



COMUNE DI ASCOLI PICENO

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LAVORI CIRCOLO TENNIS MORELLI

PROGETTO ESECUTIVO

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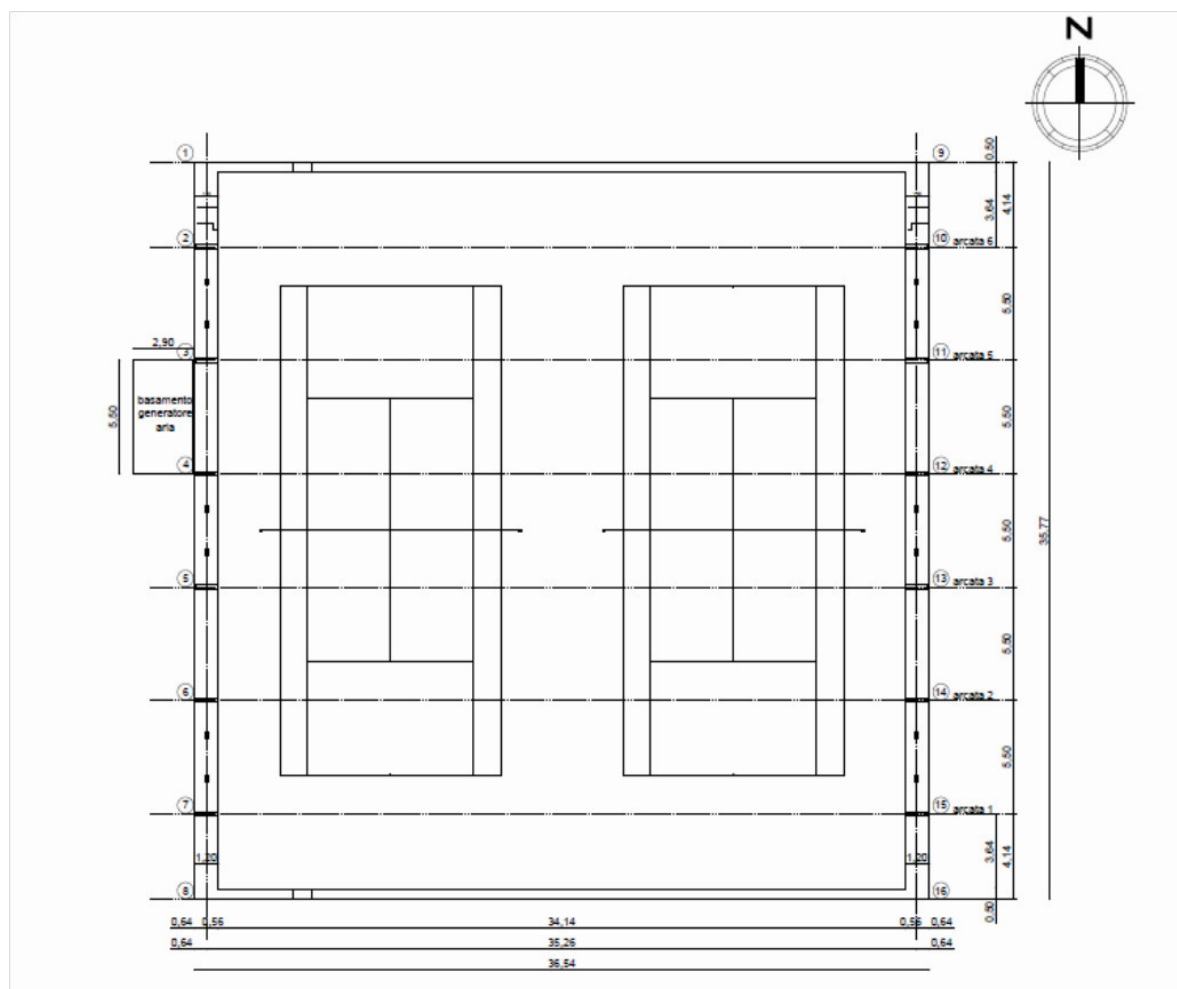
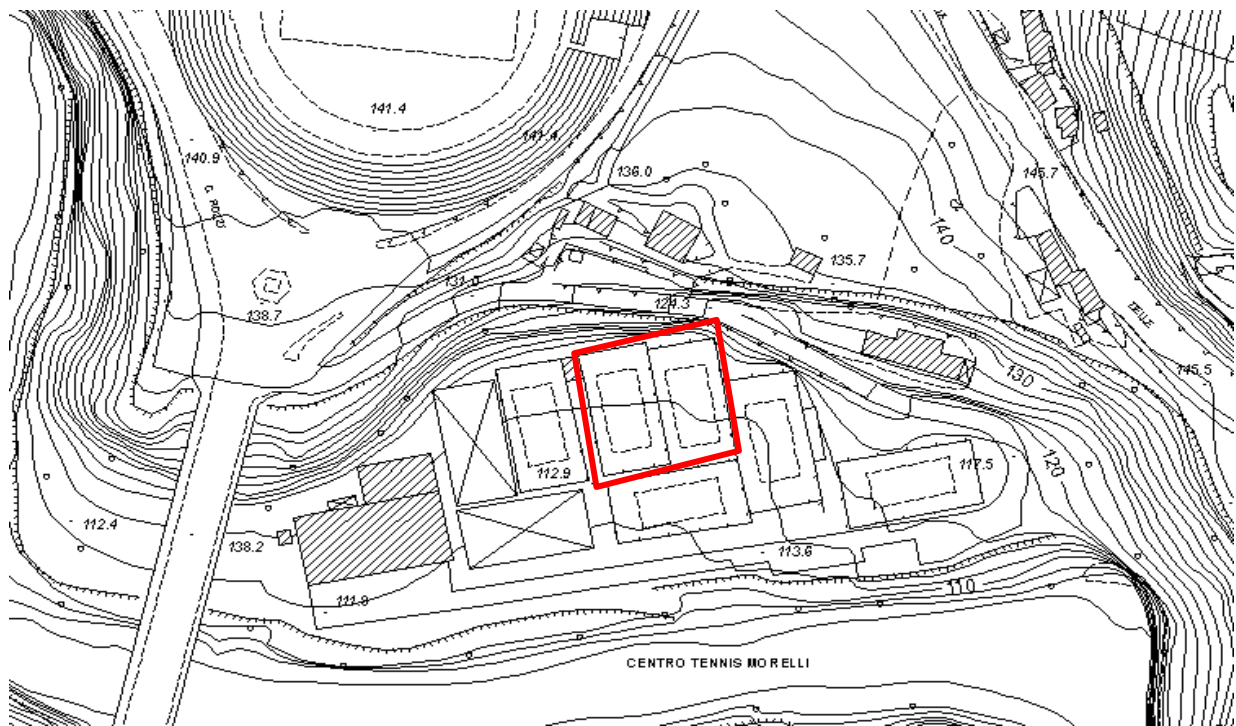
1. Descrizione generale dell'intervento

La presente relazione di calcolo strutturale, redatta su incarico del Comune di Ascoli Piceno, è relativa al progetto strutturale di una copertura per n°2 campi da tennis all'interno del Circolo Tennis Morelli di Ascoli Piceno.

Il progetto riguarda lo studio della copertura in legno lamellare costituita da un telaio arcuato a 3 cerniere che si ripete ad interasse regolare e gravante su travi di fondazione. Nello specifico si ha:

- N°6 Archi in legno lamellare GL28h, con sezione 20x108mm con schema statico di arco a 3 cerniere della lunghezza di 35,26m, altezza massima pari a 12,61 m dal piano finito e interasse di 5,5 m, per una dimensione complessiva in pianta di 36,54x35,77m.
- Sistema di Arcarecci in legno lamellare GL28h, nella direzione trasversale all'arco, aventi sezione di 22x28 cm e lunghezza pari a 5,30m;
- N°2 sistemi di irrigidimento composti da controventi diagonali con sezione circolare di raggio pari a 16cm, acciaio S355, disposti uno in direzione longitudinale ed occupante le campate a ridosso della cerniera di sommità e l'altro in direzione trasversale su tre dei cinque interassi disponibili;
- N°4 travi diagonali in legno lamellare GL28h con sezione 24x28cm disposte a due a due nella sezione di testa e in quella di coda della struttura e aventi la funzione di irrigidire ulteriormente la costruzione;
- Sistema di collegamenti bullonati nelle sezioni di sommità dell'arco, negli appoggi di base, nei collegamenti con gli arcarecci; sistemi bullonati e saldati per i controventi di falda; collegamenti a spinotto per la sezione rompi tratta della trave lamellare; sistemi di tirafondi di fondazione per le sezioni di appoggio tra la trave in legno lamellare e la trave di fondazione;
- N°1 telo di copertura in tessuto di poliestere in fibra sintetica, spalmato di PVC da entrambi i lati, al fine di rendere il tessuto impermeabile, dando così le caratteristiche di resistenza agli agenti esterni e al fuoco di cui la struttura ha bisogno.
- Trave rovescia di fondazione della sezione di 120x80cm, poggiante su "livello geotecnico 1" indicato nella relazione geologica (limo sabbioso), ed adeguatamente dimensionata per resistere alle sollecitazioni provenienti dalla sovrastruttura e alla reazione propria del terreno nelle diverse combinazioni di carico di seguito descritte ed analizzate.

Di seguito si individua il fabbricato nella planimetria catastale e tramite la piantina architettonica se ne comprende il reale ingombro in pianta.



2. Normativa di Riferimento

A seguire l'elenco della normativa a cui si è fatto riferimento nel seguente progetto:

- D.M. 14.1.2008: "Nuove Norme Tecniche per le Costruzioni", Pubblicato nella Gazzetta Ufficiale del 4 Febbraio 2008,n.29;
- Circolare 2.2.2009, n.617: "Istruzioni per l'applicazione delle "Nuove norme tecniche per le costruzioni" di cui al D.M, 14.1.2008;
- Ordinanza n. 3274 del 20 Marzo 2003. "primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica";
- Ordinanza n.3316. "Modifiche ed integrazioni all'ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 Marzo 2003";
- Istruzioni per la valutazione delle: Azioni sulle Costruzioni (C.N.R. 10012/85);
- UNI EN 1995-1-1:2009 Eurocodice 5 - Progettazione delle strutture di legno - Parte 1-1: Regole generali - Regole comuni e regole per gli edifici;
- UNI EN 1995-1-2:2005 Eurocodice 5 - Progettazione delle strutture di legno - Parte 1-2: Regole generali - Progettazione strutturale contro l'incendio;
- CNR – DT 206/2007: "Istruzioni per la Progettazione, L'Esecuzione ed il Controllo di Strutture di Legno";
- UNI EN 10025:2:2005 "Parte 2: Condizioni tecniche di fornitura di acciai non legati per impieghi strutturali";
- EN ISO 898-1 2009: "Caratteristiche meccaniche per viti e viti prigioniere";
- UNI EN 1993-1-8:2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-8: Progettazione dei collegamenti;
- EN 1993-1-2:2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-2: Regole Generali - Structural fire design.

3. Materiali impiegati

Il progetto prevede l'utilizzo di 5 materiali:

- Legno lamellare;
- Acciaio da carpenteria metallica;
- Acciaio da armatura lenta;
- Calcestruzzo;
- Tessuto di poliestere.

Nel seguito se ne evidenziano le caratteristiche meccaniche di ognuno e nella relazione sui materiali in allegato si illustrano i limiti di accettazione.

3. 1 Legno Lamellare

Per le travi principali ad arco e per gli arcarecci di collegamento ci si affida al legno lamellare incollato omogeneo **GL28h**, avente i seguenti parametri meccanici da inserire nel modello strutturale e da usare in sede di verifica:

- Resistenza a flessione:

$$f_{m,g,k} = 28 \text{ N/mm}^2$$

- Resistenza a trazione:

$$f_{t,0,g,k} = 19,5 \text{ N/mm}^2$$

$$f_{t,90,g,k} = 0,45 \text{ N/mm}^2$$

- Resistenza a compressione:

$$f_{c,0,g,k} = 26,5 \text{ N/mm}^2$$

$$f_{c,90,g,k} = 3,0 \text{ N/mm}^2$$

- Resistenza a taglio:

$$f_{v,g,kk} = 3,2 \text{ N/mm}^2$$

- Modulo elastico:

$$E_{0,g,mean} = 12600 \text{ N/mm}^2$$

$$E_{0,g,05} = 10200 \text{ N/mm}^2$$

$$E_{90,g,mean} = 420 \text{ N/mm}^2$$

- Modulo di taglio:

$$G_{g,mean} = 780 \text{ N/mm}^2$$

- Peso di volume:

$$\rho_{g,k} = 410 \text{ kg/m}^3$$

Il doppio valore di resistenza e di modulo elastico derivano dall'anisotropia del materiale legno. Infatti poiché il comportamento del materiale cambia in relazione della direzione considerata si avranno valori di resistenza e rigidezza nella direzione parallela alla fibratura (pedice "0") e valori di resistenza e rigidezza nella direzione perpendicolare ad essa (pedice "90").

3. 2 Acciaio da carpenteria metallica

Per l'esecuzione dei collegamenti tra le della struttura lignea vengono utilizzate piastre in acciaio S275 le cui caratteristiche di resistenza variano in funzione dello spessore della lamiera secondo la Tab.1 derivante dalle UNI EN 10025:

Qualità degli acciai	Spessore nominale dell'elemento			
	t ≤ 40mm		40mm < t ≤ 80mm	
	f _{yk} [N/mm ²]	f _{tk} [N/mm ²]	f _{yk} [N/mm ²]	f _{tk} [N/mm ²]
S235	235	360	215	360
S275	275	430	255	410
S355	355	510	335	470
S450	440	550	420	550

Tab.1 – Qualità degli acciai laminati a caldo con sezione aperta (UNI EN 10025)

Per i bulloni si fa invece riferimento alla EN ISO 898-1 2009 sintetizzata come segue:

Sigla	M12	M14	M16	M18	M20	M22	M24	M27	M30
d (mm)	12	14	16	18	20	22	24	27	30
A (mm ²)	113	154	201	254	314	380	452	573	707
A _{res} (mm ²)	84,3	115	157	192	245	303	353	459	581
A _{res} /A	0,75	0,75	0,78	0,75	0,78	0,8	0,78	0,8	0,82

Tab.2 – Nomenclatura dei bulloni per carpenteria metallica

Classe	4,6	5,6	6,8	8,8	10,9
f _{yb} (Mpa)	240	300	480	640	900
f _{ub} (Mpa)	400	500	600	800	1000

Tab.3 – Classi di resistenza dei bulloni per carpenteria metallica

3. 3 Acciaio da armatura lenta

Si utilizzano barre ad aderenza migliorata del tipo **B450C** controllate in stabilimento; pertanto, nelle valutazioni di resistenza con il metodo degli Stati Limite, si assumono i seguenti parametri:

- Tensione caratteristica di snervamento:

$$f_{yk} = f_{y\ nom} = 450\ N/mm^2$$

- Tensione caratteristica di rottura:

$$f_{tk} = f_{t\ nom} = 540\ N/mm^2$$

- Resistenza tangenziale caratteristica di aderenza:

$$f_{bk} = 2,25 \cdot \eta \cdot f_{ctk} = 2,25 \cdot 1 \cdot 1,8 = 4,02\ N/mm^2$$

- Modulo elastico:

$$E_s = 210000000\ kN/m^2$$

- Resistenza di calcolo di snervamento:

$$f_{yd} = f_{yk}/\gamma_s = 391,3\ N/mm^2$$

- Tensione tangenziale di aderenza:

$$f_{bd} = f_{bk}/\gamma_c = 2,25 \cdot 1 \cdot 1,8 = 2,68\ N/mm^2$$

Nel caso di armature molto addensate o ancoraggi in zona di calcestruzzo teso, la resistenza di aderenza va ridotta dividendola almeno per 1,5.

- Coefficiente di Poisson:

$$\nu = 0,3$$

- Coefficiente di dilatazione termica:

$$\alpha = 1,0 \cdot 10^{-5} \text{ } ^\circ\text{C}^{-1}$$

- Peso dell'unità di volume:

- $\gamma = 78,5\ kN/m^3$

3. 4 Calcestruzzo

Per le opere in c.a. in questione si prevede l'impiego di un calcestruzzo classe **C25/30** con $R_{ck}=30$ MPa; pertanto nelle valutazioni di resistenza con il metodo degli stati limite si assumono i seguenti parametri:

- Resistenza caratteristica cubica a compressione:

$$R_{ck} = 30\ N/mm^2$$

- Resistenza caratteristica cilindrica a compressione:

$$f_{ck} = 0,83 \cdot R_{ck} = 24,9\ N/mm^2$$

- Resistenza media cilindrica a compressione:

$$f_{cm} = f_{ck} + 8 = 32,9 \text{ N/mm}^2$$

- Resistenza media a trazione:

$$f_{ctm} = 0,30 \cdot f_{ck}^{2/3} = 2,56 \text{ N/mm}^2$$

Il valore caratteristico corrispondente è assunto pari $0,7 \cdot f_{ctm}$.

- Modulo elastico:

$$E_{cm} = 22000 \cdot [f_{cm}/10]^{0,3} = 31447161,44 \text{ kN/m}^2$$

- Resistenza di calcolo a compressione:

$$f_{cd} = \frac{\alpha_{cc} f_{ck}}{\gamma_c} = 0,85 \cdot \frac{24,9}{1,5} = 14,11 \text{ N/mm}^2$$

- Resistenza di calcolo a trazione:

$$f_{ctd} = \frac{f_{ctk}}{\gamma_c} = \frac{0,7 \cdot 2,56}{1,5} = 1,19 \text{ N/mm}^2$$

- Coefficiente di Poisson:

$$\nu = 0,2$$

- Coefficiente di dilatazione termica:

$$\alpha = 1,0 \cdot 10^{-5} \text{ } ^\circ\text{C}^{-1}$$

- Peso dell'unità di volume:

$$\gamma = 25 \text{ kN/m}^3$$

3. 5 Tessuto di Poliestere

A copertura della struttura lignea e della sua fondazione viene utilizzata una membrana esterna in poliestere in fibra sintetica spalmata in PVC con le seguenti caratteristiche disciplinate dalle relative norme:

- Supporto: **PES** (DIN 60 001);
- Titolo del filato: **110 DTEX** (EN ISO 2060);
- Armatura: **Tela 1/1** (DIN ISO9354)
- Tipo di spalmatura: **PVC**

A tale prodotto corrispondono le seguenti caratteristiche meccaniche:

- Resistenza alla trazione (ordito/trama):
 $3000/3000 \text{ N/5 cm}$
- Resistenza alla lacerazione (ordito/trama):
 $300/300 \text{ N}$

- Adesione:
 $120N/5cm$
- Resistenza al freddo:
 $-30^{\circ}C$
- Resistenza al caldo:
 $+70^{\circ}C$
- Resistenza alla piegatura (dopo 100000 piegature): Nessuna crepa.

4. Azioni sulla struttura e Combinazioni di carico

4. 1 Azioni

Secondo le NTC 2008 si definisce azione ogni causa o insieme di cause capace di indurre stati limite su una struttura.

Per ciò che ci riguarda definiamo tali azioni secondo la variazione della loro intensità nel tempo in:

- a) permanenti (G): azioni che agiscono durante tutta la vita nominale della costruzione, la cui variazione di intensità nel tempo è così piccola e lenta da poterle considerare con sufficiente approssimazione costanti nel tempo:
 - peso proprio di tutti gli elementi strutturali; peso proprio del terreno, quando pertinente; forze indotte dal terreno (esclusi gli effetti di carichi variabili applicati al terreno); forze risultanti dalla pressione dell'acqua (quando si configurino costanti nel tempo) (G1);
 - peso proprio di tutti gli elementi non strutturali (G2);
 - spostamenti e deformazioni imposti, previsti dal progetto e realizzati all'atto della costruzione;
 - pretensione e precompressione (P);
 - ritiro e viscosità;
 - spostamenti differenziali;
- b) variabili (Q): azioni sulla struttura o sull'elemento strutturale con valori istantanei che possono risultare sensibilmente diversi fra loro nel tempo:
 - di lunga durata: agiscono con un'intensità significativa, anche non continuativamente, per un tempo non trascurabile rispetto alla vita nominale della struttura;
 - di breve durata: azioni che agiscono per un periodo di tempo breve rispetto alla vita nominale della struttura;
- c) eccezionali (A): azioni che si verificano solo eccezionalmente nel corso della vita nominale della struttura;
 - incendi;
 - esplosioni;
 - urti ed impatti;
- d) sismiche (E): azioni derivanti dai terremoti.

Nei prossimi paragrafi saranno descritte tali azioni in riferimento al caso specifico analizzato.

4.1.1 *Pesi Propri (G)*

Oltre ai pesi propri degli elementi strutturali quali travi ad arco, arcarecci e controventi, i quali vengono considerati nel modello numerico in automatico, si devono prevedere anche il carico derivante dal peso del telo in PVC, comprensivo del trattamento superficiale e i punti luci e i relativi impianti da considerarsi come carichi appesi per le travi.

Tali contributi sono computati come segue:

- Peso proprio del telo in poliestere = 1 kg/m^2 ;
- Peso proprio rivestimento superficiale = 1 kg/m^2 ;
- Punti luce e impianti = 10 kg/m^2 .

Ne consegue che si può considerare un carico uniformemente distribuito sulla copertura di 12 kg/m^2 , che considerato l'interasse di 5,5 m tra le travi principali ammonta ad un carico uniformemente distribuito pari a 66 kg/m ripartito sulle stesse.

A tale contributo va sommata la coazione del telo, infatti, esso, una volta steso sopra la struttura lignea arcuata, viene messo in tensione mediante appositi macchinari tensionatori, facendo sì che in esercizio tale pretensione generi uno stato di coazione indotta negli archi stessi. Quest'azione sarà così schematizzabile come una pressione rivolta verso il centro dell'arco e sarà funzione del tiro imposto dai macchinari, "T", dell'interasse degli archi, "i", e del raggio di curvatura, "R_c" secondo l'espressione:

$$p_i = T * \frac{i}{R_c}$$

In questo caso si ha:

T = 100 kg/m ;

i = $5,50 \text{ m}$;

R_{c1} = $8,35 \text{ m}$; R_{c2} = $26,40 \text{ m}$.

Infatti, l'arco considerato nel nostro caso presenta due raggi di curvatura differenti tra la parte più esterna e quella più interna che di conseguenza genereranno due pressioni diverse in copertura e pari a :

$$p_1 = 100 * \frac{5,50}{8,35} = 65,86 \text{ kg/m}$$

$$p_2 = 100 * \frac{5,50}{26,40} = 20,83 \text{ kg/m}$$

Questi valori rappresentano le coazioni di pretensione per le travi intermedie, ma dato che nella travata di testa e in quella di coda l'interasse è dimezzato, lo saranno anche le rispettive azioni:

$$p_1 = 100 * \frac{2,75}{8,35} = 32,93 \text{ kg/m}$$

$$p_2 = 100 * \frac{2,75}{8,35} = 10,83 \text{ kg/m}$$

Uno schema di tali pressioni viene riportato nella figura che segue:

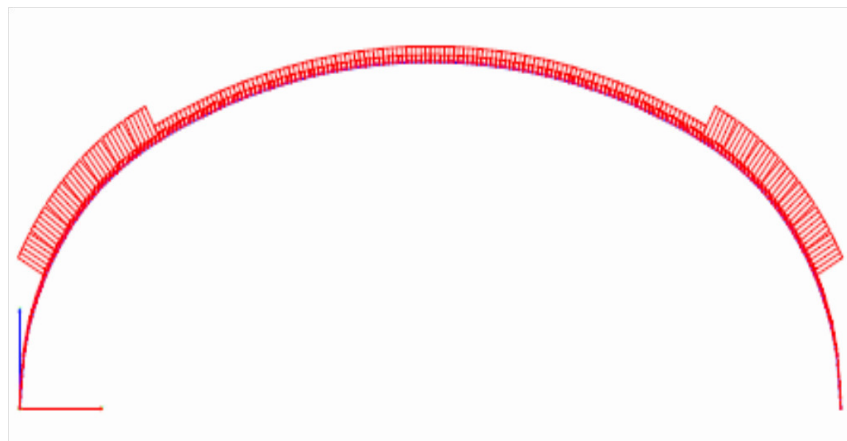


Fig.3 – Diagramma delle pressioni generato dalla pretensione del telo

Inoltre, anche la trave di banchina, che è il punto d'applicazione del tiro del telo sarà soggetta ad un carico uniformemente distribuito sia in direzione x che in direzione y. Tali componenti nascono dalla scomposizione vettoriale del tiro stesso secondo l'angolo d'inclinazione della copertura nel punto d'attacco:

$$\alpha = 58^\circ$$

$$T_H = T \cos \alpha = 100 \frac{\text{kg}}{\text{m}} * \cos 58^\circ = 53 \text{ kg/m}$$

$$T_V = T \sin \alpha = 100 \frac{\text{kg}}{\text{m}} * \sin 58^\circ = 84,80 \text{ kg/m}$$

4.1.2 Azione del Vento (Q)

Il vento, la cui direzione si considera generalmente orizzontale, esercita sulle costruzioni azioni che variano nel tempo e nello spazio provocando, in generale, effetti dinamici. Per le costruzioni usuali tali azioni sono convenzionalmente ricondotte alle azioni statiche.

Tra i parametri necessari a quantificare l'azione del vento spicca su tutti la velocità di riferimento “ v_b ” che rappresenta il valore caratteristico della velocità del vento a 10 m dal suolo su un terreno di categoria di esposizione II, mediata su 10 minuti e riferita ad un periodo di ritorno di 50 anni.

In mancanza di specifiche ed adeguate indagini statistiche v_b è data dall'espressione:

$$v_b = v_{b,0} \quad \text{per } a_s \leq a_0$$

$$v_b = v_{b,0} + k_a(a_s - a_0) \quad \text{per } a_0 < a_s \leq 1500m$$

dove:

$v_{b,0}$, a_0 , k_a sono parametri forniti nella Tab. 4 e legati alla regione in cui sorge la costruzione in esame in funzione delle zone definite in Fig. 4:

a_s è l'altitudine sul livello del mare (in m) del sito ove sorge la costruzione.

Zona	Descrizione	$v_{b,0}$ [m/s]	a_0 [m]	k_a [1/s]
1	Valle d'Aosta, Piemonte, Lombardia, Trentino Alto Adige, Veneto, Friuli Venezia Giulia (con l'eccezione della provincia di Trieste)	25	1000	0,010
2	Emilia Romagna	25	750	0,015
3	Toscana, Marche, Umbria, Lazio, Abruzzo, Molise, Puglia, Campania, Basilicata, Calabria (esclusa la provincia di Reggio Calabria)	27	500	0,020
4	Sicilia e provincia di Reggio Calabria	28	500	0,020
5	Sardegna (zona a oriente della retta congiungente Capo Teulada con l'Isola di Maddalena)	28	750	0,015
6	Sardegna (zona a occidente della retta congiungente Capo Teulada con l'Isola di Maddalena)	28	500	0,020
7	Liguria	28	1000	0,015
8	Provincia di Trieste	30	1500	0,010
9	Isole (con l'eccezione di Sicilia e Sardegna) e mare aperto	31	500	0,020

Tab.4 – Valori dei parametri $v_{b,0}$, a_0 , k_a



Fig.4 – Mappa delle zone in cui è suddiviso il territorio italiano

Successivamente si passa alla definizione dell'azione statica equivalente in quanto le azioni del vento si manifestano come pressioni e depressioni agenti normalmente alle superfici, sia esterne che interne che compongono la costruzione.

L'azione del vento sul singolo elemento viene determinata considerando la combinazione più gravosa della pressione agente sulla superficie esterna e della pressione agente sulla superficie interna dell'elemento e nel caso di costruzioni o elementi di grande estensione, si tiene conto delle azioni tangenti esercitate dal vento.

Chiaramente il vento su una struttura tridimensionale sarà considerata in entrambe le direzioni principali orizzontali.

Con ciò la pressione del vento sarà data dall'espressione:

$$p = q_b c_e c_p c_d$$

dove:

q_b è la pressione cinetica di riferimento ;

c_e è il coefficiente di esposizione;

c_p è il coefficiente di forma (o coefficiente aerodinamico), funzione della tipologia e della geometria della costruzione e del suo orientamento rispetto alla direzione del vento. Il suo valore può essere ricavato da dati suffragati da opportuna documentazione o da prove sperimentali in galleria del vento;

c_d è il coefficiente dinamico con cui si tiene conto degli effetti riduttivi associati alla non contemporaneità delle massime pressioni locali e degli effetti amplificativi dovuti alle vibrazioni strutturali.

Inoltre le azioni tangenti per unità di superficie saranno:

$$p_f = q_b c_e c_f$$

dove rispetto a prima viene aggiunto c_f che è il coefficiente d'attrito, funzione della scabrezza della superficie sulla quale il vento esercita l'azione tangente.

Andando a specificare i singoli contributi per il nostro caso in esame si ha che:

$$q_b = 0,5 \rho v_b^2 = 0,5 * 1,25 * 27 = 16,88 \text{ N/m}^2$$

con " ρ " che rappresenta il peso specifico dell'aria pari a $1,25 \text{ kg/m}^3$ e " v_b " viene desunta dalla precedente Tab.4.

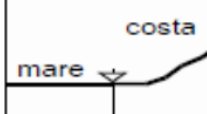
In merito al coefficiente d'esposizione è necessario fissare l'altezza z del punto considerato, la topografia del terreno e la categoria di esposizione del sito ove sorge la costruzione.

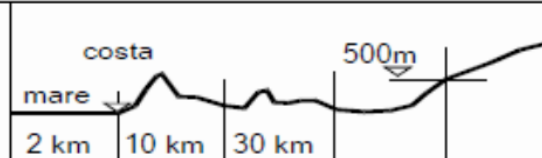
Dalle Tab.5 e 6 si può intuire che la nostra costruzione ha una classe di rugosità C e categoria di esposizione III.

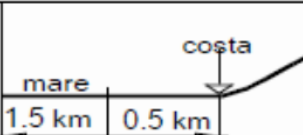
Classe di rugosità del terreno	Descrizione
A	Aree urbane in cui almeno il 15% della superficie sia coperto da edifici la cui altezza media superi i 15m
B	Aree urbane (non di classe A), suburbane, industriali e boschive
C	Aree con ostacoli diffusi (alberi, case, muri, recinzioni,...); aree con rugosità non riconducibile alle classi A, B, D
D	Aree prive di ostacoli (aperta campagna, aeroporti, aree agricole, pascoli, zone paludose o sabbiose, superfici innevate o ghiacciate, mare, laghi,...)
L'assegnazione della classe di rugosità non dipende dalla conformazione orografica e topografica del terreno. Affinché una costruzione possa dirsi ubicata in classe A o B è necessario che la situazione che contraddistingue la classe permanga intorno alla costruzione per non meno di 1 km e comunque non meno di 20 volte l'altezza della costruzione. Laddove sussistano dubbi sulla scelta della classe di rugosità, a meno di analisi dettagliate, verrà assegnata la classe più sfavorevole.	

Tab.5 – Classi di rugosità del terreno

ZONE 1,2,3,4,5						
						
A	--	IV	IV	V	V	V
B	--	III	III	IV	IV	IV
C	--	*	III	III	IV	IV
D	I	II	II	II	III	**
* Categoria II in zona 1,2,3,4 Categoria III in zona 5						
** Categoria III in zona 2,3,4,5 Categoria IV in zona 1						

ZONA 9		
		
A	--	I
B	--	I
C	--	I
D	I	I

ZONA 6					
					
A	--	III	IV	V	V
B	--	II	III	IV	IV
C	--	II	III	III	IV
D	I	I	II	II	III

ZONE 7,8			
			
A	--	--	IV
B	--	--	IV
C	--	--	III
D	I	II	*
* Categoria II in zona 8 Categoria III in zona 7			

Tab.6 – Definizione delle categorie di esposizione

Inoltre assunta a vantaggio di statica una “z” pari a 12,61m, corrispondente all’apice dell’arco in legno lamellare, si può calcolare “c_e” come segue:

$$c_e(z) = k_r^2 c_t \ln\left(\frac{z}{z_0}\right) \left[7 + c_t \ln\left(\frac{z}{z_0}\right)\right] = 2,29$$

dove:

k_r, z₀, z_{min} sono assegnati in Tab. 7 in funzione della categoria di esposizione del sito ove sorge la costruzione (in questo caso categoria III);

c_t è il coefficiente di topografia assunto pari a 1.

Categoria di esposizione del sito	k_r	z_0 [m]	z_{min} [m]
I	0,17	0,01	2
II	0,19	0,05	4
III	0,20	0,10	5
IV	0,22	0,30	8
V	0,23	0,70	12

Tab.7 – Parametri per la definizione del coefficiente di esposizione

Successivamente, il coefficiente dinamico “ c_d ” che tiene conto degli effetti riduttivi associati alla non contemporaneità delle massime pressioni locali e degli effetti amplificativi dovuti alla risposta dinamica della struttura, viene assunto cautelativamente pari a 1.

Per il coefficiente d’attrito “ c_f ” si assume un valore pari a 0,01 data la bassa scabrezza della superficie su cui la forza tangenziale che si genera come reazione al vento agisce. Di fatto il telo di poliestere in fibra sintetica è liscio e ciò giustifica un’azione tangenziale bassa.

Per ultimo un’attenzione particolare va data al coefficiente di forma “ c_e ”.

Tale coefficiente sarà diverso in funzione della direzione di applicazione del vento. Infatti nella direzione longitudinale le pressioni si scaricano su una superficie piana di inclinazione α pari a 73° quindi il coefficiente di forma sarà:

$$c_{p,x} = \pm 1,2(1 + \sin 73^\circ) = \pm 2,35$$

Con il segno “+” per la parte in pressione (sezione di testa) e il segno “-” per la parte in depressione (sezione di coda) come riportato in Fig. 5.

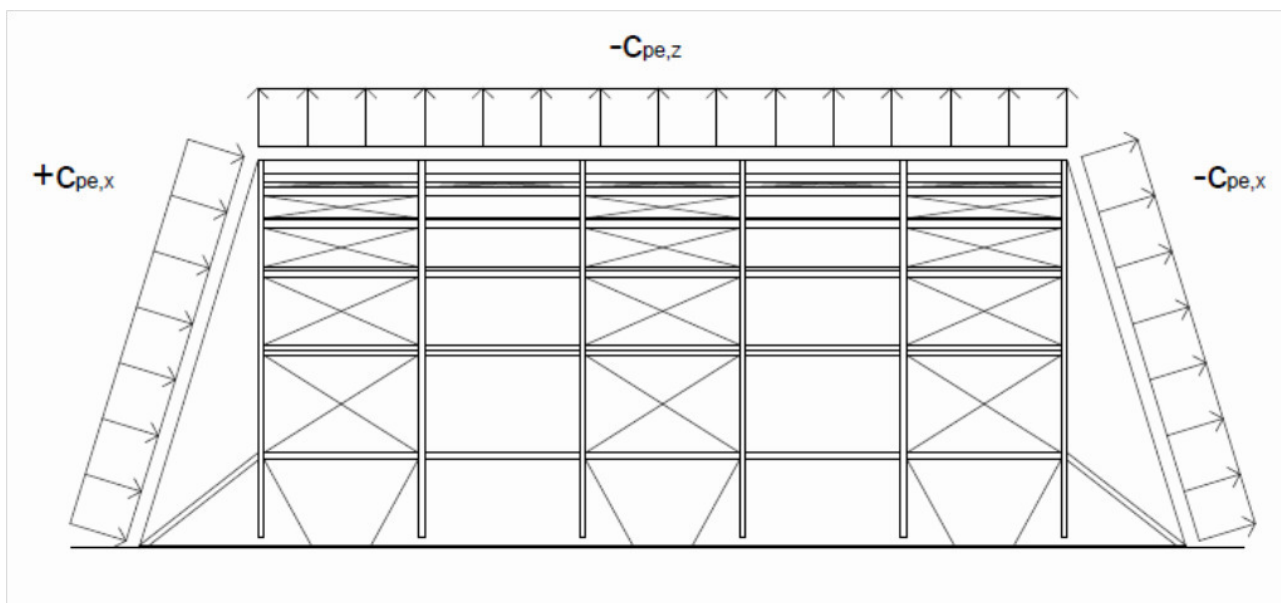


Fig.5 – Schematizzazione del coefficiente di esposizione nella direzione longitudinale alla struttura ($c_{p,x}$)

Nell'immagine precedente è stato riportato il coefficiente di forma anche nella direzione verticale che nel caso della sezione di colmo risulta negativo ma nella realtà il suo andamento non è costante ma cambia in funzione dell'angolo di inclinazione della copertura secondo il diagramma:

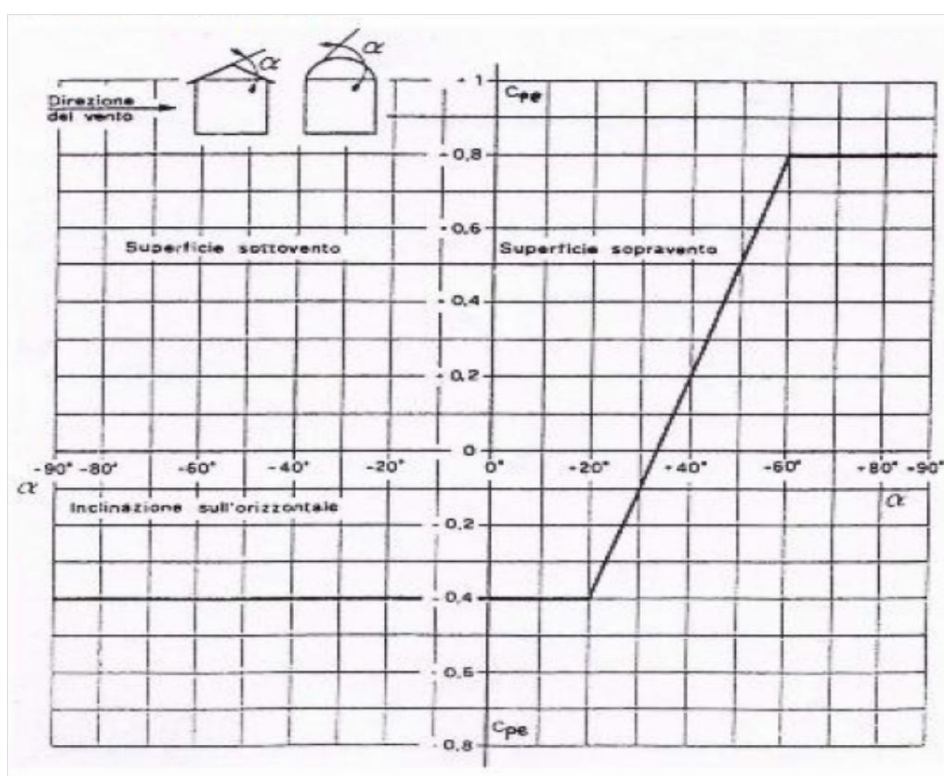


Fig.6 – Legge di variazione del coefficiente di forma su superfici cilindriche ($c_{p,y}$)

In sintesi:

$$p_{,x} = q_b c_e c_p c_d = 16,88 * 2,29 * (\pm 2,35) * 1 = \pm 90,85 \frac{N}{m^2} = \pm 9,085 \frac{kg}{m^2}$$

$$p_f = q_b c_e c_f = 16,88 * 2,29 * 0,01 = 0,39 \frac{N}{m^2} = 0,04 \frac{kg}{m^2}$$

Mentre per la pressione mancante, “p_y” data la variabilità discussa in precedenza, si preferisce riportarne in Fig.6 l’andamento sullo sviluppo dell’arcata principale in legno lamellare.

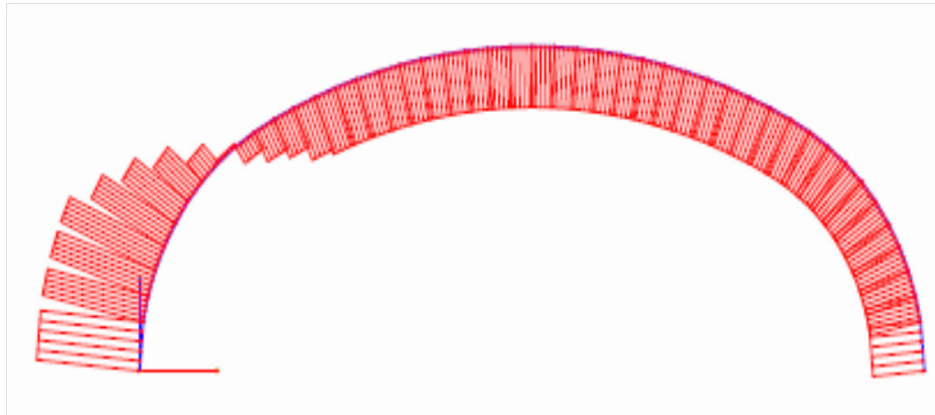


Fig.7 – Variazione della pressione del vento “p_y” sull’arcata principale

4.1.3 Azione della Neve (Q)

Il carico provocato dalla neve sulla copertura sarà valutato mediante la seguente espressione sempre fornita dal D.M del 14 Gennaio del 2008:

$$q_s = \mu_i q_{sk} C_E C_t$$

dove :

q_s è il carico neve sulla copertura;

μ_i è il coefficiente di forma della copertura;

q_{sk} è il valore caratteristico di riferimento del carico neve al suolo [kN/m²], per un periodo di ritorno di 50 anni;

C_E è il coefficiente di esposizione;

C_t è il coefficiente termico.

Si ipotizza che il carico agisca in direzione verticale e lo si riferisce alla proiezione orizzontale della superficie della copertura.

Per quanto riguarda il carico caratteristico della neve, “ q_{sk} ” esso dipende dalle condizioni locali di clima e di esposizione, considerata la variabilità delle precipitazioni nevose da zona a zona. Così, come già fatto per l’azione del vento, il territorio Italiano viene diviso in zone caratteristiche, ognuna con un valore di q_{sk} . Nel nostro caso considerata un’altitudine <200m s.l.m.m. , come si può anche vedere in Fig. 8, si ha:

$$q_{sk} = 1,00 \frac{kN}{m^2} \quad (Zona II)$$

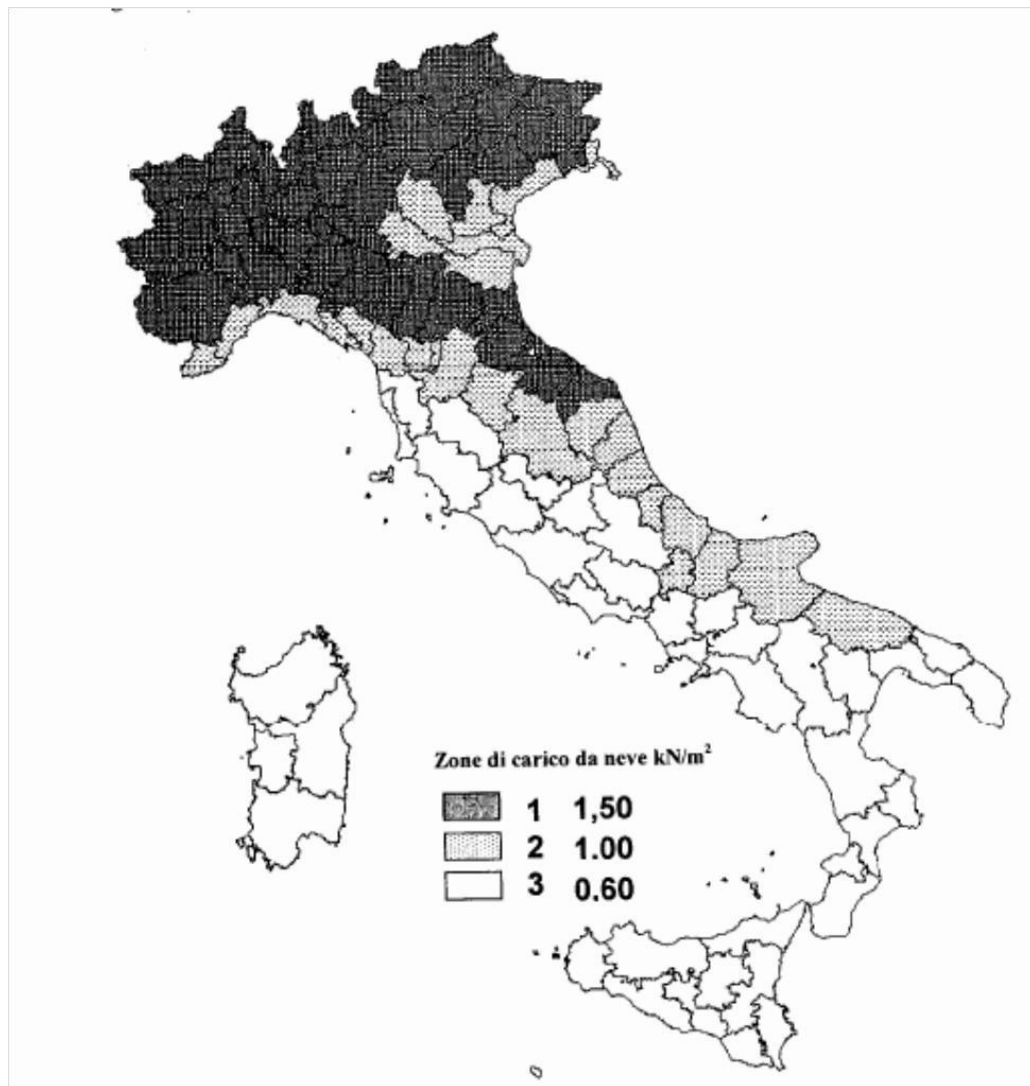


Fig.8 – Zone di carico da neve

Per il coefficiente di esposizione “ C_E ” ci si riferisce ai valori in Tab. 8. Nel nostro caso, visto che la struttura si trova ai piedi di un ponte ed è adiacente alla scarpata, si sceglie la configurazione topografica “Riparata” che impone un coefficiente pari a 1,1.

Topografia	Descrizione	C _E
Battuta dai venti	Aree pianeggianti non ostruite esposte su tutti i lati, senza costruzioni o alberi più alti.	0,9
Normale	Aree in cui non è presente una significativa rimozione di neve sulla costruzione prodotta dal vento, a causa del terreno, altre costruzioni o alberi.	1,0
Riparata	Aree in cui la costruzione considerata è sensibilmente più bassa del circostante terreno o circondata da costruzioni o alberi più alti	1,1

Tab.8 – Valori di C_E per diverse classi di topografia

Il coefficiente termico può essere utilizzato per tener conto della riduzione del carico neve a causa dello scioglimento della stessa, causata dalla perdita di calore della costruzione. Tale coefficiente tiene conto delle proprietà di isolamento termico del materiale utilizzato in copertura. In assenza di uno specifico e documentato studio, deve essere utilizzato Ct = 1.

Per ultimo s'introduce il coefficiente di forma per la copertura, "μ_i". Per coperture cilindriche si adotta il metodo riportato in Fig. 9, in cui si può vedere che si fa distinzione dal caso con presenza e assenza di vento. Nelle due condizioni infatti il diagramma delle pressioni sarà diverso.

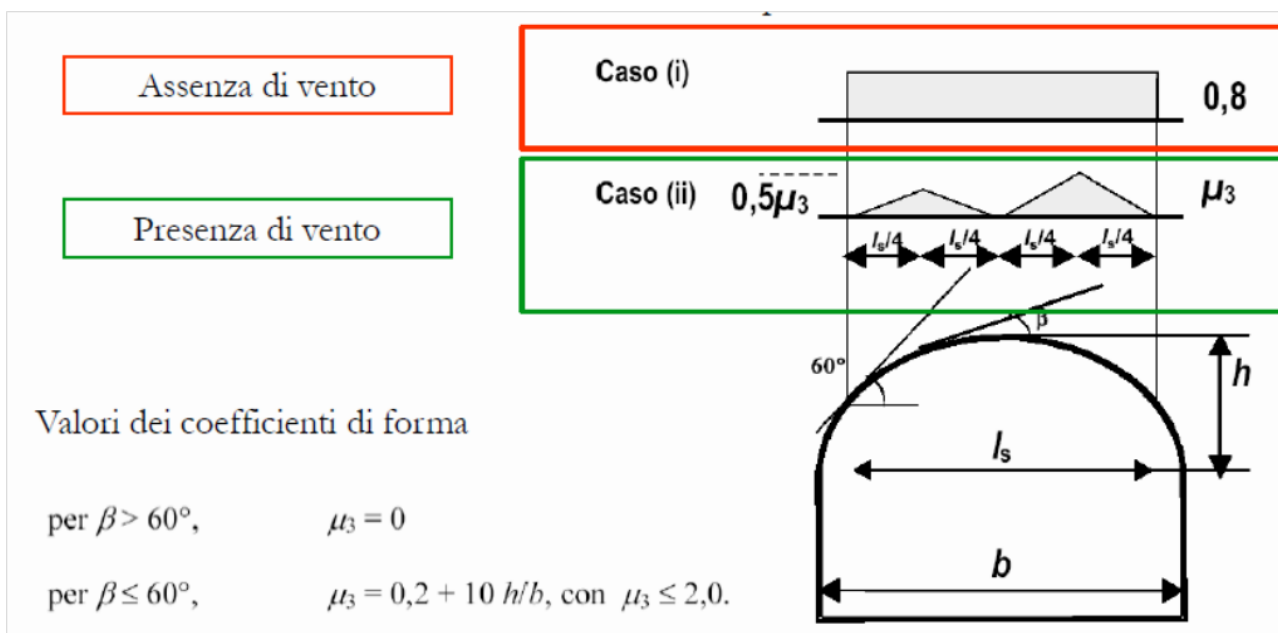


Fig.9 – Distribuzione delle pressioni della neve nelle condizioni di assenza (i) e presenza di vento (ii)

Quindi nel nostro caso si avrà:

$$\mu_i = 0,8 \quad \text{in assenza di vento}$$

$$\mu_i = \mu_3 = 0,2 + 10 * \frac{12,61}{36,54} = 3,65 \rightarrow \mu_3 = 2 ; 0,5\mu_3 = 1 \quad \text{in presenza di vento}$$

$$l_s = 35,26m ; \frac{l_s}{4} = 42,08m \text{ per determinazione diagramma pressioni su modello calcolo}$$

In definitiva:

$$q_s = \mu_i q_{sk} C_E C_t = 0,8 * 1 * 1,1 * 1 = 0,88 \frac{kN}{m^2} \quad \text{in assenza di vento}$$

$$q_s = \mu_i q_{sk} C_E C_t = 2 * 1 * 1,1 * 1 = 2,2 \frac{kN}{m^2} ; 1,1 \frac{kN}{m^2} \quad \text{in presenza di vento}$$

4.1.4 Azione Sismica(E)

Le azioni sismiche di progetto si definiscono a partire dalla “pericolosità sismica di base” del sito di costruzione. Essa costituisce l’elemento di conoscenza primario per la determinazione delle azioni sismiche.

La pericolosità sismica è definita in termini di accelerazione orizzontale massima attesa a_g in condizioni di campo libero su sito di riferimento rigido con superficie topografica orizzontale (di categoria **A**), nonché di ordinate dello spettro di risposta elastico in accelerazione ad essa corrispondente $S_e(T)$, con riferimento a prefissate probabilità di eccedenza P_{VR} , nel periodo di riferimento V_R . In alternativa è ammesso l’uso di accelerogrammi, purché correttamente commisurati alla *pericolosità sismica* del sito.

Nelle NTC2008 le forme spettrali sono definite, per ciascuna delle probabilità di superamento nel periodo di riferimento P_{VR} , a partire dai valori dei seguenti parametri su sito di riferimento rigido orizzontale:

a_g accelerazione orizzontale massima al sito;

F_0 valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale;

T_c^* periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale.

I suddetti valori sono necessari per l’identificazione dei vari stati limite che nel caso sismico sono riferiti alle prestazioni della costruzione nel suo complesso, includendo gli elementi strutturali, quelli non strutturali e gli impianti.

Gli stati limite di esercizio sono:

- **Stato Limite di Operatività (SLO):** a seguito del terremoto la costruzione nel suo complesso, includendo gli elementi strutturali, quelli non strutturali, le apparecchiature rilevanti alla sua funzione, non deve subire danni ed interruzioni d'uso significativi;

- **Stato Limite di Danno (SLD)**: a seguito del terremoto la costruzione nel suo complesso, includendo gli elementi strutturali, quelli non strutturali, le apparecchiature rilevanti alla sua funzione, subisce danni tali da non mettere a rischio gli utenti e da non compromettere significativamente la capacità di resistenza e di rigidità nei confronti delle azioni verticali ed orizzontali, mantenendosi immediatamente utilizzabile pur nell'interruzione d'uso di parte delle apparecchiature.

Gli stati limite ultimi sono:

- **Stato Limite di salvaguardia della Vita (SLV)**: a seguito del terremoto la costruzione subisce rotture e crolli dei componenti non strutturali ed impiantistici e significativi danni dei componenti strutturali cui si associa una perdita significativa di rigidità nei confronti delle azioni orizzontali; la costruzione conserva invece una parte della resistenza e rigidità per azioni verticali e un margine di sicurezza nei confronti del collasso per azioni sismiche orizzontali;

- **Stato Limite di prevenzione del Collasso (SLC)**: a seguito del terremoto la costruzione subisce gravi rotture e crolli dei componenti non strutturali ed impiantistici e danni molto gravi dei componenti strutturali; la costruzione conserva ancora un margine di sicurezza per azioni verticali ed un esiguo margine di sicurezza nei confronti del collasso per azioni orizzontali.

Le probabilità di superamento nel periodo di riferimento P_{VR} , cui riferirsi per individuare l'azione sismica agente in ciascuno degli stati limite considerati, sono riportate nella successiva tabella:

Stati Limite		P_{VR} : Probabilità di superamento nel periodo di riferimento V_R
Stati limite di esercizio	SLO	81%
	SLD	63%
Stati limite ultimi	SLV	10%
	SLC	5%

Tab.9 – Probabilità di superamento P_{VR} al variare dello stato limite considerato

Inoltre, ai fini della definizione dell'azione sismica di progetto, si rende necessario valutare l'effetto della risposta sismica locale mediante specifiche analisi, come indicato nel § 7.11.3 del D.M. 14/1/2008. In assenza di tali analisi, per la definizione dell'azione sismica si può fare riferimento a un approccio semplificato, che si basa sull'individuazione di **categorie di sottosuolo di riferimento** (Tab. 10).

Categoria	Descrizione
A	<i>Ammassi rocciosi affioranti o terreni molto rigidi</i> caratterizzati da valori di $V_{s,30}$ superiori a 800 m/s, eventualmente comprendenti in superficie uno strato di alterazione, con spessore massimo pari a 3 m.
B	<i>Rocce tenere e depositi di terreni a grana grossa molto addensati o terreni a grana fina molto consistenti</i> con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 360 m/s e 800 m/s (ovvero $N_{SPT,30} > 50$ nei terreni a grana grossa e $c_{u,30} > 250$ kPa nei terreni a grana fina).
C	<i>Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti</i> con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ compresi tra 180 m/s e 360 m/s (ovvero $15 < N_{SPT,30} < 50$ nei terreni a grana grossa e $70 < c_{u,30} < 250$ kPa nei terreni a grana fina).
D	<i>Depositi di terreni a grana grossa scarsamente addensati o di terreni a grana fina scarsamente consistenti</i> , con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di $V_{s,30}$ inferiori a 180 m/s (ovvero $N_{SPT,30} < 15$ nei terreni a grana grossa e $c_{u,30} < 70$ kPa nei terreni a grana fina).
E	<i>Terreni dei sottosuoli di tipo C o D per spessore non superiore a 20 m</i> , posti sul substrato di riferimento (con $V_s > 800$ m/s).

Tab.10 – Categorie di sottosuolo

Nel nostro caso a seguito delle indagini geologiche effettuate, tramite la definizione del $V_{s,30}$ pari a 515,46 m/sec, ci si potrà riferire ad una categoria di sottosuolo B.

In ultimo da considerare anche le condizioni topografiche del sito infatti, anche in questo caso sarà necessario predisporre specifiche analisi di risposta sismica locale per condizioni complesse. Invece, per configurazioni superficiali semplici, si può adottare la seguente classificazione:

Categoria	Caratteristiche della superficie topografica
T1	Superficie pianeggiante, pendii e rilievi isolati con inclinazione media $i \leq 15^\circ$
T2	Pendii con inclinazione media $i > 15^\circ$
T3	Rilievi con larghezza in cresta molto minore che alla base e inclinazione media $15^\circ \leq i \leq 30^\circ$
T4	Rilievi con larghezza in cresta molto minore che alla base e inclinazione media $i > 30^\circ$

Tab.11 – Categorie topografiche

Come indicato sempre nella suddetta relazione geologica: “L’area interessata dal progetto risulta sub-pianeggiante. Le scarpate a nord e a sud, che raccordano l’area d’intervento con il letto del fiume e con la quota di Via Costantino Rozzi presentano pendenze elevate, circa del 50%, con importanti differenze di quota anche se per le caratteristiche geotecniche ed assetto strutturale presentano buone caratteristiche di stabilità. Tali condizioni geomorfologiche determinano l’appartenenza dell’area alla categoria topografica T1”.

Nonostante ciò, ai fini del calcolo strutturale, considerati i possibili fenomeni di amplificazione locale del sito in virtù della vicinanza del fiume da un lato, e della scarpata dall'altro, nelle seguenti analisi si adotterà una categoria **topografica T4**.

Di conseguenza, si assocerà un coefficiente di amplificazione topografica " S_T " di 1,4 secondo la Tab. 12:

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta del rilievo	1,2
T4	In corrispondenza della cresta del rilievo	1,4

Tab.12 –Valori massimi del coefficiente di amplificazione topografica S_T

Una volta ottenute le caratteristiche del sito ove sorge l'opera ci si concentra maggiormente sulle caratteristiche dell'opera stessa. Di fatto, vanno definite la Vita nominale dell'opera, " V_N ", e la sua Classe d'uso, " C_U ", la quale è una sorta di indice che quantifica la frequenza di affollamento dell'edificio in questione.

Si ha:

TIPI DI COSTRUZIONE		Vita Nominale V_N (in anni)
1	Opere provvisorie – Opere provvisionali - Strutture in fase costruttiva ¹	≤ 10
2	Opere ordinarie, ponti, opere infrastrutturali e dighe di dimensioni contenute o di importanza normale	≥ 50
3	Grandi opere, ponti, opere infrastrutturali e dighe di grandi dimensioni o di importanza strategica	≥ 100

Tab.13 –Vita nominale V_N per diversi tipi di opere

CLASSE D'USO	I	II	III	IV
COEFFICIENTE C_U	0,7	1,0	1,5	2,0

Tab.14 –Valori di coefficiente d'uso

Nel nostro caso ci si riferisce a :

$$V_N \geq 50 \text{ anni}$$

$$C_U = 1 \quad \text{associata a ad una Classe II}$$

Pertanto la vita di riferimento dell'opera, V_R , sarà:

$$V_R = V_N C_U = 50 \text{ anni}$$

Una volta ottenuti tutti i coefficienti necessari tramite il Foglio di calcolo del Ministero si ottengono gli spettri di risposta elastica in accelerazione della componente orizzontale del sisma. Tale spettro è definito dalle seguenti espressioni:

$$0 \leq T \leq T_B$$

$$S_c(T) = a_g \cdot S \cdot \eta \cdot F_0 \left[\frac{T}{T_B} + \frac{1}{\eta \cdot F_0} \left(1 - \frac{T}{T_B} \right) \right]$$

$$T_B \leq T \leq T_C$$

$$S_c(T) = a_g \cdot S \cdot \eta \cdot F_0$$

$$T_C \leq T \leq T_D$$

$$S_c(T) = a_g \cdot S \cdot \eta \cdot F_0 \left(\frac{T_C}{T} \right)$$

$$T_D \leq T$$

$$S_c(T) = a_g \cdot S \cdot \eta \cdot F_0 \left(\frac{T_C T_D}{T^2} \right)$$

Infine, al fine di sintetizzare i parametri sismici finora ottenuti si riportano le schermate di input e di output del suddetto codice.

Fig.10 – Ricerca del sito per coordinate

FASE 2. SCELTA DELLA STRATEGIA DI PROGETTAZIONE

Vita nominale della costruzione (in anni) - V_N info

Coefficiente d'uso della costruzione - C_U info

Valori di progetto

Periodo di riferimento per la costruzione (in anni) - V_R info

Periodi di ritorno per la definizione dell'azione sismica (in anni) - T_R info

Stati limite di esercizio - SLE	SLO - $P_{VR} = 81\%$	30
	SLD - $P_{VR} = 63\%$	50
Stati limite ultimi - SLU	SLV - $P_{VR} = 10\%$	475
	SLC - $P_{VR} = 5\%$	975

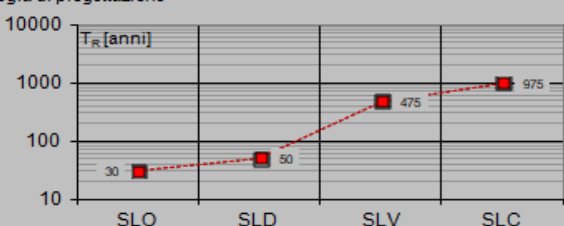
Elaborazioni

Grafici parametri azione ☐

Grafici spettri di risposta ☐

Tabella parametri azione ☐

Strategia di progettazione



LEGENDA GRAFICO

---□--- Strategia per costruzioni ordinarie

---■--- Strategia scelta

INTRO
FASE 1
FASE 2
FASE 3

Fig.11 – Definizione della V_N e di C_U

FASE 3. DETERMINAZIONE DELL'AZIONE DI PROGETTO

Stato Limite

Stato Limite considerato SLD info

Risposta sismica locale

Categoria di sottosuolo C info	S _s = 1,500	C _c = 1,573 info
Categoria topografica T4 info	h/H = 1,000	S _t = 1,400 info

(h=quota sito, H=altezza rilievo topografico)

Compon. orizzontale

☒ Spettro di progetto elastico (SLE) Smorzamento ξ (%) 5 η = 1,000 info

☐ Spettro di progetto inelastico (SLU) Fattore q_0 3 Regol. in altezza si info

Compon. verticale

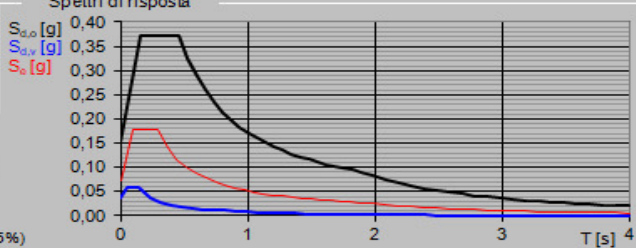
Spettro di progetto Fattore q 1,5 η = 0,667 info

Elaborazioni

Grafici spettri di risposta ☐

Parametri e punti spettri di risposta ☐

Spettri di risposta



INTRO

FASE 1

FASE 2

FASE 3

Fig.12 – Parametri di risposta sismica locale e fattore di struttura - SLD

Spettri di risposta (componenti orizz. e vert.) per lo SLD

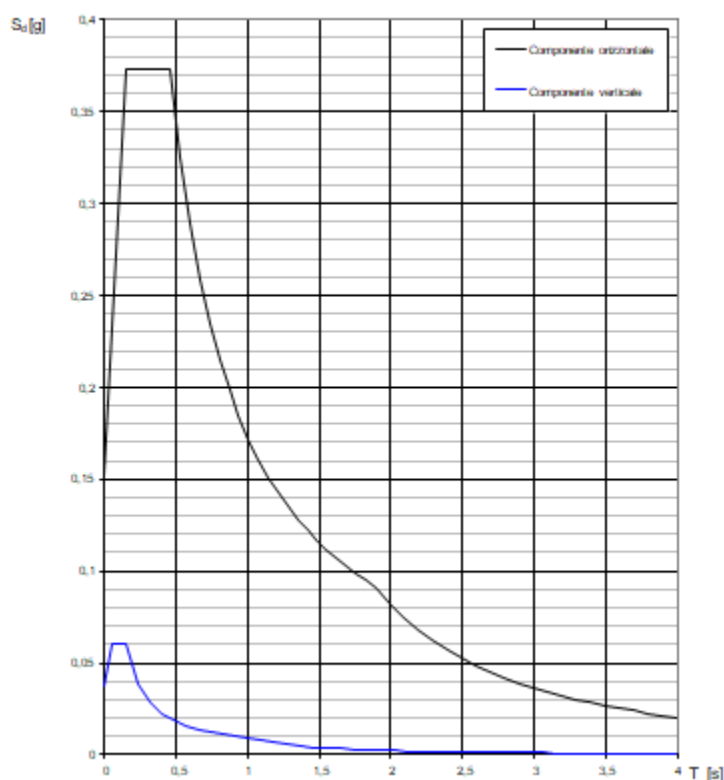


Fig.13 – Spettri di risposta - SLD

FASE 3. DETERMINAZIONE DELL'AZIONE DI PROGETTO

Stato Limite
Stato Limite considerato: **SLV** info

Risposta sismica locale
Categoria di sottosuolo: **C** info
Categoria topografica: **T4** info
 $S_S = 1,435$ $C_C = 1,490$ info
 $h/H = 1,000$ $S_T = 1,400$ info
(h=quota sito, H=altezza rilievo topografico)

Compon. orizzontale
☐ Spettro di progetto elastico (SLE)
☒ Spettro di progetto inelastico (SLU)
Smorzamento ξ (%): **5** info
Fattore q_o : **3** info
 $\eta = 1,000$ info
Regol. in altezza: **si** info

Compon. verticale
Spettro di progetto
Fattore q : **1,5** info
 $\eta = 0,667$ info

Elaborazioni
Grafici spettri di risposta →
Parametri e punti spettri di risposta →

Spettri di risposta
 $S_{d,o}$ [g]
 $S_{d,v}$ [g]
 S_e [g]
 T [s]

— Spettro di progetto - componente orizzontale
— Spettro di progetto - componente verticale
— Spettro elastico di riferimento (Cat. A-T1, $\xi = 5\%$)

INTRO FASE 1 FASE 2 **FASE 3**

Fig.14 – Parametri di risposta sismica locale e fattore di struttura - SLV

Spettri di risposta (componenti orizz. e vert.) per lo SLV

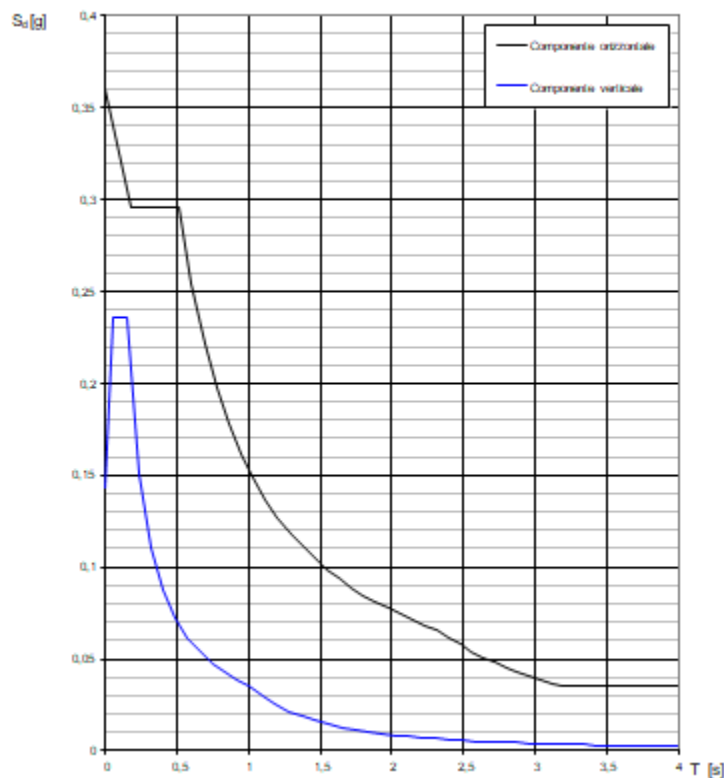


Fig.15 – Spettri di risposta - SLV

Come si può vedere dalle immagini precedenti assume un ruolo importante anche il fattore q , anche detto “fattore di struttura”. Questo valore, rappresenta la duttilità della costruzione e, nel nostro caso sarà pari a 1,5, come indicato nelle NTC2008, in quanto fattore minimo da associare a strutture a comportamento non dissipativo. Va da sé che non associando alla struttura un comportamento plastico, essa sarà progettata per resistere alle azioni esterne rimanendo in campo elastico.

4.1.4 Azione Eccezionale (A)

Le azioni eccezionali sono quelle che si presentano in occasione di eventi quali incendi, esplosioni ed urti e nel caso in esame, visto l’utilizzo di legno lamellare come struttura portante e della sua sensibilità al fuoco, si dovranno tenere in considerazione tali situazioni.

La modalità con cui si tiene in conto tale azione è però, completamente diversa da quella vista finora per le altre azioni. Infatti in questo caso non si considerano azioni equivalenti all’incendio, bensì si agisce dal lato delle resistenza.

Nel particolare, la resistenza al fuoco non è una caratteristica intrinseca dei materiali ma esprime una prestazione dell'elemento strutturale, o dell'elemento non strutturale, o ancora della struttura nei confronti dell'azione d'incendio. Di conseguenza assumono una importanza fondamentale i criteri costruttivi e realizzativi della struttura e le scelte progettuali effettuate, oltre che le proprietà fisiche del materiale.

In definitiva, proprio perché in questa fase non si ha la necessità di definire azioni equivalenti per l'incendio ma si agirà direttamente sulle resistenze, si rimanda ad una specifica trattazione nel capitolo relativo alla verifica al fuoco (Paragrafo 6.6)

4. 2 Combinazioni di Carico

L'approccio delle NTC2008 alla verifica della struttura è di tipo statistico e in quest'ottica, ad ogni singola azione sarà associata una distribuzione probabilistica che dipenderà dalla frequenza con la quale l'azione in esame si manifesta sulla costruzione.

Si definisce quindi il valore caratteristico " Q_k " di un'azione variabile come il valore corrispondente ad un frattile pari al 95 % della popolazione dei massimi, in relazione al periodo di riferimento dell'azione variabile stessa.

Nella definizione delle combinazioni delle azioni che possono agire contemporaneamente, i termini Q_{kj} rappresentano le azioni variabili della combinazione, con Q_{k1} azione variabile dominante e Q_{k2} , Q_{k3} , ... azioni variabili che possono agire contemporaneamente a quella dominante. Le azioni variabili Q_{kj} vengono combinate con i coefficienti di combinazione ψ_{0j} , ψ_{1j} , ψ_{2j} i cui valori per edifici civili e industriali; sono riportati qui di seguito.

Categoria/Azione variabile	ψ_{0j}	ψ_{1j}	ψ_{2j}
Categoria A Ambienti ad uso residenziale	0,7	0,5	0,3
Categoria B Uffici	0,7	0,5	0,3
Categoria C Ambienti suscettibili di affollamento	0,7	0,7	0,6
Categoria D Ambienti ad uso commerciale	0,7	0,7	0,6
Categoria E Biblioteche, archivi, magazzini, ambienti ad uso industriale	1,0	0,9	0,8
Categoria F Rimesse e parcheggi (per autoveicoli di peso ≤ 30 KN)	0,7	0,7	0,6
Categoria G Rimesse e parcheggi (per autoveicoli di peso > 30 KN)	0,7	0,5	0,3

Categoria H Coperture	0,0	0,0	0,0
Vento	0,6	0,2	0,0
Neve (a quota ≤ 1000 m s.l.m.)	0,5	0,2	0,0
Neve (a quota > 1000 m s.l.m.)	0,7	0,5	0,2
Variazioni termiche	0,6	0,5	0,0

Tab.15 –Valori dei coefficiente di combinazione

Con riferimento alla durata percentuale relativa ai livelli di intensità dell'azione variabile, si definiscono:

- valore quasi permanente $\psi_{2j}Q_{kj}$: la media della distribuzione temporale dell'intensità;
- valore frequente $\psi_{1j}Q_{kj}$: il valore corrispondente al frattile 95% della distribuzione temporale dell'intensità che è superato per una limitata frazione del periodo di riferimento;
- valore raro (o di combinazione) $\psi_{0j}Q_{kj}$: il valore di durata breve ma ancora significativa nei riguardi della possibile concomitanza con altre azioni variabili.

Nel seguito sono indicati con pedice k i valori caratteristici; senza pedice k i valori nominali.

Ai fini delle verifiche degli stati limite si definiscono le seguenti combinazioni delle azioni:

a) *Combinazione fondamentale (SLU)*:

$$F_d = \gamma_{G_1} \cdot G_1 + \gamma_{G_2} \cdot G_2 + \gamma_{Q_1} \cdot Q_{k1} + \gamma_{Q_i} \cdot \sum_{i=2}^{i=n} (\psi_{0i} \cdot Q_{ki})$$

b) *Combinazione caratteristica (rara) (SLE)*:

$$F_d = G_1 + G_2 + Q_{k1} + \sum_{i=2}^{i=n} (\psi_{0i} \cdot Q_{ki})$$

c) *Combinazione frequente (SLE)*:

$$F_d = G_1 + G_2 + \psi_{11} \cdot Q_{k1} + \sum_{i=2}^{i=n} (\psi_{2i} \cdot Q_{ki})$$

d) *Combinazione quasi permanente (SLE)*:

$$F_d = G_1 + G_2 + \psi_{21} \cdot Q_{k1} + \sum_{i=2}^{i=n} (\psi_{2i} \cdot Q_{ki})$$

e) *Combinazione sismica (SLV,SLD)*:

$$F_d = E + G_1 + G_2 + \psi_{21} \cdot Q_{k1} + \sum_{i=2}^{i=n} (\psi_{2i} \cdot Q_{ki})$$

Le verifiche agli stati limite devono essere eseguite per tutte le più gravose condizioni di carico che possono agire sulla struttura, valutandone gli effetti.

Nelle verifiche agli stati limite ultimi si distinguono:

- lo stato limite di equilibrio come corpo rigido: EQU;
- lo stato limite di resistenza della struttura compresi gli elementi di fondazione: STR;
- lo stato limite di resistenza del terreno: GEO.

La seguente tabella fornisce i valori dei coefficienti parziali delle azioni da assumere per la determinazione degli effetti delle azioni nelle verifiche agli stati limite ultimi.

		Coefficiente	EQU	A1	A2
		γ_F		STR	GEO
Carichi permanenti	favorevoli	γ_{G1}	0,9	1,0	1,0
	sfavorevoli		1,1	1,3	1,0
Carichi permanenti non strutturali*	favorevoli	γ_{G2}	0,0	0,0	0,0
	sfavorevoli		1,5	1,5	1,3
Carichi variabili	favorevoli	γ_{Qi}	0,0	0,0	0,0
	sfavorevoli		1,5	1,5	1,3

Tab.16 – Coefficienti parziali per le azioni o per l'effetto delle azioni nelle verifiche SLU

* Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti, si potranno adottare per essi gli stessi coefficienti validi per le azioni.

In riferimento al caso in esame si riportano la tabelle con indicazione delle azioni implementate nel modello e della loro nomenclatura, e la tabella delle combinazioni di carico analizzate con il codice di calcolo descritto nel seguente capitolo.

N° azione	Nome Azione	Tipo Azione
1	Peso Proprio	G1
2	Tensione telo	G1
3	Neve costante	Q
4	Neve con vento	Q
5	Vento da sotto	Q
6	Vento esterno Ovest	Q
7	Vento di testata	Q
8	Sisma 0SLV	E
9	Sisma 90SLV	E
10	Sisma 180SLV	E
11	Sisma 270SLV	E
16	Sisma 0SLD	E
17	Sisma 90SLD	E
18	Sisma 180SLD	E
19	Sisma 270SLD	E

Tab.17 – Nomenclatura Azioni utilizzate nel modello di calcolo

N° Comb.ne	Azioni considerate							Nome Combinazione
	1	2	3	4	5	6	7	
1	1.3	1.3	1.6					<u>SLU</u>
2	1.3	1.3		1.6	0.9	0.9	0.9	
3	1.3	1.3		0.75	1.5	1.5	1.5	
4	1.3	1.3						
	1	2	3	8	9	10	11	<u>SLV</u>
5	1	1	0.5	1	0.3			
6	1	1	0.5	1			0.3	
7	1	1	0.5	0.3	1			
8	1	1	0.5		1	0.3		
9	1	1	0.5		0.3	1		
10	1	1	0.5			1	0.3	
11	1	1	0.5	0.3			1	
12	1	1	0.5			0.3	1	
	1	2	3	4	5	6	7	<u>SLE - RARA</u>
21	1	1	1					
22	1	1		1	0.6	0.6	0.6	
23	1	1		0.5	1	1	1	<u>SLE - FREQUENTE</u>
	1	2	3	4	5			
24	1	1	0.2					
25	1	1		0.2				
26	1	1			0.2			

	1	2						<u>SLE - QUASI PERMANENTE</u>
27	1	1						
	1	2	3	16	17	18	19	<u>SLD</u>
28	1	1	0.5	1	0.3			
29	1	1	0.5	1			0.3	
30	1	1	0.5	0.3	1			
31	1	1	0.5		1	0.3		
32	1	1	0.5		0.3	1		
33	1	1	0.5			1	0.3	
34	1	1	0.5	0.3			1	
35	1	1	0.5			0.3	1	

Tab.18 – Combinazioni di carico analizzate nel modello strutturale

Dalla Tab. precedente si può notare che nelle combinazioni sismiche sia stato assunto un coefficiente di combinazioni del carico neve pari a 0,5. In realtà la norma prevede che tale coefficiente sia posto pari a zero, poiché considera improbabile la concomitanza della neve all'evento sismico. Nonostante ciò, essendo occorsa già in passato la concomitanza delle suddette azioni e in ragione dell'esposizione del sito (riparato), nelle analisi svolte si considera la neve, anche se solo in parte.

Un'ultima precisazione va fatta nel caso di strutture lignee. Infatti, essendo il legno un materiale viscoso, le sue proprietà variano in funzione della durata di applicazione del carico. In più anche lo stato igrometrico dell'ambiente che lo circonda ne alterano le proprietà meccaniche.

In particolare, le azioni di calcolo devono essere assegnate ad una delle classi di durata del carico riportate in Tab. 19:

Classe di durata del carico	Durata del carico
Permanente	più di 10 anni
Lunga durata	6 mesi -10 anni
Media durata	1 settimana – 6 mesi
Breve durata	meno di 1 settimana
Istantaneo	--

Tab.19 – Classi di durata del carico

Le classi di durata del carico si riferiscono a un carico costante attivo per un certo periodo di tempo nella vita della struttura. Per un'azione variabile la classe appropriata deve essere determinata in funzione di come varia il carico nel tempo.

Ai fini del calcolo in genere si può assumere quanto segue:

- il peso proprio e i carichi non rimovibili durante il normale esercizio della struttura, appartengono alla classe di durata permanente;
- i carichi permanenti suscettibili di cambiamenti durante il normale esercizio della struttura e i carichi variabili relativi a magazzini e depositi, appartengono alla classe di lunga durata;
- i carichi variabili degli edifici, ad eccezione di quelli relativi a magazzini e depositi, appartengono alla classe di media durata;
- il sovraccarico da neve riferito al suolo q_{sk} , calcolato in uno specifico sito ad una certa altitudine, è da considerare in relazione alle caratteristiche del sito;
- l'azione del vento e le azioni eccezionali in genere, appartengono alla classe di durata istantanea.

In merito all'umidità, poi, si parla di classi di servizio e si distinguono in:

Classe di servizio 1	È caratterizzata da un'umidità del materiale in equilibrio con l'ambiente a una temperatura di 20°C e un'umidità relativa dell'aria circostante che non superi il 65%, se non per poche settimane all'anno.
Classe di servizio 2	È caratterizzata da un'umidità del materiale in equilibrio con l'ambiente a una temperatura di 20°C e un'umidità relativa dell'aria circostante che superi l'85% solo per poche settimane all'anno.
Classe di servizio 3	È caratterizzata da umidità più elevata di quella della classe di servizio 2.

Tab.20 – Classi di servizio

Le Tab. 19 e 20 insieme permettono di calcolare i valori di progetto delle caratteristiche dei materiali secondo la relazione:

$$X_d = \frac{k_{mod} X_k}{\gamma_M}$$

dove:

X_k è il valore caratteristico della proprietà del materiale o della resistenza del collegamento;

γ_M è il coefficiente parziale di sicurezza relativo al materiale, i cui valori sono riportati nella Tab. 17;

k_{mod} è un coefficiente correttivo che tiene conto dell'effetto, sui parametri di resistenza, sia della durata del carico sia dell'umidità della struttura. I valori di k_{mod} sono forniti nella Tab. 18.

Va inoltre specificato che se una combinazione di carico comprende azioni appartenenti a differenti classi di durata del carico si dovrà scegliere un valore di k_{mod} che corrisponde all'azione di minor durata.

Stati limite ultimi	γ_M
- combinazioni fondamentali	
legno massiccio	1,50
legno lamellare incollato	1,45
pannelli di particelle o di fibre	1,50
compensato, pannelli di scaglie orientate	1,40
unioni	1,50
- combinazioni eccezionali	1,00

Tab.21 – Coefficienti parziali γ_M per le proprietà dei materiali (Legno)

Materiale	Riferimento		Classe di servizio	Classe di durata del carico				
				Permanente	Lunga	Media	Breve	Istantanea
Legno massiccio Legno lamellare incollato	EN 14081-1 EN 14080		1	0,60	0,70	0,80	0,90	1,00
			2	0,60	0,70	0,80	0,90	1,00
			3	0,50	0,55	0,65	0,70	0,90
Compensato	EN 636	Parti 1, 2, 3	1	0,60	0,70	0,80	0,90	1,00
		Parti 2, 3	2	0,60	0,70	0,80	0,90	1,00
		Parte 3	3	0,50	0,55	0,65	0,70	0,90
Pannello di scaglie orientate (OSB)	EN 300	OSB/2	1	0,30	0,45	0,65	0,85	1,00
		OSB/3 - OSB/4	1	0,40	0,50	0,70	0,90	1,00
			2	0,30	0,40	0,55	0,70	0,90
Pannello di particelle (truciolare)	EN 312	Parti 4, 5	1	0,30	0,45	0,65	0,85	1,00
		Parte 5	2	0,20	0,30	0,45	0,60	0,80
		Parti 6, 7	1	0,40	0,50	0,70	0,90	1,00
		Parte 7	2	0,30	0,40	0,55	0,70	0,90
Pannello di fibre, alta densità	EN 622-2	HB.LA, HB.HLA 1 o 2	1	0,30	0,45	0,65	0,85	1,00
		HB.HLA 1 o 2	2	0,20	0,30	0,45	0,60	0,80
Pannello di fibre, media densità (MDF)	EN 622-3	MBH.LA1 o 2	1	0,20	0,40	0,60	0,80	1,00
		MBH.HLS1 o 2	1	0,20	0,40	0,60	0,80	1,00
			2	-	-	-	0,45	0,80
	EN 622-5	MDF.LA, MDF.HLS	1	0,20	0,40	0,60	0,80	1,00
		MDF.HLS	2	-	-	-	0,45	0,80

Tab.22 – Valori di k_{mod} per legno e prodotti strutturali a base di legno

A conferma di quanto introdotto sopra si riportano le tabelle delle combinazioni di carico adottate con il relativo k_{mod} utilizzato:

N° Comb.ne	Azioni considerate							k _{mod}	Nome Combinazione
	1	2	3	4	5	6	7		
1	1.3	1.3	1.6					0,6	<u>SLU</u>
2	1.3	1.3		1.6	0.9	0.9	0.9		
3	1.3	1.3		0.75	1.5	1.5	1.5		
4	1.3	1.3							
	1	2	3	8	9	10	11		<u>SLV</u>
5	1	1	0.5	1	0.3			1	
6	1	1	0.5	1			0.3		
7	1	1	0.5	0.3	1				
8	1	1	0.5		1	0.3			
9	1	1	0.5		0.3	1			
10	1	1	0.5			1	0.3		
11	1	1	0.5	0.3			1		
12	1	1	0.5			0.3	1		
	1	2	3	4	5	6	7		<u>SLE - RARA</u>
21	1	1	1					0,8	
22	1	1		1	0.6	0.6	0.6		
23	1	1		0.5	1	1	1		
	1	2	3	4	5				<u>SLE - FREQUENTE</u>
24	1	1	0.2					0,8	
25	1	1		0.2					
26	1	1			0.2				
	1	2							<u>SLE - QUASI PERMANENTE</u>
27	1	1						0,8	
	1	2	3	16	17	18	19		<u>SLD</u>
28	1	1	0.5	1	0.3			1	
29	1	1	0.5	1			0.3		
30	1	1	0.5	0.3	1				
31	1	1	0.5		1	0.3			
32	1	1	0.5		0.3	1			
33	1	1	0.5			1	0.3		
34	1	1	0.5	0.3			1		
35	1	1	0.5			0.3	1		

Tab.23 – Valori di k_{mod} utilizzati nelle combinazioni di carico analizzate

Come si può vedere dalla Tab. 23, nonostante la norma, nelle combinazioni di carico in cui compaiono le azioni variabili, suggerisce l'utilizzo di un k_{mod} relativo all'azione di minor durata, nel caso in esame, a vantaggio di statica, è stato assunto un valore di 0,6 per la combinazioni allo SLU.

5. Modellazione strutturale

5. 1 Introduzione

Al fine di ottenere una risposta attendibile del reale comportamento di una struttura 3D sotto i carichi esterni si rende necessario l'utilizzo di un'analisi agli elementi finiti (FEM – Finite Element Method). Per fare ciò ci si è affidati al codice di calcolo ENEXSYS – Winstrand le cui caratteristiche sono riassunte nel prospetto che segue:

Nome Codice:	En.Ex.Sys Winstrand
Versione	2017 - 049
Produttore - Distributore	En.Ex.Sys. s.r.l. - Via Tizzano 46/2 - Casalecchio di Reno (Bologna)
Dati utente finale	Dott. Ing. Pasquale Ubaldi
Numero di serie	8808UBLDPS
Scadenza contratto IngForma	31/10/2018

Tab.24 – Dati codice di calcolo utilizzato

Grazie alla documentazione a corredo del codice è stato possibile **valutare l'affidabilità del software e soprattutto l'idoneità al caso specifico**. La documentazione, fornita dal produttore e distributore del software, contiene una esauriente descrizione delle basi teoriche e degli algoritmi impiegati, l'individuazione dei campi d'impiego, nonché casi prova interamente risolti e commentati, corredati dei file di input necessari a riprodurre l'elaborazione.

E' possibile reperire la documentazione contenente alcuni dei più significativi casi trattati al seguente link: <http://www.enexsys.com/site/Informa/InForma.php>

5. 2 Definizione del modello

5.2.1 Tipologia degli elementi di modellazione

Il modello strutturale in questione non è concepito come una struttura principale di arco a 3 cerniere ripetuto ad interasse regolare, connesso nella direzione trasversale da arcarecci ed

ulteriormente irrigidito da controventi di falda. A coprire il tutto verrà poi posizionato un telo di poliestere in fibra sintetica.

Da ciò si può capire che il modello da analizzare sarà composto dalle seguenti tipologie di elementi:

- ELEMENTO TRAVE: consiste in elementi ad una dimensione, schematizzabili con un asse di carico e aventi la caratteristica di reagire a qualsivoglia azione esterna applicata ad essi;
- ELEMENTO BIELLA: elemento monodimensionale, a cui possono essere applicati carichi solo nella direzione dell'asse;
- ELEMENTO MEMBRANA: rappresenta un elemento bidimensionale in cui due delle tre dimensioni sono paragonabili e la terza risulta trascurabile. Il principale comportamento di tale elemento permette di reagire principalmente ai carichi applicati ortogonalmente al suo piano.

Tuttavia nel modello in oggetto sono stati utilizzati i soli elementi trave poiché essi non rappresentano bene il solo comportamento dell'arcata principale, degli arcarecci e della trave di fondazione, bensì sono utili anche a modellare il sistema di controventamento. Chiaramente al fine di far lavorare i controventi al solo sforzo assiale, tali aste saranno incernierate all'estremità in modo da far sì che si comportino da aste pendolari. Inoltre, in fase di verifica, non sarà considerato il comportamento a compressione dei controventi, in quanto data la snellezza delle aste in gioco risulterà evidente che esse saranno soggette a fenomeni di instabilità.

Per ultimo, anche gli elementi membrana saranno tralasciati in questa trattazione. Infatti, sebbene schematizzabili con il codice utilizzato, si è scelto di ripartire i carichi del telo direttamente sulle travi principali, trattando l'elemento membrana tramite valutazioni di carattere approssimato approfondite nel seguito.

Nell'immagine seguente viene riportata una visione d'insieme della struttura analizzata e dei suoi elementi principali schematizzati tramite il loro asse:

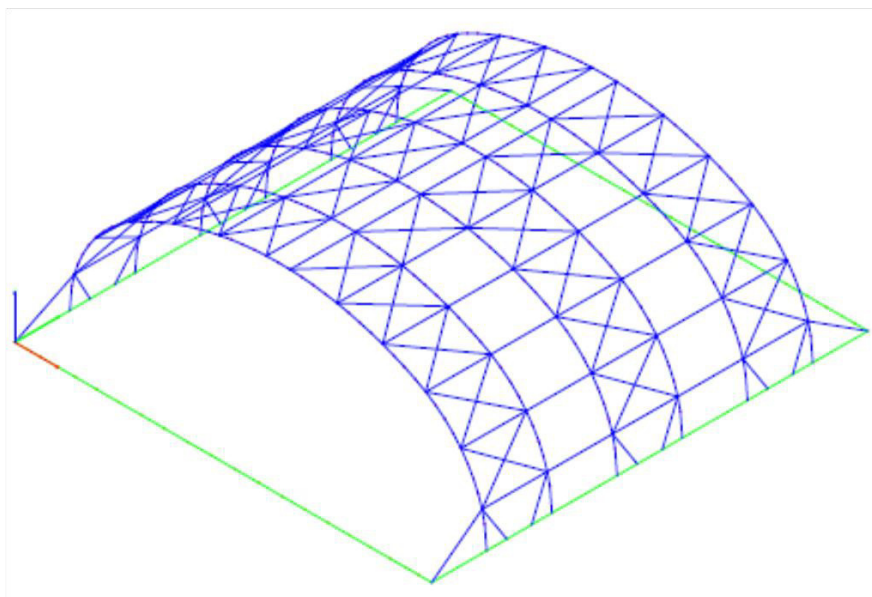


Fig.16 – Telaio 3D della struttura analizzata (elementi schematizzati tramite il loro asse)

5.2.2 Modellazione della trave ad arco (Arco a 3 cerniere)

Nel modello numerico, la trave in arco lamellare non è stata inserita come elemento curvo, ma come una serie di elementi rettilinei di lunghezza ridotta, posizionati in modo tale da ricostruire la forma dell'arco principale. Questa approssimazione risulta tanto più vicina alla realtà quanto più i tratti in cui l'arco è discretizzato sono piccoli. A tal fine è stata scelta una lunghezza di discretizzazione pari ad un metro sul piano orizzontale. Ne risulterà che ogni elemento avrà una lunghezza diversa in funzione del tratto di arco che si sta considerando.

Nella figura sottostante viene rappresentata la divisione suddetta.

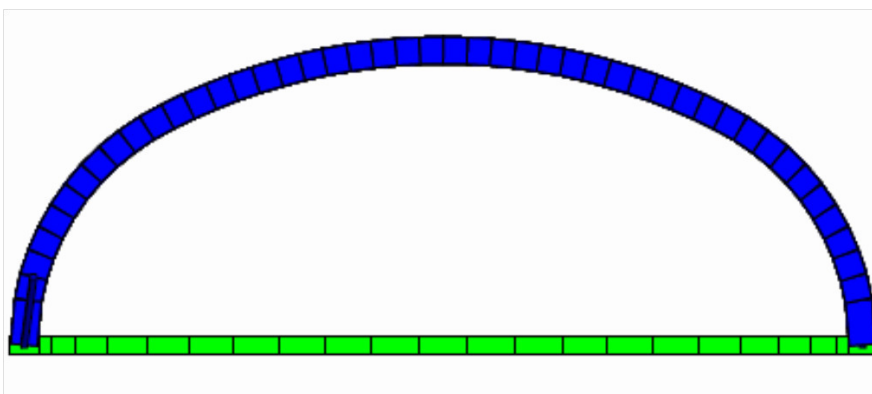


Fig.17 – Arco principale modellato come serie di elementi rettilinei a dimensione ridotta

Questo tipo di schematizzazione non è fine a se stessa, anzi, risulta molto utile per l'assegnazione dei carichi. Infatti, dividendo la trave in tratti, è più semplice assegnare alcuni dei carichi con forma più complessa come l'azione da vento che cambia in funzione dell'angolo d'inclinazione della copertura, come evidenziato nel capitolo precedente.

In merito all'assegnazione dei carichi si riportano gli schemi precedentemente calcolati nel capitolo 4 e implementati sulla trave principale del modello:

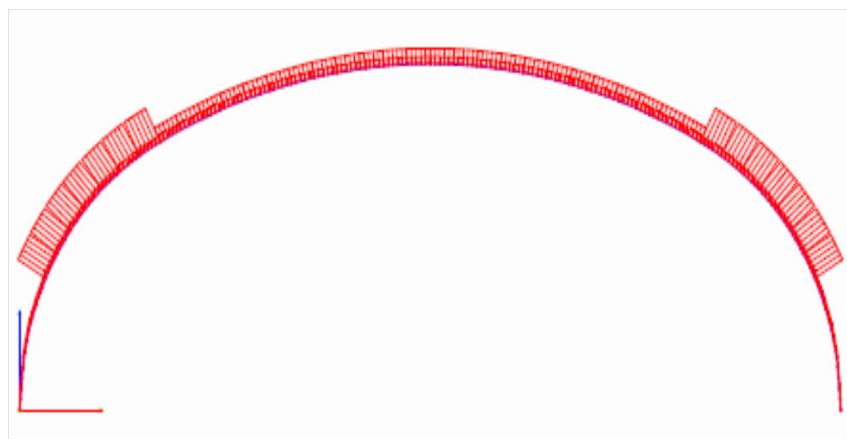


Fig.18 – Azione Permanente – Pretensione del Telo

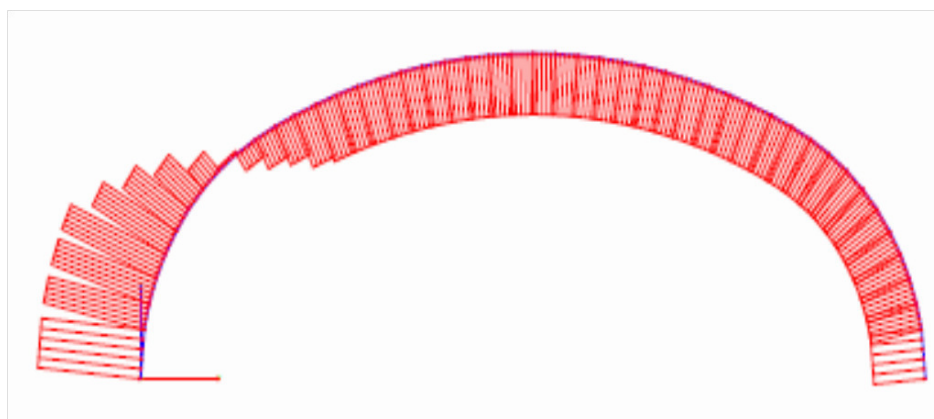


Fig.19 – Azione Variabile – Vento in direzione trasversale

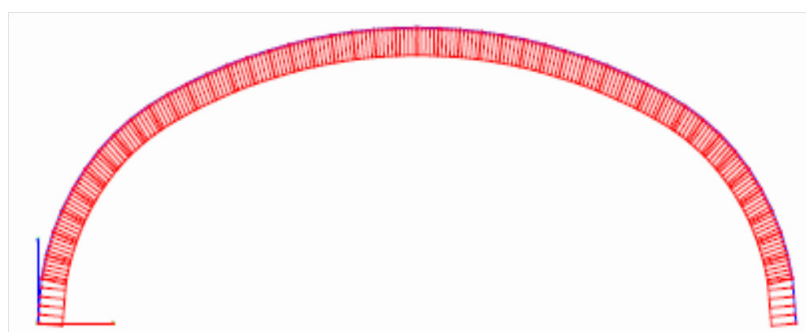


Fig.20 – Azione Variabile – Vento in depressione

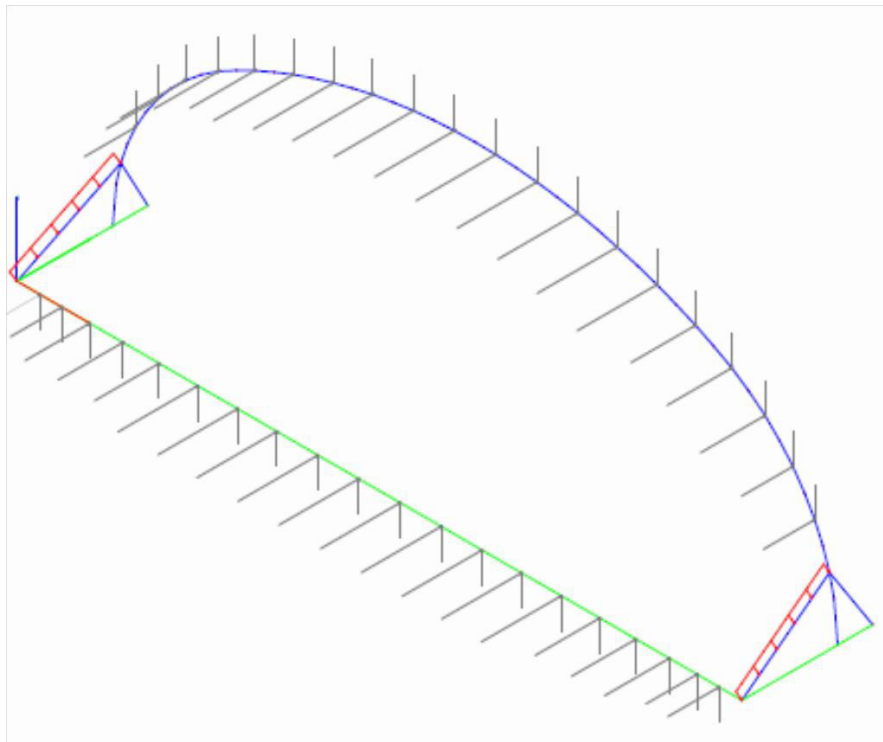


Fig.21 – Azione Variabile – Vento in direzione longitudinale (Sezione di Testa)

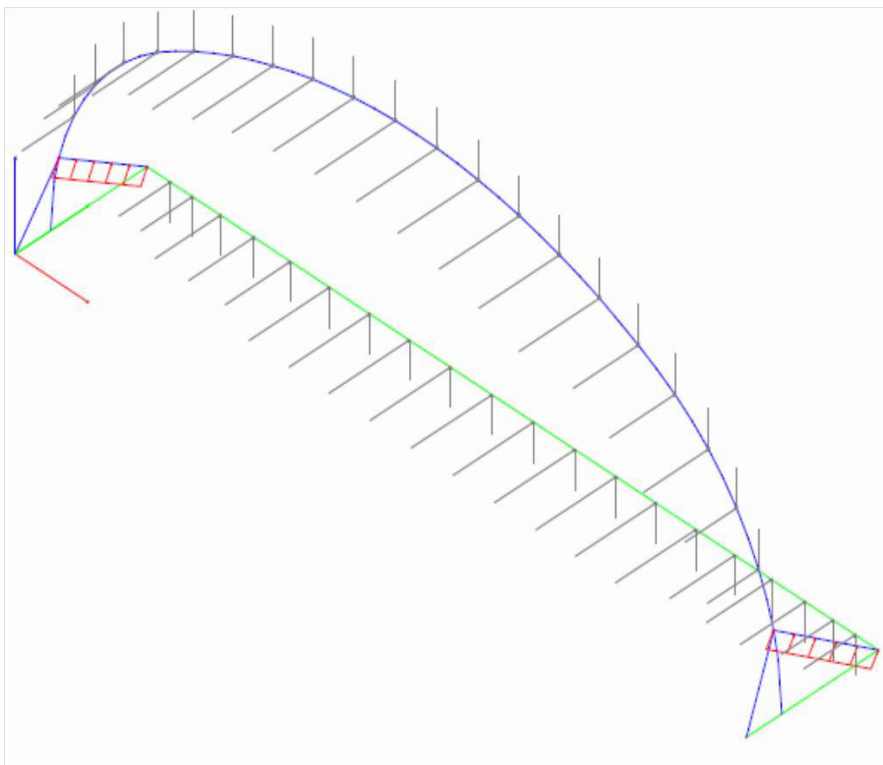


Fig.22 – Azione Variabile – Vento in direzione longitudinale (Sezione di Coda)

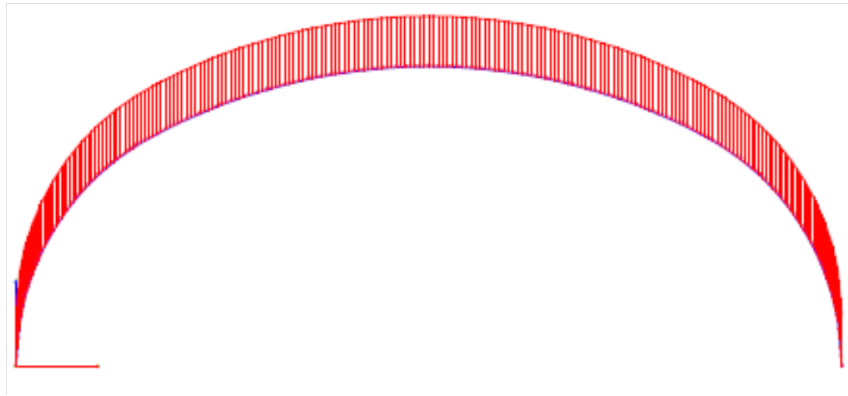


Fig.23– Azione Variabile – Neve costante (assenza di vento)

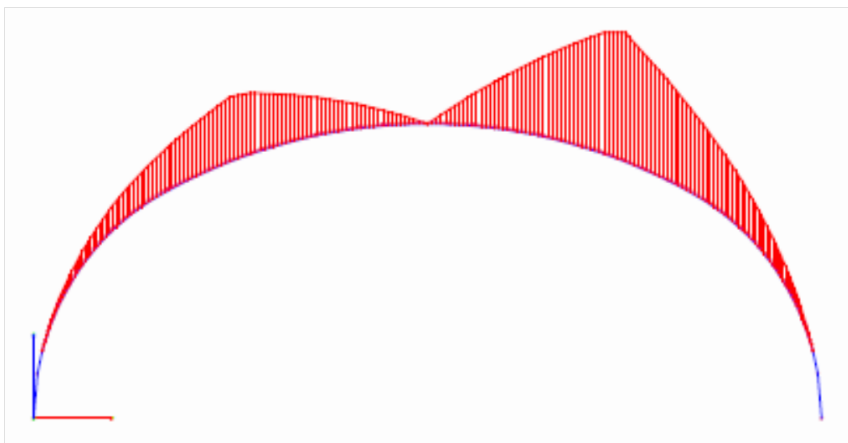


Fig.24 – Azione Variabile – Neve variabile (presenza di vento)

Nelle Fig.21 e 22 vengono riportate le forze del vento ad interasse 1 m applicate sulla sezione di testa e su quella di coda della copertura. Nella realtà queste forze sono le reazioni vincolari dei teli che coprono le facce rappresentate. Per la valutazione di dette forze è stata considerata la pressione del vento ripartita su aree d'influenza variabili ottenute dalla suddivisione in strisce di larghezza pari a 1 m.

Per dare un supporto numerico ai disegni vengono inserite le tabelle con le sezioni adottate e le i carichi automaticamente generate dal modello una volta assegnati le azioni ai singoli elementi.

N° Sezione	Codice Materiale	Materiale	Sezione	Dimensioni	Descrizione
1	3	Legno lamellare	Rett.	B= 20 H= 112 [cm]	Arco a 3 cerniere
2	3	Legno lamellare	Rett.	B= 22 H= 28 [cm]	Arcareccio
3	3	Legno lamellare	Rett.	B= 30 H= 20 [cm]	Trave di Banchina

4	2	Acciao	Circolare	R= 1 [cm]	Controventi
5	3	Legno lamellare	Rett.	B= 24 H= 28 [cm]	Diagonale di base
6	2	Poliestere	Rett.	B= 5 H= 0 [cm]	Telo
7	4	Cl	Rett.	B= 120 H= 80 [cm]	Trave rovescia
8	4	Cl	Rett.	B= 50 H= 80 [cm]	Trave rovescia

Tab.25 – Sezioni del modello strutturale

Dal Nodo	Al Nodo	Nodo k	Luce	Materiale	Sezione
			[m]		
128	116	10070	1.00	3	1
116	104	10070	0.99	3	1
179	225	10033	6.80	2	4
260	248	10070	1.03	3	1
248	236	10070	0.99	3	1
236	224	10070	1.00	3	1
76	38	10067	1.87	3	1
98	86	10064	1.00	3	1
330	280	10085	6.80	2	4
328	282	10031	6.80	2	4
326	276	10030	6.80	2	4
276	226	10056	6.79	2	4
226	180	10056	6.80	2	4
178	228	10055	6.80	2	4
104	92	10070	1.00	3	1
92	80	10070	1.00	3	1
80	46	10071	1.87	3	1
96	84	10062	1.00	3	1
84	72	10062	1.00	3	1
315	327	10066	0.99	3	1
169	181	10064	1.00	3	1
265	277	10064	0.99	3	1
277	289	10064	1.00	3	1
289	301	10064	1.00	3	1
301	313	10064	1.00	3	1
313	325	10064	0.99	3	1
325	335	10064	1.00	3	1
278	266	10064	0.99	3	1
330	318	10068	0.99	3	1
318	306	10068	1.00	3	1
306	294	10068	1.00	3	1
102	90	10068	1.00	3	1
90	78	10068	1.00	3	1
175	187	10070	1.00	3	1
187	199	10070	1.00	3	1

235	281	10037	6.79	2	4
281	331	10038	6.80	2	4
283	329	10039	6.80	2	4
330	284	10041	6.80	2	4
332	282	10040	6.80	2	4
282	236	10040	6.79	2	4
284	234	10041	6.79	2	4
234	188	10042	6.80	2	4
236	186	10043	6.80	2	4
186	140	10043	6.78	2	4
188	138	10044	6.78	2	4
138	92	10044	6.79	2	4
140	90	10045	6.79	2	4
273	323	10058	6.80	2	4
275	321	10048	6.80	2	4
322	276	10072	6.80	2	4
324	274	10049	6.80	2	4
274	228	10057	6.79	2	4
187	233	10034	6.80	2	4
225	275	10048	6.79	2	4
227	273	10035	6.79	2	4
233	283	10036	6.79	2	4
208	196	10066	0.98	3	1
196	184	10066	1.00	3	1
184	172	10066	1.00	3	1
172	160	10066	1.00	3	1
135	85	10017	6.79	2	4
181	193	10064	1.00	3	1
193	205	10064	0.98	3	1
205	217	10064	1.02	3	1
217	229	10064	1.00	3	1
229	241	10064	0.99	3	1
241	253	10064	1.03	3	1
253	265	10064	0.97	3	1
336	328	10067	1.00	3	1
110	98	10064	0.99	3	1
335	326	10065	1.00	3	1
328	316	10066	0.99	3	1
316	304	10066	1.00	3	1
304	292	10066	1.00	3	1
292	280	10066	1.00	3	1
147	159	10066	1.00	3	1
159	171	10066	1.00	3	1
171	183	10066	1.00	3	1
183	195	10066	1.00	3	1

195	207	10066	0.98	3	1
207	219	10066	1.02	3	1
219	231	10066	1.00	3	1
231	243	10066	0.99	3	1
338	332	10071	1.00	3	1
215	227	10062	1.00	3	1
227	239	10062	0.99	3	1
239	251	10062	1.03	3	1
251	263	10062	0.97	3	1
263	275	10062	0.99	3	1
275	287	10062	1.00	3	1
287	299	10062	1.00	3	1
299	311	10062	1.00	3	1
311	323	10062	0.99	3	1
323	334	10062	1.00	3	1
276	264	10062	0.99	3	1
264	252	10062	0.97	3	1
252	240	10062	1.03	3	1
240	228	10062	0.99	3	1
228	216	10062	1.00	3	1
216	204	10062	1.02	3	1
204	192	10062	0.98	3	1
192	180	10062	1.00	3	1
180	168	10062	1.00	3	1
168	156	10062	1.00	3	1
156	144	10062	1.00	3	1
144	132	10062	0.99	3	1
132	120	10062	1.01	3	1
120	108	10062	1.00	3	1
108	96	10062	0.99	3	1
334	324	10063	1.00	3	1
139	185	10032	6.78	2	4
187	137	10034	6.78	2	4
179	129	10033	6.78	2	4
131	177	10052	6.78	2	4
230	184	10026	6.80	2	4
184	134	10025	6.78	2	4
324	278	10049	6.80	2	4
277	323	10020	6.80	2	4
275	325	10048	6.80	2	4
72	30	10063	1.87	3	1
78	40	10069	1.87	3	1
83	27	10073	3.33	2	4
81	25	10074	3.33	2	4
85	33	10078	3.33	2	4

87	35	10079	3.33	2	4
89	41	10076	3.33	2	4
91	43	10050	3.33	2	4
92	44	10046	3.33	2	4
42	90	10045	3.33	2	4
88	36	10080	3.33	2	4
34	86	10081	3.33	2	4
84	28	10047	3.33	2	4
26	82	10053	3.33	2	4
223	235	10070	1.00	3	1
235	247	10070	0.99	3	1
247	259	10070	1.03	3	1
259	271	10070	0.97	3	1
271	283	10070	0.99	3	1
283	295	10070	1.00	3	1
295	307	10070	1.00	3	1
307	319	10070	1.00	3	1
176	164	10070	1.00	3	1
164	152	10070	1.00	3	1
152	140	10070	0.99	3	1
140	128	10070	1.01	3	1
227	177	10035	6.80	2	4
185	235	10037	6.80	2	4
114	102	10068	0.99	3	1
337	330	10069	1.00	3	1
324	312	10062	0.99	3	1
312	300	10062	1.00	3	1
300	288	10062	1.00	3	1
288	276	10062	1.00	3	1
143	155	10062	1.00	3	1
155	167	10062	1.00	3	1
167	179	10062	1.00	3	1
179	191	10062	1.00	3	1
191	203	10062	0.98	3	1
203	215	10062	1.02	3	1
151	163	10070	1.00	3	1
163	175	10070	1.00	3	1
133	87	10077	6.79	2	4
97	109	10064	0.99	3	1
109	121	10064	1.00	3	1
121	133	10064	1.01	3	1
133	145	10064	0.99	3	1
99	111	10066	0.99	3	1
91	47	10086	5.45	3	5
22	82	10084	5.45	3	5

92	68	10087	5.45	3	5
279	329	10021	6.80	2	4
281	327	10038	6.80	2	4
230	218	10064	1.00	3	1
218	206	10064	1.02	3	1
206	194	10064	0.98	3	1
194	182	10064	1.00	3	1
182	170	10064	1.00	3	1
170	158	10064	1.00	3	1
158	146	10064	1.00	3	1
146	134	10064	0.99	3	1
134	122	10064	1.01	3	1
122	110	10064	1.00	3	1
244	232	10066	0.99	3	1
232	220	10066	1.00	3	1
220	208	10066	1.02	3	1
327	336	10066	1.00	3	1
280	268	10066	0.99	3	1
268	256	10066	0.97	3	1
328	278	10031	6.80	2	4
326	280	10030	6.80	2	4
280	230	10029	6.79	2	4
278	232	10028	6.79	2	4
232	182	10027	6.80	2	4
332	320	10070	0.99	3	1
320	308	10070	1.00	3	1
125	137	10068	1.01	3	1
137	149	10068	0.99	3	1
95	107	10062	0.99	3	1
107	119	10062	1.00	3	1
119	131	10062	1.01	3	1
131	143	10062	0.99	3	1
199	211	10070	0.98	3	1
211	223	10070	1.02	3	1
178	132	10055	6.78	2	4
130	180	10054	6.78	2	4
132	82	10053	6.79	2	4
130	84	10054	6.79	2	4
86	74	10064	1.00	3	1
74	32	10065	1.87	3	1
39	77	10068	1.87	3	1
77	89	10068	1.00	3	1
89	101	10068	1.00	3	1
45	79	10070	1.87	3	1
29	71	10062	1.87	3	1

71	83	10062	1.00	3	1
83	95	10062	1.00	3	1
79	91	10070	1.00	3	1
91	103	10070	1.00	3	1
224	212	10070	1.02	3	1
212	200	10070	0.98	3	1
200	188	10070	1.00	3	1
188	176	10070	1.00	3	1
87	99	10066	1.00	3	1
100	88	10066	1.00	3	1
88	76	10066	1.00	3	1
213	225	10060	1.00	3	1
201	213	10060	1.02	3	1
189	201	10060	0.98	3	1
322	310	10060	0.99	3	1
262	250	10060	0.97	3	1
274	262	10060	0.99	3	1
321	333	10060	1.00	3	1
309	321	10060	0.99	3	1
177	189	10060	1.00	3	1
165	177	10060	1.00	3	1
153	165	10060	1.00	3	1
141	153	10060	1.00	3	1
286	274	10060	1.00	3	1
298	286	10060	1.00	3	1
310	298	10060	1.00	3	1
106	94	10060	0.99	3	1
118	106	10060	1.00	3	1
130	118	10060	1.01	3	1
142	130	10060	0.99	3	1
154	142	10060	1.00	3	1
166	154	10060	1.00	3	1
178	166	10060	1.00	3	1
190	178	10060	1.00	3	1
202	190	10060	0.98	3	1
214	202	10060	1.02	3	1
226	214	10060	1.00	3	1
333	322	10060	1.00	3	1
238	226	10060	0.99	3	1
250	238	10060	1.03	3	1
297	309	10060	1.00	3	1
81	93	10060	1.00	3	1
69	81	10060	1.00	3	1
70	24	10061	1.87	3	1
82	70	10060	1.00	3	1

94	82	10060	1.00	3	1
23	69	10060	1.87	3	1
93	105	10060	0.99	3	1
285	297	10060	1.00	3	1
273	285	10060	1.00	3	1
261	273	10060	0.99	3	1
249	261	10060	0.97	3	1
237	249	10060	1.03	3	1
225	237	10060	0.99	3	1
129	141	10060	0.99	3	1
117	129	10060	1.01	3	1
105	117	10060	1.00	3	1
182	136	10024	6.78	2	4
136	86	10023	6.79	2	4
134	88	10022	6.79	2	4
279	325	10021	6.80	2	4
277	327	10020	6.80	2	4
231	277	10019	6.79	2	4
279	229	10021	6.79	2	4
231	181	10019	6.80	2	4
183	229	10018	6.80	2	4
183	133	10018	6.78	2	4
135	181	10017	6.78	2	4
101	113	10068	0.99	3	1
113	125	10068	1.00	3	1
160	148	10066	1.00	3	1
148	136	10066	0.99	3	1
136	124	10066	1.01	3	1
124	112	10066	1.00	3	1
112	100	10066	0.99	3	1
243	255	10066	1.03	3	1
255	267	10066	0.97	3	1
267	279	10066	0.99	3	1
279	291	10066	1.00	3	1
291	303	10066	1.00	3	1
303	315	10066	1.00	3	1
111	123	10066	1.00	3	1
123	135	10066	1.01	3	1
135	147	10066	0.99	3	1
326	314	10064	0.99	3	1
314	302	10064	1.00	3	1
302	290	10064	1.00	3	1
290	278	10064	1.00	3	1
145	157	10064	1.00	3	1
157	169	10064	1.00	3	1

256	244	10066	1.03	3	1
266	254	10064	0.97	3	1
254	242	10064	1.03	3	1
242	230	10064	0.99	3	1
319	331	10070	0.99	3	1
331	338	10070	1.00	3	1
284	272	10070	0.99	3	1
272	260	10070	0.97	3	1
308	296	10070	1.00	3	1
296	284	10070	1.00	3	1
103	115	10070	0.99	3	1
115	127	10070	1.00	3	1
127	139	10070	1.01	3	1
139	151	10070	0.99	3	1
129	83	10051	6.79	2	4
81	131	10074	6.79	2	4
137	91	10075	6.79	2	4
89	139	10032	6.79	2	4
31	73	10064	1.87	3	1
73	85	10064	1.00	3	1
85	97	10064	1.00	3	1
37	75	10066	1.87	3	1
75	87	10066	1.00	3	1
294	282	10068	1.00	3	1
149	161	10068	1.00	3	1
161	173	10068	1.00	3	1
173	185	10068	1.00	3	1
185	197	10068	1.00	3	1
197	209	10068	0.98	3	1
209	221	10068	1.02	3	1
221	233	10068	1.00	3	1
233	245	10068	0.99	3	1
245	257	10068	1.03	3	1
257	269	10068	0.97	3	1
269	281	10068	0.99	3	1
281	293	10068	1.00	3	1
293	305	10068	1.00	3	1
305	317	10068	1.00	3	1
317	329	10068	0.99	3	1
329	337	10068	1.00	3	1
282	270	10068	0.99	3	1
270	258	10068	0.97	3	1
258	246	10068	1.03	3	1
246	234	10068	0.99	3	1
234	222	10068	1.00	3	1

222	210	10068	1.02	3	1
210	198	10068	0.98	3	1
198	186	10068	1.00	3	1
186	174	10068	1.00	3	1
174	162	10068	1.00	3	1
162	150	10068	1.00	3	1
150	138	10068	0.99	3	1
138	126	10068	1.01	3	1
126	114	10068	1.00	3	1
1	81	10016	5.45	3	5
83	81	10016	5.50	3	3
85	83	10016	5.50	3	3
87	85	10016	5.50	3	3
89	87	10016	5.50	3	3
91	89	10016	5.50	3	3
82	84	10015	5.50	3	3
84	86	10015	5.50	3	3
86	88	10015	5.50	3	3
88	90	10015	5.50	3	3
90	92	10015	5.50	3	3
129	131	10082	5.50	3	2
131	133	10082	5.50	3	2
133	135	10082	5.50	3	2
135	137	10082	5.50	3	2
137	139	10082	5.50	3	2
130	132	10083	5.50	3	2
132	134	10083	5.50	3	2
134	136	10083	5.50	3	2
136	138	10083	5.50	3	2
138	140	10083	5.50	3	2
177	179	10014	5.50	3	2
179	181	10014	5.50	3	2
181	183	10014	5.50	3	2
183	185	10014	5.50	3	2
185	187	10014	5.50	3	2
178	180	10013	5.50	3	2
180	182	10013	5.50	3	2
182	184	10013	5.50	3	2
184	186	10013	5.50	3	2
186	188	10013	5.50	3	2
225	227	10019	5.50	3	2
227	229	10019	5.50	3	2
229	231	10019	5.50	3	2
231	233	10019	5.50	3	2
233	235	10019	5.50	3	2

226	228	10026	5.50	3	2
228	230	10026	5.50	3	2
230	232	10026	5.50	3	2
232	234	10026	5.50	3	2
234	236	10026	5.50	3	2
273	275	10020	5.50	3	2
275	277	10020	5.50	3	2
277	279	10020	5.50	3	2
279	281	10020	5.50	3	2
281	283	10020	5.50	3	2
274	276	10028	5.50	3	2
276	278	10028	5.50	3	2
278	280	10028	5.50	3	2
280	282	10028	5.50	3	2
282	284	10028	5.50	3	2
321	323	10059	5.50	3	2
323	325	10059	5.50	3	2
325	327	10059	5.50	3	2
327	329	10059	5.50	3	2
329	331	10059	5.50	3	2
322	324	10030	5.50	3	2
324	326	10030	5.50	3	2
326	328	10030	5.50	3	2
328	330	10030	5.50	3	2
330	332	10030	5.50	3	2

Tab.26 – Assegnazione dei materiali e delle sezioni ai singoli elementi del modello

Nodo	Cond.	Px	Py	Pz	Mx	My	Mz
		[kg]	[kg]	[kg]	[kgm]	[kgm]	[kgm]
2	7	0.0	495.0	292.0	0.0	0.0	0.0
3	7	0.0	495.0	292.0	0.0	0.0	0.0
4	7	0.0	626.0	291.0	0.0	0.0	0.0
5	7	0.0	626.0	291.0	0.0	0.0	0.0
6	7	0.0	626.0	291.0	0.0	0.0	0.0
7	7	0.0	773.0	292.0	0.0	0.0	0.0
8	7	0.0	773.0	292.0	0.0	0.0	0.0
9	7	0.0	773.0	292.0	0.0	0.0	0.0
10	7	0.0	773.0	292.0	0.0	0.0	0.0
11	7	0.0	773.0	292.0	0.0	0.0	0.0
12	7	0.0	773.0	292.0	0.0	0.0	0.0
13	7	0.0	773.0	292.0	0.0	0.0	0.0
14	7	0.0	773.0	292.0	0.0	0.0	0.0
15	7	0.0	773.0	292.0	0.0	0.0	0.0
16	7	0.0	773.0	292.0	0.0	0.0	0.0
17	7	0.0	626.0	291.0	0.0	0.0	0.0

18	7	0.0	626.0	291.0	0.0	0.0	0.0
19	7	0.0	626.0	291.0	0.0	0.0	0.0
20	7	0.0	495.0	292.0	0.0	0.0	0.0
21	7	0.0	495.0	292.0	0.0	0.0	0.0
48	7	0.0	495.0	292.0	0.0	0.0	0.0
49	7	0.0	495.0	292.0	0.0	0.0	0.0
50	7	0.0	626.0	291.0	0.0	0.0	0.0
51	7	0.0	626.0	291.0	0.0	0.0	0.0
52	7	0.0	626.0	291.0	0.0	0.0	0.0
53	7	0.0	773.0	292.0	0.0	0.0	0.0
54	7	0.0	773.0	292.0	0.0	0.0	0.0
55	7	0.0	773.0	292.0	0.0	0.0	0.0
56	7	0.0	773.0	292.0	0.0	0.0	0.0
57	7	0.0	773.0	292.0	0.0	0.0	0.0
58	7	0.0	773.0	292.0	0.0	0.0	0.0
59	7	0.0	773.0	292.0	0.0	0.0	0.0
60	7	0.0	773.0	292.0	0.0	0.0	0.0
61	7	0.0	773.0	292.0	0.0	0.0	0.0
62	7	0.0	773.0	292.0	0.0	0.0	0.0
63	7	0.0	626.0	291.0	0.0	0.0	0.0
64	7	0.0	626.0	291.0	0.0	0.0	0.0
65	7	0.0	626.0	291.0	0.0	0.0	0.0
66	7	0.0	495.0	292.0	0.0	0.0	0.0
67	7	0.0	495.0	292.0	0.0	0.0	0.0
105	7	0.0	495.0	-292.0	0.0	0.0	0.0
106	7	0.0	495.0	-292.0	0.0	0.0	0.0
115	7	0.0	495.0	-292.0	0.0	0.0	0.0
116	7	0.0	495.0	-292.0	0.0	0.0	0.0
129	7	0.0	495.0	-292.0	0.0	0.0	0.0
130	7	0.0	495.0	-292.0	0.0	0.0	0.0
139	7	0.0	495.0	-292.0	0.0	0.0	0.0
140	7	0.0	495.0	-292.0	0.0	0.0	0.0
153	7	0.0	626.0	-291.0	0.0	0.0	0.0
154	7	0.0	626.0	-291.0	0.0	0.0	0.0
163	7	0.0	626.0	-291.0	0.0	0.0	0.0
164	7	0.0	626.0	-291.0	0.0	0.0	0.0
177	7	0.0	626.0	-291.0	0.0	0.0	0.0
178	7	0.0	626.0	-291.0	0.0	0.0	0.0
187	7	0.0	626.0	-291.0	0.0	0.0	0.0
188	7	0.0	626.0	-291.0	0.0	0.0	0.0
201	7	0.0	626.0	-291.0	0.0	0.0	0.0
202	7	0.0	626.0	-291.0	0.0	0.0	0.0
211	7	0.0	626.0	-291.0	0.0	0.0	0.0
212	7	0.0	626.0	-291.0	0.0	0.0	0.0
225	7	0.0	773.0	-292.0	0.0	0.0	0.0

226	7	0.0	773.0	-292.0	0.0	0.0	0.0
235	7	0.0	773.0	-292.0	0.0	0.0	0.0
236	7	0.0	773.0	-292.0	0.0	0.0	0.0
249	7	0.0	773.0	-292.0	0.0	0.0	0.0
250	7	0.0	773.0	-292.0	0.0	0.0	0.0
259	7	0.0	773.0	-292.0	0.0	0.0	0.0
260	7	0.0	773.0	-292.0	0.0	0.0	0.0
273	7	0.0	773.0	-292.0	0.0	0.0	0.0
274	7	0.0	773.0	-292.0	0.0	0.0	0.0
283	7	0.0	773.0	-292.0	0.0	0.0	0.0
284	7	0.0	773.0	-292.0	0.0	0.0	0.0
297	7	0.0	773.0	-292.0	0.0	0.0	0.0
298	7	0.0	773.0	-292.0	0.0	0.0	0.0
307	7	0.0	773.0	-292.0	0.0	0.0	0.0
308	7	0.0	773.0	-292.0	0.0	0.0	0.0
321	7	0.0	773.0	-292.0	0.0	0.0	0.0
322	7	0.0	773.0	-292.0	0.0	0.0	0.0
331	7	0.0	773.0	-292.0	0.0	0.0	0.0
332	7	0.0	773.0	-292.0	0.0	0.0	0.0

Tab.27 – Carichi puntuali applicati ai nodi

Nodo I	Nodo J	L	Condizione	xi	qxi	qyi	qzi	xj	qxj	qyj	qzj
		[m]	di carico	[m]	[kg/m]	[kg/m]	[kg/m]	[m]	[kg/m]	[kg/m]	[kg/m]
128	116	1.00	3	0.00	-191.7	108.0	0.0	1.00	-191.7	108.0	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-67.1	37.8	0.0	1.00	-41.0	23.1	0.0
			2	0.00	-4.4	2.5	0.0	1.00	-4.4	2.5	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
1	2	1.11	1	0.00	0.0	1000.0	0.0	1.11	0.0	1000.0	0.0
116	104	0.99	3	0.00	-201.4	88.5	0.0	0.99	-201.4	88.5	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-43.0	18.9	0.0	0.99	-18.3	8.0	0.0
			2	0.00	-4.6	2.0	0.0	0.99	-4.6	2.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
2	3	1.06	1	0.00	0.0	1000.0	0.0	1.06	0.0	1000.0	0.0
179	225	6.80	1	0.00	0.4	1.5	-0.0	6.80	0.4	1.5	-0.0
3	4	1.35	1	0.00	0.0	1000.0	0.0	1.35	0.0	1000.0	0.0
260	248	1.03	3	0.00	-61.8	211.1	0.0	1.03	-61.8	211.1	0.0
			2	0.00	0.0	11.0	0.0	1.03	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.03	0.0	-58.0	0.0
			4	0.00	-124.5	425.1	0.0	1.03	-142.2	485.6	0.0

			2	0.00	-1.4	4.8	0.0	1.03	-1.4	4.8	0.0
			6	0.00	0.0	-116.0	0.0	1.03	0.0	-116.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
4	5	1.61	1	0.00	0.0	1000.0	0.0	1.61	0.0	1000.0	0.0
248	236	0.99	3	0.00	-70.9	208.3	0.0	0.99	-70.9	208.3	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-163.1	479.0	0.0	0.99	-173.1	508.4	0.0
			2	0.00	-1.6	4.7	0.0	0.99	-1.6	4.7	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
5	6	1.76	1	0.00	0.0	1000.0	0.0	1.76	0.0	1000.0	0.0
236	224	1.00	3	0.00	-81.3	204.4	0.0	1.00	-81.3	204.4	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-198.5	499.0	0.0	1.00	-176.0	442.3	0.0
			2	0.00	-1.8	4.6	0.0	1.00	-1.8	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
6	7	1.87	1	0.00	0.0	1000.0	0.0	1.87	0.0	1000.0	0.0
76	38	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	-10.0	0.9	0.0	1.87	-10.0	0.9	0.0
			6	0.00	0.0	-231.0	0.0	1.87	0.0	-231.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
7	8	1.93	1	0.00	0.0	1000.0	0.0	1.93	0.0	1000.0	0.0
98	86	1.00	4	0.00	-37.0	12.4	0.0	1.00	0.0	0.0	0.0
			3	0.00	-417.0	140.5	0.0	1.00	-417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.5	3.2	0.0	1.00	-9.5	3.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
8	9	1.91	1	0.00	0.0	1000.0	0.0	1.91	0.0	1000.0	0.0
330	280	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
9	10	1.98	1	0.00	0.0	1000.0	0.0	1.98	0.0	1000.0	0.0
328	282	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
10	11	1.99	1	0.00	0.0	1000.0	0.0	1.99	0.0	1000.0	0.0
326	276	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
11	12	2.00	1	0.00	0.0	1000.0	0.0	2.00	0.0	1000.0	0.0
276	226	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
12	13	1.99	1	0.00	0.0	1000.0	0.0	1.99	0.0	1000.0	0.0
226	180	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
13	14	1.98	1	0.00	0.0	1000.0	0.0	1.98	0.0	1000.0	0.0
178	228	6.80	1	0.00	0.4	1.5	-0.0	6.80	0.4	1.5	-0.0
14	15	1.91	1	0.00	0.0	1000.0	0.0	1.91	0.0	1000.0	0.0
104	92	1.00	3	0.00	-208.5	70.2	0.0	1.00	-208.5	70.2	0.0

			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-19.0	6.4	0.0	1.00	0.0	0.0	0.0
			2	0.00	-4.7	1.6	0.0	1.00	-4.7	1.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
15	16	1.93	1	0.00	0.0	1000.0	0.0	1.93	0.0	1000.0	0.0
92	80	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-4.9	1.1	0.0	1.00	-4.9	1.1	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0
16	17	1.87	1	0.00	0.0	1000.0	0.0	1.87	0.0	1000.0	0.0
80	46	1.87	5	0.00	0.0	-58.0	0.0	1.87	0.0	-58.0	0.0
			2	0.00	-5.0	0.5	0.0	1.87	-5.0	0.5	0.0
			6	0.00	0.0	-116.0	0.0	1.87	0.0	-116.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
17	18	1.76	1	0.00	0.0	1000.0	0.0	1.76	0.0	1000.0	0.0
96	84	1.00	4	0.00	-37.0	12.4	0.0	1.00	0.0	0.0	0.0
			3	0.00	-417.0	140.5	0.0	1.00	-417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.5	3.2	0.0	1.00	-9.5	3.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
18	19	1.61	1	0.00	0.0	1000.0	0.0	1.61	0.0	1000.0	0.0
84	72	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.8	2.2	0.0	1.00	-9.8	2.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0
19	20	1.35	1	0.00	0.0	1000.0	0.0	1.35	0.0	1000.0	0.0
315	327	0.99	3	0.00	26.6	439.2	0.0	0.99	26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	7.7	126.8	0.0	0.99	4.0	65.9	0.0
			2	0.00	0.6	10.0	0.0	0.99	0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
20	21	1.06	1	0.00	0.0	1000.0	0.0	1.06	0.0	1000.0	0.0
169	181	1.00	4	0.00	141.5	209.7	0.0	1.00	169.5	251.2	0.0
			3	0.00	246.1	364.7	0.0	1.00	246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	5.6	8.3	0.0	1.00	5.6	8.3	0.0
			6	0.00	0.0	-75.0	0.0	1.00	0.0	-75.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
21	22	1.11	1	0.00	0.0	1000.0	0.0	1.11	0.0	1000.0	0.0
265	277	0.99	4	0.00	84.1	370.6	0.0	0.99	70.6	311.1	0.0

			3	0.00	97.3	429.1	0.0	0.99	97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	2.2	9.8	0.0	0.99	2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
47	48	1.11	1	0.00	0.0	1000.0	0.0	1.11	0.0	1000.0	0.0
277	289	1.00	4	0.00	54.0	314.4	0.0	1.00	42.8	249.4	0.0
			3	0.00	74.5	433.7	0.0	1.00	74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.7	9.9	0.0	1.00	1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
48	49	1.06	1	0.00	0.0	1000.0	0.0	1.06	0.0	1000.0	0.0
289	301	1.00	4	0.00	35.4	250.5	0.0	1.00	27.0	191.1	0.0
			3	0.00	61.6	435.7	0.0	1.00	61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.4	9.9	0.0	1.00	1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
49	50	1.35	1	0.00	0.0	1000.0	0.0	1.35	0.0	1000.0	0.0
301	313	1.00	4	0.00	19.2	192.0	0.0	1.00	12.6	126.4	0.0
			3	0.00	43.8	437.8	0.0	1.00	43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.0	10.0	0.0	1.00	1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
50	51	1.61	1	0.00	0.0	1000.0	0.0	1.61	0.0	1000.0	0.0
313	325	0.99	4	0.00	7.7	126.8	0.0	0.99	4.0	65.9	0.0
			3	0.00	26.6	439.2	0.0	0.99	26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	0.6	10.0	0.0	0.99	0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
51	52	1.76	1	0.00	0.0	1000.0	0.0	1.76	0.0	1000.0	0.0
325	335	1.00	4	0.00	1.3	66.0	0.0	1.00	0.0	0.0	0.0
			3	0.00	8.8	439.9	0.0	1.00	8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	0.2	10.0	0.0	1.00	0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0

			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
52	53	1.87	1	0.00	0.0	1000.0	0.0	1.87	0.0	1000.0	0.0
278	266	0.99	4	0.00	-141.1	622.2	0.0	0.99	-169.2	746.1	0.0
			3	0.00	-97.3	429.1	0.0	0.99	-97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-2.2	9.8	0.0	0.99	-2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
53	54	1.93	1	0.00	0.0	1000.0	0.0	1.93	0.0	1000.0	0.0
330	318	0.99	3	0.00	-26.6	439.2	0.0	0.99	-26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-7.7	126.8	0.0	0.99	-15.7	258.5	0.0
			2	0.00	-0.6	10.0	0.0	0.99	-0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
54	55	1.91	1	0.00	0.0	1000.0	0.0	1.91	0.0	1000.0	0.0
318	306	1.00	3	0.00	-43.8	437.8	0.0	1.00	-43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-25.8	257.7	0.0	1.00	-38.3	383.1	0.0
			2	0.00	-1.0	10.0	0.0	1.00	-1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
55	56	1.98	1	0.00	0.0	1000.0	0.0	1.98	0.0	1000.0	0.0
306	294	1.00	3	0.00	-61.6	435.7	0.0	1.00	-61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-53.9	381.2	0.0	1.00	-71.7	507.0	0.0
			2	0.00	-1.4	9.9	0.0	1.00	-1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
56	57	1.99	1	0.00	0.0	1000.0	0.0	1.99	0.0	1000.0	0.0
102	90	1.00	3	0.00	-417.0	140.5	0.0	1.00	-417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-37.0	12.4	0.0	1.00	0.0	0.0	0.0
			2	0.00	-9.5	3.2	0.0	1.00	-9.5	3.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
57	58	2.00	1	0.00	0.0	1000.0	0.0	2.00	0.0	1000.0	0.0
90	78	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.8	2.2	0.0	1.00	-9.8	2.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0

58	59	1.99	1	0.00	0.0	1000.0	0.0	1.99	0.0	1000.0	0.0
175	187	1.00	3	0.00	123.0	182.4	0.0	1.00	123.0	182.4	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	71.0	105.3	0.0	1.00	85.0	126.0	0.0
			2	0.00	2.8	4.1	0.0	1.00	2.8	4.1	0.0
			6	0.00	0.0	-38.0	0.0	1.00	0.0	-38.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
59	60	1.98	1	0.00	0.0	1000.0	0.0	1.98	0.0	1000.0	0.0
187	199	1.00	3	0.00	105.3	193.1	0.0	1.00	105.3	193.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	72.8	133.4	0.0	1.00	87.2	159.8	0.0
			2	0.00	2.4	4.4	0.0	1.00	2.4	4.4	0.0
			6	0.00	0.0	-64.0	0.0	1.00	0.0	-64.0	0.0
			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
60	61	1.91	1	0.00	0.0	1000.0	0.0	1.91	0.0	1000.0	0.0
235	281	6.79	1	0.00	0.3	1.6	0.0	6.79	0.3	1.6	0.0
61	62	1.93	1	0.00	0.0	1000.0	0.0	1.93	0.0	1000.0	0.0
281	331	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
62	63	1.87	1	0.00	0.0	1000.0	0.0	1.87	0.0	1000.0	0.0
283	329	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
63	64	1.76	1	0.00	0.0	1000.0	0.0	1.76	0.0	1000.0	0.0
330	284	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
64	65	1.61	1	0.00	0.0	1000.0	0.0	1.61	0.0	1000.0	0.0
332	282	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
65	66	1.35	1	0.00	0.0	1000.0	0.0	1.35	0.0	1000.0	0.0
282	236	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
66	67	1.06	1	0.00	0.0	1000.0	0.0	1.06	0.0	1000.0	0.0
284	234	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
67	68	1.11	1	0.00	0.0	1000.0	0.0	1.11	0.0	1000.0	0.0
234	188	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
1	23	4.64	1	0.00	0.0	2400.0	0.0	4.64	0.0	2400.0	0.0
236	186	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
23	25	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
186	140	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
25	27	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0
188	138	6.78	1	0.00	-0.6	1.5	0.0	6.78	-0.6	1.5	0.0
27	29	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
138	92	6.79	1	0.00	-0.8	1.3	-0.0	6.79	-0.8	1.3	-0.0
29	31	5.50	1	0.00	0.0	2400.0	0.0	5.50	0.0	2400.0	0.0
140	90	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
31	33	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
273	323	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
33	35	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0

275	321	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
35	37	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
322	276	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
37	39	5.50	1	0.00	0.0	2400.0	0.0	5.50	0.0	2400.0	0.0
324	274	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
39	41	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
274	228	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
41	43	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0
187	233	6.80	1	0.00	0.4	1.5	-0.0	6.80	0.4	1.5	-0.0
43	45	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
225	275	6.79	1	0.00	0.3	1.6	0.0	6.79	0.3	1.6	0.0
45	47	4.64	1	0.00	0.0	2400.0	4.7	4.64	0.0	2400.0	4.7
227	273	6.79	1	0.00	0.3	1.6	0.0	6.79	0.3	1.6	0.0
24	22	4.64	1	0.00	0.0	2400.0	4.7	4.64	0.0	2400.0	4.7
233	283	6.79	1	0.00	0.3	1.6	0.0	6.79	0.3	1.6	0.0
24	26	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
208	196	0.98	3	0.00	-193.2	395.3	0.0	0.98	-193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			4	0.00	-367.0	751.1	0.0	0.98	-316.5	647.8	0.0
			2	0.00	-4.4	9.0	0.0	0.98	-4.4	9.0	0.0
			6	0.00	0.0	-231.0	0.0	0.98	0.0	-231.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
26	28	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0
196	184	1.00	3	0.00	-210.7	386.3	0.0	1.00	-210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-345.3	633.0	0.0	1.00	-289.7	531.1	0.0
			2	0.00	-4.8	8.8	0.0	1.00	-4.8	8.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
28	30	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
184	172	1.00	3	0.00	-246.1	364.7	0.0	1.00	-246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-338.4	501.5	0.0	1.00	-280.2	415.3	0.0
			2	0.00	-5.6	8.3	0.0	1.00	-5.6	8.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0
30	32	5.50	1	0.00	0.0	2400.0	0.0	5.50	0.0	2400.0	0.0
172	160	1.00	3	0.00	-276.5	342.3	0.0	1.00	-276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-314.8	389.7	0.0	1.00	-252.6	312.7	0.0
			2	0.00	-6.3	7.8	0.0	1.00	-6.3	7.8	0.0

			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
32	34	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
135	85	6.79	1	0.00	-0.8	1.3	-0.0	6.79	-0.8	1.3	-0.0
34	36	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0
181	193	1.00	4	0.00	145.1	266.0	0.0	1.00	173.8	318.7	0.0
			3	0.00	210.7	386.3	0.0	1.00	210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	4.8	8.8	0.0	1.00	4.8	8.8	0.0
			6	0.00	0.0	-127.0	0.0	1.00	0.0	-127.0	0.0
			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
36	38	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
193	205	0.98	4	0.00	159.4	326.1	0.0	0.98	183.5	375.6	0.0
			3	0.00	193.2	395.3	0.0	0.98	193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			2	0.00	4.4	9.0	0.0	0.98	4.4	9.0	0.0
			6	0.00	0.0	-162.0	0.0	0.98	0.0	-162.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
38	40	5.50	1	0.00	0.0	2400.0	0.0	5.50	0.0	2400.0	0.0
205	217	1.02	4	0.00	163.7	384.6	0.0	1.02	187.6	440.8	0.0
			3	0.00	172.3	404.9	0.0	1.02	172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			2	0.00	3.9	9.2	0.0	1.02	3.9	9.2	0.0
			6	0.00	0.0	-214.0	0.0	1.02	0.0	-214.0	0.0
			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
40	42	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0
217	229	1.00	4	0.00	177.1	445.1	0.0	1.00	199.3	500.8	0.0
			3	0.00	162.7	408.8	0.0	1.00	162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	3.7	9.3	0.0	1.00	3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
42	44	2.10	1	0.00	0.0	2400.0	0.0	2.10	0.0	2400.0	0.0
229	241	0.99	4	0.00	173.7	510.2	0.0	0.99	163.1	479.0	0.0
			3	0.00	141.8	416.5	0.0	0.99	141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	3.2	9.5	0.0	0.99	3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
44	46	1.70	1	0.00	0.0	2400.0	0.0	1.70	0.0	2400.0	0.0

241	253	1.03	4	0.00	142.2	485.6	0.0	1.03	123.7	422.3	0.0
			3	0.00	123.7	422.3	0.0	1.03	123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			2	0.00	2.8	9.6	0.0	1.03	2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
46	68	4.64	1	0.00	0.0	2400.0	-4.7	4.64	0.0	2400.0	-4.7
253	265	0.97	4	0.00	113.1	425.2	0.0	0.97	97.7	367.2	0.0
			3	0.00	113.1	425.2	0.0	0.97	113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			2	0.00	2.6	9.7	0.0	0.97	2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
336	328	1.00	3	0.00	-8.8	439.9	0.0	1.00	-8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	-2.5	127.0	0.0
			2	0.00	-0.2	10.0	0.0	1.00	-0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
110	98	0.99	4	0.00	-86.1	37.8	0.0	0.99	-35.7	15.7	0.0
			3	0.00	-402.8	177.1	0.0	0.99	-402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-9.2	4.0	0.0	0.99	-9.2	4.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
335	326	1.00	4	0.00	0.0	0.0	0.0	1.00	-2.5	127.0	0.0
			3	0.00	-8.8	439.9	0.0	1.00	-8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-0.2	10.0	0.0	1.00	-0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
328	316	0.99	3	0.00	-26.6	439.2	0.0	0.99	-26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-7.7	126.8	0.0	0.99	-15.7	258.5	0.0
			2	0.00	-0.6	10.0	0.0	0.99	-0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
316	304	1.00	3	0.00	-43.8	437.8	0.0	1.00	-43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0

			4	0.00	-25.8	257.7	0.0	1.00	-38.3	383.1	0.0
			2	0.00	-1.0	10.0	0.0	1.00	-1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
304	292	1.00	3	0.00	-61.6	435.7	0.0	1.00	-61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-53.9	381.2	0.0	1.00	-71.7	507.0	0.0
			2	0.00	-1.4	9.9	0.0	1.00	-1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
292	280	1.00	3	0.00	-74.5	433.7	0.0	1.00	-74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-86.7	504.6	0.0	1.00	-108.0	628.8	0.0
			2	0.00	-1.7	9.9	0.0	1.00	-1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
147	159	1.00	3	0.00	308.9	313.3	0.0	1.00	308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	108.1	109.7	0.0	1.00	143.2	145.3	0.0
			2	0.00	7.0	7.1	0.0	1.00	7.0	7.1	0.0
			6	0.00	0.0	99.0	0.0	1.00	0.0	99.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
159	171	1.00	3	0.00	276.5	342.3	0.0	1.00	276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	128.2	158.7	0.0	1.00	159.0	196.8	0.0
			2	0.00	6.3	7.8	0.0	1.00	6.3	7.8	0.0
			6	0.00	0.0	12.0	0.0	1.00	0.0	12.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
171	183	1.00	3	0.00	246.1	364.7	0.0	1.00	246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	141.5	209.7	0.0	1.00	169.5	251.2	0.0
			2	0.00	5.6	8.3	0.0	1.00	5.6	8.3	0.0
			6	0.00	0.0	-75.0	0.0	1.00	0.0	-75.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
183	195	1.00	3	0.00	210.7	386.3	0.0	1.00	210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	145.1	266.0	0.0	1.00	173.8	318.7	0.0
			2	0.00	4.8	8.8	0.0	1.00	4.8	8.8	0.0
			6	0.00	0.0	-127.0	0.0	1.00	0.0	-127.0	0.0

			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
195	207	0.98	3	0.00	193.2	395.3	0.0	0.98	193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			4	0.00	159.4	326.1	0.0	0.98	183.5	375.6	0.0
			2	0.00	4.4	9.0	0.0	0.98	4.4	9.0	0.0
			6	0.00	0.0	-162.0	0.0	0.98	0.0	-162.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
207	219	1.02	3	0.00	172.3	404.9	0.0	1.02	172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			4	0.00	163.7	384.6	0.0	1.02	187.6	440.8	0.0
			2	0.00	3.9	9.2	0.0	1.02	3.9	9.2	0.0
			6	0.00	0.0	-214.0	0.0	1.02	0.0	-214.0	0.0
			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
219	231	1.00	3	0.00	162.7	408.8	0.0	1.00	162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	177.1	445.1	0.0	1.00	199.3	500.8	0.0
			2	0.00	3.7	9.3	0.0	1.00	3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
231	243	0.99	3	0.00	141.8	416.5	0.0	0.99	141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	173.7	510.2	0.0	0.99	163.1	479.0	0.0
			2	0.00	3.2	9.5	0.0	0.99	3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
338	332	1.00	3	0.00	-4.4	220.0	0.0	1.00	-4.4	220.0	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	-1.3	64.0	0.0
			2	0.00	-0.1	5.0	0.0	1.00	-0.1	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
215	227	1.00	4	0.00	177.1	445.1	0.0	1.00	199.3	500.8	0.0
			3	0.00	162.7	408.8	0.0	1.00	162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	3.7	9.3	0.0	1.00	3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
227	239	0.99	4	0.00	173.7	510.2	0.0	0.99	163.1	479.0	0.0
			3	0.00	141.8	416.5	0.0	0.99	141.8	416.5	0.0

			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	3.2	9.5	0.0	0.99	3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
239	251	1.03	4	0.00	142.2	485.6	0.0	1.03	123.7	422.3	0.0
			3	0.00	123.7	422.3	0.0	1.03	123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			2	0.00	2.8	9.6	0.0	1.03	2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
251	263	0.97	4	0.00	113.1	425.2	0.0	0.97	97.7	367.2	0.0
			3	0.00	113.1	425.2	0.0	0.97	113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			2	0.00	2.6	9.7	0.0	0.97	2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
263	275	0.99	4	0.00	84.1	370.6	0.0	0.99	70.6	311.1	0.0
			3	0.00	97.3	429.1	0.0	0.99	97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	2.2	9.8	0.0	0.99	2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
275	287	1.00	4	0.00	54.0	314.4	0.0	1.00	42.8	249.4	0.0
			3	0.00	74.5	433.7	0.0	1.00	74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.7	9.9	0.0	1.00	1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
287	299	1.00	4	0.00	35.4	250.5	0.0	1.00	27.0	191.1	0.0
			3	0.00	61.6	435.7	0.0	1.00	61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.4	9.9	0.0	1.00	1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
299	311	1.00	4	0.00	19.2	192.0	0.0	1.00	12.6	126.4	0.0
			3	0.00	43.8	437.8	0.0	1.00	43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.0	10.0	0.0	1.00	1.0	10.0	0.0

			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
311	323	0.99	4	0.00	7.7	126.8	0.0	0.99	4.0	65.9	0.0
			3	0.00	26.6	439.2	0.0	0.99	26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	0.6	10.0	0.0	0.99	0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
323	334	1.00	4	0.00	1.3	66.0	0.0	1.00	0.0	0.0	0.0
			3	0.00	8.8	439.9	0.0	1.00	8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	0.2	10.0	0.0	1.00	0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
276	264	0.99	4	0.00	-141.1	622.2	0.0	0.99	-169.2	746.1	0.0
			3	0.00	-97.3	429.1	0.0	0.99	-97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-2.2	9.8	0.0	0.99	-2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
264	252	0.97	4	0.00	-196.6	739.3	0.0	0.97	-227.7	856.2	0.0
			3	0.00	-113.1	425.2	0.0	0.97	-113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			2	0.00	-2.6	9.7	0.0	0.97	-2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
252	240	1.03	4	0.00	-249.1	850.3	0.0	1.03	-284.5	971.2	0.0
			3	0.00	-123.7	422.3	0.0	1.03	-123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			2	0.00	-2.8	9.6	0.0	1.03	-2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
240	228	0.99	4	0.00	-326.1	958.0	0.0	0.99	-345.8	1015.8	0.0
			3	0.00	-141.8	416.5	0.0	0.99	-141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-3.2	9.5	0.0	0.99	-3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
228	216	1.00	4	0.00	-396.7	997.0	0.0	1.00	-351.9	884.6	0.0

			3	0.00	-162.7	408.8	0.0	1.00	-162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-3.7	9.3	0.0	1.00	-3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
216	204	1.02	4	0.00	-372.8	876.0	0.0	1.02	-327.3	769.2	0.0
			3	0.00	-172.3	404.9	0.0	1.02	-172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			2	0.00	-3.9	9.2	0.0	1.02	-3.9	9.2	0.0
			6	0.00	0.0	-231.0	0.0	1.02	0.0	-231.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
204	192	0.98	4	0.00	-367.0	751.1	0.0	0.98	-316.5	647.8	0.0
			3	0.00	-193.2	395.3	0.0	0.98	-193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			2	0.00	-4.4	9.0	0.0	0.98	-4.4	9.0	0.0
			6	0.00	0.0	-231.0	0.0	0.98	0.0	-231.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
192	180	1.00	4	0.00	-345.3	633.0	0.0	1.00	-289.7	531.1	0.0
			3	0.00	-210.7	386.3	0.0	1.00	-210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-4.8	8.8	0.0	1.00	-4.8	8.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
180	168	1.00	4	0.00	-338.4	501.5	0.0	1.00	-280.2	415.3	0.0
			3	0.00	-246.1	364.7	0.0	1.00	-246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-5.6	8.3	0.0	1.00	-5.6	8.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0
168	156	1.00	4	0.00	-314.8	389.7	0.0	1.00	-252.6	312.7	0.0
			3	0.00	-276.5	342.3	0.0	1.00	-276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-6.3	7.8	0.0	1.00	-6.3	7.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
156	144	1.00	4	0.00	-282.2	286.3	0.0	1.00	-216.2	219.3	0.0
			3	0.00	-308.9	313.3	0.0	1.00	-308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0

			2	0.00	-7.0	7.1	0.0	1.00	-7.0	7.1	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
144	132	0.99	4	0.00	-235.6	198.4	0.0	0.99	-172.9	145.6	0.0
			3	0.00	-336.6	283.4	0.0	0.99	-336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-7.6	6.4	0.0	0.99	-7.6	6.4	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
132	120	1.01	4	0.00	-186.3	127.9	0.0	1.01	-126.9	87.2	0.0
			3	0.00	-362.7	249.1	0.0	1.01	-362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			2	0.00	-8.2	5.7	0.0	1.01	-8.2	5.7	0.0
			6	0.00	0.0	-231.0	0.0	1.01	0.0	-231.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
120	108	1.00	4	0.00	-134.2	75.6	0.0	1.00	-81.9	46.1	0.0
			3	0.00	-383.4	215.9	0.0	1.00	-383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-8.7	4.9	0.0	1.00	-8.7	4.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
108	96	0.99	4	0.00	-86.1	37.8	0.0	0.99	-35.7	15.7	0.0
			3	0.00	-402.8	177.1	0.0	0.99	-402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-9.2	4.0	0.0	0.99	-9.2	4.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
334	324	1.00	4	0.00	0.0	0.0	0.0	1.00	-2.5	127.0	0.0
			3	0.00	-8.8	439.9	0.0	1.00	-8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-0.2	10.0	0.0	1.00	-0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
139	185	6.78	1	0.00	0.6	1.5	-0.0	6.78	0.6	1.5	-0.0
187	137	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
179	129	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
131	177	6.78	1	0.00	0.6	1.5	-0.0	6.78	0.6	1.5	-0.0
230	184	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
184	134	6.78	1	0.00	-0.6	1.5	0.0	6.78	-0.6	1.5	0.0
324	278	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
277	323	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0

275	325	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
72	30	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	-10.0	0.9	0.0	1.87	-10.0	0.9	0.0
			6	0.00	0.0	-231.0	0.0	1.87	0.0	-231.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
78	40	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	-10.0	0.9	0.0	1.87	-10.0	0.9	0.0
			6	0.00	0.0	-231.0	0.0	1.87	0.0	-231.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
83	27	3.33	1	0.00	-1.3	0.8	-0.0	3.33	-1.3	0.8	-0.0
81	25	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
85	33	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
87	35	3.33	1	0.00	-1.3	0.8	-0.0	3.33	-1.3	0.8	-0.0
89	41	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
91	43	3.33	1	0.00	-1.3	0.8	-0.0	3.33	-1.3	0.8	-0.0
92	44	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
42	90	3.33	1	0.00	1.3	0.8	0.0	3.33	1.3	0.8	0.0
88	36	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
34	86	3.33	1	0.00	1.3	0.8	0.0	3.33	1.3	0.8	0.0
84	28	3.33	1	0.00	-1.3	0.8	0.0	3.33	-1.3	0.8	0.0
26	82	3.33	1	0.00	1.3	0.8	0.0	3.33	1.3	0.8	0.0
223	235	1.00	3	0.00	81.3	204.4	0.0	1.00	81.3	204.4	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	88.7	223.0	0.0	1.00	99.8	250.9	0.0
			2	0.00	1.8	4.6	0.0	1.00	1.8	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
235	247	0.99	3	0.00	70.9	208.3	0.0	0.99	70.9	208.3	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	87.0	255.6	0.0	0.99	81.5	239.5	0.0
			2	0.00	1.6	4.7	0.0	0.99	1.6	4.7	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
247	259	1.03	3	0.00	61.8	211.1	0.0	1.03	61.8	211.1	0.0
			2	0.00	0.0	11.0	0.0	1.03	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.03	0.0	-58.0	0.0
			4	0.00	71.1	242.8	0.0	1.03	61.8	211.1	0.0
			2	0.00	1.4	4.8	0.0	1.03	1.4	4.8	0.0
			6	0.00	0.0	-116.0	0.0	1.03	0.0	-116.0	0.0
			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
259	271	0.97	3	0.00	56.5	212.6	0.0	0.97	56.5	212.6	0.0
			2	0.00	0.0	11.0	0.0	0.97	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.97	0.0	-58.0	0.0

			4	0.00	56.5	212.6	0.0	0.97	48.8	183.6	0.0
			2	0.00	1.3	4.8	0.0	0.97	1.3	4.8	0.0
			6	0.00	0.0	-116.0	0.0	0.97	0.0	-116.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
271	283	0.99	3	0.00	48.7	214.6	0.0	0.99	48.7	214.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	42.0	185.3	0.0	0.99	35.4	156.0	0.0
			2	0.00	1.1	4.9	0.0	0.99	1.1	4.9	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
283	295	1.00	3	0.00	37.2	216.8	0.0	1.00	37.2	216.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	27.1	157.7	0.0	1.00	21.5	125.2	0.0
			2	0.00	0.8	4.9	0.0	1.00	0.8	4.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
295	307	1.00	3	0.00	30.8	217.8	0.0	1.00	30.8	217.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	17.8	125.7	0.0	1.00	13.6	96.0	0.0
			2	0.00	0.7	5.0	0.0	1.00	0.7	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
307	319	1.00	3	0.00	21.9	218.9	0.0	1.00	21.9	218.9	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	9.7	96.5	0.0	1.00	6.4	63.7	0.0
			2	0.00	0.5	5.0	0.0	1.00	0.5	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
176	164	1.00	3	0.00	-138.2	171.1	0.0	1.00	-138.2	171.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-157.7	195.3	0.0	1.00	-126.3	156.4	0.0
			2	0.00	-3.1	3.9	0.0	1.00	-3.1	3.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
164	152	1.00	3	0.00	-154.5	156.7	0.0	1.00	-154.5	156.7	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-141.1	143.1	0.0	1.00	-108.1	109.7	0.0
			2	0.00	-3.5	3.6	0.0	1.00	-3.5	3.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0

			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
152	140	0.99	3	0.00	-168.3	141.7	0.0	0.99	-168.3	141.7	0.0
			2	0.00	0.0	27.0	0.0	0.99	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-117.8	99.2	0.0	0.99	-86.4	72.8	0.0
			2	0.00	-3.8	3.2	0.0	0.99	-3.8	3.2	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
140	128	1.01	3	0.00	-181.4	124.5	0.0	1.01	-181.4	124.5	0.0
			2	0.00	0.0	27.0	0.0	1.01	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.01	0.0	-58.0	0.0
			4	0.00	-93.1	64.0	0.0	1.01	-63.5	43.6	0.0
			2	0.00	-4.1	2.8	0.0	1.01	-4.1	2.8	0.0
			6	0.00	0.0	-116.0	0.0	1.01	0.0	-116.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
227	177	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
185	235	6.80	1	0.00	0.4	1.5	0.0	6.80	0.4	1.5	0.0
114	102	0.99	3	0.00	-402.8	177.1	0.0	0.99	-402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-86.1	37.8	0.0	0.99	-35.7	15.7	0.0
			2	0.00	-9.2	4.0	0.0	0.99	-9.2	4.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
337	330	1.00	3	0.00	-8.8	439.9	0.0	1.00	-8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	-2.5	127.0	0.0
			2	0.00	-0.2	10.0	0.0	1.00	-0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
324	312	0.99	4	0.00	-7.7	126.8	0.0	0.99	-15.7	258.5	0.0
			3	0.00	-26.6	439.2	0.0	0.99	-26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-0.6	10.0	0.0	0.99	-0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
312	300	1.00	4	0.00	-25.8	257.7	0.0	1.00	-38.3	383.1	0.0
			3	0.00	-43.8	437.8	0.0	1.00	-43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.0	10.0	0.0	1.00	-1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
300	288	1.00	4	0.00	-53.9	381.2	0.0	1.00	-71.7	507.0	0.0

			3	0.00	-61.6	435.7	0.0	1.00	-61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.4	9.9	0.0	1.00	-1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
288	276	1.00	4	0.00	-86.7	504.6	0.0	1.00	-108.0	628.8	0.0
			3	0.00	-74.5	433.7	0.0	1.00	-74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.7	9.9	0.0	1.00	-1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
143	155	1.00	4	0.00	108.1	109.7	0.0	1.00	143.2	145.3	0.0
			3	0.00	308.9	313.3	0.0	1.00	308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	7.0	7.1	0.0	1.00	7.0	7.1	0.0
			6	0.00	0.0	99.0	0.0	1.00	0.0	99.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
155	167	1.00	4	0.00	128.2	158.7	0.0	1.00	159.0	196.8	0.0
			3	0.00	276.5	342.3	0.0	1.00	276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	6.3	7.8	0.0	1.00	6.3	7.8	0.0
			6	0.00	0.0	12.0	0.0	1.00	0.0	12.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
167	179	1.00	4	0.00	141.5	209.7	0.0	1.00	169.5	251.2	0.0
			3	0.00	246.1	364.7	0.0	1.00	246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	5.6	8.3	0.0	1.00	5.6	8.3	0.0
			6	0.00	0.0	-75.0	0.0	1.00	0.0	-75.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
179	191	1.00	4	0.00	145.1	266.0	0.0	1.00	173.8	318.7	0.0
			3	0.00	210.7	386.3	0.0	1.00	210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	4.8	8.8	0.0	1.00	4.8	8.8	0.0
			6	0.00	0.0	-127.0	0.0	1.00	0.0	-127.0	0.0
			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
191	203	0.98	4	0.00	159.4	326.1	0.0	0.98	183.5	375.6	0.0
			3	0.00	193.2	395.3	0.0	0.98	193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0

			2	0.00	4.4	9.0	0.0	0.98	4.4	9.0	0.0
			6	0.00	0.0	-162.0	0.0	0.98	0.0	-162.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
203	215	1.02	4	0.00	163.7	384.6	0.0	1.02	187.6	440.8	0.0
			3	0.00	172.3	404.9	0.0	1.02	172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			2	0.00	3.9	9.2	0.0	1.02	3.9	9.2	0.0
			6	0.00	0.0	-214.0	0.0	1.02	0.0	-214.0	0.0
			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
151	163	1.00	3	0.00	154.5	156.7	0.0	1.00	154.5	156.7	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	54.1	54.8	0.0	1.00	71.6	72.6	0.0
			2	0.00	3.5	3.6	0.0	1.00	3.5	3.6	0.0
			6	0.00	0.0	50.0	0.0	1.00	0.0	50.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
163	175	1.00	3	0.00	138.2	171.1	0.0	1.00	138.2	171.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	64.1	79.3	0.0	1.00	79.8	98.8	0.0
			2	0.00	3.1	3.9	0.0	1.00	3.1	3.9	0.0
			6	0.00	0.0	6.0	0.0	1.00	0.0	6.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
133	87	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
97	109	0.99	4	0.00	20.1	8.9	0.0	0.99	45.8	20.1	0.0
			3	0.00	402.8	177.1	0.0	0.99	402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	9.2	4.0	0.0	0.99	9.2	4.0	0.0
			6	0.00	0.0	462.0	0.0	0.99	0.0	462.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
109	121	1.00	4	0.00	43.6	24.5	0.0	1.00	67.1	37.8	0.0
			3	0.00	383.4	215.9	0.0	1.00	383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	8.7	4.9	0.0	1.00	8.7	4.9	0.0
			6	0.00	0.0	375.0	0.0	1.00	0.0	375.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
121	133	1.01	4	0.00	63.5	43.6	0.0	1.01	95.6	65.7	0.0
			3	0.00	362.7	249.1	0.0	1.01	362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			2	0.00	8.2	5.7	0.0	1.01	8.2	5.7	0.0
			6	0.00	0.0	289.0	0.0	1.01	0.0	289.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0

133	145	0.99	4	0.00	88.7	74.7	0.0	0.99	117.8	99.2	0.0
			3	0.00	336.6	283.4	0.0	0.99	336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	7.6	6.4	0.0	0.99	7.6	6.4	0.0
			6	0.00	0.0	202.0	0.0	0.99	0.0	202.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
99	111	0.99	3	0.00	402.8	177.1	0.0	0.99	402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	20.1	8.9	0.0	0.99	45.8	20.1	0.0
			2	0.00	9.2	4.0	0.0	0.99	9.2	4.0	0.0
			6	0.00	0.0	462.0	0.0	0.99	0.0	462.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
91	47	5.45	7	0.00	0.0	-126.0	0.0	5.45	0.0	-126.0	0.0
			1	0.00	-16.1	26.4	-0.1	5.45	-16.1	26.4	-0.1
22	82	5.45	7	0.00	0.0	126.0	0.0	5.45	0.0	126.0	0.0
			1	0.00	16.1	26.4	-0.4	5.45	16.1	26.4	-0.4
92	68	5.45	7	0.00	0.0	-126.0	0.0	5.45	0.0	-126.0	0.0
			1	0.00	-16.1	26.4	0.1	5.45	-16.1	26.4	0.1
279	329	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
281	327	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
230	218	1.00	4	0.00	-396.7	997.0	0.0	1.00	-351.9	884.6	0.0
			3	0.00	-162.7	408.8	0.0	1.00	-162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-3.7	9.3	0.0	1.00	-3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
218	206	1.02	4	0.00	-372.8	876.0	0.0	1.02	-327.3	769.2	0.0
			3	0.00	-172.3	404.9	0.0	1.02	-172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			2	0.00	-3.9	9.2	0.0	1.02	-3.9	9.2	0.0
			6	0.00	0.0	-231.0	0.0	1.02	0.0	-231.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
206	194	0.98	4	0.00	-367.0	751.1	0.0	0.98	-316.5	647.8	0.0
			3	0.00	-193.2	395.3	0.0	0.98	-193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			2	0.00	-4.4	9.0	0.0	0.98	-4.4	9.0	0.0
			6	0.00	0.0	-231.0	0.0	0.98	0.0	-231.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
194	182	1.00	4	0.00	-345.3	633.0	0.0	1.00	-289.7	531.1	0.0
			3	0.00	-210.7	386.3	0.0	1.00	-210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0

			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-4.8	8.8	0.0	1.00	-4.8	8.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
182	170	1.00	4	0.00	-338.4	501.5	0.0	1.00	-280.2	415.3	0.0
			3	0.00	-246.1	364.7	0.0	1.00	-246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-5.6	8.3	0.0	1.00	-5.6	8.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0
170	158	1.00	4	0.00	-314.8	389.7	0.0	1.00	-252.6	312.7	0.0
			3	0.00	-276.5	342.3	0.0	1.00	-276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-6.3	7.8	0.0	1.00	-6.3	7.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
158	146	1.00	4	0.00	-282.2	286.3	0.0	1.00	-216.2	219.3	0.0
			3	0.00	-308.9	313.3	0.0	1.00	-308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-7.0	7.1	0.0	1.00	-7.0	7.1	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
146	134	0.99	4	0.00	-235.6	198.4	0.0	0.99	-172.9	145.6	0.0
			3	0.00	-336.6	283.4	0.0	0.99	-336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-7.6	6.4	0.0	0.99	-7.6	6.4	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
134	122	1.01	4	0.00	-186.3	127.9	0.0	1.01	-126.9	87.2	0.0
			3	0.00	-362.7	249.1	0.0	1.01	-362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			2	0.00	-8.2	5.7	0.0	1.01	-8.2	5.7	0.0
			6	0.00	0.0	-231.0	0.0	1.01	0.0	-231.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
122	110	1.00	4	0.00	-134.2	75.6	0.0	1.00	-81.9	46.1	0.0
			3	0.00	-383.4	215.9	0.0	1.00	-383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-8.7	4.9	0.0	1.00	-8.7	4.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0

			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
244	232	0.99	3	0.00	-141.8	416.5	0.0	0.99	-141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-326.1	958.0	0.0	0.99	-345.8	1015.8	0.0
			2	0.00	-3.2	9.5	0.0	0.99	-3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
232	220	1.00	3	0.00	-162.7	408.8	0.0	1.00	-162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-396.7	997.0	0.0	1.00	-351.9	884.6	0.0
			2	0.00	-3.7	9.3	0.0	1.00	-3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
220	208	1.02	3	0.00	-172.3	404.9	0.0	1.02	-172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			4	0.00	-372.8	876.0	0.0	1.02	-327.3	769.2	0.0
			2	0.00	-3.9	9.2	0.0	1.02	-3.9	9.2	0.0
			6	0.00	0.0	-231.0	0.0	1.02	0.0	-231.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
327	336	1.00	3	0.00	8.8	439.9	0.0	1.00	8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	1.3	66.0	0.0	1.00	0.0	0.0	0.0
			2	0.00	0.2	10.0	0.0	1.00	0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
280	268	0.99	3	0.00	-97.3	429.1	0.0	0.99	-97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-141.1	622.2	0.0	0.99	-169.2	746.1	0.0
			2	0.00	-2.2	9.8	0.0	0.99	-2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
268	256	0.97	3	0.00	-113.1	425.2	0.0	0.97	-113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			4	0.00	-196.6	739.3	0.0	0.97	-227.7	856.2	0.0
			2	0.00	-2.6	9.7	0.0	0.97	-2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
328	278	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0
326	280	6.80	1	0.00	-0.1	1.6	0.0	6.80	-0.1	1.6	0.0

280	230	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
278	232	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
232	182	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
332	320	0.99	3	0.00	-13.3	219.6	0.0	0.99	-13.3	219.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-3.9	63.9	0.0	0.99	-7.9	129.8	0.0
			2	0.00	-0.3	5.0	0.0	0.99	-0.3	5.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
320	308	1.00	3	0.00	-21.9	218.9	0.0	1.00	-21.9	218.9	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-12.9	129.4	0.0	1.00	-19.2	192.0	0.0
			2	0.00	-0.5	5.0	0.0	1.00	-0.5	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
125	137	1.01	3	0.00	362.7	249.1	0.0	1.01	362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			4	0.00	63.5	43.6	0.0	1.01	95.6	65.7	0.0
			2	0.00	8.2	5.7	0.0	1.01	8.2	5.7	0.0
			6	0.00	0.0	289.0	0.0	1.01	0.0	289.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0
137	149	0.99	3	0.00	336.6	283.4	0.0	0.99	336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	88.7	74.7	0.0	0.99	117.8	99.2	0.0
			2	0.00	7.6	6.4	0.0	0.99	7.6	6.4	0.0
			6	0.00	0.0	202.0	0.0	0.99	0.0	202.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
95	107	0.99	4	0.00	20.1	8.9	0.0	0.99	45.8	20.1	0.0
			3	0.00	402.8	177.1	0.0	0.99	402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	9.2	4.0	0.0	0.99	9.2	4.0	0.0
			6	0.00	0.0	462.0	0.0	0.99	0.0	462.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
107	119	1.00	4	0.00	43.6	24.5	0.0	1.00	67.1	37.8	0.0
			3	0.00	383.4	215.9	0.0	1.00	383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	8.7	4.9	0.0	1.00	8.7	4.9	0.0
			6	0.00	0.0	375.0	0.0	1.00	0.0	375.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
119	131	1.01	4	0.00	63.5	43.6	0.0	1.01	95.6	65.7	0.0

			3	0.00	362.7	249.1	0.0	1.01	362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			2	0.00	8.2	5.7	0.0	1.01	8.2	5.7	0.0
			6	0.00	0.0	289.0	0.0	1.01	0.0	289.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0
131	143	0.99	4	0.00	88.7	74.7	0.0	0.99	117.8	99.2	0.0
			3	0.00	336.6	283.4	0.0	0.99	336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	7.6	6.4	0.0	0.99	7.6	6.4	0.0
			6	0.00	0.0	202.0	0.0	0.99	0.0	202.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
199	211	0.98	3	0.00	96.6	197.7	0.0	0.98	96.6	197.7	0.0
			2	0.00	0.0	11.0	0.0	0.98	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.98	0.0	-58.0	0.0
			4	0.00	79.9	163.5	0.0	0.98	91.8	187.8	0.0
			2	0.00	2.2	4.5	0.0	0.98	2.2	4.5	0.0
			6	0.00	0.0	-81.0	0.0	0.98	0.0	-81.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
211	223	1.02	3	0.00	86.1	202.4	0.0	1.02	86.1	202.4	0.0
			2	0.00	0.0	11.0	0.0	1.02	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.02	0.0	-58.0	0.0
			4	0.00	81.8	192.3	0.0	1.02	94.0	220.8	0.0
			2	0.00	2.0	4.6	0.0	1.02	2.0	4.6	0.0
			6	0.00	0.0	-107.0	0.0	1.02	0.0	-107.0	0.0
			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
178	132	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
130	180	6.78	1	0.00	0.6	1.5	-0.0	6.78	0.6	1.5	-0.0
132	82	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
130	84	6.79	1	0.00	-0.8	1.3	-0.0	6.79	-0.8	1.3	-0.0
86	74	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.8	2.2	0.0	1.00	-9.8	2.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0
74	32	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	-10.0	0.9	0.0	1.87	-10.0	0.9	0.0
			6	0.00	0.0	-231.0	0.0	1.87	0.0	-231.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
39	77	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	10.0	0.9	0.0	1.87	10.0	0.9	0.0
			6	0.00	0.0	462.0	0.0	1.87	0.0	462.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
77	89	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.8	2.2	0.0	1.00	9.8	2.2	0.0

			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
89	101	1.00	3	0.00	417.0	140.5	0.0	1.00	417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	20.8	7.0	0.0
			2	0.00	9.5	3.2	0.0	1.00	9.5	3.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
45	79	1.87	5	0.00	0.0	-58.0	0.0	1.87	0.0	-58.0	0.0
			2	0.00	5.0	0.5	0.0	1.87	5.0	0.5	0.0
			6	0.00	0.0	231.0	0.0	1.87	0.0	231.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
29	71	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	10.0	0.9	0.0	1.87	10.0	0.9	0.0
			6	0.00	0.0	462.0	0.0	1.87	0.0	462.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
71	83	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.8	2.2	0.0	1.00	9.8	2.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
83	95	1.00	4	0.00	0.0	0.0	0.0	1.00	20.8	7.0	0.0
			3	0.00	417.0	140.5	0.0	1.00	417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.5	3.2	0.0	1.00	9.5	3.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
79	91	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	4.9	1.1	0.0	1.00	4.9	1.1	0.0
			6	0.00	0.0	231.0	0.0	1.00	0.0	231.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
91	103	1.00	3	0.00	208.5	70.2	0.0	1.00	208.5	70.2	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	10.4	3.5	0.0
			2	0.00	4.7	1.6	0.0	1.00	4.7	1.6	0.0
			6	0.00	0.0	231.0	0.0	1.00	0.0	231.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
224	212	1.02	3	0.00	-86.1	202.4	0.0	1.02	-86.1	202.4	0.0
			2	0.00	0.0	11.0	0.0	1.02	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.02	0.0	-58.0	0.0
			4	0.00	-186.4	438.0	0.0	1.02	-163.7	384.6	0.0
			2	0.00	-2.0	4.6	0.0	1.02	-2.0	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.02	0.0	-116.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
212	200	0.98	3	0.00	-96.6	197.7	0.0	0.98	-96.6	197.7	0.0
			2	0.00	0.0	11.0	0.0	0.98	0.0	11.0	0.0

			5	0.00	0.0	-58.0	0.0	0.98	0.0	-58.0	0.0
			4	0.00	-183.5	375.6	0.0	0.98	-158.5	324.3	0.0
			2	0.00	-2.2	4.5	0.0	0.98	-2.2	4.5	0.0
			6	0.00	0.0	-116.0	0.0	0.98	0.0	-116.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
200	188	1.00	3	0.00	-105.3	193.1	0.0	1.00	-105.3	193.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-172.9	316.9	0.0	1.00	-145.1	266.0	0.0
			2	0.00	-2.4	4.4	0.0	1.00	-2.4	4.4	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
188	176	1.00	3	0.00	-123.0	182.4	0.0	1.00	-123.0	182.4	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-169.5	251.2	0.0	1.00	-140.4	208.1	0.0
			2	0.00	-2.8	4.1	0.0	1.00	-2.8	4.1	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0
87	99	1.00	3	0.00	417.0	140.5	0.0	1.00	417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	20.8	7.0	0.0
			2	0.00	9.5	3.2	0.0	1.00	9.5	3.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
100	88	1.00	3	0.00	-417.0	140.5	0.0	1.00	-417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-37.0	12.4	0.0	1.00	0.0	0.0	0.0
			2	0.00	-9.5	3.2	0.0	1.00	-9.5	3.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
88	76	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-9.8	2.2	0.0	1.00	-9.8	2.2	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0
213	225	1.00	3	0.00	81.3	204.4	0.0	1.00	81.3	204.4	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	88.7	223.0	0.0	1.00	99.8	250.9	0.0
			2	0.00	1.8	4.6	0.0	1.00	1.8	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
201	213	1.02	3	0.00	86.1	202.4	0.0	1.02	86.1	202.4	0.0
			2	0.00	0.0	11.0	0.0	1.02	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.02	0.0	-58.0	0.0

			4	0.00	81.8	192.3	0.0	1.02	94.0	220.8	0.0
			2	0.00	2.0	4.6	0.0	1.02	2.0	4.6	0.0
			6	0.00	0.0	-107.0	0.0	1.02	0.0	-107.0	0.0
			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
189	201	0.98	3	0.00	96.6	197.7	0.0	0.98	96.6	197.7	0.0
			2	0.00	0.0	11.0	0.0	0.98	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.98	0.0	-58.0	0.0
			4	0.00	79.9	163.5	0.0	0.98	91.8	187.8	0.0
			2	0.00	2.2	4.5	0.0	0.98	2.2	4.5	0.0
			6	0.00	0.0	-81.0	0.0	0.98	0.0	-81.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
322	310	0.99	3	0.00	-13.3	219.6	0.0	0.99	-13.3	219.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-3.9	63.9	0.0	0.99	-7.9	129.8	0.0
			2	0.00	-0.3	5.0	0.0	0.99	-0.3	5.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
262	250	0.97	4	0.00	-98.4	370.1	0.0	0.97	-113.9	428.1	0.0
			3	0.00	-56.5	212.6	0.0	0.97	-56.5	212.6	0.0
			2	0.00	0.0	11.0	0.0	0.97	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.97	0.0	-58.0	0.0
			2	0.00	-1.3	4.8	0.0	0.97	-1.3	4.8	0.0
			6	0.00	0.0	-116.0	0.0	0.97	0.0	-116.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
274	262	0.99	4	0.00	-70.6	311.1	0.0	0.99	-84.7	373.5	0.0
			3	0.00	-48.7	214.6	0.0	0.99	-48.7	214.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			2	0.00	-1.1	4.9	0.0	0.99	-1.1	4.9	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
321	333	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			3	0.00	4.4	220.0	0.0	1.00	4.4	220.0	0.0
			4	0.00	0.7	33.0	0.0	1.00	0.0	0.0	0.0
			2	0.00	0.1	5.0	0.0	1.00	0.1	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
309	321	0.99	3	0.00	13.3	219.6	0.0	0.99	13.3	219.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	3.9	63.9	0.0	0.99	2.0	32.9	0.0
			2	0.00	0.3	5.0	0.0	0.99	0.3	5.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0

			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
177	189	1.00	3	0.00	105.3	193.1	0.0	1.00	105.3	193.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	72.8	133.4	0.0	1.00	87.2	159.8	0.0
			2	0.00	2.4	4.4	0.0	1.00	2.4	4.4	0.0
			6	0.00	0.0	-64.0	0.0	1.00	0.0	-64.0	0.0
			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
165	177	1.00	3	0.00	123.0	182.4	0.0	1.00	123.0	182.4	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	71.0	105.3	0.0	1.00	85.0	126.0	0.0
			2	0.00	2.8	4.1	0.0	1.00	2.8	4.1	0.0
			6	0.00	0.0	-38.0	0.0	1.00	0.0	-38.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
153	165	1.00	3	0.00	138.2	171.1	0.0	1.00	138.2	171.1	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			4	0.00	64.1	79.3	0.0	1.00	79.8	98.8	0.0
			2	0.00	3.1	3.9	0.0	1.00	3.1	3.9	0.0
			6	0.00	0.0	6.0	0.0	1.00	0.0	6.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
141	153	1.00	3	0.00	154.5	156.7	0.0	1.00	154.5	156.7	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	54.1	54.8	0.0	1.00	71.6	72.6	0.0
			2	0.00	3.5	3.6	0.0	1.00	3.5	3.6	0.0
			6	0.00	0.0	50.0	0.0	1.00	0.0	50.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
286	274	1.00	4	0.00	-43.3	252.3	0.0	1.00	-54.0	314.4	0.0
			3	0.00	-37.2	216.8	0.0	1.00	-37.2	216.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-0.8	4.9	0.0	1.00	-0.8	4.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
298	286	1.00	4	0.00	-27.0	191.1	0.0	1.00	-35.8	253.5	0.0
			3	0.00	-30.8	217.8	0.0	1.00	-30.8	217.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-0.7	5.0	0.0	1.00	-0.7	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
310	298	1.00	3	0.00	-21.9	218.9	0.0	1.00	-21.9	218.9	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0

			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-12.9	129.4	0.0	1.00	-19.2	192.0	0.0
			2	0.00	-0.5	5.0	0.0	1.00	-0.5	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
106	94	0.99	4	0.00	-43.0	18.9	0.0	0.99	-18.3	8.0	0.0
			3	0.00	-201.4	88.5	0.0	0.99	-201.4	88.5	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			2	0.00	-4.6	2.0	0.0	0.99	-4.6	2.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
118	106	1.00	4	0.00	-67.1	37.8	0.0	1.00	-41.0	23.1	0.0
			3	0.00	-191.7	108.0	0.0	1.00	-191.7	108.0	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-4.4	2.5	0.0	1.00	-4.4	2.5	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
130	118	1.01	4	0.00	-93.1	64.0	0.0	1.01	-63.5	43.6	0.0
			3	0.00	-181.4	124.5	0.0	1.01	-181.4	124.5	0.0
			2	0.00	0.0	27.0	0.0	1.01	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.01	0.0	-58.0	0.0
			2	0.00	-4.1	2.8	0.0	1.01	-4.1	2.8	0.0
			6	0.00	0.0	-116.0	0.0	1.01	0.0	-116.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
142	130	0.99	4	0.00	-117.8	99.2	0.0	0.99	-86.4	72.8	0.0
			3	0.00	-168.3	141.7	0.0	0.99	-168.3	141.7	0.0
			2	0.00	0.0	27.0	0.0	0.99	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			2	0.00	-3.8	3.2	0.0	0.99	-3.8	3.2	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
154	142	1.00	4	0.00	-141.1	143.1	0.0	1.00	-108.1	109.7	0.0
			3	0.00	-154.5	156.7	0.0	1.00	-154.5	156.7	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-3.5	3.6	0.0	1.00	-3.5	3.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
166	154	1.00	4	0.00	-157.7	195.3	0.0	1.00	-126.3	156.4	0.0
			3	0.00	-138.2	171.1	0.0	1.00	-138.2	171.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-3.1	3.9	0.0	1.00	-3.1	3.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0

			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
178	166	1.00	4	0.00	-169.5	251.2	0.0	1.00	-140.4	208.1	0.0
			3	0.00	-123.0	182.4	0.0	1.00	-123.0	182.4	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-2.8	4.1	0.0	1.00	-2.8	4.1	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0
190	178	1.00	4	0.00	-172.9	316.9	0.0	1.00	-145.1	266.0	0.0
			3	0.00	-105.3	193.1	0.0	1.00	-105.3	193.1	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-2.4	4.4	0.0	1.00	-2.4	4.4	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
202	190	0.98	4	0.00	-183.5	375.6	0.0	0.98	-158.5	324.3	0.0
			3	0.00	-96.6	197.7	0.0	0.98	-96.6	197.7	0.0
			2	0.00	0.0	11.0	0.0	0.98	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.98	0.0	-58.0	0.0
			2	0.00	-2.2	4.5	0.0	0.98	-2.2	4.5	0.0
			6	0.00	0.0	-116.0	0.0	0.98	0.0	-116.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
214	202	1.02	4	0.00	-186.4	438.0	0.0	1.02	-163.7	384.6	0.0
			3	0.00	-86.1	202.4	0.0	1.02	-86.1	202.4	0.0
			2	0.00	0.0	11.0	0.0	1.02	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.02	0.0	-58.0	0.0
			2	0.00	-2.0	4.6	0.0	1.02	-2.0	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.02	0.0	-116.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
226	214	1.00	4	0.00	-198.5	499.0	0.0	1.00	-176.0	442.3	0.0
			3	0.00	-81.3	204.4	0.0	1.00	-81.3	204.4	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-1.8	4.6	0.0	1.00	-1.8	4.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
333	322	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			3	0.00	-4.4	220.0	0.0	1.00	-4.4	220.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	-1.3	64.0	0.0
			2	0.00	-0.1	5.0	0.0	1.00	-0.1	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-2.1	103.0	0.0	1.00	-2.1	103.0	0.0
238	226	0.99	4	0.00	-163.1	479.0	0.0	0.99	-173.1	508.4	0.0
			3	0.00	-70.9	208.3	0.0	0.99	-70.9	208.3	0.0

			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			2	0.00	-1.6	4.7	0.0	0.99	-1.6	4.7	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
250	238	1.03	4	0.00	-124.5	425.1	0.0	1.03	-142.2	485.6	0.0
			3	0.00	-61.8	211.1	0.0	1.03	-61.8	211.1	0.0
			2	0.00	0.0	11.0	0.0	1.03	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.03	0.0	-58.0	0.0
			2	0.00	-1.4	4.8	0.0	1.03	-1.4	4.8	0.0
			6	0.00	0.0	-116.0	0.0	1.03	0.0	-116.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
297	309	1.00	3	0.00	21.9	218.9	0.0	1.00	21.9	218.9	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	9.7	96.5	0.0	1.00	6.4	63.7	0.0
			2	0.00	0.5	5.0	0.0	1.00	0.5	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
81	93	1.00	3	0.00	208.5	70.2	0.0	1.00	208.5	70.2	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	0.0	0.0	0.0	1.00	10.4	3.5	0.0
			2	0.00	4.7	1.6	0.0	1.00	4.7	1.6	0.0
			6	0.00	0.0	231.0	0.0	1.00	0.0	231.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
69	81	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	4.9	1.1	0.0	1.00	4.9	1.1	0.0
			6	0.00	0.0	231.0	0.0	1.00	0.0	231.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
70	24	1.87	5	0.00	0.0	-58.0	0.0	1.87	0.0	-58.0	0.0
			2	0.00	-5.0	0.5	0.0	1.87	-5.0	0.5	0.0
			6	0.00	0.0	-116.0	0.0	1.87	0.0	-116.0	0.0
			1	0.00	-102.6	9.4	0.0	1.87	-102.6	9.4	0.0
82	70	1.00	5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-4.9	1.1	0.0	1.00	-4.9	1.1	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-100.5	22.6	0.0	1.00	-100.5	22.6	0.0
94	82	1.00	4	0.00	-19.0	6.4	0.0	1.00	0.0	0.0	0.0
			3	0.00	-208.5	70.2	0.0	1.00	-208.5	70.2	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			2	0.00	-4.7	1.6	0.0	1.00	-4.7	1.6	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-97.6	32.9	0.0	1.00	-97.6	32.9	0.0
23	69	1.87	5	0.00	0.0	-58.0	0.0	1.87	0.0	-58.0	0.0
			2	0.00	5.0	0.5	0.0	1.87	5.0	0.5	0.0

			6	0.00	0.0	231.0	0.0	1.87	0.0	231.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
93	105	0.99	3	0.00	201.4	88.5	0.0	0.99	201.4	88.5	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	10.1	4.4	0.0	0.99	22.9	10.1	0.0
			2	0.00	4.6	2.0	0.0	0.99	4.6	2.0	0.0
			6	0.00	0.0	231.0	0.0	0.99	0.0	231.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
285	297	1.00	3	0.00	30.8	217.8	0.0	1.00	30.8	217.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	17.8	125.7	0.0	1.00	13.6	96.0	0.0
			2	0.00	0.7	5.0	0.0	1.00	0.7	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
273	285	1.00	3	0.00	37.2	216.8	0.0	1.00	37.2	216.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	27.1	157.7	0.0	1.00	21.5	125.2	0.0
			2	0.00	0.8	4.9	0.0	1.00	0.8	4.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
261	273	0.99	3	0.00	48.7	214.6	0.0	0.99	48.7	214.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	42.0	185.3	0.0	0.99	35.4	156.0	0.0
			2	0.00	1.1	4.9	0.0	0.99	1.1	4.9	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
249	261	0.97	3	0.00	56.5	212.6	0.0	0.97	56.5	212.6	0.0
			2	0.00	0.0	11.0	0.0	0.97	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.97	0.0	-58.0	0.0
			4	0.00	56.5	212.6	0.0	0.97	48.8	183.6	0.0
			2	0.00	1.3	4.8	0.0	0.97	1.3	4.8	0.0
			6	0.00	0.0	-116.0	0.0	0.97	0.0	-116.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
237	249	1.03	3	0.00	61.8	211.1	0.0	1.03	61.8	211.1	0.0
			2	0.00	0.0	11.0	0.0	1.03	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.03	0.0	-58.0	0.0
			4	0.00	71.1	242.8	0.0	1.03	61.8	211.1	0.0
			2	0.00	1.4	4.8	0.0	1.03	1.4	4.8	0.0
			6	0.00	0.0	-116.0	0.0	1.03	0.0	-116.0	0.0
			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
225	237	0.99	3	0.00	70.9	208.3	0.0	0.99	70.9	208.3	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0

			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	87.0	255.6	0.0	0.99	81.5	239.5	0.0
			2	0.00	1.6	4.7	0.0	0.99	1.6	4.7	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
129	141	0.99	3	0.00	168.3	141.7	0.0	0.99	168.3	141.7	0.0
			2	0.00	0.0	27.0	0.0	0.99	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	44.4	37.4	0.0	0.99	58.9	49.6	0.0
			2	0.00	3.8	3.2	0.0	0.99	3.8	3.2	0.0
			6	0.00	0.0	101.0	0.0	0.99	0.0	101.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
117	129	1.01	3	0.00	181.4	124.5	0.0	1.01	181.4	124.5	0.0
			2	0.00	0.0	27.0	0.0	1.01	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.01	0.0	-58.0	0.0
			4	0.00	32.1	22.1	0.0	1.01	47.8	32.8	0.0
			2	0.00	4.1	2.8	0.0	1.01	4.1	2.8	0.0
			6	0.00	0.0	145.0	0.0	1.01	0.0	145.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0
105	117	1.00	3	0.00	191.7	108.0	0.0	1.00	191.7	108.0	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	21.8	12.3	0.0	1.00	34.0	19.1	0.0
			2	0.00	4.4	2.5	0.0	1.00	4.4	2.5	0.0
			6	0.00	0.0	188.0	0.0	1.00	0.0	188.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
182	136	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
136	86	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
134	88	6.79	1	0.00	-0.8	1.3	-0.0	6.79	-0.8	1.3	-0.0
279	325	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
277	327	6.80	1	0.00	0.1	1.6	0.0	6.80	0.1	1.6	0.0
231	277	6.79	1	0.00	0.3	1.6	0.0	6.79	0.3	1.6	0.0
279	229	6.79	1	0.00	-0.3	1.6	0.0	6.79	-0.3	1.6	0.0
231	181	6.80	1	0.00	-0.4	1.5	0.0	6.80	-0.4	1.5	0.0
183	229	6.80	1	0.00	0.4	1.5	-0.0	6.80	0.4	1.5	-0.0
183	133	6.78	1	0.00	-0.6	1.5	-0.0	6.78	-0.6	1.5	-0.0
135	181	6.78	1	0.00	0.6	1.5	-0.0	6.78	0.6	1.5	-0.0
101	113	0.99	3	0.00	402.8	177.1	0.0	0.99	402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	20.1	8.9	0.0	0.99	45.8	20.1	0.0
			2	0.00	9.2	4.0	0.0	0.99	9.2	4.0	0.0
			6	0.00	0.0	462.0	0.0	0.99	0.0	462.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
113	125	1.00	3	0.00	383.4	215.9	0.0	1.00	383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0

			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	43.6	24.5	0.0	1.00	67.1	37.8	0.0
			2	0.00	8.7	4.9	0.0	1.00	8.7	4.9	0.0
			6	0.00	0.0	375.0	0.0	1.00	0.0	375.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
160	148	1.00	3	0.00	-308.9	313.3	0.0	1.00	-308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-282.2	286.3	0.0	1.00	-216.2	219.3	0.0
			2	0.00	-7.0	7.1	0.0	1.00	-7.0	7.1	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
148	136	0.99	5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			3	0.00	-336.6	283.4	0.0	0.99	-336.6	283.4	0.0
			4	0.00	-235.6	198.4	0.0	0.99	-172.9	145.6	0.0
			2	0.00	-7.6	6.4	0.0	0.99	-7.6	6.4	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
136	124	1.01	3	0.00	-362.7	249.1	0.0	1.01	-362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			4	0.00	-186.3	127.9	0.0	1.01	-126.9	87.2	0.0
			2	0.00	-8.2	5.7	0.0	1.01	-8.2	5.7	0.0
			6	0.00	0.0	-231.0	0.0	1.01	0.0	-231.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
124	112	1.00	3	0.00	-383.4	215.9	0.0	1.00	-383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-134.2	75.6	0.0	1.00	-81.9	46.1	0.0
			2	0.00	-8.7	4.9	0.0	1.00	-8.7	4.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
112	100	0.99	3	0.00	-402.8	177.1	0.0	0.99	-402.8	177.1	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-86.1	37.8	0.0	0.99	-35.7	15.7	0.0
			2	0.00	-9.2	4.0	0.0	0.99	-9.2	4.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-94.3	41.5	0.0	0.99	-94.3	41.5	0.0
243	255	1.03	3	0.00	123.7	422.3	0.0	1.03	123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			4	0.00	142.2	485.6	0.0	1.03	123.7	422.3	0.0
			2	0.00	2.8	9.6	0.0	1.03	2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0

			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
255	267	0.97	3	0.00	113.1	425.2	0.0	0.97	113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			4	0.00	113.1	425.2	0.0	0.97	97.7	367.2	0.0
			2	0.00	2.6	9.7	0.0	0.97	2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
267	279	0.99	3	0.00	97.3	429.1	0.0	0.99	97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	84.1	370.6	0.0	0.99	70.6	311.1	0.0
			2	0.00	2.2	9.8	0.0	0.99	2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
279	291	1.00	3	0.00	74.5	433.7	0.0	1.00	74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	54.0	314.4	0.0	1.00	42.8	249.4	0.0
			2	0.00	1.7	9.9	0.0	1.00	1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
291	303	1.00	3	0.00	61.6	435.7	0.0	1.00	61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	35.4	250.5	0.0	1.00	27.0	191.1	0.0
			2	0.00	1.4	9.9	0.0	1.00	1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
303	315	1.00	3	0.00	43.8	437.8	0.0	1.00	43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	19.2	192.0	0.0	1.00	12.6	126.4	0.0
			2	0.00	1.0	10.0	0.0	1.00	1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
111	123	1.00	3	0.00	383.4	215.9	0.0	1.00	383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	43.6	24.5	0.0	1.00	67.1	37.8	0.0
			2	0.00	8.7	4.9	0.0	1.00	8.7	4.9	0.0
			6	0.00	0.0	375.0	0.0	1.00	0.0	375.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
123	135	1.01	3	0.00	362.7	249.1	0.0	1.01	362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0

			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			4	0.00	63.5	43.6	0.0	1.01	95.6	65.7	0.0
			2	0.00	8.2	5.7	0.0	1.01	8.2	5.7	0.0
			6	0.00	0.0	289.0	0.0	1.01	0.0	289.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0
135	147	0.99	3	0.00	336.6	283.4	0.0	0.99	336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	88.7	74.7	0.0	0.99	117.8	99.2	0.0
			2	0.00	7.6	6.4	0.0	0.99	7.6	6.4	0.0
			6	0.00	0.0	202.0	0.0	0.99	0.0	202.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
326	314	0.99	4	0.00	-7.7	126.8	0.0	0.99	-15.7	258.5	0.0
			3	0.00	-26.6	439.2	0.0	0.99	-26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-0.6	10.0	0.0	0.99	-0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-6.2	102.9	0.0	0.99	-6.2	102.9	0.0
314	302	1.00	4	0.00	-25.8	257.7	0.0	1.00	-38.3	383.1	0.0
			3	0.00	-43.8	437.8	0.0	1.00	-43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.0	10.0	0.0	1.00	-1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-10.3	102.5	0.0	1.00	-10.3	102.5	0.0
302	290	1.00	4	0.00	-53.9	381.2	0.0	1.00	-71.7	507.0	0.0
			3	0.00	-61.6	435.7	0.0	1.00	-61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.4	9.9	0.0	1.00	-1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
290	278	1.00	4	0.00	-86.7	504.6	0.0	1.00	-108.0	628.8	0.0
			3	0.00	-74.5	433.7	0.0	1.00	-74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	-1.7	9.9	0.0	1.00	-1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
145	157	1.00	4	0.00	108.1	109.7	0.0	1.00	143.2	145.3	0.0
			3	0.00	308.9	313.3	0.0	1.00	308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	7.0	7.1	0.0	1.00	7.0	7.1	0.0

			6	0.00	0.0	99.0	0.0	1.00	0.0	99.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
157	169	1.00	4	0.00	128.2	158.7	0.0	1.00	159.0	196.8	0.0
			3	0.00	276.5	342.3	0.0	1.00	276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	6.3	7.8	0.0	1.00	6.3	7.8	0.0
			6	0.00	0.0	12.0	0.0	1.00	0.0	12.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
256	244	1.03	3	0.00	-123.7	422.3	0.0	1.03	-123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			4	0.00	-249.1	850.3	0.0	1.03	-284.5	971.2	0.0
			2	0.00	-2.8	9.6	0.0	1.03	-2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
266	254	0.97	4	0.00	-196.6	739.3	0.0	0.97	-227.7	856.2	0.0
			3	0.00	-113.1	425.2	0.0	0.97	-113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			2	0.00	-2.6	9.7	0.0	0.97	-2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
254	242	1.03	4	0.00	-249.1	850.3	0.0	1.03	-284.5	971.2	0.0
			3	0.00	-123.7	422.3	0.0	1.03	-123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			2	0.00	-2.8	9.6	0.0	1.03	-2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
242	230	0.99	4	0.00	-326.1	958.0	0.0	0.99	-345.8	1015.8	0.0
			3	0.00	-141.8	416.5	0.0	0.99	-141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	-3.2	9.5	0.0	0.99	-3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
319	331	0.99	3	0.00	13.3	219.6	0.0	0.99	13.3	219.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	3.9	63.9	0.0	0.99	2.0	32.9	0.0
			2	0.00	0.3	5.0	0.0	0.99	0.3	5.0	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
331	338	1.00	3	0.00	4.4	220.0	0.0	1.00	4.4	220.0	0.0

			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	0.7	33.0	0.0	1.00	0.0	0.0	0.0
			2	0.00	0.1	5.0	0.0	1.00	0.1	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
284	272	0.99	3	0.00	-48.7	214.6	0.0	0.99	-48.7	214.6	0.0
			2	0.00	0.0	11.0	0.0	0.99	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	-70.6	311.1	0.0	0.99	-84.7	373.5	0.0
			2	0.00	-1.1	4.9	0.0	0.99	-1.1	4.9	0.0
			6	0.00	0.0	-116.0	0.0	0.99	0.0	-116.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
272	260	0.97	3	0.00	-56.5	212.6	0.0	0.97	-56.5	212.6	0.0
			2	0.00	0.0	11.0	0.0	0.97	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	0.97	0.0	-58.0	0.0
			4	0.00	-98.4	370.1	0.0	0.97	-113.9	428.1	0.0
			2	0.00	-1.3	4.8	0.0	0.97	-1.3	4.8	0.0
			6	0.00	0.0	-116.0	0.0	0.97	0.0	-116.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
308	296	1.00	3	0.00	-30.8	217.8	0.0	1.00	-30.8	217.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-27.0	191.1	0.0	1.00	-35.8	253.5	0.0
			2	0.00	-0.7	5.0	0.0	1.00	-0.7	5.0	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-14.4	102.0	0.0	1.00	-14.4	102.0	0.0
296	284	1.00	3	0.00	-37.2	216.8	0.0	1.00	-37.2	216.8	0.0
			2	0.00	0.0	11.0	0.0	1.00	0.0	11.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	-43.3	252.3	0.0	1.00	-54.0	314.4	0.0
			2	0.00	-0.8	4.9	0.0	1.00	-0.8	4.9	0.0
			6	0.00	0.0	-116.0	0.0	1.00	0.0	-116.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
103	115	0.99	3	0.00	201.4	88.5	0.0	0.99	201.4	88.5	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	10.1	4.4	0.0	0.99	22.9	10.1	0.0
			2	0.00	4.6	2.0	0.0	0.99	4.6	2.0	0.0
			6	0.00	0.0	231.0	0.0	0.99	0.0	231.0	0.0
			1	0.00	94.3	41.5	0.0	0.99	94.3	41.5	0.0
115	127	1.00	3	0.00	191.7	108.0	0.0	1.00	191.7	108.0	0.0
			2	0.00	0.0	27.0	0.0	1.00	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.00	0.0	-58.0	0.0
			4	0.00	21.8	12.3	0.0	1.00	34.0	19.1	0.0
			2	0.00	4.4	2.5	0.0	1.00	4.4	2.5	0.0

			6	0.00	0.0	188.0	0.0	1.00	0.0	188.0	0.0
			1	0.00	89.8	50.6	0.0	1.00	89.8	50.6	0.0
127	139	1.01	3	0.00	181.4	124.5	0.0	1.01	181.4	124.5	0.0
			2	0.00	0.0	27.0	0.0	1.01	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	1.01	0.0	-58.0	0.0
			4	0.00	32.1	22.1	0.0	1.01	47.8	32.8	0.0
			2	0.00	4.1	2.8	0.0	1.01	4.1	2.8	0.0
			6	0.00	0.0	145.0	0.0	1.01	0.0	145.0	0.0
			1	0.00	84.9	58.3	0.0	1.01	84.9	58.3	0.0
139	151	0.99	3	0.00	168.3	141.7	0.0	0.99	168.3	141.7	0.0
			2	0.00	0.0	27.0	0.0	0.99	0.0	27.0	0.0
			5	0.00	0.0	-58.0	0.0	0.99	0.0	-58.0	0.0
			4	0.00	44.4	37.4	0.0	0.99	58.9	49.6	0.0
			2	0.00	3.8	3.2	0.0	0.99	3.8	3.2	0.0
			6	0.00	0.0	101.0	0.0	0.99	0.0	101.0	0.0
			1	0.00	78.8	66.4	0.0	0.99	78.8	66.4	0.0
129	83	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
81	131	6.79	1	0.00	0.8	1.3	0.0	6.79	0.8	1.3	0.0
137	91	6.79	1	0.00	-0.8	1.3	0.0	6.79	-0.8	1.3	0.0
89	139	6.79	1	0.00	0.8	1.3	0.0	6.79	0.8	1.3	0.0
31	73	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	10.0	0.9	0.0	1.87	10.0	0.9	0.0
			6	0.00	0.0	462.0	0.0	1.87	0.0	462.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
73	85	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.8	2.2	0.0	1.00	9.8	2.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
85	97	1.00	4	0.00	0.0	0.0	0.0	1.00	20.8	7.0	0.0
			3	0.00	417.0	140.5	0.0	1.00	417.0	140.5	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.5	3.2	0.0	1.00	9.5	3.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	97.6	32.9	0.0	1.00	97.6	32.9	0.0
37	75	1.87	5	0.00	0.0	-115.0	0.0	1.87	0.0	-115.0	0.0
			2	0.00	10.0	0.9	0.0	1.87	10.0	0.9	0.0
			6	0.00	0.0	462.0	0.0	1.87	0.0	462.0	0.0
			1	0.00	102.6	9.4	0.0	1.87	102.6	9.4	0.0
75	87	1.00	5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	9.8	2.2	0.0	1.00	9.8	2.2	0.0
			6	0.00	0.0	462.0	0.0	1.00	0.0	462.0	0.0
			1	0.00	100.5	22.6	0.0	1.00	100.5	22.6	0.0
294	282	1.00	3	0.00	-74.5	433.7	0.0	1.00	-74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0

			4	0.00	-86.7	504.6	0.0	1.00	-108.0	628.8	0.0
			2	0.00	-1.7	9.9	0.0	1.00	-1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-17.4	101.6	0.0	1.00	-17.4	101.6	0.0
149	161	1.00	3	0.00	308.9	313.3	0.0	1.00	308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	108.1	109.7	0.0	1.00	143.2	145.3	0.0
			2	0.00	7.0	7.1	0.0	1.00	7.0	7.1	0.0
			6	0.00	0.0	99.0	0.0	1.00	0.0	99.0	0.0
			1	0.00	72.3	73.4	0.0	1.00	72.3	73.4	0.0
161	173	1.00	3	0.00	276.5	342.3	0.0	1.00	276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	128.2	158.7	0.0	1.00	159.0	196.8	0.0
			2	0.00	6.3	7.8	0.0	1.00	6.3	7.8	0.0
			6	0.00	0.0	12.0	0.0	1.00	0.0	12.0	0.0
			1	0.00	64.7	80.2	0.0	1.00	64.7	80.2	0.0
173	185	1.00	3	0.00	246.1	364.7	0.0	1.00	246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	141.5	209.7	0.0	1.00	169.5	251.2	0.0
			2	0.00	5.6	8.3	0.0	1.00	5.6	8.3	0.0
			6	0.00	0.0	-75.0	0.0	1.00	0.0	-75.0	0.0
			1	0.00	57.6	85.4	0.0	1.00	57.6	85.4	0.0
185	197	1.00	3	0.00	210.7	386.3	0.0	1.00	210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	145.1	266.0	0.0	1.00	173.8	318.7	0.0
			2	0.00	4.8	8.8	0.0	1.00	4.8	8.8	0.0
			6	0.00	0.0	-127.0	0.0	1.00	0.0	-127.0	0.0
			1	0.00	49.3	90.5	0.0	1.00	49.3	90.5	0.0
197	209	0.98	3	0.00	193.2	395.3	0.0	0.98	193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			4	0.00	159.4	326.1	0.0	0.98	183.5	375.6	0.0
			2	0.00	4.4	9.0	0.0	0.98	4.4	9.0	0.0
			6	0.00	0.0	-162.0	0.0	0.98	0.0	-162.0	0.0
			1	0.00	45.2	92.6	0.0	0.98	45.2	92.6	0.0
209	221	1.02	3	0.00	172.3	404.9	0.0	1.02	172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			4	0.00	163.7	384.6	0.0	1.02	187.6	440.8	0.0
			2	0.00	3.9	9.2	0.0	1.02	3.9	9.2	0.0
			6	0.00	0.0	-214.0	0.0	1.02	0.0	-214.0	0.0

			1	0.00	40.3	94.8	0.0	1.02	40.3	94.8	0.0
221	233	1.00	3	0.00	162.7	408.8	0.0	1.00	162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	177.1	445.1	0.0	1.00	199.3	500.8	0.0
			2	0.00	3.7	9.3	0.0	1.00	3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	38.1	95.7	0.0	1.00	38.1	95.7	0.0
233	245	0.99	3	0.00	141.8	416.5	0.0	0.99	141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	173.7	510.2	0.0	0.99	163.1	479.0	0.0
			2	0.00	3.2	9.5	0.0	0.99	3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	33.2	97.5	0.0	0.99	33.2	97.5	0.0
245	257	1.03	3	0.00	123.7	422.3	0.0	1.03	123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			4	0.00	142.2	485.6	0.0	1.03	123.7	422.3	0.0
			2	0.00	2.8	9.6	0.0	1.03	2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	29.0	98.9	0.0	1.03	29.0	98.9	0.0
257	269	0.97	3	0.00	113.1	425.2	0.0	0.97	113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			4	0.00	113.1	425.2	0.0	0.97	97.7	367.2	0.0
			2	0.00	2.6	9.7	0.0	0.97	2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	26.5	99.6	0.0	0.97	26.5	99.6	0.0
269	281	0.99	3	0.00	97.3	429.1	0.0	0.99	97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	84.1	370.6	0.0	0.99	70.6	311.1	0.0
			2	0.00	2.2	9.8	0.0	0.99	2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	22.8	100.5	0.0	0.99	22.8	100.5	0.0
281	293	1.00	3	0.00	74.5	433.7	0.0	1.00	74.5	433.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	54.0	314.4	0.0	1.00	42.8	249.4	0.0
			2	0.00	1.7	9.9	0.0	1.00	1.7	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	17.4	101.6	0.0	1.00	17.4	101.6	0.0
293	305	1.00	3	0.00	61.6	435.7	0.0	1.00	61.6	435.7	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0

			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	35.4	250.5	0.0	1.00	27.0	191.1	0.0
			2	0.00	1.4	9.9	0.0	1.00	1.4	9.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	14.4	102.0	0.0	1.00	14.4	102.0	0.0
305	317	1.00	4	0.00	19.2	192.0	0.0	1.00	12.6	126.4	0.0
			3	0.00	43.8	437.8	0.0	1.00	43.8	437.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	1.0	10.0	0.0	1.00	1.0	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	10.3	102.5	0.0	1.00	10.3	102.5	0.0
317	329	0.99	4	0.00	7.7	126.8	0.0	0.99	4.0	65.9	0.0
			3	0.00	26.6	439.2	0.0	0.99	26.6	439.2	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			2	0.00	0.6	10.0	0.0	0.99	0.6	10.0	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	6.2	102.9	0.0	0.99	6.2	102.9	0.0
329	337	1.00	4	0.00	1.3	66.0	0.0	1.00	0.0	0.0	0.0
			3	0.00	8.8	439.9	0.0	1.00	8.8	439.9	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			2	0.00	0.2	10.0	0.0	1.00	0.2	10.0	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	2.1	103.0	0.0	1.00	2.1	103.0	0.0
282	270	0.99	3	0.00	-97.3	429.1	0.0	0.99	-97.3	429.1	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-141.1	622.2	0.0	0.99	-169.2	746.1	0.0
			2	0.00	-2.2	9.8	0.0	0.99	-2.2	9.8	0.0
			2	0.00	-2.2	9.8	0.0	0.99	-2.2	9.8	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-22.8	100.5	0.0	0.99	-22.8	100.5	0.0
270	258	0.97	3	0.00	-113.1	425.2	0.0	0.97	-113.1	425.2	0.0
			2	0.00	0.0	22.0	0.0	0.97	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.97	0.0	-115.0	0.0
			4	0.00	-196.6	739.3	0.0	0.97	-227.7	856.2	0.0
			2	0.00	-2.6	9.7	0.0	0.97	-2.6	9.7	0.0
			6	0.00	0.0	-231.0	0.0	0.97	0.0	-231.0	0.0
			1	0.00	-26.5	99.6	0.0	0.97	-26.5	99.6	0.0
258	246	1.03	3	0.00	-123.7	422.3	0.0	1.03	-123.7	422.3	0.0
			2	0.00	0.0	22.0	0.0	1.03	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.03	0.0	-115.0	0.0
			4	0.00	-249.1	850.3	0.0	1.03	-284.5	971.2	0.0

			2	0.00	-2.8	9.6	0.0	1.03	-2.8	9.6	0.0
			6	0.00	0.0	-231.0	0.0	1.03	0.0	-231.0	0.0
			1	0.00	-29.0	98.9	0.0	1.03	-29.0	98.9	0.0
246	234	0.99	3	0.00	-141.8	416.5	0.0	0.99	-141.8	416.5	0.0
			2	0.00	0.0	22.0	0.0	0.99	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-326.1	958.0	0.0	0.99	-345.8	1015.8	0.0
			2	0.00	-3.2	9.5	0.0	0.99	-3.2	9.5	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-33.2	97.5	0.0	0.99	-33.2	97.5	0.0
234	222	1.00	3	0.00	-162.7	408.8	0.0	1.00	-162.7	408.8	0.0
			2	0.00	0.0	22.0	0.0	1.00	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-396.7	997.0	0.0	1.00	-351.9	884.6	0.0
			2	0.00	-3.7	9.3	0.0	1.00	-3.7	9.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-38.1	95.7	0.0	1.00	-38.1	95.7	0.0
222	210	1.02	3	0.00	-172.3	404.9	0.0	1.02	-172.3	404.9	0.0
			2	0.00	0.0	22.0	0.0	1.02	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	1.02	0.0	-115.0	0.0
			4	0.00	-372.8	876.0	0.0	1.02	-327.3	769.2	0.0
			2	0.00	-3.9	9.2	0.0	1.02	-3.9	9.2	0.0
			6	0.00	0.0	-231.0	0.0	1.02	0.0	-231.0	0.0
			1	0.00	-40.3	94.8	0.0	1.02	-40.3	94.8	0.0
210	198	0.98	3	0.00	-193.2	395.3	0.0	0.98	-193.2	395.3	0.0
			2	0.00	0.0	22.0	0.0	0.98	0.0	22.0	0.0
			5	0.00	0.0	-115.0	0.0	0.98	0.0	-115.0	0.0
			4	0.00	-367.0	751.1	0.0	0.98	-316.5	647.8	0.0
			2	0.00	-4.4	9.0	0.0	0.98	-4.4	9.0	0.0
			6	0.00	0.0	-231.0	0.0	0.98	0.0	-231.0	0.0
			1	0.00	-45.2	92.6	0.0	0.98	-45.2	92.6	0.0
198	186	1.00	3	0.00	-210.7	386.3	0.0	1.00	-210.7	386.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-345.3	633.0	0.0	1.00	-289.7	531.1	0.0
			2	0.00	-4.8	8.8	0.0	1.00	-4.8	8.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-49.3	90.5	0.0	1.00	-49.3	90.5	0.0
186	174	1.00	3	0.00	-246.1	364.7	0.0	1.00	-246.1	364.7	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-338.4	501.5	0.0	1.00	-280.2	415.3	0.0
			2	0.00	-5.6	8.3	0.0	1.00	-5.6	8.3	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-57.6	85.4	0.0	1.00	-57.6	85.4	0.0

174	162	1.00	3	0.00	-276.5	342.3	0.0	1.00	-276.5	342.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-314.8	389.7	0.0	1.00	-252.6	312.7	0.0
			2	0.00	-6.3	7.8	0.0	1.00	-6.3	7.8	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-64.7	80.2	0.0	1.00	-64.7	80.2	0.0
162	150	1.00	3	0.00	-308.9	313.3	0.0	1.00	-308.9	313.3	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-282.2	286.3	0.0	1.00	-216.2	219.3	0.0
			2	0.00	-7.0	7.1	0.0	1.00	-7.0	7.1	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-72.3	73.4	0.0	1.00	-72.3	73.4	0.0
150	138	0.99	3	0.00	-336.6	283.4	0.0	0.99	-336.6	283.4	0.0
			2	0.00	0.0	53.0	0.0	0.99	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	0.99	0.0	-115.0	0.0
			4	0.00	-235.6	198.4	0.0	0.99	-172.9	145.6	0.0
			2	0.00	-7.6	6.4	0.0	0.99	-7.6	6.4	0.0
			6	0.00	0.0	-231.0	0.0	0.99	0.0	-231.0	0.0
			1	0.00	-78.8	66.4	0.0	0.99	-78.8	66.4	0.0
138	126	1.01	3	0.00	-362.7	249.1	0.0	1.01	-362.7	249.1	0.0
			2	0.00	0.0	53.0	0.0	1.01	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.01	0.0	-115.0	0.0
			4	0.00	-186.3	127.9	0.0	1.01	-126.9	87.2	0.0
			2	0.00	-8.2	5.7	0.0	1.01	-8.2	5.7	0.0
			6	0.00	0.0	-231.0	0.0	1.01	0.0	-231.0	0.0
			1	0.00	-84.9	58.3	0.0	1.01	-84.9	58.3	0.0
126	114	1.00	3	0.00	-383.4	215.9	0.0	1.00	-383.4	215.9	0.0
			2	0.00	0.0	53.0	0.0	1.00	0.0	53.0	0.0
			5	0.00	0.0	-115.0	0.0	1.00	0.0	-115.0	0.0
			4	0.00	-134.2	75.6	0.0	1.00	-81.9	46.1	0.0
			2	0.00	-8.7	4.9	0.0	1.00	-8.7	4.9	0.0
			6	0.00	0.0	-231.0	0.0	1.00	0.0	-231.0	0.0
			1	0.00	-89.8	50.6	0.0	1.00	-89.8	50.6	0.0
1	81	5.45	7	0.00	0.0	126.0	0.0	5.45	0.0	126.0	0.0
			1	0.00	16.1	26.4	0.4	5.45	16.1	26.4	0.4
83	81	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
85	83	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
87	85	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
89	87	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
91	89	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
82	84	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
84	86	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
86	88	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0

88	90	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
90	92	5.50	1	0.00	0.0	27.6	0.0	5.50	0.0	27.6	0.0
129	131	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
131	133	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
133	135	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
135	137	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
137	139	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
130	132	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
132	134	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
134	136	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
136	138	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
138	140	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
177	179	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
179	181	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
181	183	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
183	185	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
185	187	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
178	180	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
180	182	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
182	184	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
184	186	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
186	188	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
225	227	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
227	229	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
229	231	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
231	233	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
233	235	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
226	228	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
228	230	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
230	232	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
232	234	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
234	236	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
273	275	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
275	277	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
277	279	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
279	281	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
281	283	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
274	276	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
276	278	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
278	280	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
280	282	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
282	284	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
321	323	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
323	325	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
325	327	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0

327	329	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
329	331	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
322	324	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
324	326	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
326	328	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
328	330	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0
330	332	5.50	1	0.00	0.0	28.3	0.0	5.50	0.0	28.3	0.0

Tab.28 – Carichi distribuiti sugli elementi trave

Per ultimo vengono riportate la tabella delle sezioni degli elementi strutturali utilizzati nel modello e le immagini della sua vista estrusa. Come si può vedere da queste immagini (Fig. 25, Fig. 26), non solo la travata principale è stata discretizzata, ma anche la travi rovescia di fondazione. In particolare, tale trave è stata “spezzata” nelle sezioni d’intersezione con gli elementi che scaricano su di essa (trave ad arco e diagonali).

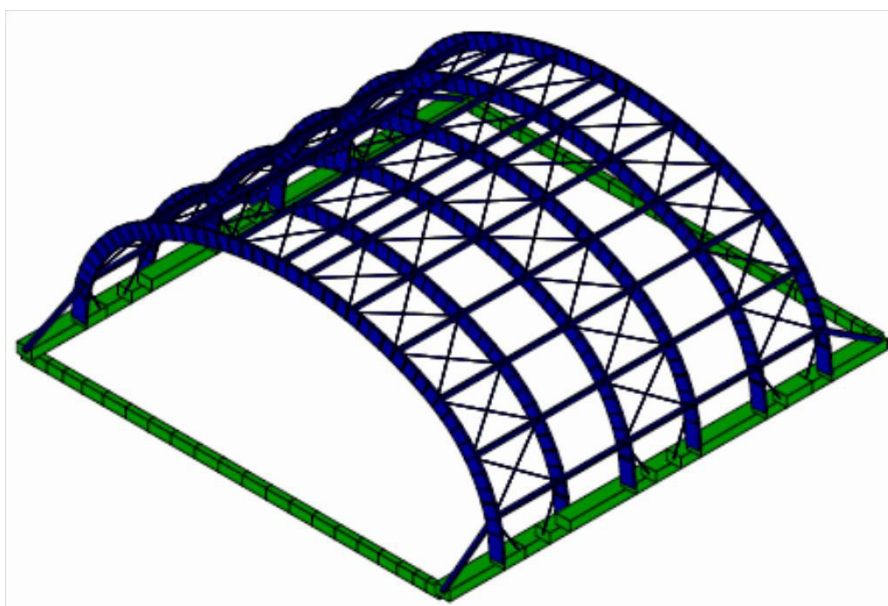


Fig.25 – Modello 3D estruso – Vista delle sezioni

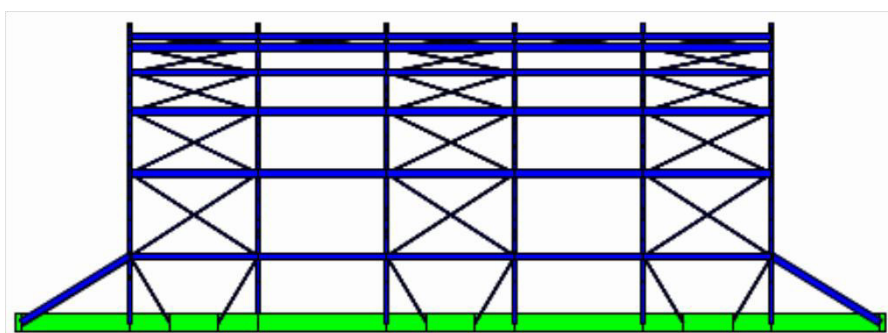


Fig.26 – Vista Longitudinale della struttura – Modello estruso

Dalle Fig.25 e 26 si notano le posizioni dei controventi di falda. Tale sistema si rende necessario da un punto di vista statico poiché, il trasferimento dei carichi verticali che agiscono sul manto di copertura avviene dapprima sulla trave principale ad arco e successivamente sul sistema longitudinale di arcarecci i quali sono riconducibili a semplici aste incernierate. Questo insieme strutturale risulta labile nel piano, pertanto viene introdotto un sistema di controventi di falda nelle due direzioni con il duplice scopo di ripristinare uno schema statico quantomeno isostatico e di ridurre la luce di libera inflessione della trave ad arco principale nel suo piano trasversale.

Per concludere si riportano i risultati delle analisi svolte in termini di sollecitazioni sugli elementi trave del modello alle diverse combinazioni di carico studiate.

Comb.	Nodo	N	T1-2	T1-3	Mt	M1-3	M1-2
		[kg]	[kg]	[kg]	[kgm]	[kgm]	[kgm]
1	128	14474.4	1952.5	-59.2	-21.6	-31.6	28789.3
	116	-14902.8	-1676.1	59.2	21.6	90.7	-26977.7
2	128	17874.6	1223.7	1.0	203.0	-184.5	33503.9
	116	-18083.1	-1227.6	-1.0	-203.0	183.4	-32282.0
3	128	15088.5	1279.3	59.5	395.1	-315.3	32073.5
	116	-15251.1	-1413.2	-59.5	-395.1	255.9	-30730.1
4	128	4479.8	529.6	-9.8	14.6	-7.2	8249.8
	116	-4602.0	-425.8	9.8	-14.6	17.0	-7772.9
5	128	9543.8	2118.5	-74.0	112.3	-101.8	24091.0
	116	-9733.5	-1984.7	74.0	-112.3	173.6	-22061.7
6	128	7151.6	1837.0	-7.3	-28.0	14.5	18988.3
	116	-7341.3	-1703.2	7.3	28.0	-5.8	-17209.4
7	128	11089.9	1658.9	-139.4	246.4	-216.1	23901.6
	116	-11279.6	-1525.1	139.4	-246.4	349.3	-22364.3
8	128	10022.8	983.4	-128.8	221.1	-197.8	18636.5
	116	-10212.5	-849.6	128.8	-221.1	320.7	-17771.4
9	128	5987.0	-132.9	-38.6	27.8	-40.8	6540.9
	116	-6176.7	266.7	38.6	-27.8	78.0	-6751.9
10	128	3594.7	-414.4	28.1	-112.5	75.4	1438.2
	116	-3784.4	548.2	-28.1	112.5	-101.4	-1899.6
11	128	3115.7	720.7	82.9	-221.3	171.5	6892.7
	116	-3305.4	-586.9	-82.9	221.3	-248.4	-6189.9
12	128	2048.7	45.2	93.5	-246.6	189.8	1627.6
	116	-2238.4	88.6	-93.5	246.6	-277.1	-1597.0
21	128	9692.6	1296.7	-38.4	-11.4	-20.8	19183.2
	116	-9978.0	-1109.0	38.4	11.4	59.1	-17982.1
22	128	11968.3	856.0	1.5	139.1	-124.2	22546.7

	116	-12116.3	-849.9	-1.5	-139.1	122.7	-21696.3
23	128	10518.5	907.2	38.7	264.9	-211.0	22228.5
	116	-10639.4	-985.8	-38.7	-264.9	172.4	-21284.0
24	128	4695.3	585.3	-13.7	6.7	-8.6	8913.5
	116	-4827.6	-483.8	13.7	-6.7	22.3	-8379.7
25	128	4668.5	449.9	-12.9	4.3	-4.2	8252.1
	116	-4773.3	-363.9	12.9	-4.3	17.1	-7846.0
26	128	3174.4	369.5	-6.3	11.8	-5.3	5959.5
	116	-3268.4	-301.2	6.3	-11.8	11.5	-5624.7
27	128	3446.0	407.4	-7.5	11.2	-5.6	6346.0
	116	-3540.0	-327.5	7.5	-11.2	13.1	-5979.1
28	128	8639.5	1735.0	-58.7	78.8	-74.8	20626.0
	116	-8829.2	-1601.2	58.7	-78.8	131.5	-18977.6
29	128	6979.4	1530.4	-11.8	-20.2	6.1	17080.4
	116	-7169.1	-1396.6	11.8	20.2	7.1	-15608.6
30	128	9708.2	1427.3	-104.9	173.6	-154.2	20500.5
	116	-9897.8	-1293.5	104.9	-173.6	253.4	-19189.3
31	128	8964.1	958.9	-97.5	156.0	-141.5	16847.4
	116	-9153.8	-825.1	97.5	-156.0	233.5	-16001.8
32	128	6159.2	173.7	-34.1	20.0	-32.4	8448.8
	116	-6348.9	-39.9	34.1	-20.0	65.1	-8352.6
33	128	4499.1	-30.9	12.8	-79.0	48.4	4903.2
	116	-4688.8	164.7	-12.8	79.0	-59.3	-4983.7
34	128	4174.5	745.1	51.5	-156.2	115.2	8681.8
	116	-4364.2	-611.3	-51.5	156.2	-161.3	-7959.5
35	128	3430.4	276.8	58.9	-173.8	127.9	5028.7
	116	-3620.1	-143.0	-58.9	173.8	-181.2	-4772.0
1	116	14664.8	3137.9	-59.2	-12.5	-92.4	26977.7
	104	-15112.9	-2940.9	59.2	12.5	151.3	-23956.5
2	116	18114.4	2899.5	-444.5	220.1	-162.5	32282.0
	104	-18291.0	-2977.5	444.5	-220.1	604.3	-29362.5
3	116	15438.3	2734.4	-683.0	418.4	-215.7	30730.1
	104	-15589.0	-2927.6	683.0	-418.4	894.6	-27916.7
4	116	4537.5	877.6	-9.8	16.2	-15.5	7772.9
	104	-4665.3	-821.4	9.8	-16.2	25.2	-6928.4
5	116	9505.6	2961.7	-77.6	128.2	-162.2	22061.7
	104	-9704.0	-2874.5	77.6	-128.2	237.6	-19169.4
6	116	7145.5	2460.0	-3.5	-28.1	3.3	17209.4
	104	-7344.0	-2372.7	3.5	28.1	1.7	-14803.3
7	116	11089.7	2616.4	-151.8	278.0	-324.9	22364.3
	104	-11288.1	-2529.2	151.8	-278.0	470.2	-19828.4
8	116	10087.5	1818.8	-141.3	250.0	-298.8	17771.4
	104	-10285.9	-1731.6	141.3	-250.0	433.7	-16027.0
9	116	6164.8	302.9	-42.5	35.0	-75.2	6751.9

	104	-6363.2	-215.6	42.5	-35.0	115.9	-6498.3
10	116	3804.8	-198.9	31.7	-121.3	90.4	1899.6
	104	-4003.2	286.1	-31.7	121.3	-120.0	-2132.2
11	116	3222.9	944.0	95.3	-243.1	226.9	6189.9
	104	-3421.3	-856.8	-95.3	243.1	-316.2	-5274.6
12	116	2220.7	146.4	105.9	-271.1	253.0	1597.0
	104	-2419.1	-59.2	-105.9	271.1	-352.7	-1473.3
21	116	9820.0	2087.7	-38.4	-5.5	-60.0	17982.1
	104	-10118.5	-1956.5	38.4	5.5	98.2	-15972.1
22	116	12133.7	1970.4	-295.5	150.5	-108.4	21696.3
	104	-12262.5	-2017.5	295.5	-150.5	402.1	-19715.1
23	116	10757.6	1912.9	-456.3	280.6	-145.4	21284.0
	104	-10871.2	-2036.0	456.3	-280.6	599.0	-19321.8
24	116	4756.3	957.6	-13.7	8.8	-21.5	8379.7
	104	-4894.7	-896.8	13.7	-8.8	35.1	-7458.1
25	116	4714.1	832.9	-12.9	5.9	-16.6	7846.0
	104	-4818.5	-787.1	12.9	-5.9	29.4	-7041.1
26	116	3222.7	622.1	-6.3	12.9	-10.3	5624.7
	104	-3321.0	-590.4	6.3	-12.9	16.6	-5022.0
27	116	3490.4	675.1	-7.5	12.4	-11.9	5979.1
	104	-3588.7	-631.9	7.5	-12.4	19.4	-5329.6
28	116	8640.0	2479.9	-61.6	90.8	-123.6	18977.6
	104	-8838.4	-2392.6	61.6	-90.8	183.2	-16563.5
29	116	7002.1	2126.9	-8.8	-19.0	-8.7	15608.6
	104	-7200.5	-2039.7	8.8	19.0	18.8	-13533.8
30	116	9734.9	2246.2	-114.8	196.2	-236.5	19189.3
	104	-9933.3	-2159.0	114.8	-196.2	345.5	-17019.7
31	116	9035.4	1693.0	-107.4	176.7	-218.4	16001.8
	104	-9233.8	-1605.8	107.4	-176.7	320.1	-14381.0
32	116	6308.3	635.9	-37.2	25.9	-63.2	8352.6
	104	-6506.7	-548.7	37.2	-25.9	98.8	-7767.9
33	116	4670.3	283.0	15.7	-83.9	51.7	4983.7
	104	-4868.7	-195.7	-15.7	83.9	-65.6	-4738.2
34	116	4275.0	1069.8	61.5	-169.8	146.5	7959.5
	104	-4473.4	-982.6	-61.5	169.8	-202.6	-6920.6
35	116	3575.5	516.6	68.8	-189.3	164.6	4772.0
	104	-3773.9	-429.4	-68.8	189.3	-227.9	-4282.0
1	179	-962.2	6.8	-0.0	0.0	-0.0	0.0
	225	965.6	6.8	-0.0	-0.0	-0.0	0.0
2	179	1354.8	6.8	0.0	-0.0	-0.0	0.0
	225	-1351.3	6.8	-0.0	0.0	-0.0	0.0
3	179	3252.6	6.8	0.0	-0.0	-0.0	0.0
	225	-3249.1	6.8	-0.0	0.0	-0.0	0.0
4	179	-88.0	6.8	-0.0	0.0	0.0	0.0

	225	91.5	6.8	-0.0	-0.0	-0.0	0.0
5	179	160.8	5.2	-0.0	-0.0	-0.0	0.0
	225	-158.1	5.2	-0.0	0.0	-0.0	0.0
6	179	-607.7	5.2	-0.0	0.0	0.0	0.0
	225	610.3	5.2	0.0	-0.0	0.0	0.0
7	179	975.1	5.2	0.0	-0.0	-0.0	0.0
	225	-972.4	5.2	-0.0	0.0	-0.0	-0.0
8	179	904.6	5.2	0.0	-0.0	-0.0	0.0
	225	-902.0	5.2	-0.0	0.0	-0.0	-0.0
9	179	-74.1	5.2	0.0	0.0	-0.0	-0.0
	225	76.7	5.2	-0.0	-0.0	-0.0	0.0
10	179	-842.5	5.2	-0.0	0.0	0.0	-0.0
	225	845.2	5.2	-0.0	-0.0	0.0	0.0
11	179	-1586.4	5.2	-0.0	0.0	0.0	0.0
	225	1589.0	5.2	0.0	-0.0	0.0	0.0
12	179	-1656.8	5.2	-0.0	0.0	0.0	0.0
	225	1659.5	5.2	0.0	-0.0	0.0	0.0
21	179	-614.0	5.2	-0.0	0.0	-0.0	0.0
	225	616.7	5.2	-0.0	-0.0	-0.0	0.0
22	179	926.7	5.2	0.0	-0.0	-0.0	0.0
	225	-924.1	5.2	-0.0	0.0	-0.0	0.0
23	179	2159.4	5.2	0.0	-0.0	-0.0	0.0
	225	-2156.7	5.2	-0.0	0.0	-0.0	0.0
24	179	-177.0	5.2	-0.0	0.0	0.0	0.0
	225	179.6	5.2	-0.0	-0.0	-0.0	0.0
25	179	-165.4	5.2	-0.0	0.0	0.0	-0.0
	225	168.0	5.2	-0.0	-0.0	-0.0	0.0
26	179	-52.0	5.2	-0.0	0.0	0.0	0.0
	225	54.7	5.2	-0.0	-0.0	-0.0	0.0
27	179	-67.7	5.2	-0.0	0.0	0.0	0.0
	225	70.3	5.2	-0.0	-0.0	-0.0	0.0
28	179	11.7	5.2	-0.0	-0.0	-0.0	0.0
	225	-9.1	5.2	-0.0	0.0	-0.0	0.0
29	179	-526.0	5.2	-0.0	0.0	0.0	0.0
	225	528.7	5.2	-0.0	-0.0	-0.0	0.0
30	179	580.5	5.2	0.0	-0.0	-0.0	0.0
	225	-577.9	5.2	-0.0	0.0	-0.0	0.0
31	179	530.3	5.2	0.0	-0.0	-0.0	0.0
	225	-527.6	5.2	-0.0	0.0	-0.0	0.0
32	179	-155.7	5.2	0.0	0.0	-0.0	0.0
	225	158.4	5.2	-0.0	-0.0	-0.0	0.0
33	179	-693.5	5.2	-0.0	0.0	0.0	0.0
	225	696.1	5.2	-0.0	-0.0	0.0	0.0
34	179	-1212.0	5.2	-0.0	0.0	0.0	0.0
	225	1214.7	5.2	0.0	-0.0	0.0	0.0

35	179	-1262.3	5.2	-0.0	0.0	0.0	0.0
	225	1264.9	5.2	0.0	-0.0	0.0	0.0
1	260	7100.7	-2040.7	-0.9	11.0	-20.3	7901.2
	248	-7243.5	2542.9	0.9	-11.0	21.2	-10265.4
2	260	4877.3	-1722.4	-396.9	-47.5	515.2	-81.4
	248	-5138.2	2466.3	396.9	47.5	-105.8	-2070.6
3	260	2264.9	-2133.6	-687.9	-71.0	878.4	5819.5
	248	-2408.8	2370.5	687.9	71.0	-168.8	-8138.7
4	260	2773.7	-563.6	0.6	2.0	-3.5	2228.7
	248	-2814.4	717.4	-0.6	-2.0	2.9	-2889.4
5	260	4149.6	-1954.1	-54.6	6.6	64.1	11775.1
	248	-4212.8	2181.3	54.6	-6.6	-7.6	-13900.8
6	260	5026.1	-1527.4	26.5	44.4	-74.9	10421.7
	248	-5089.4	1754.6	-26.5	-44.4	48.2	-12109.9
7	260	2355.5	-1859.9	-139.4	-52.2	224.5	8026.1
	248	-2418.8	2087.2	139.4	52.2	-81.3	-10055.8
8	260	1694.3	-1352.5	-131.0	-64.9	223.0	3459.3
	248	-1757.5	1579.8	131.0	64.9	-88.7	-4969.1
9	260	1945.4	-262.8	-26.5	-35.7	59.1	-3447.6
	248	-2008.7	490.0	26.5	35.7	-32.3	3054.6
10	260	2822.0	163.9	54.6	2.1	-79.9	-4801.0
	248	-2885.2	63.3	-54.6	-2.1	23.5	4845.6
11	260	5277.3	-437.7	131.0	73.7	-238.9	3514.7
	248	-5340.5	664.9	-131.0	-73.7	104.6	-4086.1
12	260	4616.1	69.7	139.4	61.0	-240.4	-1052.1
	248	-4679.3	157.5	-139.4	-61.0	97.2	1000.5
21	260	4838.0	-1356.7	-0.5	7.2	-13.2	5259.7
	248	-4933.1	1692.8	0.5	-7.2	13.7	-6832.6
22	260	3396.3	-1193.5	-265.4	-31.1	343.7	433.1
	248	-3565.3	1673.9	265.4	31.1	-69.9	-1906.8
23	260	1794.4	-1480.2	-458.5	-47.1	585.2	4108.3
	248	-1894.5	1653.9	458.5	47.1	-112.2	-5722.1
24	260	2674.5	-618.2	0.3	2.7	-4.8	2423.4
	248	-2718.6	780.0	-0.3	-2.7	4.5	-3144.6
25	260	2552.5	-471.2	3.2	0.6	-4.5	937.9
	248	-2611.4	683.5	-3.2	-0.6	1.2	-1532.4
26	260	1931.2	-406.2	0.5	1.4	-2.4	1608.2
	248	-1962.5	512.6	-0.5	-1.4	1.9	-2082.2
27	260	2133.6	-433.5	0.5	1.5	-2.7	1714.4
	248	-2164.9	551.8	-0.5	-1.5	2.2	-2222.6
28	260	3928.7	-1631.7	-38.4	6.0	42.1	9253.0
	248	-3992.0	1859.0	38.4	-6.0	-2.5	-11047.2
29	260	4574.3	-1331.5	18.1	32.4	-54.4	8287.5
	248	-4637.5	1558.7	-18.1	-32.4	36.2	-9774.2

30	260	2639.6	-1571.4	-97.1	-35.3	153.5	6681.3
	248	-2702.8	1798.6	97.1	35.3	-53.9	-8414.1
31	260	2180.1	-1219.5	-91.0	-44.2	152.4	3511.4
	248	-2243.4	1446.7	91.0	44.2	-59.2	-4884.3
32	260	2397.3	-458.7	-18.1	-23.7	38.5	-1313.4
	248	-2460.5	685.9	18.1	23.7	-20.4	719.0
33	260	3042.9	-158.5	38.3	2.8	-58.0	-2279.0
	248	-3106.1	385.7	-38.3	-2.8	18.3	1992.0
34	260	4791.5	-570.7	91.0	52.9	-168.3	3462.7
	248	-4854.7	797.9	-91.0	-52.9	75.1	-4171.0
35	260	4332.0	-218.8	97.1	44.0	-169.3	292.7
	248	-4395.3	446.0	-97.1	-44.0	69.8	-641.1
1	248	7346.5	-2228.0	-0.9	11.9	-20.8	10265.4
	236	-7504.1	2705.1	0.9	-11.9	21.6	-12714.7
2	248	5239.8	-2242.3	-396.9	-52.0	103.7	2070.6
	236	-5551.7	3017.4	396.9	52.0	290.4	-4678.1
3	248	2508.9	-2264.3	-687.9	-78.2	165.5	8138.7
	236	-2679.0	2519.0	687.9	78.2	517.5	-10511.8
4	248	2842.8	-595.3	0.6	2.1	-2.8	2889.4
	236	-2887.7	741.5	-0.6	-2.1	2.2	-3553.1
5	248	4346.8	-1951.6	-72.9	6.3	7.9	13900.8
	236	-4416.6	2167.5	72.9	-6.3	64.8	-15934.9
6	248	5213.1	-1491.7	44.3	46.4	-46.3	12109.9
	236	-5282.9	1707.6	-44.3	-46.4	1.9	-13691.3
7	248	2506.2	-1960.7	-199.7	-55.6	79.1	10055.8
	236	-2575.9	2176.6	199.7	55.6	120.1	-12100.6
8	248	1794.7	-1508.6	-191.2	-68.6	85.9	4969.1
	236	-1864.4	1724.5	191.2	68.6	104.8	-6570.4
9	248	1975.2	-444.6	-44.4	-37.0	30.8	-3054.6
	236	-2045.0	660.4	44.4	37.0	13.6	2499.0
10	248	2841.5	15.4	72.9	3.1	-23.4	-4845.6
	236	-2911.2	200.5	-72.9	-3.1	-49.3	4742.7
11	248	5393.6	-427.6	191.2	78.0	-101.4	4086.1
	236	-5463.4	643.5	-191.2	-78.0	-89.3	-4621.8
12	248	4682.1	24.5	199.7	65.0	-94.5	-1000.5
	236	-4751.9	191.4	-199.7	-65.0	-104.6	908.4
21	248	5001.6	-1478.4	-0.5	7.8	-13.4	6832.6
	236	-5106.5	1797.6	0.5	-7.8	13.8	-8459.1
22	248	3634.2	-1518.5	-265.4	-34.1	68.5	1906.8
	236	-3835.6	2017.5	265.4	34.1	195.0	-3659.9
23	248	1964.1	-1570.6	-458.5	-51.9	110.1	5722.1
	236	-2082.1	1755.4	458.5	51.9	345.2	-7372.3
24	248	2749.7	-662.0	0.3	2.9	-4.4	3144.6
	236	-2798.4	815.8	-0.3	-2.9	4.1	-3878.3

25	248	2638.5	-570.2	3.2	0.6	-1.2	1532.4
	236	-2706.4	780.7	-3.2	-0.6	-2.0	-2202.7
26	248	1982.8	-427.4	0.5	1.5	-1.9	2082.2
	236	-2017.4	528.4	-0.5	-1.5	1.4	-2556.7
27	248	2186.7	-457.9	0.5	1.6	-2.1	2222.6
	236	-2221.3	570.4	-0.5	-1.6	1.7	-2733.1
28	248	4097.2	-1652.2	-51.0	5.9	2.7	11047.2
	236	-4167.0	1868.1	51.0	-5.9	48.2	-12785.5
29	248	4738.2	-1330.1	30.3	33.9	-34.9	9774.2
	236	-4808.0	1545.9	-30.3	-33.9	4.5	-11196.2
30	248	2772.9	-1662.0	-138.7	-37.5	52.4	8414.1
	236	-2842.7	1877.9	138.7	37.5	86.2	-10163.4
31	248	2278.8	-1348.2	-132.5	-46.6	57.4	4884.3
	236	-2348.6	1564.1	132.5	46.6	75.0	-6326.6
32	248	2450.1	-606.2	-30.4	-24.5	19.4	-719.0
	236	-2519.9	822.1	30.4	24.5	11.0	3.9
33	248	3091.1	-284.0	51.0	3.5	-18.2	-1992.0
	236	-3160.9	499.9	-51.0	-3.5	-32.7	1593.2
34	248	4909.5	-588.1	132.5	56.0	-72.9	4171.0
	236	-4979.3	804.0	-132.5	-56.0	-59.5	-4865.6
35	248	4415.4	-274.3	138.7	46.9	-67.9	641.1
	236	-4485.2	490.2	-138.7	-46.9	-70.6	-1028.8
1	236	8837.0	-2397.5	-16.6	9.8	-12.9	12755.0
	224	-9019.2	2869.8	16.6	-9.8	29.6	-15391.1
2	236	7307.8	-3085.7	265.6	-50.2	-260.1	4593.4
	224	-7659.6	3827.6	-265.6	50.2	-5.7	-8060.7
3	236	4564.9	-2898.2	445.0	-99.7	-400.9	10327.8
	224	-4757.5	3135.2	-445.0	99.7	-44.6	-13350.8
4	236	3090.6	-697.2	-1.7	3.1	-4.4	3557.2
	224	-3142.5	842.1	1.7	-3.1	6.1	-4327.5
5	236	5441.4	-1930.4	9.0	-11.3	-19.4	15916.7
	224	-5522.0	2144.2	-9.0	11.3	3.5	-17936.7
6	236	5869.2	-1442.2	-34.3	47.4	-6.0	13737.6
	224	-5949.9	1656.0	34.3	-47.4	33.6	-15275.4
7	236	3904.6	-2067.0	64.2	-89.2	-30.4	12007.5
	224	-3985.3	2280.8	-64.2	89.2	-36.1	-14167.8
8	236	3015.3	-1695.8	68.2	-97.4	-26.4	6477.6
	224	-3096.0	1909.6	-68.2	97.4	-40.0	-8275.9
9	236	2477.0	-693.1	22.4	-38.4	-6.1	-2516.3
	224	-2557.7	906.9	-22.4	38.4	-9.5	1702.9
10	236	2904.8	-204.9	-21.0	20.2	7.4	-4695.4
	224	-2985.5	418.6	21.0	-20.2	20.5	4364.3
11	236	5330.9	-439.5	-80.2	106.4	14.4	4743.7
	224	-5411.5	653.3	80.2	-106.4	64.0	-5296.5

12	236	4441.6	-68.3	-76.2	98.2	18.4	-786.2
	224	-4522.2	282.1	76.2	-98.2	60.1	595.3
21	236	5968.9	-1599.0	-10.6	6.6	-8.7	8485.0
	224	-6090.2	1915.1	10.6	-6.6	19.3	-10243.6
22	236	4995.6	-2066.7	176.9	-33.7	-172.8	3602.5
	224	-5223.0	2544.8	-176.9	33.7	-4.2	-5915.1
23	236	3360.3	-2003.6	296.5	-66.2	-267.7	7250.1
	224	-3494.0	2176.5	-296.5	66.2	-29.1	-9344.4
24	236	3095.7	-748.8	-3.2	3.3	-4.4	3886.0
	224	-3151.9	901.2	3.2	-3.3	7.6	-4711.8
25	236	2956.9	-722.0	-1.5	3.9	-6.5	2210.0
	224	-3034.4	927.7	1.5	-3.9	7.9	-3036.6
26	236	2152.0	-505.2	-1.1	2.3	-3.2	2559.2
	224	-2192.0	605.1	1.1	-2.3	4.2	-3114.9
27	236	2377.4	-536.3	-1.3	2.4	-3.3	2736.3
	224	-2417.3	647.8	1.3	-2.4	4.7	-3328.9
28	236	5032.1	-1668.5	4.9	-6.6	-16.4	12777.2
	224	-5112.8	1882.3	-4.9	6.6	6.0	-14537.6
29	236	5375.3	-1327.9	-26.5	34.5	-6.5	11232.8
	224	-5455.9	1541.7	26.5	-34.5	27.6	-12658.1
30	236	3910.4	-1764.5	45.0	-61.1	-24.2	10103.0
	224	-3991.0	1978.2	-45.0	61.1	-22.6	-11962.3
31	236	3292.0	-1506.1	47.8	-66.8	-20.9	6266.4
	224	-3372.7	1719.9	-47.8	66.8	-25.5	-7875.3
32	236	2971.0	-807.4	14.6	-25.5	-5.6	-11.5
	224	-3051.6	1021.2	-14.6	25.5	-3.6	-914.4
33	236	3314.1	-466.8	-16.9	15.6	4.3	-1555.9
	224	-3394.8	680.6	16.9	-15.6	18.0	965.1
34	236	5054.2	-629.2	-59.8	75.8	8.9	4954.9
	224	-5134.9	843.0	59.8	-75.8	49.5	-5697.2
35	236	4435.8	-370.8	-56.9	70.1	12.1	1118.3
	224	-4516.5	584.6	56.9	-70.1	46.6	-1610.2
1	76	20646.7	10466.8	21.6	-63.6	-29.6	19526.2
	38	-20920.1	-10441.9	-21.6	63.6	-10.7	0.0
2	76	21446.9	10972.9	72.8	-34.6	-353.3	21014.5
	38	-21720.3	-11529.5	-72.8	34.6	217.4	0.0
3	76	13722.2	7526.0	104.7	-9.1	-561.8	14938.7
	38	-13995.6	-8470.4	-104.7	9.1	366.3	0.0
4	76	5358.4	2543.3	6.8	-7.4	-4.5	4726.9
	38	-5631.8	-2518.3	-6.8	7.4	-8.3	0.0
5	76	11234.2	6890.4	33.4	-50.3	-102.8	12851.5
	38	-11444.5	-6871.1	-33.4	50.3	43.0	0.0
6	76	8235.9	5589.4	-7.0	-27.2	70.8	10421.6
	38	-8446.2	-5570.2	7.0	27.2	-64.6	0.0

7	76	14147.4	7143.0	78.2	-66.4	-302.0	13323.4
	38	-14357.6	-7123.8	-78.2	66.4	171.0	0.0
8	76	13646.0	6058.6	76.2	-57.1	-299.2	11298.0
	38	-13856.3	-6039.4	-76.2	57.1	173.2	0.0
9	76	9563.0	3275.6	26.7	-19.3	-93.4	6100.1
	38	-9773.3	-3256.4	-26.7	19.3	50.3	0.0
10	76	6564.7	1974.6	-13.7	3.8	80.2	3670.2
	38	-6775.0	-1955.4	13.7	-3.8	-57.2	0.0
11	76	4152.9	2806.4	-56.4	10.6	276.6	5223.7
	38	-4363.2	-2787.2	56.4	-10.6	-187.5	0.0
12	76	3651.6	1722.0	-58.4	19.9	279.5	3198.3
	38	-3861.8	-1702.8	58.4	-19.9	-185.3	0.0
21	76	13677.1	6908.6	14.5	-40.8	-19.1	12885.6
	38	-13887.3	-6889.4	-14.5	40.8	-7.9	0.0
22	76	14205.8	7260.8	48.8	-22.3	-235.2	13905.5
	38	-14416.0	-7629.3	-48.8	22.3	144.0	0.0
23	76	9697.7	5278.2	70.5	-6.8	-375.0	10443.9
	38	-9908.0	-5905.2	-70.5	6.8	243.3	0.0
24	76	6032.9	2946.8	7.1	-12.7	-6.6	5486.0
	38	-6243.2	-2927.6	-7.1	12.7	-6.7	0.0
25	76	6047.1	2902.5	6.5	-10.2	-6.0	5403.1
	38	-6257.4	-2883.2	-6.5	10.2	-6.2	0.0
26	76	3712.9	1806.0	4.9	-4.6	-2.9	3395.3
	38	-3923.1	-1829.7	-4.9	4.6	-6.2	0.0
27	76	4121.9	1956.4	5.3	-5.7	-3.4	3636.1
	38	-4332.1	-1937.2	-5.3	5.7	-6.4	0.0
28	76	10557.8	6145.3	26.3	-43.0	-75.8	11460.0
	38	-10768.0	-6126.1	-26.3	43.0	34.7	0.0
29	76	8466.4	5242.9	-1.8	-26.2	46.2	9774.4
	38	-8676.6	-5223.6	1.8	26.2	-43.3	0.0
30	76	12568.9	6315.0	57.4	-54.6	-215.6	11777.0
	38	-12779.2	-6295.8	-57.4	54.6	123.7	0.0
31	76	12201.4	5558.1	55.9	-47.8	-213.5	10363.2
	38	-12411.6	-5538.9	-55.9	47.8	122.0	0.0
32	76	9332.6	3622.1	21.5	-20.3	-68.8	6747.3
	38	-9542.8	-3602.9	-21.5	20.3	29.0	0.0
33	76	7241.2	2719.7	-6.6	-3.5	53.2	5061.8
	38	-7451.4	-2700.5	6.6	3.5	-49.0	0.0
34	76	5597.6	3306.9	-36.2	1.3	190.9	6158.5
	38	-5807.8	-3287.7	36.2	-1.3	-136.3	0.0
35	76	5230.0	2550.0	-37.6	8.1	193.0	4744.7
	38	-5440.3	-2530.7	37.6	-8.1	-138.0	0.0
1	98	21470.7	5701.9	2.3	71.3	33.2	32840.9
	86	-22279.1	-5429.6	-2.3	-71.3	-35.5	-27261.5

2	98	12792.1	3599.3	-25.1	-91.7	-333.3	21720.8
	86	-12961.3	-3854.5	25.1	91.7	358.4	-17986.4
3	98	-2354.1	598.6	-46.0	-208.2	-582.9	2876.8
	86	2200.6	-1067.2	46.0	208.2	629.0	-2042.6
4	98	5360.8	1370.6	2.1	9.1	7.4	7929.1
	86	-5500.4	-1323.6	-2.1	-9.1	-9.5	-6578.8
5	98	9178.6	3647.8	-19.0	11.5	-76.1	18557.1
	86	-9495.0	-3541.3	19.0	-11.5	82.3	-14949.9
6	98	11502.5	4201.0	19.3	74.5	114.3	22366.2
	86	-11818.9	-4094.4	-19.3	-74.5	-121.0	-18216.3
7	98	5639.6	1940.9	-62.6	-73.6	-302.1	9509.0
	86	-5956.0	-1834.3	62.6	73.6	322.3	-7597.7
8	98	4930.1	1030.9	-61.7	-83.6	-305.3	5562.6
	86	-5246.5	-924.3	61.7	83.6	324.6	-4562.2
9	98	6813.6	614.7	-16.0	-21.6	-86.9	5402.3
	86	-7129.9	-508.1	16.0	21.6	90.2	-4831.6
10	98	9137.5	1167.9	22.4	41.4	103.6	9211.4
	86	-9453.9	-1061.3	-22.4	-41.4	-113.2	-8098.0
11	98	13386.0	3784.8	65.1	136.5	332.8	22206.0
	86	-13702.4	-3678.2	-65.1	-136.5	-355.5	-18485.7
12	98	12676.5	2874.8	66.0	126.5	329.6	18259.5
	86	-12992.9	-2768.3	-66.0	-126.5	-353.1	-15450.2
21	98	14192.4	3761.4	1.7	45.9	21.8	21669.2
	86	-14717.7	-3584.4	-1.7	-45.9	-23.6	-17987.3
22	98	8378.7	2384.1	-16.6	-61.9	-222.2	14318.5
	86	-8504.7	-2549.8	16.6	61.9	238.9	-11846.6
23	98	-1019.6	539.7	-30.4	-137.9	-387.8	2731.1
	86	902.9	-847.2	30.4	137.9	418.4	-2036.5
24	98	6137.4	1595.7	1.6	14.8	8.9	9213.3
	86	-6328.4	-1531.4	-1.6	-14.8	-10.5	-7645.9
25	98	6221.2	1522.5	1.9	12.2	8.0	9025.1
	86	-6332.2	-1485.0	-1.9	-12.2	-9.9	-7517.9
26	98	3686.4	958.2	1.6	5.8	5.1	5666.0
	86	-3793.8	-945.1	-1.6	-5.8	-6.7	-4712.0
27	98	4123.7	1054.3	1.6	7.0	5.7	6099.3
	86	-4231.1	-1018.1	-1.6	-7.0	-7.3	-5060.6
28	98	9199.6	3268.3	-14.8	16.6	-48.5	17146.4
	86	-9516.0	-3161.8	14.8	-16.6	52.9	-13919.9
29	98	10813.4	3656.3	15.9	60.5	83.7	19790.4
	86	-11129.8	-3549.7	-15.9	-60.5	-89.3	-16186.0
30	98	6722.9	2077.6	-49.8	-43.1	-205.3	10852.8
	86	-7039.3	-1971.0	49.8	43.1	220.8	-8805.8
31	98	6213.8	1444.9	-49.2	-50.4	-207.6	8102.3
	86	-6530.2	-1338.4	49.2	50.4	222.4	-6688.4
32	98	7502.7	1159.4	-12.6	-7.6	-56.2	7978.1

	86	-7819.1	-1052.9	12.6	7.6	58.5	-6861.8
33	98	9116.5	1547.4	18.2	36.3	75.9	10622.1
	86	-9432.9	-1440.8	-18.2	-36.3	-83.7	-9127.9
34	98	12102.2	3370.8	52.5	103.3	235.1	19666.2
	86	-12418.6	-3264.2	-52.5	-103.3	-253.3	-16359.5
35	98	11593.2	2738.1	53.2	96.0	232.8	16915.7
	86	-11909.6	-2631.5	-53.2	-96.0	-251.6	-14242.1
1	330	-392.2	7.0	-0.0	-0.0	-0.0	-0.0
	280	391.2	7.0	0.0	0.0	0.0	-0.0
2	330	-1683.3	7.0	0.0	-0.0	-0.0	0.0
	280	1682.3	7.0	-0.0	0.0	-0.0	-0.0
3	330	-2618.2	7.0	0.0	-0.0	-0.0	0.0
	280	2617.3	7.0	-0.0	0.0	-0.0	-0.0
4	330	-34.8	7.0	-0.0	-0.0	0.0	-0.0
	280	33.8	7.0	0.0	0.0	0.0	-0.0
5	330	-927.6	5.4	0.0	-0.0	-0.0	0.0
	280	926.9	5.4	-0.0	0.0	-0.0	0.0
6	330	169.1	5.4	0.0	0.0	-0.0	0.0
	280	-169.8	5.4	-0.0	-0.0	-0.0	0.0
7	330	-2038.5	5.4	0.0	-0.0	-0.0	-0.0
	280	2037.7	5.4	-0.0	0.0	-0.0	0.0
8	330	-1894.0	5.4	0.0	-0.0	-0.0	-0.0
	280	1893.2	5.4	-0.0	0.0	-0.0	-0.0
9	330	-446.0	5.4	-0.0	-0.0	0.0	0.0
	280	445.2	5.4	0.0	0.0	0.0	-0.0
10	330	650.7	5.4	-0.0	-0.0	0.0	-0.0
	280	-651.4	5.4	0.0	0.0	0.0	-0.0
11	330	1617.1	5.4	-0.0	0.0	0.0	-0.0
	280	-1617.8	5.4	0.0	-0.0	0.0	0.0
12	330	1761.6	5.4	-0.0	0.0	0.0	-0.0
	280	-1762.3	5.4	0.0	-0.0	0.0	0.0
21	330	-250.1	5.4	-0.0	-0.0	-0.0	-0.0
	280	249.4	5.4	0.0	0.0	0.0	-0.0
22	330	-1120.1	5.4	0.0	-0.0	-0.0	0.0
	280	1119.3	5.4	-0.0	0.0	-0.0	-0.0
23	330	-1749.0	5.4	0.0	-0.0	-0.0	0.0
	280	1748.3	5.4	-0.0	0.0	-0.0	-0.0
24	330	-71.4	5.4	-0.0	-0.0	0.0	-0.0
	280	70.7	5.4	0.0	0.0	0.0	-0.0
25	330	-43.9	5.4	-0.0	-0.0	0.0	-0.0
	280	43.1	5.4	0.0	0.0	0.0	-0.0
26	330	-21.1	5.4	-0.0	-0.0	0.0	-0.0
	280	20.3	5.4	0.0	0.0	0.0	-0.0
27	330	-26.8	5.4	-0.0	-0.0	0.0	-0.0

	280	26.0	5.4	0.0	0.0	0.0	-0.0
28	330	-696.3	5.4	0.0	-0.0	-0.0	0.0
	280	695.5	5.4	-0.0	0.0	-0.0	-0.0
29	330	68.6	5.4	0.0	0.0	-0.0	-0.0
	280	-69.3	5.4	-0.0	-0.0	-0.0	-0.0
30	330	-1465.8	5.4	0.0	-0.0	-0.0	0.0
	280	1465.1	5.4	-0.0	0.0	-0.0	-0.0
31	330	-1360.6	5.4	0.0	-0.0	-0.0	0.0
	280	1359.8	5.4	-0.0	0.0	-0.0	-0.0
32	330	-345.5	5.4	-0.0	-0.0	0.0	-0.0
	280	344.7	5.4	0.0	0.0	0.0	-0.0
33	330	419.4	5.4	-0.0	-0.0	0.0	-0.0
	280	-420.1	5.4	0.0	0.0	0.0	-0.0
34	330	1083.7	5.4	-0.0	0.0	0.0	-0.0
	280	-1084.4	5.4	0.0	-0.0	0.0	0.0
35	330	1188.9	5.4	-0.0	0.0	0.0	-0.0
	280	-1189.6	5.4	0.0	-0.0	0.0	0.0
1	328	592.3	7.0	0.0	-0.0	-0.0	0.0
	282	-593.3	7.0	-0.0	0.0	0.0	0.0
2	328	1708.5	7.0	0.0	-0.0	-0.0	0.0
	282	-1709.5	7.0	-0.0	0.0	-0.0	-0.0
3	328	2516.0	7.0	0.0	-0.0	-0.0	0.0
	282	-2516.9	7.0	-0.0	0.0	-0.0	-0.0
4	328	78.4	7.0	0.0	-0.0	-0.0	0.0
	282	-79.3	7.0	-0.0	0.0	-0.0	-0.0
5	328	1031.0	5.4	0.0	-0.0	-0.0	0.0
	282	-1031.7	5.4	-0.0	0.0	-0.0	0.0
6	328	-65.6	5.4	0.0	-0.0	-0.0	0.0
	282	64.9	5.4	-0.0	0.0	-0.0	0.0
7	328	2127.1	5.4	0.0	-0.0	-0.0	0.0
	282	-2127.8	5.4	-0.0	0.0	-0.0	-0.0
8	328	1970.0	5.4	0.0	-0.0	-0.0	0.0
	282	-1970.8	5.4	-0.0	0.0	-0.0	-0.0
9	328	507.4	5.4	-0.0	-0.0	0.0	0.0
	282	-508.1	5.4	0.0	0.0	0.0	0.0
10	328	-589.2	5.4	-0.0	0.0	0.0	0.0
	282	588.4	5.4	0.0	-0.0	0.0	0.0
11	328	-1528.2	5.4	-0.0	0.0	0.0	0.0
	282	1527.5	5.4	0.0	-0.0	0.0	0.0
12	328	-1685.3	5.4	-0.0	0.0	0.0	0.0
	282	1684.5	5.4	0.0	-0.0	0.0	0.0
21	328	381.5	5.4	0.0	-0.0	-0.0	0.0
	282	-382.3	5.4	-0.0	0.0	0.0	0.0
22	328	1137.3	5.4	0.0	-0.0	-0.0	0.0

	282	-1138.1	5.4	-0.0	0.0	-0.0	-0.0
23	328	1685.4	5.4	0.0	-0.0	-0.0	0.0
	282	-1686.1	5.4	-0.0	0.0	-0.0	-0.0
24	328	124.5	5.4	0.0	-0.0	-0.0	0.0
	282	-125.3	5.4	-0.0	0.0	0.0	0.0
25	328	89.4	5.4	-0.0	-0.0	-0.0	0.0
	282	-90.2	5.4	0.0	0.0	0.0	-0.0
26	328	49.2	5.4	0.0	-0.0	-0.0	0.0
	282	-49.9	5.4	-0.0	0.0	-0.0	-0.0
27	328	60.3	5.4	0.0	-0.0	-0.0	0.0
	282	-61.0	5.4	-0.0	0.0	-0.0	-0.0
28	328	792.1	5.4	0.0	-0.0	-0.0	0.0
	282	-792.9	5.4	-0.0	0.0	-0.0	0.0
29	328	27.2	5.4	0.0	-0.0	-0.0	0.0
	282	-28.0	5.4	-0.0	0.0	-0.0	0.0
30	328	1552.4	5.4	0.0	-0.0	-0.0	0.0
	282	-1553.1	5.4	-0.0	0.0	-0.0	-0.0
31	328	1439.1	5.4	0.0	-0.0	-0.0	0.0
	282	-1439.8	5.4	-0.0	0.0	-0.0	-0.0
32	328	414.6	5.4	-0.0	-0.0	0.0	0.0
	282	-415.3	5.4	0.0	0.0	0.0	0.0
33	328	-350.3	5.4	-0.0	0.0	0.0	0.0
	282	349.6	5.4	0.0	-0.0	0.0	0.0
34	328	-997.3	5.4	-0.0	0.0	0.0	0.0
	282	996.6	5.4	0.0	-0.0	0.0	0.0
35	328	-1110.6	5.4	-0.0	0.0	0.0	0.0
	282	1109.8	5.4	0.0	-0.0	0.0	0.0
1	326	592.8	7.0	-0.0	0.0	0.0	-0.0
	276	-593.8	7.0	0.0	-0.0	-0.0	-0.0
2	326	-1491.1	7.0	0.0	-0.0	-0.0	0.0
	276	1490.1	7.0	-0.0	0.0	-0.0	-0.0
3	326	-2817.0	7.0	0.0	-0.0	-0.0	0.0
	276	2816.1	7.0	-0.0	0.0	-0.0	-0.0
4	326	78.8	7.0	-0.0	0.0	0.0	0.0
	276	-79.8	7.0	0.0	-0.0	0.0	-0.0
5	326	-64.7	5.4	-0.0	0.0	0.0	0.0
	276	63.9	5.4	0.0	-0.0	0.0	-0.0
6	326	1032.0	5.4	-0.0	0.0	0.0	0.0
	276	-1032.7	5.4	0.0	-0.0	0.0	-0.0
7	326	-1527.7	5.4	0.0	-0.0	-0.0	0.0
	276	1527.0	5.4	-0.0	0.0	-0.0	0.0
8	326	-1685.2	5.4	0.0	-0.0	-0.0	0.0
	276	1684.4	5.4	-0.0	0.0	-0.0	0.0
9	326	-589.4	5.4	0.0	-0.0	-0.0	0.0

	276	588.7	5.4	-0.0	0.0	-0.0	-0.0
10	326	507.2	5.4	0.0	0.0	-0.0	-0.0
	276	-507.9	5.4	-0.0	-0.0	-0.0	-0.0
11	326	2127.7	5.4	-0.0	0.0	0.0	0.0
	276	-2128.4	5.4	0.0	-0.0	0.0	0.0
12	326	1970.2	5.4	-0.0	0.0	0.0	0.0
	276	-1971.0	5.4	0.0	-0.0	0.0	0.0
21	326	381.9	5.4	-0.0	0.0	0.0	-0.0
	276	-382.6	5.4	0.0	-0.0	-0.0	-0.0
22	326	-995.7	5.4	0.0	-0.0	-0.0	0.0
	276	994.9	5.4	-0.0	0.0	-0.0	-0.0
23	326	-1869.9	5.4	0.0	-0.0	-0.0	0.0
	276	1869.2	5.4	-0.0	0.0	-0.0	-0.0
24	326	124.9	5.4	-0.0	0.0	0.0	0.0
	276	-125.6	5.4	0.0	-0.0	-0.0	-0.0
25	326	89.8	5.4	0.0	0.0	0.0	0.0
	276	-90.5	5.4	-0.0	-0.0	-0.0	-0.0
26	326	49.5	5.4	-0.0	0.0	0.0	0.0
	276	-50.3	5.4	0.0	-0.0	0.0	-0.0
27	326	60.6	5.4	-0.0	0.0	0.0	0.0
	276	-61.4	5.4	0.0	-0.0	0.0	-0.0
28	326	28.0	5.4	-0.0	0.0	0.0	0.0
	276	-28.7	5.4	0.0	-0.0	0.0	0.0
29	326	792.9	5.4	-0.0	0.0	0.0	0.0
	276	-793.6	5.4	0.0	-0.0	0.0	0.0
30	326	-996.9	5.4	0.0	-0.0	-0.0	0.0
	276	996.1	5.4	-0.0	0.0	-0.0	-0.0
31	326	-1110.4	5.4	0.0	-0.0	-0.0	0.0
	276	1109.6	5.4	-0.0	0.0	-0.0	-0.0
32	326	-350.4	5.4	0.0	-0.0	-0.0	0.0
	276	349.6	5.4	-0.0	0.0	-0.0	-0.0
33	326	414.5	5.4	0.0	0.0	-0.0	0.0
	276	-415.3	5.4	-0.0	-0.0	-0.0	-0.0
34	326	1552.9	5.4	-0.0	0.0	0.0	-0.0
	276	-1553.6	5.4	0.0	-0.0	0.0	0.0
35	326	1439.4	5.4	-0.0	0.0	0.0	-0.0
	276	-1440.1	5.4	0.0	-0.0	0.0	0.0
1	276	1015.9	6.9	-0.0	0.0	0.0	0.0
	226	-1018.2	6.9	0.0	-0.0	-0.0	-0.0
2	276	-670.9	6.9	0.0	-0.0	-0.0	0.0
	226	668.6	6.9	-0.0	0.0	-0.0	0.0
3	276	-1776.6	6.9	0.0	-0.0	0.0	-0.0
	226	1774.4	6.9	-0.0	0.0	-0.0	0.0
4	276	124.7	6.9	0.0	0.0	0.0	-0.0

	226	-126.9	6.9	-0.0	-0.0	-0.0	0.0
5	276	353.7	5.3	-0.0	0.0	0.0	0.0
	226	-355.4	5.3	0.0	-0.0	-0.0	0.0
6	276	839.1	5.3	-0.0	0.0	0.0	0.0
	226	-840.8	5.3	0.0	-0.0	0.0	0.0
7	276	-367.9	5.3	0.0	0.0	0.0	-0.0
	226	366.2	5.3	-0.0	-0.0	-0.0	-0.0
8	276	-501.1	5.3	0.0	0.0	0.0	-0.0
	226	499.4	5.3	-0.0	-0.0	-0.0	-0.0
9	276	-90.2	5.3	0.0	0.0	-0.0	-0.0
	226	88.5	5.3	-0.0	-0.0	-0.0	0.0
10	276	395.2	5.3	0.0	-0.0	-0.0	0.0
	226	-396.9	5.3	-0.0	0.0	0.0	0.0
11	276	1249.9	5.3	-0.0	0.0	-0.0	0.0
	226	-1251.6	5.3	0.0	-0.0	0.0	0.0
12	276	1116.8	5.3	-0.0	-0.0	-0.0	0.0
	226	-1118.5	5.3	0.0	0.0	0.0	0.0
21	276	652.9	5.3	-0.0	0.0	0.0	0.0
	226	-654.7	5.3	0.0	-0.0	-0.0	-0.0
22	276	-454.5	5.3	0.0	-0.0	-0.0	0.0
	226	452.8	5.3	-0.0	0.0	-0.0	0.0
23	276	-1171.6	5.3	0.0	-0.0	0.0	-0.0
	226	1169.9	5.3	-0.0	0.0	-0.0	0.0
24	276	207.3	5.3	0.0	0.0	0.0	-0.0
	226	-209.0	5.3	-0.0	-0.0	-0.0	0.0
25	276	156.0	5.3	0.0	0.0	-0.0	0.0
	226	-157.7	5.3	-0.0	-0.0	-0.0	0.0
26	276	78.2	5.3	0.0	0.0	0.0	-0.0
	226	-79.9	5.3	-0.0	-0.0	-0.0	0.0
27	276	95.9	5.3	0.0	0.0	0.0	-0.0
	226	-97.6	5.3	-0.0	-0.0	-0.0	0.0
28	276	360.5	5.3	-0.0	0.0	0.0	0.0
	226	-362.2	5.3	0.0	-0.0	-0.0	0.0
29	276	703.1	5.3	-0.0	0.0	0.0	0.0
	226	-704.8	5.3	0.0	-0.0	0.0	0.0
30	276	-149.3	5.3	0.0	0.0	0.0	0.0
	226	147.6	5.3	-0.0	-0.0	-0.0	0.0
31	276	-243.7	5.3	0.0	0.0	0.0	0.0
	226	242.0	5.3	-0.0	-0.0	-0.0	0.0
32	276	45.8	5.3	0.0	0.0	-0.0	-0.0
	226	-47.5	5.3	-0.0	-0.0	-0.0	0.0
33	276	388.3	5.3	0.0	-0.0	-0.0	-0.0
	226	-390.0	5.3	-0.0	0.0	0.0	0.0
34	276	992.6	5.3	-0.0	0.0	-0.0	0.0
	226	-994.3	5.3	0.0	-0.0	0.0	0.0

35	276	898.2	5.3	-0.0	0.0	-0.0	-0.0
	226	-899.9	5.3	0.0	-0.0	0.0	0.0
1	226	-965.5	6.8	-0.0	-0.0	0.0	0.0
	180	962.0	6.8	0.0	0.0	0.0	-0.0
2	226	1196.2	6.8	-0.0	0.0	0.0	0.0
	180	-1199.6	6.8	0.0	-0.0	0.0	0.0
3	226	2902.1	6.8	-0.0	0.0	0.0	0.0
	180	-2905.5	6.8	0.0	-0.0	0.0	0.0
4	226	-91.3	6.8	0.0	-0.0	-0.0	0.0
	180	87.9	6.8	-0.0	0.0	0.0	-0.0
5	226	-76.2	5.2	-0.0	-0.0	0.0	0.0
	180	73.6	5.2	0.0	0.0	0.0	-0.0
6	226	-845.3	5.2	0.0	-0.0	-0.0	0.0
	180	842.7	5.2	-0.0	0.0	-0.0	-0.0
7	226	903.1	5.2	-0.0	0.0	0.0	0.0
	180	-905.8	5.2	0.0	-0.0	0.0	-0.0
8	226	973.6	5.2	-0.0	0.0	0.0	0.0
	180	-976.2	5.2	0.0	-0.0	0.0	0.0
9	226	158.5	5.2	-0.0	0.0	0.0	0.0
	180	-161.1	5.2	0.0	-0.0	0.0	0.0
10	226	-610.6	5.2	0.0	-0.0	-0.0	0.0
	180	607.9	5.2	-0.0	0.0	-0.0	0.0
11	226	-1660.4	5.2	0.0	-0.0	-0.0	0.0
	180	1657.7	5.2	-0.0	0.0	-0.0	-0.0
12	226	-1590.0	5.2	0.0	-0.0	-0.0	0.0
	180	1587.3	5.2	-0.0	0.0	-0.0	-0.0
21	226	-616.6	5.2	-0.0	-0.0	0.0	0.0
	180	613.9	5.2	0.0	0.0	0.0	-0.0
22	226	817.6	5.2	-0.0	0.0	0.0	0.0
	180	-820.2	5.2	0.0	-0.0	0.0	0.0
23	226	1925.4	5.2	-0.0	0.0	0.0	0.0
	180	-1928.0	5.2	0.0	-0.0	0.0	0.0
24	226	-179.5	5.2	-0.0	-0.0	-0.0	0.0
	180	176.9	5.2	0.0	0.0	0.0	-0.0
25	226	-158.7	5.2	0.0	-0.0	-0.0	0.0
	180	156.0	5.2	-0.0	0.0	0.0	-0.0
26	226	-54.6	5.2	0.0	-0.0	-0.0	0.0
	180	51.9	5.2	-0.0	0.0	0.0	-0.0
27	226	-70.2	5.2	0.0	-0.0	-0.0	0.0
	180	67.6	5.2	-0.0	0.0	0.0	-0.0
28	226	-158.0	5.2	-0.0	-0.0	0.0	0.0
	180	155.3	5.2	0.0	0.0	0.0	-0.0
29	226	-696.2	5.2	0.0	-0.0	-0.0	0.0
	180	693.6	5.2	-0.0	0.0	0.0	-0.0

30	226	528.5	5.2	-0.0	0.0	0.0	0.0
	180	-531.2	5.2	0.0	-0.0	0.0	-0.0
31	226	578.7	5.2	-0.0	0.0	0.0	0.0
	180	-581.4	5.2	0.0	-0.0	0.0	0.0
32	226	9.4	5.2	-0.0	0.0	0.0	0.0
	180	-12.1	5.2	0.0	-0.0	0.0	0.0
33	226	-528.8	5.2	0.0	-0.0	-0.0	0.0
	180	526.2	5.2	-0.0	0.0	-0.0	0.0
34	226	-1265.6	5.2	0.0	-0.0	-0.0	0.0
	180	1262.9	5.2	-0.0	0.0	-0.0	-0.0
35	226	-1215.3	5.2	0.0	-0.0	-0.0	0.0
	180	1212.7	5.2	-0.0	0.0	-0.0	-0.0
1	178	1182.1	6.8	-0.0	0.0	-0.0	-0.0
	228	-1178.6	6.8	-0.0	-0.0	0.0	0.0
2	178	-1009.6	6.8	-0.0	0.0	-0.0	0.0
	228	1013.1	6.8	-0.0	-0.0	0.0	0.0
3	178	-2744.0	6.8	-0.0	0.0	-0.0	0.0
	228	2747.5	6.8	-0.0	-0.0	0.0	0.0
4	178	153.0	6.8	-0.0	0.0	0.0	-0.0
	228	-149.6	6.8	-0.0	-0.0	-0.0	-0.0
5	178	223.3	5.2	-0.0	0.0	-0.0	-0.0
	228	-220.6	5.2	-0.0	-0.0	0.0	0.0
6	178	999.6	5.2	-0.0	0.0	-0.0	-0.0
	228	-996.9	5.2	-0.0	-0.0	0.0	0.0
7	178	-802.9	5.2	-0.0	0.0	-0.0	-0.0
	228	805.6	5.2	0.0	-0.0	0.0	0.0
8	178	-906.2	5.2	-0.0	0.0	-0.0	-0.0
	228	908.9	5.2	0.0	-0.0	0.0	0.0
9	178	-121.0	5.2	-0.0	0.0	0.0	0.0
	228	123.7	5.2	-0.0	-0.0	0.0	0.0
10	178	655.3	5.2	-0.0	0.0	0.0	0.0
	228	-652.7	5.2	-0.0	-0.0	-0.0	0.0
11	178	1784.8	5.2	0.0	0.0	0.0	0.0
	228	-1782.2	5.2	-0.0	-0.0	-0.0	-0.0
12	178	1681.5	5.2	0.0	0.0	0.0	0.0
	228	-1678.9	5.2	-0.0	-0.0	-0.0	-0.0
21	178	760.9	5.2	-0.0	0.0	-0.0	-0.0
	228	-758.2	5.2	-0.0	-0.0	0.0	0.0
22	178	-690.8	5.2	-0.0	0.0	-0.0	0.0
	228	693.4	5.2	-0.0	-0.0	0.0	0.0
23	178	-1813.7	5.2	-0.0	0.0	-0.0	0.0
	228	1816.3	5.2	-0.0	-0.0	0.0	0.0
24	178	246.3	5.2	-0.0	0.0	-0.0	-0.0
	228	-243.7	5.2	-0.0	-0.0	0.0	-0.0

25	178	217.8	5.2	-0.0	0.0	-0.0	-0.0
	228	-215.2	5.2	-0.0	-0.0	-0.0	0.0
26	178	97.4	5.2	-0.0	0.0	0.0	-0.0
	228	-94.8	5.2	-0.0	-0.0	-0.0	-0.0
27	178	117.7	5.2	-0.0	0.0	0.0	-0.0
	228	-115.1	5.2	-0.0	-0.0	-0.0	-0.0
28	178	288.5	5.2	-0.0	0.0	-0.0	-0.0
	228	-285.8	5.2	-0.0	-0.0	0.0	-0.0
29	178	831.7	5.2	-0.0	0.0	-0.0	-0.0
	228	-829.0	5.2	-0.0	-0.0	0.0	-0.0
30	178	-429.8	5.2	-0.0	0.0	-0.0	-0.0
	228	432.4	5.2	0.0	-0.0	0.0	0.0
31	178	-502.3	5.2	-0.0	0.0	-0.0	-0.0
	228	504.9	5.2	-0.0	-0.0	0.0	0.0
32	178	46.9	5.2	-0.0	0.0	-0.0	0.0
	228	-44.3	5.2	-0.0	-0.0	0.0	0.0
33	178	590.1	5.2	-0.0	0.0	0.0	0.0
	228	-587.4	5.2	-0.0	-0.0	-0.0	0.0
34	178	1380.8	5.2	-0.0	0.0	0.0	-0.0
	228	-1378.2	5.2	-0.0	-0.0	-0.0	-0.0
35	178	1308.4	5.2	-0.0	0.0	0.0	0.0
	228	-1305.7	5.2	-0.0	-0.0	-0.0	0.0
1	104	14790.7	4276.0	-59.2	1.0	-151.8	23956.5
	92	-15258.5	-4118.4	59.2	-1.0	211.2	-19749.0
2	104	17952.8	4595.7	-444.5	273.1	-582.3	29362.5
	92	-18101.5	-4702.6	444.5	-273.1	1027.9	-24702.8
3	104	15266.1	4305.2	-683.0	496.5	-853.8	27916.7
	92	-15406.7	-4519.5	683.0	-496.5	1538.4	-23494.0
4	104	4573.6	1233.9	-9.8	18.3	-23.6	6928.4
	92	-4707.0	-1189.0	9.8	-18.3	33.4	-5714.0
5	104	9419.7	3754.8	-79.9	147.9	-226.0	19169.4
	92	-9626.8	-3685.0	79.9	-147.9	304.7	-15445.8
6	104	7109.6	3046.0	-1.0	-27.0	-3.5	14803.3
	92	-7316.7	-2976.2	1.0	27.0	5.7	-11782.0
7	104	11027.3	3531.3	-159.8	315.8	-446.0	19828.4
	92	-11234.4	-3461.5	159.8	-315.8	601.8	-16337.6
8	104	10095.1	2630.9	-149.3	284.7	-412.0	16027.0
	92	-10302.2	-2561.2	149.3	-284.7	557.5	-13438.0
9	104	6312.4	753.6	-45.0	44.4	-112.9	6498.3
	92	-6519.5	-683.8	45.0	-44.4	156.8	-5780.7
10	104	4002.3	44.8	34.0	-130.5	109.5	2132.2
	92	-4209.4	24.9	-34.0	130.5	-142.2	-2116.8
11	104	3326.9	1168.7	103.4	-267.4	295.6	5274.6
	92	-3534.0	-1098.9	-103.4	267.4	-394.9	-4124.6

12	104	2394.7	268.3	113.9	-298.4	329.5	1473.3
	92	-2601.9	-198.6	-113.9	298.4	-439.3	-1225.1
21	104	9903.8	2850.5	-38.4	3.3	-98.3	15972.1
	92	-10215.5	-2745.5	38.4	-3.3	136.8	-13167.2
22	104	12034.0	3102.3	-295.5	185.8	-387.1	19715.1
	92	-12146.1	-3169.2	295.5	-185.8	683.4	-16572.2
23	104	10646.5	2996.7	-456.3	332.9	-571.6	19321.8
	92	-10753.9	-3134.9	456.3	-332.9	1029.0	-16248.7
24	104	4795.3	1329.4	-13.7	11.9	-34.2	7458.1
	92	-4939.7	-1280.8	13.7	-11.9	47.9	-6149.8
25	104	4729.2	1213.3	-12.9	8.5	-28.7	7041.1
	92	-4833.8	-1178.1	12.9	-8.5	41.6	-5842.5
26	104	3255.2	884.0	-6.3	14.3	-15.4	5022.0
	92	-3357.9	-861.1	6.3	-14.3	21.7	-4147.3
27	104	3518.1	949.2	-7.5	14.1	-18.2	5329.6
	92	-3620.8	-914.6	7.5	-14.1	25.7	-4395.4
28	104	8598.3	3188.1	-63.5	105.8	-175.1	16563.5
	92	-8805.4	-3118.4	63.5	-105.8	237.5	-13407.5
29	104	6994.7	2693.4	-6.7	-16.5	-19.8	13533.8
	92	-7201.8	-2623.6	6.7	16.5	27.6	-10866.0
30	104	9709.3	3036.6	-121.2	223.4	-328.8	17019.7
	92	-9916.4	-2966.9	121.2	-223.4	446.5	-14023.7
31	104	9058.0	2412.1	-114.0	201.8	-305.3	14381.0
	92	-9265.1	-2342.3	114.0	-201.8	415.7	-12010.5
32	104	6427.3	1106.2	-39.2	33.9	-96.6	7767.9
	92	-6634.4	-1036.4	39.2	-33.9	134.9	-6696.7
33	104	4823.7	611.5	17.6	-88.5	58.6	4738.2
	92	-5030.8	-541.7	-17.6	88.5	-75.0	-4155.2
34	104	4364.0	1387.6	68.0	-184.5	188.8	6920.6
	92	-4571.1	-1317.8	-68.0	184.5	-253.2	-5552.2
35	104	3712.7	763.0	75.3	-206.1	212.3	4282.0
	92	-3919.8	-693.2	-75.3	206.1	-284.0	-3538.9
1	92	13262.5	5791.0	90.4	-316.2	-174.1	19683.3
	80	-13400.2	-5760.1	-90.4	316.2	83.2	-13882.4
2	92	13943.7	7248.3	148.4	-32.1	-423.2	24654.1
	80	-14081.4	-7374.7	-148.4	32.1	274.1	-17310.5
3	92	10409.6	6991.5	175.0	110.0	-546.7	23495.8
	80	-10547.2	-7222.7	-175.0	-110.0	370.9	-16357.5
4	92	4224.6	1657.0	53.8	-93.5	-99.0	5691.9
	80	-4362.2	-1626.1	-53.8	93.5	45.0	-4043.1
5	92	8043.7	4729.3	93.6	-280.0	-198.2	15422.0
	80	-8149.6	-4705.6	-93.6	280.0	99.9	-10684.1
6	92	6630.2	3567.5	27.3	-360.6	-7.7	11757.7
	80	-6736.1	-3543.7	-27.3	360.6	-24.1	-8186.6

7	92	8808.7	4977.4	165.6	-60.8	-418.2	16309.6
	80	-8914.6	-4953.7	-165.6	60.8	250.6	-11322.4
8	92	8051.0	4028.3	161.0	46.4	-416.2	13406.1
	80	-8156.9	-4004.5	-161.0	-46.4	255.8	-9372.1
9	92	5517.9	1565.5	78.3	77.5	-191.5	5743.6
	80	-5623.8	-1541.7	-78.3	-77.5	117.2	-4183.0
10	92	4104.4	403.7	12.0	-3.1	-1.0	2079.4
	80	-4210.3	-379.9	-12.0	3.1	-6.8	-1685.6
11	92	4097.1	1104.7	-55.4	-329.5	216.9	4095.3
	80	-4203.0	-1081.0	55.4	329.5	-162.6	-2997.6
12	92	3339.3	155.6	-60.0	-222.2	218.9	1191.8
	80	-3445.2	-131.8	60.0	222.2	-157.5	-1047.3
21	92	8898.4	3858.4	64.3	-211.1	-123.1	13123.0
	80	-9004.3	-3834.6	-64.3	211.1	58.5	-9259.6
22	92	9380.8	4863.6	103.2	-27.5	-289.0	16539.8
	80	-9486.7	-4944.7	-103.2	27.5	185.4	-11614.2
23	92	7373.0	4830.9	122.2	63.8	-374.6	16247.6
	80	-7478.9	-4981.9	-122.2	-63.8	251.9	-11319.7
24	92	4379.4	1791.4	46.0	-99.8	-85.5	6127.3
	80	-4485.3	-1767.6	-46.0	99.8	39.4	-4340.0
25	92	4294.6	1690.4	45.2	-82.5	-85.8	5818.3
	80	-4400.5	-1666.6	-45.2	82.5	40.5	-4132.4
26	92	3024.4	1190.4	40.6	-68.0	-74.3	4131.0
	80	-3130.2	-1178.3	-40.6	68.0	33.6	-2941.4
27	92	3249.7	1274.6	41.4	-72.0	-76.2	4378.3
	80	-3355.6	-1250.9	-41.4	72.0	34.6	-3110.0
28	92	7448.4	4067.5	81.6	-237.4	-169.3	13381.5
	80	-7554.2	-4043.8	-81.6	237.4	84.3	-9308.3
29	92	6467.6	3261.6	34.9	-293.6	-35.0	10839.7
	80	-6573.5	-3237.8	-34.9	293.6	-3.2	-7575.9
30	92	7973.9	4239.2	132.2	-85.1	-324.3	13994.9
	80	-8079.8	-4215.4	-132.2	85.1	190.6	-9749.2
31	92	7443.5	3580.3	129.0	-10.7	-322.8	11979.0
	80	-7549.4	-3556.6	-129.0	10.7	194.2	-8394.9
32	92	5680.5	1871.4	70.7	10.5	-164.2	6661.6
	80	-5786.4	-1847.7	-70.7	-10.5	96.4	-4793.7
33	92	4699.7	1065.5	24.1	-45.6	-29.9	4119.8
	80	-4805.6	-1041.7	-24.1	45.6	8.8	-3061.4
34	92	4704.6	1552.7	-23.3	-272.3	123.6	5522.4
	80	-4810.5	-1528.9	23.3	272.3	-101.1	-3974.8
35	92	4174.2	893.8	-26.6	-197.9	125.1	3506.4
	80	-4280.1	-870.1	26.6	197.9	-97.5	-2620.5
1	80	12542.8	7444.6	90.4	-302.8	-123.4	13882.4
	46	-12804.0	-7420.7	-90.4	302.8	-45.5	0.0

2	80	13009.4	9133.8	148.4	3.6	-276.0	17310.5
	46	-13270.7	-9402.4	-148.4	-3.6	-1.1	0.0
3	80	9524.6	8526.0	175.0	157.1	-353.5	16357.5
	46	-9785.9	-8989.6	-175.0	-157.1	26.6	0.0
4	80	4115.3	2176.6	53.8	-86.9	-56.7	4043.1
	46	-4376.6	-2152.7	-53.8	86.9	-43.7	0.0
5	80	7478.6	5729.5	93.4	-265.5	-136.2	10684.1
	46	-7679.5	-5711.1	-93.4	265.5	-36.2	0.0
6	80	6226.4	4392.3	27.6	-359.9	-22.4	8186.6
	46	-6427.4	-4374.0	-27.6	359.9	-22.5	0.0
7	80	8202.1	6071.2	164.7	-30.5	-258.6	11322.4
	46	-8403.0	-6052.8	-164.7	30.5	-55.7	0.0
8	80	7570.1	5027.0	160.1	76.5	-249.7	9372.1
	46	-7771.1	-5008.6	-160.1	-76.5	-58.6	0.0
9	80	5372.0	2248.8	78.0	91.2	-106.5	4183.0
	46	-5572.9	-2230.4	-78.0	-91.2	-45.9	0.0
10	80	4119.8	911.7	12.3	-3.2	7.3	1685.6
	46	-4320.8	-893.3	-12.3	3.2	-32.2	0.0
11	80	4028.3	1614.1	-54.5	-345.1	120.8	2997.6
	46	-4229.3	-1595.8	54.5	345.1	-9.8	0.0
12	80	3396.3	569.9	-59.1	-238.1	129.7	1047.3
	46	-3597.3	-551.5	59.1	238.1	-12.7	0.0
21	80	8432.8	4966.8	64.3	-201.8	-85.3	9259.6
	46	-8633.7	-4948.5	-64.3	201.8	-34.7	0.0
22	80	8767.6	6130.0	103.2	-3.3	-187.4	11614.2
	46	-8968.5	-6306.6	-103.2	3.3	-5.3	0.0
23	80	6771.8	5907.3	122.2	95.8	-241.5	11319.7
	46	-6972.8	-6213.9	-122.2	-95.8	13.2	0.0
24	80	4219.1	2332.8	46.0	-93.9	-52.0	4340.0
	46	-4420.0	-2314.4	-46.0	93.9	-33.9	0.0
25	80	4148.0	2221.7	45.2	-76.6	-50.8	4132.4
	46	-4348.9	-2203.3	-45.2	76.6	-33.6	0.0
26	80	2951.6	1573.2	40.6	-63.1	-42.1	2941.4
	46	-3152.5	-1576.5	-40.6	63.1	-33.8	0.0
27	80	3165.6	1674.3	41.4	-66.9	-43.6	3110.0
	46	-3366.6	-1655.9	-41.4	66.9	-33.6	0.0
28	80	6973.0	4992.9	81.3	-225.3	-115.2	9308.3
	46	-7173.9	-4974.5	-81.3	225.3	-35.3	0.0
29	80	6104.0	4065.4	35.1	-290.8	-34.4	7575.9
	46	-6304.9	-4047.0	-35.1	290.8	-25.4	0.0
30	80	7469.3	5228.9	131.5	-62.2	-202.1	9749.2
	46	-7670.3	-5210.6	-131.5	62.2	-49.6	0.0
31	80	7025.8	4503.8	128.3	12.1	-195.9	8394.9
	46	-7226.7	-4485.5	-128.3	-12.1	-51.9	0.0
32	80	5494.5	2575.8	70.5	22.2	-94.5	4793.7

	46	-5695.4	-2557.4	-70.5	-22.2	-43.0	0.0
33	80	4625.5	1648.3	24.3	-43.4	-13.8	3061.4
	46	-4826.4	-1629.9	-24.3	43.4	-33.1	0.0
34	80	4572.6	2137.3	-22.6	-280.7	67.0	3974.8
	46	-4773.6	-2118.9	22.6	280.7	-16.5	0.0
35	80	4129.1	1412.2	-25.8	-206.5	73.2	2620.5
	46	-4330.1	-1393.8	25.8	206.5	-18.8	0.0
1	96	19237.4	4992.9	18.2	121.6	77.5	28535.0
	84	-20045.8	-4720.6	-18.2	-121.6	-95.8	-23666.4
2	96	19948.6	4833.4	-16.3	-131.0	-344.4	32206.5
	84	-20117.8	-5088.6	16.3	131.0	360.8	-27235.0
3	96	11793.9	3291.1	-52.1	-323.1	-642.6	24467.8
	84	-11947.4	-3759.7	52.1	323.1	694.8	-20934.6
4	96	5070.7	1291.8	8.1	12.2	18.4	7399.8
	84	-5210.3	-1244.8	-8.1	-12.2	-26.5	-6128.4
5	96	10403.3	3825.8	-13.0	14.2	-65.0	20160.2
	84	-10719.7	-3719.2	13.0	-14.2	65.6	-16385.2
6	96	8284.1	3381.5	29.0	108.2	147.4	16878.2
	84	-8600.5	-3274.9	-29.0	-108.2	-164.4	-13538.1
7	96	12164.4	3326.7	-61.0	-107.7	-318.9	19633.5
	84	-12480.8	-3220.2	61.0	107.7	339.1	-16370.1
8	96	11554.8	2454.7	-60.2	-118.3	-324.0	15900.1
	84	-11871.2	-2348.1	60.2	118.3	343.5	-13510.0
9	96	8371.2	919.1	-10.2	-21.0	-82.2	7715.6
	84	-8687.6	-812.5	10.2	21.0	80.4	-6851.5
10	96	6252.0	474.8	31.8	72.9	130.3	4433.7
	84	-6568.4	-368.2	-31.8	-72.9	-149.6	-4004.4
11	96	5100.5	1845.8	79.0	205.4	389.3	8693.7
	84	-5416.9	-1739.3	-79.0	-205.4	-427.6	-6879.6
12	96	4490.9	973.8	79.8	194.8	384.1	4960.3
	84	-4807.3	-867.3	-79.8	-194.8	-423.1	-4019.5
21	96	12754.7	3306.9	12.6	77.8	51.1	18901.7
	84	-13280.1	-3129.9	-12.6	-77.8	-63.7	-15675.4
22	96	13190.5	3219.0	-10.7	-89.4	-229.7	21385.5
	84	-13316.4	-3384.7	10.7	89.4	240.4	-18076.7
23	96	8382.7	2326.6	-33.9	-214.1	-426.5	17070.8
	84	-8499.3	-2634.1	33.9	214.1	460.5	-14584.9
24	96	5671.4	1456.3	7.5	23.0	21.5	8334.1
	84	-5862.4	-1392.0	-7.5	-23.0	-29.1	-6906.4
25	96	5786.4	1401.0	8.3	19.4	20.0	8225.4
	84	-5897.5	-1363.6	-8.3	-19.4	-28.3	-6839.9
26	96	3501.5	909.5	5.9	7.3	12.8	5332.1
	84	-3608.9	-896.4	-5.9	-7.3	-18.8	-4427.0
27	96	3900.5	993.7	6.2	9.4	14.2	5692.2

	84	-4007.9	-957.5	-6.2	-9.4	-20.4	-4714.2
28	96	9798.3	3315.1	-8.4	23.5	-35.0	17764.3
	84	-10114.7	-3208.5	8.4	-23.5	33.2	-14500.9
29	96	8324.9	3004.5	25.1	88.8	112.4	15487.9
	84	-8641.3	-2897.9	-25.1	-88.8	-127.7	-12526.0
30	96	11003.5	2970.8	-46.7	-61.6	-211.2	17389.8
	84	-11319.9	-2864.2	46.7	61.6	224.5	-14481.9
31	96	10563.1	2365.1	-46.1	-69.1	-214.8	14792.2
	84	-10879.5	-2258.6	46.1	69.1	227.6	-12490.7
32	96	8330.4	1296.1	-6.3	-1.7	-47.1	9105.9
	84	-8646.8	-1189.5	6.3	1.7	43.6	-7863.6
33	96	6857.0	985.5	27.2	63.7	100.3	6829.5
	84	-7173.4	-878.9	-27.2	-63.7	-117.2	-5888.6
34	96	6092.2	1935.4	64.9	156.3	280.1	9801.6
	84	-6408.5	-1828.9	-64.9	-156.3	-311.7	-7898.9
35	96	5651.8	1329.7	65.5	148.7	276.5	7204.1
	84	-5968.2	-1223.2	-65.5	-148.7	-308.5	-5907.7
1	84	19078.3	6694.0	-54.9	111.2	107.8	23664.6
	72	-19222.3	-6661.7	54.9	-111.2	-52.6	-16957.5
2	84	21162.2	7363.4	49.5	-92.6	-372.5	27359.5
	72	-21306.2	-7643.8	-49.5	92.6	322.8	-19823.0
3	84	14860.2	5418.6	128.7	-248.9	-724.8	21135.1
	72	-15004.2	-5907.5	-128.7	248.9	595.5	-15447.2
4	84	5160.0	1731.5	-18.0	9.4	27.6	6127.7
	72	-5304.0	-1699.2	18.0	-9.4	-9.6	-4404.8
5	84	10646.4	4865.1	-1.6	20.5	-63.7	16421.2
	72	-10757.1	-4840.3	1.6	-20.5	64.6	-11548.4
6	84	7737.4	4083.3	-64.0	91.3	174.4	13496.9
	72	-7848.1	-4058.4	64.0	-91.3	-112.5	-9407.7
7	84	13429.0	4663.2	76.3	-74.1	-347.8	16497.3
	72	-13539.8	-4638.3	-76.3	74.1	273.3	-11829.0
8	84	12905.1	3708.3	80.8	-84.2	-353.3	13638.2
	72	-13015.9	-3683.4	-80.8	84.2	275.2	-9928.8
9	84	8900.0	1682.1	13.2	-13.3	-81.8	6890.9
	72	-9010.8	-1657.3	-13.2	13.3	70.8	-5214.3
10	84	5991.0	900.3	-49.1	57.6	156.3	3966.6
	72	-6101.8	-875.4	49.1	-57.6	-106.2	-3073.6
11	84	3732.3	2057.1	-131.5	162.2	445.9	6749.6
	72	-3843.1	-2032.3	131.5	-162.2	-316.8	-4693.2
12	84	3208.4	1102.2	-127.1	152.1	440.4	3890.5
	72	-3319.2	-1077.4	127.1	-152.1	-315.0	-2793.0
21	84	12668.2	4433.5	-36.9	70.8	71.4	15674.2
	72	-12779.0	-4408.6	36.9	-70.8	-34.3	-11233.7
22	84	14047.1	4888.3	32.4	-63.9	-248.5	18159.3

	72	-14157.9	-5071.9	-32.4	63.9	216.0	-13157.4
23	84	10436.0	3790.0	83.9	-165.0	-480.3	14718.6
	72	-10546.8	-4112.6	-83.9	165.0	396.0	-10749.9
24	84	5709.0	1952.2	-18.4	19.9	31.3	6905.7
	72	-5819.8	-1927.4	18.4	-19.9	-12.7	-4957.4
25	84	5740.0	1926.7	-17.4	16.4	30.2	6840.1
	72	-5850.8	-1901.8	17.4	-16.4	-12.7	-4917.5
26	84	3590.3	1230.4	-13.0	5.4	19.4	4426.5
	72	-3701.1	-1228.6	13.0	-5.4	-6.3	-3191.6
27	84	3969.2	1331.9	-13.8	7.2	21.2	4713.6
	72	-4080.0	-1307.1	13.8	-7.2	-7.3	-3388.3
28	84	9968.6	4260.9	-9.0	26.3	-30.5	14525.6
	72	-10079.4	-4236.0	9.0	-26.3	38.9	-10259.6
29	84	7937.6	3718.5	-52.2	75.9	135.9	12497.2
	72	-8048.4	-3693.6	52.2	-75.9	-85.5	-8774.5
30	84	11893.9	4118.9	45.2	-40.0	-229.1	14569.8
	72	-12004.7	-4094.0	-45.2	40.0	185.7	-10448.0
31	84	11513.3	3454.7	48.3	-47.2	-232.9	12579.3
	72	-11624.1	-3429.8	-48.3	47.2	187.2	-9124.4
32	84	8699.8	2047.0	1.5	2.2	-43.3	7890.6
	72	-8810.5	-2022.1	-1.5	-2.2	43.8	-5847.5
33	84	6668.8	1504.5	-41.8	51.8	123.1	5862.2
	72	-6779.6	-1479.7	41.8	-51.8	-80.6	-4362.4
34	84	5124.1	2310.7	-99.1	125.3	325.5	7808.5
	72	-5234.9	-2285.9	99.1	-125.3	-228.9	-5497.7
35	84	4743.5	1646.6	-95.9	118.0	321.7	5818.0
	72	-4854.3	-1621.7	95.9	-118.0	-227.4	-4174.0
1	315	13099.5	1131.0	-6.9	-1.7	-22.0	814.4
	327	-13048.4	-260.2	6.9	1.7	28.8	-124.4
2	315	6227.8	1020.1	-110.7	-11.5	-61.4	2021.8
	327	-6209.8	-1002.3	110.7	11.5	171.2	-1026.9
3	315	-2601.1	-369.4	-178.9	-3.5	-75.4	-579.3
	327	2614.3	100.2	178.9	3.5	252.8	342.6
4	315	3488.8	349.3	-0.7	-0.1	-2.6	272.7
	327	-3479.9	-175.4	0.7	0.1	3.3	-12.4
5	315	5048.9	-826.4	-91.0	12.1	-9.9	-2325.6
	327	-5028.9	1177.9	91.0	-12.1	86.4	1353.9
6	315	6076.3	-762.0	78.0	21.1	2.5	-2188.8
	327	-6056.4	1113.5	-78.0	-21.1	-76.1	1236.4
7	315	3937.2	13.5	-285.2	-10.4	-27.5	-639.9
	327	-3917.2	338.0	285.2	10.4	279.8	553.1
8	315	4011.9	797.8	-282.8	-20.8	-30.1	941.9
	327	-3991.9	-446.3	282.8	20.8	283.0	-250.7
9	315	5297.7	1788.0	-82.9	-22.3	-18.6	2946.8

	327	-5277.7	-1436.4	82.9	22.3	97.1	-1325.6
10	315	6325.1	1852.4	86.0	-13.3	-6.2	3083.6
	327	-6305.2	-1500.8	-86.0	13.3	-65.4	-1443.0
11	315	7362.1	228.2	277.9	19.6	14.0	-183.8
	327	-7342.2	123.4	-277.9	-19.6	-262.0	161.6
12	315	7436.8	1012.5	280.3	9.3	11.4	1397.9
	327	-7416.8	-660.9	-280.3	-9.3	-258.8	-642.2
21	315	8690.4	757.3	-4.4	-1.1	-14.1	548.3
	327	-8657.2	-187.9	4.4	1.1	18.5	-79.6
22	315	4139.1	652.0	-73.7	-7.1	-40.3	1244.8
	327	-4126.5	-628.6	73.7	7.1	113.4	-614.7
23	315	-1376.3	-210.5	-119.3	-2.3	-50.6	-358.2
	327	1385.9	48.8	119.3	2.3	168.9	227.2
24	315	3885.0	366.4	-1.3	-0.3	-4.4	277.4
	327	-3872.9	-145.6	1.3	0.3	5.7	-23.6
25	315	3795.5	460.3	-1.1	-1.7	-4.6	602.8
	327	-3787.5	-307.5	1.1	1.7	5.7	-223.0
26	315	2252.6	249.9	-0.5	-0.1	-1.6	200.5
	327	-2245.8	-139.0	0.5	0.1	2.1	-7.6
27	315	2683.7	268.7	-0.6	-0.1	-2.0	209.7
	327	-2676.9	-135.0	0.6	0.1	2.6	-9.6
28	315	5185.4	-426.3	-64.5	8.8	-9.9	-1512.0
	327	-5165.4	777.8	64.5	-8.8	62.7	933.5
29	315	6007.3	-374.9	53.2	15.1	0.1	-1416.0
	327	-5987.3	726.5	-53.2	-15.1	-50.2	851.3
30	315	4289.9	153.3	-199.6	-7.3	-23.7	-333.9
	327	-4269.9	198.2	199.6	7.3	197.4	373.6
31	315	4344.3	701.5	-197.8	-14.8	-25.6	771.9
	327	-4324.3	-350.0	197.8	14.8	200.0	-188.6
32	315	5366.7	1400.9	-58.2	-16.2	-16.1	2174.0
	327	-5346.7	-1049.4	58.2	16.2	71.3	-940.4
33	315	6188.6	1452.2	59.5	-10.0	-6.2	2270.0
	327	-6168.7	-1100.7	-59.5	10.0	-41.7	-1022.6
34	315	7029.7	324.5	192.8	13.6	9.5	-13.9
	327	-7009.7	27.1	-192.8	-13.6	-179.0	99.5
35	315	7084.1	872.6	194.6	6.1	7.6	1091.9
1	169	17678.3	3820.4	-8.4	-25.8	16.7	35375.9
	181	-17201.8	-3045.1	8.4	25.8	-8.2	-31938.9
2	169	9580.6	1251.6	17.3	201.3	-127.6	16265.4
	181	-9249.2	-862.7	-17.3	-201.3	110.2	-15201.4
3	169	-1446.9	-1821.7	39.5	367.9	-230.8	-13993.9
	181	1645.9	1900.3	-39.5	-367.9	191.2	12133.2
4	169	4579.1	943.6	-0.4	-2.8	2.1	8448.4
	181	-4496.8	-752.7	0.4	2.8	-1.7	-7599.2

5	169	5618.8	1059.6	-32.0	69.7	-46.4	1714.9
	181	-5432.3	-730.1	32.0	-69.7	60.4	-440.4
6	169	6805.4	1576.2	33.0	-72.0	53.2	5089.4
	181	-6618.9	-1246.7	-33.0	72.0	-65.3	-3340.4
7	169	5217.0	671.8	-110.2	229.4	-160.7	5836.1
	181	-5030.5	-342.3	110.2	-229.4	206.5	-5150.0
8	169	6059.3	855.9	-112.2	224.5	-159.0	12743.0
	181	-5872.8	-526.4	112.2	-224.5	205.9	-12086.8
9	169	8426.3	1673.4	-38.7	53.3	-40.8	24737.9
	181	-8239.8	-1344.0	38.7	-53.3	58.6	-23563.0
10	169	9613.0	2190.0	26.4	-88.4	58.8	28112.3
	181	-9426.5	-1860.6	-26.4	88.4	-67.2	-26463.0
11	169	9172.5	2393.8	106.6	-243.2	171.3	17084.3
	181	-8986.0	-2064.3	-106.6	243.2	-212.6	-14816.7
12	169	10014.8	2577.9	104.6	-248.1	173.0	23991.2
	181	-9828.3	-2248.4	-104.6	248.1	-213.2	-21753.4
21	169	11709.4	2523.8	-5.3	-16.5	10.7	23328.5
	181	-11399.7	-2011.7	5.3	16.5	-5.4	-21057.9
22	169	6357.2	817.1	11.9	135.0	-85.4	10476.4
	181	-6138.2	-553.7	-11.9	-135.0	73.5	-9786.6
23	169	-494.9	-1117.7	26.3	245.0	-153.6	-8462.8
	181	636.1	1189.7	-26.3	-245.0	127.3	7309.4
24	169	5159.8	1085.4	-1.3	-5.1	3.4	9864.7
	181	-5047.2	-865.5	1.3	5.1	-2.1	-8888.0
25	169	5021.0	1068.0	-1.4	-5.4	3.4	10200.1
	181	-4926.6	-874.9	1.4	5.4	-2.0	-9226.7
26	169	3072.8	664.9	-0.2	-1.8	1.3	5958.8
	181	-3009.5	-541.0	0.2	1.8	-1.2	-5355.1
27	169	3522.4	725.9	-0.3	-2.2	1.6	6498.8
	181	-3459.1	-579.0	0.3	2.2	-1.3	-5845.6
28	169	6221.5	1195.7	-25.6	46.2	-31.4	5739.3
	181	-6035.0	-866.2	25.6	-46.2	41.1	-4405.0
29	169	7050.6	1554.1	25.0	-52.9	39.6	8118.2
	181	-6864.1	-1224.7	-25.0	52.9	-46.4	-6463.8
30	169	5940.2	952.4	-86.5	157.7	-112.7	8553.4
	181	-5753.7	-622.9	86.5	-157.7	142.7	-7615.1
31	169	6528.1	1102.3	-88.0	154.1	-111.5	13344.4
	181	-6341.6	-772.9	88.0	-154.1	142.2	-12425.5
32	169	8181.2	1695.5	-30.6	34.2	-27.2	21709.1
	181	-7994.7	-1366.0	30.6	-34.2	39.7	-20439.6
33	169	9010.3	2054.0	20.0	-64.9	43.7	24087.9
	181	-8823.7	-1724.5	-20.0	64.9	-47.8	-22498.5
34	169	8703.7	2147.3	82.3	-172.8	123.8	16482.9
	181	-8517.2	-1817.8	-82.3	172.8	-148.9	-14477.9
35	169	9291.6	2297.3	80.8	-176.4	125.1	21273.8

	181	-9105.1	-1967.8	-80.8	176.4	-149.4	-19288.3
1	265	13692.3	2667.2	-4.5	5.1	12.0	7324.0
	277	-13505.0	-1813.3	4.5	-5.1	-7.5	-5095.8
2	265	9853.9	824.2	128.3	27.9	215.5	5508.6
	277	-9698.5	-420.5	-128.3	-27.9	-343.0	-4897.4
3	265	3061.4	-1105.5	228.1	32.5	357.4	-2198.5
	277	-2971.4	1014.5	-228.1	-32.5	-584.2	1140.4
4	265	3663.7	686.2	-0.6	0.7	1.4	1899.0
	277	-3631.4	-515.3	0.6	-0.7	-0.8	-1301.4
5	265	5891.7	-50.1	-8.4	0.7	93.8	-3950.4
	277	-5818.5	395.1	8.4	-0.7	-104.1	3952.8
6	265	4851.3	230.9	26.1	-19.9	-64.9	-4415.8
	277	-4778.0	114.0	-26.1	19.9	57.6	4265.4
7	265	7512.1	361.5	-55.9	32.8	271.9	1730.0
	277	-7438.8	-16.6	55.9	-32.8	-278.4	-818.9
8	265	7860.5	995.4	-62.2	39.7	265.9	6133.5
	277	-7787.2	-650.5	62.2	-39.7	-266.1	-4596.5
9	265	7053.1	2062.9	-29.4	23.7	73.6	10727.9
	277	-6979.8	-1718.0	29.4	-23.7	-63.0	-8639.0
10	265	6012.6	2344.0	5.0	3.1	-85.1	10262.5
	277	-5939.3	-1999.1	-5.0	-3.1	98.7	-8326.5
11	265	4043.8	1298.4	58.9	-35.8	-257.1	178.6
	277	-3970.6	-953.5	-58.9	35.8	260.6	222.8
12	265	4392.2	1932.4	52.6	-29.0	-263.2	4582.1
	277	-4319.0	-1587.4	-52.6	29.0	273.0	-3554.7
21	265	9086.1	1766.0	-2.9	3.3	7.7	4851.4
	277	-8964.4	-1207.6	2.9	-3.3	-4.8	-3372.6
22	265	6565.2	549.5	85.9	18.2	143.8	3515.4
	277	-6463.5	-285.4	-85.9	-18.2	-229.2	-3105.0
23	265	2416.7	-666.6	152.0	21.7	238.4	-1270.9
	277	-2353.4	623.5	-152.0	-21.7	-389.6	626.8
24	265	4071.8	775.5	-0.9	1.1	2.4	2138.9
	277	-4027.6	-558.6	0.9	-1.1	-1.4	-1475.4
25	265	3957.7	738.8	-1.9	1.9	1.1	2516.1
	277	-3917.4	-539.5	1.9	-1.9	0.8	-1881.3
26	265	2387.1	487.2	-0.4	0.4	0.9	1361.5
	277	-2362.2	-378.5	0.4	-0.4	-0.5	-931.0
27	265	2818.3	527.9	-0.5	0.5	1.1	1460.8
	277	-2793.4	-396.4	0.5	-0.5	-0.6	-1001.1
28	265	5937.0	312.5	-7.9	0.9	66.9	-1773.3
	277	-5863.7	32.4	7.9	-0.9	-74.8	2080.7
29	265	5157.1	515.5	19.7	-13.8	-43.7	-2142.3
	277	-5083.8	-170.5	-19.7	13.8	39.8	2330.0
30	265	7130.5	588.8	-45.5	24.0	190.8	2237.1

	277	-7057.2	-243.8	45.5	-24.0	-198.2	-1284.7
31	265	7373.6	1028.5	-50.0	29.0	186.5	5305.4
	277	-7300.3	-683.6	50.0	-29.0	-189.3	-3920.0
32	265	6747.3	1778.4	-23.1	17.6	52.4	8454.5
	277	-6674.0	-1433.5	23.1	-17.6	-45.2	-6703.7
33	265	5967.3	1981.4	4.6	2.9	-58.2	8085.4
	277	-5894.1	-1636.4	-4.6	-2.9	69.4	-6454.4
34	265	4530.8	1265.3	46.7	-25.2	-177.7	1006.8
	277	-4457.5	-920.4	-46.7	25.2	183.9	-453.7
35	265	4773.8	1705.1	42.1	-20.1	-182.1	4075.1
	277	-4700.6	-1360.2	-42.1	20.1	192.8	-3089.0
1	277	13579.9	2302.0	7.1	3.5	0.6	5142.7
	289	-13435.2	-1430.8	-7.1	-3.5	-7.7	-3267.9
2	277	8976.3	849.8	-106.1	-2.5	273.4	4736.1
	289	-8873.5	-535.4	106.1	2.5	-166.7	-4049.1
3	277	1562.4	-837.3	-182.7	-22.1	447.8	-1455.3
	289	-1500.9	702.5	182.7	22.1	-264.3	677.9
4	277	3582.8	487.5	0.9	0.5	0.0	1306.8
	289	-3557.8	-313.2	-0.9	-0.5	-0.9	-904.7
5	277	5894.8	-143.1	32.7	-17.3	34.8	-3921.6
	289	-5838.2	495.0	-32.7	17.3	-59.9	3586.2
6	277	4838.5	-290.8	-19.0	-15.7	-57.8	-4264.9
	289	-4781.9	642.6	19.0	15.7	69.7	3815.4
7	277	7486.6	840.4	90.1	-6.6	151.1	887.0
	289	-7430.0	-488.6	-90.1	6.6	-216.4	-275.9
8	277	7794.7	1535.7	87.5	4.1	158.1	4665.4
	289	-7738.0	-1183.9	-87.5	-4.1	-221.1	-3357.1
9	277	6921.7	2174.8	24.2	18.4	58.2	8672.8
	289	-6865.1	-1823.0	-24.2	-18.4	-75.4	-6684.3
10	277	5865.4	2027.2	-27.5	19.9	-34.4	8329.5
	289	-5808.8	-1675.3	27.5	-19.9	54.2	-6455.0
11	277	3965.6	348.3	-82.3	-1.5	-157.6	-257.4
	289	-3908.9	3.5	82.3	1.5	215.4	488.2
12	277	4273.7	1043.6	-84.8	9.2	-150.6	3520.9
	289	-4217.0	-691.8	84.8	-9.2	210.7	-2592.9
21	277	9004.2	1509.1	4.5	2.3	0.4	3402.6
	289	-8910.2	-939.4	-4.5	-2.3	-5.0	-2172.9
22	277	5968.7	549.5	-70.8	-2.2	182.0	2996.5
	289	-5900.9	-340.8	70.8	2.2	-110.8	-2554.9
23	277	1409.1	-508.2	-121.7	-14.7	298.5	-836.2
	289	-1365.5	436.2	121.7	14.7	-176.3	359.1
24	277	4005.7	601.8	1.5	0.7	0.1	1484.7
	289	-3971.5	-380.7	-1.5	-0.7	-1.6	-991.3
25	277	3904.9	576.2	1.2	2.2	0.8	1889.9

	289	-3875.9	-385.6	-1.2	-2.2	-2.1	-1407.9
26	277	2323.2	334.3	0.6	0.3	0.0	934.4
	289	-2303.9	-223.4	-0.6	-0.3	-0.6	-654.3
27	277	2756.0	375.0	0.7	0.4	0.0	1005.3
	289	-2736.8	-241.0	-0.7	-0.4	-0.7	-695.9
28	277	5946.6	192.6	24.9	-12.2	24.4	-2051.1
	289	-5889.9	159.2	-24.9	12.2	-42.3	2059.5
29	277	5100.6	79.5	-13.0	-11.1	-41.6	-2327.1
	289	-5044.0	272.3	13.0	11.1	48.0	2242.9
30	277	7183.1	888.7	66.7	-4.5	107.6	1346.1
	289	-7126.5	-536.9	-66.7	4.5	-151.6	-664.4
31	277	7397.1	1372.3	64.7	3.3	112.9	3982.0
	289	-7340.4	-1020.5	-64.7	-3.3	-155.1	-2815.8
32	277	6659.6	1804.5	18.2	13.7	42.0	6735.1
	289	-6603.0	-1452.7	-18.2	-13.7	-53.7	-5111.7
33	277	5813.7	1691.4	-19.6	14.9	-24.0	6459.0
	289	-5757.0	-1339.6	19.6	-14.9	36.6	-4928.3
34	277	4363.2	511.7	-59.4	-0.6	-112.4	425.9
	289	-4306.5	-159.9	59.4	0.6	149.4	-53.1
35	277	4577.1	995.3	-61.4	7.2	-107.2	3061.8
	289	-4520.5	-643.5	61.4	-7.2	145.9	-2204.4
1	289	13387.1	1827.5	7.1	3.3	7.8	3267.9
	301	-13267.9	-956.5	-7.1	-3.3	-14.9	-1876.1
2	289	8853.8	797.6	-106.1	-7.4	166.6	4049.1
	301	-8783.3	-581.6	106.1	7.4	-60.5	-3367.5
3	289	1521.0	-657.8	-182.7	-29.9	263.5	-677.9
	301	-1477.1	478.6	182.7	29.9	-80.9	106.0
4	289	3547.0	418.3	0.9	0.5	1.0	904.7
	301	-3526.5	-244.2	-0.9	-0.5	-1.9	-573.5
5	289	5935.4	-400.5	-8.3	-18.7	59.3	-3586.2
	301	-5888.8	752.2	8.3	18.7	-52.2	2984.5
6	289	4890.1	-517.4	21.9	-14.0	-70.1	-3815.4
	301	-4843.5	869.1	-21.9	14.0	51.3	3149.3
7	289	7428.4	590.7	-46.5	-12.0	216.2	275.9
	301	-7381.8	-239.0	46.5	12.0	-176.5	51.8
8	289	7662.9	1323.4	-49.0	-1.4	221.1	3357.1
	301	-7616.3	-971.7	49.0	1.4	-179.6	-2297.3
9	289	6716.9	2041.7	-16.6	16.4	75.9	6684.3
	301	-6670.3	-1690.0	16.6	-16.4	-62.3	-4845.7
10	289	5671.6	1924.8	13.6	21.2	-53.6	6455.0
	301	-5625.0	-1573.1	-13.6	-21.2	41.2	-4681.0
11	289	3944.1	200.9	54.2	3.9	-215.4	-488.2
	301	-3897.5	150.8	-54.2	-3.9	168.5	600.9
12	289	4178.5	933.6	51.7	14.5	-210.4	2592.9

	301	-4131.9	-581.9	-51.7	-14.5	165.5	-1748.2
21	289	8878.5	1202.5	4.5	2.1	5.0	2172.9
	301	-8801.1	-633.0	-4.5	-2.1	-9.6	-1255.3
22	289	5888.2	515.2	-70.8	-5.5	110.7	2554.9
	301	-5841.2	-368.1	70.8	5.5	-39.9	-2118.2
23	289	1377.8	-395.7	-121.7	-19.9	175.8	-359.1
	301	-1346.4	294.0	121.7	19.9	-54.1	11.9
24	289	3958.5	497.9	1.5	0.7	1.6	991.3
	301	-3930.3	-276.9	-1.5	-0.7	-3.1	-604.0
25	289	3862.8	500.0	1.2	2.1	2.1	1407.9
	301	-3840.7	-322.0	-1.2	-2.1	-3.4	-998.0
26	289	2296.3	291.4	0.6	0.3	0.6	654.3
	301	-2280.5	-180.5	-0.6	-0.3	-1.2	-418.4
27	289	2728.5	321.8	0.7	0.3	0.7	695.9
	301	-2712.7	-187.9	-0.7	-0.3	-1.4	-441.1
28	289	5950.0	-43.1	-5.0	-13.2	41.9	-2059.5
	301	-5903.4	394.8	5.0	13.2	-38.2	1825.1
29	289	5113.2	-134.2	16.8	-9.9	-48.3	-2242.9
	301	-5066.6	485.9	-16.8	9.9	34.2	1949.8
30	289	7116.5	658.7	-32.8	-8.1	151.5	664.4
	301	-7069.9	-307.0	32.8	8.1	-125.1	-235.4
31	289	7279.7	1169.2	-34.7	-0.5	155.1	2815.8
	301	-7233.1	-817.5	34.7	0.5	-127.2	-1876.8
32	289	6493.8	1658.5	-11.5	12.4	54.1	5111.7
	301	-6447.2	-1306.8	11.5	-12.4	-45.2	-3646.2
33	289	5657.0	1567.4	10.3	15.7	-36.2	4928.3
	301	-5610.4	-1215.7	-10.3	-15.7	27.1	-3521.5
34	289	4327.3	355.1	39.9	2.9	-149.3	53.1
	301	-4280.7	-3.4	-39.9	-2.9	116.2	180.4
35	289	4490.4	865.6	38.0	10.6	-145.7	2204.4
	301	-4443.8	-513.9	-38.0	-10.6	114.1	-1461.0
1	301	13217.9	1497.0	7.1	2.7	15.0	1876.1
	313	-13132.8	-617.3	-7.1	-2.7	-22.1	-813.6
2	301	8752.3	939.5	-106.1	-9.9	60.1	3367.5
	313	-8712.0	-820.8	106.1	9.9	46.6	-2491.8
3	301	1495.4	-417.9	-182.7	-33.2	79.6	-106.0
	313	-1468.7	192.0	182.7	33.2	104.0	-204.6
4	301	3513.6	387.9	0.9	0.4	1.9	573.5
	313	-3498.9	-212.2	-0.9	-0.4	-2.8	-271.9
5	301	5999.7	-583.3	-42.0	-20.8	51.5	-2984.5
	313	-5966.4	938.5	42.0	20.8	2.2	2189.0
6	301	4964.5	-672.9	55.3	-12.0	-51.8	-3149.3
	313	-4931.2	1028.1	-55.3	12.0	-10.4	2325.8
7	301	7384.6	412.4	-158.2	-19.0	175.9	-51.8

	313	-7351.2	-57.3	158.2	19.0	14.0	184.2
8	301	7536.5	1176.3	-160.6	-8.5	179.4	2297.3
	313	-7503.2	-821.1	160.6	8.5	11.5	-1397.3
9	301	6506.1	1962.9	-50.0	14.0	62.9	4845.7
	313	-6472.8	-1607.8	50.0	-14.0	-6.0	-3082.7
10	301	5471.0	1873.3	47.2	22.8	-40.4	4681.0
	313	-5437.7	-1518.2	-47.2	-22.8	-18.6	-2945.9
11	301	3934.2	113.7	165.8	10.5	-168.2	-600.9
	313	-3900.9	241.4	-165.8	-10.5	-27.9	640.4
12	301	4086.1	877.6	163.4	21.0	-164.8	1748.2
	313	-4052.8	-522.4	-163.4	-21.0	-30.4	-941.1
21	301	8767.9	991.6	4.5	1.7	9.7	1255.3
	313	-8712.6	-416.5	-4.5	-1.7	-14.2	-547.7
22	301	5821.3	606.1	-70.8	-7.1	39.6	2118.2
	313	-5794.0	-519.6	70.8	7.1	31.6	-1558.1
23	301	1357.3	-238.8	-121.7	-22.1	53.3	-11.9
	313	-1338.0	106.2	121.7	22.1	69.0	-164.3
24	301	3915.8	437.0	1.5	0.6	3.1	604.0
	313	-3895.7	-213.9	-1.5	-0.6	-4.6	-276.9
25	301	3824.4	478.4	1.2	2.0	3.5	998.0
	313	-3809.9	-311.3	-1.2	-2.0	-4.7	-602.3
26	301	2271.2	273.4	0.6	0.2	1.2	418.4
	313	-2259.9	-161.4	-0.6	-0.2	-1.8	-199.9
27	301	2702.7	298.4	0.7	0.3	1.5	441.1
	313	-2691.4	-163.3	-0.7	-0.3	-2.2	-209.2
28	301	5972.0	-207.8	-28.0	-14.7	37.6	-1825.1
	313	-5938.7	562.9	28.0	14.7	-0.2	1416.4
29	301	5143.7	-279.4	39.6	-8.6	-34.6	-1949.8
	313	-5110.4	634.6	-39.6	8.6	-10.2	1512.4
30	301	7062.5	497.8	-109.1	-13.0	124.7	235.4
	313	-7029.2	-142.6	109.1	13.0	9.4	14.3
31	301	7169.0	1030.9	-111.0	-5.4	127.1	1876.8
	313	-7135.7	-675.8	111.0	5.4	7.6	-1091.4
32	301	6326.9	1569.4	-34.3	10.6	45.7	3646.2
	313	-6293.6	-1214.3	34.3	-10.6	-6.2	-2269.3
33	301	5498.7	1497.8	33.3	16.7	-26.5	3521.5
	313	-5465.4	-1142.7	-33.3	-16.7	-16.2	-2173.2
34	301	4301.6	259.1	116.2	7.4	-116.0	-180.4
	313	-4268.3	96.1	-116.2	-7.4	-24.0	334.5
35	301	4408.1	792.2	114.3	15.0	-113.6	1461.0
	313	-4374.8	-437.1	-114.3	-15.0	-25.8	-771.2
1	313	13098.5	1130.7	7.1	1.8	22.2	813.6
	325	-13047.5	-259.9	-7.1	-1.8	-29.2	-124.0
2	313	8673.2	1161.0	-106.1	-8.0	-46.9	2491.8

	325	-8655.1	-1143.1	106.1	8.0	152.2	-1357.2
3	313	1475.0	-134.4	-182.7	-29.1	-105.2	204.6
	325	-1461.9	-134.9	182.7	29.1	286.4	-208.1
4	313	3487.9	349.0	0.9	0.3	2.8	271.9
	325	-3479.1	-175.1	-0.9	-0.3	-3.7	-12.0
5	313	6076.0	-762.1	-77.9	-21.1	-2.5	-2189.0
	325	-6056.0	1113.6	77.9	21.1	75.8	1236.6
6	313	5048.5	-826.5	91.0	-12.1	10.0	-2325.8
	325	-5028.5	1178.0	-91.0	12.1	-86.7	1354.1
7	313	7361.6	228.0	-277.8	-19.5	-13.9	-184.2
	325	-7341.6	123.6	277.8	19.5	261.7	161.8
8	313	7436.0	1012.2	-280.1	-9.1	-11.2	1397.3
	325	-7416.0	-660.6	280.1	9.1	258.4	-641.9
9	313	6324.1	1851.9	-85.7	13.5	6.4	3082.7
	325	-6304.1	-1500.4	85.7	-13.5	65.0	-1442.6
10	313	5296.6	1787.5	83.2	22.5	18.9	2945.9
	325	-5276.7	-1436.0	-83.2	-22.5	-97.5	-1325.1
11	313	3936.6	13.3	285.3	10.5	27.6	-640.4
	325	-3916.6	338.2	-285.3	-10.5	-280.1	553.4
12	313	4011.1	797.5	283.0	20.9	30.3	941.1
	325	-3991.1	-446.0	-283.0	-20.9	-283.3	-250.3
21	313	8689.7	757.0	4.5	1.2	14.3	547.7
	325	-8656.5	-187.7	-4.5	-1.2	-18.8	-79.2
22	313	5769.2	745.9	-70.8	-5.9	-31.9	1558.1
	325	-5756.7	-722.5	70.8	5.9	102.1	-834.9
23	313	1341.1	-53.8	-121.7	-19.4	-69.8	164.3
	325	-1331.4	-107.9	121.7	19.4	190.5	-140.0
24	313	3884.3	366.2	1.5	0.4	4.6	276.9
	325	-3872.3	-145.3	-1.5	-0.4	-6.0	-23.2
25	313	3794.8	460.1	1.2	1.8	4.8	602.3
	325	-3786.9	-307.3	-1.2	-1.8	-6.0	-222.7
26	313	2251.9	249.7	0.6	0.2	1.8	199.9
	325	-2245.1	-138.7	-0.6	-0.2	-2.4	-7.3
27	313	2683.0	268.4	0.7	0.2	2.2	209.2
	325	-2676.2	-134.7	-0.7	-0.2	-2.9	-9.2
28	313	6006.8	-375.1	-53.2	-15.1	0.0	-1416.4
	325	-5986.8	726.6	53.2	15.1	49.9	851.5
29	313	5184.9	-426.4	64.5	-8.8	10.0	-1512.4
	325	-5164.9	777.9	-64.5	8.8	-63.0	933.7
30	313	7029.1	324.3	-192.7	-13.5	-9.3	-14.3
	325	-7009.1	27.3	192.7	13.5	178.7	99.7
31	313	7083.4	872.3	-194.5	-6.0	-7.4	1091.4
	325	-7063.4	-520.8	194.5	6.0	176.1	-462.4
32	313	6187.8	1451.9	-59.3	10.2	6.5	2269.3
	325	-6167.8	-1100.3	59.3	-10.2	41.3	-1022.2

33	313	5365.8	1400.5	58.4	16.4	16.4	2173.2
	325	-5345.8	-1049.0	-58.4	-16.4	-71.6	-940.0
34	313	4289.3	153.1	199.7	7.3	23.8	-334.5
	325	-4269.3	198.4	-199.7	-7.3	-197.7	373.9
35	313	4343.6	701.2	197.9	14.9	25.8	771.2
	325	-4323.6	-349.7	-197.9	-14.9	-200.3	-188.2
1	325	13422.8	611.6	-0.2	0.4	20.0	171.8
	335	-13405.8	268.0	0.2	-0.4	-19.8	0.0
2	325	7500.4	1168.8	-10.7	-0.4	-79.4	1201.8
	335	-7496.4	-1251.9	10.7	0.4	90.1	0.0
3	325	-915.3	-253.2	31.7	-15.7	-200.0	-98.0
	335	918.7	-65.6	-31.7	15.7	168.3	0.0
4	325	3523.9	105.3	-0.2	0.1	2.7	17.5
	335	-3521.0	70.3	0.2	-0.1	-2.5	0.0
5	325	6409.0	-1092.8	64.9	-18.7	-90.3	-1270.5
	335	-6402.4	1447.8	-64.9	18.7	25.8	0.0
6	325	5052.7	-1110.2	28.5	-17.4	12.4	-1288.0
	335	-5046.1	1465.3	-28.5	17.4	-41.2	0.0
7	325	8042.6	-133.9	74.5	-7.3	-177.6	-311.5
	335	-8036.0	488.9	-74.5	7.3	104.4	0.0
8	325	8086.6	670.5	46.4	3.6	-149.7	493.1
	335	-8079.9	-315.5	-46.4	-3.6	104.6	0.0
9	325	6555.5	1588.6	-28.8	17.8	2.6	1411.4
	335	-6548.8	-1233.6	28.8	-17.8	26.6	0.0
10	325	5199.2	1571.2	-65.2	19.0	105.3	1393.9
	335	-5192.5	-1216.1	65.2	-19.0	-40.5	0.0
11	325	3521.6	-192.1	-46.8	-3.2	164.7	-369.7
	335	-3515.0	547.2	46.8	3.2	-119.3	0.0
12	325	3565.6	612.3	-74.9	7.7	192.6	434.8
	335	-3558.9	-257.2	74.9	-7.7	-119.0	0.0
21	325	8897.5	397.4	-0.2	0.3	12.9	109.9
	335	-8886.4	177.6	0.2	-0.3	-12.7	0.0
22	325	4976.8	715.9	-5.4	-0.8	-54.9	730.3
	335	-4973.9	-755.5	5.4	0.8	60.4	0.0
23	325	-248.8	-158.0	21.1	-10.5	-133.1	-63.5
	335	251.3	-36.5	-21.1	10.5	112.0	0.0
24	325	3948.1	144.3	-0.2	0.1	4.3	32.8
	335	-3944.0	78.8	0.2	-0.1	-4.1	0.0
25	325	3865.5	303.3	-5.3	1.6	9.0	231.5
	335	-3863.1	-161.7	5.3	-1.6	-3.7	0.0
26	325	2271.8	66.8	-0.2	0.1	1.8	10.7
	335	-2269.5	45.3	0.2	-0.1	-1.6	0.0
27	325	2710.7	81.0	-0.2	0.1	2.1	13.5
	335	-2708.4	54.1	0.2	-0.1	-1.9	0.0

28	325	6284.9	-691.6	45.8	-13.6	-61.2	-869.3
	335	-6278.2	1046.6	-45.8	13.6	15.7	0.0
29	325	5221.7	-705.4	20.3	-12.7	10.2	-883.1
	335	-5215.1	1060.5	-20.3	12.7	-30.9	0.0
30	325	7560.7	-19.0	52.4	-5.2	-121.4	-196.6
	335	-7554.1	374.1	-52.4	5.2	70.2	0.0
31	325	7591.2	543.6	32.5	2.7	-101.6	366.2
	335	-7584.5	-188.6	-32.5	-2.7	70.3	0.0
32	325	6386.4	1183.8	-20.6	13.1	4.8	1006.5
	335	-6379.8	-828.8	20.6	-13.1	16.2	0.0
33	325	5323.3	1170.0	-46.2	13.9	76.2	992.7
	335	-5316.7	-814.9	46.2	-13.9	-30.4	0.0
34	325	4017.0	-65.2	-32.8	-2.4	116.6	-242.8
	335	-4010.3	420.2	32.8	2.4	-85.0	0.0
35	325	4047.5	497.4	-52.7	5.6	136.4	320.0
	335	-4040.8	-142.4	52.7	-5.6	-84.9	0.0
1	278	13505.0	-1813.0	4.4	-5.1	7.7	5094.3
	266	-13692.2	2666.8	-4.4	5.1	-12.1	-7322.2
2	278	9424.0	1063.2	-130.9	-25.6	349.3	-6911.2
	266	-9703.3	-113.2	130.9	25.6	-219.1	7512.6
3	278	2624.9	464.7	-213.1	-47.5	555.9	-605.4
	266	-2773.0	-299.5	213.1	47.5	-343.9	993.1
4	278	3631.3	-514.9	0.5	-0.6	1.0	1300.0
	266	-3663.7	685.9	-0.5	0.6	-1.5	-1897.2
5	278	6979.5	-1717.1	29.3	-23.6	63.0	8635.0
	266	-7052.7	2062.0	-29.3	23.6	-73.7	-10722.7
6	278	5937.9	-1998.5	-5.1	-3.1	-98.4	8324.0
	266	-6011.2	2343.4	5.1	3.1	84.9	-10259.6
7	278	7788.6	-649.5	62.1	-39.5	265.8	4592.2
	266	-7861.9	994.4	-62.1	39.5	-265.8	-6127.5
8	278	7440.7	-15.9	55.7	-32.6	278.2	816.0
	266	-7514.0	360.8	-55.7	32.6	-271.8	-1725.6
9	278	5819.8	395.0	8.3	-0.7	104.2	-3952.5
	266	-5893.0	-50.1	-8.3	0.7	-93.9	3950.3
10	278	4778.2	113.6	-26.1	19.9	-57.3	-4263.6
	266	-4851.5	231.3	26.1	-19.9	64.7	4413.4
11	278	4317.0	-1587.6	-52.5	28.9	-272.5	3555.5
	266	-4390.2	1932.5	52.5	-28.9	262.9	-4583.8
12	278	3969.1	-953.9	-58.8	35.8	-260.1	-220.8
	266	-4042.3	1298.9	58.8	-35.8	256.9	-181.9
21	278	8964.4	-1207.4	2.8	-3.3	5.0	3371.4
	266	-9086.0	1765.7	-2.8	3.3	-7.8	-4850.0
22	278	6284.3	598.6	-87.1	-17.3	232.1	-4064.4
	266	-6463.5	6.9	87.1	17.3	-145.5	4368.9

23	278	2122.4	257.0	-142.0	-31.8	370.7	-270.3
	266	-2224.4	-129.3	142.0	31.8	-229.4	467.5
24	278	4027.5	-558.3	0.9	-1.0	1.6	1474.3
	266	-4071.8	775.2	-0.9	1.0	-2.5	-2137.5
25	278	3905.8	-223.9	-0.2	0.1	3.4	-229.2
	266	-3961.5	491.5	0.2	-0.1	-3.3	-124.5
26	278	2362.1	-378.3	0.3	-0.4	0.6	929.9
	266	-2387.0	486.9	-0.3	0.4	-0.9	-1360.2
27	278	2793.3	-396.1	0.4	-0.5	0.8	1000.0
	266	-2818.2	527.6	-0.4	0.5	-1.1	-1459.4
28	278	6673.8	-1432.7	23.0	-17.6	45.3	6700.3
	266	-6747.0	1777.7	-23.0	17.6	-52.5	-8450.3
29	278	5893.1	-1636.0	-4.6	-2.9	-69.1	6452.3
	266	-5966.4	1980.9	4.6	2.9	58.0	-8083.0
30	278	7301.4	-682.8	49.9	-28.9	189.2	3916.2
	266	-7374.6	1027.7	-49.9	28.9	-186.4	-5300.5
31	278	7058.6	-243.2	45.3	-23.8	198.1	1281.9
	266	-7131.9	588.2	-45.3	23.8	-190.8	-2233.3
32	278	5864.6	32.5	7.8	-0.9	74.9	-2080.9
	266	-5937.9	312.4	-7.8	0.9	-67.0	1773.6
33	278	5083.9	-170.7	-19.7	13.8	-39.6	-2328.9
	266	-5157.2	515.7	19.7	-13.8	43.5	2140.9
34	278	4699.1	-1360.2	-42.1	20.1	-192.4	3089.6
	266	-4772.4	1705.1	42.1	-20.1	181.9	-4076.1
35	278	4456.3	-920.7	-46.6	25.1	-183.5	455.2
	266	-4529.6	1265.6	46.6	-25.1	177.5	-1008.9
1	330	14495.7	-206.5	14.6	3.2	-52.7	148.0
	318	-14546.8	1077.3	-14.6	-3.2	38.2	-784.7
2	330	8615.0	1548.4	107.8	1.2	-170.6	-1331.5
	318	-8642.3	-1377.7	-107.8	-1.2	63.7	2799.9
3	330	82.9	-167.3	162.8	30.6	-249.4	191.2
	318	-100.4	-30.3	-162.8	-30.6	87.9	-251.1
4	330	3650.5	-165.9	1.7	0.4	-5.5	11.7
	318	-3659.3	339.7	-1.7	-0.4	3.9	-262.4
5	330	6837.0	-1482.7	84.0	30.0	-107.1	1454.2
	318	-6857.0	1834.3	-84.0	-30.0	32.0	-3088.3
6	330	6123.9	-1424.8	-79.0	20.8	51.8	1321.3
	318	-6143.8	1776.3	79.0	-20.8	17.3	-2919.5
7	330	7470.8	-630.9	276.1	23.7	-286.3	674.0
	318	-7490.8	982.5	-276.1	-23.7	41.4	-1438.1
8	330	7300.9	157.1	277.8	9.1	-281.1	-127.7
	318	-7320.9	194.4	-277.8	-9.1	34.8	145.2
9	330	6270.6	1144.2	89.7	-18.5	-89.7	-1218.1
	318	-6290.6	-792.7	-89.7	18.5	10.1	2189.3

10	330	5557.4	1202.1	-73.3	-27.6	69.1	-1351.0
	318	-5577.4	-850.6	73.3	27.6	-4.6	2358.2
11	330	5093.6	-437.7	-267.1	-6.8	243.1	230.9
	318	-5113.5	789.3	267.1	6.8	-7.4	-875.4
12	330	4923.6	350.3	-265.4	-21.3	248.3	-570.8
	318	-4943.6	1.2	265.4	21.3	-14.0	707.9
21	330	9586.4	-153.0	9.4	2.1	-33.7	94.2
	318	-9619.5	722.3	-9.4	-2.1	24.4	-528.3
22	330	5705.8	915.8	71.5	1.8	-113.2	-802.3
	318	-5724.2	-796.9	-71.5	-1.8	42.3	1662.5
23	330	429.7	-128.6	108.7	20.4	-166.9	128.7
	318	-442.3	14.7	-108.7	-20.4	59.0	-194.3
24	330	4163.7	-132.7	2.9	0.6	-10.2	26.0
	318	-4175.8	353.5	-2.9	-0.6	7.3	-267.1
25	330	4043.7	170.7	2.9	-2.7	-7.5	-243.3
	318	-4052.8	1.2	-2.9	2.7	4.6	329.5
26	330	2352.7	-132.4	1.0	0.2	-3.4	6.6
	318	-2359.5	243.3	-1.0	-0.2	2.4	-193.0
27	330	2808.1	-127.6	1.3	0.3	-4.3	9.0
	318	-2814.9	261.3	-1.3	-0.3	3.0	-201.9
28	330	6685.0	-1078.0	60.0	21.3	-80.2	1030.3
	318	-6705.0	1429.5	-60.0	-21.3	27.3	-2264.1
29	330	6114.0	-1034.0	-53.6	15.0	30.1	937.3
	318	-6134.0	1385.5	53.6	-15.0	15.5	-2146.7
30	330	7209.6	-488.3	194.0	16.8	-204.7	486.2
	318	-7229.5	839.8	-194.0	-16.8	35.7	-1112.7
31	330	7088.2	61.2	195.3	6.6	-201.1	-73.1
	318	-7108.2	290.4	-195.3	-6.6	31.1	-8.5
32	330	6280.4	753.4	64.3	-12.7	-68.1	-834.1
	318	-6300.4	-401.9	-64.3	12.7	11.9	1416.6
33	330	5709.4	797.4	-49.3	-19.0	42.2	-927.1
	318	-5729.4	-445.8	49.3	19.0	0.1	1534.0
34	330	5306.3	-341.7	-184.6	-4.3	163.1	176.3
	318	-5326.2	693.3	184.6	4.3	-3.7	-721.6
35	330	5184.9	207.7	-183.4	-14.5	166.8	-383.0
	318	-5204.9	143.9	183.4	14.5	-8.3	382.6
1	318	14577.8	-507.3	14.6	4.7	-38.0	784.7
	306	-14662.9	1387.0	-14.6	-4.7	23.3	-1736.6
2	318	8581.8	1714.8	107.8	3.7	-63.6	-2799.9
	306	-8648.0	-1336.9	-107.8	-3.7	-44.8	4350.2
3	318	99.2	34.2	162.8	34.0	-86.7	251.1
	306	-138.0	-138.6	-162.8	-34.0	-77.0	-156.4
4	318	3669.8	-196.3	1.7	0.5	-3.9	262.4
	306	-3684.5	372.0	-1.7	-0.5	2.2	-548.0

5	318	7000.7	-1555.2	48.7	30.9	-31.0	3088.3
	306	-7034.0	1910.4	-48.7	-30.9	-27.3	-4809.8
6	318	6282.0	-1492.6	-42.3	21.8	-16.3	2919.5
	306	-6315.3	1847.8	42.3	-21.8	68.0	-4617.6
7	318	7552.4	-735.2	156.5	24.2	-41.1	1438.1
	306	-7585.7	1090.4	-156.5	-24.2	-146.9	-2289.5
8	318	7306.6	30.2	157.8	9.4	-35.1	-145.2
	306	-7339.9	325.0	-157.8	-9.4	-154.1	62.9
9	318	6181.3	996.2	53.0	-18.4	-11.0	-2189.3
	306	-6214.6	-641.1	-53.0	18.4	-51.4	3031.7
10	318	5462.7	1058.8	-38.1	-27.5	3.7	-2358.2
	306	-5496.0	-703.7	38.1	27.5	43.8	3223.9
11	318	5156.8	-526.6	-147.1	-6.0	7.9	875.4
	306	-5190.1	881.7	147.1	6.0	170.7	-1648.9
12	318	4911.0	238.8	-145.8	-20.8	13.9	-707.9
	306	-4944.3	116.3	145.8	20.8	163.4	703.6
21	318	9640.4	-345.4	9.4	3.0	-24.3	528.3
	306	-9695.7	920.6	-9.4	-3.0	14.9	-1164.4
22	318	5688.6	1020.3	71.5	3.5	-42.2	-1662.5
	306	-5732.1	-771.8	-71.5	-3.5	-29.7	2573.6
23	318	442.5	2.7	108.7	22.7	-58.2	194.3
	306	-469.9	-54.2	-108.7	-22.7	-51.1	-160.4
24	318	4186.4	-189.9	2.9	0.9	-7.2	267.1
	306	-4206.5	413.0	-2.9	-0.9	4.3	-570.1
25	318	4049.8	157.3	2.9	-2.5	-4.7	-329.5
	306	-4067.5	42.2	-2.9	2.5	1.8	389.5
26	318	2367.2	-150.8	1.0	0.3	-2.3	193.0
	306	-2378.5	262.9	-1.0	-0.3	1.3	-400.8
27	318	2822.9	-151.0	1.3	0.4	-3.0	201.9
	306	-2834.3	286.1	-1.3	-0.4	1.7	-421.5
28	318	6806.5	-1162.0	35.5	22.1	-26.6	2264.1
	306	-6839.8	1517.2	-35.5	-22.1	-16.5	-3594.8
29	318	6231.0	-1111.7	-27.9	15.8	-14.8	2146.7
	306	-6264.3	1466.9	27.9	-15.8	50.2	-3457.7
30	318	7277.0	-598.6	110.4	17.4	-35.5	1112.7
	306	-7310.3	953.8	-110.4	-17.4	-100.4	-1841.5
31	318	7104.8	-65.4	111.3	7.0	-31.3	8.5
	306	-7138.1	420.6	-111.3	-7.0	-105.5	-201.5
32	318	6232.4	615.3	38.5	-12.4	-12.5	-1416.6
	306	-6265.7	-260.2	-38.5	12.4	-33.6	1871.8
33	318	5656.9	665.6	-24.8	-18.7	-0.7	-1534.0
	306	-5690.2	-310.5	24.8	18.7	33.1	2008.9
34	318	5358.6	-430.9	-100.7	-3.6	4.0	721.6
	306	-5391.9	786.1	100.7	3.6	122.0	-1384.4
35	318	5186.4	102.3	-99.7	-14.0	8.2	-382.6

	306	-5219.7	252.9	99.7	14.0	116.9	255.6
1	306	14707.3	-787.6	14.6	5.7	-23.1	1736.6
	294	-14826.4	1658.6	-14.6	-5.7	8.5	-2959.5
2	306	8586.3	1688.6	107.8	1.9	44.9	-4350.2
	294	-8707.3	-1115.5	-107.8	-1.9	-152.7	5768.8
3	306	132.2	144.1	162.8	30.8	78.3	156.4
	294	-199.9	-155.9	-162.8	-30.8	-241.1	1.5
4	306	3696.6	-221.3	1.7	0.6	-2.2	548.0
	294	-3717.2	395.4	-1.7	-0.6	0.5	-856.3
5	306	7190.4	-1605.2	16.0	29.8	28.5	4809.8
	294	-7237.0	1956.9	-16.0	-29.8	-41.7	-6564.0
6	306	6464.4	-1529.3	-9.0	24.5	-67.1	4617.6
	294	-6511.1	1881.0	9.0	-24.5	73.0	-6348.0
7	306	7657.2	-839.7	46.5	18.5	147.7	2289.5
	294	-7703.8	1191.4	-46.5	-18.5	-184.6	-3217.9
8	306	7331.4	-107.7	47.6	3.4	154.4	-62.9
	294	-7378.0	459.4	-47.6	-3.4	-192.2	-133.8
9	306	6104.4	834.9	19.7	-20.4	50.7	-3031.7
	294	-6151.0	-483.2	-19.7	20.4	-67.3	3716.1
10	306	5378.4	910.8	-5.3	-25.7	-44.9	-3223.9
	294	-5425.0	-559.1	5.3	25.7	47.5	3932.1
11	306	5237.4	-586.8	-36.9	0.7	-170.8	1648.9
	294	-5284.0	938.5	36.9	-0.7	198.0	-2498.1
12	306	4911.6	145.3	-35.8	-14.4	-164.1	-703.6
	294	-4958.2	206.4	35.8	14.4	190.3	586.0
21	306	9725.2	-524.2	9.4	3.6	-14.7	1164.4
	294	-9802.6	1093.7	-9.4	-3.6	5.4	-1973.2
22	306	5695.9	1005.0	71.5	2.3	29.8	-2573.6
	294	-5774.5	-634.7	-71.5	-2.3	-101.3	3403.8
23	306	467.3	73.4	108.7	20.6	52.0	160.4
	294	-514.5	-63.4	-108.7	-20.6	-160.7	-86.8
24	306	4219.9	-241.0	2.9	1.1	-4.3	570.1
	294	-4248.0	462.1	-2.9	-1.1	1.4	-921.6
25	306	4065.9	123.8	2.9	-2.5	-1.9	-389.5
	294	-4094.3	98.9	-2.9	2.5	-1.1	404.0
26	306	2387.2	-165.6	1.0	0.4	-1.3	400.8
	294	-2403.1	276.5	-1.0	-0.4	0.3	-621.9
27	306	2843.6	-170.3	1.3	0.5	-1.7	421.5
	294	-2859.4	304.2	-1.3	-0.5	0.4	-658.7
28	306	6953.3	-1226.4	13.2	21.5	17.4	3594.8
	294	-6999.9	1578.1	-13.2	-21.5	-28.1	-4978.5
29	306	6371.7	-1165.9	-5.1	17.8	-49.5	3457.7
	294	-6418.4	1517.6	5.1	-17.8	51.8	-4816.5
30	306	7367.1	-702.7	35.5	13.5	101.0	1841.5

	294	-7413.7	1054.4	-35.5	-13.5	-127.7	-2660.4
31	306	7140.2	-193.4	36.3	3.0	105.7	201.5
	294	-7186.8	545.1	-36.3	-3.0	-133.1	-511.5
32	306	6197.0	471.5	15.8	-13.7	33.1	-1871.8
	294	-6243.7	-119.8	-15.8	13.7	-46.1	2184.6
33	306	5615.5	532.0	-2.5	-17.4	-33.8	-2008.9
	294	-5662.1	-180.3	2.5	17.4	33.8	2346.6
34	306	5428.6	-501.0	-25.6	1.1	-122.1	1384.4
	294	-5475.2	852.8	25.6	-1.1	138.8	-2120.4
35	306	5201.7	8.3	-24.9	-9.4	-117.4	-255.6
	294	-5248.4	343.4	24.9	9.4	133.4	28.5
1	102	19246.8	4996.4	-18.3	-121.5	-77.4	28553.0
	90	-20055.2	-4724.1	18.3	121.5	95.8	-23680.8
2	102	12311.2	3591.4	-74.3	-178.4	-440.9	21158.5
	90	-12480.5	-3846.6	74.3	178.4	515.4	-17432.0
3	102	-941.4	1218.8	-98.8	-192.7	-666.4	6042.3
	90	787.9	-1687.3	98.8	192.7	765.4	-4586.4
4	102	5080.1	1295.3	-8.2	-12.0	-18.3	7417.9
	90	-5219.7	-1248.3	8.2	12.0	26.5	-6143.0
5	102	8291.4	3384.1	-29.0	-108.0	-147.3	16891.7
	90	-8607.8	-3277.6	29.0	108.0	164.4	-13548.9
6	102	10410.9	3828.6	13.0	-14.0	65.1	20174.6
	90	-10727.3	-3722.0	-13.0	14.0	-65.6	-16396.8
7	102	5107.2	1848.2	-79.0	-205.3	-389.2	8705.9
	90	-5423.6	-1741.6	79.0	205.3	427.6	-6889.5
8	102	4497.4	976.2	-79.9	-194.7	-384.0	4972.5
	90	-4813.8	-869.6	79.9	194.7	423.1	-4029.3
9	102	6258.8	477.4	-31.9	-72.9	-130.2	4447.0
	90	-6575.2	-370.8	31.9	72.9	149.6	-4015.0
10	102	8378.4	921.9	10.1	21.1	82.2	7729.9
	90	-8694.8	-815.3	-10.1	-21.1	-80.4	-6863.0
11	102	12172.3	3329.8	61.0	107.8	318.9	19649.1
	90	-12488.7	-3223.2	-61.0	-107.8	-339.1	-16382.6
12	102	11562.6	2457.8	60.1	118.3	324.1	15915.6
	90	-11878.9	-2351.2	-60.1	-118.3	-343.5	-13522.4
21	102	12761.9	3309.6	-12.6	-77.7	-51.0	18915.5
	90	-13287.3	-3132.6	12.6	77.7	63.7	-15686.5
22	102	8099.9	2391.4	-49.7	-116.8	-293.9	14022.0
	90	-8225.8	-2557.1	49.7	116.8	343.6	-11542.8
23	102	-106.5	945.4	-66.7	-129.7	-446.1	4789.0
	90	-10.1	-1252.9	66.7	129.7	513.0	-3687.7
24	102	5678.6	1459.0	-7.5	-22.9	-21.5	8348.0
	90	-5869.6	-1394.7	7.5	22.9	29.0	-6917.6
25	102	5793.7	1403.7	-8.3	-19.3	-20.0	8239.3

	90	-5904.8	-1366.3	8.3	19.3	28.3	-6851.1
26	102	3508.7	912.2	-5.9	-7.2	-12.8	5346.0
	90	-3616.1	-899.1	5.9	7.2	18.7	-4438.1
27	102	3907.8	996.4	-6.3	-9.3	-14.1	5706.1
	90	-4015.2	-960.2	6.3	9.3	20.4	-4725.3
28	102	8332.4	3007.1	-25.1	-88.7	-112.3	15501.6
	90	-8648.8	-2900.5	25.1	88.7	127.7	-12537.1
29	102	9806.0	3317.9	8.4	-23.3	35.1	17778.7
	90	-10122.4	-3211.3	-8.4	23.3	-33.2	-14512.5
30	102	6099.1	1937.9	-64.9	-156.2	-280.0	9814.4
	90	-6415.5	-1831.3	64.9	156.2	311.6	-7909.2
31	102	5658.5	1332.2	-65.6	-148.6	-276.4	7216.7
	90	-5974.9	-1225.6	65.6	148.6	308.5	-5917.9
32	102	6863.7	988.1	-27.3	-63.6	-100.2	6842.8
	90	-7180.1	-881.5	27.3	63.6	117.2	-5899.4
33	102	8337.4	1298.9	6.2	1.7	47.2	9120.0
	90	-8653.8	-1192.3	-6.2	-1.7	-43.6	-7874.8
34	102	11011.2	2973.8	46.7	61.7	211.3	17404.8
	90	-11327.6	-2867.2	-46.7	-61.7	-224.5	-14494.0
35	102	10570.7	2368.1	46.0	69.2	214.9	14807.2
	90	-10887.0	-2261.5	-46.0	-69.2	-227.6	-12502.7
1	90	19086.7	6698.4	54.9	-111.0	-107.8	23679.2
	78	-19230.7	-6666.1	-54.9	111.0	52.6	-16967.7
2	90	10050.1	4787.7	147.8	-124.0	-531.1	17318.2
	78	-10194.1	-5068.2	-147.8	124.0	382.6	-12368.7
3	90	-3665.8	1122.8	200.2	-112.1	-781.3	4389.7
	78	3521.8	-1611.8	-200.2	112.1	580.2	-3016.4
4	90	5168.6	1735.9	18.0	-9.2	-27.6	6142.4
	78	-5312.6	-1703.6	-18.0	9.2	9.5	-4415.0
5	90	7744.1	4086.6	64.0	-91.2	-174.4	13507.8
	78	-7854.8	-4061.7	-64.0	91.2	112.5	-9415.4
6	90	10653.4	4868.7	1.6	-20.3	63.7	16432.9
	78	-10764.2	-4843.8	-1.6	20.3	-64.6	-11556.6
7	90	3738.4	2060.1	131.5	-162.1	-445.8	6759.6
	78	-3849.2	-2035.2	-131.5	162.1	316.8	-4700.2
8	90	3214.4	1105.2	127.1	-152.0	-440.4	3900.4
	78	-3325.2	-1080.3	-127.1	152.0	314.9	-2800.0
9	90	5997.2	903.5	49.1	-57.6	-156.3	3977.4
	78	-6107.9	-878.7	-49.1	57.6	106.2	-3081.1
10	90	8906.5	1685.6	-13.2	13.3	81.8	6902.5
	78	-9017.2	-1660.7	13.2	-13.3	-70.9	-5222.4
11	90	13436.2	4667.0	-76.4	74.2	347.9	16509.9
	78	-13546.9	-4642.1	76.4	-74.2	-273.3	-11837.8
12	90	12912.1	3712.1	-80.8	84.3	353.3	13650.8

	78	-13022.9	-3687.2	80.8	-84.3	-275.2	-9937.5
21	90	12674.7	4436.9	36.9	-70.7	-71.3	15685.4
	78	-12785.5	-4412.0	-36.9	70.7	34.3	-11241.6
22	90	6639.9	3171.6	99.2	-80.5	-353.9	11466.6
	78	-6750.7	-3355.3	-99.2	80.5	254.3	-8188.9
23	90	-1913.8	926.6	135.3	-75.7	-523.7	3556.5
	78	1803.0	-1249.2	-135.3	75.7	387.8	-2463.8
24	90	5715.6	1955.6	18.4	-19.8	-31.2	6917.0
	78	-5826.4	-1930.8	-18.4	19.8	12.7	-4965.3
25	90	5746.7	1930.0	17.4	-16.3	-30.1	6851.4
	78	-5857.4	-1905.2	-17.4	16.3	12.7	-4925.4
26	90	3596.9	1233.8	13.0	-5.3	-19.4	4437.8
	78	-3707.7	-1232.0	-13.0	5.3	6.3	-3199.5
27	90	3975.9	1335.3	13.8	-7.1	-21.2	4724.9
	78	-4086.6	-1310.5	-13.8	7.1	7.3	-3396.2
28	90	7944.5	3721.8	52.2	-75.7	-135.9	12508.4
	78	-8055.2	-3696.9	-52.2	75.7	85.5	-8782.3
29	90	9975.6	4264.4	9.0	-26.1	30.5	14537.3
	78	-10086.4	-4239.6	-9.0	26.1	-38.9	-10267.8
30	90	5130.5	2313.8	99.1	-125.1	-325.5	7818.9
	78	-5241.2	-2289.0	-99.1	125.1	228.8	-5504.9
31	90	4749.6	1649.6	95.9	-117.9	-321.7	5828.3
	78	-4860.4	-1624.8	-95.9	117.9	227.4	-4181.2
32	90	6674.9	1507.8	41.8	-51.7	-123.1	5873.0
	78	-6785.7	-1482.9	-41.8	51.7	80.5	-4370.0
33	90	8706.1	2050.4	-1.5	-2.1	43.3	7902.0
	78	-8816.8	-2025.5	1.5	2.1	-43.9	-5855.4
34	90	11900.9	4122.6	-45.2	40.1	229.1	14582.0
	78	-12011.7	-4097.7	45.2	-40.1	-185.8	-10456.5
35	90	11520.1	3458.4	-48.3	47.3	233.0	12591.4
	78	-11630.8	-3433.5	48.3	-47.3	-187.2	-9132.8
1	175	11729.3	2652.5	-13.1	-7.2	-39.9	26520.9
	187	-11453.5	-2208.6	13.1	7.2	53.0	-24087.3
2	175	11432.4	2785.3	-366.9	-12.2	-63.2	26002.6
	187	-11228.7	-2534.8	366.9	12.2	430.6	-23336.5
3	175	6940.0	2035.1	-600.8	-2.4	-56.7	10881.8
	187	-6802.8	-1940.7	600.8	2.4	658.2	-8890.1
4	175	3759.6	803.4	-4.0	-7.4	-9.9	7534.9
	187	-3681.0	-651.7	4.0	7.4	13.9	-6806.5
5	175	4142.8	1264.9	-38.7	21.4	-28.1	2973.2
	187	-4020.7	-1056.9	38.7	-21.4	57.1	-1664.1
6	175	2942.9	789.1	31.8	1.3	24.9	-1515.4
	187	-2820.8	-581.1	-31.8	-1.3	-46.9	2370.6
7	175	6830.3	1938.2	-122.8	33.0	-100.8	15910.0

	187	-6708.2	-1730.2	122.8	-33.0	190.9	-14063.7
8	175	7934.2	2039.5	-124.3	22.8	-110.0	22510.2
	187	-7812.1	-1831.5	124.3	-22.8	201.6	-20657.2
9	175	7822.1	1602.6	-43.7	-12.5	-58.9	24973.8
	187	-7700.0	-1394.6	43.7	12.5	92.7	-23642.6
10	175	6622.3	1126.8	26.9	-32.6	-5.9	20485.3
	187	-6500.2	-918.8	-26.9	32.6	-11.3	-19607.9
11	175	2830.9	352.2	112.4	-34.1	76.0	948.2
	187	-2708.8	-144.2	-112.4	34.1	-155.8	-614.8
12	175	3934.7	453.5	110.9	-44.2	66.8	7548.4
	187	-3812.6	-245.5	-110.9	44.2	-145.1	-7208.3
21	175	7873.1	1773.7	-8.8	-5.6	-26.3	17662.3
	187	-7689.3	-1474.4	8.8	5.6	35.1	-16036.3
22	175	7673.0	1867.2	-244.7	-8.4	-41.7	17153.7
	187	-7534.4	-1692.4	244.7	8.4	286.8	-15370.0
23	175	5012.3	1439.1	-400.9	-2.4	-38.8	8027.3
	187	-4912.7	-1360.7	400.9	2.4	440.2	-6624.8
24	175	3888.2	849.1	-4.2	-5.7	-11.4	8169.3
	187	-3803.1	-695.9	4.2	5.7	15.6	-7395.9
25	175	3894.5	834.1	-3.9	-7.0	-12.0	8658.6
	187	-3818.4	-694.3	3.9	7.0	15.9	-7893.1
26	175	2638.6	579.2	-2.8	-5.6	-7.2	5418.1
	187	-2578.1	-474.2	2.8	5.6	9.9	-4890.7
27	175	2892.0	618.0	-3.1	-5.7	-7.6	5796.1
	187	-2831.5	-501.3	3.1	5.7	10.7	-5235.8
28	175	4521.8	1230.4	-29.9	13.8	13.0	5670.2
	187	-4399.7	-1022.3	29.9	-13.8	46.7	-4430.0
29	175	3684.4	900.1	21.5	-0.8	-25.7	2531.3
	187	-3562.3	-692.1	-21.5	0.8	-25.6	-1600.9
30	175	6394.4	1707.1	-91.0	22.3	50.7	14672.2
	187	-6272.3	-1499.0	91.0	-22.3	139.6	-13065.0
31	175	7162.0	1785.4	-92.1	15.1	44.3	19249.3
	187	-7039.9	-1577.4	92.1	-15.1	147.0	-17637.3
32	175	7080.7	1491.6	-33.3	-10.5	-8.3	20927.1
	187	-6958.6	-1283.5	33.3	10.5	71.4	-19671.1
33	175	6243.3	1161.3	18.1	-25.1	-47.0	17788.2
	187	-6121.2	-953.3	-18.1	25.1	-0.9	-16842.0
34	175	3603.0	606.3	80.3	-26.3	-78.3	4209.2
	187	-3480.9	-398.3	-80.3	26.3	-101.2	-3634.7
35	175	4370.7	684.6	79.2	-33.6	-84.7	8786.2
	187	-4248.6	-476.6	-79.2	33.6	-93.8	-8207.0
1	187	10011.4	3125.1	16.6	-15.6	-78.0	24061.2
	199	-9775.1	-2656.6	-16.6	15.6	61.3	-21163.4
2	187	8763.7	3015.3	305.5	81.5	-332.4	23400.0

	199	-8568.0	-2731.4	-305.5	-81.5	26.1	-20516.2
3	187	4126.3	1737.7	488.7	164.0	-464.0	9018.1
	199	-3998.8	-1652.1	-488.7	-164.0	-25.9	-7317.5
4	187	3427.2	891.6	1.8	-4.0	-10.9	6804.0
	199	-3359.8	-732.8	-1.8	4.0	9.1	-5989.9
5	187	2785.3	1305.3	26.4	38.6	-29.6	1671.8
	199	-2680.7	-1086.3	-26.4	-38.6	-0.9	-427.4
6	187	3269.5	837.6	-30.4	-22.0	19.4	-2402.4
	199	-3164.8	-618.6	30.4	22.0	14.2	3188.6
7	187	3387.0	2069.6	98.3	98.8	-103.7	14119.6
	199	-3282.4	-1850.7	-98.3	-98.8	-6.9	-12157.0
8	187	4386.9	2257.0	103.1	89.8	-118.3	20714.8
	199	-4282.3	-2038.1	-103.1	-89.8	3.1	-18595.0
9	187	6118.3	1930.1	42.4	8.6	-78.1	23655.9
	199	-6013.6	-1711.1	-42.4	-8.6	32.4	-21887.3
10	187	6602.4	1462.4	-14.4	-52.0	-29.1	19581.6
	199	-6497.8	-1243.4	14.4	52.0	47.5	-18271.3
11	187	5000.8	510.6	-91.1	-103.2	59.6	538.7
	199	-4896.2	-291.6	91.1	103.2	43.5	-103.7
12	187	6000.7	698.0	-86.3	-112.2	45.1	7133.9
	199	-5896.1	-479.1	86.3	112.2	53.5	-6541.7
21	187	6751.5	2081.8	10.7	-10.3	-50.3	16019.6
	199	-6594.0	-1766.0	-10.7	10.3	39.6	-14091.1
22	187	5908.9	2007.9	203.2	54.8	-219.8	15412.8
	199	-5776.9	-1812.2	-203.2	-54.8	16.2	-13495.9
23	187	3102.4	1249.9	326.0	108.9	-310.4	6709.9
	199	-3010.5	-1176.6	-326.0	-108.9	-16.4	-5492.7
24	187	3459.3	965.0	3.2	-4.6	-16.7	7391.0
	199	-3386.3	-804.2	-3.2	4.6	13.5	-6504.3
25	187	3491.4	966.9	3.4	-5.8	-17.0	7889.1
	199	-3423.5	-815.4	-3.4	5.8	13.6	-6995.4
26	187	2405.8	635.8	1.1	-2.9	-7.1	4889.2
	199	-2353.9	-525.3	-1.1	2.9	6.1	-4307.3
27	187	2636.3	685.8	1.4	-3.1	-8.4	5233.8
	199	-2584.4	-563.7	-1.4	3.1	7.0	-4607.6
28	187	3343.3	1321.9	20.9	24.9	-29.7	4432.5
	199	-3238.7	-1102.9	-20.9	-24.9	5.5	-3178.7
29	187	3728.0	997.4	-20.8	-17.4	5.9	1575.9
	199	-3623.3	-778.4	20.8	17.4	17.6	-637.8
30	187	3705.3	1857.4	73.7	66.9	-83.4	13100.9
	199	-3600.7	-1638.4	-73.7	-66.9	-0.3	-11351.9
31	187	4400.3	1991.9	77.3	60.6	-93.8	17674.4
	199	-4295.6	-1773.0	-77.3	-60.6	6.7	-15816.5
32	187	5659.8	1770.3	32.8	4.0	-64.5	19677.5
	199	-5555.1	-1551.3	-32.8	-4.0	29.0	-18060.8

33	187	6044.4	1445.8	-8.9	-38.3	-29.0	16821.0
	199	-5939.8	-1226.8	8.9	38.3	41.1	-15519.9
34	187	4987.5	775.7	-65.3	-74.1	35.2	3579.1
	199	-4882.8	-556.8	65.3	74.1	39.9	-2882.1
35	187	5682.4	910.2	-61.7	-80.3	24.7	8152.6
	199	-5577.8	-691.3	61.7	80.3	47.0	-7346.8
1	235	1019.1	6.9	-0.0	0.0	-0.0	-0.0
	281	-1016.9	6.9	0.0	-0.0	0.0	0.0
2	235	981.3	6.9	-0.0	0.0	0.0	0.0
	281	-979.1	6.9	0.0	-0.0	-0.0	-0.0
3	235	493.0	6.9	-0.0	-0.0	0.0	-0.0
	281	-490.7	6.9	0.0	0.0	-0.0	-0.0
4	235	127.8	6.9	0.0	0.0	-0.0	0.0
	281	-125.6	6.9	-0.0	-0.0	0.0	0.0
5	235	396.9	5.3	0.0	-0.0	0.0	-0.0
	281	-395.2	5.3	-0.0	0.0	-0.0	0.0
6	235	-87.7	5.3	0.0	0.0	-0.0	-0.0
	281	89.4	5.3	-0.0	-0.0	-0.0	0.0
7	235	1117.9	5.3	-0.0	-0.0	0.0	-0.0
	281	-1116.2	5.3	0.0	0.0	-0.0	0.0
8	235	1251.2	5.3	-0.0	0.0	0.0	-0.0
	281	-1249.5	5.3	0.0	-0.0	-0.0	-0.0
9	235	841.4	5.3	-0.0	0.0	0.0	-0.0
	281	-839.7	5.3	0.0	-0.0	0.0	0.0
10	235	356.7	5.3	-0.0	0.0	-0.0	0.0
	281	-355.0	5.3	0.0	-0.0	0.0	0.0
11	235	-497.6	5.3	0.0	0.0	-0.0	0.0
	281	499.3	5.3	-0.0	-0.0	0.0	0.0
12	235	-364.2	5.3	0.0	0.0	-0.0	0.0
	281	365.9	5.3	-0.0	-0.0	0.0	0.0
21	235	655.4	5.3	-0.0	0.0	-0.0	-0.0
	281	-653.6	5.3	0.0	-0.0	0.0	0.0
22	235	630.6	5.3	-0.0	0.0	0.0	0.0
	281	-628.9	5.3	0.0	-0.0	-0.0	-0.0
23	235	341.7	5.3	-0.0	-0.0	0.0	-0.0
	281	-340.0	5.3	0.0	0.0	-0.0	-0.0
24	235	209.7	5.3	0.0	0.0	-0.0	0.0
	281	-208.0	5.3	-0.0	-0.0	0.0	0.0
25	235	208.7	5.3	-0.0	0.0	-0.0	0.0
	281	-207.0	5.3	0.0	-0.0	0.0	-0.0
26	235	80.6	5.3	0.0	0.0	-0.0	0.0
	281	-78.9	5.3	-0.0	-0.0	0.0	0.0
27	235	98.3	5.3	0.0	0.0	-0.0	0.0
	281	-96.6	5.3	-0.0	-0.0	0.0	0.0

28	235	390.3	5.3	0.0	-0.0	0.0	-0.0
	281	-388.6	5.3	-0.0	0.0	-0.0	-0.0
29	235	48.2	5.3	0.0	0.0	-0.0	-0.0
	281	-46.5	5.3	-0.0	-0.0	-0.0	-0.0
30	235	899.6	5.3	-0.0	0.0	0.0	-0.0
	281	-897.9	5.3	0.0	-0.0	-0.0	0.0
31	235	994.1	5.3	-0.0	0.0	0.0	-0.0
	281	-992.4	5.3	0.0	-0.0	-0.0	0.0
32	235	705.4	5.3	-0.0	0.0	0.0	-0.0
	281	-703.7	5.3	0.0	-0.0	0.0	0.0
33	235	363.4	5.3	-0.0	0.0	-0.0	-0.0
	281	-361.7	5.3	0.0	-0.0	0.0	0.0
34	235	-240.5	5.3	0.0	0.0	-0.0	-0.0
	281	242.2	5.3	-0.0	-0.0	0.0	0.0
35	235	-145.9	5.3	0.0	0.0	-0.0	-0.0
	281	147.6	5.3	-0.0	-0.0	0.0	0.0
1	281	-402.4	7.0	0.0	0.0	-0.0	-0.0
	331	403.3	7.0	-0.0	-0.0	-0.0	-0.0
2	281	435.1	7.0	0.0	-0.0	-0.0	0.0
	331	-434.2	7.0	-0.0	0.0	-0.0	-0.0
3	281	1325.3	7.0	0.0	-0.0	-0.0	0.0
	331	-1324.4	7.0	-0.0	0.0	-0.0	-0.0
4	281	-34.6	7.0	0.0	0.0	-0.0	0.0
	331	35.6	7.0	-0.0	-0.0	-0.0	-0.0
5	281	280.9	5.4	0.0	-0.0	-0.0	-0.0
	331	-280.2	5.4	-0.0	0.0	-0.0	-0.0
6	281	-137.3	5.4	0.0	0.0	-0.0	0.0
	331	138.0	5.4	-0.0	-0.0	-0.0	-0.0
7	281	619.5	5.4	0.0	-0.0	-0.0	-0.0
	331	-618.8	5.4	-0.0	0.0	-0.0	0.0
8	281	491.5	5.4	0.0	-0.0	-0.0	-0.0
	331	-490.8	5.4	-0.0	0.0	-0.0	0.0
9	281	-145.8	5.4	-0.0	-0.0	0.0	-0.0
	331	146.6	5.4	0.0	0.0	0.0	-0.0
10	281	-564.1	5.4	-0.0	0.0	0.0	0.0
	331	564.8	5.4	0.0	-0.0	0.0	-0.0
11	281	-774.6	5.4	-0.0	0.0	-0.0	0.0
	331	775.4	5.4	0.0	-0.0	0.0	-0.0
12	281	-902.6	5.4	-0.0	0.0	0.0	0.0
	331	903.4	5.4	0.0	-0.0	0.0	-0.0
21	281	-256.5	5.4	0.0	0.0	-0.0	-0.0
	331	257.2	5.4	-0.0	-0.0	-0.0	-0.0
22	281	306.6	5.4	0.0	-0.0	-0.0	0.0
	331	-305.9	5.4	-0.0	0.0	-0.0	-0.0

23	281	880.0	5.4	0.0	-0.0	-0.0	0.0
	331	-879.3	5.4	-0.0	0.0	-0.0	-0.0
24	281	-72.6	5.4	0.0	0.0	-0.0	-0.0
	331	73.4	5.4	-0.0	-0.0	-0.0	-0.0
25	281	-86.9	5.4	-0.0	0.0	-0.0	0.0
	331	87.6	5.4	0.0	-0.0	0.0	-0.0
26	281	-20.7	5.4	0.0	0.0	-0.0	0.0
	331	21.4	5.4	-0.0	-0.0	-0.0	-0.0
27	281	-26.7	5.4	0.0	0.0	-0.0	0.0
	331	27.4	5.4	-0.0	-0.0	-0.0	-0.0
28	281	162.3	5.4	0.0	-0.0	-0.0	-0.0
	331	-161.6	5.4	-0.0	0.0	-0.0	0.0
29	281	-132.9	5.4	0.0	0.0	-0.0	-0.0
	331	133.7	5.4	-0.0	-0.0	-0.0	0.0
30	281	397.4	5.4	0.0	-0.0	-0.0	0.0
	331	-396.7	5.4	-0.0	0.0	-0.0	0.0
31	281	303.7	5.4	0.0	-0.0	-0.0	0.0
	331	-302.9	5.4	-0.0	0.0	-0.0	0.0
32	281	-150.2	5.4	-0.0	-0.0	0.0	-0.0
	331	150.9	5.4	0.0	0.0	0.0	-0.0
33	281	-445.4	5.4	-0.0	0.0	0.0	0.0
	331	446.2	5.4	0.0	-0.0	0.0	-0.0
34	281	-586.8	5.4	-0.0	0.0	-0.0	0.0
	331	587.5	5.4	0.0	-0.0	0.0	0.0
35	281	-680.5	5.4	-0.0	0.0	0.0	0.0
	331	681.3	5.4	0.0	-0.0	0.0	0.0
1	283	536.9	7.0	0.0	0.0	-0.0	-0.0
	329	-535.9	7.0	-0.0	-0.0	0.0	0.0
2	283	-413.4	7.0	-0.0	-0.0	0.0	-0.0
	329	414.4	7.0	0.0	0.0	0.0	-0.0
3	283	-1438.5	7.0	-0.0	-0.0	0.0	-0.0
	329	1439.5	7.0	0.0	0.0	0.0	-0.0
4	283	71.2	7.0	0.0	0.0	-0.0	-0.0
	329	-70.3	7.0	-0.0	-0.0	0.0	0.0
5	283	-242.8	5.4	0.0	-0.0	0.0	0.0
	329	243.5	5.4	-0.0	0.0	-0.0	0.0
6	283	175.9	5.4	0.0	0.0	-0.0	-0.0
	329	-175.2	5.4	-0.0	-0.0	-0.0	0.0
7	283	-567.7	5.4	-0.0	-0.0	0.0	0.0
	329	568.4	5.4	0.0	0.0	-0.0	0.0
8	283	-427.4	5.4	-0.0	-0.0	0.0	0.0
	329	428.2	5.4	0.0	0.0	0.0	0.0
9	283	224.7	5.4	-0.0	0.0	0.0	0.0
	329	-223.9	5.4	0.0	-0.0	0.0	0.0

10	283	643.4	5.4	-0.0	0.0	-0.0	-0.0
	329	-642.7	5.4	0.0	-0.0	0.0	0.0
11	283	828.1	5.4	0.0	0.0	-0.0	-0.0
	329	-827.3	5.4	-0.0	-0.0	-0.0	0.0
12	283	968.3	5.4	0.0	0.0	-0.0	-0.0
	329	-967.5	5.4	-0.0	-0.0	0.0	0.0
21	283	345.8	5.4	0.0	0.0	-0.0	-0.0
	329	-345.1	5.4	-0.0	-0.0	0.0	0.0
22	283	-292.7	5.4	-0.0	-0.0	0.0	-0.0
	329	293.5	5.4	0.0	0.0	0.0	-0.0
23	283	-951.7	5.4	-0.0	-0.0	0.0	-0.0
	329	952.4	5.4	0.0	0.0	0.0	-0.0
24	283	113.0	5.4	0.0	0.0	-0.0	-0.0
	329	-112.3	5.4	-0.0	-0.0	0.0	0.0
25	283	128.0	5.4	-0.0	0.0	0.0	-0.0
	329	-127.3	5.4	0.0	-0.0	0.0	0.0
26	283	45.1	5.4	0.0	0.0	-0.0	-0.0
	329	-44.4	5.4	-0.0	-0.0	0.0	0.0
27	283	54.8	5.4	0.0	0.0	-0.0	-0.0
	329	-54.0	5.4	-0.0	-0.0	0.0	0.0
28	283	-117.4	5.4	0.0	-0.0	0.0	-0.0
	329	118.2	5.4	-0.0	0.0	-0.0	0.0
29	283	178.3	5.4	0.0	0.0	-0.0	-0.0
	329	-177.5	5.4	-0.0	-0.0	-0.0	0.0
30	283	-343.5	5.4	-0.0	-0.0	0.0	0.0
	329	344.2	5.4	0.0	0.0	-0.0	0.0
31	283	-241.6	5.4	-0.0	-0.0	0.0	0.0
	329	242.3	5.4	0.0	0.0	0.0	0.0
32	283	222.4	5.4	-0.0	0.0	0.0	-0.0
	329	-221.6	5.4	0.0	-0.0	0.0	0.0
33	283	518.1	5.4	-0.0	0.0	-0.0	-0.0
	329	-517.3	5.4	0.0	-0.0	0.0	0.0
34	283	642.2	5.4	0.0	0.0	-0.0	-0.0
	329	-641.4	5.4	-0.0	-0.0	-0.0	0.0
35	283	744.1	5.4	0.0	0.0	-0.0	-0.0
	329	-743.4	5.4	-0.0	-0.0	0.0	0.0
1	330	534.5	7.0	-0.0	-0.0	-0.0	0.0
	284	-535.5	7.0	0.0	0.0	0.0	-0.0
2	330	-708.5	7.0	0.0	0.0	0.0	0.0
	284	707.5	7.0	-0.0	-0.0	-0.0	0.0
3	330	-1276.5	7.0	0.0	0.0	-0.0	0.0
	284	1275.5	7.0	-0.0	-0.0	-0.0	0.0
4	330	68.8	7.0	-0.0	-0.0	-0.0	0.0
	284	-69.8	7.0	0.0	0.0	0.0	-0.0

5	330	222.4	5.4	0.0	-0.0	-0.0	0.0
	284	-223.1	5.4	-0.0	0.0	-0.0	-0.0
6	330	641.8	5.4	0.0	-0.0	-0.0	-0.0
	284	-642.5	5.4	-0.0	0.0	0.0	-0.0
7	330	-430.4	5.4	0.0	0.0	-0.0	0.0
	284	429.7	5.4	-0.0	-0.0	-0.0	-0.0
8	330	-570.6	5.4	0.0	0.0	0.0	0.0
	284	569.8	5.4	-0.0	-0.0	-0.0	-0.0
9	330	-244.8	5.4	-0.0	0.0	0.0	0.0
	284	244.1	5.4	0.0	-0.0	-0.0	-0.0
10	330	174.6	5.4	-0.0	-0.0	0.0	0.0
	284	-175.3	5.4	0.0	0.0	0.0	-0.0
11	330	967.5	5.4	-0.0	-0.0	-0.0	-0.0
	284	-968.3	5.4	0.0	0.0	0.0	0.0
12	330	827.4	5.4	-0.0	-0.0	0.0	-0.0
	284	-828.1	5.4	0.0	0.0	0.0	0.0
21	330	344.0	5.4	-0.0	-0.0	-0.0	0.0
	284	-344.7	5.4	0.0	0.0	0.0	-0.0
22	330	-467.0	5.4	0.0	0.0	0.0	0.0
	284	466.3	5.4	-0.0	-0.0	-0.0	0.0
23	330	-843.9	5.4	0.0	0.0	-0.0	0.0
	284	843.2	5.4	-0.0	-0.0	-0.0	0.0
24	330	111.2	5.4	-0.0	-0.0	-0.0	0.0
	284	-111.9	5.4	0.0	0.0	0.0	-0.0
25	330	58.1	5.4	-0.0	-0.0	0.0	0.0
	284	-58.9	5.4	0.0	0.0	0.0	-0.0
26	330	43.3	5.4	-0.0	-0.0	-0.0	0.0
	284	-44.0	5.4	0.0	0.0	0.0	-0.0
27	330	52.9	5.4	-0.0	-0.0	-0.0	0.0
	284	-53.7	5.4	0.0	0.0	0.0	-0.0
28	330	220.2	5.4	0.0	-0.0	-0.0	0.0
	284	-221.0	5.4	-0.0	0.0	-0.0	-0.0
29	330	516.4	5.4	0.0	-0.0	-0.0	0.0
	284	-517.1	5.4	-0.0	0.0	0.0	-0.0
30	330	-244.1	5.4	0.0	0.0	-0.0	0.0
	284	243.4	5.4	-0.0	-0.0	-0.0	-0.0
31	330	-346.0	5.4	0.0	0.0	0.0	0.0
	284	345.3	5.4	-0.0	-0.0	-0.0	-0.0
32	330	-119.4	5.4	-0.0	0.0	0.0	0.0
	284	118.7	5.4	0.0	-0.0	-0.0	-0.0
33	330	176.7	5.4	-0.0	-0.0	0.0	-0.0
	284	-177.4	5.4	0.0	0.0	0.0	-0.0
34	330	743.0	5.4	-0.0	-0.0	-0.0	-0.0
	284	-743.7	5.4	0.0	0.0	0.0	0.0
35	330	641.1	5.4	-0.0	-0.0	0.0	-0.0

	284	-641.8	5.4	0.0	0.0	0.0	0.0
1	332	-401.9	7.0	-0.0	-0.0	0.0	0.0
	282	401.0	7.0	0.0	0.0	0.0	0.0
2	332	699.7	7.0	-0.0	0.0	0.0	-0.0
	282	-700.7	7.0	0.0	-0.0	0.0	0.0
3	332	1173.4	7.0	-0.0	0.1	0.0	-0.0
	282	-1174.4	7.0	0.0	-0.1	0.0	0.0
4	332	-34.2	7.0	-0.0	-0.0	0.0	0.0
	282	33.3	7.0	0.0	0.0	0.0	0.0
5	332	-145.1	5.4	0.0	0.0	-0.0	-0.0
	282	144.3	5.4	-0.0	-0.0	-0.0	0.0
6	332	-564.0	5.4	0.0	-0.0	-0.0	0.0
	282	563.3	5.4	-0.0	0.0	-0.0	-0.0
7	332	493.0	5.4	-0.0	0.0	0.0	-0.0
	282	-493.7	5.4	0.0	-0.0	0.0	0.0
8	332	621.0	5.4	-0.0	0.0	0.0	-0.0
	282	-621.7	5.4	0.0	-0.0	0.0	0.0
9	332	281.5	5.4	-0.0	0.0	0.0	-0.0
	282	-282.3	5.4	0.0	-0.0	0.0	0.0
10	332	-137.4	5.4	-0.0	-0.0	0.0	0.0
	282	136.7	5.4	0.0	0.0	0.0	-0.0
11	332	-903.4	5.4	0.0	-0.0	-0.0	0.0
	282	902.7	5.4	-0.0	0.0	-0.0	-0.0
12	332	-775.5	5.4	0.0	-0.0	-0.0	0.0
	282	774.7	5.4	-0.0	0.0	0.0	-0.0
21	332	-256.1	5.4	-0.0	-0.0	0.0	0.0
	282	255.4	5.4	0.0	0.0	0.0	0.0
22	332	462.4	5.4	-0.0	0.0	0.0	-0.0
	282	-463.2	5.4	0.0	-0.0	0.0	0.0
23	332	778.8	5.4	-0.0	0.0	0.0	-0.0
	282	-779.5	5.4	0.0	-0.0	0.0	0.0
24	332	-72.3	5.4	-0.0	-0.0	0.0	0.0
	282	71.6	5.4	0.0	0.0	0.0	0.0
25	332	-24.7	5.4	-0.0	-0.0	0.0	0.0
	282	24.0	5.4	0.0	0.0	0.0	0.0
26	332	-20.3	5.4	-0.0	-0.0	0.0	0.0
	282	19.6	5.4	0.0	0.0	0.0	0.0
27	332	-26.3	5.4	-0.0	-0.0	0.0	0.0
	282	25.6	5.4	0.0	0.0	0.0	0.0
28	332	-149.6	5.4	0.0	0.0	-0.0	-0.0
	282	148.9	5.4	-0.0	-0.0	-0.0	0.0
29	332	-445.3	5.4	0.0	-0.0	-0.0	0.0
	282	444.5	5.4	-0.0	0.0	-0.0	0.0
30	332	304.7	5.4	-0.0	0.0	0.0	-0.0

	282	-305.5	5.4	0.0	-0.0	0.0	0.0
31	332	398.4	5.4	-0.0	0.0	0.0	-0.0
	282	-399.2	5.4	0.0	-0.0	0.0	0.0
32	332	162.8	5.4	-0.0	0.0	0.0	0.0
	282	-163.5	5.4	0.0	-0.0	0.0	0.0
33	332	-132.9	5.4	-0.0	-0.0	0.0	0.0
	282	132.1	5.4	0.0	0.0	0.0	0.0
34	332	-680.9	5.4	0.0	-0.0	-0.0	0.0
	282	680.2	5.4	-0.0	0.0	-0.0	-0.0
35	332	-587.2	5.4	0.0	-0.0	-0.0	0.0
	282	586.5	5.4	-0.0	0.0	0.0	-0.0
1	282	1016.7	6.9	0.0	-0.0	-0.0	0.0
	236	-1018.9	6.9	-0.0	0.0	0.0	0.0
2	282	877.6	6.9	0.0	0.0	0.0	0.0
	236	-879.9	6.9	-0.0	-0.0	-0.0	0.0
3	282	803.7	6.9	0.0	0.0	0.0	0.0
	236	-805.9	6.9	-0.0	-0.0	-0.0	0.0
4	282	125.5	6.9	-0.0	-0.0	-0.0	0.0
	236	-127.7	6.9	0.0	0.0	0.0	0.0
5	282	839.7	5.3	0.0	-0.0	-0.0	-0.0
	236	-841.4	5.3	-0.0	0.0	-0.0	0.0
6	282	354.3	5.3	0.0	-0.0	-0.0	-0.0
	236	-356.0	5.3	-0.0	0.0	0.0	0.0
7	282	1250.6	5.3	0.0	-0.0	0.0	-0.0
	236	-1252.3	5.3	-0.0	0.0	-0.0	0.0
8	282	1117.4	5.3	0.0	0.0	0.0	-0.0
	236	-1119.1	5.3	-0.0	-0.0	-0.0	-0.0
9	282	395.7	5.3	-0.0	0.0	0.0	0.0
	236	-397.4	5.3	0.0	-0.0	-0.0	-0.0
10	282	-89.7	5.3	-0.0	-0.0	0.0	0.0
	236	88.0	5.3	0.0	0.0	0.0	-0.0
11	282	-367.3	5.3	-0.0	-0.0	-0.0	-0.0
	236	365.6	5.3	0.0	0.0	0.0	0.0
12	282	-500.5	5.3	-0.0	-0.0	-0.0	-0.0
	236	498.8	5.3	0.0	0.0	0.0	0.0
21	282	653.5	5.3	0.0	-0.0	-0.0	0.0
	236	-655.2	5.3	-0.0	0.0	0.0	0.0
22	282	577.9	5.3	0.0	0.0	0.0	0.0
	236	-579.7	5.3	-0.0	-0.0	-0.0	0.0
23	282	548.7	5.3	0.0	0.0	0.0	0.0
	236	-550.4	5.3	-0.0	-0.0	-0.0	0.0
24	282	207.9	5.3	-0.0	-0.0	-0.0	0.0
	236	-209.6	5.3	0.0	0.0	0.0	0.0
25	282	156.5	5.3	-0.0	-0.0	0.0	0.0

	236	-158.2	5.3	0.0	0.0	0.0	0.0
26	282	78.8	5.3	-0.0	-0.0	-0.0	0.0
	236	-80.5	5.3	0.0	0.0	0.0	0.0
27	282	96.5	5.3	-0.0	-0.0	-0.0	0.0
	236	-98.2	5.3	0.0	0.0	0.0	0.0
28	282	703.7	5.3	0.0	-0.0	-0.0	0.0
	236	-705.4	5.3	-0.0	0.0	-0.0	0.0
29	282	361.2	5.3	0.0	-0.0	-0.0	0.0
	236	-362.9	5.3	-0.0	0.0	0.0	0.0
30	282	993.2	5.3	0.0	-0.0	0.0	0.0
	236	-994.9	5.3	-0.0	0.0	-0.0	0.0
31	282	898.7	5.3	0.0	-0.0	0.0	-0.0
	236	-900.5	5.3	-0.0	0.0	-0.0	0.0
32	282	388.9	5.3	-0.0	0.0	0.0	-0.0
	236	-390.6	5.3	0.0	-0.0	-0.0	0.0
33	282	46.3	5.3	-0.0	-0.0	0.0	-0.0
	236	-48.0	5.3	0.0	0.0	0.0	0.0
34	282	-148.7	5.3	-0.0	-0.0	-0.0	0.0
	236	147.0	5.3	0.0	0.0	0.0	-0.0
35	282	-243.2	5.3	-0.0	-0.0	-0.0	-0.0
	236	241.5	5.3	0.0	0.0	0.0	-0.0
1	284	-860.0	6.9	-0.0	0.0	0.0	-0.0
	234	857.7	6.9	0.0	-0.0	0.0	-0.0
2	284	-843.0	6.9	-0.0	0.0	0.0	0.0
	234	840.8	6.9	0.0	-0.0	0.0	-0.0
3	284	-836.8	6.9	-0.0	0.0	0.0	0.0
	234	834.6	6.9	0.0	-0.0	0.0	-0.0
4	284	-84.1	6.9	-0.0	0.0	0.0	0.0
	234	81.9	6.9	0.0	-0.0	0.0	-0.0
5	284	-725.3	5.3	0.0	0.0	0.0	0.0
	234	723.6	5.3	-0.0	-0.0	-0.0	0.0
6	284	-263.5	5.3	0.0	-0.0	-0.0	0.0
	234	261.8	5.3	-0.0	0.0	-0.0	0.0
7	284	-1133.1	5.3	-0.0	0.0	0.0	0.0
	234	1131.4	5.3	0.0	-0.0	0.0	0.0
8	284	-1020.8	5.3	-0.0	0.0	0.0	0.0
	234	1019.1	5.3	0.0	-0.0	0.0	0.0
9	284	-350.9	5.3	-0.0	0.0	0.0	-0.0
	234	349.2	5.3	0.0	-0.0	0.0	0.0
10	284	111.0	5.3	-0.0	-0.0	0.0	-0.0
	234	-112.7	5.3	0.0	0.0	0.0	0.0
11	284	406.4	5.3	0.0	-0.0	-0.0	0.0
	234	-408.1	5.3	-0.0	0.0	-0.0	-0.0
12	284	518.8	5.3	0.0	-0.0	-0.0	-0.0

	234	-520.5	5.3	-0.0	0.0	-0.0	-0.0
21	284	-549.6	5.3	-0.0	0.0	0.0	-0.0
	234	547.9	5.3	0.0	-0.0	0.0	-0.0
22	284	-552.8	5.3	-0.0	0.0	0.0	0.0
	234	551.1	5.3	0.0	-0.0	0.0	-0.0
23	284	-566.5	5.3	-0.0	0.0	0.0	0.0
	234	564.8	5.3	0.0	-0.0	0.0	-0.0
24	284	-161.7	5.3	-0.0	0.0	0.0	0.0
	234	160.0	5.3	0.0	-0.0	0.0	-0.0
25	284	-118.2	5.3	-0.0	-0.0	0.0	0.0
	234	116.5	5.3	0.0	0.0	0.0	-0.0
26	284	-50.9	5.3	-0.0	0.0	0.0	0.0
	234	49.2	5.3	0.0	-0.0	0.0	-0.0
27	284	-64.7	5.3	-0.0	0.0	0.0	0.0
	234	63.0	5.3	0.0	-0.0	0.0	-0.0
28	284	-604.7	5.3	0.0	0.0	0.0	-0.0
	234	602.9	5.3	-0.0	-0.0	-0.0	-0.0
29	284	-278.1	5.3	0.0	-0.0	-0.0	-0.0
	234	276.4	5.3	-0.0	0.0	-0.0	-0.0
30	284	-891.7	5.3	-0.0	0.0	0.0	0.0
	234	890.0	5.3	0.0	-0.0	0.0	-0.0
31	284	-811.1	5.3	-0.0	0.0	0.0	0.0
	234	809.4	5.3	0.0	-0.0	0.0	-0.0
32	284	-336.2	5.3	-0.0	0.0	0.0	-0.0
	234	334.5	5.3	0.0	-0.0	0.0	-0.0
33	284	-9.7	5.3	-0.0	-0.0	0.0	-0.0
	234	8.0	5.3	0.0	0.0	0.0	-0.0
34	284	196.8	5.3	0.0	-0.0	-0.0	-0.0
	234	-198.5	5.3	-0.0	0.0	-0.0	-0.0
35	284	277.3	5.3	0.0	-0.0	-0.0	-0.0
	234	-279.0	5.3	-0.0	0.0	-0.0	-0.0
1	234	1179.7	6.8	0.0	-0.0	-0.0	0.0
	188	-1183.1	6.8	-0.0	0.0	0.0	-0.0
2	234	1728.9	6.8	-0.0	-0.0	0.0	-0.0
	188	-1732.3	6.8	0.0	0.0	0.0	-0.0
3	234	1821.8	6.8	-0.0	-0.0	0.0	-0.0
	188	-1825.2	6.8	0.0	0.0	0.0	-0.0
4	234	150.6	6.8	-0.0	-0.0	-0.0	0.0
	188	-154.1	6.8	0.0	0.0	0.0	-0.0
5	234	997.7	5.2	0.0	-0.0	-0.0	0.0
	188	-1000.4	5.2	-0.0	0.0	0.0	0.0
6	234	221.4	5.2	0.0	-0.0	-0.0	0.0
	188	-224.1	5.2	-0.0	0.0	0.0	0.0
7	234	1782.9	5.2	-0.0	-0.0	0.0	0.0

	188	-1785.6	5.2	0.0	0.0	-0.0	0.0
8	234	1679.6	5.2	-0.0	-0.0	0.0	0.0
	188	-1682.3	5.2	0.0	0.0	-0.0	0.0
9	234	653.5	5.2	-0.0	-0.0	0.0	0.0
	188	-656.1	5.2	0.0	0.0	-0.0	0.0
10	234	-122.8	5.2	0.0	-0.0	-0.0	0.0
	188	120.2	5.2	-0.0	0.0	0.0	0.0
11	234	-804.8	5.2	0.0	-0.0	-0.0	0.0
	188	802.1	5.2	-0.0	0.0	0.0	-0.0
12	234	-908.0	5.2	0.0	-0.0	-0.0	-0.0
	188	905.4	5.2	-0.0	0.0	0.0	-0.0
21	234	759.0	5.2	0.0	-0.0	-0.0	0.0
	188	-761.7	5.2	-0.0	0.0	0.0	-0.0
22	234	1134.7	5.2	-0.0	-0.0	0.0	-0.0
	188	-1137.3	5.2	0.0	0.0	0.0	-0.0
23	234	1230.0	5.2	-0.0	-0.0	0.0	-0.0
	188	-1232.6	5.2	0.0	0.0	0.0	-0.0
24	234	244.5	5.2	0.0	-0.0	-0.0	0.0
	188	-247.1	5.2	-0.0	0.0	0.0	-0.0
25	234	216.0	5.2	-0.0	-0.0	-0.0	0.0
	188	-218.6	5.2	0.0	0.0	0.0	-0.0
26	234	95.6	5.2	-0.0	-0.0	-0.0	0.0
	188	-98.2	5.2	0.0	0.0	0.0	-0.0
27	234	115.9	5.2	-0.0	-0.0	-0.0	0.0
	188	-118.5	5.2	0.0	0.0	0.0	-0.0
28	234	829.8	5.2	0.0	-0.0	-0.0	0.0
	188	-832.5	5.2	-0.0	0.0	0.0	-0.0
29	234	286.7	5.2	0.0	-0.0	-0.0	0.0
	188	-289.3	5.2	-0.0	0.0	0.0	-0.0
30	234	1379.0	5.2	-0.0	-0.0	0.0	-0.0
	188	-1381.6	5.2	0.0	0.0	0.0	-0.0
31	234	1306.5	5.2	-0.0	-0.0	0.0	0.0
	188	-1309.1	5.2	0.0	0.0	-0.0	0.0
32	234	588.2	5.2	-0.0	-0.0	0.0	0.0
	188	-590.9	5.2	0.0	0.0	-0.0	0.0
33	234	45.0	5.2	0.0	-0.0	-0.0	0.0
	188	-47.7	5.2	-0.0	0.0	0.0	0.0
34	234	-431.6	5.2	0.0	-0.0	-0.0	0.0
	188	429.0	5.2	-0.0	0.0	0.0	0.0
35	234	-504.1	5.2	0.0	-0.0	-0.0	0.0
	188	501.4	5.2	-0.0	0.0	0.0	0.0
1	236	-966.4	6.8	0.0	0.0	-0.0	-0.0
	186	963.0	6.8	0.0	-0.0	-0.0	-0.0
2	236	-1642.4	6.8	-0.0	0.0	0.0	-0.0

	186	1639.0	6.8	0.0	-0.0	0.0	-0.0
3	236	-1828.4	6.8	-0.0	0.0	0.0	-0.0
	186	1824.9	6.8	0.0	-0.0	0.0	0.0
4	236	-92.2	6.8	0.0	0.0	-0.0	0.0
	186	88.8	6.8	0.0	-0.0	0.0	-0.0
5	236	-846.1	5.2	0.0	0.0	0.0	0.0
	186	843.4	5.2	0.0	-0.0	0.0	0.0
6	236	-77.0	5.2	0.0	0.0	-0.0	0.0
	186	74.4	5.2	-0.0	-0.0	-0.0	0.0
7	236	-1661.1	5.2	-0.0	0.0	0.0	0.0
	186	1658.4	5.2	0.0	-0.0	0.0	0.0
8	236	-1590.6	5.2	-0.0	0.0	0.0	-0.0
	186	1588.0	5.2	0.0	-0.0	0.0	-0.0
9	236	-611.2	5.2	-0.0	0.0	0.0	0.0
	186	608.6	5.2	0.0	-0.0	0.0	-0.0
10	236	157.8	5.2	0.0	-0.0	-0.0	0.0
	186	-160.5	5.2	0.0	0.0	-0.0	-0.0
11	236	902.4	5.2	0.0	-0.0	-0.0	0.0
	186	-905.0	5.2	-0.0	0.0	-0.0	0.0
12	236	972.8	5.2	0.0	-0.0	-0.0	0.0
	186	-975.5	5.2	-0.0	0.0	-0.0	-0.0
21	236	-617.3	5.2	0.0	0.0	-0.0	-0.0
	186	614.7	5.2	0.0	-0.0	-0.0	-0.0
22	236	-1074.9	5.2	-0.0	0.0	0.0	-0.0
	186	1072.3	5.2	0.0	-0.0	0.0	-0.0
23	236	-1228.4	5.2	-0.0	0.0	0.0	-0.0
	186	1225.7	5.2	0.0	-0.0	0.0	-0.0
24	236	-180.2	5.2	0.0	0.0	-0.0	-0.0
	186	177.6	5.2	0.0	-0.0	0.0	-0.0
25	236	-159.4	5.2	0.0	0.0	-0.0	-0.0
	186	156.7	5.2	0.0	-0.0	0.0	-0.0
26	236	-55.3	5.2	0.0	0.0	-0.0	0.0
	186	52.6	5.2	0.0	-0.0	0.0	-0.0
27	236	-70.9	5.2	0.0	0.0	-0.0	0.0
	186	68.3	5.2	0.0	-0.0	0.0	-0.0
28	236	-697.0	5.2	0.0	0.0	0.0	0.0
	186	694.4	5.2	0.0	-0.0	0.0	-0.0
29	236	-158.8	5.2	0.0	0.0	-0.0	0.0
	186	156.2	5.2	-0.0	-0.0	-0.0	-0.0
30	236	-1266.3	5.2	-0.0	0.0	0.0	-0.0
	186	1263.6	5.2	0.0	-0.0	0.0	-0.0
31	236	-1216.0	5.2	-0.0	0.0	0.0	-0.0
	186	1213.4	5.2	0.0	-0.0	0.0	-0.0
32	236	-529.5	5.2	0.0	0.0	-0.0	-0.0
	186	526.8	5.2	0.0	-0.0	0.0	-0.0

33	236	8.8	5.2	0.0	-0.0	-0.0	-0.0
	186	-11.4	5.2	0.0	0.0	-0.0	-0.0
34	236	527.8	5.2	0.0	-0.0	-0.0	0.0
	186	-530.4	5.2	-0.0	0.0	-0.0	-0.0
35	236	578.0	5.2	0.0	-0.0	-0.0	-0.0
	186	-580.7	5.2	-0.0	0.0	-0.0	-0.0
1	186	1215.3	6.4	0.0	-0.0	-0.0	-0.0
	140	-1220.7	6.4	-0.0	0.0	0.0	-0.0
2	186	2625.1	6.4	-0.0	-0.0	0.0	0.0
	140	-2630.6	6.4	0.0	0.0	0.0	-0.0
3	186	3055.5	6.4	-0.0	-0.0	0.1	-0.0
	140	-3060.9	6.4	0.0	0.0	0.0	-0.0
4	186	187.4	6.4	-0.0	-0.0	-0.0	0.0
	140	-192.8	6.4	-0.0	0.0	0.0	0.0
5	186	1117.2	4.9	-0.0	-0.0	0.0	-0.0
	140	-1121.4	4.9	0.0	0.0	0.0	-0.0
6	186	91.8	4.9	0.0	-0.0	-0.0	-0.0
	140	-96.0	4.9	-0.0	0.0	-0.0	-0.0
7	186	2216.0	4.9	-0.0	-0.0	0.0	-0.0
	140	-2220.2	4.9	0.0	0.0	0.0	-0.0
8	186	2132.5	4.9	-0.0	-0.0	0.0	0.0
	140	-2136.7	4.9	0.0	0.0	0.0	-0.0
9	186	838.9	4.9	-0.0	-0.0	0.0	0.0
	140	-843.1	4.9	0.0	0.0	0.0	0.0
10	186	-186.5	4.9	0.0	-0.0	-0.0	0.0
	140	182.3	4.9	-0.0	0.0	-0.0	0.0
11	186	-1201.8	4.9	0.0	-0.0	-0.1	-0.0
	140	1197.6	4.9	-0.0	0.0	-0.0	0.0
12	186	-1285.3	4.9	0.0	-0.0	-0.1	0.0
	140	1281.1	4.9	-0.0	0.0	-0.0	0.0
21	186	786.6	4.9	-0.0	-0.0	-0.0	-0.0
	140	-790.8	4.9	-0.0	0.0	0.0	-0.0
22	186	1727.8	4.9	-0.0	-0.0	0.0	0.0
	140	-1731.9	4.9	0.0	0.0	0.0	-0.0
23	186	2056.2	4.9	-0.0	-0.0	0.0	-0.0
	140	-2060.4	4.9	0.0	0.0	0.0	-0.0
24	186	272.6	4.9	-0.0	-0.0	-0.0	-0.0
	140	-276.8	4.9	-0.0	0.0	0.0	0.0
25	186	268.8	4.9	-0.0	-0.0	-0.0	0.0
	140	-273.0	4.9	-0.0	0.0	0.0	0.0
26	186	123.4	4.9	-0.0	-0.0	-0.0	0.0
	140	-127.6	4.9	-0.0	0.0	0.0	0.0
27	186	144.1	4.9	-0.0	-0.0	-0.0	0.0
	140	-148.3	4.9	-0.0	0.0	0.0	0.0

28	186	922.8	4.9	-0.0	-0.0	-0.0	0.0
	140	-927.0	4.9	-0.0	0.0	0.0	0.0
29	186	203.6	4.9	0.0	-0.0	-0.0	0.0
	140	-207.8	4.9	-0.0	0.0	-0.0	0.0
30	186	1693.4	4.9	-0.0	-0.0	0.0	-0.0
	140	-1697.6	4.9	0.0	0.0	0.0	-0.0
31	186	1634.7	4.9	-0.0	-0.0	0.0	-0.0
	140	-1638.8	4.9	0.0	0.0	0.0	-0.0
32	186	727.1	4.9	-0.0	-0.0	0.0	-0.0
	140	-731.3	4.9	-0.0	0.0	0.0	-0.0
33	186	7.9	4.9	0.0	-0.0	-0.0	-0.0
	140	-12.1	4.9	-0.0	0.0	-0.0	-0.0
34	186	-703.9	4.9	0.0	-0.0	-0.0	-0.0
	140	699.7	4.9	-0.0	0.0	-0.0	-0.0
35	186	-762.7	4.9	0.0	-0.0	-0.0	-0.0
	140	758.5	4.9	-0.0	0.0	-0.0	-0.0
1	188	-752.1	6.4	0.0	0.0	-0.0	0.0
	138	746.6	6.4	0.0	-0.0	-0.0	0.0
2	188	-2270.4	6.4	-0.0	0.0	0.0	0.0
	138	2265.0	6.4	0.0	-0.0	0.0	-0.0
3	188	-2859.8	6.4	-0.0	0.0	0.1	0.0
	138	2854.3	6.4	0.0	-0.0	0.1	-0.0
4	188	-60.9	6.4	0.0	0.0	-0.0	-0.0
	138	55.4	6.4	0.0	-0.0	0.0	0.0
5	188	-801.2	4.9	0.0	0.0	0.0	0.0
	138	797.1	4.9	0.0	-0.0	0.0	0.0
6	188	208.8	4.9	0.0	0.0	-0.0	0.0
	138	-213.0	4.9	0.0	-0.0	-0.0	0.0
7	188	-1956.2	4.9	-0.0	0.0	0.0	0.0
	138	1952.1	4.9	0.0	-0.0	0.1	0.0
8	188	-1936.2	4.9	-0.0	0.0	0.0	0.0
	138	1932.0	4.9	0.0	-0.0	0.1	0.0
9	188	-734.4	4.9	0.0	0.0	0.0	0.0
	138	730.3	4.9	0.0	-0.0	0.0	0.0
10	188	275.6	4.9	0.0	-0.0	-0.0	0.0
	138	-279.8	4.9	-0.0	0.0	-0.0	0.0
11	188	1410.6	4.9	0.0	-0.0	-0.0	0.0
	138	-1414.8	4.9	-0.0	0.0	-0.1	0.0
12	188	1430.6	4.9	0.0	-0.0	-0.0	0.0
	138	-1434.8	4.9	-0.0	0.0	-0.1	0.0
21	188	-478.8	4.9	0.0	0.0	-0.0	0.0
	138	474.6	4.9	0.0	-0.0	-0.0	0.0
22	188	-1489.1	4.9	-0.0	0.0	0.0	0.0
	138	1484.9	4.9	0.0	-0.0	0.0	-0.0

23	188	-1912.8	4.9	-0.0	0.0	0.0	0.0
	138	1908.6	4.9	0.0	-0.0	0.1	-0.0
24	188	-133.2	4.9	0.0	0.0	-0.0	-0.0
	138	129.0	4.9	0.0	-0.0	0.0	0.0
25	188	-139.0	4.9	0.0	0.0	-0.0	-0.0
	138	134.8	4.9	0.0	-0.0	0.0	0.0
26	188	-34.1	4.9	0.0	0.0	-0.0	-0.0
	138	30.0	4.9	0.0	-0.0	0.0	0.0
27	188	-46.8	4.9	0.0	0.0	-0.0	-0.0
	138	42.6	4.9	0.0	-0.0	0.0	0.0
28	188	-644.1	4.9	0.0	0.0	0.0	0.0
	138	639.9	4.9	0.0	-0.0	0.0	0.0
29	188	64.7	4.9	0.0	0.0	-0.0	0.0
	138	-68.9	4.9	0.0	-0.0	-0.0	0.0
30	188	-1452.1	4.9	-0.0	0.0	0.0	0.0
	138	1447.9	4.9	0.0	-0.0	0.0	0.0
31	188	-1436.0	4.9	-0.0	0.0	0.0	0.0
	138	1431.8	4.9	0.0	-0.0	0.0	0.0
32	188	-590.3	4.9	0.0	0.0	0.0	0.0
	138	586.1	4.9	0.0	-0.0	0.0	0.0
33	188	118.4	4.9	0.0	0.0	-0.0	0.0
	138	-122.6	4.9	0.0	-0.0	-0.0	0.0
34	188	910.3	4.9	0.0	0.0	-0.0	0.0
	138	-914.5	4.9	-0.0	-0.0	-0.0	0.0
35	188	926.5	4.9	0.0	-0.0	-0.0	-0.0
	138	-930.6	4.9	-0.0	0.0	-0.0	0.0
1	138	1027.9	5.9	-0.0	-0.0	-0.0	-0.0
	92	-1035.2	5.9	-0.0	0.0	0.0	0.0
2	138	3137.5	5.9	-0.0	-0.0	0.0	-0.0
	92	-3144.8	5.9	0.0	0.0	0.1	0.0
3	138	4064.1	5.9	-0.0	-0.0	0.1	-0.0
	92	-4071.4	5.9	0.0	0.0	0.1	0.0
4	138	215.5	5.9	-0.0	-0.0	0.0	0.0
	92	-222.8	5.9	-0.0	0.0	-0.0	0.0
5	138	1074.5	4.6	-0.0	-0.0	0.0	-0.0
	92	-1080.1	4.6	0.0	0.0	0.0	0.0
6	138	-74.7	4.6	0.0	-0.0	-0.0	-0.0
	92	69.1	4.6	-0.0	0.0	-0.0	0.0
7	138	2359.0	4.6	-0.0	-0.0	0.1	-0.0
	92	-2364.7	4.6	0.0	0.0	0.1	0.0
8	138	2310.9	4.6	-0.0	-0.0	0.1	-0.0
	92	-2316.5	4.6	0.0	0.0	0.1	0.0
9	138	914.0	4.6	-0.0	-0.0	0.0	0.0
	92	-919.6	4.6	-0.0	0.0	0.0	0.0

10	138	-235.2	4.6	0.0	-0.0	-0.0	0.0
	92	229.6	4.6	-0.0	0.0	-0.0	0.0
11	138	-1471.6	4.6	0.0	0.0	-0.1	-0.0
	92	1466.0	4.6	-0.0	-0.0	-0.1	-0.0
12	138	-1519.8	4.6	0.0	0.0	-0.1	-0.0
	92	1514.2	4.6	-0.0	-0.0	-0.1	-0.0
21	138	673.5	4.6	-0.0	-0.0	-0.0	-0.0
	92	-679.1	4.6	-0.0	0.0	0.0	0.0
22	138	2078.3	4.6	-0.0	-0.0	0.0	-0.0
	92	-2083.9	4.6	0.0	0.0	0.1	0.0
23	138	2731.5	4.6	-0.0	-0.0	0.1	-0.0
	92	-2737.1	4.6	0.0	0.0	0.1	0.0
24	138	267.3	4.6	-0.0	-0.0	-0.0	-0.0
	92	-272.9	4.6	-0.0	0.0	-0.0	0.0
25	138	272.3	4.6	-0.0	-0.0	-0.0	-0.0
	92	-278.0	4.6	-0.0	0.0	-0.0	0.0
26	138	147.4	4.6	-0.0	-0.0	0.0	0.0
	92	-153.1	4.6	-0.0	0.0	-0.0	0.0
27	138	165.8	4.6	-0.0	-0.0	0.0	0.0
	92	-171.4	4.6	-0.0	0.0	-0.0	0.0
28	138	883.8	4.6	-0.0	-0.0	0.0	-0.0
	92	-889.4	4.6	-0.0	0.0	0.0	-0.0
29	138	71.7	4.6	-0.0	-0.0	-0.0	-0.0
	92	-77.3	4.6	-0.0	0.0	-0.0	-0.0
30	138	1790.5	4.6	-0.0	-0.0	0.0	-0.0
	92	-1796.1	4.6	0.0	0.0	0.1	-0.0
31	138	1755.6	4.6	-0.0	-0.0	0.0	-0.0
	92	-1761.3	4.6	0.0	0.0	0.1	0.0
32	138	767.6	4.6	-0.0	-0.0	0.0	-0.0
	92	-773.2	4.6	-0.0	0.0	0.0	0.0
33	138	-44.5	4.6	0.0	-0.0	-0.0	-0.0
	92	38.9	4.6	-0.0	0.0	-0.0	0.0
34	138	-916.4	4.6	0.0	-0.0	-0.1	-0.0
	92	910.7	4.6	-0.0	0.0	-0.1	-0.0
35	138	-951.2	4.6	0.0	0.0	-0.1	-0.0
	92	945.6	4.6	-0.0	-0.0	-0.1	-0.0
1	140	-460.1	5.9	0.0	0.0	0.0	0.0
	90	452.8	5.9	0.0	-0.0	-0.0	-0.0
2	140	-2501.0	5.9	-0.0	0.0	0.0	0.0
	90	2493.7	5.9	0.0	-0.0	0.1	0.0
3	140	-3568.3	5.9	-0.0	0.0	0.1	0.0
	90	3561.0	5.9	0.0	-0.0	0.1	0.0
4	140	-59.0	5.9	0.0	0.0	-0.0	0.0
	90	51.7	5.9	0.0	-0.0	0.0	0.0

5	140	-670.9	4.6	0.0	0.0	0.0	0.0
	90	665.3	4.6	0.0	-0.0	0.0	-0.0
6	140	408.6	4.6	0.0	0.0	0.0	0.0
	90	-414.2	4.6	0.0	-0.0	-0.0	0.0
7	140	-1958.1	4.6	-0.0	0.0	0.0	0.0
	90	1952.5	4.6	0.0	-0.0	0.1	-0.0
8	140	-1981.8	4.6	-0.0	0.0	0.0	0.0
	90	1976.2	4.6	0.0	-0.0	0.1	-0.0
9	140	-750.1	4.6	0.0	0.0	-0.0	0.0
	90	744.4	4.6	0.0	-0.0	0.0	0.0
10	140	329.5	4.6	0.0	0.0	-0.0	0.0
	90	-335.1	4.6	0.0	-0.0	-0.0	0.0
11	140	1640.3	4.6	0.0	0.0	-0.0	0.0
	90	-1646.0	4.6	-0.0	-0.0	-0.1	0.0
12	140	1616.6	4.6	0.0	0.0	-0.0	0.0
	90	-1622.2	4.6	-0.0	-0.0	-0.1	0.0
21	140	-296.1	4.6	0.0	0.0	0.0	0.0
	90	290.4	4.6	0.0	-0.0	-0.0	-0.0
22	140	-1653.9	4.6	0.0	0.0	0.0	0.0
	90	1648.3	4.6	0.0	-0.0	0.0	0.0
23	140	-2384.9	4.6	-0.0	0.0	0.0	0.0
	90	2379.3	4.6	0.0	-0.0	0.1	0.0
24	140	-95.5	4.6	0.0	0.0	-0.0	0.0
	90	89.9	4.6	0.0	-0.0	0.0	0.0
25	140	-103.9	4.6	0.0	0.0	-0.0	0.0
	90	98.3	4.6	0.0	-0.0	0.0	0.0
26	140	-36.3	4.6	0.0	0.0	-0.0	0.0
	90	30.7	4.6	0.0	-0.0	0.0	0.0
27	140	-45.4	4.6	0.0	0.0	-0.0	0.0
	90	39.8	4.6	0.0	-0.0	0.0	0.0
28	140	-522.1	4.6	0.0	0.0	0.0	0.0
	90	516.5	4.6	0.0	-0.0	0.0	0.0
29	140	240.9	4.6	0.0	0.0	0.0	0.0
	90	-246.6	4.6	0.0	-0.0	-0.0	0.0
30	140	-1433.5	4.6	-0.0	0.0	0.0	0.0
	90	1427.9	4.6	0.0	-0.0	0.0	-0.0
31	140	-1451.6	4.6	-0.0	0.0	0.0	0.0
	90	1446.0	4.6	0.0	-0.0	0.0	-0.0
32	140	-582.4	4.6	0.0	0.0	-0.0	0.0
	90	576.8	4.6	0.0	-0.0	0.0	-0.0
33	140	180.6	4.6	0.0	0.0	-0.0	0.0
	90	-186.3	4.6	0.0	-0.0	-0.0	0.0
34	140	1110.1	4.6	0.0	0.0	-0.0	0.0
	90	-1115.7	4.6	-0.0	-0.0	-0.1	0.0
35	140	1092.0	4.6	0.0	0.0	-0.0	0.0

	90	-1097.6	4.6	-0.0	-0.0	-0.0	0.0
1	273	534.9	7.0	-0.0	-0.0	0.0	-0.0
	323	-533.9	7.0	0.0	0.0	-0.0	0.0
2	273	792.2	7.0	-0.0	-0.0	0.0	0.0
	323	-791.2	7.0	0.0	0.0	-0.0	-0.0
3	273	572.2	7.0	-0.0	-0.0	0.0	0.0
	323	-571.2	7.0	0.0	0.0	0.0	-0.0
4	273	69.2	7.0	-0.0	-0.0	0.0	-0.0
	323	-68.3	7.0	0.0	0.0	-0.0	0.0
5	273	175.0	5.4	-0.0	-0.0	0.0	0.0
	323	-174.2	5.4	0.0	0.0	0.0	0.0
6	273	-243.7	5.4	-0.0	0.0	-0.0	0.0
	323	244.4	5.4	0.0	-0.0	0.0	0.0
7	273	826.6	5.4	-0.0	-0.0	0.0	0.0
	323	-825.8	5.4	0.0	0.0	0.0	0.0
8	273	966.4	5.4	-0.0	-0.0	0.0	-0.0
	323	-965.7	5.4	0.0	0.0	-0.0	0.0
9	273	641.2	5.4	0.0	-0.0	0.0	-0.0
	323	-640.5	5.4	-0.0	0.0	-0.0	-0.0
10	273	222.6	5.4	0.0	-0.0	-0.0	0.0
	323	-221.8	5.4	-0.0	0.0	-0.0	-0.0
11	273	-568.9	5.4	0.0	0.0	-0.0	0.0
	323	569.6	5.4	-0.0	-0.0	0.0	-0.0
12	273	-429.0	5.4	0.0	0.0	-0.0	0.0
	323	429.8	5.4	-0.0	-0.0	-0.0	-0.0
21	273	344.3	5.4	-0.0	-0.0	0.0	-0.0
	323	-343.5	5.4	0.0	0.0	-0.0	0.0
22	273	510.8	5.4	-0.0	-0.0	0.0	0.0
	323	-510.0	5.4	0.0	0.0	-0.0	-0.0
23	273	388.5	5.4	-0.0	-0.0	0.0	0.0
	323	-387.8	5.4	0.0	0.0	0.0	-0.0
24	273	111.5	5.4	-0.0	-0.0	0.0	-0.0
	323	-110.7	5.4	0.0	0.0	-0.0	0.0
25	273	126.5	5.4	0.0	-0.0	-0.0	-0.0
	323	-125.8	5.4	-0.0	0.0	-0.0	0.0
26	273	43.6	5.4	-0.0	-0.0	0.0	-0.0
	323	-42.8	5.4	0.0	0.0	-0.0	0.0
27	273	53.2	5.4	-0.0	-0.0	0.0	-0.0
	323	-52.5	5.4	0.0	0.0	-0.0	0.0
28	273	177.1	5.4	-0.0	-0.0	0.0	-0.0
	323	-176.4	5.4	0.0	0.0	0.0	-0.0
29	273	-118.5	5.4	-0.0	0.0	-0.0	-0.0
	323	119.3	5.4	0.0	-0.0	0.0	-0.0
30	273	640.7	5.4	-0.0	-0.0	0.0	-0.0

	323	-639.9	5.4	0.0	0.0	0.0	-0.0
31	273	742.3	5.4	-0.0	-0.0	0.0	-0.0
	323	-741.6	5.4	0.0	0.0	-0.0	-0.0
32	273	516.1	5.4	0.0	-0.0	0.0	-0.0
	323	-515.3	5.4	-0.0	0.0	-0.0	-0.0
33	273	220.4	5.4	0.0	-0.0	-0.0	-0.0
	323	-219.7	5.4	-0.0	0.0	-0.0	-0.0
34	273	-344.8	5.4	0.0	0.0	-0.0	-0.0
	323	345.6	5.4	-0.0	-0.0	0.0	-0.0
35	273	-243.1	5.4	0.0	0.0	-0.0	-0.0
	323	243.9	5.4	-0.0	-0.0	-0.0	-0.0
1	275	-400.4	7.0	-0.0	-0.0	0.0	-0.0
	321	401.4	7.0	0.0	0.0	0.0	0.0
2	275	-644.7	7.0	0.0	-0.0	-0.0	-0.0
	321	645.7	7.0	-0.0	0.0	-0.0	0.0
3	275	-475.7	7.0	0.0	-0.0	-0.0	0.0
	321	476.7	7.0	-0.0	0.0	-0.0	0.0
4	275	-32.7	7.0	-0.0	-0.0	0.0	0.0
	321	33.7	7.0	0.0	0.0	0.0	0.0
5	275	-136.4	5.4	-0.0	-0.0	0.0	0.0
	321	137.1	5.4	0.0	0.0	0.0	0.0
6	275	281.8	5.4	-0.0	0.0	0.0	-0.0
	321	-281.1	5.4	0.0	-0.0	0.0	0.0
7	275	-773.2	5.4	0.0	-0.0	0.0	0.0
	321	773.9	5.4	-0.0	0.0	-0.0	0.0
8	275	-900.8	5.4	0.0	-0.0	-0.0	0.0
	321	901.6	5.4	-0.0	0.0	-0.0	0.0
9	275	-561.9	5.4	0.0	-0.0	-0.0	-0.0
	321	562.7	5.4	-0.0	0.0	-0.0	0.0
10	275	-143.8	5.4	0.0	0.0	-0.0	-0.0
	321	144.5	5.4	-0.0	-0.0	-0.0	0.0
11	275	620.7	5.4	-0.0	0.0	0.0	-0.0
	321	-620.0	5.4	0.0	-0.0	0.0	0.0
12	275	493.0	5.4	-0.0	0.0	0.0	-0.0
	321	-492.3	5.4	0.0	-0.0	0.0	0.0
21	275	-255.0	5.4	-0.0	-0.0	0.0	-0.0
	321	255.7	5.4	0.0	0.0	0.0	0.0
22	275	-413.1	5.4	0.0	-0.0	-0.0	-0.0
	321	413.8	5.4	-0.0	0.0	-0.0	0.0
23	275	-320.5	5.4	0.0	-0.0	-0.0	0.0
	321	321.3	5.4	-0.0	0.0	-0.0	0.0
24	275	-71.1	5.4	-0.0	-0.0	0.0	-0.0
	321	71.9	5.4	0.0	0.0	0.0	0.0
25	275	-85.4	5.4	0.0	-0.0	0.0	-0.0

	321	86.1	5.4	-0.0	0.0	-0.0	0.0
26	275	-19.2	5.4	-0.0	-0.0	0.0	0.0
	321	19.9	5.4	0.0	0.0	0.0	0.0
27	275	-25.2	5.4	-0.0	-0.0	0.0	0.0
	321	25.9	5.4	0.0	0.0	0.0	0.0
28	275	-131.8	5.4	-0.0	-0.0	0.0	-0.0
	321	132.6	5.4	0.0	0.0	0.0	0.0
29	275	163.4	5.4	-0.0	0.0	0.0	-0.0
	321	-162.6	5.4	0.0	-0.0	0.0	0.0
30	275	-585.3	5.4	0.0	-0.0	0.0	0.0
	321	586.1	5.4	-0.0	0.0	-0.0	0.0
31	275	-678.8	5.4	0.0	-0.0	-0.0	0.0
	321	679.6	5.4	-0.0	0.0	-0.0	0.0
32	275	-443.5	5.4	0.0	-0.0	-0.0	-0.0
	321	444.3	5.4	-0.0	0.0	-0.0	0.0
33	275	-148.3	5.4	0.0	0.0	-0.0	-0.0
	321	149.1	5.4	-0.0	-0.0	-0.0	0.0
34	275	398.7	5.4	-0.0	0.0	0.0	-0.0
	321	-397.9	5.4	0.0	-0.0	0.0	0.0
35	275	305.2	5.4	-0.0	0.0	0.0	-0.0
	321	-304.4	5.4	0.0	-0.0	0.0	0.0
1	322	-401.4	7.0	0.0	0.0	-0.0	0.0
	276	400.5	7.0	-0.0	-0.0	-0.0	-0.0
2	322	-381.6	7.0	-0.0	0.0	0.0	0.0
	276	380.6	7.0	0.0	-0.0	-0.0	0.0
3	322	-629.1	7.0	-0.0	0.0	0.0	0.0
	276	628.1	7.0	0.0	-0.0	0.0	0.0
4	322	-33.7	7.0	0.0	0.0	-0.0	0.0
	276	32.8	7.0	-0.0	-0.0	-0.0	0.0
5	322	-563.2	5.4	-0.0	0.0	0.0	0.0
	276	562.4	5.4	0.0	-0.0	0.0	0.0
6	322	-144.3	5.4	-0.0	-0.0	0.0	0.0
	276	143.6	5.4	0.0	0.0	0.0	0.0
7	322	-902.8	5.4	-0.0	0.0	0.0	0.0
	276	902.1	5.4	0.0	-0.0	0.0	0.0
8	322	-775.1	5.4	-0.0	0.0	0.0	-0.0
	276	774.4	5.4	0.0	-0.0	-0.0	0.0
9	322	-137.4	5.4	0.0	0.0	-0.0	-0.0
	276	136.7	5.4	-0.0	-0.0	-0.0	-0.0
10	322	281.4	5.4	0.0	-0.0	-0.0	0.0
	276	-282.2	5.4	-0.0	0.0	-0.0	0.0
11	322	493.4	5.4	0.0	-0.0	-0.0	0.0
	276	-494.1	5.4	-0.0	0.0	-0.0	0.0
12	322	621.1	5.4	0.0	-0.0	-0.0	0.0

	276	-621.8	5.4	-0.0	0.0	-0.0	0.0
21	322	-255.8	5.4	0.0	0.0	-0.0	0.0
	276	255.0	5.4	-0.0	-0.0	-0.0	-0.0
22	322	-258.4	5.4	-0.0	0.0	0.0	0.0
	276	257.6	5.4	0.0	-0.0	-0.0	0.0
23	322	-422.9	5.4	-0.0	0.0	0.0	0.0
	276	422.1	5.4	0.0	-0.0	0.0	0.0
24	322	-71.9	5.4	0.0	0.0	-0.0	0.0
	276	71.2	5.4	-0.0	-0.0	-0.0	-0.0
25	322	-24.3	5.4	0.0	0.0	-0.0	0.0
	276	23.6	5.4	-0.0	-0.0	-0.0	0.0
26	322	-20.0	5.4	0.0	0.0	-0.0	0.0
	276	19.2	5.4	-0.0	-0.0	-0.0	0.0
27	322	-26.0	5.4	0.0	0.0	-0.0	0.0
	276	25.2	5.4	-0.0	-0.0	-0.0	0.0
28	322	-444.6	5.4	-0.0	0.0	0.0	0.0
	276	443.9	5.4	0.0	-0.0	0.0	-0.0
29	322	-149.0	5.4	-0.0	-0.0	0.0	0.0
	276	148.2	5.4	0.0	0.0	0.0	-0.0
30	322	-680.4	5.4	-0.0	0.0	0.0	0.0
	276	679.6	5.4	0.0	-0.0	0.0	-0.0
31	322	-586.8	5.4	-0.0	0.0	0.0	0.0
	276	586.1	5.4	0.0	-0.0	-0.0	-0.0
32	322	-132.7	5.4	0.0	0.0	-0.0	0.0
	276	132.0	5.4	-0.0	-0.0	-0.0	-0.0
33	322	162.9	5.4	0.0	-0.0	-0.0	-0.0
	276	-163.6	5.4	-0.0	0.0	-0.0	-0.0
34	322	305.1	5.4	0.0	-0.0	-0.0	-0.0
	276	-305.8	5.4	-0.0	0.0	-0.0	-0.0
35	322	398.6	5.4	0.0	-0.0	-0.0	-0.0
	276	-399.4	5.4	-0.0	0.0	-0.0	-0.0
1	324	534.0	7.0	0.0	0.0	0.0	0.0
	274	-535.0	7.0	-0.0	-0.0	-0.0	0.0
2	324	498.6	7.0	0.0	-0.0	-0.0	-0.0
	274	-499.5	7.0	-0.0	0.0	-0.0	0.0
3	324	735.6	7.0	0.0	-0.0	-0.0	-0.0
	274	-736.6	7.0	-0.0	0.0	-0.0	0.0
4	324	68.3	7.0	0.0	0.0	0.0	0.0
	274	-69.3	7.0	-0.0	-0.0	-0.0	-0.0
5	324	640.9	5.4	-0.0	0.0	0.0	0.0
	274	-641.7	5.4	0.0	-0.0	-0.0	-0.0
6	324	221.6	5.4	-0.0	0.0	0.0	0.0
	274	-222.4	5.4	0.0	-0.0	0.0	0.0
7	324	966.9	5.4	0.0	0.0	0.0	-0.0

	274	-967.6	5.4	-0.0	-0.0	-0.0	-0.0
8	324	827.0	5.4	0.0	0.0	-0.0	-0.0
	274	-827.7	5.4	-0.0	-0.0	-0.0	-0.0
9	324	174.5	5.4	0.0	0.0	-0.0	-0.0
	274	-175.3	5.4	-0.0	-0.0	-0.0	-0.0
10	324	-244.8	5.4	0.0	-0.0	-0.0	0.0
	274	244.0	5.4	-0.0	0.0	0.0	-0.0
11	324	-430.8	5.4	-0.0	-0.0	0.0	0.0
	274	430.1	5.4	0.0	0.0	0.0	-0.0
12	324	-570.7	5.4	-0.0	-0.0	-0.0	0.0
	274	570.0	5.4	0.0	0.0	0.0	-0.0
21	324	343.6	5.4	0.0	0.0	0.0	0.0
	274	-344.3	5.4	-0.0	-0.0	-0.0	0.0
22	324	337.7	5.4	0.0	-0.0	-0.0	-0.0
	274	-338.4	5.4	-0.0	0.0	-0.0	0.0
23	324	497.4	5.4	0.0	-0.0	-0.0	-0.0
	274	-498.2	5.4	-0.0	0.0	-0.0	0.0
24	324	110.8	5.4	0.0	0.0	0.0	0.0
	274	-111.5	5.4	-0.0	-0.0	-0.0	-0.0
25	324	57.7	5.4	0.0	0.0	-0.0	0.0
	274	-58.5	5.4	-0.0	-0.0	-0.0	-0.0
26	324	42.9	5.4	0.0	0.0	0.0	0.0
	274	-43.6	5.4	-0.0	-0.0	-0.0	-0.0
27	324	52.6	5.4	0.0	0.0	0.0	0.0
	274	-53.3	5.4	-0.0	-0.0	-0.0	-0.0
28	324	515.7	5.4	-0.0	0.0	0.0	0.0
	274	-516.4	5.4	0.0	-0.0	-0.0	0.0
29	324	219.6	5.4	-0.0	0.0	0.0	0.0
	274	-220.3	5.4	0.0	-0.0	0.0	0.0
30	324	742.4	5.4	0.0	0.0	0.0	-0.0
	274	-743.1	5.4	-0.0	-0.0	-0.0	-0.0
31	324	640.7	5.4	0.0	0.0	-0.0	-0.0
	274	-641.4	5.4	-0.0	-0.0	-0.0	-0.0
32	324	176.6	5.4	0.0	0.0	-0.0	0.0
	274	-177.3	5.4	-0.0	-0.0	-0.0	-0.0
33	324	-119.5	5.4	0.0	-0.0	-0.0	0.0
	274	118.8	5.4	-0.0	0.0	0.0	0.0
34	324	-244.5	5.4	-0.0	-0.0	0.0	0.0
	274	243.8	5.4	0.0	0.0	0.0	0.0
35	324	-346.2	5.4	-0.0	-0.0	-0.0	0.0
	274	345.5	5.4	0.0	0.0	0.0	0.0
1	274	-859.2	6.9	0.0	-0.0	-0.0	0.0
	228	857.0	6.9	-0.0	0.0	-0.0	0.0
2	274	769.4	6.9	0.0	0.0	0.0	0.0

	228	-771.6	6.9	-0.0	-0.0	-0.0	-0.0
3	274	1850.0	6.9	-0.0	0.0	0.0	0.0
	228	-1852.2	6.9	0.0	-0.0	0.0	0.0
4	274	-83.4	6.9	0.0	-0.0	-0.0	0.0
	228	81.2	6.9	-0.0	0.0	-0.0	-0.0
5	274	-262.8	5.3	-0.0	0.0	0.0	0.0
	228	261.1	5.3	0.0	-0.0	0.0	0.0
6	274	-724.7	5.3	-0.0	-0.0	-0.0	0.0
	228	723.0	5.3	0.0	0.0	0.0	0.0
7	274	407.0	5.3	-0.0	0.0	0.0	0.0
	228	-408.7	5.3	0.0	-0.0	0.0	0.0
8	274	519.3	5.3	-0.0	0.0	0.0	0.0
	228	-521.0	5.3	0.0	-0.0	0.0	0.0
9	274	111.4	5.3	0.0	0.0	-0.0	0.0
	228	-113.1	5.3	-0.0	-0.0	-0.0	0.0
10	274	-350.4	5.3	0.0	-0.0	-0.0	0.0
	228	348.7	5.3	-0.0	0.0	-0.0	0.0
11	274	-1132.5	5.3	0.0	-0.0	-0.0	0.0
	228	1130.8	5.3	-0.0	0.0	-0.0	-0.0
12	274	-1020.2	5.3	0.0	-0.0	-0.0	0.0
	228	1018.5	5.3	-0.0	0.0	-0.0	-0.0
21	274	-549.1	5.3	0.0	-0.0	-0.0	0.0
	228	547.3	5.3	-0.0	0.0	-0.0	0.0
22	274	522.2	5.3	0.0	0.0	0.0	0.0
	228	-523.9	5.3	-0.0	-0.0	-0.0	-0.0
23	274	1224.8	5.3	-0.0	0.0	0.0	0.0
	228	-1226.5	5.3	0.0	-0.0	0.0	0.0
24	274	-161.2	5.3	0.0	-0.0	-0.0	0.0
	228	159.4	5.3	-0.0	0.0	-0.0	0.0
25	274	-117.6	5.3	0.0	0.0	-0.0	0.0
	228	115.9	5.3	-0.0	-0.0	-0.0	-0.0
26	274	-50.4	5.3	0.0	-0.0	-0.0	0.0
	228	48.7	5.3	-0.0	0.0	-0.0	-0.0
27	274	-64.2	5.3	0.0	-0.0	-0.0	0.0
	228	62.5	5.3	-0.0	0.0	-0.0	-0.0
28	274	-277.5	5.3	-0.0	0.0	0.0	0.0
	228	275.8	5.3	0.0	-0.0	0.0	-0.0
29	274	-604.0	5.3	-0.0	-0.0	-0.0	0.0
	228	602.3	5.3	0.0	0.0	0.0	-0.0
30	274	197.3	5.3	-0.0	0.0	0.0	0.0
	228	-199.1	5.3	0.0	-0.0	0.0	0.0
31	274	277.8	5.3	-0.0	0.0	0.0	0.0
	228	-279.5	5.3	0.0	-0.0	0.0	0.0
32	274	-9.2	5.3	0.0	0.0	-0.0	0.0
	228	7.5	5.3	-0.0	-0.0	-0.0	0.0

33	274	-335.7	5.3	0.0	-0.0	-0.0	0.0
	228	334.0	5.3	-0.0	0.0	-0.0	0.0
34	274	-891.1	5.3	0.0	-0.0	-0.0	0.0
	228	889.4	5.3	-0.0	0.0	-0.0	0.0
35	274	-810.6	5.3	0.0	-0.0	-0.0	0.0
	228	808.9	5.3	-0.0	0.0	-0.0	0.0
1	187	1182.7	6.8	-0.0	0.0	-0.0	-0.0
	233	-1179.2	6.8	-0.0	-0.0	0.0	0.0
2	187	1590.5	6.8	-0.0	0.0	0.0	-0.0
	233	-1587.0	6.8	-0.0	-0.0	-0.0	0.0
3	187	1416.2	6.8	0.0	-0.0	0.0	0.0
	233	-1412.8	6.8	-0.0	0.0	-0.0	0.0
4	187	153.6	6.8	-0.0	0.0	0.0	-0.0
	233	-150.1	6.8	-0.0	-0.0	-0.0	0.0
5	187	655.2	5.2	-0.0	0.0	0.0	0.0
	233	-652.5	5.2	-0.0	-0.0	-0.0	-0.0
6	187	-120.5	5.2	-0.0	0.0	0.0	-0.0
	233	123.2	5.2	-0.0	-0.0	0.0	-0.0
7	187	1680.8	5.2	0.0	0.0	0.0	0.0
	233	-1678.2	5.2	-0.0	-0.0	-0.0	-0.0
8	187	1784.2	5.2	0.0	0.0	0.0	0.0
	233	-1781.6	5.2	-0.0	-0.0	-0.0	-0.0
9	187	1000.0	5.2	-0.0	0.0	-0.0	-0.0
	233	-997.3	5.2	-0.0	-0.0	0.0	0.0
10	187	224.3	5.2	-0.0	0.0	-0.0	-0.0
	233	-221.6	5.2	-0.0	-0.0	0.0	0.0
11	187	-904.8	5.2	-0.0	0.0	-0.0	-0.0
	233	907.4	5.2	0.0	-0.0	0.0	0.0
12	187	-801.3	5.2	-0.0	0.0	-0.0	-0.0
	233	804.0	5.2	0.0	-0.0	0.0	0.0
21	187	761.3	5.2	-0.0	0.0	-0.0	-0.0
	233	-758.7	5.2	-0.0	-0.0	0.0	0.0
22	187	1036.7	5.2	-0.0	0.0	0.0	-0.0
	233	-1034.0	5.2	-0.0	-0.0	-0.0	0.0
23	187	959.9	5.2	0.0	-0.0	0.0	0.0
	233	-957.2	5.2	-0.0	0.0	-0.0	0.0
24	187	246.8	5.2	-0.0	0.0	-0.0	-0.0
	233	-244.1	5.2	-0.0	-0.0	0.0	0.0
25	187	236.3	5.2	-0.0	0.0	-0.0	-0.0
	233	-233.6	5.2	-0.0	-0.0	0.0	0.0
26	187	97.9	5.2	-0.0	0.0	0.0	-0.0
	233	-95.2	5.2	-0.0	-0.0	-0.0	0.0
27	187	118.1	5.2	-0.0	0.0	0.0	-0.0
	233	-115.5	5.2	-0.0	-0.0	-0.0	0.0

28	187	590.1	5.2	-0.0	0.0	0.0	0.0
	233	-587.4	5.2	-0.0	-0.0	-0.0	0.0
29	187	47.4	5.2	-0.0	0.0	-0.0	0.0
	233	-44.7	5.2	-0.0	-0.0	0.0	0.0
30	187	1308.0	5.2	-0.0	0.0	0.0	0.0
	233	-1305.3	5.2	-0.0	-0.0	-0.0	0.0
31	187	1380.6	5.2	-0.0	0.0	0.0	0.0
	233	-1377.9	5.2	-0.0	-0.0	-0.0	0.0
32	187	832.1	5.2	-0.0	0.0	-0.0	-0.0
	233	-829.4	5.2	-0.0	-0.0	0.0	0.0
33	187	289.4	5.2	-0.0	0.0	-0.0	-0.0
	233	-286.7	5.2	-0.0	-0.0	0.0	0.0
34	187	-501.1	5.2	-0.0	0.0	-0.0	-0.0
	233	503.8	5.2	-0.0	-0.0	0.0	0.0
35	187	-428.5	5.2	-0.0	0.0	-0.0	-0.0
	233	431.2	5.2	0.0	-0.0	0.0	0.0
1	225	1018.4	6.9	0.0	-0.0	0.0	0.0
	275	-1016.2	6.9	-0.0	0.0	-0.0	-0.0
2	225	-567.0	6.9	-0.0	-0.0	0.0	0.0
	275	569.2	6.9	0.0	0.0	-0.0	-0.0
3	225	-2087.2	6.9	-0.0	0.0	0.0	0.0
	275	2089.4	6.9	0.0	-0.0	-0.0	-0.0
4	225	127.2	6.9	-0.0	-0.0	0.0	-0.0
	275	-125.0	6.9	0.0	0.0	-0.0	-0.0
5	225	-88.0	5.3	-0.0	-0.0	0.0	-0.0
	275	89.7	5.3	0.0	0.0	0.0	-0.0
6	225	396.7	5.3	-0.0	0.0	-0.0	-0.0
	275	-395.0	5.3	0.0	-0.0	0.0	-0.0
7	225	-498.0	5.3	-0.0	-0.0	0.0	0.0
	275	499.7	5.3	0.0	0.0	-0.0	-0.0
8	225	-364.8	5.3	-0.0	-0.0	0.0	0.0
	275	366.6	5.3	0.0	0.0	-0.0	-0.0
9	225	356.0	5.3	0.0	-0.0	0.0	0.0
	275	-354.3	5.3	-0.0	0.0	-0.0	-0.0
10	225	840.7	5.3	0.0	-0.0	-0.0	-0.0
	275	-839.0	5.3	-0.0	0.0	-0.0	-0.0
11	225	1117.6	5.3	0.0	0.0	-0.0	-0.0
	275	-1115.9	5.3	-0.0	-0.0	0.0	-0.0
12	225	1250.8	5.3	0.0	-0.0	-0.0	-0.0
	275	-1249.0	5.3	-0.0	0.0	0.0	-0.0
21	225	654.9	5.3	0.0	-0.0	0.0	0.0
	275	-653.2	5.3	-0.0	0.0	-0.0	-0.0
22	225	-401.7	5.3	-0.0	-0.0	0.0	0.0
	275	403.5	5.3	0.0	0.0	-0.0	-0.0

23	225	-1378.4	5.3	-0.0	0.0	0.0	0.0
	275	1380.1	5.3	0.0	-0.0	-0.0	-0.0
24	225	209.3	5.3	-0.0	-0.0	0.0	-0.0
	275	-207.6	5.3	0.0	0.0	-0.0	-0.0
25	225	208.2	5.3	0.0	-0.0	0.0	-0.0
	275	-206.5	5.3	-0.0	0.0	-0.0	-0.0
26	225	80.1	5.3	-0.0	-0.0	0.0	-0.0
	275	-78.4	5.3	0.0	0.0	-0.0	-0.0
27	225	97.9	5.3	-0.0	-0.0	0.0	-0.0
	275	-96.1	5.3	0.0	0.0	-0.0	-0.0
28	225	48.0	5.3	-0.0	-0.0	0.0	0.0
	275	-46.3	5.3	0.0	0.0	0.0	-0.0
29	225	390.0	5.3	-0.0	0.0	-0.0	-0.0
	275	-388.3	5.3	0.0	-0.0	0.0	-0.0
30	225	-240.9	5.3	-0.0	-0.0	0.0	0.0
	275	242.6	5.3	0.0	0.0	-0.0	-0.0
31	225	-146.5	5.3	-0.0	-0.0	0.0	0.0
	275	148.2	5.3	0.0	0.0	-0.0	-0.0
32	225	362.7	5.3	0.0	-0.0	0.0	-0.0
	275	-361.0	5.3	-0.0	0.0	-0.0	0.0
33	225	704.8	5.3	0.0	-0.0	-0.0	-0.0
	275	-703.0	5.3	-0.0	0.0	-0.0	0.0
34	225	899.2	5.3	0.0	-0.0	-0.0	-0.0
	275	-897.5	5.3	-0.0	0.0	0.0	-0.0
35	225	993.6	5.3	0.0	-0.0	-0.0	-0.0
	275	-991.9	5.3	-0.0	0.0	0.0	-0.0
1	227	-857.3	6.9	-0.0	0.0	0.0	0.0
	273	859.5	6.9	0.0	-0.0	0.0	0.0
2	227	700.8	6.9	0.0	-0.0	-0.0	-0.0
	273	-698.6	6.9	-0.0	0.0	-0.0	-0.0
3	227	2137.9	6.9	0.0	-0.0	-0.0	-0.0
	273	-2135.6	6.9	-0.0	0.0	-0.0	-0.0
4	227	-81.5	6.9	-0.0	0.0	0.0	0.0
	273	83.7	6.9	0.0	-0.0	0.0	0.0
5	227	112.6	5.3	-0.0	-0.0	0.0	0.0
	273	-110.9	5.3	0.0	0.0	0.0	0.0
6	227	-348.6	5.3	-0.0	0.0	0.0	0.0
	273	350.3	5.3	0.0	-0.0	0.0	0.0
7	227	519.7	5.3	0.0	-0.0	-0.0	0.0
	273	-517.9	5.3	-0.0	0.0	-0.0	0.0
8	227	407.4	5.3	0.0	-0.0	-0.0	0.0
	273	-405.7	5.3	-0.0	0.0	-0.0	-0.0
9	227	-261.6	5.3	0.0	-0.0	-0.0	0.0
	273	263.3	5.3	-0.0	0.0	-0.0	-0.0

10	227	-722.8	5.3	0.0	0.0	-0.0	0.0
	273	724.5	5.3	-0.0	-0.0	0.0	-0.0
11	227	-1017.6	5.3	-0.0	0.0	0.0	0.0
	273	1019.3	5.3	0.0	-0.0	0.0	0.0
12	227	-1129.9	5.3	-0.0	0.0	0.0	0.0
	273	1131.6	5.3	0.0	-0.0	0.0	0.0
21	227	-547.6	5.3	-0.0	0.0	0.0	0.0
	273	549.3	5.3	0.0	-0.0	0.0	0.0
22	227	490.7	5.3	0.0	-0.0	-0.0	-0.0
	273	-489.0	5.3	-0.0	0.0	-0.0	-0.0
23	227	1416.9	5.3	0.0	-0.0	-0.0	-0.0
	273	-1415.2	5.3	-0.0	0.0	-0.0	-0.0
24	227	-159.7	5.3	-0.0	0.0	0.0	0.0
	273	161.4	5.3	0.0	-0.0	0.0	0.0
25	227	-158.2	5.3	-0.0	0.0	-0.0	0.0
	273	159.9	5.3	0.0	-0.0	0.0	0.0
26	227	-48.9	5.3	-0.0	0.0	0.0	0.0
	273	50.6	5.3	0.0	-0.0	0.0	0.0
27	227	-62.7	5.3	-0.0	0.0	0.0	0.0
	273	64.4	5.3	0.0	-0.0	0.0	0.0
28	227	-8.0	5.3	-0.0	-0.0	0.0	-0.0
	273	9.7	5.3	0.0	0.0	0.0	-0.0
29	227	-334.0	5.3	-0.0	0.0	0.0	0.0
	273	335.8	5.3	0.0	-0.0	0.0	-0.0
30	227	278.5	5.3	0.0	-0.0	-0.0	-0.0
	273	-276.8	5.3	-0.0	0.0	-0.0	-0.0
31	227	198.0	5.3	0.0	-0.0	-0.0	-0.0
	273	-196.3	5.3	-0.0	0.0	-0.0	0.0
32	227	-276.2	5.3	0.0	-0.0	-0.0	0.0
	273	277.9	5.3	-0.0	0.0	-0.0	-0.0
33	227	-602.2	5.3	0.0	0.0	-0.0	0.0
	273	603.9	5.3	-0.0	-0.0	0.0	-0.0
34	227	-808.3	5.3	-0.0	0.0	0.0	0.0
	273	810.0	5.3	0.0	-0.0	0.0	-0.0
35	227	-888.7	5.3	-0.0	0.0	0.0	0.0
	273	890.4	5.3	0.0	-0.0	0.0	-0.0
1	233	-857.9	6.9	0.0	-0.0	-0.0	0.0
	283	860.1	6.9	-0.0	0.0	-0.0	0.0
2	233	-911.4	6.9	0.0	-0.0	-0.0	-0.0
	283	913.7	6.9	-0.0	0.0	-0.0	0.0
3	233	-548.8	6.9	0.0	-0.0	-0.0	0.0
	283	551.0	6.9	-0.0	0.0	-0.0	-0.0
4	233	-82.1	6.9	0.0	-0.0	-0.0	0.0
	283	84.3	6.9	-0.0	0.0	-0.0	0.0

5	233	-348.7	5.3	0.0	-0.0	-0.0	0.0
	283	350.4	5.3	-0.0	0.0	-0.0	0.0
6	233	112.4	5.3	0.0	0.0	-0.0	0.0
	283	-110.7	5.3	-0.0	-0.0	-0.0	0.0
7	233	-1017.9	5.3	0.0	-0.0	-0.0	0.0
	283	1019.6	5.3	-0.0	0.0	-0.0	0.0
8	233	-1130.4	5.3	0.0	-0.0	-0.0	0.0
	283	1132.1	5.3	-0.0	0.0	-0.0	0.0
9	233	-723.6	5.3	-0.0	-0.0	0.0	0.0
	283	725.3	5.3	0.0	0.0	-0.0	0.0
10	233	-262.4	5.3	-0.0	0.0	0.0	0.0
	283	264.1	5.3	0.0	-0.0	0.0	0.0
11	233	519.2	5.3	-0.0	0.0	0.0	0.0
	283	-517.5	5.3	0.0	-0.0	0.0	0.0
12	233	406.8	5.3	-0.0	0.0	0.0	0.0
	283	-405.1	5.3	0.0	-0.0	0.0	0.0
21	233	-548.0	5.3	0.0	-0.0	-0.0	0.0
	283	549.7	5.3	-0.0	0.0	-0.0	0.0
22	233	-584.2	5.3	0.0	-0.0	-0.0	-0.0
	283	585.9	5.3	-0.0	0.0	-0.0	0.0
23	233	-374.3	5.3	0.0	-0.0	-0.0	0.0
	283	376.0	5.3	-0.0	0.0	-0.0	-0.0
24	233	-160.1	5.3	0.0	-0.0	-0.0	0.0
	283	161.8	5.3	-0.0	0.0	-0.0	0.0
25	233	-158.7	5.3	0.0	-0.0	0.0	0.0
	283	160.4	5.3	-0.0	0.0	-0.0	0.0
26	233	-49.3	5.3	0.0	-0.0	-0.0	0.0
	283	51.0	5.3	-0.0	0.0	-0.0	0.0
27	233	-63.1	5.3	0.0	-0.0	-0.0	0.0
	283	64.8	5.3	-0.0	0.0	-0.0	0.0
28	233	-334.2	5.3	0.0	-0.0	-0.0	-0.0
	283	335.9	5.3	-0.0	0.0	-0.0	-0.0
29	233	-8.3	5.3	0.0	0.0	-0.0	-0.0
	283	10.0	5.3	-0.0	-0.0	-0.0	-0.0
30	233	-808.6	5.3	0.0	-0.0	-0.0	0.0
	283	810.3	5.3	-0.0	0.0	-0.0	-0.0
31	233	-889.2	5.3	0.0	-0.0	-0.0	0.0
	283	890.9	5.3	-0.0	0.0	-0.0	-0.0
32	233	-602.9	5.3	-0.0	-0.0	0.0	0.0
	283	604.6	5.3	0.0	0.0	-0.0	-0.0
33	233	-276.9	5.3	-0.0	0.0	0.0	0.0
	283	278.6	5.3	0.0	-0.0	0.0	-0.0
34	233	278.0	5.3	-0.0	0.0	0.0	0.0
	283	-276.3	5.3	0.0	-0.0	0.0	-0.0
35	233	197.4	5.3	-0.0	0.0	0.0	0.0

	283	-195.7	5.3	0.0	-0.0	0.0	-0.0
1	208	15887.1	-3627.4	-14.5	-0.8	-27.1	23934.0
	196	-16253.0	4404.3	14.5	0.8	41.3	-27867.2
2	208	10805.4	-5324.5	-89.5	-133.4	-92.0	7585.9
	196	-11404.2	6273.0	89.5	133.4	179.7	-13278.6
3	208	690.5	-3007.7	-140.1	-219.7	-131.1	8299.3
	196	-1004.7	3170.6	140.1	219.7	268.3	-11331.2
4	208	4151.5	-825.3	-1.8	-0.0	-3.4	5817.5
	196	-4214.7	982.6	1.8	0.0	5.1	-6702.8
5	208	7806.1	-2187.5	-49.9	-45.7	9.9	22223.0
	196	-7949.3	2502.1	49.9	45.7	82.1	-24401.0
6	208	8384.1	-1746.5	26.8	50.3	-41.9	20064.3
	196	-8527.3	2061.2	-26.8	-50.3	-27.6	-21832.9
7	208	6267.7	-2382.3	-134.9	-159.5	74.4	17036.4
	196	-6410.9	2696.9	134.9	159.5	201.6	-19454.1
8	208	5527.2	-2108.4	-131.2	-161.1	78.0	10432.0
	196	-5670.4	2423.0	131.2	161.1	194.4	-12645.9
9	208	5337.6	-1274.4	-37.4	-50.9	21.8	208.5
	196	-5480.8	1589.1	37.4	50.9	58.1	-1706.9
10	208	5915.6	-833.5	39.2	45.1	-30.0	-1950.2
	196	-6058.8	1148.2	-39.2	-45.1	-51.6	861.2
11	208	8194.5	-912.6	120.5	160.5	-98.1	9840.7
	196	-8337.7	1227.2	-120.5	-160.5	-163.9	-10893.9
12	208	7454.0	-638.7	124.3	159.0	-94.5	3236.4
	196	-7597.2	953.3	-124.3	-159.0	-171.1	-4085.7
21	208	10528.2	-2386.2	-9.3	-0.5	-17.5	15797.8
	196	-10766.0	2894.4	9.3	0.5	26.6	-18383.8
22	208	7123.3	-3449.4	-59.6	-88.8	-61.0	5637.7
	196	-7506.6	4052.2	59.6	88.8	119.3	-9319.7
23	208	886.1	-2089.8	-93.6	-146.5	-87.7	6129.6
	196	-1102.1	2214.5	93.6	146.5	179.4	-8241.6
24	208	4660.4	-985.1	-3.0	-0.1	-5.6	6739.5
	196	-4746.9	1183.6	3.0	0.1	8.5	-7801.6
25	208	4711.8	-1189.6	-2.2	-0.3	-4.7	4523.6
	196	-4827.4	1447.6	2.2	0.3	6.8	-5816.7
26	208	2750.9	-579.8	-1.1	-0.0	-2.1	4118.3
	196	-2799.5	678.3	1.1	0.0	3.2	-4734.5
27	208	3193.5	-634.8	-1.4	-0.0	-2.6	4475.0
	196	-3242.1	755.8	1.4	0.0	3.9	-5156.0
28	208	7487.8	-2004.1	-36.5	-31.9	5.5	18548.3
	196	-7631.0	2318.7	36.5	31.9	62.8	-20555.6
29	208	7950.5	-1697.4	16.8	35.4	-34.4	16995.3
	196	-8093.7	2012.1	-16.8	-35.4	-14.6	-18722.0
30	208	6347.3	-2123.7	-95.5	-111.8	55.2	15015.2

	196	-6490.5	2438.3	95.5	111.8	146.9	-17186.5
31	208	5832.3	-1919.6	-92.7	-113.0	57.8	10434.0
	196	-5975.6	2234.2	92.7	113.0	141.6	-12465.1
32	208	5771.2	-1323.6	-27.4	-35.9	14.3	3277.4
	196	-5914.4	1638.2	27.4	35.9	45.1	-4817.8
33	208	6233.9	-1016.9	25.9	31.4	-25.6	1724.5
	196	-6377.1	1331.5	-25.9	-31.4	-32.3	-2984.2
34	208	7889.3	-1101.4	82.1	112.5	-77.9	9838.8
	196	-8032.6	1416.1	-82.1	-112.5	-111.1	-11074.6
35	208	7374.4	-897.3	84.8	111.3	-75.2	5257.5
	196	-7517.6	1211.9	-84.8	-111.3	-116.4	-6353.3
1	196	16434.1	-3671.4	-14.5	1.1	-41.3	27867.2
	184	-16842.5	4489.3	14.5	-1.1	55.8	-31957.4
2	196	11673.8	-5755.6	-89.5	-125.2	-185.5	13278.6
	184	-12253.5	6575.3	89.5	125.2	275.2	-19472.5
3	196	1145.8	-3122.3	-140.1	-207.4	-277.8	11331.2
	184	-1455.0	3238.1	140.1	207.4	418.2	-14525.4
4	196	4254.5	-792.7	-1.8	0.2	-5.1	6702.8
	184	-4325.0	991.1	1.8	-0.2	6.9	-7596.9
5	196	8098.5	-2093.5	-72.5	-42.1	-84.1	24401.0
	184	-8258.4	2439.7	72.5	42.1	150.2	-26499.5
6	196	8698.4	-1663.5	49.8	48.9	29.8	21832.9
	184	-8858.3	2009.7	-49.8	-48.9	-73.3	-23526.2
7	196	6474.9	-2336.9	-210.9	-150.4	-208.6	19454.1
	184	-6634.7	2683.1	210.9	150.4	398.4	-21878.9
8	196	5683.1	-2115.5	-207.3	-152.2	-201.4	12645.9
	184	-5843.0	2461.7	207.3	152.2	387.7	-14945.0
9	196	5459.2	-1355.3	-60.4	-48.1	-60.3	1706.9
	184	-5619.1	1701.5	60.4	48.1	114.5	-3386.6
10	196	6059.1	-925.2	61.8	42.9	53.6	-861.2
	184	-6219.0	1271.4	-61.8	-42.9	-109.0	-413.3
11	196	8474.5	-903.3	196.6	153.0	170.9	10893.9
	184	-8634.4	1249.5	-196.6	-153.0	-346.5	-11967.9
12	196	7682.7	-681.8	200.2	151.2	178.1	4085.7
	184	-7842.6	1028.1	-200.2	-151.2	-357.2	-5034.0
21	196	10884.9	-2409.0	-9.3	0.7	-26.5	18383.8
	184	-11150.4	2948.8	9.3	-0.7	35.9	-21069.1
22	196	7680.7	-3711.7	-59.6	-83.4	-123.2	9319.7
	184	-8053.2	4239.6	59.6	83.4	183.0	-13313.4
23	196	1200.2	-2162.9	-93.6	-138.3	-185.8	8241.6
	184	-1413.6	2260.4	93.6	138.3	279.5	-10462.8
24	196	4795.1	-969.6	-3.0	0.3	-8.5	7801.6
	184	-4891.6	1199.7	3.0	-0.3	11.4	-8888.8
25	196	4887.4	-1229.8	-2.2	0.0	-6.9	5816.7

	184	-5005.3	1499.1	2.2	-0.0	9.1	-7186.1
26	196	2827.1	-552.2	-1.1	0.1	-3.2	4734.5
	184	-2881.3	681.7	1.1	-0.1	4.4	-5352.9
27	196	3272.7	-609.8	-1.4	0.1	-3.9	5156.0
	184	-3327.0	762.4	1.4	-0.1	5.3	-5843.8
28	196	7758.1	-1946.6	-52.9	-29.2	-64.1	20555.6
	184	-7918.0	2292.8	52.9	29.2	111.2	-22525.2
29	196	8237.0	-1648.2	33.6	34.6	16.2	18722.0
	184	-8396.9	1994.5	-33.6	-34.6	-43.9	-20415.7
30	196	6556.2	-2093.1	-150.8	-105.2	-151.7	17186.5
	184	-6716.1	2439.3	150.8	105.2	283.0	-19376.4
31	196	6005.0	-1920.3	-148.2	-106.6	-146.5	12465.1
	184	-6164.8	2266.5	148.2	106.6	275.1	-14568.0
32	196	5920.6	-1370.5	-44.2	-33.8	-46.7	4817.8
	184	-6080.5	1716.7	44.2	33.8	85.1	-6497.1
33	196	6399.5	-1072.1	42.3	30.0	33.6	2984.2
	184	-6559.4	1418.3	-42.3	-30.0	-70.0	-4387.6
34	196	8152.6	-1098.5	137.5	107.4	116.0	11074.6
	184	-8312.5	1444.7	-137.5	-107.4	-233.9	-12344.8
35	196	7601.4	-925.6	140.1	106.0	121.3	6353.3
	184	-7761.3	1271.8	-140.1	-106.0	-241.8	-7536.4
1	184	17199.7	-3044.6	-8.3	-25.6	-8.2	31933.8
	172	-17676.3	3819.9	8.3	25.6	16.6	-35370.4
2	184	14791.2	-5724.6	-16.0	-211.0	-119.4	19350.9
	172	-15369.0	6338.1	16.0	211.0	135.5	-25401.3
3	184	5068.8	-3539.3	-22.2	-333.7	-189.2	14346.9
	172	-5383.4	3554.9	22.2	333.7	211.4	-17903.8
4	184	4494.8	-752.2	-0.3	-2.7	-1.7	7594.2
	172	-4577.0	943.2	0.3	2.7	2.0	-8443.0
5	184	9423.8	-1859.7	26.7	-88.3	-67.1	26454.6
	172	-9610.3	2189.2	-26.7	88.3	58.7	-28103.5
6	184	8236.4	-1342.7	-38.7	53.6	58.7	23554.5
	172	-8422.9	1672.2	38.7	-53.6	-41.0	-24728.5
7	184	9827.4	-2248.5	105.3	-248.1	-213.3	21748.3
	172	-10013.9	2577.9	-105.3	248.1	173.1	-23986.4
8	184	8986.0	-2064.8	107.2	-243.2	-212.7	14814.3
	172	-9172.5	2394.2	-107.2	243.2	171.4	-17082.4
9	184	6619.2	-1247.3	33.1	-72.0	-65.3	3341.2
	172	-6805.7	1576.8	-33.1	72.0	53.2	-5090.4
10	184	5431.9	-730.4	-32.3	69.8	60.5	441.1
	172	-5618.4	1059.9	32.3	-69.8	-46.5	-1715.4
11	184	5869.6	-525.3	-112.7	224.7	206.1	12081.4
	172	-6056.1	854.8	112.7	-224.7	-159.2	-12736.4
12	184	5028.2	-341.6	-110.8	229.6	206.6	5147.4

	172	-5214.7	671.1	110.8	-229.6	-160.9	-5832.5
21	184	11398.1	-2011.4	-5.3	-16.4	-5.4	21054.0
	172	-11707.8	2523.5	5.3	16.4	10.6	-23324.3
22	184	9744.9	-3702.2	-10.6	-140.4	-79.5	13232.8
	172	-10117.9	4100.2	10.6	140.4	90.1	-17146.1
23	184	3840.2	-2436.7	-14.8	-222.7	-126.3	10343.5
	172	-4058.3	2466.6	14.8	222.7	141.1	-12801.8
24	184	5045.6	-865.2	-1.3	-4.9	-2.1	8884.2
	172	-5158.2	1085.1	1.3	4.9	3.4	-9860.5
25	184	5188.3	-1152.6	-0.7	-3.8	-2.2	7181.7
	172	-5313.5	1391.3	0.7	3.8	2.9	-8456.7
26	184	3007.9	-540.7	-0.1	-1.6	-1.1	5351.3
	172	-3071.2	664.5	0.1	1.6	1.2	-5954.7
27	184	3457.5	-578.6	-0.3	-2.1	-1.3	5841.7
	172	-3520.8	725.5	0.3	2.1	1.5	-6494.6
28	184	8821.4	-1723.7	20.3	-64.8	-47.8	22491.5
	172	-9007.9	2053.2	-20.3	64.8	43.6	-24080.6
29	184	7991.8	-1365.0	-30.6	34.4	39.8	20432.6
	172	-8178.3	1694.5	30.6	-34.4	-27.4	-21701.3
30	184	9104.1	-1967.7	81.4	-176.3	-149.4	19283.7
	172	-9290.6	2297.2	-81.4	176.3	125.1	-21269.3
31	184	8516.9	-1818.1	82.8	-172.8	-149.0	14475.2
	172	-8703.4	2147.6	-82.8	172.8	123.9	-16480.4
32	184	6863.9	-1225.1	25.1	-52.9	-46.4	6463.1
	172	-7050.4	1554.6	-25.1	52.9	39.6	-8117.6
33	184	6034.2	-866.4	-25.8	46.3	41.1	4404.2
	172	-6220.7	1195.8	25.8	-46.3	-31.4	-5738.3
34	184	6338.8	-771.9	-88.4	154.3	142.4	12420.5
	172	-6525.3	1101.4	88.4	-154.3	-111.7	-13338.4
35	184	5751.5	-622.4	-86.9	157.9	142.8	7612.0
	172	-5938.0	951.8	86.9	-157.9	-112.9	-8549.5
1	172	17938.7	-2289.8	-8.3	-24.1	-18.7	35370.4
	160	-18474.8	3022.7	8.3	24.1	27.1	-38033.7
2	172	15856.0	-4996.6	-16.0	-198.6	-153.1	25401.3
	160	-16403.6	5431.6	16.0	198.6	169.2	-30639.5
3	172	5668.4	-3080.1	-22.2	-314.3	-239.2	17903.8
	160	-5974.3	3007.5	22.2	314.3	261.5	-20960.5
4	172	4641.1	-547.2	-0.3	-2.5	-2.2	8443.0
	160	-4733.7	730.9	0.3	2.5	2.6	-9083.7
5	172	9797.7	-1557.9	2.9	-83.0	-65.9	28103.5
	160	-10007.6	1870.8	-2.9	83.0	74.4	-29155.7
6	172	8562.3	-1144.3	-14.8	49.9	45.4	24728.5
	160	-8772.1	1457.3	14.8	-49.9	-42.0	-25409.0
7	172	10221.0	-1770.4	25.8	-232.6	-193.4	23986.4

	160	-10430.8	2083.3	-25.8	232.6	205.6	-25653.3
8	172	9348.3	-1539.0	27.7	-227.9	-191.3	17082.4
	160	-9558.1	1851.9	-27.7	227.9	201.6	-18904.5
9	172	6888.9	-786.6	9.3	-67.3	-59.1	5090.4
	160	-7098.7	1099.5	-9.3	67.3	61.3	-6659.7
10	172	5653.4	-373.1	-8.4	65.7	52.2	1715.4
	160	-5863.2	686.0	8.4	-65.7	-55.1	-2913.0
11	172	6102.8	-392.0	-33.2	210.5	177.6	12736.4
	160	-6312.6	704.9	33.2	-210.5	-182.4	-13164.2
12	172	5230.2	-160.6	-31.3	215.2	179.6	5832.5
	160	-5440.0	473.5	31.3	-215.2	-186.3	-6415.4
21	172	11881.1	-1510.1	-5.3	-15.4	-12.0	23324.3
	160	-12229.5	1994.6	5.3	15.4	17.3	-25081.2
22	172	10432.2	-3217.4	-10.6	-132.1	-101.8	17146.1
	160	-10787.9	3502.7	10.6	132.1	112.4	-20521.5
23	172	4254.9	-2109.5	-14.8	-209.8	-159.7	12801.8
	160	-4468.4	2080.0	14.8	209.8	174.6	-14905.3
24	172	5232.3	-638.7	-1.3	-4.6	-3.8	9860.5
	160	-5358.9	848.7	1.3	4.6	5.0	-10606.2
25	172	5413.3	-930.4	-0.7	-3.5	-3.2	8456.7
	160	-5541.4	1142.2	0.7	3.5	3.9	-9497.0
26	172	3116.9	-398.7	-0.1	-1.5	-1.4	5954.7
	160	-3188.1	516.9	0.1	1.5	1.5	-6413.7
27	172	3570.1	-420.9	-0.3	-1.9	-1.7	6494.6
	160	-3641.3	562.2	0.3	1.9	2.0	-6987.5
28	172	9174.8	-1402.2	1.9	-60.9	-48.9	24080.6
	160	-9384.6	1715.1	-1.9	60.9	56.6	-25154.8
29	172	8311.8	-1114.0	-12.3	32.0	30.2	21701.3
	160	-8521.6	1426.9	12.3	-32.0	-27.7	-22526.1
30	172	9469.3	-1533.6	20.2	-165.2	-139.4	21269.3
	160	-9679.1	1846.5	-20.2	165.2	151.7	-22757.4
31	172	8858.7	-1358.0	21.7	-161.8	-137.9	16480.4
	160	-9068.5	1671.0	-21.7	161.8	148.8	-18073.7
32	172	7139.4	-817.0	6.8	-49.4	-43.9	8117.6
	160	-7349.2	1129.9	-6.8	49.4	47.0	-9542.6
33	172	6276.4	-528.8	-7.5	43.5	35.2	5738.3
	160	-6486.2	841.7	7.5	-43.5	-37.4	-6913.9
34	172	6592.5	-572.9	-27.2	144.4	124.2	13338.4
	160	-6802.3	885.8	27.2	-144.4	-129.5	-13995.0
35	172	5981.9	-397.4	-25.7	147.9	125.7	8549.5
	160	-6191.7	710.3	25.7	-147.9	-132.4	-9311.3
1	135	329.9	5.9	-0.0	-0.0	-0.0	-0.0
	85	-337.2	5.9	-0.0	0.0	0.0	-0.0
2	135	-2067.8	5.9	0.0	-0.0	-0.1	0.0

	85	2060.5	5.9	-0.0	0.0	-0.1	0.0
3	135	-3772.6	5.9	0.0	0.0	-0.1	0.0
	85	3765.3	5.9	-0.0	-0.0	-0.1	0.0
4	135	83.2	5.9	-0.0	-0.0	-0.0	-0.0
	85	-90.5	5.9	-0.0	0.0	-0.0	0.0
5	135	-461.3	4.6	0.0	-0.0	-0.0	-0.0
	85	455.7	4.6	-0.0	0.0	-0.0	0.0
6	135	643.4	4.6	-0.0	-0.0	0.0	-0.0
	85	-649.0	4.6	0.0	0.0	0.0	-0.0
7	135	-1715.1	4.6	0.0	-0.0	-0.1	-0.0
	85	1709.4	4.6	-0.0	0.0	-0.1	0.0
8	135	-1685.0	4.6	0.0	-0.0	-0.1	-0.0
	85	1679.4	4.6	-0.0	0.0	-0.1	0.0
9	135	-361.2	4.6	0.0	-0.0	-0.0	-0.0
	85	355.6	4.6	-0.0	0.0	-0.0	-0.0
10	135	743.5	4.6	-0.0	-0.0	0.0	-0.0
	85	-749.1	4.6	-0.0	0.0	0.0	-0.0
11	135	1967.2	4.6	-0.0	-0.0	0.1	-0.0
	85	-1972.8	4.6	0.0	0.0	0.1	-0.0
12	135	1997.2	4.6	-0.0	-0.0	0.1	-0.0
	85	-2002.8	4.6	0.0	0.0	0.1	-0.0
21	135	218.2	4.6	-0.0	-0.0	-0.0	-0.0
	85	-223.8	4.6	-0.0	0.0	0.0	-0.0
22	135	-1379.4	4.6	0.0	-0.0	-0.0	0.0
	85	1373.8	4.6	-0.0	0.0	-0.1	0.0
23	135	-2506.6	4.6	0.0	0.0	-0.1	0.0
	85	2500.9	4.6	-0.0	-0.0	-0.1	0.0
24	135	94.8	4.6	-0.0	-0.0	-0.0	-0.0
	85	-100.4	4.6	-0.0	0.0	-0.0	0.0
25	135	92.2	4.6	-0.0	-0.0	-0.0	-0.0
	85	-97.8	4.6	-0.0	0.0	-0.0	0.0
26	135	58.4	4.6	-0.0	-0.0	0.0	-0.0
	85	-64.1	4.6	-0.0	0.0	-0.0	0.0
27	135	64.0	4.6	-0.0	-0.0	-0.0	-0.0
	85	-69.6	4.6	-0.0	0.0	-0.0	0.0
28	135	-284.5	4.6	0.0	-0.0	-0.0	-0.0
	85	278.9	4.6	-0.0	0.0	-0.0	-0.0
29	135	496.8	4.6	-0.0	-0.0	0.0	-0.0
	85	-502.4	4.6	-0.0	0.0	0.0	-0.0
30	135	-1171.5	4.6	0.0	-0.0	-0.1	-0.0
	85	1165.9	4.6	-0.0	0.0	-0.1	0.0
31	135	-1150.6	4.6	0.0	-0.0	-0.1	-0.0
	85	1144.9	4.6	-0.0	0.0	-0.1	0.0
32	135	-214.6	4.6	0.0	-0.0	-0.0	-0.0
	85	209.0	4.6	-0.0	0.0	-0.0	0.0

33	135	566.6	4.6	-0.0	-0.0	-0.0	-0.0
	85	-572.3	4.6	-0.0	0.0	0.0	0.0
34	135	1432.7	4.6	-0.0	-0.0	0.0	-0.0
	85	-1438.3	4.6	0.0	0.0	0.1	0.0
35	135	1453.7	4.6	-0.0	-0.0	0.0	-0.0
	85	-1459.3	4.6	0.0	0.0	0.1	0.0
	85	-1173.9	4.6	0.0	0.0	0.0	0.0
1	181	16843.6	4489.7	-14.5	1.0	56.1	31962.6
	193	-16435.1	-3671.8	14.5	-1.0	-41.5	-27872.1
2	181	10998.6	1916.6	82.5	125.1	-247.9	15090.0
	193	-10672.3	-1467.7	-82.5	-125.1	165.2	-13386.8
3	181	1603.3	-1637.5	156.6	206.5	-481.5	-12340.6
	193	-1412.9	1691.8	-156.6	-206.5	324.5	10675.3
4	181	4326.1	991.5	-1.9	0.2	7.2	7602.0
	193	-4255.6	-793.1	1.9	-0.2	-5.3	-6707.6
5	181	6218.6	1271.0	61.7	42.9	-108.8	412.8
	193	-6058.8	-924.8	-61.7	-42.9	53.4	861.8
6	181	5619.2	1700.7	-60.4	-48.1	114.6	3386.0
	193	-5459.4	-1354.5	60.4	48.1	-60.3	-1706.5
7	181	7842.3	1028.7	200.0	151.2	-356.8	5036.8
	193	-7682.4	-682.5	-200.0	-151.2	177.8	-4087.6
8	181	8634.6	1250.7	196.4	153.0	-346.1	11973.4
	193	-8474.8	-904.5	-196.4	-153.0	170.6	-10898.3
9	181	8859.7	2011.1	49.7	48.9	-72.9	23534.8
	193	-8699.9	-1664.9	-49.7	-48.9	29.5	-21840.6
10	181	8260.3	2440.8	-72.5	-42.1	150.4	26508.0
	193	-8100.5	-2094.6	72.5	42.1	-84.3	-24409.0
11	181	5844.3	2461.1	-207.1	-152.2	387.7	14947.4
	193	-5684.5	-2114.9	207.1	152.2	-201.5	-12648.8
12	181	6636.7	2683.1	-210.8	-150.4	398.4	21884.0
	193	-6476.8	-2336.9	210.8	150.4	-208.6	-19459.6
21	181	11151.2	2949.1	-9.3	0.7	36.1	21073.1
	193	-10885.7	-2409.3	9.3	-0.7	-26.7	-18387.5
22	181	7294.6	1234.4	55.5	83.3	-166.7	9712.0
	193	-7080.5	-934.3	-55.5	-83.3	111.2	-8620.6
23	181	1512.5	-989.9	104.2	137.7	-320.3	-7447.4
	193	-1378.4	1046.5	-104.2	-137.7	215.8	6428.9
24	181	4892.5	1200.0	-3.0	0.2	11.7	8892.8
	193	-4796.0	-969.9	3.0	-0.2	-8.6	-7805.2
25	181	4772.3	1197.9	-3.3	0.3	12.2	9231.0
	193	-4686.1	-986.7	3.3	-0.3	-8.9	-8135.2
26	181	2882.1	682.0	-1.2	0.1	4.6	5356.9
	193	-2827.9	-552.5	1.2	-0.1	-3.4	-4738.2
27	181	3327.8	762.7	-1.4	0.1	5.5	5847.7

	193	-3273.5	-610.1	1.4	-0.1	-4.1	-5159.7
28	181	6559.3	1418.0	42.2	30.0	-69.8	4388.6
	193	-6399.5	-1071.8	-42.2	-30.0	33.5	-2984.9
29	181	6080.8	1716.2	-44.2	-33.8	85.2	6497.9
	193	-5921.0	-1370.0	44.2	33.8	-46.8	-4818.7
30	181	7761.2	1272.4	139.9	106.0	-241.4	7539.7
	193	-7601.3	-926.2	-139.9	-106.0	121.0	-6355.8
31	181	8312.8	1445.6	137.3	107.4	-233.5	12350.0
	193	-8153.0	-1099.4	-137.3	-107.4	115.8	-11078.9
32	181	8398.1	1995.6	33.5	34.6	-43.6	20422.9
	193	-8238.3	-1649.4	-33.5	-34.6	16.0	-18728.5
33	181	7919.6	2293.8	-52.9	-29.2	111.4	22532.2
	193	-7759.8	-1947.6	52.9	29.2	-64.3	-20562.2
34	181	6166.1	2266.1	-148.1	-106.6	275.2	14570.9
	193	-6006.3	-1919.9	148.1	106.6	-146.6	-12468.3
35	181	6717.8	2439.4	-150.7	-105.2	283.0	19381.2
	193	-6557.9	-2093.2	150.7	105.2	-151.8	-17191.4
1	193	16254.1	4404.7	-14.5	-0.8	41.5	27872.1
	205	-15888.1	-3627.9	14.5	0.8	-27.3	-23938.4
2	193	10595.8	1944.5	82.5	132.3	-159.4	13386.8
	205	-10263.9	-1481.5	-82.5	-132.3	78.5	-11702.7
3	193	1487.3	-1626.7	156.6	220.9	-314.9	-10675.3
	205	-1298.1	1634.8	-156.6	-220.9	161.5	9081.0
4	193	4215.7	983.0	-1.9	-0.1	5.3	6707.6
	205	-4152.6	-825.7	1.9	0.1	-3.5	-5821.8
5	193	6058.5	1147.9	39.2	45.1	-51.4	-861.8
	205	-5915.3	-833.2	-39.2	-45.1	-30.0	1951.0
6	193	5481.0	1588.4	-37.4	-50.9	58.2	1706.5
	205	-5337.8	-1273.8	37.4	50.9	21.7	-208.4
7	193	7596.9	954.0	124.1	158.9	-170.9	4087.6
	205	-7453.7	-639.4	-124.1	-158.9	-94.6	-3237.3
8	193	8338.0	1228.4	120.4	160.5	-163.7	10898.3
	205	-8194.8	-913.8	-120.4	-160.5	-98.1	-9844.0
9	193	8528.7	2062.5	26.6	50.3	-27.3	21840.6
	205	-8385.5	-1747.9	-26.6	-50.3	-42.0	-20071.1
10	193	7951.2	2503.1	-49.9	-45.7	82.3	24409.0
	205	-7808.0	-2188.4	49.9	45.7	9.8	-22230.5
11	193	5671.7	2422.5	-131.1	-161.1	194.5	12648.8
	205	-5528.5	-2107.8	131.1	161.1	77.9	-10435.5
12	193	6412.8	2696.9	-134.9	-159.5	201.7	19459.6
	205	-6269.6	-2382.2	134.9	159.5	74.3	-17042.1
21	193	10766.8	2894.7	-9.3	-0.5	26.7	18387.5
	205	-10529.0	-2386.5	9.3	0.5	-17.6	-15801.2
22	193	7031.5	1250.7	55.5	88.2	-107.3	8620.6

	205	-6815.0	-948.8	-55.5	-88.2	53.0	-7539.6
23	193	1423.9	-983.7	104.2	147.2	-209.4	-6428.9
	205	-1291.3	1005.2	-104.2	-147.2	107.3	5456.9
24	193	4747.7	1183.9	-3.0	-0.2	8.6	7805.2
	205	-4661.2	-985.4	3.0	0.2	-5.7	-6742.9
25	193	4637.2	1195.7	-3.3	-0.1	8.9	8135.2
	205	-4555.0	-1006.0	3.3	0.1	-5.7	-7056.2
26	193	2800.3	678.7	-1.2	-0.0	3.4	4738.2
	205	-2751.7	-580.2	1.2	0.0	-2.2	-4121.7
27	193	3242.9	756.2	-1.4	-0.1	4.1	5159.7
	205	-3194.3	-635.2	1.4	0.1	-2.7	-4478.3
28	193	6377.1	1331.3	25.8	31.3	-32.1	2984.9
	205	-6233.8	-1016.7	-25.8	-31.3	-25.7	-1725.0
29	193	5914.9	1637.7	-27.4	-35.9	45.2	4818.7
	205	-5771.6	-1323.1	27.4	35.9	14.2	-3278.5
30	193	7517.5	1212.5	84.7	111.3	-116.2	6355.8
	205	-7374.3	-897.9	-84.7	-111.3	-75.3	-5259.2
31	193	8032.9	1417.1	82.0	112.5	-110.9	11078.9
	205	-7889.7	-1102.4	-82.0	-112.5	-78.0	-9842.0
32	193	8094.9	2013.2	16.7	35.4	-14.4	18728.5
	205	-7951.7	-1698.6	-16.7	-35.4	-34.5	-17001.0
33	193	7632.7	2319.6	-36.6	-31.9	62.9	20562.2
	205	-7489.5	-2005.0	36.6	31.9	5.4	-18554.5
34	193	5976.8	2233.8	-92.7	-113.0	141.7	12468.3
	205	-5833.6	-1919.2	92.7	113.0	57.7	-10437.5
35	193	6492.2	2438.4	-95.5	-111.8	147.0	17191.4
	205	-6349.0	-2123.8	95.5	111.8	55.1	-15020.3
1	205	15677.2	4451.8	-14.5	-2.2	27.2	23938.4
	217	-15336.9	-3622.7	14.5	2.2	-12.4	-19814.0
2	205	10172.7	2015.0	82.5	136.2	-71.5	11702.7
	217	-9826.8	-1475.6	-82.5	-136.2	-12.8	-9911.9
3	205	1381.6	-1564.9	156.6	229.0	-149.8	-9081.0
	217	-1188.3	1544.3	-156.6	-229.0	-10.2	7496.6
4	205	4103.8	1041.2	-1.9	-0.3	3.5	5821.8
	217	-4045.0	-873.9	1.9	0.3	-1.6	-4843.6
5	205	5911.7	1076.8	20.9	45.8	28.0	-1951.0
	217	-5778.4	-741.3	-20.9	-45.8	-16.7	2970.2
6	205	5357.6	1527.4	-18.8	-52.1	-20.0	208.4
	217	-5224.4	-1191.9	18.8	52.1	5.3	1248.3
7	205	7355.2	946.4	62.7	161.7	88.3	3237.3
	217	-7222.0	-610.9	-62.7	-161.7	-41.6	-2380.2
8	205	8038.5	1285.2	58.8	163.1	91.9	9844.0
	217	-7905.3	-949.6	-58.8	-163.1	-40.9	-8688.2
9	205	8189.3	2206.1	8.0	50.5	40.2	20071.1

	217	-8056.1	-1870.6	-8.0	-50.5	-14.5	-18056.5
10	205	7635.3	2656.7	-31.7	-47.4	-7.8	22230.5
	217	-7502.1	-2321.2	31.7	47.4	7.5	-19778.4
11	205	5508.5	2448.3	-69.6	-164.7	-71.7	10435.5
	217	-5375.3	-2112.8	69.6	164.7	31.7	-8120.0
12	205	6191.8	2787.1	-73.5	-163.3	-68.1	17042.1
	217	-6058.6	-2451.6	73.5	163.3	32.4	-14428.0
21	205	10390.2	2932.6	-9.3	-1.4	17.5	15801.2
	217	-10169.0	-2390.2	9.3	1.4	-8.0	-13082.4
22	205	6756.2	1303.0	55.5	90.9	-48.3	7539.6
	217	-6531.6	-954.4	-55.5	-90.9	-8.3	-6381.7
23	205	1342.0	-936.5	104.2	152.6	-99.5	-5456.9
	217	-1207.1	939.9	-104.2	-152.6	-7.0	4500.9
24	205	4603.5	1227.3	-3.0	-0.4	5.7	6742.9
	217	-4523.0	-1015.8	3.0	0.4	-2.6	-5597.2
25	205	4496.3	1242.2	-3.3	-0.4	5.6	7056.2
	217	-4415.2	-1029.2	3.3	0.4	-2.3	-5895.0
26	205	2717.6	722.9	-1.2	-0.2	2.2	4121.7
	217	-2672.4	-617.7	1.2	0.2	-1.0	-3436.9
27	205	3156.8	800.9	-1.4	-0.2	2.7	4478.3
	217	-3111.6	-672.2	1.4	0.2	-1.2	-3725.9
28	205	6204.4	1302.0	-15.1	31.7	24.3	1725.0
	217	-6071.2	-966.4	15.1	-31.7	-14.1	-481.4
29	205	5760.0	1616.7	13.8	-37.0	-13.1	3278.5
	217	-5626.8	-1281.2	-13.8	37.0	3.2	-1732.9
30	205	7276.8	1220.0	-52.1	113.2	71.0	5259.2
	217	-7143.6	-884.4	52.1	-113.2	-33.6	-4129.1
31	205	7751.6	1464.4	-54.9	114.3	73.7	9842.0
	217	-7618.4	-1128.9	54.9	-114.3	-33.1	-8507.3
32	205	7786.9	2116.8	-24.6	35.4	33.3	17001.0
	217	-7653.7	-1781.3	24.6	-35.4	-12.4	-15075.3
33	205	7342.5	2431.5	4.3	-33.4	-4.1	18554.5
	217	-7209.3	-2096.0	-4.3	33.4	4.9	-16326.9
34	205	5795.4	2269.1	44.2	-115.9	-53.5	10437.5
	217	-5662.2	-1933.6	-44.2	115.9	23.9	-8300.9
35	205	6270.1	2513.5	41.3	-114.8	-50.8	15020.3
	217	-6136.9	-2178.0	-41.3	114.8	24.4	-12679.1
1	217	15246.8	3984.7	-14.5	-2.5	12.3	19814.0
	229	-14932.0	-3164.7	14.5	2.5	2.2	-16236.1
2	217	9789.2	1707.7	82.5	135.9	16.0	9911.9
	229	-9433.5	-1096.7	-82.5	-135.9	-98.6	-8501.0
3	217	1224.5	-1515.7	156.6	228.7	15.6	-7496.6
	229	-1028.9	1516.6	-156.6	-228.7	-172.3	5982.6
4	217	4023.2	969.4	-1.9	-0.3	1.6	4843.6

	229	-3968.9	-804.1	1.9	0.3	0.3	-3956.1
5	217	5820.1	814.7	-22.8	45.6	17.0	-2970.2
	229	-5696.8	-482.9	22.8	-45.6	7.2	3691.3
6	217	5285.3	1265.7	25.3	-52.2	-5.6	-1248.3
	229	-5162.1	-934.0	-25.3	52.2	-20.0	2388.9
7	217	7178.5	741.9	-83.6	161.4	42.5	2380.2
	229	-7055.3	-410.2	83.6	-161.4	44.1	-1733.7
8	217	7808.2	1130.6	-87.6	162.8	41.8	8688.2
	229	-7685.0	-798.8	87.6	-162.8	48.4	-7686.1
9	217	7919.0	2110.2	-36.1	50.3	14.7	18056.5
	229	-7795.8	-1778.5	36.1	-50.3	21.7	-16150.2
10	217	7384.3	2561.2	12.1	-47.5	-7.8	19778.4
	229	-7261.1	-2229.5	-12.1	47.5	-5.5	-17452.7
11	217	5396.1	2245.3	76.8	-164.6	-32.7	8120.0
	229	-5272.9	-1913.6	-76.8	164.6	-46.8	-6075.2
12	217	6025.8	2634.0	72.8	-163.2	-33.4	14428.0
	229	-5902.6	-2302.2	-72.8	163.2	-42.4	-12027.7
21	217	10109.5	2630.2	-9.3	-1.6	7.9	13082.4
	229	-9904.9	-2093.9	9.3	1.6	1.4	-10718.2
22	217	6507.1	1108.7	55.5	90.6	10.5	6381.7
	229	-6277.0	-715.9	-55.5	-90.6	-66.0	-5463.9
23	217	1229.0	-911.1	104.2	152.4	10.6	-4500.9
	229	-1093.0	928.6	-104.2	-152.4	-114.9	3582.6
24	217	4497.7	1122.6	-3.0	-0.5	2.6	5597.2
	229	-4423.4	-913.6	3.0	0.5	0.5	-4578.2
25	217	4389.6	1133.4	-3.3	-0.4	2.3	5895.0
	229	-4310.1	-911.6	3.3	0.4	1.0	-4870.6
26	217	2657.1	680.8	-1.2	-0.2	1.0	3436.9
	229	-2615.2	-576.6	1.2	0.2	0.2	-2807.6
27	217	3094.8	745.7	-1.4	-0.2	1.2	3725.9
	229	-3053.0	-618.5	1.4	0.2	0.2	-3043.1
28	217	6088.0	1071.3	-19.7	31.6	14.2	481.4
	229	-5964.8	-739.6	19.7	-31.6	6.4	491.7
29	217	5658.6	1387.0	18.7	-37.1	-3.3	1732.9
	229	-5535.3	-1055.3	-18.7	37.1	-15.5	-470.5
30	217	7099.3	1024.1	-67.8	113.0	34.0	4129.1
	229	-6976.1	-692.4	67.8	-113.0	35.8	-3209.5
31	217	7536.6	1299.4	-70.7	114.1	33.5	8507.3
	229	-7413.4	-967.6	70.7	-114.1	39.0	-7344.3
32	217	7545.8	1988.9	-29.4	35.2	12.4	15075.3
	229	-7422.5	-1657.1	29.4	-35.2	17.1	-13290.8
33	217	7116.3	2304.6	8.9	-33.5	-5.1	16326.9
	229	-6993.1	-1972.8	-8.9	33.5	-4.8	-14253.0
34	217	5667.7	2076.5	59.9	-115.9	-24.3	8300.9
	229	-5544.5	-1744.8	-59.9	115.9	-37.3	-6417.0

35	217	6105.0	2351.8	57.0	-114.9	-24.8	12679.1
	229	-5981.8	-2020.0	-57.0	114.9	-34.1	-10551.8
1	229	14721.6	3716.3	-4.5	6.9	24.9	16276.5
	241	-14449.3	-2888.0	4.5	-6.9	-20.4	-12997.5
2	229	10721.3	1485.2	128.3	36.1	-172.7	8344.3
	241	-10406.8	-842.0	-128.3	-36.1	45.3	-7193.0
3	229	3355.9	-1473.9	228.1	44.5	-330.9	-6282.7
	241	-3183.5	1493.5	-228.1	-44.5	104.4	4807.6
4	229	3860.6	800.7	-0.6	0.9	3.1	3960.8
	241	-3813.6	-634.2	0.6	-0.9	-2.5	-3248.3
5	229	5965.9	548.3	97.0	4.7	-111.8	-3731.5
	241	-5859.3	-213.4	-97.0	-4.7	17.9	4152.4
6	229	4923.8	931.7	-78.6	-22.7	87.5	-2320.9
	241	-4817.2	-596.8	78.6	22.7	-11.9	3097.2
7	229	7824.8	652.1	294.3	44.7	-329.4	1567.9
	241	-7718.3	-317.2	-294.3	-44.7	45.2	-1035.7
8	229	8376.2	1124.3	287.8	51.6	-316.6	7520.9
	241	-8269.6	-789.4	-287.8	-51.6	38.9	-6537.8
9	229	7803.7	2122.5	75.2	27.8	-69.1	16111.7
	241	-7697.2	-1787.6	-75.2	-27.8	-3.2	-14187.9
10	229	6761.7	2505.8	-100.4	0.4	130.2	17522.3
	241	-6655.1	-2170.9	100.4	-0.4	-32.9	-15243.0
11	229	4351.3	1929.8	-291.1	-46.5	334.9	6269.9
	241	-4244.7	-1594.9	291.1	46.5	-53.9	-4552.9
12	229	4902.7	2402.0	-297.7	-39.6	347.7	12222.9
	241	-4796.1	-2067.1	297.7	39.6	-60.2	-10055.0
21	229	9757.8	2438.2	-2.9	4.4	16.0	10744.1
	241	-9580.8	-1896.5	2.9	-4.4	-13.1	-8592.0
22	229	7128.2	953.4	85.9	23.6	-116.2	5358.7
	241	-6924.9	-540.3	-85.9	-23.6	30.9	-4619.6
23	229	2633.2	-900.5	152.0	29.8	-220.3	-3782.3
	241	-2513.5	930.6	-152.0	-29.8	69.3	2871.9
24	229	4327.3	980.4	-0.9	1.4	5.1	4586.2
	241	-4263.0	-769.6	0.9	-1.4	-4.2	-3717.4
25	229	4215.5	972.3	-1.9	2.2	6.7	4878.0
	241	-4145.9	-746.0	1.9	-2.2	-4.8	-4025.4
26	229	2534.1	551.8	-0.4	0.5	2.0	2810.6
	241	-2497.9	-446.6	0.4	-0.5	-1.6	-2314.9
27	229	2969.7	615.9	-0.5	0.7	2.4	3046.7
	241	-2933.5	-487.8	0.5	-0.7	-1.9	-2498.7
28	229	6120.5	842.8	67.1	3.8	-75.5	-514.9
	241	-6013.9	-507.9	-67.1	-3.8	-10.8	1224.6
29	229	5330.9	1113.3	-54.7	-15.6	62.9	522.0
	241	-5224.4	-778.4	54.7	15.6	11.0	436.0

30	229	7488.2	911.4	203.7	32.3	-226.1	3099.6
	241	-7381.6	-576.5	-203.7	-32.3	-41.6	-2318.2
31	229	7871.1	1240.8	199.0	37.3	-216.9	7234.7
	241	-7764.5	-905.9	-199.0	-37.3	-46.2	-6143.6
32	229	7396.6	1940.8	51.3	20.6	-44.6	13268.8
	241	-7290.0	-1605.9	-51.3	-20.6	-26.1	-11526.7
33	229	6607.1	2211.3	-70.5	1.3	93.9	14305.7
	241	-6500.5	-1876.4	70.5	-1.3	-4.3	-12315.3
34	229	4856.5	1813.3	-202.3	-32.2	235.2	6556.1
	241	-4749.9	-1478.4	202.3	32.2	31.1	-4947.1
35	229	5239.3	2142.7	-207.1	-27.2	244.5	10691.2
	241	-5132.7	-1807.8	207.1	27.2	26.5	-8772.5
1	241	14311.2	3508.8	-4.5	6.0	20.7	12997.5
	253	-14064.4	-2636.8	4.5	-6.0	-16.0	-9827.6
2	241	10360.8	1290.3	128.3	38.0	-43.7	7193.0
	253	-10098.7	-687.3	-128.3	-38.0	-88.6	-6181.9
3	241	3244.9	-1354.7	228.1	49.0	-102.4	-4807.6
	253	-3099.5	1345.5	-228.1	-49.0	-132.9	3410.6
4	241	3782.7	798.2	-0.6	0.8	2.5	3248.3
	253	-3740.1	-623.2	0.6	-0.8	-1.9	-2515.2
5	241	5918.9	395.5	69.0	5.4	-17.7	-4152.4
	253	-5822.3	-43.1	-69.0	-5.4	-56.1	3691.7
6	241	4876.0	747.2	-50.5	-23.2	10.9	-3097.2
	253	-4779.4	-394.8	50.5	23.2	43.2	4414.3
7	241	7697.3	608.1	200.8	46.5	-43.3	1035.7
	253	-7600.7	-255.7	-200.8	-46.5	-171.6	-2942.3
8	241	8178.8	1141.9	194.3	53.1	-36.7	6537.8
	253	-8082.2	-789.5	-194.3	-53.1	-171.3	-7906.0
9	241	7523.9	2174.9	47.2	27.6	4.3	14187.9
	253	-7427.3	-1822.5	-47.2	-27.6	-55.0	-12854.1
10	241	6481.0	2526.5	-72.4	-1.0	32.9	15243.0
	253	-6384.4	-2174.1	72.4	1.0	44.3	-12131.6
11	241	4221.0	1780.2	-197.6	-48.7	52.0	4552.9
	253	-4124.5	-1427.8	197.6	48.7	159.5	-533.8
12	241	4702.5	2314.0	-204.2	-42.1	58.6	10055.0
	253	-4606.0	-1961.6	204.2	42.1	159.9	-5497.6
21	241	9490.1	2308.1	-2.9	3.8	13.3	8592.0
	253	-9329.7	-1737.9	2.9	-3.8	-10.3	-6505.0
22	241	6895.1	838.6	85.9	25.0	-29.8	4619.6
	253	-6725.1	-449.9	-85.9	-25.0	-58.8	-3960.6
23	241	2551.3	-821.3	152.0	32.7	-68.0	-2871.9
	253	-2449.9	833.1	-152.0	-32.7	-88.8	2015.7
24	241	4225.8	952.8	-0.9	1.2	4.2	3717.4
	253	-4167.5	-731.1	0.9	-1.2	-3.2	-2848.8

25	241	4109.9	924.2	-1.9	2.0	4.9	4025.4
	253	-4049.7	-695.9	1.9	-2.0	-2.9	-3190.8
26	241	2476.3	553.9	-0.4	0.5	1.6	2314.9
	253	-2443.5	-443.1	0.4	-0.5	-1.2	-1800.6
27	241	2909.7	614.0	-0.5	0.6	1.9	2498.7
	253	-2877.0	-479.4	0.5	-0.6	-1.5	-1934.8
28	241	6035.8	717.8	47.8	4.2	10.1	-1224.6
	253	-5939.2	-365.4	-47.8	-4.2	-40.8	1261.6
29	241	5249.0	968.5	-35.4	-16.0	-10.9	-436.0
	253	-5152.4	-616.1	35.4	16.0	28.2	1814.8
30	241	7344.1	857.9	139.3	33.5	40.2	2318.2
	253	-7247.5	-505.5	-139.3	-33.5	-120.9	-3414.4
31	241	7678.6	1228.6	134.5	38.3	45.0	6143.6
	253	-7582.0	-876.2	-134.5	-38.3	-120.6	-6869.3
32	241	7150.9	1953.5	32.0	20.4	26.1	11526.7
	253	-7054.3	-1601.1	-32.0	-20.4	-39.9	-10254.6
33	241	6364.0	2204.2	-51.2	0.2	5.1	12315.3
	253	-6267.4	-1851.8	51.2	-0.2	29.0	-9701.4
34	241	4721.2	1693.5	-137.9	-33.9	-29.8	4947.1
	253	-4624.6	-1341.1	137.9	33.9	108.9	-1570.5
35	241	5055.7	2064.2	-142.7	-29.0	-25.0	8772.5
	253	-4959.2	-1711.8	142.7	29.0	109.1	-5025.4
1	253	13994.1	2987.8	-4.5	5.6	16.2	9827.6
	265	-13781.4	-2160.1	4.5	-5.6	-11.8	-7324.0
2	253	10078.3	939.7	128.3	35.8	89.5	6181.9
	265	-9877.6	-460.0	-128.3	-35.8	-214.3	-5508.6
3	253	3132.1	-1267.5	228.1	45.6	134.1	-3410.6
	265	-3018.5	1217.7	-228.1	-45.6	-355.9	2198.5
4	253	3723.3	716.5	-0.6	0.7	1.9	2515.2
	265	-3686.6	-550.6	0.6	-0.7	-1.4	-1899.0
5	253	5896.1	127.7	40.7	4.1	56.4	-3691.7
	265	-5812.9	206.7	-40.7	-4.1	-93.8	3950.4
6	253	4855.0	449.0	-22.5	-22.1	-43.6	-4414.3
	265	-4771.8	-114.5	22.5	22.1	64.1	4415.8
7	253	7599.4	433.8	106.9	42.5	172.7	2942.3
	265	-7516.1	-99.3	-106.9	-42.5	-270.6	-1730.0
8	253	8018.3	1017.3	100.4	49.1	172.4	7906.0
	265	-7935.0	-682.9	-100.4	-49.1	-264.3	-6133.5
9	253	7292.4	2072.9	19.1	26.3	55.4	12854.1
	265	-7209.1	-1738.5	-19.1	-26.3	-72.7	-10727.9
10	253	6251.3	2394.2	-44.1	0.0	-44.5	12131.6
	265	-6168.0	-2059.7	44.1	-0.0	85.2	-10262.5
11	253	4129.1	1504.6	-103.8	-45.0	-160.6	533.8
	265	-4045.9	-1170.1	103.8	45.0	255.7	-178.6

12	253	4548.0	2088.2	-110.2	-38.3	-160.9	5497.6
	265	-4464.7	-1753.7	110.2	38.3	262.0	-4582.1
21	253	9283.3	1970.7	-2.9	3.6	10.4	6505.0
	265	-9145.1	-1429.5	2.9	-3.6	-7.6	-4851.4
22	253	6711.8	618.0	85.9	23.5	59.4	3960.6
	265	-6581.0	-306.9	-85.9	-23.5	-143.0	-3515.4
23	253	2470.0	-771.5	152.0	30.5	89.6	-2015.7
	265	-2390.5	755.3	-152.0	-30.5	-237.4	1270.9
24	253	4147.9	835.1	-0.9	1.2	3.3	2848.8
	265	-4097.7	-624.7	0.9	-1.2	-2.3	-2138.9
25	253	4031.0	797.0	-1.9	2.0	2.9	3190.8
	265	-3982.2	-592.3	1.9	-2.0	-1.1	-2516.1
26	253	2431.7	504.0	-0.4	0.4	1.2	1800.6
	265	-2403.4	-398.8	0.4	-0.4	-0.8	-1361.5
27	253	2864.1	551.2	-0.5	0.5	1.5	1934.8
	265	-2835.8	-423.5	0.5	-0.5	-1.0	-1460.8
28	253	5979.5	471.5	28.7	3.3	40.2	-1261.6
	265	-5896.3	-137.0	-28.7	-3.3	-66.8	1773.3
29	253	5196.5	701.5	-16.5	-15.3	-29.1	-1814.8
	265	-5113.2	-367.0	16.5	15.3	43.1	2142.3
30	253	7233.1	675.3	75.8	30.7	121.4	3414.4
	265	-7149.8	-340.8	-75.8	-30.7	-189.9	-2237.1
31	253	7524.5	1080.0	71.2	35.6	121.7	6869.3
	265	-7441.2	-745.5	-71.2	-35.6	-185.3	-5305.4
32	253	6950.9	1820.4	13.1	19.5	41.0	10254.6
	265	-6867.6	-1486.0	-13.1	-19.5	-51.7	-8454.5
33	253	6167.9	2050.4	-32.0	0.8	-28.4	9701.4
	265	-6084.6	-1716.0	32.0	-0.8	58.2	-8085.4
34	253	4622.9	1442.0	-74.5	-31.4	-109.8	1570.5
	265	-4539.7	-1107.5	74.5	31.4	176.7	-1006.8
35	253	4914.3	1846.6	-79.2	-26.6	-109.6	5025.4
	265	-4831.1	-1512.2	79.2	26.6	181.3	-4075.1
1	336	13404.9	268.4	-0.3	0.5	-19.6	0.0
	328	-13421.9	611.1	0.3	-0.5	19.9	-171.4
2	336	7451.0	1551.0	10.2	0.7	-98.1	0.0
	328	-7456.0	-1585.3	-10.2	-0.7	87.9	1585.4
3	336	-902.3	29.4	-32.2	15.4	-144.8	0.0
	328	898.4	-325.3	32.2	-15.4	177.1	185.3
4	336	3520.0	70.7	-0.3	0.1	-2.3	0.0
	328	-3523.0	104.8	0.3	-0.1	2.6	-17.1
5	336	5185.3	-1218.3	-62.8	19.1	-40.4	0.0
	328	-5192.0	1573.3	62.8	-19.1	102.9	-1396.1
6	336	6541.6	-1231.3	-30.9	17.6	26.7	0.0
	328	-6548.2	1586.3	30.9	-17.6	4.5	-1409.1

7	336	3556.4	-264.4	-67.4	8.1	-118.9	0.0
	328	-3563.0	619.5	67.4	-8.1	185.3	-442.0
8	336	3516.3	540.1	-39.4	-2.8	-119.1	0.0
	328	-3523.0	-185.1	39.4	2.8	157.5	362.7
9	336	5051.9	1463.6	30.4	-17.2	-41.1	0.0
	328	-5058.6	-1108.6	-30.4	17.2	10.3	1286.4
10	336	6408.1	1450.6	62.4	-18.7	26.0	0.0
	328	-6414.8	-1095.6	-62.4	18.7	-88.1	1273.4
11	336	8077.2	-307.8	39.0	3.2	104.7	0.0
	328	-8083.8	662.8	-39.0	-3.2	-142.7	-485.4
12	336	8037.1	496.8	67.0	-7.7	104.5	0.0
	328	-8043.8	-141.8	-67.0	7.7	-170.5	319.3
21	336	8885.8	178.0	-0.2	0.3	-12.6	0.0
	328	-8896.8	397.1	0.2	-0.3	12.8	-109.6
22	336	4946.7	954.0	5.1	1.0	-65.0	0.0
	328	-4950.2	-963.1	-5.1	-1.0	60.0	969.3
23	336	-240.5	26.8	-21.5	10.3	-96.8	0.0
	328	237.6	-206.1	21.5	-10.3	118.3	121.8
24	336	3943.3	79.1	-0.2	0.1	-4.0	0.0
	328	-3947.4	143.9	0.2	-0.1	4.2	-32.4
25	336	3852.8	316.2	4.9	-1.4	-3.6	0.0
	328	-3855.4	-168.4	-4.9	1.4	-1.4	244.5
26	336	2268.8	45.6	-0.2	0.1	-1.5	0.0
	328	-2271.1	66.4	0.2	-0.1	1.7	-10.4
27	336	2707.7	54.4	-0.2	0.1	-1.8	0.0
	328	-2710.0	80.6	0.2	-0.1	2.0	-13.1
28	336	5311.5	-816.5	-44.5	13.9	-30.2	0.0
	328	-5318.2	1171.6	44.5	-13.9	74.4	-994.2
29	336	6374.6	-826.8	-22.1	12.9	16.3	0.0
	328	-6381.2	1181.9	22.1	-12.9	6.1	-1004.6
30	336	4038.9	-147.9	-47.4	5.9	-84.7	0.0
	328	-4045.5	503.0	47.4	-5.9	131.2	-325.5
31	336	4011.1	414.8	-27.6	-2.1	-84.9	0.0
	328	-4017.7	-59.7	27.6	2.1	111.5	237.3
32	336	5218.9	1059.2	21.7	-12.5	-30.7	0.0
	328	-5225.6	-704.2	-21.7	12.5	8.8	881.9
33	336	6282.0	1048.9	44.1	-13.5	15.8	0.0
	328	-6288.7	-693.8	-44.1	13.5	-59.6	871.5
34	336	7582.4	-182.4	27.2	2.5	70.5	0.0
	328	-7589.1	537.4	-27.2	-2.5	-96.7	-360.0
35	336	7554.6	380.3	47.0	-5.5	70.3	0.0
	328	-7561.3	-25.3	-47.0	5.5	-116.4	202.8
1	110	21119.0	4106.2	2.3	74.0	24.5	36753.4
	98	-21893.4	-3765.9	-2.3	-74.0	-26.7	-32840.9

2	110	12831.4	2236.8	-25.1	-121.0	-298.9	24044.8
	98	-13062.0	-2445.0	25.1	121.0	323.8	-21720.8
3	110	-2470.5	368.9	-46.0	-259.4	-516.3	3459.4
	98	2291.4	-806.0	46.0	259.4	562.0	-2876.8
4	110	5327.9	946.2	2.1	9.8	4.4	8840.5
	98	-5461.7	-887.4	-2.1	-9.8	-6.5	-7929.1
5	110	9143.7	2901.4	-12.3	4.7	-75.4	21381.3
	98	-9446.8	-2768.1	12.3	-4.7	76.8	-18557.1
6	110	11502.6	3252.3	12.6	84.4	105.5	25517.5
	98	-11805.7	-3119.1	-12.6	-84.4	-107.3	-22366.2
7	110	5488.6	1538.9	-40.3	-100.0	-290.2	11007.2
	98	-5791.7	-1405.7	40.3	100.0	294.4	-9509.0
8	110	4714.6	722.1	-39.3	-110.2	-293.4	6251.5
	98	-5017.7	-588.8	39.3	110.2	296.7	-5562.6
9	110	6563.6	178.4	-9.2	-29.2	-86.2	5528.8
	98	-6866.7	-45.2	9.2	29.2	84.6	-5402.3
10	110	8922.5	529.3	15.7	50.4	94.7	9665.1
	98	-9225.6	-396.1	-15.7	-50.4	-99.5	-9211.4
11	110	13351.6	2708.6	42.7	165.4	312.7	24794.8
	98	-13654.7	-2575.4	-42.7	-165.4	-319.4	-22206.0
12	110	12577.6	1891.8	43.6	155.2	309.5	20039.1
	98	-12880.7	-1758.5	-43.6	-155.2	-317.0	-18259.5
21	110	13967.8	2702.9	1.7	47.6	15.9	24246.0
	98	-14471.1	-2481.7	-1.7	-47.6	-17.7	-21669.2
22	110	8394.5	1493.3	-16.6	-81.5	-199.3	15868.0
	98	-8557.9	-1627.9	16.6	81.5	215.8	-14318.5
23	110	-1100.6	343.0	-30.4	-171.9	-343.7	3212.9
	98	967.4	-628.4	30.4	171.9	374.0	-2731.1
24	110	6072.3	1122.8	1.6	15.5	5.9	10289.5
	98	-6255.2	-1042.4	-1.6	-15.5	-7.5	-9213.3
25	110	6217.1	1012.5	1.9	12.8	5.0	10006.1
	98	-6332.1	-962.0	-1.9	-12.8	-6.9	-9025.1
26	110	3654.3	648.2	1.6	6.2	3.0	6299.2
	98	-3757.2	-625.9	-1.6	-6.2	-4.5	-5666.0
27	110	4098.4	727.8	1.6	7.5	3.4	6800.4
	98	-4201.3	-682.6	-1.6	-7.5	-5.0	-6099.3
28	110	9134.7	2535.0	-9.5	12.3	-49.3	19605.6
	98	-9437.8	-2401.8	9.5	-12.3	49.7	-17146.4
29	110	10772.5	2785.8	10.5	67.7	76.4	22479.2
	98	-11075.6	-2652.6	-10.5	-67.7	-78.0	-19790.4
30	110	6579.6	1580.9	-32.0	-61.0	-198.6	12389.7
	98	-6882.7	-1447.7	32.0	61.0	200.7	-10852.8
31	110	6027.3	1013.8	-31.3	-68.5	-200.9	9078.1
	98	-6330.4	-880.6	31.3	68.5	202.4	-8102.3
32	110	7293.7	644.9	-7.2	-12.5	-57.1	8567.1

	98	-7596.8	-511.7	7.2	12.5	55.3	-7978.1
33	110	8931.5	895.7	12.8	42.9	68.6	11440.7
	98	-9234.6	-762.5	-12.8	-42.9	-72.4	-10622.1
34	110	12038.9	2416.9	34.6	123.6	220.2	21968.2
	98	-12342.0	-2283.6	-34.6	-123.6	-225.1	-19666.2
35	110	11486.6	1849.8	35.3	116.2	217.9	18656.6
	98	-11789.7	-1716.6	-35.3	-116.2	-223.4	-16915.7
1	335	13405.8	268.3	-0.2	-0.4	19.8	0.0
	326	-13422.8	611.3	0.2	0.4	-19.6	-171.5
2	335	7440.4	1550.6	-10.7	3.2	-90.0	0.0
	326	-7445.4	-1584.9	10.7	-3.2	100.7	1585.0
3	335	-920.6	28.8	31.7	-9.0	-168.8	0.0
	326	916.7	-324.7	-31.7	9.0	137.1	184.7
4	335	3520.9	70.6	-0.2	-0.0	2.5	0.0
	326	-3523.9	105.0	0.2	0.0	-2.3	-17.2
5	335	6542.2	-1231.3	30.7	-17.6	-26.6	0.0
	326	-6548.9	1586.3	-30.7	17.6	-4.5	-1409.1
6	335	5186.0	-1218.2	62.6	-19.1	40.5	0.0
	326	-5192.7	1573.3	-62.6	19.1	-102.8	-1396.0
7	335	8077.8	-307.9	-39.3	-3.1	-104.6	0.0
	326	-8084.4	662.9	39.3	3.1	142.8	-485.5
8	335	8037.8	496.6	-67.4	7.8	-104.4	0.0
	326	-8044.4	-141.6	67.4	-7.8	170.7	319.2
9	335	6408.9	1450.4	-62.9	18.9	-25.8	0.0
	326	-6415.5	-1095.3	62.9	-18.9	88.5	1273.1
10	335	5052.7	1463.4	-31.0	17.4	41.3	0.0
	326	-5059.3	-1108.3	31.0	-17.4	-9.9	1286.1
11	335	3557.1	-264.5	67.1	-8.0	119.0	0.0
	326	-3563.7	619.5	-67.1	8.0	-185.1	-442.1
12	335	3517.1	540.0	39.0	2.9	119.3	0.0
	326	-3523.7	-185.0	-39.0	-2.9	-157.2	362.5
21	335	8886.4	177.8	-0.2	-0.2	12.7	0.0
	326	-8897.5	397.2	0.2	0.2	-12.6	-109.7
22	335	4939.7	953.7	-5.4	1.6	-60.4	0.0
	326	-4943.2	-962.8	5.4	-1.6	65.8	969.1
23	335	-252.6	26.4	21.1	-6.0	-112.3	0.0
	326	249.7	-205.7	-21.1	6.0	91.2	121.4
24	335	3944.0	79.0	-0.2	-0.0	4.1	0.0
	326	-3948.0	144.1	0.2	0.0	-3.9	-32.5
25	335	3853.5	316.0	-5.3	1.5	3.7	0.0
	326	-3856.0	-168.3	5.3	-1.5	1.6	244.3
26	335	2269.5	45.5	-0.2	0.0	1.6	0.0
	326	-2271.8	66.5	0.2	-0.0	-1.4	-10.5
27	335	2708.4	54.3	-0.2	-0.0	1.9	0.0

	326	-2710.7	80.8	0.2	0.0	-1.8	-13.2
28	335	6375.2	-826.9	21.9	-12.9	-16.2	0.0
	326	-6381.9	1181.9	-21.9	12.9	-6.0	-1004.6
29	335	5312.2	-816.5	44.2	-13.9	30.3	0.0
	326	-5318.8	1171.6	-44.2	13.9	-74.3	-994.3
30	335	7583.1	-182.5	-27.5	-2.4	-70.3	0.0
	326	-7589.7	537.6	27.5	2.4	96.8	-360.1
31	335	7555.3	380.1	-47.4	5.6	-70.2	0.0
	326	-7562.0	-25.1	47.4	-5.6	116.6	202.7
32	335	6282.7	1048.7	-44.6	13.7	-15.7	0.0
	326	-6289.4	-693.6	44.6	-13.7	60.0	871.3
33	335	5219.7	1059.0	-22.2	12.7	30.9	0.0
	326	-5226.3	-704.0	22.2	-12.7	-8.4	881.7
34	335	4039.6	-148.0	47.1	-5.8	84.8	0.0
	326	-4046.2	503.1	-47.1	5.8	-131.0	-325.6
35	335	4011.8	414.6	27.2	2.2	85.0	0.0
	326	-4018.5	-59.6	-27.2	-2.2	-111.2	237.2
1	328	13047.5	-259.5	6.9	1.8	-28.9	123.6
	316	-13098.5	1130.3	-6.9	-1.8	22.0	-812.9
2	328	6091.7	1745.1	108.2	8.8	-163.2	-1757.3
	316	-6119.0	-1574.3	-108.2	-8.8	55.9	3420.7
3	328	-2858.9	182.9	173.7	27.1	-251.1	-429.6
	316	2841.4	-380.5	-173.7	-27.1	78.8	717.1
4	328	3479.0	-174.8	0.7	0.3	-3.4	11.6
	316	-3487.8	348.6	-0.7	-0.3	2.6	-271.2
5	328	5276.2	-1435.0	82.7	22.5	-96.1	1323.6
	316	-5296.2	1786.5	-82.7	-22.5	19.4	-2944.5
6	328	6304.3	-1499.9	-85.7	13.3	64.3	1444.0
	316	-6324.3	1851.5	85.7	-13.3	5.5	-3082.6
7	328	3990.0	-444.7	281.9	21.2	-279.4	245.3
	316	-4010.0	796.2	-281.9	-21.2	32.5	-938.5
8	328	3915.6	339.2	284.3	10.9	-276.2	-558.7
	316	-3935.6	12.3	-284.3	-10.9	29.9	642.9
9	328	5028.3	1178.1	90.6	-11.9	-85.4	-1356.1
	316	-5048.3	-826.6	-90.6	11.9	10.7	2326.8
10	328	6056.4	1113.2	-77.7	-21.1	75.0	-1235.7
	316	-6076.4	-761.7	77.7	21.1	-3.2	2188.8
11	328	7417.0	-661.1	-279.3	-9.5	255.1	646.6
	316	-7436.9	1012.6	279.3	9.5	-13.7	-1398.7
12	328	7342.6	122.9	-276.9	-19.8	258.3	-157.3
	316	-7362.6	228.7	276.9	19.8	-16.3	182.7
21	328	8656.4	-187.4	4.4	1.2	-18.5	79.0
	316	-8689.6	756.7	-4.4	-1.2	14.2	-547.2
22	328	4046.0	1046.6	72.0	6.3	-108.5	-1083.1

	316	-4064.4	-927.7	-72.0	-6.3	37.1	2073.0
23	328	-1549.1	104.0	115.9	18.1	-167.7	-285.2
	316	1536.6	-217.9	-115.9	-18.1	52.8	450.3
24	328	3872.2	-145.0	1.3	0.4	-5.8	23.0
	316	-3884.3	365.9	-1.3	-0.4	4.5	-276.3
25	328	3791.9	162.1	1.2	-1.1	-4.6	-252.6
	316	-3801.0	9.8	-1.2	1.1	3.4	330.3
26	328	2245.0	-138.5	0.5	0.2	-2.1	7.0
	316	-2251.8	249.4	-0.5	-0.2	1.7	-199.4
27	328	2676.1	-134.4	0.6	0.2	-2.6	9.0
	316	-2682.9	268.2	-0.6	-0.2	2.0	-208.6
28	328	5345.5	-1048.1	58.1	16.4	-70.5	938.7
	316	-5365.5	1399.7	-58.1	-16.4	16.7	-2172.2
29	328	6167.9	-1099.9	-59.3	10.0	40.9	1023.2
	316	-6187.9	1451.4	59.3	-10.0	5.7	-2268.9
30	328	4322.7	-348.6	197.1	15.1	-197.5	184.3
	316	-4342.7	700.1	-197.1	-15.1	27.4	-769.5
31	328	4268.5	199.3	199.0	7.6	-194.9	-377.9
	316	-4288.5	152.3	-199.0	-7.6	25.5	336.1
32	328	5164.7	778.1	64.3	-8.6	-62.0	-935.3
	316	-5184.6	-426.5	-64.3	8.6	10.5	1513.1
33	328	5987.1	726.3	-53.1	-15.0	49.4	-850.8
	316	-6007.1	-374.8	53.1	15.0	-0.6	1416.4
34	328	7064.1	-521.1	-194.0	-6.2	173.8	465.9
	316	-7084.1	872.6	194.0	6.2	-9.3	-1091.8
35	328	7009.9	26.8	-192.1	-13.7	176.4	-96.4
	316	-7029.8	324.8	192.1	13.7	-11.2	13.8
1	316	13132.7	-617.0	6.9	2.7	-21.9	812.9
	304	-13217.8	1496.7	-6.9	-2.7	15.0	-1875.0
2	316	6052.7	1812.5	108.2	11.0	-55.5	-3420.7
	304	-6118.9	-1434.6	-108.2	-11.0	-53.2	5069.2
3	316	-2854.1	269.1	173.7	30.1	-77.7	-717.1
	304	2815.3	-373.5	-173.7	-30.1	-96.9	1047.9
4	316	3498.8	-211.9	0.7	0.4	-2.6	271.2
	304	-3513.5	387.6	-0.7	-0.4	1.9	-572.4
5	316	5437.0	-1517.2	46.7	22.8	-19.1	2944.5
	304	-5470.3	1872.4	-46.7	-22.8	-40.9	-4679.8
6	316	6472.8	-1607.3	-49.8	13.8	-5.1	3082.6
	304	-6506.1	1962.4	49.8	-13.8	63.4	-4843.8
7	316	4051.6	-521.3	162.2	21.2	-32.6	938.5
	304	-4084.9	876.4	-162.2	-21.2	-166.5	-1748.4
8	316	3899.8	242.3	164.6	10.8	-30.2	-642.9
	304	-3933.1	112.8	-164.6	-10.8	-169.9	600.3
9	316	4931.1	1028.1	54.8	-11.8	-11.1	-2326.8

	304	-4964.4	-673.0	-54.8	11.8	-52.3	3149.1
10	316	5966.9	938.1	-41.7	-20.8	3.0	-2188.8
	304	-6000.2	-582.9	41.7	20.8	52.0	2985.1
11	316	7504.1	-821.5	-159.7	-8.8	14.1	1398.7
	304	-7537.4	1176.6	159.7	8.8	181.1	-2295.0
12	316	7352.3	-57.9	-157.2	-19.1	16.5	-182.7
	304	-7385.6	413.0	157.2	19.1	177.6	53.7
21	316	8712.6	-416.2	4.4	1.7	-14.1	547.2
	304	-8767.9	991.3	-4.4	-1.7	9.7	-1254.4
22	316	4025.0	1086.0	72.0	7.8	-36.8	-2073.0
	304	-4068.5	-837.5	-72.0	-7.8	-35.5	3050.1
23	316	-1543.9	157.7	115.9	20.1	-52.1	-450.3
	304	1516.5	-209.2	-115.9	-20.1	-64.4	639.9
24	316	3895.6	-213.6	1.3	0.6	-4.4	276.3
	304	-3915.7	436.8	-1.3	-0.6	3.1	-603.1
25	316	3798.4	138.9	1.2	-1.0	-3.4	-330.3
	304	-3816.2	60.6	-1.2	1.0	2.2	371.8
26	316	2259.9	-161.1	0.5	0.2	-1.6	199.4
	304	-2271.2	273.1	-0.5	-0.2	1.2	-417.6
27	316	2691.4	-163.0	0.6	0.3	-2.0	208.6
	304	-2702.7	298.1	-0.6	-0.3	1.5	-440.3
28	316	5464.9	-1141.8	32.9	16.7	-16.6	2172.2
	304	-5498.2	1497.0	-32.9	-16.7	-26.9	-3520.6
29	316	6293.6	-1213.8	-34.2	10.5	-5.4	2268.9
	304	-6326.9	1569.0	34.2	-10.5	46.1	-3644.4
30	316	4373.9	-436.1	113.4	15.2	-27.5	769.5
	304	-4407.2	791.2	-113.4	-15.2	-114.8	-1461.5
31	316	4267.5	96.9	115.3	7.6	-25.7	-336.1
	304	-4300.8	258.3	-115.3	-7.6	-117.2	179.5
32	316	5110.3	634.7	39.2	-8.5	-10.7	-1513.1
	304	-5143.6	-279.5	-39.2	8.5	-35.0	1949.7
33	316	5939.1	562.7	-27.9	-14.7	0.4	-1416.4
	304	-5972.4	-207.5	27.9	14.7	38.0	1825.8
34	316	7136.4	-676.0	-110.3	-5.6	9.6	1091.8
	304	-7169.7	1031.2	110.3	5.6	128.3	-1874.3
35	316	7030.0	-143.1	-108.5	-13.1	11.4	-13.8
	304	-7063.4	498.2	108.5	13.1	125.9	-233.2
1	304	13267.9	-956.1	6.9	3.3	-14.9	1875.0
	292	-13387.0	1827.1	-6.9	-3.3	8.0	-3266.4
2	304	6055.3	1683.1	108.2	8.8	53.6	-5069.2
	292	-6176.3	-1109.9	-108.2	-8.8	-161.8	6482.3
3	304	-2828.2	258.3	173.7	26.1	98.0	-1047.9
	292	2760.5	-270.1	-173.7	-26.1	-271.7	1319.9
4	304	3526.4	-243.9	0.7	0.5	-1.9	572.4

	292	-3546.9	418.0	-0.7	-0.5	1.1	-903.3
5	304	5624.2	-1572.2	13.3	21.1	41.7	4679.8
	292	-5670.9	1923.9	-13.3	-21.1	-53.5	-6453.8
6	304	6670.2	-1689.5	-16.5	16.3	-62.8	4843.8
	292	-6716.8	2041.2	16.5	-16.3	76.2	-6681.1
7	304	4130.6	-580.8	50.9	14.6	167.2	1748.4
	292	-4177.3	932.5	-50.9	-14.6	-210.6	-2594.8
8	304	3896.4	151.6	53.4	4.1	170.2	-600.3
	292	-3943.0	200.1	-53.4	-4.1	-215.6	485.7
9	304	4843.4	869.2	21.5	-13.8	51.8	-3149.1
	292	-4890.0	-517.5	-21.5	13.8	-70.2	3814.5
10	304	5889.4	751.9	-8.3	-18.7	-52.8	-2985.1
	292	-5936.0	-400.1	8.3	18.7	59.5	3587.2
11	304	7617.2	-971.9	-48.4	-1.6	-181.3	2295.0
	292	-7663.8	1323.6	48.4	1.6	221.7	-3352.3
12	304	7383.0	-239.5	-45.9	-12.1	-178.2	-53.7
	292	-7429.6	591.2	45.9	12.1	216.7	-271.8
21	304	8801.0	-632.7	4.4	2.1	-9.6	1254.4
	292	-8878.4	1202.2	-4.4	-2.1	5.2	-2171.8
22	304	4030.9	1002.8	72.0	6.3	35.8	-3050.1
	292	-4109.5	-632.4	-72.0	-6.3	-107.8	3878.1
23	304	-1523.8	147.2	115.9	17.5	65.2	-639.9
	292	1476.6	-137.2	-115.9	-17.5	-181.0	787.3
24	304	3930.3	-276.6	1.3	0.7	-3.1	603.1
	292	-3958.4	497.7	-1.3	-0.7	1.7	-990.2
25	304	3815.5	95.1	1.2	-0.9	-2.2	-371.8
	292	-3843.9	127.6	-1.2	0.9	1.0	357.6
26	304	2280.4	-180.2	0.5	0.3	-1.2	417.6
	292	-2296.2	291.1	-0.5	-0.3	0.7	-653.2
27	304	2712.6	-187.6	0.6	0.3	-1.4	440.3
	292	-2728.4	321.5	-0.6	-0.3	0.9	-694.8
28	304	5609.8	-1215.0	10.1	15.6	27.5	3520.6
	292	-5656.5	1566.7	-10.1	-15.6	-36.1	-4927.2
29	304	6447.1	-1306.4	-11.5	12.3	-45.6	3644.4
	292	-6493.8	1658.1	11.5	-12.3	54.3	-5108.9
30	304	4442.8	-513.0	37.5	10.7	115.3	1461.5
	292	-4489.5	864.7	-37.5	-10.7	-145.8	-2205.9
31	304	4279.8	-2.7	39.4	3.0	117.4	-179.5
	292	-4326.4	354.4	-39.4	-3.0	-149.5	-55.0
32	304	5066.5	486.0	16.5	-9.8	34.6	-1949.7
	292	-5113.1	-134.3	-16.5	9.8	-48.3	2242.3
33	304	5903.8	394.6	-5.1	-13.2	-38.5	-1825.8
	292	-5950.4	-42.9	5.1	13.2	42.1	2060.6
34	304	7233.8	-817.6	-34.4	-0.6	-128.5	1874.3
	292	-7280.4	1169.3	34.4	0.6	155.5	-2811.6

35	304	7070.8	-307.3	-32.5	-8.2	-126.3	233.2
	292	-7117.4	659.0	32.5	8.2	151.9	-660.7
1	292	13435.2	-1430.5	6.9	3.5	-7.9	3266.4
	280	-13579.8	2301.6	-6.9	-3.5	1.0	-5140.8
2	292	6140.8	1292.1	108.2	4.0	162.0	-6482.3
	280	-6322.2	-519.9	-108.2	-4.0	-270.7	7409.0
3	292	-2767.3	188.4	173.7	18.1	272.4	-1319.9
	280	2669.0	-108.5	-173.7	-18.1	-446.9	1476.9
4	292	3557.7	-312.9	0.7	0.5	-1.1	903.3
	280	-3582.7	487.1	-0.7	-0.5	0.4	-1305.1
5	292	5808.1	-1674.5	-28.0	19.8	54.1	6453.8
	280	-5864.7	2026.3	28.0	-19.8	-34.0	-8327.8
6	292	6865.1	-1822.5	24.7	18.3	-75.7	6681.1
	280	-6921.7	2174.3	-24.7	-18.3	58.3	-8668.8
7	292	4215.7	-690.8	-86.5	9.1	211.0	2594.8
	280	-4272.3	1042.7	86.5	-9.1	-149.7	-3523.0
8	292	3907.8	4.3	-84.1	-1.5	215.6	-485.7
	280	-3964.4	347.5	84.1	1.5	-156.7	254.5
9	292	4781.8	642.6	-19.7	-15.7	69.7	-3814.5
	280	-4838.4	-290.8	19.7	15.7	-57.3	4263.7
10	292	5838.8	494.6	33.0	-17.2	-60.1	-3587.2
	280	-5895.4	-142.8	-33.0	17.2	34.9	3922.7
11	292	7739.0	-1184.2	89.0	4.1	-221.6	3352.3
	280	-7795.6	1536.0	-89.0	-4.1	157.7	-4659.6
12	292	7431.1	-489.0	91.5	-6.5	-216.9	271.8
	280	-7487.7	840.8	-91.5	6.5	150.7	-882.2
21	292	8910.1	-939.2	4.4	2.3	-5.1	2171.8
	280	-9004.1	1508.8	-4.4	-2.3	0.7	-3401.3
22	292	4089.0	753.7	72.0	3.1	107.9	-3878.1
	280	-4206.0	-259.0	-72.0	-3.1	-180.3	4397.1
23	292	-1480.0	93.5	115.9	12.1	181.5	-787.3
	280	1411.9	-22.4	-115.9	-12.1	-297.9	850.7
24	292	3971.4	-380.4	1.3	0.8	-1.7	990.2
	280	-4005.6	601.5	-1.3	-0.8	0.4	-1483.4
25	292	3846.0	-13.9	1.2	-0.8	-1.0	-357.6
	280	-3884.7	261.7	-1.2	0.8	-0.2	221.3
26	292	2303.9	-223.1	0.5	0.3	-0.7	653.2
	280	-2323.1	334.0	-0.5	-0.3	0.3	-933.0
27	292	2736.7	-240.7	0.6	0.4	-0.9	694.8
	280	-2755.9	374.7	-0.6	-0.4	0.3	-1003.9
28	292	5756.5	-1338.9	-20.0	14.8	36.5	4927.2
	280	-5813.1	1690.7	20.0	-14.8	-23.6	-6457.4
29	292	6603.0	-1452.3	18.5	13.7	-54.0	5108.9
	280	-6659.6	1804.1	-18.5	-13.7	42.1	-6731.6

30	292	4519.4	-642.6	-62.8	7.1	146.1	2205.9
	280	-4576.1	994.4	62.8	-7.1	-106.5	-3063.1
31	292	4305.6	-159.2	-60.8	-0.7	149.5	55.0
	280	-4362.3	511.0	60.8	0.7	-111.7	-428.0
32	292	5043.8	272.4	-13.6	-11.0	48.0	-2242.3
	280	-5100.5	79.4	13.6	11.0	-41.2	2326.4
33	292	5890.4	159.0	25.0	-12.1	-42.5	-2060.6
	280	-5947.0	192.8	-25.0	12.1	24.6	2052.2
34	292	7341.2	-1020.6	65.8	3.3	-155.5	2811.6
	280	-7397.8	1372.5	-65.8	-3.3	112.7	-3977.2
35	292	7127.4	-537.2	67.8	-4.4	-152.0	660.7
	280	-7184.0	889.0	-67.8	4.4	107.4	-1342.0
1	147	19279.5	1856.4	8.4	21.2	-37.6	39553.5
	159	-18683.8	-1183.6	-8.4	-21.2	29.3	-38038.0
2	147	13889.0	1300.4	17.9	182.6	-207.6	28423.2
	159	-13585.7	-938.4	-17.9	-182.6	189.8	-27302.4
3	147	4622.7	738.2	19.2	277.1	-301.1	2373.6
	159	-4425.8	-493.7	-19.2	-277.1	282.0	-1757.3
4	147	4886.4	432.7	0.4	2.1	-3.2	9433.1
	159	-4783.5	-259.6	-0.4	-2.1	2.8	-9088.0
5	147	7417.4	1479.8	14.9	61.1	-72.8	7894.6
	159	-7184.3	-1190.5	-14.9	-61.1	67.3	-6657.5
6	147	6142.3	1180.4	-15.8	-60.3	67.2	3907.3
	159	-5909.2	-891.1	15.8	60.3	-60.8	-2911.6
7	147	9938.7	1442.5	52.8	207.8	-243.4	20084.0
	159	-9705.5	-1153.2	-52.8	-207.8	221.8	-18904.9
8	147	10824.7	1111.1	54.8	212.1	-249.7	26544.7
	159	-10591.6	-821.8	-54.8	-212.1	226.1	-25656.8
9	147	10370.9	375.1	21.3	75.5	-93.6	29430.4
	159	-10137.8	-85.8	-21.3	-75.5	81.7	-29163.7
10	147	9095.8	75.7	-9.3	-45.9	46.4	25443.1
	159	-8862.7	213.6	9.3	45.9	-46.4	-25417.8
11	147	5688.5	444.4	-49.2	-196.9	223.2	6793.0
	159	-5455.4	-155.1	49.2	196.9	-205.2	-6418.5
12	147	6574.5	113.1	-47.3	-192.6	217.0	13253.8
	159	-6341.4	176.3	47.3	192.6	-200.9	-13170.4
21	147	12754.5	1222.7	5.3	13.5	-24.0	26081.5
	159	-12367.3	-777.2	-5.3	-13.5	18.7	-25084.5
22	147	9229.4	871.6	11.6	121.1	-137.2	18569.9
	159	-9025.0	-621.0	-11.6	-121.1	125.7	-17822.8
23	147	3582.9	536.5	12.8	184.9	-201.1	2549.9
	159	-3441.2	-355.8	-12.8	-184.9	188.3	-2103.6
24	147	5557.9	510.8	1.3	4.0	-6.7	11021.3
	159	-5417.2	-315.2	-1.3	-4.0	5.5	-10609.5

25	147	5351.9	451.9	1.4	4.3	-6.9	11295.5
	159	-5247.8	-293.3	-1.4	-4.3	5.5	-10923.4
26	147	3303.3	309.6	0.1	1.3	-1.8	6670.7
	159	-3224.2	-199.4	-0.1	-1.3	1.6	-6417.0
27	147	3758.8	332.8	0.3	1.6	-2.4	7256.3
	159	-3679.6	-199.7	-0.3	-1.6	2.1	-6990.8
28	147	7665.2	1279.3	11.9	44.6	-54.8	10584.5
	159	-7432.1	-990.0	-11.9	-44.6	51.3	-9542.1
29	147	6774.9	1066.5	-11.1	-40.0	43.7	7797.1
	159	-6541.8	-777.2	11.1	40.0	-41.1	-6914.0
30	147	9429.4	1251.0	40.4	147.1	-175.1	19071.2
	159	-9196.3	-961.7	-40.4	-147.1	162.8	-18075.0
31	147	10051.4	1013.9	41.9	150.3	-179.7	23558.1
	159	-9818.2	-724.6	-41.9	-150.3	166.0	-22760.7
32	147	9738.3	489.0	16.7	55.2	-70.1	25540.7
	159	-9505.2	-199.7	-16.7	-55.2	61.9	-25161.3
33	147	8848.0	276.2	-6.3	-29.5	28.4	22753.2
	159	-8614.9	13.1	6.3	29.5	-30.5	-22533.2
34	147	6461.8	541.6	-36.3	-135.1	153.3	9779.7
	159	-6228.7	-252.3	36.3	135.1	-145.1	-9314.6
35	147	7083.8	304.5	-34.8	-131.9	148.7	14266.5
	159	-6850.6	-15.2	34.8	131.9	-142.0	-14000.3
1	159	18475.7	3022.4	8.4	24.0	-27.1	38038.0
	171	-17939.6	-2289.6	-8.4	-24.0	18.7	-35374.9
2	159	13426.6	2275.1	17.9	200.5	-170.8	27302.4
	171	-13103.7	-1899.2	-17.9	-200.5	152.9	-25204.7
3	159	4355.5	928.3	19.2	303.6	-253.3	1757.3
	171	-4154.9	-765.8	-19.2	-303.6	234.1	-905.6
4	159	4734.5	730.7	0.4	2.4	-2.6	9088.0
	171	-4641.9	-546.9	-0.4	-2.4	2.2	-8447.5
5	159	7097.8	1098.8	-9.2	67.2	-61.2	6657.5
	171	-6888.0	-785.9	9.2	-67.2	59.1	-5088.6
6	159	5863.1	685.6	8.3	-65.7	55.0	2911.6
	171	-5653.3	-372.7	-8.3	65.7	-52.1	-1714.0
7	159	9557.2	1851.2	-27.4	227.7	-201.3	18904.9
	171	-9347.4	-1538.3	27.4	-227.7	191.2	-17083.7
8	159	10430.6	2082.8	-25.5	232.4	-205.2	25656.8
	171	-10220.7	-1769.9	25.5	-232.4	193.2	-23990.7
9	159	10009.0	1870.9	-2.8	82.9	-74.2	29163.7
	171	-9799.2	-1558.0	2.8	-82.9	65.8	-28111.8
10	159	8774.3	1457.6	14.8	-50.0	41.9	25417.8
	171	-8564.5	-1144.7	-14.8	50.0	-45.4	-24737.2
11	159	5441.5	473.7	31.1	-215.2	186.0	6418.5
	171	-5231.7	-160.8	-31.1	215.2	-179.5	-5835.1

12	159	6314.9	705.3	33.0	-210.5	182.1	13170.4
	171	-6105.1	-392.4	-33.0	210.5	-177.5	-12742.1
21	159	12230.2	1994.4	5.3	15.3	-17.3	25084.5
	171	-11881.8	-1509.9	-5.3	-15.3	12.0	-23327.7
22	159	8919.6	1509.0	11.6	132.9	-113.1	17822.8
	171	-8704.4	-1251.4	-11.6	-132.9	101.5	-16435.8
23	159	3389.2	693.8	12.8	202.6	-169.1	2103.6
	171	-3246.0	-566.6	-12.8	-202.6	156.3	-1470.1
24	159	5359.6	848.5	1.3	4.5	-5.0	10609.5
	171	-5232.9	-638.6	-1.3	-4.5	3.7	-9864.0
25	159	5193.2	810.0	1.4	4.9	-5.1	10923.4
	171	-5093.1	-633.1	-1.4	-4.9	3.7	-10199.4
26	159	3188.7	516.8	0.1	1.4	-1.5	6417.0
	171	-3117.5	-398.5	-0.1	-1.4	1.4	-5958.1
27	159	3641.9	562.0	0.3	1.8	-2.0	6990.8
	171	-3570.7	-420.7	-0.3	-1.8	1.7	-6498.1
28	159	7348.8	1129.3	-6.7	49.3	-46.9	9542.1
	171	-7139.0	-816.4	6.7	-49.3	43.9	-8117.4
29	159	6486.3	841.3	7.4	-43.6	37.3	6914.0
	171	-6276.5	-528.4	-7.4	43.6	-35.1	-5738.5
30	159	9067.9	1670.4	-21.4	161.6	-148.5	18075.0
	171	-8858.1	-1357.5	21.4	-161.6	137.8	-16482.3
31	159	9679.1	1846.2	-20.0	165.0	-151.4	22760.7
	171	-9469.2	-1533.2	20.0	-165.0	139.3	-21273.3
32	159	9385.8	1715.2	-1.9	60.7	-56.5	25161.3
	171	-9176.0	-1402.3	1.9	-60.7	48.8	-24087.3
33	159	8523.3	1427.1	12.2	-32.1	27.7	22533.2
	171	-8313.5	-1114.2	-12.2	32.1	-30.2	-21708.4
34	159	6193.0	710.3	25.5	-147.9	132.1	9314.6
	171	-5983.2	-397.4	-25.5	147.9	-125.6	-8552.5
35	159	6804.1	886.1	27.0	-144.4	129.2	14000.3
	171	-6594.3	-573.1	-27.0	144.4	-124.1	-13343.5
1	171	17677.1	3819.8	8.4	25.5	-16.5	35374.9
	183	-17200.6	-3044.5	-8.4	-25.5	8.2	-31938.5
2	171	12892.6	3016.0	17.9	212.8	-135.2	25204.7
	183	-12561.2	-2627.1	-17.9	-212.8	117.3	-22374.1
3	171	4073.9	1119.4	19.2	322.5	-207.2	905.6
	183	-3874.9	-1040.7	-19.2	-322.5	188.0	178.4
4	171	4577.9	943.0	0.4	2.6	-2.0	8447.5
	183	-4495.6	-752.1	-0.4	-2.6	1.6	-7598.9
5	171	6804.9	1576.0	-32.9	71.9	-53.2	5088.6
	183	-6618.4	-1246.5	32.9	-71.9	65.3	-3339.9
6	171	5618.3	1059.4	32.1	-69.8	46.4	1714.0
	183	-5431.7	-729.9	-32.1	69.8	-60.5	-439.7

7	171	9171.7	2393.4	-106.6	243.0	-171.3	17083.7
	183	-8985.2	-2063.9	106.6	-243.0	212.6	-14816.5
8	171	10013.7	2577.4	-104.7	247.8	-172.9	23990.7
	183	-9827.2	-2247.9	104.7	-247.8	213.1	-21753.5
9	171	9611.7	2189.4	-26.6	88.1	-58.6	28111.8
	183	-9425.2	-1860.0	26.6	-88.1	67.0	-26463.1
10	171	8425.1	1672.9	38.5	-53.7	41.0	24737.2
	183	-8238.6	-1343.4	-38.5	53.7	-58.7	-23563.0
11	171	5216.2	671.4	110.2	-229.6	160.7	5835.1
	183	-5029.7	-341.9	-110.2	229.6	-206.5	-5149.4
12	171	6058.3	855.4	112.1	-224.7	159.1	12742.1
	183	-5871.8	-525.9	-112.1	224.7	-206.0	-12086.3
21	171	11708.5	2523.4	5.3	16.3	-10.6	23327.7
	183	-11398.8	-2011.3	-5.3	-16.3	5.3	-21057.5
22	171	8565.0	1993.4	11.6	141.1	-89.7	16435.8
	183	-8346.0	-1729.9	-11.6	-141.1	78.1	-14568.4
23	171	3185.5	843.0	12.8	215.3	-138.3	1470.1
	183	-3044.3	-770.9	-12.8	-215.3	125.5	-660.4
24	171	5158.9	1085.0	1.3	4.8	-3.3	9864.0
	183	-5046.3	-865.1	-1.3	-4.8	2.1	-8887.7
25	171	5020.1	1067.5	1.4	5.2	-3.3	10199.

Tab.29 – Sollecitazioni sugli elementi trave

6 Verifiche sugli elementi strutturali

6.1 Introduzione

Le tensioni interne si possono calcolare nell'ipotesi di conservazione delle sezioni piane e di una relazione lineare tra tensioni e deformazioni fino alla rottura.

Le resistenze di calcolo dei materiali X_d sono quelle già definite al Cap. 4.2

In questo capitolo ci si concentra sulla verifica di resistenza degli elementi strutturali in legno lamellare. Lo schema a cui ci si riferisce per le verifiche è quello della trave in Fig. 26, avente direzione della fibratura coincidente sostanzialmente con il proprio asse longitudinale e sezione trasversale costante, soggetto a sforzi agenti prevalentemente lungo uno o più assi principali dell'elemento stesso.

A causa dell'anisotropia del materiale, le verifiche degli stati tensionali di trazione e compressione si devono eseguire tenendo conto dell'angolo tra direzione della fibratura e direzione della tensione.

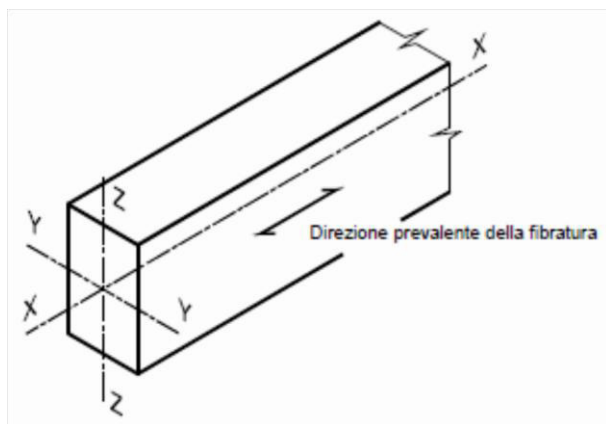


Fig.27 – Assi dell'elemento strutturale

Nel seguito viene riportata una sintesi delle verifiche da svolgere sugli elementi lignei e riportate nel D.M. 14/01/2008, e la tabella dei risultati elaborata direttamente dal codice di calcolo EnexSys – Winstrand.

6.2 Verifiche di resistenza agli SLU

6.2.1 Trazione parallela alla fibratura

Deve essere soddisfatta la seguente condizione:

$$\sigma_{t,0,d} \leq f_{t,0,d}$$

dove:

$\sigma_{t,0,d}$ è la tensione di calcolo a trazione parallela alla fibratura calcolata sulla sezione netta;

$f_{t,0,d}$ è la corrispondente resistenza di calcolo, determinata tenendo conto anche delle dimensioni della sezione trasversale mediante il coefficiente k_h , definito come:

$$k_h = \min \left\{ \left(\frac{600}{h} \right)^{0,1} ; 1,1 \right\} \quad \text{per legno lamellare}$$

Tale coefficiente permette di modificare il valore della resistenza caratteristica di elementi con diverse dimensioni rispetto ai provini con cui tali resistenze sono state definite. In particolare tale coefficiente comporta un aumento di resistenza per elementi strutturali con sezioni inferiori di 600mm.

6.2.2 Trazione perpendicolare alla fibratura

Questa verifica seppure riportata nelle NTC2008 non sarà eseguita in quanto nessun elemento strutturale è sottoposto a tale stato tensionale.

6.2.3 Compressione parallela alla fibratura

Deve essere soddisfatta la seguente condizione:

$$\sigma_{c,0,d} \leq f_{c,0,d}$$

dove:

$\sigma_{c,0,d}$ è la tensione di calcolo a compressione parallela alla fibratura;

$f_{c,0,d}$ è la corrispondente resistenza di calcolo.

Deve essere inoltre effettuata la verifica di instabilità per gli elementi compressi, come definita al paragrafo 6.3.2.

6.2.4 Compressione perpendicolare alla fibratura

Deve essere soddisfatta la seguente condizione:

$$\sigma_{c,0,d} \leq f_{c,0,d}$$

dove:

$\sigma_{c,90,d}$ è la tensione di calcolo a compressione ortogonale alla fibratura;

$f_{c,90,d}$ è la corrispondente resistenza di calcolo.

6.2.5 Flessione

Devono essere soddisfatte entrambe le condizioni seguenti:

$$\frac{\sigma_{m,y,d}}{f_{m,y,d}} + k_m \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

$$k_m \frac{\sigma_{m,y,d}}{f_{m,y,d}} + \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

dove:

$\sigma_{m,y,d}$ e $\sigma_{m,z,d}$ sono le tensioni di calcolo massime per flessione rispettivamente nei piani xz e xy determinate assumendo una distribuzione elastico lineare delle tensioni sulla sezione;

$f_{m,y,d}$ e $f_{m,z,d}$ sono le corrispondenti resistenze di calcolo a flessione, determinate tenendo conto anche delle dimensioni della sezione trasversale mediante il coefficiente k_h , precedentemente definito.

I valori da adottare per il coefficiente k_m , che tiene conto convenzionalmente della ridistribuzione delle tensioni e della disomogeneità del materiale nella sezione trasversale, sono:

- $k_m = 0,7$ per sezioni trasversali rettangolari;
- $k_m = 1,0$ per altre sezioni trasversali.

Nel nostro caso sarà quindi utilizzato $k_m = 0,7$.

Deve essere inoltre effettuata la verifica di instabilità allo svergolamento (flesso-torsionale) per gli elementi inflessi, come definita al paragrafo 6.3.1.

6.2.5 Tensoflessione

Nel caso di sforzo normale di trazione accompagnato da sollecitazioni di flessione attorno ai due assi principali dell'elemento strutturale, devono essere soddisfatte entrambe le seguenti condizioni:

$$\frac{\sigma_{t,0,d}}{f_{t,0,d}} + \frac{\sigma_{m,y,d}}{f_{m,y,d}} + k_m \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

$$\frac{\sigma_{t,0,d}}{f_{t,0,d}} + k_m \frac{\sigma_{m,y,d}}{f_{m,y,d}} + \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

Con il valore di k_m sempre pari a 0,7.

Anche qui va inoltre effettuata la verifica di instabilità allo svergolamento (flesso-torsionale) per gli elementi inflessi (paragrafo 6.3.1).

6.2.5 Pressoflessione

Nel caso di sforzo normale di compressione accompagnato da sollecitazioni di flessione attorno ai due assi principali dell'elemento strutturale, devono essere soddisfatte entrambe le seguenti condizioni:

$$\left(\frac{\sigma_{c,0,d}}{f_{c,0,d}} \right)^2 + \frac{\sigma_{m,y,d}}{f_{m,y,d}} + k_m \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

$$\left(\frac{\sigma_{c,0,d}}{f_{c,0,d}} \right)^2 + k_m \frac{\sigma_{m,y,d}}{f_{m,y,d}} + \frac{\sigma_{m,z,d}}{f_{m,z,d}} \leq 1$$

Con il valore di k_m pari a 0,7.

Anche qui va inoltre effettuata la verifica di instabilità allo svergolamento (flesso-torsionale) per gli elementi inflessi (paragrafo 6.3.2)

6.2.6 Taglio

Deve essere soddisfatta la condizione:

$$\tau_d \leq f_{v,d}$$

dove:

τ_d è la tensione massima tangenziale di calcolo, valutata secondo la teoria di Jourawski;

$f_{v,d}$ è la corrispondente resistenza di calcolo a taglio.

Alle estremità della trave si potrà effettuare la verifica sopra indicata valutando in modo convenzionale t_d , considerando nullo, ai fini del calcolo dello sforzo di taglio di estremità, il contributo di eventuali forze agenti all'interno del tratto di lunghezza pari all'altezza h della trave, misurato a partire dal bordo interno dell'appoggio, o all'altezza effettiva ridotta h_{eff} nel caso di travi con intagli.

6.2.7 Torsione

Deve essere soddisfatta la condizione:

$$\tau_{tor,d} \leq k_{sh} f_{v,d}$$

dove:

$\tau_{tor,d}$ è la tensione massima tangenziale di calcolo per torsione;

k_{sh} è un coefficiente che tiene conto della forma della sezione trasversale;

$f_{v,d}$ è la resistenza di calcolo a taglio.

Per il coefficiente k_{sh} si possono assumere i valori:

$k_{sh} = 1,2$ per sezioni circolari piene;

$k_{sh} = 1 + 0,15 h/b \leq 2$ per sezioni rettangolari piene, di lati b e h , $b \leq h$;

$k_{sh} = 1$ per altri tipi di sezione.

6.2.8 Taglio e Torsione

Nel caso di torsione accompagnata da taglio si può eseguire una verifica combinata adottando la formula di interazione:

$$\frac{\tau_{tor,d}}{k_{sh} f_{v,d}} + \left(\frac{\tau_d}{f_{v,d}} \right)^2 \leq 1$$

ove il significato dei simboli è quello riportato nei paragrafi corrispondenti alle verifiche a taglio e a torsione.

6. 3 Verifiche di instabilità

Oltre alle verifiche di resistenza devono essere eseguite le verifiche necessarie ad accertare la sicurezza della struttura o delle singole membrature nei confronti di possibili fenomeni di instabilità, quali lo svergolamento delle travi inflesse (instabilità flesso-torsionale) e lo sbandamento laterale degli elementi compressi o presso-inflessi.

Nella valutazione della sicurezza all'instabilità occorre tener conto, per il calcolo delle tensioni per flessione, anche della curvatura iniziale dell'elemento, dell'eccentricità del carico assiale e delle eventuali deformazioni (frecce o controfrecce) imposte.

Per queste verifiche si devono utilizzare i valori caratteristici al frattile 5% per i moduli elastici dei materiali.

6.3.1 Elementi inflessi (instabilità di trave)

Nel caso di flessione semplice, con momento flettente agente attorno all'asse forte y della sezione (cioè nel piano ortogonale a quello di possibile svergolamento), con riferimento alla tensione dovuta al massimo momento agente nel tratto di trave compreso tra due successivi ritegni torsionali, deve essere soddisfatta la relazione:

$$\frac{\sigma_{m,d}}{k_{crit,m} f_{m,d}} \leq 1$$

con:

$\sigma_{m,d}$ tensione di calcolo massima per flessione;

$k_{crit,m}$ coefficiente riduttivo di tensione critica per instabilità di trave, per tener conto della riduzione di resistenza dovuta allo sbandamento laterale;

$f_{m,d}$ resistenza di calcolo a flessione, determinata tenendo conto anche delle dimensioni della sezione trasversale mediante il coefficiente k_h .

Per travi aventi una deviazione laterale iniziale rispetto alla rettilineità nei limiti di accettabilità del prodotto, si possono assumere i seguenti valori del coefficiente di tensione critica $k_{crit,m}$:

$$k_{crit,m} = \begin{cases} 1 & \text{per } \lambda_{rel,m} \leq 0,75 \\ 1,56 - 0,75\lambda_{rel,m} & \text{per } 0,75 < \lambda_{rel,m} < 1,4 \\ 1/\lambda_{rel,m}^2 & \text{per } 1,4 < \lambda_{rel,m} \end{cases}$$

con:

$\lambda_{rel,m} = \sqrt{f_{m,k} / \sigma_{m,crit}}$ snellezza relativa di trave;

$f_{m,k}$ resistenza caratteristica a flessione;

$\sigma_{m,crit}$ tensione critica per flessione calcolata secondo la teoria classica della stabilità, con i valori dei moduli elastici caratteristici (frattile 5%) $E_{0,05}$.

6.3.2 Elementi compressi (instabilità di colonna)

Nel caso di asta soggetta solo a sforzo normale deve essere soddisfatta la condizione:

$$\frac{\sigma_{c,0,d}}{k_{crit,c} f_{c,0,d}} \leq 1$$

con:

$\sigma_{c,0,d}$ tensione di compressione di calcolo per sforzo normale;

$f_{c,0,d}$ resistenza di calcolo a compressione;

$k_{crit,c}$ coefficiente riduttivo di tensione critica per instabilità di colonna valutato per il piano in cui assume il valore minimo.

Il coefficiente riduttivo $k_{crit,c}$ si calcola in funzione della snellezza relativa di colonna $\lambda_{rel,c}$, che vale:

$$\lambda_{rel,c} = \sqrt{\frac{f_{c,0,k}}{\sigma_{c,crit}}} = \frac{\lambda}{\pi} \sqrt{\frac{f_{c,0,k}}{E_{0,05}}}$$

$f_{c,0,k}$ resistenza caratteristica a compressione parallela alla fibratura;

$\sigma_{c,crit}$ tensione critica calcolata secondo la teoria classica della stabilità, con i valori dei moduli elastici caratteristici (frattile 5%);

λ snellezza dell'elemento strutturale valutata per il piano in cui essa assume il valore massimo.

Quando $\lambda_{rel,c} \leq 0,3$ si deve porre $k_{crit,c} = 1$, altrimenti:

$$k_{crit,c} = \frac{1}{k + \sqrt{k^2 - \lambda_{rel,c}^2}}$$

con:

$$k = 0,5 (1 + \beta_c (\lambda_{rel,c} - 0,3) + \lambda_{rel,c}^2)$$

β_c coefficiente di imperfezione, che, se gli elementi rientrano nei limiti di rettilineità può assumere i seguenti valori:

- per legno massiccio $\beta_c = 0,2$;
- per legno lamellare $\beta_c = 0,1$.

Va da sé che per le verifiche d'instabilità, nel nostro caso sarà assunto $\beta_c = 0,1$.

6. 5 Tabella delle verifiche

In questo paragrafo si riportano le verifiche di resistenza e di instabilità precedentemente descritte:

Da A	Sez .	Mat.	L	β_{12}	β_{13}	Comb .	k_{mo} d	x	N [kg]	V_{12} [kg]	V_{13} [kg]	M_{12} [kgm]	M_{13} [kgm]	T [kgm]	$\sigma_{D,R}$	τ_D	$\sigma_{D,I}$	$\sigma_{D,Ft}$
			[m]					[m]							$\sigma_{R,R}$		$\sigma_{R,I}$	$\sigma_{R,Ft}$
128 116	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	17874. 6	1223.7	1.0	33503. 9	184.5	203.0	0.5 2	0.0 8	0.5 2	0.3 1
116 104	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.0 0	18114. 4	2899.5	- 444.5	32282. 0	162.5	220.1	0.5 0	0.0 9	0.5 0	0.2 9
260 248	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	13	0.9 0	1.0 3	4399.5	-2477.3	-69.9	16529. 2	-12.1	7.3	0.2 0	0.0 1	0.2 0	0.0 5
248 236	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	4628.2	-2442.3	-93.3	18837. 9	80.3	6.8	0.2 3	0.0 1	0.2 3	0.0 6
236 224	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	5877.7	-2385.2	13.2	21077. 1	9.9	-15.6	0.2 5	0.0 1	0.2 5	0.0 8
76 38	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	2	0,6 0	0.0 0	21446. 9	10972.9	72.8	21014. 5	353.3	-34.6	0.3 4	0.1 5	0.3 4	0.1 7
98 86	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	21470. 7	5701.9	2.3	32840. 9	-33.2	71.3	0.5 1	0.0 6	0.5 1	0.3 1
104 92	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	17952. 8	4595.7	- 444.5	29362. 5	582.3	273.1	0.4 8	0.1 3	0.4 8	0.2 5
92 80	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	13943. 7	7248.3	148.4	24654. 1	423.2	-32.1	0.4 0	0.0 7	0.4 0	0.1 8
80 46	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	2	0,6 0	0.0 0	13009. 4	9133.8	148.4	17310. 5	276.0	3.6	0.2 8	0.1 0	0.2 8	0.1 1
96 84	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	19948. 6	4833.4	-16.3	32206. 5	344.4	- 131.0	0.5 1	0.0 8	0.5 1	0.3 0
84 72	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	21162. 2	7363.4	49.5	27359. 5	372.5	-92.6	0.4 4	0.1 0	0.4 4	0.2 3

315 327	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	6499.7	2226.1	110.7	3838.6	5.7	-16.8	0.0 5	0.0 1	0.0 5	0.0 2
169 181	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17678. 3	3820.4	-8.4	35375. 9	-16.7	-25.8	0.5 4	0.0 3	0.5 4	0.3 4
265 277	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	7358.9	2319.2	-37.0	12841. 5	-93.0	29.7	0.1 6	0.0 1	0.1 6	0.0 4
277 289	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	7209.3	2519.0	30.2	10478. 2	-74.3	23.1	0.1 3	0.0 1	0.1 3	0.0 3
289 301	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	6968.6	2398.9	-22.0	8149.3	-96.3	20.6	0.1 0	0.0 1	0.1 0	0.0 2
301 313	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	6717.9	2330.6	-64.7	5961.3	-78.9	17.6	0.0 7	0.0 1	0.0 7	0.0 2
313 325	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	6498.6	2225.6	- 110.4	3837.6	-6.0	17.0	0.0 5	0.0 1	0.0 5	0.0 2
325 335	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	13422. 8	611.6	-0.2	171.8	-20.0	0.4	0.0 1	0.0 0	0.0 1	0.0 4
278 266	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	6029.3	-2677.7	-6.8	12530. 9	133.4	-3.4	0.1 5	0.0 1	0.1 5	0.0 4
330 318	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	7032.8	-2209.1	105.9	3862.6	26.6	38.0	0.0 5	0.0 1	0.0 5	0.0 2
318 306	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	7246.2	-2275.2	60.9	5956.9	-25.4	39.0	0.0 7	0.0 2	0.0 7	0.0 2
306 294	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	7487.6	-2308.2	18.9	8063.5	-57.7	37.5	0.1 0	0.0 1	0.1 0	0.0 3
102 90	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	19246. 8	4996.4	-18.3	28553. 0	77.4	- 121.5	0.4 4	0.0 7	0.4 4	0.2 4
90 78	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	19086. 7	6698.4	54.9	23679. 2	107.8	- 111.0	0.3 7	0.0 9	0.3 7	0.1 8
175	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	11729.	2652.5	-13.1	26520.	39.9	-7.2	0.4	0.0	0.4	0.2

187		Omogeneo	0	0	0		0	0	3			9			1	1	1	0
187 199	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	8763.7	3015.3	305.5	23400. 0	332.4	81.5	0.3 8	0.0 4	0.3 8	0.1 5
208 196	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.9 8	16253. 0	-4404.3	-14.5	27867. 2	41.3	-0.8	0.4 3	0.0 2	0.4 3	0.2 3
196 184	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16842. 5	-4489.3	-14.5	31957. 4	55.8	1.1	0.4 9	0.0 2	0.4 9	0.2 9
184 172	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17676. 3	-3819.9	-8.3	35370. 4	16.6	-25.6	0.5 4	0.0 3	0.5 4	0.3 4
172 160	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	18474. 8	-3022.7	-8.3	38033. 7	27.1	-24.1	0.5 8	0.0 2	0.5 8	0.3 9
181 193	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16843. 6	4489.7	-14.5	31962. 6	-56.1	1.0	0.4 9	0.0 2	0.4 9	0.2 9
193 205	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	16254. 1	4404.7	-14.5	27872. 1	-41.5	-0.8	0.4 3	0.0 2	0.4 3	0.2 3
205 217	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	0.0 0	15677. 2	4451.8	-14.5	23938. 4	-27.2	-2.2	0.3 7	0.0 2	0.3 7	0.1 8
217 229	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	15246. 8	3984.7	-14.5	19814. 0	-12.3	-2.5	0.3 0	0.0 2	0.3 0	0.1 3
229 241	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	14721. 6	3716.3	-4.5	16276. 5	-24.9	6.9	0.2 5	0.0 2	0.2 5	0.1 0
241 253	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	18	0.9 0	0.0 0	6561.4	2824.2	-92.1	17951. 4	-39.9	-1.9	0.2 1	0.0 1	0.2 1	0.0 6
253 265	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	17	0.9 0	0.0 0	7631.1	2300.2	24.9	15264. 8	-69.3	33.0	0.1 8	0.0 1	0.1 8	0.0 5
336 328	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	13421. 9	-611.1	-0.3	171.4	19.9	0.5	0.0 1	0.0 0	0.0 1	0.0 4
110 98	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	21119. 0	4106.2	2.3	36753. 4	-24.5	74.0	0.5 7	0.0 5	0.5 7	0.3 7

335 326	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	13422. 8	-611.3	-0.2	171.5	-19.6	-0.4	0.0 1	0.0 0	0.0 1	0.0 4
328 316	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	6119.0	1574.3	108.2	- 3420.7	55.9	8.8	0.0 6	0.0 1	0.0 6	0.0 2
316 304	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6118.9	1434.6	108.2	- 5069.2	-53.2	11.0	0.0 8	0.0 1	0.0 8	0.0 2
304 292	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6176.3	1109.9	108.2	- 6482.3	- 161.8	8.8	0.1 1	0.0 0	0.1 1	0.0 3
292 280	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6322.2	519.9	108.2	- 7409.1	- 270.7	4.0	0.1 3	0.0 0	0.1 3	0.0 3
147 159	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	19279. 5	1856.4	8.4	39553. 5	37.6	21.2	0.6 1	0.0 1	0.6 1	0.4 2
159 171	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	18475. 7	3022.4	8.4	38038. 0	27.1	24.0	0.5 8	0.0 2	0.5 8	0.3 9
171 183	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17677. 1	3819.8	8.4	35374. 9	16.5	25.5	0.5 4	0.0 3	0.5 4	0.3 4
183 195	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16843. 7	4489.3	14.4	31962. 1	55.7	-1.1	0.4 9	0.0 2	0.4 9	0.2 9
195 207	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	16254. 2	4404.3	14.4	27872. 0	41.2	0.7	0.4 3	0.0 2	0.4 3	0.2 3
207 219	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	0.0 0	15677. 4	4451.4	14.4	23938. 7	27.0	2.1	0.3 7	0.0 2	0.3 7	0.1 8
219 231	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	15247. 0	3984.3	14.4	19814. 8	12.3	2.4	0.3 0	0.0 2	0.3 0	0.1 3
231 243	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	14723. 5	3716.0	4.3	16277. 5	24.5	-6.8	0.2 5	0.0 2	0.2 5	0.1 0
338 332	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	1.0 0	2306.3	-169.5	-34.7	206.7	319.4	21.6	0.0 3	0.0 1	0.0 3	0.0 1
215	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	15198.	3482.1	-24.3	17307.	-21.8	0.4	0.2	0.0	0.2	0.1

227		Omogeneo	0	0	0		0	0	0			0			7	1	7	1
227 239	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	7638.7	2501.1	85.5	19279. 9	73.4	41.0	0.2 3	0.0 2	0.2 3	0.0 7
239 251	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	18	0.9 0	0.0 0	8471.1	2217.4	- 103.0	17010. 9	-58.4	4.2	0.2 0	0.0 0	0.2 0	0.0 6
251 263	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	18	0.9 0	0.0 0	8224.1	2157.7	-66.9	14588. 2	50.9	5.4	0.1 8	0.0 0	0.1 8	0.0 5
263 275	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	7968.7	2198.2	-4.0	12421. 8	113.0	9.4	0.1 5	0.0 1	0.1 5	0.0 4
275 287	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	7717.3	2406.8	-33.1	10247. 1	32.0	36.3	0.1 2	0.0 1	0.1 2	0.0 3
287 299	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	7484.6	2311.5	19.4	8041.2	54.3	37.6	0.1 0	0.0 1	0.1 0	0.0 3
299 311	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	7243.1	2278.3	61.5	5939.2	36.5	39.1	0.0 7	0.0 2	0.0 7	0.0 2
311 323	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	7029.4	2211.9	106.4	3852.7	-36.6	38.0	0.0 5	0.0 1	0.0 5	0.0 2
323 334	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	14542. 4	589.2	-0.2	149.5	-32.4	0.7	0.0 1	0.0 0	0.0 1	0.0 4
276 264	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	7967.2	-2197.4	3.9	12289. 2	136.8	-9.4	0.1 5	0.0 1	0.1 5	0.0 4
264 252	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	14	0.9 0	0.9 7	8222.5	-2156.9	66.8	14351. 7	48.2	-5.4	0.1 7	0.0 0	0.1 7	0.0 5
252 240	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	14	0.9 0	1.0 3	8469.5	-2216.6	103.0	16686. 8	-55.2	-4.2	0.2 0	0.0 0	0.2 0	0.0 6
240 228	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	8763.3	-2100.5	138.9	18923. 7	- 196.1	-6.7	0.2 3	0.0 1	0.2 3	0.0 7
228 216	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	15197. 4	-3482.0	24.3	17304. 5	-21.8	-0.4	0.2 7	0.0 1	0.2 7	0.1 1

216 204	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	1.0 2	15615. 9	-3950.5	24.3	20916. 6	-46.5	-1.0	0.3 2	0.0 2	0.3 2	0.1 5
204 192	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.9 8	16166. 7	-3907.2	24.3	24363. 1	-70.2	-3.4	0.3 8	0.0 2	0.3 8	0.1 8
192 180	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16734. 0	-3996.7	24.3	27959. 5	-94.3	-6.5	0.4 3	0.0 2	0.4 3	0.2 3
180 168	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16382. 9	-3342.9	9.5	30916. 0	-26.3	36.3	0.4 8	0.0 3	0.4 8	0.2 7
168 156	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17145. 3	-2658.3	9.5	33214. 0	-38.8	33.9	0.5 1	0.0 2	0.5 1	0.3 1
156 144	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17919. 7	-1625.4	9.5	34499. 2	-51.5	29.9	0.5 3	0.0 1	0.5 3	0.3 3
144 132	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	17499. 0	-2453.3	-20.5	34913. 0	263.8	- 192.3	0.5 5	0.0 8	0.5 5	0.3 3
132 120	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	2	0,6 0	1.0 1	19938. 9	-1011.1	-16.3	35911. 7	263.4	- 215.7	0.5 7	0.0 8	0.5 7	0.3 6
120 108	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	19950. 0	762.0	-16.3	35911. 7	281.5	- 191.5	0.5 7	0.0 7	0.5 7	0.3 6
108 96	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.0 0	20069. 4	2828.2	-16.3	35118. 4	315.2	- 161.2	0.5 6	0.0 7	0.5 6	0.3 4
334 324	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	14542. 4	-588.9	-0.2	149.1	-32.0	-0.6	0.0 1	0.0 0	0.0 1	0.0 4
72 30	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	2	0,6 0	0.0 0	20138. 8	10335.0	49.5	19823. 0	332.1	-50.1	0.3 2	0.1 4	0.3 2	0.1 5
78 40	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	0.0 0	18207. 2	9097.0	54.9	16967. 7	66.5	- 103.3	0.2 7	0.1 4	0.2 7	0.1 2
223 235	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	5880.4	2385.7	-13.1	21063. 6	1.1	15.7	0.2 5	0.0 1	0.2 5	0.0 8
235	1	GL28h lamellare	0.9	1.0	1.0	17	0.9	0.0	4631.2	2443.0	93.3	18834.	80.7	-6.8	0.2	0.0	0.2	0.0

247		Omogeneo	9	0	0		0	0				3			3	1	3	6
247 259	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	17	0.9 0	0.0 0	4402.4	2478.0	69.9	16529. 5	-11.9	-7.3	0.2 0	0.0 1	0.2 0	0.0 5
259 271	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	17	0.9 0	0.0 0	4220.2	2405.4	46.3	14099. 7	-84.1	-9.3	0.1 7	0.0 1	0.1 7	0.0 4
271 283	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	4021.8	2383.6	3.1	11871. 3	- 127.3	-14.0	0.1 5	0.0 1	0.1 5	0.0 3
283 295	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	3090.1	2288.5	4.4	9643.1	-81.2	-31.5	0.1 2	0.0 1	0.1 2	0.0 2
295 307	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	2923.7	2175.2	-30.7	7460.0	-85.9	-34.1	0.0 9	0.0 1	0.0 9	0.0 1
307 319	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1520.6	-203.0	- 631.7	-843.7	- 904.2	4.2	0.0 8	0.0 0	0.0 8	0.0 0
176 164	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	1.0 0	9759.0	-2625.4	599.4	29096. 1	- 518.1	51.5	0.4 7	0.0 3	0.4 7	0.2 2
164 152	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	13916. 4	-2794.8	- 197.4	31599. 4	- 107.8	17.4	0.4 9	0.0 2	0.4 9	0.2 7
152 140	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	14384. 3	-1601.9	- 197.4	33142. 0	87.2	7.3	0.5 1	0.0 1	0.5 1	0.3 0
140 128	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	2	0,6 0	1.0 1	17912. 6	-367.0	1.0	33503. 9	201.8	185.8	0.5 2	0.0 7	0.5 2	0.3 1
114 102	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	18841. 1	3601.7	-18.3	31964. 0	48.1	- 127.9	0.4 9	0.0 6	0.4 9	0.2 9
337 330	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	14553. 1	-585.5	-0.1	145.8	32.1	0.7	0.0 1	0.0 0	0.0 1	0.0 4
324 312	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	6631.7	1562.6	99.5	- 3354.0	68.2	19.3	0.0 6	0.0 1	0.0 6	0.0 2
312 300	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6631.7	1442.9	99.5	- 5010.9	-32.6	22.0	0.0 8	0.0 1	0.0 8	0.0 2

300 288	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6688.4	1139.2	99.5	- 6453.2	- 133.0	20.6	0.1 1	0.0 1	0.1 1	0.0 3
288 276	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	6833.1	564.3	99.5	- 7424.6	- 233.4	16.7	0.1 3	0.0 1	0.1 3	0.0 3
143 155	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17920. 2	1625.3	-9.5	34501. 6	-51.5	-29.9	0.5 3	0.0 1	0.5 3	0.3 3
155 167	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17145. 8	2658.2	-9.5	33216. 5	-38.8	-33.9	0.5 1	0.0 2	0.5 1	0.3 1
167 179	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16383. 4	3342.9	-9.5	30918. 6	-26.3	-36.3	0.4 8	0.0 3	0.4 8	0.2 7
179 191	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16734. 6	3996.7	-24.3	27962. 1	-94.3	6.5	0.4 3	0.0 2	0.4 3	0.2 3
191 203	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	16167. 3	3907.3	-24.3	24365. 8	-70.2	3.4	0.3 8	0.0 2	0.3 8	0.1 8
203 215	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	0.0 0	15616. 6	3950.6	-24.3	20919. 3	-46.6	0.9	0.3 2	0.0 2	0.3 2	0.1 5
151 163	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	12358. 6	1272.7	196.5	29082. 2	- 110.3	12.7	0.4 5	0.0 1	0.4 5	0.2 3
163 175	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	11833. 0	2035.2	- 366.9	27925. 2	- 306.0	-17.5	0.4 4	0.0 1	0.4 4	0.2 2
97 109	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	21120. 1	-4106.7	-2.3	36756. 7	-24.5	-74.1	0.5 7	0.0 5	0.5 7	0.3 7
109 121	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	20681. 9	-2489.3	-2.3	38999. 8	-14.8	-76.1	0.6 0	0.0 4	0.6 0	0.4 1
121 133	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	1.0 1	20114. 9	-1198.9	-2.3	39927. 8	-5.7	-77.1	0.6 1	0.0 3	0.6 1	0.4 3
133 145	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	20016. 6	679.1	-8.4	39925. 5	-48.1	-17.8	0.6 1	0.0 1	0.6 1	0.4 3
99 111	1	GL28h lamellare	0.9	1.0	1.0	1	0,6	0.9	21118.	-4106.6	2.4	36754.	24.3	73.8	0.5	0.0	0.5	0.3

		Omogeneo	9	0	0		0	9	1			3			7	5	7	7
91 47	5	GL28h lamellare Omogeneo	5.4 5	1.0 0	1.0 0	3	0,6 0	0.0 0	12306. 4	-560.1	- 121.3	-754.0	- 393.6	-33.3	0.2 2	0.0 5	0.4 0	0.2 4
22 82	5	GL28h lamellare Omogeneo	5.4 5	1.0 0	1.0 0	3	0,6 0	5.4 5	- 9422.5	-782.5	-6.1	946.7	- 143.8	-55.8	0.3 0	0.0 8	0.0 0	0.1 8
92 68	5	GL28h lamellare Omogeneo	5.4 5	1.0 0	1.0 0	3	0,6 0	0.0 0	12707. 9	-564.8	325.9	-779.5	719.7	228.2	0.2 7	0.3 2	0.4 9	0.2 5
230 218	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	15246. 1	-3984.4	14.5	19810. 9	-12.3	2.5	0.3 0	0.0 2	0.3 0	0.1 3
218 206	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	1.0 2	15676. 5	-4451.5	14.5	23934. 9	-27.2	2.2	0.3 7	0.0 2	0.3 7	0.1 8
206 194	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.9 8	16253. 3	-4404.4	14.5	27868. 4	-41.4	0.8	0.4 3	0.0 2	0.4 3	0.2 3
194 182	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16842. 8	-4489.5	14.5	31958. 7	-56.0	-1.0	0.4 9	0.0 2	0.4 9	0.2 9
182 170	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17677. 3	-3820.2	8.4	35371. 9	-16.7	25.7	0.5 4	0.0 3	0.5 4	0.3 4
170 158	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	18475. 9	-3022.9	8.4	38035. 4	-27.3	24.2	0.5 8	0.0 2	0.5 8	0.3 9
158 146	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19279. 7	-1856.8	8.4	39551. 3	-37.9	21.4	0.6 1	0.0 1	0.6 1	0.4 2
146 134	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	20015. 6	-679.2	8.4	39921. 6	-48.1	17.8	0.6 1	0.0 1	0.6 1	0.4 3
134 122	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	0.0 0	20113. 7	1198.6	2.3	39923. 9	-5.7	77.0	0.6 1	0.0 3	0.6 1	0.4 3
122 110	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	20680. 7	2488.9	2.3	38996. 1	-14.8	76.0	0.6 0	0.0 4	0.6 0	0.4 1
244 232	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	14721. 8	-3715.8	-4.4	16272. 9	24.8	6.9	0.2 5	0.0 2	0.2 5	0.1 0

232 220	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	15245. 8	-3984.1	-14.5	19810. 1	12.2	-2.5	0.3 0	0.0 2	0.3 0	0.1 3
220 208	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	1.0 2	15676. 2	-4451.3	-14.5	23934. 0	27.1	-2.2	0.3 7	0.0 2	0.3 7	0.1 8
327 336	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	13421. 9	611.8	-0.3	172.0	19.4	-0.3	0.0 1	0.0 0	0.0 1	0.0 4
280 268	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	6030.5	-2677.7	6.9	12531. 6	- 133.3	3.3	0.1 5	0.0 1	0.1 5	0.0 4
268 256	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	14	0.9 0	0.9 7	7631.8	-2299.0	25.0	14909. 5	67.7	32.9	0.1 8	0.0 1	0.1 8	0.0 5
332 320	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	3875.8	-1835.9	-61.9	3354.4	77.1	33.0	0.0 4	0.0 1	0.0 4	0.0 1
320 308	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	1.0 0	1691.3	-498.3	641.3	1032.1	- 891.1	29.3	0.0 8	0.0 1	0.0 8	0.0 1
125 137	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	1.0 1	17775. 3	-1128.4	18.3	34778. 4	-13.3	133.0	0.5 3	0.0 5	0.5 3	0.3 3
137 149	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	18643. 9	573.4	9.5	34781. 0	63.2	24.9	0.5 4	0.0 1	0.5 4	0.3 3
95 107	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	18831. 7	-3599.3	-18.2	31945. 0	-48.2	- 128.1	0.4 9	0.0 6	0.4 9	0.2 9
107 119	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	18354. 6	-2210.1	-18.2	33909. 2	-17.1	- 132.3	0.5 2	0.0 6	0.5 2	0.3 2
119 131	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	1.0 1	17772. 0	-1127.3	-18.2	34765. 1	13.0	- 133.3	0.5 3	0.0 5	0.5 3	0.3 3
131 143	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	18640. 4	574.4	-9.5	34767. 7	-63.5	-25.0	0.5 4	0.0 1	0.5 4	0.3 3
199 211	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	9646.2	3092.0	16.6	21163. 4	61.9	-12.8	0.3 3	0.0 2	0.3 3	0.1 3
211	1	GL28h lamellare	1.0	1.0	1.0	2	0,6	0.0	7981.1	3007.5	-	17606.	-	68.1	0.2	0.0	0.2	0.0

223		Omogeneo	2	0	0		0	0			257.9	6	280.7		8	4	8	9
86 74	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	21684. 4	7741.7	-21.6	27286. 7	-42.8	67.1	0.4 2	0.1 0	0.4 2	0.2 3
74 32	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	0.0 0	20648. 1	10467.5	-21.6	19527. 3	-29.7	63.8	0.3 0	0.1 5	0.3 0	0.1 5
39 77	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	1.8 7	18201. 9	-9094.5	-54.9	16963. 0	66.5	103.2	0.2 7	0.1 4	0.2 7	0.1 2
77 89	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19081. 1	-6696.6	-54.9	23672. 8	107.7	111.0	0.3 7	0.0 9	0.3 7	0.1 8
89 101	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19240. 5	-4995.2	18.3	28545. 4	77.4	121.4	0.4 4	0.0 7	0.4 4	0.2 4
45 79	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	2	0,6 0	1.8 7	11119. 6	-7550.6	- 140.9	13808. 9	261.1	-17.8	0.2 3	0.0 7	0.2 3	0.0 8
29 71	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	1.8 7	18199. 4	-9091.9	54.9	16958. 1	-66.6	- 103.5	0.2 6	0.1 4	0.2 6	0.1 2
71 83	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19078. 4	-6694.3	54.9	23665. 6	- 107.8	- 111.2	0.3 7	0.0 9	0.3 7	0.1 8
83 95	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19237. 7	-4993.2	-18.2	28536. 3	-77.5	- 121.7	0.4 4	0.0 7	0.4 4	0.2 4
79 91	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	11865. 0	-6236.5	- 140.9	19978. 7	402.7	16.1	0.3 3	0.0 5	0.3 3	0.1 3
91 103	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	15561. 8	-4214.5	430.0	24121. 4	565.7	- 282.9	0.4 0	0.1 3	0.4 0	0.1 8
224 212	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	1.0 2	9281.5	-3133.1	-16.6	18347. 8	46.3	10.5	0.2 8	0.0 2	0.2 8	0.1 0
212 200	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.9 8	9644.1	-3091.9	-16.6	21157. 1	61.9	12.9	0.3 3	0.0 2	0.3 3	0.1 3
200 188	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	1.0 0	5896.6	-3345.4	- 494.0	23184. 2	493.7	- 126.7	0.3 8	0.0 6	0.3 8	0.1 4

188 176	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	1.0 0	9304.7	-3420.7	599.4	26469. 0	87.0	44.2	0.4 1	0.0 3	0.4 1	0.1 9
87 99	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	21469. 7	-5702.2	2.4	32841. 4	33.1	71.1	0.5 1	0.0 6	0.5 1	0.3 1
100 88	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	21060. 5	5108.5	-39.9	34143. 9	368.3	- 123.3	0.5 4	0.0 8	0.5 4	0.3 3
88 76	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	22541. 8	7826.8	72.8	29016. 5	419.0	-80.0	0.4 7	0.1 0	0.4 7	0.2 6
213 225	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	5878.4	2385.0	13.2	21055. 6	-1.1	-15.8	0.2 5	0.0 1	0.2 5	0.0 8
201 213	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	0.0 0	9282.4	3132.8	-16.6	18348. 1	-46.2	10.4	0.2 8	0.0 2	0.2 8	0.1 0
189 201	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	9644.9	3091.6	-16.6	21157. 1	-61.9	12.8	0.3 3	0.0 2	0.3 3	0.1 3
322 310	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	3876.8	-1835.4	61.8	3353.5	-77.1	-32.9	0.0 4	0.0 1	0.0 4	0.0 1
262 250	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	14	0.9 0	0.9 7	4217.5	-2404.2	46.2	14094. 3	82.8	-9.2	0.1 7	0.0 1	0.1 7	0.0 4
274 262	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	4019.1	-2382.3	3.2	11866. 0	144.7	-13.9	0.1 5	0.0 1	0.1 5	0.0 3
321 333	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	0.0 0	7621.3	-544.5	34.6	-499.7	351.5	-22.2	0.0 3	0.0 1	0.0 3	0.0 2
309 321	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	3876.6	1836.0	-62.1	3424.9	-79.6	33.0	0.0 4	0.0 1	0.0 4	0.0 1
177 189	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	10010. 2	3124.8	-16.6	24054. 6	-77.9	15.5	0.3 7	0.0 2	0.3 7	0.1 6
165 177	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	11727. 7	2652.5	13.3	26514. 2	-39.7	7.2	0.4 1	0.0 1	0.4 1	0.2 0
153	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	12222.	2056.2	13.3	28365.	-25.7	10.6	0.4	0.0	0.4	0.2

165		Omogeneo	0	0	0		0	0	2			6			4	1	4	2
141	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	12710.	1224.1	13.3	29394.	-11.3	13.1	0.4	0.0	0.4	0.2
153		Omogeneo	0	0	0		0	0	2			3			5	1	5	4
286	1	GL28h lamellare	1.0	1.0	1.0	14	0.9	1.0	3089.6	-2287.0	4.8	9635.4	82.3	-31.4	0.1	0.0	0.1	0.0
274		Omogeneo	0	0	0		0	0							2	1	2	2
298	1	GL28h lamellare	1.0	1.0	1.0	14	0.9	1.0	2923.3	-2173.6	-30.4	7453.7	91.3	-34.0	0.0	0.0	0.0	0.0
286		Omogeneo	0	0	0		0	0							9	1	9	1
310	1	GL28h lamellare	1.0	1.0	1.0	3	0,6	1.0	8116.1	18.6	644.7	486.7	-	-0.1	0.0	0.0	0.0	0.0
298		Omogeneo	0	0	0		0	0					884.2		7	0	7	2
106 94	1	GL28h lamellare	0.9	1.0	1.0	1	0,6	0.0	14662.	3137.4	59.8	26974.	-93.0	12.6	0.4	0.0	0.4	0.2
		Omogeneo	9	0	0		0	0	8			0			2	2	2	1
118	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	14472.	1952.2	59.8	28785.	-31.6	21.7	0.4	0.0	0.4	0.2
106		Omogeneo	0	0	0		0	0	4			3			4	1	4	3
130	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	0.0	14179.	976.5	59.8	29609.	30.6	24.4	0.4	0.0	0.4	0.2
118		Omogeneo	1	0	0		0	0	8			4			5	1	5	4
142	1	GL28h lamellare	0.9	1.0	1.0	1	0,6	0.9	13142.	-393.7	-13.2	29609.	3.1	-14.1	0.4	0.0	0.4	0.2
130		Omogeneo	9	0	0		0	9	6			2			5	1	5	4
154	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	1.0	12709.	-1224.1	-13.2	29391.	-11.3	-13.1	0.4	0.0	0.4	0.2
142		Omogeneo	0	0	0		0	0	6			9			5	1	5	4
166	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	1.0	12221.	-2056.1	-13.2	28363.	-25.7	-10.6	0.4	0.0	0.4	0.2
154		Omogeneo	0	0	0		0	0	6			2			4	1	4	2
178	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	1.0	11727.	-2652.4	-13.2	26511.	-39.7	-7.2	0.4	0.0	0.4	0.2
166		Omogeneo	0	0	0		0	0	1			8			1	1	1	0
190	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	1.0	10009.	-3124.7	16.6	24052.	-77.9	-15.5	0.3	0.0	0.3	0.1
178		Omogeneo	0	0	0		0	0	7			2			7	2	7	6
202	1	GL28h lamellare	0.9	1.0	1.0	1	0,6	0.9	9644.5	-3091.5	16.6	21154.	-61.9	-12.8	0.3	0.0	0.3	0.1
190		Omogeneo	8	0	0		0	8				9			3	2	3	3
214	1	GL28h lamellare	1.0	1.0	1.0	1	0,6	1.0	9281.9	-3132.7	16.6	18346.	-46.2	-10.4	0.2	0.0	0.2	0.1
202		Omogeneo	2	0	0		0	2				0			8	2	8	0

226 214	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	14	0.9 0	1.0 0	5877.2	-2384.7	-13.2	21073. 2	-9.7	15.8	0.2 5	0.0 1	0.2 5	0.0 8
333 322	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	7628.1	877.3	-42.0	-910.7	216.1	12.0	0.0 3	0.0 1	0.0 3	0.0 2
238 226	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	14	0.9 0	0.9 9	4628.4	-2441.9	93.3	18834. 4	-80.3	-6.6	0.2 3	0.0 1	0.2 3	0.0 6
250 238	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	14	0.9 0	1.0 3	4399.7	-2476.9	69.9	16525. 9	12.2	-7.1	0.2 0	0.0 1	0.2 0	0.0 5
297 309	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	3	0,6 0	0.0 0	7944.4	-720.6	- 654.1	- 1391.1	- 871.1	-33.3	0.0 8	0.0 1	0.0 8	0.0 2
81 93	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	14789. 5	-4275.7	-59.8	23954. 9	- 152.9	1.1	0.3 8	0.0 2	0.3 8	0.1 8
69 81	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	13258. 6	-5791.0	88.7	19682. 5	- 170.8	- 315.0	0.3 1	0.1 6	0.3 1	0.1 3
70 24	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	0.0 0	12538. 5	7443.7	-88.7	13880. 7	- 121.7	301.7	0.2 2	0.1 8	0.2 2	0.0 8
82 70	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	13258. 2	5790.6	-88.7	19681. 2	- 170.7	314.9	0.3 1	0.1 6	0.3 1	0.1 3
94 82	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	14788. 8	4275.4	59.8	23953. 2	- 152.9	-1.1	0.3 8	0.0 2	0.3 8	0.1 8
23 69	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	1.8 7	12538. 9	-7444.2	88.7	13881. 6	- 121.7	- 301.8	0.2 2	0.1 8	0.2 2	0.0 8
93 105	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	14663. 5	-3137.7	-59.8	26975. 9	-93.0	-12.5	0.4 2	0.0 2	0.4 2	0.2 1
285 297	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	2924.3	2174.2	30.9	7456.0	86.2	34.0	0.0 9	0.0 1	0.0 9	0.0 1
273 285	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	3090.6	2287.6	-4.2	9638.1	81.7	31.4	0.1 2	0.0 1	0.1 2	0.0 2
261	1	GL28h lamellare	0.9	1.0	1.0	18	0.9	0.0	4020.5	2382.8	-3.2	11865.	127.6	13.9	0.1	0.0	0.1	0.0

273		Omogeneo	9	0	0		0	0				5			5	1	5	3
249 261	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	18	0.9 0	0.0 0	4218.9	2404.7	-46.4	14093. 2	84.3	9.2	0.1 7	0.0 1	0.1 7	0.0 4
237 249	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	18	0.9 0	0.0 0	4401.1	2477.3	-70.0	16522. 4	12.1	7.1	0.2 0	0.0 1	0.2 0	0.0 5
225 237	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	4629.8	2442.3	-93.4	18826. 7	-80.7	6.6	0.2 3	0.0 1	0.2 3	0.0 6
129 141	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	13143. 2	393.6	13.3	29611. 5	3.1	14.0	0.4 5	0.0 1	0.4 5	0.2 4
117 129	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	1.0 1	14180. 5	-976.6	-59.8	29611. 7	30.6	-24.4	0.4 5	0.0 1	0.4 5	0.2 4
105 117	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	14473. 1	-1952.4	-59.8	28787. 4	-31.6	-21.7	0.4 4	0.0 1	0.4 4	0.2 3
101 113	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	18834. 7	-3601.0	18.3	31955. 7	48.0	127.9	0.4 9	0.0 6	0.4 9	0.2 9
113 125	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	18357. 7	-2211.5	18.3	33921. 4	16.9	132.0	0.5 2	0.0 6	0.5 2	0.3 2
160 148	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	19278. 7	-1856.7	-8.3	39549. 5	37.6	-21.3	0.6 1	0.0 1	0.6 1	0.4 2
148 136	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	20014. 5	-679.2	-8.3	39919. 8	47.7	-17.7	0.6 1	0.0 1	0.6 1	0.4 3
136 124	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	0.0 0	20112. 3	1198.8	-2.4	39922. 1	5.4	-76.8	0.6 1	0.0 3	0.6 1	0.4 3
124 112	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	20679. 3	2488.9	-2.4	38994. 3	14.6	-75.8	0.6 0	0.0 4	0.6 0	0.4 1
112 100	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.0 0	21201. 4	3003.1	-39.9	37229. 7	316.2	- 155.6	0.5 9	0.0 7	0.5 9	0.3 8
243 255	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	17	0.9 0	0.0 0	6563.9	2824.0	91.8	17953. 6	39.7	2.0	0.2 1	0.0 1	0.2 1	0.0 6

255 267	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	18	0.9 0	0.0 0	7633.6	2300.0	-25.2	15267. 1	69.3	-32.9	0.1 8	0.0 1	0.1 8	0.0 5
267 279	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	7361.4	2319.2	36.8	12843. 9	93.4	-29.5	0.1 6	0.0 1	0.1 6	0.0 4
279 291	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	7210.7	2519.3	-30.2	10480. 4	74.5	-22.9	0.1 3	0.0 1	0.1 3	0.0 3
291 303	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	6970.0	2399.3	22.0	8151.1	96.4	-20.4	0.1 0	0.0 1	0.1 0	0.0 2
303 315	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	18	0.9 0	0.0 0	6719.3	2331.1	64.9	5962.8	78.8	-17.3	0.0 7	0.0 1	0.0 7	0.0 2
111 123	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	20679. 8	-2489.4	2.4	38997. 4	14.5	75.8	0.6 0	0.0 4	0.6 0	0.4 1
123 135	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	1.0 1	20112. 9	-1199.2	2.4	39925. 7	5.4	76.8	0.6 1	0.0 3	0.6 1	0.4 3
135 147	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	20015. 3	678.9	8.4	39923. 4	47.8	17.6	0.6 1	0.0 1	0.6 1	0.4 3
326 314	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	8565.5	1433.0	108.7	- 2949.7	52.5	10.9	0.0 5	0.0 1	0.0 5	0.0 3
314 302	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	6717.5	-2330.0	64.3	6000.4	-69.1	-17.4	0.0 7	0.0 1	0.0 7	0.0 2
302 290	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	6968.1	-2398.2	21.7	8180.8	- 100.5	-20.5	0.1 0	0.0 1	0.1 0	0.0 2
290 278	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	7208.7	-2518.3	-30.8	10498. 0	-64.8	-23.1	0.1 3	0.0 1	0.1 3	0.0 3
145 157	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	19280. 8	1856.8	-8.4	39555. 3	-37.9	-21.4	0.6 1	0.0 1	0.6 1	0.4 2
157 169	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	18477. 0	3022.9	-8.4	38039. 5	-27.3	-24.2	0.5 8	0.0 2	0.5 8	0.3 9
256	1	GL28h lamellare	1.0	1.0	1.0	14	0.9	1.0	7892.6	-2373.4	61.0	17525.	5.8	34.5	0.2	0.0	0.2	0.0

244		Omogeneo	3	0	0		0	3				1			1	1	1	6
266 254	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	13	0.9 0	0.9 7	7630.6	-2299.1	-25.0	14908. 9	-67.6	-32.9	0.1 8	0.0 1	0.1 8	0.0 5
254 242	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	13	0.9 0	1.0 3	7891.4	-2373.5	-60.9	17524. 7	-5.9	-34.6	0.2 1	0.0 1	0.2 1	0.0 6
242 230	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	14721. 5	-3715.9	4.4	16273. 6	-24.7	-6.8	0.2 5	0.0 2	0.2 5	0.1 0
319 331	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	3876.0	1836.9	62.4	3426.9	79.4	-33.1	0.0 4	0.0 1	0.0 4	0.0 1
331 338	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	0.0 0	4461.4	709.8	41.9	693.2	228.7	-12.3	0.0 3	0.0 1	0.0 3	0.0 1
284 272	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	4018.9	-2382.7	-3.1	11868. 6	- 144.5	14.0	0.1 5	0.0 1	0.1 5	0.0 3
272 260	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	13	0.9 0	0.9 7	4217.3	-2404.6	-46.2	14097. 2	-82.6	9.3	0.1 7	0.0 1	0.1 7	0.0 4
308 296	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	2922.1	-2174.1	30.4	7455.4	-91.2	34.1	0.0 9	0.0 1	0.0 9	0.0 1
296 284	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	3088.5	-2287.4	-4.9	9637.5	-82.1	31.5	0.1 2	0.0 1	0.1 2	0.0 2
103 115	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	2	0,6 0	0.9 9	15721. 5	-3033.4	430.0	27025. 4	161.3	- 231.3	0.4 2	0.1 0	0.4 2	0.2 1
115 127	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	2	0,6 0	1.0 0	15548. 3	-1842.7	-15.5	28741. 7	198.8	- 214.3	0.4 5	0.0 8	0.4 5	0.2 4
127 139	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	2	0,6 0	1.0 1	15469. 5	-694.4	-15.5	29319. 4	232.7	- 195.8	0.4 6	0.0 7	0.4 6	0.2 4
139 151	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.0 0	13144. 8	393.2	-13.1	29617. 5	-2.6	-14.1	0.4 5	0.0 1	0.4 5	0.2 4
31 73	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	1.8 7	20649. 2	- 10468.3	21.6	19528. 8	-29.7	-63.8	0.3 0	0.1 5	0.3 0	0.1 5

73 85	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	21685. 5	-7742.4	21.6	27289. 0	-42.9	-67.1	0.4 2	0.1 0	0.4 2	0.2 3
85 97	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	21471. 7	-5702.5	-2.3	32843. 7	-33.3	-71.4	0.5 1	0.0 6	0.5 1	0.3 1
37 75	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	1	0,6 0	1.8 7	20647. 0	- 10467.5	-21.6	19527. 3	29.6	63.6	0.3 0	0.1 5	0.3 0	0.1 5
75 87	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	21683. 2	-7741.8	-21.6	27286. 8	42.8	66.9	0.4 2	0.1 0	0.4 2	0.2 3
294 282	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	13	0.9 0	1.0 0	7720.1	-2403.3	-33.8	10266. 9	-21.3	36.1	0.1 2	0.0 1	0.1 2	0.0 3
149 161	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17923. 8	1624.6	9.5	34515. 8	51.2	29.7	0.5 3	0.0 1	0.5 3	0.3 3
161 173	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	17149. 5	2657.9	9.5	33231. 5	38.6	33.7	0.5 1	0.0 2	0.5 1	0.3 1
173 185	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16387. 1	3342.8	9.5	30933. 9	26.1	36.1	0.4 8	0.0 3	0.4 8	0.2 7
185 197	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	16738. 8	3996.9	24.2	27977. 5	94.0	-6.6	0.4 3	0.0 2	0.4 3	0.2 3
197 209	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.0 0	16171. 5	3907.6	24.2	24381. 0	70.0	-3.5	0.3 8	0.0 2	0.3 8	0.1 8
209 221	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	0.0 0	15620. 7	3951.1	24.2	20934. 2	46.4	-1.0	0.3 2	0.0 2	0.3 2	0.1 5
221 233	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	15202. 2	3482.8	24.2	17321. 3	21.8	-0.5	0.2 7	0.0 1	0.2 7	0.1 1
233 245	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	18	0.9 0	0.0 0	7642.9	2502.0	-85.7	19293. 9	-73.8	-40.9	0.2 3	0.0 2	0.2 3	0.0 7
245 257	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	17	0.9 0	0.0 0	8475.1	2218.4	102.8	17024. 0	58.2	-4.1	0.2 0	0.0 0	0.2 0	0.0 6
257	1	GL28h lamellare	0.9	1.0	1.0	17	0.9	0.0	8228.1	2158.8	66.6	14600.	-50.8	-5.3	0.1	0.0	0.1	0.0

269		Omogeneo	7	0	0		0	0				4			8	0	8	5
269 281	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	7972.6	2199.5	3.7	12432. 9	- 112.7	-9.3	0.1 5	0.0 1	0.1 5	0.0 4
281 293	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	7725.2	2408.1	33.2	10257. 1	-31.6	-36.1	0.1 2	0.0 1	0.1 2	0.0 3
293 305	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	7492.4	2313.1	-19.2	8049.8	-54.1	-37.5	0.1 0	0.0 1	0.1 0	0.0 3
305 317	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	17	0.9 0	0.0 0	7250.7	2280.3	-61.3	5946.1	-36.6	-38.9	0.0 7	0.0 2	0.0 7	0.0 2
317 329	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	17	0.9 0	0.0 0	7036.7	2214.3	- 106.3	3857.6	36.3	-37.8	0.0 5	0.0 1	0.0 5	0.0 2
329 337	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	14553. 3	592.1	-0.1	152.4	31.9	-0.6	0.0 1	0.0 0	0.0 1	0.0 4
282 270	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	7973.5	-2203.3	-3.7	12278. 8	- 136.6	9.4	0.1 5	0.0 1	0.1 5	0.0 4
270 258	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	13	0.9 0	0.9 7	8230.3	-2161.2	-66.8	14344. 9	-48.3	5.3	0.1 7	0.0 0	0.1 7	0.0 5
258 246	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	13	0.9 0	1.0 3	8477.4	-2220.7	- 103.0	16684. 5	55.2	4.2	0.2 0	0.0 0	0.2 0	0.0 6
246 234	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	13	0.9 0	0.9 9	8771.5	-2104.4	- 139.0	18925. 7	196.0	6.6	0.2 3	0.0 1	0.2 3	0.0 7
234 222	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	15208. 7	-3487.4	-24.2	17308. 4	21.8	0.5	0.2 7	0.0 1	0.2 7	0.1 1
222 210	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	1	0,6 0	1.0 2	15627. 3	-3955.6	-24.2	20925. 8	46.5	1.0	0.3 2	0.0 2	0.3 2	0.1 5
210 198	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	1	0,6 0	0.9 8	16178. 3	-3911.7	-24.2	24376. 7	70.0	3.5	0.3 8	0.0 2	0.3 8	0.1 8
198 186	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16745. 8	-4000.7	-24.2	27977. 0	94.1	6.6	0.4 3	0.0 2	0.4 3	0.2 3

186 174	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	16393. 7	-3345.9	-9.5	30936. 3	26.1	-36.1	0.4 8	0.0 3	0.4 8	0.2 7
174 162	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17156. 4	-2660.4	-9.5	33236. 4	38.6	-33.7	0.5 1	0.0 2	0.5 1	0.3 1
162 150	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	1.0 0	17930. 9	-1626.4	-9.5	34522. 5	51.2	-29.8	0.5 3	0.0 1	0.5 3	0.3 3
150 138	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	1	0,6 0	0.9 9	18651. 2	-574.5	-9.5	34788. 8	63.2	-24.9	0.5 4	0.0 1	0.5 4	0.3 3
138 126	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0	1	0,6 0	0.0 0	17781. 6	1127.9	-18.3	34786. 2	-13.3	- 133.0	0.5 3	0.0 5	0.5 3	0.3 3
126 114	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	1	0,6 0	0.0 0	18364. 1	2211.5	-18.3	33929. 7	16.9	- 132.0	0.5 2	0.0 6	0.5 2	0.3 2
1 81	5	GL28h lamellare Omogeneo	5.4 5	1.0 0	1.0 0	3	0,6 0	5.4 5	- 9821.8	-787.3	- 198.2	972.5	469.8	- 139.2	0.3 6	0.2 0	0.0 0	0.1 8
83 81	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 4259.8	98.7	0.0	0.0	-0.0	83.5	0.0 5	0.1 4	0.0 0	0.0 0
85 83	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1347.4	98.7	0.0	0.0	-0.0	- 111.0	0.0 2	0.1 9	0.0 0	0.0 0
87 85	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1211.9	98.7	0.0	0.0	-0.0	99.3	0.0 0	0.1 7	0.0 3	0.0 2
89 87	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	2.7 5	3911.5	0.0	0.0	-135.7	-0.0	-72.3	0.0 4	0.1 2	0.1 5	0.0 6
91 89	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	6523.0	98.7	0.0	0.0	-0.0	130.5	0.0 0	0.2 3	0.1 8	0.0 9
82 84	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 4252.4	98.7	0.0	0.0	-0.0	-97.0	0.0 5	0.1 7	0.0 0	0.0 0
84 86	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1390.1	98.7	0.0	0.0	-0.0	103.7	0.0 2	0.1 8	0.0 0	0.0 0
86 88	3	GL28h lamellare	5.5	1.0	1.0	3	0,6	0.0	1045.8	98.7	0.0	0.0	-0.0	-99.3	0.0	0.1	0.0	0.0

		Omogeneo	0	0	0		0	0							0	7	3	2
88 90	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	2.7 5	3869.3	0.0	0.0	-135.7	-0.0	79.6	0.0 4	0.1 4	0.1 5	0.0 6
90 92	3	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	2.7 5	6531.7	0.0	0.0	-135.7	-0.0	- 117.0	0.0 4	0.2 0	0.2 2	0.1 0
129 131	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	1151.9	-101.3	163.0	0.0	- 605.5	-1.1	0.1 6	0.0 0	0.1 8	0.0 3
131 133	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	1066.2	-101.3	- 345.3	0.0	981.4	4.2	0.2 5	0.0 1	0.2 8	0.0 2
133 135	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	870.9	101.3	287.9	0.0	817.4	-6.3	0.2 1	0.0 1	0.2 3	0.0 2
135 137	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	634.5	101.3	- 300.1	0.0	- 828.5	11.3	0.2 1	0.0 2	0.2 3	0.0 1
137 139	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-427.4	101.3	216.3	0.0	736.3	-3.5	0.1 9	0.0 1	0.0 0	0.0 0
130 132	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	847.0	-101.3	- 170.1	0.0	635.9	8.3	0.1 6	0.0 1	0.1 8	0.0 2
132 134	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	765.2	-101.3	336.0	0.0	- 951.3	-7.0	0.2 4	0.0 1	0.2 6	0.0 2
134 136	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	380.2	101.3	- 287.9	0.0	- 806.8	6.3	0.2 1	0.0 1	0.2 2	0.0 1
136 138	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	333.2	101.3	309.3	0.0	858.5	-8.4	0.2 2	0.0 2	0.2 3	0.0 1
138 140	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-732.9	101.3	- 209.3	0.0	- 705.9	-3.6	0.1 9	0.0 1	0.0 0	0.0 0
177 179	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1307.6	101.3	82.4	0.0	97.4	-80.1	0.0 3	0.1 3	0.0 6	0.0 3
179 181	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	868.7	-101.3	- 307.2	0.0	871.1	107.8	0.2 2	0.1 7	0.2 4	0.0 2

181 183	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	296.3	101.3	173.9	0.0	500.0	-99.6	0.1 3	0.1 6	0.1 4	0.0 1
183 185	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-310.4	101.3	- 262.1	0.0	- 725.5	77.7	0.1 9	0.1 3	0.0 0	0.0 0
185 187	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1074.1	101.3	120.9	0.0	446.7	- 128.0	0.1 3	0.2 1	0.0 0	0.0 0
178 180	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1190.2	101.3	-82.4	0.0	-94.1	96.6	0.0 2	0.1 5	0.0 5	0.0 3
180 182	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	5.5 0	851.2	-101.3	294.2	0.0	- 832.8	- 106.5	0.2 1	0.1 7	0.2 3	0.0 2
182 184	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	164.8	101.3	- 173.9	0.0	- 490.0	99.6	0.1 3	0.1 6	0.1 3	0.0 0
184 186	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-327.4	101.3	275.2	0.0	764.1	-78.9	0.2 0	0.1 3	0.0 0	0.0 0
186 188	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1191.1	101.3	- 120.9	0.0	- 443.4	111.4	0.1 3	0.1 8	0.0 0	0.0 0
225 227	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1344.0	101.3	-34.9	0.0	- 191.3	- 123.1	0.0 5	0.2 0	0.0 8	0.0 3
227 229	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	572.2	101.3	- 226.2	0.0	- 604.5	156.9	0.1 6	0.2 5	0.1 7	0.0 1
229 231	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-136.0	101.3	29.9	0.0	95.8	- 143.2	0.0 3	0.2 3	0.0 0	0.0 0
231 233	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-859.8	101.3	- 193.2	0.0	- 535.8	103.7	0.1 5	0.1 7	0.0 0	0.0 0
233 235	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1492.6	101.3	-17.3	0.0	37.0	- 191.7	0.0 3	0.3 1	0.0 0	0.0 0
226 228	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	1369.7	101.3	36.0	0.0	194.1	130.9	0.0 5	0.2 1	0.0 8	0.0 3
228	2	GL28h lamellare	5.5	1.0	1.0	3	0,6	0.0	688.1	101.3	209.1	0.0	558.5	-	0.1	0.2	0.1	0.0

230		Omogeneo	0	0	0		0	0						154.8	4	5	6	2
230 232	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-47.9	101.3	-29.9	0.0	-89.4	143.2	0.0 2	0.2 3	0.0 0	0.0 0
232 234	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-743.4	101.3	210.4	0.0	584.0	- 105.8	0.1 6	0.1 7	0.0 0	0.0 0
234 236	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1466.6	101.3	16.1	0.0	-40.6	183.9	0.0 3	0.2 9	0.0 0	0.0 0
273 275	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	16	0.9 0	0.0 0	- 1184.1	77.9	-19.8	0.0	-92.8	- 176.3	0.0 3	0.2 2	0.0 0	0.0 0
275 277	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	12.5	101.3	-64.7	0.0	- 167.9	164.8	0.0 4	0.2 6	0.0 4	0.0 0
277 279	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	161.3	101.3	14.7	0.0	48.3	- 150.1	0.0 1	0.2 4	0.0 2	0.0 0
279 281	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	16	0.9 0	0.0 0	630.4	77.9	-65.7	0.0	- 187.4	146.2	0.0 4	0.1 8	0.0 5	0.0 1
281 283	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-557.0	101.3	-19.9	0.0	-7.8	- 208.0	0.0 1	0.3 3	0.0 0	0.0 0
274 276	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	15	0.9 0	0.0 0	- 1184.7	77.9	20.0	0.0	93.2	176.3	0.0 3	0.2 2	0.0 0	0.0 0
276 278	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-19.2	101.3	47.0	0.0	120.3	- 163.9	0.0 3	0.2 6	0.0 0	0.0 0
278 280	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-148.6	101.3	-14.7	0.0	-43.6	150.1	0.0 1	0.2 4	0.0 0	0.0 0
280 282	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	15	0.9 0	0.0 0	628.9	77.9	66.0	0.0	188.0	- 146.2	0.0 4	0.1 8	0.0 5	0.0 1
282 284	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-440.7	101.3	20.7	0.0	9.1	216.0	0.0 1	0.3 5	0.0 0	0.0 0
321 323	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	16	0.9 0	0.0 0	1283.4	77.9	22.0	0.0	52.7	- 179.5	0.0 1	0.2 2	0.0 3	0.0 2

323 325	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	359.6	101.3	9.0	0.0	24.9	160.0	0.0 1	0.2 6	0.0 1	0.0 1
325 327	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 1317.6	101.3	22.2	0.0	62.7	- 146.0	0.0 3	0.2 3	0.0 0	0.0 0
327 329	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	16	0.9 0	0.0 0	-101.7	77.9	17.1	0.0	46.4	145.2	0.0 1	0.1 8	0.0 0	0.0 0
329 331	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 2828.1	101.3	35.1	0.0	86.5	- 204.8	0.0 6	0.3 3	0.0 0	0.0 0
322 324	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	15	0.9 0	0.0 0	1282.5	77.9	-22.9	0.0	-55.2	179.4	0.0 1	0.2 2	0.0 3	0.0 2
324 326	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	713.0	101.3	-32.6	0.0	-90.2	- 160.4	0.0 2	0.2 6	0.0 4	0.0 2
326 328	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	-731.8	101.3	-22.2	0.0	-62.3	146.0	0.0 2	0.2 3	0.0 0	0.0 0
328 330	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	15	0.9 0	0.0 0	-101.9	77.9	-17.8	0.0	-48.2	- 145.3	0.0 1	0.1 8	0.0 0	0.0 0
330 332	2	GL28h lamellare Omogeneo	5.5 0	1.0 0	1.0 0	3	0,6 0	0.0 0	- 2785.0	101.3	-23.1	0.0	-54.7	222.2	0.0 5	0.3 6	0.0 0	0.0 0

Tab.30 – Verifiche di resistenza e di instabilità delle sezioni in legno lamellare

6. 6 Resistenza al fuoco

Per la verifica della struttura lignea al fuoco si assume che le proprietà meccaniche della sezione lignea residua, ad una certa distanza dallo strato carbonizzato, non risultino ridotte rispetto alle condizioni standard. Per quanto riguarda gli effetti prodotti dalle azioni dirette applicate alla costruzione si adotta, in generale, la regola di combinazione valida per le cosiddette combinazioni eccezionali, effettuando quindi una verifica allo stato limite ultimo utilizzando valori pertinenti dei coefficienti di sicurezza e dei coefficienti di combinazione.

I metodi di valutazione della sicurezza prevedono differenti livelli di semplificazione, e nel caso in esame si esegue un'analisi strutturale globale, quindi verificando la disequazione:

$$A_{d,fi}(t) \leq R_{d,fi}(t)$$

nella quale:

$A_{d,fi}$ è l'effetto delle azioni nella situazione di incendio, corrispondente alla combinazione eccezionale delle azioni,

$R_{d,fi}$ è la corrispondente resistenza di progetto nella medesima condizione,

t è la durata di esposizione al fuoco;

Il metodo di calcolo che può essere adottato per il singolo elemento di legno prevede quindi la preventiva valutazione della velocità di demolizione della sezione lignea causata dalla carbonizzazione, la determinazione di una sezione efficace ridotta rispetto a quella originaria in corrispondenza della resistenza (tempo) richiesta, il calcolo della capacità portante (per rottura o per instabilità) allo stato limite ultimo di collasso, calcolo che può essere effettuato nella sezione ridotta più sollecitata.

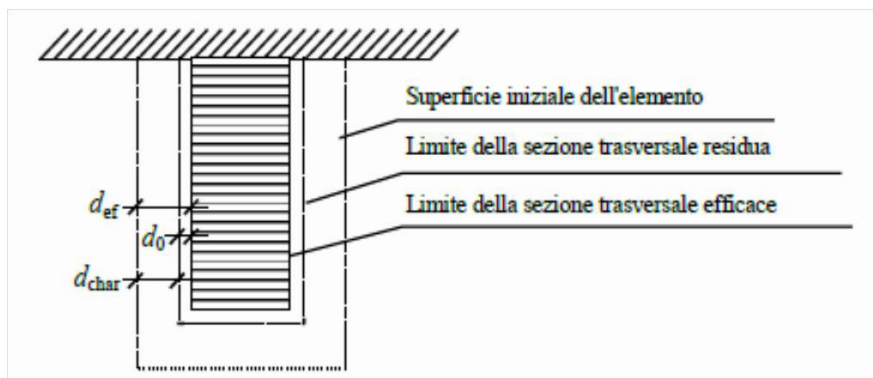


Fig.28 – Sezione Trasversale di un elemento ligneo parzialmente carbonizzato

In sostanza, come si può dedurre dalla Fig.27, in assenza di valutazioni più rigorose, si può fare riferimento al calcolo della cosiddetta "sezione efficace" in corrispondenza del tempo richiesto di resistenza al fuoco. Tale sezione si ottiene riducendo la sezione iniziale di una profondità di carbonizzazione "effettiva" calcolata come di seguito esposto:

$$d_{ef} = d_{char} + k_0 d_0$$

dove:

d_{ef} è la profondità di carbonizzazione;

$d_{char} = \beta_0 t$;

β_0 è la velocità di carbonizzazione ideale, convenientemente superiore a quella effettiva, per includere gli effetti (negativi) di fessurazioni e arrotondamento degli spigoli della sezione;

k_0 è il coefficiente dipendente dal tempo t , variabile linearmente tra 0 (in corrispondenza del tempo $t=0$) e 1 (in corrispondenza del tempo $t=20$ minuti), ed assunto costante e pari ad 1 per $t > 20$ minuti;

$d_0 = 7$ mm.

Per quanto riguarda la velocità di carbonizzazione β_0 , in mancanza di valutazioni sperimentali dirette effettuate in accordo alle pertinenti normative CEN, si può fare riferimento a quanto riportato nella Tabella 31.

Materiale	β_0 [mm/minuto]
a) Conifere e faggio	
Legno massiccio con massa volumica caratteristica non inferiore a 290 kg/m ³	0.8
Legno lamellare incollato con massa volumica caratteristica non inferiore a 290 kg/m ³	0.7
b) Latifoglie	
Legno massiccio o legno lamellare incollato con massa volumica caratteristica non inferiore a 290 kg/m ³	0.7
Legno massiccio o legno lamellare incollato con massa volumica caratteristica non inferiore a 450 kg/m ³	0.55
c) LVL	
con massa volumica caratteristica non inferiore a 480 kg/m ³	0.7

Tab.31 – Velocità di carbonizzazione β_0

Per la resistenza e per i moduli elastici di progetto della sezione efficace, nella verifica della capacità portante, si adottano i seguenti valori:

$$f_{d,fi} = k_{mod,fi} k_{fi} \frac{f_k}{\gamma_{M,fi}}$$

$$S_{d,fi} = k_{mod,fi} k_{fi} \frac{S_{0.5}}{\gamma_{M,fi}}$$

dove:

f_k , $S_{0.5}$ sono i valori di una generica proprietà di resistenza del materiale o di modulo di elasticità a temperatura normale (si vedano le tabelle riportate in Appendice 4);

$f_{d,fi}$, $S_{d,fi}$ sono i valori di progetto di una proprietà di resistenza o di modulo di elasticità del materiale;

k_{fi} è il coefficiente da assumere pari a 1.25 per il legno massiccio e a 1.15 per il legno lamellare incollato e pannelli derivati dal legno;

$\gamma_{M,fi}=1.0$ è il coefficiente parziale di sicurezza in situazione di incendio;

$k_{mod,fi}=1.0$ sostituisce il parametro k_{mod} a temperatura ambiente.

Anche in questo caso, il software Enexsys permette di fare le verifiche calcolando le sezioni ridotte degli elementi lignei. Per tali verifiche vengono assunti i seguenti parametri:

- Tempo di esposizione al fuoco: 60 min
- Velocità di carbonizzazione: 70 [mm]/min x 100
- Profondità dello strato per cui si assume resistenza e rigidezza nulla: 7 [mm]
- $k_{Mod,fi}=1.00$
- Sezioni rettangolari:
 - Numero di facce lungo la base esposte al fuoco 1
 - Numero di facce lungo l'altezza esposte al fuoco 2

Numero	$B_{t=0}$	$H_{t=0}$	$R_{t=0}$	$B_{t=60}$	$H_{t=60}$	$R_{t=60}$	Materiale
	[cm]	[cm]	[cm]	[cm]	[cm]	[cm]	
1	20.00	112.00		15.10	102.20		GL28h lamellare Omogeneo
2	22.00	28.00		17.10	18.20		GL28h lamellare Omogeneo
3	30.00	20.00		25.10	10.20		GL28h lamellare Omogeneo
5	24.00	28.00		19.10	18.20		GL28h lamellare Omogeneo

Tab.32 – Dimensioni efficaci delle sezioni lignee

Da A	Sez	Mat.	L	β_{12}	β_{13}	Comb	k_{mo} d	x	N	V_{12} [kg]	V_{13} [kg]	M_{12} [kgm]	M_{13} [kgm]	T [kgm]	$\sigma_{D,R}$	τ_D	$\sigma_{D,I}$	$\sigma_{D,Ft}$
			[m]					[m]							$\sigma_{R,R}$		$\sigma_{R,I}$	$\sigma_{R,Ft}$
128 116	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	23	1.0 0	0.0 0	10518. 5	907.2	38.7	22228. 5	211.0	264.9	0.3 1	0.1 1	0.3 1	0.1 2
116 104	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	22	1.0 0	0.0 0	12133. 7	1970.4	- 295.5	21696. 3	108.4	150.5	0.3 0	0.0 6	0.3 0	0.1 2
260 248	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	21	1.0 0	1.0 3	4933.1	1692.8	- -0.5	6832.6	13.7	7.2	0.0 9	0.0 1	0.0 9	0.0 2
248 236	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	23	1.0 0	0.9 9	2082.1	1755.4	- 458.5	7372.3	345.2	-51.9	0.1 2	0.0 2	0.1 2	0.0 1
236 224	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	1.0 0	6090.2	1915.1	- -10.6	10243. 6	19.3	6.6	0.1 4	0.0 1	0.1 4	0.0 3
76 38	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	22	1.0 0	0.0 0	14205. 8	7260.8	48.8	13905. 5	235.2	-22.3	0.2 0	0.0 5	0.2 0	0.0 7
98 86	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	14192. 4	3761.4	1.7	21669. 2	-21.8	45.9	0.3 0	0.0 3	0.3 0	0.1 2
104 92	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	23	1.0 0	0.0 0	10646. 5	2996.7	- 456.3	19321. 8	571.6	332.9	0.3 0	0.1 4	0.3 0	0.0 9
92 80	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	23	1.0 0	0.0 0	7373.0	4830.9	122.2	16247. 6	374.6	63.8	0.2 4	0.0 4	0.2 4	0.0 7
80 46	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	22	1.0 0	0.0 0	8767.6	6130.0	103.2	11614. 2	187.4	-3.3	0.1 7	0.0 3	0.1 7	0.0 5
96 84	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	22	1.0 0	0.0 0	13190. 5	3219.0	-10.7	21385. 5	229.7	-89.4	0.3 0	0.0 4	0.3 0	0.1 2
84 72	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	22	1.0 0	0.0 0	14047. 1	4888.3	32.4	18159. 3	248.5	-63.9	0.2 6	0.0 4	0.2 6	0.0 9
315 327	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	21	1.0 0	0.0 0	8690.4	757.3	-4.4	548.3	14.1	-1.1	0.0 1	0.0 0	0.0 3	0.0 2

169		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11709.			23328.			0.3	0.0	0.3	0.1
181	1	Omogeneo	0	0	0	21	0	0	4	2523.8	-5.3	5	-10.7	-16.5	2	1	2	3
265		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
277	1	Omogeneo	9	0	0	21	0	0	9086.1	1766.0	-2.9	4851.4	-7.7	3.3	7	0	7	3
277		GL28h lamellare	1.0	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
289	1	Omogeneo	0	0	0	22	0	0	5968.7	549.5	-70.8	2996.5	182.0	-2.2	5	0	6	2
289		GL28h lamellare	1.0	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
301	1	Omogeneo	0	0	0	22	0	0	5888.2	515.2	-70.8	2554.9	110.7	-5.5	4	0	5	1
301		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
313	1	Omogeneo	0	0	0	22	0	0	5821.3	606.1	-70.8	2118.2	-39.6	-7.1	3	0	4	1
313		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
325	1	Omogeneo	9	0	0	22	0	0	5769.2	745.9	-70.8	1558.1	31.9	-5.9	2	0	3	1
325		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
335	1	Omogeneo	0	0	0	22	0	0	4976.8	715.9	-5.4	730.3	54.9	-0.8	1	0	2	1
278		GL28h lamellare	0.9	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
266	1	Omogeneo	9	0	0	22	0	0	6284.3	598.6	-87.1	-4064.4	232.1	-17.3	7	1	7	2
330		GL28h lamellare	0.9	1.0	1.0		1.0	0.9							0.0	0.0	0.0	0.0
318	1	Omogeneo	9	0	0	22	0	9	5724.2	796.9	71.5	-1662.5	42.3	1.8	3	0	3	1
318		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
306	1	Omogeneo	0	0	0	22	0	0	5732.1	771.8	71.5	-2573.6	-29.7	3.5	4	0	4	1
306		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
294	1	Omogeneo	0	0	0	22	0	0	5774.5	634.7	71.5	-3403.8	101.3	2.3	5	0	5	2
102 90		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12761.			18915.			0.2	0.0	0.2	0.1
	1	Omogeneo	0	0	0	21	0	0	9	3309.6	-12.6	5	51.0	-77.7	6	4	6	0
90 78		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12674.			15685.			0.2	0.0	0.2	0.0
	1	Omogeneo	0	0	0	21	0	0	7	4436.9	36.9	4	71.3	-70.7	2	4	2	8
175		GL28h lamellare	1.0	1.0	1.0		1.0	0.0				17662.			0.2	0.0	0.2	0.0
187	1	Omogeneo	0	0	0	21	0	0	7873.1	1773.7	-8.8	3	26.3	-5.6	4	0	4	8
187		GL28h lamellare	1.0	1.0	1.0	22	1.0	0.0	5908.9	2007.9	203.2	15412.	219.8	54.8	0.2	0.0	0.2	0.0

199		Omogeneo	0	0	0		0	0				8			2	2	2	6
208		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10766.	-		18383.			0.2	0.0	0.2	0.0
196	1	Omogeneo	8	0	0	21	0	8	0	2894.4	-9.3	8	26.6	-0.5	5	1	5	9
196		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11150.	-		21069.			0.2	0.0	0.2	0.1
184	1	Omogeneo	0	0	0	21	0	0	4	2948.8	-9.3	1	35.9	0.7	9	1	9	1
184		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11707.	-		23324.			0.3	0.0	0.3	0.1
172	1	Omogeneo	0	0	0	21	0	0	8	2523.5	-5.3	3	10.6	-16.4	2	1	2	3
172		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12229.	-		25081.			0.3	0.0	0.3	0.1
160	1	Omogeneo	0	0	0	21	0	0	5	1994.6	-5.3	2	17.3	-15.4	4	1	4	4
181		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11151.			21073.			0.2	0.0	0.2	0.1
193	1	Omogeneo	0	0	0	21	0	0	2	2949.1	-9.3	1	-36.1	0.7	9	1	9	1
193		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	10766.			18387.			0.2	0.0	0.2	0.0
205	1	Omogeneo	8	0	0	21	0	0	8	2894.7	-9.3	5	-26.7	-0.5	5	1	5	9
205		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10390.			15801.			0.2	0.0	0.2	0.0
217	1	Omogeneo	2	0	0	21	0	0	2	2932.6	-9.3	2	-17.5	-1.4	2	1	2	7
217		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10109.			13082.			0.1	0.0	0.1	0.0
229	1	Omogeneo	0	0	0	21	0	0	5	2630.2	-9.3	4	-7.9	-1.6	8	1	8	6
229		GL28h lamellare	0.9	1.0	1.0		1.0	0.0				10744.			0.1	0.0	0.1	0.0
241	1	Omogeneo	9	0	0	21	0	0	9757.8	2438.2	-2.9	1	-16.0	4.4	5	1	5	4
241		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.1	0.0	0.1	0.0
253	1	Omogeneo	3	0	0	21	0	0	9490.1	2308.1	-2.9	8592.0	-13.3	3.8	2	1	2	4
253		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
265	1	Omogeneo	7	0	0	21	0	0	9283.3	1970.7	-2.9	6505.0	-10.4	3.6	9	0	9	3
336		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
328	1	Omogeneo	0	0	0	22	0	0	4950.2	963.1	5.1	-969.3	60.0	1.0	2	0	3	1
110 98		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	13967.			24246.			0.3	0.0	0.3	0.1
	1	Omogeneo	9	0	0	21	0	0	8	2702.9	1.7	0	-15.9	47.6	3	2	3	4
335		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
326	1	Omogeneo	0	0	0	22	0	0	4943.2	962.8	-5.4	-969.1	65.8	1.6	2	0	3	1

328		GL28h lamellare	0.9	1.0	1.0		1.0	0.9							0.0	0.0	0.0	0.0
316	1	Omogeneo	9	0	0	22	0	9	4064.4	927.7	72.0	-2073.0	37.1	6.3	3	0	3	1
316		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
304	1	Omogeneo	0	0	0	22	0	0	4068.5	837.5	72.0	-3050.1	-35.5	7.8	4	0	4	1
304		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
292	1	Omogeneo	0	0	0	22	0	0	4109.5	632.4	72.0	-3878.1	107.8	6.3	6	0	6	1
292		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
280	1	Omogeneo	0	0	0	22	0	0	4206.0	259.0	72.0	-4397.1	180.3	3.1	7	0	7	1
147		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12754.			26081.			0.3	0.0	0.3	0.1
159	1	Omogeneo	0	0	0	21	0	0	5	1222.7	5.3	5	24.0	13.5	6	1	6	6
159		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12230.			25084.			0.3	0.0	0.3	0.1
171	1	Omogeneo	0	0	0	21	0	0	2	1994.4	5.3	5	17.3	15.3	4	1	4	4
171		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11708.			23327.			0.3	0.0	0.3	0.1
183	1	Omogeneo	0	0	0	21	0	0	5	2523.4	5.3	7	10.6	16.3	2	1	2	3
183		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11151.			21072.			0.2	0.0	0.2	0.1
195	1	Omogeneo	0	0	0	21	0	0	3	2948.8	9.3	7	35.8	-0.7	9	1	9	1
195		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	10766.			18387.			0.2	0.0	0.2	0.0
207	1	Omogeneo	8	0	0	21	0	0	9	2894.4	9.3	4	26.5	0.4	5	1	5	9
207		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10390.			15801.			0.2	0.0	0.2	0.0
219	1	Omogeneo	2	0	0	21	0	0	3	2932.2	9.3	4	17.4	1.4	2	1	2	7
219		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10109.			13082.			0.1	0.0	0.1	0.0
231	1	Omogeneo	0	0	0	21	0	0	7	2629.9	9.3	9	7.9	1.5	8	1	8	6
231		GL28h lamellare	0.9	1.0	1.0		1.0	0.0				10744.			0.1	0.0	0.1	0.0
243	1	Omogeneo	9	0	0	21	0	0	9759.3	2437.9	2.7	8	15.7	-4.4	5	1	5	4
338		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
332	1	Omogeneo	0	0	0	23	0	0	1785.2	-123.9	-23.1	140.8	213.4	14.4	2	1	2	0
215		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10079.			11475.			0.1	0.0	0.1	0.0
227	1	Omogeneo	0	0	0	21	0	0	1	2307.8	-15.6	0	-13.9	0.3	6	0	6	5
227	1	GL28h lamellare	0.9	1.0	1.0	21	1.0	0.0	10476.	2142.5	-3.4	9433.4	-23.2	8.8	0.1	0.0	0.1	0.0

239		Omogeneo	9	0	0		0	0	9						3	1	3	4
239		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10221.						0.1	0.0	0.1	0.0
251	1	Omogeneo	3	0	0	21	0	0	2	2043.7	-3.4	7575.0	-20.2	7.9	0	1	0	3
251		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	10020.						0.0	0.0	0.0	0.0
263	1	Omogeneo	7	0	0	21	0	0	8	1724.7	-3.4	5760.8	-17.0	7.5	8	1	8	3
263		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
275	1	Omogeneo	9	0	0	21	0	0	9832.2	1547.3	-3.4	4346.4	-14.0	7.0	6	0	7	3
275		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
287	1	Omogeneo	0	0	0	21	0	0	9917.7	1376.9	9.5	3083.7	4.4	3.8	4	0	5	2
287		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
299	1	Omogeneo	0	0	0	21	0	0	9795.5	1097.5	9.5	1986.6	-5.3	3.6	3	0	4	2
299		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
311	1	Omogeneo	0	0	0	21	0	0	9688.4	924.1	9.5	1174.0	-14.9	3.0	2	0	4	2
311		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
323	1	Omogeneo	9	0	0	21	0	0	9612.1	725.5	9.5	534.4	-24.5	2.1	1	0	3	2
323		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
334	1	Omogeneo	0	0	0	21	0	0	9614.9	383.1	-0.1	95.6	-20.7	0.4	0	0	3	2
276		GL28h lamellare	0.9	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
264	1	Omogeneo	9	0	0	22	0	0	4069.0	265.5	-95.9	-4510.6	239.7	-17.0	8	1	8	1
264		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10020.	-					0.0	0.0	0.0	0.0
252	1	Omogeneo	7	0	0	21	0	7	2	1724.6	3.3	5759.1	-17.0	-7.5	8	1	8	3
252		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10220.	-					0.1	0.0	0.1	0.0
240	1	Omogeneo	3	0	0	21	0	3	6	2043.6	3.3	7573.2	-20.2	-7.9	0	1	0	3
240		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10476.	-					0.1	0.0	0.1	0.0
228	1	Omogeneo	9	0	0	21	0	9	2	2142.4	3.3	9431.6	-23.1	-8.8	3	1	3	4
228		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10078.	-		11473.			0.1	0.0	0.1	0.0
216	1	Omogeneo	0	0	0	21	0	0	6	2307.7	15.5	1	-13.9	-0.3	6	0	6	5
216		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10351.	-		13863.			0.1	0.0	0.1	0.0
204	1	Omogeneo	2	0	0	21	0	2	6	2610.9	15.5	2	-29.8	-0.6	9	1	9	6

204 192	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0		1.0 0	0.9 8	10711. 5	- 2575.5		15.5	16136. 9			0.2 2	0.0 1	0.2 2	0.0 7
192 180	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	1.0 0	11081. 6	- 2632.7		15.5	18505. 3			0.2 6	0.0 1	0.2 6	0.0 9
180 168	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	1.0 0	10878. 7	- 2217.0		5.7	20467. 2			0.2 8	0.0 1	0.2 8	0.1 0
168 156	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	1.0 0	11377. 1	- 1760.3		5.7	21989. 3			0.3 0	0.0 1	0.3 0	0.1 2
156 144	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	1.0 0	11882. 5	- 1073.9		5.7	22837. 9			0.3 1	0.0 1	0.3 1	0.1 2
144 132	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0		1.0 0	0.9 9	11511. 1	- 1558.8		-14.2	23273. 8			0.3 3	0.0 5	0.3 3	0.1 3
132 120	1	GL28h lamellare Omogeneo	1.0 1	1.0 0	1.0 0		1.0 0	1.0 1	13173. 6				23891. 9			0.3 4	0.0 6	0.3 4	0.1 4
120 108	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	0.0 0	13177. 6				23891. 9			0.3 4	0.0 5	0.3 4	0.1 4
108 96	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0		1.0 0	0.0 0	13261. 5				23335. 4			0.3 3	0.0 5	0.3 3	0.1 3
334 324	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	1.0 0	5215.9	947.3		-23.5	-953.5	83.0	6.7	0.0 2	0.0 0	0.0 3	0.0 1
72 30	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0		1.0 0	0.0 0	13383. 1				13157. 4			0.1 9	0.0 5	0.1 9	0.0 7
78 40	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0		1.0 0	0.0 0	12107. 5				11241. 6			0.1 6	0.0 5	0.1 6	0.0 5
223 235	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0		1.0 0	0.0 0	6091.8	1915.2		10.7	10248. 3			0.1 4	0.0 1	0.1 4	0.0 3
235 247	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0		1.0 0	0.0 0	3954.1	1625.2		279.0	7913.2	220.1	32.0	0.1 2	0.0 1	0.1 2	0.0 2
247	1	GL28h lamellare	1.0	1.0	1.0		1.0	0.0	4934.8	1693.1		0.5	6837.0	13.7	-7.2	0.0	0.0	0.0	0.0

259		Omogeneo	3	0	0		0	0							9	1	9	2
259		GL28h lamellare	0.9	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
271	1	Omogeneo	7	0	0	22	0	0	3594.8	1212.3	184.8	4972.8	346.7	20.9	9	1	9	1
271		GL28h lamellare	0.9	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
283	1	Omogeneo	9	0	0	22	0	0	3476.9	1137.9	184.8	3894.9	167.6	14.7	6	1	6	1
283		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
295	1	Omogeneo	0	0	0	22	0	0	3134.6	832.8	204.9	2926.3	62.7	7.4	4	0	4	1
295		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
307	1	Omogeneo	0	0	0	23	0	0	1303.2	136.0	351.7	-513.0	601.8	27.3	6	1	6	0
307		GL28h lamellare	1.0	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
319	1	Omogeneo	0	0	0	23	0	0	1267.5	-101.5	421.3	-513.0	602.4	2.7	6	0	6	0
176		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-		20226.	-	0.3	0.0	0.3	0.0
164	1	Omogeneo	0	0	0	23	0	0	6906.2	1814.1	400.0	3	344.8	35.2	0	2	0	9
164		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-	-	21550.	-	0.3	0.0	0.3	0.1
152	1	Omogeneo	0	0	0	23	0	0	7393.6	1323.8	226.0	9	121.3	1.0	0	0	0	0
152		GL28h lamellare	0.9	1.0	1.0		1.0	0.9			-	22165.			0.3	0.0	0.3	0.1
140	1	Omogeneo	9	0	0	23	0	9	7617.2	-600.3	226.0	4	103.7	-10.2	1	0	1	1
140		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10428.			22167.			0.3	0.1	0.3	0.1
128	1	Omogeneo	1	0	0	23	0	0	4	-89.0	38.7	9	272.6	245.1	2	0	2	2
114		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	12502.			21171.			0.2	0.0	0.2	0.1
102	1	Omogeneo	9	0	0	21	0	0	8	2380.3	-12.6	7	31.3	-81.9	9	4	9	1
337		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
330	1	Omogeneo	0	0	0	21	0	0	9623.1	-380.3	-0.1	92.8	20.6	0.4	0	0	3	2
324		GL28h lamellare	0.9	1.0	1.0		1.0	0.9							0.0	0.0	0.0	0.0
312	1	Omogeneo	9	0	0	22	0	9	4382.8	919.8	66.7	-2031.2	45.6	11.8	3	1	3	1
312		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
300	1	Omogeneo	0	0	0	22	0	0	4386.9	842.1	66.7	-3012.9	-21.9	13.6	4	1	4	1
300		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
288	1	Omogeneo	0	0	0	22	0	0	4427.5	650.0	66.7	-3858.5	-89.2	12.7	6	1	6	1

288		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
276	1	Omogeneo	0	0	0	22	0	0	4523.3	285.9	66.7	-4404.6	156.5	10.1	7	0	7	1
143		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11882.			22839.			0.3	0.0	0.3	0.1
155	1	Omogeneo	0	0	0	21	0	0	8	1073.8	-5.7	8	-32.1	-19.1	1	1	1	2
155		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11377.			21991.			0.3	0.0	0.3	0.1
167	1	Omogeneo	0	0	0	21	0	0	5	1760.2	-5.7	2	-24.4	-21.6	0	1	0	2
167		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10879.			20469.			0.2	0.0	0.2	0.1
179	1	Omogeneo	0	0	0	21	0	0	1	2216.9	-5.7	2	-16.7	-23.1	8	1	8	0
179		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11082.			18507.			0.2	0.0	0.2	0.0
191	1	Omogeneo	0	0	0	21	0	0	1	2632.7	-15.6	4	-60.5	4.2	6	1	6	9
191		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	10712.			16138.			0.2	0.0	0.2	0.0
203	1	Omogeneo	8	0	0	21	0	0	0	2575.5	-15.6	9	-45.0	2.2	2	1	2	7
203		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	10352.			13865.			0.1	0.0	0.1	0.0
215	1	Omogeneo	2	0	0	21	0	0	1	2610.9	-15.6	2	-29.8	0.6	9	1	9	6
151		GL28h lamellare	1.0	1.0	1.0		1.0	0.0				19585.			0.2	0.0	0.2	0.0
163	1	Omogeneo	0	0	0	21	0	0	8528.1	818.1	-8.8	2	7.4	-9.4	7	0	7	9
163		GL28h lamellare	1.0	1.0	1.0		1.0	0.0			-	18445.	-		0.2	0.0	0.2	0.0
175	1	Omogeneo	0	0	0	22	0	0	7945.1	1371.6	244.7	7	204.6	-12.0	6	1	6	8
97		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	13968.	-		24248.			0.3	0.0	0.3	0.1
109	1	Omogeneo	9	0	0	21	0	9	7	2703.2	-1.7	5	-15.9	-47.7	3	2	3	4
109		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	13686.	-		25720.			0.3	0.0	0.3	0.1
121	1	Omogeneo	0	0	0	21	0	0	1	1636.2	-1.7	5	-9.4	-49.0	5	2	5	5
121		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	13318.			26324.			0.3	0.0	0.3	0.1
133	1	Omogeneo	1	0	0	21	0	1	2	-784.0	-1.7	4	-3.3	-49.7	6	2	6	6
133		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	13234.			26322.			0.3	0.0	0.3	0.1
145	1	Omogeneo	9	0	0	21	0	0	2	444.9	-5.3	9	-30.7	-11.4	6	0	6	6
99		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	13967.	-		24246.			0.3	0.0	0.3	0.1
111	1	Omogeneo	9	0	0	21	0	9	1	2703.1	1.8	7	15.8	47.5	3	2	3	4
91		GL28h lamellare	5.4	1.0	1.0	23	1.0	0.0	8317.5	-362.1	-86.2	-493.2	-	-26.4	0.2	0.0	0.4	0.2

		Omogeneo	5	0	0		0	0					271.6		1	6	7	7
22 82	5	GL28h lamellare	5.4	1.0	1.0		1.0	5.4							0.2	0.0	0.0	0.2
		Omogeneo	5	0	0	23	0	5	-6168.4	-533.0	-9.3	640.6	-86.7	-41.4	9	9	0	0
92 68	5	GL28h lamellare	5.4	1.0	1.0		1.0	0.0							0.2	0.3	0.5	0.2
		Omogeneo	5	0	0	23	0	0	8585.4	-365.2	222.6	-510.2	489.0	156.3	7	2	3	8
230		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10109.	-		13080.			0.1	0.0	0.1	0.0
218	1	Omogeneo	0	0	0	21	0	0	0	2630.0	9.3	0	-7.9	1.6	8	1	8	6
218		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10389.	-		15798.			0.2	0.0	0.2	0.0
206	1	Omogeneo	2	0	0	21	0	2	6	2932.3	9.3	5	-17.5	1.4	2	1	2	7
206		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10766.	-		18384.			0.2	0.0	0.2	0.0
194	1	Omogeneo	8	0	0	21	0	8	3	2894.5	9.3	6	-26.7	0.5	5	1	5	9
194		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11150.	-		21070.			0.2	0.0	0.2	0.1
182	1	Omogeneo	0	0	0	21	0	0	6	2948.9	9.3	1	-36.0	-0.7	9	1	9	1
182		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11708.	-		23325.			0.3	0.0	0.3	0.1
170	1	Omogeneo	0	0	0	21	0	0	6	2523.7	5.3	4	-10.7	16.5	2	1	2	3
170		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12230.	-		25082.			0.3	0.0	0.3	0.1
158	1	Omogeneo	0	0	0	21	0	0	3	1994.7	5.3	5	-17.4	15.5	4	1	4	4
158		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12754.	-		26079.			0.3	0.0	0.3	0.1
146	1	Omogeneo	0	0	0	21	0	0	6	1223.0	5.3	8	-24.2	13.7	6	1	6	6
146		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	13233.			26319.			0.3	0.0	0.3	0.1
134	1	Omogeneo	9	0	0	21	0	9	4	-445.0	5.3	9	-30.6	11.4	6	0	6	6
134		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	13317.			26321.			0.3	0.0	0.3	0.1
122	1	Omogeneo	1	0	0	21	0	0	3	783.8	1.7	4	-3.3	49.6	6	2	6	6
122		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	13685.			25717.			0.3	0.0	0.3	0.1
110	1	Omogeneo	0	0	0	21	0	0	2	1635.9	1.7	7	-9.4	49.0	5	2	5	5
244		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-		10741.			0.1	0.0	0.1	0.0
232	1	Omogeneo	9	0	0	21	0	9	9758.0	2437.8	-2.8	3	15.9	4.4	5	1	5	4
232		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10108.	-		13079.			0.1	0.0	0.1	0.0
220	1	Omogeneo	0	0	0	21	0	0	8	2629.8	-9.3	4	7.9	-1.6	8	1	8	6

220		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10389.	-		15797.			0.2	0.0	0.2	0.0
208	1	Omogeneo	2	0	0	21	0	2	4	2932.2	-9.3	8	17.4	-1.4	2	1	2	7
327		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
336	1	Omogeneo	0	0	0	22	0	0	4983.8	715.9	5.1	730.3	70.1	-1.6	1	0	2	1
280		GL28h lamellare	0.9	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
268	1	Omogeneo	9	0	0	22	0	0	3746.6	199.4	-87.3	-4514.9	227.4	-17.1	7	1	7	1
268		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-					0.0	0.0	0.0	0.0
256	1	Omogeneo	7	0	0	21	0	7	9283.5	1970.4	-2.8	6503.0	10.4	3.6	9	0	9	3
332		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
320	1	Omogeneo	9	0	0	22	0	0	2783.0	356.8	258.5	-594.5	159.1	5.5	2	0	3	1
320		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
308	1	Omogeneo	0	0	0	23	0	0	1381.3	-366.0	427.7	737.2	593.7	19.6	6	1	6	0
125		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11813.			23021.			0.3	0.0	0.3	0.1
137	1	Omogeneo	1	0	0	21	0	1	0	-740.6	12.6	0	-9.7	85.2	1	3	1	3
137		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	12354.			23022.			0.3	0.0	0.3	0.1
149	1	Omogeneo	9	0	0	21	0	0	3	376.3	5.7	6	39.2	15.9	2	1	2	3
95 107		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	12495.	-		21157.			0.2	0.0	0.2	0.1
	1	Omogeneo	9	0	0	21	0	9	6	2378.5	-12.6	0	-31.5	-82.1	9	4	9	1
107		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12188.	-		22451.			0.3	0.0	0.3	0.1
119	1	Omogeneo	0	0	0	21	0	0	1	1458.3	-12.6	5	-10.7	-84.8	1	4	1	2
119		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11810.			23010.			0.3	0.0	0.3	0.1
131	1	Omogeneo	1	0	0	21	0	1	4	-739.8	-12.6	8	9.5	-85.4	1	3	1	3
131		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	12351.			23012.			0.3	0.0	0.3	0.1
143	1	Omogeneo	9	0	0	21	0	0	5	377.1	-5.7	4	-39.4	-16.0	2	1	2	3
199		GL28h lamellare	0.9	1.0	1.0		1.0	0.0				14091.			0.1	0.0	0.1	0.0
211	1	Omogeneo	8	0	0	21	0	0	6508.2	2059.8	10.7	1	40.0	-8.5	9	1	9	5
211		GL28h lamellare	1.0	1.0	1.0		1.0	0.0		-		11563.	-		0.1	0.0	0.1	0.0
223	1	Omogeneo	2	0	0	22	0	0	5385.7	1999.9	172.4	3	187.9	45.7	7	2	7	4
86 74		GL28h lamellare	1.0	1.0	1.0	21	1.0	0.0	14346.	5107.1	-14.5	18003.	-28.3	43.1	0.2	0.0	0.2	0.0

		Omogeneo	0	0	0		0	0	0			5			5	4	5	9
74 32	1	GL28h lamellare	1.8	1.0	1.0		1.0	0.0	13678.			12886.			0.1	0.0	0.1	0.0
		Omogeneo	7	0	0	21	0	0	2	6909.1	-14.5	5	-19.2	40.9	8	5	8	6
39 77	1	GL28h lamellare	1.8	1.0	1.0		1.0	1.8	12103.	-		11238.			0.1	0.0	0.1	0.0
		Omogeneo	7	0	0	21	0	7	4	6026.5	-36.9	0	43.1	65.7	6	5	6	5
77 89	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12670.	-		15680.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	0	4	4435.5	-36.9	5	71.3	70.7	2	4	2	7
89 101	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12757.	-		18909.			0.2	0.0	0.2	0.1
		Omogeneo	0	0	0	21	0	0	1	3308.6	12.6	6	51.0	77.6	6	4	6	0
45 79	1	GL28h lamellare	1.8	1.0	1.0		1.0	1.8		-					0.1	0.0	0.1	0.0
		Omogeneo	7	0	0	22	0	7	7557.3	5032.7	-98.0	9201.6	177.4	-15.4	4	3	4	3
29 71	1	GL28h lamellare	1.8	1.0	1.0		1.0	1.8	12101.	-		11234.			0.1	0.0	0.1	0.0
		Omogeneo	7	0	0	21	0	7	5	6024.4	36.9	2	-43.2	-65.8	6	5	6	5
71 83	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12668.	-		15675.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	0	2	4433.8	36.9	0	-71.4	-70.9	2	4	2	7
83 95	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12754.	-		18902.			0.2	0.0	0.2	0.1
		Omogeneo	0	0	0	21	0	0	9	3307.1	-12.6	7	-51.1	-77.8	6	4	6	0
79 91	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		13296.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	22	0	0	8038.8	4141.1	-98.0	7	276.4	7.6	0	2	0	5
91 103	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10485.	-		16033.		-	0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	22	0	0	1	2786.3	285.6	8	373.9	189.6	4	8	4	7
224 212	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		11559.	-		0.1	0.0	0.1	0.0
		Omogeneo	2	0	0	23	0	2	3677.1	2238.3	296.5	1	330.4	-66.8	8	3	8	3
212 200	1	GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-		14086.			0.1	0.0	0.1	0.0
		Omogeneo	8	0	0	21	0	8	6506.6	2059.8	-10.6	2	40.0	8.6	9	1	9	5
200 188	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-	-	16153.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	23	0	0	4282.4	2321.7	329.5	4	330.3	-84.1	4	4	4	6
188 176	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		18418.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	23	0	0	6588.6	2362.9	400.0	2	59.0	30.2	5	2	5	8

87 99	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	1.0 0	14191. 6	- 3761.6	1.8	21669. 6	21.7	45.7	0.3 0	0.0 3	0.3 0	0.1 2
100 88	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	22	1.0 0	0.0 0	13890. 9	3390.2	-26.7	22600. 5	245.5	-81.4	0.3 2	0.0 4	0.3 2	0.1 3
88 76	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	22	1.0 0	0.0 0	14914. 7	5179.0	48.8	19199. 5	279.3	-52.5	0.2 8	0.0 4	0.2 8	0.1 0
213 225	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	6090.9	1914.9	-10.6	10244. 0	-19.3	6.5	0.1 4	0.0 1	0.1 4	0.0 3
201 213	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	21	1.0 0	0.0 0	6265.7	2089.8	-10.6	12215. 6	-30.0	6.9	0.1 7	0.0 1	0.1 7	0.0 4
189 201	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	21	1.0 0	0.0 0	6507.3	2059.5	-10.6	14086. 2	-40.0	8.5	0.1 9	0.0 1	0.1 9	0.0 5
322 310	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	23	1.0 0	0.0 0	5632.2	-224.0	429.7	151.3	268.2	6.1	0.0 2	0.0 0	0.0 4	0.0 1
262 250	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	21	1.0 0	0.9 7	4803.6	1477.1	0.5	5259.5	-13.2	-6.8	0.0 7	0.0 0	0.0 7	0.0 2
274 262	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	21	1.0 0	0.9 9	4675.7	1331.5	0.5	3978.0	-13.0	-6.4	0.0 5	0.0 0	0.0 5	0.0 1
321 333	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	23	1.0 0	0.0 0	5328.7	-352.1	23.1	-330.1	233.8	-14.8	0.0 2	0.0 1	0.0 4	0.0 1
309 321	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	23	1.0 0	0.9 9	5540.0	-183.4	435.9	-237.3	290.3	-27.7	0.0 3	0.0 1	0.0 4	0.0 1
177 189	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	6750.5	2081.6	-10.6	16014. 5	-50.2	10.3	0.2 2	0.0 1	0.2 2	0.0 6
165 177	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	7871.8	1773.6	8.9	17657. 1	-26.3	5.6	0.2 4	0.0 0	0.2 4	0.0 8
153 165	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	8201.6	1374.9	8.9	18893. 9	-16.8	7.8	0.2 6	0.0 0	0.2 6	0.0 9
141	1	GL28h lamellare	1.0	1.0	1.0	21	1.0	0.0	8526.9	818.3	8.9	19580.	-7.1	9.4	0.2	0.0	0.2	0.0

153		Omogeneo	0	0	0		0	0				2			7	0	7	9
286		GL28h lamellare	1.0	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
274	1	Omogeneo	0	0	0	22	0	0	5423.8	357.2	207.9	-1711.3	145.0	-8.7	3	0	4	1
298		GL28h lamellare	1.0	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
286	1	Omogeneo	0	0	0	23	0	0	5701.7	-79.3	343.3	373.7	589.4	-24.2	5	1	7	1
310		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
298	1	Omogeneo	0	0	0	23	0	0	5664.6	-21.4	429.7	373.7	589.9	-0.1	5	0	7	1
106 94	1	GL28h lamellare	0.9	1.0	1.0		1.0	0.0				17979.			0.2	0.0	0.2	0.0
		Omogeneo	9	0	0	21	0	0	9818.5	2087.4	38.8	2	-60.4	5.5	5	1	5	8
118		GL28h lamellare	1.0	1.0	1.0		1.0	0.0				19180.			0.2	0.0	0.2	0.0
106	1	Omogeneo	0	0	0	21	0	0	9691.1	1296.5	38.8	0	-20.8	11.4	6	1	6	9
130		GL28h lamellare	1.0	1.0	1.0		1.0	0.0				19722.			0.2	0.0	0.2	0.0
118	1	Omogeneo	1	0	0	21	0	0	9495.6	645.7	38.8	3	19.3	13.2	7	1	7	9
142		GL28h lamellare	0.9	1.0	1.0		1.0	0.9				19722.			0.2	0.0	0.2	0.0
130	1	Omogeneo	9	0	0	21	0	9	8814.9	-263.2	-8.9	2	2.6	-10.0	7	0	7	9
154		GL28h lamellare	1.0	1.0	1.0		1.0	1.0				19578.			0.2	0.0	0.2	0.0
142	1	Omogeneo	0	0	0	21	0	0	8526.5	-818.3	-8.9	3	-7.1	-9.4	7	0	7	9
166		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-				0.2	0.0	0.2	0.0
154	1	Omogeneo	0	0	0	21	0	0	8201.1	1374.9	-8.9	0	-16.8	-7.8	6	0	6	9
178		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-				0.2	0.0	0.2	0.0
166	1	Omogeneo	0	0	0	21	0	0	7871.4	1773.6	-8.9	3	-26.3	-5.6	4	0	4	8
190		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-				0.2	0.0	0.2	0.0
178	1	Omogeneo	0	0	0	21	0	0	6750.1	2081.5	10.6	7	-50.2	-10.3	2	1	2	6
202		GL28h lamellare	0.9	1.0	1.0		1.0	0.9			-				0.1	0.0	0.1	0.0
190	1	Omogeneo	8	0	0	21	0	8	6506.9	2059.4	10.6	4	-40.0	-8.5	9	1	9	5
214		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-				0.1	0.0	0.1	0.0
202	1	Omogeneo	2	0	0	21	0	2	6265.4	2089.7	10.6	0	-30.0	-6.9	7	1	7	4
226		GL28h lamellare	1.0	1.0	1.0		1.0	1.0			-				0.1	0.0	0.1	0.0
214	1	Omogeneo	0	0	0	21	0	0	6090.5	1914.8	10.6	5	-19.3	-6.5	4	1	4	3

333		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
322	1	Omogeneo	0	0	0	23	0	0	5334.4	-92.1	23.1	0.0	211.2	-6.4	2	0	3	1
238		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-					0.1	0.0	0.1	0.0
226	1	Omogeneo	9	0	0	21	0	9	5107.6	1797.4	0.5	8458.5	-13.9	-7.7	2	1	2	3
250		GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-					0.0	0.0	0.0	0.0
238	1	Omogeneo	3	0	0	21	0	3	4934.2	1692.6	0.5	6832.2	-13.6	-7.2	9	1	9	2
297		GL28h lamellare	1.0	1.0	1.0		1.0	0.0		-					0.0	0.0	0.0	0.0
309	1	Omogeneo	0	0	0	23	0	0	5550.2	-446.6	435.9	-878.1	581.1	-22.2	6	1	7	1
81 93	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		15970.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	0	9902.9	2850.2	-38.8	8	-99.0	3.4	2	1	2	7
69 81	1	GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		13122.	-	-	0.1	0.1	0.1	0.0
		Omogeneo	0	0	0	21	0	0	8895.7	3858.3	63.1	2	120.9	210.3	9	0	9	5
70 24	1	GL28h lamellare	1.8	1.0	1.0		1.0	1.8							0.0	0.1	0.0	0.0
		Omogeneo	7	0	0	23	0	7	3539.7	1221.7	18.7	0.0	115.1	377.7	1	5	2	1
82 70	1	GL28h lamellare	1.0	1.0	1.0		1.0	0.0				13121.	-		0.1	0.1	0.1	0.0
		Omogeneo	0	0	0	21	0	0	8895.4	3858.0	-63.1	2	120.8	210.3	9	0	9	5
94 82	1	GL28h lamellare	1.0	1.0	1.0		1.0	0.0				15969.			0.2	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	0	9902.4	2850.0	38.8	5	-99.0	-3.4	2	1	2	7
23 69	1	GL28h lamellare	1.8	1.0	1.0		1.0	1.8		-				-	0.1	0.1	0.1	0.0
		Omogeneo	7	0	0	21	0	7	8430.1	4966.4	63.1	9258.9	-84.2	201.1	3	0	3	4
93 105	1	GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-		17980.			0.2	0.0	0.2	0.0
		Omogeneo	9	0	0	21	0	9	9819.0	2087.6	-38.8	7	-60.4	-5.5	5	1	5	8
285		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
297	1	Omogeneo	0	0	0	23	0	0	5568.2	-383.5	337.1	-878.1	581.6	1.6	6	0	7	1
273		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
285	1	Omogeneo	0	0	0	23	0	0	5577.4	-549.3	337.1	-1263.1	244.4	8.8	3	0	5	1
261		GL28h lamellare	0.9	1.0	1.0		1.0	0.0			-		-		0.0	0.0	0.0	0.0
273	1	Omogeneo	9	0	0	23	0	0	5084.1	-496.3	306.3	-2225.8	276.2	18.8	5	1	6	1
249	1	GL28h lamellare	0.9	1.0	1.0	23	1.0	0.0	5115.0	-644.2	-	-2872.7	-	29.0	0.0	0.0	0.0	0.0

261		Omogeneo	7	0	0		0	0			306.3		573.3		8	1	9	1
237		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
249	1	Omogeneo	3	0	0	21	0	0	4934.3	1692.7	-0.6	6833.5	-13.6	7.2	9	1	9	2
225		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.1	0.0	0.1	0.0
237	1	Omogeneo	9	0	0	21	0	0	5107.7	1797.5	-0.6	8459.8	-13.9	7.7	2	1	2	3
129		GL28h lamellare	0.9	1.0	1.0		1.0	0.0				19724.			0.2	0.0	0.2	0.0
141	1	Omogeneo	9	0	0	21	0	0	8815.3	263.1	8.9	0	2.6	10.0	7	0	7	9
117		GL28h lamellare	1.0	1.0	1.0		1.0	1.0				19724.			0.2	0.0	0.2	0.0
129	1	Omogeneo	1	0	0	21	0	1	9496.2	-645.8	-38.8	1	19.3	-13.2	7	1	7	9
105		GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-		19181.			0.2	0.0	0.2	0.0
117	1	Omogeneo	0	0	0	21	0	0	9691.6	1296.6	-38.8	7	-20.8	-11.4	6	1	6	9
101		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	12498.	-		21165.			0.2	0.0	0.2	0.1
113	1	Omogeneo	9	0	0	21	0	9	0	2379.8	12.6	3	31.3	81.9	9	4	9	1
113		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12190.	-		22460.			0.3	0.0	0.3	0.1
125	1	Omogeneo	0	0	0	21	0	0	6	1459.4	12.6	8	10.5	84.6	1	4	1	2
160		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	12753.	-		26078.			0.3	0.0	0.3	0.1
148	1	Omogeneo	0	0	0	21	0	0	8	1222.9	-5.3	4	24.0	-13.6	6	1	6	6
148		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	13232.			26318.			0.3	0.0	0.3	0.1
136	1	Omogeneo	9	0	0	21	0	9	6	-445.0	-5.3	5	30.3	-11.4	6	0	6	6
136		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	13316.			26320.			0.3	0.0	0.3	0.1
124	1	Omogeneo	1	0	0	21	0	0	3	783.9	-1.8	0	3.1	-49.5	6	2	6	6
124		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	13897.			25251.	-		0.3	0.0	0.3	0.1
112	1	Omogeneo	0	0	0	22	0	0	7	577.9	-26.7	4	172.8	123.2	5	5	5	5
112		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	13974.			24657.	-		0.3	0.0	0.3	0.1
100	1	Omogeneo	9	0	0	22	0	0	4	2004.2	-26.7	7	210.7	102.9	5	4	5	4
243		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.1	0.0	0.1	0.0
255	1	Omogeneo	3	0	0	21	0	0	9491.5	2307.9	2.7	8593.0	13.1	-3.8	2	1	2	4
255		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
267	1	Omogeneo	7	0	0	21	0	0	9284.8	1970.6	2.7	6506.2	10.4	-3.5	9	0	9	3

267		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
279	1	Omogeneo	9	0	0	21	0	0	9087.5	1765.9	2.7	4852.6	7.9	-3.3	7	0	7	3
279		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
291	1	Omogeneo	0	0	0	21	0	0	9004.9	1509.2	-4.4	3403.8	0.6	-2.2	5	0	5	2
291		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
303	1	Omogeneo	0	0	0	21	0	0	8879.2	1202.7	-4.4	2173.9	5.1	-2.0	3	0	4	2
303		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
315	1	Omogeneo	0	0	0	21	0	0	8768.6	991.8	-4.4	1256.1	9.6	-1.6	2	0	3	2
111		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	13684.	-		25718.			0.3	0.0	0.3	0.1
123	1	Omogeneo	0	0	0	21	0	0	5	1636.2	1.8	7	9.2	48.8	5	2	5	5
123		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	13316.			26322.			0.3	0.0	0.3	0.1
135	1	Omogeneo	1	0	0	21	0	1	7	-784.2	1.8	8	3.1	49.4	6	2	6	6
135		GL28h lamellare	0.9	1.0	1.0		1.0	0.0	13233.			26321.			0.3	0.0	0.3	0.1
147	1	Omogeneo	9	0	0	21	0	0	2	444.7	5.3	3	30.4	11.3	6	0	6	6
326		GL28h lamellare	0.9	1.0	1.0		1.0	0.9							0.0	0.0	0.0	0.0
314	1	Omogeneo	9	0	0	22	0	9	5695.4	833.5	72.6	-1759.0	35.2	6.8	3	0	3	1
314		GL28h lamellare	1.0	1.0	1.0		1.0	1.0							0.0	0.0	0.0	0.0
302	1	Omogeneo	0	0	0	22	0	0	5701.9	807.2	72.6	-2705.6	-38.1	8.2	4	0	4	1
302		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
290	1	Omogeneo	0	0	0	22	0	0	5742.9	668.8	72.6	-3570.0	111.0	6.6	6	0	6	2
290		GL28h lamellare	1.0	1.0	1.0		1.0	1.0					-		0.0	0.0	0.0	0.0
278	1	Omogeneo	0	0	0	22	0	0	5837.5	343.6	72.6	-4174.0	184.0	3.3	7	0	7	2
145		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12755.			26082.			0.3	0.0	0.3	0.1
157	1	Omogeneo	0	0	0	21	0	0	4	1222.9	-5.3	9	-24.2	-13.7	6	1	6	6
157		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12231.			25085.			0.3	0.0	0.3	0.1
169	1	Omogeneo	0	0	0	21	0	0	1	1994.8	-5.3	6	-17.5	-15.5	4	1	4	4
256		GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-					0.1	0.0	0.1	0.0
244	1	Omogeneo	3	0	0	21	0	3	9490.3	2307.7	-2.8	8589.6	13.3	3.8	2	1	2	4
266	1	GL28h lamellare	0.9	1.0	1.0	21	1.0	0.9	9283.3	-	2.8	6503.4	-10.4	-3.5	0.0	0.0	0.0	0.0

254		Omogeneo	7	0	0		0	7		1970.5					9	0	9	3
254		GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-					0.1	0.0	0.1	0.0
242	1	Omogeneo	3	0	0	21	0	3	9490.0	2307.8	2.8	8590.0	-13.2	-3.8	2	1	2	4
242		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-		10741.			0.1	0.0	0.1	0.0
230	1	Omogeneo	9	0	0	21	0	9	9757.7	2437.9	2.8	9	-15.9	-4.4	5	1	5	4
319		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-					0.0	0.0	0.0	0.0
331	1	Omogeneo	9	0	0	23	0	9	1247.2	-6.2	421.3	-394.8	238.8	-4.3	2	0	3	0
331		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
338	1	Omogeneo	0	0	0	22	0	0	3099.0	430.3	24.3	412.0	148.6	-7.1	2	0	2	1
284		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-			-		0.0	0.0	0.0	0.0
272	1	Omogeneo	9	0	0	23	0	9	1561.2	1163.7	314.5	2968.7	281.4	-22.1	6	1	6	1
272		GL28h lamellare	0.9	1.0	1.0		1.0	0.9		-			-		0.0	0.0	0.0	0.0
260	1	Omogeneo	7	0	0	23	0	7	1681.8	1242.4	314.5	4108.3	586.2	-32.5	9	1	9	1
308		GL28h lamellare	1.0	1.0	1.0		1.0	0.0		-			-		0.0	0.0	0.0	0.0
296	1	Omogeneo	0	0	0	23	0	0	1435.9	-598.5	345.3	737.2	594.0	-4.7	6	0	6	0
296		GL28h lamellare	1.0	1.0	1.0		1.0	1.0		-					0.0	0.0	0.0	0.0
284	1	Omogeneo	0	0	0	21	0	0	4010.1	1133.6	7.3	2788.4	-0.4	3.4	4	0	4	1
103		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10577.	-		17939.		-	0.2	0.0	0.2	0.0
115	1	Omogeneo	9	0	0	22	0	9	0	1994.4	285.6	5	105.4	155.5	5	6	5	8
115		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10447.	-		19051.		-	0.2	0.0	0.2	0.0
127	1	Omogeneo	0	0	0	22	0	0	7	1200.9	-11.4	4	131.6	144.4	7	6	7	9
127		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10383.			19406.		-	0.2	0.0	0.2	0.0
139	1	Omogeneo	1	0	0	22	0	1	1	-438.2	-11.4	6	155.3	132.1	7	5	7	9
139		GL28h lamellare	0.9	1.0	1.0		1.0	0.0				19728.			0.2	0.0	0.2	0.0
151	1	Omogeneo	9	0	0	21	0	0	8816.5	262.8	-8.8	6	-2.2	-10.1	7	0	7	9
31 73		GL28h lamellare	1.8	1.0	1.0		1.0	1.8	13678.	-		12887.			0.1	0.0	0.1	0.0
	1	Omogeneo	7	0	0	21	0	7	9	6909.7	14.5	7	-19.2	-41.0	8	5	8	6
73 85		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	14346.	-		18005.			0.2	0.0	0.2	0.0
	1	Omogeneo	0	0	0	21	0	0	9	5107.6	14.5	2	-28.3	-43.1	5	4	5	9

85 97	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	1.0 0	14193. 2	- 3761.8	-1.7	21671. 4	-21.9	-45.9	0.3 0	0.0 3	0.3 0	0.1 2
37 75	1	GL28h lamellare Omogeneo	1.8 7	1.0 0	1.0 0	21	1.0 0	1.8 7	13677. 2	- 6909.1	-14.5	12886. 5	19.1	40.8	0.1 8	0.0 5	0.1 8	0.0 6
75 87	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	1.0 0	14345. 1	- 5107.2	-14.5	18003. 6	28.2	42.9	0.2 5	0.0 4	0.2 5	0.0 9
294 282	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	22	1.0 0	1.0 0	5870.2	310.4	71.5	-3974.6	173.1	-0.7	0.0 6	0.0 0	0.0 7	0.0 2
149 161	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	11885. 6	1073.3	5.7	22850. 7	31.9	18.9	0.3 1	0.0 1	0.3 1	0.1 2
161 173	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	11380. 3	1760.0	5.7	22002. 7	24.2	21.4	0.3 0	0.0 1	0.3 0	0.1 2
173 185	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	10881. 9	2216.9	5.7	20481. 0	16.6	22.9	0.2 8	0.0 1	0.2 8	0.1 0
185 197	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	11085. 4	2632.8	15.5	18519. 2	60.2	-4.2	0.2 6	0.0 1	0.2 6	0.0 9
197 209	1	GL28h lamellare Omogeneo	0.9 8	1.0 0	1.0 0	21	1.0 0	0.0 0	10715. 2	2575.8	15.5	16150. 7	44.8	-2.2	0.2 2	0.0 1	0.2 2	0.0 7
209 221	1	GL28h lamellare Omogeneo	1.0 2	1.0 0	1.0 0	21	1.0 0	0.0 0	10355. 3	2611.4	15.5	13876. 7	29.7	-0.7	0.1 9	0.0 1	0.1 9	0.0 6
221 233	1	GL28h lamellare Omogeneo	1.0 0	1.0 0	1.0 0	21	1.0 0	0.0 0	10082. 3	2308.3	15.5	11486. 0	13.9	-0.3	0.1 6	0.0 0	0.1 6	0.0 5
233 245	1	GL28h lamellare Omogeneo	0.9 9	1.0 0	1.0 0	21	1.0 0	0.0 0	10480. 7	2143.1	3.2	9444.1	23.0	-8.8	0.1 3	0.0 1	0.1 3	0.0 4
245 257	1	GL28h lamellare Omogeneo	1.0 3	1.0 0	1.0 0	21	1.0 0	0.0 0	10225. 0	2044.5	3.2	7585.0	20.1	-7.9	0.1 0	0.0 1	0.1 0	0.0 3
257 269	1	GL28h lamellare Omogeneo	0.9 7	1.0 0	1.0 0	21	1.0 0	0.0 0	10024. 6	1725.6	3.2	5770.0	17.0	-7.5	0.0 8	0.0 1	0.0 8	0.0 3
269	1	GL28h lamellare	0.9	1.0	1.0	21	1.0	0.0	9835.9	1548.3	3.2	4354.8	14.1	-7.0	0.0	0.0	0.0	0.0

281		Omogeneo	9	0	0		0	0							6	0	7	3
281		GL28h lamellare	1.0	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
293	1	Omogeneo	0	0	0	22	0	0	5903.3	552.0	-69.7	2997.8	163.2	-10.3	5	0	6	2
293		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
305	1	Omogeneo	0	0	0	22	0	0	5822.8	515.8	-69.7	2553.6	-92.9	-13.0	4	1	5	1
305		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
317	1	Omogeneo	0	0	0	22	0	0	5755.9	604.0	-69.7	2116.4	-22.7	-14.0	3	1	4	1
317		GL28h lamellare	0.9	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
329	1	Omogeneo	9	0	0	22	0	0	5703.9	741.3	-69.7	1558.3	47.9	-12.1	2	1	3	1
329		GL28h lamellare	1.0	1.0	1.0		1.0	0.0							0.0	0.0	0.0	0.0
337	1	Omogeneo	0	0	0	22	0	0	4828.1	700.3	23.3	714.7	84.9	-6.7	1	0	3	1
282		GL28h lamellare	0.9	1.0	1.0		1.0	0.0					-		0.0	0.0	0.0	0.0
270	1	Omogeneo	9	0	0	22	0	0	6505.7	575.1	-80.5	-3835.3	208.0	-17.8	6	1	7	2
270		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10029.	-					0.0	0.0	0.0	0.0
258	1	Omogeneo	7	0	0	21	0	7	1	1729.8	-3.3	5748.6	17.0	7.5	8	1	8	3
258		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10229.	-					0.1	0.0	0.1	0.0
246	1	Omogeneo	3	0	0	21	0	3	6	2048.6	-3.3	7567.8	20.2	7.9	0	1	0	3
246		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10485.	-					0.1	0.0	0.1	0.0
234	1	Omogeneo	9	0	0	21	0	9	5	2147.0	-3.3	9430.7	23.1	8.8	3	1	3	4
234		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10087.	-		11476.			0.1	0.0	0.1	0.0
222	1	Omogeneo	0	0	0	21	0	0	3	2311.9	-15.5	1	13.9	0.3	6	0	6	5
222		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10360.	-		13870.			0.1	0.0	0.1	0.0
210	1	Omogeneo	2	0	0	21	0	2	4	2614.8	-15.5	3	29.7	0.7	9	1	9	6
210		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	10720.	-		16147.			0.2	0.0	0.2	0.0
198	1	Omogeneo	8	0	0	21	0	8	5	2579.0	-15.5	3	44.9	2.2	2	1	2	7
198		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11090.	-		18518.			0.2	0.0	0.2	0.0
186	1	Omogeneo	0	0	0	21	0	0	8	2635.7	-15.5	8	60.2	4.2	6	1	6	9
186		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	10887.	-		20482.			0.2	0.0	0.2	0.1
174	1	Omogeneo	0	0	0	21	0	0	0	2219.3	-5.7	8	16.6	-22.9	8	1	8	0

174		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11385.	-		22006.			0.3	0.0	0.3	0.1
162	1	Omogeneo	0	0	0	21	0	0	6	1761.9	-5.7	5	24.2	-21.4	0	1	0	2
162		GL28h lamellare	1.0	1.0	1.0		1.0	1.0	11891.	-		22855.			0.3	0.0	0.3	0.1
150	1	Omogeneo	0	0	0	21	0	0	1	1074.7	-5.7	9	31.9	-18.9	1	1	1	2
150		GL28h lamellare	0.9	1.0	1.0		1.0	0.9	12359.			23028.			0.3	0.0	0.3	0.1
138	1	Omogeneo	9	0	0	21	0	9	8	-377.1	-5.7	6	39.2	-15.9	2	1	2	3
138		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	11817.			23026.			0.3	0.0	0.3	0.1
126	1	Omogeneo	1	0	0	21	0	0	9	740.2	-12.6	9	-9.8	-85.2	1	3	1	3
126		GL28h lamellare	1.0	1.0	1.0		1.0	0.0	12195.			22467.			0.3	0.0	0.3	0.1
114	1	Omogeneo	0	0	0	21	0	0	5	1459.4	-12.6	2	10.5	-84.6	1	4	1	2
1 81	5	GL28h lamellare	5.4	1.0	1.0		1.0	5.4		-					0.3	0.1	0.0	0.2
		Omogeneo	5	0	0	23	0	5	-6434.5	-536.2	126.9	657.8	304.1	-88.6	4	8	0	0
83 81	3	GL28h lamellare	5.5	1.0	1.0		1.0	2.7							0.0	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	5	1555.9	0.0	0.0	-104.4	-0.0	15.2	8	6	9	4
85 83	3	GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.3	0.0	0.0
		Omogeneo	0	0	0	23	0	0	-828.4	75.9	0.0	0.0	-0.0	-73.7	1	0	0	0
87 85	3	GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.1	0.0
		Omogeneo	0	0	0	23	0	0	864.5	75.9	0.0	0.0	-0.0	66.2	0	7	2	2
89 87	3	GL28h lamellare	5.5	1.0	1.0		1.0	2.7							0.0	0.1	0.4	0.0
		Omogeneo	0	0	0	23	0	5	2677.5	0.0	0.0	-104.4	-0.0	-48.5	8	9	4	7
91 89	3	GL28h lamellare	5.5	1.0	1.0		1.0	2.7							0.0	0.3	0.6	0.1
		Omogeneo	0	0	0	23	0	5	4421.8	0.0	0.0	-104.4	-0.0	86.8	8	5	8	2
82 84	3	GL28h lamellare	5.5	1.0	1.0		1.0	2.7							0.0	0.0	0.2	0.0
		Omogeneo	0	0	0	21	0	5	1555.6	0.0	0.0	-104.4	-0.0	-15.2	8	6	9	4
84 86	3	GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
		Omogeneo	0	0	0	23	0	0	-856.9	75.9	0.0	0.0	-0.0	68.8	1	8	0	0
86 88	3	GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.1	0.0
		Omogeneo	0	0	0	23	0	0	753.8	75.9	0.0	0.0	-0.0	-66.2	0	7	0	2
88 90	3	GL28h lamellare	5.5	1.0	1.0	23	1.0	2.7	2649.4	0.0	0.0	-104.4	-0.0	53.4	0.0	0.2	0.4	0.0

			Omogeneo	0	0	0		0	5						8	1	4	7	
90	92	3	GL28h lamellare	5.5	1.0	1.0		1.0	2.7						0.0	0.3	0.6	0.1	
			Omogeneo	0	0	0	23	0	5	4427.7	0.0	0.0	-104.4	-0.0	-77.7	8	1	8	2
129			GL28h lamellare	5.5	1.0	1.0		1.0	5.5					-	0.1	0.0	0.1	0.0	
131		2	Omogeneo	0	0	0	23	0	0	758.2	-77.9	108.5	0.0	403.7	-0.8	5	0	8	3
131			GL28h lamellare	5.5	1.0	1.0		1.0	5.5			-			0.2	0.0	0.2	0.0	
133		2	Omogeneo	0	0	0	23	0	0	715.5	-77.9	229.7	0.0	652.7	2.8	4	1	7	3
133			GL28h lamellare	5.5	1.0	1.0		1.0	0.0						0.2	0.0	0.2	0.0	
135		2	Omogeneo	0	0	0	23	0	0	572.1	77.9	191.9	0.0	544.5	-4.2	0	1	2	2
135			GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-	0.2	0.0	0.2	0.0	
137		2	Omogeneo	0	0	0	23	0	0	427.6	77.9	200.6	0.0	553.8	7.5	0	2	2	2
137			GL28h lamellare	5.5	1.0	1.0		1.0	0.0						0.1	0.0	0.0	0.0	
139		2	Omogeneo	0	0	0	23	0	0	-294.7	77.9	144.3	0.0	490.8	-2.3	8	1	0	0
130			GL28h lamellare	5.5	1.0	1.0		1.0	5.5			-			0.1	0.0	0.1	0.0	
132		2	Omogeneo	0	0	0	23	0	0	554.9	-77.9	113.2	0.0	423.9	5.5	6	1	8	2
132			GL28h lamellare	5.5	1.0	1.0		1.0	5.5					-	0.2	0.0	0.2	0.0	
134		2	Omogeneo	0	0	0	23	0	0	514.8	-77.9	223.5	0.0	632.7	-4.7	3	1	5	2
134			GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-	0.2	0.0	0.2	0.0	
136		2	Omogeneo	0	0	0	23	0	0	245.0	77.9	191.9	0.0	537.4	4.2	0	1	1	1
136			GL28h lamellare	5.5	1.0	1.0		1.0	0.0						0.2	0.0	0.2	0.0	
138		2	Omogeneo	0	0	0	23	0	0	226.7	77.9	206.7	0.0	573.8	-5.6	1	1	2	1
138			GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-	0.1	0.0	0.0	0.0	
140		2	Omogeneo	0	0	0	23	0	0	-498.4	77.9	139.6	0.0	470.5	-2.4	8	1	0	0
177			GL28h lamellare	5.5	1.0	1.0		1.0	0.0						0.0	0.1	0.0	0.0	
179		2	Omogeneo	0	0	0	23	0	0	863.3	77.9	54.8	0.0	64.5	-53.7	2	3	6	4
179			GL28h lamellare	5.5	1.0	1.0		1.0	5.5			-			0.2	0.1	0.2	0.0	
181		2	Omogeneo	0	0	0	23	0	0	578.6	-77.9	204.4	0.0	579.7	71.6	1	7	4	2
181			GL28h lamellare	5.5	1.0	1.0		1.0	0.0						0.1	0.1	0.1	0.0	
183		2	Omogeneo	0	0	0	23	0	0	187.9	77.9	115.9	0.0	332.9	-66.4	2	6	3	1

183		GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-		0.1	0.1	0.0	0.0
185	2	Omogeneo	0	0	0	23	0	0	-207.6	77.9	175.1	0.0	484.7	52.1	8	3	0	0
185		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.1	0.2	0.0	0.0
187	2	Omogeneo	0	0	0	23	0	0	-724.5	77.9	80.7	0.0	297.9	-85.1	2	0	0	0
178		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.1	0.0	0.0
180	2	Omogeneo	0	0	0	23	0	0	785.1	77.9	-54.8	0.0	-62.3	64.7	2	6	5	3
180		GL28h lamellare	5.5	1.0	1.0		1.0	5.5					-		0.2	0.1	0.2	0.0
182	2	Omogeneo	0	0	0	23	0	0	566.9	-77.9	195.8	0.0	554.1	-70.7	0	7	3	2
182		GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-		0.1	0.1	0.1	0.0
184	2	Omogeneo	0	0	0	23	0	0	100.3	77.9	115.9	0.0	326.3	66.4	2	6	2	0
184		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.1	0.1	0.0	0.0
186	2	Omogeneo	0	0	0	23	0	0	-218.8	77.9	183.8	0.0	510.4	-52.9	9	3	0	0
186		GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-		0.1	0.1	0.0	0.0
188	2	Omogeneo	0	0	0	23	0	0	-802.4	77.9	-80.7	0.0	295.7	74.0	2	8	0	0
225		GL28h lamellare	5.5	1.0	1.0		1.0	0.0					-		0.0	0.2	0.0	0.0
227	2	Omogeneo	0	0	0	23	0	0	893.2	77.9	-23.3	0.0	127.7	-82.5	5	0	8	4
227		GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-		0.1	0.2	0.1	0.0
229	2	Omogeneo	0	0	0	23	0	0	384.6	77.9	150.6	0.0	402.5	104.1	5	5	6	2
229		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
231	2	Omogeneo	0	0	0	23	0	0	-92.2	77.9	19.9	0.0	63.6	-95.5	2	3	0	0
231		GL28h lamellare	5.5	1.0	1.0		1.0	0.0			-		-		0.1	0.1	0.0	0.0
233	2	Omogeneo	0	0	0	23	0	0	-570.1	77.9	129.0	0.0	357.7	69.6	4	7	0	0
233		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.3	0.0	0.0
235	2	Omogeneo	0	0	0	23	0	0	-997.9	77.9	-11.5	0.0	24.7	127.4	2	1	0	0
226		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
228	2	Omogeneo	0	0	0	23	0	0	910.3	77.9	24.1	0.0	129.7	87.7	5	1	8	4
228		GL28h lamellare	5.5	1.0	1.0		1.0	0.0					-		0.1	0.2	0.1	0.0
230	2	Omogeneo	0	0	0	23	0	0	461.9	77.9	139.2	0.0	371.8	102.7	4	5	6	2
230		GL28h lamellare	5.5	1.0	1.0	23	1.0	0.0	-33.4	77.9	-19.9	0.0	-59.4	95.5	0.0	0.2	0.0	0.0

232		Omogeneo	0	0	0		0	0							2	3	0	0
232		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.1	0.1	0.0	0.0
234	2	Omogeneo	0	0	0	23	0	0	-492.4	77.9	140.5	0.0	389.9	-71.0	5	7	0	0
234		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
236	2	Omogeneo	0	0	0	23	0	0	-980.5	77.9	10.7	0.0	-27.1	122.2	2	9	0	0
273		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
275	2	Omogeneo	0	0	0	23	0	0	-43.9	77.9	-11.8	0.0	-67.7	-91.7	3	2	0	0
275		GL28h lamellare	5.5	1.0	1.0		1.0	0.0					-		0.0	0.2	0.0	0.0
277	2	Omogeneo	0	0	0	23	0	0	10.9	77.9	-43.1	0.0	111.9	109.3	4	6	4	0
277		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.2	0.0	0.0
279	2	Omogeneo	0	0	0	23	0	0	103.7	77.9	9.8	0.0	32.1	100.0	1	4	2	0
279		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.1	0.0	0.0
281	2	Omogeneo	0	0	0	23	0	0	-301.9	77.9	-32.5	0.0	-91.1	69.6	4	7	0	0
281		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.3	0.0	0.0
283	2	Omogeneo	0	0	0	23	0	0	-370.2	77.9	-13.1	0.0	-4.9	138.2	1	3	0	0
274		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
276	2	Omogeneo	0	0	0	23	0	0	32.6	77.9	11.2	0.0	65.5	86.4	2	1	3	0
276		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.2	0.0	0.0
278	2	Omogeneo	0	0	0	23	0	0	-10.2	77.9	31.4	0.0	80.2	108.7	3	6	0	0
278		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
280	2	Omogeneo	0	0	0	23	0	0	-102.9	77.9	-9.8	0.0	-28.9	100.0	1	4	0	0
280		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.1	0.0	0.0
282	2	Omogeneo	0	0	0	23	0	0	-322.2	77.9	44.3	0.0	124.4	-70.2	5	7	0	0
282		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.3	0.0	0.0
284	2	Omogeneo	0	0	0	23	0	0	-292.5	77.9	13.6	0.0	5.8	143.5	1	5	0	0
321		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
323	2	Omogeneo	0	0	0	23	0	0	1491.5	77.9	18.9	0.0	57.4	-92.8	2	2	8	6
323		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
325	2	Omogeneo	0	0	0	23	0	0	250.7	77.9	6.0	0.0	16.5	106.1	1	6	2	1

325		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
327	2	Omogeneo	0	0	0	23	0	0	-862.7	77.9	14.8	0.0	41.8	-97.3	3	3	0	0
327		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.1	0.0	0.0
329	2	Omogeneo	0	0	0	23	0	0	-1502.1	77.9	19.3	0.0	53.5	66.2	4	6	0	0
329		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.3	0.0	0.0
331	2	Omogeneo	0	0	0	23	0	0	-1882.7	77.9	23.5	0.0	57.8	136.0	5	3	0	0
322		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
324	2	Omogeneo	0	0	0	23	0	0	1521.3	77.9	-26.9	0.0	-80.1	81.3	3	0	9	6
324		GL28h lamellare	5.5	1.0	1.0		1.0	0.0						-	0.0	0.2	0.0	0.0
326	2	Omogeneo	0	0	0	23	0	0	486.4	77.9	-21.7	0.0	-60.1	106.4	2	6	4	2
326		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.2	0.0	0.0
328	2	Omogeneo	0	0	0	23	0	0	-472.1	77.9	-14.8	0.0	-41.5	97.3	2	3	0	0
328		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.1	0.0	0.0
330	2	Omogeneo	0	0	0	23	0	0	-1267.6	77.9	-3.4	0.0	-10.2	-66.1	2	6	0	0
330		GL28h lamellare	5.5	1.0	1.0		1.0	0.0							0.0	0.3	0.0	0.0
332	2	Omogeneo	0	0	0	23	0	0	-1854.0	77.9	-15.5	0.0	-36.6	147.6	4	6	0	0

Tab. 33 – Verifiche di resistenza e di instabilità delle sezioni in legno lamellare in condizioni di incendi

6. 7 Verifiche SLE

In questa sezione si valuta che la deformazione massima della struttura sia inferiore ai limiti imposti dalla normativa. Nel caso specifico, considerando il particolare comportamento reologico del legno, si devono valutare sia le deformazioni istantanee sia le deformazioni a lungo termine.

Per il calcolo della deformazione iniziale (u_{in}) occorre valutare la deformazione istantanea con riferimento alla combinazione di carico rara, mentre per il calcolo della deformazione finale (u_{fin}) occorre valutare la deformazione a lungo termine per la combinazione di carico quasi permanente e sommare a quest'ultima la deformazione istantanea dovuta alla sola aliquota mancante, nella combinazione quasi permanente, del carico accidentale prevalente (da intendersi come il carico variabile di base della combinazione rara).

In via semplificata la deformazione finale u_{fin} , relativa ad una certa condizione di carico, si può valutare come segue:

$$u_{fin} = u_{in} + u_{dif}$$

dove:

u_{in} è la deformazione iniziale (istantanea), calcolata con riferimento alla combinazione di carico rara;

u_{dif} è la deformazione differita che può essere valutata attraverso la relazione:

$$u_{dif} = u'_{in} + u_{dif}$$

dove:

u_{in} è la deformazione iniziale (istantanea), calcolata con riferimento alla combinazione di carico quasi permanente;

k_{def} è un coefficiente che tiene conto dell'aumento di deformabilità con il tempo causato dall'effetto combinato della viscosità e dell'umidità del materiale e i cui valori si possono dedurre dalla seguente tabella:

Materiale	Riferimento	Classe di servizio		
		1	2	3
Legno massiccio	EN 14081-1			
Legno lamellare incollato	EN 14080			
Microlamellare (LVL)	EN 14374, EN 14279			
		0.60	0.80	2.00
Compensato	EN 636			
	Parte 1	0.80	-	-
	Parte 2	0.80	1.00	-
	Parte 3	0.80	1.00	2.50
Pannelli di scaglie orientate (OSB)	EN 300			
	OSB/2	2.25	-	-
	OSB/3 OSB/4	1.50	2.25	-
Pannello di particelle (truciolare)	EN 312			
	Parte 4	2.25	-	-
	Parte 5	2.25	3.00	-
	Parte 6	1.50	-	-
	Parte 7	1.50	2.25	-
Pannelli di fibre, alta densità	EN 622-2			
	HB LA	2.25	-	-
	HB HLA1, HB HLA2	2.25	3.00	-
Pannelli di fibre, media densità (MDF)	EN 622-3			
	MBH LA1, MBH LA2	3.00	-	-
	MBH HLS1, MBH HLS2	3.00	4.00	-
	EN 622-5			
	MDF LA	2.25	-	-
	MDF HLS	2.25	3.00	-

Tab. 33 – Valori di k_{def} per legno e prodotti strutturali a base di legno

Da cui si deduce che in questo caso $k_{def}=0,8$.

A questo punto si confrontano le frecce derivanti dalle analisi con i limiti imposti dalla norma una volta definita la freccia netta:

$$u_{net} = u_1 + u_2 - u_0$$

dove:

u_0 è la controfreccia (qualora presente);

u_1 è la freccia dovuta ai soli carichi permanenti;

u_2 è la freccia dovuta ai soli carichi variabili.

Nei casi in cui sia opportuno limitare la freccia istantanea dovuta ai soli carichi variabili, si raccomanda il seguente valore:

$$u_{2,in} \leq L/300$$

dove $u_{2,in}$ è calcolata a partire dalla combinazione di carico rara.

Nei casi in cui sia opportuno limitare la freccia finale, u_{fin} , si raccomanda:

$$u_{2,fin} \leq L/200$$

$$u_{net,fin} \leq L/250$$

dove $u_{2,fin}$ e $u_{net,fin}$ sono calcolate come descritto a pagina precedente.

Detto ciò, nel caso in esame si ha:

$$u_{2,in} = 0,04 ;$$

$$u_{2,fin} = 0,07 ;$$

$$u_{net,fin} = 0,11 ;$$

$$L = 35,26m$$

Quindi:

$$u_{2,in} = 0,04 \leq L/300 = 0,12m$$

$$u_{2,fin} = 0,07 \leq L/200 = 0,18m$$

$$u_{net,fin} = 0,11 \leq L/250 = 0,14m$$

Pertanto le verifiche agli SLE risultano soddisfatte.

6.8 Valutazione approssimata della resistenza del telo

Il telo è in realtà un elemento membrane che insieme agli altri elementi della struttura dovrebbe concorrere alla formazione del modello strutturale di analisi 3D.

Tuttavia in questa relazione, il comportamento di tale elemento è stato escluso, concentrandosi più sugli elementi lignei e di fondazione. Di conseguenza ,per valutazione più approfondite sulla membrane si rimanda ad una più specifica relazione che seguirà tale progetto.

In questa sede, s'intende solo giustificare la scelta fatta in merito al telo da adottare, in funzione dei parametri più comunemente utilizzati per le strutture sportive di tale tipologia.

In particolare è stato scelto un telo con resistenza alla trazione pari a 300 kg per ogni 5 cm, sia nella direzione dell'ordito che in quella della trama, poiché considerato adeguato alla geometria della struttura e ai carichi in gioco secondo l'esperienza di tecnici del settore.

7 Verifica dei collegamenti

7.1 Introduzione

I collegamenti che saranno utilizzati in questo progetto sono collegamenti meccanici poiché la trasmissione degli sforzi avviene prevalentemente attraverso appositi elementi metallici e, eventualmente, con la presenza di adesivi. Nello specifico le tipologie di mezzi di unione adottate sono quelle a gambo cilindrico quali bulloni e spinotti.

In questa tipologia di mezzi di unione, fondamentali saranno i piani di taglio, cioè i piani dell'unione che forniscono la resistenza alle azioni esterne poiché in funzione degli stessi si sceglierà una formula di verifica piuttosto che un'altra.

Nel seguito saranno sintetizzate le verifiche da svolgersi per le connessioni in esame per poi concentrarsi ai collegamenti progettati tramite disegni e tabelle dei risultati.

7.2 Verifiche acciaio-legno

Le unioni di cui si tratterà sono formate da più elementi di collegamento quindi vadase che si parlerà di unioni multiple. In questo caso, la capacità portante di un collegamento realizzato con mezzi di unione multipli, tutti dello stesso tipo e dimensioni, può essere minore della somma delle capacità portanti del singolo mezzo di unione.

Per una linea di mezzi di unione disposti parallelamente alla direzione della fibratura (fila), la capacità portante caratteristica efficace nella direzione della fila $F_{ef,Rk}$, deve essere assunta pari a:

$$F_{ef,Rk} = n_{ef} F_{Rk}$$

dove:

n_{ef} è il numero efficace di mezzi di unione appartenenti alla fila. I valori di n_{ef} sono forniti nei punti funzione del tipo di mezzo d'unione e nel caso di bulloni e spinotti vale:

$$n_{ef} = \min \left\{ n, n^{0,9^4} \sqrt{\frac{a_1}{13d}} \right\}$$

F_{Rk} è la capacità portante caratteristica di ciascun mezzo di unione, parallelamente alla fibratura.

Per una forza agente in direzione inclinata rispetto alla direzione della fila, si deve comunque verificare che la componente della forza parallela alla fila sia minore o uguale alla capacità portante calcolata secondo l'espressione precedente. Inoltre, deve essere presa in considerazione

la possibilità di rottura per spacco (*splitting*) causata dalla componente di forza ($F_d \sin \alpha$) che induce trazione in direzione perpendicolare alla fibratura. In particolare, deve essere soddisfatta la condizione:

$$F_{v,d} \leq 0,5 F_{90,Rd} \quad \text{con} \quad F_{v,d} = \max \left\{ F_{v,d,1}, F_{v,d,2} \right\}$$

dove:

$F_{90,Rd}$ è la resistenza di progetto per spacco;

$F_{v,d,1}$ e $F_{v,d,2}$ sono le aliquote taglianti di $F_d \sin \alpha$ su ciascun lato della connessione ($F_d \sin \alpha = F_{v,d,1} + F_{v,d,2}$).

Per legno di conifera, la resistenza caratteristica a rottura per spacco ($F_{90,Rk}$) si può assumere pari a:

$$F_{90,Rk} = 2b * 9 * \sqrt{\frac{h_e}{1 - \left(\frac{h_e}{h} \right)^3}} * f_w * f_r$$

dove:

b è lo spessore dell'elemento ligneo, in mm;

h è l'altezza dell'elemento ligneo, in mm;

h_e è la distanza fra il bordo sollecitato e la riga di connettori più distante, in mm;

f_w è il parametro che tiene conto dell'effetto della larghezza dell'unione;

f_r è il parametro che tiene conto dell'effetto dell'altezza dell'unione.

I parametri f_w e f_r hanno la seguente espressione:

$$f_w = 1 + 0,75 \left(\frac{l_r + l_1}{h} \right) \leq 2$$

$$f_r = 1 + 1,75 \frac{n h_m / 1000}{1 + n h_m / 1000} \quad \text{per unioni con connettori cilindrici}$$

dove:

n è il numero di righe di mezzi di unione;

h_m è l'altezza totale dell'unione o della piastra metallica punzonata, in mm;

l_r è la larghezza dell'unione;

l_1 è la distanza fra i singoli gruppi di connettori o il doppio della distanza dal bordo esterno (c), in mm.

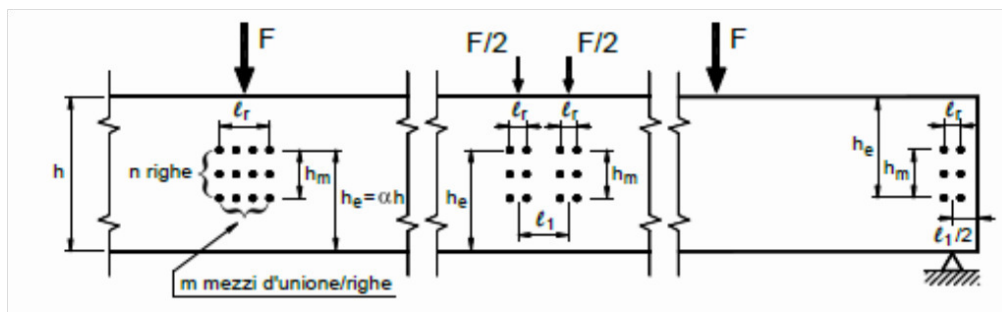


Fig. 29 – Parametri della connessione

Nello specifico, il valore caratteristico della capacità portante delle unioni acciaio-legno dipende anche dallo spessore delle piastre di acciaio. Se il gioco tra il foro nella piastra di acciaio ed il gambo del mezzo di unione è minore o uguale a $0.1d$, le piastre con spessore $t \leq 0.5d$ sono classificate *sottili*, mentre quelle con spessore $t > 0.5d$ sono classificate *spesse*. Nel caso di piastre di spessore intermedio la capacità portante può essere ottenuta interpolando linearmente tra i valori corrispondenti ai due casi. Nel caso il gioco tra il foro nella piastra di acciaio ed il gambo del connettore sia maggiore di $0.1d$, le piastre devono essere sempre classificate sottili. Il valore caratteristico della capacità portante, per ciascun mezzo di unione e piano di taglio, sarà assunto come il minore dei valori ottenibili dalle formule seguenti:

A) per unioni a singolo piano di taglio con piastra di acciaio *sottile*:

$$F_{v,Rk} = \min \left\{ 0,4 f_{h,k} t_1 d, 1,15 \sqrt{2 M_{y,Rk} f_{h,k} d} + \frac{F_{ax,Rk}}{4} \right\}$$

B) per unioni a singolo piano di taglio con piastra di acciaio *spessa*

$$F_{v,Rk} = \min \left\{ f_{h,k} t_1 d \left[\sqrt{2 + \frac{4 M_{y,Rk}}{f_{h,k} d t_1^2}} - 1 \right] + \frac{F_{ax,Rk}}{4}, 2,3 \sqrt{M_{y,Rk} f_{h,k} d} + \frac{F_{ax,Rk}}{4} \right\}$$

C) per unioni a doppio piano di taglio con piastra di acciaio di qualsiasi spessore posta in posizione centrale:

$$F_{v,Rk} = \min \left\{ \begin{array}{l} f_{h,k} t_1 d \left[\sqrt{2 + \frac{4M_{y,Rk}}{f_{h,k} d t_1^2}} - 1 \right] + \frac{F_{ax,Rk}}{4} \\ 2,3 \sqrt{M_{y,Rk} f_{h,1,k} d} + \frac{F_{ax,Rk}}{4} \end{array} \right.$$

D) per unioni a doppio piano di taglio con piastre di acciaio *sottili* poste esternamente:

$$F_{v,Rk} = \min \left\{ \begin{array}{l} 0,5 f_{h,2,k} t_2 d \\ 1,15 \sqrt{2M_{y,Rk} f_{h,2,k} d} + \frac{F_{ax,Rk}}{4} \end{array} \right.$$

E) per unioni a doppio piano di taglio con piastre di acciaio *spesse* poste esternamente:

$$F_{v,Rk} = \min \left\{ \begin{array}{l} 0,5 f_{h,2,k} t_2 d \\ 2,3 \sqrt{2M_{y,Rk} f_{h,2,k} d} + \frac{F_{ax,Rk}}{4} \end{array} \right.$$

Si precisa da subito che, nel caso in esame saranno considerate solo le formule relative alle relazioni A), B) e C).

Il valore caratteristico del momento di snervamento, valido per diametri del bullone fino a 30mm, $M_{y,Rk}$, è pari a:

$$M_{y,Rk} = \zeta_b f_{u,k} d^3 / 6$$

dove:

$f_{u,k}$ è la resistenza ultima caratteristica a trazione dell'acciaio;

d è il diametro del bullone;

$\zeta_b = 1,8/d^{0,4}$ è il fattore riduttivo minore di 1 del momento plastico, che tiene in considerazione l'effettivo comportamento allo stato limite ultimo del bullone (d , diametro bullone, in mm).

Per bulloni aventi diametro $d \leq 30\text{mm}$, si adottano i seguenti valori caratteristici della resistenza a rifollamento del legno massiccio, lamellare e LVL, relativi ad un angolo α dello sforzo rispetto alla direzione della fibratura:

$$f_{h,\alpha,k} = \frac{f_{h,0,k}}{k_{90} \sin^2 \alpha + \cos^2 \alpha}$$

dove:

$f_{h,0,k} = 0,082(1-0,01d)\rho_k$ è la resistenza caratteristica a rifollamento per $\alpha = 0^\circ$, in N/mm^2 ;

$k_{90} = 1,35 + 0,015d$ per legno di conifere massiccio e lamellare;

ρ_k è la massa volumica caratteristica del legno, in kg/m^3 ;

d è il diametro del bullone, in mm.

Infine, per unioni acciaio-legno in cui l'elemento di unione viene sollecitato a trazione, la capacità portante assiale e la capacità ad estrazione di un bullone devono essere assunte pari al valore minore fra:

- la resistenza a trazione del bullone;
- la resistenza a schiacciamento del legno al di sotto della rondella o, per connessioni acciaio-legno, della piastra di acciaio.

La resistenza a schiacciamento del legno al di sotto della rondella deve essere calcolata assumendo una resistenza caratteristica a compressione sull'area di contatto pari a $3 f_{c,90,k}$.

La resistenza a schiacciamento del legno al di sotto della piastra di acciaio deve essere assunta come minore o uguale a quella di una rondella circolare equivalente avente un diametro d_R pari a:

$$d_R = \min 12t; 4d$$

con:

t lo spessore della piastra, in mm;

d il diametro del bullone, in mm.

Le espressioni introdotte fin'ora per il momento di snervamento e per il calcolo a rifollamento della piastra valgono tanto per i bulloni quanto per gli spinotti. L'unica cosa che cambia tra i due elementi di giunzione sono i limiti geometrici da rispettare inerenti gli interassi e alle distanze tra bordi ed estremità. Nelle tabelle seguenti si riportano tali limiti:

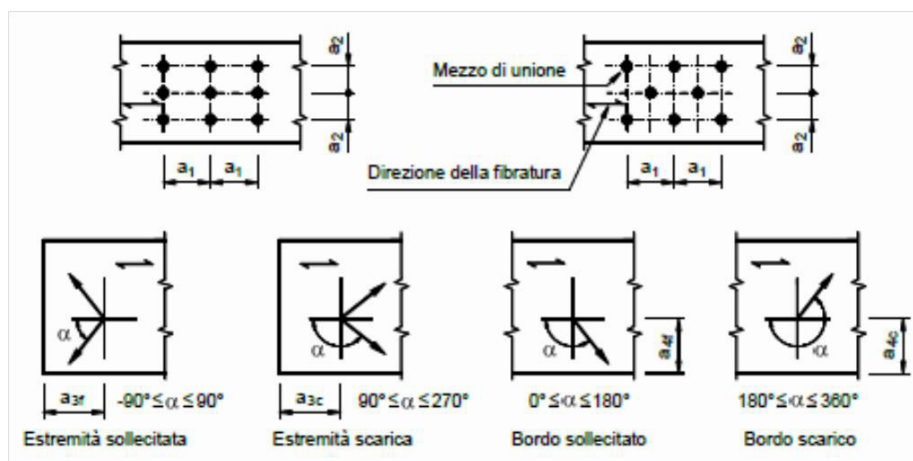


Fig. 30 – Spaziature e distanze minime

Interasse o distanza (Fig. 7-12)	Angolo α fra forza e direzione della fibratura	Interasse e distanze da bordi ed estremità, valori minimi
a_1 (parallelo alla fibratura)	$0^\circ \leq \alpha \leq 360^\circ$	$(4+3 \cos \alpha) d$
a_2 (ortogonale alla fibratura)	$0^\circ \leq \alpha \leq 360^\circ$	$4d$
$a_{3,f}$ (estremità sollecitata)	$-90^\circ \leq \alpha \leq 90^\circ$	$\max \begin{cases} 7d \\ 80\text{mm} \end{cases}$
$a_{3,c}$ (estremità scarica)	$90^\circ \leq \alpha \leq 150^\circ$	$\max \begin{cases} (1+6 \sin \alpha) d \\ 4d \end{cases}$
	$150^\circ \leq \alpha \leq 210^\circ$	$4d$
	$210^\circ \leq \alpha \leq 270^\circ$	$\max \begin{cases} (1+6 \sin \alpha) d \\ 4d \end{cases}$
$a_{4,f}$ (bordo sollecitato)	$0^\circ \leq \alpha \leq 180^\circ$	$\max \begin{cases} (2+2 \sin \alpha) d \\ 3d \end{cases}$
$a_{4,c}$ (bordo scarico)	$180^\circ \leq \alpha \leq 360^\circ$	$3d$

Tab. 34 – Interasse e distanze da bordi ed estremità, valori minimi per bulloni

Interasse o distanza (Fig. 7.12)	Angolo α fra forza e direzione della fibratura	Interasse e distanze da bordi ed estremità, valori minimi
a_1 (parallelo alla fibratura)	$0^\circ \leq \alpha \leq 360^\circ$	$(3 + 2 \cos \alpha) d$
a_2 (ortogonale alla fibratura)	$0^\circ \leq \alpha \leq 360^\circ$	$3d$
$a_{3,f}$ (estremità sollecitata)	$-90^\circ \leq \alpha \leq 90^\circ$	$\max \begin{cases} 7d \\ 80\text{mm} \end{cases}$
$a_{3,c}$ (estremità scarica)	$90^\circ \leq \alpha \leq 150^\circ$	$\max \begin{cases} (a_{3,f} \sin \alpha) \\ 3d \end{cases}$
	$150^\circ \leq \alpha \leq 210^\circ$	$3d$
	$210^\circ \leq \alpha \leq 270^\circ$	$\max \begin{cases} (a_{3,f} \sin \alpha) \\ 3d \end{cases}$
$a_{4,f}$ (bordo sollecitato)	$0^\circ \leq \alpha \leq 180^\circ$	$\max \begin{cases} (2 + 2 \sin \alpha) d \\ 3d \end{cases}$
$a_{4,c}$ (bordo scarico)	$180^\circ \leq \alpha \leq 360^\circ$	$3d$

Tab. 35 – Interasse e distanze da bordi ed estremità, valori minimi per spinotti

E' bene identificare, sin da ora, le distanza dai bordi come le distanze tra l'asse del mezzo di unione e il bordo esterno, che sia inteso come bordo della sezione lignea d'interesse.

Con ciò s'intende giustificare gli eventuali valori mancanti nelle tabelle che seguiranno, in quanto tali distanza dal bordo risulterebbero troppo grandi per influenzare in maniera significativa le verifiche di resistenza acciaio-legno.

7.3 Verifica delle parti metalliche

Le principali verifiche da fare sulle parti metalliche sono:

- Resistenza a taglio del bullone:

$$F_{V,Rd} = \frac{0,6f_{tb}A_{res}}{\gamma_{M2}} \text{ per bulloni di classe 4.6, 5.6, 8.8}$$

$$F_{V,Rd} = \frac{0,5f_{tb}A_{res}}{\gamma_{M2}} \text{ per bulloni di classe 6.8 e 10.9}$$

- Resistenza a rifollamento della piastra:

$$F_{b,Rd} = k\alpha f_{tk}dt / \gamma_{M2}$$

dove:

d è il diametro nominale del gambo del bullone;

t è lo spessore della piastra collegata;

f_{tk} è la resistenza a rottura del materiale della piastra collegata;

$$\alpha = \min \left\{ \frac{e_1}{3d_0}; \frac{f_{tb}}{f_t}; 1 \right\} \text{ per bulloni di bordo nella direzione del carico applicato}$$

$$\alpha = \min \left\{ \frac{p_1}{3d_0} - 0,25; \frac{f_{tb}}{f_t}; 1 \right\} \text{ per bulloni interni nella direzione del carico applicato}$$

$$k = \min \left\{ 2,8 \frac{e_2}{d_0} - 1,7; 2,5 \right\} \text{ per bulloni di bordo}$$

/direzione perpendicolare al carico applicato

$$k = \min \left\{ 1,4 \frac{p_2}{d_0} - 1,7; 2,5 \right\} \text{ per bulloni interni}$$

/direzione perpendicolare al carico applicato

essendo e_1 , e_2 , p_1 , p_2 la distanze geometriche minime indicate nelle NTC2008.

- Resistenza a trazione del bullone:

$$F_{t,Rd} = 0,9f_{tb}A_{res} / \gamma_{M2}$$

- Resistenza a taglio e trazione:

$$\frac{F_{V,Ed}}{F_{V,Rd}} + \frac{F_{t,Ed}}{1,4F_{t,Rd}} \leq 1$$

- Resistenza a flessione del perno (connessioni utili alla costruzione di elementi cerniera)

$$M_{Rd} = 1,5W_{el}f_{yk} / \gamma_{M0}$$

- Resistenza a taglio del perno:

$$F_{V,Rd} = \frac{0,6f_{tk}A}{\gamma_{M2}}$$

- Resistenza a rifollamento dell'elemento in acciaio connesso al perno:

$$F_{b,Rd} = 1,5f_{yk}dt/\gamma_{M0}$$

- Resistenza a taglio e Momento resistente e tensione di contatto nel caso in cui si prevede la sostituzione del perno:

$$F_{b,Rd,ser} = \frac{0,6f_{yk}dt}{\gamma_{M6ser}} > F_{b,Ed,ser}$$

$$M_{Rd,ser} = \frac{0,6f_{yk}dt}{\gamma_{M6ser}} > M_{Ed,ser}$$

$$\sigma_{h,Ed} = 0,591 \sqrt{\frac{E f_{Ed,ser}(d_0 - d)}{d^2 t}} > f_{h,Ed} = \frac{2,5f_{yk}}{\gamma_{M6ser}}$$

- Saldatura (verifica con sezione di gola ribaltata):

La verifica dei cordoni d'angolo si effettua controllando che siano soddisfatte simultaneamente le due condizioni (metodo 2 – CNR 10011):

$$\sqrt{n_{perp.}^2 + \tau_{perp.}^2 + \tau_{parall.}^2} \leq \beta_1 f_{yk}$$

$$|n_{perp.}| + |t_{perp.}| \leq \beta_2 f_{yk}$$

con:

	S235	S275 - S355	S420 - S460
β_1	0,85	0,70	0,62
β_2	1,0	0,85	0,75

Tab. 36 – Valori dei coefficienti β_1 e β_2

E' infine da sottolineare che non sono stati riportati i limiti geometrici da rispettare per le piastre in acciaio poiché i limiti imposti dalla geometria acciaio-legno sono più restrittivi di questi ultimi, quindi, verificandoli, i primi sono automaticamente soddisfatti.

7.3 Tabelle riassuntive di verifica dei collegamenti

7.3.1 Cerniera di colmo della trave ad arco

Il giunto in questione è stato rappresentato come una cerniera nel modello strutturale e come tale è stato scelto un dispositivo che nella realtà potesse simulare al meglio questo vincolo.

In particolare, il giunto è composto da due piastre metalliche inserite al centro della trave lamellare e ad essa collegata tramite un sistema di spinotti e bulloni. Tale piastra, termina con un piatto trasversale a cui sono saldate 3 e 2 piastre sagomate, da un lato e dall'altro, e tra loro collegate per mezzo di un perno di adeguato diametro.

Per una migliore comprensione del collegamento se ne riporta uno schema grafico:

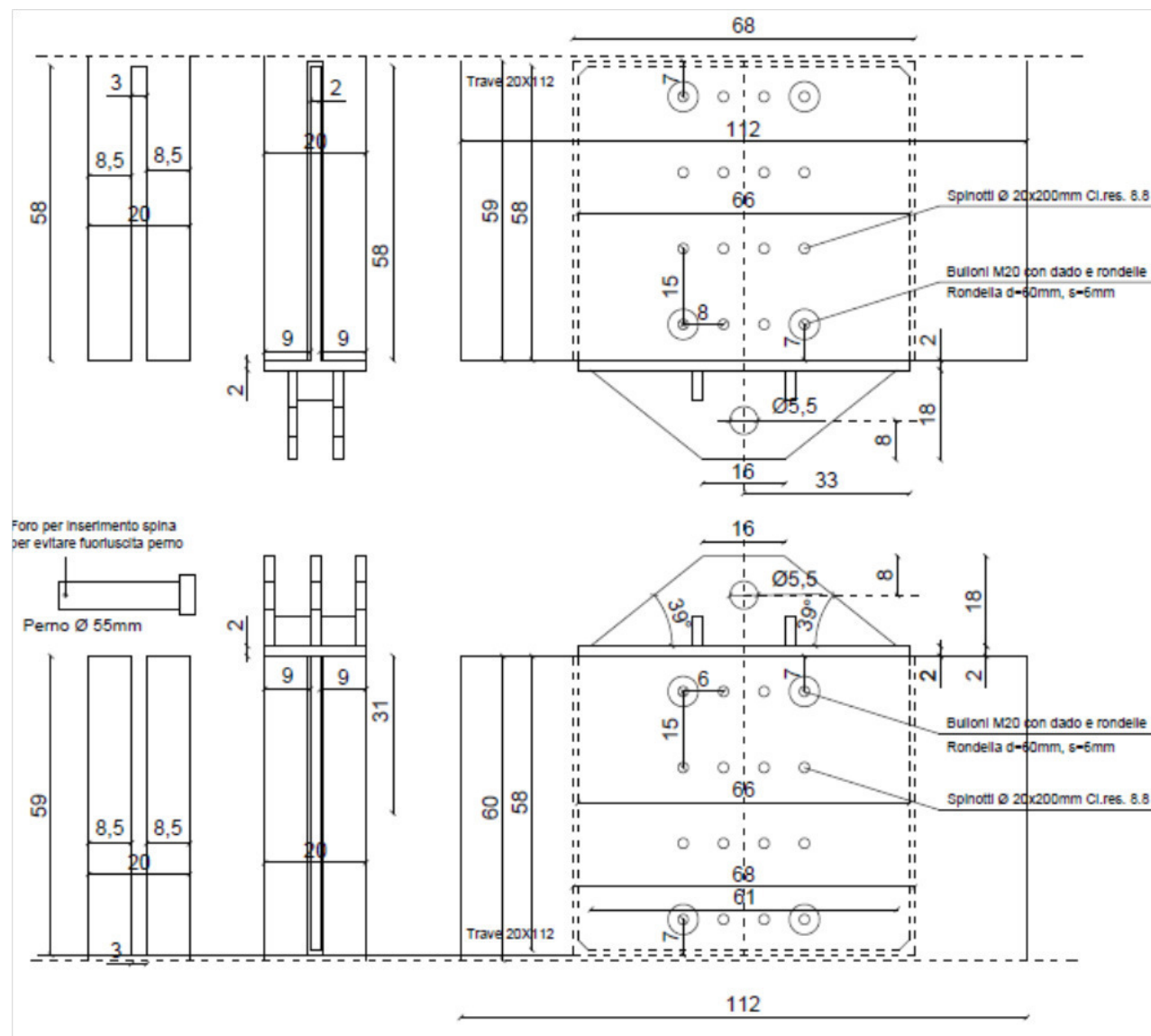


Fig. 31 – Particolare costruttivo della cerniera di colmo

Per questa giunzione saranno verificate la:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone;
- rifollamento della piastra;
- resistenze del perno (varie);
- saldature piatti.

Le tabelle sottostanti mostrano una sintesi dei risultati:

Caratteristiche legno	
ρ_k [kg/m ³]	$f_{c,90,k}$ [MPa]
410	3

Caratteristiche Bullone		
Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche Perno		
d [mm]	A [mm ²]	A _{res} [mm ²]
50	1962,5	1962,5
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f_{yk} [N/mm ²]	f_{tk} [N/mm ²]
20	S275	275	430

Tipologia piastra secondo la norma
spessa

Geometria del collegamento		Sollecitazioni		Risultanti	
a ₁ [mm]	150	N [kg]	14554	H _{or} [kg]	844
a ₂ [mm]	80	T ₁₋₂ [kg]	1966	V _{er} [kg]	520
a _{3,f} [mm]	-	T ₁₋₃ [kg]	0	α[°]	31,64
a _{3,c} [mm]	-	M _t [kgm]	0	R _{is,v} [kg]	991
a _{4,f} [mm]	250	M ₁₋₂ [kgm]	1789	R _{is,T} [kg]	0
a _{4,c} [mm]	250	M ₁₋₃ [kgm]	0	V _{perno} [kg]	5503,4
n _{file}	4			M _{perno} [kgm]	327,4
n _{righe}	4			V _{perno,ser} [kg]	2563
n _{eff}	3,03			M _{perno,ser} [kgm]	179,3

Risultati verifica acciaio-legno			
ζ _b	M _{y,Rk} [Nmm]	f _{h,k} [MPa]	f _{h,1,k} [MPa]

0,543076	579280,9	26,896	22,8182
F_{v1} [N]	F_{v2} [N]	F_{v3} [N]	
48410	39923	48700	
$F_{v,Rk}$ [kg]	$F_{v,Rd}$ [kg]		$R_{is,v}$ [kg]
3992,3	2395,38	>	991

Resistenza allo splitting		
$0,5F_{90,Rd}$ [kg]	10344 > 520	V_{er} [kg]

Risultati verifiche acciaio					
Taglio bullone			Rifollamento piastra		
$F_{v,Rd}$ [kg]	9408 > 991	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	34400 > 991	$R_{is,v}$ [kg]
Taglio perno			Flessione perno		
$F_{v,Rd}$ [kg]	75360 > 5503,4	V_{perno} [kg]	M_{Rd} [kgm]	481 > 327,4	M_{perno} [kgm]
Rifollamento piastra			Sostituzione perno		
$F_{b,Rd}$ [kg]	39285 > 5503,4	V_{perno} [kg]	$F_{b,Rd,ser}$ [kg]	16500 > 2563	$V_{perno,ser}$ [kg]
			$M_{Rd,ser}$ [kgm]	269,8 > 179,3	$M_{perno,ser}$ [kgm]
			$\sigma_{h,Ed}$ [Mpa]	187,3 > 937,5	$f_{h,Ed}$ [Mpa]

Saldatura	
Geometria	
N°lati	2 (per anima)
Sezione gola [mm]	8,6
Lunghezza [mm]	600
n_{perp} [Mpa]	0
τ_{perp} [Mpa]	19,60923773
τ_{parall} [Mpa]	0,63501292

Metodo 2 CNR10011	
verifica 1	19,62 < 301 Mpa= 0,7*f _{yk}
verifica 2	19,615 < 365,5 Mpa= 0,85*f _{yk}

Tab. 36 – Tabelle dei risultati per la cerniera di colmo

7.3.2 Giunto rompitratte della trave

Questo collegamento nasce dall'esigenza pratica del trasporto degli elementi trave in cantiere. Infatti non è possibile trasportare elementi più lunghi di 12 m quindi la trave ad arco deve essere per forza divisa in due parti.

Questo indica che il collegamento in esame non rappresenta nessun tipo di vincolo relativo al modello strutturale, ma deve ristabilire la continuità della trave in legno lamellare.

Ancora una volta la scelta del tipo di giunzione è ricaduta su un elemento piastra inserito nell'anima della trave e collegato ad essa per mezzo di un sistema di spinotti e bulloni:

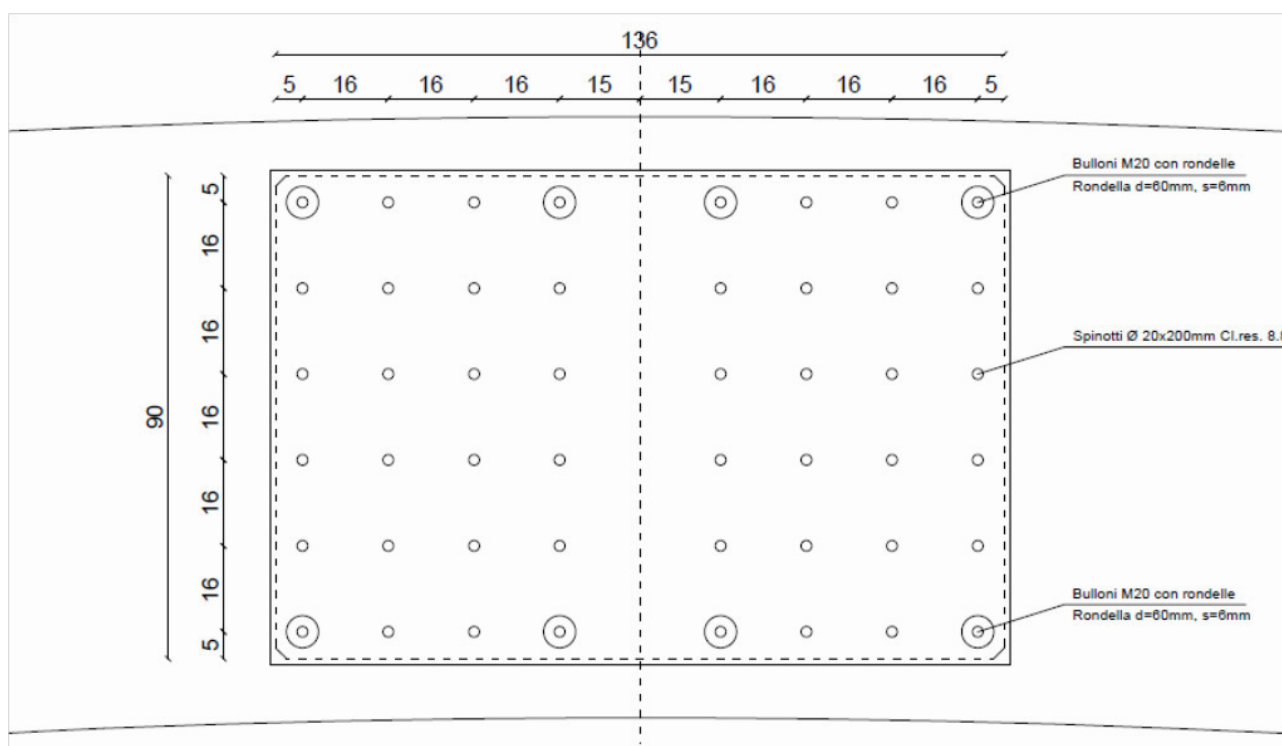


Fig. 32 – Particolare costruttivo del collegamento rompitratte

In questo caso le uniche verifiche da svolgere saranno:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone;
- rifollamento della piastra.

Caratteristiche legno	
$\rho_k [\text{kg/m}^3]$	$f_{c,90,k} [\text{MPa}]$
410	3

Caratteristiche Bullone

Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f _{yb} [Mpa]	f _{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f _{yk} [N/mm ²]	f _{tk} [N/mm ²]
20	S275	275	430

Tipologia piastra secondo la norma
spessa

Geometria del collegamento		Sollecitazioni		Risultanti	
a ₁ [mm]	160	N [kg]	17679	H _{or} [kg]	1235
a ₂ [mm]	160	T ₁₋₂ [kg]	4490	V _{er} [kg]	1419
a _{3,f} [mm]	-	T ₁₋₃ [kg]	0	α[°]	48,97
a _{3,c} [mm]	-	M _t [kgm]	0	R _{is,v} [kg]	1881
a _{4,f} [mm]	160	M ₁₋₂ [kgm]	35376	R _{is,T} [kg]	0
a _{4,c} [mm]	160	M ₁₋₃ [kgm]	0		
n _{file}	6				
n _{righe}	4 per lato				
n _{eff}	3,08				

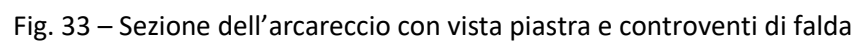
Risultati verifica acciaio-legno			
ζ _b	M _{y,Rk} [Nmm]	f _{h,k} [MPa]	f _{h,1,k} [MPa]
0,543076	579280,9	26,896	19,6376
F _{v1} [N]	F _{v2} [N]	F _{v3} [N]	
48412	39923	46000	
F _{v,Rk} [kg]	F _{v,Rd} [kg]		R _{is,v} [kg]
3992,3	2395,38	>	1881

Resistenza allo splitting		
0,5F _{90,Rd} [kg]	32165 > 1419	V _{er} [kg]

Risultati verifiche acciaio					
Taglio bullone			Rifollamento piastra		
F _{v,Rd} [kg]	9408 > 1881	R _{is,v} [kg]	F _{b,Rd} [kg]	34400 > 1881	R _{is,v} [kg]

Tab. 36 – Tabelle dei risultati per il giunto rompitratta

In questo paragrafo si tratteranno gli arcarecci e i controventi poiché questi due elementi della struttura sono strettamente collegati l'uno all'altro mediante una piastra la cui forma e geometria sono chiariti dai seguenti prospetti:



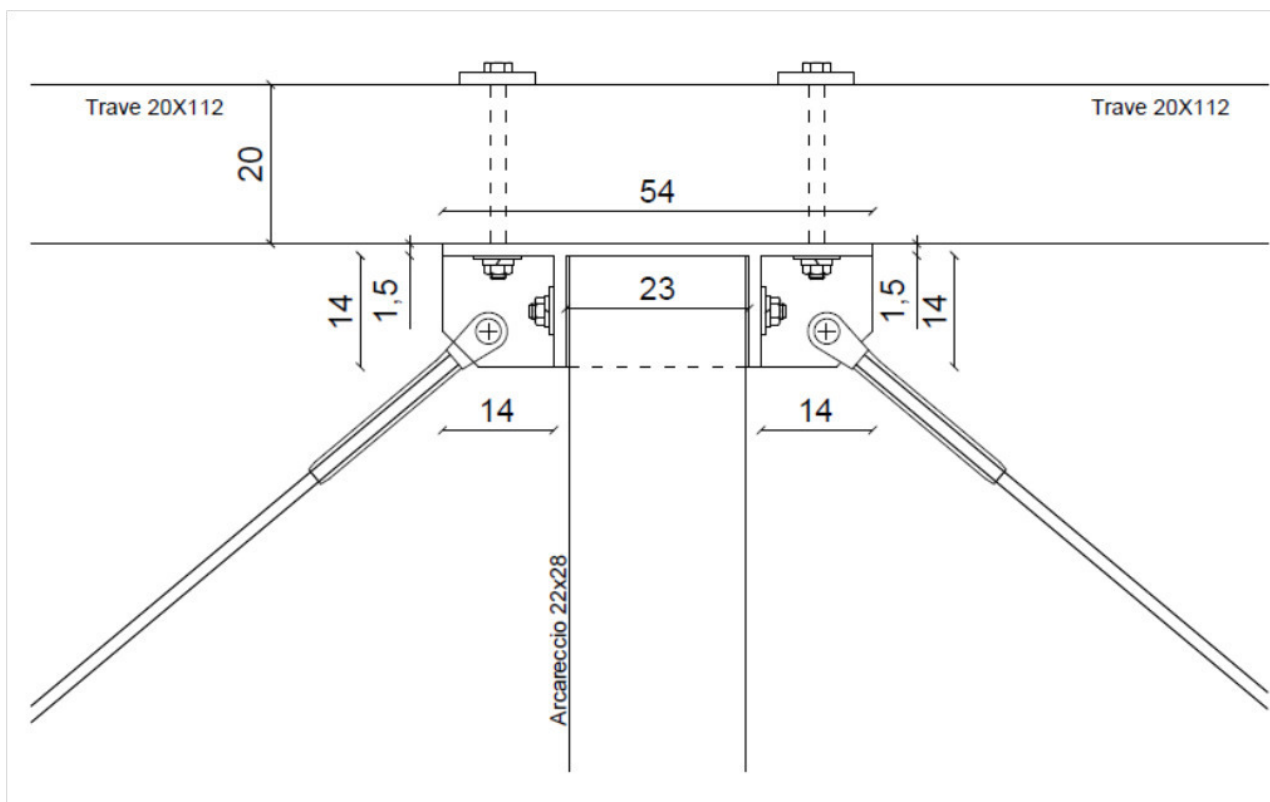


Fig. 34 – Pianta con vista arcareccio, piastra e controventi di falda

In sostanza la piastra avvolge l'arcareccio ed è collegata alla trave in legno lamellare tramite 2 file di due bulloni ognuna. Alla suddetta piastra sono poi saldati due piatti di acciaio inclinati (per tener in conto della curvatura dell'arco) ai quali sono collegati i controventi mediante perni.

Va da sé che, in un collegamento di questo tipo, in cui più elementi trave confluiscano su un unico nodo, le sollecitazioni dei singoli elementi andranno a caricare simultaneamente i mezzi di unione.

Si questa concomitanza se ne è tenuto conto nelle verifiche che seguono:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone;
- rifollamento della piastra;
- resistenze del perno (varie);
- saldature piatti.

Caratteristiche legno	
ρ_k [kg/m ³]	$f_{c,90,k}$ [MPa]
410	3

Caratteristiche Bullone		
Classe	A [mm ²]	A _{res} [mm ²]

M20	314	245
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f_{yk} [N/mm ²]	f_{tk} [N/mm ²]
15	S275	275	430

Tipologia piastra secondo la norma
intermedia

Geometria del collegamento 1		Sollecitazioni		Risultanti	
a_1 [mm]	400	N [kg]	2828,1	H_{or} [kg]	69
a_2 [mm]	80	T_{1-2} [kg]	101,3	V_{er} [kg]	146
$a_{3,f}$ [mm]	-	T_{1-3} [kg]	345,3	α [°]	64,83
$a_{3,c}$ [mm]	-	M_t [kg]	222,2	$R_{is,v}$ [kg]	162
$a_{4,f}$ [mm]	510	M_{1-2} [kg]	139,3	$R_{is,T}$ [kg]	2804,4
$a_{4,c}$ [mm]	510	M_{1-3} [kg]	981,4		
n_{eff}	2				

Risultati verifica acciaio-legno 1			
ζ_b	$M_{y,Rk}$ [Nmm]	$f_{h,k}$ [MPa]	$f_{h,1,k}$ [MPa]
0,543076	579280,9	26,836	-
F_{v1} [N]	F_{v2} [N]	F_{v3} [N]	
56480	37529	51904	
$F_{v,Rk}$ [kg]	$F_{v,Rd}$ [kg]		$R_{is,v}$ [kg]
5648	3388,8	>	162

Resistenza allo splitting	
$0,5F_{90,Rd}$ [kg]	3712 > 146
	V_{er} [kg]

Risultati verifiche acciaio 1					
Taglio bullone			Rifollamento piastra		
$F_{v,Rd}$ [kg]	9408 > 162	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	25800 > 162	$R_{is,v}$ [kg]
Trazione bullone			Punzonamento piastra		
$F_{t,Rd}$ [kg]	14112 > 2804,4	$R_{is,T}$ [kg]	$B_{p,Rd}$ [kg]	19442,8 > 2804,4	$R_{is,T}$ [kg]

Geometria del collegamento 2		Sollecitazioni		Risultanti	
a_1 [mm]	0	N [kg]	2828,1	H_{or} [kg]	1415
a_2 [mm]	0	T_{1-2} [kg]	101,3	V_{er} [kg]	51
$a_{3,f}$ [mm]	70	T_{1-3} [kg]	345,3	α [°]	2,06

$a_{3,c}$ [mm]	70	M_t [kg]	222,2	$R_{is,v}$ [kg]	1415
$a_{4,f}$ [mm]	115	M_{1-2} [kg]	139,3	$R_{is,T}$ [kg]	0
$a_{4,c}$ [mm]	115	M_{1-3} [kg]	981,4		

Risultati verifica acciaio-legno 2			
ζ_b	$M_{y,Rk}$ [Nmm]	$f_{h,k}$ [MPa]	$f_{h,1,k}$ [MPa]
0,543076	579280,9	26,836	-
F_{v1} [N]	F_{v2} [N]	F_{v3} [N]	
61860	41754,5	-	
$F_{v,Rk}$ [kg]	$F_{v,Rd}$ [kg]		$R_{is,v}$ [kg]
4175,45	2505,27	>	1415

Resistenza allo splitting		
$0,5F_{90,Rd}$ [kg]	1765 > 51	V_{er} [kg]

Risultati verifiche acciaio 2					
Taglio bullone			Rifollamento piastra		
$F_{v,Rd}$ [kg]	9408 > 1415	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	25800 > 1415	$R_{is,v}$ [kg]

Risultati verifiche Controventi			
Saldatura			
Sollecitazioni		Geometria	
N [kg]	4138,5	N°lati	2 (sopra e sotto)
T_{1-2} [kg]	0	Sezione gola [mm]	8,6
T_{1-3} [kg]	0	Lunghezza [mm]	140
M_t [kg]	0	n_{perp} [Mpa]	28,5
M_{1-2} [kg]	0	τ_{perp} [Mpa]	0
M_{1-3} [kg]	0	τ_{parall} [Mpa]	19,25

Metodo 2 CNR10011		
verifica 1	34,4 < 301 Mpa=	0,7*f _{yk}
verifica 2	28,5 < 365,5 Mpa=	0,85*f _{yk}

Geometria piastra	
t[mm]	15
d _{foro} [mm]	20
a[mm]	25 > 18
c[mm]	80 > 12

Taglio perno		Flessione perno		M_{perno} [kgm]
$F_{v,Rd}$ [kg]	12229 > 2070	V_{perno} [kg]	M_{Rd} [kgm]	
Rifollamento piastra		Sostituzione perno		

$F_{b,Rd}$ [kg]	11785,7 > 2070	V_{perno} [kg]	$F_{b,Rd,ser}$ [kg]	4950 > 1342	$V_{perno,ser}$ [kg]
			$M_{Rd,ser}$ [kgm]	172,7 > 21,49	$M_{perno,ser}$ [kgm]
			$\sigma_{h,Ed}$ [Mpa]	370,8 > 937,5	$f_{h,Ed}$ [Mpa]
Trazione barra		Trazione piastra			
N_{Ed} [kg]	4138,5 < 8290	N_{Rd} [kg]	$N_{u,Rd}$ [kg]	33285 > 2804,4	M_{perno} [kgm]

Tab. 37 – Tabelle dei risultati per il collegamento trave-arcarecci-controventi

Come si può notare nelle tabelle si indicano le verifiche di due collegamenti. Con “collegamento 1” si fa riferimento a quello della piastra con la trave principale (arco) mentre, con “collegamento 2” si indica l’unico bullone che unisce la piastra all’arcareccio.

7.3.4 Trave di banchina

La trave di banchina è il punto di applicazione del precarico imposto al telo e per questo, il nodo in questione riveste un’importanza fondamentale ai fini statici.

Questo collegamento, rispetto a quelli visti fin’ora non è simmetrico, infatti essendo l’elemento strutturale, un elemento laterale, i mezzi di giunzione saranno disposti verso il alto interno della copertura.

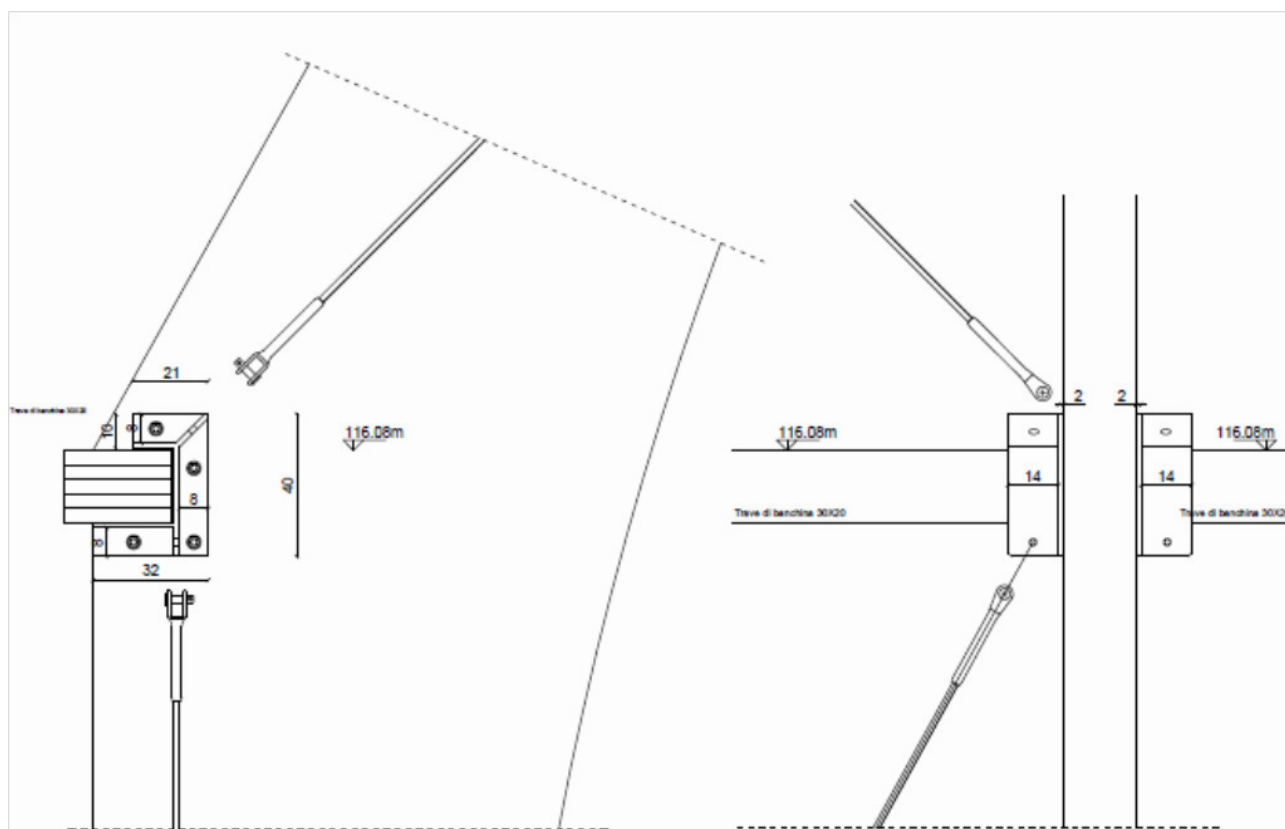


Fig. 35 – Particolare del collegamento della trave di banchina

In più, come si può vedere dalla Fig. 35, lo snodo accoglie anche i controventi di copertura e quello laterale che scarica direttamente sulla fondazione (Fig. 36). Per questi motivi, nella verifica del collegamento sono stati tenuti in conto anche i tiri dei controventi e, a vantaggio di statica, (almeno per il controvento di copertura) è stato assunto uno sforzo assiale pari al valore massimo di trazione dell'elemento più caricato, e quindi quello con cui è stata svolta la verifica al paragrafo precedente (7.3.3).

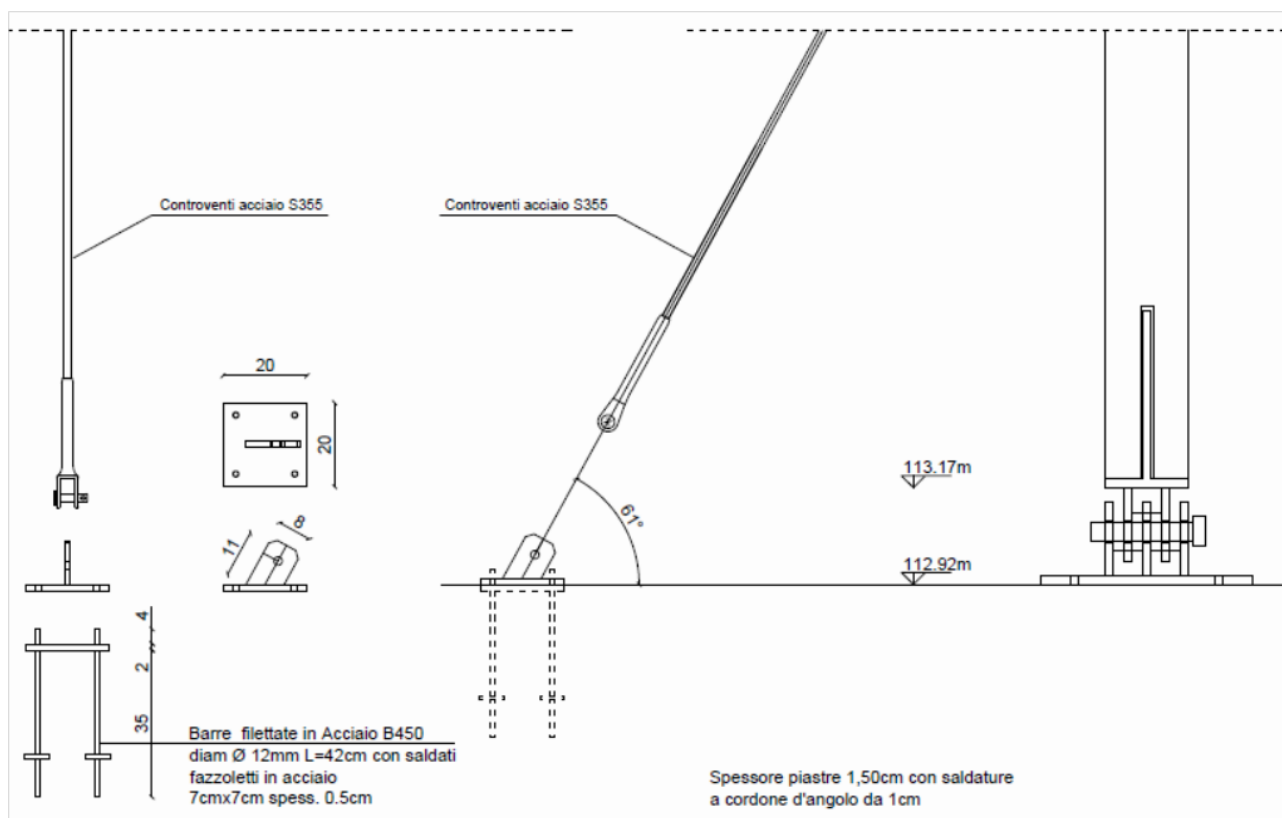


Fig. 36 – Particolare del collegamento della trave di banchina – Sezione di base

Nelle verifiche che seguono saranno sintetizzate il rispetto delle seguenti resistenze:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone;
- rifollamento della piastra;
- resistenze del perno (varie);
- saldature piatti dei controventi;
- resistenza a taglio tirafondi;
- resistenza a rifollamento (lato fondazione);
- resistenza a trazione dei tirafondi di fondazione;

- punzonamento della piastra;
- Taglio e trazione dei tirafondi.

Caratteristiche legno	
ρ_k [kg/m ³]	$f_{c,90,k}$ [MPa]
410	3

Caratteristiche Bullone		
Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f_{yk} [N/mm ²]	f_{tk} [N/mm ²]
15	S275	275	430

Tipologia piastra secondo la norma
intermedia

Geometria del collegamento		Sollecitazioni		Risultanti	
a ₁ [mm]	150	N [kg]	6532	H _{or} [kg]	532
a ₂ [mm]	200	T ₁₋₂ [kg]	98,7	V _{er} [kg]	195,1
a _{3,f} [mm]	-	T ₁₋₃ [kg]	0	α [°]	69,9
a _{3,c} [mm]	250	M _t [kg]	130,5	R _{is,v} [kg]	567
a _{4,f} [mm]	200	M ₁₋₂ [kg]	136	R _{is,t} [kg]	4896
a _{4,c} [mm]	200	M ₁₋₃ [kg]	0		
n _{eff}	-				

Risultati verifica acciaio-legno			
ζ_b	M _{y,Rk} [Nmm]	$f_{h,k}$ [MPa]	$f_{h,1,k}$ [MPa]
0,54307587	463424,7426	26,896	-
F _{v1} [N]	F _{v2} [N]	F _{v3} [N]	
75308,5	47315,1	-	
F _{v,Rk} [kg]	F _{v,Rd} [kg]		R _{is,v} [kg]
4731,5	2523,466667	>	567

Resistenza allo splitting	
0,5F _{90,Rd} [kg]	V _{er} [kg]
5121 > 146	

Risultati verifiche acciaio					
Taglio bullone			Rifollamento piastra		
$F_{v,Rd}$ [kg]	9408 > 146	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	34400 > 146	$R_{is,v}$ [kg]
Trazione bullone			Punzonamento Piastra		
$F_{t,Rd}$ [kg]	14112 > 4896	$R_{is,T}$ [kg]	$F_{b,Rd}$ [kg]	19442 > 4896	$R_{is,T}$ [kg]

Risultati verifiche Controvento 1					
Saldatura					
Sollecitazioni			Geometria		
N [kg]	4138,5		N°lati	2 (sopra e sotto)	
T_{1-2} [kg]	0		Sezione gola [mm]	8,6	
T_{1-3} [kg]	0		Lunghezza [mm]	110	
M_t [kg]	0		n_{perp} [Mpa]	17,2	
M_{1-2} [kg]	0		τ_{perp} [Mpa]	0	
M_{1-3} [kg]	0		τ_{parall} [Mpa]	21,9	

Metodo 2 CNR10011		
verifica 1	27,9 < 301 Mpa=	0,7*f _{yk}
verifica 2	17,2 < 365,5 Mpa=	0,85*f _{yk}

Geometria piastra	
t[mm]	15
d _{foro} [mm]	21
d[mm]	20
a[mm]	40 > 18
c[mm]	58 > 12

Taglio perno			Flessione perno		
$F_{v,Rd}$ [kg]	12229 > 2070	V_{perno} [kg]	M_{Rd} [kgm]	308 > 33,43	M_{perno} [kgm]
Rifollamento piastra			Sostituzione perno		
$F_{b,Rd}$ [kg]	11785,7 > 2070	V_{perno} [kg]	$F_{b,Rd,ser}$ [kg]	4950 > 1256	$V_{perno,ser}$ [kg]
			$M_{Rd,ser}$ [kgm]	172,7 > 19,3	$M_{perno,ser}$ [kgm]
			$\sigma_{h,Ed}$ [Mpa]	391,9 > 937,5	$f_{h,Ed}$ [Mpa]

Trazione barra			Trazione piastra		
N_{Ed} [kg]	4138,5 < 8290	N_{Rd} [kg]	$N_{u,Rd}$ [kg]	51084 > 4138,5	M_{perno} [kgm]

Risultati verifiche Controvento 2					
Saldatura					
Sollecitazioni			Geometria		
N [kg]	3720		N°lati	2 (sopra e sotto)	
T_{1-2} [kg]	0		Sezione gola [mm]	8,6	

T_{1-3} [kg]	0	Lunghezza [mm]	80
M_t [kg]	0	n_{perp} [Mpa]	0
M_{1-2} [kg]	0	τ_{perp} [Mpa]	0
M_{1-3} [kg]	0	τ_{parall} [Mpa]	30,1

Metodo 2 CNR10011		
verifica 1	30,1 < 301 Mpa=	0,7*f _{yk}
verifica 2	0 < 365,5 Mpa=	0,85*f _{yk}

Geometria piastra	
t[mm]	15
d _{foro} [mm]	21
d[mm]	20
a[mm]	30 > 18
c[mm]	58 > 12

Taglio perno			Flessione perno		
$F_{v,Rd}$ [kg]	12229 > 1860	V_{perno} [kg]	M_{Rd} [kgm]	308 > 30,05	M_{perno} [kgm]
Rifollamento piastra			Sostituzione perno		
$F_{b,Rd}$ [kg]	11785,7 > 2070	V_{perno} [kg]	$F_{b,Rd,ser}$ [kg]	4950 > 1083,4	$V_{perno,ser}$ [kg]
			$M_{Rd,ser}$ [kgm]	172,7 > 23,1	$M_{perno,ser}$ [kgm]
			$\sigma_{h,Ed}$ [Mpa]	363,9 > 937,5	$f_{h,Ed}$ [Mpa]

Trazione barra			Trazione piastra		
N_{Ed} [kg]	3720 < 8290	N_{Rd} [kg]	$N_{u,Rd}$ [kg]	51084 > 3720	M_{perno} [kgm]

Risultati verifiche Controvento 2 (lato fondazione)					
Saldatura					
Sollecitazioni			Geometria		
N [kg]	3720		N°lati	2 (sopra e sotto)	
T_{1-2} [kg]	0		Sezione gola [mm]	8,6	
T_{1-3} [kg]	0		Lunghezza [mm]	90	
M_t [kg]	0		n_{perp} [Mpa]	0	
M_{1-2} [kg]	0		τ_{perp} [Mpa]	12,96	
M_{1-3} [kg]	0		τ_{parall} [Mpa]	23,38	

Metodo 2 CNR10011		
verifica 1	26,73 < 301 Mpa=	0,7*f _{yk}
verifica 2	12,96 < 365,5 Mpa=	0,85*f _{yk}

Geometria piastra

t[mm]	10
largh. [mm]	80
d _{foro} [mm]	21
d[mm]	20
a[mm]	32 > 18
c[mm]	30 > 12

Taglio perno			Flessione perno		
F _{v,Rd} [kg]	12229 > 1860	V _{perno} [kg]	M _{Rd} [kgm]	308 > 30,05	M _{perno} [kgm]
Rifollamento piastra			Sostituzione perno		
F _{b,Rd} [kg]	11785,7 > 2070	V _{perno} [kg]	F _{b,Rd,ser} [kg]	4950 > 1083,4	V _{perno,ser} [kg]
			M _{Rd,ser} [kgm]	172,7 > 23,1	M _{perno,ser} [kgm]
			σ _{h,Ed} [Mpa]	363,9 > 937,5	f _{h,Ed} [Mpa]

Trazione barra			Trazione piastra		
N _{Ed} [kg]	3720 < 8290	N _{Rd} [kg]	N _{u,Rd} [kg]	24768 > 3720	M _{perno} [kgm]

Tirafondi					
Caratteristiche Tirafondi					
Classe	A [mm ²]	A _{res} [mm ²]			R _{is,v} [kg]
M14	154	115			813,4
Resistenza	f _{yb} [Mpa]	f _{ub} [Mpa]			R _{is,T} [kg]
8,8	640	800			904,9

Taglio Tirafondo			Rifollamento piastra		
F _{v,Rd} [kg]	4416 > 813,4	R _{is,v} [kg]	F _{b,Rd} [kg]	17200 > 813,4	R _{is,v} [kg]
Trazione Tirafondo			Punzonamento piastra		
F _{v,Rd} [kg]	6624 > 904,9	R _{is,v} [kg]	F _{b,Rd} [kg]	19442 > 904,9	R _{is,v} [kg]
Taglio e Trazione					
0,22 < 1					

Tab. 38 – Tabelle dei risultati per i collegamenti della trave di banchina

E' da specificare che nelle tabelle appena mostrate per Controvento 1, s'intende quello della copertura e per Controvento 2, quello che dalla trave di banchina va a terra.

Per la verifica delle saldature, nelle piastre di collegamento dei controventi non sono stati considerati entrambi i lati saldati, bensì si è ragionato affidando tutti gli sforzi al cordone d'angolo più sfavorito e cioè quello più corto. Va da sé che le saldature sono ampiamente verificate.

Un'ulteriore aggiunta rispetto alle verifiche mostrate fin qui riguarda i tirafondi. Infatti in questa situazione, essi saranno sollecitati sia a taglio che a trazione e per questo si aggiunge una verifica a quello mostrate nei capitoli precedenti.

7.3.5 Diagonali di base

Questo elemento funge da puntone per i telai di testa e di coda formati dall'arco principale a tre cerniere. Essendo questo elemento diagonale nel seguito saranno mostrate tutte le verifiche utili al controllo delle resistenze sia lato collegamento con la trave in legno lamellare sia lato trave rovescia di fondazione.

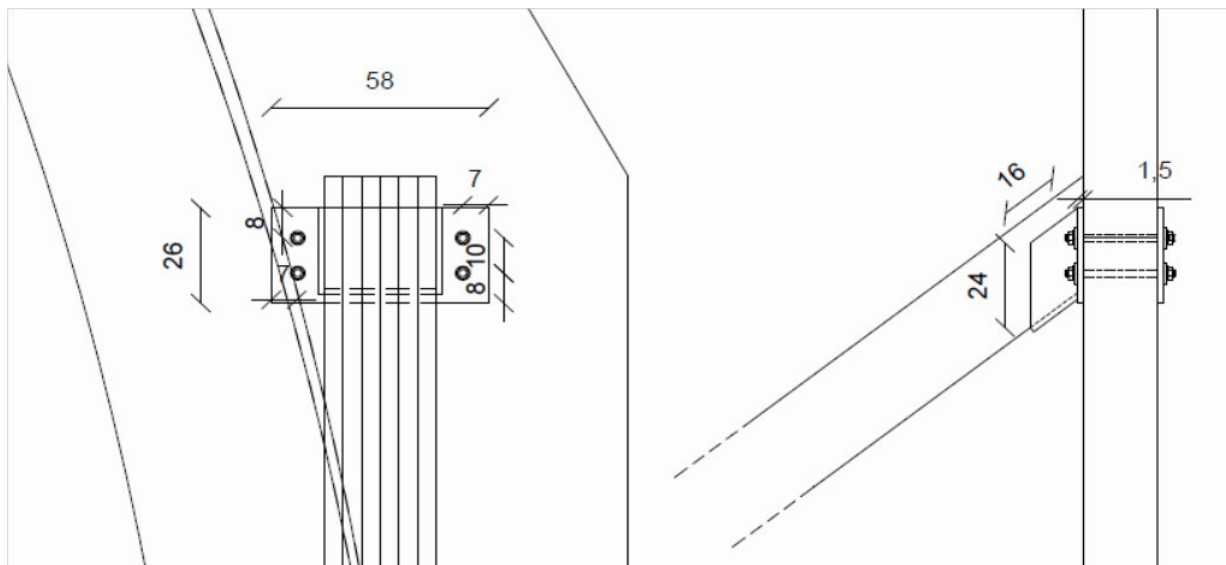


Fig. 37 – Particolare del collegamento tra trave diagonale e arco a 3 cerniere

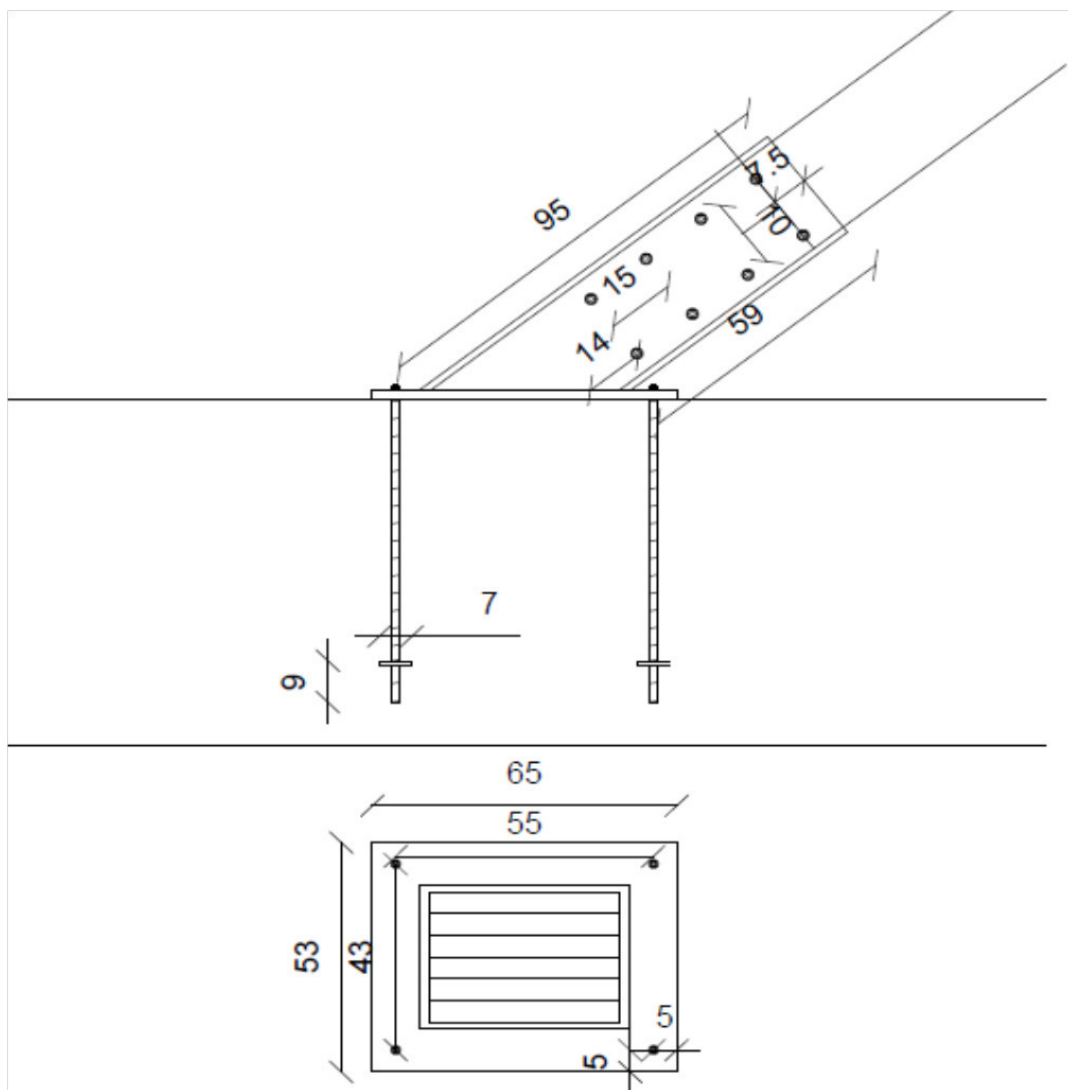


Fig. 38 – Particolare del collegamento tra trave diagonale e trave di fondazione

Anche in questo collegamento saranno sintetizzate il rispetto delle seguenti resistenze:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone;
- rifollamento della piastra;
- resistenze del perno (varie);
- saldature piatti dei controventi;
- resistenza a taglio tirafondi;
- resistenza a rifollamento (lato fondazione);
- resistenza a trazione dei tirafondi di fondazione;
- punzonamento della piastra;

- Taglio e trazione dei tirafondi.

Caratteristiche legno	
ρ_k [kg/m ³]	$f_{c,90,k}$ [MPa]
410	3

Caratteristiche Bullone		
Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f_{yk} [N/mm ²]	f_{tk} [N/mm ²]
	S275	275	430

Tipologia piastra secondo la norma
intermedia

Geometria del collegamento		Sollecitazioni		Risultanti	
a ₁ [mm]	440	N [kg]	12822	H _{or} [kg]	154
a ₂ [mm]	100	T ₁₋₂ [kg]	787,3	V _{er} [kg]	314
a _{3,f} [mm]	80	T ₁₋₃ [kg]	326	α[°]	26,13
a _{3,c} [mm]	80	M _t [kg]	257,3	R _{is,v} [kg]	350
a _{4,f} [mm]	-	M ₁₋₂ [kg]	972,5	R _{is,T} [kg]	9057
a _{4,c} [mm]	-	M ₁₋₃ [kg]	1068		
n _{eff}	2				

Risultati verifica acciaio-legno			
ζ _b	M _{y,Rk} [Nmm]	f _{h,k} [MPa]	f _{h,1,k} [MPa]
0,543076	579280,9	26,896	-
F _{v1} [N]	F _{v2} [N]	F _{v3} [N]	
75308,8	47315	51904,5	
F _{v,Rk} [kg]	F _{v,Rd} [kg]		R _{is,v} [kg]
4731,5	2523,466667	>	350

Resistenza allo splitting	
0,5F _{90,Rd} [kg]	7084 > 314
	V _{er} [kg]

Risultati verifiche acciaio	
Taglio bullone	Rifollamento piastra

$F_{v,Rd}$ [kg]	9408 > 350	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	34400 > 350	$R_{is,v}$ [kg]
Trazione bullone			Punzonamento Piastra		
$F_{t,Rd}$ [kg]	14112 > 9057	$R_{is,T}$ [kg]	$F_{B,Rd}$ [kg]	19442 > 9057	$R_{is,T}$ [kg]

Risultati verifiche lato fondazione			
Risultati verifica acciaio-legno			
ζ_b	$M_{y,Rk}$ [Nmm]	$f_{h,k}$ [MPa]	$f_{h,1,k}$ [MPa]
0,543076	579280,9	26,896	-
F_{v1} [N]	F_{v2} [N]	F_{v3} [N]	
80688	41754	-	
$F_{v,Rk}$ [kg]	$F_{v,Rd}$ [kg]		$R_{is,v}$ [kg]
4175,4	2226,88	>	801,8

Resistenza allo splitting		
$0,5F_{90,Rd}$ [kg]	3333,1 > 314	V_{er} [kg]

Risultati verifiche acciaio				
Taglio bullone			Rifollamento piastra	
$F_{v,Rd}$ [kg]	9408 > 801,8	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	34400 > 801,8
				$R_{is,v}$ [kg]

Saldatura (l=250mm)			
Sollecitazioni		Geometria	
N [kg]	12822	N°lati	4
T_{1-2} [kg]	787,3	Sezione gola [mm]	8,6
T_{1-3} [kg]	326	Lunghezza [mm]	250
M_t [kg]	257,3	n_{perp} [Mpa]	0,38
M_{1-2} [kg]	972,5	τ_{perp} [Mpa]	8,5
M_{1-3} [kg]	1068	τ_{parall} [Mpa]	10,62

Metodo 2 CNR10011		
verifica 1	13,61 < 301 Mpa=	0,7*f _{yk}
verifica 2	8,88 < 365,5 Mpa=	0,85*f _{yk}

Saldatura (l=300mm)			
Sollecitazioni		Geometria	
N [kg]	12822	N°lati	4
T_{1-2} [kg]	787,3	Sezione gola [mm]	8,6
T_{1-3} [kg]	326	Lunghezza [mm]	300
M_t [kg]	257,3	n_{perp} [Mpa]	8,9
M_{1-2} [kg]	972,5	τ_{perp} [Mpa]	9,2

M_{1-3} [kg]	1068	τ_{parall} [Mpa]	0,28

Metodo 2 CNR10011		
verifica 1	12,8 < 301 Mpa=	0,7*f _{yk}
verifica 2	18,1 < 365,5 Mpa=	0,85*f _{yk}

Tirafondi				
Caratteristiche Tirafondi				
Classe	A [mm ²]	A _{res} [mm ²]		R _{is,v} [kg]
M14	154	115		2649
Resistenza	f _{yb} [Mpa]	f _{ub} [Mpa]		R _{is,T} [kg]
8,8	640	800		2877

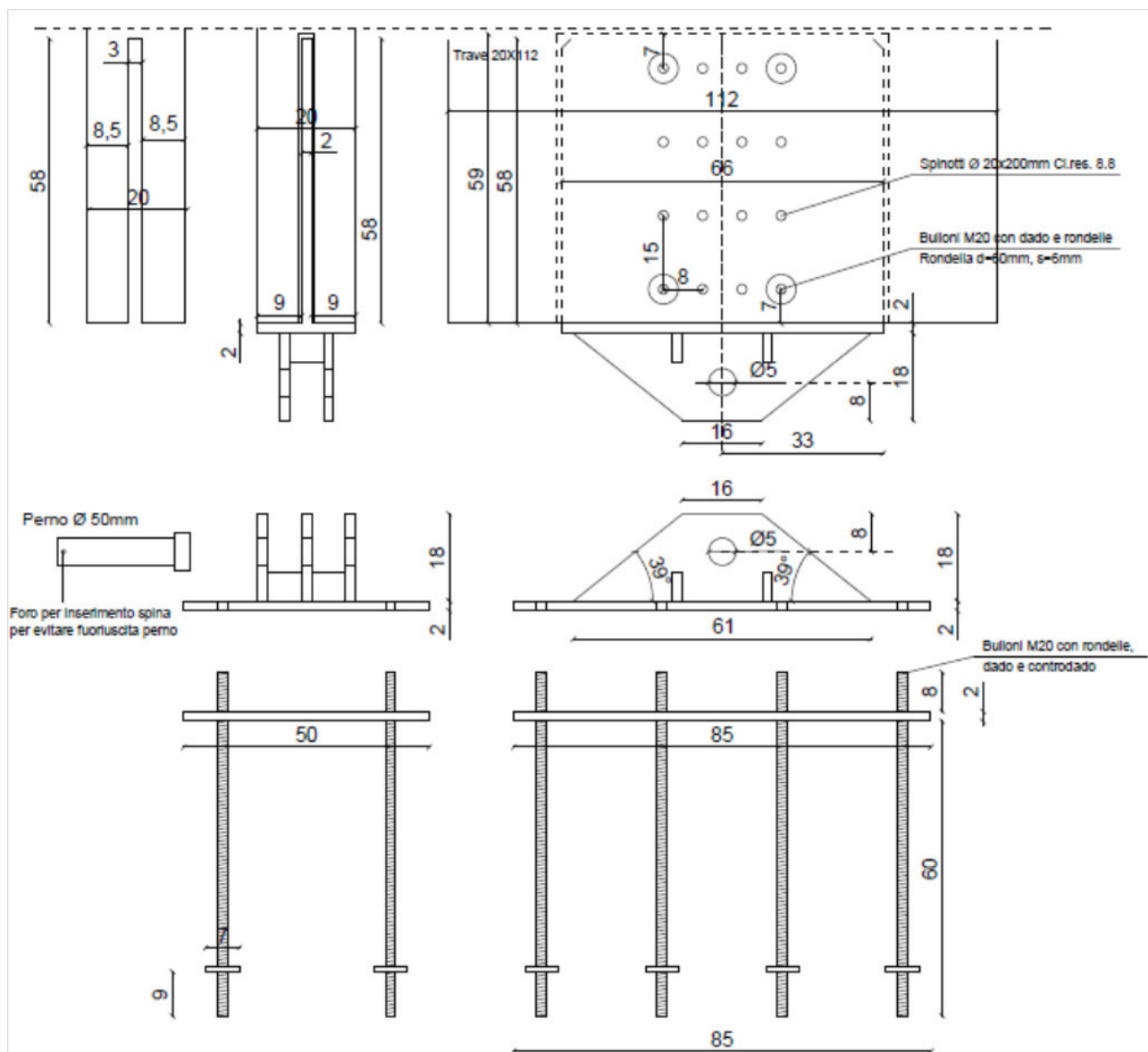
Taglio Tirafondo		Rifollamento piastra			
F _{v,Rd} [kg]	4416 > 2649	R _{is,v} [kg]	F _{b,Rd} [kg]	28667 > 2649	R _{is,v} [kg]
Trazione Tirafondo		Punzonamento piastra			
F _{v,Rd} [kg]	6624 > 2877	R _{is,v} [kg]	F _{b,Rd} [kg]	19442 > 2877	R _{is,v} [kg]
Taglio e Trazione					
0,71 < 1					

Tab. 39 – Tabelle dei risultati per i collegamenti del diagonale di base

7.3.6 Giunto di Fondazione

Anche il giunto di base è stato schematizzato con una cerniere e proprio per questo il particolare costruttivo che lo rappresenta è molto simile a quello della cerniera di sommità.

Anche qui viene utilizzata una piastra d'anima collegata con la trave ad arco in legno lamellare mediante un sistema di spinotti e bulloni, da un lato, mentre nell'altro si adotta una piastra di base opportunamente ancorata alla fondazione grazie ad un sistema di tirafondi.



Dal particolare del giunto di base si può vedere che la piastra di fondazione è stata tirantata con un sistema di 4 tirafondi per lato. Il numero di mezzi di unione alla fondazione, non è giustificato dalla trazione che agisce sull'arco, bensì è influenzato dal taglio derivante dalla spinta dello stesso. Inoltre, proprio poiché la trazione non interessa il nodo in nessuna delle combinazioni di carico imposte dalla norma, la lunghezza di ancoraggio dei tirafondi non è stata calcolata, ma è stata assunta a priori tenendosi ad un valore intermedio tra i canonici 40 e 60 ϕ .

Le verifiche svolte per tale collegamento sono:

- resistenza dell'unione acciaio legno;
- resistenza allo splitting (legno);
- taglio del bullone (lato legno);

- rifollamento della piastra (lato legno);
- resistenze del perno (varie);
- saldature piatti;
- resistenza a taglio tirafondi;
- resistenza a rifollamento (lato fondazione);
- resistenza del magrone.

Caratteristiche legno	
ρ_k [kg/m ³]	$f_{c,90,k}$ [MPa]
410	3

Caratteristiche Bullone		
Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche Perno		
d [mm]	A [mm ²]	A _{res} [mm ²]
50	1962,5	1962,5
Resistenza	f_{yb} [Mpa]	f_{ub} [Mpa]
8,8	640	800

Caratteristiche piastra			
t [mm]	Qualità acciaio	f_{yk} [N/mm ²]	f_{tk} [N/mm ²]
20	S275	275	430

Tipologia piastra secondo la norma
spessa

Geometria del collegamento		Sollecitazioni		Risultanti	
a ₁ [mm]	150	R _x [kg]	12900	H _{or} [kg]	810
a ₂ [mm]	80	R _y [kg]	72,1	V _{er} [kg]	403
a _{3,f} [mm]	70	R _z [kg]	19666	α[°]	26,46518
a _{3,c} [mm]	-	M ₁₋₂ [kg]	0	R _{is,v} [kg]	904,71
a _{4,f} [mm]	440	M ₁₋₃ [kg]	0	R _{is,T} [kg]	0
a _{4,c} [mm]	440	M ₂₋₃ [kg]	0		
n _{eff}	3,03				

Risultati verifica acciaio-legno			
ζ _b	M _{y,Rk} [Nmm]	f _{h,k} [MPa]	f _{h,1,k} [MPa]
0,54307587	579280,9283	26,896	23,82440281
F _{v1} [N]	F _{v2} [N]	F _{v3} [N]	
45723	39253,3	49515	
F _{v,Rk} [kg]	F _{v,Rd} [kg]		R _{is,v} [kg]
3925,33	2093,51	>	904,71

Resistenza allo splitting		
$0,5F_{90,Rd}$ [kg]	10334 > 904,71	V_{er} [kg]

Risultati verifiche acciaio (piastra d'anima e perno)					
Taglio bullone			Rifoll. Piastra (lato legno)		
$F_{v,Rd}$ [kg]	9408 > 904,71	$R_{is,v}$ [kg]	$F_{b,Rd}$ [kg]	34400 > 904,71	$R_{is,v}$ [kg]
Taglio perno			Flessione perno		
$F_{v,Rd}$ [kg]	75360 > 7840,8	V_{perno} [kg]	M_{Rd} [kgm]	1121,42 > 529,2	M_{perno} [kgm]
Rifoll. Piastra (lato perno)			Sostituzione perno		
$F_{b,Rd}$ [kg]	39285 > 7840,8	V_{perno} [kg]	$F_{b,Rd,ser}$ [kg]	16500 > 4993,7	$V_{perno,ser}$ [kg]
			$M_{Rd,ser}$ [kgm]	628 > 302,6	$M_{perno,ser}$ [kgm]
			$\sigma_{h,Ed}$ [Mpa]	270,7 > 937,5	$f_{h,Ed}$ [Mpa]

Risultati verifiche collegamento di base				
Metodo T-stub				
Dimensionamento piastra base				
c [mm]	60	$p_{terreno}$ [Mpa]	0,46	
b_{eff} [mm]	320	s_{min} [mm]	14 < 20	$s_{piastra}$ [mm]
L_{eff} [mm]	720			
A_{eff} [mm ²]	230400			

Verifica Magrone		
f_{jd} [Mpa]	9,41	
N_{Rd} [kg]	216804 > 19666	N_{Ed} [kg]

Saldatura			
Sollecitazioni		Geometria	
N [kg]	12900	$N^{\circ}lati$	2 (per anima)
T_{1-2} [kg]	72,1	Sezione gola [mm]	8,6
T_{1-3} [kg]	19666	Lunghezza [mm]	600
M_t [kg]	0	n_{perp} [Mpa]	4,166666667
M_{1-2} [kg]	0	τ_{perp} [Mpa]	6,330749354
M_{1-3} [kg]	0	τ_{parall} [Mpa]	0,023288114

Metodo 2 CNR10011		
verifica 1	7,6 < 301 Mpa=	$0,7 \cdot f_{yk}$
verifica 2	10,5 < 365,5 Mpa=	$0,85 \cdot f_{yk}$

Tirafondi

Caratteristiche Tirafondi		
Classe	A [mm ²]	A _{res} [mm ²]
M20	314	245
Resistenza	f _{yb} [Mpa]	f _{ub} [Mpa]
8,8	640	800

R _{is,v} [kg]
2458,3

Taglio Tirafondo		Rifollamento piastra			
F _{v,Rd} [kg]	9408 > 2458,3	R _{is,v} [kg]	F _{b,Rd} [kg]	28667 > 2458,3	R _{is,v} [kg]

Tab. 38 – Tabelle dei risultati per il collegamento di base

Come si può vedere in questa tabella di sintesi, tra le verifiche è stata introdotta anche quella del magrone di fondazione. Tale verifica è stata svolta mediante il metodo T-Stub, descritto nell'EC3, che prevede il calcolo di un'Area efficace della piastra di fondazione al fine di modellare un più realistico trasferimento delle pressioni di compressione dall'elemento strutturale alla fondazione in c.a.. Inoltre, grazie alla definizione dell'Area efficace si può calcolare il giusto valore della pressione di reazione agente sulla piastra e dimensionarne così il suo spessore.

8 Fondazioni

8.1 Introduzione

Per la struttura analizzata, data la bontà del terreno di fondazione, è stato scelto un sistema di travi rovesce opportunamente verificato dal punto di vista del terreno e da quello della struttura.

Nel seguito saranno illustrate le verifiche geotecniche e strutturali della fondazione al fine di garantirne rispettivamente la stabilità nei confronti del collasso e del servizio, e il giusto quantitativo di armature.

8.2 Verifiche geotecniche

8.2.1 Normativa tecnica (NTC2008)

Come per le strutture, anche per il terreno vale la seguente relazione:

$$E_d \leq R_d$$

dove E_d è il valore di progetto dell'azione o dell'effetto dell'azione :

$$E_d = E \left[\gamma_F F_k; \frac{X_k}{\gamma_M}; a_d \right]$$

e R_d è il valore di progetto della resistenza del sistema geotecnico :

$$R_d = \frac{1}{\gamma_R} R \left[\gamma_F F_k; \frac{X_k}{\gamma_M}; a_d \right]$$

Tale verifica deve essere effettuata impiegando diverse combinazioni di gruppi di coefficienti parziali, rispettivamente definiti per le azioni (A1 e A2), per i parametri geotecnici (M1 e M2) e per le resistenze (R1, R2 e R3).

I diversi gruppi di coefficienti di sicurezza parziali sono scelti nell'ambito di due approcci progettuali distinti e alternativi.

Nel primo approccio progettuale (Approccio 1) sono previste due diverse combinazioni di gruppi di coefficienti : la prima è generalmente più severa nei confronti del dimensionamento strutturale delle opere a contatto con il terreno, mentre la seconda combinazione è generalmente più severa nei riguardi del dimensionamento geotecnico.

Nel secondo approccio progettuale (Approccio 2) è prevista un'unica combinazione di gruppi di coefficienti, da adottare sia nelle verifiche strutturali sia nelle verifiche geotecniche.

Inoltre i diversi gruppi di coefficienti parziali vengono definiti in funzione dell'opera da verificare e dello stato limite da considerare.

Nello specifico per fondazioni superficiali nei confronti degli stati limite di tipo geotecnico (SLU GEO) si deve verificare :

- collasso per carico limite dell'insieme fondazione terreno ;
- collasso per scorrimento sul piano di posa ;
- stabilità globale.

Ad eccezione dell'ultima che deve essere effettuata secondo l'Approccio 1 Combinazione 2 (A2+ M2+ R2), le altre, a discrezione del progettista, dovranno seguire almeno uno dei due approcci :

- Approccio 1 :

- Combinazione 1: (A1+M1+R1)
- Combinazione 2: (A2+M2+R2)

- Approccio 2 : (A1+M1+R3)

in cui i coefficienti per i materiali non dipendono dal tipo di opera e sono :

PARAMETRO	GRANDEZZA ALLA QUALE APPLICARE IL COEFFICIENTE PARZIALE	COEFFICIENTE PARZIALE γ_M	(M1)	(M2)
<i>Tangente dell'angolo di resistenza al taglio</i>	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
<i>Coesione efficace</i>	c'_k	$\gamma_{c'}$	1,0	1,25
<i>Resistenza non drenata</i>	c_{uk}	γ_{cu}	1,0	1,4
<i>Peso dell'unità di volume</i>	γ	γ_r	1,0	1,0

Tab. 39 – Coefficienti di sicurezza parziali per i parametri geotecnici del terreno

Mentre i coefficienti per le resistenze variano in funzione del tipo di verifica :

VERIFICA	COEFFICIENTE PARZIALE (R1)	COEFFICIENTE PARZIALE (R2)	COEFFICIENTE PARZIALE (R3)
Capacità portante	$\gamma_R = 1,0$	$\gamma_R = 1,8$	$\gamma_R = 2,3$
Scorrimento	$\gamma_R = 1,0$	$\gamma_R = 1,1$	$\gamma_R = 1,1$

Tab. 40 – Coefficienti di sicurezza parziali sulle resistenze

Infine le opere e i sistemi geotecnici devono essere verificati nei confronti degli stati limite di esercizio. Per ciascuno stato limite di esercizio deve essere rispettata la condizione :

$$E_d \leq C_d$$

dove E_d è il valore di progetto dell'effetto delle azioni e C_d è il prescritto valore limite dell'effetto delle azioni a cui si farà riferimento nei paragrafi successivi.

In particolare gli stati limite di esercizio da verificare per evitare problemi legati alla funzionalità (legata ad impianti, tubazioni) di un serbatoio di stoccaggio sono :

- cedimento dell'intera fondazione ;
- cedimento del perimetro laterale ;
- cedimento differenziale centro-perimetro ;
- rotazione della fondazione.

8.2.2 Caratterizzazione Geotecnica del terreno

Dalla relazione geologica in precedenza eseguita per il sito in esame sono stati evidenziati i parametri caratteristici del terreno in questione. In particolare sono state identificate le seguenti successioni litologiche:

- da 0,00 a m 1,00 dal p.c. terreno di riporto;
- da 1,00 m a 2,00 m dal p.c. limo sabbioso con concrezioni avana, delle seguenti caratteristiche (livello geotecnico 1):
 - $\gamma = 1800 \text{ kg/m}^3$;
 - *angolo di attrito* $\phi' = 26^\circ$;
 - *coesione drenata* $c' = 100 \text{ kg/m}^2$;
 - *coesione non drenata* $C_u = 10000 \text{ kg/m}^2$.
- da 2,00 m a 4,50 m dal p.c. sabbia limosa con calcinelli calcarei dispersi, delle seguenti caratteristiche (livello geotecnico 2):
 - $\gamma = 1900 \text{ kg/m}^3$;
 - *angolo di attrito* $\phi' = 28^\circ$;
 - *densità relativa* $DR = 45\%$;
 - *Modulo di Young* $E = 1500000 \text{ kg/m}^2$.
- da 4,50 m a 8,50 m dal p.c. Formazione della laga alterata (sabbie avana e grigie fratturate e poco cementate), delle seguenti caratteristiche(livello geotecnico 3):
 - $\gamma = 2100 \text{ kg/m}^3$;

- *angolo di attrito* $\phi' = 35^\circ$;
 - *densità relativa* $DR = 60 - 80\%$;
 - *Modulo di Young* $E = 1500000 \text{ kg/m}^2$.
- da 8,50 m dal p.c. Arenarie e marne della Laga, delle seguenti caratteristiche (livello geotecnico 4):
- $\gamma = 2200 \text{ kg/m}^3$;
 - *angolo di attrito* $\phi' = 35^\circ$;
 - *coesione drenata* $c' = 1200000 \text{ kg/m}^2$;
 - *coesione non drenata* $C_u = 40000 \text{ kg/m}^2$.
 - *Modulo di Young* $E = 10000000 \text{ kg/m}^2$.

E' da precisare che le caratteristiche geotecniche del terreno di riporto non sono state indicate in quanto si prevede che la fondazione poggi direttamente sul limo sabbioso che rappresenta il primo vero livello geotecnico.

Inoltre, dalla relazione geologica non viene indicato il modulo di Young del livello geotecnico 3. Tale valore sarà di fondamentale importanza nella stima dei cedimenti, quindi a vantaggio di sicurezza, e data una densità relativa maggiore dello strato precedente e la maggiore profondità che ne induce tensioni di confinamento sicuramente superiori, si prevede di utilizzare lo stesso valore di rigidità del livello geotecnico 2.

8.2.3 Geometria della Trave rovescia

La tipologia di fondazione utilizzata in questo progetto, come già più volte anticipato, è una trave rovescia rettangolare di larghezza 1,20 m, profondità 0,8 m dal livello geotecnico 1 e lunghezza di 35,77 m.

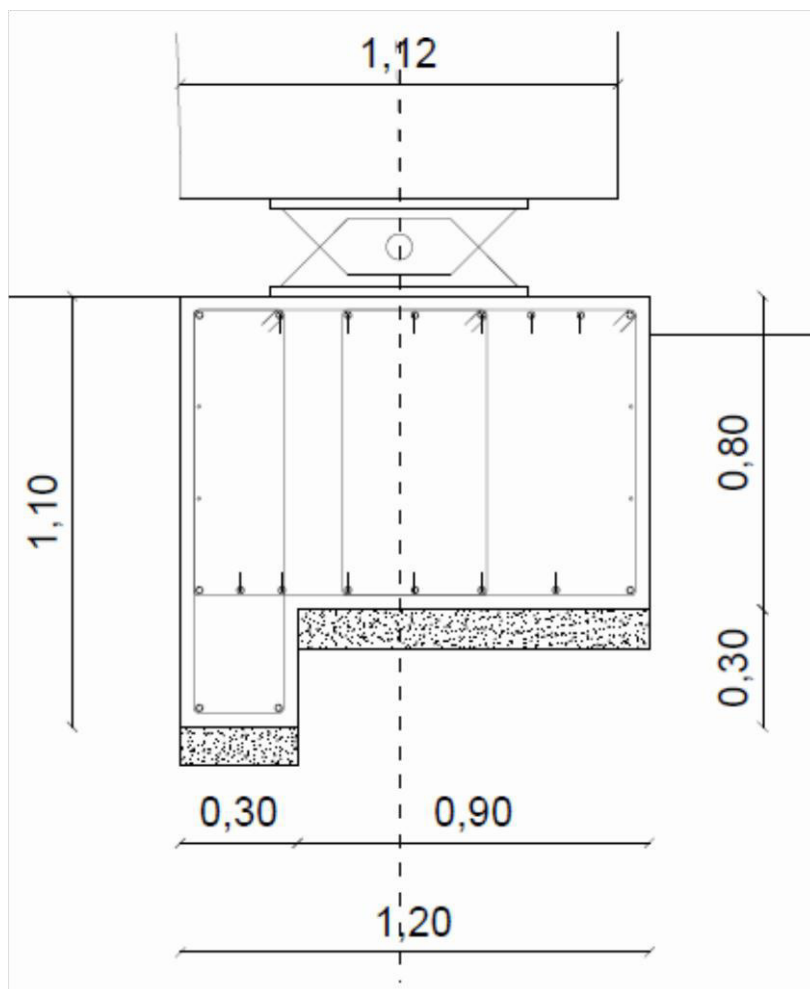


Fig. 36 – Sezione della trave di fondazione

Nella direzione ortogonale, le due travi appena descritte sono unite da un cordolo di dimensioni 50x80 cm che ha la sola funzione di giunzione, formando una corda che collega i due elementi di fondazione principali. Difatti questa trave essendo caricata dal solo peso proprio non sarà formalmente verificata. Le verifiche sulle travi di fondazioni che seguiranno permetteranno di concludere che anche le analoghe verifiche dei cordoli risulteranno soddisfatte.

8.2.4 Verifica del carico limite (SLU)

Per queste verifiche è stato scelto l'approccio 2 che prevede un'unica combinazione di gruppi di coefficienti (A1+M1+R3). In questo caso i parametri dei materiali non vengono ridotti ma si amplificano le azioni e si riducono le resistenze finali.

E' utile sottolineare che nel caso di fondazione superficiale a trave rovescia viene richiesta una verifica in più inerente al carico limite localmente alla zona di appoggio, la verifica a scorrimento che sarà eseguita nel capitolo successivo.

Per la verifica in oggetto, saranno considerate le dimensioni della fondazione come se essa fosse rettangolare e in assenza di dente. Infatti il dente nasce per esigenze di spinte orizzontali piuttosto che per esigenze di resistenza ai carichi verticali. Inoltre l'assunzione di trascurare questa parte risulta a vantaggio di sicurezza poiché la fondazione risulta meno approfondita e si trascura una parte di peso proprio della stessa che tende ad incrementare le forze stabilizzanti per la verifica.

Per la verifica si considereranno 2 casi:

- caso statico, in cui l'azione sarà :

$$E_{d,v} = 94699,1 + 1,3 * 2500 * 0,8 * 1,2 * 35,77 = 206301,5 \text{ kg}$$

$$E_{d,h} = 60252,9 \text{ kg}$$

- caso sismico :

$$E_{d,v} = 47287,6 + 2500 * 0,8 * 1,2 * 35,77 = 133135,6 \text{ kg}$$

$$E_{d,h} = 35184,8 \text{ kg}$$

Ovviamente per ogni caso va stimata una resistenza.

Innanzitutto si deve calcolare la profondità del cinematismo di rottura. Secondo Terzaghi la zona passiva al di sotto della fondazione ha un'inclinazione di $45+\phi/2$ ($= 63^\circ$ in questo caso) a partire dall'estremità della base di fondazione. Tale base è stata scelta pari a 1,2 m considerando un angolo di diffusione del carico pressoché verticale in ragione dell'elevata differenza di rigidità tra cls e terreno. Quindi l'altezza in cui si espande il cinematismo ipotizzato vale :

$$h = (B/2) \cdot \tan 26^\circ = 0,3 \text{ m}$$

si può quindi concludere che lo strato interessato dalla rottura è solo quello limo-sabbioso (livello geotecnico 1). Ovviamente il cinematismo si espanderebbe anche in piccola parte nel livello geotecnico 2 ma dato che ha caratteristiche meccaniche migliori non è stato considerato a vantaggio di sicurezza.

Per il calcolo della q_{lim} nel caso statico ci si basa sul metodo analitico di Brinch-Hansen :

$$q_{lim} = \frac{1}{2} \gamma B N_\gamma s_\gamma i_\gamma b_\gamma g_\gamma + c N_c s_c i_c b_c g_c + q N_q s_q i_q b_q g_q$$

dove :

s_i = coefficienti correttivi per la forma della fondazione;

i_i = coefficienti correttivi per l'inclinazione del carico;

b_i = coefficienti correttivi per l'inclinazione del piano campagna;

g_i = coefficienti correttivi per l'inclinazione del piano di posa;

N_i = fattori di capacità portante.

Questi ultimi saranno determinati facendo riferimento alla soluzione di Prandtl e con $\varphi' = 26^\circ$:

$$N_q = K_p \cdot e^{(\pi \cdot \tan \varphi)} = 14,68451$$

$$N_c = (N_q - 1) \cdot \cot \varphi = 25,75221$$

$$N_\gamma = 2 \cdot (N_q + 1) \cdot \tan \varphi = 16,6692$$

Nel caso in esame, nella formula non compariranno i coefficienti b_i e g_i poichè non si hanno inclinazioni del piano di posa e del piano campagna, quindi :

$$q_{lim} = \frac{1}{2} \gamma B N_\gamma s_\gamma i_\gamma + c N_c s_c i_c + q N_q s_q i_q$$

Per definire B si deve introdurre il concetto di larghezza efficace e per una fondazione rettangolare ci si affida al metodo riportato in Fig. 37 :

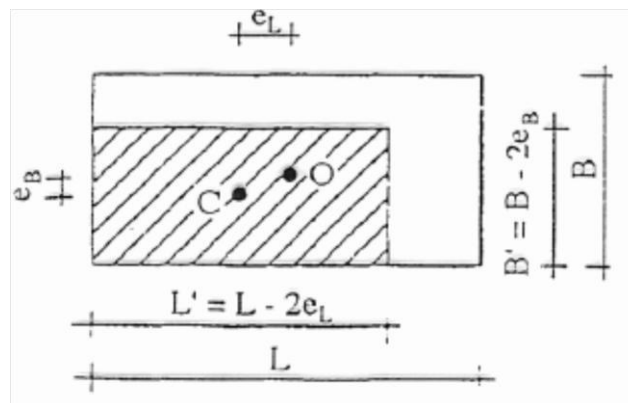


Fig. 37 – Base e Larghezza efficace per una sezione rettangolare

In merito ai parametri di forma, nel caso di fondazione rettangolare di lati B ed L con $B < L$ si ha:

$$s_q = 1 + \frac{B}{L} \tan \phi = 1,017827$$

$$s_c = 1 + \frac{B}{L} \frac{N_q}{N_c} = 1,01913$$

$$s_\gamma = 1 - 0,4 \frac{B}{L} = 0,9865809$$

Mentre per tenere in considerazione della componente orizzontale del carico, per terreno dotato sia di attrito che di coesione:

$$i_q = \left(1 - \frac{q_H}{q_v + c * \cot \phi}\right)^m = 0,5224439$$

$$i_c = i_q - \frac{1 - i_q}{N_c * \tan \phi} = 0,487546$$

$$i_\gamma = \left(1 - \frac{q_H}{q_v + c * \cot \phi}\right)^{m+1} = 0,375607$$

con :

$$\tan \delta = \frac{q_H}{q_V}$$

$$m = m_B = \frac{2 + B/L}{1 + B/L} \quad \text{se } q_H \text{ è parallela a } B$$

$$m = m_L = \frac{2 + L/B}{1 + L/B} \quad \text{se } q_H \text{ è parallela a } L$$

$$m = m_L \cos^2 \theta + m_B \sin^2 \theta \quad \text{se } q_H \text{ forma con } L \text{ un angolo } \theta$$

Detto ciò, nel caso statico la resistenza vale:

$$R_d = 358231,98 \text{ kg}$$

Tale valore è stato ovviamente già diviso con il coefficiente $\gamma_R=2,3$ per le resistenze.

In conclusione:

$$E_{d,v} = 206301,5 \text{ kg} < R_d = 358231,98 \text{ kg}$$

Successivamente per tener conto dell'azione sismica le azioni derivanti dalla sovrastruttura vengono applicate alla fondazione come forze statiche costanti nel tempo. La norma distingue gli effetti prodotti da tali azioni come "inerziali" da quelli "cinematici" con cui si indicano le forze sismiche legate alla massa inerziale del terreno coinvolto nel cinematisimo di rottura.

Quindi nel rispetto delle NTC2008 per separare i due tipi di interazione si può applicare la formulazione statica di Brinch-Hansen che già tiene in conto degli effetti inerziali, quindi usare i coefficienti correttivi di Paolucci e Pecker (z_c, z_γ, z_q) per il solo effetto cinematico.

$$z_c = 1 - 0,32k_h = 0,972352$$

$$z_q = z_\gamma = \left(1 - \frac{k_h}{\tan \phi}\right)^{0,35} = 0,934034$$

in quanto, seguendo quanto riportato nella norma:

$$k_h = \beta_s \cdot \frac{a_{max}}{g} = 0,0864$$

$$k_v = \pm 0,5 \cdot k_h = 0,02148$$

dove :

β_s = coefficiente di riduzione dell'accelerazione massima attesa al sito;

a_{max} = accelerazione massima orizzontale attesa al sito (nel nostro caso vale 0,360g);

g = accelerazione di gravità.

e i valori di β_s sono riportati in funzione della categoria di sottosuolo e di a_g nella seguente tabella:

	Categoria di sottosuolo	
	A	B, C, D, E
	β_s	β_s
$0,2 < a_g(g) \leq 0,4$	0,30	0,28
$0,1 < a_g(g) \leq 0,2$	0,27	0,24
$a_g(g) \leq 0,1$	0,20	0,20

Tab. 41 – Coefficienti β_s per la stima dei coefficienti sismici orizzontali e verticali

In definitiva alla formula del q_{lim} , diventa:

$$q_{lim} = \frac{1}{2} \gamma B N_\gamma s_\gamma i_\gamma z_\gamma + c N_c s_c i_c z_c + q N_q s_q i_q z_q$$

In sostanza la resistenza di calcolo (quindi anch'essa già divisa per il coefficiente $\gamma_R=2,3$) vale:

$$R_d = 374391,78 \text{ kg}$$

Quindi:

$$E_{d,v} = 133135,6 \text{ kg} < R_d = 374391,78 \text{ kg}$$

In sostanza, come per le verifiche strutturali, anche lato terreno si vede che la verifica più gravosa non è tanto quella sismica ma quella ai carichi verticali, e in questo caso in condizione di neve senza vento.

8.2.4 Verifiche di scorrimento

In presenza di una componente tangenziale al piano di posa occorre verificare che non si instauri un meccanismo di rottura per scorrimento lungo il piano di posa, valutando la resistenza del sistema con l'espressione :

$$H_{lim} = N \cdot \tan \varphi'_{cv}$$

e seguendo sempre l'approccio 2 (A1+M1+R3) tale resistenza sarà divisa per γ_R che per la verifica in questione vale 1,1.

Usando lo stesso approccio di verifica utilizzato per la capacità portante si ha:

$$R_d = H_{lim} = N \cdot \tan \varphi'_{cv} / \gamma_M = (206301,5 * \tan 26) / 1,1 = 91472,70 \text{ kg}$$

E dato che:

$$E_{d,h} = 60252,9 \text{ kg}$$

La verifica risulta soddisfatta.

Nonostante ciò, per aumentare il coefficiente di sicurezza nei confronti di tale cinematismo di rottura si è scelto di inserire un dente in fondazione come indicato in Fig. 36.

8.2.5 Verifica dei cedimenti di fondazione (SLE)

I problemi di funzionalità legati ad impianti e tubazioni impongono le verifiche allo stato limite di esercizio sempre con la diversificazione tra caso statico (SLE) e sismico (SLD).

Tale verifica consiste nel calcolo dei cedimenti fondali e per fare ciò ci si riconduce alla teoria elastica del terreno secondo la quale vale:

$$w_0 = \int_0^H \varepsilon_{z0} dz$$

si capisce subito che il problema di tale forma sta nella determinazione della profondità H nella quale il cedimento è ancora significativo. In merito a ciò, grazie allo studio dei bulbi di isotensione si è visto che le profondità in cui lo stato tensionale rimane apprezzabile è $D + 2B$ di conseguenza anche i cedimenti (che sono appunto prodotti da una variazione dello stato tensionale) saranno calcolati entro tale profondità che risulta di soli 3,2m nella direzione parallela a B, ma di ben 72,34m nella direzione parallela ad L.

In questo caso, per l'assenza della falda negli strati principalmente interessati dal cedimento, sarà considerato trascurabile il contributo dovuto al consolidamento.

In sostanza nel calcolo degli abbassamenti si avrà :

$$\delta = \delta_{imm}$$

in cui :

δ_{imm} è il cedimento elastico che sarà calcolato per ogni materiale ;

In ogni caso la determinazione dell'abbassamento è in relazione al carico applicato che nella condizione di stato limite di funzionalità statico e sismico (SLE e SLD) vale:

$$E_{d,v} = 1540,68 \text{ kg/m}^2$$

Ora si può stimare il cedimento immediato mediante la relazione:

$$\delta_{imm} = \frac{qB}{E} I_1 I_2 (1 - \nu^2)$$

dove :

q è il carico applicato

B è la base della fondazione

E è il modulo elastico del terreno e vale E' per terreni incoerenti ed E_u per quelli coesivi

ν è il modulo di Poisson che assumiamo costante è pari a 0,3 per tutti gli strati

I_1 e I_2 sono coefficienti che dipendono rispettivamente dall'approfondimento relativo (D/B) e dalla profondità relativa (H/B) secondo i grafici sotto riportati :

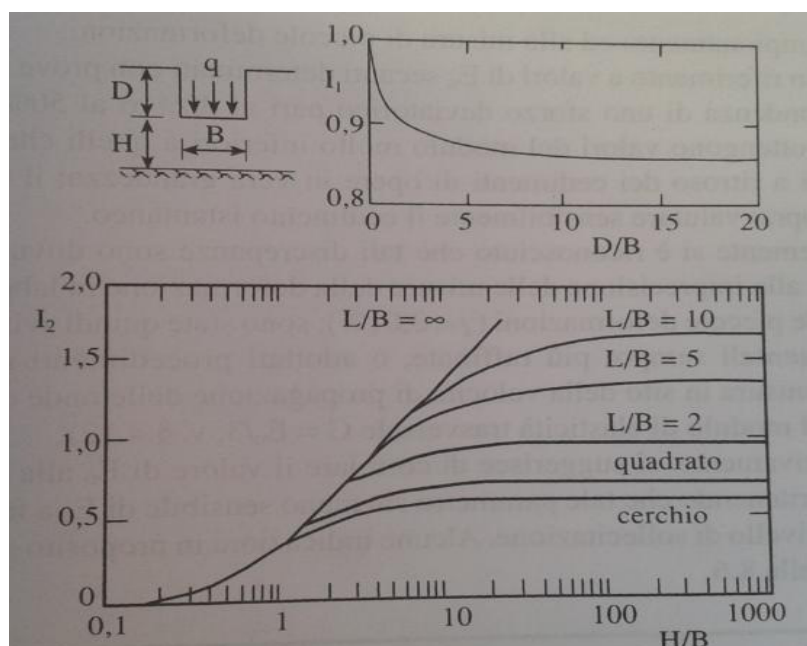


Fig. 38 – Coefficienti di influenza per il calcolo dei cedimenti verticali

In presenza di terreno stratificato il calcolo viene fatto in maniera diretta per lo strato superficiale mentre per gli altri vale la sovrapposizione degli effetti dato che ci si basa sulla teoria dell'elasticità.

$$\delta_{imm,liv.geo.1} = \frac{qB}{E} I_1 I_2 (1 - \nu^2) = 0,0 \text{ m} \text{ con } \frac{D}{B} = 0,22 \text{ e } \frac{H}{B} = 0,17$$

$$\delta_{imm,liv.geo.2} = \frac{qB}{E} I_1 I_2 (1 - \nu^2) = 0,02006 \text{ m} \text{ con } \frac{D}{B} = 0,22 \text{ e } \frac{H}{B} = 2,25$$

$$\delta_{imm,liv.geo.3} = \frac{qB}{E} I_1 I_2 (1 - \nu^2) = 0,02006 \text{ m} \text{ con } \frac{D}{B} = 0,22 \text{ e } \frac{H}{B} = 5,58$$

$$\delta_{imm,liv.geo.4} = \frac{qB}{E} I_1 I_2 (1 - \nu^2) = 0,00652 \text{ m} \text{ con } \frac{D}{B} = 0,22 \text{ e } \frac{H}{B} = 59,62$$

Ovviamente i valori riportati sono quelli in direzione parallela ad L in quanto gli altri (quelli paralleli a B) risultano trascurabili ai fini della verifica.

Quindi, il cedimento totale al di sotto della fondazione vale :

$$\delta = \delta_{imm} = 0,046 \text{ m}$$

Tale valore dovrà essere confrontato con quelli ammissibili e cioè con quelli che la struttura in elevazione può sopportare. Al riguardo si riporta la tabella seguente:

Tipo di movimento	Fattore di limitazione	Valore ammissibile
Cedimento (cm)	Collegamento a reti di servizi	15 ÷ 30
	Accessibilità	30 ÷ 60
	Probabilità di cedimenti differenziali	
	Murature portanti	2,5 ÷ 5
	Strutture intelaiate	5 ÷ 10
	Ciminiere, silos	7,5 ÷ 30
Inclinazione δ/L	Stabilità al ribaltamento	Da verificare (cap. 16) $\delta/H \leq 0,04$
	Rotazione di ciminiere e torri	
	Operatività di macchine	
	Macchine tessili	0,003
	Turbogeneratori	0,0002
	Gru a ponte	0,003
	Drenaggio di superfici pavimentate	0,01 ÷ 0,02
Rotazione relativa β	Murature portanti multipiano	0,0005 ÷ 0,001
	Murature portanti ad un piano	0,001 ÷ 0,02
	Lesioni di intonaci	0,001
	Telai in c.a.	0,0025 ÷ 0,004
	Pareti di strutture a telaio in c.a.	0,003
	Telai in acciaio	0,002
	Strutture semplici di acciaio	0,005

Tab. 42 – Valori ammissibili di cedimento per diversi tipi di strutture (Fonte: Fondazioni, Carlo Viggiani)

Si nota che, per strutture intelaiate, il cedimento assoluto deve essere compreso al massimo tra 5 e 10 cm, di conseguenza il valore sopra ottenuto è ampiamente accettabile.

8.2.6 Verifiche allo stato limite di danno (SLD)

In condizioni sismiche lo stato limite di esercizio da verificare è relativo al massimo spostamento orizzontale permanente indotto alla costruzione. Per la sua stima si può utilizzare la teoria del blocco rigido di Newmark la quale si basa sul concetto di accelerazione critica, cioè quella accelerazione che superata produce uno spostamento dell'opera.

Newmark per ottenere tale parametro studia il fattore di sicurezza FS relativo ai pendii. In particolare ponendo FS pari a 1 si ottiene l'accelerazione critica :

$$FS_d = \frac{[\cos\beta - k_h(t)\sin\beta]\tan\varphi}{\sin\beta + k_h(t)\cos\beta}$$

nella quale :

β è l'angolo d'inclinazione del pendio (= 0° nel nostro caso) ;

k_h è l'accelerazione critica normalizzata ;

φ è l'angolo d'attrito (= 40° per lo strato di tout-venant nella quale la fondazione è immorsata)

e nel caso in esame, con $\beta=0^\circ$ e ponendo FS = 1 si ha:

$$FS_d = \frac{\tan\varphi}{k_h(t)} = 1 \rightarrow k_h(t) = \tan\varphi = \tan 26^\circ = 0,49$$

Quindi, dato che l'accelerazione normalizzata per il sito considerato, con una costruzione avente una vita nominale di 50 anni e una classe d'uso II a cui corrisponde $C_u = 1$, vale $K_h = 0,0864$ si ha che la verifica di spostamento orizzontale risulta soddisfatta con un ampio margine di sicurezza.

8.3 Verifiche strutturali

La trave di fondazione è stata modellata direttamente nel codice di calcolo En.Ex.Sys utilizzato per l'analisi strutturale.

In tale situazione la trave di fondazione viene concepita come una trave su suolo elastico secondo il modello a molle di Winckler. Le molle non sono altro che una semplificazione del terreno al solo fine di permettere il calcolo della reazione dello stesso gravante sulla trave in risposta ai carichi applicati provenienti dalla sovrastruttura.

L'unico parametro da settare nel modello FEM è la rigidità delle molle. Questa, viene rappresentata dalla costante di sottofondo che nel nostro caso risulta pari a $1,2 \text{ kg/cm}^3$.

Nel seguito si evita di inserire le tabelle delle sollecitazioni riguardanti la trave di fondazione $80 \times 120 \text{ cm}$ e il cordolo $50 \times 80 \text{ cm}$ poiché già comprese nella tabella riportata al Cap.5. Al contrario saranno indicate tutte le regole progettuali con le quali sono state introdotte le armature di acciaio.

Per le sezioni della trave rovescia viene calcolato il momento limite della sezione:

$$M_{\text{Lim}} = 0,8 * (f_{cd} * b * 0,149d) * (1 - 0,149 * 0,4) * d = 0,112 * b * d^2 * f_{cd}$$

E nel caso in cui si abbia anche l'azione di trazione (N_{sd}) si deve considerare un momento agente M_{sd}^* pari a :

$$M_{sd}^* = M_{sd} - N_{sd} * (d - h/2)$$

Le armature vengono dimensionate tramite le seguenti le relazioni:

$$(1) M_{sd}^* < M_{\text{Lim}} \quad A_s = \frac{M_{sd}}{(1 - 0,062) * d * f_{yd}} + \frac{N_{sd}}{f_{yd}} = \frac{M_{sd}}{0,94 * d * f_{yd}} + \frac{N_{sd}}{f_{yd}} A'_s \text{ minimo da normativa;}$$

$$(2) M_{sd}^* > M_{\text{Lim}} \quad A_{s1} = \frac{M_{sd}}{(1 - 0,062) * d * f_{yd}} + \frac{N_{sd}}{f_{yd}} = \frac{M_{sd}}{0,94 * d * f_{yd}} + \frac{N_{sd}}{f_{yd}} A_{s2} = \frac{M_{sd}}{(d - d') * f_{yd}}$$

$$A_s = A_{s1} + A_{s2}; \quad A'_s = A_{s2}$$

Per il dimensionamento della staffatura si adotta l'espressione:

$$V_{rsd} = 0,9 * d * \frac{A_{sw}}{s} * f_{yd} * (ctg\alpha + ctg\theta) = V_{ed}$$

Ponendo $\vartheta = 45^\circ$ e $\alpha = 90^\circ$ (staffe) si ottiene

$$\frac{A_{sw}}{s} = \frac{V_{sd}}{0,9 * f_{yd} * d}$$

Una volta che è stato ricavato il quantitativo di staffe si procede alla verifica delle bielle compresse uguagliando l'espressione resistente a taglio trazione con l'espressione resistente a taglio compressione:

$$V_{rcd} = V_{rsd} \rightarrow 0,9 * d * \frac{A_{sw}}{s} * f_{yd} = 0,9 * d * b_w * \alpha_c * f'_{cd} * \frac{ctg\theta}{(1 + ctg\theta^2)}$$

Da cui si ricava l'espressione della $ctg\theta$ di verifica:

$$ctg\theta = \sqrt{\frac{b_w * \alpha_c * f'_{cd}}{\frac{A_{sw}}{s} * f_{yd}} - 1}$$

Ponendo come limitazione $1 \leq \text{ctg}\theta \leq 2,5$.

Una volta noto il valore della $\text{ctg}\theta$, si sostituisce nell'espressione del taglio compressione:

$$V_{rcd} = 0.9 * b_w * d * f'_{cd} * \alpha_c * \frac{\text{ctg}\theta}{(1 + \text{ctg}\theta^2)} \leq 0.45 * d * b_w * f'_{cd} * \alpha_c$$

In questa sede si riportano solo alcune immagini dei risultati relativi all'armatura della trave di fondazione, rimandando agli allegati grafici per una migliore comprensione delle armature longitudinali e trasversali adottate.

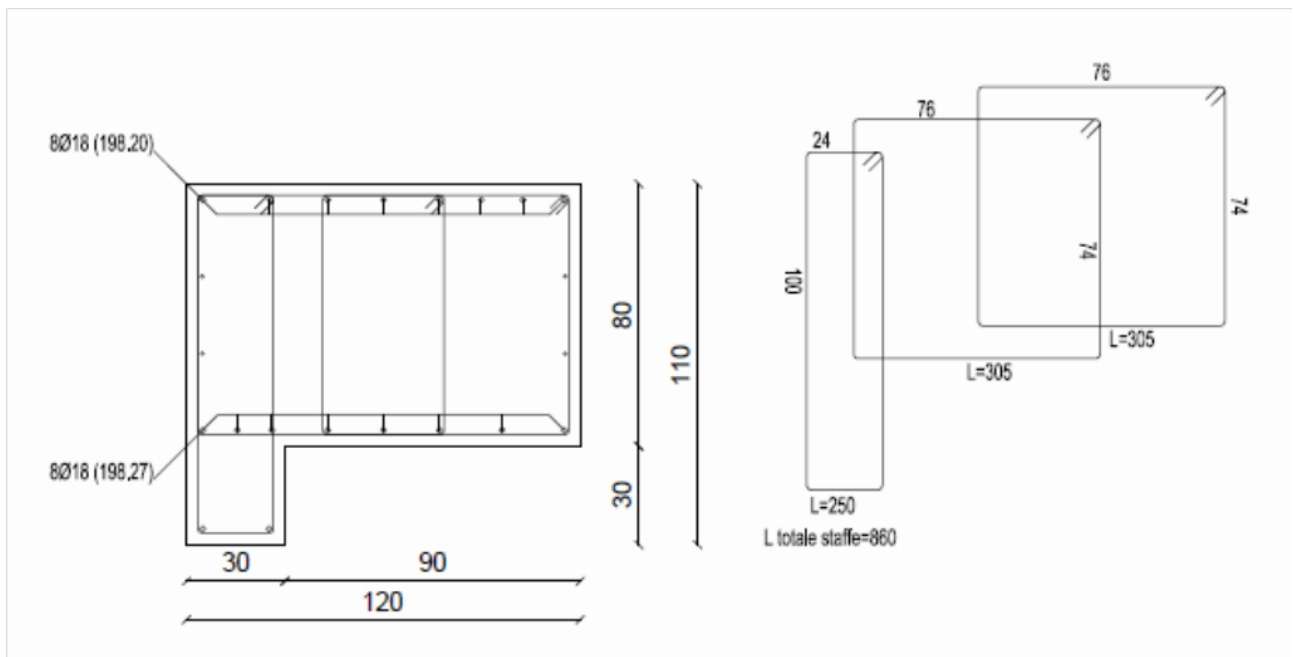


Fig. 39 – Sezione trave 80x120 armata con ferri longitudinali e staffe passo 15'

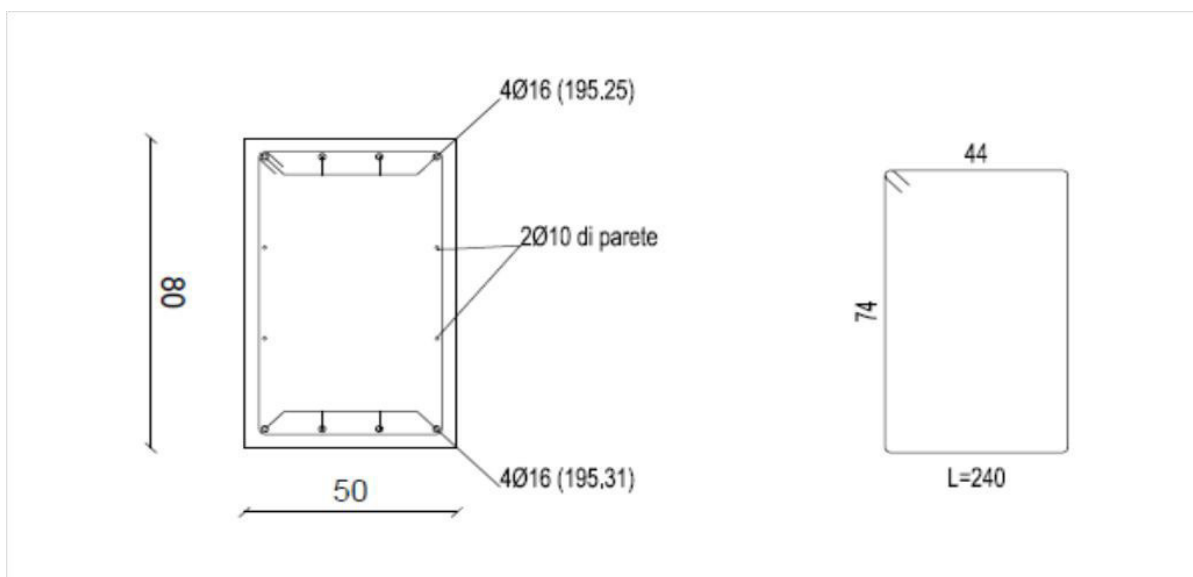


Fig. 40 – Sezione trave 50x80 armata con ferri longitudinali e staffe passo 15'