



DSA Structural Amendments under review are highlighted in GRAY

Template 19-58

2001 CBC - Chapter 19A  
CONCRETE

Section - 1925A - REINFORCED GYPSUM

Subsection(s) - 1924A.4

1 1925A.4 Diaphragms. Poured-in-place reinforced gypsum con-  
2 crete slabs may be used as diaphragms to resist horizontal forces.  
3 They shall comply with the requirements of this section and Table  
4 16A-Q. Bolts, dowels, lugs or other means approved by the en-  
5 forcement agency shall be used to transfer the design forces along  
6 the margins of the diaphragm into the other structural elements of  
7 the building.

8  
9 The thickness of poured gypsum concrete over form boards  
10 shall not be less than 2 inches (51 mm) for open-web subpurlins or  
11 2-1/2 inches (64 mm) for standard rolled bulb-tee-subpurlins. The  
12 total thickness assumed in the design shall not be more than 3-1/2  
13 inches (89 mm). The thickness of the gypsum over the subpurlin  
14 shall not be less than 5/8 inch (15.9 mm). The minimum reinforce-  
15 ment in gypsum slabs used as diaphragms shall not be less than  
16 1/10 of 1 percent in each direction. Electrically welded mesh rein-  
17 forcement may be considered as meeting the bond requirements of  
18 this section. Mesh shall be lapped a minimum of one wire spacing  
19 at splices. Shear in poured gypsum concrete diaphragms shall be  
20 determined by the formula:

21  
22 
$$Q = 0.75[0.16f_g t C_1 + 1000(k_1 d_1 + k_2 d_2)] C_2$$
 where,

23  
24  $Q =$  allowable shear on diaphragm in pounds per linear foot  
25 which includes a one-third increase for short-time  
26 loading.

27  
28  $f_g =$  500 pounds per square inch (3.4 MPa) for Class A gyp-  
29 sum; 1,000 psi (6.9 MPa) for Class B gypsum.

30  
31  $C_1 =$  1.0 for Class A gypsum; 1.5 for Class B gypsum.  
32

33  $t =$  thickness of gypsum concrete between subpurlins in in-  
34 ches. For the purpose of computing diaphragm shear  
35 values,  $t$  shall not exceed 3-1/2 inches (89 mm).

36  
37  $k_1 =$  number of mesh wires per foot (m) passing over subpur-  
38 lins.

39  
40  $d_1 =$  diameter of mesh wires passing over subpurlins in in-  
41 ches, except hexagonal mesh.

42  
43  $k_2 =$  number of mesh wires per foot parallel to subpurlins, or  
44 0.7 times the number of hexagonal wires. **Note:**  $k_2 = 8.5$   
45 for 2 inches (51 mm) hexagonal mesh woven of No. 19  
46 gage galvanized wire with additional longitudinal No.  
47 16 gage galvanized wires spaced every 3 inches (76 mm)  
48 across the width of the mesh.

49  
50  $d_2 =$  diameter in inches of mesh wires parallel to subpurlins  
51 or hexagonal wires.

52  
53  $C_2 =$  1.4 for Class A gypsum with trussed purlins, and 1.0 for  
54 all other combinations.