



**FlyForms International L.L.C.**

Formwork Solutions

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# FF20 Shoring Tower System

Assembly and Application Guide

# Product Information and Features

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## Product Information

The FF20 Support Tower is a load-bearing tower with base dimensions of 1.00m x 1.00m. By using only 5 different standard components, any required tower height can be assembled. Referring to the table of combinations on page no. 13, it is clearly shown which individual items and quantities are needed to assemble the FF20 support tower according to the required height.

All individual components are hot-dip galvanized. The dead load of a FF20 support tower is 42 kg/rising meter which includes Head and Base Jacks.

In order to allow adaptations to an inclined surface the bearing plates of the head and base jacks can tilt to allow for up to 6% incline. The total adjustment range of the Head and Base Jacks is almost 60 cm.

Both vertical frames 100 and 133 require only one type of FF20 Diagonal as bracing. Owing to the required assembly procedure, the same rigidity in all vertical planes of the tower is achieved by changing the position of frames by 90° from lift to lift.

All vertical and end frames are connected using the tension proof built-in quick-fastening connectors.

The post of the vertical frames consists of 48.3 mm dia. tube which allows mounting of bracing by common scaffold tubes with a Rigid or Swivel Coupler 48/48. The towers may have to be stabilized by horizontal anchoring at certain levels depending on the total tower height.

Details of the vertical distances for this type of stabilizing method can be taken from the relevant load tables.

The FF20 Formwork System is designed and manufactured in accordance with BS EN 12182 : 2008, code of practice for Falsework

## Product Features

- A. Easy assembly - using only 5 different FF20 components makes the assembly of the FF20 support tower quick and easy. The heaviest part (FF20 Frame 133) weighs 19.1 kg only.
- B. Horizontal assembly - the design of the individual components of the FF20 support tower allows the assembly of the tower safely on the ground in horizontal position. The FF20 support tower can be safely assembled horizontally, lifted by crane and placed into position.
- C. Application alternatives - due to its versatility, the FF20 support tower offers various possibilities of application in various fields of construction such as industrial, housing and bridge construction etc.
- D. Combination variations - due to high flexibility of the FF20 support tower, the system can be combined with additional supporting frames which are closely attached to the tower in order to transfer high loads safely into the ground. The system ensures an extremely high adaptation to all structural shapes and situations.
- E. Galvanization - to ensure the high quality of the FF20 support tower, all individual components are hot-dip galvanized. Due to this, cleaning and maintenance costs are considerably low.
- F. Design approval - using the FF20 support tower allows a maximum load-bearing capacity of up to  $4 \times 50 \text{ kN} = 200 \text{ kN}$ . The project and design related permissible vertical and horizontal loads should be taken directly from the design calculations and drawings issued by FFI technical department from each specification application

## Important Remark

The succeeding instructions for assembly and application has to be carefully read as it contains detailed information on the proper application and handling of the FF20 support tower. All instructions concerning technical operation and function have to be observed carefully.

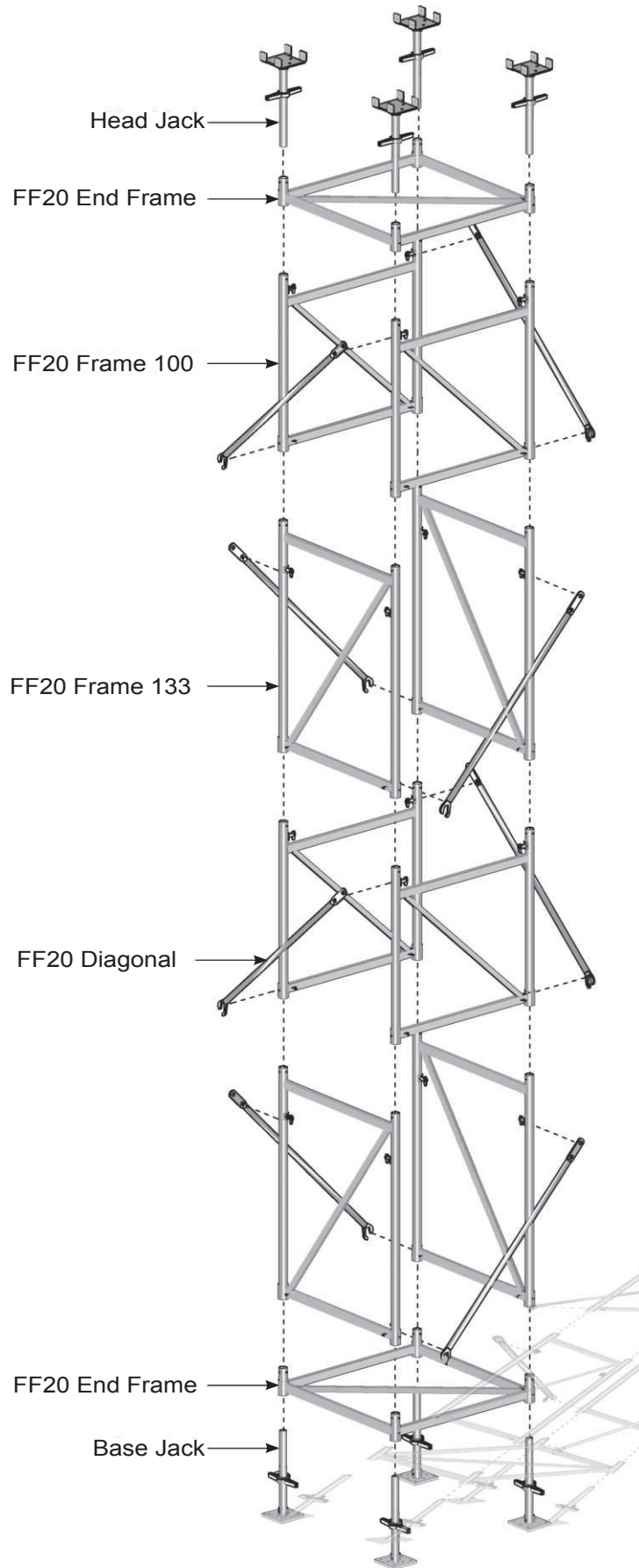
In order to ensure a technical and safe use of our product, all relevant national safety rules and regulations and safety instructions of national institutes and/or local authorities have to be observed. In general, only undamaged material and components which are in proper condition must be used.

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

The use of FFI 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 FFI reserves the right to revise, change, or modify any of the product's components at any time without prior notice.

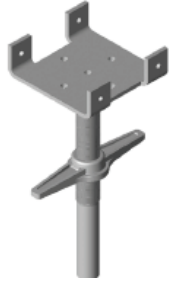




# Product Overview





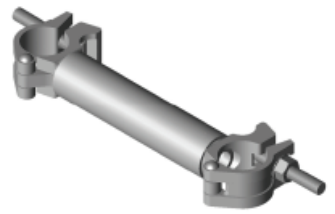

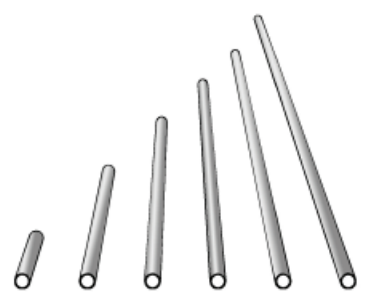

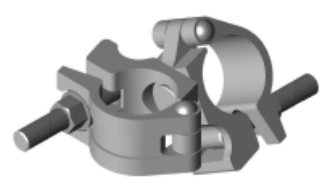


# Components

FF20 support towers for required construction heights can be assembled using five major components of the basic equipment. Reference must always be made to the design approval of FF20 with End Frame.

	Art. No	Weight Kg/pc.	
<p><b>Head Jack 38/52</b></p> <p>For positioning and bearing timber and or steel beams. Slope of up to 6% can be compensated by the head plate.</p> <p><b>Height adjustment:</b> from 8 cm to 29.5 cm</p>	703HJS52	8.2	
<p><b>Base Jack 38/52</b></p> <p>Used for the assembly of the FF20 support towers. The tower always has to be based on solid ground. Slope of up to 6% can be compensated by the base plate.</p> <p><b>Height adjustment:</b> from 8.7 cm to 30 cm</p>	703BJS52	8.0	
<p><b>FF20 Frame 133</b> <b>FF20 Frame 100</b></p> <p>All vertical and end frames are connected tension proof by the tightly integrated wedges of the quick fastening connectors. Pins with gravity flips are supplied for fixing the diagonals.</p> <p><b>Design height of frame:</b> 100 cm or 133.5 cm.</p>	703MF133 703MF100	19.1 16.1	
<p><b>FF20 Diagonal</b></p> <p>Used as bracing for both FF20 Frame 100 and FF20 Frame 133. The upper end is attached to the hinged pin of the frame and the lower end with the clasp is attached to the bottom bar of the plane.</p>	703CB144	2.8	
<p><b>FF20 End Frame</b></p> <p>The FF20 End Frame serves as a sectional bracing of the frame support tower to stabilize and to ensure the square shape of 1.00 m. For each tower, at least two FF20 End Frames ( one at the top and one at the base ) are required.</p> <p><b>Installation height at the base:</b> 16cm <b>Installation height at the top:</b> 9cm</p>	703EF100	15.8	

# Components

	Art. No	Weight Kg/pc.																															
<p><b>Adjustment Frame 33</b></p> <p>Used for adjusting the FF20 support tower height. It makes the adjustments of the tower height even more flexible.</p> <p>Frame Structural height: 33.5 cm.</p>	703AF033	8.8																															
<p><b>FF20 Diagonal 33</b></p> <p>Used for bracing of the FF20 Adjustment Frame 33. The lower part is fixed with the pin in the hole of the horizontal bottom bar of the frame and the upper part is fixed to the hinged pin of the opposite frame.</p>	703DB033	1.9																															
<p><b>Frame Connection 27</b></p> <p>Used for the connection of an additional vertical frames panel to the FF20 support tower. The distance of legs from center to center is 27cm.</p>	703FC027	2.2																															
<p><b>FF20 Base Jack Retainer</b></p> <p>It is fixed to the bottom of the FF20 End Frame and to the Base Jacks in order to prevent the Base Jacks from falling out when towers are raised and shifted by crane.</p> <p>Scaffold tubes 48.3 x 3.2 mm for bracing.</p>	703JR010	0.1																															
<p><b>Scaffold Tubes</b></p> <table border="0"> <tr><td>Scaffold Tube 50</td><td>301BP050</td><td>1.9</td></tr> <tr><td>Scaffold Tube 100</td><td>301BP100</td><td>3.8</td></tr> <tr><td>Scaffold Tube 150</td><td>301BP150</td><td>5.7</td></tr> <tr><td>Scaffold Tube 200</td><td>301BP200</td><td>7.6</td></tr> <tr><td>Scaffold Tube 250</td><td>301BP250</td><td>9.5</td></tr> <tr><td>Scaffold Tube 300</td><td>301BP300</td><td>11.4</td></tr> <tr><td>Scaffold Tube 350</td><td>301BP350</td><td>13.3</td></tr> <tr><td>Scaffold Tube 400</td><td>301BP400</td><td>15.2</td></tr> <tr><td>Scaffold Tube 450</td><td>301BP450</td><td>17.1</td></tr> <tr><td>Scaffold Tube 500</td><td>301BP500</td><td>19.0</td></tr> </table>	Scaffold Tube 50	301BP050	1.9	Scaffold Tube 100	301BP100	3.8	Scaffold Tube 150	301BP150	5.7	Scaffold Tube 200	301BP200	7.6	Scaffold Tube 250	301BP250	9.5	Scaffold Tube 300	301BP300	11.4	Scaffold Tube 350	301BP350	13.3	Scaffold Tube 400	301BP400	15.2	Scaffold Tube 450	301BP450	17.1	Scaffold Tube 500	301BP500	19.0			
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Scaffold Tube 400	301BP400	15.2																															
Scaffold Tube 450	301BP450	17.1																															
Scaffold Tube 500	301BP500	19.0																															
<p><b>Rigid Coupler 48/48 (w.a.f. 22)</b> <b>Rigid Coupler 48/48 (w.a.f. 19)</b></p> <p>Permissible Load : 9 kN Required torque : 5 kNcm</p>	301RC048 301RC480	1.2 1.2																															
<p><b>Swivel Coupler 48/48 w.a.f. 22)</b> <b>Swivel Coupler 48/48 w.a.f. 19)</b></p> <p>Permissible Load : 5 kN Required torque : 5 kNcm</p>	301SC048 301SC480	1.2 1.2																															

# Erection and Dismantling

## Guidelines and Instructions

- A. Pre-assemble the FF20 support towers according to the required height combinations and the planned assembly sequence.
- B. Adjustment of the Head and Base Jacks should be done roughly to the requested extension height. The Head Jack must have enough reserve adjustment length to quickly release it from its load when dismantling the towers.
- C. When lifting the pre-assembled towers into position by crane, attach the crane ropes to the horizontal members of the upper frames. Please note that neither the FF20 End Frame nor the Head Jacks should not be used for lifting.
- D. Base Jacks may only stand on a solid and sturdy foundation. The maximum allowable inclination is up to a maximum of 6%.
- E. During erection of the towers, make sure that the vertical Frames 100 and 133 are installed perpendicularly.
- F. Install bracing by Scaffold Tubes and Couplers in order to take horizontal forces, if required, as governed by design.
- G. During erection and striking, it is important to consider simple auxiliary bracing or any other type of provisions in order to avoid tilting the FF20 support towers. In most cases, the installation of horizontal Scaffold Tubes which are connected to the adjacent legs of towers by means of Rigid/Swivel Couplers 48/48 may be adequate. Due to structural requirements, it is advisable to fix the Scaffold Tube of the bracing as close as possible to existing structural parts such as walls or columns for safe transmittal of forces. Also, a single support tower has to be stabilized to the ground by Scaffold Tubes and Couplers.
- H. It is recommended to carry out the final height adjustment (leveling) at the Head Jacks after placing the primary beams into position. Since the Head Jack can adapt up to a 6% inclination, greater inclinations have to be compensated by means of wooden wedges or leveling steel plates.
- I. All aspect of the approval and structural computation has to be followed.

## Dismantling:

For lowering the support system, it is advisable to release first the Head Jacks of the tower.

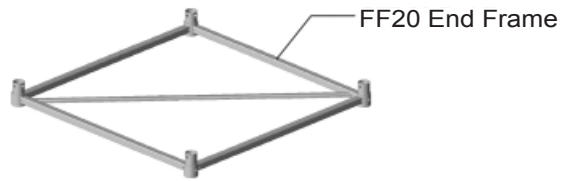
The dismantling of the frame support can be started after the H20 Timber Beams and/or steel beams/lattice girders have been removed from the top of the lowered support towers.

Dismantling of the tower in an upright position starts by removing the Head Jacks and by releasing and taking away one component after the other.

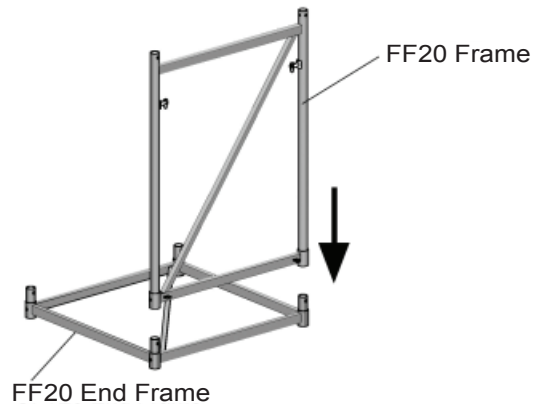


# Erection Sequence

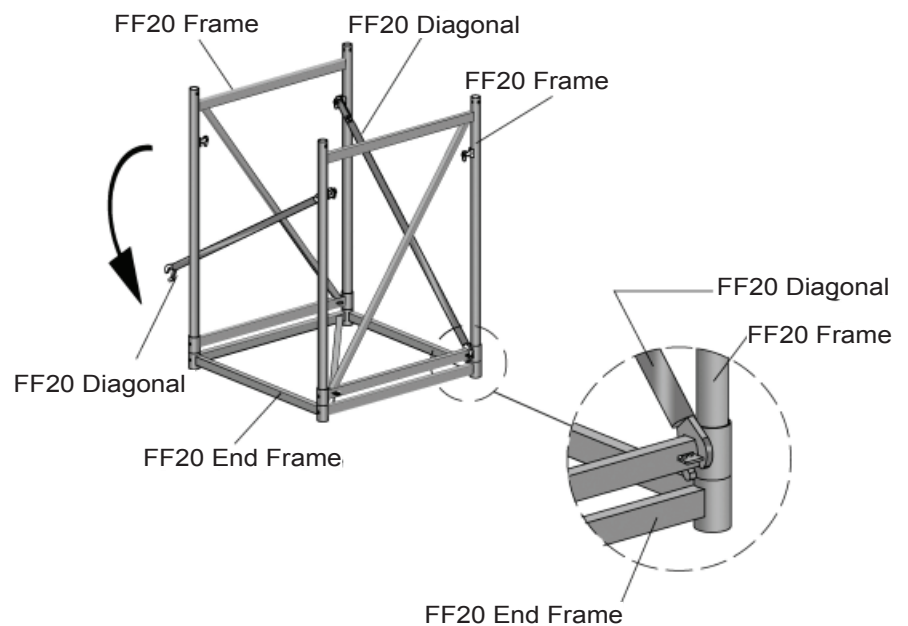
- A.** Place the FF20 End Frame on an even assembly ground within the working range of the crane.



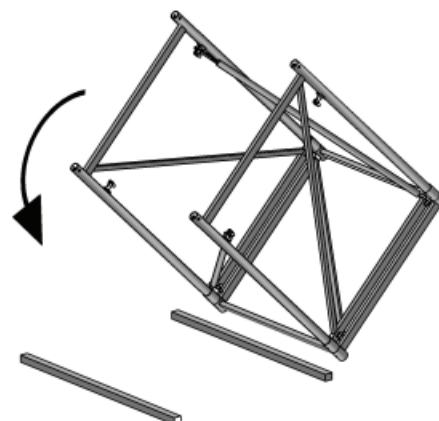
- B.** Insert 2 frames into the FF20 End Frame and lock them by means of the quick-fastening connectors



- C.** Fix the FF20 Diagonal with its lower end over the horizontal member of the vertical frame.



- D.** Turn the assembled unit on its side in order to complete assembly in a horizontal and safe manner.





# Erection Sequence

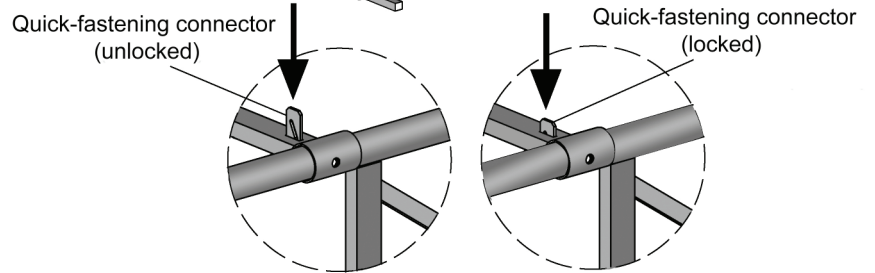
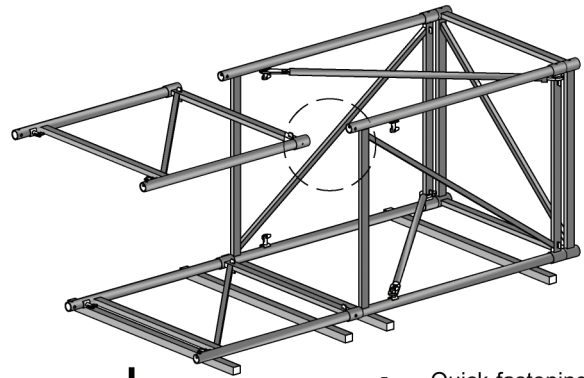
- E** Fix further horizontal frames and lock them with quick-fastening connectors.

**Note**

Prior to lifting into position the pre-assembled towers by crane, make sure the crane ropes are attached to the horizontal members of the upper frames.

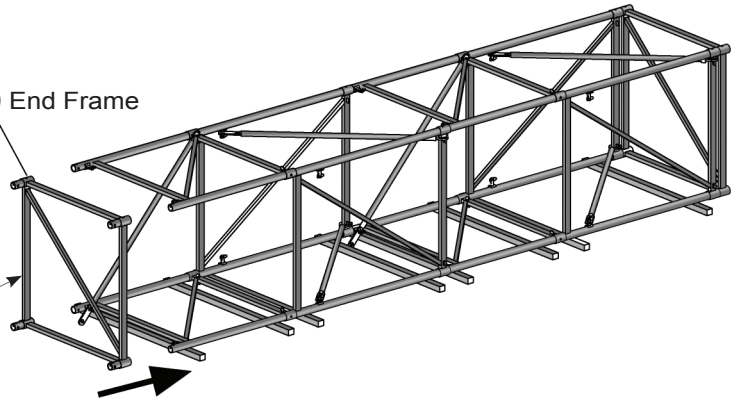
**Attention**

Prior to lifting into position the pre-assembled towers by crane, make sure the crane ropes are attached to the horizontal members of the upper frame

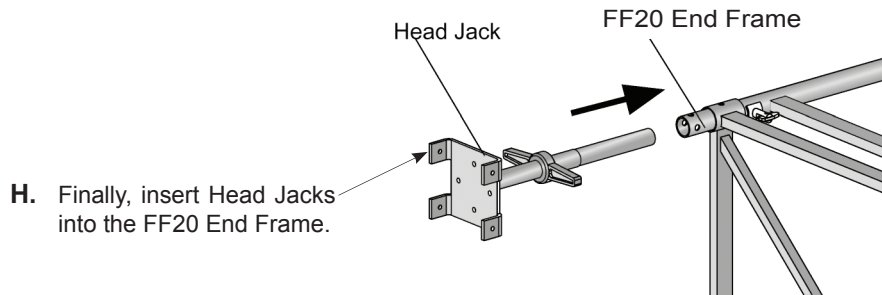


- F** Continue attaching additional vertical frames as described previously until the required combination height has been reached.

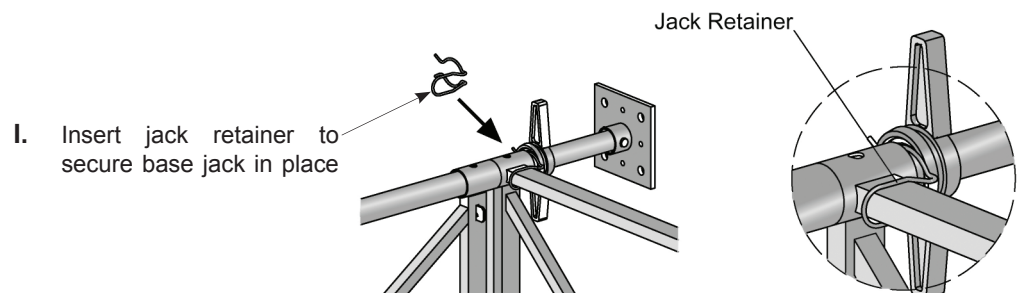
FF20 End Frame



- G.** Fix FF20 End Frame on the last 2 vertical frames.



- H.** Finally, insert Head Jacks into the FF20 End Frame.

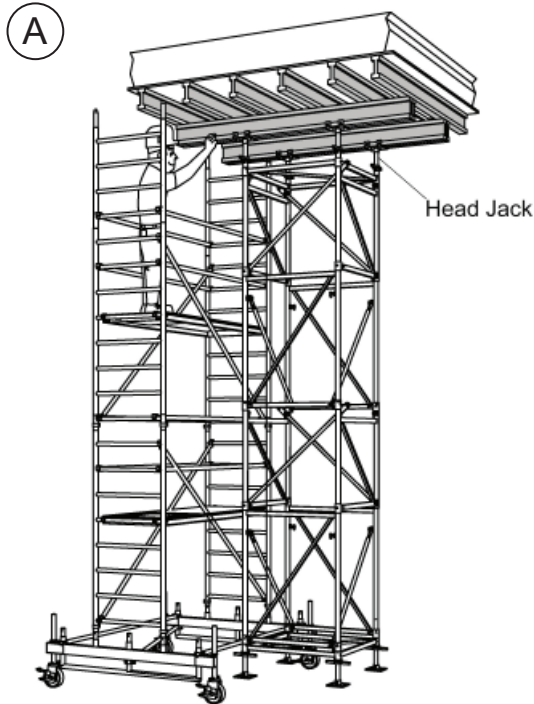


- I.** Insert jack retainer to secure base jack in place

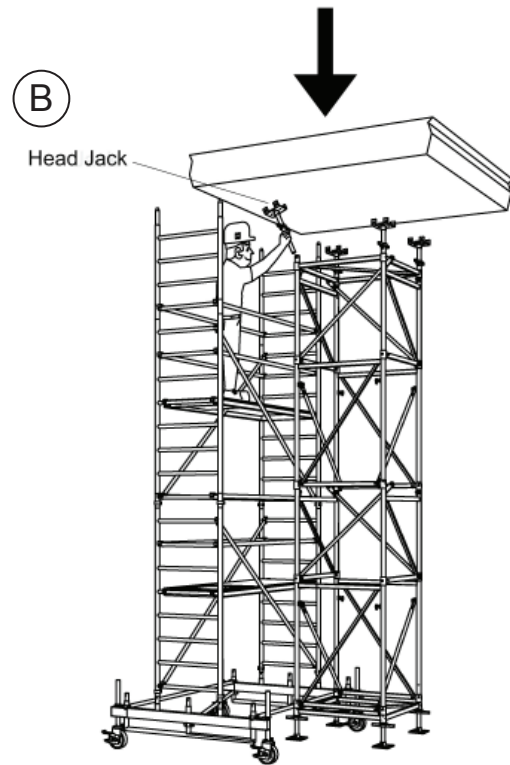


# Dismantling

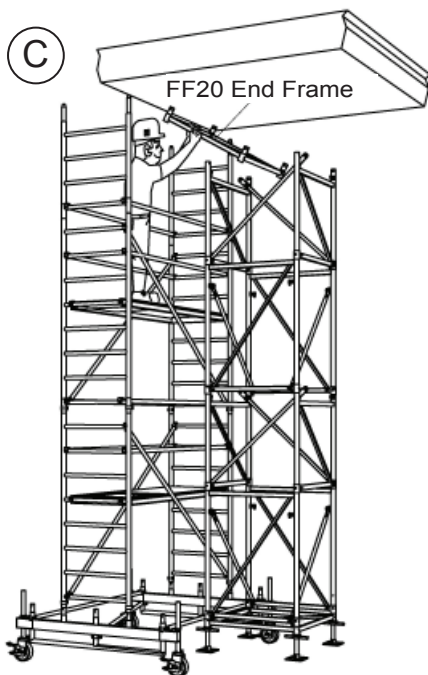
It is advisable to carry out assembly and dismantling works from mobile scaffolding or from a working platform



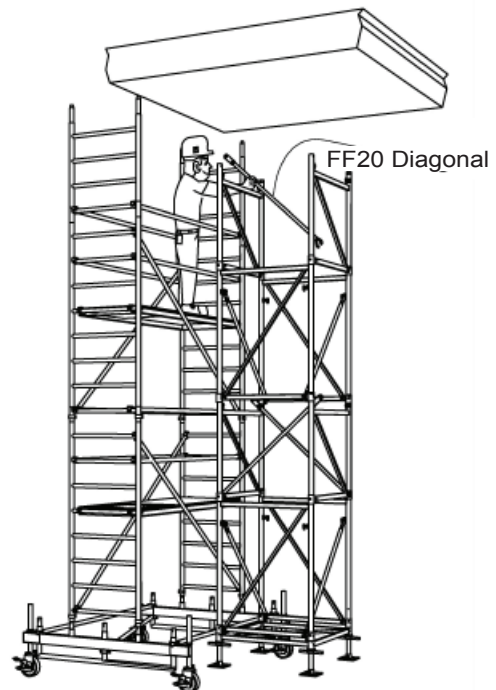
**Step A:** Dismantling starts by lowering the Head Jacks. The supported slab formwork has to be removed in accordance with the assembly and use guide of the formwork system applied.



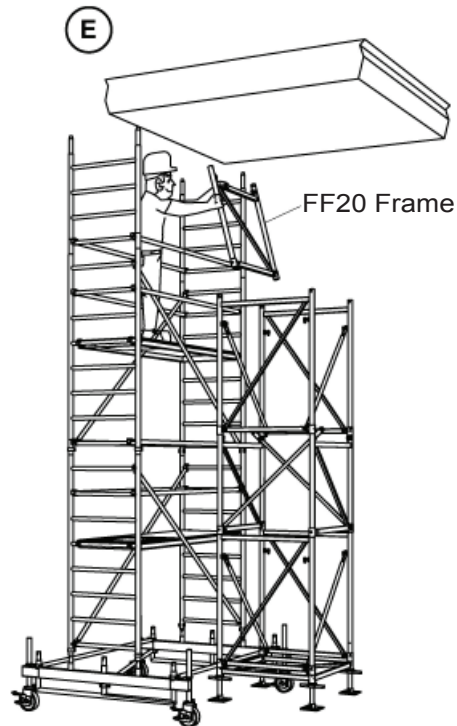
**Step B:** Dismantling of Head Jack



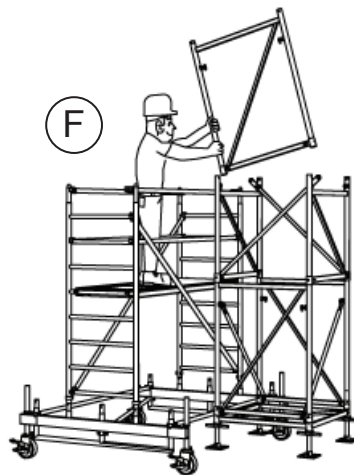
**Step C:** Dismantling of FF20 End Frame



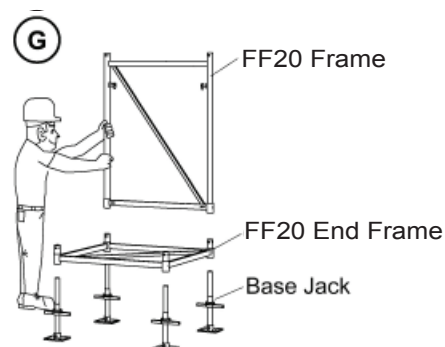
**Step D:** Dismantling of FF20 Diagonal



**Step E:** Dismantling of FF20 Frame



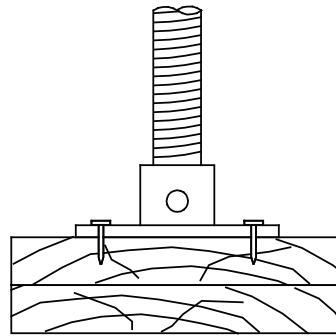
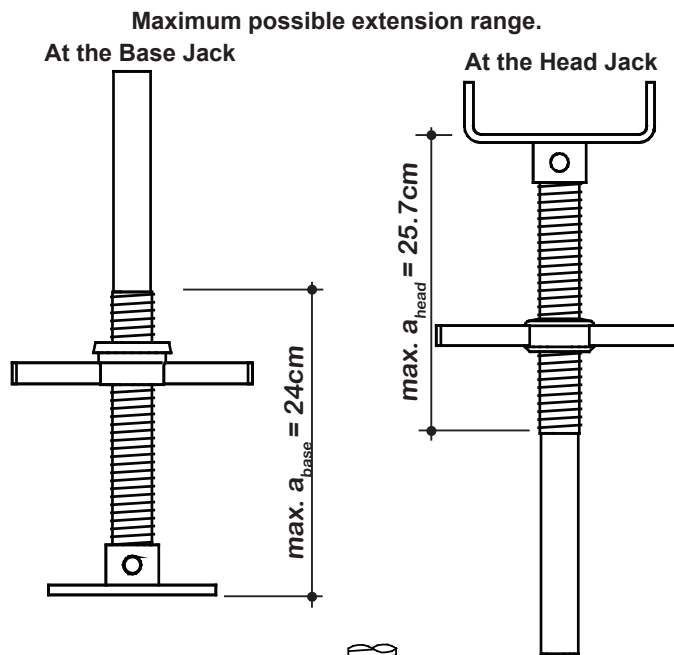
**Step F:** The working height of the mobile scaffolding has to be adopted to the required height for all operations during erection and dismantling.



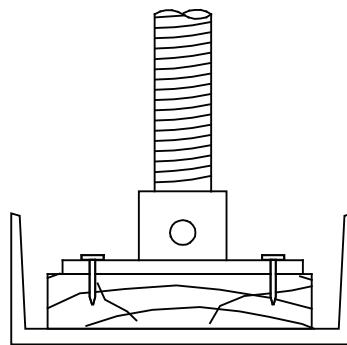
**Step G:** After removing the last two vertical frames at the bottom, the FF20 End Frame can be easily lifted and taken away from the 4 Base Jacks.

# Sample Application

## Shifting Variations

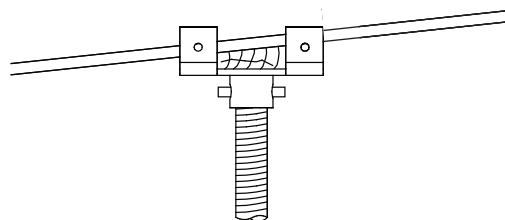


**Wooden planks**



**Wooden plank in U-channel Steel profile**

**The head plate adapts to slope of up to 6%**



Wooden wedge for compensating inclination of primary beam (e.g. H20 Timber Beam, steel beam or lattice girder)

# FF20 support tower with H20 Timber Beam

## Secondary beam distance (m)

Deflections of beams are limited to  $L/500$ .  
Please note that the above loading table should be considered as a general indication for technical elaborations but does not replace an individual structural proof for the final stability of the whole structure.

## Load assumptions

$w_f$  dead load for formwork = 0.25 kN/m<sup>2</sup>  
 $w_c$  load of concrete =  $t$  [m] x 25.0 kN/m<sup>3</sup>  
 weight density of concrete = 25 kN/m<sup>3</sup>  
 $p$  live load  $p = 0.75 + (0.75 \cdot 0.1 \times W_c \cdot 1.75)$  kN/m<sup>2</sup>  
 Total load  $q = w_f + w_c + p$  [kN/m<sup>2</sup>]

## Loading Table (with H20 secondary beam and Double H20 primary beams)

"t" slab thickness [cm]													
"q" total loading [kN/m <sup>2</sup> ]													
14	16	18	20	22	24	26	28	30	35	40	45	50	55
5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	10.38	11.75	13.13	14.50	15.88

Secondary beam distance (m)	L = permissible distance of secondary beam [m]													
<b>0.20</b>	4.00	4.00	4.00	4.00	3.94	3.83	3.73	3.65	3.57	3.39	3.25	3.13	3.02	2.93
<b>0.33</b>	3.83	3.68	3.54	3.43	3.32	3.23	3.15	3.08	3.01	2.86	2.74	2.64	2.55	2.47
<b>0.40</b>	3.61	3.46	3.33	3.22	3.13	3.04	2.96	2.89	2.83	2.69	2.58	2.48	2.40	2.32
<b>0.50</b>	3.35	3.21	3.09	2.99	2.90	2.82	2.75	2.69	2.63	2.50	2.39	2.30	2.22	2.14
<b>0.63</b>	3.11	2.98	2.87	2.78	2.69	2.62	2.55	2.49	2.44	2.32	2.22	2.12	2.01	1.92
<b>0.67</b>	3.04	2.92	2.81	2.72	2.64	2.56	2.50	2.44	2.39	2.27	2.17	2.05	1.95	1.86
<b>0.75</b>	2.92	2.80	2.70	2.61	2.54	2.47	2.40	2.35	2.29	2.18	2.05	1.93	1.83	1.68

b loading widths [m] ( $b=L/2 + 0.5$ m)	"A" Permissible distance of primary beams [m](double beams: 2 x H20 Timber Beams)													
	Resulting loads per leg [kN]													
<b>1.00</b>	3.35	3.21	3.09	2.99	2.90	2.82	2.75	2.69	2.63	2.50	2.39	2.30	2.22	2.14
	10.88	11.58	12.27	12.97	13.65	14.33	15.00	15.68	16.34	18.16	19.92	21.66	23.35	24.92
<b>1.25</b>	3.11	2.98	2.87	2.78	2.69	2.62	2.55	2.49	2.44	2.32	2.22	2.12	2.01	1.92
	12.84	13.68	14.51	15.36	16.14	16.97	17.75	18.54	19.35	21.53	23.65	25.59	27.28	28.97
<b>1.50</b>	2.92	2.80	2.70	2.61	2.54	2.47	2.40	2.35	2.29	2.18	2.05	1.93	1.83	1.68
	14.70	15.68	16.65	17.60	18.59	19.52	20.40	21.36	22.21	24.74	26.88	28.84	30.78	31.91
<b>1.75</b>	2.78	2.66	2.57	2.48	2.41	2.34	2.28	2.23	2.18	2.02	1.9	1.76	1.59	1.44
	16.54	17.61	18.74	19.79	20.89	21.92	22.96	24.02	25.04	27.42	29.82	31.70	32.86	33.89
<b>2.00</b>	2.66	2.55	2.46	2.37	2.3	2.24	2.17	2.1	2.04	1.89	1.73	1.54	1.39	1.26
	18.30	19.53	20.76	21.91	23.10	24.30	25.36	26.35	27.36	29.98	32.08	33.34	34.66	35.88
<b>2.25</b>	2.55	2.45	2.35	2.26	2.18	2.11	2.04	1.98	1.92	1.75	1.54	1.37	1.23	1.12
	19.97	21.35	22.61	23.84	25.04	26.24	27.36	28.50	29.57	32.10	33.58	34.99	36.38	37.86
<b>2.50</b>	2.44	2.33	2.23	2.15	2.07	2	1.94	1.88	1.82	1.58	1.38	1.23	1.11	1.01
	21.50	22.89	24.23	25.59	26.86	28.13	29.40	30.60	31.73	33.46	34.96	36.59	38.24	39.89

"t" slab thickness [cm]													
"q" total loading [kN/m <sup>2</sup> ]													
60	65	70	75	80	85	90	95	100	105	110	115	120	125
17.25	18.63	20	21.25	22.5	23.75	25	26.25	27.5	28.75	30	31.25	32.5	33.75

Secondary beam distance (m)	L = permissible distance of secondary beam [m]													
<b>0.20</b>	2.84	2.77	2.70	2.64	2.59	2.54	2.49	2.45	2.40	2.37	2.33	2.30	2.26	2.23
<b>0.33</b>	2.40	2.34	2.28	2.23	2.18	2.12	2.06	2.00	1.96	1.92	1.88	1.85	1.81	1.75
<b>0.40</b>	2.26	2.20	2.13	2.06	1.99	1.93	1.88	1.83	1.76	1.69	1.62	1.56	1.51	1.46
<b>0.50</b>	2.05	1.97	1.90	1.84	1.75	1.64	1.55	1.47	1.41	1.35	1.30	1.25	1.21	1.17
<b>0.63</b>	1.84	1.71	1.59	1.49	1.40	1.31	1.24	1.18	1.13	1.08	1.04	1.00	—	—
<b>0.67</b>	1.74	1.61	1.49	1.39	1.31	1.23	1.16	1.10	1.06	1.01	—	—	—	—
<b>0.75</b>	1.55	1.43	1.33	1.24	1.16	1.10	1.04	—	—	—	—	—	—	—

b loading widths [m] ( $b=L/2 + 0.5$ m)	"A" Permissible distance of primary beams [m](double beams: 2 x H20 Timber Beams)													
	resulting loads per leg [kN]													
<b>1.00</b>	2.05	1.97	1.90	1.84	1.75	1.64	1.55	1.47	1.41	1.35	1.30	1.25	1.21	1.17
	26.31	27.66	29.00	30.18	30.94	31.35	31.88	32.42	33.14	33.78	34.50	35.16	35.91	36.62
<b>1.25</b>	1.84	1.71	1.59	1.49	1.4	1.31	1.24	1.18	1.13	1.08	1.04	1.00	—	—
	30.62	31.55	32.38	33.07	33.75	34.29	35.00	35.77	36.61	37.38	38.25	39.06	—	—
<b>1.50</b>	1.55	1.43	1.33	1.24	1.16	1.10	1.04	—	—	—	—	—	—	—
	32.99	33.94	34.95	35.70	36.45	37.41	38.25	—	—	—	—	—	—	—
<b>1.75</b>	1.33	1.22	1.14	1.06	—	—	—	—	—	—	—	—	—	—
	35.17	36.18	37.45	38.30	—	—	—	—	—	—	—	—	—	—



# Table of Various Combinations & Material Lists

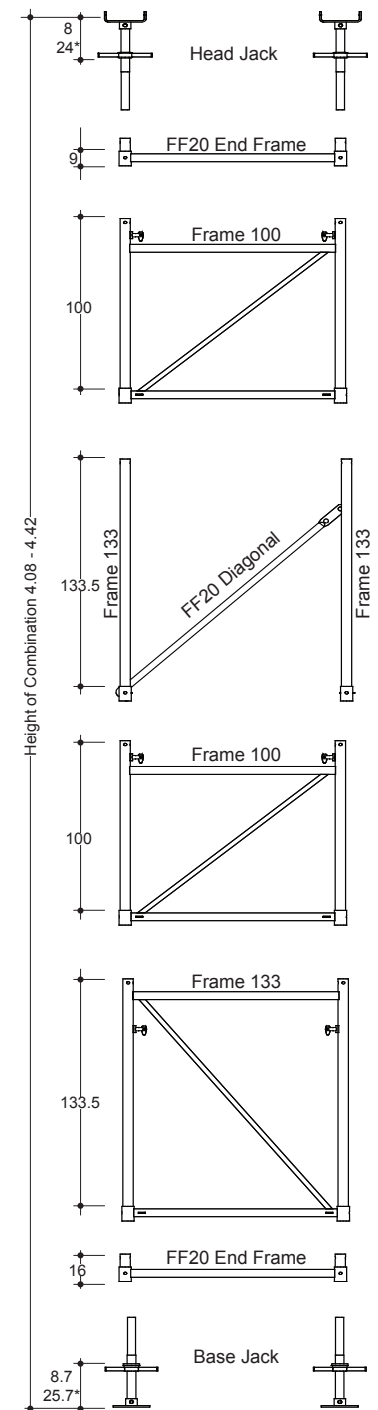
Art No.:	703HJS52	703BJS52	703MF133	703MF100	703EF100	703EF144	Weight of tower kg
Weight/item [kg]	8.2	8.0	19.1	16.1	15.8	2.8	
Height of tower M	Head Jack	Base Jack	FFI 20 Frame 133	FFI 20 Frame 100	FFI 20 End Frame	FFI 20 Diagonal	
1.42 - 1.75	4	4	-	2	2	2	134.2
1.75 - 2.08	4	4	2	-	2	2	140.2
1.85 - 2.17	4	4	2	-	2	2	156.0
1.93 - 2.26	4	4	2	-	2	2	171.8
2.42 - 2.75	4	4	-	4	2	4	172.0
2.75 - 3.08	4	4	2	2	2	4	178.0
3.09 - 3.42	4	4	4	-	2	4	184.0
3.42 - 3.75	4	4	-	6	2	6	209.8
3.75 - 4.08	4	4	2	4	2	6	215.8
4.09 - 4.72	4	4	4	2	2	6	221.8
4.42 - 4.75	4	4	6	-	2	6	227.8
4.75 - 5.08	4	4	2	6	2	8	253.6
5.09 - 5.42	4	4	4	4	2	8	259.6
5.42 - 5.75	4	4	6	2	2	8	265.6
5.76 - 6.09	4	4	8	-	2	8	271.6
6.09 - 6.42	4	4	4	6	2	10	297.4
6.42 - 6.75	4	4	6	4	2	10	303.4
6.76 - 7.09	4	4	8	2	2	10	309.4
7.09 - 7.42	4	4	10	-	2	10	315.4
7.42 - 7.75	4	4	6	6	2	12	341.2
7.76 - 8.09	4	4	8	4	2	12	347.2
8.09 - 8.42	4	4	10	2	2	12	353.2
8.43 - 8.76	4	4	12	-	2	12	359.2
8.76 - 9.09	4	4	8	6	2	14	385.0
9.09 - 9.42	4	4	10	4	2	14	391.0
9.43 - 9.76	4	4	12	2	2	14	397.0
9.76 - 10.09	4	4	14	-	2	14	403.0
10.09 - 10.42	4	4	10	6	2	16	428.8
10.43 - 10.76	4	4	12	4	2	16	434.8
10.76 - 11.09	4	4	14	2	2	16	440.8
11.10 - 11.43	4	4	16	-	2	16	446.8
11.43 - 11.76	4	4	12	6	2	18	472.6
11.76 - 12.09	4	4	14	4	2	18	478.6
12.10 - 12.43	4	4	16	2	2	18	484.6
12.43 - 12.76	4	4	18	-	2	18	490.6
12.76 - 13.09	4	4	14	6	2	20	516.4
13.10 - 13.43	4	4	16	4	2	20	522.4
13.43 - 13.76	4	4	18	2	2	20	528.4
13.77 - 14.10	4	4	20	-	2	20	534.4
14.10 - 14.43	4	4	16	6	2	22	560.2
14.43 - 14.76	4	4	18	4	2	22	566.2
14.77 - 15.10	4	4	20	2	2	22	572.2
15.10 - 15.43	4	4	22	-	2	22	578.2
15.43 - 15.76	4	4	18	6	2	24	604.0
15.77 - 16.10	4	4	20	4	2	24	610.0
16.10 - 16.43	4	4	22	2	2	24	616.0
16.44 - 16.77	4	4	24	-	2	24	622.0
16.77 - 17.10	4	4	20	6	2	26	647.8
17.10 - 17.43	4	4	22	4	2	26	653.8
17.44 - 17.77	4	4	24	2	2	26	659.8
17.77 - 18.10	4	4	26	-	2	26	665.8
18.10 - 18.43	4	4	22	6	2	28	691.6
18.44 - 18.77	4	4	24	4	2	28	697.6
18.77 - 19.10	4	4	26	2	2	28	703.6
19.10 - 19.44	4	4	28	-	2	28	709.6
19.44 - 19.77	4	4	24	6	2	30	735.4
19.77 - 20.10	4	4	26	4	2	30	714.4

For the calculation of the required assembly and dismantling time, these guiding figures should be taken into consideration:

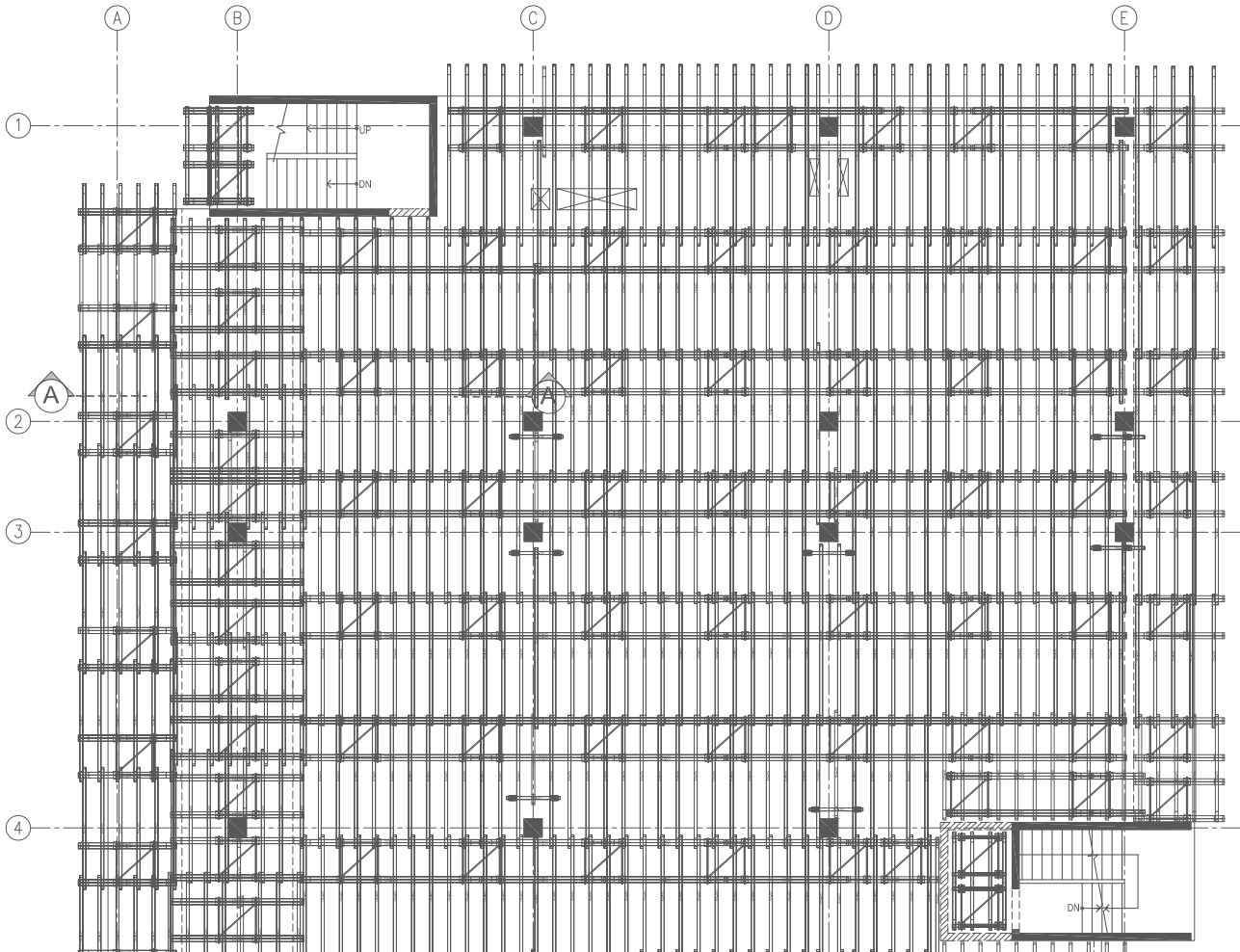
for each procedure, (assembling and dismantling) approximately 4 hours per ton on average should be calculated based on 0.17 hours per rising meter.

the required time for tubes and couplers should be calculated as 25 to 30 hours based on the weight of the FF20 support tower.

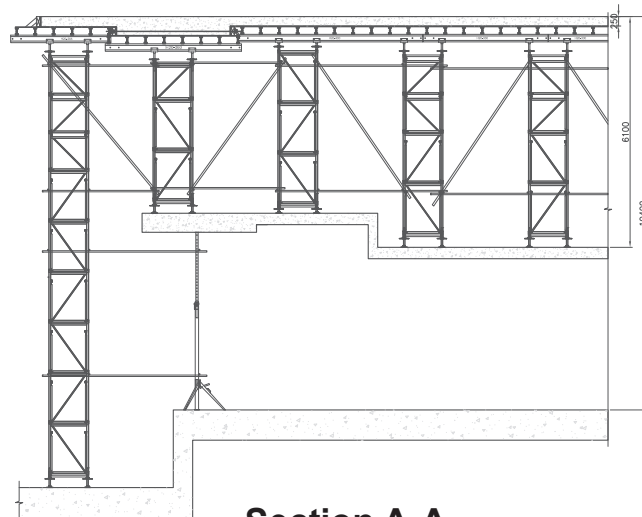
## FF20 Support Tower Combination Sample



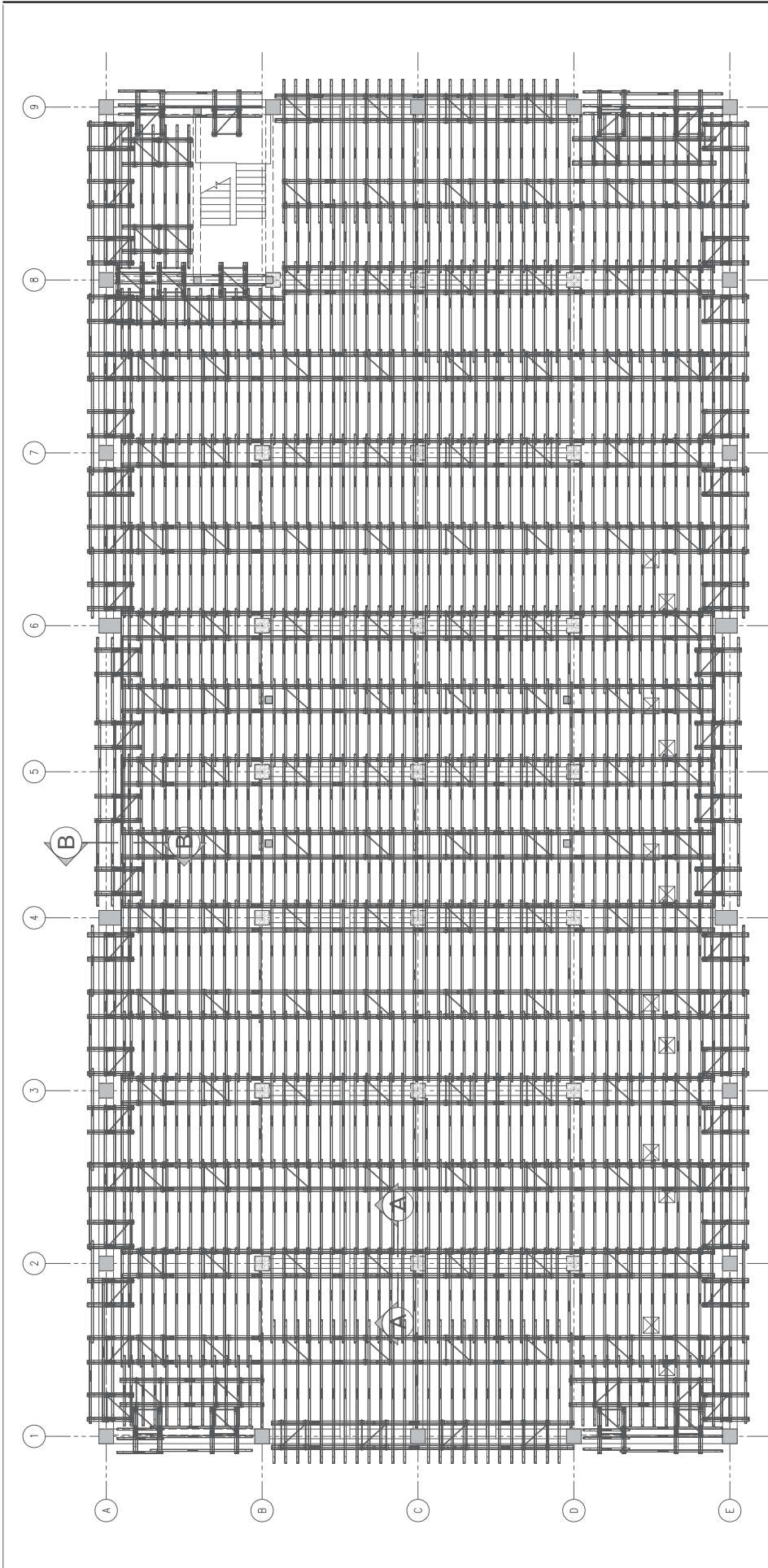
- A. All shop drawings, technical data & statical calculations will be submitted by FFI in accordance with the statical drawing project requirements.
- B. The site erection shall be done as per FFI's shop drawings and shall be supervised and Inspected by FFI's formwork specialist
- C. The spacing and positioning of the formwork material must be arranged based on the statical requirements and as shown in the FFI's execution drawings & calculations



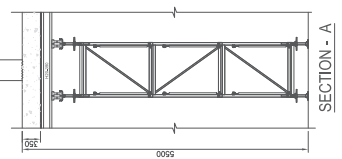
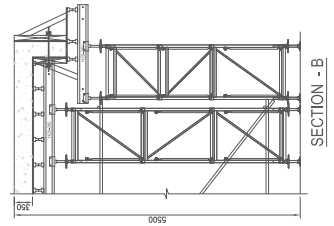
**Formwork Layout Using FF20 Shoring tower System**



**Section A-A**



FORMWORK LAYOUT USING FF20 SYSTEM



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Drawn by:	
Checked by:	
Project No.:	
Date:	

**LEVEL 6.5M**  
**FORMWORK LAYOUT USING FF20 SYSTEM**



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