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ΜΕΛΕΤΗ: ΚΑΤΑΣΚΕΥΗ ΠΡΟΣΘΗΚΗΣ Α' ΝΗΠΙΑΓΩΓΕΙΟΥ
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ΚΩΝΣΤΑΝΤΙΝΟΣ ΛΙΟΝΤΟΣ

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ΣΥΝΤΑΧΘΗΚΕ:

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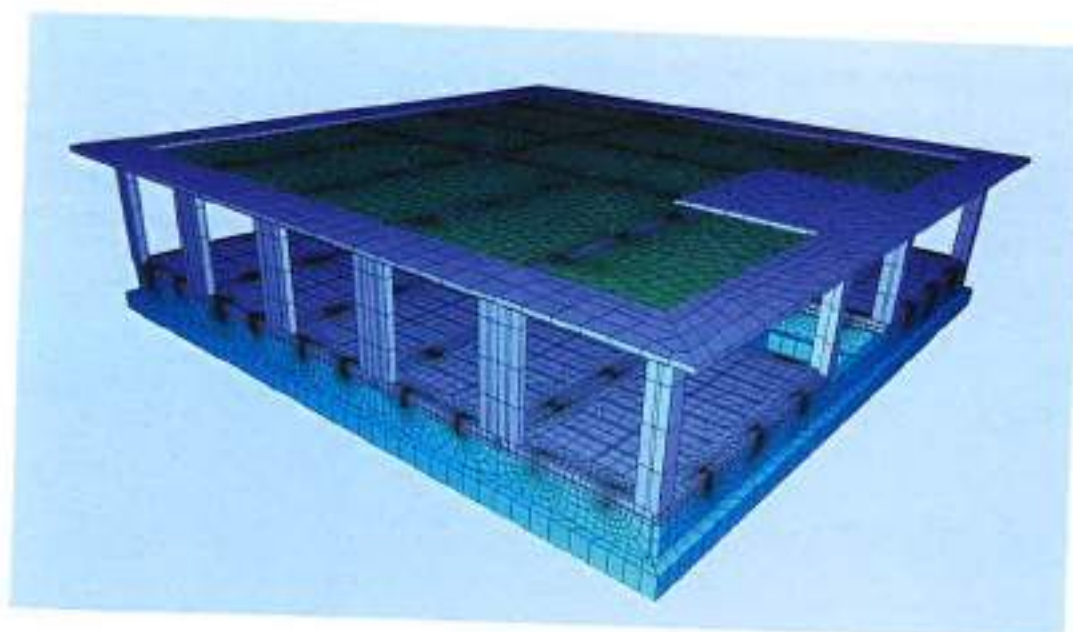
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1 ΓΕΝΙΚΗ ΠΕΡΙΓΡΑΦΗ ΤΟΥ ΕΡΓΟΥ

Σύμφωνα με τα συνημμένα σχέδια, το έργο αποτελείται από ένα ισόγειο κτήριο από προκατασκευασμένο σκυρόδεμα, με συνολική επιβαρυντική κάτοψη $\phi. \alpha$ 324.52 m². Το κτήριο έχει μέγιστες διαστάσεις κάτοψης 18.34 m x 18.34 m, ενώ το μέγιστο ύψος οροφής είναι στο +5.72 m.

Το στατικό προσομοίωμα του κτηρίου όπως δημιουργήθηκε στο πρόγραμμα SOFISTIK, φαίνεται στις επόμενες εικόνες:



Στατικό προσομοίωμα
του κτηρίου

2 ΠΕΡΙΓΡΑΦΗ ΤΟΥ ΣΤΑΤΙΚΟΥ ΣΥΣΤΗΜΑΤΟΣ

2.1 Περιγραφή του φέροντος οργανισμού

Ο φέρων οργανισμός του κτηρίου αποτελείται από προκατασκευασμένες ορθογωνικές κυψέλες ωπλισμένου σκυροδέματος διαστάσεων που διατάσσονται κατά τις δύο διευθύνσεις της κάτοψης του κτηρίου. Οι προκατ. κυψέλες εδράζονται στο άνω πέλμα των έγχυτων θεμελιοδοκών και συνδέονται με αυτές μέσω πείρων. Οι κυψέλες συνδέονται κατά την οριζόντια διεύθυνση μεταξύ τους στη στάθμη της οροφής μέσω μεταλλικών λαμών και πείρων.

Επί της πλάκας οροφής του κτηρίου εδράζεται η ξύλινη τετρακλινή στέγη.

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2.2 Περιγραφή των προκατασκευασμένων στοιχείων του φ.ο.

Κυψέλες

Οι προκατ. κυψέλες είναι μονολιθικές ορθογωνικές κατασκευές διαστάσεως κάτοψης $7.20 \text{ m} \times 3.60 \text{ m}$ και ύψους 3.46 m . Κατασκευάζονται από σκυρόδεμα ποιότητας C30/37. Στην βάση τους υπάρχουν κατάλληλες σπές για την σύνδεση με την θεμελίωση μέσω πείρων, ενώ στην καφαλή τους προεξέχουν πείροι για την οριζόντια σύνδεση μεταξύ τους. Το πάχος των τοιχίων – όπου αυτό υπάρχει – είναι 20 cm με κρυφοκαλάνες στα άκρα και ενδιάμεση στρώση μόνωσης 6 cm όπου απαιτείται. Η πλάκα δαπέδου είναι δοκιδωτού τύπου (Zoellner) και πάχους 16 cm , ενώ αυτή της οροφής είναι τύπου σάντουιτς με πάχος 16 cm και ενδιάμεση στρώση μόνωσης 6 cm .

2.3 Περιγραφή των έγχυτων στοιχείων του κτηρίου

Θεμελίωση

Χρησιμοποιείται θεμελίωση μωφής θεμελιοδοκών διατομής ανεστραμμένου ταυ, με ύψος 1.20 m , πάχος κορμού $0.25\text{-}0.40 \text{ m}$ και πλάτος πέλματος $0.70\text{-}1.20 \text{ m}$. Η ποιότητα σκυροδέματος της θεμελίωσης είναι C25/30. Η έγχυση του σκυροδέματος πραγματοποιείται μετά την ορθή επισήμανση μέσω οδηγών των θέσεων τοποθέτησης των προκατασκευασμένων κυψελών.

Σκυρόδεμα καθαριότητας

Προβλέπεται η διάστρωση και συμπίκνωση άοπλου σκυροδέματος C12/15 πάχους 10 cm κάτω από την επιφάνεια της θεμελίωσης.

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3 ΕΦΑΡΜΟΖΟΜΕΝΑ ΠΡΟΤΥΠΑ

Τα Πρότυπα που ελήφθησαν υπ' όψη κατά τον σχεδιασμό του έργου είναι τα ακόλουθα:

- ΕΛΟΤ EN 206-1:2000: "Σκυρόδεμα – Μέρος 1: Προδιαγραφή, απόδοση, παραγωγή και συμμόρφωση"
- ΕΛΟΤ EN 10080:2005: "Χάλυβες οπλισμού σκυροδέματος - Συγκολλησιμοί χάλυβες - Μέρος 1: Γενικές απαιτήσεις"
- ΕΛΟΤ EN 1421-3:2007: "Χάλυβες οπλισμού σκυροδέματος - Συγκολλησιμοί χάλυβες - Μέρος 3: Τεχνική κατηγορία B500C"
- EN 10138: "Χάλυβες προσέντασης"
- ΕΛΟΤ EN 1990:2002/A1:2006/NA:2010: "Ευρωκώδικας - Βάσεις σχεδιασμού δομημάτων"
- ΕΛΟΤ EN 1991-1-1:2002/NA:2010: "Βάσεις σχεδιασμού και δράσεων στις κατασκευές - Γενικές δράσεις - Πυκνότητες, ίδια βάρη και επιβαλλόμενα φορτία σε κτήρια"
- ΕΛΟΤ EN 1991-1-3:2003/A1:2015/NA:2010: "Βάσεις σχεδιασμού και δράσεων στις κατασκευές - Γενικές δράσεις - Φορτία χιονιού"
- ΕΛΟΤ EN 1991-1-4: 2005/A1:2010/NA:2010: "Βάσεις σχεδιασμού και δράσεων στις κατασκευές - Γενικές δράσεις - Δράσεις ανέμου"
- ΕΛΟΤ EN 1991-1-6:2005/NA:2010: "Βάσεις σχεδιασμού και δράσεων στις κατασκευές - Δράσεις κατά την διάρκεια της κατασκευής"
- ΕΛΟΤ EN 1991-3:2007/NA:2010: "Βάσεις σχεδιασμού και δράσεων στις κατασκευές - Δράσεις οφειλόμενες σε γερανούς και μηχανήματα"
- ΕΛΟΤ EN 1992-1-1:2005/A1:2015/NA:2010: "Σχεδιασμός κατασκευών από σκυρόδεμα - Γενικοί κανόνες και κανόνες για κτήρια"
- ΕΛΟΤ EN 1992-1-2:2005/NA:2010: "Σχεδιασμός κατασκευών από σκυρόδεμα - Γενικοί κανόνες - Σχεδιασμός φορέων σε πυρκαγιά"
- ΕΛΟΤ EN 1997-1:2005/NA:2010: "Γεωτεχνικός σχεδιασμός - Γενικοί κανόνες"
- ΕΛΟΤ EN 1998-1:2005/NA:2010: "Αντισεισμικός σχεδιασμός των κατασκευών - Γενικοί κανόνες, σεισμικές δράσεις και κανόνες για κτήρια"
- ΕΛΟΤ EN 1998-5:2005/NA:2010: "Αντισεισμικός σχεδιασμός των κατασκευών - Θεμελιώσεις, φορείς αντιστήριξης και γεωτεχνικά θέματα"
- ΕΛΟΤ EN 1337-3:2005: "Ελαστομερή εφέδρανα"

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4 ΠΑΡΑΔΟΧΕΣ ΜΕΛΕΤΗΣ

4.1 Ιδιότητες υλικών

Είδος υλικού	Ποιότητα
Σκυρόδεμα καθαριότητας	C12/15
Σκυρόδεμα θεμελίωσης	C25/30
Σκυρόδεμα προκ.σπ. στοιχείων	C30/37
Χάλυβας διαμήκους οπλισμού	B500C
Χάλυβας εγκάρσιου οπλισμού	B500C
Χάλυβας αγκυρίων συνδέσεων	B500C
Χάλυβας προεντεταμένου σκυροδέματος	Υ1700/1860
Δομικός χάλυβας	S275

4.2 Ονομαστικές επικαλύψεις οπλισμών

Οι επικαλύψεις των οπλισμών (χαλαρών και προεντεταμένων) έχουν λάβει υπ' όψη τις κατηγορίες περιβάλλοντος έκθεσης της §4.2 του ΕΛΟΤ ΕΝ 1992-1-1:2005, καθώς και τις ελάχιστες επικαλύψεις της §4.4.1 του .δίου Προτυπου. Το Εθνικό Πρόσάρτημα του ΕΝ 206-1 καθώς και ο Κανονισμός Τεχνολογίας Σκυροδέματος 2016 λήφθηκαν επίσης υπόψη.

Είδος επικάλυψης	Τιμή
Θεμελίωση	40 mm
Τοιχία εγκιβωτισμού	35 mm
Κυψέλες	25 mm

Σημείωση: Βλ. στο Παράρτημα Β για τον υπολογισμό των ονομαστικών επικαλύψεων.

4.3 Στοιχεία εδάφους

Με βάση την γεωτεχνική μελέτη προέκυψαν τα ακόλουθα:

Εδαφοτεχνικά στοιχεία	Τιμή
Επιτρεπόμενη τάση εδάφους	100 kN/m ²
Ειδικό βάρος εδάφους	20 kN/m ³
Δείκτης εδάφους	3000 kN/m ³
Κατηγορία εδάφους κατά ΕΝ 1998-1	C

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4.4 Στοιχεία αντισεισμικού σχεδιασμού (κατά EN 1998-1:2005)

Σεισμολογικά στοιχεία	Τιμή
Ζώνη σεισμικής επικινδυνότητας	22
Μέγιστη εδαφική επιτάχυνση στον βράχο, a_{gk}	0.24g
Κατηγορία σπουδαιότητας έργου	III
Συντελεστής σπουδαιότητας έργου, η	1.20
Κατηγορία εδάφους	C
Συντελεστής εδάφους, S	1.15
Χαρακτηριστικές ιδιοπερίοδοι T_a , T_b , T_c	0.20, 0.60, 2.50
Κατηγορία πλαστιμότητας	KPM
Συντελεστής συμπεριφοράς, q	1.50
Συντελεστής φασματικής ενίσχυσης	2.50
Διορθωτικός συντ/στής απόσβεσης, η	1.00

Σημείωση: Βλ. στο Παράρτημα Α για τον υπολογισμό του φάσματος σχεδιασμού.

4.5 Δράσεις

Μόνιμη δράση	Τιμή
Ειδικό βάρος σκυροδέματος	25.00 kN/m ³
Ειδικό βάρος χάλυβα	78.50 kN/m ³
Ειδικό βάρος γαιών	20.00 kN/m ³
Επικάλυψη δαπέδου ισόγειου	2.00 kN/m ²
Επικάλυψη οροφής	3.00 kN/m ²

Μεταβλητή δράση	Τιμή
Χιόνι (s_{k1})	0.40 kN/m ²
Χιόνι (s_{k2})	0.32 kN/m ²
Βασική ταχύτητα ανέμου	33 m/sec ²

Σημείωση: Βλ. στο Παράρτημα Α για τον υπολογισμό των φορτίων ανέμου και χιονιά.

Εγκριθείσα: ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Υ.Π.Ε. ΗΛΕΙΑΣ, ΔΗΜΟΣ ΠΗΝΕΙΟΥ				
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4.6 Συντελεστές ασφαλείας

Σύμφωνα με τον πίνακα Α.1.2(β) της §Α1.3.1 του ΕΛΟΤ ΕΝ 1990:2002 και τις §Α2.1(1)&(2) του ΕΛΟΤ ΕΝ 1992-1-1:2004 είναι οι ακόλουθοι:

Υλικό	Τιμή
Σκυρόδεμα	1.50
Χάλυβας οπλισμού	1.15
Δράση	Τιμή
Μόνιμες δράσεις (χωρίς σεισμό)	1.35
Μεταβλητές δράσεις (χωρίς σεισμό)	1.50
Μόνιμες δράσεις (με σεισμό)	1.00
Μεταβλητές δράσεις (με σεισμό)	ψ_c

4.7 Συντελεστές συνδυασμού επιβαλλόμενων δράσεων

Σύμφωνα με τον Πίνακα Α.1.2(β) της §Α1.3.1 του ΕΛΟΤ ΕΝ 1990:2002 και των §Α2.1(1)&(2) του ΕΛΟΤ ΕΝ 1992-1-1:2004, αυτοί είναι οι ακόλουθοι:

Δράση	ψ_0	ψ_1	ψ_2	ψ_0
Χιόνι (S)	0.50	0.20	0.00	0.00
Άνεμος (W)	0.60	0.20	0.00	0.00
Άνεμος (W)	0.70	0.70	0.60	0.60

5 ΠΑΡΑΔΟΧΕΣ ΥΠΟΛΟΓΙΣΤΙΚΟΥ ΠΡΟΣΟΜΟΙΩΜΑΤΟΣ-ΑΝΑΛΥΣΗΣ

5.1 Προσομοίωση δυσκαμψίας ψεφόντων στοιχείων

Γο προπαράμειψη του κτηρίου είναι το ορθογώνιο χωρικό πλαίσιο επί ελαστικής έδρασης (ελαστικό υπόβαθρο Winkler). Λαμβάνονται υπόψη μόνο τα εργα που προέρχονται από αέριονες και τέμνουσες δυνάμεις, καθώς και από ροπές κάμψης και στρέψεως. Οι καμπτικές δυσκαμψίες των στοιχείων λαμβάνονται σύμφωνα με την §4.3.1(7) του ΕΛΟΤ ΕΝ 1998-1:2004, δηλαδή η δυσκαμψία των υποστυλωμάτων (των μόνων ηρωικυόντων σεισμικών στοιχείων του μετεωκένιου κτηρίου) είναι ίση με την μισή της γεωμετρικής διατομής.

5.2 Προσομοίωση μαζών

Στην περίπτωση ύπαρξης πλάκων, αυτές προσομοιώνονται με επιφανειακά πεπερασμένα στοιχεία, ενώ στις περιπτώσεις που δεν υπάρχει διάφραγμα, η μάζα λαμβάνεται ως γραμμικώς κατανομημένη στα γραμμικά στοιχεία του φορέα. Η μάζα υπολογίζεται από τα φορτία βαρύτητας που εμφανίζονται στον "σεισμικό συνδυασμό", κανονικής χρήσης των συντελεστών συνδυασμού για μεταβλητές δράσεις της §4.2.4(2) του ΕΛΟΤ ΕΝ 1998-1:2004 και του πίνακα

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A.1.1 της §A1.2.2 του ΕΛΟΤ ΕΝ 1990:2002. Στην περίπτωση φορτίων χιονιού και ανέμου έχουμε:

$$\psi_{c1} = \varphi \cdot \psi_{21} = 1,00 \cdot 0,00 = 0,00$$

5.3 Προσομοίωση θεμελίωσης

Η προσομοίωση των πεδίων θεμελίωσης για την ανάλυση των στατικών φορτίων γίνεται μέσω επιφανειακών πεπερασμένων στοιχείων επί ελαστικής εδράσεως.

5.4 Ελευθερίες κίνησης

Σε κάθε κόμβο του υπολογιστικού προσομοιώματος αντιστοιχούν έξι βαθμοί ελευθερίας (τρεις μετακινήσεις και τρεις στροφικοί). Στους κόμβους της θεμελίωσης έχουν προσαρμασθεί ελατήρια με σταθερές παραμόρφωσης που προκύπτουν από τον δείκτη εδάφους K (βλ. §4.3 παραπάνω)

6.5 Επίλυση προσομοιώματος

Το υπολογιστικό προσομοίωμα προκύπτει από την εφαρμογή της μεθόδου των πεπερασμένων στοιχείων ως μεθόδου μετακινήσεων. Αυτό σημαίνει ότι η επίλυση ακολουθεί τα παρακάτω στάδια:

- Προσδιορισμός των μητρώων δυσκαμψίας των πεπερασμένων στοιχείων βάσει των μηχανικών τους ιδιοτήτων και των συνθηκών στήριξής τους
- Μόρφωση του μητρώου δυσκαμψίας του συνόλου του φορέα και προσδιορισμός του προκύπτοντος συστήματος γραμμικών εξισώσεων
- Εφαρμογή του μητρώου φορτίσεων και υπολογισμός των μετακινήσεων των κόμβων
- Υπολογισμός των ενταξεων των πεπερασμένων στοιχείων και των αντιστάσεων στις στηρίξεις βάσει των υπολογισθέντων στο προηγούμενο βήμα μετακινήσεων

5.6 Δυναμική ανάλυση

Ο υπολογισμός της σεισμικής απόκρισης του φορέα γίνεται με την ιδιομορφική ανάλυση του φάσματος απόκρισης, όπως αυτή προδιαγράφεται στην §4.3.3.3 του ΕΛΟΤ ΕΝ 1998-1:2004. Σύμφωνα με την §4.3.3.1(2) του ΕΛΟΤ ΕΝ 1998-1:2004, γίνεται χρήση γραμμικού-ελαστικού προσομοιώματος του φορέα και του φάσματος σχεδιασμού που δίνεται στην §3.2.2.5 του ίδιου Προτύπου. Ο συνδυασμός των ιδιομορφικών αποκρίσεων γίνεται με τον κανόνα του "Πλήρη Τετραγωνικού Συνδυασμού" (CQC).

5.7 Τυχηματικές εκκεντρότητες ορόφων

Οι τυχηματικές στρεπτικές επιδράσεις στην σεισμική απόκριση του κτηρίου λαμβάνονται υπ' όψη μέσω των τυχηματικών εκκεντροτήτων που ορίζονται στην §4.3.2(I) του ΕΛΟΤ ΕΝ 1998-1:2004. Εφ' όσον σύμφωνα με την §4.3.3.3(1) του ίδιου Προτύπου χρησιμοποιείται χωρικό προσομοίωμα για την ανάλυση, οι τυχηματικές στρεπτικές επιδράσεις καθορίζονται ως περιβάλλουσα των ενταξικών μεγεθών στατικών φορτίσεων που αιωρελούνται από ομάδα στρεπτικών ροπών M_{ai} περί τον κατακόρυφο άξονα κάθε ορόφου i , όπου:

$$M_{ai} = e_{ai} \cdot F_i$$

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με $e_x = \pm 0.05 \cdot L$, η τυχηματική εκκεντρότητα (§4.3.2(1) του ΕΛΟΤ ΕΝ 1998-1:2004) και F , το οριζόντιο σεισμικό φορτίο που δρα στον άραφιο i σε διεύθυνση κάθετη προς εκείνη της e_x .

5.8 Ταυτόχρονη δράση των συνιστωσών του σεισμού

Η μέγιστη πιθανή τιμή τυχαίου μεγέθους απόκρισης S (π.χ. M, N, V κλπ.) για ταυτόχρονη δράση των συνιστωσών του σεισμού κατά x και y και z , ευρίσκεται από τη σχέση (§4.3.3.5.1(2) του ΕΛΟΤ ΕΝ 1998-1:2004):

$$S = \sqrt{(S_x^2 + S_y^2 + S_z^2)}$$

όπου S_x, S_y και S_z οι μέγιστες πιθανές τιμές του υπόψη μεγέθους για ανεξάρτητη σεισμική δράση κατά x, y και z . Τα αντίστοιχα συνυπάρχοντα μεγέθη μιάς διατομής (π.χ. αν σε ένα υποστύλωμα τα S παριστά την M_y , τα αντίστοιχα είναι το M_x και το N), βρίσκονται σε μια δυναμική φασματική ανάλυση από τα ελλειψοειδές των πιθανών ταυτοχρόνων τιμών της διατομής.

5.9 Περιβάλλουσες σχεδιασμού

Οι συντελεστές με τους οποίους οι διάφορες δράσεις συμμετέχουν στις περιβάλλουσες σχεδιασμού διαμορφώνονται αναλυτικά ως εξής (οι δράσεις λόγω θερμοκρασιακής μεταβολής και αμετακίνητης ξηράνσεως παραλείπονται ως μη κρίσιμες).

Περιβάλλουσες οριακής κατάστασης αστοχίας (ULS) - Χωρίς σεισμό			
	S-1	S-2	S-3
Μόνιμο (G)	1.35	1.35	1.35
Χιόνι (S)	1.50	0.75	0.75
Άνεμος (W)	0.90	1.50	0.90
Κινητό (Q)	1.05	1.05	1.50

Περιβάλλουσες οριακής κατάστασης λειτουργικότητας (SL5) - Χωρίς σεισμό			
	S-1	S-2	S-3
Μόνιμο (G)	1.00	1.00	1.00
Χιόνι (S)	1.00	0.50	0.50
Άνεμος (W)	0.60	1.60	0.60
Κινητό (Q)	0.70	0.70	1.00

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Περιβάλλουσες οριακής κατάστασης ασταθίας (ULS) – Με σεισμό			
	S-1	S-2	S-3
Μόνιμο (G)	1.00		
Χρόνι (S)	0.00		
Άνεμος (W)	0.00		
Κινητό (Q)	0.00		
Σεισμός (E)	1.00		

5.10 Επιρροές 2ας τάξης

Γενικά, στην μελέτη του φορέα χρησιμοποιείται η θεωρία 2ης τάξης. Υπολογίζονται οι δείκτες θ για κάθε όροφο και εξετάζουμε τη διεύθυνση της σεισμικής δράσης, σύμφωνα με την §4.4.2.2(2) του ΕΛΟΤ ΕΝ 1998-1:2004, ενώ η τιμή του θ δεν μπορεί να υπερβαίνει το 0.30.

5.11 Περιορισμός βλαβών

Σύμφωνα με την §4.4.3 του ΕΛΟΤ ΕΝ 1998-1:2004, ελέγχονται οι μέγιστες μετακινήσεις του φορέα για σεισμική δράση με μεγαλύτερη πιθανότητα εμφάνισης από την σεισμική δράση σχεδιασμού. Ο συντελεστής μείωσης των μετακινήσεων του φορέα για αυτόν "συχνότερο" σεισμό, ν , είναι ίσος με 0.50 για κατηγορία αιινοδυναμικότητας κτηρίου II (§4.4.3.2(2) του ΕΛΟΤ ΕΝ 1998-1:2004+Εθνικό Προσάρτημα). Επειδή στην συγκεκριμένη περίπτωση τα μη φέροντα στοιχεία θεωρούνται ως ψαθυρά, η συνθήκη που πρέπει να πληρείται είναι η:

$$d_r \cdot \nu \leq 0.005 \cdot h$$

όπου d_r είναι η τιμή σχεδιασμού της σχετικής παραμόρφωσης ορόφου σύμφωνα με την §4.4.2.2(2) του ΕΛΟΤ ΕΝ 1998-1:2004 και h είναι το ύψος του.

6 ΛΟΓΙΣΜΙΚΟ ΑΝΑΛΥΣΗΣ

Για την στατική ανάλυση του κτηρίου χρησιμοποιήθηκε το λογισμικό SOFiSTiK της SOFiSTiK Hellas, ενώ για την εφαρμογή των λοιπών επιμέρους ελέγχων, όπως π.χ. ο υπολογισμός φορτίων χιονισού-ανέμου, κλπ., χρησιμοποιήθηκαν κατάλληλα λογιστικά φύλλα (EXCEL).



Εργαδότης: ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Π.Ε. ΚΑΡΕΙΑΣ, ΔΗΜΟΣ ΠΑΝΕΙΟΥ				
Μελετητής:	Τίτλος τεύχους: ΤΕΥΧΟΣ ΣΤΑΤΙΚΩΝ ΥΠΟΛΟΓΙΣΜΩΝ	Ανάβ :	Σελ :	13 of 15
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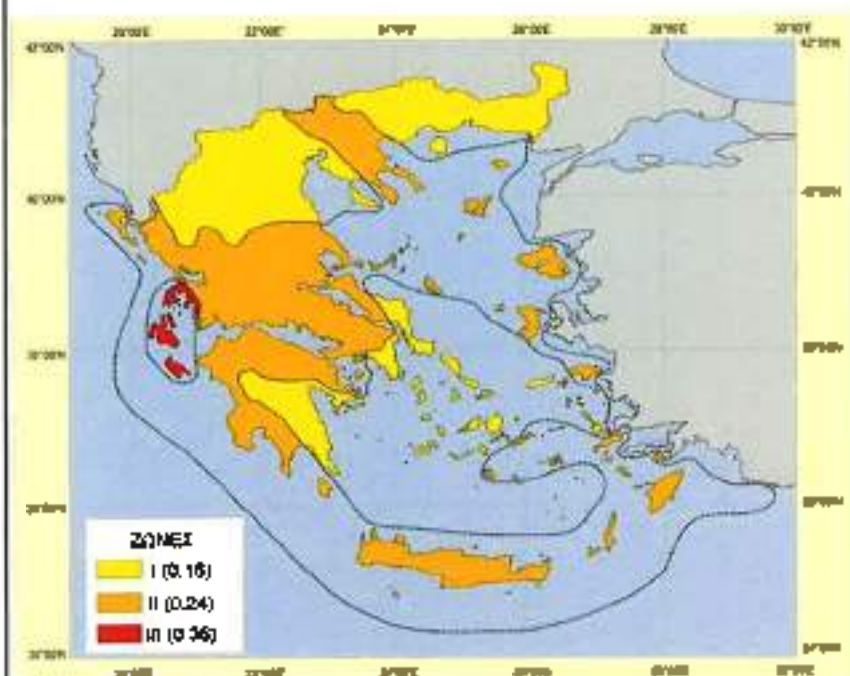
ΠΑΡΑΡΤΗΜΑ Α

Ελαστικό φάσμα επιτάχυνσης σύμφωνα με το EN 1998-1-1, ανεμοπίεσης σύμφωνα με το EN 1991-1-4 και φορτίου χιονιού σύμφωνα με το EN 1991-1-3

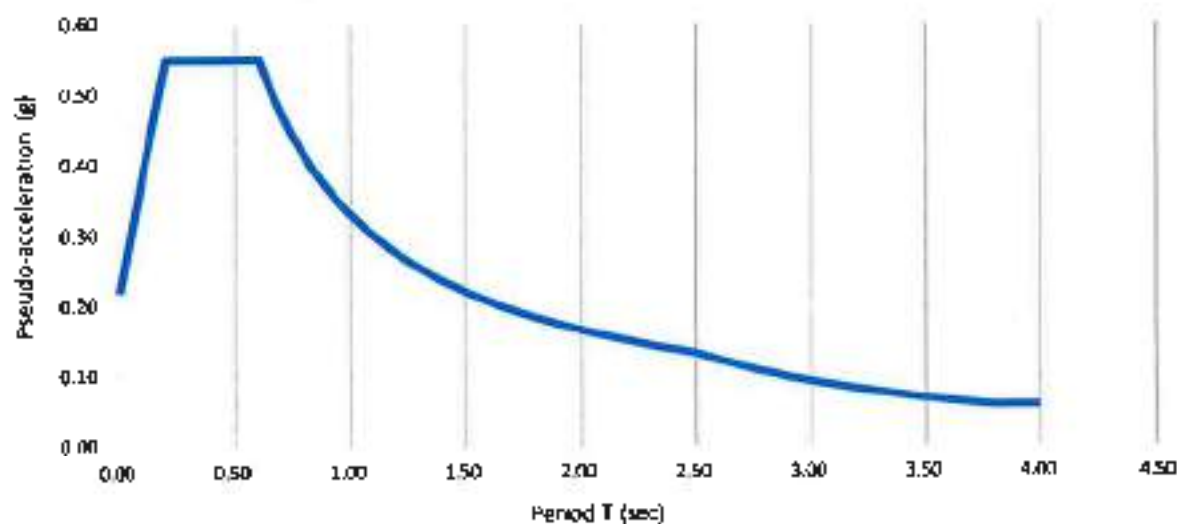
Design acceleration response spectrum according to EN 1998-1-1

Input:

Importance factor	γ	-	1.20
Ref. peak ground accel. on rock	a_{gr}/g	-	0.24
Period T_a	T_a	sec	0.20
Period T_c	T_c	sec	0.60
Period T_D	T_D	sec	2.50
Soil factor	S	-	1.15
Spectral amplification factor	F	-	2.50
Behaviour factor	q	-	1.50
Lower bound parameter	β	-	0.20



Design pseudo-acceleration response spectrum



Calculation of wind load (external and internal pressure coefficients) according to EN 1991-1-4 - Hipped roof

Input:

Terrain category:	II	Directional factor, C_{dir} :	1.00
Basic wind velocity, $v_{b,0}$ (m/sec ²):	33	Seasonal factor, C_{season} :	1.00
Dim. parallel to wind, d (m):	18.68	Orography factor, $c_0(z_e)$:	1.00
Dim. perpendicular to wind, b (m):	18.56	Turbulence factor, k_t :	1.00
Height from ground to roof, h (m):	5.72		
Roof pitch angle, α [°]:	for wind direction $\theta = 0^\circ \rightarrow \alpha = 13.56$		
	for wind direction $\theta = 90^\circ \rightarrow \alpha = 13.56$		
Orography factor, $c_0(z_e)$:	1.00		
Min. value of int. pres. coef., $C_{s,min}$:	-0.30		
Max. value of int. pres. coef., $C_{s,max}$:	0.20		
Air density, ρ (kg/m ³):	1.25		

a) Calculation of peak velocity pressure**Reference height:**

$$z_r = h = 5.72 \text{ m} \quad \S 7.2.c(2)$$

Basic wind velocity:

$$v_b = C_{dir} \cdot C_{season} \cdot v_{b,0} = 33 \text{ m/sec}^2 \quad \S 4.2(2), \text{ National Annex}$$

Terrain roughness:

$$\text{Roughness length, } z_0 \text{ (m): } 0.05 \quad \text{Table 4.1}$$

$$\text{Minimum height, } z_{min} \text{ (m): } 2.00 \quad \text{Table 4.1}$$

$$\text{Terrain factor, } k = 0.19 \cdot (z_0/z_{0,1})^{0.07} = 0.19 \quad \text{Equation (4.5)}$$

$$\text{Roughness factor, } c(z) = k \cdot \ln(z_e/z_0) = 0.901 \quad \text{Equation (4.4)}$$

Orography factor:

$$\S 4.3.3$$

$$c_0(z_e) = 1.00$$

Mean wind velocity:

$$v_m(z_e) = c_f(z_e) \cdot c_0(z_e) \cdot v_b = 29.72 \text{ m/sec}^2 \quad \text{Equation (4.3)}$$

Wind turbulence:

$$\text{Turbulence factor, } k_t = 1.00 \quad \S 4.4(1)$$

$$\text{Turbulence intensity, } I_w(z_e) = 0.211 \quad \text{Equation (4.7)}$$

Calculation of wind load (external and internal pressure coefficients) according to EN 1991-1-4 - Hipped roof

Basic velocity pressure:

$$q_b = (1/2) \cdot \rho \cdot v_b^2 = 0.681 \text{ kN/m}^2 \quad 54.5(1)$$

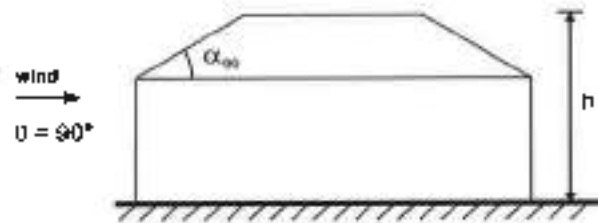
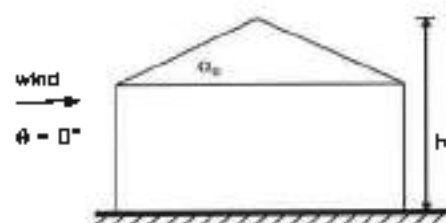
Peak velocity pressure at height z :

$$q_{pe}(z_e) = (1 + 7 \cdot I_v(z_e)) \cdot (1/2) \cdot \rho \cdot v_{m(z_e)}^2 = 1.367 \text{ kN/m}^2 \quad \text{Equation (4.8)}$$

b) Calculation of the distribution of external wind pressure on the hipped roof

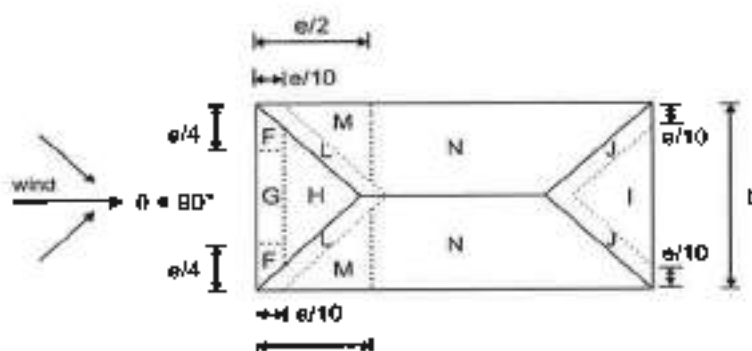
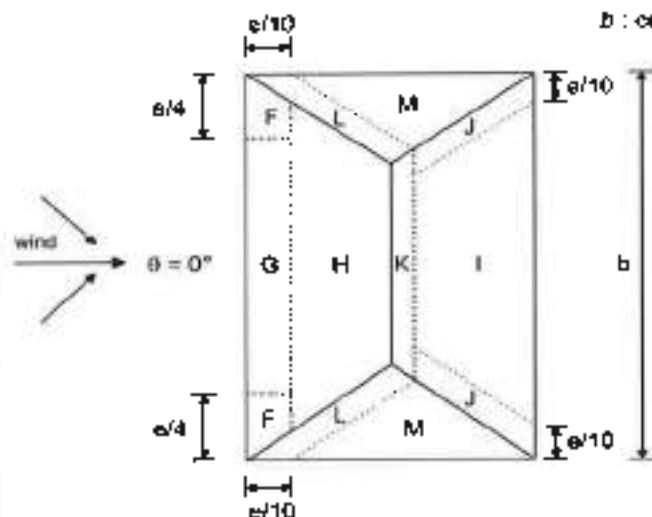
External pressure zones:

Figure (7.5), Table 7.5



$e = b$ or $2h$
whichever is smaller

b : crosswind dimension



(a) wind direction $= 0^\circ$

(b) wind direction $= 90^\circ$

Length e :

$$\theta = 0^\circ \rightarrow e \text{ (m)} = \min(b, 2h) = 11.44 \rightarrow e/10 \text{ (m)} = 1.14 \rightarrow e/4 \text{ (m)} = 2.86$$

$$\theta = 90^\circ \rightarrow e \text{ (m)} = \min(b, 2h) = 11.44 \rightarrow e/10 \text{ (m)} = 1.14 \rightarrow e/4 \text{ (m)} = 2.86 \rightarrow e/2 \text{ (m)} = 5.72$$

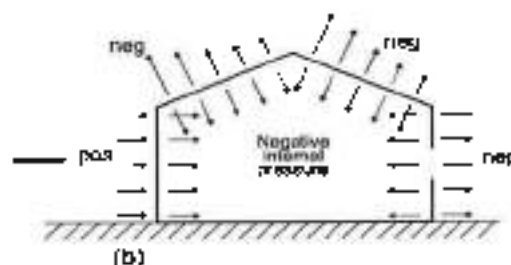
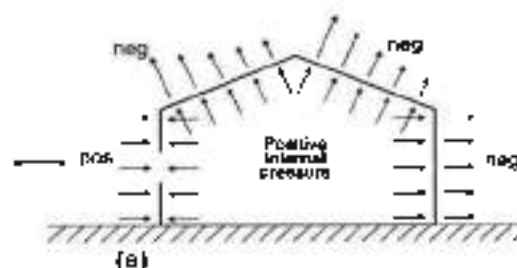
External pressure coefficients (table 7.5) on pressure zones - Wind direction $\theta = 0^\circ$:

angle $\alpha [^\circ]$	F	G	H	I	J	K	L	M
13.56	-1.015	-0.858	-0.343	-0.471	-0.942	-1.114	-1.371	-0.600
	0.171	0.171	0.171	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

Calculation of wind load (external and internal pressure coefficients) according to EN 1991-1-4 - Side walls

Input:

Terrain category:	II	Directional factor, c_{dir} :	1.00
Basic wind velocity, v_{b0} (m/sec ²):	33	Seasonal factor, c_{season} :	1.00
Dim. parallel to wind, d (m):	18.68	Orography factor, $c_o(z_o)$:	1.00
Dim. perpendicular to wind, b (m):	18.56	Turbulence factor, k :	1.00
Height from ground to roof, h (m):	5.72		
Additional height of parapets, h_p (m):	0.00		
Min. internal pressure coef., $c_{p,int}$:	-0.30		
Min. external pressure coef., $c_{p,max}$:	0.20		
Air density, ρ (kg/m ³):	1.25		



a) Calculation of peak velocity pressure

Reference height:

$$z_R = h + h_p = 5.72 \text{ m} \quad \S 7.2.3(3)$$

Βασική ταχύτητα ανέμου:

$$v_b = c_{dir} \cdot c_{season} \cdot v_{b,0} = 33 \text{ m/sec}^2 \quad \S 4.2(2), \text{ National Annex}$$

Terrain roughness:

$$\text{Roughness length, } z_0 \text{ (m): } 0.05 \quad \text{Table 4.1}$$

$$\text{Minimum height, } z_{min} \text{ (m): } 2.00 \quad \text{Table 4.1}$$

$$\text{Terrain factor, } k_z = 0.19 (z_R/z_{0,1})^{0.07} = 0.19 \quad \text{Equation (4.5)}$$

$$\text{Roughness factor, } c_r(z_R) = k_z \ln(z_R/z_0) = 0.901 \quad \text{Equation (4.4)}$$

Orography factor:

§4.3.3

$$c_o(z_o) = 1.00$$

Mean wind velocity:

$$v_m(z_R) = c_r(z_R) \cdot c_o(z_o) \cdot v_b = 29.72 \text{ m/sec}^2 \quad \text{Equation (4.3)}$$

Wind turbulence:

$$\text{Turbulence factor, } k = 1.00 \quad \S 4.4(1)$$

$$\text{Turbulence intensity, } I_t(z_R) = 0.211 \quad \text{Equation (4.7)}$$

Basic velocity pressure:

$$q_b = (1/2) \cdot \rho \cdot v_b^2 = 0.681 \text{ kN/m}^2 \quad \S 4.5(1)$$

Calculation of wind load (external and internal pressure coefficients) according to EN 1991-1-4 - Side walls

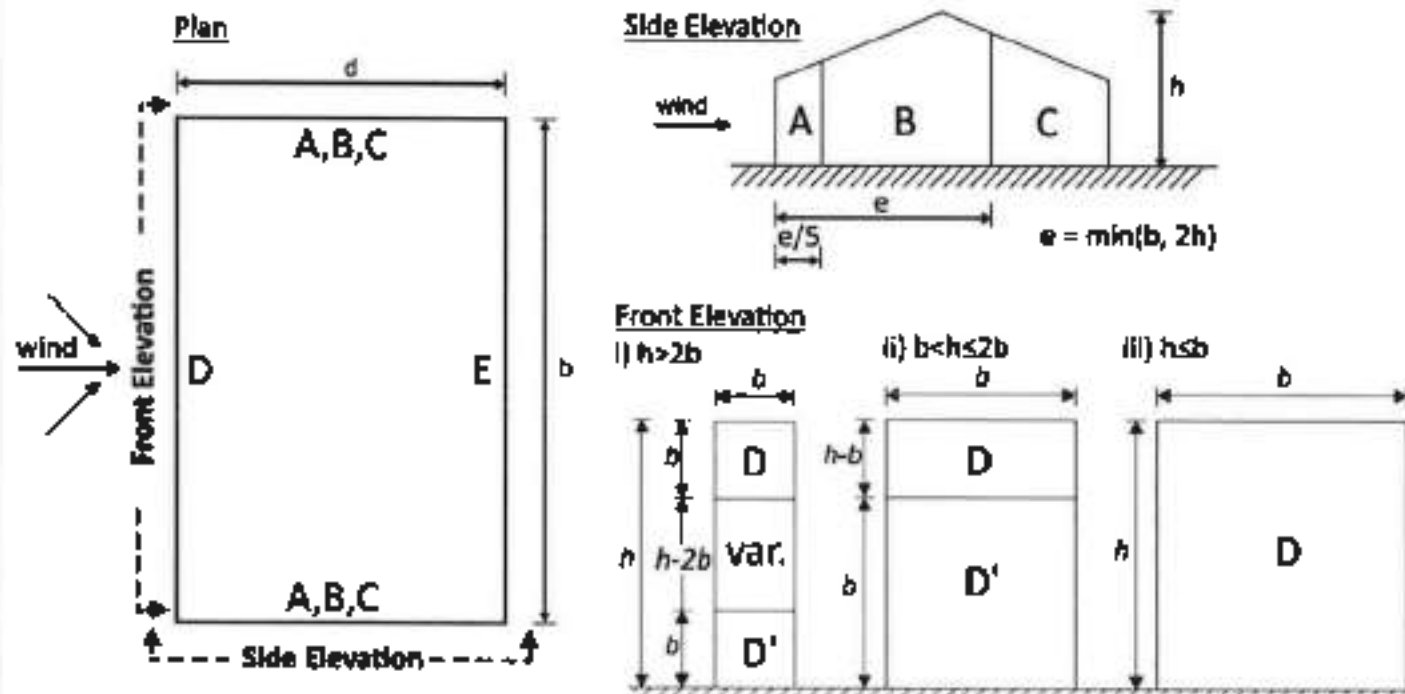
Peak velocity pressure at height z_e :

$$q_p(z_e) = (1 + 7 \cdot I_{z_e}) \cdot (1/2) \cdot \rho \cdot v_m(z_e)^2 = 1.367 \text{ kN/m}^2 \quad \text{Equation (4.8)}$$

b) Calculation of the distribution of external wind pressure on the side walls

External pressure zones:

Figures (7.4, 7.5), Table 7.1



Ratio h/d :

$$h/d (\theta=0^\circ): 0.306$$

$$h/d (\theta=90^\circ): 0.308$$

Ratio h/b :

$$h/b (\theta=0^\circ): 0.308 \quad h \leq b$$

$$h/b (\theta=90^\circ): 0.306 \quad h \leq b$$

Length e :

$$e(\theta=0^\circ) = \min(b, 2h) = 11.440 \text{ m}$$

$$e/5 = 2.288 \text{ m}$$

$$e(\theta=90^\circ) = \min(b, 2h) = 11.440 \text{ m}$$

$$e/5 = 2.288 \text{ m}$$

External pressure coefficients - wind direction $\theta = 0^\circ$ (Table 7.1)

h/d	A	B	C	D	E
0.306	-1.200	0.800	-0.500	0.707	0.315

External pressure coefficients - wind direction $\theta = 90^\circ$ (Table 7.1)

h/d	A	B	C	D	E
0.308	-1.200	-0.800	-0.500	0.708	-0.316

External wind pressure:

$$w_e = q_p(z_e) \cdot c_{pe} \quad \text{§5.2(1)}$$

Internal wind pressure:

$$w_i = q_p(z_i) \cdot c_{pi} \quad \text{§5.2(2)}$$

**Calculation of wind load (external and internal pressure coefficients)
according to EN 1991-1-4 - Side walls**

Net wind pressure: $W_{net} = W_e - W_i = q_e(z_e) \cdot c_{pe} - q_i(z_i) \cdot c_{pi}$

Net wind pressure (kN/m²) on pressure zones - wind direction $\vartheta = 0^\circ$:

h/d	A	B	C	D	E	
0.306	-1.914	-1.367	-0.957	0.694	-0.704	[C _{pe} = 0.2]
	-1.230	-0.684	-0.273	1.377	-0.020	[C _{pi} = -0.3]

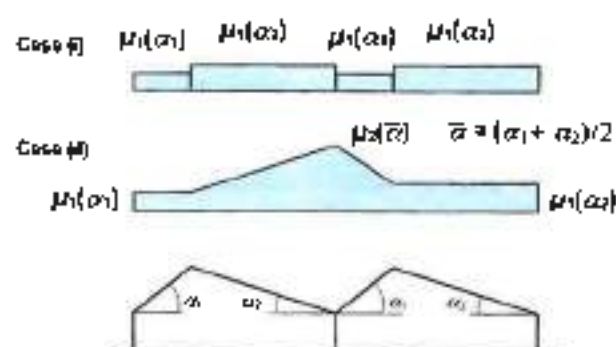
Net wind pressure (kN/m²) on pressure zones - wind direction $\vartheta = 50^\circ$:

h/d	A	B	C	D	E	
0.308	-1.914	-1.367	-0.957	0.694	-0.705	[C _{pe} = 0.2]
	-1.230	-0.684	-0.273	1.378	-0.021	[C _{pi} = -0.3]

Calculation of snow load according to EN 1991-1-3: Duopitch multi-span roof

Input:

Snow zone:	1
Characteristic snow load, s_{k1} (kN/m ²):	0.40
Altitude, A (m):	100
Snow load on the ground, s_{k1} (kN/m ²):	0.40
Roof angle, α_1 (°):	13.56
Roof angle, α_2 (°):	13.56
Snow load shape coefficient, μ_1 :	0.80
Snow load shape coefficient, μ_2 :	0.80
Uniform snow load, $\mu_1(\alpha_1)$ (kN/m ²):	0.32
Uniform snow load, $\mu_2(\alpha_2)$ (kN/m ²):	0.32
Drifted snow load, $\mu_2(\bar{\alpha})$ (kN/m ²):	0.47



Angle of pitch of roof α	$0^\circ \leq \alpha \leq 30^\circ$	$30^\circ < \alpha < 60^\circ$	$\alpha \geq 60^\circ$
μ_1	0,8	$0,8(60 - \alpha)/30$	0,0
μ_2	$0,8 + 0,8 \alpha/30$	1,6	..

Εταιρεία: ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Π.Ε. ΗΛΕΙΑΣ, ΔΗΜΟΣ ΠΗΝΕΙΟΥ	Τίτλος έργου:			
Μελετητής:	Τίτλος τεύχους: ΤΕΥΧΟΣ ΣΤΑΤΙΚΩΝ ΥΠΟΛΟΓΙΣΜΩΝ	Αναθ.:	Σελ.:	14 of 15
		0	Ημ/νια:	

ΠΑΡΑΡΤΗΜΑ Β

Υπολογισμός ονομαστικών επικαλύψεων οπλισμών σύμφωνα με το EN 1992-1-1

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

Input:

Concrete grade, f_{ck} (MPa):

25

Rebar type (1-5).

1

Maximum rebar diameter, Φ (mm):

12

1: Reinforcement bar

Environmental exposure class:

XCZ

2: Post-tensioned bonded tendon

Working life (50 or 100 years):

50

3: Pre-tensioned strand

Member with slab geometry [y/n]:

Y

4: Pre-tensioned plain wire

5: Pre-tensioned intended wire

Cast against uneven surfaces (1-4):

3

I: No

Quality control (y/n):

n

2: Exposed aggregate

Aggregate: > 32mm (y/n):

□

3: Prepared ground (including blinding)

4: Directly against soil

3. Calculation of structural class:

54.4.1.2(5)

Initial class (5):

4

Due to concrete grade-

4

Due to slab geometry:

3

Due to quality control:

3

Final class (5):

3

Table 4.3N: Recommended structural classification

[illegible]

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability:

§4.4.1.2(5) + N.A. ELOT EN 206-1

Πίνακας 4.4N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα οπλισμού

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	20	10	20	20	25	25	35	20	25	35
S2	10	20	15	25	25	30	30	40	25	30	40
S3	10	20	20	30	30	35	35	45	30	35	45
S4	10	25	25	35	35	40	40	50	35	40	50
S5	15	30	30	40	40	45	45	55	40	45	55
S6	20	35	35	45	45	50	50	60	45	50	60

Πίνακας 4.5N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα προέντασης

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	25	20	30	30	35	35	45	30	35	45
S2	10	25	25	35	35	40	40	50	35	40	50
S3	10	30	30	40	40	45	45	55	40	45	55
S4	10	35	35	45	45	50	50	60	45	50	60
S5	15	40	40	50	50	55	55	65	50	55	65
S6	20	45	45	55	55	60	60	70	55	60	70

For rebar type 1, structural class S3 and exposure class XC2:

 $c_{min,dur}$ (mm): 20

c) Calculation of cover with regard to bond:

§4.4.1.2(3)

 c_{min} (mm): 12Table 4.2: Minimum cover, $c_{min,b}$ requirements with regard to bond

Bond Requirement	
Arrangement of bars	Minimum cover $c_{min,b}$ *
Separated	Diameter of bar
Bundled	Equivalent diameter (ψ) (see 8.9.1)

*: If the nominal maximum aggregate size is greater than 32 mm, $c_{min,b}$ should be increased by 5 mm

d) Calculation of minimum cover:

§4.4.1.2(2)

 $c_{min} = \max \{ c_{min,b}, c_{min,dur} + \Delta c_{cur,v} - \Delta c_{cur,ac} - \Delta c_{d,acc}, 10 \text{ mm} \}$ c_{min} (mm): 20

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

1) Calculation of nominal cover:

§4.4.1.2(1)

 Δc_{dev} (mm): 10

§4.4.1.3(1-3)

$$c_{nom} = c_{min} + \Delta c_{dev}$$

 c_{min} (mm): 30

Final value of nominal cover for casting surface class 3:

§4.4.1.2(11)

 c_{nom} (mm): 40

§4.4.1.3(4)

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

Input:

Concrete grade, f_{ck} (MPa):	25
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Rebar type (1-5).	1
-------------------	---

Maximum rebar diameter, Φ [mm]: 10

1: Reinforcement bar

Environmental exposure class: Xn

2: Post-tensioned bonded tendon

Working life 450 or 100 years:	50
--------------------------------	----

3: Pre-tensioned strand

Member with slab geometry (y/n):	n
----------------------------------	---

4: Pre-tensioned plain wire

5: Pre-terminated intended wire

Cast against uneven surfaces (1-4):	1
-------------------------------------	---

7. 140

Quality control (y/n): ☐ n

2: Exposed on regiore

Aggregates > 32mm (y/n): n

3: Prepared ground (including blinding)

4: Directly against soil

a) Calculation of structural class: 64.4.1.2(5)

Initial class {S}	4
-------------------	---

Due to concrete grade: 4

Due to slab geometry. 4

Due to quality control: 4

Final class {S}:	4
------------------	---

Table 4.3N: Recommended structural classification[illegible]

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability:

§4.4.1.2(5) + N.A. F107 EN 206-1

Πίνακας 4.4N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα οπλισμού

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	20	10	20	20	25	25	35	20	25	35
S2	10	20	15	25	25	30	30	40	25	30	40
S3	10	20	20	30	30	35	35	45	30	35	45
S4	10	25	25	35	35	40	40	50	35	40	50
S5	15	30	30	40	40	45	45	55	40	45	55
S6	20	35	35	45	45	50	50	60	45	50	60

Πίνακας 4.5N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα προέντασης

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	25	20	30	30	35	35	45	30	35	45
S2	10	25	25	35	35	40	40	50	35	40	50
S3	10	30	30	40	40	45	45	55	40	45	55
S4	10	35	35	45	45	50	50	60	45	50	60
S5	15	40	40	50	50	55	55	65	50	55	65
S6	20	45	45	55	55	60	60	70	55	60	70

For rebar type 1, structural class S4 and exposure class XC2:

 $c_{min,dur}$ (mm): 25

c) Calculation of cover with regard to bond:

§4.4.1.2(3)

 $c_{min,b}$ (mm): 10Table 4.2: Minimum cover, $c_{min,b}$ requirements with regard to bond

Bond Requirement	
Arrangement of bars	Minimum cover $c_{min,b}$ *
Separated	Diameter of bar
Bundled	Equivalent diameter (ϕ_{eq})(see B.9.1)

* If the nominal maximum aggregate size is greater than 32 mm, $c_{min,b}$ should be increased by 5 mm.

d) Calculation of minimum cover:

§4.4.1.2(2)

 $c_{min} = \max \{c_{min,b}, c_{min,dur} + \Delta c_{dur,b}, \Delta c_{dur,s}, \Delta c_{dur,add}, 10 \text{ mm}\}$ c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

e) Calculation of nominal cover: §4.4.1.2(1)

Δc_{dev} (mm): 10 §4.4.1.3(1-3)

$$c_{nom} = c_{min} + \Delta c_{dev}$$

c_{nom} (mm): 35

Final value of nominal cover for casting surface class 1: §4.4.1.2(11)

c_{nom} (mm): 35 §4.4.1.3(4)

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

Input:

Concrete grade, f_{ck} (MPa):

30

Rebar type [1.5]:

1

Maximum rebar diameter, Φ (mm):

10

2: Reinforcement bar

Environmental exposure class:

XC4

2: Post-tensioned bonded tendon

Working life (50 or 100 years):

50

3: Pre-tensioned strand

Member with slab geometry (y/n):

Y

4. Pre-tensioned plain wire

5. Pre-tensioned integral wire

Cast against uneven surfaces (1-4):

1

1: No

Quality control {y/n}:

Y

2: Exposed aggregate

Aggregates > 32mm (y/n):

□

3: Prepared ground (including blinding)

d. Directly against self

a) Calculation of structural class:

§4.4.1.2[5]

```
Initial class (S):
```

4

Due to concrete grade:

4

Due to slab geometry:

3

Due to quality control;

2

Final class (S):

2

Table 4.3N: Recommended structural classification

[illegible]

Calculation of rebar nominal cover according to EN 1262-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability:

§4.4.1.2(5) + N.A. ELOT EN 206-1

Πίνακας 4.4N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα οπλισμού

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	20	10	20	20	25	25	35	20	25	35
S2	10	20	15	25	25	30	30	40	25	30	40
S3	10	20	20	30	30	35	35	45	30	35	45
S4	10	25	25	35	35	40	40	50	35	40	50
S5	15	30	30	40	40	45	45	55	40	45	55
S6	20	35	35	45	45	50	50	60	45	50	60

Πίνακας 4.5N : Απαιτήσεις τιμών ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα προέντασης

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	25	20	30	30	35	35	45	30	35	45
S2	10	25	25	35	35	40	40	50	35	40	50
S3	10	30	30	40	40	45	45	55	40	45	55
S4	10	35	35	45	45	50	50	60	45	50	60
S5	15	40	40	50	50	55	55	65	50	55	65
S6	20	45	45	55	55	60	60	70	55	60	70

For rebar type 1, structural class S2 and exposure class XC4:

 $c_{min,dur}$ (mm) 25

c) Calculation of cover with regard to bond:

§4.4.1.2(3)

 $c_{min,b}$ (mm): 10Table 4.2: Minimum cover, $c_{min,b}$ requirements with regard to bond

Bond Requirement	
Arrangement of bars	Minimum cover $c_{min,b}$ *
Separated	Diameter of bar
Bundled	Equivalent diameter (ϕ)(see B.9.1)

*: If the nominal maximum aggregate size is greater than 32 mm, $c_{min,b}$ should be increased by 5 mm.

d) Calculation of minimum cover: §4.4.1.2(2)

 $c_{min} = \max \{L_{min,b}, c_{min,dur} + \Delta c_{d,r,r}, \Delta c_{dur,r}, \Delta c_{d,r,req}, 10 \text{ mm}\}$ c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

e) Calculation of nominal cover:

§4.4.1.2(1)

 Δc_{dev} (mm): 0

§4.4.1.3(1-3)

$$c_{nom} = c_{min} + \Delta c_{dev}$$

 c_{nom} (mm): 25

Final value of nominal cover for casting surface class 1:

§4.4.1.2(11)

 c_{nom} (mm): 25

§4.4.1.3(4)

[illegible]

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability:

§4.4.1.2(5) + N.A. ELOT EN 206-1

Πίνακας 4.4N : Απαιτήσεις πρώην ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα οπλισμού

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	20	10	20	20	25	25	35	20	25	35
S2	10	20	15	25	25	30	30	40	25	30	40
S3	10	20	20	30	30	35	35	45	30	35	45
S4	10	25	25	35	35	40	40	50	35	40	50
S5	15	30	30	40	40	45	45	55	40	45	55
S6	20	35	35	45	45	50	50	60	45	50	60

Πίνακας 4.5N : Απαιτήσεις πρώην ελάχιστης επικάλυψης, $c_{min,dur}$ από άποψη ανθεκτικότητας σε διάρκεια για χάλυβα προέντασης

Περιβαλλοντική απαίτηση για την $c_{min,dur}$ (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	XC0	XC1	XC2	XC3	XC4	XS1	XS2	XS3	XD1	XD2	XD3
S1	10	25	20	30	30	35	35	45	30	35	45
S2	10	25	25	35	35	40	40	50	35	40	50
S3	10	30	30	40	40	45	45	55	40	45	55
S4	10	35	35	45	45	50	50	60	45	50	60
S5	15	40	40	50	50	55	55	65	50	55	65
S6	20	45	45	55	55	60	60	70	55	60	70

For rebar type 1, structural class S2 and exposure class XC3:

 $c_{min,dur}$ (mm): 25

c) Calculation of cover with regard to bond:

§4.4.1.2(3)

 $c_{min,b}$ (mm): 10Table 4.2: Minimum cover, $c_{min,b}$, requirements with regard to bond

Bond Requirement	
Arrangement of bars	Minimum cover $c_{min,b}$ *
Separated	Diameter of bar
Bundled	Equivalent diameter (ϕ_e) (see 8.9.1)

*. If the nominal maximum aggregate size is greater than 32 mm, $c_{min,b}$ should be increased by 5 mm.

d) Calculation of minimum cover:

§4.4.1.2(7)

 $c_{min} = \max \{ c_{min,b}, c_{min,dur} + \Delta c_{dur,r} - \Delta c_{dur,e} - \Delta c_{dur,z/d}, 10 \text{ mm} \}$ c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1992-1-1, §4.4.1

e) Calculation of nominal cover:

§4.4.1.2(1)

Δc_{dev} (mm): 0

§4.4.1.3(1-3)

$c_{nom} = c_{min} + \Delta c_{dev}$

c_{nom} (mm): 25

Final value of nominal cover for casting surface class 1:

§4.4.1.2(11)

c_{nom} (mm): **25**

§4.4.1.3(4)

Εργοδότης: ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Π.Ε. ΗΛΕΙΑΣ, ΔΗΜΟΣ ΠΗΝΕΣΙΟΥ				
Μελετητής:	Τίτλος τεύχους: ΤΕΥΧΟΣ ΣΤΑΤΙΚΩΝ ΥΠΟΛΟΓΙΣΜΩΝ	Λογ.αριθ.:	Σελ.:	15 of 15
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Τεύχος υπολογισμών κτηρίου

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Linear Analysis

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Design Parameters of area elements

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Design ULS - area elements

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Design SLS - area elements

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Design ACCI - area elements

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Design ULS - Beams

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Design SLS - Beams

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Design ACCI - Beams

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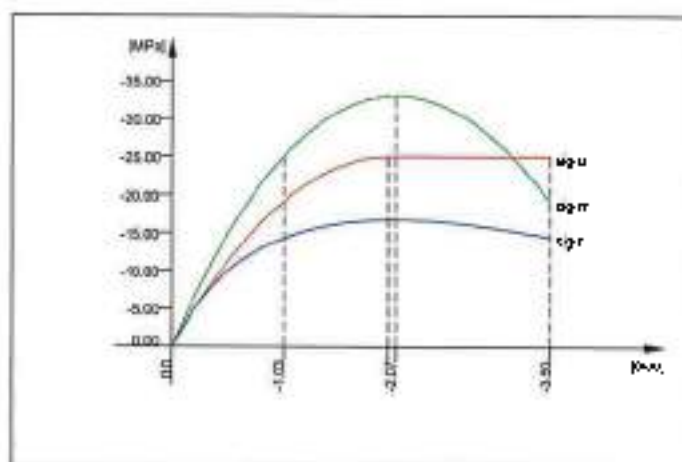
NHPIAGOGEO_GASTOJNH

Materials

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
Structure and Tab.7.1N: AN (Buildings)
Snow load zone : 1

No. 1 C 25/30 (EN 1992)

Youngs-modulus	E	28328 [MPa]	Safetyfactor	1.50 [-]	
Poisson-Ratio	μ	0.20 [-]	Strength	f_c 25.00 [MPa]	
Shear-modulus	G	11803 [MPa]	Nonin. strength	f_{cn} 25.00 [MPa]	
Compression modulus		15738 [MPa]	tens. strength	f_{ctn} 2.56 [MPa]	
Weight		25.0 [kN/m3]	5 % t.strength	f_{ctk} 1.80 [MPa]	
Weight buoyancy		25.0 [kN/m3]	95 % t.strength	f_{ctk} 3.33 [MPa]	
Temp.elongat.coeff.		1.00E-05 [1/°K]	Bond strength	f_{bd} 2.69 [MPa]	
			Service strength	33.00 [MPa]	
			Fatigue strength	15.00 [MPa]	
Stress-Strain for serviceability			eps[0/00]	sig-m[MPa]	E-t[MPa]
Is only valid within the defined stress range			0.000	0.00	33050
			-1.035	-25.04	15658
			-2.069	-33.00	0
			-3.500	-18.95	-19203
Stress-Strain for ultimate load			Safetyfactor	1.35	
Is only valid within the defined stress range			eps[0/00]	sig-u[MPa]	E-t[MPa]
			0.000	0.00	25000
			-2.000	-25.00	0
			-3.500	-25.00	0
Stress-Strain of calc. mean values			Safetyfactor	1.50	
Is only valid within the defined stress range			eps[0/00]	sig-r[MPa]	E-t[MPa]
			0.000	0.00	27541
			-1.035	-14.23	5688
			-2.069	-16.67	0
			-3.500	-14.32	-2802
			Safetyfactor	(1.50)	



C 25/30 (EN 1992)

No. 2 S 500 C (EN 1992)

Youngs-modulus	E	200000 [MPa]	Safetyfactor	1.15 [-]	
Poisson-Ratio	μ	0.30 [-]	Yield stress	f_y 500.00 [MPa]	
Shear-modulus	G	76923 [MPa]	Compr.yield val.	f_{yc} 500.00 [MPa]	
Compression modulus		166667 [MPa]	tens. strength	f_t 575.00 [MPa]	
Weight		78.5 [kN/m ³]	Compr. strength	f_c 575.00 [MPa]	
Weight buoyancy		78.5 [kN/m ³]	Ultin. plast. strain	75.00 [0/00]	
Temp.elongat.coeff.		1.20E-05 [1/°K]	relative bond coeff.	1.00 [-]	
max. thickness		32.00 [mm]	EC2 bondcoeff. K1	0.80 [-]	
			Hardening modulus	0.00 [MPa]	
			Proportional limit	500.00 [MPa]	
			Dynamic stress range	152.17 [MPa]	
Stress-strain for serviceability			eps[0/00]	sig-m[MPa]	E-t[MPa]
Is also extended beyond the			1000.000	575.00	0

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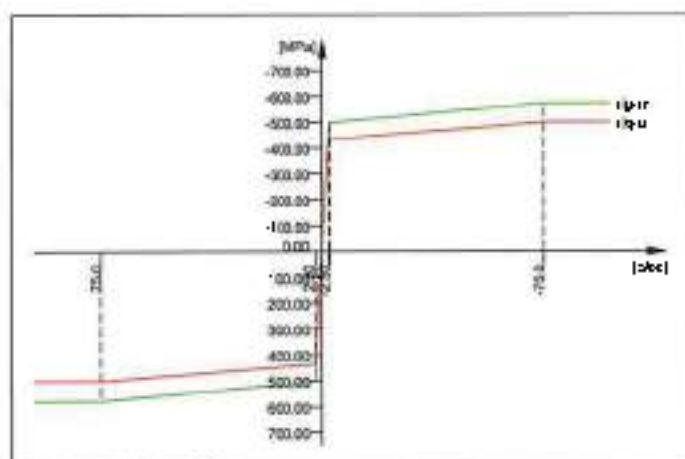
Materials

No. 2 S 500 C (EN 1992)

defined stress range

75.000	575.00	0
2.500	500.00	1034
0.000	0.00	200000
-2.500	-500.00	200000
-75.000	-575.00	1034
-1000.000	-575.00	0
Safetyfactor		1.15
eps[σ/σ ₀]	sig-u[MPa]	E-t[MPa]
1000.000	500.00	0
75.000	500.00	0
2.174	434.78	896
0.000	0.00	200000
-2.174	-434.78	200000
-75.000	-500.00	896
-1000.000	-500.00	0
Safetyfactor		(1.15)

Stress-Strain for ultimate load

is also extended beyond the
defined stress range


S 500 C (EN 1992)

No. 3 C 30/37 (EN 1992)

Youngs-modulus	E	29553 [MPa]	Safetyfactor		1.50 [-]
Poisson-Ratio	mu	0.20 [-]	Strength	fc	30.00 [MPa]
Shear-modulus	G	12314 [MPa]	Nomin. strength	fcn	30.00 [MPa]
Compression modulus		16416 [MPa]	10% t.strength	ftcr	2.90 [MPa]
Weight		25.0 [kN/m ³]	5 % t.strength	ftck	2.03 [MPa]
Weight buoyancy		25.0 [kN/m ³]	95 % t.strength	ftck	3.77 [MPa]
Temp.elongat.coeff.		1.00E-05 [1/*K]	Bond strength	ftd	3.04 [MPa]
			Service strength		38.00 [MPa]
			Fatigue strength		17.60 [MPa]

Stress-Strain for serviceability
is also extended beyond the
defined stress range

eps[σ/σ ₀]	sig-u[MPa]	E-t[MPa]
0.000	0.00	34478
-1.081	-28.31	17746
-2.162	-38.00	0
-3.500	-22.47	-23499

Safetyfactor 1.35

Stress-Strain for ultimate load
is only valid within the defined
stress range

eps[σ/σ ₀]	sig-u[MPa]	E-t[MPa]
0.000	0.00	30000
-2.000	-30.00	0
-3.500	-30.00	0

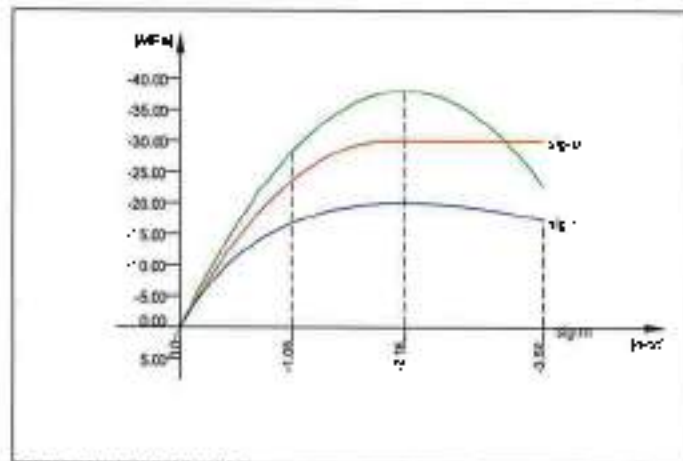
Safetyfactor 1.50

Stress-Strain of calc. mean values
is only valid within the defined
stress range

eps[σ/σ ₀]	sig-r[MPa]	E-t[MPa]
0.000	0.00	28732
-1.081	-16.78	7018
-2.162	-20.00	0
-3.500	-17.25	-3601

Safetyfactor (1.50)

NHPIAGOGEO_GASTOINH
Materials



C 30/37 (EN 1992)

No. 4 C 30/37 (EN 1992) - Slab

Youngs-modulus	E	29553 [MPa]	Safetyfactor		1.50 [-]
Poisson-Ratio	nu	0.20 [-]	Strength	fc	30.00 [MPa]
Shear-modulus	G	12314 [MPa]	Nonlin. strength	fcn	30.00 [MPa]
Compression modulus		16418 [MPa]	Tens. strength	fctm	2.90 [MPa]
Weight		19.4 [kN/m3]	5 % t.strength	fctk	2.03 [MPa]
Weight buoyancy		19.4 [kN/m3]	95 % t.strength	fctk	3.77 [MPa]
Temp. elongat. coeff.		1.00E-05 [1/K]	Bond strength	fbd	3.04 [MPa]
			Service strength		38.00 [MPa]
			Fatigue strength		17.60 [MPa]

Stress-Strain for serviceability
Is also extended beyond the
defined stress range

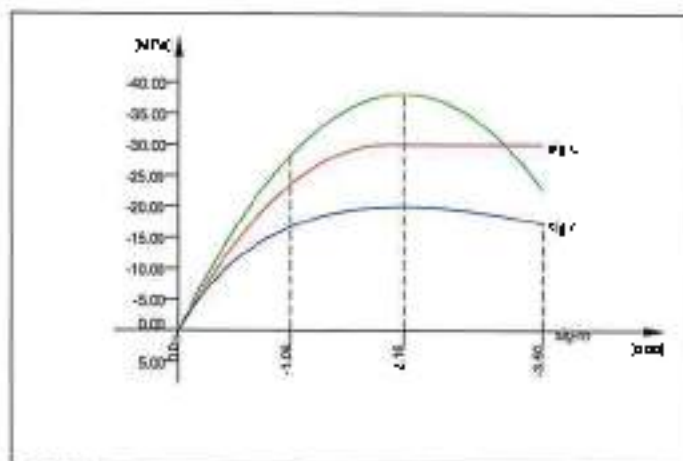
eps[0/00]	sig-m[MPa]	E-t[MPa]
0.000	0.00	34478
-1.081	-28.31	17746
-2.162	-38.00	0
-3.500	-22.47	-23499

Stress-Strain for ultimate load
Is only valid within the defined
stress range

eps[0/00]	sig-u[MPa]	E-t[MPa]
0.000	0.00	30000
-2.000	-30.00	0
-3.500	-30.00	0

Stress-Strain of calc. mean values
Is only valid within the defined
stress range

eps[0/00]	sig-r[MPa]	E-t[MPa]
0.000	0.00	28732
-1.081	-16.78	7018
-2.162	-20.00	0
-3.500	-17.25	-3601
Safetyfactor		(1.50)



C 30/37 (EN 1992) - Slab

ΠΡΟΠΟΛΟΓΙΣΜΟΣ ΓΕΩΜΕΤΡΙΑΣ
Materials
No. 6 S 275 (EN 10025-2)

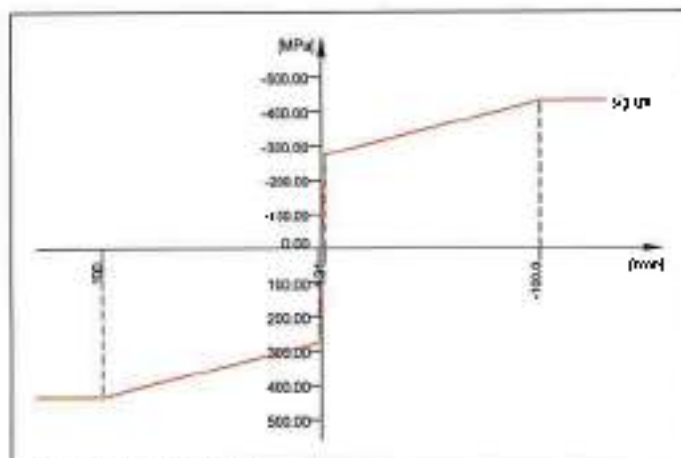
Young's modulus	E	210000 [MPa]	Safety factor	1.00 [-]
Poisson-Ratio	μ	0.30 [-]	Yield stress	f_y 275.00 [MPa]
Shear modulus	G	80769 [MPa]	Compr. yield val.	f_{yc} 275.00 [MPa]
Compression modulus		175000 [MPa]	Tens. strength	f_t 430.00 [MPa]
Weight		78.5 [kN/m ³]	Compr. strength	f_c 430.00 [MPa]
Weight buoyancy		78.5 [kN/m ³]	Ultim. plast. strain	100.00 [o/oo]
Temp. elongat. coeff.		1.20E-05 [1/°K]	relative bond coeff.	0.00 [-]
max. thickness		16.00 [mm]	EC2 bondcoeff. K_1	0.00 [-]
			Hardening modulus	0.00 [MPa]
			Proportional limit	275.00 [MPa]
			Dynamic stress range	0.00 [MPa]

Stress-Strain for serviceability
 Is also extended beyond the
 defined stress range

eps[o/oo]	sig-m[MPa]	E-t[MPa]
1000.000	430.00	0
100.000	430.00	1571
1.310	275.00	1571
0.000	0.00	210000
-1.310	-275.00	210000
-100.000	-430.00	1571
-1000.000	-430.00	0

Stress-Strain for ultimate load
 Is also extended beyond the
 defined stress range

eps[o/oo]	sig-u[MPa]	E-t[MPa]
1000.000	430.00	0
100.000	430.00	1571
1.310	275.00	1571
0.000	0.00	210000
-1.310	-275.00	210000
-100.000	-430.00	1571
-1000.000	-430.00	0
Safety factor		1.00



S 275 (EN 10025-2)

Thermal material constants

No.	TEMP	S[J/Km ³]	Kxx[W/Km]	Kyy[W/Km]	Kzz[W/Km]	
2		3.45E+06	5.333E+01	0.000E+00	0.000E+00	S 500 C (EN 1992)
3		2.07E+06	1.951E+00	0.000E+00	0.000E+00	C 30/37 (EN 1992)
4		2.07E+06	1.951E+00	0.000E+00	0.000E+00	C 30/37 (EN 1992) - Slab
6		3.45E+06	5.333E+01	0.000E+00	0.000E+00	S 275 (EN 10025-2)

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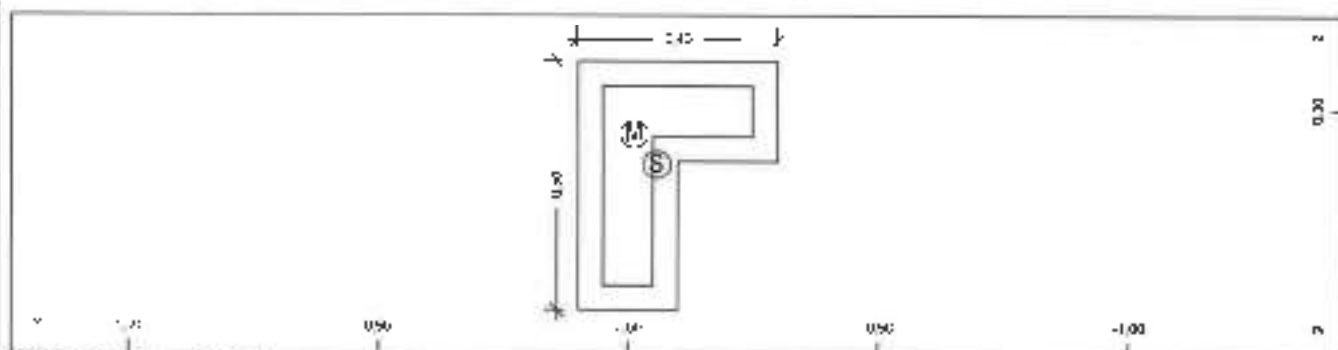
Interpolation of Cross Sections

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
Structure and Tab.7.1N: AN (Buildings)
Snow load zone : 1

Materials

No. 1 C 25/30 (EN 1992)
No. 2 S 500 C (EN 1992)
No. 3 C 30/37 (EN 1992)
No. 4 C 30/37 (EN 1992) - Slab
No. 6 S 275 (EN 10025-2)

Cross section No. 1

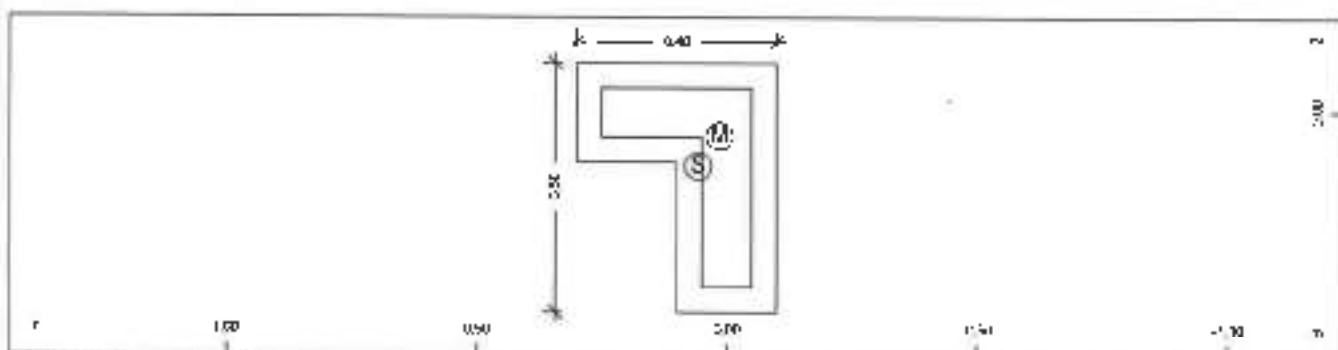


Cross section No. 1

Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
1	=							
(COMP)	3	1.4000E-01		2.860E-03	-0.057	-0.014	29553	3.50
	2	1.643E-03		1.610E-03	0.110	0.050	12314	
				8.571E-04				

Cross section No. 2



Cross section No. 2

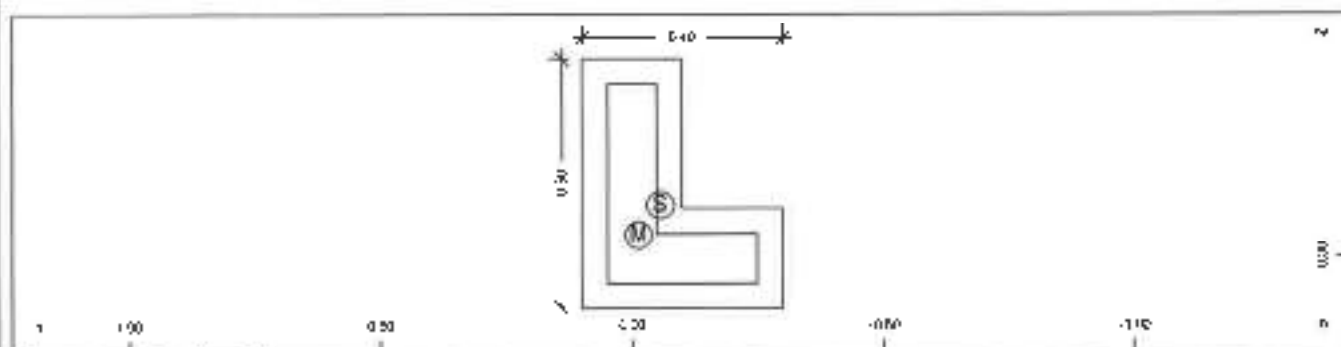
Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
2	=							
(COMP)	3	1.4000E-01		2.860E-03	0.057	0.014	29553	3.50
	2	1.643E-03		1.610E-03	0.110	0.050	12314	
				-8.571E-04				

Cross section No. 3

ΗΡΩΔΕΙΩ ΓΑΣΤΡΟΝΗ

Interpolation of Cross Sections

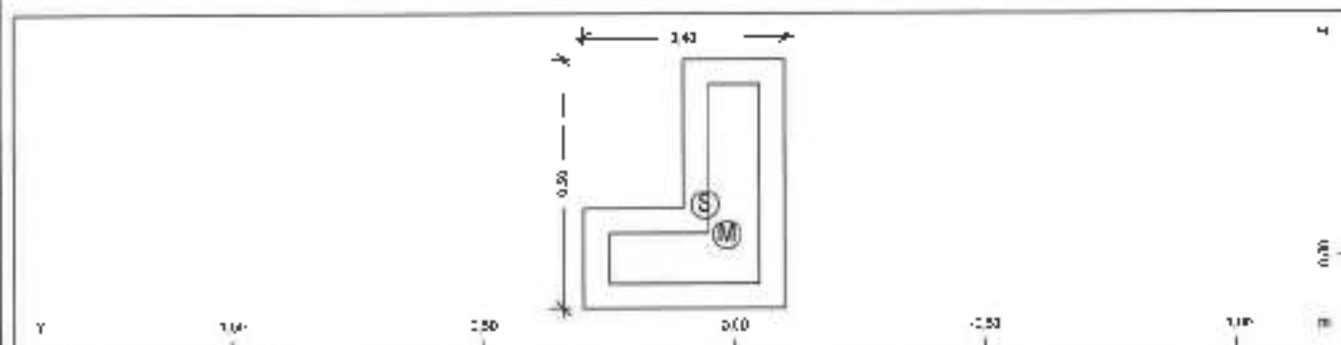


Cross section No. 3

Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
	NoR	It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
3	=							
(COMP)	3	1.4000E-01		2.860E-03	-0.057	-0.014	29553	3.50
	2	1.643E-03		1.610E-03	-0.104	-0.044	12314	
				8.571E-04				

Cross section No. 4

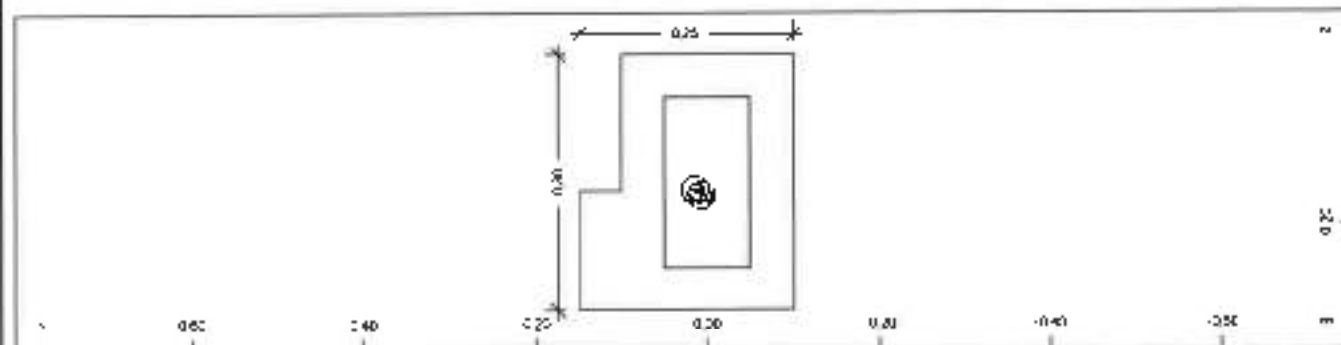


Cross section No. 4

Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
	NoR	It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
4	=							
(COMP)	3	1.4000E-01		2.860E-03	0.057	0.014	29553	3.50
	2	1.643E-03		1.610E-03	-0.104	-0.044	12314	
				8.571E-04				

Cross section No. 5



Cross section No. 5

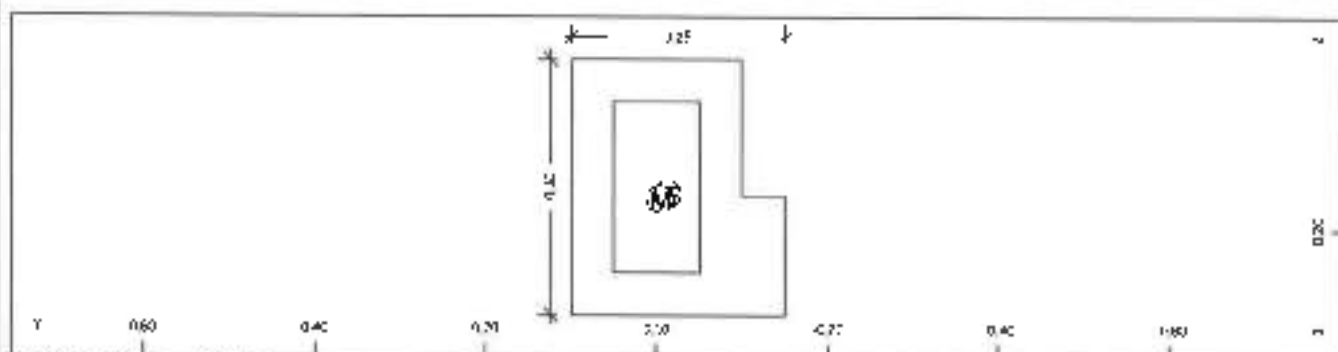
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Interpolation of Cross Sections

Static properties of cross section

No.	Mat	A[m2]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m4]	[m2]	[m4]	[m]	[m]	[MPa]	[kN/m]
5	=							
(BEAM)	3	6.7000E-02		5.016E-04	0.013	0.005	29553	1.68
	2	5.559E-04		2.994E-04	0.158	0.164	12314	
				6.269E-05				

Cross section No. 6

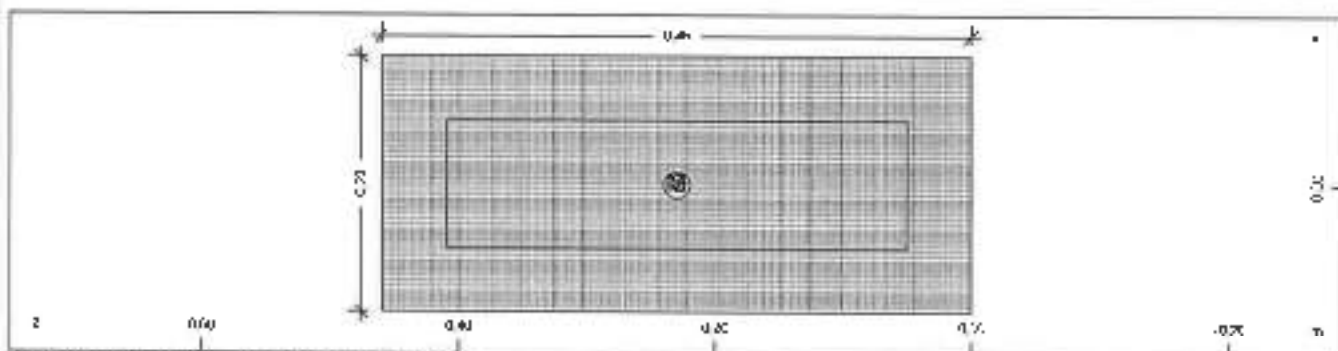


Cross section No. 6

Static properties of cross section

No.	Mat	A[m2]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m4]	[m2]	[m4]	[m]	[m]	[MPa]	[kN/m]
6	=							
(BEAM)	3	6.7000E-02		5.016E-04	-0.013	-0.005	29553	1.68
	2	5.559E-04		2.994E-04	0.158	0.164	12314	
				6.269E-05				

Cross section No. 7 - B/H = 20 / 46 cm



Cross section No. 7 - B/H = 20 / 46 cm

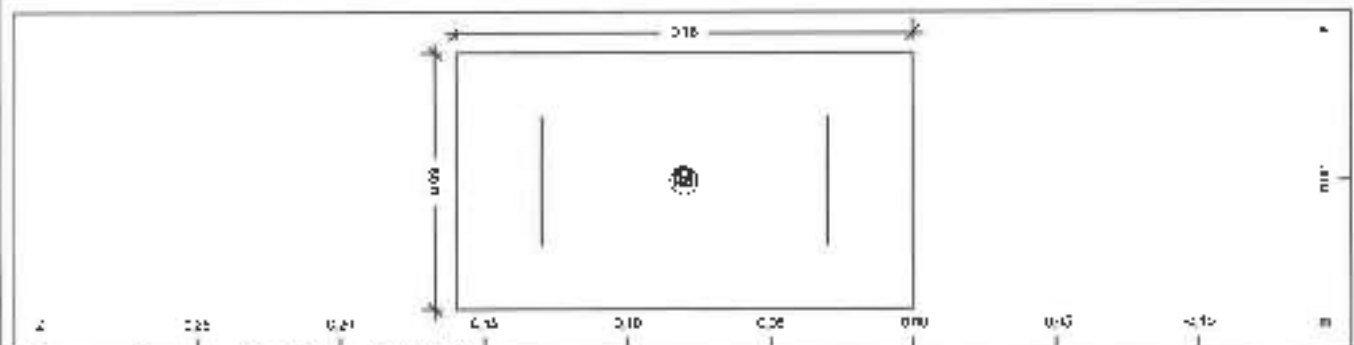
Static properties of cross section

No.	Mat	A[m2]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m4]	[m2]	[m4]	[m]	[m]	[MPa]	[kN/m]
7	=							
	=							
(BEAM)	3	9.2000E-02		1.622E-03	0.000	0.000	29553	2.30
	2	8.803E-04		3.067E-04	0.230	0.230	12314	

Cross section No. 8 - B/H = 9 / 16 cm

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Interpolation of Cross Sections

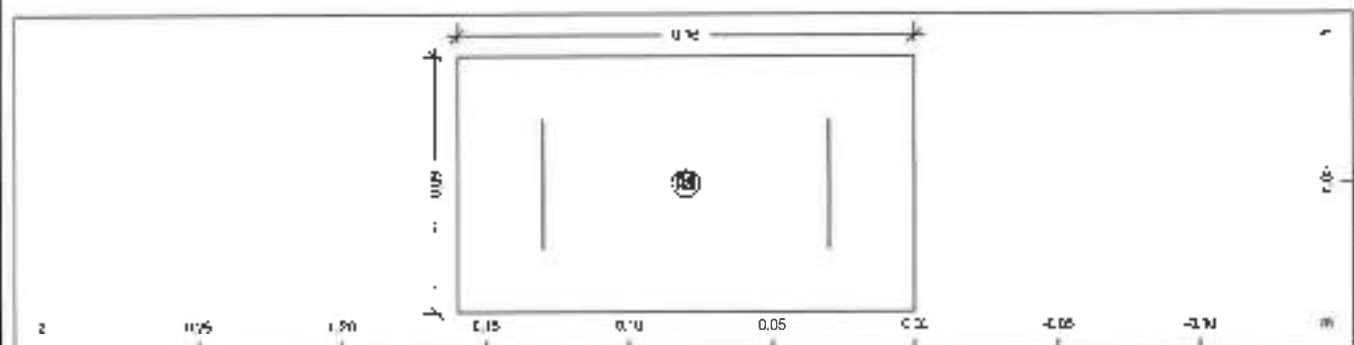


Cross section No. 8 - B/H = 9 / 16 cm

Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
8	=	B/H = 9 / 16 cm						
(BEAM)	3	1.4400E-02		3.072E-05	0.000	0.000	29553	0.36
	2	2.500E-05		9.720E-06	0.080	0.080	12314	

Cross section No. 9 - B/H = 9 / 16 cm



Cross section No. 9 - B/H = 9 / 16 cm

Static properties of cross section

No.	Mat	A[m ²]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
NoR		It[m ⁴]	[m ²]	[m ⁴]	[m]	[m]	[MPa]	[kN/m]
9	=	B/H = 9 / 16 cm						
(BEAM)	3	1.4400E-02		3.072E-05	0.000	0.000	29553	0.36
	2	2.500E-05		9.720E-06	0.080	0.080	12314	

ΜΗΠΙΑΓΩΓΕΙΟ_ΓΑΣΤΟΥΝΗ

Generation of Node and Element Loads

Actions

type	T sup	Title		γ-u	γ-f	γ-a	φ-θ	ψ-1	ψ-2	ψ-1'
G	G perm	dead load		1.35	1.00	1.00	1.00	1.00	1.00	1.00
R	G perm	earth pressure		1.35	1.00	1.00	1.00	1.00	0.00	1.00
L_M	Q excl	Live load on roofs	cat. H	1.50	0.00	1.00	0.00	0.00	0.00	0.00
Q_C	Q cond	Pay load assembling	cat. C	1.50	0.00	1.00	0.70	0.70	0.60	1.00
S	Q cond	snow loading		1.50	0.00	1.00	0.50	0.20	0.00	0.20
W	Q excl	wind loading		1.50	0.00	1.00	0.60	0.20	0.00	1.00

Load Case 1 (G) Self weight

Factor forces and moments	1.000
Factor dead weight DL-XX	0.000
Factor dead weight DL-YY	0.000
Factor dead weight DL-ZZ	1.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ-0	1.000 (rare)
Combination coefficient ψ-'	1.000 (non frequent)
Combination coefficient ψ-1	1.000 (frequent)
Combination coefficient ψ-2	1.000 (permanent)

Load Case 2 (R) Soil pressure

Factor forces and moments	1.000
Factor dead weight DL-XX	0.000
Factor dead weight DL-YY	0.000
Factor dead weight DL-ZZ	0.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ-0	1.000 (rare)
Combination coefficient ψ-'	1.000 (non frequent)
Combination coefficient ψ-1	1.000 (frequent)
Combination coefficient ψ-2	0.000 (permanent)

Load Case 3 (G) Superimposed dead

Factor forces and moments	1.000
Factor dead weight DL-XX	0.000
Factor dead weight DL-YY	0.000
Factor dead weight DL-ZZ	0.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ-0	1.000 (rare)
Combination coefficient ψ-'	1.000 (non frequent)
Combination coefficient ψ-1	1.000 (frequent)
Combination coefficient ψ-2	1.000 (permanent)

Meshfree Loading

Kind	Reference	Projection	Coordinates	Type	Loadvalue	
		W[m]	X[m]	Y[m]	Z[m]	
Area	Lar	1	0.350	-4.650	-4.660	PG 3.50 [kN/m2]
			0.350	-4.650	-1.500	3.50 [kN/m2]
			7.350	-4.650	-1.500	3.50 [kN/m2]
			7.350	-4.650	-4.660	3.50 [kN/m2]
Area	Lar	2	activated			100.00 percent
			7.550	-4.650	-4.660	PG 3.50 [kN/m2]
			7.550	-4.650	-1.500	3.50 [kN/m2]
			14.550	-4.650	-1.500	3.50 [kN/m2]
Area	Lar	3	14.550	-4.650	-4.660	3.50 [kN/m2]
			activated			100.00 percent
			14.750	-4.650	-4.660	PG 3.50 [kN/m2]
			14.750	-4.650	-1.500	3.50 [kN/m2]
Area	Lar	3	18.150	-4.650	-1.500	3.50 [kN/m2]
			18.150	-4.650	-4.660	3.50 [kN/m2]
			activated			100.00 percent
			-4.650	0.350	-4.660	PG 3.50 [kN/m2]
Area	Lar	3	-4.650	0.350	-1.500	3.50 [kN/m2]

ΜΗΠΙΛΟΓΕΙΟ_ΓΑΣΤΡΟΝΗ

Generation of Node and Element Loads

Meshfree Loading

Reqm Free Loading			Projection Coordinates				Type	Loadvalue
Kind	Referenceto		W[m]	X[m]	Y[m]	Z[m]		
Area	Lar	4		-4.650	3.750	-1.500		3.50 [kN/m2]
				-4.650	3.750	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				-4.650	3.950	-4.660	PG	3.50 [kN/m2]
				-4.650	3.950	-1.500		3.50 [kN/m2]
Area	Lar	5		-4.650	7.350	-1.500		3.50 [kN/m2]
				-4.650	7.350	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				-4.650	7.550	-4.660	PG	3.50 [kN/m2]
				-4.650	7.550	-1.500		3.50 [kN/m2]
Area	Lar	6		-4.650	10.950	-1.500		3.50 [kN/m2]
				-4.650	10.950	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				-4.650	11.150	-4.660	PG	3.50 [kN/m2]
				-4.650	11.150	-1.500		3.50 [kN/m2]
Area	Lar	7		-4.650	18.150	-1.500		3.50 [kN/m2]
				-4.650	18.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				0.350	23.150	-4.660	PG	3.50 [kN/m2]
				0.350	23.150	-1.500		3.50 [kN/m2]
Area	Lar	8		3.750	23.150	-1.500		3.50 [kN/m2]
				3.750	23.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				3.950	23.150	-4.660	PG	3.50 [kN/m2]
				3.950	23.150	-1.500		3.50 [kN/m2]
Area	Lar	9		7.350	23.150	-1.500		3.50 [kN/m2]
				7.350	23.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				7.550	23.150	-4.660	PG	3.50 [kN/m2]
				7.550	23.150	-1.500		3.50 [kN/m2]
Area	Lar	10		10.950	23.150	-1.500		3.50 [kN/m2]
				10.950	23.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				11.150	23.150	-4.660	PG	3.50 [kN/m2]
				11.150	23.150	-1.500		3.50 [kN/m2]
Area	Lar	11		14.550	23.150	-1.500		3.50 [kN/m2]
				14.550	23.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				14.750	23.150	-4.660	PG	3.50 [kN/m2]
				14.750	23.150	-1.500		3.50 [kN/m2]
Area	Lar	12		18.150	23.150	-1.500		3.50 [kN/m2]
				18.150	23.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				23.150	0.350	-4.660	PG	3.50 [kN/m2]
				23.150	0.350	-1.500		3.50 [kN/m2]
Area	Lar	13		23.150	7.350	-1.500		3.50 [kN/m2]
				23.150	7.350	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				23.150	7.550	-4.660	PG	3.50 [kN/m2]
				23.150	7.550	-1.500		3.50 [kN/m2]
Area	Lar	14		23.150	10.950	-1.500		3.50 [kN/m2]
				23.150	10.950	-4.660		3.50 [kN/m2]
						activated		100.00 percent
				23.150	11.150	-4.660	PG	3.50 [kN/m2]
				23.150	11.150	-1.500		3.50 [kN/m2]
Area	Lar	15		23.150	18.150	-1.500		3.50 [kN/m2]
				23.150	18.150	-4.660		3.50 [kN/m2]
						activated		100.00 percent
						PG	2.00 [kN/m2]	
Area	GAR	30				activated	100.00 percent	
Area	GAR	23				PG	3.00 [kN/m2]	
						activated	100.00 percent	

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Generation of Node and Element Loads

Meshfree Loading

Kind	Reference	to	Projection Coordinates				Type	Load	value
			M[m]	X[m]	Y[m]	Z[m]			
Area	GAR	21					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	20					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	22					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	24					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	16					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	19					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	18					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	17					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	15					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	14					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	13					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	27					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	26					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	29					PG	3.00	[kN/m2]
					activated			100.00	percent
Area	GAR	28					PG	3.00	[kN/m2]
					activated			100.00	percent
Line			7.350	11.150	-1.500		PG	4.72	[kN/m]
			7.350	18.150	-1.500			4.72	[kN/m]
	qgrp	2					activated	100.00	percent
Line			7.550	11.150	-1.500		PG	4.72	[kN/m]
			7.550	18.150	-1.500			4.72	[kN/m]
	qgrp	2					activated	100.00	percent
Line			10.950	11.150	-1.500		PG	4.72	[kN/m]
			10.950	18.150	-1.500			4.72	[kN/m]
	qgrp -mult-						activated	100.00	percent
Line			11.150	11.150	-1.500		PG	4.72	[kN/m]
			11.150	18.150	-1.500			4.72	[kN/m]
	qgrp	2					activated	100.00	percent
Line			14.550	0.350	-1.500		PG	9.45	[kN/m]
			14.550	3.750	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			14.550	3.950	-1.500		PG	9.45	[kN/m]
			14.550	7.350	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			3.950	11.150	-1.500		PG	9.45	[kN/m]
			7.350	11.150	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			7.550	11.150	-1.500		PG	9.45	[kN/m]
			10.950	11.150	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			11.150	11.150	-1.500		PG	9.45	[kN/m]
			14.550	11.150	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			0.350	7.350	-1.500		PG	9.45	[kN/m]
			7.350	7.350	-1.500			9.45	[kN/m]
	qgrp	2					activated	100.00	percent
Line			7.350	0.350	-1.500		PG	9.45	[kN/m]
			7.350	3.750	-1.500			9.45	[kN/m]

NHPIAGOGEOI_GASTOLNH

Generation of Node and Element Loads

Meshfree Loading

Kind	Referenceto	Projection Coordinates				Type	Loadvalue
		W[m]	X[m]	Y[m]	Z[m]		
Area	qgrp 2			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 41			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 42			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 43			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 44			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 36			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 63			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 67			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 64			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 68			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 35			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 62			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 61			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 65			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 66			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 33			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 59			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 58			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 60			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 52			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 32			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 49			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 55			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 57			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 54			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 34			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 53			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 48			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 56			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 46			activated		PG	100.00 percent 2.00 [kN/m2]
Area	GAR 38			activated		PG	100.00 percent 2.00 [kN/m2]

NHPIAGOGEIO_GASTOUNH

Generation of Node and Element Loads

Meshfree Loading

Kind	Reference	to	Projection Coordinates				Type	Loadvalue	
			M[m]	X[m]	Y[m]	Z[m]			
Area	GAR	71				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	72				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	76				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	75				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	40				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	70				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	77				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	73				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	74				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	39				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	78				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	79				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	80				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	69				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	37				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	92				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	86				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	87				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	84				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	83				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	93				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	94				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	88				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	85				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	81				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	90				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	89				activated		100.00	percent
							PG	2.00	[kN/m2]
Area	GAR	82				activated		100.00	percent
							PG	2.00	[kN/m2]
Line	GAR	91				activated		100.00	percent
			0.350	3.750	-1.500		PG	9.45	[kN/m]
			7.350	3.750	-1.500			9.45	[kN/m]
	qgrp	2				activated		100.00	percent

ΜΠΙΛΑΓΟΓΕΙΟ_ΓΑΣΤΡΟΝΗ

Generation of Node and Element Loads

Load Case 4 (Q_C) Live load

Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000
unfavourable safety factor		1.500
favourable safety factor		0.000
Combination coefficient $\psi-0$		0.700 (rare)
Combination coefficient $\psi-'$		1.000 (non frequent)
Combination coefficient $\psi-1$		0.700 (frequent)
Combination coefficient $\psi-2$		0.600 (permanent)

Load Case 5 (L_M) Roof Live load

Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000
unfavourable safety factor		1.500
favourable safety factor		0.000

Load Case 6 (S) Snow load

Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000
unfavourable safety factor		1.500
favourable safety factor		0.000
Combination coefficient $\psi-0$		0.500 (rare)
Combination coefficient $\psi-'$		0.200 (non frequent)
Combination coefficient $\psi-1$		0.200 (frequent)
Combination coefficient $\psi-2$		0.000 (permanent)

Load Case 7 (W) Wind load

Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000
unfavourable safety factor		1.500
favourable safety factor		0.000
Combination coefficient $\psi-0$		0.600 (rare)
Combination coefficient $\psi-'$		1.000 (non frequent)
Combination coefficient $\psi-1$		0.200 (frequent)
Combination coefficient $\psi-2$		0.000 (permanent)

ΜΗΠΙΑΓΟΓΕ#0_GASTOUNH

Calculation of forces and moments

Load Case 1 (G) Self weight

Factor forces and moments	1.000
Factor dead weight DL-ZZ	1.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_1^*	1.000 (non frequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	1.000 (permanent)

Load Case 2 (R) Soil pressure

Factor forces and moments	1.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_1^*	1.000 (non frequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	0.000 (permanent)

Load Case 3 (G) Superimposed dead

Factor forces and moments	1.000
unfavourable safety factor	1.350
favourable safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_1^*	1.000 (non frequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	1.000 (permanent)

Load Case 4 (Q_C) Live load

Factor forces and moments	1.000
unfavourable safety factor	1.500
favourable safety factor	0.000
Combination coefficient ψ_0	0.700 (rare)
Combination coefficient ψ_1^*	1.000 (non frequent)
Combination coefficient ψ_1	0.700 (frequent)
Combination coefficient ψ_2	0.600 (permanent)

Load Case 5 (L_M) Roof live load

Factor forces and moments	1.000
unfavourable safety factor	1.500
favourable safety factor	0.000

Load Case 6 (S) Snow load

Factor forces and moments	1.000
unfavourable safety factor	1.500
favourable safety factor	0.000
Combination coefficient ψ_0	0.500 (rare)
Combination coefficient ψ_1^*	0.200 (non frequent)
Combination coefficient ψ_1	0.200 (frequent)
Combination coefficient ψ_2	0.000 (permanent)

Load Case 7 (W) Wind load

Factor forces and moments	1.000
unfavourable safety factor	1.500
favourable safety factor	0.000
Combination coefficient ψ_0	0.600 (rare)
Combination coefficient ψ_1^*	1.000 (non frequent)
Combination coefficient ψ_1	0.200 (frequent)
Combination coefficient ψ_2	0.000 (permanent)

Sum of Loads

LC Title	PXX[kN]	PYY[kN]	PZZ[kN]
1 Self weight	0.0	0.0	7216.6
2 Soil pressure	0.0	0.0	2205.0
3 Superimposed dead	0.0	0.0	3006.0

NHPIAGOGEO_GASTOUNH

Calculation of forces and moments

Sum of Loads

LC Title	PXX[kN]	PYY[kN]	PZZ[kN]
4 Live load	0.0	0.0	856.8
5 Roof live load	0.0	0.0	404.8
6 Snow load	0.0	0.0	129.5
7 Wind load	75.9	-0.9	260.7

Sum of Reactions and Loads

LC Title	PXX[kN]	PYY[kN]	PZZ[kN]
1 Self weight	0.0	0.0	-7216.4
	0.0	0.0	7216.6
2 Soil pressure	0.0	0.0	-2205.0
	0.0	0.0	2205.0
3 Superimposed dead	0.0	0.0	-3006.0
	0.0	0.0	3006.0
4 Live load	0.0	0.0	-856.8
	0.0	0.0	856.8
5 Roof live load	0.0	0.0	-404.8
	0.0	0.0	404.8
6 Snow load	0.0	0.0	-129.5
	0.0	0.0	129.5
7 Wind load	-75.9	0.9	-260.7
	75.9	-0.9	260.7

NHP1AGOGEO_GASTOUNP

Calculation Of Eigenvalues

Sum of Masses

	TM-X[t]	TM-Y[t]	TM-Z[t]	RM-X[tm2]	RM-Y[tm2]	RM-Z[tm2]
total	704.189	704.189	0.704	5.448	5.446	1.072
activ	704.227	704.227	0.704	5.448	5.446	1.072

Parameter of System of Equations

Number of unknowns 170560 DIRECT-SPARSE
 Total entries 3118875
 Total entries after fill in 66373160
 Mass matrix 441479 (consistent)

Eigenfrequencies

Using Lanczos Method

Iterations vectors

50

No.	LC	Eigenvalue [1/Sec2]	Relativ error	frequency [Hertz]	Period [sec]	modal damping
1	9001	3.86933E+02	3.74E-19	3.131	0.319420	0.00000
2	9002	4.05028E+02	4.57E-20	3.203	0.312203	0.00000
3	9003	5.53774E+02	8.70E-19	3.745	0.267001	0.00000
4	9004	1.83538E+03	1.25E-18	6.818	0.146662	0.00000
5		6.71182E+03	1.44E-17	13.039	0.076694	
6		8.46110E+03	2.84E-17	14.640	0.068307	
7		1.10583E+04	1.87E-17	16.736	0.059750	
8		1.11128E+04	6.44E-17	16.778	0.059603	
9		1.16861E+04	4.26E-17	17.205	0.058123	
10		1.40781E+04	1.16E-13	18.884	0.052955	
11		1.44609E+04	3.79E-11	19.139	0.052249	
12		1.45600E+04	3.15E-11	19.204	0.052071	
13		1.69332E+04	2.24E-10	20.710	0.048285	
14		1.76868E+04	6.66E-09	21.166	0.047245	
15		1.82507E+04	4.84E-08	21.501	0.046509	
16		1.98188E+04	2.51E-06	22.406	0.044631	
17		2.05178E+04	2.75E-05	22.797	0.043865	
18		2.13216E+04	1.57E-04	23.240	0.043030	
19		2.21950E+04	2.59E-03	23.711	0.042175	
20		2.25963E+04	8.05E-03	23.924	0.041799	
21		2.29437E+04	3.18E-02	24.107	0.041481	
22		2.34348E+04	3.34E-02	24.364	0.041044	
23		2.62077E+04	5.58E-03	25.765	0.038812	
24		2.71554E+04	3.19E-02	26.227	0.038129	
25		2.85479E+04	2.71E-02	26.891	0.037187	
26		3.08995E+04	4.28E-02	27.977	0.035744	
27		3.25448E+04	7.53E-02	28.712	0.034829	
28		3.41923E+04	9.72E-02	29.430	0.033979	
29		3.58110E+04	1.02E-01	30.118	0.033203	
30		3.81585E+04	1.64E-01	31.090	0.032165	
31		4.03811E+04	1.35E-01	31.982	0.031267	
32		4.61530E+04	7.46E-02	34.192	0.029247	
33		5.25131E+04	1.00E-01	36.472	0.027419	
34		5.99532E+04	2.00E-01	38.970	0.025661	
35		6.53681E+04	2.36E-01	40.691	0.024575	
36		7.28145E+04	2.33E-01	42.947	0.023285	
37		8.46022E+04	1.94E-01	46.293	0.021602	
38		9.57887E+04	8.99E-02	49.258	0.020301	
39		1.13705E+05	3.34E-01	53.667	0.018633	
40		1.33140E+05	2.01E-01	58.073	0.017220	
41		1.57784E+05	2.27E-01	63.220	0.015818	
42		1.94597E+05	2.33E-01	70.208	0.014243	
43		2.55842E+05	3.38E-01	80.502	0.012422	
44		3.50662E+05	3.08E-01	94.246	0.010610	
45		4.94167E+05	6.36E-01	111.881	0.008938	
46		7.84769E+05	8.12E-01	140.991	0.007093	
47		1.20114E+06	8.23E-01	174.428	0.005733	
48		2.66577E+06	1.04E+00	259.855	0.003848	
49		8.23915E+06	2.01E+00	456.837	0.002189	

NHPIAGOGEIIO_GASTOUNH

Calculation Of Eigenvalues

No.	LC	Eigenvalue [1/Sec ²]	Relativ error	frequency [Hertz]	Period [sec]	modal damping
50		3.65702E+07	3.71E+00	962.462	0.001039	

Modal masses - activated mass

No.	LC	frequency [Hertz]	modal mass			modal mass factor			activated mass [%]*
			X[t]	Y[t]	Z[t]	X[%]	Y[%]	Z[%]	
1	9001	3.131	270.4	126.4	0.0	38.40	17.95	0.00	24.29412
2	9002	3.203	146.4	310.9	0.0	20.79	44.14	0.00	40.04400
3	9003	3.745	40.8	19.6	0.0	5.80	2.79	0.00	15.44152
4	9004	6.818	0.8	0.0	0.0	0.11	0.00	0.00	26.10184
		sum	458.5	456.9	0.0	65.10	64.88	0.00	
		System activ	704.2	704.2	0.7				

The modal masses are evaluated for the global X, Y and Z direction,
the "activated mass" also includes torsional and opposite movements
without a global displacement (tuning fork):

* activated mass in % = product $u^2 \cdot M$ - displacement² * mass, in relation to the
sum of active mass, u scaled on a maximum displacement or rotation of 1.00.

NHPIASOGEIC_GASTOUNH

Definition Response Spectra

Actions

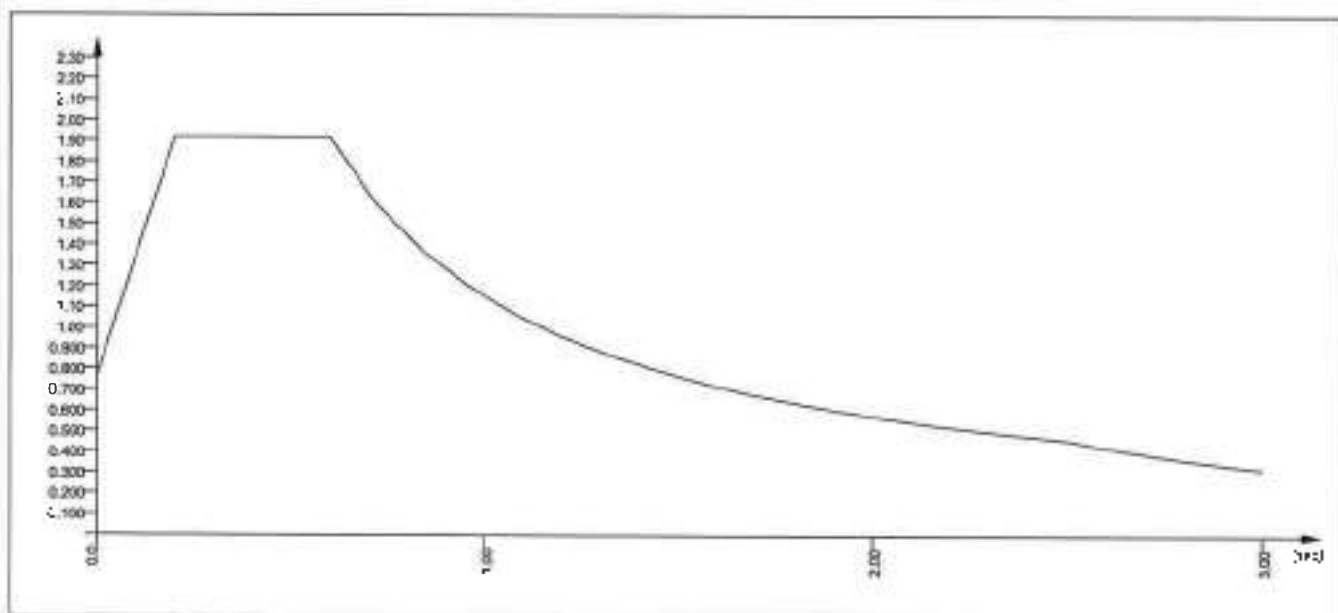
type	sup	Title		γ_u	γ_f	γ_a	ψ_0	ψ_1	ψ_2	ψ_{-1}
G		G perm dead load		1.35	1.00	1.00	1.00	1.00	1.00	1.00
R		G perm earth pressure		1.35	1.00	1.00	1.00	1.00	0.00	1.00
L_H		Q excl Live load on roofs	cat. H	1.50	0.00	1.00	0.00	0.00	0.00	0.00
Q_C		Q cond Pay load assembling	cat. C	1.50	0.00	1.00	0.70	0.70	0.60	1.00
S		Q cond snow loading		1.50	0.00	1.00	0.50	0.20	0.00	0.20
W		Q excl wind loading		1.50	0.00	1.00	0.60	0.20	0.00	1.00

Load Case 901

Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000

Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec2]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88
Zone =				ah =*	1.000	av =*	0.000			



Load Case 902

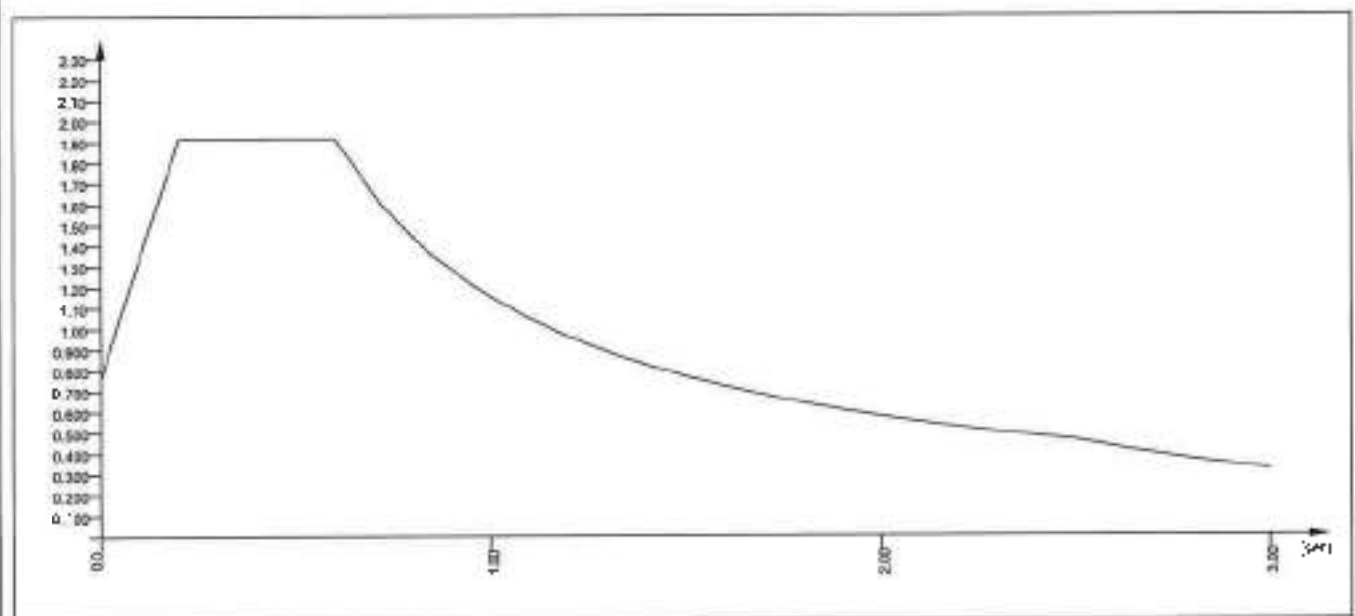
Factor forces and moments		1.000
Factor dead weight	DL-XX	0.000
Factor dead weight	DL-YY	0.000
Factor dead weight	DL-ZZ	0.000

Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec2]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88
Zone =				ah =*	1.000	av =*	0.000			

NHPIAGOGEO_GASTOUNH

Definition Response Spectra



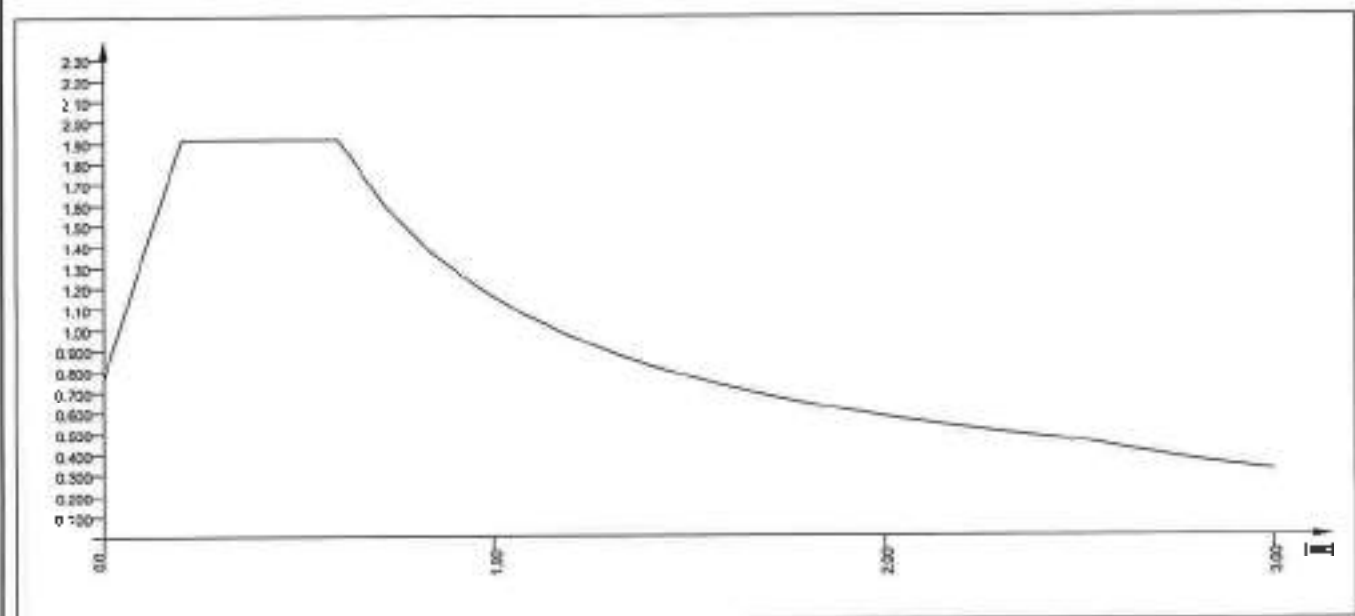
Load Case 983

Factor forces and moments 1.000
 Factor dead weight DL-XX 0.000
 Factor dead weight DL-YY 0.000
 Factor dead weight DL-ZZ 0.000

Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec²]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88

Zone = ah =* 1.000 av =* 0.000



Load Case 984

Factor forces and moments 1.000
 Factor dead weight DL-XX 0.000
 Factor dead weight DL-YY 0.000
 Factor dead weight DL-ZZ 0.000

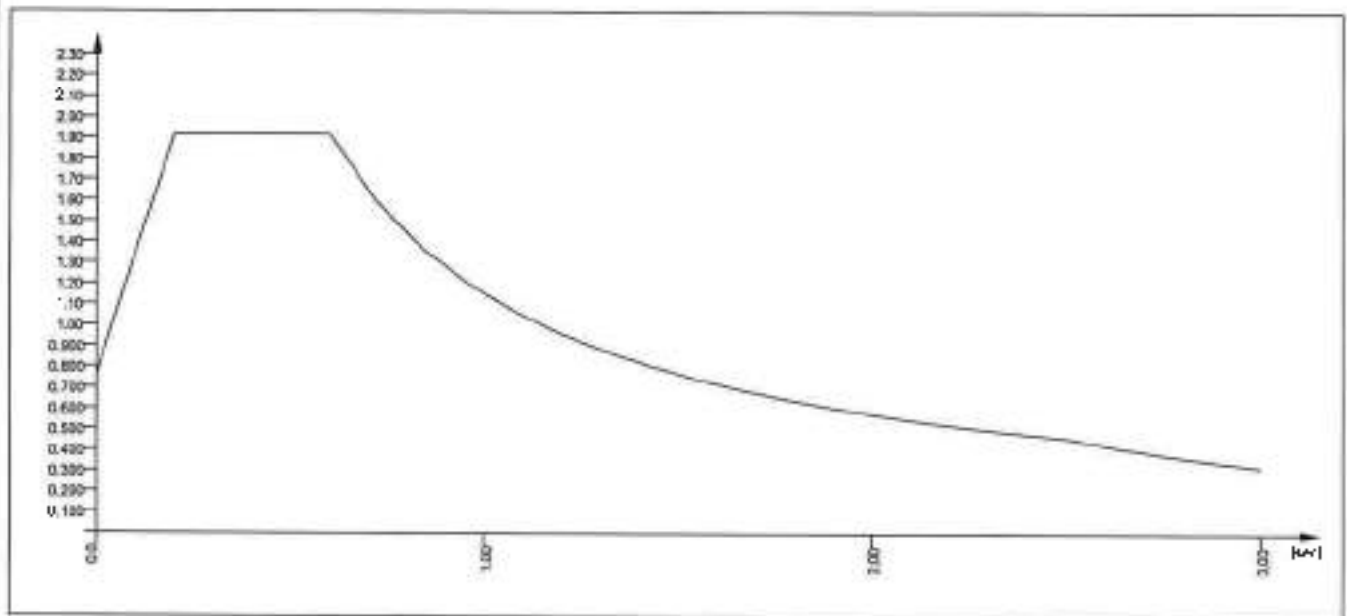
Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec²]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88

Zone = ah =* 1.000 av =* 0.000

NIPIAGOGED_GASTOUNH

Definition Response Spectra

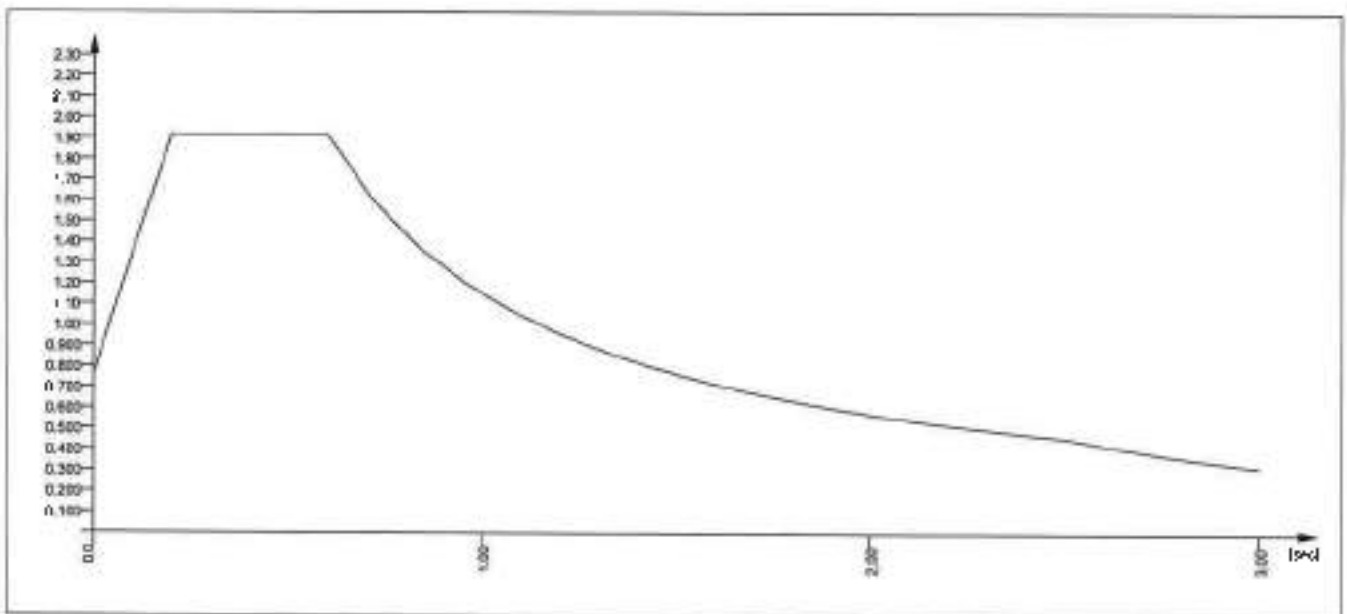


Load Case 985

Factor forces and moments 1.000
 Factor dead weight DL-XX 0.000
 Factor dead weight DL-YY 0.000
 Factor dead weight DL-ZZ 0.000

Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec²]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88
Zone =				ah = *	1.000	av = *	0.000			



Load Case 986

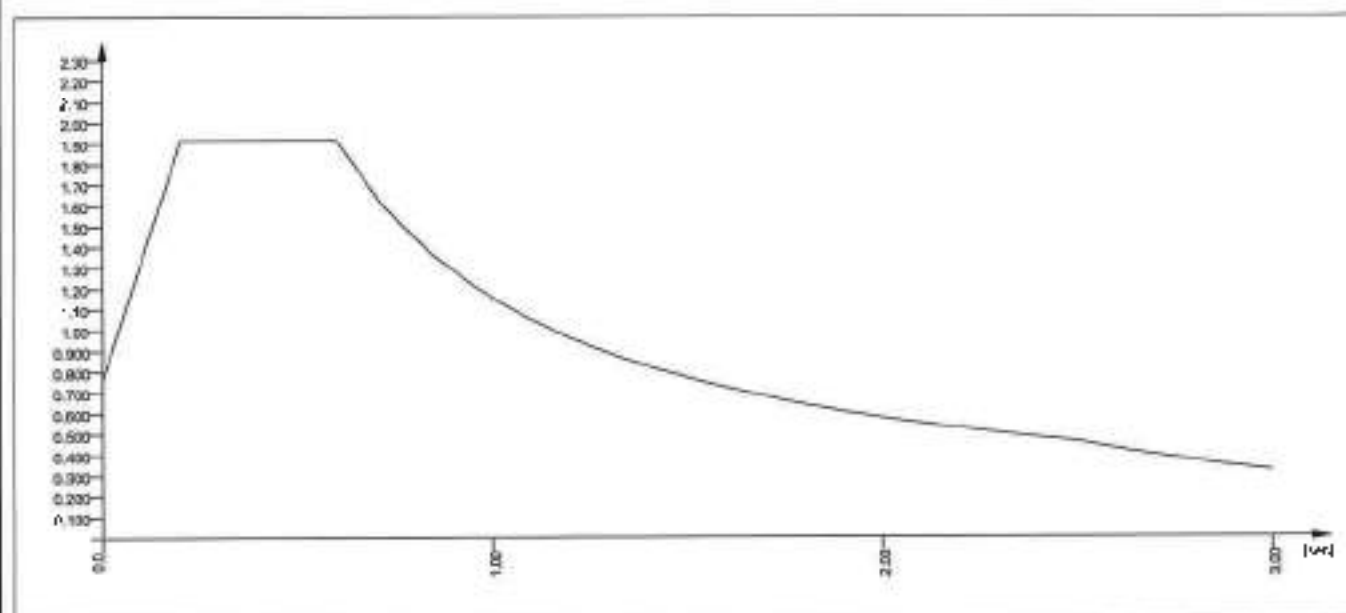
Factor forces and moments 1.000
 Factor dead weight DL-XX 0.000
 Factor dead weight DL-YY 0.000
 Factor dead weight DL-ZZ 0.000

Response spectra EC 8 Type 1, Soil Class C

D[-]	SA[-]	SB[-]	MIN[-]	TB[sec]	TC[sec]	TD[sec]	TE[sec]	K1[-]	K2[-]	A[m/sec²]
1.5000	0.767	1.917	0.200	0.200	0.600	2.500	0.000	1.000	2.000	2.88
Zone =				ah = *	1.000	av = *	0.000			

NHPIAGOGEO_GASTOUNH

Definition Response Spectra



NEPLAGGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.	Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0	EXTR		1.000	0.000000	0.000000	0
1	EXTR		1.000	0.000000	0.000000	0
2	EXTR		1.000	0.000000	0.000000	0
3	EXTR		1.000	0.000000	0.000000	0
4	EXTR		1.000	0.000000	0.000000	0
5	EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
901	1	-2.350E-01		3	6.377E-02	
	2	-1.652E-01		4	-2.403E-03	
904	1	-1.606E-01		3	4.426E-02	
	2	2.407E-01		4	1.244E-04	

SUM of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
901			2350.7	372.1	0.0	1590.97	10095.42	20252.89
904			372.1	2429.3	0.0	10437.70	1589.24	26439.93
SUM			2379.9	2457.6	0.0	10558.26	10219.75	33305.39

Nodal Masses 704.227 704.227 0.704 5.155 5.152 1.055

Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	19.807		18.860		11.267	

Maximum Forces and Moments

MAX-N	(LC7105)	MIN-N	method	CQC
MAX-Vy	(LC7106)	MIN-Vy	method	CQC
MAX-Vz	(LC7107)	MIN-Vz	method	CQC
MAX-Mx	(LC7108)	MIN-Mx	method	CQC
MAX-My	(LC7109)	MIN-My	method	CQC
MAX-Mz	(LC7110)	MIN-Mz	method	CQC
MAX-PtX	(LC7124)	MIN-PtX	method	CQC
MAX-PtY	(LC7125)	MIN-PtY	method	CQC
MAX-PtZ	(LC7126)	MIN-PtZ	method	CQC
MAX-n-xx	(LC7116)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7117)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7118)	MIN-n-xy	method	CQC
MAX-v-x	(LC7119)	MIN-v-x	method	CQC
MAX-v-y	(LC7120)	MIN-v-y	method	CQC
MAX-n-xx	(LC7121)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7122)	MIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7123) MIN-n-xy method CQC

NHPIACOGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0 EXTR		1.000	0.000000	0.000000	0
1 EXTR		1.000	0.000000	0.000000	0
2 EXTR		1.000	0.000000	0.000000	0
3 EXTR		1.000	0.000000	0.000000	0
4 EXTR		1.000	0.000000	0.000000	0
5 EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
901	1	-2.350E-01		3	6.377E-02	
	2	-1.652E-01		4	-2.403E-03	
905	1	-1.549E-01		3	1.909E-02	
	2	2.155E-01		4	-1.065E-04	

Sum of forces (Base-Shear)

Funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
901			2350.7	372.1	0.0	1590.97	10095.42	20252.89
905			321.9	2206.7	0.0	9484.54	1379.59	24073.42
sum			2372.6	2237.9	0.0	9617.05	10189.25	31459.65

Nodal Masses	704.227	704.227	0.704	5.155	5.152	1.055
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Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	19.783		17.767		10.663	

Maximum Forces and Moments

MAX-N	(LC7205)	NIN-N	method	CQC
MAX-Vy	(LC7206)	NIN-Vy	method	CQC
MAX-Vz	(LC7207)	NIN-Vz	method	CQC
MAX-Mt	(LC7208)	NIN-Mt	method	CQC
MAX-My	(LC7209)	NIN-My	method	CQC
MAX-Mz	(LC7210)	NIN-Mz	method	CQC
MAX-Plx	(LC7224)	NIN-Plx	method	CQC
MAX-PlY	(LC7225)	NIN-PlY	method	CQC
MAX-PlZ	(LC7226)	NIN-PlZ	method	CQC
MAX-n-xx	(LC7216)	NIN-n-xx	method	CQC
MAX-n-yy	(LC7217)	NIN-n-yy	method	CQC
MAX-n-xy	(LC7218)	NIN-n-xy	method	CQC
MAX-v-x	(LC7219)	NIN-v-x	method	CQC
MAX-v-y	(LC7220)	NIN-v-y	method	CQC
MAX-n-xx	(LC7221)	NIN-n-xx	method	CQC
MAX-n-yy	(LC7222)	NIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7223) MIN-n-xy method CQC

NHPIAGOGEIC_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0 EXTR		1.000	0.000000	0.000000	0
1 EXTR		1.000	0.000000	0.000000	0
2 EXTR		1.000	0.000000	0.000000	0
3 EXTR		1.000	0.000000	0.000000	0
4 EXTR		1.000	0.000000	0.000000	0
5 EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
901	1	-2.350E-01		3	6.377E-02	
	2	-1.652E-01		4	-2.403E-03	
906	1	-1.343E-01		3	5.722E-02	
	2	2.155E-01		4	-6.419E-05	

Sum of forces (Base-Shear)

func.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
901			2350.7	372.1	0.0	1590.97	10095.42	20252.89
906			360.3	2148.5	0.0	9228.18	1534.38	23466.54
SUM			2378.1	2180.5	0.0	9364.32	10211.36	30997.71

Nodal Masses	704.227	704.227	0.704	5.155	5.152	1.055
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Modal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	19.717		16.538		10.711	

Maximum Forces and Moments

MAX-N	(LC7305)	NH-N	method	CQC
MAX-Vy	(LC7306)	NH-Vy	method	CQC
MAX-Vz	(LC7307)	NH-Vz	method	CQC
MAX-Mx	(LC7308)	NH-Mx	method	CQC
MAX-My	(LC7309)	NH-My	method	CQC
MAX-Mz	(LC7310)	NH-Mz	method	CQC
MAX-PtX	(LC7324)	NH-PtX	method	CQC
MAX-PtY	(LC7325)	NH-PtY	method	CQC
MAX-PtZ	(LC7326)	NH-PtZ	method	CQC
MAX-n-xx	(LC7316)	NH-n-xx	method	CQC
MAX-n-yy	(LC7317)	NH-n-yy	method	CQC
MAX-n-xy	(LC7318)	NH-n-xy	method	CQC
MAX-v-x	(LC7319)	NH-v-x	method	CQC
MAX-v-y	(LC7320)	NH-v-y	method	CQC
MAX-n-xx	(LC7321)	NH-n-xx	method	CQC
MAX-n-yy	(LC7322)	NH-n-yy	method	CQC

NHP1AG0GE10_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7323) MIN-n-xy

method CQC

NIPIAGDGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.	Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0	EXTR		1.000	0.000000	0.000000	0
1	EXTR		1.000	0.000000	0.000000	0
2	EXTR		1.000	0.000000	0.000000	0
3	EXTR		1.000	0.000000	0.000000	0
4	EXTR		1.000	0.000000	0.000000	0
5	EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
902	1	-2.010E-01		3	7.409E-02	
	2	-1.476E-01		4	-1.042E-03	
904	1	-1.606E-01		3	4.426E-02	
	2	2.407E-01		4	1.244E-04	

Sum of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
902			2065.9	348.8	0.0	1487.58	8868.54	19141.04
904			372.1	2429.3	0.0	10437.70	1589.24	26439.93
sum			2099.1	2454.2	0.0	10543.18	9009.81	32641.21

Nodal Masses	704.227	704.227	0.704	5.155	5.152	1.055
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Nodal Displacements method CQC

Mode	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	17.190		18.717		10.672	

Maximum Forces and Moments

MAX-N	(LC7405)	MIN-N	method	CQC
MAX-Vy	(LC7406)	MIN-Vy	method	CQC
MAX-Vz	(LC7407)	MIN-Vz	method	CQC
MAX-Mx	(LC7408)	MIN-Mx	method	CQC
MAX-My	(LC7409)	MIN-My	method	CQC
MAX-Mz	(LC7410)	MIN-Mz	method	CQC
MAX-PtX	(LC7424)	MIN-PtX	method	CQC
MAX-PtY	(LC7425)	MIN-PtY	method	CQC
MAX-PtZ	(LC7426)	MIN-PtZ	method	CQC
MAX-n-xx	(LC7416)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7417)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7418)	MIN-n-xy	method	CQC
MAX-v-x	(LC7419)	MIN-v-x	method	CQC
MAX-v-y	(LC7420)	MIN-v-y	method	CQC
MAX-n-xx	(LC7421)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7422)	MIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7423) MIN-n-xy

method CQC

NIPIAGGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Mind
0 EXTR		1.000	0.000000	0.000000	0
1 EXTR		1.000	0.000000	0.000000	0
2 EXTR		1.000	0.000000	0.000000	0
3 EXTR		1.000	0.000000	0.000000	0
4 EXTR		1.000	0.000000	0.000000	0
5 EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping 0[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
902	1	-2.010E-01		3	7.409E-02	
	2	-1.476E-01		4	-1.042E-03	
905	1	-1.549E-01		3	1.909E-02	
	2	2.155E-01		4	-1.065E-04	

Sum of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
902			2065.9	348.8	0.0	1487.58	8868.54	19141.04
905			321.9	2206.7	0.0	9484.54	1379.59	24073.42
sum			2090.8	2234.1	0.0	9600.49	8975.20	30755.63

Nodal Masses 704.227 704.227 0.704 5.155 5.152 1.055

Modal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	17.162		17.615		10.031	

Maximum Forces and Moments

MAX-N	{LC7505}	MIN-N	method	CQC
MAX-Vy	{LC7506}	MIN-Vy	method	CQC
MAX-Vz	{LC7507}	MIN-Vz	method	CQC
MAX-Mx	{LC7508}	MIN-Mx	method	CQC
MAX-My	{LC7509}	MIN-My	method	CQC
MAX-Mz	{LC7510}	MIN-Mz	method	CQC
MAX-PtX	{LC7524}	MIN-PtX	method	CQC
MAX-PtY	{LC7525}	MIN-PtY	method	CQC
MAX-PtZ	{LC7526}	MIN-PtZ	method	CQC
MAX-n-xx	{LC7516}	MIN-n-xx	method	CQC
MAX-n-yy	{LC7517}	MIN-n-yy	method	CQC
MAX-n-xy	{LC7518}	MIN-n-xy	method	CQC
MAX-v-x	{LC7519}	MIN-v-x	method	CQC
MAX-v-y	{LC7520}	MIN-v-y	method	CQC
MAX-n-xx	{LC7521}	MIN-n-xx	method	CQC
MAX-n-yy	{LC7522}	MIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7523) MIN-n-xy

method CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.	Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0	EXTR		1.000	0.000000	0.000000	0
1	EXTR		1.000	0.000000	0.000000	0
2	EXTR		1.000	0.000000	0.000000	0
3	EXTR		1.000	0.000000	0.000000	0
4	EXTR		1.000	0.000000	0.000000	0
5	EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
902	1	-2.010E-01		3	7.409E-02	
	2	-1.476E-01		4	-1.042E-03	
906	1	-1.343E-01		3	5.722E-02	
	2	2.155E-01		4	-6.419E-05	

Sum of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
902			2065.9	348.8	0.0	1487.58	8868.54	19141.04
906			360.3	2148.5	0.0	9228.18	1534.38	23466.54
sum			2097.0	2176.6	0.0	9347.31	9000.29	30282.96

Nodal Masses	704.227	704.227	0.704	5.155	5.152	1.055
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Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	17.086		16.375		10.082	

Maximum Forces and Moments

MAX-N	(LC7605)	MIN-N	method	CQC
MAX-Vy	(LC7606)	MIN-Vy	method	CQC
MAX-Vz	(LC7607)	MIN-Vz	method	CQC
MAX-Mx	(LC7608)	MIN-Mx	method	CQC
MAX-My	(LC7609)	MIN-My	method	CQC
MAX-Mz	(LC7610)	MIN-Mz	method	CQC
MAX-PtX	(LC7624)	MIN-PtX	method	CQC
MAX-PtY	(LC7625)	MIN-PtY	method	CQC
MAX-PtZ	(LC7626)	MIN-PtZ	method	CQC
MAX-n-xx	(LC7616)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7617)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7618)	MIN-n-xy	method	CQC
MAX-v-x	(LC7619)	MIN-v-x	method	CQC
MAX-v-y	(LC7620)	MIN-v-y	method	CQC
MAX-n-xx	(LC7621)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7622)	MIN-n-yy	method	CQC

NHPIAG0GE10_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7623) MIN-n-xy method CQC

NHPIAGOGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
 unknowns per node 6
 Number eigenvalues 4

Groups

No.	Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0	EXTR		1.000	0.000000	0.000000	0
1	EXTR		1.000	0.000000	0.000000	0
2	EXTR		1.000	0.000000	0.000000	0
3	EXTR		1.000	0.000000	0.000000	0
4	EXTR		1.000	0.000000	0.000000	0
5	EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
 Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
903	1	-2.216E-01		3	3.596E-02	
	2	-1.475E-01		4	-1.084E-03	
904	1	-1.606E-01		3	4.426E-02	
	2	2.407E-01		4	1.244E-04	

Sum of Forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
903			2148.9	321.7	0.0	1380.07	9232.86	16950.68
904			372.1	2429.3	0.0	10437.70	1589.24	26439.93
sum			2180.9	2450.5	0.0	10528.54	9368.64	31406.93

Nodal Masses							
	704.227	704.227	0.704	5.155	5.152	1.055	

Modal Displacements method CQC

Mode	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	18.645		18.721		10.714	

Maximum Forces and Moments

MAX-N	(LC7705)	MIN-N	method	CQC
MAX-Vy	(LC7706)	MIN-Vy	method	CQC
MAX-Vz	(LC7707)	MIN-Vz	method	CQC
MAX-Mt	(LC7708)	MIN-Mt	method	CQC
MAX-My	(LC7709)	MIN-My	method	CQC
MAX-Mz	(LC7710)	MIN-Mz	method	CQC
MAX-PtX	(LC7724)	MIN-PtX	method	CQC
MAX-PtY	(LC7725)	MIN-PtY	method	CQC
MAX-PtZ	(LC7726)	MIN-PtZ	method	CQC
MAX-n-xx	(LC7716)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7717)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7718)	MIN-n-xy	method	CQC
MAX-v-x	(LC7719)	MIN-v-x	method	CQC
MAX-v-y	(LC7720)	MIN-v-y	method	CQC
MAX-n-xx	(LC7721)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7722)	MIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7723) MIN-n-xy method CQC

NHPTAGGEIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0 EXTR		1.000	0.000000	0.000000	0
1 EXTR		1.000	0.000000	0.000000	0
2 EXTR		1.000	0.000000	0.000000	0
3 EXTR		1.000	0.000000	0.000000	0
4 EXTR		1.000	0.000000	0.000000	0
5 EXTR		1.000	0.000000	0.000000	0

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	frequency [Hertz]	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	44.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
903	1	-2.216E-01		3	3.596E-02	
	2	-1.475E-01		4	-1.084E-03	
905	1	-1.549E-01		3	1.909E-02	
	2	2.155E-01		4	-1.065E-04	

Sum of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
903			2148.9	321.7	0.0	1380.07	9232.86	16950.68
905			321.9	2206.7	0.0	9484.54	1379.59	24073.42
SUM			2172.9	2230.1	0.0	9584.42	9335.36	29442.41

Nodal Masses							
	704.227	704.227	0.704	5.155	5.152	1.055	

Nodal Displacements method CQC

Mode	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	18.619		17.620		10.076	

Maximum Forces and Moments

MAX-N	(LC7805)	MIN-N	method	CQC
MAX-Vy	(LC7806)	MIN-Vy	method	CQC
MAX-Vz	(LC7807)	MIN-Vz	method	CQC
MAX-Mt	(LC7808)	MIN-Mt	method	CQC
MAX-My	(LC7809)	MIN-My	method	CQC
MAX-Mz	(LC7810)	MIN-Mz	method	CQC
MAX-PLX	(LC7824)	MIN-PLX	method	CQC
MAX-PLY	(LC7825)	MIN-PLY	method	CQC
MAX-PLZ	(LC7826)	MIN-PLZ	method	CQC
MAX-n-xx	(LC7816)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7817)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7818)	MIN-n-xy	method	CQC
MAX-v-x	(LC7819)	MIN-v-x	method	CQC
MAX-v-y	(LC7820)	MIN-v-y	method	CQC
MAX-n-xx	(LC7821)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7822)	MIN-n-yy	method	CQC

NHP\AG0GE\O_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7823) MIN-n-xy

method CQC

NHPIAGOGELIO_GASTOUNH

Calculation of Spectras - Displacements

Control Information

Number of unknowns 170560 (Pure modal analysis)
unknowns per node 6
Number eigenvalues 4

Groups

No.Option	CS	Factor	RAYLEIGH-A [1/sec]	RAYLEIGH-B [sec]	Wind
0 EXTR	1.000	0.000000	0.000000	0	
1 EXTR	1.000	0.000000	0.000000	0	
2 EXTR	1.000	0.000000	0.000000	0	
3 EXTR	1.000	0.000000	0.000000	0	
4 EXTR	1.000	0.000000	0.000000	0	
5 EXTR	1.000	0.000000	0.000000	0	

Eigenfrequencies

No.	LC	Eigenvalue [1/sec ²]	relative Error	omega frequency [1/sec]	{Hertz}	period [sec]	Damping D[%]	f-XX [%]	f-YY [%]	f-ZZ [%]
1	9001	3.8693E+02		19.671	3.131	0.319	5.000	38.5	18.0	0.0
2	9002	4.0503E+02		20.125	3.203	0.312	5.000	20.9	14.3	0.0
3	9003	5.5378E+02		23.532	3.745	0.267	5.000	5.8	2.8	0.0
4	9004	1.8354E+03		42.841	6.818	0.147	5.000	0.1	0.0	0.0
								65.3	65.1	0.0

Modal Response

Response of periodic loading is exact including the phases
Contributions of all functions will be added as sum of squares

Fct.	Mode	Response	phase	Mode	Response	phase
903	1	-2.216E-01		3	3.596E-02	
	2	-1.475E-01		4	-1.084E-03	
906	1	-1.343E-01		3	5.722E-02	
	2	2.155E-01		4	-6.419E-05	

Sum of forces (Base-Shear)

funct.	H[m]	Mode	SX[kN]	SY[kN]	SZ[kN]	MX[kNm]	MY[kNm]	MZ[kNm]
903			2148.9	321.7	0.0	1380.07	9232.86	16950.68
906			360.3	2148.5	0.0	9228.18	1534.38	23466.54
sum			2178.9	2172.5	0.0	9330.81	9359.49	28948.30

Nodal Masses	704.227	704.227	0.704	5.155	5.152	1.055
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Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	18.549		16.380		10.127	

Maximum Forces and Moments

MAX-N	(LC7905)	MIN-N	method	CQC
MAX-Vy	(LC7906)	MIN-Vy	method	CQC
MAX-Vz	(LC7907)	MIN-Vz	method	CQC
MAX-Mx	(LC7908)	MIN-Mx	method	CQC
MAX-My	(LC7909)	MIN-My	method	CQC
MAX-Mz	(LC7910)	MIN-Mz	method	CQC
MAX-PtX	(LC7924)	MIN-PtX	method	CQC
MAX-PtY	(LC7925)	MIN-PtY	method	CQC
MAX-PtZ	(LC7926)	MIN-PtZ	method	CQC
MAX-n-xx	(LC7916)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7917)	MIN-n-yy	method	CQC
MAX-n-xy	(LC7918)	MIN-n-xy	method	CQC
MAX-v-x	(LC7919)	MIN-v-x	method	CQC
MAX-v-y	(LC7920)	MIN-v-y	method	CQC
MAX-n-xx	(LC7921)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7922)	MIN-n-yy	method	CQC

NHPIAGOGEO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

MAX-n-xy (LC7923) MIN-n-xy method CQC

NHP\AGGEO\GASTOUNH

Superposition according to EuroNorm EN 1992 (2004) Concrete Structures

Combination rule Number 100

Crack width

Superposition according to manual MAXIMA formula 7

Resulting loadcases type Service: Permanent combination

Loadcase selection and Actions

Act type	y-u	y-f	y-a	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
G	G	1.00	1.00	1.00	1.00	1.00	1.00	dead load
1	1.00	permanent load grouped in actions						Self weight
3	1.00	permanent load grouped in actions						Superimposed dead
L_H	Q	1.00	0.00	1.00	0.00	0.00	0.00	Live load on roofs cat. H
5	1.00	Exclusive LC A58						Roof live load
Q_C	Q	1.00	0.00	1.00	0.70	0.70	0.60	Pay load assembling cat. C
4	1.00	Conditional LC						Live load
R	G	1.00	1.00	1.00	1.00	0.00	1.00	earth pressure
2	1.00	permanent load grouped in actions						Soil pressure
S	Q	1.00	0.00	1.00	0.50	0.20	0.00	0.20 snow loading
6	1.00	Conditional LC						Snow load
W	Q	1.00	0.00	1.00	0.60	0.20	0.00	1.00 wind loading
7	1.00	Exclusive LC A10						Wind load

Combination rule Number 101

Deflections

Superposition according to manual MAXIMA formula 7

Resulting loadcases type Service: Permanent combination

Loadcase selection and Actions

Act type	y-u	y-f	y-a	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
G	G	1.00	1.00	1.00	1.00	1.00	1.00	dead load
1	1.00	permanent load grouped in actions						Self weight
3	1.00	permanent load grouped in actions						Superimposed dead
L_H	Q	1.00	0.00	1.00	0.00	0.00	0.00	Live load on roofs cat. H
5	1.00	Exclusive LC A58						Roof live load
Q_C	Q	1.00	0.00	1.00	0.70	0.70	0.60	Pay load assembling cat. C
4	1.00	Conditional LC						Live load
R	G	1.00	1.00	1.00	1.00	0.00	1.00	earth pressure
2	1.00	permanent load grouped in actions						Soil pressure
S	Q	1.00	0.00	1.00	0.50	0.20	0.00	0.20 snow loading
6	1.00	Conditional LC						Snow load
W	Q	1.00	0.00	1.00	0.60	0.20	0.00	1.00 wind loading
7	1.00	Exclusive LC A10						Wind load

Combination rule Number 103

charact. support reactions

Superposition according to manual MAXIMA formula 4

Resulting loadcases type Service: Rare combination

Loadcase selection and Actions

Act type	y-u	y-f	y-a	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
G	G	1.00	1.00	1.00	1.00	1.00	1.00	dead load
1	1.00	permanent load grouped in actions						Self weight
3	1.00	permanent load grouped in actions						Superimposed dead
L_H	Q	1.00	0.00	1.00	0.00	0.00	0.00	Live load on roofs cat. H
5	1.00	Exclusive LC A58						Roof live load
Q_C	Q	1.00	0.00	1.00	0.70	0.70	0.60	Pay load assembling cat. C
4	1.00	Conditional LC						Live load
R	G	1.00	1.00	1.00	1.00	0.00	1.00	earth pressure
2	1.00	permanent load grouped in actions						Soil pressure
S	Q	1.00	0.00	1.00	0.50	0.20	0.00	0.20 snow loading

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Loadcase selection and Actions

Act type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
6	1.00	Conditional LC						Snow load
W	Q	1.00	0.00	1.00	0.60	0.20	0.00	1.00 wind loading
7	1.00	Exclusive LC	A10					Wind load

Combination rule Number 104

Ultimate Design combination

Superposition according to manual MAXIMA formula 1

Resulting loadcases type Ultimate Design combination

Loadcase selection and Actions

Act type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
G	G	1.35	1.00	1.00	1.00	1.00	1.00	dead load
1	1.00	permanent load grouped in actions						Self weight
3	1.00	permanent load grouped in actions						Superimposed dead
L _H	Q	1.50	0.00	1.00	0.00	0.00	0.00	Live load on roofs cat. H
5	1.00	Exclusive LC	A58					Roof live load
Q _C	Q	1.50	0.00	1.00	0.70	0.70	0.60	Pay load asserbling cat. C
4	1.00	Conditional LC						Live load
R	G	1.35	1.00	1.00	1.00	0.00	1.00	earth pressure
2	1.00	permanent load grouped in actions						Soil pressure
S	Q	1.50	0.00	1.00	0.50	0.20	0.00	0.20 snow loading
6	1.00	Conditional LC						Snow load
W	Q	1.50	0.00	1.00	0.60	0.20	0.00	1.00 wind loading
7	1.00	Exclusive LC	A10					Wind load

Combination rule Number 109

Ultimate Earthquake combin.

Superposition according to manual MAXIMA formula 3

Resulting loadcases type Ultimate Earthquake combin.

Loadcase selection and Actions

Act type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor	Type of loadcase							
E	E	1.00	0.00	1.00	1.00	1.00	1.00	Earthquake
7101	1.00	Exclusive LC	X17					MAX U (CQC)
7105	1.00	Exclusive LC	X17					MAX N (CQC)
7106	1.00	Exclusive LC	X17					MAX Vy (CQC)
7107	1.00	Exclusive LC	X17					MAX Vz (CQC)
7108	1.00	Exclusive LC	X17					MAX Mt (CQC)
7109	1.00	Exclusive LC	X17					MAX My (CQC)
7110	1.00	Exclusive LC	X17					MAX Mz (CQC)
7116	1.00	Exclusive LC	X17					MAX m-xx (CQC)
7117	1.00	Exclusive LC	X17					MAX m-yy (CQC)
7118	1.00	Exclusive LC	X17					MAX m-xy (CQC)
7119	1.00	Exclusive LC	X17					MAX v-x (CQC)
7120	1.00	Exclusive LC	X17					MAX v-y (CQC)
7121	1.00	Exclusive LC	X17					MAX n-xx (CQC)
7122	1.00	Exclusive LC	X17					MAX n-yy (CQC)
7123	1.00	Exclusive LC	X17					MAX n-xy (CQC)
7124	1.00	Exclusive LC	X17					MAX PtX (CQC)
7125	1.00	Exclusive LC	X17					MAX PtY (CQC)
7126	1.00	Exclusive LC	X17					MAX PtZ (CQC)
7201	1.00	Exclusive LC	X17					MAX U (CQC)
7205	1.00	Exclusive LC	X17					MAX N (CQC)
7206	1.00	Exclusive LC	X17					MAX Vy (CQC)
7207	1.00	Exclusive LC	X17					MAX Vz (CQC)
7208	1.00	Exclusive LC	X17					MAX Mt (CQC)
7209	1.00	Exclusive LC	X17					MAX My (CQC)
7210	1.00	Exclusive LC	X17					MAX Mz (CQC)
7216	1.00	Exclusive LC	X17					MAX m-xx (CQC)
7217	1.00	Exclusive LC	X17					MAX m-yy (CQC)

NIPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act type	γ-u	γ-f	γ-a	ψ-θ	ψ-1	ψ-2	ψ-1'	title
LC factor type of loadcase								
7218	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7219	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7220	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7221	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7222	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7223	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7224	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7225	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7226	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7301	1.00	Exclusive	LC	X17		MAX	U	(CQC)
7305	1.00	Exclusive	LC	X17		MAX	V	(CQC)
7306	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7307	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7308	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7309	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7310	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7316	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7317	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7318	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7319	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7320	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7321	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7322	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7323	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7324	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7325	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7326	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7401	1.00	Exclusive	LC	X17		MAX	J	(CQC)
7405	1.00	Exclusive	LC	X17		MAX	V	(CQC)
7406	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7407	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7408	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7409	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7410	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7416	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7417	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7418	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7419	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7420	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7421	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7422	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7423	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7424	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7425	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7426	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7501	1.00	Exclusive	LC	X17		MAX	U	(CQC)
7505	1.00	Exclusive	LC	X17		MAX	N	(CQC)
7506	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7507	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7508	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7509	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7510	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7516	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7517	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7518	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7519	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7520	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7521	1.00	Exclusive	LC	X17		MAX	n-xx	(CQC)
7522	1.00	Exclusive	LC	X17		MAX	n-yy	(CQC)
7523	1.00	Exclusive	LC	X17		MAX	n-xy	(CQC)
7524	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7525	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7526	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7601	1.00	Exclusive	LC	X17		MAX	U	(CQC)

NHPIAGOGEO_GASTOUNH

Loadcase selection and Actions

Act type	γ -u	γ -f	γ -a	ψ -0	ψ -1	ψ -2	ψ -1'	Title
LC factor type of loadcase								
7605	1.00	Exclusive	LC	X17		MAX	v	(CQC)
7606	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7607	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7608	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7609	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7610	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7616	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7617	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7618	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7619	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7620	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7621	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7622	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7623	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7624	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7625	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7626	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7701	1.00	Exclusive	LC	X17		MAX	U	(CQC)
7705	1.00	Exclusive	LC	X17		MAX	N	(CQC)
7706	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7707	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7708	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7709	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7710	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7716	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7717	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7718	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7719	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7720	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7721	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7722	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7723	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7724	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7725	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7726	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7801	1.00	Exclusive	LC	X17		MAX	U	(CQC)
7805	1.00	Exclusive	LC	X17		MAX	N	(CQC)
7806	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7807	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7808	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7809	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7810	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7816	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7817	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7818	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7819	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)
7820	1.00	Exclusive	LC	X17		MAX	v-y	(CQC)
7821	1.00	Exclusive	LC	X17		MAX	π -xx	(CQC)
7822	1.00	Exclusive	LC	X17		MAX	π -yy	(CQC)
7823	1.00	Exclusive	LC	X17		MAX	π -xy	(CQC)
7824	1.00	Exclusive	LC	X17		MAX	PtX	(CQC)
7825	1.00	Exclusive	LC	X17		MAX	PtY	(CQC)
7826	1.00	Exclusive	LC	X17		MAX	PtZ	(CQC)
7901	1.00	Exclusive	LC	X17		MAX	U	(CQC)
7905	1.00	Exclusive	LC	X17		MAX	N	(CQC)
7906	1.00	Exclusive	LC	X17		MAX	Vy	(CQC)
7907	1.00	Exclusive	LC	X17		MAX	Vz	(CQC)
7908	1.00	Exclusive	LC	X17		MAX	Mt	(CQC)
7909	1.00	Exclusive	LC	X17		MAX	My	(CQC)
7910	1.00	Exclusive	LC	X17		MAX	Mz	(CQC)
7916	1.00	Exclusive	LC	X17		MAX	m-xx	(CQC)
7917	1.00	Exclusive	LC	X17		MAX	m-yy	(CQC)
7918	1.00	Exclusive	LC	X17		MAX	m-xy	(CQC)
7919	1.00	Exclusive	LC	X17		MAX	v-x	(CQC)

NMPLAGDEID_GASTOUNH

Loadcase selection and Actions

Act type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\phi-0$	$\psi-1$	$\phi-2$	$\phi-1'$	title
LC factor	type of loadcase							
7920	1.00	Exclusive	LC	X17		MAX	v-y (CQC)	
7921	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
7922	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
7923	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
7924	1.00	Exclusive	LC	X17		MAX	PtX (CQC)	
7925	1.00	Exclusive	LC	X17		MAX	PtY (CQC)	
7926	1.00	Exclusive	LC	X17		MAX	PtZ (CQC)	
8101	1.00	Exclusive	LC	X17		MAX	U (CQC)	
8105	1.00	Exclusive	LC	X17		MAX	N (CQC)	
8106	1.00	Exclusive	LC	X17		MAX	Vy (CQC)	
8107	1.00	Exclusive	LC	X17		MAX	Vz (CQC)	
8108	1.00	Exclusive	LC	X17		MAX	Mt (CQC)	
8109	1.00	Exclusive	LC	X17		MAX	My (CQC)	
8110	1.00	Exclusive	LC	X17		MAX	Mz (CQC)	
8116	1.00	Exclusive	LC	X17		MAX	m-xx (CQC)	
8117	1.00	Exclusive	LC	X17		MAX	m-yy (CQC)	
8118	1.00	Exclusive	LC	X17		MAX	m-xy (CQC)	
8119	1.00	Exclusive	LC	X17		MAX	v-x (CQC)	
8120	1.00	Exclusive	LC	X17		MAX	v-y (CQC)	
8121	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
8122	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
8123	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
8124	1.00	Exclusive	LC	X17		MAX	PtX (CQC)	
8125	1.00	Exclusive	LC	X17		MAX	PtY (CQC)	
8126	1.00	Exclusive	LC	X17		MAX	PtZ (CQC)	
8201	1.00	Exclusive	LC	X17		MAX	U (CQC)	
8205	1.00	Exclusive	LC	X17		MAX	N (CQC)	
8206	1.00	Exclusive	LC	X17		MAX	Vy (CQC)	
8207	1.00	Exclusive	LC	X17		MAX	Vz (CQC)	
8208	1.00	Exclusive	LC	X17		MAX	Mt (CQC)	
8209	1.00	Exclusive	LC	X17		MAX	My (CQC)	
8210	1.00	Exclusive	LC	X17		MAX	Mz (CQC)	
8216	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
8217	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
8218	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
8219	1.00	Exclusive	LC	X17		MAX	v-x (CQC)	
8220	1.00	Exclusive	LC	X17		MAX	v-y (CQC)	
8221	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
8222	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
8223	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
8224	1.00	Exclusive	LC	X17		MAX	PtX (CQC)	
8225	1.00	Exclusive	LC	X17		MAX	PtY (CQC)	
8226	1.00	Exclusive	LC	X17		MAX	PtZ (CQC)	
8301	1.00	Exclusive	LC	X17		MAX	U (CQC)	
8305	1.00	Exclusive	LC	X17		MAX	N (CQC)	
8306	1.00	Exclusive	LC	X17		MAX	Vy (CQC)	
8307	1.00	Exclusive	LC	X17		MAX	Vz (CQC)	
8308	1.00	Exclusive	LC	X17		MAX	Mt (CQC)	
8309	1.00	Exclusive	LC	X17		MAX	My (CQC)	
8310	1.00	Exclusive	LC	X17		MAX	Mz (CQC)	
8316	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
8317	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
8318	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
8319	1.00	Exclusive	LC	X17		MAX	v-x (CQC)	
8320	1.00	Exclusive	LC	X17		MAX	v-y (CQC)	
8321	1.00	Exclusive	LC	X17		MAX	n-xx (CQC)	
8322	1.00	Exclusive	LC	X17		MAX	n-yy (CQC)	
8323	1.00	Exclusive	LC	X17		MAX	n-xy (CQC)	
8324	1.00	Exclusive	LC	X17		MAX	PtX (CQC)	
8325	1.00	Exclusive	LC	X17		MAX	PtY (CQC)	
8326	1.00	Exclusive	LC	X17		MAX	PtZ (CQC)	
8401	1.00	Exclusive	LC	X17		MAX	U (CQC)	
8405	1.00	Exclusive	LC	X17		MAX	N (CQC)	
8406	1.00	Exclusive	LC	X17		MAX	Vy (CQC)	

NHPIAGOGEO_GASTOUNH

Loadcase selection and Actions

Act	type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\psi-0$	$\psi-1$	$\psi-2$	$\psi-1'$	title
LC factor type or loadcase									
8407	1.00	Exclusive	LC	X17			MAX	Vz	(CQC)
8408	1.00	Exclusive	LC	X17			MAX	Mt	(CQC)
8409	1.00	Exclusive	LC	X17			MAX	My	(CQC)
8410	1.00	Exclusive	LC	X17			MAX	Mz	(CQC)
8416	1.00	Exclusive	LC	X17			MAX	r-xx	(CQC)
8417	1.00	Exclusive	LC	X17			MAX	r-yy	(CQC)
8418	1.00	Exclusive	LC	X17			MAX	r-xy	(CQC)
8419	1.00	Exclusive	LC	X17			MAX	v-x	(CQC)
8420	1.00	Exclusive	LC	X17			MAX	v-y	(CQC)
8421	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)
8422	1.00	Exclusive	LC	X17			MAX	n-yy	(CQC)
8423	1.00	Exclusive	LC	X17			MAX	n-xy	(CQC)
8424	1.00	Exclusive	LC	X17			MAX	PtX	(CQC)
8425	1.00	Exclusive	LC	X17			MAX	PtY	(CQC)
8426	1.00	Exclusive	LC	X17			MAX	PtZ	(CQC)
8501	1.00	Exclusive	LC	X17			MAX	U	(CQC)
8505	1.00	Exclusive	LC	X17			MAX	N	(CQC)
8506	1.00	Exclusive	LC	X17			MAX	Vy	(CQC)
8507	1.00	Exclusive	LC	X17			MAX	Vz	(CQC)
8508	1.00	Exclusive	LC	X17			MAX	Mt	(CQC)
8509	1.00	Exclusive	LC	X17			MAX	My	(CQC)
8510	1.00	Exclusive	LC	X17			MAX	Mz	(CQC)
8516	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)
8517	1.00	Exclusive	LC	X17			MAX	n-yy	(CQC)
8518	1.00	Exclusive	LC	X17			MAX	n-xy	(CQC)
8519	1.00	Exclusive	LC	X17			MAX	v-x	(CQC)
8520	1.00	Exclusive	LC	X17			MAX	v-y	(CQC)
8521	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)
8522	1.00	Exclusive	LC	X17			MAX	n-yy	(CQC)
8523	1.00	Exclusive	LC	X17			MAX	n-xy	(CQC)
8524	1.00	Exclusive	LC	X17			MAX	PtX	(CQC)
8525	1.00	Exclusive	LC	X17			MAX	PtY	(CQC)
8526	1.00	Exclusive	LC	X17			MAX	PtZ	(CQC)
8601	1.00	Exclusive	LC	X17			MAX	U	(CQC)
8605	1.00	Exclusive	LC	X17			MAX	N	(CQC)
8606	1.00	Exclusive	LC	X17			MAX	Vy	(CQC)
8607	1.00	Exclusive	LC	X17			MAX	Vz	(CQC)
8608	1.00	Exclusive	LC	X17			MAX	Mt	(CQC)
8609	1.00	Exclusive	LC	X17			MAX	My	(CQC)
8610	1.00	Exclusive	LC	X17			MAX	Mz	(CQC)
8616	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)
8617	1.00	Exclusive	LC	X17			MAX	n-yy	(CQC)
8618	1.00	Exclusive	LC	X17			MAX	n-xy	(CQC)
8619	1.00	Exclusive	LC	X17			MAX	v-x	(CQC)
8620	1.00	Exclusive	LC	X17			MAX	v-y	(CQC)
8621	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)
8622	1.00	Exclusive	LC	X17			MAX	n-yy	(CQC)
8623	1.00	Exclusive	LC	X17			MAX	n-xy	(CQC)
8624	1.00	Exclusive	LC	X17			MAX	PtX	(CQC)
8625	1.00	Exclusive	LC	X17			MAX	PtY	(CQC)
8626	1.00	Exclusive	LC	X17			MAX	PtZ	(CQC)
8701	1.00	Exclusive	LC	X17			MAX	U	(CQC)
8705	1.00	Exclusive	LC	X17			MAX	N	(CQC)
8706	1.00	Exclusive	LC	X17			MAX	Vy	(CQC)
8707	1.00	Exclusive	LC	X17			MAX	Vz	(CQC)
8708	1.00	Exclusive	LC	X17			MAX	Mt	(CQC)
8709	1.00	Exclusive	LC	X17			MAX	My	(CQC)
8710	1.00	Exclusive	LC	X17			MAX	Mz	(CQC)
8716	1.00	Exclusive	LC	X17			MAX	r-xx	(CQC)
8717	1.00	Exclusive	LC	X17			MAX	r-yy	(CQC)
8718	1.00	Exclusive	LC	X17			MAX	m-xy	(CQC)
8719	1.00	Exclusive	LC	X17			MAX	v-x	(CQC)
8720	1.00	Exclusive	LC	X17			MAX	v-y	(CQC)
8721	1.00	Exclusive	LC	X17			MAX	n-xx	(CQC)

NHPI AGOGEIO_GASTOUNH

Loadcase selection and Actions

Act	type	$\gamma-u$	$\gamma-f$	$\gamma-a$	$\psi-\theta$	$\psi-1$	$\psi-2$	$\psi-1'$	Title
LC factor		Type of loadcase							
8722	1.00	Exclusive	LC	X17				MAX n-yy (CQC)	
8723	1.00	Exclusive	LC	X17				MAX n-xy (CQC)	
8724	1.00	Exclusive	LC	X17				MAX PLX (CQC)	
8725	1.00	Exclusive	LC	X17				MAX PLY (CQC)	
8726	1.00	Exclusive	LC	X17				MAX PLZ (CQC)	
8801	1.00	Exclusive	LC	X17				MAX U (CQC)	
8805	1.00	Exclusive	LC	X17				MAX N (CQC)	
8806	1.00	Exclusive	LC	X17				MAX Vy (CQC)	
8807	1.00	Exclusive	LC	X17				MAX Vz (CQC)	
8808	1.00	Exclusive	LC	X17				MAX Mt (CQC)	
8809	1.00	Exclusive	LC	X17				MAX My (CQC)	
8810	1.00	Exclusive	LC	X17				MAX Mz (CQC)	
8816	1.00	Exclusive	LC	X17				MAX m-xx (CQC)	
8817	1.00	Exclusive	LC	X17				MAX m-yy (CQC)	
8818	1.00	Exclusive	LC	X17				MAX m-xy (CQC)	
8819	1.00	Exclusive	LC	X17				MAX v-x (CQC)	
8820	1.00	Exclusive	LC	X17				MAX v-y (CQC)	
8821	1.00	Exclusive	LC	X17				MAX n-xx (CQC)	
8822	1.00	Exclusive	LC	X17				MAX n-yy (CQC)	
8823	1.00	Exclusive	LC	X17				MAX n-xy (CQC)	
8824	1.00	Exclusive	LC	X17				MAX PLX (CQC)	
8825	1.00	Exclusive	LC	X17				MAX PLY (CQC)	
8826	1.00	Exclusive	LC	X17				MAX PLZ (CQC)	
8901	1.00	Exclusive	LC	X17				MAX U (CQC)	
8905	1.00	Exclusive	LC	X17				MAX N (CQC)	
8906	1.00	Exclusive	LC	X17				MAX Vy (CQC)	
8907	1.00	Exclusive	LC	X17				MAX Vz (CQC)	
8908	1.00	Exclusive	LC	X17				MAX Mt (CQC)	
8909	1.00	Exclusive	LC	X17				MAX My (CQC)	
8910	1.00	Exclusive	LC	X17				MAX Mz (CQC)	
8916	1.00	Exclusive	LC	X17				MAX m-xx (CQC)	
8917	1.00	Exclusive	LC	X17				MAX m-yy (CQC)	
8918	1.00	Exclusive	LC	X17				MAX m-xy (CQC)	
8919	1.00	Exclusive	LC	X17				MAX v-x (CQC)	
8920	1.00	Exclusive	LC	X17				MAX v-y (CQC)	
8921	1.00	Exclusive	LC	X17				MAX n-xx (CQC)	
8922	1.00	Exclusive	LC	X17				MAX n-yy (CQC)	
8923	1.00	Exclusive	LC	X17				MAX n-xy (CQC)	
8924	1.00	Exclusive	LC	X17				MAX PLX (CQC)	
8925	1.00	Exclusive	LC	X17				MAX PLY (CQC)	
8926	1.00	Exclusive	LC	X17				MAX PLZ (CQC)	
G	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00	dead load
	1	1.00							permanent load grouped in actions Self weight
	3	1.00							permanent load grouped in actions Superimposed dead
L H	Q	1.50	0.00	1.00	0.00	0.00	0.00	0.00	Live load on roofs cat. H
	5	1.00	Exclusive	LC	A58				Roof live load
Q_C	Q	1.50	0.00	1.00	0.70	0.70	0.60	1.00	Pay load assembling cat. C
	4	1.00	Conditional	LC					Live load
R	G	1.35	1.00	1.00	1.00	1.00	0.00	1.00	earth pressure
	2	1.00							permanent load grouped in actions Soil pressure
S	Q	1.50	0.00	1.00	0.50	0.20	0.00	0.20	snow loading
	6	1.00	Conditional	LC					Snow load
W	Q	1.50	0.00	1.00	0.60	0.20	0.00	1.00	wind loading
	7	1.00	Exclusive	LC	A10				Wind load

Generated Loadcases

Number	Comb	Title
1121	100	MAXP-N BEAM Forces and moments
1122	100	MINP-N BEAM Forces and moments
1123	100	MAXP-VY BEAM Forces and moments
1124	100	MINP-VY BEAM Forces and moments
1125	100	MAXP-VZ BEAM Forces and moments
1126	100	MINP-VZ BEAM Forces and moments
1127	100	MAXP-MT BEAM Forces and moments

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Generated Loadcases

Number Comb Title

1128	100	MINP-MT BEAM Forces and moments
1129	100	MAXP-MY BEAM Forces and moments
1130	100	MINP-MY BEAM Forces and moments
1131	100	MAXP-MZ BEAM Forces and moments
1132	100	MINP-MZ BEAM Forces and moments
1133	100	MAXP-MB BEAM Forces and moments
1134	100	MINP-MB BEAM Forces and moments
1135	100	MAXP-M12 BEAM Forces and moments
1136	100	MINP-MT2 BEAM Forces and moments
1101	100	MAXP-MXX QUAD Forces and moments
1102	100	MINP-MXX QUAD Forces and moments
1103	100	MAXP-MYY QUAD Forces and moments
1104	100	MINP-MYY QUAD Forces and moments
1105	100	MAXP-MXY QUAD Forces and moments
1106	100	MINP-MXY QUAD Forces and moments
1107	100	MAXP-VX QUAD Forces and moments
1108	100	MINP-VX QUAD Forces and moments
1109	100	MAXP-VY QUAD Forces and moments
1110	100	MINP-VY QUAD Forces and moments
1111	100	MAXP-NXX QUAD Forces and moments
1112	100	MINP-NXX QUAD Forces and moments
1113	100	MAXP-NYY QUAD Forces and moments
1114	100	MINP-NYY QUAD Forces and moments
1115	100	MAXP-NXY QUAD Forces and moments
1116	100	MINP-NXY QUAD Forces and moments
1101	100	MAXP-MXX QUAK Forces and moments
1102	100	MINP-MXX QUAK Forces and moments
1103	100	MAXP-MYY QUAK Forces and moments
1104	100	MINP-MYY QUAK Forces and moments
1105	100	MAXP-MXY QUAK Forces and moments
1106	100	MINP-MXY QUAK Forces and moments
1107	100	MAXP-VX QUAK Forces and moments
1108	100	MINP-VX QUAK Forces and moments
1109	100	MAXP-VY QUAK Forces and moments
1110	100	MINP-VY QUAK Forces and moments
1111	100	MAXP-NXX QUAK Forces and moments
1112	100	MINP-NXX QUAK Forces and moments
1113	100	MAXP-NYY QUAK Forces and moments
1114	100	MINP-NYY QUAK Forces and moments
1115	100	MAXP-NXY QUAK Forces and moments
1116	100	MINP-NXY QUAK Forces and moments
1471	101	MAXP-UX NODE Displacements
1472	101	MINP-UX NODE Displacements
1473	101	MAXP-UY NODE Displacements
1474	101	MINP-UY NODE Displacements
1475	101	MAXP-UZ NODE Displacements
1476	101	MINP-UZ NODE Displacements
1477	101	MAXPPHIX NODE Displacements
1478	101	MINPPHIX NODE Displacements
1479	101	MAXPPHIY NODE Displacements
1480	101	MINPPHIY NODE Displacements
1481	101	MAXPPHIZ NODE Displacements
1482	101	MINPPHIZ NODE Displacements
1483	101	MAXPPHIB NODE Displacements
1484	101	MINPPHIB NODE Displacements
1951	103	MAXR-PX NODE Support reactions
1952	103	MINR-PX NODE Support reactions
1953	103	MAXR-PY NODE Support reactions
1954	103	MINR-PY NODE Support reactions
1955	103	MAXR-PZ NODE Support reactions
1956	103	MINR-PZ NODE Support reactions
1957	103	MAXR-MX NODE Support reactions
1958	103	MINR-MX NODE Support reactions
1959	103	MAXR-MY NODE Support reactions
1960	103	MINR-MY NODE Support reactions

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Generated Loadcases

Number Comb Title

1961 103 MAXR-MZ NODE Support reactions
 1962 103 MINR-MZ NODE Support reactions
 1991 103 MAXR-MB NODE Support reactions
 1992 103 MINR-MB NODE Support reactions
 1963 103 MAXR-PX BOUN Boundary results
 1964 103 MINR-PX BOUN Boundary results
 1965 103 MAXR-PY BOUN Boundary results
 1966 103 MINR-PY BOUN Boundary results
 1967 103 MAXR-PZ BOUN Boundary results
 1968 103 MINR-PZ BOUN Boundary results
 1969 103 MAXR-M BOUN Boundary results
 1970 103 MINR-M BOUN Boundary results
 1917 103 MAXR-P QUAD Bedding stresses
 1918 103 MINR-P QUAD Bedding stresses
 2151 104 MAX-PX NODE Support reactions
 2152 104 MIN-PX NODE Support reactions
 2153 104 MAX-PY NODE Support reactions
 2154 104 MIN-PY NODE Support reactions
 2155 104 MAX-PZ NODE Support reactions
 2156 104 MIN-PZ NODE Support reactions
 2157 104 MAX-MX NODE Support reactions
 2158 104 MIN-MX NODE Support reactions
 2159 104 MAX-MY NODE Support reactions
 2160 104 MIN-MY NODE Support reactions
 2161 104 MAX-MZ NODE Support reactions
 2162 104 MIN-MZ NODE Support reactions
 2191 104 MAX-MB NODE Support reactions
 2192 104 MIN-MB NODE Support reactions
 2163 104 MAX-PX BOUN Boundary results
 2164 104 MIN-PX BOUN Boundary results
 2165 104 MAX-PY BOUN Boundary results
 2166 104 MIN-PY BOUN Boundary results
 2167 104 MAX-PZ BOUN Boundary results
 2168 104 MIN-PZ BOUN Boundary results
 2169 104 MAX-M BOUN Boundary results
 2170 104 MIN-M BOUN Boundary results
 2117 104 MAX-P QUAD bedding stresses
 2118 104 MIN-P QUAD Bedding stresses
 2121 104 MAX-N BEAM Forces and moments
 2122 104 MIN-N BEAM Forces and moments
 2123 104 MAX-VY BEAM Forces and moments
 2124 104 MIN-VY BEAM Forces and moments
 2125 104 MAX-VZ BEAM Forces and moments
 2126 104 MIN-VZ BEAM Forces and moments
 2127 104 MAX-MT BEAM Forces and moments
 2128 104 MIN-MT BEAM Forces and moments
 2129 104 MAX-MY BEAM Forces and moments
 2130 104 MIN-MY BEAM Forces and moments
 2131 104 MAX-MZ BEAM Forces and moments
 2132 104 MIN-MZ BEAM Forces and moments
 2133 104 MAX-MB BEAM Forces and moments
 2134 104 MIN-MB BEAM Forces and moments
 2135 104 MAX-MT2 BEAM Forces and moments
 2136 104 MIN-MT2 BEAM Forces and moments
 2101 104 MAX-MXX QUAD Forces and moments
 2102 104 MIN-MXX QUAD Forces and moments
 2103 104 MAX-MYY QUAD Forces and moments
 2104 104 MIN-MYY QUAD Forces and moments
 2105 104 MAX-MXY QUAD Forces and moments
 2106 104 MIN-MXY QUAD Forces and moments
 2107 104 MAX-VX QUAD Forces and moments
 2108 104 MIN-VX QUAD Forces and moments
 2109 104 MAX-VY QUAD Forces and moments
 2110 104 MIN-VY QUAD Forces and moments
 2111 104 MAX-NXX QUAD Forces and moments

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Generated Loadcases

Number Comb Title

2112	104	#IH-NXX	QUAD Forces and moments
2113	104	MAX-NYY	QUAD Forces and moments
2114	104	#IN-NYY	QUAD Forces and moments
2115	104	MAX-NXY	QUAD Forces and moments
2116	104	#IN-NXY	QUAD Forces and moments
2101	104	MAX-MXX	QUAK Forces and moments
2102	104	#IN-MXX	QUAK Forces and moments
2103	104	MAX-MYY	QUAK Forces and moments
2104	104	#IN-MYY	QUAK Forces and moments
2105	104	MAX-MXY	QUAK Forces and moments
2106	104	#IN-MXY	QUAK Forces and moments
2107	104	MAX-VX	QUAK Forces and moments
2108	104	#IN-VX	QUAK Forces and moments
2109	104	MAX-VY	QUAK Forces and moments
2110	104	#IN-VY	QUAK Forces and moments
2111	104	MAX-NXX	QUAK Forces and moments
2112	104	#IH-NXX	QUAK Forces and moments
2113	104	MAX-NYY	QUAK Forces and moments
2114	104	#IH-NYY	QUAK Forces and moments
2115	104	MAX-NXY	QUAK Forces and moments
2116	104	#IH-NXY	QUAK Forces and moments
2151	104	MAX-PX	KINE Constraint forces
2152	104	#IN-PX	KINE Constraint forces
2153	104	MAX-PY	KINE Constraint forces
2154	104	#IN-PY	KINE Constraint forces
2155	104	MAX-PZ	KINE Constraint forces
2156	104	#IN-PZ	KINE Constraint forces
2157	104	MAX-MX	KINE Constraint forces
2158	104	#IN-MX	KINE Constraint forces
2159	104	MAX-MY	KINE Constraint forces
2160	104	#IN-MY	KINE Constraint forces
2161	104	MAX-MZ	KINE Constraint forces
2162	104	#IN-MZ	KINE Constraint forces
2191	104	MAX-MB	KINE Constraint forces
2192	104	#IN-MB	KINE Constraint forces
2651	109	MAXE-PX	NODE Support reactions
2652	109	#INE-PX	NODE Support reactions
2653	109	MAXE-PY	NODE Support reactions
2654	109	#INE-PY	NODE Support reactions
2655	109	MAXE-PZ	NODE Support reactions
2656	109	#INE-PZ	NODE Support reactions
2657	109	MAXE-MX	NODE Support reactions
2658	109	#INE-MX	NODE Support reactions
2659	109	MAXE-MY	NODE Support reactions
2660	109	#INE-MY	NODE Support reactions
2661	109	MAXE-MZ	NODE Support reactions
2662	109	#INE-MZ	NODE Support reactions
2691	109	MAXE-MB	NODE Support reactions
2692	109	#INE-MB	NODE Support reactions
2663	109	MAXE-PX	BOUND Boundary results
2664	109	#INE-PX	BOUND Boundary results
2665	109	MAXE-PY	BOUND Boundary results
2666	109	#INE-PY	BOUND Boundary results
2667	109	MAXE-PZ	BOUND Boundary results
2668	109	#INE-PZ	BOUND Boundary results
2669	109	MAXE-M	BOUND Boundary results
2670	109	#INE-M	BOUND Boundary results
2617	109	MAXE-P	QUAD Bedding stresses
2618	109	#INE-P	QUAD Bedding stresses
2621	109	MAXE-N	BEAM Forces and moments
2622	109	#INE-N	BEAM Forces and moments
2623	109	MAXE-VY	BEAM Forces and moments
2624	109	#INE-VY	BEAM Forces and moments
2625	109	MAXE-VZ	BEAM Forces and moments
2626	109	#INE-VZ	BEAM Forces and moments

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Generated Loadcases

Number	Comb	Title
2627	109	MAXE-MT BEAM Forces and moments
2628	109	MINE-MT BEAM Forces and moments
2629	109	MAXE-MY BEAM Forces and moments
2630	109	MINE-MY BEAM Forces and moments
2631	109	MAXE-MZ BEAM Forces and moments
2632	109	MINE-MZ BEAM Forces and moments
2633	109	MAXE-MB BEAM Forces and moments
2634	109	MINE-MB BEAM Forces and moments
2635	109	MAXE-M1Z BEAM Forces and moments
2636	109	MINE-M1Z BEAM Forces and moments
2601	109	MAXE-MXX QUAD Forces and moments
2602	109	MINE-MXX QUAD Forces and moments
2603	109	MAXE-MYY QUAD Forces and moments
2604	109	MINE-MYY QUAD Forces and moments
2605	109	MAXE-MXY QUAD Forces and moments
2606	109	MINE-MXY QUAD Forces and moments
2607	109	MAXE-VX QUAD Forces and moments
2608	109	MINE-VX QUAD Forces and moments
2609	109	MAXE-VY QUAD Forces and moments
2610	109	MINE-VY QUAD Forces and moments
2611	109	MAXE-MXX QUAK Forces and moments
2612	109	MINE-MXX QUAK Forces and moments
2613	109	MAXE-MYY QUAK Forces and moments
2614	109	MINE-MYY QUAK Forces and moments
2615	109	MAXE-MXY QUAK Forces and moments
2616	109	MINE-MXY QUAK Forces and moments
2601	109	MAXE-MXX QUAK Forces and moments
2602	109	MINE-MXX QUAK Forces and moments
2603	109	MAXE-MYY QUAK Forces and moments
2604	109	MINE-MYY QUAK Forces and moments
2605	109	MAXE-MXY QUAK Forces and moments
2606	109	MINE-MXY QUAK Forces and moments
2607	109	MAXE-VX QUAK Forces and moments
2608	109	MINE-VX QUAK Forces and moments
2609	109	MAXE-VY QUAK Forces and moments
2610	109	MINE-VY QUAK Forces and moments
2611	109	MAXE-MXX QUAK Forces and moments
2612	109	MINE-MXX QUAK Forces and moments
2613	109	MAXE-MYY QUAK Forces and moments
2614	109	MINE-MYY QUAK Forces and moments
2615	109	MAXE-MXY QUAK Forces and moments
2616	109	MINE-MXY QUAK Forces and moments
2651	109	MAXE-PX KINE Constraint forces
2652	109	MINE-PX KINE Constraint forces
2653	109	MAXE-PY KINE Constraint forces
2654	109	MINE-PY KINE Constraint forces
2655	109	MAXE-PZ KINE Constraint forces
2656	109	MINE-PZ KINE Constraint forces
2657	109	MAXE-MX KINE Constraint forces
2658	109	MINE-MX KINE Constraint forces
2659	109	MAXE-MY KINE Constraint forces
2660	109	MINE-MY KINE Constraint forces
2661	109	MAXE-MZ KINE Constraint forces
2662	109	MINE-MZ KINE Constraint forces
2691	109	MAXE-MB KINE Constraint forces
2692	109	MINE-MB KINE Constraint forces
2671	109	MAXE-UX NODE Displacements
2672	109	MINE-UX NODE Displacements
2673	109	MAXE-UY NODE Displacements
2674	109	MINE-UY NODE Displacements
2675	109	MAXE-UZ NODE Displacements
2676	109	MINE-UZ NODE Displacements
2677	109	MAXEPHIX NODE Displacements
2678	109	MINEPHIX NODE Displacements
2679	109	MAXEPHIY NODE Displacements

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Generated Loadcases

Number Comb Title

2680	109	MINEPHIY	NODE Displacements
2681	109	MAXEPHIY	NODE Displacements
2682	109	MINEPHIZ	NODE Displacements
2683	109	MAXEPHIZ	NODE Displacements
2684	109	MINEPHIB	NODE Displacements

NHPIAGOGEOID_GASTOUNH

design parameter list

Reinforcementparameter two layer reinforcement											
Selection		bar-distance		bar-diameter		crackwidth		steelstress		min.reinf.	
Grp elem		d1-u	d2-u	ds-u	2.lay	wk-u	2.lay	sigsu	2.lay	asu	2.lay
No. No.		d1-l	d2-l	ds-l	ds-2-l	wk-l	wk-2-l	sigs1	sigs2l	asl	asl2
		[cm]	[cm]	[mm]	[mm]	[mm]	[mm]	[MPa]	[MPa]	[cm2/m]	[cm2/m]
default		4.6	5.8	12	12	-	-	-	-	-	-
		4.6	5.8	12	12	-	-	-	-	-	-
1		4.0	5.0	10	10	-	-	-	-	-	-
		4.0	5.0	10	10	-	-	-	-	-	-
2		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
3		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
4		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-

The reinforcement directions relate to the local coordinate system of the elements and have to be plotted graphically.

With the input of a steel stress sigsu... the "crack design according tables" uses this given stress sigsu for the corresponding layer. With this input, the check can be done for bar distances instead of bar diameters.

NHPIAGOGEIO_GASTOUNH

ULS design

Design according to EN 1992-1-1:2004(EN2)

Loadcases have been calculated in the Ultimate Limit State
In BEMESS no additional load safety factor is applied.

Load Cases for the Design

Loadcase 2101	MAX-MXX QUAD Forces and moments	
Loadcase 2102	MIN-MXX QUAD Forces and moments	
Loadcase 2103	MAX-MYY QUAD Forces and moments	
Loadcase 2104	MIN-MYY QUAD Forces and moments	
Loadcase 2105	MAX-MXY QUAD Forces and moments	
Loadcase 2106	MIN-MXY QUAD Forces and moments	
Loadcase 2107	MAX-VX QUAD Forces and moments	
Loadcase 2108	MIN-VX QUAD Forces and moments	
Loadcase 2109	MAX-VY QUAD Forces and moments	
Loadcase 2110	MIN-VY QUAD Forces and moments	
Loadcase 2111	MAX-NXX QUAD Forces and moments	
Loadcase 2112	MIN-NXX QUAD Forces and moments	
Loadcase 2113	MAX-NYY QUAD Forces and moments	
Loadcase 2114	MIN-NYY QUAD Forces and moments	
Loadcase 2115	MAX-NXY QUAD Forces and moments	
Loadcase 2116	MIN-NXY QUAD Forces and moments	
Loadcase 2117	MAX-P QUAD Bedding stres	Bedding stresses for punching design
Loadcase 2118	MIN-P QUAD Bedding stres	Bedding stresses for punching design
Loadcase 2151	MAX-PX NODE Support reac	Nodal reaction punching design
Loadcase 2152	MIN-PX NODE Support reac	Nodal reaction punching design
Loadcase 2153	MAX-PY NODE Support reac	Nodal reaction punching design
Loadcase 2154	MIN-PY NODE Support reac	Nodal reaction punching design
Loadcase 2155	MAX-PZ NODE Support reac	Nodal reaction punching design
Loadcase 2156	MIN-PZ NODE Support reac	Nodal reaction punching design
Loadcase 2157	MAX-MX NODE Support reac	Nodal reaction punching design
Loadcase 2158	MIN-MX NODE Support reac	Nodal reaction punching design
Loadcase 2159	MAX-MY NODE Support reac	Nodal reaction punching design
Loadcase 2160	MIN-MY NODE Support reac	Nodal reaction punching design
Loadcase 2161	MAX-MZ NODE Support reac	Nodal reaction punching design
Loadcase 2162	MIN-MZ NODE Support reac	Nodal reaction punching design
Loadcase 2191	MAX-MB NODE Support reac	Nodal reaction punching design
Loadcase 2192	MIN-MB NODE Support reac	Nodal reaction punching design

Material (EN 1992-1-1:2004(EN2))

Mat	f _{ck} [MPa]	f _{cd} [MPa]	f _{yk} [MPa]	f _{tdk} [MPa]	f _{ctm} [MPa]	n	min	type
1	25.0	25.0			2.565	7.1	0.20	mainly static
2			500.0	567.5				
3	30.0	30.0			2.896	6.8	0.20	mainly static
4	30.0	30.0			2.896	6.8	0.20	mainly static
B1	25.0	25.0	500.0	567.5	2.565	7.1	0.20	mainly static

Minimum reinforcement: 0.00 p.c. of stat. req. section

Reduction of FC in case of transvers tension = 20.0 [o/o]

Material-safety-factors:

Mat	concr	SC1	SC2	steel	SS1	SS2
1		1.50	1.50			
2				1.15	1.15	
3		1.50	1.50			
4		1.50	1.50			
B1		1.50	1.50	1.15	1.15	

At direct supports from the face of the support up to 1.0*d the shear force is reduced.

The maximum shear capacity is checked at the face of the support without reduction.

For punching design, the longitudinal reinforcement will be increased up to 1.50%

to avoid shear reinforcement [input PUNC...RO_V].

Outside the punching area, the normal slab shear design may increase the,
longitudinal reinforcement up to 0.20% [input CTRL...RO_V].

NHPIAGOGENO_GASTOUNH

ULS design

Reinforcementparameter		two layer reinforcement									
Selection		bar-distance		bar-diameter		crackwidth		steelstress		min.reinf.	
Grp	elem	d1-u	d2-u	ds-u	2.lay	wk-u	2.lay	sigsu	2.lay	asu	2.lay
No.	No.	d1-l	d2-l	ds-l	ds-2-l	wk-l	wk-2-l	sigsl	sigsl	asl	asl2
		[cm]	[cm]	[mm]	[mm]	[mm]	[mm]	[MPa]	[MPa]	[cm2/m]	[cm2/m]
default		4.6	5.8	12	12	0.30	0.30	-	-	-	-
		4.6	5.8	12	12	0.30	0.30	-	-	-	-
1		4.0	5.0	10	10	-	-	-	-	-	-
		4.0	5.0	10	10	-	-	-	-	-	-
2		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
3		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
4		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-

The reinforcement directions relate to the local coordinate system of the elements and have to be plotted graphically.

With the input of a steel stress sigsu... the "crack design according tables" uses this given stress sigsu for the corresponding layer. With this input, the check can be done for bar distances instead of bar diameters.

Reinforcement is saved in the data base file

Number of stored reinforcement-distribution: 1

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SLS design

Maximum of reinforcement-distributions

The reinforcement maximum was build out of the numbers of reinforcement-distributions:

1

and stored as new reinforcement-distribution 2 .

Design according to EN 1992-1-1:2004(EC2)

Loadcases have been calculated in the Serviceability State

In BEMESS no additional load safety factor is applied.

Load Cases for the Design

Loadcase 1101	MAXP-MXX QUAD Forces and moments	
Loadcase 1102	MINP-MXX QUAD Forces and moments	
Loadcase 1103	MAXP-MYY QUAD Forces and moments	
Loadcase 1104	MINP-MYY QUAD Forces and moments	
Loadcase 1105	MAXP-MXY QUAD Forces and moments	
Loadcase 1106	MINP-MXY QUAD Forces and moments	
Loadcase 1107	MAXP-VX QUAD Forces and moments	
Loadcase 1108	MINP-VX QUAD Forces and moments	
Loadcase 1109	MAXP-VY QUAD Forces and moments	
Loadcase 1110	MINP-VY QUAD Forces and moments	
Loadcase 1111	MAXP-NXX QUAD Forces and moments	
Loadcase 1112	MINP-NXX QUAD Forces and moments	
Loadcase 1113	MAXP-NYY QUAD Forces and moments	
Loadcase 1114	MINP-NYY QUAD Forces and moments	
Loadcase 1115	MAXP-NXY QUAD Forces and moments	
Loadcase 1116	MINP-NXY QUAD Forces and moments	
Loadcase 1471	MAXP-UX NODE Displacement	Nodal reaction punching design
Loadcase 1472	MINP-UX NODE Displacement	Nodal reaction punching design
Loadcase 1473	MAXP-UY NODE Displacement	Nodal reaction punching design
Loadcase 1474	MINP-UY NODE Displacement	Nodal reaction punching design
Loadcase 1475	MAXP-UZ NODE Displacement	Nodal reaction punching design
Loadcase 1476	MINP-UZ NODE Displacement	Nodal reaction punching design
Loadcase 1477	MAXPPHIX NODE Displacement	Nodal reaction punching design
Loadcase 1478	MINPPHIX NODE Displacement	Nodal reaction punching design
Loadcase 1479	MAXPPHIY NODE Displacement	Nodal reaction punching design
Loadcase 1480	MINPPHIY NODE Displacement	Nodal reaction punching design
Loadcase 1481	MAXPPHIZ NODE Displacement	Nodal reaction punching design
Loadcase 1482	MINPPHIZ NODE Displacement	Nodal reaction punching design
Loadcase 1483	MAXPPHIB NODE Displacement	Nodal reaction punching design
Loadcase 1484	MINPPHIB NODE Displacement	Nodal reaction punching design

Load Cases - with factors of dead load in per cent

LcNo	per cent	LcNo	per cent	LcNo	per cent	LcNo	per cent	LcNo	per cent
1101	100.0	1102	100.0	1103	100.0	1104	100.0	1105	100.0
1106	100.0	1107	100.0	1108	100.0	1109	100.0	1110	100.0
1111	100.0	1112	100.0	1113	100.0	1114	100.0	1115	100.0
1116	100.0								

Material (EN 1992-1-1:2004(EC2))

Mat	f _{ck} [MPa]	f _{cr} [MPa]	f _{yk} [MPa]	f _{tk} [MPa]	f _{ctm} [MPa]	M	minQ	type
1	25.0	25.0			2.565	7.1	0.20	mainly static
2			500.0	567.5				
3	30.0	30.0			2.896	6.8	0.20	mainly static
4	30.0	30.0			2.896	6.8	0.20	mainly static
B1	25.0	25.0	500.0	567.5	2.565	7.1	0.20	mainly static

Minimum reinforcement: 0.00 p.c. of stat. req. section

A robustness minimum reinforcement has not been requested [NREI] and has to be checked separately.

A minimum reinforcement has not been requested [NREI] and has to be checked separately.

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SLS design

SERVICEABILITY LIMIT STATE CONTROL PARAMETERS

No Code dN[mm] wk[mm] Beta Beta1 Beta2 k1
1 EC2 ->para 0.30 1.7 1.0 0.5 0.8

Calculation of crack-width acc." EN 1992-1-1:2004[E] 7.3.4

Reinforcementparameter two layer reinforcement

Selection		bar-distance		bar-diameter		crackwidth		steelstress		min.reinf.	
Grp	elem	d1-u	d2-u	ds-u	2.lay	wk-u	2.lay	sigsu	2.lay	asu	2.lay
No.	No.	d1-1	d2-1	ds-1	ds-2-1	wk-1	wk-2-1	sigsl	sigsl2	asl	asl2
		[cm]	[cm]	[mm]	[mm]	[mm]	[mm]	[MPa]	[MPa]	[cm2/m]	[cm2/m]
default		4.6	5.8	12	12						
		4.6	5.8	12	12						
1		4.0	5.0	10	10						
		4.0	5.0	10	10						
2		3.0	4.0	10	10						
		3.0	4.0	10	10						
3		3.0	4.0	10	10						
		3.0	4.0	10	10						
4		3.0	4.0	10	10						
		3.0	4.0	10	10						

The reinforcement directions relate to the local coordinate system of the elements and have to be plotted graphically.

Maximum of stored and calculated reinforcement is saved

Number of stored reinforcement-distribution: 2

Reinforcement has been increased by live-load design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 100015	2.3	9.7		8.3	4.3		23.1	0.0	152.3
E 100016	2.6	8.5		6.5	3.7		20.8	-0.2	135.5
E 100022	18.4	46.0		18.7	16.4		26.2	-2.3	221.9
E 100023	4.4	9.1		11.5	2.7		25.0	-0.7	177.8
E 100053	2.1	13.3		16.3	9.8		25.5	-4.4	244.9
E 100056							17.6	-8.7	6.0
E 100077	9.8	0.0		48.7	4.3		41.6	-2.8	181.7
E 100080	14.1	27.0		42.2	4.0		42.5	-2.1	181.7
E 100093				43.2	3.0		30.8	-3.4	140.5
E 100119							18.8	-7.4	-2.2
E 100121	0.8	11.6		0.6	9.7		28.4	-2.1	106.5
E 100122	3.0	3.7		1.4	0.1		26.3	-5.1	4.5
E 100124	1.7	24.7		99.9	10.1		40.4	-3.5	149.5
E 100128	69.1	56.9		46.8	11.6		42.7	-1.0	194.3
E 100140	132.6	48.1		48.0	6.4		38.6	-7.0	192.2
E 100141	1.5	21.7		27.9	4.2		57.7	0.0	154.0
E 100165	13.5	16.8		66.4	5.7		30.3	-2.8	162.1
E 100166				80.3	0.0		20.9	-5.9	69.8
E 100212	74.2	38.5		56.8	10.4		27.4	-1.1	188.9
E 100229	1.0	0.6		74.6	3.7		27.2	-2.5	147.0
E 100230				56.8	1.3		27.9	-2.0	171.1
E 100267	0.1	2.8		99.4	0.0		19.6	-6.5	103.8
E 100270	106.6	53.0		44.5	8.6		34.7	-3.6	202.2
E 100287	34.6	5.0		75.1	0.6		19.0	-5.5	162.7
E 100288	76.9	39.6		35.9	5.1		32.1	-3.3	211.5
E 100299	50.8	28.2		27.1	3.6		32.2	-0.4	183.1
E 100300	54.2	62.1		51.3	16.9		33.1	-0.5	222.5
E 100303	80.0	98.2		47.5	7.8		28.1	-1.5	185.0
E 100305	14.5	0.3		50.7	5.4		28.3	-2.0	185.8
E 100306	1.5	17.4		1.1	5.0		26.3	-2.5	137.4
E 100308	3.7	8.4					19.7	-7.8	16.1
E 100309				49.7	0.0		33.0	-2.5	197.9
E 100310	14.0	0.0		49.0	3.0		29.9	-2.3	189.5
E 100311	67.2	57.7		42.3	1.8		33.6	-1.4	214.2
E 100332	38.1	37.4		31.2	7.4		33.9	-1.7	232.5

NHPIAGGEOIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 100346	60.5	10.4		47.2	4.8		39.5	-0.8	204.6
E 100347	65.4	39.3		44.7	0.0		38.8	-1.5	197.3
E 100386	1.5	10.8		43.5	8.3		25.5	-3.0	204.4
E 100387	7.8	28.3		73.4	17.6		34.0	-3.4	186.9
E 100388	3.2	3.6					23.2	-7.4	5.2
E 100398	2.3	0.0		91.9	1.2		23.4	-6.3	109.9
E 100399	0.8	13.3		68.6	7.9		29.8	-3.0	150.3
E 100440	38.6	26.7		30.5	13.9		34.5	-0.7	144.4
E 100461	13.7	100.5		45.6	8.3		31.7	-1.8	173.7
E 100462	78.3	30.8		48.1	8.3		31.0	-1.2	173.2
E 100481	62.9	42.3		61.1	16.8		35.8	-1.0	196.8
E 100482	74.7	92.4		45.7	10.2		36.9	-1.5	189.9
E 100483	10.1	12.3		51.3	2.1		32.1	-2.6	174.7
E 100491	61.9	34.8		50.9	8.8		40.6	-1.5	206.9
E 100503	69.2	3.1		43.7	10.3		36.6	-2.6	203.4
E 100504	1.4	42.9		105.2	0.5		25.4	-7.1	98.3
E 100513				55.7	0.2		36.9	-3.0	171.7
E 100514	14.8	75.2		55.0	2.1		34.4	-2.3	159.0
E 100515	12.6	27.6		48.0	0.9		37.5	-2.3	194.5
E 100519	30.0	10.1		24.1	5.1		29.2	-0.5	121.5
E 100521	47.6	33.1		56.9	21.7		30.5	-0.8	186.9
E 100522				45.1	6.5		32.4	-2.5	170.7
E 100523	5.1	89.9		50.0	1.2		29.0	-2.3	150.0
E 100524	11.4	0.3		48.6	4.4		32.1	-3.0	175.7
E 100536	23.4	0.0		107.2	1.0		27.4	-6.8	95.4
E 100537	19.7	21.4		41.0	0.4		40.0	-0.8	144.2
E 100546	32.8	32.9		14.5	6.4		43.4	-8.0	219.0
E 100549	15.9	15.2		5.0	17.1		35.5	-0.5	177.6
E 100592	3.1	17.7		2.8	18.4		68.1	0.0	170.4
E 100593	40.3	0.8		31.5	2.7		66.9	-5.0	183.2
E 100599				1.7	7.8		56.6	-7.4	1.2
E 100600	10.5	10.2		8.4	22.9		56.1	-1.5	216.8
E 100612	35.0	3.9		6.2	9.0		66.3	-0.1	175.0
E 100708	10.5	11.5		2.9	16.3		54.5	-1.9	149.5
E 100720	6.2	1.5		1.0	0.0		68.5	-0.1	177.5
E 100725	89.0	16.1		23.4	18.5		66.2	-0.1	196.1
E 100726	24.1	6.7		9.7	12.7		40.8	-0.3	163.5
E 100734	3.3	6.2		5.4	6.8		53.8	0.0	160.3
E 100737	1.5	7.1		4.3	11.6		53.4	-0.2	150.5
E 100752	4.9	11.6		4.7	12.7		54.1	-0.1	159.0
E 100766	114.8	3.1		58.4	10.3		41.0	-1.0	257.7
E 100768	154.1	87.8		50.7	0.8		45.1	-6.1	266.6
E 100781	74.2	17.2		12.9	11.9		40.8	-0.5	220.3
E 100782	36.6	2.9		8.5	13.0		40.6	0.0	190.4
E 100785	16.0	4.6		4.2	0.0		35.5	-1.0	183.8
E 100796	31.6	0.3		22.1	1.6		55.6	-6.0	192.5
E 100798	1.9	17.2		0.5	17.9		54.7	0.0	142.3
E 100799	5.7	11.0		7.4	7.3		54.2	0.0	179.9
E 100800	5.0	13.0		7.9	3.3		54.3	-0.3	184.9
E 100807	90.2	0.2		0.2	0.3		55.8	-0.8	244.8
E 100808	38.5	10.7		3.2	13.4		55.6	0.0	205.4
E 100816	24.4	2.1		4.1	4.4		55.6	-0.2	190.9
E 100845	21.6	86.9		16.7	8.8		33.2	-1.9	212.7
E 100846	1.9	15.2		10.3	3.5		31.9	-0.5	160.4
E 100849	0.4	13.9		7.3	4.8		29.3	0.0	144.8
E 100900							20.6	-8.3	-2.7
E 100901	0.3	14.0		11.2	13.6		32.2	-3.6	228.9
E 100961							22.3	-7.5	-3.4
E 100963	0.5	18.7		55.2	6.9		37.2	-3.4	176.4
E 100964	15.3	0.0		42.2	6.9		42.5	-2.1	181.5
E 100966	59.3	43.6		36.9	10.4		42.0	-0.1	209.0

NHPIAGGEIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 100970				40.9	5.8		39.6	-3.5	123.3
E 100972				24.9	0.5		42.9	-3.0	165.4
E 100979	18.3	4.1		76.0	17.3		40.6	-2.9	165.9
E 100980				40.4	23.3		25.3	-3.5	228.7
E 101011	3.0	15.6		20.0	6.0		47.1	0.0	176.2
E 101012	137.5	93.4		41.3	0.3		25.9	-7.0	201.8
E 101018							5.8	-9.6	0.4
E 101019	0.8	8.9		38.9	5.5		15.3	-3.7	131.2
E 101033	14.8	0.6		42.9	2.1		35.3	-2.0	192.2
E 101071				75.1	0.5		16.5	-4.1	155.2
E 101072	8.2	53.3		53.2	9.9		31.3	-2.6	188.6
E 101084	4.9	11.7						-3.1	114.7
E 101107	4.3	5.8		10.1	1.0		12.3	-0.4	193.5
E 101108	5.2	7.5		14.7	2.1		13.6	-1.1	231.4
E 101146	2.9	4.8		7.7	1.5		10.5	0.0	166.1
E 101169							9.0	-8.1	3.8
E 101171	5.4	14.4		8.8	7.2		14.3	0.0	161.4
E 101178				35.5	0.1		19.7	-4.1	142.0
E 101179	6.5	85.7		20.7	2.3		21.7	-3.2	176.8
E 101196	16.9	14.6		16.2	5.3		29.5	0.0	129.4
E 101226	1.2	26.9		102.8	6.8		32.4	-3.1	112.4
E 101227							19.3	-7.1	3.8
E 101246	21.7	13.4		23.2	5.1		39.5	-1.1	183.9
E 101257	71.7	75.0		35.5	4.4		31.7	-1.3	205.5
E 101260	13.0	0.4		42.2	18.3		31.4	-2.0	195.0
E 101265	24.8	18.7		20.4	4.5		30.6	-0.3	158.8
E 101268	44.9	31.9		33.2	10.2		31.3	-0.7	217.1
E 101303	77.2	34.6		50.8	3.8		40.2	-1.5	193.7
E 101325	1.6	4.9		40.2	12.5		29.3	-3.3	209.7
E 101328	1.8	0.0					22.7	-7.4	9.7
E 101369				55.6	0.0		36.4	-3.0	165.6
E 101370	12.6	0.0		57.4	1.5		33.4	-2.8	150.8
E 101371	12.5	23.6		51.8	4.6		37.8	-2.6	181.5
E 101372	14.7	85.2		46.4	1.7		37.7	-1.9	184.2
E 101373	16.9	39.9		57.6	0.5		34.6	-1.9	158.1
E 101374	73.6	94.1		43.2	7.5		37.1	-1.4	183.9
E 101375	57.0	18.8		37.0	10.7		35.8	-0.3	185.9
E 101384	2.5	8.5		0.6	0.7		23.1	-7.2	14.7
E 101385	26.7	21.1		49.5	3.7		38.8	-0.6	121.5
E 101387	12.2	9.2		22.9	0.8		38.7	0.0	132.9
E 101388	149.9	169.4		45.3	0.1		28.2	-11.9	227.5
E 101400	72.7	25.0		41.3	6.9		20.2	-1.3	191.7
E 101401	12.0	44.9		39.0	4.7		20.8	-2.0	197.8
E 101402	10.7	0.0		37.2	5.0		19.0	-2.8	179.5
E 101405	28.5	5.9		23.4	3.1		18.8	-0.1	135.2
E 101406	43.7	17.9		42.3	14.1		19.6	-0.3	196.1
E 101426	15.2	98.7		46.0	5.0		37.1	-1.7	162.5
E 101481				1.0	0.0		17.8	-5.7	6.9
E 101482	1.3	0.7		67.3	9.8		30.9	-2.7	156.4
E 101501	57.7	20.2		43.2	5.7		27.0	-1.5	202.4
E 101519	0.9	0.0		59.4	8.3		11.2	-7.2	125.4
E 101522	0.8	56.1		37.0	1.9		15.9	-2.5	197.4
E 101523	2.0	1.6		55.2	0.1		22.7	-4.8	150.4
E 101526	26.2	6.2		54.3	6.5		40.4	-0.9	190.0
E 101543	9.7	4.0		37.8	7.2		21.2	-3.6	194.3
E 101544	11.5	36.7		41.3	2.7		20.2	-2.5	184.0
E 101545				35.7	1.3		21.2	-2.6	209.7
E 101555				50.1	10.7		35.5	-2.6	164.7
E 101556	14.4	0.3		47.1	2.3		37.2	-2.1	160.8
E 101567	11.7	18.1		43.2	10.0		20.4	-3.9	182.9
E 101568	2.7	34.0		0.4	14.3		17.3	-3.9	153.1

NHPI AGOGEIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 101569				90.8	0.2		18.5	-1.6	88.5
E 101571	15.4	52.1		33.0	0.0		42.0	-1.3	219.4
E 101576	122.6	0.0		38.3	11.3		19.0	-10.5	181.8
E 101577	35.8	8.5		40.8	1.1		25.6	-1.5	183.6
E 101601				69.0	0.1		25.4	-5.1	119.2
E 101604	73.2	4.5		40.7	8.7		41.5	-1.6	166.1
E 101606							23.1	-6.0	6.9
E 101607	1.1	6.8		80.7	5.2		34.2	-3.4	145.4
E 101693	1.1	7.6		52.0	3.1		21.1	-3.2	148.1
E 101699	76.5	72.4		44.8	3.9		35.6	-1.6	158.1
E 101721	67.8	49.8		48.0	0.0		43.2	-1.0	191.7
E 101737				61.3	6.0		37.2	-2.6	132.1
E 101738	13.2	0.3		53.5	0.3		37.8	-2.2	139.2
E 101759	13.1	35.2		51.2	1.2		27.5	-3.1	150.8
E 101760	7.2	56.6		60.3	0.8		25.6	-2.8	125.8
E 101761	12.9	5.6		46.2	1.6		28.2	-2.7	163.2
E 101762	13.7	58.2		44.6	0.5		27.8	-2.4	157.2
E 101763	14.7	6.2		51.0	0.7		26.1	-2.5	139.2
E 101764	14.0	62.2		42.8	7.0		27.0	-1.8	155.9
E 101765	79.8	29.7		51.1	12.3		25.1	-1.1	163.6
E 101774	2.6	0.0					15.8	-8.4	6.1
E 101776	1.6	7.9		114.5	11.8		22.1	-3.1	184.6
E 101777	27.4	0.0		1.7	0.6		20.6	-6.7	31.3
E 101778	40.9	11.7		74.6	1.7		33.5	-1.2	116.9
E 101817	51.9	36.9		0.0	4.9		34.3	-2.8	242.7
E 101818	24.1	17.3		8.0	6.7		31.6	-2.8	181.0
E 101819	9.8	5.2		1.7	9.8		30.5	-0.2	181.1
E 101820	16.5	2.3		5.7	10.4		31.2	-2.2	137.8
E 101923	4.1	4.8		2.0	6.5		30.8	0.0	156.6
E 101934	6.2	7.8		2.8	9.4		30.5	0.0	176.1
E 101935	7.7	1.6		4.0	0.6		30.3	-0.4	195.7
E 101936	14.3	2.2		1.3	10.7		31.2	-1.6	173.4
E 101967	48.8	6.2		2.2	5.1		31.0	-0.2	247.5
E 101987							36.6	-7.9	4.1
E 101988	7.0	20.8		3.0	22.3		32.6	-2.7	243.5
E 102059	1.1	2.2		2.7	5.7		35.7	-14.2	6.3
E 102061	11.9	21.9		52.9	21.6		31.7	-2.9	199.2
E 102065	66.6	98.1		11.8	0.2		31.4	-2.2	229.2
E 102066	85.9	22.1		4.7	4.6		31.0	0.0	252.6
E 102067	66.0	36.9		31.9	7.6		32.4	-0.9	234.4
E 102154	96.9	0.9		66.5	8.3		54.1	-8.3	145.2
E 102155	27.0	9.0		2.8	17.9		52.7	-3.9	201.1
E 102164	84.5	5.6		1.2	14.1		54.2	-0.1	244.7
E 102165	79.9	58.8		18.8	14.4		54.2	-1.8	220.2
E 102178	11.3	10.9		7.5	14.3		52.4	-1.6	186.6
E 102179	8.4	11.7		7.2	14.7		52.1	-0.3	181.7
E 102218	5.1	11.4		6.1	14.6		51.8	-0.3	168.2
E 102260	35.3	56.7		10.5	37.0		56.5	-3.2	195.4
E 102263	32.9	16.9		3.9	19.5		52.3	0.0	185.7
E 102314	104.1	5.6		29.9	24.9		72.8	-1.5	230.7
E 102315	17.9	9.2		1.0	1.6		51.5	-0.1	185.5
E 102317	10.0	3.2		2.6	16.2		51.7	-0.2	179.3
E 102347				118.3	1.9		54.9	-8.3	99.3
E 102349	5.9	16.1		42.5	23.8		54.3	-3.3	167.4
E 102403	15.3	66.6		39.8	11.2		51.8	-6.0	213.7
E 102404	114.6	18.2		50.6	12.1		48.1	-1.3	249.1
E 102436	6.1	3.0		0.6	0.0		64.6	-0.1	169.7
E 102466	13.6	17.8		26.8	20.4		44.4	-2.3	186.5
E 102469				2.1	7.6		46.3	-8.5	7.6
E 102496	8.3	16.9		0.6	18.4		64.5	0.0	168.3
E 102510	7.6	7.8		6.0	12.0		42.2	-0.2	185.3

NHPIAGOGHEIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 102511	9.2	8.0		4.3	12.8		42.4	-1.0	177.3
E 102536	32.1	2.4		2.7	8.0		43.4	-0.2	208.9
E 102539	4.6	8.2		5.6	12.0		42.1	0.0	174.3
E 102585	22.4	8.9		4.8	14.5		47.9	-0.2	165.2
E 102602	87.9	11.9		11.8	0.0		47.2	-0.6	252.6
E 102603	36.0	5.6		4.2	15.9		47.3	-0.1	186.6
E 102623	91.9	15.5		27.1	24.3		64.5	-1.8	217.2
E 102626	53.4	0.4		35.2	2.6		44.8	-8.6	168.9
E 102628	1.9	20.0		4.7	18.8		42.6	0.0	141.4
E 102653	69.8	0.2		31.4	0.3		43.6	-1.7	251.2
E 102654	68.4	1.9		3.7	12.2		43.3	0.0	260.8
E 102692	4.8	6.1		6.8	0.5		6.3	-0.5	138.6
E 102697	10.4	7.4		8.6	1.5		8.1	-1.1	167.0
E 102700	43.7	0.0		23.0	19.4		9.2	-1.6	191.4
E 102729	0.3	21.5		7.8	18.4		8.6	-3.7	244.7
E 102732							1.6	-9.0	-5.0
E 102819	0.6	14.4		52.2	12.5		15.3	-3.2	169.6
E 102823				77.6	6.0		17.4	-3.9	107.2
E 102851	90.9	20.8		26.5	17.1		41.1	-1.7	205.5
E 102852	140.5	193.1		62.8	10.6		46.1	-10.0	212.4
E 102869	41.0	6.0		8.2	11.6		37.3	-0.6	197.5
E 102870	27.0	8.3		6.9	13.0		37.4	-0.5	168.9
E 102871	128.8	6.5		23.1	25.4		38.1	-3.0	240.9
E 102874	105.6	25.0		66.5	8.8		40.9	-12.7	190.8
E 102901	91.5	21.8		36.6	1.4		37.3	-1.9	247.3
E 102902	55.8	22.3		35.4	4.2		37.2	-1.3	250.8
E 102907	16.4	4.6		2.9	13.3		39.8	-0.2	159.5
E 102908	23.6	3.0		3.7	13.3		39.4	-0.2	175.2
E 102955	26.3	9.0		4.1	11.8		33.4	-0.9	195.4
E 102975	15.2	1.4		1.9	14.0		36.1	-2.0	162.1
E 102990	13.7	9.2		8.0	11.3		37.7	-0.2	131.1
E 102992	20.5	8.6		7.1	12.0		37.6	-0.3	153.4
E 102993	84.6	29.9		9.1	0.0		39.6	-1.1	259.7
E 102995	36.6	4.3		3.6	16.8		39.2	0.0	199.9
E 103020	57.7	77.9		13.7	14.0		43.2	-11.7	251.9
E 103021	36.2	24.1		20.2	12.2		37.3	-3.2	194.0
E 103035	0.0	18.7		4.4	0.0		34.3	-1.5	225.1
E 103036	18.3	14.8		56.2	32.9		37.2	-13.5	287.8
E 103037	75.9	63.4		50.7	41.2		36.1	-6.7	260.3
E 103039	63.7	13.9		21.5	4.7		41.2	-15.0	233.7
E 103044	42.9	4.1		2.9	0.0		32.8	-0.8	268.8
E 103046	23.6	7.7		2.5	5.0		32.5	0.0	197.7
E 103047	57.9	24.3		2.3	8.1		33.4	-0.2	283.2
E 103048	22.1	16.5		7.9	22.0		33.9	-2.1	201.5
E 103049	56.1	17.4		3.6	4.8		33.1	-0.2	289.8
E 103622							130.7	-3.6	-3.6
E 103687	52.1	3.4		57.2	2.8		114.1	-2.3	197.2
E 103889	4.1	14.9		125.3	36.0		76.2	-3.5	154.2
E 103955	8.0	0.0		28.0	9.0		51.6	-1.4	185.5
E 103956	22.5	0.0		26.9	13.1		48.6	-1.8	178.6
E 103993	0.7	5.5		35.8	4.3		22.9	-1.6	235.8
E 103996	7.8	0.3		5.6	13.0		23.6	-3.2	208.8
E 103997	27.6	2.1		19.5	0.0		15.7	-6.8	250.7
E 103998	3.9	0.5		24.8	0.0		24.1	-9.6	238.8
E 103999				15.3	0.0		41.1	-13.0	176.0
E 104000	2.9	3.8		5.6	25.3		50.0	-6.8	203.9
E 104021	24.5	93.6		8.1	51.9		275.1	0.0	231.1
E 104050	40.8	20.5		28.5	4.6		23.9	-1.0	151.5
E 104051	3.3	2.5		109.2	0.4		10.1	-7.3	113.1
E 104063							28.0	-11.6	-3.8
E 104064	4.3	14.1		0.6	5.2		24.6	-1.6	248.3

NHPIAGOGEO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concrete	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 104071	16.3	1.8		17.4	0.0		28.2	-6.0	195.7
E 104073	16.7	8.1		24.5	2.8		27.6	-1.2	180.9
E 104076	13.9	6.5		21.9	6.3		29.4	-0.1	184.8
E 104096	13.1	5.7		15.2	14.4		32.4	-0.1	181.1
E 104155	0.6	4.7		17.7	7.2		22.4	-0.8	226.6
E 104156	0.8	6.2		10.3	6.1		21.9	-0.2	186.9
E 104175	1.2	3.5		22.9	6.9		37.1	-0.4	221.4
E 104176	3.3	7.4		19.0	8.4		37.4	0.0	205.2
E 104209	16.3	7.9		23.6	32.5		110.4	-8.9	317.0
E 104215							34.8	-11.5	-1.6
E 104217	1.1	9.9		0.4	9.5		40.2	-1.2	142.2
E 104221	12.4	4.7		17.2	14.0		30.5	0.0	184.8
E 104222	11.9	2.4		19.9	8.0		30.0	-0.3	188.1
E 104223	11.9	9.5		17.1	4.0		27.8	-0.4	182.2
E 104227	22.4	5.6		51.0	1.5		22.0	-6.2	212.7
E 104228	17.4	34.9		23.3	0.0		35.3	0.0	298.5
E 104230	70.2	94.6		5.3	22.9		400.0	0.0	262.1
E 104233	99.4	72.6		0.4	5.6		43.2	-3.0	148.6
E 104235	27.6	42.7		46.0	4.7		46.1	-1.7	168.5
E 104236	0.5	0.0		4.2	0.0		182.9	-0.3	164.8
E 104237	68.5	91.3		25.6	35.0		280.4	0.0	254.0
E 104286	3.4	0.5		0.0	6.2		21.1	0.0	180.2
E 104287	2.8	1.4		0.4	6.3		21.4	0.0	179.1
E 104325	2.2	0.0		1.3	16.5		22.2	-0.3	191.9
E 104368	56.5	6.6		66.3	92.2		50.7	-11.9	287.5
E 104369	20.0	15.0		0.8	26.7		29.7	0.0	161.9
E 104370	12.3	16.6		32.6	41.9		39.8	-4.3	249.1
E 104378	0.5	19.0		6.1	13.9		29.8	0.0	189.7
E 104379	51.5	2.9		55.6	91.9		55.6	-12.1	272.1
E 104388	5.3	1.5		0.2	4.8		21.3	0.0	183.9
E 104389	4.6	2.2		0.6	6.7		21.2	0.0	181.6
E 104391	6.8	8.8		8.6	18.1		31.6	-1.6	178.9
E 104416	9.4	0.0		1.2	13.4		24.2	-0.4	183.1
E 104417	6.3	3.6		0.5	4.0		22.0	-0.1	191.8
E 104418	9.8	8.2		6.0	12.9		28.7	-0.5	172.9
E 104470	66.2	8.8		56.1	26.7		37.5	-2.5	158.0
E 104471	125.5	0.7		100.6	1.7		2.3	-2.4	120.1
E 104493	13.4	0.0		29.0	9.1		42.6	-1.2	190.1
E 104494	13.3	0.0		21.2	12.5		39.9	-1.0	181.2
E 104506	2.5	1.4		18.2	1.9		45.5	-3.1	201.8
E 104507	2.3	1.1		6.2	7.4		51.3	-2.4	182.9
E 104510	14.1	6.5		11.1	1.2		38.5	-1.7	202.7
E 104511	51.4	2.0		0.7	20.0		37.1	-13.2	307.9
E 104516	13.6	36.4		12.4	15.2		115.4	0.0	203.6
E 104517	27.2	10.1		52.3	0.0		109.8	-1.2	244.6
E 104519	19.7	20.7		16.1	0.0		99.7	-0.5	194.3
E 104550	12.1	13.2		26.1	0.0		28.1	-1.0	178.0
E 104551	11.9	14.7		26.6	0.0		27.8	-0.5	177.7
E 104555	11.0	46.4		2.4	13.3		149.8	0.0	174.7
E 104578	13.8	0.0		28.5	8.7		46.7	-0.7	187.0
E 104582				20.2	0.0		10.6	-7.5	245.7
E 104583	39.9	0.1		8.5	31.7		16.8	-6.9	252.7
E 104597	8.2	28.8		3.7	0.0		108.8	-0.4	186.6
E 104598	10.0	26.9		1.6	0.0		115.2	-0.3	190.6
E 104605	10.4	2.2		11.7	10.3		29.9	-6.3	204.0
E 104606	10.0	7.0		16.0	17.9		29.7	-1.5	176.7
E 104607	10.1	10.1		23.8	0.0		28.7	-0.7	177.8
E 104608	3.2	27.1		0.9	7.0		70.0	0.0	184.8
E 104609	4.5	23.9		1.6	0.6		79.6	-0.2	183.7
E 104614	13.1	2.9		19.0	0.0		28.4	-0.1	166.0
E 104628	12.0	1.0		43.4	4.1		21.3	-3.6	245.2

NHPHAGOEIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top			stress range bottom			links	concre	steel-1
	Asa [MPa]	Asm [MPa]	Asi [MPa]	Asa [MPa]	Asm [MPa]	Asi [MPa]	Ass [MPa]	sig-c [MPa]	sig-max [MPa]
E 104629	3.7	4.4		28.3	23.2		38.0	-3.1	237.1
E 104676	40.4	1.8		17.1	3.7		56.1	-3.2	137.1
E 104697	49.2	3.8		14.3	0.0		20.8	-6.1	263.2
E 104703	12.5	0.0		22.0	0.0		27.7	-0.2	172.3
E 104705	11.7	0.0		25.5	0.0		27.6	-0.2	177.6
E 104706	20.9	3.1		20.1	0.0		30.9	-2.4	213.1
E 104707	9.6	2.2		5.1	17.9		33.0	-9.4	280.7
E 104708	50.3	3.8		8.9	20.6		34.1	-13.5	305.7
E 104714	19.9	21.3		5.4	54.5		119.2	-1.3	166.2
E 104715	11.4	48.7		3.9	49.0		145.0	-0.4	170.2
E 104716	20.7	27.2		18.3	15.6		116.8	-1.3	191.9
E 104726	7.2	26.7		3.4	0.0		101.8	-0.5	183.0
E 104728	5.9	25.2		2.4	0.0		90.6	-0.4	183.5
E 104729	1.1	0.0		1.1	7.7		60.1	-0.8	184.2
E 104731	2.8	1.4		3.1	5.7		54.9	-1.5	182.7
E 104742	0.8	0.0		28.2	40.1		54.4	-2.3	248.6
E 104743	35.9	3.9					50.0	-3.9	161.7
E 104794	4.1	0.0		16.2	15.0		54.1	-2.5	186.1
E 104797	3.8	0.0		9.2	15.2		53.1	-1.9	176.3
E 104874	3.9	0.3		40.4	27.2		55.3	-2.9	225.9
E 104877	4.6	0.0		31.2	13.8		54.9	-2.9	199.4
E 104997	6.3	17.4		4.2	68.9		12.4	-1.5	242.8
E 105012	3.0	0.0		4.7	11.5		51.8	-0.7	166.4
E 105013	3.5	0.0		6.7	12.7		52.3	-1.3	173.2
E 105018	59.0	28.2		6.5	21.6		37.3	-3.6	176.4
E 105020	5.3	58.8		43.3	30.2		39.9	-3.8	162.5
E 105032	13.2	1.3		13.7	1.1		25.2	-1.2	183.3
E 105069							49.4	-5.1	-4.6
E 105070	54.9	22.9		85.1	38.2		35.8	-1.2	170.7
E 105118	31.1	18.8		14.7	9.9		31.7	-2.4	185.9
E 105119	24.3	6.3		9.3	3.7		30.5	-2.1	176.0
E 105203	9.3	6.6		4.0	0.0		31.0	-0.5	168.5
E 105241	10.9	17.9		6.1	0.0		60.9	-1.5	175.8
E 105242	12.7	23.5		10.6	0.0		61.9	-1.8	188.8
E 105300	115.0	0.8		1.1	0.9		57.9	-2.9	212.4
E 105301	25.6	38.0		5.1	5.9		60.0	-1.2	217.5
E 105302	8.5	41.2		34.0	32.3		62.5	0.0	261.4
E 105321	89.3	31.8		24.6	6.8		34.2	-1.8	212.7
E 105323	34.4	57.5		56.0	2.6		33.3	-2.3	231.4
E 105333	11.7	8.1		5.8	0.0		30.6	-0.9	171.9
E 105335	15.8	6.8		7.1	0.0		30.2	-1.5	174.1
E 105478	9.1	12.7		89.5	37.3		55.3	-1.8	218.9
E 105687	42.5	2.8		54.6	1.8		17.8	-1.8	198.0
E 105690	66.3	9.4		93.0	3.4		27.3	-2.8	181.4
E 105736	0.1	1.3		17.8	7.4		28.4	-2.4	181.3
E 105737	0.6	1.7		9.2	8.0		27.8	-1.8	170.2
E 105894	2.6	3.4		42.2	19.2		29.2	-2.8	217.3
E 105895	2.0	1.3		27.6	16.2		28.9	-2.8	195.9
E 105924	1.6	8.8		0.4	9.9		18.3	-2.0	164.8
E 105925							22.9	-5.9	-8.6
E 105937	84.7	50.5		7.0	6.0		28.9	-1.8	154.1
E 105938	104.5	0.9		37.7	0.6		27.2	-2.1	131.5
E 105943	38.7	3.5					26.6	-4.8	235.2
E 105944	7.5	23.5		8.9	24.2		28.5	-2.4	233.3
E 105954	1.0	0.0		6.1	7.0		27.3	-1.2	165.8
E 105956	19.6	0.6		106.2	21.5		28.9	-1.3	177.5
E 105992	8.8	25.9		10.8	25.0		28.1	0.0	193.1
E 106041	23.3	0.0		3.2	0.6		16.3	-1.6	165.4
E 106080	29.9	3.7		12.5	2.9		36.9	-3.2	219.3
E 106118	58.1	0.0		97.0	21.0		26.6	-2.4	208.2
E 106119	25.3	2.2		8.5	36.5		26.3	-2.2	227.4

NHP\AGOGEO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 106120	8.1	2.3		18.8	2.5		23.8	-1.6	206.3
E 106121	197.6	5.0					24.5	-3.6	200.6
E 106124	32.4	10.4		87.9	9.1		26.0	-3.0	213.4
E 106125	23.3	2.4		59.6	12.2		25.3	-2.6	184.8
E 106126	18.2	0.2		10.8	21.7		36.3	-3.0	213.7
E 106127	35.6	0.9		1.2	98.5		34.5	-4.8	197.7
E 106128	29.0	13.3		20.0	40.1		36.2	-2.4	222.4
E 106129	21.8	0.9		99.9	20.0		36.5	-2.8	195.6
E 106136	17.7	2.3		42.4	3.5		24.8	-2.4	169.1
E 106142	1.0	0.0		11.9	10.1		35.3	-1.6	153.3
E 106143	3.1	0.0		18.4	12.8		35.1	-2.2	168.4
E 106186	4.1	3.6		18.2	26.6		24.4	-4.2	159.2
E 106198	38.1	5.6		63.4	11.0		35.8	-3.3	218.3
E 106199	34.6	1.6		85.1	9.5		36.5	-3.1	209.1
E 106200	35.0	4.0		60.8	43.2		36.2	-3.0	211.6
E 106201	23.2	3.8		44.3	17.8		35.3	-3.1	214.6
E 106222	6.7	0.3		42.4	11.8		35.0	-3.0	197.3
E 106223	15.1	1.7		43.6	14.7		35.8	-2.8	213.6
E 106224	5.4	0.4		26.2	14.2		34.9	-2.7	177.9
E 106237	80.4	1.4		32.8	1.9		20.7	-2.7	194.1
E 106238	13.3	2.3		43.5	0.6		19.6	-1.4	223.3
E 106239	46.4	46.1		17.2	36.9		16.8	0.0	225.0
E 106255	15.5	55.8		2.7	37.8		26.7	-3.3	217.0
E 106256	13.2	2.1		18.7	1.6		33.3	-1.8	265.8
E 106257	103.7	5.8		48.0	3.3		30.7	-3.2	167.4
E 106262	1.7	34.7		1.3	1.8		81.4	-2.2	203.3
E 106266	0.7	27.0		4.7	2.6		80.0	-2.2	166.6
E 106267	11.1	20.9		7.8	4.5		75.8	-2.1	149.2
E 106268	20.3	21.1		12.5	5.7		74.6	-1.8	142.9
E 106269	15.6	19.3		15.4	6.8		77.0	-1.7	139.8
E 106326	3.1	1.5		7.7	26.4		76.0	-1.2	143.0
E 106329	0.7	8.0		5.6	22.0		77.5	-0.6	137.7
E 106331	9.5	19.6		3.1	3.4		82.3	-2.0	146.8
E 106332	13.7	18.7		4.0	3.4		82.4	-1.9	144.0
E 106335	0.6	6.5		0.6	23.3		74.5	-1.1	173.6
E 106336							76.5	-9.4	-2.2
E 106391	8.4	0.0		14.9	35.1		59.8	-1.0	219.8
E 106396	27.2	6.6		62.0	1.8		74.4	-4.6	141.3
E 106397	10.7	29.1		35.1	23.8		74.6	-2.2	212.8
E 106398	8.0	19.4		5.1	0.0		81.6	-0.9	134.8
E 106401	11.1	20.3		6.6	3.9		82.1	-1.4	135.9
E 106402							70.0	-7.1	-4.8
E 106403	1.4	8.6		4.9	26.9		59.0	-2.2	171.6
E 106415	9.3	30.8		26.9	17.6		73.0	-2.0	145.1
E 106416	11.6	13.8		66.8	16.5		73.2	-2.9	134.3
E 106432	21.4	21.0		11.4	4.2		72.7	-1.7	144.9
E 106454	1.9	14.6		4.1	18.2		79.1	-0.3	135.2
E 106457	5.2	18.8		3.1	11.7		80.6	-0.2	132.9
E 106458	12.8	34.7		5.5	0.0		75.6	-0.8	285.1
E 106459	6.2	33.7		2.3	0.0		78.7	-1.8	224.2
E 106460	12.9	33.1		2.3	0.0		88.2	-1.8	242.4
E 106461	42.4	38.3		5.3	15.1		85.3	0.0	284.2
E 106463	9.3	20.1		26.4	20.1		88.0	-0.6	165.7
E 106464	12.2	23.9		31.4	22.6		86.6	-1.2	159.9
E 106482	2.6	5.1		16.3	28.0		73.7	-1.9	149.9
E 106485	3.0	3.4		10.1	30.7		74.8	-1.5	148.2
E 106486	11.7	19.7		19.2	7.6		79.5	-1.5	140.4
E 106487	7.6	18.9		27.3	5.3		82.6	-1.7	147.1
E 106488	12.4	34.9		0.1	0.0		86.6	-2.3	225.4
E 106489	10.5	33.7		0.5	1.9		82.2	-2.4	197.3
E 106491	22.0	37.9		18.8	6.2		70.3	0.0	299.2

MPIAGOGEO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 106492	4.8	44.6		12.1	2.0		91.5	0.0	296.4
E 106493	25.9	51.3		21.3	0.0		83.5	-3.9	293.2
E 106500	6.9	0.0		22.3	36.0		56.5	-0.9	235.2
E 106502	7.1	5.8		73.7	34.1		56.2	-2.9	228.6
E 106515	6.2	13.1		24.7	18.5		89.0	-0.5	172.4
E 106521							32.7	-9.5	23.1
E 106523	56.8	5.0		45.1	2.7		36.6	-5.0	196.9
E 106533	18.6	0.0		89.6	7.6		94.0	-2.7	228.3
E 106534	6.1	8.5		29.9	0.0		93.5	-1.7	312.4
E 106535	18.8	3.4		68.8	7.1		87.1	-1.3	210.7
E 106541	2.2	9.0		12.9	10.7		72.3	-0.1	163.9
E 106542	4.2	0.0		27.9	17.0		74.1	-1.3	202.3
E 106543	1.8	16.4		17.7	17.2		73.2	0.0	180.9
E 106545	33.6	28.1		36.3	22.1		84.5	-1.0	135.8
E 106546	52.9	0.7		89.6	0.0		79.6	-4.6	184.0
E 106557	16.1	19.7		5.4	3.5		82.3	-1.7	141.0
E 106558	14.5	20.7		7.0	3.6		82.3	-1.6	137.7
E 106565	21.1	36.6					114.6	-1.2	277.9
E 106567	22.1	20.5		1.6	1.2		98.5	-3.3	306.1
E 106568	7.8	22.1		3.2	3.3		81.9	-2.1	147.0
E 106569	1.2	34.9		2.0	0.0		86.6	-1.9	227.7
E 106570	2.7	26.7		0.3	0.4		80.7	-1.9	164.7
E 106587	29.2	0.8		61.1	22.4		69.3	-3.5	151.9
E 106588	28.5	1.3		90.0	8.0		68.9	-3.5	147.9
E 106589	31.3	1.2		10.0	10.4		69.0	-4.0	145.1
E 106590	27.3	3.5		90.7	12.2		69.5	-3.7	166.2
E 106591	16.6	14.2		22.7	13.5		68.7	-2.3	122.0
E 106592	22.1	1.6		27.1	5.7		68.9	-1.5	120.6
E 106593	16.2	23.3		14.9	18.4		68.8	0.0	121.4
E 106594	21.5	25.0		14.6	20.9		68.5	-2.0	141.4
E 106599	12.2	0.4		7.6	17.8		69.7	-3.5	178.5
E 106600	30.6	0.8		8.5	0.1		69.4	-2.8	145.3
E 106601	32.3	0.9		11.3	0.4		69.9	-2.4	142.4
E 106602	0.1	0.2					70.5	-5.1	193.9
E 106603	48.0	14.0		23.2	45.8		65.8	-0.7	197.4
E 106606	87.5	27.1		20.0	25.0		66.0	-2.6	191.8
E 106633	59.6	0.4		63.3	0.2		88.4	-1.6	145.7
E 106634	47.5	0.2		22.6	0.3		88.0	-1.7	151.8
E 106635	75.7	8.0		1.1	46.8		72.9	-2.6	98.5
E 106638				0.8	15.1		76.6	-4.0	108.5
E 106647	60.7	0.0		73.9	17.0		74.7	-2.1	180.4
E 106648	58.2	0.0		69.5	7.8		76.3	-1.9	183.2
E 106683	18.4	5.3		33.9	12.1		68.8	-2.7	152.6
E 106684	31.6	2.9		53.4	10.3		68.8	-3.3	160.2
E 106685	29.1	1.3		40.2	20.2		69.1	-2.9	119.1
E 106686	31.9	5.3		35.0	21.8		69.0	-2.7	112.6
E 106698	69.7	0.2		89.7	0.2		89.7	-1.1	167.0
E 106700	23.8	0.9		9.2	0.3		68.5	-2.4	153.7
E 106701	22.5	1.2		24.8	12.1		68.4	-3.7	155.3
E 106711	41.6	3.3		31.6	36.3		67.5	-1.6	157.8
E 106712	97.3	21.9		8.0	21.4		67.2	-3.8	200.8
E 106713	54.8	20.3		24.0	18.3		68.1	-2.6	181.3
E 106714	32.0	8.5		22.8	35.2		68.1	-1.5	154.9
E 106721	29.6	7.2		28.0	53.9		91.8	-11.4	275.9
E 106722	78.9	11.1		106.0	0.0		89.3	-1.8	121.4
E 106724	27.0	1.0		27.0	35.1		83.8	-7.3	208.2
E 106725	34.4	19.8		54.0	12.5		79.4	-2.3	144.2
E 106726	5.7	4.5		10.4	52.5		87.6	-11.9	275.6
E 106740	11.8	8.6		18.2	2.3		66.6	-5.6	262.3
E 106741				1.2	5.5		63.5	-4.4	5.1
E 106742	54.0	34.8		13.8	2.0		67.7	-3.8	195.1

NHPIAGOGEIO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asl	Asa	Asm	Asl	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 106775							71.7	-2.1	-2.0
E 106776	31.7	0.6		103.4	0.0		71.7	-1.3	147.2
E 106777				0.9	19.4		75.1	-3.2	138.7
E 106792	8.5	1.5		4.2	2.1		66.9	-5.0	198.6
E 106793	21.3	24.5		12.1	11.3		68.6	-0.6	129.9
E 106794	29.8	29.4		10.1	0.1		68.4	-1.2	152.3
E 106795	34.0	19.5		21.5	15.3		68.3	-2.2	166.0
E 106805	23.8	0.9		10.2	0.0		69.3	-2.4	153.6
E 106806	23.2	1.0		9.7	0.1		68.7	-2.4	156.3
E 106808	18.4	37.6		41.2	18.5		65.2	0.0	212.8
E 106809	100.2	26.2		2.7	1.5		65.8	-3.2	151.1
E 106810	0.8	17.6		9.2	27.8		66.0	-2.1	205.2
E 106811	66.3	0.1		21.1	1.5		88.4	-1.4	172.7
E 106812	62.5	15.4		95.4	0.1		90.1	-1.4	164.6
E 106813	48.5	0.2		18.1	0.3		87.9	-1.8	164.6
E 106825	46.7	31.0		7.6	10.9		66.1	0.0	188.7
E 106846	62.7	10.8		53.1	23.0		65.6	-1.5	187.2
E 106847	55.8	12.1		53.4	8.3		65.7	-1.6	177.1
E 106897	54.8	15.3		26.9	24.2		63.3	0.0	187.7
E 106910	69.4	19.0		20.5	25.7		63.1	0.0	194.6
E 106911	84.3	2.0		45.7	74.6		63.1	-1.1	191.5
E 106937	60.2	0.0		11.8	0.4		86.2	-1.9	125.1
E 106938	57.3	0.1		11.4	0.4		85.1	-2.0	126.7
E 106939	67.2	0.0		10.6	0.5		87.5	-1.8	114.3
E 106944	8.1	10.4		12.7	22.0		63.3	-4.0	190.7
E 106945	4.7	16.7		3.7	19.3		62.5	-4.2	205.7
E 106946	96.5	11.6		38.0	20.0		64.4	-2.1	171.2
E 106947	83.0	9.4		51.3	30.2		65.1	-1.7	186.4
E 106956	41.9	8.9		43.3	20.1		66.4	-1.6	100.8
E 106957	40.7	7.1		51.6	1.8		66.5	-2.4	102.5
E 106964	46.3	1.3		13.4	0.8		74.5	-1.7	134.2
E 106965	47.0	0.7		11.9	0.1		71.0	-2.1	135.3
E 106966	30.5	0.1		10.7	19.3		69.4	-2.9	157.2
E 106967	26.8	1.3					74.1	-3.9	157.7
E 106972	55.8	5.5		68.6	2.3		75.1	-2.9	134.9
E 106973	60.6	1.2		99.2	0.0		72.7	-1.5	141.9
E 106976	36.6	11.5		40.4	12.3		66.2	-1.1	130.6
E 106977	36.0	28.3		39.1	17.2		66.4	-1.1	110.3
E 106976	40.5	2.8		69.6	22.3		66.8	-3.0	127.2
E 106997	43.2	5.2		86.3	8.4		67.7	-3.1	147.5
E 106998	46.1	5.0		13.4	7.6		68.1	-3.6	133.8
E 106999	50.9	5.1		93.2	8.8		67.0	-3.3	140.1
E 107002				17.1	48.0		89.7	-13.0	279.9
E 107003	41.6	2.6		45.7	8.1		79.4	-4.9	181.4
E 107008	102.9	24.9		24.1	30.4		63.1	-2.0	210.3
E 107009							58.4	-5.5	1.0
E 107010	79.5	0.6		4.2	3.3		59.5	-3.0	230.0
E 107011	104.1	96.2		25.3	1.4		59.4	-2.6	185.6
E 107020	74.9	0.0		38.5	23.7		91.8	-4.2	145.6
E 107021	98.0	0.0		3.7	0.5		88.1	-1.6	98.0
E 107022	74.6	0.1		11.4	0.5		85.1	-1.9	101.5
E 107023	59.0	0.0		1.1	0.6		86.1	-1.3	58.9
E 107044	73.0	23.8					59.0	-4.3	119.8
E 107045	30.7	25.3		66.7	23.0		63.0	-0.4	153.3
E 107046	1.4	40.5		12.8	19.6		61.6	-2.9	251.9
E 107050				0.8	22.9		87.1	-2.7	127.9
E 107051	63.0	1.5		101.4	17.5		80.8	-1.0	112.6
E 107052							78.3	-1.7	-4.6
E 107065	56.3	0.1					84.4	-2.2	121.2
E 107066	64.9	0.0		11.1	0.5		85.8	-2.0	113.9
E 107067	52.8	0.0					84.3	-2.3	127.3

NIPIAGOCED_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEN	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 107070	0.7	0.1		0.8	0.7		87.0	-0.5	1.0
E 107071				38.6	50.7		91.8	-13.0	283.0
E 107072	21.4	0.2		11.3	43.8		95.7	-8.9	238.9
E 107079	17.4	2.2		27.9	10.6		65.5	-2.0	157.8
E 107080	21.6	13.2		35.3	21.7		65.9	-2.1	166.3
E 107081	13.6	2.8		17.8	20.6		65.8	-2.3	143.4
E 107082	10.2	13.7		13.3	19.0		65.7	-0.4	147.3
E 107083	18.9	1.3		24.2	4.9		65.2	-1.5	156.9
E 107084	9.8	20.8		11.3	19.4		65.6	-0.1	149.4
E 107085	11.5	24.8		8.7	10.5		65.5	-0.6	156.9
E 107086	21.3	1.7		20.5	7.7		65.1	-1.9	174.6
E 107097	11.7	0.0		42.3	7.6		72.2	-1.1	180.1
E 107103	54.3	0.8		89.1	44.7		67.8	-2.8	193.4
E 107104	17.3	2.8		36.4	19.5		66.4	-2.7	150.9
E 107105	37.9	14.1		62.6	46.2		66.5	-3.0	194.2
E 107106	44.7	11.3		83.4	97.4		67.2	-2.8	204.8
E 107111	46.9	21.6		28.6	41.0		64.8	-3.3	229.7
E 107112	28.0	7.2		23.1	24.4		65.0	-2.5	191.7
E 107113	14.3	28.3		6.1	4.1		65.4	-1.0	162.7
E 107114	15.6	32.9		6.4	4.8		65.4	-1.3	182.4
E 107131	95.9	13.3		10.4	3.7		10.3	-5.3	237.9
E 107132	94.8	15.0		25.5	2.4		43.4	-4.5	182.8
E 107133	1.5	2.5		1.9	2.0		13.2	-7.0	5.6
E 107134	39.4	1.4		11.4	1.6		5.2	-3.0	179.9
E 107135	24.3	0.3		6.6	0.1		89.9	-0.8	166.1
E 107136	31.1	0.2		5.5	0.2		95.7	-0.5	168.6
E 107143	98.0	0.3		74.6	3.9		63.6	-3.2	141.9
E 107144	12.3	13.0		4.8	5.3		62.7	-3.5	193.8
E 107146	14.3	11.0		11.2	6.1		63.1	-5.4	284.2
E 107147	3.2	13.0		32.0	0.0		77.1	-0.1	174.5
E 107148	5.7	12.2		26.1	0.0		77.3	-0.1	166.0
E 107159	7.2	0.0		42.2	4.1		72.4	-1.2	195.1
E 107160	6.6	0.0		41.9	24.1		73.6	-0.1	196.9
E 107243	34.3	0.2		2.3	0.5		98.0	-0.9	175.2
E 107244	34.4	0.2		1.9	0.5		92.0	-0.7	189.4
E 107245	36.6	40.5		0.2	0.5		57.0	-2.4	242.4
E 107255	8.7	11.4		21.2	0.0		78.1	-0.1	162.0
E 107256	11.4	0.0		17.2	0.0		79.6	-0.1	157.7
E 107267	1.6	1.7		1.3	22.4		78.9	-2.7	156.8
E 107268	2.3	0.9					72.9	-2.5	-2.2
E 107269	43.2	1.1		89.6	2.0		71.1	-1.6	202.4
E 107270	48.8	0.8		52.7	18.8		74.2	-1.3	148.4
E 107279	16.4	5.8		42.2	42.2		95.7	-14.2	288.9
E 107295	42.4	6.2		26.1	18.2		64.3	-3.1	234.4
E 107296	56.4	2.2		16.2	3.3		63.9	-3.9	234.7
E 107318	6.2	2.3		19.8	17.9		89.5	-3.7	178.2
E 107333	36.7	23.1		7.0	19.5		64.3	-2.7	182.5
E 107335	9.9	16.7		12.2	28.5		86.0	-4.3	234.4
E 107336	4.5	1.6		4.1	37.1		94.0	-7.3	242.6
E 107337	36.2	4.8		23.8	1.8		87.9	-10.6	309.2
E 107338	1.9	4.8		46.6	4.1		80.0	-0.8	158.4
E 107339	2.1	9.6		45.7	0.0		78.0	-0.4	190.4
E 107340	1.3	13.5		39.0	0.0		77.3	-0.2	182.4
E 107341	1.2	22.3		15.9	29.8		83.6	-1.9	169.5
E 107342	3.1	20.3		15.6	27.3		83.7	-2.2	168.8
E 107362	55.6	1.0		87.3	0.8		69.2	-1.2	189.6
E 107363	47.4	1.1		98.5	0.4		68.3	-0.8	199.1
E 107371	6.2	0.3		64.1	3.8		70.7	-6.4	246.9
E 107372	15.9	0.0		13.4	50.8		67.7	-2.3	242.1
E 107373	51.9	0.6		102.2	14.4		69.1	-3.0	156.8
E 107374	25.1	12.5		30.4	5.5		49.2	-0.2	316.7

HP11AG0GE1D_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 107375	18.0	41.1		5.8	1.7		46.0	-2.4	236.6
E 107376	26.8	11.5		9.2	4.7		86.7	-3.9	235.0
E 107380	8.0	2.9		50.9	15.8		66.9	-3.6	176.6
E 107381	12.9	2.9		32.1	23.9		66.3	-3.4	150.0
E 107382	46.5	11.8		85.4	28.3		67.5	-3.2	199.1
E 107383	16.2	35.9		15.6	10.1		66.1	0.0	214.4
E 107384	37.5	24.3		36.8	2.0		61.9	-2.4	178.7
E 107385	62.1	16.2		4.2	17.8		64.4	-3.8	244.2
E 107386	19.0	13.6		10.2	0.0		84.4	-0.7	162.1
E 107388	14.9	10.1		14.7	0.0		81.1	-0.1	157.0
E 107395	27.2	0.9		13.5	43.1		85.0	-10.9	310.6
E 107396	5.5	35.9		12.2	34.0		87.3	-6.5	256.8
E 107397	13.8	18.0		54.0	0.0		75.5	-1.3	217.2
E 107417	15.5	0.1		0.5	2.5		6.1	-8.4	152.4
E 107427	9.1	3.0		23.6	2.1		53.5	-8.4	201.8
E 107438	2.7	5.1		18.2	11.7		82.3	0.0	167.6
E 107439	78.2	1.5		57.0	120.2		97.4	-11.5	159.5
E 107463	56.0	13.6		0.2	21.4		75.0	-1.8	126.8
E 107509	106.6	13.1		123.2	55.1		48.9	-10.6	214.7
E 107510	42.6	41.4		73.7	15.0		59.7	-4.3	162.2
E 107527	8.9	0.0		54.9	22.1		81.2	-1.6	214.8
E 107529	14.1	13.1		38.4	17.7		84.1	0.0	216.7
E 107531	0.9	15.4		0.0	10.3		80.1	-3.6	158.4
E 107816	14.3	33.4		22.4	23.6		2.5	-1.9	217.5
E 108078	38.3	18.8		4.8	17.3		63.2	-0.7	225.8
E 108079	0.6	1.1					73.8	-7.0	6.7
E 108118	32.1	8.8		59.3	2.4		18.4	-8.5	237.2
E 108168	11.7	44.4		9.4	0.0		63.3	-1.3	186.7
E 108172	0.4	43.4		70.8	17.3		29.4	-1.9	100.6
E 108188	76.6	19.7					17.4	-10.8	265.8
E 108189	0.4	20.1		1.2	11.8		26.9	-1.1	100.7
E 300288	2.9	0.0						-2.0	106.8
E 300405	3.2	0.0						-1.8	98.3
E 300515	2.3	0.0						-1.9	98.8
E 300517	2.4	0.0						-2.0	98.5
E 300875	1.1	0.0						-3.5	124.6
E 301006				0.0	0.6			-3.9	117.8
E 301018				0.0	1.3			-3.6	117.0
E 301225	0.0	2.0						-1.7	98.8
E 301381								-1.7	2.7
E 301887	1.1	0.0						-3.6	131.9
E 302148				0.0	0.4			-3.3	137.2
E 302793	1.4	0.0						-1.6	104.5
E 302845	0.0	0.4						-3.6	121.8
E 302865	0.1	0.2						-3.5	119.1
E 303012	1.0	0.0						-1.7	98.4
E 303750								-2.7	0.5
E 400060	0.9	0.1						-2.2	98.3
E 400072	0.1	0.0						-2.6	98.3
E 400076	0.1	0.0						-2.4	98.7
E 400080	0.4	0.4					0.0	-9.2	285.5
E 400094	1.9	3.0					1.3	-9.5	298.9
E 400124	0.3	0.0						-2.9	98.5
E 400128	0.1	0.6						-1.4	98.5
E 400139	1.3	0.4						-4.3	158.2
E 400144								-1.2	-4.7
E 400176	0.0	0.0						-3.3	98.6
E 400198	0.0	0.0						-3.4	98.8
E 400199	0.0	0.0						-3.2	98.2
E 400202	1.2	0.3					0.0	-10.7	289.9
E 400205	1.9	0.7					0.6	-10.9	293.4

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NHPIAGOGEIO_GASTQUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
E 400208	0.0	0.1						-2.3	98.5
E 400224	0.0	0.1						-2.3	98.1
E 400225	0.0	0.0						-1.5	98.8
E 400241	0.0	0.0						-1.6	98.9
E 400246	0.0	0.0						-2.5	98.7
E 400261	1.2	1.0					0.4	-8.9	304.5
E 400274	0.0	0.1						-3.0	98.3
E 400275	0.0	0.2						-2.7	98.7
E 400276	0.0	0.2						-2.9	99.0
E 400279	2.0	0.8					0.7	-9.9	290.1
E 400280	1.3	0.6					0.2	-11.1	289.2
E 400283	0.0	0.1						-3.0	98.0
E 400284	0.0	0.0						-3.0	98.8
E 400287	0.5	0.3					0.2	-12.4	278.9
E 400299	0.9	0.6					0.7	-12.9	276.7
E 400313	0.3	0.9						-4.0	190.2
E 400323	0.2	0.1					0.2	-13.5	272.0
E 400373	0.5	0.8					0.1	-12.1	273.3
E 400378	0.0	0.0						-3.0	98.7
E 400381	0.3	0.0						-3.0	98.3
E 400382	0.3	0.0						-3.0	98.5
E 400385	0.1	0.0						-3.1	98.5
E 400397	2.8	1.7					1.7	-8.6	290.1
E 400402	0.0	0.0						-2.2	98.6
E 400412	0.1	0.0						-2.3	98.6
E 400445	0.0	0.8					0.4	-9.2	284.6
E 400447	0.4	1.0					0.6	-9.1	284.4
E 400458	0.3	0.0					0.4	-13.5	272.1
E 400468	1.2	0.6					1.1	-13.7	273.9
E 400470	0.0	0.0						-2.2	98.6
E 400475	2.9	1.9					0.6	-8.9	293.5
E 400478	0.1	0.0						-2.3	98.3
E 400499	0.1	0.5						-4.8	202.4
E 400501	0.5	0.0						-5.4	218.8
E 400510	0.2	0.0						-2.9	98.3
E 400511	0.2	0.0						-2.6	98.7
E 400512	0.2	0.0						-2.8	98.7
E 400522	0.4	0.9					0.5	-10.3	284.9
E 400523	0.2	0.3					0.5	-13.7	267.6
E 400525	0.1	0.0						-2.8	98.2
E 400526	0.2	0.0						-2.8	98.3
E 400527	0.1	0.0						-2.6	98.3
E 400528	1.2	1.0					0.7	-11.3	283.7
E 400531	0.0	0.8					1.1	-11.4	285.1
E 400533	0.5	0.2					1.0	-14.8	268.6
E 400583	0.1	0.1						-4.5	98.4
E 400589	0.1	0.0						-2.4	98.8
E 400605	0.1	0.1						-2.4	98.2
E 400609	0.1	0.4						-2.5	98.2
N 233	148.9	2.9		141.6	2.7			-1.8	173.7
N 249	174.5	8.0		5.4	13.0		0.0	-18.0	172.3
N 257	52.3	67.1		49.3	183.0		0.0	-2.5	232.0
N 1070	15.6	54.1		0.0	0.0			-17.4	0.0
N 2650	0.0	3.0						-1.9	98.1
N 2706	0.0	3.8						-1.7	98.1
N 2756	0.0	3.2						-1.8	98.0
N 2771	1.7	0.0						-2.8	112.2
N 2798	1.7	0.0						-2.1	103.0
N 2814	1.8	0.0						-2.3	105.2
N 2826	0.7	0.0						-2.0	98.7
N 2848	2.6	0.0						-2.0	98.9

MP1 AGOGEIO_GASTOUNH

SL5 design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top		stress range bottom		links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Ass	sig-c sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
N 2860	3.7	0.0					-1.9 108.3
N 2877	4.1	0.0					-1.9 100.7
N 2889	2.6	0.0					-2.0 98.5
N 2901	1.1	0.0					-2.6 112.6
N 6633				0.0	1.4		-3.2 148.5
N 16450	1.8	0.0					-4.0 142.7
N 16535	3.1	0.0					-2.7 142.0
N 16596							-2.0 0.2
N 16614							-1.6 -0.8
N 16693							-2.0 -4.9
N 16695							-2.2 0.8
N 17324				0.0	0.9		-3.9 115.2
N 17373				0.1	39.5		-3.4 100.5
N 17468	0.0	1.2					-2.0 98.4
N 18204				0.0	1.4		-3.9 114.8
N 18311	2.1	0.0					-1.9 98.3
N 18351	5.2	0.0					-1.9 98.2
N 18472	5.4	0.1					-2.0 156.4
N 18514	5.6	0.1					-1.9 134.5
N 18631	5.6	0.1					-2.0 159.6
N 18650	1.7	0.0					-2.1 134.0
N 18777	3.5	0.0					-1.8 98.5
N 18830	0.3	0.0					-2.1 98.5
N 18851	4.7	0.1					-1.9 131.0
N 18959	2.6	0.0					-2.1 134.7
N 18974	4.1	0.0					-2.0 126.0
N 19103	2.5	0.0					-1.8 98.1
N 19106	1.5	0.0					-1.9 98.3
N 19273							-2.9 -1.3
N 19292	7.7	0.0					-1.4 103.6
N 19301	1.7	0.0					-2.2 98.6
N 19360	2.4	0.0					-2.2 140.7
N 19463	1.9	0.0					-2.5 149.1
N 19496	0.6	0.0					-2.4 98.8
N 19557							-2.2 0.7
N 2429	1.2	0.1					-2.0 98.4
N 2430				0.1	0.1		-1.9 98.3
N 2431				0.0	0.0		-2.1 98.3
N 2432							-0.9 0.0
N 2433				0.5	0.0		-2.0 98.2
N 2486				0.1	0.6		-2.0 98.4
N 2488	0.1	1.1					-2.0 98.5
N 2491	0.1	1.4					-2.0 98.5
N 2493				0.1	0.3		-2.0 98.9
N 2494	0.1	0.3					-1.9 98.4
N 2495				0.1	0.6		-1.8 98.8
N 7143	0.1	0.0					-2.9 100.8
N 7156	0.0	0.0					-2.8 106.2
N 7157	0.2	0.0					-2.8 104.2
N 19660	0.4	0.1					-2.7 98.9
N 19669	0.4	0.0					-3.0 98.5
N 19674	1.4	0.0					-3.1 98.7
N 19709	0.3	0.0					-3.0 98.9
N 19756	0.0	0.1					-3.2 98.9
N 19767	0.0	0.3					-3.3 98.2
N 19770	0.0	1.1					-3.5 98.8
N 19787	0.0	0.2					-3.2 98.1
N 19788	0.0	0.4					-3.4 98.3
N 19810	0.0	0.2					-2.0 98.3
N 19812	0.0	0.4					-2.7 98.4
N 19824	0.0	0.1					-2.3 98.6

HNPIAGOGEO_GASTOUNH

SLS design

Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range bottom			links	concre	steel-1
N=NODE	Asa	Asm	Asi	Asa	Asm	Asi	Ass	sig-c	sig-max
	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]
N 19826	0.0	2.0						-2.8	98.7
N 19846	0.0	0.7						-2.8	98.3
N 19850	0.0	12.9						-2.8	75.0
N 19952								-3.4	-0.3
N 19953	0.1	0.0						-3.1	98.3
N 19954	0.3	0.0						-3.2	98.2
N 19955								-3.4	-0.3
N 19956	0.2	0.0						-3.1	98.8
N 19957	0.3	0.0						-3.2	98.6
N 19973	0.2	0.0						-2.7	99.0
N 19975	0.2	0.0						-2.2	98.4
N 19982	0.2	0.0						-1.9	98.1
N 19983	0.1	0.0						-2.7	98.2
N 19984	0.0	0.0						-2.9	114.6
N 20026	0.3	0.0						-2.0	98.6
N 20027	0.1	0.0						-2.6	98.5
N 20032	0.4	0.0						-1.9	98.2
N 20033	0.0	0.0						-2.7	98.4
N 20052	0.1	0.0						-2.7	98.7
N 20059	0.2	0.0						-2.7	98.3
N 20144	0.3	0.6						-8.4	293.0

The elements with the maximum values have been printed.

Maximum 197.6 193.1 141.6 183.0 400.0 -18.0 -500.0
steel-1: longitudinal reinf. - links are also checked to CHKS but not printed!

NHPIAGOGIIO_GASTOUNH

UL5 design acci

Design according to EN 1992-1-1:2004(EC2) Accidental design combination
Loadcases have been calculated in the Ultimate Limit State
In BEMESS no additional load safety factor is applied.

Load Cases for the Design

Loadcase 2601	MAXE-MXX QUAD Forces and moments	
Loadcase 2602	MINI-MXX QUAD Forces and moments	
Loadcase 2603	MAXE-MYY QUAD Forces and moments	
Loadcase 2604	MINI-MYY QUAD Forces and moments	
Loadcase 2605	MAXE-MXY QUAD Forces and moments	
Loadcase 2606	MINI-MXY QUAD Forces and moments	
Loadcase 2607	MAXE-VX QUAD Forces and moments	
Loadcase 2608	MINI-VX QUAD Forces and moments	
Loadcase 2609	MAXE-VY QUAD Forces and moments	
Loadcase 2610	MINI-VY QUAD Forces and moments	
Loadcase 2611	MAXE-NXX QUAD Forces and moments	
Loadcase 2612	MINI-NXX QUAD Forces and moments	
Loadcase 2613	MAXE-NYY QUAD Forces and moments	
Loadcase 2614	MINI-NYY QUAD Forces and moments	
Loadcase 2615	MAXE-NXY QUAD Forces and moments	
Loadcase 2616	MINI-NXY QUAD Forces and moments	
Loadcase 2617	MAXE-P QUAD Bedding stresses for punching design	Bedding stresses for punching design
Loadcase 2618	MINI-P QUAD Bedding stresses for punching design	Bedding stresses for punching design
Loadcase 2651	MAXE-PX NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2652	MINI-PX NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2653	MAXE-PY NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2654	MINI-PY NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2655	MAXE-PZ NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2656	MINI-PZ NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2657	MAXE-MX NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2658	MINI-MX NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2659	MAXE-MY NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2660	MINI-MY NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2661	MAXE-MZ NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2662	MINI-MZ NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2671	MAXE-UX NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2672	MINI-UX NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2673	MAXE-UY NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2674	MINI-UY NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2675	MAXE-UZ NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2676	MINI-UZ NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2677	MAXEPHX NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2678	MINEPHX NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2679	MAXEPHY NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2680	MINEPHY NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2681	MAXEPHZ NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2682	MINEPHZ NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2683	MAXEPHB NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2684	MINEPHB NODE Displacement reaction punching design	Nodal reaction punching design
Loadcase 2691	MAXE-MB NODE Support reaction punching design	Nodal reaction punching design
Loadcase 2692	MINI-MB NODE Support reaction punching design	Nodal reaction punching design

Material (EN 1992-1-1:2004(EC2))

Mat	f _{ck} [MPa]	f _{cr} [MPa]	f _{yk} [MPa]	f _{tk} [MPa]	f _{ctm} [MPa]	N	min type
1	25.0	25.0			2.565	7.1	0.20 mainly static
2			500.0	567.5			
3	30.0	30.0			2.896	6.8	0.20 mainly static
4	30.0	30.0			2.896	6.8	0.20 mainly static
B1	25.0	25.0	500.0	567.5	2.565	7.1	0.20 mainly static

Minimum reinforcement: 0.00 p.c. of stat. req. section

Reduction of FC in case of transvers tension - 20.0 [o/o]

HNPIACOGEO_GASTOUNH

ULS design acci

Material-safety-factors:

Mat	concr	SC1	SC2	steel	SS1	SS2
1		1.20	1.20			
2				1.00	1.00	
3	1.20	1.20				
4	1.20	1.20				
B1	1.20	1.20		1.00	1.00	

At direct supports from the face of the support up to $1.0 \cdot d$ the shear force is reduced.

The maximum shear capacity is checked at the face of the support without reduction.

For punching design, the longitudinal reinforcement will be increased up to 1.50%

to avoid shear reinforcement [input PUNC...RO_V].

Outside the punching area, the normal slab shear design may increase the,

longitudinal reinforcement up to 0.20% [input CTRL...RO_V].

Reinforcementparameter two layer reinforcement

Selection		bar-distance		bar-diameter		crackwidth		steelstress		min.reinf.	
grp	elem	d1-u	d2-u	ds-u	2.lay	wk-u	2.lay	sigsu	2.lay	asu	2.lay
No.	No.	d1-l	d2-l	ds-l	ds-2-l	wk-l	wk-2-l	sigsl	sigsl	asl	asl2
		[cm]	[cm]	[mm]	[mm]	[mm]	[mm]	[MPa]	[MPa]	[cm2/m]	[cm2/m]
default		4.6	5.8	12	12	0.30	0.30	-	-	-	-
		4.6	5.8	12	12	0.30	0.30	-	-	-	-
1		4.0	5.0	10	10	-	-	-	-	-	-
		4.0	5.0	10	10	-	-	-	-	-	-
2		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
3		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-
4		3.0	4.0	10	10	-	-	-	-	-	-
		3.0	4.0	10	10	-	-	-	-	-	-

The reinforcement directions relate to the local coordinate system of the elements and have to be plotted graphically.

With the input of a steel stress sigsu... the "crack design according tables"

uses this given stress sigsu for the corresponding layer. With this input,

the check can be done for bar distances instead of bar diameters.

Reinforcement is saved in the data base file

Number of stored reinforcement-distribution: 11

NHPIAGOGEOI_GASTOLNH

ULS design beams

Selected Beam Elements

FROM	TO	INC	X-VALUE	NC	MEMBER	CS0	CS1	CS2	CS3	CS4	CS5
all elements											

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
Structure and Tab.7.1N: AN (Buildings)
Snow load zone : 1

Materials

No. 1 C 25/30 (EN 1992)
No. 2 S 500 C (EN 1992)
No. 3 C 30/37 (EN 1992)
No. 4 C 30/37 (EN 1992) - Slab
No. 6 S 275 (EN 10025-2)

All moments will be smoothed out between face and support
Reinforcement will be accounted for sectional values as defined in AQUA
Reinforcements saved as design case LCR 1

Considered Load Cases

2121	2122	2123	2124	2125	2126
2127	2128	2129	2130	2131	2132
2133	2134	2135	2136		

Shear Design

=====

Design for shear Eurocode EC2 (2004)

Minimum shear factor or tan of inclination of compressive struts 0.40 / 2.50

MNO	f-cd [MPa]	tau-rd [MPa]	sigIIQ [MPa]	sigIIT [MPa]	sigIIQ+ [MPa]	f _{yd} [MPa]
1	16.67	0.12	9.00	9.00	9.00	
2						434.78
3	20.00	0.12	10.56	10.56	10.56	
4	20.00	0.12	10.56	10.56	10.56	

Tolerance for exceeding maximum shear or principal compression stress 0.0200

NIPIAGGEIO_GASTOUNH

SLS design beams

Selected Beam Elements

FROM	TO	INC	X-VALUE	NC	MEMBER	CS0	CS1	CS2	CS3	CS4	CS5
all elements											

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
Structure and Tab.7.1N: AN (Buildings)

Snow load zone : 1

Materials

No. 1 C 25/30 (EN 1992)
No. 2 S 500 C (EN 1992)
No. 3 C 30/37 (EN 1992)
No. 4 C 30/37 (EN 1992) - Slab
No. 6 S 275 (EN 10025-2)

All moments will be smoothed out between face and support
Reinforcement will be accounted for sectional values as defined in AQUA
Reinforcements superposed with existing design case LCR 2
Reinforcements superposed with existing design case LCR 1

Considered Load Cases

1121	1122	1123	1124	1125	1126
1127	1128	1129	1130	1131	1132
1133	1134	1135	1136		

Parameters for non linear stress / Crackwidth EC2

No	sig-comp		sig-tens		design width		bond	load	h-max
	[MPa]	[o/o]	[MPa]	[o/o]	[mm]	[mm]			
1	0.00	0.00	0.00	0.00					
2	-80.25	18.61	373.10	86.52	0.300	0.300	0.80	0.50	0.800
3	-21.43	119.0	0.00	100.0					
4	0.00	0.00	0.00	0.00					
6	0.00	0.00	0.00	0.00					

Check for crack width did not pass

HMPIAGOGEO_GASTOUNH

ULS design beams, accidental loadcases

Selected Beam Elements

FROM	TO	INC	X-VALUE	NC	MEMBER	CS0	CS1	CS2	CS3	CS4	CS5
all elements											

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
 Structure and Tab.7.1N: AN (Buildings)
 Snow load zone : 1

Materials

No. 1 C 25/30 (EN 1992)
 No. 2 S 500 C (EN 1992)
 No. 3 C 30/37 (EN 1992)
 No. 4 C 30/37 (EN 1992) - Slab
 No. 6 S 275 (EN 10025-2)

All moments will be smoothed out between face and support
 Reinforcement will be accounted for sectional values as defined in AQUA
 Reinforcements saved as design case LCR 11

Considered Load Cases

2621	2622	2623	2624	2625	2626
2627	2628	2629	2630	2631	2632
2633	2634	2635	2636		

Shear Design

=====

Design for shear Eurocode EC2 (2004)

Minimum shear factor or tan of inclination of compressive struts 0.40 / 2.50

MNo	f _{cd} [MPa]	tau _{rd} [MPa]	sig _{IIQ} [MPa]	sig _{IIIT} [MPa]	sig _{IIQ+} [MPa]	f _{yd} [MPa]
1	20.83	0.15	11.25	11.25	11.25	
2						500.00
3	25.00	0.15	13.20	13.20	13.20	
4	25.00	0.15	13.20	13.20	13.20	

Tolerance for exceeding maximum shear or principal compression stress 0.0200

NHPIAGOGEIO_GASTOUNH

Combine Design Results QUAD

Maximum of reinforcement-distributions

The reinforcement maximum was build out of the numbers of reinforcement-distributions:

1, 2, 11
and stored as new reinforcement-distribution 20 .

NHPIAGGEIO_GASTOUNH

Combine Design Results BEAM

Default design code is EuroNorm EN 1992 (2004) Concrete Structures (Europe) V 25.0
Structure and Tab. 7.1N: AN (Buildings)
Snow load zone : 1

Materials

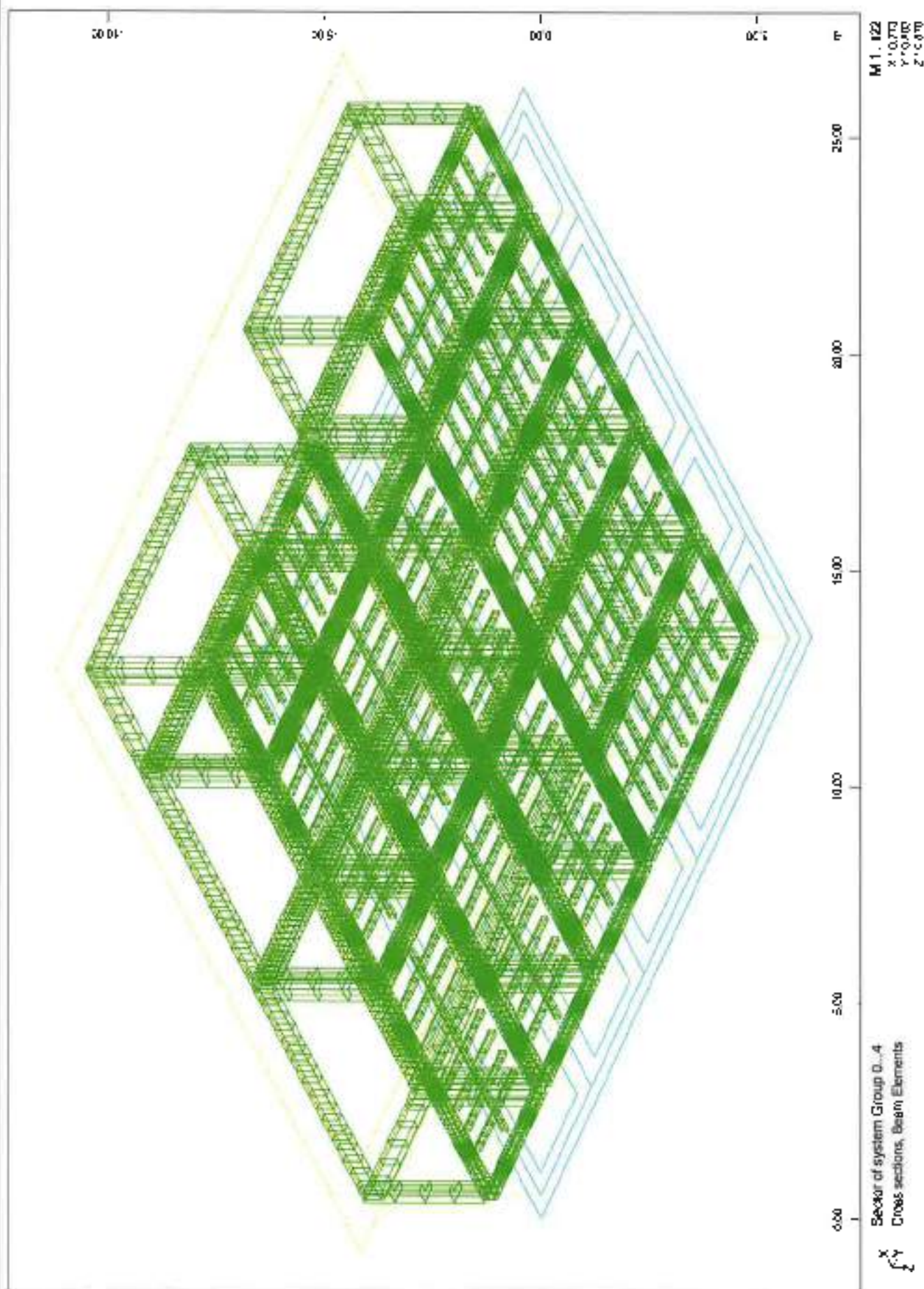
- No. 1 C 25/30 (EN 1992)
- No. 2 S 500 C (EN 1992)
- No. 3 C 30/37 (EN 1992)
- No. 4 C 30/37 (EN 1992) - Slab
- No. 6 S 275 (EN 10025-2)

All moments will be smoothed out between face and support
Reinforcement will be accounted for sectional values as defined in AQUA
Reinforcements saved as design case LCR 20
Reinforcements superposed with existing design case LCR 1 2 11

Considered Load Cases

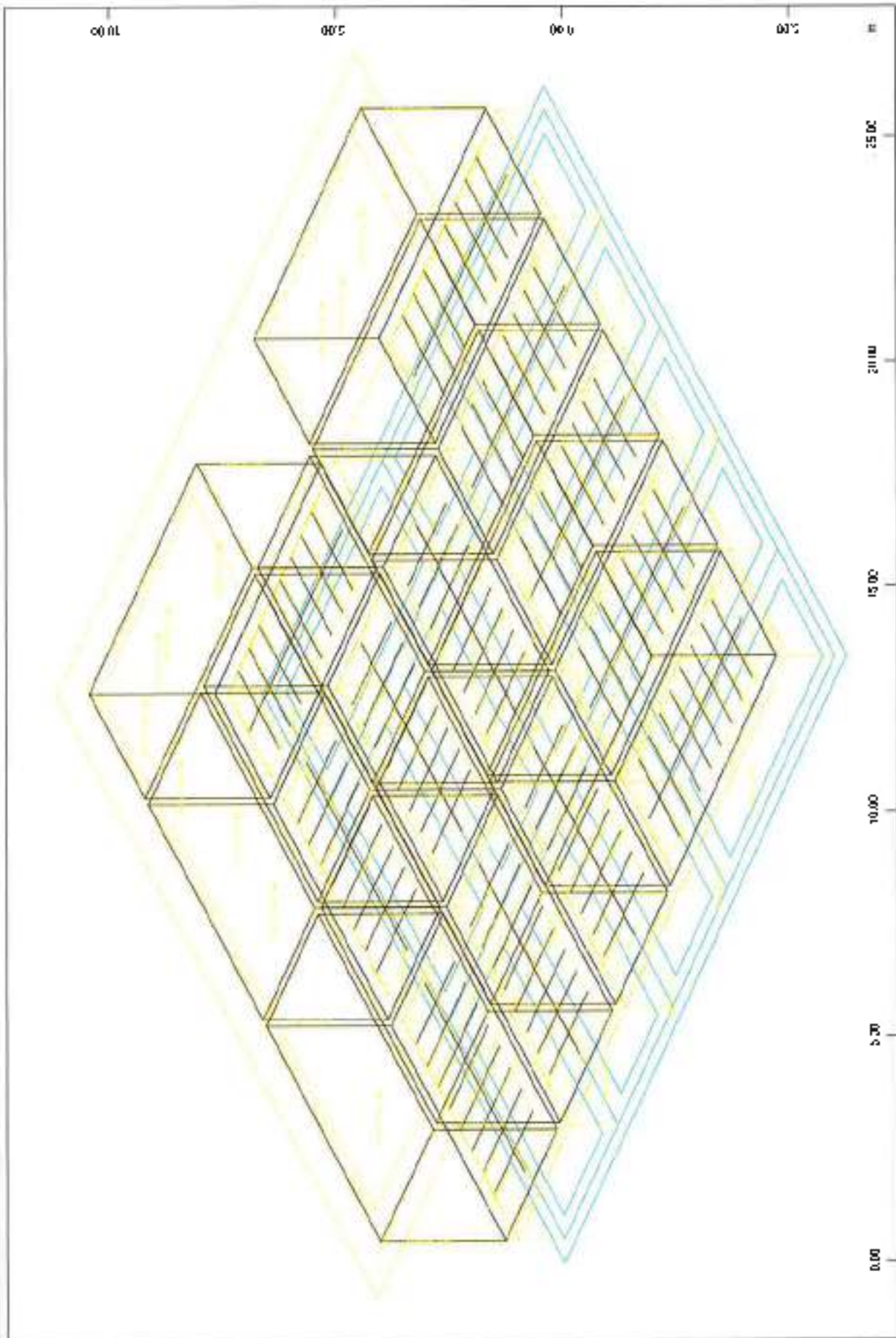
1	2	3	4	5	6
7	1121	1122	1123	1124	1125
1126	1127	1128	1129	1130	1131
1132	1133	1134	1135	1136	2121
2122	2123	2124	2125	2126	2127
2128	2129	2130	2131	2132	2133
2134	2135	2136	2621	2622	2623
2624	2625	2626	2627	2628	2629
2630	2631	2632	2633	2634	2635
2636	7105	7106	7107	7108	7109
7110	7205	7206	7207	7208	7209
7210	7305	7306	7307	7308	7309
7310	7405	7406	7407	7408	7409
7410	7505	7506	7507	7508	7509
7510	7605	7606	7607	7608	7609
7610	7705	7706	7707	7708	7709
7710	7805	7806	7807	7808	7809
7810	7905	7906	7907	7908	7909
7910	8105	8106	8107	8108	8109
8110	8205	8206	8207	8208	8209
8210	8305	8306	8307	8308	8309
8310	8405	8406	8407	8408	8409
8410	8505	8506	8507	8508	8509
8510	8605	8606	8607	8608	8609
8610	8705	8706	8707	8708	8709
8710	8805	8806	8807	8808	8809
8810	8905	8906	8907	8908	8909
8910	9001	9002	9003	9004	

NHPIAGOGEIO_GASTDINH
 Interactive Graphic



NHPIAGGEID_GASTOUNH
 Interactive Graphic

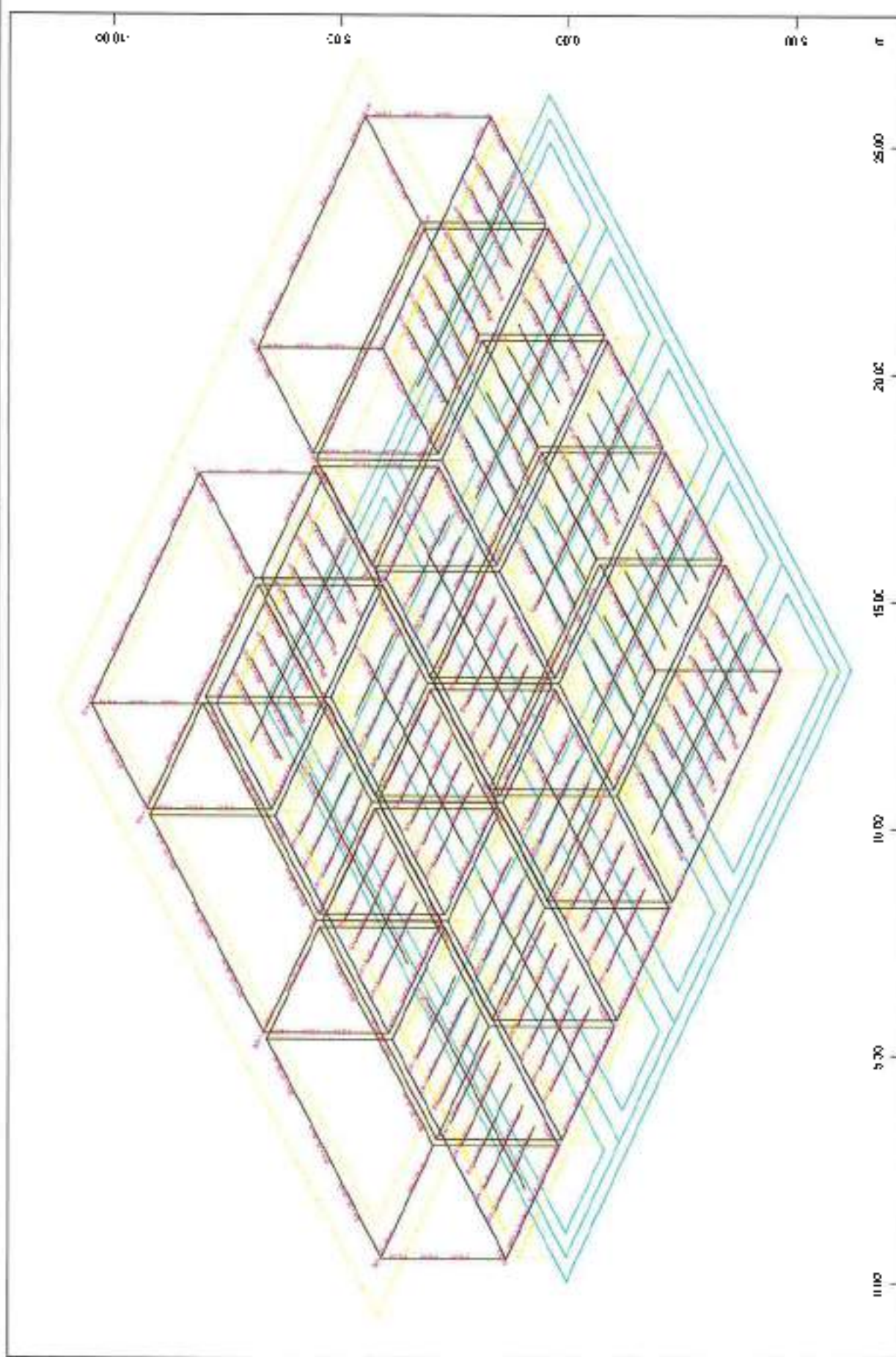
ED:ISTIK AG - www.sofistik.de



M1 122
 X=0.00
 Y=0.00
 Z=0.00

Sector of System Group 0 4
 Material assignments: Quadrilateral Elements, Beam Elements

NHPIACOGEIO_GASTOUNH
 Interactive Graphic



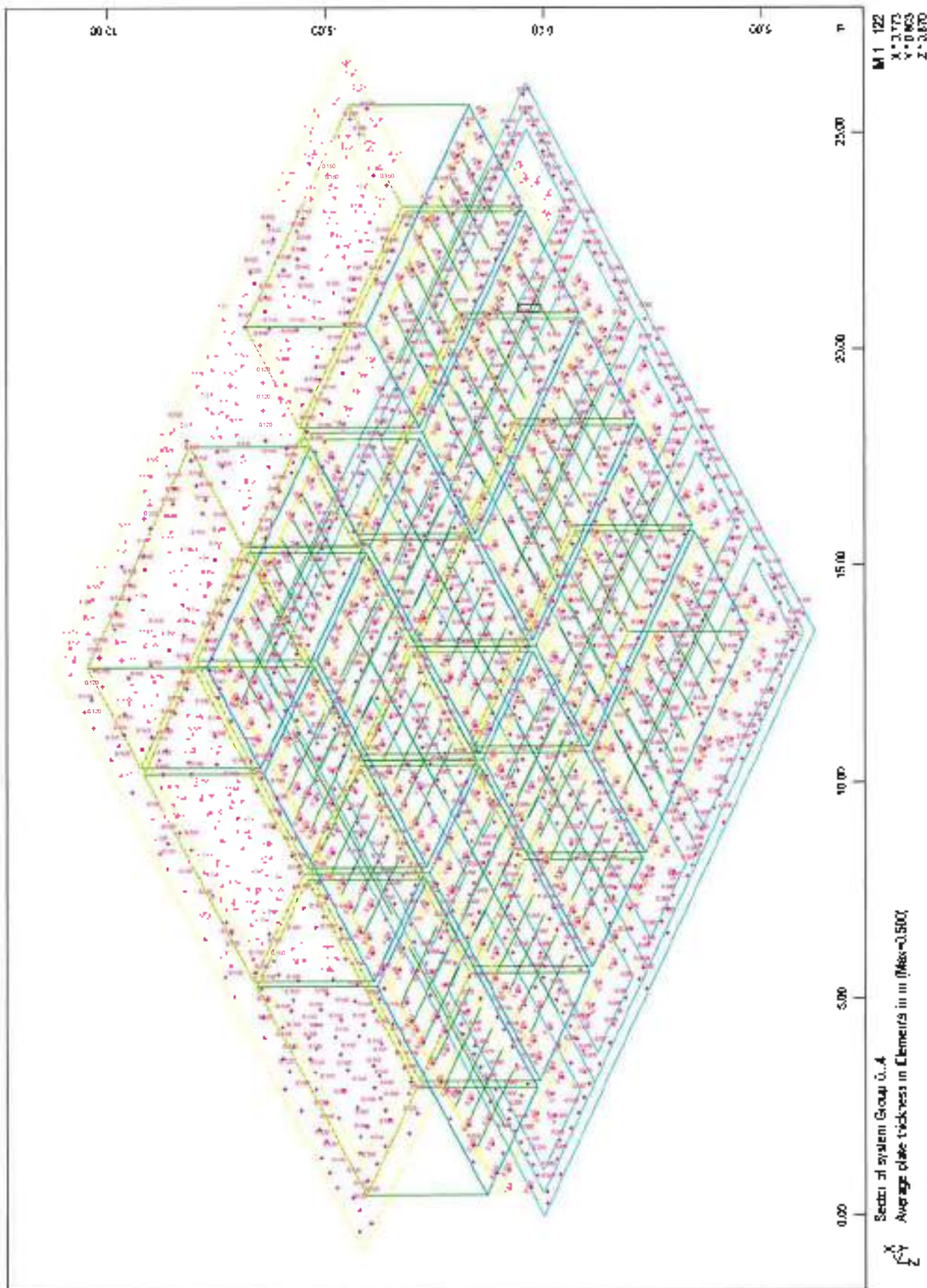
M1:122
 X:0.773
 Y:0.830
 Z:0.870

Sector of system Group 0. 4
 Beam Elements, sectional Designations

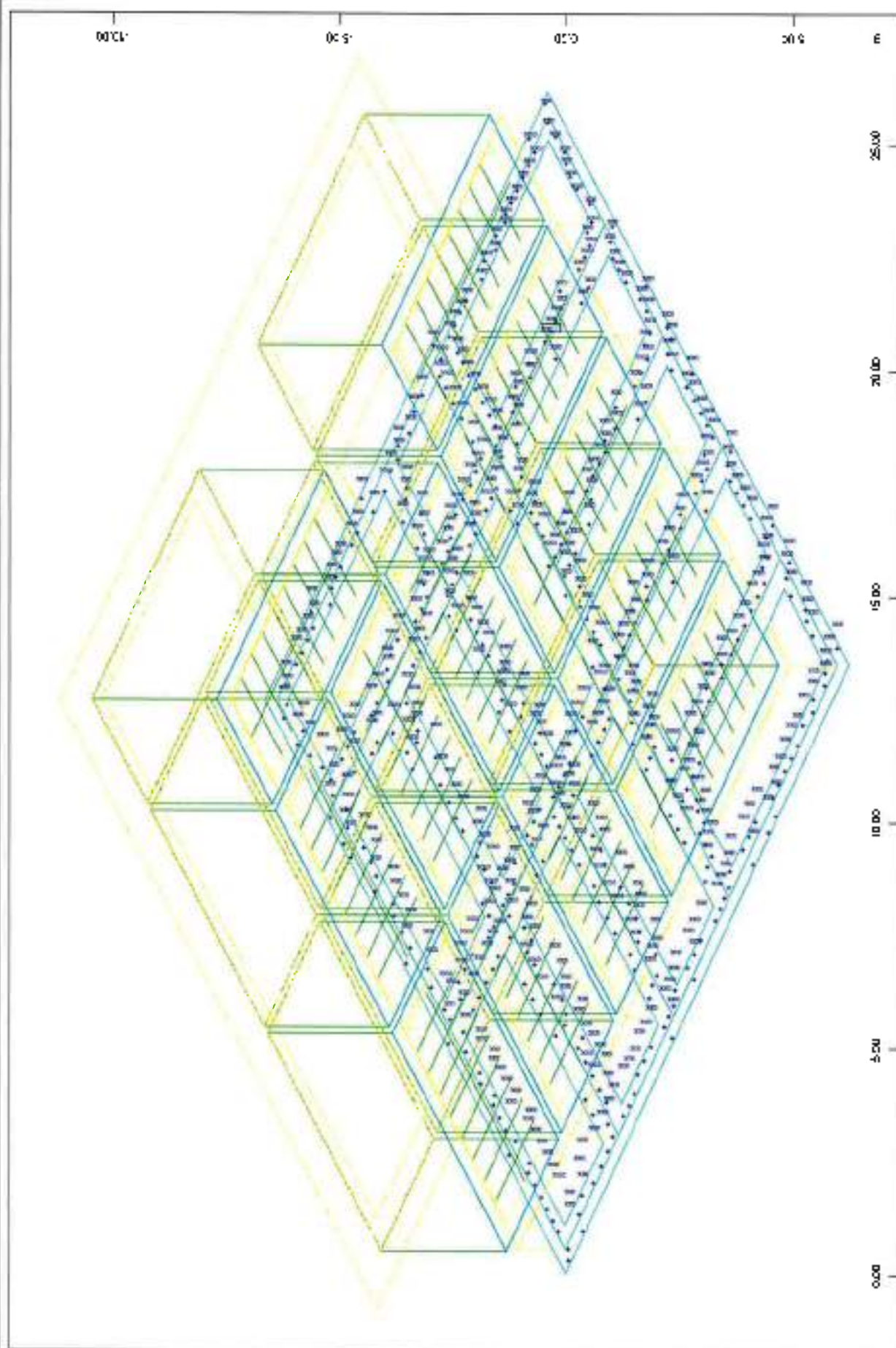
X
 Y
 Z

NHP\AGQGE10_CASTOUNH
 Interactive Graphic

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NHPIAGOCENO_GASTOUNH
 Interactive Graphic



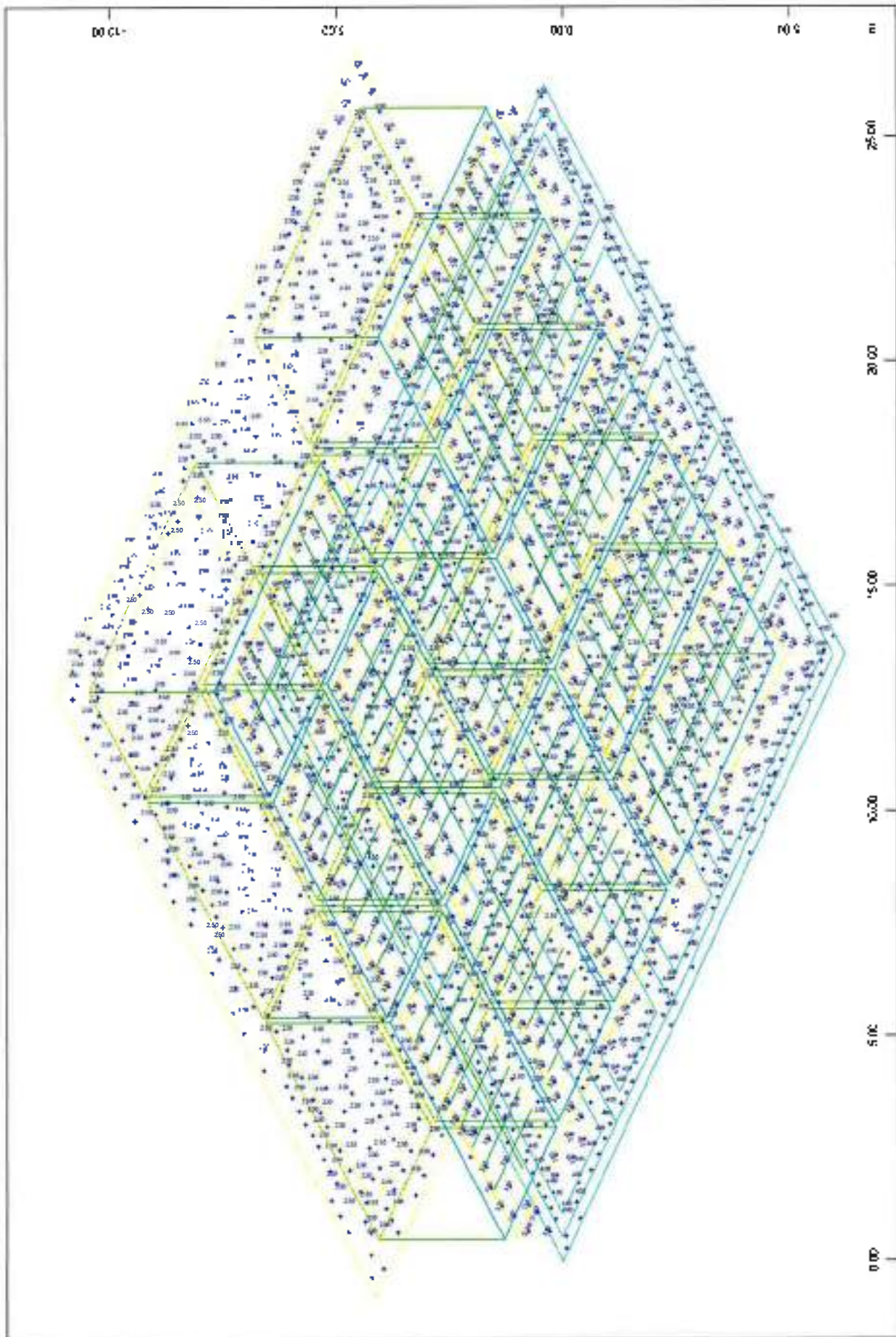
M 1:122
 X: 0.729
 Y: 0.800
 Z: 0.870

Sector of system Group 0...4
 Elastic bending in Elements in kN/m² (Max=2020.1)



NHPIAGOSEIO_GASTOUNH
 Interactive Graphic

525617 K A/E 1000 1015 K 36

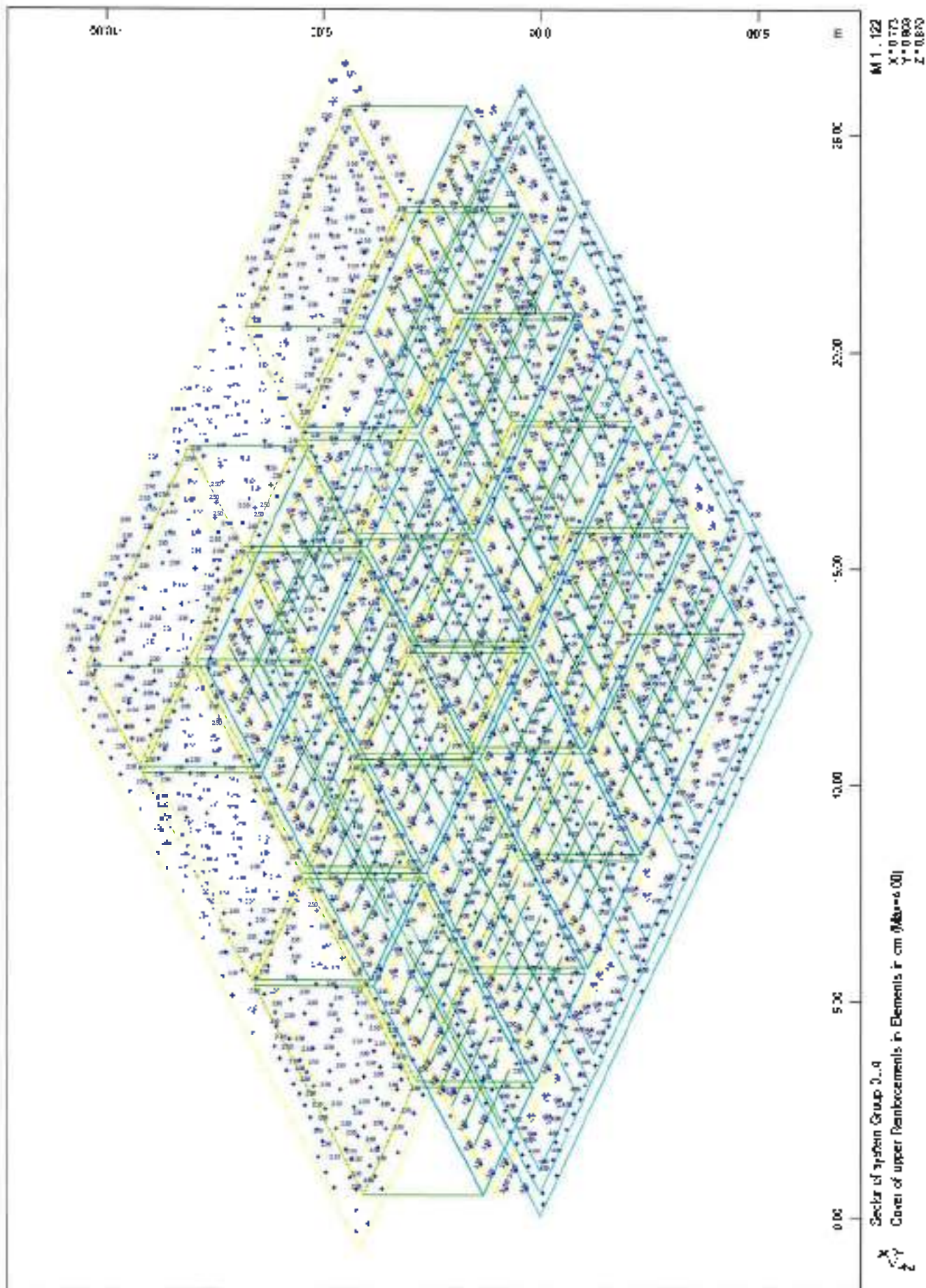


M1 *22
 X=5.773
 Y=5.503
 Z=3.870

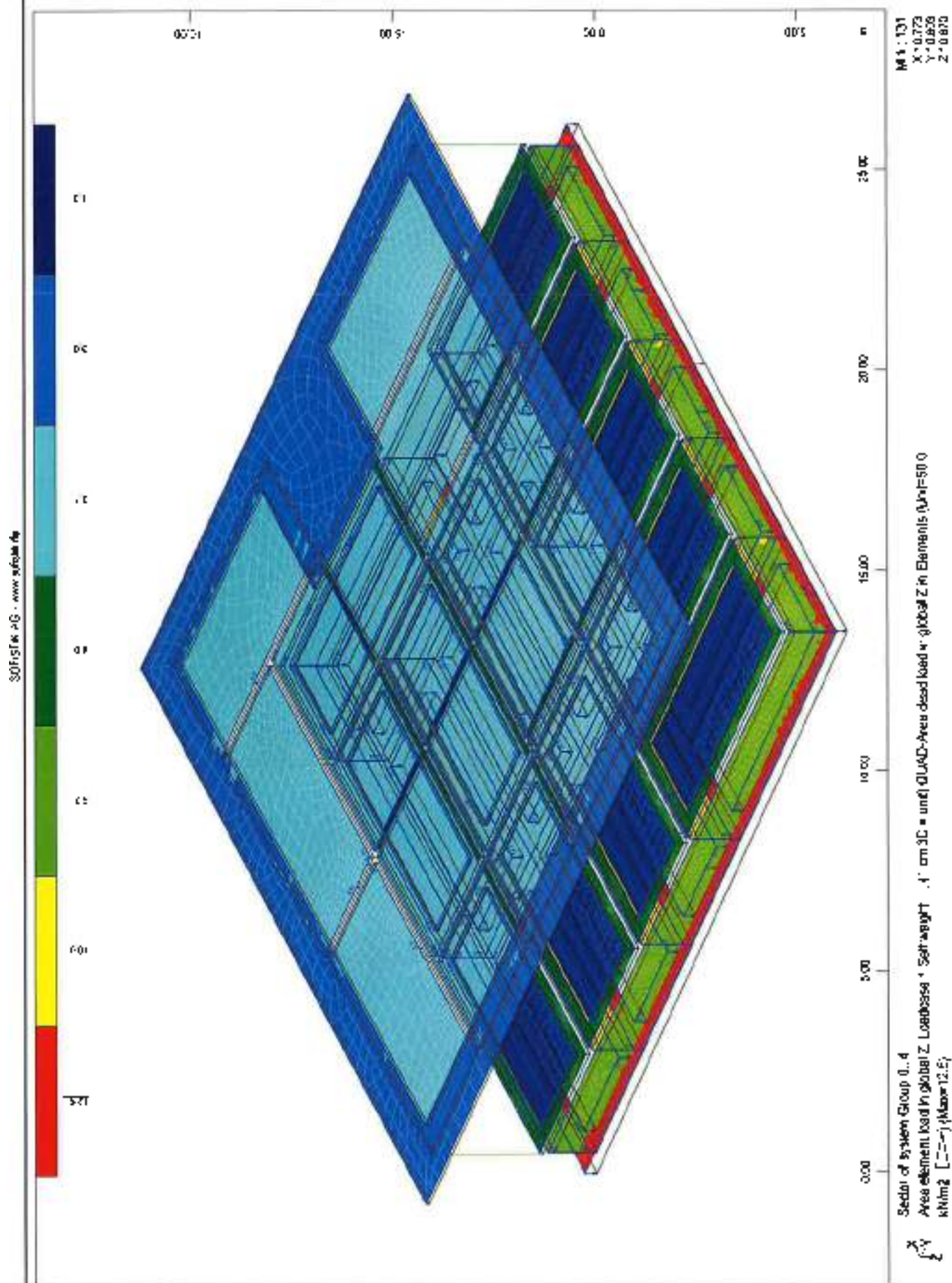
Sector of system Group 0 4
 Cover of lower Reinforcement in Elements in cm (Max=4.00)

X
 Y
 Z

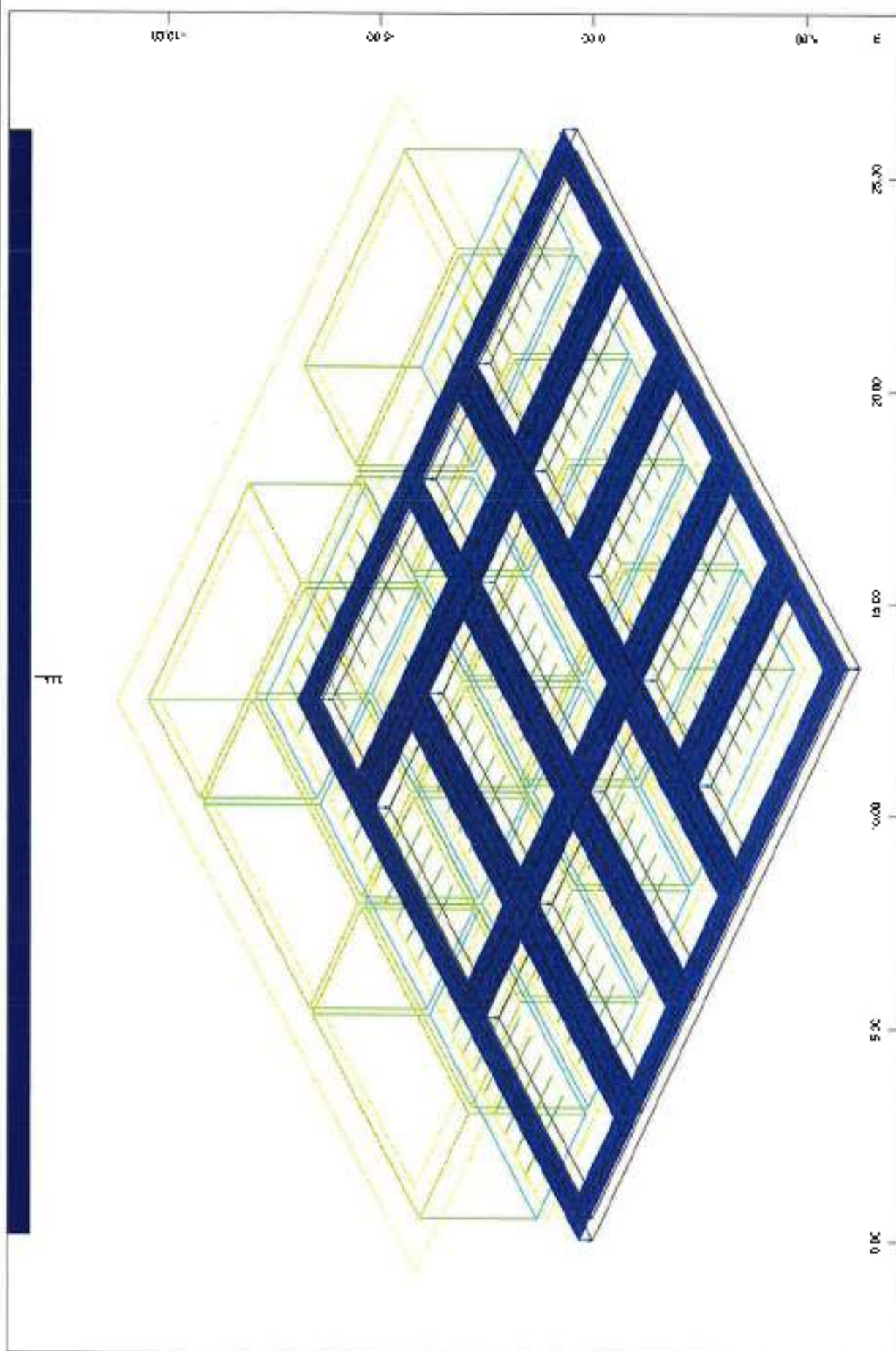
NHPIAGOGEIO_GASTOUNH
 Interactive Graphic



NHPIAGGEID_GASTOUNH
 Interactive Graphic



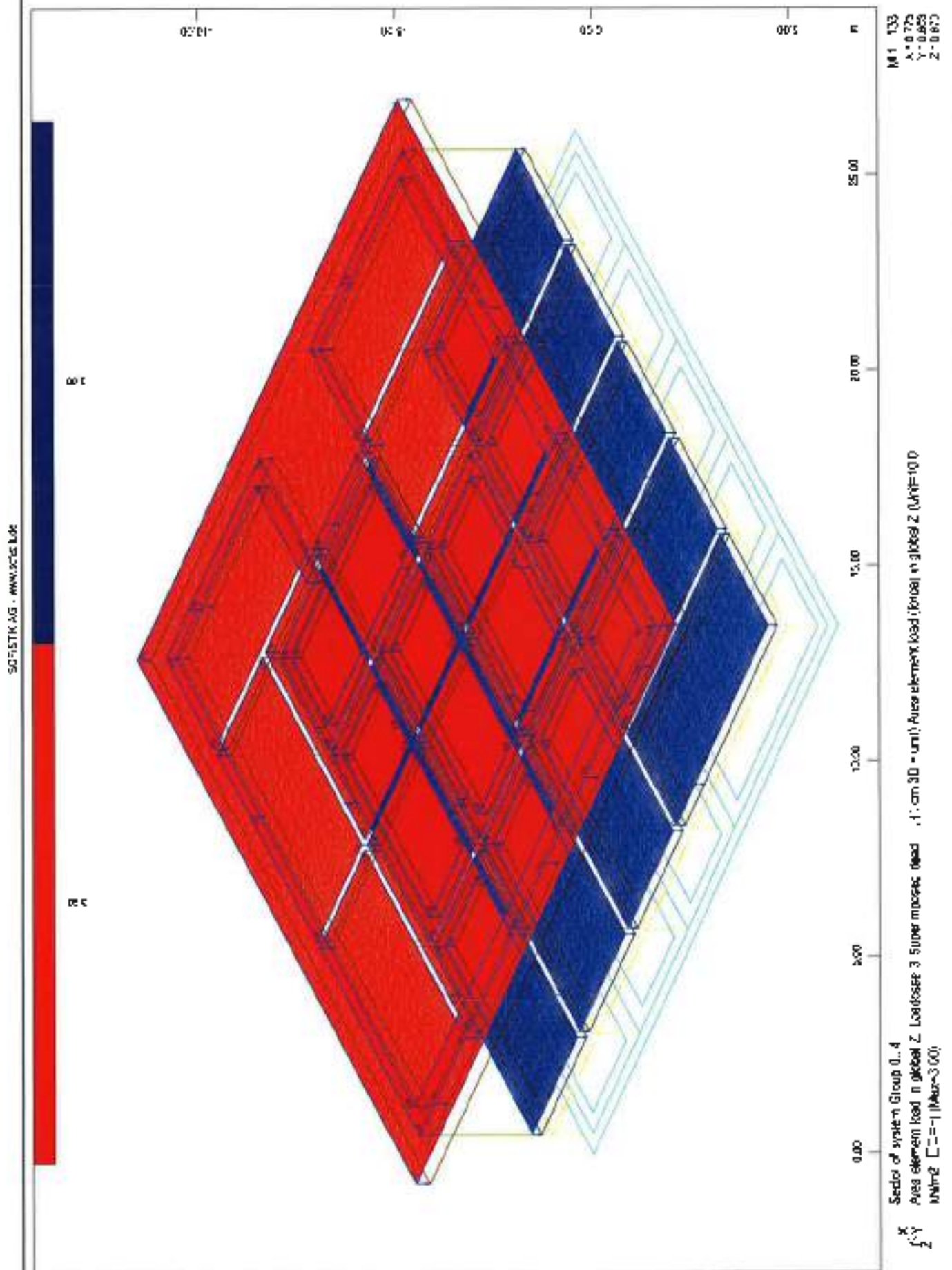
NHP\AGOGEIO_GASTOUNH
 Interactive Graphic



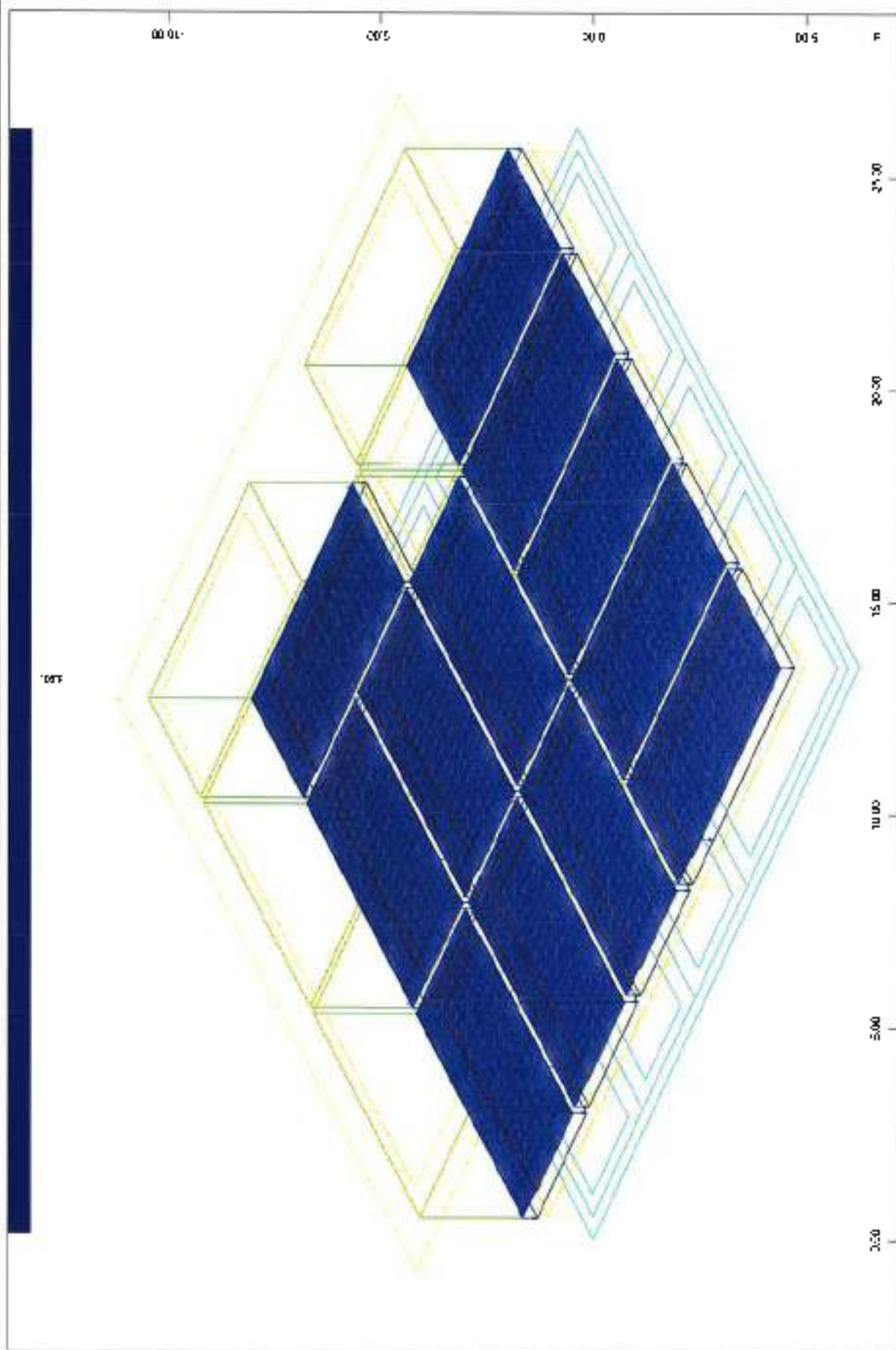
M1.130
 K11.170
 Y1.180
 Z1.190

Sector of system Group 0.4
 Area element load in global Z Loadcase 2 Soil pressure
 kN/m² 4 Max=14.0
 (Z dir 3D = 170) Area element load 'force' in global Z (Unit=50.0)

NHPIAGOCED_GASTOUNH
 Interactive Graphic



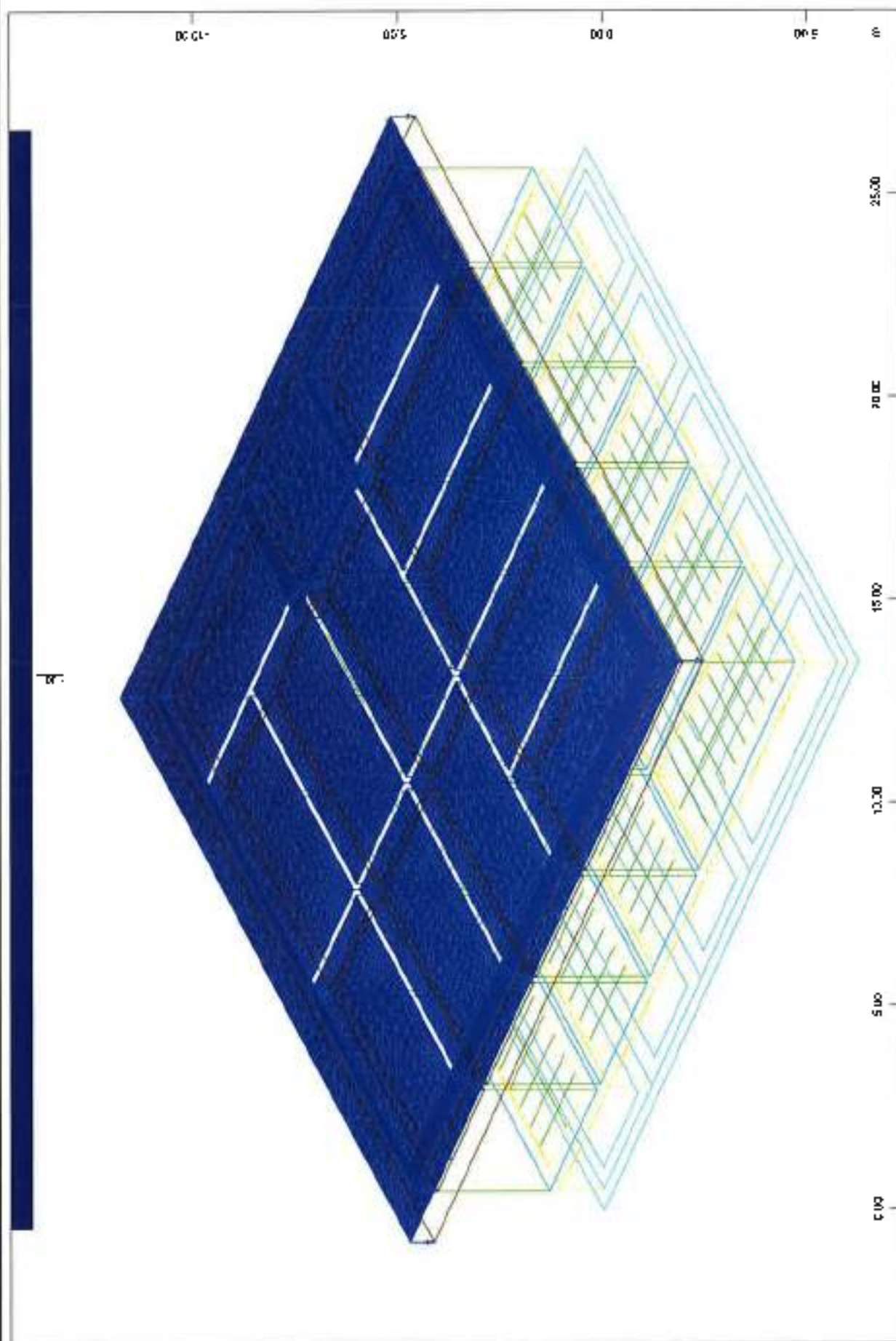
NHP1AG0G10_GASTOUNH
 Interactive Graphic



M1 130
 X 2.77
 Y 0.00
 Z 0.00

Sector of system Group 0...4
 Area element load in global Z, Loadcase 4 Live load (1 cm 30 = unit) Area element load (force) in global Z (Unit=10.0
 kN/m² : : : : (Max=3.30)

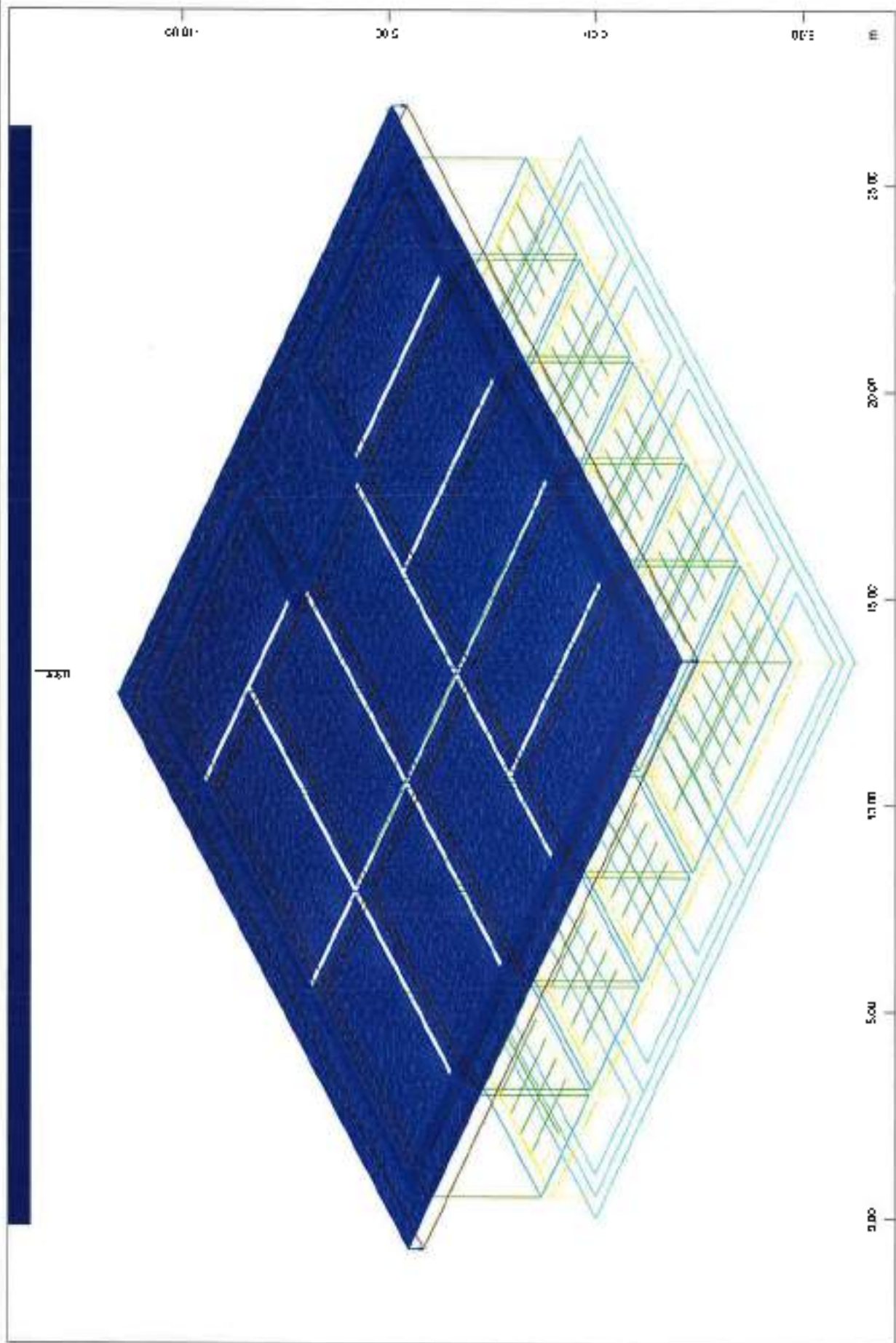
NHPIAGOGEIO_GASTOUNH
 Interactive Graphic



M 1.135
 X 0.073
 Y 0.000
 Z 0.000

Surface of system Group 0..4
 Area element load in global Z, Loadcase 5 Result type load
 (1 cm, 3D = unit) Area element load (force) in global Z, Unit=2.00
 MinMax [-2.21 (Max=1.00)]

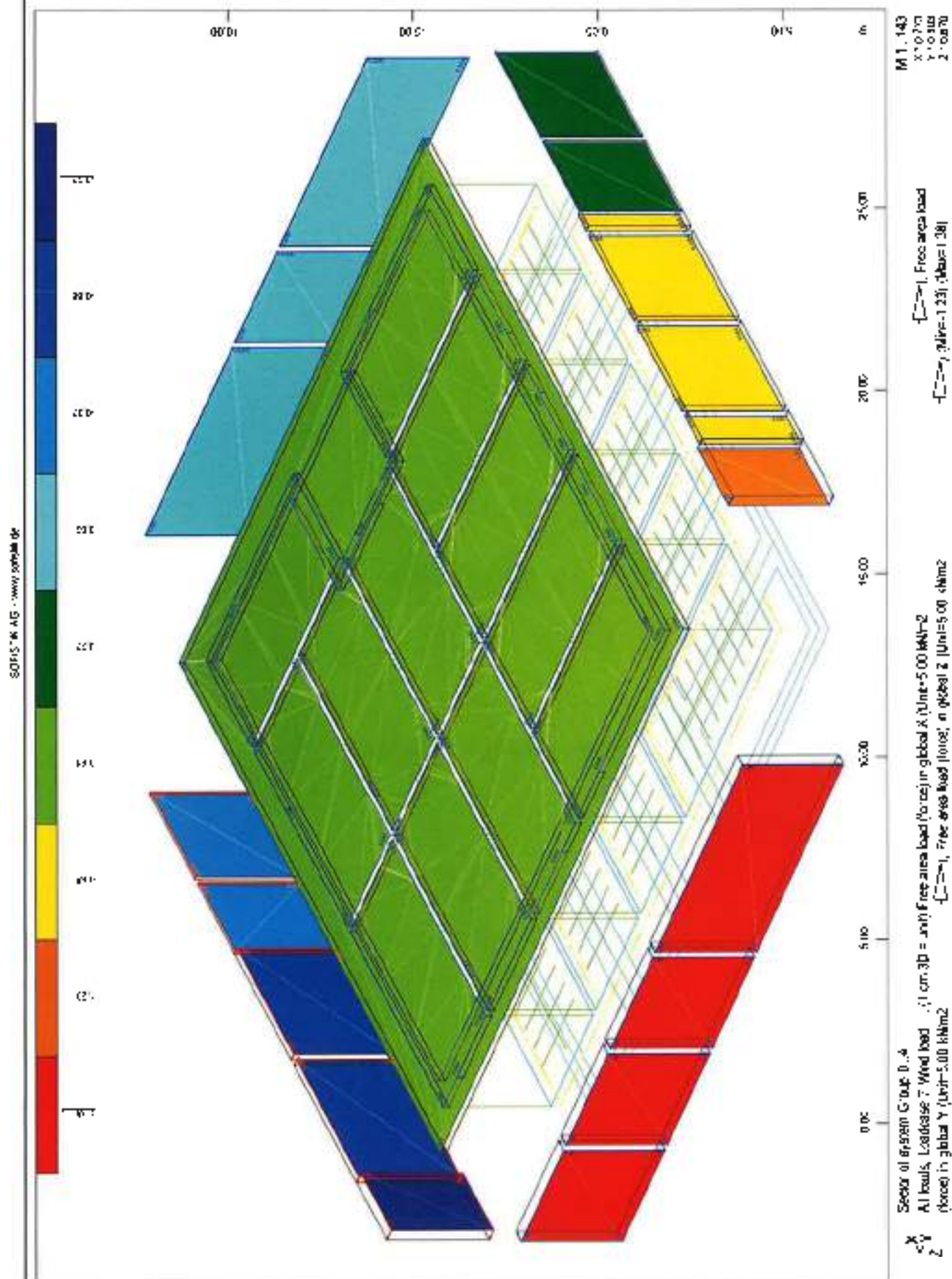
NIPIAGDGEID_GASTOUNH
 Interactive Graphic

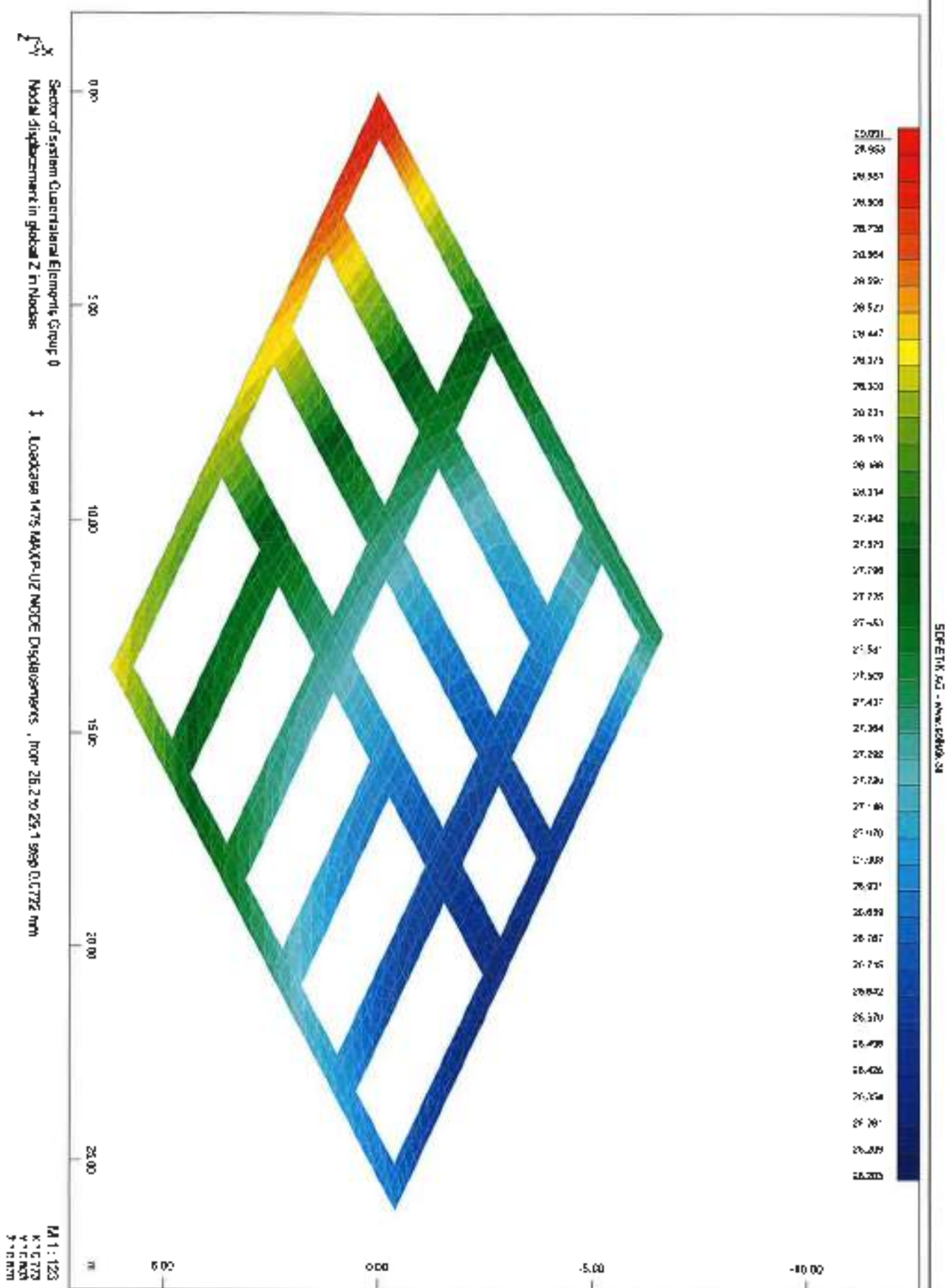


M 1 138
 X=0.00
 Y=0.00
 Z=0.00

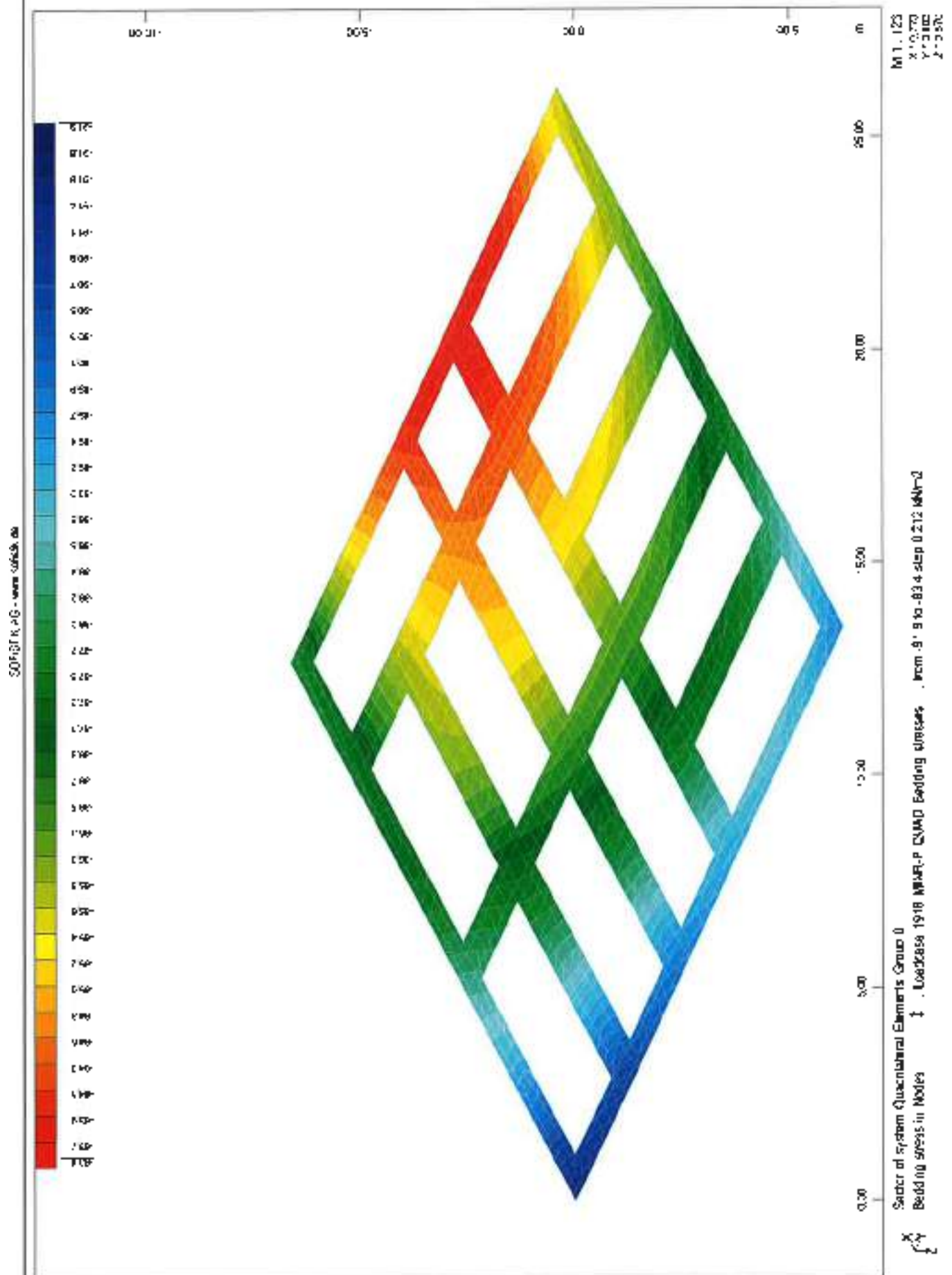
Sector of system Group 0. 4
 Area element load in global Z, Loadcase 8 Snow load .11 cm 3D - ur11 Area element load (force) in global Z (Unit=1.00
 kN/m2 - (- - - -) (Mag=0.320)

NHPIAGGEIO GASTOUNH
Interactive Graphic

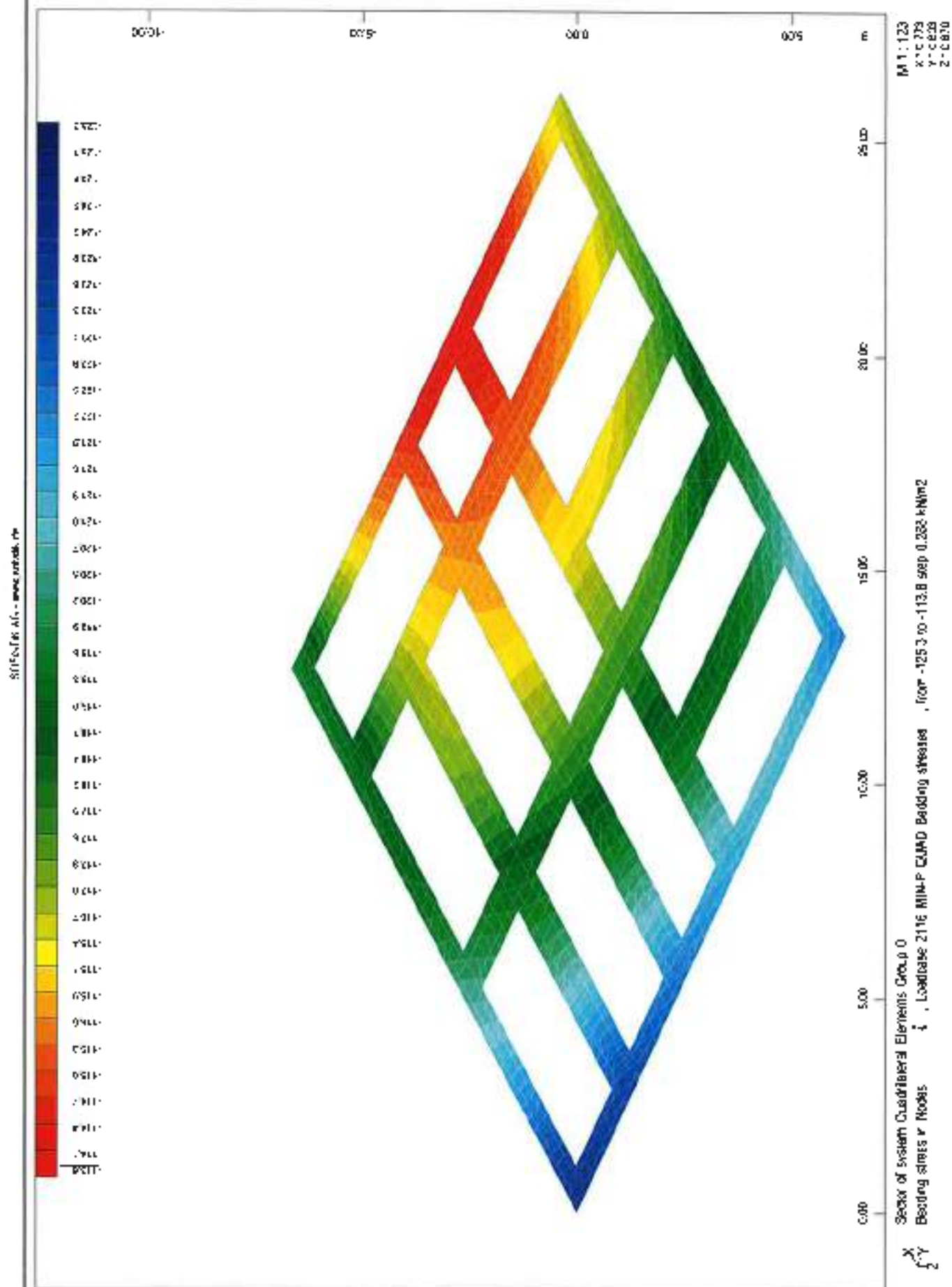




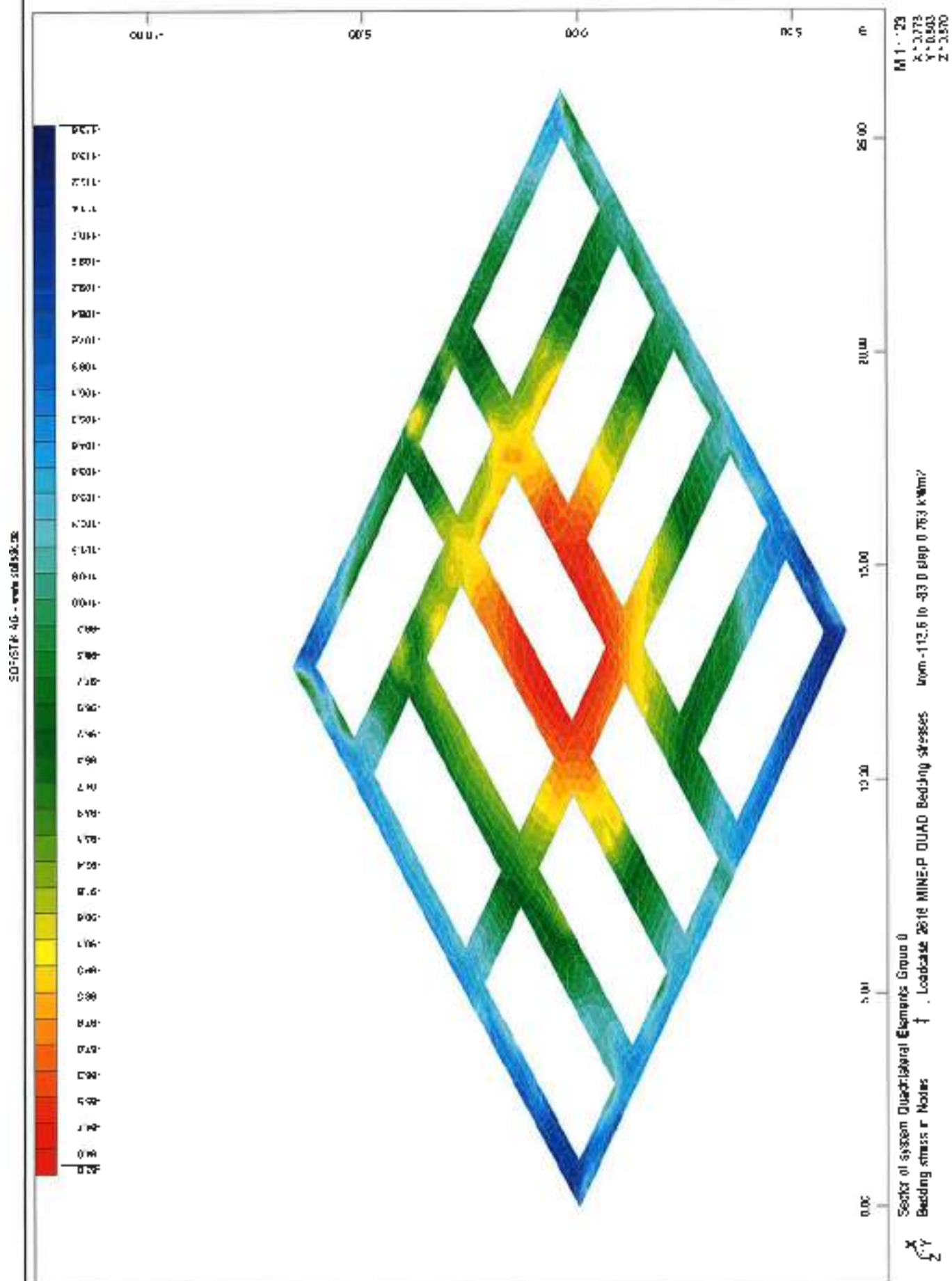
NHPIAGOGEIO_GASTOUNH
 Interactive Graphic



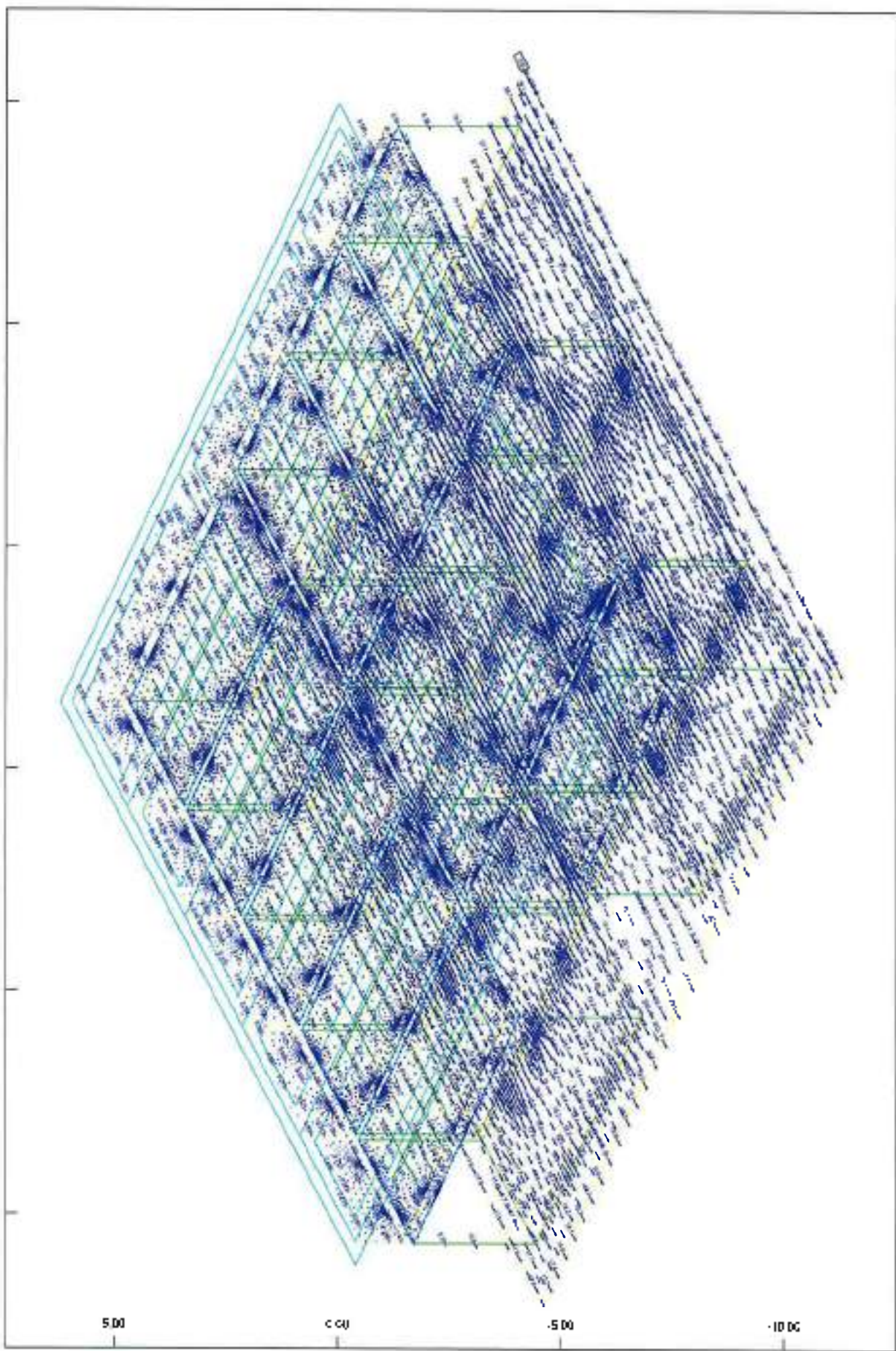
MMPIAGGEIO_GASTOUNH
 Interactive Graphic



NHPIAGOGEOI_Q45TQUNH
 Interactive Graphic



NHP1ADGE10_GASTOUNH
 Interactive Graphic



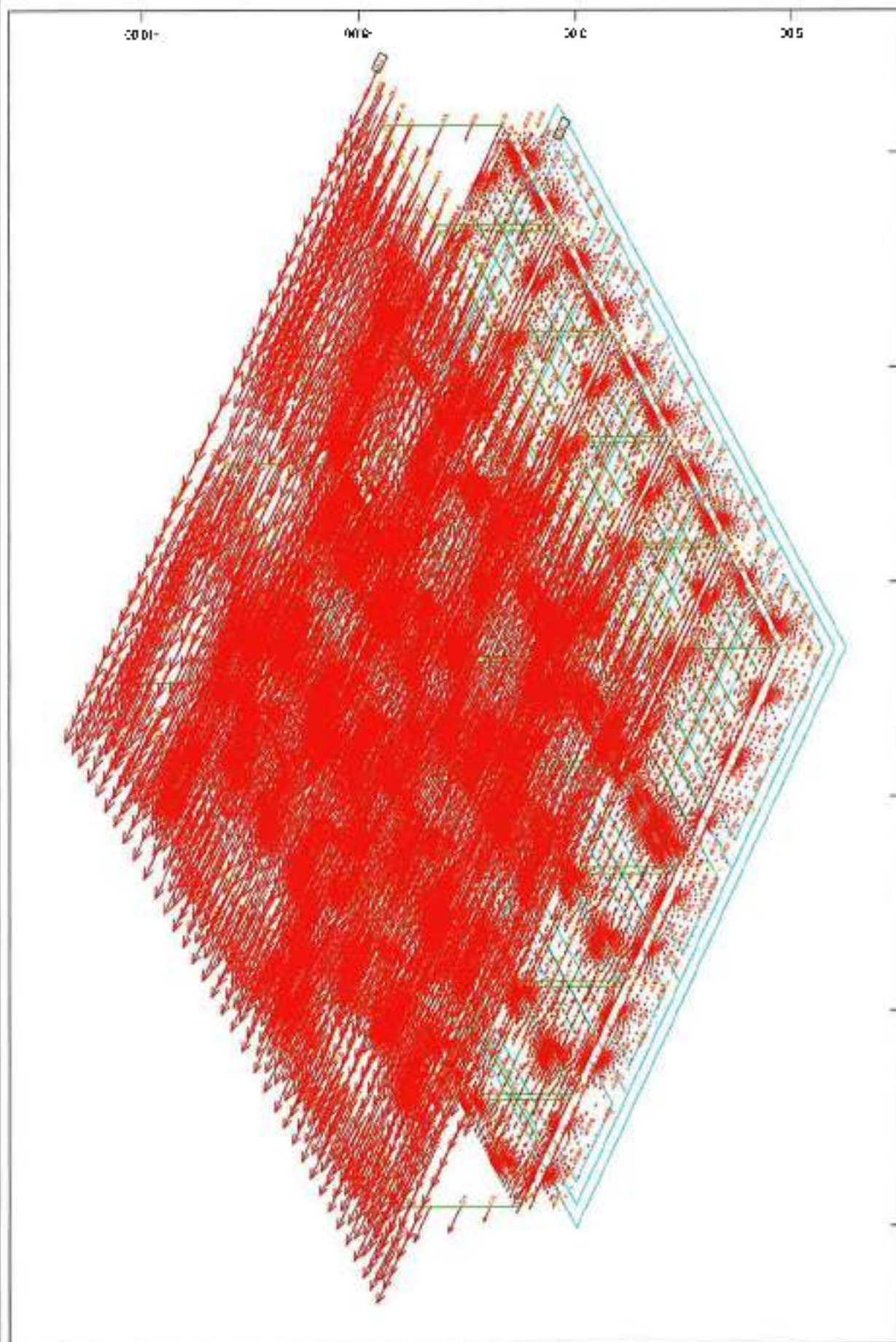
Sector of system Group 0.4
 Model displacement rigid body X Loadcase 26.1 MACH-E-11X NCM-113 splacarrange with Isy30r 1 SO. 1 Gm.3D = 1000.0 mm

Max=29.3

6/1 124
 X = 0.73
 Y = 0.823
 Z = 0.670

MP1AGDGE1Q_GASTOUNH
 Interactive Graphic

8/27/96 11:4 AM - View: Load 04



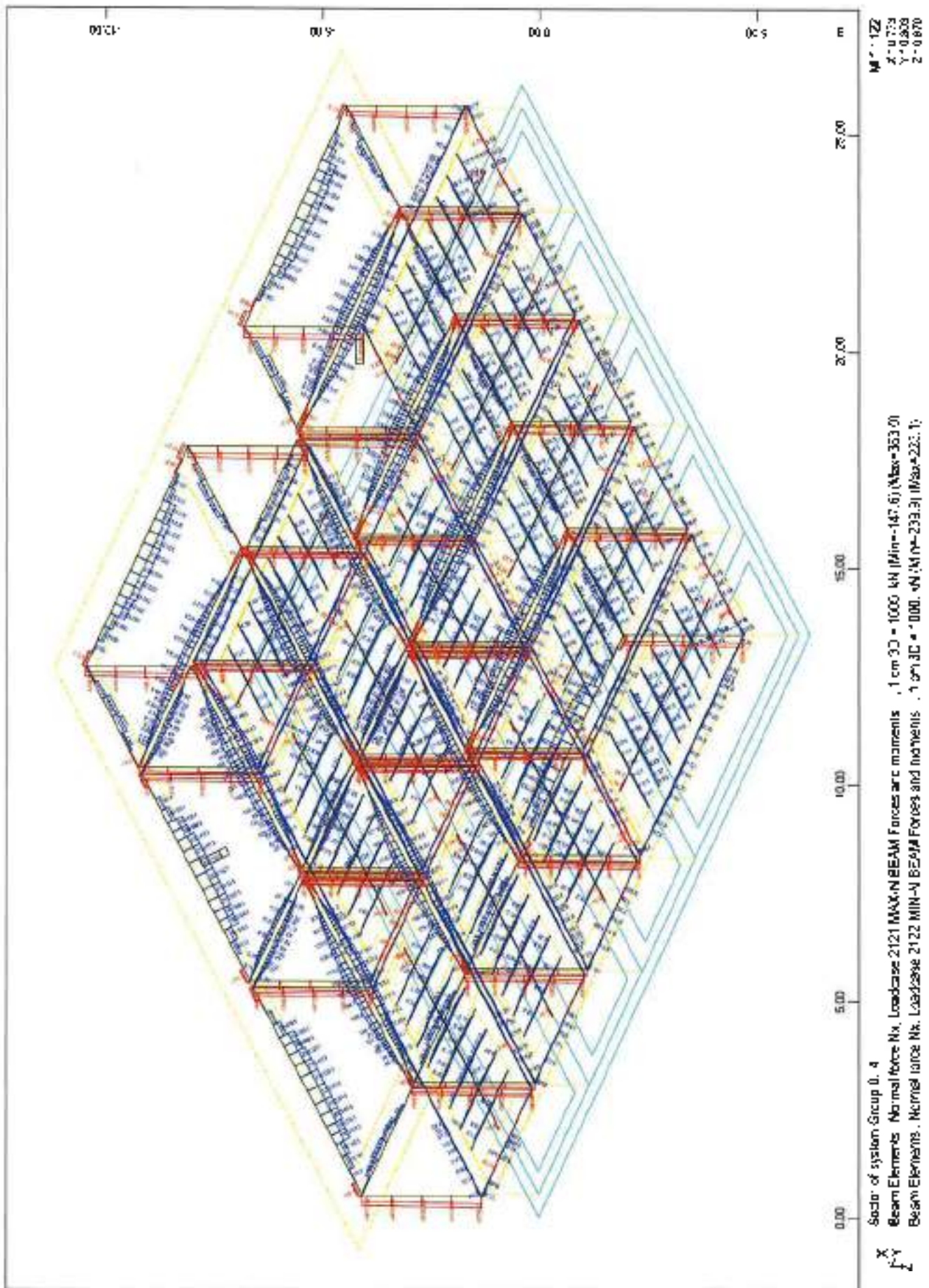
M1.128
 X = 0.775
 Y = 0.809
 Z = 0.870

--- (Min = 28.8)

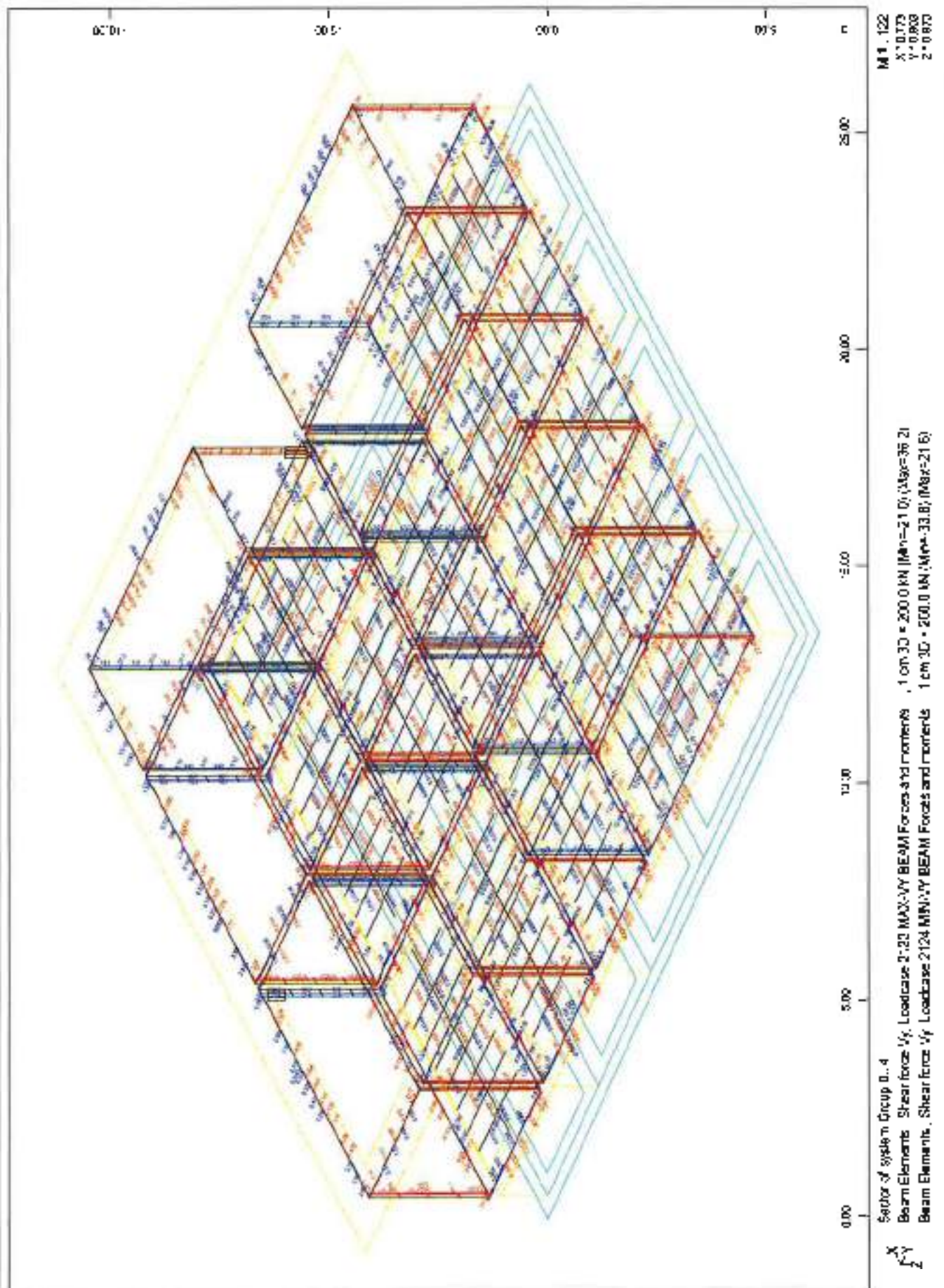
Sector of system Gicup 0 4
 Nodal displacement in global Y, Load case 2674 MINE-LY NOOE Displacements with factor 1.50, 1 cm 3D = 20.0 mm
 (Max=0.1)

X
 Y
 Z

HPIAGOGENO_GASTOUNH
 Interactive Graphic

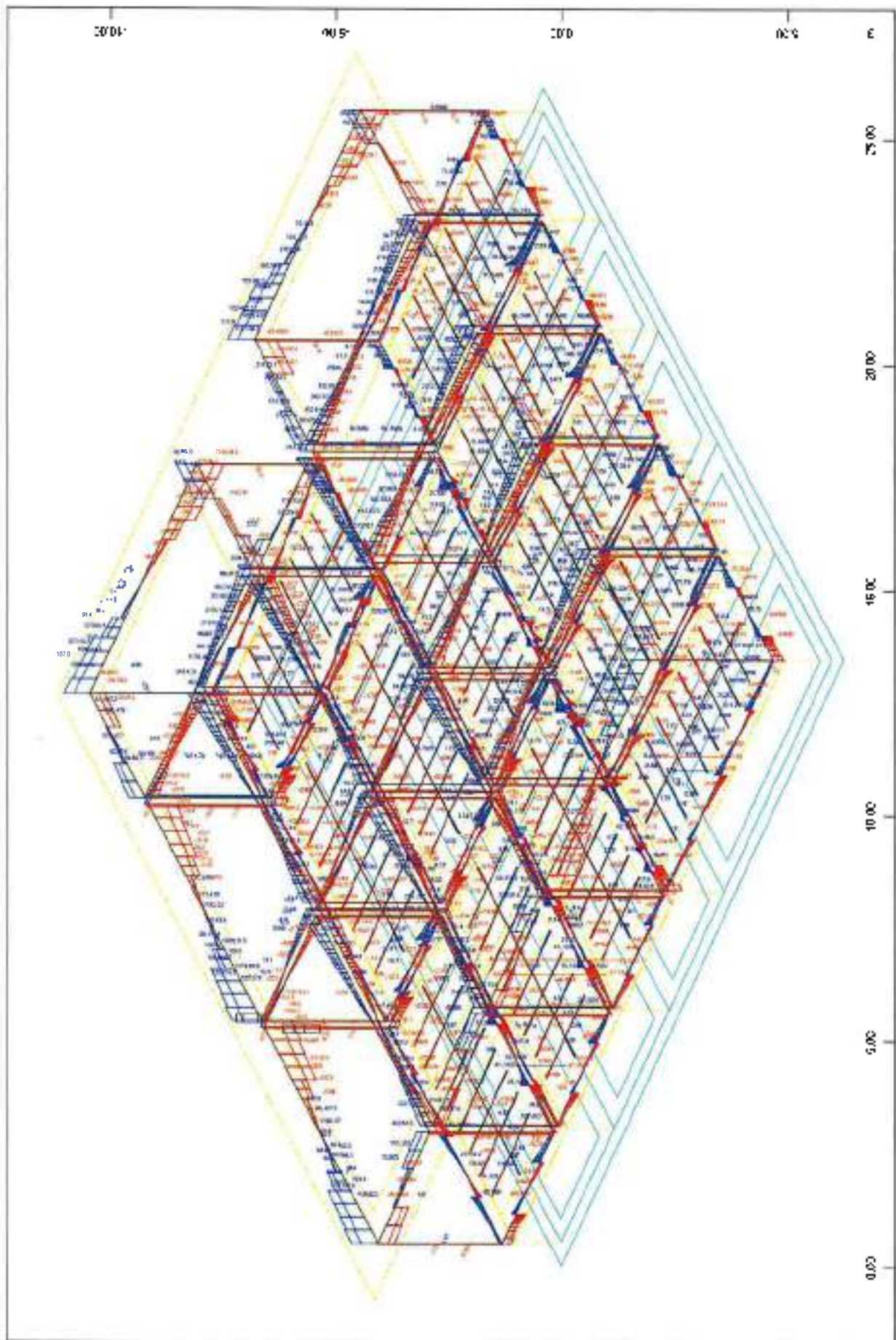


DOI: 10.1002/anie



WHPIAGOGEIO_GASTOUNH
 Interactive Graphic

SOFISTIK AG - www.sofistik.de



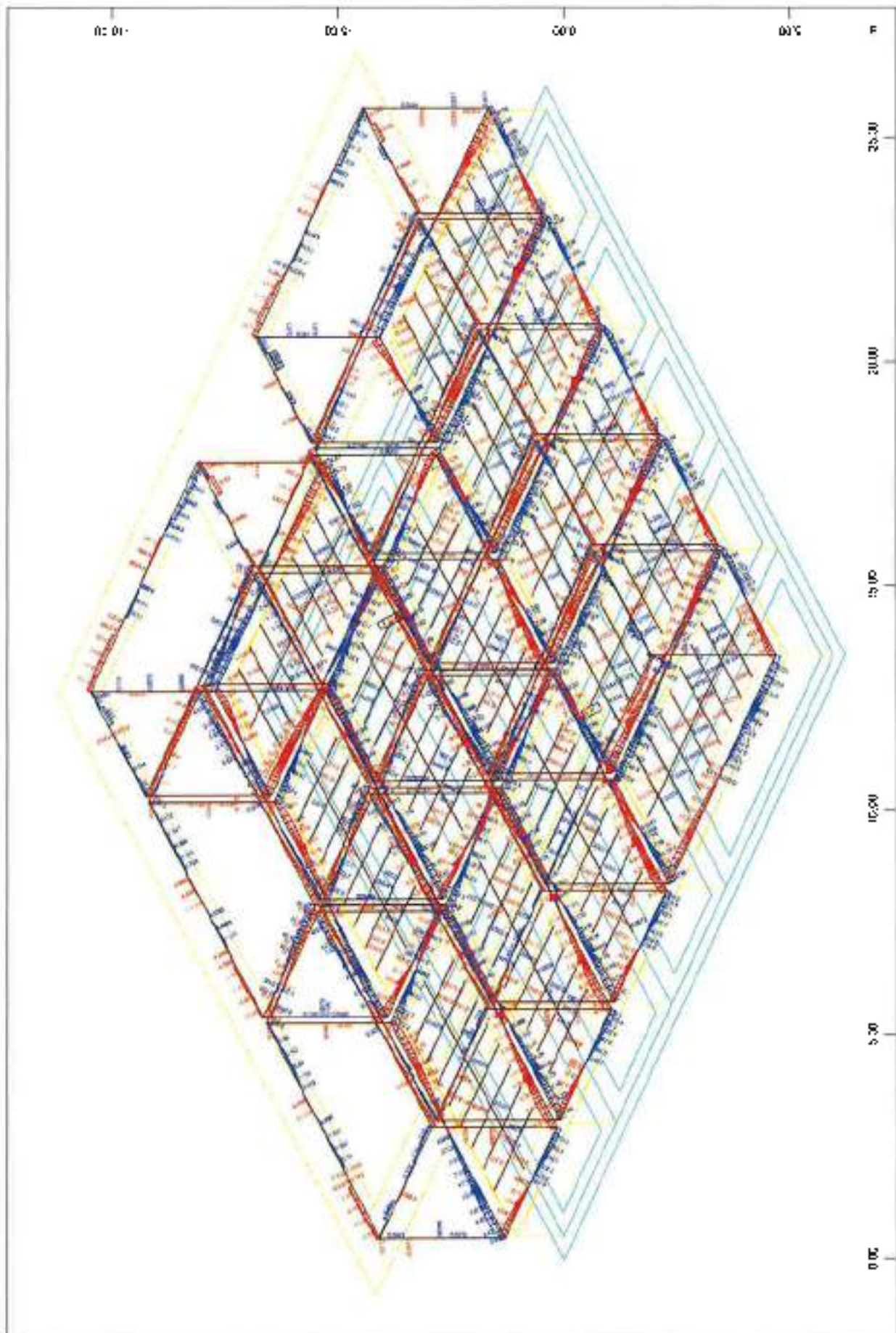
M1.122
 X=0.00
 Y=0.00
 Z=0.00

1 cm 3D = 200.0 kN (Min=-76.0) (Max=122.7)
 1 cm 3D = 200.0 kN (Min=-124.8) (Max=75.8)

Sectet of system Group 0..4
 Beam Elements: Shear force Vz, Loadcase 2125 MIN-VZ BEAM Forces and moments
 Beam Elements: Shear force Vz, Loadcase 2125 MIN-VZ BEAM Forces and moments



NHPIAGDGE10_CASTOUNH
 Interactive Graphic



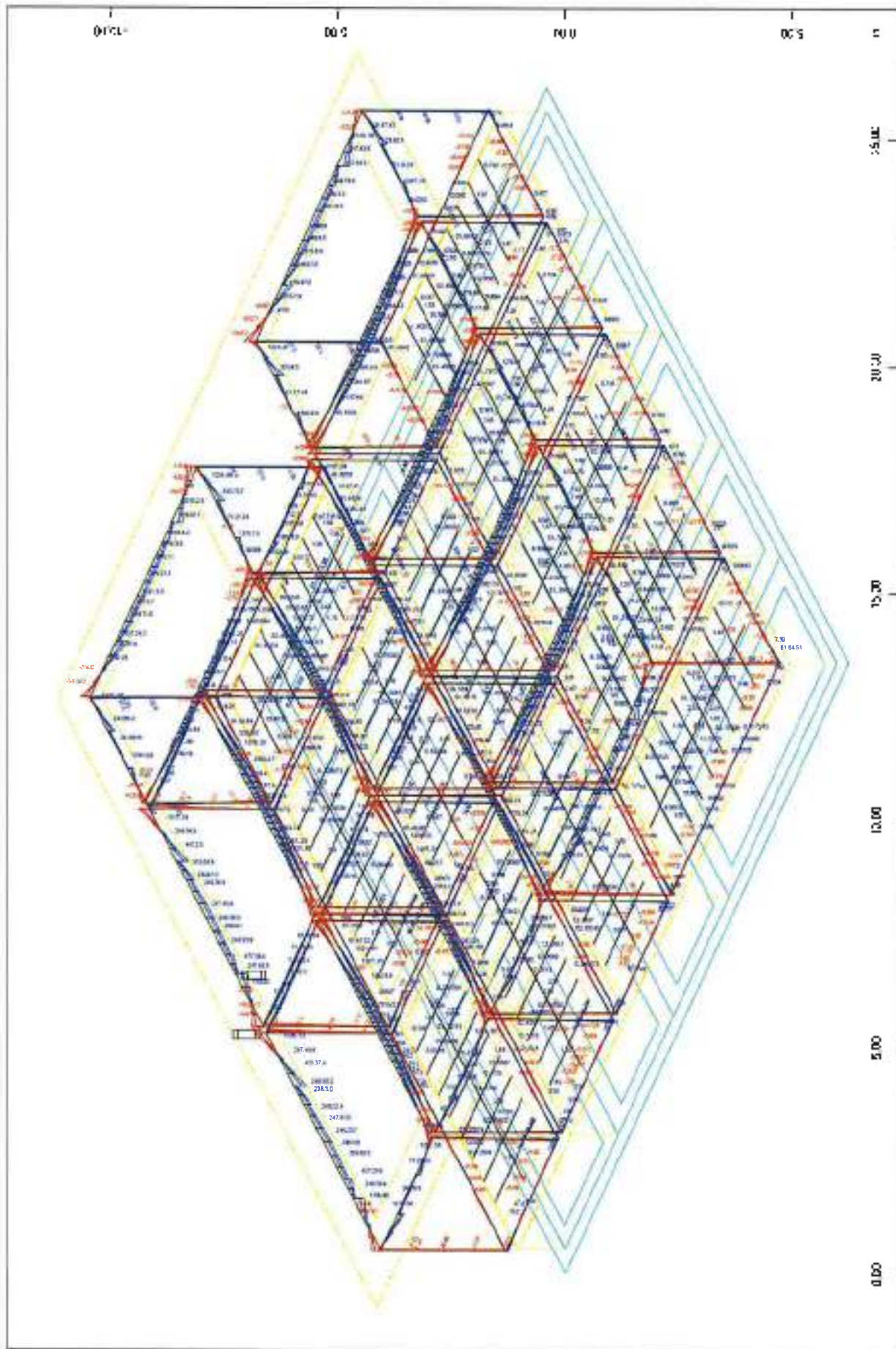
M1 122
 X=3.78
 Y=0.00
 Z=3.870

Section of system Group 0. 4
 Beam Elements Torsional moment M1, Loadcase 2127 MoX-MoY BEAM Forces and moments, 1 cm 3D = 50.0 kNm (Min=-4.26) (Max=8.71)
 Beam Elements Torsional moment M1, Loadcase 2128 MIN-MO BEAM Forces and moments, 1 cm 3D = 50.0 kNm (Min=-9.06) (Max=4.07)

X
 Y
 Z

NHPIAGOGETO_GASTOUNH
 Interactive Graphic

50F5T6X.AC - 444-33504.02

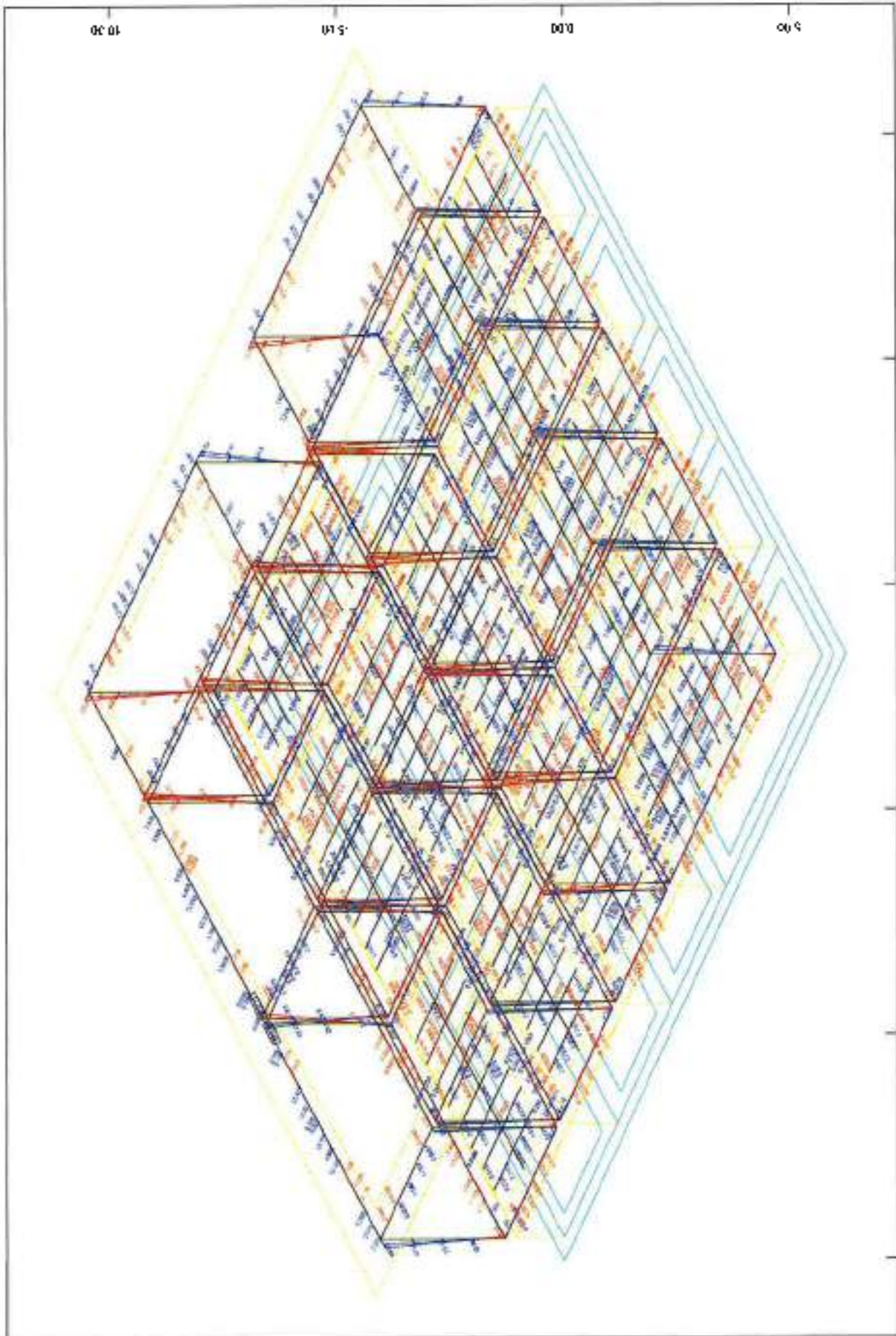


$\begin{matrix} X \\ \swarrow \\ Y \\ \downarrow \\ Z \end{matrix}$ Sector of system Group 0. 4
 Beam-Elements Bending moment My Loadcase 2125 MAX:MY BEAM Forces and moments 1 cm 3D = 300.0 kNm (Min=-44.4; Max=78.6)
 Beam-Elements Bending moment My Loadcase 2125 MIN:MY BEAM Forces and moments 1 cm 3D = 300.0 kNm (Min=-74.1; Max=47.5)

M = 122
 X = 0.73
 Y = 0.808
 Z = 0.870

NHP1AG0GE1Q_GASTOUNH
 Interactive Graphic

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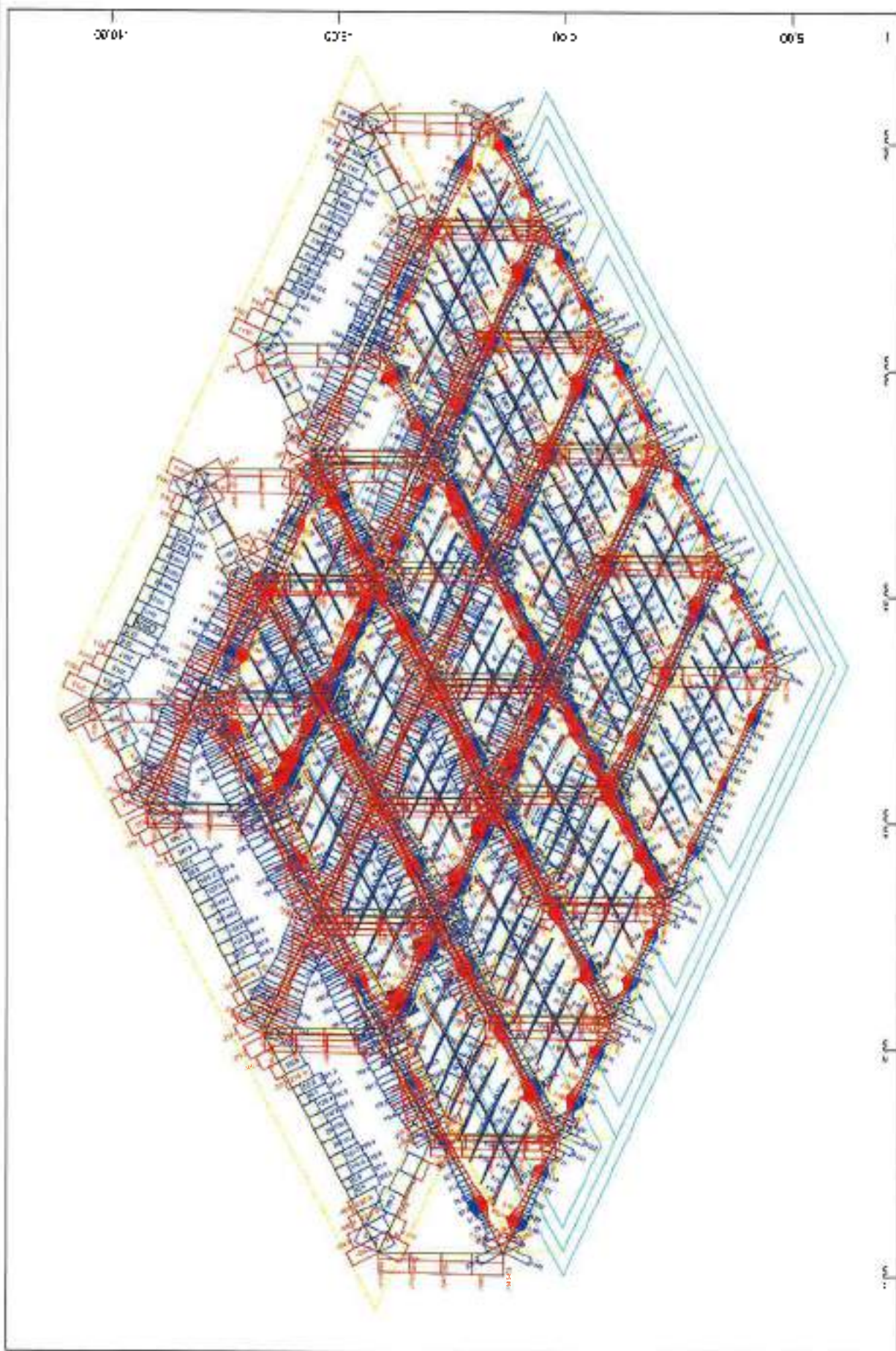


N1 122
 X=1.72
 Y=1.883
 Z=1.170

Set of system Group 0. 4
 Beam Elements: Bending moment Mz: Loadcase 213: MAX-M2 BEAM Forces and moments: 1 cm 3D = 300.0 kNm (Min=-1.8) (Max=3.8)
 Beam Elements: Bending moment Mz: Loadcase 213: MIN-M2 BEAM Forces and moments: 1 cm 3D = 300.0 kNm (Min=-87.2) (Max=50.8)

X
 Y
 Z

NHPIAGOGEIO_GASTOUNH
 Interactive Graphic

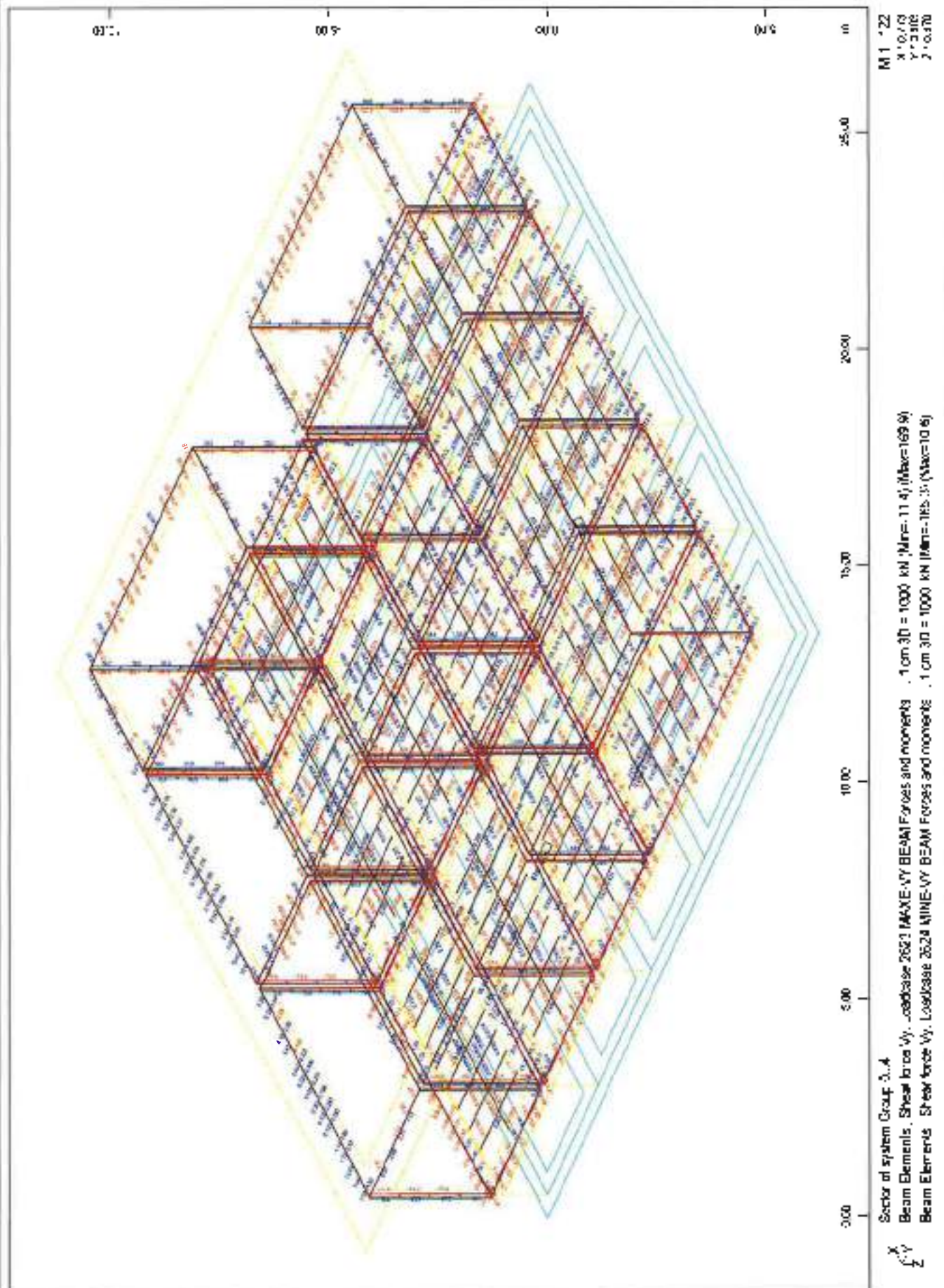


M1 122
 X=0.773
 Y=0.000
 Z=0.000

Sector of system Group 3...4
 Beam Elements Normal force Nr. Loadcase 2621 MAX-N BEAM Forces and moments 1 cr 3D = 500.0 kN (Min=-92.9; Max=537.3)
 Beam Elements Normal force Nr. Loadcase 2622 MIN-N BEAM Forces and moments 1 cr 3D = 500.0 kN (Min=-301.5; Max=173.2)

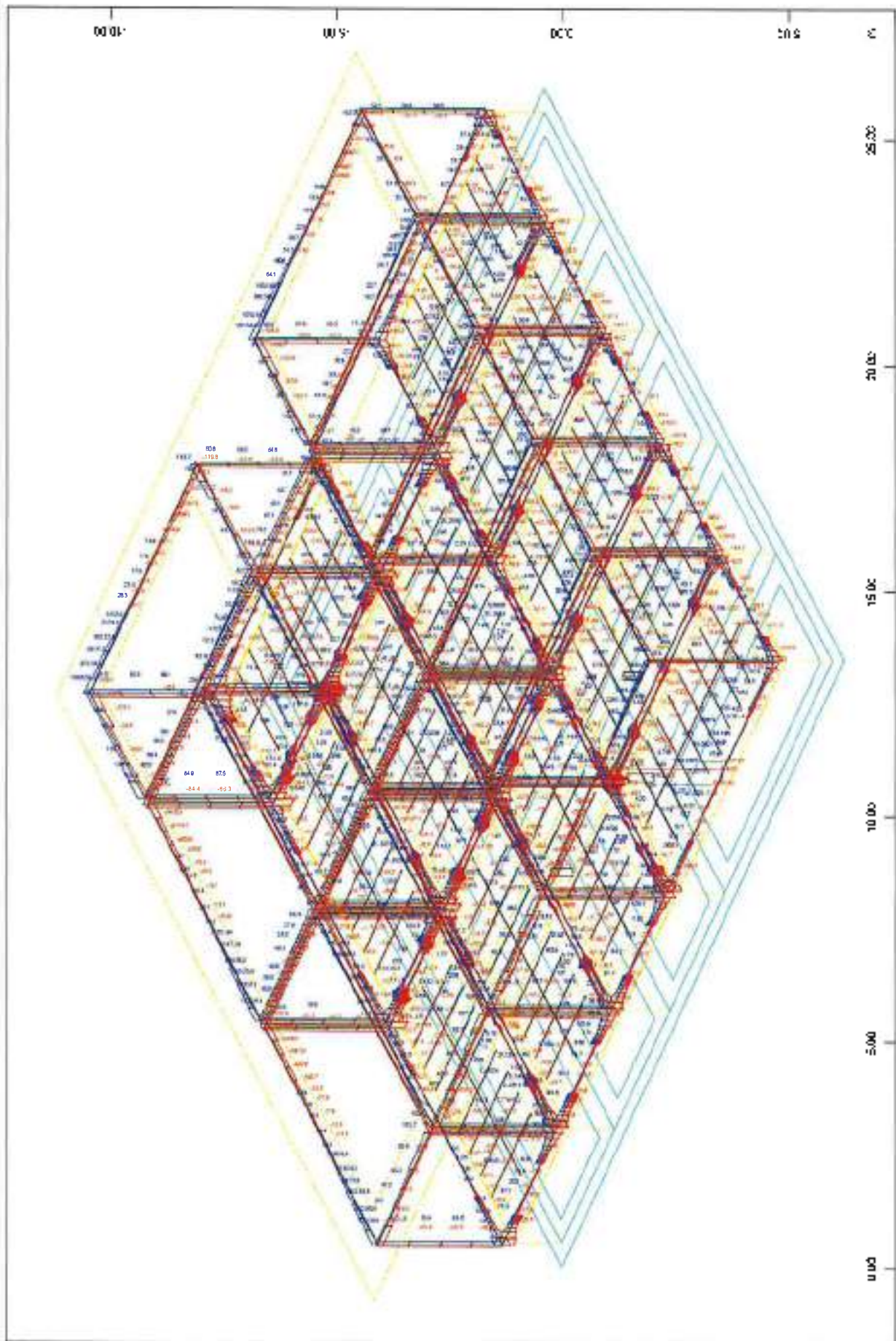
X
 Y
 Z

VCFIS LLC, A.C. - owner entity in the



NP1AG00E10_GASTOUNH
 Interactive Graphic

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Sector of system Group 0...4

Beam Elements: Shear force Vz, Loadcase 2625 MAX: VZ BEAM Forces and moments, 1 cm 3D = 1000, kN (Min=-47.5) (Max=279.3);

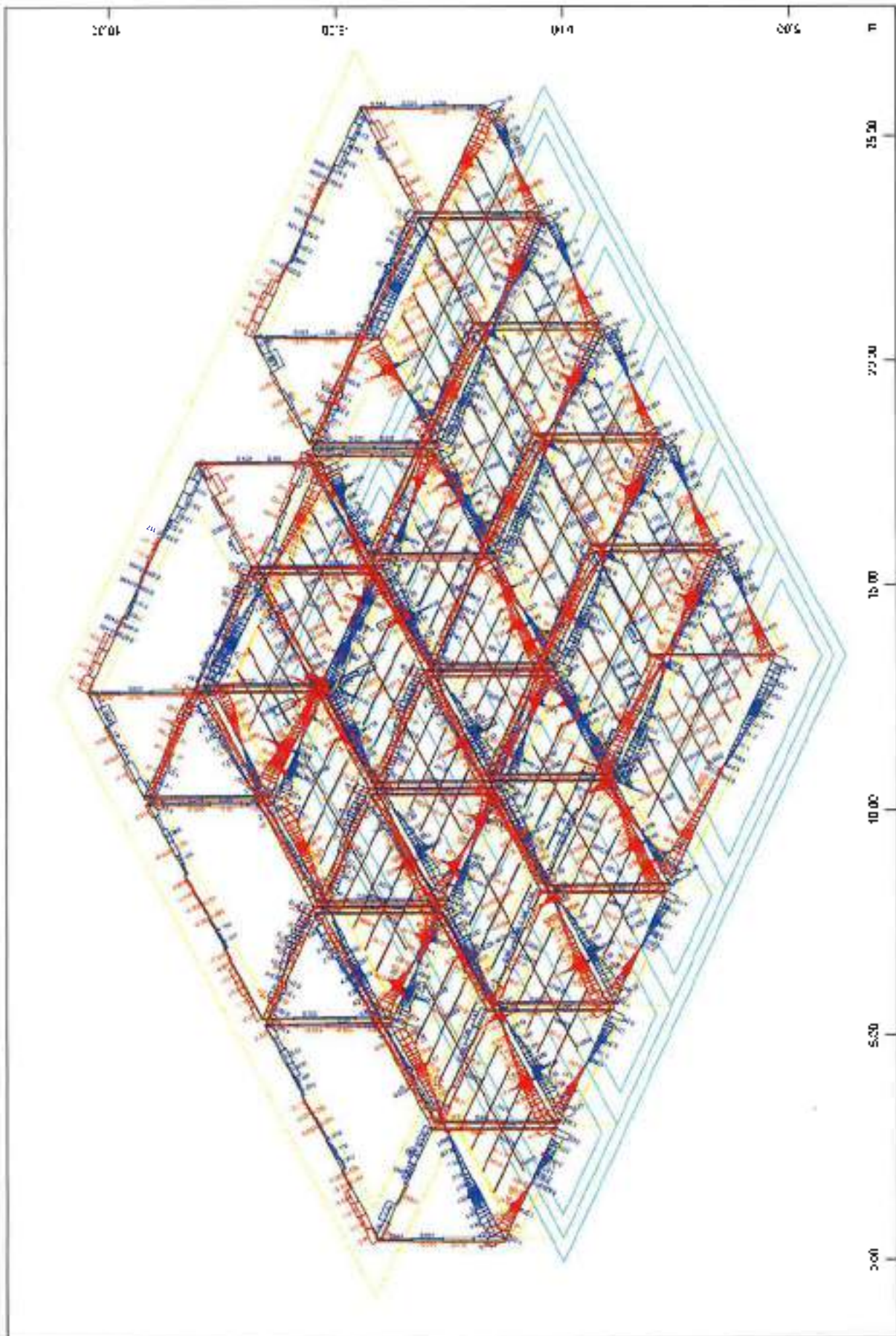
Beam Elements: Shear force Vz, Loadcase 2626 MIN: VZ BEAM Forces and moments, 1 cm 3D = 1000, kN (Min=-358.0) (Max=244.2)

X
Y
Z

M 1 122
 X=0.779
 Y=0.301
 Z=0.670

NHPIAGDGEID_GASTOUNH
 Interactive Graphic

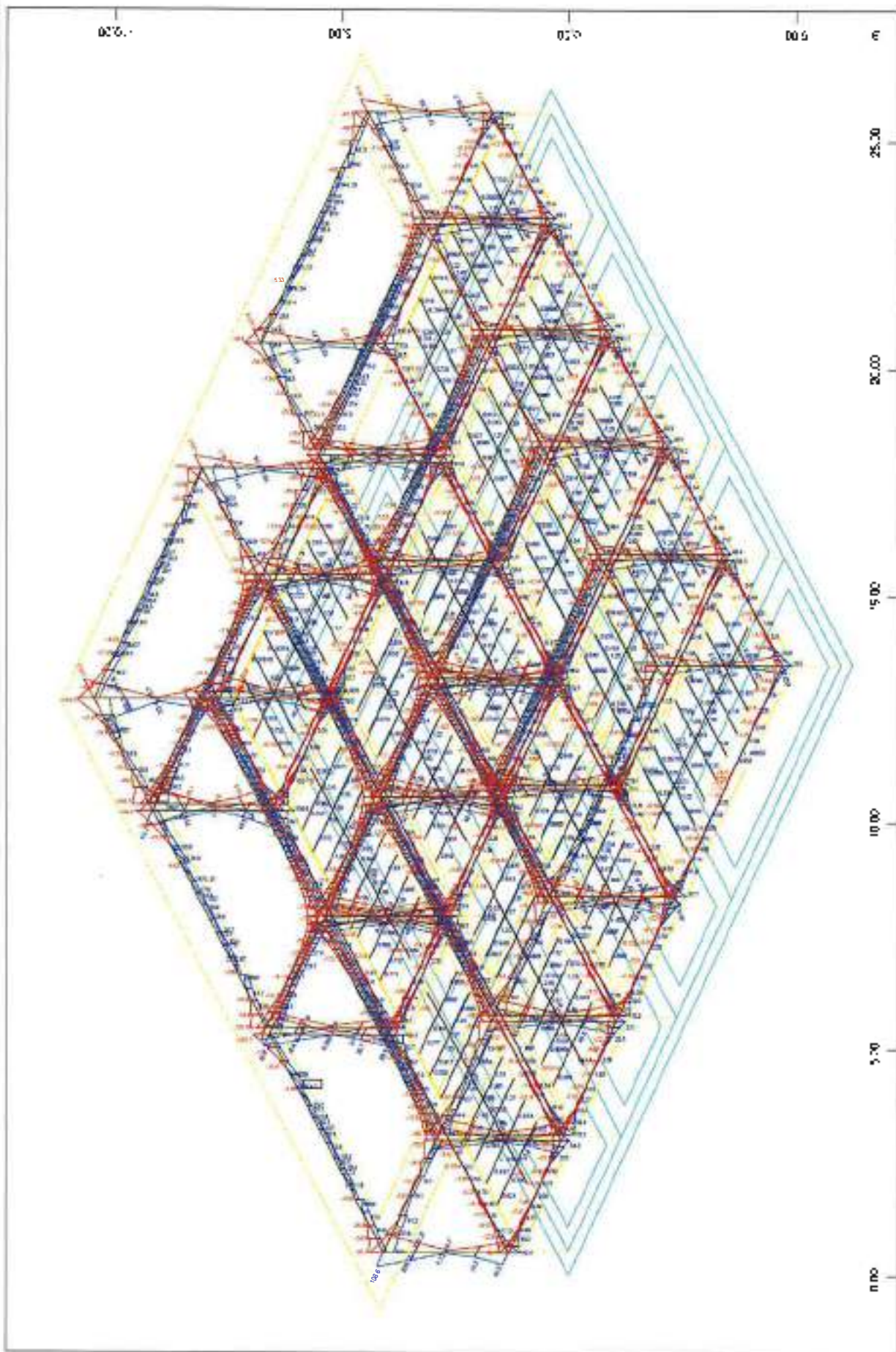
SO-FESTK 45 : www.sofistik.de



Sector al system Group 3.4
 Beam Elements : Torsional moment M1 Loadcase 2627 MAXE-MT BEAM Forces and moments : 1 cm 30 = 20.0 kNm (Min=-3.64) (Max=14.7)
 Beam Elements : Torsional moment M1 Loadcase 2628 MINE-MT BEAM Forces and moments : 1 cm 30 = 20.0 kNm (Min=-13.81) (Max=3.31)

M1 122
 M1 123
 Y-axis
 Z-axis

NHPIAGOGETIQ_GASTOUNH
 Interactive Graphic



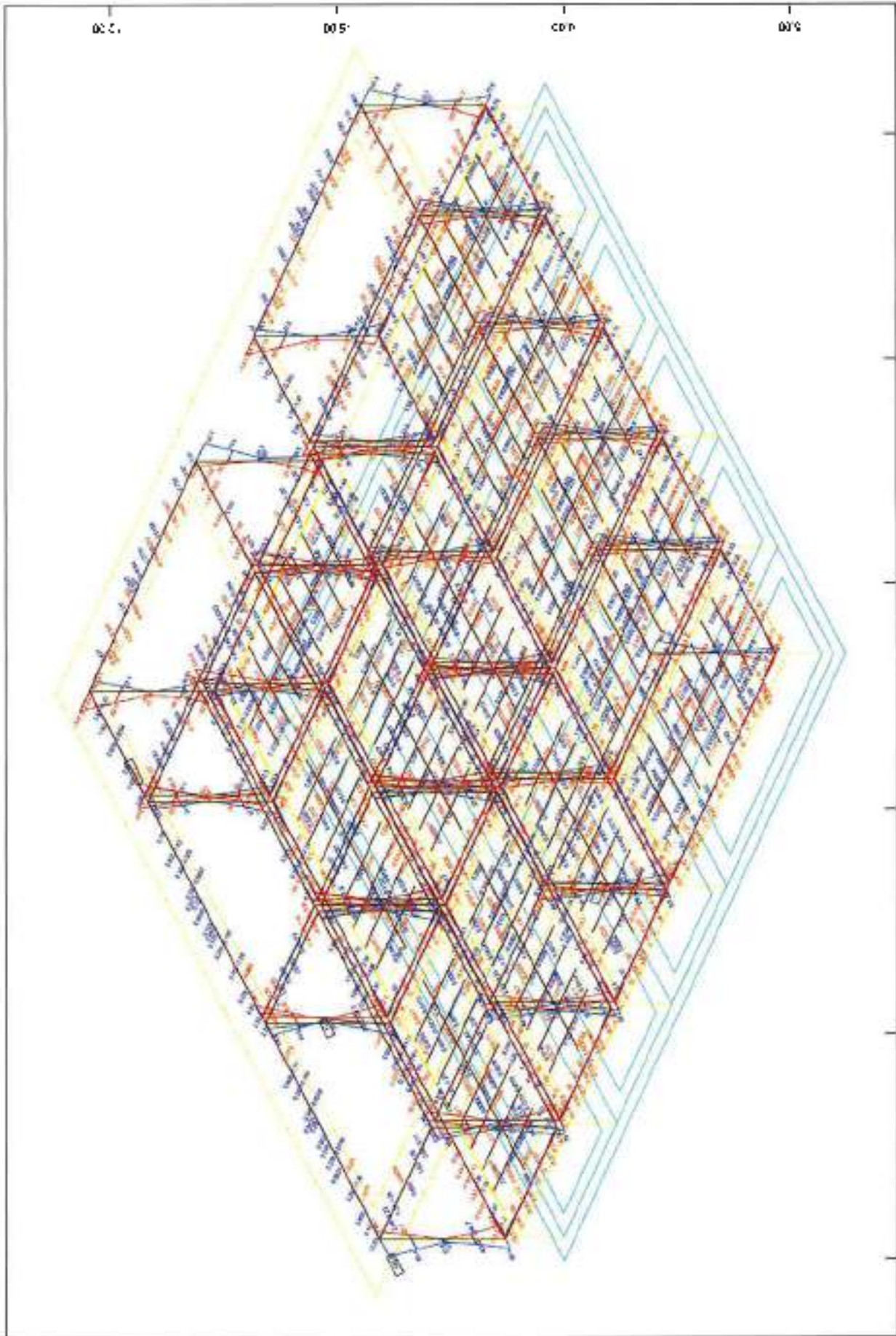
M1 122
 X: 0.00
 Y: 0.00
 Z: 0.00

Section of system Group C. 4
 Beam Elements Bending moment My, Loadcase 2629 MUXE-MY BEAM Forces and moments 1 cm 3D = 300.0 kNm (Min=-3.77) (Max=73.4)
 Beam Elements Bending moment My, Loadcase 2630 MINE-MY BEAM Forces and moments 1 cm 3D = 200.0 kNm (Min=-14.3) (Max=4.4)

X
 Y
 Z

NHPIAGQGE10_GASTOUNH
 Interactive Graphic

SO-151616 AG - www.sofistik.de

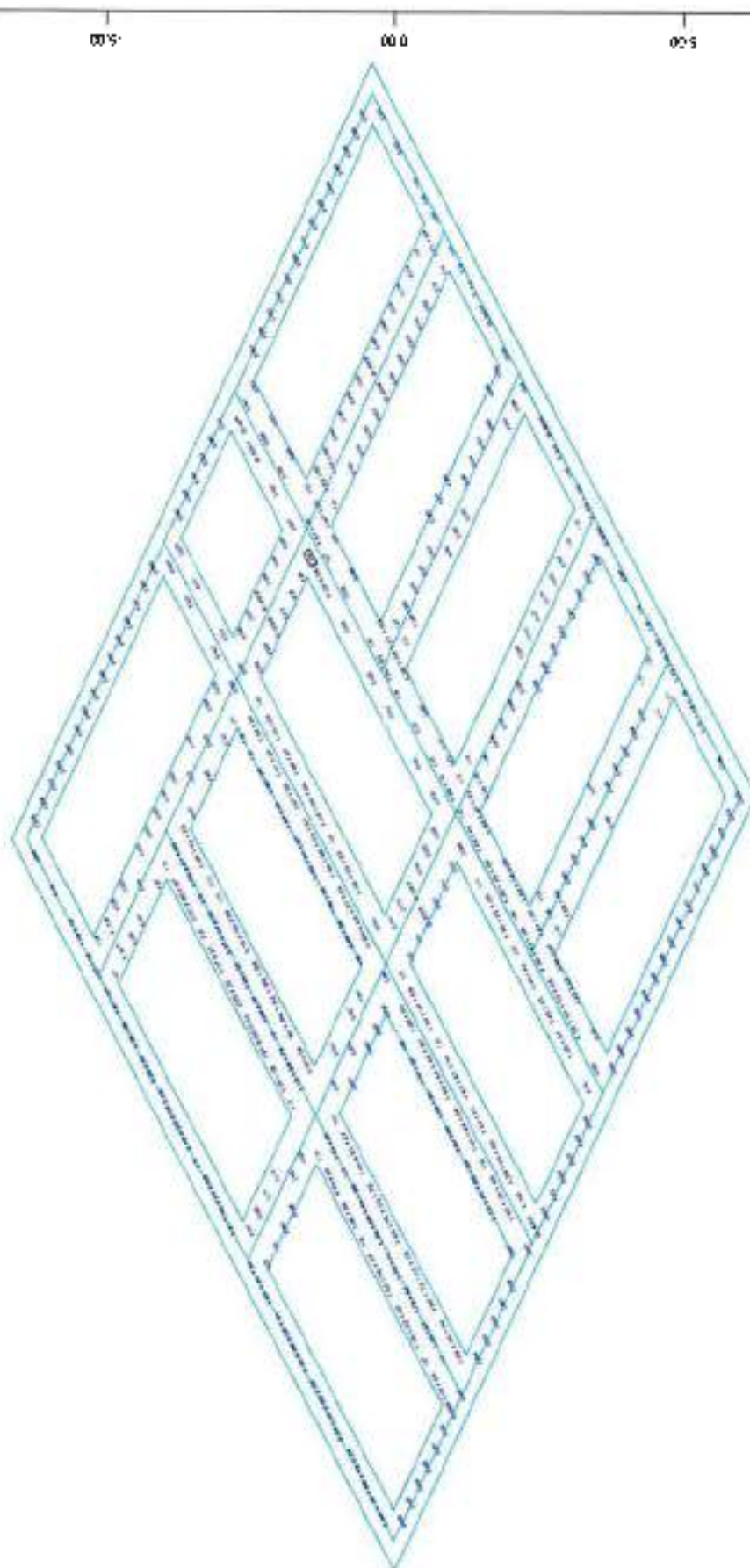


11 122
 X=0.773
 Y=0.803
 Z=0.870

Section of system Group 0.4
 Beam Elements: Bending moment Mz Loadcase 2631 MAX-MZ BEAM Forces and moments 1 cm 3D = 300.0 kNm (Min=-1.1) (Max=140.5)
 Beam Elements: Bending moment Mz Loadcase 2632 MIN-MZ BEAM Forces and moments 1 cm 3D = 300.0 kNm (Min=-140.5) (Max=11.3)

X
 Y
 Z

NP1AG0GE10_GASTOUNH
 Interactive Graphic



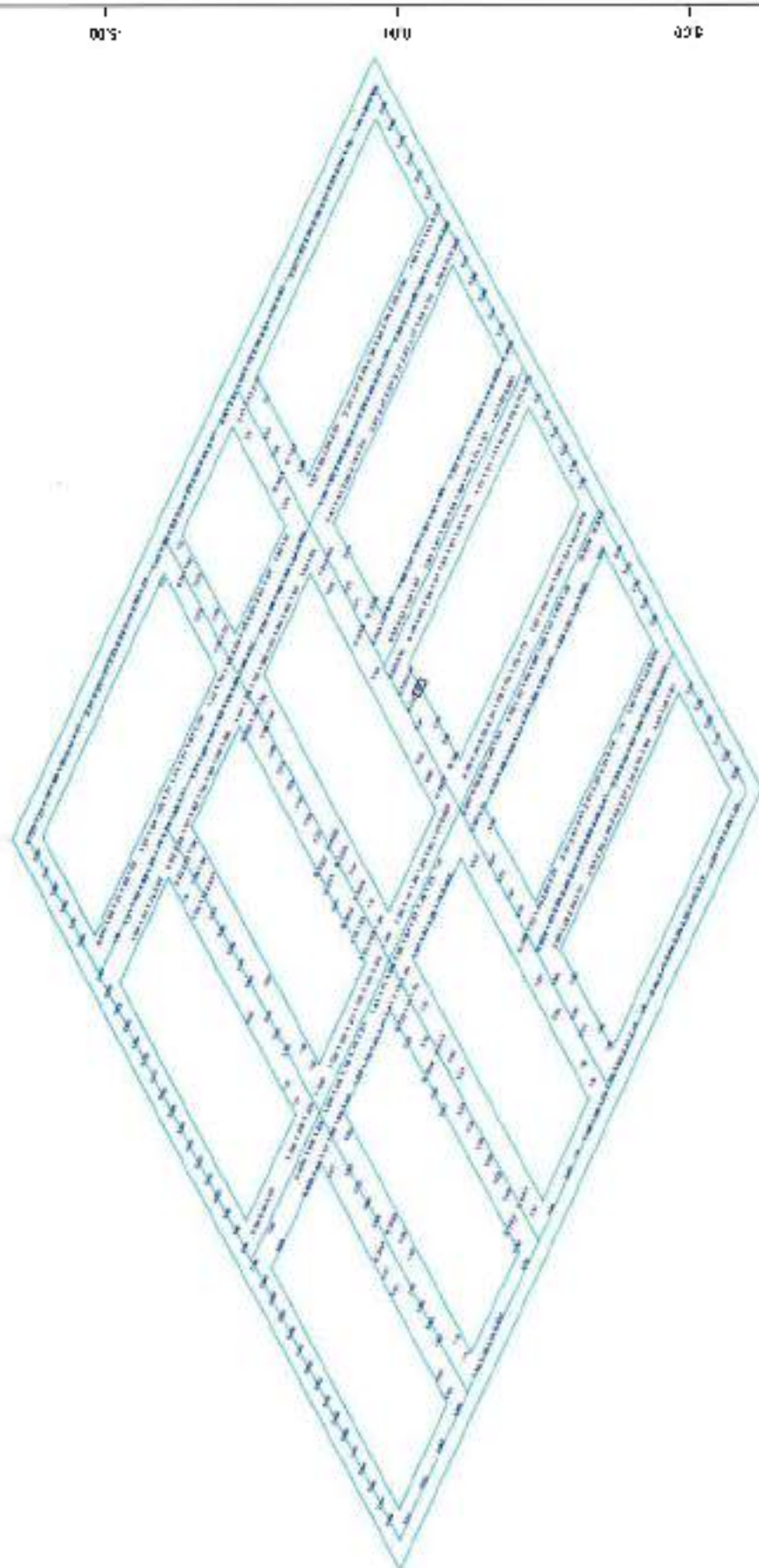
M1 105
 X=0.73
 Y=0.623
 Z=0.870

Sector of system: Quadrilateral Elements Group 0
 lower Principal reinforcements (1st layer) in Elements in cm2/m Design Case 20 (Max=8.28)

X
 Y
 Z

NHPIAGOGEI0_GASTOUNH
 Interactive Graphic

SO-1574h.d3 - ANSYS 5.70/5.75

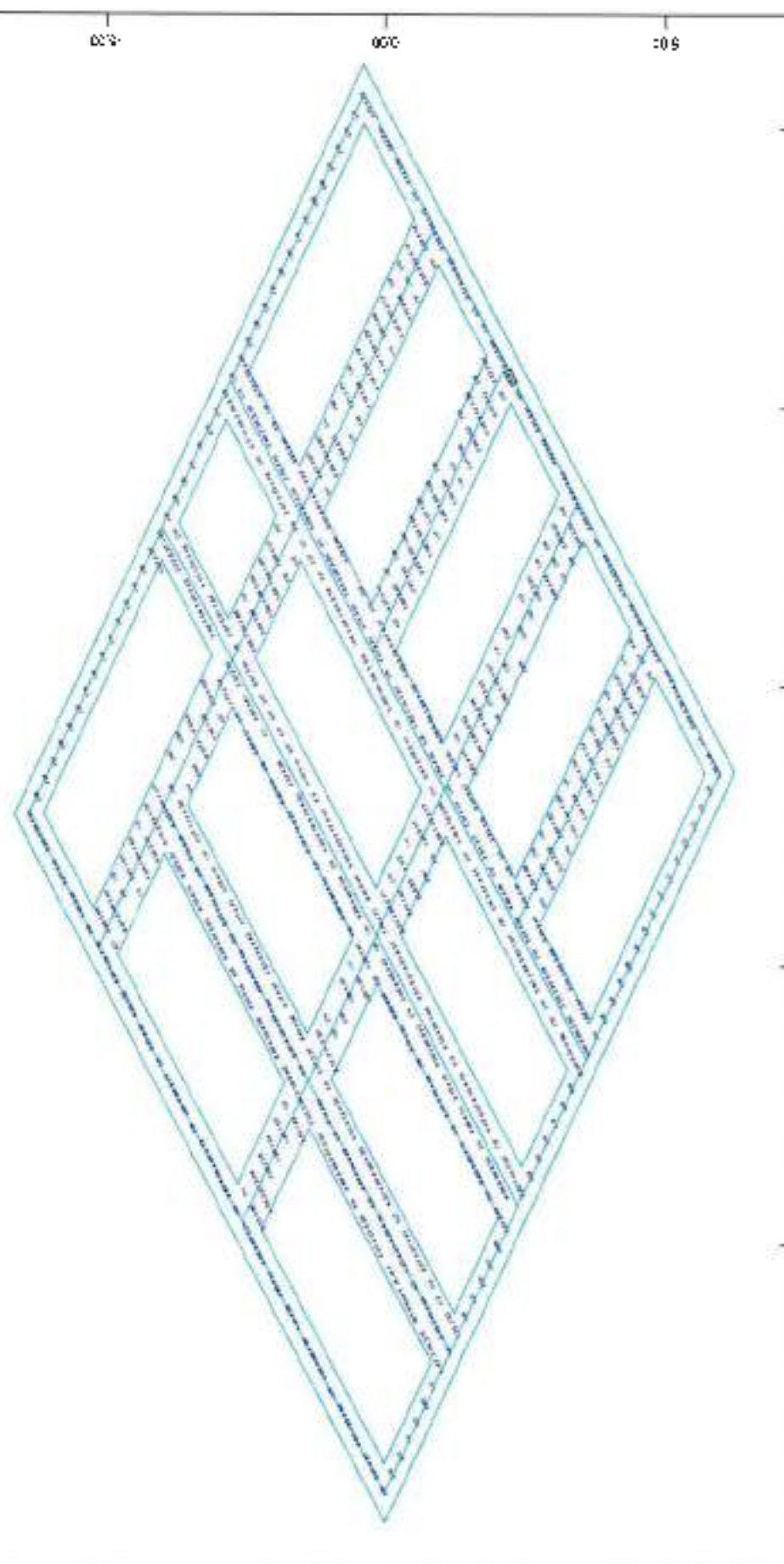


M1:115
 X=373
 Y=115
 Z=115

Sector of system Quadrilateral Elements Group 0
 lower Cross reinforcements (2nd layer) in Elements in group 20 (Max=2.95)

1/2

NIPIAGOGEIO_GASTOUNH
 Interactive Graphic



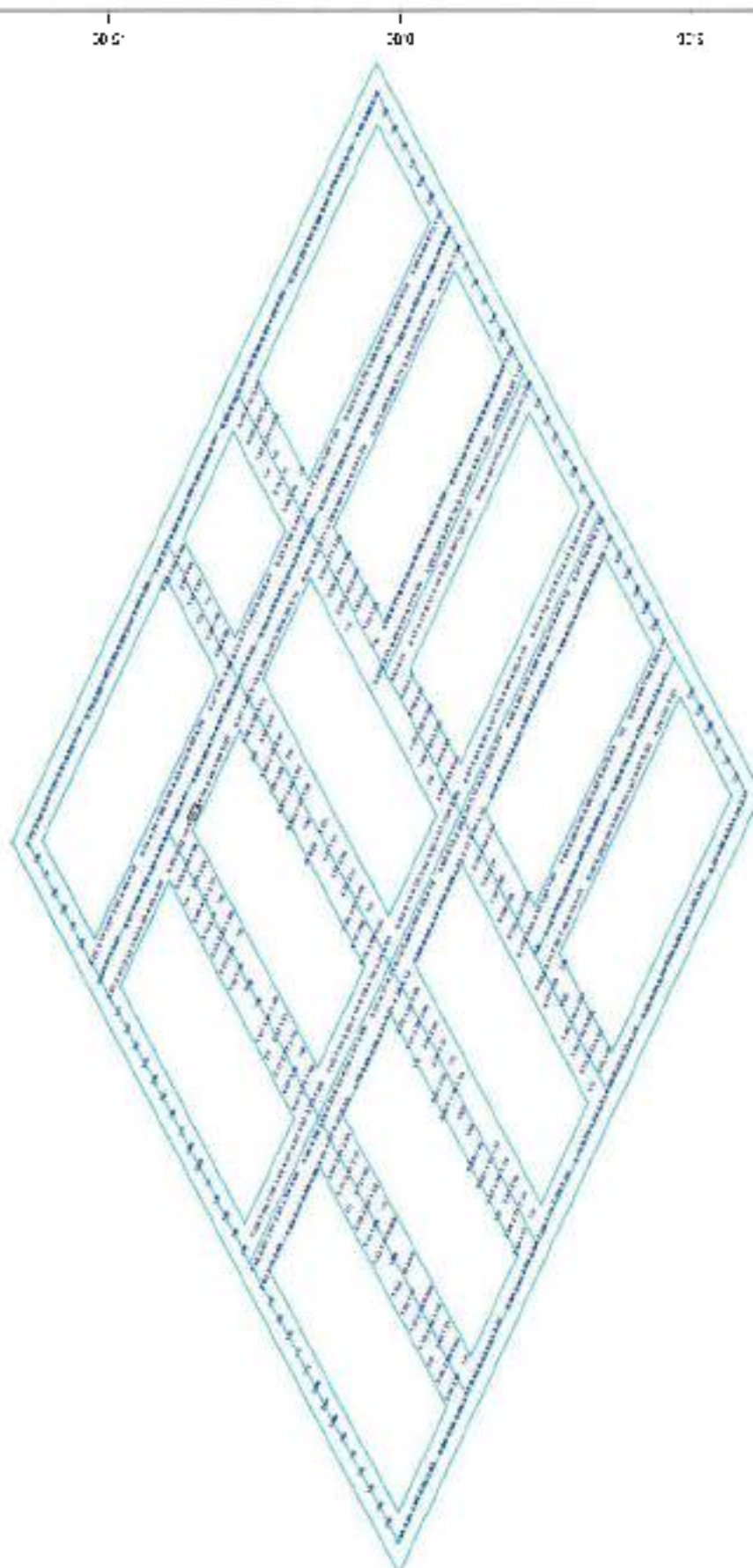
M11 115
 X:0.773
 Y:0.800
 Z:0.870

Sector of system: Quadrilateral Elements Group 0
 Upper Principal reinforcements (1st layer) in Elements in -x-z plane, Design Case 2C (Max=9.91)

X
 Y
 Z

NHPIAGOGGEID_GASTOUNH
Interactive Graphic

WINGRAF - PG - window selected is this

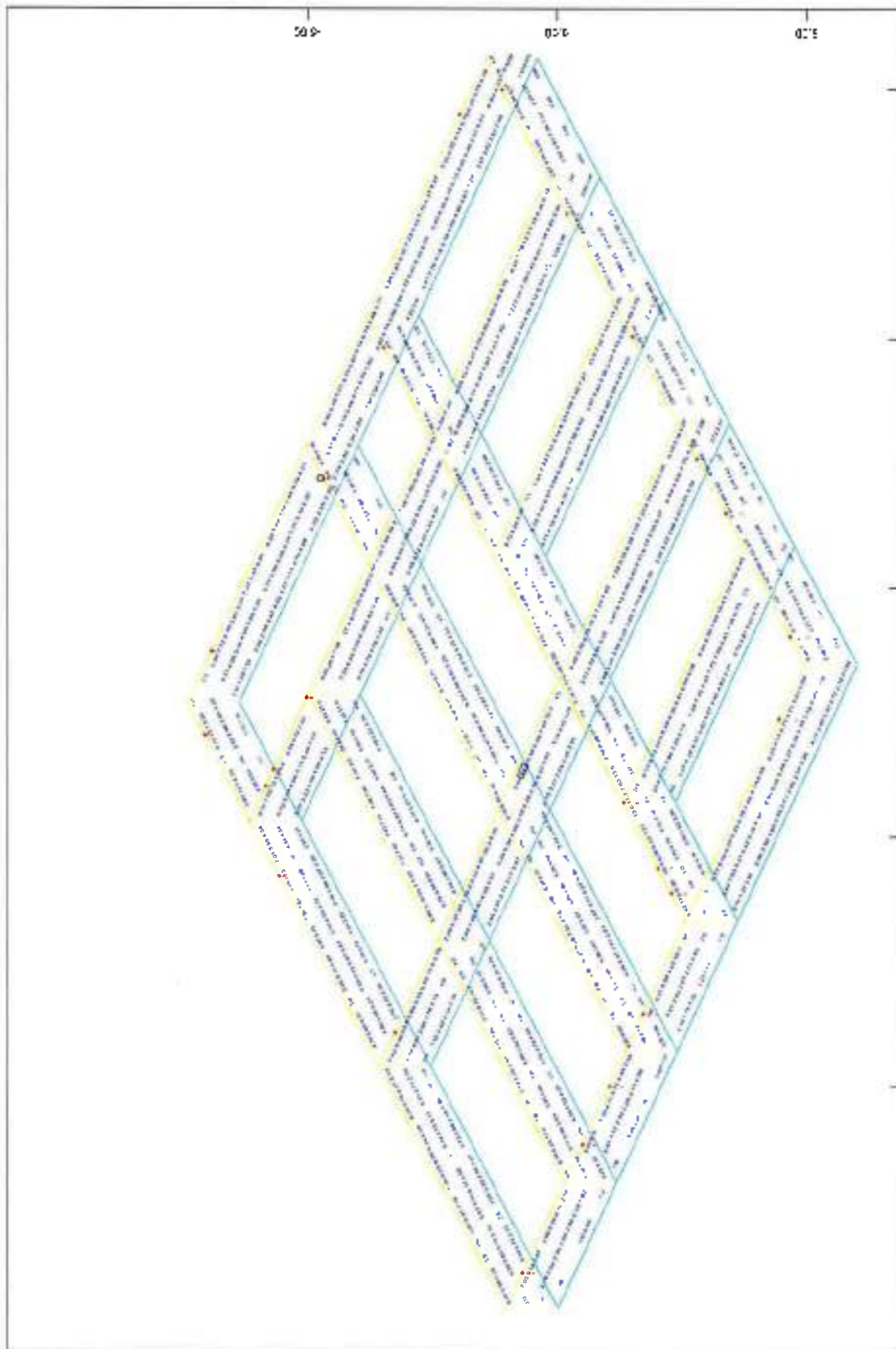


M1: 115
X: 0.773
Y: 0.803
Z: 0.870

Sector of system Quadrilateral Elements Group 0
upper Cross reinforcements (2nd layer) in Elements in cm2/m, Design Case 20 (Max=10.4)

X
Y
Z

NHPIAGOGEO_GASTOUNH
 Interactive Graphic

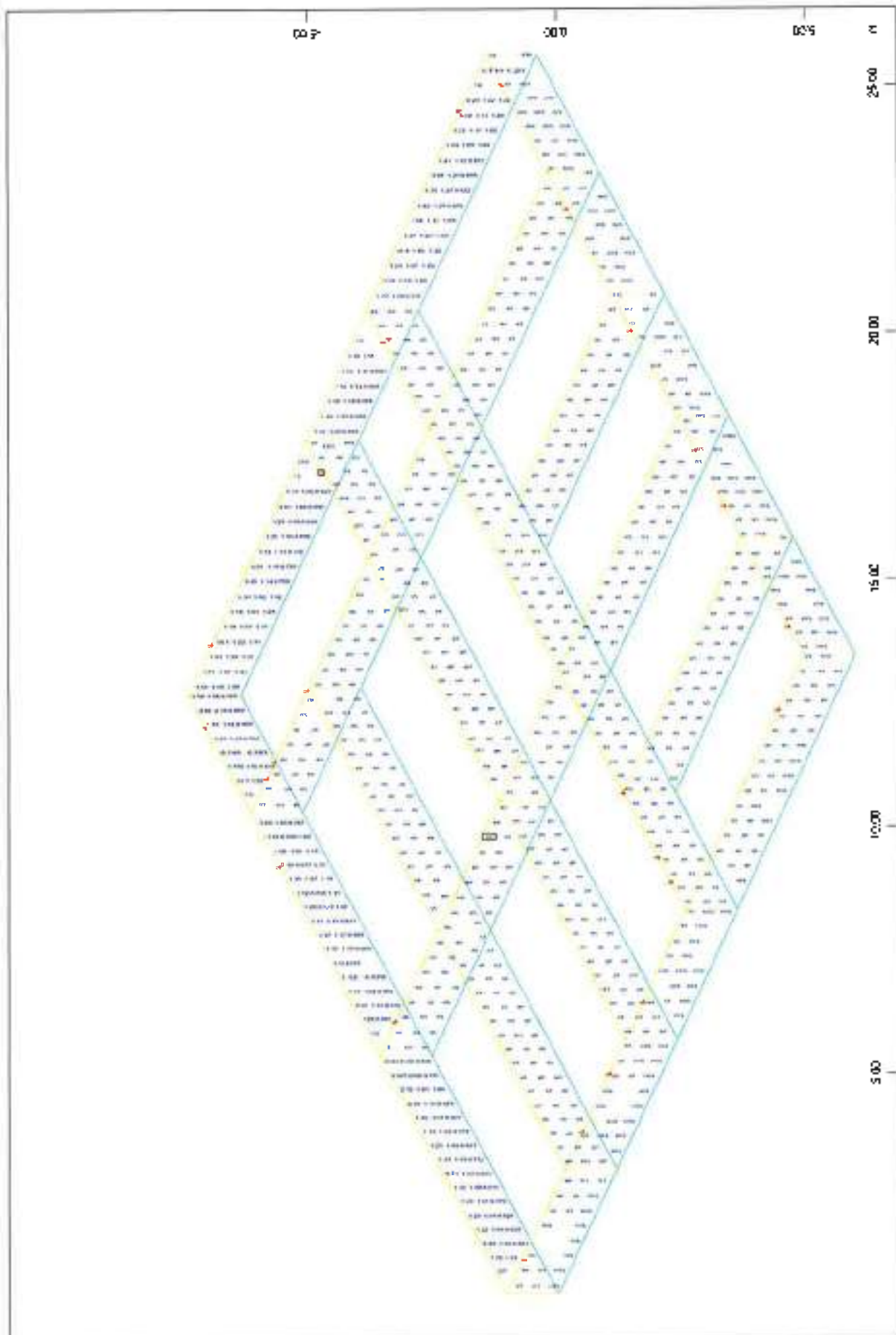


M1: 111
 X=0.773
 Y=0.803
 Z=0.870

Sector of system Quadrilateral Elements Group 1
 Lower Principal reinforcement (1st layer), Design Case 20 in Elements in cm/m, Design area of the reinforcement (=51 m
 Elements (Max=58.6)

X
 Y
 Z

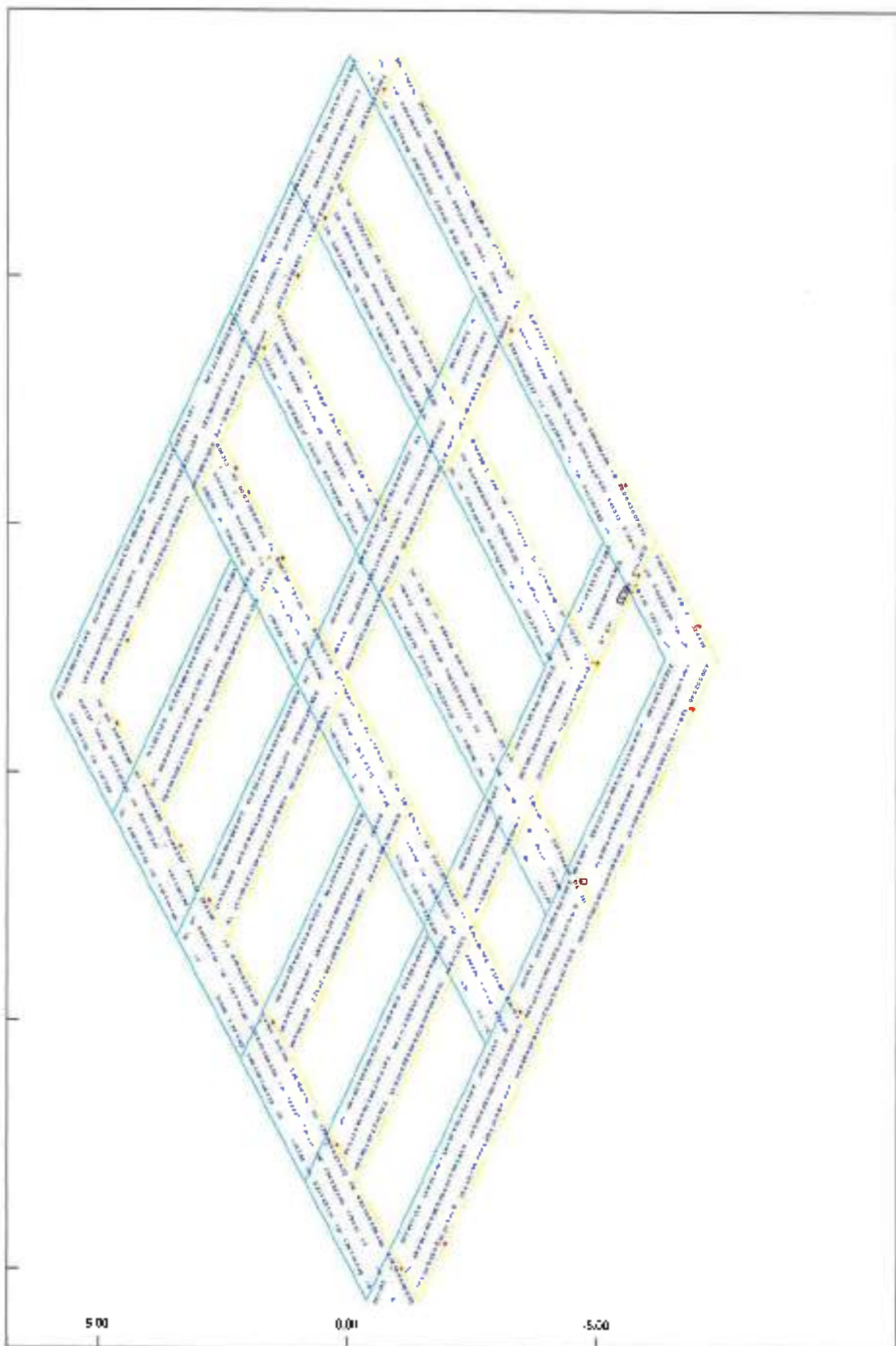
NHPAGOGEO_GASTOUNH
 Interactive Graphic



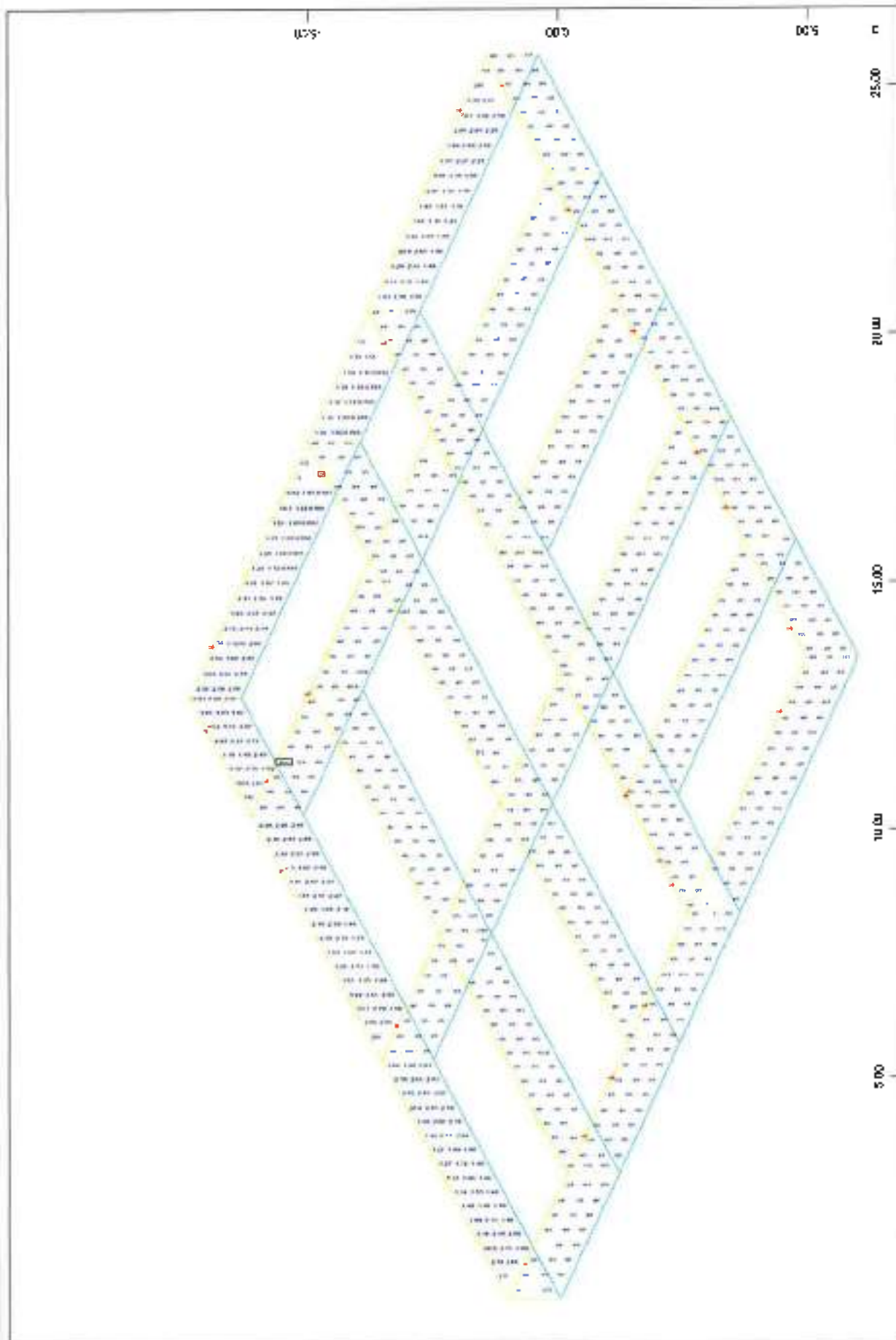
Sector of system Quadrilateral Elements Group 1
 lower Cross reinforcements (2nd layer), Design Case 20
 Elements in 20mm Design ends in the reinforcement (:=B), n
 Elements (Map=59,3)

Map=118
 X=0.778
 Y=0.302
 Z=0.000

NHP1ADGE10_GASTOUNH
Interactive Graphic



NHPIAGOGEIO_GASTOUNH
Interactive Graphic

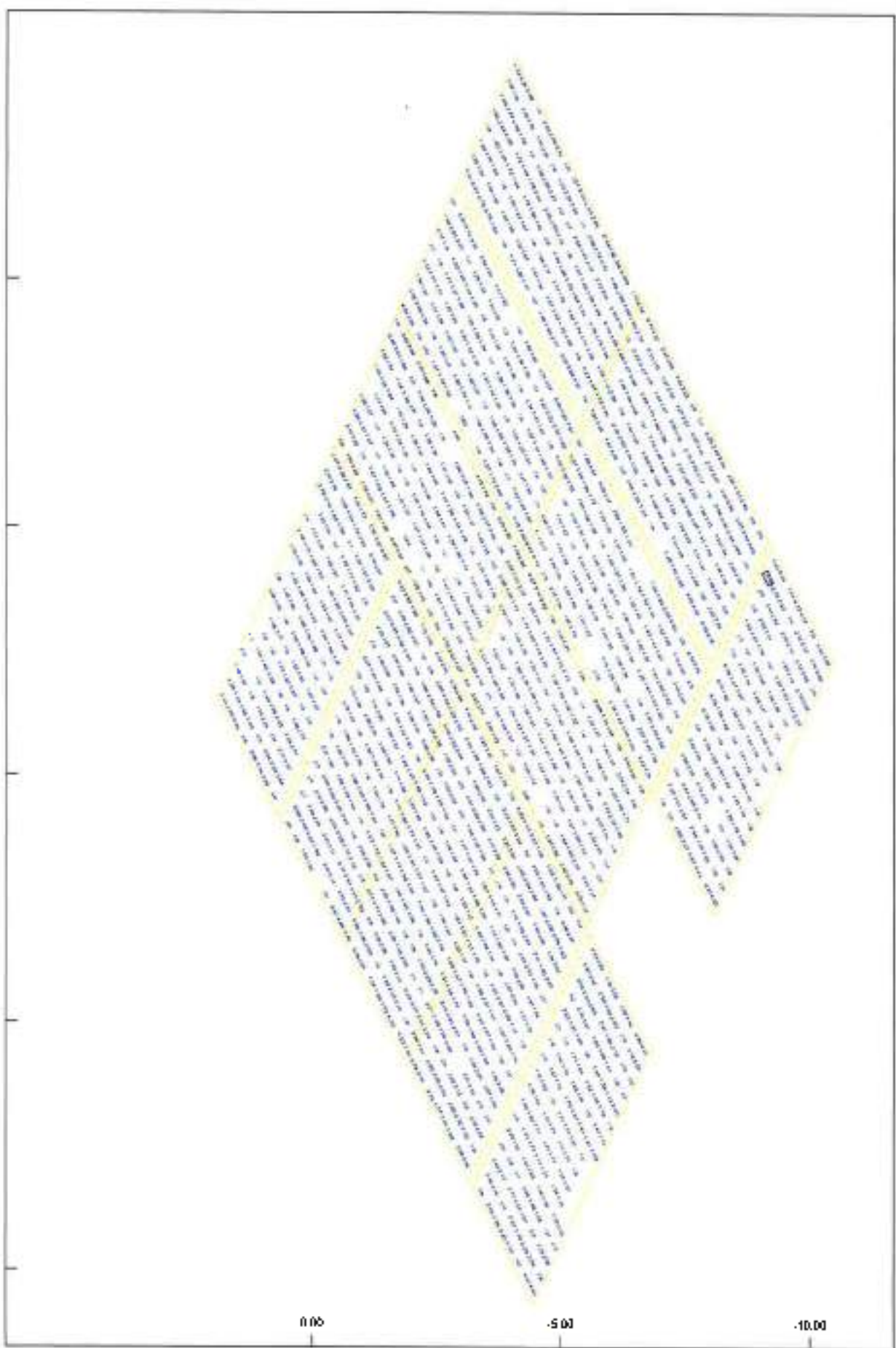


M1 - 111
K=0.773
Y=0.008
Z=0.010

Sector of system Quadrilateral Elements Group 1
Upper Cross-section Reinforcement (2nd layer, Design Case 20)
Elements (Max=117.9)



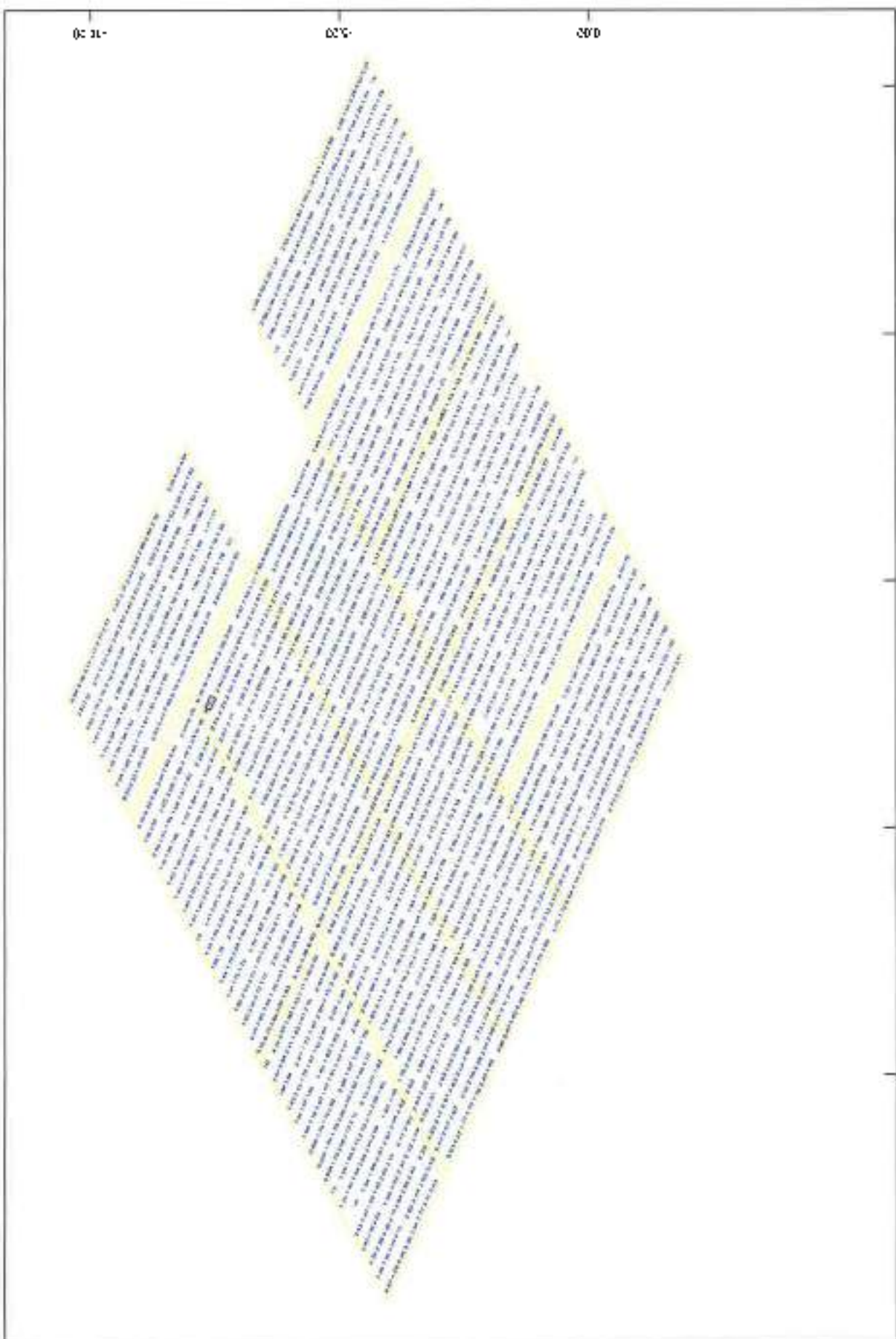
RHPIAGOEIO_GASTOUNH
 Interactive Graphic



M 1 101
 X = 0.173
 Y = 0.000
 Z = 0.970

Sector of 3rd order Quadrilateral Elements Group 3
 Lower Principal reinforcements (1st layer) in Nodes in coord'n. Design Case 20 (Max=9.85)

NIPIAGOGEIO_GASTOUHH
 Interactive Graphic

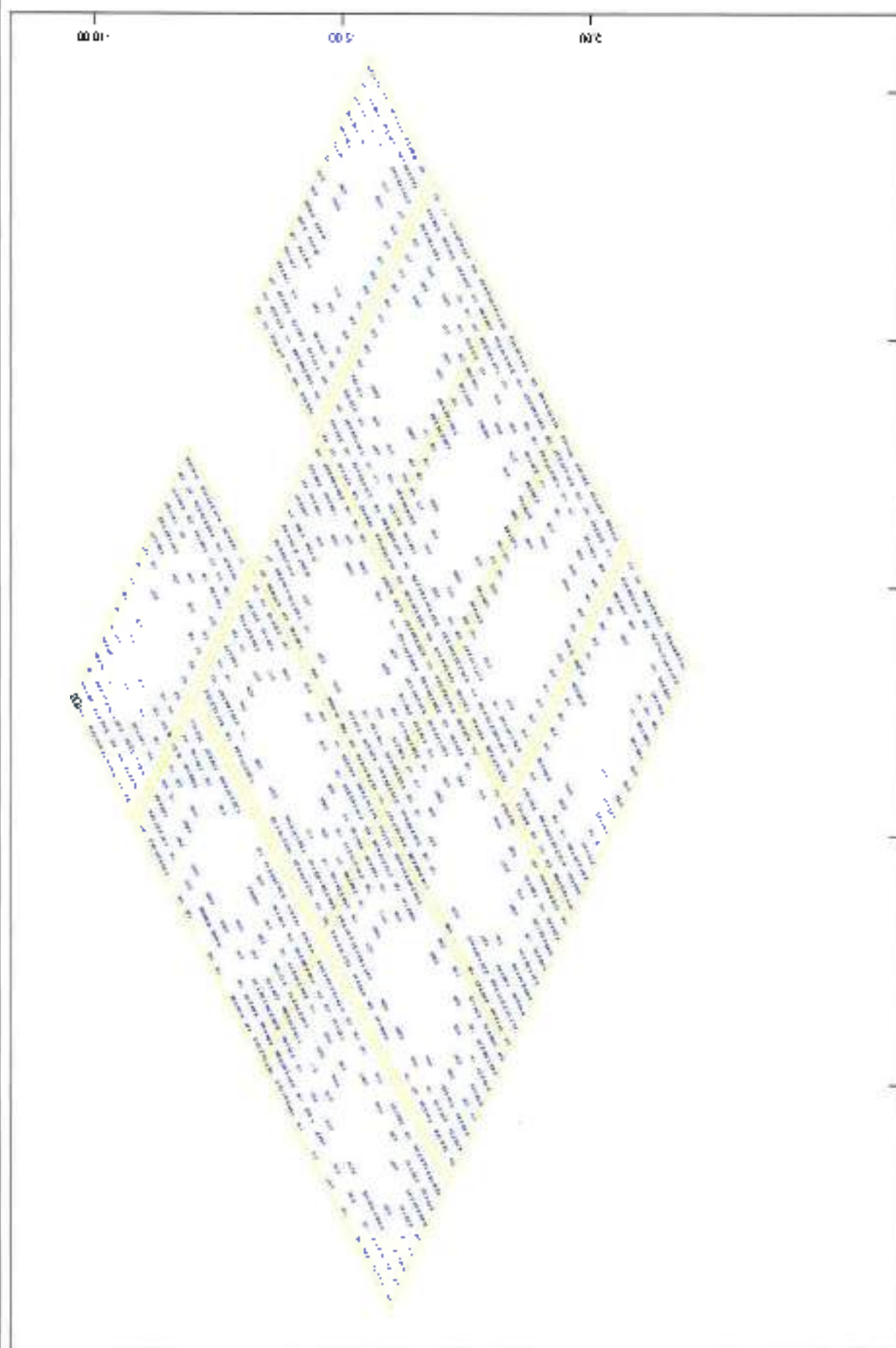


M1-118
 X=0.773
 Y=0.833
 Z=0.873

Sector of system: Quadrilateral Elements Group 3
 Local Cross reinforcement: 2nd layer in Nodes in cm2/m, Design Case 23 (Max=9.16)

X
 Y
 Z

NHPIAGOGEO_GASTOUNH
 Interactive Graphic

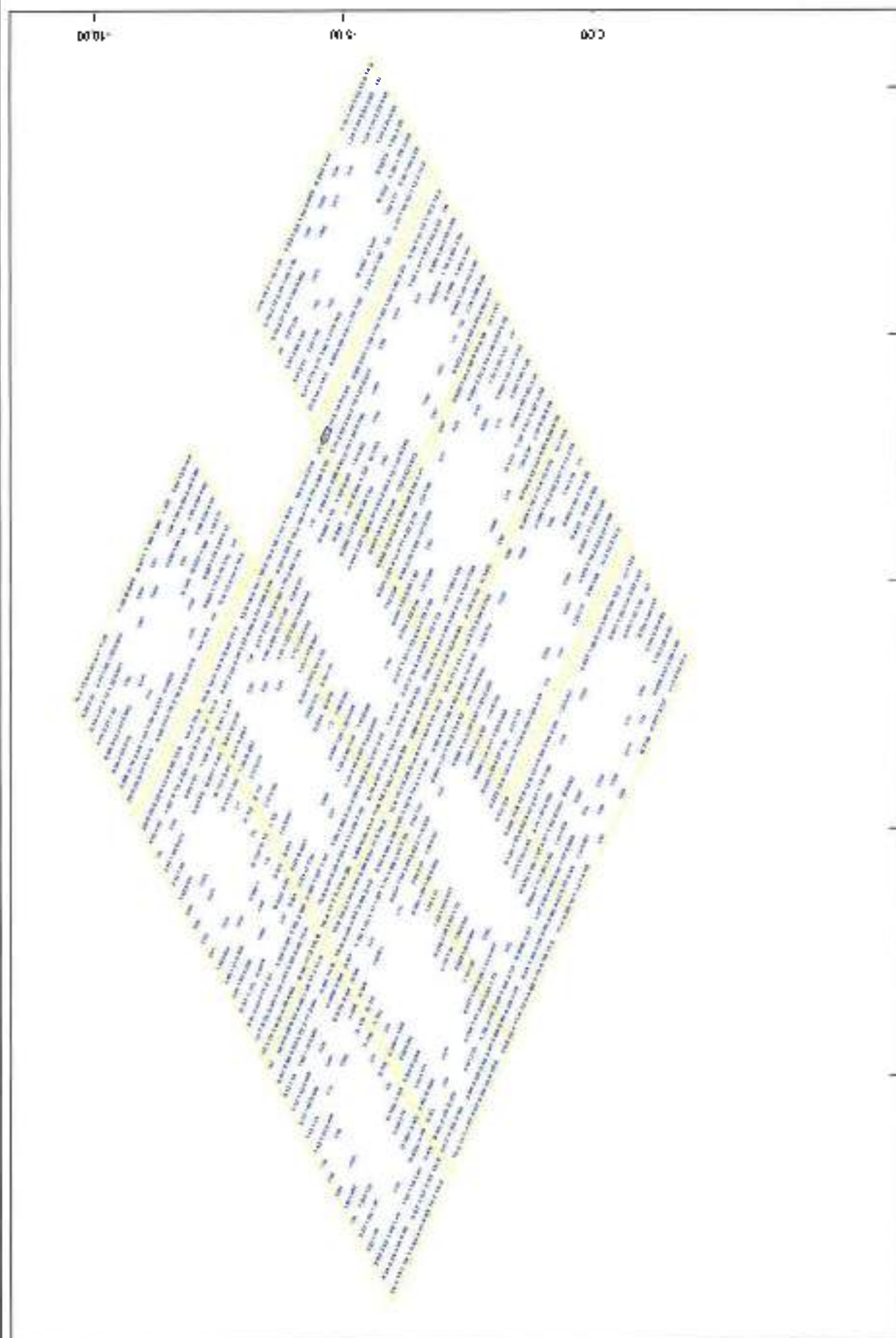


Mat: 111
 X: 0.77
 Y: 0.403
 Z: 0.070

Section of system: Quasistatic Elements Group 3
 Upper Principal reinforcements (1st layer) in Models in cm²/m, Design Case 2C (Max=19.2)

X
 Y
 Z

NHPIAGOGEO_GASTOUNH
 Interactive Graphic

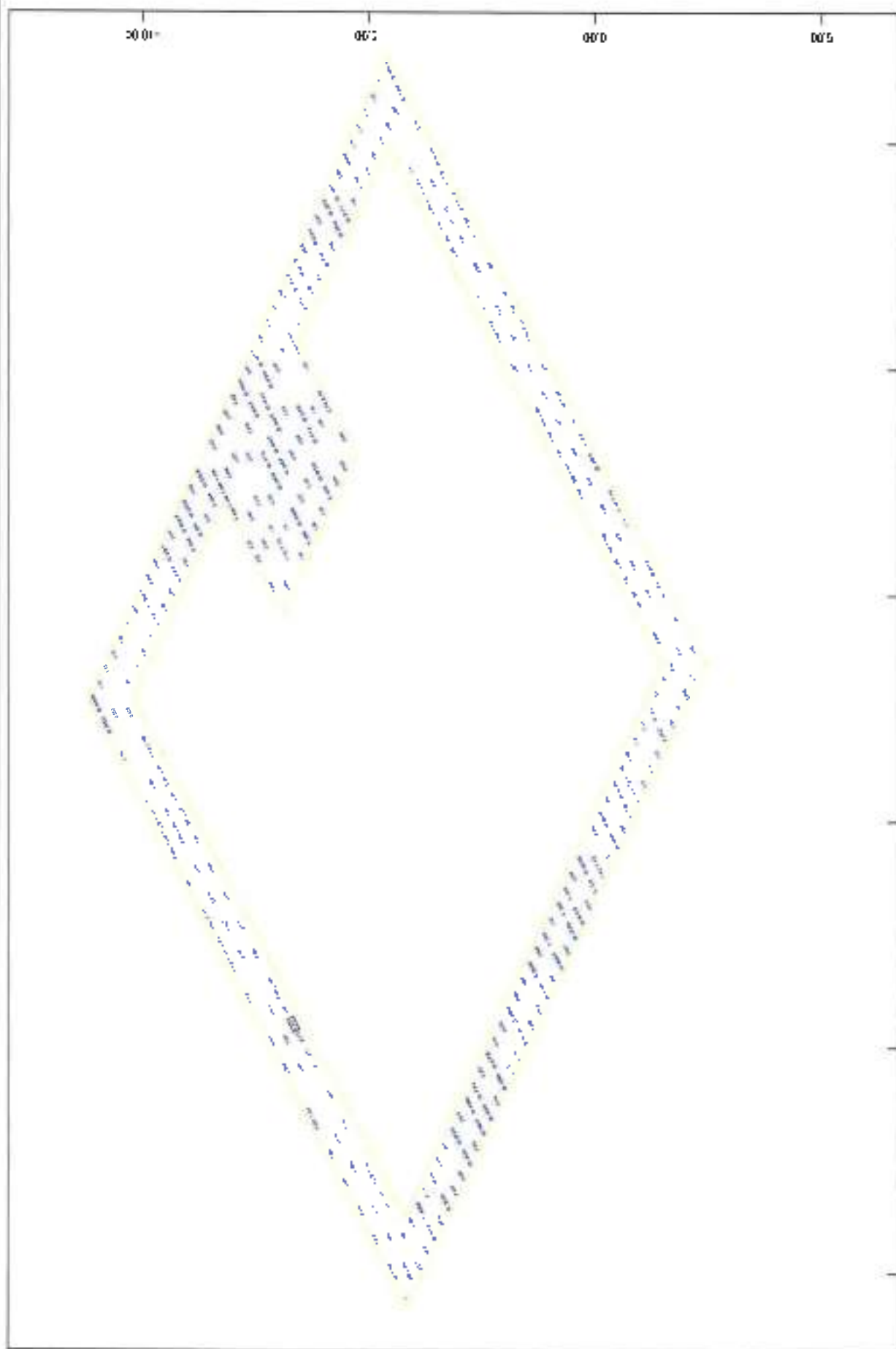


M 1:111
 X=0.77
 Y=0.00
 Z=0.00

Sector of system Qualitative Elements Group 3
 upper Cross reinforcement (2nd layer) in Nodes in onZim, Design Case 2C (Max=21.0)

X
 Y
 Z

NIPIAGGEIO_GASTOUNH
 Interactive Graphic

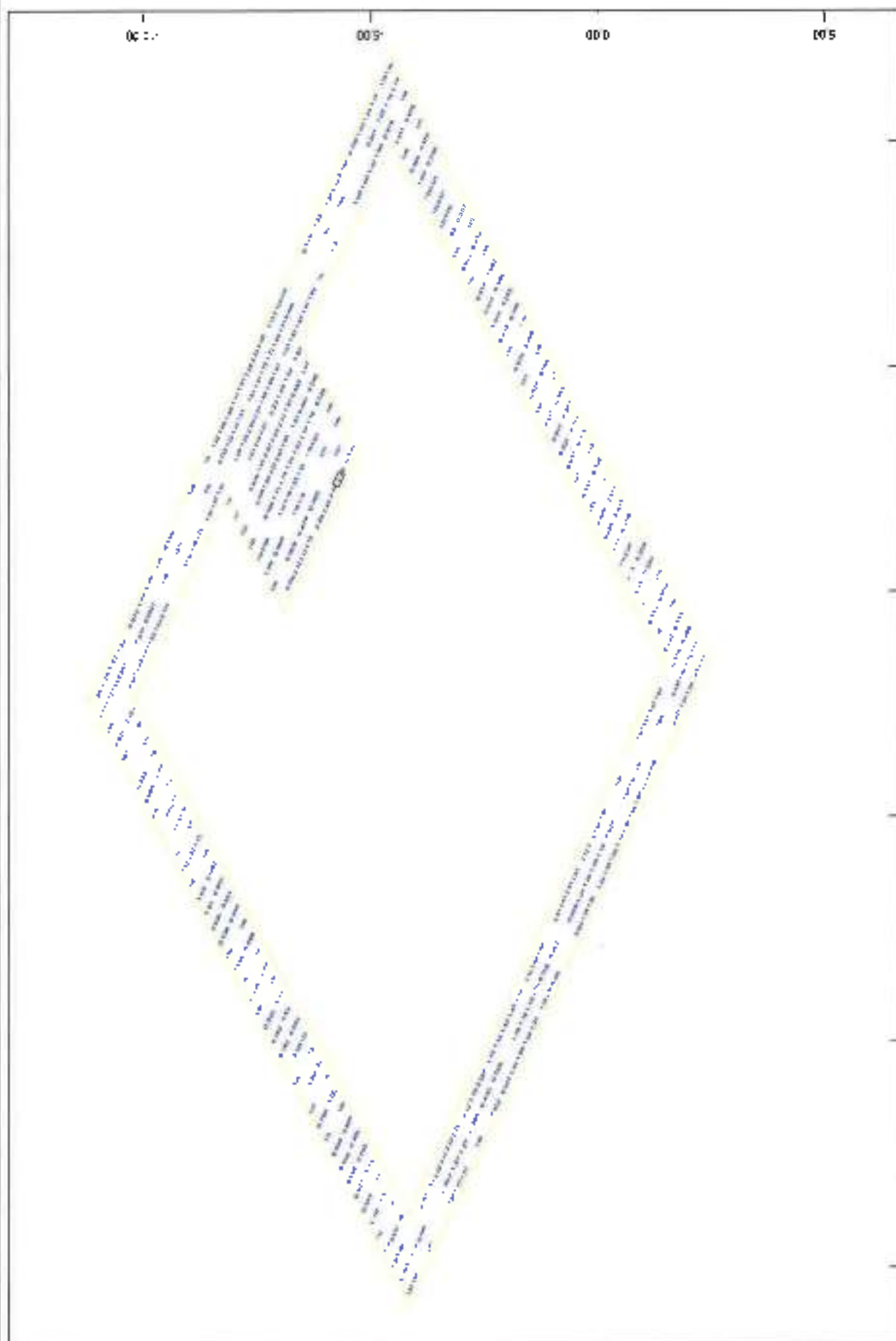


N1 122
 X=0.773
 Y=0.003
 Z=0.000

Sector of system Quadrilateral Elements Group 4
 Lower Principal reinforcements (1st layer) in Nodes in cm²/m. Design Case 20. (B/Ax=2.71)

X
 Y
 Z

NHPIAGOGEO_GASTOUNH
 Interactive Graphic

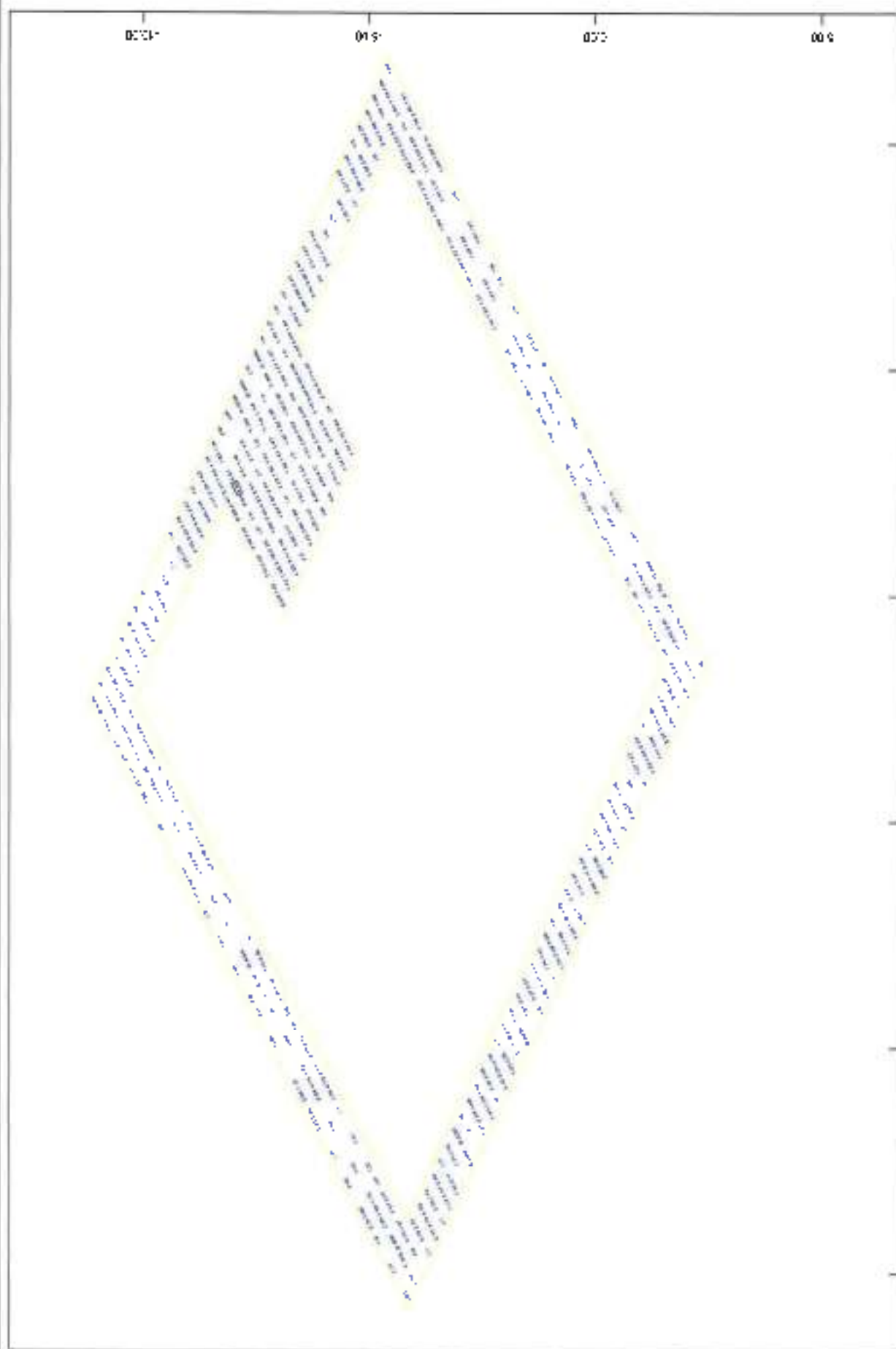


M1.122
 X=0.00
 Y=0.00
 Z=0.00

Sector of system Quadrilateral Elements Group 4
 lower Cross reinforcements (2nd layer) in Nodes in cm²/m, Design Case 20 (Max=2.48)

X
 Y
 Z

NHP\AGOGEIO_GASTOUNH
 Interactive Graphic

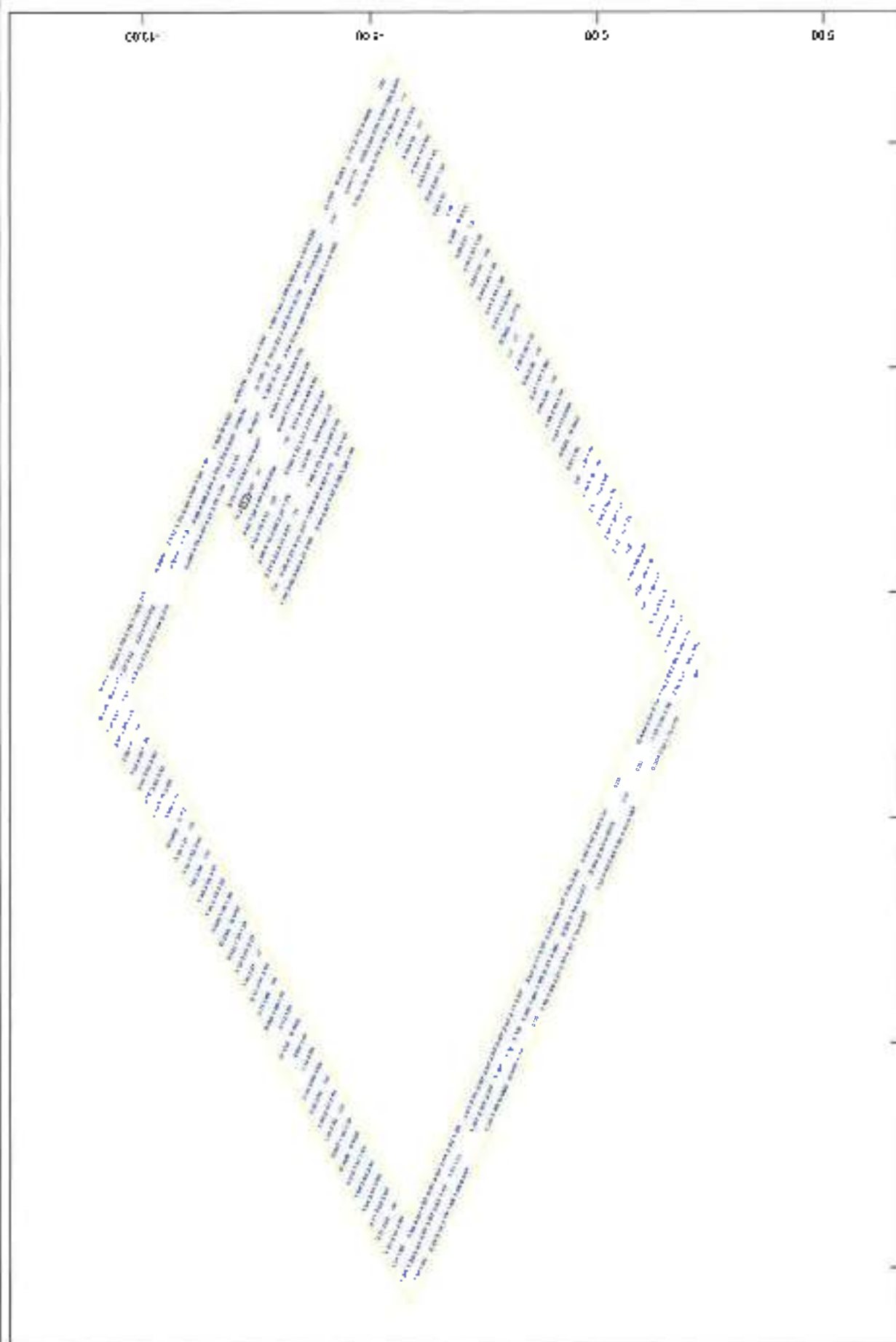


M 1 - 122
 X = 0.773
 Y = 0.803
 Z = 0.870

Sector of system Quadrilateral Elements Group 4
 upper Principal reinforcements (1st layer) in Nodes in cm2/m Design Case 20 (Max=8.89)

X
 Y
 Z

NHPIAGOGEOI0_GASTOUNH
 Interactive Graphic

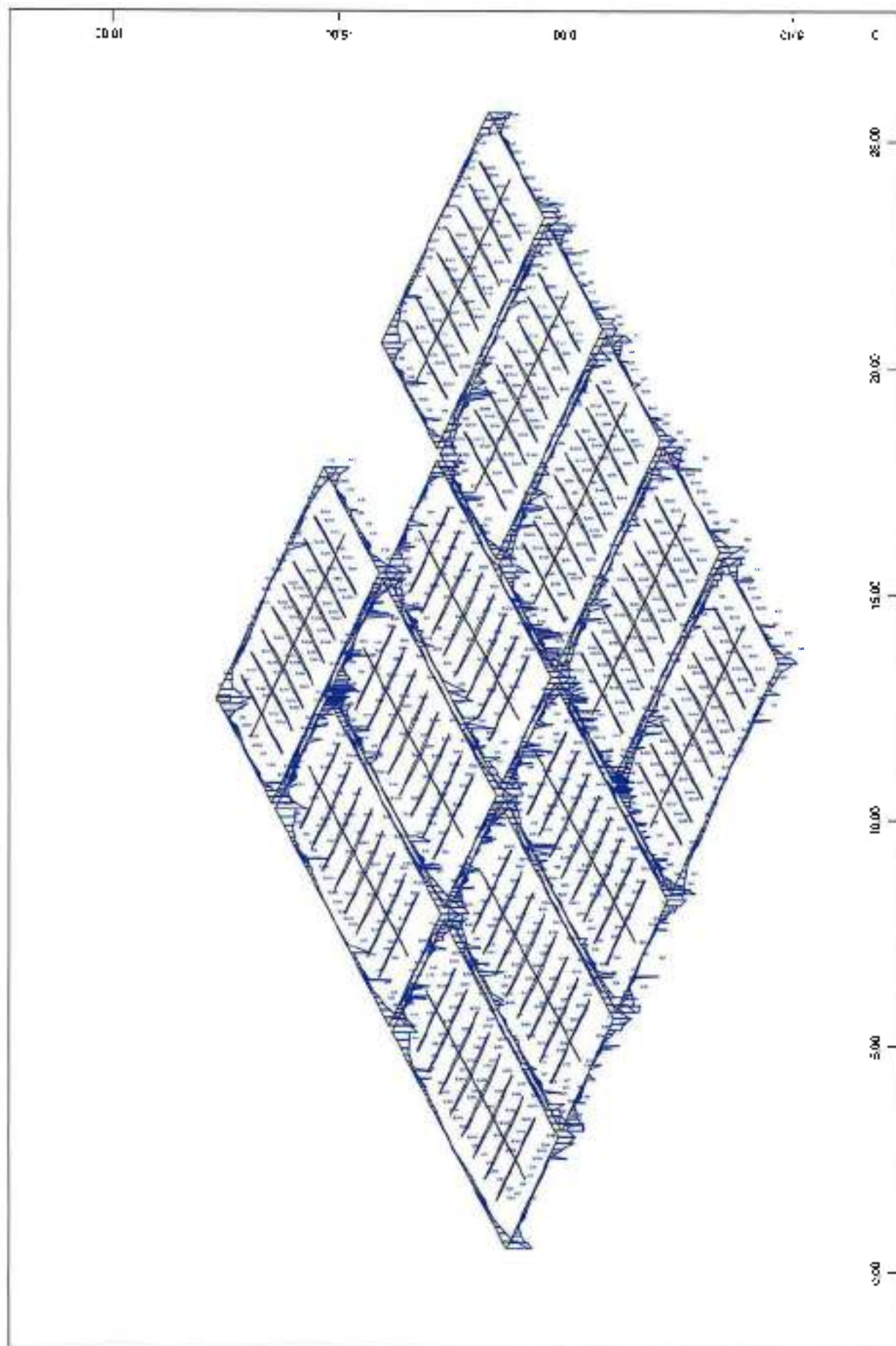


W1 1Z2
 X=0.773
 Y=0.803
 Z=0.873

Sector of system Quadrilateral Elements Group 4
 upper Cross Reinforcements (2nd layer) in Nodes in cm2/r. Design Case 20 (Max=11.2)

X
 Y
 Z

NHPIAGOGETO_GASTOUNH
 Interactive Graphic

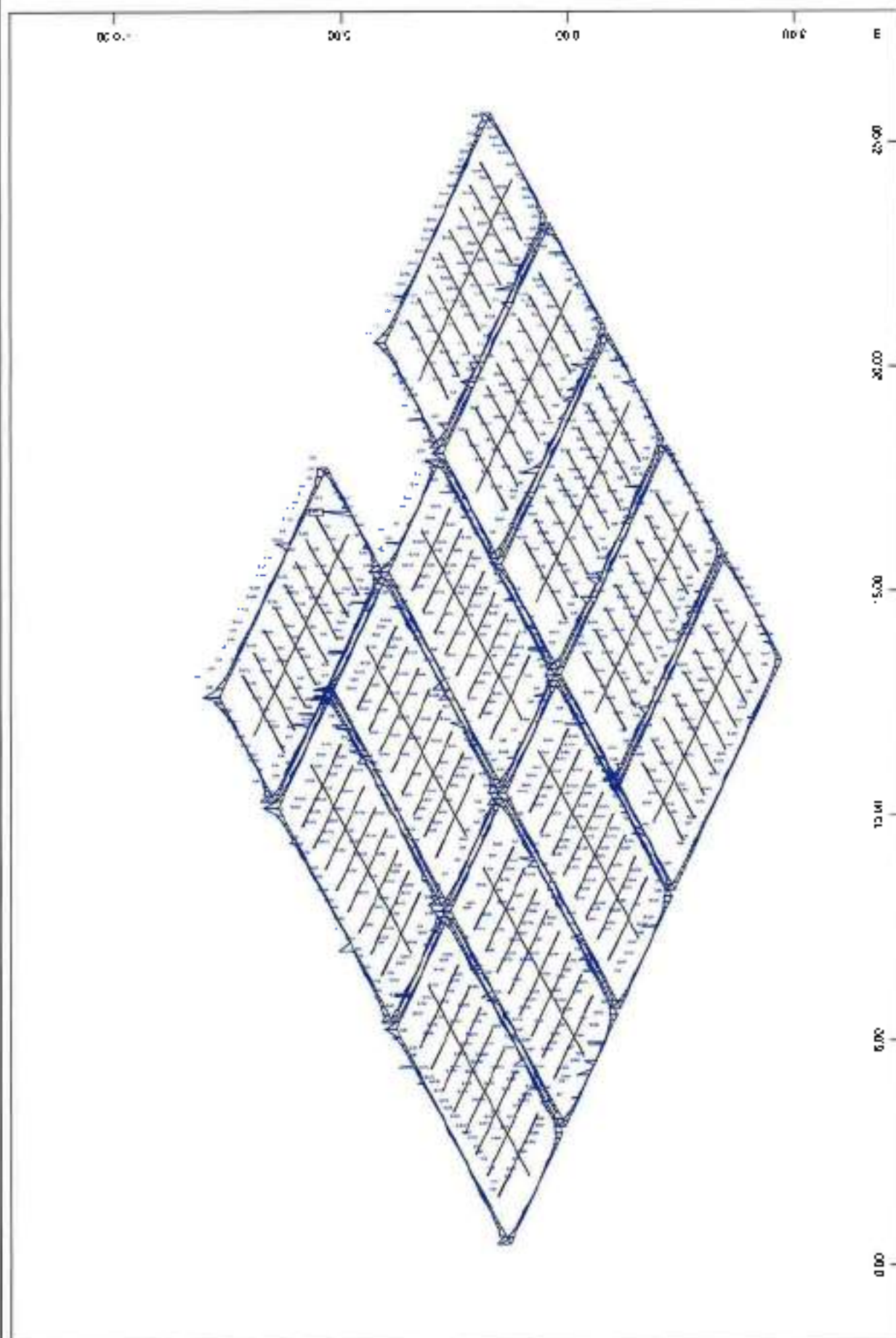


M 1.122
 X: 0.000
 Y: 0.000
 Z: 0.000

Sector of system Beam Elements Group C
 Beam Elements, Longitudinal Reinforcement Lay. 1 Design Case 20, 1:1000 - 20.0 cm2, Max=14.71

X
 Y
 Z

NHPIAGOGETO_GASTOUNH
 Interactive Graphic

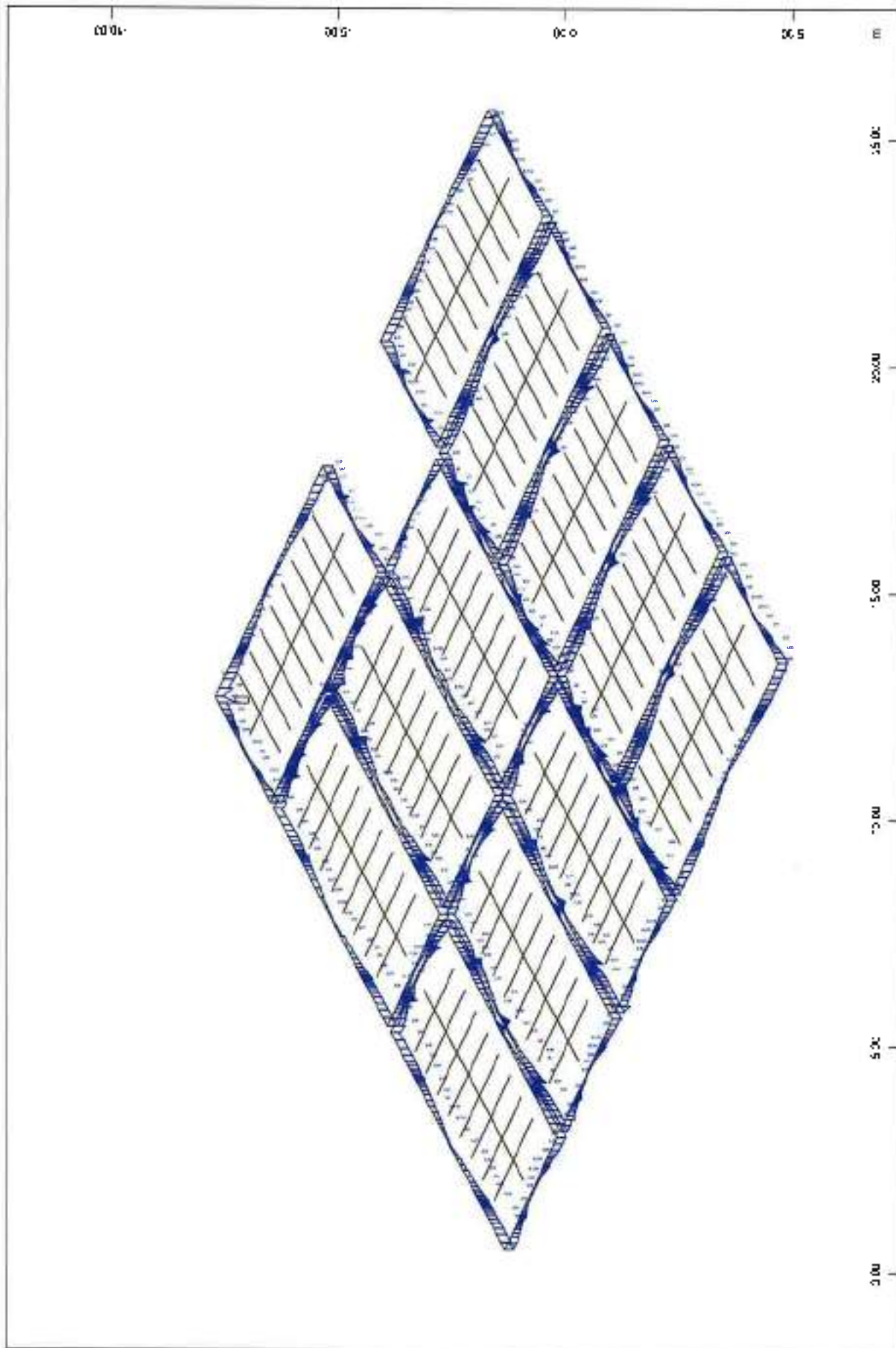


M 1 122
 X = 2.773
 Y = 0.903
 Z = 2.870

Section of system Beam Elements Group C
 Beam Elements . Longitudinal Reinforcement key 2 Design Case 20 . 1 3D = 20.0 cm2 (Mlx=11 Z)

X
 Y
 Z

NP1AGDGE113_GASTOUNH
 Interactive Graphic

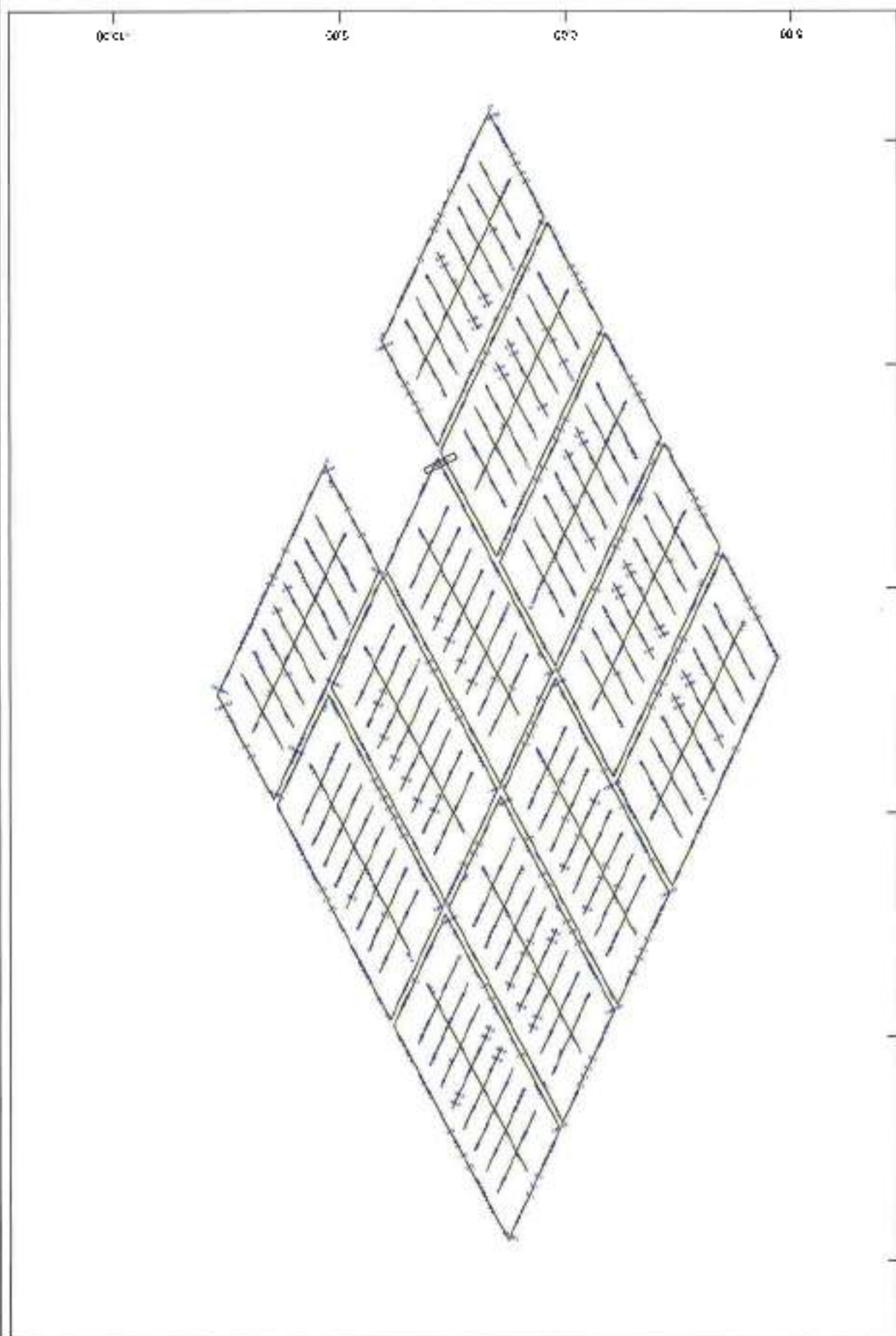


Model 122
 X=0.775
 Y=0.800
 Z=0.875

Sector of system, Beam Elements Group 0
 Beam Elements Longitudinal Reinforcements Lay. 1, Design Case 20, 1 cm 3D = 20.0 cm 2 (Max=6.96)

X
 Y
 Z

ΜΗΠΑΓΟΓΕΙΟ_ΓΑΣΤΡΟΝΗ
 Interactive Graphic

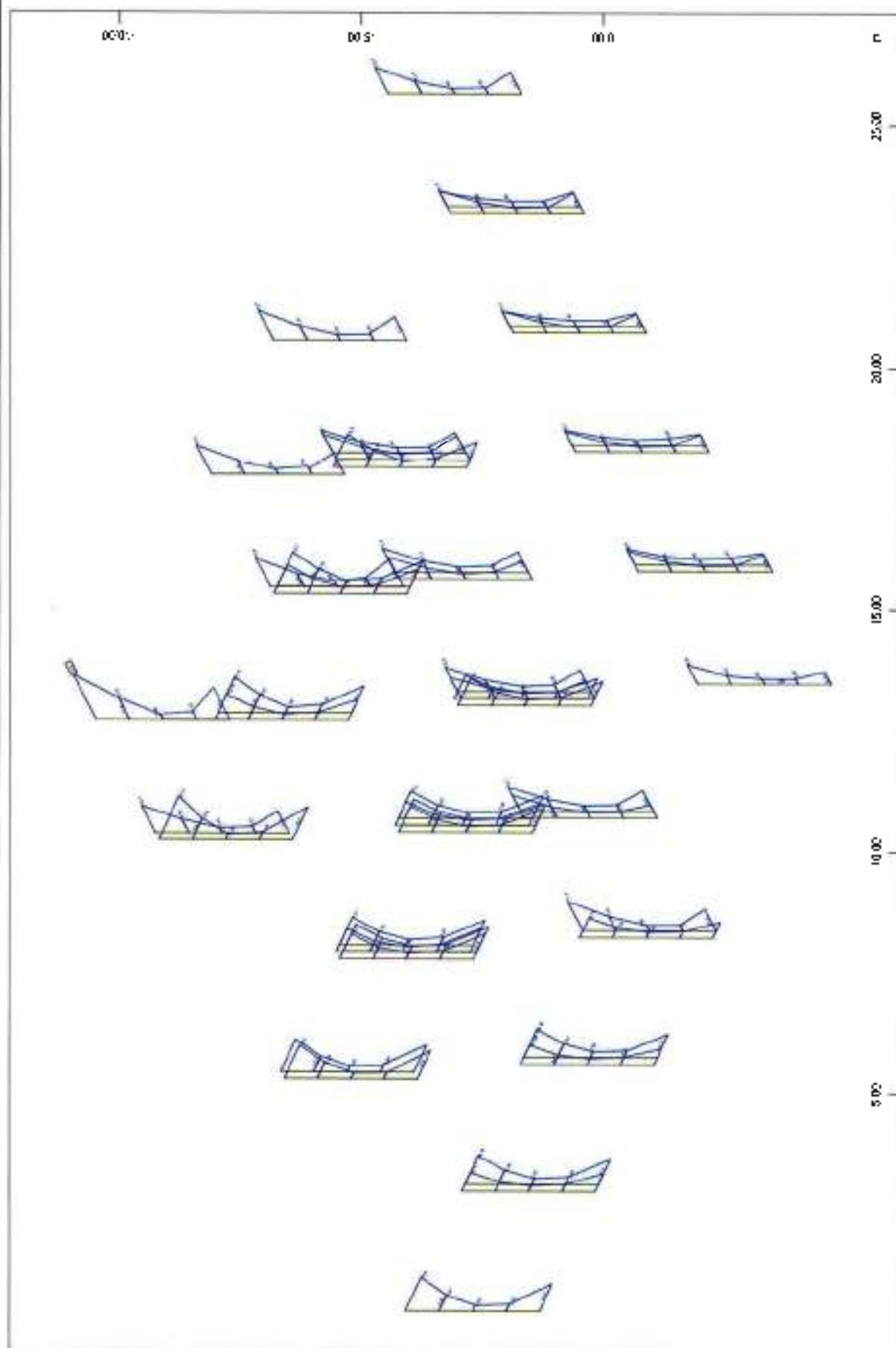


M1 122
 X=0.73
 Y=0.903
 Z=0.970

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 WINGRAF - GRAPHICS FOR FINITE ELEMENTS (V 15.02-25)

X
 Y
 Z

NHPIAGGEID_GASTOUNH
 Interactive Graphic

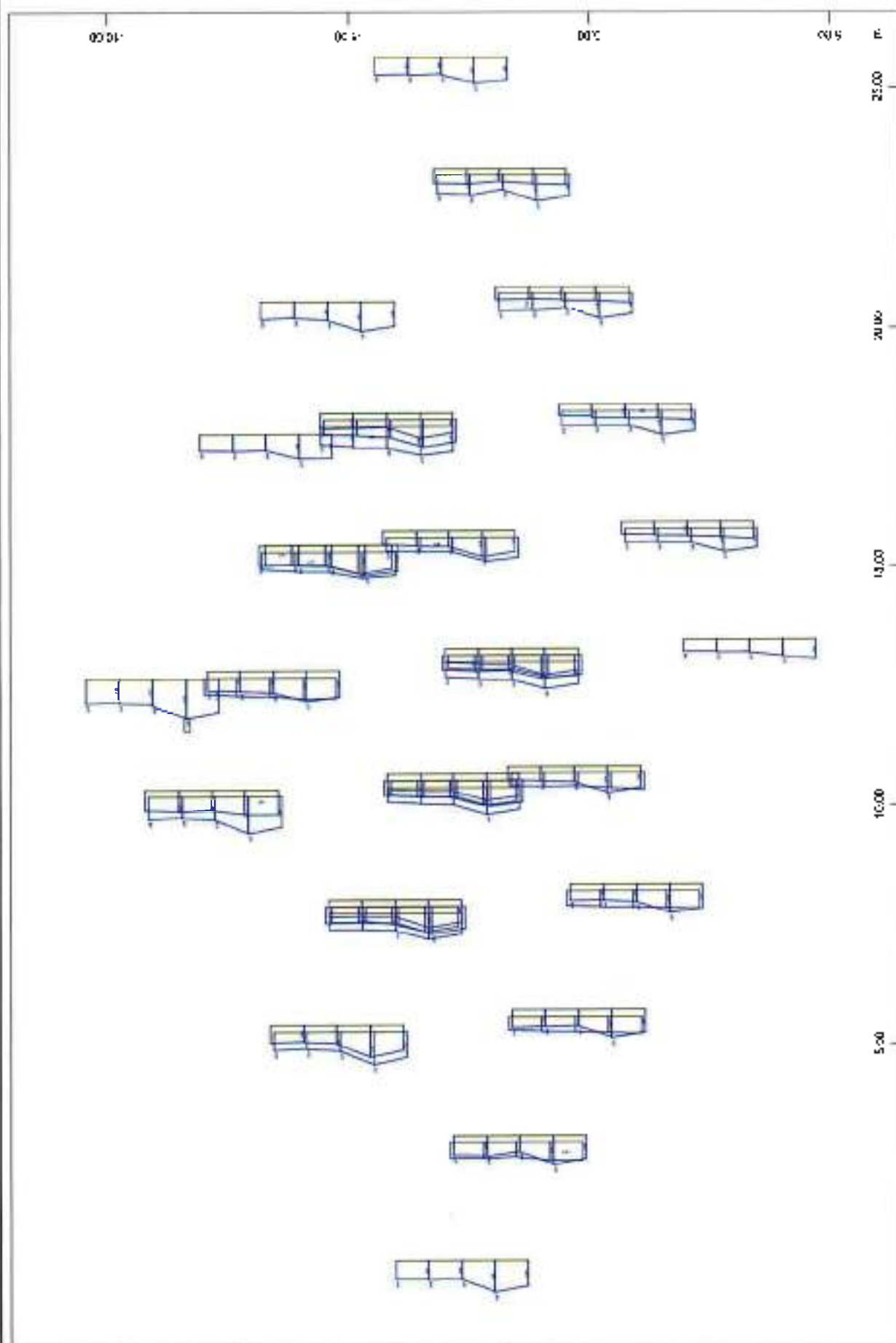


M 1 114
 X=0.73
 Y=0.00
 Z=0.00

Section of system Beam Elements Group
 Beam Elements Longitudinal Reinforcements .ay 0. Design Case 20 . 1 cm 3D = 20.0 cm2 (Area=23.8)

X
 Y
 Z

NHPIAGOGEIO_GASTOUNH
 Interactive Graphic

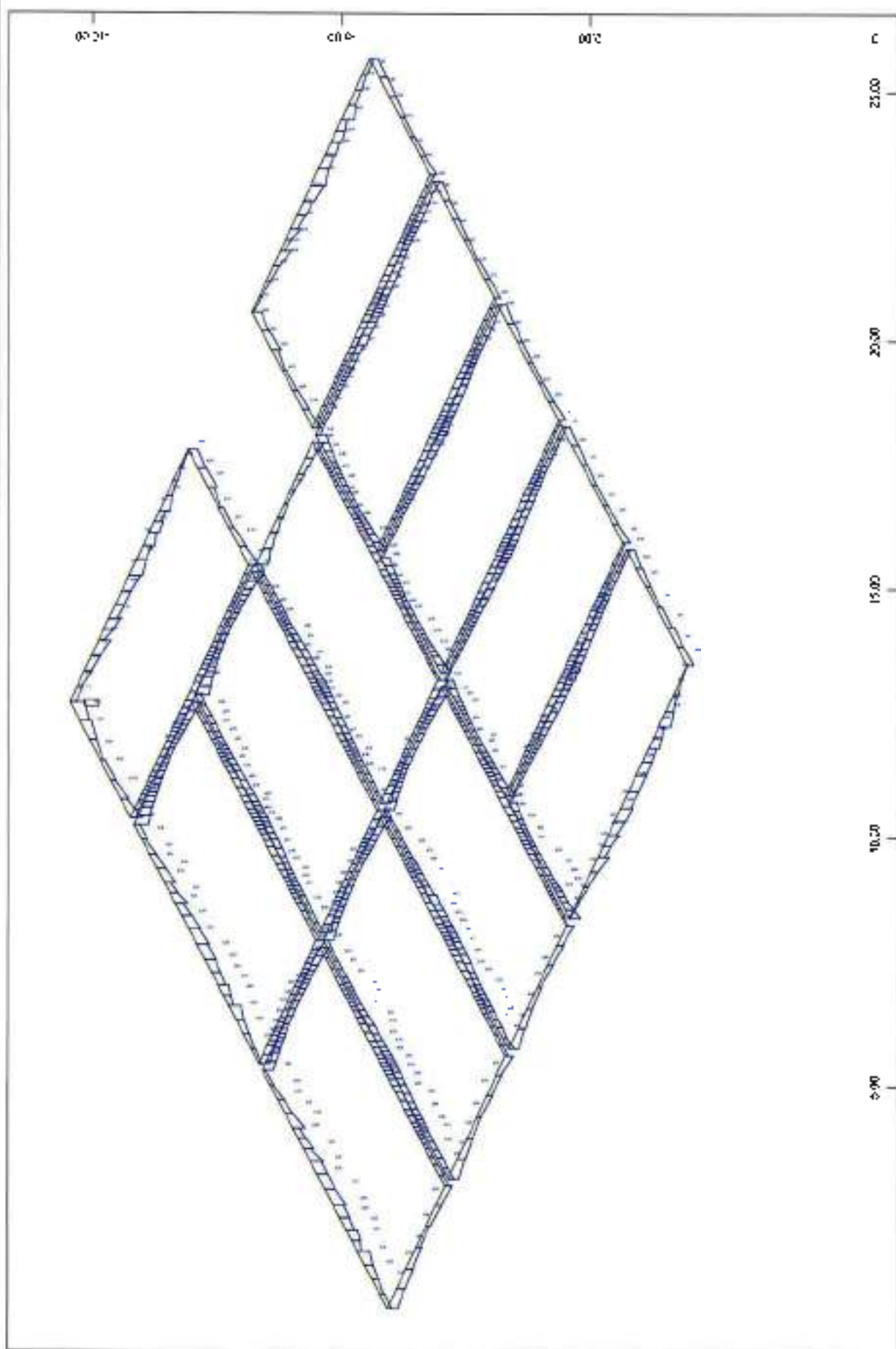


M1 115
 x'0.00
 y'0.00
 z'0.00

Section of system Beam Elements Group
 Beam Elements, Shear reinforcements (maximum), Design Code 20, 1 cm²/3D = 5.00 cm²/m (Max=5.00)

X
 Y
 Z

NHPIAGGEIO_GASTOUNH
 Interactive Graphic



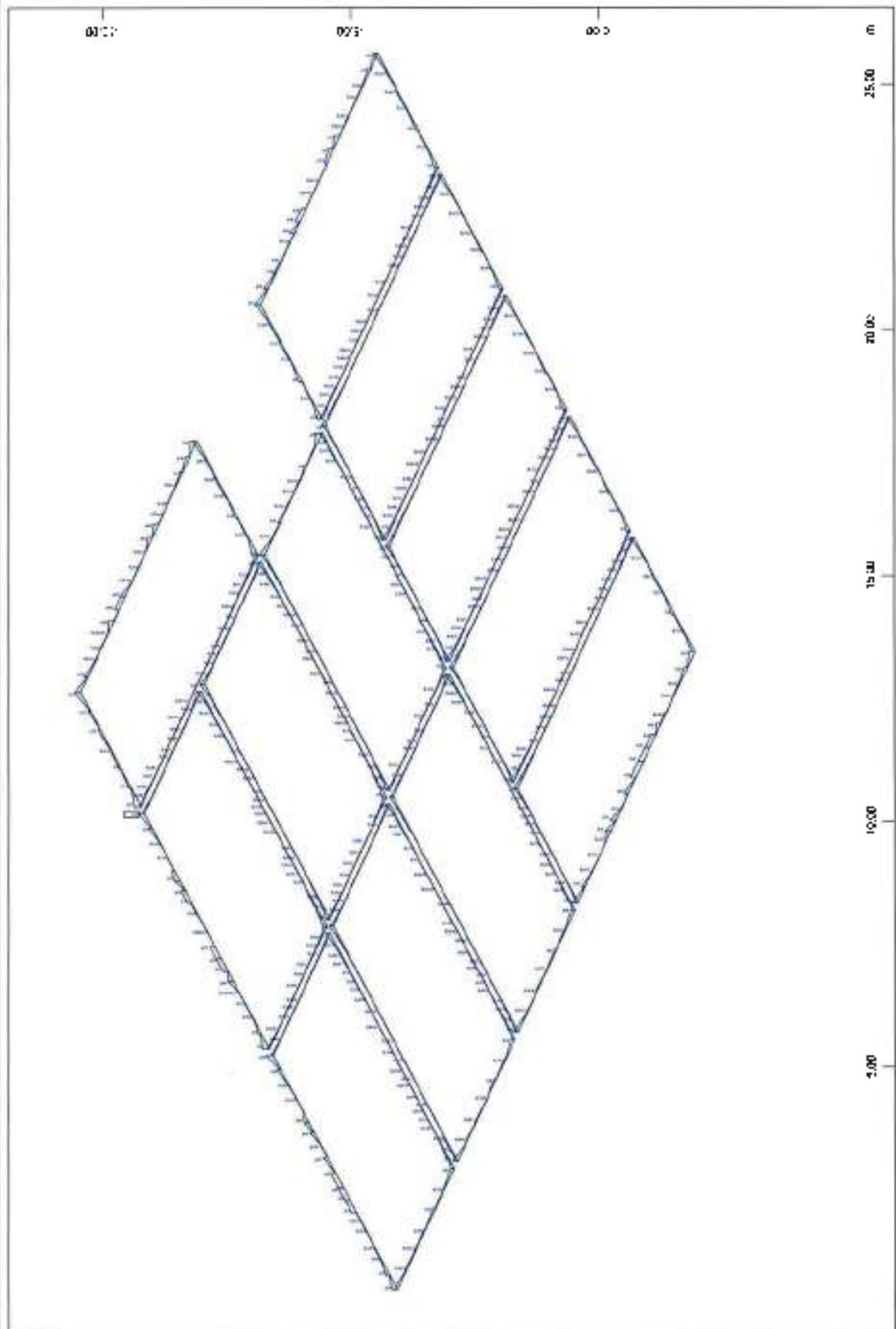
MA 1.111
 X=0.00
 Y=0.00
 Z=0.00

Sector of system Beam Elements Group 2
 Beam Elements Longitudinal Reinforcements Lay • Design Case 20 • 1 cm 30 = 25.5 mm (Max=7.50)

X
 Y
 Z

NHP\AG0610_GASTOUNH
 Interactive Graphic

SOFRISTIK AG - www.sofistik.de

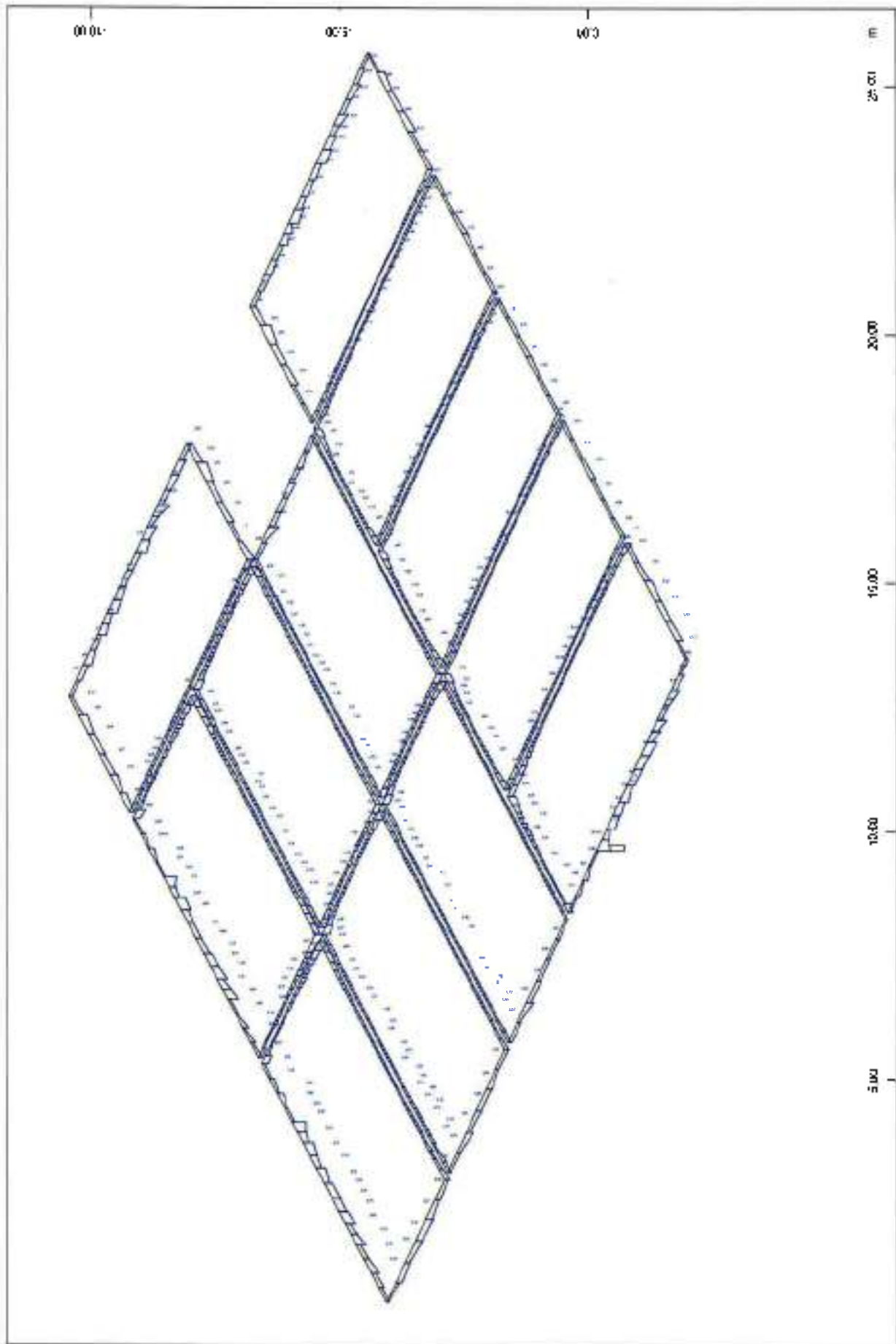


N 1 - 131
 3-3-73
 Y-3-123
 Z-3-123

Sector of system Beam Elements Group 2
 Beam Elements : Longitudinal Reinforcements Lay 2, Design Code 20, 1 cm 3D = 25.0 cm (Max = 3.55)

X
 Y
 Z

NHPIAGOGETO_GASTOUNH
 Interactive Graphic

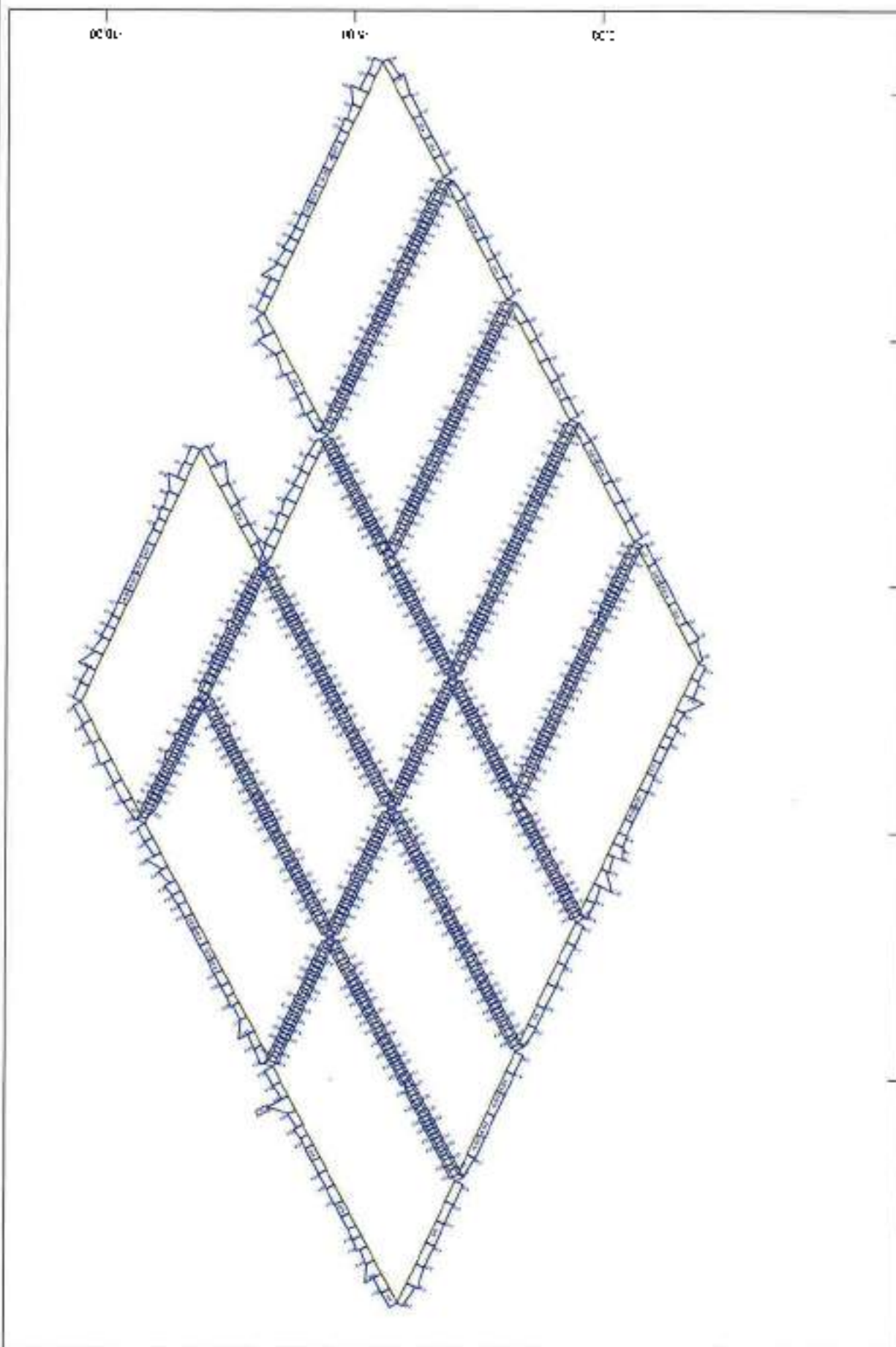


M1:111
 X=0.779
 Y=0.803
 Z=0.870

Sector of system Beam Elements Group 2
 Beam Elements Longitudinal Reinforcements Lay 3, Design Case 20, 1 cm 3D = 25 0.0002 (Mass=7.31)

X
 Y
 Z

NHPIAGOGEOI_GASTOINH
 Interactive Graphic



M1.112
 X=3.37m
 Y=3.400
 Z=3.370

Sector of system Beam Elements Group 2
 Beam Elements Shear reinforcement (mgamun), Design Case 20.1 cm ID - 25.0 cm OD (Max=10.4)

X
 Y
 Z