



DSA Structural Amendments under review are highlighted in GRAY

Template 23-08

2001 CBC - Chapter 23A  
WOOD

Section - 2315A - WOOD SHEAR WALLS AND  
DIAPHRAGMS

Subsection(s) - 2315A.3.3

1 2315A.3 Wood Diaphragms.

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4 **2315A.3.3 Plywood diaphragms.** *Tables 23A-II-H and*  
5 *23A-II-I-1 shall be used for the design of horizontal and vertical*  
6 *plywood diaphragms except that vertical plywood diaphragms*  
7 *shall be blocked. Plywood shall be applied directly to wood mem-*  
8 *bers of at least 2 inches (51 mm) in nominal dimension. Plywood*  
9 *for horizontal diaphragms shall be as set forth in Tables*  
10 *23A-II-E-1 and 23A-II-E-2 for corresponding joist spacing and*  
11 *loads. \* \* \**

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13 Maximum spans for *plywood* subfloor underlayment shall be as  
14 set forth in Table 23A-II-F-1. *Plywood* used for horizontal and  
15 vertical diaphragms shall conform to UBC Standard 23-2 or 23-3.

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17 *Use of machine nailing is subject to a satisfactory jobsite dem-*  
18 *onstration for each project and the approval of the project archi-*  
19 *tect or structural engineer and the enforcement agency. The*  
20 *approval is subject to continued satisfactory performance. Ma-*  
21 *chine nailing is not allowed for 5/16-inch (7.9 mm) plywood. If the*  
22 *nail heads penetrate the outer ply more than would be normal for a*  
23 *hand-held hammer, or if minimum allowable edge distances are*  
24 *not maintained, the performance will be deemed unsatisfactory*  
25 *and machine nailing shall be discontinued.*

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27 *The allowable shear for vertical plywood shearwalls used to re-*  
28 *sist horizontal forces in buildings with masonry or reinforced con-*  
29 *crete walls shall be one half of the allowable values set forth in*  
30 *Table 23A-II-I-1.*

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32 *Casing nails may be used in plywood shear walls at one half the*  
33 *values listed in Table 23A-II-I-1 provided that the heads of casing*  
34 *nails are set not deeper than 1/16 inch (1.6 mm). Casing nails shall*  
35 *not be used in plywood less than one-half inch in thickness. If used*  
36 *to resist horizontal forces in buildings with masonry or reinforced*  
37 *concrete walls, the reductions for casing nails and for such uses as*  
38 *noted above are cumulative.*

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40 *Plywood diaphragms shall be constructed of plywood sheets,*  
41 *generally not less than 4 feet by 8 feet (1219 mm by 2438 mm) in*  
42 *size, attached to framing members spaced not to exceed the spans*  
43 *set forth in Table 23A-II-E-1 (see also Section 2320A.12), and ar-*  
44 *ranged in the patterns set forth in Table 23A-II-H. In general, pan-*  
45 *el edges shall bear on the framing members and butt along their*  
46 *center lines. Plywood in shear walls shall be at least 5/16 inch (7.9*  
47 *mm) thick for studs spaced 16 inches (406 mm) on center and 3/8*  
48 *inch thick (9.5 mm) where studs are spaced 24 inches (610 mm) on*  
49 *center.*

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51 **NOTE:** *See Table 23A-IV-D-1 for stud spacing where face plies are*  
52 *parallel studs.*

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54 *In horizontal plywood diaphragms, no panel less than 24 inches*  
55 *(610 mm) wide shall be used. In vertical plywood diaphragms, no*  
56 *panel less than 12 inches (305 mm) wide shall be used.*

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58 *The plywood panels shall be designed to resist shear forces only*  
59 *and chords, collector members and boundary members shall be*  
60 *provided to resist the tensile or compressive flange or reaction*  
61 *forces. Perimeter members at openings shall be provided and*  
62 *shall be detailed to distribute the shearing stresses. Diaphragm*  
63 *sheathing shall not be used to splice these members. Boundary*  
64 *members shall be adequately tied together at corner intersections.*  
65 *Diaphragm chords and ties shall be placed in, or tangent to, the*  
66 *plane of the diaphragm framing unless it can be demonstrated that*  
67 *the moments, shears and deflections and deformation resulting*  
68 *from other arrangements can be tolerated.*

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70 *Where plywood is applied on both faces of a shear wall in accor-*  
71 *dance with Table 23A-II-I-1, allowable shear for the wall may be*  
72 *taken as twice the tabulated shear for one side, except that where*  
73 *the shear capacities are not equal, the allowable shear shall be ei-*  
74 *ther the shear for the side with the higher capacity or twice the*  
75 *shear for the side with the lower capacity, whichever is greater.*

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*Nails shall be placed not less than 3/8 inch (9.5 mm) in from the panel edge, shall be spaced not more than 6 inches (152 mm) on center along panel edge bearings, and shall be firmly driven into the framing members. Nails shall be placed not less than 1/2 inch (12.7 mm) in from the panel edge when 3-inch (76 mm) nominal edge members are required per Table 23A-II-Hand 23A-II-I-1. No unblocked panels less than 12 inches (305 mm) wide shall be used.*

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Diaphragms with panel edges supported in accordance with Tables 23A-II-E-1, 23A-II-E-2 and 23A-II-F-1 shall not be considered as blocked diaphragms unless blocking or other means of shear transfer is provided.