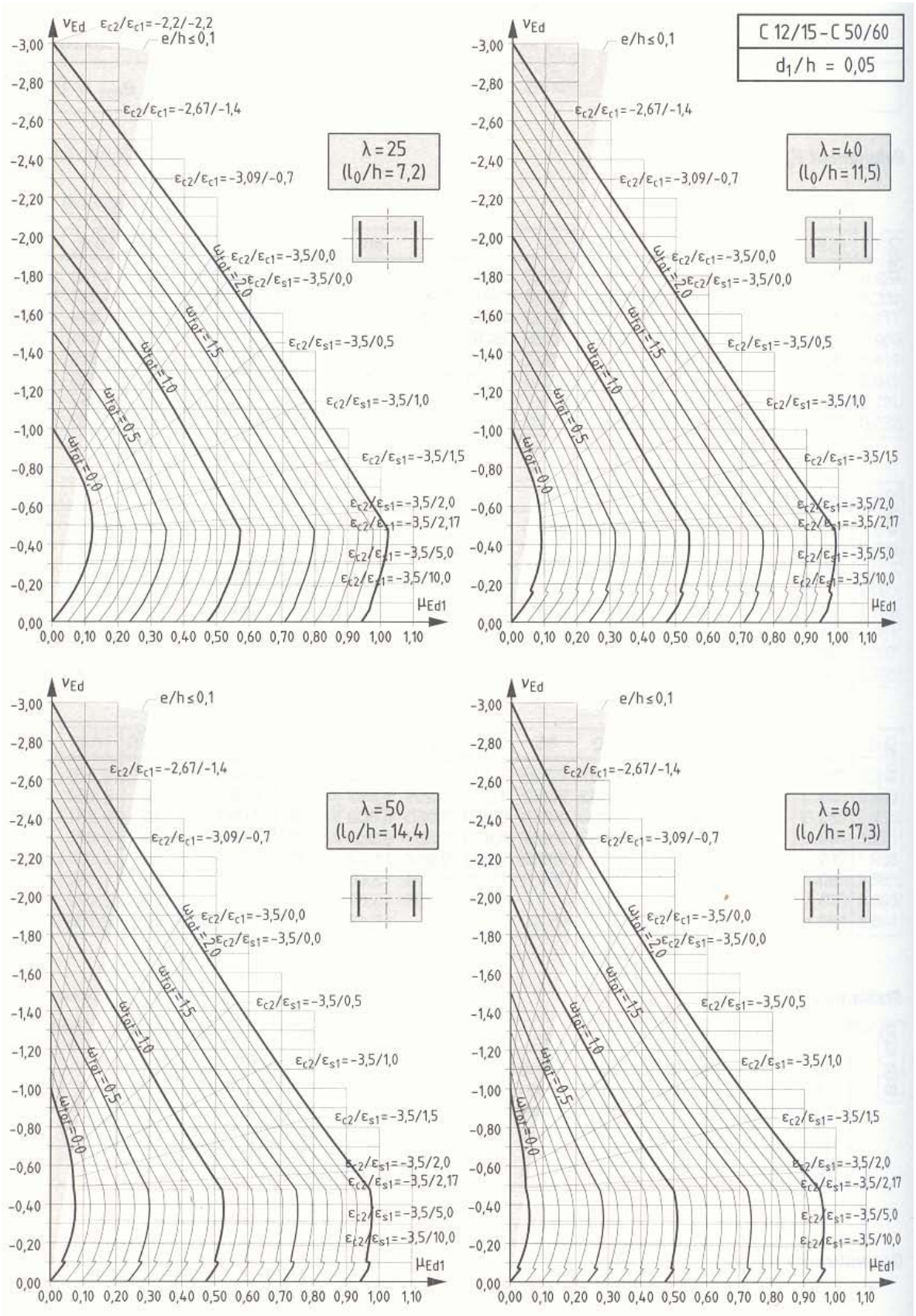
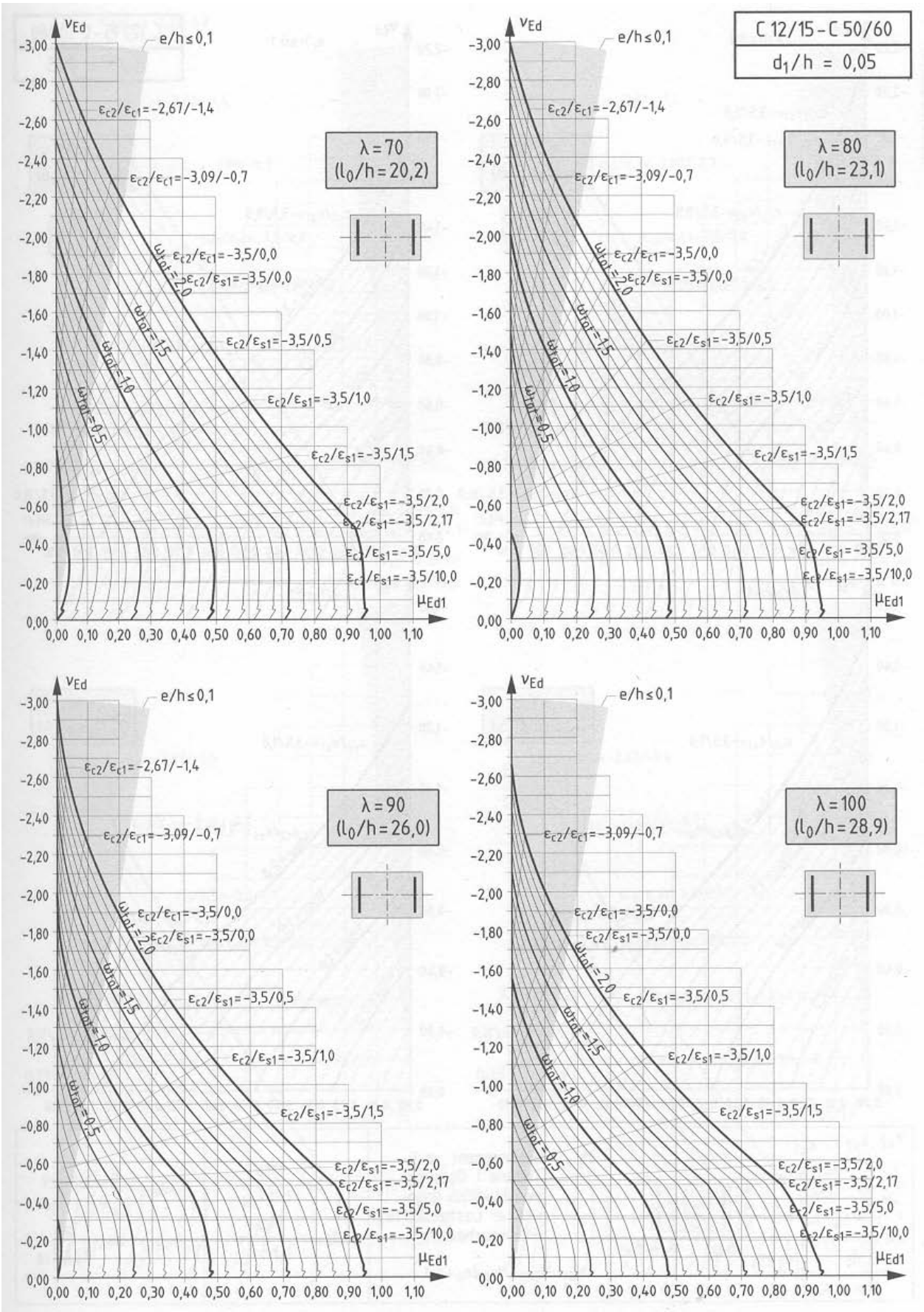
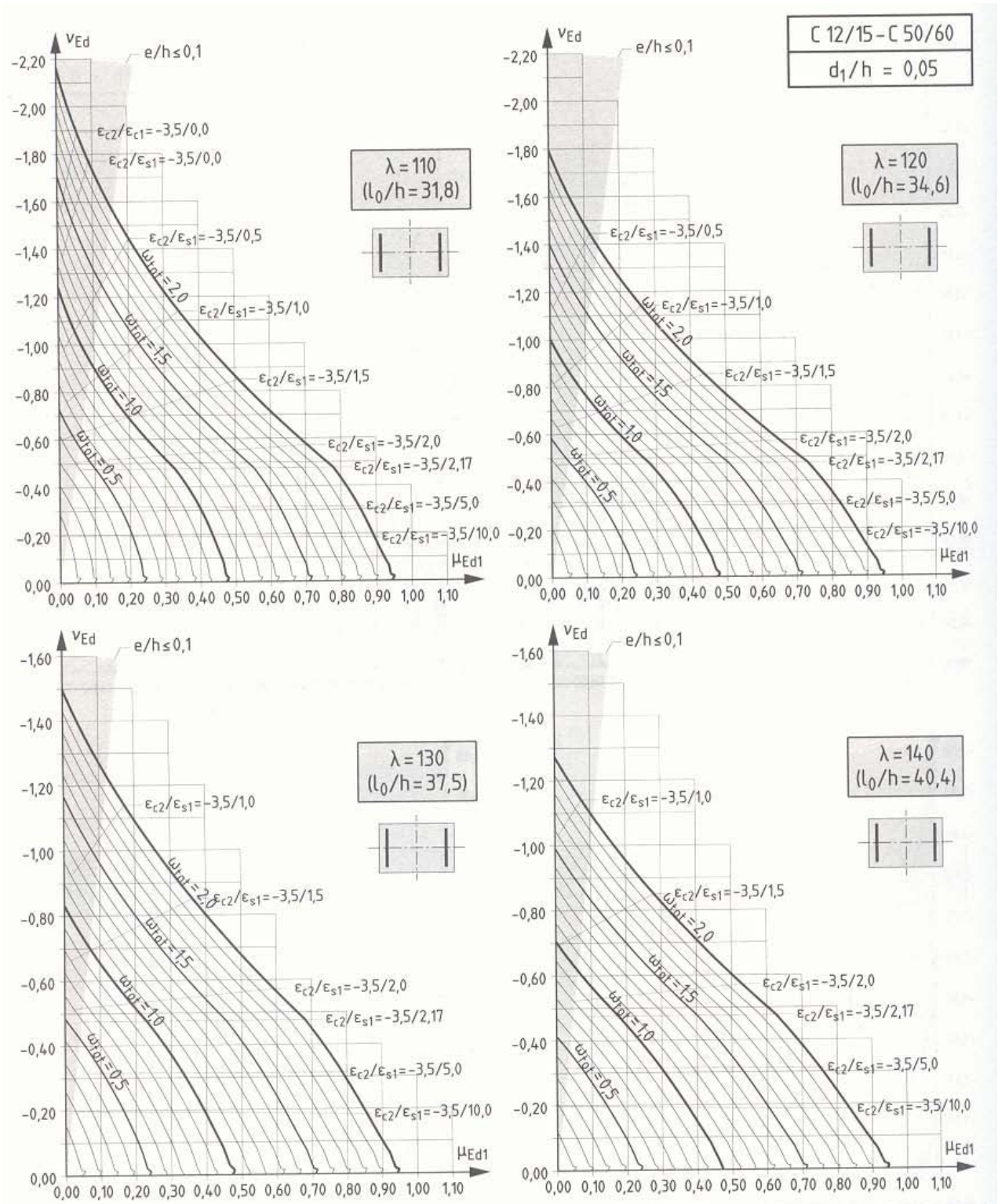
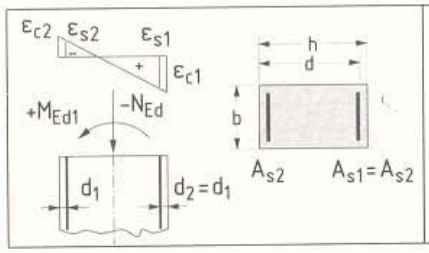
Bemessungsdiagramme für das Modellstützenverfahren




C 12/15 – C 50/60
d1/h = 0,05
λ = 70
(l0/h = 20,2)
λ = 80
(l0/h = 23,1)
λ = 90
(l0/h = 26,0)
λ = 100
(l0/h = 28,9)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1=-2,67/-1,4
εc2/εc1=-3,09/-0,7
εc2/εc1=-3,5/0,0
εc2/εs1=-3,5/0,0
εc2/εs1=-3,5/0,5
εc2/εs1=-3,5/1,0
εc2/εs1=-3,5/1,5
εc2/εs1=-3,5/2,0
εc2/εs1=-3,5/2,17
εc2/εs1=-3,5/5,0
εc2/εs1=-3,5/10,0
ωtot=2,0
ωtot=1,5
ωtot=1,0
ωtot=0,5





M_{Ed1}: Biegemoment nach Theorie I. Ordnung einschließlich ungewollter Lastausmitte und Kriechausmitte.

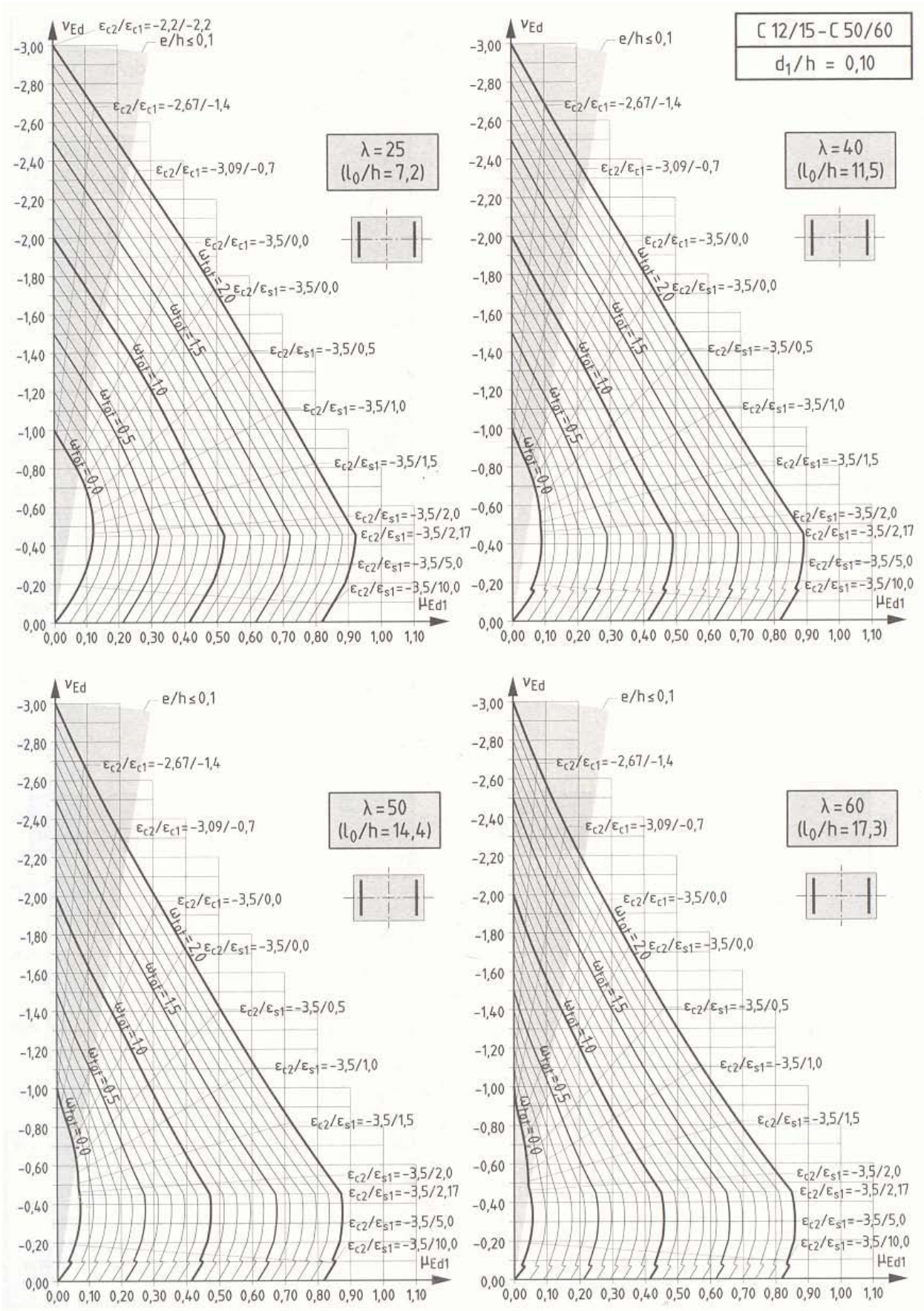
$M_{Ed1} = M_{Ed0} + N_{Ed} \cdot (e_a + e_c)$

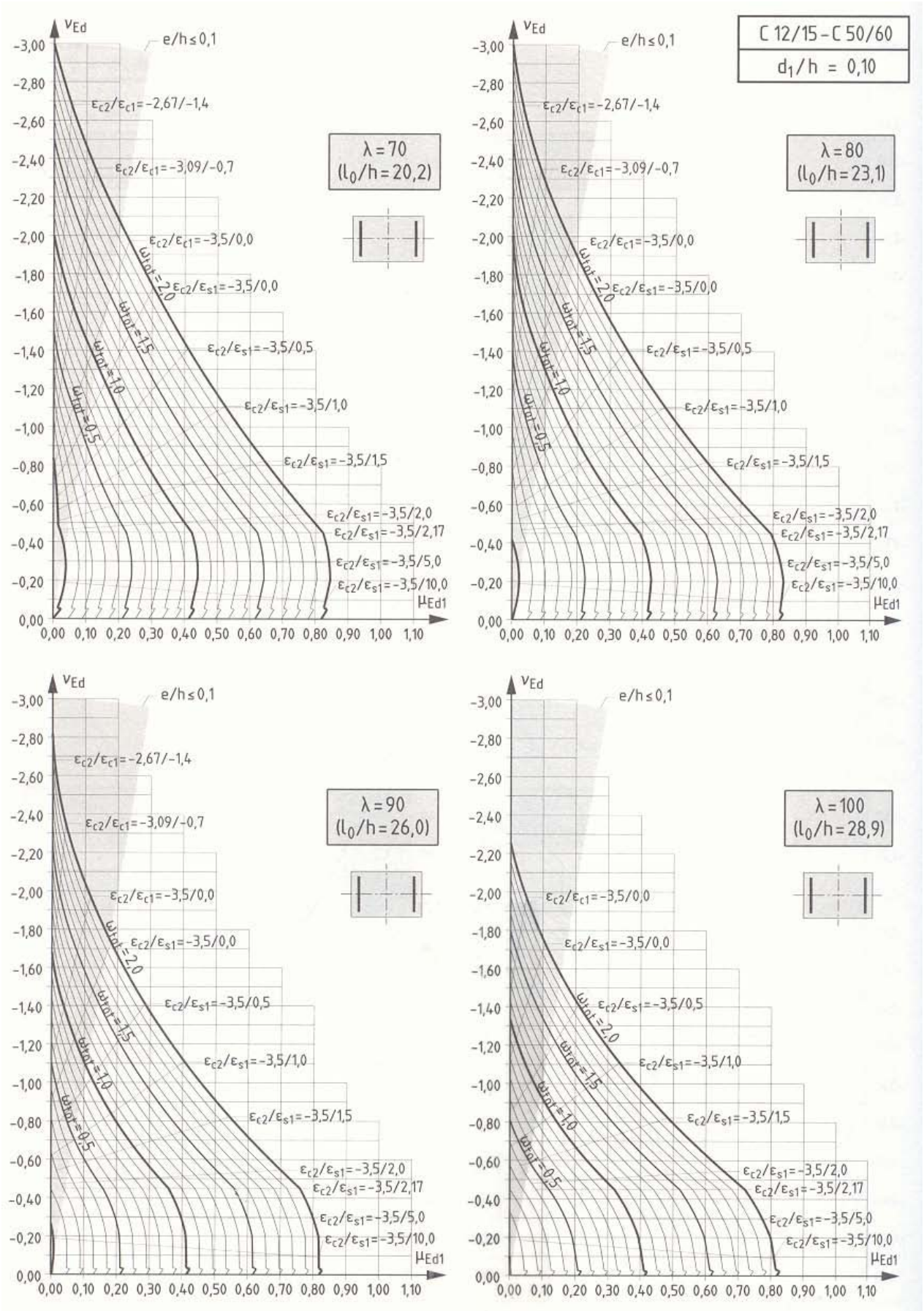
$$\nu_{Ed} = \frac{N_{Ed}}{b \cdot h \cdot f_{cd}}$$

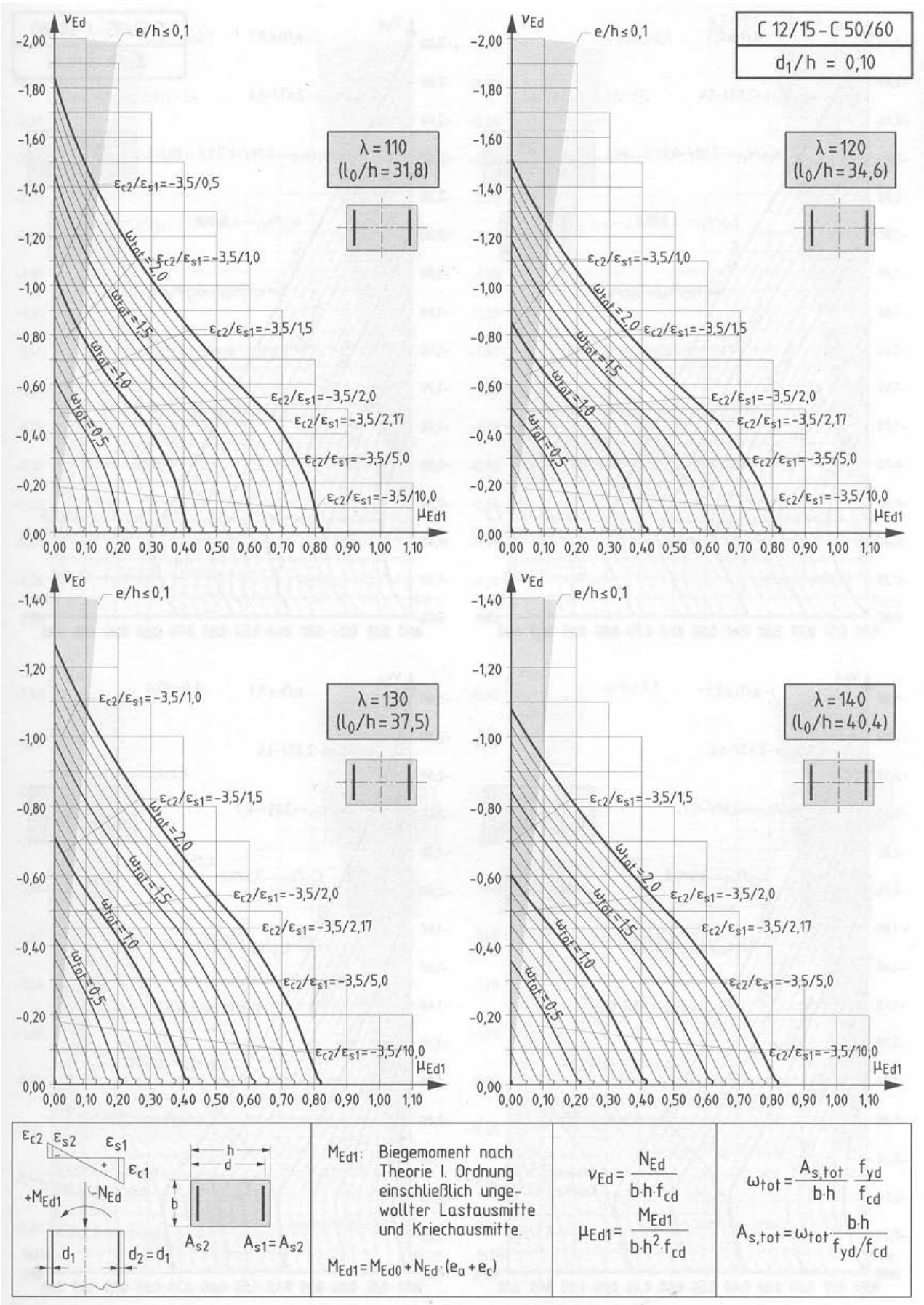
$$\mu_{Ed1} = \frac{M_{Ed1}}{b \cdot h^2 \cdot f_{cd}}$$

$$\omega_{tot} = \frac{A_{s,tot}}{b \cdot h} \cdot \frac{f_{yd}}{f_{cd}}$$

$$A_{s,tot} = \omega_{tot} \cdot \frac{b \cdot h}{f_{yd}/f_{cd}}$$


C 12/15 – C 50/60
d_1/h = 0,10
$\lambda = 25$ ($l_0/h = 7,2$)
$\lambda = 40$ ($l_0/h = 11,5$)
$\lambda = 50$ ($l_0/h = 14,4$)
$\lambda = 60$ ($l_0/h = 17,3$)
ν_{Ed}
μ_{Ed1}
e/h ≤ 0,1
$\varepsilon_{c2}/\varepsilon_{c1}$=-2,2/-2,2
$\varepsilon_{c2}/\varepsilon_{c1}$=-2,67/-1,4
$\varepsilon_{c2}/\varepsilon_{c1}$=-3,09/-0,7
$\varepsilon_{c2}/\varepsilon_{c1}$=-3,5/0,0
ω_{tot}=2,0 $\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/0,0
ω_{tot}=1,5
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/0,5
ω_{tot}=1,0
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/1,0
ω_{tot}=0,5
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/1,5
ω_{tot}=0,0
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/2,0
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/2,17
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/5,0
$\varepsilon_{c2}/\varepsilon_{s1}$=-3,5/10,0
-3,00 -2,80 -2,60 -2,40 -2,20 -2,00 -1,80 -1,60 -1,40 -1,20 -1,00 -0,80 -0,60 -0,40 -0,20 0,00
0,00 0,10 0,20 0,30 0,40 0,50 0,60 0,70 0,80 0,90 1,00 1,10


C 12/15 – C 50/60
d1/h = 0,10
λ = 70
(l0/h = 20,2)
λ = 80
(l0/h = 23,1)
λ = 90
(l0/h = 26,0)
λ = 100
(l0/h = 28,9)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1=-2,67/-1,4
εc2/εc1=-3,09/-0,7
εc2/εc1=-3,5/0,0
εc2/εs1=-3,5/0,0
εc2/εs1=-3,5/0,5
εc2/εs1=-3,5/1,0
εc2/εs1=-3,5/1,5
εc2/εs1=-3,5/2,0
εc2/εs1=-3,5/2,17
εc2/εs1=-3,5/5,0
εc2/εs1=-3,5/10,0
ωtot=2,0
ωtot=1,5
ωtot=1,0
ωtot=0,5



M_{Ed1}: Biegemoment nach Theorie I. Ordnung einschließlich ungewollter Lastausmitte und Kriechausmitte.

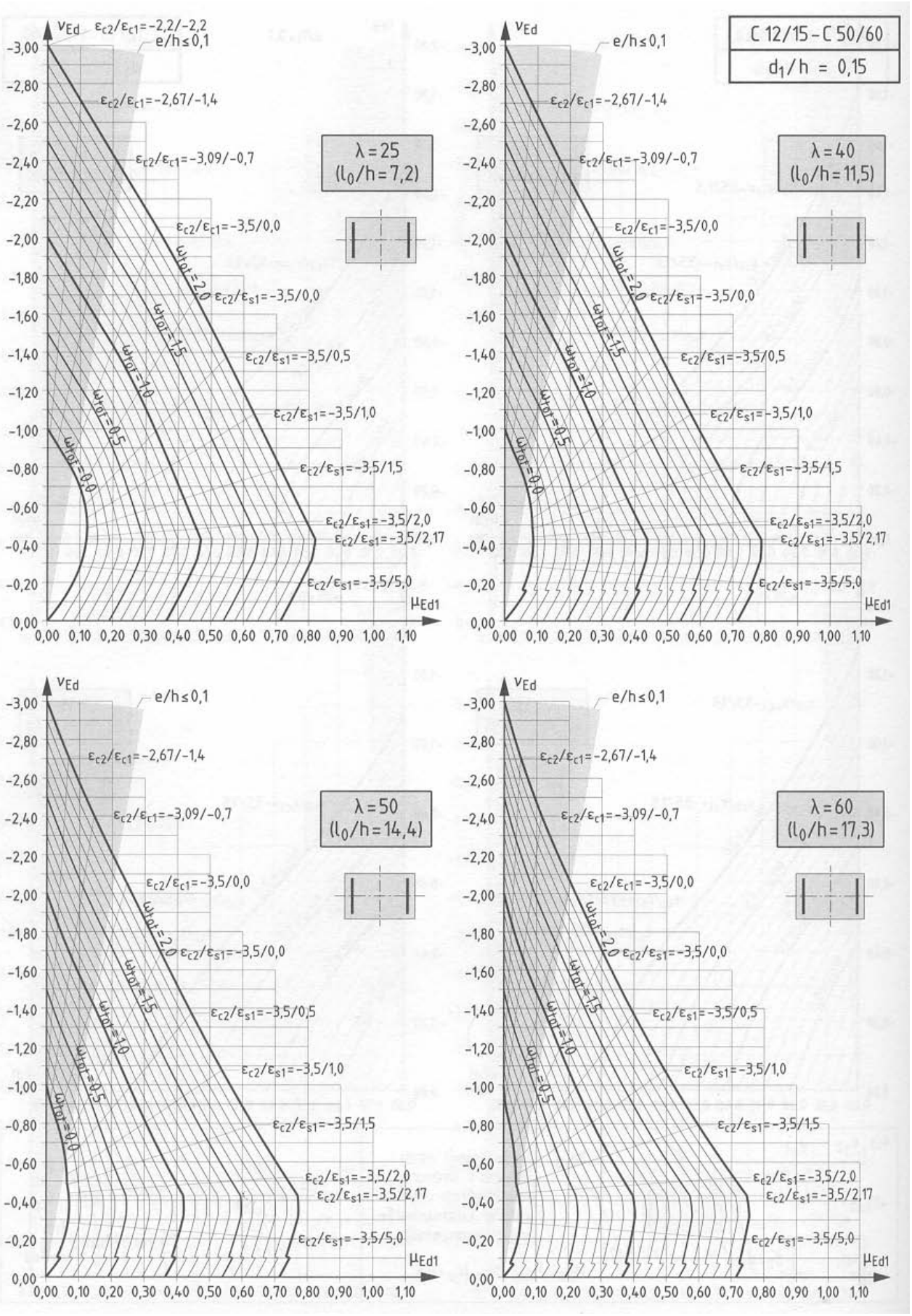
$$M_{Ed1} = M_{Ed0} + N_{Ed} \cdot (e_a + e_c)$$

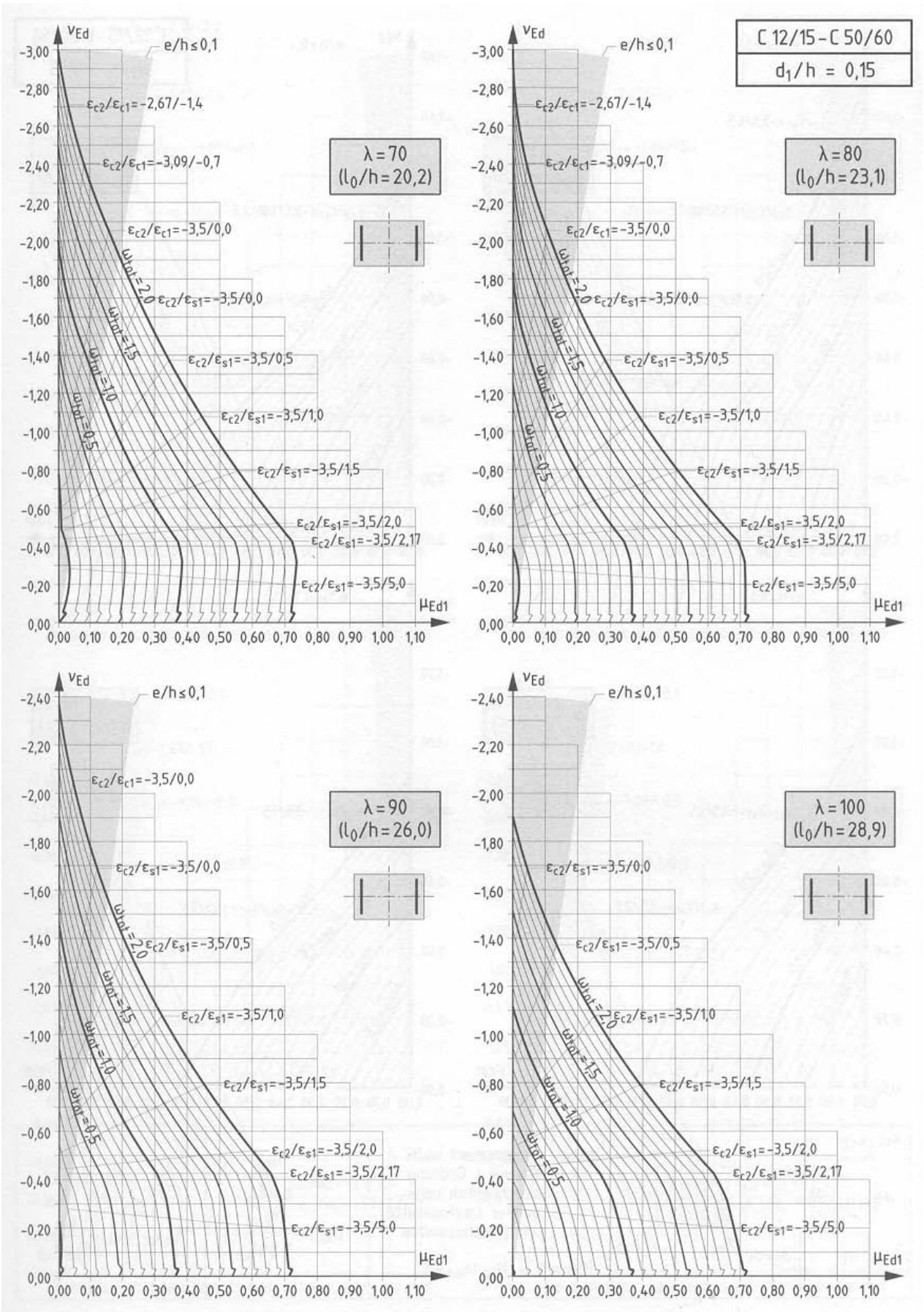
$$\nu_{Ed} = \frac{N_{Ed}}{b \cdot h \cdot f_{cd}}$$

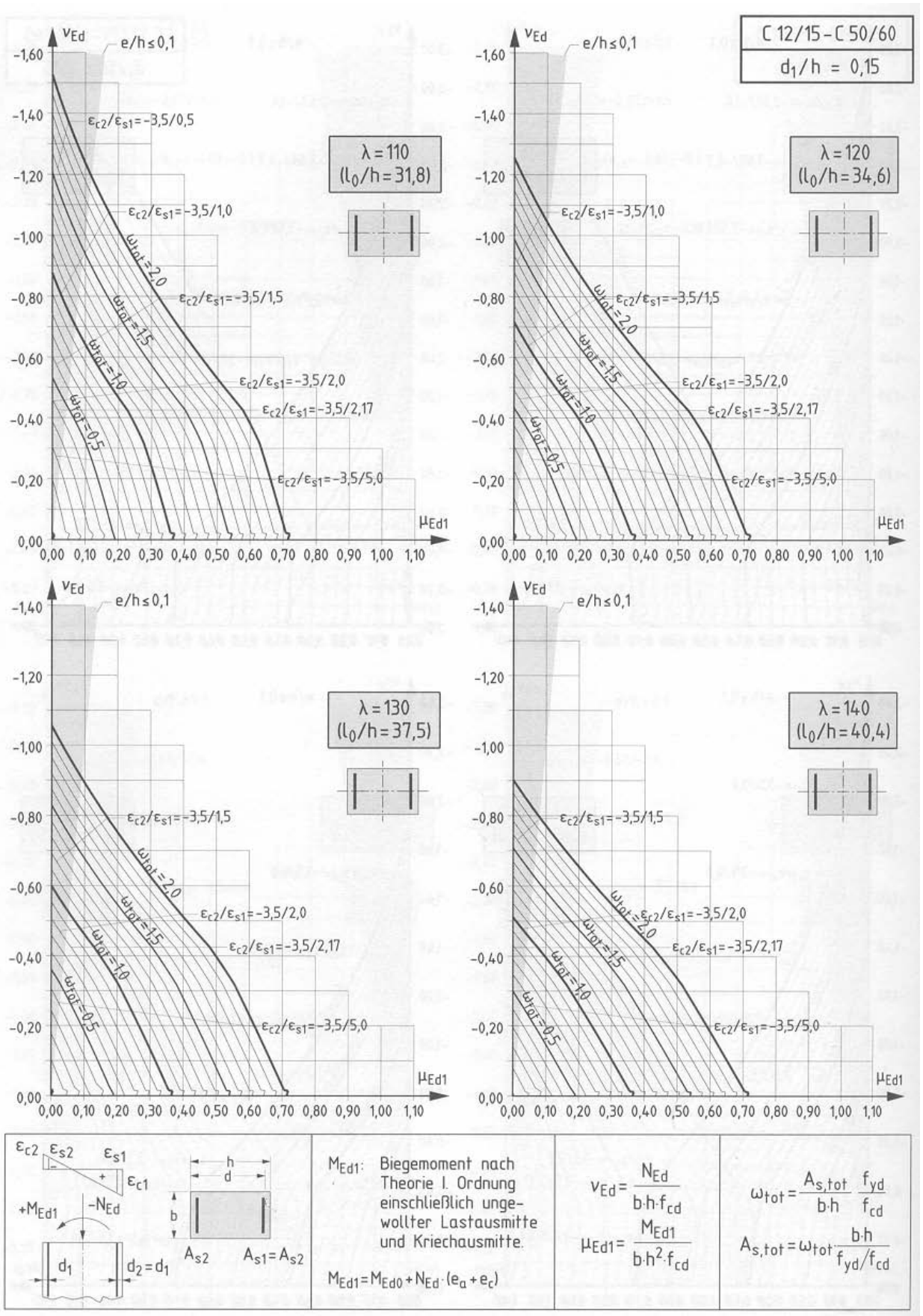
$$\mu_{Ed1} = \frac{M_{Ed1}}{b \cdot h^2 \cdot f_{cd}}$$

$$\omega_{tot} = \frac{A_{s,tot}}{b \cdot h} \cdot \frac{f_{yd}}{f_{cd}}$$

$$A_{s,tot} = \omega_{tot} \cdot \frac{b \cdot h}{f_{yd}/f_{cd}}$$


C 12/15 – C 50/60
d1/h = 0,15
λ = 25 (l0/h = 7,2)
λ = 40 (l0/h = 11,5)
λ = 50 (l0/h = 14,4)
λ = 60 (l0/h = 17,3)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1 = -2,2/-2,2
εc2/εc1 = -2,67/-1,4
εc2/εc1 = -3,09/-0,7
εc2/εc1 = -3,5/0,0
εc2/εs1 = -3,5/0,0
εc2/εs1 = -3,5/0,5
εc2/εs1 = -3,5/1,0
εc2/εs1 = -3,5/1,5
εc2/εs1 = -3,5/2,0
εc2/εs1 = -3,5/2,17
εc2/εs1 = -3,5/5,0
ωtot = 2,0
ωtot = 1,5
ωtot = 1,0
ωtot = 0,5
ωtot = 0,0


C 12/15 – C 50/60
d1/h = 0,15
λ = 70
(l0/h = 20,2)
λ = 80
(l0/h = 23,1)
λ = 90
(l0/h = 26,0)
λ = 100
(l0/h = 28,9)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1=-2,67/-1,4
εc2/εc1=-3,09/-0,7
εc2/εc1=-3,5/0,0
εc2/εs1=-3,5/0,0
εc2/εs1=-3,5/0,5
εc2/εs1=-3,5/1,0
εc2/εs1=-3,5/1,5
εc2/εs1=-3,5/2,0
εc2/εs1=-3,5/2,17
εc2/εs1=-3,5/5,0
ωtot=2,0
ωtot=1,5
ωtot=1,0
ωtot=0,5



M_{Ed1}: Biegemoment nach Theorie I. Ordnung einschließlich ungewollter Lastausmitte und Kriechausmitte.

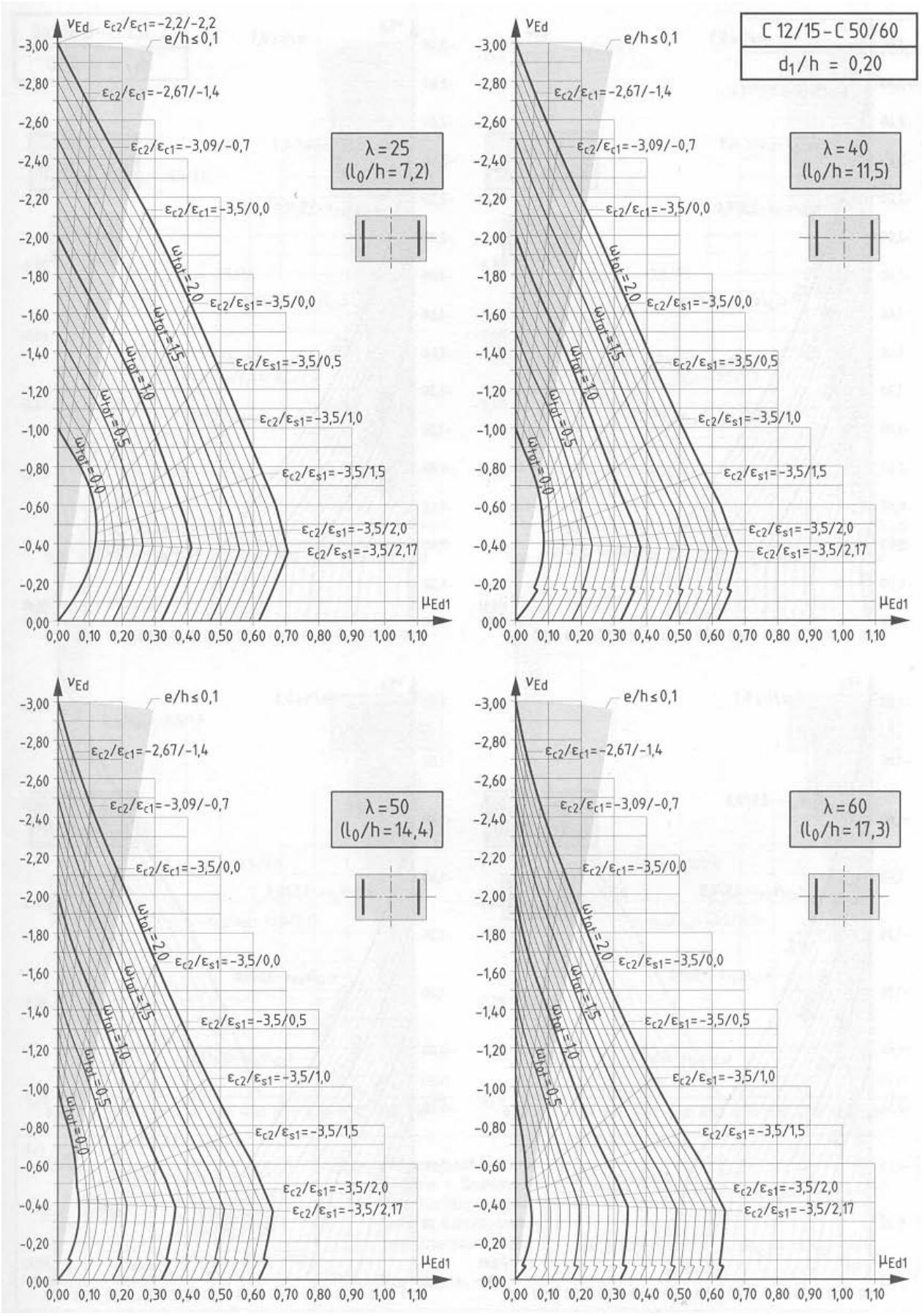
$$M_{Ed1} = M_{Ed0} + N_{Ed} \cdot (e_a + e_c)$$

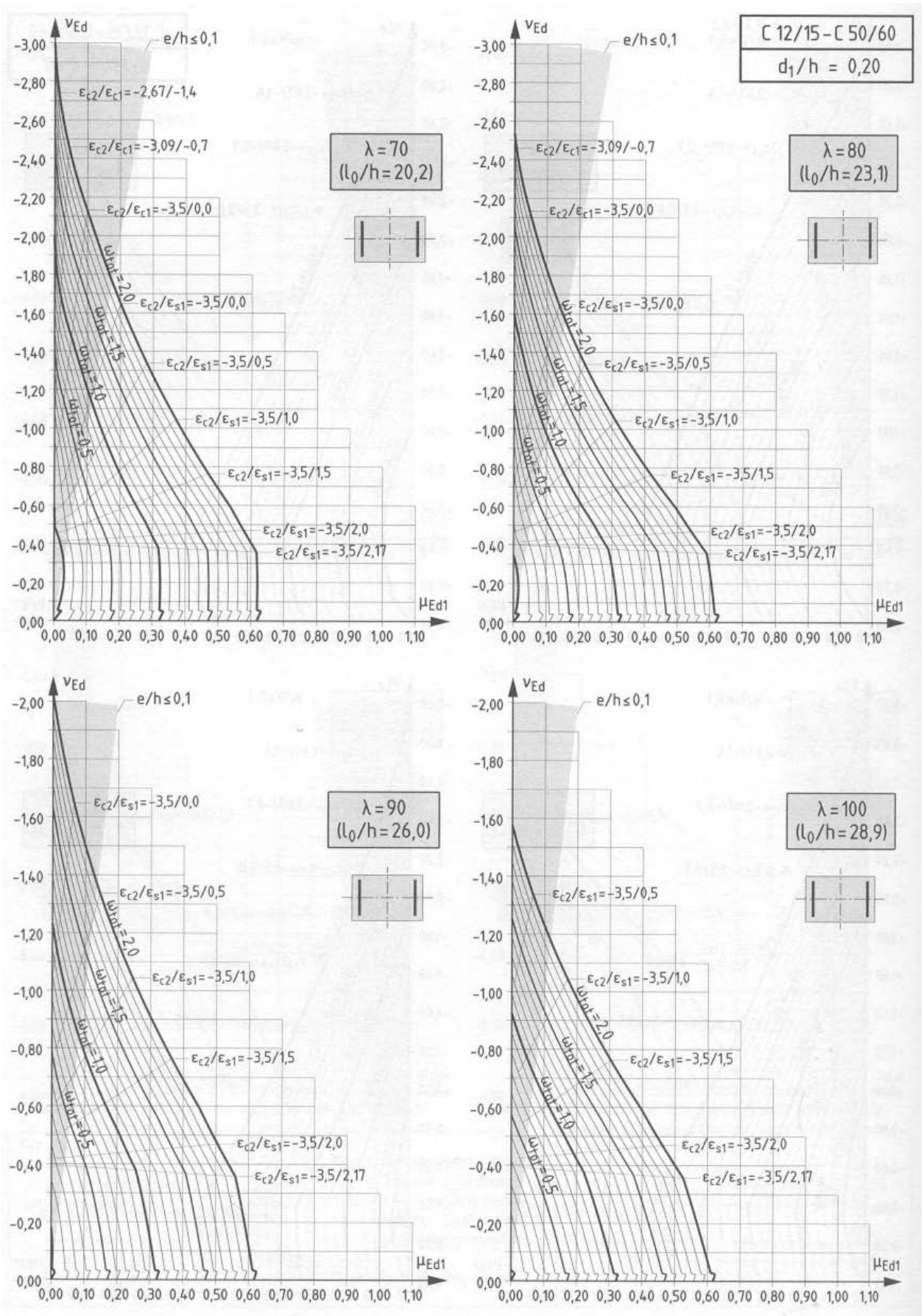
$$\nu_{Ed} = \frac{N_{Ed}}{b \cdot h \cdot f_{cd}}$$

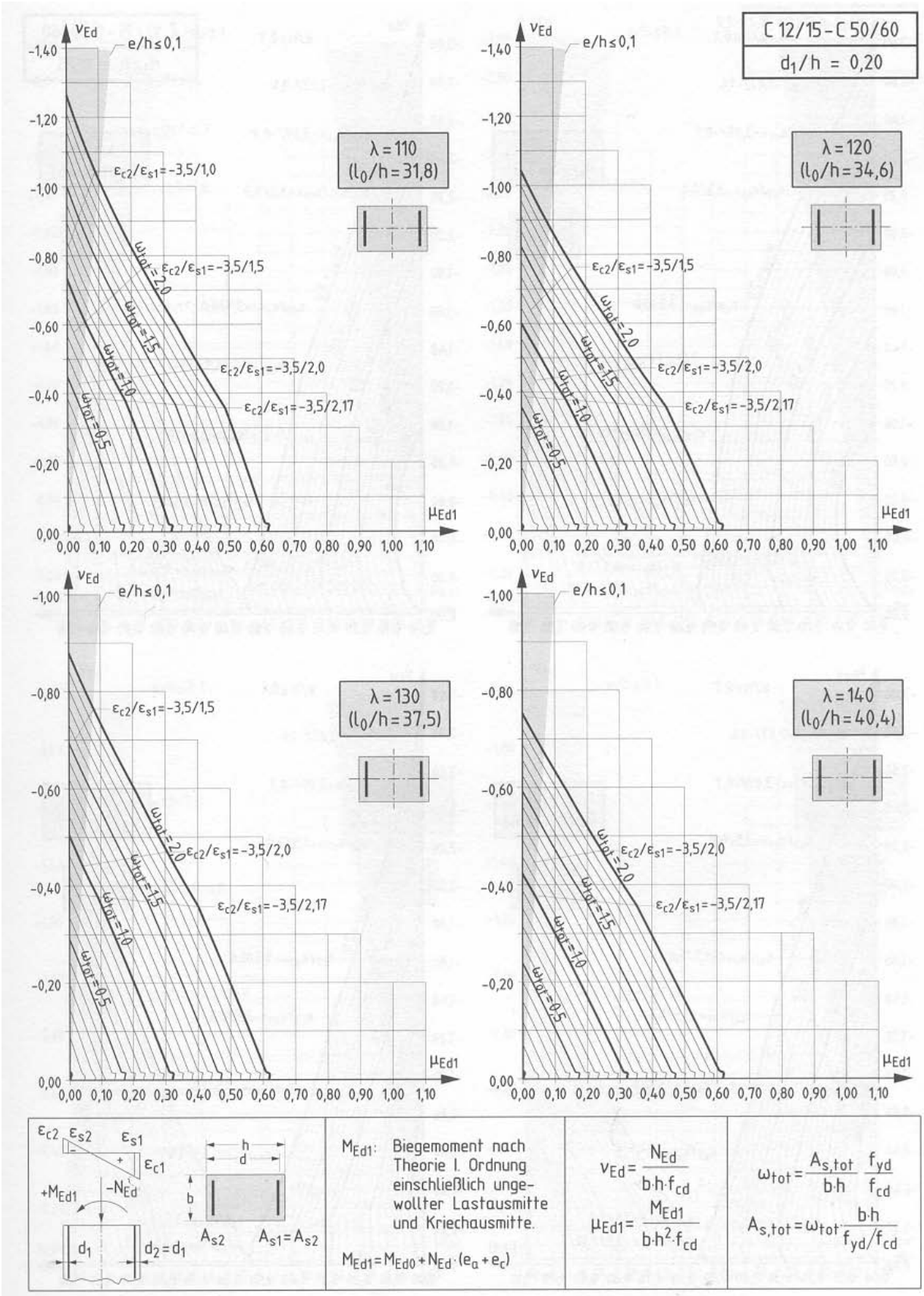
$$\mu_{Ed1} = \frac{M_{Ed1}}{b \cdot h^2 \cdot f_{cd}}$$

$$\omega_{tot} = \frac{A_{s,tot}}{b \cdot h} \cdot \frac{f_{yd}}{f_{cd}}$$

$$A_{s,tot} = \omega_{tot} \cdot \frac{b \cdot h}{f_{yd}/f_{cd}}$$


C 12/15 – C 50/60
d1/h = 0,20
λ = 25
(l0/h = 7,2)
λ = 40
(l0/h = 11,5)
λ = 50
(l0/h = 14,4)
λ = 60
(l0/h = 17,3)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1 = -2,2/-2,2
εc2/εc1 = -2,67/-1,4
εc2/εc1 = -3,09/-0,7
εc2/εc1 = -3,5/0,0
εc2/εs1 = -3,5/0,0
εc2/εs1 = -3,5/0,5
εc2/εs1 = -3,5/1,0
εc2/εs1 = -3,5/1,5
εc2/εs1 = -3,5/2,0
εc2/εs1 = -3,5/2,17
ωtot = 2,0
ωtot = 1,5
ωtot = 1,0
ωtot = 0,5
ωtot = 0,0


C 12/15 – C 50/60
d1/h = 0,20
λ = 70
(l0/h = 20,2)
λ = 80
(l0/h = 23,1)
λ = 90
(l0/h = 26,0)
λ = 100
(l0/h = 28,9)
νEd
μEd1
e/h ≤ 0,1
εc2/εc1 = -2,67/-1,4
εc2/εc1 = -3,09/-0,7
εc2/εc1 = -3,5/0,0
εc2/εs1 = -3,5/0,0
εc2/εs1 = -3,5/0,5
εc2/εs1 = -3,5/1,0
εc2/εs1 = -3,5/1,5
εc2/εs1 = -3,5/2,0
εc2/εs1 = -3,5/2,17
ωtot = 2,0
ωtot = 1,5
ωtot = 1,0
ωtot = 0,5


C 12/15 – C 50/60
d1/h = 0,20
λ = 110 (l0/h = 31,8)
λ = 120 (l0/h = 34,6)
λ = 130 (l0/h = 37,5)
λ = 140 (l0/h = 40,4)
νEd
μEd1
e/h ≤ 0,1
εc2/εs1 = -3,5/1,0
εc2/εs1 = -3,5/1,5
εc2/εs1 = -3,5/2,0
εc2/εs1 = -3,5/2,17
ωtot = 2,0
ωtot = 1,5
ωtot = 1,0
ωtot = 0,5
εc2 εs2 εs1 εc1
+MEd1 -NEd
h d b
As2 As1 = As2
d1 d2 = d1
MEd1: Biegemoment nach Theorie I. Ordnung einschließlich ungewollter Lastausmitte und Kriechausmitte.
MEd1 = MEd0 + NEd · (ea + ec)
νEd = NEd / (b·h·fcd)
μEd1 = MEd1 / (b·h²·fcd)
ωtot = As,tot/(b·h) · fyd/fcd
As,tot = ωtot · b·h/(fyd/fcd)