GFT German Formwork Technology

Formwork ▪ Support Systems ▪ Services

Varioflex Slab Formwork System

Assembly and Application Guide

Product Information and Features

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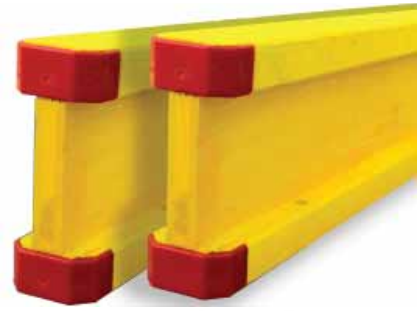
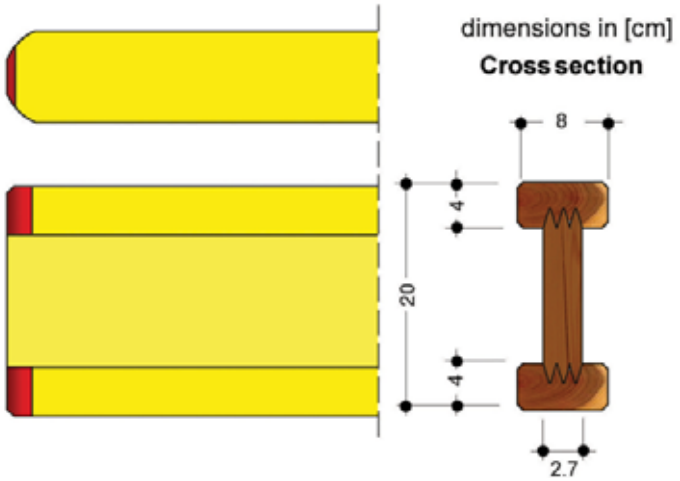
Product Features

Slabflex is the easiest and most flexible slab formwork system for all types of slabs consisting of tubular steel props, Tripod Stands, Fork Heads, H20 Timber Beams and plywood sheets. The system can be used for a clear height up to 5.90 m. due to various types of GFT Euroform Plus steel props. It is mainly used for decking areas around lift shafts and stair cases, for villa projects or used as a manual handled slab formwork system with limited crane capacity, as the system is fully crane independent



Beam end protected by plastic bumper

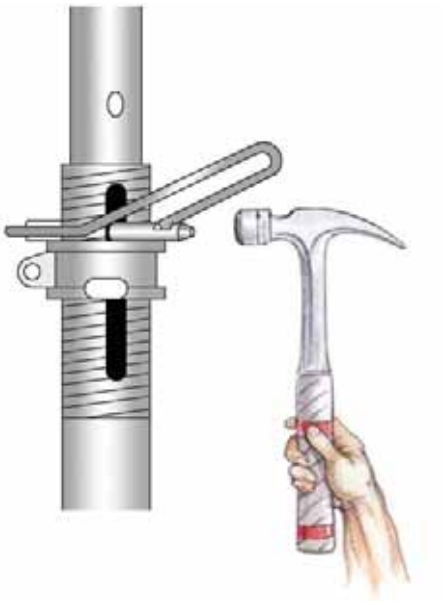


The H20 Timber Beams are in particular very practical due to its easy handling, low weight (4.80 kg/m only), and excellent statical figures. Its high-grade bonding and protected beam ends with a plastic bumper assures a very long duration of life. Furthermore, H20 Timber Beam has a general approval by the German building supervisory board.

The H20 SlabFlex System is designed and manufactured in accordance with BS EN 12812 : 2008, code of practice for Falsework

Quick Lowering:

For safety purpose and to save time, GFT Euroform Plus steel props are equipped with quick release bolts, which facilitate the threaded nut to be released easily and immediately by a simple blow of the hammer.
Additional accessories make Slabflex Formwork even faster, more efficient and more economical. For example, erection of the GFT Euroform Plus steel prop is made easier and safer by using the Tripod Stand.



Important Remarks:

The succeeding assembly and application guide has to be carefully read as it contains detailed information on the proper application and handling of the Slabflex Formwork system.

All instructions concerning technical operation and function have to be observed carefully. Please note that exceptional use of the Slabflex Formwork system requires a separate design calculation.

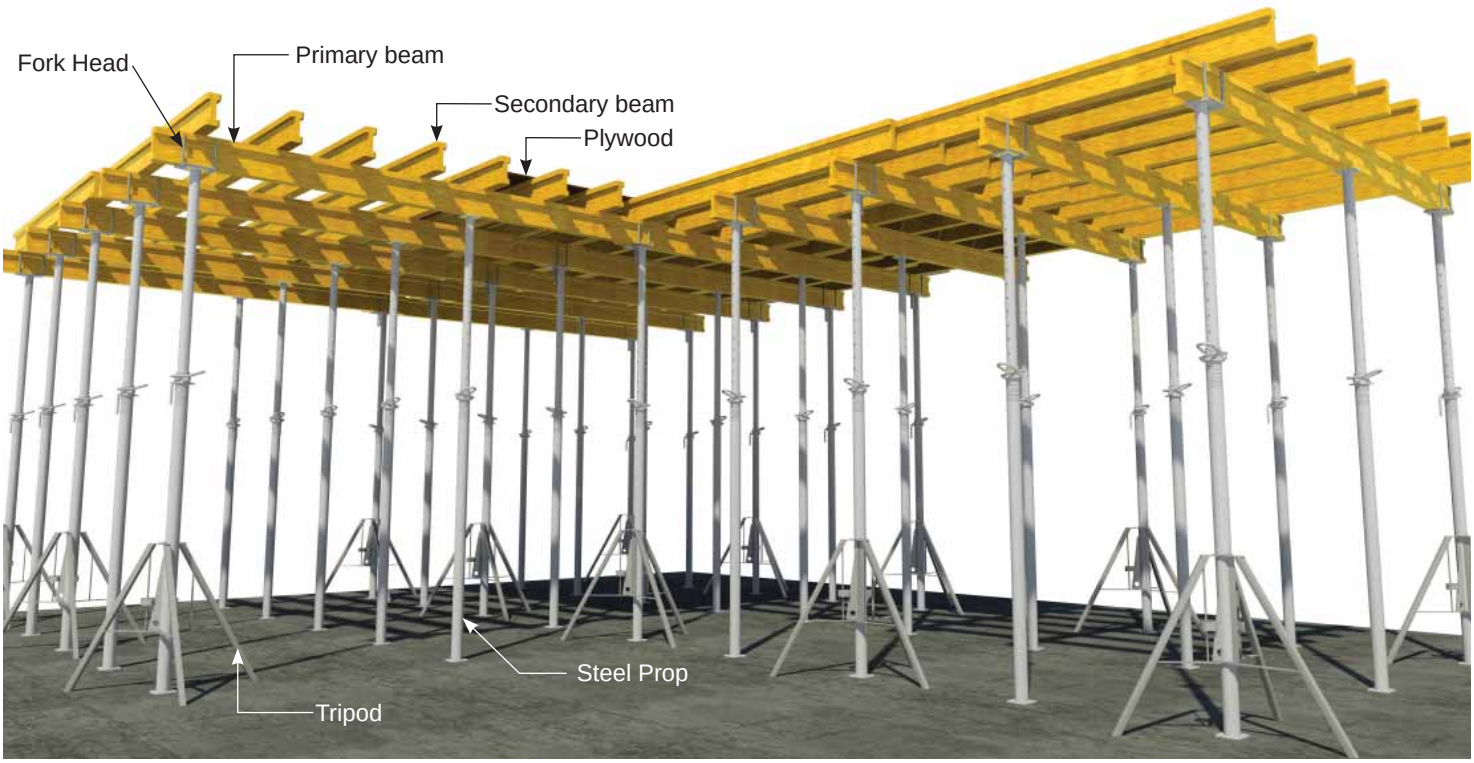
In order to ensure a technical and safe use of our product, all relevant national safety rules and regulations and safety instructions of national institutes and/or local authorities have to be observed. In general, only undamaged material and components must be used.

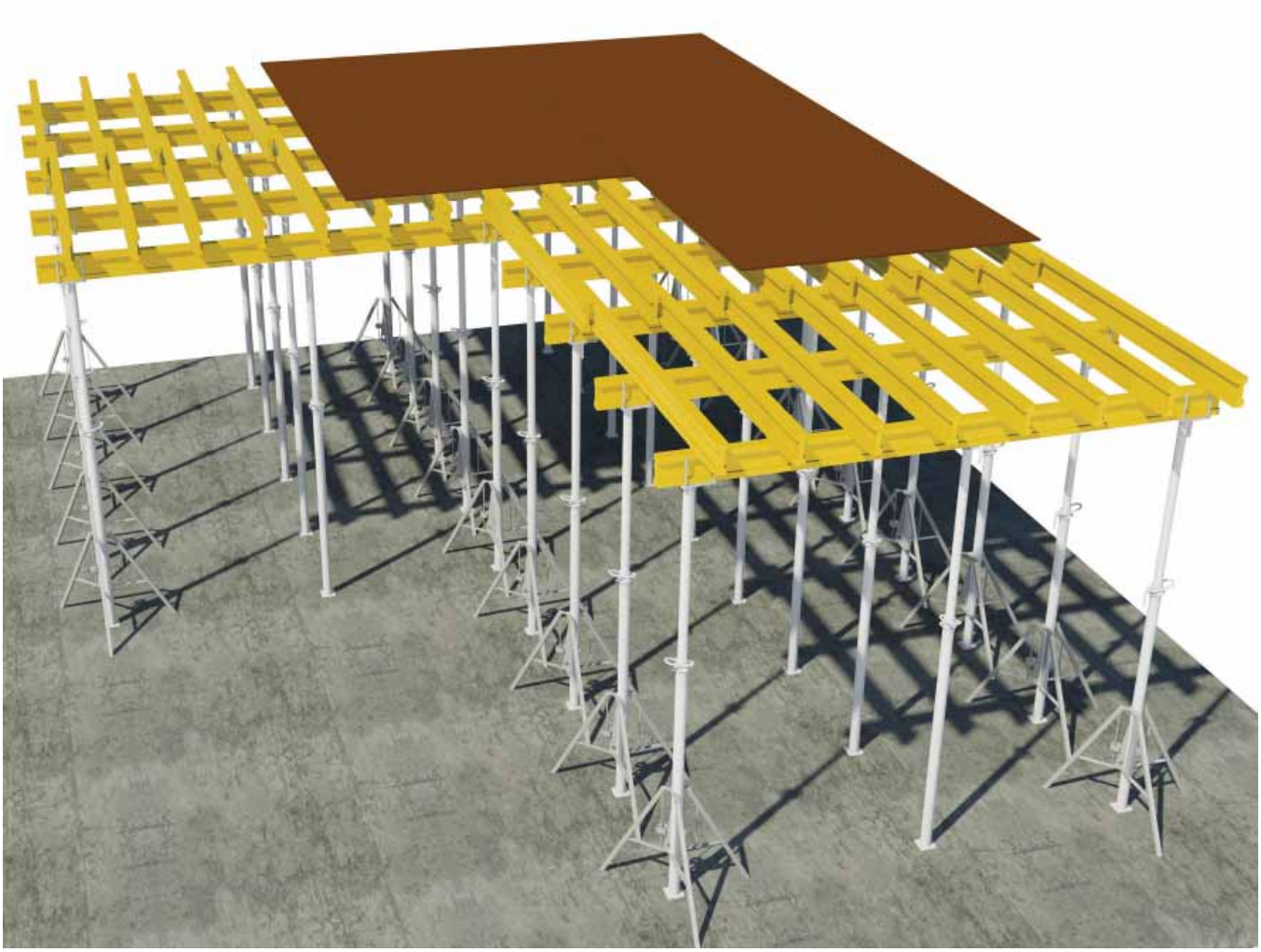
It is important that damaged components are sorted out and removed from the construction site. In case of repairs, only original spare parts of GFT must be used.

The use of GFT formwork systems combined with other supplier's materials may involve certain dangers and therefore require an additional inspection and quality check by our formwork specialist.

Due to technical development of our system, we would like to emphasize that GFT reserves the right to revise, change, or modify any of the product's components at any time without prior notice.

Product overview





Components

H20 Timber Beam

	Art. No	Weight Kg/pc.
H20 Beam 190	310011	9.50
H20 Beam 245	310012	12.25
H20 Beam 265	310014	13.25
H20 Beam 290	310013	14.50
H20 Beam 330	310015	16.50
H20 Beam 360	310016	18.00
H20 Beam 390	310017	19.50
H20 Beam 450	310018	22.50
H20 Beam 490	310019	24.50
H20 Beam 590	310020	29.50

Protective Cap - Shock resistant, protection against splintering which increases durability

Web - 3-ply laminated solid wood panels, best performance, durability

Chords - Superior quality selected solid wood with friction-fitted finger joints

Tested and approved permissible loads:
Max. perm. M = 5.00 kNm
Max. perm. Q = 11.00 kNm
E . I = 500 kNm2 (bending moment)

Euroform Plus Steel Props

Euroform Plus 20kN

260 (L=1.54 - 2.60m)	310031	12.7
300 (L=1.72 - 3.00m)	310032	15.8
350 (L=1.98 - 3.50m)	310033	19.2
400 (L=2.24 - 4.00m)	310034	22.7
500 (L=3.00 - 5.00m)	310036	28.7
550 (L=3.05 - 5.50m)	310035	32.3

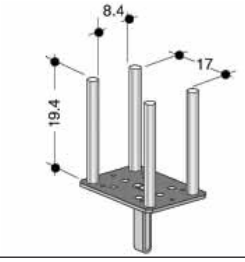
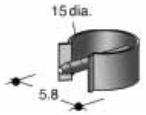
Euroform Plus 30kN

260 (L=1.54 - 2.60m)	310037	16.03
300 (L=1.72 - 3.00m)	310038	18.50
350 (L=1.98 - 3.50m)	310039	22.70
400 (L=2.24 - 4.00m)	310040	26.00

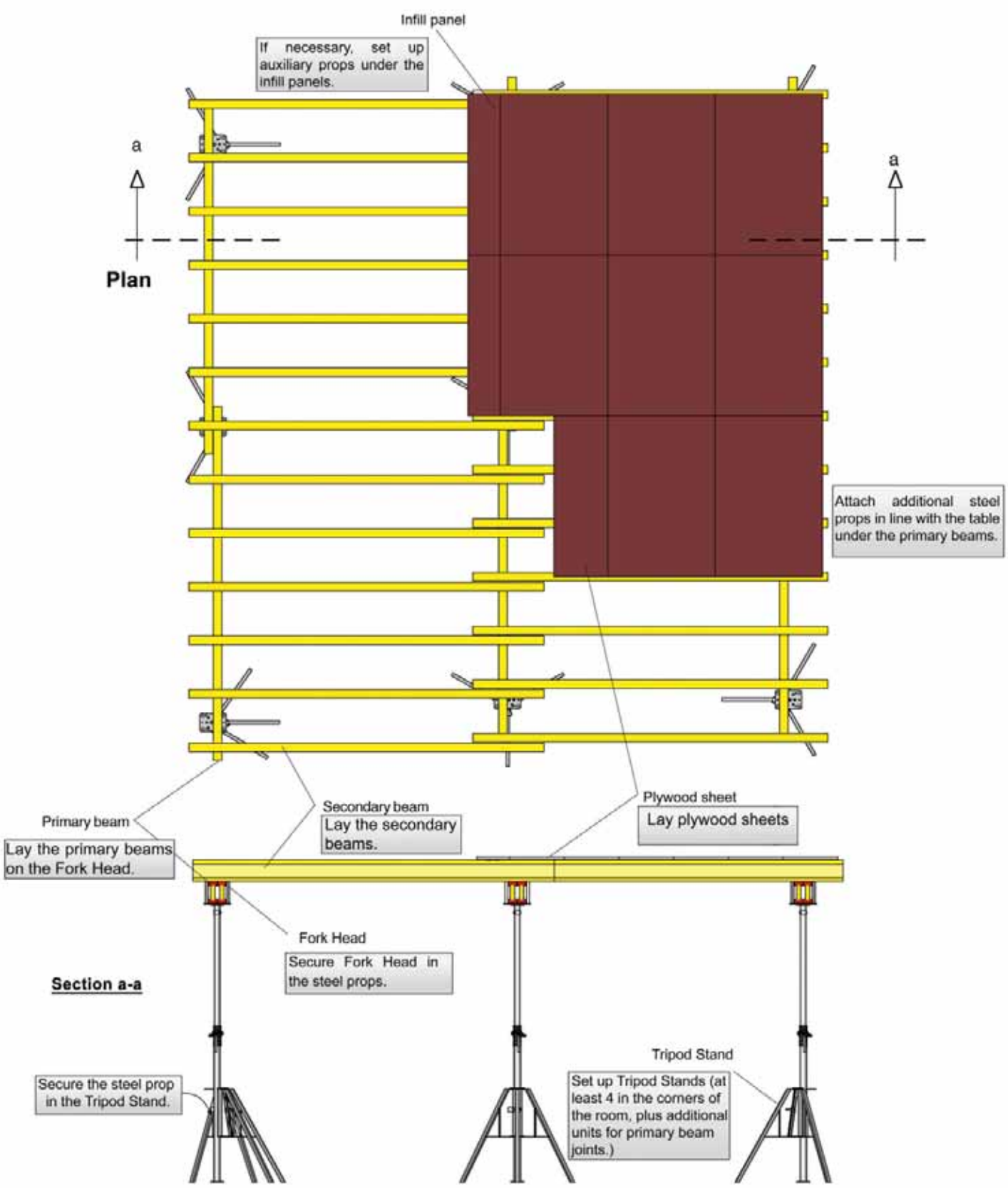
With quick -release bolts for rapid lowering by 2 mm

The inner and outer tubes, including the threads, are hot-dip galvanized steel which ensures the quality and high durability of tubular steel props from GFT

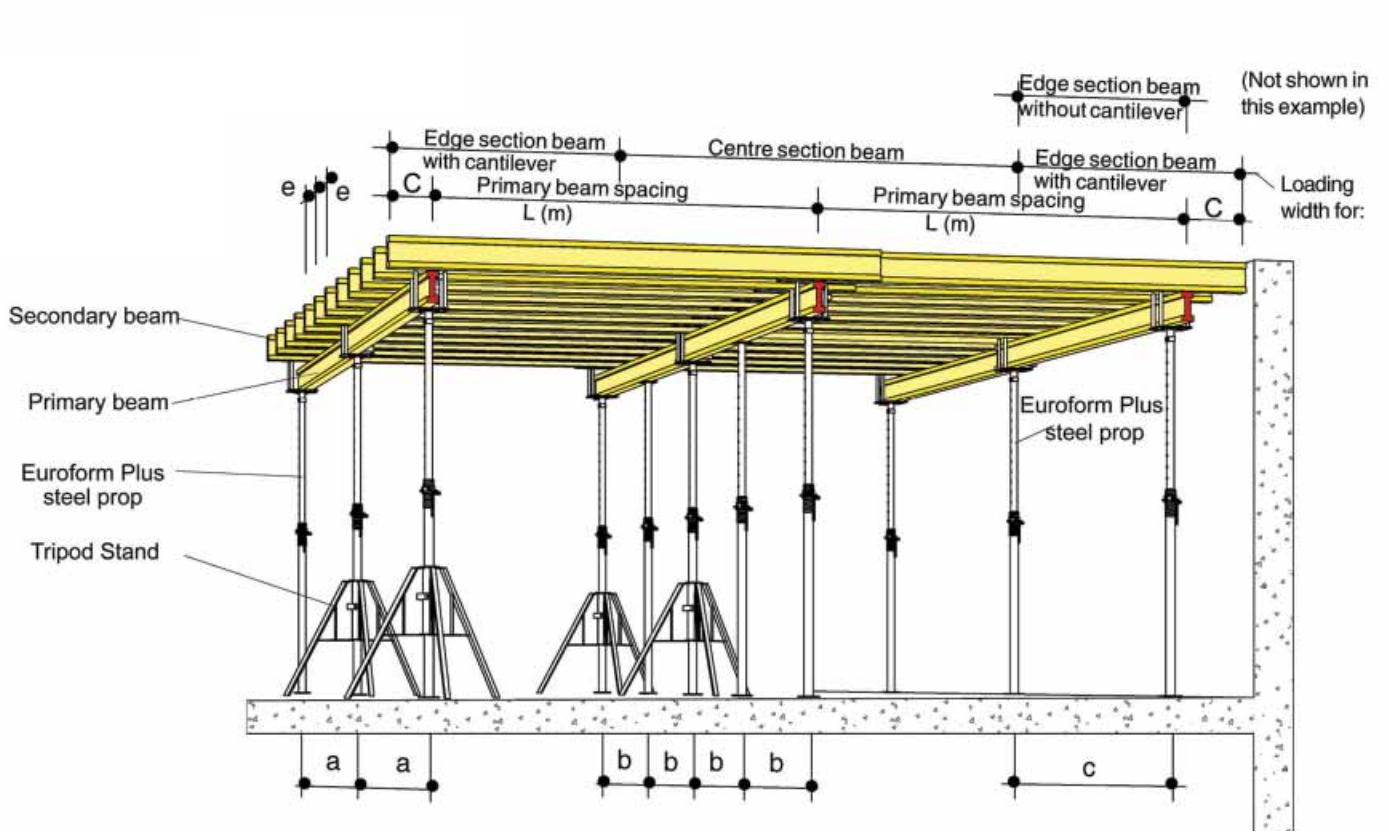
Components

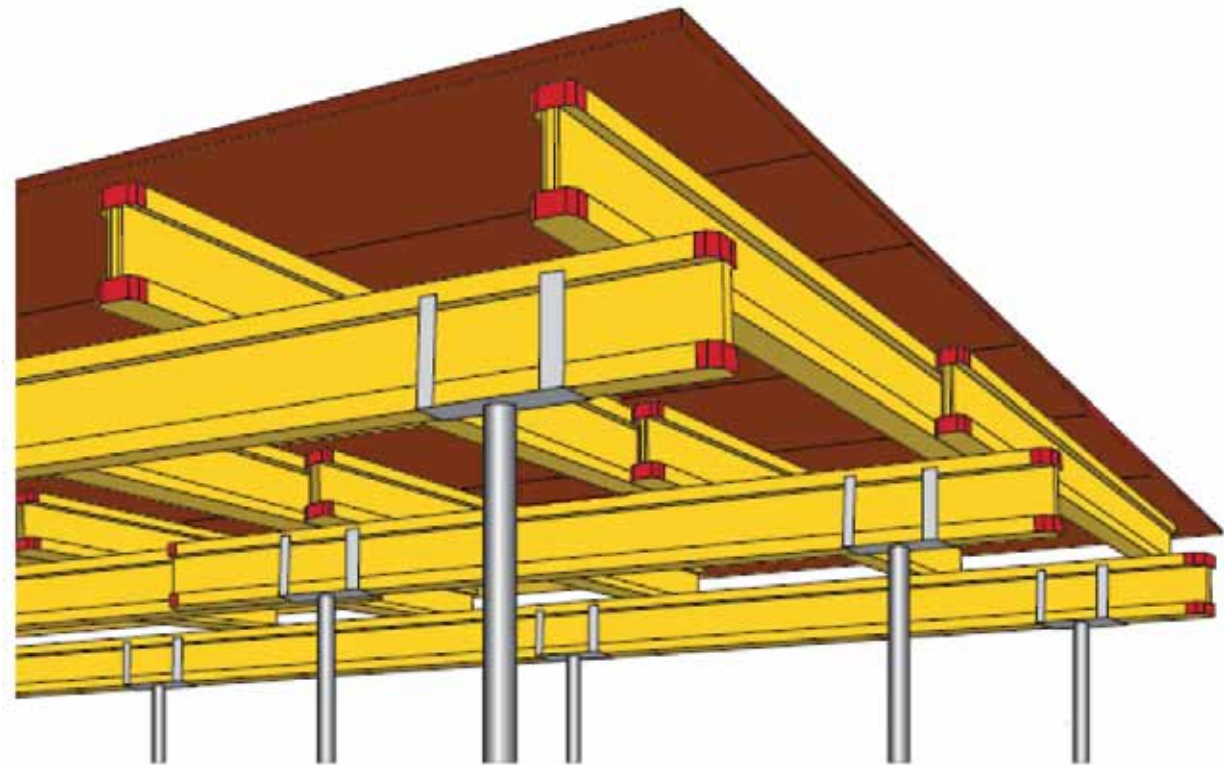
	Art. No	Weight Kg/pc.	
Tripod Stand For easy and quick erection of the Euroform Plus steel prop for slab formwork assembly used. To be used as an erection aid since it has no statical relevance. This does not replace the stiffening necessary for the supporting structure	310121	11.20	
Fork Head The Fork Head serves to keep the Primary beam in position and protects the H20 Timber Beam from falling down. It can hold 1 to 2 beams and is secured to the Euroform Plus steel prop with a T-bolt.	310122	3.0	
Bracing clamp Provides stiffening by means of shutter boards to any tubular steel prop. (For max. board thickness of 3 x 12 cm)	310129	1.6	
Assembly Fork Simplifies erection and dismantling of H20 shuttering beams.	310151	3.50	
H20 Base Shoe SQ It is fixed on the H20 Timber beam by Wedge and serves as the holding device for GFT Safety Railing Post SQ and end Shuttering.	310136	3.50	
Timber Beam Attachment - C The Timber Beam Attachment C is fixed by Wedge and serves as the holding device for the GFT Safety Railing Post C and as an alternative to Bolt Socket C.	300027	3.50	
T-Bolt Used for fixing and securing the Fork Head to the Inner Tube of the Euroform steel props.	340172	0.10	
Safety Post Inserted in the H20 base shoe and serves as guard rail to prevent falls.	310135	3.0	

Schematic Diagram



Demonstration of Slabflex



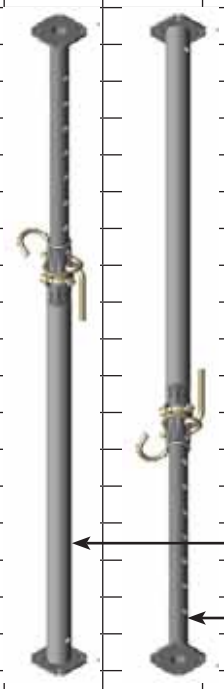


Permissible loads for steel props
20-260, 20-300, 20-350, 20-400, 20-500 and 20-550
permissible prop loads always 20kN maximum

Table A

GFT - Euroform Plus steel props
permissible prop loads [kn] for use in system-bounded arrangement for slab

Designation L_{min} - l_{max} position of inner tube (IT) L [m]	20 - 260 1.54m - 2.6m		20 - 300 1.72m - 3.00m		20 - 350 1.98m - 3.50m		20 - 400 2.24m - 4.00m		20 - 500 3.00m - 5.00m		20 - 550 3.05m - 5.50m	
	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom
1.50												
1.60	27.00	27.00										
1.70	25.80	27.00										
1.80	24.30	27.00	38.00	38.00								
1.90	23.30	27.00	38.00	38.00								
2.00	22.30	27.00	35.00	38.00	27.00	27.00						
2.10	22.00	27.00	32.00	38.00	27.00	27.00						
2.20	21.60	27.00	30.50	38.00	27.00	27.00						
2.30	21.00	27.00	29.00	38.00	27.00	27.00	30.00	30.00				
2.40	20.50	26.00	28.00	38.00	27.00	27.00	30.00	30.00				
2.50	20.30	24.00	27.00	38.00	27.00	27.00	30.00	30.00				
2.60	20.00	24.00	26.00	35.00	27.00	27.00	30.00	30.00				
2.70			25.00	32.00	27.00	27.00	30.00	30.00				
2.80			23.50	29.00	27.00	27.00	30.00	30.00				
2.90			22.00	27.00	27.00	27.00	30.00	30.00				
3.00			20.00	24.00	27.00	27.00	30.00	30.00				
3.10					27.00	27.00	30.00	30.00	38.00	38.00	38.00	38.00
3.20					27.00	27.00	30.00	30.00	38.00	38.00	38.00	38.00
3.30					26.50	27.00	30.00	30.00	38.00	38.00	38.00	38.00
3.40					25.00	27.00	29.35	30.00	38.00	38.00	38.00	38.00
3.50					20.00	27.00	29.10	30.00	38.00	38.00	37.50	38.00
3.60							27.05	30.00	37.50	38.00	37.50	38.00
3.70							26.00	30.00	37.50	38.00	37.50	38.00
3.80							24.50	30.00	37.50	38.00	37.50	38.00
3.90							23.50	28.00	37.50	38.00	37.50	38.00
4.00							22.00	26.00	37.50	38.00	37.50	38.00
4.10							20.00	24.00	37.00	38.00	37.00	38.00
4.20									37.00	38.00	36.50	38.00
4.30									35.50	38.00	36.00	38.00
4.40									34.00	38.00	34.00	38.00
4.50									32.50	38.00	32.50	38.00
4.60									31.00	38.00	31.82	38.00
4.70									29.50	35.50	29.50	36.00
4.80									27.00	33.50	27.00	34.00
4.90									26.00	31.00	25.50	31.50
5.00									20.00	29.50	25.00	30.00
5.10											24.50	28.00
5.20											23.50	27.00
5.30											22.70	26.00
5.40											21.50	24.00
5.50											20.00	23.00



Permissible loads for steel props
30-260, 30-300, 30-350 and 30-400

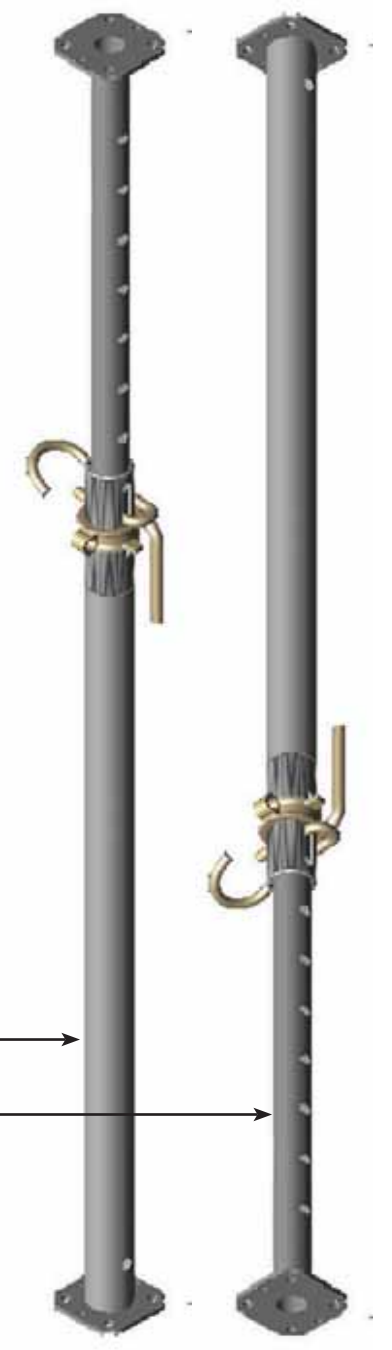
permissible prop loads always 30kN maximum

Table B

GFT - Euroform Plus steel props

permissible prop loads [kn] for use in system-bounded arrangement for slab

Designation L_{min} - l_{max} position of inner tube (IT) L [m]	30 - 260 1.54m - 2.60m		30 - 300 1.72m - 3.00m		30 - 350 1.98m - 3.50m		30 - 400 2.24m - 4.00m	
	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom	Outer Tube Bottom	Inner Tube Bottom
1.50								
1.60	32.00	33.00						
1.70	32.00	33.00						
1.80	32.00	33.00	36.00	36.00				
1.90	32.00	32.00	36.00	36.00				
2.00	32.00	32.00	36.00	36.00	48.00	48.00		
2.10	32.00	32.00	36.00	36.00	48.00	48.00		
2.20	32.00	32.00	36.00	36.00	48.00	48.00		
2.30	31.50	32.00	36.00	36.00	48.00	48.00	36.00	36.00
2.40	31.00	32.00	35.50	36.00	48.00	48.00	36.00	36.00
2.50	31.00	32.00	35.00	36.00	46.50	48.00	36.00	36.00
2.60	30.00	32.00	34.50	36.00	45.50	48.00	36.00	36.00
2.70			34.00	36.00	44.00	48.00	36.00	36.00
2.80			33.00	36.00	42.50	46.50	36.00	36.00
2.90			32.00	36.00	41.50	46.00	36.00	36.00
3.00			30.00	36.00	40.50	44.00	36.00	36.00
3.10					39.00	43.00	36.00	36.00
3.20					37.00	40.50	36.00	36.00
3.30					34.50	35.50	36.00	36.00
3.40					32.50	35.05	36.00	36.00
3.50					30.00	32.00	36.00	36.00
3.60							36.00	36.00
3.70							36.00	36.00
3.80							36.00	36.00
3.90							33.00	36.00
4.00							30.00	36.00
4.10								
4.20								
4.30								
4.40								
4.50								
4.60					Outer Tube Bottom →			
4.70								
4.80					Inner Tube Bottom →			
4.90								
5.00								
5.10								
5.20								
5.30								
5.40								
5.50								

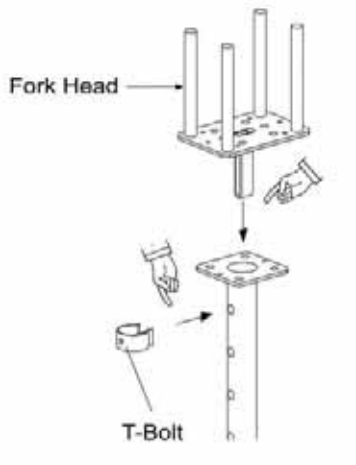


Erection Procedure

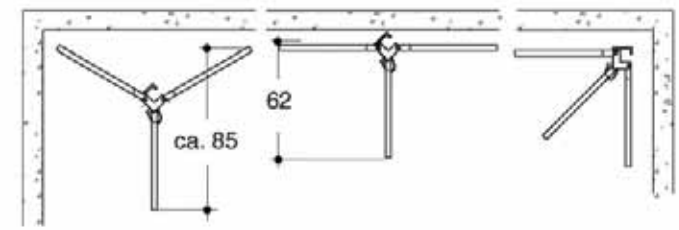
Steel Prop with Fork Head

The Fork Heads must be fixed to the tubular steel props by means of a T-Bolt.

The Fork Head has a 2-way design. This means that in one position, one timber beam, and in another position, two timber beams can be placed in the head (assuming an 8 cm standard beam width).



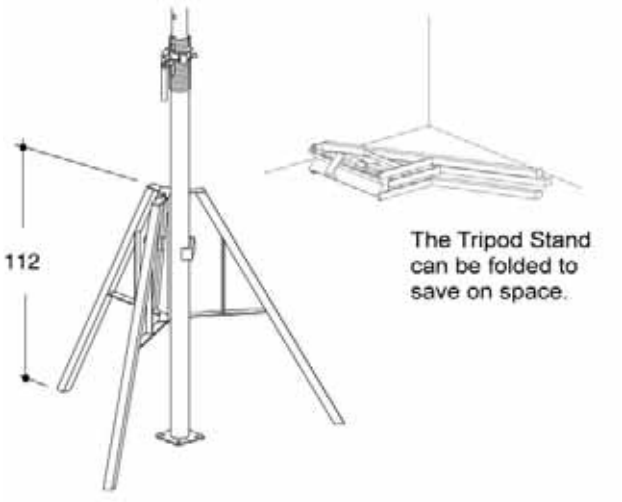
The supporting legs of the Tripod Stand allow a flexible and optimal arrangement even in the corners of the structure.

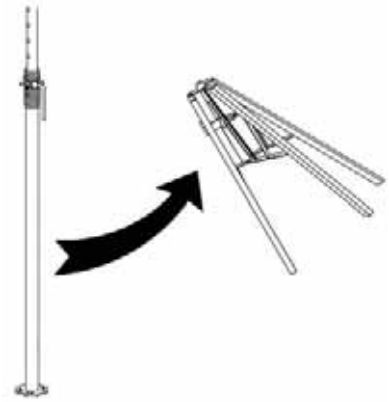


Steel Prop with Tripod Stand

The Tripod Stand simplifies the erection of the tubular steel props. The steel prop is simply set in the open stand and secured through the clamping loop by a gentle blow of the hammer. The Tripod Stand can be used with various types of steel props.

After the slab formwork has been completely erected on the construction site, the Tripod Stand can then be removed and placed in the next erection site. It only serves as a support and erection aid in assembling the slab formwork system, they must remain in place at the end of each primary beam until the system tied into the existing vertical structural elements “such as column and wall” and the lateral bracing has been installed when necessary.





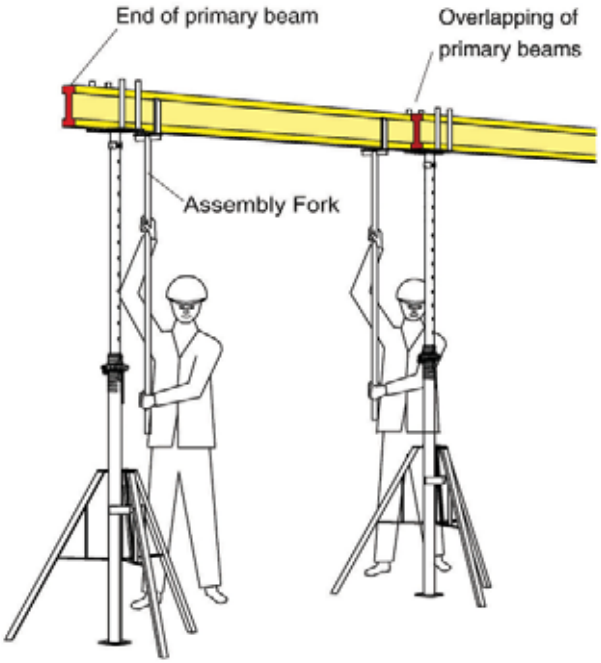
Erection Procedure

Erecting the Primary Beams

The erection of the Slabflex Formwork begins by setting up the primary beams.

Prior to placing the steel props in position, the props are set at roughly the required support height on the ground. The Fork Heads are fixed on the steel props which are then stood up in place and stabilized using tripod stands. After this, the H20 Timber Beams are placed in the Fork Heads of the steel prop. This is made easier and faster by means of the Assembly Fork. Fork head should be used under the primary beam ends and in the case of joint beams, under the joints as well.

The remaining steel props should then be put in place according to the corresponding design and static requirements.



Placing the Secondary Beams

The distance between the secondary beams must be calculated in line with the statical requirements and according to the loading .

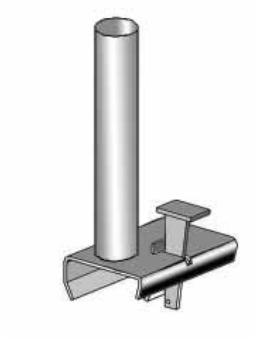
One beam must be placed under each joint of the plywood sheet.

Fixing the Plywood Sheet

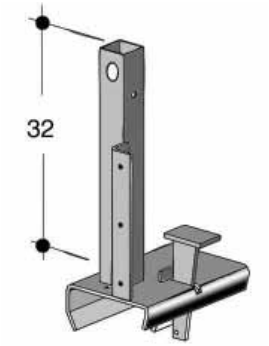
The plywood sheets are fixed on top of the secondary beams and tacked in place. The rigid shuttering structure must be braced against existing structural parts such as columns, shear walls and core walls.

H20 Base Shoe & Timber Beam Attachment-C and Safety Post

The H20 Base Shoe SQ or Timber Beam Attachment - C, with its simple and effective wedge connection, can be fixed at any place on the H20 Timber Beam. It is equipped with a socket for the Safety Post. The H20 Base Shoe SQ and Timber Beam Attachment - C can also be used as a supporting bracket for shuttering the stopend of a slab or an integrated beam.



Timber Beam Attachment - C



H20 Base Shoe SQ

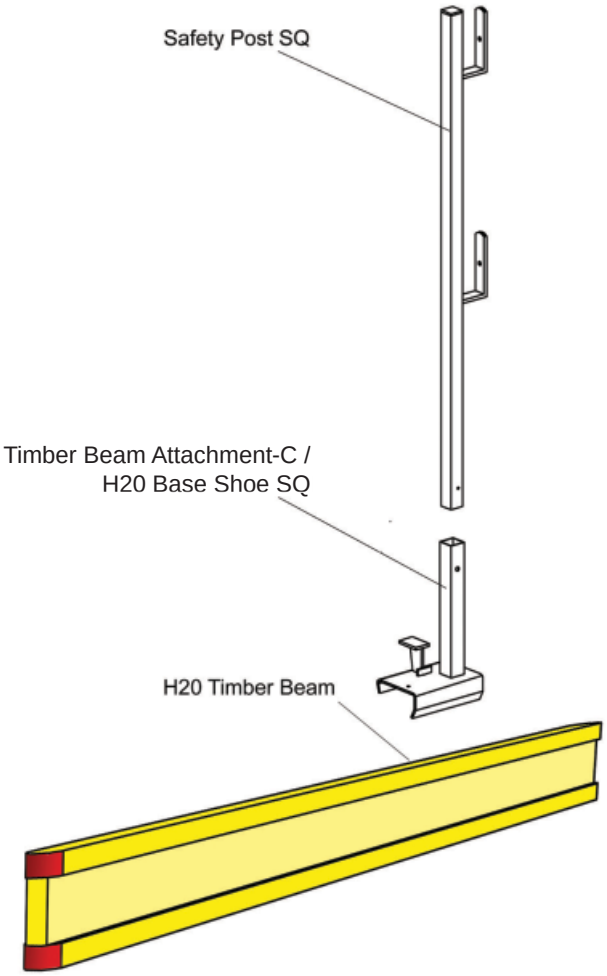
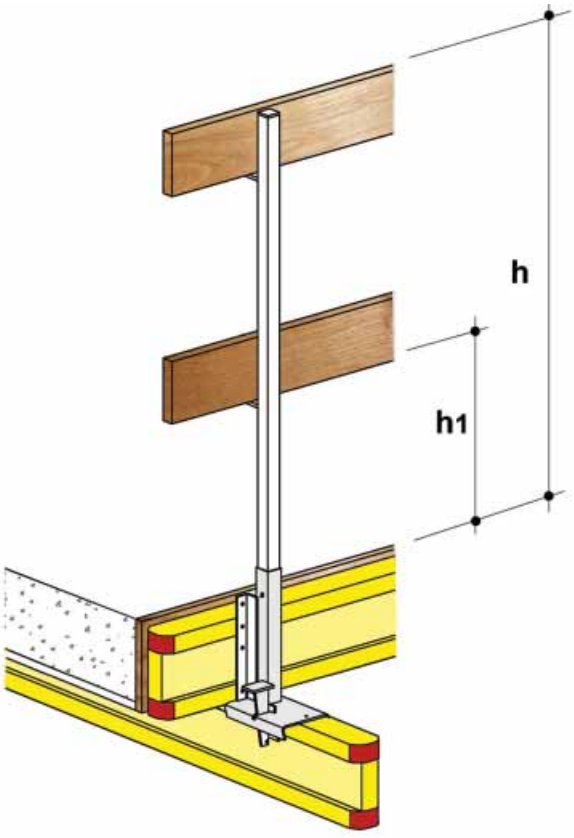


Illustration 1 and 2 below shows shuttering of the stopend of a slab which also serves as a safety guard and two possible Safety Post positions in the guard rail.



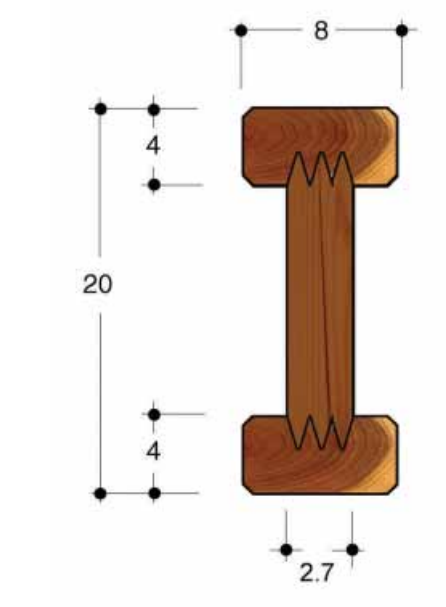
(2) Post position on finished slab

Defined Calculation Factor

1. Statical figures for H20 Timber Beam

perm. M	**=**	**5.00 kNm**
perm. Q	**=**	**11.00kN**
E I	**=**	**5.00 kNm²**

2. Dimension (cm)



3. Technical Specifications

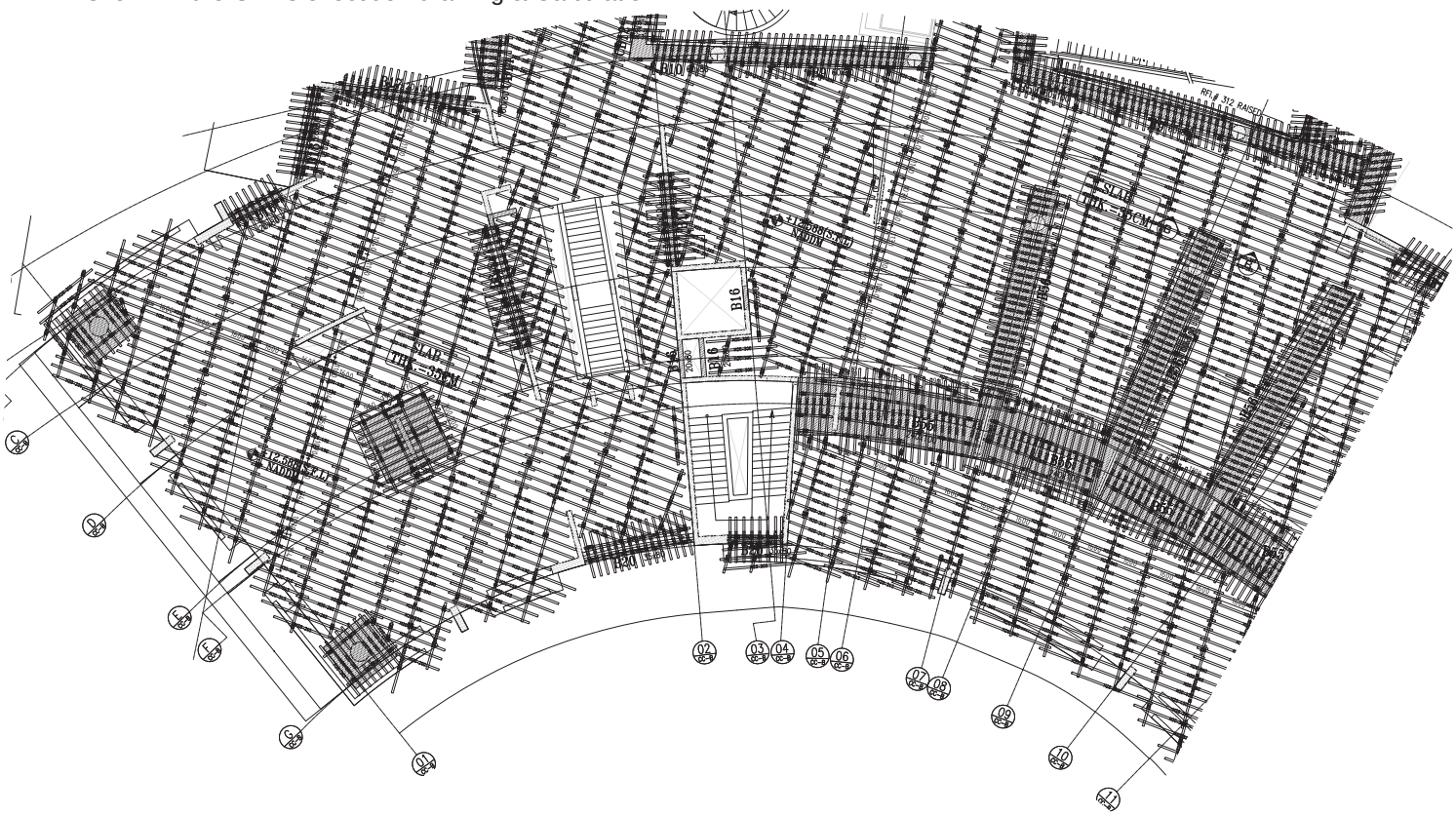
Dimensions

Height	200 mm	+/-2 mm
Flange width	80 mm	+/-1.5%
Flange depth	40 mm	+/- 1.5%
Web thickness	26.8 mm	+/- 0.5 mm

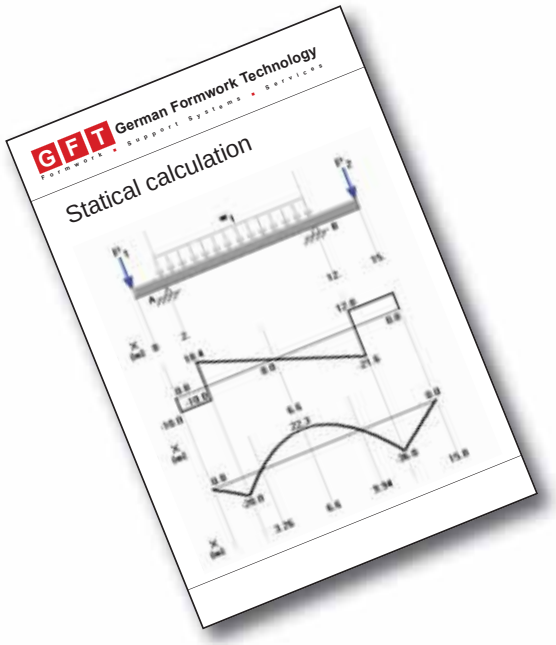
Weight

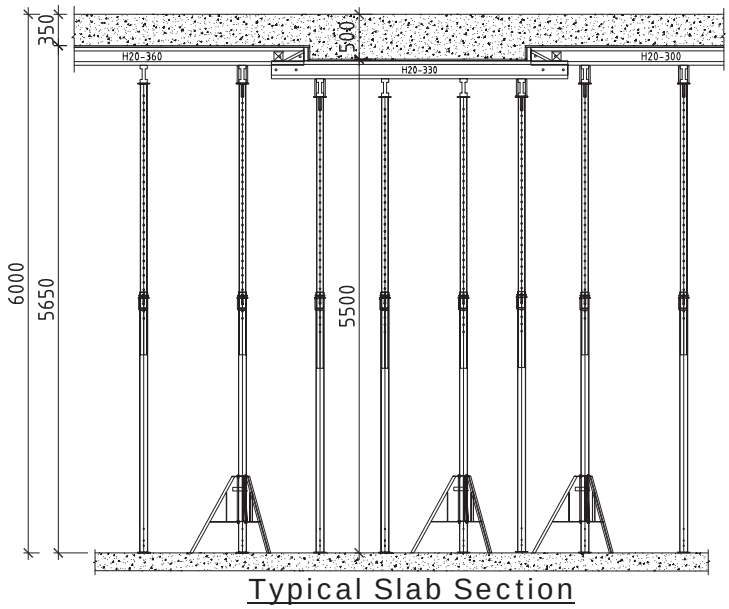
Weight	4.8 kg/m approx. 12 & wood moisture

A. All the Shop drawing, Technical data & the Statical calculation will be Submitted by GFT in accordance with the structural drawing project requirement
B. The site erection should be done as per GFT's shop drawing and shall be supervised and inspected by GFT's formwork specialist
C. The spacing and positioning of the Formwork material are arranged based on the statical requirements and as shown in the GFT's execution drawing & Calculation

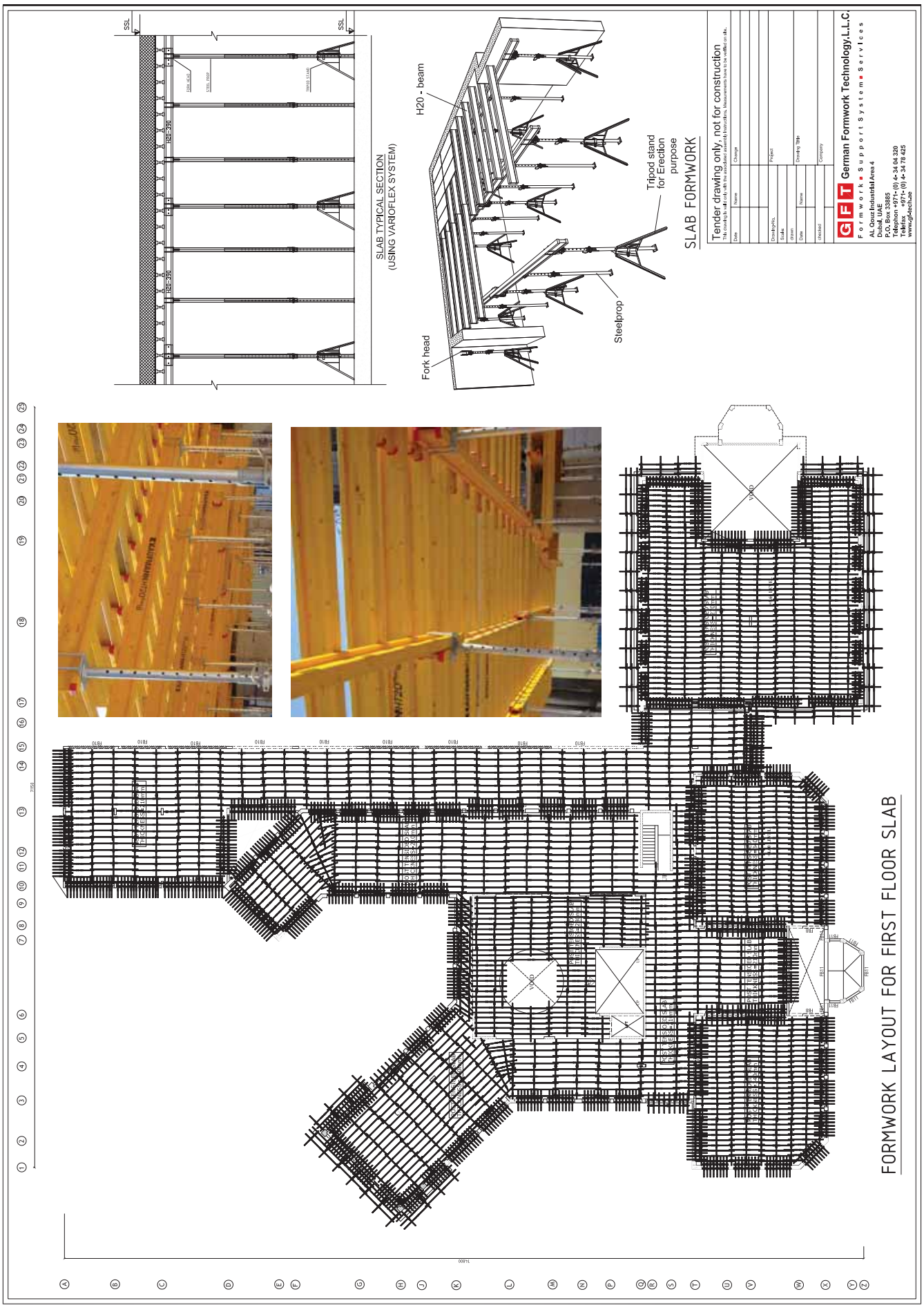


Formwork Layout using Slabflex Formwork System





Typical Slab Section


SSL
SSL
SLAB TYPICAL SECTION
(USING VARIOFLEX SYSTEM)
H20 - beam
Tripod stand
for Erection
purpose
Steelprop
Fork head
SLAB FORMWORK
Tender drawing only, not for construction
German Formwork Technology.L.L.C.
Formwork • Support System • Services
AL Quoz Industrial Area 4
Dubai, UAE
P.O. Box 33885
Telephon +971-(0) 4-34 04 320
Telefax +971-(0) 4-34 78 425
www.gft-tech.ae
FORMWORK LAYOUT FOR FIRST FLOOR SLAB

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