



Management@ISTAins.com

ASCE

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P-Delta

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$$\theta_i = \left[\frac{P_i \Delta_{wi}}{V_i h_i} \right]$$

P_i : Pi
 Δ_{wi} : Δ_{wi}
 h_i, V_i : h_i, V_i

P-Delta

()

$$M_C = \delta_{ns} M_2$$

M_C : M_C
 M_2 : M_2
 δ_{ns} : δ_{ns}

(K)

()

$$M_1 = M_{1ns} + \delta_s M_{1s}$$

$$M_2 = M_{2ns} + \delta_s M_{2s}$$

$M_{1,2}$: $M_{1,2}$
 $M_{1ns, 2ns}$: $M_{1ns, 2ns}$

$M_{1s, 2s}$

()

δ_s

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$\delta_s M_s$

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(K)
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(M_{ns}
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P-Delta

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$$M_C = \delta_{ns} M_d$$

() : M_d

(δ_{ns})

M_d

M_d

$$M_d = M_{ns} + \delta_s M_s$$

:

P-Delta

$$M_C = \delta_s (M_{ns} + \delta_s M_s)$$

δ_{ns}

:

P-Delta

δ_{ns}

δ_{ns}

Concrete Frame Design

Design

SAP

View/Revise overwrites

Concrete Frame Design Overwrite for ACI 318-99

Item	Value
1 Current Design Section	Program Determined
2 Framing Type	Program Determined
3 Live Load Reduction Factor	Program Determined
4 Unbraced Length Ratio (Major)	Program Determined
5 Unbraced Length Ratio (Minor)	Program Determined
6 Effective Length Factor (K Major)	Program Determined
7 Effective Length Factor (K Minor)	Program Determined
8 Moment Coefficient (Cm Major)	Program Determined
9 Moment Coefficient (Cm Minor)	Program Determined
10 NonSway Moment Factor(Dns Major)	1.
11 NonSway Moment Factor(Dns Minor)	1.
12 Sway Moment Factor(Ds Major)	Program Determined
13 Sway Moment Factor(Ds Minor)	Program Determined

Item Description

Unitless moment magnification factor for sway minor-axis bending moment. Specifying 0 means the value is program determined. The program determined value is taken as 1 because it is assumed that P-Delta effects were specified to be included in the analysis, and thus no further magnification is required. This item only applies to frame objects with column-type current design sections.

For symmetrical sections minor bending is bending about the local 2-axis. For unsymmetrical sections (e.g., angles) minor bending is the bending about the section principal axis with the smaller moment of inertia.

Explanation of Color Coding for Values

- Blue:** All selected items are program determined
- Black:** Some selected items are user defined
- Red:** Value that has changed during the current session

Set To Prog Determined (Default) Values: All Items Selected Items

Reset To Previous Values: All Items Selected Items

OK Cancel

ETABS

Concrete Frame Design Overwrites (ACI 318-99)

<input type="checkbox"/>	Element Section	C30X40
<input type="checkbox"/>	Element Type	Sway Special
<input type="checkbox"/>	Live Load Reduction Factor	1.
<input type="checkbox"/>	Unbraced Length Ratio (Major)	0.875
<input type="checkbox"/>	Unbraced Length Ratio (Minor)	0.875
<input type="checkbox"/>	Effective Length Factor (K Major)	1.
<input type="checkbox"/>	Effective Length Factor (K Minor)	1.
<input type="checkbox"/>	Moment Coefficient (Cm Major)	1.
<input type="checkbox"/>	Moment Coefficient (Cm Minor)	1.
<input checked="" type="checkbox"/>	NonSway Moment Factor(Dns Major)	1.
<input checked="" type="checkbox"/>	NonSway Moment Factor(Dns Minor)	1.
<input type="checkbox"/>	Sway Moment Factor(Ds Major)	1.
<input type="checkbox"/>	Sway Moment Factor(Ds Minor)	1.

OK

Cancel

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ACI

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4-MacGregor, J, G. and Hage, S.E., "Stability Analysis and Design of Concrete Frames,"
J. structural Div.ASCE 103, No. ST10, 1953-1970, Oct. 1977.

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