ΕΡΓΟΔΟΤΗΣ: ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Π.Ε. ΗΛΕΙΑΣ
ΔΗΜΟΣ ΠΗΝΕΙΟΥ
ΔΙΕΥΘΥΝΣΗ ΤΕΧΝΙΚΩΝ ΥΠΗΡΕΣΙΩΝ & ΠΕΡΙΒΑΛΛΟΝΤΟΣ

ΠΡΟΙΣΤΑΜ Δ/ΝΣΗΣ
NIKOLETTA KOKKALIARI
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ΑΚΡΙΒΕΣ ΑΝΤΙΓΡΑΦΟ

ΜΕΛΕΤΗ: Κατασκευη Προσθηκης Α' ΝΗΠΙΑΓΩΓΕΙΟΥ ΓΑΣΤΟΥΝΗΣ, ΔΗΜΟΥ ΠΗΝΕΙΟΥ

ΣΤΑΤΙΚΗ ΜΕΛΕΤΗ

ΘΕΜΑ ΤΕΥΧΟΥΣ:

ΣΤΑΤΙΚΟΙ ΥΠΟΛΟΓΙΣΜΟΙ

ΑΡ. ΤΕΥΧΟΥΣ:

T1

ΜΕΛΕΤΗΤΗΣ :

ΔΙΕΥΘΥΝΣΗ ΤΕΧΝΙΚΩΝ ΥΠΗΡΕΣΙΩΝ & ΠΕΡΙΒΑΛΛΟΝΤΟΣ

ΤΕΧΝΙΚΟΣ ΣΥΜΒΟΥΛΟΣ:

ΚΩΣΤΑΣ ΛΙΟΝΤΟΣ
ΔΙΠΛΩΜΑΤ. ΠΟΛΙΤΙΚΟΣ ΜΗΧΑΝΙΚΟΣ
ΕΘΝΙΚΟΥ ΜΕΤΣΟΒΙΟΥ ΠΟΛΥΤΕΧΝΕΙΟΥ
ΜΕΛΟΣ Τ.Ε.Ε. ΑΡΙΘΜΟΣ ΜΗΤΡΩΟΥ 38207
ΛΑΜΠΡΟΥ ΚΑΤΣΩΝΗ 38Α ΑΘΗΝΑ 11471
ΤΗΛ. 210.64.11.406

ΚΩΝΣΤΑΝΤΙΝΟΣ ΛΙΟΝΤΟΣ

ΧΡΟΝΟΣ ΕΚΠΟΝΗΣΗΣ :

Γαστούνη 23-12-2025
ΣΥΝΤΑΧΘΗΚΕ:

ΠΟΛΥΞΕΝΗ ΦΟΥΝΤΑ
Πολιτικός Μηχανικός

Γαστούνη 23-12-2025
ΘΕΩΡΗΘΗΚΕ:
Η ΠΡΟΪΣΤΑΜΕΝΗ Δ/ΝΣΗΣ

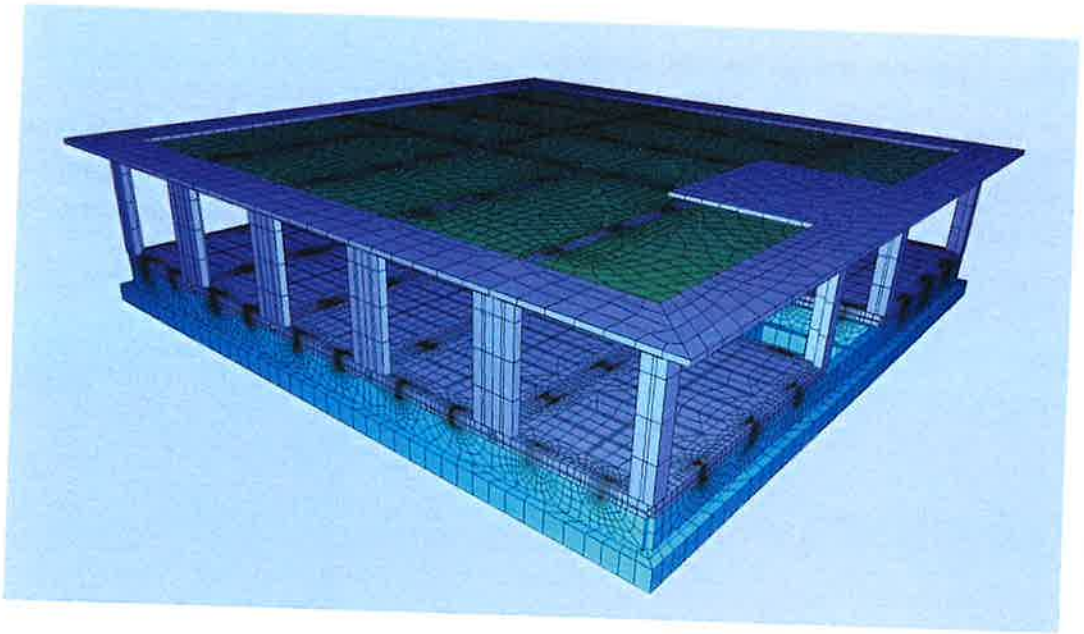
ΝΙΚΟΛΕΤΤΑ ΚΟΚΚΑΛΙΑΡΗ
Πολιτικός Μηχανικός M.Sc

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ

1 ΓΕΝΙΚΗ ΠΕΡΙΓΡΑΦΗ ΤΟΥ ΕΡΓΟΥ

Σύμφωνα με τα συνημμένα σχέδια, το έργο αποτελείται από ένα ισόγειο κτήριο από προκατασκευασμένο σκυρόδεμα, με συνολικό εμβαδό κάτοψης φ.ο. 324.52 m². Το κτήριο έχει μέγιστες διαστάσεις κάτοψης 18.34 m × 18.34 m, ενώ το μέγιστο ύψος οροφής είναι στο +5.72 m.

Το στατικό προσομοίωματα του κτηρίου όπως δημιουργήθηκαν 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 τετρακλινής στέγη.

2.2 Περιγραφή των προκατασκευασμένων στοιχείων του φ.ο.

Κυψέλες

Οι προκατ. κυψέλες είναι μονολιθικές ορθογωνικές κατασκευές διαστάσεως κάτοψης 7.20 m × 3.60 m και ύψους 3.46 m. Κατασκευάζονται από σκυρόδεμα ποιότητας C30/37. Στην βάση τους υπάρχουν κατάλληλες οπές 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 κρυφοκολώνες στα άκρα και ενδιάμεση στρώση μόνωσης 6 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 μορφής Θεμελιοδοκών διατομής ανεστραμμένου ταυ, με ύψος 1.20 m, πάχος κορμού 0.25-0.40 m και πλάτος πέλματος 0.70-1.20 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 συμπύκνωση άοπλου σκυροδέματος C12/15 πάχους 10 cm κάτω από την επιφάνεια της θεμελίωσης.

3 ΕΦΑΡΜΟΖΟΜΕΝΑ ΠΡΟΤΥΠΑ

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

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

4 ΠΑΡΑΔΟΧΕΣ ΜΕΛΕΤΗΣ

4.1 Ιδιότητες υλικών

Είδος υλικού	Ποιότητα
Σκυρόδεμα καθαριότητας	C12/15
Σκυρόδεμα θεμελίωσης	C25/30
Σκυρόδεμα προκατ. στοιχείων	C30/37
Χάλυβας διαμήκους οπλισμού	B500C
Χάλυβας εγκάρσιου οπλισμού	B500C
Χάλυβας αγκυρίων συνδέσεων	B500C
Χάλυβας προεντεταμένου σκυροδέματος	Y1700/1860
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 ιδίου Προτύπου. Το Εθνικό Προσάρτημα 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

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

Σεισμολογικά στοιχεία	Τιμή
Ζώνη σεισμικής επικινδυνότητας	Z2
Μέγιστη εδαφική επιτάχυνση στον βράχο, a_{gR}	0.24g
Κατηγορία σπουδαιότητας έργου	III
Συντελεστής σπουδαιότητας έργου, γ_I	1.20
Κατηγορία εδάφους	C
Συντελεστής εδάφους, S	1.15
Χαρακτηριστικές ιδιοπερίοδοι, T_B, T_C, T_D	0.20, 0.60, 2.50
Κατηγορία πλαστιμότητας	ΚΠΜ
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/m³
Ειδικό βάρος χάλυβα	78.50 kN/m³
Ειδικό βάρος γαιών	20.00 kN/m³
Επικάλυψη δαπέδου ισογείου	2.00 kN/m²
Επικάλυψη οροφής	3.00 kN/m²

Μεταβλητή δράση	Τιμή
Χιόνι ($s_{k,A}$)	0.40 kN/m²
Χιόνι ($\mu_1(\alpha_1)$)	0.32 kN/m²
Βασική ταχύτητα ανέμου	33 m/sec²

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

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_{Ei}

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_{Ei}
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 φερόντων στοιχείων

Το προσομοίωμα του κτηρίου είναι το αρθρωτό χωρικό πλαίσιο επί ελαστικής έδρασης (ελαστικό υπόβαθρο Winkler). Λαμβάνονται υπ'όψη μόνο τα έργα που προέρχονται από αξονικές και τέμνουσες δυνάμεις, καθώς και από ροπές κάμψεως 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 πρωτευόντων σεισμικών στοιχείων του μπετονένιου κτηρίου) είναι ίση με την μισή της γεωμετρικής διατομής.

5.2 Προσομοίωση μαζών

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

Α.1.1 της §Α1.2.2 του ΕΛΟΤ ΕΝ 1990:2002. Στην περίπτωση φορτίων χιονιού και ανέμου έχουμε:

$$\psi_{Ei} = \varphi \cdot \psi_{2i} = 1.00 \cdot 0.00 = 0.00$$

5.3 Προσομοίωση θεμελίωσης

Η προσομοίωση των πεδίλων 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 μετακινησιακοί και τρεις στροφικοί). Στους κόμβους της θεμελίωσης έχουν προσαρμοσθεί ελατήρια με σταθερές παραμόρφωσης που προκύπτουν από τον δείκτη εδάφους Κ (βλ. §4.3 παραπάνω).

5.5 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 εντάσεων των πεπερασμένων στοιχείων και των αντιδράσεων 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(1) του ΕΛΟΤ ΕΝ 1998-1:2004. Εφ' όσον σύμφωνα με την §4.3.3.3.3(1) του ίδιου Προτύπου χρησιμοποιείται χωρικό προσομοίωμα για την ανάλυση, οι τυχηματικές στρεπτικές επιδράσεις καθορίζονται ως περιβάλλουσα των εντατικών μεγεθών στατικών φορτίσεων που αποτελούνται από ομάδα στρεπτικών ροπών M_{ai}, περί τον κατακόρυφο άξονα κάθε ορόφου i, όπου:

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

με $e_{ai} = \pm 0.05 \cdot L_i$ η τυχηματική εκκεντρότητα (§4.3.2(1) του ΕΛΟΤ ΕΝ 1998-1:2004) και F_i το οριζόντιο σεισμικό φορτίο που δρα στον όροφο i σε διεύθυνση κάθετη προς εκείνη της e_{ai}.

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 το S παριστά την M_x, τα αντίστοιχα είναι το M_y και το N), βρίσκονται σε μια δυναμική φασματική ανάλυση από το 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 συστολής 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 (SLS) – 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

Περιβάλλουσες οριακής κατάστασης αστοχίας (ULS) – Με σεισμό	S-1	S-2	S-3
Μόνιμο (G)	1.00		
Χιόνι (S)	0.00		
Άνεμος (W)	0.00		
Κινητό (Q)	0.60		
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 εξεταζόμενη 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 απουδαιότητας 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 χιονιού-ανέμου, κλπ., χρησιμοποιήθηκαν κατάλληλα λογιστικά φύλλα (EXCEL).

SOFiSTiK

SOFiSTiK Hellas

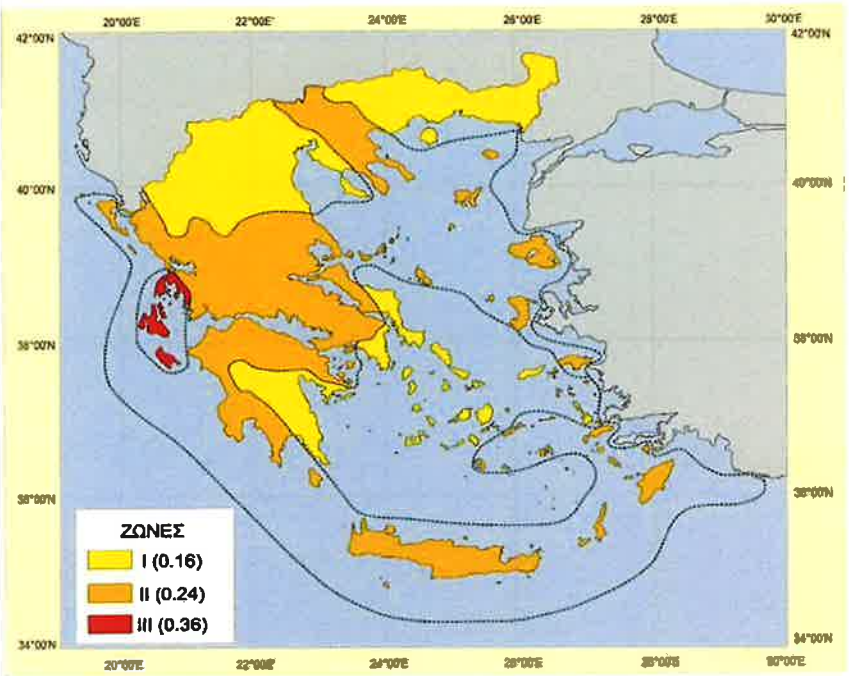
ΠΑΡΑΡΤΗΜΑ Α

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

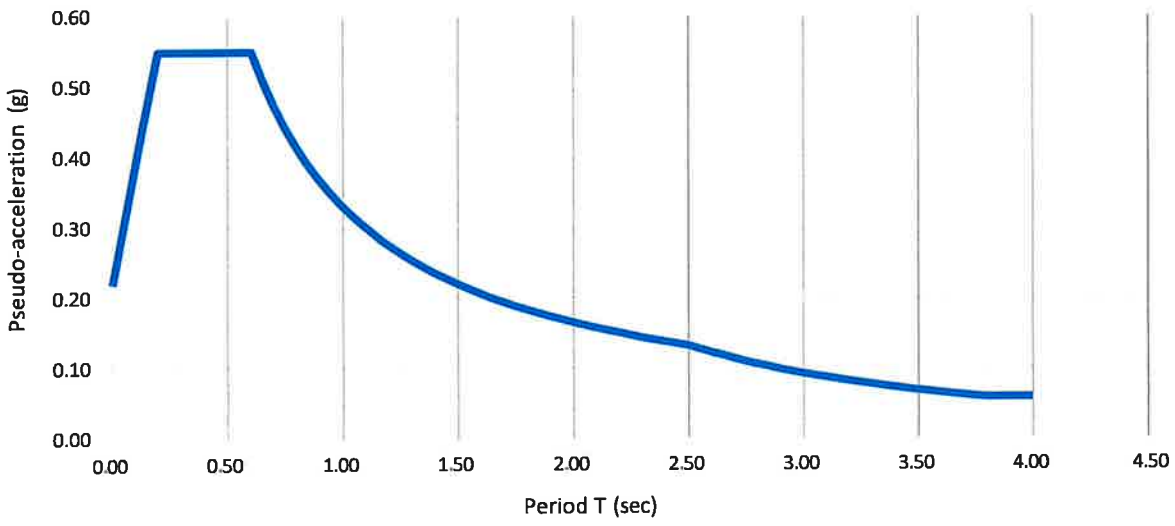
Design acceleration response spectrum according to EN 1GG8-1-1

Input:

Importance factor	γ_I	-	1.20
Ref. peak ground accel. on rock	α_{gR}/g	-	0.24
Period T_B	T_B	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 1GG1-1-4 - 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_I:	1.00
Height from ground to roof, h(m):	5.72		
Roof pitch angle, α(°):	for wind direction θ = 0° → α=		13.56
	for wind direction θ = 90° → α=		13.56
Orography factor, $c_0(z_e)$:	1.00		
Min. value of int. pres. coef., $c_{pi,min}$:	-0.30		
Max. value of int. pres. coef., $c_{pi,max}$:	0.20		
Air density, ρ(kg/m^3):	1.25		

a) Calculation of peak velocity pressure

Reference height:

$z_e = h =$ 5.72 m *§7.2.c(2)*

Basic wind velocity:

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

Terrain roughness:

Roughness length, z_0 (m):	0.05	*Table 4.1*
Minimum height, z_{min} (m):	2.00	*Table 4.1*
Terrain factor, $k_r=0.19\cdot(z_0/z_{0,II})^{0.07}$ =	0.19	*Equation (4.5)*
Roughness factor, $c_r(z_e)=k_r\cdot\ln(z_e/z_0)$=	0.901	*Equation (4.4)*

Orography factor: *§4.3.3*

$c_0(z_e) = 1.00$

Mean wind velocity:

$v_m(z_e)=c_r(z_e)\cdot c_0(z_e)\cdot v_b =$ 29.72 m/sec^2 *Equation (4.3)*

Wind turbulence:

Turbulence factor, k_I = 1.00 *§4.4(1)*

Turbulence intensity, $I_v(z_e)$ = 0.211 *Equation (4.7)*

Calculation of wind load (external and internal pressure coefficients) according to EN 1GG1-1-4 - Hipped roof

Basic velocity pressure:

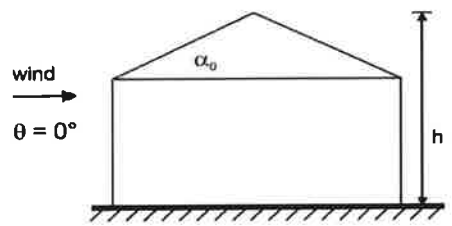
$q_b = (1/2)\cdot\rho\cdot v_b^2 =$ 0.681 kN/m² *§4.5(1)*

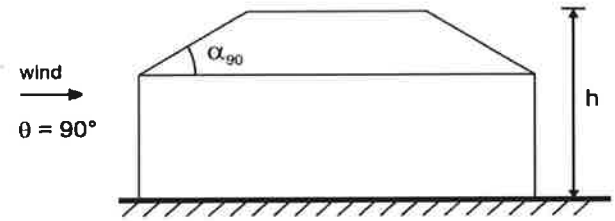
Peak velocity pressure at height z_e :

$q_p(z_e) = (1+7\cdot I_v(z_e))\cdot(1/2)\cdot\rho\cdot v_m(z_e)^2 =$ 1.367 kN/m² *Equation (4.8)*

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

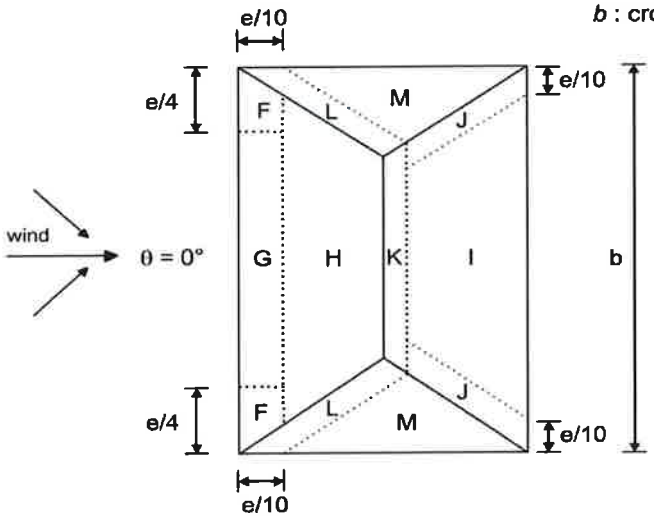
External pressure zones: *Figure (7.5), Table 7.5*



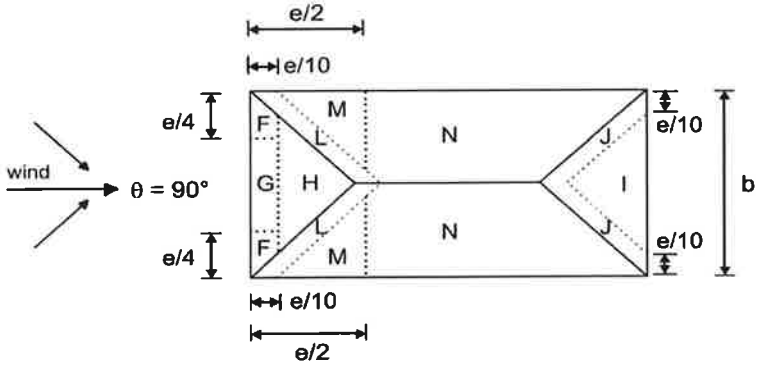


e = *b* or 2*h*
whichever is smaller

b : crosswind dimension



(a) wind direction =0°



(b) wind direction =90°

Length e:

θ=0° → e (m)= min(b, 2h) = 11.44 → e/10 (m)= 1.14 → e/4 (m)= 2.86

θ=90° → e (m)= min(b, 2h) = 11.44 → e/10 (m)= 1.14 → e/4 (m)= 2.86 → e/2 (m)= 5.72

External pressure coefficients (Table 7.5) on pressure zones - Wind direction ϑ = 0°:

angle α(°)	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 1GG1-1-4 - Hipped roof

External pressure coefficients (Table 7.5) on pressure zones - Wind direction ϑ = S0°:

angle α(°)	F	G	H	I	J	L	M	N
13.56	-1.015	-0.858	-0.343	-0.471	-0.942	-1.371	-0.600	-0.314
	0.171	0.171	0.171	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

External wind pressure:

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

Internal wind pressure:

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

Net wind pressure:

$w_{net} = w_e - w_i = q_p(z_e) \cdot c_{pe} - q_p(z_i) \cdot c_{pi}$

Net wind pressure (kN/m ^{2}) on pressure zones - Wind direction ϑ = 0°:

angle α(°)	F	G	H	I	J	K	L	M	
13.56	-1.661	-1.446	-0.743	-0.918	-1.562	-1.796	-2.148	-1.094	**[Cpi= 0.2]**
	0.644	0.644	0.644	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**[Cpi= -0.3]**

Net wind pressure (kN/m ^{2}) on pressure zones - Wind direction ϑ = S0°:

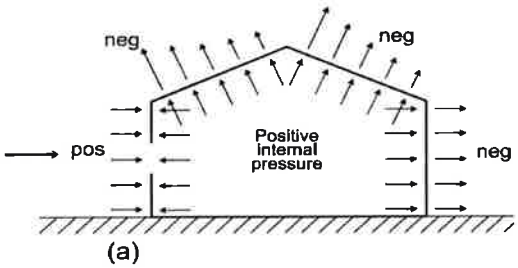
angle α(°)	F	G	H	I	J	L	M	N	
13.56	-1.661	-1.446	-0.743	-0.918	-1.562	-2.148	-1.094	-0.703	**[Cpi= 0.2]**
	0.644	0.644	0.644	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	**[Cpi= -0.3]**

Calculation of wind load (external and internal pressure coefficients) according to EN 1GG1-1-4 - Side walls

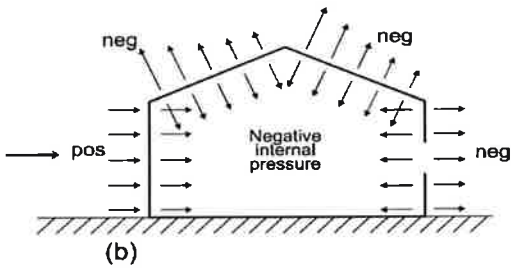
Input:

Terrain category:	II
Basic wind velocity, $v_{b,0}$(m/sec^2):	33
Dim. parallel to wind, d(m):	18.68
Dim. perpendicular to wind, b(m):	18.56
Height from ground to roof, h(m):	5.72
Additional height of parapets, h_p(m):	0.00
Min. internal pressure coef., $c_{pi,min}$:	-0.30
Min. external pressure coef., $c_{pi,max}$:	0.20
Air density, ρ(kg/m^3):	1.25

Directional factor, c_{dir}:	1.00
Seasonal factor, c_{season}:	1.00
Orography factor, $c_0(z_e)$:	1.00
Turbulence factor, k_I:	1.00



(a)



(b)

a) Calculation of peak velocity pressure

Reference height:

$z_e = h + h_p$ = 5.72 m *§7.2.3(3)*

Βασική ταχύτητα ανέμου:

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

Terrain roughness:

Roughness length, z_0 (m):	0.05	*Table 4.1*
Minimum height, z_{min} (m):	2.00	*Table 4.1*
Terrain factor, $k_r=0.19\cdot(z_0/z_{0,II})^{0.07}$ =	0.19	*Equation (4.5)*
Roughness factor, $c_r(z_e)=k_r\cdot\ln(z_e/z_0)$=	0.901	*Equation (4.4)*

Orography factor: *§4.3.3*

$c_0(z_e)$ = 1.00

Mean wind velocity:

$v_m(z_e)=c_r(z_e)\cdot c_0(z_e)\cdot v_b$ = 29.72 m/sec^2 *Equation (4.3)*

Wind turbulence:

Turbulence factor, k_I =	1.00	*§4.4(1)*
Turbulence intensity, $I_v(z_e)$ =	0.211	*Equation (4.7)*

Basic velocity pressure:

$q_b = (1/2)\cdot\rho\cdot v_b^2$ = 0.681 kN/m^2 *§4.5(1)*

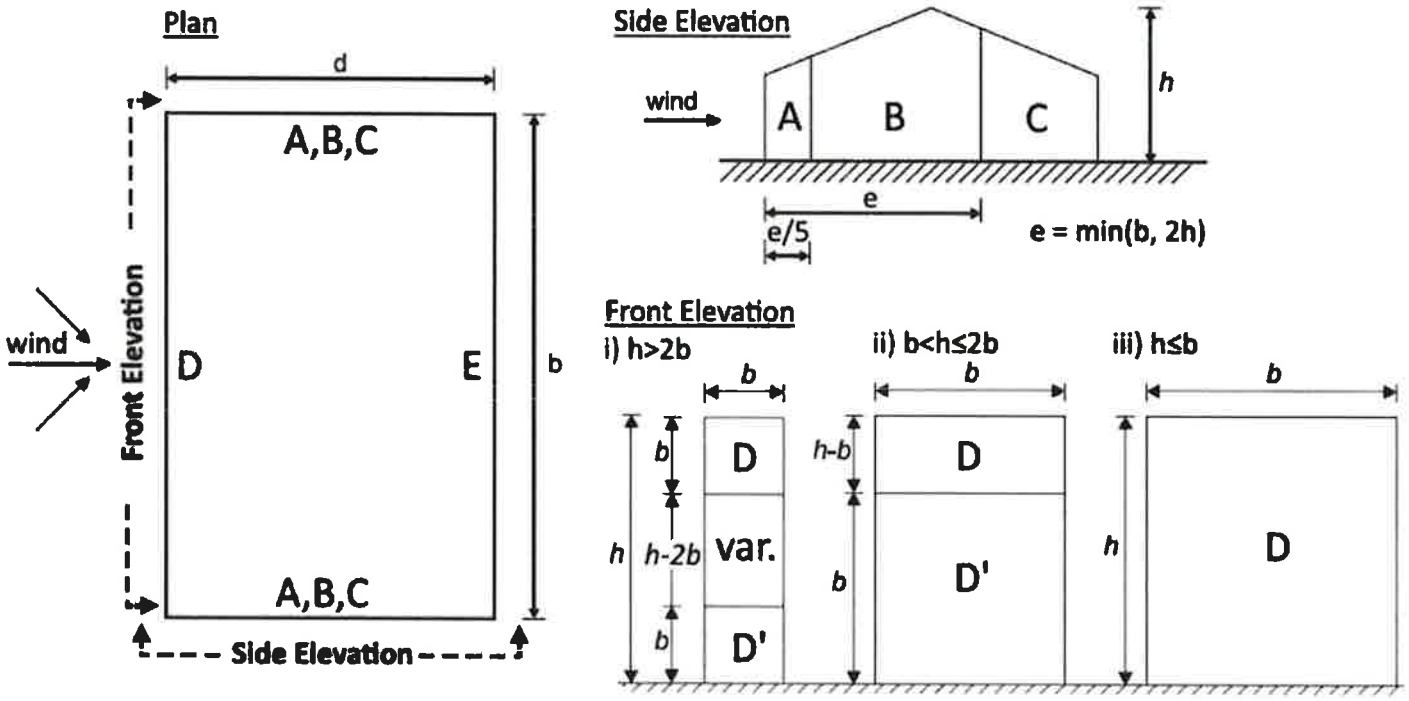
Calculation of wind load (external and internal pressure coefficients) according to EN 1GG1-1-4 - Side walls

Peak velocity pressure at height z_e :

$q_p(z_e) = (1+7 \cdot I_v(z_e)) \cdot (1/2) \cdot \rho \cdot v_m(z_e)^2 =$ 1.367 kN/m² *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 (θ=0°): 0.306

h/d (θ=90°): 0.308

Ratio h/b:

h/b (θ=0°): 0.308 h≤b

h/b (θ=90°): 0.306 h≤b

Length e:

e(θ=0°) = min(b, 2h) = 11.440 m e/5 = 2.288 m

e(θ=90°) = min(b, 2h) = 11.440 m e/5 = 2.288 m

External pressure coefficients - wind direction ϑ = 0° (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 ϑ = 90° (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:

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

Internal wind pressure:

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

Calculation of wind load (external and internal pressure coefficients) according to EN 1GG1-1-4 - Side walls

Net wind pressure: $w_{net} = w_e - w_i = q_p(z_e) \cdot c_{pe} - q_p(z_i) \cdot c_{pi}$

Net wind pressure (kN/m ²) on pressure zones - wind direction ϑ = 0°:

h/d	A	B	C	D	E	
0.306	-1.914	-1.367	-0.957	0.694	-0.704	**[Cpi= 0.2]**
	-1.230	-0.684	-0.273	1.377	-0.020	**[Cpi= -0.3]**

Net wind pressure (kN/m ²) on pressure zones - wind direction ϑ = S0°:

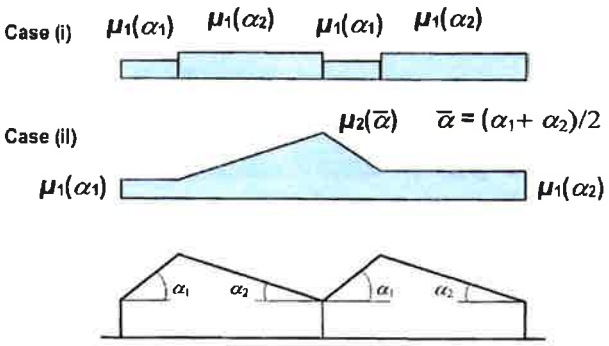
h/d	A	B	C	D	E	
0.308	-1.914	-1.367	-0.957	0.694	-0.705	**[Cpi= 0.2]**
	-1.230	-0.684	-0.273	1.378	-0.021	**[Cpi= -0.3]**

Calculation of snow load according to EN 1GG1-1-3: Duopitch multi-span roof

Input:

Snow zone:	I
Characteristic snow load, $s_{k,0}$(kN/m²):	0.40
Altitude, A(m):	100
Snow load on the ground, $s_{k,A}$(kN/m²):	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/m²):	0.32
Uniform snow load, $\mu_1(\alpha_2)$ (kN/m²):	0.32
Drifted snow load, $\mu_2(\bar{\alpha})$ (kN/m²):	0.47

ΕΝ 1991-1-3 ΧΑΡΤΗΣ ΖΩΝΩΝ ΓΙΑ ΤΟΝ ΥΠΟΛΟΓΙΣΜΟ ΤΩΝ ΦΟΡΤΙΩΝ ΧΙΟΝΙΟΥ



Angle of pitch of roof α	$0° \le \alpha \le 30°$	$30° < \alpha < 60°$	$\alpha \ge 60°$
μ_1	0,8	$0{,}8(60 - \alpha)/30$	0,0
μ_2	$0{,}8 + 0{,}8\ \alpha/30$	1,6	--

ΠΑΡΑΡΤΗΜΑ Β

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

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

Input:

Concrete grade, f_{ck}(MPa):	25
Maximum rebar diameter, Φ(mm):	12
Environmental exposure class:	XC2
Working life (50 or 100 years):	50
Member with slab geometry (y/n):	y
Cast against uneven surfaces (1-4):	3

1: No

2: Exposed aggregate

3: Prepared ground (including blinding)

4: Directly against soil

Rebar type (1-5):	1
Quality control (y/n):	n
Aggregates > 32mm (y/n):	n

1: Reinforcement bar

2: Post-tensioned bonded tendon

3: Pre-tensioned strand

4: Pre-tensioned plain wire

5: Pre-tensioned intended wire

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:	3
Final class (S):	3

Table 4.3N: Recommended structural classification

Structural Class							
Criterion	**Exposure Class according to Table 4.1**						
	X0	XC1	XC2 / XC3	XC4	XD1	XD2 / XS1	XD3 / XS2 / XS3
Design Working Life of 100 years	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2
Strength Class [1) 2)]	≥ C30/37 reduce class by 1	≥ C30/37 reduce class by 1	≥ C35/45 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C45/55 reduce class by 1
Member with slab geometry (position of reinforcement not affected by construction process)	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1
Special Quality Control of the concrete production ensured	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability: *§4.4.1.2(5) + N.A. ELOT EN 20c-1*

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

Περιβαλλοντική απαίτηση για την cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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 cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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)*

$c_{min,b}$ (mm): 12

Table 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_n)(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)*

$c_{min} = \max \{c_{min,b}, c_{min,dur} + \Delta c_{dur,\gamma} - \Delta c_{dur,st} - \Delta c_{dur,add}, 10\ mm\}$

c_{min} (mm): 20

Calculation of rebar nominal cover according to EN 1GG2-1-1, §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): 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 1GG2-1-1, §4.4.1

Input:

Concrete grade, f_{ck}(MPa):	25	Rebar type (1-5):	1
Maximum rebar diameter, Φ(mm):	10	*1: Reinforcement bar*	
Environmental exposure class:	XC2	*2: Post-tensioned bonded tendon*	
Working life (50 or 100 years):	50	*3: Pre-tensioned strand*	
Member with slab geometry (y/n):	n	*4: Pre-tensioned plain wire*	
		5: Pre-tensioned intended wire	
Cast against uneven surfaces (1-4):	1		
1: No		Quality control (y/n):	n
2: Exposed aggregate		Aggregates > 32mm (y/n):	n
3: Prepared ground (including blinding)			
4: Directly against soil			

a) Calculation of structural class: *§4.4.1.2(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

Structural Class							
Criterion	**Exposure Class according to Table 4.1**						
	X0	XC1	XC2 / XC3	XC4	XD1	XD2 / XS1	XD3 / XS2 / XS3
Design Working Life of 100 years	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2
Strength Class [1) 2)]	≥ C30/37 reduce class by 1	≥ C30/37 reduce class by 1	≥ C35/45 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C45/55 reduce class by 1
Member with slab geometry (position of reinforcement not affected by construction process)	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1
Special Quality Control of the concrete production ensured	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability: *§4.4.1.2(5) + N.A. ELOT EN 20c-1*

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

Περιβαλλοντική απαίτηση για την cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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 cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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): 10

Table 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_n)(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)*

$c_{min} = \max \{c_{min,b}, c_{min,dur} + \Delta c_{dur,\gamma} - \Delta c_{dur,st} - \Delta c_{dur,add}, 10\ mm\}$

c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1GG2-1-1, §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 1GG2-1-1, §4.4.1

Input:

Concrete grade, f_{ck}(MPa):	30
Maximum rebar diameter, Φ(mm):	10
Environmental exposure class:	XC4
Working life (50 or 100 years):	50
Member with slab geometry (y/n):	y
Cast against uneven surfaces (1-4):	1

1: No
2: Exposed aggregate
3: Prepared ground (including blinding)
4: Directly against soil

Rebar type (1-5):	1
Quality control (y/n):	y
Aggregates > 32mm (y/n):	n

1: Reinforcement bar
2: Post-tensioned bonded tendon
3: Pre-tensioned strand
4: Pre-tensioned plain wire
5: Pre-tensioned intended wire

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

Structural Class							
Criterion	**Exposure Class according to Table 4.1**						
	X0	XC1	XC2 / XC3	XC4	XD1	XD2 / XS1	XD3 / XS2 / XS3
Design Working Life of 100 years	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2
Strength Class [1) 2)]	≥ C30/37 reduce class by 1	≥ C30/37 reduce class by 1	≥ C35/45 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C45/55 reduce class by 1
Member with slab geometry (position of reinforcement not affected by construction process)	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1
Special Quality Control of the concrete production ensured	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability: *§4.4.1.2(5) + N.A. ELOT EN 20c-1*

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

Περιβαλλοντική απαίτηση για την cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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 cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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): 10

Table 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_n)(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)*

$c_{min} = \max \{c_{min,b}, c_{min,dur} + \Delta c_{dur,\gamma} - \Delta c_{dur,st} - \Delta c_{dur,add}, 10\ mm\}$

c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1GG2-1-1, §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)*

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

Input:

Concrete grade, f_{ck}(MPa):	30
Maximum rebar diameter, Φ(mm):	10
Environmental exposure class:	XC3
Working life (50 or 100 years):	50
Member with slab geometry (y/n):	y
Cast against uneven surfaces (1-4):	1

1: No

2: Exposed aggregate

3: Prepared ground (including blinding)

4: Directly against soil

Rebar type (1-5):	1
Quality control (y/n):	y
Aggregates > 32mm (y/n):	n

1: Reinforcement bar

2: Post-tensioned bonded tendon

3: Pre-tensioned strand

4: Pre-tensioned plain wire

5: Pre-tensioned intended wire

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

Structural Class							
Criterion	**Exposure Class according to Table 4.1**						
	X0	XC1	XC2 / XC3	XC4	XD1	XD2 / XS1	XD3 / XS2 / XS3
Design Working Life of 100 years	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2	increase class by 2
Strength Class [1) 2)]	≥ C30/37 reduce class by 1	≥ C30/37 reduce class by 1	≥ C35/45 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C40/50 reduce class by 1	≥ C45/55 reduce class by 1
Member with slab geometry (position of reinforcement not affected by construction process)	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1
Special Quality Control of the concrete production ensured	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1	reduce class by 1

Calculation of rebar nominal cover according to EN 1GG2-1-1, §4.4.1

b) Calculation of minimum cover with regard to durability: *§4.4.1.2(5) + N.A. ELOT EN 20c-1*

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

Περιβαλλοντική απαίτηση για την cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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 cmin,dur (mm)											
Κατηγορία Κατασκευής	Κατηγορία έκθεσης σύμφωνα με τον Πίνακα 4.1										
	X0	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): 10

Table 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_n)(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)*

$c_{min} = \max \{c_{min,b}, c_{min,dur} + \Delta c_{dur,\gamma} - \Delta c_{dur,st} - \Delta c_{dur,add}, 10\ mm\}$

c_{min} (mm): 25

Calculation of rebar nominal cover according to EN 1GG2-1-1, §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)*

ΠΑΡΑΡΤΗΜΑ Γ

Τεύχος υπολογισμών κτηρίου

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NHPIAGOGEIO_GASTOUNH
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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	mu	0.20 [-]	Strength	fc	25.00 [MPa]
Shear-modulus	G	11803 [MPa]	Nomin. strength	fcn	25.00 [MPa]
Compression modulus		15738 [MPa]	Tens. strength	fctm	2.56 [MPa]
Weight		25.0 [kN/m3]	5 % t.strength	fctk	1.80 [MPa]
Weight buoyancy		25.0 [kN/m3]	95 % t.strength	fctk	3.33 [MPa]
Temp.elongat.coeff.		1.00E-05 [1/°K]	Bond strength	fbd	2.69 [MPa]
			Service strength		33.00 [MPa]
			Fatigue strength		15.00 [MPa]

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

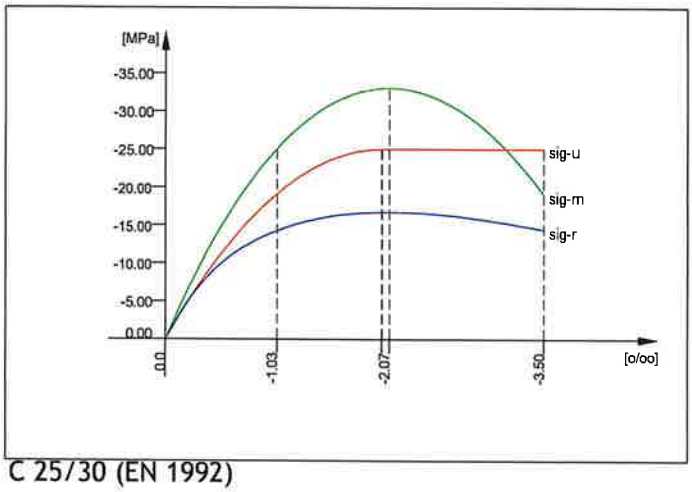
eps[o/oo]	sig-m[MPa]	E-t[MPa]
0.000	0.00	33050
-1.035	-25.04	15658
-2.069	-33.00	0
-3.500	-18.95	-19203
Safetyfactor		1.35

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

eps[o/oo]	sig-u[MPa]	E-t[MPa]
0.000	0.00	25000
-2.000	-25.00	0
-3.500	-25.00	0
Safetyfactor		1.50

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

eps[o/oo]	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	mu	0.30 [-]	Yield stress	fy	500.00 [MPa]
Shear-modulus	G	76923 [MPa]	Compr.yield val.	fyc	500.00 [MPa]
Compression modulus		166667 [MPa]	Tens. strength	ft	575.00 [MPa]
Weight		78.5 [kN/m3]	Compr. strength	fc	575.00 [MPa]
Weight buoyancy		78.5 [kN/m3]	Ultim. plast. strain		75.00 [o/oo]
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]

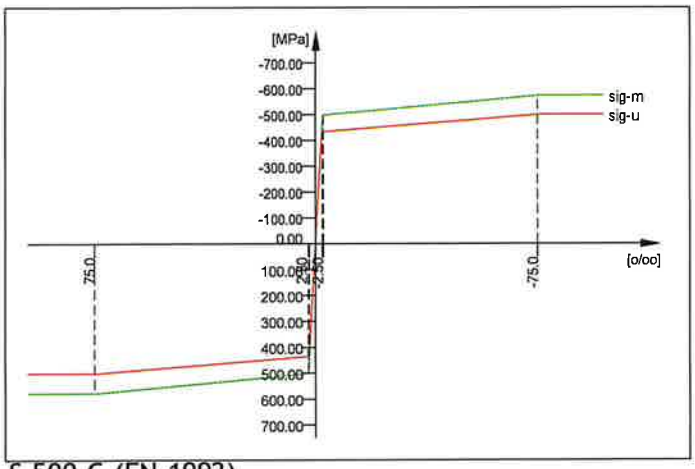
Stress-Strain for serviceability
Is also extended beyond the

eps[o/oo]	sig-m[MPa]	E-t[MPa]
1000.000	575.00	0

NHPIAGOGEIO_GASTOUNH
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
Stress-Strain for ultimate load	eps[o/oo]	sig-u[MPa]	E-t[MPa]
is also extended beyond the	1000.000	500.00	0
defined stress range	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)



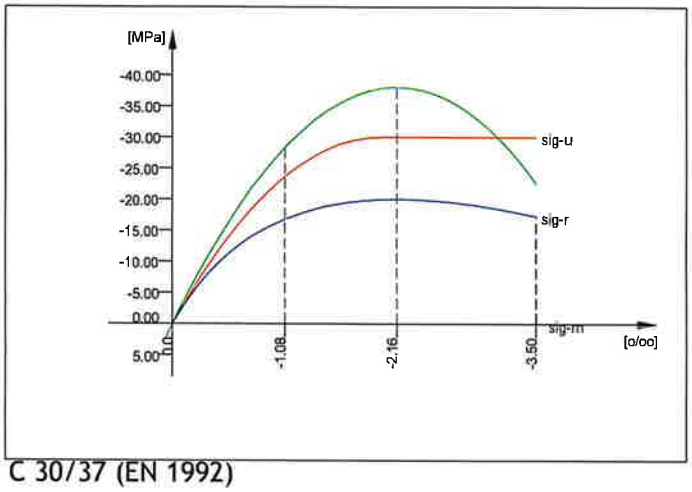
S 500 C (EN 1992)

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		16418 [MPa]	Tens. strength	fctm	2.90 [MPa]
Weight		25.0 [kN/m3]	5 % t.strength	fctk	2.03 [MPa]
Weight buoyancy		25.0 [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	eps[o/oo]	sig-m[MPa]	E-t[MPa]
is also extended beyond the	0.000	0.00	34478
defined stress range	-1.081	-28.31	17746
	-2.162	-38.00	0
	-3.500	-22.47	-23499
	Safetyfactor		1.35
Stress-Strain for ultimate load	eps[o/oo]	sig-u[MPa]	E-t[MPa]
is only valid within the defined	0.000	0.00	30000
stress range	-2.000	-30.00	0
	-3.500	-30.00	0
	Safetyfactor		1.50
Stress-Strain of calc. mean values	eps[o/oo]	sig-r[MPa]	E-t[MPa]
is only valid within the defined	0.000	0.00	28732
stress range	-1.081	-16.78	7018
	-2.162	-20.00	0
	-3.500	-17.25	-3601
	Safetyfactor		(1.50)

NHPIAGOGEIO_GASTOUNH
Materials



C 30/37 (EN 1992)

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

Youngs-modulus	E	29553 [MPa]
Poisson-Ratio	mu	0.20 [-]
Shear-modulus	G	12314 [MPa]
Compression modulus		16418 [MPa]
Weight		19.4 [kN/m3]
Weight buoyancy		19.4 [kN/m3]
Temp.elongat.coeff.		1.00E-05 [1/°K]

Safetyfactor		1.50 [-]
Strength	fc	30.00 [MPa]
Nomin. strength	fcn	30.00 [MPa]
Tens. strength	fctm	2.90 [MPa]
5 % t.strength	fctk	2.03 [MPa]
95 % t.strength	fctk	3.77 [MPa]
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

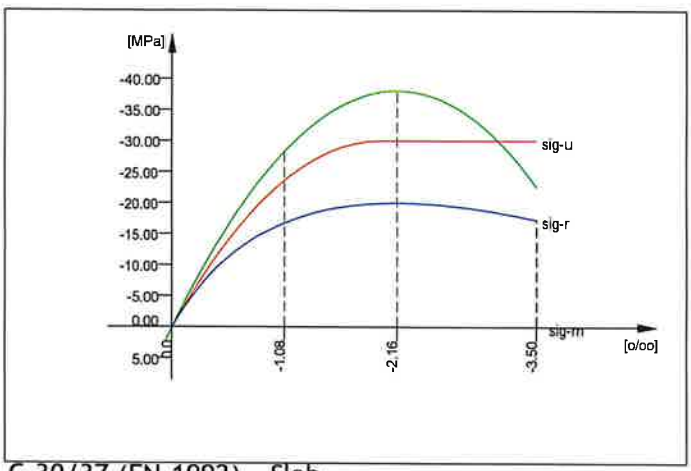
eps[o/oo]	sig-m[MPa]	E-t[MPa]
0.000	0.00	34478
-1.081	-28.31	17746
-2.162	-38.00	0
-3.500	-22.47	-23499
Safetyfactor		1.35

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

eps[o/oo]	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[o/oo]	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

NHPIAGOGEIO_GASTOUNH
Materials

No. 6 S 275 (EN 10025-2)

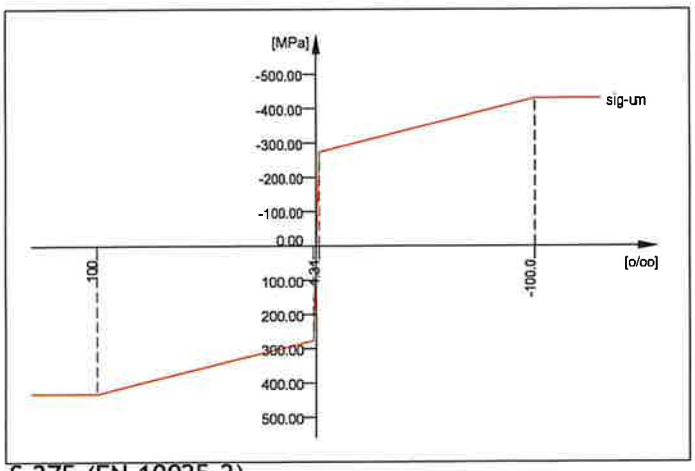
Youngs-modulus	E	210000 [MPa]	Safetyfactor		1.00 [-]
Poisson-Ratio	mu	0.30 [-]	Yield stress	fy	275.00 [MPa]
Shear-modulus	G	80769 [MPa]	Compr.yield val.	fyc	275.00 [MPa]
Compression modulus		175000 [MPa]	Tens. strength	ft	430.00 [MPa]
Weight		78.5 [kN/m3]	Compr. strength	fc	430.00 [MPa]
Weight buoyancy		78.5 [kN/m3]	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. K1		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
Safetyfactor		1.00

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
Safetyfactor		1.00



S 275 (EN 10025-2)

Thermal material constants

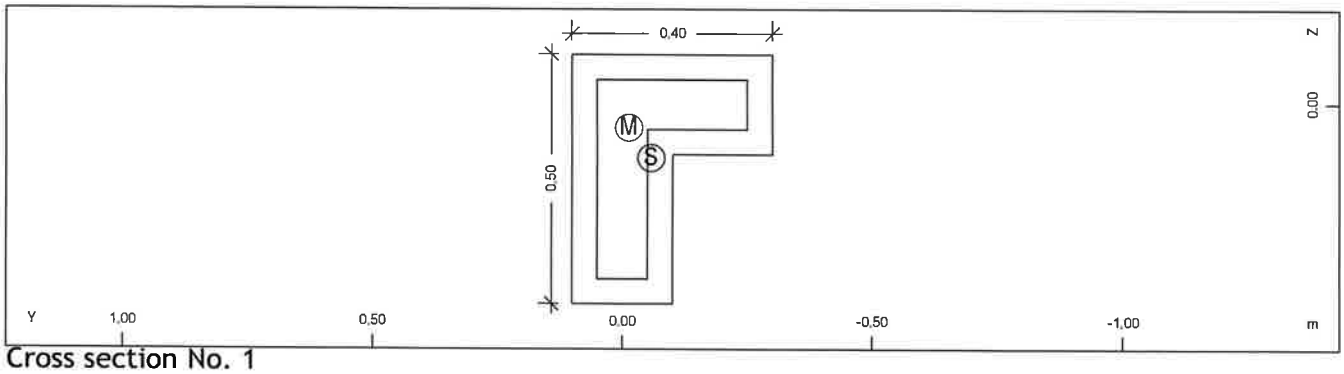
No.	TEMP	S[J/Km3]	Kxx[W/Km]	Kyy[W/Km]	Kzz[W/Km]	
2		3.45E+06	5.333E+01	0.000E+00	0.000E+00	S 500 C (EN 1992)
3		2.07E+06	1.951E+00	0.000E+00	0.000E+00	C 30/37 (EN 1992)
4		2.07E+06	1.951E+00	0.000E+00	0.000E+00	C 30/37 (EN 1992) - Slab
6		3.45E+06	5.333E+01	0.000E+00	0.000E+00	S 275 (EN 10025-2)

NHPIAGOGEIO_GASTOUNH
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

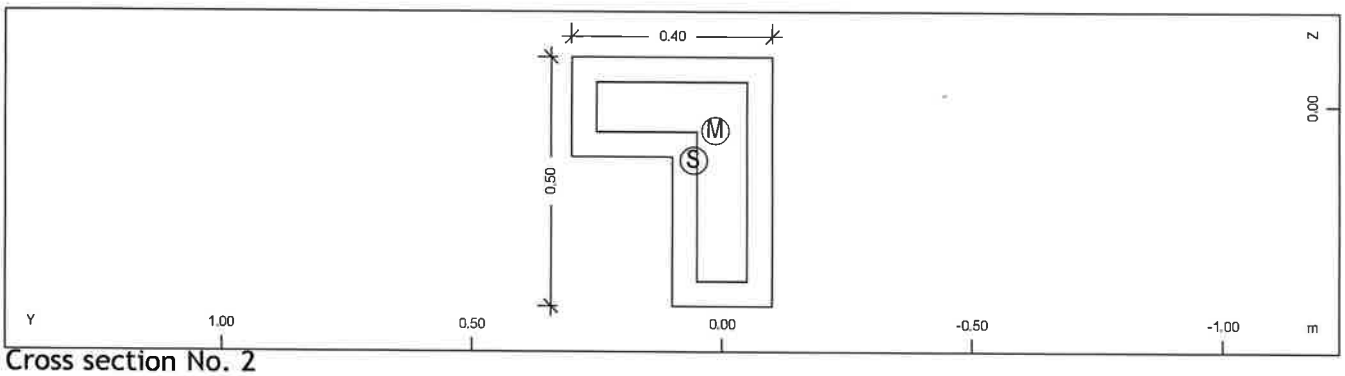


Cross section No. 1

Static properties of cross section

No.	Mat	A[m2]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
	NoR	It[m4]	[m2]	[m4]	[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

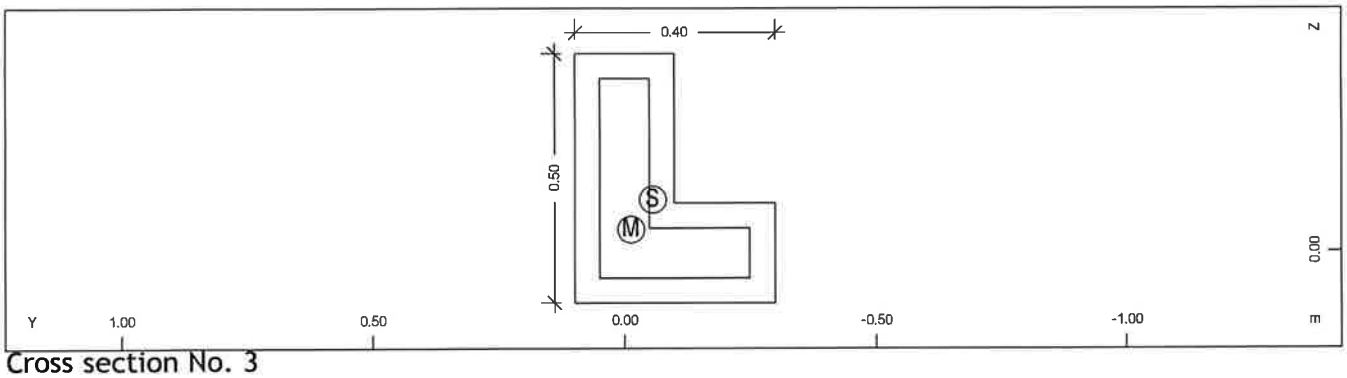
Static properties of cross section

No.	Mat	A[m2]	Ay/Az/Ayz	Iy/Iz/Iyz	ys/zs	y/z-sc	modules	gam
	NoR	It[m4]	[m2]	[m4]	[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

NHPIAGOGEIO_GASTOUNH

Interpolation of Cross Sections

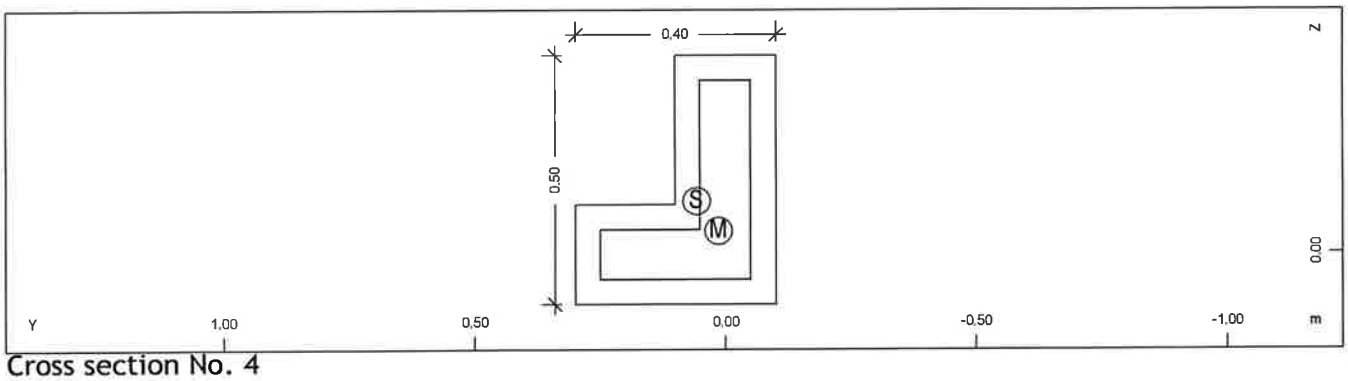


Cross section No. 3

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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

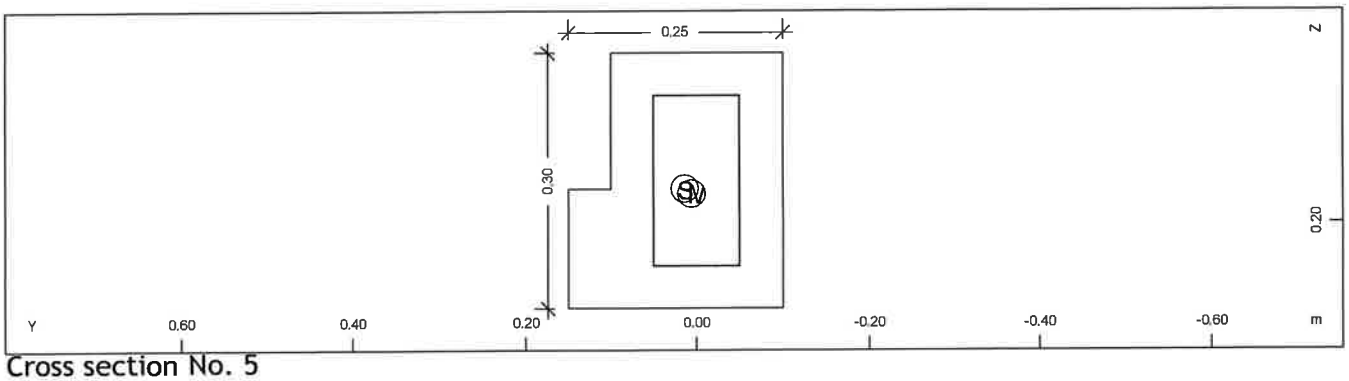


Cross section No. 4

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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



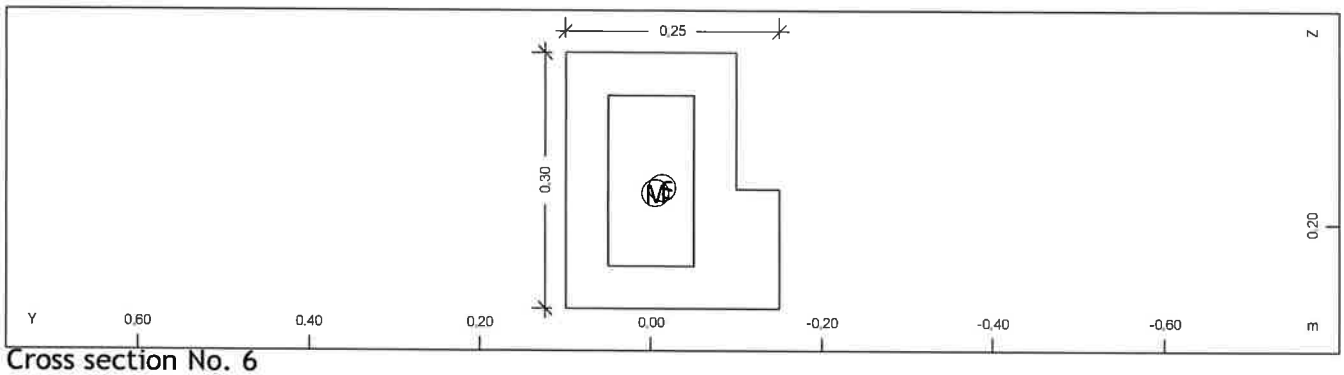
Cross section No. 5

NHPIAGOGEIO_GASTOUNH
Interpolation of Cross Sections

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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

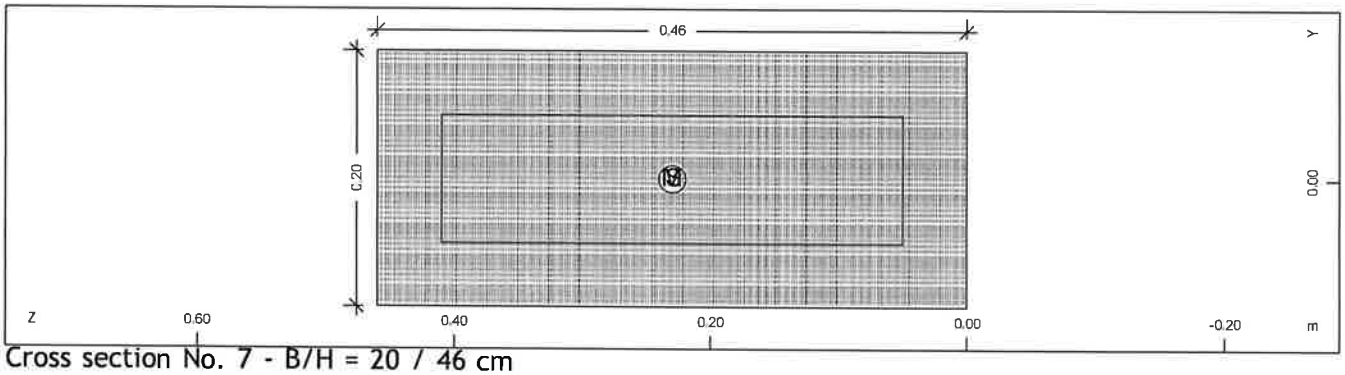


Cross section No. 6

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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



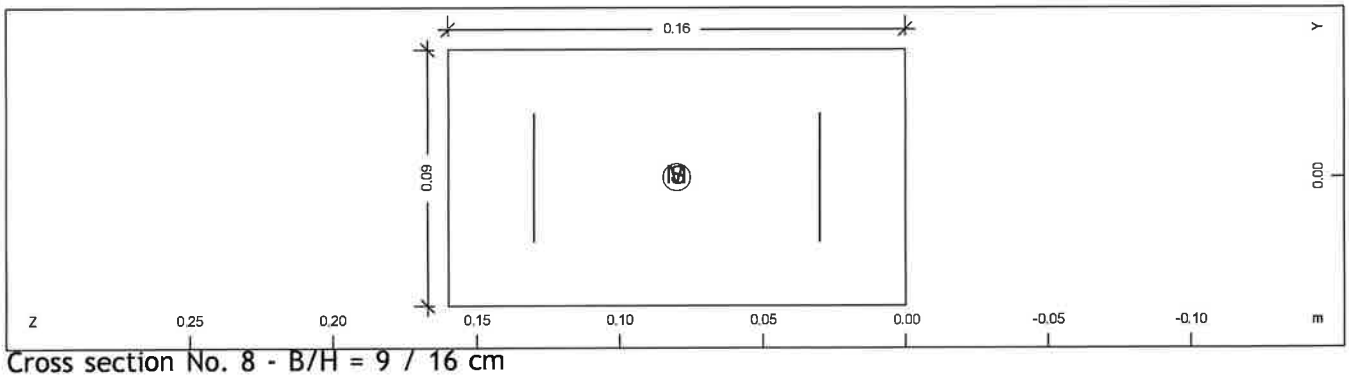
Cross section No. 7 - B/H = 20 / 46 cm

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [kN/m]
7	=	B/H = 20 / 46 cm						
(BEAM)	=	(D-As 5 / 5 cm)						
	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

NHPIAGOGEIO_GASTOUNH
Interpolation of Cross Sections

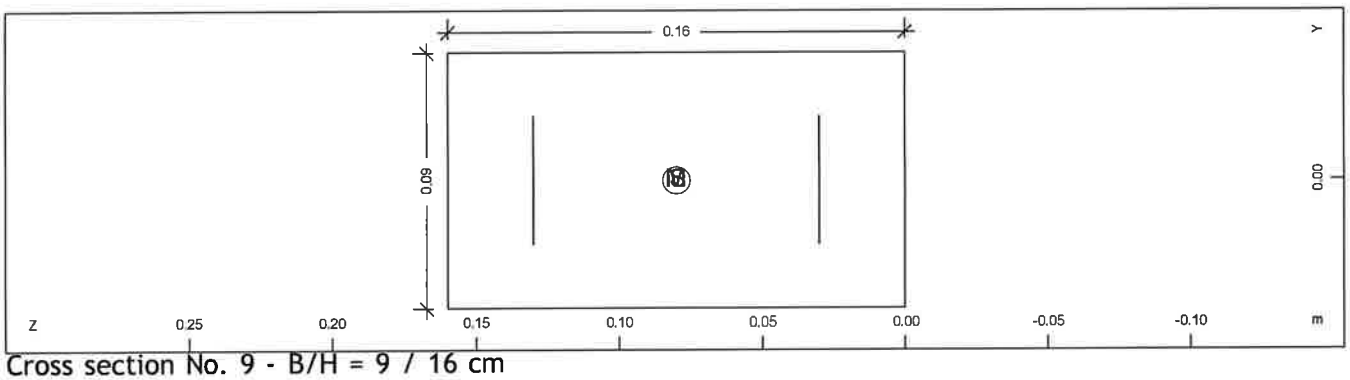


Cross section No. 8 - B/H = 9 / 16 cm

Static properties of cross section

No.	Mat NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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 NoR	A[m2] It[m4]	Ay/Az/Ayz [m2]	Iy/Iz/Iyz [m4]	ys/zs [m]	y/z-sc [m]	modules [MPa]	gam [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	

NHPIAGOGEIO_GASTOUNH
Generation of Node and Element Loads

Actions

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

NHPIAGOGEIO_GASTOUNH
Generation of Node and Element Loads

Meshfree Loading

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

NHPIAGOGEIO_GASTOUNH
Generation of Node and Element Loads

Meshfree Loading

Kind	Referenceto	Projection Coordinates W[m]	X[m]	Y[m]	Z[m]	Type	Loadvalue
Area						PG	3.00 [kN/m2]
	GAR 21				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 20				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 22				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 24				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 16				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 19				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 18				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 17				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 15				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 14				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 13				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 27				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 26				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 29				activated		100.00 percent
Area						PG	3.00 [kN/m2]
	GAR 28				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]

NHPIAGOGEIO_GASTOUNH
Generation of Node and Element Loads

Meshfree Loading

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

NHPIAGOGEIO_GASTOUNH
Generation of Node and Element Loads

Meshfree Loading

Kind	Referenceto		Projection Coordinates W[m]	X[m]	Y[m]	Z[m]	Type	Loadvalue	
	GAR	71				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	72				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	76				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	75				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	40				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	70				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	77				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	73				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	74				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	39				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	78				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	79				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	80				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	69				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	37				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	92				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	86				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	87				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	84				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	83				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	93				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	94				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	88				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	85				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	81				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	90				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	89				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	82				activated		100.00	percent
Area							PG	2.00	[kN/m2]
	GAR	91				activated		100.00	percent
Line				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

NHPIAGOGEIO_GASTOUNH
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 ψ-0		0.700	(rare)
Combination coefficient ψ-'		1.000	(non frequent)
Combination coefficient ψ-1		0.700	(frequent)
Combination coefficient ψ-2		0.600	(permanent)

Load Case 5 (L_H) 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 ψ-0		0.500	(rare)
Combination coefficient ψ-'		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	
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 ψ-0		0.600	(rare)
Combination coefficient ψ-'		1.000	(non frequent)
Combination coefficient ψ-1		0.200	(frequent)
Combination coefficient ψ-2		0.000	(permanent)

NHPIAGOGEIO_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_H) 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

NHPIAGOGEIO_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

NHPIAGOGEIO_GASTOUNH
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
Iterationsvectors 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	

NHPIAGOGEIO_GASTOUNH
Calculation Of Eigenvalues

No.	LC	Eigenvalue [1/Sec2]	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 X[t]	modal mass Y[t]	modal mass Z[t]	modal mass factor X[%]	modal mass factor Y[%]	modal mass factor Z[%]	activated mass [%]*
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*M = displacement^2*mass, in relation to the sum of active mass, u scaled on a maximum displacement or rotation of 1.00.

NHPIAGOGEIO_GASTOUNH
Definition Response Spectra

Actions

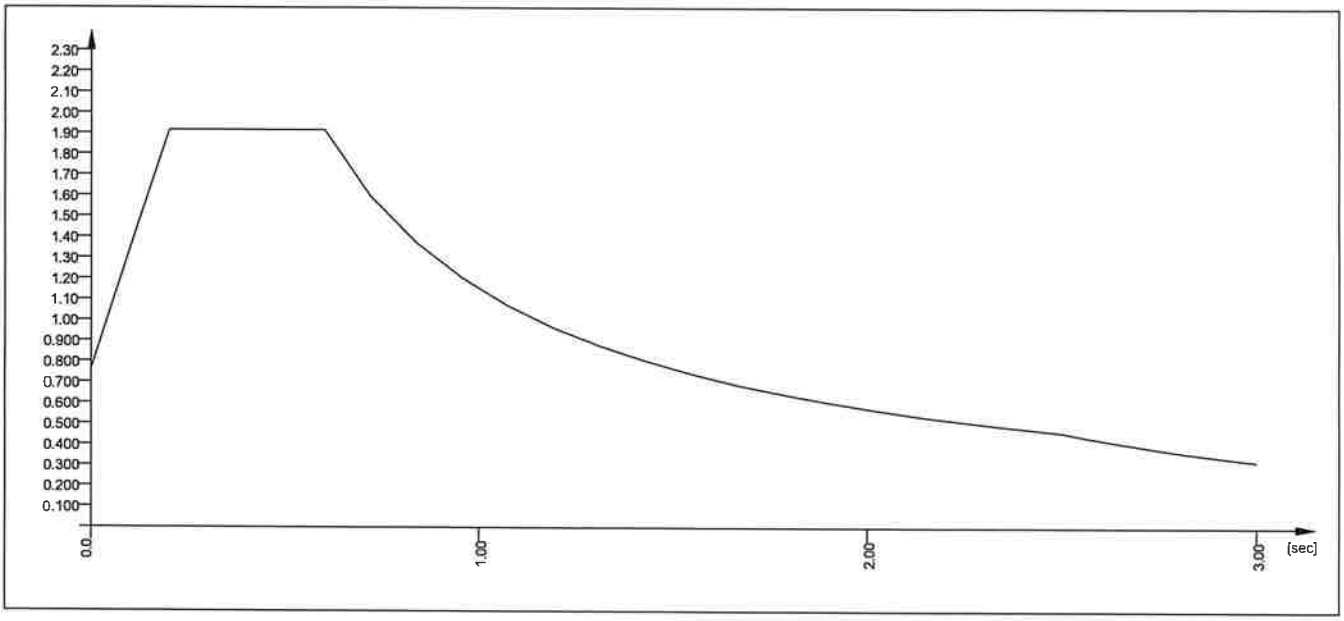
type	T	sup	Title		γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'
G	G	perm	dead load		1.35	1.00	1.00	1.00	1.00	1.00	1.00
R	G	perm	earth pressure		1.35	1.00	1.00	1.00	1.00	0.00	1.00
L_H	Q	excl	Live load on roofs	cat. H	1.50	0.00	1.00	0.00	0.00	0.00	0.00
Q_C	Q	cond	Pay load assembling	cat. C	1.50	0.00	1.00	0.70	0.70	0.60	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			



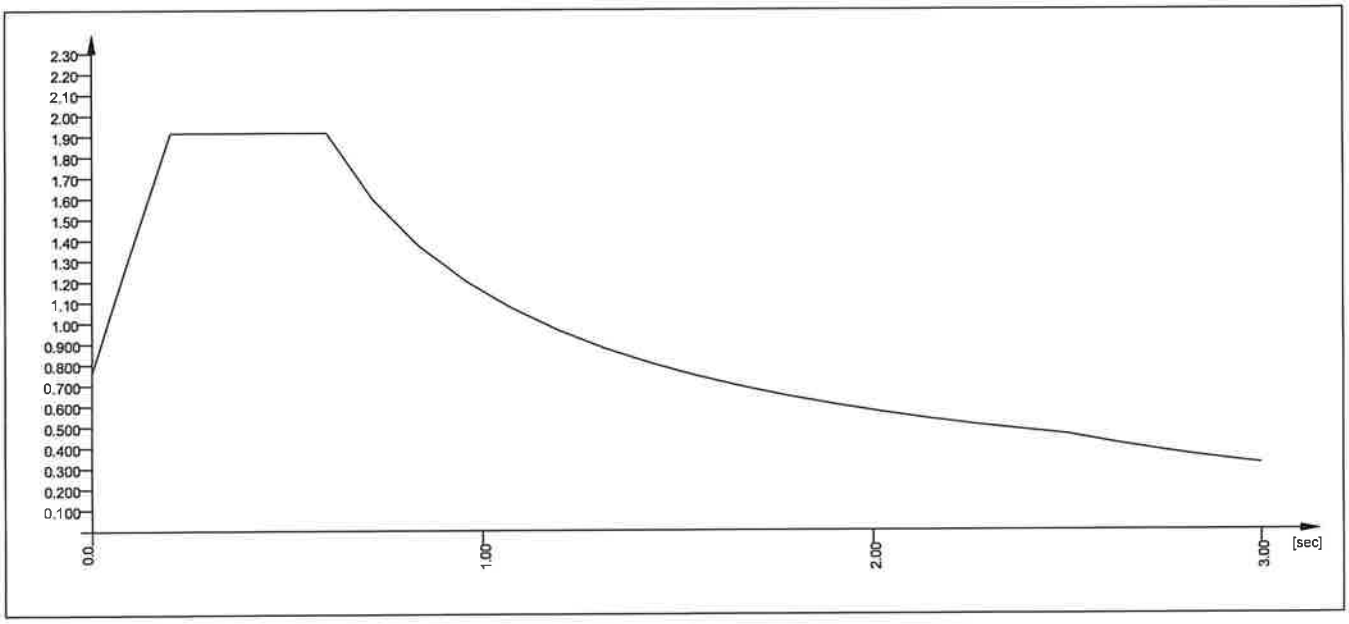
Load Case 902

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			

NHPIAGOGEIO_GASTOUNH
Definition Response Spectra

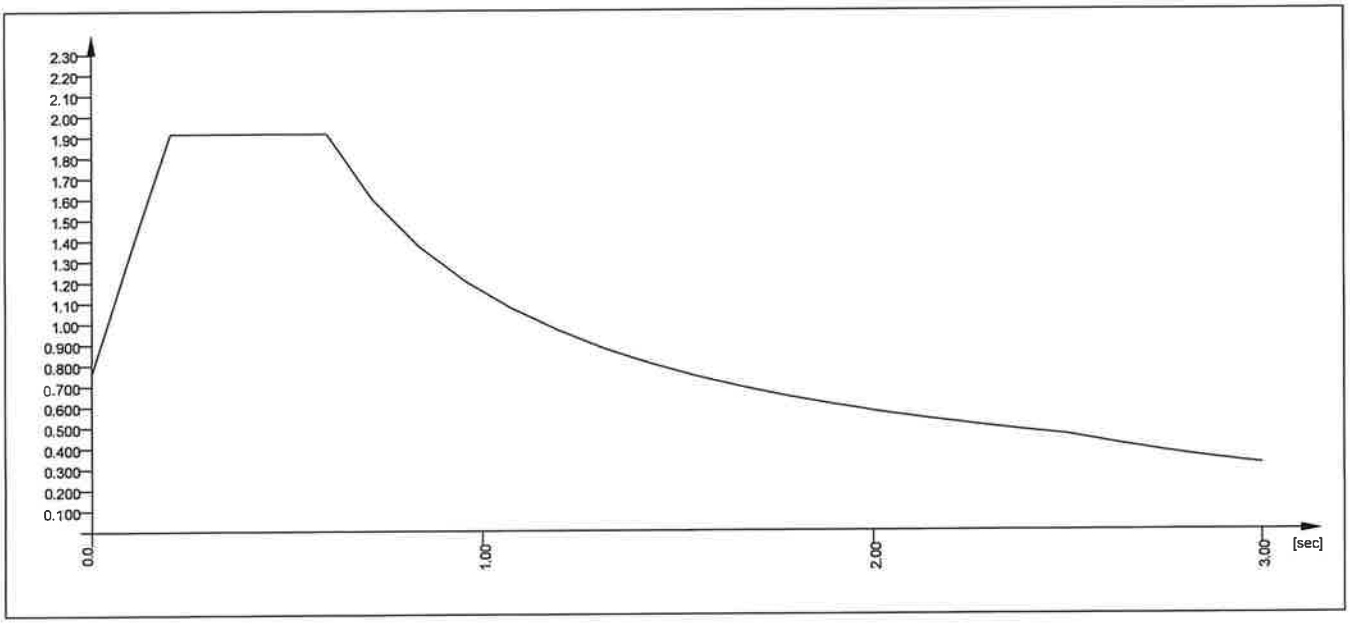


Load Case 903

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			



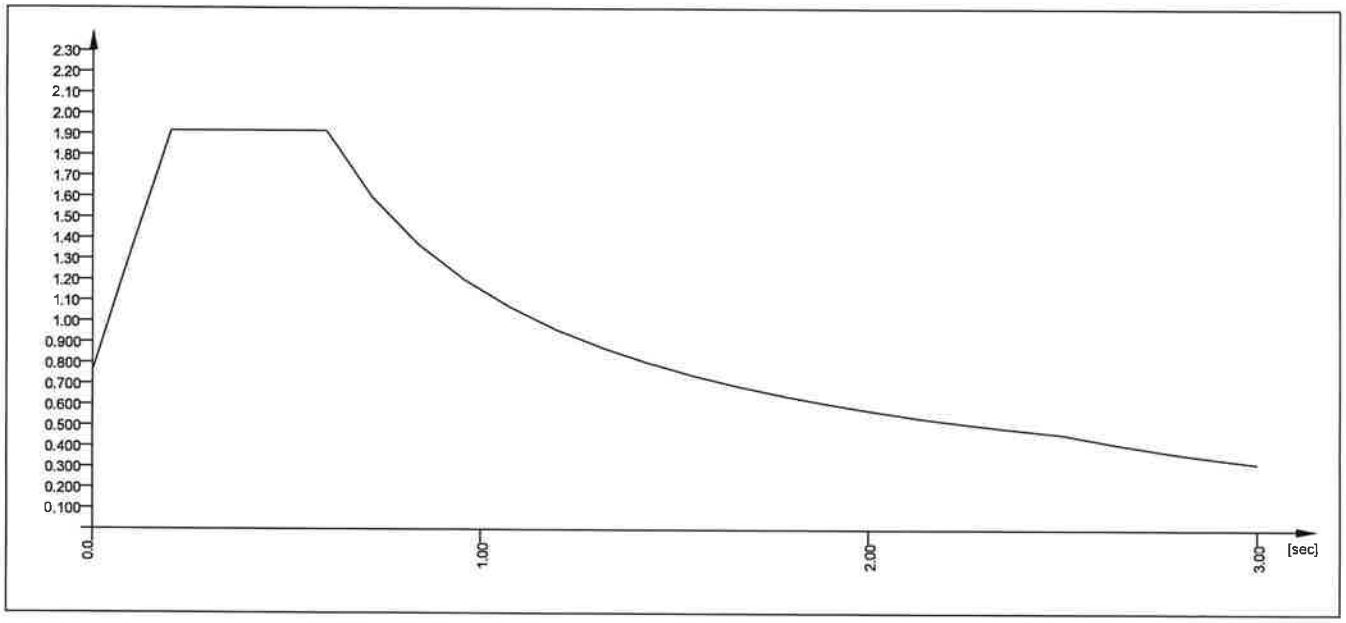
Load Case 904

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			

NHPIAGOGEIO_GASTOUNH
Definition Response Spectra

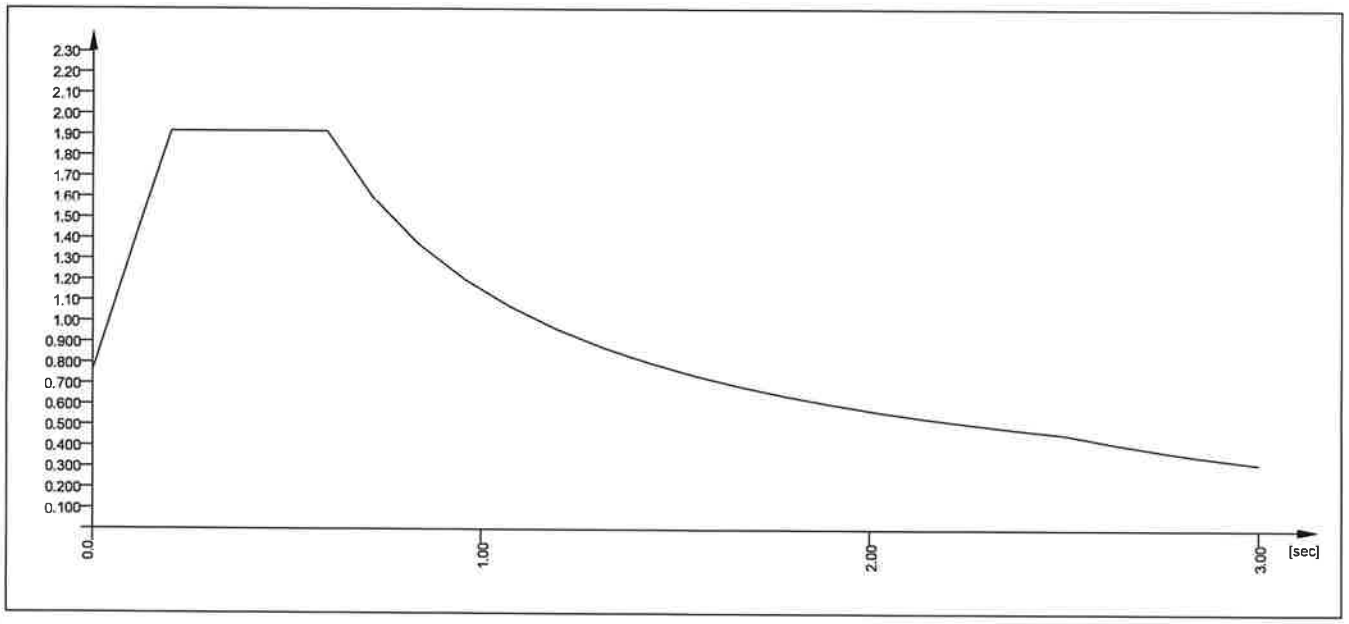


Load Case 905

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			



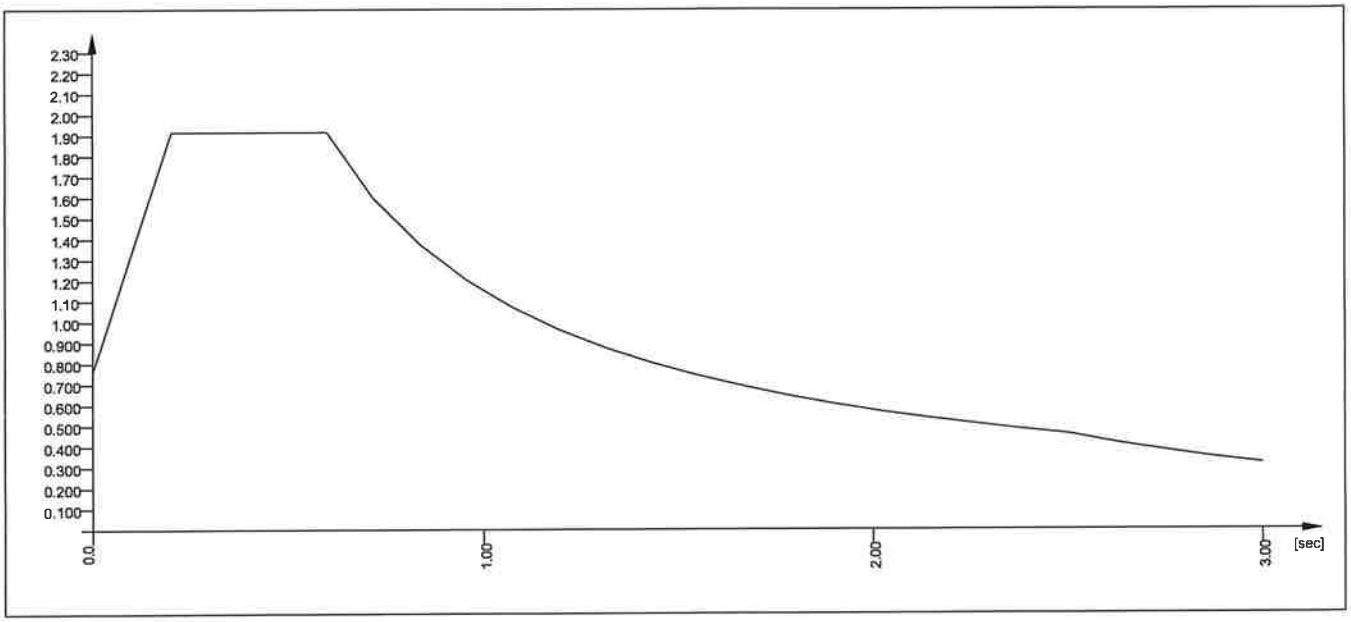
Load Case 906

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			

NHPIAGOGEIO_GASTOUNH
Definition Response Spectra



NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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
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-Mt	(LC7108)	MIN-Mt	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-m-xx	(LC7116)	MIN-m-xx	method CQC
MAX-m-yy	(LC7117)	MIN-m-yy	method CQC
MAX-m-xy	(LC7118)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments
MAX-n-xy (LC7123) MIN-n-xy method CQC

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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
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

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)	MIN-N	method	CQC
MAX-Vy	(LC7206)	MIN-Vy	method	CQC
MAX-Vz	(LC7207)	MIN-Vz	method	CQC
MAX-Mt	(LC7208)	MIN-Mt	method	CQC
MAX-My	(LC7209)	MIN-My	method	CQC
MAX-Mz	(LC7210)	MIN-Mz	method	CQC
MAX-PtX	(LC7224)	MIN-PtX	method	CQC
MAX-PtY	(LC7225)	MIN-PtY	method	CQC
MAX-PtZ	(LC7226)	MIN-PtZ	method	CQC
MAX-m-xx	(LC7216)	MIN-m-xx	method	CQC
MAX-m-yy	(LC7217)	MIN-m-yy	method	CQC
MAX-m-xy	(LC7218)	MIN-m-xy	method	CQC
MAX-v-x	(LC7219)	MIN-v-x	method	CQC
MAX-v-y	(LC7220)	MIN-v-y	method	CQC
MAX-n-xx	(LC7221)	MIN-n-xx	method	CQC
MAX-n-yy	(LC7222)	MIN-n-yy	method	CQC

NHPIAGOGEIO_GASTOUNH

Calculation of Spectras - Displacements

Maximum Forces and Moments

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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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
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)

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
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

Nodal Displacements method CQC

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

Maximum Forces and Moments

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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments

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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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

Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	17.190		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-Mt	(LC7408)	MIN-Mt	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-m-xx	(LC7416)	MIN-m-xx	method CQC
MAX-m-yy	(LC7417)	MIN-m-yy	method CQC
MAX-m-xy	(LC7418)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments
MAX-n-xy (LC7423) MIN-n-xy method CQC

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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	
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

Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	17.162		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-Mt	(LC7508)	MIN-Mt	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-m-xx	(LC7516)	MIN-m-xx	method CQC
MAX-m-yy	(LC7517)	MIN-m-yy	method CQC
MAX-m-xy	(LC7518)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments

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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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	
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

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-Mt	(LC7608)	MIN-Mt	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-m-xx	(LC7616)	MIN-m-xx	method CQC
MAX-m-yy	(LC7617)	MIN-m-yy	method CQC
MAX-m-xy	(LC7618)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments
MAX-n-xy (LC7623) MIN-n-xy method CQC

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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

Nodal Displacements method CQC

Node	u-X-max [mm]	Time [sec]	u-Y-max [mm]	Time [sec]	u-Z-max [mm]	Time [sec]
MAX	18.645		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-m-xx	(LC7716)	MIN-m-xx	method CQC
MAX-m-yy	(LC7717)	MIN-m-yy	method CQC
MAX-m-xy	(LC7718)	MIN-m-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

NHPLAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments

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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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	
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

Node	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-PtX	(LC7824)	MIN-PtX	method CQC
MAX-PtY	(LC7825)	MIN-PtY	method CQC
MAX-PtZ	(LC7826)	MIN-PtZ	method CQC
MAX-m-xx	(LC7816)	MIN-m-xx	method CQC
MAX-m-yy	(LC7817)	MIN-m-yy	method CQC
MAX-m-xy	(LC7818)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments
MAX-n-xy (LC7823) MIN-n-xy method CQC

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Controll 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/sec2]	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	
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

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-Mt	(LC7908)	MIN-Mt	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-m-xx	(LC7916)	MIN-m-xx	method CQC
MAX-m-yy	(LC7917)	MIN-m-yy	method CQC
MAX-m-xy	(LC7918)	MIN-m-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

NHPIAGOGEIO_GASTOUNH
Calculation of Spectras - Displacements

Maximum Forces and Moments

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

NHPIAGOGEIO_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	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
	LC	factor	Type of loadcase						Title
G	G	1.00	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	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	1.00	Pay load assembling cat. C
	4	1.00	Conditional LC						Live load
R	G	1.00	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	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
	LC	factor	Type of loadcase						Title
G	G	1.00	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	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	1.00	Pay load assembling cat. C
	4	1.00	Conditional LC						Live load
R	G	1.00	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	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
	LC	factor	Type of loadcase						Title
G	G	1.00	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	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	1.00	Pay load assembling cat. C
	4	1.00	Conditional LC						Live load
R	G	1.00	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

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act	type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
	LC	factor	Type of loadcase						Title
	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	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'		
	LC	factor	Type of loadcase						Title	
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	

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	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'		
	LC	factor	Type of loadcase						Title	
E	E	1.00	0.00	1.00	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)

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'		
LC	factor	Type of loadcase						Title	
7218	1.00	Exclusive	LC	X17				MAX m-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 N	(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 m-xx	(CQC)
7317	1.00	Exclusive	LC	X17				MAX m-yy	(CQC)
7318	1.00	Exclusive	LC	X17				MAX m-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 U	(CQC)
7405	1.00	Exclusive	LC	X17				MAX N	(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 m-xx	(CQC)
7417	1.00	Exclusive	LC	X17				MAX m-yy	(CQC)
7418	1.00	Exclusive	LC	X17				MAX m-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 m-xx	(CQC)
7517	1.00	Exclusive	LC	X17				MAX m-yy	(CQC)
7518	1.00	Exclusive	LC	X17				MAX m-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)

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
LC	Factor	Type of Loadcase						Title
7605	1.00	Exclusive	LC	X17			MAX N (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 m-xx (CQC)	
7617	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
7618	1.00	Exclusive	LC	X17			MAX m-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 n-xx (CQC)	
7622	1.00	Exclusive	LC	X17			MAX n-yy (CQC)	
7623	1.00	Exclusive	LC	X17			MAX n-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 m-xx (CQC)	
7717	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
7718	1.00	Exclusive	LC	X17			MAX m-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 n-xx (CQC)	
7722	1.00	Exclusive	LC	X17			MAX n-yy (CQC)	
7723	1.00	Exclusive	LC	X17			MAX n-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 m-xx (CQC)	
7817	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
7818	1.00	Exclusive	LC	X17			MAX m-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 n-xx (CQC)	
7822	1.00	Exclusive	LC	X17			MAX n-yy (CQC)	
7823	1.00	Exclusive	LC	X17			MAX n-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)	

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
LC	factor	type of loadcase						title
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 m-xx	(CQC)	
8217	1.00	Exclusive LC	X17			MAX m-yy	(CQC)	
8218	1.00	Exclusive LC	X17			MAX m-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 m-xx	(CQC)	
8317	1.00	Exclusive LC	X17			MAX m-yy	(CQC)	
8318	1.00	Exclusive LC	X17			MAX m-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)	

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	
LC	Factor	Type of Loadcase						Title
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 m-xx (CQC)	
8417	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
8418	1.00	Exclusive	LC	X17			MAX m-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 m-xx (CQC)	
8517	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
8518	1.00	Exclusive	LC	X17			MAX m-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 m-xx (CQC)	
8617	1.00	Exclusive	LC	X17			MAX m-yy (CQC)	
8618	1.00	Exclusive	LC	X17			MAX m-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 m-xx (CQC)	
8717	1.00	Exclusive	LC	X17			MAX m-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)	

NHPIAGOGEIO_GASTOUNH

Loadcase selection and Actions

Act	type	γ-u	γ-f	γ-a	ψ-0	ψ-1	ψ-2	ψ-1'	LC	factor	Type of loadcase	Title
									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 PtX (CQC)
									8725	1.00	Exclusive LC X17	MAX PtY (CQC)
									8726	1.00	Exclusive LC X17	MAX PtZ (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 PtX (CQC)
									8825	1.00	Exclusive LC X17	MAX PtY (CQC)
									8826	1.00	Exclusive LC X17	MAX PtZ (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 PtX (CQC)
									8925	1.00	Exclusive LC X17	MAX PtY (CQC)
									8926	1.00	Exclusive LC X17	MAX PtZ (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-MT2 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	MIN-NXX QUAD Forces and moments
2113	104	MAX-NYY QUAD Forces and moments
2114	104	MIN-NYY QUAD Forces and moments
2115	104	MAX-NXY QUAD Forces and moments
2116	104	MIN-NXY QUAD Forces and moments
2101	104	MAX-MXX QUAK Forces and moments
2102	104	MIN-MXX QUAK Forces and moments
2103	104	MAX-MYY QUAK Forces and moments
2104	104	MIN-MYY QUAK Forces and moments
2105	104	MAX-MXY QUAK Forces and moments
2106	104	MIN-MXY QUAK Forces and moments
2107	104	MAX-VX QUAK Forces and moments
2108	104	MIN-VX QUAK Forces and moments
2109	104	MAX-VY QUAK Forces and moments
2110	104	MIN-VY QUAK Forces and moments
2111	104	MAX-NXX QUAK Forces and moments
2112	104	MIN-NXX QUAK Forces and moments
2113	104	MAX-NYY QUAK Forces and moments
2114	104	MIN-NYY QUAK Forces and moments
2115	104	MAX-NXY QUAK Forces and moments
2116	104	MIN-NXY QUAK Forces and moments
2151	104	MAX-PX KINE Constraint forces
2152	104	MIN-PX KINE Constraint forces
2153	104	MAX-PY KINE Constraint forces
2154	104	MIN-PY KINE Constraint forces
2155	104	MAX-PZ KINE Constraint forces
2156	104	MIN-PZ KINE Constraint forces
2157	104	MAX-MX KINE Constraint forces
2158	104	MIN-MX KINE Constraint forces
2159	104	MAX-MY KINE Constraint forces
2160	104	MIN-MY KINE Constraint forces
2161	104	MAX-MZ KINE Constraint forces
2162	104	MIN-MZ KINE Constraint forces
2191	104	MAX-MB KINE Constraint forces
2192	104	MIN-MB KINE Constraint forces
2651	109	MAXE-PX NODE Support reactions
2652	109	MINE-PX NODE Support reactions
2653	109	MAXE-PY NODE Support reactions
2654	109	MINE-PY NODE Support reactions
2655	109	MAXE-PZ NODE Support reactions
2656	109	MINE-PZ NODE Support reactions
2657	109	MAXE-MX NODE Support reactions
2658	109	MINE-MX NODE Support reactions
2659	109	MAXE-MY NODE Support reactions
2660	109	MINE-MY NODE Support reactions
2661	109	MAXE-MZ NODE Support reactions
2662	109	MINE-MZ NODE Support reactions
2691	109	MAXE-MB NODE Support reactions
2692	109	MINE-MB NODE Support reactions
2663	109	MAXE-PX BOUN Boundary results
2664	109	MINE-PX BOUN Boundary results
2665	109	MAXE-PY BOUN Boundary results
2666	109	MINE-PY BOUN Boundary results
2667	109	MAXE-PZ BOUN Boundary results
2668	109	MINE-PZ BOUN Boundary results
2669	109	MAXE-M BOUN Boundary results
2670	109	MINE-M BOUN Boundary results
2617	109	MAXE-P QUAD Bedding stresses
2618	109	MINE-P QUAD Bedding stresses
2621	109	MAXE-N BEAM Forces and moments
2622	109	MINE-N BEAM Forces and moments
2623	109	MAXE-VY BEAM Forces and moments
2624	109	MINE-VY BEAM Forces and moments
2625	109	MAXE-VZ BEAM Forces and moments
2626	109	MINE-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-MT2 BEAM Forces and moments
2636	109	MINE-MT2 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-NXX QUAD Forces and moments
2612	109	MINE-NXX QUAD Forces and moments
2613	109	MAXE-NYY QUAD Forces and moments
2614	109	MINE-NYY QUAD Forces and moments
2615	109	MAXE-NXY QUAD Forces and moments
2616	109	MINE-NXY QUAD 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-NXX QUAK Forces and moments
2612	109	MINE-NXX QUAK Forces and moments
2613	109	MAXE-NYY QUAK Forces and moments
2614	109	MINE-NYY QUAK Forces and moments
2615	109	MAXE-NXY QUAK Forces and moments
2616	109	MINE-NXY 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	MAXEPHIZ NODE Displacements
2682	109	MINEPHIZ NODE Displacements
2683	109	MAXEPHIB NODE Displacements
2684	109	MINEPHIB NODE Displacements

NHPIAGOGEIO_GASTOUNH
design parameter list

Reinforcementparameter two layer reinforcement

Selection Grp No.	elem No.	bar-distance d1-u d1-l [cm]	d2-u d2-l [cm]	bar-diameter ds-u ds-1 [mm]	2.lay ds-2-1 [mm]	crackwidth wk-u wk-l [mm]	2.lay wk-2-1 [mm]	steelstress sigsu sigsl [MPa]	2.lay sigs21 [MPa]	min.reinf. asu asl [cm2/m]	2.lay as12 [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(EC2)
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(EC2))

Mat	f-ck [MPa]	f-cr [MPa]	f-yk [MPa]	f-tk [MPa]	f-ctm [MPa]	N [-]	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
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].

NHPIAGOGEIO_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	sigs2l	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

NHPIAGOGEIO_GASTOUNH
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 Displacemen Nodal reaction punching design
Loadcase 1472 MINP-UX NODE Displacemen Nodal reaction punching design
Loadcase 1473 MAXP-UY NODE Displacemen Nodal reaction punching design
Loadcase 1474 MINP-UY NODE Displacemen Nodal reaction punching design
Loadcase 1475 MAXP-UZ NODE Displacemen Nodal reaction punching design
Loadcase 1476 MINP-UZ NODE Displacemen Nodal reaction punching design
Loadcase 1477 MAXPPHIX NODE Displaceme Nodal reaction punching design
Loadcase 1478 MINPPHIX NODE Displaceme Nodal reaction punching design
Loadcase 1479 MAXPPHIY NODE Displaceme Nodal reaction punching design
Loadcase 1480 MINPPHIY NODE Displaceme Nodal reaction punching design
Loadcase 1481 MAXPPHIZ NODE Displaceme Nodal reaction punching design
Loadcase 1482 MINPPHIZ NODE Displaceme Nodal reaction punching design
Loadcase 1483 MAXPPHIB NODE Displaceme Nodal reaction punching design
Loadcase 1484 MINPPHIB NODE Displaceme 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]	N [-]	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 [MREI] and
has to be checked separately.

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

NHPIAGOGEIO_GASTOUNH
SLS design

SERVICEABILITY LIMIT STATE CONTROL PARAMETERS

No	Code	dNW[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 Grp elem No. No.	bar-distance d1-u d1-l [cm]	d2-u d2-l [cm]	bar-diameter ds-u 2.lay ds-l [mm]	ds-2-l [mm]	crackwidth wk-u 2.lay wk-l [mm]	wk-2-l [mm]	steelstress sigsu 2.lay sigsl [MPa]	sigs2l [MPa]	min.reinf. asu 2.lay asl [cm2/m]	asl2 [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 N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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

NHPIAGOGEIO_GASTOUNH
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Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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

NHPIAGOGEIO_GASTOUNH
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Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top | Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton | Asa [MPa]	Asm [MPa]	Asi [MPa]	links | Ass [MPa]	concre|sig-c [MPa]	steel-1|sig-max [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

NHPIAGOGEIO_GASTOUNH
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Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-1 sig-max [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	-0.4	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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top | Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton | Asa [MPa]	Asm [MPa]	Asi [MPa]	links | Ass [MPa]	concre|steel-l sig-c [MPa]	sig-max [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

NHPIAGOGEIO_GASTOUNH
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Steel stress, concrete pressure, stress range

E=ELEM	stress range on top			stress range botton			links	concre	steel-l
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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top | Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton | Asa [MPa]	Asm [MPa]	Asi [MPa]	links | Ass [MPa]	concre|sig-c [MPa]	steel-1 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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-1 sig-max [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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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	-4.2	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 N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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 106996	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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top | Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton | Asa [MPa]	Asm [MPa]	Asi [MPa]	links | Ass [MPa]	concre|sig-c [MPa]	steel-1|sig-max [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

NHPIAGOGEIO_GASTOUNH
SLS design

Steel stress, concrete pressure, stress range

E=ELEM N=NODE	stress range on top Asa [MPa]	Asm [MPa]	Asi [MPa]	stress range botton Asa [MPa]	Asm [MPa]	Asi [MPa]	links Ass [MPa]	concre sig-c [MPa]	steel-l sig-max [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
Maximum	197.6	193.1		141.6	183.0		400.0	-18.0	-500.0

The elements with the maximum values have been printed.

steel-l: longitudinal reinf. - links are also checked to CHKS but not printed!

NHPIAGOGEIO_GASTOUNH
ULS design acci

Design according to EN 1992-1-1:2004(EC2) Accidential 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	MINE-MXX QUAD Forces and moments	
Loadcase 2603	MAXE-MYY QUAD Forces and moments	
Loadcase 2604	MINE-MYY QUAD Forces and moments	
Loadcase 2605	MAXE-MXY QUAD Forces and moments	
Loadcase 2606	MINE-MXY QUAD Forces and moments	
Loadcase 2607	MAXE-VX QUAD Forces and moments	
Loadcase 2608	MINE-VX QUAD Forces and moments	
Loadcase 2609	MAXE-VY QUAD Forces and moments	
Loadcase 2610	MINE-VY QUAD Forces and moments	
Loadcase 2611	MAXE-NXX QUAD Forces and moments	
Loadcase 2612	MINE-NXX QUAD Forces and moments	
Loadcase 2613	MAXE-NYY QUAD Forces and moments	
Loadcase 2614	MINE-NYY QUAD Forces and moments	
Loadcase 2615	MAXE-NXY QUAD Forces and moments	
Loadcase 2616	MINE-NXY QUAD Forces and moments	
Loadcase 2617	MAXE-P QUAD Bedding stre	Bedding stresses for punching design
Loadcase 2618	MINE-P QUAD Bedding stre	Bedding stresses for punching design
Loadcase 2651	MAXE-PX NODE Support rea	Nodal reaction punching design
Loadcase 2652	MINE-PX NODE Support rea	Nodal reaction punching design
Loadcase 2653	MAXE-PY NODE Support rea	Nodal reaction punching design
Loadcase 2654	MINE-PY NODE Support rea	Nodal reaction punching design
Loadcase 2655	MAXE-PZ NODE Support rea	Nodal reaction punching design
Loadcase 2656	MINE-PZ NODE Support rea	Nodal reaction punching design
Loadcase 2657	MAXE-MX NODE Support rea	Nodal reaction punching design
Loadcase 2658	MINE-MX NODE Support rea	Nodal reaction punching design
Loadcase 2659	MAXE-MY NODE Support rea	Nodal reaction punching design
Loadcase 2660	MINE-MY NODE Support rea	Nodal reaction punching design
Loadcase 2661	MAXE-MZ NODE Support rea	Nodal reaction punching design
Loadcase 2662	MINE-MZ NODE Support rea	Nodal reaction punching design
Loadcase 2671	MAXE-UX NODE Displacemen	Nodal reaction punching design
Loadcase 2672	MINE-UX NODE Displacemen	Nodal reaction punching design
Loadcase 2673	MAXE-UY NODE Displacemen	Nodal reaction punching design
Loadcase 2674	MINE-UY NODE Displacemen	Nodal reaction punching design
Loadcase 2675	MAXE-UZ NODE Displacemen	Nodal reaction punching design
Loadcase 2676	MINE-UZ NODE Displacemen	Nodal reaction punching design
Loadcase 2677	MAXEPHIX NODE Displaceme	Nodal reaction punching design
Loadcase 2678	MINEPHIX NODE Displaceme	Nodal reaction punching design
Loadcase 2679	MAXEPHIY NODE Displaceme	Nodal reaction punching design
Loadcase 2680	MINEPHIY NODE Displaceme	Nodal reaction punching design
Loadcase 2681	MAXEPHIZ NODE Displaceme	Nodal reaction punching design
Loadcase 2682	MINEPHIZ NODE Displaceme	Nodal reaction punching design
Loadcase 2683	MAXEPHIB NODE Displaceme	Nodal reaction punching design
Loadcase 2684	MINEPHIB NODE Displaceme	Nodal reaction punching design
Loadcase 2691	MAXE-MB NODE Support rea	Nodal reaction punching design
Loadcase 2692	MINE-MB NODE Support rea	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 [-]	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
Reduction of FC in case of transvers tension = 20.0 [o/o]

NHPIAGOGEIO_GASTOUNH
ULS design acci

Material-safety-fa ctors:

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*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 Grp No.	elem No.	bar-distance d1-u d1-l [cm]	d2-u d2-l [cm]	bar-diameter ds-u [mm]	2.lay ds-2-l [mm]	crackwidth wk-u [mm]	2.lay wk-2-l [mm]	steelstress sigsu sigsl [MPa]	2.lay sigs2l [MPa]	min.reinf. asu asl [cm2/m	2.lay as12 [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

NHPIAGOGEIO_GASTOUNH
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]	fyd [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

NHPIAGOGEIO_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

MNo	sig-comp [MPa]	sig-comp [o/o]	sig-tens [MPa]	sig-tens [o/o]	design width [mm]	width [mm]	bond [-]	load [-]	h-max [m]
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

NHPIAGOGEIO_GASTOUNH
ULS design beams, accidential 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]	sigIIQ [MPa]	sigIIT [MPa]	sigIIQ+ [MPa]	fyd [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 .

NHPIAGOGEIO_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

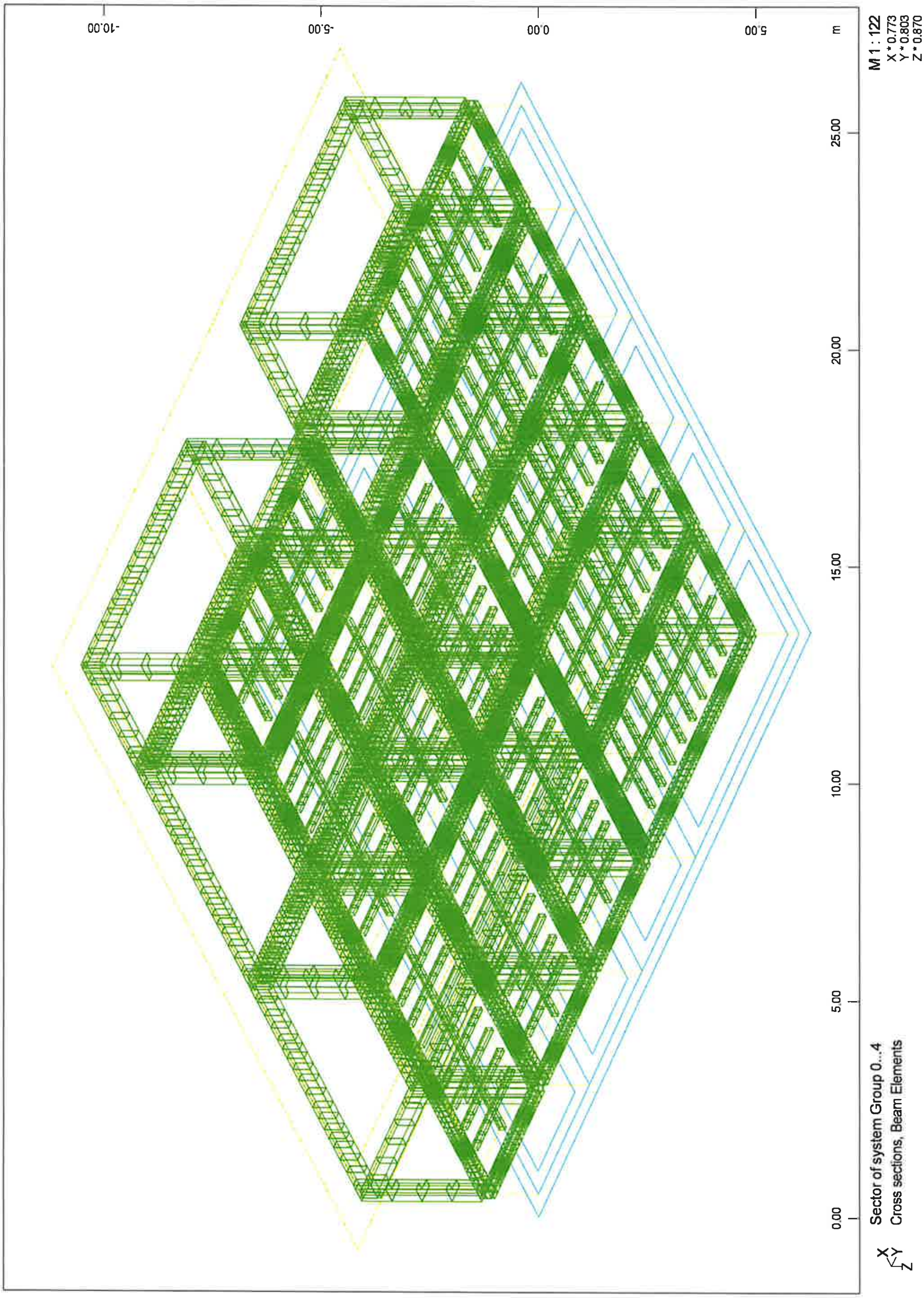
No. 1 C 25/30 (EN 1992)
No. 2 S 500 C (EN 1992)
No. 3 C 30/37 (EN 1992)
No. 4 C 30/37 (EN 1992) - Slab
No. 6 S 275 (EN 10025-2)

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_GASTOUNH
Interactive Graphic



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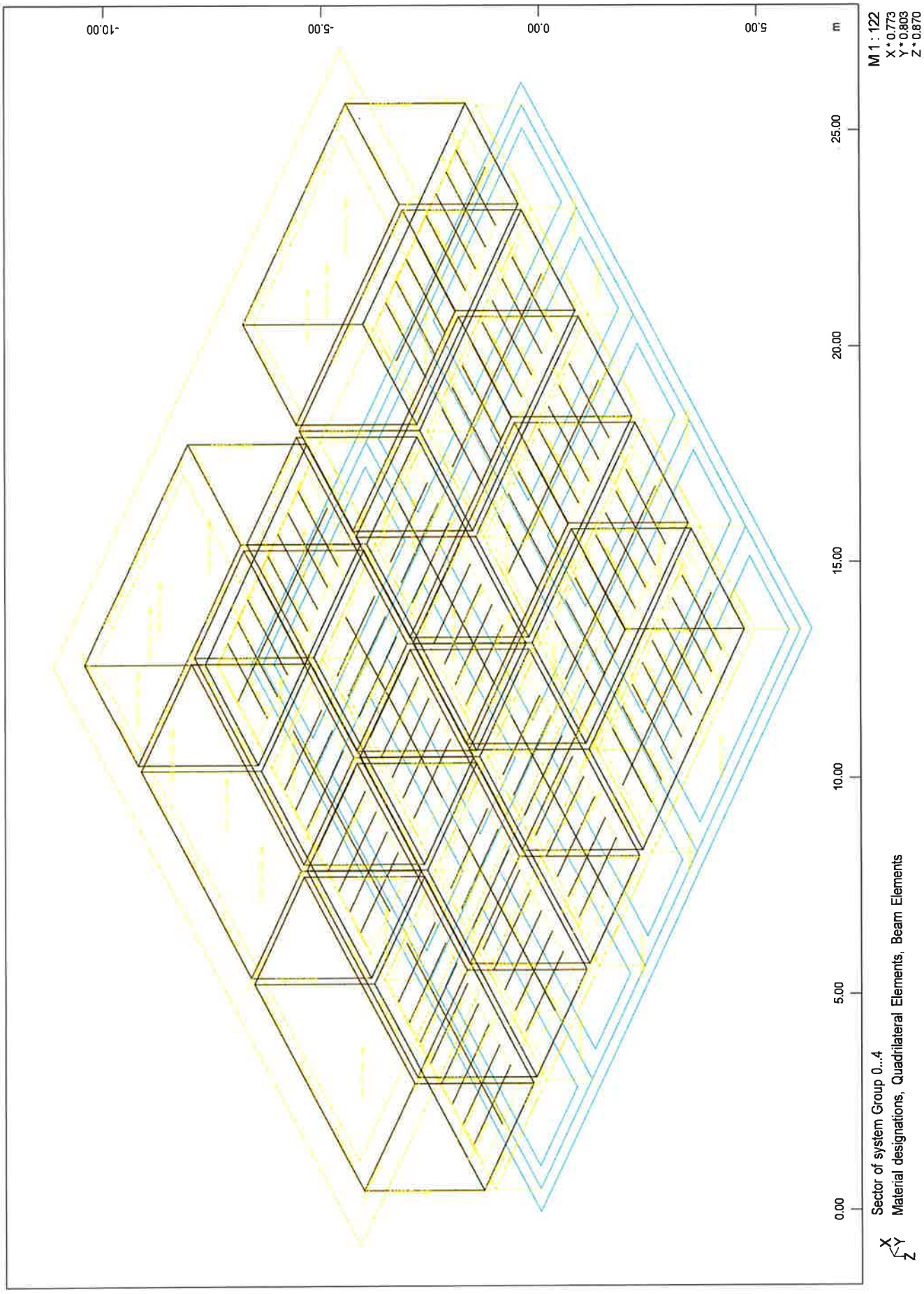

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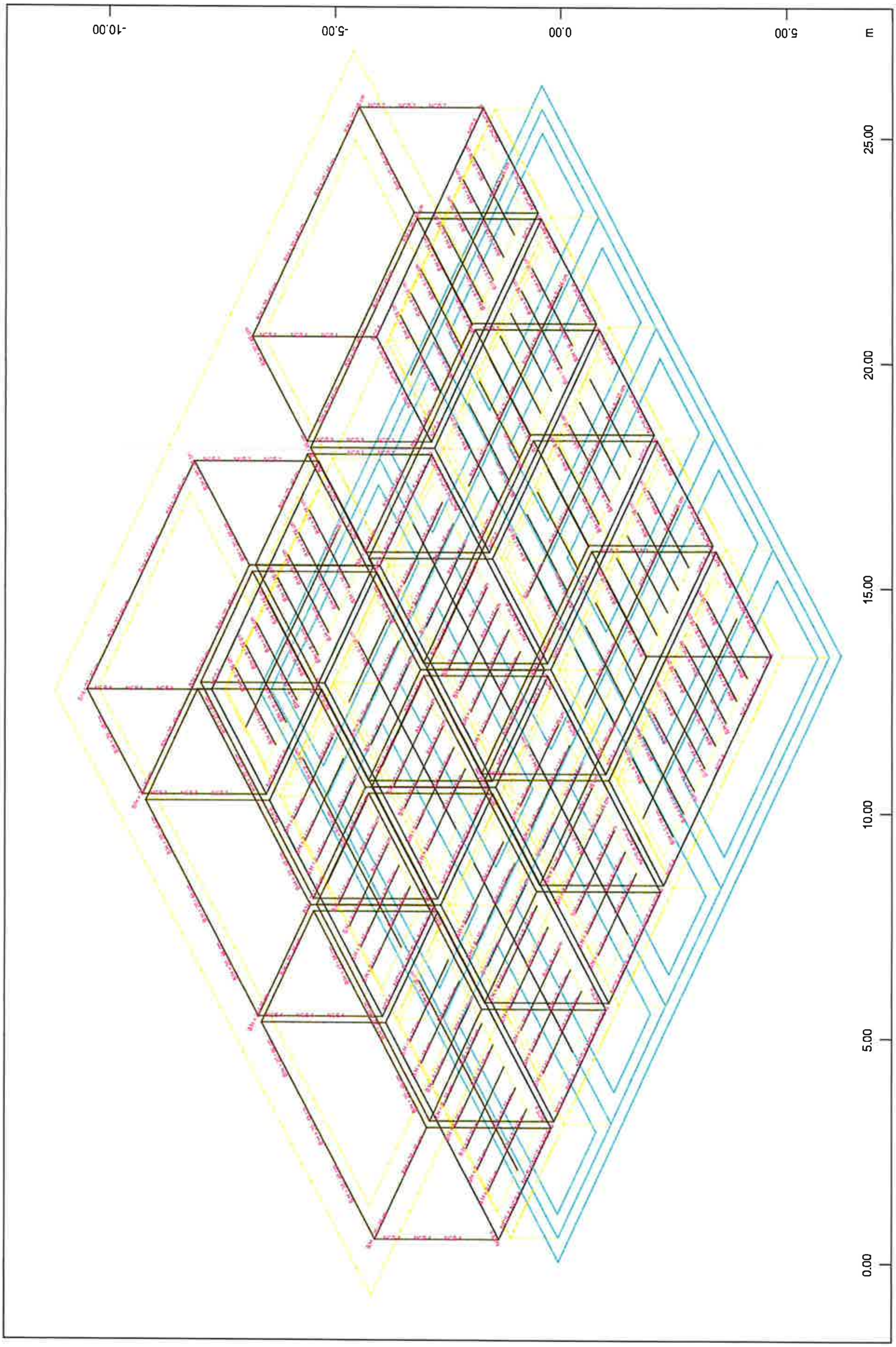

M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

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

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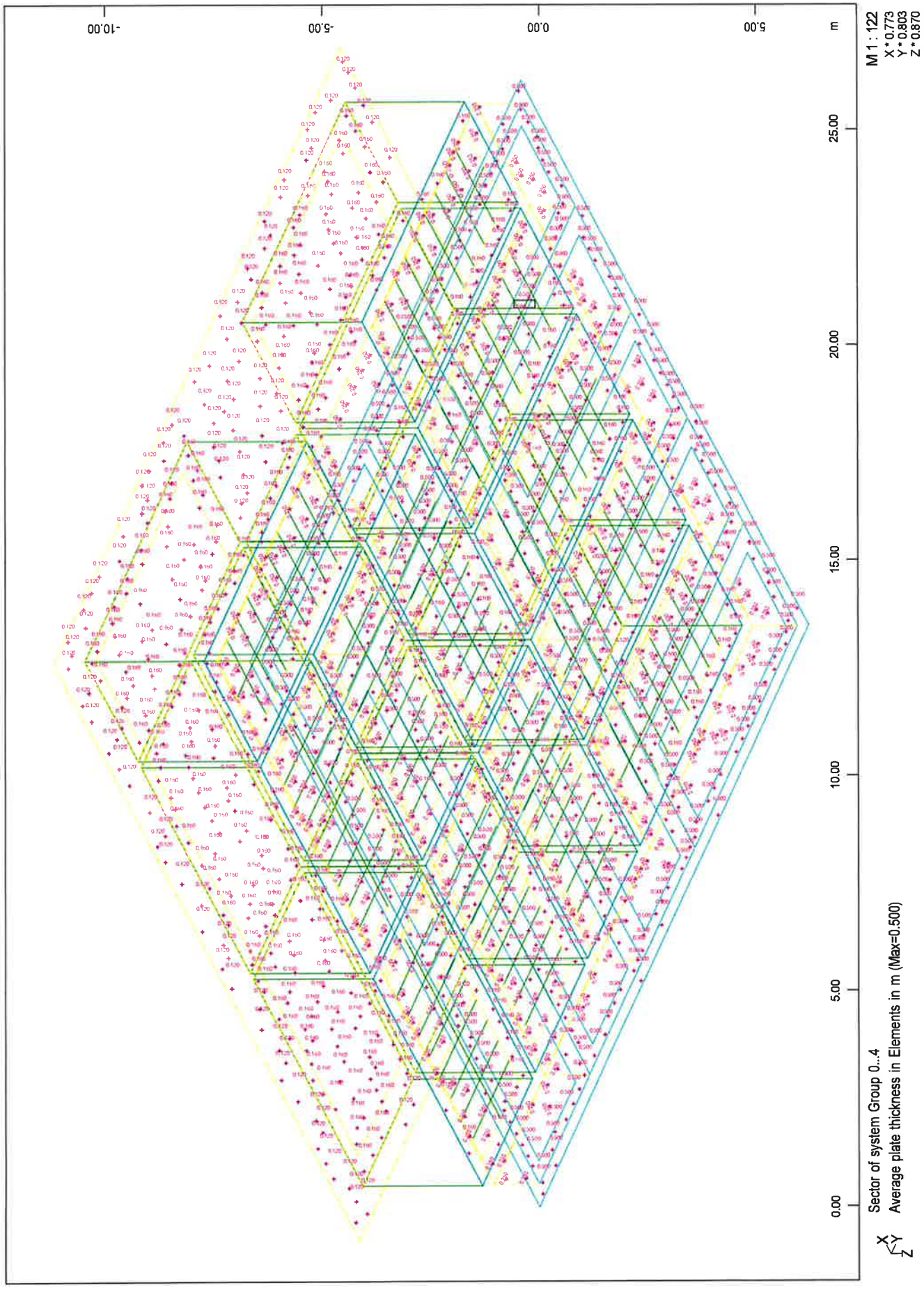
Interactive Graphic



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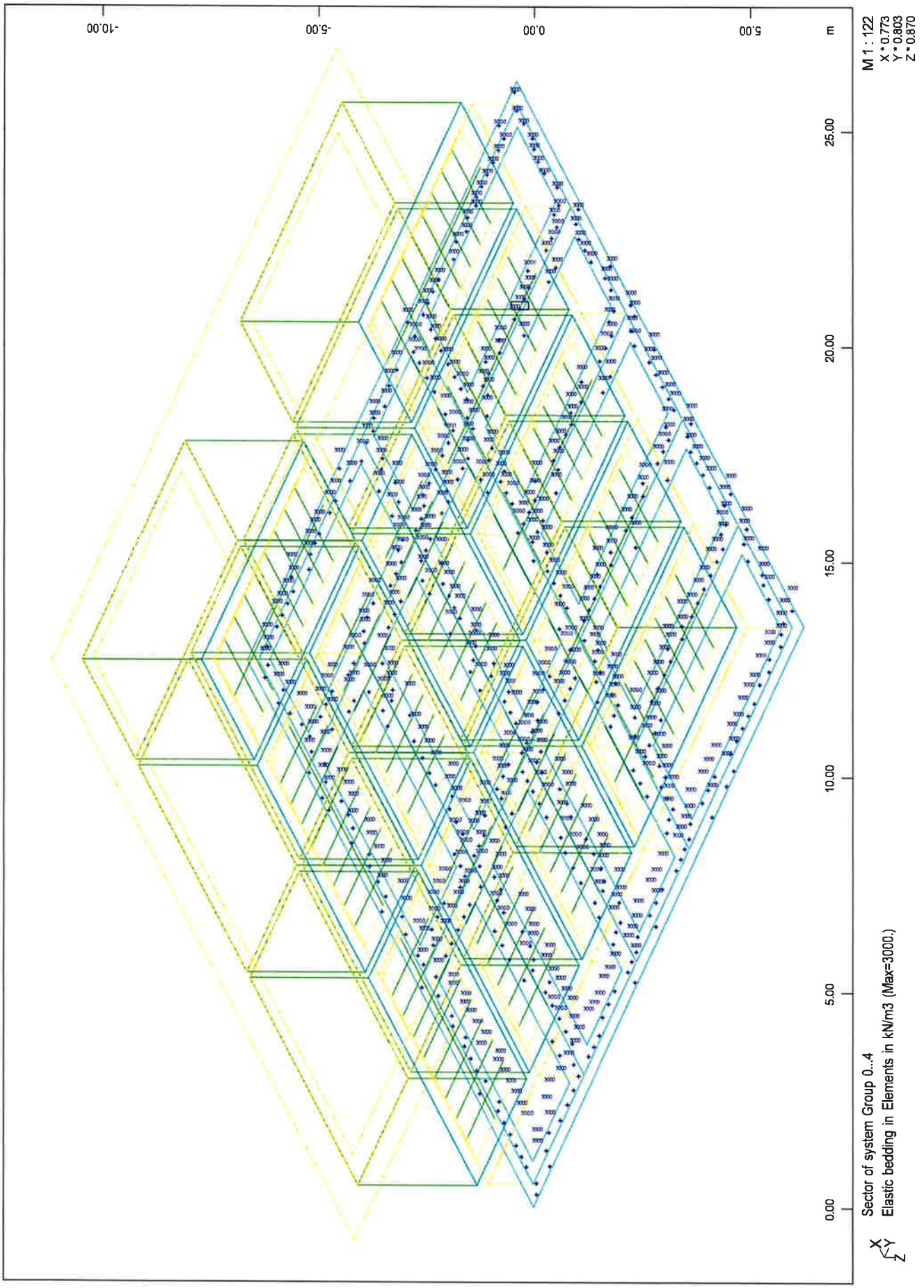

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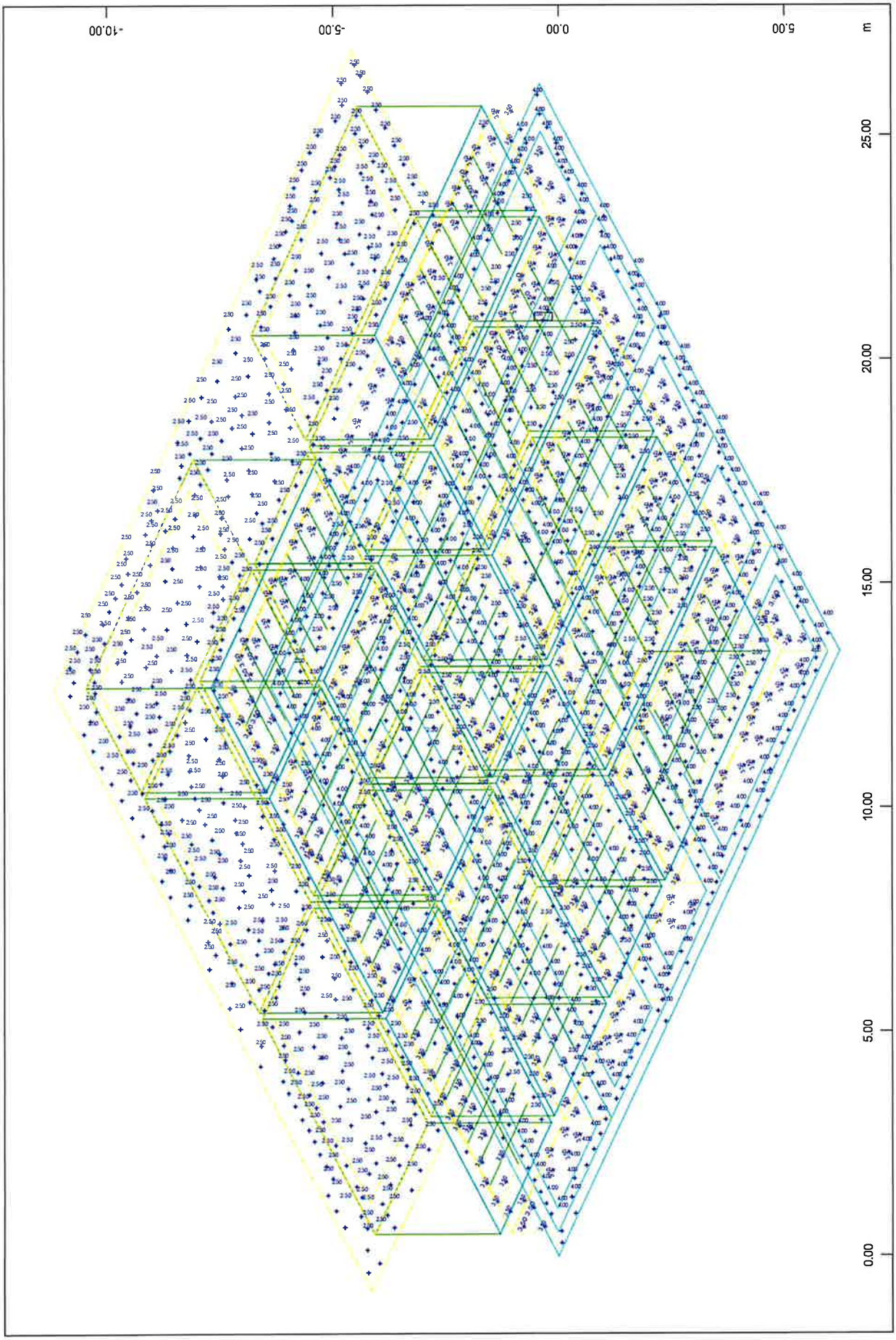

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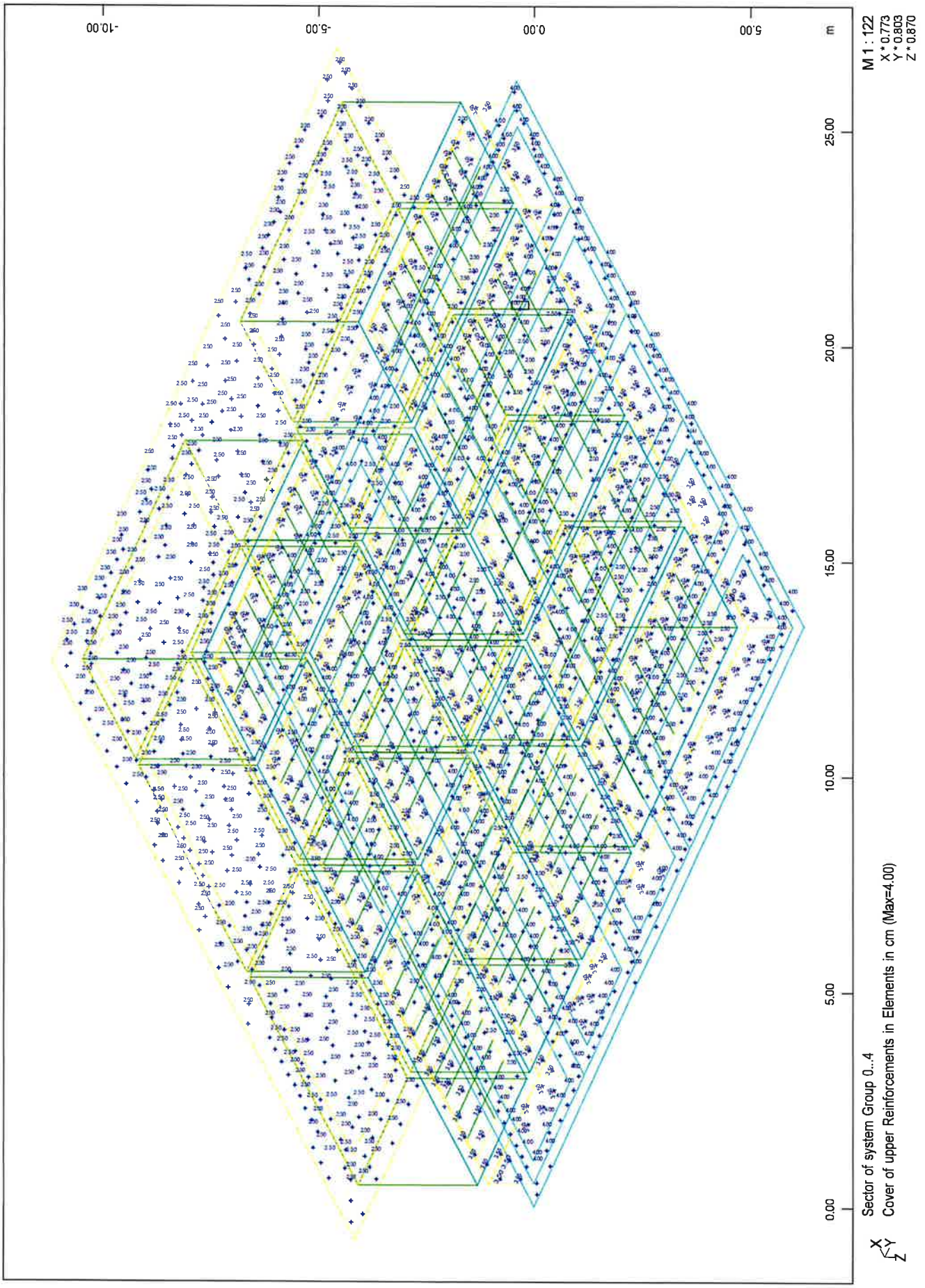

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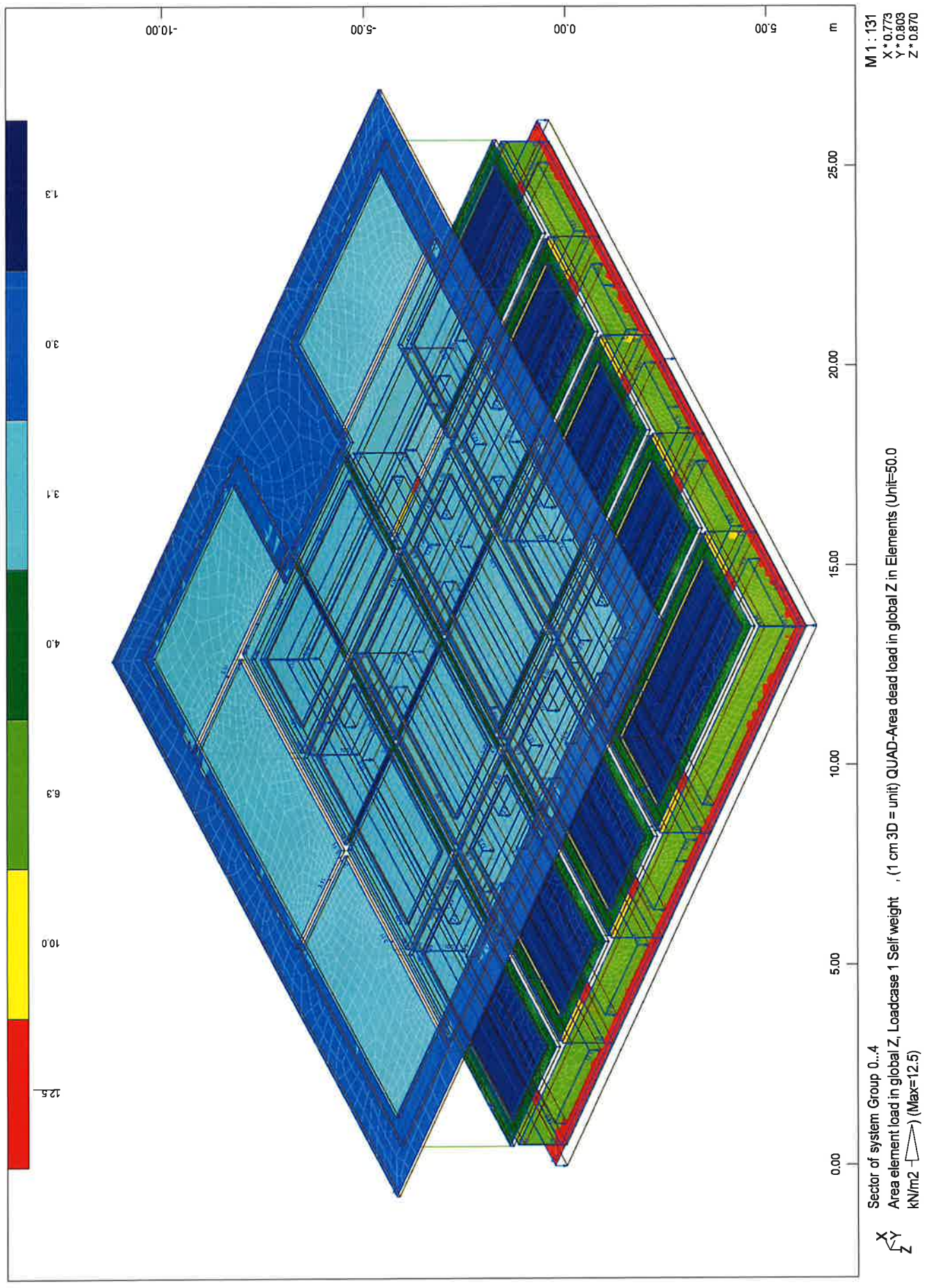

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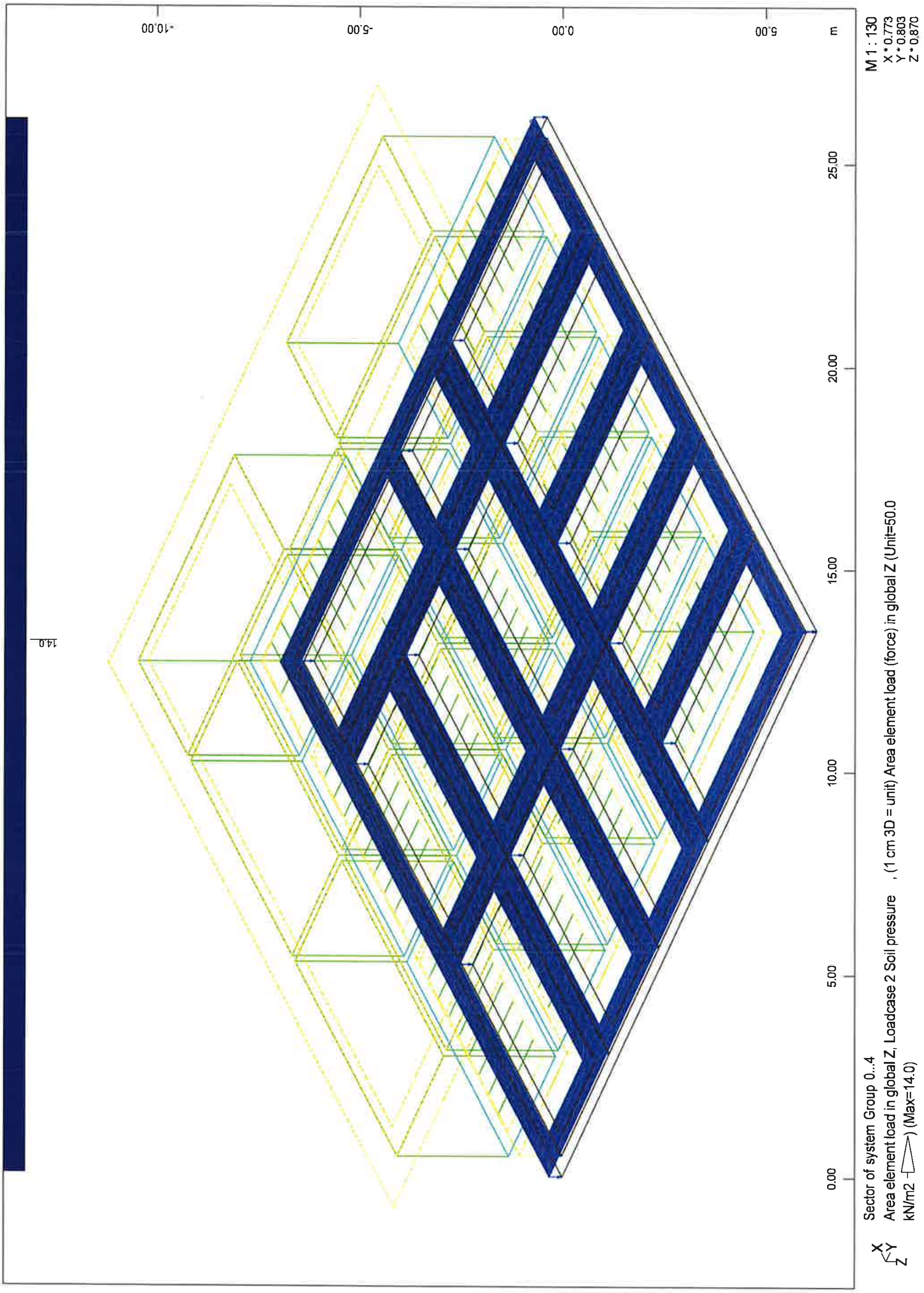

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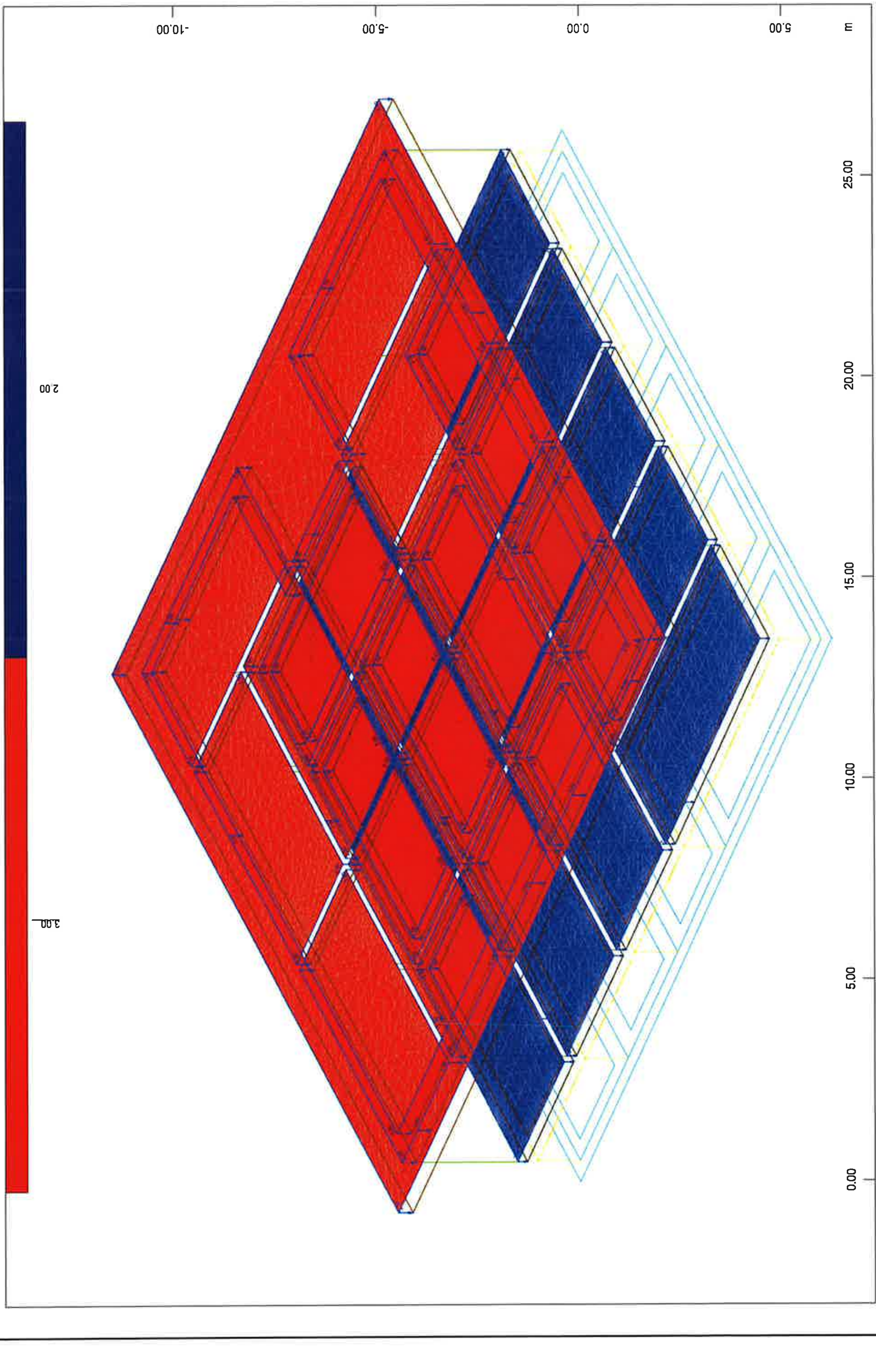

M 1 : 133
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0..4
Area element load in global Z, Loadcase 3 Superimposed dead , (1 cm 3D = unit) Area element load (force) in global Z (Unit=10.0 kN/m2) (Max=3.00)

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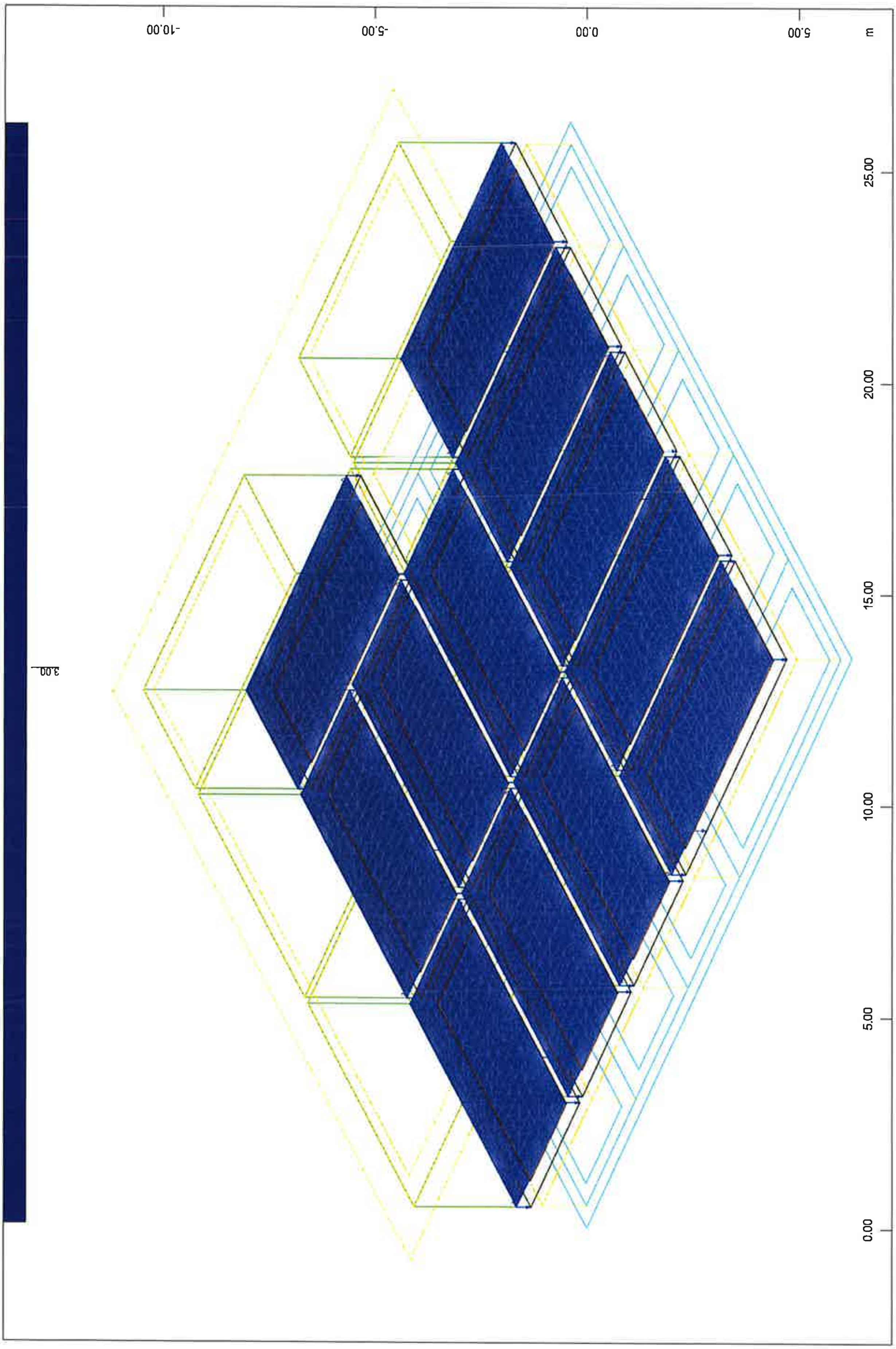
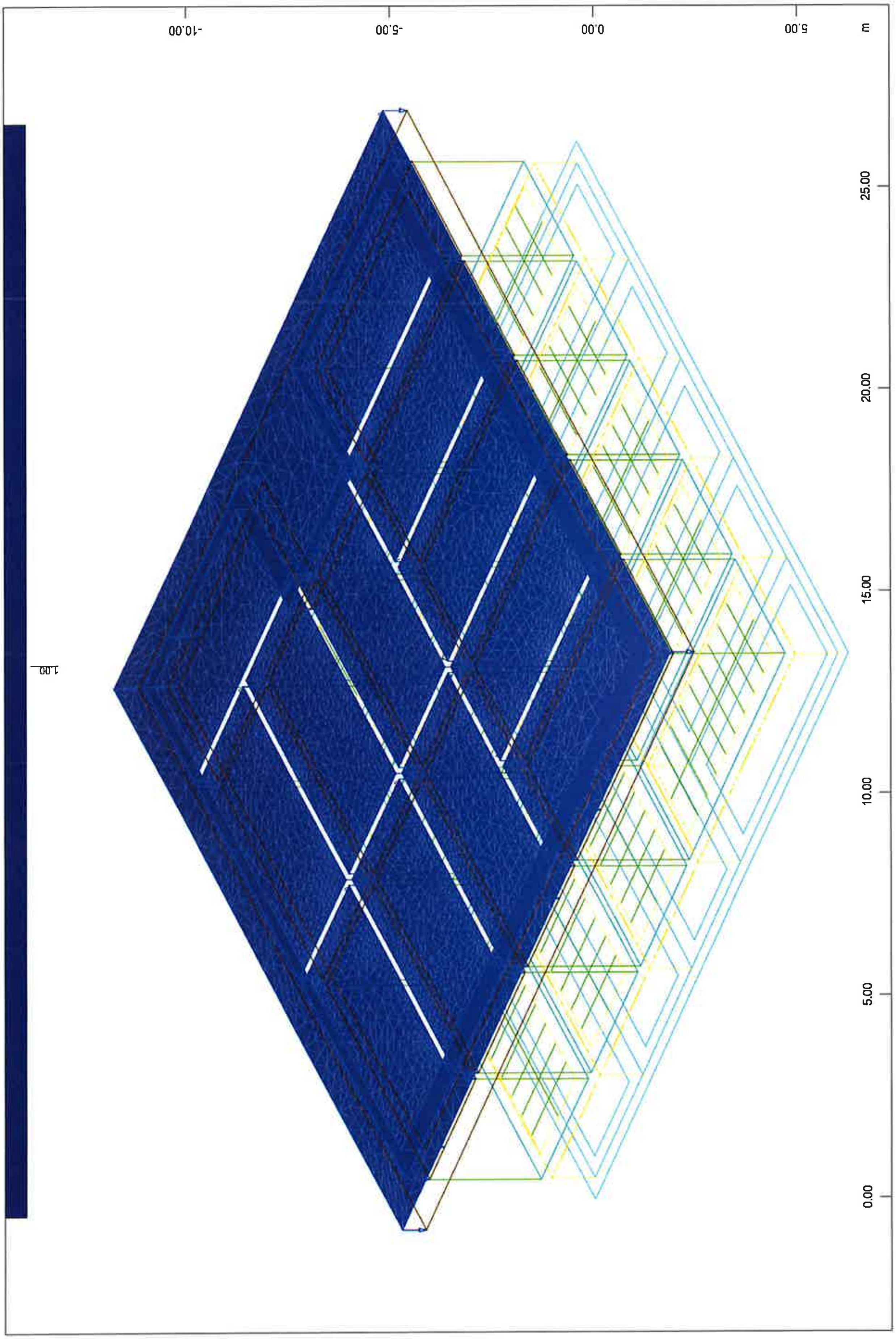
Interactive Graphic



M 1 : 130
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Area element load in global Z, Loadcase 4 Live load , (1 cm 3D = unit) Area element load (force) in global Z (Unit=10.0 kN/m2) (Max=3.00)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



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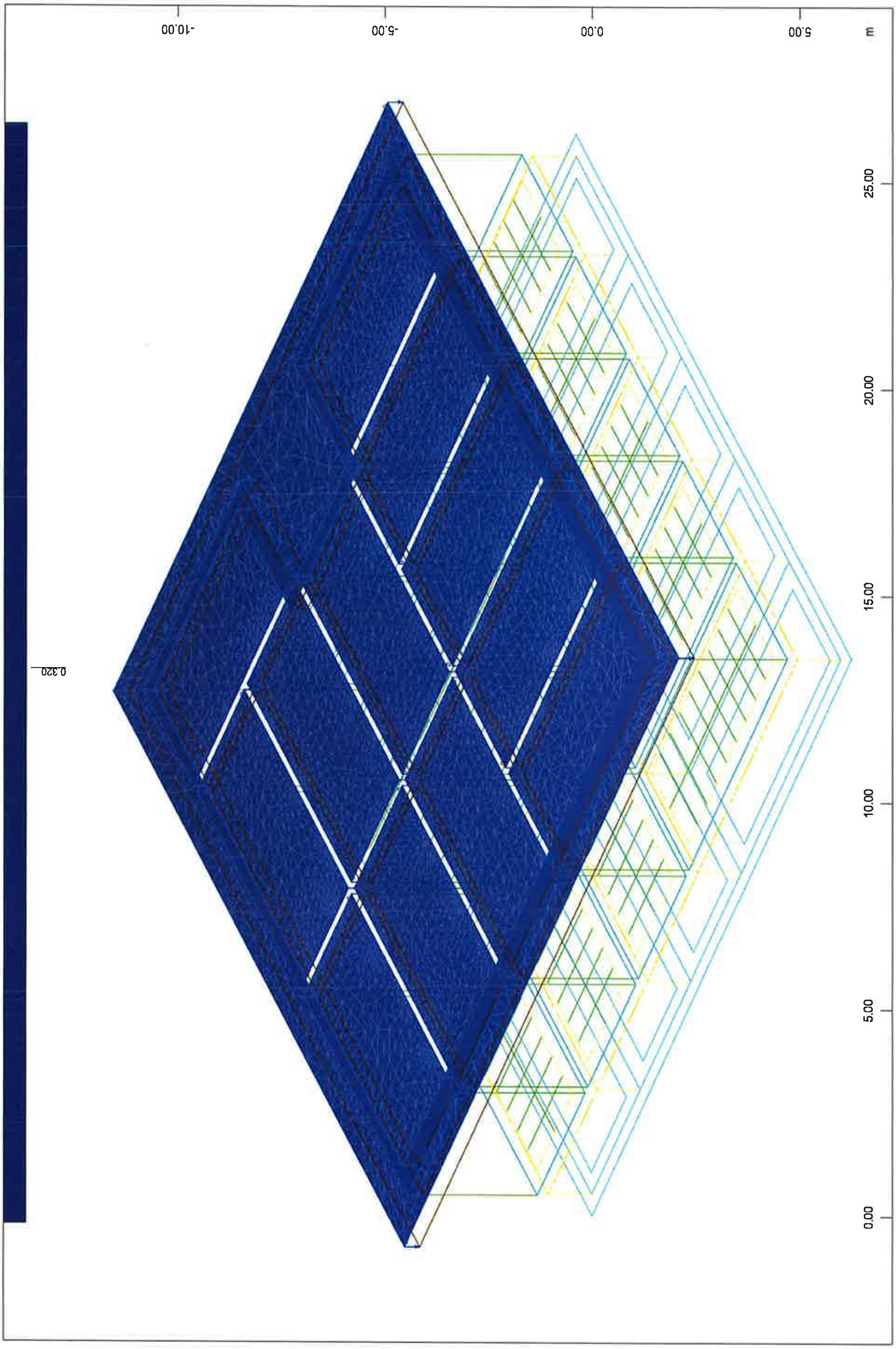

M 1 : 133
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Area element load in global Z, Loadcase 6 Snow load , (1 cm 3D = unit) Area element load (force) in global Z (Unit=1.00 kN/m2) (Max=0.320)

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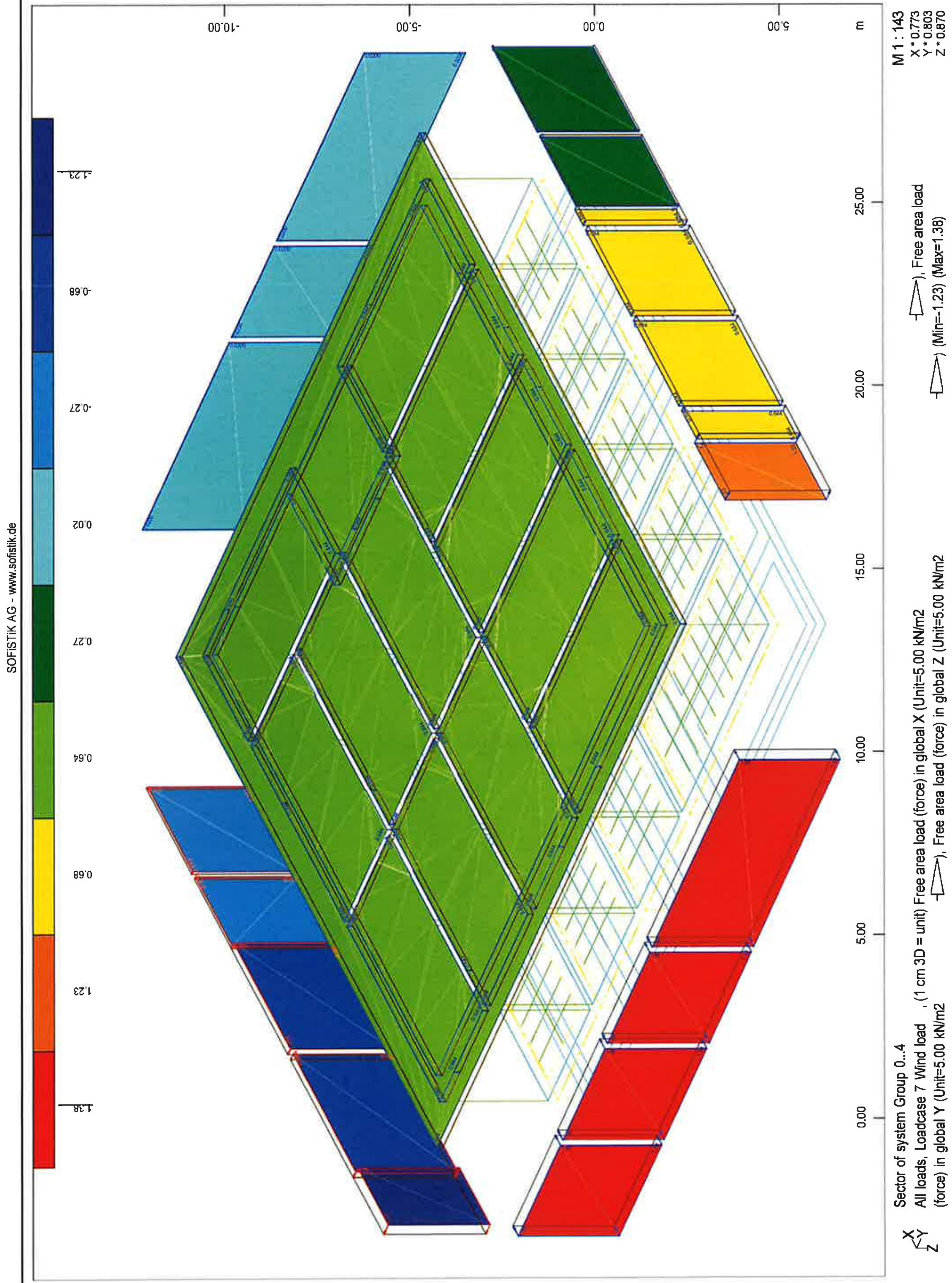
Interactive Graphic



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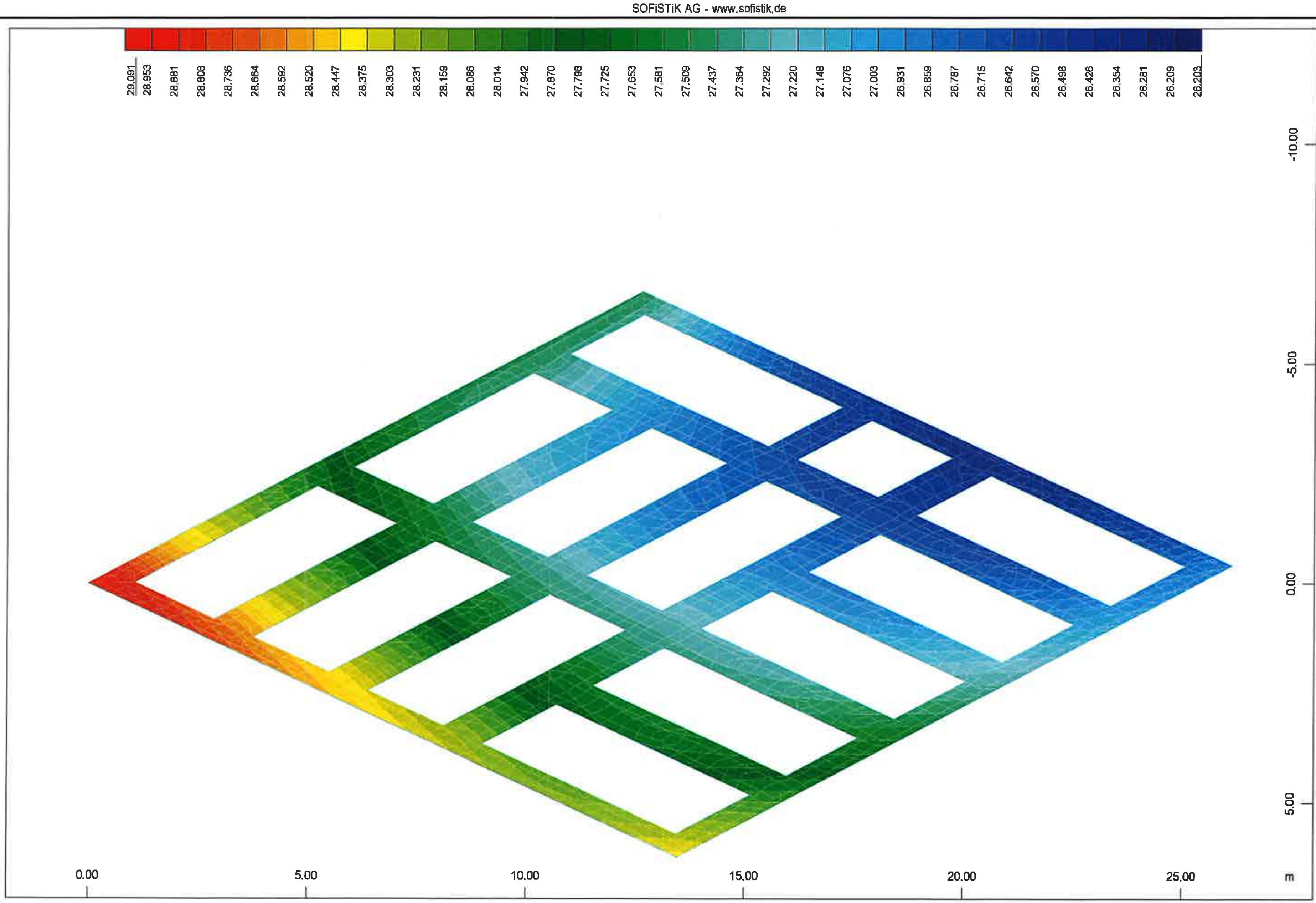


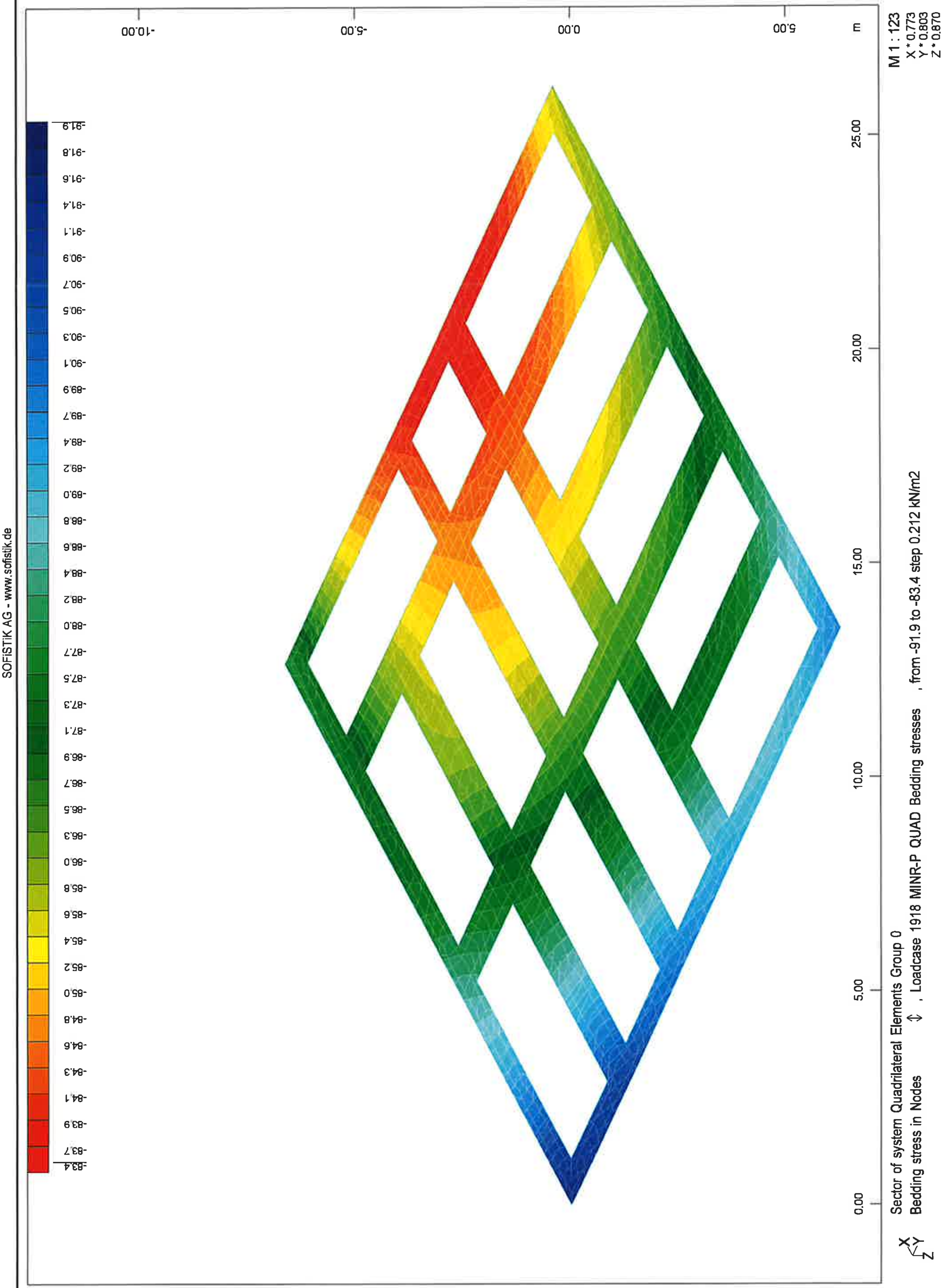
X Y Z
Sector of system Quadrilateral Elements Group 0
Nodal displacement in global Z in Nodes

⇕ , Loadcase 1475 MAXP-UZ NODE Displacements , from 26.2 to 29.1 step 0.0722 mm

M 1 : 123
X * 0.773
Y * 0.803
Z * 0.870

NHPIAGOGEIO_GASTOUNH

Interactive Graphic



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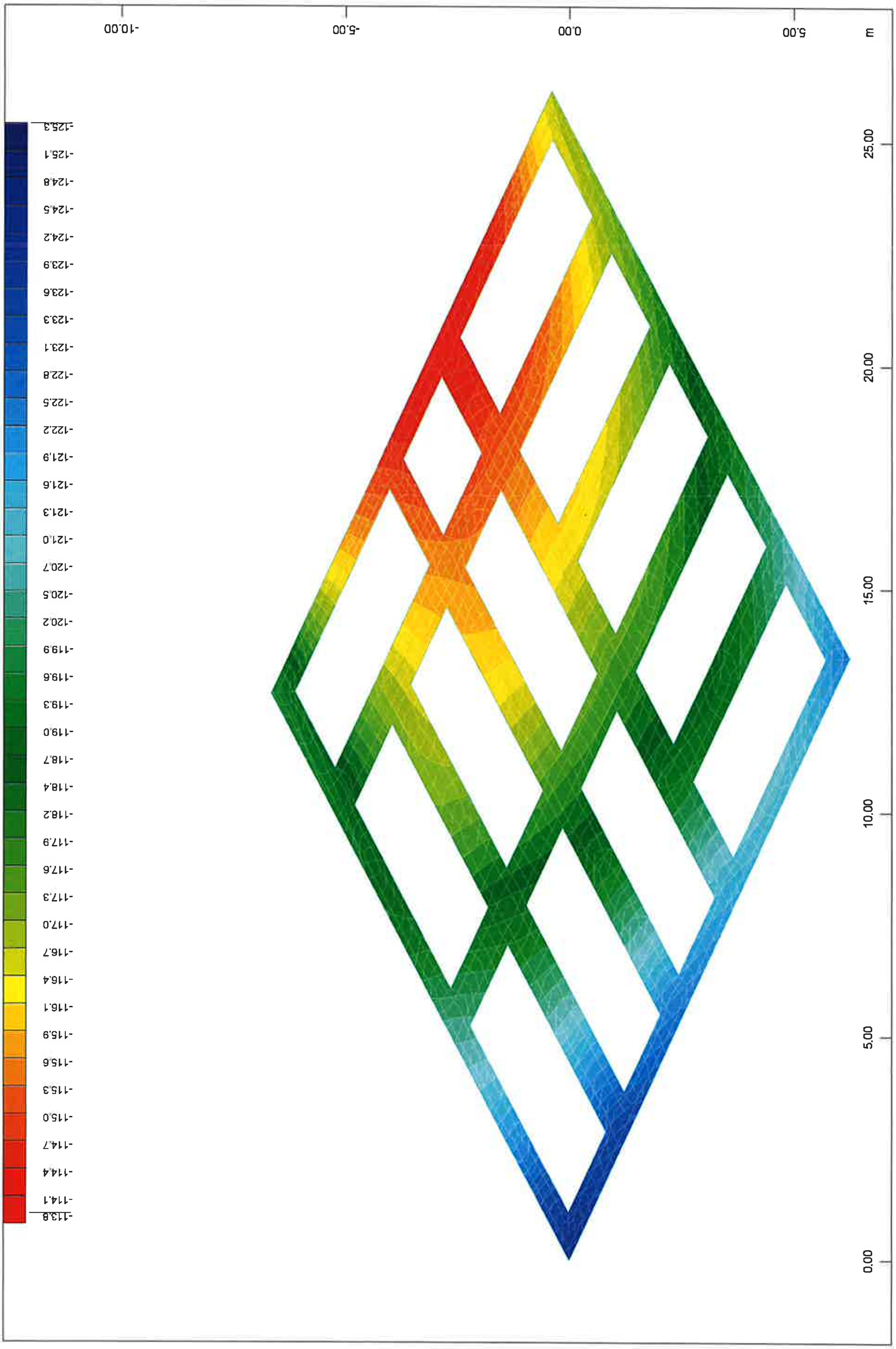

M 1 : 123
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 0
Bedding stress in Nodes ⇕ , Loadcase 2118 MIN-P QUAD Bedding stresses , from -125.3 to -113.8 step 0.288 kN/m2

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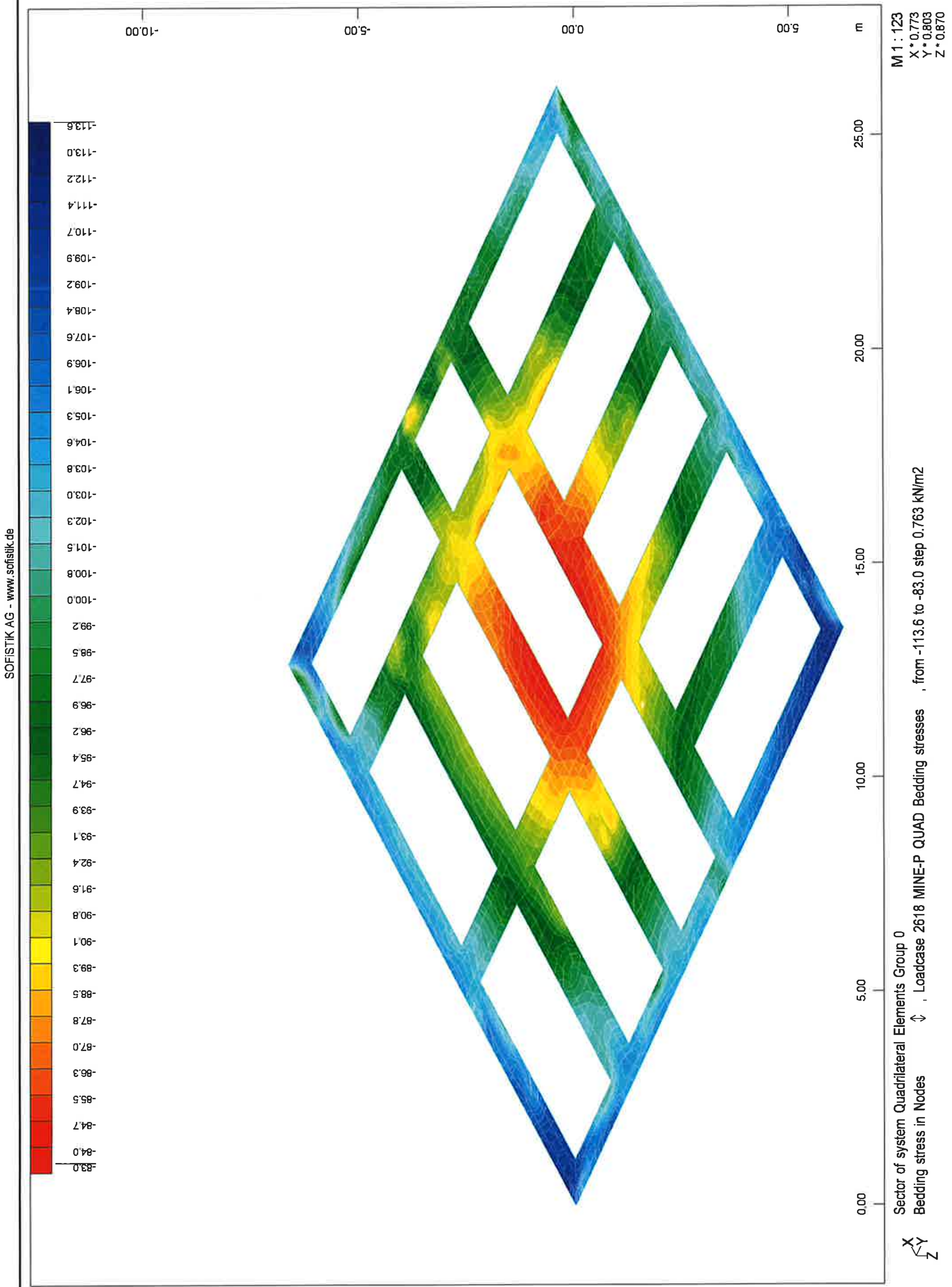
Interactive Graphic



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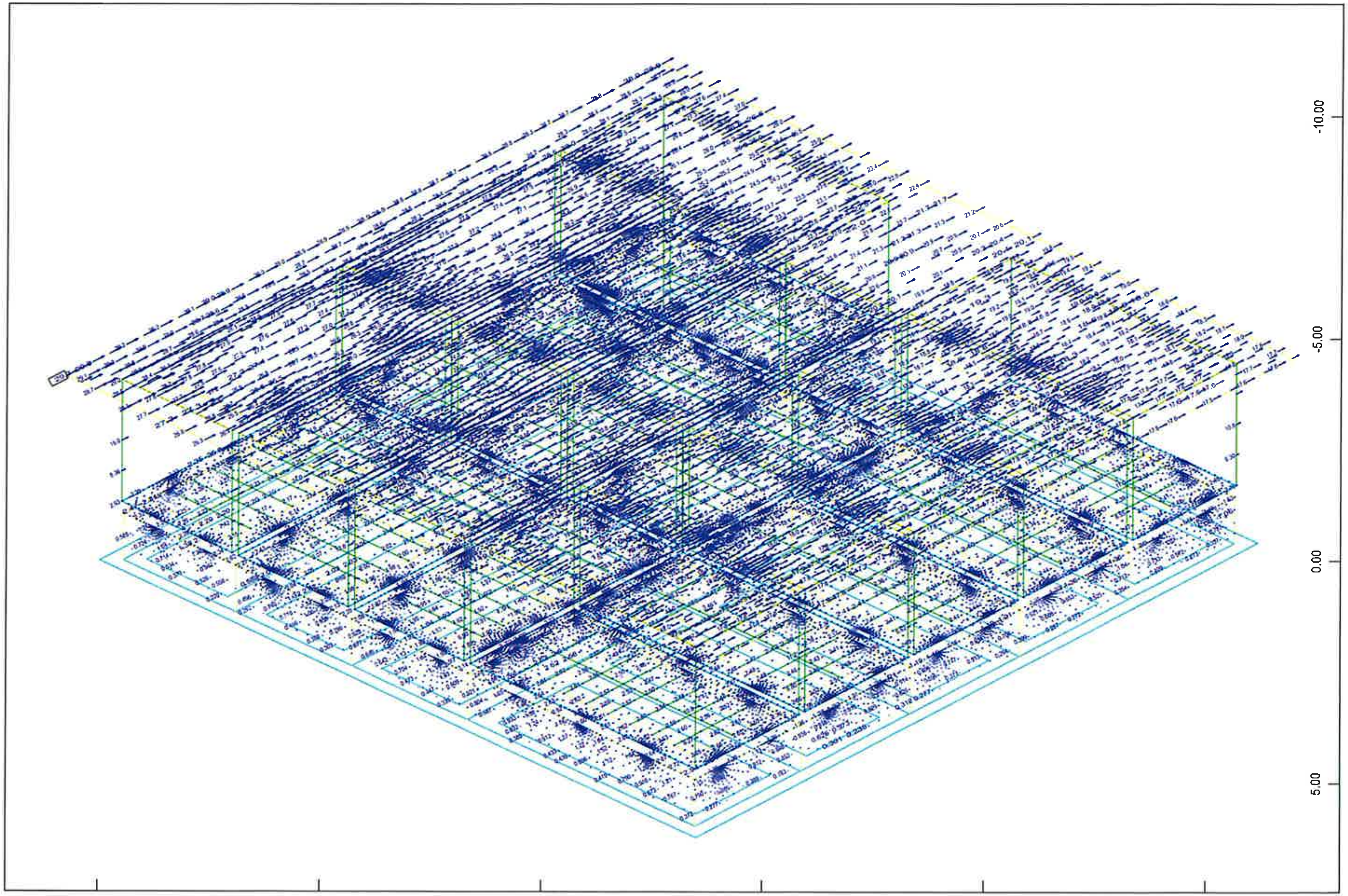


X Y Z

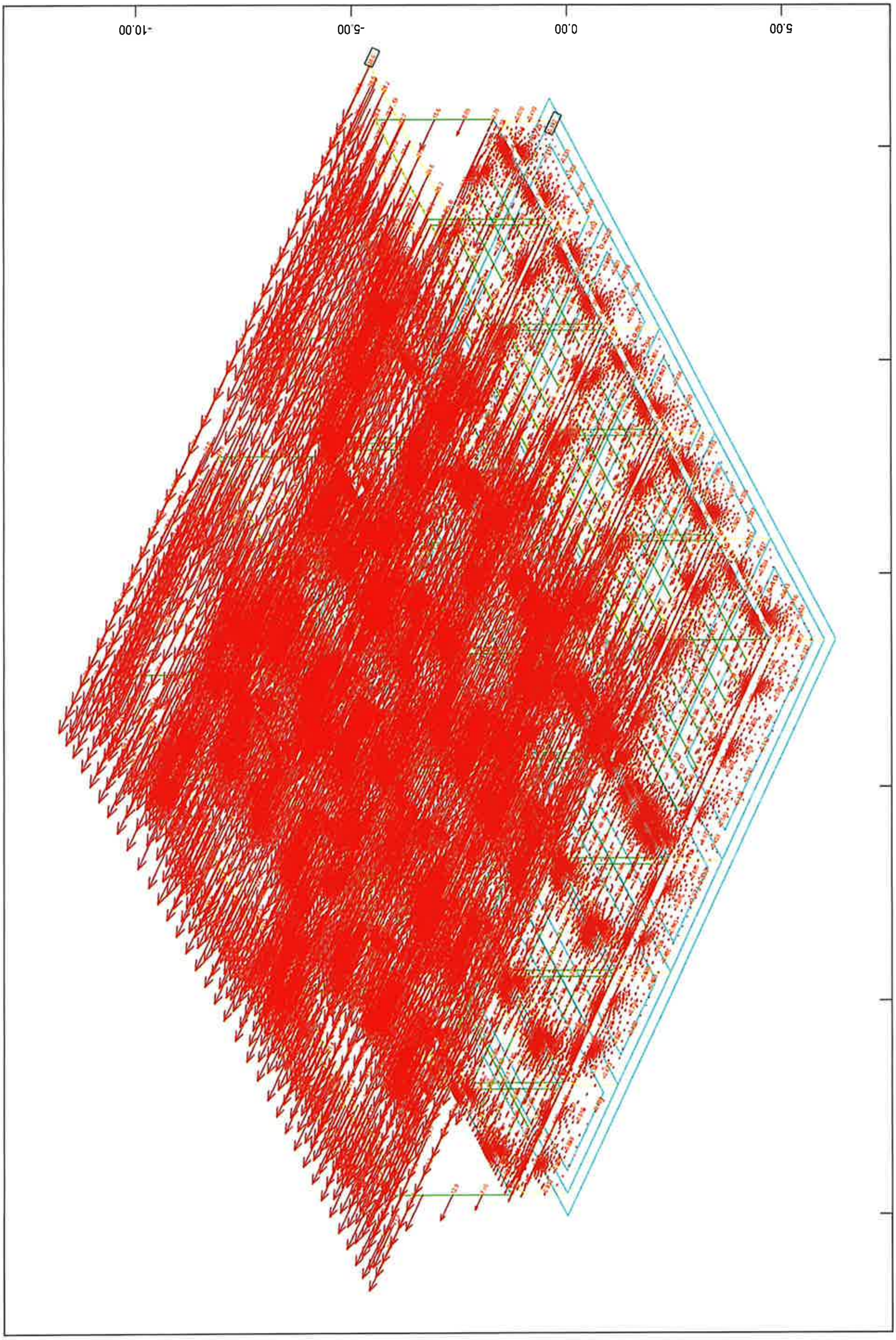
Sector of system Group 0...4

Nodal displacement in global X, Loadcase 2671 MAXE-UX NODE Displacements , with factor 1.50, 1 cm 3D = 100.0 mm

(Max=29.3)

M 1 : 124
X * 0.773
Y * 0.803
Z * 0.870

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



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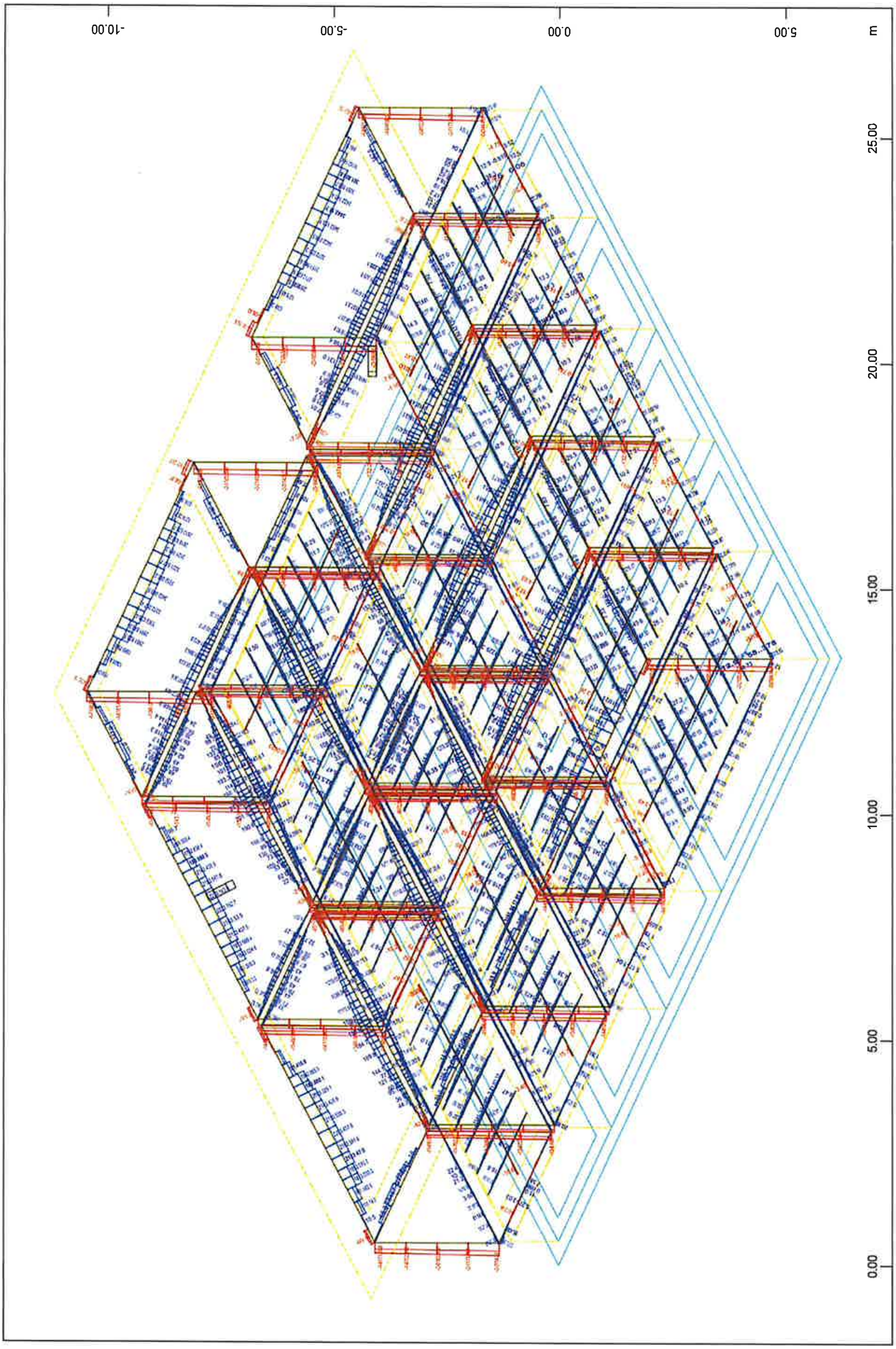

M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Beam Elements , Normal force Nx, Loadcase 2121 MAX-N BEAM Forces and moments , 1 cm 3D = 1000. kN (Min=-147.6) (Max=363.0)
Beam Elements , Normal force Nx, Loadcase 2122 MIN-N BEAM Forces and moments , 1 cm 3D = 1000. kN (Min=-239.9) (Max=223.1)

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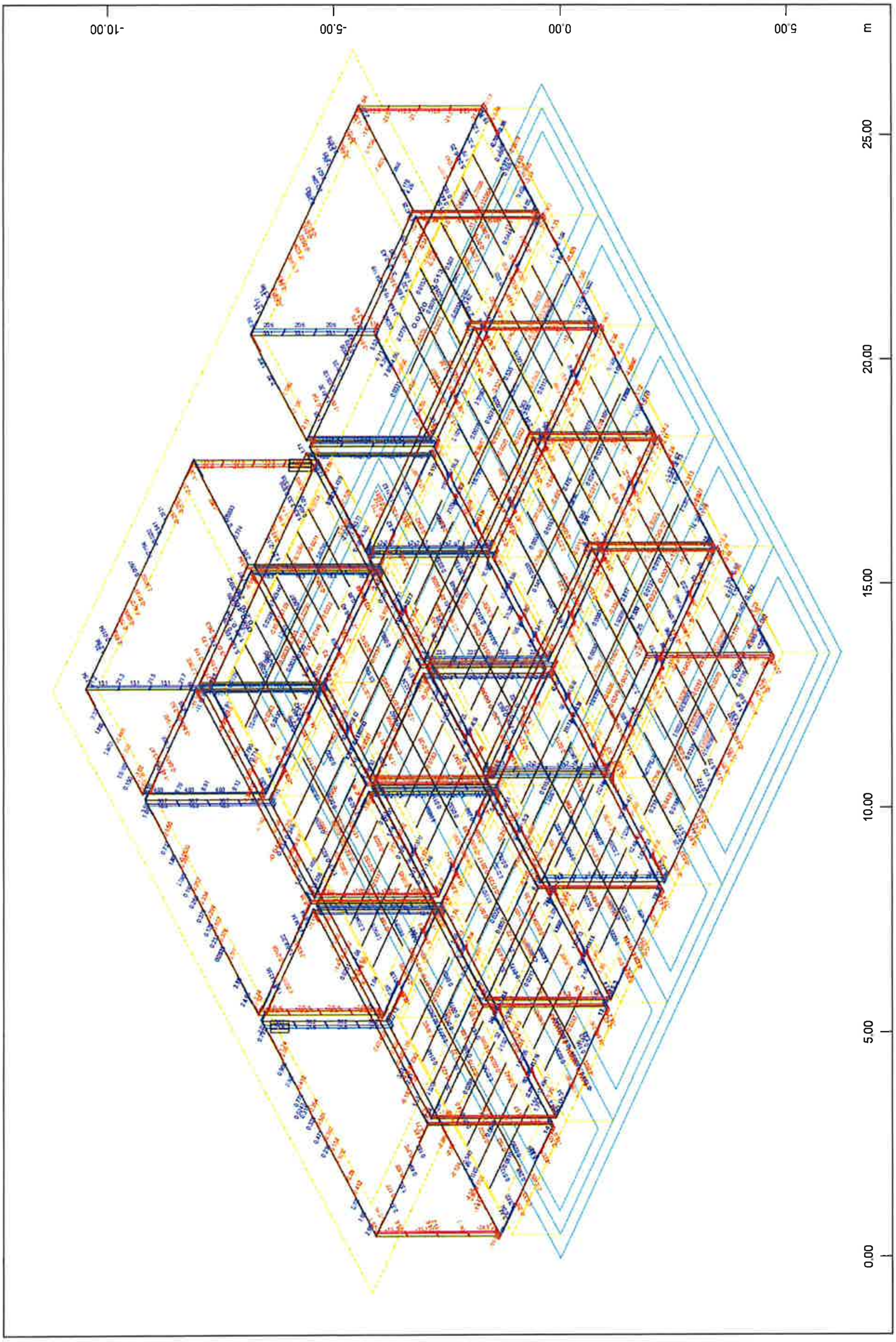
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0..4

Beam Elements , Shear force Vy, Loadcase 2123 MAX-VY BEAM Forces and moments , 1 cm 3D = 200.0 kN (Min=-21.0) (Max=36.2)

Beam Elements , Shear force Vy, Loadcase 2124 MIN-VY BEAM Forces and moments , 1 cm 3D = 200.0 kN (Min=-33.8) (Max=21.6)

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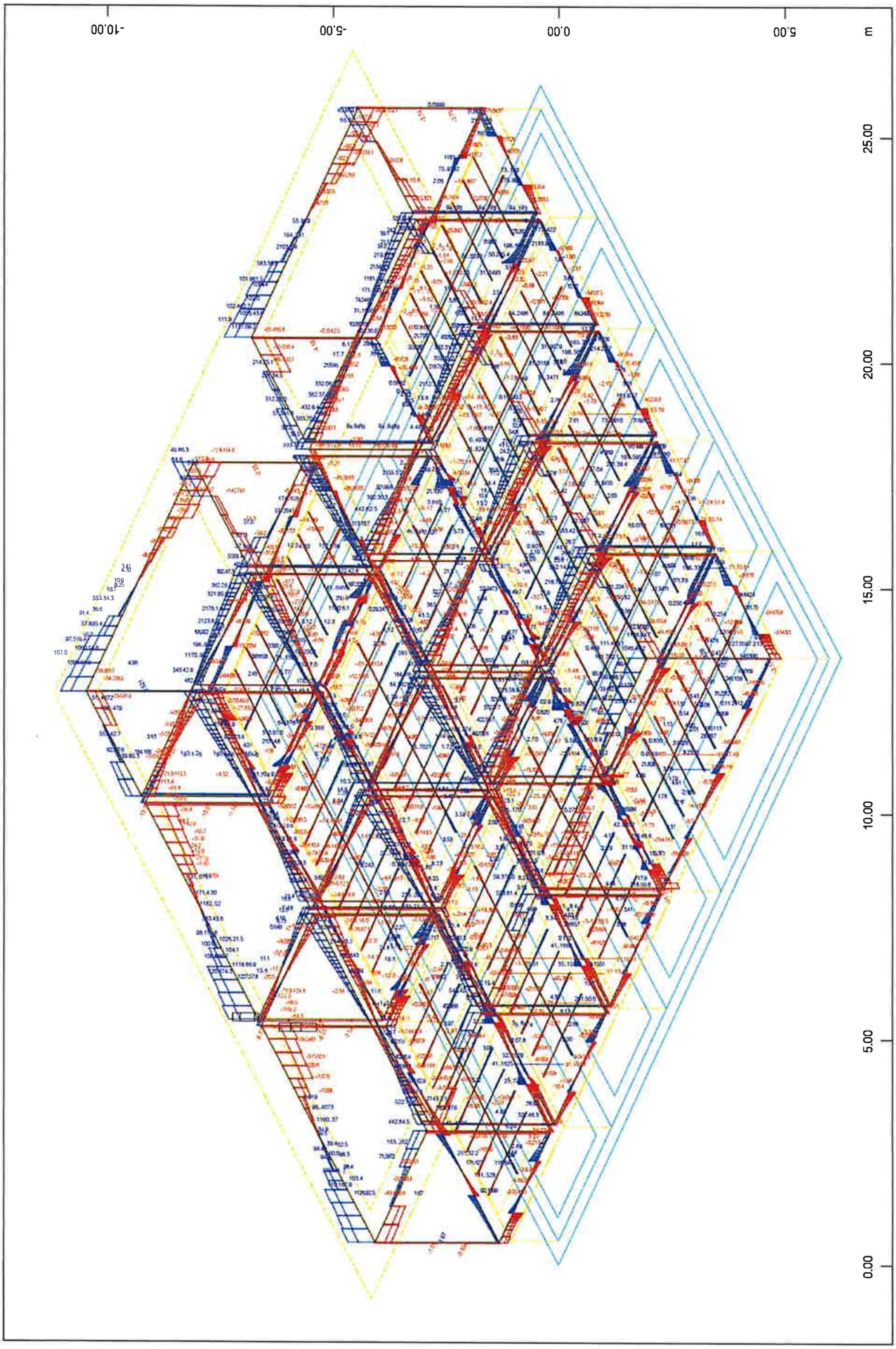
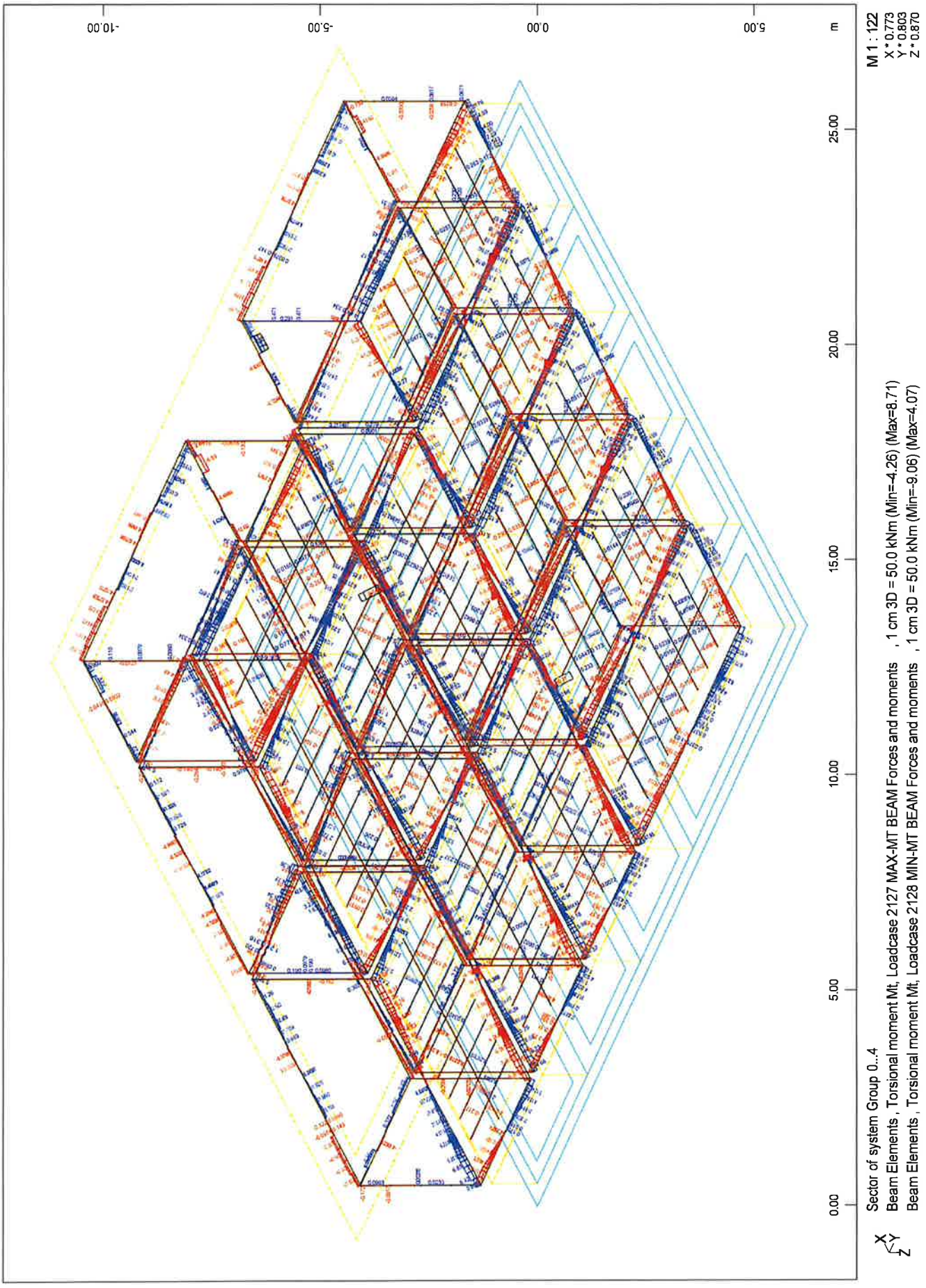
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Beam Elements , Shear force Vz, Loadcase 2125 MAX-VZ BEAM Forces and moments , 1 cm 3D = 200.0 kN (Min=-76.0) (Max=122.7)
Beam Elements , Shear force Vz, Loadcase 2126 MIN-VZ BEAM Forces and moments , 1 cm 3D = 200.0 kN (Min=-124.6) (Max=75.8)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



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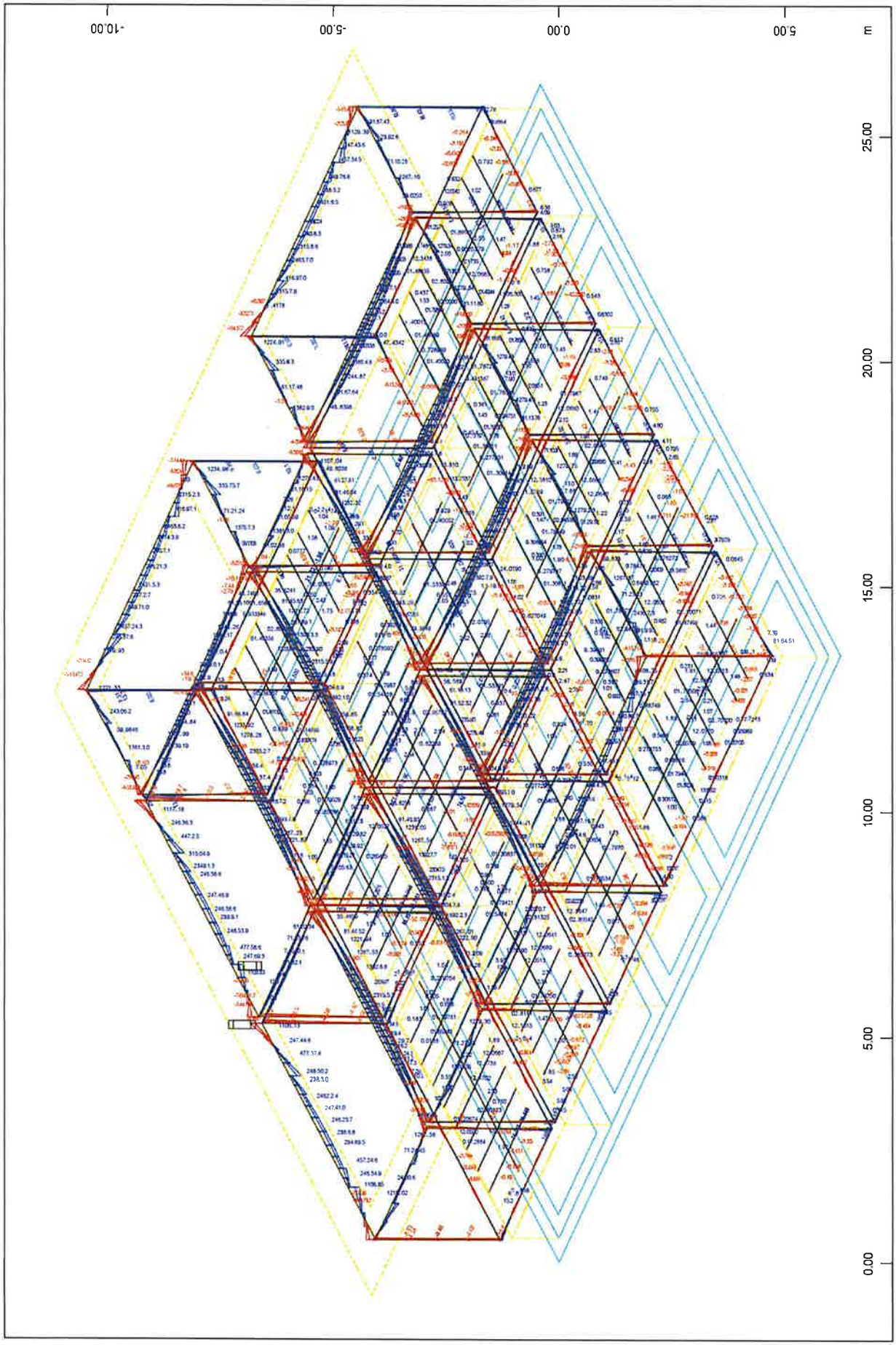

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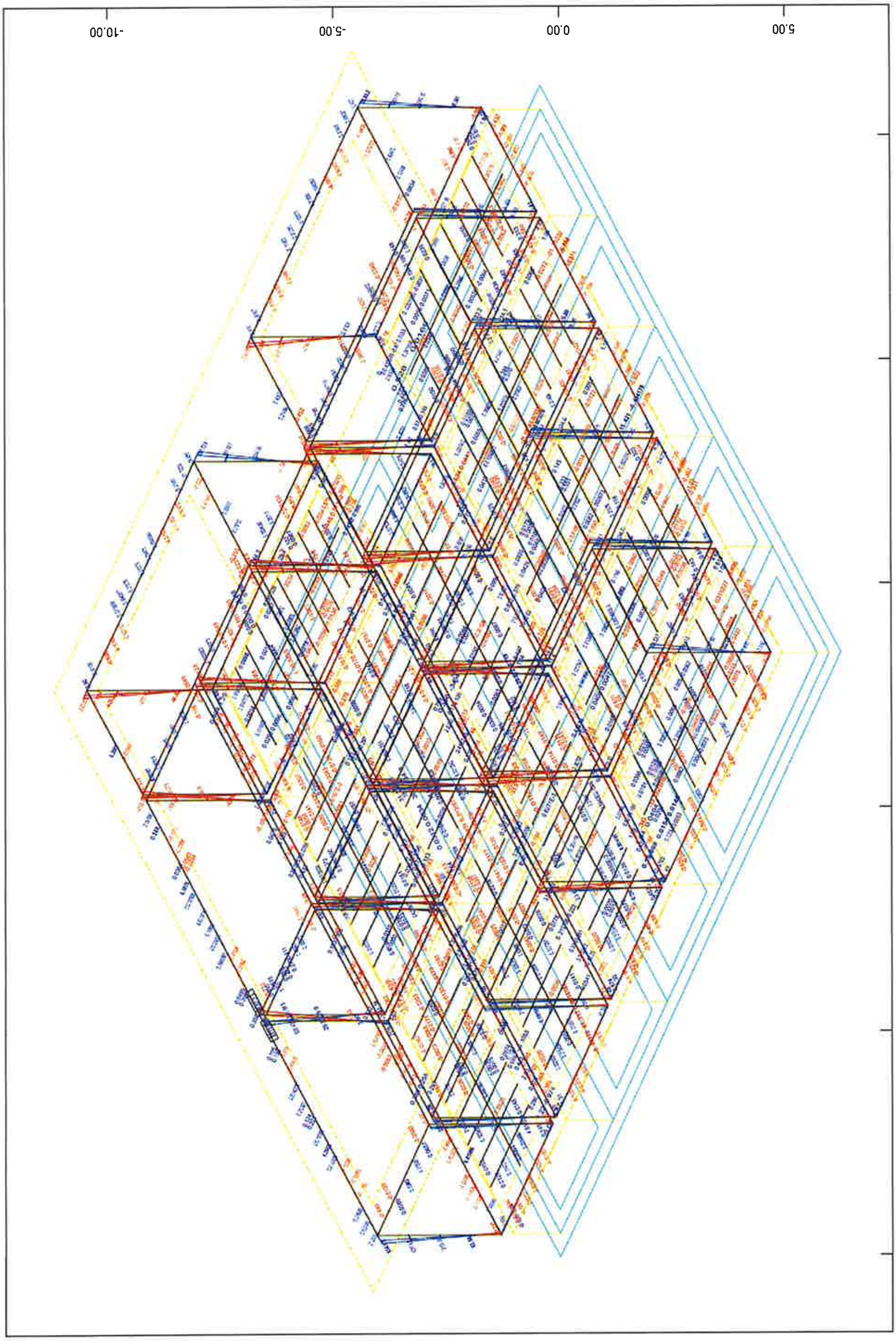
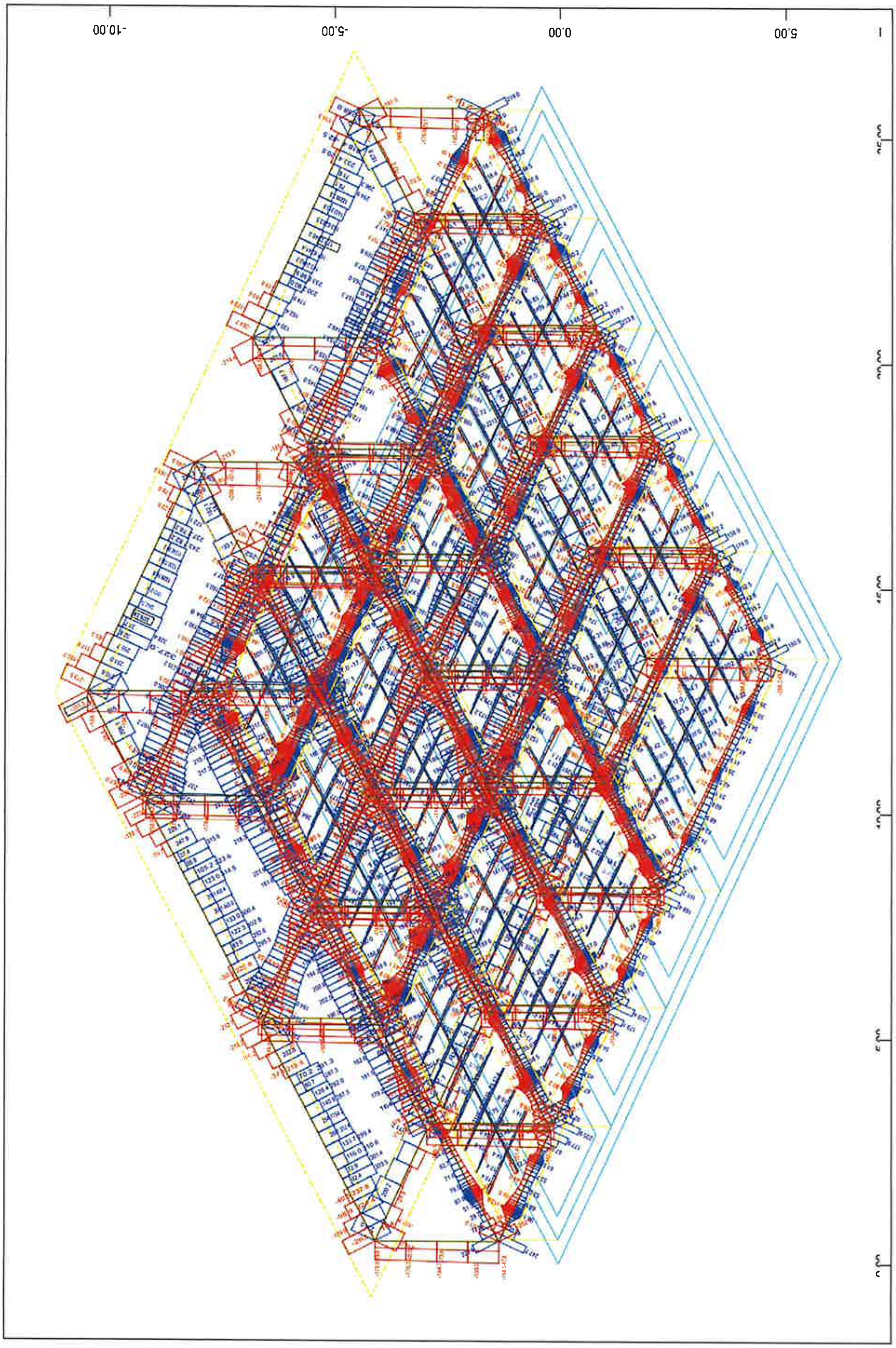


M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Beam Elements , Bending moment Mz, Loadcase 2131 MAX-MZ BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-51.8) (Max=81.8)
Beam Elements , Bending moment Mz, Loadcase 2132 MIN-MZ BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-87.2) (Max=50.8)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0..4
Beam Elements , Normal force Nx, Loadcase 2621 MAXE-N BEAM Forces and moments , 1 cm 3D = 500.0 kN (Min=-92.9) (Max=337.3)
Beam Elements , Normal force Nx, Loadcase 2622 MINE-N BEAM Forces and moments , 1 cm 3D = 500.0 kN (Min=-301.5) (Max=173.2)

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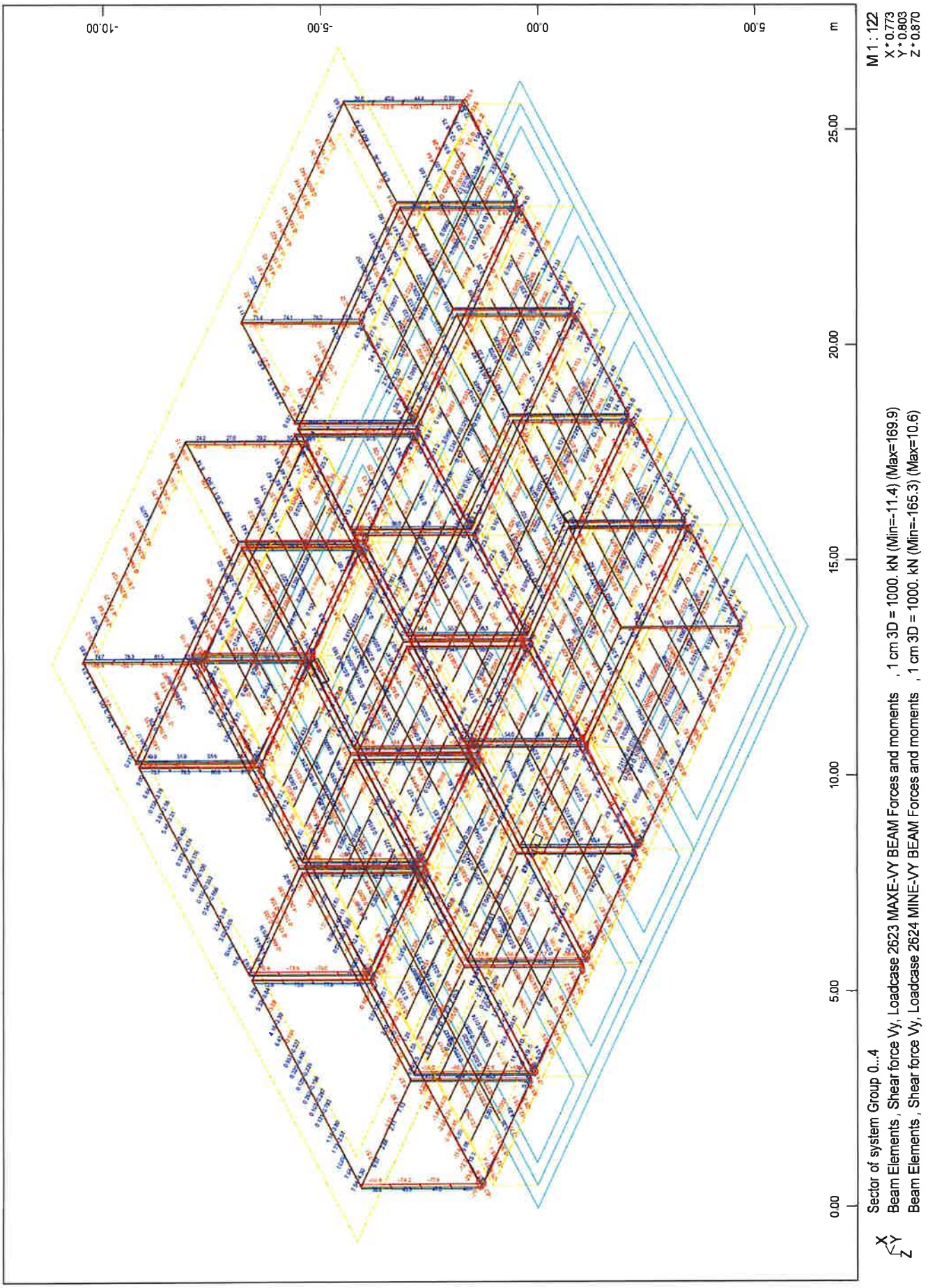
Interactive Graphic



NHPIAGOGEIO_GASTOUNH
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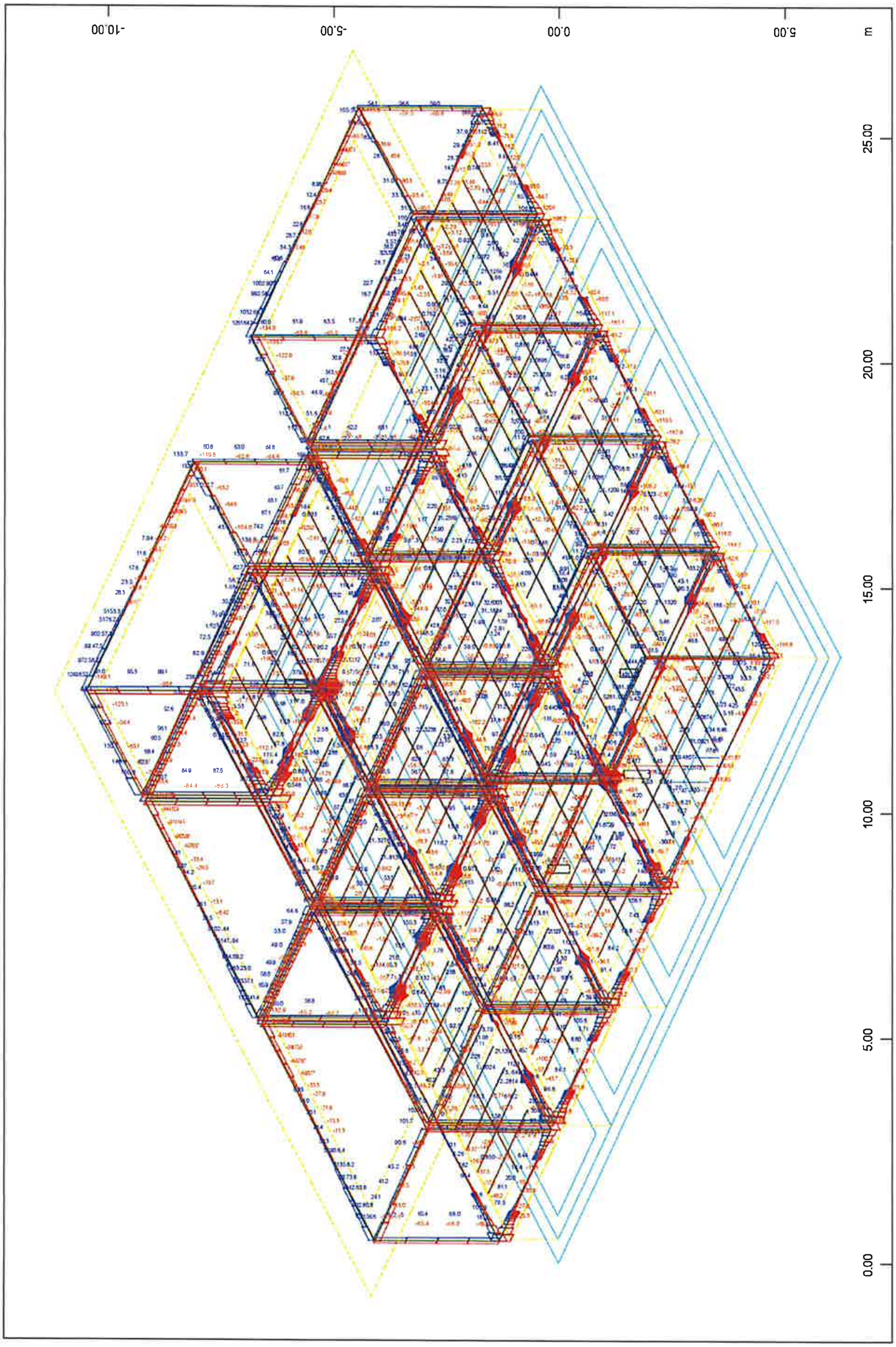

M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Beam Elements , Shear force Vz, Loadcase 2625 MAXE-VZ BEAM Forces and moments , 1 cm 3D = 1000. kN (Min=-40.8) (Max=379.3)
Beam Elements , Shear force Vz, Loadcase 2626 MINE-VZ BEAM Forces and moments , 1 cm 3D = 1000. kN (Min=-398.0) (Max=44.2)

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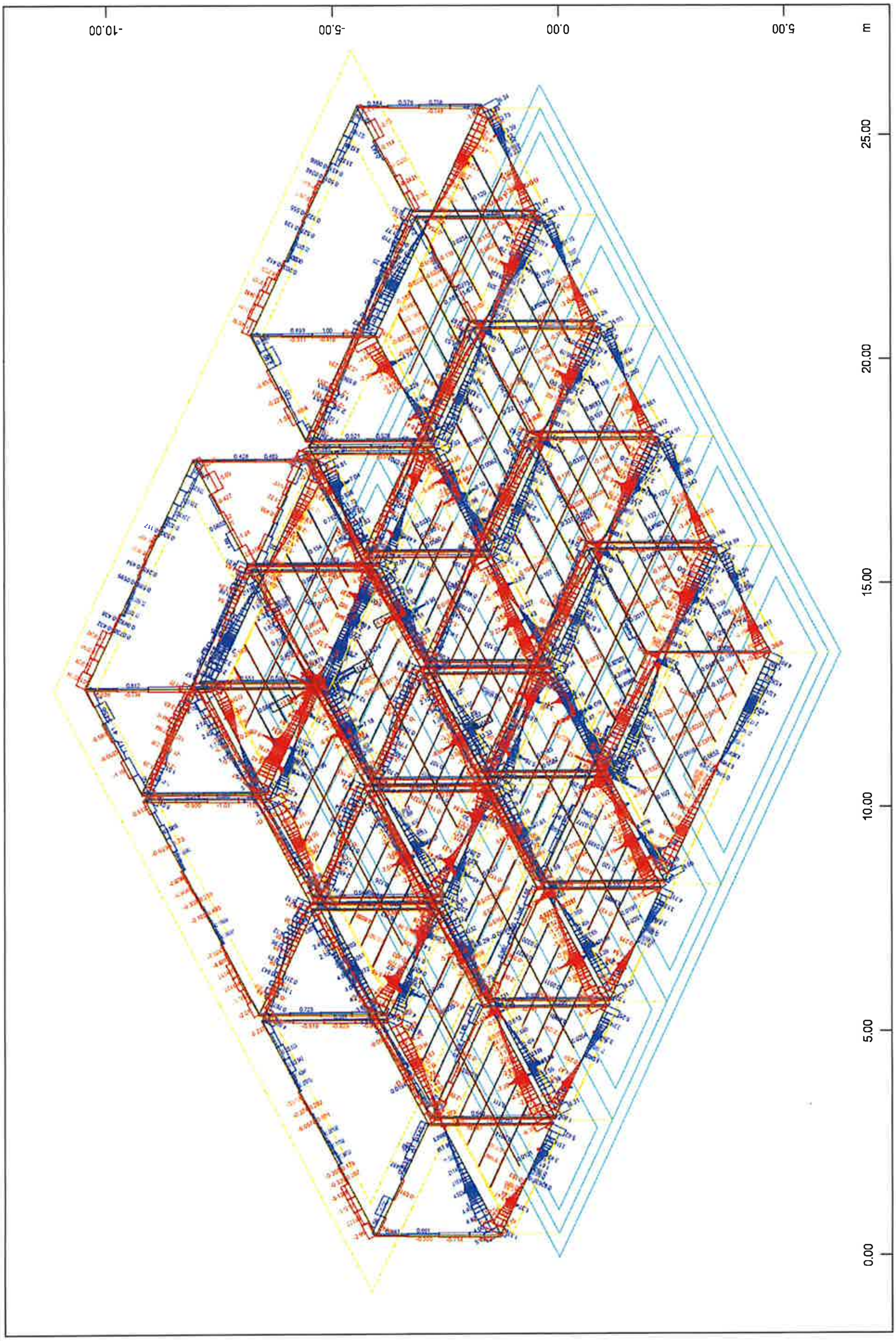
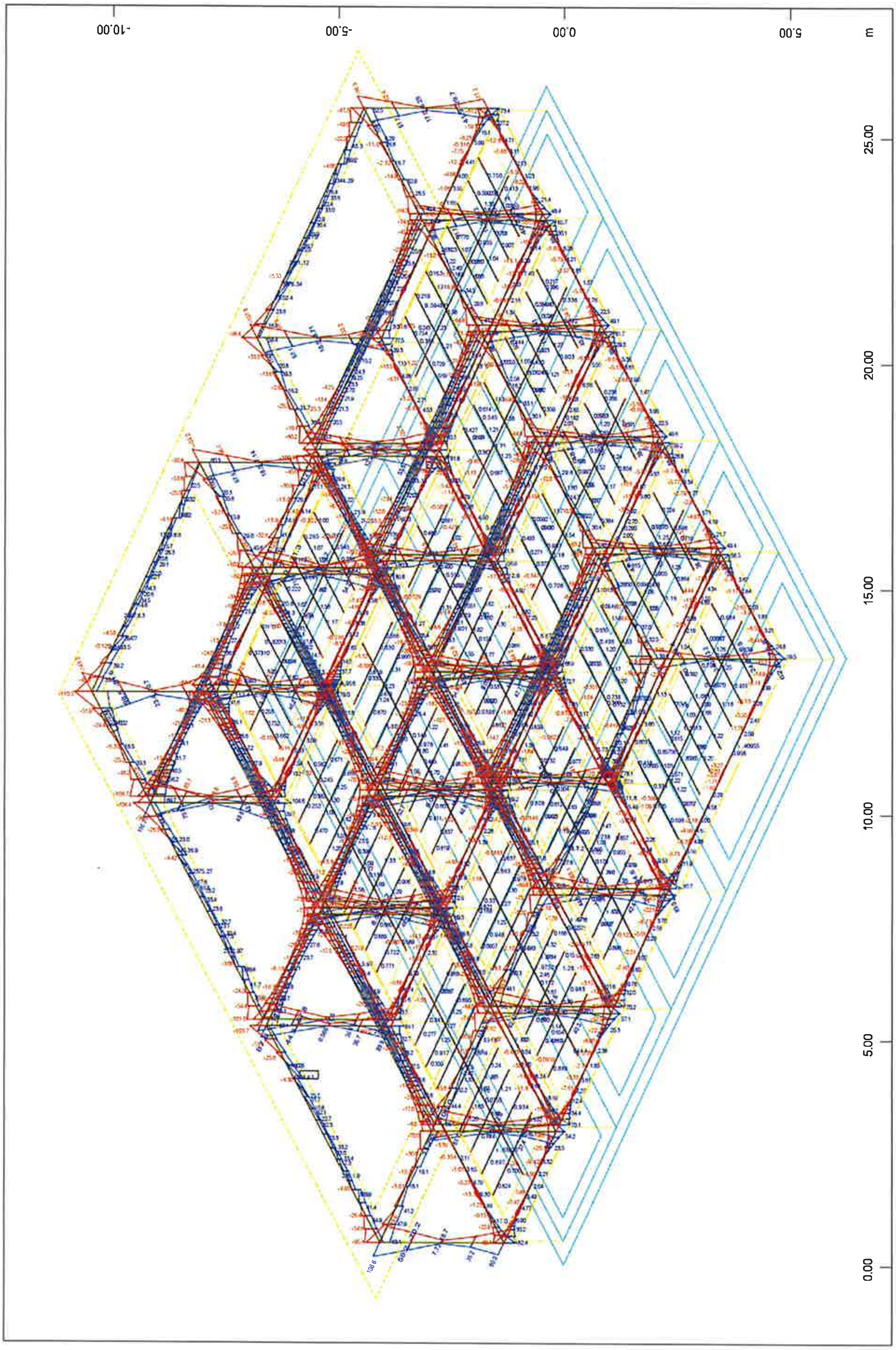
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0..4
Beam Elements , Torsional moment Mt, Loadcase 2627 MAXE-MT BEAM Forces and moments , 1 cm 3D = 20.0 kNm (Min=-3.64) (Max=14.2)
Beam Elements , Torsional moment Mt, Loadcase 2628 MINE-MT BEAM Forces and moments , 1 cm 3D = 20.0 kNm (Min=-13.8) (Max=3.31)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic

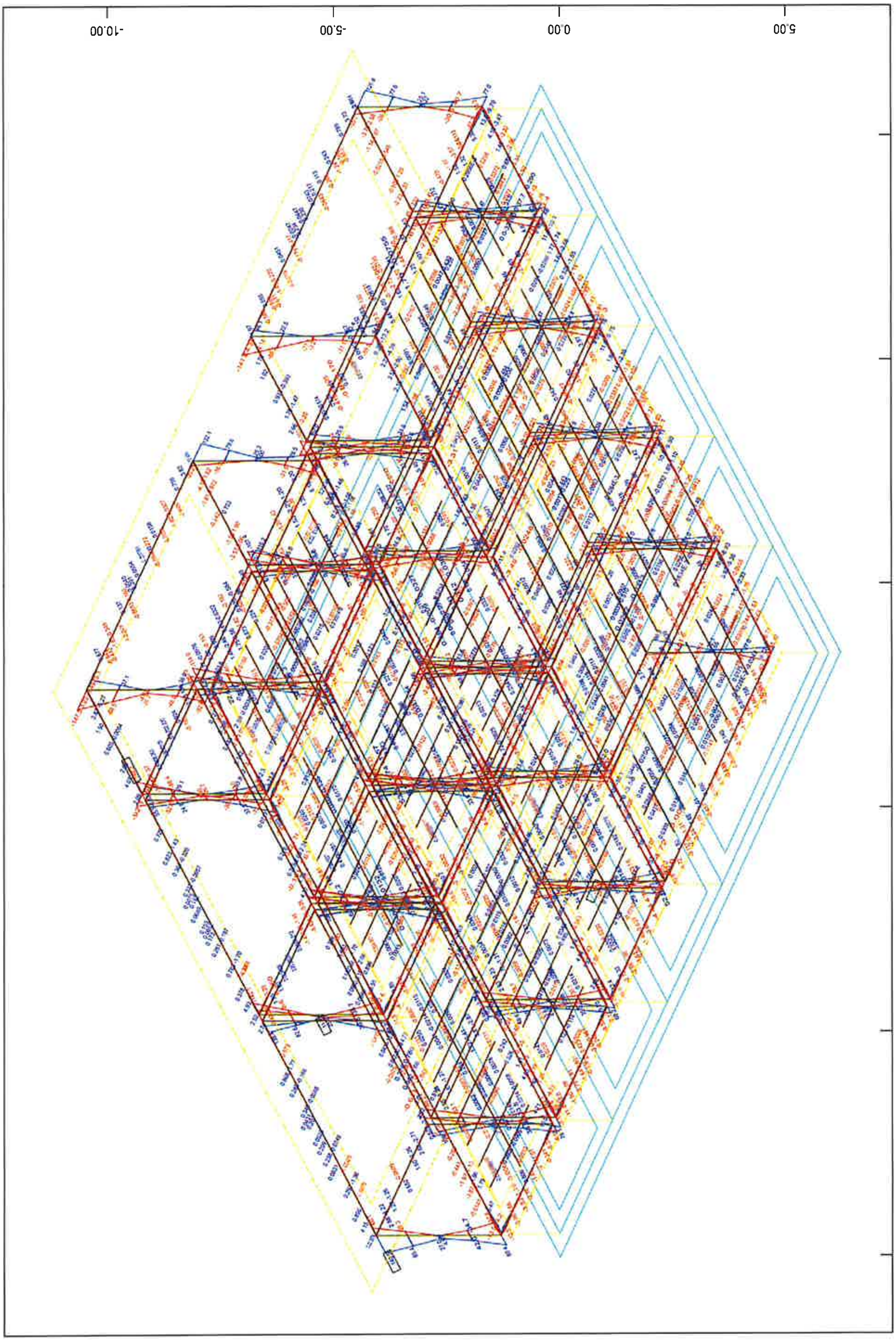


M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0...4
Beam Elements , Bending moment My, Loadcase 2629 MAXE-MY BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-3.77) (Max=170.4)
Beam Elements , Bending moment My, Loadcase 2630 MINE-MY BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-149.9) (Max=40.4)

NHPIAGOGEIO_GASTOUNH

Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Group 0..4

Beam Elements , Bending moment Mz, Loadcase 2631 MAXE-MZ BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-11.1) (Max=140.5)

Beam Elements , Bending moment Mz, Loadcase 2632 MINE-MZ BEAM Forces and moments , 1 cm 3D = 300.0 kNm (Min=-148.2) (Max=11.3)

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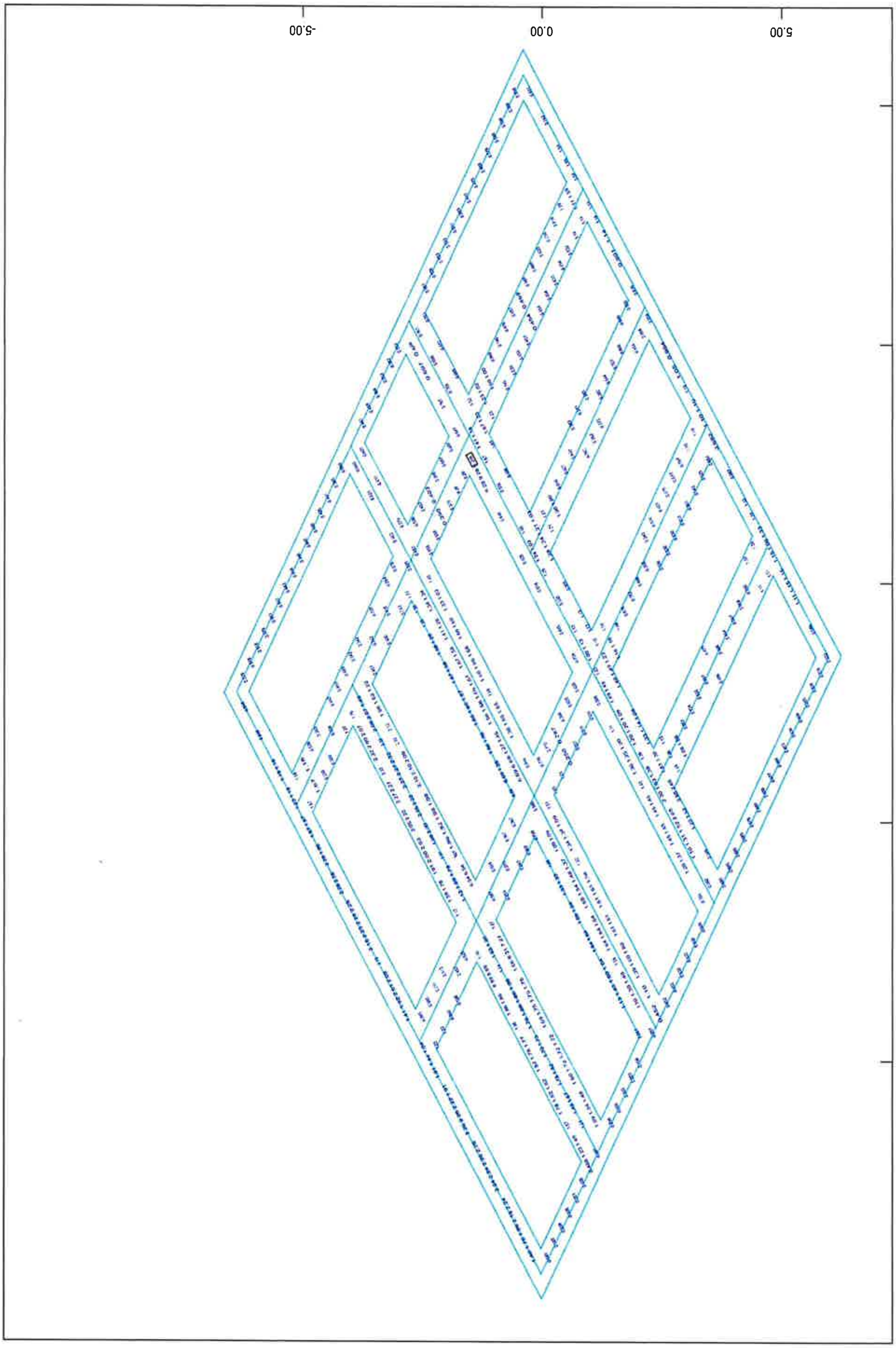
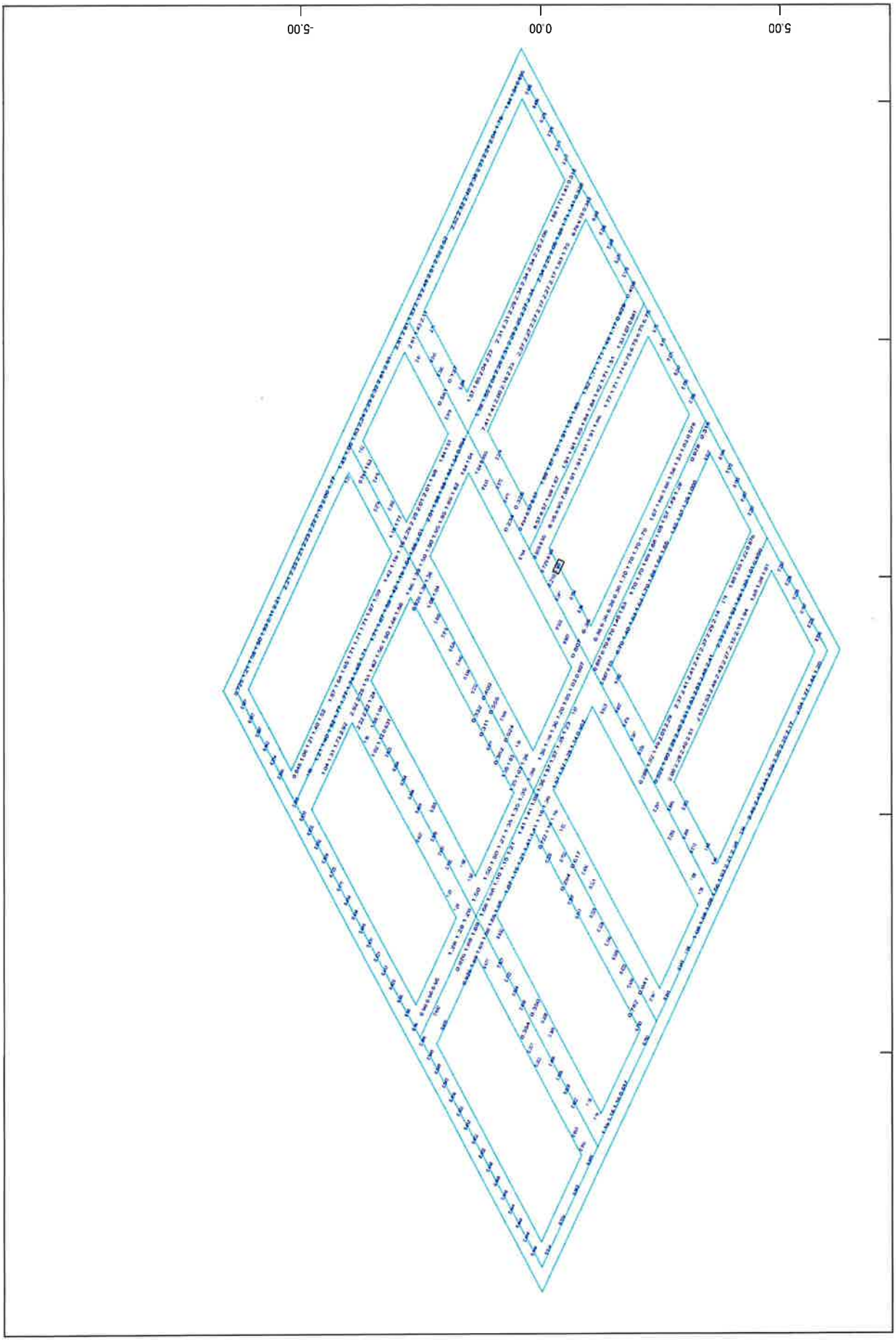
Interactive Graphic



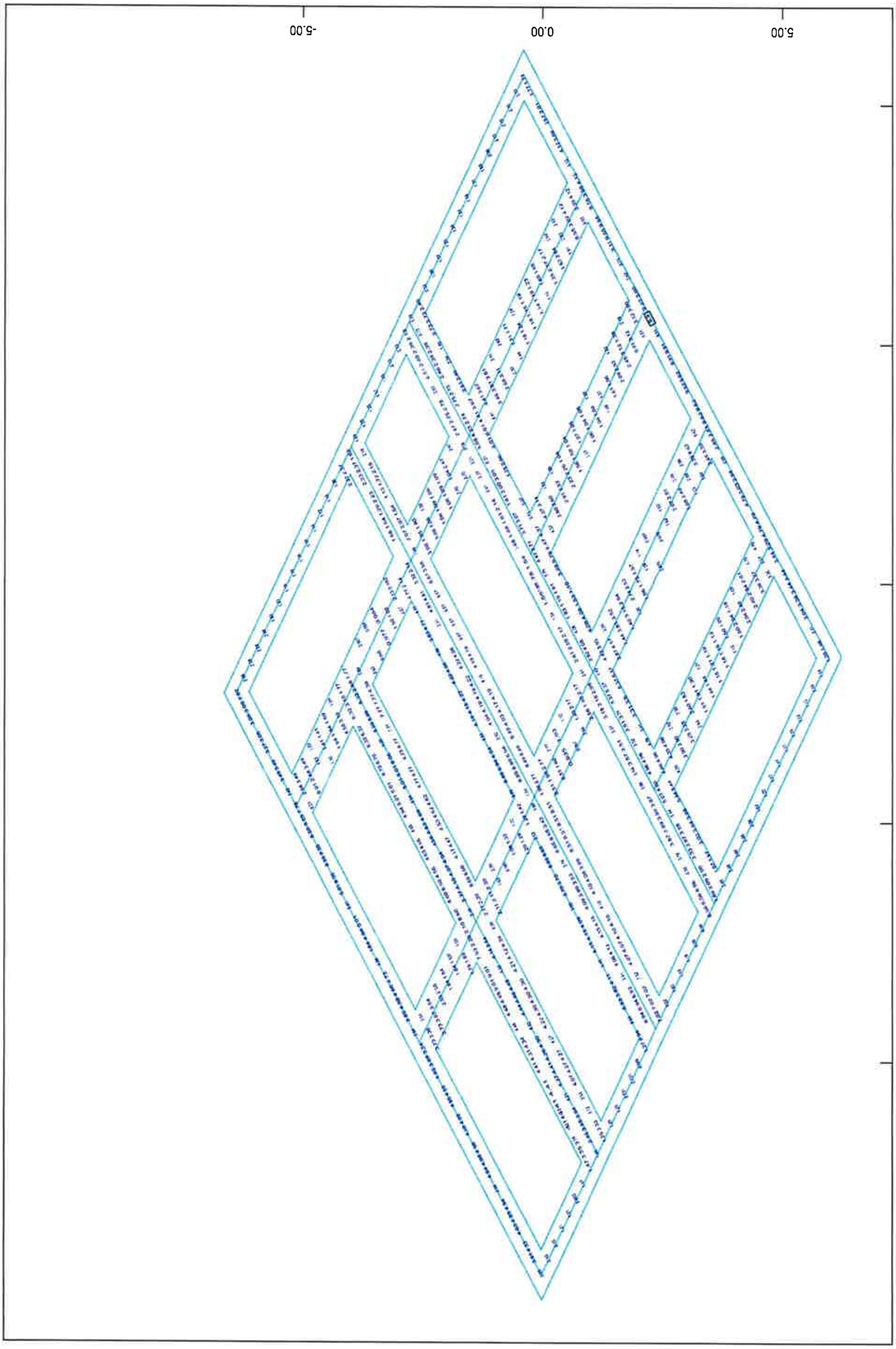
M 1 : 115
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 0
lower Principal reinforcements (1st layer) in Elements in cm2/m, Design Case 20 (Max=9.28)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



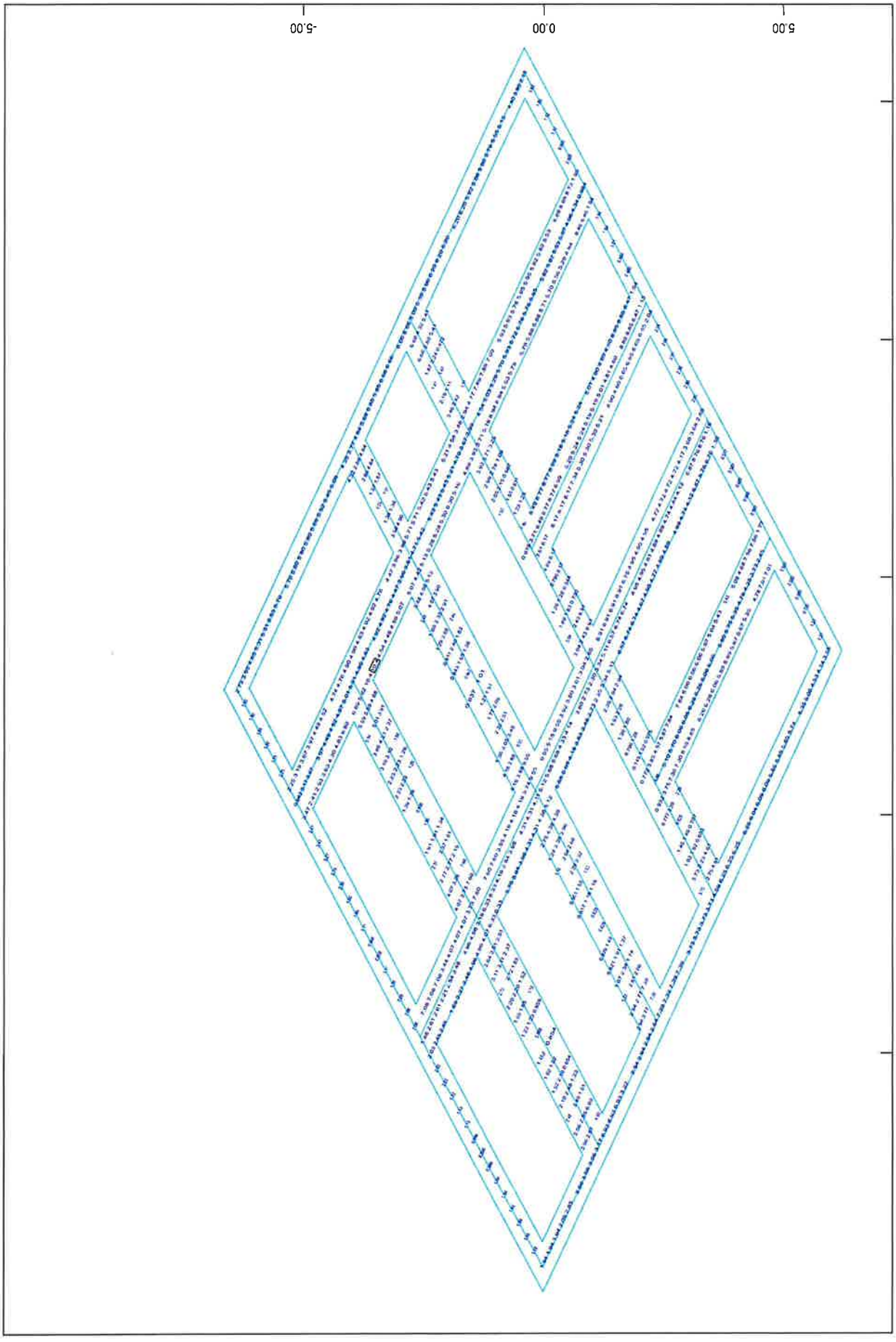
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



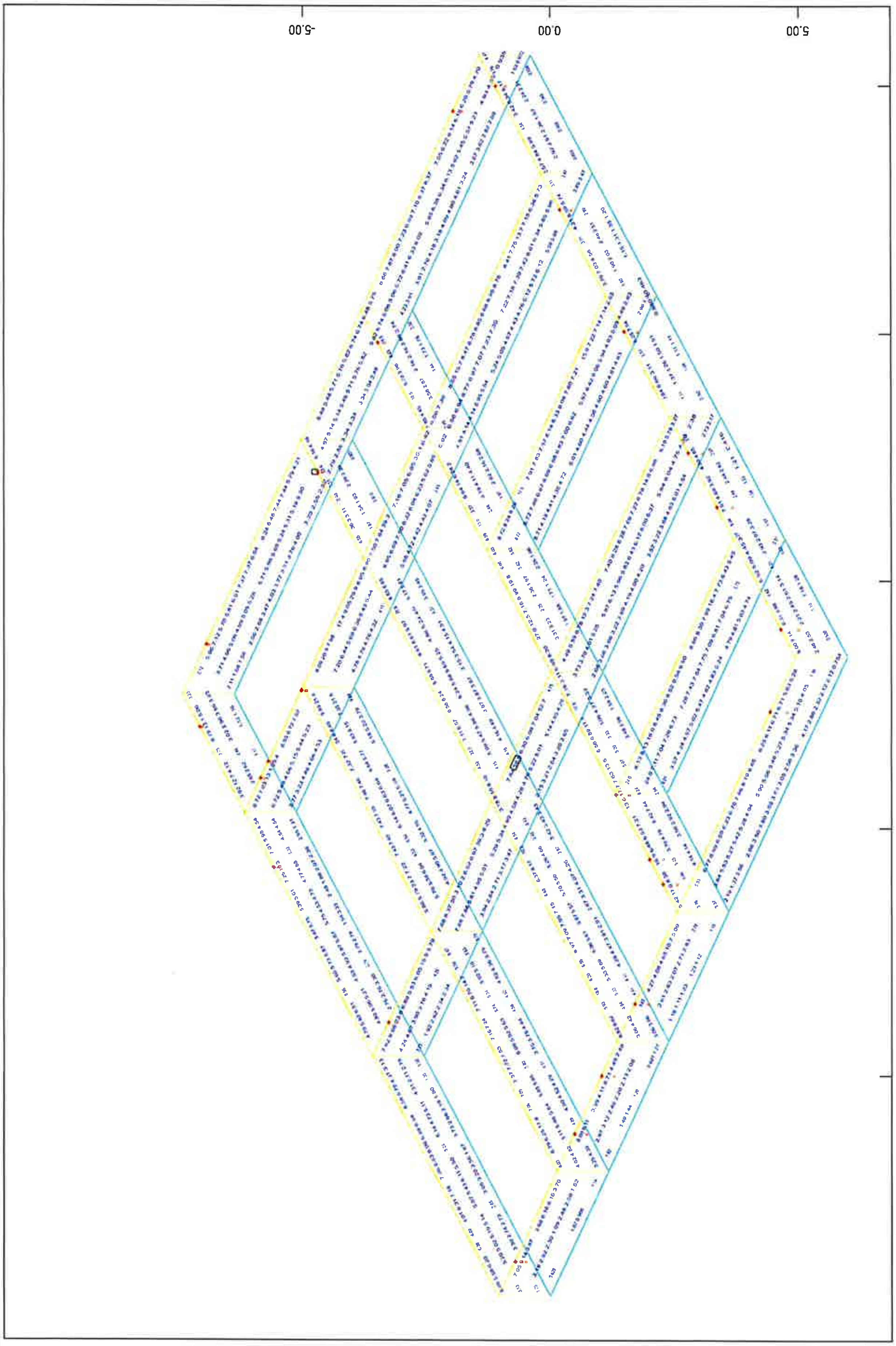
M 1 : 115
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 0
upper Principal reinforcements (1st layer) in Elements in cm2/m, Design Case 20 (Max=9.91)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



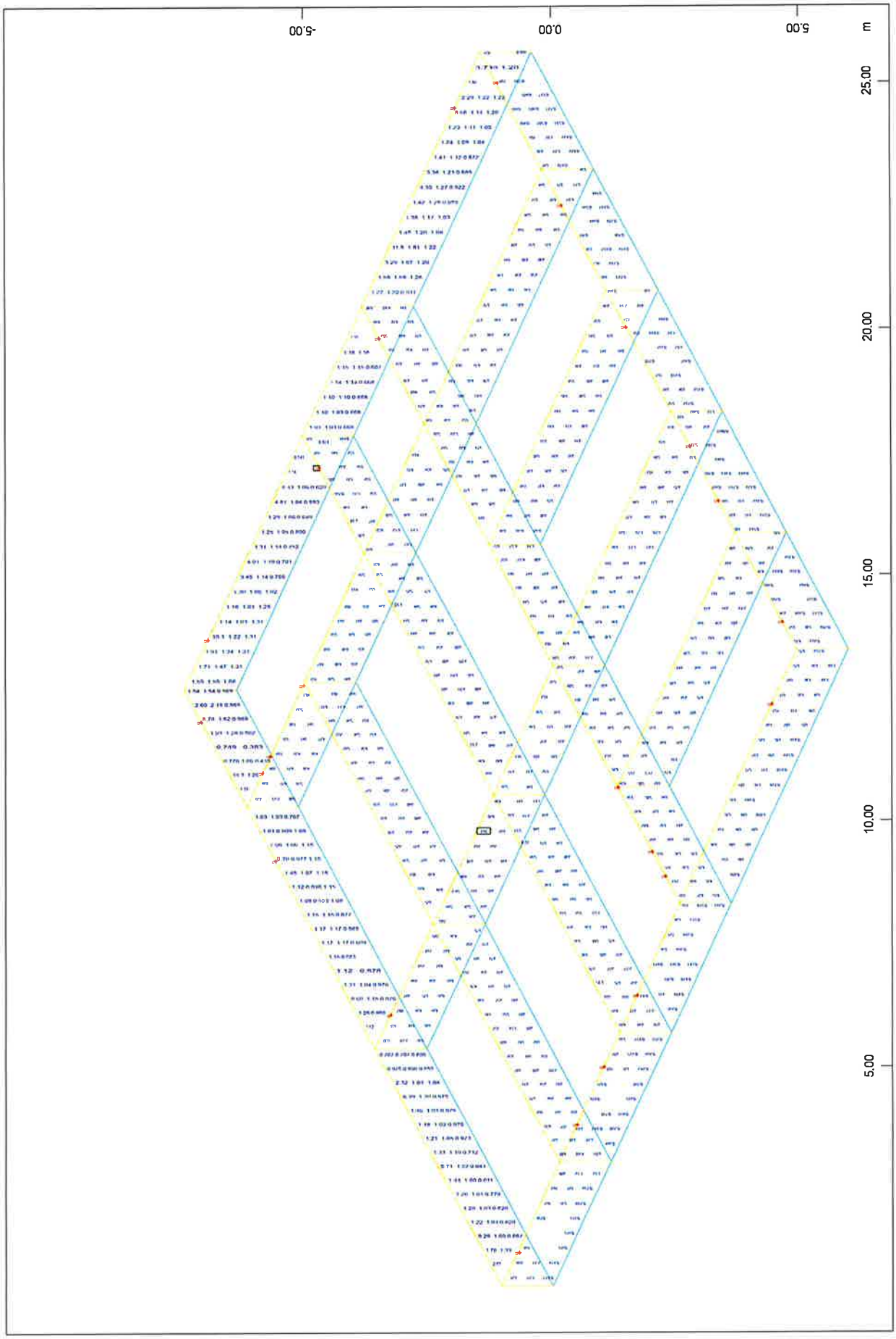
NHPIAGOGEIO_GASTOUNH
Interactive Graphic

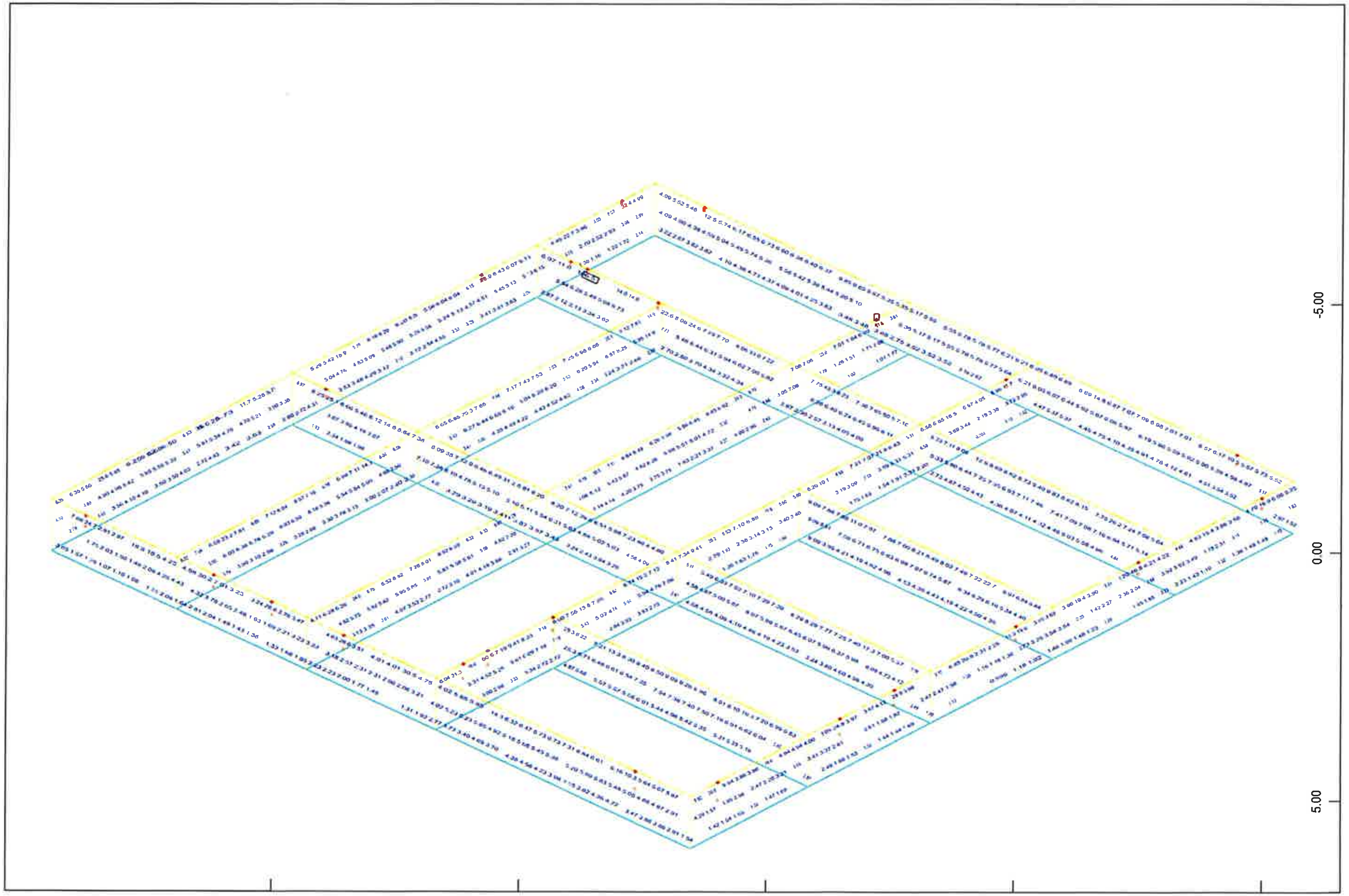


M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 1
lower Principal reinforcements (1st layer), Design Case 20 , in Elements(in cm2/m), Design error in the reinforcement (=B) in Elements (Max=58.6)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



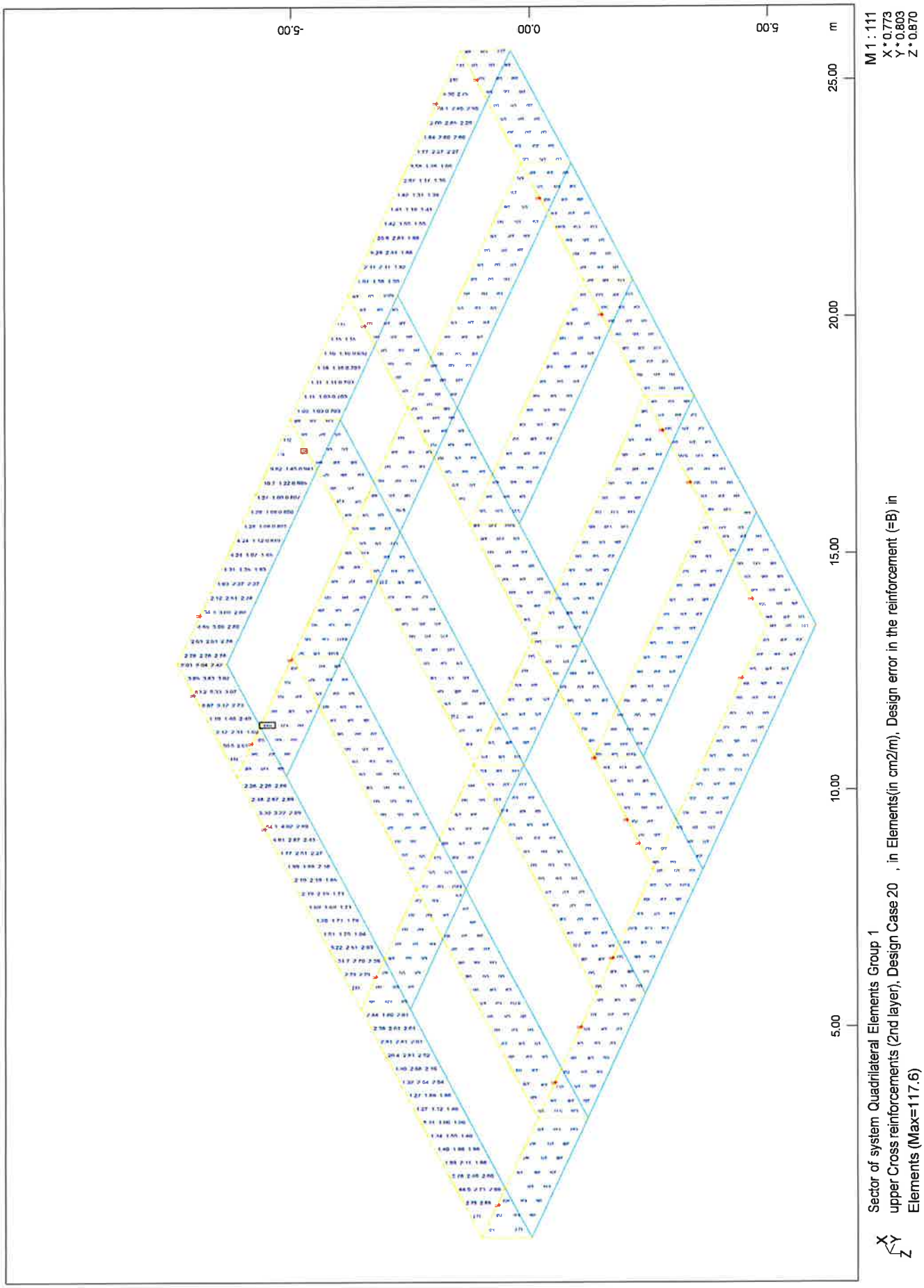


Sector of system Quadrilateral Elements Group 1
upper Principal reinforcements (1st layer), Design Case 20 , in Elements(in cm2/m), Design error in the reinforcement (=B) in
Elements (Max=106.5)

M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

NHPIAGOGEIO_GASTOUNH
Interactive Graphic

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



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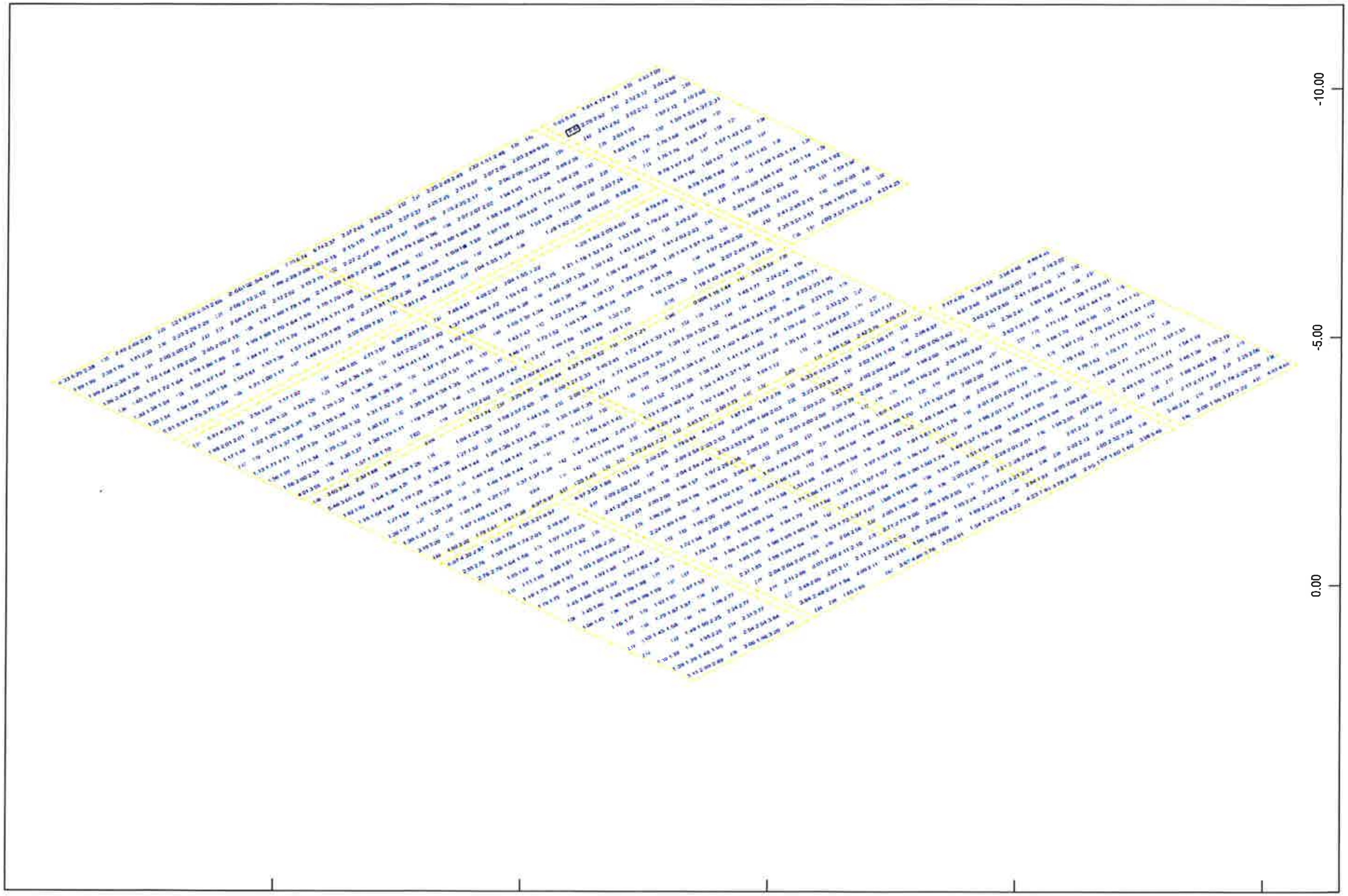
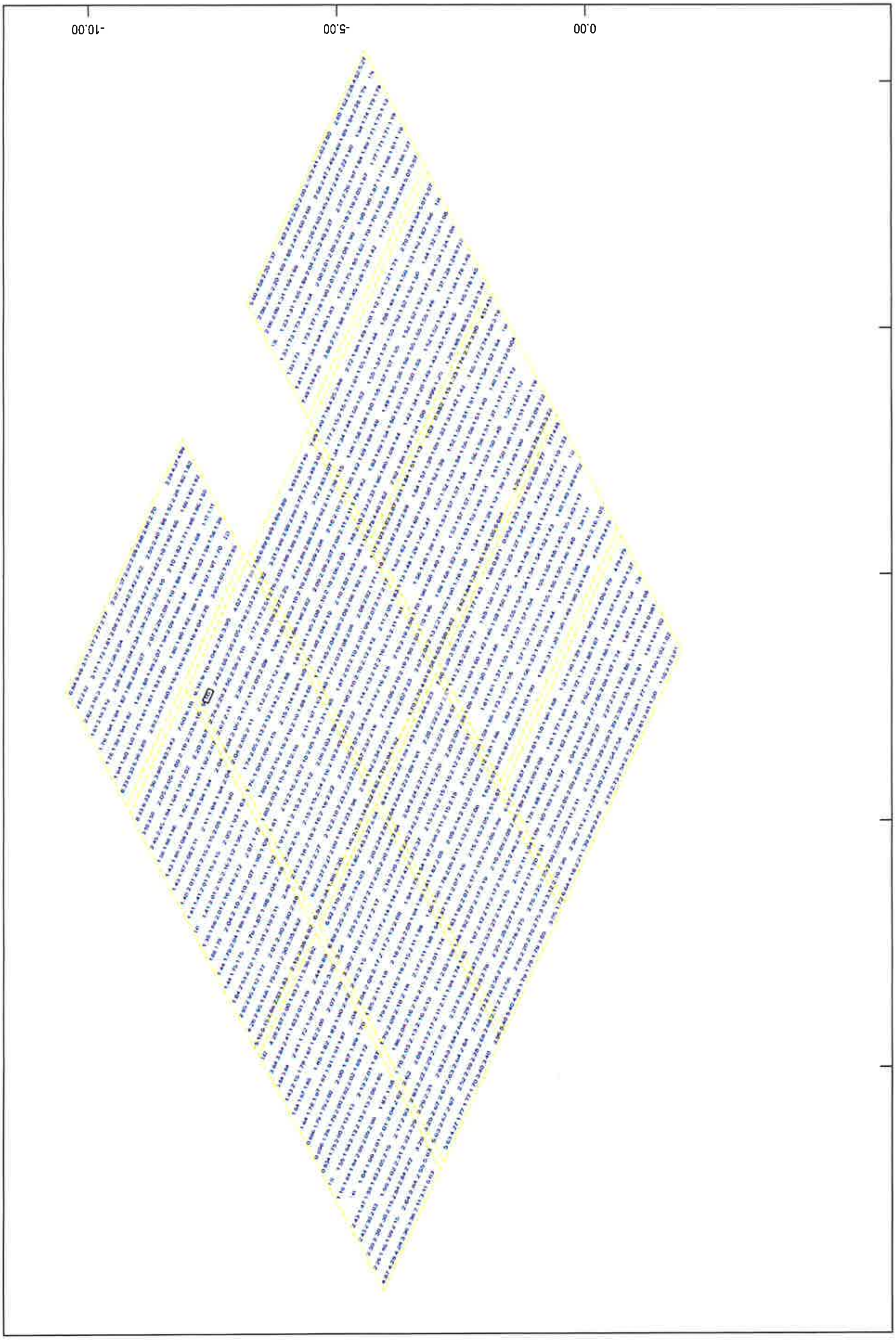


Sector of system Quadrilateral Elements Group 3
lower Principal reinforcements (1st layer) in Nodes in cm2/m, Design Case 20 (Max=9.65)

M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

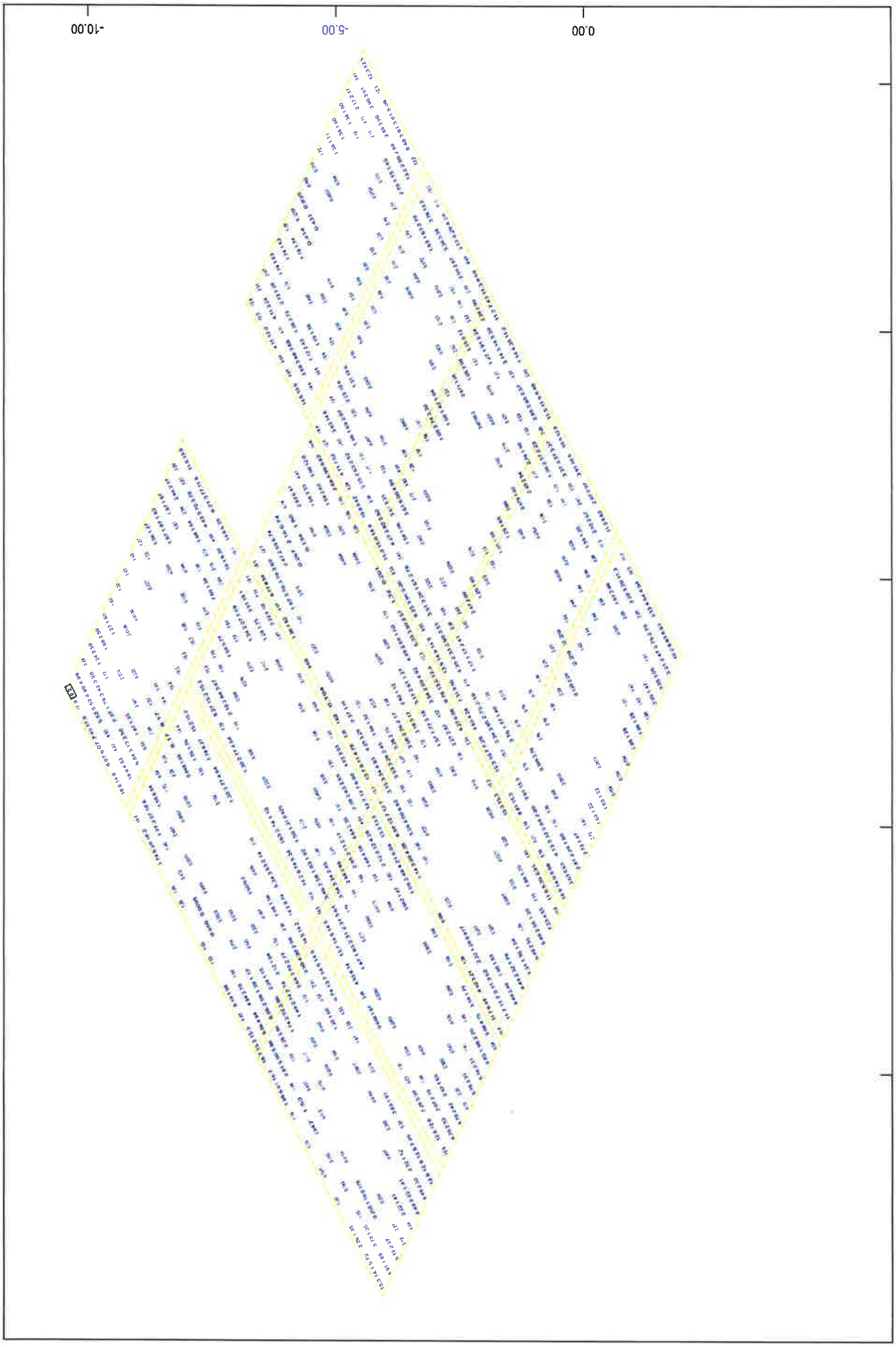
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 3
lower Cross reinforcements (2nd layer) in Nodes in cm2/m, Design Case 20 (Max=9.16)

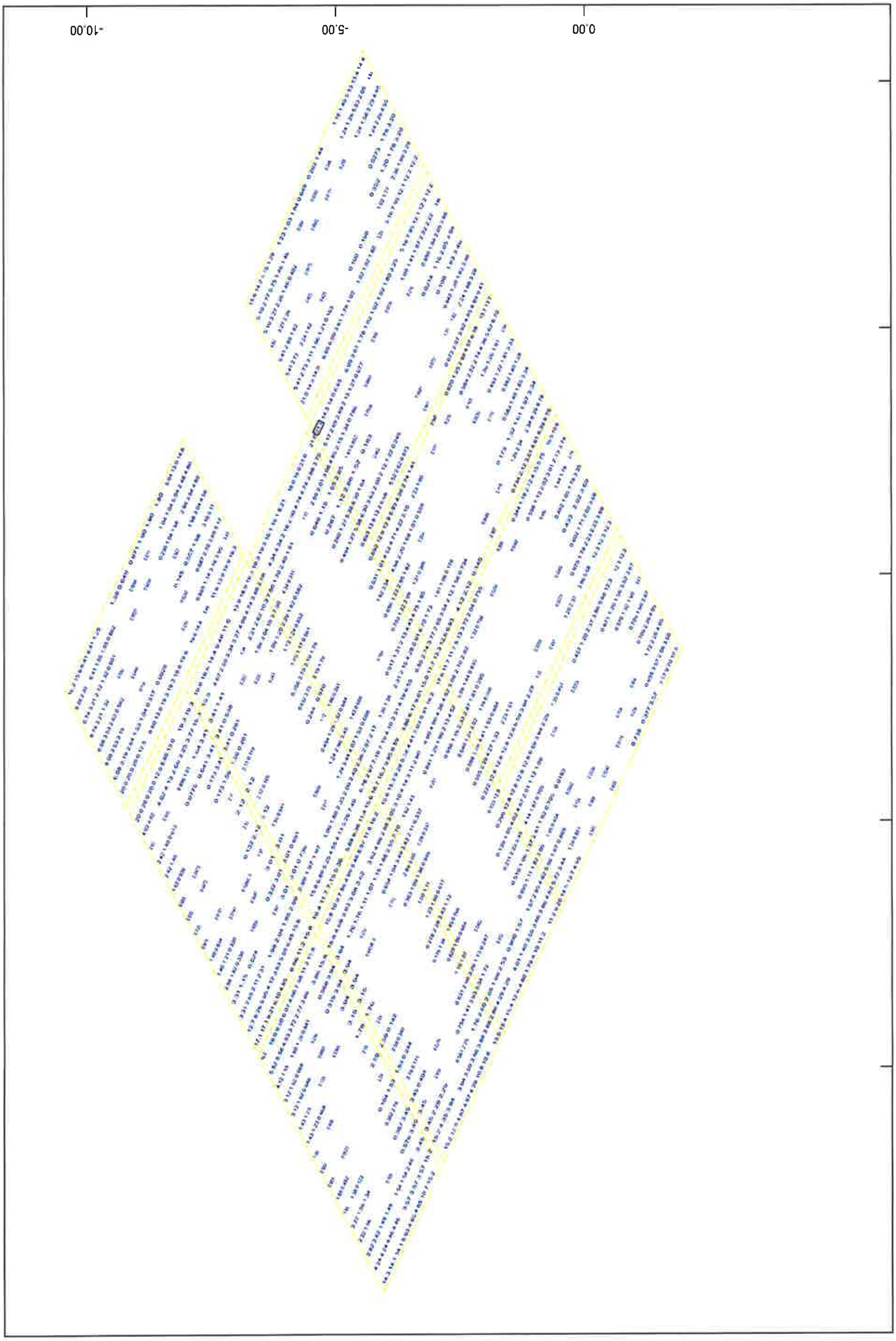
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 3
upper Principal reinforcements (1st layer) in Nodes in cm2/m, Design Case 20 (Max=19.2)

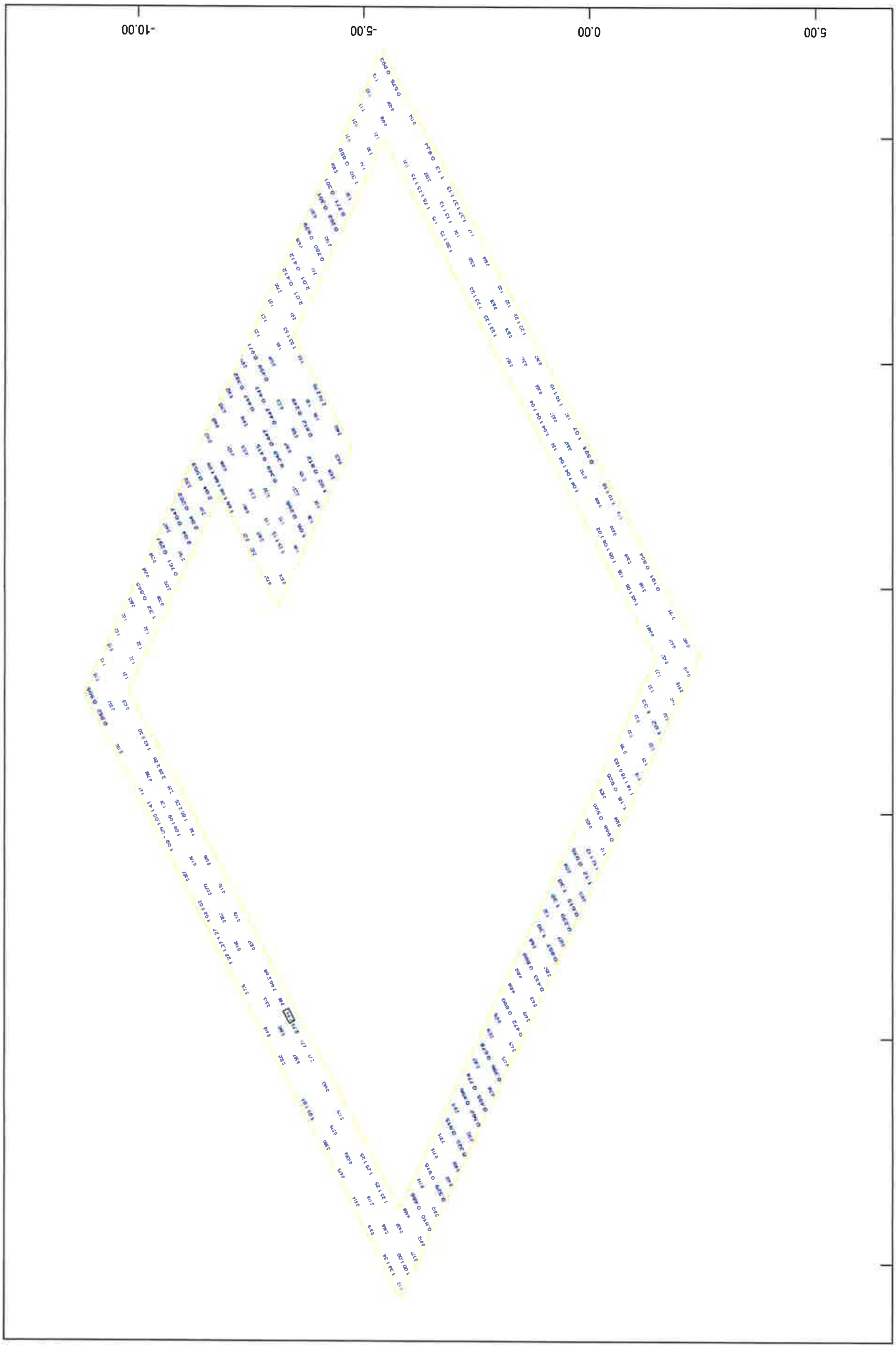
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 3
upper Cross reinforcements (2nd layer) in Nodes in cm2/m, Design Case 20 (Max=21.0)

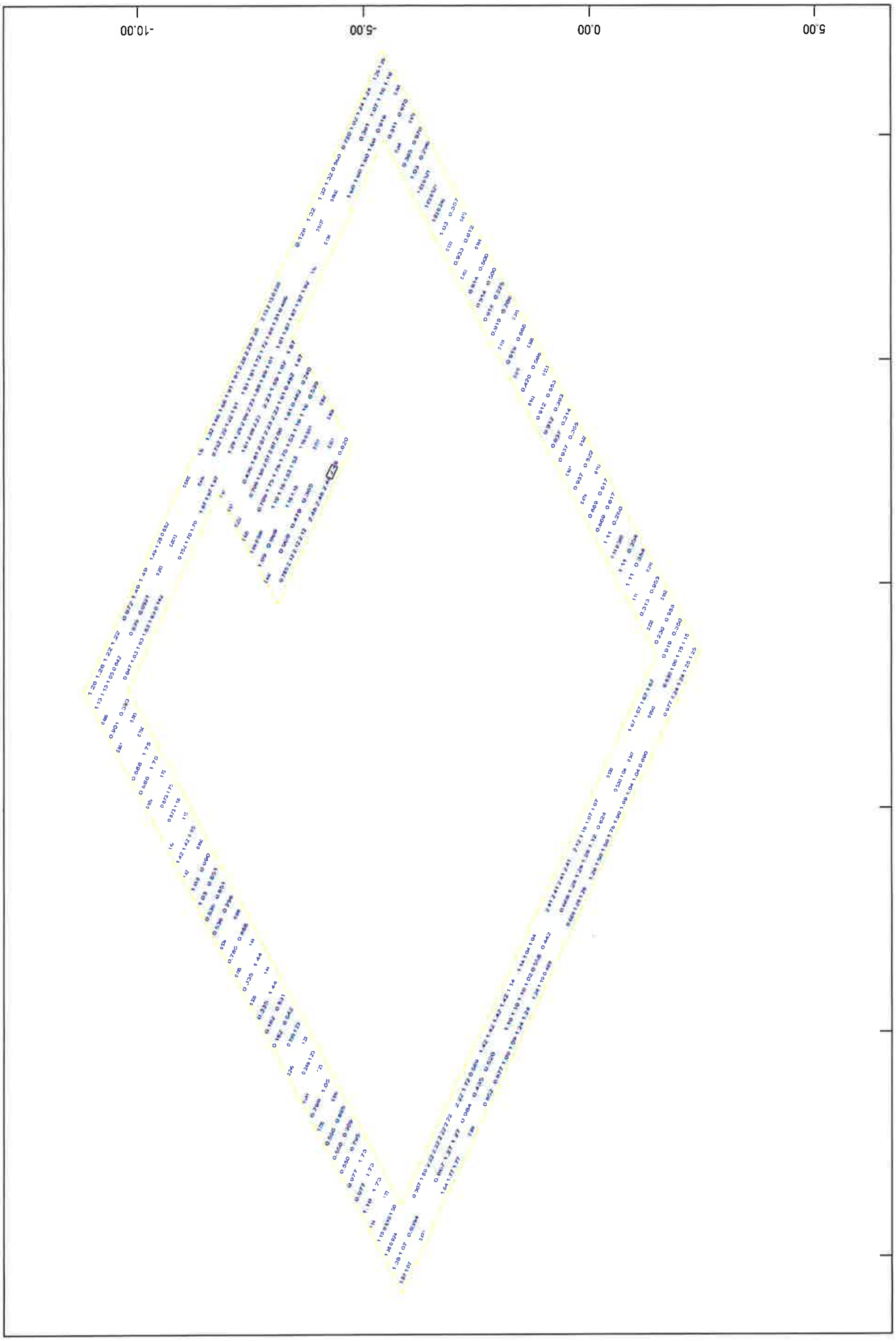
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Quadrilateral Elements Group 4
lower Principal reinforcements (1st layer) in Nodes in cm2/m, Design Case 20 (Max=2.71)

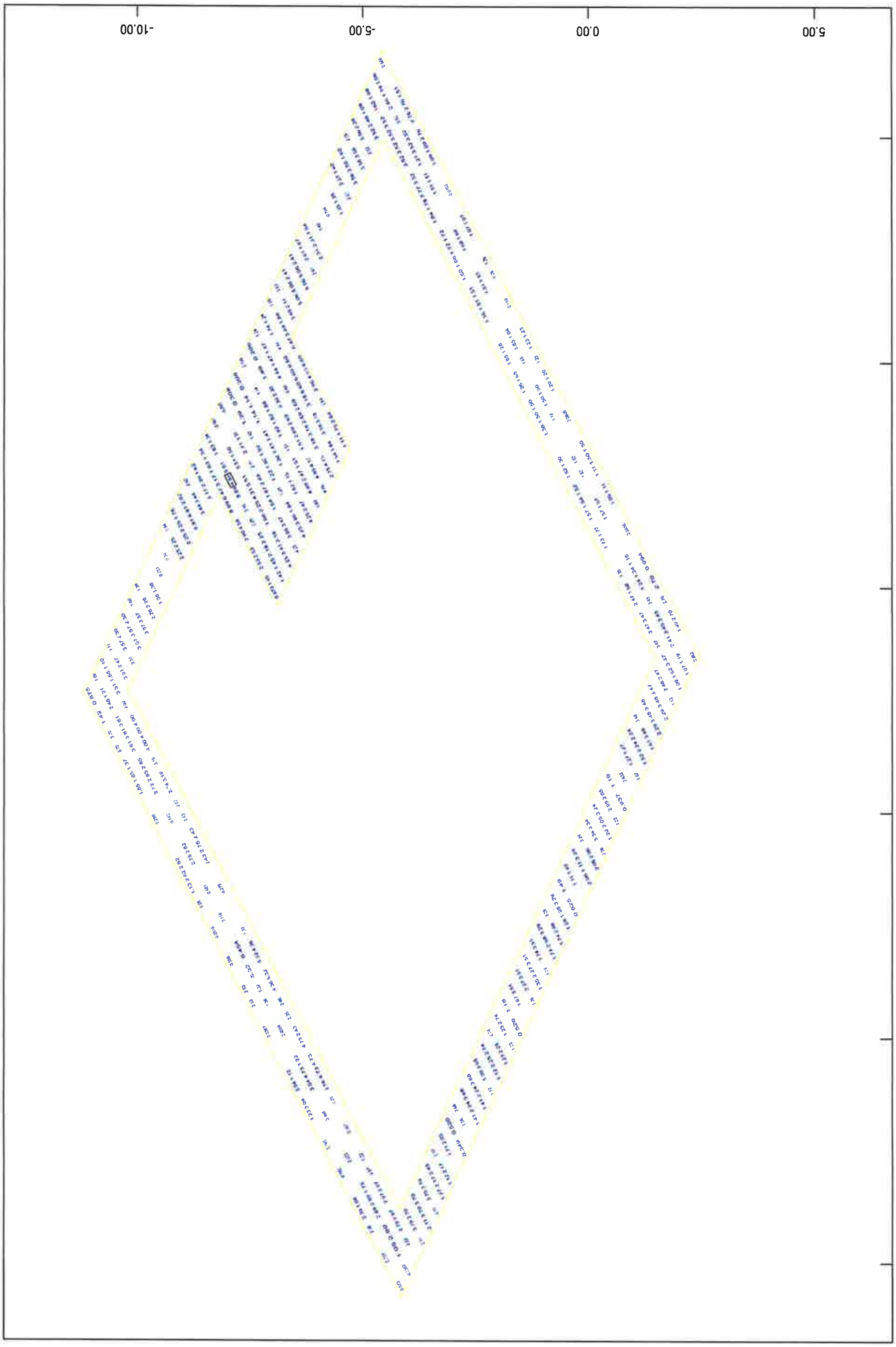
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

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

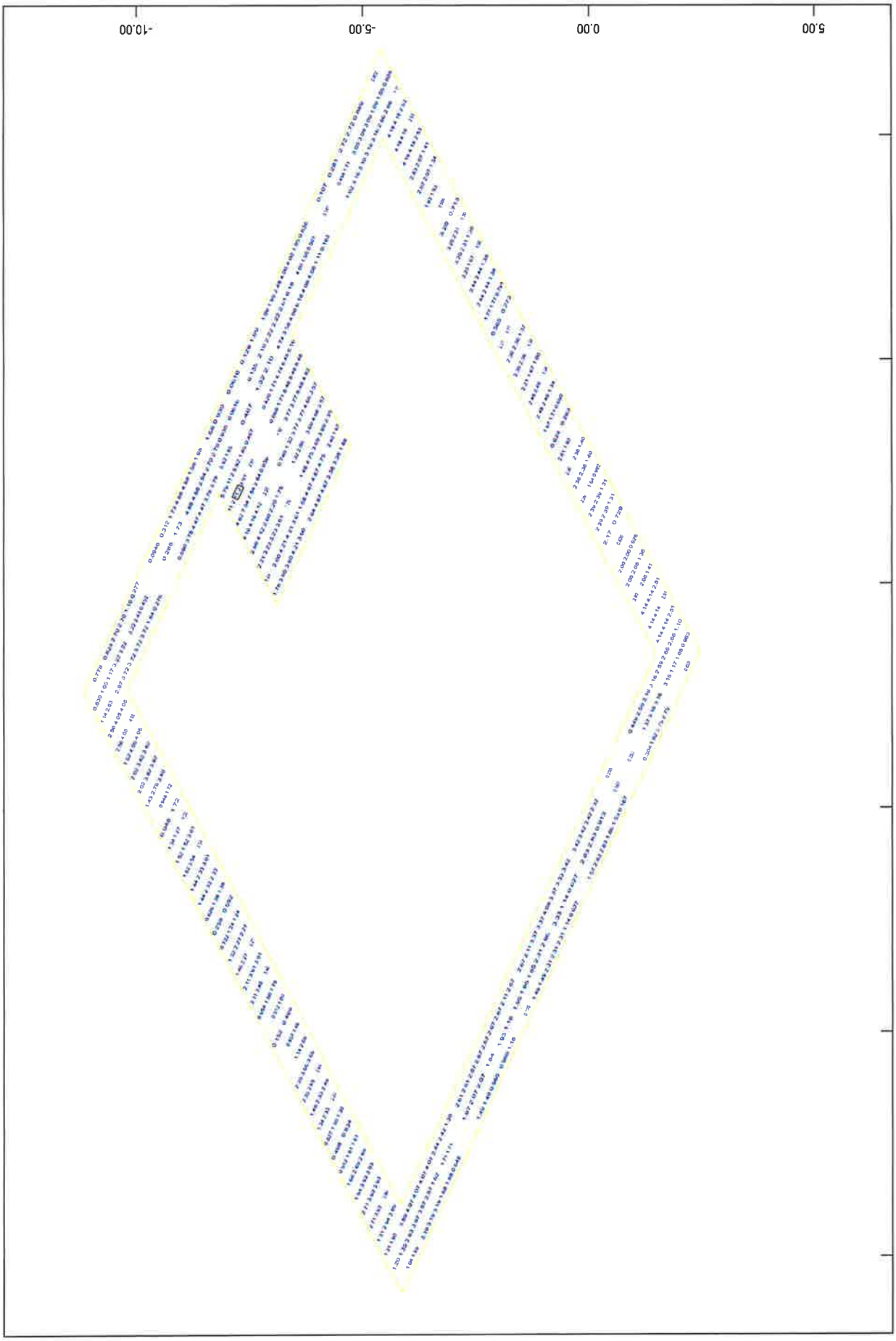
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



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)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



NHPIAGOGEIO_GASTOUNH
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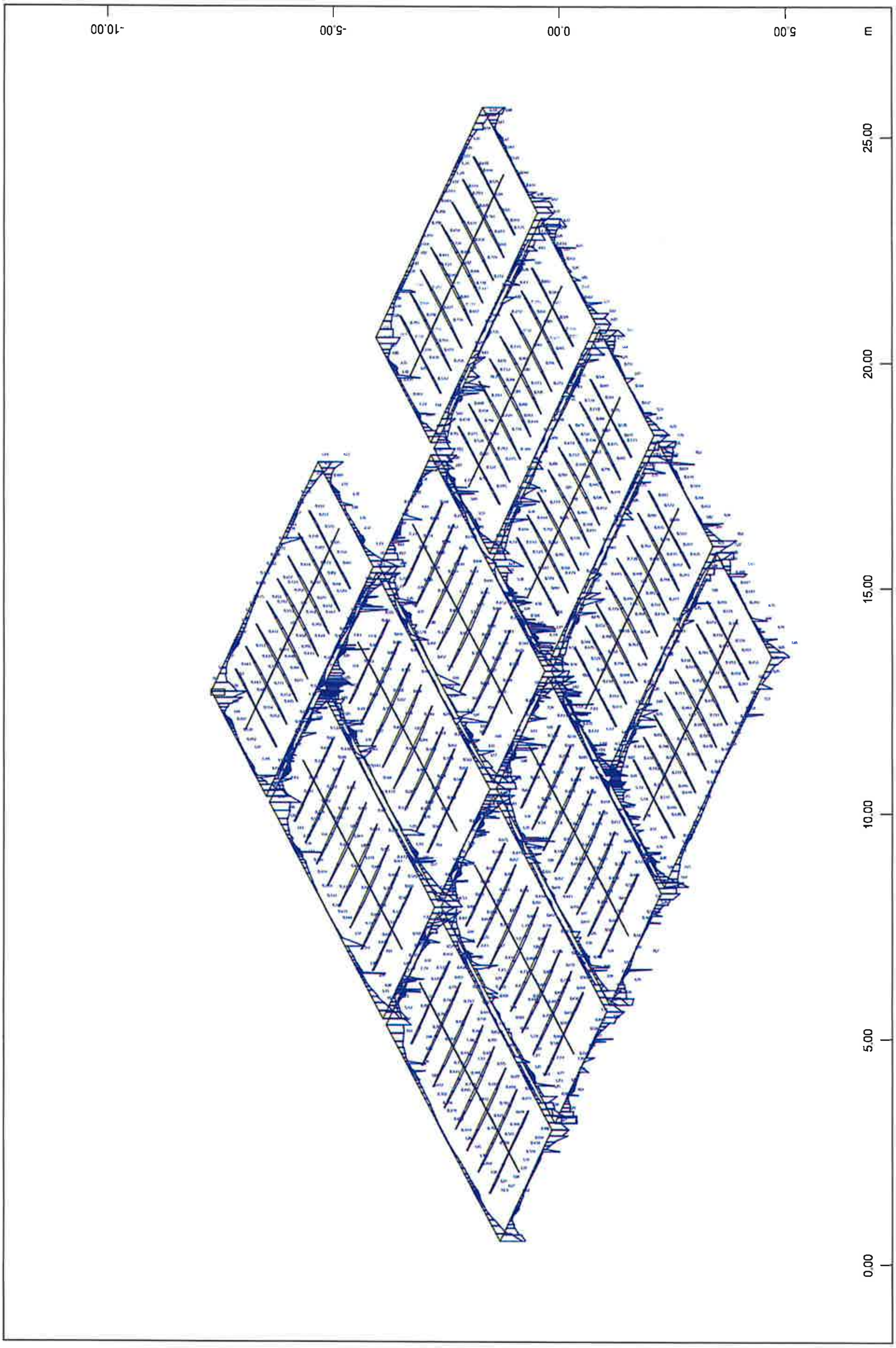
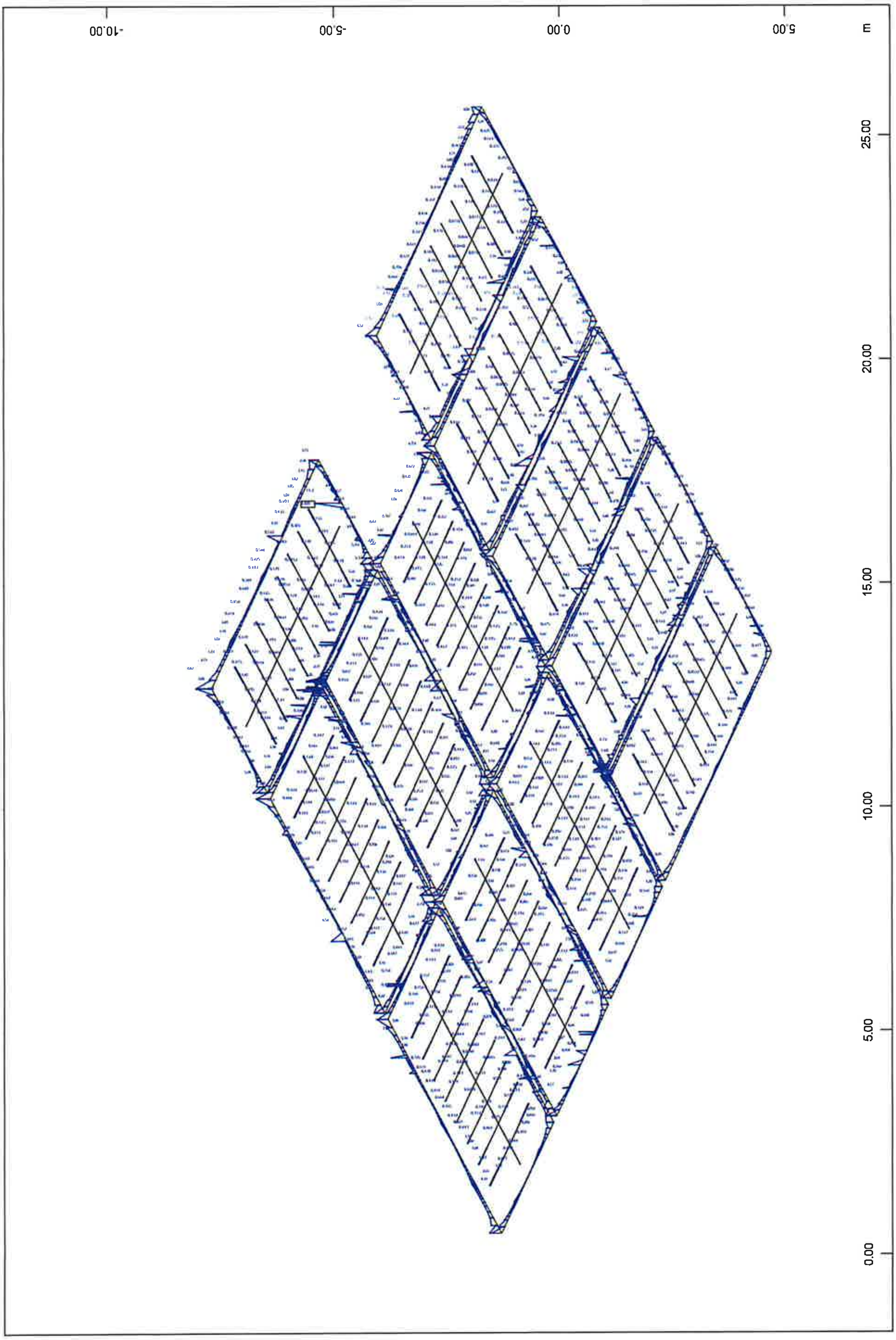


M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Beam Elements Group 0
Beam Elements , Longitudinal Reinforcements Lay. 1, Design Case 20 , 1 cm 3D = 20.0 cm2 (Max=14.7)

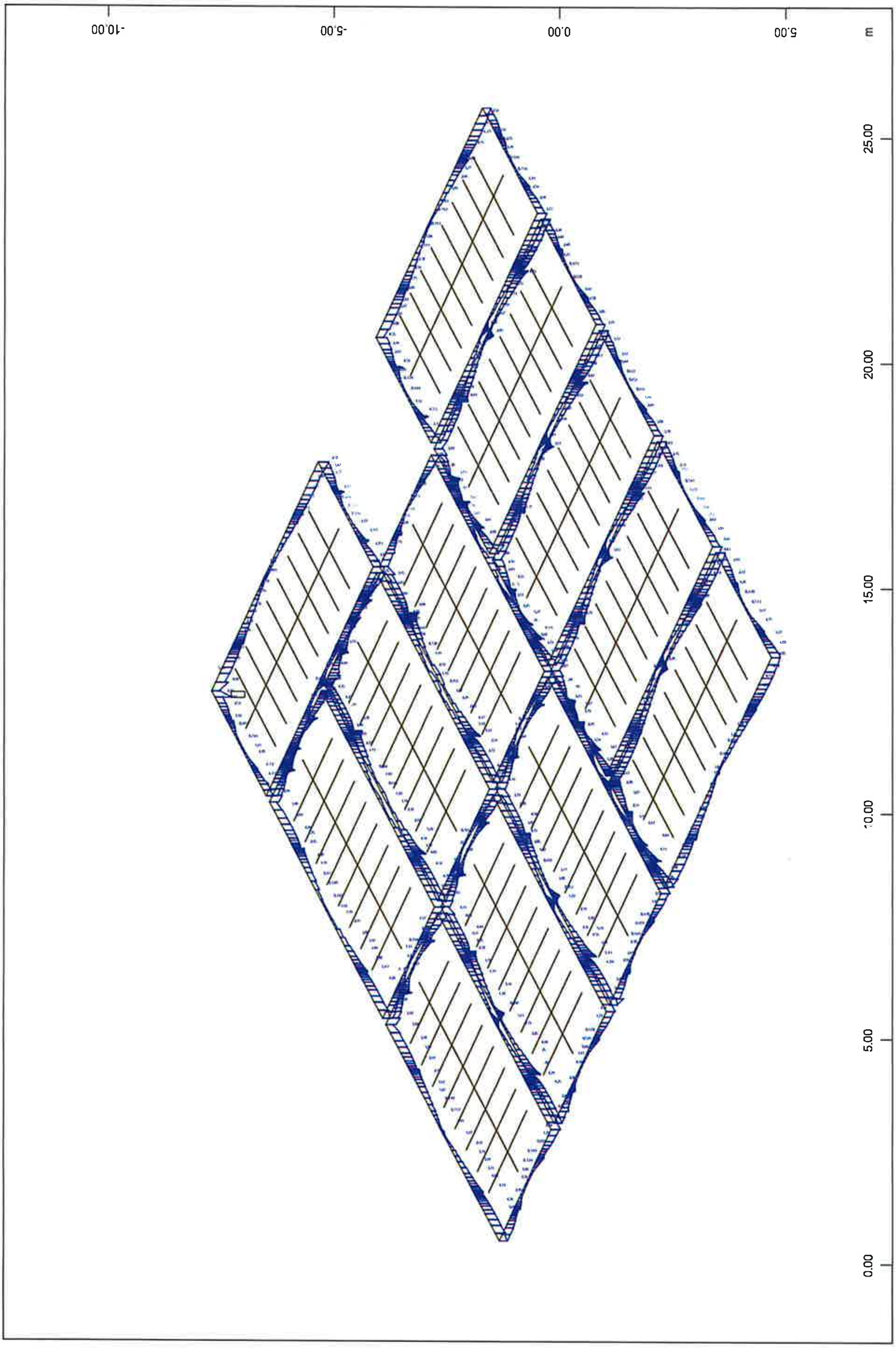
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Beam Elements Group 0
Beam Elements , Longitudinal Reinforcements Lay. 2, Design Case 20 , 1 cm 3D = 20.0 cm2 (Max=11.2)

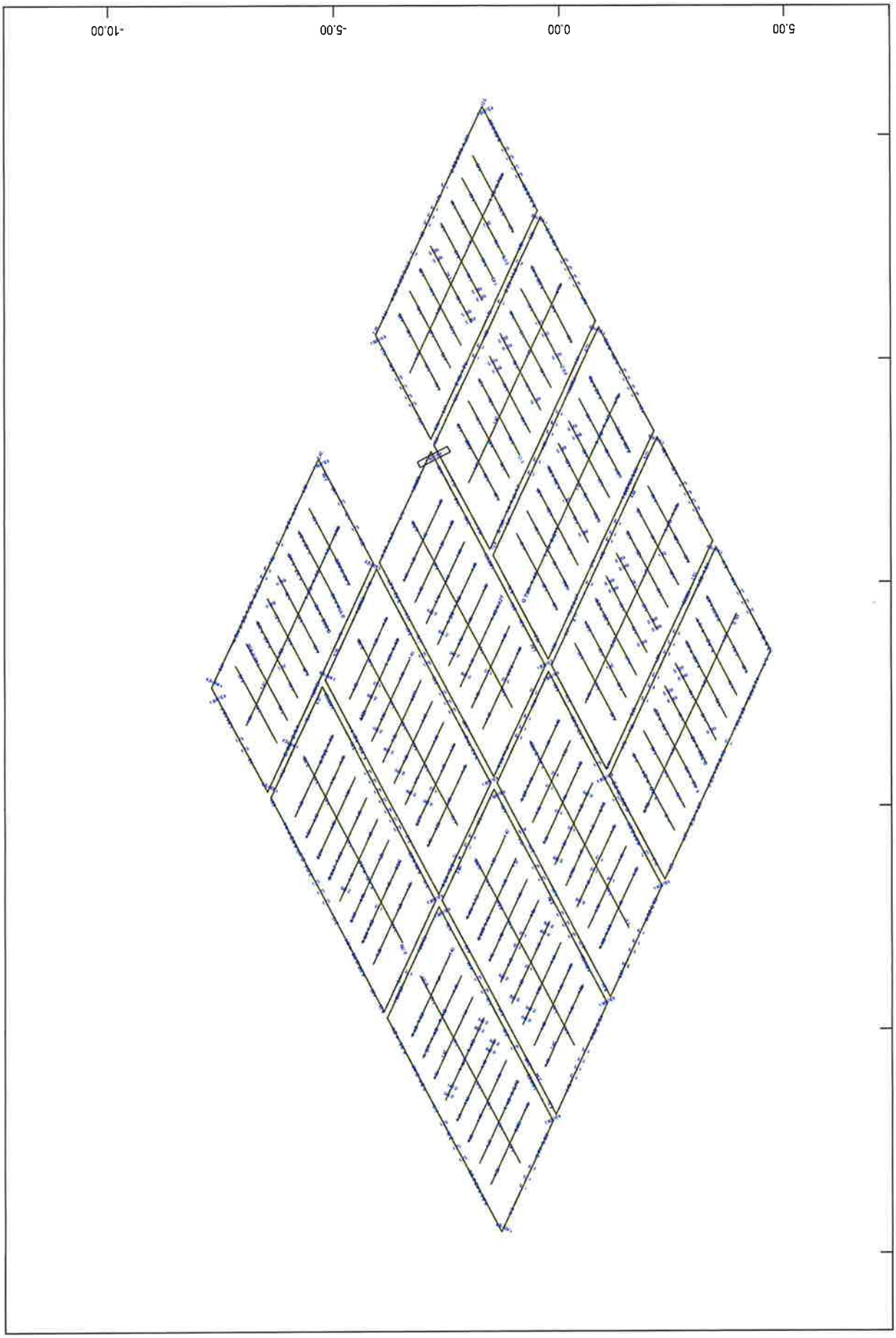
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 122
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Beam Elements Group 0
Beam Elements , Longitudinal Reinforcements Lay. 3, Design Case 20 , 1 cm 3D = 20.0 cm2 (Max=6.96)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



NHPIAGOGEIO_GASTOUNH
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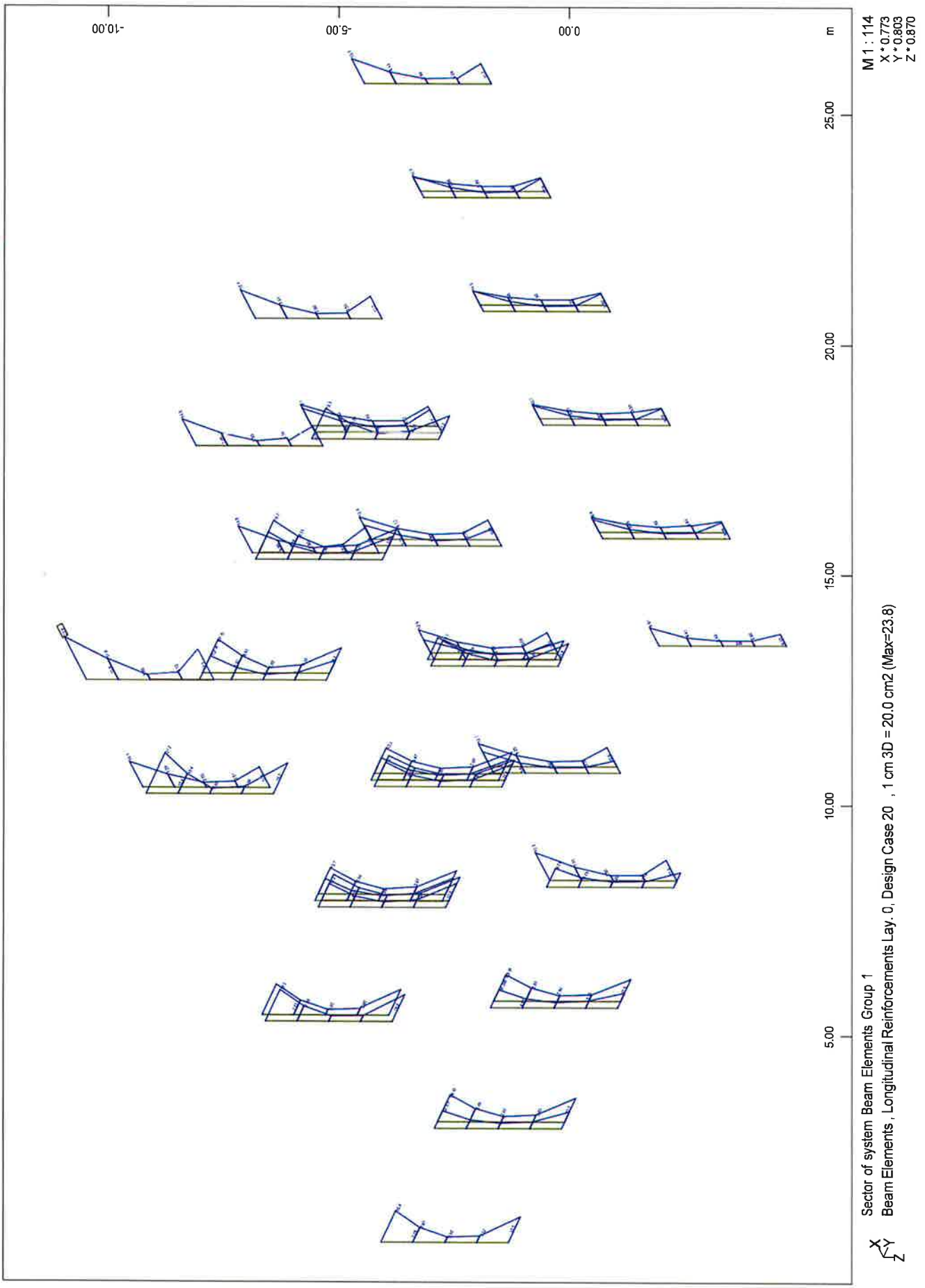
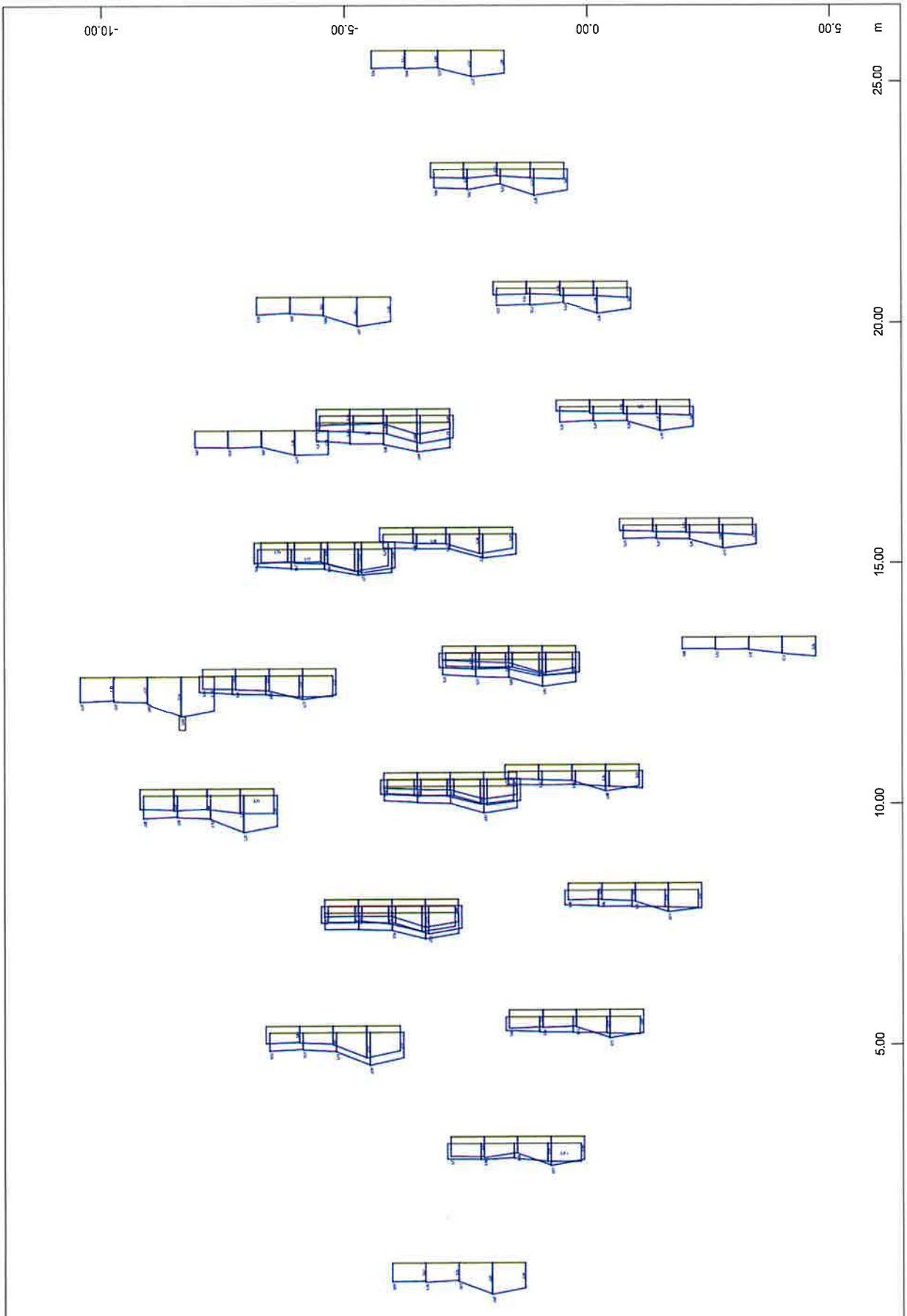
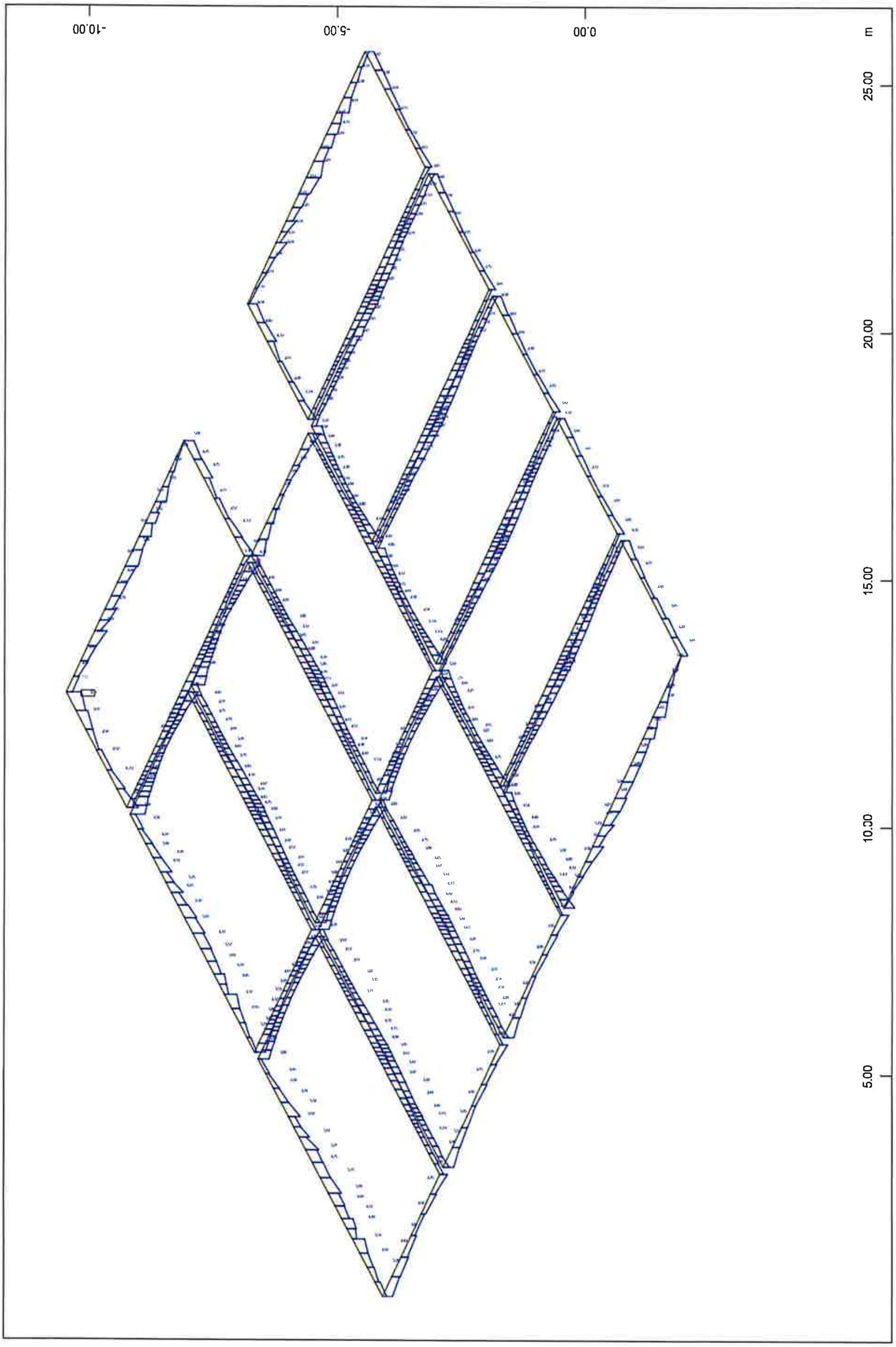


NHPIAGOGEIO_GASTOUNH
Interactive Graphic



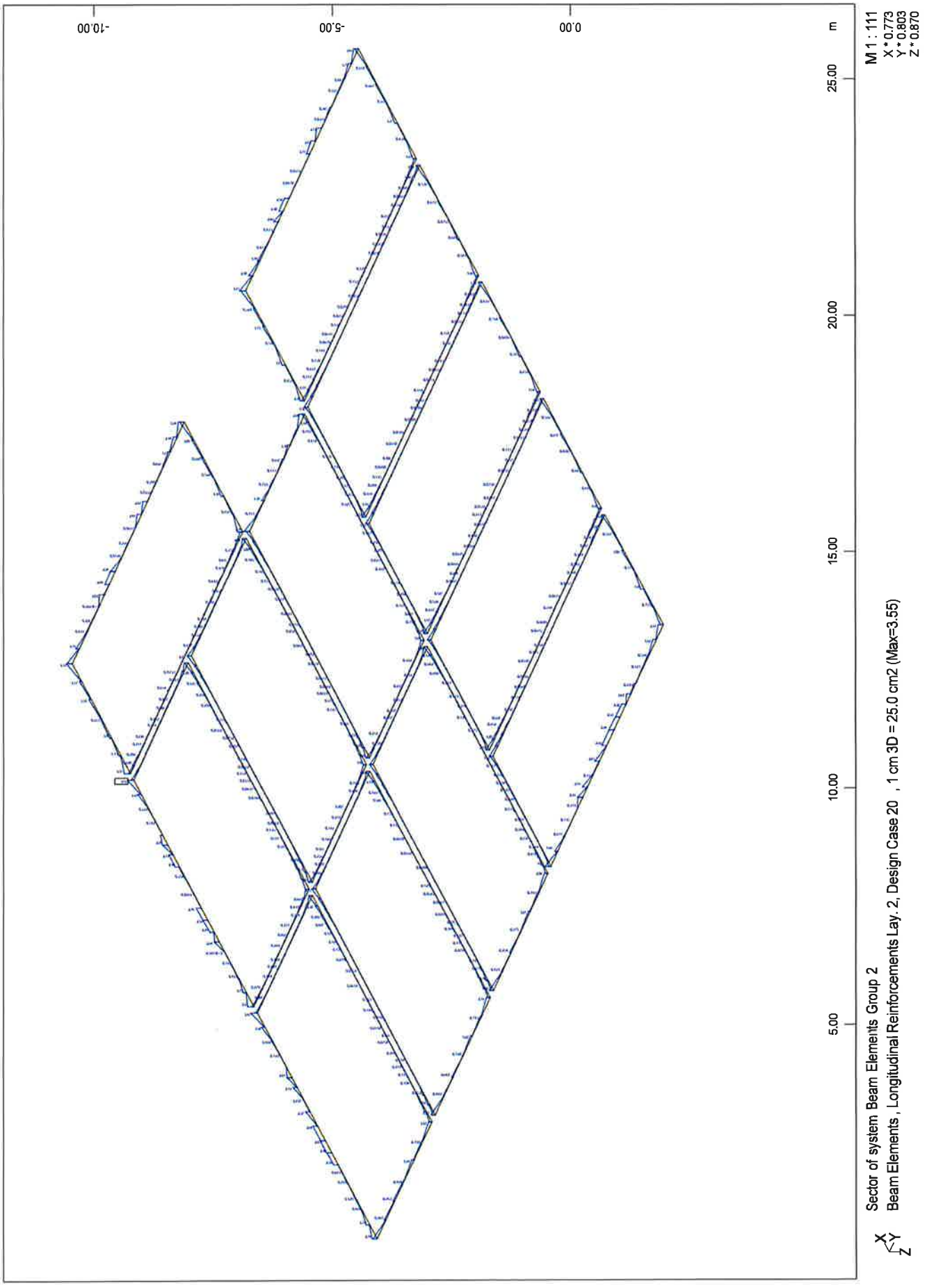
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



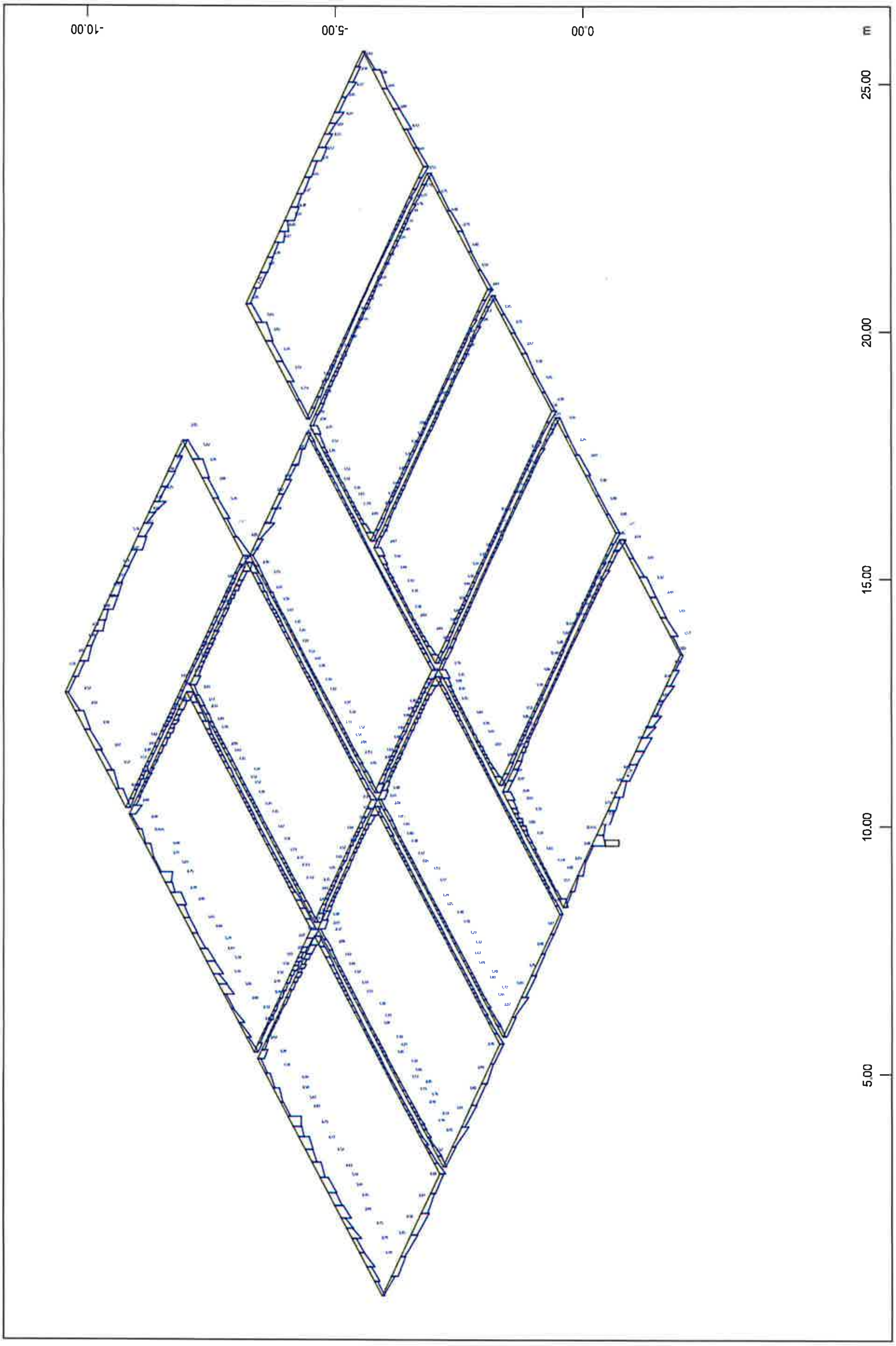
M 1 : 111
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Beam Elements Group 2
Beam Elements , Longitudinal Reinforcements Lay. 1, Design Case 20 , 1 cm 3D = 25.0 cm2 (Max=7.93)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



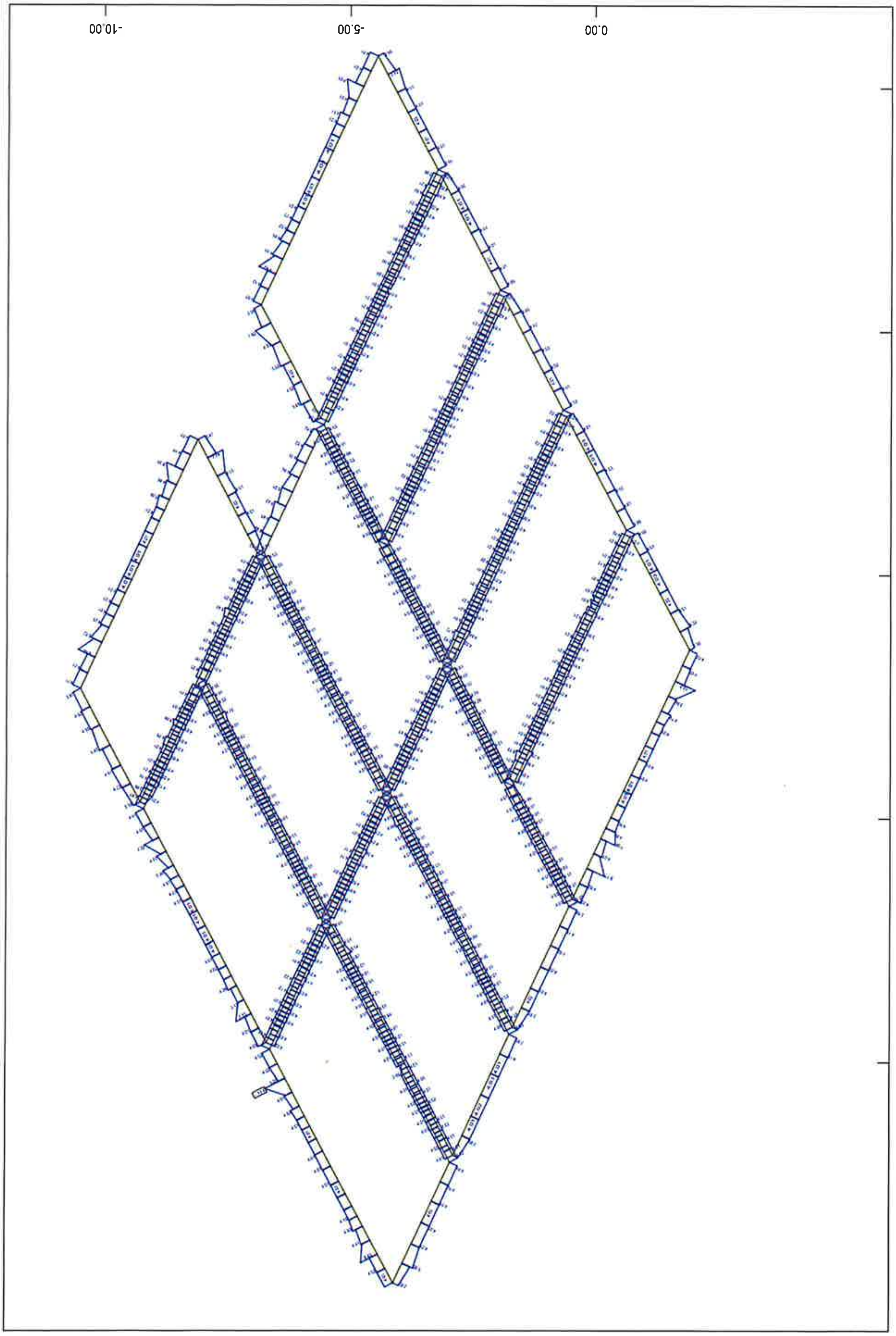
NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 111
X * 0.773
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 cm2 (Max=7.31)

NHPIAGOGEIO_GASTOUNH
Interactive Graphic



M 1 : 112
X * 0.773
Y * 0.803
Z * 0.870

Sector of system Beam Elements Group 2
Beam Elements , Shear reinforcements (maximum), Design Case 20 , 1 cm 3D = 25.0 cm2/m (Max=10.4)