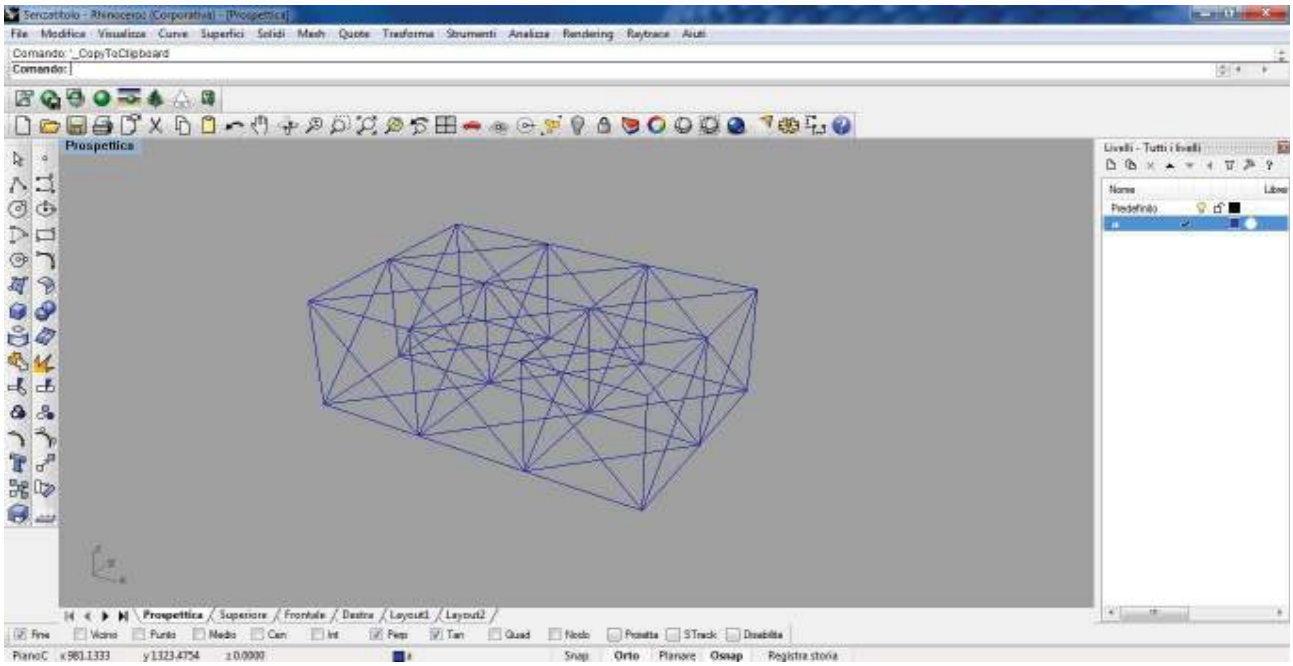
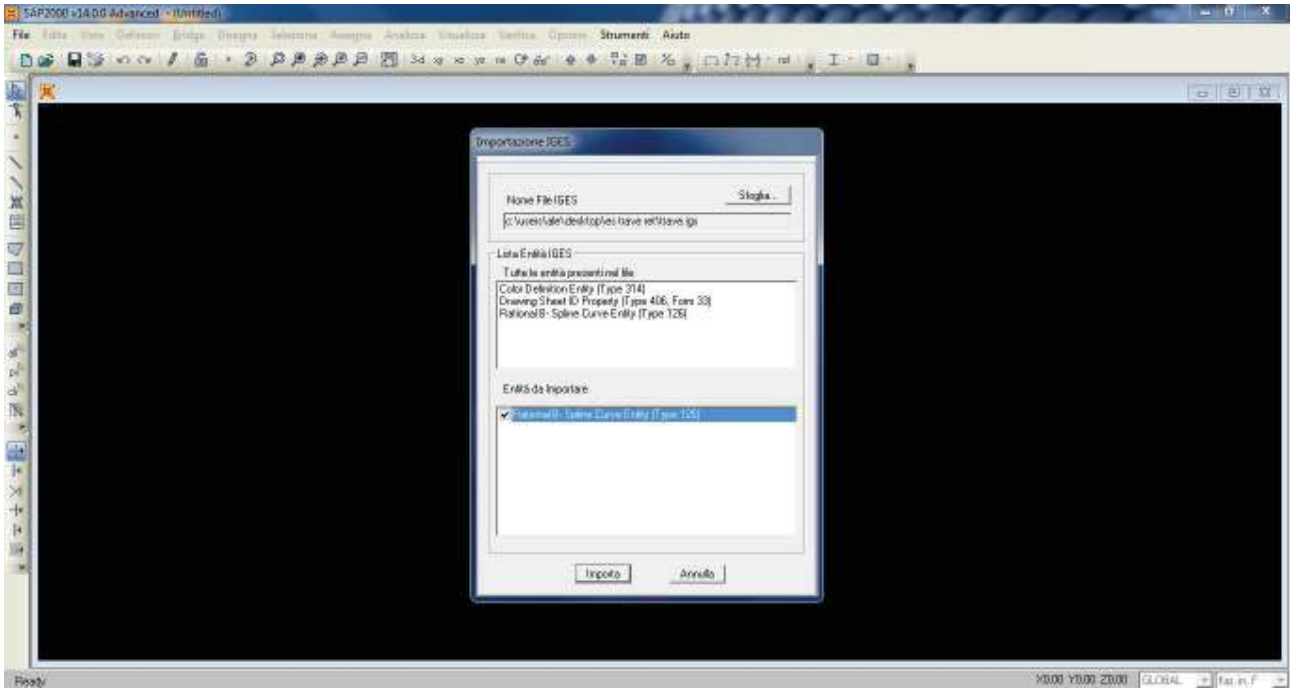
Esercitzione trave reticolare 3d

1. Creazione file in Rhinoceros
   Disegnare la trave reticolare in rhino. Si parte da un modulo di base 2mx2m per creare una maglia di 6x2 moduli. Creata la pianta, la si copia ad un'altezza di 2m, successivamente si uniscono i vertici dei moduli e si realizzano le diagonali di ogni faccia.



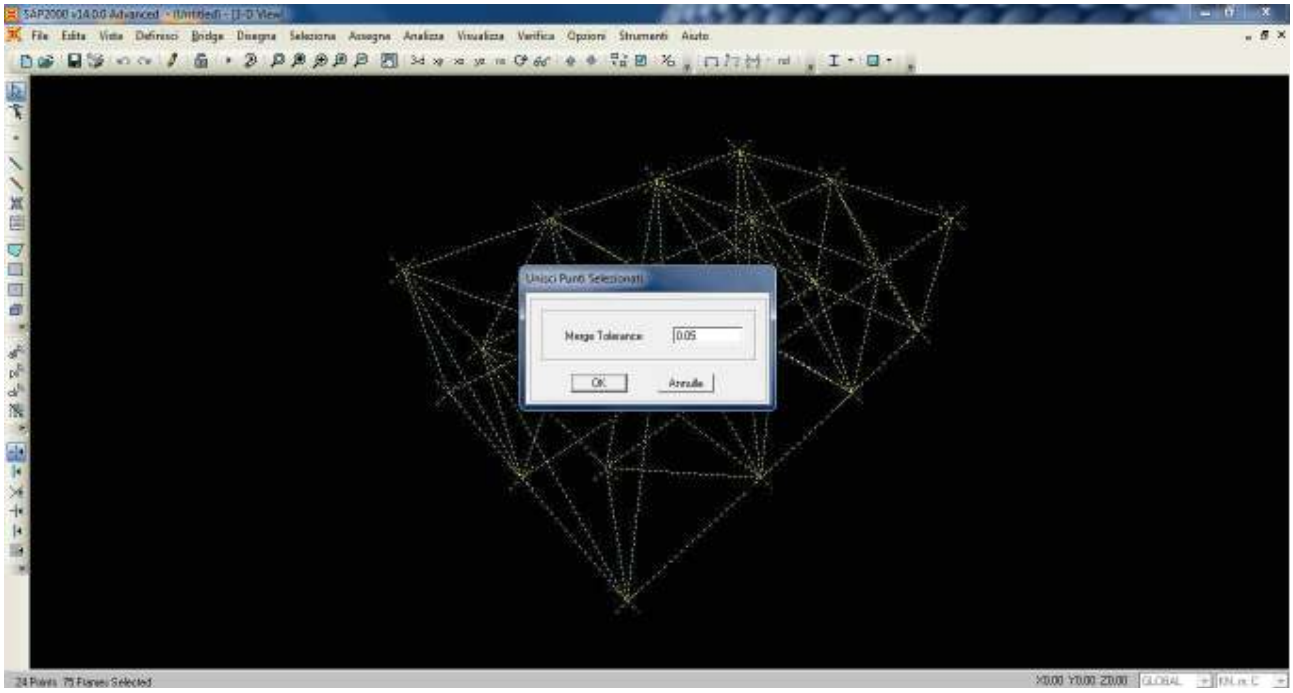
   Si salva in IGES

2. Apertura sap
   File-Importa-Aprire file-Impostare unita di misura kn,m,c



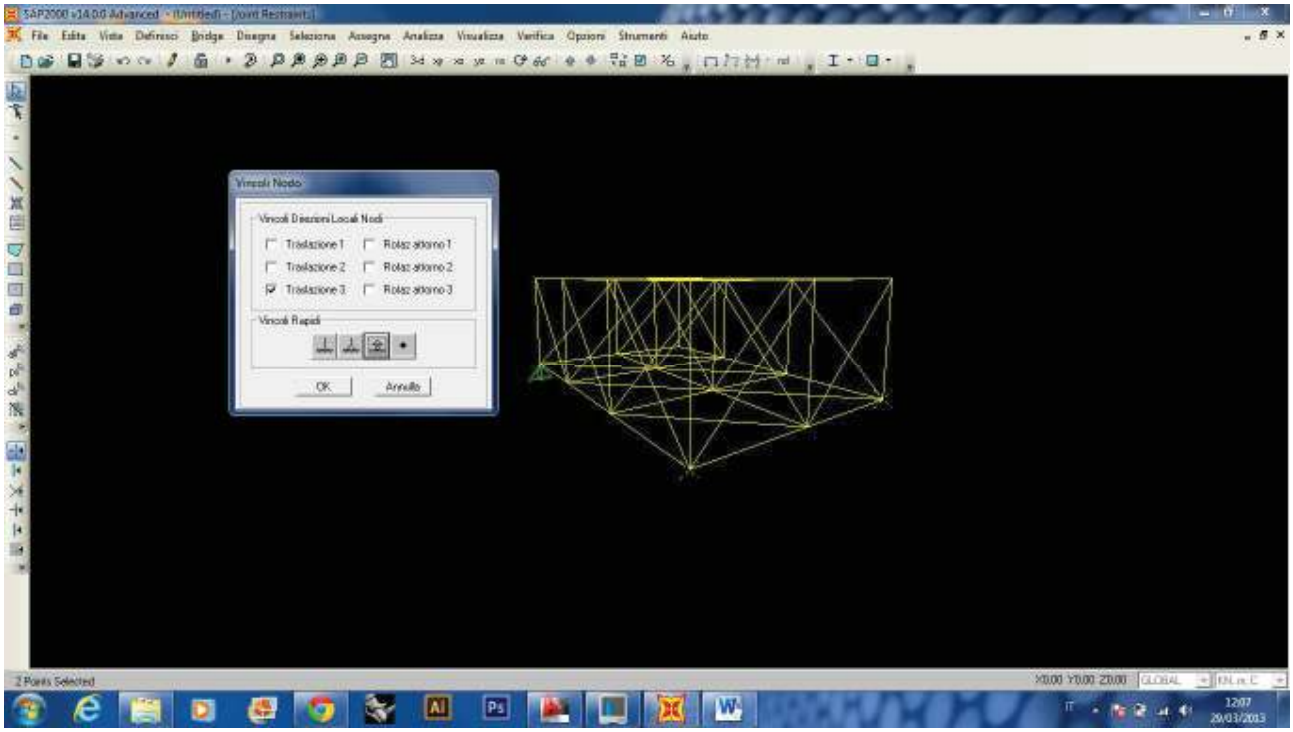
3. Cambiare tolleranza

   Selezionare la trave-Edita-Edita-Punti-Unisci nodi- Si cambia la tolleranza

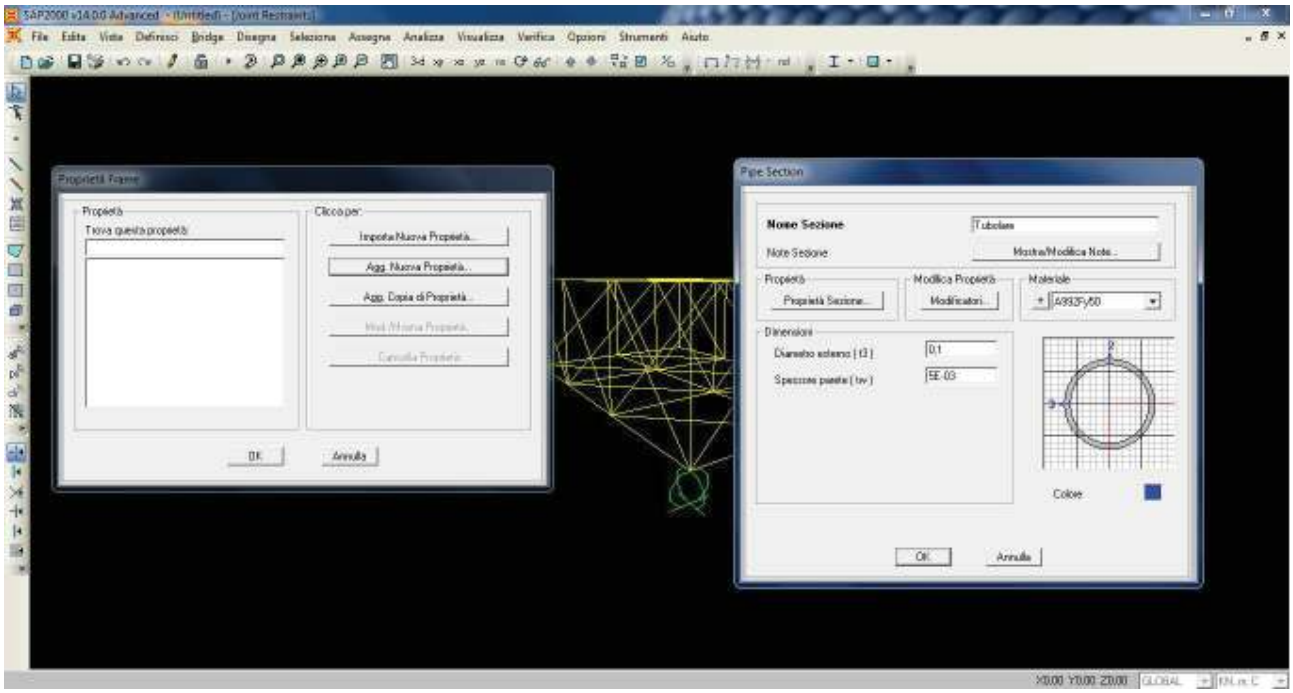


4. Assegnare vincoli

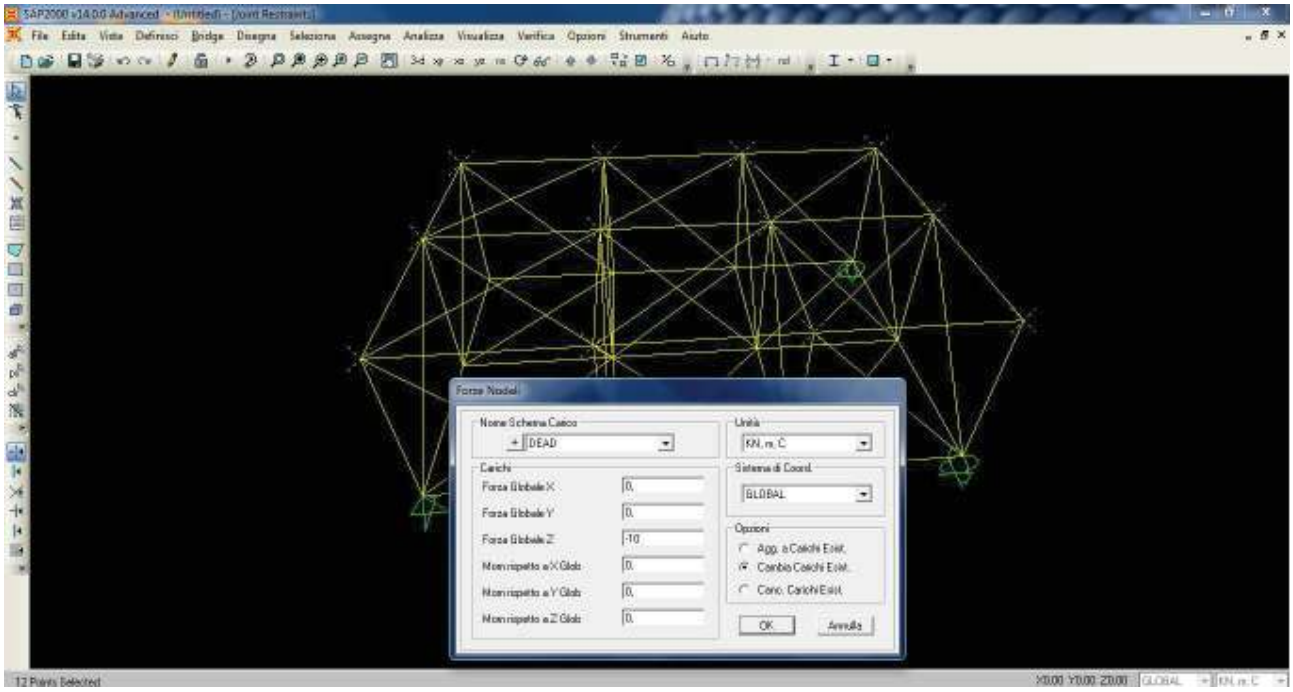
   Si assegnano 3 vincoli di cui almeno una deve essere un incastro.(tutti sullo stesso piano)



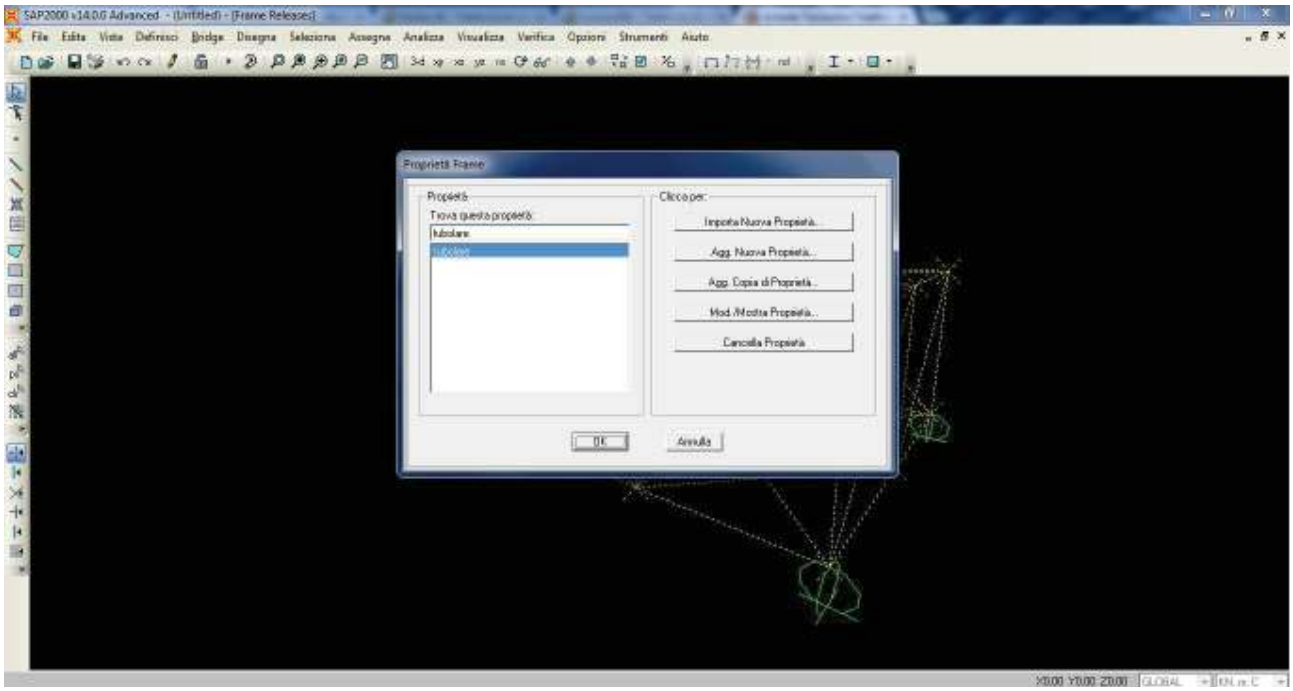
5. Crere la sezione della struttura
   Definisci-Proprietà sezione- Sezione Frame- Agg. Nuova proprietà- Scegliamo il materiale-Stell-Tubo-Modificare (nome, diametro 0,1 ,spessore interna 0,05)

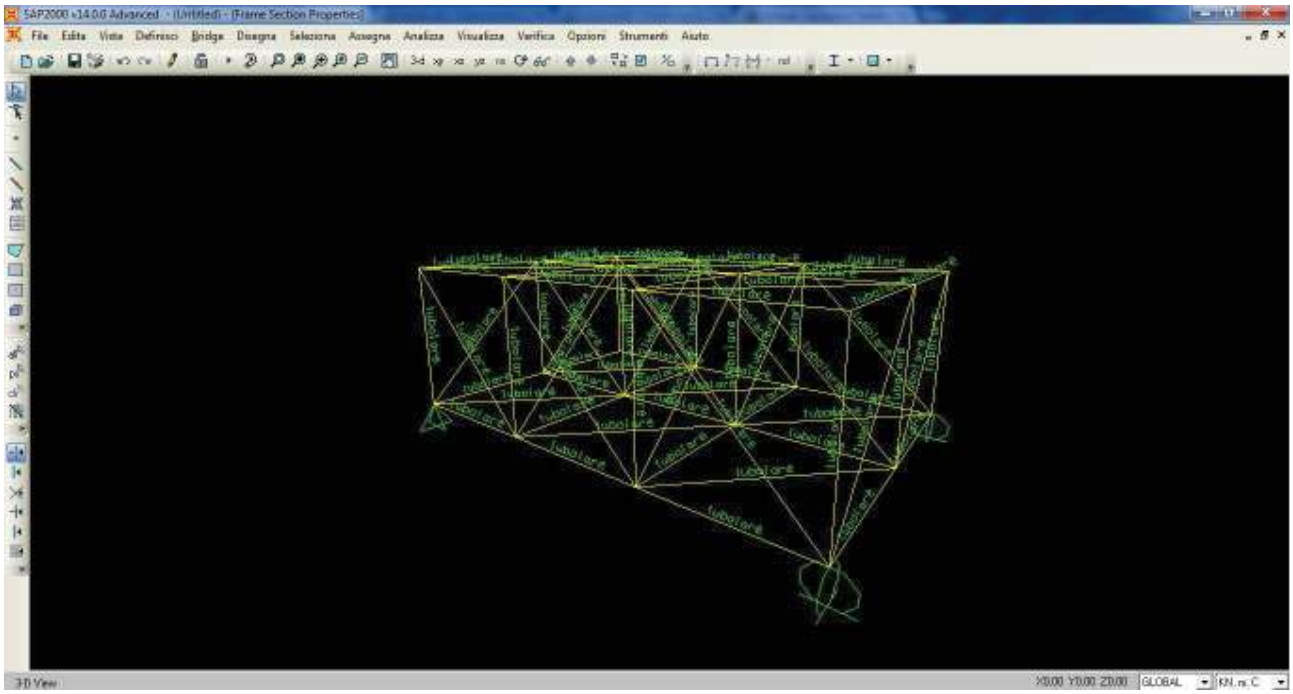


6. Assegnare carichi
   Selezionare tutti i nodi superiori-Assegna-Frame-Carichi nodo-Forze-Forza globale Z -10

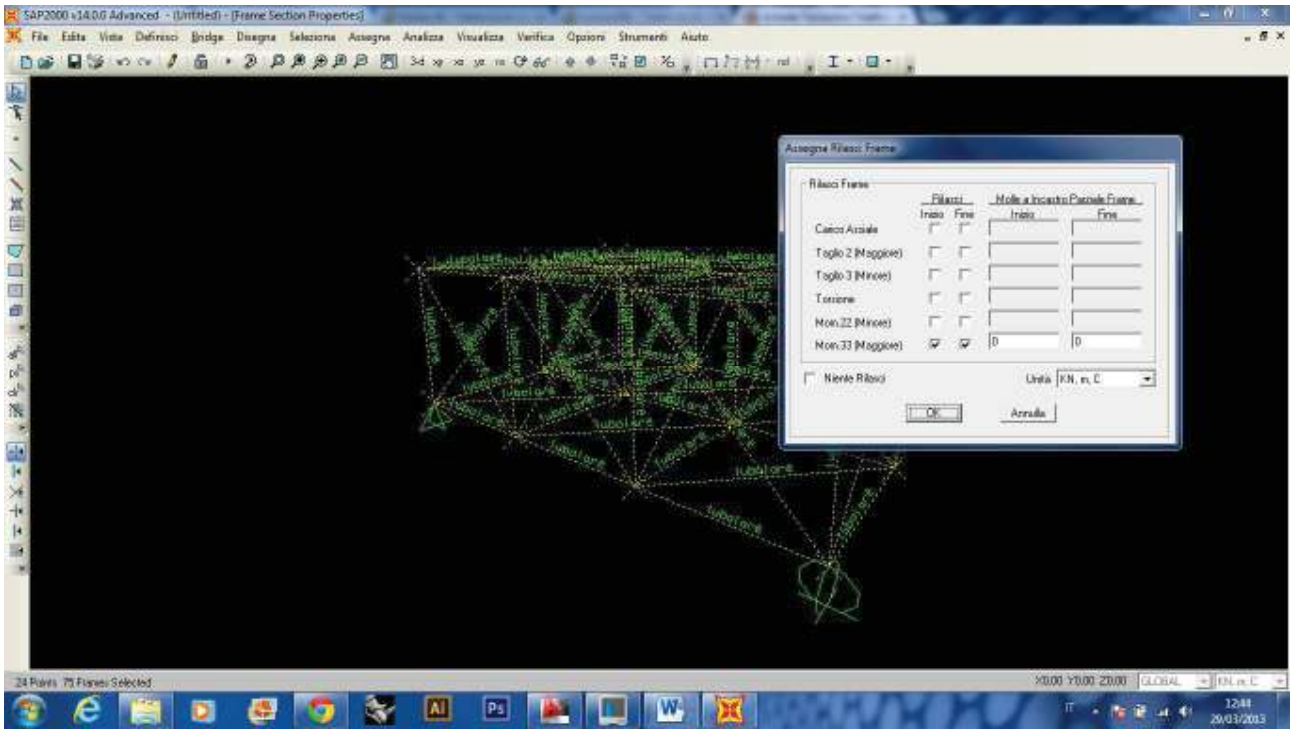


7. Applicare la sezione creata
   Selezionare tutto-Assegna-Frame-Sezione frame-Selezionare il nome della sezione



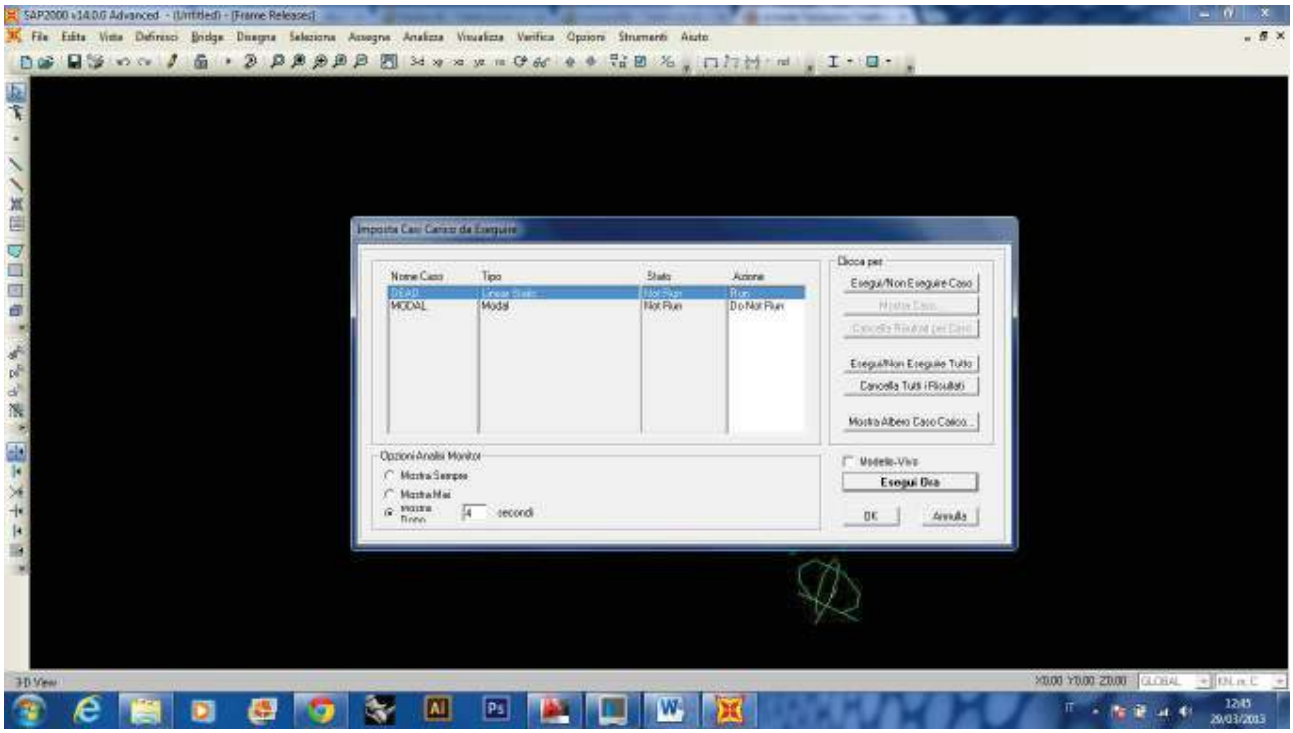


8. Assegnare le cerniere interne
   Assegna-Frame-Rilasci-Si applica a mom.33 spuntando sia alla fine che all'inizio il valore 0



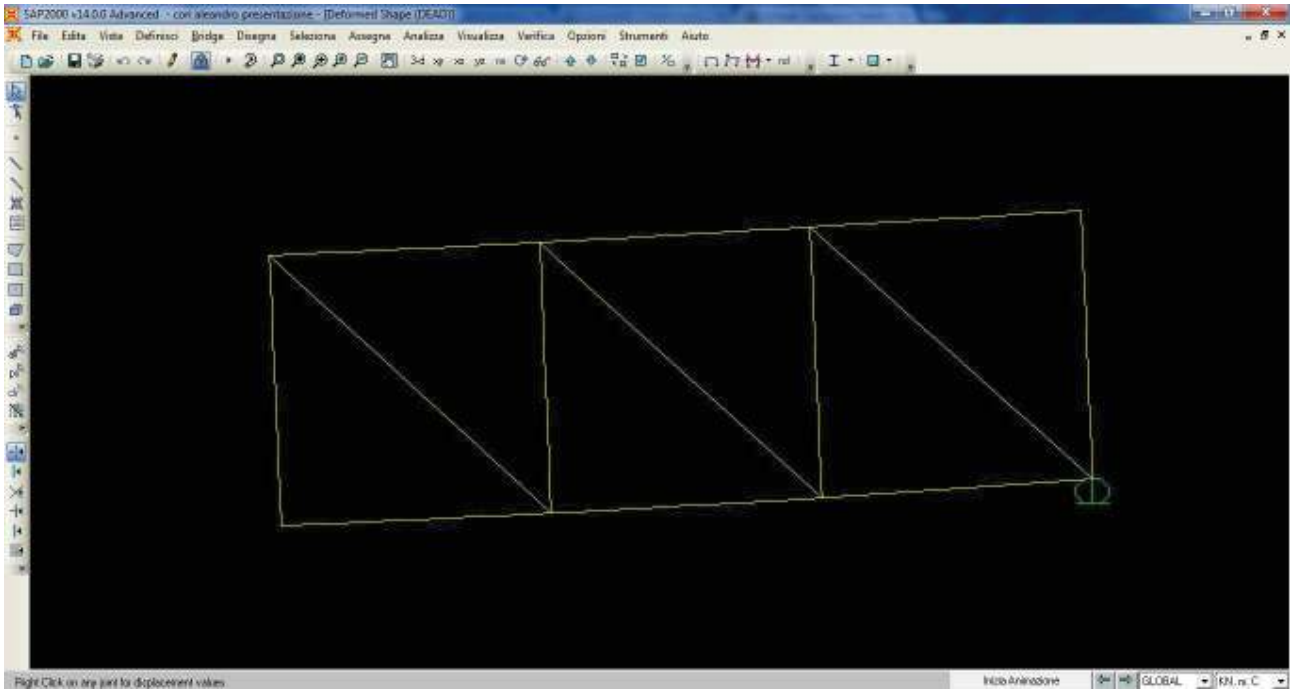
9. Considerare solo il peso proprio della struttura
   Definisci-Schemi di carico-su dead mettere 0

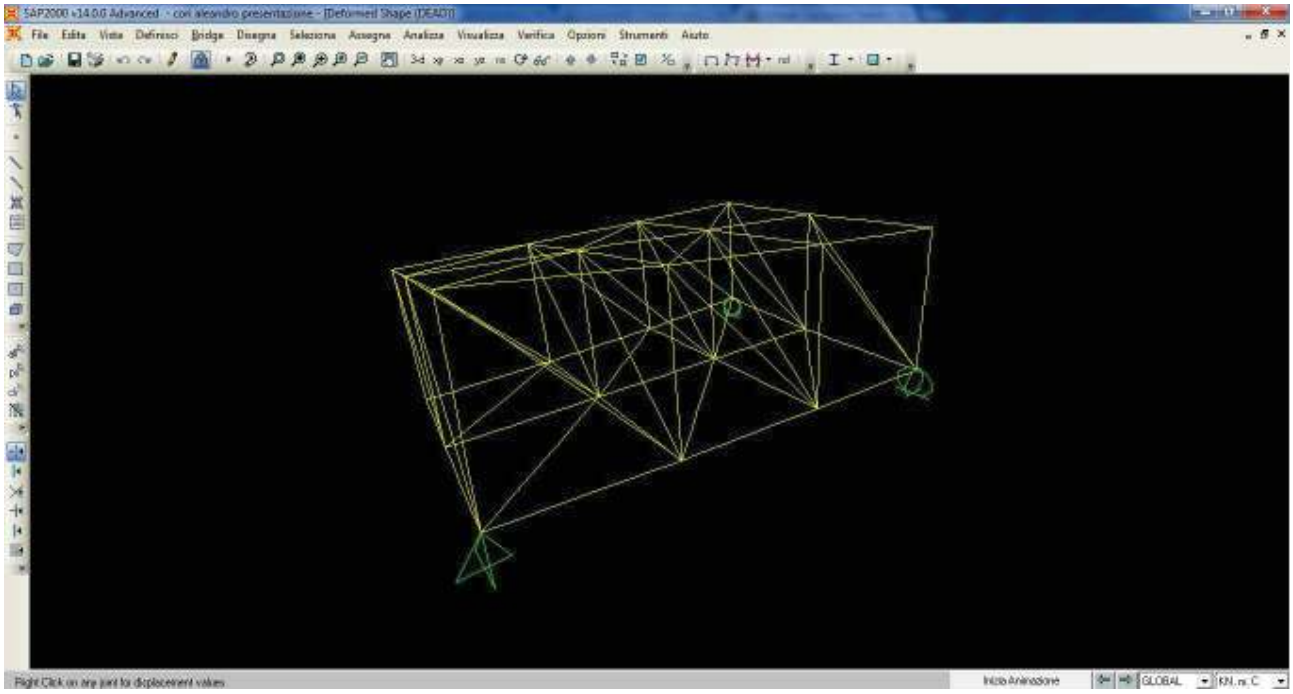
10. Avvia il calcolo



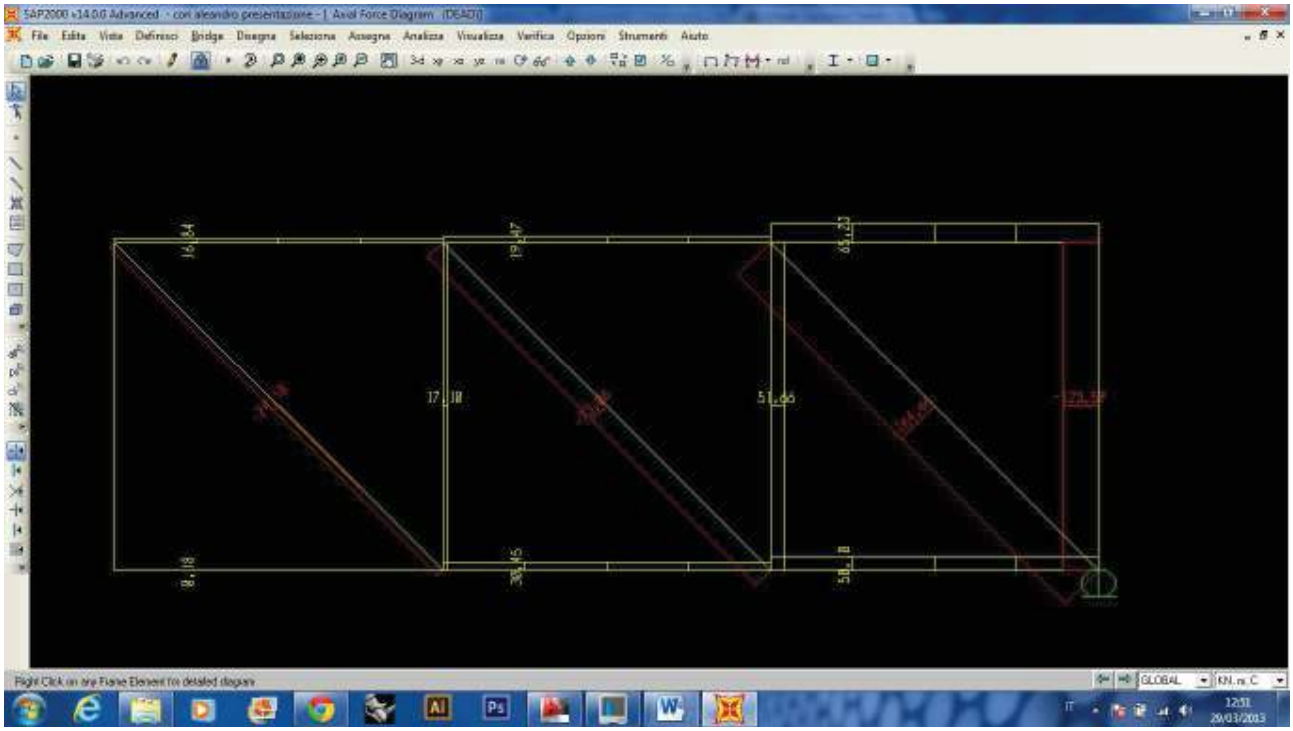
11. Deformazioni

Asse xz

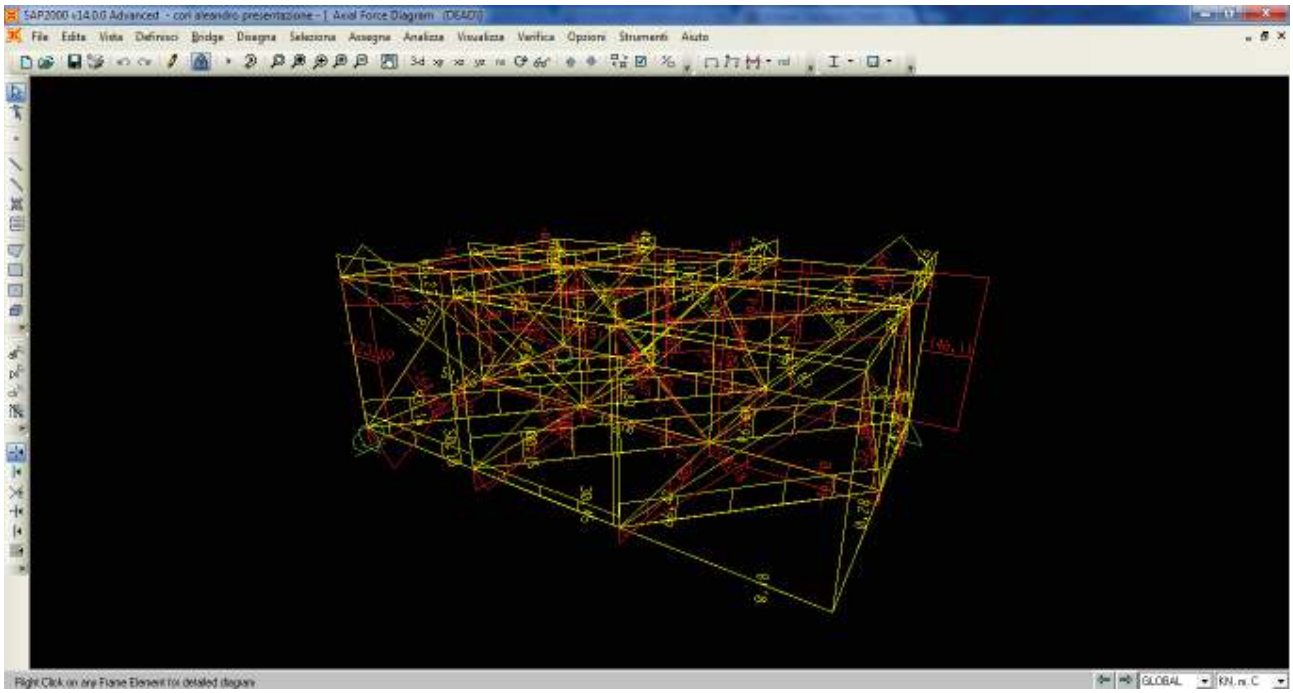




12. Sforzo assiale

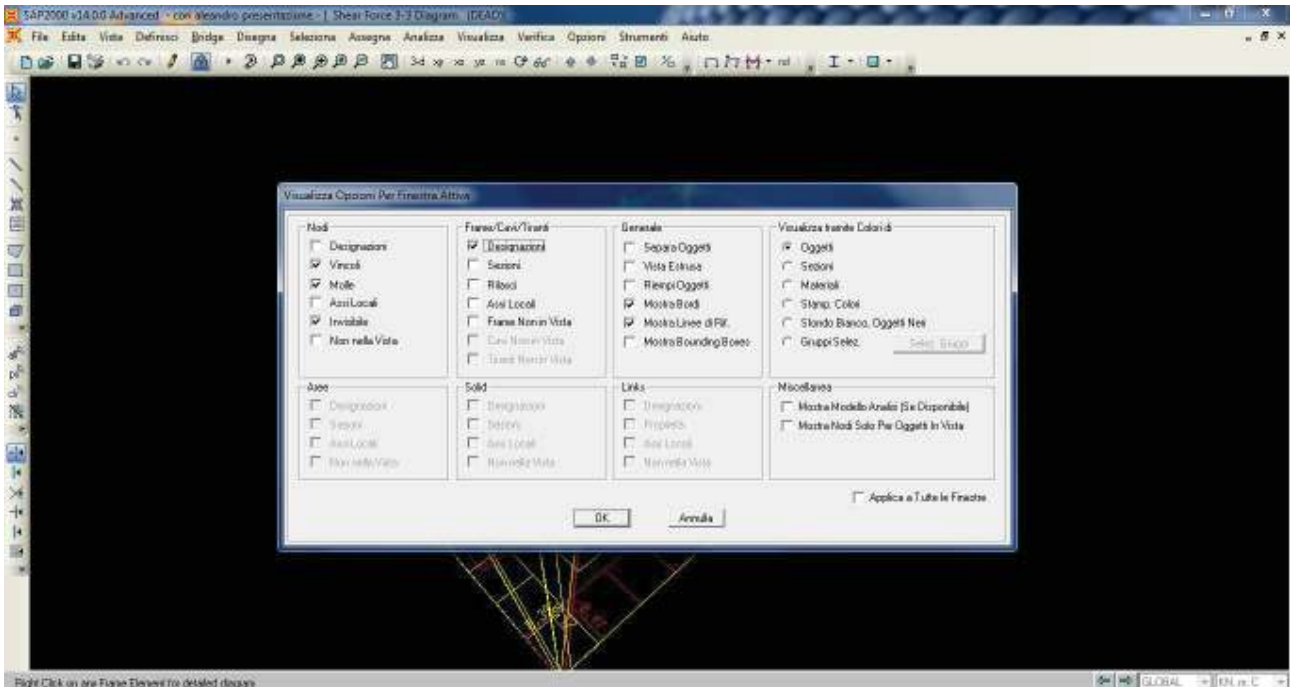


13. Taglio



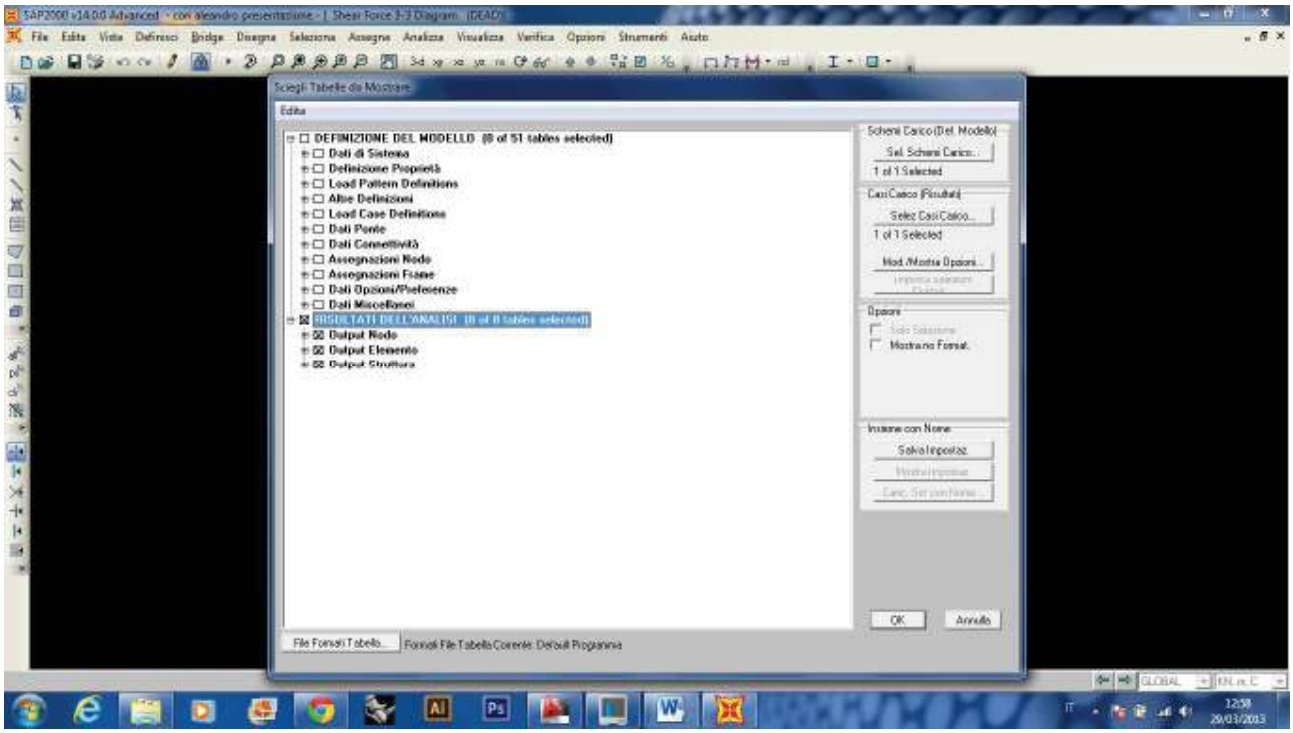
14. Tabella

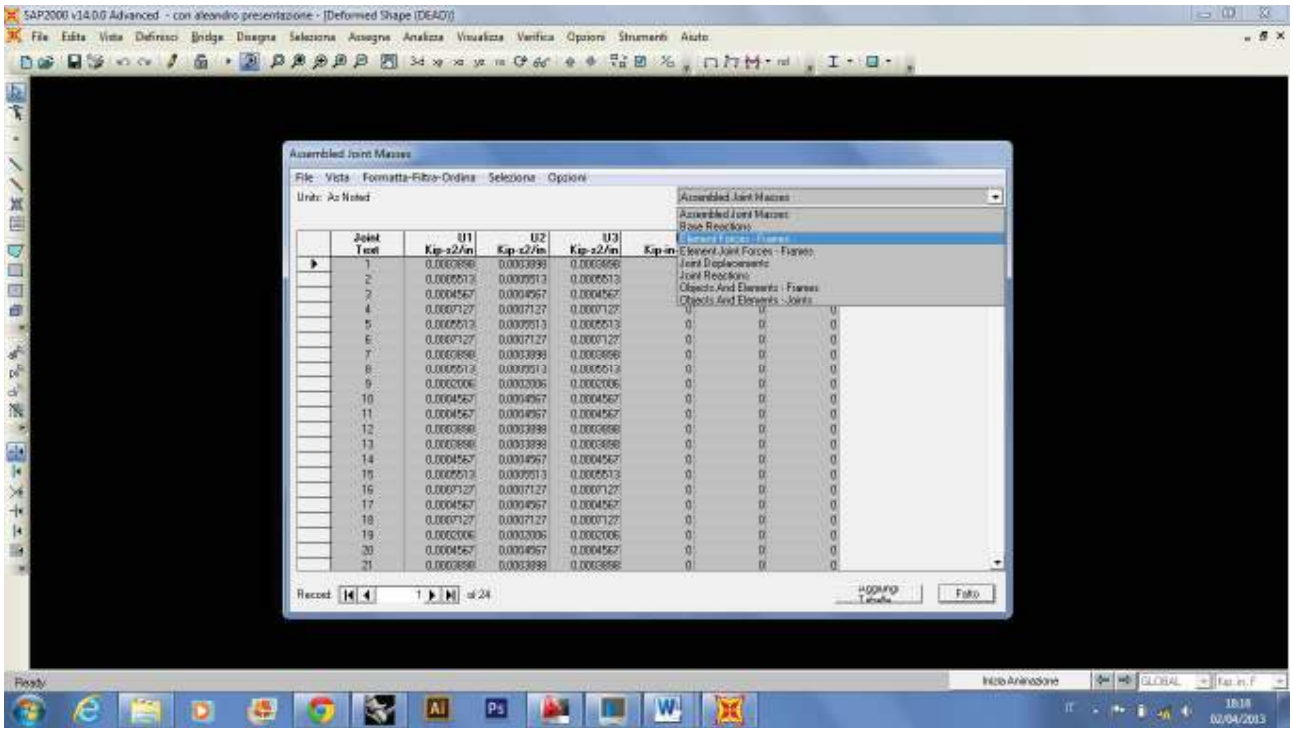
Impostazioni di visualizzazione- Si supnta su frame “Designazione” ok



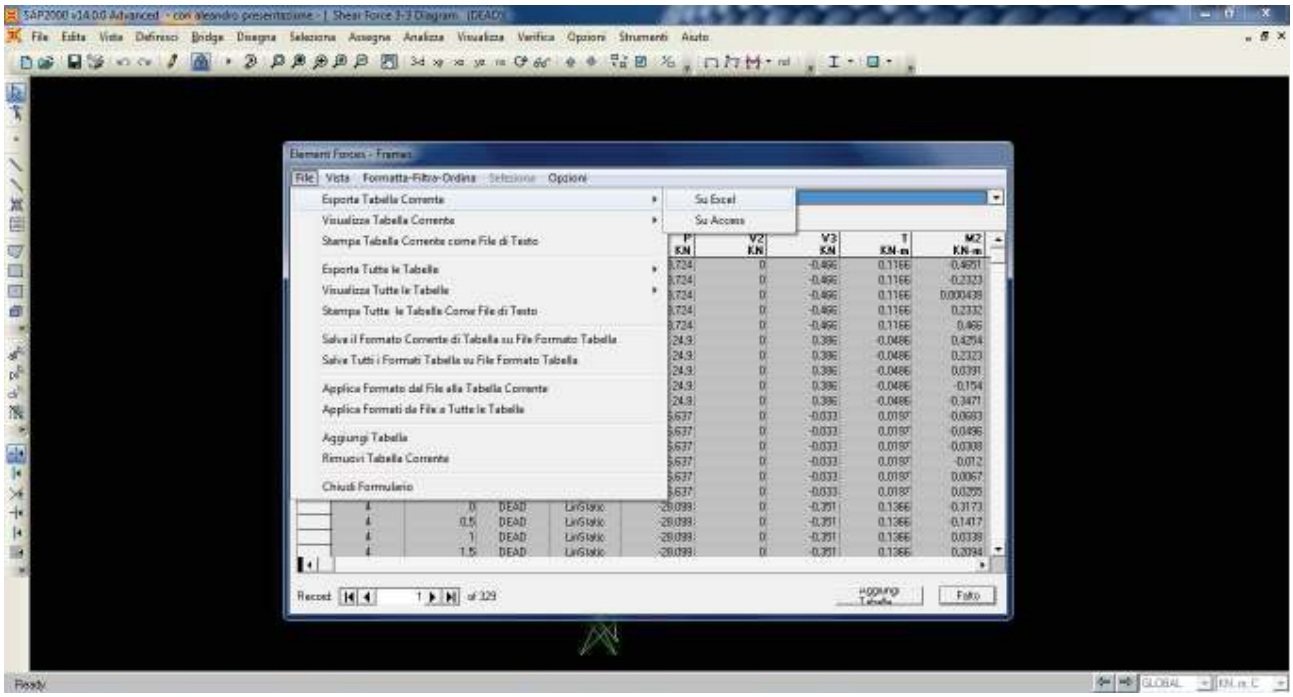
15. Per ottenere tabella in excel

Visualizza-Mostra tabelle-Spuntare su analizza risultato- Cliccare su ok- sulla finestra che appare in alto a destra cambiare e mettere “Element Forces”-Frames





Per esportare la tabella in Excel



Una volta ottenuta la tabella in Excel, si trovano le σ. Nel tratto26 ci son le σ piu alte.

F4 =ASS((D4*1000)/E4)

	A	B	C	D	E	F
1	TABLE: Element Forces - Frames					
2	Frame	Station	OutputCase	P	A	σ
3	Text	m	Text	KN	mm²	Mpa
115	22	0	DEAD	-22,601	2827	7,994694
116	22	0,5	DEAD	-22,601	2827	7,994694
117	22	1	DEAD	-22,601	2827	7,994694
118	22	1,5	DEAD	-22,601	2827	7,994694
119	22	2	DEAD	-22,601	2827	7,994694
120	23	0	DEAD	-66,37	2827	23,47718
121	23	0,5	DEAD	-66,37	2827	23,47718
122	23	1	DEAD	-66,37	2827	23,47718
123	23	1,5	DEAD	-66,37	2827	23,47718
124	23	2	DEAD	-66,37	2827	23,47718
125	24	0	DEAD	-38,986	2827	13,79059
126	24	0,5	DEAD	-38,986	2827	13,79059
127	24	1	DEAD	-38,986	2827	13,79059
128	24	1,5	DEAD	-38,986	2827	13,79059
129	24	2	DEAD	-38,986	2827	13,79059
130	25	0	DEAD	67,262	2827	23,79271
131	25	0,5	DEAD	67,262	2827	23,79271
132	25	1	DEAD	67,262	2827	23,79271
133	25	1,5	DEAD	67,262	2827	23,79271
134	25	2	DEAD	67,262	2827	23,79271
135	26	0	DEAD	-94,352	2827	33,37531
136	26	0,56569	DEAD	-94,352	2827	33,37531
137	26	1,13137	DEAD	-94,352	2827	33,37531
138	26	1,69706	DEAD	-94,352	2827	33,37531
139	26	2,26274	DEAD	-94,352	2827	33,37531
140	26	2,82843	DEAD	-94,352	2827	33,37531
141	27	0	DEAD	-23,748	2827	8,400424
142	27	0,5	DEAD	-23,748	2827	8,400424
143	27	1	DEAD	-23,748	2827	8,400424
144	27	1,5	DEAD	-23,748	2827	8,400424
145	27	2	DEAD	-23,748	2827	8,400424
146	28	0	DEAD	65,566	2827	23,19278
147	28	0,5	DEAD	65,566	2827	23,19278
148	28	1	DEAD	65,566	2827	23,19278
149	28	1,5	DEAD	65,566	2827	23,19278
150	28	2	DEAD	65,566	2827	23,19278