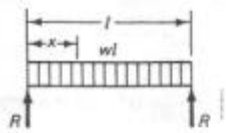
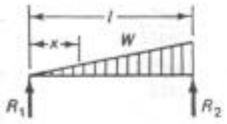
LAMPIRAN 1 PERSAMAAN LENDUTAN MAKSIMUM UNTUK BERBAGAI KONDISI TUMPUAN dan PEMBEBANAN [Nawy,2003]



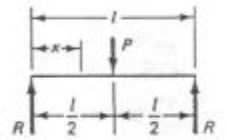
$M_x = \frac{wx}{2}(l - x)$

Δ_{max} (at center) $= \frac{5wl^4}{384EI}$



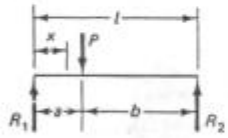
$\Delta_{max}\left(\text{at } x = l\sqrt{1 - \sqrt{\frac{8}{15}}} = 0.5193l\right) = 0.01304\,\frac{Wl^3}{EI}$

$\Delta x = \frac{Wx}{180EI\,l^2}(3x^4 - 10l^2x^2 + 7l^4)$



Δ_{max} (at point of load) $= \frac{Pl^3}{48EI}$

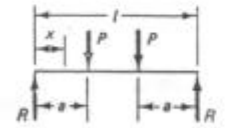
$\Delta x\left(\text{when } x < \frac{l}{2}\right) = \frac{Px}{48EI}(3l^2 - 4x^2)$



$\Delta_{max}\left(\text{at } x = \sqrt{\frac{a(a+2b)}{3}} \text{ when } a > b\right) = \frac{Pab(a+2b)\sqrt{3a(a+2b)}}{27EI\,l}$

Δa (at point of load) $= \frac{Pa^2b^2}{3EI\,l}$

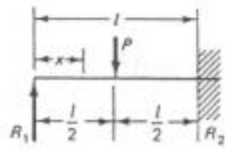
Δx (when $x < a$) $= \frac{Pbx}{6EI\,l}(l^2 - b^2 - x^2)$



Δ_{max} (at center) $= \frac{Pa}{24EI}(3l^2 - 4a^2)$

Δx (when $x < a$) $= \frac{Px}{6EI}(3la - 3a^2 - x^2)$

Δx (when $x > a$ and $< (l - a)$) $= \frac{Pa}{6EI}(3lx - 3x^2 - a^2)$

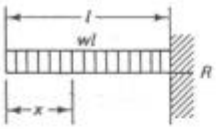


$\Delta_{max}\left(\text{at } x = l\sqrt{\frac{1}{5}} = 0.4472l\right) = \frac{Pl^3}{48EI\sqrt{5}} = 0.009317\,\frac{Pl^3}{EI}$

Δx (at point of load) $= \frac{7Pl^3}{768EI}$

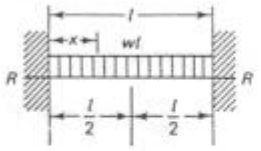
$\Delta x\left(\text{when } x < \frac{l}{2}\right) = \frac{Px}{96EI}(3l^2 - 5x^2)$

$\Delta x\left(\text{when } x > \frac{l}{2}\right) = \frac{P}{96EI}(x - l)^2(11x - 2l)$



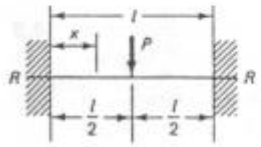
Δ_{max} (at free end) $= \frac{wl^4}{8EI}$

$\Delta x = \frac{w}{24EI}(x^4 - 4l^3x + 3l^4)$



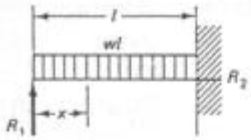
Δ_{max} (at center) $= \frac{wl^4}{384EI}$

$\Delta x = \frac{wx^2}{24EI}(l - x)^2$



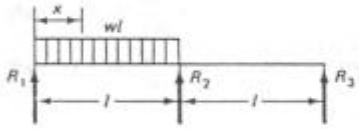
Δ_{max} (at center) $= \frac{Pl^3}{192EI}$

$\Delta x \left(\text{when } x < \frac{l}{2}\right) = \frac{Px^2}{48EI}(3l - 4x)$

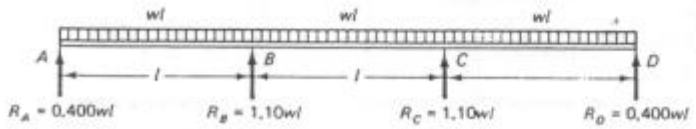


$\Delta_{max}\left(\text{at } x = \frac{l}{16}(1 + \sqrt{33}) = 0.4215l\right) = \frac{wl^4}{185EI}$

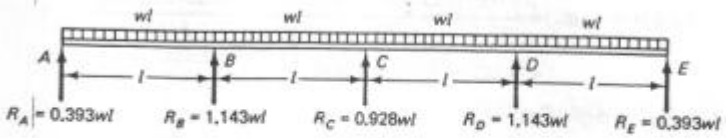
$\Delta x = \frac{wx}{48EI}(l^3 - 3lx^2 + 2x^3)$



Δ_{max} (0.472l from R_1) $= \frac{0.0092wl^4}{EI}$



Δ_{max} (0.446l from A or D) $= \frac{0.0069wl^4}{EI}$

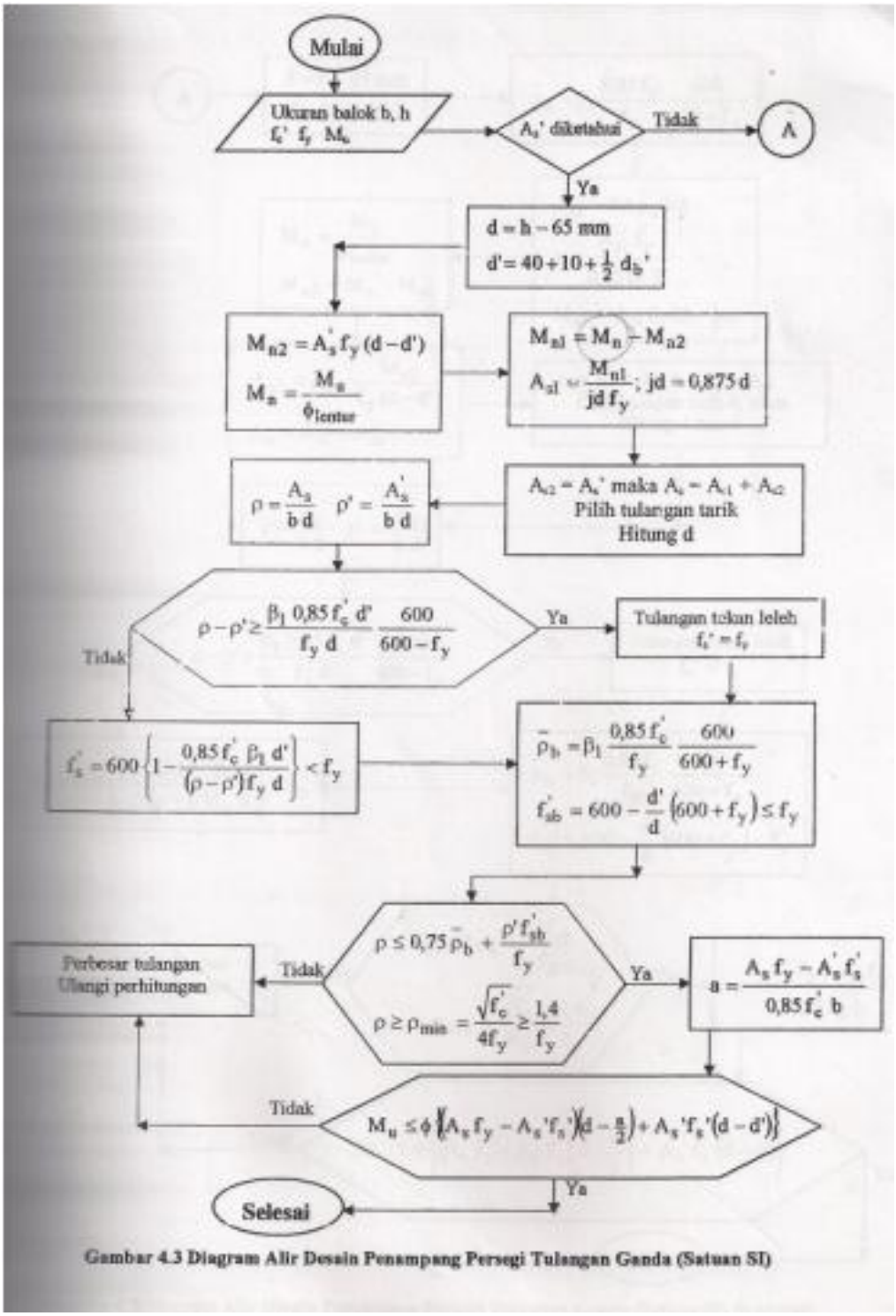


Δ_{max} (0.440l from A or E) $= \frac{0.0065wl^4}{EI}$

LAMPIRAN 2 Luas tulangan berulir dalam mm^2 [Dipohusodo,1999]

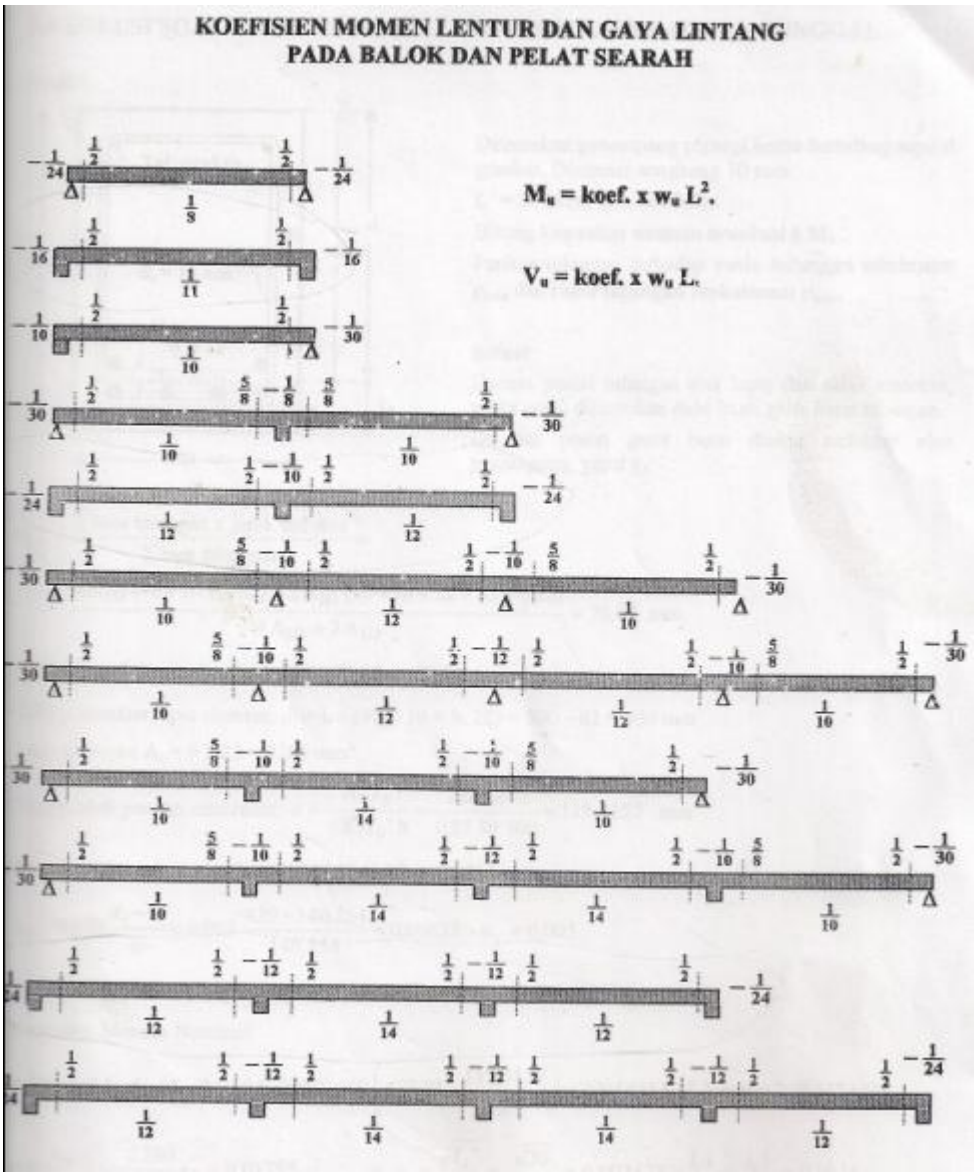
DIAMETER	Jumlah Bentang											
mm	1	2	3	4	5	6	7	8	9	10	11	12
D10	79	157	236	314	393	471	550	628	706	785	864	942
D12*	113	226	339	452	565	678	791	904	1017	1130	1244	1357
D13	133	266	398	531	664	796	929	1062	1195	1327	1460	1592
D14*	154	308	462	616	770	924	1078	1232	1386	1540	1693	1847
D16	201	402	603	804	1005	1206	1407	1608	1809	2010	2212	2413
D18*	254	509	763	1018	1272	1527	1781	2036	2290	2545	2799	3054
D19	284	568	852	1136	1420	1705	1988	2272	2556	2840	3119	3402
D22	380	760	1140	1520	1900	2280	2660	3040	3420	3800	4181	4561
D25	491	982	1473	1964	2455	2946	3437	3928	4419	4910	5400	5890
D28*	615	1232	1848	2463	3080	3696	4312	4928	5544	6160	6773	7389
D29	661	1321	1982	2642	3303	3963	4624	5284	5945	6605	7266	7926
D32	804	1608	2412	3216	4020	4826	5628	6434	7236	8042	8847	9648
D36	1018	2036	3054	4074	5090	6107	7126	8143	9162	10179	11197	12214
D40	1257	2514	3770	5027	6283	7540	8796	10053	11310	12566	13823	15080
D50	1963,5	3927	5890,5	7854	9817,5	11781	13744	15708	17672	19635	21598	23562

LAMPIRAN 3 Diagram Alir Perhitungan Tulangan Balok [Notes on ACI, 2003]



Gambar 4.3 Diagram Alir Desain Penampang Persegi Tulangan Ganda (Satuan SI)

LAMPIRAN 4 **Koefisien Momen Lentur dan Gaya Lintang Pada Balok dan Pelat Searah [Notes on ACI,2000]**



LAMPIRAN 5 Koefisien Lendutan, K [Notes on ACI, 2003]

	K
1. Cantilever (deflection due to rotation at supports not included	2,4
2. Simple beam	1
3. Continuous beams	$1,2 - 0,2\ M_o/M_a$
4. Fixed-hinged beams (midspan deflection)	0,80
5. Fixed-hinged beams (maximum deflection using maximum moment)	0,74
6. Fixed-fixed beams	0,60
For another types of loading, K values are given in ref 8.2 M_o = Simple span moment at midspan $\left(\frac{wl^2}{8}\right)$ M_a = Net midspan moment	

LAMPIRAN 6 Time Dependent Factor, ξ [Notes on ACI, 2003]

Sustained Load Duration	ξ
5 years and more	2,0
12 month	1,4
6 month	1,2
3 month	1,0