

ACI 318-02			318-99
	ACI 318 code	ACI 318-02	
2002	ACI 318-02가	7가	, 318-02
		$U=1.4(D+F)$ (1)	가
		$U=1.2(D+F+T)+1.6(L+H)$	
		+0.5(Lr or S or R) (2)	
		$U=1.2D+1.6(Lr or S or R)$	
		+ (1.0L or 0.8W) (3)	
		$U=1.2D+1.0L$	
		+0.5(Lr or S or R) (4)	(1) (D)
		$U=1.2D+1.0E+1.0L+0.2S$ (5)	
	2002	$U=0.9D+1.6W+1.6H$ (6)	(T), (F)
	ACI 318	$U=0.9D+1.0H+1.6H$ (7)	
1971	가	, D= , F=	
가		, T= ,	1.4 1.2
	1971	, L=	(D) (F)
318	ACI	, Lr= (roof	가 1.4
	2002	live load), S= (雪) (snow	(D T, F가
		load), R = (雨) (rain	1.2)
		load), W = , E =	(2) (L) (H)
		, H =	가 1.7 1.6
			(Lr),
		ACI 318-02	(S), (R)
		(Lr),	(0.5Lr+1.6L),
		(S), (R)	(1.6Lr+1.0L)
ACI 318-02	318-99		
	가		(3) (W)
		'Uniform Building Code'	1.7
			0.75



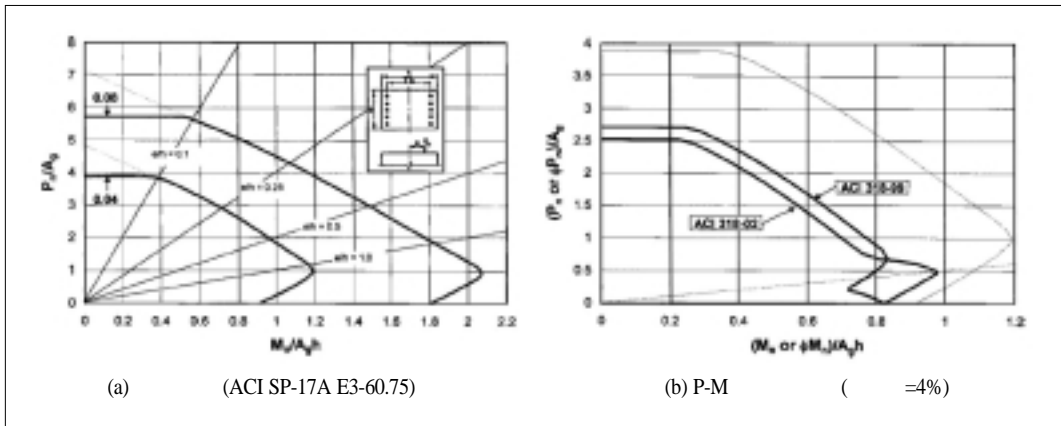
, 318-99 (0.9D+1.43E) , 0.9D+1.3W=220, 0.9D+
 318-02 1.6W=250 250/220=
 (0.9D+1.3W) (0.9D+1.4E) . 1.136 318-99
 , 318-02 1 13.6% 가가
 318-02 .
 1.6 가
 ,
 (0.9D+1.6W) 2002 가
 D=L=100 , 1.2D+1.6L
 =280, 1.4D+1.7L=300
 (4) (E) 280/310=0.903 318-99
 9.7% 가 ,
 1.1E . ,
 , 318-02 . 1999
 가 1.4D . , ,
 , , + , ,
 가 . ,
 , 가 가 ,
 . , D=W=100
 1.

	ACI 318-99	ACI 318-02
(D)	U = 1.4D + 1.7	U = 1.4D
(L)		U = 1.2D + 1.6L
(D)	U = 0.75(1.4D + 1.7L + 1.7W)	U = 1.2D + 1.6L + 0.8W
(L)	= 1.05D + 1.275L + 1.275W	U = 0.9D + 1.3W
(W)	U = 1.2D + 1.0L + 1.6W	U = 0.9D + 1.6W
(D)	U = 0.75(1.4D + 1.7L + 1.87E)	U = 1.2D + 1.0L + 1.0E
(L)	= 1.05D + 1.275L + 1.403E	U = 0.9D + 1.0E
(E)	U = 0.9D + 1.43E	



<p>ACI 318-02</p> <p>가 ()</p> <p>0.005 ()</p> <p>가 , =0.65(: =0.75</p> <p>=0.7)</p> <p>가 (3) - (2</p> <p>(transition region)) :</p> <p>(1) () :</p> <p>0.005</p> <p>0.005 0.65(=0.7)</p> <p>(0.9</p> <p>) =0.9 . (1)</p> <p>(2) - ($P_u < 0.1f_{ck} A_g$ or</p> <p>) : P_b ,</p> <p>(4) : =0.85 =0.75</p> <p>2.</p>		<p>(5) : =0.7 =0.65</p> <p>(6) strut-and-tie model</p> <p>0.75</p> <p>()</p> <p>가</p>																																								
<p>(ACI 318-99)</p> <p>(=0)</p> <p>, +</p> <p>, +</p> <p>-</p> <p>-</p> <p>()</p> <p>-</p>	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">()</th> <th rowspan="2">(ACI 318-02)</th> </tr> <tr> <th>ACI 318-99</th> <th>ACI 318-02</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>0.90</td> <td rowspan="2">0.90</td> <td colspan="2"></td> </tr> <tr> <td>0.90</td> <td colspan="2"></td> </tr> <tr> <td>0.75</td> <td>0.70</td> <td colspan="2">-</td> </tr> <tr> <td>0.70</td> <td>0.65</td> <td colspan="2">-</td> </tr> <tr> <td>0.85</td> <td>0.75</td> <td colspan="2"></td> </tr> <tr> <td>0.70</td> <td>0.65</td> <td colspan="2">()</td> </tr> <tr> <td>0.85</td> <td>0.85</td> <td colspan="2"></td> </tr> <tr> <td>-</td> <td>-</td> <td>0.75</td> <td colspan="2">strut-and-tie models</td> </tr> </tbody> </table>			()		(ACI 318-02)	ACI 318-99	ACI 318-02			0.90	0.90			0.90			0.75	0.70	-		0.70	0.65	-		0.85	0.75			0.70	0.65	()		0.85	0.85			-	-	0.75	strut-and-tie models	
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가	318-02 : $U_{02}=1.2D+1.0L+1.6W$ =280	$U_{99}/U_{02} = 0.830$, 318-02	가	.
		가	,	0.65(
	(D)	/1.133=0.732가	,	0.005	
(L) 가			0.9가	,	
(D=L=100), ACI 318-99 :		27%			
$U_{99}=1.4D+1.7L=310$, ACI 318-					318-02
02 : $U_{02}=1.2D+1.6L=280$			318-99	0.65/0.7=0.929가	
$U_{99}/U_{02}= 1.107$		27%	가	가	
	318-02	가		1.0	
10.7%			0.7/0.65		
가	,	=1.077(),		가
	가		0.75	0.9/0.7=1.286	가
		/0.7=1.070		「 2 (b) 」	
(2) , ,			가		가
		가	,		10%
		가		가	
$U_{99}/U_{02}=0.85/0.75=$	(3) P-M		318-02		
1.133	,				40%
D=L=100		1 (a)	가		
	, 1.107	ACI 318-99			318-99
/1.113=0.995		318-02	(b)	40%	
가		P-M	. 318-		
		99			가
	가	$P_n=0$	=0.9 , P_n	,	
, D=W=100, L=0		$0.1f_{ck}A_g$	=0.7()		
ACI 318-99 : $U_{99}=0.75$, $0 < P_n$	$0.1f_{ck}A_g$		
(1.4D+1.7L+1.7W)=232.5, ACI		가 0.9	0.7	가	,



1. ACI 318-99 318-02 P-M

가

, 2002

가

318-02

ACI

10%
가

가

가

가

가

ACI 318

1. ACI 318-99, 'Building Code Requirements for Structural Concrete and Commentary'; 1999, American Concrete Institute
 2. ACI 318-02, 'Building Code Requirements for Structural Concrete and Commentary'; 2002, American Concrete Institute
 3. Howard Epstein, 'How Does the Change from ACI 318-99 to 318-02 Influence Capacity?'; 2003. 11, Journal of Practice Periodical on Structural Design and Construction, ASCE, pp.180-185
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