	1236.30	1325.58		1236.30
106	60/678	-1106.18	-56.85	-32.07			284.56	160.50
107	50/885	-1768.94	-36.86	-19.69			349.58	186.74
108	30/545	-545.10	-7.98	-4.56			67.48	38.59
109	1185/50	-2401.74	-2667.95	-536.83	2163.81	1355.70		1355.70
110	25/635	-626.21	-5.34	-3.02			62.09	35.16
111	1150/25	-1513.31	-1222.54	-343.25	1668.09	796.99		796.99
112	60/90	-284.19	-11.97	-6.92			61.74	35.69
113	30/885	-1287.89	-10.80	-6.06			144.07	80.90
114	40/40	-350.52	-10.83	-8.25	81.81	174.15	143.99	81.81
115	40/40	-417.45	-9.90	-6.62	79.12	165.00	139.24	79.12

-16648.86

32584.93

$\lambda = \Sigma_Ved/\Sigma_Vrd = 16648.86/32584.93 = 0.51$ OK

Στάθμη 4

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-307.85	-146.22	-95.00	209.09	210.14		209.09
2	190/60	-258.63	-96.79	-65.05	142.55	172.54		142.55
3	240/60	-236.32	-117.67	-102.83	223.30	178.77		178.77
4	175/60	-186.96	-61.28	-71.65	170.72	140.45		140.45
5	165/60	-282.82	-60.17	-53.74	172.50	179.13		172.50
6	165/60	-295.38	-45.46	-37.01	162.71	184.15		162.71
7	165/60	-324.89	-61.97	-25.21	87.48	195.95		87.48
8	125/60	-286.89	-46.34	-21.44	63.82	164.76		63.82
9	55/60	-352.53	-25.58	-51.72			42.67	86.29
10	55/60	-346.62	4.33	3.09			42.85	30.51
11	135/60	-234.80	-64.42	-26.44	53.69	142.00		53.69
12	175/60	-278.66	-119.39	-41.18	70.66	165.05		70.66
13	135/60	-268.65	-46.74	-51.19	158.92	161.46		158.92
14	155/60	-309.95	-40.99	-39.25	183.81	185.98		183.81
15	170/60	-392.77	-80.02	-59.53	190.73	225.11		190.73
16	240/60	-228.92	-188.31	-141.54	186.69	136.85		136.85
17	190/60	-191.38	-147.57	-121.63	134.69	98.02		98.02
18	230/60	-196.70	-60.78	-57.25	194.78	170.68		170.68
19	560/60	-1094.64	-987.27	-315.83	787.98	661.86		661.86
20	465/60	-1199.78	-887.20	-266.70	621.21	665.91		621.21
21	375/60	-845.66	-635.51	-281.30	542.85	473.08		473.08
22	380/60	-956.07	-401.43	-231.75	783.67	534.43		534.43
23	700/60	-1458.69	-1036.77	-528.39	2057.33	863.48		863.48
24	265/60	-536.42	-344.14	-75.99	125.03	296.58		125.03
25	255/60	-450.42	-416.39	-207.96	235.92	222.23		222.23
26	500/60	-687.55	-810.93	-392.63	717.27	433.49		433.49
27	240/45	-420.64	-180.03	-93.32	200.24	237.74		200.24
28	240/45	-287.92	-135.13	-73.07	156.81	180.93		156.81
29	235/65	-468.92	-83.97	-179.65	960.77	289.40		289.40
30	265/65	-472.37	-250.22	-118.91	248.28	292.34		248.28
31	145/60	-260.66	-95.84	-19.97	32.26	147.14		32.26
32	165/60	-315.06	-9.31	-10.81	243.90	192.02		192.02
33	150/60	-287.56	-10.44	-28.21	470.78	175.02		175.02
34	290/60	-703.77	159.50	-311.42	1506.75	397.51		397.51
35	1160/60	-2281.33	-2440.79	-1018.91	4432.40	1376.53		1376.53
36	880/30	-438.83	-52.48	-331.10	10961.14	351.53		351.53
37	2949/60	-2741.32	1007.48	-642.10	23356.11	2276.13		2276.13
38	60/195	-479.42	-23.03	-44.71			113.01	219.42
39	60/164	-337.33	6.02	-4.14			83.05	57.16
40	60/290	-650.98	-44.63	-100.38			157.00	353.16
41	60/110	-363.79	-16.47	-36.60			77.56	172.36
42	60/160	-87.64	-8.86	-10.84			25.04	30.62
43	60/229	-82.10	-5.08	-6.64			23.86	31.21
44	60/209	-772.98	-9.45	-14.02			157.06	233.02
45	60/190	-421.58	-25.80	-25.10			101.91	99.15
46	60/303	-728.88	-43.02	42.84			172.67	171.94

47	60/888	-1467.84	-122.23	-256.77			376.77	791.53
48	35/610	-884.40	-29.71	-49.91			121.17	203.52
49	60/332	-1128.24	-81.98	-200.12			238.00	580.95
50	60/338	-865.64	-52.59	-20.47			201.53	78.44
51	95/192	-314.54	-57.61	-40.30			135.90	95.06
52	65/480	-1175.30	-84.06	-322.19			306.56	1174.94
53	60/670	-1850.56	-165.15	-460.23			421.23	1173.88
54	60/192	-490.94	-27.49	-32.22			114.39	134.07
55	40/620	-685.60	-65.89	-162.17			117.25	288.57
56	40/620	-733.97	-83.46	-196.57			124.03	292.12
57	60/460	-765.89	-81.27	-153.55			196.35	371.00
58	35/513	-388.66	-21.31	-38.52			60.30	108.98
59	60/680	-1147.02	-124.10	-297.62			293.41	703.65
60	35/620	-495.49	-47.07	-119.42			76.33	193.67
61	60/300	-533.74	-32.01	-20.40			135.24	86.18
62	40/533	-420.14	-42.47	-82.43			75.35	146.24

63	390/30	-280.14	-195.23	-131.03	313.73	187.24		187.24
64	265/30	-167.51	-173.82	-44.63	49.75	84.24		49.75
65	60/30	-30.02	-5.08	-8.18	13.05	19.87		13.05
66	60/370	-419.19	-36.79	-81.51			113.31	251.01
67	60/310	-231.16	-38.84	-87.08			64.83	145.34
68	60/233	-217.72	5.73	-8.75			59.98	91.70
69	60/117	-449.51	-5.50	-12.28			89.45	199.65
70	60/187	-473.92	-0.50	-11.40			110.78	2544.71
71	60/143	-422.53	52.84	22.53			94.15	40.15
72	60/719	-715.96	54.15	-63.57			196.12	230.23
73	60/160	-175.55	-1.16	0.29			47.62	12.10
74	60/140	-253.05	225.43	82.08			63.93	23.28
75	20/610	-397.16	-4.86	-12.44			32.94	84.34
76	45/60	-116.00	-4.72	-3.61			20.22	15.50
77	45/60	-141.69	-8.89	-5.37			23.11	13.97
78	60/635	-1014.84	-77.22	-199.73			261.95	677.57
79	1010/60	-2002.12	-749.68	-286.21	3091.43	1204.85		1204.85
80	60/310	-677.22	-37.15	-93.79			164.40	415.04
81	1150/60	-2421.92	-815.55	-400.92	5397.77	1428.77		1428.77
82	55/885	-1271.27	-122.61	-274.47			301.75	675.49
83	55/885	-1419.19	-85.80	-206.80			330.64	796.92
84	1045/60	-1941.10	-1279.48	-192.29	1239.83	1194.44		1194.44
85	60/310	-487.69	-39.12	-97.08			126.20	313.18
86	1130/60	-1566.82	-1690.22	-323.47	1458.24	1078.73		1078.73
87	60/678	-1019.12	-68.42	-123.36			265.59	478.83
88	50/885	-1385.98	-56.68	-151.24			289.62	772.83
89	30/545	-572.91	-16.75	-42.09			70.15	176.33
90	1185/25	-1711.29	-1296.94	-286.90	1462.10	882.01		882.01
91	25/635	-494.24	-18.39	-45.76			51.70	128.66
92	1150/25	-1194.98	-487.25	-277.09	2928.64	669.66		669.66
93	60/90	-137.54	-18.95	-48.46			35.75	91.45
94	30/885	-1079.33	-30.24	-76.72			127.41	323.23
				-12330.41				34968.92

$\lambda = \Sigma_Ved/\Sigma_Vrd = 12330.41/34968.92 = 0.35 \quad OK$

Στᾶθμη 5

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv	Mrdz KNm	Vrd KN
1	240/60	-271.65	-239.63	-104.82	126.38	146.80		126.38
2	190/60	-221.22	-136.92	-61.75	83.69	128.21		83.69
3	240/60	-188.33	-276.08	-162.57	122.59	0.00		0.00
4	175/60	-260.63	-125.12	-76.51	118.59	151.65		118.59
5	165/60	-228.69	-80.58	-31.69	63.87	148.19		63.87
6	165/60	-238.41	-68.67	-26.94	65.96	159.80		65.96
7	165/60	-270.88	-72.30	-27.67	71.43	174.35		71.43
8	125/60	-146.50	-43.60	-19.23	35.63	97.89		35.63
9	55/60	-316.87	-20.01	-11.84			43.29	25.61
10	55/60	-315.74	-12.84	-8.21			43.29	27.69
11	135/60	-250.96	-59.79	-20.13	46.37	152.79		46.37
12	175/60	-275.47	-104.66	-31.32	60.73	169.59		60.73
13	135/60	-223.48	-64.92	-27.68	53.63	135.53		53.63
14	155/60	-252.94	-61.09	-24.68	66.22	163.17		66.22
15	170/60	-237.97	-101.15	-63.19	108.59	146.18		108.59
16	240/60	-278.47	-330.52	-198.87	177.63	12.26		12.26
17	190/60	-209.44	-190.38	-121.72	113.12	38.38		38.38
18	230/60	-142.41	-85.73	-52.46	93.98	122.73		93.98
19	560/60	-1123.56	-763.35	-388.58	1278.68	673.42		673.42
20	465/60	-989.06	-254.55	-318.43	2262.04	581.62		581.62
21	375/60	-796.16	-396.53	-266.30	788.74	468.46		468.46
22	380/60	-905.91	-222.56	-216.80	1275.19	514.37		514.37
23	700/60	-1116.21	-1168.08	-479.71	1347.44	726.48		726.48
24	265/60	-475.51	-139.61	-109.15	403.82	296.20		296.20
25	255/60	-416.76	-250.22	-197.52	350.59	247.65		247.65
26	500/60	-621.55	-509.42	-372.14	993.38	448.62		448.62
27	240/45	-572.72	-240.76	-89.78	174.37	299.25		174.37
28	240/45	-264.16	-78.50	-65.21	224.52	177.66		177.66

29	235/65	-437.92	-202.43	-136.62	287.28	267.82		267.82
30	265/65	-434.48	-155.81	-106.73	334.38	288.62		288.62
31	145/60	-218.63	-79.15	-28.64	48.67	131.01		48.67
32	165/60	-293.28	3.75	-2.92	155.03	183.31		155.03
33	150/60	-255.09	20.14	-21.12	166.40	162.04		162.04
34	290/60	-406.71	-412.75	-209.67	257.37	214.90		214.90
35	1160/60	-2012.97	-2322.94	-744.11	3088.03	1269.19		1269.19
36	880/30	-393.06	-330.34	-308.64	1470.89	333.22		333.22
37	2949/60	-2581.05	199.13	-622.68	108542.48	2212.02		2212.02
38	60/195	-370.48	-23.40	-11.94			92.74	47.32
39	60/164	-303.64	7.46	8.10			76.39	82.88
40	60/290	-544.15	-34.32	-17.98			136.49	71.53
41	60/110	-302.35	-11.47	-5.92			68.90	35.59
44	60/209	-718.48	-0.07	6.07			150.89	12478.15
45	60/190	-372.70	-13.46	-12.15			92.62	83.65
46	60/303	-639.69	-74.25	-8.01			156.48	16.88
47	60/888	-1297.37	-132.27	-80.43			339.54	206.46
48	35/610	-832.04	-17.50	-7.70			115.87	50.96
49	60/332	-1057.41	-69.16	-39.28			228.97	130.05
50	60/338	-682.79	-37.83	-15.06			168.65	67.12
51	95/192	-388.98	-62.46	-27.72			164.11	72.85
52	65/480	-613.79	-115.09	-61.95			178.91	96.31
53	60/670	-1316.36	-134.55	-76.95			327.14	187.10
54	60/192	-349.19	-20.12	-7.41			88.12	32.46
55	40/620	-598.34	-42.14	-25.96			104.54	64.40
56	40/620	-791.91	-32.34	-18.76			131.88	76.50
57	60/460	-631.32	-80.11	-48.48			166.69	100.88
58	35/513	-450.80	-10.88	-6.88			68.51	43.30
59	60/680	-1152.90	-79.25	-48.53			294.65	180.46
60	35/620	-522.21	-19.01	-11.66			79.86	48.97
61	60/300	-494.14	-15.94	-6.84			126.91	54.49
62	40/533	-343.49	-25.04	-15.74			62.90	39.55
63	390/30	-135.11	-195.94	-159.81	199.92	84.03		84.03
64	265/30	-124.96	-78.41	-62.65	119.77	91.83		91.83
65	60/30	-44.31	-3.59	-2.26	7.12	29.72		7.12
66	60/370	-391.40	-73.61	-44.89			106.57	65.00
67	60/310	-275.11	-55.73	-34.52			76.14	47.17
68	60/233	-184.37	11.56	5.63			51.49	25.10
69	60/117	-426.47	4.39	-2.45			87.07	48.64
70	60/187	-401.46	9.27	5.48			97.91	57.88
71	60/143	-391.96	31.89	37.53			89.53	105.34
72	60/719	-811.28	-91.18	-48.32			219.41	116.26
73	60/160	-154.43	-1.63	7.42			42.42	192.91
74	60/140	-234.57	159.88	74.04			60.07	27.82
75	20/610	-381.40	0.18	-1.08			31.89	195.85
76	45/60	-110.06	-2.18	-1.79			19.47	16.04
77	45/60	-135.75	-4.67	-3.48			22.50	16.78
78	60/635	-769.02	-57.64	-34.25			206.30	122.57
79	1010/60	-1532.83	-775.69	-349.09	2952.53	1017.13		1017.13
80	60/310	-514.75	-25.35	-15.01			132.03	78.18
81	1150/60	-1948.45	-596.01	-269.14	4198.15	1239.38		1239.38
82	55/885	-916.83	-52.52	-31.04			227.24	134.27
83	55/885	-1012.53	-76.29	-47.16			248.09	153.36
84	1045/60	-1599.88	-1321.75	-263.50	1410.22	1057.95		1057.95
85	60/310	-410.88	-31.02	-18.19			108.99	63.92
86	1130/60	-1399.68	-1725.01	-385.70	1548.21	1011.87		1011.87
87	60/678	-963.80	-57.78	-33.17			253.24	145.36
88	50/885	-902.18	-37.79	-20.95			201.45	111.68
89	30/545	-544.59	-9.42	-5.56			67.43	39.79
90	1185/25	-1579.58	-1751.32	-294.21	1067.00	829.33		829.33
91	25/635	-436.30	-6.57	-3.88			46.68	27.56
92	1150/25	-1214.53	-529.21	-363.19	3572.50	677.48		677.48
93	60/90	-107.83	-16.84	-10.53			28.96	18.11
94	30/885	-580.91	-12.75	-7.73			77.14	46.77
				-8680.69				32499.71
$\lambda = \Sigma_Ved/\Sigma_Vrd = 8680.69/32499.71 = 0.27 \quad OK$								

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-129.04	-8.50	-90.67	1517.43	115.62		115.62
2	190/40	-71.52	32.50	-66.54	131.21	68.25		68.25
3	240/40	-55.05	-66.46	-103.01	98.84	0.00		0.00
4	175/40	-21.88	-38.00	-53.59	26.49	0.00		0.00
5	165/40	-86.29	7.13	-42.43	390.22	78.52		78.52
6	165/40	-97.03	5.28	-37.31	515.50	82.81		82.81
7	110/40	-93.96	0.58	-16.67	1295.91	66.92		66.92
8	125/40	-209.70	13.08	-21.74	162.79	117.21		117.21
9	35/40	-119.14	-8.83	-26.50			11.55	34.68
10	35/40	-138.83	-5.31	-9.38			11.67	20.63
11	135/40	-149.92	16.64	-3.26	16.49	95.97		16.49

8	125/40	-73.39	-31.13	-22.00	29.56	45.43		29.56
9	35/40	-111.72	-5.50	-3.14			11.37	6.48
10	35/40	-119.63	-1.38	-1.08			11.56	9.09
11	135/40	-104.85	-1.02	2.72	167.26	77.94		77.94
12	155/40	-88.94	0.56	5.39	606.89	76.91		76.91
13	135/40	-78.30	-23.45	-12.75	26.22	61.35		26.22
14	155/40	-88.05	-17.27	-9.42	34.05	76.55		34.05
15	150/40	-131.96	-41.68	-28.76	59.23	87.51		59.23
16	240/40	-77.82	-22.51	-26.07	102.86	95.13		95.13
17	190/40	-77.76	-67.10	-36.95	38.17	38.07		38.07
18	230/40	-50.08	16.27	0.67	2.30	81.36		2.30
19	120/40	-128.80	-43.52	-40.76	60.68	72.49		60.68
20	255/40	-360.16	-133.40	-60.10	162.84	212.06		162.84
21	375/40	-225.46	-270.44	-262.66	373.39	144.23		144.23
22	380/40	-239.44	-370.19	-241.33	268.42	124.09		124.09
23	735/40	-466.69	-576.36	-336.54	905.66	381.88		381.88
24	265/40	-248.84	-97.57	-131.76	382.23	170.20		170.20
25	255/40	-136.65	-184.34	-157.66	136.98	0.00		0.00
26	500/40	-427.39	-495.14	-363.61	683.59	278.27		278.27
27	240/40	-402.36	-41.67	16.91	146.44	224.94		146.44
28	240/40	-176.24	-91.83	-96.60	197.86	124.81		124.81
29	235/40	-199.57	-127.54	-116.56	186.88	122.70		122.70
30	265/40	-161.01	-102.82	-104.10	196.22	119.32		119.32
31	145/30	-102.72	-22.60	-15.11	42.72	70.09		42.72
32	165/30	-72.47	-26.82	-12.17	24.73	56.29		24.73
33	150/30	-106.22	-44.43	-17.21	26.47	62.39		26.47
34	965/30	-545.74	-970.59	-377.66	908.18	401.09		401.09
35	939/35	-227.67	-682.86	-413.36	620.03	209.77		209.77
36	40/195	-136.38	-17.46	-10.01			24.78	14.21
37	40/164	-156.62	-14.16	-21.49			27.41	41.59
38	40/290	-136.79	-19.88	-15.85			25.67	20.47
39	40/90	-157.23	-5.78	-4.69			24.25	19.66
40	40/160	-93.77	-24.46	-40.76			17.31	28.85
41	40/229	4.21	14.94	4.31			0.00	0.00
42	40/209	-285.80	6.83	1.89			46.93	13.00
43	40/190	-166.93	-23.38	-27.98			29.54	35.35
44	40/303	-275.07	-60.02	-47.18			48.46	38.10
45	40/888	-580.23	-47.79	-25.99			106.11	57.71
46	40/332	-485.05	-25.75	-14.36			78.44	43.74
47	40/338	-230.36	-7.56	-4.89			41.95	27.18
48	35/670	-312.71	-31.17	-18.78			50.90	30.66
49	40/172	-118.44	0.33	0.57			21.55	37.12
50	35/680	-111.19	-6.17	-4.54			18.98	13.99
51	40/590	-467.84	-18.90	-11.58			83.85	51.37
52	40/440	-238.40	-9.75	-6.56			44.29	29.81
53	35/680	-432.17	-29.95	-18.77			68.43	42.88
54	40/370	-153.62	-17.20	-10.93			29.05	18.46
55	40/310	-153.11	2.83	10.27			28.64	103.97
56	40/233	-6.13	2.00	-0.89			1.22	0.55
57	40/117	-142.71	0.82	1.60			23.97	46.42
58	40/187	-147.48	0.59	0.45			26.46	20.32
59	40/143	-150.73	38.40	43.74			26.00	29.61
60	40/719	-360.17	-35.73	-20.73			67.31	39.05
61	40/140	-109.74	-49.50	-15.36			19.69	6.11
62	40/40	-38.04	-2.41	-1.61			6.66	4.46
63	40/40	-35.65	-2.51	-1.60			6.30	4.01
64	40/635	-232.86	-6.37	-4.09			44.33	28.47
65	990/40	-446.05	-115.51	-145.37	2590.09	442.42		442.42
66	40/310	-151.99	-10.20	-6.29			28.45	17.54
67	1150/40	-892.69	555.25	-173.40	1415.48	663.74		663.74
68	1045/40	-809.72	-970.12	-37.26	143.52	602.55		143.52
69	40/290	-238.09	-5.84	-2.76			42.50	20.07
70	1110/40	-584.51	-939.11	-201.20	639.87	529.80		529.80
71	40/678	-404.50	-15.76	-8.01			74.58	37.90
72	40/635	-446.18	-32.08	-19.43			81.02	49.07
73	1185/40	-1200.29	-1563.71	-358.49	1381.58	796.11		796.11
74	1150/40	-815.48	175.59	-532.46	12699.99	632.86		632.86
75	30/35	-180.30	-5.54	-5.99	34.26	76.79	57.39	34.26
76	30/35	-204.77	-4.39	-2.59	35.14	79.44	58.86	35.14
77	30/35	-164.13	-26.57	-23.67	32.75	72.32	54.86	32.75
78	30/35	-151.07	-0.29	9.30	31.80	69.55	53.27	31.80
79	30/35	-97.73	-3.19	-3.71	30.80	66.67	51.59	30.80
80	30/35	-276.55	-5.49	-6.82	33.82	75.46	56.65	33.82
				-5001.77				7486.52

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 5001.77/7486.52 = 0.67 \quad OK$$

Σεισμικός συνδυασμός 28: 1.10*G + 0.60*Q + 0.36*Σx1 + 1.21*Σy1

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-334.73	-59.31	-27.55			88.19	40.97
2	190/60	-353.08	-26.25	-8.50			88.73	28.73

3	240/60	-17.20	-78.04	-42.22			5.13	2.77
4	175/60	-313.64	-50.64	-26.55			79.36	41.62
5	165/60	-451.26	-18.10	-5.18			103.04	29.50
6	165/60	-472.03	-16.62	-4.87			106.22	31.16
7	165/60	-313.54	-42.59	-23.83			78.45	43.89
8	250/60	-377.08	-57.42	-31.61			98.22	54.08
9	95/60	-416.92	-16.04	-14.36			77.13	69.05
10	90/60	-390.30	-14.44	-13.39			72.74	67.43
11	245/60	-380.28	-50.61	-28.25			98.62	55.06
12	175/60	-419.32	-31.47	-17.08			99.47	54.00
13	135/60	-423.91	-10.29	-2.99			92.29	26.80
14	155/60	-462.30	-11.39	-3.08			102.56	27.76
15	170/60	-401.83	-31.84	-17.01			95.66	51.09
16	240/60	-118.67	-35.41	-18.14			34.06	17.45
17	190/60	-166.78	-29.86	-15.39			46.20	23.81
18	230/60	-232.61	-29.08	-13.39			63.62	29.29
19	560/60	-1854.30	-149.97	-75.09			395.40	197.97
20	465/60	-1874.18	-145.04	-79.77			364.31	200.37
21	375/60	-1088.20	-39.06	-11.18			243.71	69.78
22	380/60	-893.13	-99.97	-55.35			212.93	117.89
23	700/60	-1597.21	-72.02	-26.90			383.66	143.31
24	265/60	-979.07	-45.92	-24.76			198.93	107.29
25	255/60	-807.86	-19.53	-6.04			175.29	54.21
26	500/60	-1246.50	-98.74	-53.84			292.52	159.50
27	480/65	-531.99	-134.45	-72.08			157.45	84.41
28	380/65	-564.19	-137.13	-75.70			161.41	89.10
29	240/65	-596.22	-32.31	-9.26			154.96	44.40
30	65/65	-134.55	-8.27	-2.37	10.12	81.99		10.12
31	215/65	-263.65	-26.40	-8.12			77.22	23.73
32	110/65	-176.82	-38.32	-22.16			50.02	28.92
33	450/65	-688.48	-97.52	-53.14			196.15	106.89
34	265/65	-507.46	-25.13	-8.05			139.46	44.64
35	120/60	-269.41	-22.38	-9.95			64.97	28.89
36	290/60	-383.61	-35.45	-11.29			101.79	32.42
37	345/60	-1163.66	-97.05	-51.17			246.25	129.83
38	165/60	-560.75	-15.97	-4.64			118.29	34.38
39	150/60	-549.91	-32.57	-16.41			112.15	56.49
40	290/60	-671.15	-71.95	-39.29			160.64	87.72
41	1140/60	-3476.06	-244.41	-137.64			765.08	430.87
42	880/60	-797.19	-240.74	-129.06			220.23	118.06
43	3769/60	-5640.99	-675.91	-392.84			1471.06	854.98
44	445/60	-725.13	-70.29	-39.20			186.58	104.05
45	60/195	-531.48	-324.43	-131.51	153.02	256.60		153.02
46	60/164	-434.68	-200.69	-107.26	140.16	217.07		140.16
47	60/290	-672.32	-724.58	-315.55	325.69	313.60		313.60
48	60/110	-403.70	-86.91	-42.77	68.83	201.55		68.83
49	60/160	-218.18	-158.91	-91.63	86.96	67.84		67.84
50	60/229	-275.90	-347.66	-151.83	121.53	0.00		0.00
51	60/209	-707.81	-286.47	-102.67	175.21	360.10		175.21
52	60/190	-356.94	-309.50	-167.85	148.83	75.85		75.85
53	60/273	-1068.51	-732.45	-229.76	277.15	508.77		277.15
54	60/888	-1922.60	-6663.15	-1397.89	1401.40	885.96		885.96
55	45/630	-1032.92	-2085.73	-672.60	818.84	514.94		514.94
56	60/900	-1261.50	-4714.59	-1248.94	1292.09	596.12		596.12
57	95/192	-514.62	-404.80	-218.05	220.86	238.80		220.86
58	40/513	-669.78	-910.94	-473.51	717.35	364.31		364.31
59	65/630	-1182.17	-2421.19	-790.77	1004.61	616.12		616.12
60	60/670	-2254.49	-2842.32	-703.23	1237.01	1152.51		1152.51
61	60/645	-969.44	-1685.14	-730.26	1150.30	566.18		566.18
62	60/192	-378.88	-201.64	-106.27	153.70	202.89		153.70
63	40/620	-1126.15	-1262.74	-422.15	847.70	608.76		608.76
64	60/680	-1173.26	-1385.90	-877.80	2088.70	735.55		735.55
65	40/620	-900.04	-1252.62	-386.33	672.31	496.68		496.68
66	60/460	-666.46	-1017.47	-312.02	401.66	359.38		359.38
67	35/513	-924.94	-691.24	-243.36	575.93	489.68		489.68
68	60/680	-2528.52	-2139.18	-536.67	1351.20	1283.41		1283.41
69	35/620	-784.38	-927.03	-321.58	659.74	448.02		448.02
70	60/300	-529.75	-361.94	-195.62	353.29	309.91		309.91
71	40/533	-670.94	-890.59	-256.24	416.89	375.39		375.39
72	390/30	-476.65	-3.67	-1.46			56.23	22.47
73	265/30	-399.02	-5.13	-2.65			44.11	22.77
74	60/30	-79.66	-1.29	-0.70			9.18	4.97
75	60/370	-906.84	-615.71	-121.00	248.52	503.26		248.52
76	60/310	-389.83	-294.77	-40.63	72.77	251.19		72.77
77	60/233	-524.41	-171.83	-43.67	120.18	302.96		120.18
78	60/57	-272.64	-9.06	-5.63			44.72	27.78
79	60/187	-699.79	-107.09	-50.50	193.31	354.90		193.31
80	60/143	-652.07	-54.51	-25.54	119.11	318.22		119.11
81	60/264	-200.18	-229.24	-44.06	46.94	101.11		46.94
82	60/468	-1899.64	-1045.16	-127.70	322.08	947.20		322.08
83	60/107	-147.32	-23.73	-6.64	19.01	101.73		19.01
84	60/160	-239.37	-110.54	-59.92	88.20	136.33		88.20
85	60/140	-406.05	-79.04	-46.36	118.14	218.42		118.14

86	35/630	-532.79	-1569.64	-385.22	351.90	111.33		111.33
87	40/495	-1004.78	-977.51	-493.90	872.21	522.08		522.08
88	670/25	-555.24	-14.88	-8.30			57.35	31.98
89	65/250	-484.17	-340.81	-170.64	248.61	264.66		248.61
90	340/60	-670.33	-61.83	-34.24			166.47	92.18
91	56/56	-82.19	-4.71	-2.14	8.81	53.78		8.81
92	56/56	-145.06	-2.93	0.68	6.76	78.93		6.76
93	56/56	-146.98	-2.57	0.91	10.41	79.70		10.41
94	56/56	-82.80	-3.69	-1.35	7.13	54.03		7.13
95	45/70	-207.11	-43.65	-13.21	81.86	174.29	144.08	81.86
96	45/70	-215.74	-41.71	-12.88	79.60	167.28	140.09	79.60
97	60/635	-911.19	-3019.98	-879.24	720.87	0.00		0.00
98	1010/60	-2873.24	-271.10	-143.93			647.79	343.92
99	60/310	-1088.02	-661.77	-324.23	534.96	548.22		534.96
100	1150/60	-4126.18	-257.55	-140.70			849.91	464.29
101	55/885	-2059.68	-3756.85	-1006.82	1819.61	1109.98		1109.98
102	55/885	-1869.67	-3514.82	-840.26	1519.95	1027.82		1027.82
103	1045/60	-3299.05	-173.29	-95.70			716.80	395.87
104	60/310	-912.65	-426.93	-187.72	438.06	489.06		438.06
105	1130/60	-2879.84	-155.84	-84.64			671.63	364.77
106	60/678	-1615.00	-1819.31	-401.07	918.15	917.20		917.20
107	50/885	-1716.65	-2717.42	-791.31	1694.81	970.86		970.86
108	30/545	-389.62	-1014.86	-328.97	294.73	56.29		56.29
109	1185/50	-1941.31	-174.66	-99.17			401.99	228.23
110	25/635	-538.33	-655.61	-305.49	633.65	313.19		313.19
111	1150/25	-1368.53	-31.32	-17.93			128.39	73.48
112	60/90	-241.08	-63.87	-36.59	45.43	118.64		45.43
113	30/885	-1166.89	-2031.37	-676.05	1263.26	627.81		627.81
114	40/40	-497.73	-7.23	-2.24	81.81	174.15	143.99	81.81
115	40/40	-465.86	-7.55	-2.39	79.12	165.00	139.24	79.12
				-21024.01				
								26203.94
$\lambda = \Sigma \text{ Ved} / \Sigma \text{ Vrd} = 21024.01 / 26203.94 = 0.80 \quad \text{OK}$								

Στᾶθμη 4

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-201.09	-8.05	-12.36			55.91	85.81
2	190/60	-235.01	3.58	-10.06			62.89	176.70
3	240/60	61.98	-77.43	-185.63			0.00	0.00
4	175/60	-204.95	-43.96	-103.70			55.20	130.22
5	165/60	-277.01	-1.00	-13.58			70.92	963.52
6	165/60	-307.76	-1.20	-11.64			77.29	750.26
7	165/60	-535.16	-32.90	-41.67			115.06	145.72
8	125/60	18.68	-22.32	-34.33			0.00	0.00
9	55/60	-335.01	-18.84	-13.35	27.65	145.62		27.65
10	55/60	-353.19	-18.98	-13.44	26.64	148.98		26.64
11	135/60	-181.78	-24.00	-27.08			48.12	54.30
12	175/60	-433.41	-19.05	-20.23			101.90	108.20
13	135/60	-279.25	1.89	-9.69			68.64	351.32
14	155/60	-308.91	1.51	-11.88			76.54	600.51
15	170/60	-263.42	-34.74	-84.00			68.33	165.24
16	240/60	-44.42	-30.78	-69.69			13.11	29.69
17	190/60	-86.77	-36.15	-84.49			24.99	58.42
18	230/60	-133.63	-16.38	-31.23			38.06	72.55
19	560/60	-1236.19	-50.39	-64.57			299.35	383.56
20	465/60	-1349.94	-161.53	-394.16			302.29	737.63
21	375/60	-641.02	-6.46	-23.26			163.59	588.67
22	380/60	-376.67	-140.88	-90.68			103.22	66.44
23	700/60	-973.96	-4.22	-67.62			256.68	4115.97
24	265/60	-648.34	-51.25	-116.52			152.94	347.72
25	255/60	-507.09	-1.20	-11.68			125.70	1220.42
26	500/60	-707.90	-83.96	-52.96			186.11	117.40
27	240/45	-316.60	-55.09	-132.11			60.29	144.58
28	240/45	-278.09	-2.41	-9.92			54.13	222.46
29	235/65	-323.37	-50.98	-127.25			93.44	233.21
30	265/65	-302.54	-2.38	-14.02			89.27	525.06
31	145/60	-341.29	-53.79	-121.86			81.34	184.27
32	165/60	-345.66	-0.80	-8.20			84.72	869.00
33	150/60	-331.47	-35.25	-84.13			80.25	191.55
34	290/60	-456.37	-86.00	-184.44			118.09	253.26
35	1160/60	-2697.46	-275.44	-538.94			644.87	1261.81
36	880/30	-298.12	-65.47	-152.86			42.07	98.23
37	2949/60	-3479.07	-597.51	-653.55			936.17	1023.96
38	60/195	-355.97	-33.39	-0.34	2.92	220.56		2.92
39	60/164	-272.70	-141.29	-133.72	176.71	145.51		145.51
40	60/290	-383.30	-388.69	-200.04	248.06	205.63		205.63
41	60/110	-345.31	-40.33	-54.79	176.27	182.06		176.27
42	60/160	-94.17	-8.26	-108.76	934.53	101.73		101.73
43	60/229	-78.26	-24.11	-81.98	294.83	123.08		123.08
44	60/209	-740.04	-128.12	-77.75	302.89	379.71		302.89
45	60/190	-402.37	-305.31	-219.37	215.69	177.25		177.25
46	60/303	-783.73	-237.94	-181.90	670.97	434.57		434.57

47	60/888	-1300.50	-3174.32	-770.01	1194.62	760.10		760.10
48	35/610	-662.30	-660.26	-494.99	1231.24	407.25		407.25
49	60/332	-847.60	-955.82	-354.36	387.86	402.92		387.86
50	60/338	-969.32	-148.40	-268.57	2106.95	522.76		522.76
51	95/192	-449.01	-270.76	-103.63	140.50	247.43		140.50
52	65/480	-585.42	-1303.99	-338.85	323.81	174.96		174.96
53	60/670	-1713.99	-1399.70	-432.74	1319.01	953.60		953.60
54	60/192	-334.08	-149.52	-38.71	68.53	195.13		68.53
55	40/620	-674.52	-1457.85	-299.17	358.76	344.90		344.90
56	40/620	-339.90	-767.20	-190.71	240.29	203.39		203.39
57	60/460	-436.14	-389.29	-203.81	475.15	343.34		343.34
58	35/513	-593.51	-224.92	-205.10	1111.63	357.10		357.10
59	60/680	-2302.14	-2043.54	-328.39	830.08	1192.86		830.08
60	35/620	-449.75	-211.81	-214.52	1235.70	324.57		324.57
61	60/300	-542.34	-406.95	-121.43	198.67	306.89		198.67
62	40/533	-391.27	-375.85	-218.12	538.21	292.86		292.86
63	390/30	-267.24	-10.07	-21.12			35.29	73.98
64	265/30	-231.22	-12.01	-28.95			29.40	70.87
65	60/30	-49.48	-2.85	-6.95			6.35	15.51
66	60/370	-618.82	-282.07	-84.64	285.82	395.53		285.82
67	60/310	-242.88	-272.55	-103.29	131.44	148.50		131.44
68	60/233	-274.16	-131.75	-52.44	112.11	191.80		112.11
69	60/117	-590.01	-57.56	-45.89	134.90	282.65		134.90
70	60/187	-450.01	-30.33	-11.75	123.97	254.99		123.97
71	60/143	-537.65	0.71	-34.73	11749.30	272.45		272.45
72	60/719	-1579.08	-638.54	-229.57	1591.96	919.41		919.41
73	60/160	-163.51	-52.48	-19.58	43.79	122.89		43.79
74	60/140	-166.22	-58.34	-25.51	44.82	108.37		44.82
75	20/610	-329.91	-336.54	-173.97	435.37	213.16		213.16
76	45/60	-50.02	1.77	-0.81	6.14	38.01		6.14
77	45/60	-56.44	2.65	0.59	3.31	40.57		3.31
78	60/635	-611.91	-1106.69	-560.80	889.19	408.73		408.73
79	1010/60	-2069.20	-184.98	-445.04			509.68	1226.22
80	60/310	-779.70	-135.69	-247.08	1644.63	435.88		435.88
81	1150/60	-3105.02	-205.86	-511.51			711.82	1768.69
82	55/885	-1323.38	-1783.37	-933.86	2563.99	853.85		853.85
83	55/885	-1190.18	-1620.10	-736.63	2041.71	800.57		800.57
84	1045/60	-2390.42	-172.16	-416.65			573.84	1388.78
85	60/310	-666.72	-84.78	-140.40	1341.70	390.69		390.69
86	1130/60	-2030.96	-105.88	-253.26			513.64	1228.57
87	60/678	-1151.29	-631.00	-264.03	1354.52	731.72		731.72
88	50/885	-1395.39	-673.24	-566.20	4205.97	853.16		853.16
89	30/545	-473.47	-269.85	-195.79	772.72	298.39		298.39
90	1185/25	-1270.94	-64.41	-157.78			123.15	301.67
91	25/635	-336.19	-351.67	-245.41	649.81	240.31		240.31
92	1150/25	-1095.44	-89.38	-215.31			109.59	263.97
93	60/90	-103.63	-56.69	-127.17	92.51	0.00		0.00
94	30/885	-1004.83	-623.57	-482.72	2656.93	578.93		578.93
				-16606.82				38534.05

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 16606.82/38534.05 = 0.43 \quad OK$$

Στᾶθμη 5

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-229.94	-18.66	-9.36			63.21	31.70
2	190/60	-205.82	9.69	5.54			55.90	31.93
3	240/60	-54.27	-79.19	-45.72			15.96	9.21
4	175/60	-229.76	-42.11	-23.84			61.02	34.54
5	165/60	-222.81	9.81	5.39			58.96	32.43
6	165/60	-254.43	8.41	5.25			66.05	41.21
7	165/60	-361.99	-26.72	-12.08			87.79	39.70
8	125/60	-65.19	-19.98	-9.08			18.67	8.49
9	55/60	-304.87	-9.31	-0.70	3.05	139.87		3.05
10	55/60	-320.55	-9.42	-0.67	2.84	142.89		2.84
11	135/60	-154.05	-13.62	-5.44			41.61	16.60
12	175/60	-362.13	-16.36	-6.26			89.00	34.03
13	135/60	-230.80	6.95	5.20			58.90	44.08
14	155/60	-257.13	8.23	5.95			65.96	47.64
15	170/60	-269.74	-28.94	-16.66			69.71	40.13
16	240/60	-50.48	-28.95	-15.63			14.87	8.02
17	190/60	-115.01	-29.28	-17.03			32.68	19.00
18	230/60	-148.89	-22.27	-11.83			42.14	22.39
19	560/60	-1045.62	-101.64	-50.30			262.53	129.92
20	465/60	-1019.90	-156.98	-91.50			247.35	144.17
21	375/60	-591.52	13.54	0.99			153.01	11.17
22	380/60	-326.51	-68.50	-69.91			90.60	92.47
23	700/60	-1033.82	-62.71	-33.19			270.14	142.98
24	265/60	-482.80	-48.96	-28.48			121.79	70.84
25	255/60	-473.43	8.39	6.06			119.00	85.94
26	500/60	-641.90	-42.42	-26.27			170.98	105.87
27	240/45	-460.08	-39.92	-25.07			80.41	50.49

28	240/45	-254.33	5.71	3.70			50.16	32.47
29	235/65	-424.42	-69.36	-42.35			117.85	71.96
30	265/65	-264.64	9.27	6.06			79.08	51.64
31	145/60	-218.94	-37.31	-21.63			57.02	33.05
32	165/60	-323.88	6.18	3.87			80.50	50.37
33	150/60	-253.28	-28.85	-16.95			64.78	38.06
34	290/60	-352.50	-63.58	-36.19			94.52	53.80
35	1160/60	-2309.42	-235.39	-125.24			572.35	304.51
36	880/30	-235.98	-26.27	-15.19			33.74	19.51
37	2949/60	-3040.24	-391.42	-219.41			829.94	465.23
38	60/195	-242.55	-113.84	-53.01	96.61	157.97		96.61
39	60/164	-261.92	-166.27	-77.35	84.09	127.19		84.09
40	60/290	-445.27	-579.73	-233.47	219.91	138.55		138.55
41	60/110	-282.36	-62.75	-30.55	55.99	152.18		55.99
44	60/209	-690.90	-148.16	-153.12	499.22	360.05		360.05
45	60/190	-358.56	-237.98	-134.21	155.31	177.56		155.31
46	60/303	-679.20	-246.47	-182.75	590.43	392.76		392.76
47	60/888	-1232.73	-3794.56	-1155.93	1434.83	656.51		656.51
48	35/610	-709.25	-861.08	-610.16	1225.95	412.22		412.22
49	60/332	-805.03	-694.96	-319.29	464.42	417.62		417.62
50	60/338	-763.52	-560.48	-296.41	526.72	419.87		419.87
51	95/192	-407.22	-312.32	-116.42	126.11	199.57		126.11
52	65/480	-348.66	-969.29	-449.32	361.76	0.00		0.00
53	60/670	-1345.52	-1768.06	-661.12	1345.48	782.53		782.53
54	60/192	-317.91	-131.78	-39.64	76.53	192.62		76.53
55	40/620	-533.84	-1087.45	-325.08	430.53	298.58		298.58
56	40/620	-504.22	-1086.47	-342.84	432.79	277.31		277.31
57	60/460	-456.36	-689.98	-250.88	343.61	277.11		277.11
58	35/513	-474.77	-520.65	-271.86	534.54	292.69		292.69
59	60/680	-1963.19	-2276.92	-355.63	740.20	1054.10		740.20
60	35/620	-488.33	-697.31	-357.49	670.84	312.38		312.38
61	60/300	-502.74	-310.02	-104.25	210.90	307.10		210.90
62	40/533	-303.50	-472.10	-257.41	403.17	210.16		210.16
63	390/30	-235.83	-2.67	-1.16			31.64	13.72
64	265/30	-159.38	-4.95	-3.11			21.40	13.43
65	60/30	-46.25	-1.39	-0.82			6.00	3.52
66	60/370	-499.62	-299.98	-80.09	213.29	347.85		213.29
67	60/310	-221.07	-243.70	-73.24	95.61	142.15		95.61
68	60/233	-199.24	-134.80	-43.88	69.07	138.31		69.07
69	60/117	-552.62	-32.69	-7.96	41.10	267.70		41.10
70	60/187	-372.22	-62.25	-6.43	28.85	223.87		28.85
71	60/143	-448.82	-49.00	-15.54	70.01	236.92		70.01
72	60/719	-1379.85	-1008.54	-183.53	729.24	839.72		729.24
73	60/160	-142.39	-36.95	-10.88	30.53	120.96		30.53
74	60/140	-147.74	-38.31	-17.71	42.75	111.97		42.75
75	20/610	-360.30	-297.27	-220.39	669.68	225.45		225.45
76	45/60	-44.08	2.38	2.08	10.40	35.63		10.40
77	45/60	-50.50	2.68	2.82	14.10	38.20		14.10
78	60/635	-506.38	-1512.12	-623.11	609.46	176.79		176.79
79	1010/60	-1539.66	-230.33	-134.62			400.40	234.01
80	60/310	-595.95	-558.25	-318.90	425.77	311.97		311.97
81	1150/60	-2412.15	-255.59	-147.70			591.07	341.57
82	55/885	-968.09	-1970.12	-952.16	1822.20	650.13		650.13
83	55/885	-918.34	-1485.60	-719.61	1744.56	676.14		676.14
84	1045/60	-1843.68	-151.14	-85.91			467.87	265.94
85	60/310	-484.91	-299.07	-149.92	317.58	305.95		305.95
86	1130/60	-1725.11	-124.63	-72.76			448.52	261.85
87	60/678	-1061.90	-442.77	-273.86	1876.28	695.96		695.96
88	50/885	-886.61	-1128.73	-685.62	2095.33	649.65		649.65
89	30/545	-469.57	-575.39	-296.57	545.36	277.81		277.81
90	1185/25	-1407.56	-25.70	-15.96			132.13	82.07
91	25/635	-362.65	-443.96	-302.07	675.55	242.60		242.60
92	1150/25	-1243.27	-38.61	-24.08			120.19	74.97
93	60/90	-107.53	-74.99	-46.94	26.65	0.00		0.00
94	30/885	-522.88	-1368.05	-686.46	1023.18	317.67		317.67
			-13902.24					16381.65
$\lambda = \Sigma_Ved/\Sigma_Vrd = 13902.24/16381.65 = 0.85 \quad OK$								

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-112.63	-7.30	-19.60			21.14	56.79
2	190/40	-58.18	-10.17	-17.60			11.17	19.34
3	240/40	-2.26	-21.48	-53.64			0.45	1.13
4	175/40	-39.61	-12.15	-30.20			7.69	19.11
5	165/40	-81.69	-9.42	-15.49			15.28	25.14
6	165/40	-113.73	-10.60	-17.71			20.69	34.59
7	110/40	-193.89	-11.70	-24.40			29.82	62.22
8	125/40	-135.70	-12.10	-22.77			23.28	43.82
9	35/40	-119.50	-5.80	-11.56	23.12	57.14		23.12
10	35/40	-133.87	-5.86	-11.62	22.50	60.21		22.50
11	135/40	-73.46	-8.01	-18.98			13.64	32.32

12	155/40	-179.24	-5.44	-11.72				30.42	65.51
13	135/40	-110.79	-11.71	-18.64				19.77	31.48
14	155/40	-124.30	-12.92	-20.11				22.25	34.64
15	150/40	-365.38	-23.54	-50.76				49.75	107.27
16	240/40	44.37	-24.60	-58.42				0.00	0.00
17	190/40	-91.12	-49.23	-55.11				17.08	19.12
18	230/40	-43.34	-12.54	-30.59				8.45	20.63
19	120/40	-123.61	-2.99	-7.62				21.39	54.50
20	255/40	-495.54	-56.99	-138.98				73.87	180.16
21	375/40	-291.70	-23.76	-30.38				52.39	66.99
22	380/40	-300.63	-92.70	-67.49				53.89	39.24
23	700/40	-459.45	-35.09	-84.65				83.99	202.60
24	265/40	-201.15	-37.80	-31.88				36.23	30.56
25	255/40	-197.53	-15.49	-20.11				35.50	46.07
26	500/40	-389.73	-70.48	-67.21				69.99	66.74
27	240/40	-365.26	-24.88	-20.40				58.49	47.97
28	240/40	-226.05	-9.82	-18.23				39.63	73.59
29	235/40	-282.77	-26.92	-21.92				47.64	38.78
30	265/40	-86.01	-15.39	-20.12				16.47	21.53
31	145/30	18.78	-9.98	-21.80				0.00	0.00
32	165/30	-107.07	-7.74	-12.83				14.24	23.60
33	150/30	-104.67	-15.78	-16.88				13.79	14.75
34	965/30	-925.50	-84.80	-179.25				115.57	244.27
35	939/35	-435.56	-265.24	-477.09				70.93	127.58
36	40/195	-13.79	26.57	-26.87	13.48	0.00			0.00
37	40/164	-141.97	28.29	-61.26	219.69	100.61			100.61
38	40/290	-354.43	47.88	-29.29	256.52	219.11			219.11
39	40/90	-250.94	5.71	15.40	176.66	124.38			124.38
40	40/160	134.19	16.65	-29.65	0.00	0.00			0.00
41	40/229	-16.78	-197.85	-329.75	31.73	0.00			0.00
42	40/209	-348.07	88.55	-167.17	515.15	195.02			195.02
43	40/190	-247.12	64.35	-110.28	322.70	149.41			149.41
44	40/303	-362.56	4.20	-99.37	10644.18	225.74			225.74
45	40/888	-639.43	-1292.06	-661.94	1296.68	449.32			449.32
46	40/332	-447.66	-92.26	50.42	323.62	267.60			267.60
47	40/338	-384.16	-231.23	-160.03	371.82	240.54			240.54
48	35/670	-738.58	-404.26	-481.95	2389.78	451.77			451.77
49	40/172	-134.62	-31.15	-36.39	119.32	99.72			99.72
50	35/680	-83.72	96.36	-155.81	450.53	190.92			190.92
51	40/590	-233.86	-1285.44	-542.23	273.63	0.00			0.00
52	40/440	-216.58	-513.24	-235.92	202.77	0.00			0.00
53	35/680	-981.13	-1823.79	-293.65	403.67	500.33			403.67
54	40/370	-241.82	-77.84	-42.78	221.63	195.40			195.40
55	40/310	-84.34	-76.17	-91.57	150.73	85.49			85.49
56	40/233	-38.89	4.54	-92.27	897.39	77.69			77.69
57	40/117	-389.75	-54.52	-57.26	118.48	187.00			118.48
58	40/187	-210.57	-79.33	-61.14	126.36	129.07			126.36
59	40/143	-185.89	-36.33	-81.54	240.85	112.62			112.62
60	40/719	-700.68	-725.34	-392.07	1162.48	472.12			472.12
61	40/140	-69.20	21.50	-4.34	9.05	58.82			9.05
62	40/40	-197.60	-7.26	-12.28	17.09	76.90			17.09
63	40/40	-206.90	-8.33	-14.65	16.06	78.48			16.06
64	40/635	-135.87	-311.70	-292.81	392.18	124.82			124.82
65	990/40	-570.04	-101.97	-260.51			105.41		269.29
66	40/310	-332.49	-100.01	-219.53	948.43	215.66			215.66
67	1150/40	-1350.75	-122.80	-274.39			228.58		510.72
68	1045/40	-936.52	-109.44	-200.30			165.31		302.55
69	40/290	-188.96	-297.13	-101.50	84.41	0.00			0.00
70	1110/40	-841.46	-55.99	-85.35			151.58		231.06
71	40/678	-620.77	575.48	-115.78	364.96	429.11			364.96
72	40/635	-457.07	-22.94	-389.46	21964.15	352.16			352.16
73	1185/40	-1331.72	-112.90	-82.32			227.13		165.61
74	1150/40	-533.78	-214.65	-337.29			100.26		157.55
75	30/35	-182.96	-2.73	-0.49	151.78	121.14	60.71		121.14
76	30/35	-188.15	-2.61	-0.56	154.90	123.40	61.96		123.40
77	30/35	-161.84	-4.60	-4.77	146.45	117.33	58.58		117.33
78	30/35	-149.58	-6.85	-5.56	143.07	114.97	57.23		114.97
79	30/35	-143.30	-12.82	-8.40	139.50	112.51	55.80		112.51
80	30/35	-305.43	-12.61	-8.32	150.22	120.01	60.09		120.01
				-8318.72					

8	125/40	-51.18	0.70	0.10			9.69	1.40
9	35/40	-110.38	3.29	0.99	3.50	53.48		3.50
10	35/40	-118.55	3.27	0.99	3.50	56.76		3.50
11	135/40	-79.80	-3.21	-1.71			14.72	7.86
12	155/40	-111.38	-3.90	-2.10			20.18	10.86
13	135/40	-80.10	3.37	1.01			14.78	4.43
14	155/40	-89.24	3.36	1.00			16.50	4.93
15	150/40	-188.85	-10.14	-5.50			31.54	17.11
16	240/40	-7.94	-15.40	-8.50			1.58	0.87
17	190/40	-74.86	-7.38	-2.35			14.20	4.52
18	230/40	-65.21	-18.20	-10.68			12.56	7.37
19	120/40	-118.97	-1.69	-1.10			20.70	13.50
20	255/40	-291.23	-24.36	-13.64			49.53	27.74
21	375/40	-258.70	-1.15	-0.82			47.06	33.40
22	380/40	-259.08	-38.34	-32.00			47.19	39.39
23	735/40	-500.58	-48.02	-29.24			91.18	55.53
24	265/40	-177.83	-12.74	-13.21			32.44	33.62
25	255/40	-175.09	1.37	-1.14			31.87	26.68
26	500/40	-341.82	-17.89	-22.33			62.24	77.71
27	240/40	-344.14	-8.99	-2.27			55.90	14.12
28	240/40	-204.93	5.05	2.07			36.40	14.88
29	235/40	-262.09	-9.76	-5.35			44.76	24.55
30	265/40	-62.69	-1.51	-0.02			12.15	0.20
31	145/30	-88.11	-3.17	-1.88			11.81	7.01
32	165/30	-75.25	2.57	0.73			10.39	2.96
33	150/30	-103.65	-1.70	-5.24			13.67	42.09
34	965/30	-578.10	-21.73	-13.04			77.64	46.58
35	939/35	-338.16	-36.66	-22.87			55.99	34.92
36	40/195	-71.47	-103.64	-51.24	32.63	0.00		0.00
37	40/164	-147.68	-90.19	-44.90	52.23	75.95		52.23
38	40/290	-150.32	-69.42	-46.30	134.02	137.46		134.02
39	40/90	-136.21	-5.49	-3.66	31.56	78.48		31.56
40	40/160	-95.59	46.33	15.28	22.97	63.53		22.97
41	40/229	5.09	-380.12	-233.95	0.00	0.00		0.00
42	40/209	-282.28	-195.47	-163.66	196.99	141.21		141.21
43	40/190	-170.49	-102.51	-71.12	96.96	95.95		95.95
44	40/303	-271.54	-38.83	-50.54	462.55	189.33		189.33
45	40/888	-576.97	-2006.01	-737.66	849.80	307.85		307.85
46	40/332	-376.98	-196.57	-155.90	411.42	239.32		239.32
47	40/338	-236.85	-265.46	-144.08	194.05	140.11		140.11
48	35/670	-426.19	-863.64	-504.65	742.90	263.13		263.13
49	40/172	-113.27	-45.84	-22.54	43.14	81.73		43.14
50	35/680	-26.98	141.24	-97.65	62.99	0.00		0.00
51	40/590	-361.98	-847.19	-433.07	495.41	193.56		193.56
52	40/440	-233.99	-717.27	-270.47	178.56	0.00		0.00
53	35/680	-613.16	-841.85	-369.59	773.13	387.16		387.16
54	40/370	-162.12	-106.77	-38.84	101.89	160.16		101.89
55	40/310	-133.18	-146.04	-63.56	84.02	89.55		84.02
56	40/233	75.65	-97.41	-78.23	0.00	0.00		0.00
57	40/117	-165.50	-15.75	-8.27	39.83	97.30		39.83
58	40/187	-131.39	-81.90	-31.54	42.42	77.67		42.42
59	40/143	-159.64	-65.83	-31.63	45.81	88.26		45.81
60	40/719	-571.53	-793.49	-407.15	928.66	405.32		405.32
61	40/140	-60.64	12.03	3.32	10.94	61.59		10.94
62	40/40	-44.10	1.89	0.43	1.69	28.31		1.69
63	40/40	-43.19	2.78	0.72	1.87	27.94		1.87
64	40/635	-169.28	-436.65	-240.66	284.33	115.36		115.36
65	990/40	-426.79	-86.10	-51.91			80.54	48.55
66	40/310	-175.54	-464.72	-304.92	163.29	0.00		0.00
67	1150/40	-1004.89	-131.35	-83.92			177.97	113.71
68	1045/40	-818.05	-113.15	-75.22			146.83	97.60
69	40/290	-219.63	-243.42	-215.61	249.89	115.19		115.19
70	1110/40	-661.57	-38.92	-27.43			121.98	85.96
71	40/678	-426.91	354.94	4.61	17.03	351.56		17.03
72	40/635	-441.53	-1103.80	-664.85	755.91	230.61		230.61
73	1185/40	-1227.44	-49.37	-3.28			212.17	14.09
74	1150/40	-719.65	-133.90	-76.97			132.13	75.96
75	30/35	-180.65	-2.35	1.23	35.88	65.63	60.10	35.88
76	30/35	-185.84	-2.18	1.16	36.63	67.90	61.36	36.63
77	30/35	-159.53	-0.81	-3.00	34.59	61.80	57.94	34.59
78	30/35	-147.27	-2.42	-3.74	33.78	59.43	56.57	33.78
79	30/35	-140.99	-6.13	-6.60	32.92	56.96	55.13	32.92
80	30/35	-303.12	-5.98	-6.54	35.50	64.50	59.47	35.50
			-5990.74					4695.87

λ = Σ_Ved/Σ_Vrd = 5990.74/4695.87 = 1.28 Ανεπάρκεια

Σεισμικός συνδυασμός 29: 1.10*G + 0.60*Q - 0.36*Σx1 + 1.21*Σy1

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-327.66	-72.19	-33.63			86.58	40.33
2	190/60	-315.64	-30.78	-9.99			80.95	26.26

3	240/60	76.23	-79.94	-43.08			0.00	0.00
4	175/60	-268.21	-52.11	-27.30			69.69	36.51
5	165/60	-440.35	-18.69	-5.31			101.31	28.80
6	165/60	-470.47	-17.25	-5.03			105.99	30.88
7	165/60	-336.65	-47.33	-26.52			83.00	46.50
8	250/60	-335.09	-63.32	-34.96			88.76	49.00
9	95/60	-388.36	-16.20	-14.66			74.91	67.82
10	90/60	-410.05	-14.21	-13.16			74.06	68.59
11	245/60	-405.44	-47.68	-26.70			104.05	58.27
12	175/60	-363.93	-26.90	-14.63			89.35	48.59
13	135/60	-415.51	-8.85	-2.75			91.14	28.34
14	155/60	-470.55	-9.25	-2.78			103.73	31.18
15	170/60	-450.42	-24.82	-13.26			103.85	55.50
16	240/60	-191.58	-33.37	-17.10			53.47	27.40
17	190/60	-178.16	-20.04	-10.18			49.07	24.94
18	230/60	-211.01	-15.69	-4.22			58.23	15.67
19	560/60	-1986.00	-153.27	-76.21			411.24	204.48
20	465/60	-2024.77	-165.59	-90.96			376.40	206.76
21	375/60	-1179.86	-40.58	-11.27			256.68	71.29
22	380/60	-924.13	-103.17	-57.15			218.35	120.95
23	700/60	-1654.00	-45.85	-14.96			393.79	128.48
24	265/60	-981.47	-43.57	-23.48			199.19	107.33
25	255/60	-778.41	-16.20	-5.53			171.26	58.49
26	500/60	-1129.88	-81.77	-44.15			272.06	146.89
27	480/65	-556.67	-138.14	-83.98			164.00	99.70
28	380/65	-486.68	-159.32	-87.91			141.84	78.27
29	240/65	-519.64	-33.35	-9.64			139.40	40.29
30	65/65	-126.21	-8.53	-2.45	9.65	78.65		9.65
31	215/65	-281.45	-27.21	-8.36			81.82	25.15
32	110/65	-195.62	-38.92	-22.51			54.46	31.50
33	450/65	-612.13	-70.52	-38.04			177.12	95.55
34	265/65	-592.14	-20.63	-6.25			157.77	47.79
35	120/60	-280.37	-28.27	-12.91			66.95	30.58
36	290/60	-397.42	-42.28	-13.52			104.95	33.56
37	345/60	-1173.31	-115.16	-60.98			247.43	131.02
38	165/60	-559.10	-18.10	-4.85			118.09	31.65
39	150/60	-571.27	-33.54	-16.94			114.37	57.75
40	290/60	-752.85	-80.09	-43.81			174.64	95.55
41	1140/60	-3411.24	-207.18	-116.79			755.89	426.13
42	880/60	-754.14	-297.90	-160.73			209.31	112.93
43	3769/60	-5432.09	-667.18	-387.88			1424.47	828.15
44	445/60	-726.67	-41.51	-23.27			186.91	104.79
45	60/195	-631.90	-391.07	-158.77	169.27	295.76		169.27
46	60/164	-451.00	-239.48	-127.99	143.45	215.28		143.45
47	60/290	-814.56	-865.18	-319.75	313.35	363.03		313.35
48	60/110	-479.88	-88.60	-43.45	72.53	235.70		72.53
49	60/160	-276.42	-190.39	-110.04	105.76	104.87		104.87
50	60/229	-280.47	-420.37	-187.23	125.71	0.00		0.00
51	60/209	-740.60	-355.25	-133.11	187.09	364.22		187.09
52	60/190	-367.07	-377.96	-204.52	151.71	0.00		0.00
53	60/273	-1162.96	-881.26	-274.98	282.84	537.87		282.84
54	60/888	-1869.96	-7779.78	-1435.11	1207.59	261.70		261.70
55	45/630	-1034.41	-2146.62	-788.38	933.53	510.50		510.50
56	60/900	-1315.72	-5458.78	-1473.93	1363.91	328.64		328.64
57	95/192	-515.74	-449.49	-243.02	222.07	131.09		131.09
58	40/513	-664.90	-939.66	-488.09	712.87	358.10		358.10
59	65/630	-1257.51	-2526.55	-804.04	1027.29	651.31		651.31
60	60/670	-2511.55	-3056.67	-777.19	1333.74	1260.57		1260.57
61	60/645	-1107.34	-1659.13	-698.96	1245.02	650.14		650.14
62	60/192	-352.13	-177.36	-93.91	146.02	195.61		146.02
63	40/620	-1047.33	-1194.29	-418.65	848.45	575.70		575.70
64	60/680	-1158.05	-1258.43	-819.17	2124.58	735.22		735.22
65	40/620	-985.69	-1066.11	-344.41	750.67	555.75		555.75
66	60/460	-821.17	-783.73	-295.59	584.61	489.94		489.94
67	35/513	-915.23	-515.31	-230.00	725.89	485.79		485.79
68	60/680	-2206.54	-1667.72	-371.23	1125.65	1154.61		1125.65
69	35/620	-681.76	-701.19	-232.04	566.95	417.37		417.37
70	60/300	-579.33	-226.37	-130.76	404.59	351.73		351.73
71	40/533	-685.14	-604.16	-172.47	420.29	416.19		416.19
72	390/30	-430.32	-3.29	-1.33			52.11	21.06
73	265/30	-399.12	-4.81	-2.49			44.12	22.85
74	60/30	-82.53	-1.22	-0.66			9.41	5.09
75	60/370	-825.74	-838.26	-148.89	210.51	430.48		210.51
76	60/310	-312.38	-125.21	9.70	33.71	248.95		33.71
77	60/233	-438.39	-79.68	-10.06	52.30	268.55		52.30
78	60/57	-268.28	-5.43	-3.60			44.51	29.47
79	60/187	-697.20	-59.35	-27.83	191.93	353.86		191.93
80	60/143	-621.51	-27.21	-10.49	97.09	306.00		97.09
81	60/264	-219.63	-132.97	-4.12	8.23	173.66		8.23
82	60/468	-1591.83	-636.44	4.72	18.20	824.07		18.20
83	60/107	-88.96	-8.44	0.61	3.16	78.38		3.16
84	60/160	-235.86	-58.40	-31.40	86.42	158.35		86.42
85	60/140	-436.21	-41.39	-25.85	131.05	230.48		131.05

86	35/630	-502.05	-1727.50	-396.96	313.53	0.00	0.00
87	40/495	-1017.50	-1155.31	-586.52	882.51	514.17	514.17
88	670/25	-585.98	-17.96	-10.00			59.82 33.33
89	65/250	-498.16	-341.95	-177.57	263.62	272.53	263.62
90	340/60	-683.34	-60.30	-33.60			169.01 94.19
91	56/56	-85.32	-4.99	-2.33	9.35	55.03	9.35
92	56/56	-143.78	-3.01	0.47	4.56	78.42	4.56
93	56/56	-147.94	-2.41	1.07	13.12	80.08	13.12
94	56/56	-79.90	-3.50	-1.22	6.58	52.87	6.58
95	45/70	-160.89	-44.09	-13.31	81.86	174.29	144.08 81.86
96	45/70	-251.36	-41.56	-12.81	79.60	167.28	140.09 79.60
97	60/635	-1081.75	-3777.06	-939.06	707.79	0.00	0.00
98	1010/60	-3083.91	-286.46	-152.47			678.43 361.10
99	60/310	-1143.23	-769.70	-337.56	489.26	562.50	489.26
100	1150/60	-4165.70	-279.24	-151.99			854.30 465.00
101	55/885	-1988.81	-3916.89	-1003.79	1699.94	1065.63	1065.63
102	55/885	-1963.82	-3457.33	-836.47	1591.22	1078.62	1078.62
103	1045/60	-3216.29	-169.13	-93.54			705.49 390.18
104	60/310	-862.13	-344.56	-178.60	499.17	468.85	468.85
105	1130/60	-2694.52	-144.57	-78.26			639.99 346.45
106	60/678	-1431.94	-982.33	-363.57	1415.46	843.98	843.98
107	50/885	-1719.10	-2419.25	-713.32	1717.76	982.64	982.64
108	30/545	-324.70	-1183.39	-380.07	250.16	0.00	0.00
109	1185/50	-2000.21	-157.37	-89.27			411.58 233.48
110	25/635	-554.54	-516.97	-241.05	648.12	327.65	327.65
111	1150/25	-1317.55	-34.08	-19.51			125.14 71.62
112	60/90	-253.22	-73.15	-41.88	46.81	120.62	46.81
113	30/885	-1190.84	-2298.88	-757.96	1267.73	626.01	626.01
114	40/40	-441.69	-7.23	-2.24	81.81	174.15	143.99 81.81
115	40/40	-467.18	-7.72	-2.45	79.12	165.00	139.24 79.12
				-20974.18			24703.70
$\lambda = \Sigma_Ved/\Sigma_Vrd = 20974.18/24703.70 = 0.85 \quad OK$							

Στάθμη 4

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-183.49	-12.98	-18.58			51.37	73.51
2	190/60	-209.74	3.33	-8.82			56.86	150.47
3	240/60	79.54	-78.96	-188.20			0.00	0.00
4	175/60	-156.80	-49.24	-115.66			43.36	101.84
5	165/60	-270.45	-1.63	-13.87			69.52	591.20
6	165/60	-301.69	-1.68	-11.84			76.05	536.62
7	165/60	-517.86	-36.53	-41.43			112.77	127.91
8	125/60	-72.44	-30.24	-46.17			20.63	31.50
9	55/60	-341.26	-19.46	-13.63	27.00	146.78		27.00
10	55/60	-347.41	-18.78	-13.30	26.98	147.92		26.98
11	135/60	-166.50	-20.57	-19.92			44.57	43.17
12	175/60	-388.04	-17.90	-20.06			93.87	105.17
13	135/60	-274.36	1.62	-9.96			67.70	416.17
14	155/60	-310.10	1.14	-12.11			76.77	817.89
15	170/60	-340.31	-29.26	-71.66			84.24	206.30
16	240/60	-43.77	-28.81	-66.81			12.92	29.96
17	190/60	-89.64	-24.43	-60.40			25.78	63.75
18	230/60	-107.97	-12.33	-18.24			31.06	45.95
19	560/60	-1261.89	-57.72	-69.70			304.05	367.16
20	465/60	-1484.50	-186.89	-454.95			321.16	781.83
21	375/60	-732.30	-9.50	-25.62			182.22	491.58
22	380/60	-505.47	-152.31	-96.68			134.02	85.08
23	700/60	-1124.54	-7.43	-29.31			290.02	1143.53
24	265/60	-665.63	-42.81	-115.27			155.88	419.67
25	255/60	-480.45	-1.68	-11.93			120.41	852.96
26	500/60	-548.22	-71.28	-47.62			148.72	99.35
27	240/45	-263.76	-60.48	-148.79			51.75	127.31
28	240/45	-220.56	-2.87	-10.17			44.31	157.15
29	235/65	-311.70	-37.06	-93.81			90.47	229.00
30	265/65	-310.59	-3.05	-14.40			91.40	431.98
31	145/60	-335.19	-64.19	-146.72			80.25	183.43
32	165/60	-343.89	-0.95	-8.28			84.39	739.25
33	150/60	-343.73	-38.99	-92.58			82.48	195.84
34	290/60	-550.52	-96.67	-207.60			137.77	295.86
35	1160/60	-2651.69	-276.33	-545.65			636.67	1257.17
36	880/30	-187.67	-80.05	-185.82			27.10	62.91
37	2949/60	-3372.09	-602.19	-634.41			910.59	959.30
38	60/195	-436.97	-61.88	-17.42	93.21	252.96		93.21
39	60/164	-288.61	-171.44	-156.46	178.22	142.75		142.75
40	60/290	-466.19	-410.40	-190.42	263.00	254.84		254.84
41	60/110	-403.79	-41.60	-53.24	179.01	205.45		179.01
42	60/160	-99.73	-3.36	-124.27	2770.39	103.96		103.96
43	60/229	-79.87	-22.72	-95.64	372.20	123.72		123.72
44	60/209	-742.02	-165.62	-89.56	270.23	380.50		270.23
45	60/190	-375.87	-361.52	-250.74	197.96	0.00		0.00

46	60/303	-854.66	-290.37	-210.03	670.29	462.95	462.95
47	60/888	-1293.25	-3821.21	-877.08	1125.15	695.53	695.53
48	35/610	-715.50	-642.82	-584.81	1584.36	428.53	428.53
49	60/332	-956.99	-1090.05	-427.94	443.08	445.31	443.08
50	60/338	-1087.13	-156.64	-332.59	2635.79	569.89	569.89
51	95/192	-344.51	-347.47	-110.94	93.58	0.00	0.00
52	65/480	-673.56	-1437.29	-337.68	330.38	269.87	269.87
53	60/670	-1857.80	-1455.76	-494.78	1526.12	1011.12	1011.12
54	60/192	-412.80	-136.45	-36.80	83.79	240.66	83.79
55	40/620	-607.23	-1201.46	-256.25	342.24	332.60	332.60
56	40/620	-407.58	-766.44	-213.76	317.47	260.59	260.59
57	60/460	-533.98	-285.90	-202.09	766.88	397.59	397.59
58	35/513	-531.49	-192.08	-198.93	1160.05	332.30	332.30
59	60/680	-1974.22	-1763.99	-204.06	550.05	1061.69	550.05
60	35/620	-391.40	-150.13	-204.94	1476.20	301.23	301.23
61	60/300	-547.05	-295.75	-90.82	205.84	333.94	205.84
62	40/533	-396.20	-193.04	-164.42	798.64	300.61	300.61
63	390/30	-290.22	-4.92	-9.46		37.87	72.89
64	265/30	-235.11	-9.18	-23.15		29.80	75.17
65	60/30	-41.10	-2.78	-6.76		5.43	13.22
66	60/370	-574.91	-373.63	-109.00	261.85	373.98	261.85
67	60/310	-179.44	-252.42	-108.13	112.22	88.97	88.97
68	60/233	-226.18	-106.21	-32.10	71.86	173.92	71.86
69	60/117	-552.98	-39.13	-31.85	137.46	267.84	137.46
70	60/187	-451.43	-25.67	1.60	19.96	255.55	19.96
71	60/143	-507.13	20.07	0.26	3.02	260.24	3.02
72	60/719	-1271.70	-728.90	-85.80	442.89	796.46	442.89
73	60/160	-167.84	-19.31	-11.68	72.66	131.14	72.66
74	60/140	-194.82	-38.43	-19.93	60.85	133.93	60.85
75	20/610	-306.82	-395.62	-190.08	381.46	193.15	193.15
76	45/60	-41.24	1.52	-0.95	6.99	34.50	6.99
77	45/60	-60.23	2.66	0.58	3.43	42.09	3.43
78	60/635	-729.10	-1376.90	-712.37	1059.53	446.02	446.02
79	1010/60	-2232.40	-196.10	-471.53		540.42	1299.51
80	60/310	-814.07	-157.56	-254.79	1502.26	449.63	449.63
81	1150/60	-3135.38	-220.06	-546.02		716.61	1778.07
82	55/885	-1261.18	-1942.19	-902.95	2189.39	821.83	821.83
83	55/885	-1278.61	-1567.66	-741.34	2251.99	835.94	835.94
84	1045/60	-2385.02	-172.33	-414.28		572.87	1377.14
85	60/310	-631.10	-69.11	-136.86	1541.07	376.44	376.44
86	1130/60	-1902.05	-96.91	-231.72		486.72	1163.80
87	60/678	-1079.19	-122.55	-232.42	5828.88	702.88	702.88
88	50/885	-1391.19	-565.09	-519.96	4591.06	851.48	851.48
89	30/545	-448.12	-313.40	-219.17	712.94	288.25	288.25
90	1185/25	-1324.66	-58.51	-143.79		126.78	311.58
91	25/635	-342.73	-331.31	-198.74	567.82	242.92	242.92
92	1150/25	-1032.71	-95.51	-229.56		104.79	251.85
93	60/90	-92.94	-64.58	-144.86	84.08	0.00	0.00
94	30/885	-1025.68	-720.84	-537.96	2598.53	587.27	587.27
				-16880.43			33398.04

λ = Σ_Ved/Σ_Vrd = 16880.43/33398.04 = 0.51 OK

Στάθμη 5

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-209.68	-26.29	-13.09			58.10	28.94
2	190/60	-185.02	8.92	5.40			50.78	30.73
3	240/60	-10.42	-81.23	-46.84			3.11	1.80
4	175/60	-226.12	-47.62	-26.91			60.18	34.00
5	165/60	-217.46	9.37	5.10			57.73	31.40
6	165/60	-246.69	8.07	4.98			64.34	39.71
7	165/60	-356.62	-29.12	-13.82			86.79	41.20
8	125/60	-68.28	-21.44	-10.21			19.51	9.29
9	55/60	-309.25	-9.71	-0.89	3.69	140.72		3.69
10	55/60	-316.51	-9.33	-0.64	2.73	142.12		2.73
11	135/60	-177.86	-12.56	-4.75			47.22	17.84
12	175/60	-339.71	-13.91	-4.75			84.63	28.91
13	135/60	-227.57	6.85	5.12			58.22	43.47
14	155/60	-255.93	8.07	5.85			65.70	47.61
15	170/60	-271.03	-29.13	-16.78			69.99	40.31
16	240/60	-92.46	-27.15	-14.54			26.81	14.35
17	190/60	-137.56	-20.00	-11.50			38.66	22.22
18	230/60	-107.56	-7.86	-3.15			30.95	12.42
19	560/60	-1162.71	-100.63	-48.52			285.55	137.68
20	465/60	-1111.46	-182.23	-106.07			263.82	153.57
21	375/60	-682.80	12.39	-1.37			172.26	19.11
22	380/60	-455.31	-75.13	-75.92			122.30	123.59
23	700/60	-1036.88	-15.44	-5.60			270.82	98.18
24	265/60	-491.56	-48.36	-28.07			123.57	71.73
25	255/60	-446.79	8.11	5.81			113.52	81.31
26	500/60	-482.22	-34.02	-20.93			132.48	81.49
27	240/45	-480.75	-48.26	-30.05			82.93	51.64

28	240/45	-196.80	5.45	3.45			40.05	25.32
29	235/65	-390.57	-56.43	-34.63			109.93	67.46
30	265/65	-272.70	8.40	5.68			81.27	54.93
31	145/60	-228.68	-45.26	-26.21			59.15	34.25
32	165/60	-322.11	6.09	3.78			80.16	49.77
33	150/60	-257.32	-32.31	-18.92			65.63	38.44
34	290/60	-358.60	-69.60	-39.60			95.96	54.61
35	1160/60	-2266.63	-204.63	-123.31			563.93	339.82
36	880/30	-218.37	-32.77	-18.93			31.34	18.10
37	2949/60	-2983.49	-372.68	-206.50			815.95	452.11
38	60/195	-298.32	-158.72	-72.92	113.40	172.74		113.40
39	60/164	-279.77	-204.65	-92.99	86.59	84.38		84.38
40	60/290	-478.05	-612.27	-237.64	224.49	158.39		158.39
41	60/110	-311.88	-64.53	-30.81	58.45	165.83		58.45
44	60/209	-694.47	-192.05	-177.41	447.38	361.48		361.48
45	60/190	-337.12	-288.91	-160.70	146.04	85.31		85.31
46	60/303	-739.58	-303.59	-214.51	596.82	416.91		416.91
47	60/888	-1202.18	-4465.24	-1328.44	1372.05	567.96		567.96
48	35/610	-740.15	-1048.60	-729.71	1242.70	410.39		410.39
49	60/332	-893.80	-814.52	-330.90	439.76	447.37		439.76
50	60/338	-819.89	-688.59	-362.64	551.01	429.72		429.72
51	95/192	-386.69	-328.36	-131.71	129.88	164.30		129.88
52	65/480	-360.72	-1048.35	-481.17	369.66	0.00		0.00
53	60/670	-1367.57	-1787.25	-676.35	1378.25	792.20		792.20
54	60/192	-329.74	-121.65	-32.94	70.94	202.82		70.94
55	40/620	-520.46	-1084.57	-337.59	438.69	289.48		289.48
56	40/620	-571.09	-989.71	-344.34	530.46	337.80		337.80
57	60/460	-510.41	-686.16	-248.42	377.65	318.84		318.84
58	35/513	-494.39	-425.56	-262.80	653.15	317.05		317.05
59	60/680	-1724.59	-1911.10	-226.29	517.43	961.84		517.43
60	35/620	-456.40	-547.30	-341.20	770.24	315.62		315.62
61	60/300	-507.45	-223.07	-73.64	208.58	322.98		208.58
62	40/533	-316.19	-425.06	-183.40	331.07	232.13		232.13
63	390/30	-196.68	-3.50	-1.61			26.90	12.35
64	265/30	-150.74	-4.65	-2.41			20.36	10.54
65	60/30	-49.10	-1.35	-0.79			6.31	3.70
66	60/370	-482.30	-353.58	-97.23	213.22	326.95		213.22
67	60/310	-204.70	-241.63	-65.36	80.13	126.23		80.13
68	60/233	-163.78	-107.81	-27.48	45.20	126.32		45.20
69	60/117	-520.00	-18.88	-0.27	2.38	254.65		2.38
70	60/187	-374.37	-36.17	7.01	54.35	224.73		54.35
71	60/143	-433.67	-25.41	-3.81	32.49	230.86		32.49
72	60/719	-1185.66	-749.28	-4.00	18.98	762.04		18.98
73	60/160	-146.72	-10.09	-2.98	31.41	122.69		31.41
74	60/140	-176.34	-22.80	-12.13	57.37	126.53		57.37
75	20/610	-344.76	-360.96	-242.98	587.28	218.03		218.03
76	45/60	-35.30	2.24	1.95	8.48	32.12		8.48
77	45/60	-54.29	2.70	2.81	14.86	39.72		14.86
78	60/635	-563.31	-1919.93	-793.33	673.18	0.00		0.00
79	1010/60	-1650.00	-279.81	-163.51			424.37	247.99
80	60/310	-614.31	-581.31	-332.92	436.77	318.17		318.17
81	1150/60	-2426.64	-274.94	-158.75			593.81	342.88
82	55/885	-925.74	-1953.51	-937.31	1740.18	624.92		624.92
83	55/885	-955.24	-1483.61	-738.57	1855.36	698.00		698.00
84	1045/60	-1834.23	-148.33	-84.82			465.90	266.40
85	60/310	-472.19	-280.25	-143.03	316.39	303.66		303.66
86	1130/60	-1631.26	-113.31	-66.28			427.67	250.14
87	60/678	-1008.83	29.90	-242.39	23578.19	674.73		674.73
88	50/885	-891.77	-1089.52	-666.65	2121.26	651.71		651.71
89	30/545	-485.50	-594.97	-344.73	629.36	284.17		284.17
90	1185/25	-1416.80	-23.35	-14.59			132.71	82.95
91	25/635	-365.76	-323.43	-237.48	734.28	252.14		252.14
92	1150/25	-1204.75	-39.37	-24.53			117.52	73.24
93	60/90	-98.69	-86.08	-53.67	24.64	0.00		0.00
94	30/885	-521.88	-1553.19	-771.38	1011.04	295.68		295.68
			-14209.07					15230.10
$\lambda = \Sigma_Ved/\Sigma_Vrd = 14209.07/15230.10 = 0.93 \quad OK$								

Στάθμη 6

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-110.86	-8.69	-23.54			20.83	56.45
2	190/40	-40.76	-10.43	-17.54			7.92	13.32
3	240/40	31.58	-22.11	-54.72			0.00	0.00
4	175/40	1.86	-12.40	-30.73			0.00	0.00
5	165/40	-75.98	-8.83	-15.18			14.28	24.56
6	165/40	-105.46	-10.03	-17.50			19.33	33.73
7	110/40	-152.32	-10.08	-20.18			24.94	49.90
8	125/40	-157.65	-11.39	-20.57			26.32	47.54
9	35/40	-117.48	-5.61	-11.39	23.60	56.33		23.60
10	35/40	-135.98	-5.85	-11.70	22.56	60.62		22.56
11	135/40	-95.54	-7.84	-17.40			17.34	38.47

12	155/40	-183.10	-4.41	-9.54			30.95	66.99
13	135/40	-108.06	-11.53	-18.66			19.35	31.32
14	155/40	-123.94	-12.78	-20.44			22.19	35.49
15	150/40	-320.46	-22.14	-47.68			46.15	99.39
16	240/40	23.32	-23.33	-54.55			0.00	0.00
17	190/40	-95.93	-44.30	-49.41			17.92	19.99
18	230/40	13.00	-4.19	-10.25			0.00	0.00
19	120/40	-144.39	-4.58	-10.73			24.33	56.98
20	255/40	-567.91	-58.58	-142.58			80.44	195.79
21	375/40	-285.25	-23.50	-30.31			51.36	66.25
22	380/40	-390.28	-94.05	-68.16			67.55	48.95
23	700/40	-527.66	-39.69	-94.44			95.11	226.33
24	265/40	-220.64	-36.53	-31.31			39.31	33.70
25	255/40	-174.14	-14.80	-19.91			31.71	42.64
26	500/40	-301.75	-64.56	-63.68			55.58	54.82
27	240/40	-401.04	-28.87	-22.29			62.65	48.37
28	240/40	-195.78	-9.40	-18.13			34.97	67.45
29	235/40	-246.48	-23.11	-20.13			42.52	37.04
30	265/40	-105.15	-14.55	-19.75			19.94	27.05
31	145/30	49.14	-11.26	-24.54			0.00	0.00
32	165/30	-106.21	-7.54	-12.71			14.14	23.84
33	150/30	-95.17	-15.55	-16.78			12.69	13.70
34	965/30	-932.75	-80.38	-168.66			116.29	244.00
35	939/35	-481.25	-265.69	-475.17			77.75	139.06
36	40/195	-57.29	28.31	-55.11	104.16	61.56		61.56
37	40/164	-162.18	28.82	-76.98	302.97	108.69		108.69
38	40/290	-391.79	-2.23	-40.83	8266.76	234.05		234.05
39	40/90	-221.94	6.02	19.20	200.19	112.78		112.78
40	40/160	143.02	7.87	-54.07	0.00	0.00		0.00
41	40/229	-24.35	-214.69	-362.18	46.38	0.00		0.00
42	40/209	-347.05	88.35	-186.78	575.70	194.61		194.61
43	40/190	-244.68	62.72	-133.78	398.64	148.44		148.44
44	40/303	-396.81	-17.12	-122.60	3452.27	239.44		239.44
45	40/888	-684.65	-1544.31	-680.80	1184.41	448.61		448.61
46	40/332	-527.16	-78.42	58.80	499.19	299.40		299.40
47	40/338	-429.89	-240.03	-181.45	443.26	261.98		261.98
48	35/670	-607.44	-315.87	-500.76	2722.35	399.31		399.31
49	40/172	-121.87	-27.61	-31.68	107.40	94.61		94.61
50	35/680	-136.09	148.47	-94.74	285.07	213.10		213.10
51	40/590	-287.58	-1271.84	-517.51	319.85	0.00		0.00
52	40/440	-254.84	-465.70	-225.87	248.19	131.74		131.74
53	35/680	-813.91	-1756.89	-278.71	348.52	412.46		348.52
54	40/370	-261.07	-73.71	-70.35	411.96	203.09		203.09
55	40/310	-89.40	-142.12	-100.85	94.06	0.00		0.00
56	40/233	-6.75	-19.69	-90.09	35.81	0.00		0.00
57	40/117	-370.31	-52.88	-55.22	117.62	179.22		117.62
58	40/187	-207.53	-77.79	-49.55	103.22	128.00		103.22
59	40/143	-177.20	-39.54	-67.65	177.02	109.14		109.14
60	40/719	-590.83	-803.98	-295.65	684.85	415.25		415.25
61	40/140	-97.80	21.52	1.24	3.53	76.45		3.53
62	40/40	-103.91	-7.06	-12.10	21.68	52.13		21.68
63	40/40	-300.14	-8.24	-14.66	-13.94	83.20		-13.94
64	40/635	-144.35	-452.62	-372.77	364.52	24.53		24.53
65	990/40	-620.77	-106.32	-271.97			113.95	291.49
66	40/310	-343.15	-102.91	-224.06	964.87	219.93		219.93
67	1150/40	-1353.38	-124.03	-270.83			228.94	499.93
68	1045/40	-952.62	-103.47	-211.03			167.77	342.19
69	40/290	-217.97	-214.96	-103.92	135.49	124.29		124.29
70	1110/40	-785.59	-36.99	-75.96			142.55	292.75
71	40/678	-583.33	690.88	-120.51	300.20	409.78		300.20
72	40/635	-503.59	71.95	-440.23	8614.41	370.77		370.77
73	1185/40	-1322.22	-91.55	-70.57			225.78	174.03
74	1150/40	-442.85	-213.30	-335.54			84.10	132.30
75	30/35	-180.97	-2.12	-0.21	151.78	121.14	60.71	121.14
76	30/35	-193.90	-2.41	-0.50	154.90	123.40	61.96	123.40
77	30/35	-162.26	-3.80	-4.42	146.45	117.33	58.58	117.33
78	30/35	-149.60	-6.19	-5.21	143.07	114.97	57.23	114.97
79	30/35	-120.28	-12.29	-8.18	139.50	112.51	55.80	112.51
80	30/35	-337.36	-11.33	-7.73	150.22	120.01	60.09	120.01
				-8434.64				9627.47

$\lambda = \Sigma_Ved/\Sigma_Vrd = 8434.64/9627.47 = 0.88$ OK

Στάθμη 7

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-73.68	-4.00	-2.20			14.14	7.77
2	190/40	-78.53	3.23	0.95			14.86	4.39
3	240/40	-49.95	-7.42	-4.26			9.72	5.59
4	175/40	-46.20	-4.05	-2.34			8.92	5.16
5	165/40	-73.47	3.34	0.99			13.84	4.11
6	165/40	-86.39	4.11	1.24			16.09	4.83
7	110/40	-58.88	0.65	0.14			10.95	2.39

8	125/40	-60.07	0.91	0.17			11.26	2.10
9	35/40	-110.58	3.35	1.01	3.50	53.56		3.50
10	35/40	-118.82	3.35	1.01	3.50	56.86		3.50
11	135/40	-87.26	-2.38	-1.28			15.97	8.60
12	155/40	-103.96	-2.61	-1.40			18.97	10.16
13	135/40	-79.44	3.57	1.07			14.66	4.39
14	155/40	-89.03	3.71	1.11			16.47	4.92
15	150/40	-183.98	-9.29	-5.01			30.88	16.65
16	240/40	-15.59	-15.40	-8.52			3.09	1.71
17	190/40	-74.16	-7.32	-2.36			14.07	4.53
18	230/40	-48.22	-11.45	-6.68			9.38	5.47
19	120/40	-129.87	-2.80	-1.77			22.29	14.09
20	255/40	-352.99	-24.12	-13.43			57.79	32.17
21	375/40	-252.25	-0.95	-0.74			46.00	35.99
22	380/40	-231.13	-39.18	-31.23			42.54	33.92
23	735/40	-498.52	-32.34	-20.22			90.84	56.81
24	265/40	-197.32	-11.93	-12.64			35.61	37.73
25	255/40	-151.70	1.88	-0.94			27.97	13.98
26	500/40	-372.10	-14.72	-18.90			67.16	86.26
27	240/40	-379.92	-11.47	-4.16			60.22	21.84
28	240/40	-174.66	5.39	2.16			31.60	12.68
29	235/40	-225.80	-7.37	-3.56			39.47	19.09
30	265/40	-81.83	-0.97	0.35			15.70	5.61
31	145/30	-79.71	-3.65	-2.15			10.81	6.36
32	165/30	-75.37	2.67	0.76			10.40	2.98
33	150/30	-100.54	-1.53	-5.07			13.31	44.05
34	965/30	-587.73	-16.41	-9.89			78.78	47.49
35	939/35	-357.02	-39.81	-24.75			58.92	36.63
36	40/195	-98.36	-163.20	-85.17	46.35	0.00		0.00
37	40/164	-154.66	-113.81	-61.00	58.45	53.53		53.53
38	40/290	-138.45	-112.84	-72.30	119.38	106.18		106.18
39	40/90	-157.62	-8.79	-5.65	33.54	87.05		33.54
40	40/160	-93.65	25.04	4.66	12.73	80.13		12.73
41	40/229	11.22	-428.69	-262.18	0.00	0.00		0.00
42	40/209	-290.07	-223.46	-184.02	197.70	138.09		138.09
43	40/190	-160.37	-135.54	-92.03	90.09	64.26		64.26
44	40/303	-292.83	-69.75	-72.54	393.74	197.85		197.85
45	40/888	-571.68	-2099.07	-762.81	832.94	290.13		290.13
46	40/332	-407.53	-239.11	-183.57	423.31	248.87		248.87
47	40/338	-251.57	-318.24	-168.14	199.16	134.46		134.46
48	35/670	-376.69	-834.20	-507.46	693.33	230.16		230.16
49	40/172	-114.24	-32.38	-15.99	43.66	91.56		43.66
50	35/680	-31.33	204.74	-86.59	44.70	0.00		0.00
51	40/590	-391.49	-804.16	-409.67	529.53	228.27		228.27
52	40/440	-240.42	-690.40	-255.62	179.72	0.00		0.00
53	35/680	-547.79	-646.94	-270.50	670.71	374.45		374.45
54	40/370	-166.49	-110.62	-45.95	119.26	161.44		119.26
55	40/310	-133.61	-166.59	-68.48	79.60	77.70		77.70
56	40/233	92.94	-102.17	-78.57	0.00	0.00		0.00
57	40/117	-164.66	-14.64	-7.45	38.47	96.96		38.47
58	40/187	-132.21	-79.61	-29.94	41.64	79.69		41.64
59	40/143	-157.09	-52.50	-24.61	44.10	93.49		44.10
60	40/719	-519.11	-648.26	-311.69	800.23	395.52		395.52
61	40/140	-77.15	17.32	9.06	25.90	68.19		25.90
62	40/40	-45.59	1.95	0.47	1.81	28.90		1.81
63	40/40	-43.25	2.82	0.77	1.97	27.97		1.97
64	40/635	-171.24	-575.26	-307.79	279.07	0.00		0.00
65	990/40	-452.02	-90.10	-54.32			85.00	51.24
66	40/310	-177.46	-473.15	-310.23	164.80	0.00		0.00
67	1150/40	-1010.88	-127.68	-81.70			178.89	114.47
68	1045/40	-820.21	-115.75	-77.45			147.17	98.48
69	40/290	-228.09	-231.45	-215.76	271.77	126.06		126.06
70	1110/40	-636.77	-36.36	-26.19			117.78	84.84
71	40/678	-416.01	511.47	76.54	191.53	339.25		191.53
72	40/635	-462.35	-1191.33	-737.10	808.62	232.80		232.80
73	1185/40	-1217.94	-37.39	8.47			210.79	47.76
74	1150/40	-692.07	-145.04	-84.05			127.50	73.89
75	30/35	-178.66	-1.97	1.51	35.88	65.63	60.10	35.88
76	30/35	-191.59	-2.03	1.22	36.63	67.90	61.36	36.63
77	30/35	-159.95	-0.29	-2.65	34.59	61.80	57.94	34.59
78	30/35	-147.29	-2.03	-3.39	33.78	59.43	56.57	33.78
79	30/35	-117.97	-5.77	-6.39	32.92	56.96	55.13	32.92
80	30/35	-335.05	-5.17	-5.95	35.50	64.50	59.47	35.50
				-6044.74				
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3	240/60	-1190.32	80.07	43.37			202.40	109.64
4	175/60	-571.51	52.21	27.46			122.54	64.45
5	165/60	-522.90	18.52	5.32			113.45	32.58
6	165/60	-485.65	16.85	4.82			108.24	30.99
7	165/60	-375.75	40.88	22.25			90.30	49.16
8	250/60	-765.75	54.44	29.05			168.26	89.77
9	95/60	-491.11	6.37	-0.16			80.81	2.05
10	90/60	-454.55	4.97	-0.80			76.21	12.25
11	245/60	-737.12	42.48	21.56			163.02	82.75
12	175/60	-395.58	27.60	13.67			95.24	47.16
13	135/60	-414.21	10.43	2.96			90.96	25.83
14	155/60	-468.11	11.68	3.30			103.39	29.19
15	170/60	-379.04	35.35	19.55			91.57	50.65
16	240/60	-850.95	38.13	20.13			176.22	93.02
17	190/60	-595.19	29.42	15.06			129.70	66.39
18	230/60	-668.48	27.75	12.04			149.63	64.89
19	560/60	-1020.46	141.31	66.53			257.41	121.19
20	465/60	-571.37	152.03	84.39			153.01	84.93
21	375/60	-1002.06	38.41	8.95			230.45	53.69
22	380/60	-1097.35	119.89	71.01			246.17	145.79
23	700/60	-1935.20	66.36	22.51			440.37	149.41
24	265/60	-525.42	52.76	29.90			130.33	73.86
25	255/60	-733.02	20.18	6.61			164.69	53.93
26	500/60	-1468.32	125.86	74.79			327.51	194.61
27	480/65	-639.35	127.53	63.23			185.47	91.95
28	380/65	-1546.73	140.74	78.34			337.71	188.00
29	240/65	-880.45	33.09	9.73			201.51	59.27
30	65/65	-164.51	8.41	2.42	11.76	93.97		11.76
31	215/65	-367.24	26.90	8.33			102.91	31.89
32	110/65	-304.02	40.82	24.08			76.79	45.29
33	450/65	-1470.07	111.75	64.25			351.93	202.34
34	265/65	-1213.46	26.39	9.36			248.77	88.20
35	120/60	-386.21	29.78	16.21			83.29	45.33
36	290/60	-511.22	36.19	11.85			129.75	42.48
37	345/60	-472.11	98.29	52.69			124.70	66.85
38	165/60	-466.82	16.13	4.57			105.44	29.87
39	150/60	-176.58	36.67	19.36			47.53	25.09
40	290/60	-879.79	82.28	46.96			194.00	110.73
41	1140/60	-2828.70	226.59	122.67			664.69	359.84
42	880/60	-1960.53	247.96	135.12			473.70	258.13
43	3769/60	-4261.45	710.93	394.09			1152.18	638.69
44	445/60	-782.75	66.63	36.16			198.75	107.85
45	60/195	-434.41	343.59	148.95	142.93	174.32		142.93
46	60/164	-671.69	203.92	110.59	176.42	330.84		176.42
47	60/290	-989.95	742.29	283.97	360.84	480.00		360.84
48	60/110	-162.79	83.48	38.39	34.99	34.08		34.08
49	60/160	-154.86	156.00	80.71	57.93	0.00		0.00
50	60/229	-333.80	345.85	171.24	161.90	104.00		104.00
51	60/209	-665.97	321.20	164.01	242.01	334.05		242.01
52	60/190	-683.92	289.70	142.24	203.04	336.51		203.04
53	60/273	-326.19	704.22	203.91	113.31	0.00		0.00
54	60/888	-2548.84	6719.19	1447.72	1735.31	1236.00		1236.00
55	45/630	-1347.24	2134.29	674.85	957.55	679.82		679.82
56	60/900	-2015.31	4376.77	1312.33	2107.58	1085.51		1085.51
57	95/192	-798.27	394.76	200.60	286.71	407.75		286.71
58	40/513	-707.25	841.87	519.85	887.49	392.87		392.87
59	65/630	-2076.58	2010.23	902.59	2039.38	1103.63		1103.63
60	60/670	-1894.02	2299.88	880.74	1739.84	1013.89		1013.89
61	60/645	-1050.55	1723.93	737.17	1211.72	610.30		610.30
62	60/192	-516.95	187.54	84.05	162.27	278.45		162.27
63	40/620	-1494.66	1425.10	392.79	813.20	763.20		763.20
64	60/680	-1023.03	2022.24	775.61	1132.47	580.00		580.00
65	40/620	-1570.41	1405.17	362.68	776.98	793.50		776.98
66	60/460	-1288.72	987.29	352.72	760.94	699.49		699.49
67	35/513	-585.61	625.55	287.14	553.95	339.02		339.02
68	60/680	-1332.82	2027.29	594.95	1068.07	758.60		758.60
69	35/620	-1093.05	798.31	364.94	1078.73	581.89		581.89
70	60/300	-660.46	380.68	154.67	313.50	375.02		313.50
71	40/533	-756.49	884.95	265.44	475.40	422.21		422.21
72	390/30	-312.50	4.99	2.38			40.31	19.26
73	265/30	-166.63	5.54	2.93			22.25	11.77
74	60/30	-62.75	1.46	0.82			7.69	4.34
75	60/370	-440.31	672.14	116.80	124.63	214.94		124.63
76	60/310	-800.46	307.13	74.51	222.92	444.18		222.92
77	60/233	-455.53	163.07	42.04	109.96	275.41		109.96
78	60/57	-253.64	6.10	2.93			43.71	20.98
79	60/187	-726.05	104.17	49.77	198.63	365.40		198.63
80	60/143	-493.68	66.30	42.38	148.12	254.86		148.12
81	60/264	-280.75	199.81	131.16	217.36	185.35		185.35
82	60/468	-1043.73	919.08	216.42	446.69	592.83		446.69
83	60/107	-215.81	21.40	4.67	20.08	129.12		20.08
84	60/160	-336.39	108.76	58.72	114.62	191.76		114.62

85	60/140	-465.28	67.65	31.51	101.06	242.11		101.06
86	35/630	-1046.19	1514.17	413.14	642.05	537.67		537.67
87	40/495	-144.59	1092.32	441.56	138.30	0.00		0.00
88	670/25	-196.32	13.37	7.10			23.03	12.23
89	65/250	-537.75	363.63	194.75	288.19	289.69		288.19
90	340/60	-619.53	68.47	38.99			156.28	88.98
91	56/56	-90.96	7.69	7.04	19.26	57.29		19.26
92	56/56	-156.81	9.13	9.65	32.41	83.63		32.41
93	56/56	-157.94	8.79	9.43	33.07	84.08		33.07
94	56/56	-93.23	6.92	6.70	20.74	58.20		20.74
95	45/70	-448.01	44.03	13.25	81.86	174.29	144.08	81.86
96	45/70	-394.80	42.09	13.05	79.60	167.28	140.09	79.60
97	60/635	-1541.08	3042.94	935.95	1138.09	760.48		760.48
98	1010/60	-1404.22	264.66	137.56			370.11	192.37
99	60/310	-384.91	668.45	293.56	229.33	0.00		0.00
100	1150/60	-1392.02	247.48	129.89			373.45	196.00
101	55/885	-1864.79	4149.02	982.33	1502.59	987.93		987.93
102	55/885	-1734.23	3629.71	832.43	1382.01	950.21		950.21
103	1045/60	-1482.04	182.06	98.94			389.54	211.69
104	60/310	-472.49	432.97	178.87	256.23	265.03		256.23
105	1130/60	-1863.81	144.89	77.37			478.59	255.56
106	60/678	-1119.75	1770.93	385.20	688.69	664.92		664.92
107	50/885	-1852.77	3080.05	738.76	1470.20	1017.37		1017.37
108	30/545	-1170.38	1125.44	284.83	458.93	573.95		458.93
109	1185/50	-2945.41	156.05	89.80			544.51	313.35
110	25/635	-704.10	622.13	269.62	709.86	387.47		387.47
111	1150/25	-2046.23	25.14	14.21			160.37	90.64
112	60/90	-300.63	53.24	29.91	50.50	153.00		50.50
113	30/885	-1386.64	2509.33	623.50	1044.70	711.58		711.58
114	40/40	-370.48	7.15	2.15	81.81	174.15	143.99	81.81
115	40/40	-321.13	7.54	2.40	79.12	165.00	139.24	79.12
				21437.53				
								27920.21

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 21437.53/27920.21 = 0.77 \quad OK$$

Στᾶθμη 4

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-596.68	17.54	30.02			140.13	239.93
2	190/60	-433.86	-3.53	9.71			104.20	286.99
3	240/60	-878.73	79.89	191.86			179.31	430.62
4	175/60	-404.53	45.91	108.74			96.86	229.37
5	165/60	-327.72	0.95	13.41			81.26	1144.86
6	165/60	-304.12	1.56	12.17			76.55	596.95
7	165/60	-26.59	32.75	41.43			7.86	9.95
8	125/60	-376.75	21.77	32.48			83.27	124.22
9	55/60	-352.37	-2.99	4.28	54.02	148.83		54.02
10	55/60	-364.60	-3.27	4.52	50.54	151.05		50.54
11	135/60	-412.33	16.21	23.07			90.70	129.10
12	175/60	-229.12	14.87	22.57			60.88	92.43
13	135/60	-274.54	-1.78	10.50			67.73	400.28
14	155/60	-305.65	-1.92	11.72			75.90	463.70
15	170/60	-231.20	40.40	98.65			61.12	149.24
16	240/60	-573.06	31.76	74.53			136.06	319.35
17	190/60	-369.67	29.73	69.60			92.05	215.52
18	230/60	-446.84	16.40	29.41			111.30	199.59
19	560/60	-699.36	49.20	72.94			186.92	277.07
20	465/60	-221.60	177.74	431.24			63.71	154.58
21	375/60	-748.25	15.91	32.90			185.35	383.28
22	380/60	-1355.47	197.31	120.24			279.94	170.60
23	700/60	-1569.73	-36.70	93.25			378.68	962.11
24	265/60	-239.67	65.92	155.36			66.22	156.06
25	255/60	-484.49	1.55	12.11			121.23	945.86
26	500/60	-1481.59	110.24	57.76			329.44	172.60
27	240/45	-888.02	51.60	120.55			113.70	265.64
28	240/45	-605.73	1.60	9.14			96.23	551.39
29	235/65	-798.55	75.20	167.56			188.42	419.84
30	265/65	-744.13	-1.21	11.15			187.09	1728.02
31	145/60	-143.51	50.83	117.32			39.33	90.78
32	165/60	-267.73	1.23	8.60			68.94	481.63
33	150/60	-142.57	41.07	90.90			39.22	86.80
34	290/60	-670.38	114.21	285.74			160.51	401.56
35	1160/60	-1751.11	206.43	471.80			456.06	1042.31
36	880/30	-1273.97	73.00	174.50			142.77	341.27
37	2949/60	-1935.78	432.48	671.27			547.44	849.69
38	60/195	-285.62	64.47	24.50	90.50	192.42		90.50
39	60/164	-373.87	157.09	149.06	224.87	197.72		197.72
40	60/290	-713.71	327.05	194.53	463.39	401.48		401.48
41	60/110	-93.34	36.58	53.73	68.86	56.21		56.21
42	60/160	-46.62	-2.46	79.29	1166.81	82.72		82.72
43	60/229	-80.79	2.30	90.54	3522.83	124.09		124.09
44	60/209	-823.48	230.02	85.10	192.73	413.09		192.73
45	60/190	-595.11	221.60	135.46	236.18	307.13		236.18

46	60/303	-258.14	244.19	137.21	200.72	171.36		171.36
47	60/888	-1814.69	3119.30	815.35	1673.76	1052.41		1052.41
48	35/610	-1017.54	863.25	414.85	1063.04	549.35		549.35
49	60/332	-1076.89	894.91	427.56	575.80	530.24		530.24
50	60/338	-60.55	454.83	318.08	70.19	0.00		0.00
51	95/192	-610.38	263.39	94.59	168.00	344.57		168.00
52	65/480	-1805.75	578.87	516.59	2518.48	930.30		930.30
53	60/670	-1353.83	1011.90	674.36	2408.98	809.53		809.53
54	60/192	-370.69	87.25	39.96	131.38	225.08		131.38
55	40/620	-1056.52	356.22	317.56	2170.10	587.94		587.94
56	40/620	-1109.36	607.30	163.30	675.41	609.08		609.08
57	60/460	-865.38	319.26	226.53	1145.36	530.15		530.15
58	35/513	-333.29	157.25	251.57	1214.64	253.02		253.02
59	60/680	-721.36	1221.39	466.43	836.81	493.36		493.36
60	35/620	-883.88	452.87	292.48	1335.21	498.22		498.22
61	60/300	-493.33	254.84	84.65	205.21	315.34		205.21
62	40/533	-447.79	344.04	196.84	596.33	321.25		321.25
63	390/30	-184.28	11.56	25.03			25.36	54.92
64	265/30	-29.56	12.16	29.19			4.35	10.44
65	60/30	-37.74	3.44	8.51			5.04	12.47
66	60/370	-279.19	326.75	80.61	117.77	193.24		117.77
67	60/310	-539.93	248.48	121.98	338.96	339.97		338.96
68	60/233	-363.34	99.94	42.40	151.44	238.53		151.44
69	60/117	-382.88	14.14	19.88	210.46	199.80		199.80
70	60/187	-510.69	44.26	40.94	321.55	279.26		279.26
71	60/143	-368.85	74.67	104.91	275.77	204.93		204.93
72	60/719	-722.58	200.18	366.41	4277.88	576.81		576.81
73	60/160	-175.23	49.04	18.76	47.71	132.51		47.71
74	60/140	-264.48	29.76	17.90	90.22	161.79		90.22
75	20/610	-641.60	477.48	157.66	441.34	337.98		337.98
76	45/60	-283.58	-1.00	1.25	39.25	120.90		39.25
77	45/60	-279.42	-2.34	-0.50	6.72	120.13		6.72
78	60/635	-1148.72	1154.65	614.56	1588.46	713.49		713.49
79	1010/60	-1028.25	176.23	403.57			281.04	643.59
80	60/310	-308.90	183.93	198.74	465.58	238.11		238.11
81	1150/60	-1002.11	176.15	416.81			277.75	657.24
82	55/885	-1498.95	2076.42	891.06	2318.10	924.08		924.08
83	55/885	-1381.65	1983.96	713.33	1822.13	877.16		877.16
84	1045/60	-1139.32	178.20	431.31			309.25	748.48
85	60/310	-342.54	106.83	127.54	563.52	261.02		261.02
86	1130/60	-1380.90	87.82	188.70			370.05	795.18
87	60/678	-1150.52	1237.50	150.51	393.52	731.41		393.52
88	50/885	-1390.49	1337.96	492.99	1837.78	851.19		851.19
89	30/545	-888.59	434.18	134.44	504.18	464.43		464.43
90	1185/25	-2244.86	58.81	138.60			169.17	398.68
91	25/635	-752.14	610.60	201.33	562.55	406.69		406.69
92	1150/25	-1705.54	69.33	167.14			146.91	354.18
93	60/90	-255.83	44.18	98.60	183.56	135.60		135.60
94	30/885	-1108.35	1076.00	424.79	1449.05	620.34		620.34
				16972.06				
								35791.82

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 16972.06/35791.82 = 0.47 \quad OK$$

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-454.17	28.56	15.35			113.73	61.12
2	190/60	-357.97	-9.29	-4.94			89.72	47.73
3	240/60	-664.31	82.02	47.40			151.11	87.32
4	175/60	-336.62	44.64	25.41			84.02	47.83
5	165/60	-267.39	-9.72	-5.50			68.86	39.00
6	165/60	-249.14	-8.49	-5.38			64.88	41.14
7	165/60	-130.58	24.19	11.23			36.47	16.93
8	125/60	-280.64	17.32	7.80			67.68	30.50
9	55/60	-316.22	-4.96	-4.00	32.31	142.06		32.31
10	55/60	-327.86	-5.35	-4.14	30.49	144.28		30.49
11	135/60	-305.97	11.02	4.99			73.62	33.37
12	175/60	-232.19	13.25	6.02			61.59	27.99
13	135/60	-226.77	-7.50	-5.26			58.05	40.74
14	155/60	-251.47	-8.47	-5.83			64.75	44.56
15	170/60	-172.56	33.40	19.28			47.18	27.24
16	240/60	-480.94	32.15	17.79			119.03	65.88
17	190/60	-266.43	23.32	13.04			70.14	39.21
18	230/60	-345.73	20.24	10.36			90.10	46.11
19	560/60	-657.72	99.69	59.41			177.07	105.53
20	465/60	-455.23	169.52	99.36			124.89	73.20
21	375/60	-698.75	-11.81	8.65			175.51	128.59
22	380/60	-1305.31	101.28	99.48			274.10	269.21
23	700/60	-1252.46	98.47	57.99			317.02	186.69
24	265/60	-416.41	65.37	39.58			107.78	65.25
25	255/60	-450.83	-8.38	-5.63			114.36	76.74
26	500/60	-1415.59	64.87	31.06			319.66	153.06
27	240/45	-673.12	32.34	17.54			101.98	55.30

28	240/45	-581.97	-5.91	-4.48			93.96	71.23
29	235/65	-639.11	62.56	35.03			162.16	90.81
30	265/65	-706.24	-10.57	-8.93			180.21	152.26
31	145/60	-167.34	41.33	23.17			45.14	25.31
32	165/60	-245.95	-6.06	-3.47			64.18	36.73
33	150/60	-237.40	34.01	19.28			61.38	34.80
34	290/60	-475.04	97.55	55.48			122.12	69.45
35	1160/60	-1688.29	222.06	119.57			442.10	238.06
36	880/30	-774.91	31.81	18.55			98.36	57.36
37	2949/60	-2028.46	555.66	332.17			571.98	341.93
38	60/195	-316.32	158.17	80.44	131.64	183.79		131.64
39	60/164	-287.74	169.81	76.75	88.06	142.88		88.06
40	60/290	-556.07	447.57	259.73	377.79	299.84		299.84
41	60/110	-185.53	61.12	36.52	50.55	100.59		50.55
44	60/209	-750.82	242.77	70.30	145.46	384.02		145.46
45	60/190	-510.53	197.85	105.82	188.87	271.48		188.87
46	60/303	-252.24	233.78	135.90	203.36	171.30		171.30
47	60/888	-1575.84	3760.79	1238.27	1893.08	876.75		876.75
48	35/610	-897.92	1371.06	531.15	792.03	465.78		465.78
49	60/332	-1061.23	786.33	397.90	605.21	534.77		534.77
50	60/338	-240.09	756.36	334.68	166.51	0.00		0.00
51	95/192	-462.19	275.38	103.60	141.43	254.07		141.43
52	65/480	-1040.69	1590.88	582.24	730.34	529.55		529.55
53	60/670	-1147.67	2130.61	950.43	1419.97	638.29		638.29
54	60/192	-345.38	98.52	36.53	100.74	214.95		100.74
55	40/620	-787.16	716.59	355.06	977.78	480.20		480.20
56	40/620	-975.01	824.45	280.59	784.94	555.34		555.34
57	60/460	-672.97	704.51	295.26	553.37	419.56		419.56
58	35/513	-304.35	548.15	340.22	435.03	175.21		175.21
59	60/680	-898.92	1447.71	546.98	1001.42	574.31		574.31
60	35/620	-751.13	773.86	369.03	878.76	445.12		445.12
61	60/300	-453.73	187.33	67.47	207.88	301.49		207.88
62	40/533	-351.29	449.94	225.20	422.03	251.25		251.25
63	390/30	-152.93	3.58	1.79			21.37	10.67
64	265/30	-106.40	4.90	3.09			14.84	9.35
65	60/30	-25.88	1.72	1.03			3.59	2.15
66	60/370	-281.72	321.98	76.12	113.78	197.54		113.78
67	60/310	-460.19	243.25	91.50	228.30	306.65		228.30
68	60/233	-341.59	95.61	37.55	133.26	229.84		133.26
69	60/117	-363.38	11.88	7.98	97.83	192.00		97.83
70	60/187	-444.29	62.11	32.20	164.47	252.70		164.47
71	60/143	-365.83	73.11	31.34	83.69	203.72		83.69
72	60/719	-772.48	726.64	352.98	1204.26	596.77		596.77
73	60/160	-154.11	34.17	10.05	32.77	125.64		32.77
74	60/140	-246.00	15.83	10.10	90.51	154.40		90.51
75	20/610	-501.28	601.22	208.52	398.95	274.54		274.54
76	45/60	-277.64	-1.97	-1.64	26.41	119.80		26.41
77	45/60	-273.48	-2.45	-2.72	35.45	119.03		35.45
78	60/635	-957.62	1716.70	671.97	1009.83	548.93		548.93
79	1010/60	-945.55	191.90	107.73			260.47	146.22
80	60/310	-269.12	483.61	239.33	188.43	0.00		0.00
81	1150/60	-1016.51	214.90	122.51			281.41	160.42
82	55/885	-1042.73	2262.32	897.35	1593.89	665.19		665.19
83	55/885	-994.30	1998.95	714.16	1378.38	663.32		663.32
84	1045/60	-1198.78	174.78	102.48			323.60	189.74
85	60/310	-340.36	298.27	145.02	228.22	216.99		216.99
86	1130/60	-1287.41	101.07	55.52			347.79	191.05
87	60/678	-1059.01	1108.38	124.95	341.22	694.81		341.22
88	50/885	-904.08	1711.08	603.97	1238.21	614.87		614.87
89	30/545	-600.18	568.67	196.16	439.33	346.72		346.72
90	1185/25	-1849.17	16.47	8.54			155.53	80.62
91	25/635	-556.13	689.15	215.10	434.76	319.24		319.24
92	1150/25	-1362.06	29.91	18.08			127.98	77.35
93	60/90	-154.42	58.75	35.12	34.38	65.08		34.38
94	30/885	-693.31	1550.12	590.92	985.46	408.68		408.68
				14266.31				17367.79
$\lambda = \Sigma_Ved/\Sigma_Vrd = 14266.31/17367.79 = 0.82 \quad OK$								

Στάθμη 6

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-168.54	5.30	15.29			30.61	88.26
2	190/40	-186.91	8.55	14.02			32.56	53.39
3	240/40	-328.79	23.56	58.73			53.95	134.52
4	175/40	-205.13	14.46	36.04			34.72	86.57
5	165/40	-124.54	9.87	15.97			22.44	36.30
6	165/40	-109.23	10.99	18.14			19.95	32.95
7	110/40	-125.88	14.40	27.64			21.40	41.08
8	125/40	-232.05	20.14	41.07			35.12	71.64
9	35/40	-129.01	7.50	12.53	19.17	59.28		19.17
10	35/40	-137.02	7.34	12.16	18.62	60.82		18.62
11	135/40	-176.16	8.70	18.94			29.21	63.55

12	155/40	-74.34	8.59	16.74			13.93	27.16
13	135/40	-107.20	11.37	18.67			19.21	31.54
14	155/40	-118.82	12.29	19.93			21.38	34.67
15	150/40	98.27	25.24	56.84			0.00	0.00
16	240/40	-258.52	25.22	62.36			44.41	109.81
17	190/40	-130.35	50.98	58.98			23.73	27.45
18	230/40	-184.92	11.72	28.56			33.09	80.62
19	120/40	-345.22	9.38	26.59			43.02	121.90
20	255/40	23.27	68.48	168.12			0.00	0.00
21	375/40	-230.66	33.11	32.82			42.41	42.04
22	380/40	-518.51	108.80	73.64			85.16	57.64
23	700/40	-567.67	49.58	112.16			101.47	229.54
24	265/40	-301.80	27.85	23.70			51.35	43.72
25	255/40	-209.92	13.94	19.38			37.46	52.10
26	500/40	-595.81	53.64	58.49			100.56	109.66
27	240/40	-344.66	35.01	31.53			55.96	50.41

28	240/40	-302.02	11.39	19.76			50.44	87.51
29	235/40	-293.78	32.64	28.26			49.13	42.54
30	265/40	-266.28	23.73	27.69			46.25	53.97
31	145/30	-315.68	7.56	15.03			29.34	58.35
32	165/30	-44.72	6.50	10.46			6.39	10.28
33	150/30	-204.34	6.74	11.85			23.36	41.10
34	965/30	-602.01	86.30	219.78			80.46	204.92
35	939/35	494.17	204.85	431.97			0.00	0.00
36	40/195	-269.32	-31.53	57.98	383.54	159.85		159.85
37	40/164	-115.76	-40.65	50.94	106.53	83.94		83.94
38	40/290	-93.62	-113.20	103.30	117.85	56.71		56.71
39	40/90	-162.96	-3.87	3.45	47.60	89.19		47.60
40	40/160	125.40	90.31	228.93	0.00	0.00		0.00
41	40/229	42.49	-72.25	-42.44	0.00	0.00		0.00
42	40/209	-465.45	-106.89	-6.87	20.81	241.97		20.81
43	40/190	-173.87	-57.59	97.73	241.13	118.90		118.90
44	40/303	-160.00	8.56	75.77	1972.32	144.72		144.72
45	40/888	-686.27	950.52	798.63	2262.03	511.31		511.31
46	40/332	-778.27	-7.38	79.42	8990.42	399.84		399.84
47	40/338	-66.31	321.43	125.37	42.36	0.00		0.00
48	35/670	-550.92	1404.59	609.80	687.81	276.40		276.40
49	40/172	-158.41	50.90	40.64	93.68	106.46		93.68
50	35/680	-146.96	229.34	561.20	1177.22	187.55		187.55
51	40/590	-846.92	330.02	417.42	2476.55	496.10		496.10
52	40/440	-354.83	319.68	267.46	573.76	245.86		245.86
53	35/680	-491.52	740.91	508.55	1004.30	329.09		329.09
54	40/370	-104.39	86.16	40.96	87.90	123.73		87.90
55	40/310	-285.56	-8.30	69.21	3179.94	196.89		196.89
56	40/233	-205.29	-38.32	70.59	382.13	144.25		144.25
57	40/117	-271.20	53.99	71.16	135.42	139.20		135.42
58	40/187	-221.16	69.39	70.80	173.89	138.35		138.35
59	40/143	-140.48	13.23	61.00	396.05	94.45		94.45
60	40/719	-284.76	246.52	345.70	1350.82	305.76		305.76
61	40/140	-167.46	-18.10	-3.27	17.36	104.32		17.36
62	40/40	-32.06	6.86	11.59	9.52	0.00		0.00
63	40/40	-21.91	8.07	14.63	7.29	0.00		0.00
64	40/635	-522.20	655.91	341.33	755.90	362.39		362.39
65	990/40	-453.17	81.87	212.73			85.20	221.39
66	40/310	-37.78	55.32	168.92	175.50	21.95		21.95
67	1150/40	-553.68	109.27	229.19			103.75	217.61
68	1045/40	-909.55	96.21	140.41			161.16	235.21
69	40/290	-271.76	329.64	42.55	43.69	127.66		43.69
70	1110/40	-601.68	39.21	40.18			111.79	114.55
71	40/678	-620.63	656.76	-0.51	1.42	429.05		1.42
72	40/635	-293.68	-124.82	258.39	1795.76	286.81		286.81
73	1185/40	-1303.89	199.84	166.41			223.18	185.85
74	1150/40	-1502.17	180.17	297.34			249.02	410.95
75	30/35	-192.32	15.53	9.53	151.78	121.14	60.71	121.14
76	30/35	-212.10	14.64	8.97	154.90	123.40	61.96	123.40
77	30/35	-172.75	16.19	8.55	146.45	117.33	58.58	117.33
78	30/35	-160.29	11.73	6.90	143.07	114.97	57.23	114.97
79	30/35	-140.05	12.07	6.59	139.50	112.51	55.80	112.51
80	30/35	-63.45	10.61	5.93	150.22	120.01	60.09	120.01
				8516.92				

8	125/40	-68.12	-0.74	0.51			12.65	8.74
9	35/40	-113.17	-2.41	-0.73	3.50	54.60		3.50
10	35/40	-120.25	-2.27	-0.68	3.48	57.43		3.48
11	135/40	-112.26	3.96	2.46			20.01	12.43
12	155/40	-86.14	4.31	2.68			15.97	9.94
13	135/40	-78.40	-3.73	-1.11			14.49	4.33
14	155/40	-86.92	-3.83	-1.14			16.11	4.79
15	150/40	-52.25	11.65	6.99			9.97	5.98
16	240/40	-167.03	15.63	9.33			30.36	18.13
17	190/40	-86.74	6.09	1.97			16.31	5.27
18	230/40	-110.64	17.91	10.49			20.73	12.14
19	120/40	-90.15	8.46	4.99			16.26	9.58
20	255/40	-165.84	32.13	19.39			30.34	18.31
21	375/40	-197.66	8.55	3.25			36.80	14.00
22	380/40	-348.73	49.39	37.37			61.36	46.42
23	735/40	-414.80	52.54	34.18			76.83	49.98
24	265/40	-278.48	9.33	5.03			48.03	25.89
25	255/40	-187.48	-2.34	0.42			33.88	6.07
26	500/40	-427.76	7.98	13.75			75.96	130.97
27	240/40	-323.54	10.21	13.40			53.28	69.91
28	240/40	-280.90	-4.70	-0.53			47.57	5.40
29	235/40	-273.10	10.40	11.69			46.30	52.07
30	265/40	-242.96	3.78	7.59			42.76	85.79
31	145/30	-173.47	2.62	1.23			20.58	9.68
32	165/30	-66.74	-1.79	-0.57			9.30	2.95
33	150/30	-127.19	-3.61	-3.15			16.25	14.18
34	965/30	-435.80	37.77	22.16			60.21	35.33
35	939/35	74.63	63.06	37.09			0.00	0.00
36	40/195	-116.25	146.58	78.33	55.27	0.00		0.00
37	40/164	-136.78	93.15	46.77	49.35	65.96		49.35
38	40/290	-173.60	263.24	154.98	134.83	0.00		0.00
39	40/90	-84.55	29.06	17.04	19.15	42.33		19.15
40	40/160	-100.49	166.31	80.80	35.40	0.00		0.00
41	40/229	-29.33	-86.57	-59.11	22.54	0.00		0.00
42	40/209	-251.73	-27.16	-32.02	254.26	156.49		156.49
43	40/190	-213.06	94.83	58.88	104.20	125.47		104.20
44	40/303	-170.69	20.30	41.64	484.90	149.00		149.00
45	40/888	-613.84	1621.71	906.49	1364.78	389.39		389.39
46	40/332	-525.56	442.48	232.67	349.33	275.67		275.67
47	40/338	-141.70	367.71	102.65	62.54	0.00		0.00
48	35/670	-360.88	1585.74	689.20	476.71	0.00		0.00
49	40/172	-122.94	48.08	30.91	60.65	86.68		60.65
50	35/680	-244.07	905.44	551.80	474.46	0.00		0.00
51	40/590	-509.69	760.12	446.09	767.55	320.57		320.57
52	40/440	-213.04	532.73	311.05	253.69	0.00		0.00
53	35/680	-438.34	1174.89	476.28	537.10	225.71		225.71
54	40/370	-115.21	111.44	38.06	69.39	116.70		69.39
55	40/310	-187.68	60.73	33.89	147.50	157.74		147.50
56	40/233	-247.25	32.13	63.86	481.04	161.04		161.04
57	40/117	-104.96	28.99	23.16	42.27	66.54		42.27
58	40/187	-172.93	68.50	46.65	95.03	112.46		95.03
59	40/143	-147.58	47.77	24.50	45.89	90.53		45.89
60	40/719	-242.81	438.31	363.94	688.38	240.50		240.50
61	40/140	-114.45	16.72	16.17	67.92	83.11		67.92
62	40/40	-19.08	-1.63	-0.36	0.78	16.78		0.78
63	40/40	-21.40	-2.96	-0.86	1.14	13.51		1.14
64	40/635	-340.10	627.78	252.63	399.46	242.37		242.37
65	990/40	-350.24	69.22	40.70			66.80	39.28
66	40/310	-98.50	404.95	217.70	78.14	0.00		0.00
67	1150/40	-654.24	84.70	46.75			121.09	66.83
68	1045/40	-783.09	56.50	23.99			141.24	59.96
69	40/290	-228.13	285.23	59.11	60.43	107.23		60.43
70	1110/40	-571.33	7.34	-1.45			106.56	21.05
71	40/678	-419.87	236.89	-75.53	411.49	348.75		348.75
72	40/635	-346.33	778.58	520.52	674.71	212.68		212.68
73	1185/40	-1199.61	69.03	87.37			208.10	263.40
74	1150/40	-1136.14	123.07	78.98			197.82	126.95
75	30/35	-190.01	7.93	7.80	35.88	65.63	60.10	35.88
76	30/35	-209.79	7.49	7.24	36.63	67.90	61.36	36.63
77	30/35	-170.44	9.39	6.78	34.59	61.80	57.94	34.59
78	30/35	-157.98	6.23	5.08	33.78	59.43	56.57	33.78
79	30/35	-137.74	6.83	4.79	32.92	56.96	55.13	32.92
80	30/35	-61.14	5.90	4.14	35.50	64.50	59.47	35.50
				6276.80				
				5186.93				

$\lambda = \Sigma_Ved/\Sigma_Vrd = 6276.80/5186.93 = 1.21$ Ανεπάρκεια

Σεισμικός συνδυασμός 31: 1.10*G + 0.60*Q + 0.36*Σx1 - 1.21*Σy1

Στάθμη 3

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-865.65	77.52	37.40			177.88	85.81

2	190/60	-703.96	31.45	10.20			142.84	46.33
3	240/60	-1283.74	81.97	44.23			205.19	110.72
4	175/60	-616.93	53.67	28.20			128.09	67.30
5	165/60	-533.82	19.11	5.45			114.89	32.77
6	165/60	-487.21	17.48	4.98			108.47	30.87
7	165/60	-352.64	45.62	24.94			86.04	47.04
8	250/60	-807.74	60.34	32.39			173.94	93.36
9	95/60	-519.66	6.53	0.14			81.41	1.73
10	90/60	-434.80	4.73	-1.03			75.40	16.38
11	245/60	-711.96	39.56	20.01			159.37	80.62
12	175/60	-450.97	23.03	11.21			104.84	51.05
13	135/60	-422.62	8.99	2.73			92.12	27.93
14	155/60	-459.87	9.54	3.00			102.21	32.09
15	170/60	-330.46	28.33	15.81			82.30	45.93
16	240/60	-778.04	36.09	19.09			167.32	88.48
17	190/60	-583.81	19.59	9.85			128.14	64.41
18	230/60	-690.08	14.37	2.87			152.77	30.52
19	560/60	-888.75	144.61	67.65			229.66	107.45
20	465/60	-420.78	172.57	95.57			116.26	64.38
21	375/60	-910.39	39.93	9.04			215.20	48.69
22	380/60	-1066.35	123.10	72.81			241.49	142.83
23	700/60	-1878.41	40.19	10.57			431.44	113.49
24	265/60	-523.03	50.41	28.62			129.86	73.71
25	255/60	-762.47	16.86	6.10			169.00	61.18
26	500/60	-1584.93	108.89	65.10			343.83	205.55
27	480/65	-614.68	131.23	75.13			179.14	102.57
28	380/65	-1624.25	162.92	90.56			345.96	192.30
29	240/65	-957.03	34.13	10.11			211.03	62.53
30	65/65	-172.85	8.67	2.49	12.17	97.31		12.17
31	215/65	-349.44	27.71	8.58			98.68	30.57
32	110/65	-285.21	41.43	24.43			73.32	43.24
33	450/65	-1546.41	84.75	49.15			363.33	210.72
34	265/65	-1128.79	21.89	7.56			240.86	83.20
35	120/60	-375.24	35.67	19.17			81.83	43.96
36	290/60	-497.41	43.01	14.07			126.87	41.51
37	345/60	-462.46	116.40	62.50			122.49	65.78
38	165/60	-468.47	18.27	4.78			105.69	27.66
39	150/60	-155.22	37.65	19.89			42.36	22.38
40	290/60	-798.09	90.41	51.49			181.87	103.58
41	1140/60	-2893.52	189.36	101.82			675.61	363.28
42	880/60	-2003.58	305.12	166.80			481.54	263.23
43	3769/60	-4470.35	702.20	389.13			1202.16	666.19
44	445/60	-781.21	37.85	20.23			198.43	106.06
45	60/195	-333.99	410.24	176.20	116.11	0.00		0.00
46	60/164	-655.37	242.71	131.33	174.64	316.30		174.64
47	60/290	-847.71	882.89	288.17	283.39	382.36		283.39
48	60/110	-86.61	85.17	39.07	20.09	0.00		0.00
49	60/160	-96.62	187.48	99.13	38.43	0.00		0.00
50	60/229	-329.22	418.56	206.64	159.58	0.00		0.00
51	60/209	-633.18	389.97	194.45	229.89	304.90		229.89
52	60/190	-673.79	358.17	178.92	205.22	319.50		205.22
53	60/273	-231.74	853.03	249.13	84.41	0.00		0.00
54	60/888	-2601.49	7835.81	1484.93	1544.77	1211.95		1211.95
55	45/630	-1345.75	2195.17	790.63	1089.99	674.99		674.99
56	60/900	-1961.08	5120.95	1537.32	2069.39	1011.08		1011.08
57	95/192	-797.15	439.45	225.58	289.35	396.52		289.35
58	40/513	-712.14	870.60	534.42	886.76	392.25		392.25
59	65/630	-2001.23	2115.59	915.87	1925.24	1072.57		1072.57
60	60/670	-1636.96	2514.23	954.70	1571.27	872.47		872.47
61	60/645	-912.65	1697.92	705.87	1049.69	528.81		528.81
62	60/192	-543.70	163.26	71.69	164.01	294.28		164.01
63	40/620	-1573.49	1356.65	389.29	864.46	794.73		794.73
64	60/680	-1038.24	1894.76	716.98	1130.91	604.30		604.30
65	40/620	-1484.76	1218.66	320.76	774.33	759.24		759.24
66	60/460	-1134.01	753.55	336.29	875.75	637.60		637.60
67	35/513	-595.32	449.61	273.78	744.01	357.83		357.83
68	60/680	-1654.81	1555.83	429.51	1173.57	933.92		933.92
69	35/620	-1195.66	572.47	275.39	1190.94	622.93		622.93
70	60/300	-610.88	245.12	89.81	267.07	364.35		267.07
71	40/533	-742.29	598.52	181.68	474.47	439.05		439.05
72	390/30	-358.83	4.61	2.25			45.17	22.02
73	265/30	-166.53	5.22	2.78			22.24	11.82
74	60/30	-59.87	1.39	0.78			7.41	4.19
75	60/370	-521.40	894.69	144.70	133.92	125.49		125.49
76	60/310	-877.91	137.56	24.17	171.10	475.16		171.10
77	60/233	-541.55	70.92	8.43	57.49	309.82		57.49
78	60/57	-258.00	2.47	0.90			43.97	15.95
79	60/187	-728.63	56.44	27.10	199.91	366.43		199.91
80	60/143	-524.24	39.00	27.32	166.81	267.09		166.81
81	60/264	-261.30	103.54	91.21	273.75	210.16		210.16
82	60/468	-1351.54	510.37	84.00	369.92	727.95		369.92
83	60/107	-274.16	6.11	-2.59	46.13	152.47		46.13
84	60/160	-339.90	56.61	30.20	114.10	199.96		114.10

85	60/140	-435.12	30.00	11.01	76.86	230.05		76.86
86	35/630	-1076.93	1672.03	424.88	608.29	542.59		542.59
87	40/495	-131.87	1270.12	534.17	131.75	0.00		0.00
88	670/25	-165.58	16.45	8.81			19.62	10.51
89	65/250	-523.76	364.77	201.68	291.66	281.47		281.47
90	340/60	-606.52	66.94	38.35			153.60	88.01
91	56/56	-87.83	7.96	7.23	18.58	56.04		18.58
92	56/56	-158.09	9.21	9.86	32.97	84.14		32.97
93	56/56	-156.98	8.62	9.27	33.00	83.70		33.00
94	56/56	-96.12	6.73	6.56	21.40	59.36		21.40
95	45/70	-494.24	44.46	13.35	81.86	174.29	144.08	81.86
96	45/70	-359.17	41.95	12.98	79.60	167.28	140.09	79.60
97	60/635	-1370.51	3800.03	995.77	893.05	376.55		376.55
98	1010/60	-1193.55	280.02	146.10			321.11	167.53
99	60/310	-329.70	776.39	306.90	180.43	0.00		0.00
100	1150/60	-1352.50	269.17	141.18			364.07	190.96
101	55/885	-1935.67	4309.06	979.31	1480.07	1016.14		1016.14
102	55/885	-1640.07	3572.22	828.65	1341.61	903.19		903.19
103	1045/60	-1564.79	177.91	96.78			408.04	221.97
104	60/310	-523.01	350.60	169.75	325.99	314.76		314.76
105	1130/60	-2049.13	133.62	70.99			517.37	274.87
106	60/678	-1302.81	933.95	347.70	1326.85	792.32		792.32
107	50/885	-1850.31	2781.88	660.77	1454.66	1032.28		1032.28
108	30/545	-1235.30	1293.98	335.93	475.97	594.77		475.97
109	1185/50	-2886.50	138.76	79.91			537.38	309.46
110	25/635	-687.88	483.50	205.19	684.82	380.99		380.99
111	1150/25	-2097.20	27.90	15.79			161.93	91.64
112	60/90	-288.49	62.52	35.20	49.56	143.39		49.56
113	30/885	-1362.69	2776.84	705.40	1057.95	688.31		688.31
114	40/40	-426.52	7.15	2.15	81.81	174.15	143.99	81.81
115	40/40	-319.81	7.71	2.46	79.12	165.00	139.24	79.12
				21387.70				
							26968.20	

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 21387.70/26968.20 = 0.79 \quad OK$$

Στᾶθμη 4

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-614.28	22.47	36.24			143.08	230.84
2	190/60	-459.13	-3.28	8.47			108.67	280.79
3	240/60	-896.28	81.41	194.43			181.18	432.68
4	175/60	-452.69	51.20	120.70			105.12	247.80
5	165/60	-334.29	1.58	13.71			82.54	714.30
6	165/60	-310.19	2.04	12.36			77.78	471.65
7	165/60	-43.89	36.38	41.19			12.86	14.56
8	125/60	-285.64	29.69	44.32			68.59	102.38
9	55/60	-346.13	-2.36	4.56	73.78	147.68		73.78
10	55/60	-370.38	-3.47	4.37	45.36	152.09		45.36
11	135/60	-427.61	12.77	15.91			92.79	115.56
12	175/60	-274.49	13.72	22.40			71.07	116.04
13	135/60	-279.42	-1.50	10.77			68.67	491.94
14	155/60	-304.45	-1.54	11.94			75.67	586.74
15	170/60	-154.30	34.93	86.31			42.62	105.32
16	240/60	-573.71	29.79	71.65			136.18	327.51
17	190/60	-366.80	18.00	45.50			91.48	231.21
18	230/60	-472.50	12.35	16.41			116.31	154.61
19	560/60	-673.67	56.53	78.06			180.86	249.77
20	465/60	-87.03	203.10	492.04			25.68	62.22
21	375/60	-656.97	18.95	35.27			166.93	310.73
22	380/60	-1226.68	208.74	126.25			264.24	159.81
23	700/60	-1419.14	-33.49	54.94			350.35	574.83
24	265/60	-222.39	57.49	154.11			61.83	165.74
25	255/60	-511.13	2.03	12.36			126.49	768.96
26	500/60	-1641.26	97.56	52.41			351.20	188.68
27	240/45	-940.86	56.99	137.22			115.04	277.03
28	240/45	-663.27	2.05	9.39			101.20	463.77
29	235/65	-810.22	61.28	134.12			190.12	416.12
30	265/65	-736.08	-0.54	11.53			185.65	3937.07
31	145/60	-149.62	61.23	142.18			40.84	94.83
32	165/60	-269.50	1.38	8.68			69.32	437.04
33	150/60	-130.30	44.82	99.35			36.12	80.08
34	290/60	-576.23	124.88	308.90			142.87	353.39
35	1160/60	-1796.88	207.33	478.50			466.13	1075.78
36	880/30	-1384.43	87.57	207.45			150.59	356.74
37	2949/60	-2042.75	437.16	652.13			575.75	858.86
38	60/195	-204.62	92.96	41.58	80.03	144.60		80.03
39	60/164	-357.96	187.24	171.79	210.80	179.01		179.01
40	60/290	-630.82	348.76	184.92	379.01	359.98		359.98
41	60/110	-34.86	37.85	52.18	25.55	0.00		0.00
42	60/160	-41.06	-7.36	94.80	412.48	80.49		80.49
43	60/229	-79.18	0.91	104.20	10035.78	123.45		123.45
44	60/209	-821.50	267.52	96.91	188.55	412.29		188.55
45	60/190	-621.61	277.81	166.84	237.39	308.79		237.39

46	60/303	-187.21	296.63	165.34	148.12	0.00	0.00
47	60/888	-1821.94	3766.18	922.42	1572.95	1013.52	1013.52
48	35/610	-964.33	845.80	504.68	1277.23	528.07	528.07
49	60/332	-967.50	1029.13	501.14	553.14	458.56	458.56
50	60/338	57.26	463.07	382.10	0.00	0.00	0.00
51	95/192	-714.88	340.09	101.90	157.05	377.96	157.05
52	65/480	-1717.60	712.16	515.41	1993.53	895.04	895.04
53	60/670	-1210.02	1067.96	736.40	2288.04	752.01	752.01
54	60/192	-291.97	74.17	38.04	121.80	193.59	121.80
55	40/620	-1123.81	99.82	274.64	6967.42	614.86	614.86
56	40/620	-1041.68	606.55	186.34	740.93	582.01	582.01
57	60/460	-767.54	215.88	224.81	1530.26	491.01	491.01
58	35/513	-395.30	124.41	245.41	1734.69	277.82	277.82
59	60/680	-1049.28	941.83	342.10	1094.98	691.71	691.71
60	35/620	-942.23	391.19	282.90	1559.53	521.56	521.56
61	60/300	-488.63	143.64	54.04	230.64	315.45	230.64
62	40/533	-442.86	161.23	143.14	916.61	319.28	319.28
63	390/30	-161.29	6.40	13.37		22.45	46.89
64	265/30	-25.67	9.32	23.39		3.79	9.50
65	60/30	-46.12	3.37	8.33		5.99	14.79
66	60/370	-323.11	418.31	104.97	136.84	195.89	136.84
67	60/310	-603.37	228.36	126.82	417.85	365.35	365.35
68	60/233	-411.32	74.41	22.05	116.82	257.73	116.82
69	60/117	-419.92	-4.30	5.84	212.56	214.61	212.56
70	60/187	-509.27	39.61	27.59	241.77	278.69	241.77
71	60/143	-399.37	55.31	69.93	260.93	217.14	217.14
72	60/719	-1029.95	290.54	222.65	2430.93	699.76	699.76
73	60/160	-170.90	15.87	10.86	83.51	132.36	83.51
74	60/140	-235.88	9.85	12.32	171.54	150.35	150.35
75	20/610	-664.69	536.57	173.77	440.97	347.21	347.21
76	45/60	-292.36	-0.75	1.39	56.32	122.51	56.32
77	45/60	-275.62	-2.35	-0.49	6.62	119.43	6.62
78	60/635	-1031.53	1424.86	766.13	1473.64	627.86	627.86
79	1010/60	-865.06	187.35	430.06		240.10	551.16
80	60/310	-274.53	205.79	206.45	388.91	205.86	205.86
81	1150/60	-971.76	190.35	451.32		270.01	640.21
82	55/885	-1561.15	2235.24	860.15	2144.48	948.96	948.96
83	55/885	-1293.22	1931.52	718.04	1786.69	839.74	839.74
84	1045/60	-1144.72	178.38	428.94		310.56	746.79
85	60/310	-378.16	91.16	124.01	699.63	275.26	275.26
86	1130/60	-1509.80	78.84	167.16		400.08	848.25
87	60/678	-1222.62	729.06	118.90	553.53	760.25	553.53
88	50/885	-1394.69	1229.81	446.75	1816.05	852.88	852.88
89	30/545	-913.93	477.73	157.83	545.59	474.57	474.57
90	1185/25	-2191.15	52.91	124.61		167.73	395.02
91	25/635	-745.60	590.24	154.66	444.71	404.07	404.07
92	1150/25	-1768.27	75.46	181.39		149.79	360.07
93	60/90	-266.51	52.07	116.29	188.16	137.16	137.16
94	30/885	-1087.50	1173.27	480.02	1482.79	612.00	612.00
				17245.67			36657.16
$\lambda = \Sigma_Ved/\Sigma_Vrd = 17245.67/36657.16 = 0.47 \quad OK$							

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-474.42	36.19	19.08			117.75	62.10
2	190/60	-378.76	-8.52	-4.80			93.84	52.92
3	240/60	-708.16	84.05	48.51			157.69	91.01
4	175/60	-340.26	50.15	28.48			84.74	48.13
5	165/60	-272.73	-9.28	-5.20			70.01	39.26
6	165/60	-256.88	-8.15	-5.12			66.59	41.80
7	165/60	-135.95	26.59	12.97			37.85	18.46
8	125/60	-277.56	18.78	8.93			67.12	31.92
9	55/60	-311.84	-4.56	-3.82	33.69	141.22		33.69
10	55/60	-331.90	-5.45	-4.17	30.02	145.04		30.02
11	135/60	-282.16	9.95	4.30			69.19	29.92
12	175/60	-254.62	10.80	4.52			66.68	27.90
13	135/60	-230.00	-7.40	-5.18			58.73	41.09
14	155/60	-252.67	-8.31	-5.74			65.01	44.85
15	170/60	-171.27	33.60	19.40			46.86	27.06
16	240/60	-438.96	30.34	16.70			110.65	60.91
17	190/60	-243.88	14.03	7.51			64.96	34.74
18	230/60	-387.06	5.83	1.68			99.05	28.57
19	560/60	-540.63	98.68	57.63			148.51	86.74
20	465/60	-363.67	194.76	113.94			101.65	59.46
21	375/60	-607.47	-10.66	11.02			156.46	161.76
22	380/60	-1176.52	107.91	105.48			257.50	251.72
23	700/60	-1249.41	51.20	30.39			316.39	187.81
24	265/60	-407.65	64.77	39.17			105.86	64.02
25	255/60	-477.47	-8.11	-5.38			119.81	79.48
26	500/60	-1575.26	56.47	25.72			342.53	156.02
27	240/45	-652.45	40.69	22.52			100.32	55.53

28	240/45	-639.51	-5.65	-4.23			99.24	74.30
29	235/65	-672.95	49.63	27.31			168.21	92.56
30	265/65	-698.18	-9.69	-8.55			178.71	157.64
31	145/60	-157.60	49.28	27.75			42.79	24.09
32	165/60	-247.72	-5.98	-3.39			64.57	36.59
33	150/60	-233.37	37.46	21.25			60.50	34.32
34	290/60	-468.94	103.57	58.90			120.81	68.70
35	1160/60	-1731.08	191.30	117.65			451.63	277.75
36	880/30	-792.52	38.31	22.29			100.17	58.28
37	2949/60	-2085.21	536.92	319.26			586.93	349.00
38	60/195	-260.55	203.06	100.36	108.98	127.97		108.98
39	60/164	-269.89	208.18	92.39	82.17	47.06		47.06
40	60/290	-523.29	480.11	263.91	341.48	273.22		273.22
41	60/110	-156.02	62.89	36.78	42.96	79.94		42.96
44	60/209	-747.25	286.67	94.59	165.42	378.40		165.42
45	60/190	-531.98	248.78	132.31	192.66	270.45		192.66
46	60/303	-191.86	290.90	167.67	156.71	0.00		0.00
47	60/888	-1606.39	4431.47	1410.78	1858.03	844.32		844.32
48	35/610	-867.02	1558.58	650.70	833.81	434.47		434.47
49	60/332	-972.45	905.88	409.51	515.04	476.40		476.40
50	60/338	-183.72	884.48	400.90	132.88	0.00		0.00
51	95/192	-482.72	291.42	118.90	158.91	260.78		158.91
52	65/480	-1028.63	1669.93	614.09	727.44	512.40		512.40
53	60/670	-1125.63	2149.81	965.65	1407.96	623.07		623.07
54	60/192	-333.56	88.39	29.84	89.24	210.22		89.24
55	40/620	-800.54	713.71	367.57	1029.45	485.55		485.55
56	40/620	-908.15	727.69	282.10	850.50	528.59		528.59
57	60/460	-618.92	700.68	292.80	514.46	387.71		387.71
58	35/513	-284.73	453.05	331.15	482.80	182.06		182.06
59	60/680	-1137.51	1081.89	417.64	1242.13	727.01		727.01
60	35/620	-783.07	623.84	352.74	1074.08	457.89		457.89
61	60/300	-449.03	100.39	36.86	210.12	299.61		210.12
62	40/533	-338.60	402.91	151.18	306.19	253.45		253.45
63	390/30	-192.07	4.41	2.24			26.33	13.35
64	265/30	-115.05	4.61	2.39			15.95	8.28
65	60/30	-23.03	1.68	1.00			3.22	1.93
66	60/370	-299.04	375.58	93.26	126.21	190.90		126.21
67	60/310	-476.57	241.18	83.61	216.54	314.63		216.54
68	60/233	-377.06	68.62	21.15	113.37	244.02		113.37
69	60/117	-396.01	-1.93	0.29	23.15	205.05		23.15
70	60/187	-442.14	36.02	18.76	164.64	251.84		164.64
71	60/143	-380.98	49.51	19.62	79.39	209.78		79.39
72	60/719	-966.67	467.38	173.44	1116.28	674.45		674.45
73	60/160	-149.78	7.31	2.15	31.96	123.91		31.96
74	60/140	-217.40	0.32	4.52	1830.38	142.96		142.96
75	20/610	-516.81	664.91	231.11	408.01	277.26		277.26
76	45/60	-286.42	-1.82	-1.51	25.62	121.42		25.62
77	45/60	-269.68	-2.47	-2.71	35.32	118.31		35.32
78	60/635	-900.69	2124.51	842.19	972.10	458.22		458.22
79	1010/60	-835.21	241.37	136.62			232.46	131.58
80	60/310	-250.76	506.67	253.35	178.56	0.00		0.00
81	1150/60	-1002.02	234.24	133.56			277.73	158.35
82	55/885	-1085.08	2245.71	882.50	1633.34	693.13		693.13
83	55/885	-957.39	1996.95	733.12	1370.91	640.27		640.27
84	1045/60	-1208.23	171.98	101.39			325.86	192.12
85	60/310	-353.08	279.44	138.13	239.56	232.26		232.26
86	1130/60	-1381.26	89.75	49.03			370.14	202.22
87	60/678	-1112.09	635.70	93.48	463.05	716.03		463.05
88	50/885	-898.92	1671.87	585.00	1221.43	616.08		616.08
89	30/545	-584.25	588.25	244.32	518.83	336.79		336.79
90	1185/25	-1839.93	14.12	7.17			155.13	78.78
91	25/635	-553.02	568.62	150.51	367.19	327.04		327.04
92	1150/25	-1400.57	30.68	18.53			130.37	78.76
93	60/90	-163.26	69.84	41.84	36.00	20.80		20.80
94	30/885	-694.32	1735.25	675.85	1008.03	393.27		393.27
			14573.14					17178.77
$\lambda = \Sigma_Ved/\Sigma_Vrd = 14573.14/17178.77 = 0.85 \quad OK$								

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-170.31	6.69	19.23			30.89	88.77
2	190/40	-204.33	8.82	13.95			35.11	55.56
3	240/40	-362.63	24.18	59.81			58.17	143.84
4	175/40	-246.60	14.70	36.57			40.21	100.04
5	165/40	-130.25	9.29	15.66			23.36	39.39
6	165/40	-117.50	10.42	17.93			21.31	36.68
7	110/40	-167.44	12.79	23.42			26.81	49.09
8	125/40	-210.10	19.43	38.88			32.77	65.57
9	35/40	-131.03	7.30	12.36	19.33	59.67		19.33
10	35/40	-134.91	7.33	12.24	18.89	60.41		18.89
11	135/40	-154.08	8.53	17.36			26.21	53.33

12	155/40	-70.48	7.55	14.56			13.26	25.55
13	135/40	-109.92	11.19	18.70			19.64	32.81
14	155/40	-119.19	12.15	20.26			21.44	35.73
15	150/40	53.35	23.83	53.76			0.00	0.00
16	240/40	-237.47	23.95	58.48			41.34	100.95
17	190/40	-125.53	46.05	53.28			22.93	26.54
18	230/40	-241.26	3.38	8.22			41.62	101.32
19	120/40	-324.44	10.98	29.70			41.90	113.41
20	255/40	95.64	70.06	171.71			0.00	0.00
21	375/40	-237.11	32.84	32.74			43.49	43.36
22	380/40	-428.86	110.15	74.30			73.09	49.30
23	700/40	-499.46	54.17	121.95			90.55	203.84
24	265/40	-282.31	26.57	23.13			48.58	42.29
25	255/40	-233.31	13.25	19.18			41.07	59.46
26	500/40	-683.79	47.72	54.96			112.25	129.29
27	240/40	-308.88	39.00	33.42			51.36	44.01
28	240/40	-332.29	10.98	19.67			54.40	97.47
29	235/40	-330.08	28.82	26.47			53.87	49.47
30	265/40	-247.15	22.89	27.32			43.39	51.79
31	145/30	-346.03	8.84	17.77			30.27	60.85
32	165/30	-45.57	6.30	10.34			6.51	10.68
33	150/30	-213.84	6.50	11.75			24.09	43.53
34	965/30	-594.77	81.88	209.19			79.61	203.40
35	939/35	539.85	205.31	430.05			0.00	0.00
36	40/195	-225.82	-33.27	86.22	472.31	142.45		142.45
37	40/164	-95.55	-41.19	66.66	115.94	69.47		69.47
38	40/290	-56.26	-63.08	114.83	144.15	48.80		48.80
39	40/90	-191.96	-4.18	-0.35	4.88	100.78		4.88
40	40/160	116.58	99.09	253.35	0.00	0.00		0.00
41	40/229	50.06	-55.41	-10.02	0.00	0.00		0.00
42	40/209	-466.48	-106.70	12.74	38.70	242.39		38.70
43	40/190	-176.31	-55.96	121.23	311.43	120.98		120.98
44	40/303	-125.75	29.88	99.00	591.19	131.02		131.02
45	40/888	-641.06	1202.77	817.49	1724.11	461.52		461.52
46	40/332	-698.77	-21.22	71.04	2651.36	368.04		368.04
47	40/338	-20.58	330.23	146.79	15.30	0.00		0.00
48	35/670	-682.06	1316.20	628.61	899.97	372.24		372.24
49	40/172	-171.16	47.37	35.93	94.91	114.33		94.91
50	35/680	-94.59	177.22	500.13	885.84	144.69		144.69
51	40/590	-793.19	316.42	392.70	2315.82	474.61		474.61
52	40/440	-316.56	272.14	257.41	587.35	233.85		233.85
53	35/680	-658.74	674.01	493.61	1366.64	422.16		422.16
54	40/370	-85.15	82.02	68.53	127.05	105.00		105.00
55	40/310	-280.50	57.65	78.48	511.17	194.87		194.87
56	40/233	-237.43	-14.09	68.42	1137.20	157.11		157.11
57	40/117	-290.64	52.34	69.13	139.79	147.35		139.79
58	40/187	-224.21	67.85	59.20	150.31	139.67		139.67
59	40/143	-149.17	16.44	47.12	258.65	97.93		97.93
60	40/719	-394.61	325.16	249.28	998.32	349.70		349.70
61	40/140	-138.86	-18.12	-8.85	40.39	92.88		40.39
62	40/40	-125.74	6.66	11.40	22.66	60.96		22.66
63	40/40	71.33	7.98	14.64	0.00	0.00		0.00
64	40/635	-513.72	796.83	421.29	757.24	335.40		335.40
65	990/40	-402.45	86.22	224.19			76.20	198.15
66	40/310	-27.11	58.22	173.45	123.55	0.00		0.00
67	1150/40	-551.04	110.49	225.64			103.29	210.93
68	1045/40	-893.45	90.23	151.14			158.67	265.78
69	40/290	-242.75	247.47	44.98	55.91	131.54		55.91
70	1110/40	-657.54	20.21	30.79			121.30	184.83
71	40/678	-658.07	541.36	4.22	14.83	444.03		14.83
72	40/635	-247.16	-219.71	309.17	1039.50	268.20		268.20
73	1185/40	-1313.39	178.49	154.66			224.53	194.56
74	1150/40	-1593.11	178.82	295.59			260.79	431.09
75	30/35	-194.31	14.92	9.25	151.78	121.14	60.71	121.14
76	30/35	-206.35	14.44	8.91	154.90	123.40	61.96	123.40
77	30/35	-172.33	15.39	8.20	146.45	117.33	58.58	117.33
78	30/35	-160.27	11.07	6.55	143.07	114.97	57.23	114.97
79	30/35	-163.08	11.55	6.37	139.50	112.51	55.80	112.51
80	30/35	-31.52	9.33	5.34	150.22	120.01	60.09	120.01
				8632.83				
								9439.99
$\lambda = \Sigma_Ved/\Sigma_Vrd = 8632.83/9439.99 = 0.91 \quad OK$								

Στάθμη 7

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	140/40	-150.69	5.88	3.34			27.66	15.73
2	190/40	-125.13	-1.95	-0.56			22.87	6.50
3	240/40	-230.94	8.72	5.27			40.36	24.39
4	175/40	-77.39	4.86	2.90			14.58	8.70
5	165/40	-88.96	-3.24	-0.96			16.54	4.89
6	165/40	-91.22	-4.09	-1.22			16.92	5.05

7	110/40	-101.32	-0.21	0.86			17.82	73.62
8	125/40	-59.23	-0.95	0.44			11.11	5.16
9	35/40	-112.98	-2.48	-0.75	3.49	54.52		3.49
10	35/40	-119.99	-2.35	-0.71	3.49	57.33		3.49
11	135/40	-104.79	3.13	2.03			18.83	12.19
12	155/40	-93.56	3.02	1.98			17.23	11.30
13	135/40	-79.06	-3.93	-1.18			14.60	4.37
14	155/40	-87.13	-4.18	-1.25			16.14	4.81
15	150/40	-57.12	10.80	6.50			10.85	6.53
16	240/40	-159.37	15.63	9.35			29.10	17.41
17	190/40	-87.43	6.03	1.98			16.43	5.39
18	230/40	-127.64	11.16	6.48			23.67	13.74
19	120/40	-79.24	9.57	5.66			14.48	8.56
20	255/40	-104.09	31.89	19.18			19.70	11.85
21	375/40	-204.11	8.34	3.17			37.91	14.42
22	380/40	-376.67	50.22	36.59			65.55	47.76
23	735/40	-416.85	36.85	25.16			77.17	52.68
24	265/40	-258.99	8.51	4.46			45.17	23.65
25	255/40	-210.87	-2.86	0.22			37.61	2.86
26	500/40	-397.49	4.81	10.32			71.22	152.95
27	240/40	-287.76	12.70	15.29			48.51	58.42
28	240/40	-311.17	-5.04	-0.63			51.66	6.46
29	235/40	-309.40	8.01	9.91			51.21	63.31
30	265/40	-223.83	3.25	7.22			39.81	88.61
31	145/30	-181.87	3.10	1.50			21.30	10.30
32	165/30	-66.62	-1.90	-0.60			9.29	2.94
33	150/30	-130.31	-3.78	-3.32			16.58	14.55
34	965/30	-426.17	32.45	19.02			58.99	34.57
35	939/35	93.49	66.21	38.97			0.00	0.00
36	40/195	-89.36	206.15	112.27	44.28	0.00		0.00
37	40/164	-129.80	116.77	62.88	50.59	0.00		0.00
38	40/290	-185.46	306.66	180.98	143.41	0.00		0.00
39	40/90	-63.14	32.36	19.03	14.94	0.00		0.00
40	40/160	-102.43	187.60	91.42	36.12	0.00		0.00
41	40/229	-35.46	-37.99	-30.88	32.29	20.24		20.24
42	40/209	-243.94	0.83	-11.66	2949.61	153.37		153.37
43	40/190	-223.18	127.85	79.79	108.64	119.30		108.64
44	40/303	-149.39	51.21	63.63	260.07	140.48		140.48
45	40/888	-619.14	1714.77	931.64	1336.64	381.29		381.29
46	40/332	-495.01	485.02	260.33	341.97	252.42		252.42
47	40/338	-126.98	420.49	126.70	60.92	0.00		0.00
48	35/670	-410.38	1556.31	692.01	546.81	0.00		0.00
49	40/172	-121.97	34.63	24.37	65.93	94.65		65.93
50	35/680	-239.72	841.93	540.74	491.69	0.00		0.00
51	40/590	-480.19	717.09	422.69	732.59	308.61		308.61
52	40/440	-206.61	505.87	296.20	247.31	0.00		0.00
53	35/680	-503.71	979.99	377.19	575.10	303.30		303.30
54	40/370	-110.84	115.29	45.18	76.73	109.13		76.73
55	40/310	-187.25	81.29	38.81	125.95	157.57		125.95
56	40/233	-264.55	36.89	64.20	444.65	167.95		167.95
57	40/117	-105.79	27.87	22.34	42.68	67.89		42.68
58	40/187	-172.11	66.22	45.04	94.54	113.05		94.54
59	40/143	-150.13	34.44	17.47	46.03	98.31		46.03
60	40/719	-295.24	293.07	268.47	912.74	309.95		309.95
61	40/140	-97.93	11.43	10.42	55.91	76.51		55.91
62	40/40	-17.58	-1.70	-0.39	0.76	15.32		0.76
63	40/40	-21.34	-3.00	-0.91	1.19	13.29		1.19
64	40/635	-338.14	766.39	319.75	411.98	207.94		207.94
65	990/40	-325.01	73.22	43.11			62.21	36.63
66	40/310	-96.57	413.38	223.01	76.97	0.00		0.00
67	1150/40	-648.24	81.04	44.52			120.07	65.97
68	1045/40	-780.93	59.10	26.22			140.89	62.52
69	40/290	-219.67	273.26	59.26	61.20	104.35		61.20
70	1110/40	-596.13	4.77	-2.69			110.84	62.54
71	40/678	-430.76	80.36	-147.45	2422.97	353.11		353.11
72	40/635	-325.50	866.12	592.77	652.68	171.33		171.33
73	1185/40	-1209.11	57.05	75.62			209.49	277.69
74	1150/40	-1163.73	134.21	86.06			201.89	129.46
75	30/35	-192.00	7.54	7.52	35.88	65.63	60.10	35.88
76	30/35	-204.04	7.33	7.18	36.63	67.90	61.36	36.63
77	30/35	-170.02	8.86	6.43	34.59	61.80	57.94	34.59
78	30/35	-157.96	5.84	4.73	33.78	59.43	56.57	33.78
79	30/35	-160.77	6.47	4.58	32.92	56.96	55.13	32.92
80	30/35	-29.21	5.08	3.56	35.50	64.50	59.47	35.50
			6330.81					5114.31

λ = Σ_Ved/Σ_Vrd = 6330.81/5114.31 = 1.24 Ανεπάρκεια

Σεισμικός συνδυασμός 32: 1.10*G + 0.60*Q + 1.21*Σx2 + 0.36*Σy2

Στάθμη 3

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-504.22	190.32	80.48	201.86	297.69		201.86

2	190/60	-478.70	108.25	57.03	178.94	267.48	178.94
3	240/60	-481.75	200.90	99.78	229.23	286.66	229.23
4	175/60	-441.00	97.10	48.84	144.97	246.40	144.97
5	165/60	-482.06	68.86	35.59	145.24	258.82	145.24
6	165/60	-473.14	69.08	38.78	156.00	255.26	156.00
7	165/60	-305.42	73.86	37.46	104.02	188.17	104.02
8	250/60	-550.23	159.77	66.62	223.38	320.09	223.38
9	95/60	-470.76	10.24	2.35	25.80	226.30	25.80
10	90/60	-395.29	30.79	23.18	74.83	194.11	74.83
11	245/60	-485.31	180.01	75.19	198.90	292.12	198.90
12	175/60	-467.24	87.84	38.24	130.25	256.89	130.25
13	135/60	-429.65	43.56	24.14	109.33	225.86	109.33
14	155/60	-460.51	61.22	35.31	144.43	246.20	144.43
15	170/60	-361.43	87.04	48.22	133.84	212.57	133.84
16	240/60	-347.13	163.58	84.29	183.45	226.30	183.45
17	190/60	-367.04	100.60	56.74	158.50	222.82	158.50
18	230/60	-470.22	124.36	39.52	136.54	280.09	136.54
19	560/60	-1472.13	914.98	348.83	1156.49	812.85	812.85
20	465/60	-1310.49	600.05	264.35	962.28	710.20	710.20
21	375/60	-964.61	364.07	219.88	810.09	535.84	535.84
22	380/60	-935.68	409.85	188.90	616.73	526.27	526.27
23	700/60	-1704.35	1414.84	514.17	1637.63	961.74	961.74
24	265/60	-787.44	199.52	114.94	421.66	420.97	420.97
25	255/60	-814.06	166.40	110.49	468.19	427.62	427.62
26	500/60	-1438.24	824.76	252.03	781.29	775.30	775.30
27	480/65	-533.66	675.65	308.11	523.85	360.88	360.88
28	380/65	-958.39	513.87	153.83	417.65	548.02	417.65
29	240/65	-774.08	159.51	85.57	349.27	413.63	349.27
30	65/65	-153.62	6.72	5.64			33.93
31	215/65	-273.72	128.96	85.07	171.19	187.99	171.19
32	110/65	-193.71	36.48	19.03	46.50	124.50	46.50
33	450/65	-1121.43	548.38	311.03	1100.41	643.57	643.57
34	265/65	-700.14	203.56	118.61	408.12	394.89	394.89
35	120/60	-288.11	34.16	26.62	102.25	163.24	102.25
36	290/60	-402.87	201.82	136.97	341.13	275.03	275.03
37	345/60	-950.78	392.13	86.50	261.65	518.31	261.65
38	165/60	-533.91	61.50	18.71	90.44	279.57	90.44
39	150/60	-406.82	50.03	16.11	71.48	222.73	71.48
40	290/60	-622.27	274.45	118.62	305.93	364.91	305.93
41	1140/60	-3330.75	4006.90	929.05	3110.07	1788.30	1788.30
42	880/60	-1077.18	2865.10	636.51	923.47	639.69	639.69
43	3769/60	-5465.42	6517.41	3233.37	43654.69	3693.77	3693.77
44	445/60	-764.25	575.07	301.28	737.17	482.40	482.40
45	60/195	-408.14	19.50	9.66			49.57
							100.11
46	60/164	-493.75	8.80	2.47			30.67
47	60/290	-619.18	41.88	22.65			81.74
48	60/110	-248.22	15.07	8.13			32.24
49	60/160	-133.52	21.46	11.91			20.61
50	60/229	-285.14	10.69	2.97			21.17
51	60/209	-655.15	20.73	14.90			102.63
52	60/190	-426.20	32.91	19.82			61.91
53	60/273	-770.98	-166.48	-57.88			60.56
54	60/888	-2170.35	95.07	50.45			271.74
55	45/630	-1124.26	22.24	10.09			90.91
56	60/900	-1361.54	115.62	63.62			195.05
57	95/192	-603.21	58.35	30.14			122.38
58	40/513	-688.94	15.79	8.48			61.02
59	65/630	-1368.66	83.84	43.59			190.76
60	60/670	-1762.16	76.41	41.54			221.37
61	60/645	-860.40	62.74	37.26			135.43
62	60/192	-456.27	17.39	8.41			52.46
63	40/620	-1378.44	36.31	21.19			114.03
64	60/680	-1143.74	99.87	58.03			170.09
65	40/620	-1070.27	28.93	16.07			91.99
66	60/460	-800.71	46.46	25.87			113.43
67	35/513	-774.07	11.50	6.53			59.56
68	60/680	-2468.58	84.23	46.55			279.49
69	35/620	-1056.81	16.70	9.40			77.50
70	60/300	-504.20	42.14	23.38			71.61
71	40/533	-691.56	16.58	9.50			65.78
72	390/30	-429.91	228.71	118.08	336.97	249.96	249.96
73	265/30	-283.11	94.93	56.22	174.48	166.25	166.25
74	60/30	-69.50	3.21	1.83	9.11	39.80	9.11
75	60/370	-759.49	102.20	54.21			99.19
76	60/310	-664.86	37.17	20.02			87.30
77	60/233	-572.04	19.58	6.57			45.25
78	60/57	-263.65	4.38	1.45	13.93	128.11	13.93
79	60/187	-714.02	9.69	2.64			38.96
80	60/143	-605.36	10.69	6.30			67.60
81	60/264	-218.23	85.05	25.43			18.17
82	60/468	-1807.45	31.87	17.31			195.26
83	60/107	-245.56	16.56	9.76			34.72
84	60/160	-312.50	19.76	10.74			42.26

85	60/140	-373.24	15.26	8.13			85.90	45.80
86	35/630	-737.40	10.64	4.52			106.43	45.19
87	40/495	-742.13	13.87	6.72			119.27	57.75
88	670/25	-409.79	382.42	216.86	663.70	275.58		275.58
89	65/250	-483.26	41.64	24.10			132.58	76.73
90	340/60	-633.98	324.26	206.21	557.04	389.59		389.59
91	56/56	-83.34	1.06	0.11			20.09	2.15
92	56/56	-149.60	1.85	1.19			31.42	20.22
93	56/56	-150.15	2.32	1.85			31.49	25.01
94	56/56	-88.47	2.84	2.67			21.11	19.80
95	45/70	-337.34	19.70	17.63	119.43	273.85	210.19	119.43
96	45/70	-241.16	13.47	7.62	115.90	262.94	203.99	115.90
97	60/635	-674.24	103.69	56.73			183.51	100.40
98	1010/60	-2162.79	4000.90	896.21	1920.32	1249.13		1249.13
99	60/310	-807.98	61.01	34.82			187.21	106.84
100	1150/60	-3308.72	5581.96	1108.30	2685.74	1783.49		1783.49
101	55/885	-2063.17	99.76	59.52			441.34	263.31
102	55/885	-1672.27	129.39	71.83			377.07	209.33
103	1045/60	-2761.67	3857.18	940.33	2583.94	1522.67		1522.67
104	60/310	-826.82	51.85	29.87			190.26	109.58
105	1130/60	-2771.99	4684.49	961.36	2422.15	1560.80		1560.80
106	60/678	-1778.95	91.84	50.03			411.37	224.11
107	50/885	-1785.74	77.91	42.74			352.02	193.11
108	30/545	-694.65	13.59	7.74			81.00	46.17
109	1185/50	-2253.84	3548.88	783.05	2270.99	1296.54		1296.54
110	25/635	-572.94	8.09	4.68			58.07	33.62
111	1150/25	-1640.38	1981.42	376.18	1174.94	847.82		847.82
112	60/90	-233.81	14.03	7.81			54.23	30.20
113	30/885	-1161.28	21.58	12.10			134.26	75.26
114	40/40	-524.37	6.09	3.42	81.81	174.15	143.99	81.81
115	40/40	-411.94	6.92	4.93	79.12	165.00	139.24	79.12
				16320.52				32899.21
$\lambda = \Sigma_Ved/\Sigma_Vrd = 16320.52/32899.21 = 0.50 \quad OK$								

Στάθμη 4

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-309.94	6.46	24.44	1223.97	219.98		219.98
2	190/60	-307.77	32.89	44.51	331.33	199.11		199.11
3	240/60	-233.72	44.03	57.01	327.61	189.49		189.49
4	175/60	-311.16	20.39	29.69	325.66	194.46		194.46
5	165/60	-295.94	16.12	16.88	209.60	184.38		184.38
6	165/60	-307.41	31.71	30.06	195.42	188.96		188.96
7	165/60	-361.48	63.23	24.98	91.90	210.59		91.90
8	125/60	-33.07	15.99	10.47	13.18	30.20		13.18
9	55/60	-334.95	-3.86	-4.28			43.11	47.80
10	55/60	-363.77	24.69	48.30			42.24	82.64
11	135/60	-271.86	14.75	14.40	142.83	162.74		142.83
12	175/60	-414.50	13.26	20.12	419.47	235.80		235.80
13	135/60	-282.73	17.89	18.53	156.09	167.09		156.09
14	155/60	-306.36	26.47	26.80	192.70	184.54		184.54
15	170/60	-203.46	27.88	27.75	151.42	149.38		149.38
16	240/60	-256.31	-5.45	-0.66	33.09	198.53		33.09
17	190/60	-218.46	23.61	14.88	115.69	163.38		115.69
18	230/60	-324.71	-13.55	4.96	117.37	221.89		117.37
19	560/60	-1077.57	231.54	262.35	2757.90	655.03		655.03
20	465/60	-858.77	442.22	153.62	564.91	529.51		529.51
21	375/60	-573.41	364.25	193.74	484.01	378.13		378.13
22	380/60	-566.66	267.73	139.11	475.62	378.67		378.67
23	700/60	-1114.89	885.70	435.04	1610.03	725.96		725.96
24	265/60	-463.65	183.70	108.03	297.79	291.46		291.46
25	255/60	-522.66	233.35	120.35	272.93	308.49		272.93
26	500/60	-1145.97	305.31	177.62	1283.00	658.39		658.39
27	240/45	-559.94	90.93	50.06	254.32	295.97		254.32
28	240/45	-446.09	108.12	59.19	220.12	250.44		220.12
29	235/65	-541.68	192.83	172.12	446.70	318.51		318.51
30	265/65	-486.21	211.85	90.88	229.34	309.32		229.34
31	145/60	-292.92	9.25	26.38	482.91	175.17		175.17
32	165/60	-323.65	4.49	10.90	519.90	195.46		195.46
33	150/60	-256.26	23.89	25.61	170.72	162.50		162.50
34	290/60	-395.92	126.03	96.10	377.71	274.37		274.37
35	1160/60	-2401.89	1197.11	811.98	7483.80	1424.76		1424.76
36	880/30	-657.35	803.62	292.82	895.74	438.94		438.94
37	2949/60	-3104.01	4838.00	1373.46	11619.52	2421.20		2421.20
38	60/195	-294.71	4.79	13.05			76.77	209.10
39	60/164	-288.50	-0.02	9.82			73.28	32712.38
40	60/290	-388.83	33.67	84.14			102.99	257.39
41	60/110	-212.47	16.66	41.55			52.97	132.13
42	60/160	-73.34	8.84	10.85			21.12	25.95
43	60/229	-76.43	4.48	5.92			22.26	29.39
44	60/209	-761.57	29.13	20.65			155.83	110.46
45	60/190	-475.88	35.20	26.63			111.47	84.33

46	60/303	-578.91	36.64	-44.41				144.66	175.35
47	60/888	-1456.20	54.36	118.96				374.28	819.04
48	35/610	-705.34	15.11	33.10				102.06	223.59
49	60/332	-727.56	50.34	132.53				176.49	464.65
50	60/338	-550.19	12.51	42.74				141.56	483.73
51	95/192	-616.97	41.20	36.76				241.11	215.11
52	65/480	-866.69	41.03	65.04				240.67	381.49
53	60/670	-1375.92	98.67	197.46				338.73	677.88
54	60/192	-271.51	6.21	12.42				71.39	142.68
55	40/620	-918.42	54.01	155.70				148.03	426.74
56	40/620	-573.50	50.81	136.03				100.80	269.87
57	60/460	-536.17	15.16	26.84				144.47	255.73
58	35/513	-524.50	15.99	34.27				77.74	166.58
59	60/680	-2081.83	113.66	327.07				457.54	1316.58
60	35/620	-717.40	39.22	100.70				103.79	266.51
61	60/300	-503.45	59.13	37.60				128.90	81.97
62	40/533	-412.07	15.05	30.51				74.07	150.09
63	390/30	-199.99	122.14	72.60	207.92	158.00			158.00
64	265/30	-134.53	72.20	42.20	93.55	101.11			93.55
65	60/30	-49.43	2.41	4.34	22.24	31.77			22.24
66	60/370	-499.21	27.40	71.56				132.11	345.10
67	60/310	-446.14	17.24	37.37				117.02	253.68
68	60/233	-367.03	-3.30	9.29				94.96	267.26
69	60/117	-533.84	0.96	5.92				96.12	590.92
70	60/187	-481.20	2.27	13.09				111.99	645.51
71	60/143	-486.34	45.23	37.32				102.70	84.75
72	60/719	-1486.05	6.22	92.16				365.38	5414.86
73	60/160	-164.25	30.47	20.32				44.86	29.91
74	60/140	-150.65	-226.86	-81.79				40.95	14.76
75	20/610	-463.30	4.82	11.49				37.11	88.37
76	45/60	-137.04	6.94	4.30				22.63	14.04
77	45/60	-130.10	2.53	2.62				21.88	22.61
78	60/635	-457.82	109.53	267.23				128.70	313.98
79	1010/60	-1524.23	1688.11	614.87	2378.66	1013.69			1013.69
80	60/310	-587.74	81.79	203.56				147.12	366.15
81	1150/60	-2483.89	2454.07	759.95	3463.22	1453.56			1453.56
82	55/885	-1473.23	149.09	387.10				340.87	885.05
83	55/885	-1134.41	162.05	405.69				273.86	685.58
84	1045/60	-1952.27	1341.60	741.93	4582.52	1198.91			1198.91
85	60/310	-604.43	80.36	201.43				150.45	377.13
86	1130/60	-2006.92	2123.26	728.49	3196.37	1254.77			1254.77
87	60/678	-1362.79	111.81	256.38				337.06	772.88
88	50/885	-1401.32	120.92	280.62				292.19	678.09
89	30/545	-630.84	33.39	83.23				75.49	188.19
90	1185/25	-1573.96	1330.86	410.98	1957.69	827.09			827.09
91	25/635	-514.06	31.25	78.53				53.35	134.09
92	1150/25	-1383.13	1236.61	292.43	1335.38	744.92			744.92
93	60/90	-160.02	19.92	49.05				40.55	99.85
94	30/885	-973.84	51.51	127.61				118.00	292.31
				12895.97					71961.96

λ = Σ_Ved/Σ_Vrd = 12895.97/71961.96 = 0.18 OK

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-275.00	24.37	19.20	230.03	206.00		206.00
2	190/60	-257.81	45.72	30.47	140.97	179.12		140.97
3	240/60	-289.80	82.82	50.15	185.01	211.92		185.01
4	175/60	-254.38	45.60	27.97	116.59	171.75		116.59
5	165/60	-238.61	26.46	10.89	69.24	161.44		69.24
6	165/60	-255.60	42.79	17.84	74.24	168.24		74.24
7	165/60	-279.41	26.64	8.38	60.17	177.76		60.17
8	125/60	-142.43	16.23	6.34	30.82	106.97		30.82
9	55/60	-304.44	4.01	2.82			43.24	30.42
10	55/60	-327.40	11.42	6.55			43.22	24.79
11	135/60	-190.48	23.40	16.75	79.00	130.19		79.00
12	175/60	-333.26	29.72	21.22	168.37	203.30		168.37
13	135/60	-232.58	26.58	12.27	59.92	147.03		59.92
14	155/60	-253.93	40.22	18.08	73.91	163.57		73.91
15	170/60	-212.57	41.16	26.19	100.54	153.03		100.54
16	240/60	-207.45	-36.90	-24.79	152.72	178.98		152.72
17	190/60	-172.08	-1.27	3.60	422.01	144.83		144.83
18	230/60	-275.91	5.90	-8.49	401.31	202.36		202.36
19	560/60	-831.10	275.10	312.74	2251.13	556.44		556.44
20	465/60	-753.49	248.70	166.83	983.86	487.40		487.40
21	375/60	-523.91	224.81	178.74	671.43	359.56		359.56
22	380/60	-516.50	154.54	124.16	680.80	358.60		358.60
23	700/60	-1149.49	664.74	399.53	2019.24	739.80		739.80
24	265/60	-441.31	144.34	106.28	358.54	282.53		282.53
25	255/60	-489.00	137.17	109.92	403.35	297.60		297.60
26	500/60	-1079.97	157.49	157.13	2109.34	631.99		631.99
27	240/45	-504.17	12.97	52.36	1754.69	273.67		273.67

28	240/45	-422.33	60.27	51.33	329.92	240.93		240.93
29	235/65	-554.63	210.88	106.29	256.60	323.69		256.60
30	265/65	-448.32	139.47	78.69	282.58	294.16		282.58
31	145/60	-190.58	27.45	30.59	133.65	134.23		133.65
32	165/60	-301.87	-8.64	3.01	70.75	186.75		70.75
33	150/60	-242.86	-3.42	18.18	809.73	157.14		157.14
34	290/60	-386.84	57.02	77.91	663.73	270.73		270.73
35	1160/60	-2124.61	1366.96	759.98	5590.58	1313.84		1313.84
36	880/30	-374.82	696.44	276.35	598.40	302.44		302.44
37	2949/60	-2760.63	4164.34	1409.75	12484.26	2283.85		2283.85
38	60/195	-274.06	4.00	2.63		72.15		47.43
39	60/164	-251.52	-5.73	0.68		65.37		7.73
40	60/290	-419.35	36.61	23.46		109.91		70.44
41	60/110	-244.45	13.91	8.91		59.08		37.83
44	60/209	-704.72	14.42	-0.16		149.22		1.63
45	60/190	-413.37	21.82	12.12		100.40		55.78
46	60/303	-515.77	68.96	8.02		131.70		15.33
47	60/888	-1371.61	50.60	30.56		355.97		214.97
48	35/610	-731.51	8.00	6.95		105.03		91.18
49	60/332	-723.10	51.65	31.44		175.66		106.95
50	60/338	-538.14	22.88	19.39		138.96		117.78
51	95/192	-447.05	22.13	8.53		185.07		71.34
52	65/480	-569.74	17.14	16.54		167.44		161.56
53	60/670	-1238.55	53.31	34.48		311.57		201.50
54	60/192	-317.07	7.89	5.68		81.40		58.64
55	40/620	-657.27	46.19	26.59		113.20		65.18
56	40/620	-630.07	33.11	20.23		109.24		66.74
57	60/460	-483.92	7.69	5.06		131.84		86.77
58	35/513	-388.21	8.61	5.37		60.24		37.56
59	60/680	-1842.76	108.47	62.85		421.97		244.53
60	35/620	-645.54	17.82	10.12		95.36		54.14
61	60/300	-463.85	29.30	24.05		120.36		98.79
62	40/533	-317.28	6.29	4.29		58.51		39.88
63	390/30	-227.05	119.23	73.34	240.49	168.82		168.82
64	265/30	-138.23	51.83	42.84	135.52	108.29		108.29
65	60/30	-35.19	2.04	1.29	5.90	26.08		5.90
66	60/370	-440.17	62.26	36.65		118.33		69.65
67	60/310	-349.73	22.72	13.15		94.58		54.74
68	60/233	-310.49	-9.62	-5.59		82.30		47.80
69	60/117	-499.21	-3.96	-4.83		93.77		114.31
70	60/187	-409.84	-9.16	-5.49		99.47		59.64
71	60/143	-424.65	19.27	30.84		94.46		151.17
72	60/719	-1292.42	87.67	56.36		326.89		210.15
73	60/160	-143.13	14.45	13.19		39.58		36.12
74	60/140	-132.17	-161.39	-73.75		36.38		16.63
75	20/610	-430.76	-0.66	0.47		35.10		25.00
76	45/60	-131.10	3.29	2.48		21.99		16.59
77	45/60	-124.16	0.51	0.73		21.20		30.07
78	60/635	-451.28	95.62	55.78		126.98		74.07
79	1010/60	-1174.92	1930.04	714.41	1939.61	873.97		873.97
80	60/310	-459.40	65.07	38.12		119.98		70.28
81	1150/60	-2019.96	2883.90	886.31	2939.76	1267.99		1267.99
82	55/885	-1022.34	146.07	88.34		250.20		151.31
83	55/885	-826.57	137.49	79.77		207.08		120.14
84	1045/60	-1575.73	1683.75	756.77	3139.96	1048.29		1048.29
85	60/310	-456.91	60.17	35.46		119.43		70.38
86	1130/60	-1737.24	2277.32	801.84	2922.28	1146.90		1146.90
87	60/678	-1203.78	95.15	55.37		305.13		177.56
88	50/885	-900.65	80.35	46.88		201.14		117.36
89	30/545	-500.91	14.88	8.70		63.07		36.86
90	1185/25	-1578.94	1341.99	458.83	2171.13	829.08		829.08
91	25/635	-440.85	11.51	6.77		47.09		27.69
92	1150/25	-1338.07	1690.22	312.63	1023.93	726.90		726.90
93	60/90	-133.77	13.93	7.85		34.92		19.69
94	30/885	-559.77	21.18	12.21		74.69		43.06
			9580.72					21090.10
$\lambda = \Sigma_Ved/\Sigma_Vrd = 9580.72/21090.10 = 0.45 \quad OK$								

Στάθμη 6

ΠΕΣ	Διάστ.	Ned	Med	Ved	Vf	Vv	Mrdz	Vrd
	cm	KN	KNm	KN	KN	KN	KNm	KN
1	240/40	-45.31	-34.92	-13.65	20.65	52.46		20.65
2	190/40	-100.55	-45.42	19.18	37.12	80.08		37.12
3	240/40	-136.61	1.89	16.42	1305.03	118.64		118.64
4	175/40	-92.94	12.65	28.87	170.80	83.84		83.84
5	165/40	-97.37	-6.24	19.72	231.11	82.95		82.95
6	165/40	-116.16	-9.65	22.59	200.52	90.46		90.46
7	110/40	-203.02	-13.43	4.56	27.41	110.54		27.41
8	125/40	-154.05	-0.76	-3.91	404.50	94.95		94.95
9	35/40	-124.94	0.69	-2.80			11.64	46.99
10	35/40	-132.77	4.31	14.98			11.69	40.58

11	135/40	-104.92	7.91	23.41	184.98	77.97	77.97
12	155/40	-119.65	7.88	24.82	258.06	89.19	89.19
13	135/40	-112.01	-8.44	5.56	43.60	80.80	43.60
14	155/40	-120.24	-13.20	2.21	13.79	89.43	13.79
15	150/40	-180.84	46.20	33.57	80.65	111.89	80.65
16	240/40	-126.51	140.55	98.52	97.97	55.55	55.55
17	190/40	-107.24	71.60	92.38	120.27	65.48	65.48
18	230/40	-131.00	-10.53	-45.67	597.56	113.73	113.73
19	120/40	-194.52	22.73	-2.41	9.36	109.81	9.36
20	255/40	-258.21	50.49	98.99	547.02	171.28	171.28
21	375/40	-270.75	273.76	152.30	251.68	177.41	177.41
22	380/40	-289.49	133.53	65.63	239.31	217.13	217.13
23	700/40	-436.58	272.97	314.28	1593.96	361.30	361.30
24	265/40	-222.22	150.22	92.84	158.98	140.81	140.81
25	255/40	-223.06	172.93	95.96	137.02	129.20	129.20
26	500/40	-551.20	58.97	178.48	3478.03	353.81	353.81
27	240/40	-323.59	196.27	127.25	200.60	176.91	176.91
28	240/40	-281.30	107.96	41.26	106.22	176.52	106.22
29	235/40	-328.31	67.32	13.39	60.58	193.99	60.58
30	265/40	-143.99	77.48	49.37	111.60	120.54	111.60
31	145/30	-118.71	39.13	19.78	36.34	71.21	36.34
32	165/30	-89.15	-10.95	0.88	5.29	68.66	5.29
33	150/30	-148.23	33.00	32.15	86.80	89.29	86.80
34	965/30	-766.04	-536.89	319.26	1847.35	499.42	499.42
35	939/35	-65.95	-34.69	176.77	1558.75	245.48	245.48
36	40/195	-148.24	-4.36	-6.60		26.70	40.40
37	40/164	-114.40	-7.57	7.03		20.79	19.33
38	40/290	-214.36	12.52	16.03		38.72	49.55
39	40/90	-270.07	0.93	-2.62		32.78	92.35
40	40/160	122.80	-20.25	-1.91		0.00	0.00
41	40/229	7.54	0.11	3.52		0.00	0.00
42	40/209	-381.04	9.20	23.35		58.02	147.20
43	40/190	-222.14	-11.44	12.72		37.61	41.80
44	40/303	-287.66	72.37	10.91		50.37	7.59
45	40/888	-639.58	37.61	90.75		115.85	279.49
46	40/332	-405.03	42.98	90.12		68.06	142.72
47	40/338	-231.94	16.27	21.63		42.21	56.13
48	35/670	-863.51	58.17	167.93		121.95	352.03
49	40/172	-156.87	6.05	14.60		27.63	66.69
50	35/680	-18.50	74.87	217.87		3.23	9.39
51	40/590	-443.23	60.08	170.50		79.92	226.79
52	40/440	-201.38	30.10	59.16		37.86	74.42
53	35/680	-1018.95	67.12	181.69		138.31	374.41
54	40/370	-199.97	12.47	30.17		37.16	89.90
55	40/310	-190.21	36.89	33.92		34.98	32.17
56	40/233	-160.00	10.04	15.45		29.12	44.84
57	40/117	-353.62	24.36	82.63		42.63	144.60
58	40/187	-220.72	9.86	19.17		37.33	72.59
59	40/143	-173.48	77.92	54.27		29.20	20.34
60	40/719	-619.28	38.77	79.83		109.89	226.24
61	40/140	-53.63	89.77	52.26		10.19	5.93
62	40/40	-228.22	3.30	5.62		11.52	19.61
63	40/40	-36.45	2.12	4.03		6.42	12.17
64	40/635	-168.69	45.46	114.99		32.56	82.37
65	990/40	-417.69	284.61	324.10	2204.77	431.08	431.08
66	40/310	-210.11	36.53	88.95		38.29	93.25
67	1150/40	-1178.54	1194.07	389.89	1871.05	778.08	778.08
68	1045/40	-877.62	-232.44	357.97	6168.40	629.71	629.71

69	40/290	-174.52	33.27	80.76		32.15	78.05
70	1110/40	-861.90	260.55	391.59	6348.23	640.76	640.76
71	40/678	-712.94	56.58	138.32		122.94	300.54
72	40/635	-360.56	51.37	119.29		66.75	154.98
73	1185/40	-1337.56	505.71	424.91	5526.37	851.03	851.03
74	1150/40	-974.85	1733.86	251.17	708.29	696.61	696.61
75	30/35	-188.76	0.02	-0.15	145.25	132.12	58.10
76	30/35	-191.29	9.33	6.00	148.90	134.77	59.56
77	30/35	-165.10	-43.44	-20.70	139.03	127.68	55.61
78	30/35	-153.70	23.23	16.45	135.08	124.93	54.03
79	30/35	-182.54	1.61	1.00	130.93	122.06	52.37
80	30/35	-137.45	-0.45	0.01	143.43	130.81	57.37
				6255.47			12229.97

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 6255.47/12229.97 = 0.51 \quad OK$$

Στάθμη 7

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-76.72	-54.15	-28.41	45.98	70.22		45.98
2	190/40	-95.05	7.34	3.05	34.68	88.69		34.68
3	240/40	-128.09	9.59	21.61	318.50	115.24		115.24
4	175/40	-35.73	18.22	17.74	29.50	43.51		29.50
5	165/40	-77.44	8.13	2.66	19.41	74.98		19.41
6	165/40	-90.68	14.08	6.04	29.42	80.27		29.42

7	110/40	-84.19	7.90	4.84	25.11	63.01	25.11
8	125/40	-50.28	-17.21	-16.36	28.06	42.72	28.06
9	35/40	-110.85	-0.75	-0.24			11.35 3.59
10	35/40	-118.88	3.58	1.92			11.55 6.19
11	135/40	-91.20	21.12	14.59	38.20	71.96	38.20
12	155/40	-102.99	26.80	18.91	50.68	82.38	50.68
13	135/40	-79.74	12.88	6.00	22.86	67.90	22.86
14	155/40	-87.62	23.55	10.43	27.51	75.55	27.51
15	150/40	-121.25	19.10	3.18	13.31	88.50	13.31
16	240/40	-93.94	134.24	48.61	38.42	0.00	0.00
17	190/40	-81.99	88.36	43.72	36.04	0.00	0.00
18	230/40	-86.58	71.68	31.28	40.98	60.40	40.98
19	120/40	-114.93	17.66	4.02	13.44	77.97	13.44
20	255/40	-194.46	57.98	102.65	388.50	145.78	145.78
21	375/40	-237.75	152.34	134.45	355.83	193.84	193.84
22	380/40	-318.97	183.51	132.33	381.75	228.92	228.92
23	735/40	-457.42	242.78	299.48	1879.18	378.97	378.97
24	265/40	-198.90	76.18	79.86	245.04	150.22	150.22
25	255/40	-200.62	96.24	83.35	195.25	143.87	143.87
26	500/40	-342.69	229.11	146.60	491.59	270.41	270.41
27	240/40	-302.47	94.99	115.64	357.98	184.99	184.99
28	240/40	-260.18	75.17	29.37	102.05	168.07	102.05
29	235/40	-307.63	54.09	1.70	9.14	185.72	9.14
30	265/40	-120.67	38.50	36.28	140.31	118.93	118.93
31	145/30	-123.69	16.69	3.81	16.97	78.48	16.97
32	165/30	-72.89	16.71	8.27	27.12	62.16	27.12
33	150/30	-115.03	25.39	10.30	29.62	76.01	29.62
34	965/30	-498.94	455.18	383.83	1819.20	392.58	392.58
35	939/35	-172.42	426.28	293.17	539.14	224.56	224.56
36	40/195	-107.54	-4.41	-2.34			19.96 10.57
37	40/164	-137.35	-10.68	-18.03			24.46 41.31
38	40/290	-148.88	3.00	0.02			27.77 0.19
39	40/90	-116.24	1.82	0.56			19.31 5.90
40	40/160	-99.44	-19.11	-38.07			18.27 36.39
41	40/229	-6.21	-1.96	-0.78			1.24 0.49
42	40/209	-270.96	-8.87	-2.84			45.00 14.41
43	40/190	-183.10	-7.44	-20.18			31.99 86.77
44	40/303	-233.28	65.75	30.31			41.95 19.34
45	40/888	-594.01	23.82	20.40			108.39 92.82
46	40/332	-369.60	10.61	7.25			63.14 43.16
47	40/338	-190.52	5.26	1.68			35.29 11.30
48	35/670	-471.15	28.79	17.16			73.77 43.97
49	40/172	-116.53	3.62	2.39			21.24 13.99
50	35/680	-116.69	40.69	23.97			19.90 11.72

51	40/590	-396.18	49.42	29.27			72.26 42.81
52	40/440	-199.90	9.24	3.86			37.60 15.73
53	35/680	-633.56	20.04	11.11			95.40 52.89
54	40/370	-162.52	43.79	25.78			30.63 18.04
55	40/310	-160.31	10.92	17.31			29.89 47.37
56	40/233	-111.99	-2.60	1.18			20.99 9.52
57	40/117	-130.48	1.95	2.55			22.27 29.13
58	40/187	-154.06	-5.73	-1.45			27.49 6.97
59	40/143	-156.81	35.13	42.98			26.87 32.88
60	40/719	-470.21	35.36	22.68			85.99 55.17
61	40/140	-47.18	47.33	14.70			9.02 2.80
62	40/40	-34.92	1.31	0.83			6.18 3.92
63	40/40	-34.27	1.40	0.94			6.08 4.09
64	40/635	-187.60	28.98	17.14			36.07 21.33
65	990/40	-341.05	631.58	324.54	822.45	384.27	384.27
66	40/310	-140.84	14.01	8.14			26.49 15.39
67	1150/40	-916.69	1414.90	339.03	1111.31	673.34	673.34
68	1045/40	-801.30	-265.20	387.59	5412.13	599.19	599.19
69	40/290	-208.77	13.37	8.49			37.81 24.00
70	1110/40	-684.76	299.45	281.13	3236.23	569.90	569.90
71	40/678	-450.32	13.46	9.15			82.23 55.91
72	40/635	-393.96	25.70	15.00			72.39 42.25
73	1185/40	-1233.28	166.45	348.65	12905.45	809.31	809.31
74	1150/40	-890.48	1603.76	232.89	656.78	662.86	656.78
75	30/35	-186.45	0.16	-1.40	34.26	76.79	57.39 34.26
76	30/35	-188.98	4.54	4.72	35.14	79.44	58.86 35.14
77	30/35	-162.79	-27.30	-22.14	32.75	72.32	54.86 32.75
78	30/35	-151.39	10.36	15.09	31.80	69.55	53.27 31.80
79	30/35	-180.23	0.84	-0.45	30.80	66.67	51.59 30.80
80	30/35	-135.14	-0.43	-1.44	33.82	75.46	56.65 33.82

λ = Σ_Ved/Σ_Vrd = 4214.03/7965.99 = 0.53 OK

Σεισμικός συνδυασμός 33: 1.10*G + 0.60*Q + 1.21*Σx2 - 0.36*Σy2
Στάθμη 3

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-563.07	125.94	55.06	225.79	321.23		225.79

2	190/60	-509.81	74.97	40.69	192.02	279.93	192.02
3	240/60	-666.24	137.25	68.61	288.22	362.50	288.22
4	175/60	-468.79	75.71	38.44	152.21	257.52	152.21
5	165/60	-489.93	54.67	28.21	146.35	261.97	146.35
6	165/60	-473.11	56.56	32.31	158.76	255.24	158.76
7	165/60	-329.95	59.63	30.06	109.66	197.98	109.66
8	250/60	-635.16	125.33	49.10	231.69	354.06	231.69
9	95/60	-480.63	6.44	0.08	1.40	230.25	1.40
10	90/60	-422.12	20.26	16.38	81.19	204.85	81.19
11	245/60	-610.96	140.15	55.44	221.89	342.38	221.89
12	175/60	-439.46	70.00	29.72	122.08	245.78	122.08
13	135/60	-423.03	35.44	19.47	107.50	223.21	107.50
14	155/60	-464.75	50.06	29.25	147.09	247.90	147.09
15	170/60	-368.76	73.20	41.84	140.12	215.51	140.12
16	240/60	-654.57	120.91	64.68	305.11	357.83	305.11
17	190/60	-556.80	77.79	46.30	222.16	298.72	222.16
18	230/60	-633.70	94.30	35.35	197.59	345.48	197.59
19	560/60	-1410.59	789.70	309.36	1155.75	788.24	788.24
20	465/60	-1117.57	518.50	198.33	753.94	633.03	633.03
21	375/60	-974.09	317.82	154.51	656.23	539.64	539.64
22	380/60	-999.42	357.02	167.95	657.28	551.77	551.77
23	700/60	-1856.92	1382.02	347.12	1197.44	1022.77	1022.77
24	265/60	-596.79	185.79	114.63	377.52	344.71	344.71
25	255/60	-772.83	144.97	101.76	481.13	411.13	411.13
26	500/60	-1482.71	726.88	216.26	774.34	793.08	774.34
27	480/65	-564.65	635.64	244.43	464.27	391.52	391.52
28	380/65	-1130.61	417.77	142.50	530.60	616.91	530.60
29	240/65	-826.84	146.06	78.75	364.08	434.73	364.08
30	65/65	-159.04	6.17	5.23			41.49
31	215/65	-297.14	117.46	66.75	158.25	207.22	35.16
32	110/65	-222.49	32.08	16.61	51.48	136.66	158.25
33	450/65	-1459.48	496.71	292.81	1353.68	778.79	51.48
34	265/65	-970.19	185.30	115.08	527.34	502.91	778.79
35	120/60	-304.70	35.64	27.72	105.93	169.88	502.91
36	290/60	-421.48	189.07	135.43	373.87	284.59	169.88
37	345/60	-837.37	373.21	113.48	332.13	472.95	284.59
38	165/60	-515.94	56.83	16.87	86.65	272.38	332.13
39	150/60	-326.54	47.68	18.07	72.53	190.62	86.65
40	290/60	-647.34	266.55	125.22	342.09	374.94	72.53
41	1140/60	-3133.90	3980.82	839.60	2727.18	1709.56	342.09
42	880/60	-1265.49	2702.04	720.37	1270.04	777.97	1709.56
43	3769/60	-5141.38	6760.74	3296.32	40767.12	3564.15	777.97
44	445/60	-908.36	687.95	260.53	608.44	539.46	3564.15
45	60/195	-435.60	14.31	7.29			539.46
46	60/164	-530.92	6.41	1.51		105.24	53.65
47	60/290	-691.66	29.46	15.98		114.33	26.85
48	60/110	-240.03	11.50	6.25		164.27	89.10
49	60/160	-134.54	17.16	9.46		58.26	31.69
50	60/229	-294.40	10.13	2.38		37.40	20.61
51	60/209	-653.10	22.07	15.78		78.42	18.39
52	60/190	-470.25	34.55	21.11		142.51	101.86
53	60/273	-652.63	-166.68	-57.85		110.52	67.52
54	60/888	-2260.04	75.47	40.40		154.86	53.75
55	45/630	-1180.11	22.54	10.78		527.29	282.31
56	60/900	-1491.52	127.49	71.59		207.60	99.25
57	95/192	-675.83	45.93	23.46		382.69	214.91
58	40/513	-697.84	13.41	7.21		258.68	132.12
59	65/630	-1560.93	79.02	41.60		114.69	61.71
60	60/670	-1590.89	73.88	41.20		405.96	213.75
61	60/645	-927.84	51.21	20.19		378.28	210.94
62	60/192	-491.76	13.40	6.35		243.38	95.94
63	40/620	-1524.97	29.81	17.31		114.52	54.23
64	60/680	-1110.10	99.68	57.88		206.71	120.03
65	40/620	-1323.13	27.51	15.43		285.54	165.81
66	60/460	-1092.98	37.51	21.29		190.63	106.93
67	35/513	-628.48	10.52	6.08		259.84	147.51
68	60/680	-2044.04	81.91	45.88		89.81	51.87
69	35/620	-1193.25	15.86	8.98		452.21	253.32
70	60/300	-590.00	41.25	22.34		148.64	84.13
71	40/533	-727.79	14.27	8.39		146.59	79.40
72	390/30	-349.46	193.54	65.97	190.47	217.78	70.26
73	265/30	-182.92	83.77	53.94	134.43	125.19	190.47
74	60/30	-63.91	2.80	1.62	8.73	37.57	125.19
75	60/370	-566.58	57.46	30.73			8.73
76	60/310	-823.18	28.29	14.86		147.24	78.75
77	60/233	-507.43	19.46	6.69		189.68	99.64
78	60/57	-275.52	4.49	1.29	12.16	132.86	42.35
79	60/187	-733.76	9.32	2.32			12.16
80	60/143	-531.99	9.84	5.78		144.86	36.13
81	60/264	-270.78	84.56	25.29		107.91	63.36
82	60/468	-1389.72	25.16	13.04		73.96	22.12
83	60/107	-268.36	15.57	9.09		308.86	160.09
84	60/160	-448.90	19.13	10.01		62.87	36.71
						101.67	53.18

85	60/140	-457.96	18.21	9.85			98.13	53.10
86	35/630	-854.91	9.96	4.37			119.21	52.30
87	40/495	-606.48	16.92	8.87			101.82	53.38
88	670/25	-355.89	316.16	241.50	794.09	254.02		254.02
89	65/250	-495.19	35.36	20.60			135.23	78.78
90	340/60	-618.65	295.36	190.02	552.96	383.46		383.46
91	56/56	-86.69	0.31	-0.41			20.76	27.35
92	56/56	-152.52	1.09	0.63			31.82	18.55
93	56/56	-153.82	1.56	1.29			32.00	26.43
94	56/56	-90.78	2.09	2.14			21.56	22.02
95	45/70	-393.35	17.51	15.95	119.43	273.85	210.19	119.43
96	45/70	-304.37	11.53	6.43	115.90	262.94	203.99	115.90
97	60/635	-653.13	107.29	58.87			178.34	97.85
98	1010/60	-1826.05	4842.18	944.99	1472.82	1018.21		1018.21
99	60/310	-652.01	64.37	36.57			159.67	90.72
100	1150/60	-2738.08	6034.03	1185.14	2352.72	1520.78		1520.78
101	55/885	-1989.77	128.33	76.39			429.96	255.94
102	55/885	-1587.72	127.98	70.99			361.98	200.79
103	1045/60	-2018.19	4371.58	1052.38	2046.07	1174.34		1174.34
104	60/310	-638.75	70.20	40.60			157.14	90.89
105	1130/60	-2215.24	4693.96	1072.42	2296.44	1309.82		1309.82
106	60/678	-1739.81	99.36	54.00			404.95	220.11
107	50/885	-1864.16	85.21	46.80			363.15	199.44
108	30/545	-866.12	14.27	8.10			93.85	53.27
109	1185/50	-2676.69	3694.94	806.41	2518.85	1465.68		1465.68
110	25/635	-641.94	9.93	5.76			63.24	36.67
111	1150/25	-1795.18	2012.58	431.28	1379.55	909.74		909.74
112	60/90	-243.18	14.60	8.06			55.74	30.79
113	30/885	-1187.24	22.42	12.49			136.35	75.99
114	40/40	-481.87	4.09	1.38	81.81	174.15	143.99	81.81
115	40/40	-364.10	6.45	4.89	79.12	165.00	139.24	79.12
				15954.37				
								32697.69
$\lambda = \Sigma \text{ Ved} / \Sigma \text{ Vrd} = 15954.37 / 32697.69 = 0.49 \quad \text{OK}$								

Στάθμη 4								
ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-345.62	-10.63	26.40	881.24	234.25		234.25
2	190/60	-329.24	14.42	22.77	407.94	207.70		207.70
3	240/60	-387.22	21.48	13.80	250.08	250.89		250.08
4	175/60	-326.00	12.02	17.32	334.21	200.40		200.40
5	165/60	-302.49	14.10	15.40	222.27	187.00		187.00
6	165/60	-302.99	25.61	24.71	196.71	187.19		187.19
7	165/60	-235.96	37.03	23.81	107.19	160.39		107.19
8	125/60	-161.33	10.74	9.01	73.62	114.53		73.62
9	55/60	-341.63	-4.69	-6.19			42.98	56.70
10	55/60	-365.05	20.46	39.29			42.19	81.00
11	135/60	-351.19	12.82	7.00	95.61	194.48		95.61
12	175/60	-323.90	17.46	12.76	168.62	199.56		168.62
13	135/60	-279.00	13.05	13.67	156.36	165.60		156.36
14	155/60	-305.78	21.65	16.64	146.05	184.31		146.05
15	170/60	-213.50	23.48	28.95	195.50	153.40		153.40
16	240/60	-469.25	-9.55	-0.89	42.00	283.70		42.00
17	190/60	-333.38	20.15	27.91	361.38	209.35		209.35
18	230/60	-428.32	-1.70	28.39	6698.26	263.33		263.33
19	560/60	-1037.52	200.28	248.27	2931.02	639.01		639.01
20	465/60	-689.47	371.26	164.75	605.41	461.79		461.79
21	375/60	-624.63	307.86	126.42	400.47	399.85		399.85
22	380/60	-858.28	246.79	117.02	597.81	495.31		495.31
23	700/60	-1404.36	1052.12	239.61	893.83	841.74		841.74
24	265/60	-301.81	154.60	126.24	289.19	218.25		218.25
25	255/60	-505.35	220.00	117.08	274.63	302.90		274.63
26	500/60	-1364.12	69.12	147.44	5281.08	745.65		745.65
27	240/45	-660.48	82.86	61.42	370.91	336.19		336.19
28	240/45	-509.63	103.67	53.94	227.70	275.85		227.70
29	235/65	-753.92	217.18	118.28	338.95	403.40		338.95
30	265/65	-649.02	214.04	101.17	314.18	374.44		314.18
31	145/60	-257.97	14.80	26.19	271.86	161.19		161.19
32	165/60	-308.41	4.49	10.56	486.23	189.37		189.37
33	150/60	-217.23	11.51	8.08	97.79	146.89		97.79
34	290/60	-424.06	103.27	132.58	673.46	285.62		285.62
35	1160/60	-2100.32	1505.84	745.01	4930.81	1304.13		1304.13
36	880/30	-835.62	743.17	358.16	1433.92	510.25		510.25
37	2949/60	-2736.56	4683.58	1318.13	10297.60	2274.22		2274.22
38	60/195	-313.37	3.51	12.18			80.84	280.25
39	60/164	-310.24	1.86	11.60			77.72	483.74
40	60/290	-444.17	29.02	73.42			115.42	292.05
41	60/110	-203.63	14.11	35.66			51.20	129.42
42	60/160	-70.11	8.26	10.18			20.23	24.93
43	60/229	-77.43	4.91	6.42			22.54	29.48
44	60/209	-778.34	29.68	20.59			157.63	109.35
45	60/190	-512.29	35.75	26.27			117.42	86.28

46	60/303	-487.34	36.34	-44.63				125.64	154.32
47	60/888	-1530.34	35.23	76.97				389.99	852.12
48	35/610	-776.65	17.02	37.73				110.00	243.88
49	60/332	-749.92	57.13	153.90				180.59	486.49
50	60/338	-390.12	18.94	44.53				105.22	247.41
51	95/192	-615.80	32.33	33.53				240.75	249.66
52	65/480	-1145.26	57.75	119.20				300.61	620.51
53	60/670	-1219.73	110.35	226.98				307.73	632.95
54	60/192	-310.48	5.41	9.61				79.99	142.03
55	40/620	-1078.45	52.94	156.80				166.53	493.23
56	40/620	-852.40	55.23	136.43				139.77	345.25
57	60/460	-731.44	13.15	26.47				188.95	380.35
58	35/513	-414.45	16.90	39.17				63.75	147.82
59	60/680	-1491.61	131.11	365.39				361.75	1008.13
60	35/620	-889.43	32.92	82.58				122.21	306.62
61	60/300	-497.75	50.70	32.99				127.68	83.08
62	40/533	-434.18	16.66	38.21				77.57	177.88
63	390/30	-194.57	67.96	35.17	176.66	155.83			155.83
64	265/30	-50.67	59.41	44.19	48.02	29.42			29.42
65	60/30	-43.48	2.39	4.95	23.08	29.39			23.08
66	60/370	-377.52	16.91	44.62			103.16	272.25	
67	60/310	-525.95	7.56	15.13			134.40	268.82	
68	60/233	-392.36	-3.90	9.13			100.40	235.05	
69	60/117	-442.25	2.31	7.66			88.73	294.62	
70	60/187	-513.26	2.97	13.56			117.15	535.30	
71	60/143	-410.30	46.27	39.82			92.34	79.47	
72	60/719	-1068.06	15.65	28.53			278.87	508.45	
73	60/160	-167.67	29.05	20.16			45.70	31.72	
74	60/140	-286.90	-226.86	-81.95			70.66	25.53	
75	20/610	-536.19	4.18	10.20			41.27	100.70	
76	45/60	-202.49	5.44	3.58			27.65	18.18	
77	45/60	-196.80	2.43	2.62			27.37	29.43	
78	60/635	-450.86	126.93	310.56			126.87	310.43	
79	1010/60	-1275.36	2126.51	633.44	1675.17	914.15		914.15	
80	60/310	-484.05	85.78	213.13			125.41	311.60	
81	1150/60	-2058.38	3130.10	818.01	2536.99	1283.35		1283.35	
82	55/885	-1495.52	189.99	468.89			345.05	851.56	
83	55/885	-1158.33	163.82	424.68			278.81	722.76	
84	1045/60	-1380.39	1607.52	849.67	3306.42	970.15		970.15	
85	60/310	-453.53	111.08	279.46			118.67	298.56	
86	1130/60	-1641.19	1852.35	992.98	4245.58	1108.48		1108.48	
87	60/678	-1629.64	84.96	269.75			386.25	1226.30	
88	50/885	-1422.55	131.81	338.90			295.72	760.31	
89	30/545	-719.57	33.54	83.53			83.04	206.79	
90	1185/25	-1973.99	1350.31	435.37	2256.58	987.10		987.10	
91	25/635	-749.38	38.59	96.23			70.50	175.82	
92	1150/25	-1532.95	1230.99	322.75	1568.36	804.85		804.85	
93	60/90	-192.48	19.13	46.47			46.96	114.07	
94	30/885	-977.13	52.30	129.89			118.30	293.80	
			13184.36					34890.79	
$\lambda = \Sigma_Ved/\Sigma_Vrd = 13184.36/34890.79 = 0.38 \quad OK$									

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-288.05	0.37	10.73	8731.92	211.22		211.22
2	190/60	-275.15	18.52	17.78	214.52	186.06		186.06
3	240/60	-389.21	19.83	14.26	281.16	251.68		251.68
4	175/60	-269.07	28.38	17.96	126.00	177.63		126.00
5	165/60	-244.72	21.08	11.02	89.77	163.89		89.77
6	165/60	-250.18	35.42	16.70	82.51	166.07		82.51
7	165/60	-219.32	21.14	7.98	59.19	153.73		59.19
8	125/60	-199.07	12.21	5.18	44.35	129.63		44.35
9	55/60	-309.03	2.55	1.90			43.28	32.28
10	55/60	-328.04	9.60	5.45			43.21	24.54
11	135/60	-246.20	15.82	7.26	62.23	152.48		62.23
12	175/60	-285.12	19.01	8.54	93.67	184.05		93.67
13	135/60	-229.82	20.19	9.25	58.92	145.93		58.92
14	155/60	-252.37	33.75	15.02	72.82	162.95		72.82
15	170/60	-184.79	44.79	26.31	82.20	141.92		82.20
16	240/60	-361.74	-26.34	-21.47	300.28	240.70		240.70
17	190/60	-228.45	14.16	9.50	128.06	167.38		128.06
18	230/60	-336.04	39.56	8.53	71.11	226.42		71.11
19	560/60	-817.33	156.10	288.95	3614.98	550.93		550.93
20	465/60	-675.51	206.43	155.11	1007.94	456.21		456.21
21	375/60	-575.13	192.78	111.43	527.29	380.05		380.05
22	380/60	-808.12	159.71	102.07	771.70	475.25		475.25
23	700/60	-1238.26	542.97	180.75	1186.36	775.31		775.31
24	265/60	-420.49	171.31	115.10	314.68	274.20		274.20
25	255/60	-471.69	126.53	106.64	412.68	290.67		290.67
26	500/60	-1298.12	-36.24	126.96	8403.40	719.25		719.25

27	240/45	-545.69	26.07	58.00	1013.17	290.28		290.28				
28	240/45	-485.87	62.34	46.08	314.12	266.35		266.35				
29	235/65	-639.84	156.95	75.20	269.27	357.77		269.27				
30	265/65	-611.12	133.82	88.99	423.33	359.28		359.28				
31	145/60	-182.28	40.63	37.18	105.66	130.91		105.66				
32	165/60	-286.63	-8.37	2.67	62.31	180.65		62.31				
33	150/60	-240.42	-0.57	0.32	83.90	156.17		83.90				
34	290/60	-409.39	93.25	108.20	591.12	279.76		279.76				
35	1160/60	-1941.75	1439.41	667.27	4342.96	1240.70		1240.70				
36	880/30	-461.40	736.04	334.28	824.89	352.84		352.84				
37	2949/60	-2507.93	3946.28	1352.17	11588.40	2182.77		2182.77				
38	60/195	-307.79	2.85	2.24		79.64		62.51				
39	60/164	-266.37	-5.50	1.19		68.60		14.89				
40	60/290	-447.55	27.49	18.21		116.17		76.95				
41	60/110	-243.37	11.72	7.66		58.88		38.47				
44	60/209	-718.39	15.04	-0.05		150.88		0.52				
45	60/190	-445.03	22.53	11.43		106.14		53.83				
46	60/303	-436.48	68.94	8.04		114.45		13.35				
47	60/888	-1419.91	33.75	20.64		366.48		224.06				
48	35/610	-775.49	10.10	8.03		109.88		87.45				
49	60/332	-757.70	63.55	38.46		182.00		110.15				
50	60/338	-438.05	31.76	24.17		116.52		88.68				
51	95/192	-451.90	17.32	7.42		186.78		80.01				
52	65/480	-739.40	30.32	25.74		210.46		178.66				
53	60/670	-1152.28	59.14	37.88		293.76		188.16				
54	60/192	-329.91	5.46	2.40		84.12		36.94				
55	40/620	-759.07	39.00	22.20		127.46		72.56				
56	40/620	-795.05	25.74	15.97		132.29		82.10				
57	60/460	-586.43	9.73	5.66		156.34		90.98				
58	35/513	-333.30	9.36	5.63		52.65		31.69				
59	60/680	-1466.77	107.96	62.45		357.12		206.57				
60	35/620	-741.45	14.59	8.20		106.52		59.87				
61	60/300	-458.15	24.56	19.43		119.11		94.27				
62	40/533	-339.33	8.98	5.56		62.20		38.51				
63	390/30	-196.60	69.27	23.88	118.79	156.64		118.79				
64	265/30	-118.14	74.67	51.46	98.21	88.83		88.83				
65	60/30	-28.99	2.21	1.34	4.77	23.60		4.77				
66	60/370	-366.27	35.21	20.49		100.38		58.41				
67	60/310	-426.20	7.20	3.26		112.51		51.01				
68	60/233	-363.55	-10.14	-5.89		94.20		54.70				
69	60/117	-423.97	-3.95	-2.88		86.80		63.26				
70	60/187	-445.36	-8.84	-4.98		105.88		59.69				
71	60/143	-387.71	18.20	30.26		88.86		147.73				
72	60/719	-1016.50	23.92	20.40		267.32		227.97				
73	60/160	-146.55	13.16	13.03		40.45		40.05				
74	60/140	-268.42	-161.41	-73.91		67.04		30.70				
75	20/610	-467.95	-1.45	-0.47		37.39		12.11				
76	45/60	-196.55	2.93	1.75		27.35		16.39				
77	45/60	-190.86	0.41	0.73		27.03		47.33				
78	60/635	-463.87	101.82	59.37		130.28		75.97				
79	1010/60	-1020.35	2340.80	746.79	1477.08	738.84		738.84				
80	60/310	-390.13	68.55	40.16		104.17		61.03				
81	1150/60	-1762.25	3674.24	942.03	2198.06	1144.70		1144.70				
82	55/885	-1052.46	174.42	105.53		256.63		155.27				
83	55/885	-841.31	144.90	84.25		210.40		122.33				
84	1045/60	-1221.14	1993.91	1048.19	2960.47	906.46		906.46				
85	60/310	-386.12	86.41	51.22		103.23		61.19				
86	1130/60	-1475.84	2152.06	1139.11	3834.61	1042.34		1042.34				
87	60/678	-1382.76	158.38	94.63		340.93		203.70				
88	50/885	-919.38	88.84	51.91		204.82		119.69				
89	30/545	-523.55	15.67	9.16		65.35		38.22				
90	1185/25	-1778.56	1472.43	448.29	2047.46	908.92		908.92				
91	25/635	-560.39	12.49	7.36		57.09		33.62				
92	1150/25	-1358.65	1599.66	378.26	1321.16	735.13		735.13				
93	60/90	-145.10	13.94	7.91		37.40		21.21				
94	30/885	-594.78	21.92	12.62		78.74		45.34				
				9793.09								
								20699.16				
$\lambda = \Sigma \text{ Ved} / \Sigma \text{ Vrd} = 9793.09 / 20699.16 = 0.47 \quad \text{OK}$												

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-52.05	-34.32	-19.74	34.75	64.07		34.75
2	190/40	-115.98	-39.38	-0.41	1.04	95.23		1.04
3	240/40	-180.92	-11.14	-20.43	352.95	136.37		136.37
4	175/40	-120.86	3.05	8.99	279.28	95.01		95.01
5	165/40	-102.99	-15.35	7.40	37.09	85.20		37.09
6	165/40	-110.77	-16.87	12.65	61.59	88.31		61.59
7	110/40	-163.07	-11.96	3.53	20.56	94.56		20.56
8	125/40	-193.26	1.15	-1.77	142.58	110.64		110.64
9	35/40	-126.75	0.08	-4.03			11.66	623.11
10	35/40	-134.62	3.68	13.37			11.69	42.47

11	135/40	-137.63	8.50	20.37	188.32	91.05	91.05
12	155/40	-93.60	9.11	19.48	141.02	78.78	78.78
13	135/40	-109.72	-4.37	4.64	69.09	79.89	69.09
14	155/40	-119.02	-8.82	1.55	14.31	88.94	14.31
15	150/40	-24.92	34.56	40.36	21.28	0.00	0.00
16	240/40	-219.32	121.07	115.39	216.30	139.57	139.57
17	190/40	-115.00	87.48	99.19	112.58	61.15	61.15
18	230/40	-171.58	12.41	-25.01	352.78	129.96	129.96
19	120/40	-230.44	23.76	3.31	13.68	124.18	13.68
20	255/40	-182.15	50.20	98.75	407.73	140.86	140.86
21	375/40	-258.44	151.37	82.88	237.78	203.38	203.38
22	380/40	-370.61	126.01	33.94	161.81	249.58	161.81
23	700/40	-484.75	124.37	186.77	2282.15	380.57	380.57
24	265/40	-267.82	161.43	88.01	164.00	164.91	164.00
25	255/40	-219.24	184.76	102.64	135.16	122.28	122.28
26	500/40	-594.61	28.63	166.76	7106.85	371.18	371.18
27	240/40	-322.39	197.31	127.47	199.34	175.99	175.99
28	240/40	-296.17	71.31	23.21	94.17	182.47	94.17
29	235/40	-324.64	37.20	8.64	70.15	192.52	70.15
30	265/40	-207.72	112.39	68.92	148.84	145.80	145.80
31	145/30	-190.92	36.67	26.90	74.69	105.37	74.69
32	165/30	-77.38	-7.85	5.85	43.08	63.95	43.08
33	150/30	-170.69	-12.41	-1.37	10.91	98.28	10.91
34	965/30	-658.48	-318.64	219.78	1891.04	456.39	456.39
35	939/35	151.57	-450.97	145.80	0.00	0.00	0.00
36	40/195	-186.59	-2.49	-2.87		32.65	37.59
37	40/164	-122.62	-9.05	5.52		22.13	13.50
38	40/290	-199.08	4.34	-3.08		36.23	25.70
39	40/90	-259.93	3.51	4.20		32.31	38.68
40	40/160	120.38	-19.75	0.09		0.00	0.00
41	40/229	14.50	0.07	3.16		0.00	0.00
42	40/209	-400.71	9.49	23.84		60.03	150.83
43	40/190	-218.66	-13.64	11.16		37.12	30.37
44	40/303	-241.98	72.14	10.60		43.33	6.37
45	40/888	-647.76	19.07	46.86		117.17	287.85
46	40/332	-460.44	52.28	106.00		75.35	152.78
47	40/338	-160.20	16.28	25.26		30.05	46.63
48	35/670	-817.89	70.78	215.59		116.97	356.27
49	40/172	-158.69	5.37	12.08		27.90	62.78
50	35/680	-33.88	52.78	163.93		5.88	18.28
51	40/590	-658.66	56.78	160.62		112.46	318.15
52	40/440	-274.16	32.72	71.16		50.36	109.50
53	35/680	-861.81	50.73	124.36		122.20	299.54
54	40/370	-148.05	5.55	11.19		28.06	56.54

55	40/310	-276.13	32.85	31.87		48.78	47.32
56	40/233	-222.94	10.54	15.66		39.00	57.96
57	40/117	-313.73	28.60	86.03		40.63	122.21
58	40/187	-219.11	8.60	17.69		37.11	76.35
59	40/143	-152.85	78.95	56.52		26.30	18.83
60	40/719	-443.30	41.02	81.73		81.50	162.37
61	40/140	-189.88	89.78	52.10		31.23	18.12
62	40/40	-161.82	2.73	4.51		15.21	25.20
63	40/40	-3.03	2.18	4.07		0.60	1.12
64	40/635	-198.79	49.63	116.04		38.13	89.14
65	990/40	-364.30	425.82	339.11	1356.45	409.72	409.72
66	40/310	-149.89	40.62	100.20		28.08	69.26
67	1150/40	-1063.74	1871.11	449.54	1264.71	732.16	732.16
68	1045/40	-729.75	-446.28	573.21	4382.08	570.57	570.57
69	40/290	-229.58	50.62	128.09		41.15	104.14
70	1110/40	-706.82	-466.31	552.77	4204.00	578.73	578.73
71	40/678	-793.78	82.15	213.11		134.40	348.69
72	40/635	-315.42	47.74	119.97		58.98	148.20
73	1185/40	-1339.15	572.55	422.98	4863.54	851.66	851.66
74	1150/40	-1188.14	1206.48	365.19	1746.01	781.92	781.92
75	30/35	-190.73	1.61	0.79	145.25	132.12	132.12
76	30/35	-199.11	6.93	4.50	148.90	134.77	134.77
77	30/35	-168.00	-43.19	-20.63	139.03	127.68	127.68
78	30/35	-157.46	23.02	16.36	135.08	124.93	124.93
79	30/35	-191.36	-1.15	-0.68	130.93	122.06	122.06
80	30/35	-41.48	5.06	3.93	143.43	130.81	130.81

$\lambda = \Sigma_Ved/\Sigma_Vrd = 6388.11/12372.85 = 0.52 \quad OK$

Στάθμη 7

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-69.55	-82.96	-46.18	44.43	4.53		4.53
2	190/40	-98.21	-50.09	-25.73	44.20	74.48		44.20
3	240/40	-151.31	-60.57	-22.35	60.62	124.50		60.62
4	175/40	-48.48	-1.33	5.09	155.97	66.06		66.06
5	165/40	-79.91	-0.52	0.70	82.74	75.96		75.96
6	165/40	-88.83	7.09	4.65	44.17	79.53		44.17

7	110/40	-85.47	7.29	4.36	24.82	63.52		24.82
8	125/40	-60.89	-16.56	-16.04	34.16	52.60		34.16
9	35/40	-111.59	-0.96	-0.38			11.37	4.49
10	35/40	-119.43	2.69	1.39			11.56	5.97
11	135/40	-100.91	11.20	9.65	52.07	76.36		52.07
12	155/40	-95.91	16.29	14.11	58.37	79.70		58.37
13	135/40	-78.99	11.42	5.13	21.84	67.60		21.84
14	155/40	-87.07	23.70	10.31	26.85	75.05		26.85
15	150/40	-79.23	34.34	13.44	21.41	57.02		21.41
16	240/40	-141.41	159.51	69.15	67.03	44.93		44.93
17	190/40	-84.01	93.35	45.86	36.59	0.00		0.00
18	230/40	-98.92	87.70	39.45	47.85	60.64		47.85
19	120/40	-116.79	7.82	-1.85	14.13	78.72		14.13
20	255/40	-186.87	38.05	78.64	438.06	142.75		142.75
21	375/40	-225.44	85.47	65.03	292.48	190.18		190.18
22	380/40	-338.05	83.69	68.20	453.28	236.55		236.55
23	735/40	-414.32	-72.46	177.83	3419.32	361.73		361.73
24	265/40	-244.50	92.30	75.03	226.73	168.47		168.47
25	255/40	-196.80	102.74	90.02	194.29	138.95		138.95
26	500/40	-373.48	259.17	156.34	499.85	282.72		282.72
27	240/40	-301.27	95.85	115.86	354.34	184.51		184.51
28	240/40	-275.05	52.93	11.32	58.39	174.02		58.39
29	235/40	-303.96	33.07	-3.05	26.51	184.25		26.51
30	265/40	-184.40	57.78	55.83	211.33	144.43		144.43
31	145/30	-143.91	24.01	8.31	28.92	86.56		28.92
32	165/30	-71.61	17.86	8.82	26.63	61.64		26.63
33	150/30	-120.49	6.62	3.50	40.10	78.20		40.10
34	965/30	-453.62	335.11	254.87	1507.44	374.45		374.45
35	939/35	-72.89	260.65	306.83	397.48	107.50		107.50
36	40/195	-126.38	-7.12	-4.00			23.14	13.01
37	40/164	-141.00	-11.08	-18.63			25.03	42.08
38	40/290	-152.80	-0.39	-1.97			28.45	145.33
39	40/90	-115.66	0.68	-0.14			19.24	4.00
40	40/160	-101.45	-20.22	-38.51			18.61	35.44
41	40/229	-14.29	-1.73	-0.71			2.83	1.16
42	40/209	-264.32	-8.97	-2.87			44.11	14.11
43	40/190	-197.95	-8.41	-20.86			34.17	84.80
44	40/303	-206.73	65.72	29.43			37.65	16.86
45	40/888	-597.59	3.67	7.49			108.98	222.71
46	40/332	-396.32	8.09	5.87			66.87	48.55
47	40/338	-167.24	9.11	4.02			31.28	13.78
48	35/670	-453.98	36.32	21.69			71.39	42.63
49	40/172	-119.57	2.25	1.68			21.74	16.20
50	35/680	-193.79	37.58	22.46			32.47	19.40
51	40/590	-445.22	40.39	24.14			80.24	47.96
52	40/440	-201.22	14.27	7.12			37.83	18.89
53	35/680	-575.48	8.68	4.17			87.95	42.28
54	40/370	-146.73	24.27	14.08			27.82	16.14
55	40/310	-182.24	8.52	15.50			33.64	61.23
56	40/233	-238.78	-2.27	1.25			41.34	22.67
57	40/117	-109.27	2.03	2.55			19.17	24.15
58	40/187	-167.20	-5.80	-1.48			29.53	7.54
59	40/143	-151.00	34.33	42.72			26.04	32.40
60	40/719	-340.18	16.28	12.79			63.82	50.15
61	40/140	-128.43	47.47	14.77			22.60	7.03
62	40/40	-28.31	0.65	0.44			5.14	3.48
63	40/40	-28.03	1.48	0.95			5.09	3.29
64	40/635	-200.80	24.79	14.65			38.50	22.75
65	990/40	-310.19	705.91	365.58	757.63	338.01		338.01
66	40/310	-124.77	20.01	11.72			23.64	13.85
67	1150/40	-859.79	1911.08	520.38	1194.53	626.10		626.10
68	1045/40	-735.93	-255.72	494.91	6652.13	573.04		573.04
69	40/290	-217.52	23.48	14.66			39.23	24.50
70	1110/40	-618.82	198.88	502.59	7950.10	543.53		543.53
71	40/678	-483.46	42.50	26.76			87.66	55.20
72	40/635	-369.76	34.15	19.97			68.31	39.95
73	1185/40	-1234.87	235.50	346.71	9080.53	809.95		809.95
74	1150/40	-977.81	1388.12	267.52	944.73	697.79		697.79
75	30/35	-188.42	1.00	-0.46	34.26	76.79	57.39	34.26
76	30/35	-196.80	3.34	3.21	35.14	79.44	58.86	35.14
77	30/35	-165.69	-27.10	-22.07	32.75	72.32	54.86	32.75
78	30/35	-155.14	9.65	15.00	31.80	69.55	53.27	31.80
79	30/35	-189.05	-0.57	-2.13	30.80	66.67	51.59	30.80
80	30/35	-39.17	1.94	2.48	33.82	75.46	56.65	33.82
				4309.58				

2	190/60	-540.90	-104.20	-54.63	192.38	292.36	192.38
3	240/60	-725.77	-189.13	-92.02	295.02	386.31	295.02
4	175/60	-444.14	-96.74	-49.88	149.31	247.66	149.31
5	165/60	-492.11	-67.61	-36.46	153.34	262.84	153.34
6	165/60	-484.54	-62.00	-30.38	138.08	259.82	138.08
7	165/60	-383.87	-69.38	-34.49	120.66	219.55	120.66
8	250/60	-592.60	-162.32	-85.44	297.08	337.04	297.08
9	95/60	-437.26	-27.55	-21.41	86.77	212.91	86.77
10	90/60	-449.57	-10.48	-3.02	29.00	215.83	29.00
11	245/60	-632.09	-187.77	-106.71	325.99	350.84	325.99
12	175/60	-347.67	-102.04	-57.92	138.22	208.85	138.22
13	135/60	-408.47	-44.36	-27.13	117.37	217.39	117.37
14	155/60	-469.91	-55.75	-29.19	132.63	249.96	132.63
15	170/60	-419.45	-79.15	-42.84	145.13	235.78	145.13
16	240/60	-622.49	-155.99	-81.78	289.58	345.00	289.58
17	190/60	-394.93	-96.30	-53.11	163.72	233.97	163.72
18	230/60	-430.87	-106.20	-26.41	100.05	264.35	100.05
19	560/60	-1402.62	-948.75	-310.64	962.39	785.05	785.05
20	465/60	-1135.06	-565.84	-265.97	936.32	640.03	640.03
21	375/60	-1125.64	-355.09	-215.21	893.48	600.26	600.26
22	380/60	-1054.80	-420.17	-169.58	583.32	573.92	573.92
23	700/60	-1828.06	-1640.20	-435.81	1254.07	1011.22	1011.22
24	265/60	-717.06	-188.37	-103.02	378.38	392.82	378.38
25	255/60	-726.82	-159.83	-103.17	426.93	392.73	392.73
26	500/60	-1276.57	-664.28	-308.57	1102.27	710.63	710.63
27	480/65	-637.68	-573.60	-321.05	751.09	450.14	450.14
28	380/65	-1152.53	-393.37	-234.31	937.55	625.68	625.68
29	240/65	-702.59	-158.50	-71.43	276.83	385.04	276.83
30	65/65	-145.44	-5.39	-3.46		38.74	24.87
31	215/65	-357.17	-126.76	-81.51	208.87	236.03	208.87
32	110/65	-287.13	-41.19	-24.27	70.54	162.52	70.54
33	450/65	-1037.12	-665.98	-235.50	648.83	609.85	609.85
34	265/65	-1020.79	-202.87	-94.08	403.20	523.15	403.20
35	120/60	-367.51	-19.70	-6.44	49.91	195.00	49.91
36	290/60	-491.97	-213.65	-113.49	314.35	312.79	312.79
37	345/60	-684.99	-308.67	-213.05	652.90	411.99	411.99
38	165/60	-493.65	-65.77	-23.65	102.42	263.46	102.42
39	150/60	-319.67	-43.09	-5.70	24.93	187.87	24.93
40	290/60	-928.67	-292.21	-168.80	527.64	487.47	487.47
41	1140/60	-2974.01	-4042.67	-915.25	2832.15	1645.60	1645.60
42	880/60	-1680.54	-2850.20	-665.19	1394.67	996.69	996.69
43	3769/60	-4437.01	-14712.10	-3188.82	15980.36	3282.40	3282.40
44	445/60	-743.63	-584.34	-293.02	690.42	470.16	470.16
45	60/195	-557.74	-20.93	-11.04		125.61	66.23
46	60/164	-612.63	-9.37	-3.87		123.94	51.13
47	60/290	-1043.09	-37.44	-19.80		214.61	113.50
48	60/110	-318.27	-13.53	-7.12		71.31	37.54
49	60/160	-239.52	-19.26	-10.61		62.47	34.42
50	60/229	-324.55	-10.17	-2.38		85.34	19.99
51	60/209	-718.63	-9.63	-3.38		150.91	52.91
52	60/190	-614.65	-17.06	-7.47		132.19	57.91
53	60/273	-623.72	157.06	57.38		149.73	54.70
54	60/888	-2301.10	-93.95	-50.34		534.08	286.20
55	45/630	-1255.89	-33.16	-19.68		216.97	128.79
56	60/900	-1915.27	-139.05	-80.93		467.78	272.24
57	95/192	-709.68	-57.18	-29.99		268.36	140.75
58	40/513	-688.10	-15.01	-7.95		113.43	60.04
59	65/630	-1890.09	-100.70	-58.10		465.69	268.68
60	60/670	-2386.35	-105.51	-61.08		493.18	285.51
61	60/645	-1159.59	-77.48	-50.00		293.25	189.22
62	60/192	-439.56	-22.35	-12.72		105.50	60.04
63	40/620	-1242.38	-34.52	-19.97		183.24	105.98
64	60/680	-1052.54	-104.05	-60.26		273.07	158.15
65	40/620	-1400.18	-30.22	-17.09		197.18	111.54
66	60/460	-1154.47	-42.93	-23.79		270.42	149.88
67	35/513	-736.48	-10.63	-5.99		101.18	56.99
68	60/680	-1392.77	-89.54	-49.09		343.08	188.09
69	35/620	-820.61	-15.18	-8.14		115.15	61.77
70	60/300	-686.02	-43.85	-24.96		164.70	93.75
71	40/533	-735.88	-15.58	-8.76		120.55	67.76
72	390/30	-359.24	-221.47	-114.41	294.93	221.70	221.70
73	265/30	-282.53	-92.80	-50.30	159.43	166.01	159.43
74	60/30	-72.90	-2.95	-1.67	9.32	41.16	9.32
75	60/370	-587.65	-92.77	-48.55		151.84	79.47
76	60/310	-525.43	-35.72	-19.26		134.29	72.41
77	60/233	-407.90	-17.54	-5.81		103.66	34.32
78	60/57	-262.62	-4.01	-0.58	6.07	127.70	6.07
79	60/187	-711.82	-9.87	-2.80		142.72	40.51
80	60/143	-540.39	-5.54	1.49		108.78	29.31
81	60/264	-262.69	-84.87	-25.14		71.96	21.31
82	60/468	-1135.92	-26.83	-11.03		268.58	110.39
83	60/107	-117.56	-11.03	-5.34		31.88	15.44
84	60/160	-263.26	-21.32	-12.03		67.63	38.16

85	60/140	-498.09	-22.75	-13.66			102.99	61.84
86	35/630	-841.58	-8.26	-2.30			117.82	32.85
87	40/495	-407.24	-19.21	-11.20			72.67	42.38
88	670/25	-341.76	-656.17	-149.55	228.85	208.21		208.21
89	65/250	-538.66	-39.47	-22.14			144.65	81.12
90	340/60	-655.87	-341.51	-180.04	473.91	398.35		398.35
91	56/56	-89.80	-2.24	-2.23			21.37	21.29
92	56/56	-152.27	-2.05	-1.67			31.79	25.87
93	56/56	-154.77	-1.87	-1.23			32.13	21.14
94	56/56	-87.55	-1.35	-0.30			20.93	4.71
95	45/70	-317.78	-12.70	-6.84	119.43	273.85	210.19	119.43
96	45/70	-369.37	-18.17	-15.58	115.90	262.94	203.99	115.90
97	60/635	-1778.02	-106.29	-57.96			402.95	219.72
98	1010/60	-2114.67	-3644.94	-1027.80	2377.99	1245.03		1245.03
99	60/310	-664.96	-68.98	-40.13			162.11	94.31
100	1150/60	-2209.48	-5636.43	-1206.78	2195.13	1267.67		1267.67
101	55/885	-1861.30	-120.18	-66.05			409.28	224.95
102	55/885	-1931.62	-108.40	-63.14			420.72	245.05
103	1045/60	-2019.41	-4436.02	-894.92	1715.45	1171.16		1171.16
104	60/310	-558.32	-51.85	-29.63			141.15	80.65
105	1130/60	-1971.66	-5349.88	-915.44	1572.10	1141.05		1141.05
106	60/678	-955.80	-96.88	-54.12			251.43	140.46
107	50/885	-1783.67	-76.47	-41.61			351.72	191.35
108	30/545	-865.35	-15.54	-9.04			93.80	54.55
109	1185/50	-2632.88	-3795.35	-760.60	2289.00	1448.15		1448.15
110	25/635	-669.49	-8.24	-4.70			65.19	37.17
111	1150/25	-1774.38	-1908.23	-419.33	1408.05	901.42		901.42
112	60/90	-307.90	-17.49	-10.21			64.77	37.81
113	30/885	-1392.25	-23.84	-13.61			151.44	86.44
114	40/40	-343.84	-8.33	-7.03	81.81	174.15	143.99	81.81
115	40/40	-375.05	-6.03	-3.66	79.12	165.00	139.24	79.12
				-16421.89				

45	60/190	-521.60	-22.10	-24.38			118.88	131.12
46	60/303	-462.96	-44.21	42.03			120.33	114.42
47	60/888	-1659.00	-65.39	-146.04			416.48	930.12
48	35/610	-974.49	-15.40	-20.42			129.74	172.00
49	60/332	-1196.93	-69.68	-171.97			246.00	607.14
50	60/338	-479.69	-35.14	-29.33			126.05	105.19
51	95/192	-442.42	-37.12	-34.47			183.44	170.35
52	65/480	-1524.47	-66.47	-251.84			368.58	1396.58
53	60/670	-1691.91	-151.46	-425.48			395.62	1111.37
54	60/192	-433.27	-15.95	-22.55			104.36	147.58
55	40/620	-812.62	-51.31	-120.97			134.61	317.36
56	40/620	-875.76	-60.98	-148.29			142.74	347.12
57	60/460	-765.35	-7.82	-9.48			196.24	237.93
58	35/513	-402.30	-12.09	-24.76			62.14	127.19
59	60/680	-941.67	-125.83	-304.33			248.33	600.62
60	35/620	-616.23	-39.26	-100.01			91.79	233.82
61	60/300	-532.22	-43.24	-25.86			134.92	80.68
62	40/533	-426.99	-9.62	-20.55			76.43	163.20
63	390/30	-251.52	-73.19	-72.41	422.37	178.61		178.61
64	265/30	-126.25	-34.59	-27.92	122.10	103.50		103.50
65	60/30	-37.78	-1.71	-2.66	15.45	27.11		15.45
66	60/370	-398.81	-22.98	-62.83			108.38	296.32
67	60/310	-336.67	-17.54	-42.12			91.42	219.53
68	60/233	-270.47	2.66	-9.93			72.91	272.26
69	60/117	-439.06	-6.28	-12.67			88.40	178.33
70	60/187	-479.51	-1.19	-11.66			111.71	1097.18
71	60/143	-420.15	52.25	22.34			93.81	40.10
72	60/719	-815.60	44.24	-55.86			220.45	278.36
73	60/160	-174.49	-3.96	-0.41			47.36	4.94
74	60/140	-280.05	223.95	81.61			69.34	25.27
75	20/610	-508.22	-4.98	-12.50			39.73	99.58
76	45/60	-196.56	-2.73	-2.70			27.35	27.12
77	45/60	-205.76	-5.63	-3.76			27.81	18.58
78	60/635	-1302.81	-116.99	-294.98			320.80	808.89
79	1010/60	-1573.23	-1197.60	-747.50	4182.99	1033.29		1033.29
80	60/310	-500.86	-99.15	-250.44			129.05	325.98
81	1150/60	-1623.24	-2051.53	-853.66	3333.14	1109.29		1109.29
82	55/885	-1349.11	-140.29	-349.49			317.11	790.02
83	55/885	-1437.41	-162.94	-408.31			334.11	837.26
84	1045/60	-1577.47	-2170.68	-659.03	2122.94	1048.99		1048.99
85	60/310	-404.82	-78.61	-195.84			107.59	268.05
86	1130/60	-1404.93	-2851.32	-651.38	1586.93	996.43		996.43
87	60/678	-939.02	-115.12	-235.17			247.63	505.88
88	50/885	-1384.56	-112.13	-255.73			289.38	659.97
89	30/545	-731.22	-40.17	-101.00			83.97	211.17
90	1185/25	-1941.85	-1819.08	-364.56	1394.89	974.24		974.24
91	25/635	-574.26	-29.06	-72.71			58.17	145.54
92	1150/25	-1417.85	-933.04	-398.14	2444.83	758.81		758.81
93	60/90	-199.43	-32.57	-83.47			48.25	123.66
94	30/885	-1139.35	-65.11	-163.37			132.47	332.36
			-12854.56					34706.89

λ = Σ_Ved/Σ_Vrd = 12854.56/34706.89 = 0.37 OK

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-409.10	-61.93	-42.62	280.03	259.64		259.64
2	190/60	-305.97	-43.48	-28.56	160.04	198.39		160.04
3	240/60	-428.78	-76.97	-54.63	299.68	267.51		267.51
4	175/60	-312.00	-53.94	-36.64	152.21	194.80		152.21
5	165/60	-251.58	-32.90	-14.47	77.31	166.63		77.31
6	165/60	-247.98	-27.75	-12.08	75.61	165.19		75.61
7	165/60	-213.17	-31.94	-11.55	55.34	151.27		55.34
8	125/60	-203.41	-21.24	-9.41	47.12	131.36		47.12
9	55/60	-316.65	-11.33	-6.63			43.29	25.31
10	55/60	-321.02	-4.51	-3.16			43.27	30.33
11	135/60	-269.54	-30.47	-12.56	59.96	161.82		59.96
12	175/60	-261.07	-54.74	-18.60	65.97	174.43		65.97
13	135/60	-224.99	-33.14	-14.49	55.30	143.99		55.30
14	155/60	-254.67	-22.92	-9.39	67.49	163.87		67.49
15	170/60	-229.73	-22.45	-11.75	88.32	159.89		88.32
16	240/60	-323.97	54.90	42.20	258.30	225.59		225.59
17	190/60	-209.36	13.61	7.59	98.71	159.74		98.71
18	230/60	-218.71	24.75	21.77	200.06	179.48		179.48
19	560/60	-872.23	-527.15	-199.95	781.44	572.89		572.89
20	465/60	-721.63	-172.32	-224.62	1846.02	474.65		474.65
21	375/60	-766.37	-203.22	-193.42	1086.89	456.55		456.55
22	380/60	-1115.32	-83.48	-120.20	2151.80	598.13		598.13
23	700/60	-1136.79	-600.56	-277.05	1536.07	734.72		734.72
24	265/60	-457.89	-119.75	-73.84	309.18	289.16		289.16
25	255/60	-435.25	-124.71	-94.09	346.90	276.10		276.10
26	500/60	-977.51	-453.42	-201.98	874.83	591.00		591.00

27	240/45	-629.03	-113.47	-23.97	103.49	323.61		103.49
28	240/45	-413.97	-36.83	-40.96	424.86	237.59		237.59
29	235/65	-508.89	-123.74	-92.38	356.77	305.39		305.39
30	265/65	-522.56	-78.24	-49.54	358.30	323.86		323.86
31	145/60	-195.71	-48.92	-14.75	36.98	135.29		36.98
32	165/60	-267.97	3.95	-2.40	112.55	173.19		112.55
33	150/60	-247.83	20.90	-34.39	255.05	159.13		159.13
34	290/60	-440.71	-318.67	-140.90	239.41	263.51		239.41
35	1160/60	-1873.09	-1855.66	-652.13	3198.63	1213.24		1213.24
36	880/30	-636.07	-616.25	-335.14	1301.01	430.43		430.43
37	2949/60	-2308.07	-489.42	-1005.37	64414.45	2102.83		2102.83
38	60/195	-284.82	-8.74	-5.47		74.57		46.71
39	60/164	-298.14	7.63	6.51		75.27		64.24
40	60/290	-581.99	-21.02	-10.84		143.99		74.26
41	60/110	-223.45	-8.09	-4.17		55.12		28.38
44	60/209	-737.00	3.88	7.08		153.07		279.02
45	60/190	-455.73	-10.43	-12.16		108.02		125.97
46	60/303	-415.67	-74.75	-7.99		109.74		11.72
47	60/888	-1436.95	-61.71	-39.62		370.15		237.63
48	35/610	-875.66	-7.63	-2.38		120.30		37.59
49	60/332	-1143.16	-61.21	-34.67		239.80		135.82
50	60/338	-465.48	-25.32	-9.21		122.82		44.68
51	95/192	-422.36	-29.15	-12.79		176.28		77.31
52	65/480	-819.61	-73.89	-35.82		229.70		111.35
53	60/670	-1254.64	-133.03	-75.84		314.83		179.49
54	60/192	-346.23	-9.82	-4.51		87.51		40.24
55	40/620	-663.73	-32.21	-20.17		114.13		71.48
56	40/620	-849.17	-25.09	-14.43		139.36		80.16
57	60/460	-645.41	3.18	2.44		169.89		130.29
58	35/513	-390.91	-5.99	-3.54		60.60		35.81
59	60/680	-1019.34	-88.91	-54.53		265.76		163.00
60	35/620	-593.92	-14.78	-9.22		89.03		55.53
61	60/300	-492.62	-22.81	-12.30		126.59		68.28
62	40/533	-337.50	-3.10	-1.97		61.90		39.38
63	390/30	-161.71	-85.71	-76.76	258.89	142.68		142.68
64	265/30	-127.56	-40.75	-26.68	99.96	104.02		99.96
65	60/30	-36.94	-1.24	-0.74	5.76	26.78		5.76
66	60/370	-341.17	-51.01	-30.54		94.11		56.35
67	60/310	-331.54	-22.54	-14.34		90.17		57.35
68	60/233	-230.35	9.49	5.00		63.14		33.24
69	60/117	-416.80	3.91	-2.81		86.00		61.82
70	60/187	-406.67	8.83	5.23		98.88		58.60
71	60/143	-389.99	31.45	37.32		89.22		105.85
72	60/719	-859.91	-66.97	-34.38		231.04		118.61
73	60/160	-153.37	-3.87	6.72		42.16		73.08
74	60/140	-261.57	158.63	73.56		65.66		30.45
75	20/610	-430.82	0.48	-1.24		35.11		91.31
76	45/60	-190.62	-0.36	-0.88		27.02		65.95
77	45/60	-199.82	-2.69	-1.87		27.52		19.11
78	60/635	-1012.72	-105.14	-61.84		261.49		153.80
79	1010/60	-1310.29	-1720.63	-913.21	3054.25	928.11		928.11
80	60/310	-405.68	-80.94	-47.89		107.79		63.77
81	1150/60	-1408.70	-2243.63	-1020.38	3230.54	1023.48		1023.48
82	55/885	-988.48	-116.23	-67.97		242.90		142.04
83	55/885	-1086.07	-153.93	-91.61		263.74		156.96
84	1045/60	-1466.73	-2677.95	-670.70	1648.78	994.60		994.60
85	60/310	-368.36	-61.14	-35.95		99.04		58.24
86	1130/60	-1275.28	-2997.37	-732.18	1560.54	906.07		906.07
87	60/678	-917.13	-89.72	-51.35		242.63		138.87
88	50/885	-890.04	-77.33	-43.96		199.06		113.16
89	30/545	-568.83	-19.17	-11.33		69.77		41.23
90	1185/25	-1677.80	-2110.25	-425.07	1318.93	868.62		868.62
91	25/635	-477.93	-11.47	-6.77		50.32		29.72
92	1150/25	-1267.25	-1131.04	-418.44	1979.62	698.57		698.57
93	60/90	-128.18	-25.02	-15.31		33.67		20.60
94	30/885	-656.42	-28.06	-16.78		85.70		51.24
			-9040.82					20796.89
$\lambda = \Sigma_Ved/\Sigma_Vrd = 9040.82/20796.89 = 0.43 \quad OK$								

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-235.86	27.42	1.69	14.89	158.34		14.89
2	190/40	-144.54	42.30	-11.73	33.72	108.48		33.72
3	240/40	-194.44	5.11	-10.56	423.67	141.78		141.78
4	175/40	-151.80	-8.99	-19.88	255.45	107.39		107.39
5	165/40	-108.86	11.74	-12.01	82.74	87.55		82.74
6	165/40	-106.80	10.42	-10.95	83.57	86.72		83.57
7	110/40	-116.74	4.65	-3.95	45.86	76.03		45.86
8	125/40	-213.70	11.88	-21.89	182.68	118.82		118.82
9	35/40	-123.57	-5.07	-16.88			11.62	38.68
10	35/40	-138.12	-1.37	0.51			11.67	4.35

11	135/40	-144.69	8.76	-7.22	67.47	93.88	67.47
12	155/40	-133.92	14.48	-1.21	7.56	94.90	7.56
13	135/40	-105.98	6.99	-14.31	129.08	78.39	78.39
14	155/40	-122.89	5.39	-4.45	69.26	90.49	69.26
15	150/40	-86.28	-38.18	-35.85	55.50	59.11	55.50
16	240/40	-87.63	-121.22	-96.86	79.40	0.00	0.00
17	190/40	-114.23	-56.99	-87.59	151.68	81.78	81.78
18	230/40	-97.27	16.60	-54.39	343.14	100.24	100.24
19	120/40	-274.31	-6.29	-41.13	705.53	141.73	141.73
20	255/40	-214.06	-100.86	-70.08	165.65	149.93	149.93
21	375/40	-251.62	-315.40	-192.62	258.99	150.37	150.37
22	380/40	-529.64	-57.11	-157.74	2195.69	313.19	313.19
23	700/40	-590.54	-472.05	-257.16	982.87	422.88	422.88
24	265/40	-280.74	-125.77	-88.74	220.57	182.46	182.46
25	255/40	-184.39	-171.06	-93.98	115.09	101.54	101.54
26	500/40	-434.34	-293.23	-135.10	434.80	307.07	307.07
27	240/40	-386.34	59.63	46.15	271.74	218.53	218.53
28	240/40	-246.78	-131.94	-86.25	163.59	151.94	151.94
29	235/40	-248.25	-173.46	-97.52	137.89	137.40	137.40
30	265/40	-208.31	-100.12	-65.23	158.53	150.87	150.87
31	145/30	-178.19	12.75	4.80	36.58	100.27	36.58
32	165/30	-62.64	2.87	-7.26	120.82	58.05	58.05
33	150/30	-160.78	-99.43	-76.88	73.16	61.57	61.57
34	965/30	-761.47	-871.17	-227.43	807.13	497.59	497.59
35	939/35	124.56	-223.50	-206.93	0.00	0.00	0.00
36	40/195	-134.87	-4.78	-15.86		24.54	81.43
37	40/164	-143.33	-15.06	-9.37		25.39	15.80
38	40/290	-233.69	-11.43	-35.24		41.80	128.85
39	40/90	-143.83	-6.09	-17.39		22.74	64.97
40	40/160	136.79	-48.22	-34.84		0.00	0.00

41	40/229	18.17	-0.61	-19.27		0.00	0.00
42	40/209	-432.49	-13.87	-24.80		63.07	112.79
43	40/190	-198.85	-59.11	-63.00		34.31	36.56
44	40/303	-234.90	-79.90	-26.57		42.20	14.03
45	40/888	-686.12	-26.48	-62.36		123.33	290.42
46	40/332	-820.91	-61.49	-183.03		110.99	330.38
47	40/338	-218.53	-3.98	-17.20		40.00	172.74
48	35/670	-426.00	-80.78	-170.19		67.45	142.12
49	40/172	-136.16	-0.18	-2.60		24.41	362.34
50	35/680	-212.18	-196.96	-319.13		35.40	57.35
51	40/590	-637.54	-38.80	-47.95		109.46	135.27
52	40/440	-370.03	-28.29	-58.87		65.85	137.06
53	35/680	-453.70	-65.33	-154.41		71.47	168.90
54	40/370	-146.24	-9.96	-24.18		27.73	67.31
55	40/310	-179.69	-0.14	-6.68		33.21	1599.30
56	40/233	-84.18	-8.16	-12.96		16.04	25.50
57	40/117	-307.33	9.20	57.54		40.24	251.75
58	40/187	-211.01	-9.77	-14.16		35.98	52.13
59	40/143	-152.89	64.34	32.72		26.31	13.38
60	40/719	-366.16	-13.54	-49.25		68.35	248.59
61	40/140	-183.03	-91.90	-52.45		30.34	17.31
62	40/40	-1.43	-2.37	-4.68		0.29	0.56
63	40/40	-192.36	-3.30	-5.87		14.23	25.31
64	40/635	-489.38	-58.86	-163.28		87.99	244.09
65	990/40	-605.52	-16.99	-463.82	74296.87	506.21	506.21
66	40/310	-160.15	-49.92	-124.41		29.86	74.42
67	1150/40	-725.88	175.71	-548.10	11781.23	597.02	597.02
68	1045/40	-968.45	-1328.96	-246.16	806.41	666.05	666.05
69	40/290	-286.20	-35.18	-84.38		49.84	119.55
70	1110/40	-581.24	-1212.97	-380.33	931.68	509.54	509.54
71	40/678	-528.46	-28.84	-58.61		94.90	192.84
72	40/635	-390.19	-74.61	-180.47		71.76	173.57
73	1185/40	-1298.05	-2015.66	-487.03	1551.61	835.22	835.22
74	1150/40	-1061.10	-656.87	-589.83	4716.95	731.11	731.11
75	30/35	-186.52	-6.88	-4.94	145.25	132.12	58.10
76	30/35	-208.96	-5.98	-3.34	148.90	134.77	59.56
77	30/35	-169.49	-46.54	-24.90	139.03	127.68	55.61
78	30/35	-156.17	5.99	8.02	135.08	124.93	54.03
79	30/35	-100.81	-11.18	-7.45	130.93	122.06	52.37
80	30/35	-231.43	-9.24	-6.14	143.43	130.81	57.37
				-6759.06			14187.85

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 6759.06/14187.85 = 0.48 \quad OK$$

Στάθμη 7

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-147.65	31.32	14.69	75.40	123.06		75.40
2	190/40	-108.61	-14.47	-11.33	73.79	94.11		73.79
3	240/40	-152.79	0.98	7.13	1209.32	125.12		125.12
4	175/40	-87.86	-10.51	-3.63	24.57	81.81		24.57
5	165/40	-84.99	-16.55	-7.66	29.92	78.00		29.92
6	165/40	-86.92	-11.13	-5.13	30.40	78.77		30.40

7	110/40	-76.01	0.37	0.14	13.92	59.74		13.92
8	125/40	-69.01	-21.67	-18.12	33.05	52.48		33.05
9	35/40	-112.71	-3.52	-1.94			11.40	6.28
10	35/40	-119.92	-0.00	-0.24			11.57	1170.04
11	135/40	-100.85	5.76	7.44	78.02	76.34		76.34
12	155/40	-94.54	0.40	6.33	1046.71	79.15		79.15
13	135/40	-78.76	-15.33	-7.63	24.12	67.50		24.12
14	155/40	-88.55	-15.08	-6.55	27.24	76.75		27.24
15	150/40	-119.85	-17.85	-10.94	48.44	87.94		48.44
16	240/40	-81.02	-88.51	-49.98	52.11	41.01		41.01
17	190/40	-79.60	-68.77	-33.62	34.63	38.72		34.63
18	230/40	-89.27	-53.05	-20.76	37.83	80.18		37.83
19	120/40	-94.18	-34.98	-30.61	43.59	55.96		43.59
20	255/40	-262.61	-127.27	-58.26	129.49	168.28		129.49
21	375/40	-218.62	-161.72	-174.77	404.06	178.27		178.27
22	380/40	-288.83	-243.05	-152.45	304.80	200.21		200.21
23	735/40	-457.95	-456.86	-218.79	730.29	379.18		379.18
24	265/40	-257.42	-55.01	-75.77	401.03	173.63		173.63
25	255/40	-161.95	-95.96	-81.36	158.33	119.38		119.38
26	500/40	-426.89	-230.37	-184.23	743.68	304.09		304.09
27	240/40	-365.22	22.20	57.75	878.52	210.09		210.09
28	240/40	-225.66	-63.17	-74.36	273.62	154.26		154.26
29	235/40	-227.57	-92.93	-85.83	210.93	152.36		152.36
30	265/40	-184.99	-48.44	-52.14	236.09	144.66		144.66
31	145/30	-137.89	-4.74	-4.66	79.43	84.15		79.43
32	165/30	-69.10	-20.80	-9.33	23.41	59.08		23.41
33	150/30	-115.82	-54.84	-21.06	28.18	62.91		28.18
34	965/30	-514.96	-799.65	-320.06	887.88	398.98		398.98
35	939/35	-91.11	-918.25	-426.14	195.19	0.00		0.00
36	40/195	-80.18	2.75	1.33			15.17	7.36
37	40/164	-147.11	-11.40	-18.25			25.97	41.57
38	40/290	-175.03	-13.87	-10.88			32.24	25.28
39	40/90	-104.52	-4.60	-3.57			17.72	13.75
40	40/160	-96.63	-22.73	-39.98			17.80	31.31
41	40/229	-18.04	15.27	4.42			3.57	1.03
42	40/209	-263.05	6.30	1.72			43.94	11.98
43	40/190	-200.46	-24.13	-28.57			34.54	40.89
44	40/303	-208.94	-60.23	-49.62			38.01	31.31
45	40/888	-596.80	-12.01	-4.80			108.85	43.54
46	40/332	-532.94	-30.01	-16.65			84.17	46.70
47	40/338	-188.03	-2.43	-1.88			34.86	27.04
48	35/670	-315.93	-15.39	-9.48			51.38	31.66
49	40/172	-119.68	0.96	1.02			21.75	23.08
50	35/680	-154.36	-5.95	-4.29			26.09	18.80
51	40/590	-475.50	-7.38	-4.54			85.06	52.39
52	40/440	-247.13	-8.76	-5.21			45.79	27.23
53	35/680	-417.95	-30.52	-19.20			66.41	41.79
54	40/370	-114.81	-40.89	-24.08			22.03	12.97
55	40/310	-160.54	4.33	11.32			29.93	78.25
56	40/233	-59.62	2.20	-0.08			11.52	0.43
57	40/117	-139.97	1.26	1.86			23.59	34.87
58	40/187	-150.27	1.31	0.68			26.90	13.87
59	40/143	-150.41	38.89	44.00			25.95	29.36
60	40/719	-344.13	-28.15	-15.69			64.51	35.96
61	40/140	-127.90	-49.33	-15.30			22.52	6.98
62	40/40	-28.26	-1.81	-1.16			5.13	3.29
63	40/40	-30.32	-1.09	-0.71			5.46	3.55
64	40/635	-321.78	-44.15	-26.66			60.08	36.28
65	990/40	-435.98	-724.59	-515.57	1433.67	437.43		437.43
66	40/310	-133.20	-22.95	-13.91			25.14	15.24
67	1150/40	-742.44	-74.22	-584.10	30327.43	603.64		603.64
68	1045/40	-799.84	-1428.21	-293.74	760.41	595.09		595.09
69	40/290	-239.00	-12.33	-6.56			42.64	22.71
70	1110/40	-548.14	-1319.44	-329.08	702.29	470.68		470.68
71	40/678	-396.46	-17.29	-8.79			73.22	37.23
72	40/635	-393.90	-44.69	-27.09			72.38	43.87
73	1185/40	-1193.77	-1626.71	-410.77	1514.97	793.51		793.51
74	1150/40	-965.31	-360.59	-565.55	7604.52	692.79		692.79
75	30/35	-184.21	-2.95	-3.69	34.26	76.79	57.39	34.26
76	30/35	-206.65	-3.32	-2.06	35.14	79.44	58.86	35.14
77	30/35	-167.18	-26.20	-23.46	32.75	72.32	54.86	32.75
78	30/35	-153.86	-0.72	9.38	31.80	69.55	53.27	31.80
79	30/35	-98.50	-5.26	-6.00	30.80	66.67	51.59	30.80
80	30/35	-229.12	-4.36	-4.69	33.82	75.46	56.65	33.82
			-5073.79					9353.79
$\lambda = \Sigma_Ved/\Sigma_Vrd = 5073.79/9353.79 = 0.54 \quad OK$								

Σεισμικός συνδυασμός 35: 1.10*G + 0.60*Q - 1.21*Σx2 + 0.36*Σy2

Στάθμη 3

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-630.24	-128.27	-67.62	293.53	348.10		293.53

2	190/60	-509.79	-70.92	-38.30	191.05	279.91		191.05
3	240/60	-541.27	-125.48	-60.85	243.61	312.51		243.61
4	175/60	-416.35	-75.36	-39.48	145.25	236.54		145.25
5	165/60	-484.23	-53.42	-29.08	153.33	259.69		153.33
6	165/60	-484.57	-49.48	-23.91	136.21	259.83		136.21
7	165/60	-359.35	-55.14	-27.10	113.80	209.74		113.80
8	250/60	-507.67	-127.87	-67.93	268.34	303.07		268.34
9	95/60	-427.39	-23.75	-19.14	89.64	208.95		89.64
10	90/60	-422.74	0.04	3.78	8966.02	205.09		205.09
11	245/60	-506.44	-147.91	-86.96	289.00	300.58		289.00
12	175/60	-375.44	-84.20	-49.40	151.21	220.18		151.21
13	135/60	-415.09	-36.24	-22.46	120.02	220.04		120.02
14	155/60	-465.66	-44.59	-23.14	130.74	248.26		130.74
15	170/60	-412.11	-65.31	-36.46	147.93	232.85		147.93
16	240/60	-315.05	-113.31	-62.17	180.08	222.02		180.08
17	190/60	-205.18	-73.48	-42.67	100.90	153.10		100.90
18	230/60	-267.39	-76.14	-22.25	79.37	198.96		79.37
19	560/60	-1464.16	-823.47	-271.18	995.49	809.67		809.67
20	465/60	-1327.98	-484.28	-199.95	909.11	717.19		717.19
21	375/60	-1116.16	-308.85	-149.84	711.78	596.46		596.46
22	380/60	-991.06	-367.35	-148.63	562.27	548.42		548.42
23	700/60	-1675.48	-1607.37	-268.76	744.79	950.19		744.79
24	265/60	-907.71	-174.63	-102.71	463.97	469.08		463.97
25	255/60	-768.05	-138.40	-94.45	466.09	409.22		409.22
26	500/60	-1232.11	-566.41	-272.80	1116.33	692.84		692.84
27	480/65	-606.70	-533.59	-257.37	620.01	440.34		440.34
28	380/65	-980.32	-297.28	-222.98	1062.93	556.79		556.79
29	240/65	-649.83	-145.05	-64.62	260.18	363.93		260.18
30	65/65	-140.03	-4.84	-3.05			37.60	23.67
31	215/65	-333.75	-115.26	-63.19	168.38	226.67		168.38
32	110/65	-258.34	-36.79	-21.85	66.03	151.00		66.03
33	450/65	-699.06	-614.30	-217.29	476.21	457.89		457.89
34	265/65	-750.73	-184.61	-90.55	359.74	415.13		359.74
35	120/60	-350.92	-21.18	-7.53	52.90	188.37		52.90
36	290/60	-473.36	-200.89	-111.95	319.77	305.34		305.34
37	345/60	-798.40	-289.76	-240.03	875.67	457.36		457.36
38	165/60	-511.62	-61.10	-21.80	103.71	270.65		103.71
39	150/60	-399.95	-40.74	-7.66	41.32	219.98		41.32
40	290/60	-903.60	-284.32	-175.40	555.32	477.44		477.44
41	1140/60	-3170.87	-4016.60	-825.80	2677.73	1724.35		1724.35
42	880/60	-1492.23	-2687.14	-749.05	1518.48	908.80		908.80
43	3769/60	-4761.05	-14955.43	-3251.78	17032.97	3412.02		3412.02
44	445/60	-599.53	-697.22	-252.27	417.33	367.26		367.26
45	60/195	-530.28	-15.73	-8.67			121.38	66.89
46	60/164	-575.46	-6.98	-2.90			119.83	49.79
47	60/290	-970.61	-25.02	-13.13			206.06	108.09
48	60/110	-326.46	-9.96	-5.25			72.51	38.22
49	60/160	-238.50	-14.96	-8.16			62.24	33.96
50	60/229	-315.30	-9.61	-1.79			83.24	15.51
51	60/209	-720.68	-10.97	-4.25			151.16	58.57
52	60/190	-570.61	-18.70	-8.76			126.19	59.08
53	60/273	-742.07	157.26	57.35			169.71	61.89
54	60/888	-2211.40	-74.34	-40.30			519.11	281.41
55	45/630	-1200.05	-33.46	-20.37			210.11	127.91
56	60/900	-1785.28	-150.92	-88.91			442.79	260.84
57	95/192	-637.07	-44.76	-23.30			247.22	128.70
58	40/513	-679.19	-12.63	-6.67			112.28	59.34
59	65/630	-1697.82	-95.88	-56.11			431.89	252.77
60	60/670	-2557.61	-102.98	-60.74			511.45	301.66
61	60/645	-1092.15	-65.96	-32.92			279.19	139.37
62	60/192	-404.07	-18.37	-10.66			98.94	57.41
63	40/620	-1095.85	-28.01	-16.08			168.41	96.67
64	60/680	-1086.18	-103.86	-60.11			280.39	162.29
65	40/620	-1147.32	-28.80	-16.46			173.83	99.35
66	60/460	-862.20	-33.98	-19.21			216.31	122.32
67	35/513	-882.07	-9.66	-5.54			114.62	65.70
68	60/680	-1817.31	-87.21	-48.42			417.93	232.04
69	35/620	-684.17	-14.34	-7.73			99.95	53.84
70	60/300	-600.21	-42.96	-23.92			148.60	82.73
71	40/533	-699.65	-13.27	-7.64			115.86	66.77
72	390/30	-439.69	-186.30	-62.30	221.79	253.88		221.79
73	265/30	-382.73	-81.64	-48.02	211.73	206.09		206.09
74	60/30	-78.49	-2.55	-1.46	9.97	43.40		9.97
75	60/370	-780.57	-48.03	-25.08			191.02	99.73
76	60/310	-367.10	-26.85	-14.11			98.74	51.88
77	60/233	-472.51	-17.43	-5.92			116.64	39.65
78	60/57	-250.76	-4.12	-0.42	4.28	122.95		4.28
79	60/187	-692.07	-9.50	-2.48			140.67	36.80
80	60/143	-613.76	-4.70	2.02			115.33	49.49
81	60/264	-210.15	-84.38	-24.99			58.66	17.38
82	60/468	-1553.65	-20.12	-6.76			331.04	111.15
83	60/107	-94.76	-10.05	-4.67			26.23	12.20

84	60/160	-126.86	-20.69	-11.30			35.42	19.34
85	60/140	-413.36	-25.70	-15.38			92.03	55.06
86	35/630	-724.07	-7.57	-2.15			104.91	29.82
87	40/495	-542.89	-22.26	-13.36			92.98	55.79
88	670/25	-395.67	-589.91	-174.19	335.67	251.22		251.22
89	65/250	-526.73	-33.19	-18.64			142.11	79.79
90	340/60	-671.20	-312.61	-163.85	479.46	404.48		404.48
91	56/56	-86.45	-1.49	-1.70			20.71	23.62
92	56/56	-149.35	-1.28	-1.11			31.38	27.10
93	56/56	-151.10	-1.11	-0.67			31.62	19.25
94	56/56	-85.25	-0.60	0.22			20.47	7.69
95	45/70	-261.78	-10.51	-5.16	119.43	273.85	210.19	119.43
96	45/70	-306.16	-16.24	-14.39	115.90	262.94	203.99	115.90
97	60/635	-1799.14	-109.89	-60.09			406.17	222.12
98	1010/60	-2451.41	-4486.21	-1076.58	2246.52	1366.96		1366.96
99	60/310	-820.92	-72.34	-41.88			189.31	109.61
100	1150/60	-2780.12	-6088.50	-1283.62	2551.81	1539.25		1539.25
101	55/885	-1934.71	-148.75	-82.93			421.22	234.82
102	55/885	-2016.17	-107.00	-62.30			434.09	252.75
103	1045/60	-2762.90	-4950.42	-1006.97	2156.62	1517.15		1517.15
104	60/310	-746.40	-70.19	-40.37			176.83	101.69
105	1130/60	-2528.40	-5359.35	-1026.50	2121.19	1435.00		1435.00
106	60/678	-994.94	-104.39	-58.09			260.22	144.80
107	50/885	-1705.25	-83.78	-45.67			340.21	185.44
108	30/545	-693.88	-16.23	-9.39			80.93	46.86
109	1185/50	-2210.02	-3941.41	-783.96	2019.03	1279.01		1279.01
110	25/635	-600.49	-10.08	-5.77			60.18	34.46
111	1150/25	-1619.58	-1939.38	-474.42	1504.65	839.50		839.50
112	60/90	-298.53	-18.06	-10.46			63.61	36.85
113	30/885	-1366.29	-24.68	-14.01			149.67	84.94
114	40/40	-386.34	-6.33	-4.99	81.81	174.15	143.99	81.81
115	40/40	-422.89	-5.57	-3.61	79.12	165.00	139.24	79.12
				-16055.74				
				$\lambda = \Sigma_Ved/\Sigma_Vrd = 16055.74/32949.35 = 0.49$	OK			

Στάθμη 4

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-452.15	-20.82	-45.24	955.83	276.86		276.86
2	190/60	-339.63	-11.03	-18.15	435.54	211.85		211.85
3	240/60	-429.53	-5.93	-6.10	435.53	267.81		267.81
4	175/60	-283.48	-18.71	-26.87	298.34	183.39		183.39
5	165/60	-302.24	-22.56	-24.89	224.48	186.90		186.90
6	165/60	-308.90	-11.70	-9.45	167.04	189.56		167.04
7	165/60	-325.78	-22.18	-23.12	224.63	196.31		196.31
8	125/60	-196.74	-26.54	-15.40	60.08	128.70		60.08
9	55/60	-345.75	-19.91	-39.10			42.87	84.20
10	55/60	-352.75	10.98	18.16			42.66	70.55
11	135/60	-242.92	-29.63	-11.82	53.58	151.17		53.58
12	175/60	-338.63	-64.27	-26.85	99.71	205.45		99.71
13	135/60	-274.78	-15.46	-14.69	140.23	163.91		140.23
14	155/60	-308.78	-2.10	4.66	425.12	185.51		185.51
15	170/60	-281.12	-13.41	-14.49	215.33	180.45		180.45
16	240/60	-148.23	6.71	3.37	83.81	155.29		83.81
17	190/60	-123.06	-4.98	-24.01	527.17	125.22		125.22
18	230/60	-152.16	15.31	-16.08	171.57	152.86		152.86
19	560/60	-898.04	-494.25	-160.18	683.66	583.22		583.22
20	465/60	-882.06	-367.08	-211.78	957.70	538.82		538.82
21	375/60	-764.64	-298.02	-141.10	539.77	455.86		455.86
22	380/60	-873.86	-172.55	-113.06	836.57	501.55		501.55
23	700/60	-1139.32	-664.51	-125.55	630.22	735.73		630.22
24	265/60	-586.21	-129.16	-99.98	467.65	340.48		340.48
25	255/60	-486.23	-194.87	-101.25	260.41	296.49		260.41
26	500/60	-825.37	-400.93	-192.29	825.55	530.15		530.15
27	240/45	-544.14	-130.98	-37.05	128.62	289.65		128.62
28	240/45	-374.20	-71.93	-43.56	215.18	221.68		215.18
29	235/65	-368.01	-35.58	-87.39	907.92	249.04		249.04
30	265/65	-397.65	-129.48	-72.02	252.30	273.89		252.30
31	145/60	-226.84	-70.71	-17.67	34.65	140.33		34.65
32	165/60	-304.98	-8.70	-9.95	234.39	187.99		187.99
33	150/60	-256.80	-7.64	-24.06	502.14	162.72		162.72
34	290/60	-702.69	153.65	-249.06	1249.57	397.08		397.08
35	1160/60	-2348.24	-2136.00	-826.63	4199.07	1403.30		1403.30
36	880/30	-736.48	-613.77	-427.74	1878.62	470.59		470.59
37	2949/60	-2678.28	644.00	-878.55	48959.07	2250.91		2250.91
38	60/195	-328.22	-9.03	-22.88			84.02	212.97
39	60/164	-336.33	2.70	-8.00			82.86	245.00
40	60/290	-652.83	-18.98	-43.33			157.34	359.31
41	60/110	-235.02	-9.43	-21.74			57.33	132.26
42	60/160	-70.69	-7.80	-9.58			20.39	25.02
43	60/229	-81.62	-6.02	-7.72			23.72	30.42
44	60/209	-785.19	-4.78	-12.40			158.34	411.19

45	60/190	-485.19	-22.65	-24.02			113.03	119.84
46	60/303	-554.53	-43.91	42.26			139.74	134.48
47	60/888	-1584.85	-46.26	-104.05			401.34	902.74
48	35/610	-903.18	-17.32	-25.06			123.01	178.02
49	60/332	-1174.58	-76.47	-193.34			243.48	615.60
50	60/338	-639.75	-41.57	-31.11			160.16	119.87
51	95/192	-443.60	-28.25	-31.24			183.85	203.33
52	65/480	-1245.91	-83.18	-306.01			320.18	1177.85
53	60/670	-1848.10	-163.14	-455.00			420.85	1173.73
54	60/192	-394.29	-15.14	-19.74			97.07	126.53
55	40/620	-652.59	-50.24	-122.07			112.52	273.38
56	40/620	-596.86	-65.40	-148.69			104.32	237.16
57	60/460	-570.08	-5.81	-9.11			152.51	239.36
58	35/513	-512.35	-13.00	-29.66			76.25	174.00
59	60/680	-1531.88	-143.28	-342.64			369.14	882.79
60	35/620	-444.20	-32.96	-81.89			69.40	172.43
61	60/300	-537.93	-34.80	-21.24			136.10	83.06
62	40/533	-404.88	-11.23	-28.25			72.92	183.40
63	390/30	-256.94	-19.01	-34.98	799.96	180.78		180.78
64	265/30	-210.11	-21.80	-29.91	321.22	137.05		137.05
65	60/30	-43.74	-1.69	-3.28	21.79	29.49		21.79
66	60/370	-520.49	-12.50	-35.90			136.96	393.48
67	60/310	-256.86	-7.87	-19.88			71.48	180.66
68	60/233	-245.14	3.26	-9.76			66.78	200.30
69	60/117	-530.65	-7.62	-14.41			95.92	181.30
70	60/187	-447.44	-1.88	-12.13			106.25	684.21
71	60/143	-496.19	51.21	19.84			103.89	40.25
72	60/719	-1233.60	34.81	7.78			314.65	70.29
73	60/160	-171.08	-2.54	-0.26			46.53	4.70
74	60/140	-143.80	223.95	81.76			39.27	14.34
75	20/610	-435.32	-4.34	-11.21			35.39	91.37
76	45/60	-131.11	-1.23	-1.97			21.99	35.38
77	45/60	-139.05	-5.53	-3.76			22.84	15.53
78	60/635	-1309.77	-134.38	-338.31			322.14	811.01
79	1010/60	-1822.09	-1636.00	-766.07	3527.90	1132.84		1132.84
80	60/310	-604.56	-103.13	-260.01			150.47	379.36
81	1150/60	-2048.75	-2727.56	-911.73	3233.08	1279.50		1279.50
82	55/885	-1326.81	-181.19	-431.29			312.75	744.45
83	55/885	-1413.49	-164.71	-427.30			329.55	854.95
84	1045/60	-2149.35	-2436.60	-766.77	2803.92	1277.74		1277.74
85	60/310	-555.73	-109.33	-273.87			140.61	352.22
86	1130/60	-1770.66	-2580.41	-915.87	2991.94	1160.26		1160.26
87	60/678	-672.17	-88.27	-248.54			184.19	518.61
88	50/885	-1363.33	-123.03	-314.02			285.80	729.47
89	30/545	-642.49	-40.32	-101.30			76.53	192.26
90	1185/25	-1541.81	-1838.53	-388.95	1326.41	814.23		814.23
91	25/635	-338.94	-36.40	-90.41			37.63	93.45
92	1150/25	-1268.03	-927.41	-428.46	2473.06	698.88		698.88
93	60/90	-166.97	-31.77	-80.88			41.97	106.84
94	30/885	-1136.06	-65.90	-165.64			132.19	332.29
				-13142.96				
								34462.95

$\lambda = \Sigma_Ved/\Sigma_Vrd = 13142.96/34462.95 = 0.38 \quad OK$

Στάθμη 5

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-396.06	-37.93	-34.16	357.02	254.42		254.42
2	190/60	-288.63	-16.27	-15.87	226.65	191.45		191.45
3	240/60	-329.37	-13.97	-18.75	457.18	227.75		227.75
4	175/60	-297.31	-36.72	-26.63	156.45	188.92		156.45
5	165/60	-245.48	-27.52	-14.60	91.37	164.19		91.37
6	165/60	-253.39	-20.38	-10.94	94.90	167.36		94.90
7	165/60	-273.25	-26.44	-11.15	79.26	175.30		79.26
8	125/60	-146.76	-17.22	-8.25	38.75	108.71		38.75
9	55/60	-312.06	-9.87	-5.71			43.29	25.03
10	55/60	-320.38	-2.69	-2.06			43.28	33.16
11	135/60	-213.82	-22.90	-3.07	16.25	139.53		16.25
12	175/60	-309.21	-44.04	-5.91	29.89	193.68		29.89
13	135/60	-227.75	-26.75	-11.48	54.77	145.10		54.77
14	155/60	-256.23	-16.45	-6.33	63.71	164.49		63.71
15	170/60	-257.51	-26.08	-11.87	84.46	171.00		84.46
16	240/60	-169.68	44.35	38.88	165.85	163.87		163.87
17	190/60	-152.99	-1.82	1.69	123.93	137.20		123.93
18	230/60	-158.58	-8.90	4.75	90.56	155.43		90.56
19	560/60	-886.01	-408.16	-176.16	900.57	578.40		578.40
20	465/60	-799.61	-130.05	-212.90	2517.79	505.85		505.85
21	375/60	-715.14	-171.19	-126.11	798.55	436.06		436.06
22	380/60	-823.70	-88.64	-98.11	1355.08	481.48		481.48
23	700/60	-1048.02	-478.79	-58.27	379.25	699.21		379.25
24	265/60	-478.72	-146.72	-82.66	292.52	297.49		292.52
25	255/60	-452.57	-114.07	-90.81	377.48	283.03		283.03
26	500/60	-759.37	-259.69	-171.81	1064.36	503.75		503.75

27	240/45	-587.51	-126.57	-29.61	110.85	307.00		110.85
28	240/45	-350.44	-38.90	-35.70	310.53	212.18		212.18
29	235/65	-423.69	-69.82	-61.29	363.98	271.31		271.31
30	265/65	-359.76	-72.58	-59.84	343.52	258.74		258.74
31	145/60	-204.00	-62.10	-21.34	43.64	132.07		43.64
32	165/60	-283.20	3.67	-2.06	108.68	179.28		108.68
33	150/60	-250.27	18.05	-16.52	143.05	160.11		143.05
34	290/60	-418.15	-354.90	-171.19	250.10	239.41		239.41
35	1160/60	-2055.95	-1928.12	-559.42	2843.80	1286.38		1286.38
36	880/30	-549.49	-655.84	-393.07	1267.26	395.80		395.80
37	2949/60	-2560.77	-271.36	-947.80	120378.68	2203.91		2203.91
38	60/195	-251.09	-7.59	-5.08			66.87	44.78
39	60/164	-283.29	7.39	6.00			72.19	58.56
40	60/290	-553.79	-11.90	-5.59			138.43	65.00
41	60/110	-224.52	-5.91	-2.92			55.33	27.34
44	60/209	-723.33	3.27	6.97			151.47	323.14
45	60/190	-424.06	-11.14	-11.46			102.37	105.36
46	60/303	-494.96	-74.72	-8.00			127.28	13.63
47	60/888	-1388.66	-44.86	-29.69			359.69	238.09
48	35/610	-831.68	-9.72	-3.47			115.83	41.36
49	60/332	-1108.55	-73.12	-41.69			235.57	134.32
50	60/338	-565.56	-34.20	-13.99			144.84	59.24
51	95/192	-417.51	-24.34	-11.67			174.53	83.70
52	65/480	-649.95	-87.07	-45.02			188.17	97.30
53	60/670	-1340.91	-138.86	-79.25			331.95	189.45
54	60/192	-333.39	-7.39	-1.23			84.85	14.10
55	40/620	-561.93	-25.02	-15.78			99.04	62.46
56	40/620	-684.19	-17.72	-10.17			117.05	67.22
57	60/460	-542.89	1.14	1.83			146.08	236.03
58	35/513	-445.81	-6.74	-3.81			67.87	38.31
59	60/680	-1395.34	-88.40	-54.12			343.57	210.34
60	35/620	-498.01	-11.55	-7.31			76.67	48.48
61	60/300	-498.33	-18.06	-7.68			127.81	54.38
62	40/533	-315.46	-5.79	-3.24			58.20	32.61
63	390/30	-192.16	-35.75	-27.30	257.86	154.86		154.86
64	265/30	-147.65	-63.58	-35.29	96.44	112.06		96.44
65	60/30	-43.14	-1.42	-0.79	6.17	29.26		6.17
66	60/370	-415.07	-23.95	-14.38			112.32	67.43
67	60/310	-255.06	-7.02	-4.45			71.02	45.02
68	60/233	-177.29	10.01	5.30			49.65	26.28
69	60/117	-492.03	3.90	-4.77			93.21	114.06
70	60/187	-371.15	8.50	4.72			92.09	51.12
71	60/143	-426.94	32.53	37.90			94.79	110.45
72	60/719	-1135.83	-3.22	1.58			293.76	143.78
73	60/160	-149.96	-2.58	6.87			41.30	110.00
74	60/140	-125.32	158.65	73.72			34.66	16.10
75	20/610	-393.62	1.27	-0.30			32.71	7.68
76	45/60	-125.17	0.00	-0.15			21.32	1437.91
77	45/60	-133.11	-2.60	-1.87			22.21	16.00
78	60/635	-1000.13	-111.34	-65.43			258.76	152.07
79	1010/60	-1464.86	-2131.39	-945.60	2803.81	989.94		989.94
80	60/310	-474.95	-84.43	-49.93			123.42	72.99
81	1150/60	-1666.41	-3033.97	-1076.10	2903.87	1126.57		1126.57
82	55/885	-958.36	-144.58	-85.16			236.35	139.22
83	55/885	-1071.33	-161.35	-96.09			260.63	155.22
84	1045/60	-1821.32	-2988.11	-962.12	2527.67	1146.53		1146.53
85	60/310	-439.15	-87.38	-51.72			115.44	68.32
86	1130/60	-1536.68	-2872.11	-1069.44	2791.27	1066.67		1066.67
87	60/678	-738.16	-152.95	-90.61			200.39	118.71
88	50/885	-871.30	-85.81	-48.99			195.35	111.52
89	30/545	-546.20	-19.95	-11.79			67.59	39.94
90	1185/25	-1478.18	-2240.68	-414.53	1133.02	788.77		788.77
91	25/635	-358.39	-12.44	-7.36			39.50	23.36
92	1150/25	-1246.68	-1040.48	-484.06	2463.37	690.34		690.34
93	60/90	-116.85	-25.04	-15.36			31.08	19.07
94	30/885	-621.42	-28.80	-17.19			81.78	48.80
			-9253.19					21960.79
$\lambda = \Sigma_Ved/\Sigma_Vrd = 9253.19/21960.79 = 0.42 \quad OK$								

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-229.12	26.82	7.78	68.30	155.65		68.30
2	190/40	-129.11	36.26	7.86	23.86	102.31		23.86
3	240/40	-150.13	18.13	26.29	236.62	124.05		124.05
4	175/40	-123.88	0.61	-0.00	1.59	96.22		1.59
5	165/40	-103.24	20.85	0.31	1.15	85.30		1.15
6	165/40	-112.19	17.63	-1.00	4.73	88.88		4.73
7	110/40	-156.69	3.18	-2.92	62.06	92.01		62.06
8	125/40	-174.50	9.97	-24.03	207.52	103.13		103.13
9	35/40	-121.76	-4.45	-15.65			11.60	40.76
10	35/40	-136.27	-0.74	2.12			11.68	33.53

11	135/40	-111.99	8.17	-4.17	33.79	80.80	33.79
12	155/40	-159.97	13.25	4.13	32.62	105.32	32.62
13	135/40	-108.27	2.92	-13.39	294.34	79.31	79.31
14	155/40	-124.11	1.01	-3.79	317.33	90.98	90.98
15	150/40	-242.20	-26.53	-42.64	220.89	136.88	136.88
16	240/40	5.17	-101.74	-113.73	0.00	0.00	0.00
17	190/40	-106.47	-72.87	-94.40	119.97	63.83	63.83
18	230/40	-56.69	-6.34	33.73	334.06	84.01	84.01
19	120/40	-238.39	-7.32	-46.85	641.22	127.36	127.36
20	255/40	-290.12	-100.57	-69.84	212.85	184.05	184.05
21	375/40	-263.92	-193.00	-123.20	282.38	197.06	197.06
22	380/40	-448.53	-49.59	-126.05	1780.87	280.75	280.75
23	700/40	-542.36	-323.45	-129.66	672.11	403.61	403.61
24	265/40	-235.14	-136.98	-83.91	165.33	153.45	153.45
25	255/40	-188.21	-182.90	-100.66	117.38	99.54	99.54
26	500/40	-390.93	-262.89	-123.38	404.64	289.71	289.71

27	240/40	-387.54	58.59	45.93	275.83	219.01	219.01
28	240/40	-231.91	-95.29	-68.20	170.17	155.89	155.89
29	235/40	-251.92	-143.33	-92.76	160.63	149.25	149.25
30	265/40	-144.58	-135.02	-84.78	110.40	89.12	89.12
31	145/30	-105.98	15.22	-2.33	10.04	71.39	10.04
32	165/30	-74.41	-0.23	-12.23	3007.63	62.76	62.76
33	150/30	-138.32	-54.02	-43.36	67.84	76.89	67.84
34	965/30	-869.04	-1089.43	-127.96	403.40	540.61	403.40
35	939/35	-92.97	192.78	-175.97	391.63	220.69	220.69
36	40/195	-96.52	-6.65	-19.59		18.06	53.19
37	40/164	-135.11	-13.59	-7.86		24.11	13.94
38	40/290	-248.97	-3.24	-16.14		44.19	219.85
39	40/90	-153.98	-8.66	-24.21		23.89	66.75
40	40/160	139.22	-48.72	-36.84		0.00	0.00
41	40/229	11.21	-0.57	-18.91		0.00	0.00
42	40/209	-412.81	-14.16	-25.30		61.22	109.41
43	40/190	-202.33	-56.91	-61.45		34.81	37.58
44	40/303	-280.58	-79.66	-26.26		49.30	16.25
45	40/888	-677.95	-7.94	-18.47		122.03	283.79
46	40/332	-765.50	-70.80	-198.91		106.85	300.19
47	40/338	-290.27	-3.99	-20.83		51.51	268.84
48	35/670	-471.61	-93.38	-217.85		73.83	172.24
49	40/172	-134.34	0.50	-0.09		24.12	4.29
50	35/680	-196.80	-174.87	-265.20		32.95	49.97
51	40/590	-422.12	-35.49	-38.07		76.51	82.07
52	40/440	-297.25	-30.91	-70.87		54.19	124.23
53	35/680	-610.84	-48.95	-97.07		92.52	183.48
54	40/370	-198.16	-3.04	-5.19		36.85	62.92
55	40/310	-93.78	3.90	-4.63		18.01	21.35
56	40/233	-21.24	-8.65	-13.17		4.20	6.39
57	40/117	-347.21	4.96	54.14		42.35	462.74
58	40/187	-212.62	-8.51	-12.68		36.21	53.94
59	40/143	-173.52	63.32	30.47		29.21	14.06
60	40/719	-542.14	-15.79	-51.15		97.72	316.56
61	40/140	-46.78	-91.92	-52.29		8.95	5.09
62	40/40	-67.83	-1.79	-3.57		10.55	21.08
63	40/40	-225.78	-3.36	-5.91		11.76	20.70
64	40/635	-459.28	-63.03	-164.33		83.15	216.78
65	990/40	-658.92	-158.20	-478.83	8882.42	527.57	527.57
66	40/310	-220.37	-54.02	-135.67		39.97	100.38
67	1150/40	-840.68	-501.33	-607.75	5214.60	642.94	642.94
68	1045/40	-1116.32	-1115.11	-461.41	2024.99	725.19	725.19
69	40/290	-231.14	-52.53	-131.72		41.40	103.81
70	1110/40	-736.32	-486.11	-541.51	4097.30	590.53	590.53
71	40/678	-447.61	-54.40	-133.40		81.78	200.53
72	40/635	-435.33	-70.98	-181.16		79.25	202.24
73	1185/40	-1296.46	-2082.51	-485.10	1494.37	834.58	834.58
74	1150/40	-847.81	-129.49	-703.85	23554.69	645.79	645.79
75	30/35	-184.55	-8.47	-5.88	145.25	132.12	58.10
76	30/35	-201.15	-3.58	-1.84	148.90	134.77	59.56
77	30/35	-166.59	-46.79	-24.97	139.03	127.68	55.61
78	30/35	-152.42	6.20	8.12	135.08	124.93	54.03
79	30/35	-91.99	-8.43	-5.77	130.93	122.06	52.37
80	30/35	-327.40	-14.75	-10.06	143.43	130.81	57.37
				-6891.70			12631.73

$\lambda = \Sigma_Ved/\Sigma_Vrd = 6891.70/12631.73 = 0.55 \quad OK$

Στάθμη 7

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-154.82	60.12	32.46	90.55	125.93		90.55
2	190/40	-105.45	42.96	17.46	37.30	85.59		37.30
3	240/40	-129.58	71.14	51.09	102.58	103.91		102.58
4	175/40	-75.11	9.03	9.01	61.32	76.71		61.32
5	165/40	-82.52	-7.90	-5.70	45.45	77.01		45.45
6	165/40	-88.77	-4.15	-3.74	60.76	79.51		60.76

7	110/40	-74.72	0.98	0.62	23.37	59.22		23.37
8	125/40	-58.40	-22.33	-18.44	28.02	42.78		28.02
9	35/40	-111.96	-3.32	-1.80			11.38	6.18
10	35/40	-119.37	0.89	0.29			11.56	3.80
11	135/40	-91.14	15.68	12.38	43.64	72.46		43.64
12	155/40	-101.62	10.91	11.13	72.42	81.98		72.42
13	135/40	-79.51	-13.87	-6.75	23.80	67.80		23.80
14	155/40	-89.10	-15.24	-6.43	26.60	76.97		26.60
15	150/40	-161.86	-33.09	-21.20	65.13	104.75		65.13
16	240/40	-33.56	-113.77	-70.51	24.43	0.00		0.00
17	190/40	-77.58	-73.76	-35.75	33.53	0.00		0.00
18	230/40	-76.93	-69.06	-28.93	35.19	50.96		35.19
19	120/40	-92.32	-25.15	-24.74	48.17	63.14		48.17
20	255/40	-270.20	-107.34	-34.25	92.37	176.08		92.37
21	375/40	-230.92	-94.85	-105.35	436.28	192.37		192.37
22	380/40	-269.75	-143.23	-88.33	282.26	209.23		209.23
23	735/40	-501.06	-141.62	-97.14	1133.30	396.42		396.42
24	265/40	-211.82	-71.13	-70.93	246.17	155.39		155.39
25	255/40	-165.77	-102.46	-88.04	163.82	118.86		118.86
26	500/40	-396.11	-260.44	-193.97	649.51	291.78		291.78
27	240/40	-366.42	21.34	57.53	912.77	210.57		210.57
28	240/40	-210.79	-40.93	-56.31	301.99	148.32		148.32
29	235/40	-231.24	-71.90	-81.08	260.96	155.16		155.16
30	265/40	-121.26	-67.72	-71.69	158.37	109.82		109.82
31	145/30	-117.67	-12.07	-9.16	54.20	76.07		54.20
32	165/30	-70.38	-21.95	-9.88	23.89	58.94		23.89
33	150/30	-110.35	-36.08	-14.26	27.88	69.53		27.88
34	965/30	-560.28	-679.57	-191.10	671.51	417.11		417.11
35	939/35	-190.64	-752.62	-439.80	504.75	128.55		128.55
36	40/195	-61.33	5.46	3.00			11.76	6.47
37	40/164	-143.45	-11.00	-17.65			25.41	40.78
38	40/290	-171.11	-10.49	-8.89			31.58	26.76
39	40/90	-105.10	-3.46	-2.87			17.80	14.76
40	40/160	-94.62	-21.62	-39.54			17.46	31.93
41	40/229	-9.95	15.04	4.35			1.98	0.57
42	40/209	-269.69	6.40	1.75			44.83	12.23
43	40/190	-185.61	-23.17	-27.89			32.36	38.96
44	40/303	-235.50	-60.20	-48.74			42.30	34.25
45	40/888	-593.23	8.14	8.10			108.26	107.73
46	40/332	-506.22	-27.49	-15.27			81.02	45.01
47	40/338	-211.30	-6.28	-4.21			38.79	26.03
48	35/670	-333.09	-22.91	-14.01			53.95	32.99
49	40/172	-116.64	2.33	1.73			21.25	15.76
50	35/680	-77.25	-2.85	-2.78			13.29	12.98
51	40/590	-426.45	1.65	0.59			77.21	27.64
52	40/440	-245.81	-13.79	-8.47			45.56	27.99
53	35/680	-476.02	-19.15	-12.27			74.57	47.75
54	40/370	-130.60	-21.37	-12.37			24.91	14.42
55	40/310	-138.62	6.73	13.13			26.10	50.87
56	40/233	67.18	1.87	-0.15			0.00	0.00
57	40/117	-161.18	1.18	1.85			26.40	41.51
58	40/187	-137.12	1.38	0.70			24.80	12.67
59	40/143	-156.22	39.68	44.26			26.79	29.88
60	40/719	-474.16	-9.07	-5.80			86.64	55.40
61	40/140	-46.65	-49.47	-15.37			8.92	2.77
62	40/40	-34.86	-1.15	-0.77			6.18	4.15
63	40/40	-36.55	-1.17	-0.72			6.44	3.97
64	40/635	-308.58	-39.96	-24.17			57.79	34.95
65	990/40	-466.84	-798.92	-556.62	1495.62	445.83		445.83
66	40/310	-149.26	-28.95	-17.49			27.97	16.90
67	1150/40	-799.33	-570.40	-765.44	5521.86	626.40		626.40
68	1045/40	-865.22	-1437.68	-401.06	1103.79	624.75		624.75
69	40/290	-230.24	-22.43	-12.74			41.26	23.43
70	1110/40	-614.08	-1218.87	-550.54	1411.07	530.84		530.84
71	40/678	-363.31	-46.33	-26.40			67.56	38.50
72	40/635	-418.09	-53.15	-32.07			76.41	46.10
73	1185/40	-1192.18	-1695.76	-408.84	1444.86	792.87		792.87
74	1150/40	-877.98	-144.95	-600.18	18498.84	657.86		657.86
75	30/35	-182.24	-3.79	-4.63	34.26	76.79	57.39	34.26
76	30/35	-198.84	-2.12	-0.56	35.14	79.44	58.86	35.14
77	30/35	-164.28	-26.40	-23.52	32.75	72.32	54.86	32.75
78	30/35	-150.11	-0.02	9.48	31.80	69.55	53.27	31.80
79	30/35	-89.68	-3.85	-4.31	30.80	66.67	51.59	30.80
80	30/35	-325.09	-6.73	-8.61	33.82	75.46	56.65	33.82
				-5169.34				
								8309.43
$\lambda = \Sigma \text{Ved} / \Sigma \text{Vrd} = 5169.34 / 8309.43 = 0.62 \quad OK$								

Σεισμικός συνδυασμός 36: 1.10*G + 0.60*Q + 0.36*Σx2 + 1.21*Σy2

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
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1	240/60	-479.02	-7.04	-1.29			118.65	21.78
2	190/60	-452.89	-9.49	-2.32			107.58	26.26
3	240/60	-284.84	-46.98	-25.72			76.59	41.93
4	175/60	-399.53	-32.23	-17.11			95.96	50.95
5	165/60	-473.53	-12.30	-3.28			106.45	28.40
6	165/60	-477.19	-13.06	-3.92			106.99	32.15
7	165/60	-295.41	-36.28	-20.31			74.76	41.86
8	250/60	-435.01	-49.70	-27.40			110.67	61.00
9	95/60	-443.86	-15.38	-13.87			78.82	71.10
10	90/60	-373.25	-14.62	-13.56			71.41	66.23
11	245/60	-344.39	-54.20	-30.02			90.63	50.20
12	175/60	-467.79	-36.31	-19.55			107.57	57.94
13	135/60	-432.36	-12.70	-3.63			93.42	26.73
14	155/60	-457.30	-15.35	-4.27			101.84	28.31
15	170/60	-370.57	-48.52	-26.10			90.00	48.42
16	240/60	27.09	-56.75	-29.67			0.00	0.00
17	190/60	-86.17	-53.26	-28.21			24.83	13.15
18	230/60	-205.98	-40.33	-19.84			56.96	28.02
19	560/60	-1541.99	-79.06	-42.64			351.34	189.49
20	465/60	-1544.38	-83.44	-46.00			328.91	181.34
21	375/60	-1006.64	-29.71	-9.31			231.18	72.46
22	380/60	-879.88	-86.23	-47.58			210.58	116.18
23	700/60	-1514.08	-139.74	-58.09			368.41	153.15
24	265/60	-1054.75	-67.91	-36.89			206.42	112.13
25	255/60	-846.58	-25.48	-7.78			180.33	55.10
26	500/60	-1313.35	-119.81	-65.89			303.61	166.96
27	480/65	-522.73	-69.93	-36.38			154.97	80.63
28	380/65	-762.78	-80.96	-44.63			207.78	114.54
29	240/65	-668.16	-23.18	-6.66			168.41	48.39
30	65/65	-142.45	-6.44	-1.85	10.58	85.15		10.58
31	215/65	-267.17	-22.30	-6.89			78.13	24.14
32	110/65	-182.43	-34.01	-19.59			51.36	29.58
33	450/65	-573.98	-153.73	-84.68			167.36	92.19
34	265/65	-399.10	-33.88	-10.85			113.96	36.48
35	120/60	-290.59	-7.27	-2.32			68.74	21.96
36	290/60	-405.66	-16.80	-5.26			106.83	33.42
37	345/60	-1031.15	-55.73	-29.15			228.59	119.57
38	165/60	-547.30	-11.02	-3.35			116.62	35.41
39	150/60	-499.18	-24.93	-12.51			106.22	53.31
40	290/60	-691.50	-59.76	-32.40			164.24	89.06
41	1140/60	-3507.00	-316.09	-177.63			769.39	432.36
42	880/60	-1000.65	-148.34	-78.77			270.38	143.57
43	3769/60	-5600.57	-761.99	-441.20			1462.10	846.56
44	445/60	-536.27	-129.12	-71.39			143.95	79.58
45	60/195	-418.62	-35.25	3.37	30.73	245.62		30.73
46	60/164	-478.57	-58.20	-30.80	147.23	257.16		147.23
47	60/290	-657.06	-232.47	-135.43	428.73	378.82		378.82
48	60/110	-285.38	-37.86	-19.98	61.13	158.09		61.13
49	60/160	-169.18	-62.66	-38.48	74.38	119.33		74.38
50	60/229	-284.81	-147.13	-59.13	114.93	189.59		114.93
51	60/209	-680.58	-109.27	-23.53	103.23	355.92		103.23
52	60/190	-424.92	-135.93	-77.04	176.94	245.36		176.94
53	60/273	-900.54	-331.99	-102.62	253.66	469.30		253.66
54	60/888	-2078.88	-3635.49	-851.49	1653.49	1154.50		1154.50
55	45/630	-1084.95	-1279.96	-393.74	808.83	611.31		611.31
56	60/900	-1356.92	-3077.42	-780.49	1314.09	810.61		810.61
57	95/192	-529.38	-346.31	-187.08	226.52	269.86		226.52
58	40/513	-675.00	-808.72	-414.63	711.68	379.35		379.35
59	65/630	-1257.30	-2196.08	-702.48	1032.45	685.35		685.35
60	60/670	-2243.74	-2425.03	-562.42	1156.85	1165.49		1156.85
61	60/645	-862.18	-1793.80	-777.45	1043.29	482.20		482.20
62	60/192	-396.03	-228.73	-118.76	156.50	204.31		156.50
63	40/620	-1106.19	-1403.04	-465.43	831.76	589.01		589.01
64	60/680	-1163.25	-1657.89	-1010.53	1996.47	702.27		702.27
65	40/620	-798.82	-1582.67	-478.80	603.72	409.03		409.03
66	60/460	-477.27	-1513.99	-506.13	328.73	0.00		0.00
67	35/513	-983.89	-1051.08	-395.27	635.62	498.33		498.33
68	60/680	-2741.02	-3116.14	-864.70	1538.97	1367.99		1367.99
69	35/620	-764.85	-1375.88	-508.61	690.29	397.02		397.02
70	60/300	-436.62	-654.58	-324.85	277.51	0.76		0.76
71	40/533	-651.63	-1449.17	-471.29	460.73	275.24		275.24
72	390/30	-528.32	-11.21	-5.51			60.49	29.73
73	265/30	-436.39	-9.12	-4.85			46.63	24.82
74	60/30	-79.26	-2.07	-1.12			9.15	4.96
75	60/370	-994.64	-644.40	-143.47	299.05	542.11		299.05
76	60/310	-373.36	-809.15	-282.86	177.83	0.00		0.00
77	60/233	-613.35	-446.84	-167.52	197.05	297.72		197.05
78	60/57	-245.12	-16.45	-9.68			43.15	25.40
79	60/187	-683.00	-205.14	-92.65	183.29	348.18		183.29
80	60/143	-694.94	-108.52	-52.78	124.50	335.37		124.50
81	60/264	-153.36	-425.19	-128.43	57.60	0.00		0.00
82	60/468	-2211.46	-1959.29	-493.77	686.09	1059.28		686.09
83	60/107	-165.68	-65.24	-26.57	30.48	83.22		30.48

84	60/160	-86.27	-218.75	-118.01	35.22	0.00	0.00
85	60/140	-287.32	-156.71	-87.27	88.92	133.48	88.92
86	35/630	-594.00	-1193.78	-298.18	391.48	317.42	317.42
87	40/495	-832.30	-526.46	-290.98	850.10	464.92	464.92
88	670/25	-468.47	-7.80	-4.44		49.98	28.44
89	65/250	-484.44	-325.20	-161.78	247.11	269.01	247.11
90	340/60	-665.15	-61.33	-33.92		165.45	91.51
91	56/56	-80.48	-4.06	-1.67	7.82	53.10	7.82
92	56/56	-146.07	-2.54	1.02	11.80	79.33	11.80
93	56/56	-146.15	-2.72	0.76	8.19	79.37	8.19
94	56/56	-84.62	-4.19	-1.71	8.07	54.76	8.07
95	45/70	-244.68	-41.72	-12.73	81.86	174.29	144.08
96	45/70	-189.36	-42.34	-13.07	79.60	167.28	140.09
97	60/635	-1094.27	-1879.86	-545.39	833.50	612.56	612.56
98	1010/60	-2661.71	-183.87	-97.15		614.70	324.78
99	60/310	-996.65	-476.01	-239.10	525.37	522.66	522.66
100	1150/60	-3796.72	-208.10	-114.43		810.55	445.72
101	55/885	-2104.71	-3404.31	-878.01	1776.05	1150.71	1150.71
102	55/885	-1892.88	-3743.22	-871.68	1493.36	1026.37	1026.37
103	1045/60	-3639.84	-212.60	-116.53		759.74	416.42
104	60/310	-1020.61	-616.96	-274.78	471.56	521.70	471.56
105	1130/60	-3343.70	-276.95	-149.14		743.84	400.57
106	60/678	-1549.78	-4091.19	-780.49	772.14	702.13	702.13
107	50/885	-1664.90	-3500.29	-973.62	1584.53	898.22	898.22
108	30/545	-491.95	-720.49	-244.09	371.80	272.41	272.41
109	1185/50	-1739.25	-215.83	-122.53		367.92	208.87
110	25/635	-501.15	-996.02	-443.59	573.81	259.84	259.84
111	1150/25	-1450.32	-25.68	-14.71		133.36	76.39
112	60/90	-245.48	-46.73	-26.84	46.05	129.35	46.05
113	30/885	-1202.64	-1502.36	-517.54	1332.76	658.06	658.06
114	40/40	-526.06	-7.35	-2.28	81.81	174.15	143.99
115	40/40	-472.26	-7.23	-2.27	79.12	165.00	139.24
				-20812.92	26971.75		
$\lambda = \Sigma \text{Ved} / \Sigma \text{Vrd} = 20812.92 / 26971.75 = 0.77 \quad \text{OK}$							

75	20/610	-367.42	-215.87	-128.68	546.77	228.30		228.30
76	45/60	-57.69	2.15	-0.59	4.11	41.08		4.11
77	45/60	-54.50	2.56	0.57	3.20	39.80		3.20
78	60/635	-765.28	-724.27	-345.63	1019.14	560.11		560.11
79	1010/60	-1922.65	-126.27	-305.26			480.89	1162.55
80	60/310	-716.06	-94.37	-188.97	1706.92	410.42		410.42
81	1150/60	-2833.40	-191.59	-479.85			667.09	1670.75
82	55/885	-1395.48	-1745.74	-806.15	2358.79	882.69		882.69
83	55/885	-1204.19	-1748.39	-697.81	1809.62	806.17		806.17
84	1045/60	-2696.63	-207.48	-491.10			626.64	1483.21
85	60/310	-765.47	-171.00	-226.18	1180.06	430.19		430.19
86	1130/60	-2355.70	-234.61	-527.25			578.02	1299.02
87	60/678	-805.18	-3134.76	-710.68	545.00	0.00		0.00
88	50/885	-1362.93	-1038.94	-703.51	3325.72	840.17		840.17
89	30/545	-530.18	-175.12	-160.04	1062.28	321.07		321.07
90	1185/25	-1090.41	-80.11	-195.60			110.01	268.61
91	25/635	-174.75	-684.56	-372.33	281.75	0.00		0.00
92	1150/25	-1165.83	-77.49	-186.21			114.76	275.77
93	60/90	-124.14	-51.21	-114.71	107.79	35.05		35.05
94	30/885	-1026.94	-444.05	-409.94	3217.16	587.78		587.78
			-16591.82					37618.15

$$\lambda = \Sigma \text{ V ed} / \Sigma \text{ V rd} = 16591.82 / 37618.15 = 0.44 \quad \text{OK}$$

Στάθμη 5

$\Pi E \Sigma$	$\Delta \iota \alpha \sigma \tau .$ cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-302.12	-1.37	-0.70			80.67	41.59
2	190/60	-248.16	8.62	4.71			65.96	36.00
3	240/60	-186.34	-46.38	-26.74			52.11	30.05
4	175/60	-252.12	-25.79	-14.66			66.12	37.58
5	165/60	-233.82	10.24	5.47			61.46	32.80
6	165/60	-261.21	9.52	5.75			67.53	40.78
7	165/60	-348.17	-19.72	-8.05			85.20	34.80
8	125/60	-77.08	-15.71	-6.62			21.88	9.22
9	55/60	-301.69	-8.85	-0.56	2.56	139.25		2.56
10	55/60	-324.18	-9.60	-0.79	3.25	143.58		3.25
11	135/60	-132.89	-17.00	-7.45			36.44	15.98
12	175/60	-381.64	-23.57	-10.52			92.68	41.37
13	135/60	-234.15	6.28	4.75			59.60	45.11
14	155/60	-256.58	8.20	5.73			65.84	45.99
15	170/60	-261.16	-44.12	-25.46			67.83	39.15
16	240/60	-12.04	-42.69	-23.75			3.60	2.00
17	190/60	-98.83	-38.09	-22.31			28.30	16.58
18	230/60	-163.71	-30.22	-16.44			46.06	25.06
19	560/60	-866.65	-48.14	-21.53			224.85	100.56
20	465/60	-861.75	-86.09	-50.25			216.68	126.46
21	375/60	-530.60	15.29	4.81			139.51	43.87
22	380/60	-280.13	-51.38	-52.86			78.63	80.90
23	700/60	-1009.05	-106.87	-59.46			264.60	147.22
24	265/60	-479.04	-70.79	-41.49			121.02	70.94
25	255/60	-496.65	7.62	5.20			123.65	84.35
26	500/60	-709.84	-57.84	-36.00			186.54	116.11

27	240/45	-484.42	-23.70	-15.47			83.37	54.42
28	240/45	-322.07	6.18	4.08			61.14	40.37
29	235/65	-408.05	-103.99	-62.79			114.05	68.87
30	265/65	-225.01	9.19	5.44			68.12	40.33
31	145/60	-205.08	-19.46	-11.34			53.92	31.42
32	165/60	-313.29	6.50	4.01			78.40	48.33
33	150/60	-248.33	-19.53	-11.55			63.73	37.70
34	290/60	-371.20	-49.02	-27.80			98.91	56.10
35	1160/60	-2316.37	-316.63	-172.34			573.70	312.25
36	880/30	-333.96	-17.34	-10.06			46.77	27.13
37	2949/60	-2988.77	-385.82	-217.47			817.26	460.66
38	60/195	-226.16	5.93	4.30	141.43	168.64		141.43
39	60/164	-245.14	-50.78	-25.44	85.79	163.79		85.79
40	60/290	-433.28	-223.52	-57.26	136.80	285.41		136.80
41	60/110	-238.71	-21.69	-8.16	38.57	139.42		38.57
44	60/209	-695.12	-47.58	-86.43	880.12	361.74		361.74
45	60/190	-379.74	-117.07	-61.73	151.66	227.75		151.66
46	60/303	-602.07	-138.83	-85.03	446.61	361.91		361.91
47	60/888	-1320.58	-2076.59	-645.48	1550.30	872.34		872.34
48	35/610	-714.78	-368.90	-346.70	1635.46	428.24		428.24
49	60/332	-817.63	-350.60	-133.16	387.97	459.85		387.97
50	60/338	-665.93	-268.91	-142.06	476.13	401.40		401.40
51	95/192	-430.94	-254.04	-83.93	117.22	242.77		117.22
52	65/480	-397.62	-782.95	-368.69	414.86	215.07		215.07
53	60/670	-1376.35	-1412.67	-493.97	1279.58	818.54		818.54
54	60/192	-307.64	-163.99	-58.88	88.97	174.29		88.97
55	40/620	-503.60	-1181.50	-359.10	416.42	261.75		261.75
56	40/620	-454.31	-1275.03	-440.88	433.22	183.14		183.14
57	60/460	-383.61	-961.40	-398.31	334.92	0.00		0.00
58	35/513	-473.26	-753.19	-402.99	546.32	257.45		257.45
59	60/680	-2129.48	-3028.29	-749.30	1227.94	1089.14		1089.14
60	35/620	-480.50	-1121.84	-590.02	678.87	245.77		245.77
61	60/300	-482.70	-575.38	-203.45	214.64	230.04		214.64
62	40/533	-290.62	-610.56	-343.82	400.31	161.38		161.38
63	390/30	-250.75	-1.44	-0.60			33.39	14.01
64	265/30	-165.26	-6.85	-4.25			22.09	13.70
65	60/30	-45.31	-2.06	-1.21			5.90	3.46
66	60/370	-518.60	-320.38	-89.81	231.08	355.31		231.08
67	60/310	-226.19	-116.58	-28.93	80.63	214.48		80.63
68	60/233	-201.06	-72.58	-28.58	84.25	173.62		84.25
69	60/117	-585.50	-88.97	-46.70	88.83	280.85		88.83
70	60/187	-354.33	-148.12	-67.41	122.45	204.04		122.45
71	60/143	-469.07	-96.59	-46.32	108.37	245.02		108.37
72	60/719	-1563.17	-1129.58	-405.13	1576.60	913.05		913.05
73	60/160	-141.49	-157.16	-46.24	30.34	0.00		0.00
74	60/140	31.08	-109.66	-35.36	0.00	0.00		0.00
75	20/610	-373.80	-164.83	-156.78	884.17	230.85		230.85
76	45/60	-51.75	2.59	2.31	12.23	38.70		12.23
77	45/60	-48.56	2.61	2.79	13.89	37.42		13.89
78	60/635	-629.20	-894.96	-379.43	762.66	461.99		461.99
79	1010/60	-1459.25	-155.51	-91.64			382.53	225.42
80	60/310	-546.63	-414.43	-242.12	407.32	313.67		313.67
81	1150/60	-2200.03	-215.63	-125.27			549.72	319.35
82	55/885	-964.31	-1623.04	-835.25	1933.72	687.33		687.33
83	55/885	-895.14	-1534.36	-708.42	1626.11	656.26		656.26
84	1045/60	-2080.60	-190.88	-107.94			515.63	291.58
85	60/310	-534.23	-532.91	-254.01	326.38	279.99		279.99
86	1130/60	-1975.40	-298.20	-168.94			502.13	284.47
87	60/678	-828.94	-3052.34	-794.33	641.49	0.00		0.00
88	50/885	-868.22	-1652.51	-908.04	1861.43	599.45		599.45
89	30/545	-490.10	-419.22	-234.65	612.50	305.04		305.04
90	1185/25	-1307.89	-32.36	-19.81			125.66	76.92
91	25/635	-270.76	-833.65	-488.43	451.89	37.47		37.47
92	1150/25	-1281.68	-31.90	-20.03			122.78	77.11
93	60/90	-114.45	-56.55	-35.91	28.52	0.00		0.00
94	30/885	-540.10	-1029.67	-536.00	1091.58	367.16		367.16
								-13887.49
								16368.82
$\lambda = \Sigma_Ved/\Sigma_Vrd = 13887.49/16368.82 = 0.85 \quad OK$								

Στάθμη 6

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-101.91	-7.59	-20.31			19.25	51.54
2	190/40	-92.36	-8.38	-16.59			17.30	34.25
3	240/40	-89.04	-14.39	-36.08			16.94	42.47
4	175/40	-70.84	-7.62	-18.98			13.42	33.41
5	165/40	-92.80	-9.21	-14.51			17.19	27.10
6	165/40	-121.13	-11.19	-17.90			21.90	35.03
7	110/40	-233.91	-13.33	-28.88			33.75	73.12
8	125/40	-114.94	-11.36	-22.24			20.22	39.58
9	35/40	-121.69	-5.75	-11.39	22.95	57.83		22.95
10	35/40	-131.83	-5.72	-11.45	22.85	59.82		22.85

11	135/40	-68.79	-6.34	-14.94			12.84	30.24
12	155/40	-164.56	-6.82	-15.26			28.33	63.39
13	135/40	-113.39	-10.86	-18.41			20.18	34.21
14	155/40	-123.03	-12.22	-20.30			22.05	36.63
15	150/40	-386.46	-25.98	-54.91			51.20	108.22
16	240/40	29.30	-26.41	-60.94			0.00	0.00
17	190/40	-97.80	-38.23	-39.73			18.24	18.96
18	230/40	-56.99	-16.31	-40.78			11.03	27.56
19	120/40	-167.52	-3.52	-8.00			27.38	62.21
20	255/40	-359.21	-34.90	-85.72			58.58	143.87
21	375/40	-282.87	-22.04	-29.88			50.98	69.13
22	380/40	-249.60	-81.08	-61.92			45.62	34.84
23	700/40	-416.86	-39.37	-95.46			76.87	186.36
24	265/40	-172.92	-40.34	-33.14			31.63	25.99
25	255/40	-215.33	-14.06	-19.80			38.30	53.94
26	500/40	-443.66	-72.32	-68.96			78.42	74.78
27	240/40	-347.46	-19.22	-17.84			56.31	52.26
28	240/40	-246.40	-10.18	-18.27			42.65	76.56
29	235/40	-305.81	-29.03	-22.93			50.73	40.08
30	265/40	-68.95	-13.98	-19.81			13.32	18.87
31	145/30	-29.00	-8.60	-19.25			4.20	9.40
32	165/30	-97.87	-7.87	-12.67			13.16	21.19
33	150/30	-118.24	-15.20	-16.38			15.29	16.48
34	965/30	-929.20	-91.20	-194.98			115.93	247.86
35	939/35	-332.24	-149.93	-218.43			55.06	80.22
36	40/195	-84.80	22.27	-34.33	119.36	86.04		86.04
37	40/164	-111.98	10.15	-32.63	265.43	88.61		88.61
38	40/290	-244.55	-19.80	-57.46	898.48	175.15		175.15
39	40/90	-241.27	-15.36	-33.33	140.49	120.51		120.51
40	40/160	131.43	34.62	71.27	0.00	0.00		0.00
41	40/229	0.62	-166.05	-226.81	0.00	0.00		0.00
42	40/209	-368.97	18.57	-133.71	2040.85	203.38		203.38
43	40/190	-219.29	5.05	-87.93	2987.43	138.28		138.28
44	40/303	-339.10	-87.84	-78.63	381.84	216.36		216.36
45	40/888	-643.41	-806.55	-438.33	1383.03	494.16		494.16
46	40/332	-466.23	-169.08	-62.67	226.15	275.03		226.15
47	40/338	-337.12	-206.45	-137.98	323.08	220.89		220.89
48	35/670	-779.71	-280.07	-448.76	3346.55	468.22		468.22
49	40/172	-146.81	-30.30	-37.35	135.63	104.59		104.59
50	35/680	-62.98	66.02	-225.19	718.74	183.86		183.86
51	40/590	-181.49	-1220.45	-565.27	236.49	0.00		0.00
52	40/440	-149.13	-549.95	-225.68	127.76	0.00		0.00
53	35/680	-1061.11	-1704.48	-266.15	411.96	550.00		411.96
54	40/370	-260.62	-53.93	-42.50	339.62	202.92		202.92
55	40/310	-54.91	-67.14	-111.05	137.02	48.15		48.15
56	40/233	-36.96	10.11	-107.58	447.20	76.92		76.92
57	40/117	-398.45	-19.15	-15.73	92.60	190.48		92.60
58	40/187	-219.78	-16.87	-42.13	423.56	137.90		137.90
59	40/143	-197.85	0.56	-70.94	14150.35	117.40		117.40
60	40/719	-799.94	-428.69	-489.25	2733.86	511.83		511.83
61	40/140	109.62	10.15	-21.99	0.00	0.00		0.00
62	40/40	-250.27	-7.43	-12.76	4.92	83.20		4.92
63	40/40	-142.41	-8.31	-14.67	23.31	66.76		23.31
64	40/635	-235.22	-51.24	-129.73	1785.19	263.42		263.42
65	990/40	-565.46	-61.09	-157.19			104.63	269.21
66	40/310	-284.81	-72.13	-151.37	798.14	196.59		196.59
67	1150/40	-1195.40	-107.51	-242.05			206.52	464.97
68	1045/40	-1136.03	-124.51	-176.68			194.84	276.49
69	40/290	-129.40	-595.13	-209.81	61.70	0.00		0.00
70	1110/40	-1000.88	-224.84	-455.41			176.53	357.55
71	40/678	-524.31	-940.15	-750.72	1253.90	337.47		337.47
72	40/635	-440.10	26.50	-285.04	13459.81	345.38		345.38
73	1185/40	-1321.25	-151.30	-100.05			225.65	149.21
74	1150/40	-678.44	-184.25	-296.75			125.20	201.64
75	30/35	-184.95	-2.37	-0.36	151.78	121.14	60.71	121.14
76	30/35	-185.53	-2.51	-0.50	154.90	123.40	61.96	123.40
77	30/35	-162.21	-4.34	-4.58	146.45	117.33	58.58	117.33
78	30/35	-148.82	-7.08	-5.77	143.07	114.97	57.23	114.97
79	30/35	-140.32	-11.78	-7.87	139.50	112.51	55.80	112.51
80	30/35	-317.46	-14.40	-9.16	150.22	120.01	60.09	120.01
			-8339.60					9840.94

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 8339.60/9840.94 = 0.85 \quad OK$$

Στάθμη 7

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-112.60	1.47	0.78			21.14	11.25
2	190/40	-94.97	4.81	1.45			17.75	5.34
3	240/40	-101.21	-4.01	-2.22			19.12	10.58
4	175/40	-34.52	-2.60	-1.49			6.73	3.86
5	165/40	-76.31	2.49	0.74			14.34	4.26

6	165/40	-92.20	3.23	0.97			17.09	5.13
7	110/40	-79.34	0.57	0.17			14.37	4.21
8	125/40	-40.61	0.33	-0.02			7.78	0.39
9	35/40	-110.36	3.21	0.97	3.50	53.48		3.50
10	35/40	-118.40	3.28	0.99	3.50	56.69		3.50
11	135/40	-79.72	-3.09	-1.65			14.71	7.84
12	155/40	-110.88	-4.09	-2.22			20.10	10.90
13	135/40	-80.55	4.03	1.21			14.85	4.45
14	155/40	-88.78	4.20	1.26			16.42	4.91
15	150/40	-185.11	-9.59	-5.11			31.04	16.53
16	240/40	-16.70	-15.79	-8.66			3.31	1.82
17	190/40	-78.06	-8.55	-2.69			14.77	4.65
18	230/40	-68.62	-17.96	-10.59			13.19	7.78
19	120/40	-104.79	1.58	0.86			18.56	10.10
20	255/40	-230.02	-16.46	-9.11			40.57	22.44
21	375/40	-249.87	0.17	-0.31			45.61	82.97
22	380/40	-279.15	-31.15	-27.00			50.46	43.74
23	735/40	-523.64	-58.47	-35.69			94.95	57.95
24	265/40	-149.60	-14.26	-14.47			27.71	28.10
25	255/40	-192.89	2.55	-0.83			34.75	11.31
26	500/40	-325.11	-18.41	-24.11			59.48	77.89
27	240/40	-326.34	-5.38	0.30			53.64	2.96
28	240/40	-225.28	4.72	2.02			39.51	16.91
29	235/40	-285.13	-11.05	-6.37			47.96	27.64
30	265/40	-45.63	-0.35	0.29			8.92	7.42
31	145/30	-97.72	-2.59	-1.57			12.93	7.82
32	165/30	-73.53	2.34	0.67			10.17	2.89
33	150/30	-106.93	-1.52	-5.08			14.04	47.10
34	965/30	-573.99	-24.36	-14.59			77.15	46.23
35	939/35	-296.32	-27.17	-16.92			49.41	30.77
36	40/195	-69.06	52.62	25.02	30.37	44.84		30.37
37	40/164	-135.18	-8.53	-4.11	46.84	97.89		46.84
38	40/290	-152.06	31.93	15.30	97.28	138.16		97.28
39	40/90	-113.02	6.30	3.39	22.21	69.21		22.21
40	40/160	-95.38	37.67	17.54	32.38	70.62		32.38
41	40/229	2.02	-340.93	-208.87	0.00	0.00		0.00
42	40/209	-278.35	-194.18	-150.68	180.67	139.22		139.22
43	40/190	-166.45	-92.75	-61.84	91.31	97.85		91.31
44	40/303	-265.40	-109.84	-65.86	209.03	186.88		186.88
45	40/888	-589.52	-1303.30	-436.15	788.32	414.15		414.15
46	40/332	-386.04	-109.30	-98.48	476.22	242.95		242.95
47	40/338	-225.29	-204.98	-118.62	197.93	152.36		152.36
48	35/670	-442.92	-688.77	-420.21	802.18	302.81		302.81
49	40/172	-112.98	-46.00	-22.74	43.27	81.42		43.27
50	35/680	-11.81	107.02	-129.77	48.56	0.00		0.00
51	40/590	-348.91	-855.82	-453.62	496.94	179.34		179.34
52	40/440	-214.46	-733.22	-260.92	155.57	0.00		0.00
53	35/680	-646.78	-861.56	-405.18	864.81	403.47		403.47
54	40/370	-169.96	-97.07	-39.82	120.04	166.65		120.04
55	40/310	-126.81	-171.22	-76.22	82.10	66.70		66.70
56	40/233	100.63	-120.07	-100.35	0.00	0.00		0.00
57	40/117	-166.31	-15.89	-8.44	40.42	97.62		40.42
58	40/187	-132.59	-53.37	-24.43	50.82	95.81		50.82
59	40/143	-163.47	-69.09	-35.22	49.52	88.97		49.52
60	40/719	-625.11	-704.16	-440.93	1223.72	441.90		441.90
61	40/140	48.92	-55.64	-47.94	0.00	0.00		0.00
62	40/40	-42.69	2.06	0.52	1.82	27.74		1.82
63	40/40	-42.43	2.89	0.74	1.82	27.53		1.82
64	40/635	-214.51	-123.11	-91.42	480.00	255.14		255.14
65	990/40	-421.68	-50.34	-30.58			79.63	48.37
66	40/310	-162.76	-299.15	-206.06	160.03	0.00		0.00
67	1150/40	-942.63	-113.63	-73.24			168.28	108.47
68	1045/40	-900.93	-112.79	-73.21			159.83	103.74
69	40/290	-205.97	-435.74	-305.54	187.01	0.00		0.00
70	1110/40	-737.78	-133.24	-82.79			134.71	83.70
71	40/678	-380.62	-1603.95	-908.06	668.71	0.00		0.00
72	40/635	-431.00	-740.27	-446.10	740.29	288.99		288.99
73	1185/40	-1216.97	-73.59	-21.01			210.64	60.14
74	1150/40	-782.99	-112.67	-64.07			142.63	81.10
75	30/35	-182.64	-2.10	1.36	35.88	65.63	60.10	35.88
76	30/35	-183.22	-2.13	1.23	36.63	67.90	61.36	36.63
77	30/35	-159.90	-0.71	-2.80	34.59	61.80	57.94	34.59
78	30/35	-146.51	-2.49	-3.95	33.78	59.43	56.57	33.78
79	30/35	-138.01	-5.51	-6.07	32.92	56.96	55.13	32.92
80	30/35	-315.15	-7.10	-7.37	35.50	64.50	59.47	35.50
				-6045.58				
								5031.97

$\lambda = \Sigma_Ved/\Sigma_Vrd = 6045.58/5031.97 = 1.20$ Ανεπάρκεια

Σεισμικός συνδυασμός 37: 1.10*G + 0.60*Q - 0.36*Σx2 + 1.21*Σy2

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
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1	240/60	-516.51	-8.35	-2.31			125.83	34.83
2	190/60	-462.14	-9.12	-2.25			109.19	26.96
3	240/60	-302.55	-37.79	-20.78			80.77	44.41
4	175/60	-392.20	-26.21	-14.04			94.63	50.70
5	165/60	-474.18	-10.22	-2.53			106.55	26.37
6	165/60	-480.59	-11.31	-3.21			107.50	30.50
7	165/60	-311.46	-34.76	-19.47			78.03	43.72
8	250/60	-422.34	-48.82	-26.95			108.01	59.64
9	95/60	-430.96	-14.97	-13.77			78.06	71.78
10	90/60	-381.42	-14.71	-13.60			72.07	66.62
11	245/60	-350.68	-55.06	-30.51			92.05	51.01
12	175/60	-440.48	-36.93	-19.94			103.09	55.67
13	135/60	-428.03	-13.09	-4.21			92.85	29.85
14	155/60	-458.84	-15.86	-5.13			102.06	33.01
15	170/60	-385.65	-49.90	-26.86			92.77	49.93
16	240/60	36.64	-65.44	-34.23			0.00	0.00
17	190/60	-38.02	-55.00	-29.05			11.21	5.92
18	230/60	-145.63	-35.35	-15.61			41.27	18.23
19	560/60	-1539.62	-58.72	-33.19			350.97	198.34
20	465/60	-1549.59	-79.44	-43.78			329.56	181.63
21	375/60	-1051.73	-25.46	-7.55			238.23	70.65
22	380/60	-896.36	-77.78	-42.80			213.50	117.48
23	700/60	-1505.50	-143.46	-58.72			366.80	150.13
24	265/60	-1090.54	-77.29	-42.04			209.56	113.99
25	255/60	-832.89	-26.28	-9.18			178.58	62.39
26	500/60	-1252.02	-118.58	-65.17			293.45	161.28
27	480/65	-544.46	-49.27	-34.37			160.77	112.15
28	380/65	-769.30	-77.67	-42.73			209.21	115.10
29	240/65	-631.19	-19.43	-5.53			161.64	46.00
30	65/65	-138.41	-5.67	-1.63	10.39	83.53		10.39
31	215/65	-285.03	-20.15	-6.23			82.73	25.60
32	110/65	-201.66	-31.99	-18.39			55.85	32.11
33	450/65	-448.32	-157.38	-86.86			134.00	73.96
34	265/65	-414.15	-34.66	-11.32			117.64	38.42
35	120/60	-309.28	-7.16	-2.30			71.90	23.10
36	290/60	-426.63	-16.05	-5.03			111.54	34.96
37	345/60	-985.81	-54.62	-28.65			221.93	116.44
38	165/60	-540.66	-10.51	-2.71			115.78	29.85
39	150/60	-497.14	-21.81	-10.92			105.97	53.04
40	290/60	-775.20	-60.81	-32.92			178.26	96.50
41	1140/60	-3459.43	-317.27	-178.20			762.74	428.41
42	880/60	-1124.14	-139.55	-74.97			299.61	160.96
43	3769/60	-5391.00	-796.84	-461.03			1415.24	818.82
44	445/60	-487.26	-132.00	-73.03			132.20	73.14
45	60/195	-454.96	-37.93	-0.50	4.45	260.16		4.45
46	60/164	-502.88	-55.50	-29.37	151.41	266.88		151.41
47	60/290	-761.62	-218.94	-88.38	328.20	420.65		328.20
48	60/110	-308.66	-24.38	-13.89	69.33	167.40		69.33
49	60/160	-200.42	-58.74	-36.53	87.26	141.09		87.26
50	60/229	-293.78	-140.74	-56.60	118.09	197.68		118.09
51	60/209	-700.07	-107.00	-23.19	105.36	363.72		105.36
52	60/190	-467.88	-133.92	-76.89	191.59	263.00		191.59
53	60/273	-891.94	-316.04	-101.02	261.01	465.86		261.01
54	60/888	-2091.09	-3500.12	-676.73	1370.49	1168.38		1168.38
55	45/630	-1107.50	-988.45	-381.30	1028.92	632.00		632.00
56	60/900	-1482.99	-2952.23	-745.59	1406.42	894.31		894.31
57	95/192	-539.45	-335.00	-181.14	230.11	280.19		230.11
58	40/513	-672.10	-740.65	-377.37	704.98	385.88		385.88
59	65/630	-1355.23	-2174.78	-660.20	1037.45	742.98		742.98
60	60/670	-2480.40	-2428.49	-556.56	1196.16	1260.16		1196.16
61	60/645	-931.13	-1863.64	-786.03	1082.88	519.27		519.27
62	60/192	-380.50	-231.53	-120.66	152.47	194.38		152.47
63	40/620	-1022.12	-1405.26	-482.45	817.61	546.86		546.86
64	60/680	-1146.12	-1671.73	-1019.47	1974.07	691.42		691.42
65	40/620	-821.75	-1580.06	-484.34	624.92	422.87		422.87
66	60/460	-495.57	-1558.28	-582.77	380.14	0.00		0.00
67	35/513	-1016.03	-1073.75	-459.49	734.88	511.98		511.98
68	60/680	-2547.26	-3178.31	-875.54	1488.08	1277.17		1277.17
69	35/620	-653.98	-1386.97	-521.18	623.44	330.14		330.14
70	60/300	-465.19	-669.29	-331.92	292.15	57.33		57.33
71	40/533	-654.04	-1506.24	-483.31	455.88	225.90		225.90
72	390/30	-531.23	-13.08	-6.37			60.72	29.57
73	265/30	-466.03	-10.68	-5.69			48.43	25.82
74	60/30	-81.93	-2.39	-1.29			9.36	5.05
75	60/370	-1000.91	-876.40	-187.60	288.66	517.29		288.66
76	60/310	-284.77	-837.08	-290.72	139.15	0.00		0.00
77	60/233	-583.74	-463.03	-171.36	188.34	278.11		188.34
78	60/57	-241.28	-16.84	-9.90			42.88	25.21
79	60/187	-676.47	-209.98	-94.64	182.19	345.57		182.19
80	60/143	-697.44	-111.08	-53.94	124.32	336.37		124.32
81	60/264	-150.95	-434.89	-132.61	57.29	0.00		0.00
82	60/468	-2135.95	-2032.09	-499.24	665.91	1021.22		665.91
83	60/107	-120.82	-67.11	-26.87	22.95	0.00		0.00

84	60/160	-31.03	-225.24	-121.73	13.16	0.00	0.00
85	60/140	-299.25	-161.14	-89.67	91.54	139.09	91.54
86	35/630	-590.04	-1166.76	-262.53	350.76	318.10	318.10
87	40/495	-773.02	-498.90	-288.28	845.39	441.21	441.21
88	670/25	-464.26	-7.76	-4.44		49.60	28.41
89	65/250	-497.37	-314.76	-161.56	260.24	279.18	260.24
90	340/60	-676.23	-58.96	-32.74		167.62	93.08
91	56/56	-81.41	-3.49	-1.26	6.93	53.47	6.93
92	56/56	-146.00	-2.33	1.06	13.39	79.30	13.39
93	56/56	-146.43	-2.72	0.78	8.49	79.48	8.49
94	56/56	-83.66	-4.63	-2.01	8.52	54.37	8.52
95	45/70	-222.20	-40.53	-12.37	81.86	174.29	144.08
96	45/70	-208.70	-42.82	-13.25	79.60	167.28	140.09
97	60/635	-1428.95	-1707.77	-315.62	648.97	809.17	648.97
98	1010/60	-2747.58	-128.34	-67.16		628.41	328.85
99	60/310	-1000.50	-452.14	-189.41	439.03	524.20	439.03
100	1150/60	-3639.46	-206.19	-113.53		790.02	434.97
101	55/885	-2066.49	-3566.45	-840.17	1602.98	1123.50	1123.50
102	55/885	-1995.20	-3726.04	-864.23	1541.88	1079.40	1079.40
103	1045/60	-3640.20	-229.66	-125.74		759.78	416.00
104	60/310	-996.68	-632.17	-315.94	522.73	508.56	508.56
105	1130/60	-3271.23	-333.61	-180.43		733.22	396.56
106	60/678	-1316.52	-4147.42	-1008.18	873.29	224.37	224.37
107	50/885	-1640.95	-3524.25	-984.37	1574.85	884.11	884.11
108	30/545	-491.72	-689.89	-232.39	369.55	276.01	276.01
109	1185/50	-1726.21	-218.27	-123.87		365.66	207.51
110	25/635	-509.35	-1023.11	-453.58	578.31	262.05	262.05
111	1150/25	-1444.14	-25.36	-14.54		133.00	76.26
112	60/90	-264.73	-45.29	-26.05	48.27	139.36	48.27
113	30/885	-1263.63	-1454.35	-503.34	1380.10	682.45	682.45
114	40/40	-484.99	-7.38	-2.30	81.81	174.15	143.99
115	40/40	-475.52	-7.17	-2.25	79.12	165.00	139.24
				-20647.45	26510.15		
$\lambda = \Sigma_Ved/\Sigma_Vrd = 20647.45/26510.15 = 0.78 \quad OK$							

61	60/300	-532.56	-772.42	-225.40	191.55	46.44		46.44
62	40/533	-381.30	-481.57	-283.77	534.24	264.68		264.68
63	390/30	-243.33	-10.38	-22.60			32.52	70.80
64	265/30	-282.57	-17.69	-42.17			34.49	82.23
65	60/30	-52.77	-4.30	-10.60			6.70	16.51
66	60/370	-656.67	-391.18	-128.69	328.40	410.67		328.40
67	60/310	-229.13	-149.25	-46.45	102.33	199.49		102.33
68	60/233	-258.05	-69.57	-75.96	291.72	196.42		196.42
69	60/117	-639.89	-130.07	-97.73	125.83	295.30		125.83
70	60/187	-421.45	-137.72	-81.82	181.67	241.84		181.67
71	60/143	-582.50	-74.77	-155.46	514.51	290.39		290.39
72	60/719	-1815.73	-350.62	-371.10	5160.57	1014.07		1014.07
73	60/160	-164.65	-205.37	-55.99	32.20	0.00		0.00
74	60/140	14.64	-146.23	-44.04	0.00	0.00		0.00
75	20/610	-359.09	-230.15	-126.93	496.86	224.97		224.97
76	45/60	-55.93	1.99	-0.63	4.65	40.37		4.65
77	45/60	-57.16	2.72	0.64	3.50	40.87		3.50
78	60/635	-1018.75	-727.86	-300.75	1121.13	661.50		661.50
79	1010/60	-2011.27	-88.98	-214.33			498.43	1200.61
80	60/310	-721.06	-90.21	-153.95	1461.75	412.43		412.43
81	1150/60	-2703.93	-189.62	-476.37			644.58	1619.34
82	55/885	-1351.92	-1887.41	-773.49	2041.23	865.27		865.27
83	55/885	-1287.22	-1728.07	-686.40	1901.85	839.39		839.39
84	1045/60	-2755.27	-222.10	-534.32			636.22	1530.57
85	60/310	-750.98	-172.84	-265.13	1351.05	424.39		424.39
86	1130/60	-2285.41	-274.01	-617.99			564.50	1273.14
87	60/678	-599.71	-3097.59	-872.43	521.72	0.00		0.00
88	50/885	-1351.62	-1061.02	-706.44	3249.08	835.65		835.65
89	30/545	-533.64	-168.64	-155.66	1078.24	322.46		322.46
90	1185/25	-1080.85	-79.92	-195.21			109.27	266.90
91	25/635	-122.65	-794.91	-374.72	175.02	0.00		0.00
92	1150/25	-1131.58	-77.12	-184.26			112.27	268.25
93	60/90	-126.20	-49.88	-109.54	107.15	51.25		51.25
94	30/885	-1075.21	-422.70	-399.61	3400.01	607.08		607.08
			-16870.90					34635.33

$$\lambda = \Sigma \text{ Ved} / \Sigma \text{ Vrd} = 16870.90 / 34635.37 = 0.49 \quad \text{OK}$$

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-338.13	-3.06	-2.38			88.96	69.33
2	190/60	-257.34	8.59	4.57			68.07	36.16
3	240/60	-198.11	-36.79	-21.23			55.15	31.83
4	175/60	-264.90	-25.15	-14.33			68.96	39.31
5	165/60	-235.86	9.56	5.15			61.92	33.36
6	165/60	-260.56	8.52	5.38			67.39	42.58
7	165/60	-346.34	-20.58	-8.67			84.85	35.73
8	125/60	-78.37	-16.13	-6.95			22.22	9.58
9	55/60	-303.96	-8.93	-0.59	2.67	139.69		2.67
10	55/60	-322.09	-9.53	-0.73	3.04	143.18		3.04
11	135/60	-139.84	-15.86	-6.62			38.16	15.93
12	175/60	-374.49	-21.42	-9.06			91.35	38.63
13	135/60	-232.71	7.00	5.12			59.30	43.38
14	155/60	-257.26	8.71	5.99			65.99	45.37
15	170/60	-274.53	-48.43	-27.95			70.74	40.82
16	240/60	-0.80	-49.42	-27.71			0.24	0.13
17	190/60	-93.15	-41.87	-24.55			26.75	15.69
18	230/60	-128.80	-22.43	-11.43			36.75	18.72
19	560/60	-882.98	-36.27	-16.23			228.41	102.21
20	465/60	-875.47	-83.06	-48.41			219.45	127.90
21	375/60	-587.50	13.41	3.66			152.13	41.54
22	380/60	-371.53	-53.07	-54.53			101.94	104.75
23	700/60	-978.86	-99.42	-55.02			257.79	142.66
24	265/60	-490.17	-78.16	-45.96			123.29	72.49
25	255/60	-485.81	8.60	5.74			121.49	81.14
26	500/60	-614.45	-53.76	-33.30			164.55	101.92

27	240/45	-509.22	-24.99	-16.25			86.26	56.09
28	240/45	-300.68	5.70	3.89			57.78	39.46
29	235/65	-369.09	-106.17	-64.06			104.77	63.21
30	265/65	-198.66	9.51	6.07			60.66	38.70
31	145/60	-209.08	-19.93	-11.63			54.82	31.98
32	165/60	-307.74	6.13	3.88			77.28	48.96
33	150/60	-250.54	-19.27	-11.36			64.20	37.87
34	290/60	-380.52	-48.53	-27.46			101.07	57.18
35	1160/60	-2295.94	-319.28	-189.30			569.70	337.78
36	880/30	-385.93	-16.81	-9.68			53.45	30.78
37	2949/60	-2929.30	-369.87	-206.08			802.54	447.16
38	60/195	-219.33	6.41	-1.31	38.78	165.91		38.78
39	60/164	-254.59	-41.95	-24.39	102.69	167.57		102.69
40	60/290	-473.28	-128.70	-22.54	100.49	305.31		100.49
41	60/110	-232.79	-12.42	-3.83	31.01	137.05		31.01
44	60/209	-700.65	-39.16	-82.74	1027.71	363.95		363.95
45	60/190	-382.92	-110.72	-58.60	153.17	229.02		153.17
46	60/303	-595.88	-127.20	-80.89	460.12	359.43		359.43
47	60/888	-1325.66	-1992.84	-628.19	1577.15	882.67		882.67
48	35/610	-744.58	-356.69	-353.34	1776.81	440.17		440.17
49	60/332	-932.31	-331.87	-72.84	243.86	505.72		243.86
50	60/338	-674.09	-271.87	-145.32	486.20	404.67		404.67
51	95/192	-422.15	-258.95	-88.54	119.24	234.71		119.24
52	65/480	-421.48	-782.88	-362.98	430.83	239.13		239.13
53	60/670	-1406.81	-1310.53	-434.51	1232.97	830.72		830.72
54	60/192	-312.50	-155.48	-51.62	83.31	180.49		83.31
55	40/620	-475.23	-1223.85	-382.21	406.96	232.07		232.07
56	40/620	-470.41	-1292.00	-466.35	466.20	216.44		216.44
57	60/460	-401.16	-1055.35	-441.98	352.56	0.00		0.00
58	35/513	-490.40	-764.93	-457.22	628.10	266.53		266.53
59	60/680	-1996.36	-3089.79	-760.45	1177.90	1020.82		1020.82
60	35/620	-436.61	-1148.85	-677.22	701.10	207.45		207.45
61	60/300	-492.96	-592.08	-208.22	217.12	233.06		217.12
62	40/533	-290.08	-742.59	-367.61	351.32	65.56		65.56
63	390/30	-240.37	-2.28	-1.06			32.17	14.90
64	265/30	-168.06	-8.00	-4.42			22.42	12.40
65	60/30	-47.68	-2.32	-1.36			6.16	3.61
66	60/370	-511.13	-415.75	-118.91	232.92	328.85		232.92
67	60/310	-198.03	-172.25	-55.79	93.03	160.83		93.03
68	60/233	-161.43	-79.37	-32.92	72.58	145.37		72.58
69	60/117	-583.37	-91.38	-48.01	88.92	279.99		88.92
70	60/187	-342.81	-153.12	-69.71	119.40	196.00		119.40
71	60/143	-469.75	-99.83	-47.69	108.03	245.29		108.03
72	60/719	-1516.58	-1153.20	-403.27	1503.83	894.41		894.41
73	60/160	-143.53	-160.71	-47.28	30.74	0.00		0.00
74	60/140	33.12	-111.32	-36.24	0.00	0.00		0.00
75	20/610	-362.76	-176.89	-154.21	791.71	226.44		226.44
76	45/60	-49.99	2.46	2.26	12.27	38.00		12.27
77	45/60	-51.22	2.72	2.86	14.29	38.49		14.29
78	60/635	-792.49	-853.39	-331.81	855.69	568.78		568.78
79	1010/60	-1545.51	-140.43	-82.71			401.68	236.59
80	60/310	-551.25	-330.38	-193.94	411.99	334.58		334.58
81	1150/60	-2094.84	-214.43	-124.56			528.46	306.98
82	55/885	-945.28	-1538.51	-744.72	1787.73	685.83		685.83
83	55/885	-967.96	-1684.28	-760.89	1703.07	682.53		682.53
84	1045/60	-2153.67	-213.56	-120.64			529.79	299.29
85	60/310	-528.95	-608.00	-295.65	330.35	259.65		259.65
86	1130/60	-1915.73	-348.20	-197.85			489.61	278.21
87	60/678	-690.41	-3053.01	-957.31	658.82	0.00		0.00
88	50/885	-859.49	-1820.00	-985.08	1817.54	574.54		574.54
89	30/545	-503.58	-343.53	-228.67	743.86	310.43		310.43
90	1185/25	-1277.91	-32.88	-20.11			123.63	75.61
91	25/635	-246.23	-857.72	-488.98	404.02	0.00		0.00
92	1150/25	-1254.49	-28.50	-17.95			120.95	76.17
93	60/90	-109.41	-54.60	-34.78	27.53	0.00		0.00
94	30/885	-558.44	-1003.19	-523.63	1126.32	381.09		381.09
			-14199.93					16068.86
$\lambda = \Sigma_Ved/\Sigma_Vrd = 14199.93/16068.86 = 0.88 \quad OK$								

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-156.60	-7.65	-20.51			28.64	76.82
2	190/40	-100.86	-7.88	-17.19			18.77	40.94
3	240/40	-93.06	-11.73	-29.56			17.67	44.50
4	175/40	-80.05	-6.54	-16.34			15.05	37.58
5	165/40	-94.55	-8.80	-14.02			17.49	27.87
6	165/40	-119.95	-10.94	-17.71			21.71	35.13
7	110/40	-220.13	-13.36	-28.28			32.48	68.77
8	125/40	-121.02	-11.22	-21.30			21.13	40.14
9	35/40	-120.74	-5.73	-11.31	22.87	57.63		22.87

10	35/40	-132.87	-5.84	-11.57	22.52	60.02		22.52
11	135/40	-70.89	-7.08	-14.88			13.20	27.74
12	155/40	-176.56	-6.89	-14.92			30.04	65.07
13	135/40	-112.28	-11.40	-18.54			20.01	32.54
14	155/40	-124.19	-12.64	-20.22			22.23	35.55
15	150/40	-404.72	-28.89	-61.60			52.33	111.56
16	240/40	68.48	-30.91	-72.46			0.00	0.00
17	190/40	-97.57	-23.90	-21.03			18.20	16.02
18	230/40	-34.88	-11.60	-28.45			6.84	16.77
19	120/40	-180.57	-0.55	-1.02			28.99	53.47
20	255/40	-368.71	-28.66	-71.69			59.77	149.50
21	375/40	-280.84	-21.83	-29.82			50.66	69.21
22	380/40	-296.91	-82.76	-62.66			53.30	40.36
23	700/40	-448.33	-42.24	-100.53			82.14	195.50
24	265/40	-176.76	-43.96	-34.85			32.26	25.58
25	255/40	-204.96	-15.11	-20.11			36.67	48.82
26	500/40	-395.98	-73.92	-69.55			70.98	66.78
27	240/40	-366.49	-19.98	-18.21			58.63	53.43
28	240/40	-231.70	-10.04	-18.24			40.48	73.49
29	235/40	-283.08	-30.12	-23.45			47.68	37.12
30	265/40	-69.13	-15.67	-20.73			13.35	17.66
31	145/30	-25.21	-8.77	-19.81			3.67	8.29
32	165/30	-93.48	-7.80	-12.57			12.63	20.37
33	150/30	-115.29	-14.96	-16.14			14.97	16.15
34	965/30	-959.85	-103.80	-224.14			118.96	256.88
35	939/35	-340.28	-130.86	-183.97			56.32	79.17
36	40/195	-69.41	32.44	-18.19	36.00	68.55		36.00
37	40/164	-118.14	21.17	-22.65	92.61	91.08		91.08
38	40/290	-254.85	5.66	-28.13	1594.52	179.27		179.27
39	40/90	-206.73	-12.63	-28.33	136.44	106.69		106.69
40	40/160	136.31	36.89	78.69	0.00	0.00		0.00
41	40/229	1.71	-162.92	-219.96	0.00	0.00		0.00
42	40/209	-378.42	3.08	-129.08	12071.37	207.16		207.16
43	40/190	-213.40	-3.32	-82.82	4185.32	135.93		135.93
44	40/303	-337.00	-87.10	-74.81	364.58	215.52		215.52
45	40/888	-654.82	-754.57	-377.64	1293.40	498.73		498.73
46	40/332	-573.48	-149.49	-21.85	102.92	317.92		102.92
47	40/338	-354.47	-178.79	-141.06	397.38	231.81		231.81
48	35/670	-663.11	-196.97	-489.90	4583.60	421.58		421.58
49	40/172	-140.10	-36.42	-38.48	111.70	101.91		101.91
50	35/680	-116.03	110.40	-177.69	616.29	205.08		205.08
51	40/590	-175.21	-1327.27	-609.90	226.88	0.00		0.00
52	40/440	-177.65	-523.04	-256.47	179.98	0.00		0.00
53	35/680	-939.69	-1892.97	-364.94	469.38	472.87		469.38
54	40/370	-260.09	-87.34	-71.94	354.34	202.70		202.70
55	40/310	-26.22	-55.63	-115.25	83.12	0.00		0.00
56	40/233	4.33	16.42	-124.02	0.00	0.00		0.00
57	40/117	-396.55	-26.93	-24.14	101.07	189.72		101.07
58	40/187	-217.37	-25.04	-46.02	308.99	136.93		136.93
59	40/143	-197.86	-0.55	-74.39	15310.70	117.41		117.41
60	40/719	-776.99	-437.41	-480.51	2570.78	502.65		502.65
61	40/140	111.66	14.96	-22.87	0.00	0.00		0.00
62	40/40	-202.55	-7.48	-12.80	16.43	77.74		16.43
63	40/40	-198.74	-8.38	-14.60	17.40	77.09		17.40
64	40/635	-321.68	-125.72	-103.40	775.90	298.01		298.01
65	990/40	-637.23	-42.08	-107.99			116.70	299.47
66	40/310	-287.86	-86.64	-128.87	570.83	197.81		197.81
67	1150/40	-1094.88	-115.32	-250.39			191.66	416.14
68	1045/40	-1207.05	-121.68	-185.60			204.87	312.48
69	40/290	-146.24	-556.50	-232.74	81.95	0.00		0.00
70	1110/40	-963.51	-227.68	-496.23			170.79	372.24
71	40/678	-445.37	-795.93	-830.70	1419.80	306.38		306.38
72	40/635	-462.35	84.03	-299.33	4655.38	354.27		354.27
73	1185/40	-1309.02	-144.40	-94.29			223.91	146.21
74	1150/40	-640.64	-182.55	-312.46			118.78	203.30
75	30/35	-183.70	-2.33	-0.33	151.78	121.14	60.71	121.14
76	30/35	-188.46	-3.36	-0.89	154.90	123.40	61.96	123.40
77	30/35	-162.65	-3.93	-4.43	146.45	117.33	58.58	117.33
78	30/35	-148.44	-7.27	-5.91	143.07	114.97	57.23	114.97
79	30/35	-113.38	-11.75	-7.88	139.50	112.51	55.80	112.51
80	30/35	-373.97	-14.50	-9.21	150.22	120.01	60.09	120.01
				-8427.74				
								9647.48
$\lambda = \Sigma_Ved/\Sigma_Vrd = 8427.74/9647.48 = 0.87 \quad OK$								

Στάθμη 7

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-135.84	2.38	1.28			25.15	13.59
2	190/40	-98.07	5.72	1.72			18.29	5.51
3	240/40	-101.65	-3.00	-1.63			19.20	10.43
4	175/40	-46.24	-2.27	-1.30			8.93	5.12
5	165/40	-77.82	2.51	0.75			14.60	4.35

6	165/40	-91.63	3.36	1.01			16.99	5.10
7	110/40	-76.53	0.57	0.16			13.91	3.93
8	125/40	-43.02	0.34	-0.02			8.22	0.50
9	35/40	-110.69	3.16	0.96	3.51	53.61		3.51
10	35/40	-118.54	3.24	0.98	3.50	56.75		3.50
11	135/40	-79.70	-3.21	-1.71			14.71	7.83
12	155/40	-110.47	-4.42	-2.40			20.03	10.89
13	135/40	-80.48	3.59	1.07			14.84	4.44
14	155/40	-89.22	3.65	1.09			16.50	4.92
15	150/40	-197.20	-11.37	-6.16			32.65	17.69
16	240/40	1.26	-17.76	-9.84			0.00	0.00
17	190/40	-76.75	-9.40	-2.97			14.54	4.59
18	230/40	-65.75	-12.05	-6.98			12.66	7.34
19	120/40	-98.06	3.51	1.93			17.51	9.62
20	255/40	-252.56	-14.58	-8.02			43.96	24.20
21	375/40	-247.84	0.34	-0.26			45.28	34.28
22	380/40	-264.51	-32.23	-26.49			48.08	39.52
23	735/40	-536.62	-56.41	-35.07			97.06	60.34
24	265/40	-153.44	-16.52	-16.18			28.36	27.77
25	255/40	-182.52	1.74	-1.14			33.08	21.72
26	500/40	-341.01	-19.57	-24.63			62.11	78.17
27	240/40	-345.37	-5.85	-0.07			56.05	0.70
28	240/40	-210.58	4.83	2.06			37.27	15.88
29	235/40	-262.40	-11.72	-6.88			44.80	26.30
30	265/40	-45.81	-1.30	-0.64			8.95	4.40
31	145/30	-95.93	-2.70	-1.64			12.73	7.72
32	165/30	-72.78	2.34	0.66			10.08	2.86
33	150/30	-105.54	-1.46	-5.00			13.89	47.56
34	965/30	-592.24	-25.52	-15.28			79.31	47.51
35	939/35	-301.74	-27.86	-17.27			50.26	31.15
36	40/195	-55.32	91.48	45.69	25.85	0.00		0.00
37	40/164	-137.00	24.58	6.65	26.62	98.62		26.62
38	40/290	-158.67	117.92	55.47	99.32	120.02		99.32
39	40/90	-109.71	12.17	6.58	21.79	67.88		21.79
40	40/160	-93.95	41.86	19.87	32.56	66.00		32.56
41	40/229	0.90	-333.87	-204.41	0.00	0.00		0.00
42	40/209	-277.98	-187.32	-146.25	181.60	140.97		140.97
43	40/190	-167.19	-86.70	-58.14	92.18	101.24		92.18
44	40/303	-266.06	-106.80	-62.85	205.57	187.15		187.15
45	40/888	-589.29	-1075.94	-354.33	775.50	444.85		444.85
46	40/332	-426.69	-98.63	-91.40	529.27	259.21		259.21
47	40/338	-231.48	-206.46	-122.00	207.02	156.27		156.27
48	35/670	-401.84	-677.22	-433.42	772.57	277.27		277.27
49	40/172	-113.01	-48.66	-24.15	43.46	79.56		43.46
50	35/680	-0.08	130.38	-151.75	0.32	0.00		0.00
51	40/590	-357.92	-949.35	-502.10	507.38	166.97		166.97
52	40/440	-228.12	-813.09	-304.89	173.49	0.00		0.00
53	35/680	-599.91	-913.39	-423.53	802.11	371.39		371.39
54	40/370	-160.46	-123.61	-46.73	104.90	150.56		104.90
55	40/310	-120.35	-176.33	-81.34	81.02	52.96		52.96
56	40/233	153.94	-126.63	-114.03	0.00	0.00		0.00
57	40/117	-175.45	-21.89	-12.54	45.32	101.28		45.32
58	40/187	-127.55	-67.42	-32.85	52.28	83.71		52.28
59	40/143	-163.29	-71.03	-36.25	49.54	87.91		49.54
60	40/719	-626.28	-655.25	-440.26	1315.17	442.37		442.37
61	40/140	49.08	-54.38	-47.83	0.00	0.00		0.00
62	40/40	-42.68	2.04	0.52	1.81	27.74		1.81
63	40/40	-43.11	2.80	0.71	1.83	27.91		1.83
64	40/635	-250.51	-121.29	-72.98	450.09	269.54		269.54
65	990/40	-459.10	-36.96	-22.55			86.24	52.61
66	40/310	-165.27	-248.21	-174.40	165.53	30.02		30.02
67	1150/40	-907.72	-107.22	-69.32			162.77	105.23
68	1045/40	-919.94	-127.36	-82.39			162.77	105.30
69	40/290	-212.36	-494.60	-345.19	191.19	0.00		0.00
70	1110/40	-716.75	-148.83	-92.33			131.22	81.41
71	40/678	-354.74	-1561.50	-923.65	655.26	0.00		0.00
72	40/635	-438.18	-735.69	-453.54	768.48	294.95		294.95
73	1185/40	-1204.74	-71.26	-15.25			208.85	44.71
74	1150/40	-779.27	-121.35	-69.77			142.02	81.65
75	30/35	-181.39	-2.09	1.40	35.88	65.63	60.10	35.88
76	30/35	-186.15	-2.68	0.84	36.63	67.90	61.36	36.63
77	30/35	-160.34	-0.42	-2.66	34.59	61.80	57.94	34.59
78	30/35	-146.13	-2.55	-4.09	33.78	59.43	56.57	33.78
79	30/35	-111.07	-5.47	-6.08	32.92	56.96	55.13	32.92
80	30/35	-371.66	-7.16	-7.42	35.50	64.50	59.47	35.50
				-6072.86				
					</			

1	240/60	-714.29	12.37	5.06			158.58	64.87
2	190/60	-566.71	10.16	2.53			125.72	31.31
3	240/60	-922.67	49.01	26.87			183.85	100.80
4	175/60	-485.61	33.79	18.01			110.37	58.84
5	165/60	-500.64	12.72	3.42			110.39	29.67
6	165/60	-480.49	13.29	3.87			107.48	31.33
7	165/60	-393.88	34.57	18.74			93.53	50.70
8	250/60	-707.82	46.72	24.83			159.83	84.93
9	95/60	-464.16	5.71	-0.66			79.82	9.16
10	90/60	-471.60	5.14	-0.63			76.72	9.39
11	245/60	-773.01	46.08	23.33			167.99	85.06
12	175/60	-347.11	32.44	16.14			86.09	42.83
13	135/60	-405.77	12.83	3.61			89.77	25.22
14	155/60	-473.11	15.64	4.48			104.09	29.82
15	170/60	-410.31	52.03	28.65			97.14	53.49
16	240/60	-996.71	59.47	31.65			190.55	101.41
17	190/60	-675.80	52.82	27.88			139.75	73.76
18	230/60	-695.11	39.00	18.48			153.48	72.74
19	560/60	-1332.76	70.40	34.08			316.71	153.34
20	465/60	-901.17	90.42	50.62			224.59	125.72
21	375/60	-1083.61	29.06	7.08			243.03	59.18
22	380/60	-1110.59	106.15	63.23			248.12	147.80
23	700/60	-2018.32	134.07	53.70			453.00	181.44
24	265/60	-449.74	74.75	42.03			114.92	64.61
25	255/60	-694.30	26.13	8.35			158.75	50.75
26	500/60	-1401.46	146.93	86.84			317.50	187.64
27	480/65	-648.61	63.02	27.53			187.83	82.06
28	380/65	-1348.15	84.56	47.27			312.82	174.88
29	240/65	-808.51	23.96	7.14			191.39	57.00
30	65/65	-156.61	6.58	1.89	11.38	90.81		11.38
31	215/65	-363.72	22.80	7.11			102.09	31.83
32	110/65	-298.40	36.51	21.51			75.77	44.63
33	450/65	-1584.56	167.96	95.79			368.77	210.32
34	265/65	-1321.83	35.14	12.16			256.82	88.86
35	120/60	-365.02	14.67	8.58			80.41	47.01
36	290/60	-489.18	17.54	5.81			125.13	41.46
37	345/60	-604.62	56.97	30.68			153.62	82.72
38	165/60	-480.27	11.19	3.28			107.45	31.47
39	150/60	-227.31	29.03	15.47			59.17	31.52
40	290/60	-859.45	70.09	40.08			191.09	109.28
41	1140/60	-2797.77	298.27	162.65			659.41	359.58
42	880/60	-1757.06	155.57	84.83			435.19	237.30
43	3769/60	-4301.86	797.01	442.44			1161.90	645.00
44	445/60	-971.61	125.46	68.34			235.89	128.50
45	60/195	-547.26	54.41	14.06	99.32	297.08		99.32
46	60/164	-627.81	61.43	34.13	176.63	316.85		176.63
47	60/290	-1005.21	250.17	103.85	394.38	518.09		394.38
48	60/110	-281.11	34.42	15.60	51.97	156.38		51.97
49	60/160	-203.86	59.75	27.57	65.69	142.47		65.69
50	60/229	-324.89	145.32	78.54	172.77	213.94		172.77
51	60/209	-693.20	144.00	84.87	285.18	360.97		285.18
52	60/190	-615.93	116.13	51.43	174.24	322.22		174.24
53	60/273	-494.16	303.75	76.77	139.30	287.52		139.30
54	60/888	-2392.57	3691.52	901.31	1891.72	1304.68		1304.68
55	45/630	-1295.20	1328.51	396.00	881.26	707.08		707.08
56	60/900	-1919.88	2739.59	843.87	2090.97	1127.95		1127.95
57	95/192	-783.51	336.27	169.64	281.22	414.26		281.22
58	40/513	-702.04	739.66	460.96	890.83	401.73		401.73
59	65/630	-2001.45	1785.13	814.31	2028.76	1073.58		1073.58
60	60/670	-1904.77	1882.59	739.94	1791.79	1029.91		1029.91
61	60/645	-1157.81	1832.59	784.36	1309.98	660.19		660.19
62	60/192	-499.80	214.63	96.54	159.39	263.59		159.39
63	40/620	-1514.62	1565.40	436.07	826.52	771.17		771.17
64	60/680	-1033.03	2294.22	908.34	1178.41	554.71		554.71
65	40/620	-1671.63	1735.22	455.14	807.06	833.61		807.06
66	60/460	-1477.91	1483.81	546.83	848.42	746.68		746.68
67	35/513	-526.66	985.38	439.05	495.49	259.24		259.24
68	60/680	-1120.32	3004.25	922.99	976.59	534.34		534.34
69	35/620	-1112.58	1247.16	551.96	1054.76	583.56		583.56
70	60/300	-753.59	673.32	283.90	356.36	374.22		356.36
71	40/533	-775.80	1443.53	480.49	537.26	374.67		374.67
72	390/30	-260.83	12.53	6.43			34.55	17.72
73	265/30	-129.25	9.53	5.14			17.74	9.56
74	60/30	-63.14	2.24	1.24			7.73	4.30
75	60/370	-352.51	700.83	139.28	117.20	0.00		0.00
76	60/310	-816.93	821.50	316.73	358.97	392.10		358.97
77	60/233	-366.59	438.08	165.89	136.16	0.00		0.00
78	60/57	-281.16	13.49	6.98			45.07	23.33
79	60/187	-742.84	202.23	91.92	190.49	372.12		190.49
80	60/143	-450.81	120.30	69.61	128.07	234.39		128.07
81	60/264	-327.57	395.76	215.52	206.21	105.13		105.13
82	60/468	-731.91	1833.21	582.49	459.10	0.00		0.00
83	60/107	-197.44	62.91	24.59	33.64	104.94		33.64

84	60/160	-489.49	216.96	116.82	146.05	238.61		146.05
85	60/140	-584.01	145.32	72.42	118.37	287.75		118.37
86	35/630	-984.98	1138.31	326.10	649.55	533.59		533.59
87	40/495	-317.08	641.26	238.63	263.85	163.04		163.04
88	670/25	-283.09	6.30	3.25			32.25	16.63
89	65/250	-537.48	348.03	185.89	287.31	293.31		287.31
90	340/60	-624.70	67.97	38.67			157.33	89.51
91	56/56	-92.67	7.03	6.56	19.91	57.97		19.91
92	56/56	-155.80	8.75	9.31	32.52	83.23		32.52
93	56/56	-158.77	8.94	9.58	33.12	84.41		33.12
94	56/56	-91.40	7.42	7.05	20.05	57.47		20.05
95	45/70	-410.44	42.10	12.77	81.86	174.29	144.08	81.86
96	45/70	-421.17	42.72	13.23	79.60	167.28	140.09	79.60
97	60/635	-1357.99	1902.83	602.10	1071.23	756.05		756.05
98	1010/60	-1615.75	177.43	90.78			416.99	213.34
99	60/310	-476.29	482.70	208.44	269.59	254.90		254.90
100	1150/60	-1721.48	198.03	103.63			448.92	234.91
101	55/885	-1819.76	3796.48	853.53	1402.45	985.17		985.17
102	55/885	-1711.01	3858.11	863.86	1336.10	923.12		923.12
103	1045/60	-1141.25	221.37	119.77			309.72	167.56
104	60/310	-364.53	623.00	265.93	212.70	0.00		0.00
105	1130/60	-1399.94	266.00	141.87			374.54	199.76
106	60/678	-1184.97	4042.82	764.62	626.36	0.00		0.00
107	50/885	-1904.52	3862.92	921.07	1488.19	1001.48		1001.48
108	30/545	-1068.05	831.08	199.95	424.54	536.22		424.54
109	1185/50	-3147.46	197.22	113.17			567.80	325.80
110	25/635	-741.28	962.55	407.73	716.38	390.34		390.34
111	1150/25	-1964.43	19.50	10.99			157.62	88.86
112	60/90	-296.23	36.11	20.16	49.81	154.49		49.81
113	30/885	-1350.89	1980.33	464.99	973.17	717.36		717.36
114	40/40	-342.15	7.27	2.19	81.81	174.15	143.99	81.81
115	40/40	-314.73	7.23	2.29	79.12	165.00	139.24	79.12
				21226.44				27020.32
$\lambda = \Sigma_Ved/\Sigma_Vrd = 21226.44/27020.32 = 0.79 \quad OK$								

Στάθμη 4

ΠΕΕ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-479.99	23.75	48.94			118.84	244.94
2	190/60	-375.26	0.87	13.54			93.16	1446.08
3	240/60	-695.45	55.18	134.80			155.83	380.67
4	175/60	-325.57	30.68	73.75			81.80	196.66
5	165/60	-314.31	1.65	14.73			78.60	699.92
6	165/60	-298.74	1.25	13.13			75.45	793.62
7	165/60	-64.62	27.34	40.03			18.72	27.41
8	125/60	-418.94	11.68	16.55			88.89	125.99
9	55/60	-356.53	-3.94	3.66	34.66	149.59		34.66
10	55/60	-359.40	-2.82	4.86	63.91	150.11		63.91
11	135/60	-426.07	22.76	36.24			92.58	147.40
12	175/60	-167.72	18.37	27.57			46.10	69.17
13	135/60	-269.44	-1.57	9.96			66.74	424.18
14	155/60	-306.67	-1.91	11.82			76.10	469.75
15	170/60	-275.73	55.70	135.31			71.00	172.48
16	240/60	-650.51	44.37	104.88			148.95	352.09
17	190/60	-407.16	39.42	91.24			99.29	229.81
18	230/60	-438.68	22.21	41.59			109.68	205.37
19	560/60	-873.76	28.65	64.99			226.40	513.59
20	465/60	-504.71	104.27	253.36			137.06	333.03
21	375/60	-809.17	11.11	29.08			197.00	515.72
22	380/60	-1401.86	166.55	103.19			285.04	176.61
23	700/60	-1761.94	-101.61	101.42			412.37	411.59
24	265/60	-190.25	96.18	227.54			53.50	126.56
25	255/60	-461.27	3.01	12.97			116.52	501.67
26	500/60	-1413.65	133.45	67.49			319.36	161.52
27	240/45	-768.92	34.99	79.82			108.45	247.38
28	240/45	-537.99	0.82	8.76			89.45	956.61
29	235/65	-891.80	106.72	243.80			201.15	459.56
30	265/65	-783.77	-0.62	11.77			193.98	3658.21
31	145/60	-173.82	27.19	62.28			46.69	106.93
32	165/60	-278.32	0.80	8.45			71.19	755.00
33	150/60	-171.52	30.76	67.17			46.32	101.13
34	290/60	-656.29	93.73	236.74			157.97	398.98
35	1160/60	-1709.50	281.02	640.92			446.83	1019.07
36	880/30	-1097.40	66.79	161.74			128.75	311.76
37	2949/60	-2026.57	411.18	668.74			571.48	929.44
38	60/195	-357.14	69.86	71.67	292.32	221.03		221.03
39	60/164	-366.93	50.29	44.30	206.00	212.50		206.00
40	60/290	-680.77	77.35	61.74	602.12	388.31		388.31
41	60/110	-207.82	10.41	18.34	162.83	127.06		127.06
42	60/160	-64.58	-17.32	-0.46	1.32	89.74		1.32
43	60/229	-81.98	-11.55	30.86	242.19	124.57		124.57
44	60/209	-813.46	142.75	46.94	170.57	409.08		170.57

45	60/190	-561.32	77.00	39.09	189.85	300.38		189.85
46	60/303	-363.43	132.32	43.42	158.72	266.45		158.72
47	60/888	-1701.34	1598.01	501.64	1914.93	1035.74		1035.74
48	35/610	-989.18	587.05	214.83	795.76	538.01		538.01
49	60/332	-1066.31	570.55	236.90	497.85	559.32		497.85
50	60/338	-259.27	334.61	176.17	212.63	151.38		151.38
51	95/192	-501.92	168.35	71.69	171.16	319.44		171.16
52	65/480	-1720.14	430.78	441.79	2826.98	896.06		896.06
53	60/670	-1341.67	811.13	548.34	2427.24	804.67		804.67
54	60/192	-436.15	108.66	48.27	143.56	251.26		143.56
55	40/620	-1094.91	492.20	356.67	1805.11	603.30		603.30
56	40/620	-1196.81	721.27	210.99	769.63	644.06		644.06
57	60/460	-983.96	416.92	312.58	1332.15	577.59		577.59
58	35/513	-276.64	228.46	333.49	939.60	230.36		230.36
59	60/680	-438.05	1787.90	790.91	616.22	0.00		0.00
60	35/620	-915.28	627.07	460.17	1552.86	510.78		510.78
61	60/300	-513.37	599.57	183.86	195.54	245.20		195.54
62	40/533	-455.62	423.06	249.39	623.58	321.16		321.16
63	390/30	-225.13	12.39	28.15			30.36	68.96
64	265/30	-0.70	17.29	41.05			0.11	0.25
65	60/30	-32.76	4.46	11.06			4.44	11.03
66	60/370	-247.68	346.18	88.75	109.57	153.35		109.57
67	60/310	-497.36	70.25	39.17	360.60	322.95		322.95
68	60/233	-343.19	29.89	61.92	705.66	230.48		230.48
69	60/117	-332.05	83.65	69.50	114.86	172.56		114.86
70	60/187	-529.22	131.91	107.55	289.72	286.67		286.67
71	60/143	-326.92	145.47	217.73	270.68	163.46		163.46
72	60/719	-410.81	-174.25	507.57	4057.77	452.11		452.11
73	60/160	-176.13	197.54	54.12	34.33	0.00		0.00
74	60/140	-443.31	115.22	35.55	65.28	230.13		65.28
75	20/610	-604.10	356.81	112.37	407.11	322.97		322.97
76	45/60	-275.91	-1.38	1.03	23.60	119.48		23.60
77	45/60	-281.36	-2.25	-0.48	6.65	120.49		6.65
78	60/635	-995.36	772.23	399.39	1377.09	652.14		652.14
79	1010/60	-1174.81	117.52	263.79			316.63	710.71
80	60/310	-372.54	142.60	140.63	500.72	273.02		273.02
81	1150/60	-1273.73	161.88	385.15			345.15	821.22
82	55/885	-1426.85	2038.78	763.35	1946.33	895.24		895.24
83	55/885	-1367.64	2112.24	674.51	1605.28	863.91		863.91
84	1045/60	-833.11	213.53	505.76			232.53	550.76
85	60/310	-243.79	193.06	213.33	384.55	188.48		188.48
86	1130/60	-1056.15	216.54	462.69			290.98	621.74
87	60/678	-1496.63	3741.27	597.17	630.27	705.48		630.27
88	50/885	-1422.96	1703.66	630.31	1878.06	864.18		864.18
89	30/545	-831.88	339.45	98.69	456.97	441.75		441.75
90	1185/25	-2425.40	74.51	176.42			173.09	409.84
91	25/635	-913.58	943.49	328.24	659.13	471.26		471.26
92	1150/25	-1635.16	57.43	138.04			143.47	344.84
93	60/90	-235.31	38.71	86.14	173.77	128.39		128.39
94	30/885	-1086.25	896.48	352.00	1421.94	611.50		611.50
				16957.07				
								38335.17

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 16957.07/38335.17 = 0.44 \quad OK$$

Στάθμη 5

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-381.99	11.27	6.69			98.66	58.63
2	190/60	-315.62	-8.22	-4.11			80.95	40.50
3	240/60	-532.24	49.20	28.42			128.74	74.36
4	175/60	-314.26	28.32	16.24			79.49	45.57
5	165/60	-256.38	-10.15	-5.57			66.47	36.49
6	165/60	-242.36	-9.60	-5.89			63.38	38.85
7	165/60	-144.40	17.19	7.20			40.01	16.76
8	125/60	-268.76	13.05	5.34			65.49	26.81
9	55/60	-319.40	-5.43	-4.15	30.51	142.67		30.51
10	55/60	-324.24	-5.18	-4.02	30.81	143.59		30.81
11	135/60	-327.12	14.39	7.01			77.37	37.68
12	175/60	-212.69	20.46	10.29			57.03	28.68
13	135/60	-223.42	-6.83	-4.81			57.34	40.42
14	155/60	-252.02	-8.44	-5.61			64.87	43.14
15	170/60	-181.15	48.58	28.09			49.29	28.50
16	240/60	-519.38	45.88	25.92			126.36	71.37
17	190/60	-282.61	32.13	18.32			73.77	42.06
18	230/60	-330.91	28.19	14.97			86.80	46.09
19	560/60	-836.69	46.19	30.65			218.25	144.79
20	465/60	-613.37	98.63	58.11			162.81	95.93
21	375/60	-759.67	-13.56	4.83			187.57	66.87
22	380/60	-1351.70	84.16	82.43			279.52	273.77
23	700/60	-1277.23	142.63	84.26			322.10	190.27
24	265/60	-420.17	87.20	52.59			108.59	65.50
25	255/60	-427.61	-7.61	-4.76			109.49	68.53

26	500/60	-1347.65	80.29	40.80			309.11	157.07
27	240/45	-648.78	16.12	7.94			100.02	49.25
28	240/45	-514.23	-6.37	-4.86			86.83	66.21
29	235/65	-655.47	97.19	55.47			165.12	94.24
30	265/65	-745.87	-10.48	-8.31			187.40	148.64
31	145/60	-181.20	23.48	12.88			48.43	26.57
32	165/60	-256.54	-6.38	-3.61			66.51	37.62
33	150/60	-242.35	24.68	13.88			62.45	35.12
34	290/60	-456.34	82.99	47.09			118.09	67.01
35	1160/60	-1681.34	303.30	166.67			440.54	242.09
36	880/30	-676.92	22.87	13.42			87.89	51.56
37	2949/60	-2079.93	550.06	330.23			585.54	351.53
38	60/195	-332.71	38.40	23.13	162.37	211.26		162.37
39	60/164	-304.52	54.31	24.84	93.13	187.54		93.13
40	60/290	-568.07	91.35	83.53	604.94	343.23		343.23
41	60/110	-229.18	20.05	14.13	70.12	135.61		70.12
44	60/209	-746.60	142.20	3.61	12.74	382.33		12.74
45	60/190	-489.35	76.94	33.34	148.92	271.59		148.92
46	60/303	-329.37	126.14	38.18	134.40	252.83		134.40
47	60/888	-1487.98	2042.82	727.82	1957.64	950.39		950.39
48	35/610	-892.39	878.88	267.69	620.16	499.29		499.29
49	60/332	-1048.63	441.97	211.77	569.45	552.25		552.25
50	60/338	-337.69	464.79	180.32	198.91	172.46		172.46
51	95/192	-438.47	217.10	71.11	117.90	263.71		117.90
52	65/480	-991.72	1404.54	501.61	687.19	524.58		524.58
53	60/670	-1116.84	1775.22	783.28	1374.41	658.00		658.00
54	60/192	-355.65	130.72	55.77	118.56	213.35		118.56
55	40/620	-817.41	810.64	389.08	974.61	492.30		492.30
56	40/620	-1024.92	1013.01	378.64	891.78	575.30		575.30
57	60/460	-745.72	975.93	442.69	651.32	417.24		417.24
58	35/513	-305.85	780.69	471.35	425.03	6.83		6.83
59	60/680	-732.62	2199.08	940.65	950.17	340.85		340.85
60	35/620	-758.96	1198.38	601.56	932.08	410.05		410.05
61	60/300	-473.77	452.70	166.67	220.14	254.85		220.14
62	40/533	-364.16	588.40	311.61	461.05	229.60		229.60
63	390/30	-138.01	2.35	1.23			19.42	10.20
64	265/30	-100.53	6.81	4.24			14.08	8.76
65	60/30	-26.82	2.38	1.42			3.71	2.20
66	60/370	-262.74	342.38	85.84	113.18	170.72		113.18
67	60/310	-455.08	116.13	47.19	244.36	306.03		244.36
68	60/233	-339.78	33.40	22.25	225.08	229.11		225.08
69	60/117	-330.50	68.15	46.72	94.51	177.43		94.51
70	60/187	-462.18	147.97	93.18	205.22	258.93		205.22
71	60/143	-345.58	120.70	62.12	96.73	182.40		96.73
72	60/719	-589.16	847.68	574.58	1318.39	494.68		494.68
73	60/160	-155.01	154.38	45.42	32.93	0.00		0.00
74	60/140	-424.83	87.17	27.75	65.80	225.93		65.80
75	20/610	-487.77	468.78	144.91	349.07	276.44		276.44
76	45/60	-269.97	-2.17	-1.87	27.66	118.37		27.66
77	45/60	-275.42	-2.38	-2.70	36.09	119.39		36.09
78	60/635	-834.80	1099.54	428.29	896.07	556.87		556.87
79	1010/60	-1025.96	117.08	64.75			280.48	155.13
80	60/310	-318.45	339.79	162.55	211.76	185.34		185.34
81	1150/60	-1228.64	174.94	100.07			334.19	191.17
82	55/885	-1046.51	1915.24	780.44	1642.49	704.04		704.04
83	55/885	-1017.50	2047.70	702.97	1350.93	672.37		672.37
84	1045/60	-961.86	214.52	124.51			265.36	154.02
85	60/310	-291.04	532.10	249.11	191.27	0.00		0.00
86	1130/60	-1037.13	274.63	151.70			286.19	158.08
87	60/678	-1291.97	3717.95	645.42	614.78	479.48		479.48
88	50/885	-922.47	2234.87	826.39	1319.74	569.22		569.22
89	30/545	-579.65	412.49	134.24	404.21	340.86		340.86
90	1185/25	-1948.85	23.13	12.38			159.62	85.47
91	25/635	-648.01	1078.85	401.46	577.26	334.71		334.71
92	1150/25	-1323.64	23.21	14.03			125.53	75.90
93	60/90	-147.50	40.31	24.08	33.13	80.20		33.13
94	30/885	-676.09	1211.73	440.47	920.60	428.40		428.40
				14251.56				17245.55
$\lambda = \Sigma_Ved/\Sigma_Vrd = 14251.56/17245.55 = 0.83 \quad OK$								

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-179.26	5.59	16.00			32.34	92.56
2	190/40	-152.72	6.77	13.01			27.33	52.55
3	240/40	-242.01	16.47	41.17			42.01	105.01
4	175/40	-173.90	9.93	24.82			30.25	75.62
5	165/40	-113.43	9.67	15.00			20.64	32.02
6	165/40	-101.83	11.57	18.33			18.72	29.64
7	110/40	-85.85	16.03	32.12			15.41	30.88
8	125/40	-252.81	19.40	40.55			37.16	77.67
9	35/40	-126.83	7.45	12.36	19.11	58.85		19.11

10	35/40	-139.06	7.19	11.99	18.60	61.20		18.60
11	135/40	-180.82	7.03	14.90			29.82	63.15
12	155/40	-89.01	9.97	20.29			16.46	33.50
13	135/40	-104.59	10.53	18.45			18.79	32.94
14	155/40	-120.09	11.59	20.12			21.58	37.46
15	150/40	119.35	27.68	61.00			0.00	0.00
16	240/40	-243.45	27.03	64.88			42.22	101.34
17	190/40	-123.66	39.98	43.60			22.62	24.68
18	230/40	-171.28	15.50	38.75			30.91	77.28
19	120/40	-301.31	9.92	26.98			40.44	110.01
20	255/40	-113.06	46.39	114.86			21.30	52.73
21	375/40	-239.49	31.38	32.31			43.89	45.20
22	380/40	-569.54	97.17	68.06			91.54	64.11
23	700/40	-610.26	53.86	122.97			108.11	246.82
24	265/40	-330.03	30.38	24.96			55.24	45.39
25	255/40	-192.12	12.50	19.07			34.63	52.84
26	500/40	-541.88	55.48	60.25			92.99	100.98
27	240/40	-362.46	29.35	28.97			58.15	57.40
28	240/40	-281.68	11.75	19.81			47.67	80.33
29	235/40	-270.74	34.74	29.27			45.97	38.74
30	265/40	-283.34	22.32	27.37			48.73	59.77
31	145/30	-267.90	6.17	12.48			27.21	55.07
32	165/30	-53.92	6.63	10.30			7.63	11.85
33	150/30	-190.77	6.15	11.36			22.26	41.08
34	965/30	-598.31	92.69	235.51			80.03	203.32
35	939/35	390.85	89.54	173.31			0.00	0.00
36	40/195	-198.32	-27.23	65.44	394.49	131.44		131.44
37	40/164	-145.76	-22.51	22.31	102.84	102.12		102.12
38	40/290	-203.50	-45.52	131.46	762.08	158.73		158.73
39	40/90	-172.63	17.19	52.19	167.66	93.05		93.05
40	40/160	128.17	72.34	128.01	0.00	0.00		0.00
41	40/229	25.09	-104.05	-145.38	0.00	0.00		0.00
42	40/209	-444.56	-36.92	-40.33	345.44	233.62		233.62
43	40/190	-201.70	1.71	75.38	7082.69	131.25		131.25
44	40/303	-183.46	100.60	55.03	138.00	150.59		138.00
45	40/888	-682.29	465.01	575.02	3312.37	509.72		509.72
46	40/332	-759.71	69.44	192.51	2290.92	392.42		392.42
47	40/338	-113.35	296.65	103.32	63.26	0.00		0.00
48	35/670	-509.79	1280.40	576.61	668.32	262.61		262.61
49	40/172	-146.23	50.05	41.60	91.13	99.91		91.13
50	35/680	-167.71	259.68	630.58	1325.84	196.69		196.69
51	40/590	-899.28	265.03	440.46	3396.38	517.05		517.05
52	40/440	-422.28	356.39	257.23	573.55	277.39		277.39
53	35/680	-411.53	621.60	481.04	969.98	296.88		296.88
54	40/370	-85.59	62.24	40.68	99.87	124.06		99.87
55	40/310	-314.99	-17.32	88.68	2116.81	208.66		208.66
56	40/233	-207.22	-43.89	85.90	409.23	145.02		145.02
57	40/117	-262.50	18.61	29.63	161.07	136.10		136.10
58	40/187	-211.96	6.93	51.78	1232.38	134.77		134.77
59	40/143	-128.52	-23.67	50.41	169.88	89.67		89.67
60	40/719	-185.50	-50.13	442.88	5666.58	266.05		266.05
61	40/140	-346.29	-6.75	14.37	323.69	175.85		175.85
62	40/40	20.62	7.03	12.06	0.00	0.00		0.00
63	40/40	-86.40	8.05	14.64	21.21	43.11		21.21
64	40/635	-422.84	395.45	178.25	544.44	338.47		338.47
65	990/40	-457.76	40.99	109.41			86.00	229.57
66	40/310	-85.45	27.44	100.76	466.08	116.85		116.85
67	1150/40	-709.02	93.98	196.86			130.35	273.05
68	1045/40	-710.04	111.27	116.79			129.37	135.78
69	40/290	-331.32	627.63	150.87	95.60	0.00		0.00
70	1110/40	-442.26	208.06	410.24			83.84	165.30
71	40/678	-717.09	2172.40	634.43	596.80	224.98		224.98
72	40/635	-310.64	-174.26	153.97	807.22	293.59		293.59
73	1185/40	-1314.36	238.24	184.14			224.67	173.65
74	1150/40	-1357.51	149.77	256.80			229.51	393.52
75	30/35	-190.33	15.17	9.40	151.78	121.14	60.71	121.14
76	30/35	-214.72	14.54	8.90	154.90	123.40	61.96	123.40
77	30/35	-172.38	15.93	8.35	146.45	117.33	58.58	117.33
78	30/35	-161.05	11.97	7.11	143.07	114.97	57.23	114.97
79	30/35	-143.03	11.03	6.06	139.50	112.51	55.80	112.51
80	30/35	-51.42	12.40	6.77	150.22	120.01	60.09	120.01
				8537.79				
								10033.05
$\lambda = \Sigma_Ved/\Sigma_Vrd = 8537.79/10033.05 = 0.85 \quad OK$								

Στάθμη 7

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-111.76	0.41	0.36			20.99	18.60
2	190/40	-108.69	-3.53	-1.05			20.11	5.96
3	240/40	-179.68	5.31	3.22			32.41	19.67
4	175/40	-89.07	3.41	2.05			16.63	9.99
5	165/40	-86.12	-2.38	-0.70			16.05	4.73

6	165/40	-85.41	-3.21	-0.95			15.92	4.74
7	110/40	-80.86	-0.12	0.84			14.61	100.71
8	125/40	-78.69	-0.37	0.63			14.44	24.57
9	35/40	-113.19	-2.33	-0.70	3.50	54.61		3.50
10	35/40	-120.41	-2.28	-0.68	3.48	57.50		3.48
11	135/40	-112.34	3.84	2.39			20.02	12.47
12	155/40	-86.65	4.50	2.80			16.06	10.00
13	135/40	-77.96	-4.39	-1.31			14.41	4.31
14	155/40	-87.38	-4.67	-1.39			16.19	4.83
15	150/40	-55.98	11.10	6.59			10.65	6.33
16	240/40	-158.26	16.02	9.49			28.92	17.13
17	190/40	-83.53	7.26	2.31			15.74	5.01
18	230/40	-107.23	17.68	10.40			20.14	11.84
19	120/40	-104.32	5.19	3.02			18.49	10.78
20	255/40	-227.05	24.23	14.86			40.11	24.60
21	375/40	-206.49	7.22	2.75			38.32	14.58
22	380/40	-328.65	42.20	32.37			58.28	44.70
23	735/40	-391.74	62.99	40.62			72.88	47.00
24	265/40	-306.71	10.85	6.29			52.04	30.16
25	255/40	-169.68	-3.53	0.11			30.98	0.94
26	500/40	-444.47	8.50	15.53			78.54	143.49
27	240/40	-341.34	6.61	10.83			55.55	91.07
28	240/40	-260.56	-4.38	-0.49			44.70	5.01
29	235/40	-250.06	11.69	12.71			43.04	46.80
30	265/40	-260.02	2.63	7.28			45.32	125.67
31	145/30	-163.86	2.05	0.92			19.73	8.87
32	165/30	-68.47	-1.57	-0.50			9.53	3.05
33	150/30	-123.91	-3.79	-3.30			15.90	13.84
34	965/30	-439.91	40.40	23.72			60.73	35.66
35	939/35	32.79	53.58	31.15			0.00	0.00

36	40/195	-118.66	-9.68	2.08	22.64	99.58		22.64
37	40/164	-149.27	11.50	5.98	55.07	103.53		55.07
38	40/290	-171.86	161.89	93.38	130.90	109.38		109.38
39	40/90	-107.74	17.27	9.98	22.97	66.27		22.97
40	40/160	-100.70	174.97	78.53	32.76	0.00		0.00
41	40/229	-26.26	-125.76	-84.19	19.82	0.00		0.00
42	40/209	-255.66	-28.44	-45.01	345.29	158.06		158.06
43	40/190	-217.11	85.07	49.60	99.33	131.35		99.33
44	40/303	-176.82	91.30	56.96	152.25	150.50		150.50
45	40/888	-601.30	919.00	604.98	1578.19	473.45		473.45
46	40/332	-516.50	355.21	175.24	323.84	284.38		284.38
47	40/338	-153.25	307.23	77.18	60.54	0.00		0.00
48	35/670	-344.16	1410.87	604.75	450.47	0.00		0.00
49	40/172	-123.23	48.24	31.11	60.98	86.78		60.98
50	35/680	-259.23	939.65	583.92	511.76	0.00		0.00
51	40/590	-522.77	768.75	466.63	811.13	327.46		327.46
52	40/440	-232.57	548.68	301.50	258.76	0.00		0.00
53	35/680	-404.72	1194.60	511.88	529.19	193.27		193.27
54	40/370	-107.37	101.74	39.05	72.90	115.15		72.90
55	40/310	-194.05	85.92	46.55	147.59	160.29		147.59
56	40/233	-272.24	54.79	85.99	410.12	171.03		171.03
57	40/117	-104.14	29.13	23.33	42.09	65.93		42.09
58	40/187	-171.73	39.98	39.54	137.21	118.68		118.68
59	40/143	-143.75	51.02	28.09	48.20	86.50		48.20
60	40/719	-189.24	348.97	397.71	745.06	215.94		215.94
61	40/140	-224.00	84.39	67.43	95.08	115.46		95.08
62	40/40	-20.49	-1.81	-0.45	0.94	17.14		0.94
63	40/40	-22.16	-3.07	-0.88	1.16	13.79		1.16
64	40/635	-294.87	314.24	103.38	286.45	286.69		286.45
65	990/40	-355.36	33.46	19.37			67.73	39.21
66	40/310	-111.28	239.38	118.85	81.00	0.00		0.00
67	1150/40	-716.49	66.98	36.07			131.60	70.86
68	1045/40	-700.22	56.14	21.98			127.75	50.01
69	40/290	-241.80	477.54	149.05	95.68	0.00		0.00
70	1110/40	-495.12	101.66	53.90			93.24	49.44
71	40/678	-466.15	2195.78	837.14	540.06	0.00		0.00
72	40/635	-356.86	415.06	301.76	753.99	303.70		303.70
73	1185/40	-1210.08	93.25	105.10			209.64	236.28
74	1150/40	-1072.80	101.85	66.07			188.34	122.18
75	30/35	-188.02	7.67	7.67	35.88	65.63	60.10	35.88
76	30/35	-212.41	7.44	7.17	36.63	67.90	61.36	36.63
77	30/35	-170.07	9.28	6.58	34.59	61.80	57.94	34.59
78	30/35	-158.74	6.30	5.29	33.78	59.43	56.57	33.78
79	30/35	-140.72	6.21	4.26	32.92	56.96	55.13	32.92
80	30/35	-49.11	7.01	4.98	35.50	64.50	59.47	35.50
				6331.64				
								5152.62

λ = Σ_Ved/Σ_Vrd = 6331.64/5152.62 = 1.23 Ανεπάρκεια

Σεισμικός συνδυασμός 39: 1.10*G + 0.60*Q + 0.36*Σx2 - 1.21*Σy2

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
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1	240/60	-676.80	13.68	6.08			153.03	68.01
2	190/60	-557.46	9.79	2.46			124.38	31.33
3	240/60	-904.96	39.81	21.92			182.07	100.27
4	175/60	-492.94	27.77	14.94			111.50	59.99
5	165/60	-499.99	10.63	2.67			110.30	27.64
6	165/60	-477.09	11.54	3.16			106.98	29.27
7	165/60	-377.84	33.05	17.90			90.68	49.12
8	250/60	-720.48	45.84	24.38			161.74	86.03
9	95/60	-477.06	5.30	-0.76			80.34	11.47
10	90/60	-463.43	5.23	-0.59			76.50	8.67
11	245/60	-766.72	46.93	23.82			167.14	84.83
12	175/60	-374.42	33.06	16.53			91.33	45.66
13	135/60	-410.10	13.23	4.18			90.38	28.57
14	155/60	-471.58	16.15	5.34			103.88	34.37
15	170/60	-395.23	53.41	29.40			94.49	52.02
16	240/60	-1006.26	68.16	36.21			191.32	101.64
17	190/60	-723.96	54.55	28.71			144.90	76.27
18	230/60	-755.46	34.02	14.26			161.62	67.73
19	560/60	-1335.14	50.06	24.63			317.13	156.02
20	465/60	-895.97	86.42	48.40			223.55	125.18
21	375/60	-1038.52	24.81	5.32			236.19	50.60
22	380/60	-1094.12	97.70	58.46			245.69	146.99
23	700/60	-2026.91	137.79	54.33			454.28	179.11
24	265/60	-413.96	84.13	47.18			107.24	60.14
25	255/60	-707.99	26.93	9.75			160.89	58.24
26	500/60	-1462.79	145.69	86.12			326.70	193.10
27	480/65	-626.88	42.36	25.52			182.28	109.82
28	380/65	-1341.62	81.27	45.37			311.91	174.13
29	240/65	-845.48	20.21	6.01			196.73	58.45
30	65/65	-160.66	5.81	1.68	11.63	92.43		11.63
31	215/65	-345.86	20.64	6.45			97.83	30.58
32	110/65	-279.17	34.49	20.31			72.17	42.50
33	450/65	-1710.22	171.60	97.97			385.50	220.08
34	265/65	-1306.78	35.92	12.63			255.84	89.98
35	120/60	-346.34	14.56	8.55			77.71	45.64
36	290/60	-468.21	16.78	5.58			120.65	40.14
37	345/60	-649.96	55.85	30.18			162.90	88.02
38	165/60	-486.90	10.68	2.64			108.42	26.81
39	150/60	-229.35	25.92	13.87			59.62	31.91
40	290/60	-775.74	71.14	40.59			178.35	101.77
41	1140/60	-2845.34	299.45	163.23			667.51	363.85
42	880/60	-1633.58	146.77	81.03			410.61	226.69
43	3769/60	-4511.43	831.86	462.28			1211.92	673.49
44	445/60	-1020.62	128.34	69.99			244.85	133.53
45	60/195	-510.92	57.09	17.93	115.61	282.54		115.61
46	60/164	-603.49	58.73	32.70	174.22	307.13		174.22
47	60/290	-900.66	236.64	56.80	215.65	476.26		215.65
48	60/110	-257.83	20.94	9.51	49.14	147.07		49.14
49	60/160	-172.62	55.84	25.61	56.55	126.33		56.55
50	60/229	-315.92	138.94	76.00	170.84	211.26		170.84
51	60/209	-673.70	141.73	84.53	284.38	353.17		284.38
52	60/190	-572.97	114.12	51.29	170.04	305.04		170.04
53	60/273	-502.76	287.81	75.16	145.88	296.03		145.88
54	60/888	-2380.35	3556.16	726.55	1577.87	1305.66		1305.66
55	45/630	-1272.66	1037.00	383.56	1081.61	698.06		698.06
56	60/900	-1793.81	2614.41	808.97	1997.69	1077.53		1077.53
57	95/192	-773.44	324.96	163.69	278.44	411.95		278.44
58	40/513	-704.93	671.58	423.70	904.58	410.96		410.96
59	65/630	-1903.52	1763.83	772.03	1889.22	1034.41		1034.41
60	60/670	-1668.11	1886.05	734.07	1631.05	933.57		933.57
61	60/645	-1088.86	1902.43	792.94	1215.45	612.88		612.88
62	60/192	-515.33	217.43	98.44	163.60	270.70		163.60
63	40/620	-1598.70	1567.63	453.09	875.89	804.81		804.81
64	60/680	-1050.16	2308.06	917.29	1198.90	564.33		564.33
65	40/620	-1648.70	1732.61	460.69	814.47	823.41		814.47
66	60/460	-1459.61	1528.10	623.47	933.14	734.21		734.21
67	35/513	-494.52	1008.05	503.27	528.15	234.67		234.67
68	60/680	-1314.09	3066.42	933.83	1096.51	653.62		653.62
69	35/620	-1223.44	1258.24	564.53	1123.43	634.04		634.04
70	60/300	-725.02	688.04	290.98	348.28	356.13		348.28
71	40/533	-773.40	1500.60	492.51	528.58	367.34		367.34
72	390/30	-257.92	14.40	7.29			34.22	17.32
73	265/30	-99.62	11.09	5.98			13.96	7.52
74	60/30	-60.47	2.56	1.42			7.47	4.13
75	60/370	-346.23	932.83	183.41	114.10	0.00		0.00
76	60/310	-905.52	849.43	324.59	378.97	435.64		378.97
77	60/233	-396.20	454.27	169.73	143.00	17.25		17.25
78	60/57	-285.00	13.88	7.20			45.21	23.45
79	60/187	-749.37	207.06	93.92	190.64	374.73		190.64
80	60/143	-448.31	122.87	70.78	127.11	232.52		127.11
81	60/264	-329.97	405.46	219.70	206.47	85.86		85.86
82	60/468	-807.42	1906.02	587.96	482.25	0.00		0.00
83	60/107	-242.31	64.78	24.90	38.49	129.04		38.49

84	60/160	-544.73	223.45	120.53	154.68	264.67		154.68
85	60/140	-572.07	149.75	74.82	117.96	281.42		117.96
86	35/630	-988.94	1111.28	290.46	594.13	537.42		537.42
87	40/495	-376.35	613.71	235.94	317.08	218.09		218.09
88	670/25	-287.29	6.25	3.25			32.68	16.99
89	65/250	-524.55	337.59	185.66	290.45	288.65		288.65
90	340/60	-613.63	65.60	37.49			155.07	88.62
91	56/56	-91.74	6.46	6.16	20.15	57.60		20.15
92	56/56	-155.87	8.53	9.27	33.20	83.26		33.20
93	56/56	-158.49	8.93	9.56	33.03	84.30		33.03
94	56/56	-92.36	7.86	7.35	19.90	57.85		19.90
95	45/70	-432.92	40.90	12.40	81.86	174.29	144.08	81.86
96	45/70	-401.83	43.21	13.41	79.60	167.28	140.09	79.60
97	60/635	-1023.31	1730.73	372.34	585.82	587.37		585.82
98	1010/60	-1529.88	121.90	60.79			398.24	198.58
99	60/310	-472.44	458.83	158.74	214.56	258.43		214.56
100	1150/60	-1878.75	196.12	102.72			483.20	253.08
101	55/885	-1857.98	3958.62	815.69	1304.36	995.58		995.58
102	55/885	-1608.70	3840.93	856.40	1271.04	867.59		867.59
103	1045/60	-1140.89	238.43	128.98			309.63	167.50
104	60/310	-388.46	638.21	307.09	253.25	0.00		0.00
105	1130/60	-1472.42	322.66	173.16			391.45	210.08
106	60/678	-1418.23	4099.05	992.31	919.34	467.76		467.76
107	50/885	-1928.46	3886.88	931.82	1508.42	1012.33		1012.33
108	30/545	-1068.28	800.47	188.26	415.03	536.31		415.03
109	1185/50	-3160.50	199.66	114.50			569.24	326.45
110	25/635	-733.08	989.64	417.72	709.01	384.48		384.48
111	1150/25	-1970.62	19.18	10.82			157.84	89.07
112	60/90	-276.98	34.67	19.37	48.12	146.79		48.12
113	30/885	-1289.90	1932.31	450.79	941.68	691.58		691.58
114	40/40	-383.22	7.31	2.21	81.81	174.15	143.99	81.81
115	40/40	-311.47	7.17	2.26	79.12	165.00	139.24	79.12
				21060.97				

44	60/209	-806.43	136.03	45.02	171.12	406.26		171.12
45	60/190	-558.55	70.76	35.65	187.89	299.27		187.89
46	60/303	-370.68	120.58	40.46	165.10	269.35		165.10
47	60/888	-1663.07	1574.78	494.00	1880.59	1020.43		1020.43
48	35/610	-930.32	471.85	218.88	970.57	514.46		514.46
49	60/332	-933.31	578.75	226.51	435.15	498.11		435.15
50	60/338	-232.62	293.72	181.16	225.41	144.08		144.08
51	95/192	-553.51	206.29	78.87	165.99	332.99		165.99
52	65/480	-1607.32	520.02	431.53	2207.22	850.93		850.93
53	60/670	-1201.18	811.35	537.21	2184.54	748.47		748.47
54	60/192	-399.62	98.96	40.85	125.26	236.65		125.26
55	40/620	-1174.00	320.67	327.61	2657.34	634.93		634.93
56	40/620	-1189.85	782.23	234.18	784.95	641.28		641.28
57	60/460	-973.87	420.34	341.21	1431.56	573.55		573.55
58	35/513	-280.25	226.67	369.54	1061.72	231.80		231.80
59	60/680	-601.67	1817.42	801.07	821.54	286.19		286.19
60	35/620	-996.56	632.66	527.93	1864.39	543.29		543.29
61	60/300	-503.11	620.31	188.62	190.82	233.29		190.82
62	40/533	-457.76	449.76	262.48	619.82	317.70		317.70
63	390/30	-208.18	11.86	26.51			28.32	63.26
64	265/30	21.78	17.84	42.41			0.00	0.00
65	60/30	-34.45	4.90	12.16			4.65	11.55
66	60/370	-241.35	435.87	124.66	119.33	41.21		41.21
67	60/310	-553.68	125.18	65.14	366.49	345.47		345.47
68	60/233	-379.45	37.76	65.91	645.35	244.98		244.98
69	60/117	-333.00	86.64	71.72	114.63	171.95		114.63
70	60/187	-539.26	151.66	111.01	263.06	290.69		263.06
71	60/143	-323.99	150.15	225.65	270.06	160.07		160.07
72	60/719	-485.92	-87.74	507.94	9433.28	482.15		482.15
73	60/160	-174.10	201.93	55.16	33.89	0.00		0.00
74	60/140	-445.34	117.65	36.43	65.68	230.44		65.68
75	20/610	-612.42	371.10	110.62	388.34	326.30		326.30
76	45/60	-277.67	-1.22	1.07	27.77	119.81		27.77
77	45/60	-278.69	-2.41	-0.54	7.10	120.00		7.10
78	60/635	-741.88	775.82	354.51	950.02	550.75		550.75
79	1010/60	-1086.19	80.23	172.86			295.25	636.12
80	60/310	-367.54	138.44	105.60	382.82	271.02		271.02
81	1150/60	-1403.20	159.91	381.67			376.09	897.68
82	55/885	-1470.41	2180.45	730.69	1783.43	911.80		911.80
83	55/885	-1284.60	2091.93	663.09	1515.22	821.46		821.46
84	1045/60	-774.47	228.15	548.98			217.30	522.88
85	60/310	-258.28	194.90	252.28	474.82	198.76		198.76
86	1130/60	-1126.45	255.94	553.43			308.51	667.09
87	60/678	-1702.10	3704.10	758.92	884.10	826.50		826.50
88	50/885	-1434.26	1725.74	633.23	1873.86	868.70		868.70
89	30/545	-828.42	332.97	94.31	444.16	440.37		440.37
90	1185/25	-2434.96	74.33	176.03			173.26	410.35
91	25/635	-965.68	1053.83	330.63	609.28	490.46		490.46
92	1150/25	-1669.40	57.06	136.09			145.17	346.23
93	60/90	-233.25	37.37	80.97	168.19	128.07		128.07
94	30/885	-1037.98	875.13	341.67	1370.70	592.19		592.19
				17236.14				33930.49

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 17236.14/33930.49 = 0.51 \quad OK$$

Στάθμη 5

ΠΕΣ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/60	-345.97	12.96	8.37			90.72	58.63
2	190/60	-306.45	-8.19	-3.97			78.98	38.29
3	240/60	-520.46	39.62	22.91			126.56	73.19
4	175/60	-301.48	27.68	15.91			76.84	44.17
5	165/60	-254.33	-9.46	-5.25			66.03	36.66
6	165/60	-243.02	-8.60	-5.52			63.53	40.78
7	165/60	-146.23	18.06	7.82			40.47	17.52
8	125/60	-267.47	13.47	5.67			65.24	27.48
9	55/60	-317.13	-5.34	-4.11	30.83	142.24		30.83
10	55/60	-326.32	-5.24	-4.08	30.77	143.99		30.77
11	135/60	-320.18	13.26	6.18			76.15	35.51
12	175/60	-219.84	18.31	8.83			58.72	28.30
13	135/60	-224.86	-7.55	-5.18			57.64	39.57
14	155/60	-251.34	-8.95	-5.88			64.72	42.48
15	170/60	-167.78	52.89	30.57			45.99	26.58
16	240/60	-530.62	52.62	29.87			128.45	72.92
17	190/60	-288.29	35.90	20.57			75.02	42.98
18	230/60	-365.82	20.40	9.95			94.50	46.10
19	560/60	-820.36	34.32	25.35			214.62	158.49
20	465/60	-599.65	95.60	56.27			159.63	93.97
21	375/60	-702.77	-11.68	5.98			176.32	90.27
22	380/60	-1260.30	85.85	84.10			268.56	263.08
23	700/60	-1307.42	135.18	79.82			328.24	193.80
24	265/60	-409.04	94.57	57.06			106.17	64.05
25	255/60	-438.45	-8.59	-5.31			111.78	69.07

26	500/60	-1443.03	76.21	38.09			323.78	161.84				
27	240/45	-623.98	17.42	8.72			97.88	49.02				
28	240/45	-535.62	-5.90	-4.67			89.19	70.71				
29	235/65	-694.43	99.37	56.74			171.92	98.16				
30	265/65	-772.22	-10.81	-8.94			192.01	158.88				
31	145/60	-177.21	23.95	13.17			47.49	26.11				
32	165/60	-262.10	-6.01	-3.49			67.72	39.27				
33	150/60	-240.15	24.42	13.69			61.97	34.75				
34	290/60	-447.02	82.50	46.75			116.05	65.76				
35	1160/60	-1701.76	305.94	183.64			445.11	267.17				
36	880/30	-624.96	22.35	13.04			82.11	47.92				
37	2949/60	-2139.40	534.10	318.84			601.15	358.86				
38	60/195	-339.55	37.93	28.74	207.52	213.99		207.52				
39	60/164	-295.07	45.49	23.79	103.92	183.76		103.92				
40	60/290	-528.07	-3.47	48.80	8811.61	327.23		327.23				
41	60/110	-235.11	10.78	9.80	92.11	137.98		92.11				
44	60/209	-741.06	133.78	-0.08	0.31	380.12		0.31				
45	60/190	-486.17	70.59	30.20	146.44	270.32		146.44				
46	60/303	-335.56	114.52	34.05	134.18	255.31		134.18				
47	60/888	-1482.91	1959.07	710.53	1987.42	948.37		948.37				
48	35/610	-862.59	866.66	274.33	629.98	487.37		487.37				
49	60/332	-933.95	423.24	151.45	398.02	506.38		398.02				
50	60/338	-329.53	467.75	183.59	196.90	164.02		164.02				
51	95/192	-447.26	222.01	75.73	124.81	266.99		124.81				
52	65/480	-967.86	1404.46	495.91	666.84	510.50		510.50				
53	60/670	-1086.39	1673.08	723.81	1318.04	651.75		651.75				
54	60/192	-350.80	122.22	48.51	109.14	213.71		109.14				
55	40/620	-845.77	852.99	412.19	1006.57	503.64		503.64				
56	40/620	-1008.82	1029.97	404.11	926.19	568.86		568.86				
57	60/460	-728.17	1069.88	486.36	640.29	390.95		390.95				
58	35/513	-288.72	792.42	525.57	443.57	0.00		0.00				
59	60/680	-865.74	2260.58	951.80	1080.85	440.95		440.95				
60	35/620	-802.85	1225.39	688.76	1086.98	431.30		431.30				
61	60/300	-463.51	469.39	171.44	214.52	243.88		214.52				
62	40/533	-364.71	720.43	335.40	405.83	201.05		201.05				
63	390/30	-148.39	3.19	1.69			20.78	10.98				
64	265/30	-97.73	7.95	4.41			13.71	7.60				
65	60/30	-24.46	2.65	1.57			3.41	2.02				
66	60/370	-270.21	437.75	114.94	121.63	135.68		121.63				
67	60/310	-483.24	171.81	74.04	272.26	317.30		272.26				
68	60/233	-379.40	40.19	26.59	244.63	244.96		244.63				
69	60/117	-332.64	70.57	48.04	94.20	177.57		94.20				
70	60/187	-473.70	152.97	95.47	206.75	263.20		206.75				
71	60/143	-344.90	123.94	63.49	96.15	180.92		96.15				
72	60/719	-635.75	871.30	572.72	1369.83	521.51		521.51				
73	60/160	-152.98	157.93	46.46	32.54	0.00		0.00				
74	60/140	-426.86	88.83	28.63	66.80	226.75		66.80				
75	20/610	-498.82	480.84	142.34	339.40	280.86		280.86				
76	45/60	-271.73	-2.04	-1.82	28.66	118.70		28.66				
77	45/60	-272.75	-2.49	-2.76	35.52	118.89		35.52				
78	60/635	-671.51	1057.97	380.67	685.64	460.54		460.54				
79	1010/60	-939.70	101.99	55.82			259.00	141.76				
80	60/310	-313.82	255.74	114.37	195.42	213.74		195.42				
81	1150/60	-1333.82	173.74	99.36			359.61	205.67				
82	55/885	-1065.55	1830.71	689.91	1542.45	723.98		723.98				
83	55/885	-944.67	2197.62	755.44	1268.87	608.72		608.72				
84	1045/60	-888.80	237.21	137.22			246.83	142.79				
85	60/310	-296.32	607.20	290.75	198.81	0.00		0.00				
86	1130/60	-1096.80	324.63	180.61			301.14	167.54				
87	60/678	-1430.51	3718.61	808.40	830.79	667.06		667.06				
88	50/885	-931.20	2402.36	903.43	1353.04	557.00		557.00				
89	30/545	-566.17	336.81	128.26	464.89	335.47		335.47				
90	1185/25	-1978.83	23.65	12.69			160.76	86.23				
91	25/635	-672.55	1102.91	402.01	579.59	345.77		345.77				
92	1150/25	-1350.83	19.81	11.95			127.28	76.77				
93	60/90	-152.53	38.36	22.95	34.08	84.84		34.08				
94	30/885	-657.75	1185.26	428.10	894.29	420.48		420.48				
				14564.01								
								17359.77				
$\lambda = \Sigma \text{ Ved} / \Sigma \text{ Vrd} = 14564.01 / 17359.77 = 0.84 \quad \text{OK}$												

Στάθμη 6

ΠΕΣ	Διάστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-124.57	5.65	16.19			23.22	66.55
2	190/40	-144.22	6.27	13.61			25.98	56.40
3	240/40	-237.99	13.81	34.65			41.41	103.91
4	175/40	-164.69	8.85	22.18			28.88	72.37
5	165/40	-111.69	9.26	14.50			20.36	31.89
6	165/40	-103.01	11.33	18.14			18.92	30.28
7	110/40	-99.63	16.06	31.52			17.56	34.46
8	125/40	-246.73	19.26	39.61			36.58	75.25
9	35/40	-127.77	7.43	12.28	19.00	59.03		19.00

10	35/40	-138.02	7.32	12.11	18.52	61.01	18.52
11	135/40	-178.72	7.77	14.84		29.54	56.40
12	155/40	-77.01	10.04	19.94		14.40	28.61
13	135/40	-105.70	11.07	18.57		18.97	31.85
14	155/40	-118.94	12.01	20.03		21.40	35.68
15	150/40	137.61	30.59	67.68		0.00	0.00
16	240/40	-282.63	31.52	76.39		47.80	115.85
17	190/40	-123.90	25.64	24.90		22.66	22.01
18	230/40	-193.39	10.79	26.42		34.42	84.32
19	120/40	-288.26	6.95	19.99		39.51	113.69
20	255/40	-103.56	40.15	100.83		19.61	49.25
21	375/40	-241.52	31.17	32.26		44.23	45.77
22	380/40	-522.22	98.85	68.81		85.64	59.61
23	700/40	-578.79	56.73	128.04		103.22	232.96
24	265/40	-326.19	34.00	26.68		54.72	42.93
25	255/40	-202.49	13.55	19.38		36.28	51.90
26	500/40	-589.56	57.08	60.83		99.70	106.24
27	240/40	-343.43	30.11	29.34		55.81	54.38
28	240/40	-296.37	11.62	19.77		49.68	84.54
29	235/40	-293.47	35.83	29.79		49.09	40.81
30	265/40	-283.16	24.01	28.30		48.70	57.41
31	145/30	-271.69	6.34	13.04		27.41	56.39
32	165/30	-58.30	6.56	10.21		8.21	12.76
33	150/30	-193.72	5.92	11.12		22.50	42.29
34	965/30	-567.67	105.29	264.67		76.40	192.05
35	939/35	398.88	70.48	138.85		0.00	0.00
36	40/195	-213.70	-37.40	49.31	229.93	137.60	137.60
37	40/164	-139.59	-33.53	12.33	36.77	99.66	36.77
38	40/290	-193.20	-70.97	102.13	362.67	154.61	154.61
39	40/90	-207.17	14.47	47.18	198.59	106.87	106.87

40	40/160	123.28	70.07	120.59	0.00	0.00	0.00
41	40/229	24.00	-107.18	-152.24	0.00	0.00	0.00
42	40/209	-435.10	-21.43	-44.96	655.94	229.84	229.84
43	40/190	-207.59	10.09	70.27	1144.89	133.60	133.60
44	40/303	-185.56	99.86	51.21	130.72	152.25	130.72
45	40/888	-670.88	413.03	514.33	3287.03	505.15	505.15
46	40/332	-652.46	49.84	151.69	2320.21	349.52	349.52
47	40/338	-95.99	268.98	106.40	61.35	0.00	0.00
48	35/670	-626.39	1197.29	617.76	908.40	351.26	351.26
49	40/172	-152.93	56.17	42.73	86.65	100.59	86.65
50	35/680	-114.66	215.30	583.08	1025.11	152.42	152.42
51	40/590	-905.57	371.85	485.09	2678.97	519.56	519.56
52	40/440	-393.75	329.48	288.01	655.13	266.56	266.56
53	35/680	-532.95	810.08	579.84	1121.98	344.78	344.78
54	40/370	-86.13	95.66	70.12	112.71	93.60	93.60
55	40/310	-343.68	-28.83	92.88	1429.56	220.14	220.14
56	40/233	-248.50	-50.20	102.35	495.46	161.54	161.54
57	40/117	-264.40	26.39	38.04	146.32	136.86	136.86
58	40/187	-214.37	15.10	55.67	613.27	135.73	135.73
59	40/143	-128.51	-22.56	53.86	190.43	89.66	89.66
60	40/719	-208.45	-41.41	434.14	7517.52	275.23	275.23
61	40/140	-348.32	-11.56	15.25	201.08	176.66	176.66
62	40/40	-27.10	7.08	12.10	8.32	0.00	0.00
63	40/40	-30.07	8.12	14.57	9.57	0.00	0.00
64	40/635	-336.39	469.92	151.92	317.72	276.80	276.80
65	990/40	-385.99	21.98	60.22		73.25	200.69
66	40/310	-82.40	41.95	78.26	228.74	115.63	115.63
67	1150/40	-809.54	101.79	205.20		146.98	296.29
68	1045/40	-639.02	108.45	125.70		117.56	136.27
69	40/290	-314.48	589.01	173.80	112.57	0.00	0.00
70	1110/40	-479.63	210.90	451.06		90.49	193.55
71	40/678	-796.03	2028.17	714.41	782.39	385.78	385.78
72	40/635	-288.40	-231.79	168.26	619.20	284.69	284.69
73	1185/40	-1326.59	231.34	178.39		226.40	174.58
74	1150/40	-1395.31	148.07	272.51		234.70	431.94
75	30/35	-191.58	15.13	9.36	151.78	121.14	60.71
76	30/35	-211.79	15.39	9.29	154.90	123.40	61.96
77	30/35	-171.94	15.53	8.20	146.45	117.33	58.58
78	30/35	-161.44	12.15	7.25	143.07	114.97	57.23
79	30/35	-169.97	11.00	6.06	139.50	112.51	55.80
80	30/35	5.09	12.50	6.81	150.22	120.01	60.09

$\lambda = \Sigma_{Ved} / \Sigma_{Vrd} = 8625.93 / 10127.23 = 0.85 \quad OK$

Στάθμη 7

ΠΕΕ	Διαστ. cm	Ned KN	Med KNm	Ved KN	Vf KN	Vv KN	Mrdz KNm	Vrd KN
1	240/40	-88.53	-0.50	-0.14			16.85	4.74
2	190/40	-105.59	-4.45	-1.33			19.58	5.84
3	240/40	-179.23	4.31	2.64			32.34	19.81
4	175/40	-77.35	3.08	1.86			14.57	8.79
5	165/40	-84.61	-2.41	-0.71			15.78	4.66

6	165/40	-85.98	-3.33	-0.99			16.02	4.77
7	110/40	-83.67	-0.13	0.84			15.07	99.82
8	125/40	-76.27	-0.38	0.63			14.04	23.63
9	35/40	-112.86	-2.29	-0.69	3.50	54.48		3.50
10	35/40	-120.26	-2.25	-0.67	3.48	57.44		3.48
11	135/40	-112.35	3.96	2.45			20.02	12.41
12	155/40	-87.06	4.83	2.99			16.13	9.97
13	135/40	-78.03	-3.95	-1.18			14.42	4.31
14	155/40	-86.94	-4.12	-1.23			16.11	4.79
15	150/40	-43.90	12.88	7.65			8.44	5.01
16	240/40	-176.23	17.98	10.67			31.85	18.90
17	190/40	-84.85	8.11	2.58			15.98	5.09
18	230/40	-110.10	11.76	6.79			20.64	11.91
19	120/40	-111.05	3.26	1.96			19.52	11.73
20	255/40	-204.52	22.35	13.78			36.61	22.56
21	375/40	-208.52	7.06	2.69			38.67	14.73
22	380/40	-343.29	43.28	31.86			60.53	44.56
23	735/40	-378.75	60.93	40.00			70.64	46.38
24	265/40	-302.87	13.11	8.00			51.50	31.43
25	255/40	-180.05	-2.72	0.42			32.68	5.05
26	500/40	-428.58	9.66	16.05			76.09	126.46
27	240/40	-322.31	7.07	11.20			53.12	84.15
28	240/40	-275.25	-4.48	-0.53			46.78	5.50
29	235/40	-272.79	12.37	13.22			46.26	49.46
30	265/40	-259.84	3.58	8.21			45.29	103.88
31	145/30	-165.65	2.15	0.99			19.89	9.14
32	165/30	-69.21	-1.56	-0.50			9.62	3.09
33	150/30	-125.30	-3.85	-3.39			16.05	14.12
34	965/30	-421.66	41.56	24.41			58.42	34.32
35	939/35	38.21	54.27	31.49			0.00	0.00
36	40/195	-132.40	-48.54	-18.60	44.51	101.81		44.51
37	40/164	-147.46	-21.61	-4.77	23.14	102.80		23.14
38	40/290	-165.24	75.91	53.21	153.52	143.43		143.43
39	40/90	-111.05	11.40	6.80	24.26	68.42		24.26
40	40/160	-102.13	170.78	76.21	32.99	0.00		0.00
41	40/229	-25.15	-132.82	-88.65	18.94	0.00		0.00
42	40/209	-256.03	-35.31	-49.44	305.86	158.21		158.21
43	40/190	-216.36	79.01	45.90	98.67	133.18		98.67
44	40/303	-176.16	88.27	53.95	148.66	151.18		148.66
45	40/888	-601.53	691.64	523.16	1814.01	477.41		477.41
46	40/332	-475.86	344.55	168.17	302.29	265.22		265.22
47	40/338	-147.07	308.71	80.56	60.53	0.00		0.00
48	35/670	-385.23	1399.32	617.96	513.49	0.00		0.00
49	40/172	-123.20	50.90	32.53	60.39	85.03		60.39
50	35/680	-270.97	916.29	605.90	567.40	10.06		10.06
51	40/590	-513.76	862.28	515.11	786.60	307.23		307.23
52	40/440	-218.91	628.56	345.47	244.86	0.00		0.00
53	35/680	-451.59	1246.43	530.22	578.46	225.43		225.43
54	40/370	-116.87	128.28	45.96	73.78	106.94		73.78
55	40/310	-200.50	91.03	51.67	159.22	162.87		159.22
56	40/233	-325.55	61.35	99.66	486.44	192.35		192.35
57	40/117	-95.01	35.12	27.43	37.95	55.08		37.95
58	40/187	-176.77	54.03	47.96	126.17	120.70		120.70
59	40/143	-143.93	52.96	29.12	48.20	85.53		48.20
60	40/719	-188.06	300.06	397.05	859.90	235.36		235.36
61	40/140	-224.16	83.13	67.31	96.40	115.99		96.40
62	40/40	-20.50	-1.79	-0.44	0.93	17.22		0.93
63	40/40	-21.48	-2.98	-0.85	1.13	13.49		1.13
64	40/635	-258.87	312.43	84.94	209.74	261.00		209.74
65	990/40	-317.93	20.07	11.34			60.91	34.40
66	40/310	-108.77	188.45	87.18	73.87	0.00		0.00
67	1150/40	-751.40	60.58	32.15			137.42	72.92
68	1045/40	-681.20	70.71	31.16			124.60	54.92
69	40/290	-235.41	536.40	188.70	105.39	0.00		0.00
70	1110/40	-516.15	117.25	63.45			96.94	52.46
71	40/678	-492.04	2153.33	852.74	588.32	0.00		0.00
72	40/635	-349.68	410.48	309.20	766.91	299.96		299.96
73	1185/40	-1222.31	90.92	99.35			211.42	231.03
74	1150/40	-1076.52	110.52	71.77			188.90	122.67
75	30/35	-189.27	7.66	7.64	35.88	65.63	60.10	35.88
76	30/35	-209.48	7.98	7.56	36.63	67.90	61.36	36.63
77	30/35	-169.63	8.99	6.43	34.59	61.80	57.94	34.59
78	30/35	-159.13	6.36	5.43	33.78	59.43	56.57	33.78
79	30/35	-167.66	6.17	4.27	32.92	56.96	55.13	32.92
80	30/35	7.40	7.07	5.03	35.50	64.50	59.47	35.50
				6358.92				
							5098.04	

$$\lambda = \Sigma_Ved/\Sigma_Vrd = 6358.92/5098.04 = 1.25 \quad \text{Ανεπάρκεια}$$

Συνολικός έλεγχος: $\lambda = 1.28$ Ανεπάρκεια (Β ΟΡΟΦΟΣ)

(ΕΠΙΛΥΣΗ Β) ΜΕΘΟΔΟΣ ΤΟΠΙΚΩΝ ΔΕΙΚΤΩΝ m

ΕΛΕΓΧΟΣ ΠΕΣΣΩΝ ΑΝΑ ΣΕΙΣΜΙΚΟ ΣΥΝΔΥΑΣΜΟ

Σεισμικός συνδυασμός 24: 1.10*G + 1.00*Q + Σx1 + 0.30*Σy1

Έλεγχος εντός επιπέδου

Στάθμη 2-isogeio

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-558.15	1.60	-3.85	-61.15	215.74	62.79	1.00	7.64	58.94	150.00	0.39
2	190/60	-482.38	2.38	0.85	-42.86	128.69	47.64	1.00	7.58	48.49	134.04	0.36
3	240/60	-598.88	4.21	1.86	-15.17	224.15	86.15	1.00	5.78	88.01	211.98	0.42
4	175/60	-444.63	1.66	0.25	-71.70	109.24	40.95	1.00	8.13	41.20	118.77	0.35
5	165/60	-450.82	2.20	0.99	-25.41	90.85	30.92	1.00	9.50	31.91	96.22	0.33
6	165/60	-440.69	3.48	2.63	-25.38	92.18	31.66	1.00	9.41	34.30	99.26	0.35
7	165/60	-330.39	-0.07	-1.01	45.44	101.39	38.09	1.00	8.60	37.08	71.31	0.52
8	250/60	-531.28	0.64	-7.28	-66.91	262.33	90.81	1.00	6.16	83.53	181.20	0.46
9	95/60	-471.77	-11.54	-9.15	-54.67	31.47	14.11	1.00	12.52	4.96	28.04	0.18
10	90/60	-442.01	12.19	9.32	2.28	30.05	13.81	1.00	12.90	23.13	55.89	0.41
11	245/60	-503.69	-1.14	-10.62	28.56	252.21	94.42	1.00	5.81	83.80	156.94	0.53
12	175/60	-388.06	-4.14	-5.88	-112.76	119.20	46.35	1.00	7.84	40.48	110.45	0.37
13	135/60	-376.46	0.21	-0.24	-25.37	67.77	25.94	1.00	10.32	25.70	72.30	0.36
14	155/60	-416.96	2.09	1.35	-22.39	91.69	32.53	1.00	9.70	33.88	88.46	0.38
15	170/60	-387.43	2.31	1.46	51.12	109.80	41.13	1.00	8.38	42.59	87.32	0.49
16	240/60	-475.54	3.67	1.48	31.60	248.71	83.87	1.00	6.59	85.35	147.15	0.58
17	190/60	-360.76	3.74	2.76	16.95	149.47	54.23	1.00	7.74	56.99	99.70	0.57
18	230/60	-422.36	4.51	3.65	108.31	234.68	59.85	1.00	9.09	63.50	82.90	0.77
19	560/60	-1407.47	0.01	12.55	-5.51	1065.31	289.10	1.00	3.51	301.64	840.17	0.36
20	465/60	-1247.44	24.98	0.87	-45.10	779.43	229.78	1.00	3.89	230.65	624.36	0.37
21	375/60	-1086.67	8.89	2.92	-29.83	495.90	194.65	1.00	3.62	197.58	577.65	0.34
22	380/60	-1084.11	12.41	-0.56	-126.70	548.60	151.54	1.00	5.08	150.98	423.65	0.36
23	735/60	-1810.70	-202.96	34.12	-74.89	1884.92	463.20	1.00	2.67	497.32	1146.60	0.43
24	265/60	-763.55	4.55	4.96	-50.34	272.48	96.57	1.00	5.68	101.54	274.96	0.37
25	255/60	-807.26	5.24	6.09	-63.24	257.68	109.78	1.00	4.91	115.87	323.70	0.36
26	500/60	-1527.37	80.56	-15.91	-169.50	928.31	272.49	1.00	3.63	256.58	716.09	0.36
27	480/65	-606.39	87.16	-18.03	-9.06	742.34	262.26	1.00	3.15	244.23	383.90	0.64
28	380/65	-1127.59	46.51	-24.26	-44.27	545.73	178.07	1.00	4.30	153.81	415.15	0.37
29	240/65	-756.75	6.22	6.99	-100.26	226.82	69.97	1.00	7.20	76.96	228.71	0.34
31	215/65	-324.68	3.70	0.47	-9.45	184.56	69.06	1.00	6.63	69.53	113.81	0.61
32	110/65	-281.68	-0.38	-0.95	-21.25	37.59	15.66	1.00	11.64	14.72	49.30	0.30
33	450/65	-1168.37	-31.85	21.07	-93.87	708.06	249.40	1.00	2.67	270.47	760.50	0.36
34	265/65	-908.81	4.42	12.80	62.46	276.08	97.81	1.00	5.68	110.60	313.01	0.35
35	120/60	-328.90	9.90	8.21	-5.50	36.99	15.55	1.00	10.57	23.76	73.60	0.32
36	290/60	-463.88	2.18	8.72	-1.97	257.17	104.12	1.00	4.54	112.84	247.11	0.46
37	345/60	-782.63	26.64	-29.12	-89.74	362.55	125.26	1.00	4.47	96.14	278.60	0.35
38	165/60	-397.19	1.57	0.48	-27.63	67.39	16.41	1.00	13.27	16.89	63.95	0.26
39	150/60	-299.66	3.61	2.92	-32.51	47.43	9.19	1.00	18.35	12.10	46.11	0.26
40	290/60	-691.69	9.35	-8.75	12.03	269.62	94.82	1.00	5.23	86.07	233.44	0.37
41	1140/60	-2795.00	-77.59	10.97	-189.90	3767.79	601.90	1.00	2.67	612.87	1778.40	0.34
42	880/60	-1572.98	-93.97	-0.54	-118.11	1540.92	349.38	1.00	2.67	348.84	1372.80	0.25
43	3769/60	-4358.90	-3526.65	60.53	-688.60	7376.04	1872.36	1.00	2.67	1932.90	5498.08	0.35
44	445/60	-823.89	4.11	4.10	-33.14	409.76	167.14	1.00	2.94	171.24	638.43	0.27
72	390/30	-387.42	1.63	2.28	-90.35	299.34	106.89	1.00	3.83	109.17	255.89	0.43
73	265/30	-284.00	2.30	3.32	-30.03	143.00	48.09	1.00	5.99	51.41	112.64	0.46
74	60/30	-71.13	0.09	0.05	-3.76	3.57	1.46	1.00	21.73	1.51	6.98	0.22
88	670/25	-516.67	-164.12	22.62	-27.63	371.16	127.01	1.00	2.67	149.63	435.50	0.34
90	340/60	-690.26	26.68	-12.22	-67.04	335.39	109.23	1.00	4.82	97.01	268.82	0.36
98	1010/60	-1910.71	18.84	-59.84	-28.44	2137.26	394.78	1.00	2.86	334.94	1231.86	0.27
100	1150/60	-2434.69	-194.58	-71.43	-198.04	2347.50	451.08	1.00	2.67	379.65	1794.00	0.21
103	1045/60	-2208.07	-329.48	23.88	-415.76	2228.65	400.85	1.00	2.67	424.73	1630.20	0.26
105	1130/60	-2262.25	-467.86	18.65	-406.78	3023.02	400.90	1.00	2.67	419.56	1762.80	0.24
109	1185/50	-2241.16	-208.65	-10.73	41.65	2279.20	448.45	1.00	2.67	437.72	1540.50	0.28
111	1150/25	-1576.49	-34.16	-13.86	-80.67	1157.07	194.80	1.00	2.67	180.94	747.50	0.24

Στάθμη 3-a oroofos

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-346.12	-24.21	-12.12	-56.30	88.79	26.40	1.00	7.47	14.28	89.06	0.16
2	190/60	-291.39	-1.32	-0.01	-23.49	66.17	17.77	1.00	10.46	17.75	68.45	0.26
3	240/60	-383.33	-2.54	-4.16	-9.46	166.16	75.96	1.00	4.86	71.80	173.30	0.41
4	175/60	-296.62	-8.01	-4.88	-23.93	87.39	40.74	1.00	6.54	35.86	103.70	0.35
5	165/60	-249.33	-3.13	-1.00	-14.18	36.66	11.47	1.00	10.33	10.47	57.15	0.18
6	165/60	-250.38	2.76	0.47	-16.64	41.27	13.19	1.00	10.11	13.66	57.37	0.24
7	165/60	-235.78	-8.06	-2.18	-41.57	48.38	13.64	1.00	11.46	11.47	54.23	0.21
8	125/60	-180.12	-7.80	-2.49	37.56	24.68	7.64	1.00	13.79	5.15	24.12	0.21
11	135/60	-236.87	-8.99	-1.04	14.01	40.90	15.70	1.00	10.29	14.66	57.81	0.25
12	175/60	-282.56	-21.22	-3.08	-65.86	72.27	25.49	1.00	8.64	22.41	107.44	0.21
13	135/60	-218.96	-1.91	-0.42	-14.73	31.64	10.86	1.00	11.51	10.44	45.90	0.23
14	155/60	-242.70	2.55	0.76	-15.29	36.34	12.51	1.00	10.00	13.27	56.98	0.23
15	170/60	-233.22	4.41	3.65	3.13	78.30	36.26	1.00	6.77	39.92	81.73	0.49
16	240/60	-274.14	2.51	5.24	14.18	193.59	89.77	1.00	4.79	95.00	134.91	0.70

17	190/60	-192.94	9.57	5.71	6.81	119.04	54.75	1.00	6.10	60.46	75.05	0.81
18	230/60	-249.53	8.53	3.38	43.93	66.38	29.81	1.00	5.16	33.19	95.47	0.35
19	560/60	-871.61	-130.45	16.88	21.82	692.13	310.33	1.00	2.67	327.21	856.84	0.38
20	465/60	-775.77	-10.27	-34.38	-7.60	487.04	215.30	1.00	2.59	180.91	575.75	0.31
21	375/60	-701.37	-10.69	-19.03	0.66	407.59	198.94	1.00	2.91	179.91	485.28	0.37
22	380/60	-890.42	-28.38	-20.89	49.49	254.25	136.55	1.00	2.67	115.65	592.80	0.20
23	735/60	-1210.21	29.59	42.36	30.17	925.88	440.23	1.00	2.67	482.58	1146.60	0.42
24	265/60	-452.53	5.39	8.98	-18.99	169.79	76.59	1.00	4.46	85.57	251.38	0.34
25	255/60	-487.83	9.82	6.82	-39.23	249.05	119.41	1.00	4.36	126.24	260.58	0.48
26	500/60	-1268.15	-278.01	-5.05	-144.52	496.74	247.27	1.00	2.67	242.22	780.00	0.31
27	240/45	-590.14	-41.41	8.84	-9.91	135.78	54.04	1.00	2.67	62.88	280.80	0.22
28	240/45	-429.38	6.93	3.47	-56.83	90.59	53.16	1.00	3.79	56.63	248.11	0.23
29	235/65	-560.34	34.12	-5.76	-37.93	209.27	105.18	1.00	4.52	99.42	220.29	0.45
30	265/65	-533.55	36.52	11.04	-13.52	187.05	78.68	1.00	4.78	89.72	235.97	0.38
31	145/60	-197.67	-10.55	4.78	-22.32	56.73	23.32	1.00	8.95	28.11	82.48	0.34
32	165/60	-237.46	-3.92	-0.41	-17.12	9.18	5.00	1.00	5.94	4.59	155.18	0.03
33	150/60	-198.73	0.14	-3.46	-12.43	19.28	25.58	1.00	2.68	22.12	155.28	0.14
34	290/60	-460.29	-78.35	-7.35	-22.41	209.50	110.48	1.00	2.67	103.13	452.40	0.23
35	1160/60	-1748.84	-266.90	-46.84	-126.49	2093.55	670.08	1.00	2.67	623.24	1809.60	0.34
36	880/30	-798.48	89.23	-36.67	-56.32	538.03	222.46	1.00	2.67	185.79	686.40	0.27
37	2949/60	-2260.37	1985.48	236.41	-356.22	2490.45	985.19	1.00	2.67	1221.60	3768.79	0.32
63	390/30	-203.60	10.09	-3.72	-55.20	199.53	101.52	1.00	2.69	97.80	204.51	0.48
64	265/30	-138.01	9.22	6.26	-15.92	85.86	38.41	1.00	4.50	44.67	84.78	0.53
65	60/30	-39.04	0.20	0.13	-2.73	2.79	1.30	1.00	19.03	1.43	5.18	0.28
79	1010/60	-1260.64	45.96	-91.26	-3.78	1024.60	366.76	1.00	2.67	275.50	1438.08	0.19
81	1150/60	-1656.22	68.76	-77.92	-118.52	1109.97	416.51	1.00	2.67	338.59	1771.43	0.19
84	1045/60	-1511.74	-508.83	-14.11	-226.05	1050.27	374.37	1.00	2.67	360.27	1630.20	0.22
86	1130/60	-1550.54	-541.06	-10.45	-239.09	1593.72	427.61	1.00	2.67	417.16	1758.93	0.24
90	1185/25	-1662.70	-302.71	-10.60	44.11	919.86	273.57	1.00	2.67	262.98	770.25	0.34
92	1150/25	-1440.38	194.19	-38.18	-90.66	810.31	257.27	1.00	2.67	219.08	747.50	0.29

Στάθμη 4-b orofos

ΠΕΕ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/40	-119.83	-11.04	-5.48	-8.07	31.45	15.73	1.00	4.44	10.25	70.97	0.14
2	190/40	-109.54	-1.52	-2.28	-10.49	8.81	12.63	1.00	1.96	10.35	146.77	0.07
3	240/40	-158.21	8.94	11.33	-17.94	67.24	34.83	1.00	4.29	46.16	114.09	0.40
4	175/40	-80.13	4.59	5.14	8.75	25.53	13.09	1.00	5.94	18.24	35.53	0.51
5	165/40	-91.88	1.53	0.09	-5.21	-3.17	2.09	1.00	4.91	2.18	97.35	0.02
6	165/40	-94.30	2.04	0.90	-7.79	-3.74	2.02	1.00	5.98	2.92	131.73	0.02
7	110/40	-34.66	0.09	-0.53	-14.77	-3.15	-0.25	1.00	61.92	-0.77	6.41	0.12
8	125/40	-25.21	-7.30	-7.86	13.29	-5.31	-1.19	1.00	2.67	-9.05	0.00	-
11	135/40	-101.57	12.77	7.98	-2.72	-1.34	0.78	1.00	6.77	8.76	47.77	0.18
12	155/40	-104.21	14.73	9.93	-4.75	-5.37	-0.31	1.00	59.04	9.62	77.69	0.12
13	135/40	-85.17	-0.38	-0.31	-6.19	-2.91	1.09	1.00	10.56	0.78	13.11	0.06
14	155/40	-94.73	-0.91	-0.12	-5.96	-6.27	-0.60	1.00	36.07	-0.72	7.09	0.10
15	150/40	-118.34	1.38	-2.16	-23.97	9.35	3.68	1.00	9.03	1.52	13.01	0.12
16	240/40	-99.95	12.24	-3.75	8.09	-2.61	-1.17	1.00	4.94	-4.93	53.20	0.09
17	190/40	-88.74	8.60	2.82	-3.46	10.22	8.84	1.00	3.24	11.66	50.35	0.23
18	230/40	-98.43	4.11	2.13	-18.29	-73.18	6.04	1.00	28.10	8.16	14.67	0.56
19	120/40	-152.02	-4.96	-7.94	5.23	22.78	11.36	1.00	8.91	3.42	13.83	0.25
20	255/40	-219.11	-25.88	17.19	27.69	85.63	47.53	1.00	2.67	64.72	233.49	0.28
21	375/40	-235.46	-25.78	-23.22	-23.30	204.46	115.87	1.00	2.51	92.65	225.78	0.41
22	380/40	-318.10	-30.85	-20.01	-18.13	130.36	82.08	1.00	2.23	62.08	346.12	0.18
23	735/40	-473.55	-44.41	37.90	-2.34	309.98	198.72	1.00	2.67	236.62	642.66	0.37
24	265/40	-232.69	18.65	5.52	8.63	57.66	50.41	1.00	2.30	55.93	190.27	0.29
25	255/40	-196.27	10.69	6.89	-30.14	118.34	62.09	1.00	3.99	68.98	133.96	0.51
26	500/40	-349.18	116.68	8.33	-9.67	214.80	121.76	1.00	1.88	130.09	314.52	0.41
27	240/40	-388.98	102.76	103.76	-1.02	38.01	27.30	1.00	2.67	131.05	249.60	0.53
28	240/40	-213.71	-0.19	-21.47	-30.99	75.96	35.07	1.00	4.81	13.60	44.72	0.30
29	235/40	-276.63	-51.45	-42.74	-43.27	92.82	38.15	1.00	5.52	-4.58	33.22	0.14
30	265/40	-164.81	1.61	-1.07	-2.90	37.25	32.23	1.00	2.33	31.15	161.39	0.19
31	145/30	-132.20	10.95	1.12	-13.00	3.37	2.23	1.00	5.55	3.35	19.74	0.17
32	165/30	-77.69	-2.47	-0.34	-5.77	-6.83	-0.61	1.00	36.25	-0.95	6.35	0.15
33	150/30	-116.12	-10.79	-2.97	-7.61	33.43	9.29	1.00	12.80	6.31	21.65	0.29
34	965/30	-583.62	-211.63	-28.00	-17.14	99.28	152.67	1.00	2.67	124.67	685.69	0.18
35	939/35	-35.36	-129.21	-16.19	-19.85	97.55	144.45	1.00	2.67	128.27	527.70	0.24
65	990/40	-441.14	-32.10	-100.93	10.07	94.14	106.43	1.00	0.48	5.50	176.97	0.03
67	1150/40	-799.26	394.24	-118.13	-49.17	77.81	99.38	1.00	0.36	-18.76	172.59	0.11
68	1045/40	-796.41	-604.50	-15.10	-72.49	99.90	141.61	1.00	2.67	126.51	990.63	0.13
70	1110/40	-645.29	-539.72	-19.83	-91.80	230.85	96.91	1.00	1.14	77.08	920.12	0.08
73	1185/40	-1341.66	-697.07	-20.83	-101.48	301.76	153.31	1.00	2.67	132.48	1232.40	0.11
74	1150/40	-1060.95	688.90	-144.59	-66.02	320.44	175.31	1.00	0.85	30.72	168.49	0.18

Έλεγχος εκτός επιπέδου

Στάθμη 2

ΠΕΕ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
30	65/65	-155.51	0.10	0.02	-16.39	-0.83	-0.20	1.00	3.00	-0.73	44.12	0.02
45	60/195	-444.16	6.60	4.09	64.76	-2.40	0.77	1.00	3.00	4.20	94.78	0.04
46	60/164	-560.97	3.57	1.63	-15.20	1.72	0.49	1.00	3.00	5.29	120.63	0.04
47	60/290	-806.60	12.00	-11.19	135.08	13.83	-5.06	1.00	3.00	25.83	161.26	0.16

48	60/110	-275.83	-1.18	-1.46	50.74	-0.54	-0.76	1.00	3.00	-1.72	55.60	0.03
49	60/160	-157.83	-1.51	-3.36	52.68	4.92	1.51	1.00	3.00	3.41	29.76	0.11
50	60/229	-239.93	7.54	6.69	-8.72	13.95	5.29	1.00	3.00	21.49	67.63	0.32
51	60/209	-676.31	20.85	26.66	-3.44	13.94	6.67	1.00	3.00	34.79	146.84	0.24
52	60/190	-573.77	1.05	-3.42	16.75	14.12	6.99	1.00	3.00	15.17	124.81	0.12
53	60/333	-729.29	27.24	-3.07	43.90	37.48	12.40	1.00	3.00	64.72	169.12	0.38
54	60/888	-2244.89	40.02	23.49	-125.26	-61.94	-46.76	1.00	3.00	-21.92	547.53	0.04
55	45/630	-1208.20	94.82	-9.60	-62.96	-83.98	-7.31	1.00	3.00	10.84	219.72	0.05
56	60/900	-1721.09	-96.13	24.77	-43.09	-126.28	-19.38	1.00	3.00	-222.41	439.87	0.51
57	95/192	-620.20	5.00	2.03	11.13	-25.24	-5.77	1.00	3.00	-20.24	239.37	0.08
58	40/513	-756.31	-65.98	28.43	-94.51	-121.28	-21.69	1.00	3.00	-187.26	133.69	1.40
59	65/630	-1495.21	34.58	15.27	-136.87	-294.10	-81.21	1.00	3.00	-259.53	421.14	0.62
60	60/670	-1780.40	-95.40	41.82	140.18	-188.09	-61.32	1.00	3.00	-283.49	388.28	0.73
61	60/645	-1153.52	-101.57	36.45	149.99	-333.03	-139.68	1.00	3.00	-434.60	260.70	1.67
62	60/192	-416.05	2.09	-1.57	-61.03	-52.31	-22.23	1.00	3.00	-50.22	112.48	0.45
63	40/620	-1476.51	232.70	-27.18	138.00	-316.90	-57.42	1.00	3.00	-84.20	193.01	0.44
64	60/680	-1082.58	439.94	-41.07	-42.03	-450.11	-125.77	1.00	3.00	-10.16	289.31	0.04
65	40/620	-1275.14	195.03	-22.05	117.45	-392.99	-87.63	1.00	3.00	-197.96	175.66	1.13
66	60/460	-963.06	1.34	22.24	120.42	-446.12	-118.20	1.00	3.00	-444.78	212.90	2.09
67	35/513	-756.32	-27.97	21.72	-115.56	-298.29	-88.37	1.00	3.00	-326.26	114.28	2.85
68	60/680	-1708.29	94.43	11.73	-468.03	-820.32	-217.72	1.00	3.00	-725.89	472.86	1.54
69	35/620	-982.46	-34.31	19.71	-133.92	-380.45	-118.48	1.00	3.00	-414.76	143.41	2.89
70	60/300	-634.66	12.41	-11.85	59.28	-211.41	-81.59	1.00	3.00	-199.00	144.09	1.38
71	40/533	-697.55	6.12	12.88	-26.82	-475.56	-104.93	1.00	3.00	-469.44	119.43	3.93
75	60/370	-642.09	18.16	-0.43	-213.30	52.33	-78.79	1.00	3.00	70.49	205.50	0.34
76	60/310	-588.33	14.36	13.09	-117.41	-259.93	-52.50	1.00	3.00	-245.57	170.19	1.44
77	60/233	-468.93	6.81	-2.70	-85.43	-135.78	-33.31	1.00	3.00	-128.97	132.22	0.98
78	60/117	-310.05	-2.06	-2.14	-13.87	-30.74	-13.41	1.00	3.00	-32.80	73.92	0.44
79	60/187	-583.13	0.48	-2.58	-28.63	-83.09	-26.50	1.00	3.00	-82.61	131.92	0.63
80	60/143	-617.63	8.55	7.23	-51.32	-45.93	-17.19	1.00	3.00	-37.38	120.07	0.31
81	60/264	-248.12	2.56	35.65	10.72	-168.75	-50.67	1.00	3.00	-166.20	65.70	1.53
82	60/468	-1373.27	-4.43	30.42	-412.09	-680.52	-123.51	1.00	3.00	-684.95	359.69	1.90
83	60/107	-207.95	0.06	-0.58	-100.59	-18.62	-5.76	1.00	3.00	-18.56	69.57	0.27
84	60/160	-314.94	-1.05	-2.06	-24.55	-65.68	-28.49	1.00	3.00	-66.73	83.23	0.80
85	60/140	-360.86	-2.76	-3.32	-40.83	-48.85	-21.12	1.00	3.00	-51.61	90.72	0.57
86	35/630	-736.40	30.48	-0.82	-31.21	-129.88	-27.99	1.00	3.00	-99.40	110.16	0.90
87	40/495	-610.63	48.12	-8.64	-86.12	-28.38	3.83	1.00	3.00	19.74	114.00	0.17
89	65/250	-573.59	20.45	-6.16	5.15	-43.38	-25.24	1.00	3.00	-22.93	151.33	0.15
91	56/56	-96.13	15.57	11.22	-1.71	2.05	0.86	1.00	3.00	17.62	22.98	0.77
92	56/56	-159.30	27.48	19.83	-9.59	-0.07	0.37	1.00	3.00	27.41	34.12	0.80
93	56/56	-160.82	27.71	19.99	-7.13	-0.33	0.25	1.00	3.00	27.38	34.01	0.81
94	56/56	-97.27	15.79	11.36	-7.10	-0.81	0.03	1.00	3.00	14.98	24.19	0.62
95	45/70	-202.89	0.09	-0.01	7.72	-1.25	-0.35	1.00	3.00	-1.16	29.85	0.04
96	45/70	-210.79	0.09	-0.03	29.39	-1.60	-0.43	1.00	3.00	-1.51	28.66	0.05
97	60/635	-1219.46	132.33	10.30	132.14	162.31	31.87	1.00	3.00	294.63	278.07	1.06
99	60/310	-643.68	1.19	-10.77	-39.13	-31.45	-14.33	1.00	3.00	-30.26	165.97	0.18
101	55/885	-1780.26	52.70	-36.04	-112.28	-357.60	-135.78	1.00	3.00	-304.90	415.84	0.73
102	55/885	-1697.24	-16.34	-24.69	-80.89	-763.72	-127.91	1.00	3.00	-780.06	396.64	1.97
104	60/310	-646.71	-3.11	-3.62	-130.75	-169.87	-61.41	1.00	3.00	-172.98	182.84	0.95
106	60/678	-1240.63	27.36	6.36	-386.49	-1159.04	-252.64	1.00	3.00	-1131.69	387.20	0.92
107	50/885	-1591.85	187.22	-28.84	-82.74	-839.77	-171.41	1.00	3.00	-652.55	336.74	0.94
108	30/545	-685.37	53.08	-15.08	-47.30	-37.05	-15.18	1.00	3.00	16.03	84.44	0.19
110	25/635	-578.74	9.95	-3.09	5.48	-224.81	-84.29	1.00	3.00	-214.86	58.28	3.69
112	60/90	-259.07	-1.56	-1.19	3.01	-2.51	-1.19	1.00	3.00	-4.08	57.99	0.07
113	30/885	-1103.51	262.20	-27.16	-3.29	-144.09	-38.87	1.00	3.00	118.11	130.24	0.91
114	40/40	-116.55	0.00	-0.01	8.91	-0.26	-0.07	1.00	3.00	-0.25	14.04	0.02
115	40/40	-103.76	0.00	-0.01	-0.30	-0.21	-0.05	1.00	3.00	-0.21	13.81	0.01

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
9	55/60	-320.28	-23.96	-6.13	-10.78	-0.77	-0.20	1.00	3.00	-24.73	43.83	0.56
10	55/60	-331.16	-24.92	-6.38	-21.07	-1.05	-0.28	1.00	3.00	-25.96	43.42	0.60
38	60/195	-266.69	23.02	7.97	33.62	25.37	5.81	1.00	3.00	48.39	62.74	0.77
39	60/164	-314.38	7.94	0.46	-11.93	1.33	-2.59	1.00	3.00	9.27	81.14	0.11
40	60/290	-488.14	-32.92	8.31	31.19	-63.88	-33.86	1.00	3.00	-96.81	118.47	0.82
41	60/110	-210.75	0.32	1.80	17.05	-9.13	-4.60	1.00	3.00	-8.81	49.28	0.18
44	60/209	-731.44	42.66	-33.21	-38.12	10.31	-2.03	1.00	3.00	52.97	157.71	0.34
45	60/190	-536.08	-14.68	-10.47	-40.65	17.96	3.87	1.00	3.00	3.28	127.68	0.03
46	60/333	-531.01	-4.67	-14.41	-9.45	40.57	15.21	1.00	3.00	35.89	139.44	0.26
47	60/888	-1483.19	44.24	61.72	-94.77	-19.47	-57.90	1.00	3.00	24.78	400.91	0.06
48	35/610	-839.48	240.28	-48.66	21.01	-50.89	7.10	1.00	3.00	189.39	114.85	1.65
49	60/332	-1010.92	54.58	9.55	24.00	-16.20	-9.02	1.00	3.00	38.38	220.24	0.17
50	60/338	-454.32	86.88	1.01	-9.93	9.58	3.58	1.00	3.00	96.45	122.77	0.79
51	95/192	-440.38	18.64	4.08	-57.41	-30.92	-9.77	1.00	3.00	-12.28	203.09	0.06
52	65/480	-841.06	74.64	-5.18	25.03	-187.68	-78.06	1.00	3.00	-113.04	229.35	0.49
53	60/670	-1114.98	38.96	67.10	-1.46	-194.87	-133.14	1.00	3.00	-155.91	286.85	0.54
54	60/192	-319.25	0.78	6.40	6.06	-49.64	-19.09	1.00	3.00	-48.86	80.75	0.61
55	40/620	-689.01	-128.00	-48.73	99.93	-254.36	-76.80	1.00	3.00	-382.36	103.35	0.70
56	40/620	-674.68	-69.16	-52.36	25.14	-231.82	-88.65	1.00	3.00	-300.98	112.32	1.68
57	60/460	-585.27	32.19	28.68	36.84	-232.92	-92.86	1.00	3.00	-200.73	147.63	1.36
58	35/513	-418.78	32.56	36.98	-32.18	-187.02	-84.45	1.00	3.00	-154.45	68.67	1.25
59	60/680	-1347.76	-322.05	28.45	-415.96	-741.52	-185.32	1.00	3.00	-1063.56	410.87	1.59

60	35/620	-691.11	119.29	9.57	-47.95	-265.10	-124.40	1.00	3.00	-145.81	106.56	1.37
61	60/300	-662.04	-75.14	-1.31	77.02	-168.55	-77.72	1.00	3.00	-243.69	146.02	1.67
62	40/533	-358.04	13.10	4.66	-11.88	-251.31	-94.87	1.00	3.00	-238.21	67.35	1.54
66	60/370	-394.02	7.74	-0.54	-90.26	-227.17	-55.25	1.00	3.00	-219.43	128.90	1.70
67	60/310	-361.79	7.56	5.43	-51.22	-52.87	-11.94	1.00	3.00	-45.32	109.68	0.41
68	60/233	-316.39	-33.58	1.38	-13.26	-27.82	-34.33	1.00	3.00	-61.40	86.84	0.71
69	60/117	-364.97	-8.00	-2.32	-107.83	-22.53	-8.29	1.00	3.00	-30.54	92.29	0.33
70	60/187	-331.85	-12.36	0.68	-9.26	-12.23	-3.41	1.00	3.00	-24.58	86.29	0.28
71	60/143	-437.85	22.02	7.49	-34.16	-23.13	-7.40	1.00	3.00	-1.10	101.46	0.01
72	60/719	-1015.95	-135.83	50.01	-389.12	-112.93	-151.06	1.00	3.00	-248.75	350.59	0.71
73	60/160	-307.67	-8.84	-2.12	-39.49	-45.31	-10.80	1.00	3.00	-54.15	84.68	0.64
74	60/140	-164.22	-7.85	-1.34	-4.22	-29.55	-7.44	1.00	3.00	-37.40	45.29	0.83
75	20/610	-403.30	131.89	-13.08	-26.24	-29.57	-21.11	1.00	3.00	102.32	35.14	2.91
76	45/60	-92.76	0.17	0.07	17.28	-0.03	0.00	1.00	3.00	0.14	14.53	0.01
77	45/60	-103.11	0.22	0.11	34.24	0.35	0.19	1.00	3.00	0.56	13.45	0.04
78	60/635	-785.75	144.56	2.81	73.33	138.98	38.02	1.00	3.00	283.55	193.07	1.47
80	60/310	-431.81	2.35	-18.77	-19.18	-9.97	-5.71	1.00	3.00	-7.62	118.34	0.06
82	55/885	-1219.77	308.67	21.37	-91.31	-356.74	-192.29	1.00	3.00	-48.07	310.34	0.15
83	55/885	-1141.07	358.78	18.87	1.26	-329.58	-77.93	1.00	3.00	29.20	275.50	0.11
85	60/310	-434.45	14.72	2.17	-63.94	-74.88	-32.26	1.00	3.00	-60.16	128.81	0.47
87	60/678	-887.63	94.84	-15.11	-183.65	-724.26	-198.84	1.00	3.00	-629.42	277.63	2.27
88	50/885	-1091.40	427.00	-29.17	-71.38	-400.10	-119.86	1.00	3.00	26.91	251.21	0.11
89	30/545	-579.50	60.98	-27.77	-31.13	-5.83	-5.44	1.00	3.00	55.16	73.91	0.75
91	25/635	-523.95	189.75	-22.80	-9.70	-215.74	-89.62	1.00	3.00	-25.99	55.11	0.47
93	60/90	-186.75	-5.74	-3.81	-10.48	-1.11	-0.64	1.00	3.00	-6.84	48.00	0.14
94	30/885	-752.87	232.47	-28.25	-14.22	-52.79	-27.32	1.00	3.00	179.68	97.88	1.84
95	30/35	-115.42	2.73	1.92	1.04	-0.18	-0.06	1.00	3.00	2.55	7.50	0.34

Στάθμη 4

ΠΕΕ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
9	35/40	-111.80	1.75	0.43	-6.16	0.10	0.02	1.00	3.00	1.85	11.65	0.16
10	35/40	-120.15	1.80	0.44	-7.28	0.11	0.03	1.00	3.00	1.91	11.81	0.16
36	40/195	-104.91	12.40	8.24	0.17	34.30	12.82	1.00	3.00	46.69	19.50	2.39
37	40/164	-146.28	-2.31	-0.25	-2.92	16.43	5.10	1.00	3.00	14.11	26.34	0.54
38	40/290	-170.06	48.67	48.15	-22.90	41.60	12.89	1.00	3.00	90.27	35.27	2.56
39	40/90	-145.12	7.85	4.53	1.37	1.78	0.84	1.00	3.00	9.63	22.82	0.42
40	40/160	86.95	80.23	31.64	1.47	7.87	4.04	1.00	3.00	88.10	0.00	-
41	40/229	-30.91	-263.35	-192.96	-1.36	-7.48	-4.60	1.00	3.00	-270.83	6.34	1.75
42	40/209	-362.14	-98.77	-106.93	-18.28	10.13	0.05	1.00	3.00	-88.64	58.21	1.52
43	40/190	-175.75	-8.28	-7.01	-17.22	9.66	5.73	1.00	3.00	1.38	33.52	0.04
44	40/303	-244.67	9.91	-3.84	-5.92	38.61	13.45	1.00	3.00	48.52	44.76	1.08
45	40/888	-635.18	-164.12	103.03	-39.25	114.29	21.03	1.00	3.00	-49.83	121.65	0.41
46	40/332	-489.13	12.34	32.15	33.40	-8.63	7.14	1.00	3.00	3.71	74.98	0.05
47	40/338	-204.58	30.86	-22.66	-3.36	57.84	16.90	1.00	3.00	88.70	38.28	1.32
48	35/670	-428.59	19.70	90.90	-130.05	-206.39	-50.25	1.00	3.00	-186.69	85.72	2.18
49	40/172	-123.74	10.39	7.00	-12.24	-8.18	-2.16	1.00	3.00	2.21	24.42	0.09
50	35/680	-53.90	73.87	84.78	10.29	-8.87	-70.34	1.00	3.00	65.00	7.56	1.60
51	40/590	-382.40	-267.06	-73.45	-99.74	-75.19	-68.19	1.00	3.00	-342.25	86.24	1.97
52	40/440	-249.01	-55.10	28.06	0.13	-151.92	-38.66	1.00	3.00	-207.02	46.14	1.49
53	35/680	-615.19	64.48	6.93	-83.85	-69.97	-122.73	1.00	3.00	-5.49	103.76	0.05
54	40/370	-154.38	0.43	-0.19	-5.91	-82.11	-26.22	1.00	3.00	-81.67	30.26	2.70
55	40/310	-179.52	-18.93	-2.91	-6.13	24.10	2.10	1.00	3.00	5.17	34.26	0.15
56	40/233	-124.40	15.06	7.58	-8.13	-68.06	-31.64	1.00	3.00	-53.00	24.56	2.16
57	40/117	-95.41	-3.55	-1.34	0.06	-6.93	-3.32	1.00	3.00	-10.48	17.05	0.61
58	40/187	-139.04	-0.00	1.65	-4.28	-18.75	-8.66	1.00	3.00	-18.75	25.83	0.73
59	40/143	-153.77	-4.69	-1.21	-13.41	-8.52	-4.54	1.00	3.00	-13.20	28.40	0.46
60	40/719	-392.17	-41.09	18.75	-117.57	-173.36	-109.18	1.00	3.00	-214.45	92.61	1.32
61	40/140	-76.02	-2.21	-1.34	1.66	1.44	-3.77	1.00	3.00	-0.76	13.85	0.05
62	40/40	-33.43	-0.15	-0.08	31.10	-0.27	-0.23	1.00	3.00	-0.42	0.46	0.91
63	40/40	-10.02	-0.23	-0.13	-7.44	-0.20	-0.27	1.00	3.00	-0.43	3.29	0.13
64	40/635	-292.91	105.27	6.20	3.27	112.16	33.24	1.00	3.00	217.42	54.51	1.99
66	40/310	-151.78	-25.39	-25.87	-6.18	-3.20	-2.78	1.00	3.00	-28.59	29.51	0.97
69	40/290	-229.41	-8.55	-52.54	2.46	-62.11	-21.58	1.00	3.00	-70.66	40.80	0.73
71	40/678	-385.40	109.76	-36.03	-133.46	-22.10	-48.72	1.00	3.00	87.67	93.51	0.94
72	40/635	-443.05	-88.48	-53.28	-6.84	-49.04	5.96	1.00	3.00	-137.52	81.74	1.68
75	30/35	-161.65	1.20	0.89	-5.94	-0.07	-0.02	1.00	3.00	1.13	4.40	0.26
76	30/35	-150.02	1.01	0.81	-9.73	-0.02	0.01	1.00	3.00	0.99	5.12	0.19
77	30/35	-153.58	5.06	1.69	-8.47	-0.06	-0.05	1.00	3.00	5.00	4.91	1.02
78	30/35	-136.93	-0.24	-0.24	-6.81	-0.22	-0.12	1.00	3.00	-0.46	6.30	0.07
79	30/35	-72.61	-0.93	-0.75	-15.02	-0.28	-0.15	1.00	3.00	-1.21	7.47	0.16
80	30/35	-58.45	-1.22	-0.94	23.88	-0.47	-0.26	1.00	3.00	-1.69	4.30	0.39

Σεισμικός συνδυασμός 25: 1.10*G + 1.00*Q + Σx1 - 0.30*Σy1

Ελεγχος εντός επιπέδου

Στάθμη 2

ΠΕΕ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-558.15	1.60	-3.85	-145.00	311.49	94.45	1.00	7.33	90.60	173.29	0.52
2	190/60	-482.38	2.38	0.85	-68.49	182.40	54.76	1.00	9.35	55.61	112.24	0.50
3	240/60	-598.88	4.21	1.86	-184.88	317.46	99.61	1.00	7.08	101.47	200.68	0.51
4	175/60	-444.63	1.66	0.25	-119.80	143.80	53.64	1.00	8.17	53.89	124.51	0.43
5	165/60	-450.82	2.20	0.99	-30.14	119.48	40.79	1.00	9.47	41.78	96.90	0.43

6	165/60	-440.69	3.48	2.63	-26.74	119.62	40.86	1.00	9.46	43.49	97.99	0.44
7	165/60	-330.39	-0.07	-1.01	40.66	129.75	48.81	1.00	8.59	47.80	72.78	0.66
8	250/60	-531.28	0.64	-7.28	-138.29	339.45	118.38	1.00	6.12	111.10	200.86	0.55
9	95/60	-471.77	-11.54	-9.15	-68.41	40.58	18.33	1.00	12.43	9.18	35.41	0.26
10	90/60	-442.01	12.19	9.32	-1.33	32.34	14.82	1.00	12.94	24.13	55.35	0.44
11	245/60	-503.69	-1.14	-10.62	-25.94	326.61	122.78	1.00	5.79	112.16	175.70	0.64
12	175/60	-388.06	-4.14	-5.88	-120.17	152.17	59.22	1.00	7.83	53.34	114.14	0.47
13	135/60	-376.46	0.21	-0.24	-25.01	73.11	27.97	1.00	10.33	27.72	72.27	0.38
14	155/60	-416.96	2.09	1.35	-22.96	99.31	35.22	1.00	9.70	36.57	88.37	0.41
15	170/60	-387.43	2.31	1.46	57.13	141.66	53.18	1.00	8.36	54.64	86.05	0.64
16	240/60	-475.54	3.67	1.48	-66.47	336.72	115.21	1.00	6.49	116.69	173.08	0.67
17	190/60	-360.76	3.74	2.76	-46.66	202.38	74.18	1.00	7.66	76.94	113.79	0.68
18	230/60	-422.36	4.51	3.65	-9.87	260.26	63.84	1.00	9.45	67.49	103.11	0.65
19	560/60	-1407.47	0.01	12.55	146.25	1310.01	348.48	1.00	3.58	361.03	756.05	0.48
20	465/60	-1247.44	24.98	0.87	146.65	964.17	240.96	1.00	4.59	241.84	478.96	0.50
21	375/60	-1086.67	8.89	2.92	-15.15	604.62	206.06	1.00	4.17	208.98	498.83	0.42
22	380/60	-1084.11	12.41	-0.56	-157.42	670.42	182.15	1.00	5.17	181.58	424.23	0.43
23	735/60	-1810.70	-202.96	34.12	-81.08	2303.39	487.21	1.00	2.67	521.33	1146.60	0.45
24	265/60	-763.55	4.55	4.96	20.17	328.88	116.03	1.00	5.70	120.99	258.07	0.47
25	255/60	-807.26	5.24	6.09	-55.68	311.71	133.20	1.00	4.89	139.29	321.40	0.43
26	500/60	-1527.37	80.56	-15.91	-165.57	1135.45	288.86	1.00	4.19	272.95	631.29	0.43
27	480/65	-606.39	87.16	-18.03	-18.79	891.38	268.57	1.00	3.69	250.54	338.40	0.74
28	380/65	-1127.59	46.51	-24.26	-208.50	562.76	216.72	1.00	3.64	192.46	544.03	0.35
29	240/65	-756.75	6.22	6.99	-151.49	236.08	80.52	1.00	6.52	87.51	257.38	0.34
31	215/65	-324.68	3.70	0.47	-30.49	192.43	70.79	1.00	6.74	71.27	117.77	0.61
32	110/65	-281.68	-0.38	-0.95	-77.67	44.10	18.56	1.00	11.52	17.61	55.83	0.32
33	450/65	-1168.37	-31.85	21.07	-217.82	818.63	288.81	1.00	2.67	309.88	760.50	0.41
34	265/65	-908.81	4.42	12.80	-7.28	320.56	114.58	1.00	5.63	127.37	325.32	0.39
35	120/60	-328.90	9.90	8.21	-30.84	40.33	17.71	1.00	10.12	25.93	78.33	0.33
36	290/60	-463.88	2.18	8.72	-18.13	258.04	110.07	1.00	4.31	118.79	266.50	0.45
37	345/60	-782.63	26.64	-29.12	0.72	356.50	148.52	1.00	3.71	119.40	325.94	0.37
38	165/60	-397.19	1.57	0.48	-21.88	67.06	15.77	1.00	13.75	16.25	61.25	0.27
39	150/60	-299.66	3.61	2.92	44.45	49.17	9.76	1.00	17.91	12.68	38.23	0.33
40	290/60	-691.69	9.35	-8.75	-9.30	275.36	103.85	1.00	4.88	95.09	258.18	0.37
41	1140/60	-2795.00	-77.59	10.97	-128.21	4103.92	612.95	1.00	2.67	623.93	1778.40	0.35
42	880/60	-1572.98	-93.97	-0.54	-191.11	1140.40	335.56	1.00	2.67	335.02	1372.80	0.24
43	3769/60	-4358.90	-3526.65	60.53	-553.07	6854.12	1747.70	1.00	2.67	1808.23	5443.87	0.33
44	445/60	-823.89	4.11	4.10	-49.76	395.13	145.12	1.00	3.26	149.22	585.23	0.25
72	390/30	-387.42	1.63	2.28	-62.55	387.58	118.00	1.00	4.49	120.28	209.17	0.58
73	265/30	-284.00	2.30	3.32	10.50	182.98	61.44	1.00	5.99	64.77	100.77	0.64
74	60/30	-71.13	0.09	0.05	-1.76	4.55	1.87	1.00	21.69	1.92	6.85	0.28
88	670/25	-516.67	-164.12	22.62	36.32	248.32	137.90	1.00	2.67	160.52	435.50	0.37
90	340/60	-690.26	26.68	-12.22	-51.72	349.06	105.47	1.00	5.19	93.25	245.36	0.38
98	1010/60	-1910.71	18.84	-59.84	259.24	2068.14	261.30	1.00	4.18	201.46	674.64	0.30
100	1150/60	-2434.69	-194.58	-71.43	153.85	2078.01	274.78	1.00	3.51	203.34	1137.68	0.18
103	1045/60	-2208.07	-329.48	23.88	-155.32	1489.58	251.51	1.00	2.67	275.39	1630.20	0.17
105	1130/60	-2262.25	-467.86	18.65	-278.39	2280.86	356.57	1.00	2.67	375.23	1762.80	0.21
109	1185/50	-2241.16	-208.65	-10.73	-38.34	2190.40	401.66	1.00	2.67	390.93	1540.50	0.25
111	1150/25	-1576.49	-34.16	-13.86	-165.02	1003.96	187.30	1.00	2.67	173.44	747.50	0.23

Στάθμη 3

ΠΕΕ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-346.12	-24.21	-12.12	-84.14	151.94	48.04	1.00	7.03	35.92	119.42	0.30
2	190/60	-291.39	-1.32	-0.01	-32.59	76.70	20.99	1.00	10.26	20.98	71.20	0.29
3	240/60	-383.33	-2.54	-4.16	-103.21	197.18	90.44	1.00	4.85	86.28	206.81	0.42
4	175/60	-296.62	-8.01	-4.88	-42.21	97.89	45.58	1.00	6.55	40.70	108.50	0.38
5	165/60	-249.33	-3.13	-1.00	-16.33	49.16	15.16	1.00	10.48	14.15	56.64	0.25
6	165/60	-250.38	2.76	0.47	-16.63	45.47	14.44	1.00	10.18	14.91	57.16	0.26
7	165/60	-235.78	-8.06	-2.18	5.73	67.99	20.19	1.00	10.89	18.01	49.16	0.37
8	125/60	-180.12	-7.80	-2.49	2.58	36.73	12.11	1.00	12.94	9.62	31.72	0.30
11	135/60	-236.87	-8.99	-1.04	-7.82	56.31	17.26	1.00	12.89	16.22	46.45	0.35
12	175/60	-282.56	-21.22	-3.08	-48.20	96.65	27.64	1.00	10.66	24.56	76.59	0.32
13	135/60	-218.96	-1.91	-0.42	-14.80	42.22	14.49	1.00	11.51	14.07	45.64	0.31
14	155/60	-242.70	2.55	0.76	-15.31	48.01	16.49	1.00	10.02	17.25	56.96	0.30
15	170/60	-233.22	4.41	3.65	11.56	102.49	47.37	1.00	6.79	51.03	78.32	0.65
16	240/60	-274.14	2.51	5.24	-34.37	249.54	115.27	1.00	4.81	120.51	154.45	0.78
17	190/60	-192.94	9.57	5.71	-17.24	155.97	71.94	1.00	2.67	77.65	75.99	1.02
18	230/60	-249.53	8.53	3.38	-24.48	92.46	40.26	1.00	5.33	43.64	120.09	0.36
19	560/60	-871.61	-130.45	16.88	102.71	724.31	324.11	1.00	2.67	340.99	824.48	0.41
20	465/60	-775.77	-10.27	-34.38	99.51	507.61	221.98	1.00	2.62	187.60	507.61	0.37
21	375/60	-701.37	-10.69	-19.03	-11.37	505.96	209.10	1.00	3.44	190.07	416.29	0.46
22	380/60	-890.42	-28.38	-20.89	-83.55	318.74	170.25	1.00	2.67	149.35	592.80	0.25
23	735/60	-1210.21	29.59	42.36	-3.38	1192.96	473.07	1.00	2.67	515.42	1146.60	0.45
24	265/60	-452.53	5.39	8.98	8.22	220.74	99.52	1.00	4.46	108.50	235.54	0.46
25	255/60	-487.83	9.82	6.82	-38.00	313.75	150.78	1.00	4.35	157.61	259.83	0.61
26	500/60	-1268.15	-278.01	-5.05	-236.16	519.77	306.98	1.00	2.67	301.93	780.00	0.39
27	240/45	-590.14	-41.41	8.84	-56.86	177.65	72.20	1.00	2.67	81.04	280.80	0.29
28	240/45	-429.38	6.93	3.47	-114.08	107.26	54.35	1.00	4.39	57.82	231.43	0.25
29	235/65	-560.34	34.12	-5.76	-82.21	253.98	113.29	1.00	5.09	107.53	211.33	0.51
30	265/65	-533.55	36.52	11.04	-56.29	234.72	100.63	1.00	4.69	111.67	256.26	0.44
31	145/60	-197.67	-10.55	4.78	-5.29	73.93	30.11	1.00	9.03	34.90	69.78	0.50

32	165/60	-237.46	-3.92	-0.41	-13.13	11.74	5.89	1.00	6.44	5.48	123.07	0.04
33	150/60	-198.73	0.14	-3.46	10.63	16.61	18.52	1.00	3.19	15.06	111.15	0.14
34	290/60	-460.29	-78.35	-7.35	-34.87	247.06	133.94	1.00	3.39	126.60	447.62	0.28
35	1160/60	-1748.84	-266.90	-46.84	-55.33	2363.05	684.89	1.00	2.67	638.05	1792.44	0.36
36	880/30	-798.48	89.23	-36.67	-121.91	558.50	232.56	1.00	2.67	195.89	686.40	0.29
37	2949/60	-2260.37	1985.48	236.41	-173.72	2373.89	872.84	1.00	2.67	1109.25	3695.79	0.30
63	390/30	-203.60	10.09	-3.72	-40.40	245.14	107.89	1.00	3.11	104.17	170.13	0.61
64	265/30	-138.01	9.22	6.26	-1.79	114.01	51.36	1.00	4.47	57.62	77.56	0.74
65	60/30	-39.04	0.20	0.13	-0.50	3.66	1.71	1.00	19.04	1.84	4.92	0.37
79	1010/60	-1260.64	45.96	-91.26	141.33	978.89	246.68	1.00	2.10	155.42	763.09	0.20
81	1150/60	-1656.22	68.76	-77.92	69.61	983.12	260.46	1.00	1.75	182.54	1366.79	0.13
84	1045/60	-1511.74	-508.83	-14.11	-94.91	888.82	316.04	1.00	2.67	301.93	1607.27	0.19
86	1130/60	-1550.54	-541.06	-10.45	-178.75	1199.48	379.85	1.00	2.67	369.40	1734.79	0.21
90	1185/25	-1662.70	-302.71	-10.60	10.90	928.47	268.22	1.00	2.67	257.62	770.25	0.33
92	1150/25	-1440.38	194.19	-38.18	-138.13	732.30	255.07	1.00	2.67	216.89	747.50	0.29

Στάθμη 4

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/40	-119.83	-11.04	-5.48	-3.51	38.41	20.15	1.00	4.24	14.66	73.24	0.20
2	190/40	-109.54	-1.52	-2.28	-16.13	7.55	13.47	1.00	2.67	11.19	167.19	0.07
3	240/40	-158.21	8.94	11.33	-44.06	75.15	38.14	1.00	4.38	49.47	124.90	0.40
4	175/40	-80.13	4.59	5.14	-1.48	27.63	13.79	1.00	6.11	18.93	39.05	0.48
5	165/40	-91.88	1.53	0.09	-7.16	-2.60	3.16	1.00	2.67	3.26	141.15	0.02
6	165/40	-94.30	2.04	0.90	-7.94	-3.50	2.72	1.00	2.67	3.63	142.43	0.03
7	110/40	-34.66	0.09	-0.53	-23.31	-2.73	0.07	1.00	189.43	-0.46	5.08	0.09
8	125/40	-25.21	-7.30	-7.86	24.12	-4.86	-0.89	1.00	2.67	-8.74	0.00	-
11	135/40	-101.57	12.77	7.98	0.13	-6.51	-0.29	1.00	90.01	7.69	74.74	0.10
12	155/40	-104.21	14.73	9.93	-6.61	-13.71	-2.17	1.00	2.67	7.76	139.71	0.06
13	135/40	-85.17	-0.38	-0.31	-6.17	-5.05	0.75	1.00	26.74	0.44	4.44	0.10
14	155/40	-94.73	-0.91	-0.12	-5.78	-9.17	-1.04	1.00	30.35	-1.16	8.13	0.14
15	150/40	-118.34	1.38	-2.16	-5.86	17.00	7.44	1.00	8.12	5.28	23.46	0.22
16	240/40	-99.95	12.24	-3.75	-8.67	21.54	10.39	1.00	4.61	6.63	23.87	0.28
17	190/40	-88.74	8.60	2.82	-6.30	25.95	15.10	1.00	4.83	17.91	43.33	0.41
18	230/40	-98.43	4.11	2.13	-42.11	-63.89	11.81	1.00	12.54	13.94	34.26	0.41
19	120/40	-152.02	-4.96	-7.94	-3.98	31.30	16.05	1.00	8.67	8.11	23.23	0.35
20	255/40	-219.11	-25.88	17.19	68.55	89.97	44.87	1.00	4.19	62.05	169.57	0.37
21	375/40	-235.46	-25.78	-23.22	-29.53	207.15	113.38	1.00	2.60	90.16	221.05	0.41
22	380/40	-318.10	-30.85	-20.01	-108.41	174.61	86.95	1.00	2.82	66.94	314.39	0.21
23	735/40	-473.55	-44.41	37.90	-13.84	318.01	200.53	1.00	2.67	238.43	647.26	0.37
24	265/40	-232.69	18.65	5.52	1.08	79.57	64.58	1.00	2.48	70.10	190.56	0.37
25	255/40	-196.27	10.69	6.89	-38.93	156.66	83.24	1.00	3.94	90.13	139.36	0.65
26	500/40	-349.18	116.68	8.33	-41.80	291.19	131.68	1.00	2.36	140.01	296.54	0.47
27	240/40	-388.98	102.76	103.76	10.20	73.97	41.77	1.00	2.67	145.52	228.83	0.64
28	240/40	-213.71	-0.19	-21.47	-48.37	75.92	35.97	1.00	4.69	14.50	50.44	0.29
29	235/40	-276.63	-51.45	-42.74	-44.14	95.72	40.65	1.00	5.34	-2.08	14.14	0.15
30	265/40	-164.81	1.61	-1.07	-13.83	61.97	45.23	1.00	2.76	44.16	147.91	0.30
31	145/30	-132.20	10.95	1.12	-29.18	8.95	5.22	1.00	6.31	6.34	29.05	0.22
32	165/30	-77.69	-2.47	-0.34	-3.66	-7.03	-0.53	1.00	43.18	-0.87	5.55	0.16
33	150/30	-116.12	-10.79	-2.97	-11.00	19.32	5.69	1.00	12.07	2.72	25.26	0.11
34	965/30	-583.62	-211.63	-28.00	-6.60	210.44	151.49	1.00	2.67	123.49	681.47	0.18
35	939/35	-35.36	-129.21	-16.19	66.82	-72.54	153.43	1.00	2.67	137.24	0.00	-
65	990/40	-441.14	-32.10	-100.93	25.75	11.41	31.54	1.00	2.67	-69.39	775.39	0.09
67	1150/40	-799.26	394.24	-118.13	2.00	125.04	73.41	1.00	0.79	-44.72	354.10	0.13
68	1045/40	-796.41	-604.50	-15.10	-53.76	-45.37	53.71	1.00	0.43	38.60	231.96	0.17
70	1110/40	-645.29	-539.72	-19.83	-64.86	98.39	75.62	1.00	0.63	55.79	450.89	0.12
73	1185/40	-1341.66	-697.07	-20.83	-90.42	272.18	137.85	1.00	2.67	117.02	1232.40	0.09
74	1150/40	-1060.95	688.90	-144.59	-134.58	99.49	176.38	1.00	0.26	31.79	234.36	0.14

Ελεγχος εκτός επιπέδου

Στάθμη 2

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
30	65/65	-155.51	0.10	0.02	-21.38	3.20	0.74	1.00	3.00	3.30	45.05	0.07
45	60/195	-444.16	6.60	4.09	132.66	144.73	46.21	1.00	3.00	151.33	80.62	1.88
46	60/164	-560.97	3.57	1.63	-44.37	96.28	34.67	1.00	3.00	99.85	123.96	0.81
47	60/290	-806.60	12.00	-11.19	68.60	338.24	83.35	1.00	3.00	350.24	172.86	2.03
48	60/110	-275.83	-1.18	-1.46	115.82	30.64	10.37	1.00	3.00	29.46	41.98	0.70
49	60/160	-157.83	-1.51	-3.36	62.95	85.01	30.26	1.00	3.00	83.51	27.01	1.09
50	60/229	-239.93	7.54	6.69	-15.19	185.24	60.28	1.00	3.00	192.78	69.20	1.79
51	60/209	-676.31	20.85	26.66	31.22	154.20	50.11	1.00	3.00	175.05	142.12	1.23
52	60/190	-573.77	1.05	-3.42	-51.41	134.96	56.29	1.00	3.00	136.01	134.28	1.01
53	60/333	-729.29	27.24	-3.07	-155.14	404.39	144.46	1.00	3.00	431.63	204.56	1.11
54	60/888	-2244.89	40.02	23.49	-207.13	2409.10	375.62	1.00	3.00	2449.12	560.60	1.37
55	45/630	-1208.20	94.82	-9.60	-113.91	677.73	207.78	1.00	3.00	772.55	225.76	1.42
56	60/900	-1721.09	-96.13	24.77	-162.60	1687.87	398.91	1.00	3.00	1591.74	463.20	1.44
57	95/192	-620.20	5.00	2.03	-31.93	112.96	53.70	1.00	3.00	117.96	252.51	0.47
58	40/513	-756.31	-65.98	28.43	-110.18	176.78	112.00	1.00	3.00	110.80	135.47	0.82
59	65/630	-1495.21	34.58	15.27	-304.32	564.74	148.24	1.00	3.00	599.32	451.98	1.33
60	60/670	-1780.40	-95.40	41.82	244.56	782.45	171.45	1.00	3.00	687.05	369.75	1.26
61	60/645	-1153.52	-101.57	36.45	207.50	266.91	52.94	1.00	3.00	165.34	247.94	0.67
62	60/192	-416.05	2.09	-1.57	-94.37	12.39	3.03	1.00	3.00	14.48	118.05	0.12

63	40/620	-1476.51	232.70	-27.18	56.24	164.08	47.10	1.00	3.00	396.78	199.96	1.98
64	60/680	-1082.58	439.94	-41.07	-28.24	66.05	86.83	1.00	3.00	505.99	286.34	1.77
65	40/620	-1275.14	195.03	-22.05	48.57	16.21	12.03	1.00	3.00	211.24	182.59	1.16
66	60/460	-963.06	1.34	22.24	60.07	-154.96	-30.77	1.00	3.00	-153.62	225.08	0.68
67	35/513	-756.32	-27.97	21.72	-70.36	-113.62	-22.40	1.00	3.00	-141.59	110.23	1.28
68	60/680	-1708.29	94.43	11.73	-414.97	-226.83	-77.12	1.00	3.00	-132.40	465.61	0.28
69	35/620	-982.46	-34.31	19.71	-195.18	-132.14	-37.60	1.00	3.00	-166.45	148.27	1.12
70	60/300	-634.66	12.41	-11.85	34.62	-102.22	-40.91	1.00	3.00	-89.81	148.99	0.60
71	40/533	-697.55	6.12	12.88	-32.37	-236.37	-46.98	1.00	3.00	-230.24	120.15	1.92
75	60/370	-642.09	18.16	-0.43	-98.79	479.82	-17.74	1.00	3.00	497.98	183.92	2.71
76	60/310	-588.33	14.36	13.09	-183.17	-189.48	-42.09	1.00	3.00	-175.12	181.82	0.96
77	60/233	-468.93	6.81	-2.70	-162.11	-95.41	-26.40	1.00	3.00	-88.60	145.14	0.61
78	60/117	-310.05	-2.06	-2.14	-29.26	-18.45	-8.28	1.00	3.00	-20.51	76.27	0.27
79	60/187	-583.13	0.48	-2.58	-41.09	-48.55	-15.46	1.00	3.00	-48.07	133.54	0.36
80	60/143	-617.63	8.55	7.23	-44.12	-26.75	-9.90	1.00	3.00	-18.20	119.63	0.15
81	60/264	-248.12	2.56	35.65	-0.24	-98.14	-28.69	1.00	3.00	-95.58	68.47	1.40
82	60/468	-1373.27	-4.43	30.42	-323.63	-409.85	-94.55	1.00	3.00	-414.28	350.15	1.18
83	60/107	-207.95	0.06	-0.58	-103.89	-13.28	-4.44	1.00	3.00	-13.22	70.06	0.19
84	60/160	-314.94	-1.05	-2.06	-44.20	-39.07	-17.20	1.00	3.00	-40.12	86.91	0.46
85	60/140	-360.86	-2.76	-3.32	-47.33	-29.99	-13.39	1.00	3.00	-32.75	91.69	0.36
86	35/630	-736.40	30.48	-0.82	-108.85	490.29	98.97	1.00	3.00	520.77	118.61	4.39
87	40/495	-610.63	48.12	-8.64	46.32	397.00	153.46	1.00	3.00	445.12	96.23	4.63
89	65/250	-573.59	20.45	-6.16	-20.92	98.34	26.45	1.00	3.00	118.79	156.67	0.76
91	56/56	-96.13	15.57	11.22	-1.64	4.59	1.71	1.00	3.00	20.15	22.96	0.88
92	56/56	-159.30	27.48	19.83	-10.31	2.49	1.32	1.00	3.00	29.98	34.21	0.88
93	56/56	-160.82	27.71	19.99	-7.58	2.02	1.11	1.00	3.00	29.73	34.06	0.87
94	56/56	-97.27	15.79	11.36	-7.90	1.18	0.71	1.00	3.00	16.97	24.34	0.70
95	45/70	-202.89	0.09	-0.01	2.55	1.50	0.26	1.00	3.00	1.59	30.26	0.05
96	45/70	-210.79	0.09	-0.03	30.29	1.07	0.21	1.00	3.00	1.15	28.58	0.04
97	60/635	-1219.46	132.33	10.30	247.41	1438.02	343.68	1.00	3.00	1570.35	253.15	1.20
99	60/310	-643.68	1.19	-10.77	81.20	251.66	86.93	1.00	3.00	252.85	142.36	1.78
101	55/885	-1780.26	52.70	-36.04	-96.91	997.82	160.29	1.00	3.00	1050.52	413.30	2.54
102	55/885	-1697.24	-16.34	-24.69	-20.29	482.78	119.77	1.00	3.00	466.44	386.16	1.21
104	60/310	-646.71	-3.11	-3.62	-72.82	-24.70	-8.50	1.00	3.00	-27.82	172.69	0.16
106	60/678	-1240.63	27.36	6.36	-317.99	-688.25	-147.84	1.00	3.00	-660.89	374.97	1.76
107	50/885	-1591.85	187.22	-28.84	-96.83	101.53	30.29	1.00	3.00	288.75	338.88	0.85
108	30/545	-685.37	53.08	-15.08	-191.27	395.78	91.45	1.00	3.00	448.85	95.05	1.72
110	25/635	-578.74	9.95	-3.09	-6.23	-58.23	-18.55	1.00	3.00	-48.28	59.19	0.82
112	60/90	-259.07	-1.56	-1.19	3.69	16.93	7.91	1.00	3.00	15.37	57.88	0.27
113	30/885	-1103.51	262.20	-27.16	-43.56	705.53	163.91	1.00	3.00	967.73	133.63	7.24
114	40/40	-116.55	0.00	-0.01	9.55	0.20	0.04	1.00	3.00	0.21	14.00	0.01
115	40/40	-103.76	0.00	-0.01	-2.19	0.28	0.08	1.00	3.00	0.29	13.94	0.02

Στάθμη 3

ΠΕΕ	Διαστ.	Ns	Ms	Vs	Ne	Me	Ve	m	μθ	Msd	Mrd	λ
	cm	KN	KNm	KN	KN	KNm	KN			KNm	KNm	
9	55/60	-320.28	-23.96	-6.13	-10.57	0.05	0.04	1.00	3.00	-23.91	43.83	0.55
10	55/60	-331.16	-24.92	-6.38	-22.58	-0.28	-0.06	1.00	3.00	-25.19	43.37	0.58
38	60/195	-266.69	23.02	7.97	55.99	63.77	19.91	1.00	3.00	86.79	57.34	1.51
39	60/164	-314.38	7.94	0.46	-16.22	55.48	15.00	1.00	3.00	63.42	81.99	0.77
40	60/290	-488.14	-32.92	8.31	-1.38	105.91	25.87	1.00	3.00	72.98	125.50	0.58
41	60/110	-210.75	0.32	1.80	39.77	9.22	2.95	1.00	3.00	9.54	44.41	0.21
44	60/209	-731.44	42.66	-33.21	-38.00	70.88	19.00	1.00	3.00	113.54	157.69	0.72
45	60/190	-536.08	-14.68	-10.47	-103.11	118.43	38.76	1.00	3.00	103.75	136.07	0.76
46	60/333	-531.01	-4.67	-14.41	-75.12	330.70	149.85	1.00	3.00	326.02	153.30	2.13
47	60/888	-1483.19	44.24	61.72	-152.49	1338.53	349.02	1.00	3.00	1382.78	412.83	1.35
48	35/610	-839.48	240.28	-48.66	-3.47	393.37	190.39	1.00	3.00	633.65	117.41	1.40
49	60/332	-1010.92	54.58	9.55	-1.03	329.17	111.88	1.00	3.00	383.76	223.86	1.71
50	60/338	-454.32	86.88	1.01	84.79	281.22	119.23	1.00	3.00	368.10	100.40	1.67
51	95/192	-440.38	18.64	4.08	-71.84	123.99	43.06	1.00	3.00	142.63	207.98	0.69
52	65/480	-841.06	74.64	-5.18	-137.23	377.41	91.30	1.00	3.00	452.05	266.41	1.70
53	60/670	-1114.98	38.96	67.10	85.97	487.48	141.82	1.00	3.00	526.44	267.85	1.97
54	60/192	-319.25	0.78	6.40	7.97	14.87	1.56	1.00	3.00	15.64	80.34	0.19
55	40/620	-689.01	-128.00	-48.73	39.86	119.42	45.59	1.00	3.00	-8.58	112.26	0.08
56	40/620	-674.68	-69.16	-52.36	-22.32	86.18	31.77	1.00	3.00	17.02	119.15	0.14
57	60/460	-585.27	32.19	28.68	6.95	5.13	-0.73	1.00	3.00	37.32	154.70	0.24
58	35/513	-418.78	32.56	36.98	-9.24	-11.47	-1.04	1.00	3.00	21.09	65.67	0.32
59	60/680	-1347.76	-322.05	28.45	-328.68	-213.08	-43.26	1.00	3.00	-535.13	396.10	1.35
60	35/620	-691.11	119.29	9.57	-110.53	-46.21	-23.06	1.00	3.00	73.08	113.50	0.64
61	60/300	-662.04	-75.14	-1.31	68.34	-76.15	-45.18	1.00	3.00	-151.29	147.74	1.02
62	40/533	-358.04	13.10	4.66	-15.95	-84.46	-30.21	1.00	3.00	-71.37	68.01	1.05
66	60/370	-394.02	7.74	-0.54	-22.53	0.69	-7.40	1.00	3.00	8.43	112.84	0.07
67	60/310	-361.79	7.56	5.43	-79.34	43.35	15.11	1.00	3.00	50.90	116.11	0.44
68	60/233	-316.39	-33.58	1.38	-77.30	7.92	-15.76	1.00	3.00	-25.65	100.91	0.25
69	60/117	-364.97	-8.00	-2.32	-97.01	-15.47	-5.80	1.00	3.00	-23.47	91.29	0.26
70	60/187	-331.85	-12.36	0.68	-23.63	-0.04	-0.22	1.00	3.00	-12.40	89.22	0.14
71	60/143	-437.85	22.02	7.49	-29.25	-12.55	-4.52	1.00	3.00	9.47	100.82	0.09
72	60/719	-1015.95	-135.83	50.01	-300.56	54.55	-87.58	1.00	3.00	-81.27	332.68	0.24
73	60/160	-307.67	-8.84	-2.12	-52.69	-33.63	-8.03	1.00	3.00	-42.47	87.13	0.49
74	60/140	-164.22	-7.85	-1.34	-10.94	-12.18	-1.47	1.00	3.00	-20.03	46.88	0.43
75	20/610	-403.30	131.89	-13.08	-48.69	186.11	55.23	1.00	3.00	318.00	36.54	8.70
76	45/60	-92.76	0.17	0.07	12.48	0.37	0.22	1.00	3.00	0.55	15.29	0.04
77	45/60	-103.11	0.22	0.11	34.72	0.05	0.13	1.00	3.00	0.27	13.37	0.02

78	60/635	-785.75	144.56	2.81	100.83	872.52	339.73	1.00	3.00	1017.09	186.38	1.46
80	60/310	-431.81	2.35	-18.77	19.09	195.31	88.55	1.00	3.00	197.66	109.61	1.80
82	55/885	-1219.77	308.67	21.37	-126.85	457.33	115.39	1.00	3.00	766.01	317.36	1.41
83	55/885	-1141.07	358.78	18.87	-14.90	356.18	172.24	1.00	3.00	714.97	278.86	2.56
85	60/310	-434.45	14.72	2.17	-38.44	32.01	14.90	1.00	3.00	46.73	123.22	0.38
87	60/678	-887.63	94.84	-15.11	-163.07	-464.52	-135.92	1.00	3.00	-369.68	273.12	1.35
88	50/885	-1091.40	427.00	-29.17	-68.42	93.04	80.90	1.00	3.00	520.04	250.67	1.07
89	30/545	-579.50	60.98	-27.77	-51.26	223.88	84.95	1.00	3.00	284.86	75.74	1.76
91	25/635	-523.95	189.75	-22.80	-38.01	-36.87	-21.78	1.00	3.00	152.88	57.39	1.66
93	60/90	-186.75	-5.74	-3.81	-24.40	22.48	10.57	1.00	3.00	16.74	50.54	0.33
94	30/885	-752.87	232.47	-28.25	-23.54	437.17	181.26	1.00	3.00	669.64	98.85	1.77
95	30/35	-115.42	2.73	1.92	-0.48	0.44	0.22	1.00	3.00	3.17	7.46	0.42

Στάθμη 4

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
9	35/40	-111.80	1.75	0.43	-6.40	-0.09	-0.02	1.00	3.00	1.66	11.66	0.14
10	35/40	-120.15	1.80	0.44	-7.45	-0.06	-0.02	1.00	3.00	1.74	11.81	0.15
36	40/195	-104.91	12.40	8.24	-9.08	35.91	18.95	1.00	3.00	48.31	21.08	2.29
37	40/164	-146.28	-2.31	-0.25	-1.94	12.26	8.29	1.00	3.00	9.95	26.19	0.38
38	40/290	-170.06	48.67	48.15	-8.97	18.49	17.72	1.00	3.00	67.16	32.95	2.04
39	40/90	-145.12	7.85	4.53	8.18	2.23	1.16	1.00	3.00	10.08	22.00	0.46
40	40/160	86.95	80.23	31.64	-1.26	18.40	10.05	1.00	3.00	98.63	0.00	-
41	40/229	-30.91	-263.35	-192.96	3.54	7.51	6.07	1.00	3.00	-255.85	5.39	1.48
42	40/209	-362.14	-98.77	-106.93	-22.47	0.77	4.84	1.00	3.00	-98.00	58.65	1.67
43	40/190	-175.75	-8.28	-7.01	-41.33	22.88	23.12	1.00	3.00	14.60	36.99	0.39
44	40/303	-244.67	9.91	-3.84	27.74	167.17	62.96	1.00	3.00	177.08	39.37	2.50
45	40/888	-635.18	-164.12	103.03	-46.74	483.22	184.03	1.00	3.00	319.10	122.85	1.60
46	40/332	-489.13	12.34	32.15	-8.68	39.11	52.97	1.00	3.00	51.45	80.27	0.64
47	40/338	-204.58	30.86	-22.66	14.69	152.23	48.14	1.00	3.00	183.09	35.22	5.20
48	35/670	-428.59	19.70	90.90	-77.33	-22.98	61.69	1.00	3.00	-3.28	78.66	0.04
49	40/172	-123.74	10.39	7.00	-14.84	-14.83	-0.90	1.00	3.00	-4.44	24.83	0.18
50	35/680	-53.90	73.87	84.78	9.33	-7.65	-2.61	1.00	3.00	66.22	7.72	2.57
51	40/590	-382.40	-267.06	-73.45	-73.90	90.20	18.86	1.00	3.00	-176.86	82.14	2.15
52	40/440	-249.01	-55.10	28.06	-1.91	-12.17	14.68	1.00	3.00	-67.27	46.49	1.45
53	35/680	-615.19	64.48	6.93	-125.04	61.76	-35.90	1.00	3.00	126.24	108.71	1.16
54	40/370	-154.38	0.43	-0.19	17.13	3.29	1.40	1.00	3.00	3.73	26.13	0.14

55	40/310	-179.52	-18.93	-2.91	-13.20	42.10	9.03	1.00	3.00	23.17	35.45	0.65
56	40/233	-124.40	15.06	7.58	-19.77	-37.46	-17.58	1.00	3.00	-22.40	26.53	0.84
57	40/117	-95.41	-3.55	-1.34	-1.18	2.08	0.88	1.00	3.00	-1.47	17.25	0.09
58	40/187	-139.04	-0.00	1.65	-11.07	-2.96	-2.00	1.00	3.00	-2.96	26.91	0.11
59	40/143	-153.77	-4.69	-1.21	-12.25	-1.67	-1.61	1.00	3.00	-6.35	28.24	0.22
60	40/719	-392.17	-41.09	18.75	-96.43	-45.61	-56.69	1.00	3.00	-86.70	89.14	0.97
61	40/140	-76.02	-2.21	-1.34	-5.06	-6.38	-5.14	1.00	3.00	-8.58	15.00	0.57
62	40/40	-33.43	-0.15	-0.08	42.80	-0.08	-0.06	1.00	3.00	-0.23	0.00	-
63	40/40	-10.02	-0.23	-0.13	-6.62	-0.08	-0.10	1.00	3.00	-0.31	3.15	0.10
64	40/635	-292.91	105.27	6.20	-37.20	303.86	118.15	1.00	3.00	409.12	61.59	6.64
66	40/310	-151.78	-25.39	-25.87	-2.97	92.94	47.61	1.00	3.00	67.55	28.95	2.33
69	40/290	-229.41	-8.55	-52.54	1.03	21.04	12.65	1.00	3.00	12.49	41.03	0.30
71	40/678	-385.40	109.76	-36.03	-112.77	21.05	-14.51	1.00	3.00	130.82	90.17	1.45
72	40/635	-443.05	-88.48	-53.28	58.74	34.50	123.21	1.00	3.00	-53.98	70.85	0.76
75	30/35	-161.65	1.20	0.89	-8.62	0.14	0.09	1.00	3.00	1.35	4.13	0.33
76	30/35	-150.02	1.01	0.81	-7.67	0.18	0.10	1.00	3.00	1.19	5.29	0.22
77	30/35	-153.58	5.06	1.69	-8.69	0.32	0.13	1.00	3.00	5.38	4.89	1.10
78	30/35	-136.93	-0.24	-0.24	-8.02	0.03	0.02	1.00	3.00	-0.21	6.23	0.03
79	30/35	-72.61	-0.93	-0.75	-17.31	0.06	0.03	1.00	3.00	-0.87	7.52	0.12
80	30/35	-58.45	-1.22	-0.94	36.20	-0.09	-0.05	1.00	3.00	-1.32	2.97	0.44

Σεισμικός συνδυασμός 35: 1.10*G + 1.00*Q - Σx2 + 0.30*Σy2

Έλεγχος εντός επιπέδου

Στάθμη 2

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-558.15	1.60	-3.85	-25.10	-119.25	-36.96	1.00	7.17	-40.81	184.30	0.22
2	190/60	-482.38	2.38	0.85	-25.85	-71.40	-19.29	1.00	10.39	-18.45	94.84	0.19
3	240/60	-598.88	4.21	1.86	-12.71	-122.94	-32.74	1.00	8.34	-30.88	142.69	0.22
4	175/60	-444.63	1.66	0.25	4.66	-65.02	-24.61	1.00	8.05	-24.36	111.14	0.22
5	165/60	-450.82	2.20	0.99	-27.80	-51.91	-17.33	1.00	9.68	-16.34	92.50	0.18
6	165/60	-440.69	3.48	2.63	-27.84	-50.69	-16.77	1.00	9.77	-14.14	83.23	0.17
7	165/60	-330.39	-0.07	-1.01	-47.21	-48.35	-17.05	1.00	9.17	-18.06	89.83	0.20
8	250/60	-531.28	0.64	-7.28	19.09	-116.37	-36.19	1.00	6.86	-43.47	191.68	0.23
9	95/60	-471.77	-11.54	-9.15	-3.92	-13.33	-6.32	1.00	11.83	-15.48	70.85	0.22
10	90/60	-442.01	12.19	9.32	-27.55	-8.88	-3.81	1.00	2.67	5.51	140.40	0.04
11	245/60	-503.69	-1.14	-10.62	-0.55	-124.51	-46.22	1.00	5.86	-56.84	222.46	0.26
12	175/60	-388.06	-4.14	-5.88	15.59	-62.52	-24.50	1.00	7.78	-30.38	117.20	0.26
13	135/60	-376.46	0.21	-0.24	-22.44	-27.97	-10.62	1.00	10.40	-10.87	74.55	0.15
14	155/60	-416.96	2.09	1.35	-24.26	-37.74	-13.12	1.00	9.90	-11.77	81.06	0.15
15	170/60	-387.43	2.31	1.46	-46.17	-60.68	-24.50	1.00	7.77	-23.04	108.69	0.21
16	240/60	-475.54	3.67	1.48	95.85	-115.05	-42.59	1.00	6.00	-41.11	141.79	0.29
17	190/60	-360.76	3.74	2.76	75.84	-71.08	-28.73	1.00	6.94	-25.97	88.88	0.29
18	230/60	-422.36	4.51	3.65	19.59	-75.82	-19.94	1.00	8.82	-16.29	87.45	0.19
19	560/60	-1407.47	0.01	12.55	-118.29	-699.95	-186.76	1.00	3.57	-174.21	776.24	0.22
20	465/60	-1247.44	24.98	0.87	-114.79	-498.39	-130.08	1.00	4.39	-129.20	613.48	0.21

21	375/60	-1086.67	8.89	2.92	-77.10	-319.35	-103.04	1.00	4.41	-100.12	487.29	0.21
22	380/60	-1084.11	12.41	-0.56	1.61	-351.35	-98.08	1.00	5.03	-98.65	429.64	0.23
23	735/60	-1810.70	-202.96	34.12	-112.93	-1253.89	-230.42	1.00	3.95	-196.30	705.52	0.28
24	265/60	-763.55	4.55	4.96	-136.67	-170.98	-67.82	1.00	5.07	-62.86	298.88	0.21
25	255/60	-807.26	5.24	6.09	-40.87	-159.37	-68.19	1.00	4.89	-62.09	292.06	0.21
26	500/60	-1527.37	80.56	-15.91	-50.76	-581.90	-139.76	1.00	2.67	-155.66	780.00	0.20
27	480/65	-606.39	87.16	-18.03	-46.61	-511.64	-169.96	1.00	3.34	-187.99	607.71	0.31
28	380/65	-1127.59	46.51	-24.26	-32.21	-344.14	-123.90	1.00	2.67	-148.16	642.20	0.23
29	240/65	-756.75	6.22	6.99	15.31	-138.29	-47.07	1.00	6.53	-40.09	193.74	0.21
31	215/65	-324.68	3.70	0.47	-15.80	-113.86	-42.19	1.00	6.69	-41.72	118.54	0.35
32	110/65	-281.68	-0.38	-0.95	20.32	-27.00	-11.13	1.00	11.76	-12.08	49.63	0.24
33	450/65	-1168.37	-31.85	21.07	151.55	-507.78	-173.14	1.00	3.48	-152.07	511.47	0.30
34	265/65	-908.81	4.42	12.80	-18.63	-194.61	-69.29	1.00	5.65	-56.49	248.17	0.23
35	120/60	-328.90	9.90	8.21	-30.51	-29.73	-11.93	1.00	11.07	-3.72	28.44	0.13
36	290/60	-463.88	2.18	8.72	-43.40	-207.52	-86.58	1.00	4.41	-77.86	230.57	0.34
37	345/60	-782.63	26.64	-29.12	-26.59	-291.34	-111.04	1.00	2.67	-140.16	538.20	0.26
38	165/60	-397.19	1.57	0.48	-23.26	-50.75	-11.22	1.00	14.62	-10.74	56.61	0.19
39	150/60	-299.66	3.61	2.92	-43.03	-39.16	-7.60	1.00	18.31	-4.69	26.22	0.18
40	290/60	-691.69	9.35	-8.75	-87.36	-230.09	-89.32	1.00	4.74	-98.08	368.30	0.27
41	1140/60	-2795.00	-77.59	10.97	-192.88	-3330.16	-487.13	1.00	3.20	-476.15	1761.68	0.27
42	880/60	-1572.98	-93.97	-0.54	-68.11	-1978.07	-479.77	1.00	2.50	-480.30	1364.52	0.35
43	3769/60	-4358.90	-3526.65	60.53	12.82	-8355.48	-2023.64	1.00	2.67	-1963.11	5217.51	0.38
44	445/60	-823.89	4.11	4.10	49.79	-553.39	-173.10	1.00	3.83	-169.00	438.59	0.39
72	390/30	-387.42	1.63	2.28	-67.38	-165.85	-44.08	1.00	5.14	-41.80	173.58	0.24
73	265/30	-284.00	2.30	3.32	-83.18	-79.49	-31.62	1.00	5.06	-28.29	129.36	0.22
74	60/30	-71.13	0.09	0.05	-6.99	-2.09	-0.90	1.00	20.63	-0.85	7.39	0.11
88	670/25	-516.67	-164.12	22.62	-38.49	-380.45	-128.73	1.00	2.35	-106.12	290.99	0.36
90	340/60	-690.26	26.68	-12.22	-25.98	-314.12	-95.75	1.00	5.15	-107.97	361.90	0.30
98	1010/60	-1910.71	18.84	-59.84	-270.08	-3485.74	-624.21	1.00	2.67	-684.04	1575.60	0.43
100	1150/60	-2434.69	-194.58	-71.43	-293.25	-4553.29	-760.14	1.00	2.67	-831.58	1794.00	0.46
103	1045/60	-2208.07	-329.48	23.88	-159.15	-3330.51	-623.75	1.00	2.73	-599.87	1572.21	0.38
105	1130/60	-2262.25	-467.86	18.65	-210.26	-3911.88	-687.45	1.00	2.69	-668.80	1670.73	0.40
109	1185/50	-2241.16	-208.65	-10.73	-174.96	-2928.73	-526.16	1.00	2.67	-536.89	1540.50	0.35
111	1150/25	-1576.49	-34.16	-13.86	-73.12	-1504.91	-316.80	1.00	2.67	-330.65	747.50	0.44

Στάθμη 3

ΠΕΣ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/60	-346.12	-24.21	-12.12	-26.87	-44.48	-20.68	1.00	4.78	-32.79	180.79	0.18
2	190/60	-291.39	-1.32	-0.01	-17.56	-22.21	-11.26	1.00	5.54	-11.27	117.88	0.10
3	240/60	-383.33	-2.54	-4.16	-8.31	-43.71	-21.93	1.00	4.43	-26.09	222.29	0.12
4	175/60	-296.62	-8.01	-4.88	-14.55	-39.23	-19.13	1.00	6.25	-24.00	113.98	0.21
5	165/60	-249.33	-3.13	-1.00	-15.61	-24.98	-9.34	1.00	8.65	-10.34	67.62	0.15
6	165/60	-250.38	2.76	0.47	-15.50	-23.06	-8.75	1.00	8.52	-8.29	75.23	0.11
7	165/60	-235.78	-8.06	-2.18	-29.51	-37.69	-12.00	1.00	10.15	-14.17	57.01	0.25
8	125/60	-180.12	-7.80	-2.49	-9.12	-20.73	-7.15	1.00	12.37	-9.64	33.96	0.28
11	135/60	-236.87	-8.99	-1.04	-3.57	-27.86	-7.71	1.00	14.27	-8.75	31.74	0.28
12	175/60	-282.56	-21.22	-3.08	-16.33	-49.14	-13.08	1.00	11.45	-16.16	49.90	0.32
13	135/60	-218.96	-1.91	-0.42	-12.87	-20.67	-7.33	1.00	11.13	-7.75	44.60	0.17
14	155/60	-242.70	2.55	0.76	-14.95	-21.42	-7.53	1.00	9.78	-6.77	59.88	0.11
15	170/60	-233.22	4.41	3.65	-30.37	-43.56	-19.43	1.00	7.04	-15.77	76.38	0.21
16	240/60	-274.14	2.51	5.24	44.29	-28.62	-9.00	1.00	7.06	-3.77	36.02	0.10
17	190/60	-192.94	9.57	5.71	24.45	-33.49	-14.55	1.00	6.46	-8.84	53.99	0.16
18	230/60	-249.53	8.53	3.38	-1.25	-32.74	-12.80	1.00	5.93	-9.42	100.09	0.09
19	560/60	-871.61	-130.45	16.88	-77.81	-421.14	-186.77	1.00	2.15	-169.89	681.25	0.25
20	465/60	-775.77	-10.27	-34.38	-79.21	-302.86	-149.32	1.00	2.67	-183.71	725.40	0.25
21	375/60	-701.37	-10.69	-19.03	-54.88	-287.33	-119.14	1.00	3.43	-138.16	526.03	0.26
22	380/60	-890.42	-28.38	-20.89	-25.45	-197.56	-101.90	1.00	2.67	-122.79	592.80	0.21
23	735/60	-1210.21	29.59	42.36	-27.04	-728.19	-201.29	1.00	2.63	-158.94	861.92	0.18
24	265/60	-452.53	5.39	8.98	-65.43	-164.20	-74.70	1.00	4.42	-65.72	229.02	0.29
25	255/60	-487.83	9.82	6.82	-24.12	-170.18	-82.24	1.00	4.33	-75.42	245.92	0.31
26	500/60	-1268.15	-278.01	-5.05	49.52	-295.08	-169.41	1.00	1.86	-174.47	703.49	0.25
27	240/45	-590.14	-41.41	8.84	-33.06	-110.64	-42.55	1.00	5.78	-33.72	108.95	0.31
28	240/45	-429.38	6.93	3.47	18.10	-74.25	-37.62	1.00	4.39	-34.15	193.69	0.18
29	235/65	-560.34	34.12	-5.76	38.62	-149.60	-65.08	1.00	5.22	-70.84	299.69	0.24
30	265/65	-533.55	36.52	11.04	19.99	-145.16	-64.70	1.00	4.52	-53.66	276.56	0.19
31	145/60	-197.67	-10.55	4.78	-8.66	-58.42	-24.18	1.00	8.88	-19.40	36.14	0.54
32	165/60	-237.46	-3.92	-0.41	-13.98	-14.22	-6.59	1.00	6.97	-7.01	68.00	0.10
33	150/60	-198.73	0.14	-3.46	-25.35	-16.29	-16.63	1.00	3.48	-20.08	178.01	0.11
34	290/60	-460.29	-78.35	-7.35	-31.91	-202.13	-104.59	1.00	3.55	-111.93	236.92	0.47
35	1160/60	-1748.84	-266.90	-46.84	-164.27	-1949.78	-527.57	1.00	2.67	-574.41	1809.60	0.32
36	880/30	-798.48	89.23	-36.67	-24.20	-645.72	-266.92	1.00	2.67	-303.59	686.40	0.44
37	2949/60	-2260.37	1985.48	236.41	-64.43	-2285.41	-962.11	1.00	2.67	-725.70	3652.07	0.20
63	390/30	-203.60	10.09	-3.72	-20.72	-105.97	-38.69	1.00	3.75	-42.41	171.44	0.25
64	265/30	-138.01	9.22	6.26	-29.80	-68.03	-31.28	1.00	4.38	-25.02	82.72	0.30
65	60/30	-39.04	0.20	0.13	-5.18	-1.84	-0.85	1.00	19.28	-0.72	4.95	0.15
79	1010/60	-1260.64	45.96	-91.26	-191.09	-1619.37	-551.21	1.00	2.67	-642.46	1513.00	0.42
81	1150/60	-1656.22	68.76	-77.92	-192.25	-2087.18	-691.14	1.00	2.67	-769.06	1794.00	0.43
84	1045/60	-1511.74	-508.83	-14.11	-158.47	-1985.15	-699.96	1.00	2.67	-714.06	1630.20	0.44
86	1130/60	-1550.54	-541.06	-10.45	-85.36	-2068.59	-738.17	1.00	2.67	-748.61	1697.44	0.44
90	1185/25	-1662.70	-302.71	-10.60	-163.68	-1251.34	-338.48	1.00	2.67	-349.07	770.25	0.45
92	1150/25	-1440.38	194.19	-38.18	-51.71	-762.26	-262.90	1.00	2.67	-301.08	747.50	0.40

Στάθμη 4

ΠΕΣ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
1	240/40	-119.83	-11.04	-5.48	-26.73	20.96	8.66	1.00	5.38	3.18	51.22	0.06
2	190/40	-109.54	-1.52	-2.28	-7.12	23.72	4.46	1.00	14.92	2.19	9.91	0.22
3	240/40	-158.21	8.94	11.33	-1.66	15.10	6.01	1.00	5.59	17.34	124.60	0.14
4	175/40	-80.13	4.59	5.14	-14.29	-0.79	-0.82	1.00	2.92	4.32	86.48	0.05
5	165/40	-91.88	1.53	0.09	-6.13	10.10	0.82	1.00	39.65	0.92	5.82	0.16
6	165/40	-94.30	2.04	0.90	-5.73	9.85	0.63	1.00	50.30	1.54	9.70	0.16
7	110/40	-34.66	0.09	-0.53	8.67	5.02	1.01	1.00	24.18	0.48	1.30	0.37
8	125/40	-25.21	-7.30	-7.86	-13.48	7.84	1.48	1.00	2.67	-6.37	92.40	0.07
11	135/40	-101.57	12.77	7.98	-5.55	10.12	3.42	1.00	11.70	11.39	31.76	0.36
12	155/40	-104.21	14.73	9.93	-10.78	11.17	3.04	1.00	12.63	12.97	39.71	0.33
13	135/40	-85.17	-0.38	-0.31	-5.29	4.65	0.20	1.00	92.35	-0.11	1.45	0.08
14	155/40	-94.73	-0.91	-0.12	-6.61	5.70	1.11	1.00	17.62	0.99	14.64	0.07
15	150/40	-118.34	1.38	-2.16	-34.46	-18.98	-7.64	1.00	8.83	-9.81	54.17	0.18
16	240/40	-99.95	12.24	-3.75	22.62	-77.72	-31.16	1.00	5.54	-34.91	47.11	0.74
17	190/40	-88.74	8.60	2.82	-4.88	-48.45	-17.59	1.00	7.73	-14.78	30.56	0.48
18	230/40	-98.43	4.11	2.13	14.45	10.85	-25.40	1.00	0.99	-23.27	142.11	0.16
19	120/40	-152.02	-4.96	-7.94	-9.46	-12.06	-6.65	1.00	8.07	-14.59	66.45	0.22
20	255/40	-219.11	-25.88	17.19	-41.76	-41.71	-23.66	1.00	3.69	-6.47	27.01	0.24
21	375/40	-235.46	-25.78	-23.22	-6.40	-72.08	-44.45	1.00	2.31	-67.67	283.53	0.24
22	380/40	-318.10	-30.85	-20.01	28.40	-65.21	-33.18	1.00	2.76	-53.19	270.26	0.20
23	735/40	-473.55	-44.41	37.90	-14.91	-138.31	-72.12	1.00	1.39	-34.22	302.99	0.11
24	265/40	-232.69	18.65	5.52	-13.10	-60.70	-38.07	1.00	3.21	-32.55	217.30	0.15
25	255/40	-196.27	10.69	6.89	1.30	-86.04	-47.29	1.00	3.81	-40.40	118.15	0.34
26	500/40	-349.18	116.68	8.33	9.60	-136.39	-56.17	1.00	2.67	-47.85	443.53	0.11
27	240/40	-388.98	102.76	103.76	-37.46	-6.58	-5.43	1.00	2.67	98.33	249.60	0.39
28	240/40	-213.71	-0.19	-21.47	1.16	-31.20	-16.85	1.00	2.67	-38.32	232.71	0.16
29	235/40	-276.63	-51.45	-42.74	-5.43	-48.62	-24.02	1.00	4.59	-66.76	181.65	0.37
30	265/40	-164.81	1.61	-1.07	5.29	-36.06	-26.32	1.00	2.76	-27.39	153.01	0.18
31	145/30	-132.20	10.95	1.12	-2.06	-3.02	-2.01	1.00	5.53	-0.89	8.95	0.10
32	165/30	-77.69	-2.47	-0.34	-4.91	8.76	1.34	1.00	21.18	0.99	9.69	0.10
33	150/30	-116.12	-10.79	-2.97	-5.14	-14.39	-4.29	1.00	11.94	-7.26	22.02	0.33
34	965/30	-583.62	-211.63	-28.00	-67.16	-245.67	-84.96	1.00	1.60	-112.96	671.98	0.17
35	939/35	-35.36	-129.21	-16.19	-44.41	57.81	-146.36	1.00	2.67	-162.55	537.52	0.30
65	990/40	-441.14	-32.10	-100.93	-88.97	-190.90	-203.94	1.00	2.67	-304.87	821.27	0.37
67	1150/40	-799.26	394.24	-118.13	-86.05	-228.53	-304.32	1.00	2.67	-422.46	1061.81	0.40
68	1045/40	-796.41	-604.50	-15.10	-86.66	-299.46	-216.41	1.00	2.67	-231.52	996.30	0.23
70	1110/40	-645.29	-539.72	-19.83	-53.74	-197.42	-230.99	1.00	2.67	-250.82	962.69	0.26
73	1185/40	-1341.66	-697.07	-20.83	-54.47	-347.20	-164.53	1.00	0.95	-185.36	1211.21	0.15
74	1150/40	-1060.95	688.90	-144.59	-38.19	-245.34	-227.23	1.00	2.67	-371.82	1147.35	0.32

Έλεγχος εκτός επιπέδου

Στάθμη 2

ΠΕΣ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
30	65/65	-155.51	0.10	0.02	-1.74	-0.83	-0.19	1.00	3.00	-0.72	41.27	0.02
45	60/195	-444.16	6.60	4.09	-66.84	1.02	-0.78	1.00	3.00	7.62	118.77	0.06
46	60/164	-560.97	3.57	1.63	-42.75	-1.69	-0.29	1.00	3.00	1.88	123.79	0.02
47	60/290	-806.60	12.00	-11.19	-165.40	-11.05	-1.79	1.00	3.00	0.95	207.39	0.00
48	60/110	-275.83	-1.18	-1.46	-56.95	-0.99	-0.38	1.00	3.00	-2.17	73.77	0.03
49	60/160	-157.83	-1.51	-3.36	-53.68	-3.65	-1.09	1.00	3.00	-5.16	56.23	0.09
50	60/229	-239.93	7.54	6.69	-19.77	-9.48	-3.17	1.00	3.00	-1.93	70.31	0.03
51	60/209	-676.31	20.85	26.66	-69.85	-5.77	-0.89	1.00	3.00	15.08	155.07	0.10
52	60/190	-573.77	1.05	-3.42	-79.61	-5.75	-3.33	1.00	3.00	-4.70	137.82	0.03
53	60/333	-729.29	27.24	-3.07	-155.48	-15.32	-3.30	1.00	3.00	11.92	204.61	0.06
54	60/888	-2244.89	40.02	23.49	-121.91	-388.49	-45.76	1.00	3.00	-348.47	546.98	0.64
55	45/630	-1208.20	94.82	-9.60	-53.11	-87.79	-34.40	1.00	3.00	7.03	218.52	0.03
56	60/900	-1721.09	-96.13	24.77	-123.06	-297.02	-65.69	1.00	3.00	-393.15	455.57	0.86
57	95/192	-620.20	5.00	2.03	-38.16	-33.78	-15.91	1.00	3.00	-28.78	254.37	0.11
58	40/513	-756.31	-65.98	28.43	-5.75	-42.59	-36.14	1.00	3.00	-108.56	123.15	0.88
59	65/630	-1495.21	34.58	15.27	36.54	-337.96	-83.17	1.00	3.00	-303.38	386.77	0.78
60	60/670	-1780.40	-95.40	41.82	-430.59	-431.90	-70.37	1.00	3.00	-527.30	474.70	1.11
61	60/645	-1153.52	-101.57	36.45	-192.07	-430.29	-116.37	1.00	3.00	-531.86	331.12	1.61
62	60/192	-416.05	2.09	-1.57	17.33	-46.40	-18.30	1.00	3.00	-44.31	98.21	0.45
63	40/620	-1476.51	232.70	-27.18	-129.34	-279.27	-78.38	1.00	3.00	-46.56	213.66	0.22
64	60/680	-1082.58	439.94	-41.07	-76.77	-272.92	-179.50	1.00	3.00	167.03	296.71	0.56
65	40/620	-1275.14	195.03	-22.05	-100.30	-286.66	-82.62	1.00	3.00	-91.63	196.22	0.47
66	60/460	-963.06	1.34	22.24	-11.27	-336.57	-105.72	1.00	3.00	-335.23	238.96	1.40
67	35/513	-756.32	-27.97	21.72	-89.41	-213.94	-78.99	1.00	3.00	-241.91	111.96	2.16
68	60/680	-1708.29	94.43	11.73	117.29	-617.53	-162.55	1.00	3.00	-523.10	381.08	1.37
69	35/620	-982.46	-34.31	19.71	98.64	-256.84	-94.66	1.00	3.00	-291.15	122.10	2.38
70	60/300	-634.66	12.41	-11.85	-37.50	-149.88	-56.78	1.00	3.00	-137.47	162.72	0.84
71	40/533	-697.55	6.12	12.88	-41.66	-347.08	-88.66	1.00	3.00	-340.96	121.34	2.81
75	60/370	-642.09	18.16	-0.43	-82.26	-459.03	2.48	1.00	3.00	-440.87	180.65	2.44
76	60/310	-588.33	14.36	13.09	103.68	-220.24	-62.25	1.00	3.00	-205.88	125.81	1.64
77	60/233	-468.93	6.81	-2.70	142.77	-114.68	-33.96	1.00	3.00	-107.87	86.05	1.25
78	60/117	-310.05	-2.06	-2.14	32.21	-20.72	-8.89	1.00	3.00	-22.78	66.24	0.34
79	60/187	-583.13	0.48	-2.58	-4.80	-54.81	-16.31	1.00	3.00	-54.33	128.72	0.42
80	60/143	-617.63	8.55	7.23	-41.91	-29.68	-10.57	1.00	3.00	-21.14	119.50	0.18

81	60/264	-248.12	2.56	35.65	3.14	-112.83	-33.66	1.00	3.00	-110.28	67.62	1.63
82	60/468	-1373.27	-4.43	30.42	-150.82	-538.49	-100.94	1.00	3.00	-542.92	329.03	1.65
83	60/107	-207.95	0.06	-0.58	11.45	-16.77	-5.89	1.00	3.00	-16.71	49.62	0.34
84	60/160	-314.94	-1.05	-2.06	93.09	-46.97	-20.12	1.00	3.00	-48.02	58.60	0.82
85	60/140	-360.86	-2.76	-3.32	27.99	-32.76	-13.87	1.00	3.00	-35.52	79.40	0.45
86	35/630	-736.40	30.48	-0.82	-16.27	-157.31	-25.15	1.00	3.00	-126.83	108.47	1.17
87	40/495	-610.63	48.12	-8.64	-13.82	-34.21	-27.06	1.00	3.00	13.92	104.53	0.13
89	65/250	-573.59	20.45	-6.16	-45.67	-76.44	-20.15	1.00	3.00	-55.98	161.61	0.35
91	56/56	-96.13	15.57	11.22	-4.38	1.96	1.04	1.00	3.00	17.52	23.48	0.75
92	56/56	-159.30	27.48	19.83	-8.91	-0.10	0.34	1.00	3.00	27.38	34.04	0.80
93	56/56	-160.82	27.71	19.99	-7.76	-0.17	0.33	1.00	3.00	27.54	34.09	0.81
94	56/56	-97.27	15.79	11.36	-4.53	-0.70	0.05	1.00	3.00	15.09	23.72	0.64
95	45/70	-202.89	0.09	-0.01	-14.69	-1.33	-0.28	1.00	3.00	-1.23	31.47	0.04
96	45/70	-210.79	0.09	-0.03	-27.72	-1.74	-0.50	1.00	3.00	-1.65	32.66	0.05
97	60/635	-1219.46	132.33	10.30	-362.02	-107.22	-1.31	1.00	3.00	25.11	372.64	0.07
99	60/310	-643.68	1.19	-10.77	-84.10	-66.17	-20.03	1.00	3.00	-64.98	174.17	0.37
101	55/885	-1780.26	52.70	-36.04	-177.74	-918.13	-79.05	1.00	3.00	-865.43	426.48	2.03
102	55/885	-1697.24	-16.34	-24.69	-114.61	-504.41	-141.04	1.00	3.00	-520.75	402.38	1.29
104	60/310	-646.71	-3.11	-3.62	-45.27	-136.91	-57.90	1.00	3.00	-140.02	167.67	0.84
106	60/678	-1240.63	27.36	6.36	124.42	-791.54	-187.56	1.00	3.00	-764.18	287.36	2.66
107	50/885	-1591.85	187.22	-28.84	-56.49	-610.36	-156.53	1.00	3.00	-423.14	332.73	1.27
108	30/545	-685.37	53.08	-15.08	13.67	-101.05	-24.28	1.00	3.00	-47.97	79.36	0.60
110	25/635	-578.74	9.95	-3.09	-76.42	-165.87	-71.07	1.00	3.00	-155.92	64.42	1.42
112	60/90	-259.07	-1.56	-1.19	-34.56	-4.96	-2.39	1.00	3.00	-6.52	63.33	0.10
113	30/885	-1103.51	262.20	-27.16	-135.33	-230.83	-56.56	1.00	3.00	31.37	141.00	0.22
114	40/40	-116.55	0.00	-0.01	-13.73	-0.25	-0.06	1.00	3.00	-0.25	15.09	0.02
115	40/40	-103.76	0.00	-0.01	-7.07	-0.23	-0.06	1.00	3.00	-0.23	14.23	0.02

Στάθμη 3

ΠΕΕ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
9	55/60	-320.28	-23.96	-6.13	-18.81	-0.90	-0.22	1.00	3.00	-24.86	43.72	0.57
10	55/60	-331.16	-24.92	-6.38	-13.57	-0.83	-0.19	1.00	3.00	-25.75	43.60	0.59
38	60/195	-266.69	23.02	7.97	-16.75	-16.49	-9.35	1.00	3.00	6.53	74.41	0.09
39	60/164	-314.38	7.94	0.46	-23.05	-1.36	-2.86	1.00	3.00	6.58	83.32	0.08
40	60/290	-488.14	-32.92	8.31	-83.56	52.16	15.05	1.00	3.00	19.24	142.38	0.14
41	60/110	-210.75	0.32	1.80	-20.74	4.26	1.61	1.00	3.00	4.58	56.84	0.08
44	60/209	-731.44	42.66	-33.21	-44.42	-10.52	-5.51	1.00	3.00	32.14	158.39	0.20
45	60/190	-536.08	-14.68	-10.47	-23.41	-20.09	-6.34	1.00	3.00	-34.77	125.18	0.28
46	60/333	-531.01	-4.67	-14.41	-59.84	-36.02	-13.55	1.00	3.00	-40.70	150.13	0.27
47	60/888	-1483.19	44.24	61.72	-72.39	-287.67	-82.87	1.00	3.00	-243.43	396.24	0.61
48	35/610	-839.48	240.28	-48.66	-82.97	-67.87	-56.34	1.00	3.00	172.41	125.37	1.38
49	60/332	-1010.92	54.58	9.55	-131.76	-79.62	-15.40	1.00	3.00	-25.03	241.15	0.10
50	60/338	-454.32	86.88	1.01	-62.16	-70.31	-33.28	1.00	3.00	16.57	134.52	0.12
51	95/192	-440.38	18.64	4.08	-3.73	-83.18	-28.62	1.00	3.00	-64.54	184.40	0.35
52	65/480	-841.06	74.64	-5.18	-7.28	-247.61	-55.34	1.00	3.00	-172.97	236.95	0.73
53	60/670	-1114.98	38.96	67.10	-217.76	-267.81	-36.99	1.00	3.00	-228.84	331.30	0.69
54	60/192	-319.25	0.78	6.40	-28.19	-25.34	-4.76	1.00	3.00	-24.56	87.98	0.28
55	40/620	-689.01	-128.00	-48.73	-81.20	-201.02	-59.88	1.00	3.00	-329.02	129.31	1.54
56	40/620	-674.68	-69.16	-52.36	-18.76	-221.92	-77.34	1.00	3.00	-291.09	118.64	1.45
57	60/460	-585.27	32.19	28.68	-17.63	-199.67	-78.44	1.00	3.00	-167.48	160.45	1.04
58	35/513	-418.78	32.56	36.98	-52.53	-156.06	-74.10	1.00	3.00	-123.49	71.29	1.73
59	60/680	-1347.76	-322.05	28.45	55.47	-436.42	-160.16	1.00	3.00	-758.47	324.21	2.34
60	35/620	-691.11	119.29	9.57	61.41	-209.42	-107.80	1.00	3.00	-90.13	93.67	0.96
61	60/300	-662.04	-75.14	-1.31	-95.86	-156.40	-36.40	1.00	3.00	-231.54	177.88	1.30
62	40/533	-358.04	13.10	4.66	-18.90	-193.95	-78.25	1.00	3.00	-180.85	68.50	1.64
66	60/370	-394.02	7.74	-0.54	-43.67	-28.35	-1.60	1.00	3.00	-20.61	117.92	0.17
67	60/310	-361.79	7.56	5.43	20.92	-92.26	-31.06	1.00	3.00	-84.70	92.57	0.91
68	60/233	-316.39	-33.58	1.38	98.06	-42.16	-20.05	1.00	3.00	-75.74	60.21	1.26
69	60/117	-364.97	-8.00	-2.32	25.42	-22.56	-9.29	1.00	3.00	-30.57	76.31	0.40
70	60/187	-331.85	-12.36	0.68	14.35	-43.28	-17.28	1.00	3.00	-55.64	81.35	0.68
71	60/143	-437.85	22.02	7.49	-28.32	-21.58	-7.53	1.00	3.00	0.44	100.70	0.00
72	60/719	-1015.95	-135.83	50.01	-128.80	-158.37	-74.44	1.00	3.00	-294.19	296.34	0.99
73	60/160	-307.67	-8.84	-2.12	53.68	-39.16	-9.33	1.00	3.00	-48.00	65.77	0.73
74	60/140	-164.22	-7.85	-1.34	18.34	-28.71	-7.43	1.00	3.00	-36.56	39.83	0.92
75	20/610	-403.30	131.89	-13.08	-6.76	-86.68	-25.70	1.00	3.00	45.21	33.88	1.33
76	45/60	-92.76	0.17	0.07	-11.81	-0.10	-0.05	1.00	3.00	0.07	18.82	0.00
77	45/60	-103.11	0.22	0.11	-22.17	0.52	0.17	1.00	3.00	0.74	21.43	0.03
78	60/635	-785.75	144.56	2.81	-215.86	-100.71	-15.86	1.00	3.00	43.85	259.65	0.17
80	60/310	-431.81	2.35	-18.77	-47.78	-22.98	-10.44	1.00	3.00	-20.63	124.70	0.17
82	55/885	-1219.77	308.67	21.37	-40.60	-394.29	-64.83	1.00	3.00	-85.61	300.21	0.29
83	55/885	-1141.07	358.78	18.87	-112.94	-455.33	-206.48	1.00	3.00	-96.55	298.92	0.32
85	60/310	-434.45	14.72	2.17	-29.69	-180.95	-80.82	1.00	3.00	-166.23	121.28	1.37
87	60/678	-887.63	94.84	-15.11	110.20	-580.95	-184.07	1.00	3.00	-486.11	210.19	1.31
88	50/885	-1091.40	427.00	-29.17	-27.77	-343.09	-216.36	1.00	3.00	83.91	243.21	0.35
89	30/545	-579.50	60.98	-27.77	-28.17	-36.29	-16.23	1.00	3.00	24.69	73.64	0.34
91	25/635	-523.95	189.75	-22.80	24.67	-190.63	-73.81	1.00	3.00	-0.88	52.26	0.02
93	60/90	-186.75	-5.74	-3.81	-2.93	-5.06	-2.38	1.00	3.00	-10.80	46.57	0.23
94	30/885	-752.87	232.47	-28.25	-77.60	-119.02	-53.39	1.00	3.00	113.45	104.43	1.09
95	30/35	-115.42	2.73	1.92	-8.29	-0.07	-0.00	1.00	3.00	2.66	7.25	0.37

Στάθμη 4

ΠΕΕ	Διάστ.	Ns	Ms	Vs	Ne	Me	Ve	m	μθ	Msd	Mrd	λ
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	cm	KN	KNm	KN	KN	KNm	KN			KNm	KNm	
9	35/40	-111.80	1.75	0.43	-6.91	0.01	0.00	1.00	3.00	1.76	11.67	0.15
10	35/40	-120.15	1.80	0.44	-6.92	-0.02	-0.01	1.00	3.00	1.78	11.80	0.15
36	40/195	-104.91	12.40	8.24	9.90	19.73	8.24	1.00	3.00	32.13	17.81	1.80
37	40/164	-146.28	-2.31	-0.25	-11.24	10.78	3.58	1.00	3.00	8.47	27.60	0.31
38	40/290	-170.06	48.67	48.15	-12.76	57.10	18.58	1.00	3.00	105.76	33.58	3.15
39	40/90	-145.12	7.85	4.53	-6.17	2.80	1.26	1.00	3.00	10.65	23.68	0.45
40	40/160	86.95	80.23	31.64	3.62	2.88	0.95	1.00	3.00	83.11	0.00	-
41	40/229	-30.91	-263.35	-192.96	-2.92	-16.97	-12.51	1.00	3.00	-280.32	6.64	2.25
42	40/209	-362.14	-98.77	-106.93	-22.35	-7.26	-7.64	1.00	3.00	-106.03	58.63	1.81
43	40/190	-175.75	-8.28	-7.01	-9.27	-2.19	-1.90	1.00	3.00	-10.47	32.34	0.32
44	40/303	-244.67	9.91	-3.84	-18.46	-7.38	-3.46	1.00	3.00	2.53	46.71	0.05
45	40/888	-635.18	-164.12	103.03	-35.07	-49.54	-16.17	1.00	3.00	-213.66	120.97	1.77
46	40/332	-489.13	12.34	32.15	-77.79	39.53	-1.40	1.00	3.00	51.86	88.36	0.59
47	40/338	-204.58	30.86	-22.66	-22.65	-43.07	-16.57	1.00	3.00	-12.20	41.49	0.29
48	35/670	-428.59	19.70	90.90	28.11	57.18	-29.34	1.00	3.00	76.89	63.90	1.20
49	40/172	-123.74	10.39	7.00	-3.59	-1.95	-4.54	1.00	3.00	8.44	23.03	0.37
50	35/680	-53.90	73.87	84.78	-11.77	11.77	-15.87	1.00	3.00	85.64	11.33	1.56
51	40/590	-382.40	-267.06	-73.45	-2.24	-256.90	-108.89	1.00	3.00	-523.96	70.45	1.44
52	40/440	-249.01	-55.10	28.06	-25.67	-122.67	-67.83	1.00	3.00	-177.77	50.50	1.52
53	35/680	-615.19	64.48	6.93	57.13	-317.44	-101.72	1.00	3.00	-252.97	85.82	1.95
54	40/370	-154.38	0.43	-0.19	-27.49	-24.83	-2.19	1.00	3.00	-24.39	34.06	0.72
55	40/310	-179.52	-18.93	-2.91	1.28	-8.63	-7.08	1.00	3.00	-27.56	33.00	0.84
56	40/233	-124.40	15.06	7.58	9.73	-23.11	-10.23	1.00	3.00	-8.05	21.47	0.37
57	40/117	-95.41	-3.55	-1.34	-10.05	-11.33	-6.29	1.00	3.00	-14.88	18.63	0.80
58	40/187	-139.04	-0.00	1.65	4.41	-6.76	-5.27	1.00	3.00	-6.76	24.43	0.28
59	40/143	-153.77	-4.69	-1.21	-10.41	0.80	-1.34	1.00	3.00	-3.89	27.98	0.14
60	40/719	-392.17	-41.09	18.75	-30.74	-37.23	-27.02	1.00	3.00	-78.32	78.16	1.00
61	40/140	-76.02	-2.21	-1.34	24.22	2.86	-3.76	1.00	3.00	0.65	9.86	0.07
62	40/40	-33.43	-0.15	-0.08	-26.31	-0.17	-0.09	1.00	3.00	-0.33	9.64	0.03
63	40/40	-10.02	-0.23	-0.13	-0.45	-0.27	-0.14	1.00	3.00	-0.49	2.02	0.24
64	40/635	-292.91	105.27	6.20	-59.42	-37.77	4.18	1.00	3.00	67.50	65.41	1.03
66	40/310	-151.78	-25.39	-25.87	-17.44	-12.48	-6.04	1.00	3.00	-37.86	31.46	1.20
69	40/290	-229.41	-8.55	-52.54	-18.35	-133.86	-68.87	1.00	3.00	-142.40	44.08	2.23
71	40/678	-385.40	109.76	-36.03	24.46	-145.85	-187.31	1.00	3.00	-36.09	67.22	0.54
72	40/635	-443.05	-88.48	-53.28	-64.27	29.19	-38.21	1.00	3.00	-59.29	90.99	0.65
75	30/35	-161.65	1.20	0.89	-9.32	-0.05	-0.01	1.00	3.00	1.16	4.06	0.29
76	30/35	-150.02	1.01	0.81	-10.20	-0.18	-0.07	1.00	3.00	0.83	5.07	0.16
77	30/35	-153.58	5.06	1.69	-9.03	0.06	-0.01	1.00	3.00	5.12	4.86	1.05
78	30/35	-136.93	-0.24	-0.24	-7.79	-0.11	-0.07	1.00	3.00	-0.35	6.24	0.06
79	30/35	-72.61	-0.93	-0.75	9.41	-0.15	-0.10	1.00	3.00	-1.08	6.53	0.17
80	30/35	-58.45	-1.22	-0.94	-56.93	-0.25	-0.14	1.00	3.00	-1.47	7.48	0.20

Σεισμικός συνδυασμός 39: 1.10*G + 1.00*Q + 0.30*Σx2 - Σy2

Έλεγχος εντός επιπέδου

Στάθμη 2

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
30	65/65	-155.51	0.10	0.02	-13.98	4.51	1.05	1.00	35.10	1.08	9.79	0.11
45	60/195	-444.16	6.60	4.09	-33.38	28.77	4.05	1.00	19.39	8.14	81.36	0.10
46	60/164	-560.97	3.57	1.63	-47.24	35.30	12.39	1.00	9.25	14.02	114.12	0.12
47	60/290	-806.60	12.00	-11.19	-82.77	138.38	40.12	1.00	6.34	28.93	172.68	0.17
48	60/110	-275.83	-1.18	-1.46	7.48	15.06	5.71	1.00	12.81	4.25	34.23	0.12
49	60/160	-157.83	-1.51	-3.36	-0.92	40.91	13.86	1.00	9.83	10.50	30.54	0.34
50	60/229	-239.93	7.54	6.69	-18.89	96.97	31.45	1.00	7.17	38.14	96.24	0.40
51	60/209	-676.31	20.85	26.66	-12.99	80.34	24.90	1.00	8.22	51.56	247.50	0.21
52	60/190	-573.77	1.05	-3.42	-62.05	72.71	29.09	1.00	7.03	25.67	140.10	0.18
53	60/333	-729.29	27.24	-3.07	-129.15	232.44	79.92	1.00	4.66	76.84	314.54	0.24
54	60/888	-2244.89	40.02	23.49	-197.75	1947.69	344.57	1.00	2.67	368.06	1385.28	0.27
55	45/630	-1208.20	94.82	-9.60	-117.43	636.63	174.29	1.00	3.09	164.69	678.83	0.24
56	60/900	-1721.09	-96.13	24.77	-195.84	1552.73	351.74	1.00	2.67	376.51	1404.00	0.27
57	95/192	-620.20	5.00	2.03	-103.43	178.52	74.86	1.00	6.62	76.89	222.42	0.35
58	40/513	-756.31	-65.98	28.43	-49.78	392.62	173.50	1.00	2.67	201.93	533.52	0.38
59	65/630	-1495.21	34.58	15.27	-301.50	1209.40	323.78	1.00	2.67	339.05	1064.70	0.32
60	60/670	-1780.40	-95.40	41.82	110.21	1282.82	299.31	1.00	2.67	341.13	1045.20	0.33
61	60/645	-1153.52	-101.57	36.45	-48.66	1119.79	368.13	1.00	2.67	404.58	1006.20	0.40
62	60/192	-416.05	2.09	-1.57	-65.11	133.30	52.49	1.00	7.05	50.92	130.58	0.39
63	40/620	-1476.51	232.70	-27.18	-259.46	960.88	206.61	1.00	4.00	179.43	472.34	0.38
64	60/680	-1082.58	439.94	-41.07	-53.16	1115.51	454.56	1.00	1.92	413.49	856.63	0.48
65	40/620	-1275.14	195.03	-22.05	-245.69	972.56	233.19	1.00	3.59	211.14	541.74	0.39
66	60/460	-963.06	1.34	22.24	-295.49	966.90	289.61	1.00	3.87	311.85	679.57	0.46
67	35/513	-756.32	-27.97	21.72	97.96	623.84	216.35	1.00	2.67	238.07	453.16	0.53
68	60/680	-1708.29	94.43	11.73	-2.97	1826.40	466.63	1.00	2.67	478.35	1060.80	0.45
69	35/620	-982.46	-34.31	19.71	-207.46	784.44	266.08	1.00	2.67	285.79	564.20	0.51
70	60/300	-634.66	12.41	-11.85	-164.71	429.79	158.69	1.00	4.81	146.84	293.05	0.50
71	40/533	-697.55	6.12	12.88	-58.90	967.65	247.99	1.00	3.90	260.87	426.14	0.61
75	60/370	-642.09	18.16	-0.43	209.61	779.74	104.11	1.00	2.67	103.68	2.37	1.80
76	60/310	-588.33	14.36	13.09	-181.86	613.84	171.73	1.00	6.15	184.82	264.76	0.70
77	60/233	-468.93	6.81	-2.70	-223.48	315.29	90.51	1.00	7.97	87.81	155.16	0.57
78	60/117	-310.05	-2.06	-2.14	-100.04	57.44	24.39	1.00	10.77	22.24	62.58	0.36
79	60/187	-583.13	0.48	-2.58	-82.74	154.11	45.85	1.00	9.56	43.28	113.22	0.38

80	60/143	-617.63	8.55	7.23	-4.12	86.16	31.96	1.00	10.02	39.19	105.32	0.37
81	60/264	-248.12	2.56	35.65	-67.25	318.92	101.80	1.00	2.67	137.45	140.94	0.98
82	60/468	-1373.27	-4.43	30.42	308.73	1440.97	294.19	1.00	5.58	324.61	436.44	0.74
83	60/107	-207.95	0.06	-0.58	33.23	45.53	15.65	1.00	14.50	15.08	25.91	0.58
84	60/160	-314.94	-1.05	-2.06	-166.73	127.29	54.11	1.00	7.84	52.05	111.49	0.47
85	60/140	-360.86	-2.76	-3.32	-74.26	90.63	37.97	1.00	9.09	34.65	83.12	0.42
86	35/630	-736.40	30.48	-0.82	-130.91	698.12	140.48	1.00	4.21	139.67	401.24	0.35
87	40/495	-610.63	48.12	-8.64	64.83	329.50	117.40	1.00	3.02	108.76	325.30	0.33
89	65/250	-573.59	20.45	-6.16	-63.81	229.39	80.41	1.00	6.09	74.25	181.56	0.41
91	56/56	-96.13	15.57	11.22	-6.70	3.53	1.46	1.00	22.99	12.69	15.40	0.82
92	56/56	-159.30	27.48	19.83	-8.13	5.00	2.21	1.00	21.49	22.04	21.72	1.01
93	56/56	-160.82	27.71	19.99	-8.85	5.23	2.31	1.00	21.58	22.29	21.81	1.02
94	56/56	-97.27	15.79	11.36	-5.70	4.80	1.93	1.00	23.69	13.29	14.98	0.89
95	45/70	-202.89	0.09	-0.01	-24.61	4.30	0.96	1.00	34.28	0.94	9.73	0.10
96	45/70	-210.79	0.09	-0.03	-25.84	4.74	1.15	1.00	31.30	1.13	10.71	0.11
97	60/635	-1219.46	132.33	10.30	139.05	854.47	182.69	1.00	3.93	192.99	557.77	0.35
99	60/310	-643.68	1.19	-10.77	89.97	275.01	94.09	1.00	5.03	83.32	213.09	0.39
101	55/885	-1780.26	52.70	-36.04	4.12	2251.43	410.85	1.00	3.30	374.82	1001.15	0.37
102	55/885	-1697.24	-16.34	-24.69	-36.97	2115.90	441.55	1.00	2.89	416.86	1200.90	0.35
104	60/310	-646.71	-3.11	-3.62	94.16	406.01	155.12	1.00	4.50	151.49	265.16	0.57
106	60/678	-1240.63	27.36	6.36	29.13	2326.95	489.00	1.00	2.67	495.36	677.05	0.73
107	50/885	-1591.85	187.22	-28.84	-160.96	2117.06	465.09	1.00	2.74	436.25	1122.62	0.39
108	30/545	-685.37	53.08	-15.08	-191.67	425.54	101.50	1.00	4.10	86.42	293.91	0.29
110	25/635	-578.74	9.95	-3.09	-30.64	507.05	199.54	1.00	2.67	196.45	412.75	0.48
112	60/90	-259.07	-1.56	-1.19	-8.00	18.95	8.88	1.00	12.64	7.69	37.52	0.20
113	30/885	-1103.51	262.20	-27.16	-64.97	958.95	218.03	1.00	2.65	190.87	596.73	0.32
114	40/40	-116.55	0.00	-0.01	-7.63	0.80	0.19	1.00	55.22	0.18	3.00	0.06
115	40/40	-103.76	0.00	-0.01	-8.67	0.77	0.19	1.00	54.13	0.18	3.02	0.06

Στάθμη 3

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
9	55/60	-320.28	-23.96	-6.13	-17.83	0.22	0.10	1.00	20.30	-6.03	10.08	0.60
10	55/60	-331.16	-24.92	-6.38	-17.25	0.23	0.10	1.00	20.57	-6.28	9.90	0.63
38	60/195	-266.69	23.02	7.97	-22.13	34.85	14.34	1.00	6.63	22.32	92.90	0.24
39	60/164	-314.38	7.94	0.46	-22.98	24.78	9.69	1.00	8.30	10.15	68.48	0.15
40	60/290	-488.14	-32.92	8.31	-44.93	46.75	18.46	1.00	2.67	26.78	452.40	0.06
41	60/110	-210.75	0.32	1.80	-5.57	7.16	3.20	1.00	10.86	5.00	63.96	0.08
44	60/209	-731.44	42.66	-33.21	-43.64	53.03	15.34	1.00	8.81	-17.87	95.87	0.19
45	60/190	-536.08	-14.68	-10.47	-69.67	71.23	24.77	1.00	8.09	14.30	99.28	0.14
46	60/333	-531.01	-4.67	-14.41	-64.19	205.39	92.81	1.00	3.55	78.41	318.22	0.25
47	60/888	-1483.19	44.24	61.72	-130.40	1131.37	365.11	1.00	2.67	426.83	1385.28	0.31

48	35/610	-839.48	240.28	-48.66	-74.24	418.47	161.19	1.00	2.27	112.53	354.94	0.32
49	60/332	-1010.92	54.58	9.55	-53.45	335.40	104.04	1.00	5.18	113.58	351.14	0.32
50	60/338	-454.32	86.88	1.01	59.37	250.07	103.80	1.00	3.81	104.80	183.31	0.57
51	95/192	-440.38	18.64	4.08	-30.39	206.06	68.69	1.00	8.33	72.77	123.90	0.59
52	65/480	-841.06	74.64	-5.18	-260.02	816.36	244.02	1.00	3.72	238.84	559.74	0.43
53	60/670	-1114.98	38.96	67.10	94.71	916.46	350.74	1.00	2.67	417.84	1026.57	0.41
54	60/192	-319.25	0.78	6.40	-27.28	129.50	43.28	1.00	8.31	49.68	104.18	0.48
55	40/620	-689.01	-128.00	-48.73	-154.33	704.17	222.21	1.00	2.73	173.48	628.04	0.28
56	40/620	-674.68	-69.16	-52.36	-148.86	687.16	261.22	1.00	2.67	208.86	644.80	0.32
57	60/460	-585.27	32.19	28.68	-141.05	621.05	249.92	1.00	2.88	278.60	601.01	0.46
58	35/513	-418.78	32.56	36.98	30.84	479.51	225.58	1.00	2.67	262.56	339.89	0.77
59	60/680	-1347.76	-322.05	28.45	109.82	1481.77	485.25	1.00	2.67	513.70	1060.80	0.48
60	35/620	-691.11	119.29	9.57	-179.52	677.30	318.64	1.00	2.67	328.21	564.20	0.58
61	60/300	-662.04	-75.14	-1.31	-112.54	405.03	151.18	1.00	4.76	149.87	392.81	0.38
62	40/533	-358.04	13.10	4.66	-34.65	471.72	185.72	1.00	2.54	190.37	365.94	0.52
66	60/370	-394.02	7.74	-0.54	95.02	365.70	78.24	1.00	6.74	77.70	105.88	0.73
67	60/310	-361.79	7.56	5.43	-64.86	109.77	28.18	1.00	6.70	33.61	163.62	0.21
68	60/233	-316.39	-33.58	1.38	-183.71	42.69	44.28	1.00	2.67	45.66	363.48	0.13
69	60/117	-364.97	-8.00	-2.32	3.49	58.23	23.79	1.00	11.19	21.47	62.42	0.34
70	60/187	-331.85	-12.36	0.68	-77.30	80.88	33.45	1.00	6.88	34.13	149.68	0.23
71	60/143	-437.85	22.02	7.49	-3.67	60.33	20.87	1.00	10.74	28.37	75.84	0.37
72	60/719	-1015.95	-135.83	50.01	331.38	220.07	209.27	1.00	2.67	259.28	937.94	0.28
73	60/160	-307.67	-8.84	-2.12	-85.26	112.92	26.91	1.00	13.99	24.79	56.66	0.44
74	60/140	-164.22	-7.85	-1.34	-59.60	81.22	21.28	1.00	14.54	19.93	35.82	0.56
75	20/610	-403.30	131.89	-13.08	-49.59	265.80	89.60	1.00	2.59	76.52	207.12	0.37
76	45/60	-92.76	0.17	0.07	-20.31	0.62	0.28	1.00	19.76	0.35	11.33	0.03
77	45/60	-103.11	0.22	0.11	-21.70	-0.60	-0.17	1.00	30.83	-0.06	4.37	0.01
78	60/635	-785.75	144.56	2.81	53.54	538.04	193.43	1.00	2.34	196.24	591.98	0.33
80	60/310	-431.81	2.35	-18.77	20.83	186.38	83.28	1.00	3.85	64.51	189.13	0.34
82	55/885	-1219.77	308.67	21.37	-99.79	1237.09	415.51	1.00	2.67	436.88	1265.55	0.35
83	55/885	-1141.07	358.78	18.87	-76.50	1279.81	468.45	1.00	2.67	487.32	1235.87	0.39
85	60/310	-434.45	14.72	2.17	33.87	363.89	161.34	1.00	3.88	163.52	233.83	0.70
87	60/678	-887.63	94.84	-15.11	-108.50	1802.06	495.40	1.00	2.67	480.29	695.32	0.69
88	50/885	-1091.40	427.00	-29.17	-84.37	1168.87	497.75	1.00	2.67	468.58	1150.50	0.41
89	30/545	-579.50	60.98	-27.77	-54.91	224.10	84.84	1.00	2.58	57.07	266.25	0.21
91	25/635	-523.95	189.75	-22.80	-124.39	582.70	217.44	1.00	2.67	194.64	386.80	0.50
93	60/90	-186.75	-5.74	-3.81	-25.47	22.48	10.54	1.00	12.63	6.73	29.42	0.23
94	30/885	-752.87	232.47	-28.25	-27.01	550.65	223.82	1.00	2.67	195.57	690.30	0.28
95	30/35	-115.42	2.73	1.92	-10.05	0.99	0.48	1.00	31.46	2.40	4.10	0.59

Στάθμη 4

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Vsd KN	Vrd KN	λ
9	35/40	-111.80	1.75	0.43	-7.00	-0.23	-0.06	1.00	53.77	0.37	2.85	0.13
10	35/40	-120.15	1.80	0.44	-7.56	-0.20	-0.05	1.00	57.33	0.39	2.86	0.14
36	40/195	-104.91	12.40	8.24	-16.95	-29.15	-5.65	1.00	14.08	2.59	16.73	0.16
37	40/164	-146.28	-2.31	-0.25	-11.50	-11.73	-1.36	1.00	28.07	-1.61	12.73	0.13
38	40/290	-170.06	48.67	48.15	-7.29	-22.45	6.41	1.00	2.67	54.56	249.40	0.22
39	40/90	-145.12	7.85	4.53	-5.27	1.75	0.75	1.00	13.92	5.28	27.97	0.19
40	40/160	86.95	80.23	31.64	1.20	11.03	5.54	1.00	2.67	37.18	0.00	-
41	40/229	-30.91	-263.35	-192.96	0.87	-5.20	-4.15	1.00	2.67	-197.12	0.00	-
42	40/209	-362.14	-98.77	-106.93	-24.36	-16.22	-3.57	1.00	2.67	-110.50	217.60	0.51
43	40/190	-175.75	-8.28	-7.01	-25.68	6.50	9.95	1.00	2.67	2.94	197.22	0.01
44	40/303	-244.67	9.91	-3.84	5.40	68.82	27.54	1.00	4.40	23.70	96.21	0.25
45	40/888	-635.18	-164.12	103.03	-46.26	242.53	133.68	1.00	2.67	236.71	819.04	0.29
46	40/332	-489.13	12.34	32.15	-55.78	13.66	38.19	1.00	2.67	70.34	345.28	0.20
47	40/338	-204.58	30.86	-22.66	2.47	93.05	27.99	1.00	5.25	5.33	13.38	0.40
48	35/670	-428.59	19.70	90.90	22.68	199.34	151.09	1.00	2.67	241.99	523.13	0.46
49	40/172	-123.74	10.39	7.00	-10.25	-2.95	5.78	1.00	2.67	12.78	159.44	0.08
50	35/680	-53.90	73.87	84.78	-2.28	4.01	131.10	1.00	2.67	215.88	347.77	0.62
51	40/590	-382.40	-267.06	-73.45	32.99	344.26	202.25	1.00	2.67	128.80	502.84	0.26
52	40/440	-249.01	-55.10	28.06	-33.75	330.27	127.55	1.00	3.14	155.62	318.20	0.49
53	35/680	-615.19	64.48	6.93	-138.73	426.40	254.87	1.00	2.67	261.81	618.80	0.42
54	40/370	-154.38	0.43	-0.19	31.19	139.29	43.41	1.00	4.63	43.22	67.01	0.64
55	40/310	-179.52	-18.93	-2.91	-33.77	39.42	19.75	1.00	3.43	16.83	243.83	0.07
56	40/233	-124.40	15.06	7.58	-33.50	108.51	49.63	1.00	5.00	57.21	76.59	0.75
57	40/117	-95.41	-3.55	-1.34	-10.87	15.68	9.32	1.00	7.69	7.98	35.27	0.23
58	40/187	-139.04	-0.00	1.65	-28.48	15.33	12.34	1.00	3.53	13.98	124.23	0.11
59	40/143	-153.77	-4.69	-1.21	-4.24	2.56	4.86	1.00	2.67	3.66	149.22	0.02
60	40/719	-392.17	-41.09	18.75	75.53	286.20	163.61	1.00	2.67	182.35	569.39	0.32
61	40/140	-76.02	-2.21	-1.34	-53.72	-8.47	9.06	1.00	3.56	7.72	56.62	0.14
62	40/40	-33.43	-0.15	-0.08	3.37	0.37	0.33	1.00	14.55	0.25	6.43	0.04
63	40/40	-10.02	-0.23	-0.13	4.23	0.29	0.38	1.00	10.08	0.26	4.65	0.06
64	40/635	-292.91	105.27	6.20	-23.04	157.87	46.80	1.00	2.83	53.00	187.09	0.28
66	40/310	-151.78	-25.39	-25.87	-1.76	79.33	40.21	1.00	3.39	14.33	58.58	0.24
69	40/290	-229.41	-8.55	-52.54	-23.05	265.78	113.80	1.00	4.30	61.26	75.90	0.81
71	40/678	-385.40	109.76	-36.03	57.75	354.51	353.21	1.00	2.67	317.19	495.31	0.64
72	40/635	-443.05	-88.48	-53.28	43.39	50.32	108.50	1.00	2.67	55.22	550.63	0.10
75	30/35	-161.65	1.20	0.89	-12.86	0.43	0.24	1.00	26.87	1.13	0.25	1.50
76	30/35	-150.02	1.01	0.81	-4.37	0.41	0.21	1.00	30.30	1.02	2.43	0.42
77	30/35	-153.58	5.06	1.69	-8.81	0.78	0.35	1.00	34.30	2.03	0.80	2.55
78	30/35	-136.93	-0.24	-0.24	-10.20	0.41	0.22	1.00	28.10	-0.02	0.45	0.04
79	30/35	-72.61	-0.93	-0.75	-11.71	0.42	0.21	1.00	31.00	-0.54	8.17	0.07
80	30/35	-58.45	-1.22	-0.94	37.83	0.71	0.37	1.00	29.62	-0.58	3.60	0.16

Ελεγχος εκτός επιπέδου
Στάθμη 2

ΠΕΣ	Διαστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
1	240/60	-558.15	1.60	-3.85	-56.55	-24.69	-7.15	1.00	3.00	-23.10	143.71	0.16
2	190/60	-482.38	2.38	0.85	-37.78	-11.93	-20.05	1.00	3.00	-9.55	119.24	0.08
3	240/60	-598.88	4.21	1.86	-178.64	-19.15	-39.36	1.00	3.00	-14.94	168.15	0.09
4	175/60	-444.63	1.66	0.25	-50.06	0.94	0.46	1.00	3.00	2.60	112.26	0.02
5	165/60	-450.82	2.20	0.99	-30.82	1.53	0.49	1.00	3.00	3.73	108.15	0.03
6	165/60	-440.69	3.48	2.63	-27.44	3.20	1.18	1.00	3.00	6.69	106.11	0.06
7	165/60	-330.39	-0.07	-1.01	-45.09	2.09	0.50	1.00	3.00	2.02	90.56	0.02
8	250/60	-531.28	0.64	-7.28	-107.23	1.39	-0.83	1.00	3.00	2.03	149.40	0.01
9	95/60	-471.77	-11.54	-9.15	-31.35	-0.38	-0.24	1.00	3.00	-11.93	82.06	0.15
10	90/60	-442.01	12.19	9.32	-38.43	-8.24	-3.63	1.00	3.00	3.95	77.84	0.05
11	245/60	-503.69	-1.14	-10.62	-146.72	2.79	-0.09	1.00	3.00	1.65	150.49	0.01
12	175/60	-388.06	-4.14	-5.88	2.01	3.22	1.08	1.00	3.00	-0.93	93.80	0.01
13	135/60	-376.46	0.21	-0.24	-21.30	-17.81	-6.86	1.00	3.00	-17.60	89.04	0.20
14	155/60	-416.96	2.09	1.35	-28.93	-24.57	-8.81	1.00	3.00	-22.48	100.61	0.22
15	170/60	-387.43	2.31	1.46	-46.24	1.83	1.80	1.00	3.00	4.13	101.51	0.04
16	240/60	-475.54	3.67	1.48	-297.99	-14.50	-4.29	1.00	3.00	-10.83	167.62	0.06
17	190/60	-360.76	3.74	2.76	-207.17	-8.54	-1.74	1.00	3.00	-4.80	126.50	0.04
18	230/60	-422.36	4.51	3.65	-265.12	-83.70	-26.92	1.00	3.00	-79.20	153.13	0.52
19	560/60	-1407.47	0.01	12.55	-22.74	105.02	30.07	1.00	3.00	105.03	334.65	0.31
20	465/60	-1247.44	24.98	0.87	69.94	67.00	-21.59	1.00	3.00	91.98	276.18	0.33
21	375/60	-1086.67	8.89	2.92	-55.75	46.80	-26.41	1.00	3.00	55.69	252.77	0.22
22	380/60	-1084.11	12.41	-0.56	-84.85	48.67	16.10	1.00	3.00	61.09	257.74	0.24
23	735/60	-1810.70	-202.96	34.12	-117.95	209.43	-62.39	1.00	3.00	6.46	447.78	0.01
24	265/60	-763.55	4.55	4.96	127.10	26.74	17.43	1.00	3.00	31.30	151.43	0.21
25	255/60	-807.26	5.24	6.09	-21.43	23.93	12.13	1.00	3.00	29.16	179.00	0.16
26	500/60	-1527.37	80.56	-15.91	-46.35	94.37	-39.36	1.00	3.00	174.93	344.09	0.51
27	480/65	-606.39	87.16	-18.03	-49.59	123.72	-3.40	1.00	3.00	210.87	190.02	1.11
28	380/65	-1127.59	46.51	-24.26	-207.75	-4.55	27.53	1.00	3.00	41.95	312.69	0.13
29	240/65	-756.75	6.22	6.99	-93.25	-7.22	9.92	1.00	3.00	-1.01	198.44	0.01
31	215/65	-324.68	3.70	0.47	-46.05	-6.49	-3.80	1.00	3.00	-2.79	103.96	0.03
32	110/65	-281.68	-0.38	-0.95	-89.93	4.99	1.99	1.00	3.00	4.61	88.32	0.05
33	450/65	-1168.37	-31.85	21.07	-381.88	104.16	38.60	1.00	3.00	72.31	365.79	0.20
34	265/65	-908.81	4.42	12.80	-229.32	40.41	18.73	1.00	3.00	44.83	243.54	0.18
35	120/60	-328.90	9.90	8.21	-32.92	9.89	4.76	1.00	3.00	19.79	80.35	0.25

36	290/60	-463.88	2.18	8.72	-33.68	44.81	26.23	1.00	3.00	47.00	127.20	0.37
37	345/60	-782.63	26.64	-29.12	25.82	61.50	43.20	1.00	3.00	88.14	184.13	0.48
38	165/60	-397.19	1.57	0.48	-18.38	11.67	2.27	1.00	3.00	13.24	97.62	0.14
39	150/60	-299.66	3.61	2.92	71.05	12.03	3.48	1.00	3.00	15.64	59.58	0.26
40	290/60	-691.69	9.35	-8.75	-50.91	40.86	26.30	1.00	3.00	50.22	173.63	0.29
41	1140/60	-2795.00	-77.59	10.97	-65.25	920.46	80.82	1.00	3.00	842.87	672.58	1.25
42	880/60	-1572.98	-93.97	-0.54	-145.57	550.87	213.76	1.00	3.00	456.90	428.82	1.07
43	3769/60	-4358.90	-3526.65	60.53	-144.42	2312.18	651.21	1.00	3.00	-1214.47	1211.91	1.00
44	445/60	-823.89	4.11	4.10	-215.35	277.06	42.23	1.00	3.00	281.16	249.04	1.13
72	390/30	-387.42	1.63	2.28	91.58	1.60	-31.47	1.00	3.00	3.23	38.58	0.08
73	265/30	-284.00	2.30	3.32	95.86	3.07	4.70	1.00	3.00	5.37	24.77	0.22
74	60/30	-71.13	0.09	0.05	0.09	0.15	0.10	1.00	3.00	0.25	8.48	0.03
88	670/25	-516.67	-164.12	22.62	23.43	33.31	56.62	1.00	3.00	-130.81	52.27	2.50
90	340/60	-690.26	26.68	-12.22	-9.59	91.70	15.37	1.00	3.00	118.38	172.72	0.69

98	1010/60	-1910.71	18.84	-59.84	167.14	1898.32	225.96	1.00	3.00	1917.16	445.27	1.31
100	1150/60	-2434.69	-194.58	-71.43	281.59	2692.58	294.34	1.00	3.00	2498.00	541.73	1.61
103	1045/60	-2208.07	-329.48	23.88	331.74	1352.78	258.57	1.00	3.00	1023.30	475.82	1.15
105	1130/60	-2262.25	-467.86	18.65	300.29	1263.02	406.76	1.00	3.00	795.16	500.54	1.59
109	1185/50	-2241.16	-208.65	-10.73	-291.99	1259.43	174.20	1.00	3.00	1050.78	493.32	1.13
111	1150/25	-1576.49	-34.16	-13.86	-176.72	491.89	131.80	1.00	3.00	457.73	150.06	1.05

Στάθμη 3

ΠΕΣ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
1	240/60	-346.12	-24.21	-12.12	-22.42	-9.25	-0.58	1.00	3.00	-33.46	95.93	0.35
2	190/60	-291.39	-1.32	-0.01	-21.17	-31.66	-8.12	1.00	3.00	-32.99	80.48	0.41
3	240/60	-383.33	-2.54	-4.16	-107.33	-96.35	-44.50	1.00	3.00	-98.89	121.27	0.82
4	175/60	-296.62	-8.01	-4.88	-28.06	-30.37	-13.88	1.00	3.00	-38.38	81.83	0.47
5	165/60	-249.33	-3.13	-1.00	-17.15	1.74	1.21	1.00	3.00	-1.40	68.82	0.02
6	165/60	-250.38	2.76	0.47	-14.50	-11.27	-2.95	1.00	3.00	-8.51	68.47	0.12
7	165/60	-235.78	-8.06	-2.18	49.20	3.01	2.99	1.00	3.00	-5.04	50.52	0.10
8	125/60	-180.12	-7.80	-2.49	-70.31	1.83	1.50	1.00	3.00	-5.97	62.16	0.10
11	135/60	-236.87	-8.99	-1.04	-68.33	1.14	-5.70	1.00	3.00	-7.85	73.73	0.11
12	175/60	-282.56	-21.22	-3.08	41.32	3.66	-7.12	1.00	3.00	-17.55	63.78	0.28
13	135/60	-218.96	-1.91	-0.42	-12.74	3.08	1.60	1.00	3.00	1.17	59.23	0.02
14	155/60	-242.70	2.55	0.76	-14.76	4.32	2.24	1.00	3.00	6.87	66.18	0.10
15	170/60	-233.22	4.41	3.65	-7.93	18.86	8.87	1.00	3.00	23.26	63.50	0.37
16	240/60	-274.14	2.51	5.24	-139.48	24.53	10.85	1.00	3.00	27.05	105.66	0.26
17	190/60	-192.94	9.57	5.71	-78.68	26.11	11.87	1.00	3.00	35.68	71.45	0.50
18	230/60	-249.53	8.53	3.38	-130.15	36.70	16.24	1.00	3.00	45.24	97.70	0.46
19	560/60	-871.61	-130.45	16.88	-21.22	-72.41	-25.72	1.00	3.00	-202.87	231.05	0.88
20	465/60	-775.77	-10.27	-34.38	30.16	-35.23	-6.35	1.00	3.00	-45.50	192.78	0.24
21	375/60	-701.37	-10.69	-19.03	-62.71	38.16	-31.20	1.00	3.00	27.48	188.98	0.15
22	380/60	-890.42	-28.38	-20.89	-242.79	37.20	15.28	1.00	3.00	8.82	252.61	0.03
23	735/60	-1210.21	29.59	42.36	-222.74	209.50	-103.79	1.00	3.00	239.09	357.67	0.67
24	265/60	-452.53	5.39	8.98	31.77	57.27	28.22	1.00	3.00	62.66	108.96	0.58
25	255/60	-487.83	9.82	6.82	-18.10	29.73	16.56	1.00	3.00	39.56	125.83	0.31
26	500/60	-1268.15	-278.01	-5.05	-203.93	-135.28	20.70	1.00	3.00	-413.29	329.60	1.25
27	240/45	-590.14	-41.41	8.84	-77.85	33.27	16.29	1.00	3.00	-8.14	102.24	0.08
28	240/45	-429.38	6.93	3.47	-78.09	18.79	0.24	1.00	3.00	25.72	86.45	0.30
29	235/65	-560.34	34.12	-5.76	-137.87	21.48	-12.52	1.00	3.00	55.60	173.30	0.32
30	265/65	-533.55	36.52	11.04	-128.52	36.96	21.10	1.00	3.00	73.48	172.42	0.43
31	145/60	-197.67	-10.55	4.78	4.07	27.43	12.59	1.00	3.00	16.88	51.40	0.33
32	165/60	-237.46	-3.92	-0.41	-10.28	5.17	3.33	1.00	3.00	1.25	64.71	0.02
33	150/60	-198.73	0.14	-3.46	17.16	-1.42	-7.60	1.00	3.00	-1.28	48.79	0.03
34	290/60	-460.29	-78.35	-7.35	-35.25	70.62	42.75	1.00	3.00	-7.73	126.77	0.06
35	1160/60	-1748.84	-266.90	-46.84	21.16	574.13	39.84	1.00	3.00	307.23	451.79	0.68
36	880/30	-798.48	89.23	-36.67	-96.67	288.92	114.08	1.00	3.00	378.15	110.74	1.41
37	2949/60	-2260.37	1985.48	236.41	81.57	791.93	234.19	1.00	3.00	2777.41	612.03	1.54
63	390/30	-203.60	10.09	-3.72	30.77	19.32	-26.14	1.00	3.00	29.40	23.94	1.23
64	265/30	-138.01	9.22	6.26	30.14	33.96	15.94	1.00	3.00	43.17	15.05	1.87
65	60/30	-39.04	0.20	0.13	2.72	0.77	0.36	1.00	3.00	0.96	4.88	0.20
79	1010/60	-1260.64	45.96	-91.26	90.41	909.14	197.11	1.00	3.00	955.10	316.02	1.02
81	1150/60	-1656.22	68.76	-77.92	142.29	1270.69	269.62	1.00	3.00	1339.45	402.66	1.33
84	1045/60	-1511.74	-508.83	-14.11	180.65	1213.31	450.97	1.00	3.00	704.48	355.50	1.38
86	1130/60	-1550.54	-541.06	-10.45	93.41	696.83	460.25	1.00	3.00	155.77	388.57	0.40
90	1185/25	-1662.70	-302.71	-10.60	-144.41	580.45	134.12	1.00	3.00	277.74	154.66	1.80
92	1150/25	-1440.38	194.19	-38.18	-137.33	267.80	110.35	1.00	3.00	461.99	141.27	1.27

Στάθμη 4

ΠΕΣ	Διάστ. cm	Ns KN	Ms KNm	Vs KN	Ne KN	Me KNm	Ve KN	m	μθ	Msd KNm	Mrd KNm	λ
1	240/40	-119.83	-11.04	-5.48	-0.46	-8.04	-5.01	1.00	3.00	-19.07	22.50	0.85
2	190/40	-109.54	-1.52	-2.28	-9.32	-8.93	-6.43	1.00	3.00	-10.45	21.85	0.48
3	240/40	-158.21	8.94	11.33	-28.68	-38.18	-18.79	1.00	3.00	-29.24	33.62	0.87
4	175/40	-80.13	4.59	5.14	-15.95	-11.53	-5.64	1.00	3.00	-6.94	17.85	0.39
5	165/40	-91.88	1.53	0.09	-7.43	-3.37	-0.64	1.00	3.00	-1.83	18.32	0.10
6	165/40	-94.30	2.04	0.90	-5.23	-2.58	-0.44	1.00	3.00	-0.54	18.35	0.03
7	110/40	-34.66	0.09	-0.53	-8.72	0.24	-0.01	1.00	3.00	0.33	8.23	0.04
8	125/40	-25.21	-7.30	-7.86	4.78	-1.18	-0.74	1.00	3.00	-8.48	4.00	2.12
11	135/40	-101.57	12.77	7.98	-5.53	-11.89	-3.59	1.00	3.00	0.88	19.22	0.05
12	155/40	-104.21	14.73	9.93	-6.85	-13.66	-3.27	1.00	3.00	1.07	20.15	0.05
13	135/40	-85.17	-0.38	-0.31	-5.06	-5.23	-1.72	1.00	3.00	-5.61	16.49	0.34

14	155/40	-94.73	-0.91	-0.12	-5.87	-6.67	-2.05	1.00	3.00	-7.58	18.43	0.41
15	150/40	-118.34	1.38	-2.16	38.06	7.47	4.94	1.00	3.00	8.85	14.95	0.59
16	240/40	-99.95	12.24	-3.75	-42.77	18.12	11.95	1.00	3.00	30.36	26.35	1.15
17	190/40	-88.74	8.60	2.82	-9.68	14.04	3.52	1.00	3.00	22.64	18.37	1.23
18	230/40	-98.43	4.11	2.13	-43.43	13.96	14.66	1.00	3.00	18.07	26.11	0.69
19	120/40	-152.02	-4.96	-7.94	-14.46	-1.54	-0.94	1.00	3.00	-6.50	27.33	0.24
20	255/40	-219.11	-25.88	17.19	9.93	-20.53	-10.61	1.00	3.00	-46.41	37.40	1.24
21	375/40	-235.46	-25.78	-23.22	-24.48	-74.74	-43.88	1.00	3.00	-100.52	47.33	2.12
22	380/40	-318.10	-30.85	-20.01	-134.85	-1.87	-27.82	1.00	3.00	-32.72	76.63	0.43
23	735/40	-473.55	-44.41	37.90	-78.63	-165.06	-98.25	1.00	3.00	-209.47	99.71	2.10
24	265/40	-232.69	18.65	5.52	-41.64	28.64	7.43	1.00	3.00	47.28	47.52	0.99
25	255/40	-196.27	10.69	6.89	-17.10	18.77	13.31	1.00	3.00	29.46	38.06	0.77
26	500/40	-349.18	116.68	8.33	-82.93	23.97	-37.27	1.00	3.00	140.65	76.77	1.83
27	240/40	-388.98	102.76	103.76	-20.76	4.71	6.62	1.00	3.00	107.47	63.87	1.68
28	240/40	-213.71	-0.19	-21.47	-23.93	-29.31	-14.20	1.00	3.00	-29.50	41.45	0.71
29	235/40	-276.63	-51.45	-42.74	-5.74	-28.74	-10.69	1.00	3.00	-80.18	47.70	1.68
30	265/40	-164.81	1.61	-1.07	-40.00	22.29	8.79	1.00	3.00	23.90	36.87	0.65
31	145/30	-132.20	10.95	1.12	-21.94	3.03	1.90	1.00	3.00	13.98	18.89	0.74
32	165/30	-77.69	-2.47	-0.34	-2.93	-7.12	-1.69	1.00	3.00	-9.59	11.08	0.87
33	150/30	-116.12	-10.79	-2.97	-10.80	-24.81	-6.37	1.00	3.00	-35.60	16.26	2.19
34	965/30	-583.62	-211.63	-28.00	-16.94	180.84	-41.55	1.00	3.00	-30.79	80.42	0.38
35	939/35	-35.36	-129.21	-16.19	105.04	-246.23	53.46	1.00	3.00	-375.45	0.00	-
65	990/40	-441.14	-32.10	-100.93	17.08	90.23	71.56	1.00	3.00	58.12	80.12	0.73
67	1150/40	-799.26	394.24	-118.13	22.92	329.66	209.40	1.00	3.00	723.90	141.72	3.11
68	1045/40	-796.41	-604.50	-15.10	7.38	82.96	121.83	1.00	3.00	-521.54	142.41	2.66
70	1110/40	-645.29	-539.72	-19.83	48.33	-78.00	203.95	1.00	3.00	-617.72	111.09	2.56
73	1185/40	-1341.66	-697.07	-20.83	-59.89	40.72	44.65	1.00	3.00	-656.36	237.46	1.76
74	1150/40	-1060.95	688.90	-144.59	-126.10	-55.11	88.04	1.00	3.00	633.78	205.74	2.08

ΤΟ ΙΣΟΓΕΙΟ ΚΑΙ Α ΟΡΟΦΟΣ ΕΧΟΥΝ ΕΠΑΡΚΕΙΑ λ<1.00

ΕΛΕΓΧΟΣ ΘΗΤΑ ΚΑΤΑ ΕΥΡΩΚΩΔΙΚΑ 8

Οροφος 2 dh=0.80m qhx=1.20 qhy=1.20 Δx=0.14mm Δy=0.13mm Vx=31173 Vy=31173 W=103755
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.001 < 0.10 Θy=0.001 < 0.10

Οροφος 3 dh=3.52m qhx=1.20 qhy=1.20 Δx=1.69mm Δy=1.45mm Vx=30536 Vy=30536 W=86957
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.002 < 0.10 Θy=0.001 < 0.10

Οροφος 4 dh=0.80m qhx=1.20 qhy=1.20 Δx=0.51mm Δy=0.34mm Vx=25156 Vy=25156 W=60614
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.002 < 0.10 Θy=0.001 < 0.10

Οροφος 5 dh=3.40m qhx=1.20 qhy=1.20 Δx=1.58mm Δy=1.57mm Vx=21455 Vy=21455 W=45365
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.001 < 0.10 Θy=0.001 < 0.10

Οροφος 6 dh=0.80m qhx=1.20 qhy=1.20 Δx=5.28mm Δy=43.31mm Vx=11997 Vy=11997 W=21903
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.014 < 0.10 Θy=0.08 < 0.10

Οροφος 7 dh=3.35m qhx=1.20 qhy=1.20 Δx=3.75mm Δy=41.13mm Vx=8779 Vy=8779 W=14618
Ελεγχος Θήτα ΕΠΙΤΥΧΗΣ: Θx=0.002 < 0.10 Θy=0.025 < 0.10

Φαινόμενα 2ας τάξεως σε Κτίρια. [ΕΝ 1992-1-1:2004, παρ.5.8.3.3]

Ελεγχος: $F_v, E_d \leq k_1 \cdot n_s / (n_s + 1.6) \cdot \Sigma (E_{cd} \cdot I_c) / L^2$

Όπου:

$F_v, E_d = 81399.4 \text{ KN.}$ Κατακόρυφο φορτίο
 $k_1 = 0.31$ Συντελεστής από Εθνικό Προσάρτημα
 $n_s = 5$ Αριθμός ορόφων
 $E_{cd} = E_{cm} / \gamma_c = 29.00 / 1.20 = 24.17 \text{ GPa}$
 $I_c =$ Ροπή αδράνειας της αρτυγμάτιτης διατομής σκυροδέματος κατακόρυφων στοιχείων

Διεύθυνση Χ:

$0.31 \cdot 5 / (5 + 1.6) \cdot 24166667 \cdot 3232.9803 / 11.87^2 = 130228528.84 \geq 81399.38 \text{ OK}$

Διεύθυνση Υ:

$0.31 \cdot 5 / (5 + 1.6) \cdot 24166667 \cdot 380.7212 / 11.87^2 = 15335932.20 \geq 81399.38 \text{ OK}$

ΣΥΝΟΠΤΙΚΟΣ ΠΙΝΑΚΑΣ ΑΠΟΤΙΜΗΣΗΣ ΔΟΚΩΝ

Στάθμη 3-ΙΣΟΓΕΙΟ

Δ	Διαστ. cm	ΤΡ	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As1 cm ²	As2 cm ²	Asw cm ² /m	MsdU KNm	MrdU KNm	MsdD KNm	MrdD KNm	Vsd KN	Vrd KN	λM	λV
1	20/30	Υ	Π	0	15.4	183.3	183.3	7.35	5.09	2.83	5.2	35.5	4.5	24.7	9.0	213.5	0.18	0.04
								14.70	10.18	2.83	0.0	70.4	-0.0	49.0	8.5	213.5	0.00	0.04
2	20/30	Υ	Π	0	15.4	183.3	183.3	7.35	5.09	2.83	0.0	35.5	-0.0	49.0	19.9	213.5	0.00	0.09
								14.70	5.09	2.83	6.6	67.5	0.0	24.7	21.3	213.5	0.10	0.10
3	20/30	Υ	Π	0	15.4	183.3	183.3	14.70	5.09	2.83	12.4	72.8	54.1	24.7	45.2	213.5	1.19	0.21
								12.69	10.18	2.83	0.0	63.0	-0.0	49.0	16.9	213.5	0.00	0.08
4	20/30	Υ	Π	0	15.4	183.3	183.3	19.79	20.36	2.83	0.0	95.5	-0.0	97.5	91.2	345.5	0.00	0.26
								17.78	10.18	2.83	2.1	85.9	56.6	49.0	57.5	345.5	1.16	0.17
5	20/30	Υ	Π	0	15.4	183.3	183.3	17.78	3.08	2.83	9.1	86.7	16.4	15.1	93.7	161.4	1.09	0.58
								5.34	3.08	2.83	26.9	26.9	35.4	15.1	81.9	161.4	1.34	0.51
8	56/56	Υ	Π	0	15.4	183.3	183.3	8.06	5.09	2.83	4.2	78.1	59.4	49.3	46.2	289.3	1.20	0.16
								7.35	5.09	2.83	19.5	71.3	48.2	49.3	66.6	289.3	0.98	0.23

9	56/56	Y	Π	0	15.4	183.3	183.3	6.05	3.08	2.83	6.2	58.9	14.2	30.0	24.4	237.2	0.47	0.10
								11.39	3.08	2.83	6.3	110.3	13.9	30.0	25.5	237.2	0.46	0.11
10	56/56	Y	Π	0	15.4	183.3	183.3	11.39	3.08	2.83	6.2	110.3	11.9	30.0	23.5	237.2	0.40	0.10
								11.39	3.08	2.83	6.3	110.3	11.8	30.0	24.0	237.2	0.39	0.10
11	56/56	Y	Π	0	15.4	183.3	183.3	11.39	3.08	2.83	6.2	110.3	14.8	30.0	26.6	237.2	0.49	0.11
								6.05	3.08	2.83	6.3	58.9	15.1	30.0	25.4	237.2	0.50	0.11
12	60/45	Y	Π	0	15.4	183.3	183.3	7.60	6.16	2.83	26.5	59.1	80.8	47.3	100.9	205.1	1.11	0.49
								15.21	6.16	2.83	47.2	116.9	26.5	47.2	155.8	205.1	0.56	0.76
13	60/45	Y	Π	0	15.4	183.3	183.3	15.21	6.16	2.83	44.2	117.0	0.0	47.2	55.4	205.1	0.38	0.27
								15.21	6.16	2.83	44.2	117.0	0.0	47.2	48.0	205.1	0.38	0.23
14	60/45	Y	Π	0	15.4	183.3	183.3	15.21	6.16	2.83	44.2	116.9	34.3	47.2	133.3	205.1	0.73	0.65
								7.60	6.16	2.83	34.3	59.1	64.1	47.3	78.5	205.1	1.35	0.38
15	40/45	Y	Π	0	15.4	183.3	183.3	5.34	3.08	2.83	11.6	41.6	22.5	23.7	29.2	205.1	0.95	0.14
								10.68	3.08	2.83	22.5	82.5	13.5	23.7	38.5	205.1	0.57	0.19
16	40/45	Y	Π	0	15.4	183.3	183.3	10.68	3.08	2.83	22.5	82.4	2.9	23.7	18.1	205.1	0.27	0.09
								10.68	3.08	2.83	22.9	82.4	2.9	23.7	37.3	205.1	0.28	0.18
17	40/45	Y	Π	0	15.4	183.3	183.3	10.68	3.08	2.83	28.7	82.5	10.8	23.7	62.3	205.1	0.46	0.30
								5.34	3.08	2.83	9.9	41.7	28.7	23.7	34.4	205.1	1.21	0.17
18	25/45	Y	Π	0	15.4	183.3	183.3	7.35	5.09	2.83	17.3	56.3	32.3	38.7	36.8	257.3	0.84	0.14
								7.35	10.18	2.83	0.0	56.2	-0.0	77.0	30.7	257.3	0.00	0.12
19	25/45	Y	Π	0	15.4	183.3	183.3	2.26	10.18	2.83	0.0	18.0	-0.0	76.1	17.0	125.3	0.00	0.14
								2.26	10.18	2.83	0.0	18.0	-0.0	76.1	24.5	125.3	0.00	0.20
20	25/45	Y	Π	0	15.4	183.3	183.3	7.35	10.18	2.83	0.0	56.6	-0.0	77.0	32.4	257.3	0.00	0.13
								7.35	10.18	2.83	0.0	56.6	-0.0	77.0	14.2	257.3	0.00	0.06
21	25/45	Y	Π	0	15.4	183.3	183.3	5.34	6.16	2.83	0.0	41.6	-0.0	46.8	29.9	205.1	0.00	0.15
								5.34	3.08	2.83	17.3	41.6	31.9	23.6	39.8	205.1	1.36	0.19

Στάθμη 4

Στάθμη 5-A ΟΡΟΦΟΣ

Δ	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As1 cm ²	As2 cm ²	Asw cm ² /m	MsdU KNm	MrdU KNm	MsdD KNm	MrdD KNm	Vsd KN	Vrd KN	λM	λV
5	40/34	Y	Π	0	15.4	183.3	183.3	12.69	5.09	2.83	-0.0	140.7	69.0	34.3	28.1	312.6	2.10	0.09
								9.61	5.09	2.83	-0.0	106.8	69.1	34.3	41.9	312.6	0.00	0.13
11	20/64	Y	Π	0	15.4	183.3	183.3	9.61	10.18	2.83	-0.0	106.6	0.0	112.3	68.9	180.7	0.00	0.38
								4.52	10.18	2.83	-0.0	50.4	0.0	111.8	57.0	180.7	0.00	0.32
12	20/64	Y	Π	0	15.4	183.3	183.3	4.52	10.18	2.83	-0.0	50.4	0.0	111.8	53.8	180.7	0.00	0.30
								9.61	10.18	2.83	-0.0	106.6	0.0	112.3	38.2	180.7	0.00	0.21
13	20/64	Y	Π	0	15.4	183.3	183.3	9.61	5.09	2.83	-0.0	106.8	0.0	56.3	43.1	312.6	0.00	0.14
								12.69	5.09	2.83	-0.0	140.7	0.0	56.3	31.4	312.6	0.00	0.10
17	290/20	Y	Π	0	15.4	183.3	183.3	2.26	13.57	5.03	-0.0	10.9	0.0	44.2	43.5	93.2	0.00	0.47
								2.26	13.57	5.03	-0.0	10.9	0.0	44.2	39.3	93.2	0.00	0.42
18	100/20	Y	Π	0	15.4	183.3	183.3	2.26	9.05	5.03	-0.0	8.5	0.0	28.8	10.5	93.2	0.00	0.11
								2.26	9.05	5.03	-0.0	8.5	0.0	28.8	16.5	93.2	0.00	0.18
19	100/20	Y	Π	0	15.4	183.3	183.3	2.26	9.05	5.03	-0.0	8.5	0.0	28.8	10.6	93.2	0.00	0.11
								2.26	9.05	5.03	-0.0	8.5	0.0	28.8	16.5	93.2	0.00	0.18
20	20/50	Y	Π	0	15.4	183.3	183.3	5.34	3.08	2.83	-0.0	46.2	0.0	26.3	89.6	219.7	0.00	0.41
								5.34	3.08	2.83	-0.0	46.2	0.0	26.3	88.3	219.7	0.00	0.40
21	20/50	Y	Π	0	15.4	183.3	183.3	5.34	3.08	2.83	-0.0	46.2	0.0	26.3	92.8	219.7	0.00	0.42
								5.34	3.08	2.83	-0.0	46.2	0.0	26.3	85.5	219.7	0.00	0.39
23	30/50	Y	Π	0	15.4	183.3	183.3	8.06	5.09	2.83	-0.0	69.3	0.0	43.4	81.5	271.8	0.00	0.30
								7.35	10.18	2.83	0.0	63.2	-0.0	86.4	53.7	271.8	0.00	0.20
24	30/50	Y	Δ	0	15.4	183.3	183.3	7.35	10.18	2.83	0.0	63.2	-0.0	86.4	55.2	271.8	0.00	0.20
								7.35	5.09	2.83	-0.0	63.3	0.0	43.4	68.3	271.8	0.00	0.25
25	30/50	Y	Π	0	15.4	183.3	183.3	7.35	5.09	2.83	-0.0	62.8	0.0	43.4	88.8	271.8	0.00	0.33
								7.35	10.18	2.83	0.0	62.7	-0.0	86.4	32.7	271.8	0.00	0.12
26	30/50	Y	Π	0	15.4	183.3	183.3	7.35	10.18	2.83	0.0	63.2	-0.0	86.4	77.8	271.8	0.00	0.29
								7.35	5.09	2.83	-0.0	63.3	0.0	43.4	83.3	271.8	0.00	0.31
34	50/100	Y	Π	0	15.4	183.3	183.3	7.35	5.09	5.03	-0.0	130.2	0.0	90.1	45.1	639.9	2.00	0.32
								7.35	5.09	5.03	-0.0	130.2	0.0	90.1	45.1	639.9	2.00	0.39
35	20/65	Y	Π	0	15.4	183.3	183.3	12.69	3.08	5.03	-0.0	143.2	0.0	34.7	346.0	343.8	0.00	1.13
								5.34	3.08	5.03	-0.0	60.8	0.0	34.7	450.3	343.8	0.00	1.51
36	20/50	Y	Π	0	4.0	183.3	183.3	6.75	3.08	5.03	-0.0	56.3	0.0	26.1	115.9	164.5	0.00	0.70
								6.75	3.08	5.03	-0.0	56.3	0.0	26.1	154.7	164.5	0.00	0.94
37	45/110	Y	Π	0	15.4	183.3	183.3	7.35	5.09	2.83	-0.0	143.5	0.0	99.4	171.9	446.8	0.00	0.38
								7.35	5.09	2.83	-0.0	143.5	0.0	99.4	361.3	446.8	0.00	0.81
38	20/110	Y	Π	0	15.4	183.3	183.3	7.35	5.09	5.03	-0.0	143.7	0.0	99.1	90.9	584.5	0.00	0.16
								7.35	5.09	5.03	-0.0	143.7	0.0	99.1	133.4	584.5	0.00	0.23

Στάθμη 6

Στάθμη 7-B ΟΡΟΦΟΣ

Δ	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As1 cm ²	As2 cm ²	Asw cm ² /m	MsdU KNm	MrdU KNm	MsdD KNm	MrdD KNm	Vsd KN	Vrd KN	λM	λV
1	40/150	Y	Π	0	20.0	183.3	183.3	5.34	3.08	5.03	189.8	144.1	116.5	82.8	105.6	846.9	1.41	0.12
								5.34	3.08	5.03	282.9	144.1	123.9	82.8	206.3	846.9	1.36	0.24
3	35/110	Y	Π	0	10.0	183.3	183.3	5.34	3.08	2.83	147.2	104.7	139.3	60.1	269.3	394.6	1.32	0.68
								5.34	6.16	2.83	764.6	104.7	244.7	119.8	316.2	394.6	1.31	0.80
4	30/110	Y	Π	0	10.0	183.3	183.3	5.34	3.08	5.03	123.7	104.7	116.2	60.0	161.0	533.7	1.94	0.30
								5.34	3.08	5.03	231.0	104.7	78.5	60.0	170.4	533.7	1.34	0.32
5	20/55	Y	Π	0	20.0	183.3	183.3	5.34	3.08	2.83	51.5	51.5	24.7	29.2	72.8	234.3	1.00	0.31
								5.34	3.08	2.83	47.0	51.5	51.5	29.2	43.8	234.3	1.77	0.19
6	20/55	Y	Π	0	20.0	183.3	183.3	5.34	3.08	2.83	41.3	51.5	23.0	29.2	65.6	234.3	0.80	0.28
								5.34	3.08	2.83	40.9	51.5	42.9	29.2	51.5	234.3	1.47	0.22
7	40/50	Y	Π	0	10.0	183.3	183.3	5.34	3.08	2.83	52.1	46.4	125.7	26.4	90.0	219.7	1.77	0.41

									5.34	3.08	2.83	125.7	46.4	52.1	26.4	130.1	219.7	1.71	0.59
8	30/50	Y	Π	0	20.0	183.3	183.3	5.34	3.08	2.83	-0.0	46.7	43.8	26.5	47.8	219.7	1.65	0.22	
								10.68	3.08	2.83	9.1	92.5	40.3	26.5	50.7	219.7	1.52	0.23	
9	30/50	Y	Π	0	20.0	183.3	183.3	10.68	3.08	2.83	10.3	92.5	24.9	26.5	41.7	219.7	0.94	0.19	
								5.34	3.08	2.83	6.0	46.7	25.6	26.5	38.9	219.7	0.97	0.18	
10	30/50	Y	Π	0	20.0	183.3	183.3	5.34	3.08	2.83	-0.0	46.7	43.9	26.5	46.0	219.7	1.65	0.21	
								10.68	3.08	2.83	3.4	92.5	44.0	26.5	43.6	219.7	1.66	0.20	
11	30/50	Y	Π	0	20.0	183.3	183.3	10.68	3.08	2.83	3.3	92.5	29.5	26.5	33.5	219.7	1.11	0.15	
								5.34	3.08	2.83	7.1	46.7	23.9	26.5	39.4	219.7	0.90	0.18	
12	25/55	Y	Π	0	10.0	183.3	183.3	7.35	5.09	2.83	110.1	69.5	81.7	47.9	116.2	286.4	1.71	0.41	
								7.35	5.09	2.83	91.2	69.5	124.7	47.9	101.0	286.4	1.61	0.35	
14	40/100	Y	Π	0	10.0	183.3	183.3	5.34	6.16	2.83	82.2	94.9	0.0	108.7	120.9	365.5	0.87	0.33	
								12.69	3.08	2.83	358.2	224.5	0.0	54.4	176.9	365.5	1.60	0.48	
15	30/55	Y	Π	0	20.0	183.3	183.3	7.35	5.09	2.83	121.5	70.7	0.0	48.2	103.8	286.4	1.72	0.36	
								7.35	10.18	2.83	0.0	70.7	-0.0	95.9	63.6	286.4	0.00	0.22	
16	20/55	Y	Π	0	20.0	183.3	183.3	7.35	10.18	2.83	0.0	64.0	-200.0	86.3	26.1	271.8	2.31	0.10	*
								7.35	5.09	2.83	121.5	63.9	0.0	43.4	89.9	271.8	1.90	0.33	*
17	20/50	Y	Π	0	10.0	183.3	183.3	5.34	6.16	2.83	10.9	45.7	27.6	52.2	35.2	205.7	0.53	0.17	
								5.34	3.08	2.83	73.9	45.8	0.0	26.2	49.3	205.7	1.61	0.24	
18	25/55	Y	Π	0	20.0	183.3	183.3	5.34	3.08	5.03	52.4	51.3	54.5	29.3	56.9	354.5	1.26	0.16	
								5.34	3.08	5.03	60.6	51.3	52.2	29.3	72.9	354.5	1.78	0.21	
20	20/55	Y	Π	0	4.0	183.3	183.3	5.34	3.08	2.83	19.4	45.7	97.0	26.1	92.2	148.4	3.72	0.62	*
								5.34	3.08	2.83	9.2	45.7	101.5	26.1	84.9	148.4	3.89	0.57	*
30	20/55	Y	Π	0	20.0	183.3	183.3	5.34	3.08	2.83	45.0	51.5	19.9	29.2	70.4	234.3	0.87	0.30	
								5.34	3.08	2.83	20.3	51.5	52.2	29.2	48.4	234.3	1.79	0.21	*
31	20/55	Y	Π	0	20.0	183.3	183.3	7.35	5.09	2.83	52.9	70.1	38.4	48.0	62.3	286.4	0.80	0.22	
								7.35	5.09	2.83	52.9	70.1	38.4	48.0	52.4	286.4	0.80	0.18	
33	20/50	Y	Π	0	10.0	183.3	183.3	5.34	3.08	2.83	76.5	46.2	0.0	26.2	42.9	205.7	1.65	0.21	*
								10.68	3.08	2.83	16.2	91.7	2.2	26.2	10.0	205.7	0.18	0.05	
34	20/50	Y	Π	0	20.0	183.3	183.3	10.68	3.08	2.83	12.5	92.5	34.3	26.3	42.5	219.7	1.30	0.19	
								10.68	3.08	2.83	76.0	92.5	4.0	26.3	68.4	219.7	0.82	0.31	
36	20/55	Y	Π	0	20.0	183.3	183.3	7.35	5.09	2.83	278.1	70.6	0.0	48.0	234.7	286.4	1.94	0.82	*
								7.35	10.18	2.83	0.0	70.6	-0.0	95.6	205.5	286.4	0.00	0.72	
38	20/110	Y	Π	0	20.0	183.3	183.3	4.52	6.16	2.83	-0.0	89.1	242.9	120.2	116.3	314.8	1.02	0.37	
								4.52	6.16	2.83	-0.0	89.1	242.9	120.2	68.2	314.8	2.02	0.22	
40	30/55	Y	Π	0	20.0	183.3	183.3	7.35	5.09	2.83	86.1	70.2	48.3	48.2	68.6	286.4	1.23	0.24	
								7.35	5.09	2.83	111.4	70.2	33.6	48.2	91.0	286.4	1.59	0.32	
41	30/45	Y	Π	0	10.0	183.3	183.3	7.35	5.09	2.83	42.7	164.0	239.9	113.1	115.5	490.5	2.12	0.24	*
								7.35	5.09	2.83	195.4	164.0	163.5	113.1	157.5	490.5	1.45	0.32	*
56	25/55	Y	Π	0	20.0	183.3	183.3	7.35	5.09	2.83	83.1	70.6	0.0	48.1	62.3	286.4	1.18	0.22	
								14.70	5.09	2.83	53.6	140.2	19.7	48.1	38.0	286.4	0.41	0.13	
57	25/55	Y	Π	0	20.0	183.3	183.3	14.70	5.09	2.83	13.9	140.2	16.2	48.1	79.2	286.4	0.34	0.28	
								9.61	5.09	2.83	-0.0	92.1	51.7	48.1	57.7	286.4	1.07	0.20	
58	25/55	Y	Π	0	20.0	183.3	183.3	9.61	10.18	2.83	-0.0	92.1	66.1	95.8	17.7	154.4	0.69	0.11	
								9.61	10.18	2.83	62.5	92.1	29.5	95.8	69.8	154.4	0.68	0.45	
59	25/55	Y	Π	0	20.0	183.3	183.3	9.61	5.09	2.83	67.1	92.1	0.0	48.1	51.1	286.4	0.73	0.18	
								14.70	5.09	2.83	31.2	140.2	5.4	48.1	23.3	286.4	0.22	0.08	

Επεξήγηση συμβόλων

Δ: Τοπική αρίθμηση δοκού
Διαστ. Διαστάσεις ορθογωνικής διατομής σε cm
TP Y=Yφιστάμενο N=Νέο E=ενισχυμένο
ΠΔ Π=Πρωτεύον Δ=Δευτερεύον
ΒΛ Βαθμός βλάβης με βάση τον πίνακα Π2 του ΚΑΝΕΠΕ.
0=Καμία βλάβη, 1=A, 2=A/B, 3=B, 4=Γ/Δ, 5=Δ

fcd Αντοχή σχεδιασμού σκυροδέματος (fcd=fck/γc)
fyd Αντοχή σχεδιασμού χάλυβα οπλισμών (fyd=fyk/γs)
fyw Αντοχή σχεδιασμού χάλυβα συνδετήρων (fyw=fyk_w/γs)
As1 Εμβαδόν διαμήκους οπλισμού στο άνω μέρος της διατομής
As2 Εμβαδόν διαμήκους οπλισμού στο κάτω μέρος της διατομής
Asw Εμβαδόν οπλισμού συνδετήρων σε cm2/m
Vsd Τέμνουσα από στατικά φορτία
Vrd Αντοχή διατομή σε τέμνουσα
λM Καμπτική επάρκεια διατομής σε στατικά φορτία
λV Διατμητική επάρκεια διατομής σε στατικά φορτία

ΣΥΝΟΠΤΙΚΟΣ ΠΙΝΑΚΑΣ ΑΠΟΤΙΜΗΣΗΣ ΥΠΟΕΤΥΛΩΜΑΤΩΝ

Στάθμη 2

Y	O	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As cm ²	AswX cm ² /m	AswY cm ² /m	θyX mrad	θuX mrad	θyY mrad	θuY mrad	vd	λM	λV
95	95	45/70	Y	Π	0	20.0	220	220	25.4	2.8	2.8	6.2	28.1	5.3	29.6	0.10	0.28	0.38
96	96	45/70	Y	Π	0	20.0	220	220	25.4	2.8	2.8	6.2	28.2	5.3	29.7	0.09	0.29	0.35
114	114	40/40	Y	Π	0	16.0	220	220	30.5	2.8	2.8	5.7	23.6	5.7	23.6	0.25	0.11	0.14
115	115	40/40	Y	Π	0	16.0	220	220	30.5	2.8	2.8	5.6	24.0	5.6	24.0	0.22	0.11	0.12

λk,x = ΣλV/ΣV = 0.30

λk,y = ΣλV/ΣV = 0.32

Στάθμη 3

Y	O	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As cm ²	AswX cm ² /m	AswY cm ² /m	θyX mrad	θuX mrad	θyY mrad	θuY mrad	vd	λM	λV
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95	95	45/70	Y	Π	0	20.0	220	220	25.4	2.8	2.8	3.9	45.0	4.7	49.8	0.10	0.34	0.38
96	96	45/70	Y	Π	0	20.0	220	220	25.4	2.8	2.8	3.9	45.2	4.6	50.0	0.09	0.35	0.35
114	114	40/40	Y	Π	0	16.0	220	220	30.5	2.8	2.8	5.6	37.8	5.9	39.7	0.24	0.14	0.13
115	115	40/40	Y	Π	0	16.0	220	220	30.5	2.8	2.8	5.5	38.5	5.8	40.4	0.22	0.12	0.12

$$\lambda_{k,x} = \Sigma \lambda V / \Sigma V = 0.30$$

$$\lambda_{k,y} = \Sigma \lambda V / \Sigma V = 0.32$$

Στάθμη 4

Στάθμη 5

Στάθμη 6

Y	O	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As cm ²	AswX cm ² /m	AswY cm ² /m	θyX mrad	θuX mrad	θyY mrad	θuY mrad	vd	λM	λV
75	75	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	26.4	5.4	27.9	0.16	0.20	0.18
76	76	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	26.2	5.4	27.6	0.17	0.19	0.17
77	77	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.3	26.8	5.3	28.2	0.14	0.95	0.77
78	78	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.3	27.0	5.3	28.5	0.13	0.35	0.39
79	79	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.3	27.2	5.3	28.7	0.12	0.22	0.16
80	80	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.3	26.5	5.4	28.0	0.13	0.26	0.24

$$\lambda_{k,x} = \Sigma \lambda V / \Sigma V = 0.33$$

$$\lambda_{k,y} = \Sigma \lambda V / \Sigma V = 0.64$$

Στάθμη 7

Y	O	Διαστ. cm	TP	ΠΔ	ΒΛ	fcd MPa	fyd MPa	fyw MPa	As cm ²	AswX cm ² /m	AswY cm ² /m	θyX mrad	θuX mrad	θyY mrad	θuY mrad	vd	λM	λV
75	75	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	41.0	6.0	43.5	0.15	0.27	0.15
76	76	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	40.7	6.0	43.2	0.16	0.25	0.14
77	77	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	41.8	5.9	44.1	0.14	0.96	0.77
78	78	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.3	42.2	5.9	44.5	0.13	0.69	0.39
79	79	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.2	42.3	5.8	44.9	0.12	0.28	0.15
80	80	30/35	Y	Π	0	16.0	220	220	16.1	2.8	2.8	5.4	41.2	6.0	43.7	0.13	0.39	0.23

$$\lambda_{k,x} = \Sigma \lambda V / \Sigma V = 0.40$$

$$\lambda_{k,y} = \Sigma \lambda V / \Sigma V = 0.75$$

Επεξήγηση συμβόλων

Y: Τοπική αρίθμηση υποστυλώματος

O: Τοπική αρίθμηση ορθογωνίου

Διαστ. Διαστάσεις διατομής σε cm

TP Y=Yφιστάμενο N=Νέο E=ενισχυμένο

ΠΔ Π=Πρωτεύον Δ=Δευτερεύον

ΒΛ Βαθμός βλάβης με βάση τον πίνακα Π2 του ΚΑΝΕΠΕ.
0=Καμία βλάβη, 1=A, 2=A/B, 3=B, 4=Γ/Δ, 5=Δ

fcd Αντοχή σχεδιασμού σκυροδέματος ($f_{cd}=f_{ck}/\gamma_c$)

fyd Αντοχή σχεδιασμού χάλυβα οπλισμών ($f_{yd}=f_{yk}/\gamma_s$)

fyw Αντοχή σχεδιασμού χάλυβα συνδετήρων ($f_{yw}=f_{yk}/\gamma_s$)

As Συνολικό εμβαδόν κατακόρυφου οπλισμού

AswX Εμβαδόν οπλισμού συνδετήρων σε cm²/m στη διεύθυνση X

AswY Εμβαδόν οπλισμού συνδετήρων σε cm²/m στη διεύθυνση Y

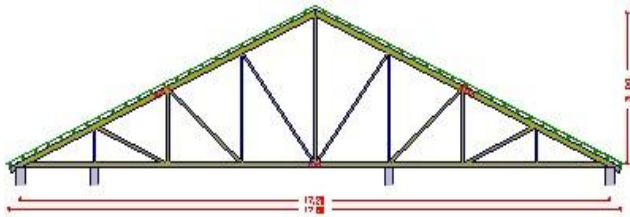
vd Ανοιγμένη αξονική δύναμη από στατικά φορτία: $N_d/(f_{cd} \cdot A_c)$.

λM Καμπτική επάρκεια διατομής σε στατικά φορτία

λV Διατμητική επάρκεια διατομής σε στατικά φορτία

ΣΤΑΤΙΚΟΣ ΥΠΟΛΟΓΙΣΜΟΣ ΞΥΛΙΝΗΣ ΣΤΕΓΗΣ

ΕΧΕΙ ΕΠΑΡΚΕΙΑ ΓΙΑ MAX ΜΟΝΙΜΟ ΦΟΡΤΙΟ ΣΤΕΓΗΣ $G=0.70 \text{ kN/m}^2$



ΥΛΙΚΑ

Ξυλεία C18

Ειδικό βάρος $3.20 = \text{KN/m}^3$

Μέτρο Ελαστικότητας $E_{05} = 9.0 \text{ GPa}$

Χαρακτηριστικές τιμές αντοχής παράλληλα στις ίνες:

θλιπτική αντοχή $f_{c,0,k} = 18000 \text{ KPa}$

εφελκυστική αντοχή $f_{t,0,k} = 11000 \text{ KPa}$

καμπτική αντοχή $f_{m,y,k} = 18000 \text{ KPa}$

διατμητική αντοχή $f_{v,k} = 2000 \text{ KPa}$

συντελεστής ασφάλειας $\gamma_m = 1.30$

Κανονισμοί

EN 1990 :2002 Δράσεις

EN 1991-1-1:2004 Φορτίσεις

ΓΕΩΜΕΤΡΙΚΑ ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ

Διαστάσεις ζευκτου: Ανοιγμα = 17.20 m Υψος = 3.00 m
 κλίση στέγης = 19.2° = 34.9%
 Απόσταση πλαισίων = 1.00 m
 Απόσταση τεγίδων = 0.40 m
 Διαστάσεις τεγίδων = 5/7
 Πάχος σανιδώματος = 12.0 mm

ΦΟΡΤΙΑ:

Μόνιμο: $G = G_1 + G_2 + G_3$ όπου

G_1 = Τδιον βάρος πλαισίων ($\rho_k = 320 \text{ Kg/m}^3$)

G_2 = τεγίδες+σανίδωμα+κεραμίδια+θερμομόνωση
 = 0.70 KN/m^2

G_3 = Οροφής = 0.20 KN/m^2

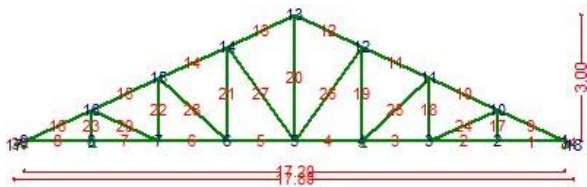
Χιόνι $S = 0.30 \text{ KN/m}^2$

Ανεμος $W = 0.50 \text{ KN/m}^2$, συντελεστής $C_{pe} = 0.60$

Εργάτης $P_w = 1.00 \text{ KN}$

Συνδυασμοί Φόρτισης:

ΣΦ 1: $1.35 \cdot G$ Μόνιμη $k_{mod} = 0.60$
 ΣΦ 2: $1.35 \cdot G + 1.50 \cdot S_n$ Βραχυχρόνια $k_{mod} = 0.90$
 ΣΦ 3: $1.35 \cdot G + 1.50 \cdot W_i$ Στιγμιαία $k_{mod} = 1.10$
 ΣΦ 4: $1.35 \cdot G - 1.50 \cdot W_i$ Στιγμιαία $k_{mod} = 1.10$
 ΣΦ 5: $1.35 \cdot G + 1.00 \cdot P_w$ Στιγμιαία $k_{mod} = 1.10$
 ΣΦ 6: $1.35 \cdot G + 1.05 \cdot S_n + 1.50 \cdot W_i$ Στιγμιαία $k_{mod} = 1.10$
 ΣΦ 7: $1.35 \cdot G + 1.50 \cdot S_n + 0.90 \cdot W_i$ Στιγμιαία $k_{mod} = 1.10$



ΜΗΤΡΩΟ ΚΟΜΒΩΝ

A/A	X	Y	emx	emy	epz
1	8.60	0.00	0	0	1
2	6.45	0.00	1	1	1
3	4.30	0.00	1	1	1
4	2.15	0.00	1	0	1
5	-0.00	0.00	1	1	1
6	-2.15	0.00	1	1	1
7	-4.30	0.00	1	1	1
8	-6.45	0.00	1	0	1
9	-8.60	0.00	1	0	1
10	6.45	0.75	1	1	1
11	4.30	1.50	1	1	1
12	2.15	2.25	1	1	1
13	-0.00	3.00	1	1	1
14	-2.15	2.25	1	1	1
15	-4.30	1.50	1	1	1
16	-6.45	0.75	1	1	1
17	-8.90	-0.10	0	1	1
18	8.90	-0.10	1	1	1

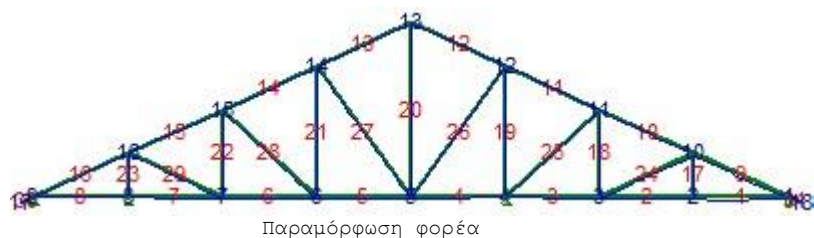
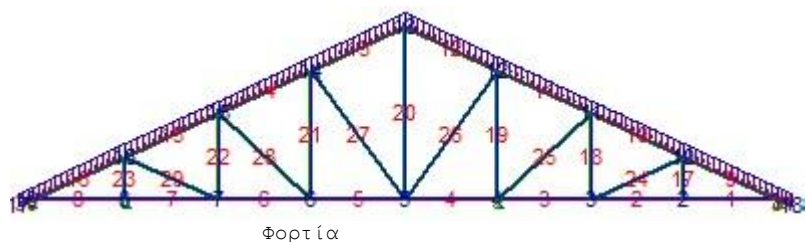
ΜΗΤΡΩΟ ΜΕΛΩΝ

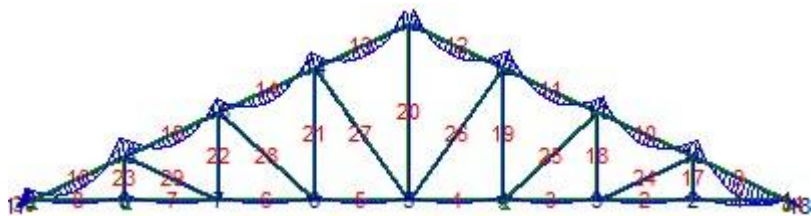
A/A	T	n1	n2	G	S	W
				KN/m	KN/m	KN/m
1	S	2	1	0.215	0.000	0.000
2	S	3	2	0.215	0.000	0.000
3	S	4	3	0.215	0.000	0.000
4	S	5	4	0.215	0.000	0.000
5	S	6	5	0.215	0.000	0.000
6	S	7	6	0.215	0.000	0.000
7	S	8	7	0.215	0.000	0.000
8	S	9	8	0.215	0.000	0.000
9	A	10	1	0.768	0.300	-0.400
10	A	11	10	0.768	0.300	-0.400
11	A	12	11	0.768	0.300	-0.400
12	A	13	12	0.768	0.300	-0.400
13	A	14	13	0.768	0.300	0.300
14	A	15	14	0.768	0.300	0.300
15	A	16	15	0.768	0.300	0.300
16	A	9	16	0.768	0.300	0.300
17	O	10	2	0.016	0.000	0.000
18	O	11	3	0.016	0.000	0.000

19	O	12	4	0.016	0.000	0.000
20	O	13	5	0.016	0.000	0.000
21	O	14	6	0.016	0.000	0.000
22	O	15	7	0.016	0.000	0.000
23	O	8	16	0.016	0.000	0.000
24	D	3	10	0.016	0.000	0.000
25	D	4	11	0.016	0.000	0.000
26	D	5	12	0.016	0.000	0.000
27	D	14	5	0.016	0.000	0.000
28	D	15	6	0.016	0.000	0.000
29	D	16	7	0.016	0.000	0.000
30	A	17	9	0.768	0.300	0.300
31	A	1	18	0.768	0.300	-0.400

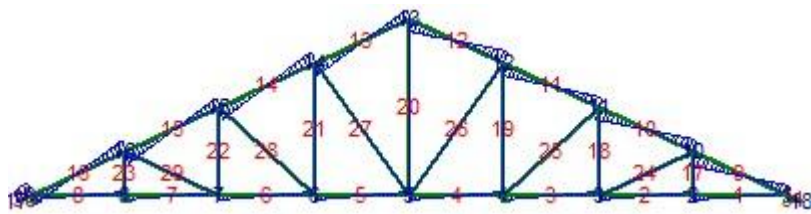
ΕΝΤΑΤΙΚΑ ΜΕΓΕΘΗ ΜΕΛΩΝ ΑΠΟ ΦΟΡΤΙΣΗ Μόνιμα

Μέλος	q	L	My1	My2	Mym	Vz1	Vz2	N1	N2
	KN/m	m	KN.m	KN.m	KN.m	KN	KN	KN	KN
S 1	0.215	2.150	-0.09	-0.01	0.08	0.27	-0.20	2.34	2.34
S 2	0.215	2.150	-0.07	-0.09	0.04	0.22	-0.24	2.34	2.34
S 3	0.215	2.150	-0.09	-0.08	0.04	0.24	-0.23	-0.99	-0.99
S 4	0.215	2.150	-0.08	-0.10	0.04	0.22	-0.24	-4.15	-4.15
S 5	0.215	2.150	-0.09	-0.08	0.04	0.24	-0.23	1.13	1.13
S 6	0.215	2.150	-0.08	-0.08	0.05	0.23	-0.23	2.04	2.04
S 7	0.215	2.150	-0.10	-0.07	0.04	0.24	-0.22	-1.27	-1.27
S 8	0.215	2.150	-0.06	-0.10	0.05	0.21	-0.25	-1.27	-1.27
A 9	0.768	2.277	-0.31	-0.02	0.34	0.96	-0.69	-4.55	-5.12
A 10	0.768	2.277	-0.30	-0.31	0.20	0.82	-0.83	-1.06	-1.64
A 11	0.768	2.277	-0.33	-0.29	0.19	0.84	-0.81	2.29	1.71
A 12	0.768	2.277	-0.28	-0.32	0.20	0.81	-0.84	-1.14	-1.72
A 13	0.768	2.277	-0.30	-0.28	0.21	0.83	-0.82	-1.71	-1.14
A 14	0.768	2.277	-0.25	-0.30	0.22	0.80	-0.85	-3.88	-3.30
A 15	0.768	2.277	-0.35	-0.26	0.20	0.86	-0.79	-4.86	-4.28
A 16	0.768	2.277	-0.21	-0.35	0.22	0.76	-0.89	-1.33	-0.75
O 17	0.000	0.750	0.00	-0.00	0.00	-0.00	-0.00	0.52	0.50
O 18	0.000	1.500	0.00	-0.00	-0.00	-0.00	-0.00	1.65	1.63
O 19	0.000	2.250	-0.00	0.00	-0.00	0.00	0.00	-6.21	-6.25
O 20	0.000	3.000	-0.00	0.00	0.00	0.00	0.00	-0.69	-0.74
O 21	0.000	2.250	-0.00	0.00	0.00	0.00	0.00	1.16	1.12
O 22	0.000	1.500	0.00	-0.00	0.00	-0.00	-0.00	-0.66	-0.68
O 23	0.000	0.750	0.00	-0.00	-0.00	-0.00	-0.00	-4.09	-4.08
D 24	0.016	2.277	0.00	-0.00	0.01	0.02	-0.02	-3.54	-3.53
D 25	0.016	2.622	-0.00	0.00	0.01	0.02	-0.02	-3.86	-3.84
D 26	0.016	3.112	-0.00	0.00	0.02	0.02	-0.02	4.65	4.69
D 27	0.016	3.112	-0.00	0.00	0.02	0.02	-0.02	-2.95	-2.99
D 28	0.016	2.622	0.00	0.00	0.01	0.02	-0.02	-1.09	-1.12
D 29	0.016	2.277	-0.00	0.00	0.01	0.02	-0.02	3.50	3.49
A 30	0.768	0.318	-0.00	-0.27	-0.00	-0.79	-1.02	-2.14	-2.06
A 31	0.768	0.318	-0.03	-0.00	0.00	0.23	-0.00	0.08	-0.00

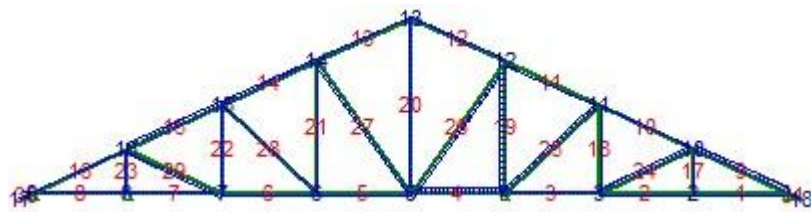




Διάγραμμα ροπών



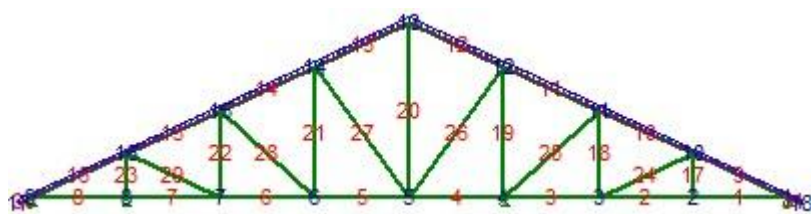
Διάγραμμα Τεμνουσών



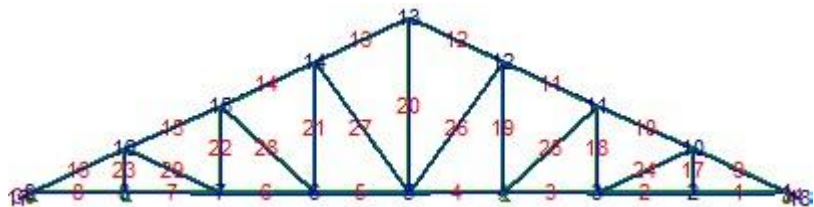
Διάγραμμα Αξονικών

ΕΝΤΑΤΙΚΑ ΜΕΓΕΘΗ ΜΕΛΩΝ ΑΠΟ ΦΟΡΤΙΣΗ ΧΙΛΟΝΙ

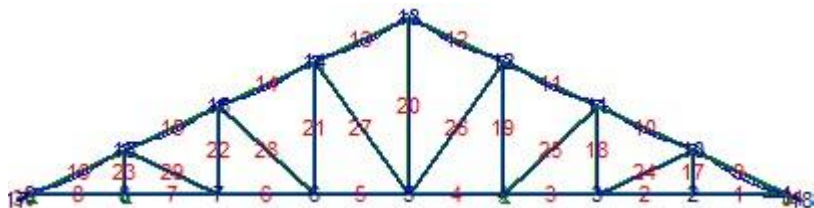
Μέλος	q KN/m	L m	My1 KN.m	My2 KN.m	Mym KN.m	Vz1 KN	Vz2 KN	N1 KN	N2 KN
S 1	0.000	2.150	-0.00	0.02	0.01	0.01	0.01	0.71	0.71
S 2	0.000	2.150	0.00	-0.00	0.00	-0.00	-0.00	0.71	0.71
S 3	0.000	2.150	-0.00	0.00	-0.00	0.00	0.00	-0.29	-0.29
S 4	0.000	2.150	0.00	-0.00	-0.00	-0.00	-0.00	-1.23	-1.23
S 5	0.000	2.150	-0.00	0.00	0.00	0.00	0.00	0.32	0.32
S 6	0.000	2.150	0.00	-0.00	0.00	-0.00	-0.00	0.59	0.59
S 7	0.000	2.150	-0.00	0.00	-0.00	0.00	0.00	-0.36	-0.36
S 8	0.000	2.150	0.01	-0.00	0.00	-0.00	-0.00	-0.36	-0.36
A 9	0.300	2.277	-0.12	-0.03	0.12	0.36	-0.28	-1.36	-1.59
A 10	0.300	2.277	-0.11	-0.12	0.08	0.32	-0.32	-0.32	-0.54
A 11	0.300	2.277	-0.12	-0.11	0.08	0.33	-0.32	0.68	0.46
A 12	0.300	2.277	-0.11	-0.12	0.08	0.32	-0.33	-0.32	-0.54
A 13	0.300	2.277	-0.12	-0.11	0.08	0.33	-0.32	-0.54	-0.32
A 14	0.300	2.277	-0.10	-0.12	0.08	0.32	-0.33	-1.18	-0.96
A 15	0.300	2.277	-0.13	-0.10	0.08	0.33	-0.31	-1.48	-1.26
A 16	0.300	2.277	-0.09	-0.13	0.08	0.30	-0.34	-0.46	-0.23
O 17	0.000	0.750	0.00	-0.00	0.00	-0.00	-0.00	0.01	0.01
O 18	0.000	1.500	0.00	-0.00	-0.00	-0.00	-0.00	0.35	0.35
O 19	0.000	2.250	-0.00	0.00	-0.00	0.00	0.00	-1.97	-1.97
O 20	0.000	3.000	-0.00	0.00	0.00	0.00	0.00	-0.35	-0.35
O 21	0.000	2.250	-0.00	0.00	-0.00	0.00	0.00	0.19	0.19
O 22	0.000	1.500	0.00	-0.00	-0.00	-0.00	-0.00	-0.34	-0.34
O 23	0.000	0.750	0.00	-0.00	-0.00	-0.00	-0.00	-1.34	-1.34
D 24	0.000	2.277	0.00	-0.00	-0.00	-0.00	-0.00	-1.06	-1.06
D 25	0.000	2.622	-0.00	0.00	-0.00	0.00	0.00	-1.15	-1.15
D 26	0.000	3.112	-0.00	0.00	-0.00	0.00	0.00	1.36	1.36
D 27	0.000	3.112	-0.00	0.00	0.00	0.00	0.00	-0.88	-0.88
D 28	0.000	2.622	0.00	0.00	0.00	-0.00	-0.00	-0.34	-0.34
D 29	0.000	2.277	-0.00	0.00	-0.00	0.00	0.00	1.02	1.02
A 30	0.300	0.318	-0.00	-0.09	-0.00	-0.24	-0.33	-0.66	-0.62
A 31	0.300	0.318	-0.01	-0.00	0.00	0.09	-0.00	0.03	-0.00



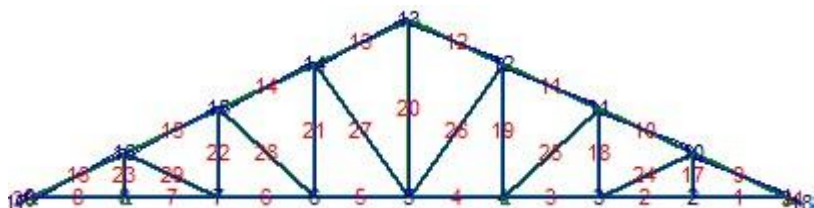
Φορτία



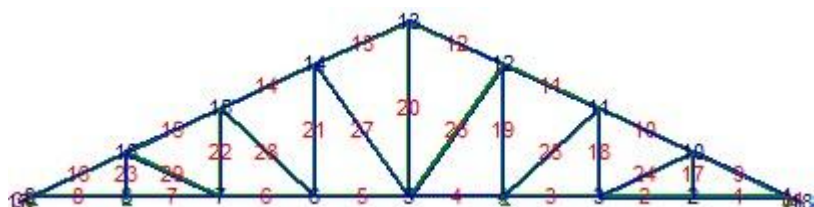
Παραμόρφωση φορέα



Διάγραμμα ροπών



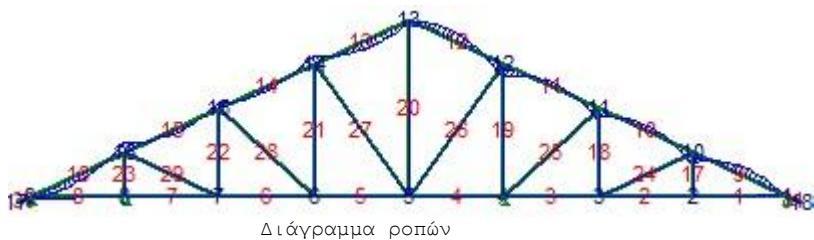
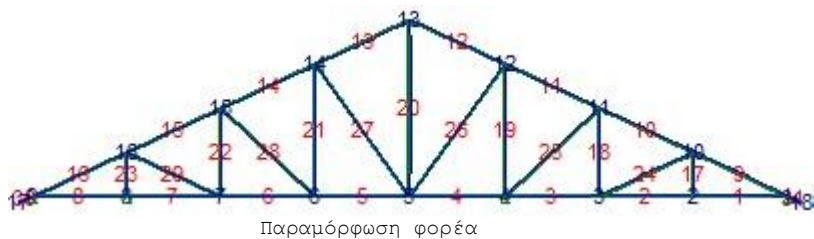
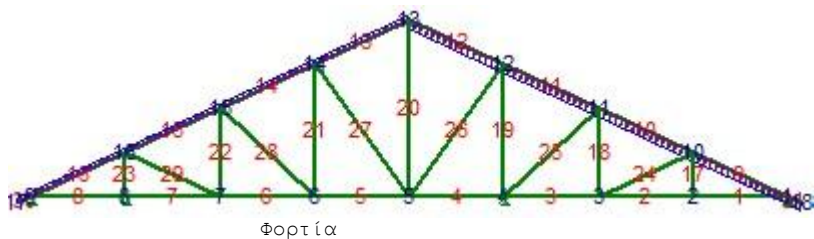
Διάγραμμα Τεμνουσών



Διάγραμμα Αξονικών

ΕΝΤΑΤΙΚΑ ΜΕΓΕΘΗ ΜΕΛΩΝ ΑΠΟ ΦΟΡΤΙΣΗ Άνεμος

Μέλος	q	L	My1	My2	Mym	Vz1	Vz2	N1	N2
	KN/m	m	KN.m	KN.m	KN.m	KN	KN	KN	KN
S 1	0.000	2.150	0.00	-0.03	-0.01	-0.01	-0.01	-2.32	-2.32
S 2	0.000	2.150	-0.00	0.00	-0.00	0.00	0.00	-2.32	-2.32
S 3	0.000	2.150	0.00	-0.00	0.00	-0.00	-0.00	-0.83	-0.83
S 4	0.000	2.150	-0.00	0.00	0.00	0.00	0.00	0.56	0.56
S 5	0.000	2.150	0.00	-0.00	-0.00	-0.00	-0.00	1.23	1.23
S 6	0.000	2.150	0.01	0.00	0.00	-0.00	-0.00	1.40	1.40
S 7	0.000	2.150	-0.01	0.01	-0.00	0.01	0.01	0.05	0.05
S 8	0.000	2.150	0.04	-0.01	0.01	-0.02	-0.02	0.05	0.05
A 9	-0.400	2.277	0.18	0.05	-0.15	-0.51	0.40	0.96	0.96
A 10	-0.400	2.277	0.16	0.18	-0.09	-0.45	0.46	-0.28	-0.28
A 11	-0.400	2.277	0.22	0.16	-0.07	-0.48	0.43	-1.44	-1.44
A 12	-0.400	2.277	0.02	0.22	-0.15	-0.37	0.55	-1.07	-1.07
A 13	0.300	2.277	-0.16	0.02	0.13	0.42	-0.26	-0.85	-0.85
A 14	0.300	2.277	-0.10	-0.16	0.06	0.31	-0.37	-1.30	-1.30
A 15	0.300	2.277	-0.18	-0.10	0.06	0.38	-0.31	-1.27	-1.27
A 16	0.300	2.277	0.01	-0.18	0.12	0.26	-0.42	0.44	0.44
O 17	0.000	0.750	-0.00	0.00	0.00	0.00	0.00	-0.02	-0.02
O 18	0.000	1.500	-0.00	0.00	-0.00	0.00	0.00	-0.52	-0.52
O 19	0.000	2.250	0.00	-0.00	0.00	-0.00	-0.00	1.10	1.10
O 20	0.000	3.000	-0.00	0.00	-0.00	0.00	0.00	0.73	0.73
O 21	0.000	2.250	0.00	-0.00	0.00	-0.00	-0.00	0.12	0.12
O 22	0.000	1.500	0.00	-0.00	-0.00	-0.00	-0.00	-0.48	-0.48
O 23	0.000	0.750	-0.00	0.00	-0.00	0.00	0.00	-1.79	-1.79
D 24	0.000	2.277	-0.00	0.00	-0.00	0.00	0.00	1.59	1.59
D 25	0.000	2.622	-0.00	0.00	0.00	0.00	0.00	1.69	1.69
D 26	0.000	3.112	0.00	-0.00	-0.00	-0.00	-0.00	-0.02	-0.02
D 27	0.000	3.112	0.00	-0.00	0.00	-0.00	-0.00	-0.99	-0.99
D 28	0.000	2.622	0.00	0.00	0.00	0.00	0.00	-0.21	-0.21
D 29	0.000	2.277	-0.00	0.00	-0.00	0.00	0.00	1.43	1.43
A 30	0.300	0.318	-0.00	0.05	0.05	0.19	0.10	0.55	0.55
A 31	-0.400	0.318	0.02	0.00	0.00	-0.13	-0.00	-0.00	-0.00



ΜΕΤΑΚΙΝΗΣΕΙΣ ΚΟΜΒΩΝ

N	Μόνιμο			Χιόνι			Ανεμος		
	dx mm	dy mm	dφz rad	dx mm	dy mm	dφz rad	dx mm	dy mm	dφz rad
1	0.000	0.000	-0.00261	0.000	0.000	-0.00078	0.000	0.000	0.00127
2	-0.117	-1.209	0.00030	-0.035	-0.362	0.00009	0.116	0.712	-0.00012
3	-0.233	-0.701	0.00041	-0.071	-0.208	0.00010	0.231	0.417	-0.00018
4	-0.184	0.000	0.00004	-0.057	0.000	-0.00001	0.272	0.000	-0.00013
5	0.023	-0.764	-0.00036	0.005	-0.228	-0.00011	0.244	-0.132	-0.00006
6	-0.034	-1.097	-0.00012	-0.011	-0.320	-0.00002	0.183	-0.327	-0.00009
7	-0.135	-0.946	0.00031	-0.041	-0.275	0.00011	0.113	-0.314	0.00018
8	-0.072	0.000	0.00014	-0.023	0.000	0.00004	0.111	0.000	-0.00016
9	-0.009	0.000	0.00048	-0.005	0.000	0.00013	0.108	0.000	0.00093
10	-0.252	-1.200	0.00036	-0.075	-0.361	0.00011	0.215	0.712	-0.00011
11	-0.013	-0.645	0.00022	-0.003	-0.196	0.00007	0.116	0.399	-0.00023
12	0.033	-0.318	-0.00008	0.011	-0.100	-0.00002	0.046	0.056	0.00017
13	-0.091	-0.812	-0.00021	-0.027	-0.252	-0.00006	0.035	-0.082	-0.00111
14	0.038	-1.039	-0.00008	0.008	-0.310	-0.00002	0.147	-0.321	0.00015
15	0.136	-0.969	0.00031	0.037	-0.287	0.00009	0.196	-0.331	0.00009
16	-0.021	-0.069	0.00014	-0.008	-0.023	0.00004	0.134	-0.030	-0.00013
17	0.000	0.003	0.00006	0.000	-0.004	0.00000	0.000	0.303	0.00101
18	0.268	0.768	-0.00257	0.080	0.228	-0.00077	-0.130	-0.372	0.00125

Μέγιστη βύθιση

Κόμβος 2, dyMax = 1.57 mm, σε συνδυασμό φόρτισης: G + Sn
 Έλεγχος: 1.57mm < 86.00mm (17200/200) => OK

ΑΝΤΙΔΡΑΣΕΙΣ ΣΤΙΣ ΣΤΗΡΙΞΕΙΣ

N	Μόνιμα		Χιόνι		Ανεμος	
	Rx KN	Ry KN	Rx KN	Ry KN	Rx KN	Ry KN
1	-2.265	2.724	-0.693	0.853	-1.587	-0.801
4	-0.000	8.952	0.000	2.631	0.000	-2.074
8	-0.000	4.582	0.000	1.352	0.000	1.820
9	-0.000	1.553	-0.000	0.505	0.000	0.166
17	2.265	0.000	0.693	0.000	-0.586	0.000

ΣΥΝΟΠΤΙΚΗ ΔΙΑΣΤΑΣΙΟΛΟΓΗΣΗ ΜΕΛΩΝ ΕΠΙΠΕΔΟΥ ΠΛΑΙΣΙΟΥ

Μέλος	ΔΙΑΣΤ. cm/cm	ΣΦ	N KN	M1 KN*m	M2 KN*m	V KN	km	kv	kl	ko
S 1	6/ 8	1	3.16	-0.12	-0.02	0.36	0.356	0.122	0.000	0.356
		2	4.23	-0.12	0.01	0.37	0.494	0.085	0.000	0.494
		3	-0.32	-0.12	-0.06	0.34	0.270	0.062	0.524	0.524
		4	6.65	-0.12	0.03	0.38	0.273	0.070	0.000	0.273
		5	3.16	-0.12	-0.02	0.36	0.301	0.066	0.000	0.301
		6	0.43	-0.12	-0.04	0.35	0.424	0.064	0.000	0.424
		7	2.14	-0.12	-0.02	0.36	0.457	0.067	0.000	0.457
S 2	6/ 8	1	3.16	-0.10	-0.12	0.32	0.356	0.109	0.000	0.356
		2	4.23	-0.10	-0.12	0.32	0.422	0.073	0.000	0.422
		3	-0.32	-0.10	-0.12	0.32	0.250	0.059	0.510	0.510
		4	6.65	-0.10	-0.12	0.32	0.282	0.060	0.000	0.282
		5	3.16	-0.10	-0.12	0.32	0.258	0.059	0.000	0.258
		6	0.43	-0.10	-0.12	0.32	0.393	0.059	0.000	0.393
		7	2.14	-0.10	-0.12	0.32	0.413	0.060	0.000	0.413
S 5	6/ 8	1	1.53	-0.12	-0.10	0.32	0.280	0.108	0.000	0.280
		2	2.01	-0.12	-0.10	0.32	0.365	0.072	0.000	0.365
		3	3.37	-0.11	-0.10	0.32	0.327	0.059	0.000	0.327
		4	-0.32	-0.12	-0.10	0.32	0.131	0.059	0.430	0.430
		5	1.53	-0.12	-0.10	0.32	0.223	0.059	0.000	0.223
		6	3.71	-0.12	-0.10	0.32	0.470	0.059	0.000	0.470
		7	3.11	-0.12	-0.10	0.32	0.438	0.059	0.000	0.438
S 6	6/ 8	1	2.75	-0.10	-0.11	0.31	0.315	0.106	0.000	0.315
		2	3.64	-0.10	-0.11	0.32	0.414	0.071	0.000	0.414
		3	4.85	-0.10	-0.11	0.32	0.368	0.059	0.000	0.368
		4	0.65	-0.11	-0.11	0.31	0.147	0.058	0.000	0.147
		5	2.75	-0.10	-0.11	0.31	0.253	0.058	0.000	0.253
		6	5.47	-0.09	-0.11	0.32	0.518	0.059	0.000	0.518
		7	4.90	-0.10	-0.11	0.32	0.485	0.059	0.000	0.485
A 9	6/13	1	-6.92	-0.42	-0.03	1.30	0.340	0.271	0.842	0.842
		2	-9.30	-0.60	-0.08	1.84	0.527	0.256	0.911	0.911
		3	-5.47	-0.16	0.05	0.53	0.532	0.061	0.635	0.635
		4	-8.36	-0.69	-0.10	2.06	0.271	0.235	0.590	0.590
		5	-6.92	-0.42	-0.03	1.30	0.373	0.148	0.593	0.593
		6	-7.14	-0.29	0.01	0.91	0.706	0.104	0.836	0.837
		7	-8.43	-0.45	-0.03	1.38	0.639	0.157	0.851	0.851
A 10	6/13	1	-2.21	-0.40	-0.42	1.12	0.297	0.234	0.403	0.403
		2	-3.02	-0.57	-0.60	1.61	0.397	0.223	0.456	0.456
		3	-2.64	-0.16	-0.15	0.43	0.491	0.049	0.525	0.525
		4	-1.79	-0.64	-0.68	1.81	0.286	0.206	0.309	0.309
		5	-2.21	-0.40	-0.42	1.12	0.296	0.127	0.325	0.325
		6	-3.20	-0.28	-0.28	0.77	0.646	0.087	0.687	0.687
		7	-3.28	-0.43	-0.44	1.19	0.558	0.136	0.600	0.600
A 11	6/13	1	3.09	-0.44	-0.39	1.14	0.392	0.237	0.000	0.392
		2	4.11	-0.63	-0.56	1.63	0.460	0.226	0.000	0.460
		3	0.92	-0.11	-0.15	0.45	0.513	0.051	0.000	0.513
		4	5.26	-0.77	-0.63	1.86	0.380	0.211	0.000	0.380
		5	3.09	-0.44	-0.39	1.14	0.335	0.129	0.000	0.335
		6	1.64	-0.24	-0.27	0.78	0.677	0.089	0.000	0.677
		7	2.81	-0.43	-0.42	1.19	0.599	0.136	0.000	0.599
A 12	6/13	1	-2.32	-0.38	-0.43	1.14	0.310	0.237	0.421	0.421
		2	-3.13	-0.55	-0.62	1.63	0.398	0.227	0.463	0.463
		3	-3.93	-0.36	-0.10	0.54	0.463	0.062	0.514	0.514
		4	-0.71	-0.40	-0.76	1.96	0.296	0.222	0.306	0.306
		5	-2.32	-0.38	-0.43	1.14	0.297	0.129	0.326	0.326
		6	-4.50	-0.47	-0.23	0.87	0.619	0.099	0.676	0.676
		7	-4.10	-0.53	-0.42	1.24	0.541	0.140	0.593	0.593
A 13	6/13	1	-2.31	-0.40	-0.38	1.12	0.288	0.234	0.405	0.405
		2	-3.13	-0.58	-0.55	1.61	0.407	0.224	0.469	0.469
		3	-3.59	-0.65	-0.36	1.75	0.358	0.199	0.423	0.423
		4	-1.03	-0.15	-0.40	0.71	0.158	0.081	0.171	0.171
		5	-2.31	-0.40	-0.38	1.12	0.303	0.128	0.332	0.332
		6	-4.16	-0.77	-0.47	2.10	0.514	0.238	0.567	0.567
		7	-3.90	-0.73	-0.53	1.99	0.482	0.226	0.532	0.532
A 14	6/13	1	-5.23	-0.34	-0.41	1.15	0.299	0.239	0.668	0.668
		2	-7.01	-0.50	-0.59	1.64	0.421	0.227	0.705	0.705
		3	-7.19	-0.49	-0.66	1.70	0.331	0.193	0.577	0.577
		4	-3.28	-0.19	-0.16	0.61	0.099	0.070	0.227	0.227
		5	-5.23	-0.34	-0.41	1.15	0.310	0.130	0.468	0.468

A 15	6/13	6	-8.43	-0.60	-0.78	2.04	0.491	0.232	0.747	0.747
		7	-8.18	-0.59	-0.73	1.97	0.473	0.224	0.723	0.723
		1	-6.56	-0.47	-0.35	1.17	0.342	0.243	0.813	0.813
		2	-8.78	-0.66	-0.51	1.67	0.404	0.232	0.795	0.795
		3	-8.45	-0.73	-0.50	1.73	0.317	0.197	0.627	0.627
		4	-4.66	-0.20	-0.20	0.60	0.108	0.069	0.300	0.300
A 16	6/13	5	-6.56	-0.47	-0.35	1.17	0.299	0.133	0.524	0.524
		6	-10.01	-0.87	-0.61	2.08	0.474	0.237	0.810	0.810
		7	-9.91	-0.82	-0.60	2.01	0.457	0.228	0.793	0.793
		1	-1.79	-0.29	-0.47	1.20	0.338	0.250	0.395	0.395
		2	-2.47	-0.42	-0.67	1.71	0.416	0.238	0.454	0.454
		3	-1.12	-0.27	-0.74	1.84	0.359	0.209	0.373	0.373
O 17	7/ 7	4	-2.45	-0.30	-0.21	0.64	0.131	0.073	0.210	0.210
		5	-1.79	-0.29	-0.47	1.20	0.308	0.137	0.331	0.331
		6	-1.60	-0.37	-0.88	2.20	0.516	0.250	0.536	0.536
		7	-2.07	-0.41	-0.83	2.09	0.486	0.238	0.512	0.512
		1	0.70	0.00	-0.00	0.00	0.031	0.000	0.000	0.031
		2	0.71	0.00	-0.00	0.00	0.024	0.000	0.000	0.024
O 18	7/ 7	3	0.67	0.00	-0.00	0.00	0.018	0.000	0.000	0.018
		4	0.72	0.00	-0.00	0.00	0.016	0.000	0.000	0.016
		5	0.70	0.00	-0.00	0.00	0.018	0.000	0.000	0.018
		6	0.69	0.00	-0.00	0.00	0.020	0.000	0.000	0.020
		7	0.70	0.00	-0.00	0.00	0.020	0.000	0.000	0.020
		1	2.23	0.00	-0.00	0.00	0.102	0.000	0.000	0.102
O 19	7/ 7	2	2.75	0.00	-0.00	0.00	0.091	0.000	0.000	0.091
		3	1.46	-0.00	-0.00	0.00	0.046	0.000	0.000	0.046
		4	3.01	0.00	-0.00	0.00	0.067	0.000	0.000	0.067
		5	2.23	0.00	-0.00	0.00	0.061	0.000	0.000	0.061
		6	1.82	0.00	-0.00	0.00	0.060	0.000	0.000	0.060
		7	2.28	0.00	-0.00	0.00	0.069	0.000	0.000	0.069
O 20	7/ 7	1	-8.44	-0.00	0.00	0.00	0.207	0.000	0.898	0.898
		2	-11.39	-0.00	0.00	0.00	0.187	0.000	0.823	0.823
		3	-6.78	0.00	0.00	0.00	0.091	0.000	0.414	0.414
		4	-10.09	-0.00	0.00	0.00	0.135	0.000	0.570	0.570
		5	-8.44	-0.00	0.00	0.00	0.113	0.000	0.501	0.501
		6	-8.85	0.00	0.00	0.00	0.119	0.000	0.542	0.542
O 21	7/ 7	7	-10.40	-0.00	0.00	0.00	0.139	0.000	0.628	0.628
		1	-0.99	-0.00	0.00	0.00	0.051	0.000	0.226	0.226
		2	-1.52	-0.00	0.00	0.00	0.071	0.000	0.251	0.251
		3	0.17	-0.00	0.00	0.00	0.061	0.000	0.000	0.061
		4	-2.09	0.00	-0.00	0.00	0.028	0.000	0.206	0.206
		5	-0.99	-0.00	0.00	0.00	0.048	0.000	0.144	0.144
O 22	7/ 7	6	-0.27	-0.00	0.00	0.00	0.079	0.000	0.105	0.105
		7	-0.86	-0.00	0.00	0.00	0.076	0.000	0.160	0.160
		1	1.56	-0.00	0.00	0.00	0.091	0.000	0.000	0.091
		2	1.85	-0.00	0.00	0.00	0.089	0.000	0.000	0.089
		3	1.74	-0.00	0.00	0.00	0.071	0.000	0.000	0.071
		4	1.38	-0.00	0.00	0.00	0.032	0.000	0.000	0.032
O 23	7/ 7	5	1.56	-0.00	0.00	0.00	0.061	0.000	0.000	0.061
		6	1.94	-0.00	0.00	0.00	0.087	0.000	0.000	0.087
		7	1.96	-0.00	0.00	0.00	0.086	0.000	0.000	0.086
		1	-0.92	0.00	-0.00	0.00	0.023	0.000	0.059	0.059
		2	-1.43	0.00	-0.00	0.00	0.023	0.000	0.066	0.066
		3	-1.65	0.00	-0.00	0.00	0.022	0.000	0.060	0.060
D 24	7/ 7	4	-0.20	0.00	-0.00	0.00	0.003	0.000	0.006	0.006
		5	-0.92	0.00	-0.00	0.00	0.012	0.000	0.037	0.037
		6	-2.00	0.00	-0.00	0.00	0.027	0.000	0.075	0.075
		7	-1.87	0.00	-0.00	0.00	0.025	0.000	0.071	0.071
		1	-5.52	0.00	-0.00	0.00	0.136	0.000	0.154	0.154
		2	-7.53	0.00	-0.00	0.00	0.123	0.000	0.142	0.142
D 25	7/ 7	3	-8.20	-0.00	0.00	0.00	0.110	0.000	0.126	0.126
		4	-2.83	0.00	-0.00	0.00	0.038	0.000	0.042	0.042
		5	-5.52	0.00	-0.00	0.00	0.074	0.000	0.085	0.085
		6	-9.61	-0.00	0.00	0.00	0.129	0.000	0.148	0.148
		7	-9.14	-0.00	0.00	0.00	0.123	0.000	0.141	0.141
		1	-4.78	0.00	-0.00	0.02	0.117	0.008	0.533	0.533
D 26	7/ 7	2	-6.37	0.00	-0.00	0.02	0.104	0.005	0.488	0.488
		3	-2.40	0.00	-0.00	0.02	0.034	0.004	0.171	0.171
		4	-7.15	0.00	-0.00	0.02	0.096	0.004	0.413	0.413
		5	-4.78	0.00	-0.00	0.02	0.064	0.004	0.302	0.302
		6	-3.51	0.00	-0.00	0.02	0.048	0.004	0.248	0.248
		7	-4.94	0.00	-0.00	0.02	0.066	0.004	0.328	0.328
D 26	7/ 7	1	-5.21	-0.00	0.00	0.02	0.128	0.008	0.755	0.755
		2	-6.93	-0.00	0.00	0.02	0.114	0.005	0.689	0.689
		3	-2.68	-0.00	0.00	0.02	0.045	0.004	0.245	0.245
		4	-7.75	-0.00	0.00	0.02	0.104	0.004	0.583	0.583
		5	-5.21	-0.00	0.00	0.02	0.070	0.004	0.427	0.427
		6	-3.88	-0.00	0.00	0.02	0.063	0.004	0.351	0.351
D 26	7/ 7	7	-5.41	-0.00	0.00	0.02	0.073	0.004	0.464	0.464
		1	6.33	-0.00	0.00	0.02	0.308	0.008	0.000	0.308
		2	8.37	-0.00	0.00	0.02	0.300	0.005	0.000	0.300
		3	6.30	-0.00	-0.00	0.02	0.200	0.004	0.000	0.200
D 26	7/ 7	4	6.36	-0.00	0.00	0.02	0.143	0.004	0.000	0.143

D 27	7/ 7	5	6.33	-0.00	0.00	0.02	0.190	0.004	0.000	0.190
		6	7.74	-0.00	-0.00	0.02	0.255	0.004	0.000	0.255
		7	8.36	-0.00	-0.00	0.02	0.265	0.004	0.000	0.265
		1	-4.03	-0.00	0.00	0.02	0.099	0.008	0.822	0.822
		2	-5.35	-0.00	0.00	0.02	0.088	0.005	0.756	0.756
		3	-5.52	0.00	0.00	0.02	0.074	0.004	0.636	0.636
		4	-2.55	-0.00	0.00	0.02	0.034	0.004	0.268	0.268
D 28	7/ 7	5	-4.03	-0.00	0.00	0.02	0.054	0.004	0.470	0.470
		6	-6.44	0.00	0.00	0.02	0.092	0.004	0.755	0.755
		7	-6.24	-0.00	0.00	0.02	0.089	0.004	0.731	0.731
		1	-1.51	0.00	0.00	0.02	0.040	0.008	0.245	0.245
		2	-2.01	0.00	0.00	0.02	0.055	0.005	0.238	0.238
		3	-1.81	0.00	0.00	0.02	0.045	0.004	0.180	0.180
		4	-1.20	0.00	0.00	0.02	0.016	0.004	0.092	0.092
D 29	7/ 7	5	-1.51	0.00	0.00	0.02	0.037	0.004	0.149	0.149
		6	-2.17	0.00	0.00	0.02	0.061	0.004	0.223	0.223
		7	-2.19	0.00	0.00	0.02	0.059	0.004	0.222	0.222
		1	4.73	-0.00	0.00	0.02	0.219	0.008	0.000	0.219
		2	6.25	-0.00	0.00	0.02	0.208	0.005	0.000	0.208
		3	6.87	-0.00	0.00	0.02	0.184	0.004	0.000	0.184
		4	2.58	-0.00	0.00	0.02	0.058	0.004	0.000	0.058
A 30	6/13	5	4.73	-0.00	0.00	0.02	0.131	0.004	0.000	0.131
		6	7.94	-0.00	0.00	0.02	0.220	0.004	0.000	0.220
		7	7.54	-0.00	0.00	0.02	0.209	0.004	0.000	0.209
		1	-2.89	-0.00	-0.37	1.38	0.263	0.287	0.306	0.306
		2	-3.87	-0.00	-0.50	1.88	0.237	0.260	0.275	0.275
		3	-2.06	-0.00	-0.30	1.23	0.116	0.140	0.133	0.140
		4	-3.72	-0.00	-0.44	1.52	0.170	0.173	0.201	0.201
A 31	6/13	5	-2.89	-0.00	-0.37	1.38	0.143	0.157	0.167	0.167
		6	-2.75	-0.00	-0.39	1.58	0.151	0.179	0.174	0.179
		7	-3.37	-0.00	-0.45	1.79	0.177	0.203	0.205	0.205
		1	0.11	-0.05	-0.00	0.31	0.036	0.065	0.000	0.065
		2	0.15	-0.07	-0.00	0.45	0.034	0.062	0.000	0.062
		3	0.11	-0.02	-0.00	0.12	0.009	0.014	0.000	0.014
		4	0.11	-0.08	-0.00	0.50	0.031	0.057	0.000	0.057
		5	0.11	-0.05	-0.00	0.31	0.020	0.035	0.000	0.035
		6	0.14	-0.03	-0.00	0.21	0.014	0.024	0.000	0.024
		7	0.15	-0.05	-0.00	0.33	0.021	0.038	0.000	0.038

ΑΝΑΛΥΤΙΚΗ ΔΙΑΣΤΑΣΙΟΛΟΓΗΣΗ ΚΡΙΤΙΣΜΩΝ ΔΙΑΤΟΜΩΝ

Αμείβοντας (Μέλος = 9, Δυσμεν.Συνδ.Φόρτισης = 2)

Εντατικά μεγέθη σχεδιασμού (ΣΦ: 2)

N = -9.30 KN
M_y = 1.090 KNm, M_z = 0.000 KNm
V_z = 1.84 KN, V_y = 0.00 KN
T = 0.00 KNm

Ιδιότητες και γεωμετρικά χαρακτηριστικά διατομής

b=0.060m h=0.130m
A=0.00780m² [Εμβαδόν]
W_y=0.0001690m³ W_z=0.0000780m³ [Ροπές αντίστασης]
I_y=0.000010985m⁴ I_z=0.000002340m⁴ [Ροπές αδράνειας]
i_y=0.038m i_z=0.038m [Ακτίνες αδράνειας]

Ελεγχος διατομής σε διαξονική κάμψη με αξονική θλίψη

σ_{myd} = M_y/W_y = 1.09/0.0001690 = 6448.66 KPa
f_{myd} = k_{hy}*k_{mod}*f_{myk}/γ_m
= 1.00*0.90*18000/1.30
= 12461.5 KPa
f_{c0d} = k_{mod}*f_{ck}/γ_m = 0.90*18000/1.30 = 12461.5 KPa
σ_{c0d} = N/A = -9.30/0.007800 = 1192.18 KPa
K = [σ_{c0d}/f_{c0d}]² + σ_{myd}/f_{myd} [6.19]
= [1192/12462]² + 6449/12462
= 0.527

Ελεγχος διατομής σε διάτμηση και στρέψη

τ_{vd} = 1.50*V_{sd}/(b*h)
= 1.50*1.84/(0.06*0.13)
= 354.29 KPa
f_{vd} = k_{mod}*f_{vk}/γ_m = 0.90*2000/1.30 = 1384.6 KPa
K = τ_{vd}/f_{vd} = 354.29/1384.6 = 0.256

Ελεγχος διατομής σε λυγισμό

λ_y = k*L/i_y = 1.00*2.28/0.0375 = 60.677
λ_{rely} = λ_y/π*sqrt(f_{ck}/E05) [6.21]
= 60.677/3.14*sqrt(18/6000)
= 1.058 > 0.30
k_y = 0.5*[1+β_c*(λ_{rely}-0.30)+λ_{rely}²]
= 0.5*[1+0.20*(1.058-0.30)+1.058²]
= 1.135 [6.27]
k_{cy} = 1/[k_y+sqrt(k_y²-λ_{rely}²)]
= 1/[1.135+sqrt(1.135²-1.058²)]
= 0.646 [6.25]


```

kcy = min(0.646, 1.00) = 0.646
λz = k*L/iz = 1.00*2.28/0.0173 = 131.466
λ_relz = λz/π*sqrt(fck/E05) [6.21]
        = 131.466/3.14*sqrt(18/6000)
        = 2.292 > 0.30
kz = 0.5*[1+βc*(λ_relz-0.30)+λ_relz²]
    = 0.5*[1+0.20*(2.292-0.30)+2.292²]
    = 3.326 [6.27]
kcz = 1/[kz+sqrt(kz²-λ_relz²)]
    = 1/[3.326+sqrt(3.326²-2.292²)]
    = 0.174 [6.25]
kcz = min(0.174, 1.00) = 0.174
K1 = σc0d/(kcy*fc0d)+σmyd/fmyd+km*σmzd/fmzd [6.23]
    = 1192/(0.646*12462) + 6449/12462 + 0.70*0/12462
    = 0.148 + 0.517 + 0.000 = 0.666
K2 = σc0d/(kcz*fc0d)+km*σmyd/fmyd+σmzd/fmzd [6.24]
    = 1192/(0.174*12462) + 0.70*6449/12462 + 0/12462
    = 0.549 + 0.362 + 0.000 = 0.911

```

Πλευρικός Λυγισμός

```

lef = 0.90*L = 0.90*2.28 = 2.05 m [Table 6.1]
σmcrity = 0.78*b²/(h*lef)*E05 [6.32]
        = 0.78*0.06²/(0.13*2.05)*6000000
        = 63239.44 KPa
λrelmy = sqrt(fmyk/σmcrity)
        = sqrt(18000.00/63239.44)
        = 0.534

λrelm <= 0.75 => kcrit = 1.00
K1 = σmyd/(kcrity*fmyd)
    = 6448.7/(1.000*12461.5)
    = 0.517 [6.33]
K2 = [σmyd/(kcrity*fmyd)]² + σc0d/(kcz*fc0d) [6.35]
    = 0.517² + 0.549
    = 0.817

```

Επάρκεια διατομής: **k = 0.911** OK

Ορθοστάτης (Μέλος = 19, Δυσμεν.Συνδ.Φόρτισης = 1)

Εντατικά μεγέθη σχεδιασμού (ΣΦ: 1)

```

N = -8.44 KN
My = 0.013 KNm, Mz = 0.000 KNm
Vz = 0.00 KN, Vy = 0.00 KN
T = 0.00 KNm

```

Ιδιότητες και γεωμετρικά χαρακτηριστικά διατομής

```

b=0.070m h=0.070m
A=0.00490m² [Εμβαδόν]
Wy=0.0000572m³ Wz=0.0000572m³ [Ροπές αντίστασης]
Iy=0.000002001m⁴ Iz=0.000002001m⁴ [Ροπές αδράνειας]
iy=0.020m iz=0.020m [Ακτίνες αδράνειας]

```

Έλεγχος διατομής σε διαξονική κάμψη

με αξονική θλίψη

```

σmyd = My/Wy = 0.01/0.0000572 = 234.32 KPa
fmyd = khy*kmod*fmyk/γm
      = 1.00*0.60*18000/1.30
      = 8307.7 KPa
fc0d = kmod*fck/γm = 0.60*18000/1.30 = 8307.7 KPa
σc0d = N/A = -8.44/0.004900 = 1721.58 KPa
K = [σc0d/fc0d]² + σmyd/fmyd [6.19]
    = [1722/8308]² + 234/8308
    = 0.207

```

Έλεγχος διατομής σε διάτμηση και στρέψη

```

τ_vd = 1.50*Vsd/(b*h)
      = 1.50*0.00/(0.07*0.07)
      = 0.00 KPa
fvd = kmod*fvk/γM = 0.60*2000/1.30 = 923.1 KPa
K = τ_vd/fvd = 0.00/923.1 = 0.000

```

Έλεγχος διατομής σε λυγισμό

```

λy = k*L/iy = 1.00*2.25/0.0202 = 111.346
λ_rely = λy/π*sqrt(fck/E05) [6.21]
        = 111.346/3.14*sqrt(18/6000)
        = 1.941 > 0.30
ky = 0.5*[1+βc*(λ_rely-0.30)+λ_rely²]
    = 0.5*[1+0.20*(1.941-0.30)+1.941²]
    = 2.548 [6.27]
kcy = 1/[ky+sqrt(ky²-λ_rely²)]
    = 1/[2.548+sqrt(2.548²-1.941²)]
    = 0.238 [6.25]
kcy = min(0.238, 1.00) = 0.238
λz = k*L/iz = 1.00*2.25/0.0202 = 111.346
λ_relz = λz/π*sqrt(fck/E05) [6.21]
        = 111.346/3.14*sqrt(18/6000)
        = 1.941 > 0.30
kz = 0.5*[1+βc*(λ_relz-0.30)+λ_relz²]

```

$= 0.5 \cdot [1 + 0.20 \cdot (1.941 - 0.30) + 1.941^2]$
 $= 2.548 \quad [6.27]$
 $kcz = 1 / [kz + \sqrt{kz^2 - \lambda_{relz}^2}]$
 $= 1 / [2.548 + \sqrt{2.548^2 - 1.941^2}]$
 $= 0.238 \quad [6.25]$
 $kcz = \min(0.238, 1.00) = 0.238$
 $K1 = \sigma_{0d} / (kcy \cdot f_{c0d}) + \sigma_{myd} / f_{myd} + k_m \cdot \sigma_{mzd} / f_{mzd} \quad [6.23]$
 $= 1722 / (0.238 \cdot 8308) + 234 / 8308 + 0.70 \cdot 0 / 8308$
 $= 0.870 + 0.028 + 0.000 = 0.898$
 $K2 = \sigma_{0d} / (kcz \cdot f_{c0d}) + k_m \cdot \sigma_{myd} / f_{myd} + \sigma_{mzd} / f_{mzd} \quad [6.24]$
 $= 1722 / (0.238 \cdot 8308) + 0.70 \cdot 234 / 8308 + 0 / 8308$
 $= 0.870 + 0.020 + 0.000 = 0.890$
 Επάρκεια διατομής: **k = 0.898** OK

Διαγώνιος (Μέλος = 27, Δυσμεν. Συνδ. Φόρτισης = 1)

Εντατικά μεγέθη σχεδιασμού (Σφ: 1)

$N = -4.03 \text{ KN}$
 $M_y = 0.026 \text{ KNm}, M_z = 0.000 \text{ KNm}$
 $V_z = 0.02 \text{ KN}, V_y = 0.00 \text{ KN}$
 $T = 0.00 \text{ KNm}$

Ιδιότητες και γεωμετρικά χαρακτηριστικά διατομής

$b = 0.070 \text{ m}, h = 0.070 \text{ m}$
 $A = 0.00490 \text{ m}^2 \quad [\text{Εμβαδόν}]$
 $W_y = 0.0000572 \text{ m}^3, W_z = 0.0000572 \text{ m}^3 \quad [\text{Ροπές αντίστασης}]$
 $I_y = 0.000002001 \text{ m}^4, I_z = 0.000002001 \text{ m}^4 \quad [\text{Ροπές αδράνειας}]$
 $i_y = 0.020 \text{ m}, i_z = 0.020 \text{ m} \quad [\text{Ακτίνες αδράνειας}]$

Έλεγχος διατομής σε διαξονική κάμψη με αξονική θλίψη

$\sigma_{myd} = M_y / W_y = 0.03 / 0.0000572 = 448.28 \text{ KPa}$
 $f_{myd} = k_{hy} \cdot k_{mod} \cdot f_{myk} / \gamma_m$
 $= 1.00 \cdot 0.60 \cdot 18000 / 1.30$
 $= 8307.7 \text{ KPa}$
 $f_{c0d} = k_{mod} \cdot f_{ck} / \gamma_m = 0.60 \cdot 18000 / 1.30 = 8307.7 \text{ KPa}$
 $\sigma_{c0d} = N / A = -4.03 / 0.00490 = 822.92 \text{ KPa}$
 $K = [\sigma_{c0d} / f_{c0d}]^2 + \sigma_{myd} / f_{myd} \quad [6.19]$
 $= [823 / 8308]^2 + 448 / 8308$
 $= 0.099$

Έλεγχος διατομής σε διάτμηση και στρέψη

$\tau_{vd} = 1.50 \cdot V_{sd} / (b \cdot h)$
 $= 1.50 \cdot 0.02 / (0.07 \cdot 0.07)$
 $= 6.97 \text{ KPa}$
 $f_{vd} = k_{mod} \cdot f_{vk} / \gamma_m = 0.60 \cdot 2000 / 1.30 = 923.1 \text{ KPa}$
 $K = \tau_{vd} / f_{vd} = 6.97 / 923.1 = 0.008$

Έλεγχος διατομής σε λυγισμό

$\lambda_y = k \cdot L / i_y = 1.00 \cdot 3.11 / 0.0202 = 154.008$
 $\lambda_{rel,y} = \lambda_y / \pi \cdot \sqrt{f_{ck} / E_{05}} \quad [6.21]$
 $= 154.008 / 3.14 \cdot \sqrt{18 / 6000}$
 $= 2.685 > 0.30$
 $k_y = 0.5 \cdot [1 + \beta_c \cdot (\lambda_{rel,y} - 0.30) + \lambda_{rel,y}^2]$
 $= 0.5 \cdot [1 + 0.20 \cdot (2.685 - 0.30) + 2.685^2]$
 $= 4.343 \quad [6.27]$
 $kcy = 1 / [k_y + \sqrt{k_y^2 - \lambda_{rel,y}^2}]$
 $= 1 / [4.343 + \sqrt{4.343^2 - 2.685^2}]$
 $= 0.129 \quad [6.25]$
 $kcy = \min(0.129, 1.00) = 0.129$
 $\lambda_z = k \cdot L / i_z = 1.00 \cdot 3.11 / 0.0202 = 154.008$
 $\lambda_{rel,z} = \lambda_z / \pi \cdot \sqrt{f_{ck} / E_{05}} \quad [6.21]$
 $= 154.008 / 3.14 \cdot \sqrt{18 / 6000}$
 $= 2.685 > 0.30$
 $kz = 0.5 \cdot [1 + \beta_c \cdot (\lambda_{rel,z} - 0.30) + \lambda_{rel,z}^2]$
 $= 0.5 \cdot [1 + 0.20 \cdot (2.685 - 0.30) + 2.685^2]$
 $= 4.343 \quad [6.27]$
 $kcz = 1 / [kz + \sqrt{kz^2 - \lambda_{rel,z}^2}]$
 $= 1 / [4.343 + \sqrt{4.343^2 - 2.685^2}]$
 $= 0.129 \quad [6.25]$
 $kcz = \min(0.129, 1.00) = 0.129$
 $K1 = \sigma_{0d} / (kcy \cdot f_{c0d}) + \sigma_{myd} / f_{myd} + k_m \cdot \sigma_{mzd} / f_{mzd} \quad [6.23]$
 $= 823 / (0.129 \cdot 8308) + 448 / 8308 + 0.70 \cdot 0 / 8308$
 $= 0.768 + 0.054 + 0.000 = 0.822$
 $K2 = \sigma_{0d} / (kcz \cdot f_{c0d}) + k_m \cdot \sigma_{myd} / f_{myd} + \sigma_{mzd} / f_{mzd} \quad [6.24]$
 $= 823 / (0.129 \cdot 8308) + 0.70 \cdot 448 / 8308 + 0 / 8308$
 $= 0.768 + 0.038 + 0.000 = 0.806$

Επάρκεια διατομής: **k = 0.822** OK

ΕΛΕΓΧΟΣ ΤΕΓΓΙΑΩΝ

Διαστάσεις:

$b = 0.050 \text{ m}, h = 0.070 \text{ m}$
 μήκος $L = 1.00 \text{ m}$, σε απόσταση $D = 0.40 \text{ m}$, υπο γωνία $\theta = 19.23^\circ$
 Στατικό σύστημα αμφιέρειστης δοκού.

	Φόρτιση	q	P	N	My	Mz	Vz	Vy	w
		KN/m	KN	KN	KN.m	KN.m	KN	KN	mm
G	Μόνιμα	0.291	0.000	0.000	0.034	0.012	0.137	0.048	0.299
Sn	Χιόνι	0.120	0.000	0.000	0.014	0.005	0.057	0.020	0.123
Wi	Άνεμος	0.120	0.000	0.000	0.015	0.000	0.060	0.000	0.131
Pw	Εργάτης	0.000	1.000	0.000	0.236	0.082	0.472	0.165	1.674

ΣΦ	kmod	N	My	Mz	Vz	Vy	My/kmod	w.inst	w.fin
		KN	KN.m	KN.m	KN	KN	KN.m	mm	mm
1	0.60	0.000	0.046	0.016	0.186	0.065	0.077	0.299	0.479
2	0.90	0.000	0.068	0.024	0.271	0.094	0.075	0.423	0.617
3	1.10	0.000	0.069	0.016	0.276	0.065	0.063	0.430	0.610
4	1.10	0.000	0.024	0.016	0.096	0.065	0.022	0.299	0.479
5	1.10	0.000	0.282	0.099	0.658	0.229	0.257		
6	1.10	0.000	0.084	0.021	0.335	0.085	0.076	0.553	0.748
7	1.10	0.000	0.081	0.024	0.325	0.094	0.074	0.540	0.735

Μέγιστες τιμές βελών

w_inst = 0.553 mm

w_fin = 0.748 mm

w_netfin = 0.748 mm

Μέγιστα επιτρεπόμενα βέλη:

w_inst_max = 1000.00/300 = 3.33 mm

w_fin_max = 1000.00/200 = 5.00 mm

w_netfin_max = 1000.00/250 = 4.00 mm

Ελέγχοι:

k_inst = w_inst / w_inst_max = 0.55 / 3.33 = 0.166

k_fin = w_fin / w_fin_max = 0.75 / 5.00 = 0.150

k_netfin = w_netfin / w_netfin_max = 0.75 / 4.00 = 0.187

K = 0.187 OK

Εντατικά μεγέθη σχεδιασμού (ΣΦ: 5)

N = 0.00 KN

My = 0.282 KNm, Mz = 0.099 KNm

Vz = 0.66 KN, Vy = 0.23 KN

T = 0.00 KNm

Ιδιότητες και γεωμετρικά χαρακτηριστικά διατομής

b=0.050m h=0.070m

A=0.00350m² [Εμβαδόν]

Wy=0.0000408m³ Wz=0.0000292m³ [Ροπές αντίστασης]

Iy=0.000001429m⁴ Iz=0.000000729m⁴ [Ροπές αδράνειας]

iy=0.020m iz=0.020m [Ακτίνες αδράνειας]

Ελεγχος διατομής σε διαξονική κάμψη

με αξονική θλίψη

σmyd = My/Wy = 0.28/0.0000408 = 6917.09 KPa

σmzd = Mz/Wz = 0.10/0.0000292 = 3378.12 KPa

fmyd = khy*kmod*fmyk/γm

= 1.00*1.10*18000/1.30

= 15230.8 KPa

fmzd = khz*kmod*fmzk/γm

= 1.00*1.10*18000/1.30

= 15230.8 KPa

σc0d = N/A = 0.00/0.003500 = -0.00 KPa

K1 = [σc0d/fc0d]² + σmyd/fmyd + km*σmzd/fmzd [6.19]

= [-0/15231]² + 6917/15231 + 0.70*3378/15231

= 0.609

K2 = [σc0d/fc0d]² + km*σmyd/fmyd + σmzd/fmzd [6.20]

= [-0/15231]² + 0.70*6917/15231 + 3378/15231

= 0.540

Ελεγχος διατομής σε διάτμηση και στρέψη

τ_vd = 1.50*Vsd/(b*h)

= 1.50*0.66/(0.05*0.07)

= 281.87 KPa

fvd = kmod*fvk/γM = 1.10*2000/1.30 = 1692.3 KPa

K = τ_vd/fvd = 281.87/1692.3 = 0.167

Πλευρικός λυγισμός

lef = 0.90*L = 0.90*1.00 = 0.90 m [Table 6.1]

σmcrity = 0.78*b²/(h*lef)*E05 [6.32]

= 0.78*0.05²/(0.07*0.90)*6000000

= 185714.29 KPa

λrelmy = sqrt(fmyk/σmcrity)

= sqrt(18000.00/185714.29)

= 0.311

λrelm <= 0.75 => kcrit = 1.00

K = σmyd/(kcrit*γm)

= 6917.1/(1.00*15230.8)

= 0.454 [6.33]

Επάρκεια διατομής: **k = 0.609** OK

ΕΛΕΓΧΟΣ ΣΑΝΙΩΜΑΤΟΣ

Διαστάσεις:

b = 1.000 m, h = 0.012 m

μήκος L = 0.40 m, σε απόσταση D = 1.00 m, υπο κλίση a = 19.23°

Στατικό σύστημα αμφιέρειστης δοκού.

Φόρτιση	q	P	N	My	Mz	Vz	Vy	w
	KN/m	KN	KN	KN.m	KN.m	KN	KN	mm
G Μόνιμα	0.738	0.000	-0.097	0.014	0.000	0.139	0.000	0.137
Sn Χιόνι	0.300	0.000	-0.037	0.005	0.000	0.053	0.000	0.053
Wi Άνεμος	0.300	0.000	0.000	0.006	0.000	0.060	0.000	0.074
Pw Εργάτης	0.000	1.000	-0.329	0.094	0.000	0.472	0.000	0.745

ΣΦ	kmod	N	My	Mz	Vz	Vy	My/kmod	w.inst	w.fin
		KN	KN.m	KN.m	KN	KN	KN.m	mm	mm
1	0.60	-0.131	0.019	0.000	0.188	0.000	0.031	0.137	0.219
2	0.90	-0.187	0.027	0.000	0.268	0.000	0.030	0.189	0.278
3	1.10	-0.131	0.028	0.000	0.278	0.000	0.025	0.211	0.293
4	1.10	-0.131	0.010	0.000	0.098	0.000	0.009	0.137	0.219
5	1.10	-0.461	0.113	0.000	0.660	0.000	0.103		
6	1.10	-0.171	0.033	0.000	0.334	0.000	0.030	0.263	0.352
7	1.10	-0.187	0.032	0.000	0.322	0.000	0.029	0.256	0.344

Μέγιστες τιμές βελών

w_inst = 0.263 mm

w_fin = 0.352 mm

w_netfin = 0.352 mm

Μέγιστα επιτρεπόμενα βέλη:

w_inst_max = 400.00/300 = 1.33 mm

w_fin_max = 400.00/200 = 2.00 mm

w_netfin_max = 400.00/250 = 1.60 mm

Ελεγχοί:

k_inst = w_inst / w_inst_max = 0.26 / 1.33 = 0.197

k_fin = w_fin / w_fin_max = 0.35 / 2.00 = 0.176

k_netfin = w_netfin / w_netfin_max = 0.35 / 1.60 = 0.220

K = 0.220 OK

Εντατικά μεγέθη σχεδιασμού (ΣΦ: 5)

N = -0.46 KN

My = 0.113 KNm, Mz = 0.000 KNm

Vz = 0.66 KN, Vy = 0.00 KN

T = 0.00 KNm

Ιδιότητες και γεωμετρικά χαρακτηριστικά διατομής

b=1.000m h=0.012m

A=0.01200m² [Εμβαδόν]

Wy=0.0000240m³ Wz=0.0020000m³ [Ροπές αντίστασης]

Iy=0.000000144m⁴ Iz=0.001000000m⁴ [Ροπές αδράνειας]

iy=0.003m iz=0.003m [Ακτίνες αδράνειας]

Ελεγχος διατομής σε διαξονική κάμψη

με αξονική θλίψη

σmyd = My/Wy = 0.11/0.0000240 = 4718.51 KPa

fmyd = khy*kmod*fmyk/γm

= 1.00*1.10*18000/1.30

= 15230.8 KPa

fc0d = kmod*fck/γm = 1.10*18000/1.30 = 15230.8 KPa

σc0d = N/A = -0.46/0.012000 = 38.39 KPa

K = [σc0d/fc0d]² + σmyd/fmyd [6.19]

= [38/15231]² + 4719/15231

= 0.310

Ελεγχος διατομής σε διάτμηση και στρέψη

τ_vd = 1.50*Vsd/(b*h)

= 1.50*0.66/(1.00*0.01)

= 82.54 KPa

fvd = kmod*fvk/γM = 1.10*2000/1.30 = 1692.3 KPa

K = τ_vd/fvd = 82.54/1692.3 = 0.049

Ελεγχος διατομής σε λυγισμό

λy = k*L/iy = 1.00*0.40/0.0035 = 115.470

λ_rely = λy/π*sqrt(fck/E05) [6.21]

= 115.470/3.14*sqrt(18/6000)

= 2.013 > 0.30

ky = 0.5*[1+βc*(λ_rely-0.30)+λ_rely²]

= 0.5*[1+0.20*(2.013-0.30)+2.013²]

= 2.698 [6.27]

kcy = 1/[ky+sqrt(ky²-λ_rely²)]

= 1/[2.698+sqrt(2.698²-2.013²)]

= 0.223 [6.25]

kcy = min(0.223, 1.00) = 0.223

λz = k*L/iz = 1.00*0.40/0.02887 = 1.386

λ_relz = λz/π*sqrt(fck/E05) [6.21]

= 1.386/3.14*sqrt(18/6000)

= 0.024 <= 0.30 => kcz = 1

K1 = σc0d/(kcy*fcd)+σmyd/fmyd+kM*σmzd/fmzd [6.23]

= 38/(0.223*15231) + 4719/15231 + 0.70*0/15231

$= 0.011 + 0.310 + 0.000 = 0.321$
 $K2 = \sigma_{cd} / (k_{cz} * f_{cd}) + k_m * \sigma_{myd} / f_{myd} + \sigma_{mzd} / f_{mzd} \quad [6.24]$
 $= 38 / (1.000 * 15231) + 0.70 * 4719 / 15231 + 0 / 15231$
 $= 0.003 + 0.217 + 0.000 = 0.219$
 Επάρκεια διατομής: **k = 0.321** OK

ΜΕΛΕΤΗ ΕΝΙΣΧΥΣΕΩΝ ΤΟΥ ΦΕΡΟΝΤΑ ΟΡΓΑΝΙΣΜΟΥ (ΕΠΙΛΥΣΗ Β)

ΕΝΙΣΧΥΣΕΙΣ ΔΟΚΩΝ ΜΕ ΣΥΝΘΕΤΑ ΥΛΙΚΑ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)
ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΥ Δ5 Α ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΣΚΥΡΟΔΕΜΑ
ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$
 Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$
 Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $ec,lim = 4.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.40 \text{ m}$
 Ύψος: $d_0 = 0.34 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσμένος: $A_{s1} = 8.00 \text{ cm}^2$
 Άνω, θλιβόμενος: $A_{s2} = 1.00 \text{ cm}^2$
 Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$
 Πλάτος λωρίδας $w_j = 120.00 \text{ cm}$
 Αριθμός λωρίδων $n = 1$
 Αριθμός στρώσεων $k = 1$
 Αριθμός τεμαχίων $m = n * k = 1$
 $k < 4 \Rightarrow \psi = 1.00$
 Εμβαδόν υλικού $A_j = k * m * t_{jk} * w_j = 1 * 1 * 0.02 * 40.00 = 0.68 \text{ cm}^2$
 Ενεργό πάχος $t_j = \psi * k * t_{jk} = 1.00 * 1 * 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 40.00 \text{ KN}$
 $M_{sd} = 50.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.059 \text{ m}$
 $F_{s1} = 120.00 \text{ KN}$
 $F_{s2} = 9.75 \text{ KN}$
 $F_c = 210.34 \text{ KN}$
 $F_j = 60.06 \text{ KN}$
 $es_1 = 3.66$
 $es_2 = 0.49$
 $ec_2 = 0.84$
 $a = 0.02 \text{ m}$
 $e_j = 4.01 \leq 4.00 \text{ OK}$
 $\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 210.34 + 9.75 - 120.00 + 40.00 - 60.06$
 $= 80.04 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} * (d_0 - d_2 - a) + F_{s2} * (a - d_1) + N_d * (d_0 / 2 - a) + F_j * (d_0 - a)$
 $= 120.00 * (0.34 - 0.020 - 0.02) + 9.75 * (0.02 - 0.020) + 40.00 * (0.34 / 2 - 0.02) + 60.06 * (0.34 - 0.021)$
 $= \mathbf{60.46 \text{ KN.m}}$
 Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 30.07 \text{ KN.m}$

Έλεγχος

$$k = M_{sd} / M_{rd} = 50.00 / 60.46 = 0.827$$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$$L_{en} = \sqrt{E_j \cdot t_j / 2 f_{ctm}} = \sqrt{(2200000 \cdot 0.17 / 2 \cdot 1.90)} = 9.9 \text{ cm}$$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $L_{av} \geq L_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 40/40) / (1 + 40/40))} = 0.71$$

$$\beta = \beta_w \cdot \beta_L = 0.71 \cdot 1.00 = 0.71$$

$$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$$

$$\sigma_{j_crit} = \beta \cdot \sqrt{E_j \cdot t_{b_apok} / 2 t_j} = 0.71 \cdot \sqrt{(2200000 \cdot 1.90 / (2 \cdot 0.17))} = 784 \text{ MPa}$$

$$\sigma_{jd} = \sigma_{j_crit} / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$$\Delta M = A_j \cdot z \cdot \sigma_{jd} = 0.000068 \cdot 0.306 \cdot 653360 = 13.60 \text{ KN.m}$$

$$M_{rd2} = M_{rd2} + M_{rd0} = 30.07 + 13.60 = 43.67 \text{ KN.m}$$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]

$$C_{rdc} = 0.18 / \gamma_c = 0.18 / 1.30 = 0.14$$

$$d = h - d_1 = 0.340 - 0.020 = 0.320 \text{ m}$$

$$k = \min(1 + \sqrt{0.2/d}, 2) = \min(1.791, 2) = 1.791$$

$$\rho = \min(A_{sL} / (b_w \cdot d), 0.02)$$

$$= \min(9.00 / (40 \cdot 32), 0.02)$$

$$= 0.00703$$

$$r_3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.00703 \cdot 15^{1/3} = 2.1930$$

$$\sigma_{cp} = \min(N_{ed} / (b_w \cdot h), 0.20 \cdot f_{cd}) = -0.294 \text{ MPa}$$

$$V_{rd,c} = (C_{rdc} \cdot k \cdot r_3 + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$$

$$= (0.14 \cdot 1.791 \cdot 2.1930 + 0.15 \cdot -0.29) \cdot 400 \cdot 320 / 1000$$

$$= 63.95 \text{ kN}$$

$$v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$$

$$= [0.035 \cdot 1.791^{3/2} \cdot 15^{1/2}] / 1000$$

$$= 0.325 \text{ MPa}$$

$$V_{rdc,min} = (v_{min} + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$$

$$= (0.325 + 0.15 \cdot -0.29) \cdot 400 \cdot 320$$

$$= 35.93 \text{ KN}$$

$$V_{rd,c} = \max(63.95, 35.93) = 63.95 \text{ KN}$$

Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 69.59 \text{ KN}$**

Διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΛΥ Δ34 Α ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΕΚΥΡΟΔΕΜΑ ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$

Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$

Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $e_{c,lim} = 4.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.50 \text{ m}$

Ύψος: $d_0 = 1.00 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσόμενος: $A_{s1} = 8.00 \text{ cm}^2$

Άνω, θλιβόμενος: $A_{s2} = 1.00 \text{ cm}^2$

Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$

Πλάτος λωρίδας $w_j = 50.00 \text{ cm}$

Αριθμός λωρίδων $n = 1$

Αριθμός στρώσεων $k = 1$

Αριθμός τεμαχίων $m = n \cdot k = 1$

$k < 4 \Rightarrow \psi = 1.00$

Εμβαδόν υλικού $A_j = k \cdot m \cdot t_{jk} \cdot w_j = 1 \cdot 1 \cdot 0.02 \cdot 50.00 = 0.85 \text{ cm}^2$

Ενεργό πάχος $t_j = \psi \cdot k \cdot t_{jk} = 1.00 \cdot 1 \cdot 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 40.00 \text{ KN}$
 $M_{sd} = 100.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.084 \text{ m}$
 $F_{s1} = 120.00 \text{ KN}$
 $F_{s2} = 15.00 \text{ KN}$
 $F_c = 529.42 \text{ KN}$
 $F_j = 384.49 \text{ KN}$
 $es1 = 20.00$
 $es2 = 1.32$
 $ec2 = 1.88$
 $a = 0.03 \text{ m}$
 $e_j = 20.56 \leq 4.00 \text{ OK}$
 $\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 529.42 + 15.00 - 120.00 + 40.00 - 384.49$
 $= 79.92 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} \cdot (d_0 - d_2 - a) + F_{s2} \cdot (a - d_1) + N_d \cdot (d_0/2 - a) + F_j \cdot (d_0 - a)$
 $= 120.00 \cdot (1.00 - 0.020 - 0.03) + 15.00 \cdot (0.03 - 0.020) + 40.00 \cdot (1.00/2 - 0.03) + 384.49 \cdot (1.00 - 0.031)$
 $= 504.66 \text{ KN.m}$
Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 95.80 \text{ KN.m}$

Έλεγχος

$k = M_{sd} / M_{rd} = 100.00 / 504.66 = 0.198$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$l_{en} = \sqrt{(E_j \cdot t_j / 2 f_{ctm})} = \sqrt{(220000 \cdot 0.17 / 2 \cdot 1.90)} = 9.9 \text{ cm}$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $l_{av} \geq l_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 50/50) / (1 + 50/50))} = 0.71$

$\beta = \beta_w \cdot \beta_L = 0.71 \cdot 1.00 = 0.71$

$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$

$\sigma_{j,crit} = \beta \cdot \sqrt{(E_j \cdot t_{b_apok} / 2 t_j)} = 0.71 \cdot \sqrt{(220000 \cdot 1.90 / (2 \cdot 0.17))} = 784 \text{ MPa}$

$\sigma_{jd} = \sigma_{j,crit} / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$\Delta M = A_j \cdot z \cdot \sigma_{jd} = 0.000085 \cdot 0.900 \cdot 653360 = 49.99 \text{ KN.m}$

$M_{rd2} = M_{rd0} + \Delta M = 95.80 + 49.99 = 145.79 \text{ KN.m}$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]

$Cr_{dc} = 0.18 / \gamma_c = 0.18 / 1.30 = 0.14$

$d = h - d_1 = 1.000 - 0.020 = 0.980 \text{ m}$

$k = \min(1 + \sqrt{(0.2/d)}, 2) = \min(1.452, 2) = 1.452$

$\rho = \min(A_{sL} / (b_w \cdot d), 0.02)$

$= \min(9.00 / (50 \cdot 98), 0.02)$

$= 0.00184$

$r_3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.00184 \cdot 15^{1/3} = 1.4019$

$\sigma_{cp} = \min(N_{ed} / (b_w \cdot h), 0.20 \cdot f_{cd}) = -0.080 \text{ MPa}$

$V_{rd,c} = (Cr_{dc} \cdot k \cdot r_3 + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.14 \cdot 1.452 \cdot 1.4019 + 0.15 \cdot -0.08) \cdot 500 \cdot 980 / 1000$
 $= 132.20 \text{ kN}$

$v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$
 $= [0.035 \cdot 1.452^{3/2} \cdot 15^{1/2}] / 1000$
 $= 0.237 \text{ MPa}$

$V_{rdc,min} = (v_{min} + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.237 + 0.15 \cdot -0.08) \cdot 500 \cdot 980$
 $= 110.30 \text{ KN}$

$V_{rd,c} = \max(132.20, 110.30) = 132.20 \text{ KN}$

Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 138.08 \text{ KN}$**

διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

**ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΥ Δ38 Α ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΣΚΥΡΟΔΕΜΑ
ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)**

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$
Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$
Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $ec,lim = 4.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.20 \text{ m}$
Ύψος: $d_0 = 1.00 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσόμενος: $A_{s1} = 10.00 \text{ cm}^2$
Άνω, θλιβόμενος: $A_{s2} = 1.00 \text{ cm}^2$
Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$
Πλάτος λωρίδας $w_j = 20.00 \text{ cm}$
Αριθμός λωρίδων $n = 1$
Αριθμός στρώσεων $k = 1$
Αριθμός τεμαχίων $m = n * k = 1$
 $k < 4 \Rightarrow \psi = 1.00$
Εμβαδόν υλικού $A_j = k * m * t_{jk} * w_j = 1 * 1 * 0.02 * 20.00 = 0.34 \text{ cm}^2$
Ενεργό πάχος $t_j = \psi * k * t_{jk} = 1.00 * 1 * 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 40.00 \text{ KN}$
 $M_{sd} = 80.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.063 \text{ m}$
 $F_{s1} = 150.00 \text{ KN}$
 $F_{s2} = 15.00 \text{ KN}$
 $F_c = 328.76 \text{ KN}$
 $F_j = 153.70 \text{ KN}$
 $es_1 = 20.00$
 $es_2 = 0.83$
 $ec_2 = 1.38$
 $a = 0.02 \text{ m}$
 $e_j = 20.55 \leq 4.00 \text{ OK}$
 $\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 328.76 + 15.00 - 150.00 + 40.00 - 153.70$
 $= 80.06 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} * (d_0 - d_2 - a) + F_{s2} * (a - d_1) + N_d * (d_0/2 - a) + F_j * (d_0 - a)$
 $= 150.00 * (1.00 - 0.020 - 0.02) + 15.00 * (0.02 - 0.020) + 40.00 * (1.00/2 - 0.02) + 153.70 * (1.00 - 0.023)$
 $= 312.15 \text{ KN.m}$

Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 123.14 \text{ KN.m}$

Έλεγχος

$k = M_{sd} / M_{rd} = 80.00 / 312.15 = 0.256$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$l_{en} = \sqrt{(E_j * t_j / 2 f_{ctm})} = \sqrt{(220000 * 0.17 / 2 * 1.90)} = 9.9 \text{ cm}$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $l_{av} \geq l_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 20/20) / (1 + 20/20))} = 0.71$

$\beta = \beta_w * \beta_L = 0.71 * 1.00 = 0.71$

$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$

$\sigma_{j,crit} = \beta * \sqrt{(E_j * t_{b_apok} / 2 t_j)} = 0.71 * \sqrt{(220000 * 1.90 / (2 * 0.17))} = 784 \text{ MPa}$

$\sigma_{jd} = \sigma_{j,crit} / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$\Delta M = A_j * z * \sigma_{jd} = 0.000034 * 0.900 * 653360 = 19.99 \text{ KN.m}$

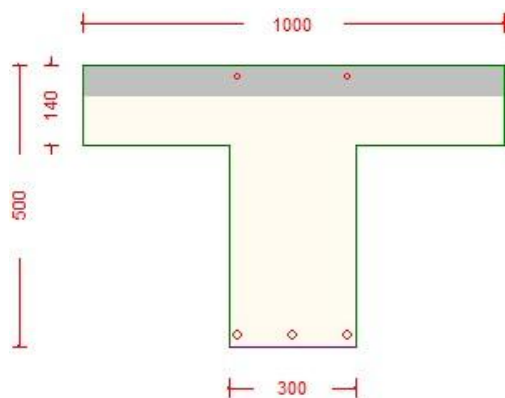
$M_{rd2} = M_{rd2} + M_{rd0} = 123.14 + 19.99 = 143.14 \text{ KN.m}$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]
 $Cr_{dc} = 0.18/\gamma_c = 0.18/1.30 = 0.14$
 $d = h - d_1 = 1.000 - 0.020 = 0.980 \text{ m}$
 $k = \min(1 + \sqrt{0.2/d}, 2) = \min(1.452, 2) = 1.452$
 $\rho = \min(A_{sL}/(b_w * d), 0.02)$
 $= \min(11.00/(20 * 98), 0.02)$
 $= 0.00561$
 $r_3 = (100 * \rho * f_{ck})^{1/3} = 100 * 0.00561 * 15^{1/3} = 2.0343$
 $\sigma_{cp} = \min(N_{ed}/(b_w * h), 0.20 * f_{cd}) = -0.200 \text{ MPa}$
 $V_{rd,c} = (Cr_{dc} * k * r_3 + k_1 * \sigma_{cp}) * b_w * d$
 $= (0.14 * 1.452 * 2.0343 + 0.15 * -0.20) * 200 * 980 / 1000$
 $= 74.27 \text{ kN}$
 $v_{min} = 0.035 * k^{3/2} * f_{ck}^{1/2}$
 $= [0.035 * 1.452^{3/2} * 15^{1/2}] / 1000$
 $= 0.237 \text{ MPa}$
 $V_{rdc,min} = (v_{min} + k_1 * \sigma_{cp}) * b_w * d$
 $= (0.237 + 0.15 * -0.20) * 200 * 980$
 $= 40.59 \text{ kN}$
 $V_{rd,c} = \max(74.27, 40.59) = 74.27 \text{ kN}$
 Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 80.15 \text{ kN}$**
 διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΥ Δ16 Β ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΕΚΥΡΟΔΕΜΑ ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)



Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$
 Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$
 Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $e_{c,lim} = 7.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.30 \text{ m}$
 Ύψος: $d_0 = 0.50 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσμένος: $A_{s1} = 10.00 \text{ cm}^2$
 Άνω, θλιβόμενος: $A_{s2} = 1.50 \text{ cm}^2$
 Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$
 Πλάτος λωρίδας $w_j = 30.00 \text{ cm}$
 Αριθμός λωρίδων $n = 1$
 Αριθμός στρώσεων $k = 1$
 Αριθμός τεμαχίων $m = n * k = 1$
 $k < 4 \Rightarrow \psi = 1.00$
 Εμβαδόν υλικού $A_j = k * m * t_{jk} * w_j = 1 * 1 * 0.02 * 30.00 = 0.51 \text{ cm}^2$
 Ενεργό πάχος $t_j = \psi * k * t_{jk} = 1.00 * 1 * 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 0.00 \text{ kN}$
 $M_{sd} = 80.00 \text{ kN.m}$

Ισορροπία διατομής

$x = 0.051 \text{ m}$
 $F_{s1} = 150.00 \text{ KN}$
 $F_{s2} = 22.50 \text{ KN}$
 $F_c = 365.21 \text{ KN}$
 $F_j = 237.64 \text{ KN}$
 $e_{s1} = 20.00$
 $e_{s2} = 1.24$
 $e_{c2} = 2.42$
 $a = 0.02 \text{ m}$
 $e_j = 21.18 \leq 7.00 \text{ OK}$
 $\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 365.21 + 22.50 - 150.00 + 0.00 - 237.64$
 $= 0.07 \text{ KN}$

Ροπή Αντοχής

$M, rd = F_{s1} \cdot (d_0 - d_2 - a) + F_{s2} \cdot (a - d_1) + N_d \cdot (d_0/2 - a) + F_j \cdot (d_0 - a)$
 $= 150.00 \cdot (0.50 - 0.020 - 0.02) + 22.50 \cdot (0.02 - 0.020) + 0.00 \cdot (0.50/2 - 0.02) + 237.64 \cdot (0.50 - 0.020)$
 $= 182.22 \text{ KN.m}$

Ροπή Αντοχής χωρίς ενίσχυση $M, rd, 0 = 67.78 \text{ KN.m}$

Έλεγχος

$k = M, sd / M, rd = 80.00 / 182.22 = 0.439$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$Len = \sqrt{E_j \cdot t_j / 2f_{ctm}} = \sqrt{(220000 \cdot 0.17 / 2 \cdot 1.90)} = 9.9 \text{ cm}$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $L_{av} \geq Len$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 30/30) / (1 + 30/30))} = 0.71$

$\beta = \beta_w \cdot \beta_L = 0.71 \cdot 1.00 = 0.71$

$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$

$\sigma_j, crit = \beta \cdot \sqrt{E_j \cdot t_{b_apok} / 2t_j} = 0.71 \cdot \sqrt{(220000 \cdot 1.90 / (2 \cdot 0.17))} = 784 \text{ MPa}$

$\sigma_{jd} = \sigma_j, crit / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$\Delta M = A_j \cdot z \cdot \sigma_{jd} = 0.000051 \cdot 0.450 \cdot 653360 = 15.00 \text{ KN.m}$

$M_{rd2} = M_{rd2} + M_{rd0} = 67.78 + 15.00 = 82.78 \text{ KN.m}$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd, c}$ [EN 1992-1-1:2003, 6.2.2]

$Cr_{dc} = 0.18/\gamma_c = 0.18/1.30 = 0.14$

$d = h - d_1 = 0.500 - 0.020 = 0.480 \text{ m}$

$k = \min(1 + \sqrt{0.2/d}, 2) = \min(1.645, 2) = 1.645$

$\rho = \min(A_{sL}/(b_w \cdot d), 0.02)$

$= \min(11.50/(30 \cdot 48), 0.02)$

$= 0.00799$

$r_3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.00799 \cdot 15^{1/3} = 2.2881$

$\sigma_{cp} = \min(N_{ed}/(b_w \cdot h), 0.20 \cdot f_{cd}) = 0.000 \text{ MPa}$

$V_{rd, c} = (Cr_{dc} \cdot k \cdot r_3 + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$

$= (0.14 \cdot 1.645 \cdot 2.2881 + 0.15 \cdot 0.00) \cdot 300 \cdot 480 / 1000$

$= 75.07 \text{ kN}$

$v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$

$= [0.035 \cdot 1.645^{3/2} \cdot 15^{1/2}] / 1000$

$= 0.286 \text{ MPa}$

$V_{rdc, min} = (v_{min} + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$

$= (0.286 + 0.15 \cdot 0.00) \cdot 300 \cdot 480$

$= 41.20 \text{ KN}$

$V_{rd, c} = \max(75.07, 41.20) = 75.07 \text{ KN}$

Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 75.07 \text{ KN}$**

διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΥ Δ20-30-36 Β ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ

ΣΚΥΡΟΔΕΜΑ ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$

Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$

Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $e_{c, lim} = 7.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.20 \text{ m}$

Ύψος: $d_0 = 0.55 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσόμενος: $As_1 = 10.00 \text{ cm}^2$

Άνω, θλιβόμενος: $As_2 = 1.50 \text{ cm}^2$

Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$

Πλάτος λωρίδας $w_j = 20.00 \text{ cm}$

Αριθμός λωρίδων $n = 1$

Αριθμός στρώσεων $k = 1$

Αριθμός τεμαχίων $m = n * k = 1$

$k < 4 \Rightarrow \psi = 1.00$

Εμβαδόν υλικού $A_j = k * m * t_{jk} * w_j = 1 * 1 * 0.02 * 20.00 = 0.34 \text{ cm}^2$

Ενεργό πάχος $t_j = \psi * k * t_{jk} = 1.00 * 1 * 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 0.00 \text{ KN}$

$M_{sd} = 60.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.045 \text{ m}$

$F_{s1} = 150.00 \text{ KN}$

$F_{s2} = 22.50 \text{ KN}$

$F_c = 284.88 \text{ KN}$

$F_j = 157.39 \text{ KN}$

$es_1 = 20.00$

$es_2 = 0.84$

$ec_2 = 1.88$

$a = 0.02 \text{ m}$

$e_j = 21.04 \leq 7.00 \text{ OK}$

$\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 284.88 + 22.50 - 150.00 + 0.00 - 157.39$
 $= -0.01 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} * (d_0 - d_2 - a) + F_{s2} * (a - d_1) + N_d * (d_0 / 2 - a) + F_j * (d_0 - a)$
 $= 150.00 * (0.55 - 0.020 - 0.02) + 22.50 * (0.02 - 0.020) + 0.00 * (0.55 / 2 - 0.02) + 157.39 * (0.55 - 0.017)$
 $= 159.99 \text{ KN.m}$

Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 73.93 \text{ KN.m}$

Έλεγχος

$k = M_{sd} / M_{rd} = 60.00 / 159.99 = 0.375$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$l_{en} = \sqrt{(E_j * t_j / 2 f_{ctm})} = \sqrt{(220000 * 0.17 / 2 * 1.90)} = 9.9 \text{ cm}$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $l_{av} \geq l_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$\beta_w = \sqrt{((2 - b_j / b_w) / (1 + b_j / b_w))} = \sqrt{((2 - 20 / 20) / (1 + 20 / 20))} = 0.71$

$\beta = \beta_w * \beta_L = 0.71 * 1.00 = 0.71$

$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$

$\sigma_{j,crit} = \beta * \sqrt{(E_j * t_{b_apok} / 2 t_j)} = 0.71 * \sqrt{(220000 * 1.90 / (2 * 0.17))} = 784 \text{ MPa}$

$\sigma_{jd} = \sigma_{j,crit} / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$\Delta M = A_j * z * \sigma_{jd} = 0.000034 * 0.495 * 653360 = 11.00 \text{ KN.m}$

$M_{rd2} = M_{rd2} + M_{rd0} = 73.93 + 11.00 = 84.93 \text{ KN.m}$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]

$Cr_{dc} = 0.18 / \gamma_c = 0.18 / 1.30 = 0.14$

$d = h - d_1 = 0.550 - 0.020 = 0.530 \text{ m}$

$k = \min(1 + \sqrt{(0.2 / d)}, 2) = \min(1.614, 2) = 1.614$

$\rho = \min(As_L / (b_w * d), 0.02)$

$= \min(11.50 / (20 * 53), 0.02)$

$\rho = 0.01085$
 $r3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.01085 \cdot 15)^{1/3} = 2.5341$
 $\sigma_{cp} = \min(N_{ed} / (b_w \cdot h), 0.20 \cdot f_{cd}) = 0.000 \text{ MPa}$
 $V_{rd,c} = (C_{rd,c} \cdot k \cdot r3 + k1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.14 \cdot 1.614 \cdot 2.5341 + 0.15 \cdot 0.00) \cdot 200 \cdot 530 / 1000$
 $= 60.04 \text{ kN}$
 $v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$
 $= [0.035 \cdot 1.614^{3/2} \cdot 15^{1/2}] / 1000$
 $= 0.278 \text{ MPa}$
 $V_{rdc,min} = (v_{min} + k1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.278 + 0.15 \cdot 0.00) \cdot 200 \cdot 530$
 $= 29.47 \text{ KN}$
 $V_{rd,c} = \max(60.04, 29.47) = 60.04 \text{ KN}$
 Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **Vsd < 60.04 KN**
 διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΔΙΑΤΟΜΗΣ ΔΟΚΟΥ Δ41 Β ΟΡΟΦΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΣΚΥΡΟΔΕΜΑ ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$
 Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$
 Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $\epsilon_{c,lim} = 7.00 \%$

Διαστάσεις

Πλάτος: $b_0 = 0.30 \text{ m}$
 Ύψος: $d_0 = 0.45 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσμένος: $A_{s1} = 10.00 \text{ cm}^2$
 Άνω, θλιβόμενος: $A_{s2} = 1.50 \text{ cm}^2$
 Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.17 \text{ mm}$
 Πλάτος λωρίδας $w_j = 30.00 \text{ cm}$
 Αριθμός λωρίδων $n = 1$
 Αριθμός στρώσεων $k = 1$
 Αριθμός τεμαχίων $m = n \cdot k = 1$
 $k < 4 \Rightarrow \psi = 1.00$
 Εμβαδόν υλικού $A_j = k \cdot m \cdot t_{jk} \cdot w_j = 1 \cdot 1 \cdot 0.02 \cdot 30.00 = 0.51 \text{ cm}^2$
 Ενεργό πάχος $t_j = \psi \cdot k \cdot t_{jk} = 1.00 \cdot 1 \cdot 0.17 = 0.17 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 0.00 \text{ KN}$
 $M_{sd} = 80.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.050 \text{ m}$
 $F_{s1} = 150.00 \text{ KN}$
 $F_{s2} = 22.50 \text{ KN}$
 $F_c = 366.89 \text{ KN}$
 $F_j = 239.36 \text{ KN}$
 $\epsilon_{s1} = 20.00$
 $\epsilon_{s2} = 1.33$
 $\epsilon_{c2} = 2.66$
 $a = 0.02 \text{ m}$
 $e_j = 21.33 \leq 7.00 \text{ OK}$
 $\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 366.89 + 22.50 - 150.00 + 0.00 - 239.36$
 $= 0.03 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} \cdot (d_0 - d_2 - a) + F_{s2} \cdot (a - d_1) + N_d \cdot (d_0/2 - a) + F_j \cdot (d_0 - a)$
 $= 150.00 \cdot (0.45 - 0.020 - 0.02) + 22.50 \cdot (0.02 - 0.020) + 0.00 \cdot (0.45/2 - 0.02) + 239.36 \cdot (0.45 - 0.020)$
 $= 163.65 \text{ KN.m}$
 Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 60.31 \text{ KN.m}$

Έλεγχος

$$k = M_{sd} / M_{rd} = 80.00 / 163.65 = \mathbf{0.489}$$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$$l_{en} = \sqrt{E_j \cdot t_j / 2 f_{ctm}} = \sqrt{(2200000 \cdot 0.17 / 2 \cdot 1.90)} = \mathbf{9.9 \text{ cm}}$$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $l_{av} \geq l_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 30/30) / (1 + 30/30))} = 0.71$$

$$\beta = \beta_w \cdot \beta_L = 0.71 \cdot 1.00 = 0.71$$

$$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$$

$$\sigma_{j,crit} = \beta \cdot \sqrt{E_j \cdot t_{b_apok} / 2 t_j} = 0.71 \cdot \sqrt{(2200000 \cdot 1.90 / (2 \cdot 0.17))} = 784 \text{ MPa}$$

$$\sigma_{jd} = \sigma_{j,crit} / \gamma_{Rd} = 784.03 / 1.20 = 653.36 \text{ MPa}$$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$$\Delta M = A_j \cdot z \cdot \sigma_{jd} = 0.000051 \cdot 0.405 \cdot 653360 = 13.50 \text{ KN.m}$$

$$M_{rd2} = M_{rd2} + M_{rd0} = 60.31 + 13.50 = \mathbf{73.81 \text{ KN.m}}$$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]

$$C_{rdc} = 0.18 / \gamma_c = 0.18 / 1.30 = 0.14$$

$$d = h - d_1 = 0.450 - 0.020 = 0.430 \text{ m}$$

$$k = \min(1 + \sqrt{0.2/d}, 2) = \min(1.682, 2) = 1.682$$

$$\rho = \min(A_{sL} / (b_w \cdot d), 0.02)$$

$$= \min(11.50 / (30 \cdot 43), 0.02)$$

$$= 0.00891$$

$$r_3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.00891 \cdot 15^{1/3} = 2.3736$$

$$\sigma_{cp} = \min(N_{ed} / (b_w \cdot h), 0.20 \cdot f_{cd}) = 0.000 \text{ MPa}$$

$$V_{rd,c} = (C_{rdc} \cdot k \cdot r_3 + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$$

$$= (0.14 \cdot 1.682 \cdot 2.3736 + 0.15 \cdot 0.00) \cdot 300 \cdot 430 / 1000$$

$$= 71.31 \text{ kN}$$

$$v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$$

$$= [0.035 \cdot 1.682^{3/2} \cdot 15^{1/2}] / 1000$$

$$= 0.296 \text{ MPa}$$

$$V_{rdc,min} = (v_{min} + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$$

$$= (0.296 + 0.15 \cdot 0.00) \cdot 300 \cdot 430$$

$$= 38.15 \text{ KN}$$

$$V_{rd,c} = \max(71.31, 38.15) = 71.31 \text{ KN}$$

Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 71.31 \text{ KN}$**

διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΠΛΑΚΑΣ Π8 ΓΣΟΓΕΙΟΥ ΑΠΟ ΟΠΛΙΣΜΕΝΟ ΣΚΥΡΟΔΕΜΑ ΜΕ ΕΝΙΣΧΥΣΗ ΣΥΝΘΕΤΩΝ ΥΛΙΚΩΝ (ΑΝΘΡΑΚΟΥΦΑΣΜΑΤΑ)

Υλικά

Χάλυβας: $f_{yk} = 180.0 \text{ MPa}$

Σκυρόδεμα: $f_{ck} = 15.0 \text{ MPa}$

Σύνθετο υλικό: $E_j = 220.0 \text{ GPa}$, $\epsilon_{c,lim} = 4.00 \text{ ‰}$

Διαστάσεις

Πλάτος: $b_0 = 1.00 \text{ m}$

Ύψος: $d_0 = 0.14 \text{ m}$

Οπλισμοί

Κάτω, εφελκυσμένος: $A_{s1} = 4.00 \text{ cm}^2$

Άνω, θλιβόμενος: $A_{s2} = 1.00 \text{ cm}^2$

Επικάλυψη οπλισμών: $c = 0.020 \text{ m}$, $d_1 = d_2 = 0.025$

Σύνθετο υλικό

Πάχος στρώσης $t_{jk} = 0.34 \text{ mm}$

Πλάτος λωρίδας $w_j = 100.00 \text{ cm}$

Αριθμός λωρίδων $n = 1$

Αριθμός στρώσεων $k = 1$

Αριθμός τεμαχίων $m = n \cdot k = 1$

$k < 4 \Rightarrow \psi = 1.00$

Εμβαδόν υλικού $A_j = k \cdot m \cdot t_{jk} \cdot w_j = 1 \cdot 1 \cdot 0.03 \cdot 100.00 = 3.40 \text{ cm}^2$

Ενεργό πάχος $t_j = \psi \cdot k \cdot t_{jk} = 1.00 \cdot 1 \cdot 0.34 = 0.34 \text{ mm}$

Εντατικά μεγέθη

$N_{sd} = 0.00 \text{ KN}$

$M_{sd} = 30.00 \text{ KN.m}$

Ισορροπία διατομής

$x = 0.050 \text{ m}$

$F_{s1} = 60.00 \text{ KN}$

$F_{s2} = 15.00 \text{ KN}$

$F_c = 340.96 \text{ KN}$

$F_j = 295.94 \text{ KN}$

$e_{s1} = 2.86$

$e_{s2} = 1.10$

$e_{c2} = 2.19$

$a = 0.02 \text{ m}$

$e_j = 3.96 \leq 4.00 \text{ OK}$

$\Sigma F = F_c + F_{s2} - F_{s1} + N_d - F_j$
 $= 340.96 + 15.00 - 60.00 + 0.00 - 295.94$
 $= 0.02 \text{ KN}$

Ροπή Αντοχής

$M_{rd} = F_{s1} \cdot (d_0 - d_2 - a) + F_{s2} \cdot (a - d_1) + N_d \cdot (d_0/2 - a) + F_j \cdot (d_0 - a)$
 $= 60.00 \cdot (0.14 - 0.020 - 0.02) + 15.00 \cdot (0.02 - 0.020) + 0.00 \cdot (0.14/2 - 0.02) + 295.94 \cdot (0.14 - 0.019)$
 $= 41.47 \text{ KN.m}$

Ροπή Αντοχής χωρίς ενίσχυση $M_{rd,0} = 6.69 \text{ KN.m}$

Έλεγχος

$k = M_{sd} / M_{rd} = 30.00 / 41.47 = 0.723$

Αποφυγή αστοχίας λόγω αποκόλλησης

Ενεργό μήκος αγκύρωσης:

$l_{en} = \sqrt{(E_j \cdot t_j / 2 f_{ctm})} = \sqrt{(220000 \cdot 0.34 / 2 \cdot 1.90)} = 14.0 \text{ cm}$

Θεωρούμε ότι το μήκος αγκύρωσης θα είναι $l_{av} \geq l_{en}$, οπότε $\lambda = 1.00$ και $\beta_L = 1.00$

$\beta_w = \sqrt{((2 - b_j/b_w) / (1 + b_j/b_w))} = \sqrt{((2 - 100/100) / (1 + 100/100))} = 0.71$

$\beta = \beta_w \cdot \beta_L = 0.71 \cdot 1.00 = 0.71$

$t_{b_apok} = f_{ctm} = 1.90 \text{ MPa}$

$\sigma_{j,crit} = \beta \cdot \sqrt{(E_j \cdot t_{b_apok} / 2 t_j)} = 0.71 \cdot \sqrt{(220000 \cdot 1.90 / (2 \cdot 0.34))} = 554 \text{ MPa}$

$\sigma_{jd} = \sigma_{j,crit} / \gamma_{Rd} = 554.39 / 1.20 = 462.00 \text{ MPa}$

Προσεγγιστικός υπολογισμός ροπής αντοχής με βάση τη σ_{jd}

$\Delta M = A_j \cdot z \cdot \sigma_{jd} = 0.000340 \cdot 0.126 \cdot 461995 = 19.82 \text{ KN.m}$

$M_{rd2} = M_{rd2} + M_{rd0} = 6.69 + 19.82 = 26.50 \text{ KN.m}$

Αποφυγή αστοχίας λόγω απόσχισης

Διατμητική αντοχή διατομής

Υπολογισμός $V_{rd,c}$ [EN 1992-1-1:2003, 6.2.2]

$Cr_{dc} = 0.18 / \gamma_c = 0.18 / 1.30 = 0.14$

$d = h - d_1 = 0.140 - 0.020 = 0.120 \text{ m}$

$k = \min(1 + \sqrt{(0.2/d)}, 2) = \min(2.291, 2) = 2.000$

$\rho = \min(A_{sL} / (b_w \cdot d), 0.02)$

$= \min(5.00 / (100 \cdot 12), 0.02)$

$= 0.00417$

$r_3 = (100 \cdot \rho \cdot f_{ck})^{1/3} = 100 \cdot 0.00417 \cdot 15^{1/3} = 1.8420$

$\sigma_{cp} = \min(N_{ed} / (b_w \cdot h), 0.20 \cdot f_{cd}) = 0.000 \text{ MPa}$

$V_{rd,c} = (Cr_{dc} \cdot k \cdot r_3 + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.14 \cdot 2.000 \cdot 1.8420 + 0.15 \cdot 0.00) \cdot 1000 \cdot 120 / 1000$
 $= 61.21 \text{ kN}$

$v_{min} = 0.035 \cdot k^{3/2} \cdot f_{ck}^{1/2}$
 $= [0.035 \cdot 2.000^{3/2} \cdot 15^{1/2}] / 1000$
 $= 0.383 \text{ MPa}$

$V_{rdc,min} = (v_{min} + k_1 \cdot \sigma_{cp}) \cdot b_w \cdot d$
 $= (0.383 + 0.15 \cdot 0.00) \cdot 1000 \cdot 120$
 $= 46.01 \text{ KN}$

$V_{rd,c} = \max(61.21, 46.01) = 61.21 \text{ KN}$

Στο σημείο απόληξης του οπλισμού ενίσχυσης πρέπει **$V_{sd} < 61.21 \text{ KN}$**

Διαφορετικά απαιτείται επιπλέον εξωτερικός οπλισμός διάτμησης

ΕΛΕΓΧΟΣ ΑΓΚΥΡΙΩΝ ΕΝΙΣΧΥΣΗΣ ΔΙΑΤΜΗΤΙΚΗΣ ΚΑΙ ΕΦΕΛΚΥΣΤΙΚΗΣ ΑΝΤΟΧΗΣ ΤΩΝ ΔΙΑΣΤΑΥΡΩΣΕΩΝ ΤΩΝ ΠΕΣΣΩΝ (ΕΞΩΤΕΡΙΚΕΣ ΓΩΝΙΕΣ ΤΟΙΧΟΠΟΙΩΝ)

Από 1η επίλυση προέκυψαν υπερβάσεις διατμητικών και χαμηλών καμπτικών εφελκυστικών εντάσεων ($v_{sd}, m_{sd}-f_{wc}$) σε σχέση με τις οριακές αντοχές (v_{rd}, m_{rd}). Μέγιστες διαφορές (λαμβάνονται ως δυσμενέστερη και για τους υπολοίπους πεσσούς)

$$\Delta V_{sd} = V_{rd} - V_{sd} = 296.00 \text{ KN}$$

$$\text{Συνολική τέμνουσα υπολογισμού } V_{sd} = 296.00 \text{ KN} / 3.00 = 98.66 \text{ KN/m}$$

Το κάθε αγκύριο θεωρείται ως μονότιμος συνδετήρας όπου η τέμνουσα που παραλαμβάνει είναι $V_{sd} = V_{rd} = V_{wd} + V_{cd}$, $V_{cd} = 0$ (θλιβόμενο πέλμα σε σεισμική φόρτιση)

$$\text{Αρα } V_{wd} = V_{sd} = 98.66 \text{ KN} = (A_s/s) \cdot f_{yd} \cdot 0.90 \cdot d$$

Όπου d = στατικό ύψος διατομής = 0.35m

$$f_{yd} = 220 \text{ MPa}$$

$$s = 0.40 \text{ m}$$

$$\text{Αρα } A_s = 0.75 \text{ cm}^2$$

Επιλέγεται ένα αγκύριο $\Phi 10$ ανά 40εκ

ΣΗΜΕΙΩΣΗ: Η οπή θα επουλωθεί με τσιμεντένεμα ή ρητινέμεμα κατάλληλης σύνθεσης θιξοτροπικό.

ΕΝΙΣΧΥΣΗ ΠΕΣΣΩΝ ΔΥΟ ΠΛΕΥΡΩΝ ΜΕ ΑΝΟΞΕΙΔΩΤΑ ΙΝΟΠΛΕΓΜΑΤΑ ΑΠΟ ΒΑΛΣΑΤΗ DRID 200 ΤΗΣ ΚΕΡΑΚΟΙ

ΔΙΑΣΤΑΣΕΙΣ:

$$\text{Ορθογωνικό } 40/125$$

$$A_c = 5000.00 \text{ cm}^2$$

ΥΛΙΚΑ ΥΦΙΣΤΑΜΕΝΟΥ:

$$\text{Τοιχοποιία } f_{ck} = 2.90 \text{ MPa}, f_{cd} = f_{ck}/\gamma_m = 2.90/1.50 = 1.90 \text{ MPa}, f_{wt} = 0.25 \text{ MPa}$$

ΥΛΙΚΟ ΕΝΙΣΧΥΣΗΣ:

ΠΟΛΥΑΡΑΜΙΔΗ

$$\text{Συντελεστές ασφαλείας: } \gamma_f = 1.25, \gamma_{f1} = 1.25, \gamma_{fb} = 1.30$$

$$\text{Μέτρο Ελαστικότητας } E_f = 60 \text{ GPa}$$

$$\text{Παραμόρφωση θραύσης } \epsilon_{fuk} = 0.017$$

$$\text{Πάχος μιας στρώσης } t_j = 1.00 \text{ mm}$$

$$\text{Αριθμός στρώσεων } n = 1$$

ΑΞΟΝΙΚΗ ΔΥΝΑΜΗ:

$$N_{sd} = -80.00 \text{ KN}$$

Ανηγμένη αξονική δύναμη:

$$v_d = N_{sd} / (0.85 \cdot f_{cd} \cdot A_c) = 80.00 / (0.85 \cdot 1.923 \cdot 0.5000) = 0.098$$

Διεύθυνση X-X

ΑΝΤΟΧΗ ΣΕ ΤΕΜΝΟΥΣΑ:

Αντοχή ύφιστάμενου οπλισμού:

Αντοχή μανδύα:

$$\rho_w = 2 \cdot n \cdot t_j / b_w = 0.002$$

$$\epsilon_{fde} = \min(0.17 \cdot \epsilon_{fuk} / \gamma_f \cdot (f_{cm}^{(2/3)} / (E_f \cdot \rho_w))^{0.30}, 0.006 / \gamma_{f1})$$

$$= \min(0.00747, 0.00480) = 0.00480$$

$$V_j = 1.80 \cdot n \cdot t_j \cdot h \cdot \epsilon_{fde} \cdot E_f = 1.80 \cdot 1 \cdot 1.00 \cdot 1.25 \cdot 0.00480 \cdot 60 = 248.00 \text{ KN}$$

$$\text{Συνολική αντοχή ινοπλεγματος } V_r = V_w + V_j = 248.00 \text{ KN}$$

ΑΥΞΗΣΗ ΟΛΙΠΤΙΚΗΣ ΑΝΤΟΧΗΣ:

$$b_0 = 0.400 - 0.000 - 2 \cdot 0.002 - 2 \cdot 0.020 = 0.356 \text{ m}$$

$$d_0 = 1.250 - 0.000 - 2 \cdot 0.002 - 2 \cdot 0.020 = 1.206 \text{ m}$$

$$A_{swv} = (0.356 \cdot 2 + 1.206 \cdot 2) \cdot 0.0314 = 0.098 \text{ cm}^2$$

$$w_{wd} = 0.01 \cdot 0.098 / (50 \cdot 1.206 \cdot 0.356) \cdot 0.83 / 1.92 = 0.0000$$

$$\alpha = \alpha_n \cdot \alpha_s = 0.3333 \cdot 0.0903 = 0.0301$$

$$\alpha \cdot w_{wd} = 0.0301 \cdot 0.0000 = 0.0000 < 0.10 \Rightarrow f_{cc1} = (1 + 1.25 \cdot \alpha \cdot w_{wd}) \cdot f_c = 1.000 \cdot 1.92 = 1.92 \text{ MPa}$$

μετά την ενίσχυση:

$$\rho_{sj} = 0.001 \cdot 1 \cdot 1.000 \cdot 2 \cdot (0.40 + 1.25) / (0.40 \cdot 1.25) = 0.007$$

$$f_{cc2} = (1 + 1.50 \cdot \rho_{sj}) \cdot f_{cc1} = 1.01 \cdot 1.92 = 1.94 \text{ MPa}$$

ΤΟΠΙΚΗ ΠΛΑΣΤΙΜΟΤΗΤΑ:

πριν την ενίσχυση:

$$e_{c0} = 0.0035 + 0.10 \cdot \alpha \cdot w_{wd} = 0.0035$$

$$\phi_y = 60.99 \text{ mrad/m}$$

$\varphi_u = e_{c0}/c_u = 0.004/0.050 = 69.93 \text{ mrad/m}$
 $\mu\varphi = \varphi_u/\varphi_y = 69.93/60.99 = 1.147$
 μετά την ενίσχυση:
 $e_{cu} = \rho_{sj} \cdot f_{uj} \cdot e_{uj} / (0.80 \cdot f_{cc}) + e_{c0} = 0.007 \cdot 0.816 \cdot 0.014 / (0.80 \cdot 2.52) + 0.0035 = 0.040$
 $\varphi_y = 60.92 \text{ mrad/m}$
 $\varphi_u = e_{cu}/c_u = 0.040/0.050 = 799.64 \text{ mrad/m}$
 $\mu\varphi = \varphi_u/\varphi_y = 799.64/60.92 = 13.125$

Διεύθυνση Y-Y

ΑΝΤΟΧΗ ΣΕ ΤΕΜΝΟΥΣΑ:

Αντοχή ύφιστάμενων συνδετήρων:

$A_{sw} = 2 \cdot 0.03 = 0.06 \text{ cm}^2/\text{m}$

$V_{wd} = 10 \cdot 0.06/50 \cdot 0.90 \cdot 1.228 \cdot 0.83 = 0.01 \text{ KN}$

Αντοχή μανδύα:

$\rho_w = 2 \cdot n \cdot t_j / b_w = 0.005$

$ef_{de} = \min(0.17 \cdot e_{fuk} / \gamma_f \cdot (f_{cm}^{(2/3)} / (E_f \cdot \rho_w))^{0.30}, 0.006 / \gamma_{f1})$
 $= \min(0.00531, 0.00480) = 0.00480$

$V_j = 1.80 \cdot n \cdot t_j \cdot h \cdot ef_{de} \cdot E_f = 1.80 \cdot 1 \cdot 1.00 \cdot 0.40 \cdot 0.00480 \cdot 60 = 207.36 \text{ KN}$

Συνολική αντοχή ινοπλεγματος $V_r = V_w + V_j = 207.37 \text{ KN}$

ΑΥΞΗΣΗ ΘΛΙΠΤΙΚΗΣ ΑΝΤΟΧΗΣ:

$b_0 = 1.250 - 0.000 - 2 \cdot 0.002 - 2 \cdot 0.020 = 1.206 \text{ m}$

$d_0 = 0.400 - 0.000 - 2 \cdot 0.002 - 2 \cdot 0.020 = 0.356 \text{ m}$

$A_{swv} = (1.206 \cdot 2 + 0.356 \cdot 2) \cdot 0.0314 = 0.098 \text{ cm}^2$

$w_{wd} = 0.01 \cdot 0.098 / (50 \cdot 0.356 \cdot 1.206) \cdot 0.83 / 1.92 = 0.0000$

$\alpha = \alpha_n \cdot \alpha_s = 0.3333 \cdot 0.6297 = 0.2099$

$\alpha \cdot w_{wd} = 0.2099 \cdot 0.0000 = 0.0000 < 0.10 \Rightarrow f_{cc1} = (1 + 1.25 \cdot \alpha \cdot w_{wd}) \cdot f_c = 1.000 \cdot 1.92 = 1.92 \text{ MPa}$

μετά την ενίσχυση:

$\rho_{sj} = 0.001 \cdot 1 \cdot 1.000 \cdot 2 \cdot (0.40 + 1.25) / (0.40 \cdot 1.25) = 0.007$

$f_{cc2} = (1 + 1.50 \cdot \rho_{sj}) \cdot f_{cc1} = 1.01 \cdot 1.92 = 1.94 \text{ MPa}$

ΤΟΠΙΚΗ ΠΛΑΣΤΙΜΟΤΗΤΑ:

πριν την ενίσχυση:

$e_{c0} = 0.0035 + 0.10 \cdot \alpha \cdot w_{wd} = 0.0035$

$\varphi_y = 18.69 \text{ mrad/m}$

$\varphi_u = e_{c0}/c_u = 0.004/0.158 = 22.14 \text{ mrad/m}$

$\mu\varphi = \varphi_u/\varphi_y = 22.14/18.69 = 1.185$

μετά την ενίσχυση:

$e_{cu} = \rho_{sj} \cdot f_{uj} \cdot e_{uj} / (0.80 \cdot f_{cc}) + e_{c0} = 0.007 \cdot 0.816 \cdot 0.014 / (0.80 \cdot 2.52) + 0.0035 = 0.040$

$\varphi_y = 18.67 \text{ mrad/m}$

$\varphi_u = e_{cu}/c_u = 0.040/0.157 = 253.69 \text{ mrad/m}$

$\mu\varphi = \varphi_u/\varphi_y = 253.69/18.67 = 13.588$

Ανηγμένη αξονική δύναμη μετά την ενίσχυση:

$v_d = N_{sd} / (0.85 \cdot f_{cc} \cdot A_c) = 80.00 / (0.85 \cdot 19.42 \cdot 0.5000) = 0.097$