

PROPOSED REVISION 15
AP1000 DESIGN CONTROL DOCUMENT

Tier 1 [Subsection 3.3](#) and [Tables 3.3-1](#) and [3.3-6](#)

Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building

Description of Change

Revise Tier 1 Table 3.3-1 to correct and update the dimensions of the concrete walls. Remove reference to the radwaste building walls.

Technical Justification

Some of the dimensions in the current table do not accurately reflect the design of the AP1000. There are no Tier 1 structural requirements for concrete thicknesses for the walls in the radwaste building.

Regulatory Consequence

This change has no effect on design function. This change has no effect on analysis or analysis method. This change will not affect the FSER.

Change Markup

Revise item 4 of the Design Description of Tier 1 Section 3.3 as follows:

3.3 Buildings

Design Description

4. [a\) Walls and floors of the annex building as defined on Table 3.3-1, except for designed openings and penetrations, provide shielding during normal operations.](#)
- [b\) The walls on the outside of the waste accumulation room in the radwaste building provide shielding from accumulated waste.](#)
- [c\) The walls on the outside of the packaged waste storage room in the radwaste building provide shielding from stored waste.](#)

Tier 1 Table 3.3-6 Revise Tier 1 Table 3.3-6 as shown on the next page.

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Table 3.3-6 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4.a) Walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.	Inspection of the as-built annex building wall and floor thicknesses will be performed.	A report exists and concludes that the shield walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations are consistent with the minimum concrete wall thicknesses provided in Table 3.3-1.
<u>4.b) Walls of the waste accumulation room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.</u>	<u>Inspection of the as-built radwaste building wall thicknesses will be performed.</u>	<u>A report exists and concludes that the shield walls of the waste accumulation room in the radwaste building except for designed openings or penetrations are consistent with a minimum concrete wall thicknesses of 1' 4"</u>
<u>4.c) Walls of the packaged waste storage room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.</u>	<u>Inspection of the as-built radwaste building wall thicknesses will be performed.</u>	<u>A report exists and concludes that the shield walls of the packaged waste storage room in the radwaste building except for the wall shared with the waste accumulation room and designed openings or penetrations are consistent with the minimum concrete wall thicknesses of 2'.</u>

Tier 1 Table 3.3-1 Revise Tier 1 Table 3.3-1 as shown on the next pages.

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Table 3.3-1
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾	Applicable Radiation Shielding Wall (Yes/No)
Containment Building Internal Structure				
Shield Wall between Reactor Vessel Cavity and RCDDT Room	E-W wall parallel with column line 7	From 71'-6" to 83'-0"	3'-0"	Yes
West Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
North Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 83'-0" to 98'-0"	9'-0"	Yes
East Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
West Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
North Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
East Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
South Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
South wall of west steam generator compartment	Not Applicable	From 103'-0" to 135'-3" 153'-0"	2'-6"	No Yes
West wall of west steam generator compartment	Not Applicable	From 103'-0" to 135'-3" 153'-0"	2'-6"	No Yes
North wall of west steam generator compartment/south wall of pressurizer compartment	Not Applicable	From 103'-0" to 135'-3" 153'-0"	2'-6"	Yes
West wall of pressurizer compartment	Not Applicable	From 107'-2" to 169'-0"	2'-6"	Yes
North wall of pressurizer compartment	Not Applicable	From 107'-2" to 169'-0"	2'-6"	Yes
East wall of pressurizer compartment	Not Applicable	From 118'-6" to 169'-0"	2'-6"	Yes
North-east wall of in-containment refueling water storage tank	Parallel to column line N	From 103'-0" to 135'-3"	2'-6"	No
West wall of in-containment refueling water storage tank	Not applicable	From 103'-0" to 135'-3"	5/8" steel plate with stiffeners	No
South wall of east steam generator compartment	Not Applicable	From 87'-6" to 153'-0" 135'-3"	2'-6"	Yes

1. The column lines and floor elevations are identified and included on Figures 3.3-1 through 3.3-13, and Figure 3.3-15.
2. These wall (and floor) thicknesses have a construction tolerance of ± 1 inch, except for exterior walls below grade where the tolerance is +12 inches, - 1 inch.
3. For walls that are part of structural modules, the concrete thickness also includes the steel face plates
4. For floors with steel surface plates, the concrete thickness also includes the plate thickness.
5. Where a wall (or a floor) has openings, the concrete thickness does not apply at the opening.

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
East wall of east steam generator compartment	Not Applicable	From 94'-0" to 153'-0" 135'-3"	2'-6"	Yes
North wall of east steam generator compartment	Not Applicable	From 87'-6" to 153'-0" 135'-3"	2'-6"	Yes
Shield Building				
Shield Building Cylinder	Not Applicable	From 100'-0" to 265'-0"	3'-0"	Yes
Columns between air inlets	Not Applicable	From 265'-0" to 271'-6"	3'-0"	Yes
Tension Ring	Not Applicable	From 271'-6" to 275'-10"	3'-0"	Yes
Conical Roof	Not Applicable	From 275'-10" to 289'-0"	1'-6" cast-in-place concrete over 6" pre-cast concrete ribbed conical sections	Yes
PCS Tank External Cylindrical Wall	Not Applicable	From 298'-9" to 333'-9"	2'-0"	Yes
PCS Tank Internal Cylindrical Wall	Not Applicable	From 314'-4" to 334'-0"	1'-6"	Yes
PCS Tank Roof	Not Applicable	334'-0"	1'-3"	No
Auxiliary Building Walls/Floors				
Column Line 1 wall	From I to N	From 66'-6" to 100'-0"	3'-0"	No
Column Line 1 wall	From I to N up to 5'-6" east of L-2	From 100'-0" to 180'-0"	2'-3"	Yes
<u>Column Line 1 wall</u>	<u>From 5'-6" east of L-2 to N</u>	<u>From 100'-0" to 125'-0"</u>	<u>3'-0"</u>	<u>Yes</u>
<u>Column Line 1 wall</u>	<u>From 5'-6" east of L-2 to N</u>	<u>From 125'-0" to 180'-0"</u>	<u>2'-3"</u>	<u>Yes</u>
Column Line 2 wall	From I to K-2	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line 2 wall	From K-2 to L-2	From 66'-6" to 135'-3"	5'-0"	Yes
Column Line 2 wall	From L-2 to N	From 98'-0" to 135'-3"	2'-6"	Yes
Column Line 2 wall	From I to J-1	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line 3 wall	From J-1 to J-2	From 66'-6" to 82'-6"	2'-6"	Yes
Column Line 3 wall	From J-1 to J-2	From 100'-0" to 135'-3"	2'-6"	Yes
Column Line 3 wall	From J-2 to K-2	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line 3 wall	From K-2 to L-2	From 66'-6" to 94'-3" 92'-8 1/2"	2'-6"	Yes

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
Column Line 4 wall	From I to J-1	From 66'-6" to 153'-0"	2'-6"	Yes
Column Line 4 wall	From J-1 to J-2	From 66'-6" to 92'-6"	2'-6"	Yes
Column Line 4 wall	From J-1 to J-2	From 100'-0" 107'-2" to 135'-3"	2'-6"	Yes
Column Line 4 wall	From J-2 to K-2	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line 4 wall	From I to intersection with shield building wall	From 135'-3" to 180'-0"	2'-0"	Yes
Column Line 5 wall	From I to J-1 shield building, with opening east of J-1 (below 107'-2" floor).	From 66'-6" to 160'-6"	2'-0"	Yes
Column Line 7.1 wall	From I to 8' east of J-1	From 66'-6" to 82'-6"	2'-0"	Yes
Column Line 7.2 wall	From I to 5'-6" east of J-1	From 66'-6" to 100'-0"	2'-0"	Yes
Column Line 7.3 wall	From I to K shield building	From 66'-6" to 100'-0"	3'-0"	Yes
Column Line 7.3 wall	From I to K shield building	From 100'-0" to 160'-6"	2'-0"	No
Column Line 11 wall	From I to Q	From 66'-6" to 100'-0"	3'-0"	No
Column Line 11 wall	From I to Q	From 100'-0" to 117'-6"	2'-0"	Yes
Column Line 11 wall	From I to L	From 117'-6" to 153'-0"	2'-0"	Yes
Column Line 11 wall	From L to M	From 117'-6" to 135'-3"	4'-0"	Yes
Column Line 11 wall	From M to P	From 117'-6" to 135'-3"	2'-0"	Yes
Column Line 11 wall	From P to Q	From 117'-6" to 135'-3"	4'-0"	Yes
Column Line 11 wall	From L to Q	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line I wall	From 1 to 11	From 66'-6" to 100'-0"	3'-0"	No
Column Line I wall	From 1 to 4	From 100'-0" to 180'-0"	2'-0"	Yes
Column Line I wall	From 4 to 7.3	From 100'-0" to 160'-6"	2'-0"	No
Column Line I wall	From 7.3 to 11	From 100'-0" to 153'-0"	2'-0"	No
Column Line J-1 wall	From 1 to 2	From 82'-6" to 100'-0"	2'-0"	Yes
Column Line J-1 wall	From 2 to 4	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line J-1 wall	From 2 to 4	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line J-1 wall	From 4 to S shield building	From 66'-6" to 107'-2"	2'-0"	Yes

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
Column Line J-2 wall	From 2 to 4	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line J-2 wall	From 4 to intersection with shield building wall	From 82'-6" 66'-6" to 107'-2" 135'-3"	2'-0"	Yes
Column Line K-2 wall	From 2 to 4	From 66'-6" to 135'-3"	4'-9"	Yes
Column Line L-2 wall	From 2 to 4	From 66'-6" to 135'-3"	4'-0"	Yes
Column Line N wall	From 1 to 2	From 66'-6" to 119'-9" 100'-0"	3'-0"	No
Column Line N wall	From 1 to 12'-9" north of 1	From 100'-0" to 125'-0"	3'-9"	No
Column Line N wall	From 1 to 12'-9" north of 1	From 125'-0" to 135'-0"	2'-0"	No
Column Line N wall	From 12'-9" north of 1 to 2	From 100'-0" to 118'-2 1/2"	3'-0"	No
Column Line N wall	From 12'-9" north of 1 to 2	From 118'-2 1/2" to 135'-3"	2'-0"	No
Column Line N wall	From 1 to 2	From 119'-9" 118'-2 1/2" to 135'-3"	3'-2" 0"	Yes
Column Line N wall	From 2 to 4	From 66'-6" to 98'- 0" 1"	3'-0"	No
Column Line N wall	From 2 to 4	From 98'- 0" 1" to 135'-3"	5'-6"	Yes
Column Line N wall	From 1 to 4	From 135'-3" to 180'-0"	2'-0"	Yes
Column Line J wall	From 7.3 to 11	From 66'-6" to 117'-6"	2'-0"	No
Column Line K wall	From 7.3 to 11	From 60'-6" to 135'-3"	2'-0"	Yes
Column Line L wall	From shield building wall to 11	From 60'-6" to 153'-0"	2'-0"	Yes
Column Line M wall	From shield building wall to 11	From 66'-6" to 153'-0"	2'-0"	Yes
Column Line P wall	From shield building wall to 11	From 66'-6" to 153'-0"	2'-0"	Yes
Column Line Q wall	From shield building wall to 11	From 66'-6" to 100'-0"	3'-0"	No
Column Line Q wall	From shield building wall to 11	From 100'-0" to 153'-0"	2'-0"	Yes
Labyrinth Wall between Col. Line 3 and 4 and J-1 to 7'-3" from J-2	Not Applicable	From 82'-6" to 100'-0" 92'-6"	2'-0" 6"	Yes
N-S Shield Wall (low wall)	Between K-2 and L-2 extending from column line 1 north	From 100'-0" to 107'-2"	2'-6"	Yes
N-S Shield Wall	Between K-2 and L-2 extending from column line 1 north	From 100'-0" to 125'-0"	2'-3"	Yes
E-W Shield Wall	Between 1 and 2 extending from column line N east	From 100'-0" to 125'-0"	2'-9"	Yes

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
Column Line 9.2 wall	From I to J and K to L	From 117'-6" to 135'-3"	2'-0"	Yes
Labyrinth Wall between Column Line 7.3 and 9.2 and J to K	Corner wall <u>J to K</u>	From 117'-6" to 135'-3"	2'-0"	Yes
Auxiliary Area Basemat	From 1-11 and I-Q, excluding shield building	From 60'-6" to 66'-6"	6'-0"	No
Nuclear Island Basemat	Below shield building	From 60'-6" to containment vessel or 82'-6"	6'-0" to 22'-0" (varies)	No
Floor	From 1 to 2 and I to N	82'-6"	2'-0"	Yes
Floor	From 2 to 5 and J-1 to J-2	82'-6"	0'-9" <u>2'-0"</u>	Yes
<u>Floor</u>	<u>From 4 to 5 and J-1 to J-2</u>	<u>82'-6"</u>	<u>0'-9"</u>	<u>Yes</u>
Pipe Chase Floor	From 2 to 5 and J-1 to J-2	92'-6"	2'-0"	Yes
Floor	From 2 to 3 and J-2 to K-2	90'-3"	3'-0"	Yes
Floor	From 3 to 4 and J-2 to K-2	92'-6"	2'-0"	Yes
Floor	From 4 to 7.3 and I to J-1	82'-6"	2'-0"	Yes
Floor	From 1 to 2 and I to N	100'-0"	3'-0"	Yes
Floor	From 2 to 4 and K-2 to L-2	92'-8 <u>1/2"</u>	3'-2 <u>1/2"</u>	Yes
Floor	From I to J-2 and 4 to intersecting vertical wall before column line 5	107'-2"	2'-0"	Yes
Floor	From I to shield building wall and from intersecting vertical wall before column line 5 to column line 5	107'-2" <u>105'-0"</u>	0'-9"	Yes
Floor	From 5 to 7.3 and I to shield building wall	100'-0"	2'-0"	Yes
Floor	From K to L and shield building wall to column line 10	100'-0"	0'-9"	Yes
Floor	From 1 to 4 <u>10'-0" north of 1</u> and L-2 to N	125'-0"	3'-0"	Yes
Floor	From 4 <u>10'-0" north of 1</u> to 2 and L-2 to N	117'-6" <u>118'-2 1/2"</u>	2'-0"	Yes
Main Control Room Floor	From 9.2 to 11 and I to L	117'-6"	2'-0"	Yes

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
Floor	Bounded by shield bldg, 7.3, J, 9.2 and L	117'-6"	2'-0"	Yes
Floor	From 9.2 to 11 and L to Q	117'-6"	2'-0"	Yes
Floor	From 3 to 4 and J-2 to K-2	117'-6"	2'-0"	Yes
Floor	From 2 to 4 and I to J-1	153'-0"	1'-3 1/2"	Yes
Floor	From 1 to 4 and I to N	180'-0"	1'-3"	Yes
Floor	From 4 to short of column line 5 and from I to intersection with shield building wall	135'-5"	0'-9"	Yes
Floor	From short of column line 5 to column line 5 and from I to intersection with shield building wall	133'-0"	0'-9"	Yes
Floor	From 5 to 7.3 and from I to intersection with shield building wall	135'-3"	0'-9"	Yes
Annex Building				
Column line 2 wall	From E to H	From 107'-2" to 135'-3"	19 3/4"	Yes
Column line 4 wall	From E to H	From 107'-2" to 162'-6" & 166'-0"	2'-0"	Yes
N-S Shield Wall between E and F	From 2 to 4	From 107'-2" to 135'-3"	1'-0"	Yes
Column line 4.1 wall	From E to H	From 107'-2" to 135'-3"	2'-0"	Yes
E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	
N-S Labyrinth Wall between column line 7.8 and 9 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	
E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	Yes
N-S Labyrinth Wall between column line 7.8 and 9 and G to H (Same as Row 6 above: Deleted)	Not Applicable	From 100'-0" to 112'-0"	2'-0"	Yes
N-S Shield Wall on Column line. F	From 4.1 North	From 100'-0" to 117'-6"	1'-0"	Yes
Column Line 9 wall	From E to connecting wall between G and H	From 107'-2" to 117'-6"	2'-0"	Yes

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Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾	Applicable Radiation Shielding Wall (Yes/No)
Column Line E wall	From 9 to 13	From 100'-0" to 135'-3"	2'-0"	Yes
Column Line 13 wall	From E to I.1	From 100'-0" to 135'-3"	2'-0"	Yes
Column Line I.1 wall	From 11.09 to 13	From 100'-0" to 135'-3"	2'-0"	Yes
Corridor Wall between G and H	From 9 to 13	From 100'-0" to 135'-3"	1'-6"	Yes
Column Line 9 wall	From I to H	From 117'-6" to 158'-0"	2'-0"	Yes
Floor	2 to 4 from shield wall between E and F to column line H	135'-3"	0'-6"	Yes
Floor	From 4 to 4.1 and E to H	135'-3"	1'-0"	Yes
Floor	From 9 to 13 and E to I.1	117'-6"	0'-6"	Yes
Floor	From 9 to 13 and E to I.1	135'-3"	0'-8"	Yes
Containment Filtration Rm A (North Wall)	Between column line E to H	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (East wall)	Between column line E to F	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (West wall)	Between column line G to H	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (Floor)	Between column line E to H	135'-3"	1'-0"	Yes
Containment Filtration Rm B (Floor)	Between column line E to H	146'-3"	0'-6"	Yes
Containment Filtration Rm B (West wall)	Between column line G to H	From 146'-3" to 158'-0"	1'-0"	Yes
North wall (Room 50351)	N/A	100'-0" to top of wall	1'-4"	Yes
East Wall (Room 50351)	DR from 2R past 3R	100'-0" to top of wall	1'-4"	Yes
West wall (Room 50351)	DR from 2R past 3R	100'-0" to top of wall	1'-4"	Yes
East wall (Room 50352)	FR from 1R to 2R	100'-0" to top of wall	2'-0"	Yes
South wall (Room 50352)	1R from FR to DR	100'-0" to top of wall	2'-0"	Yes
West Wall (Room 50352)	DR from 1R to 2R	100'-0" to top of wall	2'-0"	Yes