

TG20:08 Appendix H

Tying to permeable open structures

In TG20:08 it is assumed that the scaffold is tied to a building facade that is impermeable and only has a small number of openings. For scaffolds tied to open frameworks or facades where there are a high percentage of openings, the scaffold will be subjected to a higher wind load and should therefore be specifically designed.

The safe heights for unclad scaffolds are given in Table 2 of TG20:08, but the tie duties given in that table apply only to scaffolds attached to impermeable facades which shield them from the wind. For unclad scaffolds tied to permeable open structures, the correct tie duty is obtained using Tables A to C below, the wind factor 'S', the bay length in metres and the safe height for the scaffold given in Table 2.

MAXIMUM PERMISSIBLE HEIGHTS FOR UNCLAD SCAFFOLDS TIED TO PERMEABLE OPEN STRUCTURES

Table 'A'

S	Maximum permissible height in metres for scaffolds with Light Duty ties			
	Bay length in metres			
	1.8	2.1	2.4	2.7
20	46	19	10	–
24	6	–	–	–
28	–	–	–	–
32	–	–	–	–
36	–	–	–	–
40	–	–	–	–

Table 'B'

S	Maximum permissible height in metres for scaffolds with Standard Duty ties			
	Bay length in metres			
	1.8	2.1	2.4	2.7
20	50	50	50	50
24	50	50	29	15
28	22	10	–	–
32	–	–	–	–
36	–	–	–	–
40	–	–	–	–

Table 'C'

S	Maximum permissible height in metres for scaffolds with Heavy Duty ties			
	Bay length in metres			
	1.8	2.1	2.4	2.7
20	50	50	50	50
24	50	50	50	50
28	50	50	50	50
32	50	50	50	30
36	50	30	15	8
40	20	9	–	–

Notes:

1. These tables apply to unclad scaffolds tied to permeable open structures only
2. These tables apply only to scaffolds with lift heights of 2m or less
3. These tables apply only to scaffolds with tie patterns detailed in Fig.9 (a), (b), (d) & (e) and comply with the requirements of clause 5.2
4. When the height of the scaffold exceeds the permissible height given in any of the tables above, a heavier duty tie should be used
5. When a heavy duty tie is not adequate, the tie density must be doubled, and heavy duty ties used

EXAMPLES: USING TABLE 2 (VOL. 1) – LINES OF TIES AT ALTERNATE LIFTS – PART BOARDED

Example 1 Scaffold designation 3-5-0S with an 'S' Factor of 24 (Bay Length 1.8m)

Example 2 Scaffold designation 3-5-1 with an 'S' Factor of 28 (Bay Length 2.1m)

Example 3 Scaffold designation 2-4-0 with an 'S' Factor of 32 (Bay Length 2.4m)

Example 4 Scaffold designation 3-5-1 with an 'S' Factor of 40 (Bay Length 2.1m)

Example 5 Scaffold designation 3-5-0 with an 'S' Factor of 20 (Bay Length 1.8m)

1. Using scaffold designation 3-5-0S, Table 1 gives a bay length of 1.8m and Table 2, with an 'S' factor of 24, gives a safe height of 43m using Light Duty Ties.

For Scaffolds attached to permeable open structures

In Table A – max height using Light Duty ties is 6m – **THEREFORE LIGHT DUTY TIES CANNOT BE USED**

In Table B – max height using Standard Duty ties is 50m – **STANDARD DUTY TIES MUST BE USED**

2. Using scaffold designation 3-5-1, Table 1 gives a bay length of 2.1m and Table 2, with an 'S' factor of 28, gives a safe height of 31m using Light Duty Ties.

For Scaffolds attached to permeable open structures

In Table A – max height using Light Duty ties is undefined – **THEREFORE LIGHT DUTY TIES CANNOT BE USED**

In Table B – max height using Standard Duty ties is 10m – **THEREFORE STANDARD DUTY TIES CANNOT BE USED**

In Table C – max height using Heavy Duty ties is 50m – **HEAVY DUTY TIES MUST BE USED**

3. Using scaffold designation 2-4-0, Table 1 gives a bay length of 2.4m and Table 2, with an 'S' factor of 32, gives a safe height of 38m using Light Duty Ties.

For Scaffolds attached to permeable open structures

In Table A – max height using Light Duty ties is undefined – **THEREFORE LIGHT DUTY TIES CANNOT BE USED**

In Table B – max height using Standard Duty ties is undefined – **THEREFORE STANDARD DUTY TIES CANNOT BE USED**

In Table C – max height using Heavy Duty ties is 50m – **HEAVY DUTY TIES MUST BE USED**

4. Using scaffold designation 3-5-1, Table 1 gives a bay length of 2.1m and Table 2, with an 'S' factor of 40, gives a safe height of 31m using Standard Duty Ties.

For Scaffolds attached to permeable open structures

In Table B – max height using Standard Duty ties is undefined – **THEREFORE STANDARD DUTY TIES CANNOT BE USED**

In Table C – max height using Heavy Duty Ties is 9m – **HEAVY DUTY TIES ARE NOT ADEQUATE – THEREFORE THE TIE DENSITY MUST BE DOUBLED AND HEAVY DUTY TIES USED.**

5. Using scaffold designation 4-4-1, Table 1 gives a bay length of 1.8m and Table 2, with an 'S' factor of 20, gives a safe height of 34m using Light Duty Ties.

For Scaffolds attached to permeable open structures

In Table A – max height using Light Duty ties is 46m – **THEREFORE LIGHT DUTY TIES CAN BE USED**

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