

# form-scaff

## fs-Beam



2003

KAGISO



VENTURES





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## International branches

| Main branches              | Telephone number  | E-mail address     |
|----------------------------|-------------------|--------------------|
| Johannesburg, South Africa | (+2711) 786-6151  | info@formscaff.com |
| Gaborone, Botswana         | (+267) 328-633    | info@formscaff.com |
| Santiago, Chile            | (+56) 2 738-5019  | info@formscaff.cl  |
| Port Louis, Mauritius      | (+230) 211-0391   | info@formscaff.com |
| Matola, Mozambique         | (+258) 8 231 4217 | info@formscaff.com |

## Local branches

| Branches         | Telephone number | Branches                | Telephone number |
|------------------|------------------|-------------------------|------------------|
| Bloemfontein     | (051) 432-5555   | Port Elizabeth          | (041) 453-2317   |
| Cape Town        | (021) 551-3507   | Pretoria                | (012) 653-8745   |
| Chloorkop        | (011) 393-4400   | Richards Bay            | (035) 797-4101   |
| Durban           | (031) 705-1112   | Rustenburg              | (014) 594-2726   |
| East London      | (043) 748-2558   | Secunda                 | (017) 639-1458   |
| Johannesburg     |                  | Somerset West           | (021) 845-4090   |
| (Kya Sands)      | (011) 708-2227   | Tongaat                 | (032) 944-3105   |
| Margate          | (039) 317-1708   | Vereeniging             | (016) 455-1611   |
| Nelspruit        | (013) 758-1036   | Witbank                 | (013) 690-2833   |
| Newcastle        | (034) 375-7697   | Wynberg                 |                  |
| Pietersburg      | (015) 297-1550   | (Factory & Head Office) | (011) 786-6151   |
| Pietermaritzburg | (033) 394-5504   |                         |                  |

## **Company History and Corporate Profile**

Form-Scaff a division of Waco Africa Limited, is a South African company owned by Waco International and our Black Empowerment partner Kagiso Ventures. Form-Scaff was established in 1963.

The company manufactures, hires and sells formwork and scaffolding. It has branches throughout the African sub-continent, as well as operations in Mauritius and Chile. It is also closely associated with its sister companies in Australia, the U.K. and the U.S.A.

The company is committed to continued growth through the enhancement of its customer service, the quality of its products and by broadening its trading base to include on-going maintenance contracts in the energy and chemical industries. This policy serves to satisfy the company's growth objectives and by so doing, meet the long-term interests of its employees, suppliers and shareholders.

The company has an innovative approach to the demands of its customers and runs a very active Research & Development department. A large proportion of its products is exported.

The Drawing Office at Form-Scaff is staffed by highly qualified and well-experienced personnel and boasts a modern Computer Aided Design (CAD) facility. An integrated computer based system is used in product manufacturing, commencing with order entry and going on to raw material scheduling, production planning and machine loading. Product flow, materials handling and quality assurance receive high priority throughout the manufacturing cycle.

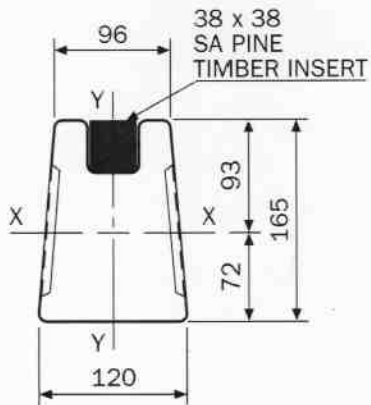
The company's manufacturing facility is situated in Wynberg. The factories are constantly being improved and its most recent addition is a powder-coating plant to replace the old dipping system of painting.

The company is at present one of the major manufacturers of formwork and scaffolding in the world. The quality of its products has ensured that the company has maintained its position among other global suppliers. To this end, the company constantly monitors its products through its Quality Control Department to ensure that the customers' needs are always met.



## TECHNICAL DATA

### fs-BEAM



#### Properties

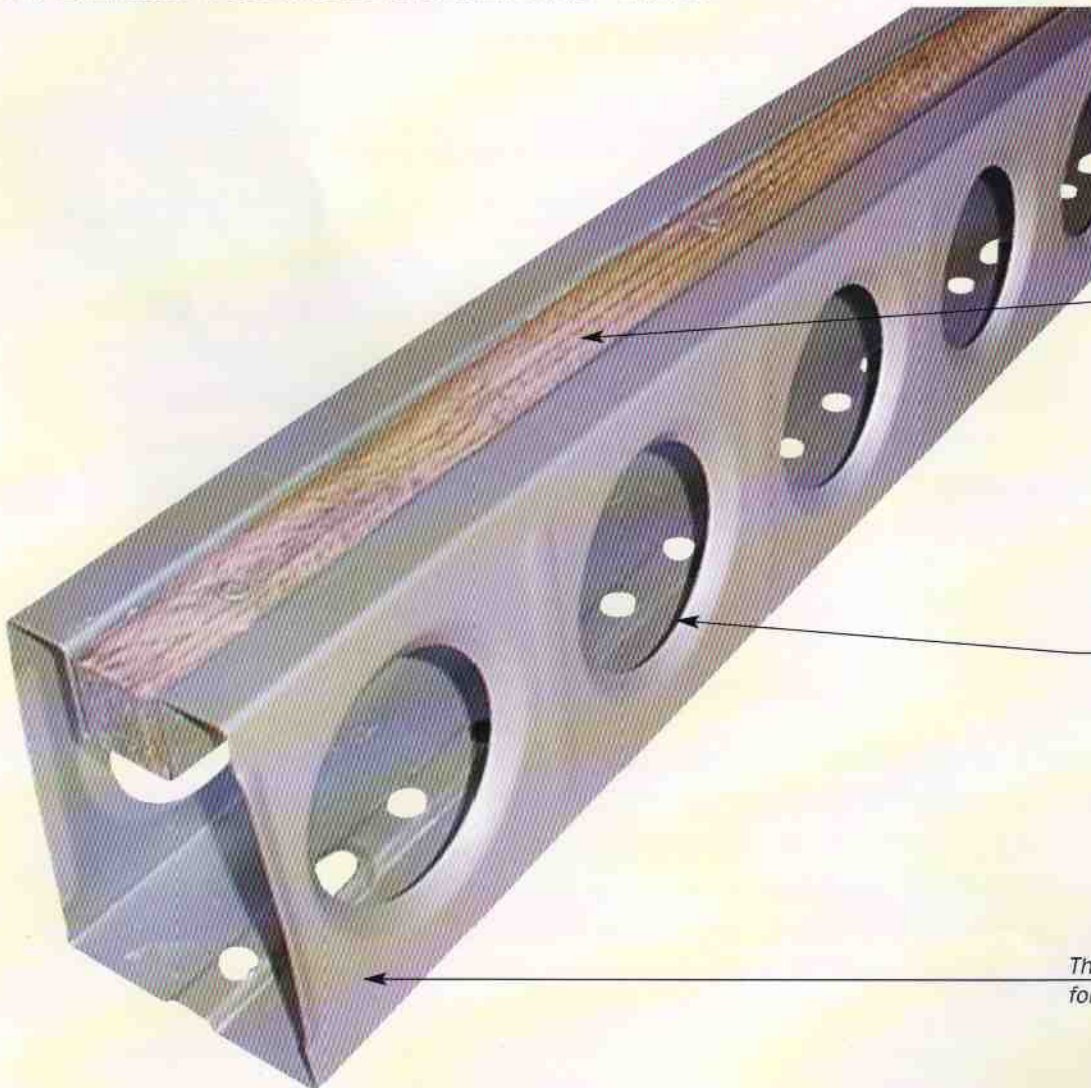
|             |                            |             |                          |
|-------------|----------------------------|-------------|--------------------------|
| <b>Ixx</b>  | 2,3 x 10E6 mm <sup>4</sup> | <b>Iyy</b>  | 1 x 10E6 mm <sup>4</sup> |
| <b>Area</b> | 613 mm <sup>2</sup>        | <b>ryy</b>  | 39 mm                    |
| <b>rxx</b>  | 61 mm                      | <b>Mass</b> | 6,12 kg/m                |

Maximum allowable bending moment = 4 kNm

Maximum allowable reaction at end of fs-Beam = 8 kN

Maximum allowable reaction = 12,3 kN

### fs-BEAM: TYPICAL ISOMETRIC VIEW

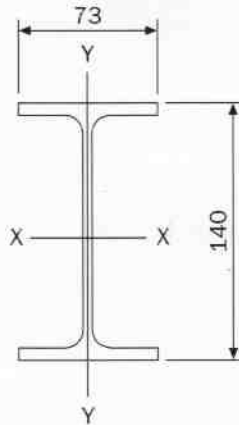


*The 38 x 38 timber insert is used to fix the decking to the fs-Beam*

*The holes in the sides of the fs-Beam makes the beam lighter and easier to manhandle*

*The fs-Beams are galvanised for long-life protection*

## TECHNICAL DATA fs-MAIN BEARER



### Properties

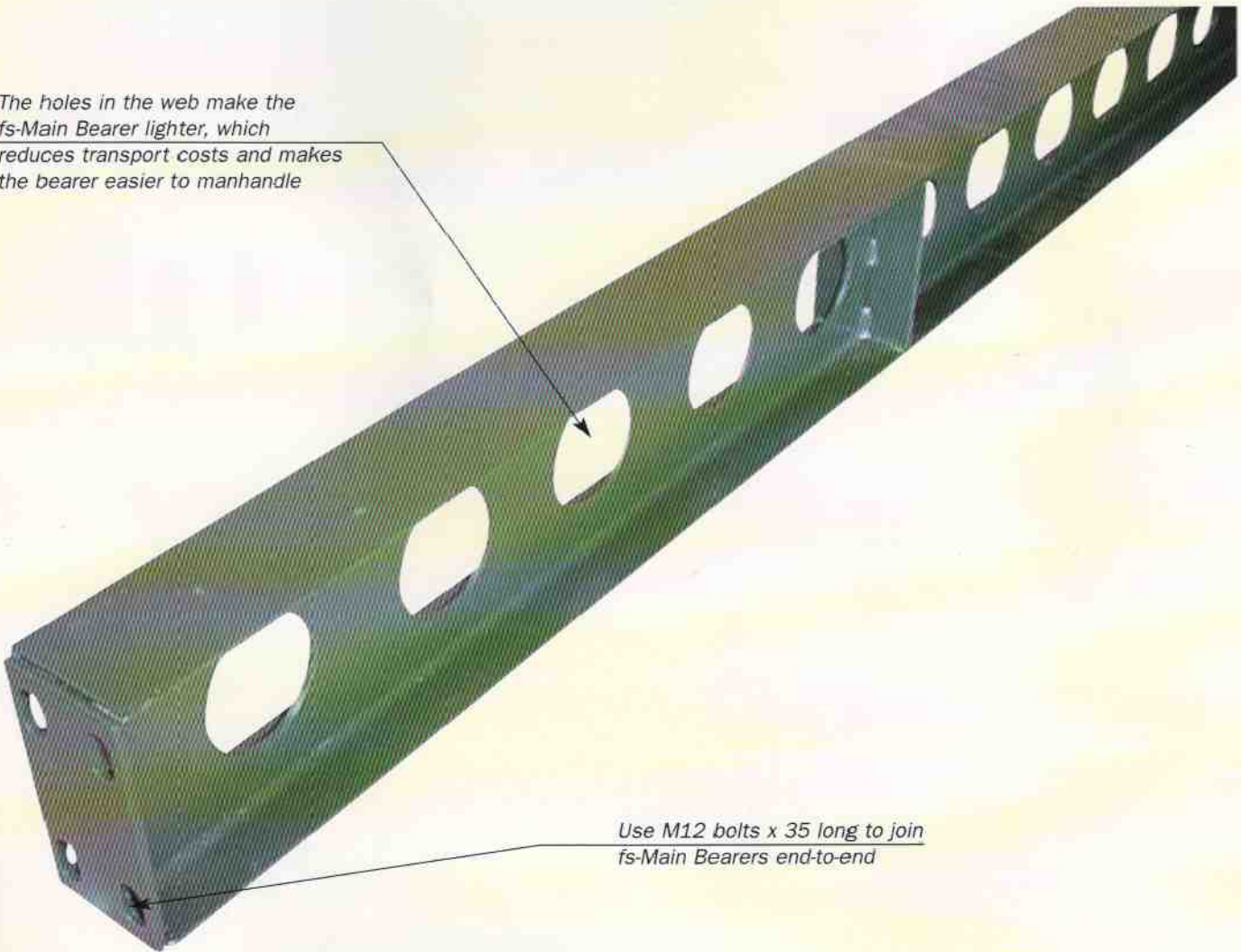
|             |                          |
|-------------|--------------------------|
| <b>Mass</b> | 10.1 kg/m                |
| <b>Area</b> | 1 280 mm <sup>2</sup>    |
| <b>Ixx</b>  | 4.07 E6 mm <sup>4</sup>  |
| <b>rxx</b>  | 56.4 mm                  |
| <b>Iyy</b>  | 0.338 E6 mm <sup>4</sup> |
| <b>ryy</b>  | 16.3 mm                  |

Maximum allowable bending moment = 10 kNm

Maximum allowable reaction = 40 kN

Maximum allowable reaction at end of bearer = 30 kN

*The holes in the web make the fs-Main Bearer lighter, which reduces transport costs and makes the bearer easier to manhandle*



*Use M12 bolts x 35 long to join fs-Main Bearers end-to-end*



# fs-BEAM AND fs-MAIN BEARER SPACING

The table below is based on a maximum fs-Prop extension of 2 400 mm (unlaced props)

| Slab Thickness (t)mm | Load (T) kN/m <sup>2</sup> | fs-Beam spacing a(m)                           |      |      |      |      |      |      |      | fs-Main Bearer spacing b(m)                  |      |      |      |      |      |      |
|----------------------|----------------------------|--|------|------|------|------|------|------|------|--|------|------|------|------|------|------|
|                      |                            | 0.3  | 0.35 | 0.4  | 0.45 | 0.5  | 0.55 | 0.6  | 0.65 | 2  | 2.25 | 2.5  | 2.75 | 3    | 3.5  | 4    |
|                      |                            | Permissible span for fs-Beam/prop spacing b(m) |      |      |      |      |      |      |      | Perm. span for Main Bearer/prop spacing c(m) |      |      |      |      |      |      |
| 100                  | 4.3                        | 3.81   | 3.62 | 3.46 | 3.33 | 3.22 | 3.12 | 3.03 | 2.95 | 2.45   | 2.36 | 2.27 | 2.20 | 2.14 | 2.02 | 1.76 |
| 125                  | 4.9                        | 3.64   | 3.46 | 3.31 | 3.18 | 3.07 | 2.98 | 2.89 | 2.81 | 2.34   | 2.25 | 2.17 | 2.10 | 2.04 | 1.76 | 1.54 |
| 150                  | 5.5                        | 3.50   | 3.32 | 3.18 | 3.06 | 2.95 | 2.86 | 2.78 | 2.70 | 2.25   | 2.16 | 2.09 | 1.98 | 1.82 | 1.56 | 1.36 |
| 175                  | 6.1                        | 3.38   | 3.21 | 3.07 | 2.95 | 2.85 | 2.76 | 2.68 | 2.61 | 2.17   | 2.09 | 1.96 | 1.78 | 1.63 | 1.40 | 1.22 |
| 200                  | 6.8                        | 3.27   | 3.10 | 2.97 | 2.85 | 2.76 | 2.67 | 2.59 | 2.53 | 2.10   | 1.98 | 1.78 | 1.62 | 1.48 | 1.27 | 1.11 |
| 225                  | 7.4                        | 3.17   | 3.01 | 2.88 | 2.77 | 2.68 | 2.59 | 2.52 | 2.45 | 2.03   | 1.81 | 1.63 | 1.48 | 1.36 | 1.16 | 1.02 |
| 250                  | 8.0                        | 3.09   | 2.93 | 2.81 | 2.70 | 2.60 | 2.52 | 2.45 | 2.39 | 1.88   | 1.67 | 1.50 | 1.36 | 1.25 | 1.07 | 0.94 |
| 275                  | 8.6                        | 3.01   | 2.86 | 2.74 | 2.63 | 2.54 | 2.46 | 2.39 | 2.33 | 1.74   | 1.55 | 1.39 | 1.26 | 1.16 | 0.99 | 0.87 |
| 300                  | 9.3                        | 2.94   | 2.79 | 2.67 | 2.57 | 2.48 | 2.40 | 2.33 | 2.27 | 1.62   | 1.44 | 1.30 | 1.18 | 1.08 | 0.93 | 0.81 |
| 325                  | 9.9                        | 2.88   | 2.73 | 2.62 | 2.51 | 2.43 | 2.35 | 2.28 | 2.22 | 1.52   | 1.35 | 1.22 | 1.10 | 1.01 | 0.87 | 0.76 |
| 350                  | 10.5                       | 2.82   | 2.68 | 2.56 | 2.46 | 2.38 | 2.30 | 2.24 | 2.18 | 1.43   | 1.27 | 1.14 | 1.04 | 0.95 | 0.82 | 0.71 |
| 375                  | 11.1                       | 2.77   | 2.63 | 2.51 | 2.42 | 2.33 | 2.26 | 2.20 | 2.14 | 1.35   | 1.20 | 1.08 | 0.98 | 0.90 | 0.77 | 0.67 |
| 400                  | 11.8                       | 2.72   | 2.58 | 2.47 | 2.37 | 2.29 | 2.22 | 2.16 | 2.09 | 1.28   | 1.13 | 1.02 | 0.93 | 0.85 | 0.73 | 0.64 |
| 425                  | 12.4                       | 2.67   | 2.54 | 2.43 | 2.33 | 2.25 | 2.18 | 2.12 | 1.99 | 1.21   | 1.08 | 0.97 | 0.88 | 0.81 | 0.69 | 0.61 |
| 450                  | 13.0                       | 2.63   | 2.49 | 2.39 | 2.29 | 2.22 | 2.15 | 2.05 | 1.89 | 1.15   | 1.03 | 0.92 | 0.84 | 0.77 | 0.66 | 0.58 |
| 475                  | 13.6                       | 2.59   | 2.46 | 2.35 | 2.26 | 2.18 | 2.11 | 1.96 | 1.81 | 1.10   | 0.98 | 0.88 | 0.80 | 0.73 | 0.63 | 0.55 |
| 500                  | 14.3                       | 2.55   | 2.42 | 2.31 | 2.23 | 2.15 | 2.04 | 1.87 | 1.73 | 1.05   | 0.94 | 0.84 | 0.77 | 0.70 | 0.60 | 0.53 |

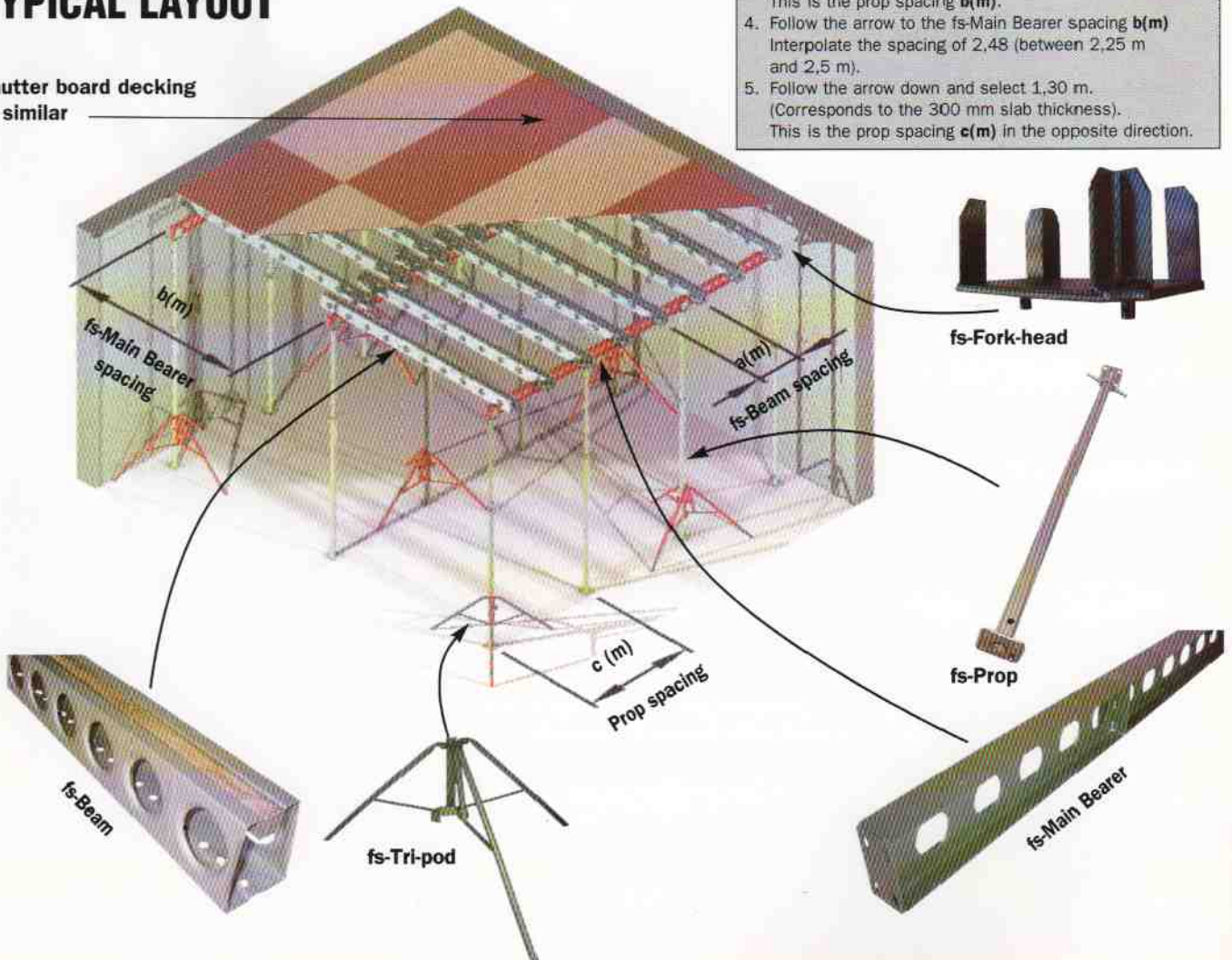
Deflection limited to span/360

**Design criteria:**

Dead Load or form mass  $f = 0.25 \text{ kN/m}^2$   
 Concrete Load  $w = 25 \text{ kN/m}^3 \times t(\text{m})$   
 Live Load  $l = 1.5 \text{ kN/m}^2$   
 Total Load  $T = f + w + l \text{ kN/m}^2$

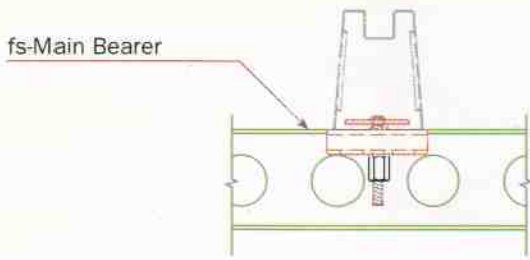
## TYPICAL LAYOUT

Shutter board decking or similar

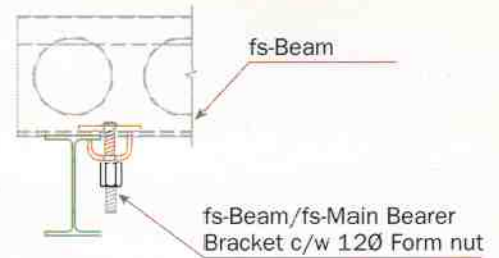


**Using the above table**

1. Select the required slab thickness (Example 300 mm).
2. Select the fs-Beam spacing **a(m)**.  
The fs-Beam spacing is determined by the strength/thickness of the shutter board. (Example 0.5 m)
3. Follow the arrow down and select 2,48 m.  
(Corresponds to the 300 mm slab thickness).  
This is the prop spacing **b(m)**.
4. Follow the arrow to the fs-Main Bearer spacing **b(m)**.  
Interpolate the spacing of 2,48 (between 2,25 m and 2,5 m).
5. Follow the arrow down and select 1,30 m.  
(Corresponds to the 300 mm slab thickness).  
This is the prop spacing **c(m)** in the opposite direction.

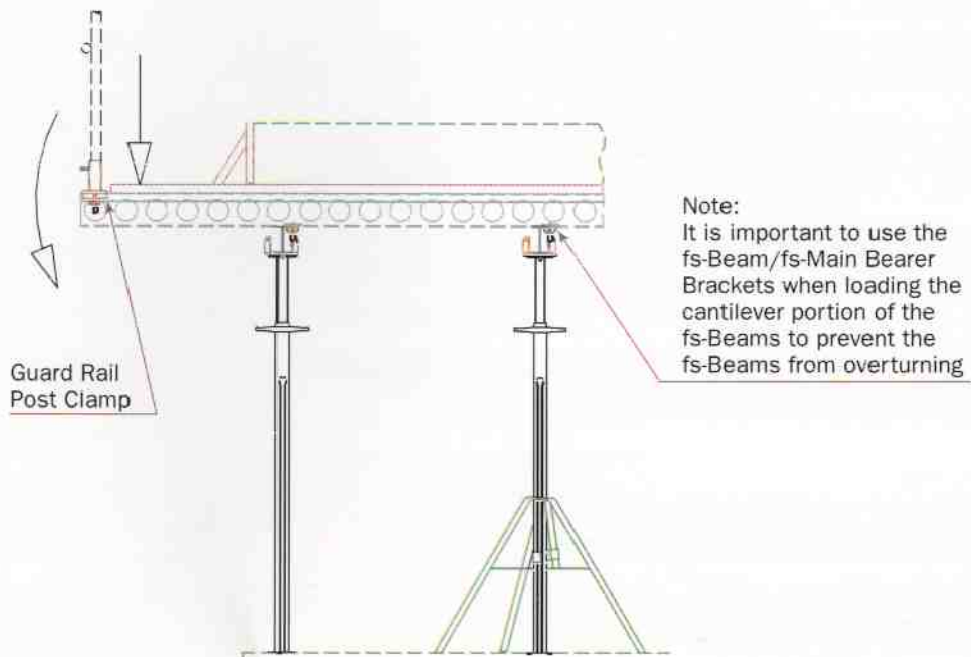


END VIEW

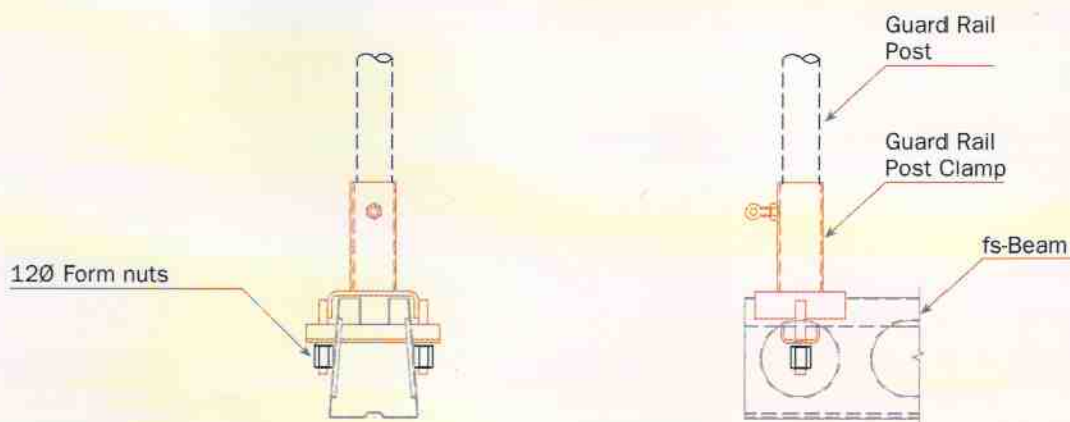


ELEVATION

## fs-BEAM/fs-MAIN BEARER BRACKET CONNECTION DETAIL



TYPICAL ELEVATION



END VIEW

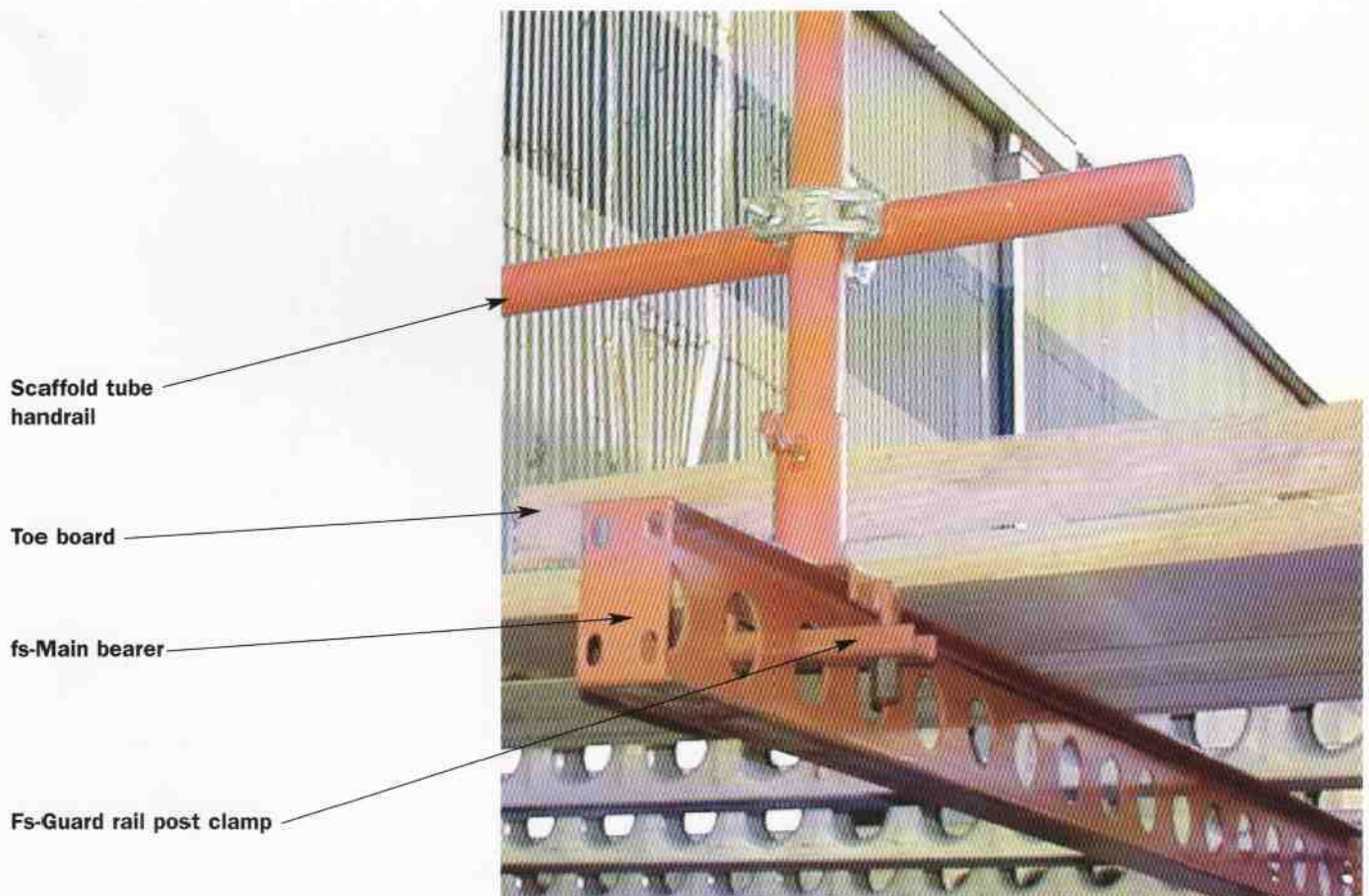
ELEVATION

## GUARD RAIL POST CONNECTION DETAIL





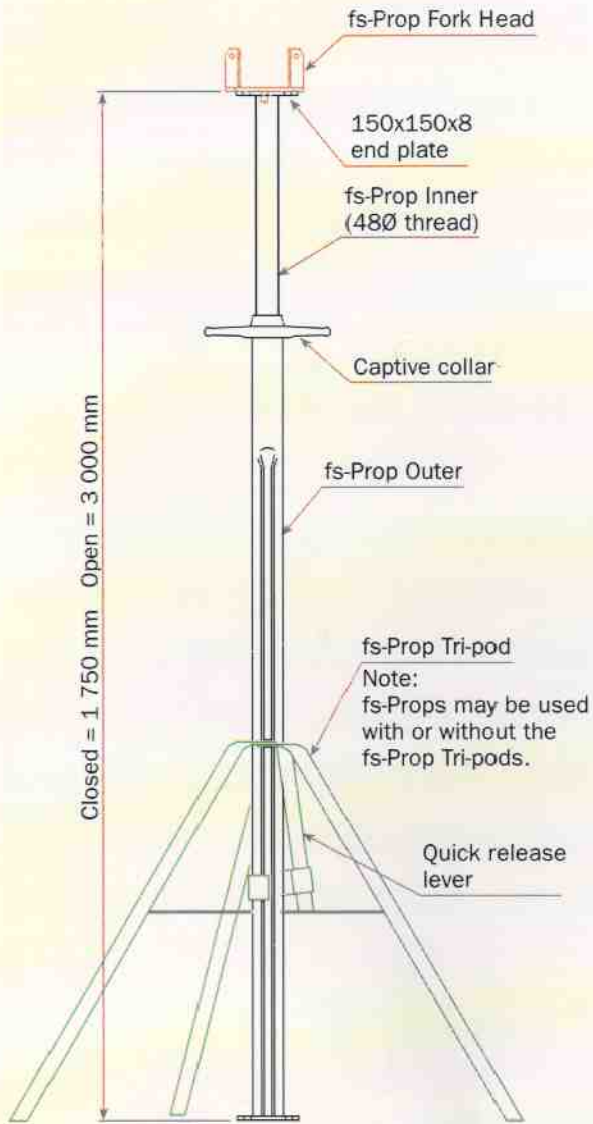
**TYPICAL CANTILEVER PROTECTION DETAIL**



**GUARD RAIL POST CONNECTION DETAIL**



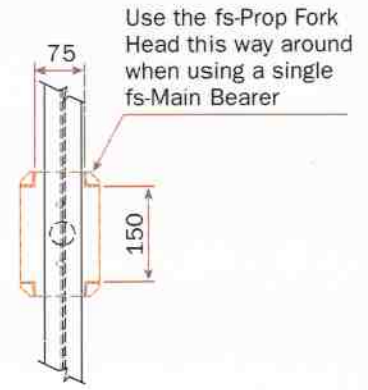
# CORRECT USE OF fs-PROP FORK HEAD



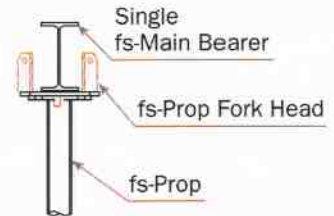
fs-PROP ARRANGEMENT

## fs-PROPS

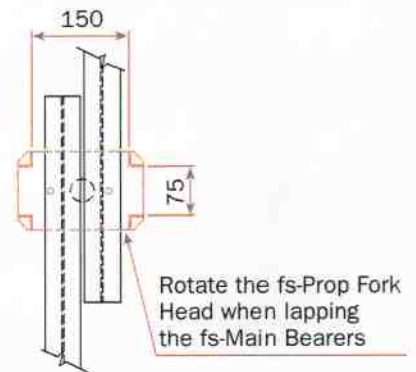
| Propping height (mm) | Safe load (kN) |
|----------------------|----------------|
| 2 050                | 35             |
| 2 400                | 30             |
| 3 000                | 12             |



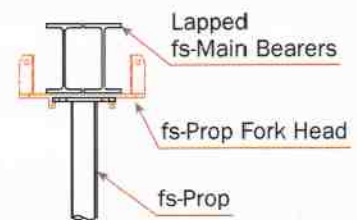
PLAN VIEW



END VIEW



PLAN VIEW



END VIEW

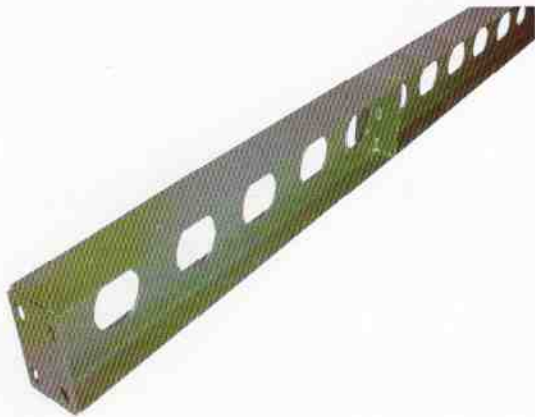


## fs-BEAM



| Code    | Description        | Length (mm) | Mass (kg) |
|---------|--------------------|-------------|-----------|
| 1120001 | fs-Beam c/w timber | 900         | 6,3       |
| 1120002 | fs-Beam c/w timber | 1 500       | 10,4      |
| 1121003 | fs-Beam c/w timber | 1 800       | 12,5      |
| 1120004 | fs-Beam c/w timber | 2 100       | 14,6      |
| 1120005 | fs-Beam c/w timber | 2 400       | 16,7      |
| 1120015 | fs-Beam c/w timber | 2 700       | 18,8      |
| 1120006 | fs-Beam c/w timber | 3 000       | 20,9      |
| 1120013 | fs-Beam c/w timber | 3 300       | 23,0      |
| 1120014 | fs-Beam c/w timber | 3 600       | 25,0      |
| 1120008 | fs-Beam c/w timber | 3 900       | 27,1      |

## fs-MAIN BEARER



| Code    | Description    | Length (mm) | Mass (kg) |
|---------|----------------|-------------|-----------|
| 1121001 | fs-Main Bearer | 900         | 10,5      |
| 1121002 | fs-Main Bearer | 1 200       | 13,5      |
| 1121003 | fs-Main Bearer | 1 500       | 16,5      |
| 1121004 | fs-Main Bearer | 1 800       | 19,5      |
| 1121005 | fs-Main Bearer | 2 100       | 23,0      |
| 1121006 | fs-Main Bearer | 2 400       | 26,0      |
| 1121007 | fs-Main Bearer | 2 700       | 29,5      |
| 1121008 | fs-Main Bearer | 3 000       | 32,5      |
| 1121009 | fs-Main Bearer | 3 300       | 35,5      |
| 1121010 | fs-Main Bearer | 3 600       | 39,4      |
| 1121011 | fs-Main Bearer | 3 900       | 42,4      |
| 1121012 | fs-Main Bearer | 4 200       | 45,9      |
| 1121013 | fs-Main Bearer | 4 500       | 48,9      |



## fs-GUARD RAIL POST CLAMP

| Code    | Description           | Length (mm) | Mass (kg) |
|---------|-----------------------|-------------|-----------|
| 1121026 | fs-Guard Rail Bracket | —           | 3,0       |
| 5405073 | 12 dia. form nut      | —           | 0,15      |



## fs-BEAM/fs-MAIN BEARER BRACKET

| Code    | Description      | Length (mm) | Mass (kg) |
|---------|------------------|-------------|-----------|
| 1121001 | Clamp            | —           | 10,5      |
| 540573  | 12 dia. form nut | —           | 0,15      |



## fs-PROP TRI-POD



| Code    | Description     | Length (mm) | Mass (kg) |
|---------|-----------------|-------------|-----------|
| 1121024 | fs-Prop Tri-pod | —           | 9,50      |



## fs-PROPS

| Code    | Description        | Length (mm) | Mass (kg) |
|---------|--------------------|-------------|-----------|
| 1121020 | fs-Prop Inner      | 1 475       | 7,61      |
| 1121021 | fs-Prop Outer      | 1 662       | 8,67      |
| 1121022 | fs-Prop (complete) | 1 905       | 16,28     |



## fs-PROP FORK HEAD

| Code    | Description       | L x W (mm) | Mass (kg) |
|---------|-------------------|------------|-----------|
| 1121023 | fs-Prop Fork Head | 195x100    | 2,25      |

## WHY USE THE fs-BEAM SYSTEM?

- Form-Scaff will provide initial on-site instruction (to help the site foremen) on the use and handling of the equipment.
- The hire rates, when compared with other systems, are very competitive.
- A production rate of up to 25 m<sup>2</sup> per person, per shift, can be achieved.
- Shutter board decking produces a good quality "off shutter" finish.
- The system has been used on several sites with very positive reports and feedback.
- Form-Scaff has Technical Departments to design the most economical layouts and will assist on-site when necessary.
- Any of the Form-Scaff branches can be contacted for immediate assistance.
- Abundant stock is available.

*Prices lists available on request.*



