PLASTIC DESIGN OF MULTI-STORY FRAMES

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ERRATA

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PREFACE

* * * *

pg. iii, para. 2. last line: change to read:

pg. iv, last para. last two lines: Change to read:
H. Liebowitz, E. M. MacCutcheon, W. A. Milek, N. M. Newmark, N. Perrone,

LECTURE 1

pg. 1.6, last para, lines 7 and 8 from bottom:
Enclose words "unbraced frames" in quotation marks.

pg. 1.8, next-to-last para., last line:
Add reference: ... frames. (1.7)

pg. 1.14, next-to-last para.: Delete paragraph beginning:
20. Lecture 20. Summary and Review

LECTURE 2

pg. 2.2, Fig. 2.2: Correct spelling of
Fatigue
pg. 2.4, Following Fig. 2.3: Insert title:

COMPARISONS AND CONTRASTS IN STRUCTURAL DESIGN TECHNIQUES

Fig. 2.3

Pg. 2.10, Fig. 2.8: Redraw figure to fix strain hardening slopes of HY 80 and V65 and initiation of strain hardening values.
(See attached figure)

pg. 2.11, Fig. 2.10: Correct the spelling of:

stress

pg. 2.18, para. 2: Draw a "box" around the statement of the principle of virtual displacements.

pg. 2.19, Draw a "box" around the Procedure for Mechanism Method.

pg. 2.28, line 11, Column SA: change -1 to +1

line 12, Column SA: insert a dash (—)

line 13, Column 6-5: insert 0 (zero)

Column SA: insert a dash (—)

pg. 2.29, 1st line following Note: correct spelling of equalize

, para (1), first word: Equalization

pg. 2.30, 2nd line from bottom: change "do not" to:

"does not"

pg. 2.31, Ref. 2.2: correct:

Beedle
Constructional Alloy (A514)

HY 80

V65

A440

A36

A7

Note: Plastic range strains not to scale.

YIELD STRESS LEVELS FOR VARIOUS STEELS

Fig. 2.8
LECTURE 3

p. 3.1, 9th line from bottom, "tested should be:"
"treated"

p. 3.3, Fig. 3.2: Make theoretical curves dotted.

p. 3.7, Fig. 3.4, after 8" x 4" x 1/4" add: Structural tubing,
after 0.3 \( \sigma_y \) add closing paren: )

p. 3.7, 3rd line from bottom, should be "with a curve...."

p. 3.8, Fig. 3.6, change \( M_C \):
\[
\frac{M}{C} \quad \text{(upper case C four places)}
\]

p. 3.9, 3rd from top, should be "....at the beam end may be...."

p. 3.12, Fig. 3.9, insert a space between "Strain" and "gage"

p. 3.15, remove patch line below first line of text

p. 3.15, 2nd line from top, should be "depth-thickness" (add hyphen).

p. 3.15, put box around last 9 lines beginning: "The width-thickness...."

p. 3.17, 1st line, word should be "based"

p. 3.21, put box around last 12 lines, beginning: "Lateral bracing shall...

p. 3.25, put box around text below item 5 beginning: "Bracing members..."

p. 3.30, Ref. 3.4 should be, "Proc. ASCE, Vol. 91, No. ST3, June 1965, p. 25"
LECTURE 4

p. 4.2, An arrowhead pointing to the right should be added to Fig. 4.1a near the upper symbol V. The arrowhead represents the direction of the shear force acting at the upper end of the column.

p. 4.4, 1st para., 5th line, fix margin. Whole line should be moved toward the right by one space.

1st para., 6th line, "extended" should be replaced by:

"rolled"

Eq. 4.1 should read:

\[ \sigma_{cr} = \frac{\pi^2 EI}{A(Kh)^2} = \frac{\pi^2 E}{(Khr)^2} \]

p. 4.5, last line of the page - whole line should be moved toward the left by two spaces.

p. 4.7, Fig. 4.4. Change \( \sigma_{rC} \) to \( \sigma_{rc} \) 3 times, change \( \sigma_{rT} \) to \( \sigma_{rt} \) twice.

p. 4.9, para. 4. Change material in box to read:

Axially loaded columns are designed according to the CRC basic column formula (Eq. 4.3).

second line from the bottom - "two" should be:

two

p. 4.10, the second **OK** on this page should be moved down by one line.

\[ P_{cr} = (0.915)(36)(19.41) = 638 \text{ kip} > 615 \text{ kip} \] **OK**
p. 4.11, Heading of Art. 1 should be:

1. Moment-Thrust-Curvature Relationships

p. 4.12, In the inset at the upper right hand corner of Fig. 4.7, the line between the words "Unit" and "Length" should be removed.

Fig. 4.7. In use lower case c in both places.

Add reference number 4.18 to the title of Fig. 4.7

\[(4.18)\]

M-P CURVES FOR 8WF31 SECTION

p. 4.13, In Fig. 4.8, second shape is 14WF426

Between Fig. 4.8 and the paragraph starting with "Once the M-P-\( \Phi \)...." insert a heading:

2. Ultimate Strength Solutions

p. 4.14, First line of the page, "accidental" should be:

accidental

p. 4.18, 8th line from the bottom - "Try 10WF66" not "Try 10WF60"

7th line from the bottom - "charts should be "chart!"

p. 4.19, 5th line from the bottom - "ration" should be "ratio"

p. 4.21, Last line - "for" should be "from"

p. 4.22, Add Ref. No. 4.26 to the title of Fig. 4.12:

COLUMN CURVES FOR THREE BUCKLING MODES \((4.26)\)
p. 4.24, Last line - "pinne-end" should be "pinned-end"

p. 4.25, 7th line from the top - "L/r_x" should be "h/r_x"

p. 4.27, 4th line from the top - "in-plnae" should be "in-plane"

p. 4.30, Fig. 4.16. Add notations q = 0 below and q = -i above the curves.

4th line from the bottom - "into" should be "in"

p. 4.31, Add Ref. No. 4.34 to the title of Fig. 4.17:

BRACING SPACING FOR ATTAINMENT OF MAXIMUM IN-PLANE MOMENT (4.34)

p. 4.35, Second para., 7th line - after the word "columns", there should be a double asterisk. . . . columns.**

Near the bottom, the second footnote should start with two asterisks. The whole footnote should be moved to the left by 2 spaces in order to line up with the first footnote.
LECTURE 5

pg. 5.2, line 6: Correct spelling of:

Hence,

pg. 5.2, revise Fig. 5.1 to show bending of beams.

pg. 5.3, Rotate Fig. 5.3 90° clockwise.

pg. 5.7, 2nd para., last sentence, add: "extensively" as the last word.

pg. 5.10, 2nd para., 1st line: Change end of line to read:

(splices. (5.9) One

pg. 5.15, Remove 5 lines starting: "Step 3" from pg. 5.15 and place
them at top of pg. 5.16. Remove 7 lines and sketch from pg. 5.16
starting "(b) Bending of Tee Flange" and ending "= 117.6"
Place them at bottom of pg. 5.15

pg. 5.16, Move first two equations down to just above line starting:
"T + Q"

pg. 5.28, last line in first box: should read:

\( T + Q \leq \text{Maximum Tension Allowed} \)

pg. 5.31, Ref. 5.14, 4th line:

Change ST3 to ST5

LECTURE 6

pg. 6.40, Line 2: change to Col. A1-A2
LECTURE 7

p. 7.3, Fig. 7.1, add diagonal brace in 5th story from top of frame

p. 7.5, Eq. 7.3, should be:

\[ h H_{cj} + F_{cj} \rho_i h = 0 \]

p. 7.5, line above Eq. 7.5, should be \( \cos \theta \) instead of \( y \)

p. 7.5, Eq. 7.5 should be:

\[ F_{bi} = \frac{L_{bi}}{L} \left( \sum_{i}^{i} H_i + \rho_i \sum_{i}^{m+1} P_{ij} \right) \]

(add brackets)

p. 7.14, lines 1 and 6: 2 - 3 x 2-1/2 x 1/4 angles.

p. 7.17, Eq. 7.21 should be:

\[ H_{Fi} = \frac{12E_{p}}{h_i} \sum_{i}^{m} \frac{K_{cj}}{1 + \frac{4K_{cj}}{K_{Bj}}} \]

p. 7.18, Sketch: Middle beam is 12 Jr 11.8

p. 7.21, Eq. 7.28 should be:

\[ \rho_{Bi} = \frac{L}{A_{Bi}E_{hi}} \sum_{i}^{i} H_i \]

p. 7.22, Remove parens from page No.

p. 7.28, line 10 through 14 are a footnote and should be placed at the bottom of this page.

p. 7.29, 12th line from top should be:

"this story over...."
p. 8.3, Eq. 8.1 should read:

\[ M_p + M_u = \frac{w_u L^2}{8} \]

8.5, 1st line of Table 8.1, correct spelling of:

"Trial"

8.11, Fig. 8.4, Expression \( \frac{L}{r} \sqrt{\frac{36}{36}} = 20 \) should read:

\[ \frac{L}{r} \sqrt{\frac{36}{36}} = 20 \]

8.14, Eqs. 8.5 and 8.7 should read:

\[ P_{gi} = \sum_{i=1}^{m} H_i + \rho_i \sum_{j=1}^{m+1} P_{ij} - \frac{3E}{h_i} \rho_i \sum_{j=1}^{m} K_{ij} \]

8.16, Table 8.5, under "Section": Correct spelling of:

"Trial"

8.20 and 8.23, Eq. 8.18 should read:

\[ q_u = 25.6 \frac{d_s^2}{\sqrt{f_c}} \] (correct coefficient)

Eq. 8.19 should read:

\[ q_u = 15.1 (h+0.5t) w \sqrt{f_c'} \] (correct coefficient)

8.22 and 8.23, Eq. 8.20 should read:

\[ w = \frac{1 - P_g/P_e}{1 - 0.18 P_g/P_e} \left( 1 - \frac{P_g}{P_e} \right) w_u \] (8.20)

Eq. 8.21 should read:

(it is correct on p. 8.22)

\[ w_u = \frac{8(M_p + M_u)}{L^2} \] (8.21)
p. 8.30, middle of page, 17th line: Underline:

Short term deflection

8th line from bottom: Live Load deflection:
delete: 0.148
insert: 0.0123

p. 8.31, there should be no cross-hatching below N.A. in the sketch:

Lecture 9

p. 9.3, Fig. 9.1, add arrow on P at lower end of column:

p. 9.4, Fig. 9.2, Move circled $A$ and $B$ over to ends of column.

p. 9.6, line above Fig. 9.4 should be:

"...is a half sine wave of..."

p. 9.9, item 8) should be:

8) No strain regression.

p. 9.12, 3rd line from bottom, insert sentence:

"This is true only as long as the ratio of maximum compression residual stress to yield stress remains approximately constant."

(or insert footnote:

* See Note: pg. 9.25 and add the note at end of pg. 9.25).
p. 9.14, lower sketch in Fig. 9.11 should be:

\[ \theta_{oc} \quad \text{(Not: } \theta_{ou} \text{)} \]

p. 9.16, mark \( \frac{1}{2} \) inside ellipse in Fig. 9.12 should be removed.

p. 9.19, omit "at the other end" at bottom of page and close up gap between end of text and footnote.

p. 9.20, end of para. 1) add words:

at the other end.

p. 2.23, Fig. 9.18, change "a" label on abscissa to:

\[ \alpha \quad \text{(alpha)} \]

Fig. 9.17, on sloping curve a c d b, change to:

Constant \( \beta \quad \text{(beta)} \)

p. 9.25, add: Note: page 9.12

This is true only as long as the ratio of maximum compressive residual stress to yield stress remains approximately constant.
p. 10.1, Move the para.:  

The types of planar multi-story frames discussed in this conference are classified into two categories: 

braced frames and unbraced frames.  

(Lecture 1)  

toward the right by 3 spaces. (Lecture 1) should be directly below "braced frames"  

p. 10.5, 3rd para., insert replacement para.:  

The first attempt to determine the strength of restrained columns without sway was made by Chwalla (10.1) in 1937. Further work was done by Baker, Horne, Roderick and Heyman (10.2,10.3), and by Bijlaard, Fisher and Winter (10.4). An approximate method for unsymmetrical restrained columns was proposed by Bijlaard (9.8). In 1960 Ojalvo re-examined Chwalla's work and developed a systematic approach to restrained columns by introducing the nomographic CDC curves (Lecture 9) (9.10,9.14). The same problem was attacked by Collins and Sidebottom, using a computer analysis (10.5). Ojalvo's work was further extended by Levi and others at Lehigh University (Refs. 9.11, 9.15, 10.6, 10.7, 10.8, 10.9).
In contrast to the great deal of work done on non-sway columns, relatively few attempts were made to analyze restrained columns permitted to sway. A very simple case has been analyzed by Oxford and Knothe using an approximate method originally proposed by Merchant. Levi proposed a general method of analyzing restrained columns with sway (10.11). The material in this lecture is essentially that reported in Ref. 10.9.

In Fig. 10.3b, delete the "K" in "KM" in Fig. 10.3d, add two arrowheads representing the action of the compressive force P. Show symbol P near the arrowheads.

Last line, replace "L/r" by: h/r

6th line from the top, change "M max" to: M max

15th line from the top, change "M max" to: M max

Move the two equations at the top of the page to the top of the next page (p. 10.14).

7th line in Fig. 10.5, add subscript "U" to "Q". The subscript for the q's in lines 6 and 7 should be capital U, not lower case u.

4th line from the bottom - replace "fig." by: Fig.

In the upper figure, "M u" should be: M eU

Replace Fig. 10.6 by the attached figure.

2nd line from the bottom, "restrain" should be: rotation
p. 10.24, 3rd para., 1st line change to read:

A restrained column bent into a symmetrical configuration is adequate

para. 4, line 1, replace "subassemblage" by: column

p. 10.25, 3rd line from the top, "id" should be: is

last line "Example 7.2" should be: Example 10.2

p. 10.26, 2nd line after Solution, add \( M_{pc} \approx 0.10 \) at the end:

\[
M = \frac{47.7}{r} M_{pc} (0.002) = 0.0954 M_{pc} \approx 0.10 M_{pc}
\]

p. 10.27, 2nd para., 1st line, "ratioed" should be: ratios

p. 10.32, In the upper figure, change L to: h

In the lower figure, add (kip-in) below \( M_0 \)

change \( M_{max} = 1080 \text{ in-k} \) to

\[
M_{max} = 1080 \text{ kip-in}
\]

add (radians) to the right of \( \theta \)

p. 10.33, Ref. 10.11, "Knothke" should be: Knothe
LECTURE 11

p. 11.2, 2nd line from the bottom, change line to end: ratios less

p. 11.7, 3rd line from the top, remove one of the asterisks:

...double curvature.*

Draw a line above the footnote and show an asterisk in front of the footnote.

p. 11.10, 4th line from the top. In the expression for V₆, there should be a closing parenthesis after 5.02.

p. 11.15, Equation 11.13 should be: 11.3

Last para., 2nd line, "Semgnet" should be: Segment

p. 11.18, Draw a box around Example 11.3

p. 11.20, Title for the subheading (1), change "Moments Induced by" to:

(1) The Effects of Checkerboard Loading

p. 11.23, Underline the subheading (2) Resisting Moments of Columns

Change the subheading (3) Resisting Moments of Restraining Girders to:

(3) Resisting Moment of Restraining Girder

p. 11.24, 2nd para., 4th line, delete the word "it"

p. 11.27, Underline the subheading (4) Subassemblage Assumed for Designing Interior Columns

p. 11.34; 7th line from the top should read:

\[ M_{CB} = \frac{w_D L_g^2}{12} + \frac{w_D L_g}{2} \frac{d_c}{2} = \frac{(3.26)(22.8)^2}{12} + \frac{(3.26)(22.8)}{2} \frac{7}{12} = 163 \text{ kip-ft} \]
p. 11.37, Last line of the page: change to end with:

\[ \text{factored dead load } w_{Dr}. \]

p. 11.38, In Fig. 11.20c, \( \theta \) should be equal to \( -\frac{1}{2} \theta_B \)

p. 11.47, 3rd line from the bottom, change Eq. A3 to Eq. A1.

LECTURE 12

p. 12.4, Eq. 12.2 should read:

\[ \left( \frac{\Delta}{h} \right)_i = \rho_i = \frac{L_{bi}^3}{A_{bi} E_{hi} L^2} \sum_{i=1}^{i} H_i \]

p. 12.7, Fig. 12.2, Insert a short line between the numbers 0.30\(^T\) and 1.90\(^T\) to indicate summation. (Note - This also should be done in Figures 12.5 (pg. 12.28), 12.8 (pg. 12.32), 12.6 (pg. 12.30), 12.10 (pg. 12.35), 12.7 (pg. 12.31)

p. 12.11, Revise as follows:

(2) **Columns A3-A4 and A4-A5**

These two columns are designed to resist the moment applied at Joint A4 which is also equal to 311 kip-ft.

Try 14WF61,  \[ P_y = 646 \text{ kip}, \ r_x = 5.98 \text{ in.}, \ h/r_x = 24.1 \]

\[ \frac{P}{P_y} \text{ in A3-A4} = \frac{265}{646} = 0.410, \ M_m = M_{pc} = 212 \text{ kip-ft}. \]

\[ \frac{P}{P_y} \text{ in A4-A5} = \frac{368}{646} = 0.570, \ M_m = M_{pc} = 157 \text{ kip-ft}. \]
\[ \Sigma M_m = 212 + 157 = 369 \text{ kip-ft} > 311 \text{ kip-ft} \quad \text{OK} \]

**Use 14WF61**

The equilibrium requirement of Joint A3 can now be checked \( \Sigma M_m = 156 + 212 = 368 \text{ kip-ft} > 311 \text{ kip-ft} \)

p. 12.21, Table 12.3, The heading of the last column of the table should read:

\[ \tau_{\text{min}} \quad \text{instead of } \gamma_{\text{min}} \]

p. 12.22, Table 12.4, Refer to the explanation of deflection indices immediately under the table. The middle line should read:

\[ (\Delta/h)_{B_i} = \text{Deflection due to beam shortening.} \]

p. 12.28, Fig. 12.5, Column A3-A4, A4-A5 should be 14WF61 instead of 14WF53.
p. 13.3, Fig. 1a, 1b, 1c, 1d, 1e, 1f, 1g:

change "p" in $M_p$ to lower case.

change "PC" in $M_{PC}$ to lower case.

p. 13.5, Fig. 13.3, modify as per attached sample.

p. 13.6, last two lines to be arranged to read:

according to this theory reaches a maximum load $w_\ell$ and then drops.

p. 13.10, 2nd line from bottom: replace word "fact" with" statement

p. 13.11, 7th line, "solid dot" should be:

"open dot"

p. 13.21, insert between para's the following para.:

A more refined formulation of Eq. 13.1 was suggested by Ligtenberg. For $w_e$ he used the buckling load of the structure remaining after the formation of all plastic hinges but one (or even fewer if $w_m$ was reached with fewer hinges).

p. 13.23, add reference 13.22:

13.22 Ligtenberg, F. K.
STABILITY AND PLASTIC DESIGN (1 and 2), Heron (English Edition), No. 3, Delft, The Netherlands (1965)
BEHAVIOR OF UNBRACED FRAMES

Fig. 13.1 Load-Deflection Relationship
(Proportional Loading)
p. 14.17, Eq. 14.25, should read:

\[ \frac{dc}{L} < 1.0 \]

p. 14.26, Adjustment \( M_2 \) should be:

- 49.5 for both Girder AB and BC.

Joint A3: Move + 22 + 21 up one line.
Move + 7 + 6 up one line.
Joint B3: Move - 7 - 6 up one line.

p. 14.32, Eq. 14.27: Change \( \theta \) to:

\[ \theta_A \]

Line following Eq. 14.29: Change Eq. 15.4 to Eq. 14.27

p. 14.35, Fig. 14.14:

Break ordinate scale at 80.
LECTURE 15

p. 15.6, Change Fig. 15.4c to look as follows:

\[ \begin{align*}
H_{\text{max}} & \quad \uparrow \quad W_1 \\
& \quad \downarrow \quad W_2 \\
& \quad \downarrow \quad W_3 \\
& \quad \downarrow \quad W_{\text{cr}}
\end{align*} \]

p. 15.8, 8th line from the top, add reference no. 15.15 at the end.

... is given by (15.15)

p. 15.11, In 15.7, move up reference no. 15.1 in the title. The reference no. should be a superscript:

\text{DESIGN APPROXIMATION}^{(15.1)}

p. 15.16, 1st line, center References (Lecture 15)

In Ref. 15.11, second line should be changed to Proc. Instn. Civil Engrs. 13, p. 287 (1959)

Add Ref. 15.15 at the bottom:

15.15 Heyman, J. (same as Ref. 13.15)
p. 16.11, first line of table: Correct spelling of:
Function

p. 16.12, first line of table: Correct spelling of:
Function

p. 16.17, top line of table: Change "Level" to "Story".
3rd line up from bottom of table: Change 791 to:
741

p. 16.22, 3rd line from bottom: Change 0.00163 to:
0.0163
LECTURE 17

p. 17.3, Fig. 17.1a: $\theta_L$ is angle between vertical and tangent to lower column end. Delete arrow and add correct arrow.

p. 17.5, Change 17.2 to:

SOLUTION OF THE GENERAL CASE

p. 17.11, sketch in Example 17.1, add force Q on top and bottom

\[ \begin{align*}
Q & \rightarrow F_u \\
& \\
& \leftarrow Q \\
& \downarrow M_{el} \\
& \\
\end{align*} \]

Eq. 17.4: Change $M_r$ to $M_{rL}$

p. 17.26, Fig. 17.8, remove $M_{pc}$ from numbers which appear with the horizontal arrows. It should be:

0.40, 0.27 and 0.19 instead of:

0.40 $M_{pc}$, 0.27 $M_{pc}$ and 0.19 $M_{pc}$.
LECTURE 18

p. 18.1, 1st para. 4th line, spelling error:

occurring

p. 18.2, Section 18.2, 1st line of first para. should read:

Consider the multi-story frame shown in Fig. 18.1a. The factored hinges may also form at the ends of those members. As the lateral

p. 18.4, 3rd line from top of page should read:

example

p. 18.4, 3rd line of 2nd para. spelling error:

example

p. 18.5, Eq. 18.1 should read:

\[ M_{n-1} = - \left( \lambda \sum H_n - 1 \right) \frac{h}{2} + P_{n-1} \frac{\Delta n-1}{2} \]  

(18.1)

p. 18.6, Fig. 18.3, insert titles:

(a) Forces Applied to Lower Story From Upper Columns
(b) Exterior Subassemblage
(c) Interior Subassemblage

Remove "E" from "DEVELOPMENT" in title of figure

p. 18.8, 2nd para., 1st line should read:

Equilibrium of moments at the upper joint requires that*

p. 18.8, Insert a short line above the footnote as was done on page 18.9 for example.
Lecture 18

p. 18.10, Eq. 18.7:

\[ M = \frac{M}{M_p} + \left( \frac{P}{P_y} \right) \frac{h}{r} \left( \frac{d}{2r} \right) \frac{d}{h} \]

\[ \text{(change } M_p \text{ to } M_{pc}) \]

p. 18.11, Lines 1 and 2 at top of page, change second and third Q's to θ's.

p. 18.12, 6th line from top of page change "given" to read: give

p. 18.13, 2nd para., line 11 should read:

(End A).* At the same time, the restraining moment will reach its

p. 18.16, Bottom of page, change to read:

Application of Q - Formation of First Plastic Hinge (End B)

Restraining Function: Assume that the near end and the far end rotate through the same angle.

\[ M_{rl} = \frac{6EI}{LM_{pc}} \theta M_{pc} = \left( \frac{6(29,000)(1141)}{(296)(7850)} \right) \theta M_{pc} = 85.5 \theta M_{pc} \]

p. 18.28, Change reference 18.1 to read:

18.1 Holmes, M. and Gandhi, S. N.

Fig. 18.10 (p. 18.15), Fig. 18.14 (p. 18.21), Fig. 18.17 (p. 18.25), Fig. 18.19 (p. 18.27), the column height should be: \( h/2 = 6' \)
CORRECTIONS FOR DESIGN AIDS BOOKLET

Back of title page: copyright notice should be on back of title page to satisfy copyright requirements.

p. I-1, Remove the subscript x in r of the Column Research Council "Basic Column Formula". The formula should read:

$$\frac{\sigma_{cr}}{\sigma_y} = 1 - \frac{\sigma_y}{4\pi^2EI} \left(\frac{Kx}{r}\right)^2$$

p. I-1, Add a period at the end of the sentence of the 5th line.

Table I-1, Use capital K in the heading $\frac{Kh}{r}$

p. II-2, Replace the material on this page by the following:

**Example:** An axial force of 755 kip is applied to a 14WF127 column of A36 steel. Determine the reduced plastic moment capacity of the column.

From Table II-1:

- $P_y = 1344$ kip, $P/P_y = 755/1344 = 0.562$
- $M_{pc} = 392$ kip-ft for $P/P_y = 0.5$

The average difference between intervals is 75.4 kip-ft.

By linear interpolation

$$M_{pc} = 392 - (0.62)(75.4) = 345 \text{ kip-ft.}$$

Table II-1, 2nd page should start with the section 14WF78 not 10WF100.
Cut the sheet from the booklet and reverse the pages.

Table II-1, 4th page, 9th line, 5WF18.5 not 5WF18.3
Table II-2, 1st page, for the 14WF158 section, when \( P/P_c \) = 0.3 the \( M \) value is equal to 870.0 instead of 870.3

Table II-2, 2nd page, should start with the section 14WF48 not 8WF40. Cut the sheet from the booklet and reverse the pages.

Table II-2, 3rd page, for the 8WF20 section, \( P \) should be equal to 294.0 kips not 249.0 kips.

p. III-2, 12th line from the top, add t in the word rotation.

p. IV-2, The last line should read:

The rotation \( \theta \) is found from Chart IV-5 to be 0.004 radians or 0.0265 radians.

Chart VI-1 to Chart VI-18, Change \( M_c \) to \( M_e \) at top of column in sketch.

Charts VI-8 and VI-9 should be interchanged:

\[
\begin{align*}
\text{Chart VI-9} & \quad \begin{array}{c}
P = 0.50 \, P_y \\
h = 30r
\end{array} \\
\text{Chart VI-8} & \quad \begin{array}{c}
P = 0.50 \, P_y \\
h = 25r
\end{array}
\end{align*}
\]